4047

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

1/133

1963 SPECIFICATIONS

OTT. 2-16.48

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
OTT. 2-16.48
OTTAWA COUNTY
ERIE & BAY TOWNSHIPS
GRADE SEPARATION WITH THE NEW YORK CENTRAL RAILROAD CO.

NOTE: Federal Project designations appearing throughout these plans shall be disregarded.

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway from Station 35+02.21 to Station 181+00 by action of the Director of Highways in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

The Standard Specifications of the State of Ohio, Department of Highways, including changes and Supplemental Specifications listed in the proposal shall govern this improvement.

The right of way for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on these plans and estimates.

Approved Date MAR 8, 1963 — Thomas M Major, Division Deputy Director

Approved Date 5-6-65 — C. H. Altvater, Engineer of Bridges

Approved Date 5-7-65 — R. N. Richetts, Engineer of Location and Design

Approved Date 5-7-65 — W. E. Schulz, Deputy Director of Design and Construction

Approved Date 4-21-65 — T. H. Bowne, Deputy Director of Right of Way

Approved Date 5-13-65 — F. W. Wilson, Deputy Director of Planning and Programming

Approved Date _____ — _____, First Assistant Director

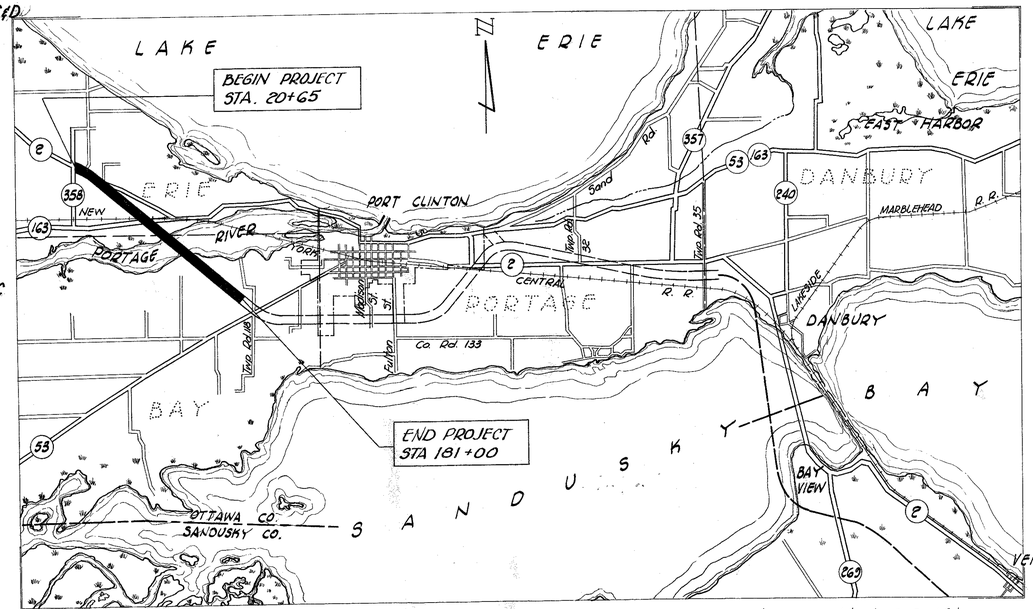
Approved Date 5/13/65 — P. O. Masheter, Director of Highways

CONVENTIONAL SIGNS

- Township Line
- Corporation Line
- Fence Line
- Guard Rail (existing)
- Guard Rail (proposed)
- Railroad
- Power Poles
- Telephone Poles
- Trees or Stumps
- Property Line
- Right of Way with Limited Access (LA R/W)
- Right of Way without Limited Access (R/W)
- Existing Right of Way
- Limited Access (LA)

INDEX OF SHEETS

Sheet No. 114 revised 10-28-65
Sheets No. 106, 107, 109, and 112 revised, Sheet No. 112A added 1-27-67 J.L.R.



Delivery Point: N.Y.C. R.R. at S.R. 163

Average Haul: 0.8 Miles

LOCATION MAP

SCALE IN MILES 0 1 2 3

Portion to be improved
State Roads
Other Roads

SURVEY AND PLANS BY
SANZENBACHER, MILLER AND BRIGHAM
TOLEDO, OHIO

Plan
Profile: Horizontal 0 20 40 60 80 100
Profile: Vertical 0 2 4 6 8 10
Cross Section 0 4 8 12 16 20

LINE DATA

Length of Project
Sta. 20+65 to 181+00
Total Length of Project = 16035.00 Lin. Ft. or 3.036 Miles

Length of Work
Exist. S.R.2 Relocation = 385.39
Length of Project (from above) = 16,035.00 Lin. Ft.
East approach, Sta. 181+00 to 182+00 = 100.00 Lin. Ft.
Total Length of Work = 16,520.39 Lin. Ft. or 3.128 Miles

STANDARD CONSTRUCTION DRAWINGS

AS-1-54	7-5-62	L-3	4-1-50	I-1	11-15-60	HW-E	2-1-63	F-1	2-1-63
LB-1-55	2-2-59	L-3A	4-1-50	I-8 C.B. 22A&B	2-1-63	I-1C	2-1-63	I-5B-1-62	A-19-60
AR-1-57	4-2-62	RP-1	9-1-64	I-8 C.B. 23&24	2-1-63	I-1S No.1	11-15-60	I-8 M.H. No. 1-A	2-1-63
		T-35	1-2-56	I-8 C.B. No. 3A	2-1-63	I-1S No. 2A	8-17-60	SD-1-63 Sht. 2,3,4	11-22-63
F-2	2-1-63	B-T-10.11	11-15-60	I-8 C.B. No. 6	2-1-63	I-1S No. 4	12-1-54	SD-2-64	11-25-64
F-3	2-1-63	B-F-11R	3-2-53	I-8 M.H. No. 1	2-1-63	I-2I-23	8-1-56		
DR-1	1-3-55	L-1 No. 1	7-1-55	I-8 I. No. 2	2-1-63	G-7.07	4-1-64		
L-1	4-1-50	L-1	9-12-60	I-8 I. No. 2A	2-1-63				

SUPPLEMENTAL SPECIFICATIONS

S-101	7-12-62		
I-125	R. 6-26-61		
I-127	R. 1-15-62		
M-107.18	R-4-3-61		
S-307	10-1-64	I-212	R. 6-23-61
CE-101.04	5-22-56	M-106.11	1-26-61
B-11E	8-21-61		
T-335	10-20-63		

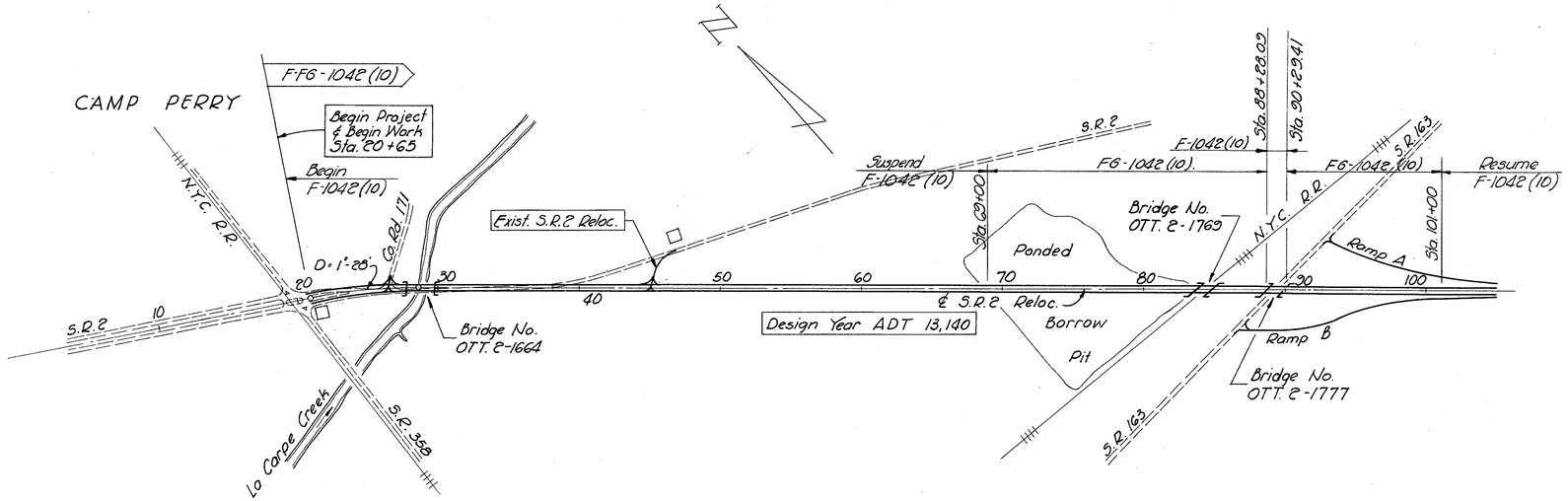
FILE NO. OTT 2-16.48
Date of Letting _____ 196 ____
Contract No. _____

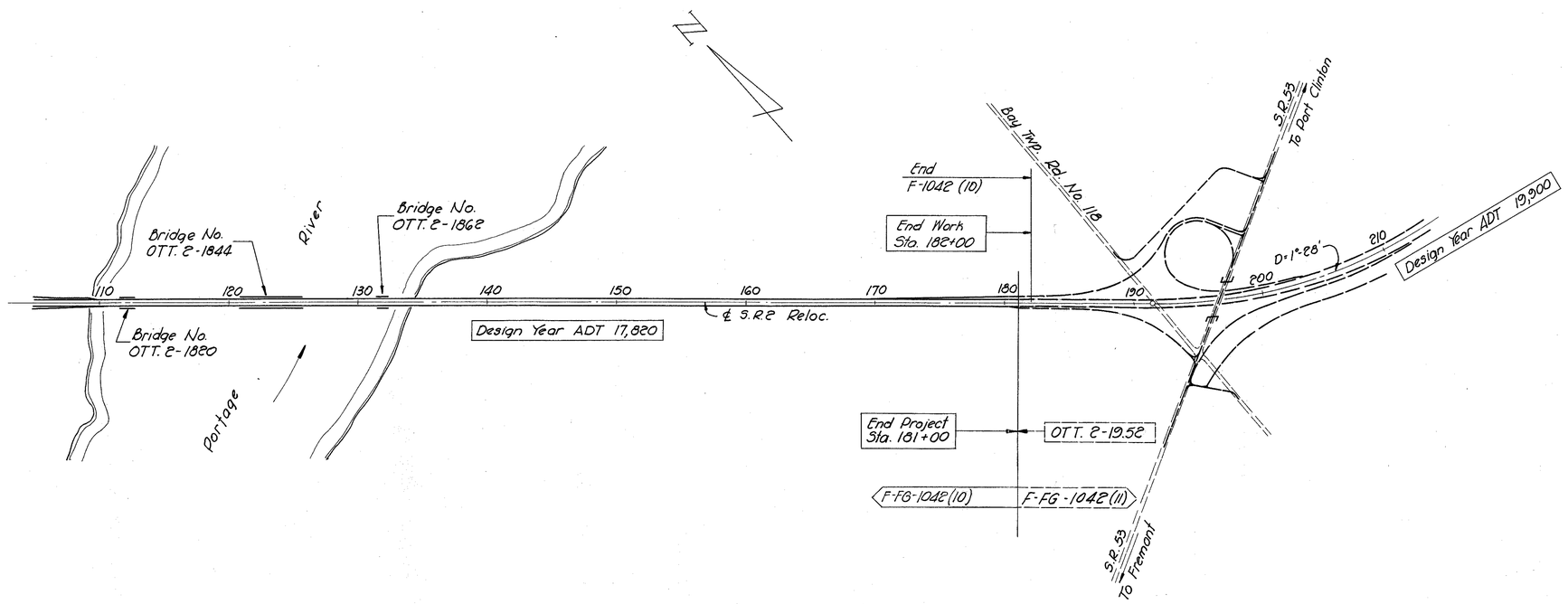
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

2/133

OTT. 2-16.48

SCHEMATIC PLAN





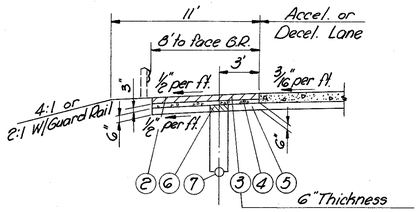
TYPICAL SECTIONS

TYPE T-71

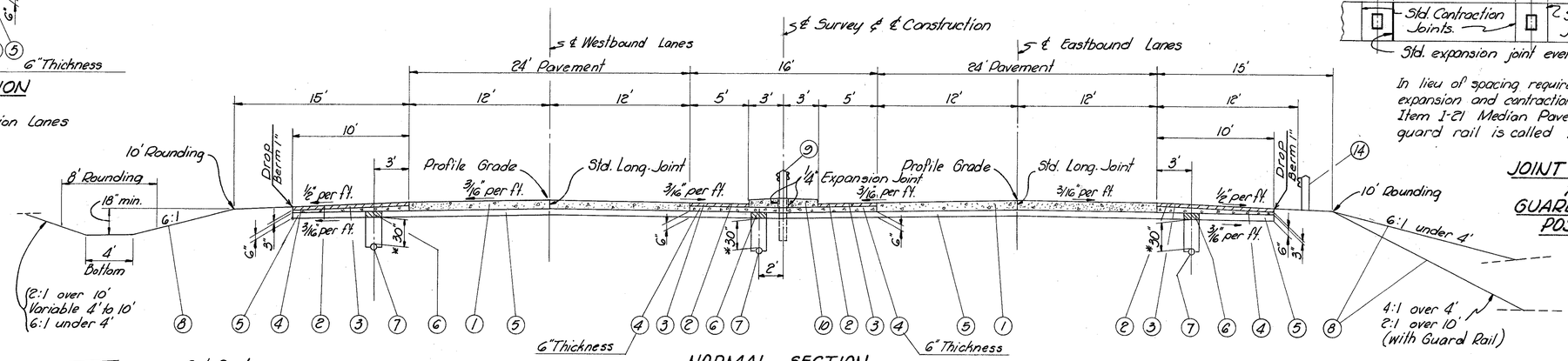
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

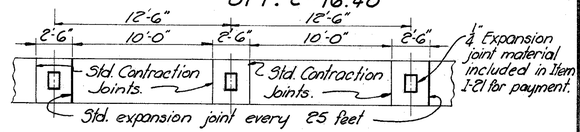
3/133

OTT. 2-16.48



TYPICAL SECTION
for
Acceleration & Deceleration Lanes



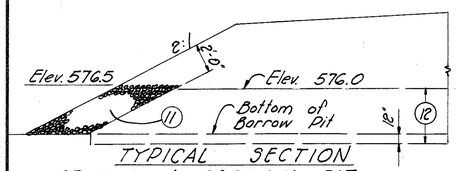


In lieu of spacing requirements of Standard Drawing I-21-23, expansion and contraction joints shall be provided in Item I-21 Median Pavement, as detailed hereon, whenever guard rail is called for.

JOINT DETAIL AT GUARD RAIL POSTS

Fill Section

Cut Section
(For Deep Roadway Ditch see section at lower right)



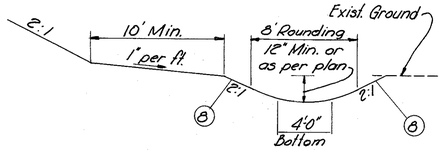
TYPICAL SECTION
OF FILL IN BORROW PIT

This Section Applies:
Sta. 68+15 to Sta. 79+80 Lt.
Sta. 69+30 to Sta. 82+20 Rt.

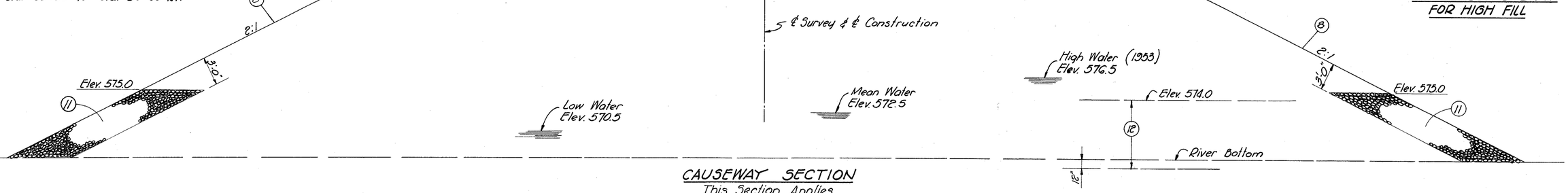
NORMAL SECTION

This Section Applies:

Sta. 55+00.00	to Sta. 82+96.73	= 2796.73	Lin. Ft.
Sta. 85+75.05	to Sta. 88+03.09	= 228.04	Lin. Ft.
Sta. 90+54.41	to Sta. 109+10	= 1855.59	Lin. Ft.
Sta. 134+40	to Sta. 181+00	= 4660.00	Lin. Ft.
	Total	= 9,540.36	Lin. Ft.



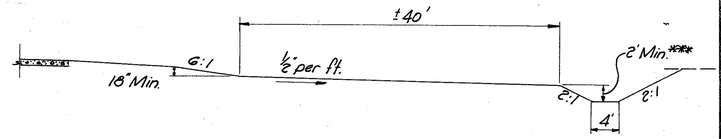
TOE OF SLOPE DITCH
FOR HIGH FILL



CAUSEWAY SECTION

This Section Applies

Sta. 109+10	to Sta. 110+74.00	= 164.00	Lin. Ft.
Sta. 111+46.00	to Sta. 121+20.75	= 974.75	Lin. Ft.
Sta. 126+79.25	to Sta. 134+40	= 760.75	Lin. Ft.
	Total	= 1899.50	Lin. Ft.



TYPICAL SECTION FOR DEEP ROADWAY DITCH
Scale: 1"=10'

*** Where 2' Min. depth cannot be attained use typical section as shown at above left.

LEGEND

(1)	T-71	9" Reinforced Portland Cement Concrete Pavement
(2)	T-31	Bituminous Surface Treatment using 0.008 Cubic Yard No. 6 Aggregate and 0.25 Gallon Bituminous Material per Square Yard (See Note in Proposal)
(3)	ǂ B-21	Waterproofed Aggregate Base Course, 3" thickness, except as noted (Type "A" T-335 or T-35 Material may be used in construction of this course-See Note in Proposal)
(4)	B-112	Porous Base Course (Thickness as shown)
(5)	I-22	Subbase, Grading A or B, as per Plan (Thickness as shown)
(6)		Remove Subbase for width of Item I-1 trench and replace with new Type 3 backfill material immediately prior to placing the Item B-112 Porous Base Course. Cost shall be included in price bid per lin. ft. for Item I-1, Class I-3 Pipe. (See Note on Sheet 7)
(7)	I-1	6" Pipe Underdrains, Class I-3
(8)	L-9	Seeding and Protecting
(9)	I-15	Guard Rail, Steel Beam Barrier Type (Deep). Guard rail posts shall be 6"x8" square sawed creosote pressure treated.
(10)	I-21	Portland Cement Concrete Median Pavement, Standard Type 2
(11)	I-10	Dumped Rock Fill, Type A as per plan. See General Notes (Construct to Elevation & Thickness as shown).
(12)	E-4	Borrow, Granular Material, as per plan.
(14)	I-15	Guard Rail, Steel Beam Standard Type (Deep).

* Except as otherwise shown on cross sections by flowline elevations.

ǂ Thickness shown is design thickness as indicated in Sec. B-21.01.

Design Speed = 70 M.P.H.

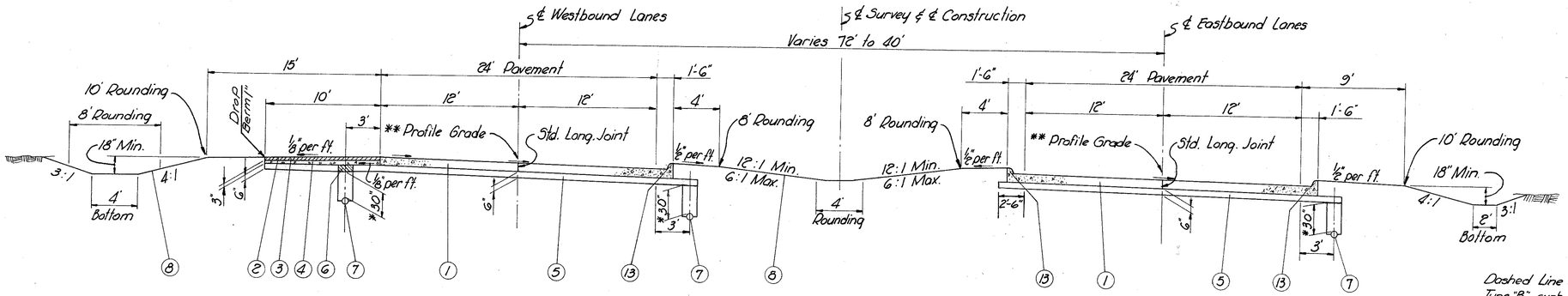
TYPICAL SECTIONS

TYPE T-71

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

4/133

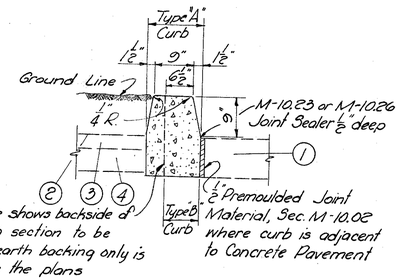
OTT. 2-16.48



SUPERELEVATED SECTION

This Section Applies:

Sta. 20+65 to Sta. 28+48.74 = 783.74 Lin. Ft.

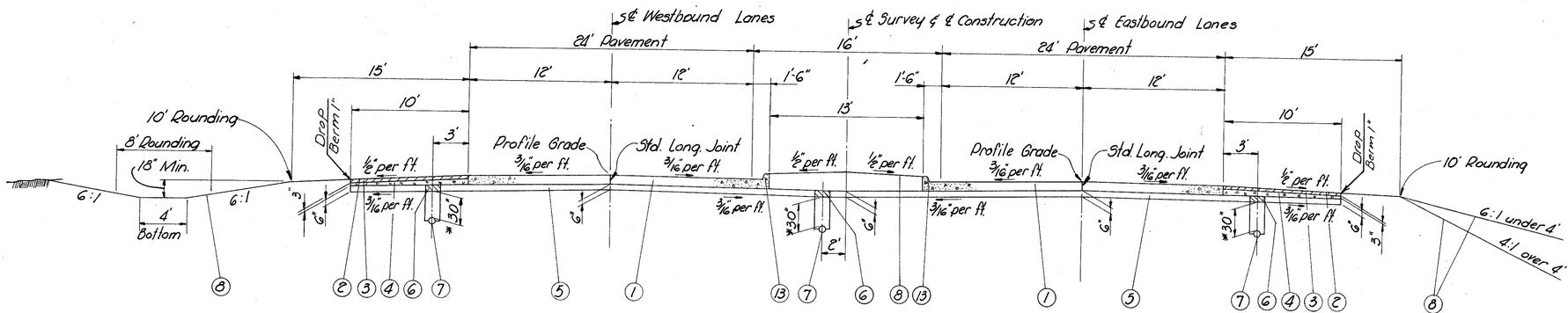


Dashed Line shows backside of Type "B" curb section to be used where earth backing only is required by the plans

SPECIAL PORTLAND CEMENT CONCRETE CURB

(To be used on entrance ramps.)

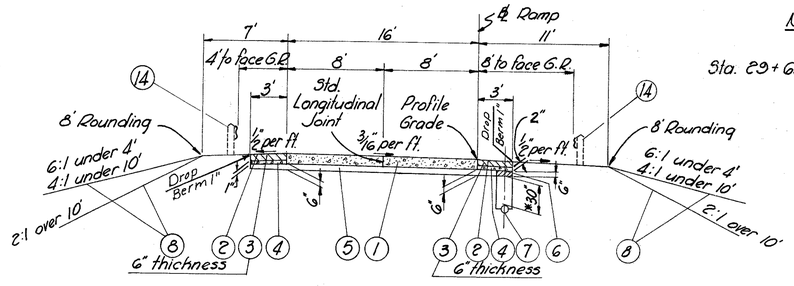
Scale: 3" = 1'-0"



NORMAL SECTION

This Section Applies:

Sta. 29+65.26 to Sta. 55+00.00 = 2534.74 Lin. Ft.

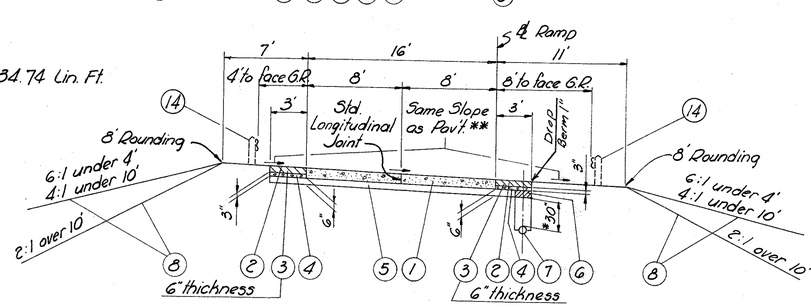


NORMAL RAMP SECTION

This section applies:

S.R. 163 Interchange:

Ramp A, Sta. 1+03.94 to 0+38.05 = 5.89 Lin. Ft.
Ramp B, Sta. 2+00.51 to 5+91.88 = 391.37 Lin. Ft.
Total = 397.26 Lin. Ft.



SUPERELEVATED RAMP SECTION

This section applies:

S.R. 163 Interchange:

Ramp A, Sta. 6+09.56 to 1+03.94 = 505.62 Lin. Ft.
Ramp B, Sta. 5+91.88 to 8+41.88 = 250.00 Lin. Ft.
Total = 755.62 Lin. Ft.

LEGEND

(1)	T-71	9" Reinforced Portland Cement Concrete Pavement
(2)	T-31	Bituminous Surface Treatment using 0.008 Cubic Yard No.6 Aggregate and 0.25 Gallon Bituminous Material per Square Yard (See Note in Proposal)
(3)	†B-21	Waterproofed Aggregate Base Course, 3" thickness, except as noted. (T-335 or Type A T-35 Material may be used in construction of this course - See Note in Proposal)
(4)	B-112	Porous Base Course (Thickness as shown)
(5)	I-22	Subbase, Grading A or B, as per plan (Thickness as shown)
(6)		Remove Subbase for width of Item I-1 trench and replace with new Type 3 backfill material immediately prior to placing the Item B-112 Porous Base Course. Cost shall be included in price bid per lin. ft. for Item I-1, Class I-3 pipe. (See Note on Sheet 7)
(7)	I-1	6" Pipe Underdrains, Class I-3
(8)	L-9	Seeding & Protecting
(13)	I-12	Standard Type 2-A Curb
(14)	I-15	Guard Rail, Steel Beam Standard Type (Deep)

Roundings in accordance with RI-1 except as otherwise shown.

* Except as otherwise shown on cross sections by flowline elevations.

** For Pavement elevations see plan and profile sheets or superelevation tables.

† Thichness shown is design thichness as indicated in Sec. B-21.01.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

5/133

OTT. 2-16.48

GENERAL NOTES

TRAFFIC MAINTENANCE

EXISTING S.R. 2 AT BEGINNING OF PROJECT TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE PROPOSED PAVEMENT OR TEMPORARY ROADWAYS ON THE BERMS. THE EXISTING STRUCTURE OVER LA CARPE CREEK SHALL REMAIN IN SERVICE UNTIL THE NORTH PORTION OF THE NEW STRUCTURE IS CONSTRUCTED AND OPENED TO TRAFFIC.

S.R. 163 TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

MAINTENANCE OF LOCAL TRAFFIC

150 Cu. Yds. of T-10 aggregate, 3 Tons of I-4 Calcium Chloride and 25 Cu. Yds. of T-35 Aspholtic Concrete Surface Course or an Approved Bituminous Premixed Surface Course have been included in the general summary for the maintenance of local traffic. Payment for construction, maintenance and subsequent removal and restoration to original lines of temporary roadway for maintaining traffic, except for furnishing and placing items T-10, I-4 and T-35 for maintaining traffic, shall be included for payment in the lump sum bid for "Maintaining Traffic, Item I-3."

TEMPORARY PAVEMENT FOR MAINTAINING THROUGH TRAFFIC

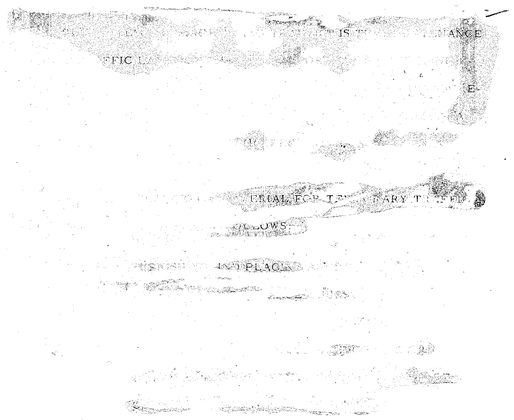
A quantity of 8" T-10 Pavement has been provided to be used at the direction of the Engineer for maintaining through traffic. It shall be constructed in accordance with the requirements of Item S-15. As an alternate, the Contractor may provide an asphaltic concrete pavement meeting the requirements of Class "B" pavement as discribed in Sec. S-15.06. Removal of the temporary pavement when no longer needed for maintaining traffic shall be measured and paid for under under Item E-8 Removal and Disposal of Existing Pavement.

Cost of all drainage, earthwork, maintenance and all work required for restoring the areas to plan lines in a neat condition ready for seeding shall be included in the lump sum bid for Item I-3, Maintaining Traffic. Seeding shall be measured and paid for in accordance with Item L-9.

Estimated Quantities

T-70 8" Portland Cement Concrete Pavement, as per plan 1400 S.Y.
E-8 Removal & Disposal of Existing Pavement 1400 S.Y.

THE CONTRACTOR SHALL SAFEGUARD THE TRAVELING PUBLIC BY PROVIDING PLATFORMS, NETS, OR OTHER SUITABLE PROTECTION ABOVE THE TRAVELED LANES ON S.R. 163, AND OVER THE N.Y.C. R.R. PAYMENT FOR THIS PROTECTION SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM I-3, "MAINTAINING TRAFFIC."



THE CONTRACTOR SHALL SO PLAN HIS OPERATIONS THAT THE LIMITS AND DURATION OF USAGE OF TEMPORARY ROADWAYS SHALL BE HELD TO AN ABSOLUTE MINIMUM, AND IN ALL CASES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CONTRACTOR'S MAINTENANCE RESPONSIBILITY

ON THIS PROJECT, THE CONTRACTOR'S RESPONSIBILITY FOR MAINTENANCE OF THE EXISTING PAVEMENT AS PER ITEM I-3 SHALL BE LIMITED TO THOSE PORTIONS OF THE EXISTING PAVEMENT LYING WITHIN THE PROPOSED WORK LIMITS.

DESIGN SPEED

THE GEOMETRICS FOR THIS PROJECT HAVE BEEN PLANNED FOR A DESIGN SPEED OF 70 MILES PER HOUR.

ELEVATION DATUM

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

UTILITIES

THE CONTRACTOR SHALL NOTIFY AT LEAST 48 HOURS BEFORE BREAKING GROUND ALL PUBLIC SERVICE CORPORATIONS HAVING WIRE, POLES, PIPE, CONDUITS, MANHOLES OR OTHER STRUCTURES THAT MAY BE AFFECTED BY THIS OPERATION, INCLUDING ALL STRUCTURES WHICH ARE AFFECTED AND NOT SHOWN ON THESE PLANS. ANY AND ALL WORK REQUIRED FOR PUBLIC OR PRIVATE UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THEIR RESPECTIVE OWNERS, UNLESS OTHERWISE NOTED ON THESE PLANS.

UTILITY OWNERSHIP:

OHIO EDISON COMPANY W. WASHINGTON ROW, SANDUSKY, O.	POWER
OHIO FUEL GAS COMPANY 136 MADISON STREET PORT CLINTON, OHIO	GAS LINES
NORTHERN OHIO TELEPHONE CO. 115 MADISON STREET PORT CLINTON, OHIO	TELEPHONE
~~NEW YORK CENTRAL RAILROAD LASALLE STREET STATION CHICAGO 5, ILLINOIS~~	~~TELEGRAPH LINES~~
VILLAGE OF OAK HARBOR TOWN HALL, OAK HARBOR, OHIO	WATER LINES

APPROACH SLAB LONGITUDINAL JOINT

LONGITUDINAL IMPRESSED OR SAWED JOINTS SHALL BE PROVIDED BETWEEN LANE ELEMENTS, ON ALL APPROACH SLABS IN ACCORDANCE WITH "STANDARD CONSTRUCTION DRAWING LJ Nº 1. PAYMENT FOR THESE JOINTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM I-7 REINFORCED CONCRETE APPROACH SLABS AS PER PLAN.

FIELD OFFICE

THE CONTRACTOR SHALL, IN ACCORDANCE WITH SEC. S-0.01 (b), PROVIDE, FOR THE EXCLUSIVE USE OF THE STATE'S EMPLOYEES, A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 500 SQ. FT. OF FLOOR SPACE. THE CONTRACTOR SHALL HAVE A TELEPHONE INSTALLED AND MAINTAINED IN THIS FIELD OFFICE DURING THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL ALSO PROVIDE AND INSTALL WIRING AND OUTLETS SUITABLE FOR CONNECTING ELECTRIC LIGHTS AND OFFICE EQUIPMENT IN THE FIELD OFFICE AND PROVIDE 110-VOLT ALTERNATING CURRENT TO THE OFFICE DURING THE ENTIRE PERIOD OF CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL ALSO PROVIDE SUITABLE SANITARY FACILITIES IN THE VICINITY OF THE FIELD OFFICE.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO MAKES NO GUARANTEES AS TO THEIR ACCURACY OR COMPLETENESS.

ESTIMATED QUANTITIES

SPECIFIC LOCATIONS AND USAGE OF ESTIMATED QUANTITIES SET UP ON THIS PLAN TO BE USED "AS DIRECTED BY THE ENGINEER" SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

CONSTRUCTION LAYOUT STAKES

SEE NOTE IN PROPOSAL DESCRIBING THE WORK INCLUDED IN THIS LUMP SUM PAY ITEM.

SUPERELEVATION

SUPERELEVATED CURVES SHALL BE BUILT WITHOUT CROWN. THE CROWN SHALL BE WORKED OUT OF THE PAVEMENT IN THE PORTION BETWEEN THE BEGINNING OF THE TRANSITION AND THE POINT WHERE THE SUPERELEVATION EQUALS TWICE THE CROWN.

NON-RIGID PAVEMENT REMOVAL

REMOVAL AND DISPOSAL OF EXISTING NON-RIGID PAVEMENT, UNLESS OTHERWISE INDICATED ON THESE PLANS, SHALL BE MEASURED AND PAID FOR AS ITEM E-1, ROADWAY EXCAVATION. WHERE PORTIONS OF EXISTING PAVEMENT ARE TO REMAIN, THE SURFACE COURSE SHALL BE CUT TO A NEAT LINE AS DESCRIBED IN ITEM E-8.

ITEM I-22 SUBBASE, GRADING A OR B, AS PER PLAN

THE MATERIAL FURNISHED FOR THIS ITEM SHALL MEET THE REQUIREMENTS OF GRADING A OR B OF SECTION 1-22.02 EXCEPT THAT, FOR EITHER GRADING, NO MORE THAN 10 PER CENT OF THE MATERIAL SHALL PASS A NO. 200 SIEVE, AT THE TIME OF INCORPORATION IN THE WORK.

MEDIAN PAVEMENT ON APPROACH SLABS

PAYMENT FOR MEDIAN PAVEMENT ON APPROACH SLABS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM I-7, REINFORCED CONCRETE APPROACH SLABS. THE WIDTH AND TYPE OF MEDIAN PAVEMENT ON APPROACH SLABS SHALL BE TRANSITIONED FROM THE STANDARD SECTION USED ON THE APPROACH PAVEMENT TO THE SECTION USED ON THE BRIDGE WITHIN THE LIMITS OF THE APPROACH SLAB.

CURB ENDS

CURB ENDS AND CURB DROPS SHALL BE TAPERED FROM 6" HIGH TO 2" HIGH IN A DISTANCE OF 10 FEET AT CURB ENDS AND 18" AT CURB DROPS. NOSE CURBING AT EXIT TERMINALS SHALL BE TAPERED FROM 2" TO 6" IN 20 FEET.

ROUNDING OF CORNERS ON CROSS SECTIONS

THE ROUNDED CORNERS, SHOWN ON TYPICAL SECTIONS, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN IN THESE PLANS.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT. 2-1648

GENERAL NOTES CONT.

ITEM L-9 SEEDING & PROTECTING ROADWAY AREAS

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE UNSODDED SOIL AREAS BETWEEN LINES TEN (10) FEET OUTSIDE THE WORK LIMITS AS SHOWN ON THE PLANS AND CROSS SECTIONS OR TO THE RIGHT OF WAY, EASEMENT, OR WORK AGREEMENT LINE IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE WORK LIMITS. ALL AREAS OUTSIDE THESE LIMITS WHERE THE VEGETATIVE COVER HAS BEEN DISTURBED OR DESTROYED DURING THE CONSTRUCTION SHALL BE RESTORED AND SEEDED IN CONFORMANCE WITH THE PROVISIONS OF ITEM L-9 BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL AREAS WITHIN INTERCHANGE RAMPS SHALL BE SEEDED.
THE FOLLOWING SEED MIXTURE SHALL BE APPLIED AT THE RATE OF 3 LBS. PER 1000 SQ. FT.

CREEPING RED FESCUE	55%
KENTUCKY BLUEGRASS	25%
PERENNIAL RYEGRASS	15%
ALSIKE CLOVER	5%

THE ABOVE MIXTURE SHALL BE USED ON ALL AREAS INCLUDING AREAS IN FRONT OF RESIDENCES.

ITEM L-10 PREPARATION OF AREAS TO BE SODDED

THE SOD BED SHALL BE PREPARED IN SUCH A MANNER THAT A TWO (2) INCH LAYER OF LOOSE SOIL IS IN PLACE TO RECEIVE THE SOD. ADDITIONAL EXCAVATION SHALL BE MADE AND SOIL SHALL BE INCORPORATED, IF NECESSARY, TO BE INCLUDED IN THE UNIT PRICE BID FOR L-10 SODDING TO MEET THIS REQUIREMENT. COMMERCIAL FERTILIZER (12-12-12) SHALL BE APPLIED AT A RATE OF 20 LBS. PER 1000 SQ. FT. OF AREA.

REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS LYING WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM E-9, REMOVAL OF TREES AND STUMPS, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.
AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED IS SHOWN ON SHEET NO. //.
THIS 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 E-9, REMOVAL OF TREES AND STUMPS.

SCARIFICATION OF EXISTING FLEXIBLE PAVEMENT

WITHIN THE LIMITS OF CONSTRUCTION WHERE THE EXISTING FLEXIBLE PAVEMENT WILL HAVE LESS THAN SIX (6) INCHES OF FILL PLACED UPON IT, THE PAVEMENT SHALL BE THOROUGHLY SCARIFIED FOR ITS FULL DEPTH, MIXED WITH SUFFICIENT SOIL AND PROPERLY RECOMPACTED TO INSURE THE ELIMINATION OF ANY PLANES OF SEPARATION BETWEEN IT AND THE EMBANKMENT PLACED THEREON. PAYMENT FOR SCARIFICATION AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM E-1, ROADWAY EXCAVATION.

ITEM 55 CE-101.04 COMPACTION USING HEAVY PNEUMATIC TIRED ROLLER
An estimated quantity for this item has been provided in the General Summary for use in proof rolling of subgrade on the mainline and ramp pavements as directed by the Engineer. Proof rolling will not be required where rock or shale occurs in subgrade and in areas where subbase will be thickened to replace frost susceptible silts. In lieu of the requirements of CE-101.04, a minimum of one coverage will be required to check the subgrade. Moisture content of the top 12" of subgrade shall not exceed optimum at the time of proof rolling. Tire pressure and total load shall be varied as directed by the Engineer within the limits provided in Supplemental Specification No. CE-101.04.

FENCE POST ASSEMBLIES

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN INTERMEDIATE POST ASSEMBLIES HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. THE MAXIMUM SPACING BETWEEN INTERMEDIATE POST ASSEMBLIES SHALL IN ALL CASES BE IN ACCORDANCE WITH ITEM I-25 or I-26.

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 DRAWING T. J.

JOINT LEGEND

TYPES OF PAVEMENT JOINTS TO BE USED ARE SPECIFIED BY THE FOLLOWING LEGEND:

LJ	=	STANDARD LONGITUDINAL JOINT
KJ	=	STANDARD KEY JOINT WITHOUT TIE BARS
CJ	=	STANDARD CONTRACTION JOINT
EJ	=	EXPANSION JOINT WITHOUT DOWELS. (LOCATED ON RADIAL LINES; LENGTH OF JOINT = 2 FT.)
E	=	STANDARD EXPANSION JOINT

FENCE LEGEND

THE ABBREVIATIONS SHOWN FOR FENCE ON THE RIGHT OF WAY DRAWINGS ARE TO DESIGNATE THE FOLLOWING DETAILS OF CONSTRUCTION:

IAPA	=	INTERMEDIATE ANCHOR POST ASSEMBLY
CPA	=	CORNER POST ASSEMBLY
EPA	=	END POST ASSEMBLY

GUARD RAIL ADJACENT TO BRIDGE

ONE (1) ADDITIONAL GUARD RAIL POST SHALL BE PROVIDED IN THE CENTER OF EACH PANEL OF GUARD RAIL ADJACENT TO THE BRIDGE, PAYMENT FOR WHICH SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM I-15 GUARD RAIL.

CLEANING PRIVY VAULTS

PRIVY VAULTS SHALL BE CLEANED AND FILLED WITH SUITABLE MATERIAL AS DIRECTED BY THE ENGINEER. MATERIAL REMOVED FROM THESE VAULTS SHALL BE CLASSIFIED AS UNSUITABLE AND DISPOSED OF OUTSIDE THE LIMITS OF RIGHT OF WAY OR EASEMENT LINES. THE CLEANING OF PRIVY VAULTS SHALL BE PAID FOR UNDER ITEM SPECIAL, CLEANING OF PRIVY VAULTS.
THE BACKFILLING OF PRIVY VAULTS SHALL BE PAID FOR UNDER ITEM E-1 ROADWAY EXCAVATION, METHOD B. THE PRICE BID FOR THIS ITEM SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THE ITEM AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.
AN ESTIMATED AMOUNT OF EMBANKMENT FOR BACKFILLING PRIVY VAULTS HAS BEEN CARRIED TO THE CROSS SECTIONS AND AN ESTIMATED NUMBER OF FOUR PRIVY VAULTS TO BE CLEANED HAS BEEN CARRIED TO THE GENERAL SUMMARY.

PIPE

WHEN BELL AND SPIGOT PIPE IS USED, ANY NECESSARY PIPE CUTOFFS WILL BE MADE AT THE SPIGOT END OF THE LENGTH OF PIPE ADJACENT TO THE END LENGTH. WHEN TONGUE AND GROOVE PIPE IS USED, THE LENGTH OF PIPE NEXT TO THE END LENGTH SHALL BE CUT AND BUTT JOINT FORMED IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING I-1. THE COST OF THE JOINT AND COLLAR SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR THE PERTINENT PIPE ITEM.

PLUGGING PIPE

THE EXPOSED ENDS OF ALL PIPE OR TILE LINES INTERCEPTED BY EARTHWORK OPERATIONS SHALL BE EFFECTIVELY BLOCKED AND COVERED, EXCEPT AS SHOWN ON PLANS OR AS DIRECTED BY ENGINEER. BROKEN PIECES AND PORTIONS OF PIPE OR TILE SHALL BE REMOVED UNTIL A WHOLE LENGTH IS ENCOUNTERED WHICH SHALL BE BLOCKED WITH CONCRETE, FLAT STONE OR BRICK LAID IN MORTAR, OR A PRECAST CLAY OR CONCRETE STOPPER. PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM E-1, ROADWAY EXCAVATION.

REMOVAL OF EXISTING PIPE

THE REMOVAL OF ALL EXISTING PIPE DRAINS WITHIN THE LIMITS OF PROPOSED EXCAVATION ITEMS SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICES BID FOR THE RESPECTIVE EXCAVATION ITEMS, UNLESS OTHERWISE ITEMIZED IN THE PLANS.

GUARD RAIL FLARES

WHERE PROPOSED GUARD RAIL FLARES ARE CONSTRUCTED OF RAIL ELEMENTS WHICH HAVE NOT BEEN FABRICATED EXACTLY TO FIT THE CURVATURE SHOWN ON THE PLANS, THE TWO END POSTS OF EACH FLARED SECTION SHALL BE ENCASED IN A MINIMUM 4-INCH THICKNESS OF CLASS "E" CONCRETE FOR THE FULL DEPTH OF THE POST BELOW THE GROUND LINE. PAYMENT FOR ENCASEMENT, IF REQUIRED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE GUARD RAIL.

CONNECTIONS TO EXISTING PIPE

AT PLACES WHERE THE PLANS PROVIDE FOR PROPOSED DRAINAGE PIPE TO BE CONNECTED TO EXISTING PIPES, 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 PIPE. THE COST OF THIS OPERATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT PIPE ITEM.

EXISTING SEWERS

THE CONTRACTOR SHALL SO CONDUCT HIS OPERATIONS THAT THE FLOW OF ALL SEWERS WHICH ARE TO REMAIN IN SERVICE SHALL BE MAINTAINED AT ALL TIMES. ANY ADDITIONAL COST OR LABOR INVOLVED IN MAINTAINING THIS FLOW, BY PUMPING OR ANY OTHER APPROVED METHOD, SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAL FOOT OF ITEM I-1 PIPE.

WHEN WORKING IN THE AREA ADJACENT TO EXISTING SEWERS, THE CONTRACTOR SHALL PROCEED WITH CAUTION IN ORDER THAT NO DAMAGE IS DONE TO THE EXISTING SEWERS. ANY DAMAGE TO EXISTING SEWERS RESULTING FROM THE CONTRACTOR'S OPERATIONS OR NEGLIGENCE, AS DETERMINED BY THE ENGINEER, SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.

REMOVAL OF EXISTING RIGID PAVEMENT

EXISTING RIGID TYPE PAVEMENTS SHALL BE REMOVED UNDER ITEM E-8 WHEN THEY ARE LOCATED LESS THAN 3 FEET BELOW THE PROPOSED PAVEMENT SUBGRADE IN PROPOSED PAVEMENT AREAS OR LESS THAN 3 FEET BELOW THE PROPOSED FINISHED SURFACE IN AREAS OUTSIDE THE PROPOSED PAVEMENT.
WHEN EXISTING RIGID TYPE PAVEMENTS LIE BELOW THE ABOVE LIMITS, THEY SHALL NOT BE REMOVED. IN LIEU THEREOF, THEY SHALL BE BROKEN UP IN PLACE INTO PORTIONS NOT TO EXCEED ONE SQUARE FOOT IN AREA PRIOR TO PLACEMENT OF PROPOSED EMBANKMENT. PAYMENT FOR THIS OPERATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ROADWAY EXCAVATION, ITEM E-1.

DUMPED ROCK FILL, AS PER PLAN

THE SIZE OF STONE FURNISHED FOR THIS ITEM, AS PROVIDED IN SECTION I-10.06, IS HEREBY MODIFIED TO PERMIT THE USE OF STONES AS LARGE AS MAY BE CONVENIENTLY PLACED TO THE LINES AND GRADES CALLED FOR IN THE PLANS AND TO PERMIT THE INCLUSION (NOT TO EXCEED 10 PER CENT BY WEIGHT) OF SPALLS AND STONES OF LESS THAN 1/3 CUBIC FOOT VOLUME. ANY PIECE OF STONE OR BROKEN MASONRY RESULTING FROM THE REMOVAL OF EXISTING STRUCTURES AND MEETING THE ABOVE REQUIREMENTS MAY BE USED IN THIS ITEM.

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GENERAL NOTES CONT.

SEQUENCE OF CONSTRUCTION OPERATIONS (PAVING)

AFTER THE SUBBASE IN THE SHOULDER AREA IS IN PLACE AND COMPACTED AS SPECIFIED, AND IMMEDIATELY PRIOR TO PLACING THE POROUS BASE COURSE, THE MATERIAL LOCATED ABOVE AND WITHIN THE UNDERDRAIN TRENCH SHALL BE REMOVED TO THE DEPTH NECESSARY TO EXPOSE CLEAN TYPE 3 BACKFILL. THE TRENCH SO EXCAVATED SHALL BE BACKFILLED WITH NEW TYPE 3 BACKFILL MATERIAL.

IF, AFTER TESTING THE SUBBASE MATERIAL FOR COMPOSITION IN THE SHOULDER AREA, IT IS FOUND THAT REMOVAL OF CONTAMINATED MATERIAL FROM THE SURFACE IS NECESSARY, SUCH MATERIAL SHALL BE REPLACED WITH MATERIAL MEETING THE REQUIREMENTS OF ITEM B-112, POROUS BASE COURSE, AT THE EXPENSE OF THE CONTRACTOR.

PAYMENT FOR EXTRA OPERATIONS AND MATERIALS REQUIRED IN COMPLETION OF THE UNDERDRAIN BACKFILL UP TO THE BOTTOM OF THE B-112 COURSE, AS DESCRIBED ABOVE, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS 1-3 PIPE.

DESIGN THICKNESSES

THICKNESSES SHOWN THROUGHOUT THE PLAN FOR T-35, B-35, AND B-21 PAVEMENT COURSES ARE "DESIGNED" THICKNESSES AS DESCRIBED IN SECTIONS T-35.01, B-35.01, AND B-21.01

FIELD DRAINS

ALL FARM TILES 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 I-1, CLASS A-1 PIPE. EXISTING COLLECTORS AND ISOLATED FARM TILES WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF THE ROADWAY DITCHES SHALL BE OUTLETTED INTO THE ROADWAY DITCH WITH ITEM I-1, CLASS F-4 PIPE. 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 TILE COLLECTORS,

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 MEASUREMENTS.

ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE DRAINAGE SUMMARY FOR THE WORK NOTED ABOVE.

EROSION CONTROL

ITEMS I-10 and L-10 ARE PROVIDED IN THESE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

CONCRETE COLLARS FOR PIPE CONNECTIONS

WHEN NEW I-1 PIPE WITH SEALED JOINTS ARE CONNECTED TO EXISTING PIPE AND/OR NEW I-1 PIPE SEC. M-6.4 ARE CONNECTED TO NEW I-1 PIPE WITH SEALED JOINTS, THE CONNECTIONS SHALL BE MADE WITH A CONCRETE COLLAR AND PAYMENT FOR SAME SHALL BE MADE AS PER STANDARD CONSTRUCTION DRAWING NO. I-1.

REINFORCED ENDS ON CORRUGATED METAL PIPE

REINFORCED ENDS SHALL BE PROVIDED FOR ALL CORRUGATED METAL, CLASS F-4, EXCEPT HELICAL, PIPE FOR DRIVEWAYS, AND UNDERDRAIN OUTLETS, IF THE PIPE ENDS ARE UNPROTECTED BY HEADWALLS, CATCH BASINS OR MANHOLES.

MODIFICATION OF INLETS

FOR MODIFICATIONS OF STANDARD NO. 2-A-6 & 2-A-8 INLETS SEE SHEET 8

FOR MODIFICATION OF STANDARD NO. 2-A-6 AND 2-A-8 INLETS, SEE SHEET 8.

ITEM I-5 PIPE SPECIALS

PIPE WITHOUT PERFORATIONS WILL BE PERMITTED FOR USE ON THIS PROJECT FOR ALL ITEM I-5 PIPE SPECIALS.

E-4 BORROW, GRANULAR MATERIAL, AS PER PLAN

MATERIAL FOR THIS ITEM SHALL MEET THE REQUIREMENTS OF SEC. E-1.02 OF THE SPECIFICATIONS, EXCEPT THAT AT LEAST 75 PER CENT BY WEIGHT OF THE GRAINS OR PARTICLES SHALL BE RETAINED ON A NO. 200 SIEVE.

FILL FOUNDATIONS

FILL FOUNDATIONS ON THIS PROJECT SHALL BE CLEARED AND SCALPED IN ACCORDANCE WITH THE PROVISIONS OF SEC. E-1.03. REQUIREMENTS OF E-1.04 FOR COMPACTION OF THE FILL FOUNDATIONS ARE HEREBY WAIVED.

THE INITIAL TWO FEET OF EMBANKMENT IN THE FOLLOWING AREAS SHALL BE COMPOSED OF END-DUMPED BORROW, GRANULAR MATERIAL, AS PER PLAN. THESE AREAS SHALL BE CLEARED AND GRUBBED, BUT NEED NOT BE SCALPED OR COMPACTED.

(a) STA. 25+00 to 39+00 (USE GRANULAR BLANKET OUTSIDE OF EXISTING ROADWAY AREA ONLY; EXTEND GRANULAR LAYER TO TOE OF EACH SPILL-THROUGH SLOPE OF APPROACHES TO LA CARPE CREEK STRUCTURE.)

(b) STA. 100+00 to 106 +00.

E-4 BORROW, GRANULAR MATERIAL, AS PER PLAN, SHALL BE END-DUMPED IN THE FOLLOWING AREAS:

(a) STA 68+15 to 82+20 - EXISTING BORROW PIT: PLACE GRANULAR MATERIAL UP TO ELEVATION 576.0 OR AS DIRECTED BY THE ENGINEER. EMBANKMENT SLOPES SHALL BE FACED WITH A 2 FOOT THICKNESS OF I-10.06 DUMPED ROCK, EXTENDING FROM THE BOTTOM OF THE BORROW PIT UP TO ELEVATION 576.5.

(b) STA. 108 + 00 to 135+00 - PORTAGE RIVER: PLACE GRANULAR MATERIAL UP TO ELEVATION 574.0. IN ADDITION TO GRANULAR MATERIAL, ROCK AS DEFINED BY SEC. E-1.02, MAY BE USED FOR REPLACEMENT OF EXCAVATED MATERIAL, AND FOR CONSTRUCTION OF FILL UP TO ELEVATION 574.0. EMBANKMENT SLOPES SHALL BE FACED WITH A 3 FOOT THICKNESS OF I-10.06 DUMPED ROCK, EXTENDING FROM THE RIVER BOTTOM UP TO ELEVATION 575.0.

E-4 BORROW, USING GRANULAR MATERIAL INCLUDING THE COST OF EXCAVATION OF UNSUITABLE MATERIAL AS PER PLAN

THIS ITEM SHALL INCLUDE THE COST OF EXCAVATING THE UNSUITABLE MATERIAL BETWEEN STATION 119+00 AND STATION 122+34 IN THE UNIT PRICE BID FOR GRANULAR BORROW USED AS BACKFILL TO REPLACE THE UNSUITABLE MATERIAL. UNSUITABLE MATERIAL SHALL BE REMOVED BY TOTAL EXCAVATION METHOD 1 AS ILLUSTRATED ON SWAMP TREATMENT DRAWING ON SHEET 9-A.

E-1.08, E-1.09 SUBGRADE MATERIALS

THE REQUIREMENTS OF SECTION E-1.08 RELATING TO LIQUID LIMIT AND PLASTICITY INDEX ARE HEREBY WAIVED. IN LIEU OF THE REQUIREMENTS FOR THE USE OF SUBGRADE SOILS WITH A MAXIMUM DRY WEIGHT OF NOT LESS THAN 102 POUNDS PER CUBIC FOOT, SOILS WITH A MAXIMUM DRY WEIGHT OF 94 POUNDS PER CUBIC FOOT OR MORE WILL BE ACCEPTABLE IN SUBGRADE AND EMBANKMENT. MINIMUM FIELD REQUIREMENTS FOR ALL SOILS WITH MAXIMUM DRY WEIGHTS BETWEEN 94.0 AND 109.9 POUNDS BOTH IN EMBANKMENT AND SUBGRADE SHALL BE 100 PERCENT ON THIS PROJECT.

TEMPORARY CROSSING PERMIT FOR THE S.N. LIAN PROPERTY

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN A STRIP 20 FT. WIDE ACROSS THE RIGHT OF WAY UNTIL NOVEMBER 30, 1965 AT STATION 152+00± OR AT SUCH OTHER LOCATION AS MAY BE MUTUALLY AGREEABLE TO THE CONTRACTOR, THE PROJECT ENGINEER, AND THE PROPERTY OWNER. THE PROPERTY OWNER SHALL BE PERMITTED USE OF THIS STRIP AT ALL TIMES UNTIL THE ABOVE DATE TO CARE FOR AND TO HARVEST HIS CROPS ON THE NORTH SIDE OF THE HIGHWAY.

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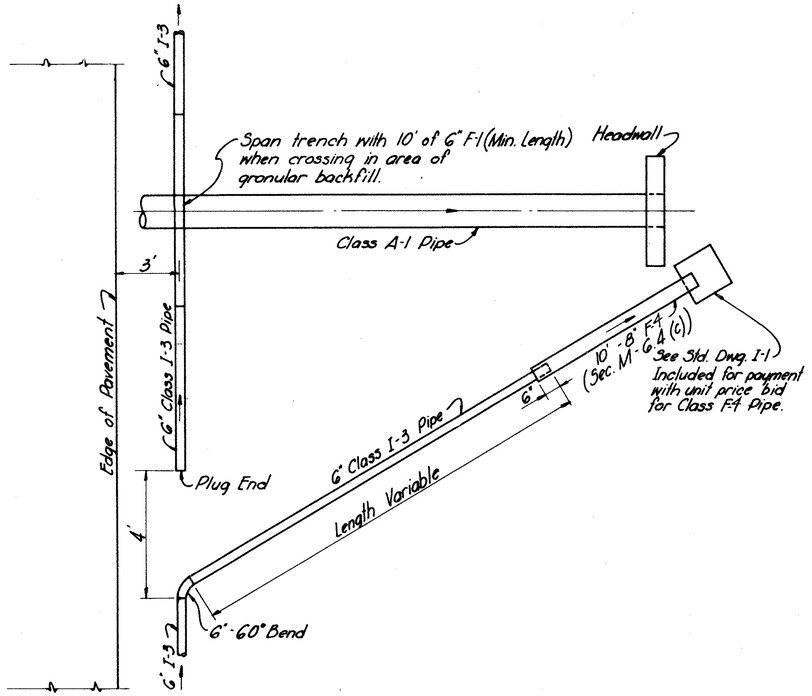
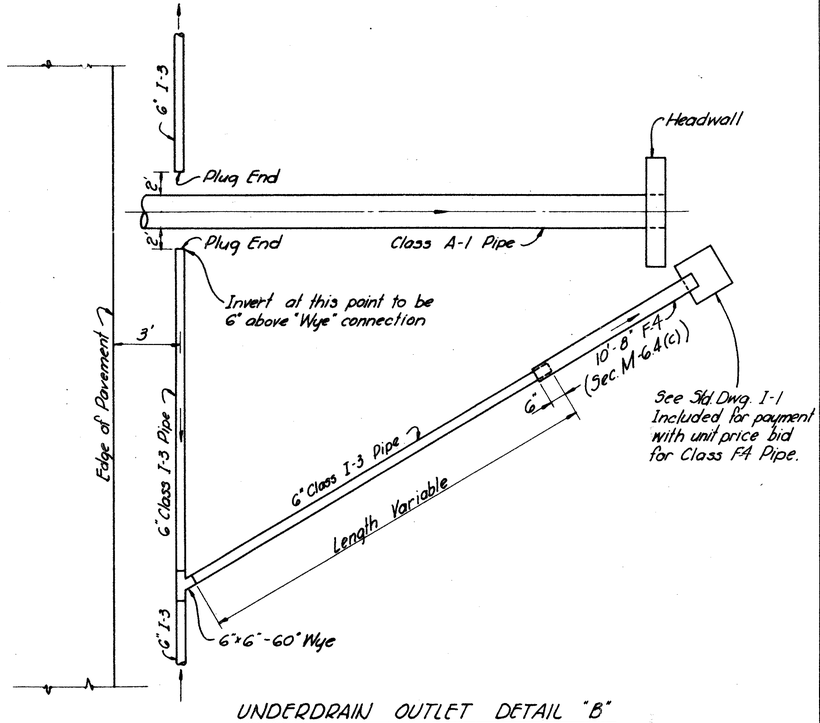


UNDERDRAIN OUTLET DETAIL "A"



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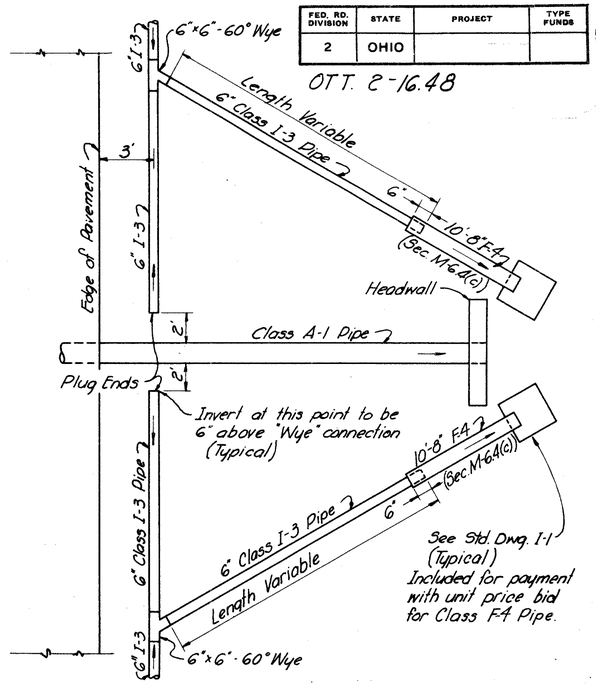
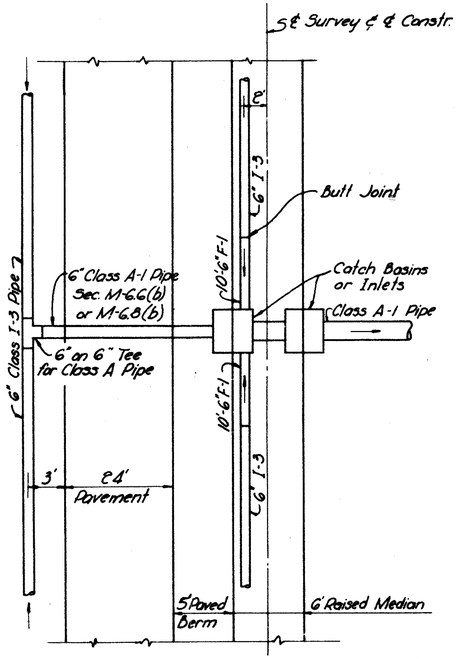


UNDERDRAIN OUTLET DETAIL "C"



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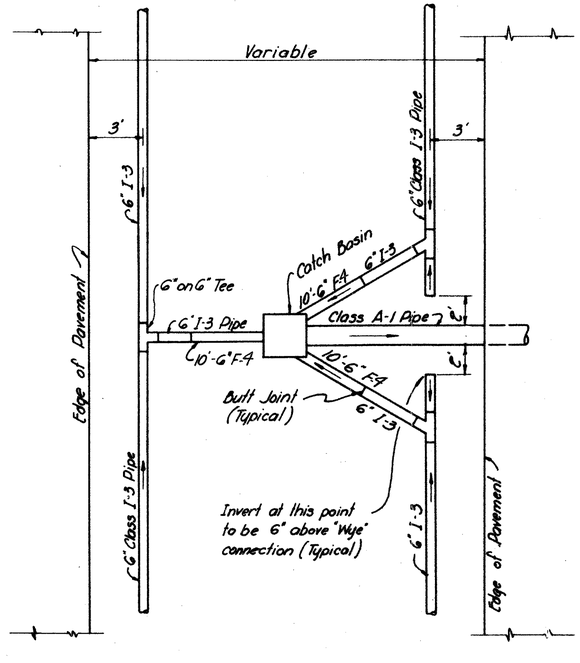

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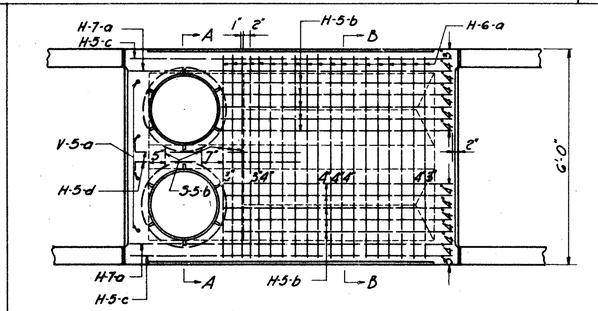
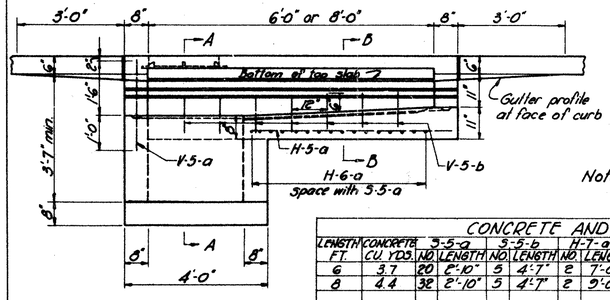
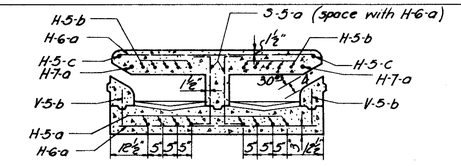


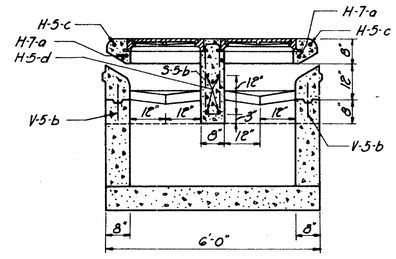
PLAN



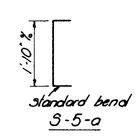
FRONT ELEVATION

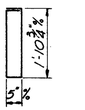


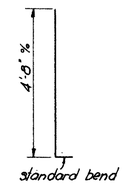
SECTION B-B



SECTION A-A







Note: For details and notes not shown see Standard Construction Drawing I-8 I. No. 2-A

CONCRETE AND REINFORCING STEEL QUANTITIES

LENGTH FT.	CONCRETE CU. YDS.	3-5-a NO.	3-5-a LENGTH	3-5-b NO.	3-5-b LENGTH	H-7-a NO.	H-7-a LENGTH	H-6-a NO.	H-6-a LENGTH	H-5-a NO.	H-5-a LENGTH	H-5-b NO.	H-5-b LENGTH	H-5-c NO.	H-5-c LENGTH	H-5-d NO.	H-5-d LENGTH	V-5-a NO.	V-5-a LENGTH	V-5-b NO.	V-5-b LENGTH	WEIGHT LBS.
6	3.7	20	2'-10"	5	4'-7"	2	7'-0"	23	5'-6"	8	5'-8"	10	4'-5"	2	7'-0"	4	5'-2"	4	2'-6"	10	1'-0"	436
8	4.4	32	2'-10"	5	4'-7"	2	9'-0"	35	5'-6"	8	5'-8"	10	6'-5"	2	9'-0"	4	5'-2"	4	2'-6"	14	1'-0"	624

STANDARD NO. 2-A-6 INLET MODIFIED

STANDARD NO. 2-A-8 INLET MODIFIED

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See Sheet No.	Station	Side	Location	L-10 Sodding for Special Berm & Slope Protection Sq. Yds.
75	28+62	Rt.	S.R. 2 Reloc.	12
75	28+79	Lt.	S.R. 2 Reloc.	34
75	29+34	Rt.	S.R. 2 Reloc.	28
75	29+51	Lt.	S.R. 2 Reloc.	10
83	* 82+53	Rt.	S.R. 2 Reloc.	92
83	* 83+74	Lt.	S.R. 2 Reloc.	85
83	* 84+98	Rt.	S.R. 2 Reloc.	85
83	* 86+19	Lt.	S.R. 2 Reloc.	72
92	90+02	Rt.	S.R. 2 Reloc.	69
92	90+90	Lt.	S.R. 2 Reloc.	62
106	121+43	Lt.	S.R. 2 Reloc.	79
106	121+43	Rt.	S.R. 2 Reloc.	79
106	126+57	Lt.	S.R. 2 Reloc.	79
106	126+57	Rt.	S.R. 2 Reloc.	79
			F-1042(10) Total	531
			* F6-1042(10) Total	334

SPECIAL BERM AND SLOPE PROTECTION

PRIOR TO REPLACEMENT OF SOD IN THE BERM AND SLOPE, GALVANIZED POULTRY FENCE SHALL BE PLACED ON THE FINISHED GRADE IN STRANDS WHICH SHALL BE AT RIGHT ANGLES TO THE DIRECTIONS OF FLOW. EACH STRAND SHALL BE STAKED SECURELY ON TOP AND BOTTOM WITH STAKES PLACED AT FOUR FOOT INTERVALS AND ALTERNATED IN ROWS FOUR FEET APART.

STAKES SHALL BE 1"×1"×8" WOOD STAKES AND SHALL BE PERPENDICULAR TO THE GROUND AND FLUSH WITH THE FINISHED GRADE.

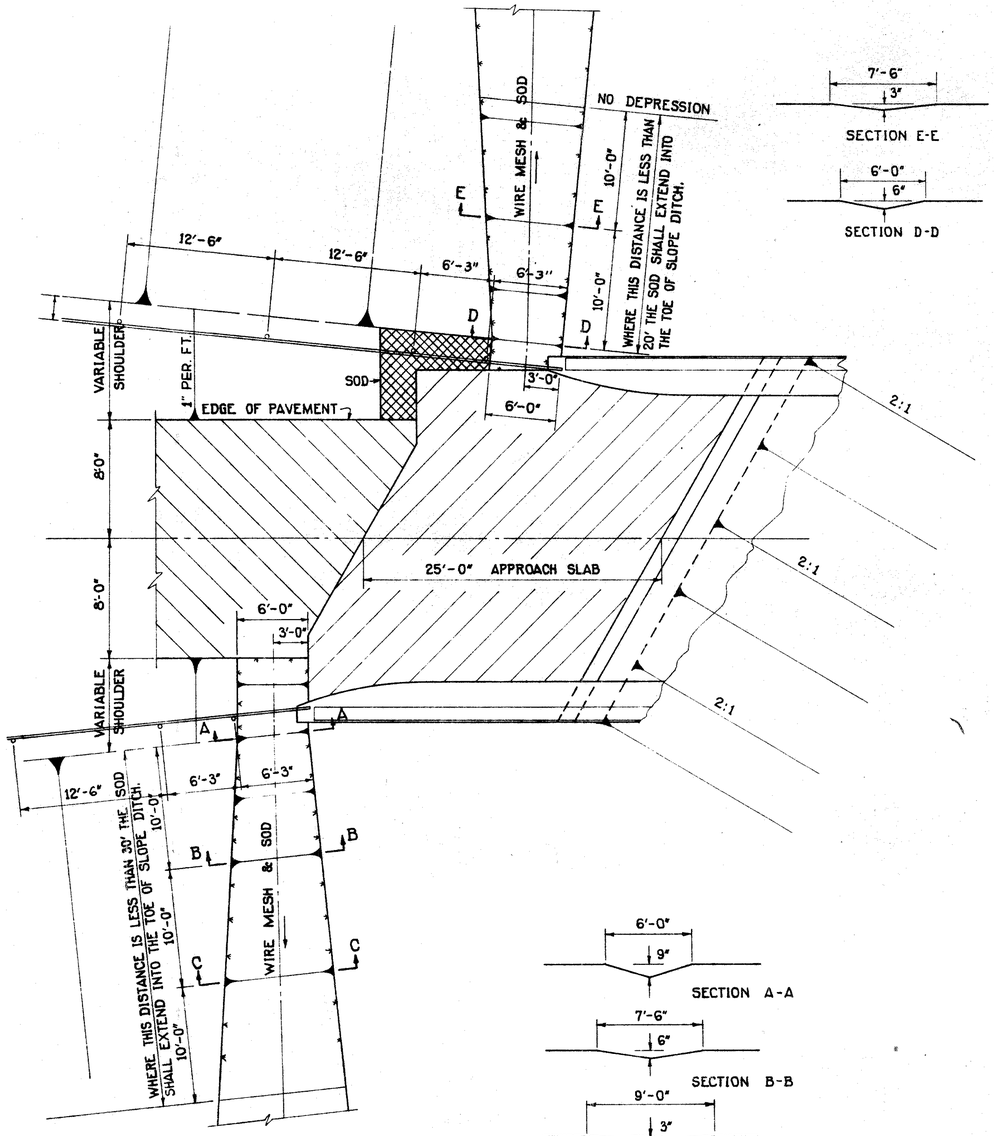
THE FENCE SHALL BE STRAIGHT LINE POULTRY FENCE OR EQUIVALENT WITH STRAND WIDTH OF FOUR FEET HAVING A TWO INCH MESH AND ALL WIRES NO. 20 GAUGE.

THE STRANDS OF FENCING SHALL BE FASTENED TOGETHER AT TWELVE INCH INTERVALS BY MEANS OF HOG RINGS.

THE FENCE SHALL BE SECURED TO THE WOOD STAKES BY METAL STAPLES.

SOD SHALL BE LAID IN ACCORDANCE WITH THE CONSTRUCTION AND MATERIALS SPECIFICATIONS SECTION L-1007.

PAYMENT FOR ALL THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM L-10 SODDING FOR SPECIAL BERM AND SLOPE PROTECTION.



APPROACH SLAB EROSION CONTROL

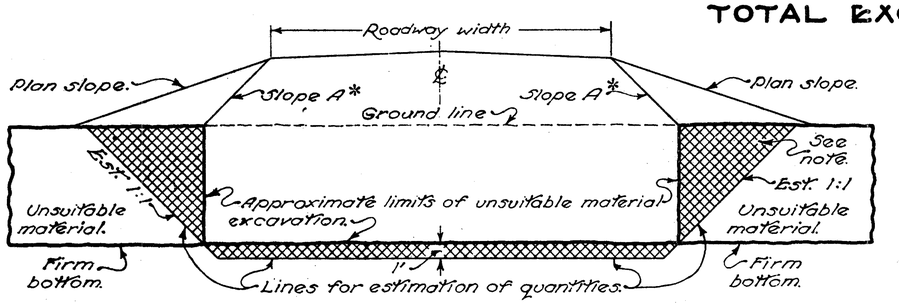
FED.RD. DIVISION	STATE	PROJECT	
2	OHIO		

9-A 133

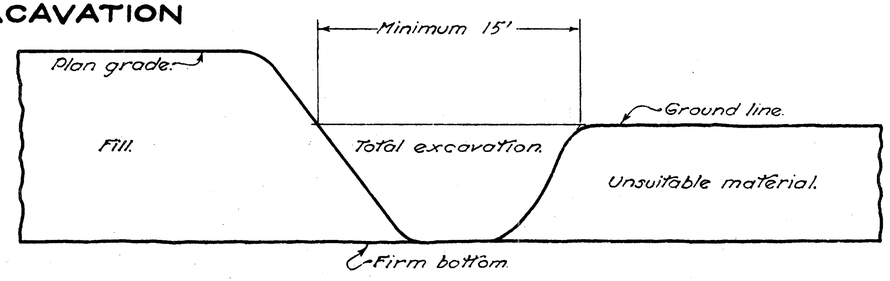
OTT. 2-16.48

SWAMP TREATMENT

METHOD 1
TOTAL EXCAVATION

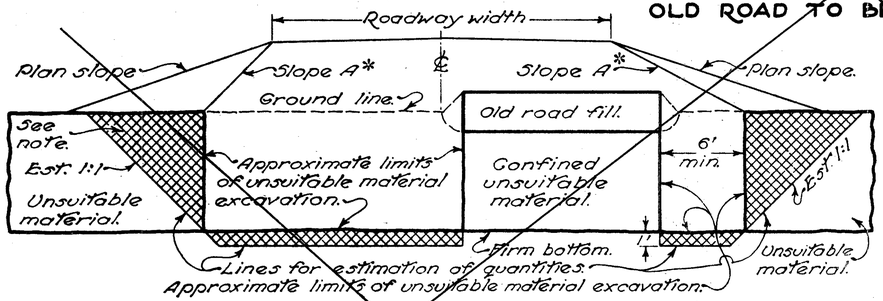


CROSS SECTION

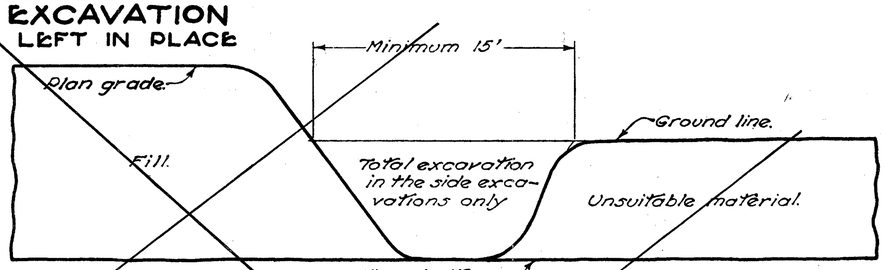


LONGITUDINAL SECTION

METHOD 2
TOTAL SIDE EXCAVATION
OLD ROAD TO BE LEFT IN PLACE

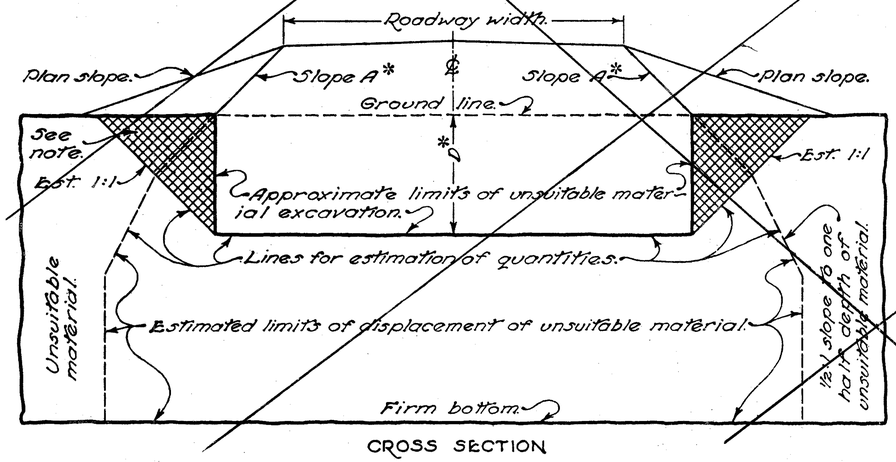


CROSS SECTION

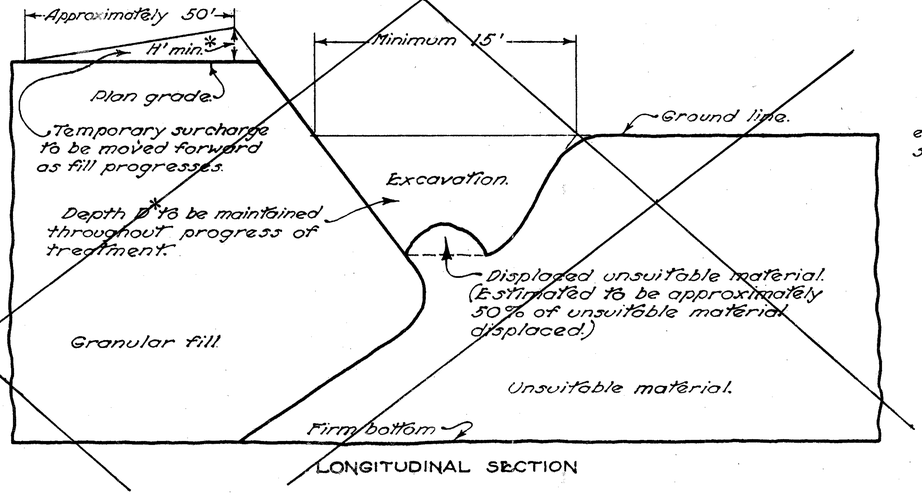


LONGITUDINAL SECTION

METHOD 3
PARTIAL EXCAVATION AND DISPLACEMENT



CROSS SECTION



LONGITUDINAL SECTION

NOTES

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 swamp excavation.

FILL shall be constructed by the method of end dumping, using granular material, up to the elevations designated on the plan. Embankment required above this elevation, if any, shall be constructed in accordance with Sec. E-1.08 of the Construction and Material Specifications.

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.

GRANULAR MATERIAL required for swamp treatment shall be specified as "E-4 Borrow using Granular Material as per plan". The granular material shall meet the requirements of Sec. E-1.02 of the Construction and Material Specifications modified to require at least 75 per cent by weight of the grains or particles to be retained on the #200 sieve.

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 Sec. E-1.06, shall be shaped to its final position or removed from the area at least two weeks prior to paving operations on the fill.

EQUIPMENT used for excavation of unsuitable materials shall be located ahead of the excavation unless otherwise authorized by the Director.

* as shown on the plans.

CROSS-HATCHED sections are included in quantities to allow for possible sloughing and undercutting.

TYPICAL DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

98/133

OTT-2-16.48

I-127 DELINEATORS

LOCATION	STATION TO STATION		SIDE	INTERVAL	C-2 POST	C-3 POST	A-1 POST	A-1 BRKT.
MAIN LINE	22+50	82+50	Rt.	200			31	
MAIN LINE	84+50		Rt.					1
MAIN LINE	86+50		Rt.				1	
MAIN LINE	88+50		Rt.					1
MAIN LINE	90+50	94+50	Rt.	200			3	
MAIN LINE	112+50	120+50	Rt	200			5	
MAIN LINE	122+50	126+50	Rt.	200				3
MAIN LINE	128+50	178+50	Rt.	200			26	
MAIN LINE	22+00	82+00	Lt.	200			31	
MAIN LINE	84+00		Lt.					1
MAIN LINE	86+00	88+00	Lt.	200			2	
MAIN LINE	90+00		Lt.					1
MAIN LINE	92+00	98+00	Lt.	200			4	
MAIN LINE	108+00	120+00	Lt.	200			7	
MAIN LINE	122+00	126+00	Lt.	200				3
MAIN LINE	128+00	168+00	Lt.	200			21	
MAIN LINE	180+00	181+00	Rt	100	2			
RAMP A	180+55	170+55	Lt.	100	11			
RAMP A	169+55		Lt.			1		
RAMP B	0+70	1+50	Lt.	80	2			
RAMP B	0+30	6+30	Rt.	100	7			
RAMP B	6+30	7+90	Lt.	80	3			
RAMP B	7+90	11+90	Rt.	100	5			
MAIN LINE	99+55	110+55	Rt.	100	12			
MAIN LINE	111+55					1		
MAIN LINE	106+85	98+85	Lt.	100	9			
RAMP A	6+10	5+30	Rt.	80	2			
RAMP A	5+30	0+50	Lt.	80	7			
TOTALS					60	2	131	*10

* Carried to respective bridge summaries

PAVEMENT MARKING

REF.	SIDE	STATION FROM	STATION TO	4" EDGE LINE	4" LANE LINE	6" LANE LINE	8" CHANNEL LINE	DIAGONAL STRIPES	CURB ISLAND MARKING
				LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
RAMP A	Rt.	0+00	7+10	710					Lump
RAMP A	Lt.	0+00	7+10	710					
RAMP B	Rt.	0+00	12+92	1292					
RAMP B	Lt.	0+70	1+50	80					
RAMP B									Lump
RAMP B	Lt.	2+00	12+92	1092					
MAIN LINE E.B.	Lt.	20+65	181+00	16035					
MAIN LINE E.B.	Rt.	20+65	99+55	7890					
MAIN LINE E.B.	Ctr.	20+65	181+00			16035			
MAIN LINE E.B.	Rt.	99+55	104+83	528					Lump
MAIN LINE E.B.	Rt.	99+55	101+95				240		
MAIN LINE E.B.	Rt.	101+95	104+83		288				
MAIN LINE E.B.	Rt.	99+55	181+00	8145					
MAIN LINE W.B.	Lt.	20+65	181+00	16035					
MAIN LINE W.B.	Ctr.	20+65	181+00			16035			
MAIN LINE W.B.	Rt.	20+65	97+86	7721					
MAIN LINE W.B.	Rt.	97+86	102+50				464	Lump	Lump
MAIN LINE W.B.	Rt.	98+86	102+50				364		
MAIN LINE W.B.	Rt.	102+50	105+18		168				
MAIN LINE W.B.	Rt	98+86	181+00	8214					
MAIN LINE W.B.	Rt.	176+26	179+14		288				
MAIN LINE W.B.	Rt.	179+14	181+00				186		
MAIN LINE W.B.	Rt.	176+26	181+00	474					
TOTALS				68926	744	32070	1254	Lump	Lump
				13.05 Mi.	x 3/8 ÷ 5280 .05 Mi.	x 3/8 ÷ 5280 2.28 Mi.	.24 Mi		

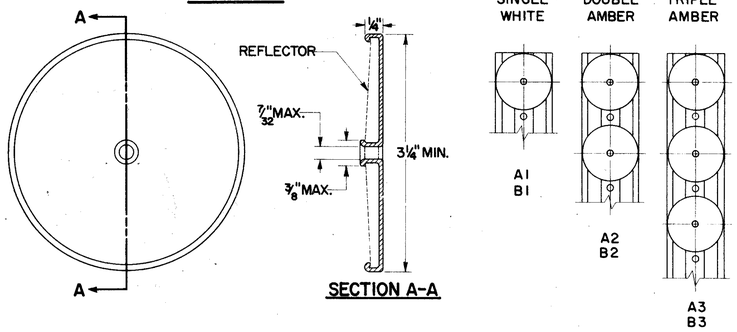
DELINEATORS & PAVEMENT MARKING QUANTITIES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

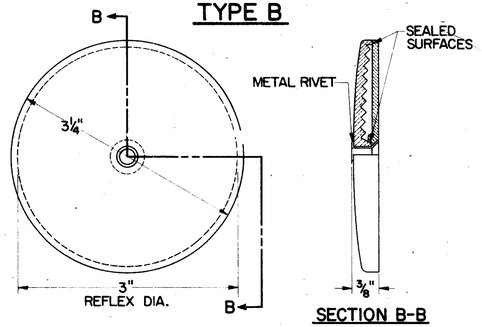
9C 133

OTT-2-16.48

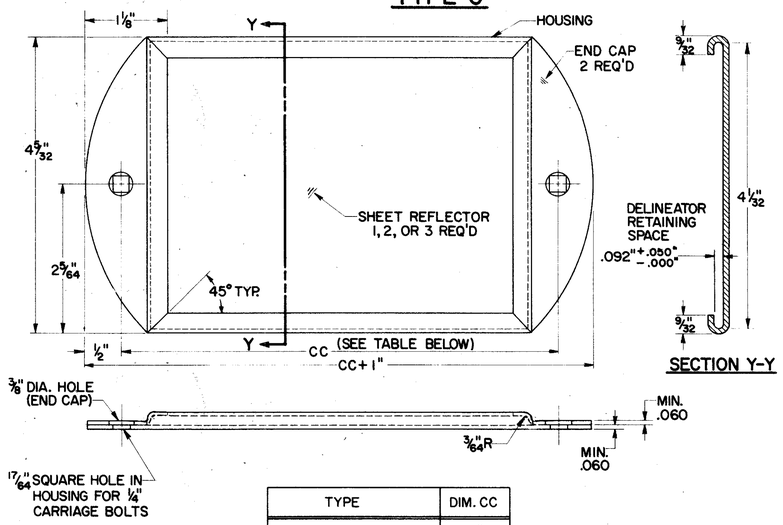
TYPE A



TYPE B

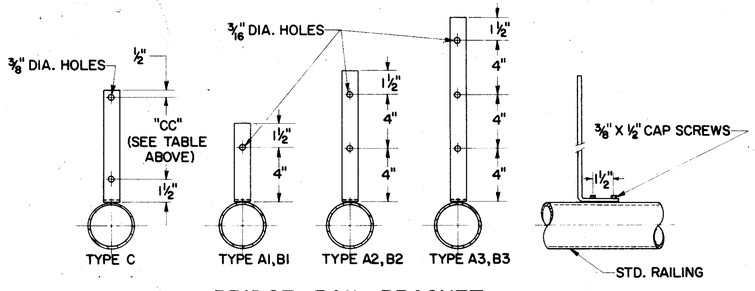


TYPE C

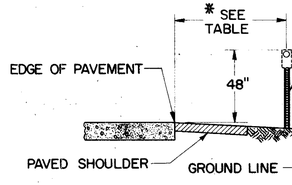


TYPE	DIM. CC
C1- SINGLE WHITE	6"
C2- DOUBLE AMBER	11"
C3- TRIPLE AMBER	16"

ALL BRACKETS 1/4" X 1 1/4" STAINLESS STEEL



BRIDGE RAIL BRACKET

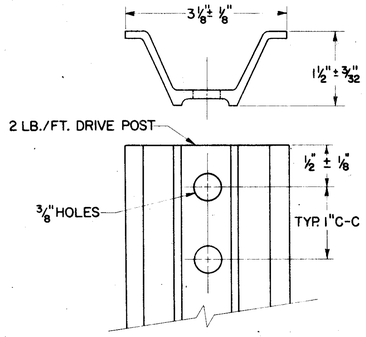


LATERAL PLACEMENT OF DELINEATORS

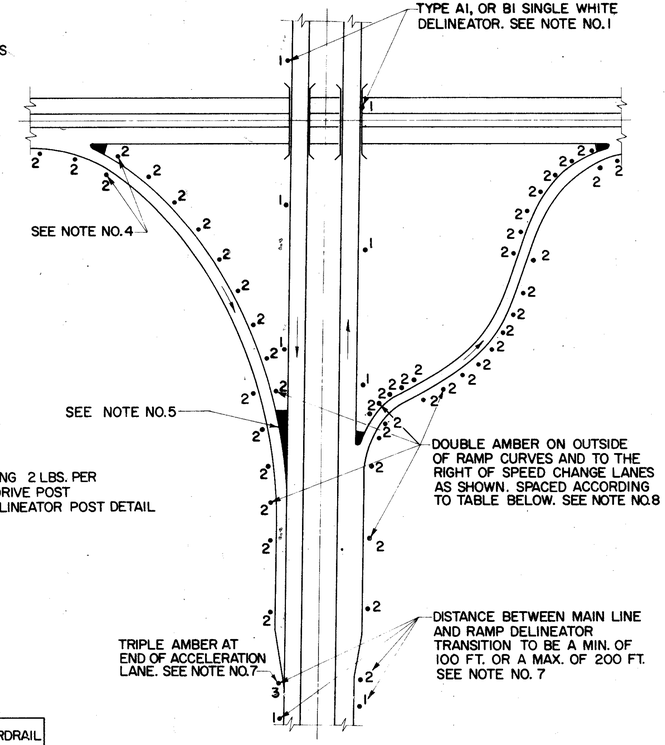
* TABLE

TYPE DELINEATOR	NO GUARDRAIL	GUARDRAIL
SINGLE WHITE	12'-6"	6" OUTSIDE
DOUBLE AMBER RIGHT SIDE	** 8'-6"	6" OUTSIDE
DOUBLE AMBER LEFT SIDE	4'-6"	6" OUTSIDE
TRIPLE AMBER	12'-6"	6" OUTSIDE

** THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.



DELINEATOR POST



TYPICAL DELINEATOR PLACEMENT

DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

RADII, FT. FROM	RADII, FT. TO	SPACING ON CURVE	* TRANSITION SPACING	
TANGENT	1,801	100'	100'	100'
1,800	1,401	80'	100'	100'
1,400	1,001	70'	100'	100'
1,000	751	60'	100'	100'
750	551	50'	80'	100'
550	326	40'	70'	100'
325	———	30'	60'	100'

* SUCH AS 40' TO 70' TO 100' OR 100' TO 80' TO 50' OR ANY OTHER COMBINATION SHOWN ABOVE.

NOTES

1. TYPE A1 OR B1 DELINEATORS ON THE RIGHT OF THE THROUGH ROADWAY ARE TO BE SPACED AT 200 FT. INTERVALS THROUGHOUT, REGARDLESS OF CURVES, BEGINNING AT STA. +00, +25, +50, OR + 75.
2. DELINEATORS SHALL BE FURNISHED AND ERECTED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION NO. I-127, (1-15-62).
3. PAYMENT FOR SUPPORTS (DRIVEPOST OR BRACKET) SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR "ITEM I-127 DELINEATORS".
4. WHEN CROSSING FROM LEFT TO RIGHT OR FROM RIGHT TO LEFT ON THE RAMPS THE DELINEATORS AT THE POINT OF CROSSOVER ARE TO BE AT THE SAME STATION ON EACH SIDE.
5. NO DELINEATORS ARE TO BE PLACED IN PAVED BERM
6. WHEN RADII OF CURVE ON RAMPS REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.
7. RAMP DELINEATOR AT END OF ACCELERATION & BEGINNING OF DECELERATION LANES TO BE A MAXIMUM OF 5' FROM POINT OF TANGENCY AT MAIN LINE.
8. ALL RAMP DELINEATORS SHALL BE PLACED TO THE NEAREST 5' INCREMENTS, SUCH AS +05, +10, +15. +20 AND SO ON.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

DELINEATOR DETAILS	I-127	DATE 9-25-62 10-2-63

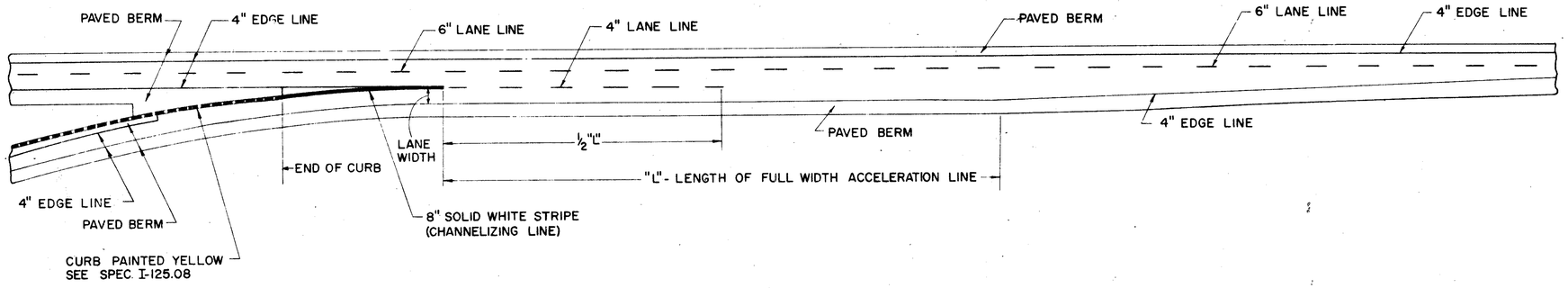
APPROVED Robert L. Lomax
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

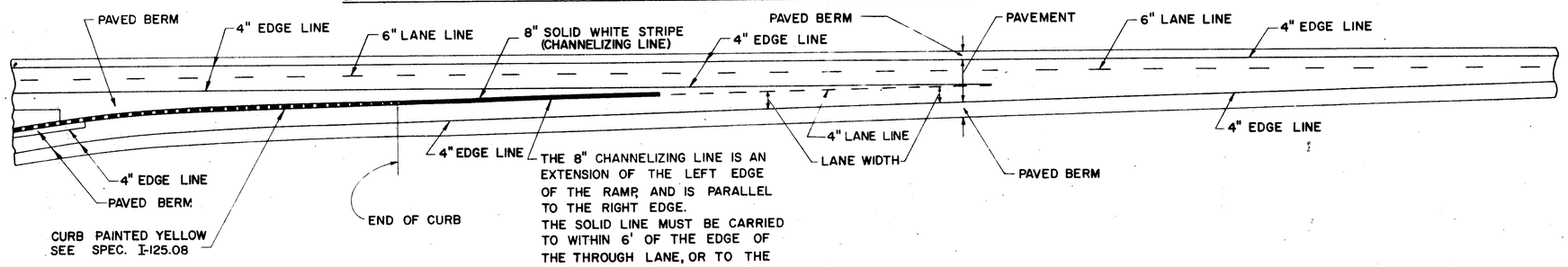
OTT-2-16.48

9-D 133

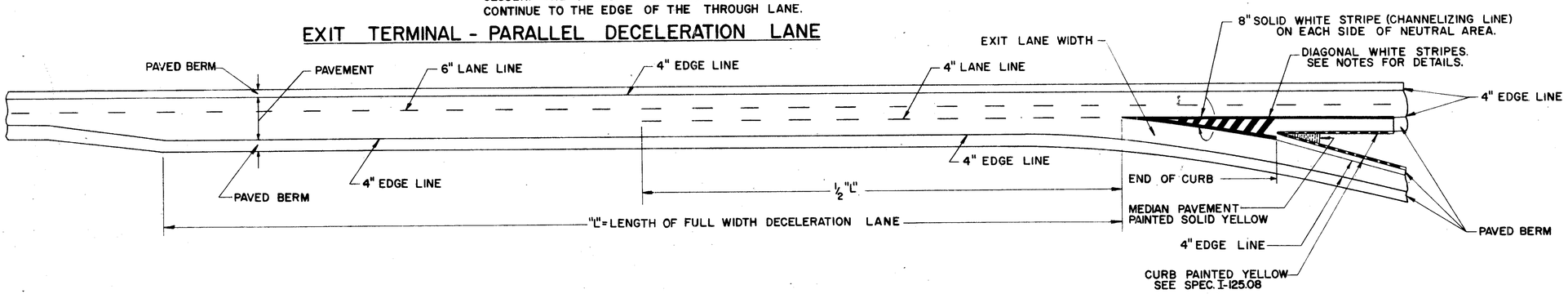
ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE



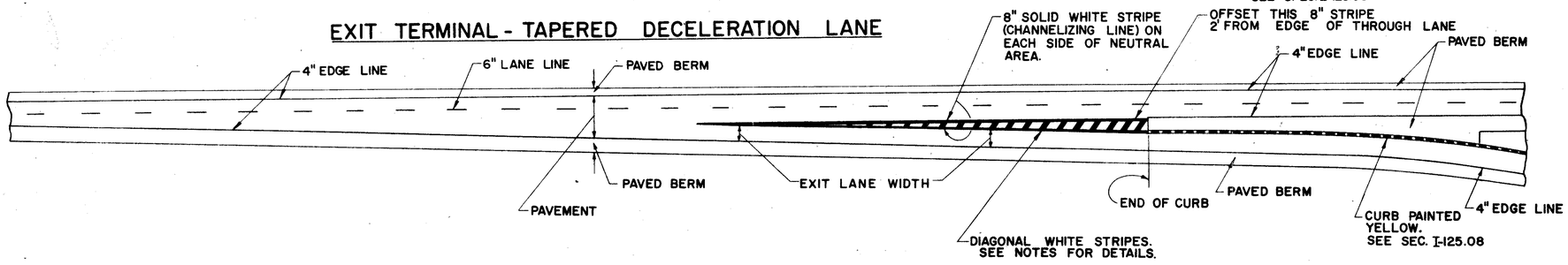
ENTRANCE TERMINAL - TAPERED ACCELERATION LANE



EXIT TERMINAL - PARALLEL DECELERATION LANE



EXIT TERMINAL - TAPERED DECELERATION LANE



NOTES

EDGE LINES SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.06.

LANE LINES SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.07.

CHANNELIZING LINES SHALL BE CONTINUOUS WHITE BEADED STRIPES 8" IN WIDTH PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.07 b.

DIAGONAL STRIPES IN EXIT RAMP MARKINGS SHALL BE 2' WIDE WHITE BEADED STRIPES SET AT A 45° ANGLE TO THE CENTER LINE OF THE THROUGH PAVEMENT AND SLANTED IN THE DIRECTION OF THE FLOW OF TRAFFIC ON SAID PAVEMENT. SPACE BETWEEN THE 2' DIAGONAL STRIPES SHALL BE 6' AS MEASURED PARALLEL TO THE CENTER LINE OF THE THROUGH PAVEMENT. PAINT ON THE DIAGONAL STRIPES SHALL BE APPLIED AT THE RATE OF ONE GALLON TO EACH 100 SQUARE FEET AND GLASS BEADS SHALL BE APPLIED AT THE RATE OF SIX POUNDS PER GALLON OF PAINT. DIAGONAL WHITE STRIPES SHALL BE PLACED BETWEEN THE TWO 8" WHITE CHANNELIZING LINES AT EXIT RAMPS AS SHOWN TO CONFORM TO SUPPLEMENTAL SPECIFICATION No. I-125 AND DEFINED IN SECTION I-125.07 c.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT MARKING

PM-1

DATE 7-17-61 4-6-62

APPROVED Robert E. Lower
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

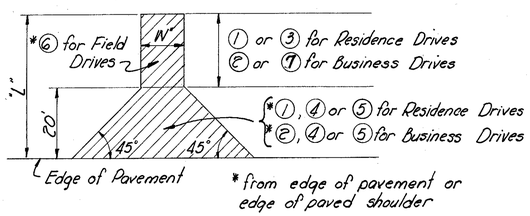
10/133

OTT. 2-16.48

① SUMMARY OF DRAINAGE QUANTITIES

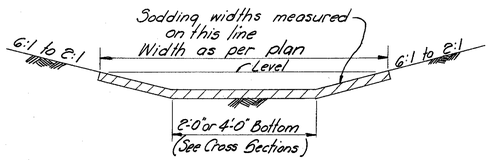
Carried from Sheet No.	S-24 Removal of Existing Structure	F-3 Channel Excavation	E-12 Removal of Exist. Pipe 15" and Under 12"	E-12 Removal of Exist. Pipe 15" and Under 15"	I-1 Class A-1 M-6.6(a) or M-6.8(b) 12"	A-1 15"	A-1 18"	A-1 24"	A-1 36"	A-1 6" M-6.6(b) or M-6.8(b)	I-1 Class B-1 30"	B-1 15"	B-1 12"	B-1 18"	B-1 24"	I-1 Class E-1 6"	E-1 8"	E-1 12"	E-1 18"	E-1	E-1	E-1	I-1 Class F-1 6" Class F-1	I-1 Class F-4 8" M-6.4(a)	F-4 12"	F-4 15"	F-4 24"	F-4 30"	I-1 Class I-3 8", M-6.4(b)	I-3 6" (Shallow)	I-2 Masonry as per plan	I-5 Pipe Specials 6"x6"x6" Wye for Class 1 Pipe	6"on6" Tee for Class 1 Pipe	6"-60° Bend for Class 1 Pipe	6"on6" Tee for Class A Pipe				12"on36" Tee for Class A Pipe	12"-25° Fil for Class F Pipe	I-8 No. E-2-B C.B.	No. E-3 C.B.	No. E-3-A C.B.	No. E-G C.B.	No. E-G Inlet	No. E-4-G Inlet, Med.	No. E-4-B Inlet, Med.	No. I M.H. with Light Casting	I-1 6" Class F-4	I-10 Dumped Rock Channel Protection	Dumped Rock Fill Type A, as per plan	I-16 Catch Basins Abandoned	L-10 Sodding	Carried from Sheet No.
	Lump	Cu.Yd.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Cu.Yd.	Each	Each	Each	Each	Each			Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Lin.Ft.	Cu.Yd.	Cu.Yd.	Each	Sq.Yd.	
																†200	†200						†180	†100																						†200					
15				95	108		92			27		280	271									60	30					200	1667	1.06	3		1					2		2		2		1						2		15
16			26	196	138						340	150	9		392			11			20	40	30	24	54		20	415	2271	0.23								3	1			3						31.1		3		16
17			47		135		52	58				40		285	15			11		15		30	10	2				478	2563		5								1	3	2		3			50			1		17
18		25			135				144							14		36				40	70			56		100	3008	1.64	5	1					1				2		1				11.5				18
19					171	61																40	50						3077	0.72	4	1									2		2							19
20					70																	10							588												1						140		20
* 20					103																	30	10	32					2380	0.46	1								2			1	1					2280			20 *
* 21																													2252																		1120			21 *
* 22					45																	20	20	80					2328	0.23		2								2			1					1.0		44	22 *
22							184																							1.20																				22
* 23					39																	30					1		1166					1								1								23 *
23					164																	40							1456	0.46													1	1						23
24					237																	40	50						2582	0.46	3	2									2			1	1				1890			24
25																													1907																				3290			25
26																													1907																				3320			26
27					315	97																60	30						3115	0.49	2	1									2			1	1				370			27
28	Lump				172											24						20	30						3059	0.46	2																					28
29					310	93																60	30						3072	0.49	2	1										2			3				19.0				29
30					306	62																50	40						3075	0.49	3	1										2			3				3.0				30
31					88																	10	10						2420	0.23	1														1				3.0				31
35			36		68		80															10	20						787	1.05	2													1								35
36			200		119		80															10	30	106					1380	1.28	3													1			1			2	529		36
F	Lump	25	309	291	2550	319	328	218	144	27	340	470	280	285	407	238	200	58		15		520	380	232	54	56	20	1193	37946	1026	35	7	~	1					1	~		7	4	16	2	10		17	3	1	250		69.0	3010	8	529		F
* FG	~	~	~	~	187	~	~	~	~	~	~	~	~	~	~	~	~	~		~		80	30	112	~	~	~	~	8186	0.69	1	2	1	~					~	4		~	~	~	1	~		2	2	~	~		1.0	3400	~	44		FG *
Totals	Lump	25	309	291	2743	319	328	218	144	27	340	470	280	285	407	238	200	58		15		600	610	344	54	56	20	1193	46012	1095	36	9	1	1					1	4		7	4	16	3	10		19	5	1	250		90.0	12410	8	573		Totals

† Estimated Quantities to be used as directed by the Engineer. See General Notes.



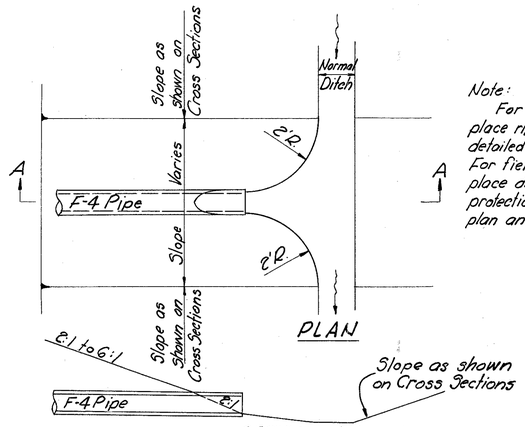
TYPICAL DRIVE DETAIL

① 5" B-19 & 2-1" courses T-35, Type "C"
② 7" B-19 & 2-1" courses T-35, Type "C"
③ 8" B-19 or I-18 stabilized with calcium chloride
④ T-31 over 3" B-21 and 6" B-112
⑤ 5" I-18 & 2-1" courses T-35, Type "C"
⑥ 6" B-19
⑦ 9" B-19 Stabilized with calcium chloride



SOD DETAIL FOR DITCHES

Scale: ½"=1'-0"

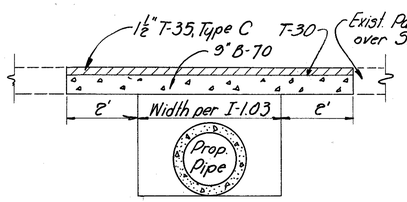


SECTION A-A

Detail at Outlet End of Pipe Underdrains and Field Tile

Note:
For underdrain outlets, place riprap or concrete as detailed on Std. Drwg. I-1. For field tile outlets, place dumped rock channel protection as detailed on plan and profile sheets.

