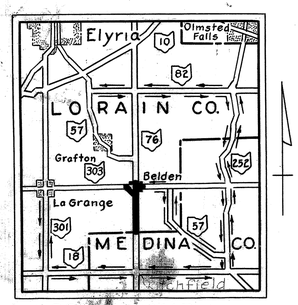
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	S-SG-4(7) S-50(7)	

LOR.-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63) (16.69)
LORAIN COUNTY; MEDINA COUNTY

JAN 20 1964
GROUND PHOTOLAB

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

LOR-76-0.00; MED-76-15.08 S-SG-4(7)
LOR 303-(16.40-16.63) (16.69) S-50(7)

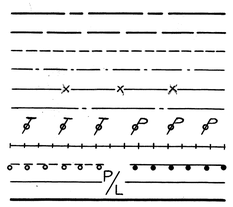


DETOUR MAP

Note: Refer to Traffic Notes on Sheet No. 5 for detour details.

RECONSTRUCTION OF EXISTING SEPARATED CROSSING WITH THE BALTIMORE & OHIO RAILROAD CO.
GRAFTON TOWNSHIP, LORAIN COUNTY; LITCHFIELD TOWNSHIP, MEDINA COUNTY

CONVENTIONAL SIGNS



COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CORPORATION LINE
FENCE LINE
CENTER LINE
POLE LINE (TELEPHONE & POWER)
RAILROAD
GUARD RAIL (EXISTING & PROPOSED)
PROPERTY LINE
RIGHT OF WAY

INDEX OF SHEETS

TITLE SHEET	1	PLAN AND PROFILE SHEETS	8-21
TYPICAL SECTIONS	2-3	CROSS-SECTIONS	22-52
SPECIAL CONSTRUCTION DETAILS	3	INTERSECTIONS AND S.R. 303	53-59
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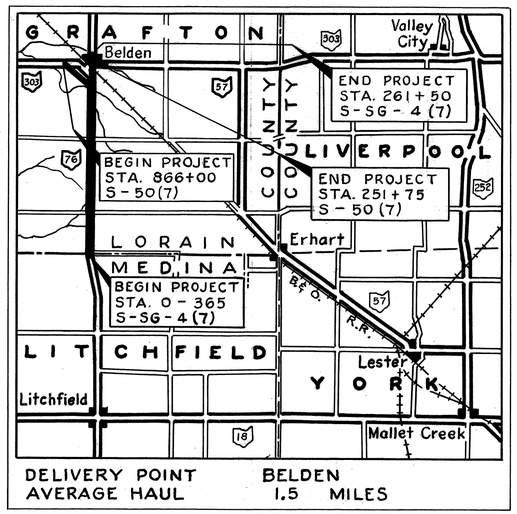
SCHEMATIC LAYOUT	4	RIGHT-OF-WAY PLANS	73-83
GENERAL NOTES	5	REFERENCE MONUMENTS	73-74
SUMMARY OF QUANTITIES	6-7		

LINE DATA

LOR-76-0.00 ; MED-76-15.08 S-SG-4(7)	PROJECT	WORK
BEGIN (S) STA.	0-365	STA. 0-415
END (S) STA.	127+00	STA. 127+00
NO ADDITIONS OR DEDUCTIONS		
NET LENGTH	13,065 LIN.FT.	13,115 LIN.FT.
	OR 2.474 MILES	OR 2.483 MILES
BEGIN (SG) STA.	127+00	STA. 127+00
END (SG) STA.	261+50	STA. 262+00
EQUATION STA. 137+81.19 = STA. 257+75.78		
NET LENGTH	1455.41 LIN.FT.	1505.41 LIN.FT.
	OR 0.275 MILES	OR 0.285 MILES
TOTAL NET LENGTH [S-SG]	14,520.41 LIN.FT. OR 2.750 MILES	14,620.41 LIN.FT. OR 2.769 MILES

LOR-303-(16.40-16.63) (16.69) S-50(7)	PROJECT	WORK
BEGIN STA.	866+00	STA. 865+50
SUSPEND STA.	878+09.98	STA. 878+09.98
RESUME STA.	257+63.78	STA. 257+63.78
END STA.	251+75	STA. 249+20
NO ADDITIONS OR DEDUCTIONS		
NET LENGTH	1798.76 LIN.FT.	2103.76 LIN.FT.
	0.340 MILES	0.398 MILES
TOTAL NET LENGTH FOR S-SG-4(7) & S-50(7)	16,319.17 LIN.FT. 3.090 MILES.	16,724.17 LIN.FT. 3.167 MILES.

Substituted Sheet G2A for Sheet G2 6-1-61.
Sheet 61 revised 6-1-61.
Sheets 63, 64, 65, 68, 69, 70, 71 and 72 revised 6-1-61.



DELIVERY POINT BELDEN
AVERAGE HAUL 1.5 MILES

LOCATION MAP
Scale 1 in. = 1 mi.

PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER ROADS
DETOUR

SCALES

PLAN	1" = 50'
PROFILE HORIZONTAL	1" = 50'
PROFILE VERTICAL	1" = 5'
CROSS SECTIONS	1" = 5'
OTHER SHEETS AS SHOWN	

The Standard Specifications of the State of Ohio, Department of Highways, including changes and supplemental specifications 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 require the closing to traffic of the highways, except as noted on Sheet No. 5 , and that detours will be provided as indicated on the plans. Provisions for the maintenance and safety of traffic will be as indicated on these plans and estimates.

Approved *C. L. Johnson*
Date *12-18-59* Division Deputy Director

Approved *Geo. E. Hoffer*
Date *3-31-61* Deputy Director of Planning and Programming

Approved *D. H. Berryman*
Date *3-24-61* Engineer of Bridges

Approved *W. J. Berryman*
Date *3-28-61* Engineer of Location and Design

Approved *C. W. McCaughey*
Date *3-28-61* Deputy Director of Design and Construction

Approved *Wm. J. Linn*
Date *3-27-61* Deputy Director of Right of Way

Approved *G. A. Berry*
Date *3-31-61* First Assistant Director

Approved *E. L. Poston*
Date *4-3-61* Director of Highways

JAN 20 1964
GROUND PHOTOLAB

1959 SPECIFICATIONS

FILE Nº 226-L	LOR-76-0.00 ; MED.-76-15.08 LOR-303-(16.40-16.63) (16.69) LORAIN COUNTY; MEDINA COUNTY DATE OF LETTING _____ CONTRACT Nº _____

STANDARD CONSTRUCTION DRAWINGS

G-7.07	6-1-56	I-15 No. 4	12-1-54		
I-1,2,3,4 & 5	4-24-58	L-1	4-1-50		
I-8 CB 2-2A & B	3-2-59	L-3	4-1-50		
I-8 CB 2-3 & 2-4	1-26-59	L-3-A	4-1-50		
I-8 CB No. 5	7-1-58	RI-1	7-15-58		
I-8 I No. 1	3-2-59	S-27 PC-3	2-20-45		
I-12	7-1-54	S-27 PC-4	1-4-54		
I-15 No. 1	5-21-59	T-35	1-2-56		
I-15 No. 2	8-17-60	SP-53	11-25-58		

SUPPLEMENTAL SPECIFICATIONS

S-101		12-2-59				
S-103	Rev	2-16-55				
S-107	Rev	2-16-55				
S-207		4-28-55				

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:

_____ _____
DIVISION ENGINEER DATE

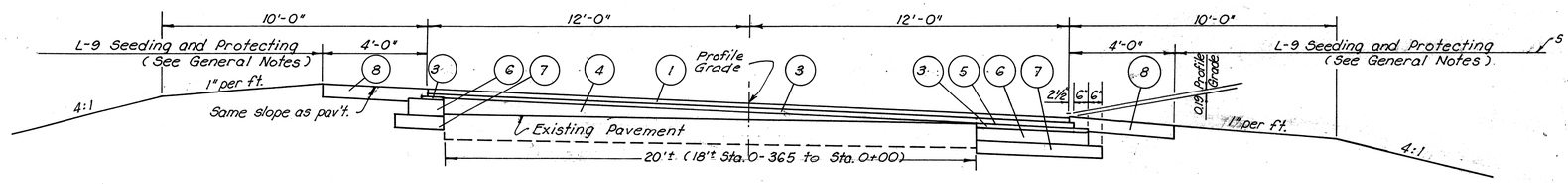
TYPICAL SECTIONS
TYPE T-35 ON B-19

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

2

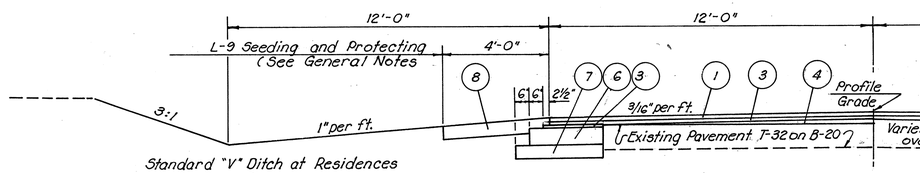
LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

TYPICAL SECTION "A"



Sta. 0-365 to Sta. 4+15 = 780.00 Lin. Ft.

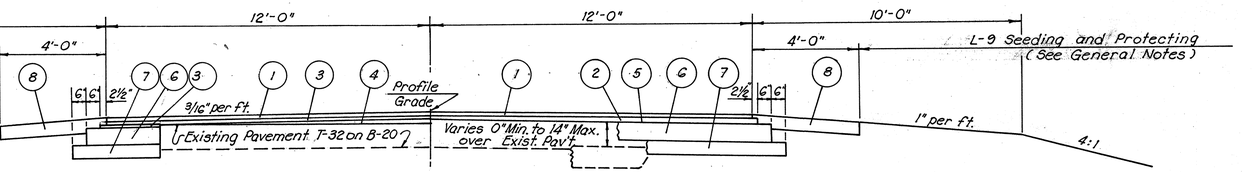
TYPICAL SECTION "B"



HALF SECTION SYMMETRICAL ABOUT ℄

Sta. 4+15	to	Sta. 13+50	= 935.00 Lin. Ft.
Sta. 38+50	to	Sta. 62+50	= 2400.00 Lin. Ft.
Sta. 68+00	to	Sta. 96+50	= 2850.00 Lin. Ft.
		Total	= 6185.00 Lin. Ft.

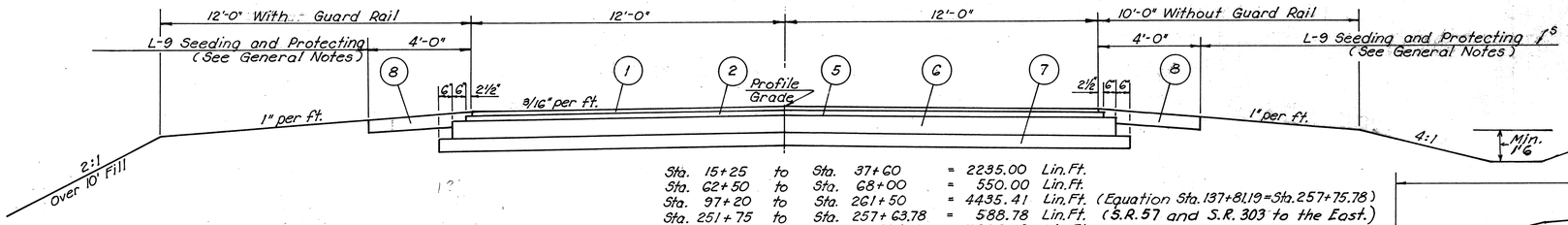
TYPICAL SECTION "C"



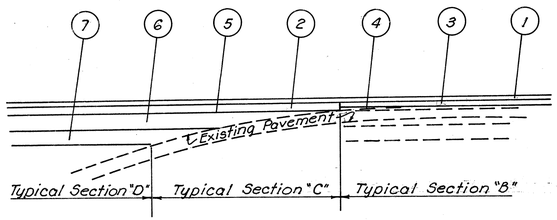
HALF SECTION SYMMETRICAL ABOUT ℄

Sta. 13+50	to	Sta. 15+25	= 175.00 Lin. Ft.
Sta. 37+60	to	Sta. 38+50	= 90.00 Lin. Ft.
Sta. 96+50	to	Sta. 97+20	= 70.00 Lin. Ft.
		Total	= 335.00 Lin. Ft.

TYPICAL SECTION "D"



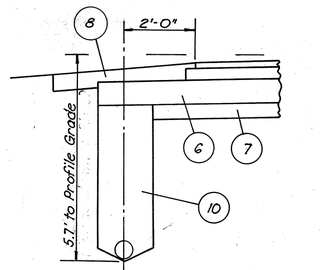
Sta. 15+25	to	Sta. 37+60	= 2235.00	Lin. Ft.
Sta. 62+50	to	Sta. 68+00	= 550.00	Lin. Ft.
Sta. 97+20	to	Sta. 261+50	= 4435.41	Lin. Ft. (Equation Sta. 137+81.19=Sta. 257+75.78)
Sta. 251+75	to	Sta. 257+63.78	= 588.78	Lin. Ft. (S.R. 57 and S.R. 303 to the East.)
		Total	= 7809.19	Lin. Ft.



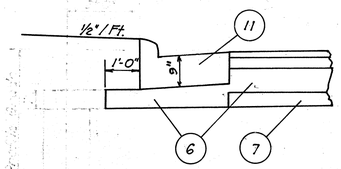
GRAPHIC REPRESENTATION OF VARIOUS COURSES IN LONGITUDINAL PROFILE

* On Typical "C" the thickness may vary as shown

■ (1)	T-35	1¼" Asphaltic Concrete Surface Course, Type "C", (70-85)
■ (2)	B-35	2¾" Asphaltic Concrete Leveling Course, (70-85)
■ (3)	B-35	1½" Asphaltic Concrete Leveling Course (70-85)
(4)	B-35	0" Min. Asphaltic Concrete Pre-Leveling Course (70-85) See Note in Proposal
(5)	T-30	Bituminous Prime Coat Sec. M-5.7, RT-2 or RT-3 applied at the rate of 0.40 Gal. per Sq. Yd.
(6)	*B-19	8" Aggregate Base Course
(7)	*I-22	6" Subbase
(8)	I-18	6" Stabilized Crushed Aggregate Shoulders and Approaches (See note in Proposal for additional Stabilization of upper 3" of this item with Calcium Chloride)
(9)	I-9	Stone Underdrains No. 2. (Located as directed by the Engineer)
(10)	I-4	6" Underdrains (See General Notes)
(11)	I-12	Type 2 Combination Curb & Gutter

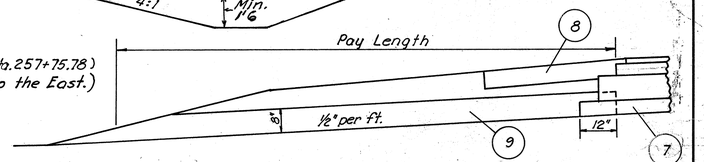


I-4 6" UNDERDRAIN
To be placed as directed by the Engineer (See General Notes)



Sta. 136+25 Lt. to Sta. 137+35 Lt.
Sta. 135+70 Rt. to Sta. 136+80 Rt.

DETAIL OF I-12 CURB & GUTTER



DETAIL OF I-9 STONE UNDERDRAINS (SEE GENERAL NOTES)
For S.R. 76 and S.R. 303

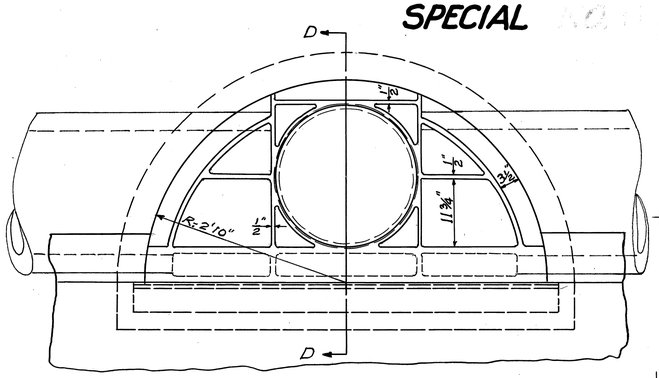
■ Thicknesses shown are "designed" thicknesses as described in Section T-35.01 and Section B-35.01.

NOTE: Details of Shoulders, Slopes and Ditches not shown are to conform with Standard Drawing RI-1 unless otherwise shown on Cross Sections.

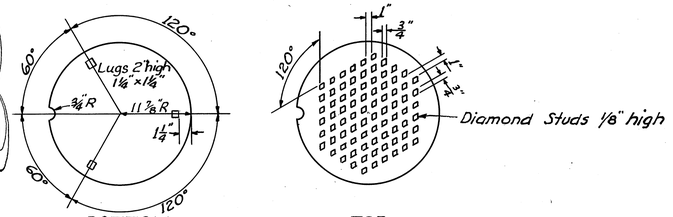
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63) (16.69)

SPECIAL CURB CATCH BASIN

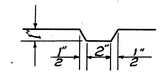


PLAN VIEW

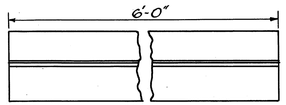


BOTTOM TOP

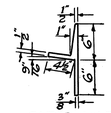
COVER DETAILS



KEY JOINT DETAIL

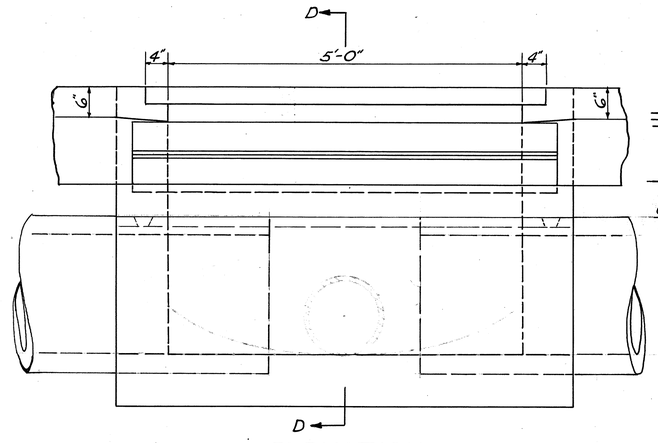


FRONT VIEW

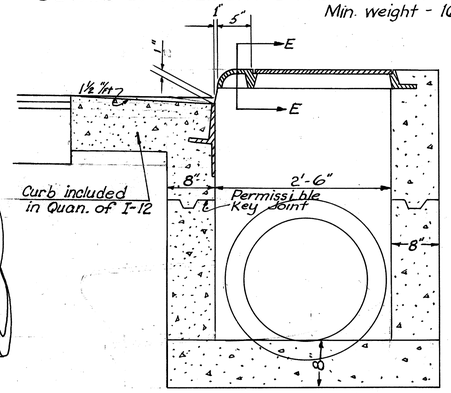


SIDE VIEW

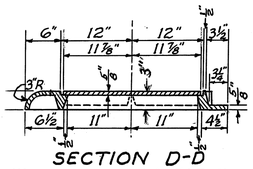
DETAIL OF PAVEMENT SUPPORT FOR OPENINGS
Min. weight - 160 Lbs.



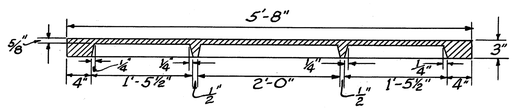
ELEVATION



SECTION D-D



SECTION D-D
Minimum weight 515 lbs.



SECTION E-E

1"=1'

NOTES

CASTINGS shall be of cast iron in accordance with Material Details. The design shall be essentially the same and equally as strong as those shown hereon, and shall be given one coat of asphaltum paint as per specifications. Weight approximately 675 pounds.

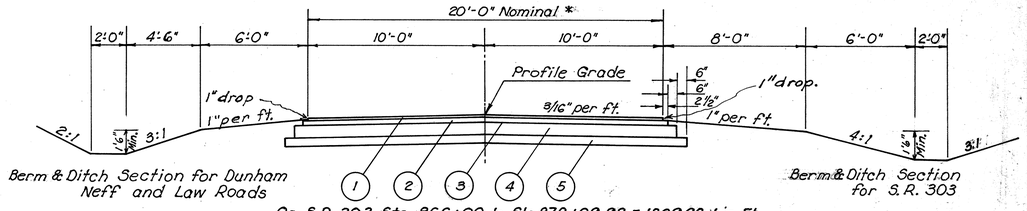
CONSTRUCTION of basins shall be of class "C" concrete, brick, or concrete block. Brick construction shall be with portland cement mortar, with every sixth course a stretcher course; all inside joints to be struck. After casting has been set, the spacing between the webs shall be filled with 1-2 cement mortar.

BRICK or block side walls when used in place of concrete shall be 8 inches in thickness.

CURB shall be warped from the contour of the special curb to the contour of the grate in the distance specified by the engineer.

All of the applicable provisions of Item I-8 shall govern the construction of this catch basin.

TYPICAL SECTION TYPE T-35
S.R. 303 AND INTERSECTIONS* AT S.R. 76



Berm & Ditch Section for Dunham Neff and Law Roads

Berm & Ditch Section for S.R. 303

On S.R. 303 Sta. 866+00 to Sta. 878+09.98 = 1209.98 Lin. Ft.

■ (1) T-35 1¼" Asphaltic Concrete Surface Course, Type "C", (70-85)

■ (2) B-35 2¾" Asphaltic Concrete Leveling Course, (70-85)

(3) T-30 Bituminous Prime Coat, Sec. M-5.7, RT-2 or RT-3, applied at the rate of 0.40 Gal. per Sq. Yd.

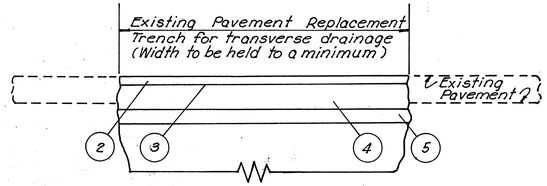
(4) B-19 8" Aggregate Base Course

(5) I-22 6" Subbase

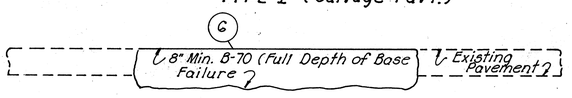
(6) T-30 Bituminous Tack Coat Sec. M-5.5, MS-2 or RS-1 ; or Sec. M-5.2, RC-1, RC-2 or RC-3, Applied at the rate of 0.1 Gal. per Sq. Yd. To be used on Type II Pavement Replacement.

■ Thicknesses shown are "designed" thicknesses as described in Section T-35.01 and Section B-35.01.

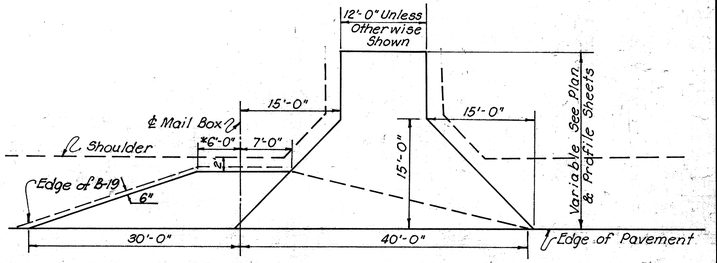
* West approach of Law Rd. (Sta. 83+44.98) shall be 8" thick B-19, 16 ft. wide. The width of approaches shall vary according to radii used.



PAVEMENT REPLACEMENT OVER STRUCTURES
TYPE I (Salvage Pav't.)



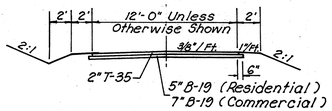
PAVEMENT REPLACEMENT AT BASE FAILURES
TYPE II (Salvage Pav't.)



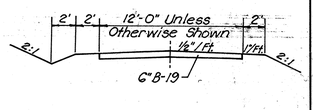
TYPICAL DRIVE & MAILBOX TURNOUT

* Add 2' for each additional mailbox
Where feasible drive shall be combined with mailbox turnouts as shown. Quantities to be adjusted by the Engineer.

T-35 2" Asphaltic Concrete Surface Course Est. 40 Cu. Yds.
B-19 5" Aggregate Base Course Est. 110 Cu. Yds.

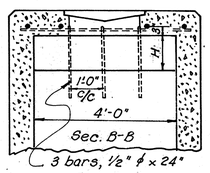


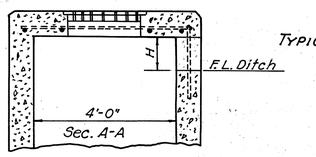
TYPICAL DRIVE SECTION T-35 ON B-19



TYPICAL AGGREGATE DRIVE

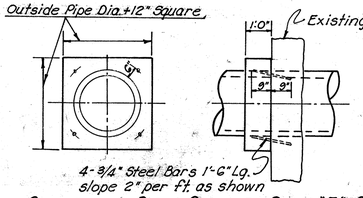
NO. 2-4 MODIFIED CATCH BASIN





Sta. 11+25 & 251+60 H=12"
Sta. 61+85 H=16"
For other details not shown, refer to Std. Drwg. I-8 C.B. 2-3 & 2-4

See Sheet 9 for I-8 C.B. No. 5 Modified



CONCRETE PIPE COLLAR CLASS "E" CONCRETE

SPECIAL CONSTRUCTION DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

4

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

EARTHWORK TABLE

	From Sheet	Excavation	Embankment	Emb.+20%
S-4(7)	5			
	8	524	145	174
	9	1801	863	1036
	10	2032	14353	17223
	11	3783	2351	2821
	12	2297	6379	7655
	13	1438	1174	1409
	14	1913	883	1060
	15	5230	1281	1537
	16	1908	570	684
	17	2087	709	851
	18	2575	3338	4006
	19	6459	8529	10235
	20	3862	566	679
	TOTAL	35,909	41,141	49,370
SG-4(7)	20	2331	35	42
	21	21977	4944	5933
	TOTAL	24308	4979	5975
S-50(7)	54	14907	2134	2561
	58	4654	94	113
	TOTAL	19561	2228	2674

WATER

	S-4(7)	SG-4(7)	S-50(7)
	CUBIC YARDS		
Embankment	41,141	4979	2228
Item I-18	1,638	182	65
Item I-22	4,188	448	837
Item B-19	5,930	712	1271
Totals	52,897	6321	4401
	×5÷1000	×5÷1000	×5÷1000
	264.49	31.61	22.01
Use	265 M.Gal.	32 M. Gal.	22 M. Gal.

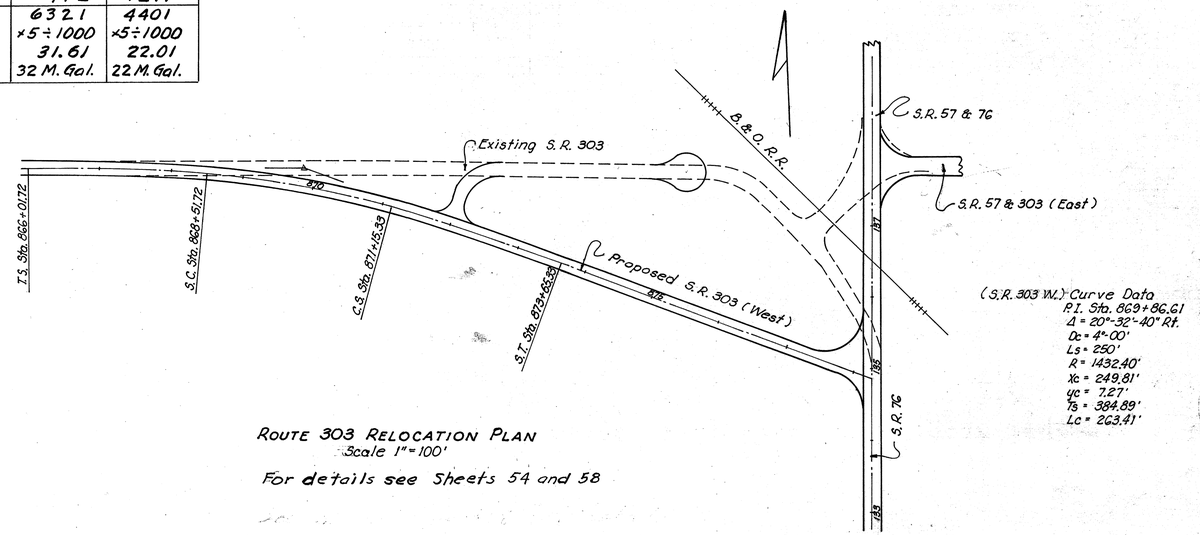
SUPERELEVATION TABLES

S.R. 76- Super. .047'/1'

Station	Lt. Edge	Profile Gr.	Rt. Edge
-365	954.86	955.05	954.86
-350	954.68	954.83	954.64
-325	54.34	54.43	54.24
-300	54.01	54.03	53.84
T.S.-289.71	953.87	953.87	953.68
-275	53.70	53.63	53.44
-250	53.43	53.23	53.04
-225	53.14	52.83	52.64
-200	952.86	52.43	52.24
-175	52.56	52.02	51.83
-150	52.24	51.58	51.39
-125	51.89	51.12	50.93
-100	51.52	50.63	50.44
S.C.-89.71	951.37	950.43	950.24
-75	51.06	50.12	49.93
-50	50.52	49.58	49.39
-25	49.96	49.02	48.83
0+00	949.37	948.43	948.24
+25	48.80	47.86	47.67
+50	48.30	47.36	47.17
+75	47.85	46.91	46.72
1+00	947.57	946.53	946.44
+25	47.12	46.18	45.99
C.S. 1+40.29	947.91	945.97	945.78
1+50	46.72	45.83	45.64
+75	46.26	45.48	45.29
2+00	945.79	945.13	944.94
+25	45.31	44.76	44.57
+50	44.79	44.36	44.17
+75	44.23	43.92	43.73
3+00	943.65	943.45	943.26
+25	43.03	42.96	42.77
S.T. 3+40.29	942.67	942.67	942.48
+50	42.46	42.48	42.29
+75	41.92	41.98	41.79
4+00	~~941.34~~	~~941.49~~	941.30
+15.29	940.81	941.00	940.81

S.R. 303- Super. .066'/1'

Station	Lt. Edge	Profile Gr.	Rt. Edge
865+50			
+75			
866+00	861.38	861.38	861.22
+25	61.30	61.15	60.99
+50	61.21	60.95	60.79
+75	61.15	60.77	60.61
867+00	861.11	860.62	860.46
+25	61.08	60.48	60.32
+50	61.09	60.38	60.22
+75	61.12	60.30	60.14
868+00	861.18	860.24	860.08
+25	61.26	60.21	60.05
+50	61.36	60.20	60.04
+75	61.37	60.21	60.05
869+00	861.42	860.26	860.10
+25	61.49	60.33	60.17
+50	61.57	60.41	60.25
+75	61.68	60.52	60.36
870+00	861.82	860.66	860.50
+25	61.96	60.80	60.64
+50	62.08	60.92	60.76
+75	62.18	61.02	60.86
871+00	862.26	861.10	860.94
+25	62.21	61.16	61.00
+50	62.13	61.19	61.03
+75	62.03	61.21	61.05
872+00	861.92	861.21	861.05
+25	61.79	61.19	61.03
+50	61.63	61.14	60.98
+75	61.46	61.08	60.92
873+00	861.25	860.99	860.83
+25	61.04	60.89	60.73
+50	60.77	60.77	60.61
+75	60.54	60.62	60.46
874+00	860.29	860.45	860.29



ROUTE 303 RELOCATION PLAN
Scale 1"=100'

For details see Sheets 54 and 58

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			5

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63) (16.69)

GENERAL NOTES

DESIGN SPEED : Route 76 = 60 M.P.H. Route 303 = 50 M.P.H.

FIELD OFFICE : The Contractor shall provide a suitable Field Office in accordance with Section S-0.01(b) having a minimum floor area of 500 Sq.Ft. The Contractor shall have a telephone installed and maintained in this field office during the construction of this project.

CALCULATIONS: All Calculations are on file in the Division Office.

UTILITIES : Any and all work required for the adjustment of Public or Private Utilities will be done by and at the expense of their respective owners unless otherwise shown on these Plans.

E-1 SUBGRADE COMPACTION : Subgrade under Drives and Mail Box Turnouts shall be compacted for a depth of six (6) inches to the density requirements of Table III, Section E-1.09 unless otherwise called for. Payment for subgrade compaction, as specified above, shall be included in the unit price bid for Item E-1 Roadway Excavation.

SANITARY : No drains, either existing or proposed, carrying domestic waste shall be connected to any portion of the proposed drainage system of this project.

BASE REPLACEMENT : Two types of base replacement, Type (1) Non-Rigid and Type (2) Rigid are provided for in this plan. Details of each type are shown on Sheet No. 3 Where "Base Replacement" is called for on the Plan and Profile Sheet it shall be Type (1) and the cubic yardage of its components are incorporated in the plan calculations. Defective Base Replacement in Salvage Areas shall be Type(2). Estimated Quantities of such are provided in the following note.

REMOVAL AND DISPOSAL OF DEFECTIVE PAVEMENT : This work shall include removal and disposal of existing defective pavement in salvage areas. This work shall be performed at the direction of the Engineer in areas designated by him. The existing pavement, where removed, shall be replaced full depth with B-70 Portland Cement Concrete Base Course, as shown on Sheet No. 3.

The following Estimated Quantities are provided to replace approximately 820 Sq.Yds. of Defective Pavement.

E-1 Roadway Excavation	230 Cu.Yds.
B-70 Portland Cement Concrete Base Course, As per Plan	230 Cu.Yds.
T-30 Bituminous Tack Coat	82 Gal.

B-70 PORTLAND CEMENT CONCRETE BASE COURSE : B-70 Base shall be constructed using High Early Strength Cement. Hand finishing will be permitted as per Section B-71.211. Refer to Section S-1.09.

I-9 STONE UNDERDRAINS No. 2 : A quantity of Stone Underdrains No. 2 to be used as directed by the Engineer has been estimated on this project at approximately 50 ft. intervals Left and Right. The Contractor shall grade, finish, seed and mulch the slopes so as not to impede the free drainage of the underdrains. On superelevated curves the underdrains shall be placed at approximately 25 ft. intervals on the low side only.

MATERIALS REMOVED Under Items E-12 and S-24 shall become the property of the Contractor. Under Item E-12, the Contractor may in lieu of pipe removal, uncover the pipe, break it, and compact backfill in accordance with Sec. E-1.08 of the Specifications.

STANDARD No. 1 SIDE DITCH INLETS : The top elevations of Std. No. 1 Inlets shall be determined by the Engineer. The elevation at which water flows into the basins shall be 2 to 4 inches below the normal ditch, returning to normal 10 feet each side of the basin.

BASINS, INLETS, AND DITCHES : Where plan location for Basins and Inlets does not fall within the ditches as shown on the cross sections the ditches shall be turned out to meet the Basins or Inlets in a manner satisfactory to the Engineer.

CURB HEIGHT : Shall taper from full height to 2 inch height in five feet at curb ends.

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.

ESTIMATED PIPE QUANTITIES : The following are included in the General Summary to be used where and as directed by the Engineer if needed.

I-3 6" Roadway Drainage	150 Lin. Ft.
I-3 8" Roadway Drainage	150 Lin. Ft.
I-3 10" Roadway Drainage	75 Lin. Ft.
I-3 12" Roadway Drainage	75 Lin. Ft.
I-2 10" Storm Sewer, Class "A"	75 Lin. Ft.
I-2 12" Storm Sewer, Class "A"	75 Lin. Ft.
I-4 6" Underdrains	1000 Lin. Ft.
I-4 6" Pipe Outlets for Underdrains	20 Lin. Ft.

SUPERELEVATION : Superelevated curves shall be built without crown. The crown shall be worked out of the pavement in that portion between the beginning of the transition and the point where the superelevation equals twice the crown.

PLACING SOD IN DITCHES : All sod placed in ditches shall be laid with the long edges of the strips perpendicular to the flow line of the ditch. Successive strips shall be neatly matched and all joints staggered or broken. The sod shall be staked securely with stakes placed on maximum two (2) Ft. centers in rows not more than two (2) Ft. apart. Stakes in adjacent rows shall be staggered. The stakes shall be wood from ½" x ¾" x 12" to 1" x 1" x 24", as required to hold the sod and shall be driven flush with the top of the sod.

E-3 CHANNEL EXCAVATION At Structures, Stations 19+25, 34+60, 76+25 and 116+80 was calculated across the roadbed before excavation for structures (E-2) was calculated.

PROFILE : In areas where profile grades are not given, the profile of the proposed surface course shall be approximately three (3) inches above that of the existing pavement.

REMOVAL OF TREES AND STUMPS : Shall be paid for by a lump sum bid. The number of trees and stumps shown in the following table is for estimating purposes only. Sizes under 12" are not listed. The State does not guarantee the accuracy of the following table.

SIZE		12"-18"	18"-24"	24"-30"	30"-36"	36"-42"	42"-48"	Over 48"	
ROUTE-76	TREES	34	21	18	7	5	2	1	
S-5G-4 (7)	STUMPS	17	7	6	8	2	1.	0	
ROUTE-303	TREES	7	5	3	4	1	0	0	
S-50 (7)	STUMPS	3	1	0	0	0	0	0	

SEEDING : Quantities for seeding are calculated for the soil areas between construction limits as shown on the cross sections by the symbol ~S.

Areas to be seeded or sodded shall be fertilized using a commercial fertilizer having a formula of 12-12-12 and seeded with the following mixture: 70% Creeping Red Fescue, 25% Kentucky Bluegrass, and 5% Alsike Clover.

PAVEMENT REMOVAL : All necessary pavement removal is of the non-rigid type and shall be paid for as Item E-1 Roadway Excavation.

MAINTENANCE OF S.R. 57 AND S.R. 303 TRAFFIC : Two way traffic shall be maintained at all times on S.R. 57 and S.R. 303 except for one continuous period of not more than 75 calendar days during which this traffic will be detoured as indicated on the Title Sheet. The detour will be placed in effect only when it is reasonable to assume that the proposed railroad bridge and approach pavement will be completed to the extent of being capable of carrying S.R. 57 and S.R. 303 traffic within the 75 day period. The pavement must be completed up to and including the 1½" T-35 Surface Course before traffic is placed thereon. It is the intent that any work that would interfere with S.R. 57 and S.R. 303 traffic, except work in connection with the proposed 21" Storm Sewer, be completed during the detour period. The Contractor shall submit to the Director, for approval, a detailed construction schedule for the affected area, at least ten (10) days in advance of the proposed date for closing these roads to traffic. Any other method or procedure of maintaining S.R. 57 and S.R. 303 traffic may be used if approved in writing by the Director. Any costs involved in connection with traffic such as erecting and maintaining Lights, Signs and Barricades, or other items not specifically covered shall be included in the lump sum bid for Maintaining Traffic.

S.R. 76 THROUGH TRAFFIC : S.R. 76 traffic shall be detoured on S.R. 57 and S.R. 18 as indicated on the Title Sheet. During one period of time, as provided by the above traffic note, S.R. 57 traffic will be detoured on S.R. 252 and S.R. 82 as shown on the Title Sheet. During this time S.R. 76 traffic will be detoured over the same routes as S.R. 57.

MAINTAINING LOCAL TRAFFIC : The following estimated quantities are included in the General Summary for maintaining local traffic as directed by the Engineer.

250 Cu. Yds. T-10 Traffic Compacted Surface Course for Maintaining Local Traffic

5 Tons M-10 Calcium Chloride Furnished and Applied For Maintaining Local Traffic. Combined with "Calcium Chloride, Furnished and Applied" in Summary.

E-1 ROADWAY EXCAVATION : Sec. E-1.03(c) of the Specifications shall include the complete filling of old basements, wholly or partially within the Right-of-Way with material suitable for E-1.08 Embankment. It shall also include the removal of abandoned buried tanks (gasoline tanks etc.) located wholly or partially within the Right-of-Way and the backfilling of the resulting excavation with material suitable for E-1.08 Embankment. Building foundations, steps, basement floors, etc. shall be removed and disposed of in their entirety, even though the item is only partially within the Right-of-Way.

PROTECTION OF PAVEMENTS :

Self-propelled, crawler-driven machinery, equipped with cleats, shall not be operated on the existing pavement unless pads are fastened to tracks in such a manner that cleats will be prevented from making contact with the pavement. Crawler equipment shall be operated in a manner that damage to existing or new surface will not occur.

CHANNEL EXCAVATION :

Where channel excavation is carried through a proposed pipe structure site, additional excavation required to obtain a stable foundation for the structure shall be measured and paid for as Item E-3, Channel Excavation.

SEALING OF PIPE JOINTS :

Where connections are made between rigid and flexible pipe sections or between pipe sections of different kind or type of end fabrication, whether required by the plans, arising from permissible use of optional materials, or encountered in connection to existing facilities, the joint shall be sealed, if sealing is required by the specifications, by means of a Class "E" concrete collar having a minimum thickness of 6 inches and a minimum length of 12 inches.

Payment for sealing as described above shall be included in the unit price bid for the pertinent pipe item.

S-28 GAGE NOTE :

If the Contractor elects to furnish a 96" Sectional Corrugated Metal Structure at Sta. 36+40, the material furnished for this item shall be 10-8 gage, or heavier.

SUB – SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

6

LOR-7G-0.00 MED-7G-15.08
LOR-303-(16.40-16.63)(16.69)

	From Sheet No.	E-1 Roadway Excavation	E-1 Compacted Subgrade	E-2 Excavation For Structs.	E-3 Channel Excavation	E-8 Removal of Ex. Sidewalk	E-9 Removal of Trees & Stumps	E-11 Water	E-12 Pipe Removed 15" and Under	E-12 Pipe Removed Over 15"	8-19 Aggregate Base Course	8-35 Asph. Conc. Leveling Crse	8-70 Portland Cem. Conc. Base	T-10 Traffic Cont. Surface Crse.	T-30 Bituminous Prime Coat	T-30 Bituminous Tack Coat	T-35 Asph. Conc. Surface Crse	Spec. Mixing Cal. Chl. & Crush. Aggr.	S-1 Concrete Class "E"	S-4 Reinforcing Steel	S-22 Remove Portion Ex. Structure	S-23 Dowel Holes	S-24 Structure Removal	S-27 Pipe For Roadway Culvert M-64.1(a) 18"	S-27 M-86.1(b) or M-86.1(b) 21"	S-27 Standard M-86.4(d) 24"	S-27 Standard M-86.4(d) 30"	S-27 Standard M-86.4(d) 42"	S-27 Standard M-86.4(d) 96"	S-28 Sectional Corrugated Metal Structure 6'-1" x 4'-7"	S-28 Sectional Corrugated Metal Structure 14'-3" x 8'-11"	S-28 Sectional Corrugated Metal Structure 120"	I-1 Pipe For Driveways 10"	I-1 Pipe For Driveways 12"	I-1 Pipe For Driveways 15"	I-1 Pipe For Driveways 18"	I-1 Pipe For Driveways 72"x44"	I-2 Storm Sewers Class "A" Standard 10"	I-2 Storm Sewers Class "A" Standard 12"	I-2 Storm Sewers Class "A" Standard 18"	I-2 Storm Sewers Class "A" Standard 24"	I-2 Storm Sewers Class "A" Under Pav't. 24"	I-2 Storm Sewers Class "B" Under Pavement 12"	I-2 Storm Sewers Class "B" Under Pavement 15"	I-2 Storm Sewers Class "B" Under Pavement 18"	I-2 Storm Sewers Class "B" Under Pavement 21"	From Sheet No.	
		Cu. Yds.	Sq. Yds.	Cu. Yds.	Cu. Yds.	Sq. Ft.	Lump	M-Gal.	Lin. Ft.		Cu. Yds.	Cu. Yds.	Cu. Yds.	Cu. Yds.	Gal.	Gal.	Cu. Yds.	Sq. Yds.	Cu. Yds.	Pounds	Cu. Yds.	Lin. Ft.	Lump	18"	21"	24"	30"	42"	96"	Lin. Ft.			10"	12"	15"	18"	72"x44"	10"	12"	18"	24"	24"	12"	15"	18"	21"	
S-4(7)	Calc.		17.384								5191.0	279.6			873G		1211	10,656																										Calc.
	3										110.0						4.0.0																												3
	4	35909						265																																				4
	5	230					Lump						230	170		82																						75	75						5
	8										8.2	3.6					4.1																												8
	9			3					20	34	17.4						6.6		0.60	9	3	3			14																				9
	10			189	470						21.7						8.1		36.99	473	4		1				122			124									12	472					10
	11			40					163		31.8						10.2		1.20		1			168									28											11
	12			104	316					8	36.4						6.4		19.44	433	1.6		1			64			84	58														12
	13										27.9						6.5														28													13
	14								22	12	25.8						9.8																								294	20			14
	15								188	410	32.2						8.2						2										28								394	24			15
	16			85	860														12.76	361			1	58						152													16
	17										40.7						11.7																												17
	18			66	309					32	51.5						19.3		1.50				1					76						84	32	104								18
	19			95	435						42.1						4.5		22.60	481			1								96			58										19
	20										50.5						14.5																	34										20
	53		922								263.0	64.0			369		38.0																56										53
	Totals	36,139	18,306	582	2390		Lump	265	393	496	5956.2	2863.6	230.0	170	9105	82	1398.9	10656	95.10	1757	9.6	3	7	226	14	64	122	76	84	152	96	124	114	204	28	60	104	75	87	472	688	44					Totals
SG-4(7)											Use 596.7	286.4					Use 139.9																												
	Calc.		1932								576.0	24.5			970		134	1184																										Calc.
	3										6.0						2.0																										3
	4	24308						32																																			4
	5						Lump							70																														5
	20					135					35.5						7.1																30										20
	21					270					94.7						21.7		0.40														34									154	50	86	100	21
	Totals	24308	1932			405	Lump	32			712.2	24.5		70	970		164.8	1184	0.40														64									154	50	86	100	Totals
											Use 71.3						Use 16.5																												
S-50(7)	Calc.		4260								1010.0	33.2			1738		148	422																										Calc.
	3										20.0						8.0																												3
	4	19561						22						10																														4
	5						Lump																																						5
	57			44					74		145.1	15.7			49		42.3		0.41				1			96							32											57
	58					28			82		95.5	9.6			39		34.7		0.41														36											58
	Totals	19561	4260	44		28	Lump	22	156		1270.6	357.3		10	1826		233.0	422	0.82				1			96							68											Totals
											Use 1271	358																																

	From Sheet No.	I-2 Storm Sewers Class "B" Standard 12"	I-2 Storm Sewers Class "B" Standard 15"	I-2 Storm Sewers Class "B" Standard 18"	I-2 Storm Sewers Class "B" Standard 21"	I-2 Storm Sewers Class "B" Standard 24"	I-2 Storm Sewers Class "B" 6.6(b) or 4.8(b) 21"	I-2 Storm Sewers Class "B" M-6.6(a) or M-6.8(b) 21"	I-3 Roadway Drainage Standard 6"	I-3 Standard 8"	I-3 Standard 10"	I-3 Standard 12"	I-3 Standard 15"	I-3 M-6.6(a) or M-6.8(b) 15"	I-3 Under Pavement 10"	I-3 Under Pavement 12"	I-3 Under Pavement 15"	I-3 Shallow Cover 10"	I-3 Shallow Cover 12"	I-4 Underdrains 6"	I-4 Pipe Outlets 6"	I-5 Pipe Specials For Storm Sewer 6-21"	I-5 Pipe Specials For 8"-12 Und. Pav. 21"	I-8 Monument Assemblies Std. Each	I-8 No. 1 Inlet Each	I-8 Catch Basins 2-2-A Each	I-8 Catch Basins 2-2-B Each	I-8 Catch Basins 2-3 Each	I-8 Catch Basins 2-4 Mod. Each	I-8 Catch Basins No. 5 Mod. Each	I-8 Catch Basins Special Each	I-8 Adjust To Grade Each	I-9 Stone Underdrain Lin. Ft.	I-10 Dumped Rock Channel Prot. Cu. Yds.	I-12 Type 2 Conc. Curb (As Per Plan) Lin. Ft.	I-15 Wood Guard Rail Posts Without Rails Each	I-15 Guard Rail Steel Beam Type Shallow Lin. Ft.	I-15 Guard Rail Removed & Disposed Lin. Ft.	I-15 Guard Rail Removed & Rebuilt Lin. Ft.	I-16 Catch Basins Abandoned As per Plan Each	I-18 Stabilized Crush. Aggr. Cu. Yds.	I-22 Subbase Cu. Yds.	L-9 Seeding Sq. Yds.	L-9 Commercial Fertilizer Tons	L-10 Sodding Sq. Yds.	M-10 Calcium Chloride Tons	Base Replacement Type "1" Sq. Yds.	From Sheet No.	
		Lin. Ft.							Lin. Ft.											Lin. Ft.		Each		Each																							
S-4(7)	Calc.																															7237								1638	4034.0	85,980	7.74		11.3		Calc.
	3																																													3
	4																																													4
	5								150	150	75	75								1000	20																							3.4		5
	8																																													8
	9							198					26		20			124									1			1																9
	10					60																1				2					44													10
	11											72				20																													11
	12										130					24									1						24													12
	13															48			288						2																			13
	14												178		178		20								2				1															14
	15														164																26													15
	16																															17													16
	17										96					24																													17
	18										50																																			18
	19																																												19
	20										90					72									1																			20
	53																																													53
	Totals					60		198	150	150	75	441	276		342	20	168	40		124	288	1000	20	1		17	6	2	1	1	2	1			7237	111			1675	118		1	1	1638	4188.1	85,980	7.74	1875	14.7	172	Totals
SG-4(7)	Calc.																																					804								182	448.0	9750	0.88		1.3		Calc.
	3																																													3
	4																																													4
	5																																													5
	20										124					30																													1.4		20
	21	54	244	52	218		218				64												2		3		6	2			1			3			220	3			250	3						21
	Totals	54	244	52	218		218				188					30							2		3		6	2			1			804	3		220	3			250	3	182	448.0	9750	0.88		2.7		Totals
S-50(7)	Calc.																																					997								65	791.0	14,780	1.33		0.4		Calc.
	3																																													3
	4																																													4
	5																																													5
	57								30		30														1																			0.2		57
	58					238					168														2		1		1			1			2					2			25.4		97			58
																																												20.1				
	Totals					238			30		198														4		3	1		1		1			997	2					2		65	836.5	14,780	1.33	97	0.6		Totals

SUB – SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LOR-76-0.00 MED-76-15.08
LOR-308-(16.40-16.63)(16.69)

GENERAL SUMMARY

TYPE CODE 6201

ITEM	QUANTITIES S-4(7)	SG-4(7)	TOTAL S-SG-4(7)	S-50(7)	GRAND TOTAL	UNITS	DESCRIPTION
							ROADWAY
E-1	36,139	24308	60447	19,561	80,008	Cu.Yds.	Roadway Excavation, Method "B" As per Plan
E-1	18,306	1932	20,238	4,260	24,498	Sq.Yds.	Compacted Subgrade
E-8		405	405	28	433	Sq.Ft.	Removal and Disposal of Existing Sidewalk
E-9	Lump	Lump	Lump	Lump	Lump	Lump	Removal of Trees and Stumps
E-11	265	32	297	22	319	M-Gal.	Water
T-10	170	70	240	10	250	Cu.Yds.	Traffic Compacted Surface Course for Maintaining Traffic
I-8	17	3	20	4	24	Each	Standard Monument Assemblies
I-15		3	3		3	Each	Wood Guard Rail Posts Without Rail
I-15	1675		1675		1675	Lin.Ft.	Guard Rail, Steel Beam Standard Type (shallow), or Standard Strength Flexible Steel Plate, Tension Type
I-15	118		118		118	Lin.Ft.	Guard Rail Removed and Disposed of
I-15		250	250		250	Lin.Ft.	Guard Rail Removed and Rebuilt
I-18	1638	182	1820	65	1885	Cu.Yds.	Stabilized Crushed Aggregate Shoulders and Approaches
Spec.	10,656	1184	11,840	422	12,262	Sq.Yds.	Mixing Calcium Chloride and Crushed Aggregate
L-9	85,980	9750	95730	14,780	110,510	Sq.Yds.	Seeding and Protecting, as per plan
L-9	7.90	0.88	8.78	1.34	10.12	Tons	Commercial Fertilizer (12-12-12)
L-10	1875		1875	97	1972	Sq.Yds.	Sodding, as per plan
M-10	14.7	2.7	17.4	0.6	18	Tons	Calcium Chloride furnished and applied
S-2.4		Lump	Lump		Lump	Lump	Removal of one comb. frame & conc. blk. town hall, fire dept., gar. & res. bldg. Parcel No. 35.
S-2.4				Lump	Lump	Lump	Removal of one garage, one barn, two sheds and one frame residence, Parcel No. 50.
							DRAINAGE
E-2	582		582	44	626	Cu.Yds.	Excavation For Structures
E-3	2390		2390		2390	Cu.Yds.	Channel Excavation
E-12	393		393	156	549	Lin.Ft.	Pipe Removed 15" and Under
E-12	496		496		496	Lin.Ft.	Pipe Removed Over 15"
S-1	95.1	0.4	95.5	0.8	96.3	Cu.Yds.	Concrete for Structures Class "E"
S-4	1757		1757		1757	Lbs.	Reinforcing Steel
S-22	9.6		9.6		9.6	Cu.Yds.	Removal of Portions of Existing Structure
S-23	3		3		3	Lin.Ft.	Dowel Holes
S-24	Lump		Lump	Lump	Lump	Lump	Removal of Existing Structures
S-27	226		226		226	Lin.Ft.	18" Pipe For Roadway Culverts Sec. M-6-4(d), 14 gage
S-27	14		14		14	Lin.Ft.	21" Pipe For Roadway Culverts Sec. M-6.6(b) or M-6.8(b)
S-27	64		64	96	160	Lin.Ft.	24" Pipe For Roadway Culverts
S-27	122		122		122	Lin.Ft.	30" Pipe For Roadway Culverts
S-27	76		76		76	Lin.Ft.	42" Pipe For Roadway Culverts, Sec. M-6.4(d), 10 gage
S-27	84		84		84	Lin.Ft.	96" Pipe For Roadway Culverts
S-28	124		124		124	Lin.Ft.	120" Sectional Corrugated Metal Structure (8-7 ga.) M-6.4(g)
S-28	152		152		152	Lin.Ft.	6'-1"x 4'-7" Sectional Corrugated Metal Structure (10-10 ga.) M-6.4(g)
S-28	96		96		96	Lin.Ft.	14'-3"x 8'-11" Sectional Corrugated Metal Structure (7-5 ga.) M-6.4(g)
I-1	114		114		114	Lin.Ft.	10" Plain Corrugated Metal Pipe Sec. M-6.4(a) for Driveways
I-1	204	64	268	68	336	Lin.Ft.	12" Plain Corrugated Metal Pipe Sec. M-6.4(a) for Driveways
I-1	28		28		28	Lin.Ft.	15" Plain Corrugated Metal Pipe Sec. M-6.4(a) for Driveways
I-1	60		60		60	Lin.Ft.	18" Plain Corrugated Metal Pipe Sec. M-6.4(a) For Driveways
I-1	104		104		104	Lin.Ft.	72"x44" Corrugated Metal Arch with integral base Sec. M-6.4(i) for Driveways
I-2	75		75		75	Lin.Ft.	10" Class "A" Storm Sewers
I-2	87		87		87	Lin.Ft.	12" Class "A" Storm Sewers
I-2	472		472		472	Lin.Ft.	18" Class "A" Storm Sewers
I-2	688		688		688	Lin.Ft.	24" Class "A" Storm Sewers
I-2	44		44		44	Lin.Ft.	24" Class "A" Storm Sewers Under Pavement or Approaches