Use 0.10 gal. per sq.yd. Item T-30 Bituminous Tack Coat: Sec. M-3.2 RC-1 or RC-2 or Sec. M-5.5 MS-2 or RS-1



DETAIL OF REPLACEMENT OF EXISTING PAVEMENT

Scale: ½"=1'-0"

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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(2) PAVED SHOULDERS

Location	Station From	Station To	Side	Width	T-31 Bituminous Surface Treatment Sq.Yd.	B-21 Waterproofed Aggr. Base Course Cu.Yd.	B-112 Porous Base Course Cu.Yd.	I-22 Subbase Cu.Yd.	I-18 Stabilized Crushed Aggregate Shoulders Sq.Yd.
S.R. 2									
Relocated	20+65	26+11.39	Lt.	10'	607.1	50.6	83.5	101.2	
	27+42.55	28+80.26		10'	159.1	13.3	21.9	26.5	
	29+46.78	44+63.87		10'	1685.7	140.5	210.7	280.9	
	45+96.12	69+00		10'	2559.9	213.3	320.0	426.6	
*	69+00	83+65.62		10'	1628.5	135.7	203.6	271.4	
*	85+35.50	88+63.88		10'	298.8	24.9	37.3	49.7	
*	90+66.60	97+83.58		10'	796.6	66.4	99.6	132.8	
*	98+86.30	101+00		8'	190.0	31.7	15.8	31.7	
	101+00	106+77.97		8'	513.8	85.6	42.8	85.6	
	106+77.97	110+98.25		10'	467.0	38.9	58.4	77.8	
	111+21.75	120+95.25		10'	1081.7	90.1	135.2	180.3	
	120+95.25	121+45.25		10'-4"	38.9	3.2	5.3	6.5	
	126+54.75	127+04.75		4'-10"	38.9	3.2	5.3	6.5	
	127+04.75	170+01.94		10'	4774.7	397.9	596.8	795.8	
	170+01.94	181+00	Lt.	8'	976.1	162.7	81.3	162.7	
	55+45	69+00	Med.	2@5'	1505.6	125.5	250.9	250.9	
*	69+00	85+96.73			1551.9	129.3	258.7	258.7	
*	85+75.05	88+03.09			253.4	21.1	42.2	42.2	
*	90+54.41	101+00			1161.8	96.8	193.6	193.6	
	101+00	110+74.00			1082.2	90.2	180.4	180.4	
	111+46.00	121+20.75			1083.1	90.3	180.5	180.5	
	126+79.75	181+00	Med.	2@5'	6082.5	501.9	1003.8	1003.8	
	26+80	28+61.57	Rt.	10'	201.7	16.8	25.2	33.6	
	29+33.74	69+00		10'	4407.0	367.2	550.9	734.5	
*	69+00	82+76.28		10'	1529.2	127.4	191.2	254.9	
*	85+06.16	87+90.90		10'	316.4	26.4	39.5	52.7	
*	89+93.62	94+60		10'	518.2	43.2	64.8	86.4	
*	94+60	99+54.45		20'-10"	821.1	68.7	80.1	137.3	
*	99+54.45	101+00		8'	129.4	21.6	10.8	21.6	
	101+00	110+98.25		8'	887.3	147.9	73.9	147.9	
	111+21.75	120+95.25		10'	1081.7	90.1	135.2	180.3	
	120+95.25	121+45.25		10'-4"	38.9	3.2	5.3	6.5	
	126+54.75	127+04.75		4'-10"	38.9	3.2	5.3	6.5	
	127+04.75	180+06.45		10'	5890.8	490.9	736.3	981.8	
	180+06.45	181+00	Rt.	8'	83.2	13.9	6.9	13.9	
Exist. S.R.2	1+12.93	4+19.44	Lt.	4'					136.2
Relocated	1+12.93	4+19.44	Rt.	4'					136.2
S.R. 163	Interchange								
Ramp A	0+98.05	5+59.56	Lt.	3'	153.8	25.6	12.8	25.6	
	5+59.56	7+09.56	Lt.	3'-8"	91.7	15.3	7.1	15.3	
	0+98.05	7+09.56	Rt.	3'	203.8	34.0	17.0	33.9	
Ramp B	2+00.51	8+41.88	Lt.	3'	213.8	35.6	17.8	32.0	
	8+41.88	9+91.88	Lt.	3'-2"	13.9	2.3	1.2	2.3	
	2+00.51	8+41.88	Rt.	3'	213.8	35.6	16.2	35.6	
	8+41.88	9+91.88	Rt.	3'-8"	91.7	15.3	7.6	15.3	
	9+91.88	12+91.88	Rt.	8'	266.7	44.4	22.2	44.4	
	* FG-1042(10) Totals				919.7	79.2	123.2	153.0	~
	F-1042(10) Totals				3647.0	334.5	481.7	607.4	272.4
	Grand Totals				4567.7	413.7	605.9	760.4	272.4

(3) SUMMARY OF ROADWAY QUANTITIES

Carried from Sheet No.	E-1 Compacted Subgrade Sq.Yd.	E-8 Removal of Disp. of Exist. Pav't. Sq.Yd.	E-8 Removal of Disp. of Exist. Curb Lin.Ft.	B-19 Aggregate Base Course Cu.Yd.	B-21 Waterproofed Aggr. Base Course Cu.Yd.	B-35 Asphaltic Conc. Base Course Cu.Yd.	B-35 Asphaltic Conc. Leveling Course Cu.Yd.	B-70 I.P.C. Conc. Base Course Sq.Yd.	T-30 Bituminous Prime Coat Gal.	T-31 Bit. Surface Treatment Sq.Yd.	T-35 Asphaltic Conc. Surface Course (Type C) Cu.Yd.	T-70 Bit. Conc. Pav't. Cu.Yd.	T-71 P.C. Conc. Pav't. Sq.Yd.	I-7 Reinf. Conc. Appr. Slab (Type B) Sq.Yd.	I-12 Type 2A Curb Lin.Ft.	I-12 Type 6 Curb Lin.Ft.	I-12 Special P.C. Conc. Curb (Type A) Lin.Ft.	I-12 Special P.C. Conc. Curb (Type B) Lin.Ft.	I-15 Guard Rail (Std. Type) Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-15 Guard Rail Removed & Disposed of Lin.Ft.	I-15 Guard Rail Removed & Reset within Project Ea.	I-18 Stabilized Crushed Aggregate Shoulders Cu.Yd.	B-112 Porous Base Course Cu.Yd.	I-21 4" P.C. Conc. Median Pav't. (Std. Type 1) Sq.Yd.	I-21 7" P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.	Spec. Lim. & Mix. Sa.Cl. N Aggr. Sq.Yd.	Carried from Sheet No.	
5		1400										1400																		5	
15	782.5	3345	28	62.9	1.9					22.7	19.4		782.5		1666	36							3.1				134.8				15	
16	1114.1	2304		53.9	38.0					464.0			756.0	358.1	1180				325.0		110	42	75.1	3.9			191.3		155		16	
17	818.5	2476		167.6	6.8					82.0			818.5		1662								13.7	181.4			173.5		685		17	
18	166.3			32.1									166.3		1498					148.0			15.8				94.7	43.5			18	
19																				1000.0			109.3				655.8	109.3			19	
20																			134.5	200.0			21.4				128.4	21.4			20	
* 20																				1600.0	800.0		81.0				522.3	87.0			20	*
* 21	355.6													355.6					1533.5	771.7			80.2				481.1	139.4			21	*
* 22	355.6													355.6					1221.5	798.7			82.3				491.2	141.5			22	*
22								46.4			2.0																				22	
* 23	1183.9												1183.9			104				400.0			43.4	89.3			260.4	240.7			23	*
23	1667.2												1667.2							500.0			53.7				322.2	331.6			23	
24	758.8												398.1	360.7					1366.0	878.0			90.0				539.8	816.5			24	
25	177.8													177.8					1290.0	645.8			69.0				413.8	98.6			25	
26	177.8													177.8					1290.0	645.8			69.0				413.8	98.6			26	
27																			335.0	1000.0			108.3				649.6	108.3			27	
28																				1000.0			109.5				656.9	109.5			28	
29																				1000.0			108.5				650.9	108.5			29	
30	138.6												138.6							1000.0			108.5				650.9	131.6			30	
31	145.1												145.1							800.0			88.1				528.4	329.9			31	
32	375.8				3.8					45.4	8.4		375.8									44.5	6.2				70.2		409		32	
35	408.6			90.8	13.2	34.1	14.2		16.4	79.3	14.2					103							6.6				9.2.2				35	
36	476.4			190.0	38.6	39.7	16.5		19.1	213.6	84.7					100	492	150	600.0				19.3				158.9		362		36	
F	8513.4	9525	28	597.3	108.3	73.8	30.7	46.4	35.5	897.0	68.7	1400	6554.0	1074.4	5946	239	492	150	5330.5	8817.6	110	42	44.5	1075.1	125.3	570.5	8257.6		1611		F	
* FG	1835.1	~	~	~	~	~	~	~	~	~	~	~	1183.9	71.1.2	~	104	~	~	435.0	2710.4	~	~	~	292.9	29.3	175.8	608.6		~		FG	*
Totals	10,348.5	9525	28	597.3	108.3	73.8	30.7	46.4	35.5	897.0	68.7	1400	7731.9	1785.6	5946	343	492	150	9688.5	15880	110	42	44.5	1368.0	154.6	1463.2	9362		1611		Totals	

(4) EARTHWORK & SEEDING

Sheet No.	E-1 Excavation Cu.Yd.	E-1 Embankment Cu.Yd.	E-1 Embankment +15% Cu.Yd.	E-4 Borrow, Granular Material Cu.Yd.	E-4 Borrow, Granular Material, incl. excav. of unsuitable material Cu.Yd.	L-9 Seeding Sq.Yd.	
32	175	1,279	1,471			8,120	
41	10,617	50,398	57,958	7,311		62,662	
* 50	2,571	262,775	302,191	**64,519		36,109	
57	3,473	10,537	12,118	6,216		10,268	
59	201	192,435	221,300	**80,876		18,752	
60					25,561		
65	35,797	36,275	41,716	1,132		82,814	
73	1,439	5,110	5,877			9,190	
74	1,748	17,115	19,682			12,458	
* FG	2,571	262,775	302,191	64,519	~	36,109	
F	53,450	313,149	360,122	95,535	25,561	198,864	
Totals	56,021	575,924	662,313	160,054	25,561	234,373	

Carried to General Summary

** Quantities are calculated as shown on the typical section on Sheet 3.

(5) FENCE

Sheet No.	I-26 Chain Link Fence Lin.Ft.	I-25 Woven Wire Fence Type 47 Lin.Ft.	
126	510	15	
127	565	2665	
128		2600	
* 128		1185	*
* 129		2205	*
* 130		200	*
130		1655	
131		5140	
132		4200	
F	1,075	16,875	
* FG	~	3,530	*
Totals	1075	19,805	

Earth Borrow

	F-1042(10) Cu.Yds.	FG-1042(10) Cu.Yds.	Total Cu.Yds.	
Embankment+15%	360,122	302,191	662,313	
-Excavation	53,450	2,571	56,021	*
				*
				*
Net Borrow	306,672	299,620	606,292	

TREE REMOVAL SUMMARY

Sizes	12"-18"	18"-24"	24"-30"	30"-36"	36"-42"	42"-48"	Over 48"
No. of Trees F-1042(10)	246	19	6	4	~	~	~
No. of Stumps F-1042(10)	4	2	1	~	~	~	~
No. of Trees FG-1042(10)	16	3	1	~	~	~	~
No. of Stumps FG-1042(10)	2	1	~	~	~	~	~

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
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LINE	CALCULATIONS				FG-1042 (10)	F-1042 (10)	TOTAL QUANTITY	UNIT
1		T-71 9" REINFORCED P.C. CONCRETE PAVEMENT						
2								
3	From Sheet No. 3	(9,540.36 + 1,899.50) x 21 x 2 ÷ 9		= 61,012.6 Sq.Yds.	14,841.9	46,710.7		
4								
5	From Sheet No. 4	2,534.74 x 25.5 x 2 ÷ 9		= 14,363.5 Sq.Yds.		14,363.5		
6		(397.86 + 755.62) x 16 ÷ 9		= 2,049.6 Sq.Yds.		2,049.6		
7								
8	20+65 to 28+57.77 W.Bd.	677.27 x 25.5 + 115.5 x 24	= 20,042.39 Sq.Ft.					
9	20+75 to 28+39.47 E.Bd.	567.47 x 27 + 196 x 25.5 + 41 x 24	= 20,223.69					
10	Add for Exist. S.R. 2 Reloc.	256.51 x 24 + 50 x 23.5	= 7,331.24					
11	Add for S.R. 163 Interchange:							
12	Ramp A	100 x 17	= 1,700.00					
13	Add for Curvature	505.62 x 16 x 8 ÷ 1432.39	= 45.18					
14	Ramp B	50 x 18 + 100 x 17 + 300 x 15	= 7,000.00					
15	Add for Curvature	325 x 16 x 8 ÷ 1432.39	= 29.04					
16			56,371.54					
17	Deduct for Median Openings (Sta. 29+65.26 to 55+53) = 665.74 x 1.5 x 2		= -1,997.22					
18			54,374.32 ÷ 9	= 6,041.6 Sq.Yds.		6,041.6		
19				Sub Total = 83,467.3	14,841.9	69,225.4		
20	Add from Summary of Roadway Quantities			+ 7,737.9	1,183.9	6,554.0		
21				Total = 91,205.2 Sq.Yds.	15,425.8	75,779.4	91,205	Sq.Yds.
22								
23		T-31 BITUMINOUS SURFACE TREATMENT						
24								
25	From Paved Shoulder Calculations		= 45,672.7 Sq.Yds.					
26	From Summary of Roadway Quantities		= 897.0					
27		Sub Total	= 46,569.7 Sq.Yds.					
28								
29		T-31 BITUMINOUS MATERIAL	46,569.7 x 0.25	= 11,642.4 Gals.	2,299.4	9,343.0	11,643	Gals.
30								
31		T-31 AGGREGATE	46,569.7 x 0.008	= 372.6 Cu.Yds.	73.6	299.0	373	Cu.Yds.
32								
33		B-21 WATERPROOFED AGGREGATE BASE COURSE						
34								
35	From Paved Shoulder Calculations			= 4,141.7 Cu.Yds.	793.2	3,348.5		
36	From Summary of Roadway Quantities			= 102.3		102.3		
37				Total = 4,244.0 Cu.Yds.	793.2	3,450.8	4,244	Cu.Yds.
38								
39		B-118 POROUS BASE COURSE						
40								
41	From Paved Shoulder Calculations			= 6,054.9 Cu.Yds.	1,237.2	4,817.7		
42	From Summary of Roadway Quantities			= 1,368.0	292.9	1,075.1		
43				Total = 7,422.9 Cu.Yds.	1,530.1	5,892.8	7,423	Cu.Yds.
44								
45		I-22 SUBBASE						
46								
47	From Line No. 19		= 83,467.3 Sq.Yds.					
48	Add for S.R. 2 Reloc. Median	(541+128+531+186) x 10 ÷ (12 x 9)	= 122.8					
49	(Sta. 20+65 to 55+00)	(316+40+66+178+17+884) x 13 ÷ 9	= 2,168.1					
50		(132.73 x 5.5 + 200 x 7.5 + 268 x 2) ÷ 9	= 307.3					
51			86,065.5 x 6 ÷ 36	= 14,344.3 Cu.Yds.	2,373.7	11,970.6		
52	Add for Exist. S.R. 2 Reloc.	306.51 x 7.022 (avg.) ÷ 27		= 79.7		79.7		
53	From Paved Shoulder Calculations			= 7,608.4	1,593.0	6,015.4		
54	From Summary of Roadway Quantities			= 3,136.2	608.6	2,527.6		
55				Total = 25,168.6 Cu.Yds.	4,515.3	20,653.3	25,169	Cu.Yds.
56								
57		I-18 STABILIZED CRUSHED AGGREGATE SHOULDERS						
58								
59	From Paved Shoulder Calculations		= 272.4 x 6 ÷ 36	45.4 Cu.Yds.				
60	From Summary of Roadway Quantities			44.5				
61				Total = 89.9 Cu.Yds.		89.9	90	Cu.Yds.
62								
63		E-1 COMPACTED SUBGRADE						
64								
65	From Line No. 19 (T-71)			= 83,467.3 Sq.Yds.	14,841.9	69,225.4		
66	From Line No. 25 (T-31)			= 45,672.7	9,197.7	36,475.0		
67	From Summary of Roadway Quantities			= 10,408.5	1,895.1	8,513.4		
68				Total = 139,548.5 Sq.Yds.	25,334.7	114,213.8	139,549	Sq.Yds.
69								
70		L-9 COMMERCIAL FERTILIZER						
71								
72	From Earthwork and Seeding Summary		= 234,373 Sq.Yds.		3.85	17.84		
73	From Sodding (L-10) Summary & Spec. Berm & Slope Sodding		= 1438			0.13		
74		Total	235,811 x 9 x 20 ÷ 1000 x 2000 = 21.22 Tons		3.85	17.97	21.22	Tons
75								
76								

LINE	CALCULATIONS				FG-1042 (10)	F-1042 (10)	TOTAL QUANTITY	UNIT
77		E-11 WATER						
78								
79	From E-1 (Embankment)			= 575,924 Cu.Yds.	1313.9	1567.7		
80	From I-22 Line No. 55			= 25,169	22.6	1033		
81	From I-18 Line No. 61 + B-19 (Table 3)			= 688		3.4		
82		Total		= 601,781 x 5 ÷ 1000 = 3,008.9 M.Gals.	1336.5	1672.4	3,009	M.Gals.
83								
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FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
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GENERAL SUMMARY

TYPE CODE 7221

ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION	FG-1042(10)	F-1042(10)	CARRIED FROM
			ROADWAY			
E-1	56,021	Cu.Yds.	Roadway Excavation, Method B, as per plan	2,571	53,450	Table 4
E-1	139,549	Sq.Yds.	Compacted Subgrade	25,335	114,214	Sheet 12
E-4	606,292	Cu.Yds.	Borrow	299,620	306,672	Sheet 11
E-4	160,054	Cu.Yds.	Borrow, Using Granular Material as per plan	64,519	95,535	Table 4
E-4	25,561	Cu.Yds.	Borrow, Using Granular Material including the cost of excavation of Unsuitable Material as per plan		25,561	Table 4
E-8	9525	Sq.Yds.	Removal and Disposal of Existing Pavement		9525	Table 3
E-8	28	Lin.Ft.	Removal and Disposal of Existing Curb		28	Table 3
E-9	Lump	Lump	Removal of Trees and Stumps	Lump	Lump	Sheet 11
E-11	3009	M.Gal.	Water	1337	1672	Sheet 12
I-8	3	Each	Centerline Reference Monuments, as per plan		3	Sheet 121
I-8	20	Each	Standard Monument Assemblies	4	16	Sheet 121
I-15	9688.5	Lin.Ft.	Guard Rail, Steel Beam Standard Type (Deep)	4358.0	5330.5	Table 3
I-15	11,588.0	Lin.Ft.	Guard Rail, Steel Beam Barrier Type (Deep) using square sawed Creosote Pressure Treated Posts	2770.4	8817.6	Table 3
I-15	110	Lin.Ft.	Guard Rail Removed and Disposed of		110	Table 3
I-15	42	Each	Wood Guard Rail Posts without Rail		42	Table 3
L-9	234,373	Sq.Yds.	Seeding and Protecting, as per plan	36,109	198,264	Table 4
L-9	21.22	Tons.	Commercial Fertilizer (12-12-12)	3.25	17.97	Sheet 12
L-10	573	Sq.Yds.	Sodding, as per plan	44	529	Table 1
L-10	865	Sq.Yds.	Sodding for Special Berm and Slope Protection, as per plan	334	531	Sheet 9
I-25	19,805	Lin.Ft.	Woven Wire Fence, Type 47	3530	16,275	Table 5
I-26	1075	Lin.Ft.	Chain Link Fence		1075	Table 5
T-10	150	Cu.Yds.	Traffic Compacted Surface Course for Maintaining Traffic		150	Sheet 5
I-4	3	Tons	Calcium Chloride for Dust Control		3	Sheet 5
T-35	25	Cu.Yds.	Asphaltic Concrete Surface Course or an Approved Bituminous Premixed Surface Course for Maintaining Traffic		25	Sheet 5
Spec.	4	Each	Cleaning Privy Vaults	1	3	Sheet 6
Spec.	1611	Sq.Yds.	Furnishing and Mixing Calcium Chloride with Aggregate		1611	Table 3
SSCE-101.04	70	Hrs.	Compaction using Heavy Pneumatic-Tired Roller	13	57	Sheet 6
I-125	13.05	Miles	4" Edge Lines	2.43	10.62	Sheet 9B
I-125	0.05	Miles	4" Lane Lines		0.05	Sheet 9B
I-125	2.28	Miles	6" Lane Lines	1.21	1.07	Sheet 9B
I-125	0.24	Miles	8" Channelizing Lines	0.13	0.11	Sheet 9B
I-125	Lump	Lump	Diagonal Stripes		Lump	Sheet 9B
I-125	Lump	Lump	Curb and Island Marking		Lump	Sheet 9B
I-127	131	Each	Delineators Type A-1, Post Mounted	16	115	Sheet 9B
I-127	60	Each	Delineators Type C-2, Post Mounted		60	Sheet 9B
I-127	2	Each	Delineators Type C-3, Post Mounted		2	Sheet 9B
			DRAINAGE			
E-3	85	Cu.Yds.	Channel Excavation		85	Table 1
E-12	309	Lin.Ft.	Pipe Removed, 15" and under		309	Table 1
I-1	27	Lin.Ft.	6" Pipe Class A-1, Sec. M-6.6(b) or Sec. M-6.8(b)		27	Table 1
I-1	2743	Lin.Ft.	12" Pipe Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	187	2556	Table 1
I-1	319	Lin.Ft.	15" Pipe Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)		319	Table 1
I-1	328	Lin.Ft.	18" Pipe Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)		328	Table 1
I-1	212	Lin.Ft.	24" Pipe Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)		212	Table 1

TYPE CODE 7221

ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION	FG-1042(10)	F-1042(10)	CARRIED FROM
I-1	144	Lin.Ft.	36" Pipe Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)		144	Table 1
I-1	280	Lin.Ft.	12" Pipe Class B-1		280	Table 1
I-1	285	Lin.Ft.	18" Pipe Class B-1		285	Table 1
I-1	407	Lin.Ft.	24" Pipe Class B-1		407	Table 1
I-1	238	Lin.Ft.	6" Pipe Class E-1		238	Table 1
I-1	200	Lin.Ft.	8" Pipe Class E-1		200	Table 1
I-1	58	Lin.Ft.	12" Pipe Class E-1		58	Table 1
I-1	470	Lin.Ft.	15" Pipe Class B-1		470	Table 1
I-1	15	Lin.Ft.	18" Pipe Class E-1		15	Table 1
I-1	340	Lin.Ft.	30" Pipe Class B-1		340	Table 1
I-1	600	Lin.Ft.	6" Pipe Class F-1	80	520	Table 1
I-1	250	Lin.Ft.	6" Pipe Class F-4		250	Table 1
I-1	610	Lin.Ft.	8" Pipe Class F-4, Sec. M-6.4(c)	30	580	Table 1
I-1	344	Lin.Ft.	12" Pipe Class F-4	112	232	Table 1
I-1	54	Lin.Ft.	15" Pipe Class F-4		54	Table 1
I-1	56	Lin.Ft.	24" Pipe Class F-4, 12 Gage		56	Table 1
I-1	20	Lin.Ft.	30" Pipe Class F-4		20	Table 1
I-1	46,072	Lin.Ft.	6" Pipe Class I-3, as per plan	8126	37,946	Table 1
I-1	1193	Lin.Ft.	6" Pipe Class I-3, Sec. M-6.4(h)		1193	Table 1
I-2	11	Cu.Yds.	Masonry	0.7	10.3	Table 1
I-5	46	Each	6" Pipe Specials, Class I-3	4	42	Table 1
I-5	1	Each	6" Pipe Specials, Class A-1 Sec M-6.6(b) or Sec M-6.8(b)		1	Table 1
I-5	1	Each	36" Pipe Specials, Class A-1 Sec M-6.6(a) or Sec M-6.8(b)		1	Table 1
I-5	4	Each	12" Pipe Specials, Class F-4	4		Table 1
I-8	7	Each	Standard No. 2-2-B Catch Basins		7	Table 1
I-8	4	Each	Standard No. 2-3 Catch Basins		4	Table 1
I-8	16	Each	Standard No. 3-A Catch Basins		16	Table 1
I-8	3	Each	Standard No. 6 Catch Basins	1	2	Table 1
I-8	10	Each	Standard No. 2-6 Median Inlet		10	Table 1
I-8	19	Each	Standard No. 2-A-6 Paved Shoulder Inlet, Modified as per plan	2	17	Table 1
I-8	5	Each	Standard No. 2-A-8 Paved Shoulder Inlet, Modified as per plan	2	3	Table 1
I-8	1	Each	Standard No. 1 Manhole		1	Table 1
I-10	90	Cu.Yds.	Dumped Rock Channel Protection	1	89	Table 1
I-10	12,410	Cu.Yds.	Dumped Rock Fill, Type A as per plan	3400	9010	Table 1
I-16	8	Each	Catch Basins Abandoned		8	Table 1
S-24	Lump	Lump	Removal of Existing Structures		Lump	Table 1

GENERAL SUMMARY

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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OTT. 2-16.48

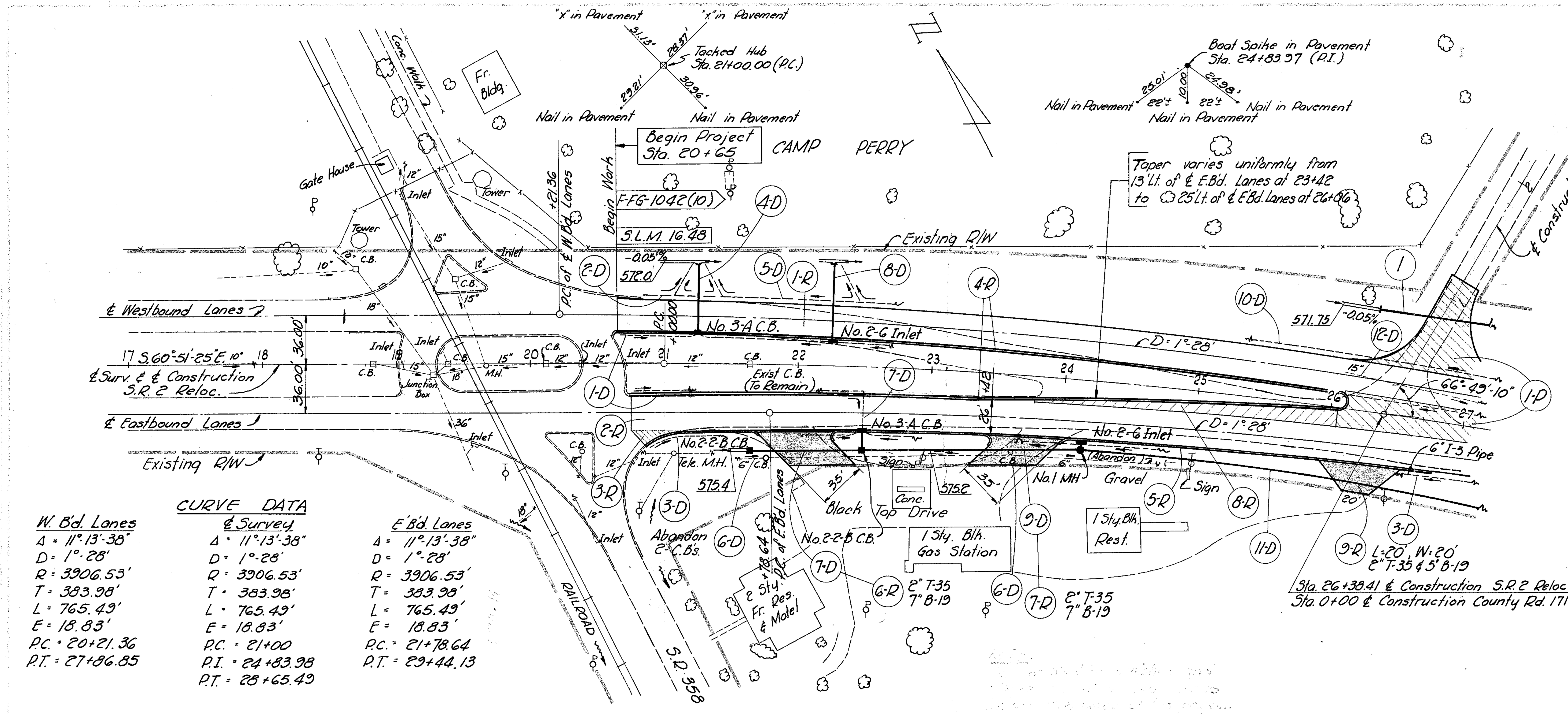
TYPE CODE 7221

ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION	FG-1042(10)	F-1042(10)	CARRIED FROM
			PAVEMENT			
B-19	597	Cu.Yds.	Aggregate Base Course		597	Table 3
B-21	4244	Cu.Yds.	Waterproofed Aggregate Base Course, as per plan	793	3451	Sheet 12
B-35	31	Cu.Yds.	Asphaltic Concrete Leveling Course (70-85)		31	Table 3
B-35	74	Cu.Yds.	Asphaltic Concrete Base Course (70-85)		74	Table 3
B-70	47	Sq.Yds.	9" Portland Cement Concrete Base Course		47	Table 3
B-112	7423	Cu.Yds.	Porous Base Course	1530	5893	Sheet 12
I-7	1786	Sq.Yds.	Reinforced Concrete Approach Slabs (T=13") as per plan	711	1075	Table 3
I-12	5946	Lin.Ft.	Standard Type E-A Concrete Curb		5946	Table 3
I-12	343	Lin.Ft.	Standard Type 6 Concrete Curb	104	239	Table 3
I-12	492	Lin.Ft.	Special Concrete Curb, Type A, as per plan		492	Table 3
I-12	150	Lin.Ft.	Special Concrete Curb, Type B, as per plan		150	Table 3
I-18	90	Cu.Yds.	Stabilized Crushed Aggregate Shoulders and Approaches		90	Sheet 12
I-81	155	Sq.Yds.	4" Portland Cement Concrete Median Pavement, Standard Type 1	29	126	Table 3
I-81	7463	Sq.Yds.	Portland Cement Concrete Median Pavement, Standard Type 2 as per plan	1758	5705	Table 3
I-82	25,169	Cu.Yds.	Subbase, Grading A or B, as per plan	4515	20,654	Sheet 12
T-30	5	Gals.	Bituminous Tack Coat, Sec. M-5.5 MS-2 or RS-1 or Sec M-5.2 RC-1 or RC-2 as per Sec. T-30.02		5	Sheet 22
T-30	355	Gals.	Bituminous Prime Coat, Sec. M-5.7, RT 2 or RT 3		355	Table 3
T-31	373	Cu.Yds.	Bituminous Surface Treatment, No. 6 Aggregate	74	299	Sheet 12
T-31	11,643	Gals.	Bituminous Surface Treatment, Bituminous Material, as per plan	2300	9343	Sheet 12
T-35	69	Cu.Yds.	Asphaltic Concrete Surface Course, Type C (70-85)		69	Table 3
T-70	1400	Sq.Yds.	8" Portland Cement Concrete Pavement, as per plan		1400	Table 3
T-71	91,205	Sq.Yds.	9" Reinforced Portland Cement Concrete Pavement	15,486	75,779	Sheet 12
			For Lighting quantities See Sheet No 116			
			STRUCTURES OVER 20' SPAN			
			OTT. 2-1664 See Sheet No. 77			
			OTT. 2-1769 See Sheet No. 85			
			OTT. 2-1777 See Sheet No. 94			
			OTT. 2-1880 See Sheet No. 103			
			OTT. 2-1844 See Sheet No. 109 & 116			
			OTT. 2-1868 See Sheet No. 118			
	Lump	Lump	Construction Layout Stakes	Lump	Lump	
I-3	Lump	Lump	Maintaining Traffic	Lump	Lump	Sheet 5

ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION
			BUILDING REMOVALS
E-10	Lump	Lump	Removal of two 1 story frame residences, Parcel No. 35 WL
E-10	Lump	Lump	Removal of two outhouses, two sheds, frame barn, 1-car garage, Parcel No. 38 AWL
E-10	Lump	Lump	Removal of one 1 story frame residence, Parcel No. 55 WL
E-10	Lump	Lump	Removal of one 1 story frame residence, one 1½ story frame residence, Parcel No. 56 WL
E-10	Lump	Lump	Removal of one 1 story frame residences, Parcel No. 35 WL
E-10	Lump	Lump	Removal of one 2 story frame residence, 4 sheds, outhouse, parcel No. 69 WL
E-10	Lump	Lump	Removal of one barn and one shed, Parcel No. 65 WL
E-10	Lump	Lump	Removal of one 1 story brick residence, Parcel No. 66 WL
E-10	Lump	Lump	Removal of one 1 story frame residence, Parcel No. 83 AWL
E-10	Lump	Lump	Removal of one 1 story Concrete block residence, Parcel No. 78 WL
E-10	Lump	Lump	Removal of one 1 story frame residence, Parcel No. 90 WL
E-10	Lump	Lump	Removal of one 1 story frame residence, Parcel No. 91 WL
E-10	Lump	Lump	Removal of one 1 story frame residence, Parcel No. 92 WL

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2-16.48



See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade	E-8 Removal & Disposal of Exist Pav't.	E-8 Removal & Disposal of Exist Curb	B-19 Aggregate Base Course	T-35 Asphaltic Conc. Surface Course (Type C)	T-71 9" Reinf. P.C. Conc. Pav't.	I-12 Type 2-A Curb	I-12 Type 6 Curb	I-22 Subbase	B-21 Waterproofed Agg. Base Course	B-112 Porous Base Course	T-31 Bit. Surface Treatment
					Sq.Yd.	Sq.Yd.	Lin.Ft.	Cu.Yd.	Cu.Yd.	Sq.Yd.	Lin.Ft.	Lin.Ft.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Sq.Yd.
	1-R	20+65	23+83	Lt.		853										
	2-R	20+75	27+00	Rt.		2492										
	3-R	20+75	21+20	Rt.	23.2					23.2			3.9			
	4-R	20+70(Av.)	26+06	Lt.&Rt.							1062					
	5-R	20+85	26+80	Rt.			28				588					
	6-R	21+98		Rt.				27.2	7.8			18				
	7-R	23+72		Rt.				23.4	6.7			18				
	8-R	23+42	26+06	Rt.	176.0					176.0			29.3			
	9-R	26+26		Rt.				12.3	4.9							
37	1-D	26+38.41	27+00	Lt.&Rt.	583.3					583.3	16		101.0	1.9	3.1	22.7
	Totals				782.5	3345	28	62.9	19.4	782.5	1666	36	134.2	1.9	3.1	22.7

Table title: ROADWAY QUANTITIES F-1042(10)

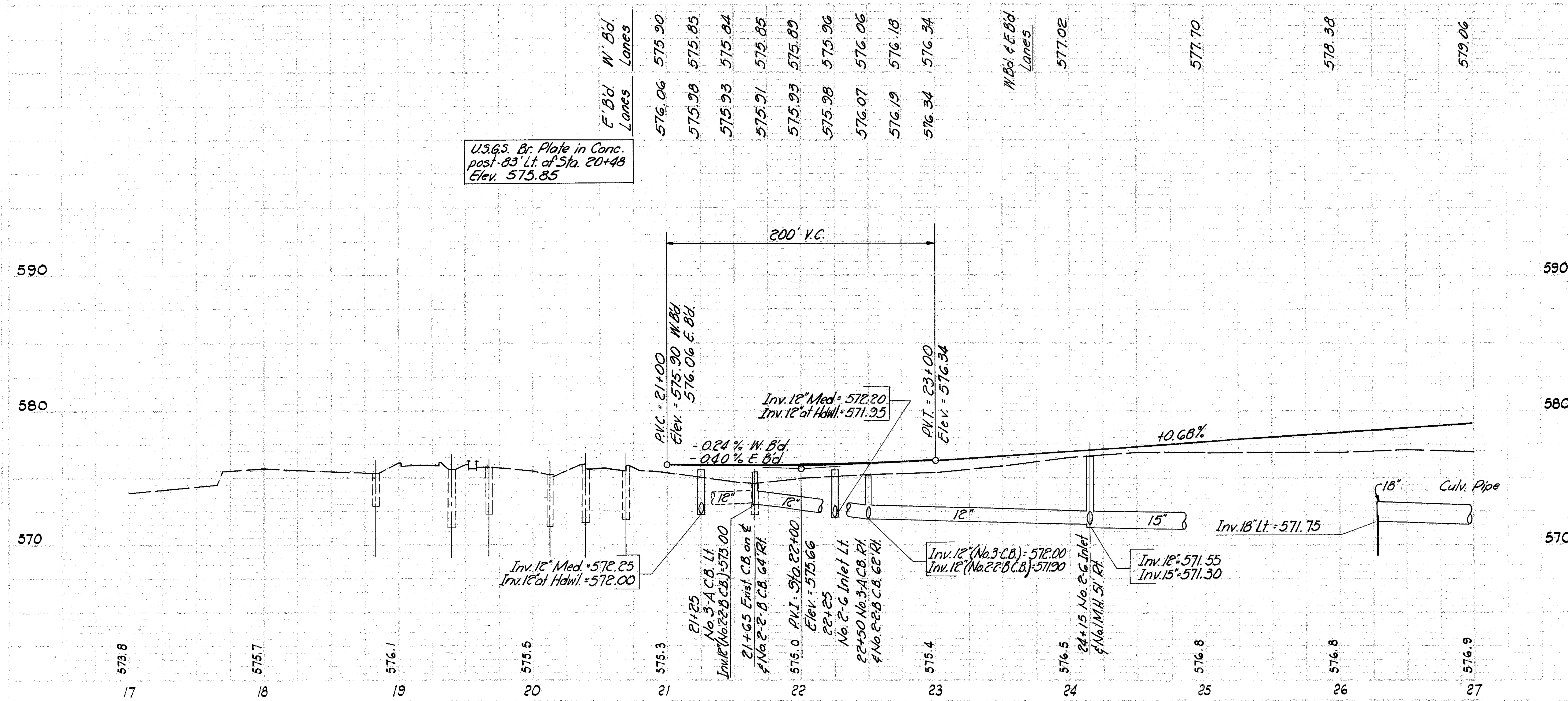


Table title: DRAINAGE QUANTITIES F-1042(10)

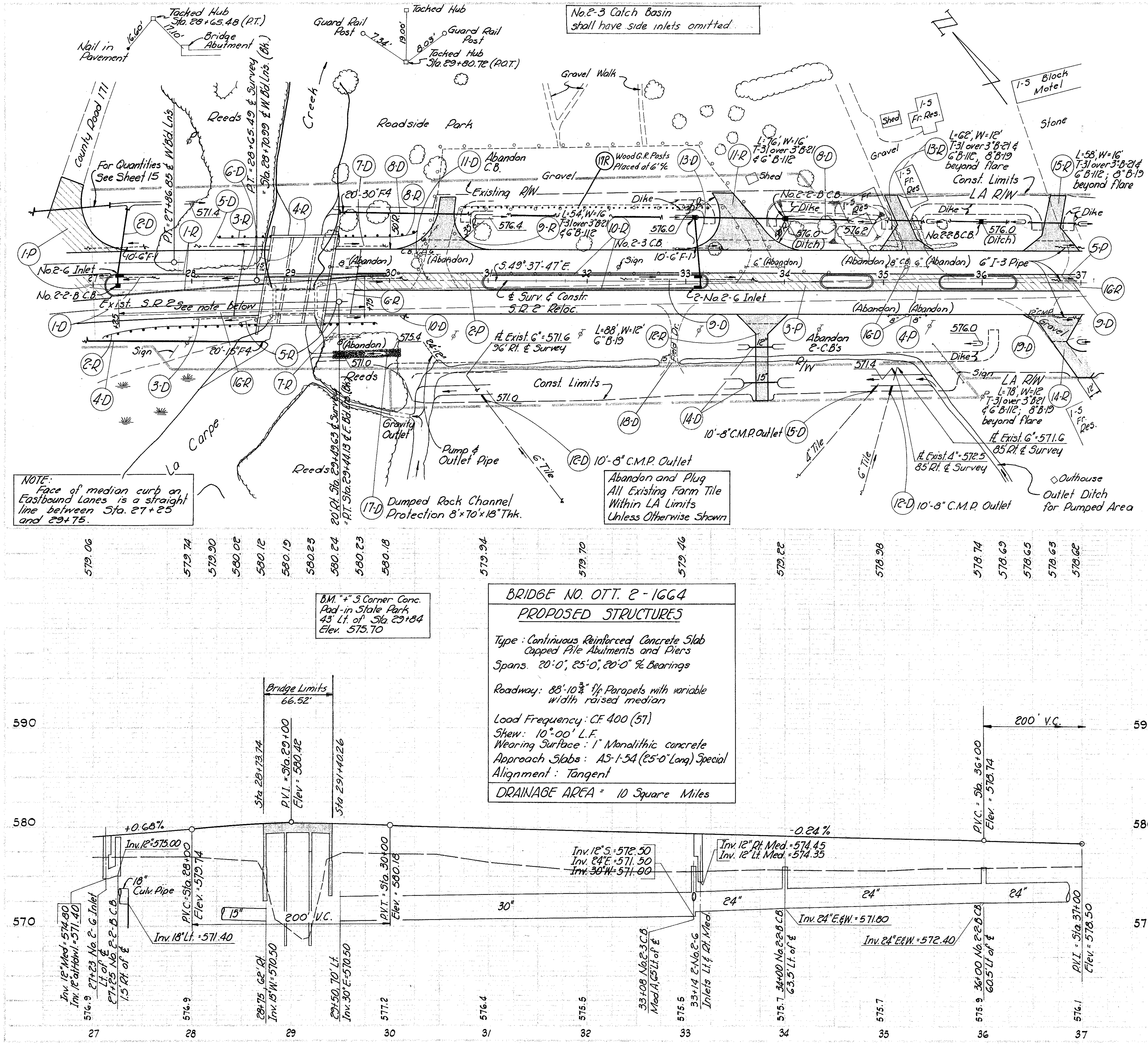
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 18" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	I-1 15" Pipe Class B-1	I-1 12" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	E-12 15" Pipe Removed	I-1 12" Pipe Class B-1	I-1 6" Pipe Class I-3 Sec. M-6.4(h)	I-1 6" Pipe Class I-3 (Shallow)	I-1 6" Pipe Class F-1	I-1 8" Pipe Class F-4 Sec. M-6.4(c)	I-2 Masonry	I-5 6"x6"-60° Wye for Class I Pipe	I-5 6"-90° Bend for Class A Pipe	I-8 No. 2-6 Inlet	I-8 No. 3-A C.B.
					Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Cu.Yd.	Ea.	Ea.	Ea.	Ea.
	1-D	20+70(Av.)	27+00 Lt. 22+50 Rt.	Med.						125	495	30				1		
	2-D	20+85	21+25	Lt.							57		10		1			
	3-D	20+90	27+00	Rt.							578	30						
	4-D	21+25		Lt.			51							0.23				1
	5-D	21+25	22+25	Lt.							115		10		1			
	6-D	21+76	23+62	Rt.														
	7-D	21+65	22+50	Rt.					100									1
	8-D	22+25		Lt.			57							0.23			1	
	9-D	22+50	24+15	Rt.					171								1	
	10-D	22+25	27+00	Lt.						75	422		10		1			
	11-D	24+15	27+00	Rt.		280												
	12-D	26+05	27+00	Lt.				95										
39	1	0+89 (County Rd. 171)			92									0.60				
	Totals				92	280	108	95	271	200	1667	60	30	1.06	3	1	2	2

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-8 No. 2-2-B C.B.	I-8 No. 1 M.H. with Light Casting	I-16 Abandon C.B.	I-1 6" Pipe, Class A-1, Sec. M-6.6(b) or Sec. M-6.8(b)
					Ea.	Ea.	Ea.	Lin.Ft.
	6-D	21+76	23+62	Rt.			2	
	7-D	21+65	22+50	Rt.	2			27
	9-D	22+50	24+15	Rt.		1		
	Totals				2	1	2	27

17 to 27

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	
2	OHIO			16/133

OTT 2-16.48



ROADWAY QUANTITIES F-1042 (10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-19 Aggregate Base Course Cu.Yd.	B-21 Waterproofed Agg. Base Course Cu.Yd.	B-112 Porous Base Course Cu.Yd.	T-31 Bit. Surface Treatment Sq.Yd.	T-71 9" Reinf. P.C. Conc. Pav't. Sq.Yd.	I-7 Reinf. Conc. Appr. Slab (T=13") Sq.Yd.	I-12 Type 2A Curb Lin.Ft.	I-15 Guard Rail (Std. Type) Lin.Ft.	I-15 Guard Rail Removed & Disposed of Lin.Ft.	I-21 4" P.C. Conc. Median Pav't. (Std. Type I) Sq.Yd.	I-22 Subbase Cu.Yd.	E-8 Removal & Disposal of Exist. Pav't. Sq.Yd.	Spec. Furn. & Mix. Ca.Cl. W/Aggr. Sq.Yds.	I-15 Wood G.R. Posts Ea.
37	1-P	27+00	27+21	Lt.&Rt.	70.3		1.9	3.1	22.7	70.3		30				15.5			
	1-R	27+21	28+48.74	Med.								258							
	2-R	27+15	28+65	Rt.									150						
	3-R	28+30	28+80	Lt.									50						
	4-R	See Site Plan			180.3						180.3					30.1			
	5-R	28+48	30+10	Lt.&Rt.										110					
	6-R	See Site Plan			177.8						177.8					29.6			
	7-R	29+33	29+83	Rt.									50						
	8-R	29+50	30+25	Lt.									75						
37	2-P	29+65.26	30+99	Med.	226.5					226.5		88			3.9	39.6			
*	9-R	30+52		Lt.			9.5	19.0	113.7										
	10-R	30+99	36+30	Med.								644							
*	11-R	33+60		Lt.			15.8	31.6	189.4										
37	3-P	33+15	34+43	Med.	212.8					212.8		40				35.5			
*	12-R	33+76		Rt.		19.2													
37	4-P	34+83	35+64	Med.	129.3					129.3		40				21.5			
*	13-R	35+24		Lt.		9.8	3.3	6.5	39.0									44	
37	5-P	36+30	37+00	Med.	117.1					117.1		20				19.5			
*	14-R	36+72		Rt.		11.9	4.3	8.5	51.0									53	
*	15-R	36+70		Lt.		13.0	3.2	6.4	38.2									58	
	16-R	27+00	37+00	Lt.&Rt.													2304		
	17-R	30+78	33+24	Lt.															42
		Totals			1114.1	53.9	38.0	75.1	454.0	756.0	358.1	1120	325	110	3.9	191.3	2304	155	42

* In Drive Approaches, quantities within limits of paved shoulder are included in Summary of Paved Shoulder.

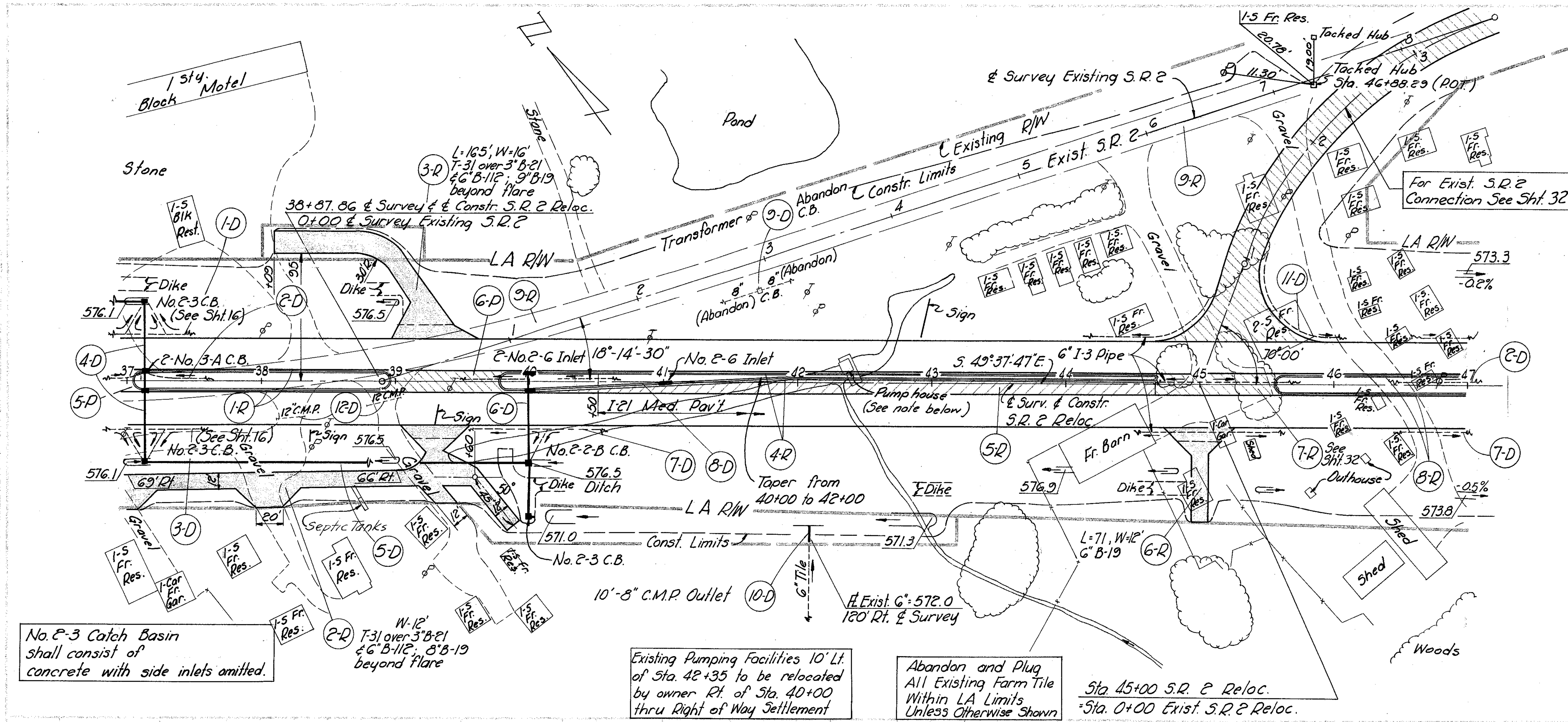
DRAINAGE QUANTITIES F-1042 (10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-12 15" Pipe Removed Lin.Ft.	I-2 Masonry Cu.Yd.	I-1 12" Pipe Class F-1 Lin.Ft.	I-1 30" Pipe Class F-4 Lin.Ft.	I-1 15" Pipe Class B1 Lin.Ft.	I-1 8" Pipe F-4 Class Sec. M-6.4(c) Lin.Ft.	I-1 12" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) Lin.Ft.	I-1 15" Pipe Class F-4 Lin.Ft.	I-1 6" Pipe Class I-3 Sec. M-6.4(h) Lin.Ft.	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-8 No. 2-6 Inlet Ea.	I-10 Dumped Rock Channel Protection Cu.Yd.	I-16 Abandon C.B. Ea.
	1-D	27+00	28+47	Med.										132	10			
	2-D	27+23	27+25	Lt.		0.23					78					1		
	3-D	27+00	28+65	Rt.										165				
	4-D	27+00	28+75	Rt.					150			20						
	5-D	27+00	28+78	Lt.									25	143	10			
	6-D	27+00	28+75	Lt.	175													
	7-D	29+48	37+00	Lt.										742	10			
	8-D	29+50	37+00	Lt.				20										
	9-D	29+67	37+00	Med.									390	330	10			
	10-D	29+35	37+00	Rt.										765				
	11-D	30+25		Lt.														1
	12-D	30+93	35+10	Rt.						20								
	13-D	33+14		Lt.			11				60					2		
	14-D	33+78		Rt.								34						
	15-D	34+94		Rt.						10								
	16-D	35+23		Lt.&Rt.														2
	17-D	29+40	30+10	Rt.													31.1	
	18-D	32+72	32+93	Rt.	21													
		Totals			196	0.23	11	20	150	30	138	54	415	2277	40	3	31.1	3

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-8 No. 2-3 C.B. Ea.	I-8 No. 2-2-B C.B. Ea.	I-1 30" Pipe Class B-1 Lin.Ft.	I-1 24" Pipe Class B-1 Lin.Ft.	I-1		I-1 12" Pipe Class F-4 Lin.Ft.	I-1 12" Pipe Class B-1 Lin.Ft.	E-12 12" Pipe Removed Lin.Ft.
	2-D	27+23	27+25	Lt.		1						9	
	8-D	29+50	37+00	Lt.	1	2	340	392					
	14-D	33+78		Rt.							24		
	19-D	36+46	36+72	Rt.									26
		Totals			1	3	340	392			24	9	26

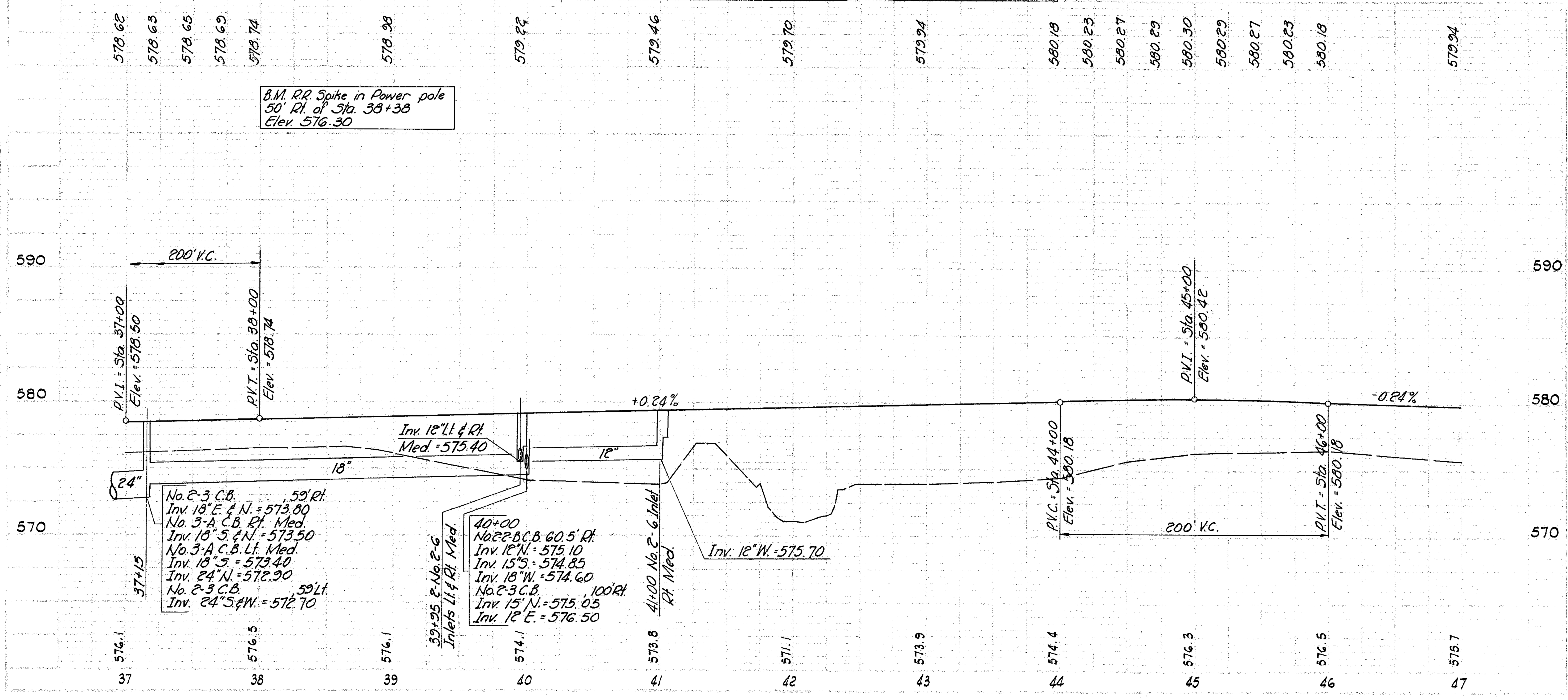
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2-16.48



		ROADWAY QUANTITIES F-1042 (10)			E-1	B-19	B-21	B-112	T-31	T-71	I-12	I-21	I-22	E-8	Spec.
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	Compacted Subgrade	Aggregate Base Course	Waterproofed Aggr. Base Course	Porous Base Course	Bit. Surface Treatment	9" Reinf. P.C. Conc. Pav't	Type 2-A Curb	4" P.C. Conc. Median Pav't (Std. Type 1)	Subbase	Removal & Disposal of Exist. Pav't	Furn. & Mix. Ca.Cl. W/Aggr.
					Sq.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Sq.Yd.	Sq.Yd.	Lin.Ft.	Sq.Yd.	Cu.Yd.	Sq.Yd.	Sq.Yd.
37	5-P	37+00	37+11	Med.	12.2					12.2	20		2.0		
	1-R	37+11	38+89	Med.							356				
*	2-R	39+30		Rt.		100.4	2.0	4.1	24.4						452
*	3-R	39+30		Lt.		51.8	4.8	9.6	57.6						233
37	6-P	38+89	39+83	Med.	152.4					152.4	40		25.4		
	4-R	39+83	44+68	Med.							954	121.4	37.1		
	5-R	40+00	44+68	Rt.	490.7					490.7			81.8		
*	6-R	45+00		Rt.		15.4									
	7-R	44+68	45+64	Med.	163.2					163.2	20		27.2		
	8-R	45+64	47+00	Med.							272				
	9-R	37+00	9+28 ℄ Exist. S.R. 2	Lt. & Rt.										2476	
	Totals				818.5	167.6	6.8	13.7	82.0	818.5	1662	121.4	173.5	2476	685

* In Drive Approaches, quantities within limits of paved shoulder are included in Summary of Paved Shoulder.



		DRAINAGE QUANTITIES F-1042 (10)			I-1	I-1	I-1	I-1	I-1	I-1	I-1	I-1	I-1	I-1	I-1	I-5	I-8	I-8
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	24" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	24" Pipe Class B-1	18" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	18" Pipe Class B-1	18" Pipe Class F-1	12" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	12" Pipe Class E-1	6" Pipe Class I-3 (Shallow)	6" Pipe Class F-4	8" Pipe Class F-4 Sec. M-6.4(c)	6" Pipe Class I-3 Sec. M-6.4(h)	6"x6"-60° Wye for Class I Pipe	No. 2-2-B C.B.	No. 2-3 C.B.
					Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Ea.	Ea.	Ea.
	1-D	37+00	45+06	Lt.								848	20			2		
	2-D	37+00	47+00	Med.								484			478			
	3-D	37+00	40+00	Rt.								328	20			2		
	4-D	37+00	37+15	Lt. & Rt.	52	15	52		15									2
	5-D	37+15	40+00	Rt.				285										
	6-D	39+95	40+00	Rt.						55	11						1	1
	7-D	40+00	47+00	Rt.								711	10			1		
	8-D	39+95	41+00	Med.						100								
	9-D	41+72		Lt.														
	10-D	42+08		Rt.										10				
	11-D	45+50	47+00	Lt.								198						
	Totals				52	15	52	285	15	155	11	2569	50	10	478	5	1	3

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-8 No. 3-A C.B.	I-8 No. 2-6 Inlet	I-8	I-16 Abandon C.B.	E-12 12" Pipe Removed	I-1 15" Pipe Class B-1	I-1 12" Pipe Class F-4	I-1 6" Pipe Class F-1
					Ea.	Ea.		Ea.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.
	4-D	37+15		Lt. & Rt.	2							
	6-D	39+95	40+00	Rt.		2				40	2	
	8-D	39+95	41+00	Med.		1						
	9-D	41+72		Lt.				1				
	2-D	37+00	47+00	Med.								30
	12-D	38+11	39+00	Rt.					47			
	Totals				2	3		1	47	40	2	30

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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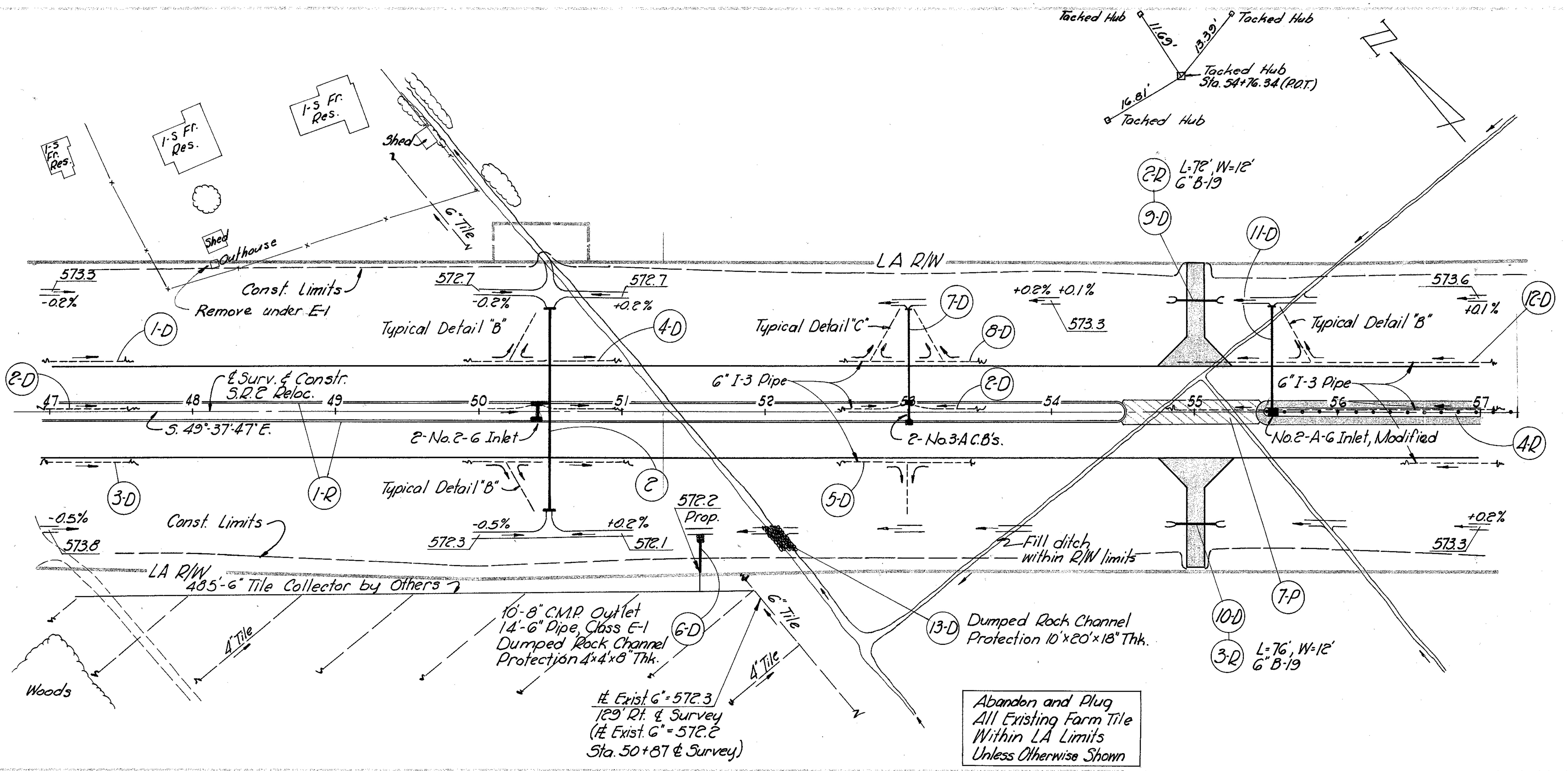
OTT 2-16.48



ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-19 Aggregate Base Course Cu.Yd.	B-112 Porous Base Course Cu.Yd.	T-71 9" Reinf. P.C. Conc. Pav't. Sq.Yd.	I-12 Type 2-A Curb Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.
	1-R	47+00	54+48	Med.					1478			
37	7-P	54+48	55+52	Med.	166.3			166.3	20			27.7
*	2-R	55+00		Lt.		15.6						
*	3-R	55+00		Rt.		16.5						
	4-R	55+50	57+00	Med.			15.8			148	94.7	15.8
	Totals				166.3	32.1	15.8	166.3	1498	148	94.7	43.5

* In Drive Approaches, quantities within limits of paved shoulder are included in Summary of Paved Shoulder.

DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 36" Pipe Class A-1, Sec. M-6.6(a) or M-6.8(b) Lin.Ft.	I-1 12" Pipe, Class A-1, Sec. M-6.6(a) M-6.8(b) Lin.Ft.	I-1 12" Pipe Class E-1 Lin.Ft.	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-1 8" Pipe Class F4 Sec. M-6.4(c) Lin.Ft.	I-1 6" Pipe Class I-3 Sec. M-6.4(h) Lin.Ft.	I-2 Masonry Cu.Yd.	I-5 6"x6"-60° Wye for Class I Pipe Ea.	I-5 6" on 6" Tee for Class I Pipe Ea.	I-5 12" on 36" Tee for Class A Pipe Ea.	I-8 No. 3-A C.B. Ea.	I-8 No. 2-6 Inlet Ea.	I-8 No. 2-AG Inlet Modified Ea.
	1-D	47+00	50+50	Lt.				378		10			1					
	2-D	47+00	57+00	Med.				838	40		100							
	3-D	47+00	50+50	Rt.				380		10			1					
39	2	50+50		Lt. & Rt.	144		21					1.18			1		2	
	4-D	50+50	53+00	Lt.				278		10			1					
	5-D	50+50	57+00	Rt.				674		10				1				
	6-D	51+55		Rt.						10								
	7-D	53+00		Lt.		63	15					0.23				2		
	8-D	53+00	55+50	Lt.				283		10			1					
	11-D	55+55		Lt.		72						0.23						1
	12-D	55+50	57+00	Lt.				177		10			1					
	Totals				144	135	36	3008	40	70	100	1.64	5	1	1	2	2	1

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-10 Dumped Rock Channel Protection Cu.Yd.	I-1 24" Pipe Class F4 Lin.Ft.	I-1 6" Pipe Class E-1 Lin.Ft.	E-3 Channel Excavation Cu.Yd.
	6-D	51+55		Rt.	0.4		14	
	9-D	55+01		Lt.		28		
	10-D	55+01		Rt.		28		
	13-D	52+10		Rt.	11.1			
39	2	50+50		Lt. & Rt.				25
	Totals				11.5	56	14	25

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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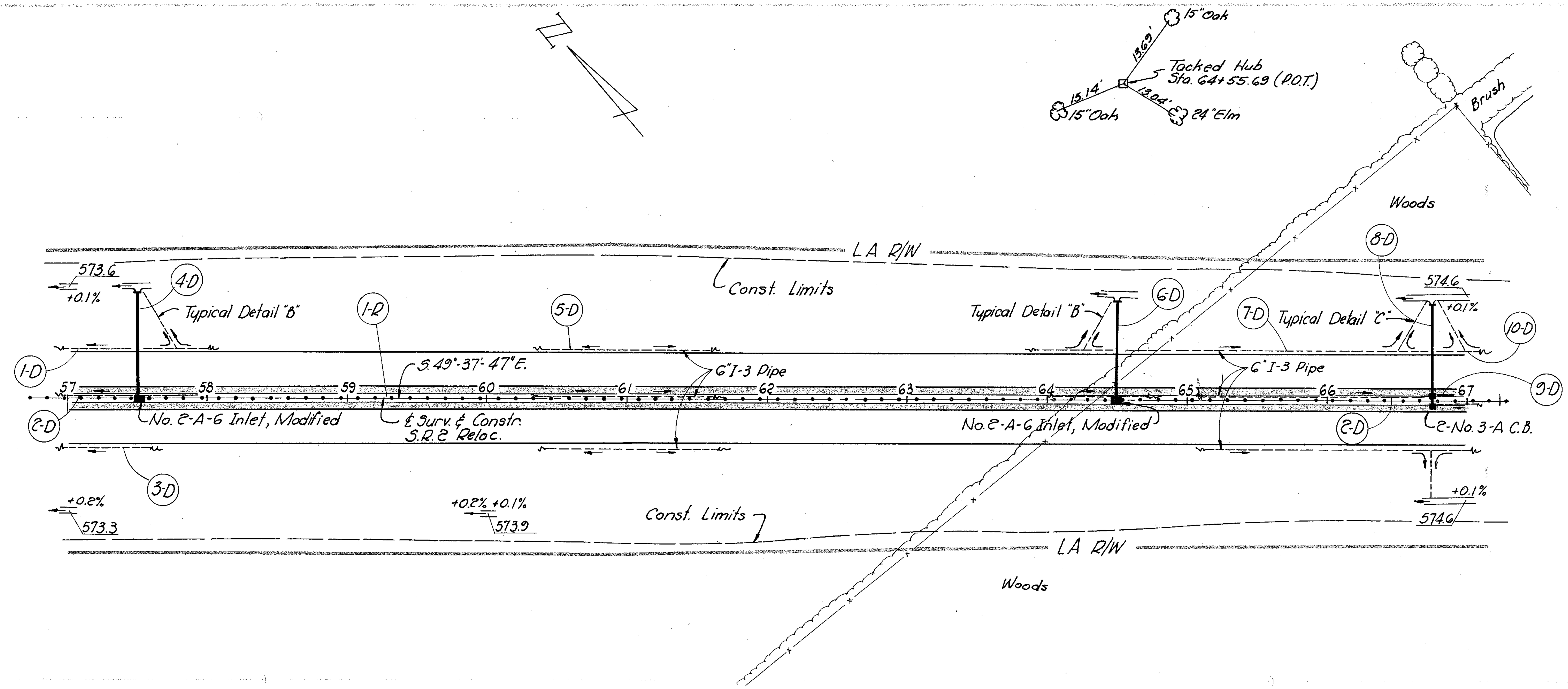
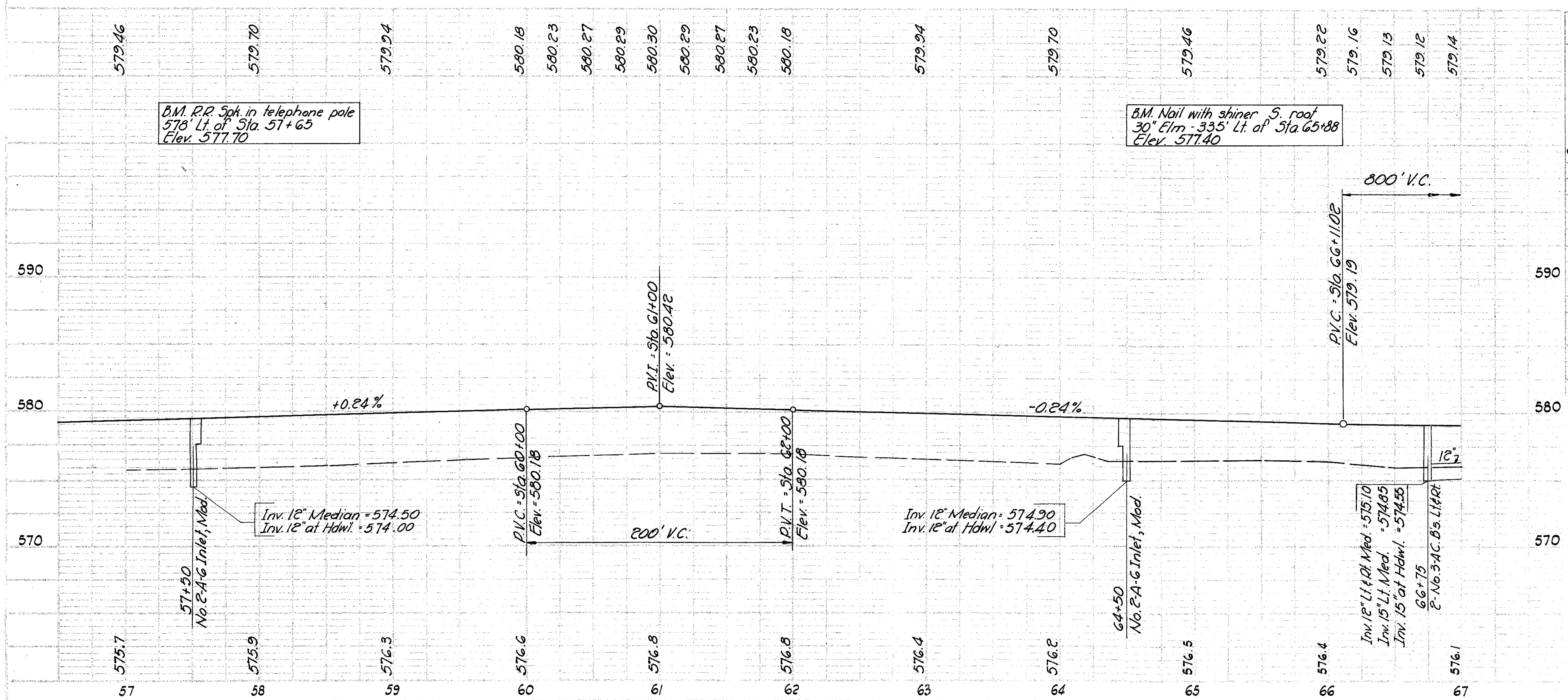
OTT 2-16.48



ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	B-112 Porous Base Course Cu.Yd.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.
	1-R	57+00	67+00	Med.	109.3	1000	655.8	109.3
	Totals				109.3	1000	655.8	109.3

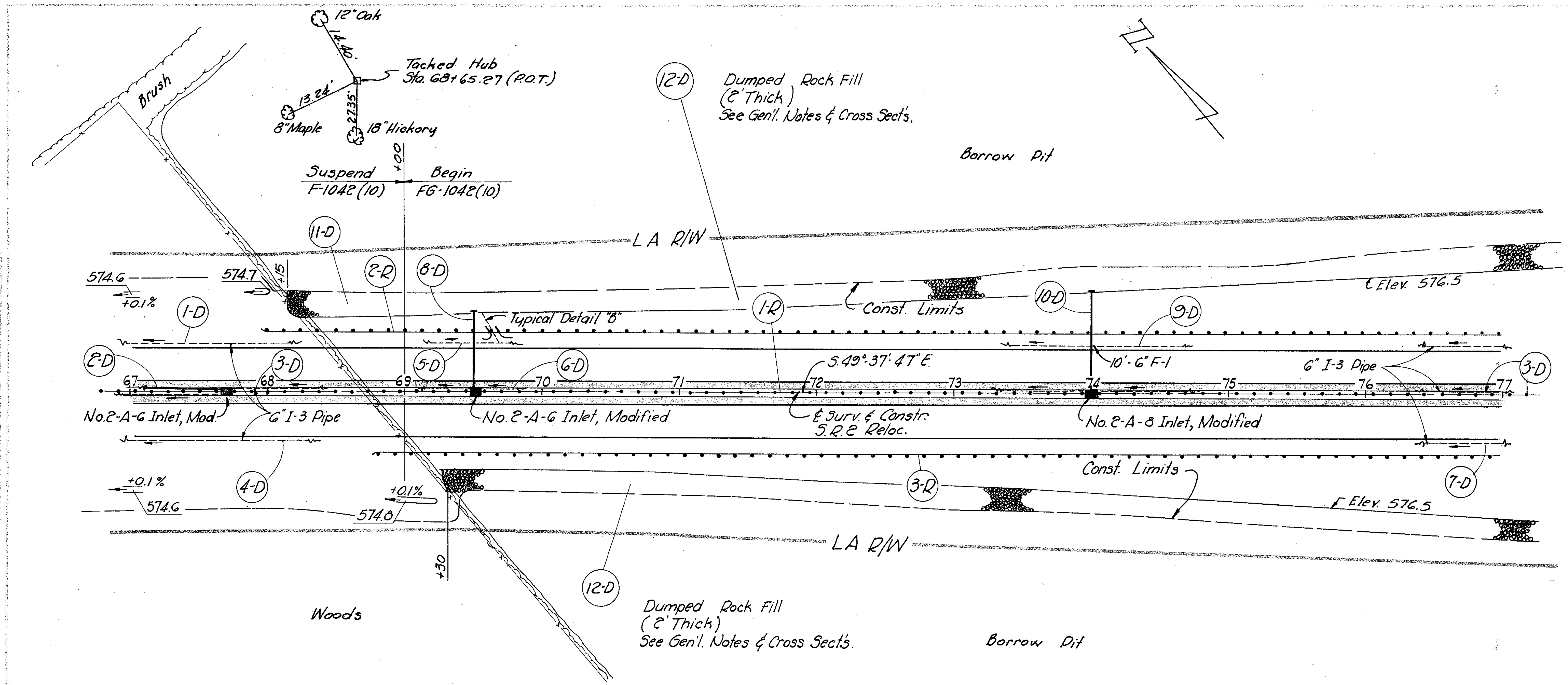


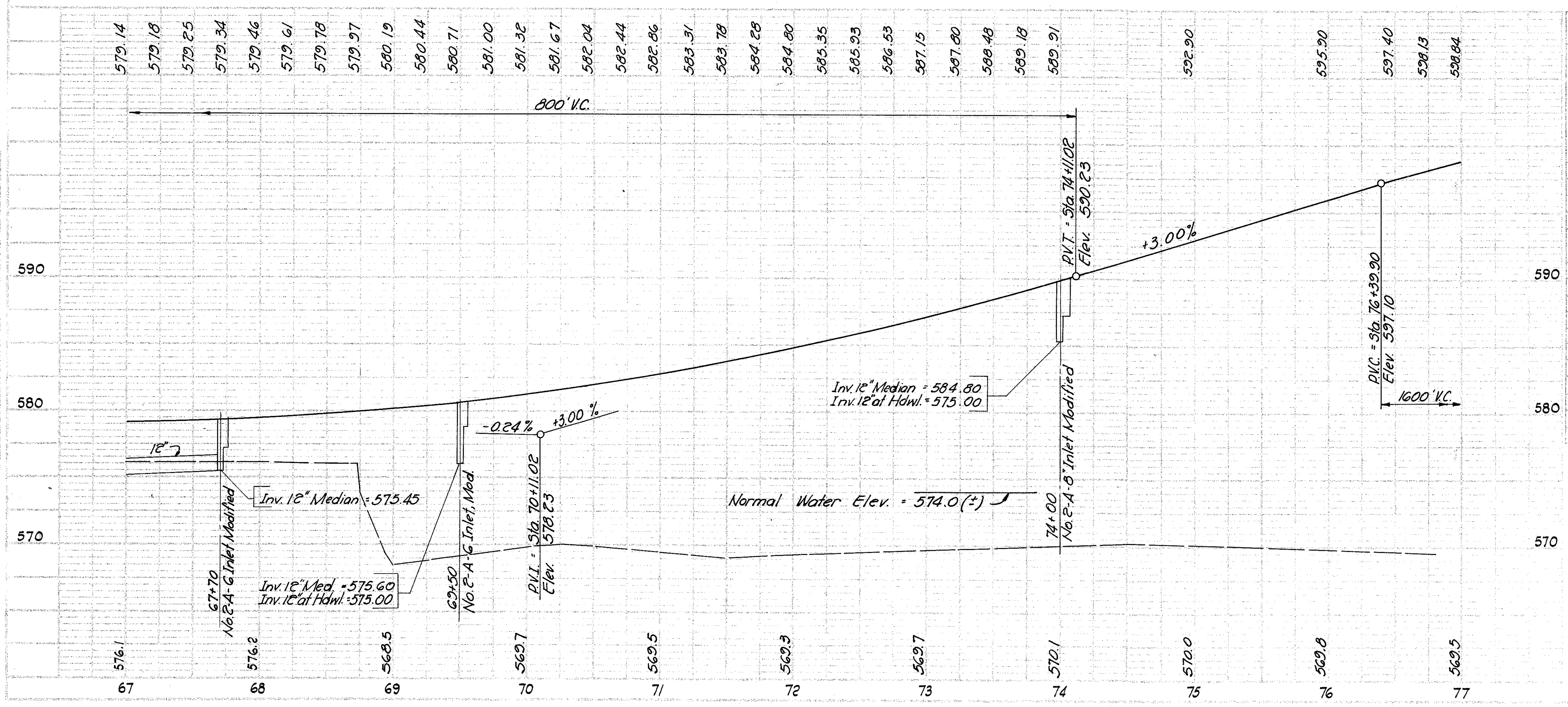
DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 15" Pipe, Class A-1, Sec. M-66(a) Sec. M-68(b) Lin.Ft.	I-1 12" Pipe, Class A-1, Sec. M-66(a) Sec. M-68(b) Lin.Ft.	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-1 8" Pipe Class F-4 Sec. M-64(c) Lin.Ft.	I-2 Masonry Cu.Yd.	I-5 6"x6"-60° Wye for Class I Pipe Ea.	I-5 6" on 6" Tee for Class I Pipe Ea.	I-8 No. 2A-6 Inlet Modified Ea.	I-8 No. 3-A C.B. Ea.
	1-D	57+00	57+50	Lt.			48							
	2-D	57+00	67+00	Med.			952	40						
	3-D	57+00	67+00	Rt.			1024		10			1		
	4-D	57+50		Lt.		72				0.23			1	
	5-D	57+50	64+50	Lt.			753		20		2			
	6-D	64+50		Lt.		67				0.23			1	
	7-D	64+50	66+75	Lt.			249		10		1			
	8-D	66+75		Lt.	61	7				0.26				2
	9-D	66+75	67+00	Med.		25								
	10-D	66+75	67+00	Lt.			51		10		1			
	Totals				61	171	3077	40	50	0.72	4	1	2	2

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2-16.48





See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	B-112 Porous Base Course Cu.Yd.	I-15 Guard Rail (Std. Type) Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.
	1-R	67+00	69+00	Med.	21.4		200	128.4	21.4
*	1-R	69+00	77+00	Med.	87.0		800	522.3	87.0
	2-R	67+97.5	69+00	Lt.		102.5			
*	2-R	69+00	77+00	Lt.		800.0			
	3-R	68+78	69+00	Rt.		22.0			
*	3-R	69+00	77+00	Rt.		800.0			
	F-1042(10) Totals				21.4	124.5	200.0	128.4	21.4
	* FG-1042(10) Totals				87.0	1600.0	800.0	522.3	87.0

ROADWAY QUANTITIES F-1042(10) & FG-1042(10)

See Sheet No.	Reference No or Structure No.	Station From	Station To	Side	I-1 12" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) Lin.Ft.	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-1 8" Pipe Class F-4 Sec. M-6.4(c) Lin.Ft.	I-2 Masonry Cu.Yd.	I-5 6"x6"-60° Wye for Class I Pipe Ea.	I-8 No. 2-A-6 Inlet Modified Ea.	I-8 No. 2-A-8 Inlet Modified Ea.	I-10 Dumped Rock Fill, Type A Cu.Yd.	I-1 12" Pipe Class F-4 Lin.Ft.	I-5 12"-25° Ell for Class F Pipe Ea.
	1-D	67+00	69+00	Lt.		200									
	2-D	67+00	67+70	Med.	70						1				
	3-D	67+00	69+00	Med.		188	10								
	4-D	67+00	69+00	Rt.		200									
*	5-D	69+00	69+50	Lt.		48									
*	6-D	69+00	77+00	Med.		776	20								
*	7-D	69+00	77+00	Rt.		800									
*	8-D	69+50		Lt.	58				0.23		1				
*	9-D	69+50	77+00	Lt.		756	10	10		1					
*	10-D	74+00		Lt.	45				0.23			1		32	2
	11-D	68+15	69+00	Lt.									140		
*	12-D	69+00	77+00	Lt.&Rt.									2280		
	F-1042(10) Totals				70	588	10	~	~	~	1	~	140	~	~
	* FG-1042(10) Totals				103	2380	30	10	0.46	1	1	1	2280	32	2

DRAINAGE QUANTITIES F-1042(10) & FG-1042(10)

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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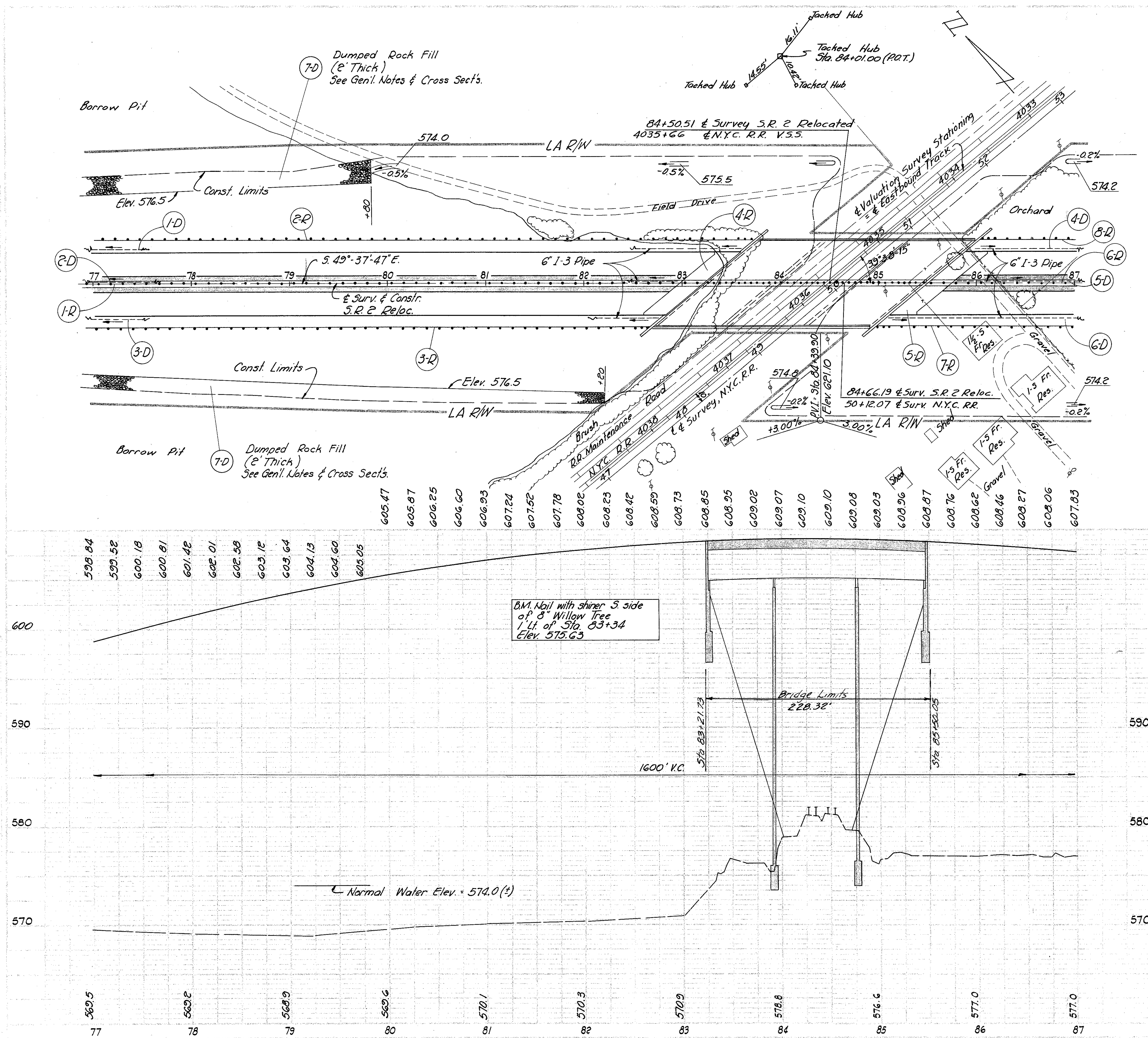
OTT 2-16.48

BRIDGE NO. OTT. 2-1769

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck. Reinforced concrete substructure. Stub abutments and "T" type piers.
Spans: 68'-0", 85'-0", 68'-0" ℄ Brgs.
Roadway: 88' f/f of parapets with 6'-0" raised median.
Load Frequency: CF 400 (57)
Skew: 50°-22' Left Forward
Wearing Surface: 1" Monolithic concrete
Approach Slabs: AS-1-54 (25'-0" Long) Special
Alignment: Tangent

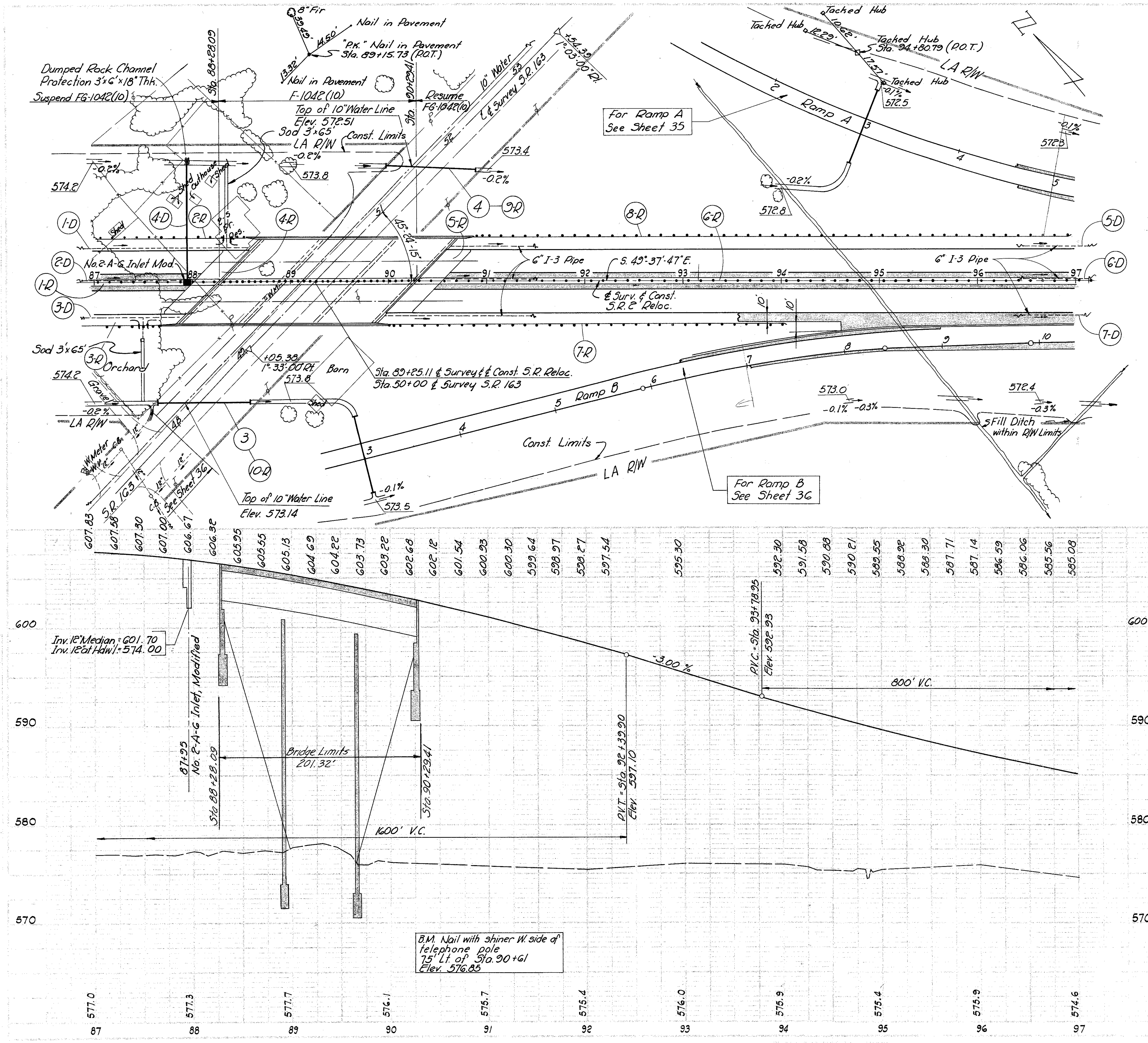


ROADWAY QUANTITIES FG-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-112 Porous Base Course Cu.Yd.	I-7 Reinf. Conc. Appr. Slab (T=13") Sq.Yd.	I-15 Guard Rail (Std. Type) Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pav't (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.
	1-R	77+00	83+21.73	Med.		66.3			621.7	397.8	66.3
	2-R	77+00	83+72.5	Lt.				672.5			
	3-R	77+00	82+65.5	Rt.				565.5			
	4-R	See Site Plan			177.8		177.8				29.6
	5-R	See Site Plan			177.8		177.8				29.6
	6-R	85+50.05	87+00	Med.		13.9			150.0	83.3	13.9
	7-R	84+98.5	87+00	Rt.				201.5			
	8-R	86+06	87+00	Lt.				94.0			
	FG-1042(10) Totals				355.6	80.2	355.6	1533.5	771.7	481.1	139.4

DRAINAGE QUANTITIES FG-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-10 Dumped Rock Fill, Type A Cu.Yd.
	1-D	77+00	83+61	Lt.	661	
	2-D	77+00	82+95	Med.	595	
	3-D	77+00	82+77	Rt.	577	
	4-D	85+94	87+00	Lt.	106	
	5-D	85+77	87+00	Med.	123	
	6-D	85+10	87+00	Rt.	190	
	7-D	77+00	82+20	Lt.&Rt.		1120
	FG-1042(10) Totals				2252	1120



BRIDGE NO. OTT. 2 - 1777

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck. Reinforced concrete pier bents & stub abutments.
Spans: 60'-0", 75'-0", 60'-0" c/c bearings

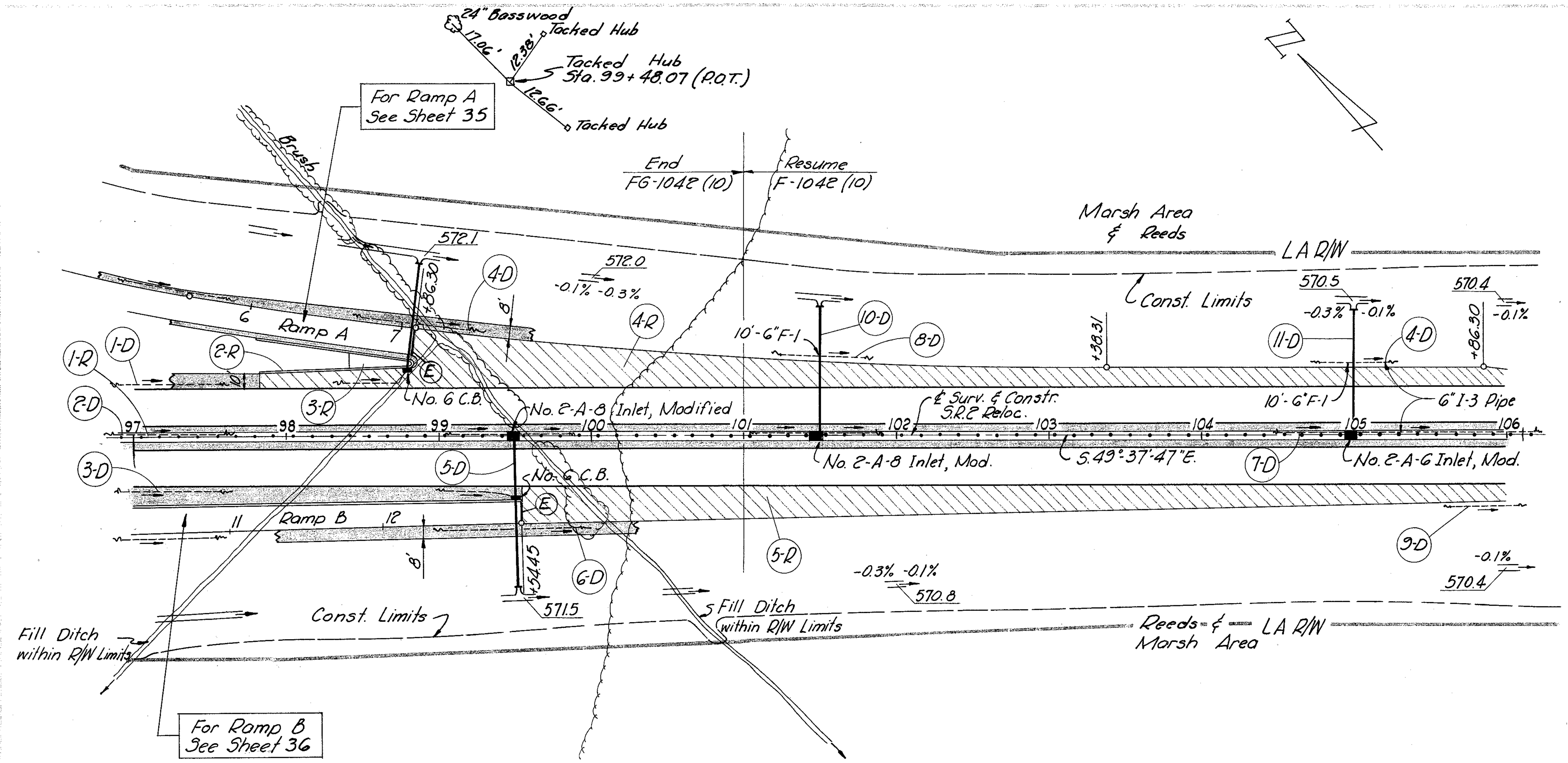
Roadway: 88' f/f of parapets with 6' raised median.
Load Frequency: CF 400 (57)
Skew: 44°-36' Left Forward
Wearing Surface: 1" Monolithic Concrete
Approach Slabs: AS-1-54 (25' Long) Special
Alignment: Tangent

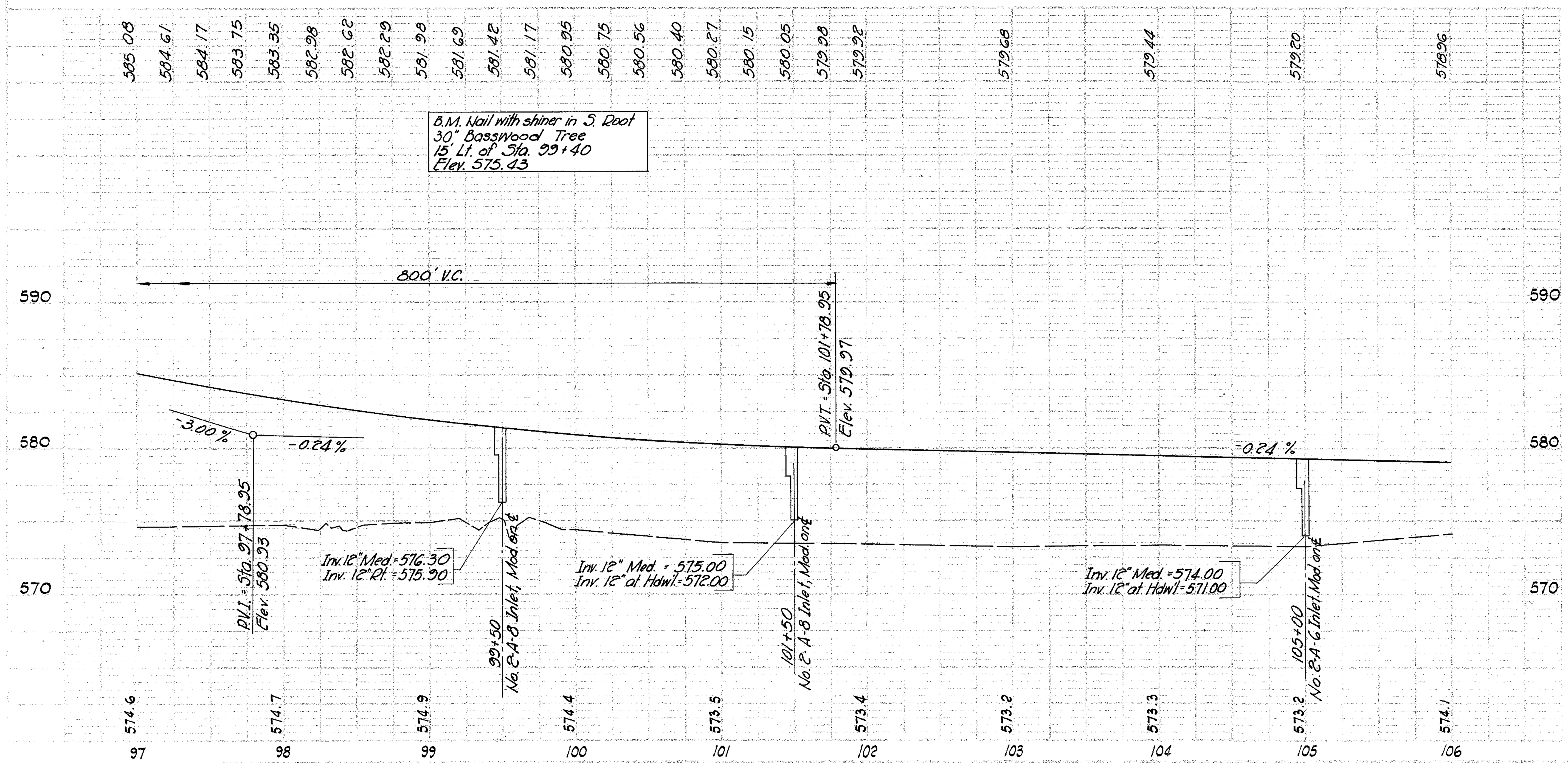
ROADWAY QUANTITIES F-1042(10) & FG-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-70 9" P.C. Conc. Base Course Sq.Yd.	B-112 Porous Base Course Cu.Yd.	T-35 Asphaltic Conc. Surface Course (Type C) Cu.Yd.	I-7 Reinf. Conc. Appr. Slab (T-13") Sq.Yd.	I-15 Guard Rail (Std. Type) Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.	T-30 Bit. Tack Coat Gal.
	1-R	87+00	88+28.09	Med.			10.6				128.1	63.8	10.6	
	2-R	87+00	88+56	Lt.						156.0				
	3-R	87+00	87+68.5	Rt.						68.5				
	4-R	See Site Plan			177.8				177.8				29.6	
	5-R	See Site Plan			177.8				177.8				29.6	
	6-R	90+29.41	97+00	Med.			71.7				670.6	430.4	71.7	
	7-R	90+01	94+01	Rt.						400.0				
	8-R	90+89	96+89	Lt.						600.0				
	FG-1042(10) Totals				355.6	~	82.3	~	355.6	1224.5	798.7	494.2	141.5	
	9-R	51+59 (S.R. 163)				23.2		1.0						2.5
	10-R	48+30 (S.R. 163)				23.2		1.0						2.5
	F-1042(10) Totals				~	46.4	~	2.0	~	~	~	~	~	5

DRAINAGE QUANTITIES F-1042 (10) & FG-1042 (10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 18" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) Lin.Ft.	I-1 12" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) Lin.Ft.	I-1 12" Pipe Class F4 Lin.Ft.	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-1 8" Pipe Class F4 Sec. M-6.4(c) Lin.Ft.	I-2 Masonry Cu.Yd.	I-5 6" on 6" Tee for Class I Pipe Ea.	I-5 12" 25° Ell for Class F Pipe Ea.	I-8 No. 2-A-G Inlet Modified Ea.	I-10 Dumped Rock Channel Protection Cu.Yd.		L-10 Sodding Sq.Yd.
	1-D	87+00	88+60	Lt.				161	10	10		1					22
	2-D	87+00	87+95	Med.				82	10								
	3-D	87+00	87+92	Rt.				103		10		1					22
	4-D	87+95		Lt.		45	80				0.23		2	1	1.0		
	5-D	90+65	97+00	Lt.				635									
	6-D	90+56	97+00	Med.				644									
	7-D	89+97	97+00	Rt.				703									
	FG-1042(10) Totals				~	45	80	2328	20	20	0.23	2	2	1	1.0		44
39	3	48+30 (S.R. 163)			92						0.60						
39	4	51+59 (S.R. 163)			92						0.60						
	F-1042(10) Totals				184	~	~	~	~	~	1.20	~	~	~	~		~





ROADWAY QUANTITIES

F-1042(10) & FG-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-112 Porous Base Course Cu.Yd.	T-71 9" Reinf. P.C. Conc. Pav't. Sq.Yd.	I-12 Type 6 Curb Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 4" P.C. Conc. Median Pav't. (Std. Type 1) Sq.Yd.	I-21 P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.
*	1-R	97+00	101+00	Med.		43.4			400.0		260.4	43.4
	1-R	101+00	106+00	Med.		53.7			500.0		322.2	53.7
*	2-R	97+83.58	98+85.58	Lt.				104				
*	3-R	98+43.58	98+85.58	Lt.						29.3		
*	4-R	97+83.58	101+00	Lt.	804.1		804.1					134.0
	4-R	101+00	106+00	Lt.	736.1		736.1					122.7
*	5-R	99+54.45	101+00	Rt.	379.8		379.8					63.3
	5-R	101+00	106+00	Rt.	931.1		931.1					155.2
	*FG-1042(10) Totals				1183.9	43.4	1183.9	104	400.0	29.3	260.4	240.7
	F-1042(10) Totals				1667.2	53.7	1667.2	~	500.0	~	322.2	331.6

DRAINAGE QUANTITIES

F-1042(10) & FG-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 12" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) Lin.Ft.	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-2 Masonry Cu.Yd.	I-5 6"-60° Bend for Class I Pipe Ea.	I-8 No. 2-A-6 Inlet Modified Ea.	I-8 No. 2-A-8 Inlet Modified Ea.	I-8 No. 6 C.B. Ea.
	1-D	97+00	98+82	Lt.		178	10		1			
	2-D	97+00	101+00	Med.		388	10					
	3-D	97+00	99+50	Rt.		240	10					
	4-D	98+86.30	101+00	Lt.		214						
	5-D	99+50		Rt.	39						1	1
	6-D	99+54.45	101+00	Rt.		146						
	FG-1042(10) Totals				39	1166	30	~	1	~	1	1
	7-D	101+00	106+00	Med.		476	20					
	8-D	101+00	106+00	Lt.		480	20					
	9-D	101+00	106+00	Rt.		500						
	10-D	101+50		Lt.	82			0.23			1	
	11-D	105+00		Lt.	82			0.23		1		
	F-1042(10) Totals				164	1456	40	0.46	~	1	1	~

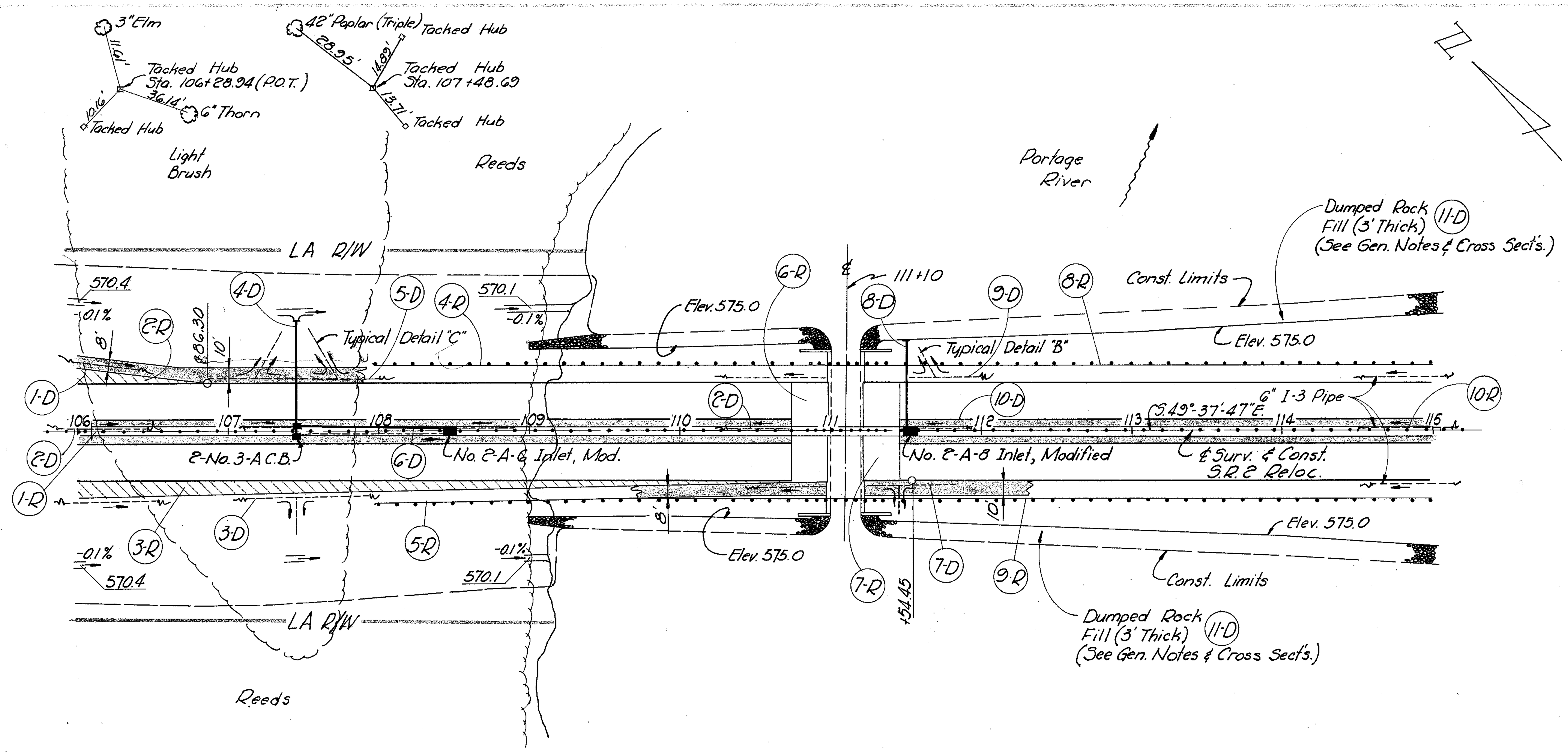
BRIDGE NO. OTT. 2-1820

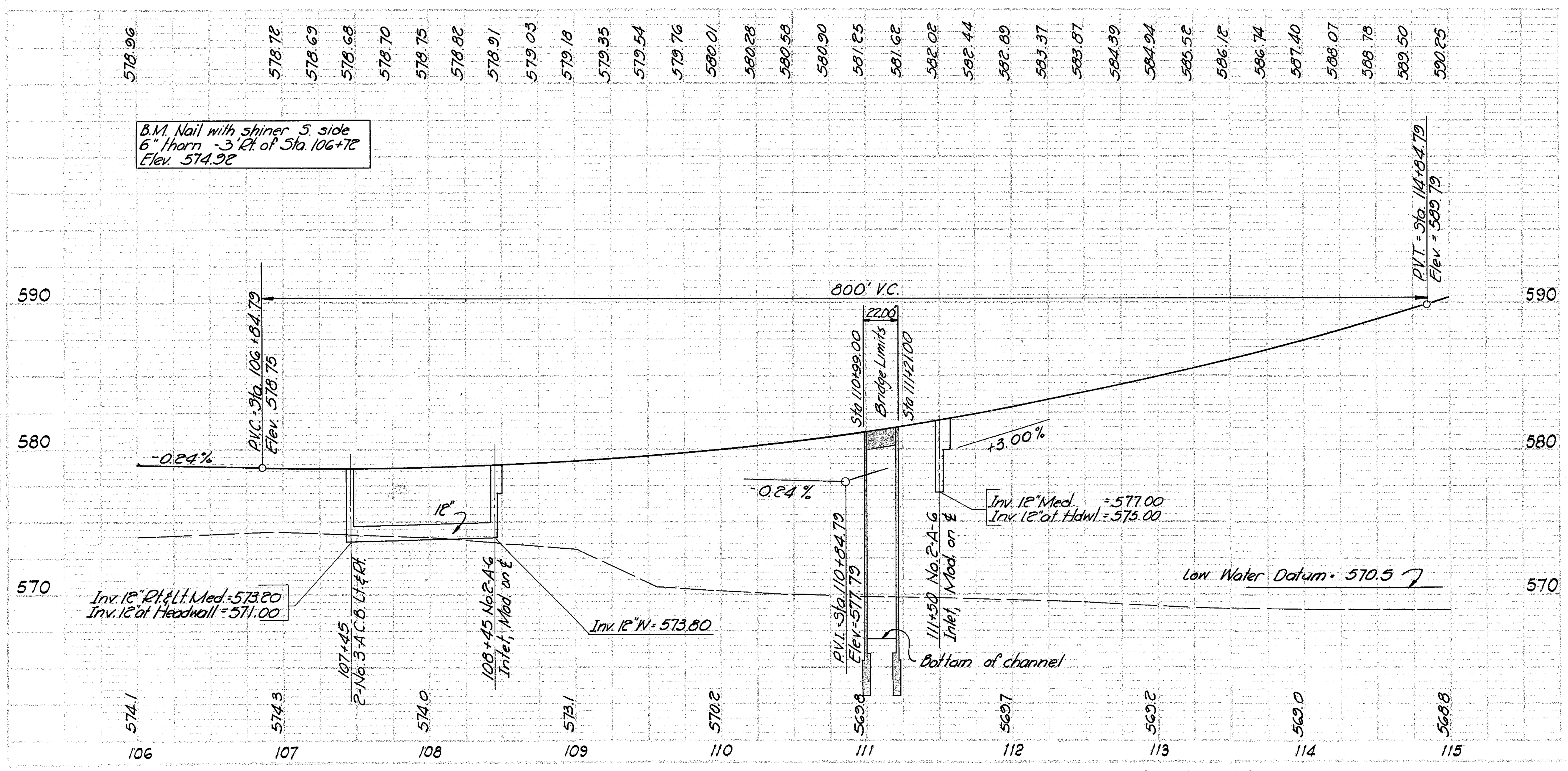
PROPOSED STRUCTURE

Type: Reinforced Concrete Slab
Reinforced Concrete Abutments

Span: 20'-0" Clear
Roadway: 88'-0" % Slab, also f/f Guardrails including 6' Concrete Median

Load Frequency: CF400 (57)
Skew: 0°
Wearing Surface: 1" Monolithic Concrete
Approach Slabs: AS-1-54 (25'-0" Long) Special
Alignment: Tangent





ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-112 Porous Base Course Cu.Yd.	T-71 9" Reinf. P.C. Conc. Pav't. Sq.Yd.	I-7 Reinf. Conc. Appr. Slab (T=13") Sq.Yd.	I-15 Guard Rail (Std. Type) Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.		
	1-R	106+00	110+99.0	Med.		51.7				499.0	310.0	51.7		
	2-R	106+00	106+86.30	Lt.	49.7		49.7					8.3		
	3-R	106+00	110+99.0	Rt.	348.4		348.4					58.1		
	4-R	107+95.0	110+99.0	Lt.					304.0					
	5-R	107+95.0	110+99.0	Rt.					304.0					
	6-R	See Site Plan			181.7			181.7				30.3		
	7-R	See Site Plan			179.0			179.0				29.8		
	8-R	111+21.0	115+00	Lt.					379.0					
	9-R	111+21.0	115+00	Rt.					379.0					
	10-R	111+21.0	115+00	Med.		38.3				379.0	229.8	38.3		
	Totals				758.8	90.0	398.1	360.7	1366.0	878.0	539.8	216.5		

DRAINAGE QUANTITIES F-1042(10)

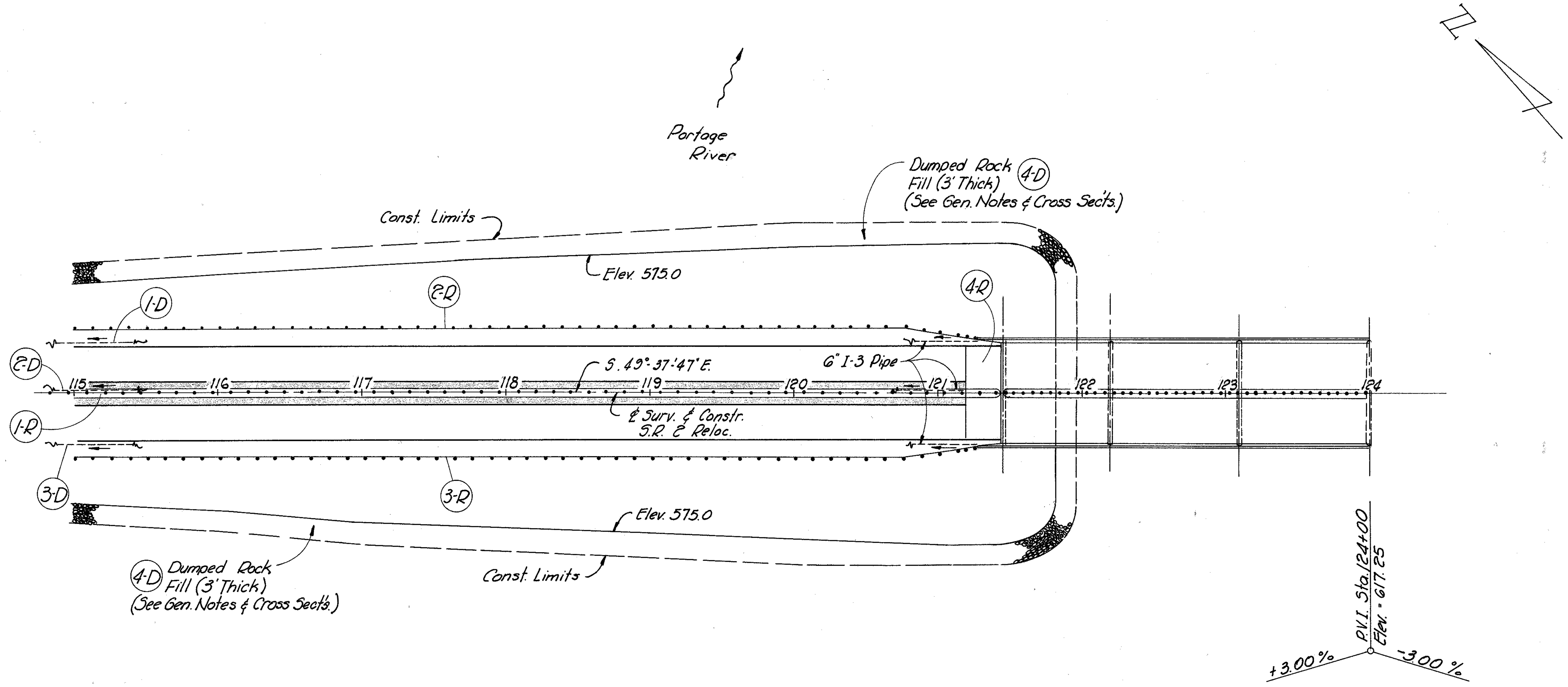
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 12" Pipe, Class A-1, Sec. M-66(a) Sec. M-68(b) Lin.Ft.	I-1 6" Pipe I-3 Class (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-1 8" Pipe Class F-4 Sec. M-64(c) Lin.Ft.	I-2 Masonry Cu.Yd.	I-5 6"x6"-60° Wye for Class I Pipe Ea.	I-5 6" on 6" Tee for Class I Pipe Ea.	I-8 No. 3-A C.B. Ea.	I-8 No. 2-A-6 Inlet Modified Ea.	I-8 No. 2-A-8 Inlet Modified Ea.	I-10 Dumped Rock Fill, Type A Cu.Yd.
	1-D	106+00	107+45	Lt.		168		10		1					
	2-D	106+00	110+72	Med.		436	30								
	3-D	106+00	110+97	Rt.		516		10			1				
	4-D	107+45		Lt.	77				0.23			2			
	5-D	107+45	110+97	Lt.		375		10		1					
	6-D	107+45	108+45	Med.	100								1		
	7-D	111+23	115+00	Rt.		387		10			1				
	8-D	111+50		Lt.	60				0.23					1	
	9-D	111+50	115+00	Lt.		362		10		1					
	10-D	111+50	115+00	Med.		338	10								
	11-D	109+00	115+00	Lt. & Rt.											1890
	Totals				237	2582	40	50	0.46	3	2	2	1	1	1890

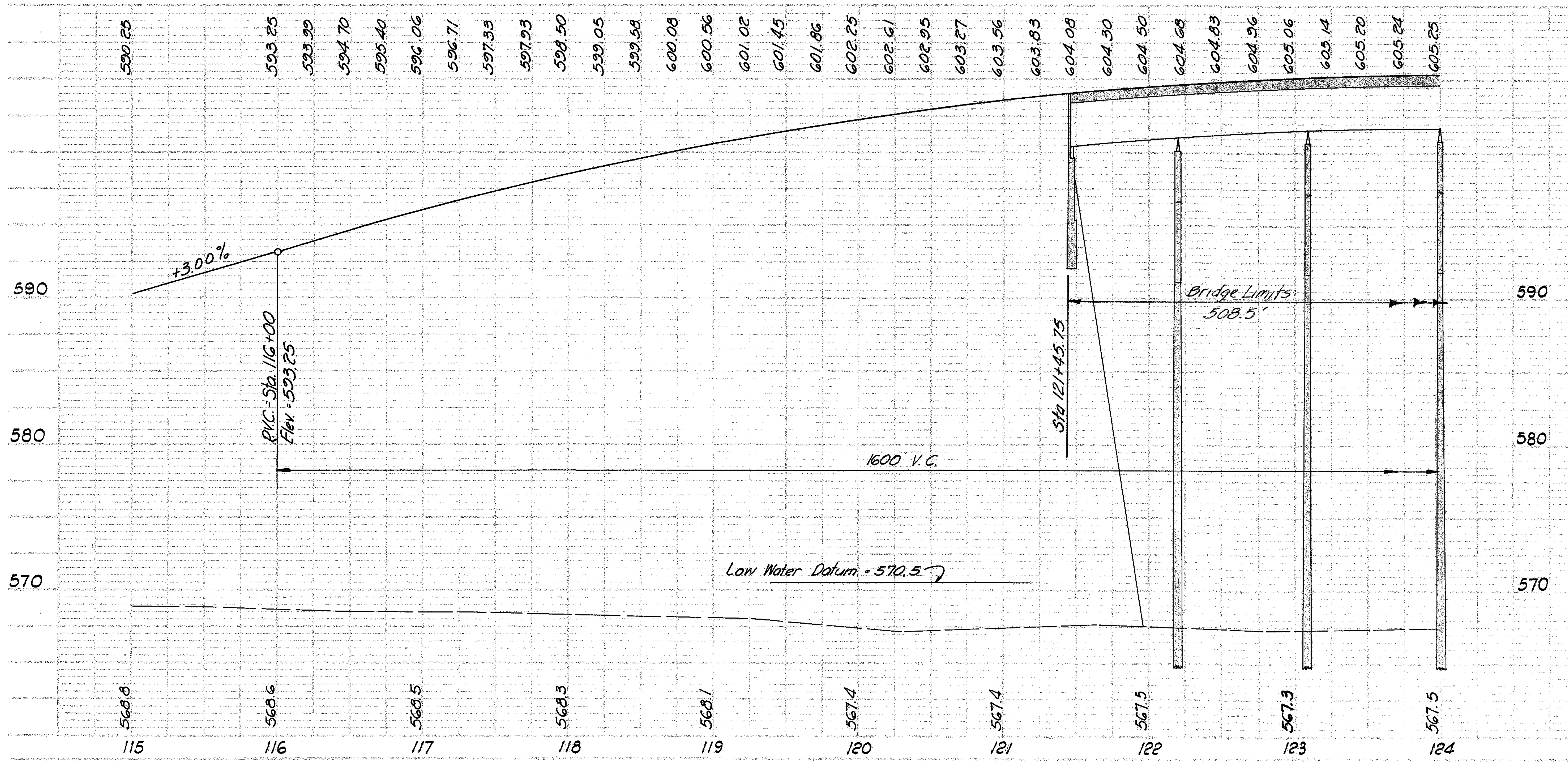
BRIDGE NO. OTT. 2-1844

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck. Reinforced concrete T type piers and stub abutments.

Spans: 72'-0", 90'-0", 90'-0", 90'-0", 90'-0", 72'-0" ℄ Brgs.
Roadway: 70' f/f of 2'-3" Safety Curbs including 6' concrete median.
Load Frequency: CF 400 (57)
Skew: 0°
Wearing Surface: 1" monolithic concrete.
Approach Slabs: AS-1-54 (25'-0" Long) Special
Alignment: Tangent.