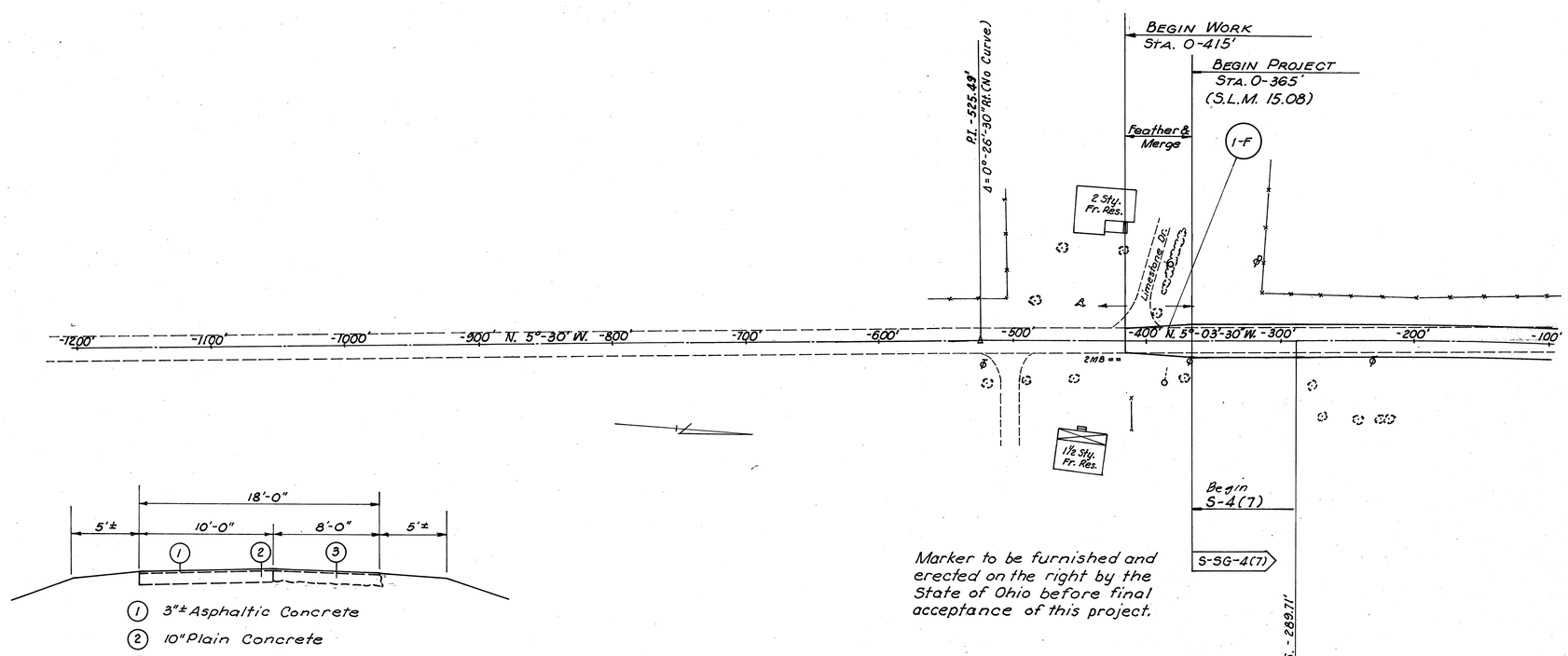
ITEM	QUANTITIES S-4(7)	SG-4(7)	TOTAL S-SG-4(7)	S-50(7)	GRAND TOTAL	UNITS	DESCRIPTION
							DRAINAGE CONTINUED
I-2	60	218	278		278	Lin. Ft.	21" Storm Sewers- Sec. M-6.6 (b) or Sec. M-6.8 (b)
I-2	...	100	100		100	Lin. Ft.	21" Class "B" Storm Sewers Under Pavement or Approaches
I-2		54	54		54	Lin.Ft.	12" Class "B" Storm Sewers
I-2		244	244		244	Lin.Ft.	15" Class "B" Storm Sewers
I-2		52	52		52	Lin.Ft.	18" Class "B" Storm Sewers
I-2		218	218		218	Lin.Ft.	21" Class "B" Storm Sewers
I-2				238	238	Lin.Ft.	24" Class "B" Storm Sewers
I-2		154	154		154	Lin.Ft.	12" Class "B" Storm Sewers Under Pavement or Approaches
I-2		50	50		50	Lin.Ft.	15" Class "B" Storm Sewers Under Pavement or Approaches
I-2		86	86		86	Lin.Ft.	18" Class "B" Storm Sewers Under Pavement or Approaches
I-2	198		198		198	Lin.Ft.	21" Storm Sewers, Sec. M-6.6(a) or M-6.8(b)
I-3	150		150	30	180	Lin.Ft.	6" Roadway Drainage
I-3	150		150		150	Lin.Ft.	8" Roadway Drainage
I-3	75		75		75	Lin.Ft.	10" Roadway Drainage
I-3	441	188	629	198	827	Lin.Ft.	12" Roadway Drainage
I-3	276		276		276	Lin.Ft.	15" Roadway Drainage
I-3	342		342		342	Lin.Ft.	15" Roadway Drainage Sec. M-6.6(a) or M-6.8(b)
I-3	20		20		20	Lin.Ft.	10" Roadway Drainage Under Pavement or Approaches
I-3	168	30	198		198	Lin.Ft.	12" Roadway Drainage Under Pavement or Approaches
I-3	40		40		40	Lin.Ft.	15" Roadway Drainage Under Pavement or Approaches
I-3	124		124		124	Lin.Ft.	10" Roadway Drainage with Shallow Cover
I-3	288		288		288	Lin.Ft.	12" Roadway Drainage with Shallow Cover
I-4	1000		1000		1000	Lin.Ft.	6" Underdrains
I-4	20		20		20	Lin.Ft.	6" Pipe Outlets for Underdrains, Sec. M-6.4(h) w/o perforations
I-5	1		1		1	Each	21" Pipe Special for Class "B" Storm Sewer
I-5		2	2		2	Each	21" Pipe Specials for Class "B" Storm Sewers Under Pavement or Approaches
I-8	2	6	8	1	9	Each	Standard No. 2-2-A Catch Basins
I-8	1	2	3		3	Each	Standard No. 2-2-B Catch Basins
I-8	1		1		1	Each	Standard No. 2-3 Catch Basin
I-8	2		2	1	3	Each	Standard No. 2-4 Catch Basins Modified
I-8	1		1		1	Each	Standard No. 5 Catch Basin Modified
I-8		1	1		1	Each	Special Catch Basin
I-8	6		6	3	9	Each	Standard No.1 Side Ditch Inlets
I-8				1	1	Each	Catch Basin Adjusted to grade
I-9	7237	804	8041	997	9038	Lin.Ft.	Stone Underdrains No. 2.
I-10	111	3	114	2	116	Cu.Yds.	Dumped Rock Channel Protection
I-16	1	3	4	2	6	Each	Catch Basins Abandoned
I-16	1		1		1	Each	Catch Basin Abandoned, As per Plan
							PAVEMENT
B-19	5957	713	6670	1271	7941	Cu.Yds.	Aggregate Base Course
B-35	2864	245	3109	358	3467	Cu.Yds.	Asphaltic Concrete Leveling Course (70-85)
B-70	230		230		230	Cu.Yds.	Portland Cement Concrete Base Course, As per Plan
T-30	9105	970	10,075	1826	11,901	Gal.	Bituminous Prime Coat Sec. M-5.1, RT-2 or RT-3
T-30	82		82		82	Gal.	Bituminous Tack Coat Sec. M-5.5, M5-2 or RS-1; or Sec. M-5.2, RC-1, RC-2 or RC-3, As per Sec. T-30.02
T-35	1399	165	1564	233	1797	Cu.Yds.	Asphaltic Concrete Surface Course Type "C" (70-85)
I-12		220	220		220	Lin.Ft.	Standard Type 2 Combination Curb and Gutter As per Plan
I-22	4188	448	4636	837	5473	Cu.Yds.	Subbase

ESTIMATED QUANTITIES FOR STRUCTURE 20' SPAN AND OVER SEE SHEET No. 61

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

8

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



(1) 3"± Asphaltic Concrete
(2) 10" Plain Concrete
(3) 8"± Traffic Bound

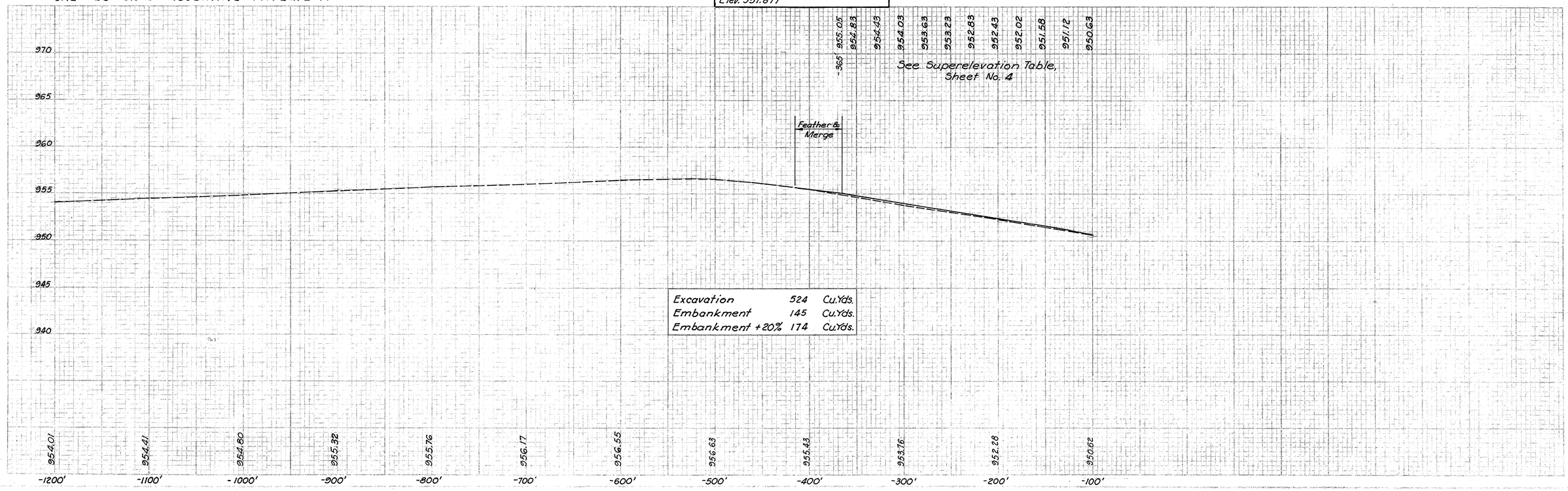
TYPICAL SECTION OF ADJOINING PAVEMENT

Marker to be furnished and erected on the right by the State of Ohio before final acceptance of this project.

B.M. Spike in Root W. Side 30" Stump 31' Rt. Sta. -450' Elev. 957.877

Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. Var.	B-35 Asphaltic Concrete Leveling Course Cu.Yds. Var.		B-19 Aggregate Base Course Cu.Yds. 8"	I-22 Sub base Cu.Yds. 6"		
1-F	-415' to -365'	4.1	3.6		8.2 *	5.1		
	TOTAL	4.1	3.6		8.2	5.1		

* Includes 2 Cu.Yds. for dressing of existing drive



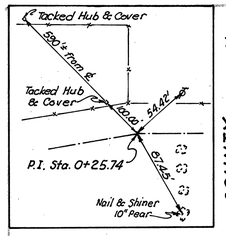
Excavation	524	Cu.Yds.
Embankment	145	Cu.Yds.
Embankment +20%	174	Cu.Yds.

-1200' to -100'

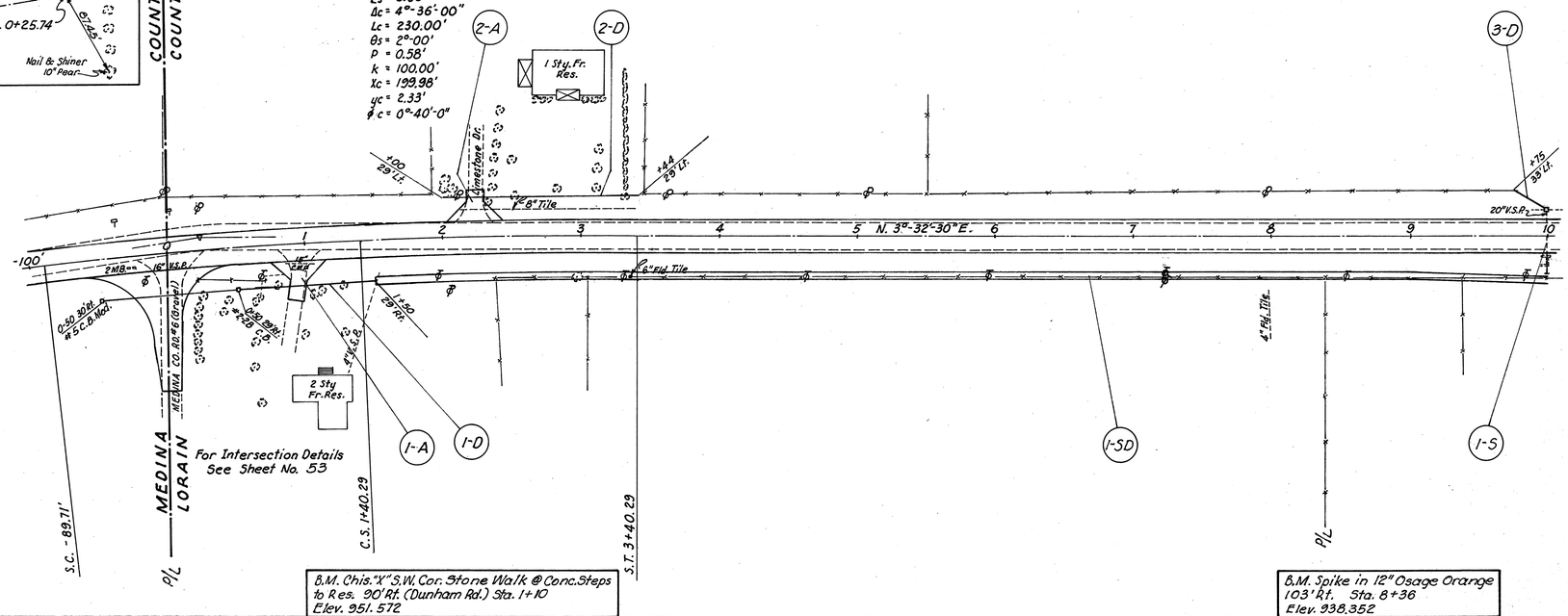
FED. R.D. DIVISION	STATE	PROJECT		9
2	OHIO			

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

1-S : Structure No. LOR-76-0019
Sta. 10+00 D.A. = 25 Acres
Existing : 20" V.S.P.
Proposed: Extend existing culvert Right with 21"x14' S-27 Culvert Pipe (See Extension Details Below). Abandon Existing C.B. on Left by Capping with a 5'x5'x8" Thick Concrete Slab.



CURVE DATA
P.I. 0+25.74
Δ = 8°-36' Rt.
Dc = 2°-00'
R = 2864.79'
Ls = 200.00'
Ts = 315.45'
Es = 8.65'
Δc = 4°-36'-00"
Lc = 230.00'
θs = 2°-00'
P = 0.58'
k = 100.00'
Xc = 199.98'
yc = 2.33'
θc = 0°-40'-0"



B.M. Chis."X" S.W. Cor. Stone Walk @ Conc. Steps to Res. 90' Rt. (Dunham Rd.) Sta. 1+10
Elev. 951.572

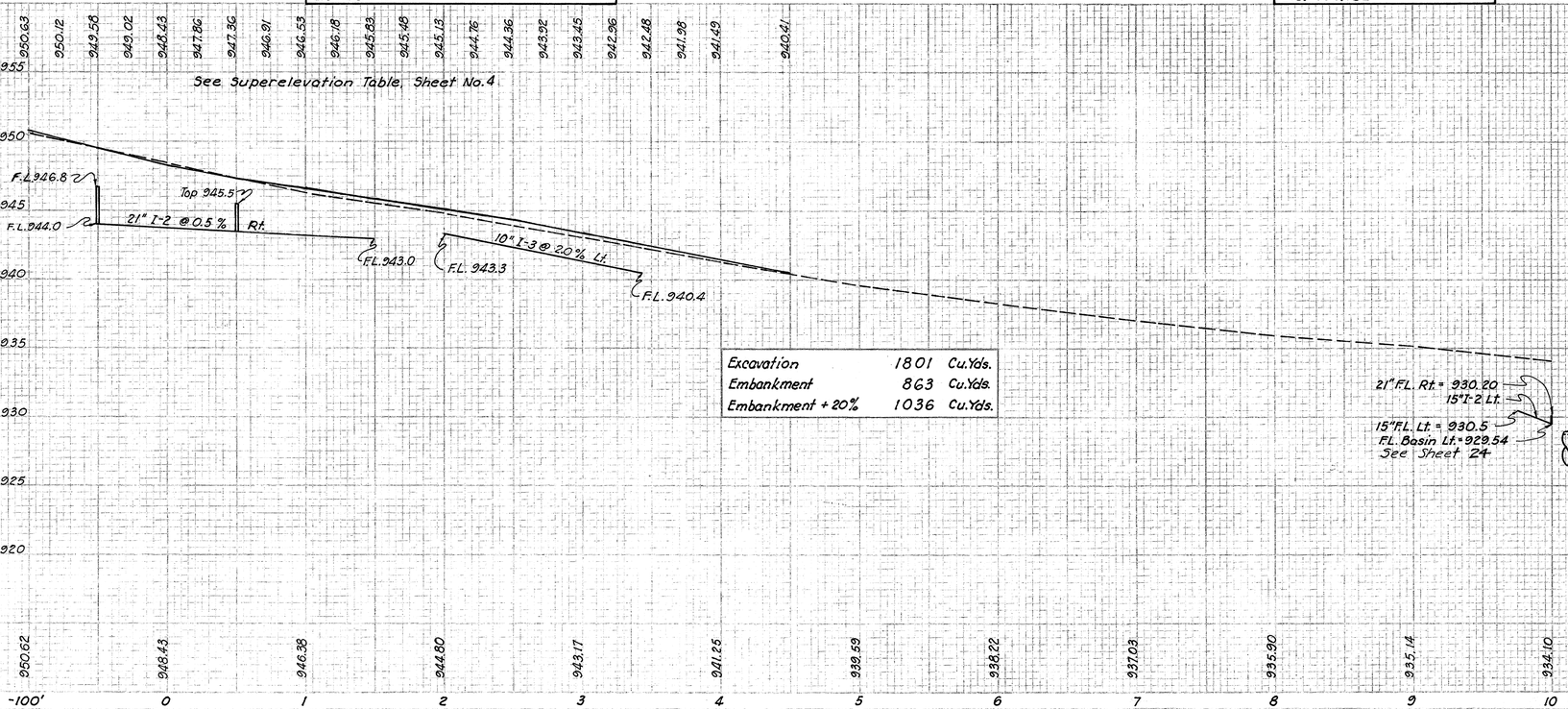
B.M. Spike in 12" Osage Orange 103' Rt. Sta. 8+36
Elev. 938.352

Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds.	B-19 Aggregate Base Course Cu.Yds.	I-2 Storm Sewer Under Pavt. M-6.6(a) or M-6.8(b) Lin.Ft.	I-3 Roadway Drainage Lin.Ft. Shallow Cover	I-3 Roadway Drainage Lin.Ft. Std.	I-3 Roadway Drainage Lin.Ft. Under Drives	I-8 Catch Basins Each 2-28	I-8 Catch Basins Each #5Mod.	E-12 Pipe Removed 15" & Under Lin.Ft.	E-12 Pipe Removed Over 15"
		2"	5"	21"	10"	15"	10"				
1-A	0+98 Rt. L=28'	3.5	9.2							20	
2-A	2+21 Lt. L=23'	3.1	8.2								
1-0	0-50 to 1+50 Rt.			198				1	1*		34
2-0	2+00 to 3+44 Lt.				124		20				
3-0	9+75 to 10+00 Lt.					26					
	TOTAL	6.6	17.4	198	124	26	20	1	1	20	34

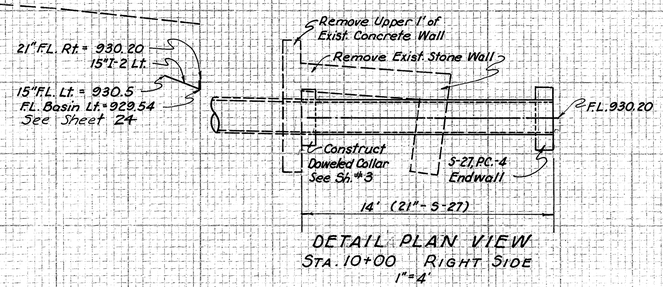
* Basin to be Modified by omitting Sod. Concrete Gutter and Dike.

Ref. No.	Station	I-16 Catch Basins Abandoned As Per Plan Each	S-1 Concrete for Structures Class "E" Cu.Yds.	S-4 Reinforcing Steel Lbs.	S-22 Removal of Portion of Existing Structure Cu.Yds.	E-2 Structure Excavation Cu.Yds.	L-10 Sodding 6' Wide Sq.Yds.	S-27 Roadway Culvert 21" M-6.6(a)or M-6.8(b) Lin.Ft.	S-23 Dowel Holes Lin.Ft.	
1-S	10+00	1@	0.60	9	3	3		14	3	
1-SD	1+50 to 10+00 Rt.						567			
	TOTAL	1	0.60	9	3	3	567	14	3	

@ 8" Slab shall be cast over existing basin after connecting "3-D". Slab = 5'x5'x8" Thick
Cost of slab shall be included in the unit price bid for Item I-16



Excavation	1801	Cu.Yds.
Embankment	863	Cu.Yds.
Embankment + 20%	1036	Cu.Yds.

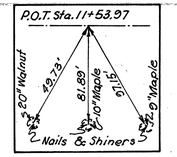


DETAIL PLAN VIEW
STA. 10+00 RIGHT SIDE
1"=4'

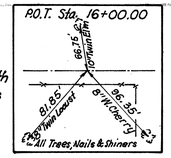
-100.00' to Sta. 10+00

FED. RD. DIVISION	STATE	PROJECT		10
2	OHIO			

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

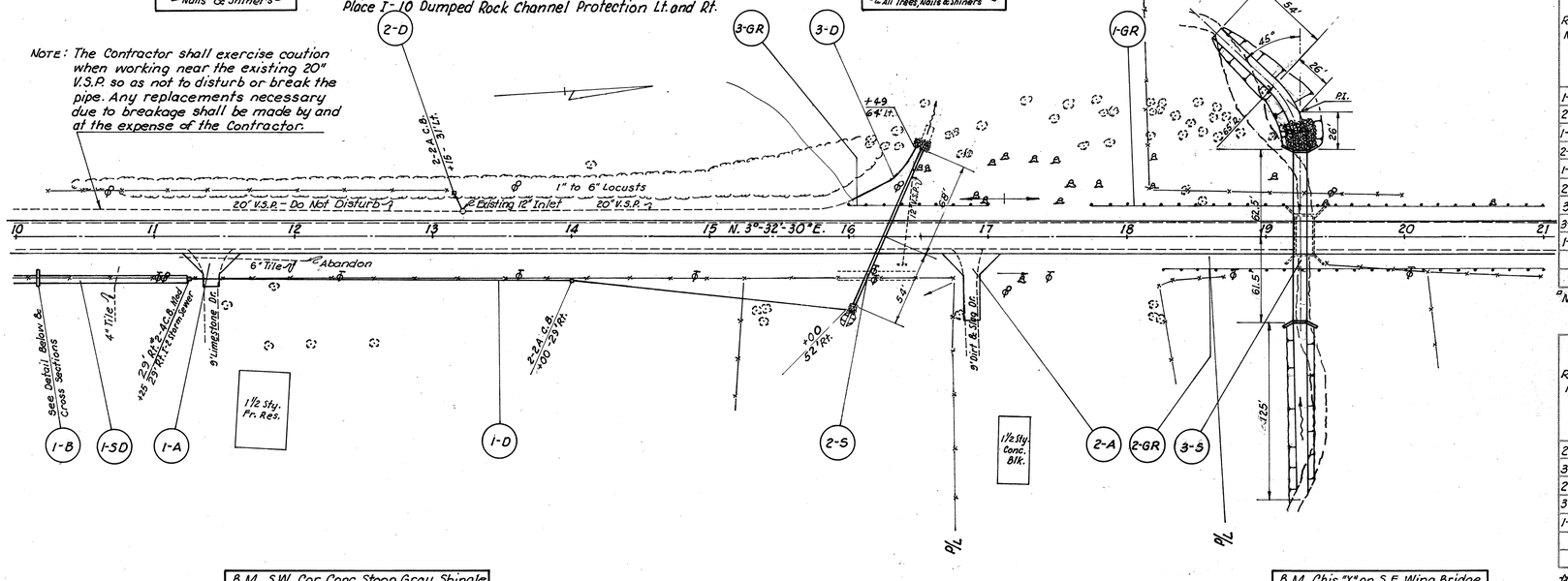


2-S Structure No. LOR-76-0031
Sta. 16+25 D.A.=25 Acres Cover @ ℄ 11.3'
Existing: 12" V.S.P. to be abandoned. Headwall and slab on Lt. shall be removed in accordance with Sec. E-1.03(c). Seal Culvert ends in accordance with Sec. I-16.03. Cost to be included in the unit price bid for Roadway Excavation, as per plan (Method B).
Proposed: 30"x.122' S-27 Culvert Pipe on 25° L.F. Skew with P.C. 4 Endwalls.
Place I-10 Dumped Rock Channel Protection Lt. and Rt.



3-S Structure No. LOR-76-0036
Sta. 19+25 D.A.=1200 Acres Cover @ ℄ 13.8'
Existing: 13'x7.5' Concrete Slab Bridge to be removed.
Proposed: 120"x 124' S-28 Sectional Corrugated Metal Pipe. No Skew. See Endwall details below.
Excavate channel 10' Bottom, 2:1 Slopes on 0.23% Grade. Place I-10 Dumped Rock Channel Protection on Lt. as indicated.
Channel Excavation to be used to fill abandoned channel.

NOTE: The Contractor shall exercise caution when working near the existing 20" V.S.P. so as not to disturb or break the pipe. Any replacements necessary due to breakage shall be made by and at the expense of the Contractor.



Ref. No.	Station	T-35 Asphaltic Concrete Surface Course 2"	B-19 Aggregate Base Course 5"	I-2 Storm Sewers Lin. Ft. Class "A" 12"	18"	21"	L-10 Sodding 6' Wide	I-8 Catch Basins Each M-6.1(b) M-6.8.1(b)	*2-4	I-5 Pipe Special Class "B" Storm Sewer Each	I-16 Catch Basins Abandoned	I-15 Guard Rail Steel Beam Shallow
		Cu.Yds.	Cu.Yds.				Sq.Yds.	*2-2.A	Mod.	21"x12" Wye	Each	Lin. Ft.
1-A	10+42 Rt. L=24'	3.2	8.4									
2-A	16+87 Rt. L=48'	4.9	13.3									
1-GR	17+75 to 21+00 Lt.											325
2-GR	18+25 to 21+00 Rt.											275
1-D	11+25 to 16+00 Rt.			472				1	1			
2-D*	13+15 Lt.			12				1		1	1	
3-D*	16+03 to 16+49 Lt.				60							
3-GR	16+00 to 17+00 Lt.											100
1-SD	10+00 to 11+24 Rt.						82					
	TOTAL	8.1	21.7	12	472	60	82	2	1	1	1	700

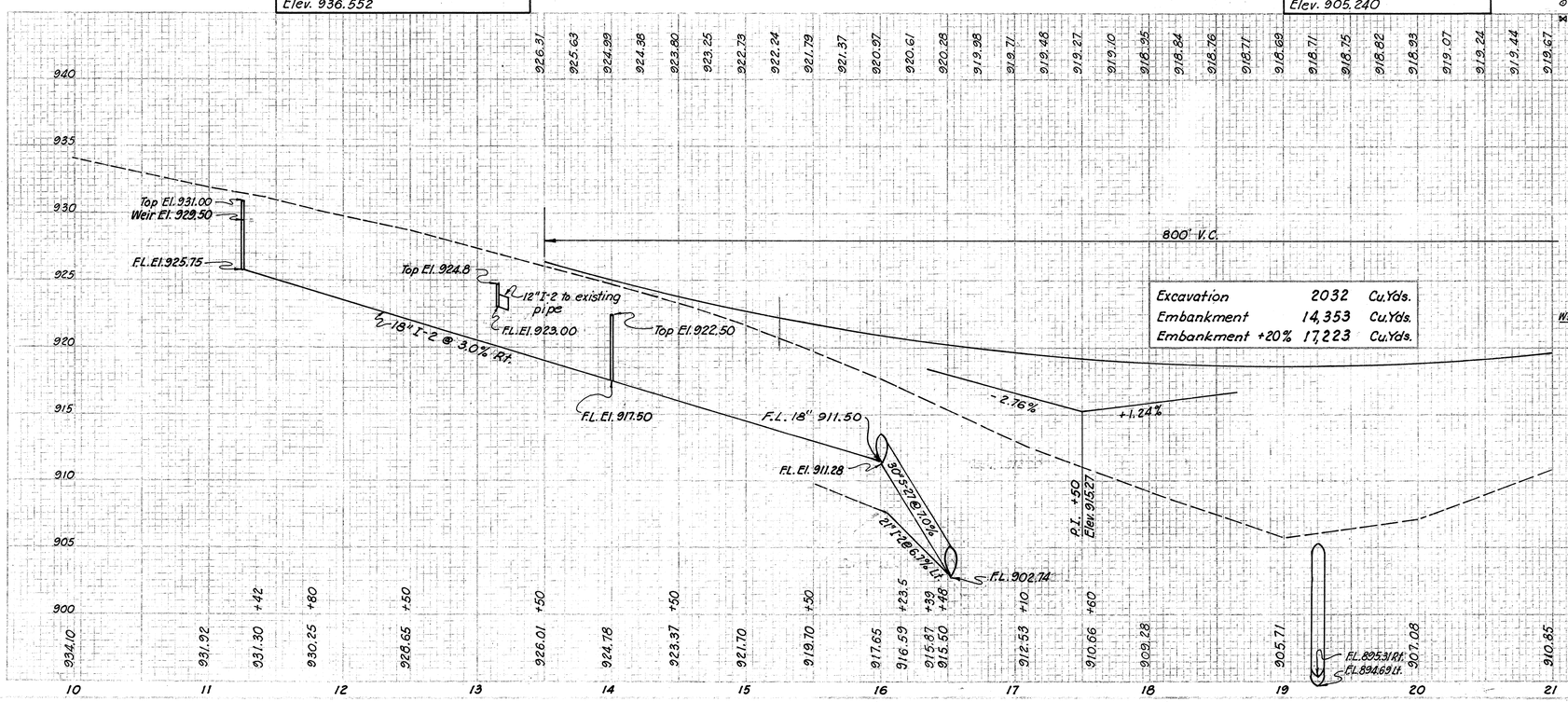
*NOTE: References No. 2-D & No. 3-D appear in both Tables.

Ref. No.	Station	I-10 Dumped Rock Channel Protection	S-1 Concrete for Structures Class "E"	S-27 Pipe for Roadway Culverts Lin. Ft.	S-24 Removal of Existing Structure	E-2 Excavation for Structures	E-3 Channel Excavation	S-4 Reinforcing Steel	S-22 Removal of Portions of Existing Structure	S-28 Sec. Corr. Metal Structures 8-7 Ga. 120"
		Cu.Yds.	Cu. Yds.	30"	Lump Sum	Cu.Yds.	Cu.Yds.	Lbs.	Cu.Yds.	Lin. Ft.
2-S	16+25	7.0*	1.00☆	122		107	2		4	
3-S	19+25	37.0⊙	34.30		Lump	78	468	452		124
2-D*	Table above		0.23 ✖							
3-D*	Table above		0.36 ☆							
1-B	10+15 Rt.		1.10			4		21		
	TOTAL	44.0'	36.99	122	Lump	189	470	473	4	124

☆ Std. Const. Drwg. S-27 P.C. 4. For 18" pipe
* Dumped Rock on Rt shall be 4'x4'x2.5' deep; Lt. shall be 6'x10'x2.5' deep.
⊙ Dumped Rock on Lt. only 20'x20'x2.5' deep.
✖ For Concrete Collar

B.M. S.W. Cor. Conc. Stoop Gray Shingle
1½ Sty. Res. 87' Rt. Sta. 11+73
Elev. 936.552

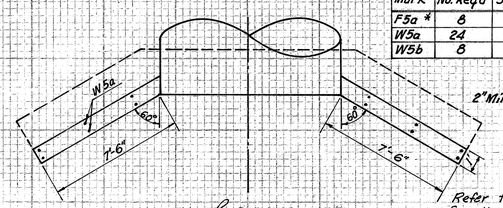
B.M. Chis. "X" on S.E. Wing Bridge
LO-76-0036 14' Rt. Sta. 19+20
Elev. 905.240



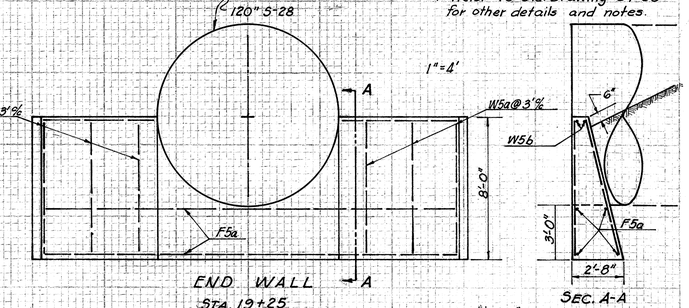
Excavation	2032	Cu.Yds.
Embankment	14,353	Cu.Yds.
Embankment +20%	17,223	Cu.Yds.

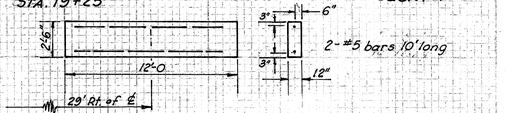
Mark	No. Req'd	Size	Length	Weight
F5a *	8	5	24'-6"	205
W5a	24	5	7'-6"	188
W5b	8	5	7'-0"	59

* Bend in Field
2" Min. Clearance on Steel.



Refer to Std. Drawing S.P.-53 for other details and notes.





1-B (DITCH BLOCK)
STA. 10+15

Sta. 10+00 to Sta. 21+00

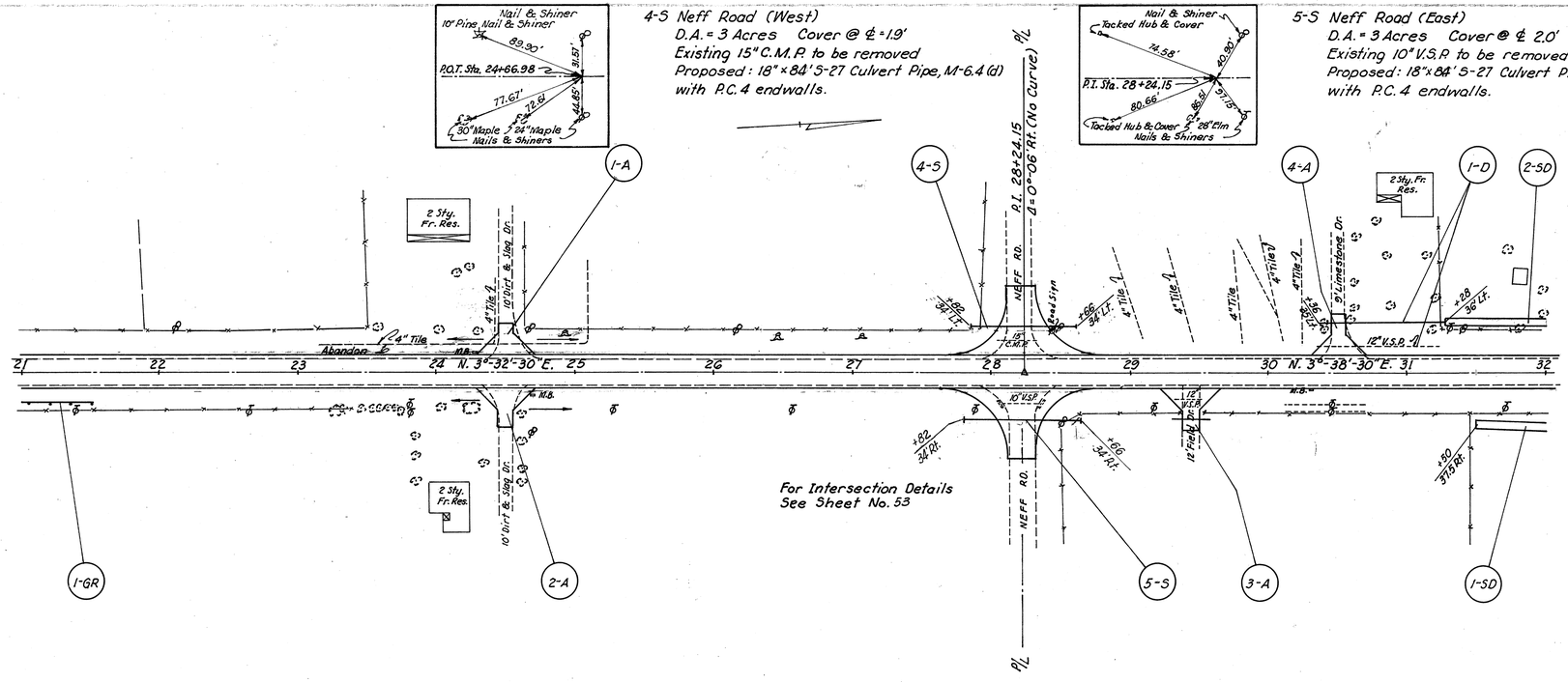
FED. AID DIVISION	STATE	PROJECT		
2	OHIO			

11

LOR - 76-0.00; MED-76-15.08
LOR - 303-(16.40-16.63)-(16.69)

4-S Neff Road (West)
D.A. = 3 Acres Cover @ ℄ = 1.9'
Existing 15" C.M.P. to be removed
Proposed: 18" x 84' S-27 Culvert Pipe, M-6.4 (d)
with P.C. 4 endwalls.

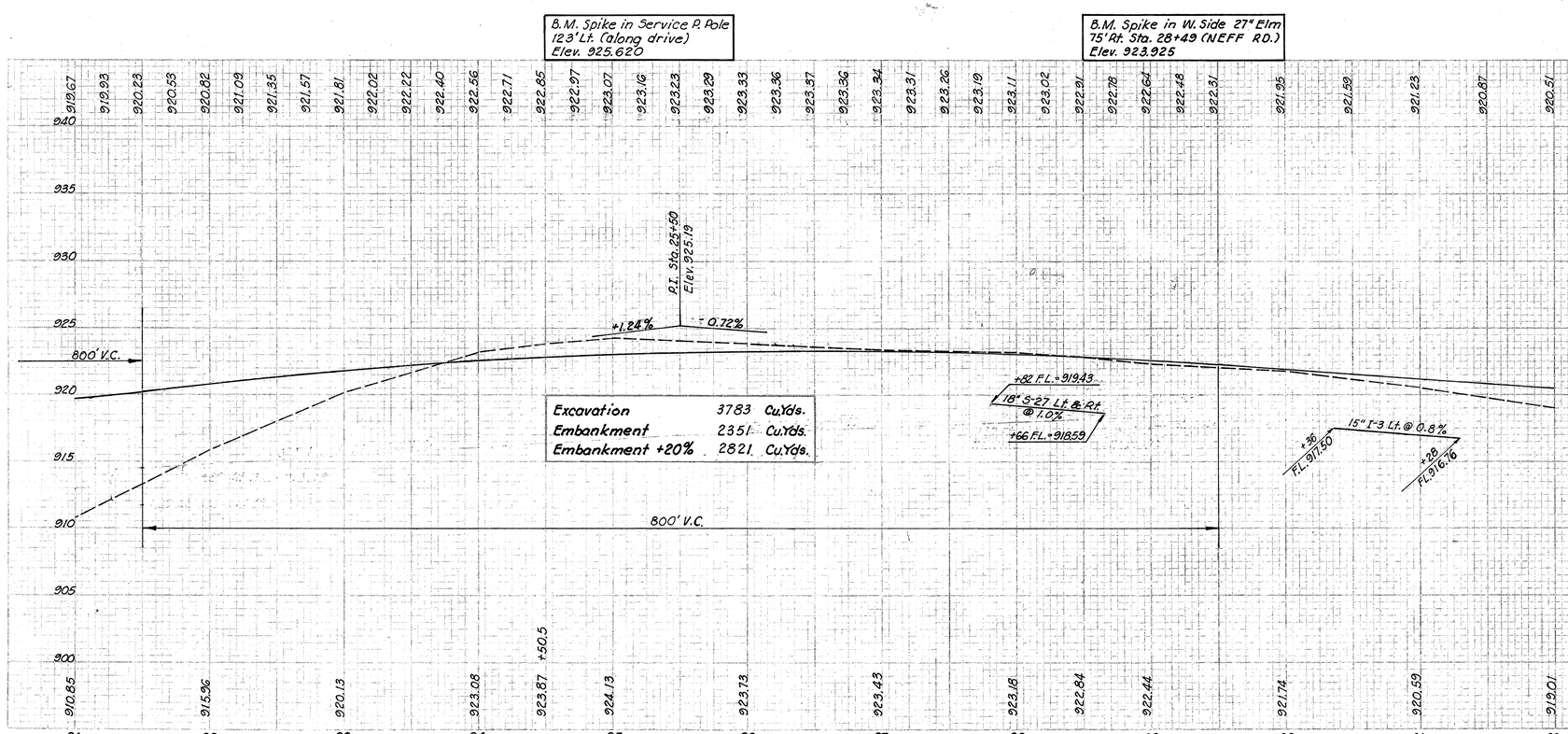
5-S Neff Road (East)
D.A. = 3 Acres Cover @ ℄ 2.0'
Existing 10" V.S.P. to be removed
Proposed: 18" x 84' S-27 Culvert Pipe, M-6.4 (d)
with P.C. 4 endwalls.



Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	B-19 Aggregate Base Course Cu.Yds. 5"	B-19 Aggregate Base Course Cu.Yds. 6"	I-1 Pipe for Drive-ways Lin.Ft. 15"	I-3 Roadway Drainage Lin. Ft. Std. 15"	I-3 Roadway Drainage Lin. Ft. Under Drives 15"	L-10 Sodding 6' Wide Sq.Yds.	I-15 Guard Rail Steel Beam Type Shallow Lin.Ft.
1-A	24+50 Lt. L=23'	3.1	8.2						
2-A	24+50 Rt. L=28'	3.5	9.2						
3-A[a]	29+44 Rt. L=30'			10.8	28				
4-A	30+52 Lt. L=30'	3.6	9.6						
1-D[a]	30+36 to 31+28 Lt.					72	20		
1-SD	31+50 to 32+00 Rt.							33	
2-SD	31+28 to 32+00 Lt.							48	
1-GR	21+00 to 21+50 Rt.								50
	TOTAL	10.2	37.8		28	72	20	81	50

[a] NOTE: References No. 3-A & No. 1-D appear in both Tables.

Ref. No.	Station	E-2 Excavation for Structures Cu.Yds.	E-12 Pipe Removed 15" & Under Lin.Ft.	S-1 Concrete for Structures Class "E" Cu.Yds.	S-22 Removal of Portions of Existing Structure Cu.Yds.	S-27 Pipe for Roadway Culverts Lin.Ft. M-6.4(d) 18"
3-A[a]	29+44 Rt. L=30'		16			
1-D[a]	30+36 to 31+28 Lt.		90			
4-S	27+82 to 28+66.34' Lt.	20	25	0.60		84
5-S	27+82 to 28+66.34' Rt.	20	32	0.60	1	84
	TOTAL	40	163	1.20	1	168



Sta. 21+00 to Sta. 32+00

FED. ROAD DIVISION	STATE	PROJECT		
2	OHIO			

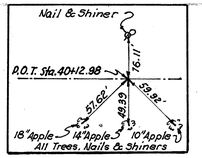
12

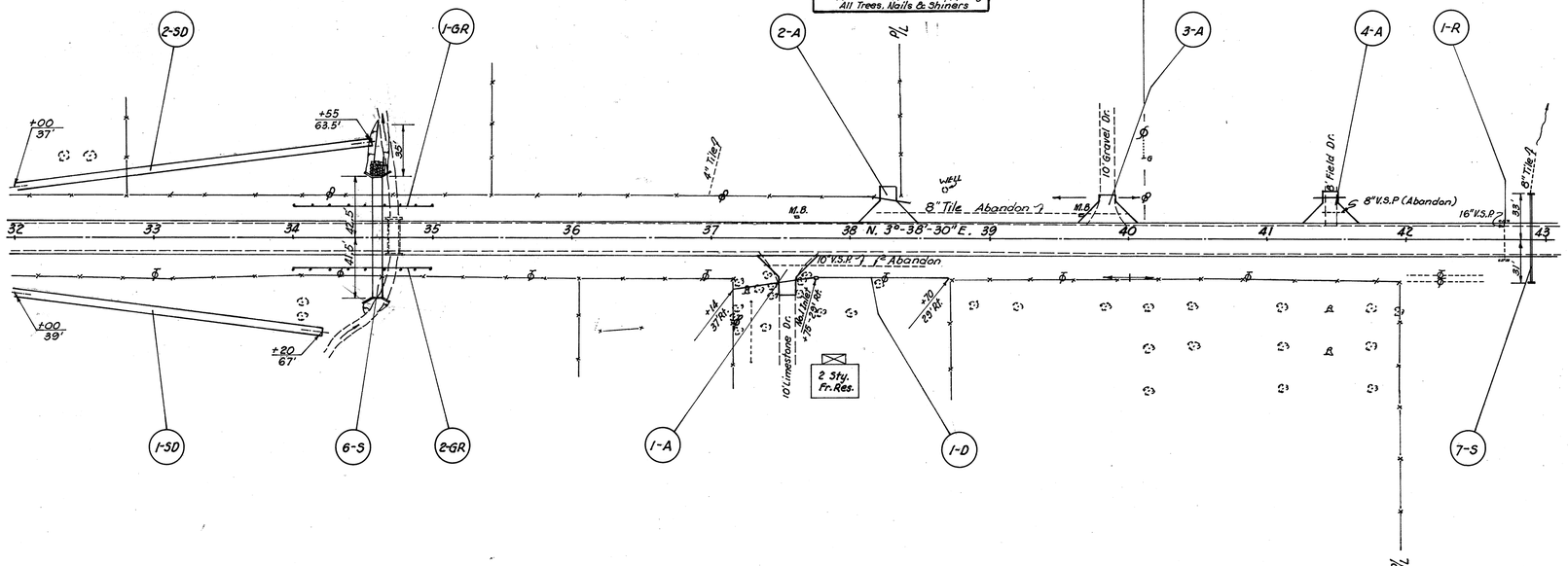
LOR -76-0.00 ; MED-76-15.08
LOR -303-(16.40-16.63)-(16.69)

No I-3-12 for outlet pipe.

6-S: Structure No. LOR-76-0066
Sta. 34+60 D.A. = 400 Acres Cover @ ℄ 5.1'
Existing: 8'x5' Sandstone & Concrete Box Culvert to be Removed.
Proposed: 96"x84' S-27 Pipe for Roadway Culvert, No Skew. See Endwall Details below. Excavate Channel 0.5% Grade, 8' Bottom, 2:1 Slopes as Indicated. Place I-10 Dumped Rock Channel Protection on Lt.

7-S: Structure No. LOR-76-0081
Sta. 42+90 D.A. = 20 Acres Cover @ ℄ 2.9'
Existing: 16"V.S.P. to be partially removed (See I-R)
Proposed: 24"x64' S-27 Pipe for Roadway Culvert, on 1.0% Grade, No Skew, with P.C.4 Endwalls.





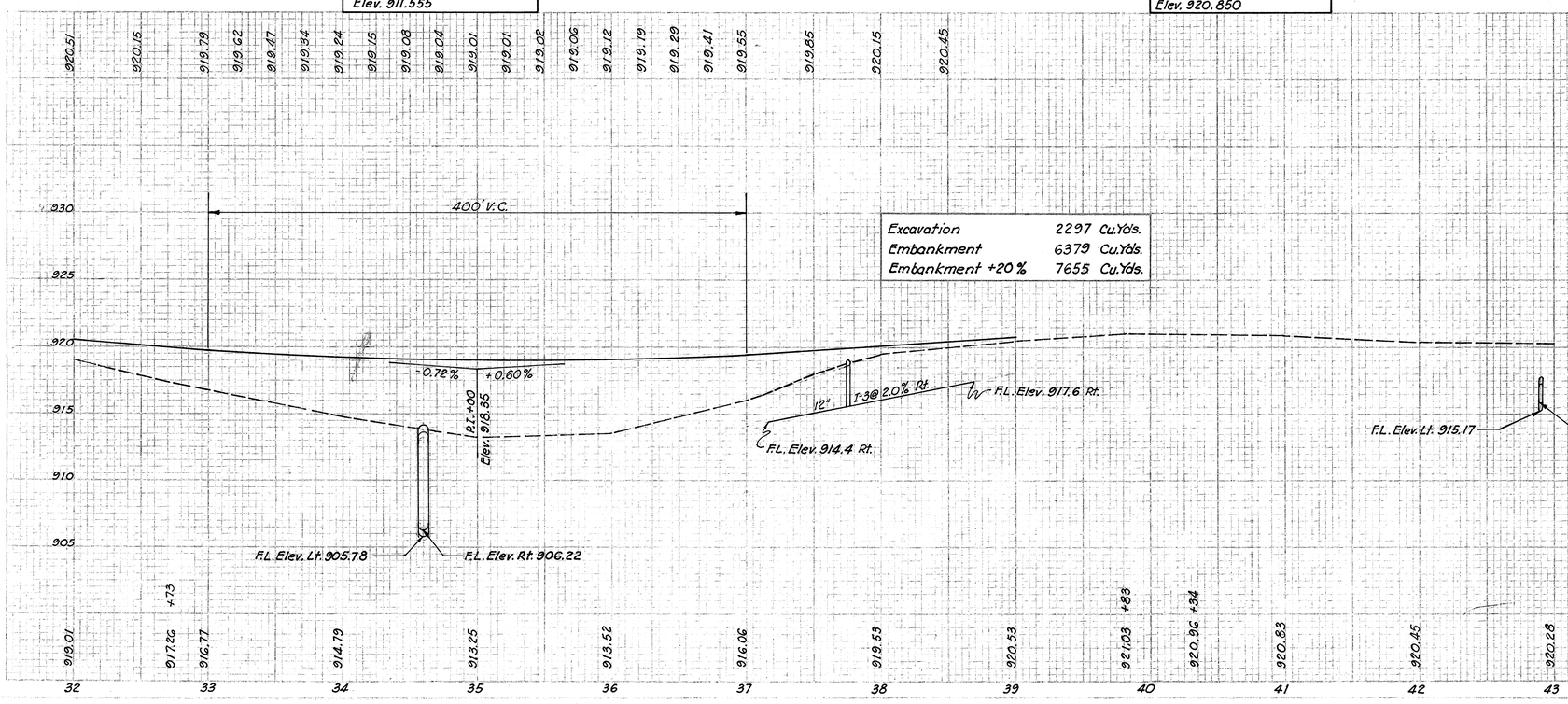
Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	B-19 Aggregate Base Course Cu.Yds. 5" 6"	I-1 Pipe for Drive-ways Lin.Ft. 10"	I-3 Roadway Drainage Lin.Ft. Std. 12"	I-3 Roadway Drainage Lin.Ft. Under Drives 12"	I-8 Inlets No.1 Each	E-12 Pipe Removed Over 15" Lin.Ft.	S-22 Removal of Portions of Existing Structures Cu.Yds.
1-A	37+53 Rt. L = 28'	3.5	9.2						
2-A	38+27 Lt. L = 25'		9.7	30					
3-A	39+83 Lt. L = 20'	2.9	7.8						
4-A	41+46 Lt. L = 25'		9.7	28					
1-D	37+14 to 38+70 Rt.				130	24	1		
1-R	42+70							8*	1.56*
	TOTAL	6.4	36.4	58	130	24	1	8*	1.56*

* Remove outer headwalls and old pipe extensions as per Items S-22 and E-12. Abandon original 16" Pipe Culvert and seal ends in accordance with Sec. I-16.03, payment for which shall be included in the unit price bid for Item E-1 Roadway Excavation.

Ref. No.	Station	E-2 Excavation for Structures Cu.Yds.	E-3 Channel Excavation Cu.Yds.	Base Replacement Type No. 1 Sq.Yds.	S-1 Concrete for Structures Class "E" Cu.Yds.	S-4 Reinforcing Steel Lbs.	S-27 Pipe for Roadway Culverts Lin.Ft. 96"	S-27 Pipe for Roadway Culverts Lin.Ft. 24"	I-10 Dumped Rock Channel Protection Cu.Yds.	S-24 Removal of Existing Structures Lump Sum
6-S	34+60	69	315		18.62	433	84		24 ©	1
7-S	42+90	35	1	16	0.82			64		
	TOTAL	104	316	16	19.44	433	84	64	24	1.

© 16' Wide; 16' Long and 2.5' Deep.

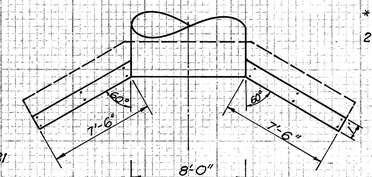
Ref. No.	Station	T-15 Guard Rail Steel Beam Type Shallow Lin.Ft.	L-10 Sodding 6' Wide Sq.Yds.
1-GR	34+00 to 35+00 Lt.	100	
2-GR	34+00 to 35+00 Rt.	100	
1-SD	32+00 to 34+20 Rt.		147
2-SD	32+00 to 34+55 Lt.		170
	TOTAL	200	317



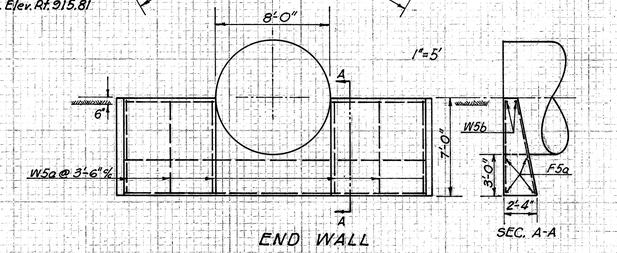
Excavation	2297 Cu.Yds.
Embankment	6379 Cu.Yds.
Embankment +20%	7655 Cu.Yds.