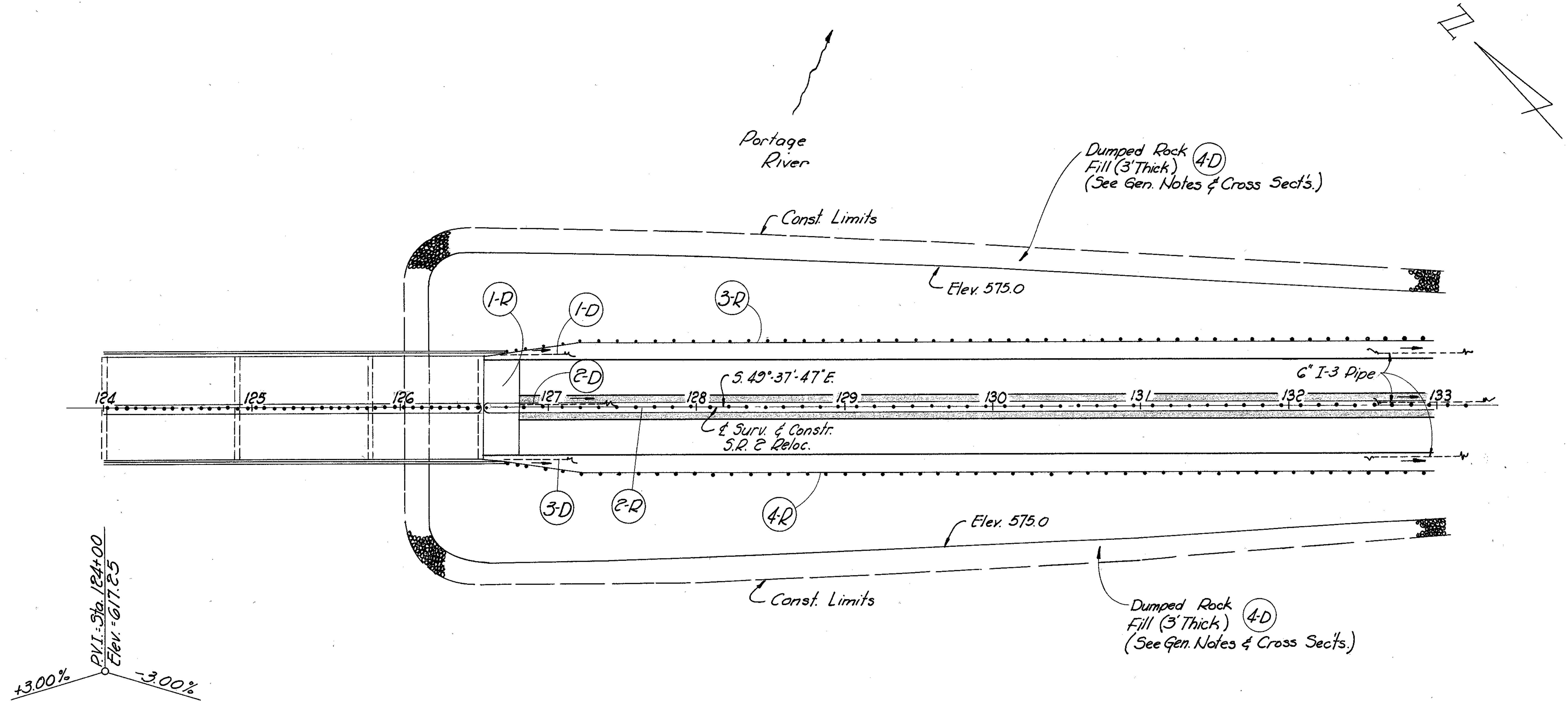


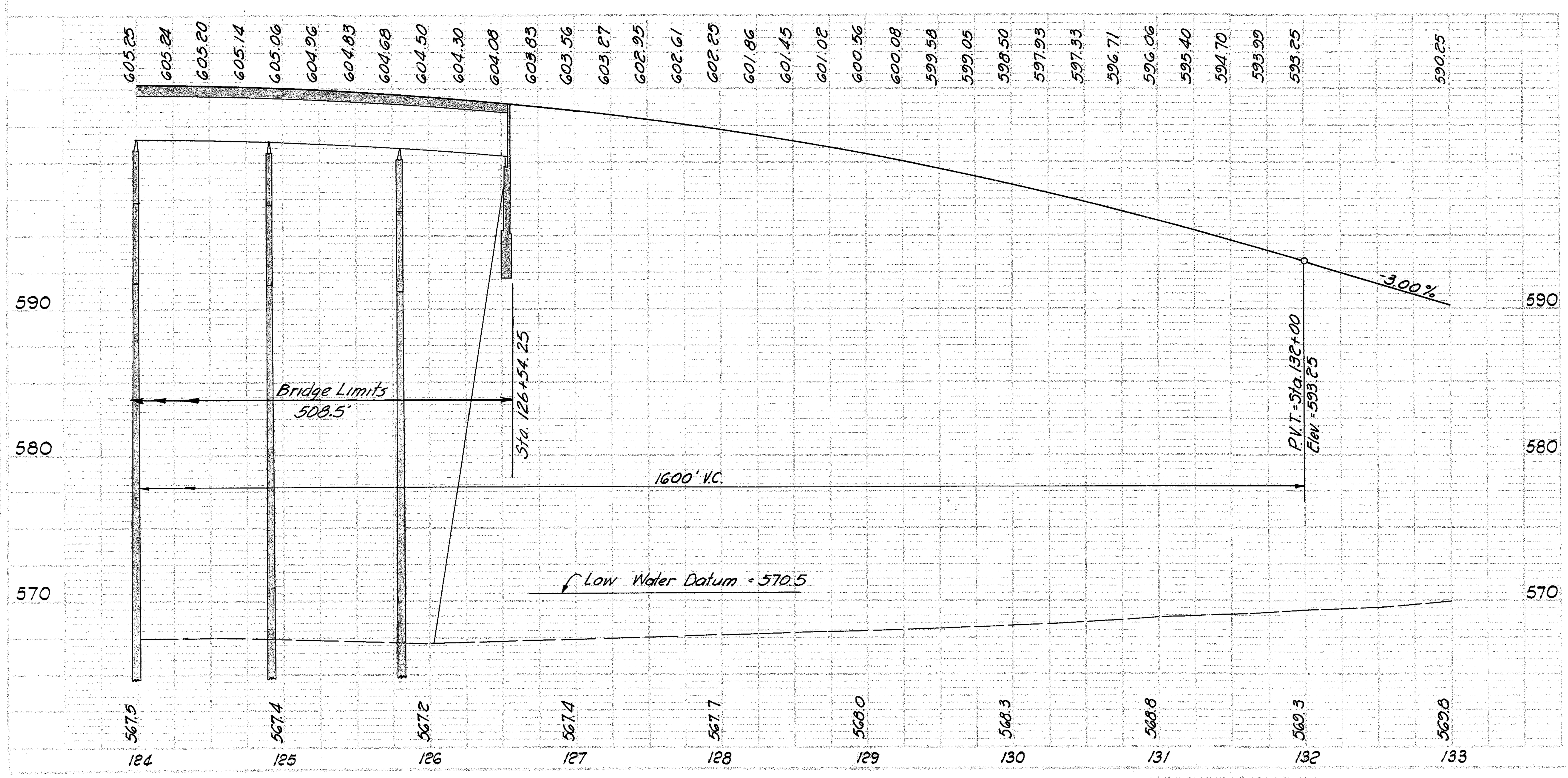
ROADWAY QUANTITIES - F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-112 Porous Base Course Cu.Yd.	I-7 Reinf. Conc. Appr. Slab (T=13") Sq.Yd.	I-15 Guard Rail (Std. Type) Lin.Ft.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pavt. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.			
	1-R	115+00	121+45.75	Med.		69.0			645.8	413.8	69.0			
	2-R	115+00	121+45.0	Lt.				645.0						
	3-R	115+00	121+45.0	Rt.				645.0						
	4-R	See Site Plan			177.8		177.8				29.6			
	Totals				177.8	69.0	177.8	1290.0	645.8	413.8	98.6			

DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-10 Dumped Rock Fill, Type A Cu.Yd.			
	1-D	115+00	121+44	Lt.	644				
	2-D	115+00	121+19	Med.	619				
	3-D	115+00	121+44	Rt.	644				
	4-D	115+00	121+95	Lt.&Rt.		3290			
	Total				1907	3290			





ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade	B-112 Porous Base Course	I-7 Reinf. Conc. Appr. Slab (T=13")	I-15 Guard Rail (Std. Type)	I-15 Guard Rail (Barrier Type)	I-21 P.C. Conc. Median Pav't. (Std. Type 2)	I-22 Subbase			
					Sq.Yd.	Cu.Yd.	Sq.Yd.	Lin.Ft.	Lin.Ft.	Sq.Yd.	Cu.Yd.			
	1-R	See Site Plan			177.8		177.8				29.6			
	2-R	126+54.25	133+00	Med.		69.0			645.8	413.8	69.0			
	3-R	126+55.0	133+00	Lt.				645.0						
	4-R	126+55.0	133+00	Rt.				645.0						
	Totals				177.8	69.0	177.8	1290.0	645.8	413.8	98.6			

DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 6" Pipe Class I-3 (Shallow)	I-10 Dumped Rock Fill, Type A			
					Lin.Ft.	Cu.Yd.			
	1-D	126+56	133+00	Lt.	644				
	2-D	126+81	133+00	Med.	619				
	3-D	126+56	133+00	Rt.	644				
	4-D	126+03	133+00	Lt.&Rt.		3320			
					1907	3320			

OTT 2-16.48

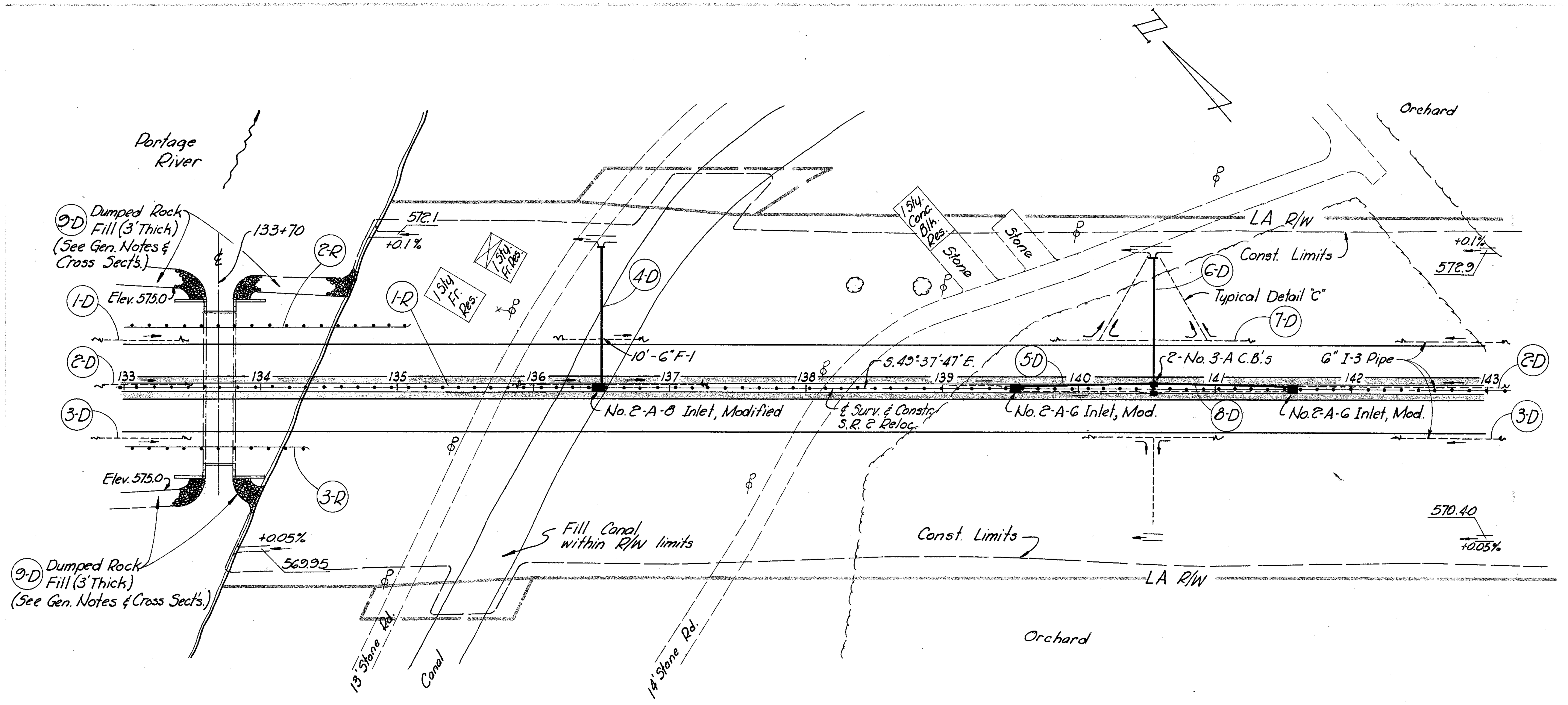
BRIDGE NO. OTT. 2-1862

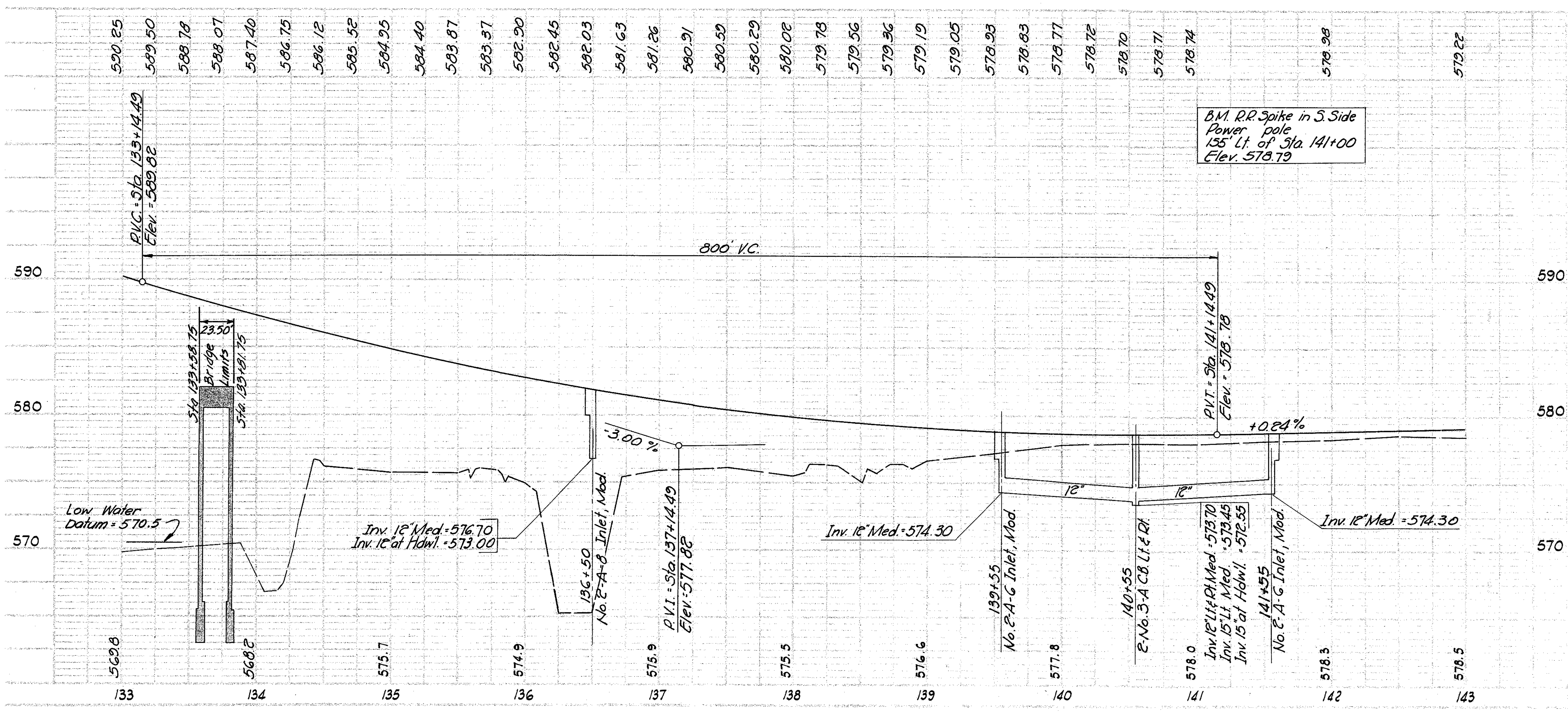
PROPOSED STRUCTURE

Type: Reinforced Concrete Slab
Reinforced Concrete Abutments

Span: 20'-0" Clear
Roadway: 88'-0" f/f Guardrails

Load Frequency: CF 400 (57)
Skew: 0°
Wearing Surface: None
Approach Slabs: None
Alignment: Tangent





ROADWAY QUANTITIES F-1042(10)

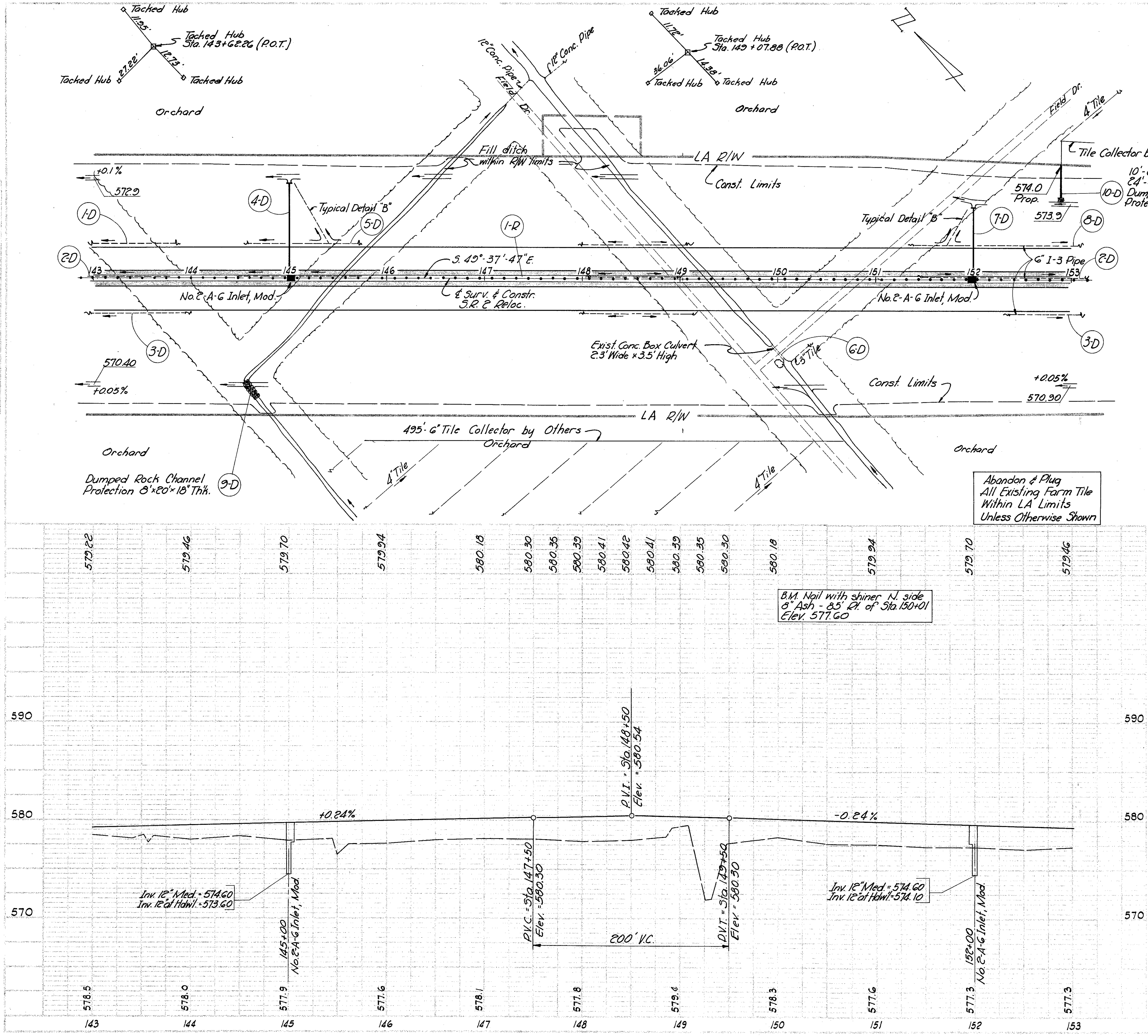
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	B-112 Porous Base Course (Cu.Yd.)	I-15 Guard Rail (Std. Type) (Lin.Ft.)	I-15 Guard Rail (Barrier Type) (Lin.Ft.)	I-21 P.C. Conc. Median Pav't. (Std. Type 2) (Sq.Yd.)	I-22 Subbase (Cu.Yd.)			
	1-R	133+00	143+00	Med.	108.3		1000.0	649.6	108.3			
	2-R	133+00	135+05.0	Lt.		205.0						
	3-R	133+00	134+30.0	Rt.		130.0						
	Totals				108.3	335.0	1000.0	649.6	108.3			

DRAINAGE QUANTITIES F-1042 (10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 15" Pipe, Class A-1, Sec. M-6.6(a), Sec. M-6.8(b) (Lin.Ft.)	I-1 12" Pipe, Class A-1, Sec. M-6.6(a), Sec. M-6.8(b) (Lin.Ft.)	I-1 6" Pipe Class I-3 (Shallow) (Lin.Ft.)	I-1 6" Pipe Class F-1 (Lin.Ft.)	I-1 8" Pipe F-4 Class, Sec. M-6.4(c) (Lin.Ft.)	I-2 Masonry (Cu.Yd.)	I-5 6"x6"-60° Wye for Class I Pipe (Ea.)	I-5 6" on 6" Tee for Class I Pipe (Ea.)	I-8 No. 3-A C.B. (Ea.)	I-8 No. 2-A-6 Inlet Modified (Ea.)	I-8 No. 2-A-8 Inlet Modified (Ea.)	I-10 Dumped Rock Fill, Type A (Cu.Yd.)		
	1-D	133+00	140+55	Lt.			808	10	10		1							
	2-D	133+00	143+00	Med.			946	50										
	3-D	133+00	143+00	Rt.			1053		10			1						
	4-D	136+50		Lt.		108				0.23					1			
	5-D	139+55	140+55	Med.		100								1				
	6-D	140+55		Lt.	97	7				0.26			2					
	7-D	140+55	143+00	Lt.			308		10		1							
	8-D	140+55	141+55	Med.		100								1				
	9-D	133+00	134+70	Lt.&Rt.												370		
	Totals				97	315	3115	60	30	0.49	2	1	2	2	1	370		

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2-16.48



ROADWAY QUANTITIES F-1042(10)

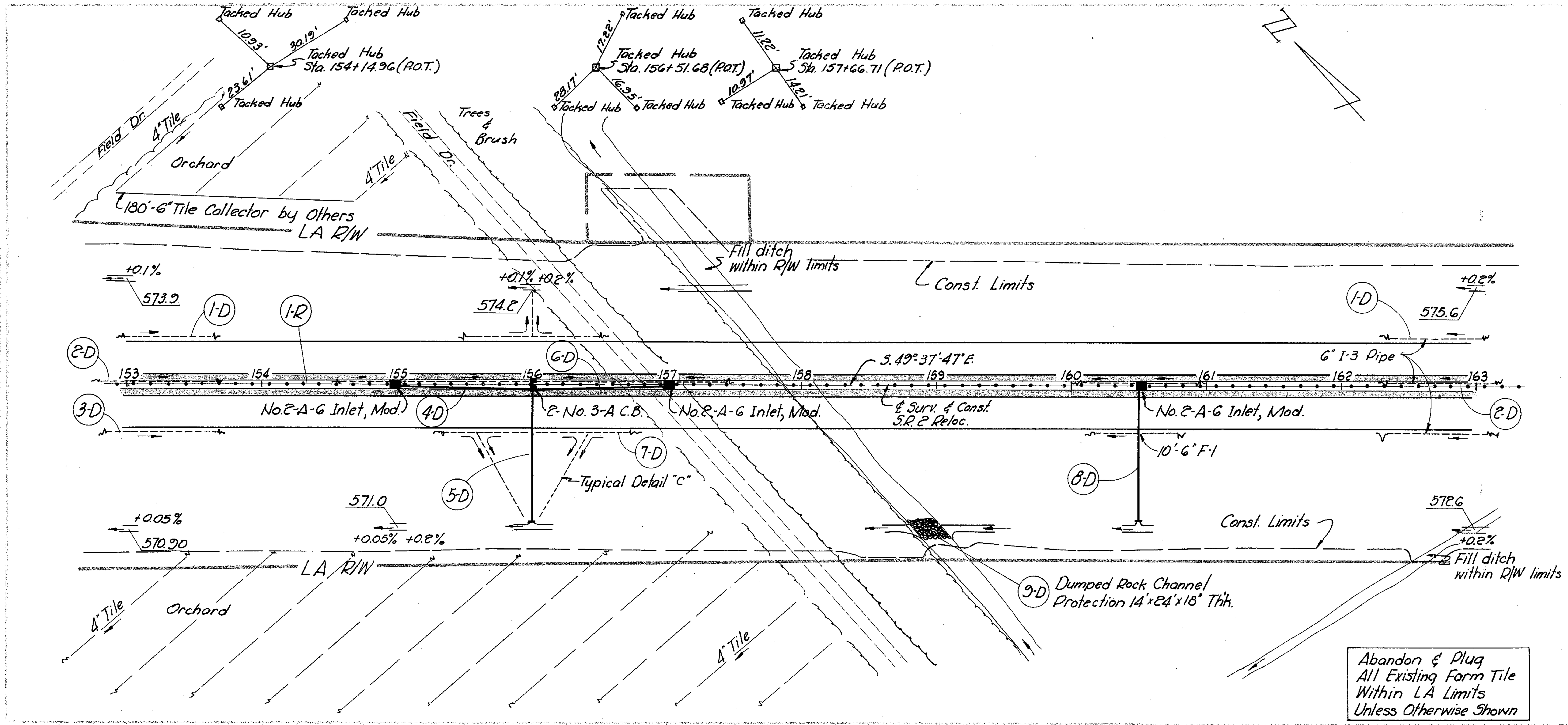
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	B-112 Porous Base Course	I-15 Guard Rail (Barrier Type)	I-21 Pc. Conc. Median Pav't (Std. Type 2)	I-22 Subbase		
					Cu.Yd.	Lin.Ft.	Sq.Yd.	Cu.Yd.		
	1-R	143+00	153+00	Med.	109.5	1000.0	656.9	109.5		
	Totals				109.5	1000.0	656.9	109.5		

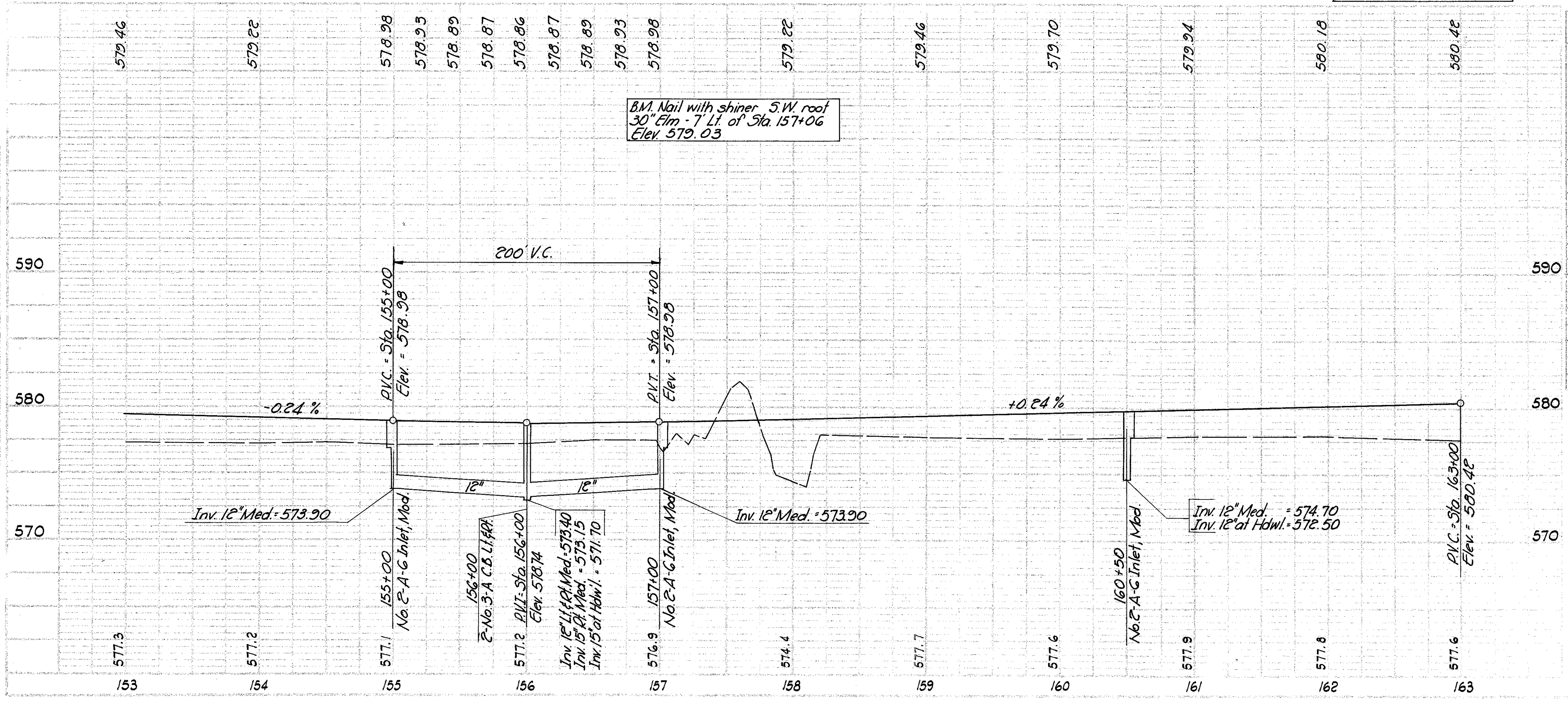
DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	S-24 Removal of Exist. Structures	I-1 12" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	I-1 6" Pipe Class I-3 (Shallow)	I-1 6" Pipe Class F-1	I-1 8" Pipe Class F-4 Sec. M-6.4(c)	I-2 Masonry	I-5 6"x6"x60° Wye for Class I Pipe	I-8 No. 2-A-G Inlet Modified	I-10 Dumped Rock Channel Protection	I-1 6" Pipe Class E-1		
					Lump	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Cu.Yd.	Ea.	Ea.	Cu.Yd.	Lin.Ft.		
	1-D	143+00	145+00	Lt.			198									
	2-D	143+00	153+00	Med.			974	20								
	3-D	143+00	153+00	Rt.			996									
	4-D	145+00		Lt.		100				0.23		1				
	5-D	145+00	152+00	Lt.			793		20		2					
	6-D	149+94	150+06	Rt.	Lump											
	7-D	152+00		Lt.		72				0.23		1				
	8-D	152+00	153+00	Lt.			98									
	9-D	144+60		Rt.									9			
	10-D	152+90		Lt.					10				0.4	24		
	Totals				Lump	172	3059	20	30	0.46	2	2	9.4	24		

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2-16.48





ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	B-112 Porous Base Course (Cu.Yd.)	I-15 Guard Rail (Barrier Type) (Lin.Ft.)	I-21 P.C. Conc. Pav't. Median (Std. Type 2) (Sq.Yd.)	I-22 Subbase (Cu.Yd.)		
	1-R	153+00	163+00	Med.	108.5	1000.0	650.9	108.5		
	Totals				108.5	1000.0	650.9	108.5		

DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 15" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) (Lin.Ft.)	I-1 12" Pipe, Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) (Lin.Ft.)	I-1 6" Pipe Class I-3 (Shallow) (Lin.Ft.)	I-1 6" Pipe Class F-1 (Lin.Ft.)	I-1 8" Pipe Class F-A Sec. M-6.4(c) (Lin.Ft.)	I-2 Masonry (Cu.Yd.)	I-5 6"×6" 60° Wye for Class I Pipe (Ea.)	I-5 6" on 6 Tee for Class I Pipe (Ea.)	I-8 No. 3-A C.B. (Ea.)	I-8 No. 2-A-6 Inlet Modified (Ea.)	I-10 Dumped Rock Channel Protection (Cu.Yd.)			
	1-D	153+00	163+00	Lt.			1030		10			1						
	2-D	153+00	163+00	Med.			930	50										
	3-D	153+00	156+00	Rt.			361		10		1							
	4-D	155+00	156+00	Med.		100								1				
	5-D	156+00		Rt.	99	7				0.26			2					
	6-D	156+00	157+00	Med.		100								1				
	7-D	156+00	163+00	Rt.			751	10	10		1							
	8-D	160+50		Rt.		103				0.23				1				
	9-D	159+00		Rt.											19			
	Totals				99	310	3072	60	30	0.49	2	1	2	3	19			

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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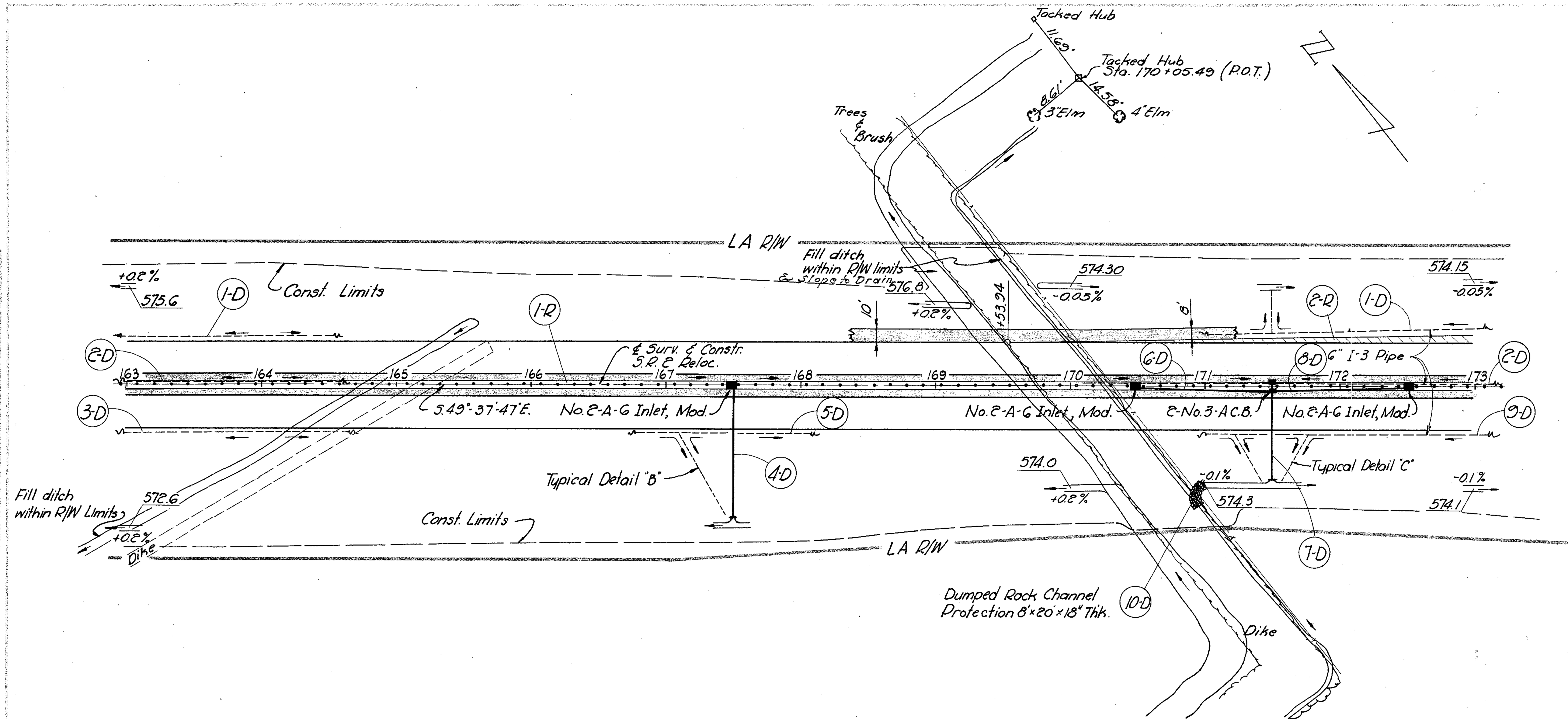
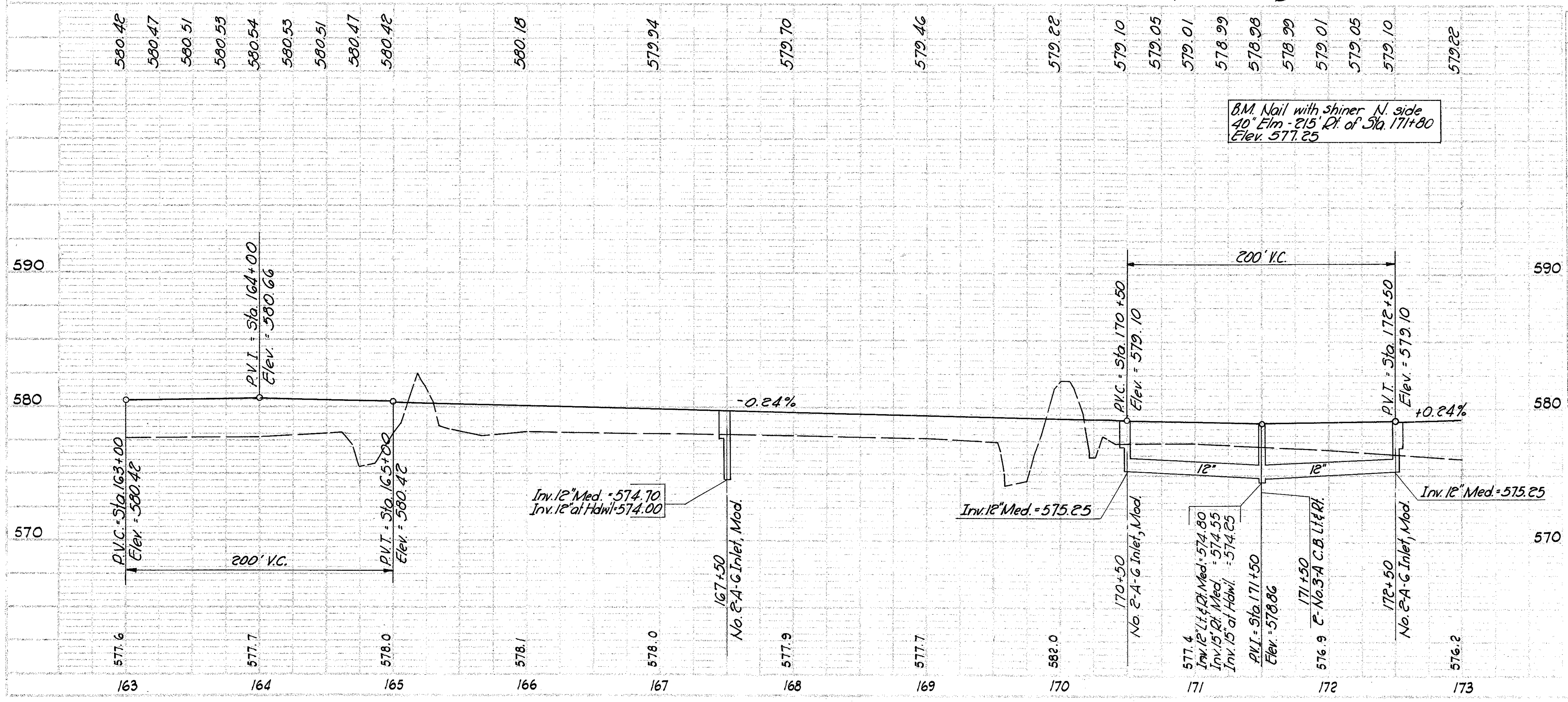
OTT 2-16.48





ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade (Sq.Yd.)	B-112 Porous Base Course (Cu.Yd.)	T-71 9" Reinf. P.C. Conc. Pav't. (Sq.Yd.)	I-15 Guard Rail (Barrier Type) (Lin.Ft.)	I-21 P.C. Conc. Median Pav't. (Std. Type 2) (Sq.Yd.)	I-22 Subbase (Cu.Yd.)
	1-R	163+00	173+00	Med.		108.5		1000.0	650.9	108.5
	2-R	169+53.94	173+00	Lt.	138.6		138.6			23.1
	Totals				138.6	108.5	138.6	1000.0	650.9	131.6

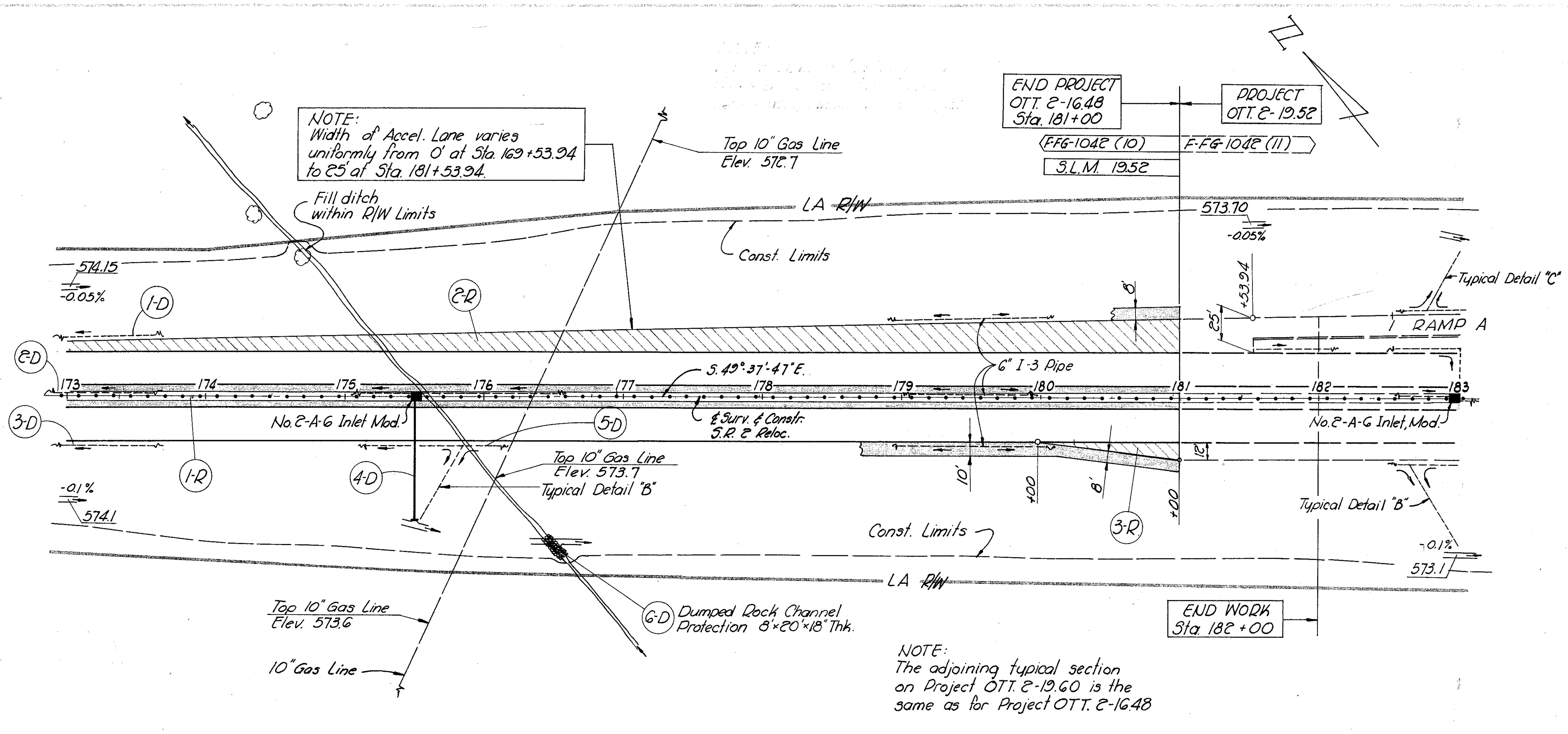
DRAINAGE QUANTITIES F-1042 (10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 15" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) (Lin.Ft.)	I-1 12" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) (Lin.Ft.)	I-1 6" Pipe Class I-3 (Shallow) (Lin.Ft.)	I-1 6" Pipe Class F-1 (Lin.Ft.)	I-1 8" Pipe Class F-4 Sec. M-6.4(c) (Lin.Ft.)	I-2 Masonry (Cu.Yd.)	I-5 6"x6"-60° Wye for Class I Pipe (Ea.)	I-5 6" on 6" Tee for Class I Pipe (Ea.)	I-8 No. 3-A C.B. (Ea.)	I-8 No. 2-A-6 Inlet Modified (Ea.)	I-10 Dumped Rock Channel Protection (Cu.Yd.)
	1-D	163+00	173+00	Lt.			1018		10			1			
	2-D	163+00	173+00	Med.			940	50							
	3-D	163+00	167+50	Rt.			509		10		1				
	4-D	167+50		Rt.		99				0.23				1	
	5-D	167+50	171+50	Rt.			428		10		1				
	6-D	170+50	171+50	Med.		100								1	
	7-D	171+50		Rt.	62	7				0.26			2		
	8-D	171+50	172+50	Med.		100								1	
	9-D	171+50	173+00	Rt.			180		10		1				
	10-D	170+95		Rt.											9
	Totals				62	306	3075	50	40	0.49	3	1	2	3	9

FEDRD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

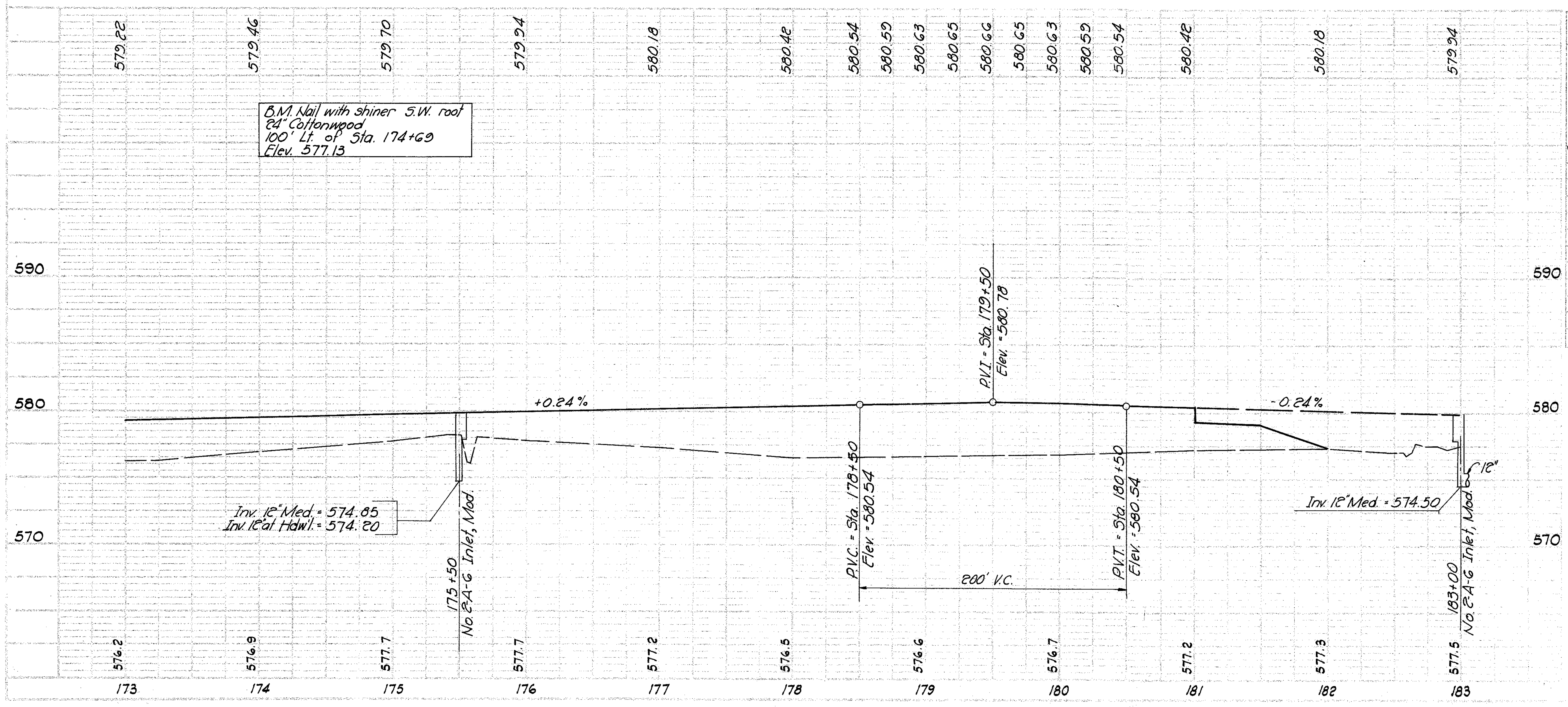
31/133

OTT 2-16.48



ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	E-1 Compacted Subgrade Sq.Yd.	B-112 Porous Base Course Cu.Yd.	T-71 9" Reinf. P.C. Conc. Pav't. Sq.Yd.	I-15 Guard Rail (Barrier Type) Lin.Ft.	I-21 P.C. Conc. Median Pav't. (Std. Type 2) Sq.Yd.	I-22 Subbase Cu.Yd.		
	1-R	173+00	181+00	Med.		88.1		800.0	528.4	88.1		
	2-R	173+00	181+00	Lt.	1381.8		1381.8			230.3		
	3-R	180+00	181+00	Rt.	69.2		69.2			11.5		
	Totals				1451.0	88.1	1451.0	800.0	528.4	329.9		



DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	I-1 12" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b) Lin.Ft.		I-1 6" Pipe Class I-3 (Shallow) Lin.Ft.	I-1 6" Pipe Class F-1 Lin.Ft.	I-1 8" Pipe Class F-4 Sec. M-6.4(c) Lin.Ft.	I-2 Masonry Cu.Yd.	I-5 6"×6"-60° Wye for Class I Pipe Ea.		I-8 No. 2-A-6 Inlet Modified Ea	I-10 Dumped Rock Channel Protection Cu.Yd.				
	1-D	173+00	181+00	Lt.			796											
	2-D	173+00	181+00	Med.			780	10										
	3-D	173+00	175+50	Rt.			248											
	4-D	175+50		Rt.	88					0.23			1					
	5-D	175+50	181+00	Rt.			596		10		1							
	6-D	176+50		Rt.										9				
	Totals				88		2420	10	10	0.23	1		1	9				

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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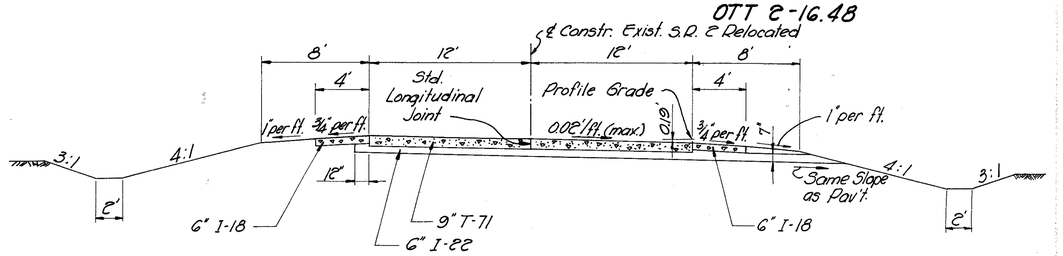
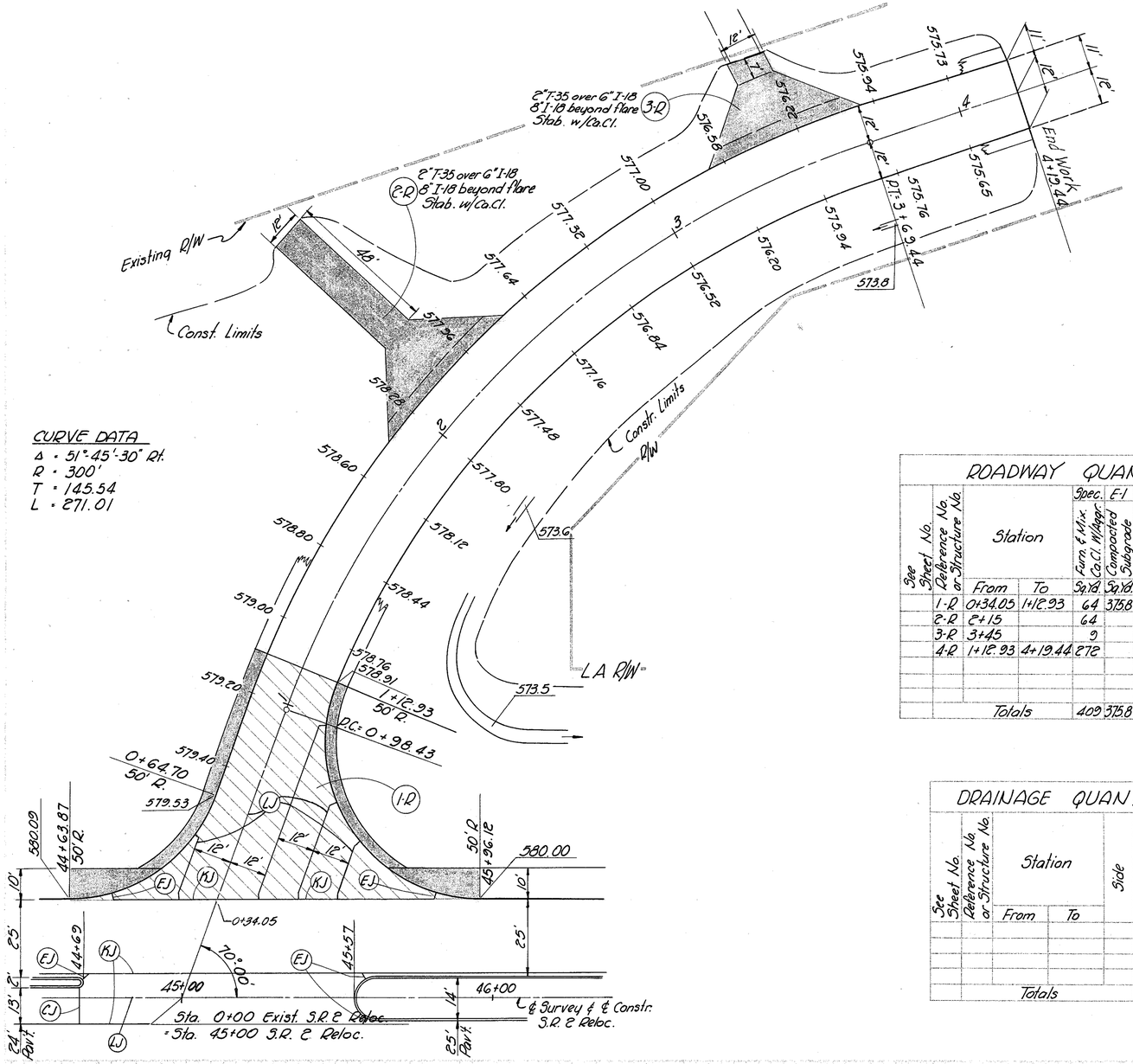
OTT 2-16.48



TYPICAL SECTION
Scale 3/16" = 1'-0"

This section applies: Sta. 1+12.93 to Sta. 3+69.44 = 256.51 Lin. Ft.



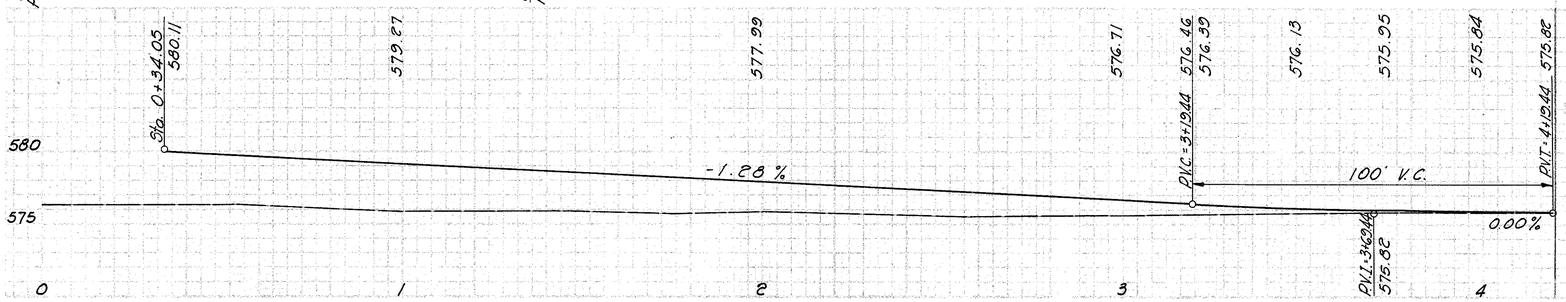
CURVE DATA
Δ = 51°-45'-30" Rt.
R = 300'
T = 145.54
L = 271.01

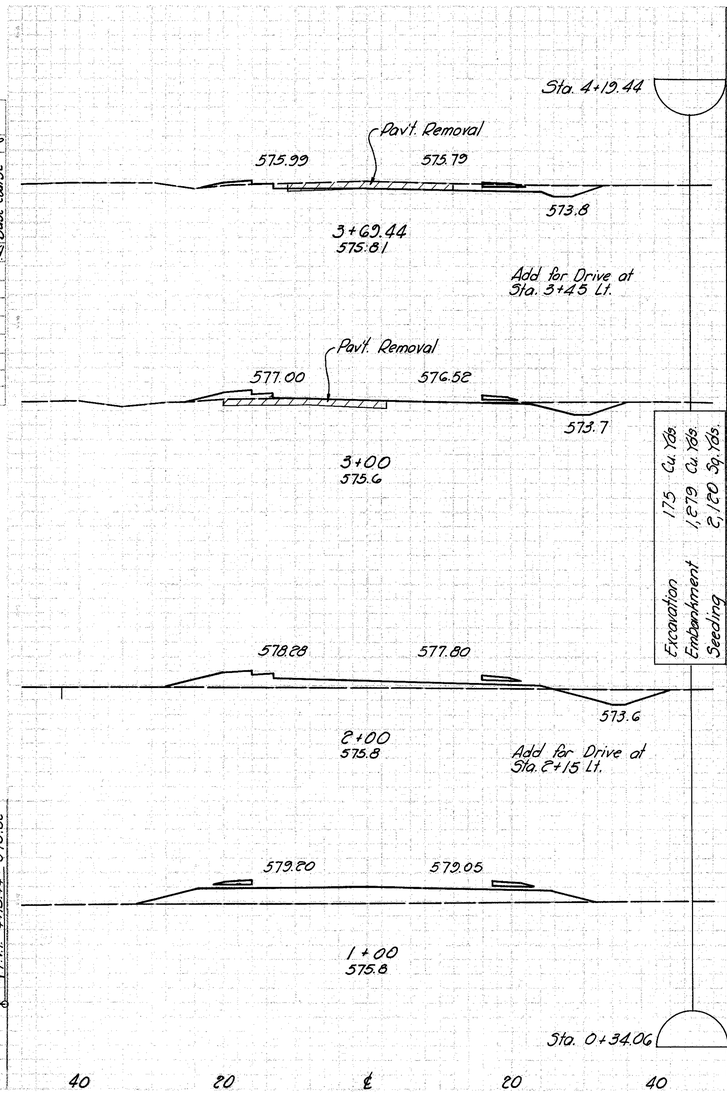
ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Spec. Furn. & Mix. Ca.Cl. H/Eager Sq.Yd.	E-1 Compacted Subgrade Sq.Yd.	T-71 9" Reinf. P.C. Conc. Pav't. Sq.Yd.	T-35 Asphaltic Conc. Surface Course Cu.Yd.	T-18 Slipformed Curbs Cu.Yd.	I-22 Aggr. Shoulders Cu.Yd.	T-31 Subbase Cu.Yd.	B-21 Bit. Surface Treatment Sq.Yd.	B-11C Waterproofed Aggr. Base Course Cu.Yd.	Porous Base Course Cu.Yd.
	1-R	0+34.05	1+12.93	64	375.8	375.8			10.8	70.2	454	3.8	6.2
	2-R	2+15		64			4.2	22.9					
	3-R	3+45		9			4.2	10.8					
	4-R	1+12.93	4+19.44	272									
		Totals		409	375.8	375.8	8.4	44.5	70.2	45.4	3.8	6.2	

DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side				
		Totals						





	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	19	5		
			35	12
	19	8		
			1	3
			42	53
175 Cu. Yds.				
1,879 Cu. Yds.				
2,120 Sq. Yds.				
Excavation	14	33		
Embankment			61	209
Seeding				
	19	80		
			1	71
			35	367
	0	118		
			0	564
	0	343		

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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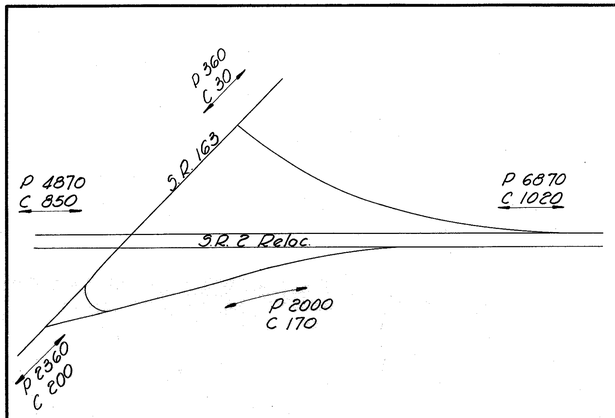
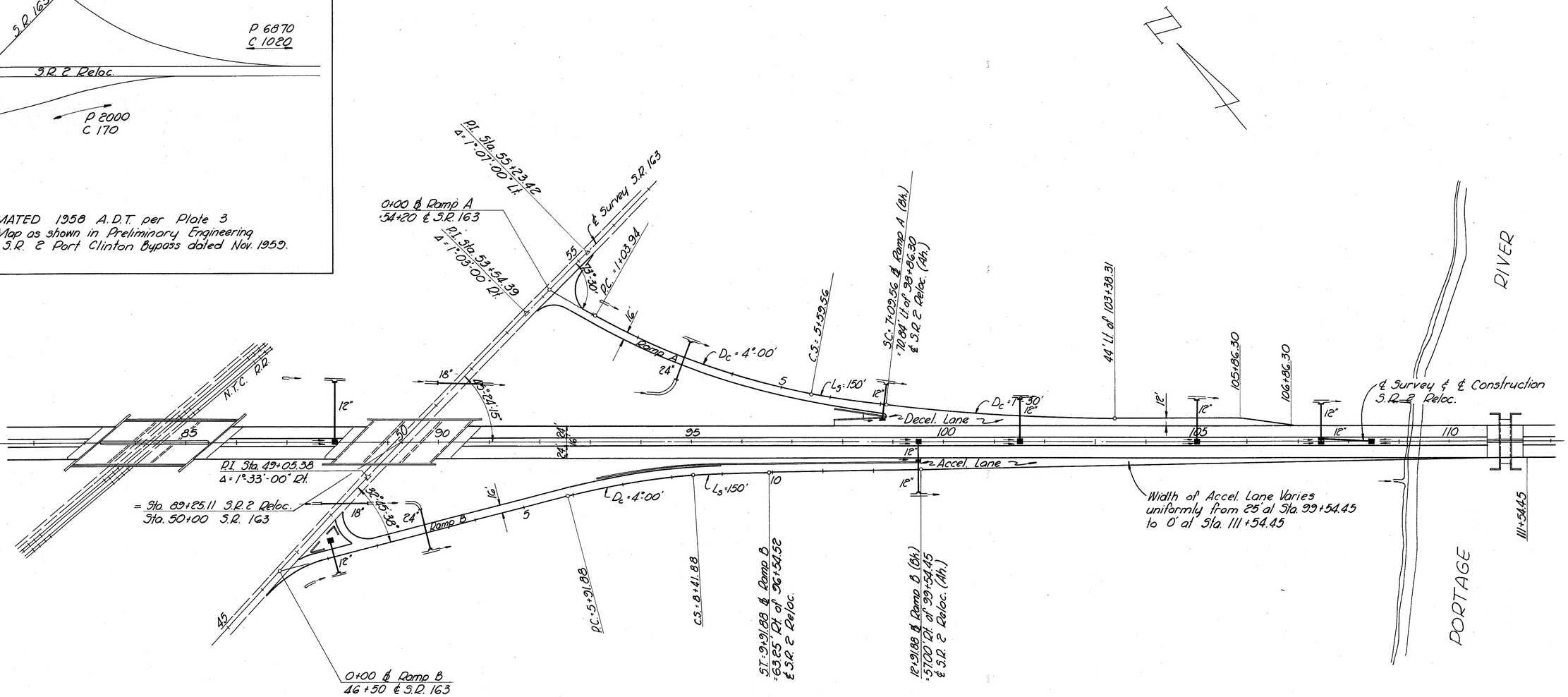
OTT. 2-16.48



ESTIMATED 1958 A.D.T. per Plate 3
Traffic Map as shown in Preliminary Engineering Report, S.R. 2 Port Clinton Bypass dated Nov. 1959.



Note: For Construction Details of Ramps
See Sheet Nos. 35-36.

DRAINAGE & GEOMETRICS PATTERN
S.R. 163 INTERCHANGE

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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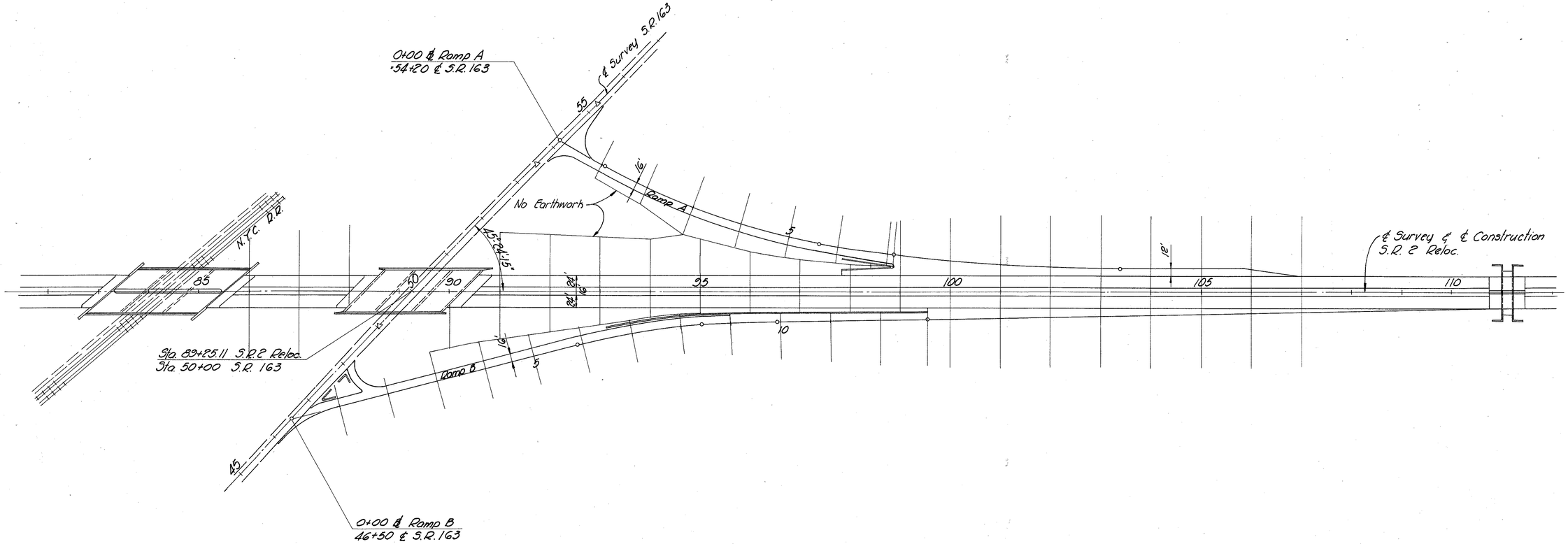
OTT. 2-16.48



CROSS SECTION LAYOUT

SANZENBACHER, MILLER & BRIGHAM TOLEDO, OHIO

S.R. 163 INTERCHANGE

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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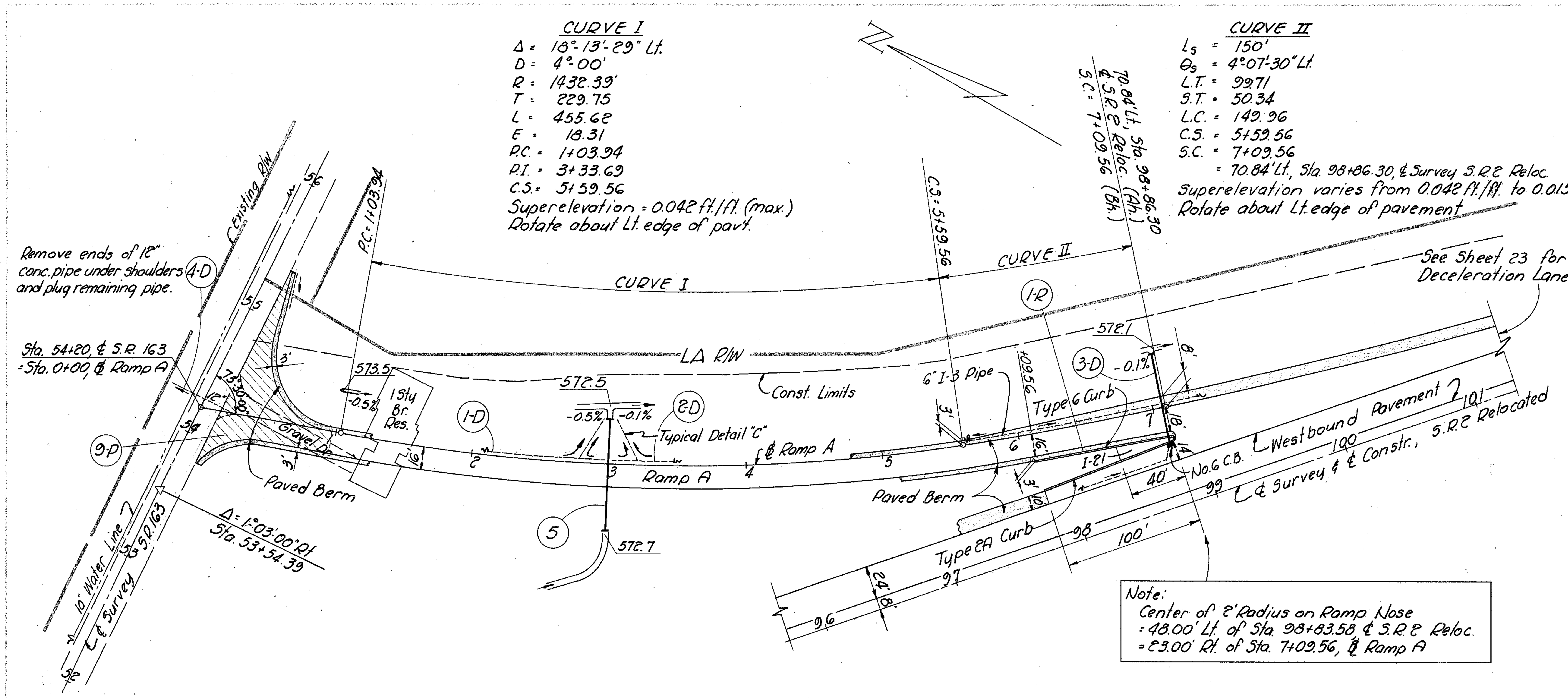
OTT. 2-16.48

CURVE I

Δ = 18°-13'-29" Lt.
D = 4°-00'
R = 1432.39'
T = 229.75
L = 455.62
E = 18.31
P.C. = 1+03.94
P.I. = 3+33.69
C.S. = 5+59.56
Superelevation = 0.042 ft./ft. (max.)
Rotate about Lt. edge of pav't.

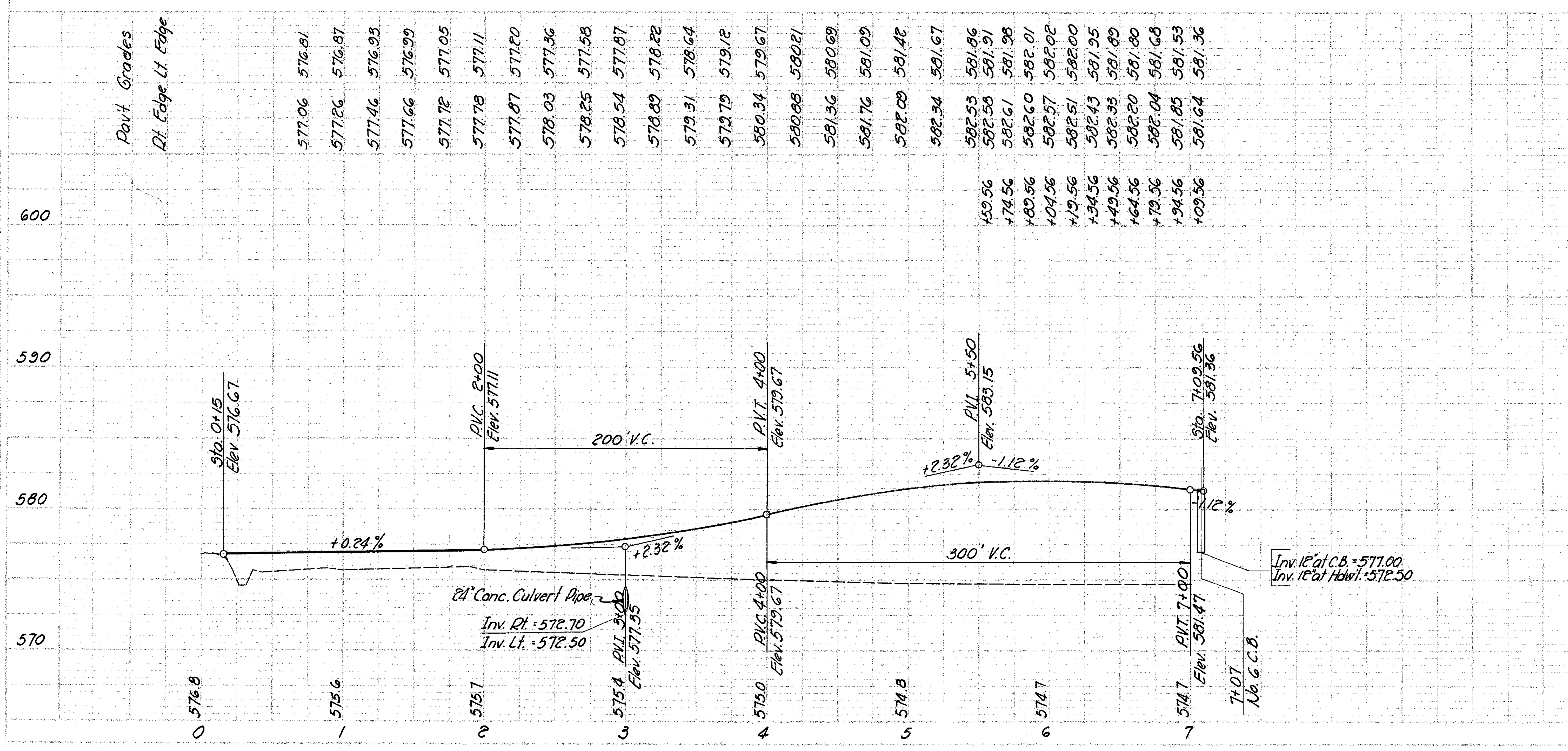
CURVE II

L_s = 150'
θ_s = 4°07'-30" Lt.
L.T. = 99.71
S.T. = 50.34
L.C. = 149.96
C.S. = 5+59.56
S.C. = 7+09.56
= 70.84' Lt., Sta. 98+86.30, ℄ Survey S.R. 2 Reloc.
Superelevation varies from 0.042 ft./ft. to 0.0156 ft./ft.
Rotate about Lt. edge of pavement



					E-1	B-19	B-21	B-35	B-35	B-112	T-31	T-35	I-12	I-22	T-30
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Ramp	Compacted Subgrade	Aggregate Base Course	Waterproofed Agg. Base Course	Asphaltic Conc. Base Course	Asphaltic Conc. Leveling Course	Porous Base Course	Bituminous Surf. Treatm.	Asphaltic Conc. Surface Course (Type C)	Type 6 Curb	Subbase	Bituminous Prime Coat
					Sq.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Sq.Yd.	Cu.Yd.	Lin.Ft.	Cu.Yd.	Gal.
37	9-P	0+15.4	0+98.05	A	408.6	90.8	13.2	34.1	14.2	6.6	79.3	14.2		91.2	164
	1-R	6+09.56	7+09.56	A									103	1.0	
	F-1042(10) Totals				408.6	90.8	13.2	34.1	14.2	6.6	79.3	14.2	103	92.2	164

ROADWAY QUANTITIES F-1042(10)



DRAINAGE QUANTITIES F-1042(10)

					I-1	I-1	I-1	I-1	I-1	I-2	I-5	I-8	E-12
See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	24" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	12" Pipe Class A-1, Sec. M-6.6(a) Sec. M-6.8(b)	6" Pipe Class I-3 (Shallow)	6" Pipe Class F-1	8" Pipe Class F-4 Sec. M-6.4(c)	Masonry	6"x6" 60° Wye for Class I Pipe	No 6 C.B.	12" Pipe Removed
					Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Cu.Yd.	Ea.	Ea.	Lin.Ft.
	1-D	55+48 (S.R. 163)	3+00	Lt.			364		10		1		
40	5	3+00		Lt.&Rt.	80					0.82			
	2-D	3+00	7+09.56	Lt.			423	10	10		1		
	3-D	7+07		Lt.&Rt.		68				0.23		1	
	4-D	54+27	S.R. 163	Lt.&Rt.									36
	Totals				80	68	787	10	20	1.05	2	1	36

SR 163 INTERCHANGE RAMP A Sta. 0+00 to Sta. 7+09.56

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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OTT. 2-16.48

ROADWAY QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Bituminous Prime Coat (T-30) Gal.	Compacted Subgrade (E-1) Sq.Yd.	Aggregate Base Course (B-19) Cu.Yd.	Waterproofed Agg. Base Course (B-21) Cu.Yd.	Asphaltic Conc. Base Course (B-35) Cu.Yd.	Asphaltic Conc. Leveling Course (B-35) Cu.Yd.	Porous Base Course (B-112) Cu.Yd.	Bituminous Surf. Treatment (T-31) Sq.Yd.	Asphaltic Conc. Surface Type C (T-35) Cu.Yd.	Type 6 Curb (I-12) Lin.Ft.	Special P.C. Curb AP Type (I-12) Lin.Ft.	Special P.C. Conc. Curb (Type D) (I-12) Lin.Ft.	Guard Rail (Std. Type) (I-15) Lin.Ft.	Subbase (I-22) Cu.Yd.	Furn. & Mix. Ca.Cl. Aggr. (Spec.) Sq.Yd.
37	B-P	46+88.38 (S.R.163)	2+00.51	191	476.4	105.9	38.6	39.7	16.5	19.3	213.6	84.7	100				147.9	
	1-R	45+65 (S.R.163)				84.1						8.2						36.8
	2-R	4+00	10+00													600.0		
	3-R	6+50	18+91.88											492	150		11.0	
	Totals			191	476.4	190.0	38.6	39.7	16.5	19.3	213.6	84.7	100	492	150	600.0	158.9	36.8

CURVE III

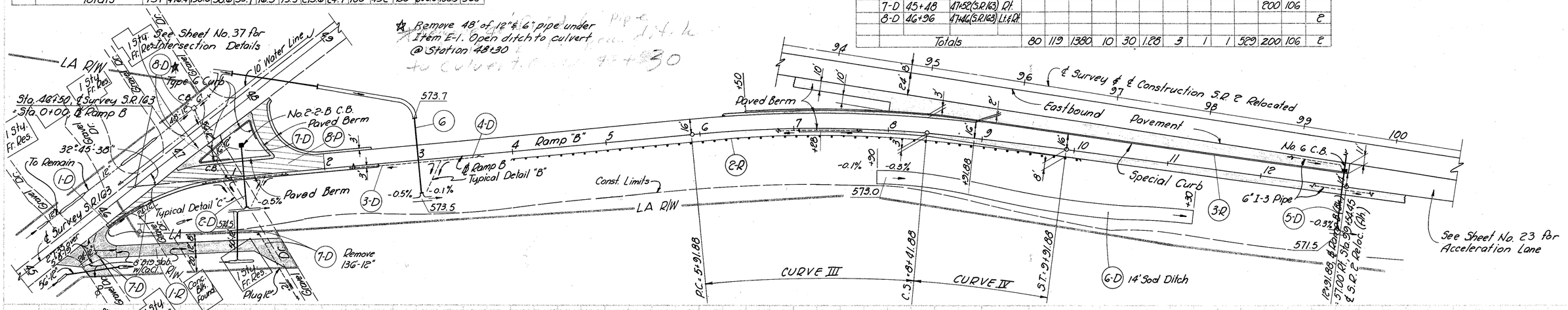
$\Delta = 10°00'00"$ Rt.
$D = 4°00'$
$R = 1432.39$
$T = 125.32$
$L = 250.00'$
$E = 5.47'$
P.C. = 5+91.88
P.I. = 7+17.20
C.S. = 8+41.88
Superelevation = 0.04 Ft./Ft.
Rotate about Rt. edge of pavement

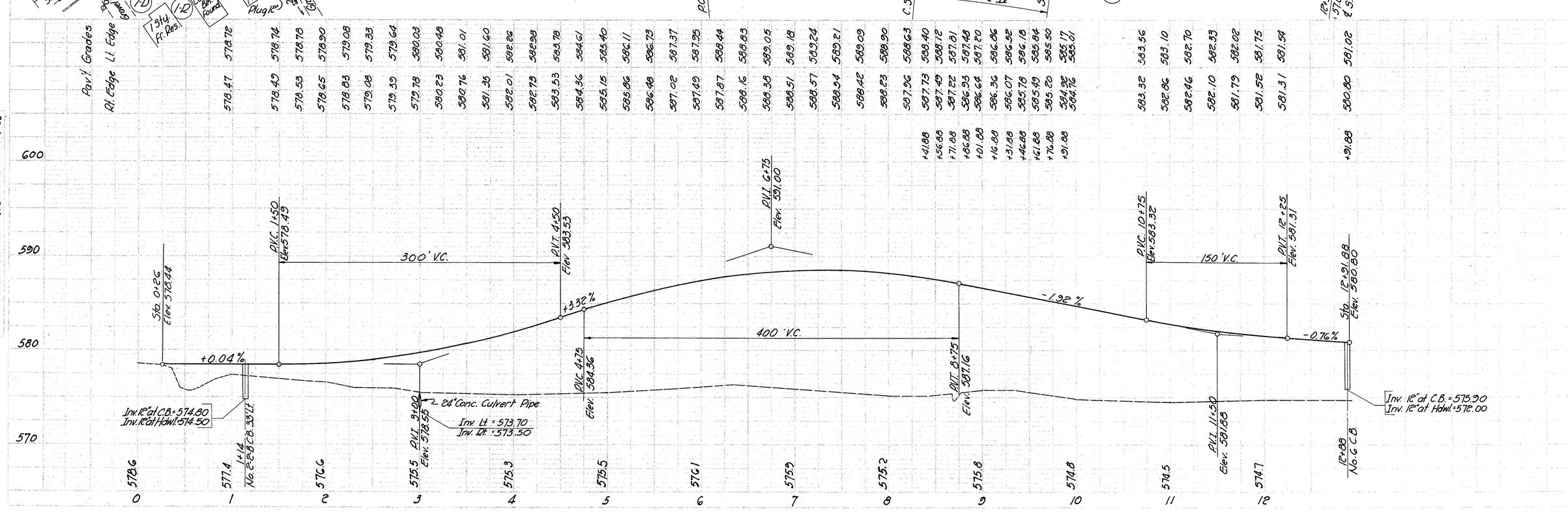
CURVE IV

$L_s = 150'$
$\theta_s = 3°00'$ Rt.
L.T. = 100.01
S.T. = 50.01
L.C. = 149.98
C.S. = 8+41.88
S.T. = 9+91.88 @ Ramp B
= 63.25' Rt., Sta. 96+54.52 ℄ S.R. 2 Reloc.
Superelevation varies from 0.04 Ft./Ft. to 0.0156 Ft./Ft.
Rotate about Rt. edge of pav't.

DRAINAGE QUANTITIES F-1042(10)

See Sheet No.	Reference No. or Structure No.	Station From	Station To	Side	21" Pipe Class A (Sec. M.6.01(b)) (I-1) Lin.Ft.	15" Pipe Class A (Sec. M.6.01(b)) (I-1) Lin.Ft.	6" Pipe Class 3 (Sec. M.6.01(a)) (I-1) Lin.Ft.	6" Pipe Class F-1 (I-1) Lin.Ft.	6" Pipe Class A (Sec. M.6.01(c)) (I-1) Lin.Ft.	Masonry (I-2) Cu.Yd.	6"-60" Wye for Class 1 Pipe (I-5) Ea.	No. 6 C.B. (I-8) Ea.	No. 2-2-B C.B. (I-8) Ea.	Sodding (L-10) Sq.Yd.	15" Pipe Removed (E-15) Lin.Ft.	15" Pipe Class F-1 Abandon (I-1) Lin.Ft.	C.B. (I-16) Ea.
	1-D	0+00	1+14	Rt.			114		10		1						
	2-D	1+14		Lt.&Rt.		63				0.23			1				
	3-D	1+14	3+00	Rt.			203		10		1						
40	6	3+00		Lt.&Rt.	80					0.82							
	4-D	3+00	18+91.88	Rt.			1003	10	10		1						
	5-D	18+88		Lt.&Rt.		56				0.23		1					
	6-D	7+90	11+30	Rt.										529			
	7-D	45+48	47+52 (S.R.163)	Rt.											200	106	
	8-D	46+96	47+46 (S.R.163)	Lt.&Rt.													2
	Totals				80	119	1380	10	30	1.28	3	1	1	529	200	106	2





S.R. 163 INTERCHANGE RAMP B Sta. 0+00 to Sta. 12+91.88

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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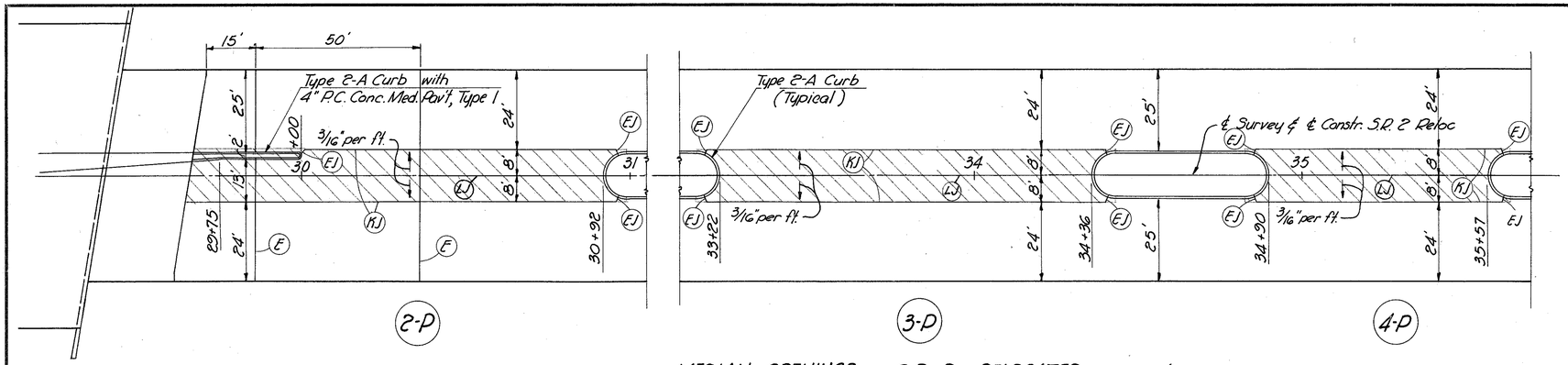
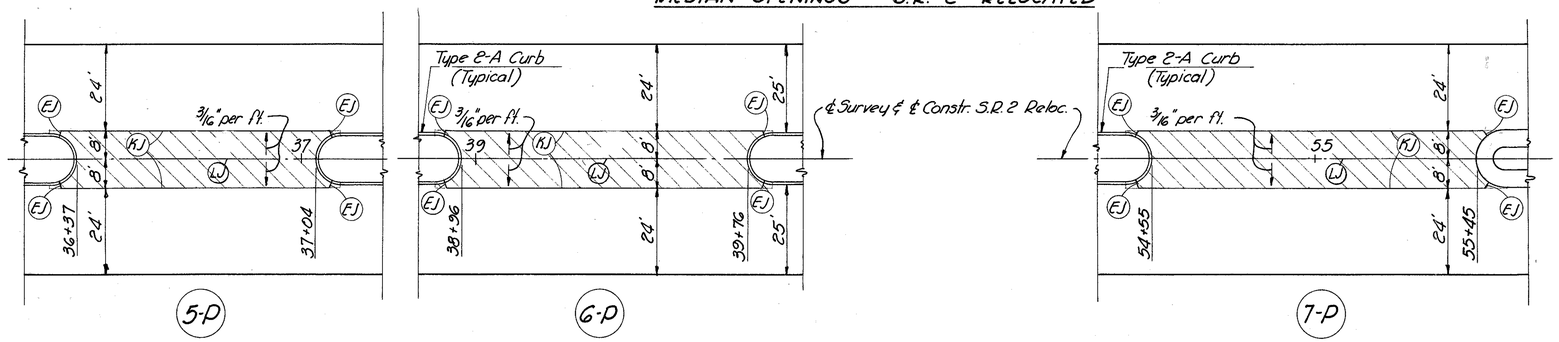
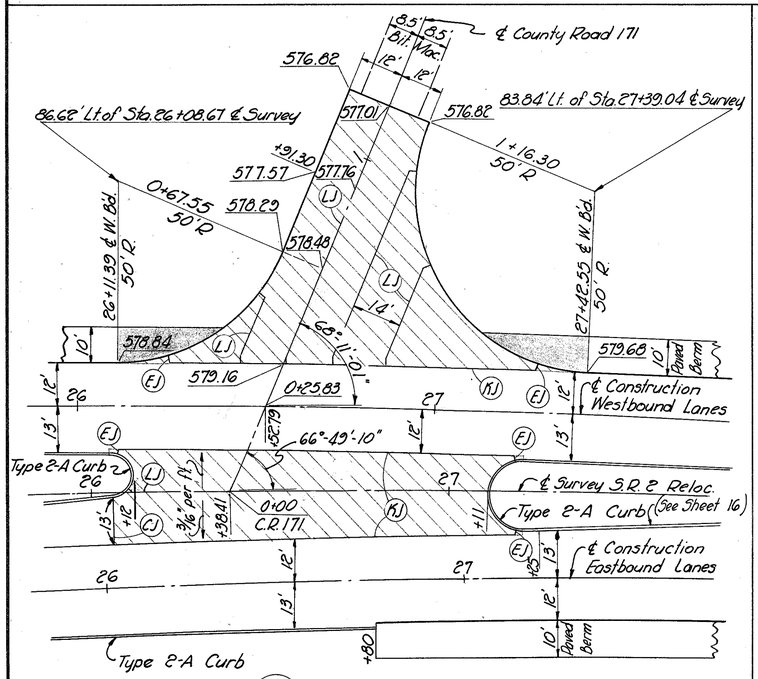
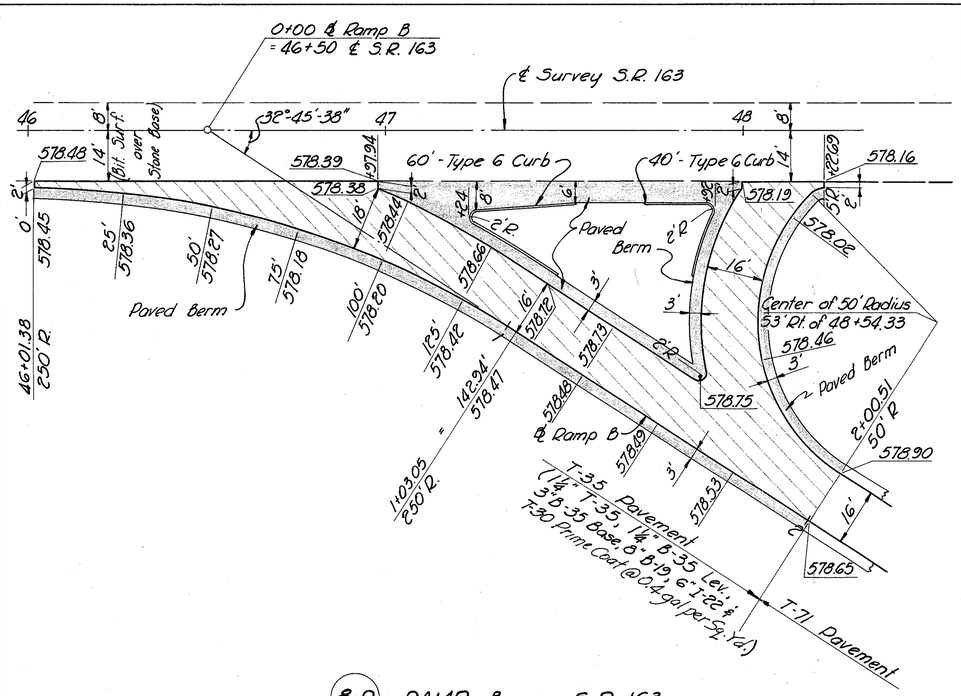
OTT. 2 - 16.48

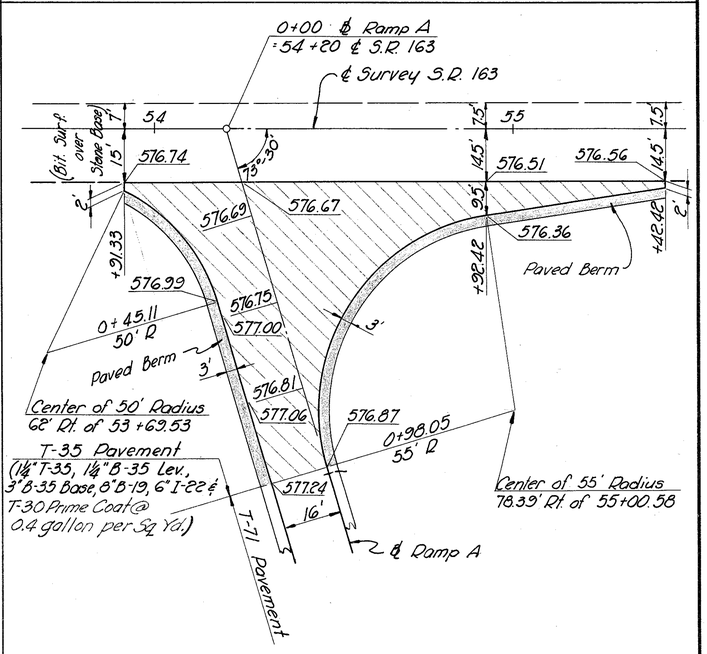


MEDIAN OPENINGS S.R. 2 RELOCATED









FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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OTT. 2-16.48

Westbound Lanes D=1°28' Max. rate of superelevation=0.025 ft/ft. Left: Edge of Pavement	Left: Add to Med. Edge	Median: Station (℄ of W. Bd. Lanes)	Median: Deduct from Prof. Gr.	Median: Edge of Pavement	Station (℄ of Survey and Construction)	Profile Grade: Westbound Lanes	Profile Grade: Eastbound Lanes	Eastbound Lanes D=1°28' Max. rate of superelevation=0.025 ft/ft. Median: Edge of Pavement	Median: Deduct from Prof. Gr.	Median: Station (℄ of E. Bd. Lanes)	Right: Deduct from Med. Edge	Right: Edge of Pavement
†575.77	0.08		0.23	575.69	20+65	575.98						
575.76	0.10		0.30	575.66	+75	575.96						
575.81	0.19	21+00	0.28	575.62	PC 21+00.00	575.90	576.06	575.94	0.12	21+00.00	0.10	*575.84
575.89	0.29		0.25	575.60	+25	575.85	575.98	575.85	0.13		0.18	575.67
†575.98	0.37	21+50.46	0.23	575.61	+50	575.84	575.93	575.79	0.14	21+49.54	0.27	575.52
576.09	0.46		0.22	575.63	+75	575.85	575.91	575.75	0.16		0.35	*575.40
					+79.36		575.91	575.75	0.16	PC +78.64	0.36	575.39
576.26	0.57	22+00.90	0.20	575.69	22+00	575.89	575.93	575.76	0.17	21+99.10	0.43	575.33
576.34	0.60		0.19	575.74	+15	575.93						
576.37				575.77	+25	575.96	575.98	575.80	0.18		0.52	575.28
576.47		22+51.33		575.87	+50	576.06	576.07	575.88	0.19	22+48.67	0.60	575.28
576.59				575.99	+75	576.18	576.19	576.00				575.40
						W. Bd. and E. Bd.						
576.75		23+01.74		576.15	23+00	576.34		576.15		22+98.26		575.55
576.92				576.32	+25	576.51		576.32				575.72
577.09				576.49	+50	576.68		576.49				575.89
577.26				576.66	+75	576.85		576.66				576.06
577.43		24+02.54		576.83	24+00	577.02		576.83		23+97.46		576.23
577.60				577.00	+25	577.19		577.00				576.40
577.77				577.17	+50	577.36		577.17				576.57
577.94				577.34	+75	577.53		577.34				576.74
578.11		25+03.27		577.51	25+00	577.70		577.51		24+96.73		576.91
578.28				577.68	+25	577.87		577.68				577.08
578.45				577.85	+50	578.04		577.85				577.25
578.62				578.02	+75	578.21		578.02				577.42
578.79		26+03.96		578.19	26+00	578.38		578.19		25+96.04		577.59
578.96				578.36	+25	578.55		578.36				577.76
579.13				578.53	+50	578.72		578.53				577.93
579.30				578.70	+75	578.89		578.70				578.10
579.47		27+04.59		578.87	27+00	579.06		578.87		26+95.41		578.27
579.64	0.60			579.04	+25	579.23		579.04				578.44
579.71	0.50			579.21	+50	579.40		579.21				578.61
579.78	0.40			579.38	+75	579.57		579.38				578.78
579.79	0.38			579.41	+79	579.60						
		P.T. 27+86.85			+81.79							
579.84	0.29	28+05.16		579.55	28+00	579.74		579.55		27+94.84		578.95
579.90	0.19			579.71	+25	579.90		579.71				579.11
579.92	0.09		0.19	579.83	+50	580.02		579.83			0.60	579.23
					P.T. +65.49					28+59.98		
					+75							
					+92	For elevations on Structure see Structure details						
					29+00							
					+25							
					+49.63					P.T. +44.13		
					+50	580.21		580.05			0.34	579.71
					+75	580.23		580.01			0.22	579.82
					30+00	580.18		579.99		29+94.50	0.11	579.88
					+25	580.12		579.93			0.00	579.93
					+50	580.06		579.87			0.00	579.87
					+75	580.00		579.81	0.19		0.00	579.81

† Transition W. Bd. from crowned to plane sect. from Sta. 20+65 to 21+50

* Transition E. Bd. from crowned to plane sect. from Sta. 21+00 to 21+75

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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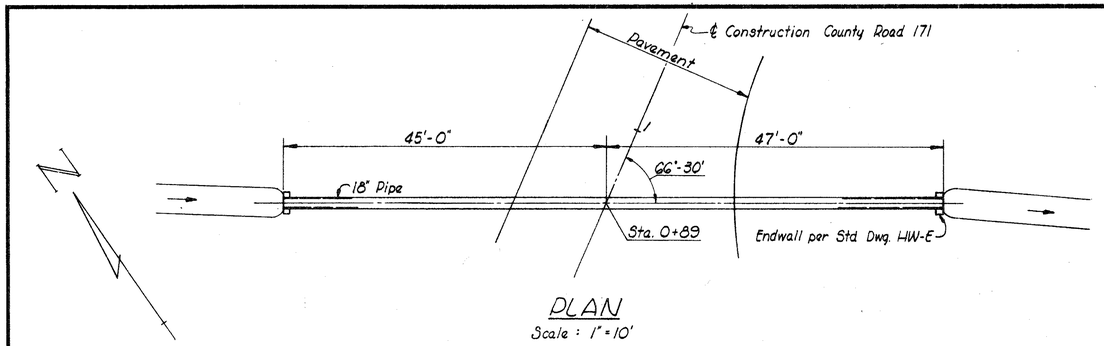
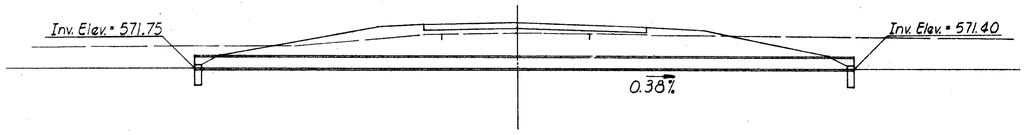
OTT. 2-16.48



PLAN
Scale : 1" = 10'



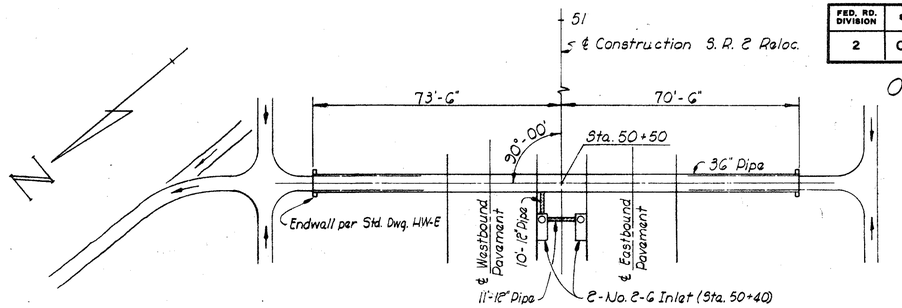
LONGITUDINAL SECTION
Scale : 1" = 10'

ESTIMATED QUANTITIES

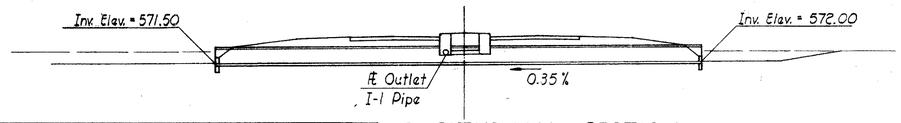
Item	Quantity	Unit	Description
I-1	92	Lin. Ft.	18" Pipe, Class A-1, Sec. M-6.6(a) or M-6.8(b)
I-2	0.60	Cu. Yd.	Masonry

Drainage Area = 1.5 Ac.
Q_{es} = 7 c.f.s.

1	Sta. 0+89 County Road 171	P.C. 18" × 92'	OTT. 2-16.48



PLAN
Scale : 1" = 20'



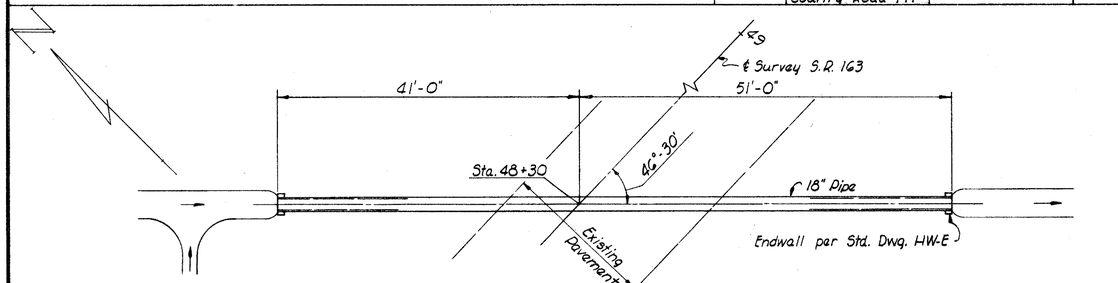
LONGITUDINAL SECTION
Scale : 1" = 20'

ESTIMATED QUANTITIES

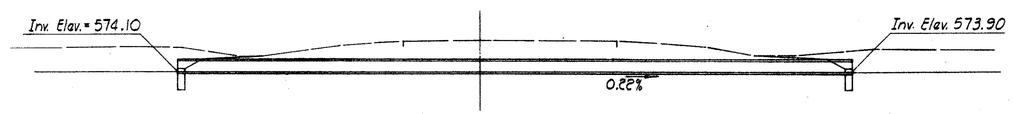
Item	Quantity	Unit	Description
I-1	144	Lin. Ft.	36" Pipe, Class A-1, Sec. M-6.6(a) or M-6.8(b)
I-1	81	Lin. Ft.	18" Storm Sewer, Sec. M-6.6(a) or M-6.8(b), Class A-1
I-2	1.18	Cu. Yd.	Masonry
I-8	2	Each	No. 2-6 Inlet
I-5	1	Each	12"on 36" Tee for Class A Pipe
E-3	25	Cu. Yd.	Channel Excavation

Drainage Area = 25 Ac.
Q_{es} = 48 c.f.s.

2	Sta. 50+50	P.C. 36" × 144'	OTT. 2-16.48



PLAN
Scale : 1" = 10'



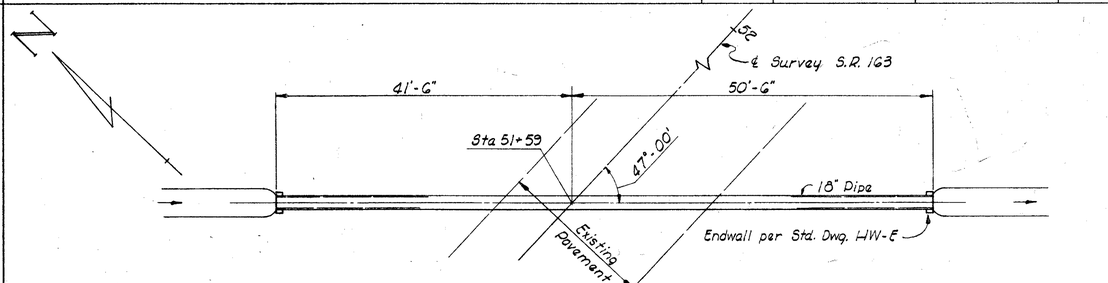
LONGITUDINAL SECTION
Scale : 1" = 10'

ESTIMATED QUANTITIES

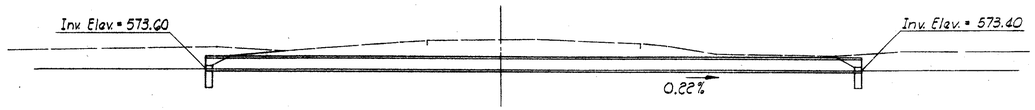
Item	Quantity	Unit	Description
I-1	92	Lin. Ft.	18" Pipe, Class A-1, Sec. M-6.6(a) or M-6.8(b)
I-2	0.60	Cu. Yd.	Masonry

Drainage Area = 2 Ac.
Q_{es} = 9 c.f.s.

3	Sta. 48+30 S.R. 163	P.C. 18" × 92'	OTT. 2-16.48



PLAN
Scale : 1" = 10'



LONGITUDINAL SECTION
Scale : 1" = 10'

ESTIMATED QUANTITIES

Item	Quantity	Unit	Description
I-1	92	Lin. Ft.	18" Pipe, Class A-1, Sec. M-6.6(a) or M-6.8(b)
I-2	0.60	Cu. Yd.	Masonry

Drainage Area = 2 Ac.
Q_{es} = 9 c.f.s.

4	Sta. 51+59 S.R. 163	P.C. 18" × 92'	OTT. 2-16.48

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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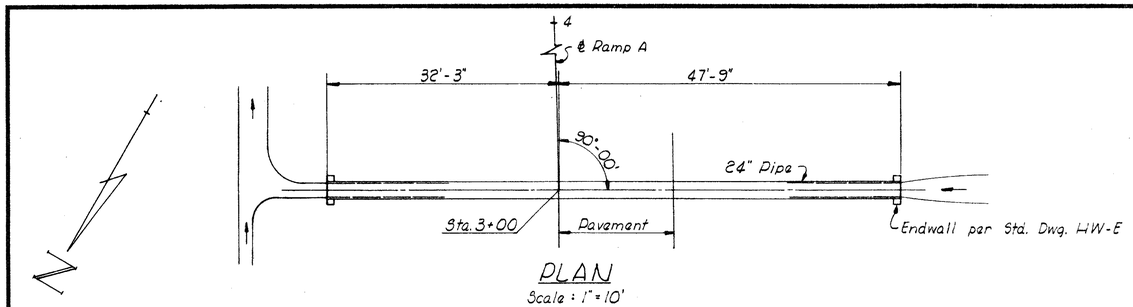
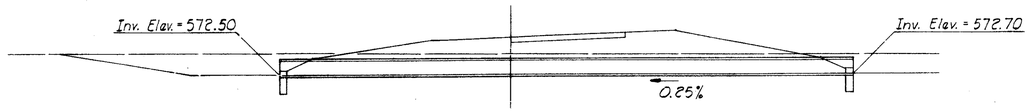


PLAN
Scale : 1" = 10'

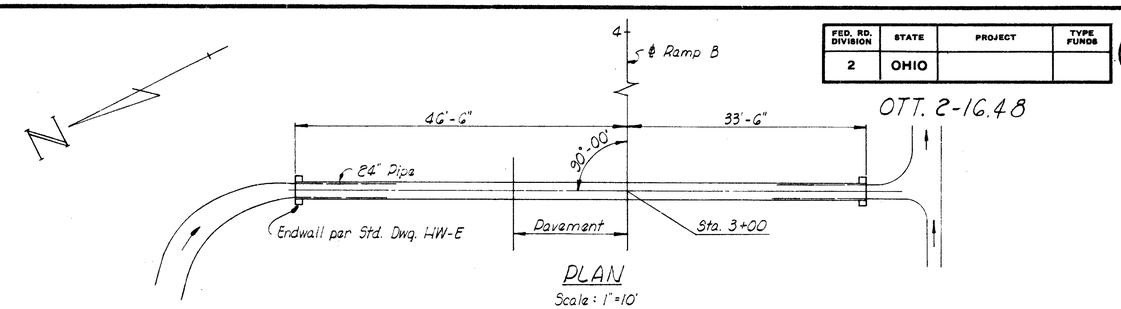


LONGITUDINAL SECTION
Scale : 1" = 10'

ESTIMATED QUANTITIES			
Item	Quantity	Unit	Description
I-1	80	Lin. Ft.	24" Pipe, Class A-1,
			Sec. M-6.6(a) or M-6.8(b)
I-2	0.82	Cu. Yd.	Masonry

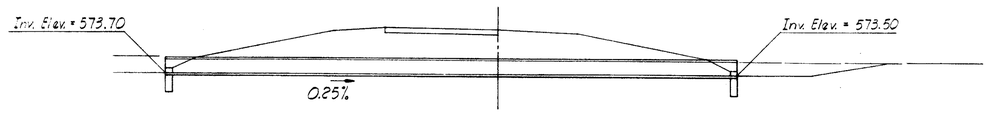
Drainage Area = 5 Ac.
Q_{es} = 18 c.f.s.

5	Sta. 3+00 Ramp A, S.R. 163	P.C. 24" x 80'	OTT. 2-16.48



OTT. 2-16.48

PLAN
Scale : 1" = 10'



LONGITUDINAL SECTION
Scale : 1" = 10'

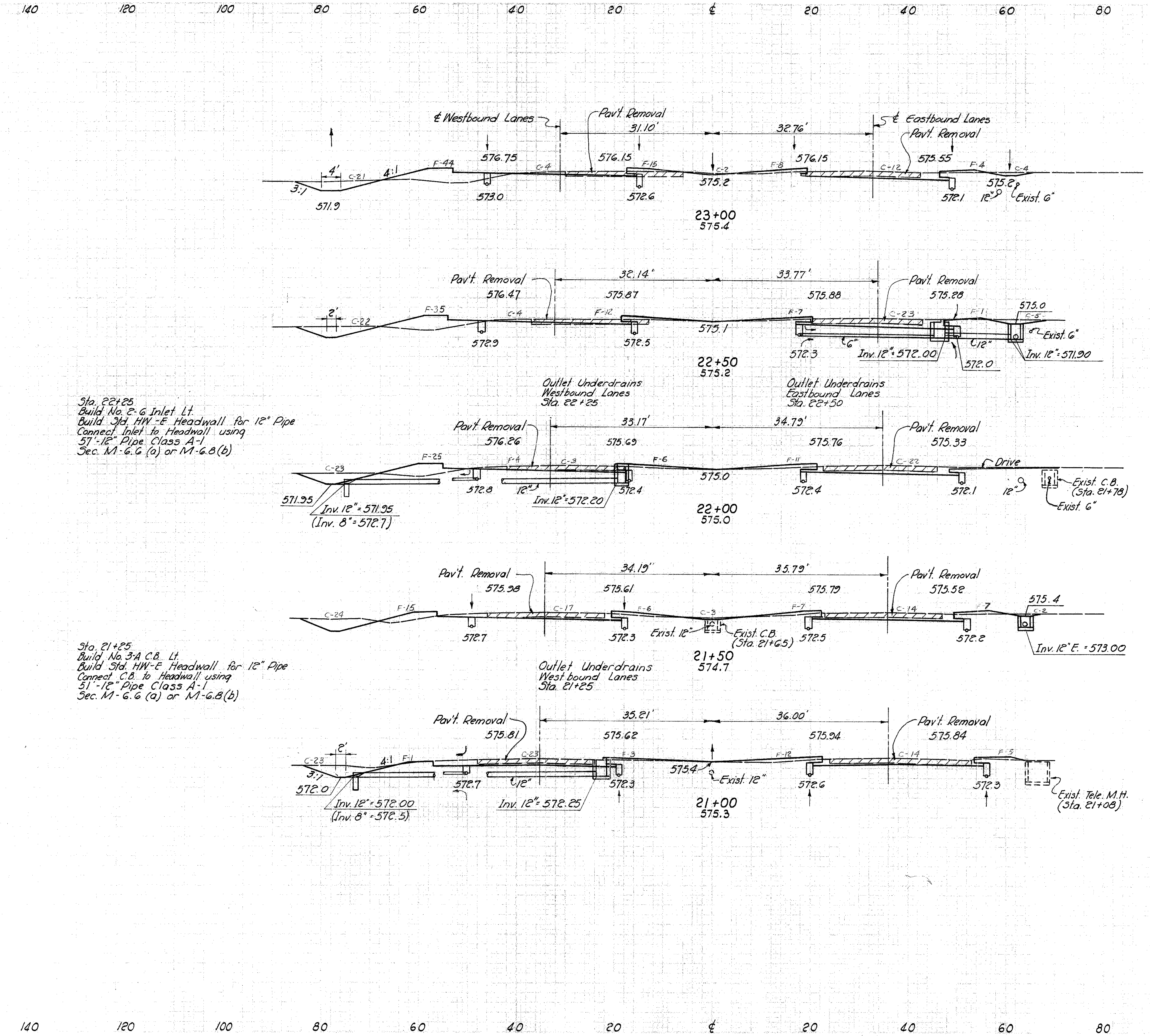
ESTIMATED QUANTITIES			
Item	Quantity	Unit	Description
I-1	80	Lin. Ft.	24" Pipe, Class A-1,
			Sec. M-6.6(a) or M-6.8(b)
I-2	0.82	Cu. Yd.	Masonry

Drainage Area = 4 Ac.
Q_{es} = 15 c.f.s.

6	Sta. 3+00 Ramp B, S.R. 163	P.C. 24" x 80'	OTT. 2-16.48

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2 - 16.48



Sta. 22+25
Build No. 2-6 Inlet Lt.
Build Std. HW-E Headwall for 12" Pipe
Connect Inlet to Headwall using
57'-12" Pipe Class A-1
Sec. M-6.6 (a) or M-6.8 (b)

Sta. 21+25
Build No. 3-A C.B. Lt.
Build Std. HW-E Headwall for 12" Pipe
Connect C.B. to Headwall using
51'-12" Pipe Class A-1
Sec. M-6.6 (a) or M-6.8 (b)

Sta. 22+50
Build No. 3-A C.B. Rt.
Build No. 2-2-B C.B. 62' Rt.
Connect C.B's. using 15'-12" Pipe, Class B-1
Connect No. 2-2-B C.B. to M.H. Rt. of
Sta. 24+15 using 165'-12" Pipe, Class B-1

Add for Drive at
Sta. 21+98 Rt.

Sta. 21+65
Build No. 2-2-B C.B. 64' Rt.
Connect to C.B. 62' Rt. of Sta. 22+50
using 85'-12" Pipe Class B-1

Excavation 10,617 Cu. Yds.
Embankment * 57,709 Cu. Yds.
(Emb., granular mat'l. * 7,311 Cu. Yds.)
Seeding 62,662 Sq. Yds.
* 57,709 - 7,311 = 50,398 Cu. Yds.

Begin Work
Sta. 20+65

End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
43	71		
		90	117
54	55		
		94	94
		25	0
48	46		
		100	75
60	35		
		111	52
60	21		
		93	23

D.F.S. SMB J.C.S. 1960 7-22 88

Sta. 21+00 to Sta. 23+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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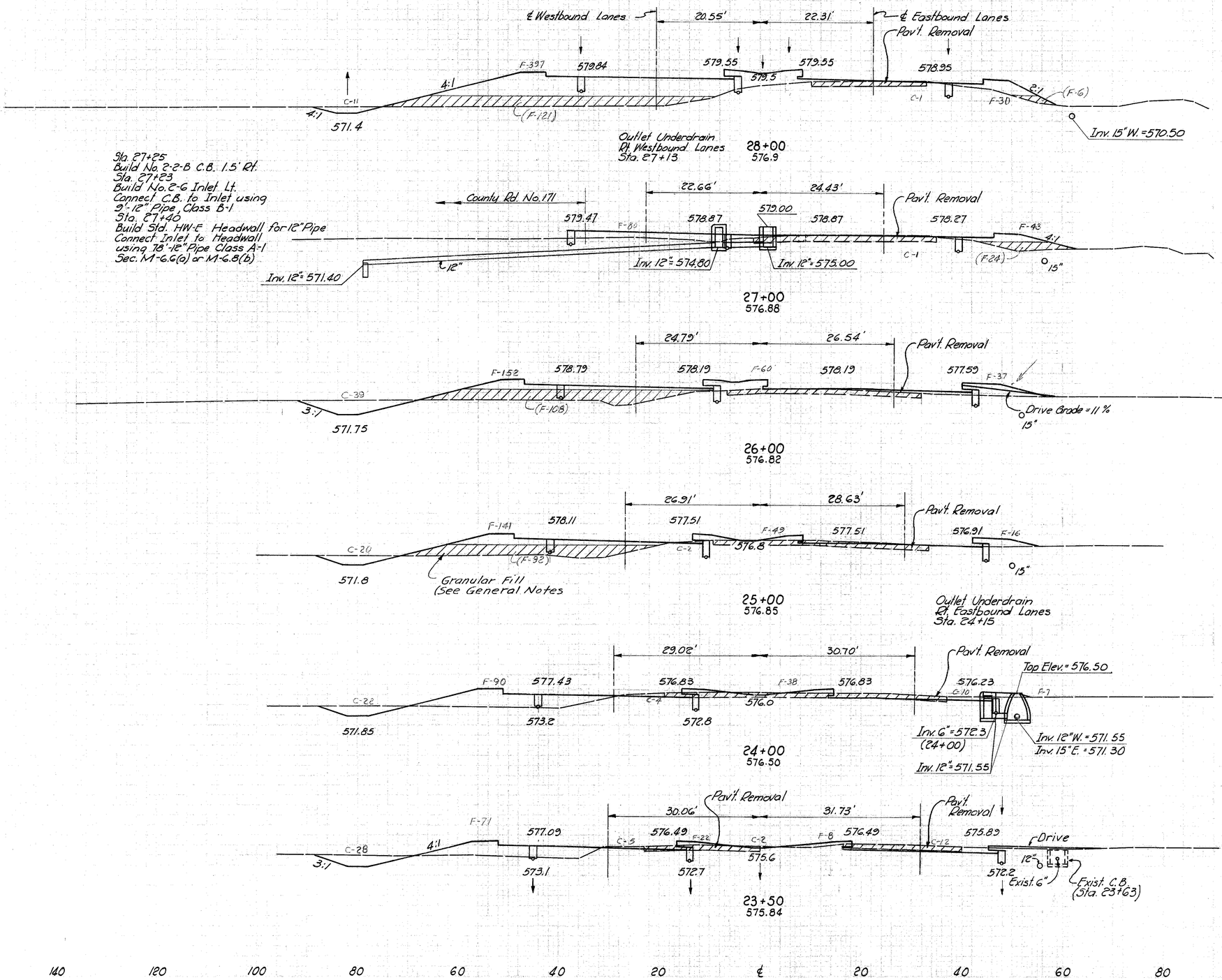
OTT 2 - 16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120



Sta. 28+75
Outlet 15" Pipe, Rt.
Between Outlet and MH. Rt. of
Sta. 24+15 use 430'-15" Pipe Class B-1
and 20'-15" Pipe, Class F-4 (Outlet End)

Sta. 24+15
Build No. 2-G Inlet Rt.
Build No. 1 MH. 51' Rt.
Connect Inlet to MH. using
6'-12" Pipe Class B-1

Add for Drive at
Sta. 23+72 Rt.

	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
Add for Spillthru			53	293
Sta. 28+00 to Structure			33	1170 (348)
	12	427 (127)		
			24	1019 (231)
Sta. 27+15		(20)		(12)
	1	123 (24)		
Add for Intersection Lt.			0	168
Add for Drive at Sta. 26+86 Rt.			4	12
			74	689 (40)
Sta. 26+40		(12)		(89)
	39	249 (108)		
			113	843 (352)
	22	806 (92)		
			107	631 (170)
	36	135 (0)		
			77	219
Add for Drive at Sta. 23+72 Rt.			17	1
	47	101	89	165
Sta. 23+00	49	71		

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 23+50 to Sta. 28+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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OTT 2-16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

Sta. 34+00
Build No. 2-2-B C.B. 63.5' Lt.
Connect C.B. to C.B. Lt. of Sta. 36+00
using 200'-24" Pipe Class B-1

576.0 · 10' · 577.0 · 4:1 · 6:1 · 6:1 · Pav't. Removal · 10' · 577.0 · Drive at 33+76 Grade = 8.9%

Drive at 33+60 Grade = 5.0%

Inv. 24" E. & W. = 571.80

F-105 · (F-88) · (F-49) · C-1 · 575.8 · F-88 · 2:1 · C-41 · 2:1 · 571.3

Add for Drive at Sta. 33+76 Rt.

Add for Drive at Sta. 33+60 Lt.

579.22
34+00
575.71

Sta. 33+08
Build No. 2-3 C.B. 65' Lt.
Connect C.B. to C.B. Lt. of Sta. 34+00
using 92'-24" Pipe Class B-1

576.00 · Outlet Median Underdrain Sta. 33+14 · Pav't. Removal · (F-98) · F-390 · C-1 · (F-57) · 575.1 · F-84 · C-54 · 571.2

12" · Inv. 12" = 574.35 · 12" · Inv. 12" = 574.45

Inv. 24" E. = 571.50 · Inv. 12" = 572.50

Inv. 30" W. = 571.00

Sta. 33+14
Build No. 2-6 Inlets Lt. & Rt. Median
Connect Inlets using 11'-12" Pipe, Class E-1
Connect Inlets to C.B. Lt. of Sta. 33+08
using 60'-12" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)

579.46
33+00
575.5

576.2 · Pav't. Removal · F-409 · C-9 · 575.6 · F-79 · C-56 · 571.1

30" · Granular Fill (See Gen. Notes) · (F-104) · (F-45)

579.70
32+00
575.5

576.4 · 10' · 577.0 · 4:1 · 6:1 · 6:1 · Pav't. Removal · 10' · 577.0

30" · F-375 · (F-85) · (F-35) · 575.5 · F-77 · 2:1 · C-54 · 2:1 · 571.0

579.94
31+00
576.4

Drive at 30+52 Grade = 9.0%

2:1 · F-380 · (F-94) · Pav't. Removal · 6:1 · 6:1 · (F-13) · 575.4

Add for Drive at Sta. 30+52 Lt.

580.18
30+00
577.2

Pav't. Removal · F-295 · 2:1 · 2:1 · (F-14) · F-2 · 2:1 · C-12 · 2:1 · 571.0

(F-95)

Sta. 29+50
Outlet 30" Pipe Lt.
Between Outlet and C.B. Lt. of
Sta. 33+08 use 340'-30" Pipe, Class B-1
& 20'-30" Pipe, Class FA (Outlet End)

Inv. 30" E. = 570.50

580.24
29+52
577.4

Structure to Sta. 29+52

Add for Spillthru

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 29+52 to Sta. 34+00

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
		1	47
		2	0
42	493 (137)		
		180	1791 (541)
55	474 (155)		
		222	1781 (563)
65	488 (149)		
		241	1741 (498)
65	452 (120)		
		120	1541 (430)
		1	55
0	380 (112)		
		11	602 (196)
12	297 (109)		
		5	132 (48)
		55	191

SMB 1960 12-60 4-62
DES. DR. CK. DBG.