Mark	No. Req'd	Size	Length	Weight
F5a *	8	5	22'-6"	209
W5a	24	5	6'-6"	165
W5b	8	5	7'-0"	59

* Bend in Field
2" Min. Clearance on Steel



Refer to Std. Drawing SP-53 for other details and notes

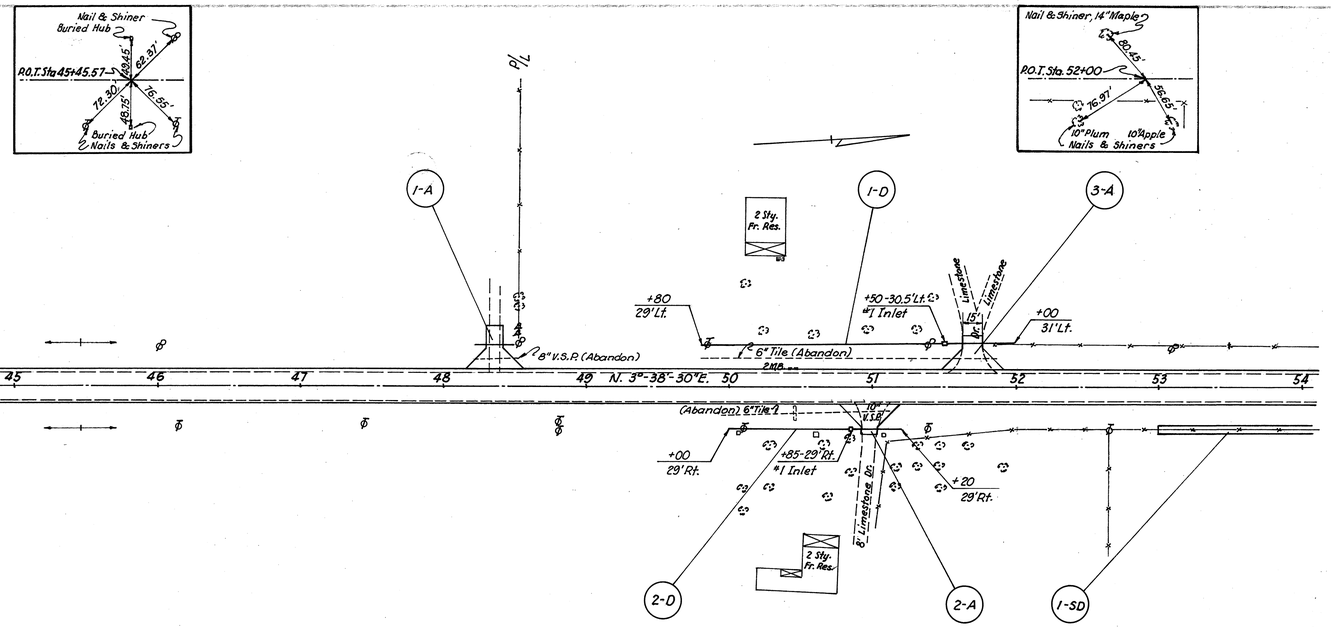


Sta. 32+00 to Sta. 43+00

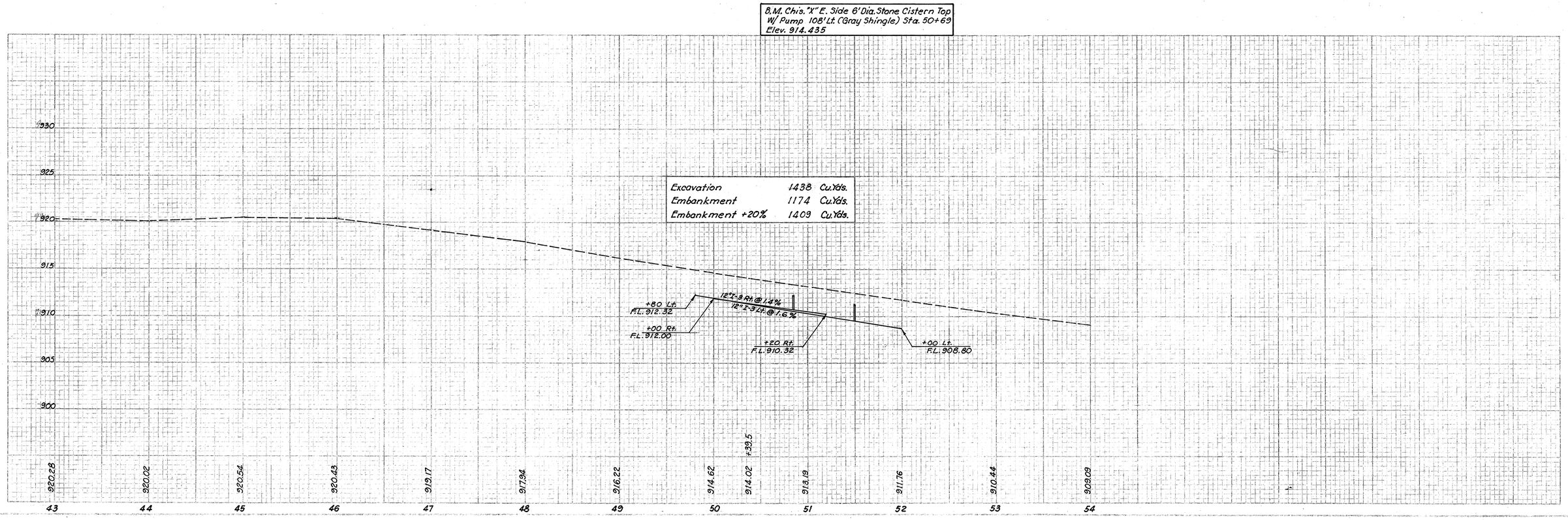
FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

13

LOR - 76-0.00 ; MED-76-15.08
LOR - 303-(16.40-16.63)-(16.69)



Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"		B-19 Aggregate Base Course Cu.Yds. 5"	6"	I-1 Pipe for Drive-ways Lin.Ft. 12"	I-3 Roadway Drainage Lin. Ft. Shallow Cover 12"		Under Drives 12"		I-8 #1 Inlets Each	L-10 Sodding 6' Wide Sq.Yds.	
1-A	48+36 Lt. L = 30'				10.8	28							
2-A	51+00 Rt. L = 20'	2.9		7.6									
3-A	51+70 Lt.-L=24'(W=15)	3.6		9.5									
1-D	49+80 to 52+00 Lt.						194		24		1		
2-D	50+00 to 51+20 Rt.						94		24		1		
1-SD	53+00 to 54+00-29' Lt.											67	
	TOTAL	6.5		27.9		28	288		48		2	67	



Sta. 43+00 to Sta. 54+00

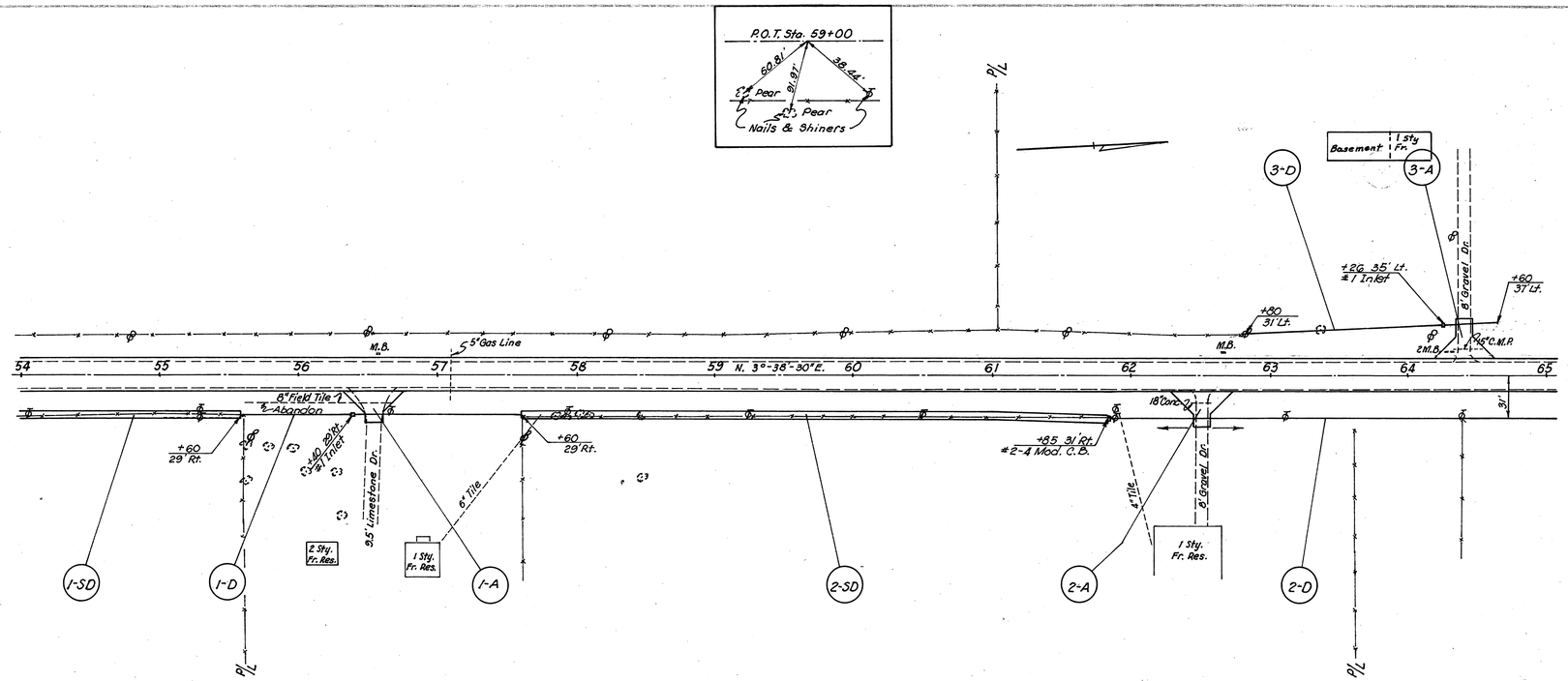
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

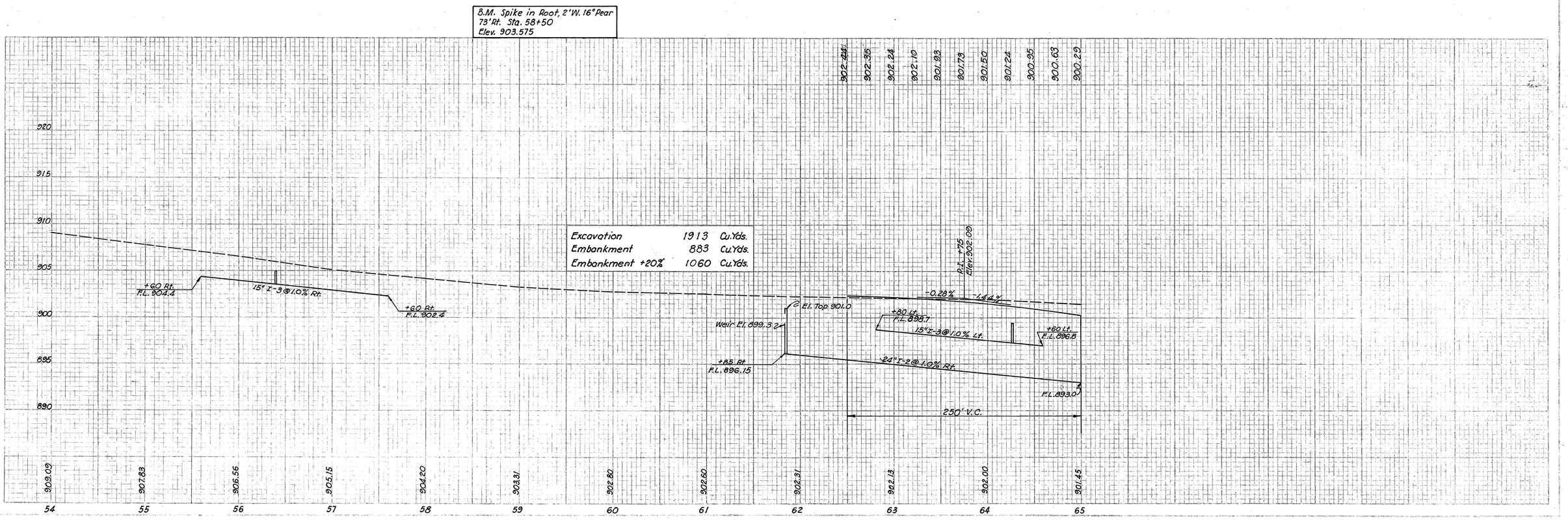
14

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"		B-19 Aggregate Base Course Cu.Yds. 5"		E-12 Pipe Removed Lin.Ft. 15" & Under	E-12 Pipe Removed Lin.Ft. Over 15"	L-10 Sodding 6' Wide Sq.Yds.				
1-A	56+55 Rt. L = 22'	3.0		8.0								
2-A	62+52 Rt. L = 25'	3.3		8.6			12					
3-A	64+41 Lt. L = 28'	3.5		9.2		22						
1-SD	54+00 to 55+60 Rt.							107				
2-SD	57+60 to 61+85 Rt.							283				
	TOTAL	9.8		25.8		22	12	390				

Ref. No.	Station	I-2 Storm Sewers Class "A" Lin.Ft. Std. 24"	I-2 Storm Sewers Class "A" Lin.Ft. Under Pav't. 24"	I-3 Roadway Drainage Lin.Ft. M-6.6(b)or M-6.8(b) 15"	I-3 Roadway Drainage Lin.Ft. Under Drives 15"	I-3 Roadway Drainage Lin.Ft. Std. 15"	I-8 Catch Basins #2-4 Mod. Each	I-8 Inlets #1 Each		
1-D	55+60 to 57+60 Rt.				20	178		1		
2-D	61+85 to 65+00 Rt.	294	20				1			
3-D	62+80 to 64+60 Lt.			178				1		
	TOTAL	294	20	178	20	178	1	2		



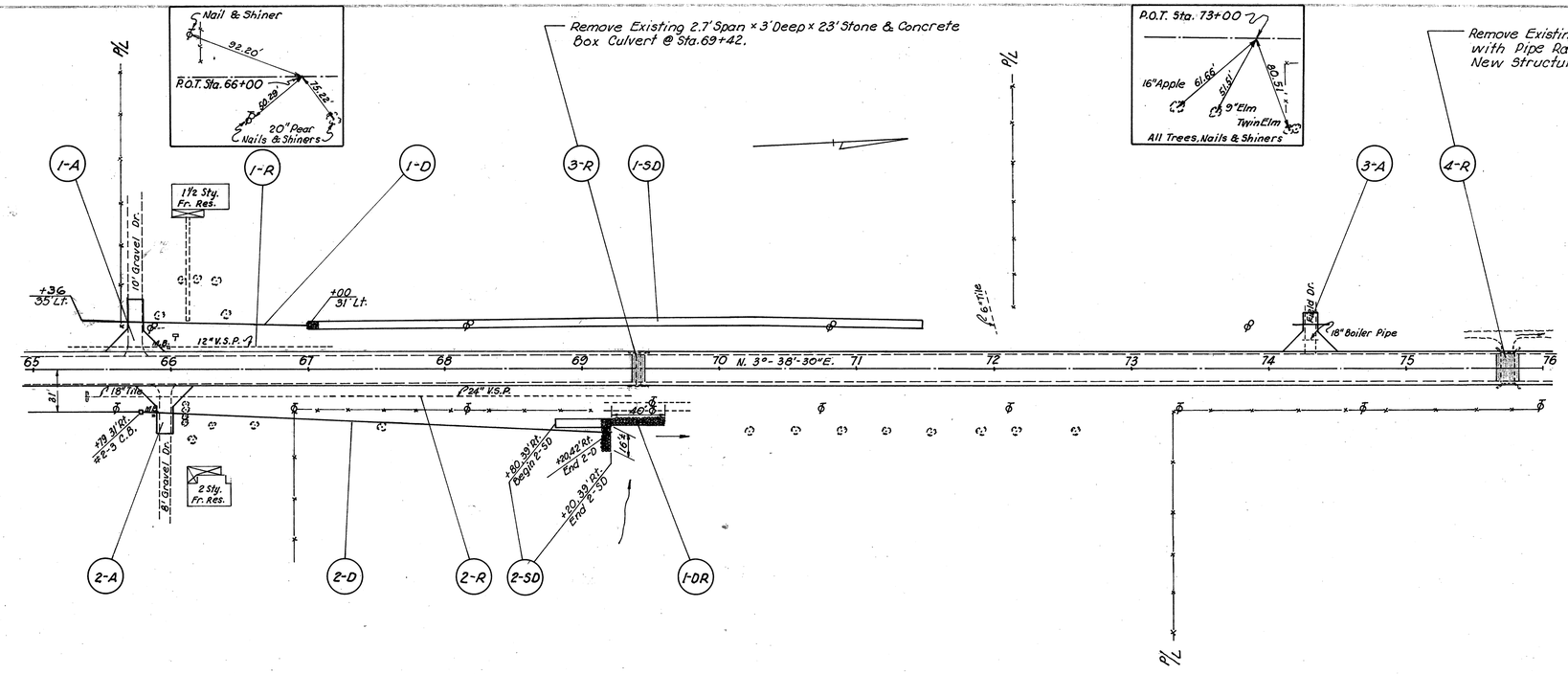


Sta. 54+00 to Sta. 65+00

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

15

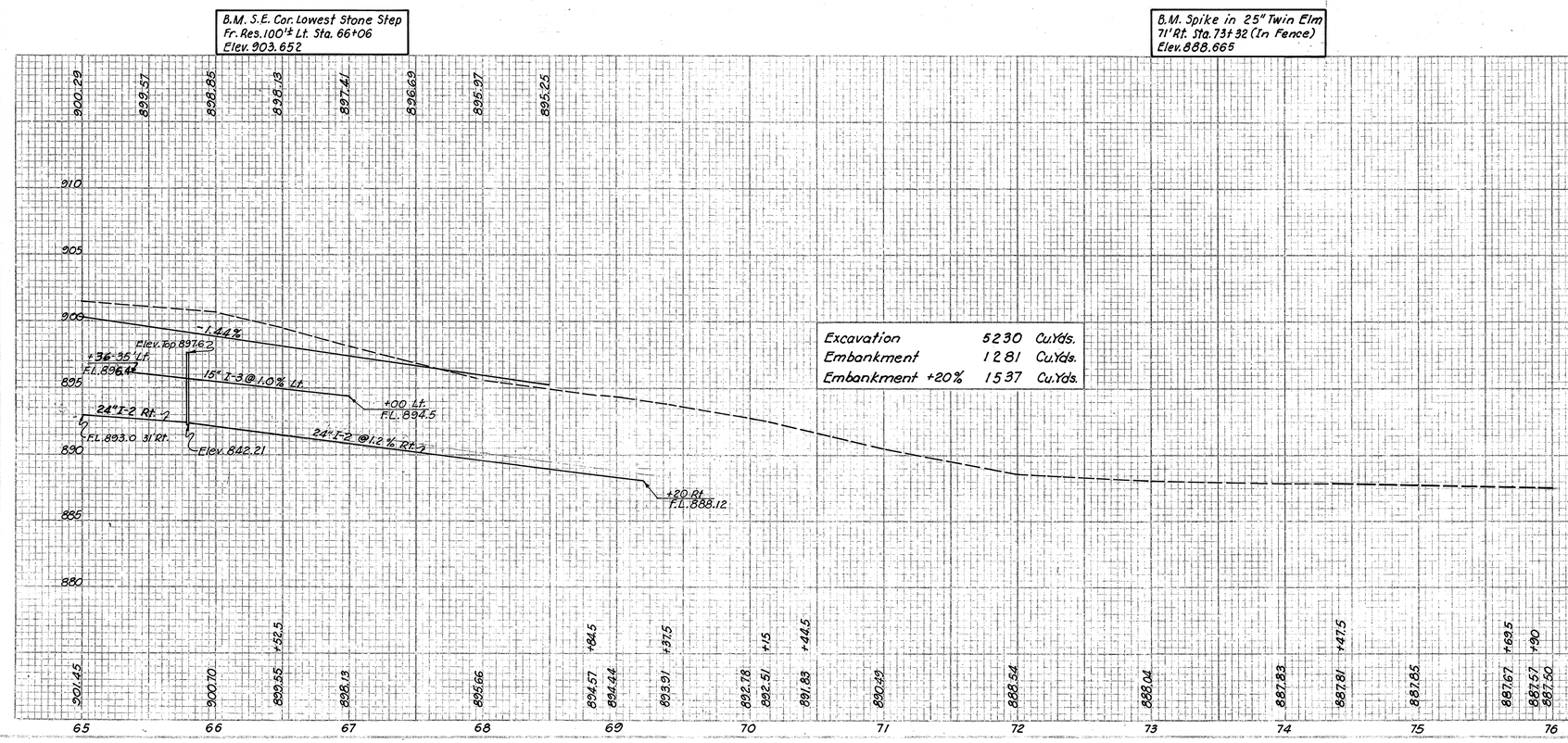
LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"		B-19 Aggregate Base Course Cu.Yds. 5"	6"	I-1 Pipe for Drive-ways Lin.Ft. 18"	S-24 Removal of Existing Structures Lump Sum	Base Replace-ment Type No.1 Sq.Yds.	E-12 Pipe Removed Lin.Ft. 15" & Under	Over 15"
1-A	65+74 Lt. L = 38'	4.2		11.2						
2-A	65+98 Rt. L = 35'	4.0		10.6						
3-A	74+30 Lt. L = 28'				10.4	28				12
1-R	65+30 to 67+18 Lt.								188	
2-R	65+39 to 69+37 Rt.									398
3-R	69+42						1	20		
4-R	75+75						1	36		
	TOTAL	8.2		32.2		28	2	56	188	410

Ref. No.	Station	I-2 Class "A" Storm Sewer Lin.Ft. Std. 24"	Under Pav't. 24"	I-3 Roadway Drainage Mt-6.6(a) or Mt-6.8(b) Lin.Ft. 15"	I-8 Catch Basins #2-3 Each	I-10 Dumped Rock Channel Protection Cu.Yds.	L-10 Sodding 6' Wide Sq.Yds.
1-D	65+36 to 67+00 Lt.			164		1*	
2-D	65+00 to 69+20 Rt.	394	24		1		
1-SD	67+04 to 71+50 Lt.						297
2-SD	68+80 to 69+20 Rt.						27
1-DR	69+20 to 69+60 Rt.					25@	
	TOTAL	394	24	164	1	26	324

*Approximately 3'x4'x2' deep at outlet of 1-D.
@ Dumped Rock shall extend 2' above ditch flow line and shall be 2' thick, normal to 3:1 slope - see Cross Sections.



Excavation	5230	Cu.Yds.
Embankment	1281	Cu.Yds.
Embankment +20%	1537	Cu.Yds.

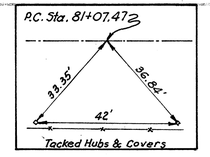
Sta. 65+00 to Sta. 76+00

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

16

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

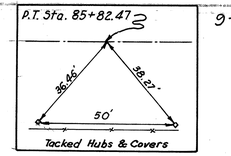
P.C. Sta. 81+07.47



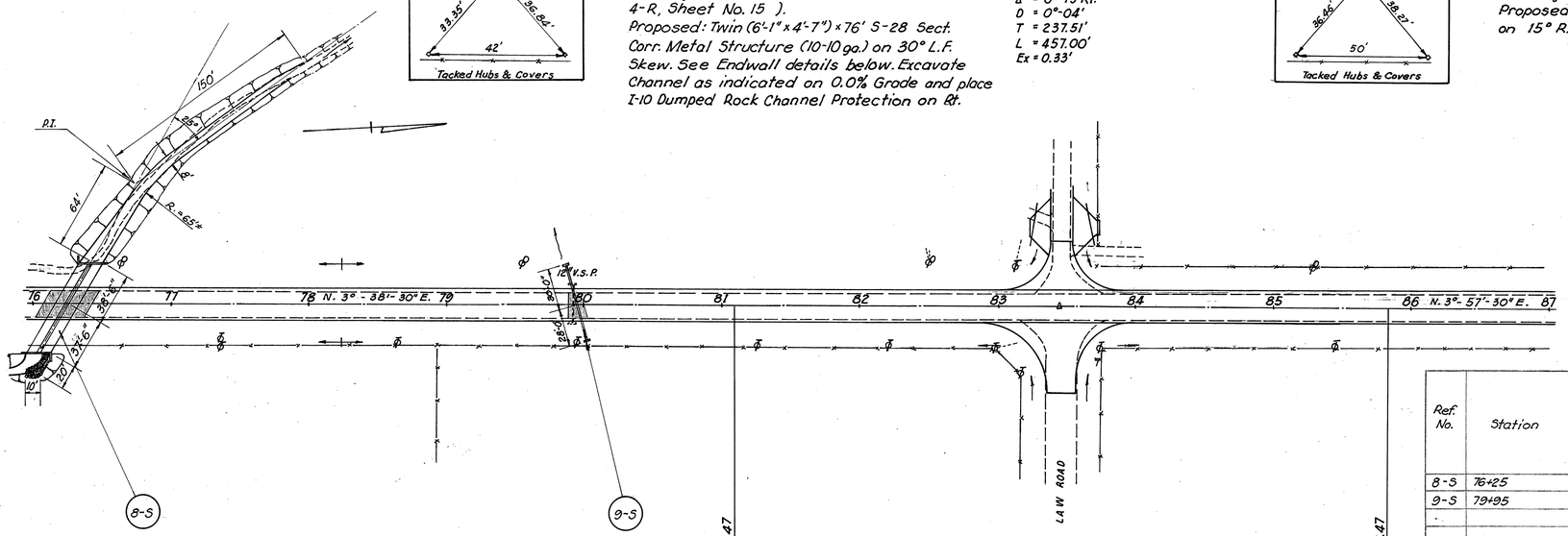
8-S: Structure No. LOR-76-0144
Sta. 76+25 D.A.=320 Acres Cover @ ℄ 2.2'
Existing: Structure to be removed (See 4-R, Sheet No. 15).
Proposed: Twin (6'-1" x 4'-7") x 76' S-28 Sect. Corr. Metal Structure (10-10 ga.) on 30° L.F. Skew. See Endwall details below. Excavate Channel as indicated on 0.0% Grade and place I-10 Dumped Rock Channel Protection on Rt.

CURVE DATA
P.I. 83+44.98
Δ = 0°-19'Rt.
D = 0°-04'
T = 237.51'
L = 457.00'
Ex = 0.33'

P.T. Sta. 85+82.47



9-S: Structure No. LOR-76-0151
Sta. 79+95 D.A. = 7Acres Cover @ ℄ 2.3'
Existing: 12" V.S.P. to be removed.
Proposed: 18"x58' S-27 Culvert Pipe, M-6.4(d), on 15° R.F. Skew with P.C.4 Endwalls.