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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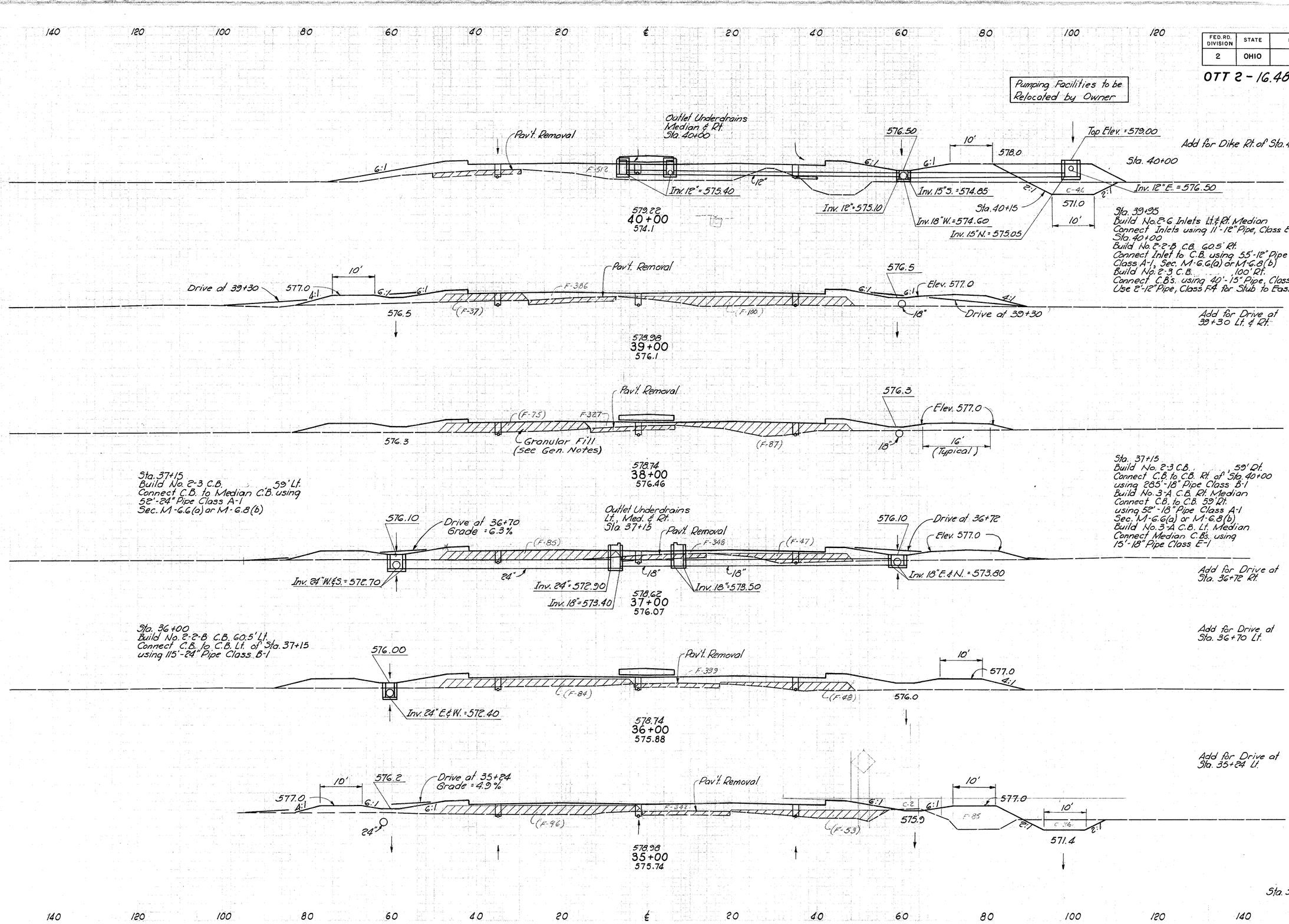
OTT 2 - 16.48

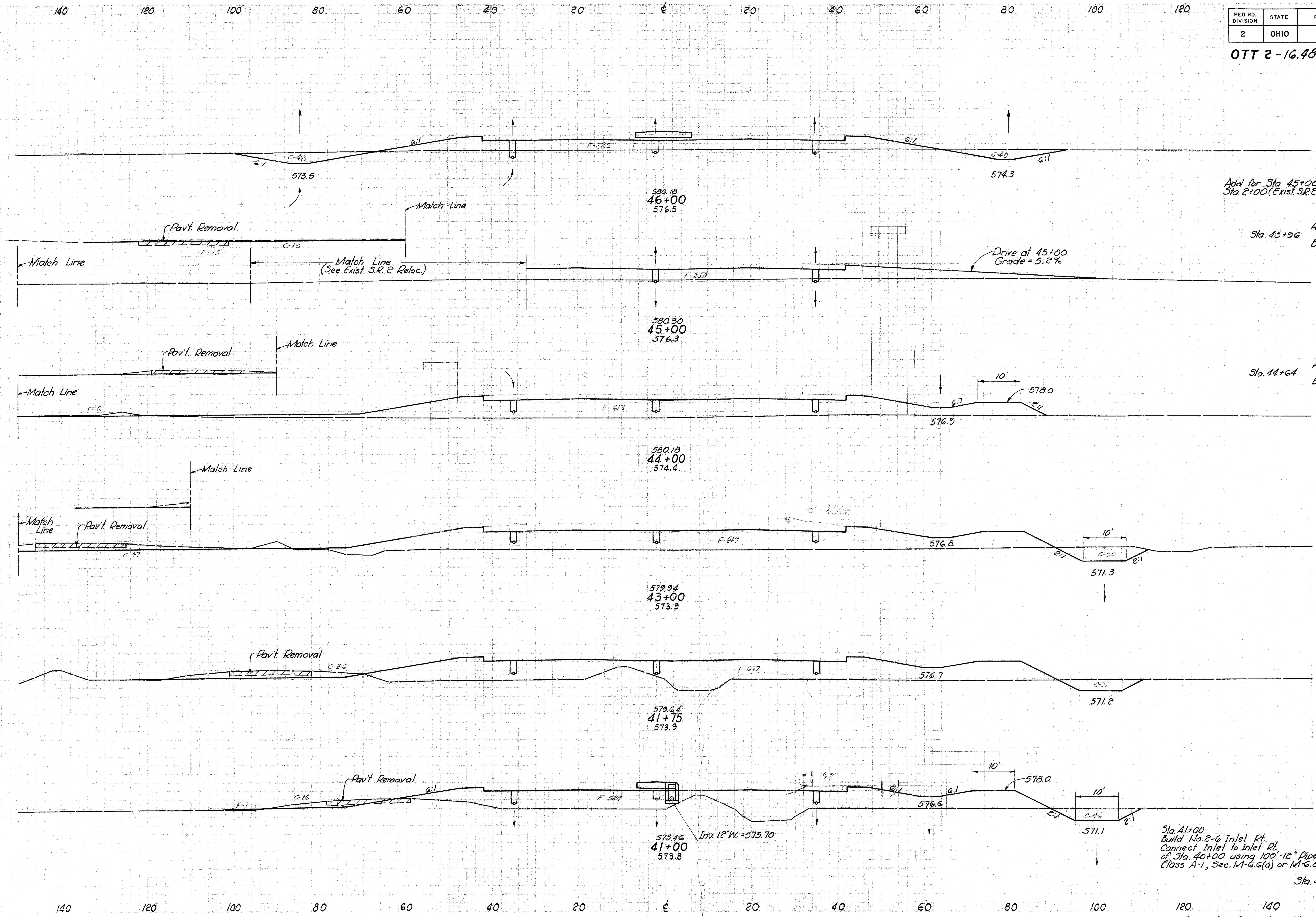


	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
				70
	46	512 (0)		
			85	1663 (254)
			3	10
	0	386 (197)		
			0	1380 (554)
	0	327 (162)		
			0	1250 (544)
			1	6
	0	348 (132)		
			1	4
			0	1383 (489)
	0	399 (132)		
			1	10
			70	1530 (520)
	38	427 (149)		
			148	1704 (530)
	42	493 (137)		

Sta. 35 +00 to Sta. 40 +00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2-16.48



Sta. 41+00
Build No. 2-6 Inlet Rt.
Connect Inlet to Inlet Rt.
of Sta. 40+00 using 100'-12" Pipe
Class A-1, Sec. M-6.6(a) or M-6.8(b)

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Add for Sta. 45+00 to Sta. 2+00 (Exist. S.R. 2 Reloc.)			27	10
	88	285		
			13	42
Sta. 45+96 Ahead	88	285		
Sta. 45+96 Back	40	220		
			89	862
	10	265		
			12	389
Sta. 44+64 Ahead	8	319		
Sta. 44+64 Back	8	399		
			17	1199
	6	613		
			191	2337
	97	649		
			394	3046
	73	667		
			188	1739
	62	585		
			200	2031
Sta. 40+00	46	512		

Sta. 41+00 to Sta. 46+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT 2 - 16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

C-32 572.9 F-320 578.74 52+00 574.6 C-32 572.3

C-50 572.7 F-342 578.98 51+00 574.9 C-51 572.1

Sta. 50+40
Build No. 2-G Inlet Lt. & Rt.
Connect Inlets using 11'-12" Pipe Class E-1
Connect Inlet to 36" Culvert Pipe
using 9'-12" Pipe Class E-1
& 12" on 36" Tee

Outlet Underdrains
Lt., Med. & Rt.
Sta. 50+40

C-43 572.7 Inv. = 571.50 (Inv. 8" = 574.2) 36" (Sta. 50+50) 12" Inv. 12" = 574.00 F-321 579.22 50+00 575.4 Inv. 12" = 574.10 Inv. = 572.00 (Inv. 8" = 574.2) C-64 572.3

C-37 572.9 F-344 579.46 49+00 575.2 C-50 572.8

C-38 573.1 F-341 579.70 48+00 575.4 C-39 573.3

C-31 573.3 F-324 579.94 47+00 575.7 C-38 573.8

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 47+00 to Sta. 52+00

End Area Cut	End Area Fill	Cu.Yds. Cut	Cu.Yds. Fill
64	320		
		306	1226
101	342		
		385	1228
107	321		
		359	1232
87	344		
		304	1269
77	341		
		270	1232
69	324		
88	285	291	1128

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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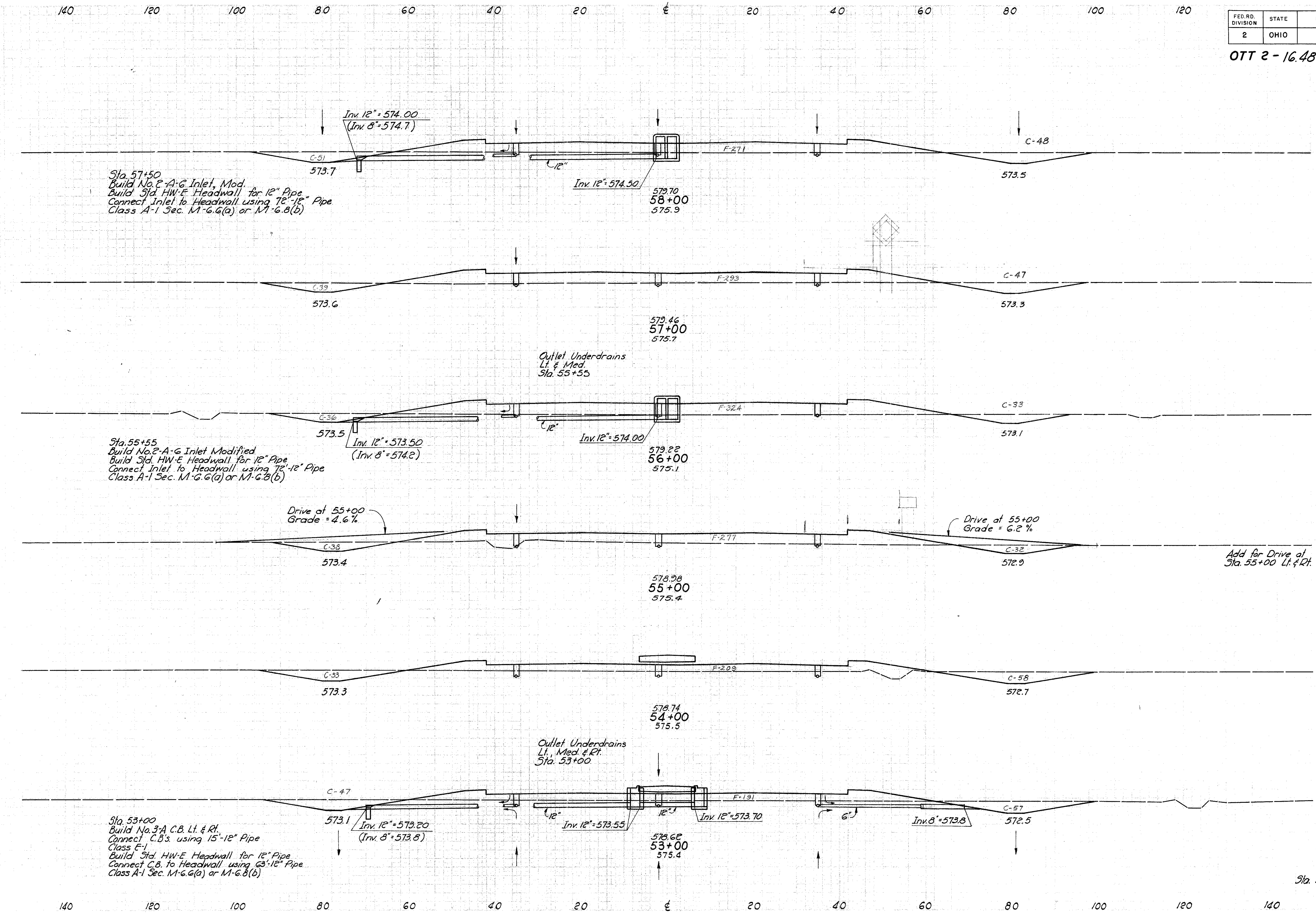
OTT 2 - 16.48



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
99	271		
		343	1045
86	293		
		287	1143
69	324		
		257	1113
		3	73
70	277		
		335	900
111	209		
		398	741
104	191		
		311	946
64	320		

Sta. 53+00 to Sta. 58+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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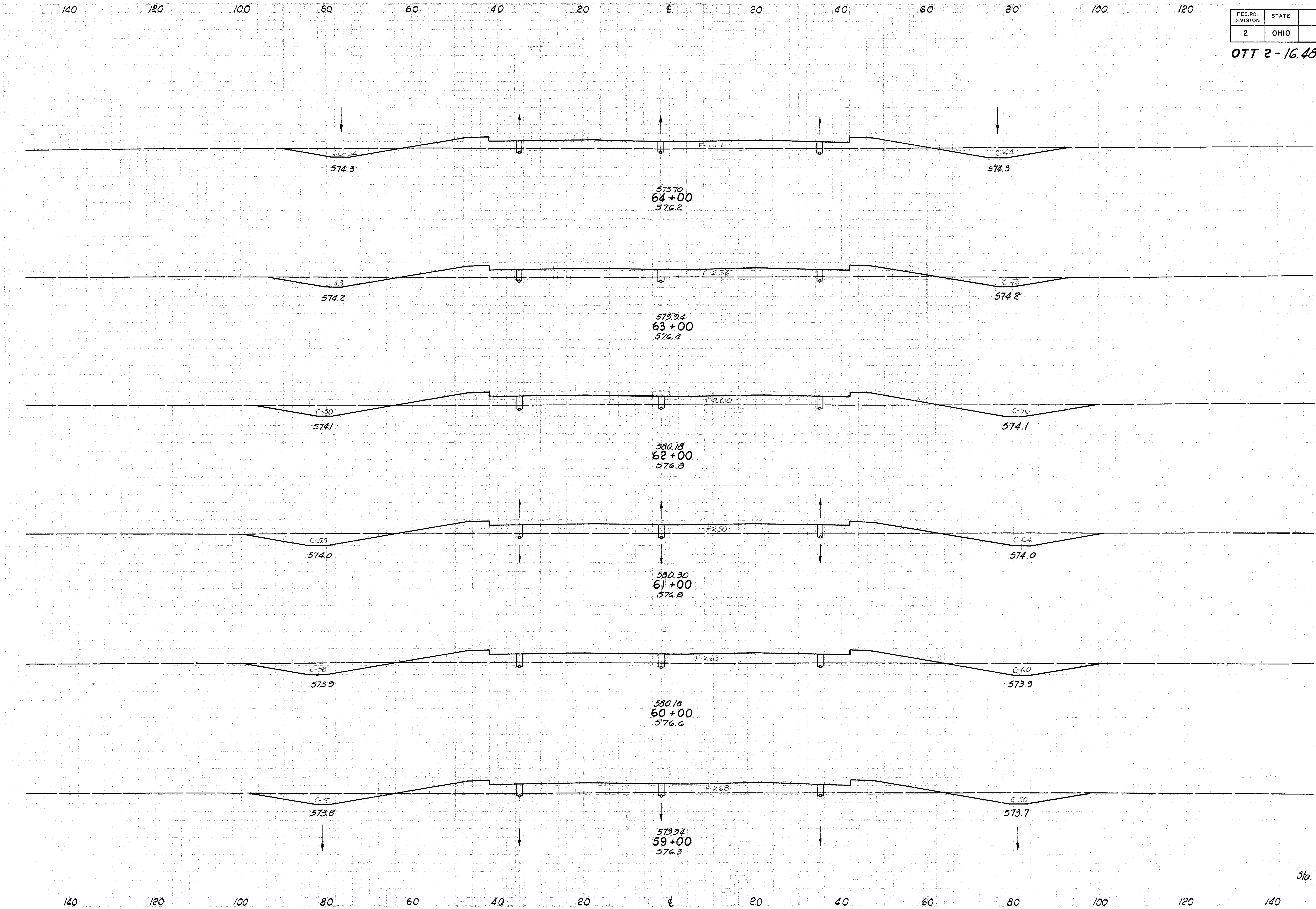
OTT 2 - 16.48



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
78	227		
		304	857
86	236		
		356	919
106	260		
		417	945
119	250		
		439	950
118	263		
		404	983
100	268		
		369	[illegible]
99	271		

Sta. 59+00 to Sta. 64+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

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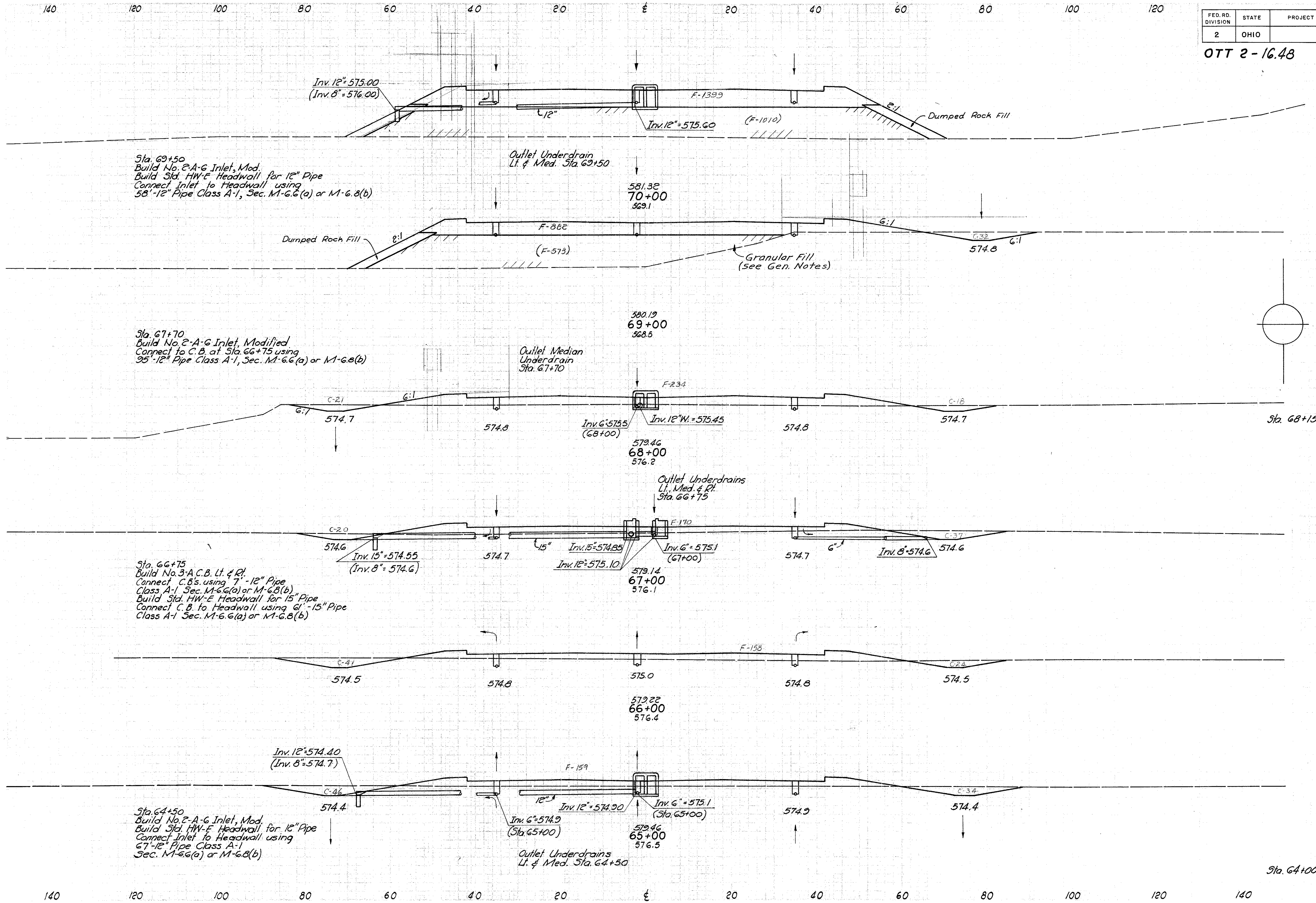
OTT 2 - 16.48



140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120
Inv. 12" = 575.00
(Inv. 8" = 576.00)
F-1399
(F-1010)
Inv. 12" = 575.60
Dumped Rock Fill
Sta. 69+50
Build No. 2-A-6 Inlet, Mod.
Build Std. HW-E Headwall for 12" Pipe
Connect Inlet to Headwall using
58'-12" Pipe Class A-1, Sec. M-6.6(a) or M-6.8(b)
Outlet Underdrain
Lt. & Med. Sta. 69+50
581.32
70+00
569.1
F-882
(F-573)
Dumped Rock Fill
Granular Fill
(See Gen. Notes)
574.8
580.19
69+00
568.5
Sta. 67+70
Build No. 2-A-6 Inlet, Modified
Connect to C.B. at Sta. 66+75 using
95'-12" Pipe Class A-1, Sec. M-6.6(a) or M-6.8(b)
Outlet Median
Underdrain
Sta. 67+70
F-234
574.7
574.8
Inv. 6" 575.5
(68+00)
Inv. 12" W. = 575.45
574.8
574.7
579.46
68+00
576.2
Outlet Underdrains
Lt., Med. & Rt.
Sta. 66+75
F-170
574.6
Inv. 15" = 574.55
(Inv. 8" = 574.6)
574.7
Inv. 15" = 574.85
Inv. 12" = 575.10
Inv. 6" = 575.1
(67+00)
574.7
Inv. 8" = 574.6
574.6
579.14
67+00
576.1
Sta. 66+75
Build No. 3-A C.B. Lt. & Rt.
Connect C.B.'s using 7'-12" Pipe
Class A-1 Sec. M-6.6(a) or M-6.8(b)
Build Std. HW-E Headwall for 15" Pipe
Connect C.B. to Headwall using 61'-15" Pipe
Class A-1 Sec. M-6.6(a) or M-6.8(b)
F-158
574.5
574.8
575.0
574.8
574.5
579.22
66+00
576.4
Inv. 12" = 574.40
(Inv. 8" = 574.7)
F-159
574.4
Inv. 6" = 574.9
(Sta. 65+00)
Inv. 12" = 574.90
Inv. 6" = 575.1
(Sta. 65+00)
574.9
574.4
Sta. 64+50
Build No. 2-A-6 Inlet, Mod.
Build Std. HW-E Headwall for 12" Pipe
Connect Inlet to Headwall using
67'-12" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)
579.46
65+00
576.5
Outlet Underdrains
Lt. & Med. Sta. 64+50

Station	End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
	0	1399 (1010)		
			59	4824 (2931)
	32	882 (573)		
			131	2067 (902)
Sta. 68+15		(0)		
	39	234		
			178	748
	57	170		
			226	607
	65	158		
			269	587
	80	159		
			293	715
Sta. 64+00	78	227		

Sta. 65+00 to Sta. 70+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

50
133

OTT. 2-16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

F-3723

Dumped Rock Fill

(F-1315)

595.90
76+00
569.8

F-3104

(F-1150)

Sta. 74+00
Build No. 2-A-8 Inlet, Modified
Build Std. HW-E Headwall for 12" Pipe
Connect Inlet to Headwall using
45'-12" Pipe Class A-1, Sec. M-6.6(a) or M-6.8(b)
32'-12" Pipe Class F4
2-18"25° Ells for Class F4 Pipe

Outlet Median Underdrain Sta. 74+00

592.90
75+00
570.0

Inv. = 575.00

Conc. Collar

12"

Inv. 12" = 583.00

Inv. 12" = 584.80

F-2570

12"

Inv. 12" = 575.20

(F-1080)

589.91
74+00
570.1

Granular Fill
(see Gen. Notes)

F-2283

(F-1168)

587.15
73+00
569.1

F-1867

(F-1053)

584.80
72+00
569.3

F-1563

(F-1010)

Dumped Rock Fill

582.86
71+00
569.5

Sta. 70+00

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 71+00 to Sta. 76+00

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	0	3723 (1315)		
			0	12,649 (4565)
	0	3104 (1150)		
			0	10,507 (4130)
	0	2570 (1080)		
			0	6987 (4163)
	0	2283 (1168)		
			0	7685 (4113)
	0	1867 (1053)		
			0	6358 (3820)
	0	1563 (1010)		
			0	(illegible)
	0	1399 (1010)		

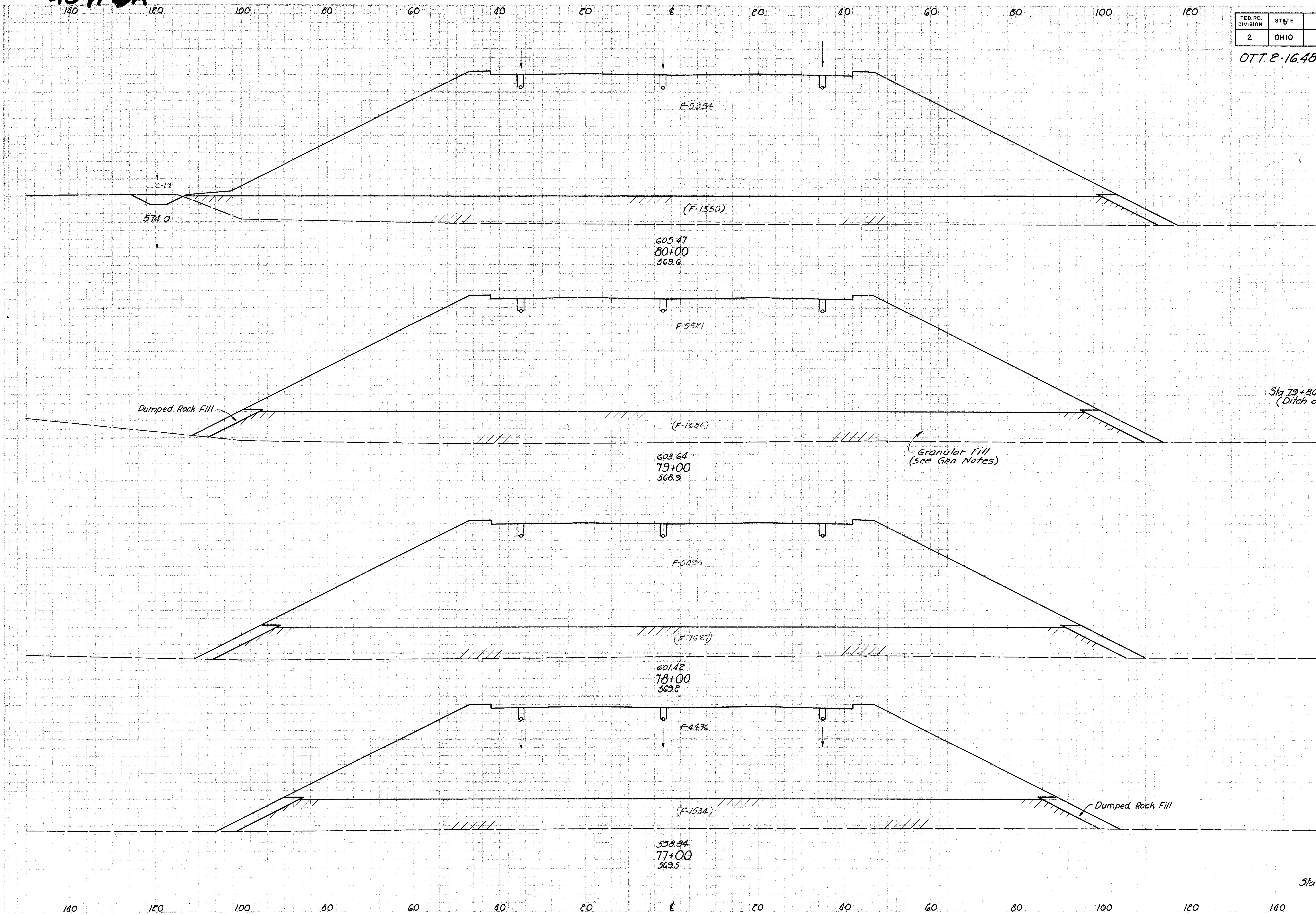
Excavation
Embankment (Emb. granular mat'l.
Seeding
* 327,294 - 64,519 = 262,775 Cu. Yds.
* 64,519 Cu. Yds.
2,571 Sq. Yds.
* 327,294 Cu. Yds.

40473A

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

51/133

OTT. 2-16.48



Station	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
80+00	19	5854 (1550)		
			7	21,065 (5993)
Sta. 79+80 (Ditch on Left)	0			
			0	
79+00	0	5521 (1686)		
			0	19,659 (6135)
78+00	0	5095 (1627)		
			0	17,761 (5854)
77+00	0	4496 (1534)		
			0	15,820 (5276)
Sta. 76+00	0	3723 (1315)		

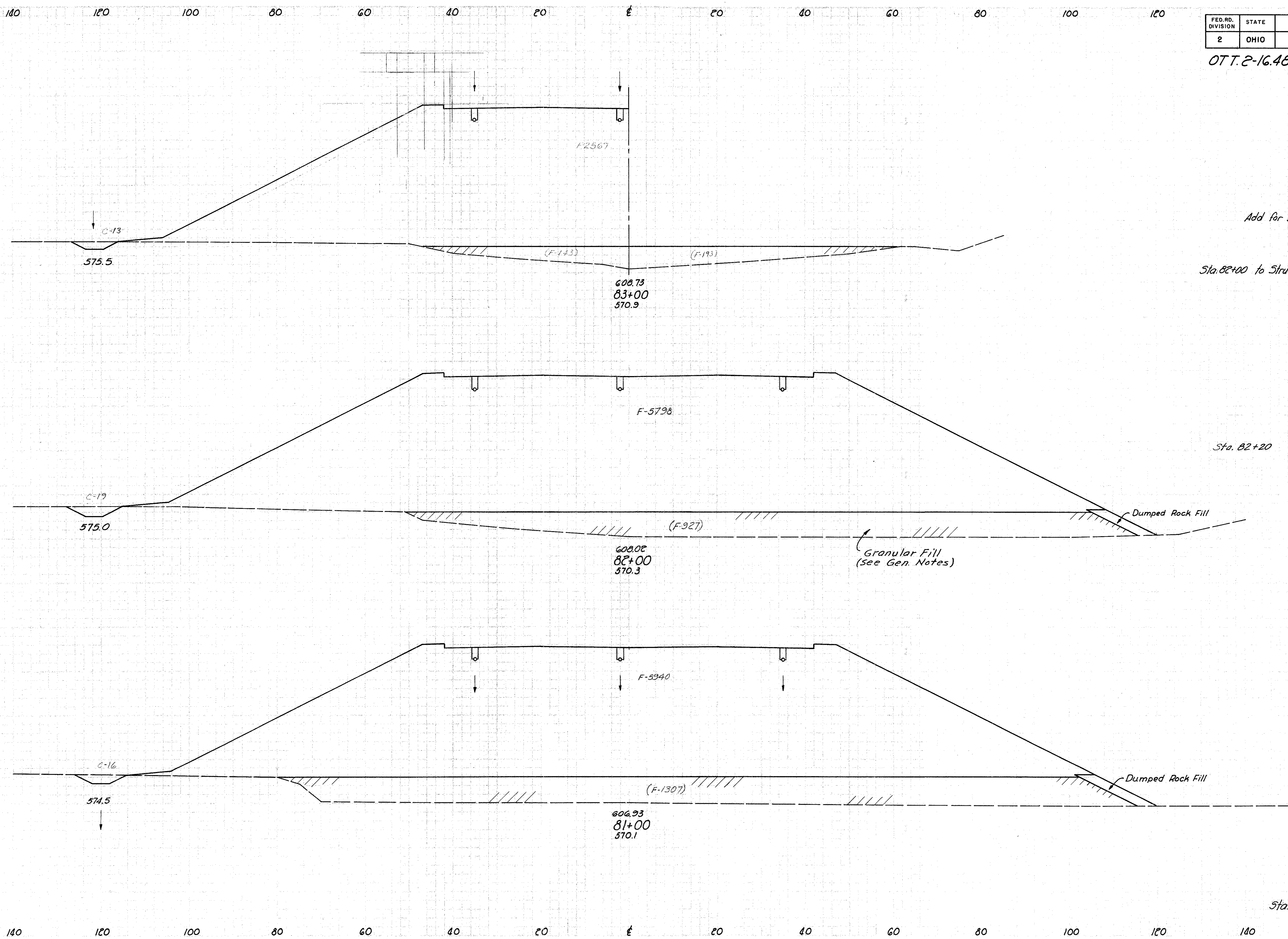
Sta. 77+00 to Sta. 80+00

PHM 1205 DMB 1961 3-62

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

52/133

OTT. 2-16.48



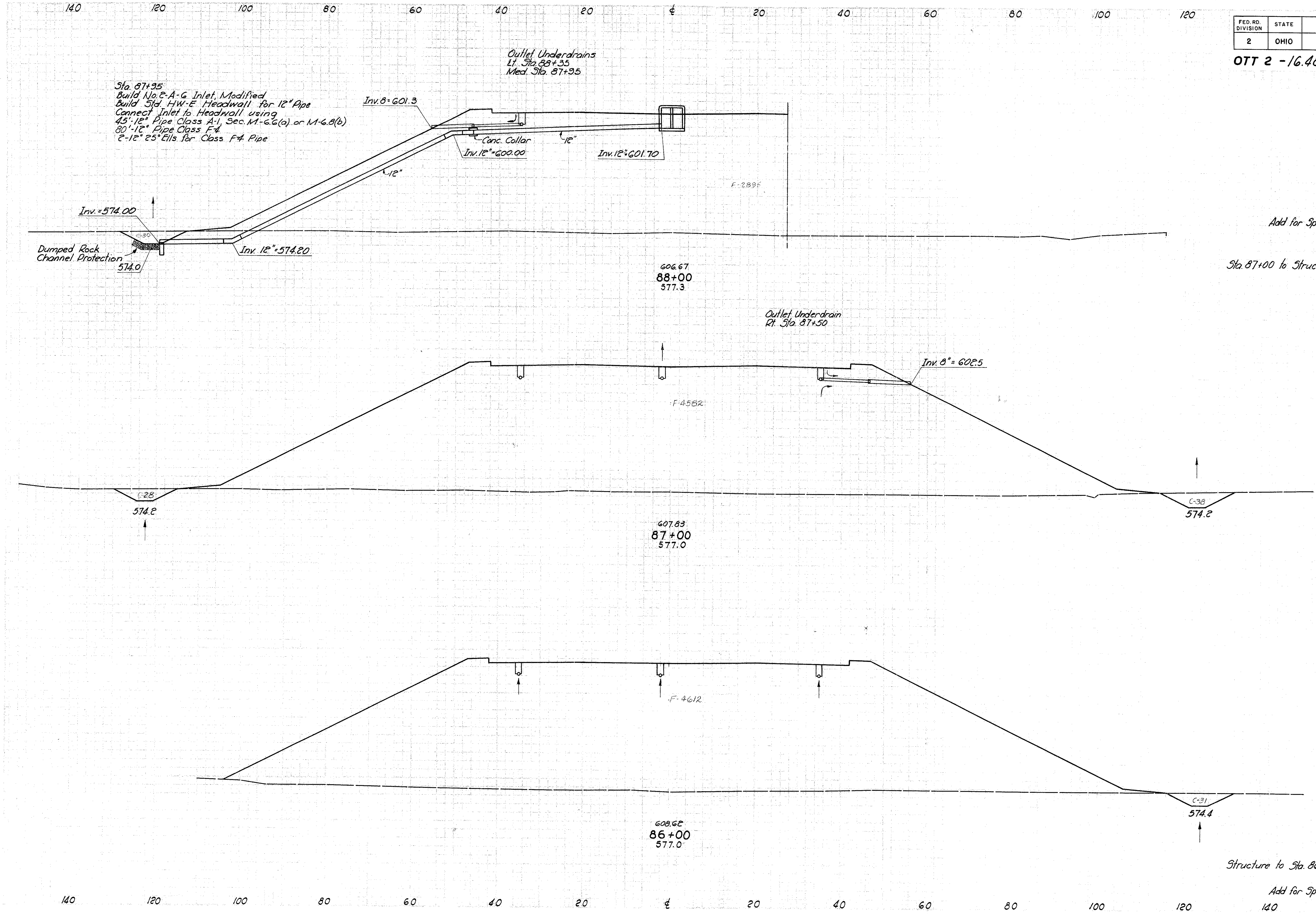
	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Add for Spillthru				6208 (278)
Sta. 82+00 to Structure			148	24502 (2540)
Sta. 82+20		(0)		
				(343)
	19	5798 (927)		
			65	21,737 (4137)
	16	5940 (1307)		
			65	21,841 (5291)
Sta. 80+00	19	5854 (1550)		

Sta. 81+00 to Sta. 83+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

53/133

OTT 2 - 16.48



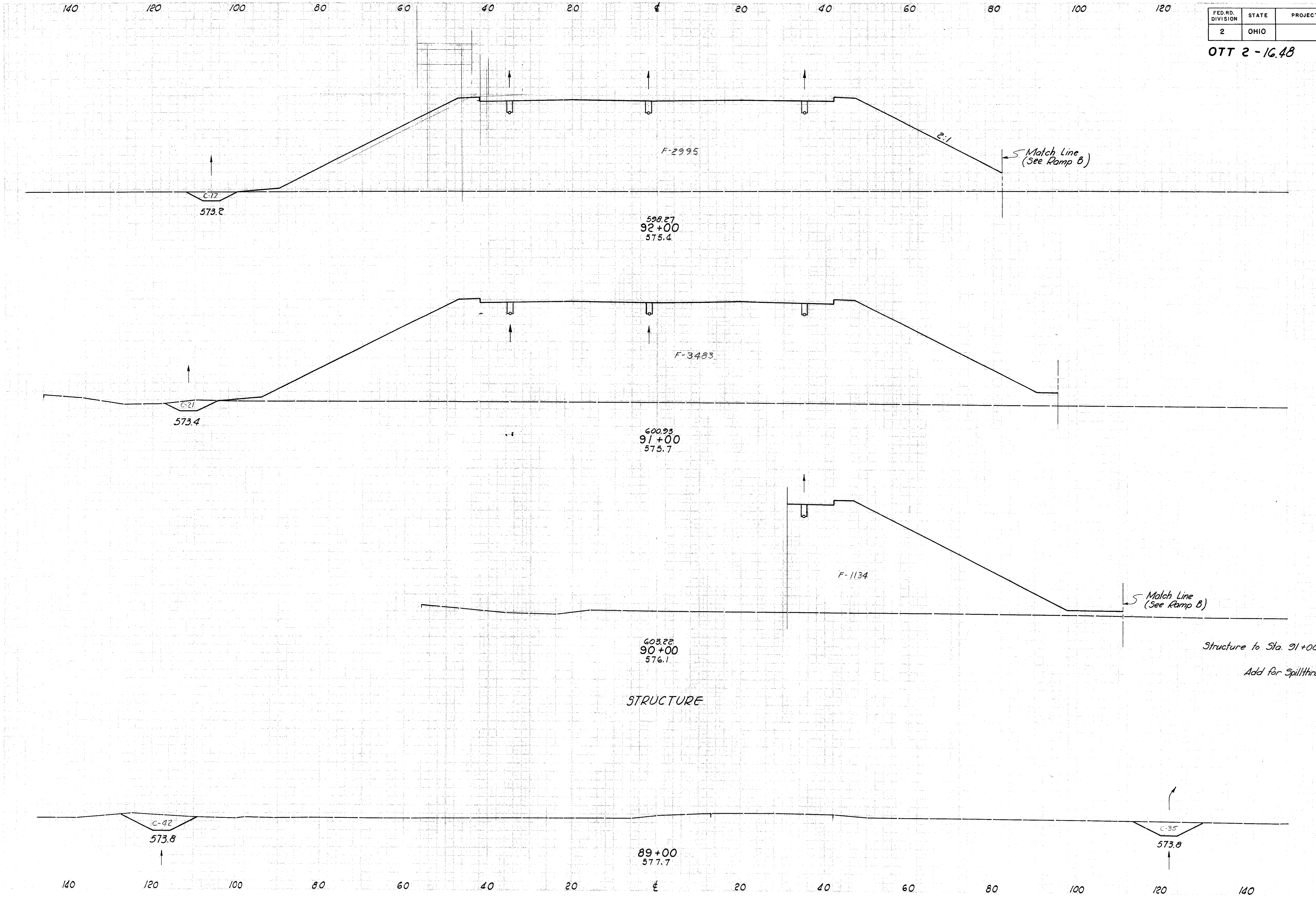
	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Add for Spillthru				3791
Sta. 87+00 to Structure			436	21125
	66	4582		
			180	17026
	31	4612		
Structure to Sta. 86+00			237	8540
Add for Spillthru				5451

Sta. 86+00 to Sta. 88+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

54/133

OTT 2 - 16.48



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	17	2995		
			70	11996
	21	3483		
Structure to Sta. 91+00			331	9367
Add for Spillthru				3106

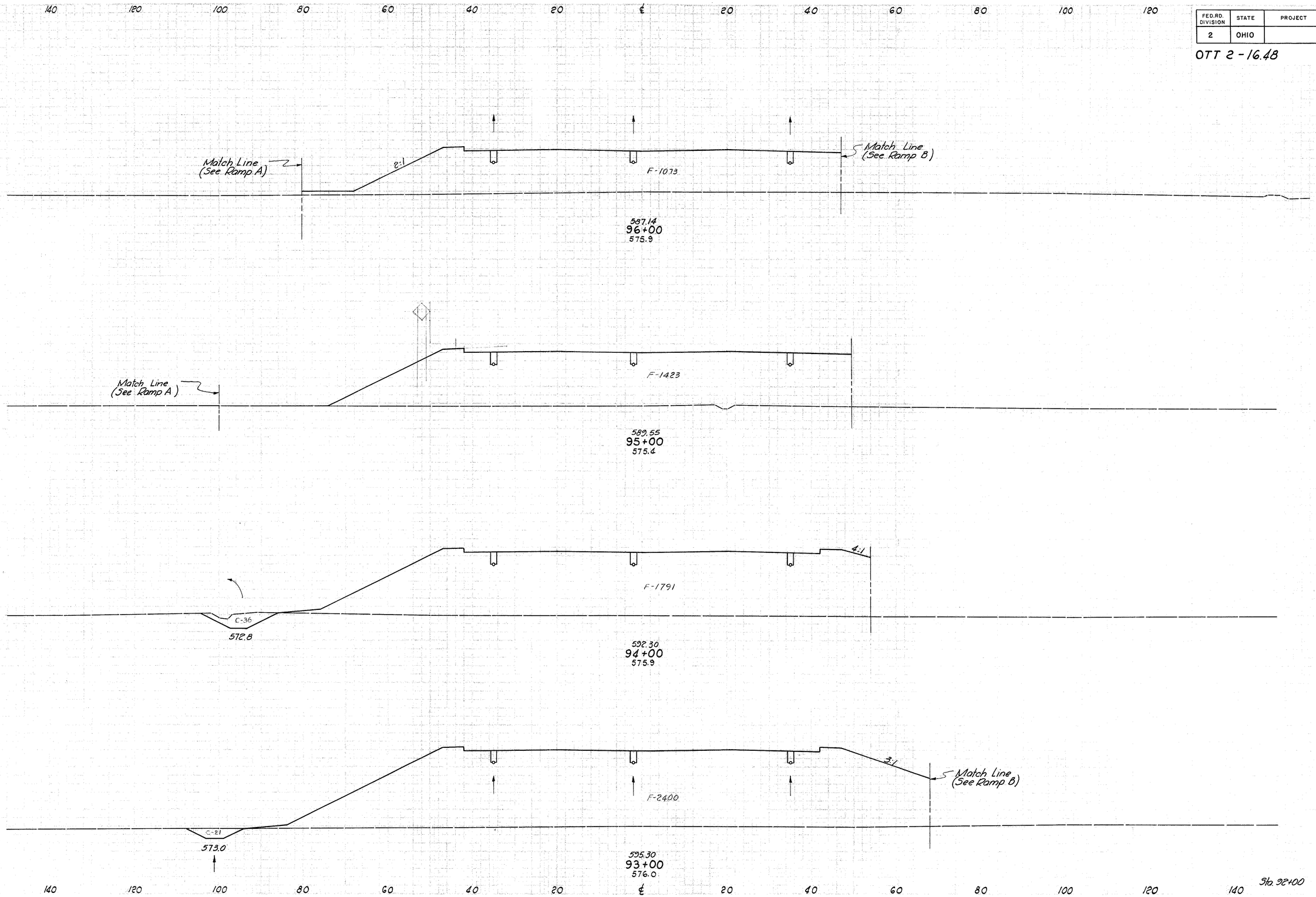
Sta. 89+00 to Sta. 92+00

SMB 1960
SEM 6-62
DFS 7-62

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

55/133

OTT 2 - 16.48



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	1073		
		0	4623
0	1423		
		67	5958
36	1791		
		106	7761
21	2400	70	9330
17	2995		

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

56/133

OTT 2 - 16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

C-49 571.7

F-785 (F-326)

Granular Fill (See Gen. Notes)

C-44 571.1

580.27 101+00 573.5

C-64 572.0

F-739 (F-352)

4:1

C-57 6:1 571.4

580.95 100+00 574.4

Outlet Underdrains Med. & Rt. Sta. 99+50

Match Line (See Ramp B)

4:1

6:1 C-48 572.1

F-768

12"

Inv. 12" = 576.30

Inv. 12" = 575.90

Outlet Underdrain Lt. Sta. 98+80

581.98 99+00 574.9

Match Line (See Ramp A)

6:1

F-692

583.35 98+00 574.7

Match Line (See Ramp A)

4:1

F-932

Match Line (See Ramp B)

585.08 97+00 574.6

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

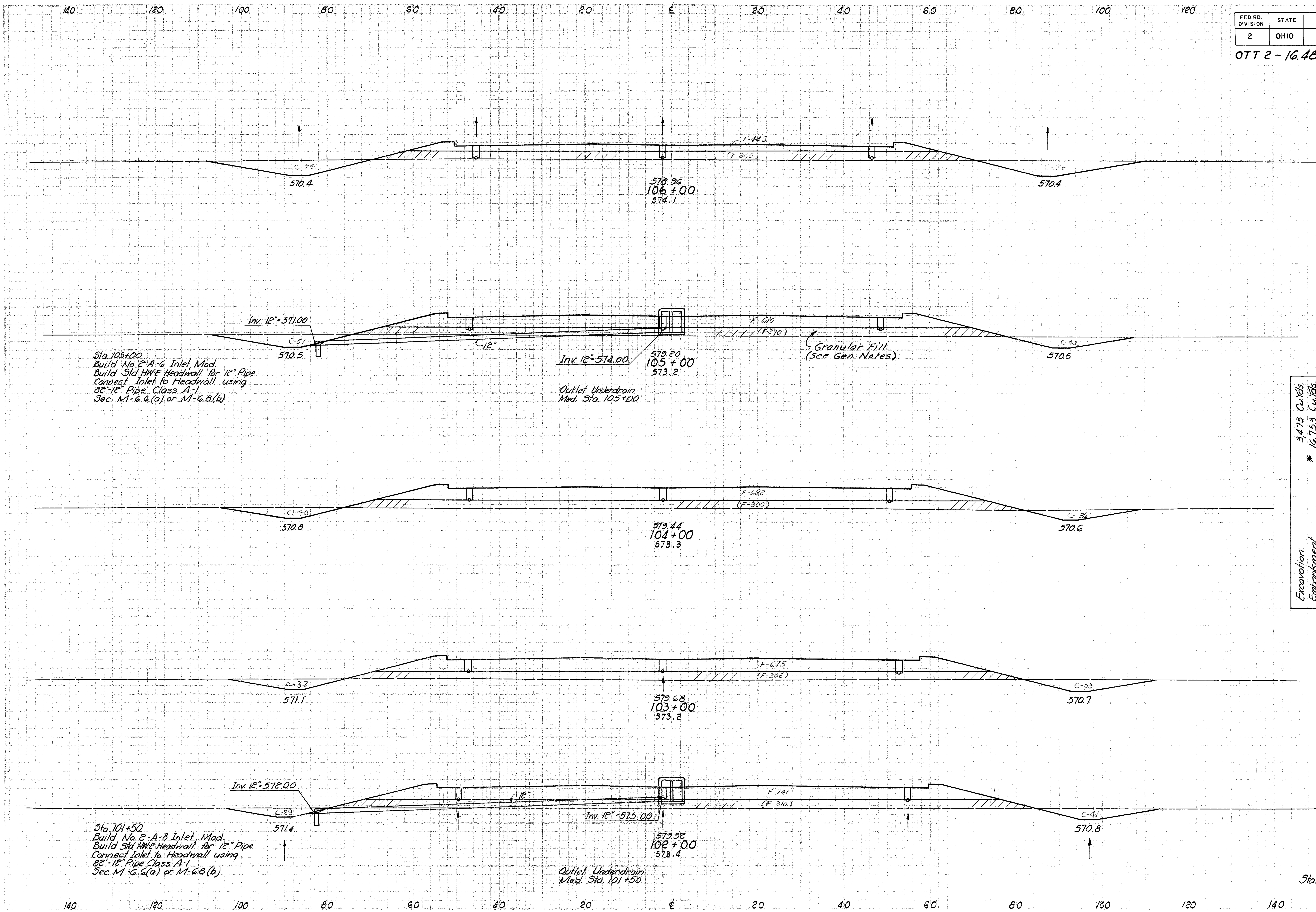
	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	93	785 (326)		
			396	2882 (1256)
	121	739 (352)		
			201	1345 (296)
Ahead Sta. 99+54.45	117	855 (0)		
Back	59	657		
Sta. 99+50 Build No. 2-A-B Inlet Mod. on ℄ Connect to No. 6 C.B. Lt. of Sta. 12+88 Ramp B using 39'-12" Pipe Class A-1 Sec. M-6.6(a) or M-6.8(b)			108	1437
	48	768		
			25	399
Ahead Sta. 98+86.30	52	806		
Back	0	539		
			0	1967
	0	692		
			0	3008
	0	932	0	3713
Sta. 96+00	0	1073		

Sta. 97+00 to Sta. 101+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

57/133

OTT 2 - 16.48



Excavation	3,473 Cu. Yds.
Embankment	* 16,753 Cu. Yds.
(Emb., granular mat'l.	* 6,216 Cu. Yds.)
Seeding	10,268 Sq. Yds.

* 16,753 - 6,216 = 10,537 Cu. Yds.

Station	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	150	445 (265)		
			450	1954 (1028)
	93	610 (290)		
			313	2393 (1093)
	76	682 (300)		
			307	2513 (1115)
	90	675 (302)		
			296	2622 (1133)
	70	741 (310)		
			302	2826 (1178)
Sta. 101+00	93	785 (326)		

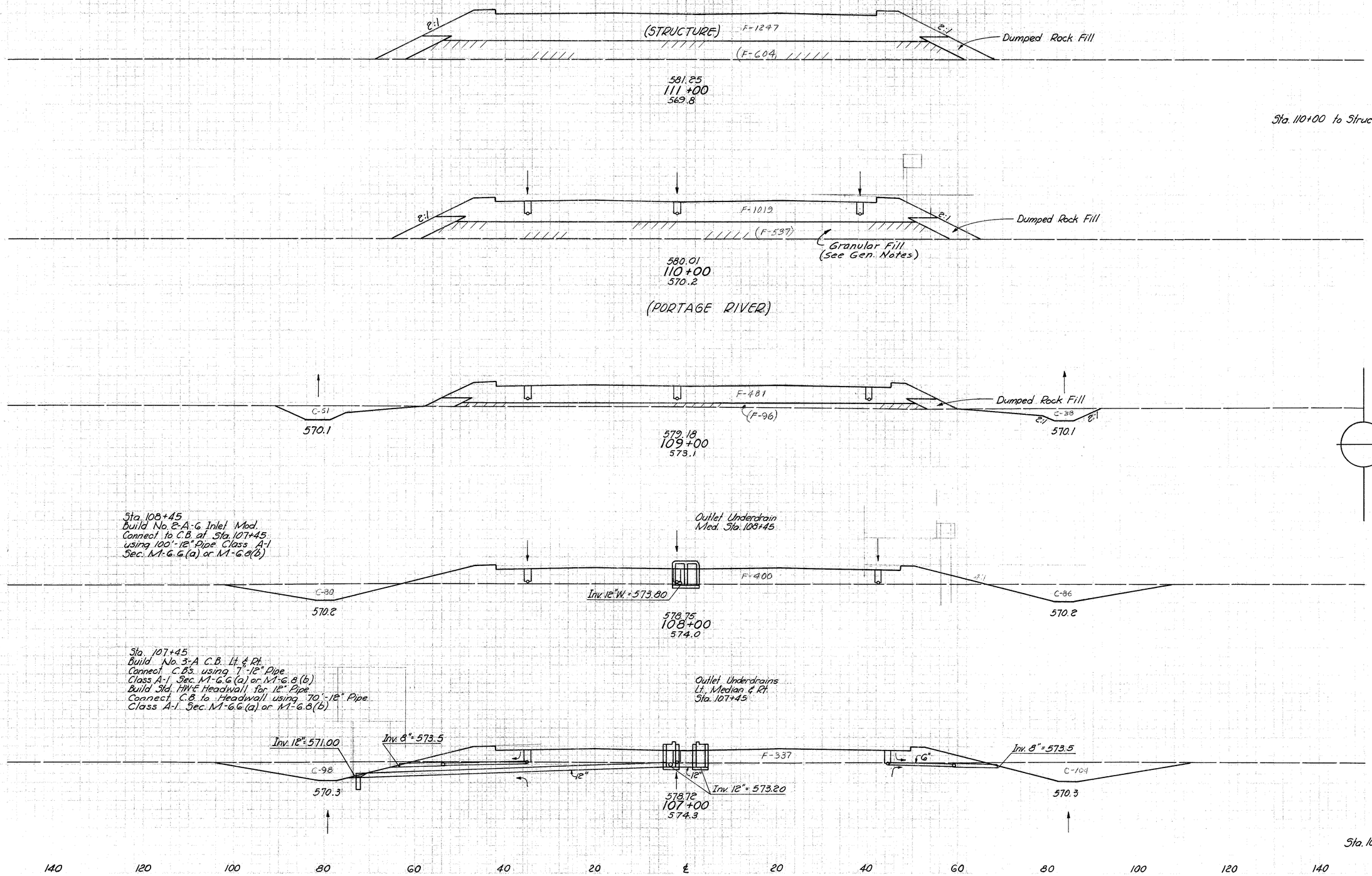
Sta. 102 + 00 to Sta. 106 + 00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

58
133

OTT 2 - 16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120



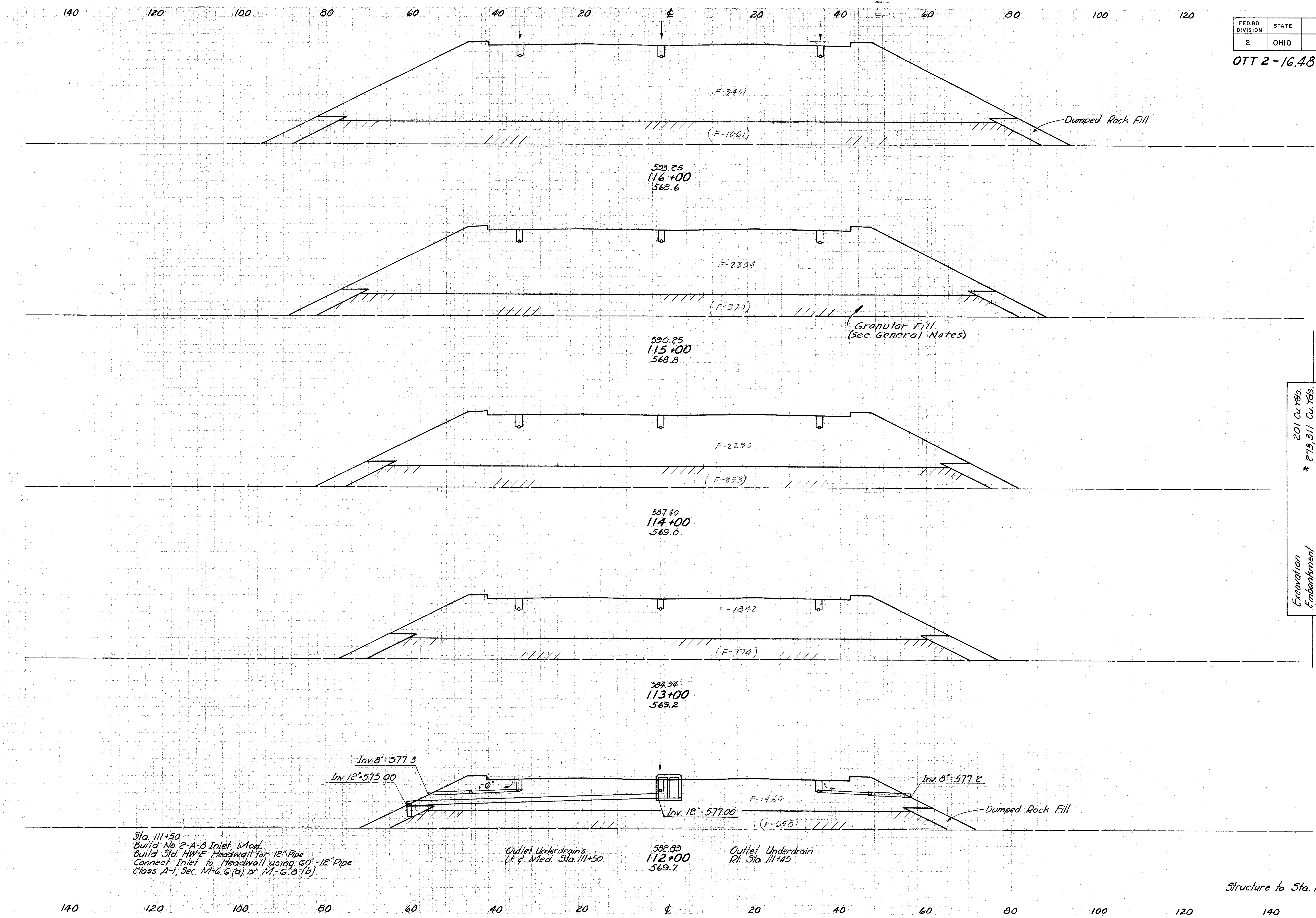
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill	
		0	4156 (2013)	Sta. 110+00 to Structure
0	1019 (537)			
		165	2778 (1172)	
89	481 (96)			
		472	1638 (178)	
166	400 (0)			
		681	1365 (0)	
202	337 (0)			
		658	1448 (491)	
150	445 (265)			Sta. 106+00

Sta. 107+00 to Sta. 111+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

59/133

OTT 2 - 16.48



Excavation	201 Cu. Yds.
Embankment	* 273,311 Cu. Yds.
(Emb. granular mat'l.	* 80,876 Cu. Yds.)
Seeding	18,752 Sq. Yds.

* 273,311 - 80,876 = 192,435 Cu. Yds.

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	3401 (1061)		
		0	11,583 (3761)
0	2854 (970)		
		0	9526 (3376)
0	2290 (853)		
		0	7652 (3013)
0	1842 (774)		
		0	6122 (2652)
0	1464 (658)		
		0	4338 (1950)

Structure to Sta. 112+00

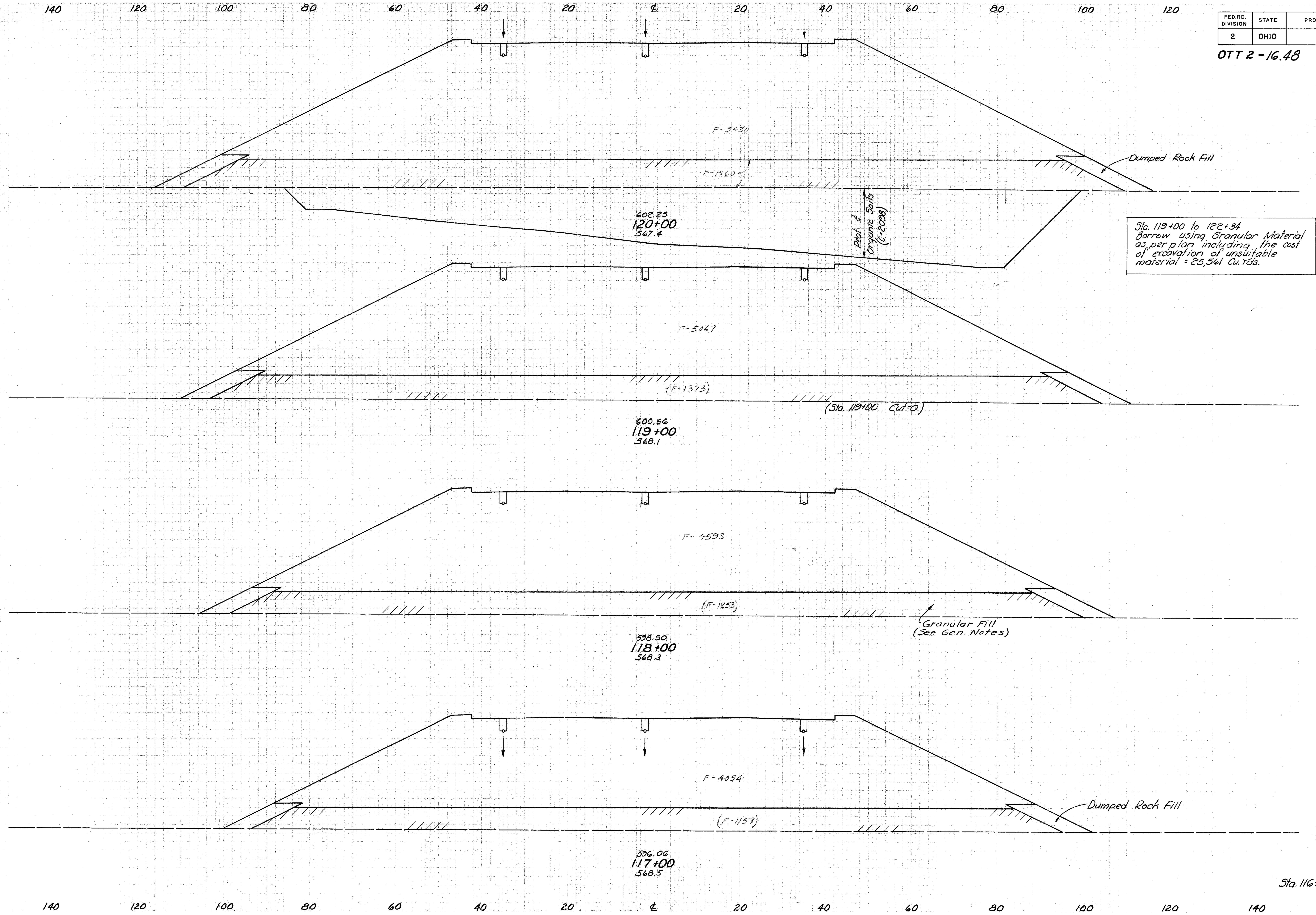
Sta. 112+00 to Sta. 116+00

ROS. SMB RWG 1961 4-62
DFS 9-62

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

60/133

OTT 2 - 16.48



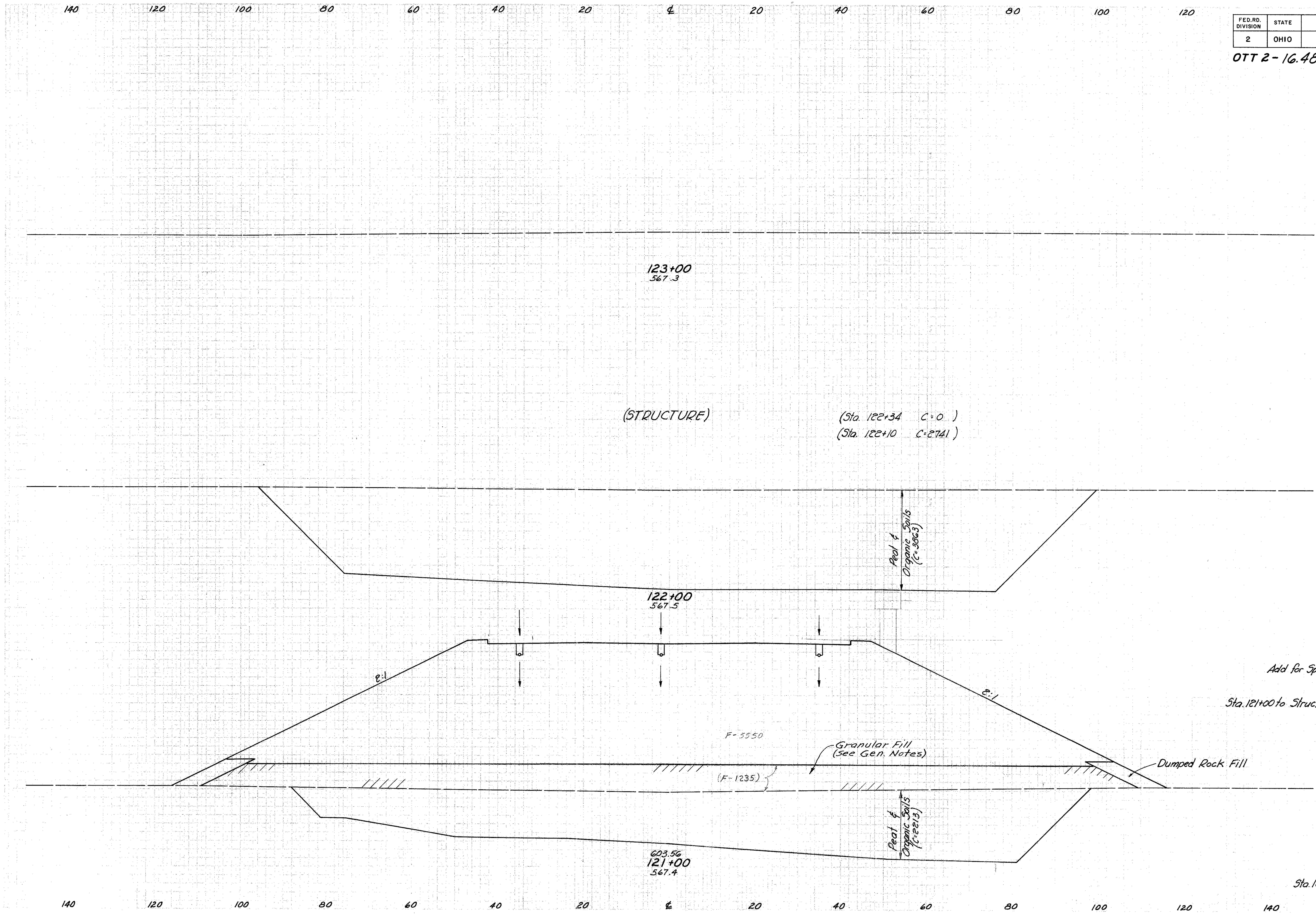
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	5430 (1360)		
		0	19,439 (5061)
0	5067 (1373)		
		0	17,889 (4863)
0	4593 (1253)		
		0	16,013 (4463)
0	4054 (1157)		
		0	13,806 (4107)
0	3401 (1061)		

Sta. 117+00 to Sta. 120+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

61/133

OTT 2-16.48



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Sta. 121+00	0	5550 (1235)		
			0	20,334 (4806)
Sta. 120+00	0	5430 (1360)		
Sta. 121+00 to Structure				9356 (2070)
Add for Spillthru				6462 (2854)

Sta. 121+00 to Sta. 123+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

62
133

OTT 2-16.48

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

(STRUCTURE)

126+00
567.2

125+00
567.4

124+00
567.5

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 124+00 to Sta. 126+00

205 SMB RWG 1964 42

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

63
133

OTT 2-16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

F-4602

(F-1290)

Dumped Rock Fill

598.50
130+00
568.3

F-5118

(F-1400)

Granular Fill
(See Gen. Notes)

600.56
129+00
568.0

F-5638

(F-1503)

602.25
128+00
567.7

2:1

2:1

F-5909

(F-1544)

Dumped Rock Fill

603.56
127+00
567.4

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 127+00 to Sta. 130+00

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	4602 (1290)		
		0	13000 (4981)
0	5118 (1400)		
		0	19919 (5376)
0	5638 (1503)		
		0	21383 (5643)
0	5909 (1544)		
		0	9618 (2271)
			6462 (2854)

Structure to Sta. 127+00

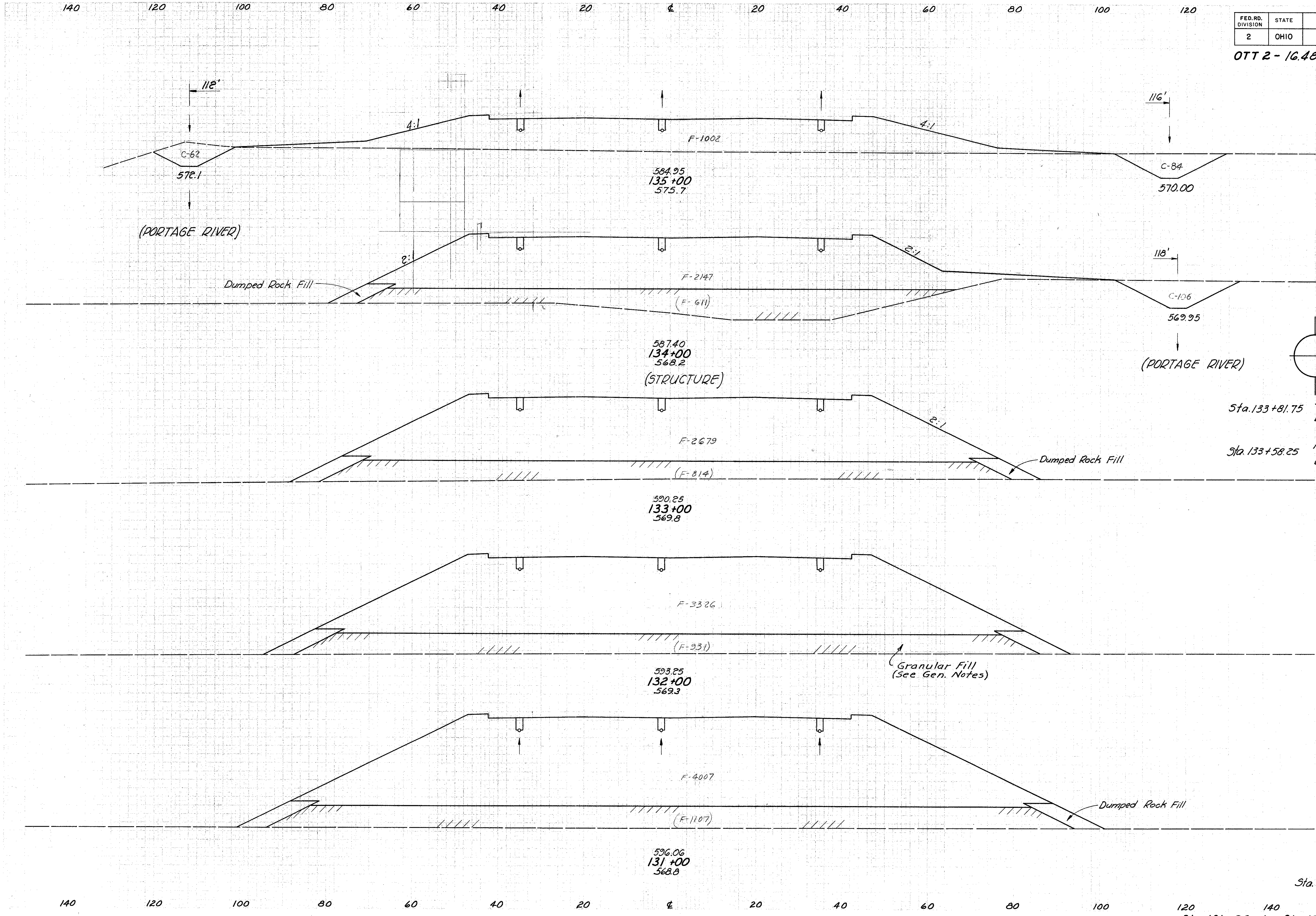
Add for Spillthru

SMB 1961
SEM 9-62
DFS 7-62

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

64
133

OTT 2 - 16.48



Station		End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
		146	1002 (0)		
				467	5832 (1132)
		106	2147 (611)		
				36	1590 (452)
Sta. 133+81.75	Ahead	0	2559 (725)		
	Back	0	490 (0)		
				0	470 (0)
Sta. 133+58.25	Ahead	0	590 (0)		
	Back	0	2672 (756)		
				0	5772 (1634)
		0	2679 (814)		
				0	11,120 (3231)
		0	3326 (931)		
				0	13,580 (3774)
		0	4007 (1107)		
				0	15,943 (4439)
Sta. 130+00		0	4602 (1290)		

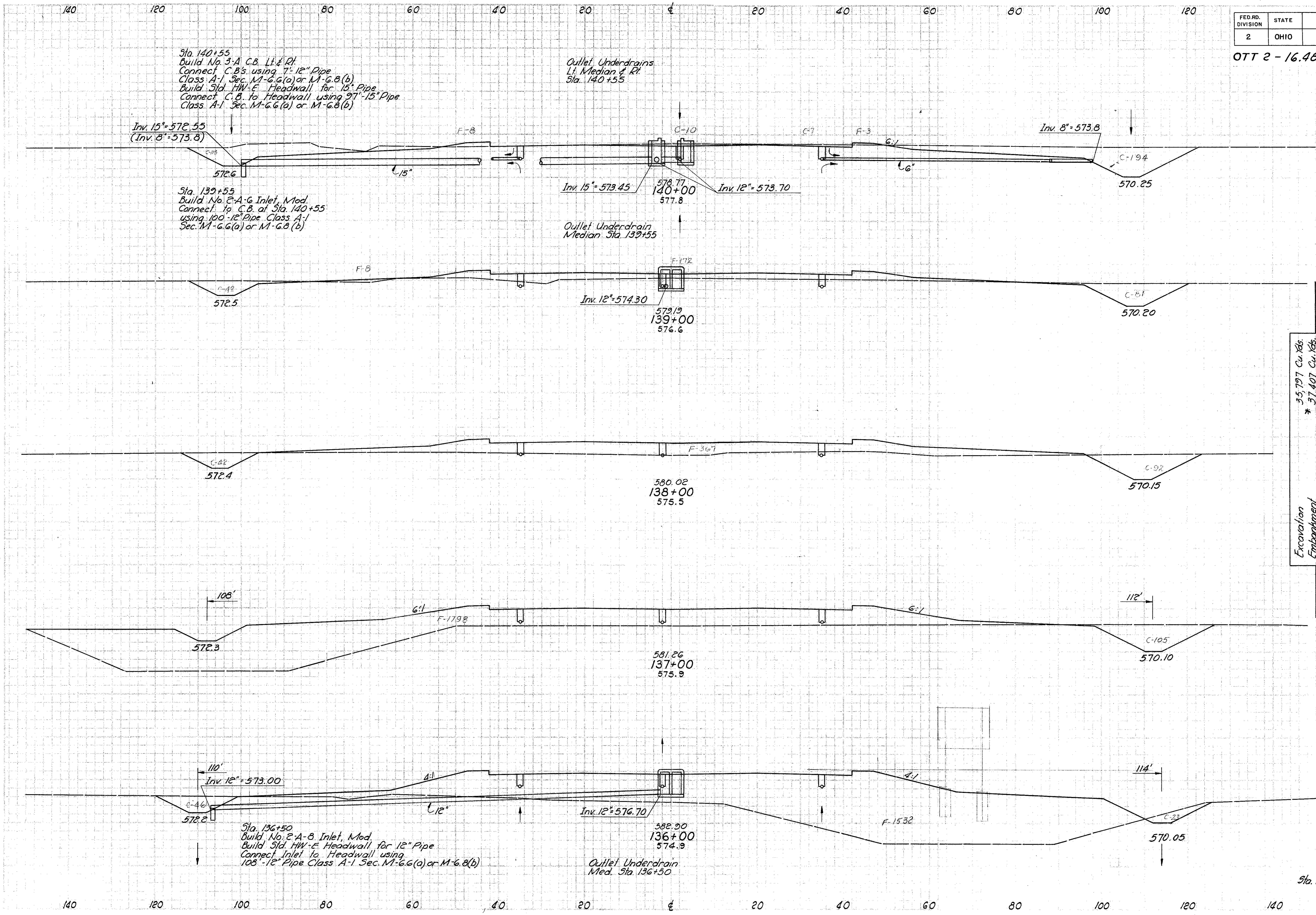
Sta. 131+00 to Sta. 135+00

- SMB - 1961
DDD KVG 1-8-62
SEM 2-8-62
DFS 2-9-62

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

65/133

OTT 2 - 16.48



Item	Quantity
Excavation	35,797 Cu. Yds.
Embankment	* 37,407 Cu. Yds.
(Emb., granular mat'l.	* 1,132 Cu. Yds.)
Seeding	82,814 Sq. Yds.

* 37,407 - 1,132 = 36,275 Cu. Yds.

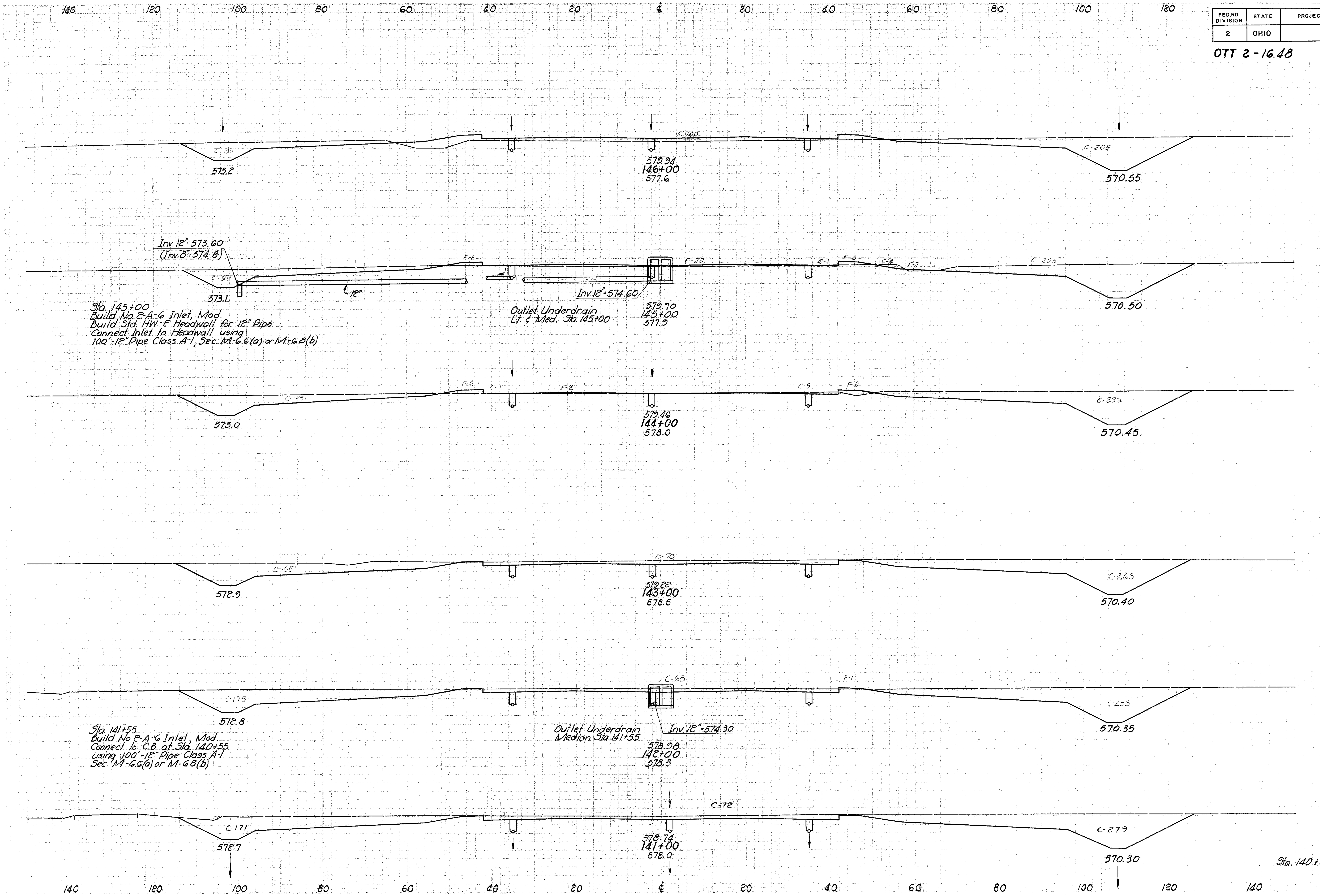
Station	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
140+00	326	11		
			831	354
139+00	183	180		
			476	1013
138+00	134	367		
			443	2898
137+00	105	1198		
			322	5056
136+00	69	1532		
			398	4693
Sta. 135+00	146	1002		

Sta. 136+00 to Sta. 140+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

66 / 133

OTT 2 - 16.48



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
290	100		
		1107	252
308	36		
		1244	96
364	16		
		1596	30
498	0		
		1848	2
500	1		
		1893	2
522	0		
		1570	20
326	11		

Sta. 140+00

Sta. 141+00 to Sta. 146+00

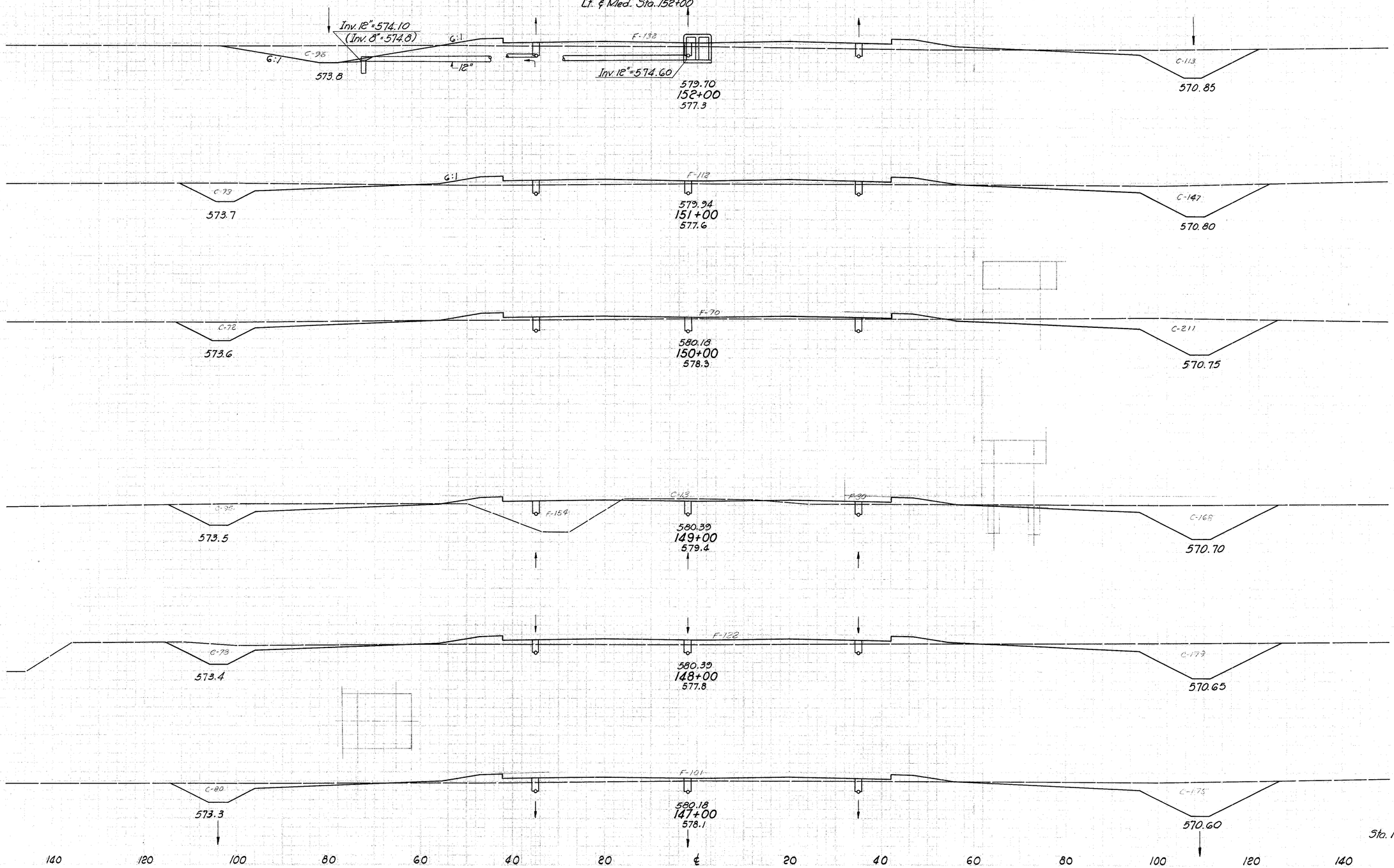
FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

67
133

OTT 2 - 16.48

Sta. 152+00
Build No.2-A-G Inlet, Mod.
Build Std. HW-E Headwall for 12" Pipe
Connect Inlet to Headwall using
12'-12" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)

Outlet Underdrain
Lt. & Med. Sta. 152+00



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
209	132		
		794	452
220	112		
		931	337
283	70		
		1035	470
276	184		
		978	567
252	122		
		939	413
255	101	1009	372
290	100		

Sta. 146+00

Sta. 147+00 to Sta. 152+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

68/133

OTT 2 - 16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

C-71 574.6 | F-8 | C-1 | C-2 579.27 158+20 577.9 | F-104 | C-309 571.6

Outlet Underdrain Med. Sta. 157+00

F-86 | C-206 574.4 | C-3 | F-17 | C-2 578.98 157+00 576.9 | F-2 | G-1 | F-6 | C-169 571.4

Inv. 12"=573.90

Sta. 157+00
Build No. 2-A-6 Inlet Mod.
Connect to C.B. at Sta. 156+00
using 100'-12" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)

Inv. 8"=574.2 | F-9 | F-6 | C-9 | F-3 | Inv. 8"=574.00 | Inv. 15"=571.70

F-24 574.2 | Inv. 12"=573.40 | 578.86 156+00 577.2 | Inv. 15"=573.15 | 15" | 6" | C-174 571.2

Outlet Underdrains Lt. Med. & Rt. Sta. 156+00

Sta. 156+00
Build No. 3-A C.B. Lt. & Rt.
Connect C.B.'s using 1-12" Pipe Class A-1, Sec. M-6.6(a) or M-6.8(b)
Build Std. HW-E Headwall for 15" Pipe
Connect C.B. to Headwall using 99'-15" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)

F-35 | C-76 574.1 | F-6 | C-176 571.0

Inv. 12"=573.90

578.98 155+00 577.1 Outlet Underdrain Med. Sta. 155+00

Sta. 155+00
Build No. 2-A-6 Inlet Mod.
Connect to C.B. at Sta. 156+00
using 100'-12" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)

F-59 | C-94 574.0 | C-139 570.95

579.22 154+00 577.2

F-122 | C-92 573.9 | C-113 570.90

579.46 153+00 577.3

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 153+00 to Sta. 158+00

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
383	108		
		1687	478
376	107		
		1154	231
247	18		
		924	109
252	41		
		857	185
211	59		
		770	335
205	122	767	470
209	132		

Sta. 152+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

69/133

OTT 2 -16.48

SMA 1960 EUS 5-62 5-62 KWS 405 Dbg

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

C-39 575.8 — F-185 — 580.54 164+00 577.7 — C-129 572.8

C-81 575.6 — F-171 — 580.42 163+00 577.6 — C-61 572.6

C-33 575.4 — F-129 — 580.18 162+00 577.8 — C-91 572.4

C-44 575.2 — F-100 — 579.34 161+00 577.9 — C-117 572.2

Outlet Underdrain Med. Sta. 160+50

C-90 575.0 — F-81 — 579.70 160+00 577.6 — Inv.12"=574.70 — ℄ 12" — C-131 — Inv.=572.50 — 572.0

Sta. 160+50
Build No. 2-A-6 Inlet, Modified
Build Std. HW-E Headwall for 12" Pipe
Connect Inlet to Headwall using
103'-12" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)

C-61 574.8 — F-37 — 579.46 159+00 577.7 — F-6 — C-100 — 571.8

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 159+00 to Sta. 164+00

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
168	185		
		500	659
102	171		
		428	556
129	129		
		537	424
161	100		
		615	335
171	81		
		615	230
161	43	806	224
383	108		

Sta. 158+20

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

70/133

OTT 2 - 16.48

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

C-65 574.3 F-7 C-7 F-9 C-135 575.3 579.22 170+00 582.0 F-72 C-97 574.0

Ditch Block Sta. 170+60 Rt.

Ditch Block Sta. 169+50 Lt.

C-12 576.8 F-12 F-23 575.4 579.46 169+00 577.7 C-2 F-6 6:1 C-111 573.8 6:1

F-9 C-76 576.6 F-24 Inv. 6": 575.5 (168+00) 579.70 168+00 577.9 Inv. 12": 574.70 F-9 6:1 12" C-106 573.6 Inv. 12": 574.00 (Inv. 8": 574.9)

Outlet Underdrains Med. ℄ Rt. Sta. 167+50

Sta. 167+50
Build No. 2-A-6 Inlet, Mod.
Build Std. HW-E Headwall for 12" Pipe
Connect Inlet to Headwall using
99'-12" Pipe Class A-1
Sec. M-6.6 (a) or M-6.8(b)

C-27 576.4 F-97 579.94 167+00 578.0 F-9 V C-110 573.4

C-24 576.2 F-76 580.18 166+00 578.1 C-84 573.2

C-35 576.0 F-119 C-28 580.42 165+00 578.0 F-45 C-96 573.0

140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

Sta. 165 + 00 to Sta. 170+00

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
301	88		
		789	239
125	41		
		457	154
122	42		
		480	181
137	56		
		454	244
108	76		
		476	444
149	164	587	646
168	185		

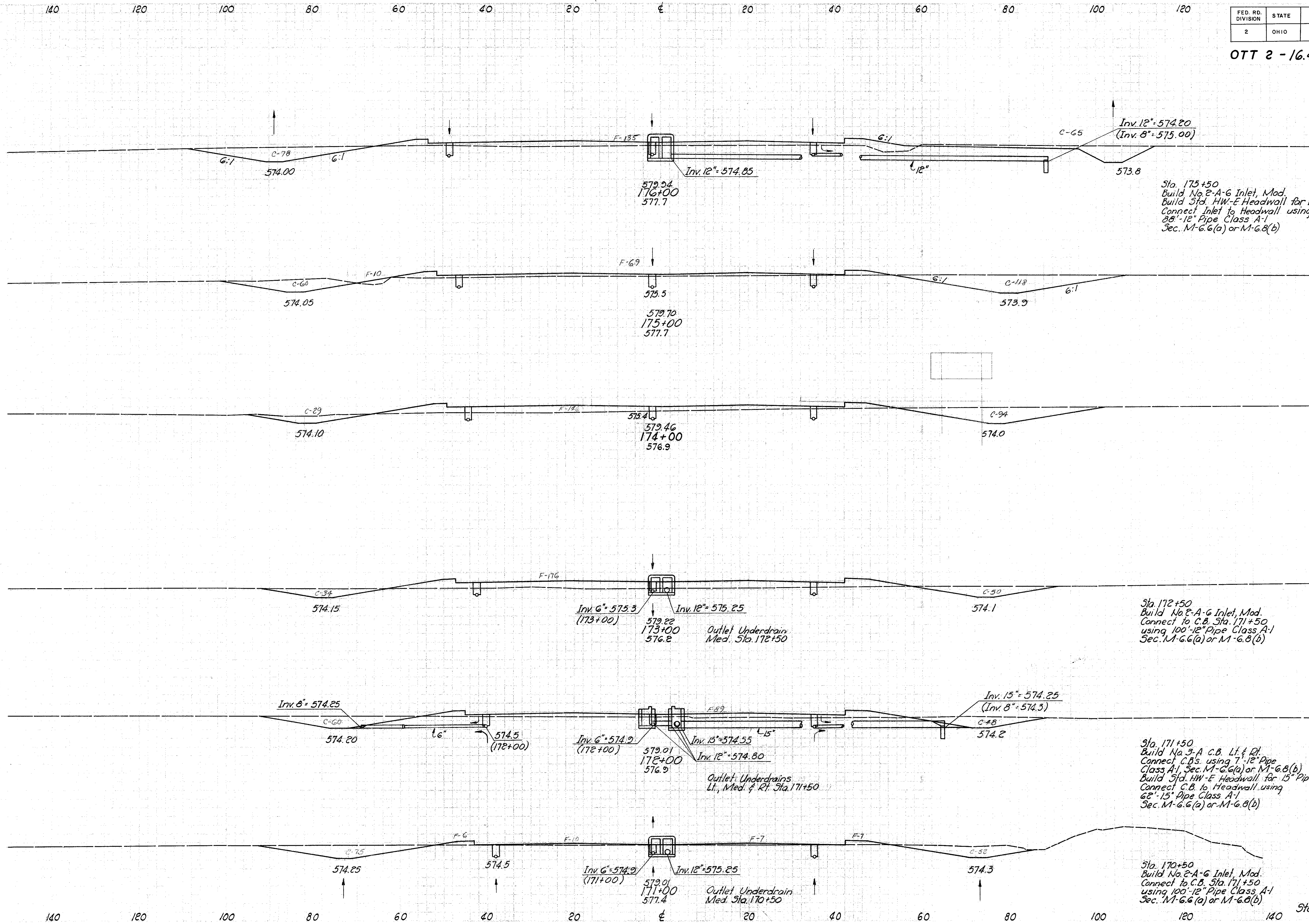
Sta. 164+00

SMB 1960
JCS 4-62
5-62
225
208

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

71/133

OTT 2 - 16.48



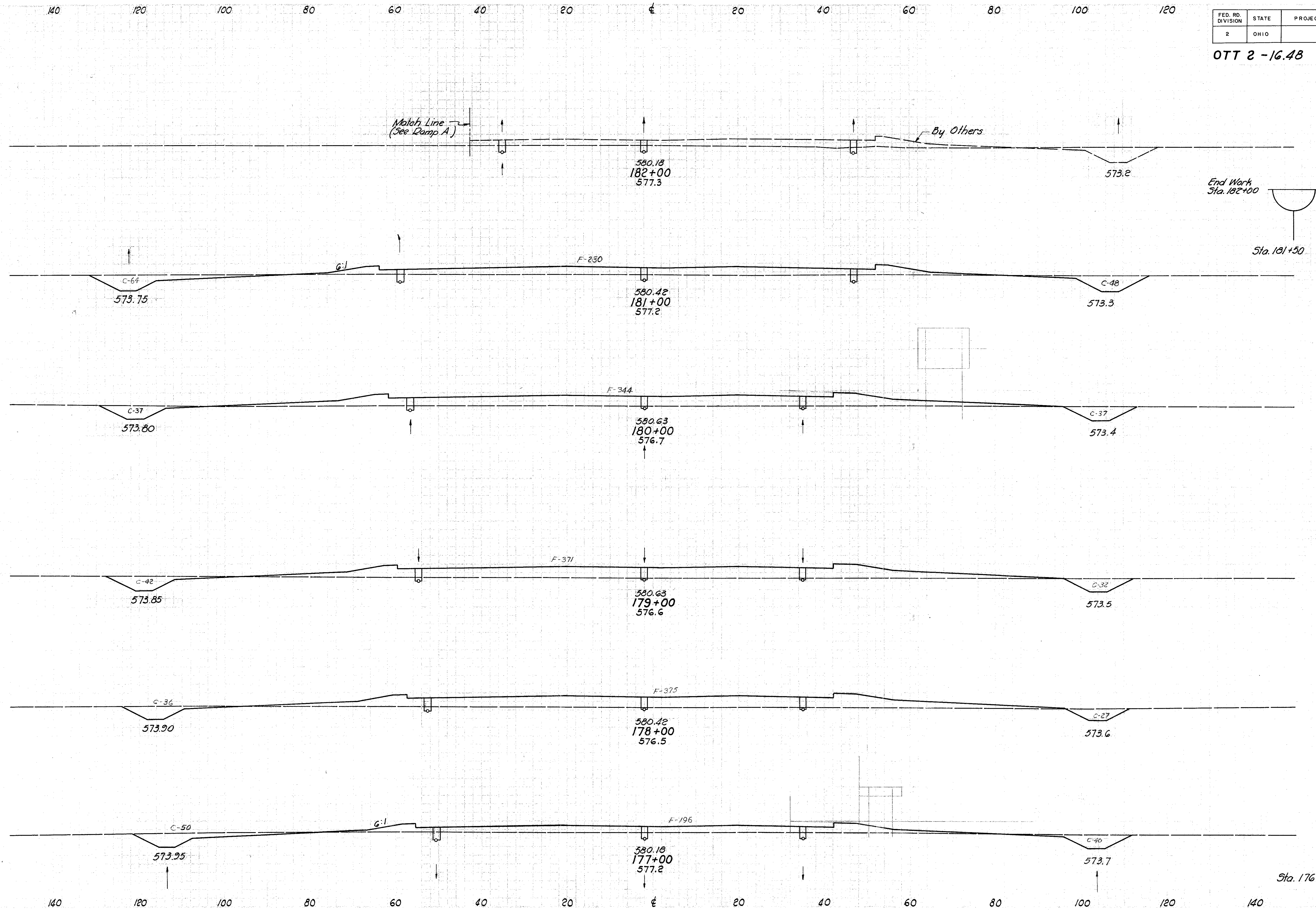
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
143	135		
		594	396
178	79		
		557	417
123	146		
		383	596
84	176		
		356	491
108	89		
		435	220
127	30		
		793	219
301	88		

Sta. 171+00 to Sta. 176+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

72/133

OTT 2 -16.48

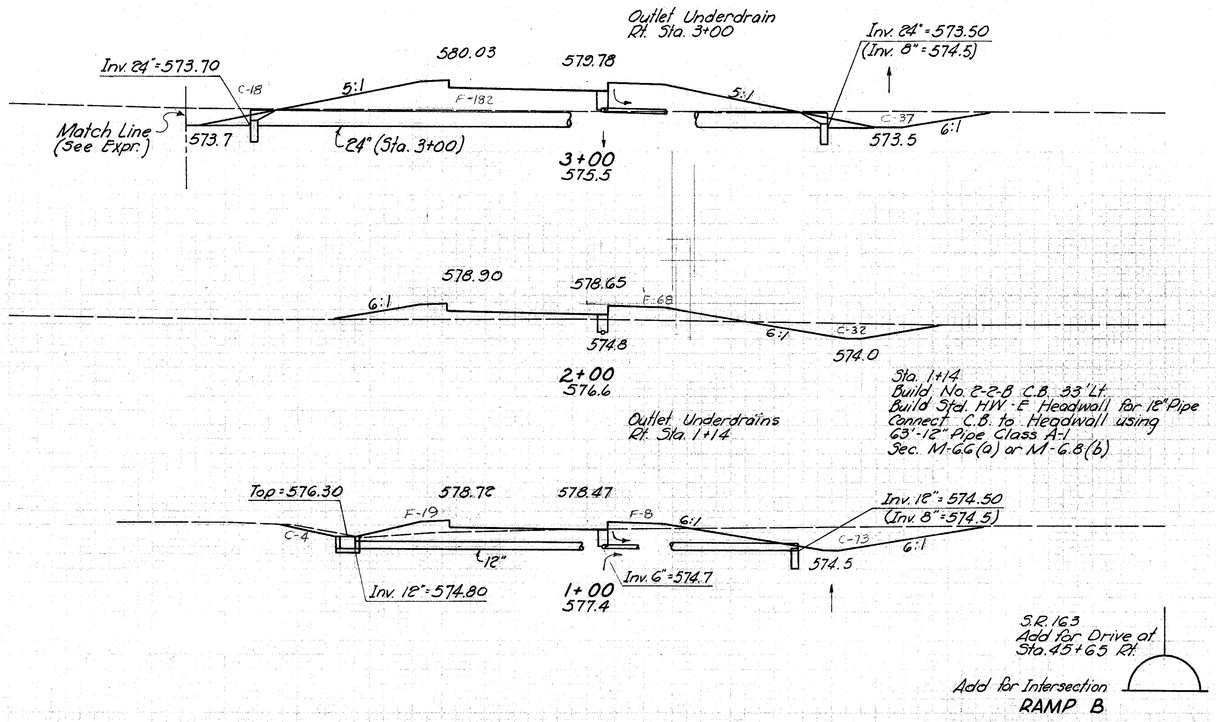


End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	0		
		103	207
111	224		
		206	420
112	230		
		344	1063
74	344		
		274	1324
74	371		
		254	1381
63	375		
		283	1057
90	196		
		431	613
143	135		

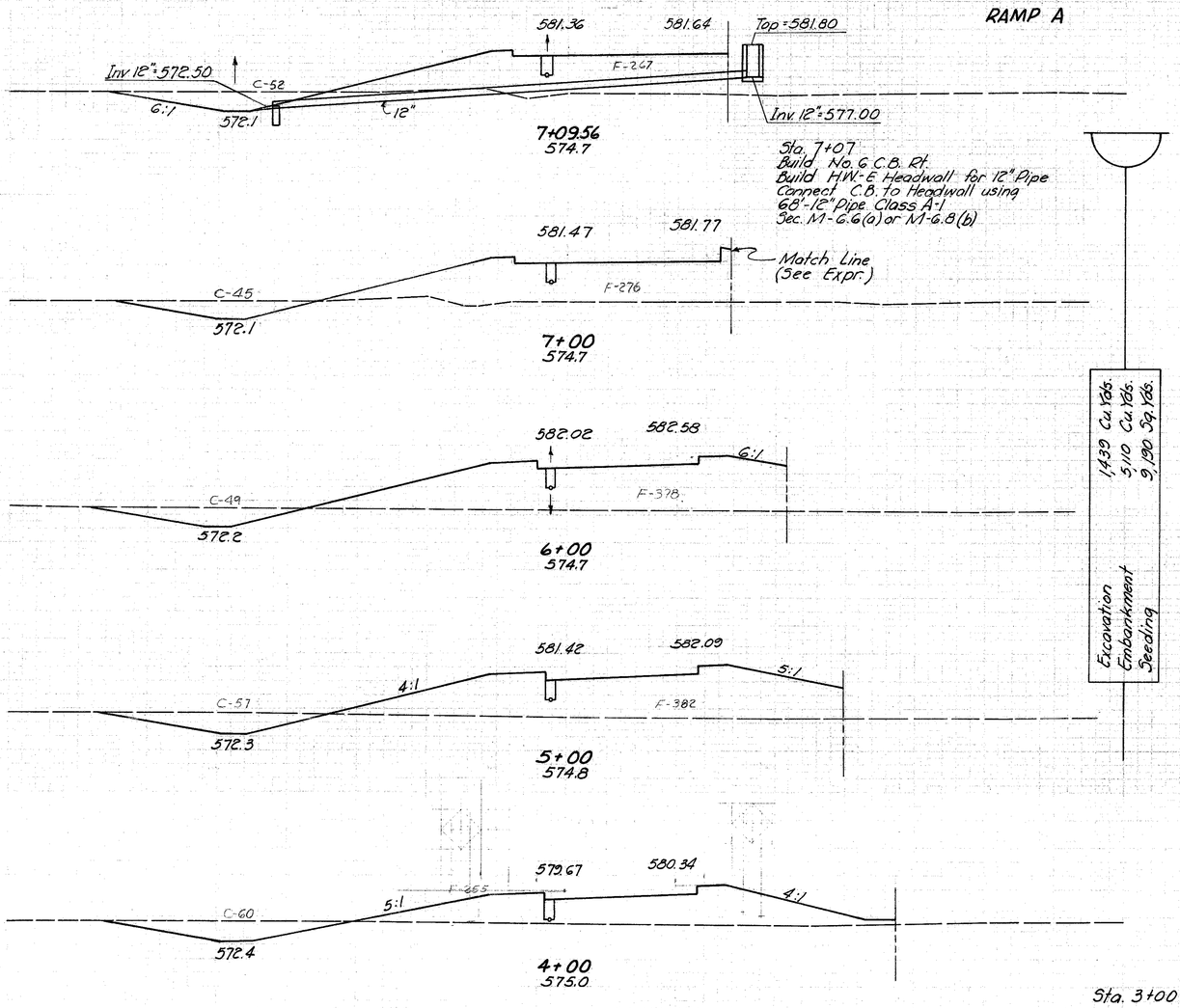
Sta. 177+00 to Sta. 182+00

DBG SMB DFS 1360
DFS 7-62

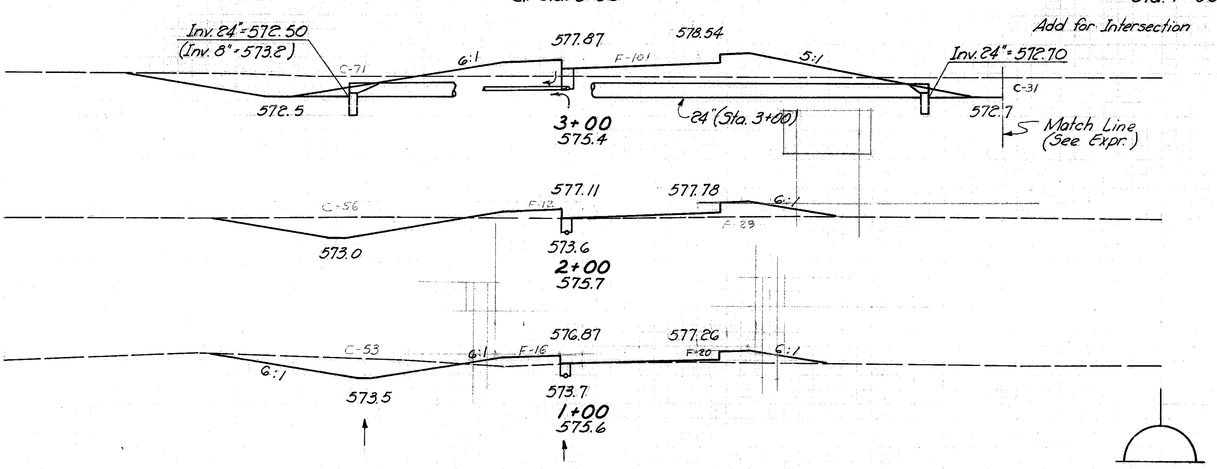
80 60 40 20 ℄ 20 40 60 80



RAMP A



Outlet Underdrains
Lt. Sta. 3+00



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	55	182		
			161	463
	38	68		
			202	176
	77	27		
S.R.163 Add for Drive at Sta. 45+65 Rt.			5	30
Add for Intersection RAMP B			57	805
	52	267		
			17	96
	45	276		
			174	1211
	49	378		
			196	1407
	57	382		
			217	1180
	60	255	300	659
Sta. 3+00	102	101	293	863
Sta. 2+00	56	41	202	143
Sta. 1+00	53	36	40	151
Add for Intersection				

80 60 40 20 ℄ 20 40 60 80

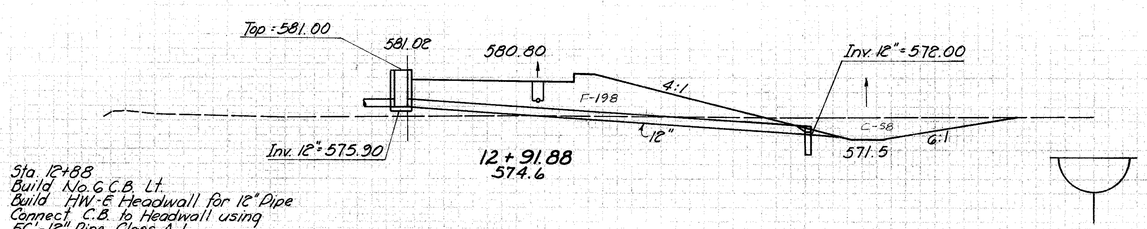
SR.163 Interchange Ramp A Sta 1+00 to Sta 7+09.56 ◆ Ramp B Sta 1+00 to Sta. 3+00

OTT. 2-16.48

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

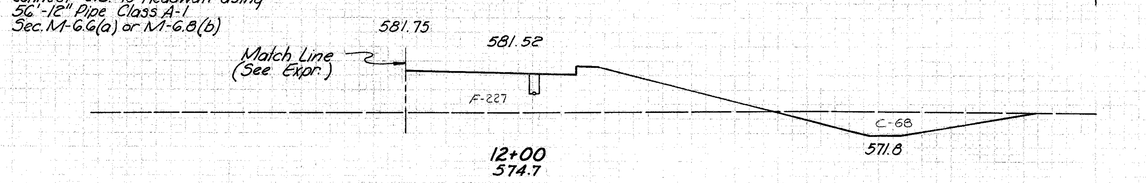
SMB 1960
KYYD 4-66
SEM 6-82
DFS 7-82

80 60 40 20 ℄ 20 40 60 80

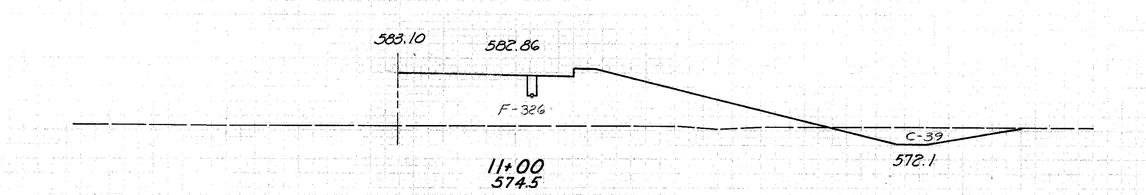


Sta. 12+88
Build No. 6 C.B. Lt.
Build HW-E Headwall for 12" Pipe
Connect C.B. to Headwall using
56'-12" Pipe Class A-1
Sec. M-6.6(a) or M-6.8(b)

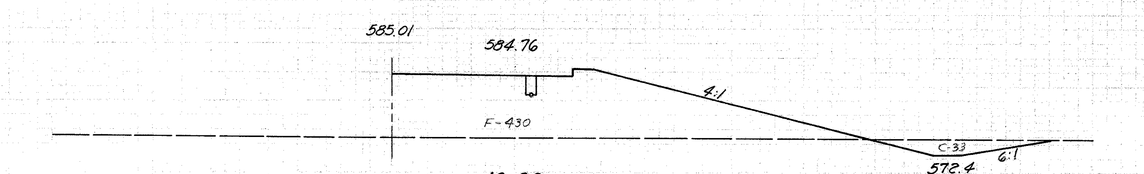
12+91.88
574.6



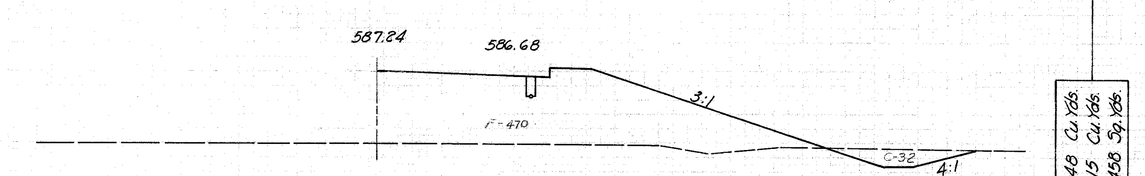
12+00
574.7



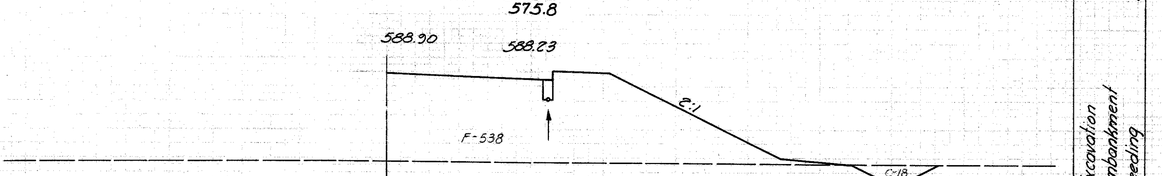
11+00
574.5



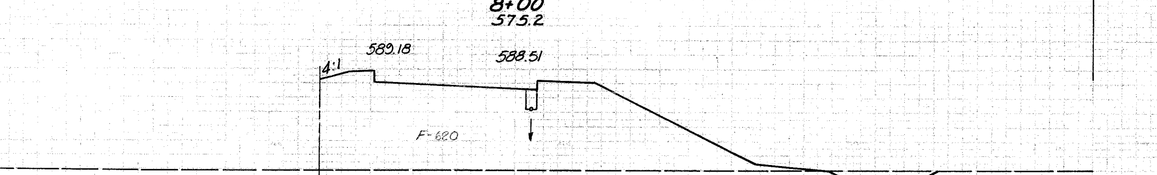
10+00
574.8



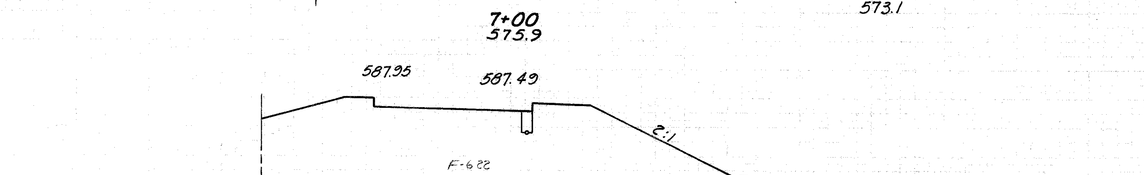
9+00
575.8



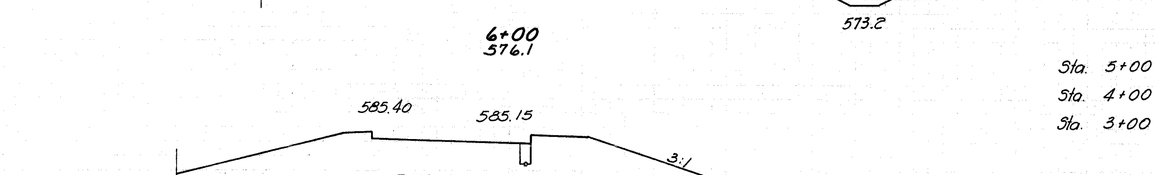
8+00
575.2



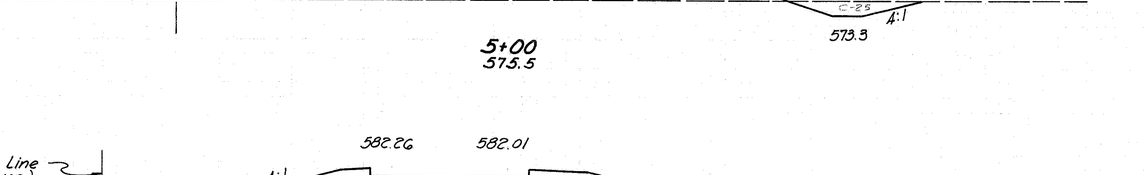
7+00
575.9



6+00
576.1



5+00
575.5



4+00
575.3

	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
	58	198		
			214	723
	68	227		
			198	1084
	39	326		
			133	1400
	33	430		
			120	1667
	32	470		
			93	1867
	18	538		
			85	2145
	28	620		
			119	2300
	36	622		
Sta. 5+00	25	589	113	2243
Sta. 4+00	27	390	96	1813
Sta. 3+00	55	182	152	1059

Excavation 1,748 Cu. Yds.
Embankment 17,115 Cu. Yds.
Seeding 12,458 Sq. Yds.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT. 2 - 16.48

74
33

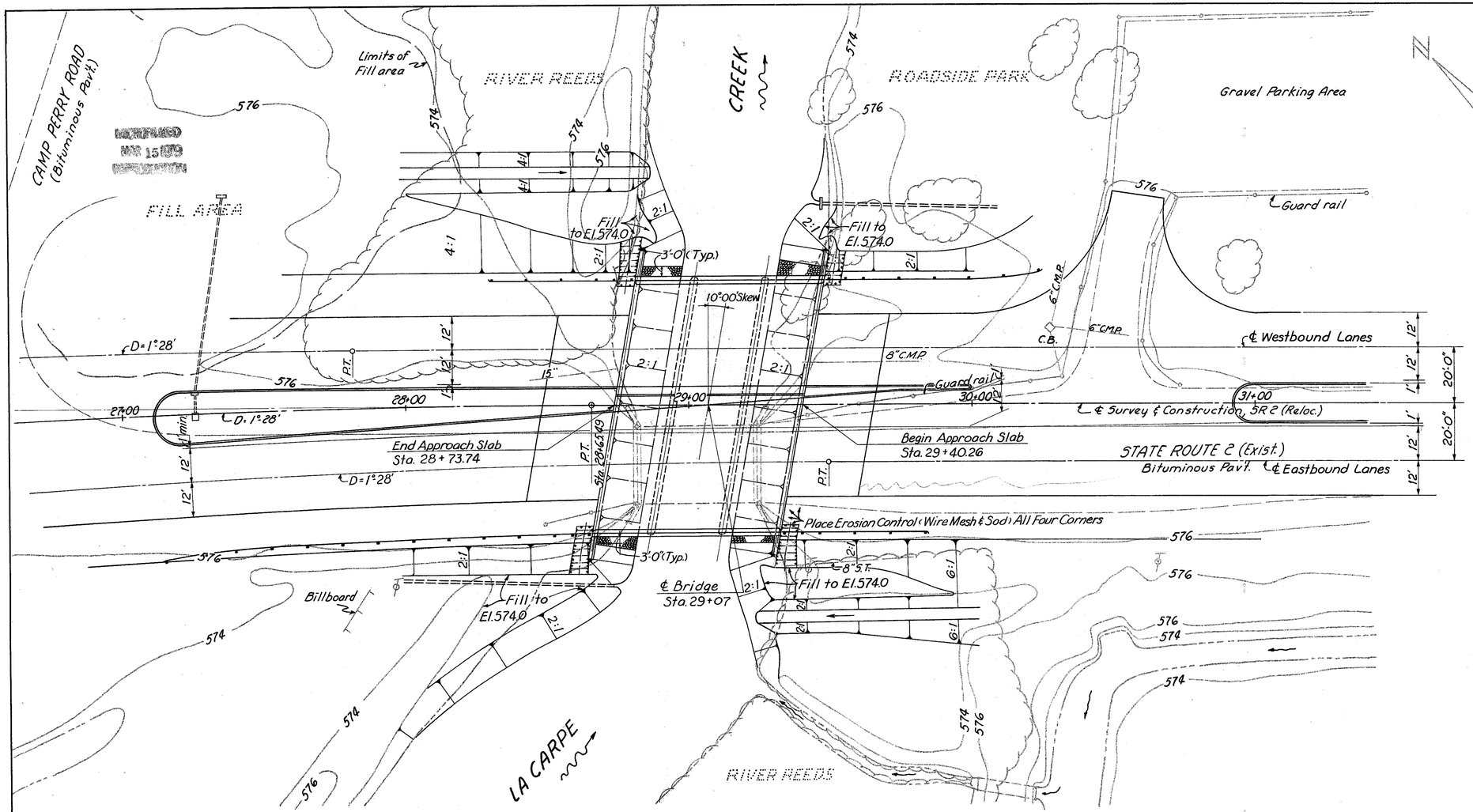
S.R. 163 Interchange Ramp B Sta. 4+00 to Sta. 12+91.88

80 60 40 20 ℄ 20 40 60 80

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

75/133

OTT. 2-16.48
4.1 Miles Northwest of Port Clinton



EXISTING BRIDGE DATA

S.R. 2 (Existing) over La Carpe Creek. OTT. 2-1662
Type - Single Span. Rolled steel beams, wood floor covered with asphalt, concrete abuts.
Span - 40'
Skew - None
Roadway - 24.5' f/f 6"x6" wheel guards
Condition - Poor
Clear Opening - 210 Sq. Ft.

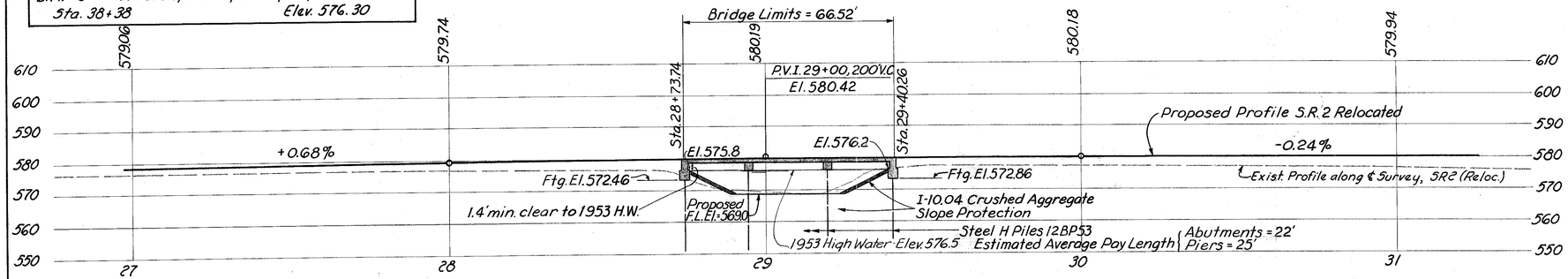
S.R. 358 over La Carpe Creek. OTT. 358-0079 0.2 Miles upstream
Type - Single Span Wood floor on rolled steel beams, Concrete abuts.
Span - 40'
Skew - None
Roadway - 24.3' f/f curbs
Condition - Fair
Clear Opening - 242 Sq. Ft.

FOUNDATION SOUNDINGS

Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information, the accuracy of which the State does not guarantee, may be examined in the office of the Bureau of Bridges in Columbus or in the Division office.

BENCH MARKS

B.M. #1 ~ "+" cut in South corner of concrete slab, 43' Lt. of Sta. 29+84 — Elev. 575.70
B.M. #2 ~ Railroad spike in power pole, 50' Rt. of Sta. 38+38 — Elev. 576.30



PROPOSED STRUCTURES

Type: Continuous Reinforced Concrete Slab Capped Pile Abutments and Piers.
Spans: 20'-0", 25'-0", 20'-0" ℄ Bearings

Roadway: 88'-10¾" f/f Parapets with variable width raised median
Load Frequency: CF 400 (57)
Skew: 10°-00' L.F.
Wearing Surface: 1" Monolithic concrete
Approach Slabs: AS-1-54 (25'-0" Long)
Alignment: Tangent

DRAINAGE AREA = 10 Square Miles

Net Waterway Opening below 1953 High Water = 334 Square Feet

SANZENBACHER MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO OHIO

SITE PLAN
BRIDGE NO. OTT. 2-1664
OVER LA CARPE CREEK

OTTAWA COUNTY — STA. 28+73.74 To STA. 29+40.26
Scale: 1"=20'

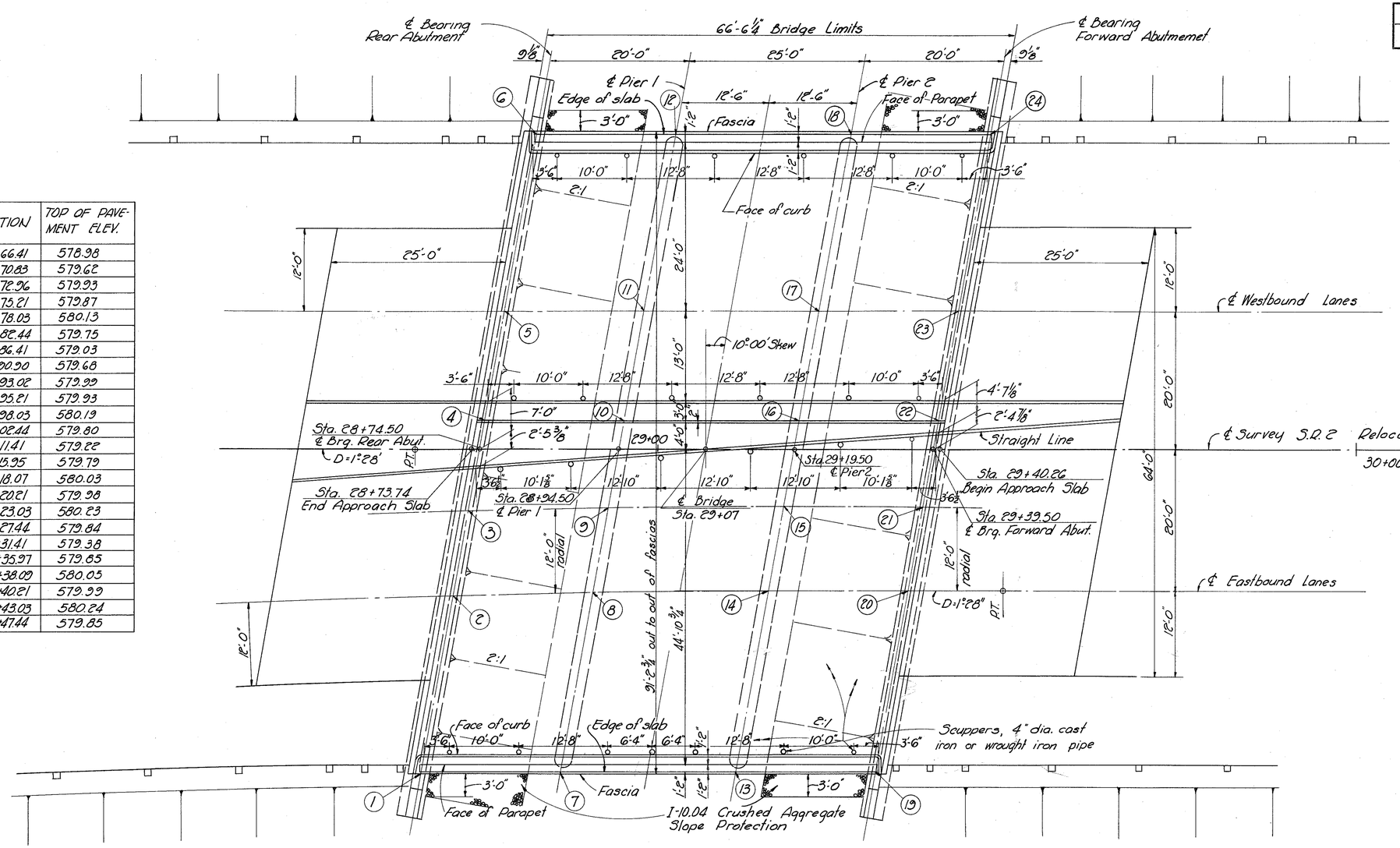
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
S.M.B.	WDP-TFH	T.W.D.	T.W.D.	B.J.H.	FCM 2-1-63

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

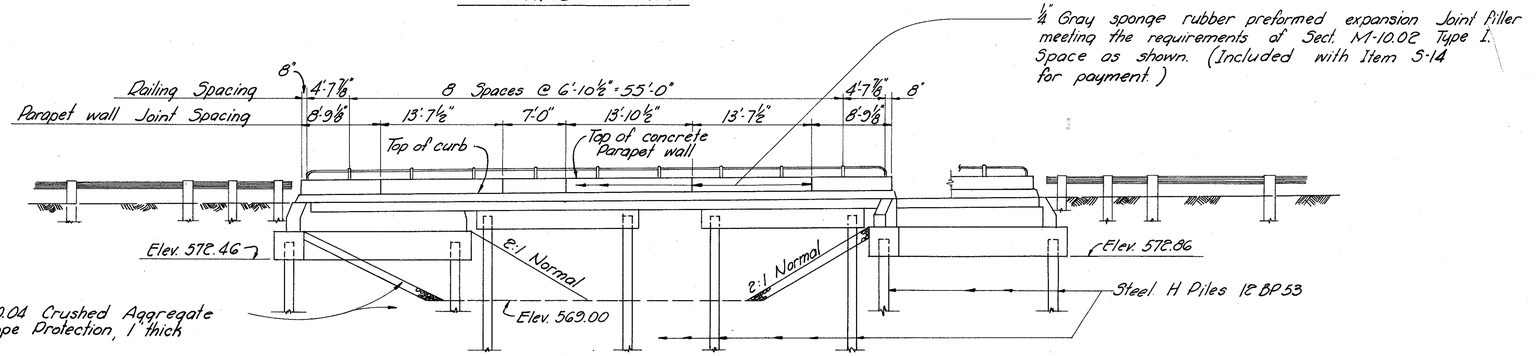
76
133

OTT. 2-16.48

LOCATION	STATION	TOP OF PAVEMENT ELEV.
1	28+66.41	578.98
2	28+70.83	579.62
3	28+72.96	579.93
4	28+75.21	579.87
5	28+78.03	580.13
6	28+82.44	579.75
7	28+86.41	579.03
8	28+90.90	579.68
9	28+93.02	579.99
10	28+95.21	579.93
11	28+98.03	580.13
12	29+02.44	579.80
13	29+11.41	579.22
14	29+15.95	579.79
15	29+18.07	580.03
16	29+20.21	579.98
17	29+23.03	580.23
18	29+27.44	579.84
19	29+31.41	579.38
20	29+35.97	579.85
21	29+38.09	580.05
22	29+40.21	579.99
23	29+43.03	580.24
24	29+47.44	579.85



GENERAL PLAN



GENERAL ELEVATION

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

GENERAL PLAN & ELEVATION
BRIDGE No. OTT. 2-1664
OVER LA CARPE CREEK
OTTAWA COUNTY
STA. 28+73.74 TO STA. 29+40.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
V&P	V&P	BB	JHY	BJH	2-12-63	

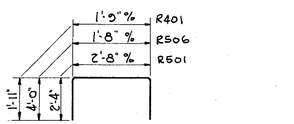
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1048(10)	

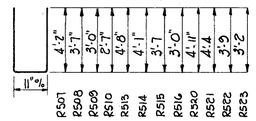
77/133

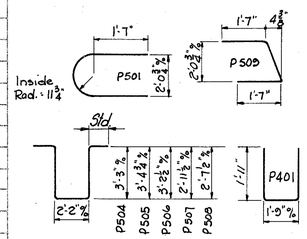
OTT. 2-16.48

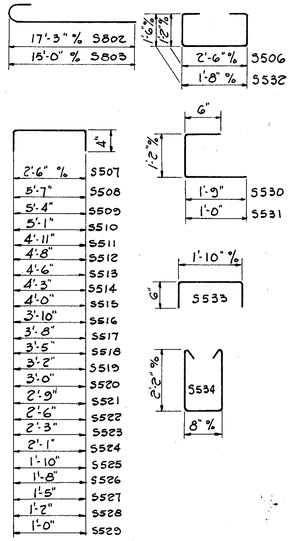
REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shape
ABUTMENTS				
R1001	16	22'-6"	1549	S
R1002	16	26'-10"	1847	S
R801	16	26'-1"	1114	S
R802	16	29'-6"	1260	S
R501	344	7'-1"	2541	B
R502	16	25'-7"	427	S
R503	16	29'-1"	485	S
R504	8	21'-8"	181	S
R505	8	26'-0"	217	S
R506	124	9'-5"	1218	B
R507	6	9'-0"	56	B
R508	2	7'-10"	16	B
R509	2	6'-8"	14	B
R510	4	5'-10"	24	B
R511	8	7'-10"	65	S
R512	4	3'-8"	15	S
R513	3	10'-0"	31	B
R514	1	6'-10"	9	B
R515	1	7'-10"	8	B
R516	1	6'-8"	7	B
R517	8	9'-5"	79	S
R518	2	5'-0"	10	S
R519	2	3'-0"	6	S
R520	3	10'-6"	33	B
R521	1	9'-4"	10	B
R522	1	8'-2"	9	B
R523	1	7'-0"	7	B
R524	2	4'-4"	9	S
R525	2	2'-4"	5	S
R401	136	5'-4"	484	B
PIERS				
P1001	8	26'-11"	927	S
P1002	8	17'-9"	611	S
P1003	8	14'-1"	485	S
P1004	8	39'-6"	1360	S
P901	8	17'-11"	487	S
P902	8	24'-10"	675	S
P903	8	25'-2"	685	S
P904	8	26'-7"	723	S
P501	8	6'-4"	53	B
P502	8	20'-9"	173	S
P503	8	25'-2"	210	S
P504	18	9'-5"	177	B
P505	42	9'-9"	427	B
P506	42	9'-4"	409	B
P507	20	8'-10"	184	B
P508	22	8'-2"	187	B
P509	8	5'-0"	42	B
P401	136	5'-4"	484	B
SUPERSTRUCTURE				
S901	160	18'-10"	10,845	S
S902	78	9'-4"	2475	S
S903	78	8'-2"	2166	S









Mark	No.	Length	Weight	Shape
SUPERSTRUCTURE CONT.				
S801	282	23'-9"	17,882	S
S802	84	18'-4"	4112	B
S803	84	16'-1"	3607	B
S804	42	17'-8"	1981	S
S805	42	13'-10"	1548	S
S806	6	24'-1"	386	S
S701	40	13'-8"	1111	S
S702	2	9'-6"	39	S
S601	82	12'-4"	1519	S
S602	41	11'-6"	708	S
S603	123	41'-2"	7605	S
S604	123	38'-0"	7020	S
S605	123	13'-0"	2402	S
S501	29	15'-4"	464	S
S502	14	14'-6"	212	S
S503	1	15'-0"	16	S
S504	1	17'-0"	18	S
S505	1	10'-0"	10	S
S506	82	5'-7"	478	B
S507	82	3'-1"	264	B
S508	3	6'-0"	19	B
S509	3	5'-9"	18	B
S510	3	5'-6"	17	B
S511	3	5'-4"	17	B
S512	3	5'-1"	16	B
S513	3	4'-11"	15	B
S514	6	4'-8"	29	B
S515	6	4'-5"	28	B
S516	4	4'-3"	18	B
S517	3	4'-1"	13	B
S518	3	3'-10"	12	B
S519	3	3'-7"	11	B
S520	3	3'-5"	11	B
S521	3	3'-2"	10	B
S522	6	2'-11"	18	B
S523	6	2'-8"	17	B
S524	5	2'-6"	13	B
S525	3	2'-3"	7	B
S526	3	2'-1"	7	B
S527	3	1'-10"	6	B
S528	3	1'-7"	5	B
S529	4	1'-5"	6	B
S530	132	3'-2"	436	B
S531	32	2'-5"	81	B
S532	164	5'-5"	926	B
S533	164	2'-7"	442	B
S534	100	5'-7"	582	B
S535*	16	8'-5"	-	S
S536*	16	13'-3"	-	S
S537*	8	6'-8"	-	S
S538*	8	13'-6"	-	S
REPLACEMENT BARS				
RE 1001	1	7'-3"	31	S
RE 901	1	6'-10"	23	S
RE 801	2	6'-6"	35	S
RE 701	1	6'-3"	13	S
RE 601	1	5'-11"	9	S
RE 501	1	5'-7"	6	S
RE 401	1	5'-3"	4	S

*Included with Item 5-14 for payment.

ESTIMATED QUANTITIES BRIDGE OTT. 2-1664

Item	Total	Unit	Description	Abutments Rear	Abutments Fwr'd.	Piers 1	Piers 2	Super-structure	General	
E-2	165	Cu.Yd.	Unclassified excavation	83	82	~	~			
5-1	305	Cu.Yd.	Class "C" concrete, superstructure and pier caps					305		
5-1	114	Cu.Yd.	Class "E" concrete, abutments	58	56					
5-3	13	Lin.Ft.	Waterproofing, premolded sealing strip	7	6					
5-4	89,804	Lbs.	Reinforcing steel	5869	5867	4149	4150	69048	121	
5-9	6	Sq.Ft.	½" preformed expansion joint filler	3	3					
5-9	39	Sq.Ft.	1" preformed expansion joint filler	15	15			9		
5-14	131	Lin.Ft.	Railing (Type A aluminum rail & supports, concrete parapet)					131		
5-16	Lump	Sum	First test pile						Lump	
5-18	1620	Lin.Ft.	Steel piles, 12 BP 53	380	380	430	430			
5-24	Lump	Sum	Removal of existing structure						Lump	
5-29	35	Cu.Yd.	Porous backfill	18	17					
5-29	25	Each	Scuppers, 4" cast or w.i. pipe					25		
I-10	348	Sq.Yd.	Crushed aggregate slope protection						348	
3-101	305	Each	Water-reducing, set-retarding admixture					305		

GENERAL NOTES

Reference shall be made to standard drawings AS-1-54, "REINFORCED CONCRETE APPROACH SLABS," revised 7-5-62; AR-1-57, "ALUMINUM RAILING WITH CONCRETE PARAPET, REVISED 4-2-62, and to Supplemental Specification 5-101, Water-reducing, Set-retarding admixtures for concrete, dated 7-12-62.

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

Procedure: The embankment shall be placed and compacted up to the finished spill-thru slope after which excavation shall be made for the abutments and the piles driven.

Excavation quantity includes the removal of fill material between the surface of the proposed embankment and the bottom of the abutments.

Machine finish: at the contractor's option, the concrete deck may be finished by the use of a finishing machine.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, a P501 is a No. 5 size bar, and a P1001 is a No. 10 size.

Camber of $\frac{1}{800}$ of the span shall be provided in each span to allow for deadload deflection. This is the amount of camber required before falsework is released. To obtain this, proper allowance shall be made for the deflection of falsework members.

Curbs and parapets shall be placed after the shoring under the slab has been released sufficiently to permit the slab spans to attain full deadload deflection.

Piles shall be driven to a minimum bearing capacity of 25 tons per pile for the abutments and 30 tons per pile for the piers.

Removal of existing structure: When no longer needed to maintain traffic the existing structure shall be removed.

Existing structure shall remain in service until north portion of new structure is constructed and open to traffic see "TRAFFIC MAINTENANCES" in roadway general notes.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

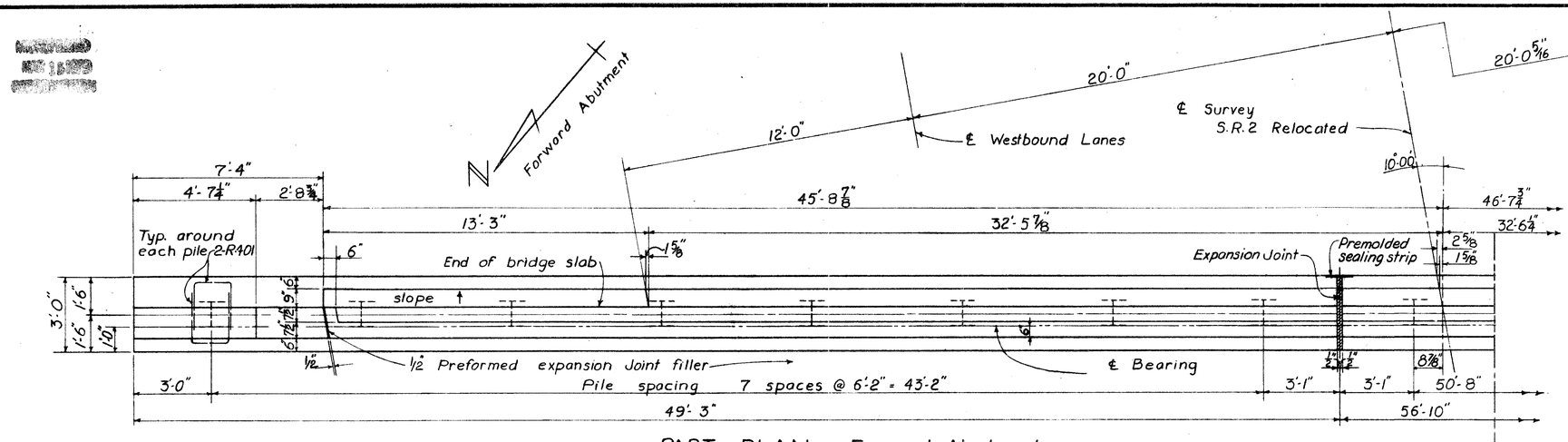
GENERAL NOTES, REINFORCING STEEL & ESTIMATED QUANTITIES
BRIDGE NO. OTT. 2-1664
OVER LA CARPE CREEK
STA. 28+73.74 to STA. 29+40.86
OTTAWA CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP TWD	VGP	BB	JHY AJB	BJH	2-12-63	

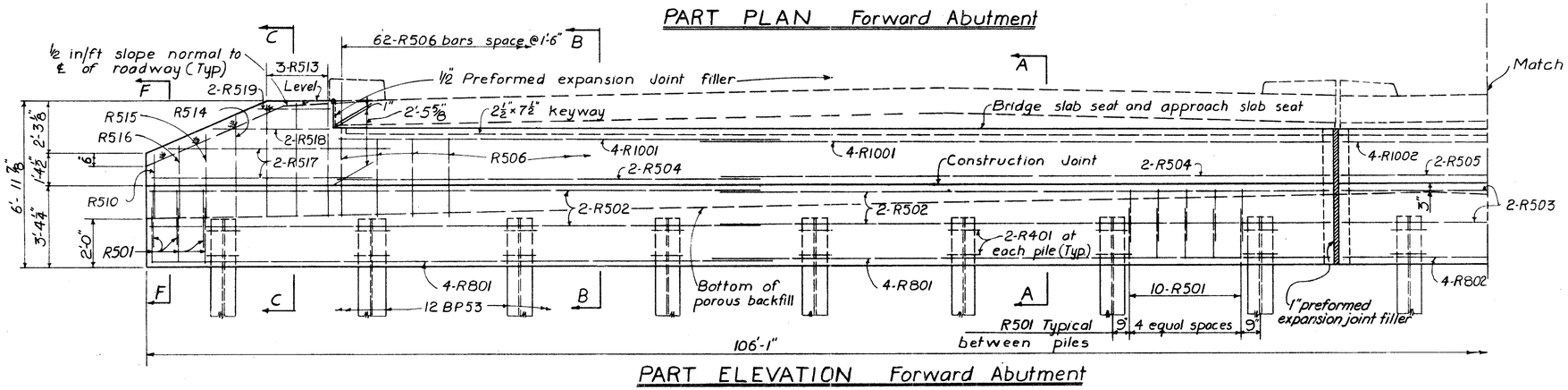
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

78/133

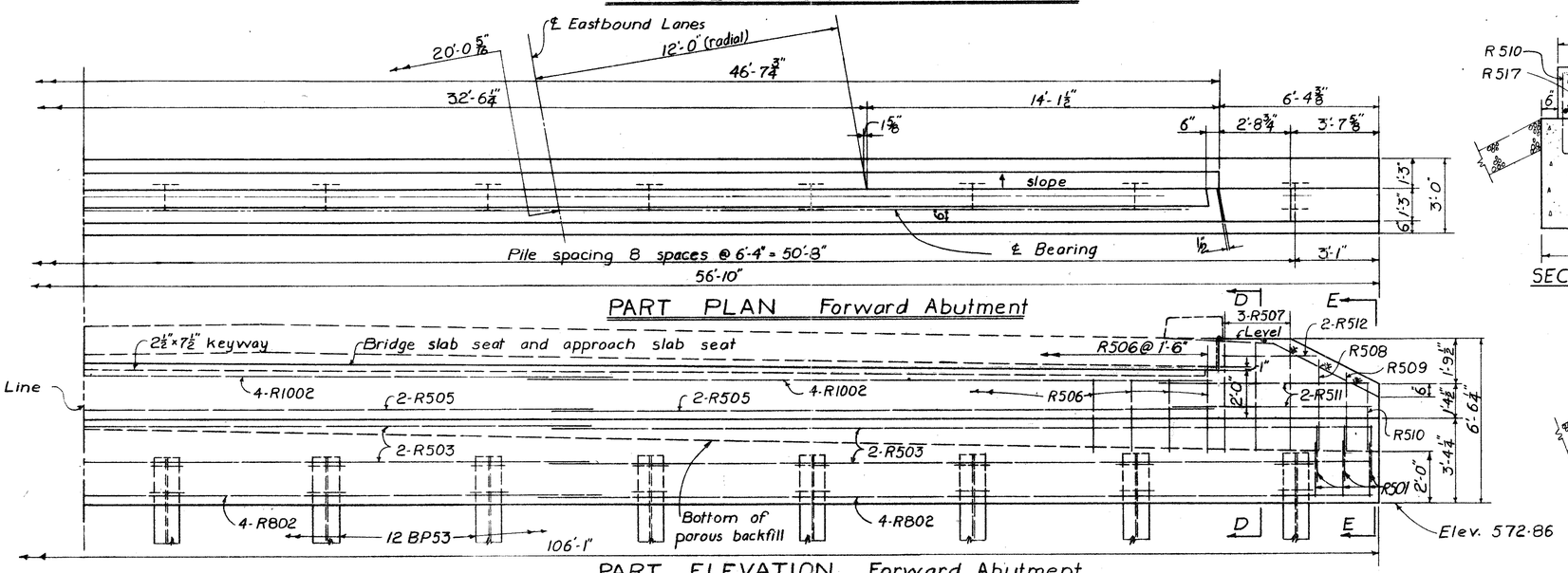
OTT. 2-16.48



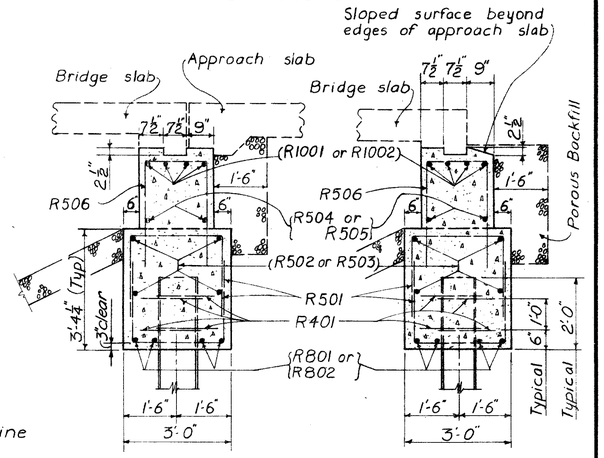
PART PLAN Forward Abutment



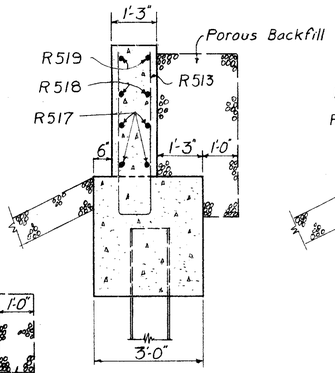
PART ELEVATION Forward Abutment



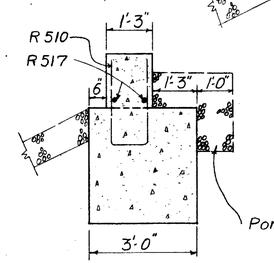
PART PLAN Forward Abutment



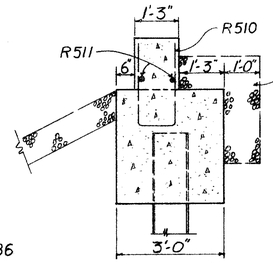
SECTION A-A SECTION B-B



SECTION C-C SECTION D-D



SECTION F-F



SECTION E-E

NOTE:— Sections C-C thru. F-F reinforcing bars same as sections A-A or B-B except as noted.
Work this sheet with sheet 79

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CONSULTING ENGINEERS
TOLEDO, OHIO.

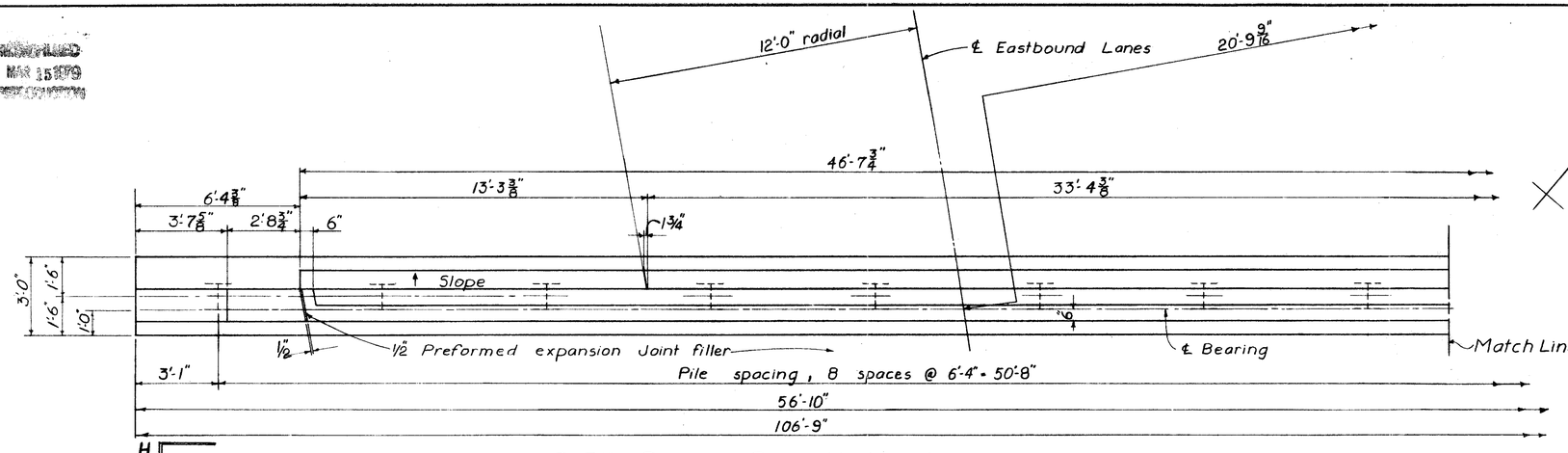
ABUTMENTS (1)
BRIDGE No. OTT. 2-1664 OVER LA CARPE CREEK
OTTAWA COUNTY STA. 28+73.74 To STA 29+40.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP	VGP		JHY	BJH	2-12-63	

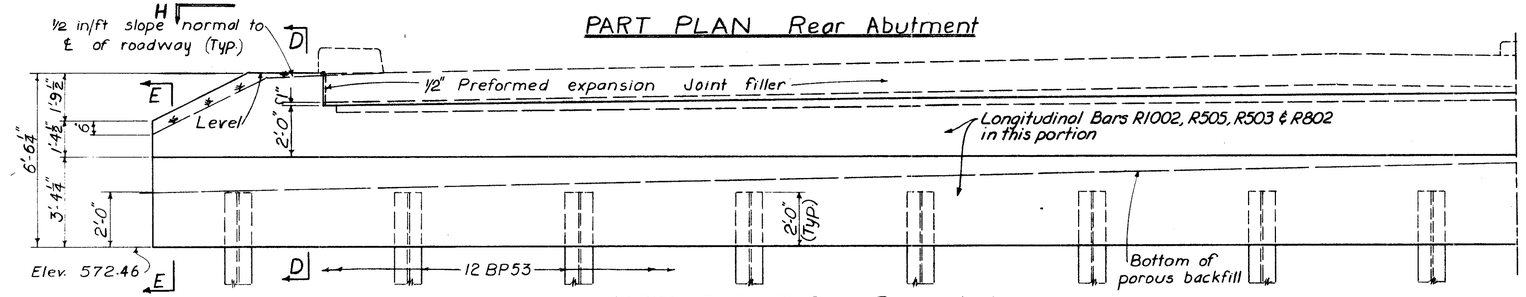
FED.RD DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	FI042(10)	

79/133

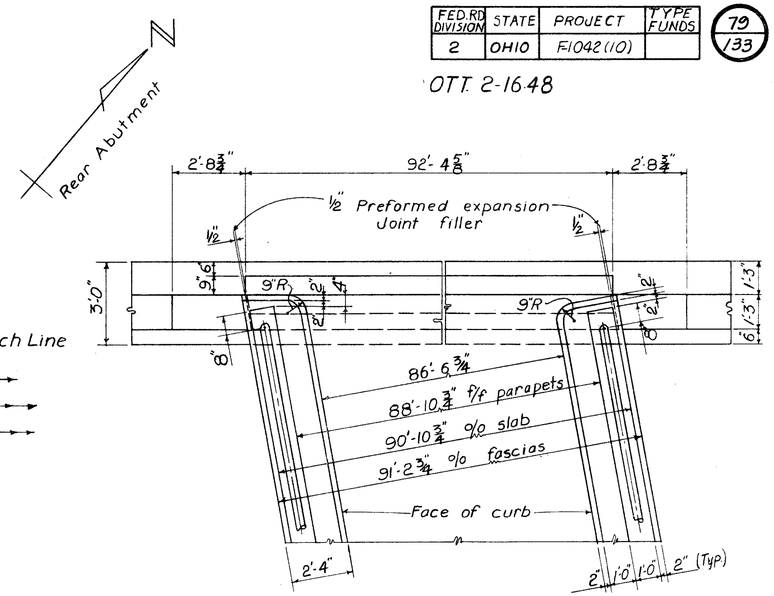
OTT. 2-16.48



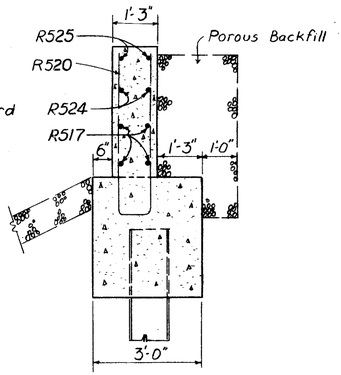
PART PLAN Rear Abutment



PART ELEVATION Rear Abutment



VIEW H-H

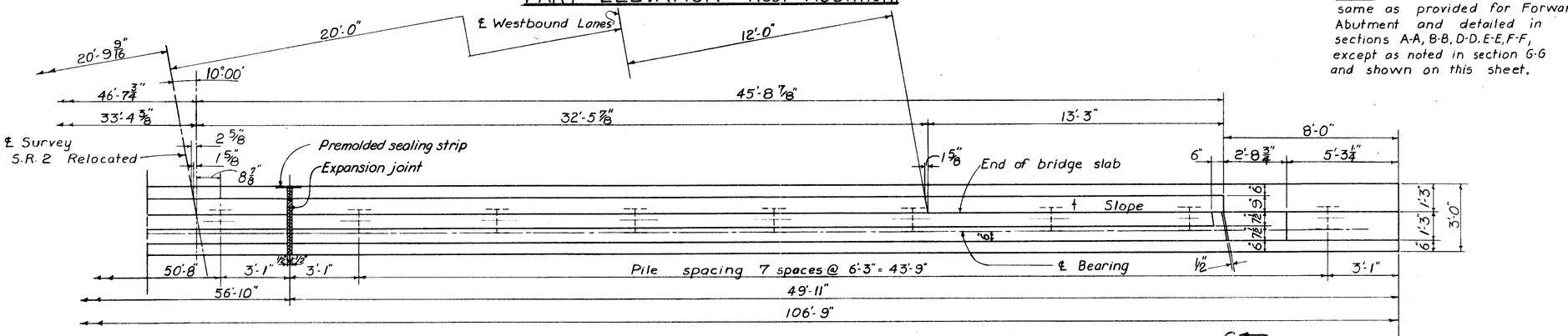


SECTION G-G

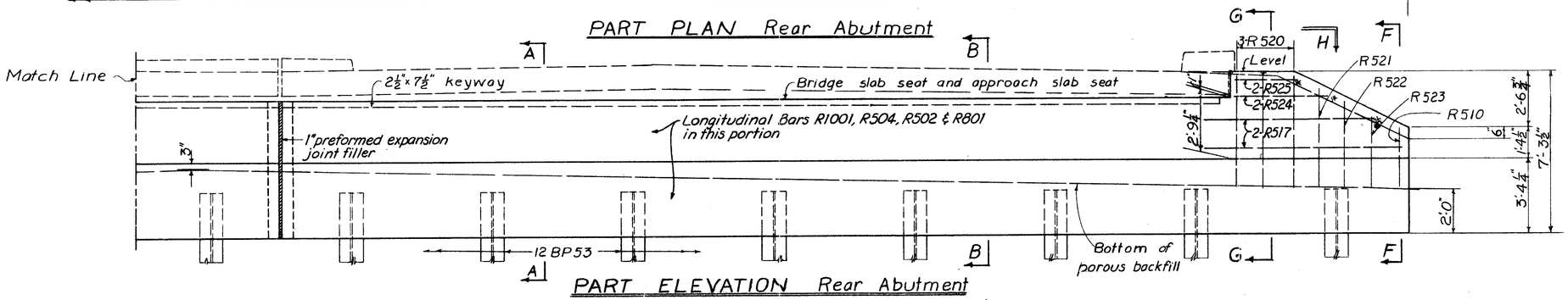
NOTE: Reinforcing bars are same as provided for Forward Abutment and detailed in sections A-A, B-B, D-D, E-E, F-F, except as noted in section G-G and shown on this sheet.

Note: POROUS BACKFILL shall extend upward to the approach slab and to the surface of the earth shoulders, and outward to the surface of the embankment slopes. Excavation therefore, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

Work this sheet with sheets 78 and 81



PART PLAN Rear Abutment



PART ELEVATION Rear Abutment

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CONSULTING ENGINEERS
TOLEDO, OHIO

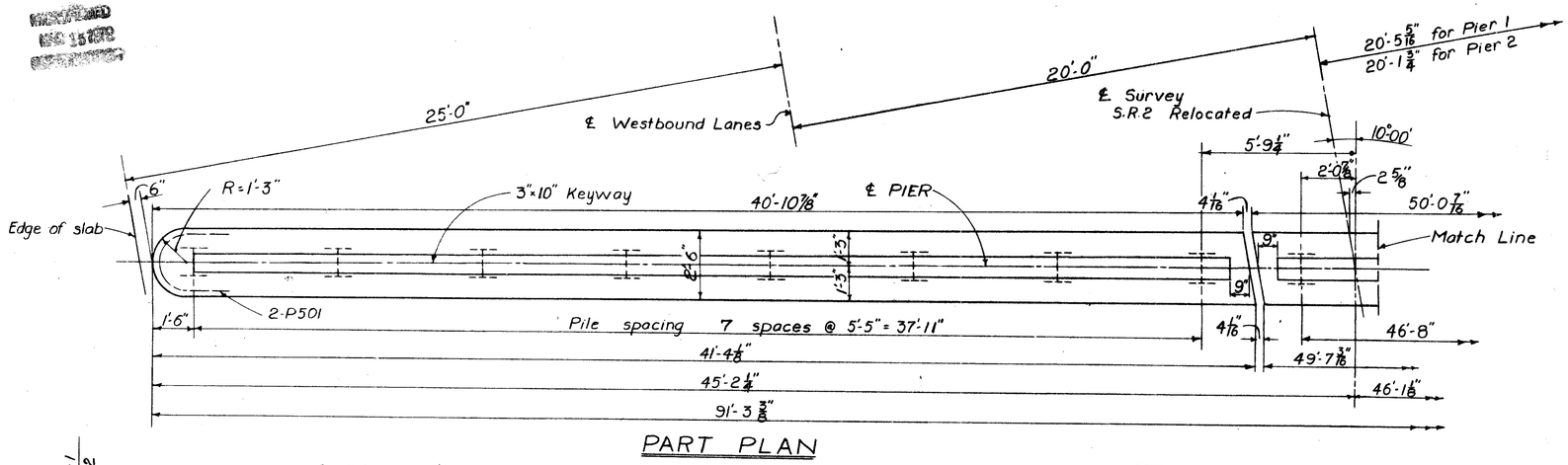
ABUTMENTS (2)
BRIDGE No. OTT. 2-1664
OVER LA CARPE CREEK
OTTAWA COUNTY STA. 28+73.74 to STA. 29+40.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
V.G.P	V.G.P		JHY	BJH	2-12-63	

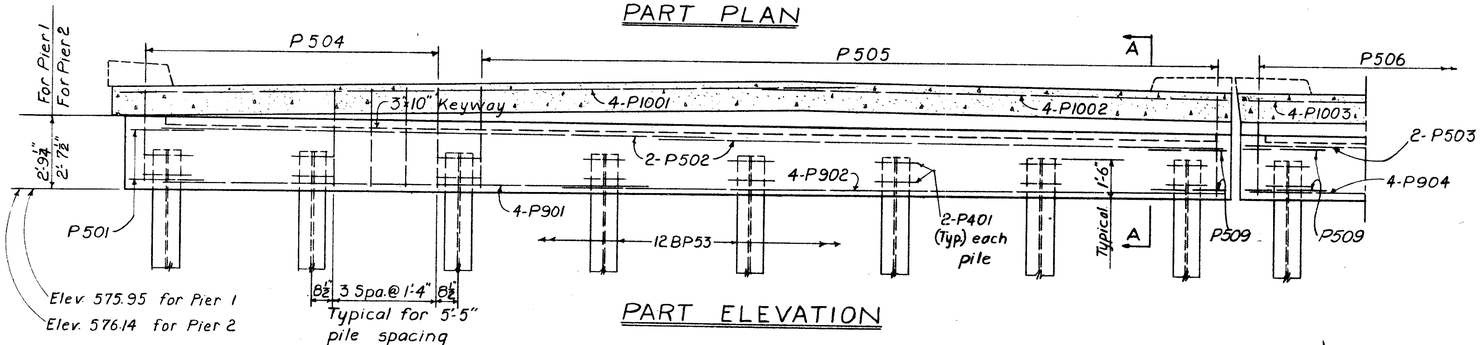
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

80/133

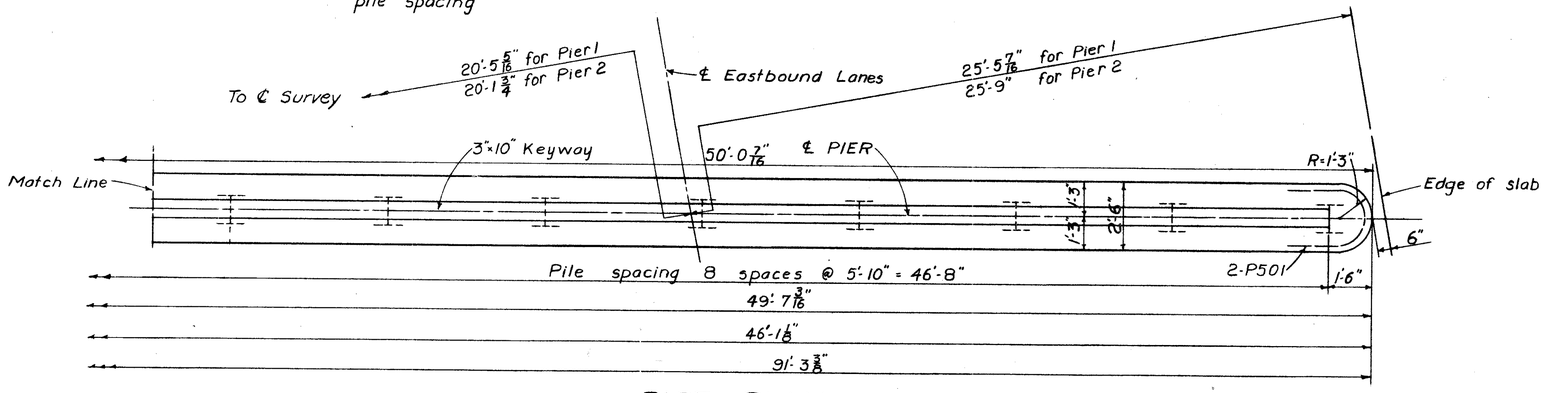
OTT. 2-16.48



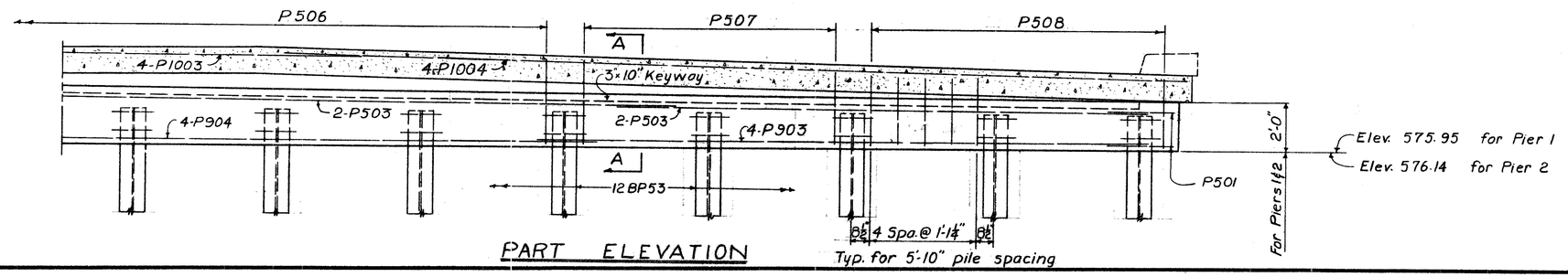
PART PLAN



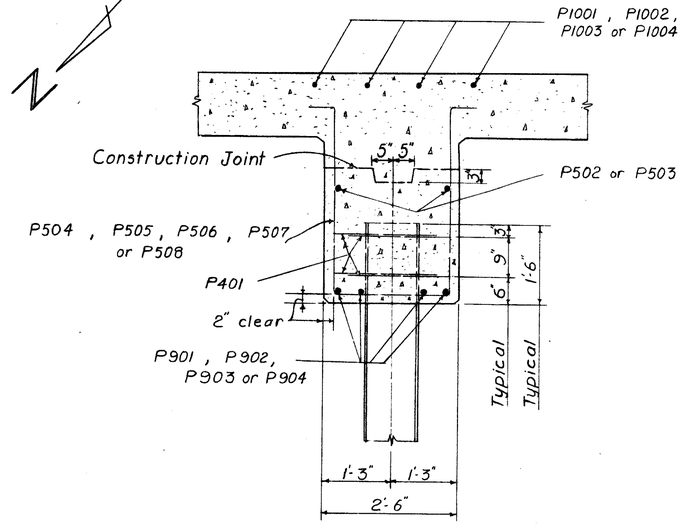
PART ELEVATION



PART PLAN



PART ELEVATION



SECTION A-A

NOTE:

Falsework Support: The pier cap shall not be used to support the falsework for the deck slab.

Pile Painting: The exposed portion of the piles shall be painted in accordance with Item 5-8, applying two coats as per Sections M-9.9, M-9.20 or M-9.21 and two coats as per Section M-9.12. The painting of the piles shall extend to low water elevation.

Payment For Piles, per lin. ft., includes payment for pile painting. The elevation of cut-off as per Section 5-18.13 shall be considered as 1'-6" above the bottom of the concrete cap.

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CONSULTING ENGINEERS
TOLEDO, OHIO

PIERS

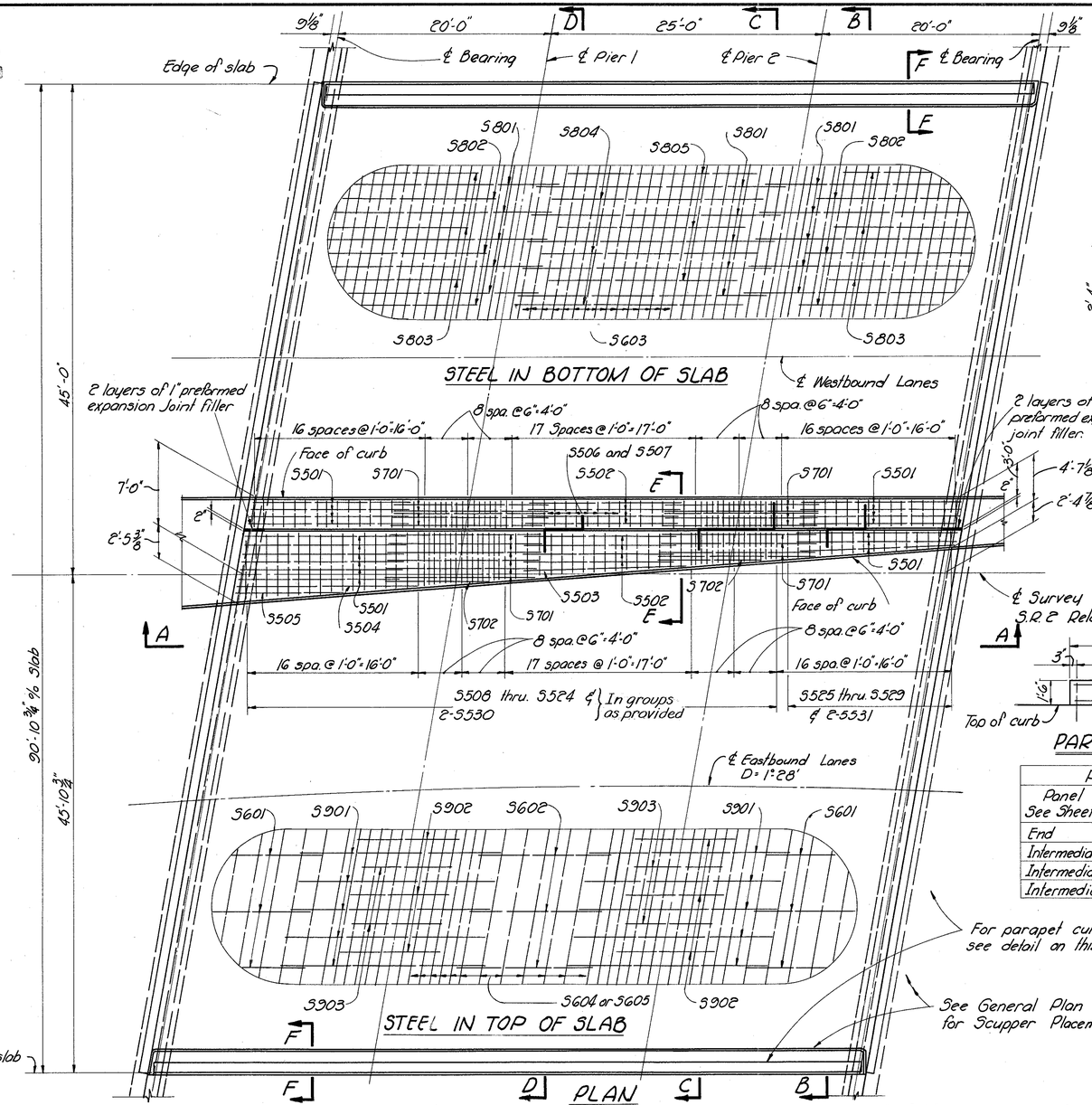
BRIDGE No. OTT. 2-1664
OVER LA CARPE CREEK
OTTAWA CO. STA. 28+73.74 To STA. 29+40.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP	VGP		JHY	BJH	2-12-63	

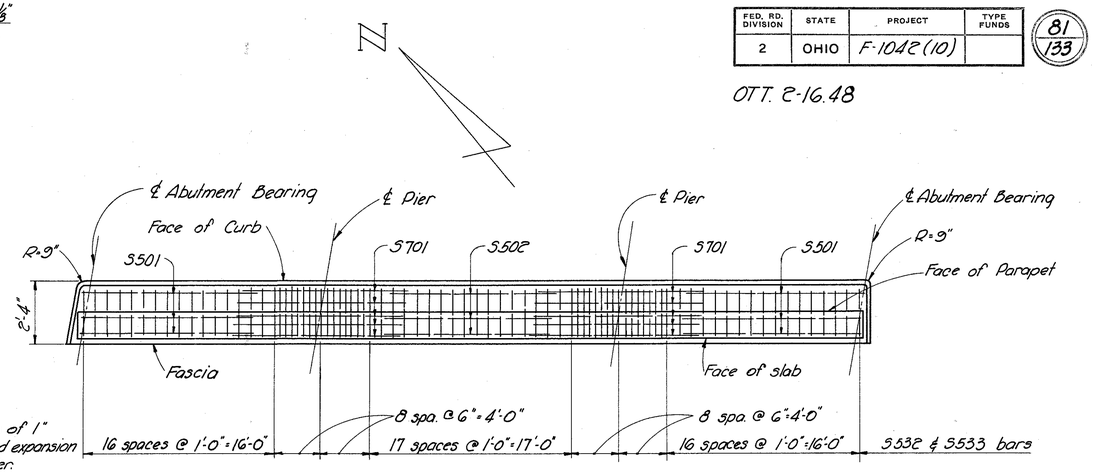
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

81/133

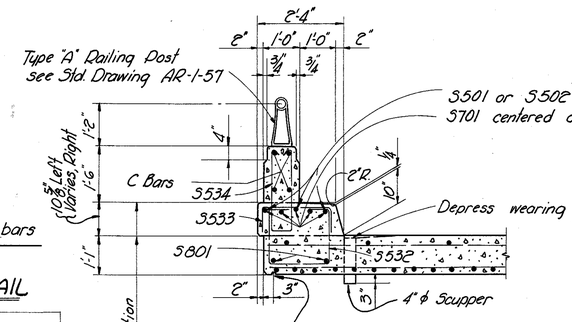
OTT. 2-16.48



PARAPET DETAILS			
Panel See Sheet 76	Dimension A	No. Spaces B	Reinforcing C Bars.
End	8'-9⅛"	6	3535
Intermediate	13'-7⅝"	9	3536
Intermediate	7'-0"	5	3537
Intermediate	13'-10⅜"	9	3538

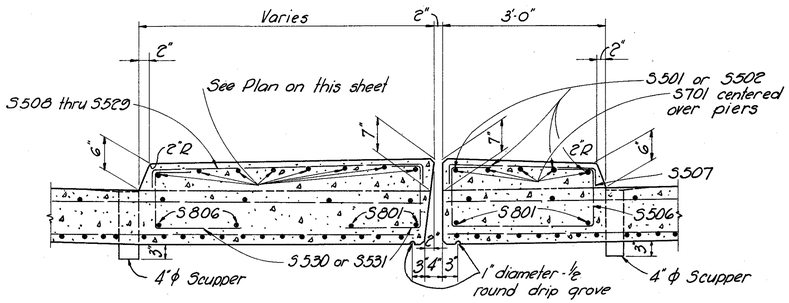


TYPICAL CURB REINFORCEMENT

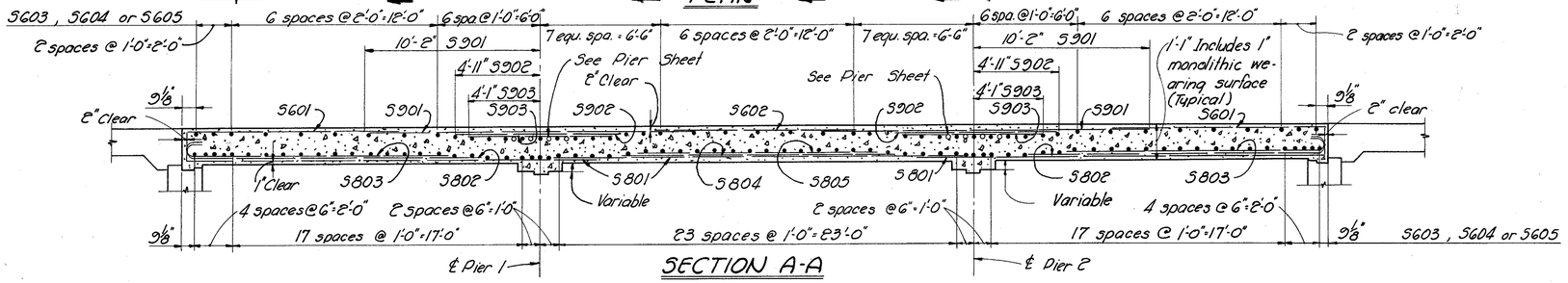


NOTE: Alter spacing of bars to permit proper placement of scuppers.

SECTION F-F



SECTION E-E



SECTION A-A

See sheet 79 for curb details at abutments.

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CONSULTING ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS (1)

BRIDGE No. OTT 2-1664
OVER LA CARPE CREEK

OTTAWA CO. STA. 28+73.74 to STA. 29+40.26

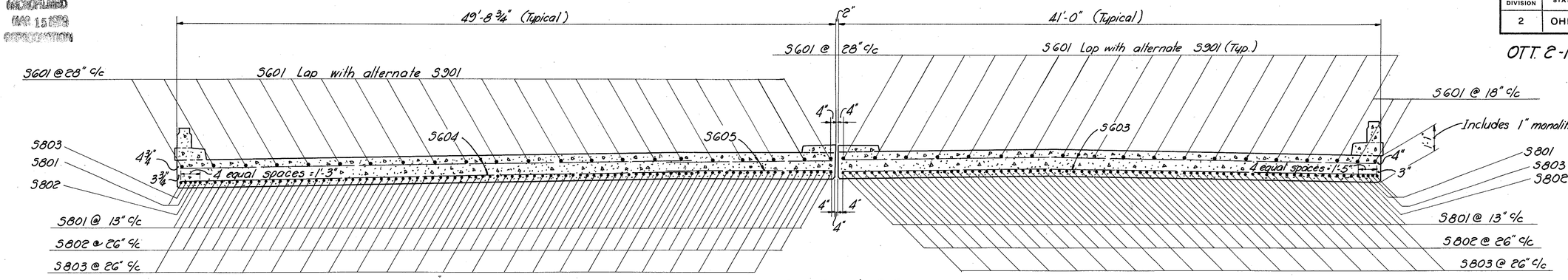
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP	VGP	BB	JHY	BJH	2-12-63	

UNCONFLICTED
MAR 15 1978
CONSTRUCTION

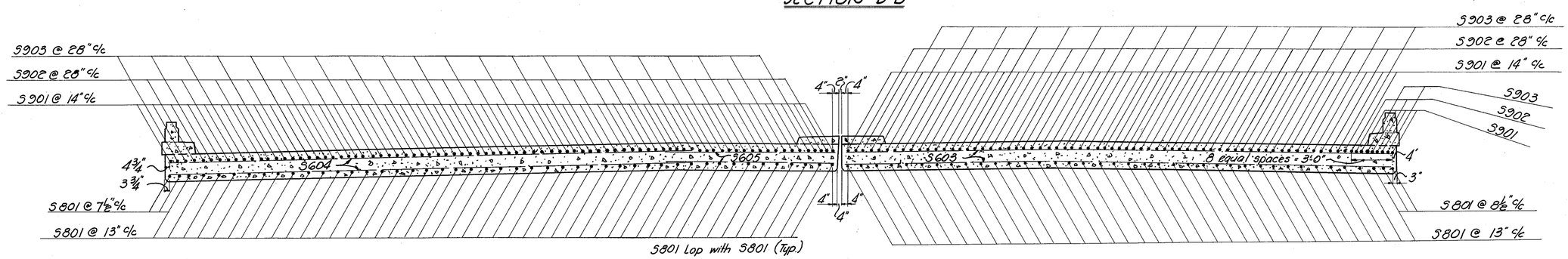
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

82
133

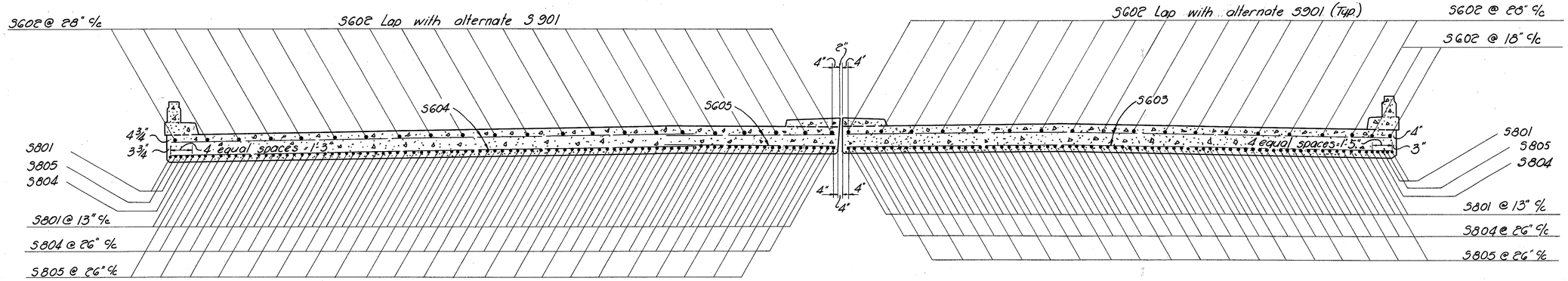
OTT. 2-16.48



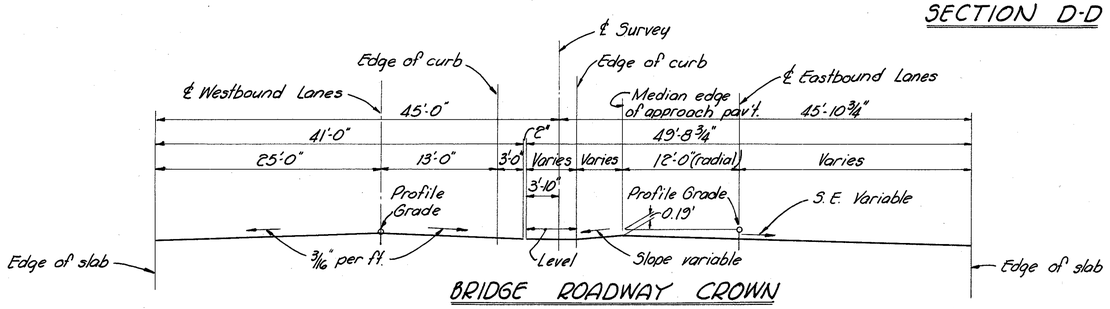
SECTION B-B



SECTION C-C



SECTION D-D



BRIDGE ROADWAY CROWN

Note: See section A-A sheet no. 81 for transverse reinforcing bars spacing.

Note: See sheet no. 76 for elevations of top of slab.

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CONSULTING ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS (2)

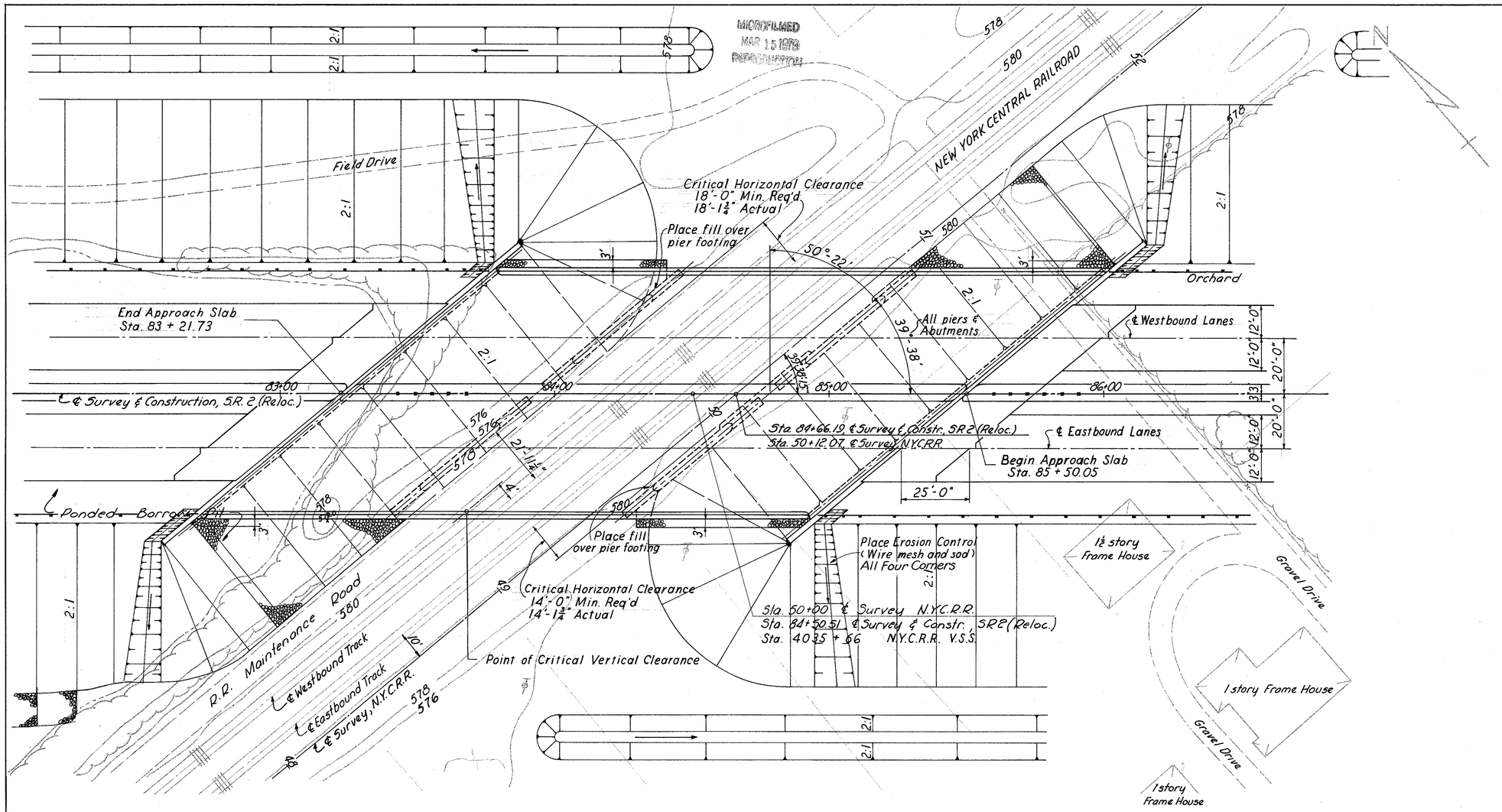
BRIDGE NO. OTT. 2-1664
OVER LA CARPE CREEK
OTTAWA CO.
STA. 28+73.74 to
STA. 29+40.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP	VGP	BB	JHY	BJH	2-12-63	

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

83/133

OTT. 2-16.48
3.2 Miles West of Port Clinton

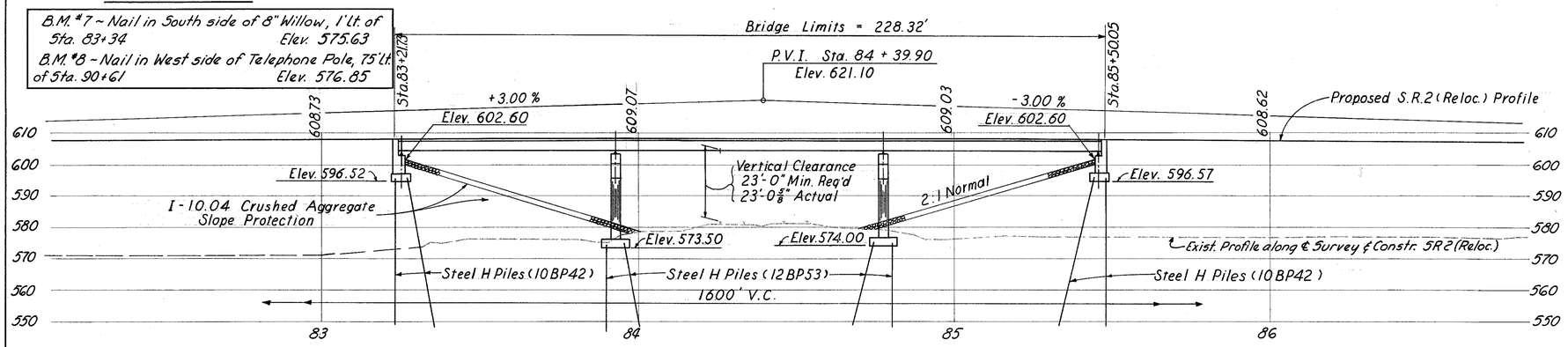


FOUNDATION SOUNDINGS

Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information, the accuracy of which the State does not guarantee, may be examined in the office of the Bureau of Bridges in Columbus or in the Division office.

BENCH MARKS

B.M. #7 ~ Nail in South side of 8" Willow, 1' Lt. of Sta. 83+34 Elev. 575.63
B.M. #8 ~ Nail in West side of Telephone Pole, 75' Lt. of Sta. 90+61 Elev. 576.85



Steel H Piles
Estimated Average Pay Length
Abutments = 60'
Piers = 40'

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck. Reinforced concrete substructure. Stub abutments and 'T' type piers.
Spans: 68'-0", 85'-0", 68'-0" ℄ brgs.
Roadway: 88'-0" ℄ of parapets with 6'-0" raised median.
Load Frequency: CF 400 (57)
Skew: 50°-22' Left Forward
Wearing Surface: 1" Monolithic concrete
Approach Slabs: AS-1-54 (25'-0")
Alignment: Tangent

SANZENBACHER MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO OHIO

SITE PLAN

BRIDGE NO. OTT. 2-16.9
OVER NEW YORK CENTRAL RAILROAD
OTTAWA COUNTY
Scale: 1"=20'
STA. 83+21.73 to STA. 85+50.05

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
S.M.B.	HDP.TFH	RWR	RWR.OMB	BJH	FCM 2-1845

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

84/133

OTT. 2-16.48

N

228'-3¾" Bridge Limits
221'-0" Overall ℄ Bearings
68'-0" ℄ Bearings | 85'-0" ℄ Bearings | 68'-0" ℄ Bearings
3'-7⅞" | 3'-7⅞"

3'-0" | 3'-0"

Pier 1 | Pier 2

50°-22' All Piers & Abutments

39'-10" f-f Curb | 1'-2" | 1'-2"

℄ Westbound Lanes

℄ Piers 1 & 3 Sta.83+93.39

℄ Piers 2 & 4 Sta.84+78.39

End Approach Slab Sta.83+21.73

1'-1½"

6'-3" Spacing for Guard Rail Posts

Sta.84+66.19, ℄ Survey & Construction S.R.2 Relocated
Sta.50+12.07, ℄ Survey N.Y.C.R.R.

℄ Bearing Forward Abutment Sta.85+46.39

1'-1½"

℄ Survey & Construction S.R.2 Relocated

20'-0" | 12'-0" | 12'-0" | 30'-0" | 20'-0" | 12'-0" | 12'-0"

83' | 84' | 85' | 86'

℄ Bearing Rear Abutment Sta.83+25.39

2' Typ.

Begin Approach Slab Sta.85+50.05

℄ Eastbound Lanes

39'-10" f-f Curb | 3'-0" | 90°-4" Skew

25'-0"

Scupper Spacing 5'-6" Along ℄ Beam

11'-0" | 11'-0" Typical for Acute Corners

Pier 3 | Pier 4

Typical for Oblique Corners 12'-0" | 12'-0" | 3'-6"

3'-0" | 3'-0"

1'-2" | 1'-2"

10'-0"

℄ Survey N.Y.C.R.R.

℄ Westbound Track | ℄ Eastbound Track

GENERAL PLAN

8" | 4'-7½" | 25 Spaces @ 8'-6" = 212'-6" | 4'-7½" | 8" Railing Spacing

9'-6½" | 9'-6½"

¼" gray sponge rubber preformed expansion joint filler meeting the requirements of Sec. M-10.02, Type 1. Space two railing panel lengths apart. (Included with Item S-14 for payment)

Top of Concrete Parapet

Top of Curb

El. 596.52 | El. 596.57

Steel H Piles 10BP42 | Steel H Piles 10BP42

1'-0" | 2:1 Slope (Normal) | 2:1 Slope (Normal) | 1'-0"

I-10.04 Crushed Aggregate Slope Protection

El. 573.50 | El. 574.00

Steel H Piles 12BP53

ELEVATION

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

GENERAL PLAN & ELEVATION
BRIDGE No. OTT. 2-1769
OVER NEW YORK CENTRAL RAILROAD
OTTAWA COUNTY STA. 83+21.73 To STA. 85+50.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY	JHY		BJH	FCM	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

85/133

OTT. 2-16.48

ESTIMATED QUANTITIES BRIDGE NO. OTT. 2-1769

Item	Total	Unit	Description	Abutments		Piers				Super-structure	General		
				Rear	Forward	1	2	3	4				
E-2	Lump	Sum	Cofferdams, cribs and sheeting								Lump		
E-2	1190	Cu.Yds.	Unclassified excavation	339	337	129	127	135	123				
S-1	593	Cu.Yds.	Class "C" concrete, superstructure							593			
S-1	504	Cu.Yds.	Class "C" concrete piers, above footings			127	125	127	125				
S-1	496	Cu.Yds.	Class "E" concrete, abutments	248	248								
S-1	132	Cu.Yds.	Class "E" concrete, pier footings			33	33	33	33				
S-3	50	Lin.Ft.	Waterproofing, premolded sealing strip	25	25								
S-4	243,240	Lbs.	Reinforcing steel	14,659	14,660	13,726	13,727	13,726	13,726	158,797	219		
S-9	44	Sq.Ft.	1" Preformed expansion joint filler	22	22								
S-7	759,160	Lbs.	Structural steel							759,160			
S-8	759,160	Lbs.	Field painting of structural steel							759,160			
S-14	446	Lin.Ft.	Railing (Type A aluminum rail and supports, concrete parapet)							446			
S-14	823	Lin.Ft.	Barrier Railing (Type I S,11, double-faced with galvanized steel posts and bolts) as per plan							823			
S-16	Lump	Sum	First test pile								Lump		
S-18	4160	Lin.Ft.	Steel piles, 12BP53			1040	1040	1040	1040				
S-18	3840	Lin.Ft.	Steel piles, 10BP42	1920	1920								
S-29	24	Each	Scuppers, including supports							24			
S-29	126	Cu.Yds.	Porous backfill	63	63								
I-10	2025	Sq.Yds.	Crushed aggregate slope protection.								2025		
S-101	593	Each	Water-reducing, set-retarding admixture							593			

GENERAL NOTES

Reference shall be made to standard drawings AS-1-54 "REINFORCED CONCRETE APPROACH SLABS" revised 7-5-62, RB-1-55 "ROCKERS AND BOLSTERS" revised 2-2-59, AR-1-57 "ALUMINUM RAILING WITH CONCRETE PARAPET" revised 4-2-62, SD-1-63. Sheets 2, 3 & 4 dated 11-12-63, SD-2-64 dated 11-25-64. and to Supplemental Specification S-101, "WATER-REDUCING, SET-RETARDING ADMIXTURES FOR CONCRETE," dated 7-12-62 and S-307 revised 10-1-64.

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

Excavation Quantity Includes the removal of fill material between the surface of proposed embankment and the bottom of the footings.

Procedure: the embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments, after which excavation shall be made for the abutments and piers and the piles driven.

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.

Piles shall be driven with a hammer of not less than 11,000 ft. lbs. per blow to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according the formula in Sec. 5-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

For the abutment piles:
40 tons per pile using an 11000 ft. lb. hammer
35 tons per pile using a 15000 ft. lb. or greater hammer.
For the pier piles:
60 tons per pile using an 11000 ft. lb. hammer
55 tons per pile using a 15000 ft. lb. or greater hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load 35 tons per pile for the abutment piles and 45 tons per pile for the pier piles.

only two adjacent beams need be shop assembled at a time in their correct, unloaded positions. All beams shall be assembled and match marked.

Welding of structural steel shall be class "A" except as otherwise shown. Welds shown as field welds may, at the option of the contractor, be made in the shop.

Concrete Deck Placing: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

Machine Finish: The concrete bridge deck shall be finished by the use of a finishing machine.

Construction Clearance of 20'-0" vertically above the top of the railroad rails and 8'-0" horizontally from the center of tracks shall be maintained at all times.

Sheeting and Bracing: Before construction is started, eight sets of prints showing details of the sheeting and bracing to be used for excavation adjacent to the railroad tracks shall be submitted to the director for approval by the Department of Highways and by the Railroad Company.

Aligning Railroad Tracks: After the contractor has completed all excavation and backfill adjacent to the railroad tracks in compliance with Sec. E-2.04 and E-2.08 of the construction and material specifications, subject to the supervision of the railroad company, nothing in Sec. E-2.04, E-2.08, or G-8.07 of the specifications shall be construed to hold the contractor liable for aligning and resurfacing the railroad tracks.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

ESTIMATED QUANTITIES & GENERAL NOTES
BRIDGE NO. OTT. 2-1769
OVER NEW YORK CENTRAL RAILROAD
STA. 83+21.73 TO STA. 85+50.05
OTTAWA CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
T.W.D. J.H.Y.	J.H.Y.	B.B.	A.J.B. B.J.H.	F.C.M.	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

86/133

OTT. 2-16.48

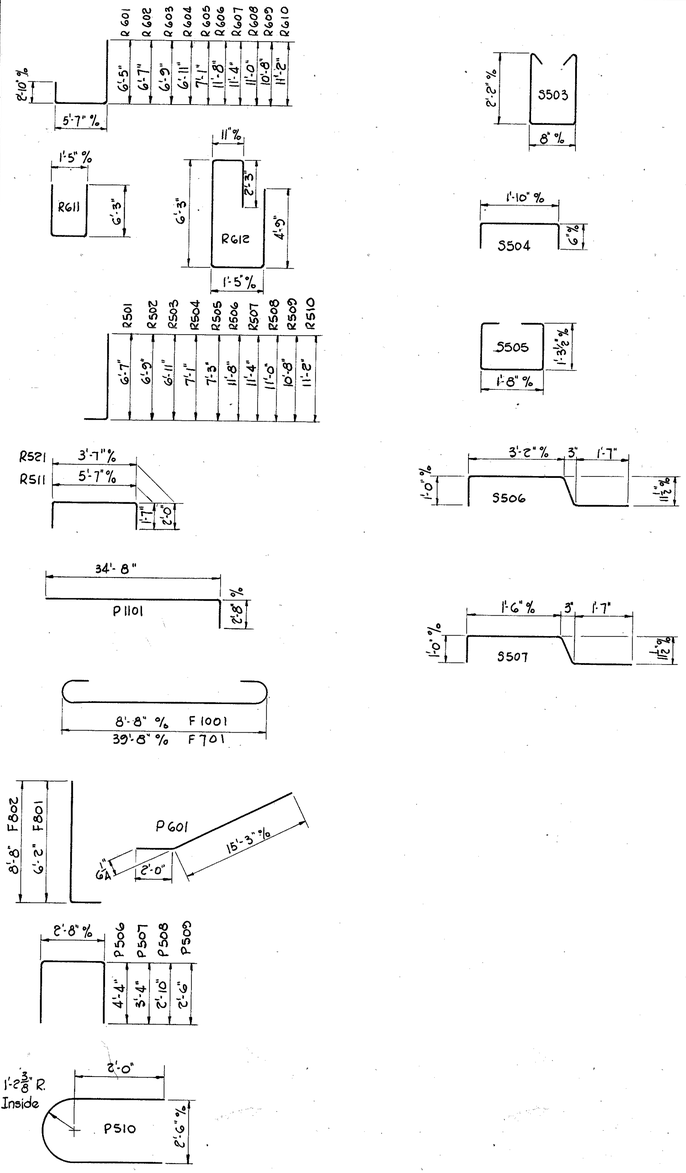
REINFORCING STEEL LIST (BRIDGE No. OTT. 2-1769)

Mark	No.	Length	Weight	Shape
Abutments				
R 801	56	40'-7"	6068	S
R601	18	14'-6"	398	B
R 602	16	14'-8"	358	B
R603	96	14'-10"	2139	B
R604	34	15'-0"	766	B
R605	20	15'-2"	456	B
R606	6	19'-9"	178	B
R607	2	19'-5"	58	B
R608	4	19'-1"	115	B
R609	4	18'-9"	113	B
R610	16	19'-3"	463	B
R611	78	13'-7"	1591	B
R612	202	14'-11"	4526	B
R613	12	19'-0"	342	S
R614	4	15'-6"	93	S
R615	4	10'-3"	62	S
R616	12	13'-7"	245	S
R617	4	10'-4"	62	S
R618	4	11'-9"	71	S
R619	8	6'-0"	72	S
R501	18	7'-1"	133	B
R502	16	7'-3"	121	B
R503	96	7'-5"	743	B
R504	34	7'-7"	269	B
R505	20	7'-9"	162	B
R506	6	12'-2"	76	B
R507	2	11'-10"	25	B
R508	4	11'-6"	48	B
R509	4	11'-2"	47	B
R510	16	11'-8"	195	B
R511	216	8'-6"	1915	B
R512	52	34'-1"	1843	S
R513	32	37'-1"	1238	S
R514	20	16'-10"	351	S
R515	30	16'-7"	519	S
R516	20	8'-9"	183	S
R517	10	7'-6"	78	S
R518	10	15'-2"	158	S
R519	80	19'-6"	407	S
R520	10	6'-2"	64	S
R521	276	7'-4"	2111	B
R522	2	13'-10"	29	S
R523	4	24'-8"	103	S
R524	2	20'-8"	43	S
R525	8	7'-5"	62	S
R526	8	6'-11"	58	S
R527	8	6'-4"	53	S
R528	8	5'-9"	48	S
R529	8	5'-2"	43	S
R530	2	7'-9"	16	S
R531	2	3'-9"	8	S

Mark	No.	Length	Weight	Shape
Piers				
F 1001	208	11'-6"	10,293	B
F 801	160	7'-1"	3,026	B
F 802	128	9'-7"	3,275	B
F 701	88	41'-4"	2,366	B
P1101	32	37'-0"	6,291	B
P1102	24	34'-8"	4,420	S
P1103	88	24'-0"	11,221	S
P601	16	17'-3"	415	B
P501	160	22'-3"	3713	S
P502	88	33'-0"	3089	S
P503	8	36'-6"	305	S
P504	16	27'-0"	451	S
P505	16	33'-8"	562	S
P506	288	11'-1"	3329	B
P507	48	9'-1"	455	B
P508	64	8'-1"	540	B
P509	64	7'-5"	495	B
P510	88	7'-10"	719	B

Mark	No.	Length	Weight	Shape
Superstructures				
S701	225	45'-2"	20,772	S
S702	227	43'-6"	20,183	S
S703	2	44'-7"	182	S
S704	2	43'-11"	180	S
S705	4	43'-4"	354	S
S706	4	42'-8"	349	S
S707	4	42'-1"	344	S
S708	4	41'-5"	339	S
S709	4	40'-10"	334	S
S710	4	40'-2"	328	S
S711	4	39'-7"	324	S
S712	4	38'-11"	318	S
S713	4	38'-4"	313	S
S714	4	37'-8"	308	S
S715	4	37'-1"	303	S
S716	4	36'-5"	298	S
S717	4	35'-10"	293	S
S718	4	35'-3"	288	S
S719	4	34'-8"	283	S
S720	4	34'-0"	278	S
S721	4	33'-5"	273	S
S722	4	32'-9"	268	S
S723	4	32'-2"	263	S
S724	4	31'-6"	258	S
S725	4	30'-11"	253	S
S726	4	30'-3"	247	S
S727	4	29'-8"	243	S
S728	4	29'-0"	237	S
S729	4	28'-5"	232	S
S730	4	27'-9"	227	S
S731	4	27'-2"	222	S
S732	4	26'-6"	217	S
S733	4	25'-11"	212	S

Bending Diagrams



Mark	No.	Length	Weight	Shape
Superstructure Cont.				
S734	4	25'-4"	207	S
S735	4	24'-9"	202	S
S736	4	24'-1"	197	S
S737	4	23'-6"	192	S
S738	4	22'-10"	187	S
S739	4	22'-3"	182	S
S740	4	21'-7"	176	S
S741	4	21'-0"	172	S
S742	4	20'-4"	166	S
S743	4	19'-9"	161	S
S744	4	19'-1"	156	S
S745	4	18'-6"	151	S
S746	4	17'-10"	146	S
S747	4	17'-3"	141	S
S748	4	16'-7"	136	S
S749	4	16'-0"	131	S
S750	4	15'-5"	126	S
S751	4	14'-10"	121	S
S752	4	14'-2"	116	S
S753	4	13'-7"	111	S
S754	4	12'-11"	106	S
S755	4	12'-4"	101	S
S756	4	11'-8"	95	S
S757	4	11'-1"	91	S
S758	4	10'-5"	85	S
S759	4	9'-10"	80	S
S760	4	9'-2"	75	S
S761	4	8'-7"	70	S
S762	4	7'-11"	65	S
S763	4	7'-4"	60	S
S764	4	6'-8"	55	S
S765	4	6'-1"	50	S
S766	4	5'-6"	45	S
S767	4	4'-11"	40	S
S768	4	4'-3"	35	S
S769	4	3'-8"	30	S
S770	4	3'-0"	27	S
S771	4	2'-4"	19	S
S772	12	36'-6"	895	S
S773	12	35'-3"	865	S
S601	225	45'-2"	15264	S
S602	852	38'-3"	49589	S
S603	134	34'-0"	6843	S
S604	227	43'-6"	14831	S
S605	2	44'-7"	134	S
S606	2	43'-11"	132	S
S607	4	43'-4"	260	S
S608	4	42'-8"	256	S
S609	4	42'-1"	253	S
S610	4	41'-5"	249	S
S611	4	40'-10"	245	S
S612	4	40'-2"	241	S
S613	4	39'-7"	238	S
S614	4	38'-11"	234	S
S615	4	38'-4"	230	S
S616	4	37'-8"	226	S
S617	4	37'-1"	223	S
S618	4	36'-5"	219	S
S619	4	35'-10"	215	S
S620	4	35'-3"	212	S
S621	4	34'-8"	208	S
S622	4	34'-0"	204	S
S623	4	33'-5"	201	S
S624	4	32'-9"	197	S
S625	4	32'-2"	193	S
S626	4	31'-6"	189	S
S627	4	30'-11"	186	S
S628	4	30'-3"	182	S
S629	4	29'-8"	178	S
S630	4	29'-0"	174	S
S631	4	28'-5"	171	S
S632	4	27'-9"	167	S
S633	4	27'-2"	163	S
S634	4	26'-6"	159	S
S635	4	25'-11"	156	S
S636	4	25'-4"	152	S
S637	4	24'-9"	149	S
S638	4	24'-1"	145	S
S639	4	23'-6"	141	S
S640	4	22'-10"	137	S
S641	4	22'-3"	134	S
S642	4	21'-7"	130	S
S643	4	21'-0"	126	S
S644	4	20'-4"	122	S
S645	4	19'-9"	119	S
S646	4	19'-1"	115	S
S647	4	18'-6"	111	S
S648	4	17'-10"	107	S
S649	4	17'-3"	104	S
S650	4	16'-7"	100	S
S651	4	16'-0"	96	S
S652	4	15'-5"	93	S
S653	4	14'-10"	89	S
S654	4	14'-2"	85	S
S655	4	13'-7"	82	S
S656	4	12'-11"	78	S
S657	4	12'-4"	74	S
S658	4	11'-8"	70	S
S659	4	11'-1"	67	S
S660	4	10'-5"	63	S
S661	4	9'-10"	59	S
S662	4	9'-2"	55	S
S663	4	8'-7"	52	S
S664	4	7'-11"	48	S
S665	4	7'-4"	44	S
S666	4	6'-8"	40	S
S667	4	6'-1"	37	S
S668	4	5'-6"	33	S
S669	4	4'-11"	30	S
S670	4	4'-3"	26	S
S671	4	3'-8"	22	S
S672	4	3'-0"	18	S
S673	4	2'-4"	14	S
S674	12	36'-4"	655	S
S675	12	35'-1"	632	S
S501 *	16	9'-2"	~	S
S502 *	96	16'-8"	~	S
S503	316	5'-7"	1840	B
S504	298	2'-7"	803	B
S505	298	5'-0"	1554	B
S506	149	6'-5"	997	B
S507	149	4'-9"	738	B

Mark	No.	Length	Weight	Shape
Replacement Bars				
RE 1101	2	7'-7"	81	S
RE 1001	1	7'-3"	31	S
RE 801	1	6'-6"	17	S
RE 701	4	6'-3"	51	S
RE 601	3	5'-11"	27	S
RE 501	2	5'-7"	12	S

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and first two digits where four are used, indicate the bar size number. For example, a P501 is a No. 5 size bar, and a P1101 is a No. 11 size.

* Included with Item S-14 for payment

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

REINFORCING STEEL
BRIDGE No. OTT. 2-1769
OVER NEW YORK CENTRAL RAILROAD
Sta. 83+21.73 to
OTTAWA CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY TWD	JHY	B.B.	BJH AJB	FCM	2-12-63	

R.= Rear Abutment
F.= Forward Abutment
N.F.= Near Face
F.F.= Far Face
------- = Construction Joint

Work this sheet with Sheet 88

POROUS BACKFILL shall extend upward to the approach slab and to the surface of the earth shoulders, and outward to the surface of the embankment slopes. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu.yd. paid for porous backfill.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

ABUTMENTS
BRIDGE NO. OTT. 2-1769
OVER NEW YORK CENTRAL RAILROAD
OTTAWA CO. STA. 83+21.73 To STA. 85+50.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY	JHY		BJH	FCM	2-12-63	

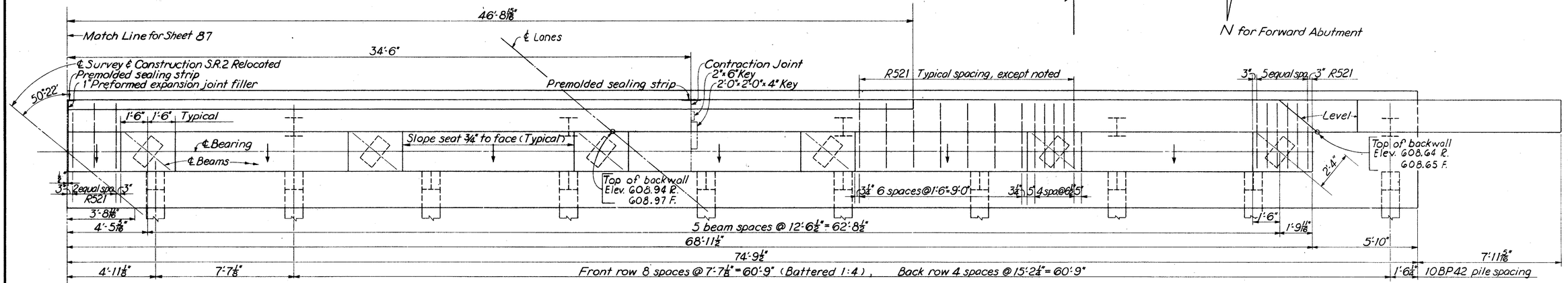
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

88/133

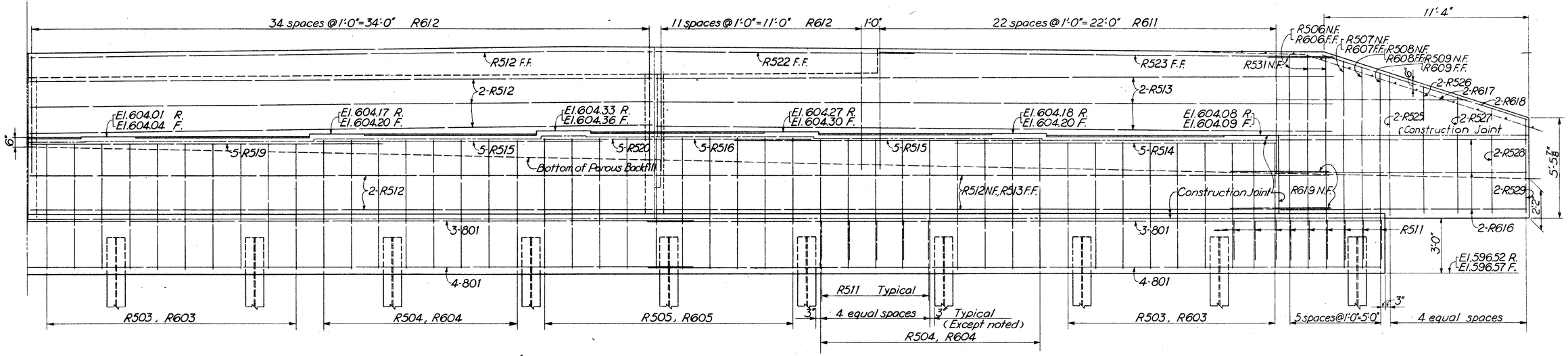
OTT.2-16.48

N for Rear Abutment

N for Forward Abutment



PART PLAN



PART ELEVATION

R. = Rear Abutment
F. = Forward Abutment
N.F. = Near Face
F.F. = Far Face
——— - ——— - ——— = Construction Joint

Work this sheet with Sheet 87.
Refer to Sheet 87 for Sections.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

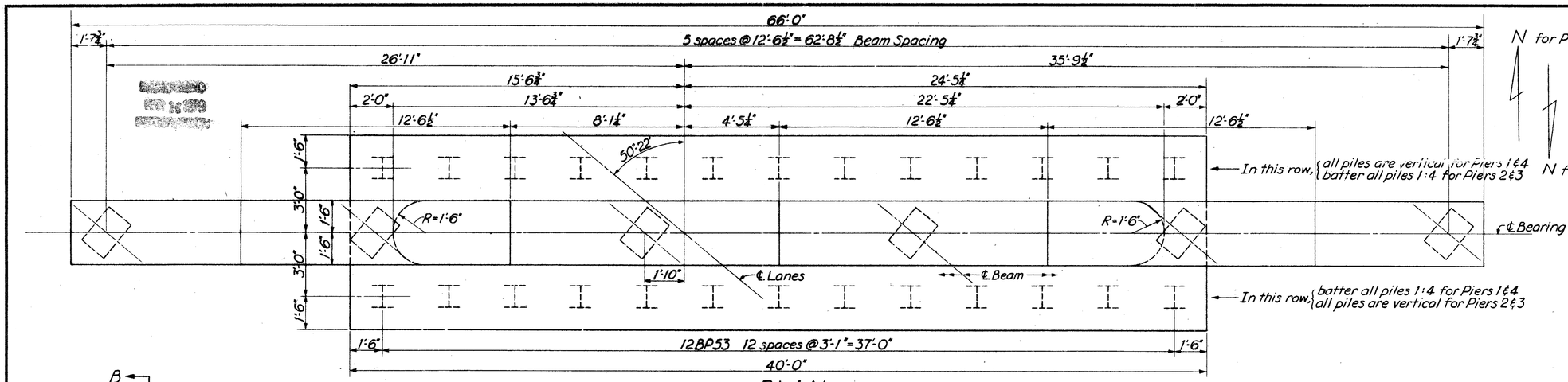
ABUTMENTS
BRIDGE NO. OTT.2-1769
OVER NEW YORK CENTRAL RAILROAD
OTTAWA CO. STA. 83+21.73 To STA. 85+50.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY	JHY		BJH	FCM	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

89/133

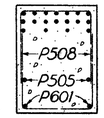
OTT. 2-16.48



PLAN

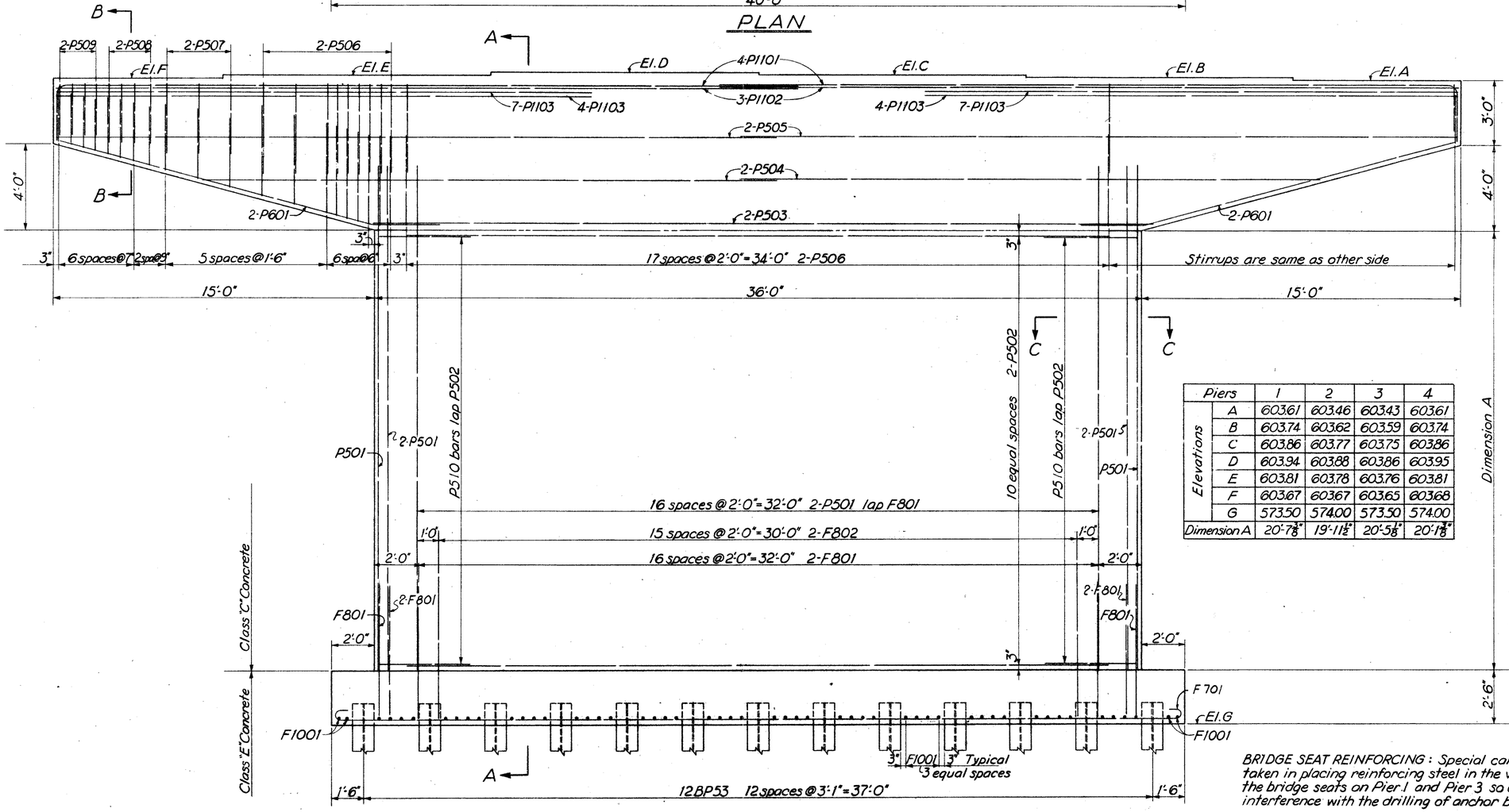
N for Piers 1 & 2

N for Piers 3 & 4



SECTION B-B

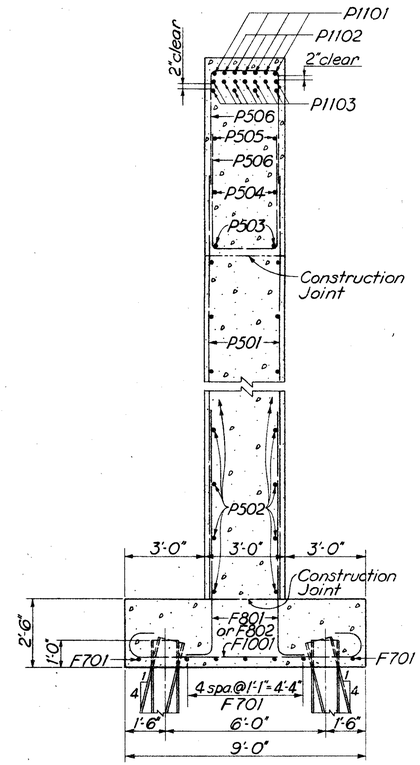
SECTION C-C



ELEVATION

Piers		1	2	3	4
Elevations	A	603.61	603.46	603.43	603.61
	B	603.74	603.62	603.59	603.74
	C	603.86	603.77	603.75	603.86
	D	603.94	603.88	603.86	603.95
	E	603.81	603.78	603.76	603.81
	F	603.67	603.67	603.65	603.68
	G	573.50	574.00	573.50	574.00
Dimension A		20'-7⅜"	19'-11½"	20'-5⅝"	20'-1⅜"

BRIDGE SEAT REINFORCING : Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seats on Pier 1 and Pier 3 so as to avoid interference with the drilling of anchor bar holes.



SECTION A-A

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

PIERS

BRIDGE No. OTT. 2-1769 OVER NEW YORK CENTRAL RAILROAD

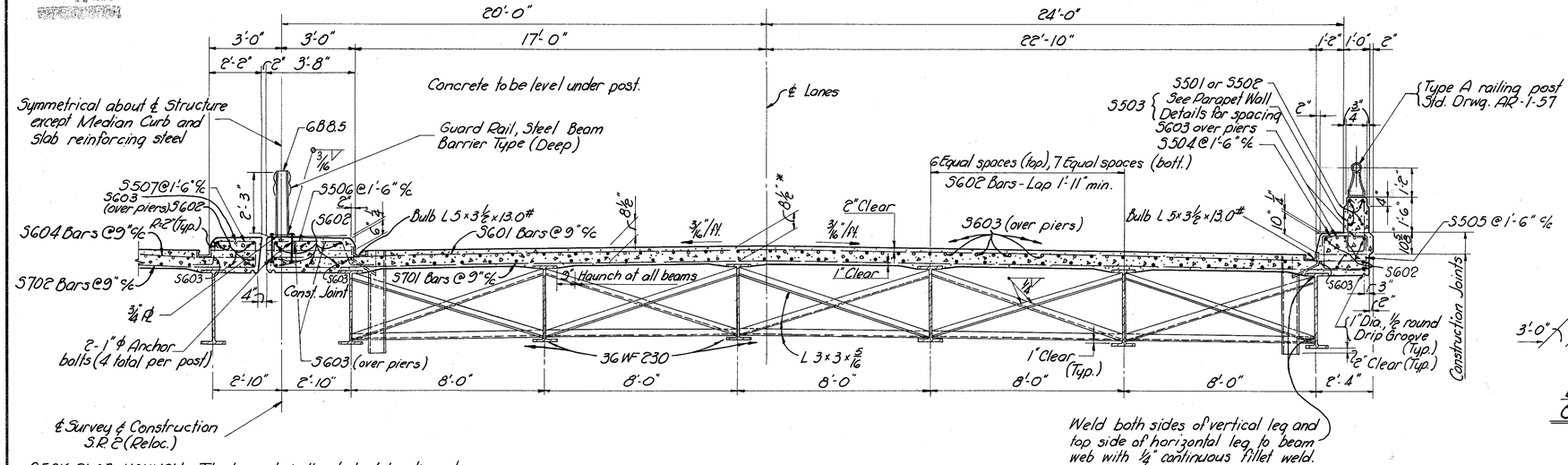
OTTAWA CO. STA. 83+21.73 To STA. 85+50.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY	JHY		BJH	FCM	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

30/133

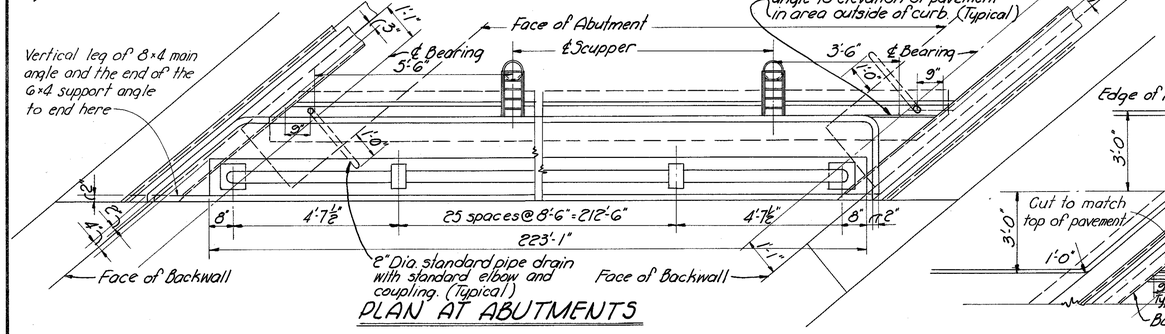
OTT. 2-16.48



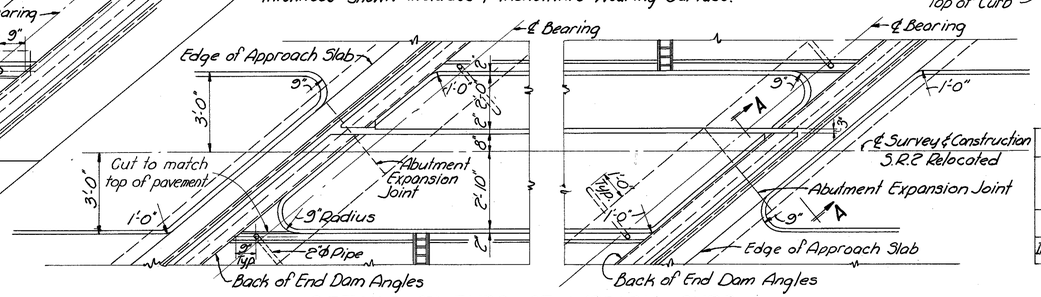
DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams, which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12", except that the maximum slope shall not exceed 3" per foot. Payment for deck slab concrete shall be based on 9" width.

* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on 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. Slab thickness shown includes 1" Monolithic Wearing Surface.

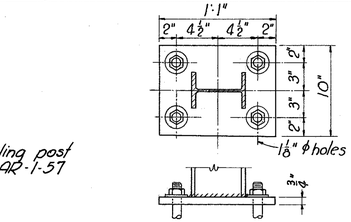
PART TRANSVERSE SECTION OF DECK



PLAN AT ABUTMENTS



DETAILS AT ENDS OF MEDIAN CURB



MEDIAN RAILING POST DETAILS

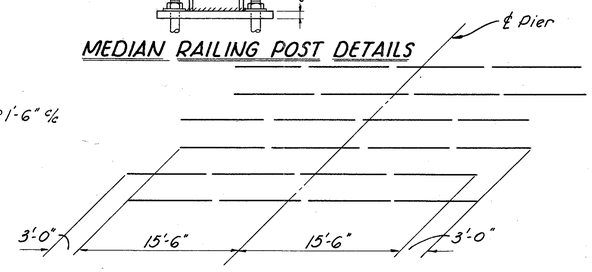
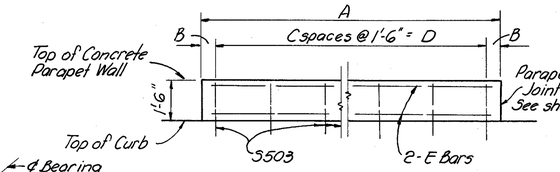
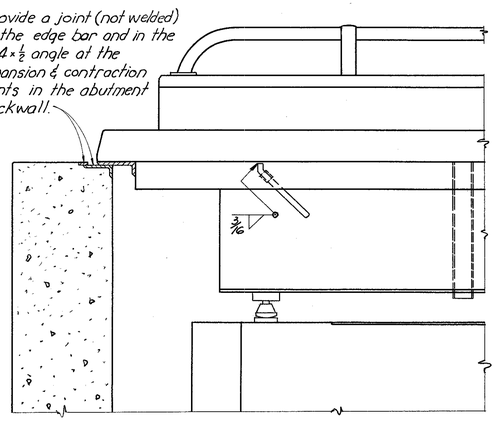


DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS

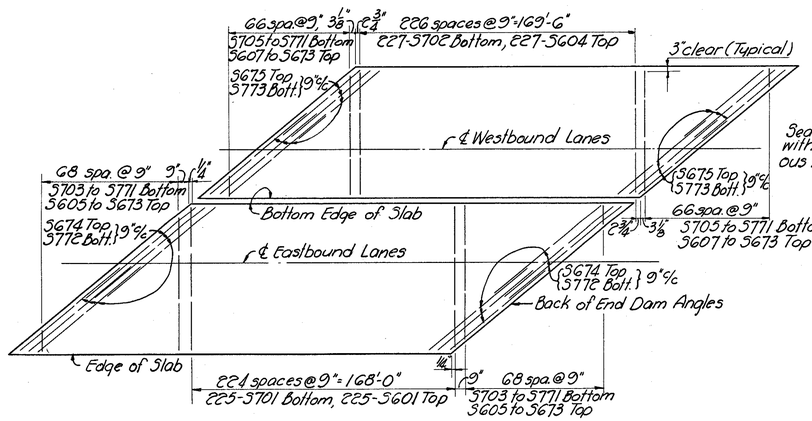


PARAPET WALL DETAIL

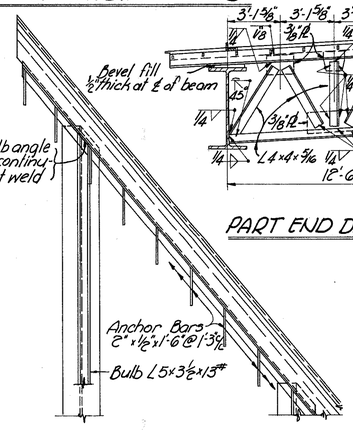
PARAPET WALL DIMENSIONS & BARS						
Panel See Sheet 34	A	B	C	D	No. of S503	E Bars
End	9'-6½"	3¼"	6	9'-0"	7	S501
Intermediate	17'-0"	3"	11	16'-6"	12	S502



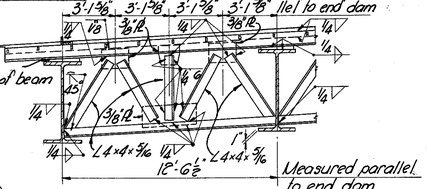
PART ELEVATION



SLAB TRANSVERSE REINFORCING STEEL

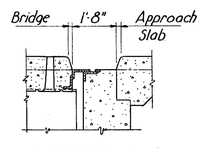


PART END DAM PLAN



PART END DAM ELEVATION

NOTE: The posts, plates, anchor bolts, washers and nuts for the median barrier guard rail shall be galvanized in accordance with Sec. M-7.4 (d).



DETAIL A-A

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. OTT. 2-1769
OVER NEW YORK CENTRAL RAILROAD

OTTAWA CO. STA. 83+21.73 to STA. 85+50.05

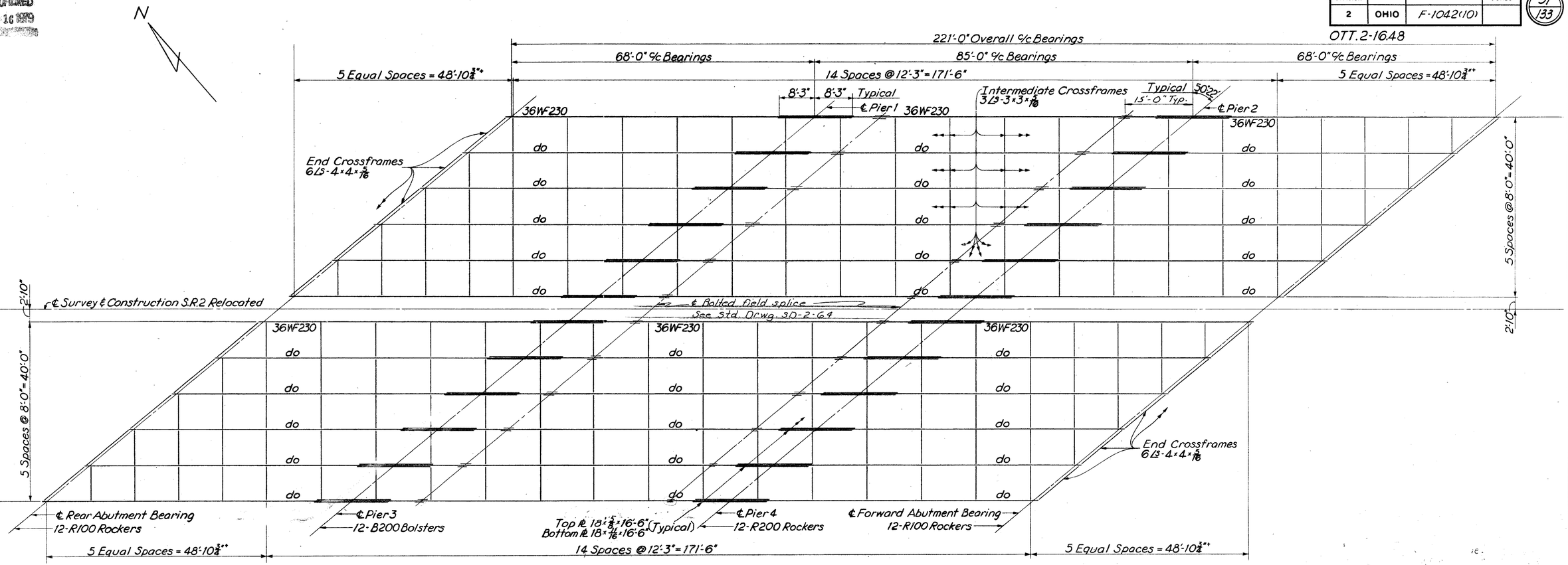
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB JHY	OMB JHY	BB	BJH	FCM	2-12-63	

MICROFILMED
MAR 16 1979

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

91/133

OTT.2-16.48



STEEL FRAMING PLAN

(Moment plates over the piers shall be shop welded to the beams)

Deflection and Camber \ Location	All Beams	
	End Spans	Middle Span
Deflection due to Weight of Steel	1/8"	1/8"
Deflection due to Remaining Dead Load	1/2"	1/2"
Convexity required for Vertical Curve	1/4"	3/8"
Sum of Deflection and Convexity	7/8"	1"
Required Camber	7/8"	1"

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

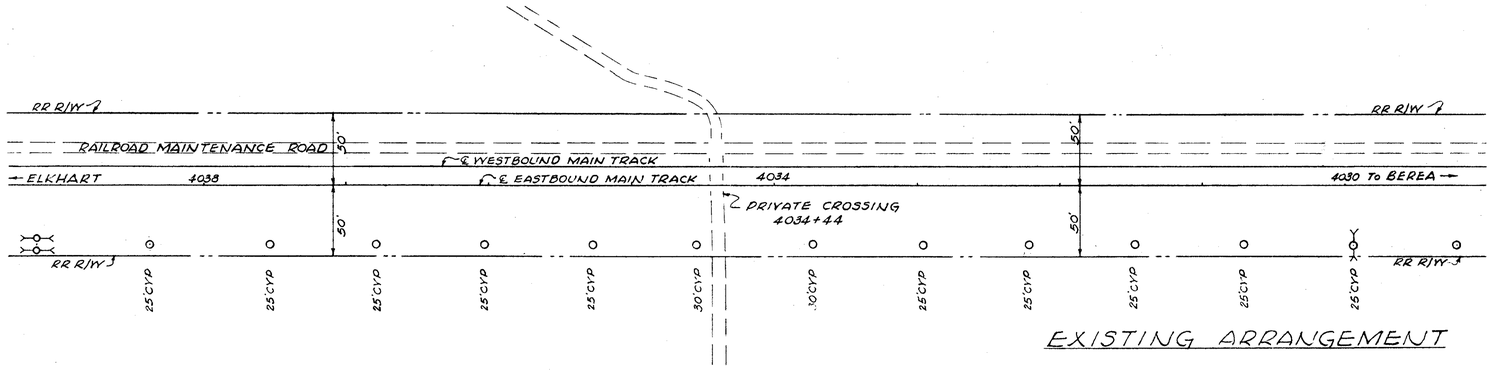
SUPERSTRUCTURE DETAILS
BRIDGE No. OTT. 2-1769
OVER NEW YORK CENTRAL RAILROAD
OTTAWA CO. STA. 83+21.73
To STA. 85+50.05

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY	JHY		BJH	FCM	2-12-63	

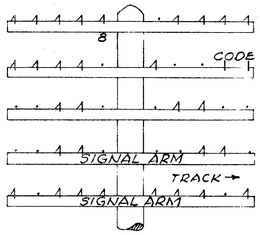
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

91A
133

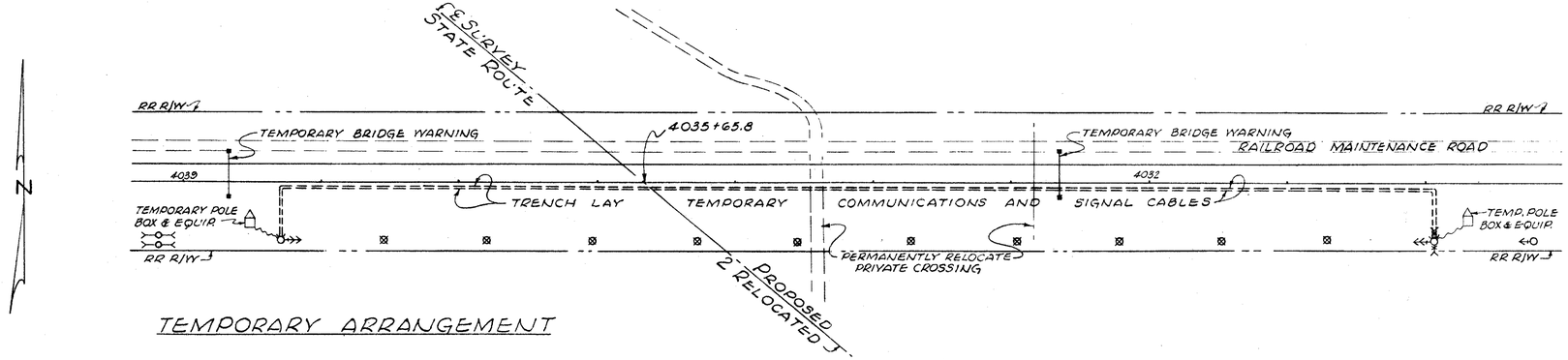
OTT-2-16.48



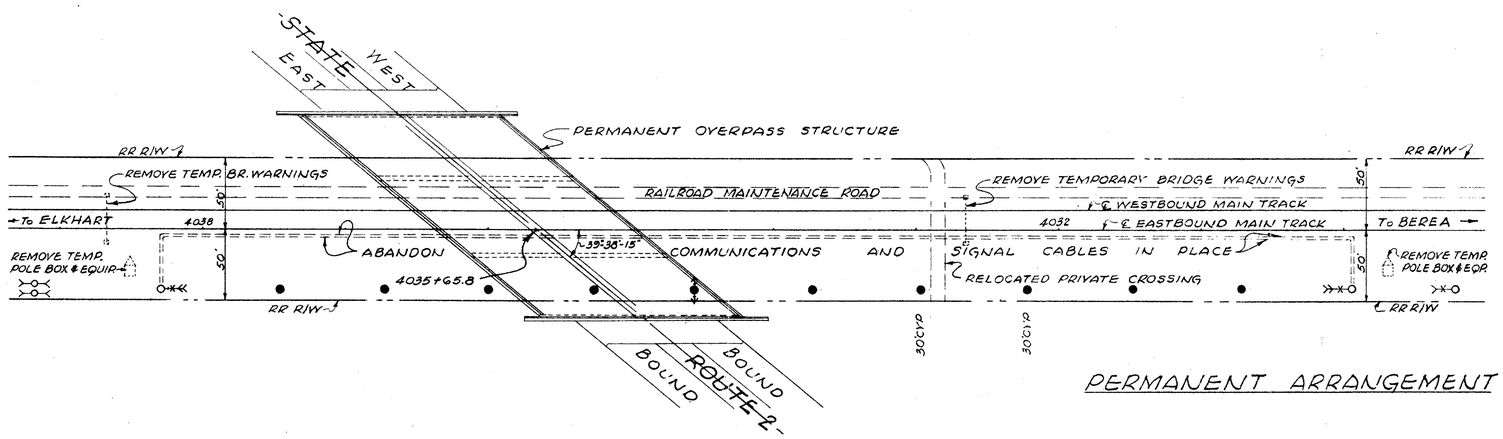
EXISTING ARRANGEMENT



TEMPORARY AND PERMANENT POLE LINE ARRANGEMENT
No Scale



TEMPORARY ARRANGEMENT



PERMANENT ARRANGEMENT

LEGEND:
- ○ EXISTING POLES
- ⊠ EXISTING POLES TO BE REMOVED, STORED AND REUSED IN PERMANENT ARRANGEMENT
- ● STORED POLES REUSED
- >— EXISTING GUY AND ANCHOR
- >×- EXISTING GUY AND ANCHOR TO BE REMOVED
- ←— GUY AND ANCHOR TO BE INSTALLED
- ⇐— DOUBLE GUY AND ANCHOR TO BE INSTALLED
- »×- DOUBLE GUY AND ANCHOR TO BE REMOVED
- >— PATENT ANCHOR

NOTE:
ALL LABOR AND THE FURNISHING OF ALL MATERIAL IN CONNECTION WITH CHANGES AS SHOWN ON THIS SHEET AND CALLED FOR IN THE ESTIMATE WILL BE PERFORMED BY THE NEW YORK CENTRAL RAILROAD EXCEPT AS NOTED.

Highway Bridge No. OTT-2-1769

N.Y.C SYSTEM	OFFICE OF CHIEF ENGINEER	CHICAGO, ILL.
BRIDGE No. 43½		STATION 4035+65.8

PROPOSED OVERHEAD GRADE SEPARATION
STATE ROUTE 2 RELOCATED
4 MILES WEST of
PORT CLINTON, OHIO

PROPOSED CHANGES TO RAILROAD FACILITIES

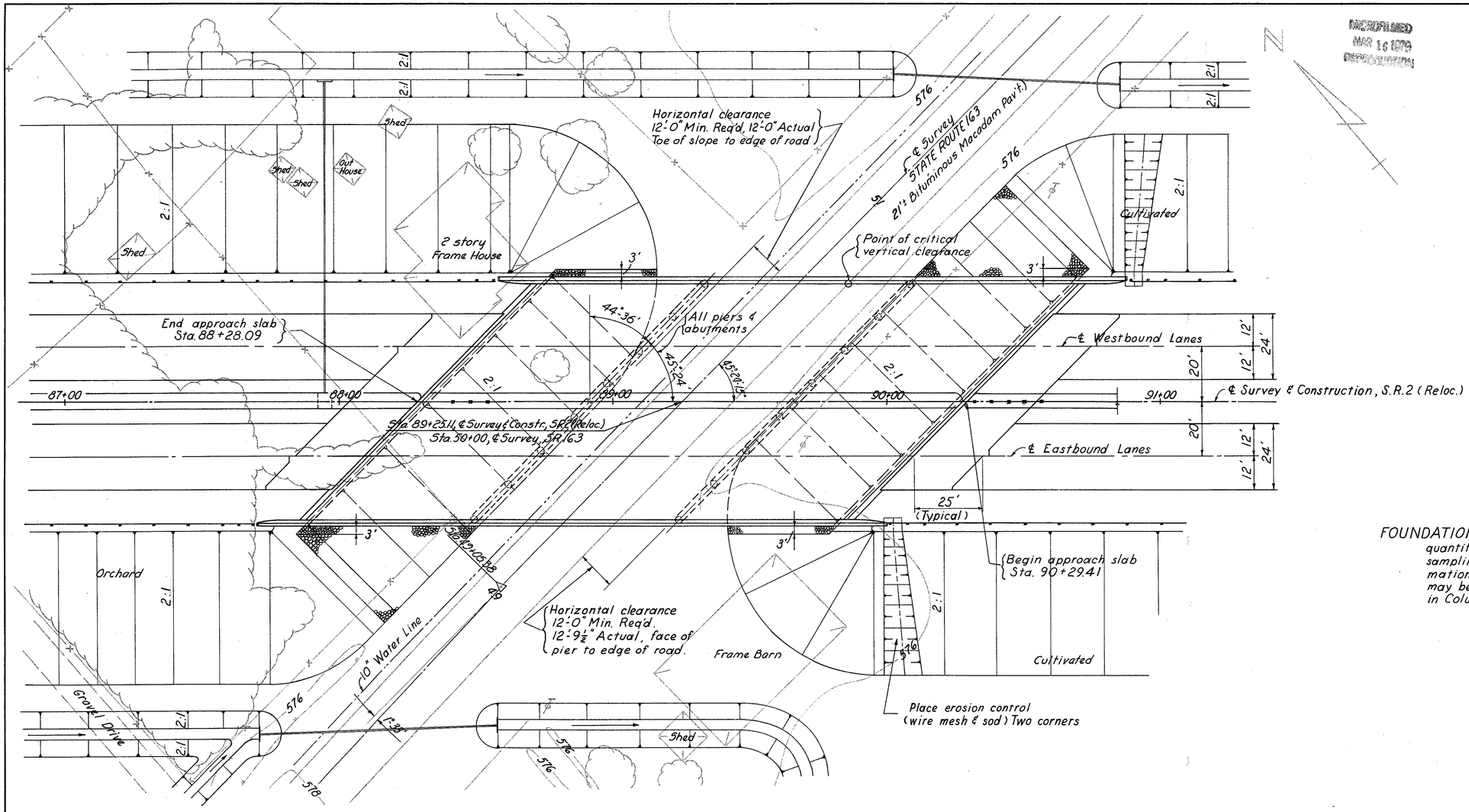
WESTERN DISTRICT	TOLEDO DIVISION M.L.	PLAN No. 7432
SCALE: 1"=50'	AUGUST 13, 1962	Y.S. 206	FILE No. 121-266

OTT-2-1769

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

22/133

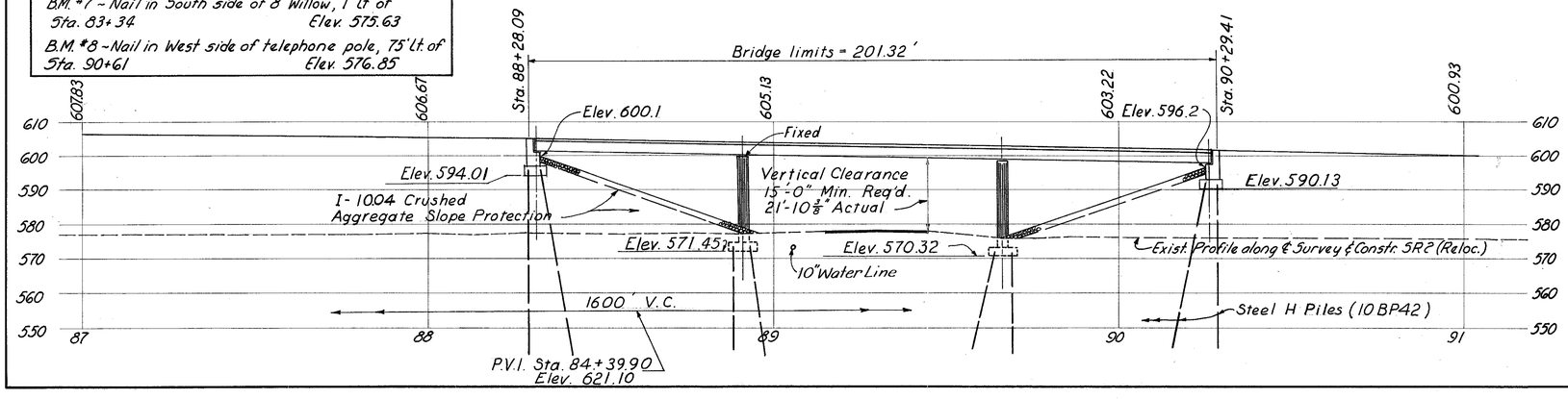
OTT. 2-16.48
3.1 Miles West of Port Clinton



BENCH MARKS

B.M. #7 – Nail in South side of 8" Willow, 1' Lt of Sta. 83+34 — Elev. 575.63

B.M. #8 – Nail in West side of telephone pole, 75' Lt. of Sta. 90+61 — Elev. 576.85



FOUNDATION SOUNDINGS

Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information, the accuracy of which the State does not guarantee, may be examined in the office of the Bureau of Bridges in Columbus or in the Division office.

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck. Reinforced concrete pier bents & stub abutments.
Spans: 60'-0", 75'-0", 60'-0" ℄ bearings
Roadway: 88' f/f of parapets with 6' raised median
Load Frequency: CF 400 (57)
Skew: 44°-36' Left Forward
Wearing Surface: 1" Monolithic Concrete
Approach Slabs: AS-1-54 (25' Long)
Alignment: Tangent

Steel H Piles (10BP42)
Estimated Average Pay Length
Abutments - 50'
Piers - 32'

SANZENBACHER MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO OHIO

SITE PLAN

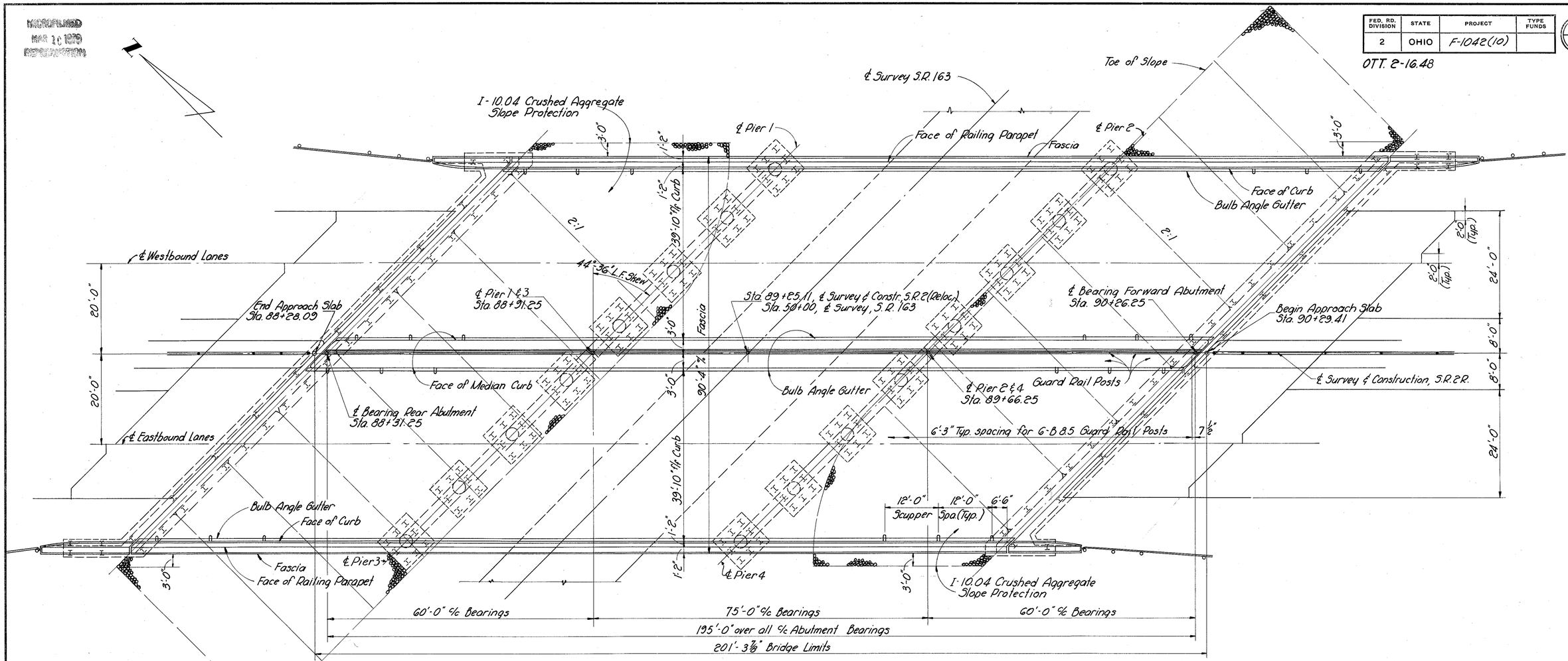
BRIDGE NO. OTT. 2-1777
OVER STATE ROUTE 163
OTTAWA COUNTY
Scale: 1"=20'
STA. 88+28.09 to STA. 90+29.41

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
S.M.B.	HDP.TFH	R.W.R.	R.W.R. O.M.B.	B.J.H.	FCM 2-17-70

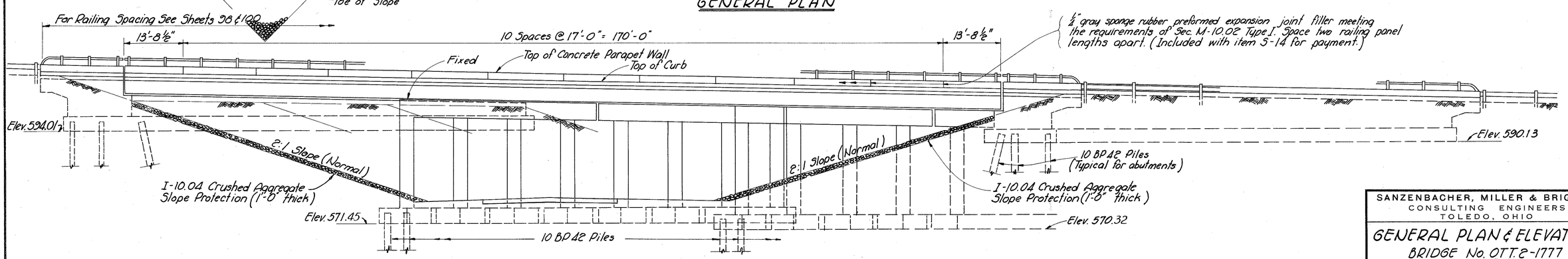
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

93/133

OTT. 2-16.48



GENERAL PLAN



GENERAL ELEVATION

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

GENERAL PLAN & ELEVATION

BRIDGE No. OTT. 2-1777
OVER STATE ROUTE 163
OTTAWA COUNTY
STA. 88+28.09 to STA. 90+29.41

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB	BB	JHY	BJH	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042 (10)	

94
133

OTT. 2-16.48

ESTIMATED QUANTITIES BRIDGE NO. OTT. 2-1777

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTMENTS REAR	ABUTMENTS FORWARD	PIERS 1	PIERS 2	PIERS 3	PIERS 4	SUPER-STRUCT.	GENERAL		
E-2	1053	Cu. Yds.	Unclassified excavation	308	308	106	102	133	96				
S-1	523	Cu. Yds.	Class "C" concrete, superstructure							523			
S-1	215	Cu. Yds.	Class "C" concrete, piers above footings			51	51	56	57				
S-1	474	Cu. Yds.	Class "E" concrete, abutments	234	240								
S-1	120	Cu. Yds.	Class "E" concrete, pier footings			30	30	30	30				
S-3	52	Lin. Ft.	Waterproofing, premolded sealing strip	26	26								
S-4	255,385	Lbs.	Reinforcing steel	14888	14941	21299	21274	21300	21275	140,087	321		
S-7	561,960	Lbs.	Structural steel							561,960			
S-8	561,960	Lbs.	Field painting of structural steel							561,960			
S-9	50	Sq. Ft	1" preformed expansion joint filler	24	26								
S-14	462	Lin. Ft.	Railing (Type "A" Aluminum rail and support, concrete parapet)							462			
S-14	196	Lin. Ft.	Barrier railing (Type I-15.11, double-faced with galvanized steel posts and bolts), as per plan							196			
S-16	Lump	Sum	First test pile								Lump		
S-18	7480	Lin. Ft.	Steel piles, 10 BP 42	1700	1700	1020	1020	1020	1020				
S-29	24	Each	Scuppers, including supports							24			
S-29	105	Cu. Yds.	Porous backfill	51	54								
I-10	1630	Sq. Yds.	Crushed aggregate slope protection								1630		
S-101	523	Each	Water-reducing, set-retarding admixture							523			

GENERAL NOTES

REFERENCE shall be made to Standard Drawings AS-1-54 "Reinforced Concrete Approach Slabs" revised 7-5-62, AR-1-57 "Aluminum Railing with Concrete Parapet" revised 4-2-62, SD-1-63, sheets 2, 3 & 4 dated 11-12-63, SD-2-64 dated 11-25-64 and to FSB-1-62 Fixed & Sliding Bearings dated 1-15-63, Supplemental Specification S-101 "Water-reducing, Set-retarding Admixtures for Concrete" dated 7-12-62 and S-307 revised 10-1-64.

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

EXCAVATION QUANTITY includes the removal of fill material between the surface of proposed embankment and the bottom of the footings.

MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0" shall be maintained on S.R. 163 at all times. The Contractor shall safeguard the traveling public by providing platforms, nets or other suitable protection above the traveled lanes. A minimum vertical clearance of 12'-9" shall be provided at all times.

WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the owners. The Contractor and owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

PILES shall be driven to a minimum bearing capacity of 35 tons per pile for the abutments and 35 tons per pile for the piers.

PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments, after which excavation shall be made for the abutments and piers and the piles driven.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

ESTIMATED QUANTITIES & GENERAL NOTES
BRIDGE No. OTT. 2-1777
OVER STATE ROUTE 163
OTTAWA CO. STA. 88+28.09 TO STA. 90+29.41

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB	JCS	BJH	FCM	2-12-68	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

95/133

OTT. 2 - 16.48

REINFORCING STEEL LIST (BRIDGE No. OTT. 2-1777)

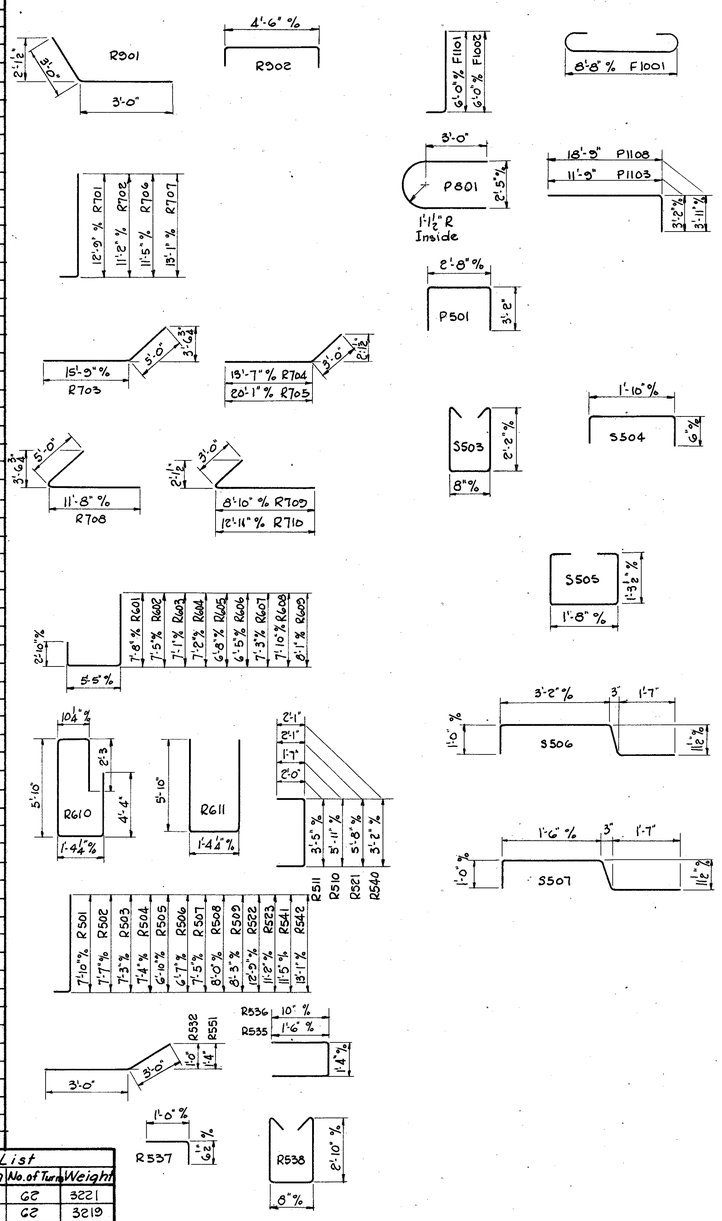
Mark	No.	Length	Weight	Shape
ABUTMENTS				
R901	12	6'-0"	245	B
R902	12	6'-6"	265	B
R801	56	33'-4"	4984	S
R802	12	16'-6"	529	S
R803	8	15'-2"	324	S
R804	4	14'-8"	157	S
R701	8	13'-9"	225	B
R702	8	12'-2"	199	B
R703	6	20'-8"	253	B
R704	2	16'-6"	67	B
R705	4	23'-0"	188	B
R706	7	12'-5"	178	B
R707	7	14'-1"	202	B
R708	6	16'-6"	202	B
R709	2	11'-7"	47	B
R710	4	15'-8"	128	B
R601	87	15'-7"	632	B
R602	16	15'-4"	368	B
R603	31	15'-0"	698	B
R604	16	15'-1"	362	B
R605	16	14'-7"	350	B
R606	17	14'-4"	366	B
R607	22	15'-2"	501	B
R608	8	15'-9"	189	B
R609	27	16'-0"	649	B
R610	180	14'-0"	3705	B
R611	66	12'-8"	1256	B
R501	27	8'-4"	235	B
R502	16	8'-1"	135	B
R503	31	7'-9"	251	B
R504	16	7'-10"	131	B
R505	16	7'-4"	122	B
R506	17	7'-1"	126	B
R507	22	7'-11"	182	B
R508	8	8'-6"	71	B
R509	27	8'-9"	246	B
R510	180	8'-10"	1658	B
R511	324	7'-2"	2422	B
R512	18	38'-3"	605	S
R513	64	29'-2"	1949	S
R514	36	17'-5"	654	S
R515	12	34'-1"	426	S
R516	2	19'-9"	41	S
R517	2	18'-9"	39	S
R518	12	30'-0"	375	S
R519	2	14'-4"	30	S
R520	2	17'-2"	37	S
R521	44	9'-7"	440	B
R522	8	13'-5"	112	B
R523	8	11'-10"	99	B
R524	4	8'-0"	33	S
R525	4	6'-9"	28	S
R526	6	14'-8"	92	S
R527	2	15'-5"	32	S
R528	4	21'-11"	91	S
R529	12	5'-0"	62	S
R530	24	3'-6"	87	S
R531	8	3'-9"	31	S
R532	4	6'-0"	25	B
R533	4	19'-8"	82	S
R534	4	20'-7"	86	S
R535	28	4'-1"	119	B
R536	20	2'-9"	57	B
R537	48	1'-5"	73	B
R538	48	6'-11"	346	B
R539*	8	19'-6"	—	S
R540	40	7'-1"	296	B

Mark	No.	Length	Weight	Shape
ABUTMENTS CONT.				
R541	7	12'-1"	88	B
R542	7	13'-9"	100	B
R543	4	6'-9"	28	S
R544	4	8'-7"	36	S
R545	6	12'-2"	76	S
R546	2	12'-6"	26	S
R547	4	16'-3"	68	S
R548	4	13'-2"	55	S
R549	4	12'-5"	52	S
R550*	8	13'-1"	—	S
R551	4	6'-0"	25	B
REPLACEMENT BARS				
RE 1101	3	7'-7"	121	S
RE 1001	2	7'-3"	62	S
RE 901	1	6'-10"	23	S
RE 801	1	6'-6"	17	S
RE 701	3	6'-3"	38	S
RE 601	5	5'-11"	44	S
RE 501	2	5'-7"	12	S
RE 401	1	5'-3"	4	S
PIERS				
F1101	168	7'-2"	6396	B
F1001	384	11'-6"	12,002	B
F1002	64	7'-1"	1951	B
P1101	84	25'-6"	11380	S
P1102	84	25'-5"	11343	S
P1103	12	14'-7"	930	B
P1104	8	20'-10"	886	S
P1105	24	38'-0"	4845	S
P1106	24	18'-9"	2391	S
P1107	8	36'-0"	1530	S
P1108	8	22'-4"	949	B
P1001	32	25'-9"	3546	S
P1002	32	25'-8"	3534	S
P1003	24	37'-5"	3864	S
P1004	24	27'-3"	2814	S
P801	8	9'-8"	206	B
P501	288	8'-9"	2628	B
P502	16	30'-9"	513	S

Spiral Reinforcing List

Mark	No.	CORE DIA. % SPIRAL	Length	Pitch	No. of Turns	Weight
SP401	8	32"	22'-3¼"	4½"	62	3221
SP402	8	32"	22'-2¼"	4½"	62	3219

Bending Diagrams



Mark	No.	Length	Weight	Shape
Superstructure				
S701	203	45'-2"	18,141	S
S702	205	43'-6"	18,227	S
S703	2	44'-5"	182	S
S704	2	43'-8"	179	S
S705	4	42'-11"	351	S
S706	4	42'-2"	345	S
S707	4	41'-5"	339	S
S708	4	40'-8"	332	S
S709	4	39'-11"	326	S
S710	4	39'-1"	320	S
S711	4	38'-4"	313	S
S712	4	37'-7"	307	S
S713	4	36'-10"	301	S
S714	4	36'-1"	295	S
S715	4	35'-4"	289	S
S716	4	34'-7"	283	S
S717	4	33'-10"	277	S
S718	4	33'-0"	270	S
S719	4	32'-3"	264	S
S720	4	31'-6"	258	S
S721	4	30'-5"	251	S
S722	4	30'-0"	245	S
S723	4	29'-3"	239	S
S724	4	28'-6"	233	S
S725	4	27'-9"	227	S
S726	4	26'-11"	220	S
S727	4	26'-2"	214	S
S728	4	25'-5"	208	S
S729	4	24'-8"	202	S
S730	4	23'-11"	196	S
S731	4	23'-2"	189	S
S732	4	22'-5"	183	S
S733	4	21'-8"	177	S
S734	4	20'-10"	170	S
S735	4	20'-1"	164	S
S736	4	19'-4"	158	S
S737	4	18'-7"	152	S
S738	4	17'-10"	146	S
S739	4	17'-1"	140	S
S740	4	16'-4"	134	S
S741	4	15'-7"	127	S
S742	4	14'-9"	121	S
S743	4	14'-0"	114	S
S744	4	13'-3"	108	S
S745	4	12'-6"	102	S
S746	4	11'-9"	96	S
S747	4	11'-0"	90	S
S748	4	10'-3"	84	S
S749	4	9'-6"	78	S
S750	4	8'-8"	71	S
S751	4	7'-11"	65	S
S752	4	7'-2"	59	S
S753	4	6'-5"	52	S
S754	4	5'-8"	46	S
S755	4	4'-11"	40	S
S756	4	4'-2"	34	S
S757	4	3'-5"	28	S
S758	4	2'-7"	21	S
S759	4	1'-10"	15	S
S760	4	1'-0"	8	S
S761	12	31'-9"	779	S
S762	12	32'-11"	807	S
S601	203	45'-2"	13772	S
S602	852	34'-3	43830	S
S603	134	30'-0"	6038	S
S604	205	43'-6"	13394	S
S605	2	44'-5"	133	S
S606	2	43'-8"	131	S
S607	4	42'-11"	258	S
S608	4	42'-2"	253	S

Mark	No.	Length	Weight	Shape
S609	4	41'-5"	249	S
S610	4	40'-8"	244	S
S611	4	39'-11"	240	S
S612	4	39'-1"	235	S
S613	4	38'-4"	230	S
S614	4	37'-7"	226	S
S615	4	36'-10"	221	S
S616	4	36'-1"	217	S
S617	4	35'-4"	212	S
S618	4	34'-7"	208	S
S619	4	33'-10"	203	S
S620	4	33'-0"	198	S
S621	4	32'-3"	194	S
S622	4	31'-6"	189	S
S623	4	30'-9"	185	S
S624	4	30'-0"	180	S
S625	4	29'-3"	176	S
S626	4	28'-6"	171	S
S627	4	27'-9"	167	S
S628	4	26'-11"	162	S
S629	4	26'-2"	157	S
S630	4	25'-5"	153	S
S631	4	24'-8"	148	S
S632	4	23'-11"	144	S
S633	4	23'-2"	139	S
S634	4	22'-5"	135	S
S635	4	21'-8"	130	S
S636	4	20'-10"	125	S
S637	4	20'-1"	121	S
S638	4	19'-4"	116	S
S639	4	18'-7"	112	S
S640	4	17'-10"	107	S
S641	4	17'-1"	103	S
S642	4	16'-4"	98	S
S643	4	15'-7"	94	S
S644	4	14'-9"	89	S
S645	4	14'-0"	84	S
S646	4	13'-3"	80	S
S647	4	12'-6"	75	S
S648	4	11'-9"	71	S
S649	4	11'-0"	66	S
S650	4	10'-3"	62	S
S651	4	9'-6"	57	S
S652	4	8'-8"	52	S
S653	4	7'-11"	48	S
S654	4	7'-2"	43	S
S655	4	6'-5"	39	S
S656	4	5'-8"	34	S
S657	4	4'-11"	30	S
S658	4	4'-2"	25	S
S659	4	3'-5"	21	S
S660	4	2'-7"	16	S
S661	4	1'-10"	11	S
S662	4	1'-0"	6	S
S663	12	31'-7"	569	S
S664	12	32'-9"	590	S
S501 *	16	13'-4"	—	S
S502 *	80	16'-8"	—	S
S503	280	5'-7"	1631	B
S 504	262	8'-7"	706	B
S 505	262	5'-0"	1366	B
S506	131	6'-5"	877	B
S507	131	4'-9"	649	B

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and first two digits where four are used, indicate the bar size number. For example, a P501 is a No. 5 size bar, and a P1101 is a No. 11 size.

SPIRAL REINFORCING: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils) expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin.ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

* Included with Item S-14 for payment.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

REINFORCING STEEL
BRIDGE No. OTT. 2-1777
OVER STATE ROUTE 163

Sta. 88+28.09 to
OTTAWA CO. Sta. 90+29.41

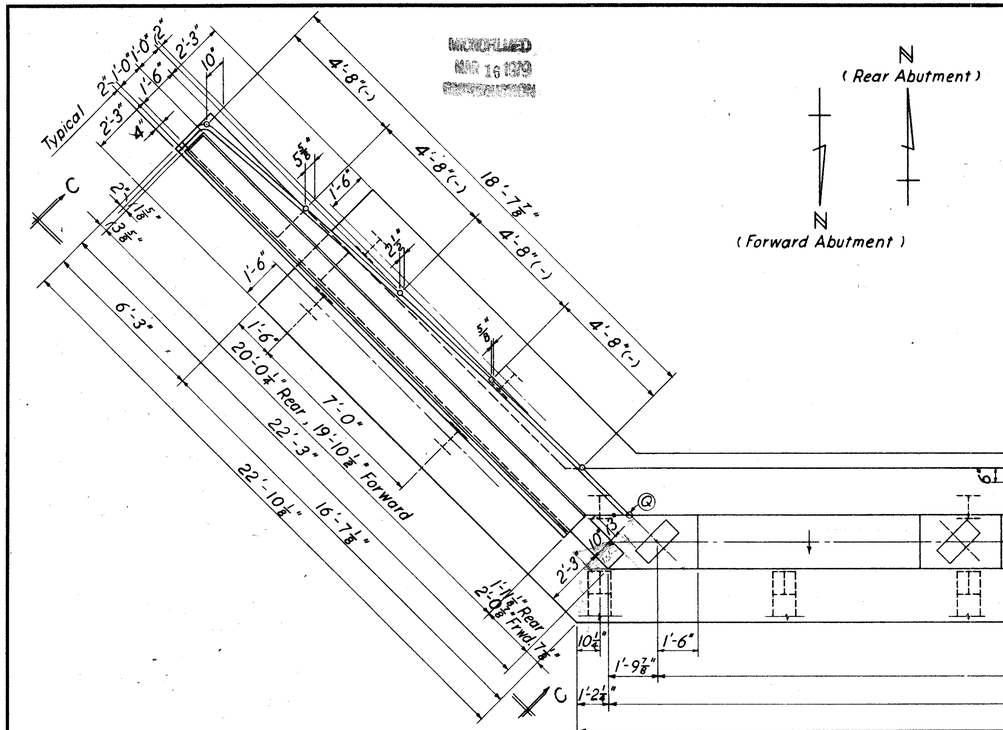
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB TWD	OMB	BB	JHY AJB	BJH	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

96/133

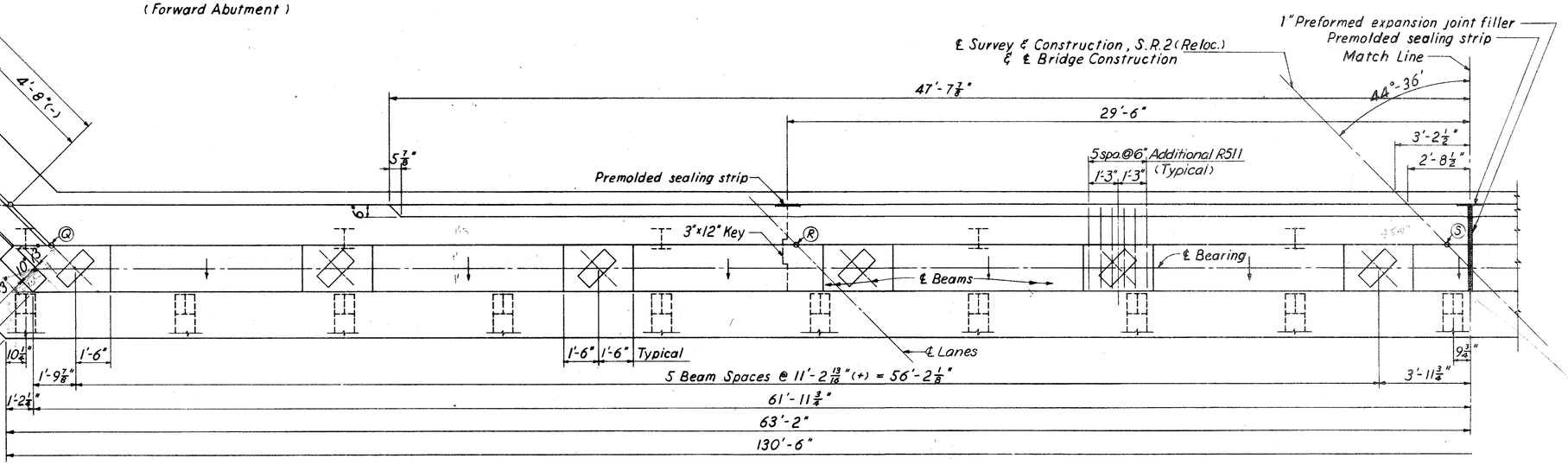
OTT. 2-16.48

POROUS BACKFILL, 2 ft. thick, full length of abutment shall extend up to the underside of the approach slab or to the bottom of the berm subbase. Excavation therefore, in excess of that required for construction of the abutments, shall be considered as paid for in the bid price per cu.yd. paid for porous backfill.

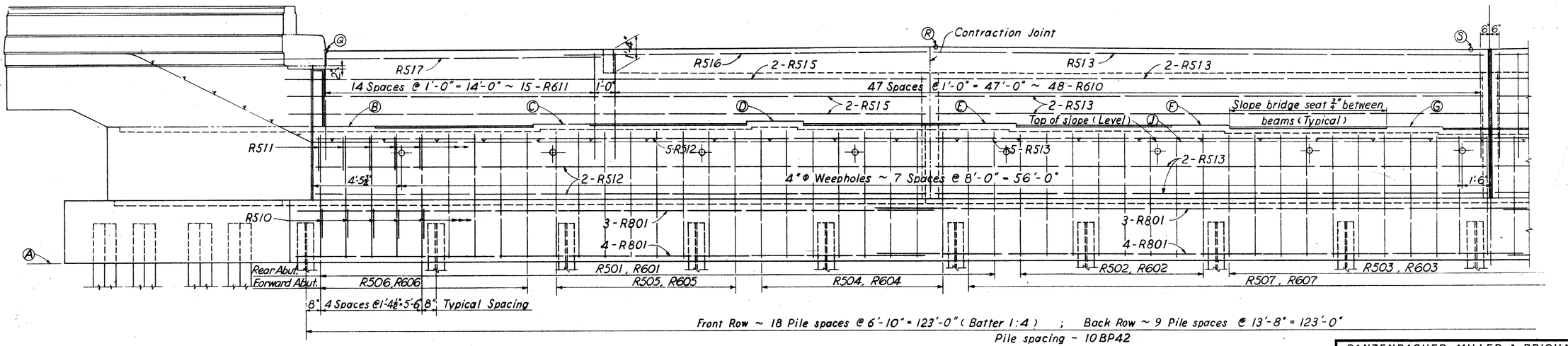


N (Rear Abutment)

N (Forward Abutment)



PART PLAN



PART ELEVATION

LOCATION	ELEVATIONS										
	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓙ	Ⓠ	Ⓡ	Ⓢ
Rear Abutment	594.01	602.33	602.35	602.37	602.35	602.12	601.88	600.1	606.48	606.53	605.98
Forward Abutment	590.13	597.21	597.52	597.83	598.10	598.15	598.20	596.2	601.30	602.18	602.36

N.F. = Near Face
F.F. = Far Face
Work this sheet with sheets 97 & 98

Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

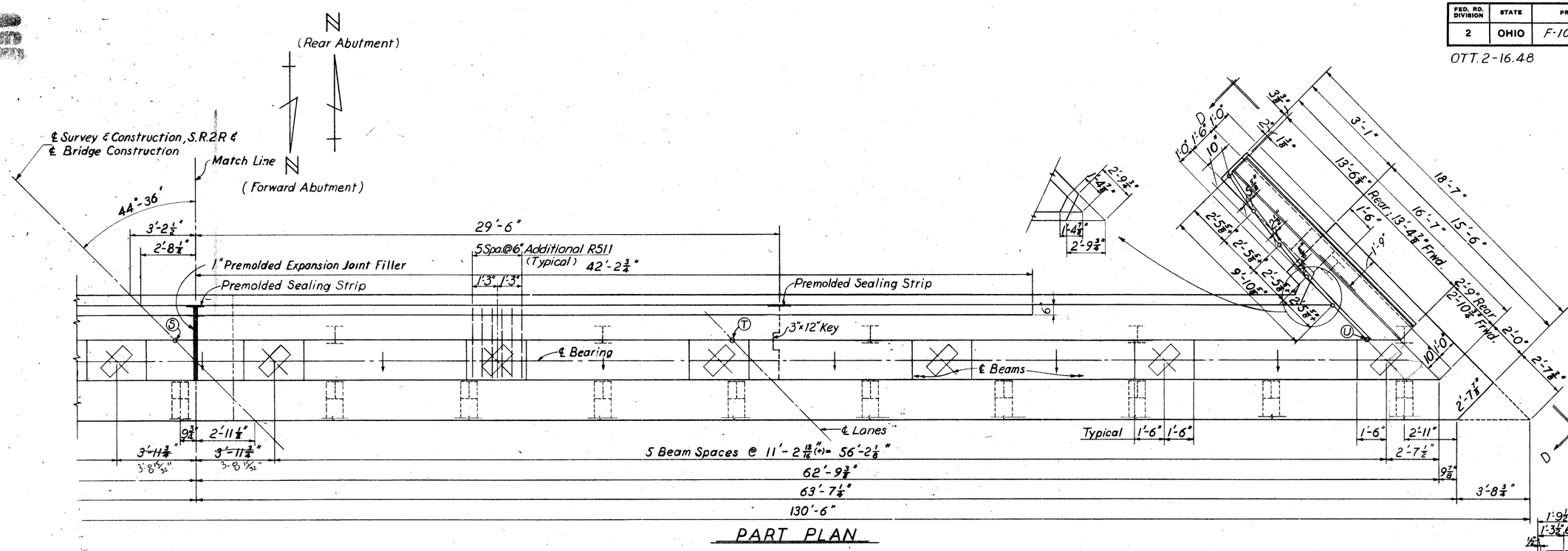
ABUTMENTS (1)
BRIDGE No. OTT. 2-1777
OVER STATE ROUTE 163
STA. 88+28.09 to STA. 90+29.41
OTTAWA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB		JHY	BJH	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

97/133

OTT. 2-16.48



LOCATION	ELEVATIONS											
	Ⓢ	Ⓣ	Ⓤ	Ⓐ	Ⓖ	Ⓗ	Ⓚ	Ⓛ	Ⓜ	Ⓝ	Ⓟ	Ⓙ
Rear Abutment	605.98	605.95	605.24	594.01	601.88	601.79	601.80	601.81	601.60	601.35	601.09	600.1
Forward Abutment	602.36	603.05	603.16	590.13	598.20	598.32	598.62	598.91	598.99	599.03	599.07	596.2

N.F. = Near Face
F.F. = Far Face
Work this sheet with sheets 96 & 98

Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

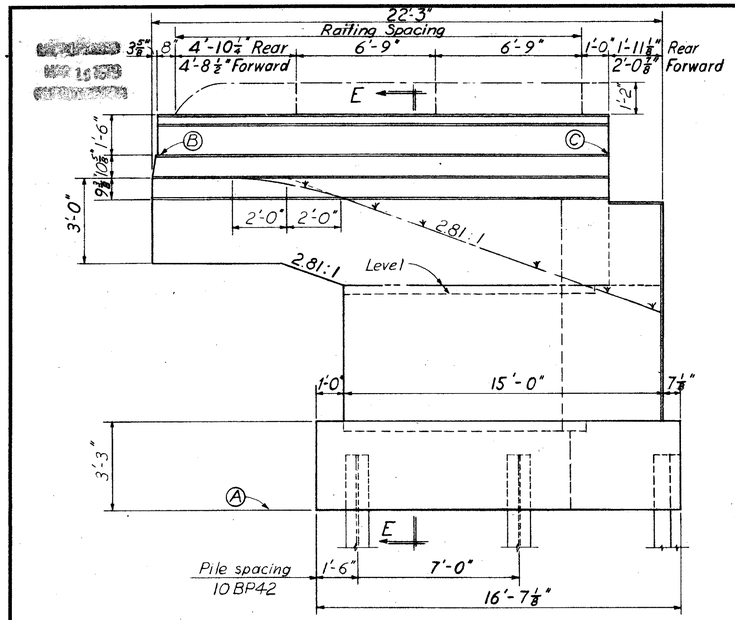
ABUTMENTS (2)
BRIDGE No. OTT. 2-1777
OVER STATE ROUTE 163

OTTAWA CO. STA. 88+28.09 to STA. 90+29.41

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB		JHY	BJH	2-1863	

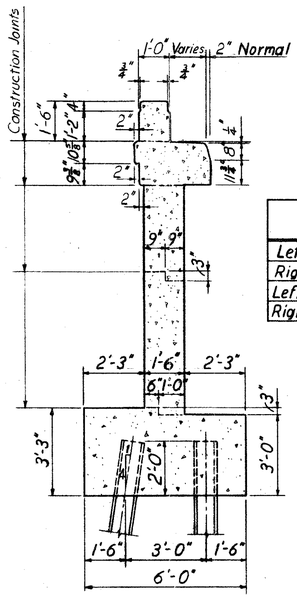
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

98/133



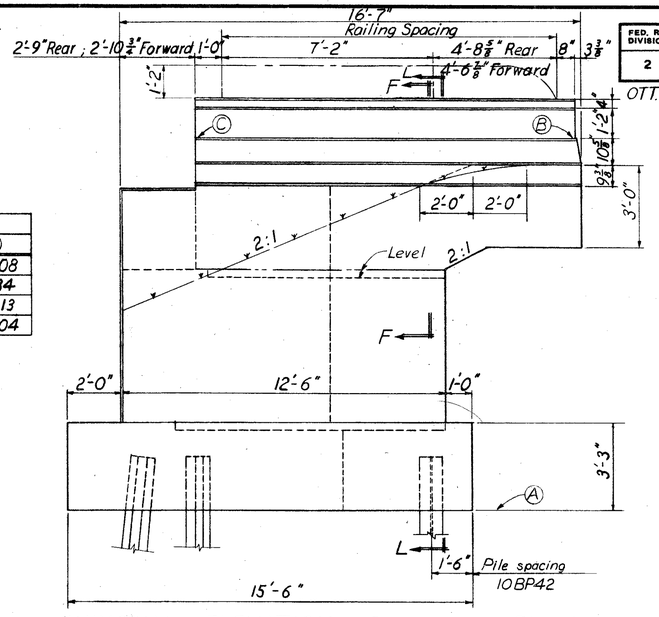
WINGWALL ELEVATION ~ Construction Details

(Right Rear & Left Forward Wingwalls ~ View C-C sheet No 96)



SECTION E-E

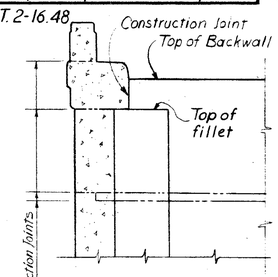
LOCATION	ELEVATION Ⓐ	Ⓑ	Ⓒ
Left Rear Wingwall	594.01	606.29	606.08
Right Rear Wingwall		607.60	607.34
Left Forward Wingwall	590.13	601.65	602.13
Right Forward Wingwall		603.76	604.04



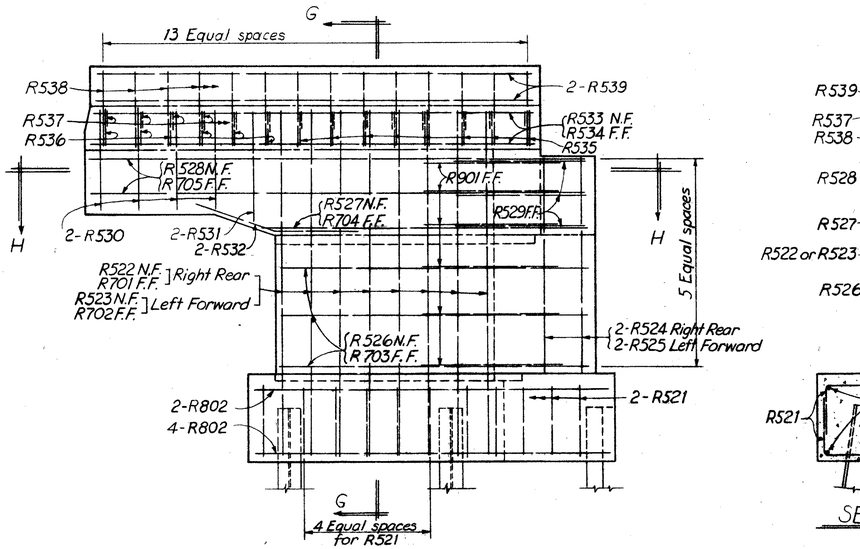
WINGWALL ELEVATION ~ Construction Details

(Left Rear & Right Forward Wingwalls ~ View D-D, Sheet No. 97)

OTT. 2-16.48

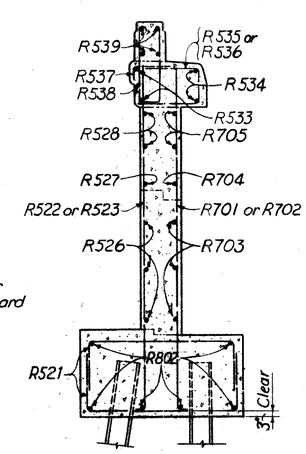


SECTION F-F

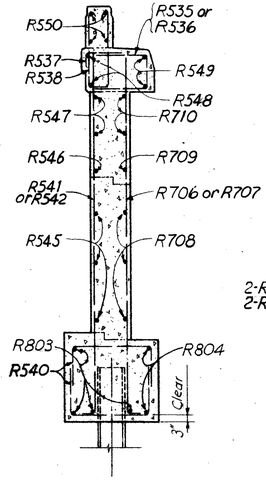


WINGWALL ELEVATION ~ Reinforcing Details

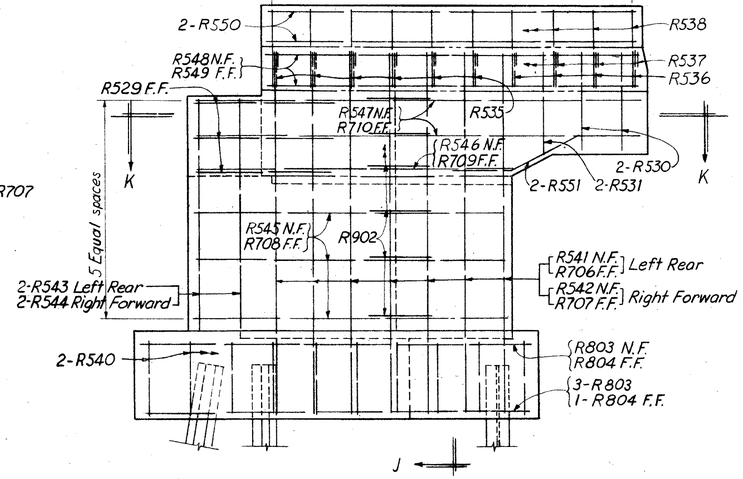
(Right Rear & Left Forward Wingwalls)



SECTION G-G

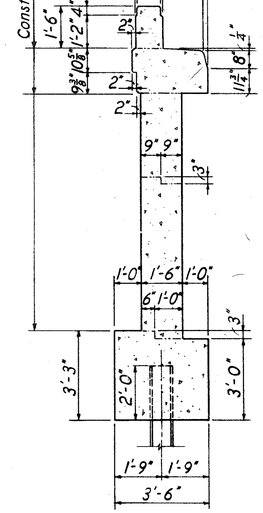


SECTION J-J

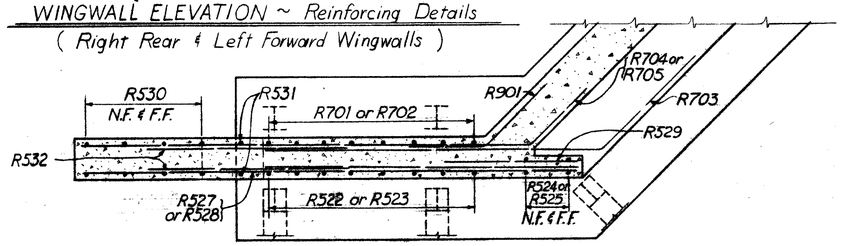


WINGWALL ELEVATION ~ Reinforcing Details

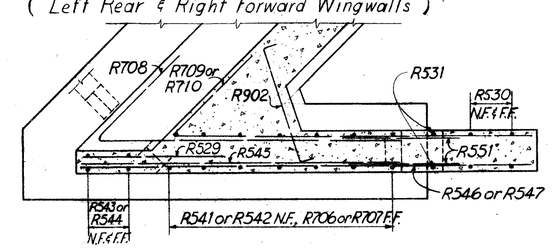
(Left Rear & Right Forward Wingwalls)



SECTION L-L



SECTION H-H



SECTION K-K

N.F. = Near Face
F.F. = For Face
Work this sheet with sheets 96 & 97

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CONSULTING ENGINEERS
TOLEDO, OHIO

ABUTMENTS

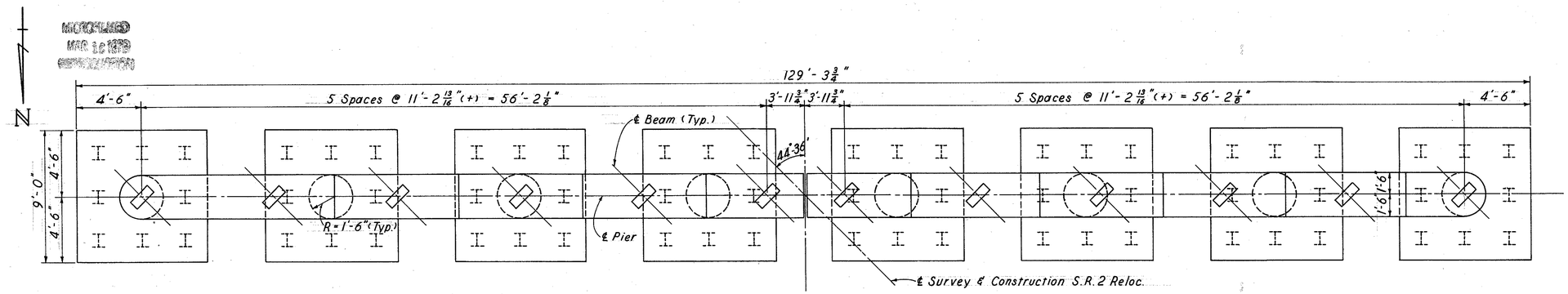
BRIDGE No. OTT. 2-1777
OVER STATE ROUTE 163
STA. 88+28.09 to
OTTAWA CO. STA. 90+29.41

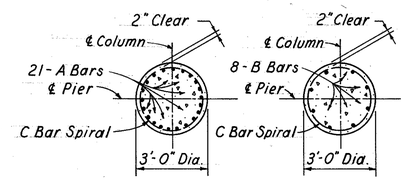
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB		JHY	BJH	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

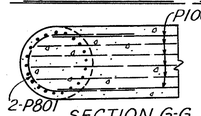
99
133

OTT. 2-16.48



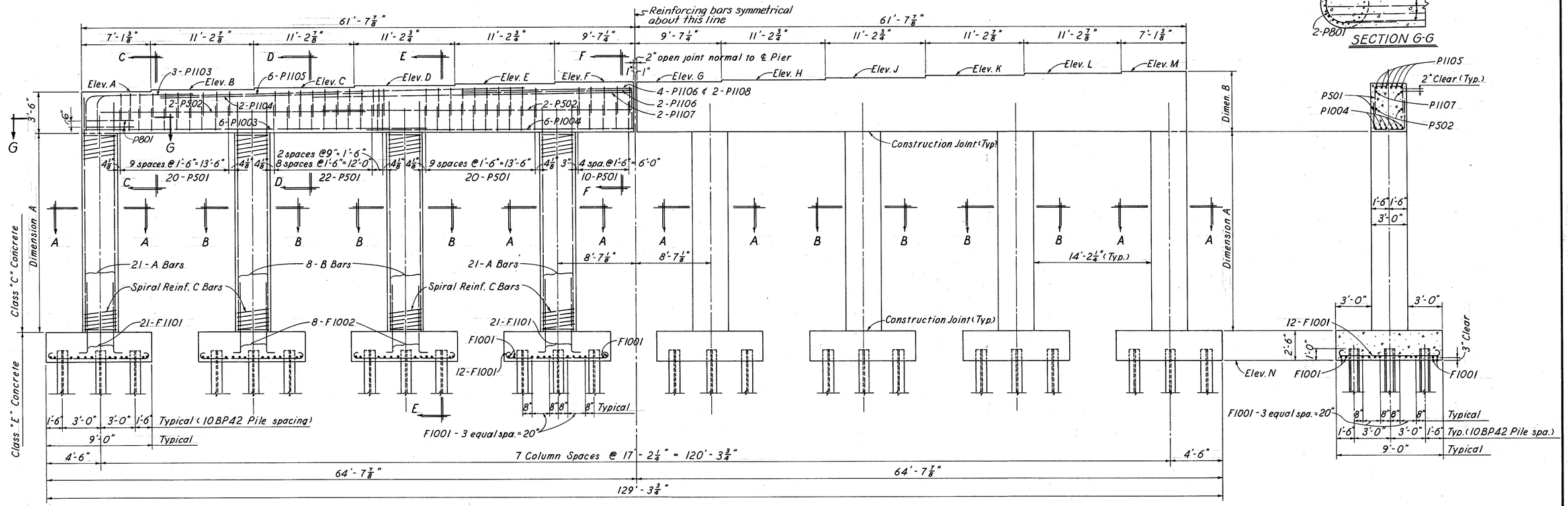


SECTION A-A SECTION B-B



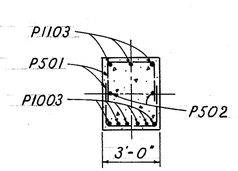
SECTION G-G

PLAN

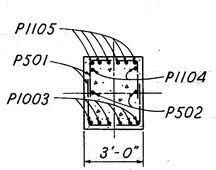


ELEVATION

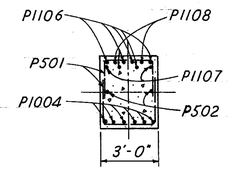
SECTION E-E



SECTION C-C



SECTION D-D



SECTION F-F

Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

PIER NUMBER	ELEVATION A	B	C	D	E	F	G	H	I	J	K	L	M	N	DIMENSION A	B	BARS A	B	C
1 & 3	599.72	599.99	600.26	600.49	600.50	600.51	600.60	600.86	601.12	601.15	601.15	601.15	601.15	571.45	22'-3¼"	4'-11⅛"	P1101	P1001	SP401
2 & 4	598.51	598.81	599.10	599.35	599.38	599.41	599.52	599.80	600.08	600.14	600.16	600.18	600.18	570.32	22'-2⅞"	5'-2"	P1102	P1002	SP402

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

PIERS

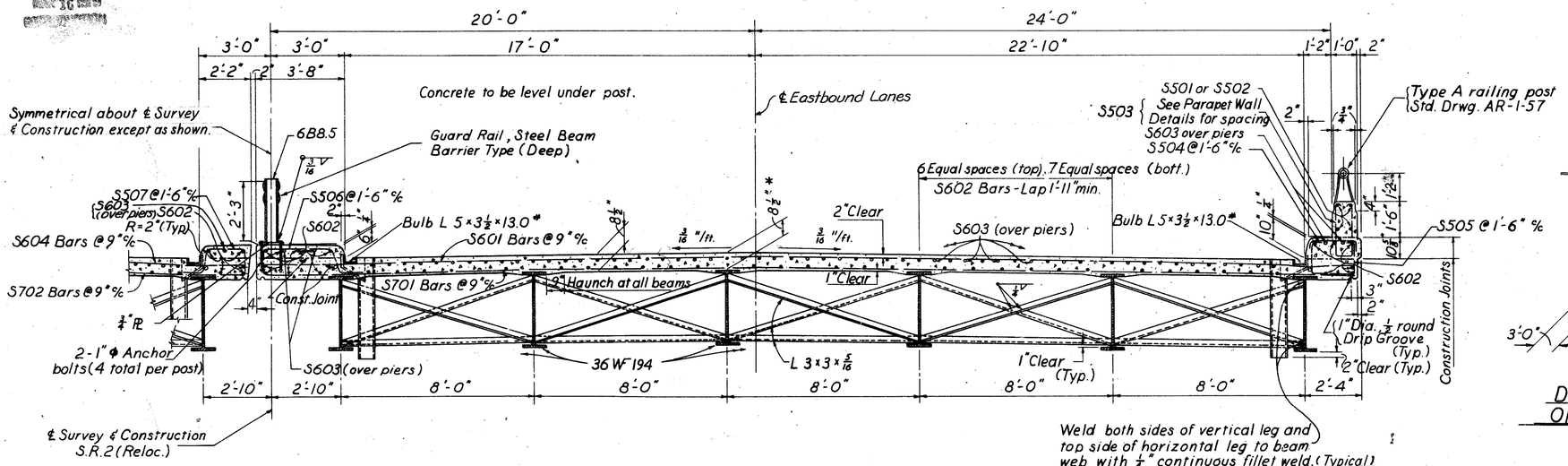
BRIDGE No. OTT. 2-1777
OVER STATE ROUTE 163
STA. 88+28.09 to
OTTAWA CO. STA. 90+29.41

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
TWD JHY	OMB	OMB	JHY	BJH	8-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

100 / 133

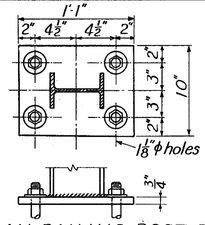
OTT. 2-16.48



DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams, which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12", except that the maximum slope shall not exceed 3" per foot. Payment for deck slab concrete shall be based on 9" width.

PART TRANSVERSE SECTION OF DECK

* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on 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. Slab thickness shown includes 1" Monolithic Wearing Surface.



MEDIAN RAILING POST DETAILS

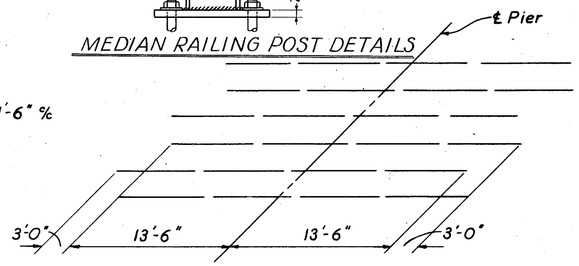
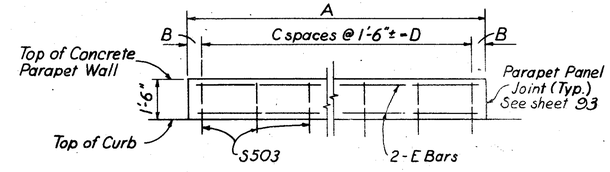
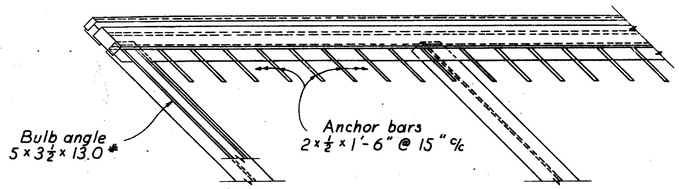


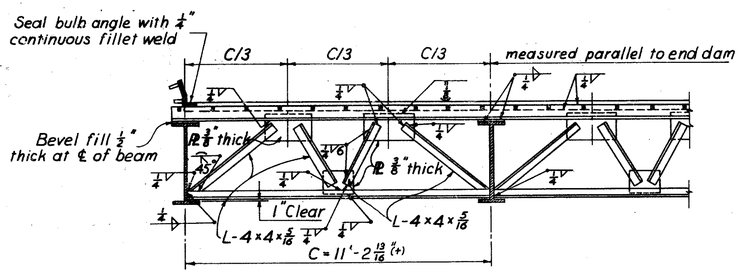
DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS



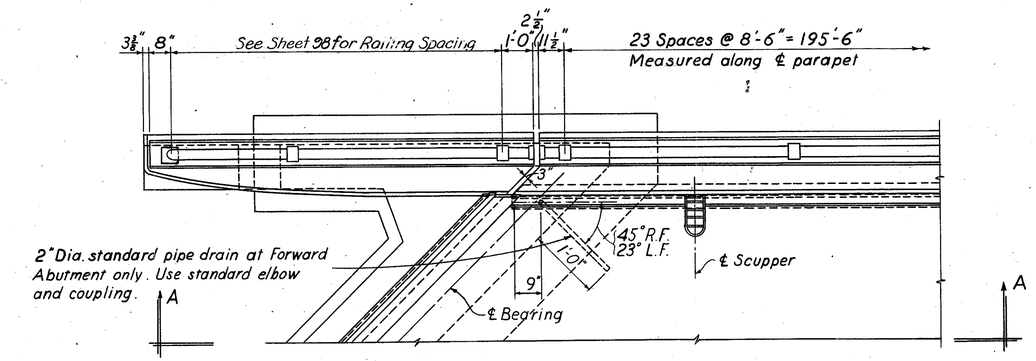
PARAPET WALL DETAILS



PART END DAM PLAN

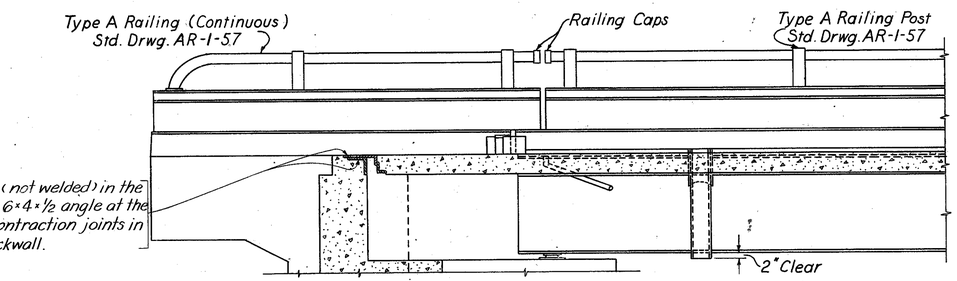


PART END DAM ELEVATION



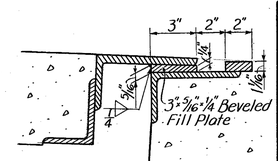
PART PLAN AT ABUTMENT

PARAPET WALL DIMENSIONS & BARS						
Panel See sheet 93	A	B	C	D	No. of S503	E Bar
End	13'-8½"	3"	9	13'-2½"	10	S5[illegible]
Intermediate	17'-0"	3"	11	16'-6"	12	S503



SECTION A-A

NOTE: The posts, plates, anchor bolts, washers and nuts for the median barrier guard rail shall be galvanized in accordance with Sec. M-7.4 (d).



BEVELED END DAM FOR FORWARD ABUTMENT ONLY

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE No. OTT. 2-1777
OVER
STATE ROUTE 163
OTTAWA CO. STA. 88+28.09 to STA. 90+29.41

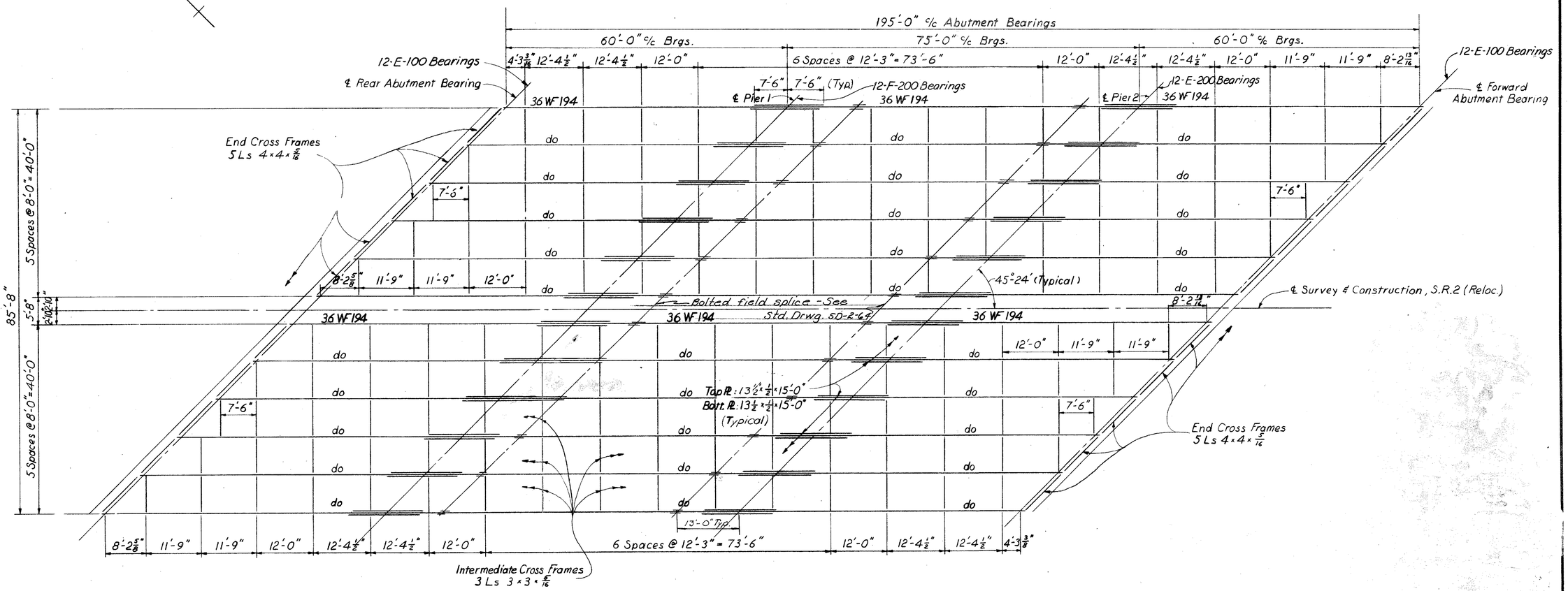
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB	OMB	JHY	BJH	8-12-63	

4047B

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

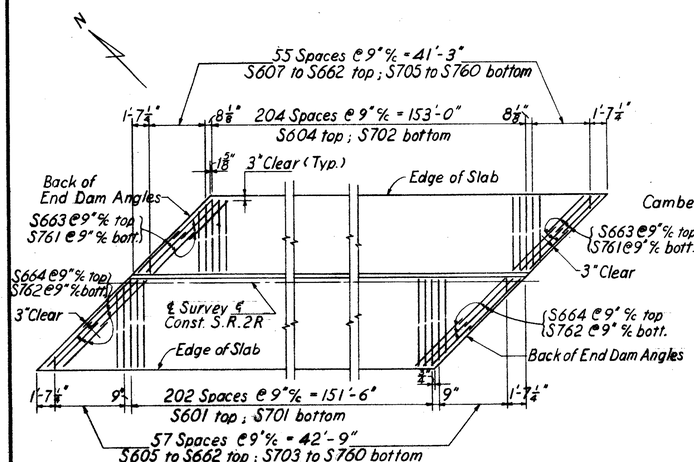
101/133

OTT. 2-16.48



STEEL FRAMING PLAN

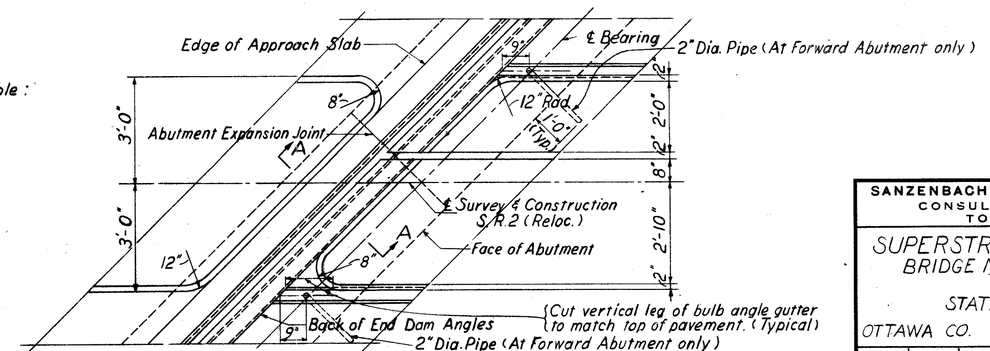
(Moment plates at piers to be shop welded to beams.)



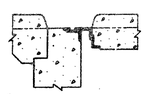
SLAB TRANSVERSE REINFORCING STEEL

Cambering of beams is required in accordance with the following table :

DEFLECTION AND CAMBER		
LOCATION	All Beams	
	End Spans	Middle Span
Deflection due to weight of steel	1/8"	1/8"
Remaining dead load deflect.	3/8"	3/8"
Camber due to Vertical Curve	1/4"	3/8"
Total Camber	3/4"	7/8"
Required Shop Camber	3/4"	7/8"



DETAILS AT ENDS OF MEDIAN CURB



SECTION A-A

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE No. OTT. 2-1777
OVER
STATE ROUTE 163
OTTAWA CO. STA. 88+28.09 to STA. 90+29.41

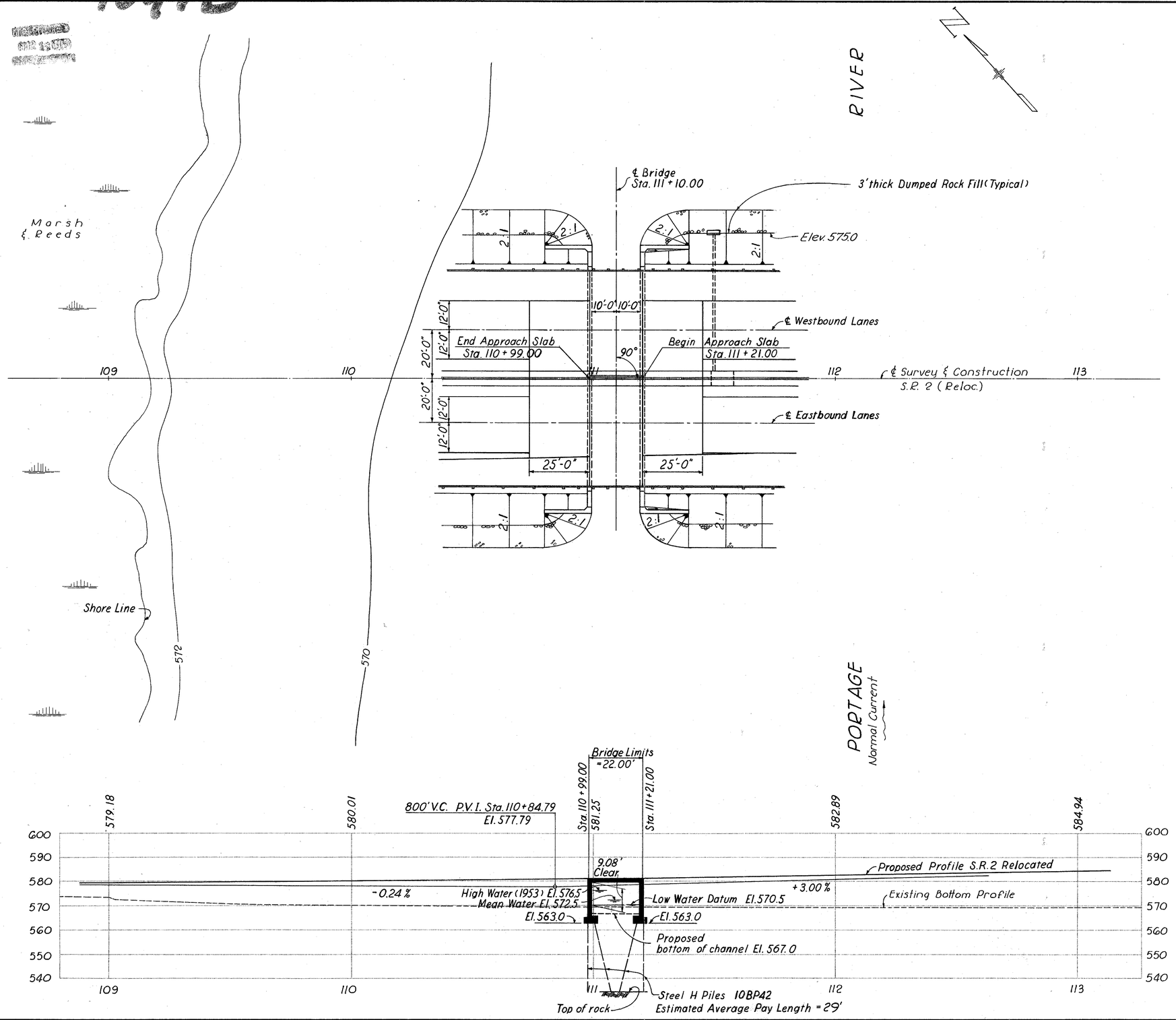
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB		JHY	BJH	2-12-63	

4078

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

102
133

OTT. 2-16.48
2.7 miles west of Port Clinton, Ohio



FOUNDATION SOUNDINGS

Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information, the accuracy of which the State does not guarantee, may be examined in the office of the Bureau of Bridges in Columbus or in the Division office.

BENCH MARKS

BM #9 Nail in South root of 30" basswood tree. 15' Left of Sta. 99+40. Elev. 575.43.

BM #10 Nail in South side of 6" thorn tree. 3' Right of Sta. 106+72. Elev. 574.92.

PROPOSED STRUCTURE

Type: Reinforced Concrete Slab
Reinforced Concrete Abutments

Spans: 20'-0" Clear
Roadway: 88'-0" % Slab, also ¾ Guardrails including 6' Concrete Median

Load Frequency: CF400 (57)
Skew: 0°
Wearing Surface: 1" Monolithic Concrete
Approach Slabs: AS-1-54 (25'-0" Long).
Alignment: Tangent

Waterway opening below low water datum = 70 Square feet

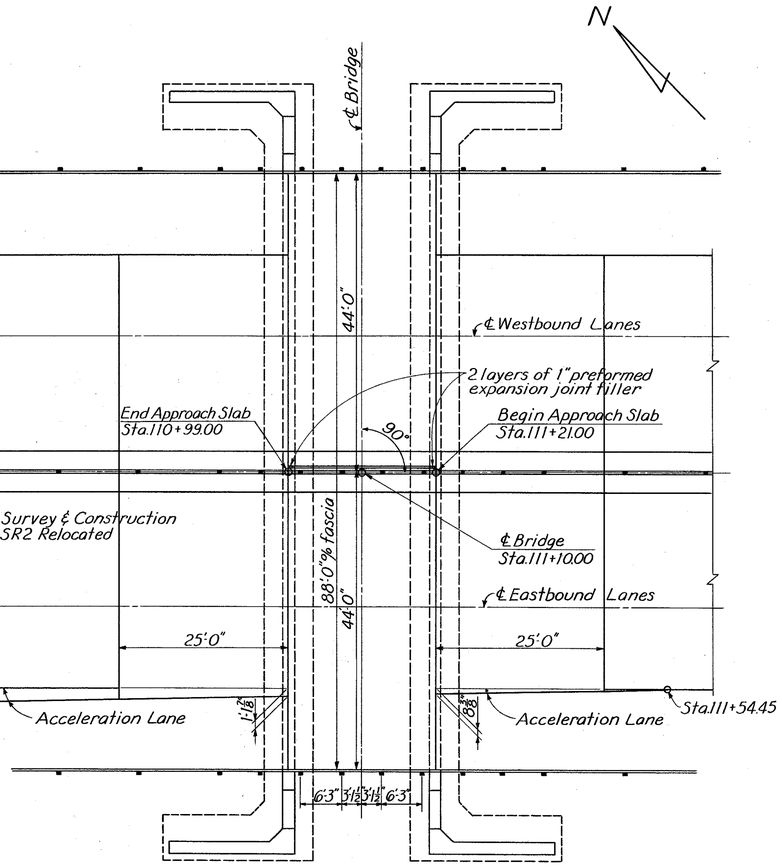
SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO OHIO

SITE PLAN

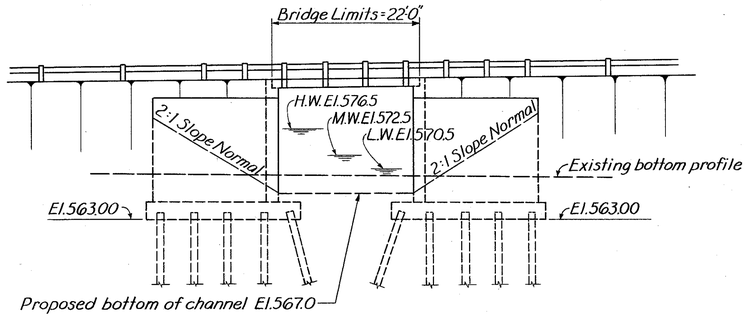
BRIDGE No. OTT. 2-1820
OVER PORTAGE RIVER

OTTAWA COUNTY STA. 110+99.00 to
SCALE: 1" = 20' STA. 111+21.00

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
S.M.B.	T.W.D.	JHY	JHY, OMB	BJH	FCM 2/26/63



GENERAL PLAN

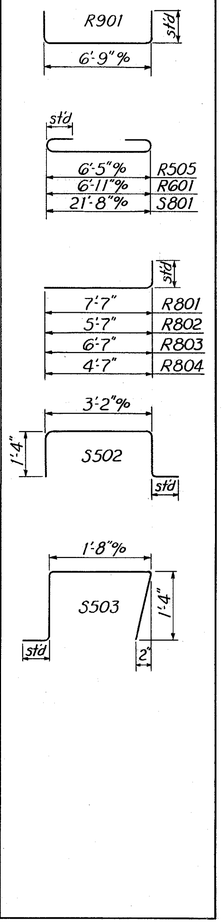


GENERAL ELEVATION

REINFORCING STEEL BRIDGE No.OTT.2-1820

Mark	Number	Length	Weight	Shape
ABUTMENTS				
R901	36	8'-9"	1071	B
R801	152	8'-6"	3450	B
R802	148	6'-6"	2569	B
R803	36	7'-6"	721	B
R804	36	5'-6"	529	B
R601	296	8'-3"	3668	B
R602	58	13'-7"	1183	S
R603	58	14'-1"	1227	S
R604	8	15'-8"	188	S
R605	12	15'-4"	276	S
R606	4	14'-0"	84	S
R607	4	14'-6"	87	S
R608	4	13'-3"	80	S
R609	4	13'-9"	83	S
R610	8	12'-6"	150	S
R611	48	13'-0"	937	S
R612	58	13'-11"	1212	S
R613	58	14'-5"	1256	S
R614	12	14'-10"	267	S
R615	8	15'-2"	182	S
R501	154	3'-6"	562	S
R502	80	29'-10"	2489	S
R503	80	29'-7"	2468	S
R504	8	23'-0"	192	S
R505	68	7'-7"	538	B
R506	8	5'-8"	47	S
R507	8	7'-6"	63	S
R508	80	18'-4"	1530	S
R509	48	12'-6"	626	S
R510	60	4'-9"	297	S
R511	36	22'-1"	829	S
R512	72	26'-2"	1965	S
SUPERSTRUCTURE				
S801	208	23'-10"	13236	B
S601	98	23'-2"	3410	S
S602	98	22'-5"	3300	S
S501	37	21'-8"	836	S
S502	16	6'-1"	102	B
S503	16	4'-7"	76	B
REPLACEMENT BARS				
RE901	1	6'-10"	23	S
RE801	2	6'-6"	35	S
RE601	1	5'-11"	9	S
RE501	1	5'-7"	6	S

Bending Diagrams



ESTIMATED QUANTITIES BRIDGE No.OTT.2-1820

Item	Total	Unit	Description	Super.	Abuts.	General		
E-2	Lump	Sum	Cofferdams, cribs and sheeting			Lump		
E-2	650	Cu.Yds.	Unclassified excavation		650			
E-3	220	Cu.Yds.	Channel excavation			220		
S-1	97	Cu.Yds.	Class "C" concrete, Superstructure	97				
S-1	461	Cu.Yds.	Class "E" concrete, Abutments		461			
S-3	95	Lin.ft.	Waterproofing, premolded sealing strip		95			
S-4	51859	Lbs.	Reinforcing steel	20960	30826	73		
S-9	80	Sq.ft.	1" preformed expansion joint filler	8	72			
S-14	44	Lin.ft.	Railing (Type I-15.11 with galvanized steel posts and bolts	44				
S-14	22	Lin.ft.	Barrier Railing (Type I-15.11, double faced with galvanized steel posts and bolts), as per plan	22				
S-101	97	Each	Water-reducing, set-retarding admixture	97				
S-16	Lump	Sum	First test pile			Lump		
S-18	2780	Lin.ft.	Steel piles, 10BP42		2780			
S-29	112	Cu.Yds.	Porous backfill		112			

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

103
133

OTT.2-16.48

GENERAL NOTES

REFERENCE shall be made to Standard Drawing AS-1-54 "Reinforced Concrete Approach Slabs", revised 7-5-62, and to Supplemental Spec. S-101, dated 7-12-62.

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

PILES shall be driven with a hammer of not less than 11000 ft.lbs. per blow to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec.S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:
35 tons per pile using an 11000 ft.lb. hammer
35 tons per pile using a 15000 ft.lb. or greater hammer

The design load is 35 tons per pile.

MACHINE FINISH: At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and first two digits where four are used, indicate the bar size number. For example, a R501 is a No.5 size bar, and a S1101 is a No.11 size.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

GENERAL PLAN & ELEVATION
ESTIMATED QUANTITIES, REINFORCING STEEL & GENERAL NOTES
BRIDGE No.OTT.2-1820
OVER PORTAGE RIVER
OTTAWA COUNTY Sta.110+99.00 To Sta.111+21.00

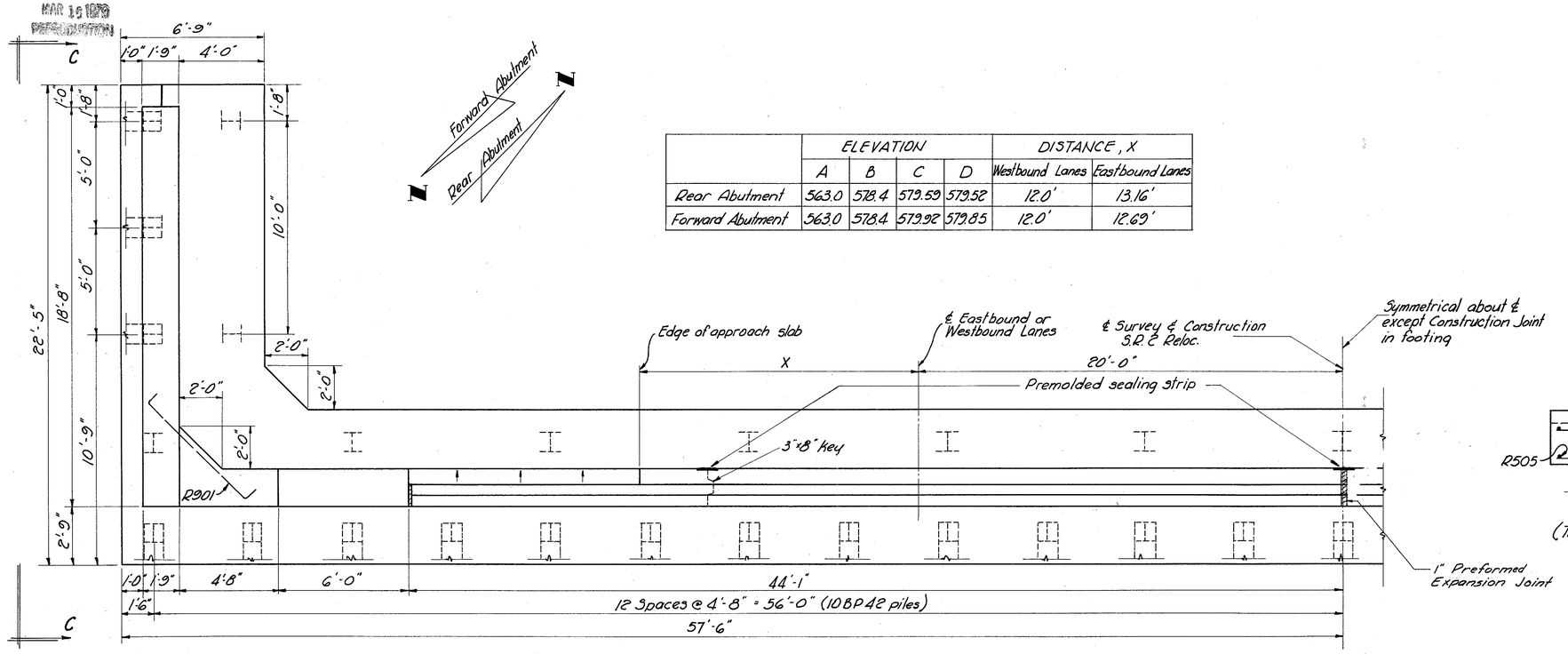
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB TWD	OMB	JHY	BJH AJB	FCM	2-18-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

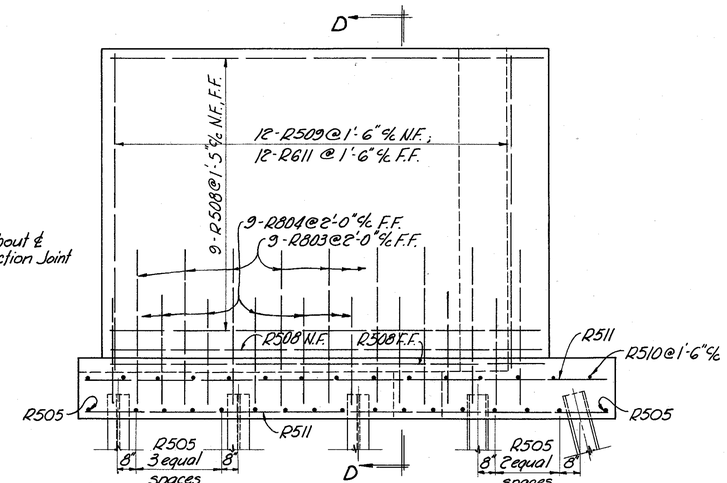
104/133

OTT. 2-16.48

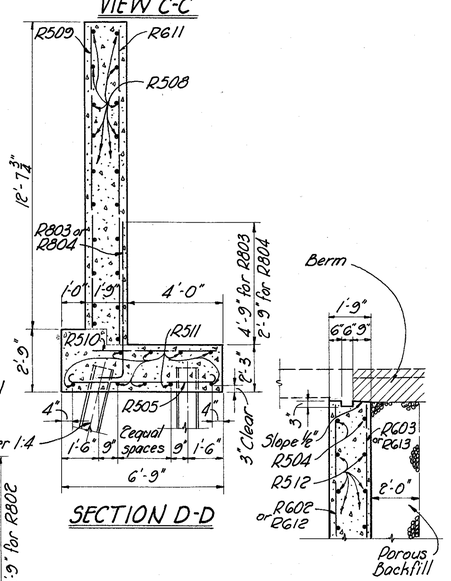
	ELEVATION				DISTANCE, X	
	A	B	C	D	Westbound Lanes	Eastbound Lanes
Rear Abutment	563.0	578.4	579.59	579.52	12.0'	13.16'
Forward Abutment	563.0	578.4	579.92	579.85	12.0'	12.69'

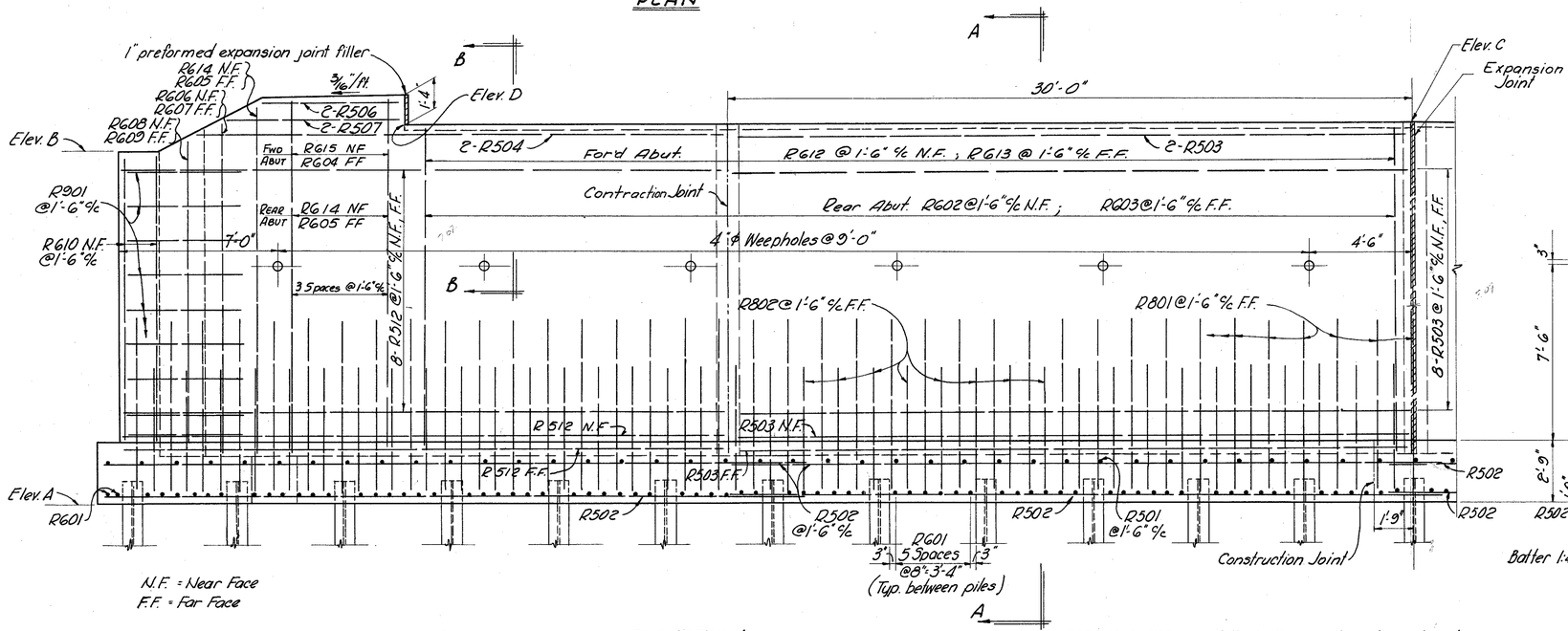


PLAN

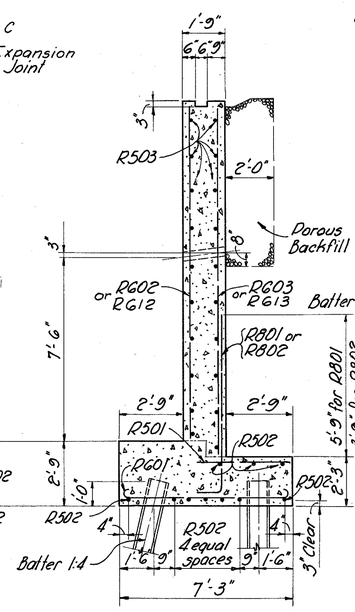


WINGWALL ELEVATION (REINF. BAR DETAILS)





ELEVATION



SECTION A-A

POROUS BACKFILL, 2 ft. thick, Full length of abutment shall extend up to the underside of the approach slab, or berm, or to the finished ground surface.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

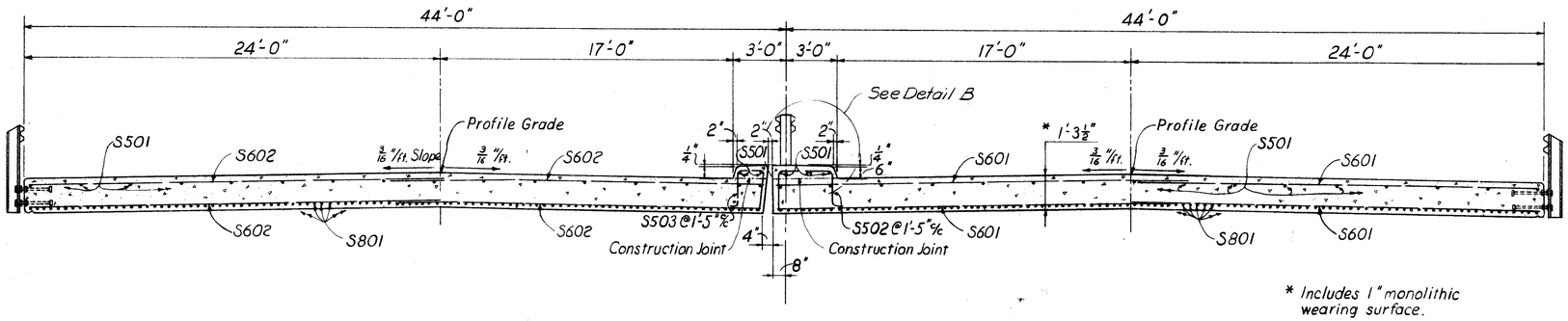
ABUTMENTS
BRIDGE No. OTT. 2-1820
OVER PORTAGE RIVER
STA. 110+99.00 to
STA. 111+21.00
OTTAWA CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB	BB	BJH	FCM	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

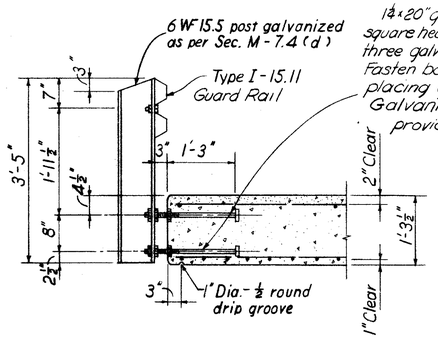
105/133

OTT. 2-16.48

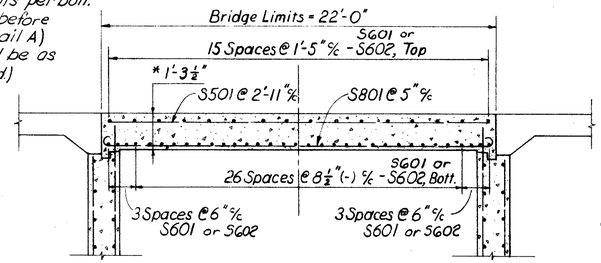


* Includes 1" monolithic wearing surface.

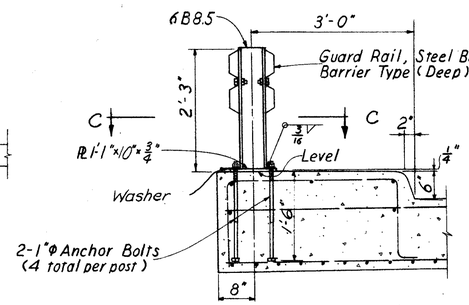
TRANSVERSE SECTION OF DECK



PART DECK SECTION

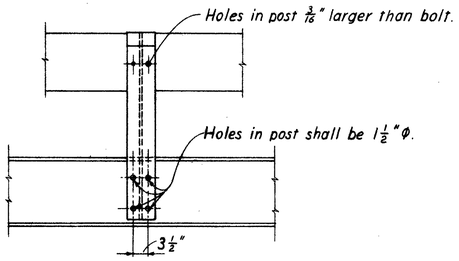


LONGITUDINAL SECTION OF BRIDGE

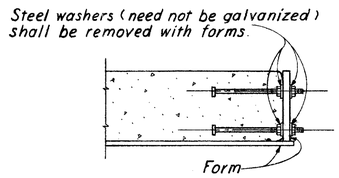


6B8.5 posts, 12"x10" PL, bolts, nuts and washers to be galvanized per Sec. M-7.4(d)

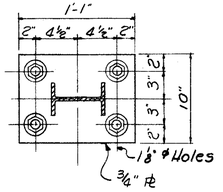
DETAIL B



ELEVATION OF RAILING POST



DETAIL A



SECTION C-C

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

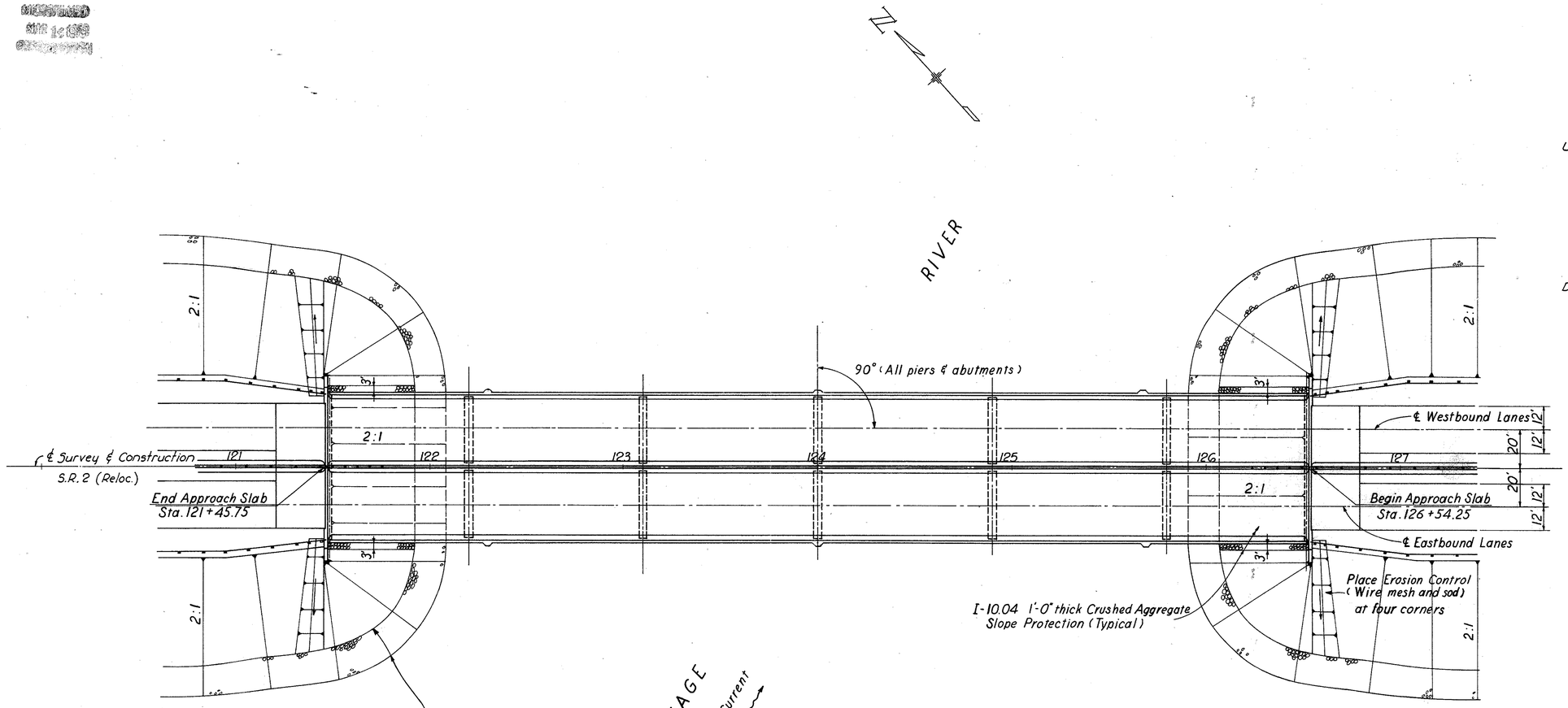
SUPERSTRUCTURE DETAILS
BRIDGE No. OTT. 2-1820
OVER PORTAGE RIVER
OTTAWA CO.
STA. 110+99.00 to STA. 111+21.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB		BJH	FCM	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

106/133

OTT. 2-16.48
2.5 miles west of Port Clinton, Ohio



EXISTING BRIDGE DATA

Upstream Bridge: OTT.19-0323 in Oak Harbor, Ohio. 8.9 miles upstream.
Type: Concrete Slab on Continuous Steel Beams. Reinf. Conc. Substructure.
Spans: 64', 80', 80', 64'
Date Built: 1932
Skew: 30° L.F.
Roadway: 24' f/f curbs
Condition: Fair
Clear Opening: 4507 sq. ft. below bottom of beams.

Downstream Bridges:
At New York Central Railroad 1.4 miles downstream
Type: Simple span plate girders. Lift span = 114'. Conc. substructure.
Spans: 69'-7", 69'-4", 70'-0", 114'-0", 47'-0"
Clear Spans: 52', 63', 60', 106', 30'
Skew: None
No. of Tracks: Two
Condition: Fair
Clear Opening: 5545 sq. ft. below bottom of plate girder.
Date Built: 1919

At Existing S.R. 2 in Port Clinton Ohio. 2.5 miles downstream.
Type: Haunched plate girder. Lift span. Concrete substructure.

Clear Spans: 60', 80', 60'
Skew: None
Roadway: 40' f/f curbs.
Condition: Good
Clear Opening: 3015 sq. ft. below water elev. 572'
Date Built: 1933

FOUNDATION SOUNDINGS

Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information, the accuracy of which the State does not guarantee, may be examined in the office of the Bureau of Bridges in Columbus or in the Division office.

Drainage Area = 578 sq. miles
Waterway Opening below L.W.D. Elev. 570.50 = 3700 sq. ft.

PROPOSED STRUCTURES

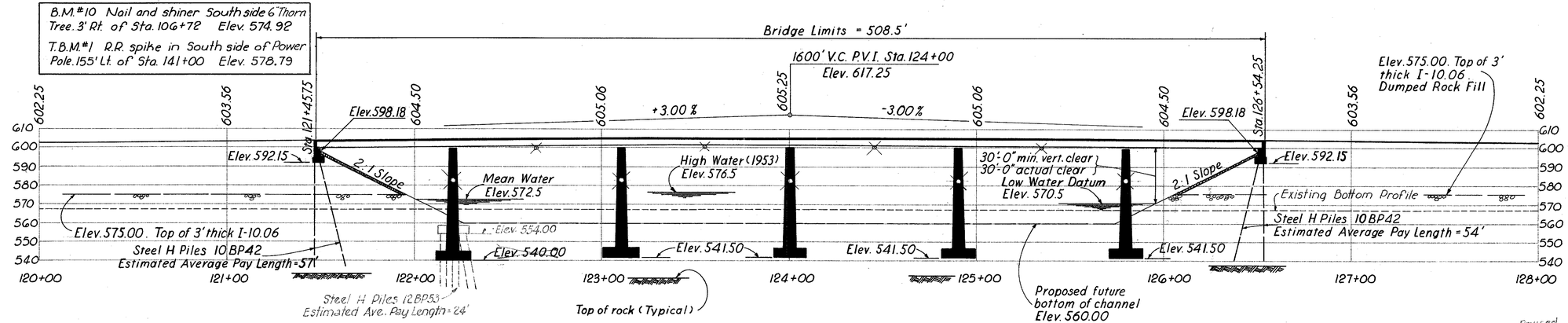
Type: Continuous steel beam with reinforced concrete deck. Reinforced concrete T type piers and stub abutments.

Spans: 72'-0", 90'-0", 90'-0", 90'-0", 90'-0", 72'-0" ℄ brgs.
Roadway: 70' f/f of 2'-3" Safety Curbs including 6' concrete median.
Load Frequency: CF 400 (57)
Skew: 0°
Wearing Surface: 1" monolithic concrete
Approach Slabs: AS-1-54 (25'-0" Long).
Alignment: Tangent

BENCH MARKS

B.M. #10 Nail and shiner South side 6" Thorn Tree. 3' Rt. of Sta. 106+72 Elev. 574.92

T.B.M. #1 R.R. spike in South side of Power Pole. 155' Lt. of Sta. 141+00 Elev. 578.79



Revised 1-27-67 J.D.R.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO OHIO

SITE PLAN
BRIDGE NO. OTT. 2-1844
OVER PORTAGE RIVER

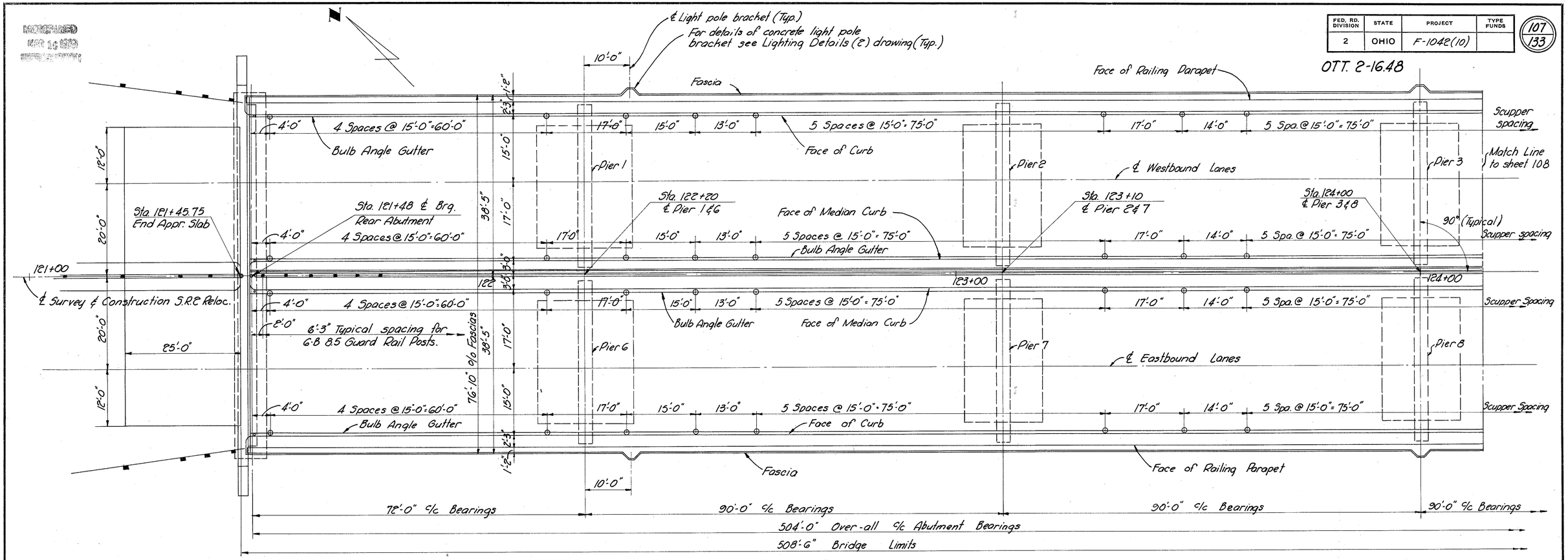
OTTAWA COUNTY STA. 121+45.75 to STA. 126+54.25
Scale: 1" = 30'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
S.M.B.	T.W.D.	T.W.D	T.W.D, O.M.B	B.J.H.	FCM 2-19-68

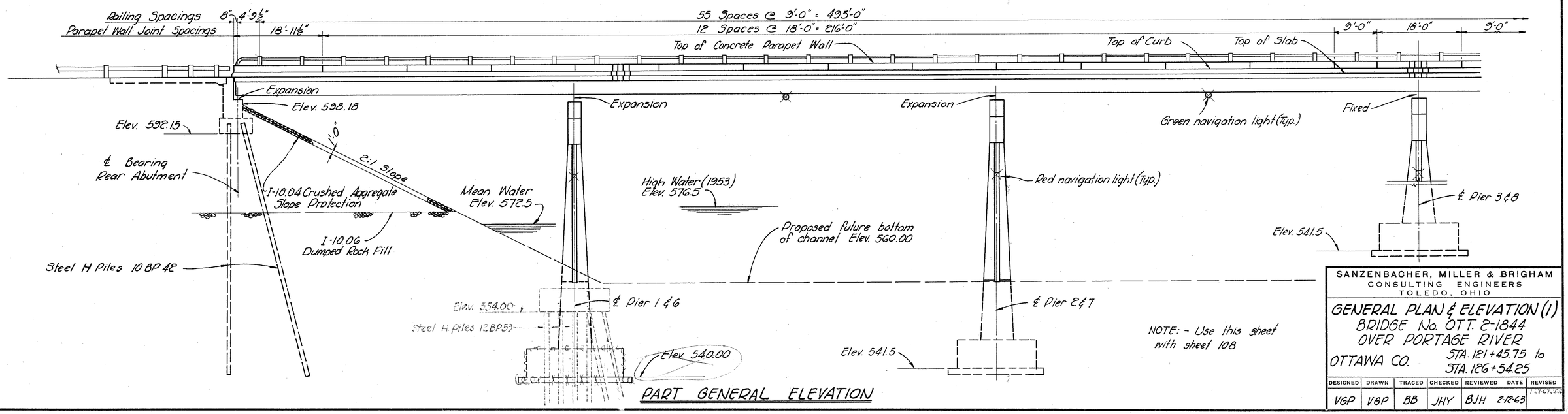
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

107 / 133

OTT. 2-16.48



PART GENERAL PLAN



PART GENERAL ELEVATION

NOTE: - Use this sheet with sheet 108

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

GENERAL PLAN & ELEVATION (1)
BRIDGE No. OTT. 2-1844
OVER PORTAGE RIVER
OTTAWA CO. STA. 121+45.75 to STA. 126+54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP	VGP	BB	JHY	BJH	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-104E(10)	

108 / 133

OTT. E-16.48

508'-6" Bridge Limits

504'-0" Over-all ℄ Abutment Bearings

90'-0" ℄ Bearings | 90'-0" ℄ Bearings | 72'-0" ℄ Bearings

Face of Railing Parapet | Fascia | 10'-0"

Scupper spacing | 5 Spa. @ 15'-0" = 75'-0" | 13'-0" | 17'-0" | 14'-0" | 5 Spaces @ 15'-0" = 75'-0" | 14'-0" | 17'-0" | 4 Spaces @ 15'-0" = 60'-0" | 4'-0"

Face of Curb | Pier 4 | Pier 5 | Bulb Angle Gutter

Sta. 124+90 ℄ Pier 4 & 9 | 90° (Typical) | Sta. 125+80 ℄ Pier 5 & 10 | Face of Median Curb | Bulb Angle Gutter | Sta. 126+52 ℄ Brg. Forward Abutment | Sta. 126+54.25 Begin Appr. Slab

125+00 | 126+00 | 127+00

Match Line to sheet 107

Face of Median Curb | Bulb Angle Gutter | 6'-3" Typical spacing for 6 B 85 Guard Rail Posts. | 2'-0" | 25'-0"

Pier 9 | Pier 10

Bulb Angle Gutter | Face of Curb

12'-0" | ℄ Westbound Lanes | 20'-0" | ℄ Survey & Construction S.R.E Relocated | 20'-0" | ℄ Eastbound Lanes | 12'-0"

Face of Railing Parapet | Fascia | 10'-0"

PART GENERAL PLAN

¼" Gray sponge rubber preformed expansion joint filler meeting the requirements of Sec. M-1002, Type I. Space two railing panel lengths apart. (Included with item S-14 for payment.)

55 Spaces @ 9'-0" = 495'-0"

12 Spaces @ 18'-0" = 216'-0"

18'-0" | 9'-0" | Top of slab | Top of Curb | Top of Concrete Parapet Wall | 18'-11½" | 1'-3½" | 8" Railing Spacings | Parapet Wall Joint Spacings

Expansion | Expansion | Expansion

Elev. 598.18 | Elev. 592.15

2:1 slope | 1:0" | ℄ Bearing Forward Abutment

Low Water Datum Elev. 570.5

I-10.04 Crushed Aggregate Slope Protection

I-10.06 Dumped Rock Fill

Proposed future bottom of channel Elev. 560.00

Steel H Piles 10 BP 42

℄ Pier 4 & 9 | ℄ Pier 5 & 10

Elev. 541.5 | Elev. 541.5

PART GENERAL ELEVATION

NOTE:— Use this sheet with sheet 107

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

GENERAL PLAN & ELEVATION (2)
BRIDGE NO. OTT. 2-1844
OVER PORTAGE RIVER
OTTAWA CO.

STA. 121+45.75 to STA. 126+54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP	VGP	BB	JHY	BJH	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

109
133

OTT. 2-16.48

ESTIMATED QUANTITIES (BRIDGE NO. OTT. 2-1844)

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTMENTS REAR	ABUTMENTS FORWARD	PIERS 1	2	3	4	5	6	7	8	9	10	SUPER-STRUCT.	GENERAL		
E-2	Lump	Sum	Cofferdams, cribs and sheeting			162					162						Lump		
E-2	6858	Cu.Yds.	Unclassified excavation	179	179	760	590	590	590	720	760	590	590	590	720				
	5662																		
S-1	1207	Cu.Yds.	Class "C" concrete, superstructure			100					100					1207			
S-1	4502	Cu.Yds.	Class "C" concrete, piers above footings			436	149	150	149	147	436	149	150	149	147				
S-1	260	Cu.Yds.	Class "E" concrete, abutments	130	130	75					75								
S-1	1220	Cu.Yds.	Class "E" concrete, pier footings			137	112	112	112	137	137	112	112	112	137				
S-1	280	Cu.Yds.	Class "E" concrete, pier subfootings			031	26	26	26	31	031	26	26	26	31				
	218																		
S-3	54	Lin.Ft.	Waterproofing, premolded sealing strip	27	27														
S-4	552,031	Lbs.	Reinforcing steel	8284	8285	24201	21553	21553	21553	24201	24201	21553	21553	21553	24201	308,788	552		
S-7	1,497,000	Lbs.	Structural steel			1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1,478,300			
S-8	1,497,000	Lbs.	Field painting of structural steel			1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1,478,300			
S-9	48	Sq.Ft.	1" Preformed expansion joint filler	24	24														
S-14	1012	Lin.Ft.	~~Railing, Type A aluminum rail~~ and supports, concrete parapet)													1012			
S-14	506	Lin.Ft.	Barrier railing (type I-15.11, double faced with galvanized steel posts and bolts), as per plan													506			
S-16	Lump	Sum	First test pile														Lump		
S-18	2550	Lin.Ft.	Steel piles, 10 BP 42	1310	1240														
S-18	1680	Lin.Ft.	Steel piles, 12 BP 53			840					840								
S-29	82	Cu.Yds.	Porous backfill	41	41														
S-29	136	Each	Scuppers, ~~including supports~~													136			
I-10	954	Sq.Yds.	Crushed aggregate slope protection														954		
S-101	1207	Each	Water-reducing, set-retarding admixture													1207			
S-25	NAV	GATIONAL LIGHTING & BRIDGE ROADWAY LIGHTING PROVISIONS																	
		See	Sheet No. 116 For Estimated Quantities																

1390
1076

GENERAL NOTES

REFERENCE shall be made to Standard Drawings AS-1-54 "Reinforced Concrete Approach Slabs" revised 7-5-62, RB-1-55 "Rockers and Bolsters" revised 2-2-59, AR-1-57 "Aluminum Railing with Concrete Parapet" revised 4-2-62, SD-1-63, sheets 2, 3, & 4, dated 11-12-63, SD-2-64 dated 11-25-64 and to Supplemental Specification S-101 "Water-reducing, Set-retarding Admixtures for Concrete" dated 7-12-62 and 3307 revised 10-1-64.

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

PROCEDURE: Following the removal and displacement of peat in the vicinity of station 119+00 to station 122+10 as shown on the plan cross sections and line sheets, and the construction of roadway embankments up to the finished spill-thru slope and to the level of the subgrade for a distance of 400 feet back of the abutments. After a waiting period of 60 days after embankment is in place, excavation can be made for the abutments and the piles driven. Rear and forward piers shall be constructed after the embankment is made. Granular embankment materials shall be placed in such a manner that any rock placed as part of the embankment will not interfere with pile driving.

EXCAVATION QUANTITY for the abutments includes the removal of materials between the surface of the proposed embankment and the bottom of the abutments. Pier excavation quantities are computed from existing mean bottom (elev. 567.0) to bottom of pier subfootings. The contractor shall maintain existing mean bottom (elev. 567.0) within the waterway opening.

PILES shall be driven to a minimum bearing capacity of 35 tons per pile.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 4.0 tons per sq. ft.

PIER FOOTINGS shall extend a minimum of one (1) foot into hard glacial till or to the elevation shown, whichever is lower.

WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

For Notes On Items S-25 Navigational Lighting & Bridge Roadway Lighting Provisions See Sheets 116A, 116B & 116C

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO OHIO

ESTIMATED QUANTITIES & GENERAL NOTES
BRIDGE NO. OTT. 2-1844
OVER PORTAGE RIVER
OTTAWA COUNTY
STA. 121+45.75 to STA. 126+54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY TWD	TWD	JCS	BJH	FCM	2-12-65	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

110/133

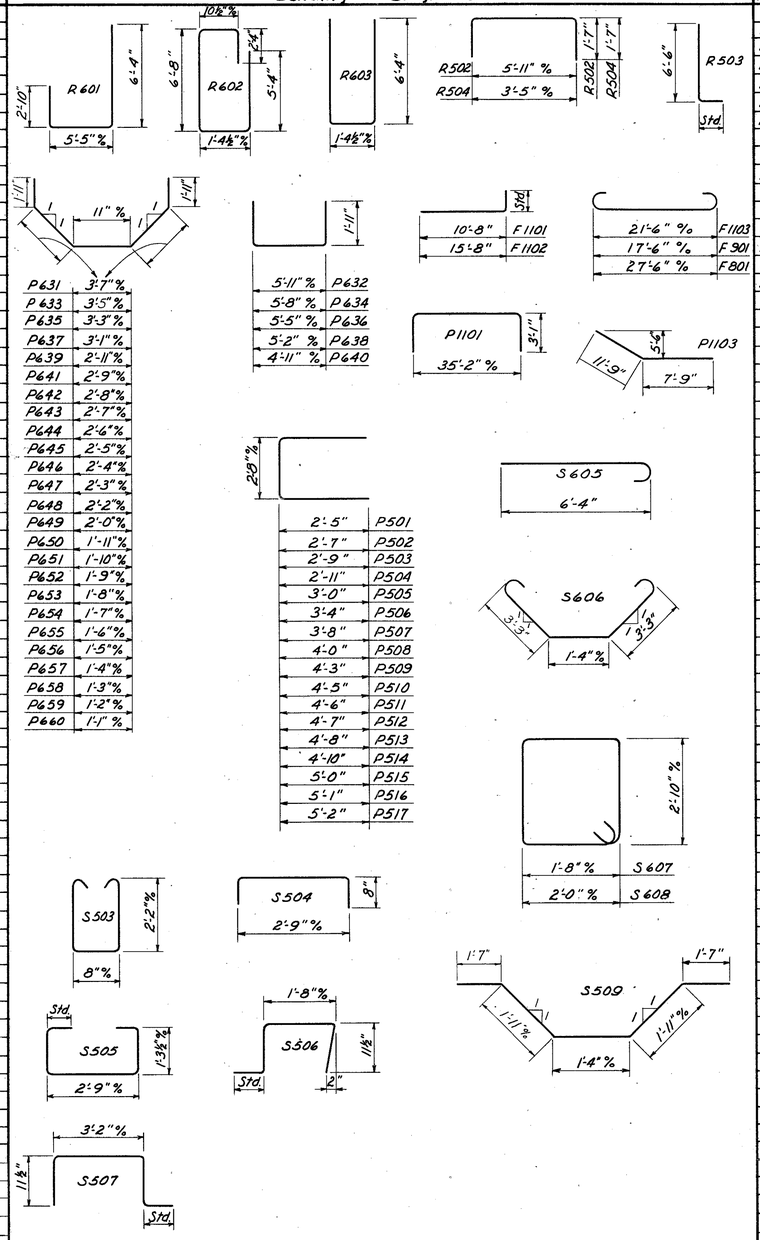
OTT. 2-16.48

REINFORCING STEEL LIST (BRIDGE No. OTT. 2-1844)

Mark	No.	Length	Weight	Shape
Abutments				
R801	28	40'-6"	3028	S
R601	120	14'-3"	2568	B
R602	128	16'-0"	3076	B
R603	20	13'-9"	411	B
R604	24	4'-0"	144	S
R605	24	10'-2"	366	S
R606	8	23'-0"	276	S
R607	8	21'-3"	255	S
R608	4	19'-3"	116	S
R609	8	8'-5"	101	S
R610	8	9'-0"	108	S
R501	64	23'-7"	1574	S
R502	120	8'-10"	1106	B
R503	112	7'-0"	818	B
R504	232	6'-4"	1532	B
R505	16	8'-0"	134	S
R506	4	9'-7"	40	S
R507	4	18'-3"	76	S
R508	4	8'-7"	36	S
R509	8	7'-10"	65	S
R510	8	7'-1"	59	S
R511	8	6'-6"	54	S
R512	8	5'-10"	49	S
R513	8	5'-2"	43	S
R514	8	6'-11"	58	S
R515	36	12'-8"	476	S

Mark	No.	Length	Weight	Shape
Piers				
F1101	300	11'-10"	18861	B
F1102	360	16'-10"	32197	B
F1103	168	24'-8"	22017	B
F 901	252	20'-0"	17136	B
F 801	196	29'-8"	15525	B
P1101	30	40'-8"	6482	B
P1102	130	35'-2"	24289	S
P1103	40	19'-6"	4144	B
P1001	160	21'-0"	14458	S
P1002	180	24'-0"	18589	S
P 701	160	30'-0"	9811	S
P 702	180	27'-6"	10118	S
P601	20	19'-8"	591	S
P602	20	19'-5"	583	S
P603	20	19'-2"	576	S
P604	20	18'-11"	568	S
P605	20	18'-8"	561	S
P606	20	18'-5"	553	S
P607	20	18'-2"	546	S
P608	20	17'-10"	536	S
P609	20	17'-7"	528	S
P610	20	17'-4"	521	S
P611	20	13'-2"	396	S
P612	20	13'-0"	391	S
P613	20	12'-10"	386	S
P614	20	12'-8"	381	S
P615	20	12'-6"	376	S
P616	20	12'-4"	370	S
P617	20	12'-2"	365	S
P618	20	12'-1"	363	S
P619	20	11'-11"	358	S
P620	20	11'-9"	353	S
P621	20	11'-7"	348	S
P622	20	11'-5"	343	S
P623	20	11'-3"	338	S
P624	20	11'-1"	333	S
P625	20	11'-0"	330	S
P626	20	10'-10"	325	S
P627	20	10'-8"	320	S
P628	20	10'-6"	315	S
P629	20	10'-4"	310	S
P630	20	10'-2"	305	S
P631	20	11'-7"	348	B
P632	20	9'-5"	283	B
P633	20	11'-3"	338	B
P634	20	9'-2"	275	B
P635	20	10'-11"	328	B
P636	20	8'-11"	268	B
P637	20	10'-7"	318	B
P638	20	8'-8"	260	B
P639	20	10'-3"	308	B
P640	20	8'-5"	253	B
P641	20	9'-11"	298	B
P642	20	9'-9"	293	B
P643	20	9'-7"	288	B
P644	20	9'-5"	283	B
P645	20	9'-3"	278	B
P646	20	9'-1"	273	B
P647	20	8'-11	268	B
P648	20	8'-9"	263	B
P649	20	8'-5"	253	B
P650	20	8'-3"	248	B
P651	20	8'-1"	243	B
P652	20	7'-11"	238	B
P653	20	7'-9"	233	B
P654	20	7'-7"	228	B
P655	20	7'-5"	223	B

Bending Diagrams



Mark	No.	Length	Weight	Shape
Piers Cont.				
P656	20	7'-3"	218	B
P657	20	7'-1"	213	B
P658	20	6'-11"	208	B
P659	20	6'-9"	203	B
P660	20	6'-7"	198	B
P661	20	35'-2"	1056	S
P662	20	31'-10"	956	S
P663	20	25'-6"	764	S
P664	20	19'-1"	573	S
P 501	40	7'-3"	302	B
P502	40	7'-7"	316	B
P503	40	7'-11"	330	B
P504	40	8'-3"	344	B
P505	40	8'-5"	351	B
P506	40	9'-1"	379	B
P507	40	9'-9"	407	B
P508	40	10'-5"	435	B
P509	40	10'-11"	455	B
P510	40	11'-3"	469	B
P511	40	11'-5"	476	B
P512	40	11'-7"	483	B
P513	40	11'-9"	490	B
P514	40	12'-1"	504	B
P515	40	12'-5"	518	B
P516	40	12'-7"	525	B
P517	140	12'-9"	1862	B

Mark	No.	Length	Weight	Shape
Superstructure				
S 701	674	38'-5"	52925	S
S 702	674	36'-9"	50629	S
S601	674	38'-5"	38891	S
S602	674	36'-9"	37204	S
S603	1750	37'-10"	99443	S
S604	260	36'-0"	14059	S
S605	36	7'-0"	378	B
S606	24	9'-2"	330	B
S607	12	9'-6"	171	B
S608	12	10'-2"	183	B
*S501	16	18'-7"	—	S
*S502	200	17'-8"	—	S
S503	730	5'-7"	4251	B
S504	676	3'-10"	2703	B
S505	676	6'-1"	4289	B
S506	338	3'-10"	1351	B
S507	338	5'-4"	1880	B
*S508	16	8'-8"	—	S
S509	12	8'-1"	101	B
Replacement Bars				
RE 1101	6	7'-7"	242	S
RE 1001	2	7'-3"	62	S
RE 901	1	6'-10"	23	S
RE 801	1	6'-6"	17	S
RE 701	7	6'-3"	89	S
RE 601	12	5'-11"	107	S
RE 501	2	5'-7"	12	S

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and first two digits where four are used, indicate the bar size number. For example, a P501 is a No. 5 size bar, and a P1101 is a No. 11 size.

* Included with Item S-14 for payment.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

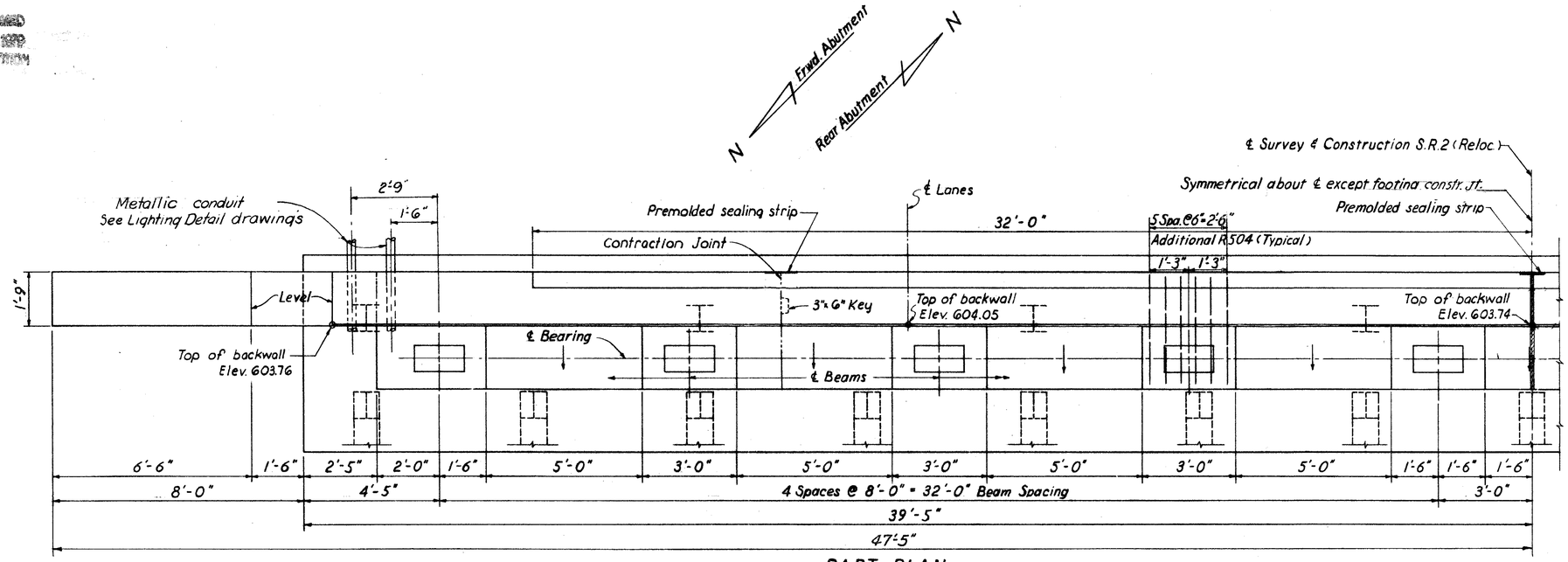
REINFORCING STEEL
BRIDGE No. OTT. 2-1844
OVER PORTAGE RIVER
OTTAWA CO.
Sta. 121+45.75 to Sta. 126+54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JHY	TWD		JHY AJB	BJH	2-12-63	

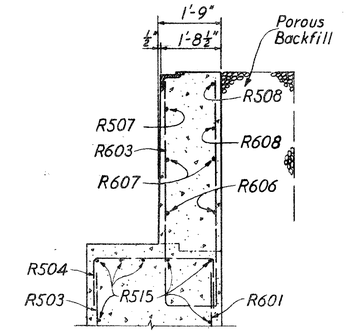
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

111/133

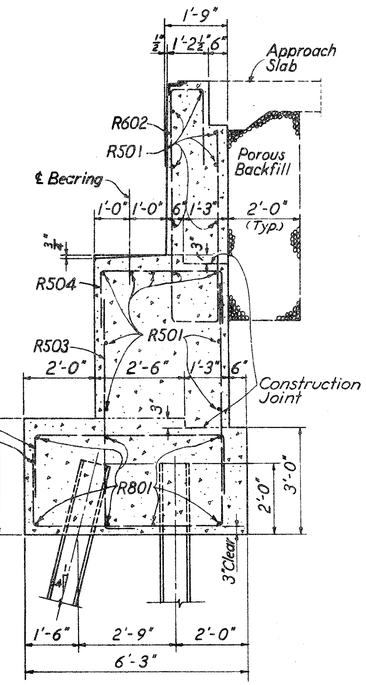
OTT. 2-16.48



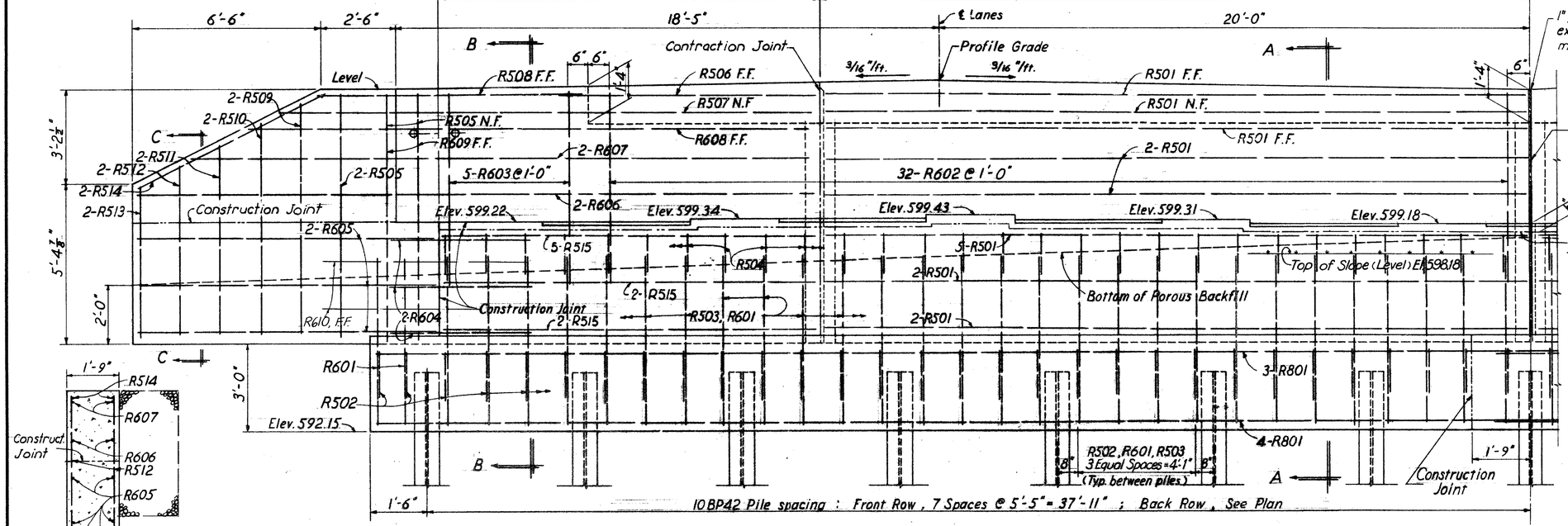
PART PLAN



SECTION B-B



SECTION A-A



PART ELEVATION

SECTION C-C

N.F. = Near Face
F.F. = Far Face

POROUS BACKFILL shall extend upward to the approach slab and to the surface of the earth shoulders, and outward to the surface of the embankment slopes. Excavation therefore in excess of that required for construction of abutment, shall be considered as paid for in the bid price per cu.yd. paid for porous backfill.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

ABUTMENTS
BRIDGE No. OTT. 2-1844
OVER PORTAGE RIVER

OTTAWA COUNTY

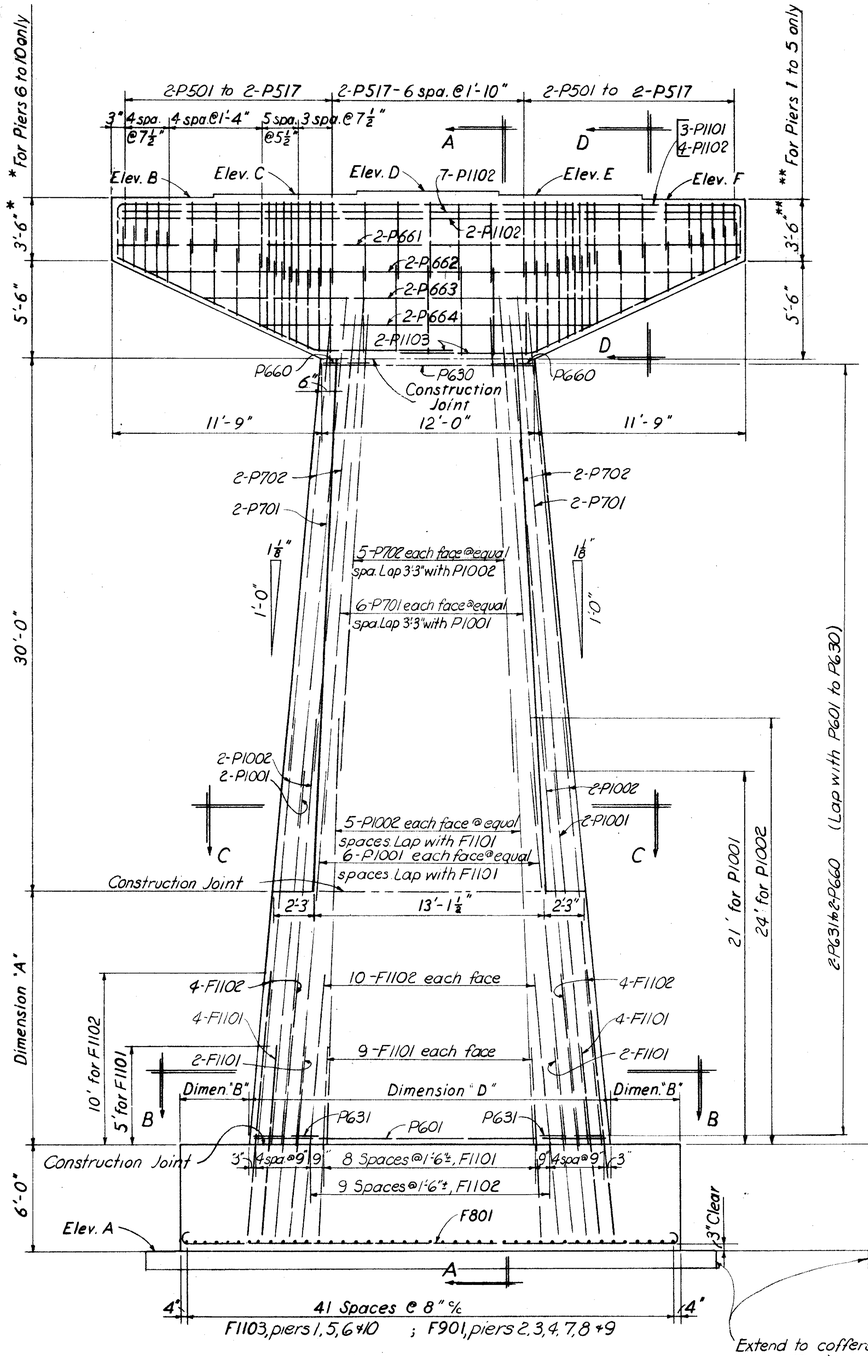
STA. 121 + 45.75 to
STA. 126 + 54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VGP	OMB		JHY	BJH	2-12-63	

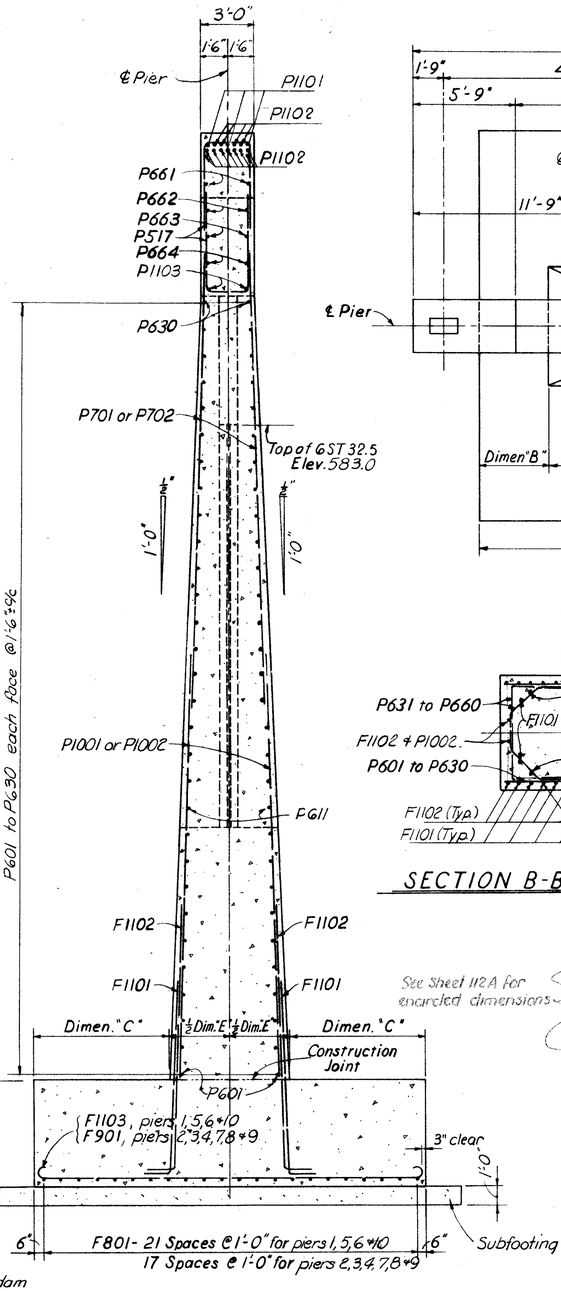
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

112/133

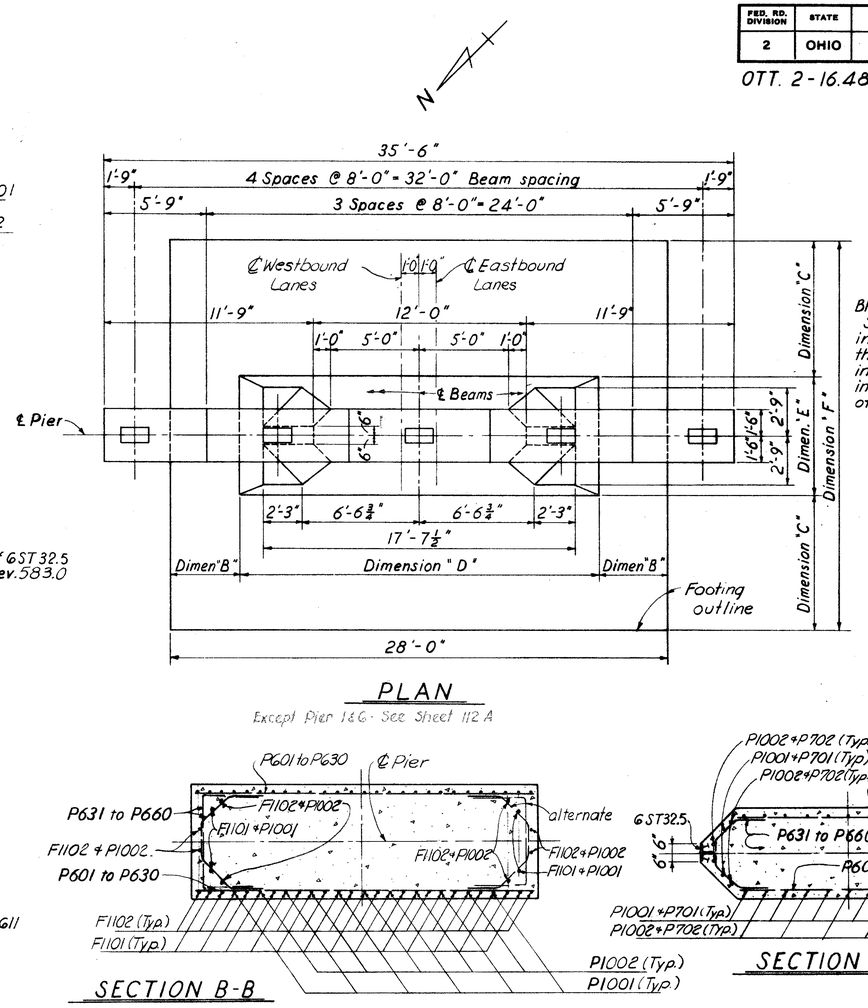
OTT. 2-16.48



ELEVATION



SECTION A-A

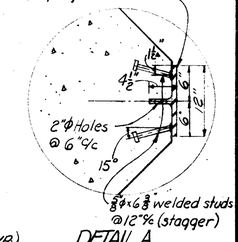


PLAN

Except Pier 1 & 6 - See Sheet 112 A

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat in Piers 3 & 8 so as to avoid interference with the drilling of anchor bar holes.