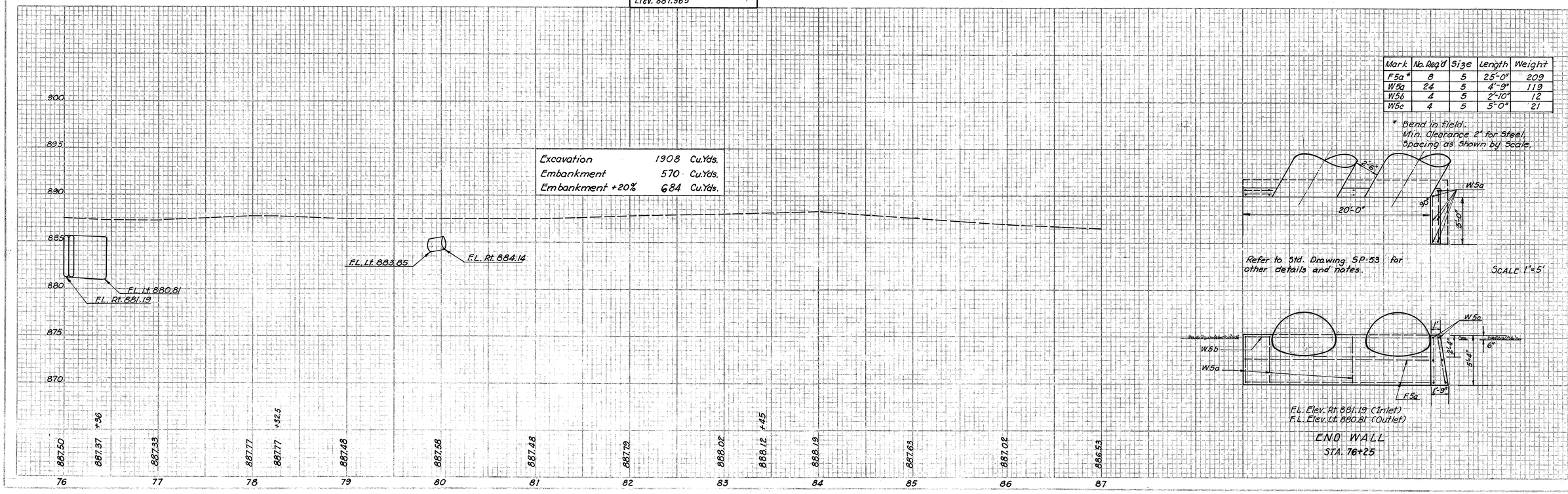


For Intersection & Drive Details See Sheet No. 53

B.M. Spike in Service Power Pole 168'Rt. Sta. 82+60 (100'S. Law Rd.) Elev. 887.365

Ref. No.	Station	E-2 Excavation for Structures	E-3 Channel Excavation	I-10 Dumped Rock Channel Protection	S-1 Concrete for Structures Class "E"	S-4 Reinforcing Steel	S-24 Removal of Existing Structures	S-27 18" Pipe for Roadway Culverts M-6.4 (d)	S-28 Sea. Corr. Metal Structure 6'1"x4'-7" 10-10 Gage	Base Replacement Type No. 1			
		Cu.Yds.	Cu.Yds.	Cu.Yds.	Cu.Yds.	Lbs.	Lump Sum	Lin.Ft.	Lin.Ft.	Sq.Yds.			
8-S	76+25	64	860	17 *	12.16	361			152	78			
9-S	79+95	21			0.60 @		1	58		22			
	TOTAL	85	860	17	12.76	361	1	58	152	100			

* Dumped Rock to be placed on Rt. side and to be 3' up on North side of Channel slope. 6'x30'x2.5' deep.
@ P.C.-4 End walls.



Mark	No. Req'd	Size	Length	Weight
F5a *	8	5	25'-0"	209
W5a	24	5	4'-9"	119
W5b	4	5	2'-10"	12
W5c	4	5	5'-0"	21

* Bend in field. Min. Clearance 2" for Steel. Spacing as shown by Scale.

Refer to Std. Drawing SP-53 for other details and notes.

SCALE 1"=5'

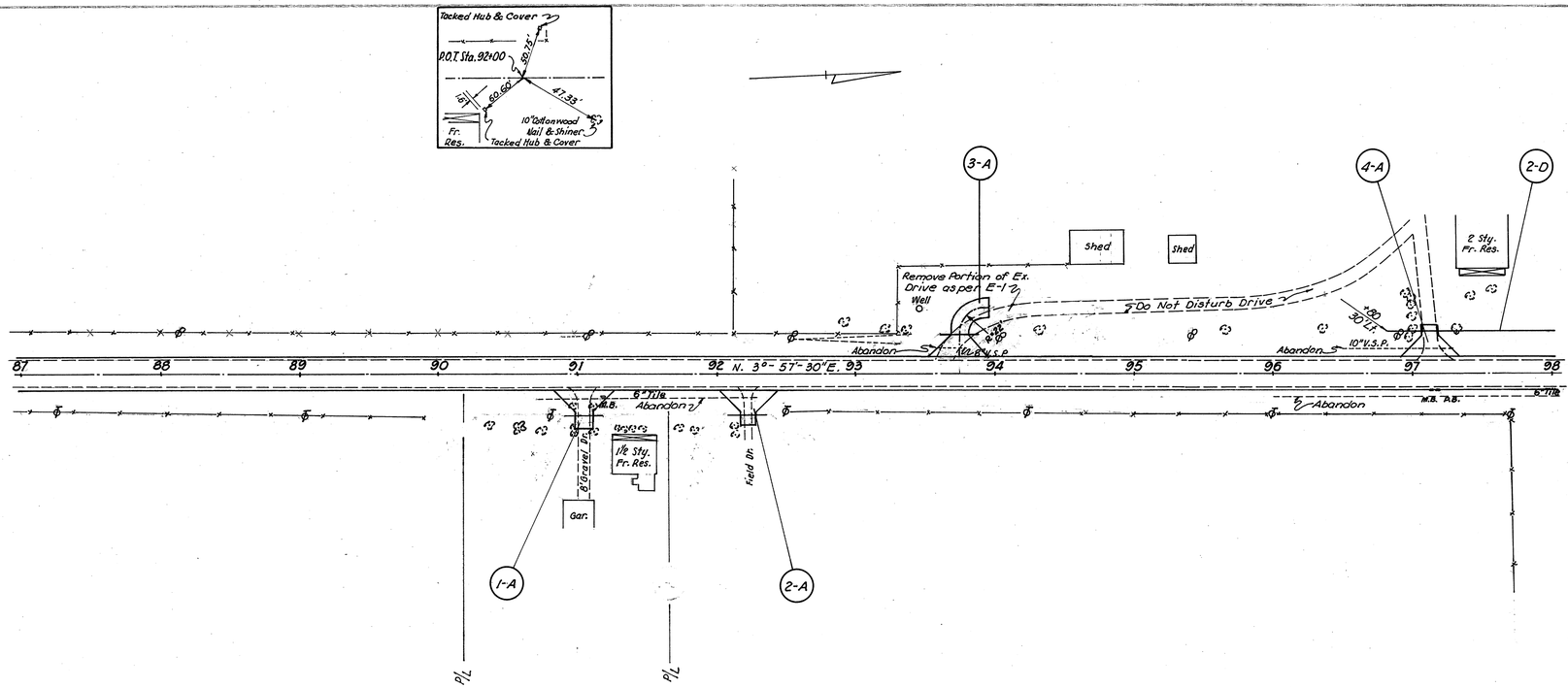
F.L. Elev. Rt. 881.19 (Inlet)
F.L. Elev. Lt. 880.81 (Outlet)

END WALL
STA. 76+25

Sta. 76+00 to Sta. 87+00

FED. RD. DIVISION	STATE	PROJECT		17
2	OHIO			

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

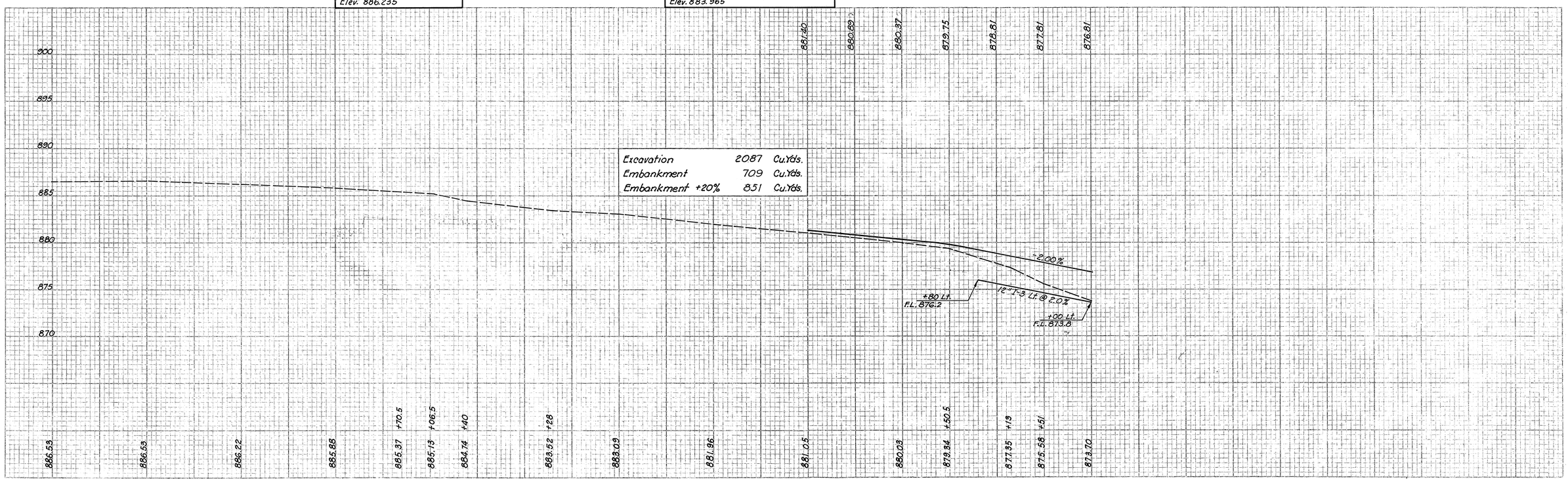


Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	B-19 Aggregate Base Course Cu.Yds. 5"	6"	I-1 Pipe for Drive-ways Lin.Ft. 12"	I-3 Roadway Drainage Lin.Ft. Std. 12"	Under Drives 12"
1-A	91+06 Rt. L=28	3.5	9.2		28		
2-A	92+20 Rt. L=25'			9.7	28		
3-A	93+75 Lt. L=50'	5.1	13.6		28		
4-A	97+13 Lt. L=23'	3.1	8.2				
2-D	96+80 to 98+00 Lt.					96	24
	TOTAL	11.7	40.7		84	96	24

B.M. Spike in W. Side 44" Oak
31' Rt. Sta. 89+94
Elev. 886.235

B.M. Spike in Root, S.E. Side 19" Elm
53.5' Lt. Sta. 93+34
Elev. 883.965

Excavation	2087	Cu.Yds.
Embankment	709	Cu.Yds.
Embankment +20%	851	Cu.Yds.



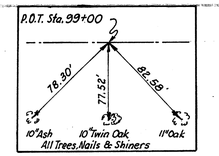
Sta. 87+00 to Sta. 98+00

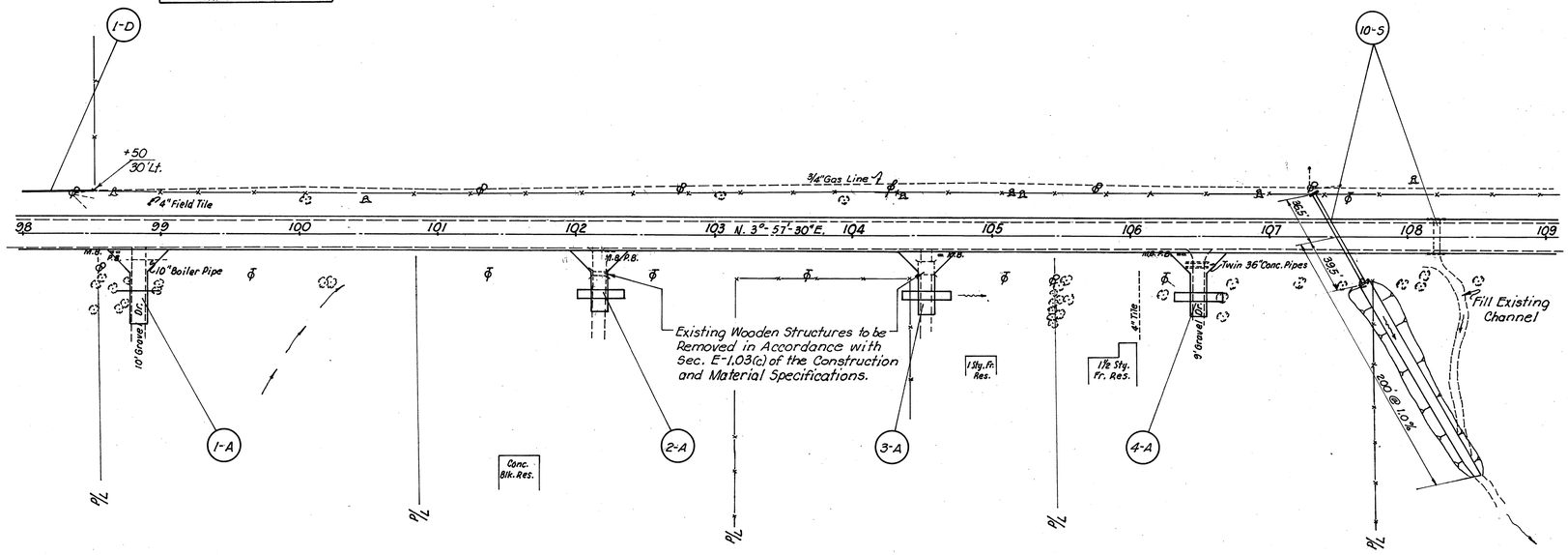
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

18

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

10-5: Structure No. LOR-76-0204
Sta. 107+50 D.A. = 50 Acres Cover @ ℄ 2.5'
Existing: 5.2' Span Concrete Box Culvert @ Sta. 108+22 to be removed.
Proposed: 42"×76' S-27 Culvert Pipe on 30° R.F. Skew with P.C.4 Endwalls.
Excavate Channel, 8' Bottom and 2:1 Slopes on Rt. as indicated.
Fill existing channel.





Ref. No.	Station	I-35 Asphaltic Concrete Surface Course 2" Cu.Yds.	B-19 Aggregate Base Course 5" Cu.Yds.	E-12 Pipe Removed Lin.Ft. 15" & Under	E-12 Pipe Removed Lin.Ft. Over 15"	I-1 Pipe for Driveways Lin.Ft. 18"	I-1 Pipe for Driveways Lin.Ft. 72"&44"	I-3 Roadway Drainage Lin.Ft. 12"
1-A	98+85 Rt. L=53'	5.3	14.1			32		
2-A	102+18 Rt. L=43'	4.6	12.2				34 *	
3-A	104+54 Rt. L=45'	4.7	12.6				34 *	
4-A	106+50 Rt. L=45'	4.7	12.6		32		36	
1-D	98+00 to 98+50 Lt.							50
	TOTAL	19.3	51.5		32	32	104	50

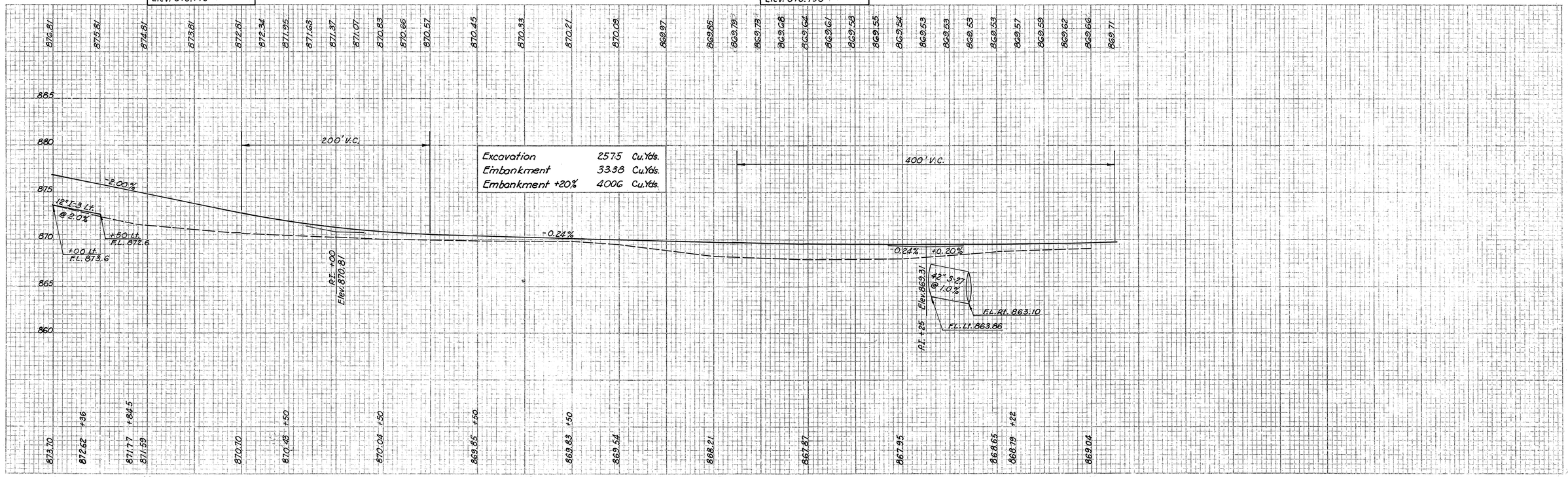
* Drive pipes shall be buried 4" to 6" below normal ditch to allow cover over pipe.

Ref. No.	Station	E-2 Excavation for Structures Cu.Yds.	E-3 Channel Excavation Cu.Yds.	S-1 Concrete for Structures Cu.Yds.	S-24 Removal of Existing Structures Lump Sum	S-27 Pipe for Roadway Culverts Lin.Ft. 42"
10-5	107+50	66	309 °	1.5	1	76 □
	TOTAL	66	309	1.5	1	76 □

° To be used to fill existing channel.
□ Sec. M-6.4 (d)

B.M. Spike in Twin Oak
76.5' Rt. Sta. 98+94
Elev. 870.745

B.M. Spike in 10" Locust
72.5' Rt. Sta. 105+35
Elev. 870.190



Excavation	2575	Cu.Yds.
Embankment	3338	Cu.Yds.
Embankment +20%	4006	Cu.Yds.

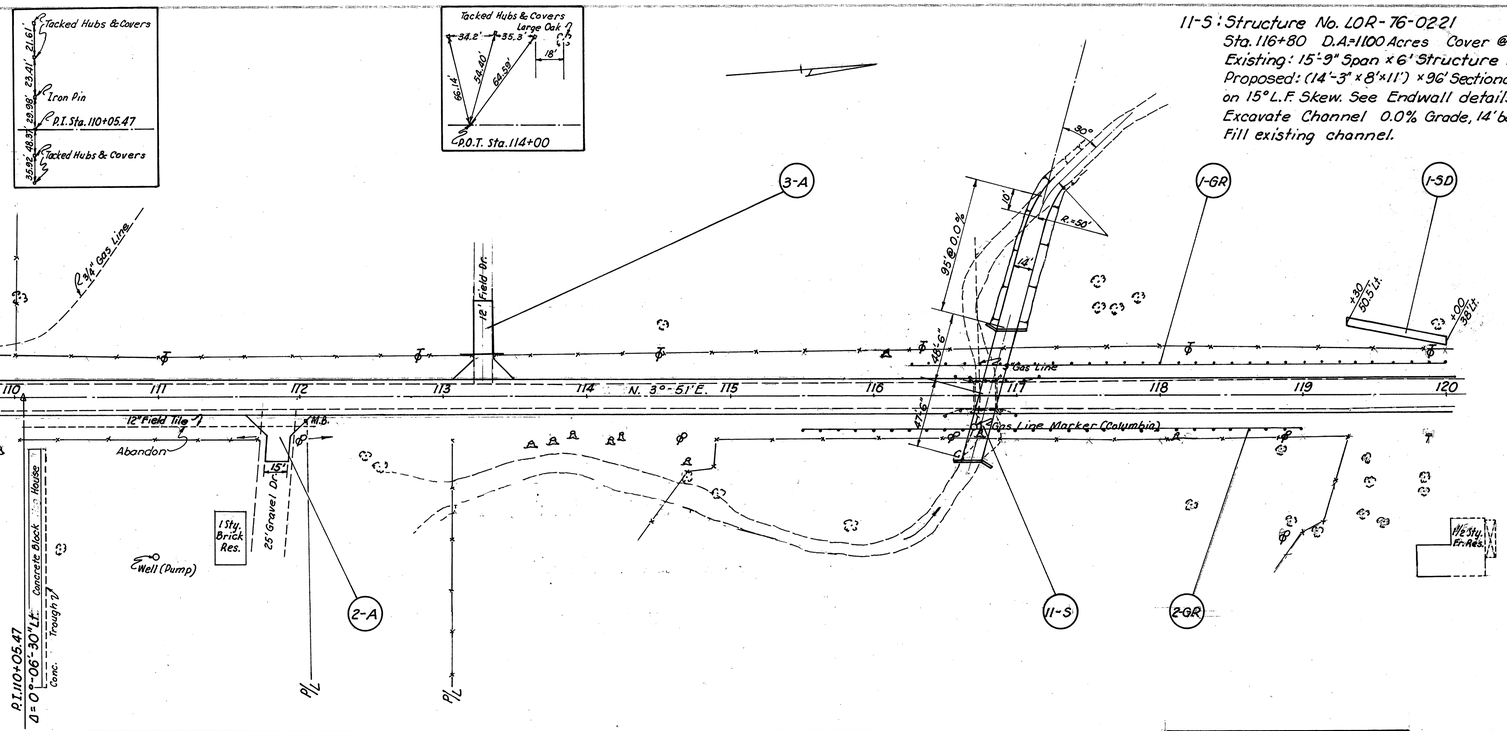
Sta. 98+00 to Sta. 109+00

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

19

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

11-S : Structure No. LOR-76-0221
Sta. 116+80 D.A.=1100 Acres Cover @ ℄ 6.3'
Existing: 15'-9" Span x 6' Structure to be removed.
Proposed: (14'-3" x 8'-11") x 96' Sectional Corrugated Metal Pipe Arch (7-5ga) on 15° L.F. Skew. See Endwall details below.
Excavate Channel 0.0% Grade, 14' bottom and 2:1 Slopes, on Lt. as indicated.
Fill existing channel.



Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	B-19 Aggregate Base Course Cu.Yds. 5"	B-19 Aggregate Base Course Cu.Yds. 6"	I-1 Pipe for Driveways Lin.Ft. 12"	I-15 Guard Rail Steel Beam Type Shallow Lin.Ft.	L-10 Sodding 6' Wide Sq.Yds.
1-A	109+27 Rt. L=33°@			14.0	28		
2-A	111+83 Rt. L=33°@	4.5	11.7				
3-A	113+28 Lt. L=55'			16.4	30		
1-GR	116+25 to 120+00 Lt.					375	
2-GR	115+50 to 119+00 Rt.					350	
1-SD	119+30 to 120+00 Lt.						47
	TOTAL	4.5	11.7	30.4	58	725	47

@ W = 15'

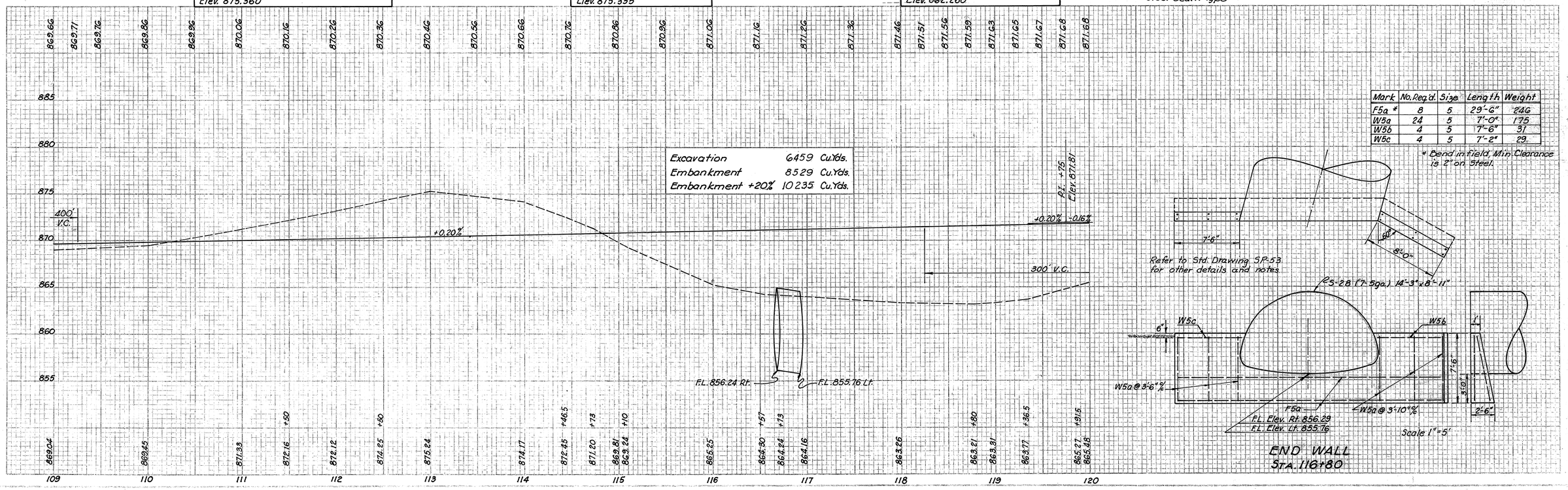
Ref. No.	Station	E-2 Excavation for Structures Cu.Yds.	E-3 Channel Excavation Cu.Yds.	S-1 Concrete for Structures Class "E" Cu.Yds.	S-4 Reinforcing Steel Lbs.	S-24 Removal of Existing Structures Lump Sum	S-28 Sectional Corrugated Metal Pipe Arch (7-5ga.) 14'-3" x 8'-11" Lin.Ft.	I-15 Guard Rail Removed & Disposed of Lin.Ft.
11-S	116+80	95	435	22.6	481	1	96	118 *
	TOTAL	95	435	22.6	481	1	96	118*

* Steel Beam Type

B.M. Spike in Root on N.E. Side 17" Hickory
69' Lt. Sta. 110+00
Elev. 875.360

B.M. Spike in E. Side 33" Oak
48' Lt. Sta. 114+51
Elev. 875.335

B.M. Spike in W. Side 17" Twin Elm
78' Rt. Sta. 118+20
Elev. 862.260



Mark	No. Req'd.	Size	Length	Weight
F5a *	8	5	29'-6"	246
W5a	24	5	7'-0"	175
W5b	4	5	7'-6"	31
W5c	4	5	7'-2"	29

* Bend in field, Min. Clearance is 2" on Steel.