Cor-Ten, Mayari-R or Wrought Iron or approved equal. Included in Item S-7 for payment.



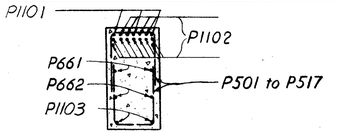
DETAIL A

SECTION B-B

SECTION C-C

	ELEVATION						DIMENSION					
	A	B	C	D	E	F	A	B	C	D	E	F
Pier 1	⑤40	599.22	599.35	599.44	599.32	599.19	14'-2⅜"	3'-10⅛"	7'-7½"	20'-3⅜"	6'-8½"	22'-0"
Pier 2 & 4	541.5	599.68	599.80	599.90	599.77	599.65	13'-1½"	3'-11½"	5'-8⅝"	20'-1"	6'-7¼"	18'-0"
Pier 3	541.5	599.83	599.95	600.05	599.92	599.80	13'-3⅝"	3'-11¾"	5'-8⅝"	20'-1⅝"	6'-7⅛"	18'-0"
Pier 5	541.5	599.22	599.35	599.44	599.32	599.19	12'-8½"	4'-0"	7'-8⅜"	20'-0"	6'-6¾"	22'-0"
Pier 6	⑤40	599.19	599.32	599.44	599.35	599.22	14'-2¼"	3'-10⅛"	7'-7½"	20'-3⅜"	6'-8½"	22'-0"
Pier 7 & 9	541.5	599.65	599.77	599.90	599.80	599.68	13'-1⅝"	3'-11¼"	5'-8⅜"	20'-1"	6'-7¼"	18'-0"
Pier 8	541.5	599.80	599.92	600.05	599.95	599.83	13'-3⅜"	3'-11⅛"	5'-8⅝"	20'-1⅝"	6'-7⅛"	18'-0"
Pier 10	541.5	599.19	599.32	599.44	599.35	599.22	12'-8½"	4'-0"	7'-8⅜"	20'-0"	6'-6¾"	22'-0"

See Sheet 112A for enlarged dimensions



SECTION D-D

Note: See Lighting Details (1) drawing for details of navigation light bracket attachment to GST 32.5

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

PIERS
BRIDGE No. OTT. 2-1844
OVER PORTAGE RIVER

OTTAWA COUNTY

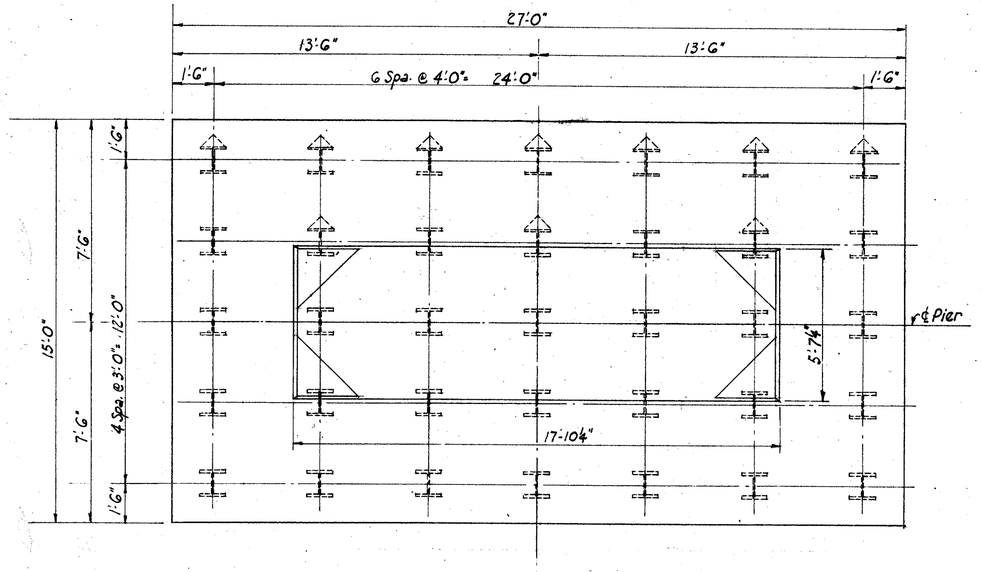
STA. 121 + 45.75 to STA. 126 + 54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BJH	OMB		JHY	BJH	2-12-63	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-1042(10)	

112A
133

OTT-2-16.48

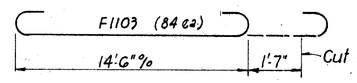


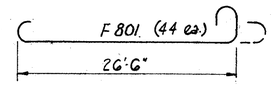
PLAN OF FOOTING

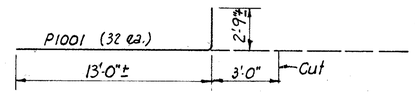
Indicate pile Battered 1:4

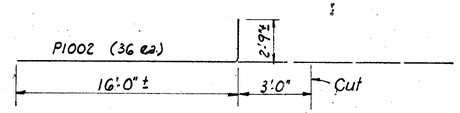
The following bars furnished for the original design are not required.

Bar Mark	No.
F1101	60
F1102	72
PG01 thru PG07	4 ea.
PG31 thru PG37	4 ea.



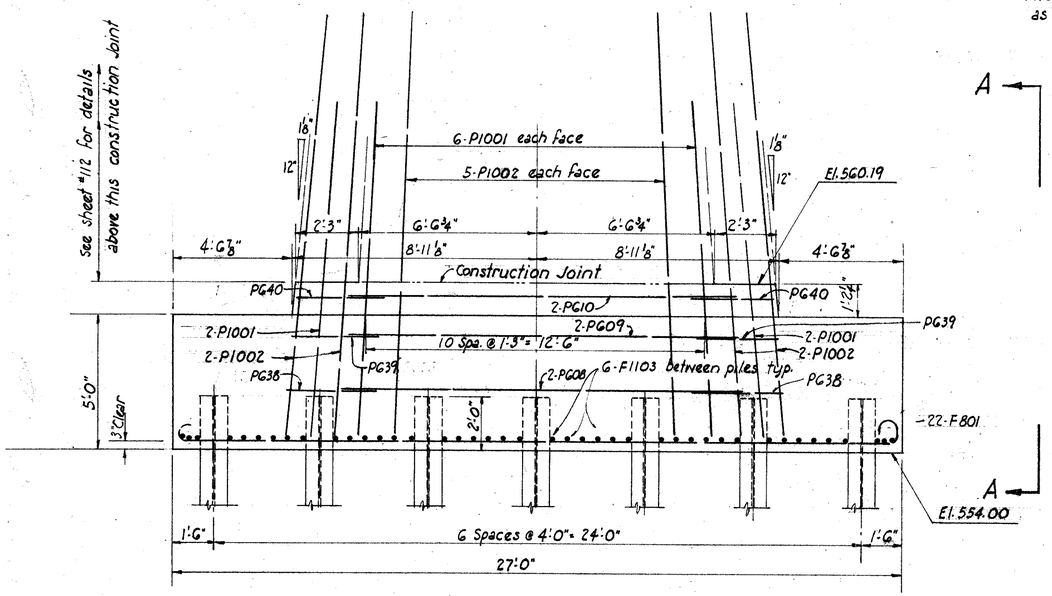






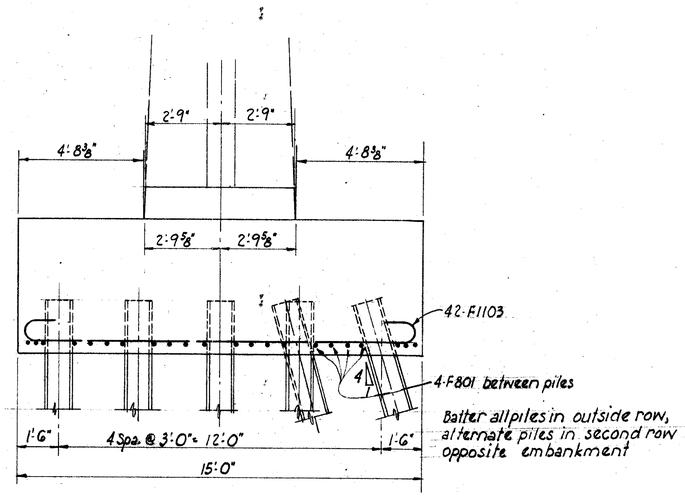
REINFORCING STEEL CHANGES

F1103, F801, P1001 and P1002 shall be cut and or rebent as shown in these sketches.



PARTIAL ELEVATION

All piles 12 BP53 steel - design load 40 Tons.



Batter all piles in outside row, alternate piles in second row opposite embankment

VIEW A~A

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

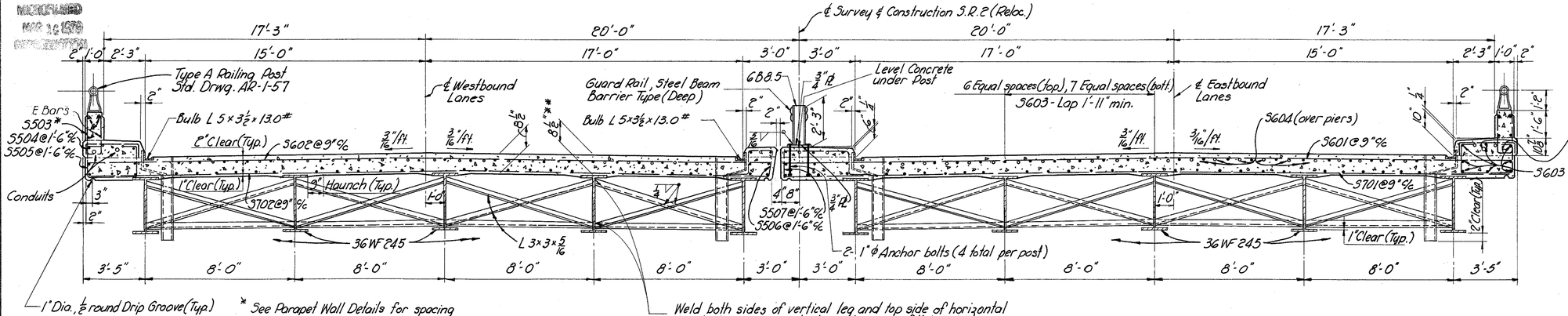
PIER 1 & 6 MODIFICATION DETAILS
BRIDGE NO. OTT-2-1844
OVER PORTAGE RIVER

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		Ray			

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

113/133

OTT. 2-16.48



* See Parapet Wall Details for spacing

** This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on 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. Slab thickness shown includes 1" Monolithic Wearing Surface.

Weld both sides of vertical leg and top side of horizontal leg to beam web with ¼" continuous fillet weld.

TRANSVERSE SECTION OF DECK

DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of steel beams, which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" except that the maximum slope shall not exceed 3" per foot. Payment for deck slab concrete shall be based on 9" width.

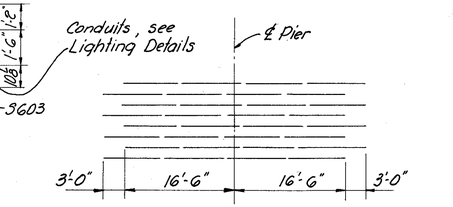
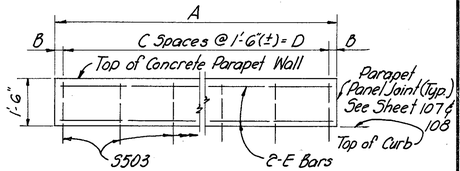
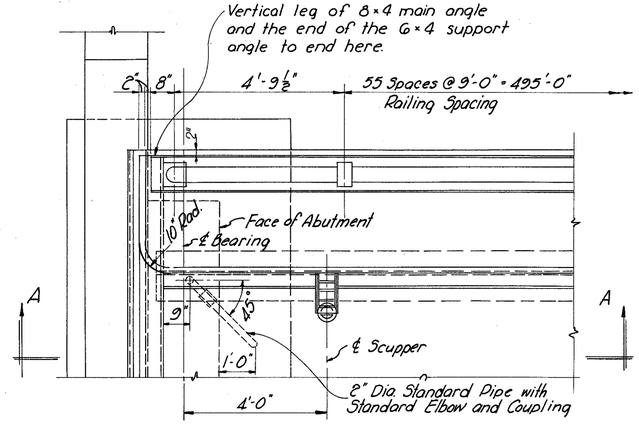


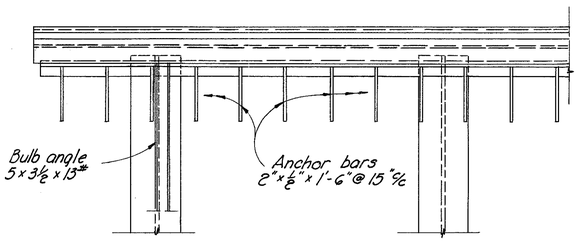
DIAGRAM SHOWING STAGGER OF 5604 BARS OVER PIERS



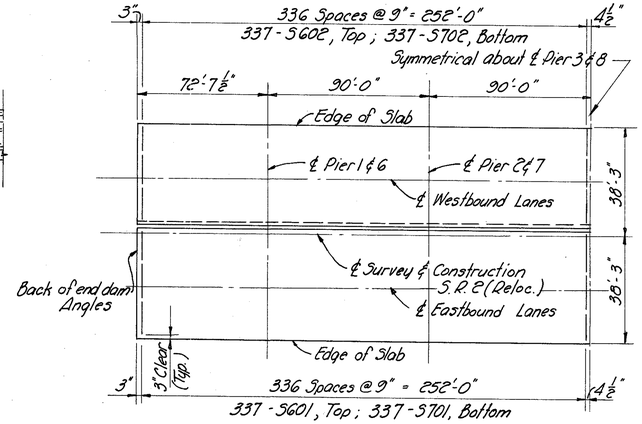
PARAPET WALL DETAILS



PART PLAN AT ABUTMENT

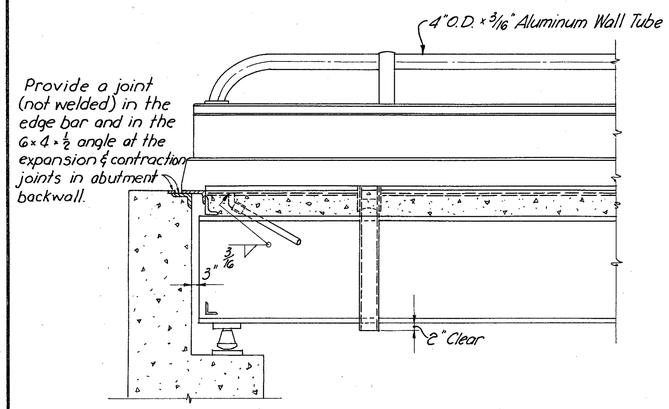


PART END DAM PLAN

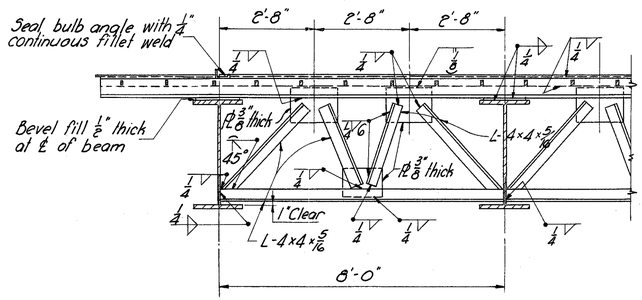


HALF SLAB TRANSVERSE REINFORCING STEEL

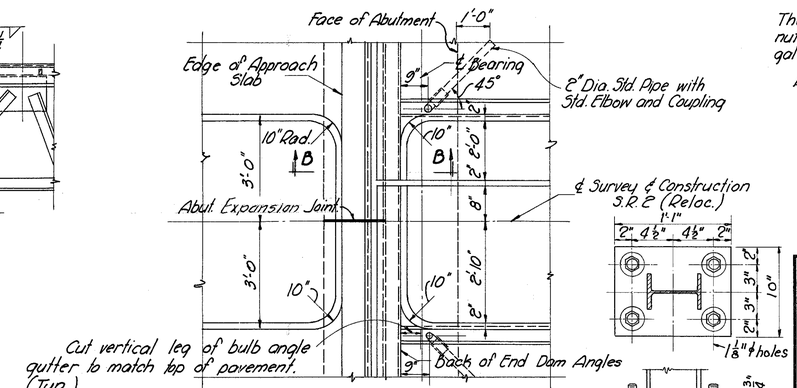
PARAPET WALL DIMENSIONS & BARS						
Panel See Sheets 107 & 108	A	B	C	D	No. of 5503 Bars	E Bars
End	18'-11½"	3"	12	18'-5½"	13	5501
Intermediate	18'-0"	3"	12	17'-6"	13	5502
Intermediate	9'-0"	3"	6	8'-6"	7	5508



SECTION A-A



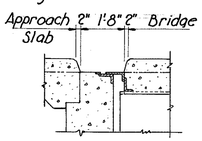
PART END DAM ELEVATION



DETAILS AT ENDS OF MEDIAN CURB

MEDIAN RAILING POST DETAILS

The posts, plates, anchor bolts, washers and nuts for the median barrier guard rail shall be galvanized in accordance with Sec. M-7.4(d).



DETAIL B-B

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

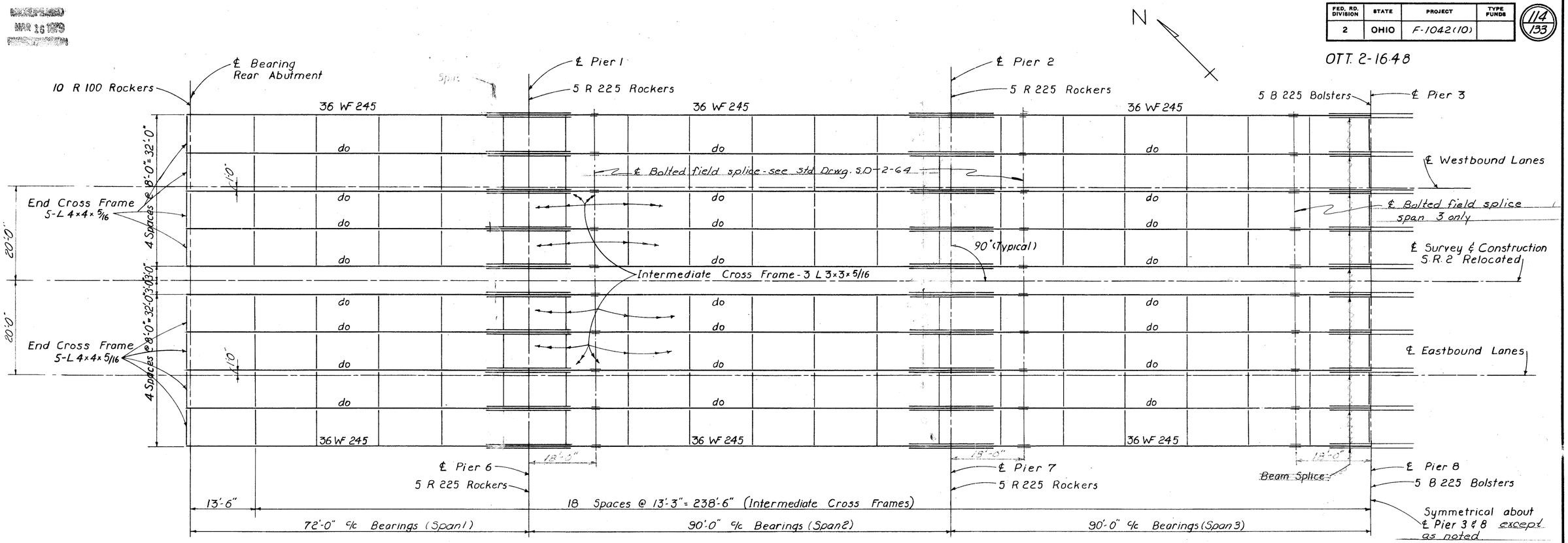
SUPERSTRUCTURE DETAILS
BRIDGE NO. OTT. 2-1844
OVER PORTAGE RIVER
STA. 121+45.75 to
OTTAWA COUNTY STA. 126+54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB	BB	JHY	BJH	2-12-63	

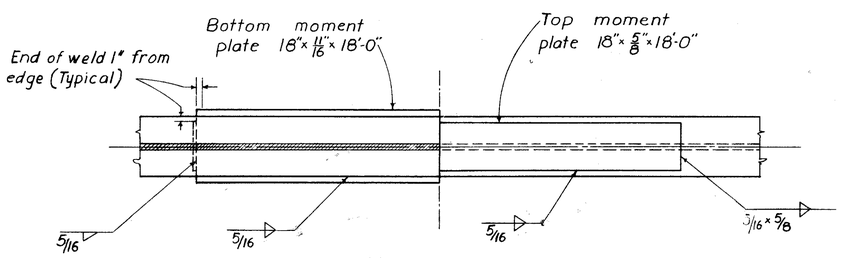
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

114/133

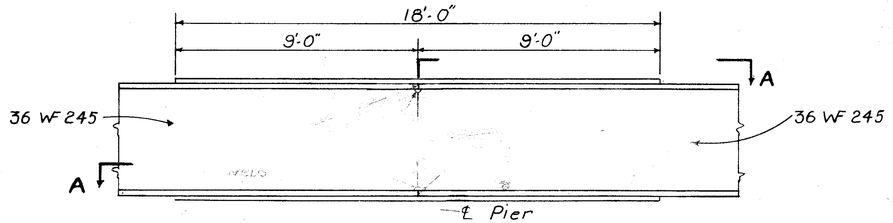
OTT. 2-16.48



HALF STEEL FRAMING PLAN



SECTION A-A



MOMENT PLATE DETAIL

DEFLECTION AND CAMBER

Beam	Exterior						Interior					
Span	1	2	3	4	5	6	1	2	3	4	5	6
Deflection due to weight of steel	1/8"	3/16"	1/8"	1/8"	3/16"	1/8"	1/8"	3/16"	3/16"	3/16"	3/16"	1/8"
Deflection due to remaining D.L.	7/16"	9/16"	9/16"	9/16"	9/16"	7/16"	3/8"	1/2"	1/2"	1/2"	1/2"	3/8"
Convexity required for vertical curve	1/4"	7/16"	7/16"	7/16"	7/16"	1/4"	1/4"	7/16"	7/16"	7/16"	7/16"	1/4"
Sum of deflection & convexity	13/16"	1 3/16"	1 1/8"	1 1/8"	1 3/16"	13/16"	3/4"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	3/4"
Required camber	13/16"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	13/16"	13/16"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	13/16"

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS

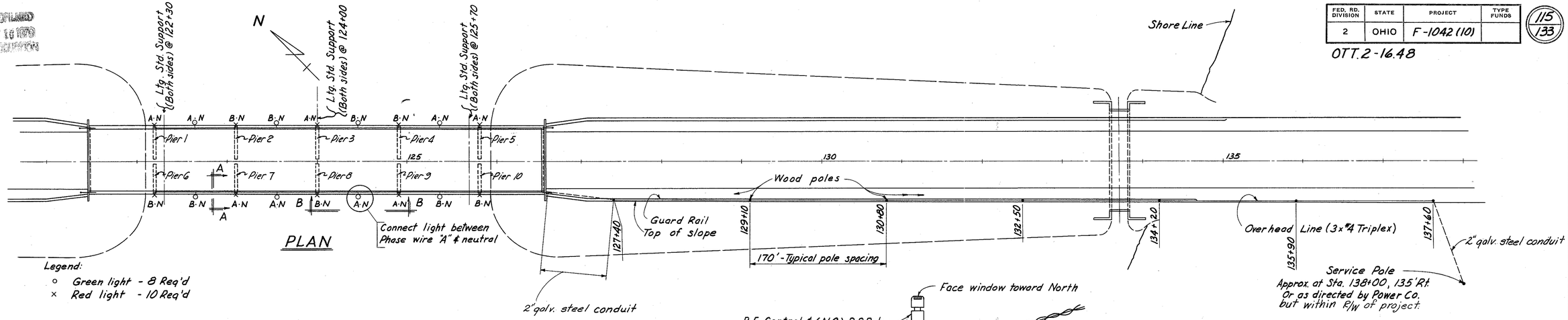
BRIDGE No. OTT. 2-1844
OVER PORTAGE RIVER
OTTAWA Co. Sta. 121+45.75 To Sta. 126+54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
V.G.P	V.G.P		JHY	BJH	2-12-63	

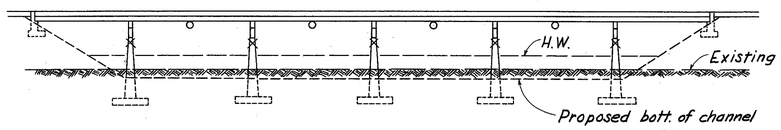
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

115/133

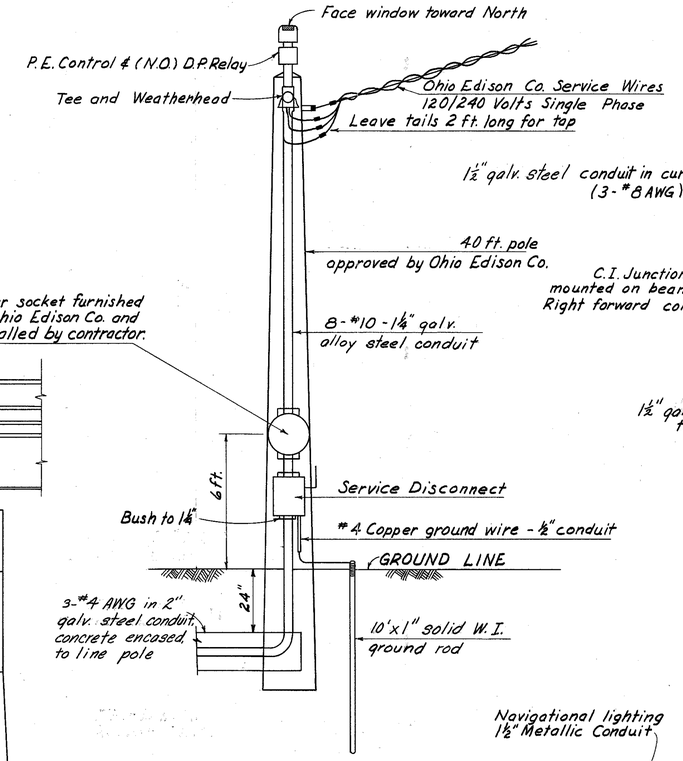
OTT.2-16.48



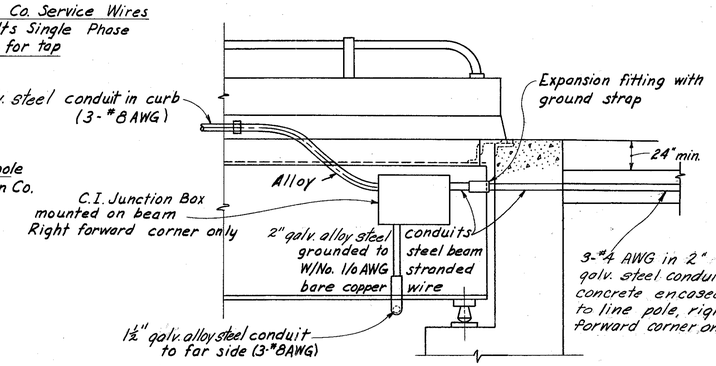
PLAN



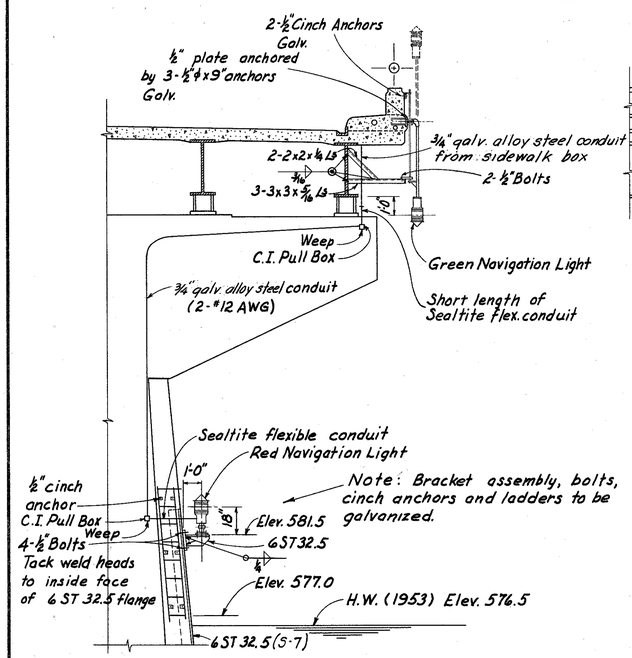
ELEVATION



DETAIL OF SERVICE POLE

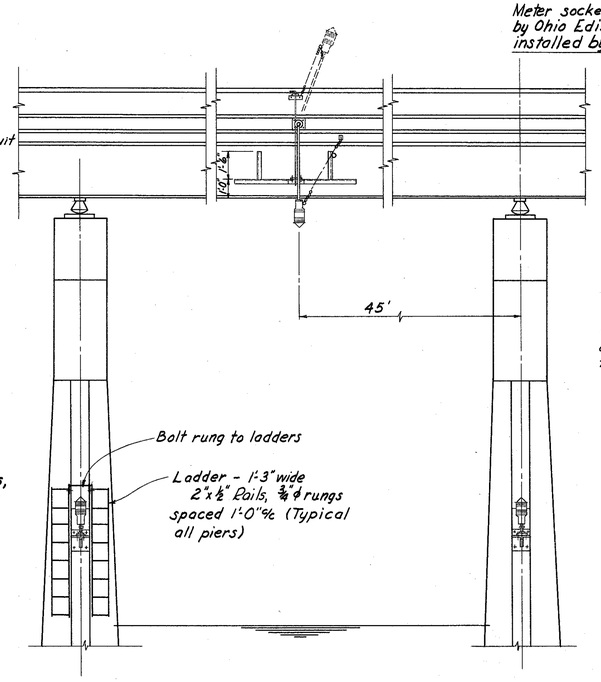


DETAIL AT ABUTMENT
NAVIGATIONAL LIGHTING

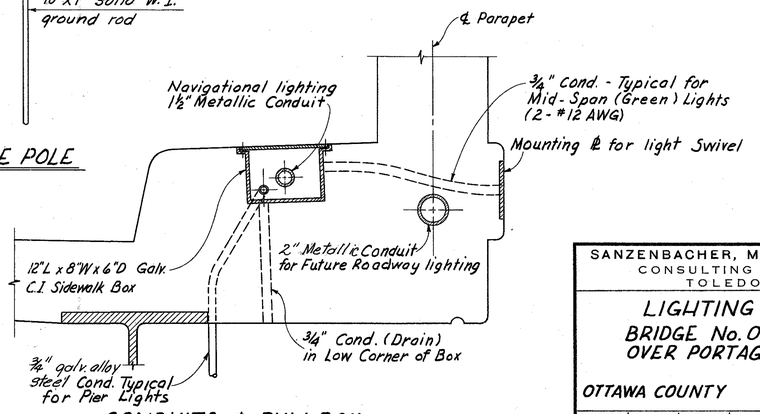


Note: Bracket assembly, bolts, cinch anchors and ladders to be galvanized.

SECTION A-A



VIEW B-B



CONDUITS & PULLBOX
NAVIGATIONAL LIGHTING

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

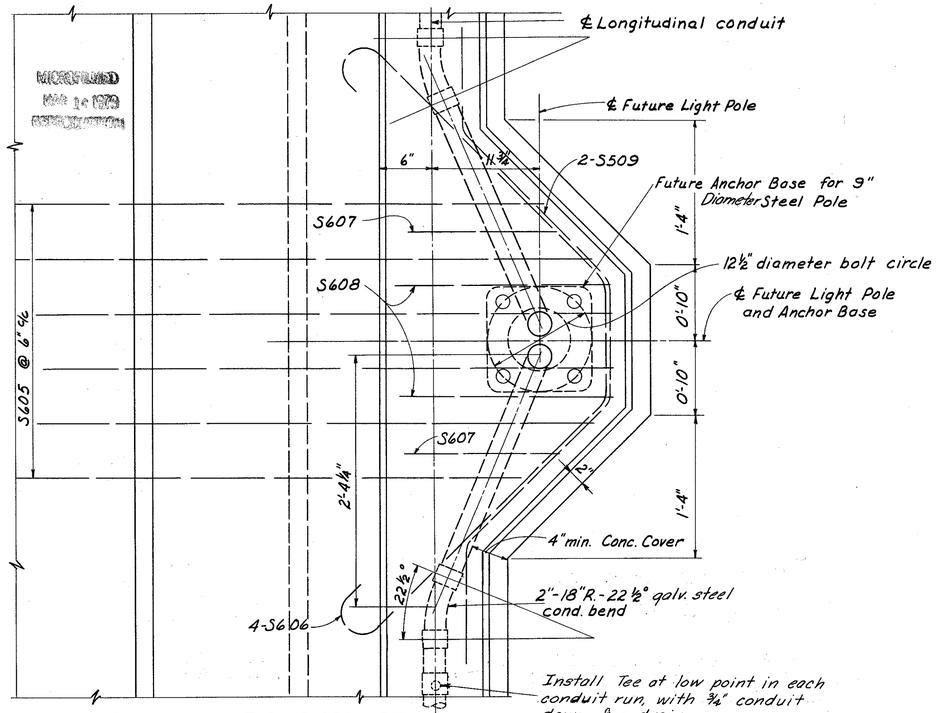
LIGHTING DETAILS (1)
BRIDGE No. OTT. 2-1844
OVER PORTAGE RIVER
STA. 121+45.75 to
STA. 126+54.25
OTTAWA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB BJH	OMB BJH	JCS	ERB	BJH	2-12-63	

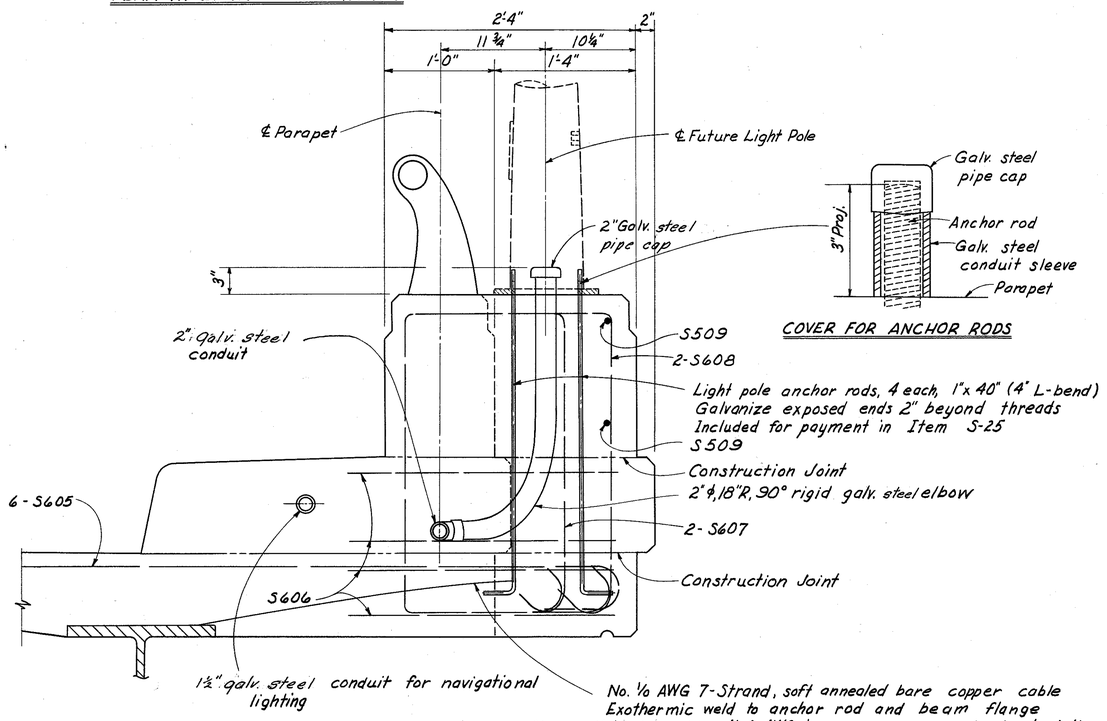
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

116
133

OTT. 2-16.48

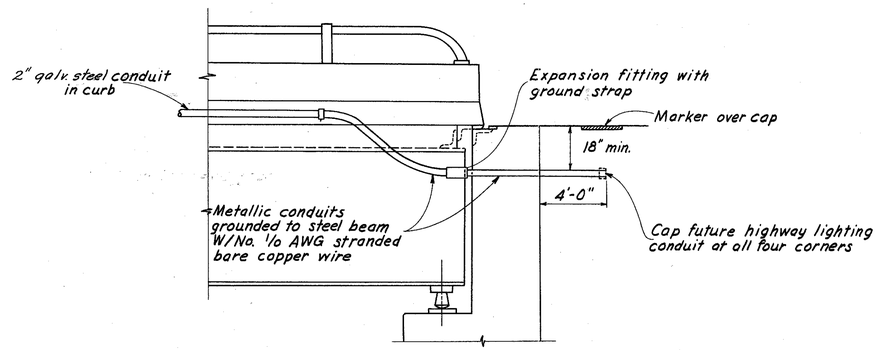


PLAN AT LIGHT POLE BRACKET

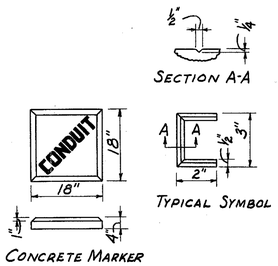


SECTION AT LIGHT POLE BRACKET

COVER FOR ANCHOR RODS



DETAIL AT ABUTMENT
ROADWAY LIGHTING



MARKER
4 Req'd.

ESTIMATED QUANTITIES
NAVIGATIONAL LIGHTING AND BRIDGE ROADWAY LIGHTING PROVISIONS

Item	Quantity	Unit	Description
			ON BRIDGE No. OTT.2-1844
S-25	8	Each	Mid-channel lighting units
S-25	10	Each	Pier lights
S-25	18	Each	Sidewalk boxes
S-25	1	Each	Cast-iron junction box
S-25	945	Lin.Ft.	1½" Electric conduit (metallic)
S-25	385	Lin.Ft.	¾" Electric conduit (metallic)
S-25	2850	Lin.Ft.	No.8 AWG 600-volt single conductor cable
S-25	Lump	Sum	Electrical grounds
S-25	6	Set of 4	Bridge roadway lighting standard anchor rods
S-25	Lump	Sum	Bridge roadway lighting conduit system
			ON ROADWAY APPROACHES
S-25	85	Lin.Ft.	2" Electric conduit (alloy steel)
S-25	185	Lin.Ft.	2" Electric conduit (metallic)
S-25	1020	Lin.Ft.	Triplex aerial cable
S-25	7	Each	Line poles
S-25	Lump	Sum	Service pole and equipment
S-25	840	Lin.Ft.	No.4 AWG 600-volt single conductor cable

Note:
Navigational Lighting and Bridge Roadway Lighting Provisions: For General notes & notes pertaining to material, equipment, construction methods, tests and payments, Sheets 116A, 116B, 116C.

02489

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

LIGHTING DETAILS (2)
BRIDGE No. OTT. 2-1844
OVER PORTAGE RIVER
STA. 121+45.75 TO
OTTAWA COUNTY STA. 126+54.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
BJH	BJH OMB	JCS	ERB	BJH	2-18-63	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

116-A
133

OTT. 2-16.48

LIGHTING NOTES (1 OF 3)

A. GENERAL

ITEM S-25 AND THESE NOTES SHALL GOVERN FOR THE MATERIALS USED AND FOR THE INSTALLATION OF A NAVIGATIONAL LIGHTING SYSTEM AND PROVISION FOR A FUTURE ROADWAY LIGHTING SYSTEM FOR BRIDGE OTT. 2-1844, CARRYING S. R. 2 - RELOCATED - OVER THE PORTAGE RIVER, APPROXIMATELY 2-1/2 MILES WEST OF PORT CLINTON, IN OTTAWA COUNTY, OHIO.

THE TYPE AND LOCATION OF NAVIGATIONAL LIGHTS SHALL BE AS INDICATED. INTERCONNECTING ELECTRICAL CABLES SHALL BE IN METALLIC CONDUIT AND SIDEWALK BOXES BUILT INTO THE STRUCTURE, AND IN EXPOSED METALLIC CONDUIT ON PIERS, AS DETAILED. SERVICE SHALL BE EXTENDED FROM POINT OF CONTACT WITH OHIO EDISON COMPANY LINES ABOUT 1150 FEET FORWARD FROM STRUCTURE, BY UNDERGROUND AND OVERHEAD WIRING AS INDICATED.

PROVISION FOR FUTURE ROADWAY LIGHTING SHALL CONSIST OF SUITABLE SUPPORTS FOR FUTURE LIGHT STANDARDS, INTERCONNECTED WITH METALLIC CONDUIT BUILT INTO AND EXTENDING THE FULL LENGTH OF THE STRUCTURE AND THROUGH THE ABUTMENTS, COMPLETE WITH PULL-WIRES, AND SUITABLY CAPPED AND MARKED.

GROUNDING OF ALL LIGHTING FIXTURES, METALLIC CONDUIT, SIDEWALK BOXES AND ANCHOR BOLTS FOR FUTURE LIGHT STANDARDS, AS WELL AS GROUND WIRES IN BRIDGE PIERS FOR SUPERSTRUCTURE GROUNDING, IS INCLUDED.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NAVIGATIONAL LIGHTING FIXTURES, COMPLETE WITH TRANSFORMERS, AUTOMATIC LAMP-CHANGERS AND LAMPS, FRESNEL LENSES OF THE PROPER COLORS, ALL SUPPORTING BRACKETS, CONDUIT, BOXES, CONDUCTORS, GROUNDS, AND ALL INCIDENTALS NECESSARY FOR THE INSTALLATION AS SPECIFIED. THE INSTALLATION SHALL BE COMPLETE, AND THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT NECESSARY FOR THE SATISFACTORY OPERATION OF THE SYSTEM, WHETHER SPECIFICALLY MENTIONED OR NOT.

THE CONTRACTOR SHALL ALSO FURNISH AND INSTALL ALL ANCHOR BOLTS FOR FUTURE LIGHT STANDARDS AND ALL CONDUIT AND FITTINGS, TOGETHER WITH SUITABLE PULL-WIRES, CAPS AND MARKERS AND OTHER INCIDENTALS NECESSARY FOR A COMPLETE INSTALLATION AS SPECIFIED.

REFERENCES TO A PARTICULAR MANUFACTURER'S NAME, PRODUCT OR CATALOG NUMBER FOR AN ARTICLE OF EQUIPMENT OR MATERIAL IS NOT INTENDED TO BE RESTRICTIVE, BUT IS INTENDED TO BE DESCRIPTIVE OF EQUIPMENT OR MATERIAL THAT WILL BE ACCEPTABLE.

A LAYOUT INDICATING IN GENERAL THE ARRANGEMENT AND LOCATION OF THE EQUIPMENT IS SHOWN. THIS SHALL BE CONSIDERED ONLY AS ILLUSTRATIVE AND, SUBJECT TO THE APPROVAL OF THE DIRECTOR, THE CONTRACTOR MAY MODIFY IT IF NECESSARY FOR COMPLETE AND PROPER CONSTRUCTION AND OPERATION. THE LOCATIONS OF CONDUITS AND LIGHTING FIXTURES SHOWN ON THE PLANS ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE, BUT MAY BE SUBJECT TO SHIFTING AS THE DIRECTOR MAY PRESCRIBE IN ORDER TO CONFORM TO LOCAL CONDITIONS. BEFORE COMMENCEMENT OF WORK UNDER THIS HEADING, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT PROPOSED FOR INSTALLATION SHALL BE SUBMITTED FOR APPROVAL. THE SCHEDULE SHALL INCLUDE CATALOGS, CUTS, DIAGRAMS, DRAWINGS AND SUCH OTHER DESCRIPTIVE DATA AS MAY BE REQUIRED BY THE DIRECTOR. IN THE EVENT ANY ITEMS OF MATERIAL OR EQUIPMENT CONTAINED IN THE SCHEDULE FAIL TO COMPLY WITH SPECIFICATION REQUIREMENTS, SUCH ITEMS WILL BE REJECTED.

B. MATERIALS AND EQUIPMENT

ALL BOLTS, NUTS, STUDS, WASHERS, PINS, TERMINALS, SPRINGS, CHAINS AND SIMILAR FASTENINGS AND FITTINGS SHALL BE OF AN APPROVED CORROSION-RESISTING MATERIAL SUCH AS BRASS, BRONZE OR MONEL, OR OF A MATERIAL TREATED IN AN APPROVED MANNER TO RENDER IT ADEQUATELY RESISTANT TO CORROSION. HOT-DIP GALVANIZING WILL BE CONSIDERED SUCH APPROVED TREATMENT. ALL MATERIALS FURNISHED SHALL BE NEW, SHALL BE OF THE BEST QUALITY AND WORKMANSHIP, SHALL BE THE BEST STANDARD PRODUCT OF A MANUFACTURER REGULARLY ENGAGED IN THE PRODUCTION OF THIS TYPE OF EQUIPMENT, AND SHALL BE OF THE MANUFACTURER'S LATEST APPROVED DESIGN.

MID-CHANNEL LIGHTS SHALL BE WALLACE AND TIERNAN TYPE FA-231 (SINGLE-LIGHT) ELECTRIC NAVIGATION LIGHT, COMPLETE WITH 200 M. M. 360-DEGREE GREEN FRESNEL DRUM LENS, 4-LAMP AUTOMATIC LAMP-CHANGER OPERATED BY 13.0 VOLTS A. C., FOUR 25-WATT 13 VOLT PRE-FOCUSED BASE LAMPS, AND TRANSFORMER FOR OPERATION FROM A 120 VOLT, 60 CYCLE A. C. SUPPLY.

MID-CHANNEL LIGHTS SHALL BE SWIVEL-MOUNTED AS DETAILED TO PROVIDE ACCESSIBILITY FOR SERVICING FROM THE BRIDGE DECK. SWIVEL MOUNTING SHALL BE WALLACE AND TIERNAN TYPE FA-230 COMPLETE WITH ALL NECESSARY ACCESSORIES TO ADEQUATELY AND SECURELY MOUNT THE ASSEMBLY ON THE STRUCTURE, PROVIDE FOR ELECTRIC SUPPLY TO THE LIGHT, AND PROVIDE A TAMPER-PROOF MEANS OF LOCKING THE LIGHT IN POSITION SO THAT IT CANNOT BE MOVED EXCEPT BY AUTHORIZED PERSONNEL.

PIER LIGHTS SHALL BE WALLACE AND TIERNAN TYPE FA-231 (SINGLE-LIGHT) ELECTRIC NAVIGATION LIGHT, COMPLETE WITH 200 M. M. 180-DEGREE RED, 180-DEGREE DARK FRESNEL DRUM LENS, 4-LAMP AUTOMATIC LAMP-CHANGER OPERATED BY 13 VOLTS A. C., FOUR 25-WATT 13-VOLT PREFOCUSED BASE LAMPS, AND TRANSFORMER FOR OPERATION FROM A 120-VOLT 60 CYCLE A. C. SUPPLY.

PIER LIGHTS SHALL BE PEDESTAL MOUNTED ON THE NOSE OF THE PIERS AS DETAILED. PEDESTAL MOUNTING SHALL BE WALLACE AND TIERNAN TYPE FA-229, COMPLETE WITH ALL NECESSARY BRACKETS, FITTINGS AND ACCESSORIES TO ADEQUATELY AND SECURELY ATTACH THE LIGHT TO THE PIER AND PROVIDE FOR ELECTRIC SUPPLY.

ALL NAVIGATIONAL LIGHTS SHALL BE OF SUFFICIENT CANDLEPOWER SO AS TO BE VISIBLE AGAINST THE BACKGROUND LIGHTING AT A DISTANCE OF AT LEAST 2000 YARDS 90% OF THE NIGHTS OF THE YEAR.

SIDEWALK BOXES FOR THE NAVIGATIONAL LIGHTING SYSTEM SHALL BE CHECKERED COVER SIDEWALK BOXES FOR FLUSH MOUNTING. BOXES SHALL BE CAST IRON, HOT-DIP GALVANIZED FINISH, WITH SEPARATE FLANGE AND COVER. COVER SHALL BE A CROSS-RIBBED CHECKERED PLATE WITH PRY-BAR SLOTS, COMPLETE WITH NEOPRENE GASKET AND MONEL SCREWS. BOXES SHALL HAVE DRILLED AND TAPPED CONDUIT ENTRANCES AND SHALL NOT BE LESS THAN 12" L x 8" W x 6" D, 5/16" MINIMUM WALL THICKNESS.

JUNCTION BOX NEAR FORWARD ABUTMENT SHALL BE A FLAT FLANGED BOX FOR SURFACE MOUNTING. BOX SHALL BE CAST IRON, HOT-DIP GALVANIZED FINISH, WATERTIGHT (NEMA 4) CONSTRUCTION, WITH DRILLED AND TAPPED CONDUIT ENTRANCES AND MOUNTING LUGS. COVER SHALL BE OF SIMILAR MATERIAL COMPLETE WITH NEOPRENE GASKET AND MONEL SCREWS. BOX SHALL BE NOT LESS THAN 16" L x 12" W x 8" D, 5/16" MINIMUM WALL THICKNESS.

ALL METALLIC CONDUIT PLACED IN THE CURBS OF THE BRIDGE DECK SHALL BE RIGID STEEL CONDUIT, STANDARD WALL THICKNESS, GALVANIZED AFTER THREADING, SIZES AS SHOWN, AND MEETING FEDERAL GENERAL SERVICES SPECIFICATION WWC-581c.

ALL EXPOSED METALLIC CONDUIT, EITHER ON OR OFF THE STRUCTURE, SHALL BE RIGID ALLOY STEEL CONDUIT, STANDARD WALL THICKNESS, GALVANIZED AFTER THREADING, SIZES AS SHOWN, AND MEETING SUPPLEMENTAL STATE SPECIFICATION M106.11.

ALL UNDERGROUND CONDUIT SHALL BE GALVANIZED STEEL CONDUIT AS DESCRIBED ABOVE, CONCRETE ENCASED, OR ALLOY STEEL CONDUIT, AS DESCRIBED ABOVE, NOT ENCASED.

CABLE FOR NAVIGATIONAL LIGHTING SYSTEM ON STRUCTURE OR IN BURIED CONDUIT SHALL BE SINGLE CONDUCTOR, 600 VOLTS, 7-STRAND, PER FAA-L-824 SPECIFICATION, TYPE A, SIZES AS SHOWN.

AERIAL CABLE ALONG CAUSEWAY SHALL BE A TRIPLEX ASSEMBLY CONSISTING OF TWO INSULATED CONDUCTORS AND A BARE NEUTRAL MESSENGER, ASSEMBLED WITH MAXIMUM LAY, AND CONFORMING TO IPCEA SPECIFICATIONS FOR NEUTRAL-SUPPORTED SECONDARY CABLE EXCEPT AS OTHERWISE SPECIFIED BELOW.

INSULATED CONDUCTORS SHALL BE ALUMINUM, "EC" GRADE, WITH A MINIMUM TENSILE STRENGTH OF 17,000 PSI., #4AWG, 7-STRAND, CONFORMING TO ASTM B231, WITH INSULATION OF THE POLYETHYLENE TYPE, COMPOUNDED TO BE RESISTANT TO SUNLIGHT AND WEATHERING, 600 VOLT RATING. PRESENT CIRCUIT WILL BE 120/240 VOLTS SINGLE PHASE 3-WIRE BUT LINE MAY BE REQUIRED TO OPERATE AT 480 VOLTS IN THE FUTURE.

NEUTRAL MESSENGER SHALL BE #4AWG, ACSR, 7-STRAND (6 ALUMINUM AROUND 1 STEEL) IN ACCORDANCE WITH ASTM B232.

POLES ALONG CAUSEWAY SHALL BE WESTERN RED CEDAR, 40-FOOT LENGTH, CLASS 4, PENTA-CHLOROPHENOL TREATED FULL LENGTH. POLES SHALL BE FULL-LENGTH MACHINE SHAVED AND SELECTED FOR UNIFORMITY OF TAPER AND GENERAL APPEARANCE FOR ROADWAY LIGHTING PURPOSES.

SERVICE POLE SHALL ALSO BE 40-FOOT LENGTH, SIMILAR TO LINE POLES, AND SHALL BE APPROVED BY THE POWER COMPANY.

PHOTOELECTRIC CONTROL SHALL BE CADMIUM-SULPHIDE TYPE SUITABLE FOR USE ON A 120-VOLT CIRCUIT, SHALL HAVE ADEQUATE CAPACITY TO OPERATE THE ASSOCIATED RELAY, AND LIGHT-LEVEL SETTING FOR TURN-ON SHALL BE ADJUSTABLE. CADMIUM-SULPHIDE CELL SHALL BE HERMETICALLY SEALED FOR PROTECTION. ENTIRE UNIT SHALL BE ENCASED IN A WEATHERPROOF HOUSING AND EXTERNAL CONNECTIONS SHALL TERMINATE IN AN EEI-NEMA STANDARD TWIST-LOCK PLUG IN THE BASE. PHOTOELECTRIC CONTROL SHALL BE AS FURNISHED BY GENERAL ELECTRIC, LINE MATERIAL INDUSTRIES OR WESTINGHOUSE.

RELAY SHALL BE PHOTOELECTRICALLY CONTROLLED BY THE ABOVE-DESCRIBED UNIT AND SUITABLE FOR USE ON A 120/240-VOLT SINGLE-PHASE THREE-WIRE MULTIPLE CIRCUIT. IT SHALL BE ENCASED IN A WEATHERPROOF HOUSING WITH AN EEI-NEMA STANDARD TWIST-LOCK RECEPTACLE IN THE TOP TO RECEIVE THE PHOTOELECTRIC CONTROL, AND PROVISION AT THE BOTTOM FOR 1-1/4" CONDUIT ENTRY. RELAY SHALL BE TWO-POLE, NORMALLY OPEN, WITH LOAD CONTACTS RATED NOT LESS THAN 30 AMPERES AT 120 VOLTS OR 15 AMPERES AT 240 VOLTS, AND COIL RATED AT 120 VOLTS, AS FURNISHED BY GENERAL ELECTRIC, LINE MATERIAL INDUSTRIES OR WESTINGHOUSE.

SUITABLE DEVICES TO PROVIDE ADEQUATE LIGHTNING AND SURGE PROTECTION SHALL BE INCLUDED IN THE PHOTOELECTRIC CONTROL AND RELAY ASSEMBLY.

SERVICE DISCONNECT SHALL BE A HEAVY DUTY SAFETY SWITCH, 240 VOLT, SINGLE THROW, FUSIBLE, 60 AMPERE, THREE-WIRE, SOLID NEUTRAL, IN A STAINLESS STEEL NEMA-4 WATERTIGHT ENCLOSURE, SQUARE D CLASS 9421, TYPE W999FA221B OR APPROVED EQUAL, WITH PADLOCK.

LIGHTING NOTES (2 OF 3)

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

OTT. 2-1648

116-B / 133

C. CONSTRUCTION METHODS

THE INSTALLATION AS A WHOLE SHALL BE CARRIED OUT IN CONFORMANCE WITH THE REQUIREMENTS HEREIN STATED AND IMPLIED, AND UPON COMPLETION OF THE WORK SHALL PRESENT A NEAT AND WORKMANLIKE FINISHED APPEARANCE. SAFE CONSTRUCTION AND OPERATING PRACTICES MEETING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL SAFETY CODE SHALL BE MAINTAINED.

POLES SHALL BE CAREFULLY SET AND SHALL BE PLUMB. CONTRACTOR SHALL NOTE THAT POLES ARE TO BE MACHINE-SHAVED AND SPECIALLY SELECTED FOR APPEARANCE. FOR THIS REASON, THE USE OF LINEMAN'S SPURS WILL NOT BE PERMITTED, AND THE CAREFUL PLUMBING OF POLES IS CONSIDERED AN ESSENTIAL FEATURE OF THIS INSTALLATION.

AERIAL CABLE ASSEMBLY SHALL BE SUPPORTED AT INTERMEDIATE POLES BY SUITABLE CABLE CLAMPS, THROUGH-BOLTED WITH A 5/8" BOLT AND 2" x 2" SQUARE WASHER. CABLE ASSEMBLY SHALL BE SPREAD AT EACH INTERMEDIATE POLE, USING A PORCELAIN SPACER PLACED ABOUT TWELVE INCHES FROM THE SUPPORT, TO FACILITATE MAKING TAPS FOR (FUTURE) ROADWAY LIGHTING LUMINAIRES.

DEAD-END ATTACHMENT SHALL BE MADE WITH CLEVIS AND SPOOL-TYPE INSULATOR WITH 3" DIAMETER CONDUCTOR GROOVE FOR ACSR, SIMILAR TO HUBBARD #1716 OR JOSLYN #J0101, THROUGH-BOLTED WITH 5/8" BOLT TO GUY-WIRE ATTACHMENT ON OTHER SIDE OF POLE. DEAD-END CABLE CLAMP TO BE PARALLEL GROOVE TYPE FOR ACSR, INSTALLED NOT CLOSER THAN 6" TO SPOOL.

CONNECTION TO UNDERGROUND CIRCUIT AT BOTH ENDS OF AERIAL LINE SHALL BE MADE ACCORDING TO THE BEST PRACTICE, WITH ADEQUATE DRIP LOOPS, USING U. L. APPROVED COMPATIBLE CONNECTORS, PRE-FILLED WITH AN INHIBITING JOINT COMPOUND, AND THE CONNECTION TAPED WITH NEOPRENE AND FRICTION TAPE.

AERIAL LINE TO BE STRUNG IN ACCORDANCE WITH NESC REQUIREMENTS, WITH INITIAL UNLOADED TENSION NOT MORE THAN 35% AND FINAL UNLOADED TENSION NOT MORE THAN 25% of MANUFACTURER'S PUBLISHED ULTIMATE OR BREAKING STRENGTH AT 60° F, AND A MAXIMUM LOADED TENSION, BASED ON HEAVY-LOADING DISTRICT FACTORS, NOT MORE THAN 60% OF ULTIMATE.

SECONDARY LIGHTNING ARRESTERS OF THE 0-650 VOLT CLASS SHALL BE INSTALLED AT EACH END OF THE AERIAL LINE AND SHALL BE GROUNDED WITH NOT LESS THAN A #6AWG 7-STRAND SOFT ANNEALED BARE COPPER CABLE. THEY SHALL BE OF THE VALVE-TYPE DESIGN FOR OUTDOOR APPLICATION ON A 120/240 VOLT (FUTURE 480 VOLT) SINGLE PHASE LINE.

CONDUITS THAT ARE RUN EXPOSED ON SUPERSTRUCTURE, PIERS OR ABUTMENTS SHALL BE FIRMLY CLAMPED IN PLACE AT INTERVALS NOT EXCEEDING SIX (6) FEET, SHALL BE RUN IN LINES PARALLEL AND PERPENDICULAR TO LINES OF STRUCTURE EXCEPT THAT ALL HORIZONTAL RUNS SHALL HAVE A SLIGHT PITCH FOR DRAINAGE, AND SHALL BE SO PLACED THAT DIRT CANNOT ACCUMULATE AROUND THEM. THERE SHALL BE AT LEAST ONE INCH CLEARANCE BETWEEN CONDUITS AND BETWEEN CONDUITS AND STRUCTURE, AND IF RUN ON A HORIZONTAL SURFACE, THEY SHALL CLEAR SAID SURFACE BY AT LEAST THREE INCHES.

ADEQUATE APPROVED PROVISION FOR THE MOVEMENT OF CONDUITS SHALL BE MADE WHEREVER CONDUITS CROSS EXPANSION OR FIXED JOINTS OR PASS FROM SUPERSTRUCTURE TO PIERS OR ABUTMENTS.

A #1/0 AWG 7-STRAND SOFT ANNEALED BARE COPPER CABLE SHALL BE EMBEDDED IN FIXED PIERS NOS. 3 AND 8, NEAR THE OUTSIDE EDGE OF THE STRUCTURE. THE LOWER END OF THE CABLE SHALL EXTEND THROUGH THE BOTTOM OF THE PIER FOOTING AND MUD MAT FOR A DISTANCE OF AT LEAST 25-FEET, SHALL BE LOOPED UNDER THE PIER FOOTING AND MUD MAT, AND SHALL BE SEPARATED FROM THE CONCRETE BY AT LEAST TWO LAYERS OF TAR PAPER. CABLE SHALL BE EXTENDED IN ONE CONTINUOUS LENGTH THROUGH TOP OF PIER, LEAVING SUFFICIENT LENGTH TO ATTACH UPPER END OF CABLE BY EXOTHERMIC WELD TO OUTSIDE BEAM OF SUPERSTRUCTURE.

AT EACH LIGHT STANDARD SUPPORT ON THE STRUCTURE, ONE END OF A #1/0 AWG 7-STRAND SOFT ANNEALED BARE COPPER CABLE SHALL BE ATTACHED BY EXOTHERMIC WELD TO ONE OF THE LIGHT STANDARD ANCHOR RODS AND THE OTHER END SIMILARLY ATTACHED TO THE TOP FLANGE OF THE OUTSIDE BEAM OF THE SUPERSTRUCTURE. BOTH METALLIC CONDUIT ELBOWS SHALL BE SIMILARLY BONDED TO THE GROUNDED ANCHOR ROD.

METALLIC CONDUIT SYSTEM FOR NAVIGATIONAL LIGHTING CIRCUITS SHALL BE GROUNDED AT EACH SIDEWALK BOX WITH A #1/0 AWG 7-STRAND SOFT ANNEALED BARE COPPER CABLE ATTACHED BY EXOTHERMIC WELD TO THE TOP FLANGE OF THE OUTSIDE BEAM OF THE SUPERSTRUCTURE AND TO THE SIDEWALK BOX.

GROUND STRAPS SHALL BE USED WHEREVER ELECTRICAL CONTINUITY OF METALLIC CONDUIT IS INTERRUPTED.

FOUR (4) 1-INCH BY 40-INCH HIGH GRADE STEEL ANCHOR RODS, 36-INCHES LONG WITH A 4-INCH "L" BEND AT THE BOTTOM END AND THREADED AT THE TOP END, SHALL BE FURNISHED AND INSTALLED FOR EACH BRIDGE LIGHT STANDARD SUPPORT. ANCHOR RODS SHALL BE THREADED FOR 6-INCHES AND GALVANIZED FOR NOT MORE THAN 2-INCHES BEYOND THE THREADS, AFTER FABRICATION. ANCHOR RODS SHALL BE FABRICATED FROM STEEL CONFORMING TO AISI C1035, HOT ROLLED SPECIAL QUALITY, (MINIMUM YIELD STRENGTH 46,000 P. S. I.) OR THE IDENTICAL ASTM DESIGNATION A107, GRADE 1035, SPECIAL QUALITY. ANCHOR RODS SHALL BE CAREFULLY SET TO THE PRESCRIBED DIMENSIONS AND THE EXPOSED THREADED ENDS PROTECTED AS DETAILED.

METALLIC CONDUIT ELBOWS SHALL BE FURNISHED AND INSTALLED AT EACH BRIDGE LIGHT STANDARD SUPPORT, SHALL BE CAREFULLY SET TO THE PRESCRIBED DIMENSIONS, AND CAPPED AS DETAILED.

THE CONTRACTOR SHALL PERFORM ALL AUGER DRILLING AND SETTING OF SERVICE POLE AND POLES ALONG CAUSEWAY, AND SHALL PERFORM ALL EXCAVATIONS FOR UNDERGROUND CONDUIT IN WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE DRAWINGS OR AS OTHERWISE SPECIFIED. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILL SHALL BE PILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE TRENCH TO AVOID SLIDES. ALL EXCAVATED MATERIALS NOT REQUIRED OR UNSUITABLE FOR BACKFILL SHALL BE REMOVED AND WASTED. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER INSTALLATION OF CONDUIT. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM DEPTH BELOW GROUND SURFACE. TRENCHES SHALL BE CAREFULLY BACKFILLED IN ACCORDANCE WITH SECTION 1-1. 07, CLASS 1.

NAVIGATIONAL LIGHTING FEEDER BETWEEN SERVICE POLE AND FIRST LINE POLE, AND BETWEEN LAST LINE POLE AND STRUCTURE, SHALL BE RUN IN 2-INCH GALVANIZED STEEL CONDUIT ENCASED IN NOT LESS THAN 3-INCHES OF CLASS C CONCRETE OR IN 2-INCH ALLOY STEEL CONDUIT, NOT ENCASED. CONDUIT SHALL BE LAID WITH A MINIMUM GRADE OF 6-INCHES PER 100-FEET. GRADE MAY BE BETWEEN ENDS OR BOTH WAYS FROM A HIGH POINT, DEPENDING ON THE CONTOUR OF THE FINISHED GRADE, AND DRAINS SHALL BE PROVIDED AT LOW POINTS. CONDUIT SHALL BE INSTALLED NOT LESS THAN 27-INCHES BELOW INDICATED FINISHED GRADES.

CONCRETE-ENCASED CONDUIT SHALL BE PLACED, AND THE CONCRETE SHALL BE ALLOWED TO SET AT LEAST 4-DAYS BEFORE BASE ROLLING WILL BE ALLOWED OVER SAME. AFTER UNDERGROUND CONDUIT INSTALLATION IS COMPLETED, A STIFF OVERSIZE WIRE BRUSH SHALL BE PULLED THROUGH EACH CONDUIT TO MAKE CERTAIN THAT IT IS CLEAR.

CONDUITS FOR THE FUTURE ROADWAY LIGHTING SYSTEM SHALL BE SIMILARLY CLEANED, A #10 AWG GALVANIZED STEEL PULL-WIRE SHALL BE LEFT IN EACH RUN, AND RUNS SHALL BE SECURELY CAPPED AT BOTH ENDS. CAPPED ENDS OF THIS CONDUIT SYSTEM, OCCURRING AT THE FOUR CORNERS OF THE STRUCTURE BEYOND THE ABUTMENTS SHALL HAVE THEIR LOCATION INDICATED BY SUITABLE MARKERS AS DETAILED.

UNDERGROUND CABLE SHALL BE INSTALLED IN CONTINUOUS LENGTHS WITHOUT SPLICES, FROM TERMINAL TO TERMINAL. TAILS OF SUFFICIENT LENGTH TO FORM ADEQUATE DRIP LOOPS SHALL BE LEFT AT ALL WEATHER HEADS.

SPLICES SHALL NOT OCCUR IN CONDUIT. SPLICING OF CONDUCTORS OR TAPS FROM CONDUCTORS SHALL BE MADE IN PULL OR JUNCTION BOXES ONLY. SPLICES OR TAPS SHALL BE MADE MECHANICALLY AND ELECTRICALLY SECURE BY MEANS OF TIGHTLY BOLTED CONNECTIONS USING HIGH STRENGTH TIN PLATED COPPER ALLOY CONNECTORS. BOLTED CONNECTIONS SHALL BE COVERED BY CAREFULLY WRAPPING WITH PLASTIC ELECTRICAL TAPE TO THE FULL VALUE OF THE CONDUCTOR INSULATION AND MAKING WATERTIGHT BY APPLYING A COMPATIBLE LIQUID SEALANT. ALL CONNECTIONS HAVING IRREGULAR SURFACES SHALL BE PROPERLY PADDED WITH ELECTRICAL INSULATING PUTTY PRIOR TO APPLICATION OF TAPE.

D. TESTS

THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND APPLIANCES NECESSARY TO TEST THE COMPLETED CABLE SYSTEM, AND A BURNING TEST WILL BE REQUIRED FOR THE LIGHTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DEMONSTRATE TO THE SATISFACTION OF THE DIRECTOR OF HIGHWAYS THAT LIGHTING CIRCUITS ARE CONTINUOUS AND FREE FROM SHORT CIRCUITS AND UNSPECIFIED GROUNDS, THAT CIRCUITS ARE PROPERLY CONNECTED IN ACCORDANCE WITH THE APPLICABLE WIRING DIAGRAMS, AND THAT THE RESISTANCE BETWEEN INSULATED CONDUCTORS AND BETWEEN INSULATED CONDUCTORS AND GROUND IS NOT LESS THAN SPECIFIED IN PARAGRAPH 110-19 OF THE NATIONAL ELECTRICAL CODE. TO THIS END, THE CONTRACTOR SHALL FURNISH THE DIRECTOR AND HIGHWAY LIGHTING ENGINEER WITH COMPLETE REPORTS OF MEGGER READINGS ON CIRCUITS INSTALLED.

MINIMUM SIZE FUSES (35-AMPERE) SHALL BE INSTALLED IN THE SERVICE DISCONNECT SWITCH AND CONTRACTOR SHALL ADJUST PHOTOELECTRIC CONTROLLER AS REQUIRED AND DEMONSTRATE ITS PROPER OPERATION.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

116C
133

OTT. 2-1648

LIGHTING NOTES (3 OF 3)

E. PAYMENT FOR NAVIGATIONAL LIGHTING AND BRIDGE ROADWAY LIGHTING PROVISIONS

PAYMENT FOR NAVIGATIONAL LIGHTING AND BRIDGE ROADWAY LIGHTING PROVISIONS SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEMS AS INDICATED IN THE SCHEDULE OF ESTIMATED QUANTITIES, WHICH PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY, WHETHER SPECIFICALLY MENTIONED OR NOT, TO COMPLETE THE ENTIRE WORK, INSTALLED AND IN OPERATING CONDITION FOR FULL ACCEPTANCE, ACCORDING TO PLANS AND SPECIFICATIONS. PAYMENT WILL BE MADE AS FOLLOWS:

1. ON BRIDGE NO. OTT. 2-1844

a. MID-CHANNEL LIGHTING UNITS, PER EACH, COMPLETE WITH 200 M. M. 360-DEGREE GREEN FRESNEL DRUM LENS, 4-LAMP AUTOMATIC LAMP-CHANGER, FOUR 25-WATT, 13.0 VOLT PREFOCUSED BASE LAMPS, TRANSFORMER, SWIVEL MOUNTING AND ALL NECESSARY ACCESSORIES AND INCIDENTALS REQUIRED TO ADEQUATELY AND SECURELY ATTACH THE ENTIRE LIGHTING UNIT AND SWIVEL ASSEMBLY TO THE STRUCTURE, AND PROVIDE FOR ELECTRIC SUPPLY TO AND PROPER GROUNDING OF SAME.

b. PIER LIGHTS, PER EACH, COMPLETE WITH 200 M. M. 180-DEGREE RED, 180-DEGREE DARK, FRESNEL DRUM LENS, 4-LAMP AUTOMATIC LAMP-CHANGER, FOUR 25-WATT, 13.0 VOLT PREFOCUSED BASE LAMPS, TRANSFORMER, MOUNTING BRACKET, SERVICE ACCESS LADDERS AND ALL NECESSARY ACCESSORIES AND INCIDENTALS REQUIRED TO SECURELY ATTACH THE LIGHTING UNIT, MOUNTING BRACKET AND LADDERS TO THE PIER, AS DETAILED, AND PROVIDE FOR ELECTRIC SUPPLY TO AND PROPER GROUNDING OF SAME.

c. SIDEWALK BOXES, PER EACH, COMPLETE WITH FLANGE, COVER, GASKET AND SCREWS, AND INCLUDING 3/4" CONDUIT STUB FOR DRAIN.

d. CAST-IRON JUNCTION BOX, PER EACH, COMPLETE WITH GASKET, COVER AND SCREWS, AND ALL SPECIALS FOR THE PROPER AND ADEQUATE MOUNTING THEREOF.

e. ONE AND ONE-HALF INCH ELECTRIC CONDUIT (METALLIC), PER LINEAL FOOT, INCLUDING CUTTING AND REAMING, THREADING, ELBOWS, COUPLINGS, FITTINGS, FASTENINGS AND ATTACHMENTS AS REQUIRED TO INTERCONNECT JUNCTION BOX AND SIDEWALK BOXES.

f. THREE-QUARTER INCH ELECTRIC CONDUIT (METALLIC), PER LINEAL FOOT, INCLUDING CUTTING AND REAMING, THREADING, COUPLINGS, FITTINGS, PULL-BOXES, "SEALTITE" CONDUIT, ALL REQUIRED FASTENINGS AND ATTACHMENTS TO INTER-CONNECT SIDEWALK BOXES AND LIGHTS, AND TWO #12 AWG CONDUCTORS INSTALLED AND CONNECTED FROM SIDEWALK BOXES TO LIGHTS.

g. NO. 8 AWG 600-VOLT SINGLE CONDUCTOR CABLE, PER LINEAL FOOT, INCLUDING SPLICING, TAPS, TERMINATIONS, CONNECTIONS AND TESTING, FROM JUNCTION BOX AT FORWARD ABUTMENT THROUGH INCH AND ONE-HALF CONDUIT TO SIDEWALK BOXES FOR ALL NAVIGATIONAL LIGHTING UNITS ON STRUCTURE.

h. ELECTRICAL GROUNDS, PER LUMP SUM, INCLUDING #1/0 BARE GROUNDS IN AND UNDER PIERS NOS. 3 & 8 AND EXTENDING THROUGH TOPS OF PIERS AND CONNECTING TO OUTSIDE BEAMS OF SUPER-STRUCTURE, AND ALL GROUNDS AS REQUIRED FROM LIGHTING STANDARD ANCHOR RODS, SIDEWALK BOXES, LIGHTING UNITS, CONDUIT SYSTEMS, ETC., TO FLANGES OF OUTSIDE BEAMS.

i. BRIDGE ROADWAY LIGHTING STANDARD ANCHOR RODS, PER EACH, INSTALLED AND CAPPED AS DETAILED.

j. BRIDGE ROADWAY LIGHTING CONDUIT SYSTEM, PER LUMP SUM INCLUDING TWO-INCH ELECTRIC CONDUIT (METALLIC) COMPLETE WITH COUPLINGS, FASTENINGS, ELBOWS, EXPANSION JOINTS, CAPS, MARKERS, AND #10 AWG GALVANIZED IRON PULL-WIRE IN ALL RUNS.

2. ON ROADWAY APPROACHES

a. TWO INCH ELECTRIC CONDUIT (ALLOY STEEL), PER LINEAL FOOT, INCLUDING CUTTING AND REAMING, THREADING, ELBOWS, COUPLINGS, EXPANSION JOINTS, WEATHERHEADS, AND ALL REQUIRED FITTINGS AND ATTACHMENTS TO TAKE NAVIGATIONAL LIGHTING SERVICE FROM UNDERGROUND TO AERIAL AT BOTH ENDS OF AERIAL LINE ALONG CAUSEWAY, AND THROUGH FORWARD ABUTMENT TO JUNCTION BOX ON STRUCTURE.

b. TWO-INCH ELECTRIC CONDUIT (METALLIC), PER LINEAL FOOT, INCLUDING CUTTING & REAMING, THREADING, ELBOWS, COUPLINGS AND ASSOCIATED FITTINGS, FORMS AND CONCRETE FOR ENCASEMENT IF USED, CONDITIONING AND CAPPING OF CONDUIT, EXCAVATION IN WHATEVER MATERIAL ENCOUNTERED, GRADING AND LEVELING OF TRENCH BOTTOM, BACKFILLING AND COMPACTING TO GRADE AS REQUIRED, REMOVING WASTE, AND ALL INCIDENTALS NECESSARY TO EXTEND NAVIGATIONAL LIGHTING CIRCUIT FROM SERVICE POLE TO FIRST POLE OF AERIAL LINE ALONG CAUSEWAY AND FROM LAST POLE TO STRUCTURE.

c. TRIPLEX AERIAL CABLE, PER LINEAL FOOT, INSTALLED, COMPLETE WITH BOLTS, CLAMPS, CLEVISES, ARRESTERS, INSULATORS, SPACERS, CONNECTORS, GUYS AND ANCHORS, AND ALL OTHER ACCESSORIES, FITTINGS AND POLE LINE HARDWARE AS REQUIRED TO INSTALL THE AERIAL LINE ALONG THE CAUSEWAY.

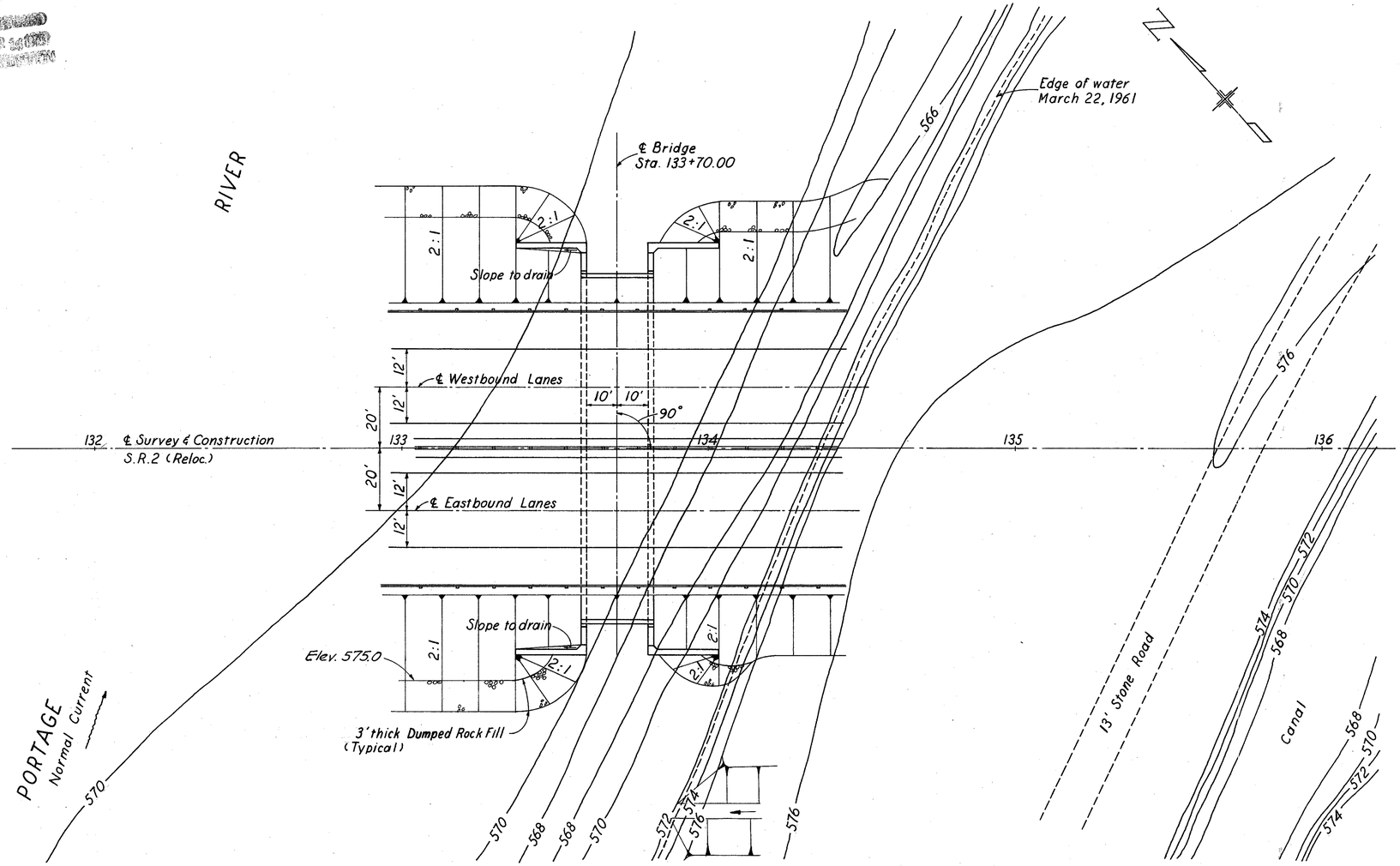
d. LINE POLES (ALONG CAUSEWAY) PER EACH, INCLUDING AUGER DRILLING, PLACING AND PLUMBING.

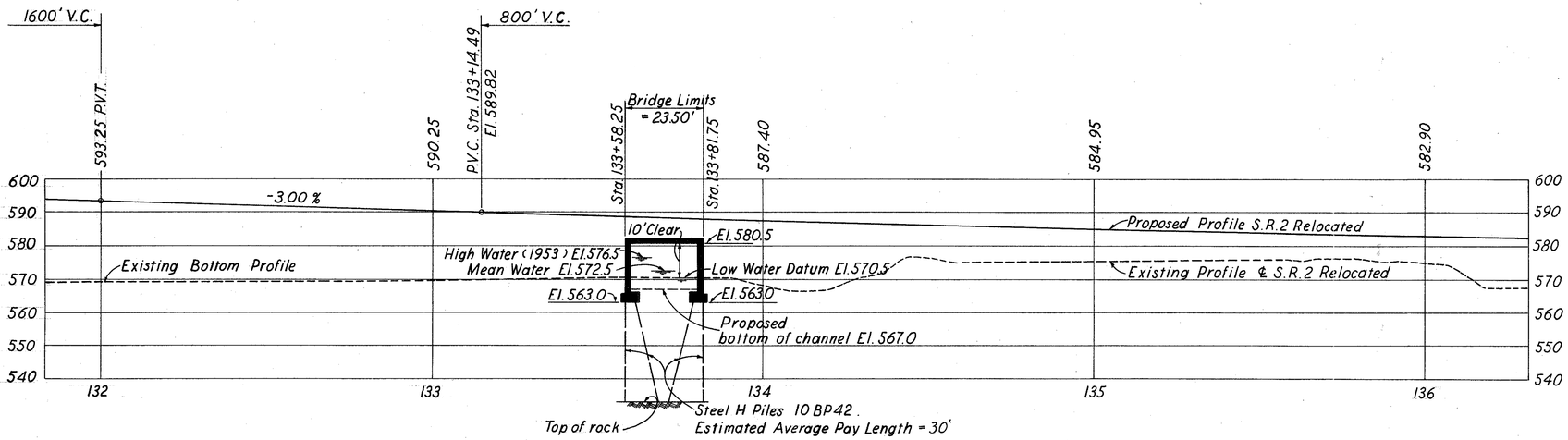
e. SERVICE POLE AND EQUIPMENT, PER LUMP SUM, WHICH SHALL INCLUDE FURNISHING AND PLACING OF POLE, PHOTO-ELECTRIC CONTROLLER AND RELAY, METERING FACILITY, SERVICE DISCONNECT, SERVICE GROUND AND ALL CONDUIT, FITTINGS AND CONDUCTORS, AS DETAILED, SUBJECT TO OHIO EDISON APPROVAL.

f. NO. 4 AWG 600-VOLT SINGLE CONDUCTOR CABLE, PER LINEAL FOOT, INCLUDING SPLICING, TERMINATIONS, CONNECTIONS AND TESTING, FROM SERVICE POLE TO FIRST POLE ALONG CAUSEWAY AND FROM LAST POLE TO JUNCTION BOX ON STRUCTURE.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	117 / 133
2	OHIO	F-1042(10)		

OTT. 2-16.48
2.3 miles west of Port Clinton, Ohio





FOUNDATION SOUNDINGS

Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information, the accuracy of which the State does not guarantee, may be examined in the office of the Bureau of Bridges in Columbus or in the Division office.

BENCH MARKS

BM - RR Spike in South side of power pole.
155' Left of sta. 141+00.
Elev. 578.79

BM #11 Nail in North side of 8" ash.
85' Right of sta. 150+01.
Elev. 577.60

PROPOSED STRUCTURE

Type: Reinforced Concrete Slab
Reinforced Concrete Abutments

Span: 20'-0" Clear
Roadway: 88'-0" f/f Guardrails

Load Frequency: CF 400(57)
Skew: 0°
Wearing Surface: None
Approach Slabs: None
Alignment: Tangent

Waterway opening below low water datum = 70 square feet.

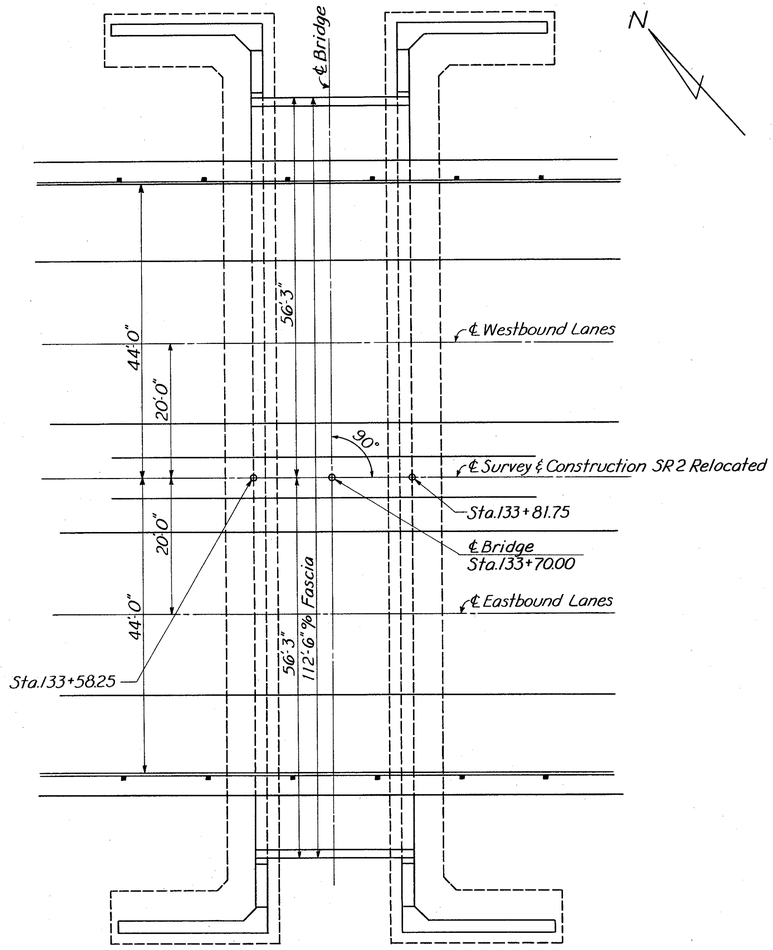
SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO OHIO

SITE PLAN

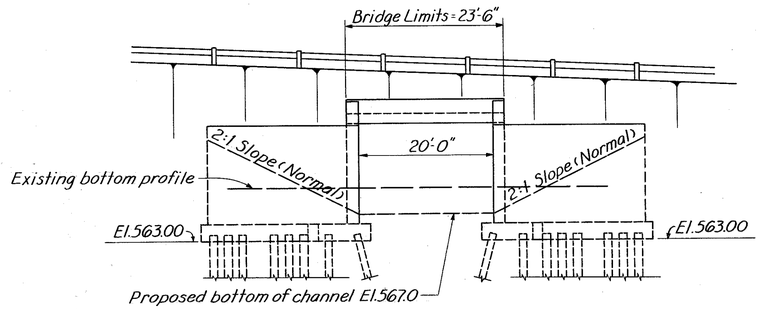
BRIDGE No. OTT. 2-1862
OVER PORTAGE RIVER

OTTAWA COUNTY STA. 133 + 58.25 to
SCALE: 1" = 20' STA. 133 + 81.75

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
S.M.B.	T.W.D.	J.H.Y., O.M.B.	J.H.Y., O.M.B.	B.J.H.	FCM 2-1963



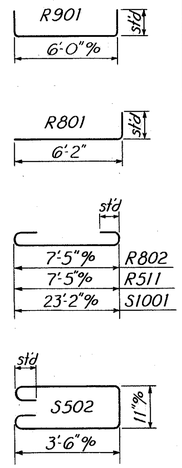
GENERAL PLAN



GENERAL ELEVATION

REINFORCING STEEL LIST BRIDGE OTT.2-1862

Mark	No.	Length	Weight	Shape	Bending Diagrams
ABUTMENTS					
R901	40	8'-0"	1088	B	
R801	536	7'-1"	10137	B	
R802	232	9'-7"	5936	B	
R701	244	14'-9"	7356	S	
R702	4	15'-0"	123	S	
R703	4	15'-8"	128	S	
R704	4	16'-4"	134	S	
R705	4	17'-0"	139	S	
R706	4	17'-8"	144	S	
R707	4	18'-3"	149	S	
R601	224	14'-7"	4906	S	
R602	16	14'-3"	342	S	
R603	4	14'-10"	89	S	
R604	4	15'-4"	92	S	
R605	4	15'-10"	95	S	
R606	4	16'-4"	98	S	
R607	4	16'-10"	101	S	
R608	4	17'-4"	104	S	
R609	4	17'-9"	107	S	
R610	4	14'-9"	89	S	
R501	178	5'-0"	928	S	
R502	104	35'-6"	3851	S	
R503	88	36'-10"	3381	S	
R504	8	5'-0"	42	S	
R505	8	7'-3"	60	S	
R506	8	2'-8"	22	S	
R507	56	14'-3"	832	S	
R508	88	22'-2"	2034	S	
R509	56	5'-3"	307	S	
R510	48	24'-11"	1247	S	
R511	68	8'-7"	609	B	
R512	88	29'-8"	2723	S	
SUPERSTRUCTURE					
S1001	244	26'-0"	27298	B	
S601	132	29'-7"	5865	S	
S602	132	28'-11"	5733	S	
S501	48	23'-2"	1160	S	
S502	32	8'-10"	295	B	
REPLACEMENT BARS					
RE1001	2	7'-3"	62	S	
RE901	1	6'-10"	23	S	
RE801	1	6'-6"	17	S	
RE701	1	6'-3"	13	S	
RE601	1	5'-11"	9	S	
RE501	1	5'-7"	6	S	



ESTIMATED QUANTITIES BRIDGE OTT.2-1862

Item	Total	Unit	Description	Super.	Abuts.	General		
E-2	Lump	Sum	Cofferdams, cribs and sheeting			Lump		
E-2	882	Cu.Yds.	Unclassified excavation		882			
E-3	340	Cu.Yds.	Channel excavation			340		
S-1	153	Cu.Yds.	Class "C" concrete, Superstructure	153				
S-1	345	Cu.Yds.	Class "E" concrete, Abutments above footings		345			
S-1	241	Cu.Yds.	Class "E" concrete, Abutment footings		241			
S-3	92	Lin.ft.	Waterproofing, premolded sealing strip		92			
S-4	87874	Lbs	Reinforcing steel	40351	47393	130		
S-9	94	Sq.ft.	1" preformed expansion joint filler		94			
S-10.1	103	Each	Water-reducing, set-retarding Admixture	103				
S-16	Lump	Sum	First test pile			Lump		
S-18	4320	Lin.ft.	Steel piles, 10BP42		4320			
S-29	152	Cu.Yds.	Porous backfill		152			

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

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OTT. 2-16.48

GENERAL NOTES

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

PILES shall be driven with a hammer of not less than 11000 ft.lbs per blow to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:
35 tons per pile using an 11000 ft.lb. hammer
35 tons per pile using a 15000 ft.lb. or greater hammer

The design load is 35 tons per pile.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used and the first two digits where four are used, indicate the bar size number. For example, a R501 is a No.5 size bar, and a S1001 is a No.10 size.

REFERENCE shall be made to Supplemental Specification S-101, dated 7-12-62.

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

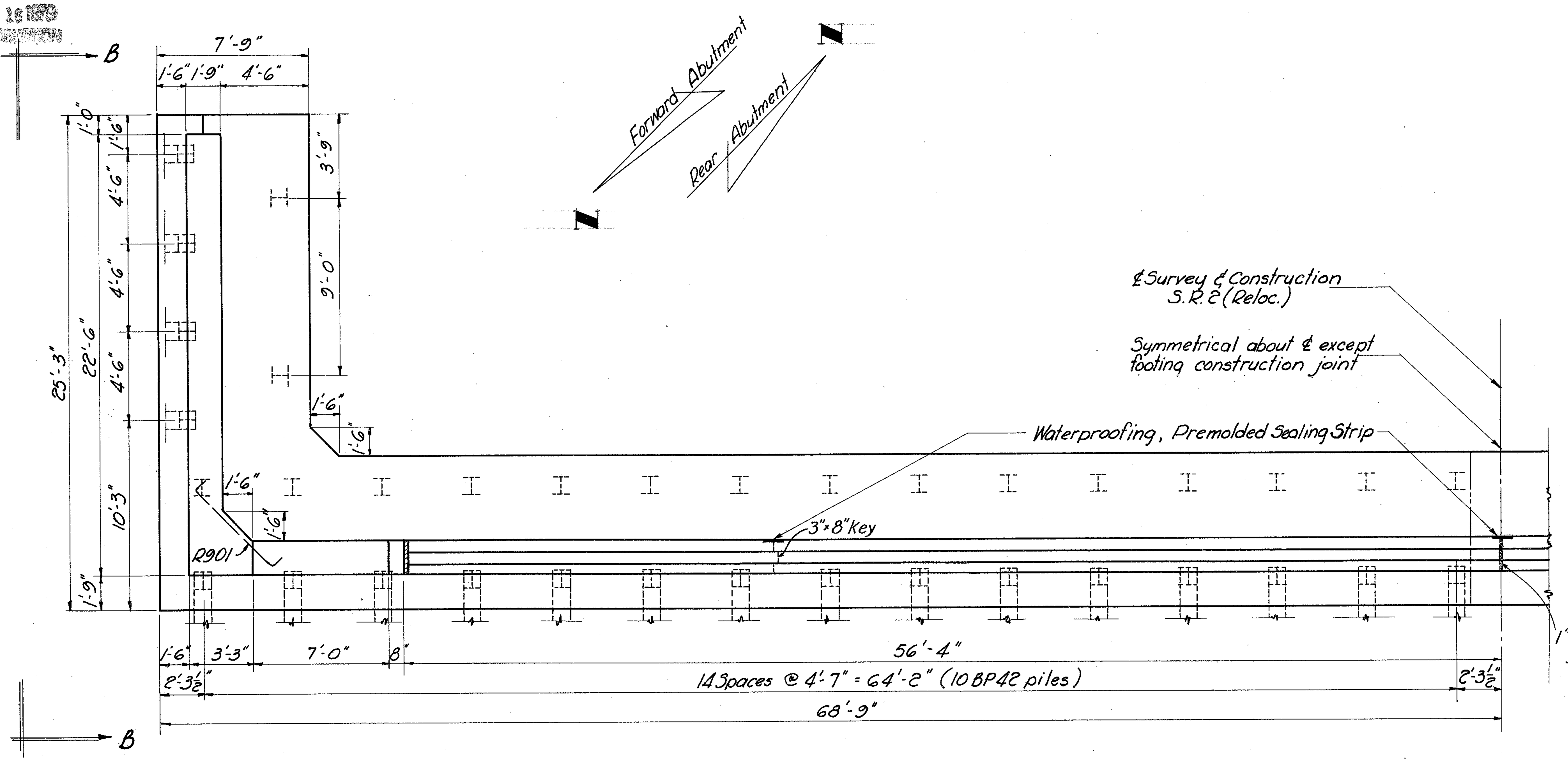
GENERAL PLAN & ELEVATION
ESTIMATED QUANTITIES, REINFORCING STEEL & GENERAL NOTES
BRIDGE No. OTT.2-1862
OVER PORTAGE RIVER
OTTAWA CO. Sta. 133+58.25 To Sta. 133+81.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB	JHY	AJB BJH	FCM	2-1263	

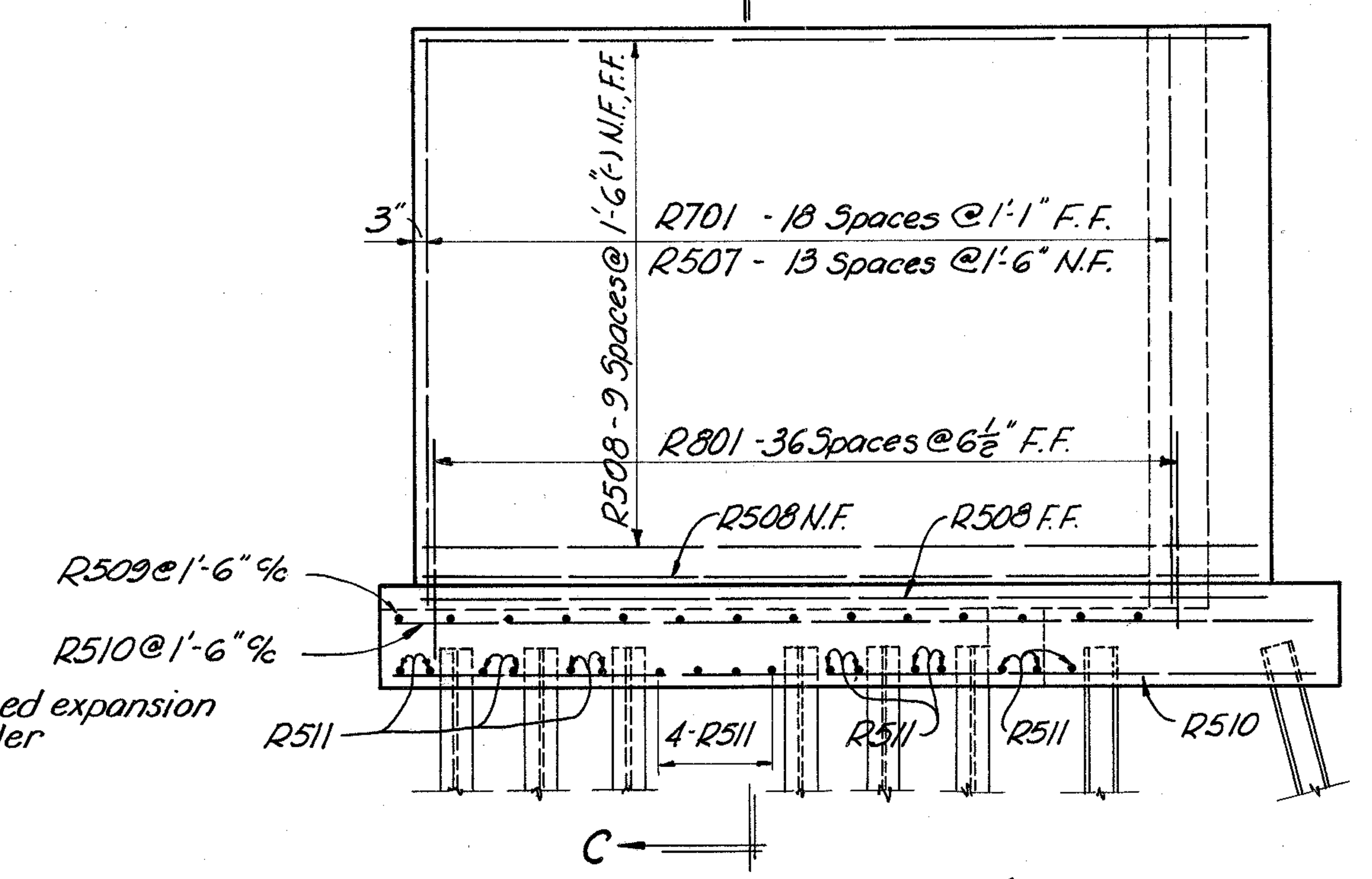
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042(10)	

119/133

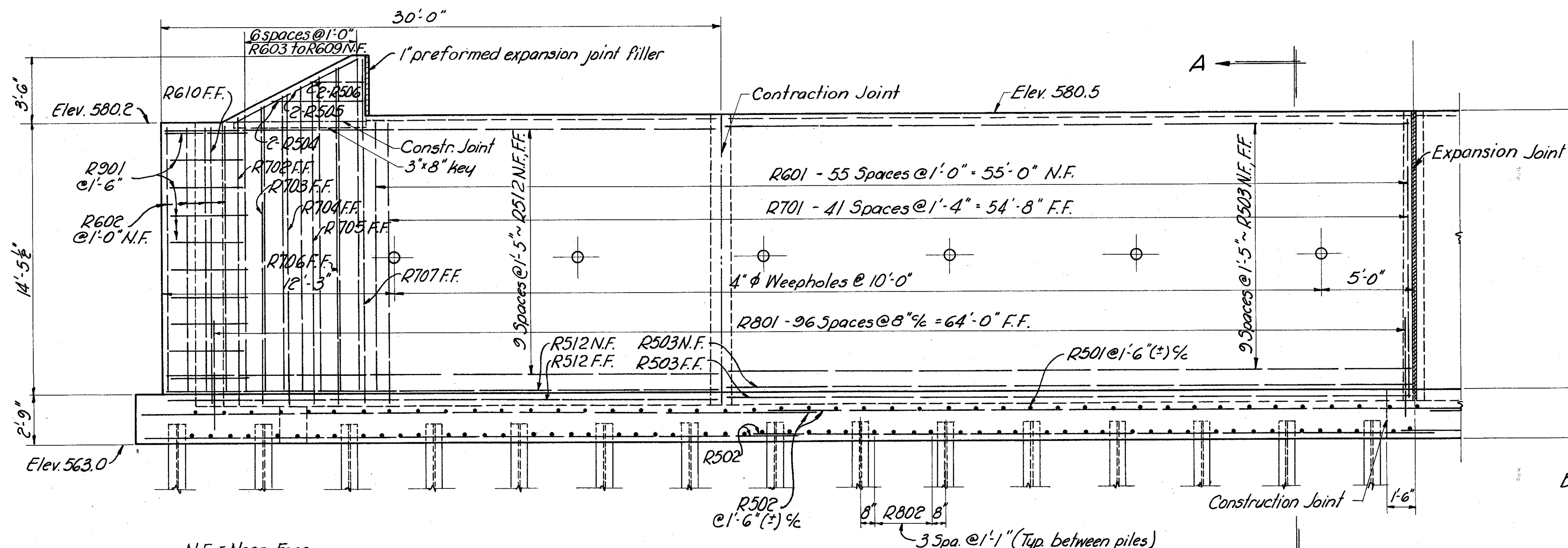
OTT. 2-16.48



PART PLAN

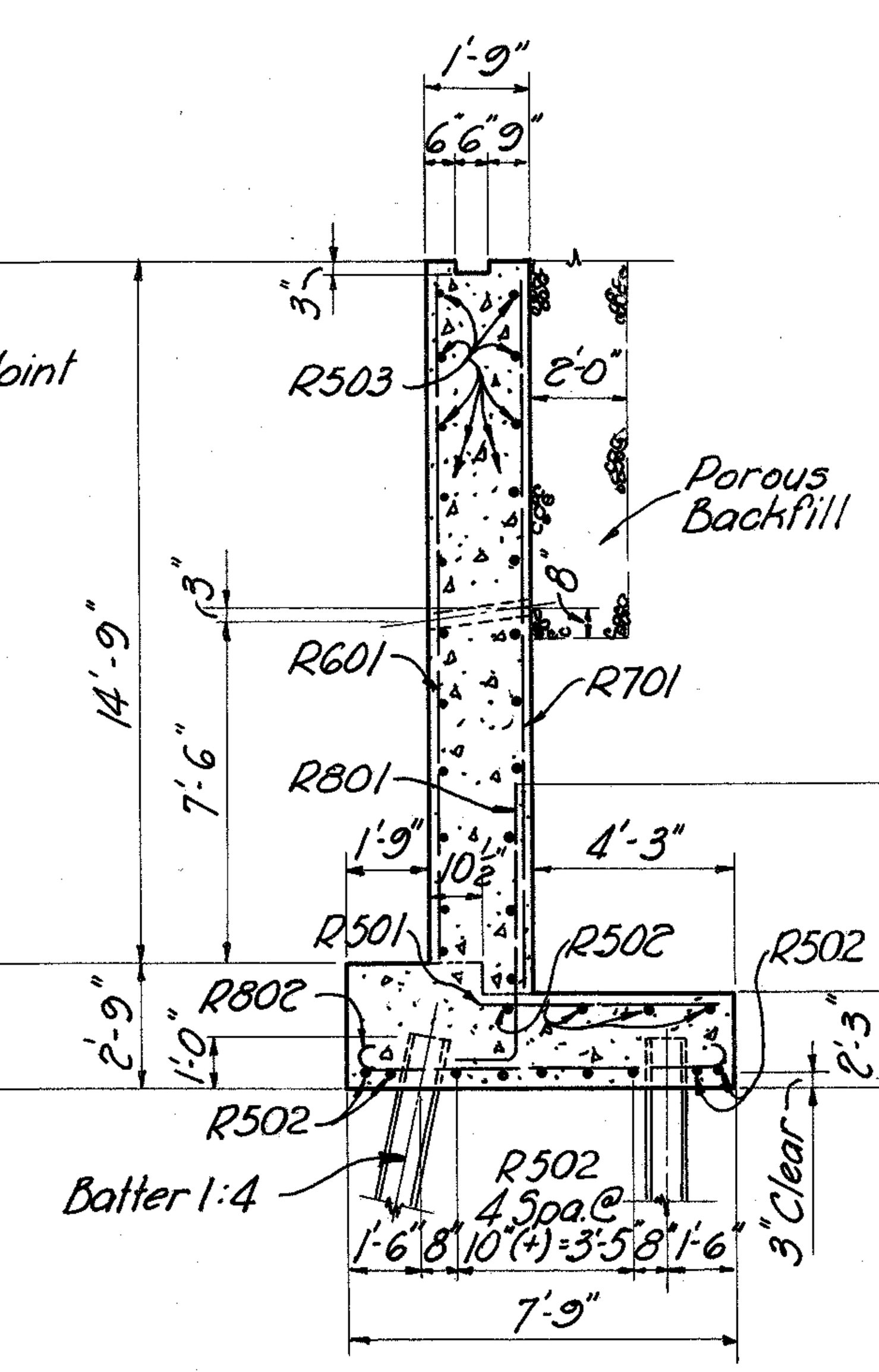


WINGWALL ELEVATION (REINF. BAR DETAILS)
VIEW B-B

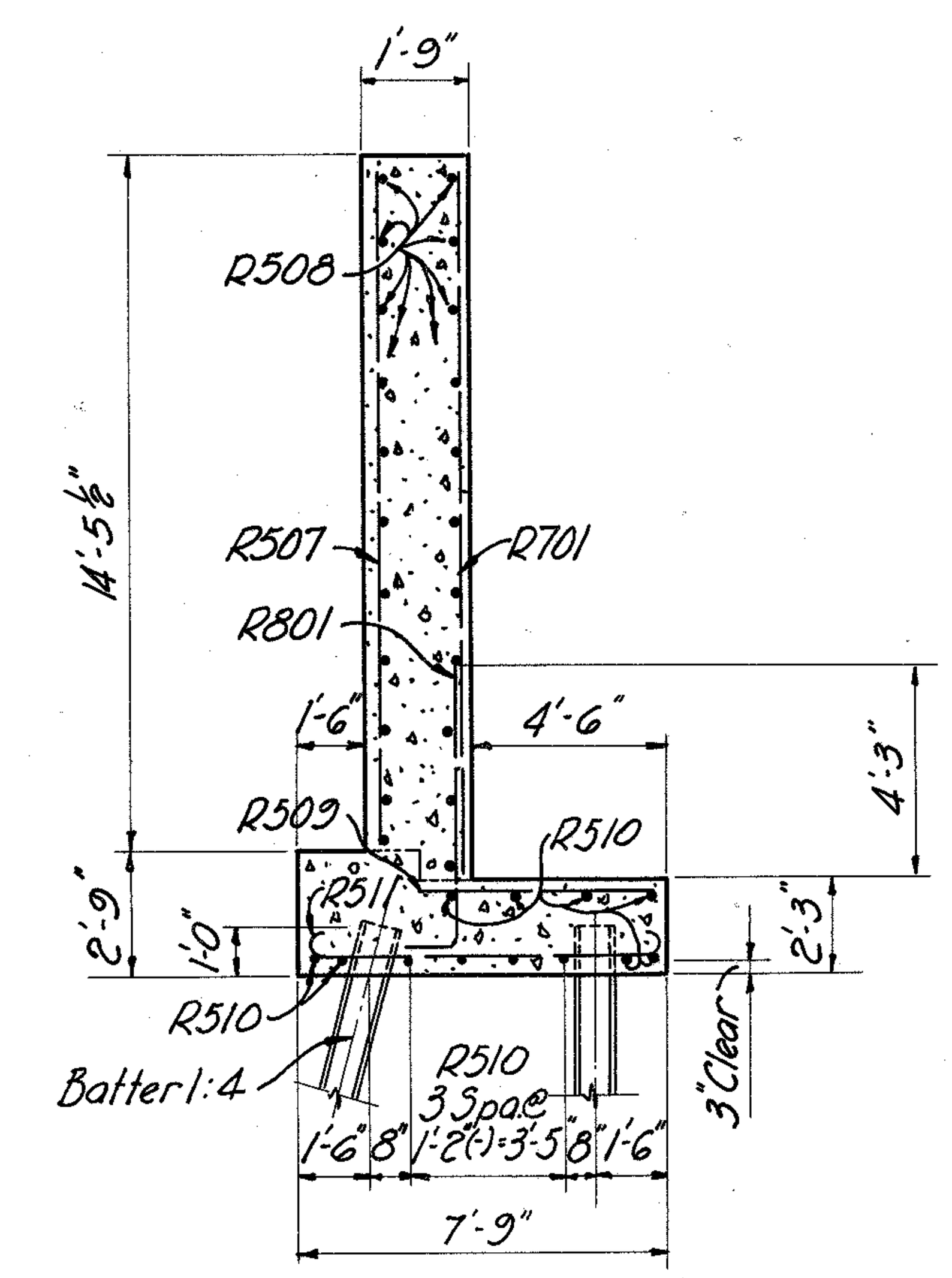


N.F. = Near Face
F.F. = Far Face

PART ELEVATION



SECTION A-A



SECTION C-C

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

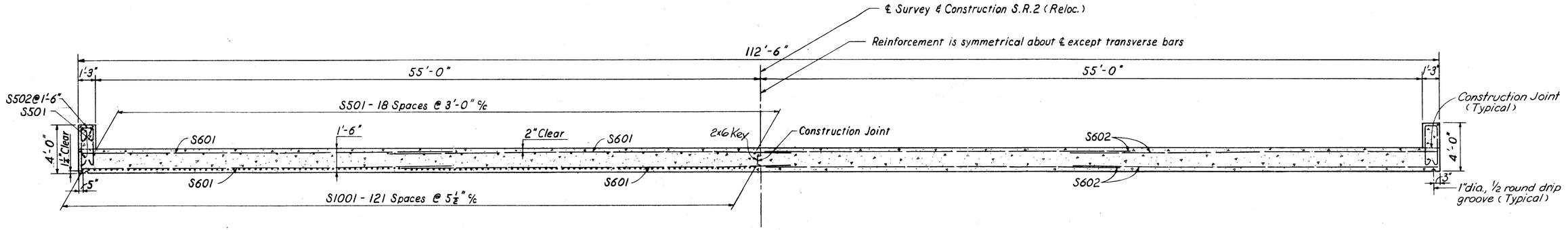
ABUTMENTS
BRIDGE No. OTT. 2-1862
OVER PORTAGE RIVER
STA. 133+58.25 to
STA. 133+81.75
OTTAWA CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB	BB	BJH	FCM	2-12-63	

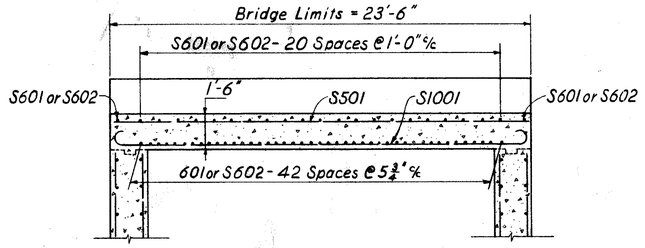
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	F-1042 (10)	

120
133

OTT. 2-16.48



TRANSVERSE SECTION OF DECK



LONGITUDINAL SECTION OF BRIDGE

SANZENBACHER, MILLER & BRIGHAM
CONSULTING ENGINEERS
TOLEDO, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE No. OTT. 2-1862
OVER PORTAGE RIVER
Sta. 133 + 58.25 to
OTTAWA CO. Sta. 133 + 81.75

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
OMB	OMB		BJH	FCM	2-12-63	

CENTERLINE SURVEY PLAT
OHIO DEPARTMENT OF HIGHWAYS
STATE ROUTE OTT. 2-SEC. 16.48

ERIE TOWNSHIP
BAY TOWNSHIP
OTTAWA COUNTY

0 400 800
SCALE IN FEET

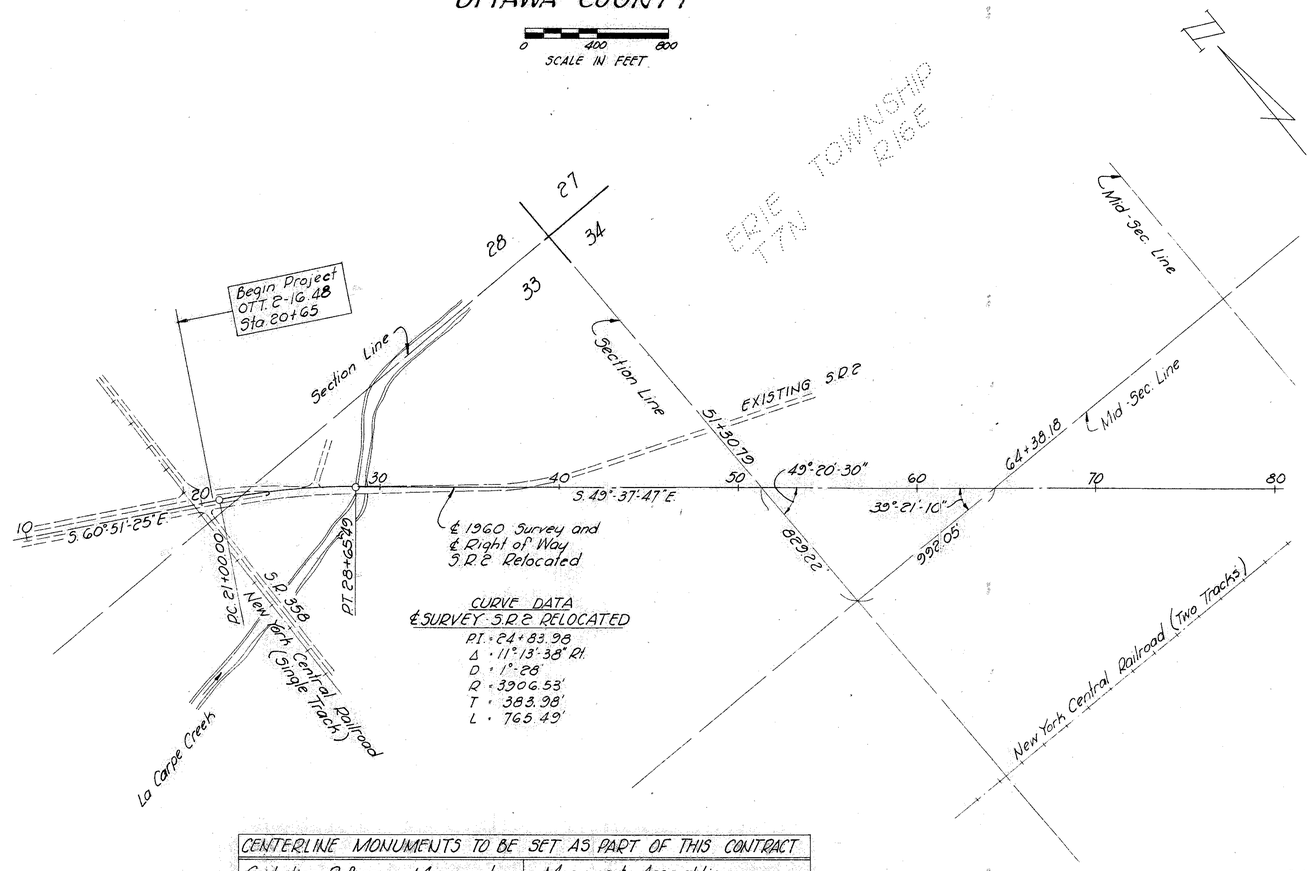
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

121/133

1/13

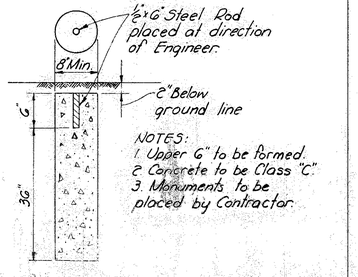
LIMITED ACCESS
Sheet 1 of 2
OTT-2-16.48

This improvement has been declared a limited access highway by action of the Director of Highways and recorded in Volume____, Page____ of the Director's Journal.



CURVE DATA
℄ SURVEY - S.R.2 RELOCATED
P.I. = 24+83.98
Δ = 11°-13'-38" Rt.
D = 1°-28'
R = 3906.53'
T = 383.98'
L = 765.49'

CENTERLINE REFERENCE MONUMENT DETAIL



NOTES:
1. Upper 6" to be formed.
2. Concrete to be Class "C".
3. Monuments to be placed by Contractor.