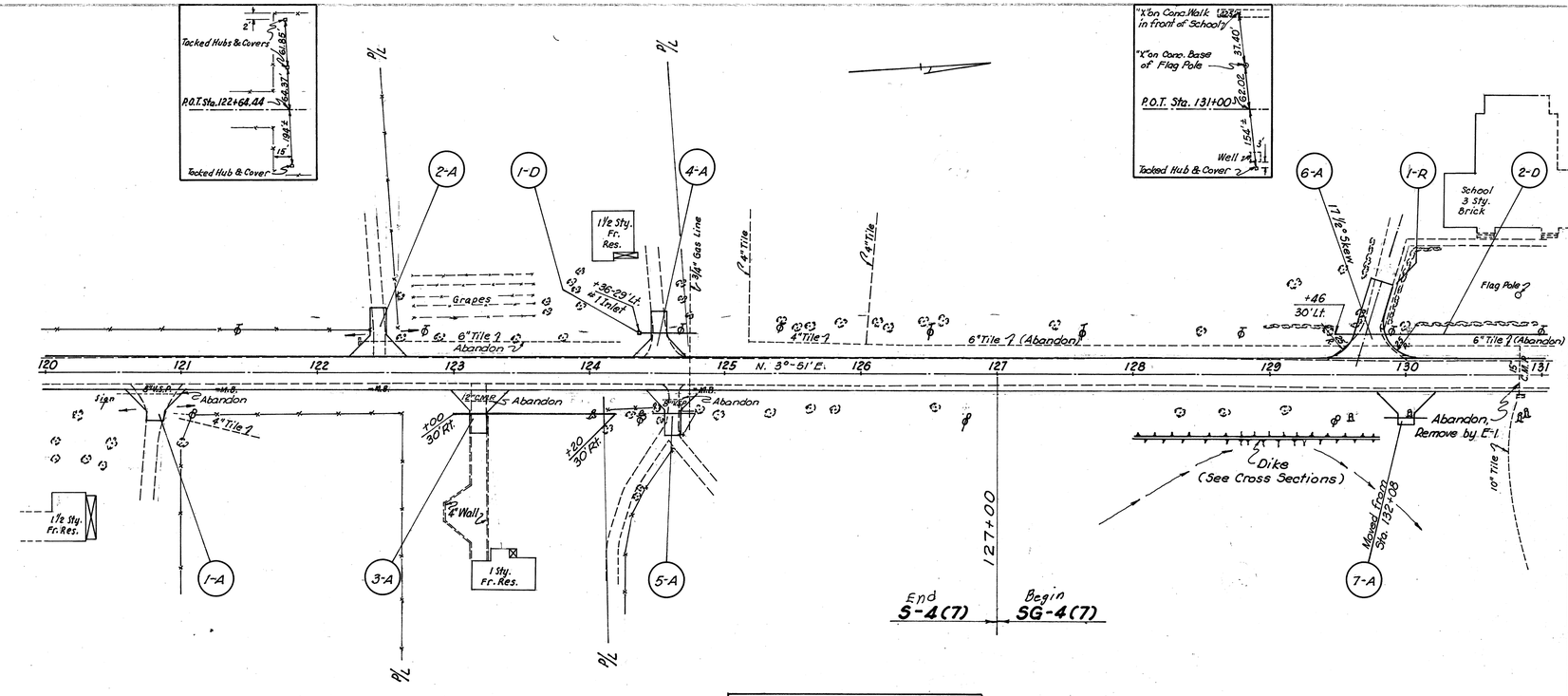
END WALL
STA. 116+80

Sta. 109+00 to Sta. 120+00

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

20

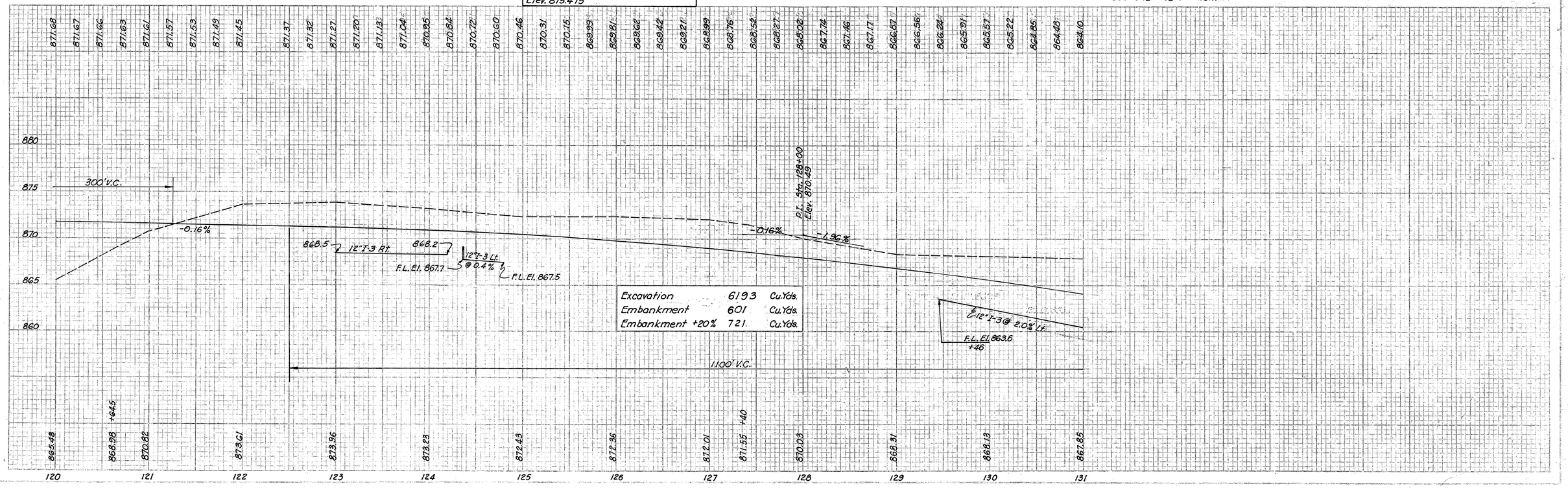
LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



B.M. Chis. "X" on N.E. Cor. Conc. Walk
81' Lt. Sta. 124+84
Elev. 873.475

Ref. No.	Station	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	B-19 Aggregate Base Course Cu.Yds. 5"	B-19 Aggregate Base Course Cu.Yds. 6"	I-1 Pipe for Drive-ways Lin.Ft. 12"	I-3 Roadway Drainage Lin.Ft. Std. 12"	I-3 Roadway Drainage Lin.Ft. Under Drives 12"	I-8 Inlets No.1 Each	E-8 Remove & Dispose Existing Walk Sq.Ft.
1-A	120+82 Rt. L=23'	3.1	8.2						
2-A	122+48 Lt. L=35'			11.9					
3-A	123+20 Rt. L=32'	3.8	10.0			90	30		
4-A	124+54 Lt. L=33'	3.8	10.2						
5-A	124+60 Rt. L=33'	3.8	10.2		34				
6-A	129+73 Lt. L=55 W=16'	7.1		26.2*					
7-A	130+00 Rt. L=23'			9.3	30				
1-D	124+36 to 124+80 Lt.						42	1	
2-D	129+46 to 131+00 Lt.					124	30		
1-R	129+73 40' to 67' Lt.								135
	TOTAL	21.6		86.0	64	214	102	1	135

*Base shall be 7" thick.



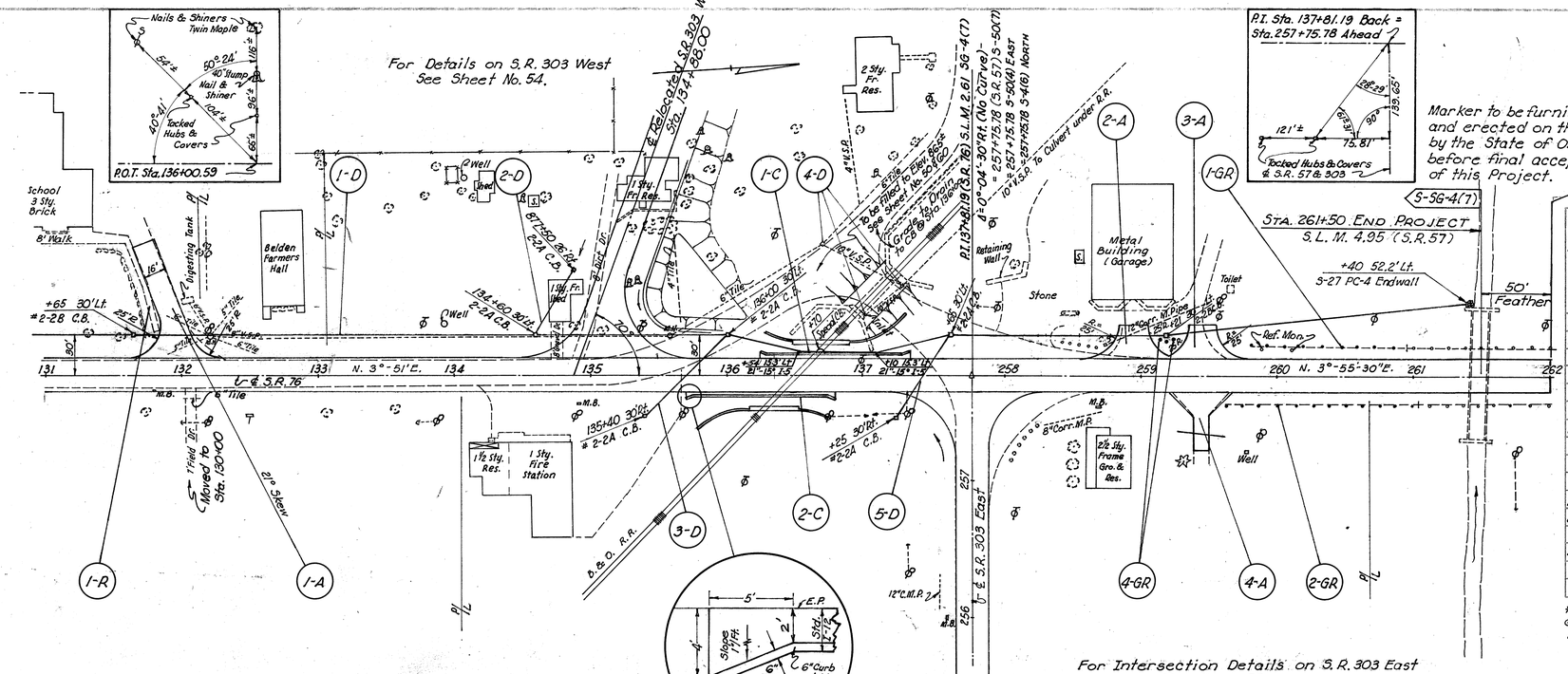
Excavation	6193	Cu.Yds.
Embankment	601	Cu.Yds.
Embankment +20%	721	Cu.Yds.

Sta. 120+00 to Sta. 131+00

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

21

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

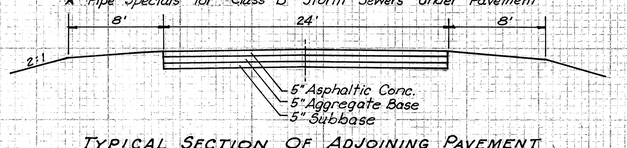


Ref. No.	Station	B-19 Aggregate Base Course Cu.Yds. 6"	7"	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	I-1 Pipe for Driveways Lin.Ft. 12"	I-12 Concrete Curb & Gutter Type 2 As per Plan Lin.Ft.	I-15 Guard Rail Removed & Rebuilt Lin.Ft.	I-15 Wood Guard Rail Posts With out Rail Each	E-8 Removal & Disposal of Existing Sidewalk Sq.Ft.	I-10 Dumped Rock Channel Protection Cu.Yds.
1-A	132+08 Lt. L=92' W=16'		40.0	10.7						
2-A	258+96 Lt. L=25' W=20'		20.8	5.5						
3-A	259+46 Lt. L=25' W=20'		20.8	5.5						
4-A	259+43 Rt. L=40'	13.1			34					
1-C	136+25 - 137+35 Lt.					110 °				
2-C	135+70 - 136+80 Rt.					110 °				
1-R	131+90 40 to 94' Lt.								270	
1-GR	259+82 - 260+94.5 Lt.						112.5 *			
2-GR	259+65 - 261+02.5 Rt.						137.5 *			
4-GR	259+15 - 259+27 Lt.							3		
1-D[a]	131+00 - 261+40 Lt.									3
	TOTALS	94.7	21.7		34	220 °	250.0*	3	270	3

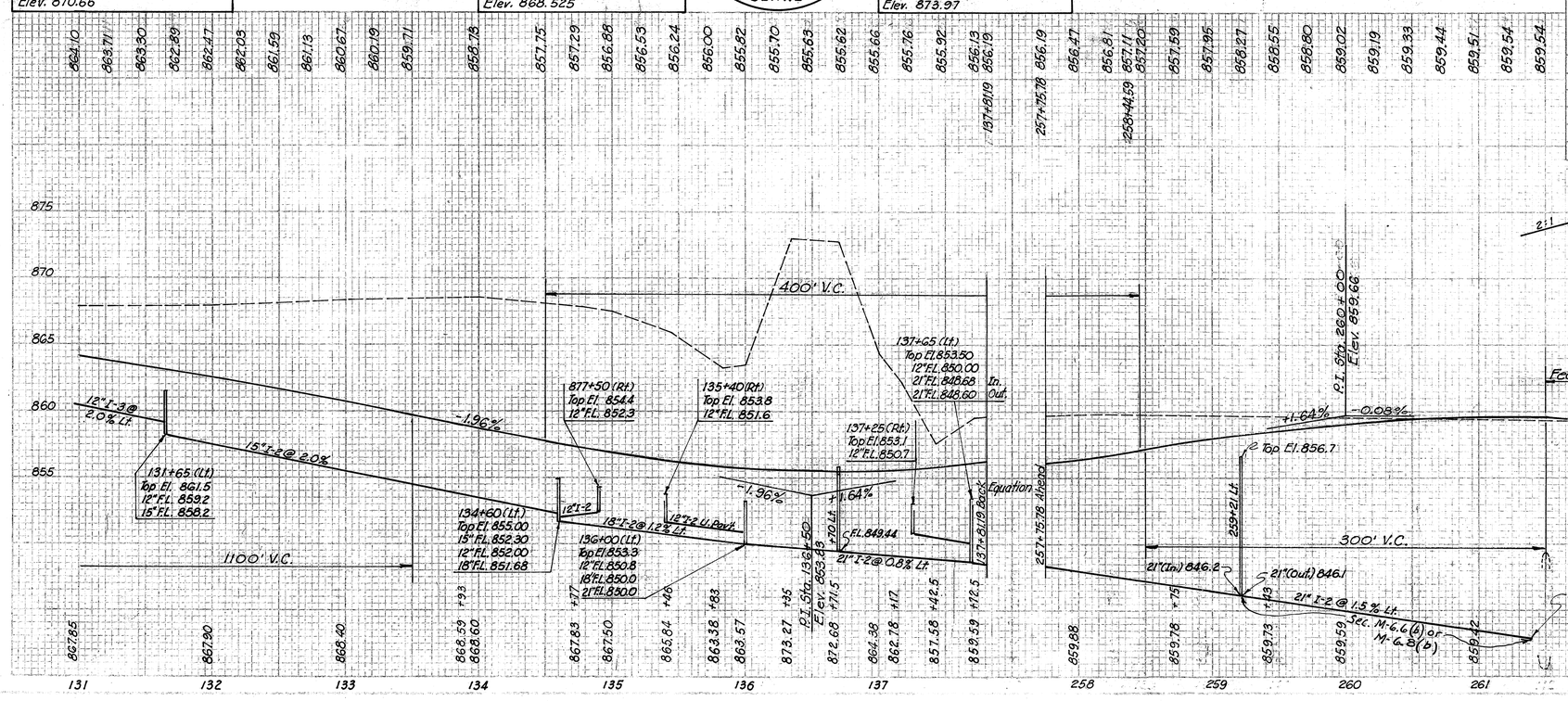
* 8' from Edge of Pavement.
° Curb Endings shall be Flared and Tapered as per Detail on this Sheet, Cost to be included in Item I-12.
[a] Reference No. appears in both Tables.

Ref. No.	Station	I-2 Storm Sewers Class "B" Lin. Ft. Std. 12"	15"	18"	21"	Under Pavement 21"	12"	15"	18"	I-5 15° Bend Each	I-3 Roadway Drainage 21"	12" Lin.Ft.	I-16 Catch Basins Abandoned Each	I-8 Catch Basins Each #2.1A	#2.1B	Special	S-1 Concrete for Structure Class "E" Cu.Yds.
1-D[a]	131+00 - 261+40 Lt.	-	244	52	436	100	-	50	86	2*	64			3	2	1	0.4
2-D	134+60 Lt. - 877+50 Rt.	54												1			
3-D	135+40 Rt. - 136+00 Lt.					84								1			
4-D	As Shown 137+0± Lt.												3				
5-D	137+25 Rt. - 137+65 Lt.					70								1			
	TOTALS	54	244	52	436	100	154	50	86	2*	64		3	6	2	1	0.4

★ Pipe Specials for Class B Storm Sewers Under Pavement



TYPICAL SECTION OF ADJOINING PAVEMENT

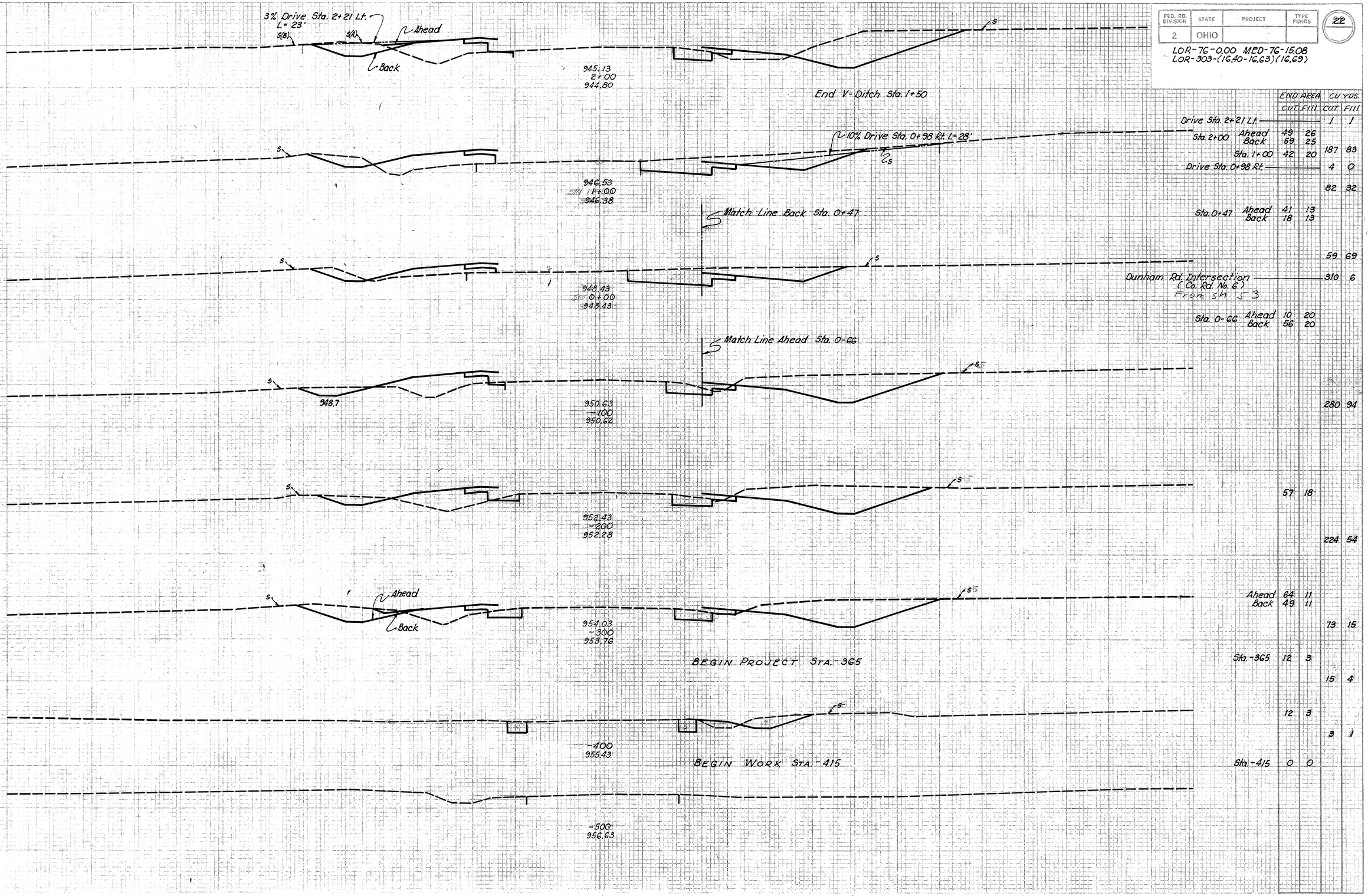


Sta. 131+00 to Sta. 262+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

22

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



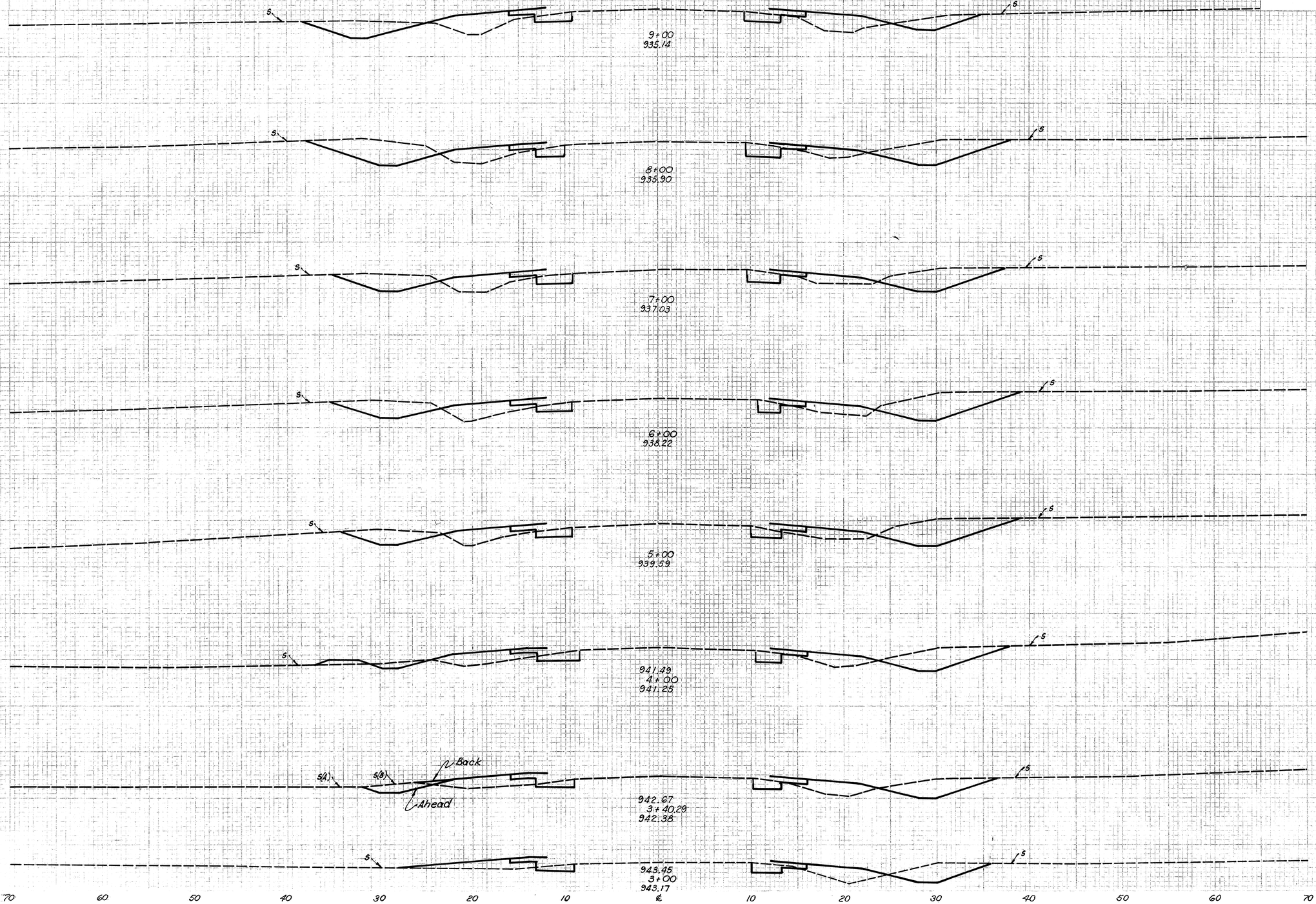
		END AREA CUT	END AREA FILL	CU YDS. CUT	CU YDS. FILL
Drive Sta. 2+21 Lt.				1	1
Sta. 2+00	Ahead	49	26		
	Back	59	25		
Sta. 1+00		42	20	187	83
Drive Sta. 0+98 Rt.				4	0
				82	32
Sta. 0+47	Ahead	41	13		
	Back	18	13		
				59	69
Dunham Rd. Intersection (Co. Rd. No. 6) From sh S-3				310	6
Sta. 0-66	Ahead	10	20		
	Back	56	20		
				280	94
				57	18
				224	54
	Ahead	64	11		
	Back	49	11		
				73	15
Sta. -365		12	3		
				15	4
				12	3
				3	1
Sta. -415		0	0		

Sta. -5+00 To 2+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

23

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	30	28		
			137	85
	44	18		
			156	65
	40	17		
			159	70
	46	21		
			165	72
	43	18		
			133	70
	29	20		
			60	44
Ahead	25	20		
Back	20	20		
			30	30
	20	20		
Sta. 2+00 Ahead	49	26	128	85

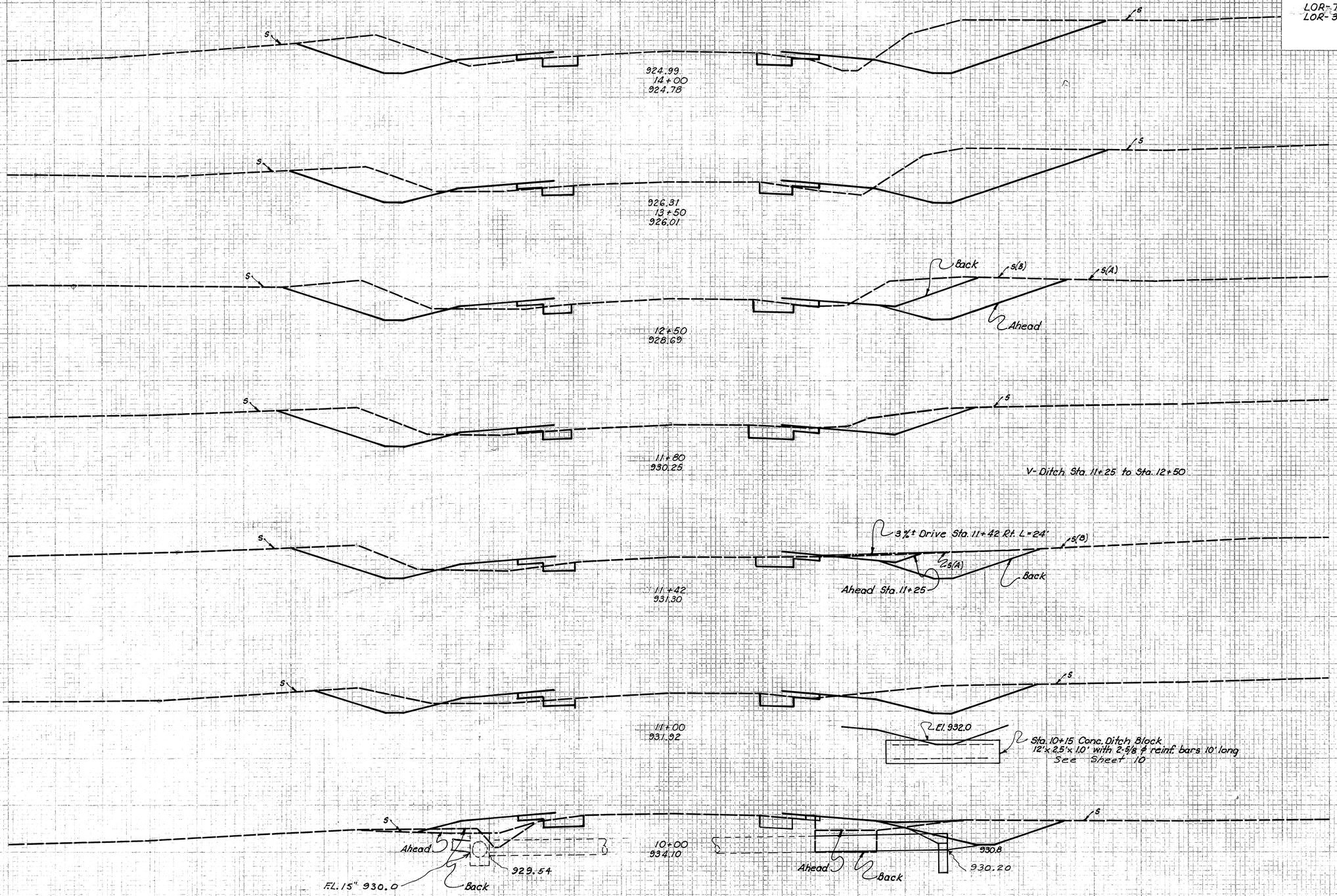
70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