CENTERLINE MONUMENTS TO BE SET AS PART OF THIS CONTRACT

Centerline Reference Monuments	Monument Assemblies
S.R.2 Relocated on ℄ Survey	S.R.2 Relocated on ℄ Survey
P.C. Sta. 21+00	P.T. Sta. 28+65.49
P.O.T. Sta. 38+00	P.O.T. Sta. 58+00
P.O.T. Sta. 48+00	P.O.T. Sta. 68+00
	P.O.T. Sta. 78+00

TOTAL REQUIRED (Sheets 1 & 2)
Reference Monuments (as per plan) - 3
Monument Assembly (Standard Const. Dwg. RI-1.1) - 20

I hereby certify this plat to be a true delineation of a survey made by Sanzenbacher, Miller & Brigham of Toledo, Ohio.
Date: Feb. 21, 1963 Signed: Frederick W. Miller
Registered Surveyor No. 1892

Approved
Signed: _____ Date: _____
Division Deputy Director
Professional Engineer No. _____

RECEIVED _____ AT _____
RECORDED _____
PLAT BOOK _____ PAGE _____
FEE _____

SIGNED: _____
OTTAWA COUNTY RECORDER

SANZENBACHER, MILLER & BRIGHAM TOLEDO, OHIO

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

122/133

2/13

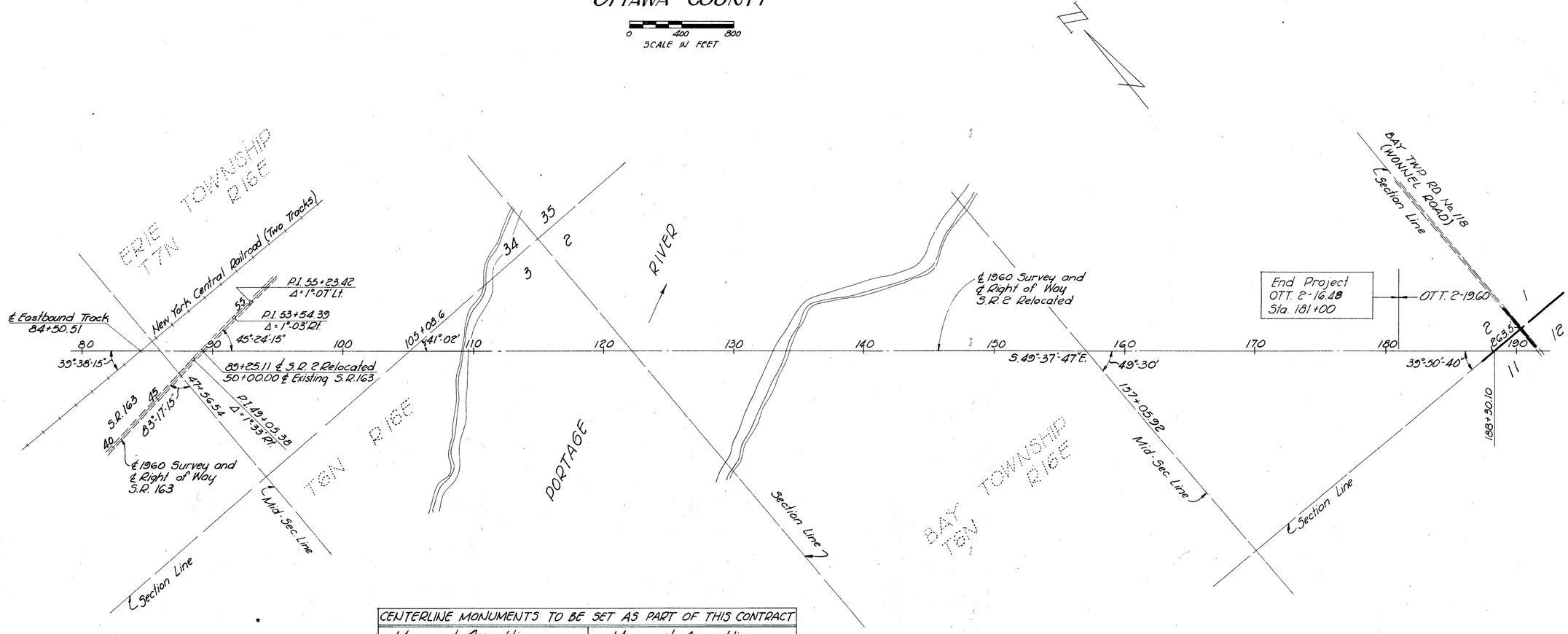
LIMITED ACCESS
Sheet 2 of 2
OTT-2-16.48

CENTERLINE SURVEY PLAT
OHIO DEPARTMENT OF HIGHWAYS
STATE ROUTE OTT. 2-SEC. 16.48

ERIE TOWNSHIP
BAY TOWNSHIP
OTTAWA COUNTY

0 400 800
SCALE IN FEET

This improvement has been declared a limited access highway by action of the Director of Highways and recorded in Volume ____, Page ____ of the Director's Journal.



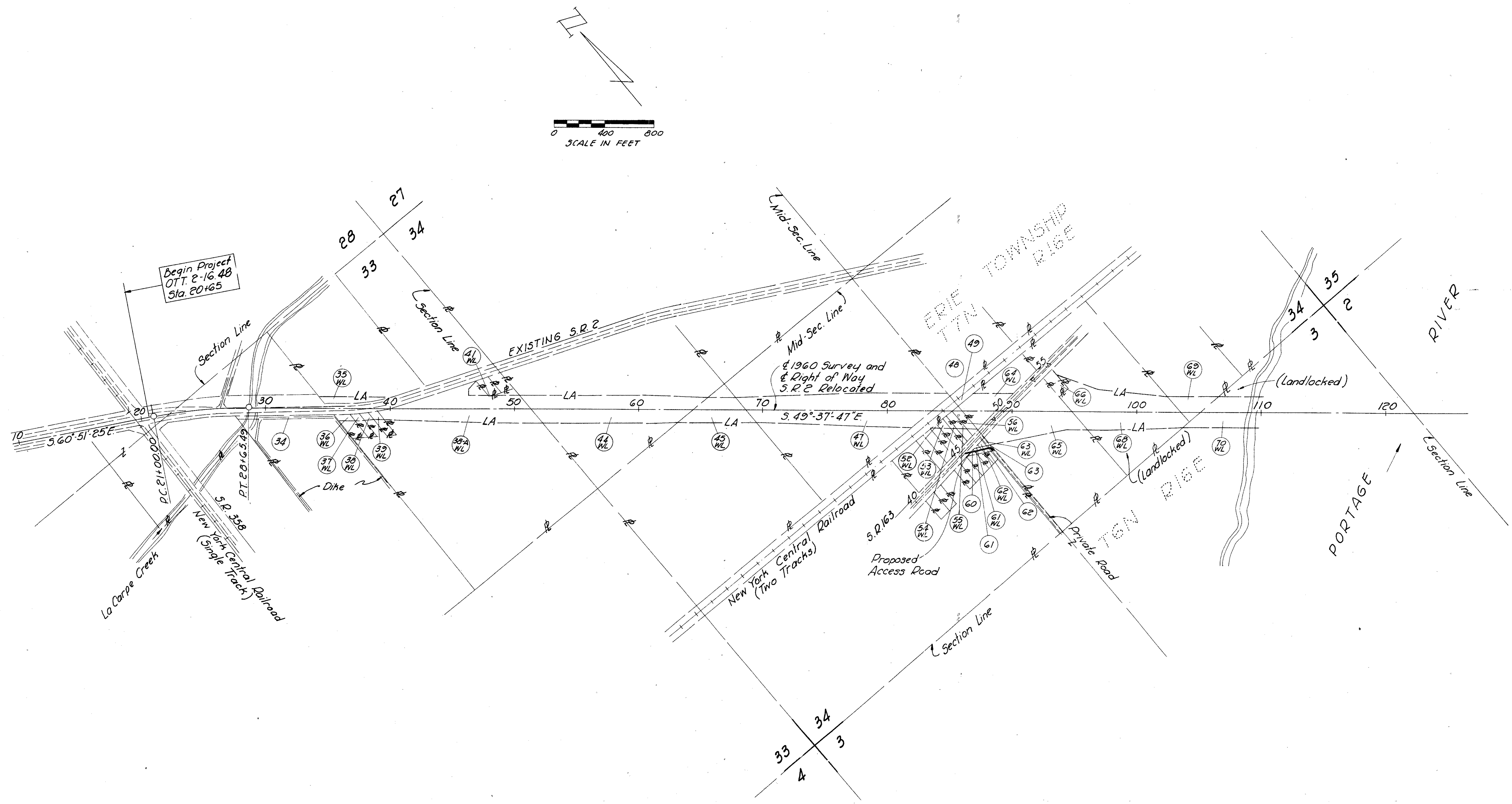
CENTERLINE MONUMENTS TO BE SET AS PART OF THIS CONTRACT	
Monument Assemblies	Monument Assemblies
S.R.2 Relocated on ℄ Survey	S.R.2 Relocated on ℄ Survey
P.O.T. Sta. 86+00	P.O.T. Sta. 110+00
P.O.T. Sta. 92+00	P.O.T. Sta. 120+00
P.O.T. Sta. 100+00	P.O.T. Sta. 127+00
	P.O.T. Sta. 135+00
	P.O.T. Sta. 143+00
	P.O.T. Sta. 151+00
	P.O.T. Sta. 160+00
	P.O.T. Sta. 168+00
S.R.163 on ℄ Survey	P.O.T. Sta. 176+00
P.O.T. Sta. 46+50	
P.I. Sta. 49+05.38	
P.I. Sta. 53+54.39	
P.I. Sta. 55+23.42	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

123/133

OTT. 2-16.48

3/13



SANZENBACHER, MILLER & BRIGHAM TOLEDO, OHIO

PROPERTY PLAN

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

124/133

OTT. 2-16.48

4/13

PROPERTY PLAN

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

125/133

OTT. 2-16.48
R/W PLAN
LIMITED ACCESS

5/13

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

Total No. of Owners 33

PARCEL NO.	OWNER	DEED RECORD BOOK	DEED RECORD PAGE	DEED AREA (ACRES)	TO BE ACQUIRED LAND(AC)	TO BE ACQUIRED BLDGS.	RESIDUE (ACRES) LEFT	RESIDUE (ACRES) RIGHT	SHEET NO.	REMARKS
34	Frank Patz	149	339	30.4	0.55			29.13	6	See Parcel 44 WL
34 X	"				0.03				6	
34 T	" "				0.51				6	
35 WL	{Bueche Building Company, (Fee Owner)	186 / 193	36 / 219	14.65	0.58	Yes	13.51		6,7	
35 WA	{Mayme Tynes Turner, (Land Contract Holder)	Misc. 5	300						6	
36 WL	Perry Waymon	172	467	0.82	0.15			0.55	6	
37 WL	Ruth & Albert Zoschke	117	162	0.51	0.10			0.34	6	See Parcel 41 WL
38 WL	Ruth E. Klickman	96	579	43.36	0.10				6	
38-A WL	" " "				5.52	Yes	(L) 0.25	36.65	6,7	
38 T	" " "				0.21				6,7	
38 X	" " "				0.01				7	
39 WL	Basilio P. Reyna	173	132	0.47	0.12			0.28	6	
41 WL	Albert E. & Ruth E. Zoschke	208	521	0.42	0.006			0.41	7	See Parcel 37 WL
44 WL	Frank Patz	113	141	30.08	6.44		17.1	6.5	7,8	See Parcel 34
44 X	" "				0.03				7	
45 WL	Augusta I. Miller	189	47	55.75	2.01		(L) 0.3	53.4	8	
47 WL	Russell Shotwell	101	74	39	8.49		21.7	8.8	8	
49	New York Central Railroad Company				0.011				13	
49-A	" " " " "				0.011				13	
49-B	" " " " "				0.011				13	
49-C	" " " " "				0.011				13	
49-Aerial	" " " " "				0.361				13	
49 SL-1	" " " " "				0.100				13	
49 SL-2	" " " " "				0.237				13	
52 WL	Richard W. & Thelma Crowford	183	474	0.5	0.03			0.47	8	
53 WL	Merritt O. & Mildred L. Brown	170	323	0.456	0.11			0.35	8	
54 WL	Charles D. & Rose Marie Clouse	194	404	0.241	0.09			0.15	8	
55 WL	Raymond & Elizabeth A. Silverwood	190	566	0.434	0.23	Yes		0.20	8,9	
56 WL	Alma Perry	193	7	0.392	0.29	Yes		0.10	8,9	
60	Florentino & Frances E. Cuevas	202	607	0.34	0.04			0.30	9	
61	Robert & Donna Love	207	581	0.275	0.05				9	
61 WL	" " "				0.02			0.15	9	
62	Virginia Zess	206	614	0.275	0.05	Yes			9	
62 WL	" "				0.06			0.11	9	
63	Cecil B. Harger	186	457	0.70	0.03				9	See Parcel 70 WL
63 WL	" " "				0.06			0.58	9	
64 WL	{Elinor J. Cunningham	203	489		1.53	Yes			9	Also See Parcel 65 WL
65 WL	{Emma Wepler, Life Estate	Lease 17	75		4.63	Yes	18.9	11.0	9	
66 WL	John L. & Minerva F. Kratz	205	205	0.46	0.46	Yes	0	0	9	Calculated Deed Area = 0.45 Ac.±
68 WL	Esther Hambly	154	548	19.85	6.13		8.8	(L) 3.4	9,10	Calculated Deed Area = 18.35 Ac.±
69 WL	Eva May Winnie	92	409	15.25	0.90		14.35		10	
70 WL	Cecil B. Harger	210	115	48.49	2.39		(L) 3.5	42.6	10	See Parcels 63 & 63 WL

PARCEL NO.	OWNER	DEED RECORD BOOK	DEED RECORD PAGE	DEED AREA (ACRES)	TO BE ACQUIRED LAND(AC)	TO BE ACQUIRED BLDGS.	RESIDUE (ACRES) LEFT	RESIDUE (ACRES) RIGHT	SHEET NO.	REMARKS
	Parcels 71 to 82 - NUGENT'S	CANAL	POINT,	PLAT	FOUR					LOT NOS.
71	Ned & Lois E. Stiger	213	632	0.28			(L) 0.28		//	13, 14
72 WL	Charles C. & Laila S Rahrig	216	422	0.13	0.03			(L) 0.10	//	2
73	Vincent H. Nugent	113	423	0.11				(L) 0.11	//	1
73-A T-1	" " "				0.07				//	
73-A T-2	" " "				0.11				//	
73-A WL	" " "				0.72				//	Canal & Road
73-B WL	" " "			1.38	0.76	Yes	(L) 0.59	(L) 0.03	//	3-12
73-C	" " "			0.55			(L) 0.55		//	15-18
75 WL	" " "			0.41	0.19			0.22	//	29-31
76 WL	Vincent H. Nugent, (Fee Owner)	113	423	0.27	0.27		0	0	//	27, 28
	Edwin H. & Marion M. Company, (Land Contract)	Misc. 10	470							
77 WL	Vincent H. Nugent	113	423	0.41	0.37		(L) 0.04		//	24-26
78 WL	Eldon J. & Mary E. Fisher	214	273	0.14	0.07	Yes	(L) 0.07		//	23
79 WL	Vincent H. Nugent	113	423	0.14	0.04		(L) 0.10		//	22
79-A WL	" " "				0.54				//	Road
80 WL	T.J. Windsor, Sr.	213	305	0.14	0.01		(L) 0.13		//	21
81	Mamie Bateson	213	689	0.13			(L) 0.13		//	20
82	Elsworth J. & Genevieve G. Holman	213	683	0.13			(L) 0.13		//	19
83 WL	Vincent H. Nugent	113	423	120±	8.79		(L) 0.02	117±	//	See Above
84 WL	S.N. Lian	109	592	130	7.98		(L) 20	102	//	See Parcels 89 WL & 94
84 T	" " "				0.09				//	OTT. 2-19.60 R/W
85 WL	Robert Nickel & Fred Demars	132	78	75	7.03		55.5	(L) 12.5	11, 12	
85 T	" " " "				0.14				//	
88	William S. & Nettie M. Wolf	150	481	50	0.10					See OTT. 2-19.60 R/W
88 WL	" " " " "				11.19		25.2	(L) 13.3	12	

(L) Indicates residual lands that are landlocked.

SANZENBACHER, MILLER & BRIGHAM TOLEDO OHIO Dec. 21, 1962

R/W Sta. 17+00 to Sta. 40+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

127/133

OTT. 2-16.48
R/W PLAN

7/13

Total This Sheet
I-26 Chain Link Fence - 565 Lin. Ft.
I-25 Woven Wire Fence, Type 47 - 2665 Lin. Ft.

ERIE TWP. OTTAWA CO.
SEC'S. 33, 34 T7N R16E

Dec. 21, 1962

R/W Sta. 40+00 to Sta. 56+00

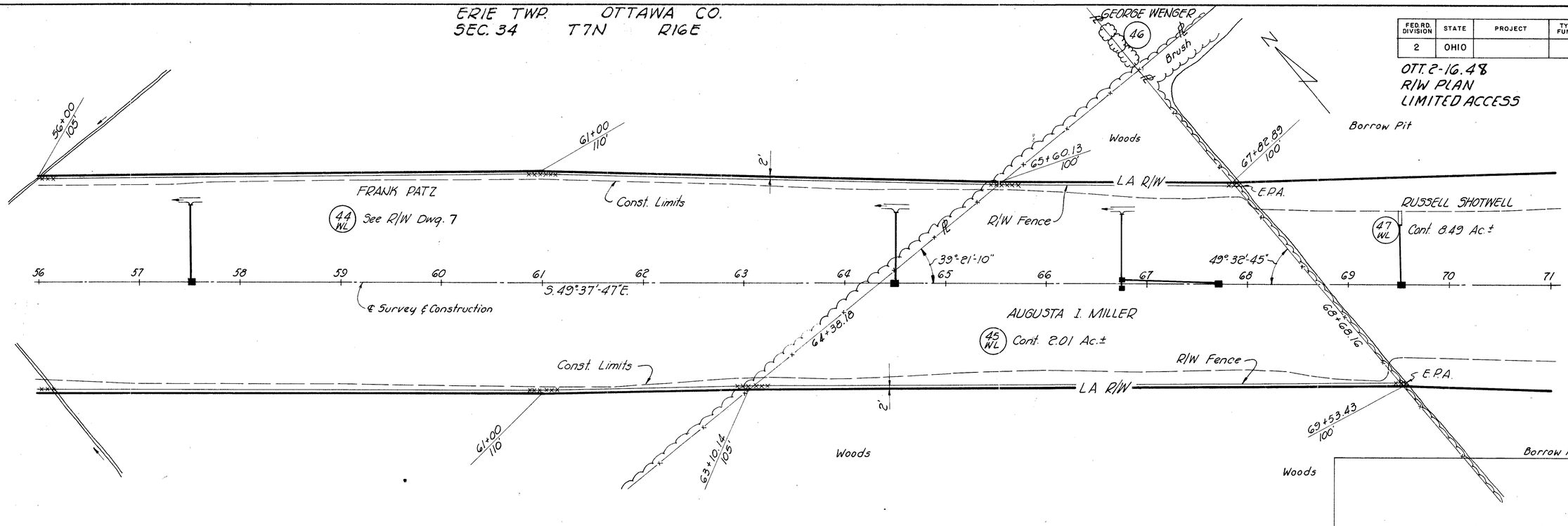
FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

128 / 133

8 / 13

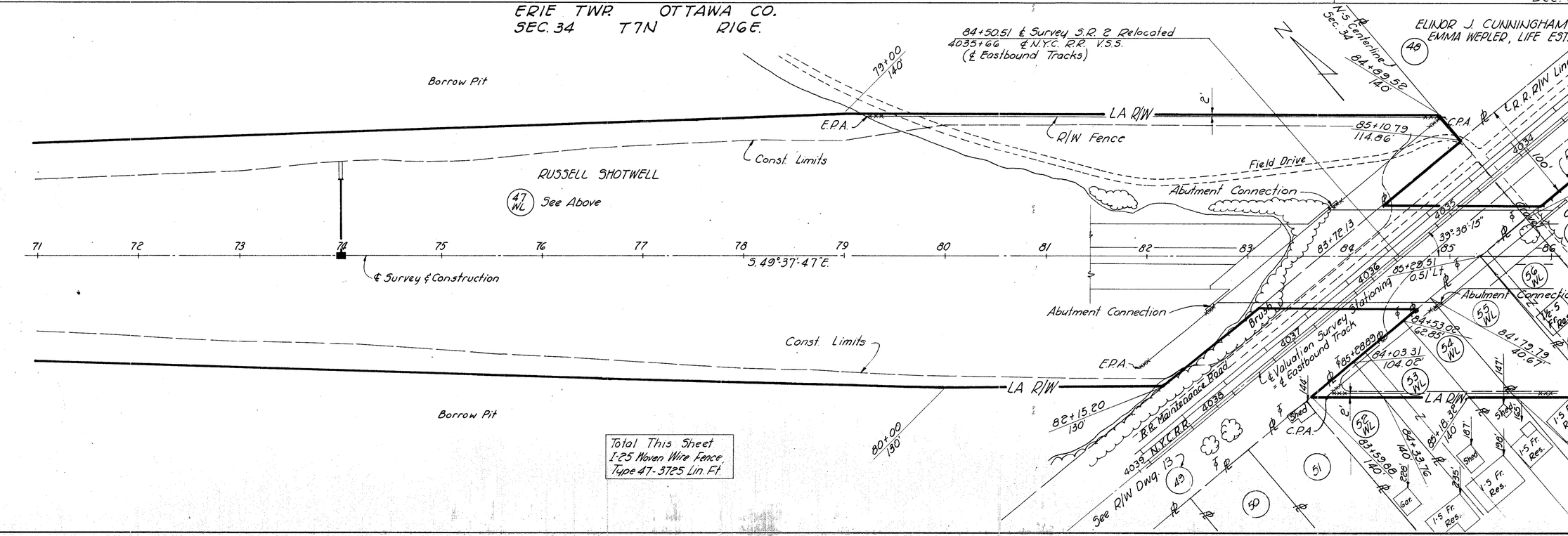
OTT. 2-16.48
R/W PLAN
LIMITED ACCESS

ERIE TWP. OTTAWA CO.
SEC. 34 T7N R16E



Dec. 21, 1962

ERIE TWP. OTTAWA CO.
SEC. 34 T7N R16E.



R/W 56+00 to 86+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	129/133
2	OHIO			

OTT. 2-16.48
R/W PLAN
LIMITED ACCESS

9/13

PARCEL	OWNER	AREA
51	RODGER P. CARTER POLLY ANN CARTER	
52 WL	RICHARD W. CRAWFORD THELMA CRAWFORD	Cont. 0.03 Ac.±
53 WL	MERRITT O. BROWN MILDRED L. BROWN	Cont. 0.11 Ac.±
54 WL	CHARLES D. CLOUSE ROSE MARIE CLOUSE	Cont. 0.09 Ac.±
55 WL	RAYMOND SILVERWOOD ELIZABETH ANNE SILVERWOOD	Cont. 0.23 Ac.±
56 WL	ALMA PERRY	Cont. 0.29 Ac.±
57	WAYNE R. RAHM	

PARCEL	OWNER	AREA
58	ESMEREGILDO D. CUEVAS GUADALUPE A. CUEVAS	
59	RALPH ARRIZOLA ALICE ARRIZOLA	
60	FLORENTINO CUEVAS FRANCES E. CUEVAS	Cont. 0.04 Ac.±
61 61 WL	ROBERT LOVE DONNA LOVE	Cont. 0.05 Ac.± Cont. 0.02 Ac.± P.R.O. 0.05 Ac.±
62 62 WL	VIRGINIA ZESS	Cont. 0.05 Ac.± Cont. 0.06 Ac.± P.R.O. 0.05 Ac.±
63 63 WL	CECIL B. HARGER	Cont. 0.03 Ac.± Cont. 0.06 Ac.± P.R.O. 0.03 Ac.±

Total This Sheet
I-25 Woven Wire Fence,
Type 47- 2205 Lin. Ft.

Dec. 21, 1962

R/W 86+00 to 100+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

130
133

10
13

OTT. 2-16.48
R/W PLAN
LIMITED ACCESS

ERIE TWP. OTTAWA CO.
SEC. 34 T 7N RIGE

EVA MAY WINNIE
(69 WL) Cont. 0.90 Ac.±

Reeds

Light Brush

Reeds

106+46.48
120'

L A R/W

E.P.A.

I.A.P.A.

Const. Limits

R/W Fence

102+49.72
120'

103+53.52

℄ Survey & Construction

41°08'

120'

100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115

49°-08'-20"

S. 49°-37'-47"E.

ESTHER HAMBLY
(68 WL) See R/W Dwg. 9

105+08.6

104+20.13
77.00'

Consl. Limits

125'

R/W Fence

E.P.A.

L A R/W

CECIL B. HARGER
(70 WL) Cont. 2.39 Ac.±

Reeds

Reeds

S. Line Sec. 34
N. Line Sec. 3

103+64.97
125'

ERIE TWP. OTTAWA CO.
SEC. 3 T6N RIGE.

RIVER

PORTAGE

RIVER

Const. Limits

℄ Survey & Construction

115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130

S. 49°-37'-47"E.

Const. Limits

Const. Limits

Const. Limits

PORTAGE

Total This Sheet
I-25 Woven Wire Fence,
Type 47-1855 Lin. Ft.

Dec. 21, 1962

R/W 100+00 to 130+00

R/W 130+00 to 160+00

FED.RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

132
133

12
13

OTT. 2-16.48
R/W PLAN
LIMITED ACCESS

ROBERT NICKEL
FRED DEMARS
(85 WL) See R/W Dwg. 11

Const. Limits

℄ Survey & Construction

L A R/W

Trees (Brush)

169+45.41
105'

174+00
105'

WILLIAM S. WOLF
NETTIE M. WOLF
(88 WL) Cont. 11.19 Ac.±
P.R.O. 0.07 Ac.±

160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175

S. 49°-37'-47"E.

50°-00'

170+39.55 = 171+21.63
105'

I.A.P.A.

R/W Fence

Dike

167+00
130'

Dike

BAY TWP. OTTAWA CO.
SEC. 2 TGN RIGE

N

End Acquisition
Project OTT. 2-16.48

188+00
195'

186+00
145'

181+00
145'

177+00
135'

I.A.P.A.

R/W Fence

Const. Limits

E.P.A.

L A R/W

℄ Ramp "A"

182+41.40
276.70

Found Monument

190+17.04
156.00'

57+23.86

E. Line - Sec. 11

190+49.28
117.18'

Light Brush

(88 WL) WILLIAM S. WOLF
NETTIE M. WOLF
See Above

℄ Survey & Construction

175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190

S. 49°-37'-47"E.

39°-50'-40"

SHICKREY N. LIAN

(89 WL) See OTT 2-19.60 R/W Plans

186+30.10

186+62.33
140'

℄ Ramp "D"

50'

Light Brush

176+00
125'

R/W Fence

E.P.A.

L A R/W

Gas Line (10")

End Project
OTT. 2-16.48
Sta. 181+00

Total This Sheet
I-25 Woven Wire Fence,
Type 47 - 4200 Lin. Ft.

S. Line - Sec. 2

Field Drive

187+40.37
140'

N. Line - Sec. 11
(Not ROAD Dedicated to Public)

188+00
140'

190+00
185'

58+65

Existing R/W

40

℄ SR 58, BAY TWP. RD. 2

W. Line - Sec. 1

190+32.40
168.81'

E. Line - Sec. 2

37

SUBDIVISION

HELENDALE

34

35

31

30

BAY TWP. OTTAWA CO.
SEC. 1, 11, 2 TGN RIGE

Dec. 21, 1962

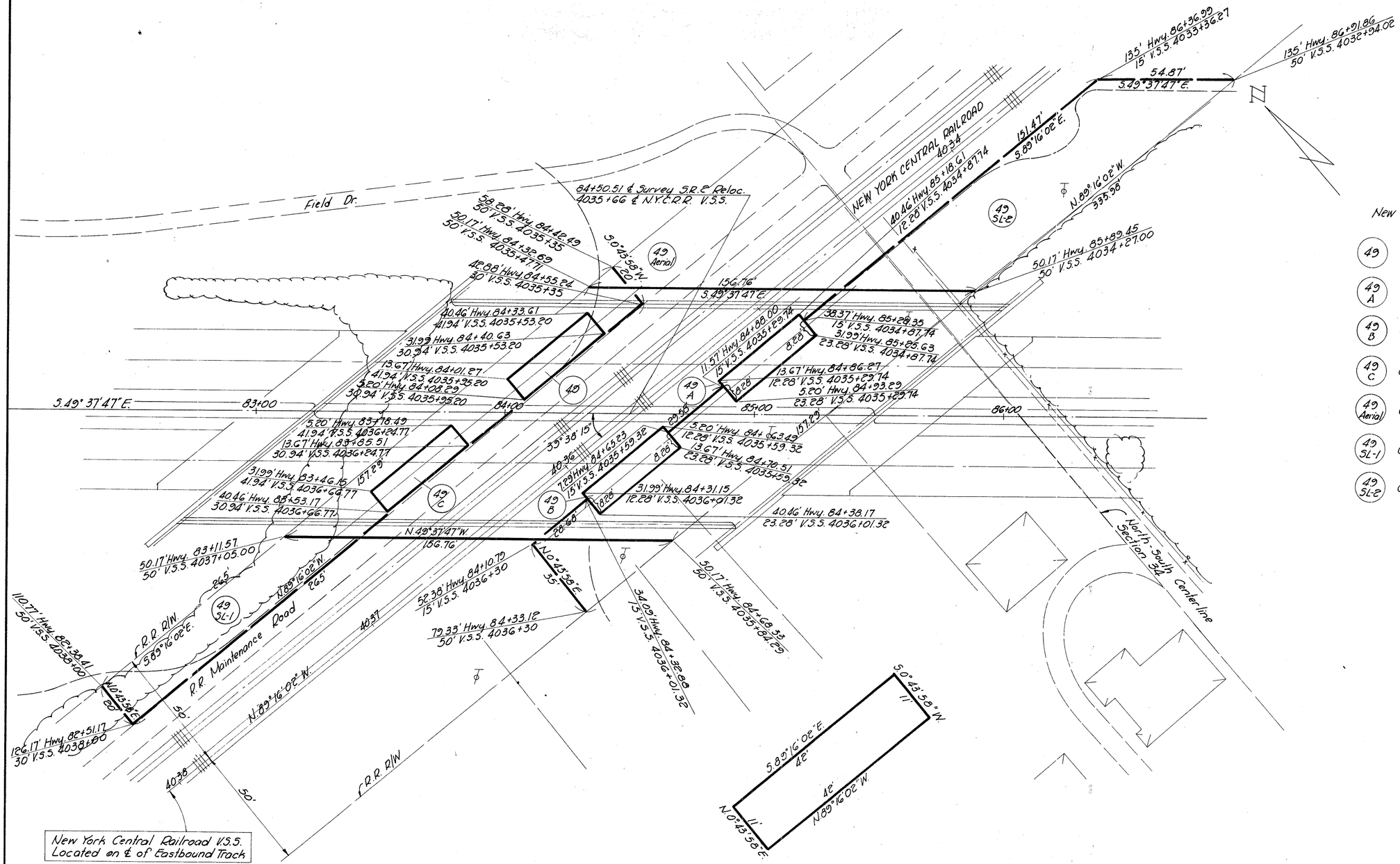
R/W 160+00 to 190+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

133/133

13/13

OTT. 2-16.48
R/W PLAN
SUPPLEMENTAL SHEET



TYPICAL FOOTER EASEMENT

New York Central Railroad Company

49	Cont.	0.011 Ac.±
49 A	Cont.	0.011 Ac.±
49 B	Cont.	0.011 Ac.±
49 C	Cont.	0.011 Ac.±
49 Aerial	Cont.	0.361 Ac.±
49 SL-1	Cont.	0.100 Ac.±
49 SL-E	Cont.	0.237 Ac.±

NOTE:
Valuation Survey Stations shown hereon are referred to those shown on N.Y.C. R.R. Right of Way and Track Map V. 206, Sheet 36

ERIE TWP., OTTAWA CO.
SEC. 34 T7N R16E

PLAN SHOWING
HIGHWAY RIGHT OF WAY EASEMENTS
REQUIRED AT
NEW YORK CENTRAL RAILROAD

Date: 6-18-62
Scale: 1"=20'

SANZENBACHER, MILLER & BRIGHAM TOLEDO, OHIO

TE-54-A
100-10-60

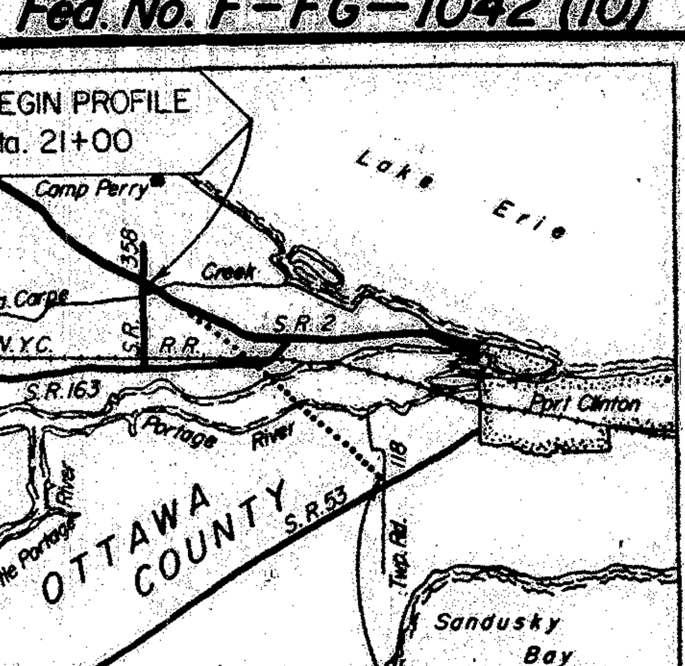
SOIL PROFILE
OTTAWA COUNTY
OTT-2-16.48

OHIO STATE HIGHWAY TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

1 / 16

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-FG-1042 (10)



LOCATION MAP

Recon — P.L.H. — 2/17/61 and 10/18/61
Drilling — Auger — J.R.F., J.R.G., B.D.L., R.D.R., F.S., R.L.S., J.R.V. — 3/1/61 to 3/17/61, 10/26/61 to 1/17/62
Core — R.D.R., R.L.S. — 10/31/61 to 11/7/61
Drafting — R.L.M., R.A.W., C.L.I. — 2/20/62

GENERAL INFORMATION

INTRODUCTION

The project consists of the major relocation of 3.1 miles of SR 2, beginning at the existing SR 2-SR 358 intersection, approximately 3.6 miles northwest of Port Clinton, extends to the southeast, crosses La Carpe Creek and the Portage River, and terminates approximately 1200 feet northwest of the SR 53-Twp. Rd. 118 intersection.

The proposed grade indicates fill embankment, generally less than 6 feet in height, with a maximum of 30 feet.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

The alignment traverses the featureless, glaciated Lake Plain where soil cover, consisting of lacustrine deposits, underlain by till, is reportedly on the order of 42 feet in thickness. It is noted that an abandoned borrow pit is located between stations 60+00 and 83+00 and is filled with approximately 5 feet of water. Swampy surface conditions exist between stations 100+00 and 109+00. Local bedrock consists of dolomitic shale, dolomite, and gypsum, Silurian in age.

EXPLORATION

Exploratory borings were made by means of truck-mounted mechanical earth auger and hand auger (in areas of difficult access), between March 1 and 17, 1961 and, between November 26, 1961 and January 17, 1962, by means of truck-mounted mechanical earth auger and rotary type drill rig (at the Portage River crossing), and, in areas of difficult access, by means of hand auger, peat sampler, and retractable piston sampler. Borings made in conjunction with the foundation investigation for the proposed SR 163 and Portage River structures supplement the soil profile borings.

INVESTIGATIONAL DISCLOSURES

Borings disclose the material in the embankment foundation (exclusive of the Portage River crossing) to consist predominantly of clay, in the A-7-6 classification. Highly-compressible, soft, low strength elastic clays, and fibrous and fine-textured peats, two feet in thickness, were encountered between approximately stations 28+00 and 30+00, in the vicinity of La Carpe Creek, at least 100 feet right and left of centerline, and between stations 102+00 and 104+00, at least 150 feet right and left of centerline. In the ponded borrow pit, in the vicinity of station 69+00 to 84+00, 1-foot of at-surface, soft compressible sediments was encountered; this sediment is underlain by at least 9 feet of moist silt clay, in the A-6 classification.

In the vicinity of the Portage River (between stations 109+30 and 134+40), embankment foundation materials consist predominantly of clay, in the A-7-6 classification, and highly compressible, soft, wet low-strength peats (fine-textured and marly sedimentary). These materials range from 1.5 to 22 feet in thickness and are concentrated mainly between stations 120+00 and 127+00 and extend at least 200 feet right and left of centerline.

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS- 557 SAMPLES TESTED

DESCRIPTION	H. R. B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
Gravel	A-1-a(0)	A-1-a	66	16	6	3	9	NP	NP	11	-
Gravel with sand	A-1-b(0)	A-1-b	28	37	17	8	10	NP	NP	19	1
Coarse and fine sand	-------	A-3a	0	7	77	11	5	NP	NP	34	1
Gravel with sand and silt	A-2-4(0)	A-2-4	22	29	15	13	21	NP	NP	21	1
Sandy silt	A-4(6)	A-4a	5	7	24	30	34	22	4	17	25
Silt	A-4(8)	A-4b	2	3	10	52	33	24	4	22	6
Silt and clay	A-6(9)	A-6a	6	5	11	32	46	29	12	19	154
Silty clay	A-6(11)	A-6b	2	3	6	32	57	38	18	35	27
Elastic clay without organic material unless otherwise noted	A-7-5(20)	A-7-5	0	1	2	34	63	79	42	63	18
Clay	A-7-6(15)	A-7-6	0	1	3	33	63	49	24	27	146
Random fill consisting of - concrete fragments, cans, and roofing paper	VISUAL CLASSIFICATION										1
Fibrous Peat	VISUAL CLASSIFICATION										5
Fine-textured peat	VISUAL CLASSIFICATION										28
Marly sedimentary peat	VISUAL CLASSIFICATION										20
Sedimentary peat	VISUAL CLASSIFICATION										7
Dolomite	VISUAL CLASSIFICATION										
Gypsum	VISUAL CLASSIFICATION										
Shale	VISUAL CLASSIFICATION										
Various other materials	VISUAL CLASSIFICATION										117

Sod and/or Topsoil=X'=Approximate depth.

Berm material

Auger boring - plan view.

Drive sample — core boring - plan view.

Auger boring plotted to vertical scale only.

Drive sample — core boring plotted to vertical scale only.

Number of blows for "Standard Penetration" test. X=number of blows for the first 6 inches. Y=number of blows for the second 6 inches.

Water content nearly equal to or greater than liquid limit.

Indicates a non-plastic material with high water content.

W Free water.

P.S. Peat sampler.

R.P.S. Retractable piston sampler

NOTE: Figures beside borings indicate water content in percent. e.g. /5

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 FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SOIL CLASS.
21+00	CL	1.0-6.0	0	1	2	30	67	49	27	27	A-7-6*
		6.0-10.0	0	3	5	29	63	40	21	26	A-6b
25+00	15'Lt	0.5-3.0	0	1	1	40	58	54	29	25	A-7-6*
		3.0-6.0	0	0	1	33	66	48	26	20	A-7-6
		6.0-10.0	0	0	1	48	51	33	11	24	A-6a
27+50	CL	0.5-4.0	0	1	2	46	51	45	20	37	A-7-6
		4.0-8.0	0	1	2	41	56	39	23	28	A-6b
		8.0-14.0	0	14	16	27	43	24	8	17	A-4a
28+30	100'Lt	0.0-3.0	Concrete Fragments, Cans, & Roofing Paper								Visual
		3.0-5.0	0	3	6	52	39	98	56	60	A-7-5
		5.0-10.0	0	0	3	43	54	54	30	29	A-7-6
		10.0-12.0	0	4	12	37	47	33	12	43	A-6a
		12.0-14.0	5	6	13	26	50	31	11	15	A-6a
28+40	100'Rt	0.0-0.5	Creek Sediment								Visual
		0.5-2.0	Black Fibrous Peat							131	Visual
		2.0-7.5	0	0	2	44	54	64	30	46	A-7-6
		7.5-10.0	0	1	8	33	58	43	19	33	A-7-6
28+50	CL	0.5-3.0	0	1	2	36	61	45	24	31	A-7-6
		3.0-6.0	0	0	1	36	63	51	30	32	A-7-6
		6.0-8.0	Black Fine-Textured Peat							170	Visual
		8.0-12.0	0	1	6	43	50	51	32	30	A-7-6
		12.0-17.0	9	6	13	31	41	27	11	16	A-6a
		17.0-20.0	5	5	12	32	46	25	11	16	A-6a
28+50	50'Rt	0.5-4.0	0	3	12	33	52	42	20	23	A-7-6
		4.0-6.0	Black Fibrous Peat							120	Visual
		6.0-11.0	0	0	3	41	56	59	34	35	A-7-6
		11.0-15.0	20	5	11	27	37	33	12	16	A-6a
29+50	75'Rt	0.5-3.0	0	1	5	40	54	55	22	63	A-7-5
		3.0-8.0	0	1	3	34	62	45	21	49	A-7-6
29+80	CL	0.5-3.0	0	1	1	27	71	60	35	34	A-7-6
		3.0-4.0	0	0	2	41	57	53	31	32	A-7-6
		4.0-7.0	0	5	8	26	61	36	18	22	A-6b
		7.0-12.0	4	6	14	27	49	29	14	16	A-6a
		12.0-16.0	9	7	12	29	43	30	11	15	A-6a
		16.0-20.0	0	7	12	31	50	25	11	15	A-6a
33+00	CL	0.5-3.0	0	0	1	28	71	52	27	30	A-7-6
		3.0-8.0	0	0	1	37	62	44	25	25	A-7-6
		8.0-12.0	0	2	6	32	60	33	12	24	A-6a
		12.0-15.0	0	6	13	32	49	28	11	14	A-6a
37+00	15'Rt	0.5-2.0	0	0	2	30	68	52	25	29	A-7-6*
		2.0-3.0	0	1	2	29	68	73	40	42	A-7-5
		3.0-7.0	0	0	1	30	69	56	28	30	A-7-6
		7.0-12.0	0	5	13	33	49	32	13	18	A-6a
		12.0-15.0	0	6	14	35	45	30	14	16	A-6a
40+50	CL	1.0-4.0	0	1	1	29	69	52	27	33	A-7-6
		4.0-8.0	0	5	7	32	56	37	16	20	A-6b
		8.0-13.0	7	6	13	29	45	28	11	16	A-6a
		13.0-15.0	0	6	12	33	49	28	11	15	A-6a
43+00	CL	1.0-5.0	0	1	2	31	66	53	20	27	A-7-5
		5.0-10.0	0	3	6	34	57	40	17	25	A-6b
		10.0-15.0	12	5	12	29	42	33	13	14	A-6a
47+00	CL	1.0-6.0	0	6	13	35	46	31	9	16	A-4a
		6.0-10.0	0	7	14	36	43	36	14	16	A-6a
51+25	CL	1.0-3.0	0	2	2	30	66	57	27	28	A-7-5
		3.0-8.0	0	1	3	35	61	40	18	25	A-6b
		8.0-13.0	0	7	13	35	44	27	11	18	A-6a
		13.0-15.0	0	7	14	33	46	29	11	17	A-6a
55+17	CL	1.0-5.0	0	0	1	32	67	56	24	34	A-7-5
		5.0-10.0	0	4	8	32	56	41	19	30	A-7-6
		10.0-15.0	7	8	18	25	42	28	11	19	A-6a
64+50	CL	1.0-4.0	0	1	2	32	65	51	27	22	A-7-6
		4.0-7.0	4	3	8	31	54	43	20	24	A-7-6
		7.0-10.0	54	3	7	14	22	33	12	18	A-6a
		10.0-15.0	0	7	13	33	47	30	11	16	A-6a
68+50	CL	1.0-3.0	0	2	3	34	61	51	27	32 ●	A-7-6
		3.0-6.0	0	2	3	29	66	55	26	28	A-7-6
		6.0-9.0	0	3	10	30	57	30	15	26	A-6a
		9.0-12.5	30	2	5	25	38	35	15	17	A-6a
		12.5-16.0	6	7	13	30	44	27	11	16	A-6a
72+00	CL	0.0-1.0	Pond Sediment								Visual
		1.0-5.0	11	7	13	23	46	32	11	15	A-6a
		5.0-10.0	11	7	12	26	44	30	11	18	A-6a
76+00	CL	0.0-1.0	Pond Sediment								Visual
		1.0-5.0	0	8	13	31	48	37	17	19	A-6b
		5.0-10.0	11	6	13	22	42	38	17	21	A-6b
80+00	CL	0.0-1.0	Pond Sediment								Visual
		1.0-4.0	0	5	10	29	56	38	14	29	A-6a
		4.0-8.0	9	7	13	26	45	26	11	18	A-6a
		8.0-12.0	12	7	8	28	45	27	11	18	A-6a
84+00	CL	0.5-3.0	0	2	3	34	61	48	16	33	A-7-5
		3.0-8.0	0	1	2	33	64	53	25	29	A-7-6
		8.0-13.0	0	3	9	33	55	33	13	20	A-6a
		13.0-18.0	14	7	12	26	41	27	11	18	A-6a
		18.0-20.0	12	6	12	28	42	28	12	20	A-6a
85+40	30'Lt	0.5-2.0	0	1	4	34	61	44	22	23	A-7-6
		2.0-5.0	0	1	15	40	44	35	17	17	A-6b
		5.0-10.0	0	9	13	30	48	30	11	16	A-6a
		10.0-15.0	6	7	14	23	50	29	11	16	A-6a
		15.0-20.0	8	7	13	26	46	28	11	19	A-6a
89+50	CL	0.5-5.0	0	1	2	35	62	52	25	26	A-7-6
		5.0-10.0	0	9	14	30	47	29	11	16	A-6a
		10.0-15.0	0	7	14	34	45	28	11	15	A-6a
		15.0-20.0	0	7	14	32	47	28	11	15	A-6a
95+00	CL	1.0-5.0	0	1	2	39	58	40	18	26	A-6b
		5.0-10.0	0	4	8	29	59	40	18	20	A-6b
		10.0-15.0	5	7	12	34	42	26	11	17	A-6a
98+00	CL	0.6-3.0	0	1	2	31	66	53	20	26	A-7-5
		3.0-4.5	0	2	2	27	69	55	29	27	A-7-6
		4.5-6.0	0	0	1	43	56	38	10	21	A-6b
		6.0-11.0	6	6	12	28	48	30	11	17	A-6a
		11.0-15.0	0	7	9	32	52	27	12	16	A-6a
		15.0-20.0	6	7	13	29	45	26	11	17	A-6a

SOIL PROFILE
OTTAWA COUNTY
OTT-2-16.48

OHIO STATE HIGHWAY
TESTING LABORATORY
O S U CAMPUS COLUMBUS OHIO

2 / 16

SUMMARY OF SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
98+20	30'Rt.	0.5-3.0	0	2	2	31	65	54	29	27	A-7-6
		3.0-8.0	0	1	1	35	63	45	23	24	A-7-6
		8.0-10.0	0	3	7	32	58	34	14	21	A-6a
		10.0-13.0	10	7	13	29	41	35	15	17	A-6a
		13.0-15.0	0	7	13	33	47	27	11	17	A-6a
99+00	100'Lt	0.5-2.0	0	2	4	40	54	41	14	21	A-7-6
		2.0-7.0	0	1	2	40	57	44	22	22	A-7-6
		7.0-10.0	0	8	9	33	50	28	11	13	A-6a
99+00	50'Lt	0.0-4.0	12	1	2	29	56	48	24	19	A-7-6
		4.0-8.0	0	0	2	30	68	52	26	21	A-7-6
		8.0-12.5	8	8	12	28	44	27	11	14	A-6a
		12.5-17.0	20	5	8	29	38	24	11	15	A-6a
		17.0-20.0	15	6	10	28	41	27	11	16	A-6a
99+00	CL	0.5-3.0	0	1	2	34	63	47	24	18	A-7-6
		3.0-7.0	0	1	2	32	65	42	21	21	A-7-6
		7.0-12.0	0	7	13	30	50	30	13	15	A-6a
		12.0-15.0	0	8	10	33	49	30	12	16	A-6a
		15.0-20.0	4	6	12	31	47	25	11	17	A-6a
		20.0-25.0	8	5	11	28	48	26	11	17	A-6a
99+00	50'Rt	0.6-3.0	0	1	1	29	69	54	27	23	A-7-6
		3.0-8.0	0	1	1	44	54	26	11	21	A-6a
		8.0-12.0	0	8	14	31	47	28	11	16	A-6a
		12.0-17.0	11	6	12	29	42	23	11	16	A-6a
99+00	100'Rt	0.5-5.0	0	1	2	27	70	49	24	20	A-7-6
		5.0-9.0	18	6	10	22	44	29	11	16	A-6a
		9.0-14.5	10	6	10	30	44	31	12	17	A-6a
		14.5-20.0	12	6	11	26	45	24	11	15	A-6a
100+00	150'Lt	0.5-4.0	0	1	1	53	45	50	28	22	A-7-6
		4.0-8.0	7	8	10	29	46	32	14	14	A-6a
		8.0-10.0	5	7	12	26	50	39	19	16	A-6b
100+00	100'Lt	0.6-5.0	0	1	1	59	39	48	26	20	A-7-6
		5.0-9.0	11	7	9	36	37	25	11	19	A-6a
		9.0-14.5	11	7	13	16	53	29	11	17	A-6a
		14.5-20.0	7	7	12	14	60	25	11	17	A-6a
100+00	50'Lt	0.5-3.5	0	2	2	25	71	63	39	26	A-7-6
		3.5-8.5	0	2	2	29	67	42	20	24	A-7-6
		8.5-13.0	16	5	9	27	43	37	16	18	A-6b
		13.0-16.0	7	6	13	28	46	28	11	16	A-6a
		16.0-21.0	9	7	13	21	50	24	11	16	A-6a
* 100+00	CL	See bottom of column									
100+00	70'Rt	0.5-2.5	0	0	1	32	67	45	21	25	A-7-6
		2.5-7.0	0	3	3	36	58	32	13	22	A-6a
		7.0-9.5	11	9	13	24	43	29	12	19	A-6a
		9.5-12.0	3	5	6	50	36	24	4	18	A-4b
		12.0-17.0	14	5	11	27	43	24	11	15	A-6a
		17.0-21.0	14	6	10	27	43	26	11	16	A-6a
100+00	120'Rt	0.5-2.0	0	1	1	22	76	65	35	32	A-7-5
		2.0-6.0	0	0	1	45	54	38	17	22	A-6b
		6.0-10.0	0	0	0	20	80	48	24	28	A-7-6
		10.0-15.0	14	7	11	31	37	24	11	14	A-6a
		15.0-20.0	5	6	9	34	46	24	11	13	A-6a
100+00	175'Rt	0.5-1.5	0	0	2	41	57	44	21	28	A-7-6
		1.5-5.0	0	2	3	39	56	51	20	28	A-7-6
		5.0-10.0	0	1	2	28	69	46	21	27	A-7-6
		10.0-14.0	18	5	9	25	43	31	11	16	A-6a
		14.0-16.0	17	6	11	28	38	27	11	15	A-6a
		16.0-19.0	19	5	4	15	57	28	11	14	A-6a
101+00	CL	0.0-2.5	0	1	2	24	73	52	26	34	A-7-6
		2.5-5.0	0	2	3	27	68	56	32	28	A-7-6
		5.0-10.0	0	1	1	25	73	50	26	22	A-7-6
		10.0-14.0	0	5	12	32	51	30	12	15	A-6a
		14.0-19.0	8	5	10	30	47	27	11	16	A-6a
		19.0-25.0	10	6	11	27	46	30	12	16	A-6a
		25.0-30.0	17	6	10	25	42	29	13	18	A-6a
102+00	150'Lt	0.0-1.5	0	1	1	54	44	58	26	48	A-7-5
		1.5-5.0	0	1	3	27	69	51	28	30	A-7-6
		5.0-7.0	0	1	1	38	60	44	21	22	A-7-6
		7.0-10.5	6	6	9	35	44	31	12	18	A-6a
		10.5-15.0	14	6	10	29	41	26	11	15	A-6a
		15.0-20.0	21	5	10	24	40	27	11	18	A-6a
102+00	100'Lt	0.5-1.5	0	1	3	30	66	40	22	35	A-7-6
		1.5-6.0	0	2	3	27	68	45	23	26	A-7-6
		6.0-11.0	0	3	7	28	62	36	14	21	A-6a
		11.0-16.0	7	7	9	31	46	25	11	15	A-6a
102+00	50'Lt	0.0-2.0	Black Fibrous Peat							87	Visual
		2.0-4.0	0	0	2	34	64	50	26	40	A-7-6
		4.0-5.0	0	0	2	32	66	54	30	34	A-7-6
		5.0-6.0	0	2	5	31	62	44	22	31	A-7-6
102+00	CL	0.5-5.0	0	0	1	42	57	57	30	32	A-7-6
		5.0-9.0	0	2	1	42	55	41	18	26	A-7-6
		9.0-15.0	0	4	11	27	58	23	11	16	A-6a
* 100+00	CL	1.0-5.0	0	1	2	30	67	57	33	31	A-7-6
		5.0-8.0	0	1	2	29	68	46	20	32	A-7-6

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
102+00	100'Rt	0.0-2.0	Black Fine-Textured Peat							66	Visual
		2.0-4.0	0	0	1	31	68	52	27	40	A-7-6
		4.0-6.0	0	0	1	30	69	54	30	39	A-7-6
102+00	150'Rt	0.0-2.0	Black Fine-Textured Peat							62	Visual
		2.0-4.0	0	0	1	32	67	55	27	45	A-7-6
		4.0-6.0	0	0	2	22	76	60	35	52	A-7-6
		6.0-9.0	0	0	1	33	66	50	33	35	A-7-6
103+00	CL	0.6-1.5	0	1	1	33	65	57	28	44	A-7-6
		1.5-4.0	0	1	1	29	69	58	32	38	A-7-6
		4.0-8.0	0	4	1	33	62	45	21	36	A-7-6
104+00	150'Lt	0.0-2.0	0	0	1	30	69	58	24	47	A-7-5
		2.0-6.0	0	0	2	27	71	50	31	39	A-7-6
		6.0-10.0	0	0	1	35	64	62	33	39	A-7-6
104+00	100'Lt	0.0-2.0	0	0	1	34	65	77	41	56	A-7-5
		2.0-4.5	0	1	1	26	72	62	36	40	A-7-6
		4.5-9.0	0	0	1	34	65	58	33	39	A-7-6
104+00	50'Lt	0.0-2.0	Black Fibrous Peat							135	Visual
		2.0-4.0	0	0	1	29	70	55	30	41	A-7-6
		4.0-7.0	0	1	1	36	62	47	26	39	A-7-6
* 104+00	CL	See bottom of column									
104+00	50'Rt	0.0-1.0	0	1	3	33	63	83	38	82	A-7-5
		1.0-3.0	0	0	1	31	68	50	31	41	A-7-6
		3.0-5.0	0	0	1	32	67	60	34	35	A-7-6
104+00	100'Rt	0.0-2.0	Black Fibrous Peat *							224	Visual
		2.0-4.0	0	0	1	32	67	57	30	45	A-7-6
		4.0-6.0	0	1	2	19	78	67	40	46	A-7-6
		6.0-7.0	0	0	1	43	56	50	26	36	A-7-6
104+00	150'Rt	0.0-2.5	0	0	2	32	66	71	39	54	A-7-5
		2.5-4.0	0	0	1	28	71	54	28	37	A-7-6
		4.0-5.0	0	0	1	28	71	60	35	37	A-7-6
105+00	100'Lt	0.5-5.0	0	1	1	37	61	48	20	29	A-7-6
		5.0-10.0	0	1	2	34	63	40	22	24	A-6b
		10.0-12.0	7	6	12	31	44	26	11	16	A-6a
105+00	CL	1.0-6.0	0	0	1	37	62	46	21	29	A-7-6
		6.0-11.0	0	0	1	33	66	45	22	29	A-7-6
		11.0-15.0	5	4	11	33	47	26	11	18	A-6a
		15.0-20.0	9	6	11	28	46	25	11	16	A-6a
		20.0-25.0	6	12	12	27	43	30	11	18	A-6a
105+50	110'Rt	0.5-6.0	0	1	1	52	46	51	23	28	A-7-6
		6.0-12.0	6	6	10	22	56	36	16	21	A-6b
		12.0-15.0	11	5	10	40	34	28	11	17	A-6a
106+00	50'Lt	0.3-4.0	0	1	1	28	70	45	22	26	A-7-6
		4.0-9.0	0	2	3	35	60	41	19	23	A-7-6
		9.0-15.0	8	6	9	32	45	35	16	19	A-6b
		15.0-20.0	0	7	12	34	47	28	11	16	A-6a
		20.0-25.0	0	7	11	34	48	26	11	17	A-6a
* 106+00	CL	See bottom of column									
106+00	50'Rt	0.4-5.0	18	3	5	28	46	37	14	25	A-6a
		5.0-11.0	3	8	11	38	40	30	13	16	A-6a
		11.0-15.0	4	7	11	35	43	26	11	15	A-6a
107+00	CL	0.3-4.0	0	1	1	44	54	44	21	20	A-7-6
		4.0-10.0	0	3	4	23	70	38	17	21	A-6b
		10.0-15.0	5	7	13	32	43	27	11	14	A-6a
108+00	CL	0.5-5.0	0	0	1	37	62	54	33	27	A-7-6
		5.0-10.0	8	7	12	34	39	33	15	16	A-6a
		10.0-15.0	8	7	12	32	41	35	14	16	A-6a
		15.0-20.0	3	7	13	31	46	29	14	14	A-6a
108+90	100'Lt	0.5-4.0	0	1	2	34	63	51	26	28	A-7-6
		4.0-9.0	0	2	2	36	60	38	17	17	A-6b
		9.0-15.0	7	5	11	23	54	25	11	15	A-6a
		15.0-20.0	16	5	7	28	44	24	11	15	A-6a
108+90	50'Lt	1.0-7.0	0	1	1	40	58	54	29	30	A-7-6
		7.0-12.0	1	7	11	32	49	35	17	16	A-6b
		12.0-16.0	0	7	12	30	51	32	12	17	A-6a
		16.0-20.0	8	6	11	30	45	27	11	16	A-6a
108+90	CL	0.5-5.0	0	2	3	24	71	67	43	30	A-7-6
		5.0-9.0	0	2	3	34	61	42	21	25	A-7-6
		9.0-15.0	8	7	13	27	45	32	12	16	A-6a
		15.0-20.0	6	6	11	32	45	27	11	15	A-6a
		20.0-26.0	7	6	12	27	48	27	11	16	A-6a
		26.0-30.0	7	9	27	25	32	18	4	10	A-4a
108+90	50'Rt	0.5-4.0	0	1	2	33	64	53	29	28	A-7-6
		4.0-12.0	2	2	5	32	59	35	13	25	A-6a
		12.0-20.0	2	6	10	28	54	28	12	15	A-6a
108+90	100'Rt	0.4-3.0	0	1	1	40	58	50	30	26	A-7-6
		3.0-9.0	9	5	7	27	52	30	11	15	A-6a
		9.0-14.0	5	6	11	45	33	28	12	16	A-6a
		14.0-20.0	8	4	10	30	48	28	12	14	A-6a
		20.0-25.0	4	6	12	29	49	25	11	13	A-6a
* 104+00	CL	1.0-3.0	0	0	2	25	73	52	26	43	A-7-6
		3.0-7.0	0	1	3	29	67	61	33	46	A-7-6
* 106+00	CL	1.0-4.0	0	0	1	27	72	52	28	37	A-7-6
		4.0-6.0	0	0	1	35	64	44	20	35	A-7-6

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
109+00	150'Lt	0.5-5.0	0	1	1	27	71	45	24	24	A-7-6
		5.0-10.0	2	7	12	32	47	31	12	16	A-6a
		10.0-15.0	4	6	9	34	47	27	11	15	A-6a
		15.0-20.0	6	6	11	34	43	26	11	15	A-6a
111+00	100'Lt	0.0-1.3	Brown & Gray Clayey Silt							59	Visual
111+00	15'Lt	0.0-3.0	0	1	2	26	71	53	27	34	A-7-6
		3.0-7.0	0	0	2	41	57	57	27	25	A-7-6
		7.0-9.0	0	3	3	30	64	39	17	25	A-6b
111+00	100'Rt	0.0-2.0	Mottled Brown & Gray Clayey Silt							31	Visual
112+00	CL	0.0-3.0	Brown & Gray Silty Clay					NP	NP	31	Visual
113+00	100'Lt	0.0-2.5	0	1	2	18	79	-	-	27	A-7-6
113+00	CL	0.0-2.5	Mottled Brown & Gray Cleyey Silt							36	Visual
		2.5-4.5	0	0	1	57	42	61	25	33	A-7-5
		4.5-7.5	0	1	3	64	32	55	27	34	A-7-6
		7.5-9.5	0	1	2	32	65	48	24	31	A-7-6
113+00	100'Rt	0.0-3.5	0	0	1	31	68	44	19	30	A-7-6
114+00	CL	0.0-1.5	0	0	1	11	88	51	24	37	A-7-6
115+00	100'Lt	0.0-2.0	Mottled Brown & Gray Silty Clay							33	Visual
115+00	CL	0.0-1.5	Mottled Brown & Gray Silty Clay							30	Visual
		1.5-6.0	0	1	2	22	75	53	32	33	A-7-6
		6.0-10.0	0	1	2	26	71	48	22	31	A-7-6
115+00	100'Rt	0.0-3.0	0	0	1	12	87	49	25	31	A-7-6
116+00	CL	0.0-2.5	Brown & Gray Silty Clay							30	Visual
117+00	100'Lt	0.0-2.0	Gray Silty Clay							24	Visual
117+00	CL	0.0-0.8	Brown & Gray Silty Clay							23	Visual
		0.8-2.8	0	0	12	37	51	49	18	31	A-7-6
		2.8-4.8	0	0	2	35	63	52	24	26	A-7-6
		4.8-9.6	0	2	3	35	60	44	22	23	A-7-6
117+00	100'Rt	0.0-2.5	0	1	14	44	41	27	12	23	A-6a
		2.5-3.0	Gray Silty Sand							26	Visual
118+00	CL	0.0-2.5	Gray Silty Sand							23	Visual
		2.5-3.0	Gray & Brown Sandy Clayey Silt							28	Visual
118+50	200'Rt	0.0-1.5	Brown Fine-Textured Peat & Gray Silty Sand (Mixture)							75	Visual
		1.5-4.0	Gray & Dark Gray Silty Sand							32	Visual
119+00	100'Lt	0.0-3.0	Gray Clayey Silty Sand							26	Visual
		3.0-3.5	Brown & Gray Silty Clay							28	Visual
119+00	CL	0.0-6.0	0	7	77	11	5	NP	NP	34	A-3a
		6.0-9.5	0	0	0	30	61	37	15	27	A-6a
119+00	100'Rt	0.0-3.0	Gray Clayey Sandy Silt							59	Visual
		3.0-5.0	Gray Silty Sand							31	Visual
119+00	200'Rt	0.0-1.5	Gray Organic Clayey Silt							113	Visual
		1.5-10.5	Brown to Dark Gray Fine-Textured Peat							140	Visual
		10.5-14.5	Gray Clayey Silt							31	Visual
		14.5-15.5	Gray Silty Clay							22	Visual
119+50	CL	0.0-1.5	Brown Sandy Silty Marly Sedimentary Peat							89	Visual
		1.5-3.5	Gray Silty Sand							42	Visual
120+00	100'Lt	0.0-1.0	Black Sediments							—	Visual
		1.0-2.5	Brown Fine-Textured Peat							102	Visual
		2.5-4.5	Gray Cloyey Sily Sond							38	Visual
		4.5-5.0	Groy Silty Cloy							27	Visuol
120+00	CL	0.0-3.0	Gray Organic Clayey Silt & Fine-Textured Peat (Mixture)							137	Visual
		3.0-4.0	Dark Gray Silty Sand							39	Visual
120+00	100'Rt	0.0-1.5	Gray Organic Clayey Silt							100	Visual
		1.5-10.0	Brown Fine-Textured Peat							191	Visual
		10.0-12.5	Gray Organic Clayey Silt							50	Visual
		12.5-17.5	Gray Silty Marly Sedimentary Peat							38	Visual
		17.5-24.5	Gray Sandy Silt							32	Visual
120+00	200'Rt	0.0-1.5	Gray Organic Clayey Silt							115	Visual
		1.5-10.5	Gray Organic Clayey Silt & Peat (Mixture)					104	28	94	Visual
		10.5-17.5	Gray Marly Sedimentary Peat					34	-	32	Visual
		17.5-22.0	Gray Silty Sedimentary Peat							48	Visual
		22.0-22.5	Gray Sandy Silt							23	Visual
120+50	CL	0.0-1.0	Gray Organic Clayey Silt							106	Visual
		1.0-5.5	Brown & Black Fine-Textured Peat							196	Visual
		5.5-7.0	Dark Gray Sand & Fine-Textured Peat (Mixture)							70	Visual
		7.0-10.0	Gray Marly Sedimentary Peat					118	-	140	Visual
		10.0-12.0	Gray Silty Marly Sedimentary Peat							31	Visual
		12.0-20.5	0	1	32	37	30	31	12	33	A-6a
		20.5-21.0	Gray Clayey Silt							14	Visual

Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
121+00	200'Lt	0.0-3.0	Brown To Dark Gray Fine-Textured Peat							251	Visual
		3.0-6.5	Brown To Dark Gray Fine-Textured Peat & Sand (Mixture)							39	Visual
		6.5-7.0	Gray Silty Clay							27	Visual
121+00	100'Lt	0.0-1.5	Gray Organic Clayey Silt							105	Visual
		1.5-7.5	Brown To Gray Fine-Textured Peat							175	Visual
		7.5-8.5	Gray Organic Silty Sand							32	Visual
		8.5-10.5	Gray Sandy Sedimentary Peat							72	Visual
		10.5-14.0	Gray Organic Silty Clay					25	9	19	Visual
		14.0-14.5	Gray Oranic Silty Clay							22	Visual
121+00	CL	0.0-1.0	Gray Clayey Silt							107	Visual
		1.0-11.5	Gray Marly Sedimentary Peat					106	-	167	Visual
		11.5-15.0	Gray Organic Silty Clay					52	27	41	Visuol
		15.0-23.0	0	0	40	38	22	NP	NP	37	A-4a
		23.0-24.0	Gray Silty Sand & Gravel							11	Visual
121+00	100'Rt	0.0-1.5	Gray Organic Clay Silt							102	Visual
		1.5-10.5	Gray Marly Sedimentary Peat					160	-	169	Visual
		10.5-15.5	Dark Gray Silty Sedimentary Peat							67	Visual
		15.5-18.5	Dark Gray Silty Sedimentary Peat							36	Visual
		18.5-20.5	Gray Sandy Marly Sedimentary Peat							47	Visual
		20.5-23.5	Gray Organic Silty Sand							27	Visual
121+00	200'Rt	0.0-2.0	Gray Organic Clayey Silt							115	Visual
		2.0-10.5	Gray Marly Sedimentary Peat					138	-	139	Visual
		10.5-16.5	Brown Fine-Textured Peat							82	Visual
		16.5-20.0	Gray Clay & Brown Fine-Textured Peat							44	Visual
122+00	200'Lt	0.0-2.0	Gray Clayey Silt							177	Visual
		2.0-17.5	Brown To Dark Gray Fine-Textured Peat							141	Visual
		17.5-18.0	Gray Clayey Silt							25	Visual
122+00	100'Lt	0.0-2.0	Gray Clayey Silt							110	Visual
		2.0-16.5	Dark Brown & Gray Silty Marly Fine-Textured Peat							104	Visual
		16.5-24.0	Brown Fine Textured Peat							59	Visual
122+00	CL	0.0-3.5	Gray Organic Silty Clay							71	Visual
		3.5-17.5	Brown To Gray Fine-Textured Peat							94	Visual
		17.5-24.0	Dark Gray Sandy Marly Fine-Textured Peat							83	Visual
		24.0-27.5	5	6	11	30	48	27	11	22	A-6a
122+00	100'Rt	0.0-2.0	Gray Clayey Silt							98	Visual
		2.0-23.0	Brown & Gray Fine-Textured Peat							27	Visual
		23.0-24.0	Gray Silty Sand & Small Gravel							19	Visual
122+00	200'Rt	0.0-3.0	Gray Clayey Silt							102	Visual
		3.0-18.0	Brown Fine-Textured Peat							153	Visual
		18.0-23.0	Brown Fine-Textured Peat and Sand Mixture							30	Visual
123+00	200'Lt	0.0-1.0	Gray & Black Organic Clayey Silt							117	Visual
		1.0-5.0	Brown & Gray Marly Sedimentary Peat					150	-	155	Visual
		5.0-19.5	Gray Marly Sedimentary Peat					80	-	99	Visual
		19.5-20.5	Gray Silty Sand							42	Visual
123+00	100'Lt	0.0-9.0	Brown & Gray Silty Marly Sedimentary Peat					120	-	142	Visual
		9.0-17.5	Brown & Gray Silty Sedimentary Peat					121	-	97	Visual
		17.5-18.0	Gray Silty Sand & Gravel							-	Visual
123+00	CL	0.0-2.0	Gray & Black Organic Clayey Silt					87	48	98	Visual
		2.0-18.5	Brown & Gray Silty Marly Sedimentary Peat					95	-	122	Visual
		18.5-22.5	28	37	17	8	10	NP	NP	19	A-1-b
123+00	100'Rt	0.0-2.5	Gray Clayey Silt							106	Visual
		2.5-12.0	Brown & Gray Fine-Textured Peat							110	Visual
		12.0-19.0	Brown & Gray Fine-Textured Peat							54	Visual
		19.0-19.5	Gray Silty Sand							49	Visual
123+00	200'Rt	0.0-4.0	Gray Clayey Silt					86	51	104	Visual
		4.0-13.0	Brown Fine-Textured Peat							117	Visual
		13.0-19.5	Brown & Gray Fine-Textured Peat							66	Visual
		19.5-20.0	Gray Silty Clay							17	Visual
124+00	CL	0.0-3.0	Gray & Black Organic Clayey Silt					91	43	95	Visual
		3.0-15.0	Gray Silty Sedimentary Peat							133	Visual
		15.0-19.0	Brown Silty Sedimentary Peat					115	-	72	Visual
		19.0-23.0	0	5	30	37	28	NP	NP	23	A-4a
		23.0-23.5	4	9	19	31	37	20	5	10	A-4a
125+00	200'Lt	0.0-4.5	Gray & Black Organic Clayey Silt					94	53	102	Visual
		4.5-15.5	Gray Silty Marly Sedimentary Peat					98	-	93	Visual
		15.5-20.0	Gray Silty Marly Sedimentary Peat					117	-	74	Visual
		20.0-20.5	Gray Silty Sandy Gravel							18	Visual

SUMMARY OF SOIL TEST DATA (Cont'd)

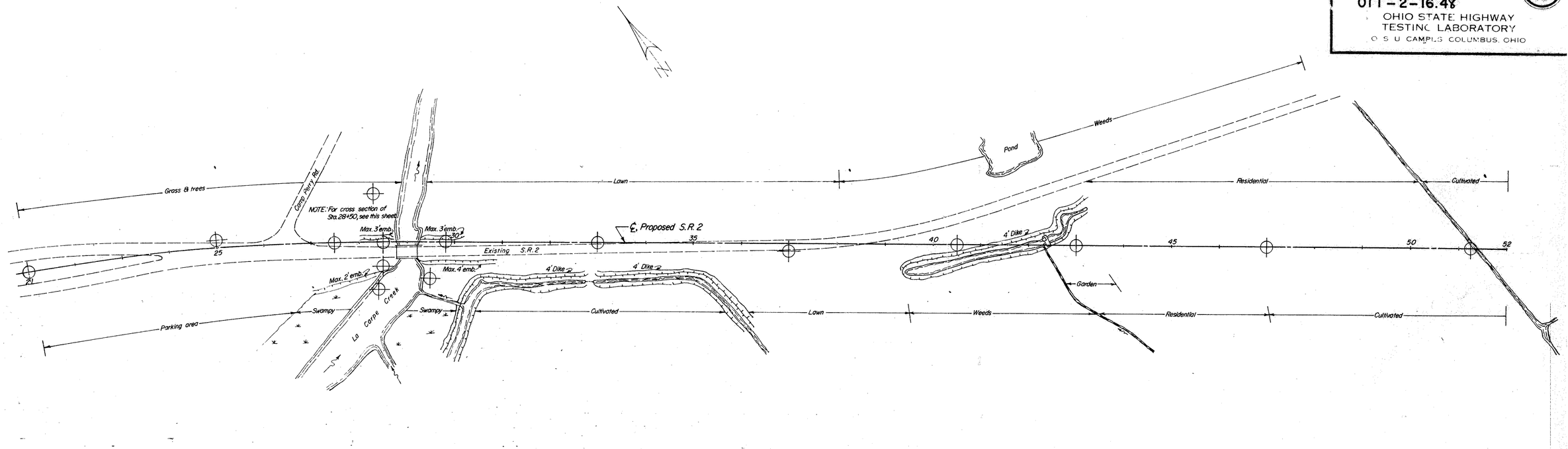
NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.
*[illegible] sample taken at or near grade

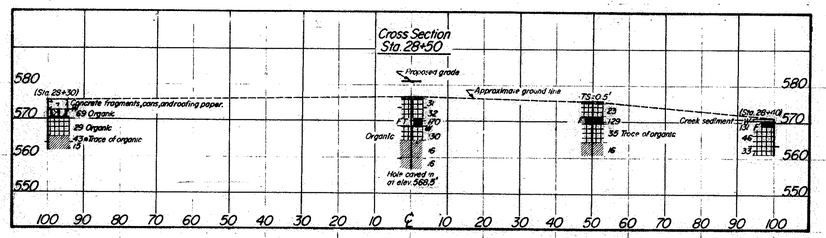
[illegible] SAMPLE SOIL TEST DATA

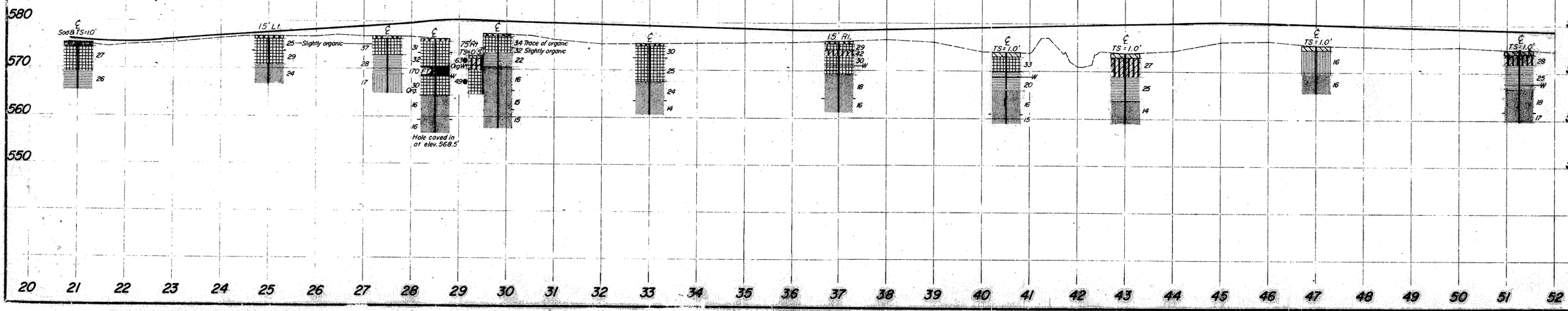
Station	Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	Soil Class.
88+00	30'Rt	2.5-3.5	[illegible]	[illegible]		[illegible]	[illegible]	30	16	27	A-6b
		5.0-6.0	13	5	10	30	[illegible]	[illegible]	15	[illegible]	A-6a
		7.5-8.5	18	7	1[illegible]	[illegible]	[illegible]	29	12	16	A-6a
		10.0-11.0	23	5	10	27	35	[illegible]	12	17	A-6a
		15.0-16.0	19	7	12	[illegible]	[illegible]	[illegible]	12	[illegible]	A-6a
		17.5-18.5	22	6	11	24	37	25	10	17	A-4a
		20.0-21.0	Gray Sandy Silty Clay							31	Visual
		25.0-26.0	18	7	11	[illegible]	40	27	[illegible]	16	A-4a
		30.0-31.0	15	5	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	A-4a
		35.0-35.5	16	5	11	[illegible]	[illegible]	[illegible]	[illegible]	16	[illegible]
90+00	30'Lt	2.5-3.5	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	A-7-6
		5.0-6.0	11	7	13	27	[illegible]	[illegible]	15	16	A-6a
		7.5-8.5	0	9	11	30	50	[illegible]	17	[illegible]	A-6a
		10.0-11.0	12	6	12	27	[illegible]	25	10	20	A-6a
		12.5-13.5	8	6	12	31	[illegible]	30	10	17	A-4a
		15.0-16.0	15	6	12	33	[illegible]	25	10	18	A-4a
		17.5-18.5	13	6	12	30	[illegible]	30	11	19	A-6a
		20.0-21.0	11	7	10	[illegible]	[illegible]	35	20	19	A-6a
		25.0-26.0	11	6	12	[illegible]	[illegible]	[illegible]	10	18	A-4a
		30.0-31.0	13	7	14	31	35	24	9	11	A-4a
		35.0-36.0	27	8	11	30	24	30	5	12	A-4a
110+[illegible]	25'Rt	10.0-11.0	13	6	10	[illegible]	[illegible]	35	15	16	A-6a
		15.0-16.0	20	4	12	21	[illegible]	27	12	16	A-6a
		20.0-21.0	20	6	11	30	35	[illegible]	11	11	A-6a
		25.0-26.0	12	7	8	31	[illegible]	27	11	11	A-6a
113+10	CL	25.0-25.5	66	16	6	[illegible]	9	NP	NP	11	A-1-a
11[illegible]+00	CL	25.0-26.0	0	8	10	[illegible]	38	20	5	9	A-4a
120+5[illegible]	CL	5.0-6.0	30	16	17	20	17	NP	NP	17	A-4a
		10.0-11.0	10	6	16	30	32	NP	NP	16	A-4a
		15.0-16.0	7	6	6	37	44	30	11	14	A-4a
		20.0-21.0	6	7	14	22	51	30	12	16	A-6a
		25.0-26.0	15	8	16	30	29	22	7	11	A-4a
130+00	CL	5.0-6.0	0	1	1	56	42	NP	NP	18	A-4b
		15.0-16.0	Gray Clayey Silt & Stone Fragments							17	Visual
		20.0-21.0	Gray Sandy Clayey Silt							14	Visual
		25.0-25.5	6	11	25	20	38	24	5	12	A-4a
13[illegible]+10	12'Lt	10.0-11.0	3	6	12	32	47	25	9	17	A-4a
		15.0-16.0	27	8	9	28	28	26	11	17	A-6a
		20.0-21.0	8	7	13	20	52	28	10	14	A-4a
		25.0-25.5	13	8	9	31	39	24	8	13	A-4a
		30.0-30.5	3	12	14	32	39	25	10	11	A-4a
125+00	100'Lt	0.0-2.5	0	0	2	20	78	107	69	118	A-7-5
		2.5-12.5	Gray Silty Marly Sedimentary Peat					100	-	152	Visual
		12.5-19.0	Gray Silty Marly Sedimentary Peat					131	-	71	Visual
		19.0-20.5	0	11	32	31	26	NP	NP	22	A-4a
125+00	CL	0.0-3.0	Gray & Black Organic Clayey Silt					116	83	110	Visual
		3.0-10.0	Gray Silty Marly Sedimentary Peat					80		78	Visual
		10.0-12.0	Gray Silty Marly Sedimentary Peat					131	-	83	Visual
		12.0-17.0	0	1	56	26	17	NP	NP	21	A-4a
125+00	100'[illegible]	0.0-4.0	Brown & Black Organic Clayey Silt					111	76	118	Visual
		[illegible]-6.0	Gray Silty Marly Sedimentary Peat					98	-	121	Visual
		6.0-7.0	Gray Sandy Clayey Silt							32	Visual
		7.0-13.0	1	3	34	36	26	NP	NP	21	A-4a
		13.0-14.0	22	25	45	[illegible]		NP	NP	21	A-2-4
125+50	CL	0.0-3.0	Brown & Black Organic Clayey Silt					119	70	104	Visual
		3.0-4.0	Gray Sandy Clayey Silt & Sandy Peat (Mixture)							93	Visual
		4.0-5.0	Gray Clayey Silty Sand							19	Visual
126+00	200'Lt	0.0-5.0	Gray to Dark Gray Organic Clayey Silt					91	55	101	Visual
		5.0-10.0	Brown Fine-Textured Peat							98	Visual
		10.0-15.0	Brown Fine-Textured Peat					85	50	92	Visual
		15.0-16.0	Gray Sandy Clayey Silt							23	Visual
126+00	150'Lt	0.0-5.0	Gray & Dark Gray Organic Clayey Silt					55	18	57	Visual
		5.0-9.5	Gray & Brown Fine-Textured Peat							84	Visual
		9.5-13.5	0	4	20	32	38	NP	NP	50	4-a
		13.5-14.5	Gray Sandy Clayey Silt							21	Visual
126+00	100'Lt	0.0-4.5	Gray Clayey Silt							112	Visual
		4.5-6.0	Brown & Gray Fine-Textured Peat							61	Visual
		6.0-10.5	0	1	30	39	30	NP	NP	26	A-4a
		10.5-11.0	Gray Sandy Clayey Silt							20	Visual
126+00	CL	0.0-3.0	Brown & Black Organic Clayey Silt					105	60	102	Visual
		3.0-5.0	Gray Fine Sandy Clayey Silt							32	Visual
		5.0-8.0	3	1	24	47	25	NP	NP	24	A-4a
		8.0-10.0	0	0	25	42	33	21	3	22	A-4a
		10.0-11.0	Brown Sandy Clayey Silt							17	Visual
126+00	100'Rt	0.0-1.5	Gray & Dark Gray Silty Sand							35	Visual
126+50	200'Lt	0.0-4.5	Gray & Dark Gray Organic Clayey Silt					86	47	105	Visual
		4.5-9.5	Brown Fine-Textured Peat & Clay Silt (Mixture)							85	Visual
		9.5-13.5	0	3	27	38	32	22	3	24	A-4a
127+00	200'Lt	0.0-4.5	Gray & Dark Gray Organic Clayey Silt					80	43	105	Visual
		4.5-7.5	Grayish Brown Fine-Textured Peat							90	Visual
		7.5-10.5	0	1	29	39	31	NP	NP	25	A-4a
127+00	100'Lt	0.0-5.0	0	0	1	24	75	121	82	111	A-7-5
		5.0-6.5	0	1	15	50	34	NP	NP	27	A-4b
		6.5-11.0	0	1	19	57	23	NP	NP	21	A-4b
		11.0-12.0	0	1	31	47	21	NP	NP	23	A-4a
127+00	CL	0.0-2.0	Gray & Black Organic Clayey Silt							116	Visual
		2.0-3.0	Brown & Gray Clayey Silt & Fine-Textured Peat (Mixture)							56	Visual
		3.0-5.5	Gray Sandy Clayey Silt							28	Visual
		5.5-7.0	Gray Sandy Clayey Silt							29	Visual
		7.0-9.0	13	21	25	24	17	NP	NP	17	A-4a
		9.0-10.0	0	1	6	62	31	24	11	20	A-6a
127+00	100'Rt	0.0-2.0	Gray & Black Organic Clayey Silt							108	Visual
		2.0-4.0	Brown Organic Clayey Silt & Fine-Textured Peat (Mixture)							93	Visual
		4.0-7.0	0	6	17	22	55	29	11	26	A-6a
		7.0-11.0	6	12	25	25	32	22	4	20	A-4a
128+00	CL	0.0-2.0	Gray & Black Organic Clayey Silt					102	60	140	Visual
		2.0-4.0	Brown & Dark Gray Fine-Textured Peat							156	Visual
		4.0-5.0	Gray Clayey Silt							28	Visual
		5.0-8.0	0	1	13	52	34	22	3	36	A-4b
		8.0-9.0	Brown & Gray Clayey Silty Sand							21	Visual
		9.0-11.0	Brown & Gray Clayey Silty Sand							25	Visual
		11.0-12.0	5	4	9	25	57	33	13	20	A-6a
128+00	100'Lt	0.0-3.0	Gray & Black Organic Clayey Silt					88	54	78	Visual
		3.0-6.0	Dark Brown Fine Textured Peat							170	Visual
		6.0-8.5	0	0	7	38	55	42	19	33	A-7-6
		8.5-13.5	0	1	10	44	45	31	14	23	A-6a
		13.5-14.5	Brown & Gray Clayey Silt							16	Visual
129+00	CL	0.0-2.0	Gray & Black Organic Clayey Silt							103	Visual
		2.0-4.0	Gray & Black Organic Clayey Silt & Fine Textured Peat Mixture					221	60	250	Visual
		4.0-6.0	Gray & Black Clayey Silt							50	Visual
		6.0-7.0	0	1	7	45	47	32	12	25	A-6a
		7.0-11.0	16	3	12	31	38	27	11	23	A-6a
		11.0-12.0	Brown & Gray Silty Clay							19	Visual
		12.0-13.5	5	14	10	31	40	28	11	17	A-6a
129+00	100'Rt	0.0-2.5	Gray Organic Silty Sand & Fine-Textured Peat (Mixture)					57	18	76	Visual
		2.5-3.5	Gray Organic Sandy Clayey Silt & Fine-Textured Peat					75	43	62	Visual
		3.5-9.0	0	0	24	32	44	32	12	26	A-6a
		9.0-10.5	10	6	14	31	39	30	11	21	A-6a
		10.5-11.5	8	6	15	28	43	28	11	16	A-6a
129+50	CL	0.0-3.0	Gray Organic Clayey Silt & Fine-Textured Peat (Mixture)					154	94	173	Visual
		3.0-8.0	0	1	5	30	64	40	17	146	A-6b
130+00	CL	0.0-0.5	Gray & Black Organic Sandy Clayey Silt							65	Visual
		0.5-2.5	Gray & Dark Gray Silty Sand							30	Visual
		2.5-4.0	Gray Clayey Silt							30	Visual
		4.0-5.5	0	1	2	32	65	44	18	25	A-7-6
		5.5-8.5	0	2	5	34	59	37	17	15	A-6b
131+00	100'Lt	0.0-3.0	0	0	42	31	27	41	22	28	A-7-6
		3.0-5.5	0	0	12	24	64	42	18	35	A-7-6
		5.5-7.0	0	0	1	40	59	43	21	25	A-7-6
131+00	CL	0.0-1.5	0	1	3	24	72	45	19	26	A-7-6
		1.5-3.5	0	1	2	33	64	30	15	25	A-6a
131+00	100'Rt	0.0-0.5	Brown & Gray Silty Clay							30	Visual
132+00	CL	0.0-3.0	0	1	4	37	58	42	19	23	A-7-6
		3.0-5.0	0	1	3	36	60	41	16	24	A-7-6
		5.0-5.7	8	3	6	46	37	31	11	18	A-6a
133+00	100'Lt	0.0-0.5	Brown & Gray Sandy Clayey Silt							30	Visual
133+00	CL	0.0-4.0	3	1	2	31	63	51	26	30	A-7-6
		4.0-4.5	Brown Sandy Clayey Silt							20	Visual
133+00	100'Rt	0.0-2.0	Brown & Gray Clayey Silt							33	Visual
134+00	CL	0.0-2.5	Brown Fine Sandy Clayey Silt							63	Visual
		2.5-5.5	9	4	12	43	32	26	8	19	A-4b
		5.5-6.0	Brown Sandy Clayey Silt & Gravel							5	Visual
135+00	CL	0.5-5.0	0	1	4	33	62	57	32	28	A-7-6
		5.0-10.0	0	6	12	37	45	33	12	22	A-6a
		10.0-15.0	7	7	13	29	44	23	4	18	A-4a
		15.0-20.0	5	7	14	32	42	28	11	15	A-6a
		20.0-25.0	9	6	14	28	43	29	11	18	A-6a
		25.0-30.0	12	5	14	27	42	29	11	18	A-6a
138+50	CL	0.5-3.0	0	1	3	36	60	50	22	26	A-7-6
		3.0-7.0	0	0	4	36	60	49	24	26	A-7-6
		7.0-11.0	0	6	13	36	45	31	12	16	A-6a
		11.0-15.0	10	6	12	30	42	30	12	19	A-6a
140+50	CL	0.5-4.0	0	4	7	29	60	37	15	18	A-6a*
		4.0-7.0	20	10	12	20	38	41	20	20	A-7-6
		7.0-12.0	0	5	14	41	40	26	11	14	A-6a
		12.0-15.0	0	8	14	29	40	24	11	16	A-6a
150+00	CL	0.5-5.0	0	5	1	42	52	45	21	17	A-7-6*
		5.0-7.0	0	3	6	33	58	37	17	20	A-6b
		7.0-11.0	0	4	13	39	44	31	12	18	A-6a
		11.0-15.0	7	5	13	27	48	27	11	18	A-6a
153+05	CL	0.5-5.0	0	1	2	39	58	46	18	26	A-7-6*
		5.0-8.0	0	2	4	20	65	48	24	27	A-7-6
		8.0-10.0	0	5	13	40	42	25	11	17	A-6a
157+00	CL	0.5-5.0	0	1	2	30	58	44	20	22	A-7-6*
		5.0-8.0	0	3	7	33	57	37	16	23	A-6b
		8.0-13.0	13	6	12	33	36	24	6	16	A-4a
		13.0-15.0	7	6	13	34	40	27	11	18	A-6a
161+00	CL	0.5-4.0	0	1	2	30	67	51	24	27	A-7-6*
		4.0-6.0	0	3	5	29	63	40	23	32	A-7-6
165+50	CL	0.5-3.0	0	1	3	35	61	48	24	28	A-7-6*
		3.0-5.0	0	2	2	37	59	40	24	35	A-7-6
169+50	CL	0.5-4.0	0	1	2	30	67	62	35	29	A-7-6
		4.0-6.0	0	1	2	35	62	60	35	37	A-7-6
174+00	CL	0.5-3.0	0	0	1	30	69	66	40	30	A-7-6*
		3.0-5.0	0	1	2	41	56	35	11	26	A-6a
		5.0-10.0	0	3	7	37	53	29	11	24	A-6a
178+00	CL	0.5-5.0	0	0	2	39	59	40	25	30	A-7-6
		5.0-10.0	0	1	2	32	65	46	21	33	A-7-6
182+00	CL	0.5-4.0	0	1	2	33	64	53	31	28	A-7-6
		4.0-7.0	0	2	6	31	61	43	20	21	A-7-6
		7.0-10.0	8	6	12	31	43	31	11	17	A-6a
185+00	CL	0.5-5.0	0	1	2	40	48	40	23	24	A-7-6
		5.0-8.0	0	1	3	34	62	42	18	30	A-7-6
		8.0-10.0	19	5	10	28	38	29	11	16	A-6a

SOIL PROFILE
OTTAWA COUNTY
OTT-2-16.48
OHIO STATE HIGHWAY TESTING LABORATORY
O S U CAMPUS COLUMBUS, OHIO

4/16







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SOIL PROFILE

OTTAWA COUNTY
OTT-2-16.48

OHIO STATE HIGHWAY
TESTING LABORATORY
O S U CAMPUS, COLUMBUS, OHIO

5/16

N

Cultivated | Woods | Pond (Borrow pit) | Weeds

℄, Proposed S.R. 2

52 55 60 65 70 75 80 84

Max. 4' emb.

Max. 3' emb.

R.R. Maintenance Rd.

N.Y.C. R.R.

Residential

Cultivated | Woods | Pond (Borrow pit)

610 600 590 580 570 560 550

℄ TS=1.0
W 34
34
19

℄ TS=1.0
22
24
W
18
16

℄ TS=1.0
32
28
W
26
17
16
Refusal (Hand auger)

℄ Pond sediment
15
18

Water elev. 575.3' (3-15-61)

℄ Pond sediment
19
21

℄ Pond sediment
29
18
18

℄
33
29
W
20
18
20

52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84

TE-54 B
REV. 4-60

SOIL PROFILE
OTTAWA COUNTY
OTT-2-16.48
OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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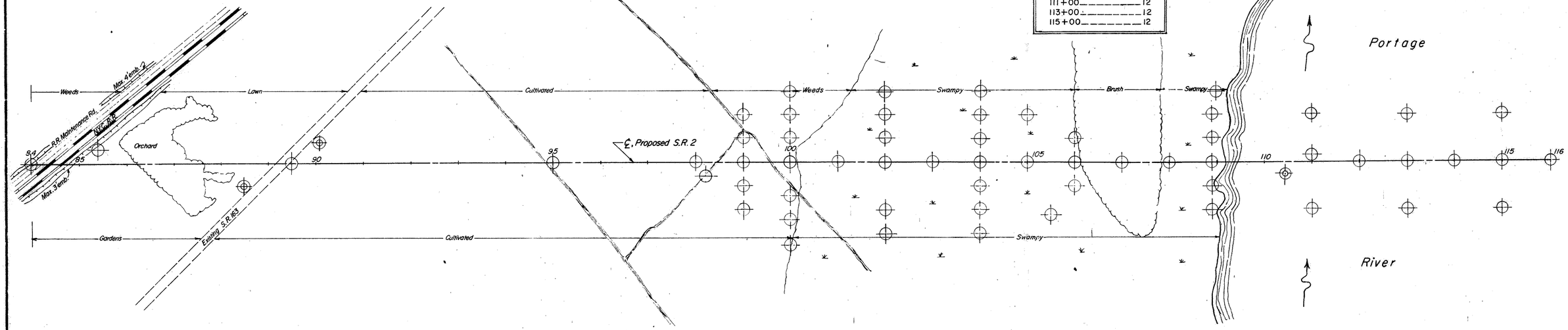
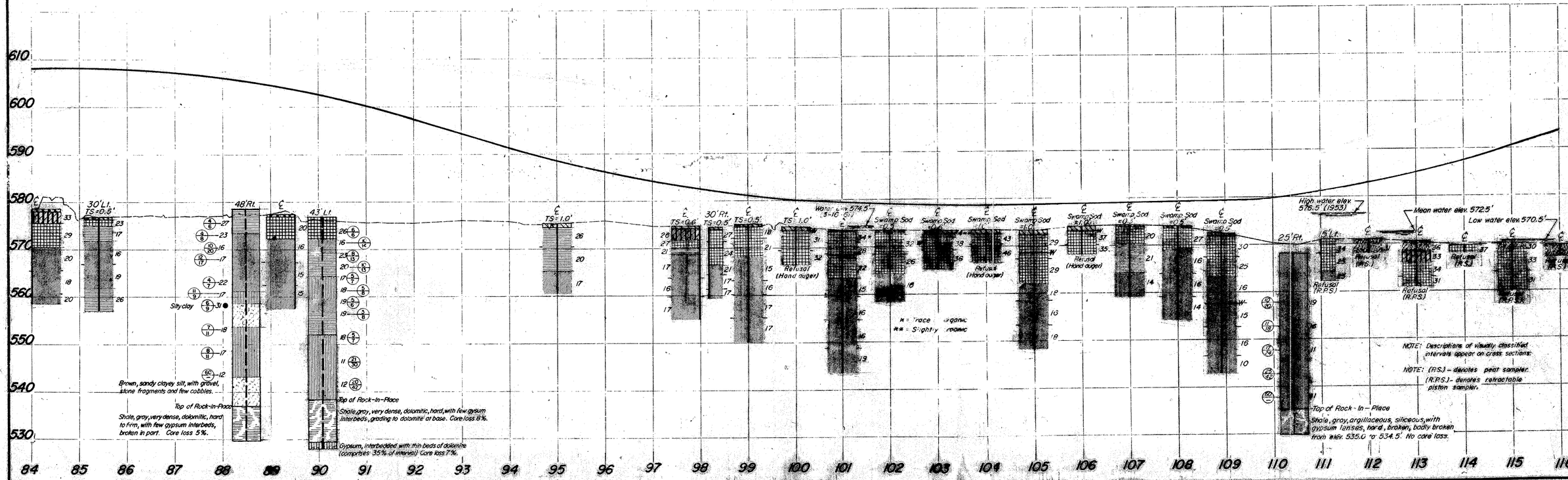
CROSS SECTION INDEX	
STATION	SHEET
99+00	10
100+00	10
102+00	10
104+00	11
105+00	11
106+00	11
108+90	12
111+00	12
113+00	12
115+00	12





TE 54 B
BPO A 60

SOIL PROFILE

OTTAWA COUNTY

OTT – 2 – 16.48

OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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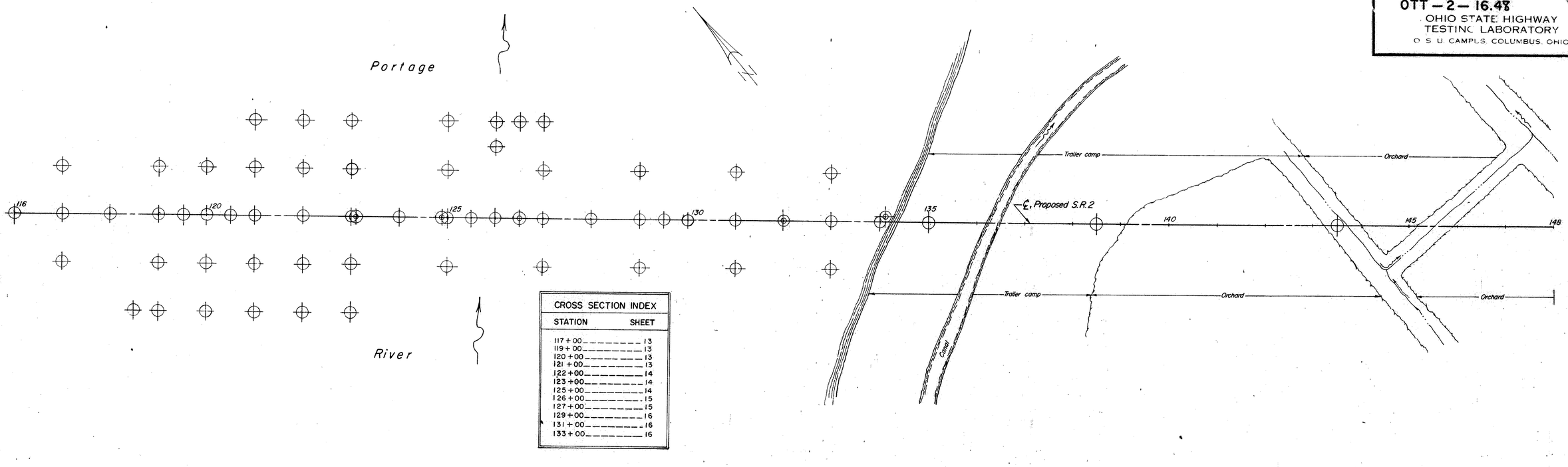
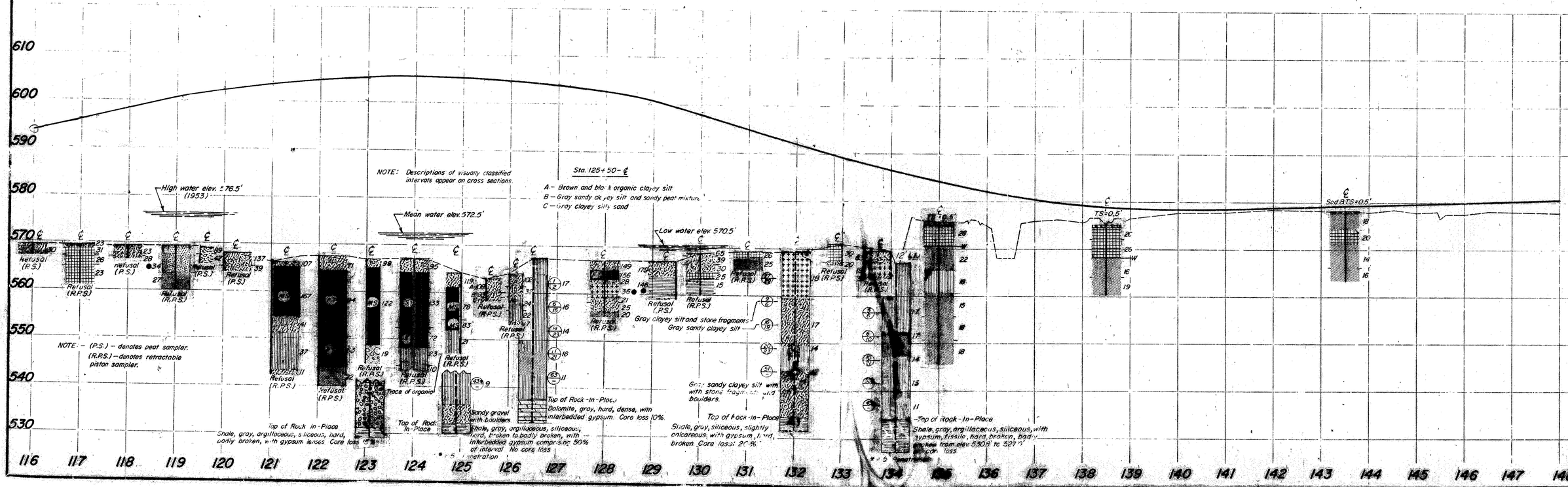


CROSS SECTION INDEX	
STATION	SHEET
117 + 00	13
119 + 00	13
120 + 00	13
121 + 00	13
122 + 00	14
123 + 00	14
125 + 00	14
126 + 00	15
127 + 00	15
129 + 00	16
131 + 00	16
133 + 00	16



TE 54 B
BRO 4 60

SOIL PROFILE

OTTAWA COUNTY

OTT – 2 – 16.48

OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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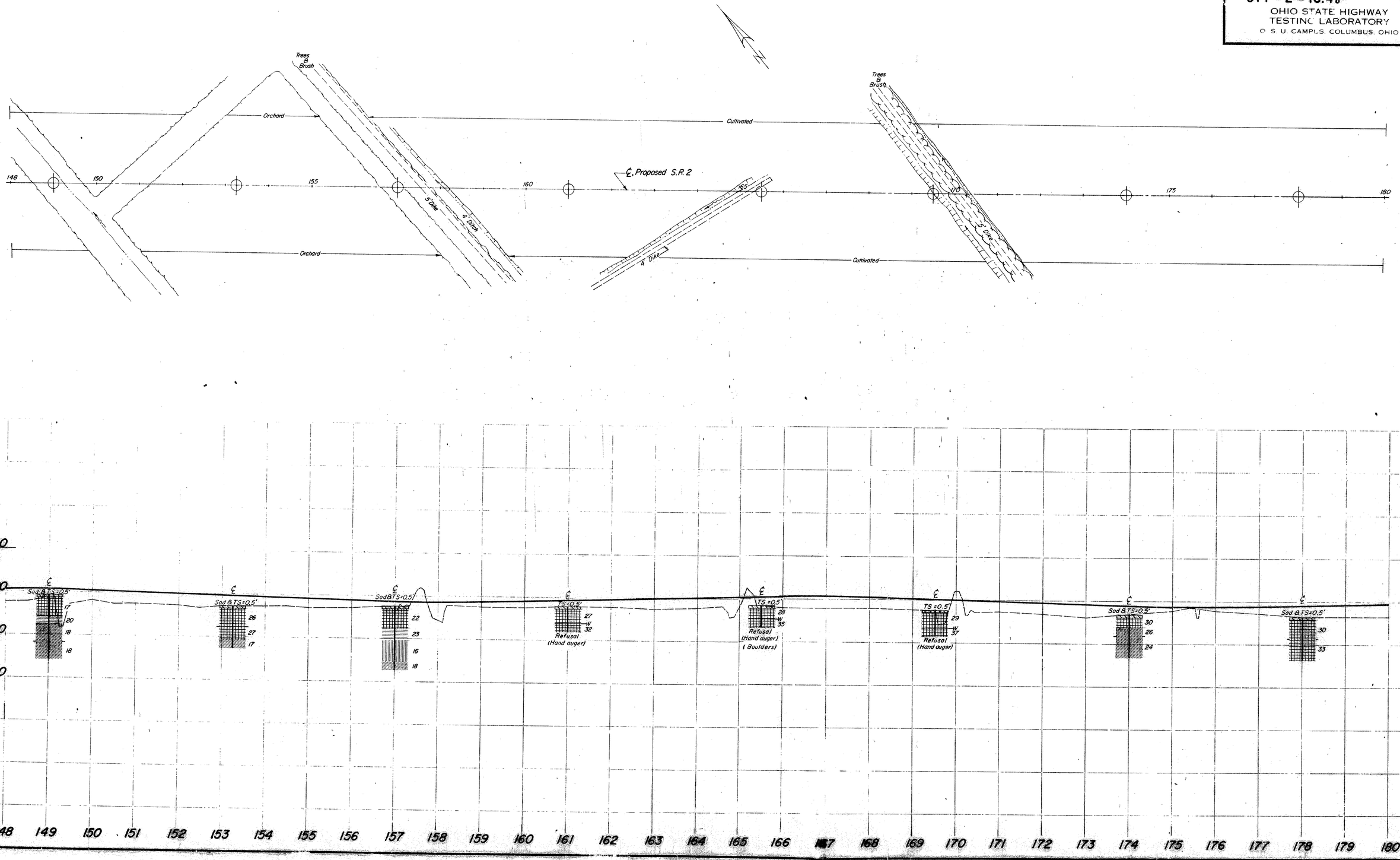

SOIL PROFILE
OTTAWA COUNTY
OTT – 2 – 16.48
OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS COLUMBUS, OHIO

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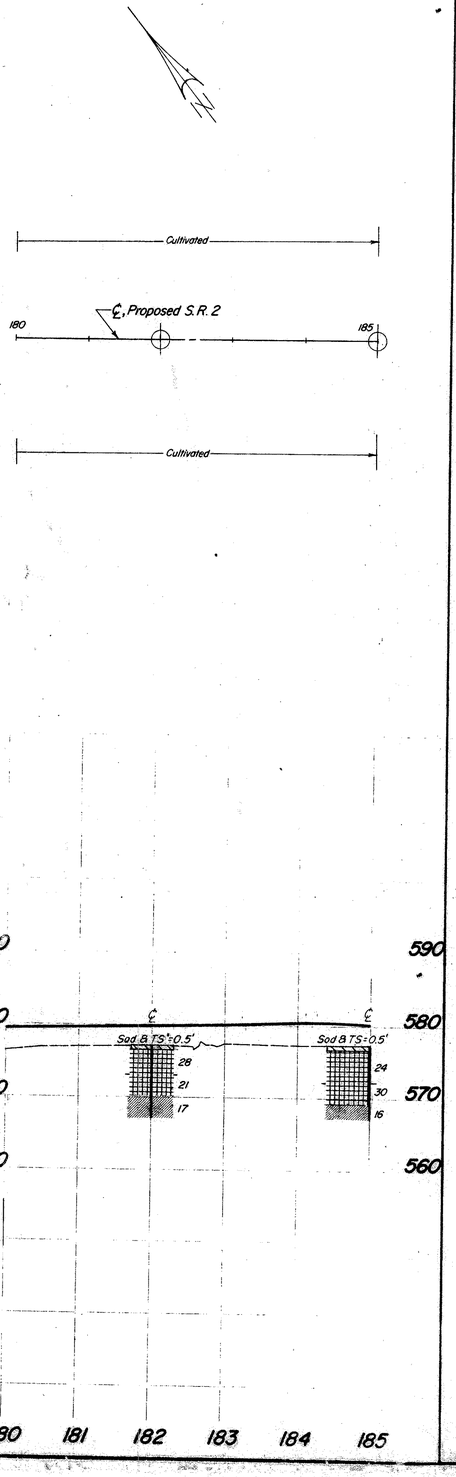
16



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1500-10-60

SOIL PROFILE
OTTAWA COUNTY
OTT—2—16.48

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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16

Cross Section Sta. 102+00

Proposed grade

Approximate ground line

580 / 570 / 560 / 550

48 30 22 18 15 18 — Slightly organic

TS=0.5' — 35 26 21 15 — Trace of organic

W FT 87 40 34 31 — Trace of organic — Refusal (Hand auger)

Swamp Sod=0.5' — 32 26 16

W FT 66 40 39 — Trace of organic — Refusal (Hand auger)

W FT 62 45 52 35 — Trace of organic — Refusal (Hand auger)

150 100 50 ℄ 50 100 150

Cross Section Sta. 100+00

Proposed grade

580 / 570 / 560 / 550

TS=0.5' — 22 14 16

TS=0.6' — 20 19 17 17

Approximate ground line

TS=0.5' — 26 24 18 16 16

TS=1.0' — W 31 32 — Refusal (Hand auger)

TS=0.5' — 25 22 19 18 15 16

TS=0.5' — 32 22 28 14 13

TS=0.5' — 28 28 27 16 15

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 170 180

Cross Section Sta. 99+00

Proposed grade

Approximate ground line

580 / 570 / 560 / 550

TS=0.5' — 21 22 13

19 21 14 15 16

TS=0.5' — 18 21 15 16 17 17

TS=0.6' — 23 21 16 16

TS=0.5' — 20 16 17 15

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100

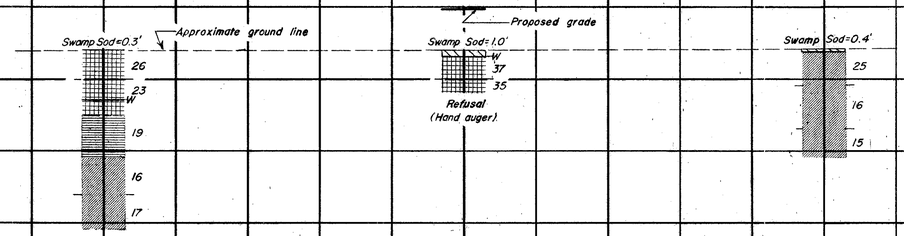
TE-54-B
1500-10-60

SOIL PROFILE
OTTAWA COUNTY
OTT-2-16.48

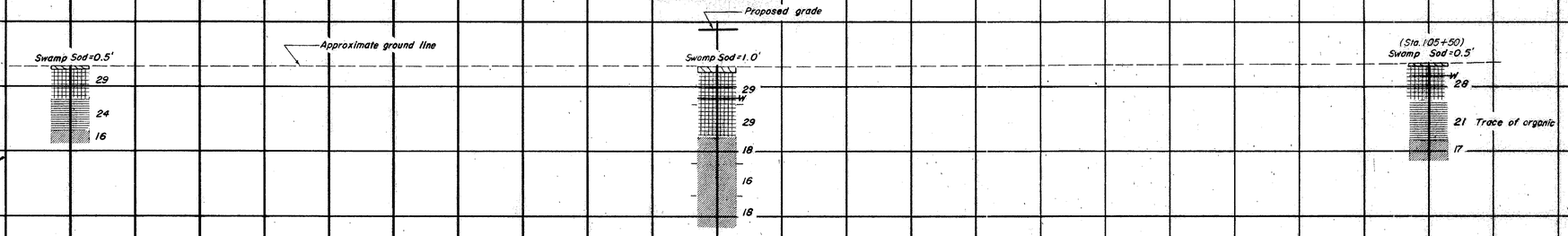
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

11
16

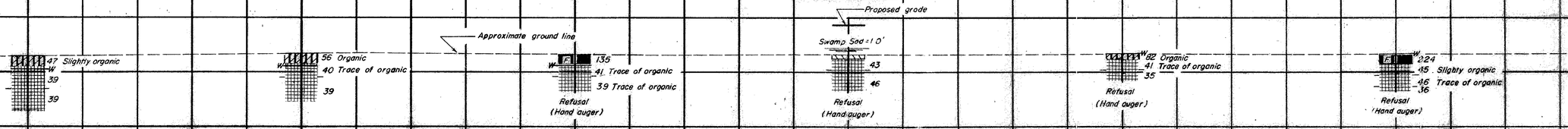
Cross Section
Sta. 106+00



Cross Section
Sta. 105+00



Cross Section
Sta. 104+00



TE.54.8
1500.10 60

SOIL PROFILE

OTTAWA COUNTY
OTT-2-16.48
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

12/16

Cross Section Sta. 115+00

Proposed grade at elev. 603.5'

Approximate ground line

Water level, elev. 572.0' (1-11-62)

(Sta. 116+00)

33 Mottled brown and gray silty clay
Refusal (Peat sampler)

Brown and gray silty clay — 30
Refusal (Peat sampler)

30 Mottled brown and gray silty clay
33
31
Refusal (Retractable piston sampler)

31
Refusal (Peat sampler)

100 50 ℄ 50 100

Cross Section Sta. 113+00

Proposed grade at elev. 594.8'

Approximate ground line

Water level, elev. 572.0' (1-11-62)

27 Trace of organic
Refusal (Peat sampler)

36 Mottled brown and gray clayey silt
33
34
31
Refusal (Retractable piston sampler)

30
Refusal (Peat sampler)

100 50 ℄ 50 100

Cross Section Sta. 111+00

Proposed grade at elev. 589.0'

Approximate ground line

Water level, elev. 572.0' (1-10-62)

(Sta. 112+00)

59 Brown and gray clayey silt, trace of organic
Refusal (Peat sampler)

34
25
25
Refusal (Retractable piston sampler)

31 Brown and gray silty clay, trace of organic
Refusal (Peat sampler)

Mottled brown and gray clayey silt — 31
Refusal (Peat sampler)

100 50 ℄ 50 100

Cross Section Sta. 108+90

Proposed grade

(Sta. 109+00)

Swamp Sod=0.5'
24
16
15
15

Swamp Sod=0.5'
28
17
15
15

Approximate ground line

Swamp Sod=1.0'
30 Trace of organic
16
17
16

Swamp Sod=0.5'
30
25
16
W
15
16
10

Swamp Sod=0.5'
28 Trace of organic
25
15

Swamp Sod=0.4'
26
15
16
14
13

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

FC-34-B
1500-10-60

SOIL PROFILE
OTTAWA COUNTY

13/16

OTT-2- 16.48
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

Cross Section Sta. 121+00

Proposed grade at elev. 610.0'

Approximate ground line

Water level, elev. 572.0' (1-16-62)

FT 25'
39 Brown and dark gray fine-textured peat and sand mixture
27 Gray silty clay
Refusal
(Peat sampler)

105 Gray organic clayey silt
FT 175
32 Gray organic silty sand
S 72
19 Gray organic silty clay
22 Gray organic silty clay
Refusal
(Peat sampler)

107 Gray clayey silt
MS 167
41 Gray organic silty clay
37
11 Gray silty sand and gravel
Refusal
(Retractable piston sampler)

Gray organic clayey silt 102
MS 169
S 67
S 36
MS 47
Gray organic silty sand 27
Refusal
(Peat sampler)

Gray organic clayey silt 115
MS 139
FT 82
Gray clay and brown fine-textured peat mixture with trace of marl 44
Refusal
(Peat sampler)

Cross Section Sta. 120+00

Proposed grade at elev. 609.5'

Approximate ground line

Water level, elev. 572.0' (1-17-62)

(Sta. 120+50)

FT 102 Black sediments
38 Gray clayey silty sand, slightly organic
27 Gray silty clay, trace of sand
Refusal
(Peat sampler)

Gray organic clayey silt 106
FT 196
Refusal
(Peat sampler)
137 Gray organic clayey silt and fine-textured peat mixture
39 Dark gray silty sand
Dark gray sand and fine-textured peat mixture 70
MS 149
MS 31
33
Gray clayey silt 14
Refusal
(Peat sampler)

Gray organic clayey silt 100
FT 191
Gray organic clayey silt 50
MS 38
Gray sandy silt, trace of organic 32
Refusal
(Peat sampler)

Gray organic clayey silt 115
Gray organic clayey silt and peat mixture 94
MS 32
S 48
Gray sandy silt, trace of organic 23
Refusal
(Peat sampler)

Cross Section Sta. 119+00

Proposed grade at elev. 608.5'

Approximate ground line

Water level, elev. 572.0' (1-11-62)

(Sta. 119+50)

26 Gray clayey silty sand
Refusal
28 Brown and gray silty clay
(Peat sampler)

Brown sandy silt and marly-sedimentary peat mixture 89
Gray silty sand 42
Refusal
(Peat sampler)
34
27
Refusal
(Retractable piston sampler)

Gray clayey sandy silt, trace of organic 59
Gray silty sand 31
Refusal
(Peat sampler)

(Sta. 118+50) Brown fine-textured peat and
75 gray silty sand mixture
Gray organic clayey silt 113
FT 140
32 Gray and dark gray silty sand with trace of plant tissue
Refusal
(Peat sampler)
Gray clayey silt, trace of organic 31
Gray silty clay 22
Refusal
(Peat sampler)

Cross Section Sta. 117+00

Proposed grade at elev. 605.3'

Approximate ground line

Water level, elev. 572.0' (1-11-62)

24 Gray silty clay
Refusal
(Peat sampler)

(Sta. 118+00)

Gray silty sand 23
Gray and brown sandy clayey silt
23
1
Brown and gray silty clay, trace of organic
26
Refusal
(Peat sampler)
23
Refusal
(Retractable piston sampler)

Gray silty clay 23
26
Refusal
(Peat sampler)

200 190 180 170 160 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 180 190 200 210 220

TE-54-B
1500-10-60

SOIL PROFILE
OTTAWA COUNTY
OTT-2-16.48
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

14
16

Cross Section Sta. 125+00

Proposed grade at elev. 608.0'

Water level, elev. 572.0' (1-8-62)

(Sta.124+90)

Approximate ground line

102 Gray and black organic clayey silt

MS 93

MS 74

118 Gray silty sand and gravel

Peat sampler

118 Organic

MS 152

MS 71

22

Retractable piston sampler

Gray and black organic clayey silt 119

78 MS

85 MS

21

Soft, wet, organic river sediments

Refusal (Retractable piston sampler)

43* 9

Sandy gravel with boulders

Top of Rock-In-Place

Shale, gray, argillaceous, siliceous, hard, broken to badly broken, with interbedded gypsum comprising 50% of the interval. No core loss.

*=5" Penetration

Brown and black organic clayey silt 118

115 121

Gray sandy clayey silt with trace of gravel 32

21

121

Retractable piston sampler

Cross Section Sta. 123+00

Proposed grade at elev. 609.8'

Water level, elev. 572.0' (1-9-62)

(Sta.123+10)

Approximate ground line

117 Gray and black organic clayey silt

MS 155

MS 99

42 Gray silty sand with small gravel and trace of marl.

Refusal (Peat sampler)

MS 142

S 97

Refusal (Retractable piston sampler) Gray silty sand and gravel

Gray and black organic clayey silt 98

122 MS

Soft, wet, organic river sediments

19

Refusal (Retractable piston sampler)

60* 11

Top of Rock-In-Place

Shale, gray, argillaceous, siliceous, hard, badly broken, with gypsum lenses. Core loss: 15%.

Gray clayey silt, slightly organic 106

FT 110

FT 54

Gray silty sand with trace of gravel and marl Refusal (Peat sampler) 49

Gray clayey silt, slightly organic 104

FT 117

FT 66

Gray silty clay with trace of stone fragments Refusal (Peat sampler) 17

Cross Section Sta. 122+00

Proposed grade at elev. 610.0'

Water level, elev. 572.0' (1-17-62)

Approximate ground line

177 Gray clayey silt, slightly organic

FT 141

25 Gray clayey silt

Refusal (Peat sampler)

110 Gray clayey silt, slightly organic

FT 104

50 59 Brown fine-textured peat and sand mixture

Refusal (Peat sampler)

71 Gray organic silty clay

FT 94

FT 63

22

Refusal (Retractable piston sampler)

Gray clayey silt, slightly organic 98

FT 27

Gray silty sand and small gravel 19

Refusal (Peat sampler)

Gray clayey silt, slightly organic 102

FT 153

Brown fine-textured peat and sand mixture 30

Refusal (Peat sampler)

200 100 50 0 50 100 200

200 190 180 170 160 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 160 170 180 190 200

TE 54 B
1500 10 60

SOIL PROFILE
OTTAWA COUNTY
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OHIO STATE HIGHWAY
TESTING LABORATORY
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Cross Section Sta. 127+00

Proposed grade at elev. 605.4'

Water level, elev. 572.0' (1-17-62)

(Sta. 126+50)

105 A — 105 Gray and dark gray organic clayey silt
85 B — 90
25 ● Trace of organic
24 ● Refusal (Peat sampler)

A-Gray and dark gray organic clayey silt
B-Brown fine-textured peat and clayey silt mixture

Approximate ground line

111 Organic
27 ● Trace of organic
21
23 Refusal (Retractable piston sampler)

(Sta. 128+00)

Gray and black organic clayey silt — 149
156 — 116 Gray and black organic clayey silt
Gray clayey silt with trace of plant tissues — 56 Brown and gray clayey silt and fine-textured peat mixture
36 — 28 Gray sandy clayey silt
Brown and gray clayey silty sand 21 — 29 Gray sandy clayey silt with trace of sand and gravel
Brown and gray clayey silty sand and small gravel 25 — 17
20 — 20
Refusal (Retractable piston sampler) Refusal (Retractable piston sampler)

Gray and black organic clayey silt — 108
Brown organic clayey silt and fine-textured peat mixture — 93
Trace of organic — 26
20 ●
Refusal (Retractable piston sampler)

Cross Section Sta. 126+00

Proposed grade at elev. 606.7'

Water level, elev 572.0' (1-17-62)

(Sta. 126+52)

101 Gray to dark gray organic clayey silt
98
98
23 Gray sandy clayey silt
Refusal (Peat sampler)

57 Gray and dark gray organic clayey silt
84
50 Trace of organic
21 Gray sandy clayey silt with trace of fine textured peat.
Refusal (Peat sampler)

Approximate ground line

112 Gray clayey silt, slightly organic
61 Brown and gray fine-textured peat with trace of sand and marl.
26
20 Gray sandy clayey silt
Refusal (Peat sampler)

Brown and black organic clayey silt — 102
Gray fine sandy clayey silt with trace of organic and marl. — 32
24
22
Brown sandy clayey silt with gravel — 17
Refusal (Retractable piston sampler)

1/2 — 17
6/15 — 16
14/23 — 14
11/21 — 16
63/— — 11

Top of Rock-In-Place
Dolomite, gray, hard, dense, broken, with interbedded gypsum. Core loss: 10%.

Gray and dark gray silty sand — 35
Refusal (Peat sampler)

580 570 560 550 540 530

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 70 100

TE 54 B
1500-10-60

SOI
OTT

Cross Section Sta. 133+00

590
580
570
560

Proposed grade

Approximate ground line

(Sta.134+00)

Water level, elev. 572.0' (1-17-62)

30 Brown and gray sandy clayey silt
Refusal (Peat sampler)

Brown fine sandy clayey silt — 63
19
5
Brown sandy clayey silt with gravel
Refusal (Retractable piston sampler)

30
20 Brown sandy clayey silt
Refusal (Retractable piston sampler)

Brown and gray clayey silt — 33
Refusal (Peat sampler)

100 50 ℄ 50 100

Cross Section Sta. 131+00

600
590
580
570
560

Proposed grade

Water level, elev. 572.0' (1-17-62)

Approximate ground line

(Sta.132+00)

28 Slightly organic
35 Trace of organic
25
Refusal (Retractable piston sampler)

23
24
18
Refusal (Retractable piston sampler)

26
25
Refusal (Retractable piston sampler)

Brown and gray silty clay — 30
Refusal (Retractable piston sampler)

100 50 ℄ 50 100

Cross Section Sta. 129+00

600
590
580
570
560
550

Proposed grade

Water level, elev. 572.0' (1-17-62)

Approximate ground line

(Sta.129+50)

78 Gray and black organic clayey silt
FT 179
33 Trace of organic
23 Trace of organic
16 Brown and gray clayey silt with trace of stone fragments
Refusal (Retractable piston sampler)

Gray organic clayey silt and fine textured peat mixture — 173
146
Refusal (Peat sampler)

103 Gray and black organic clayey silt
259 Gray and black organic clayey silt and fine-textured peat mixture
59 Gray and black clayey silt, slightly organic.
25 Trace of organic
23
19 Brown and gray silty clay with trace of stone fragments
17
Refusal (Retractable piston sampler)

Gray organic silty sand and fine-textured peat mixture
Gray organic sandy clayey silt and fine-textured peat mixture.
Slightly organic
76
62
26
21
16
Refusal (Retractable piston sampler)

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100

H-A-H