Sta. 3+00 To Sta. 9+00

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

24

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	113	11		
			208	19
	111	9		
			391	26
Ahead	100	5		
Back	60	5		
			157	11
	61	3		
			68	7
	35	7		
			22	4
Drive Sta. 11+42 Rt.			6	2
Sta. 11+25 Ahead	35	7		
Sta. 11+25 Back	60	7		
			54	7
	56	7		
			167	57
Ahead	34	24		
Back	35	41		
			119	128
Sta. 9+00	30	28		

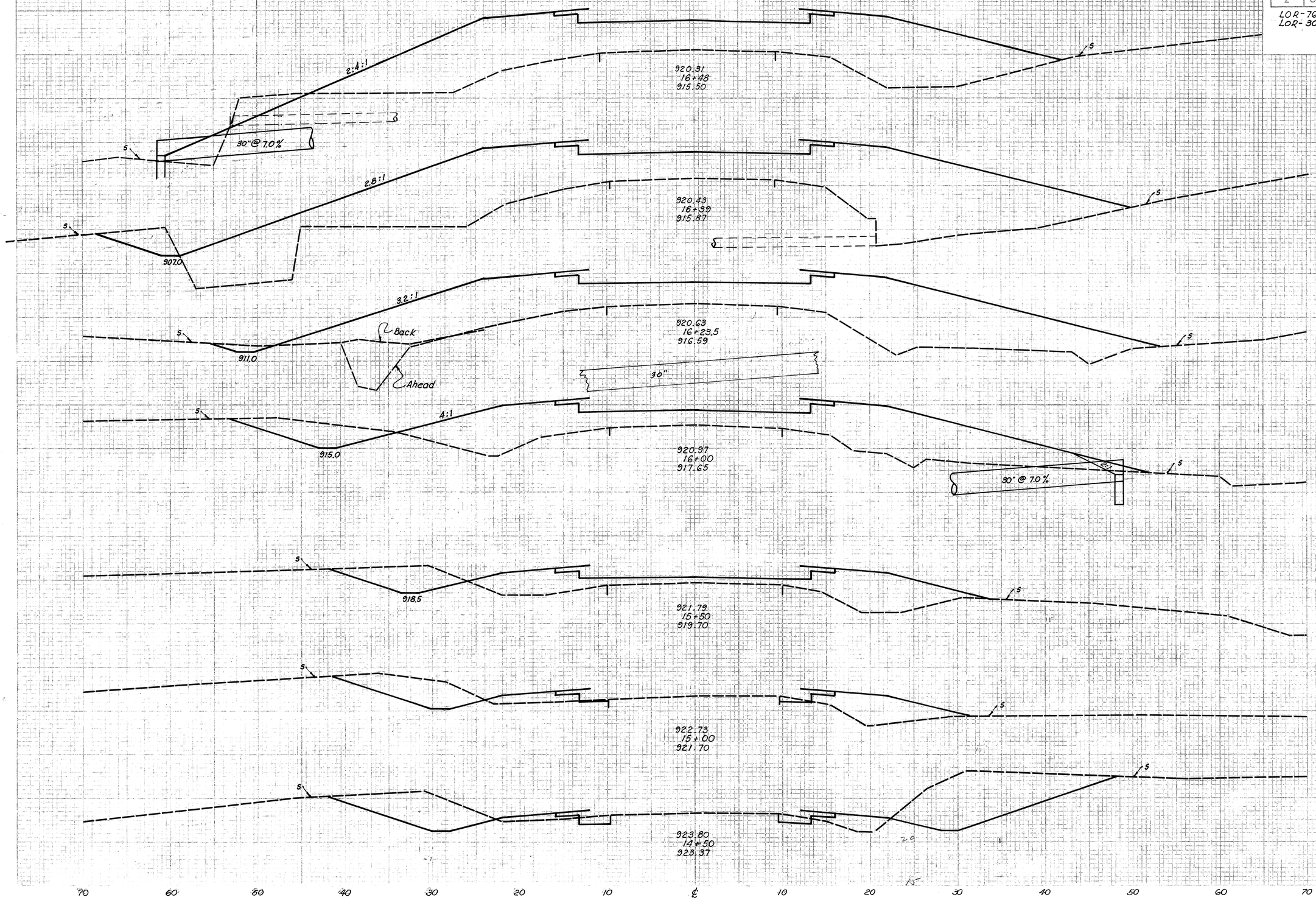
70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

Sta. 10+00 To Sta. 14+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

25

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



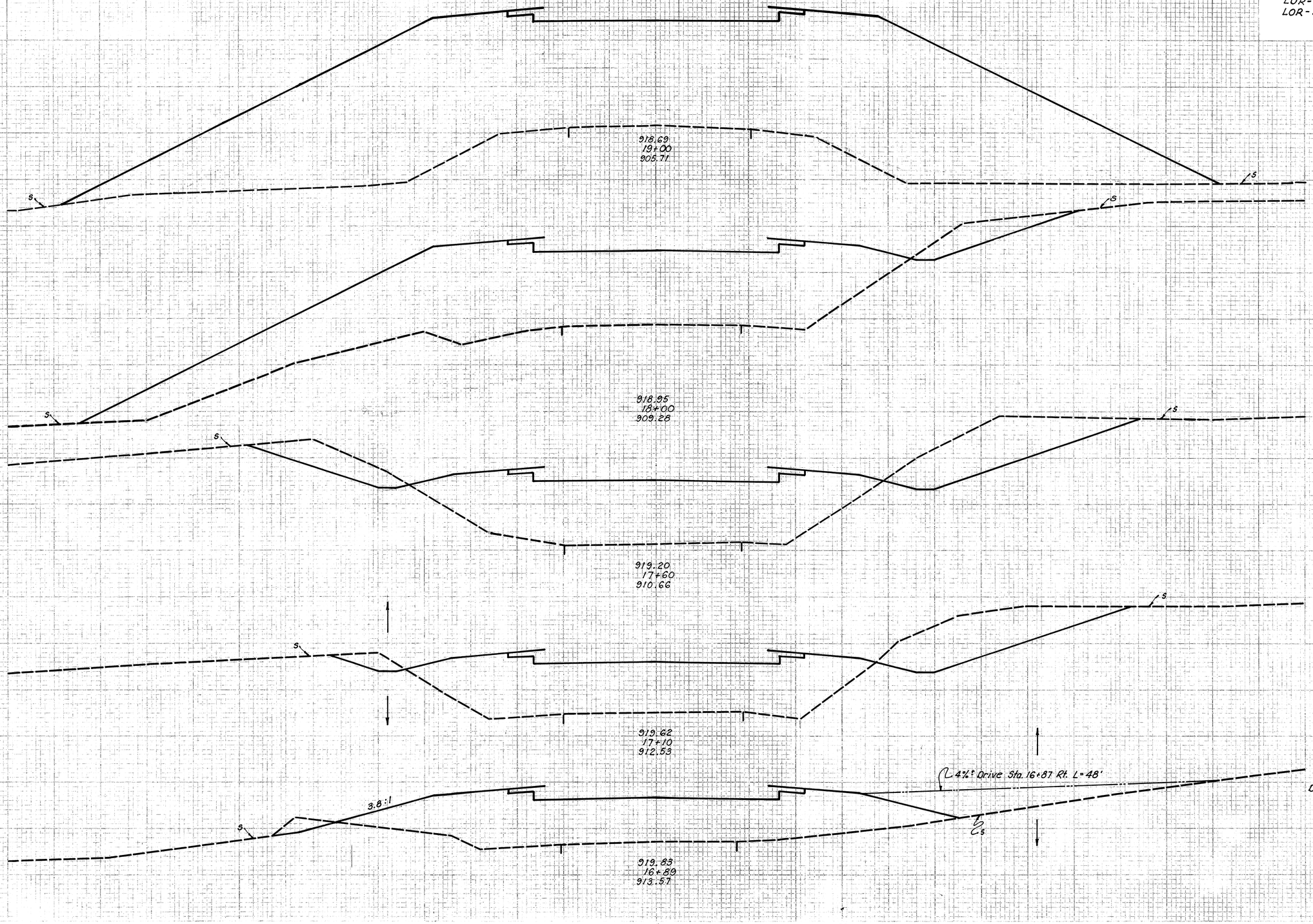
	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	15	395		
			5	179
	16	557		
			5	279
Ahead	3	415		
Back	3	385		
			15	278
	31	253		
			55	335
	28	109		
			60	142
	36	44		
			162	55
	139	15		
			234	24
Sta. 14+00	113	11		

Sta. 14+50 To Sta. 16+48

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

26

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

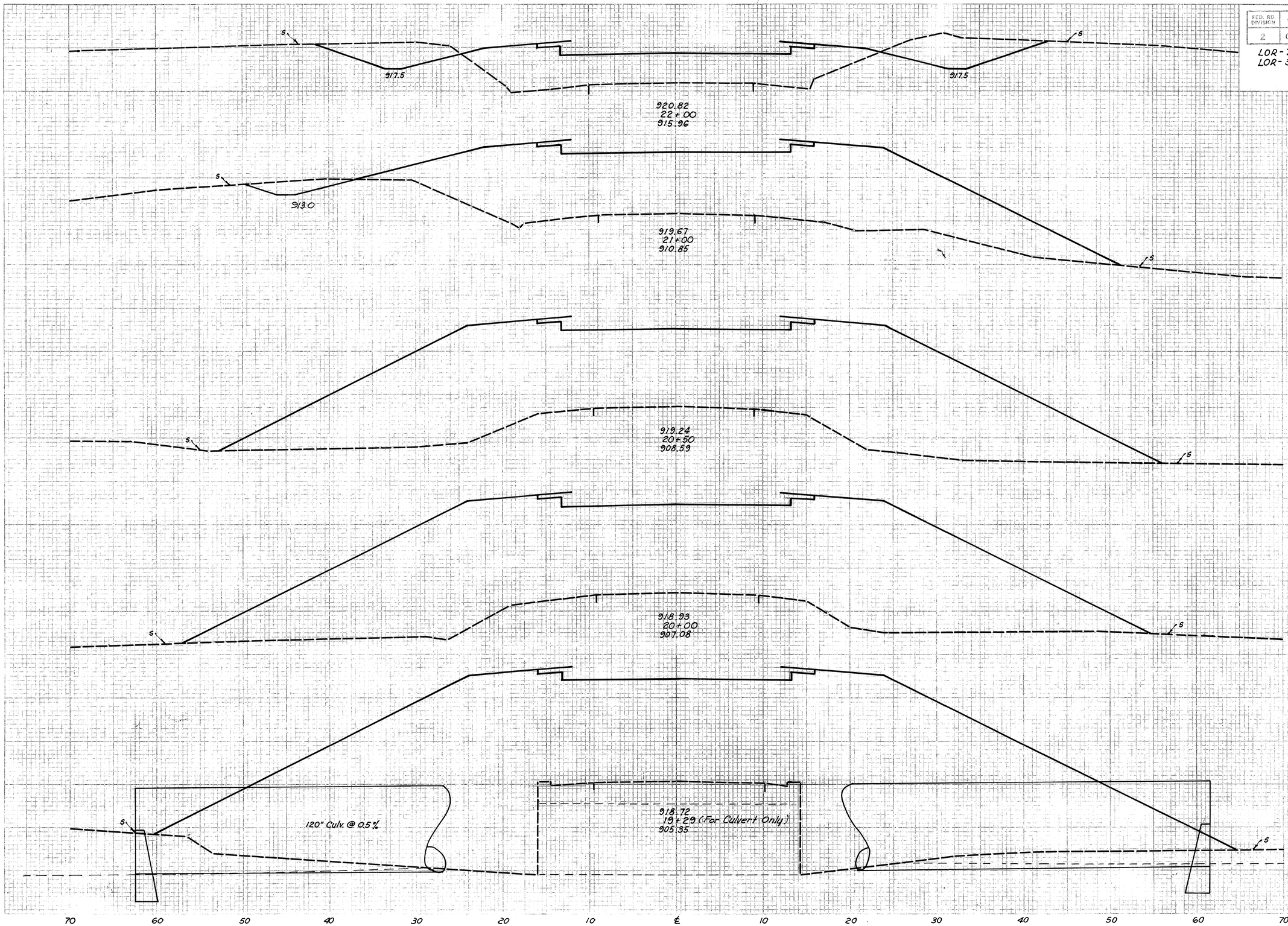


END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
0	1287		
		52	3474
28	589		
		110	652
121	291		
		201	502
96	251		
		40	202
7	268		
Drive Sta. 16+87 Rt.		3	45
		17	503
Sta. 16+48	15	395	

FED. RD DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

27

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



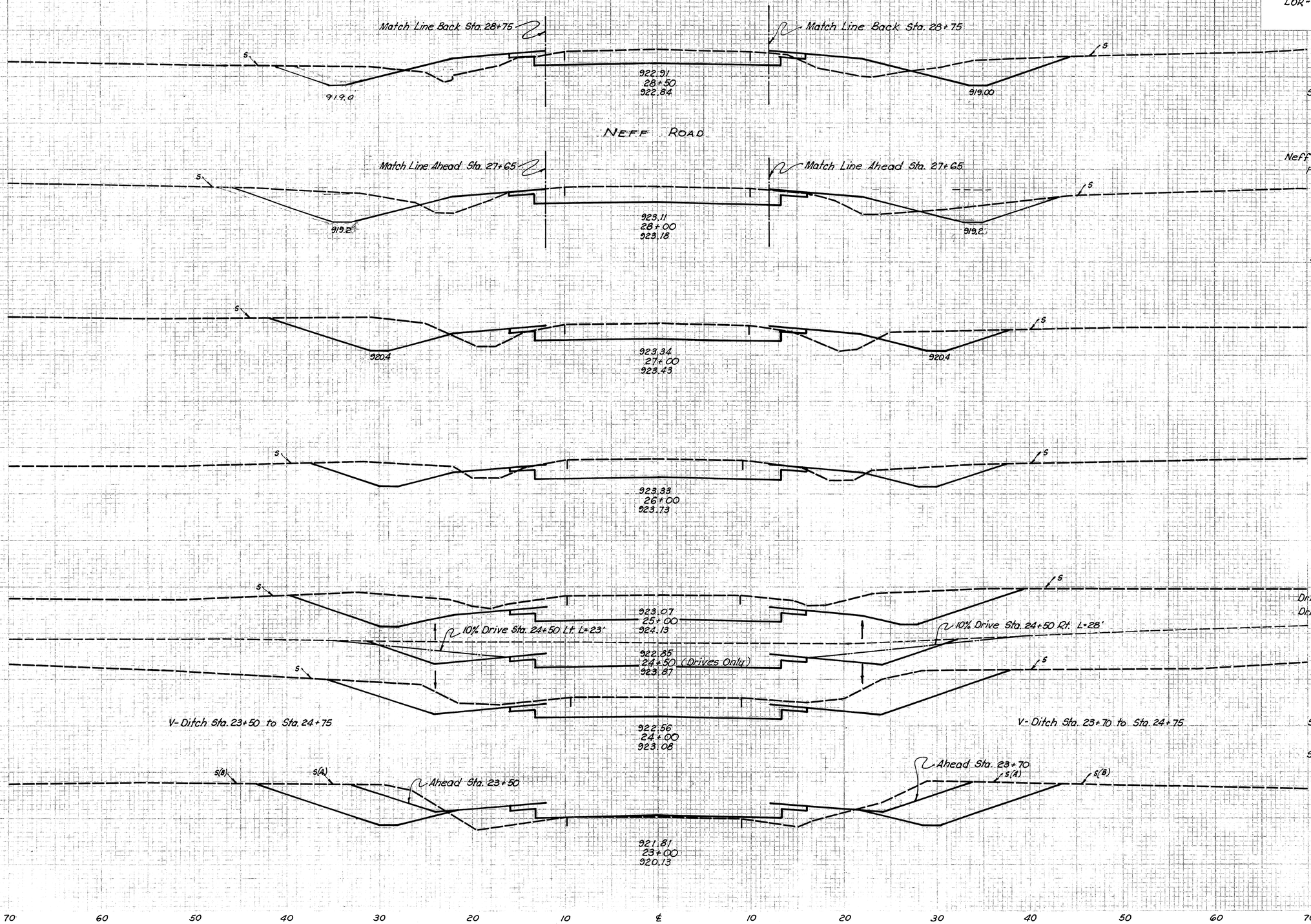
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
74	165		
		137	1311
0	543		
		0	1380
0	947		
		0	1847
0	1047		
		0	4323
Sta. 19+00	0	1287	

Sta. 19+29 To Sta. 22+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

28

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



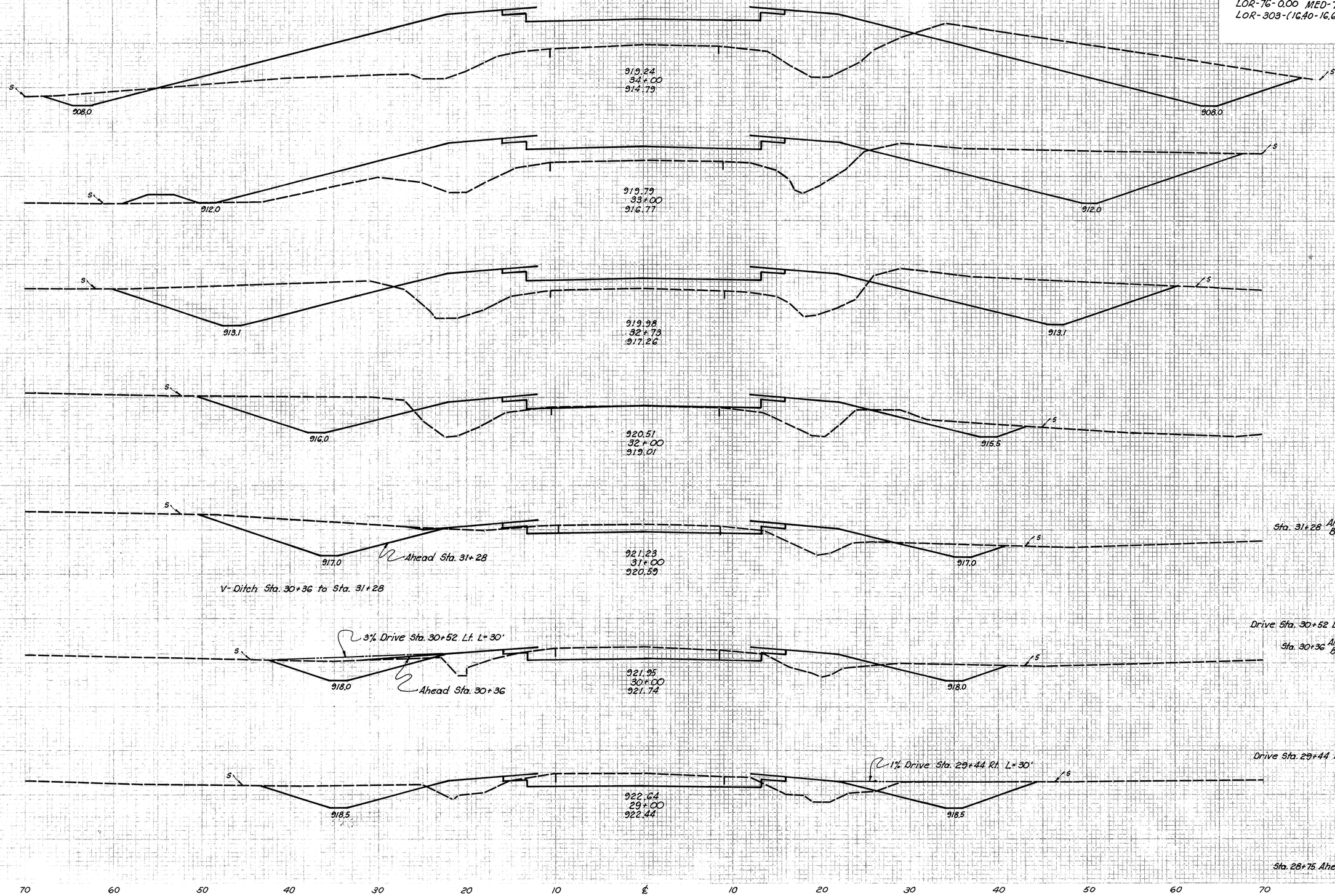
		END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
Sta. 28+75	Ahead	79	30		
	Back	36	0		
				33	0
Sta. 28+50		36	0		
				75	0
Neff Rd. Intersection From Sh 3				268	93
		45	0		
				58	0
Sta. 27+65	Ahead	45	0		
	Back	103	22		
				236	48
		101	18		
				365	54
		96	11		
				480	20
		163	0		
Drive Sta. 24+50 Lt.				2	0
Drive Sta. 24+50 Rt.				4	0
				535	0
		126	0		
				140	0
Sta. 23+70	Ahead	126	0		
	Back	66	0		
				49	11
Sta. 23+50	Ahead	66	29		
	Back	106	29		
				197	54
		106	29		
				333	359
Sta. 22+00		74	165		

Sta. 23+00 To Sta. 28+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

29

LOR-76-0.00 MED-76-1508
LOR-303-(16.40-16.63)(16.69)



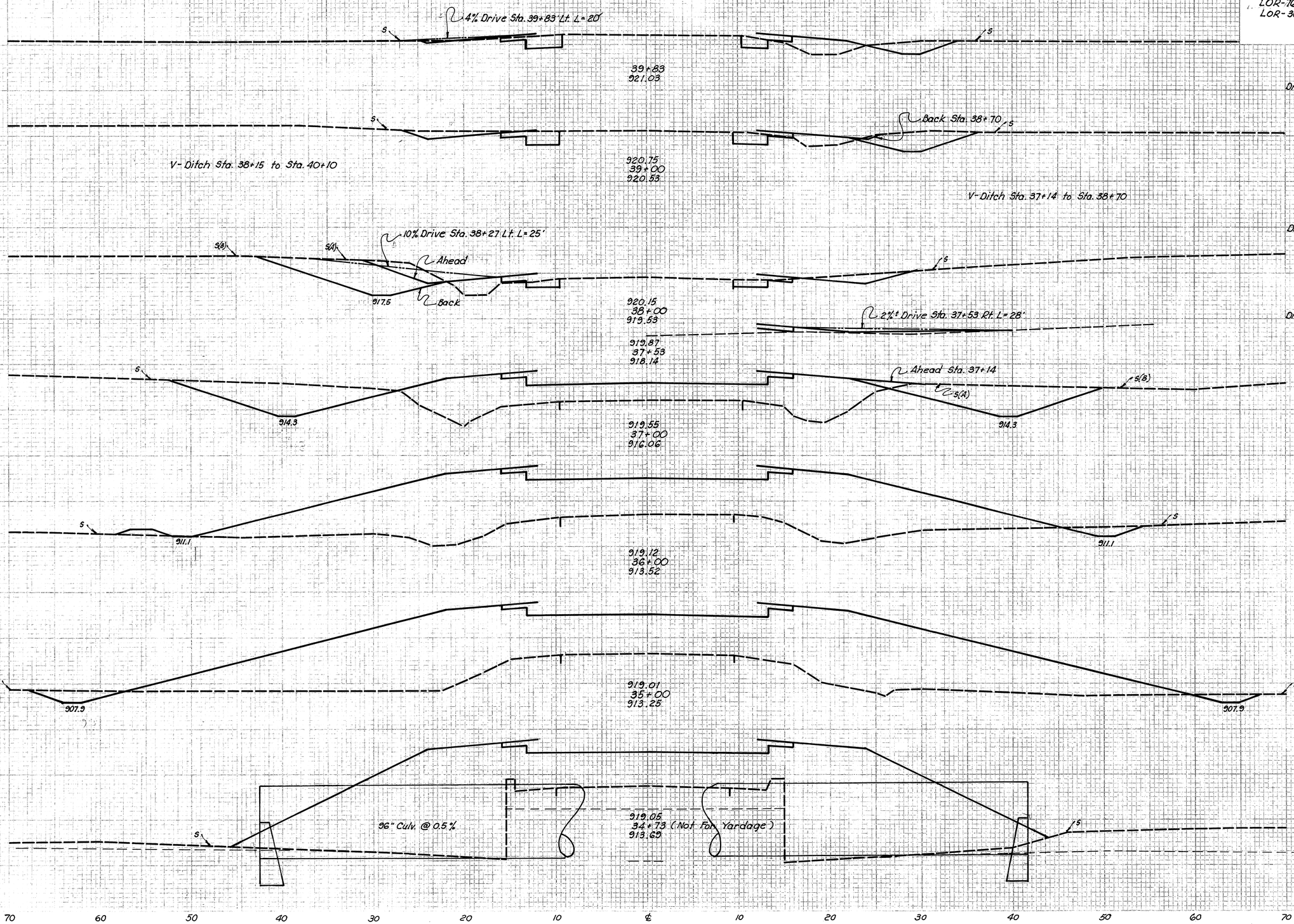
	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	143	316		
			519	919
	137	180		
			159	153
	181	125		
			341	254
	71	63		
			208	120
Sta. 31+28 Ahead	85	27		
Back	30	27	100	28
	30	27		
			93	67
Drive Sta. 30+52 Lt.			4	2
Sta. 30+36 Ahead	46	29		
Back	77	29	82	38
	77	29		
			319	115
Drive Sta. 29+44 Rt.			10	2
	95	33		
			55	29
Sta. 28+75 Ahead	79	30		

Sta. 29+00 To Sta. 34+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

30

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
Drive Sta. 39+83 Lt.			4	1
Sta. 39+83	18	11		
			106	37
Sta. 38+70 Ahead	33	7		
Back	15	7		
			46	21
Drive Sta. 38+27 Lt.			5	2
Sta. 38+00 Ahead	20	9		
Back	47	9		
			151	242
Drive Sta. 37+53 Rt.			4	2
Sta. 37+14 Ahead	48	143		
Back	95	141		
			49	73
Sta. 37+00	95	141		
			189	1017
			7	408
			33	1785
			11	556
			285	1615
Sta. 34+00	143	316		

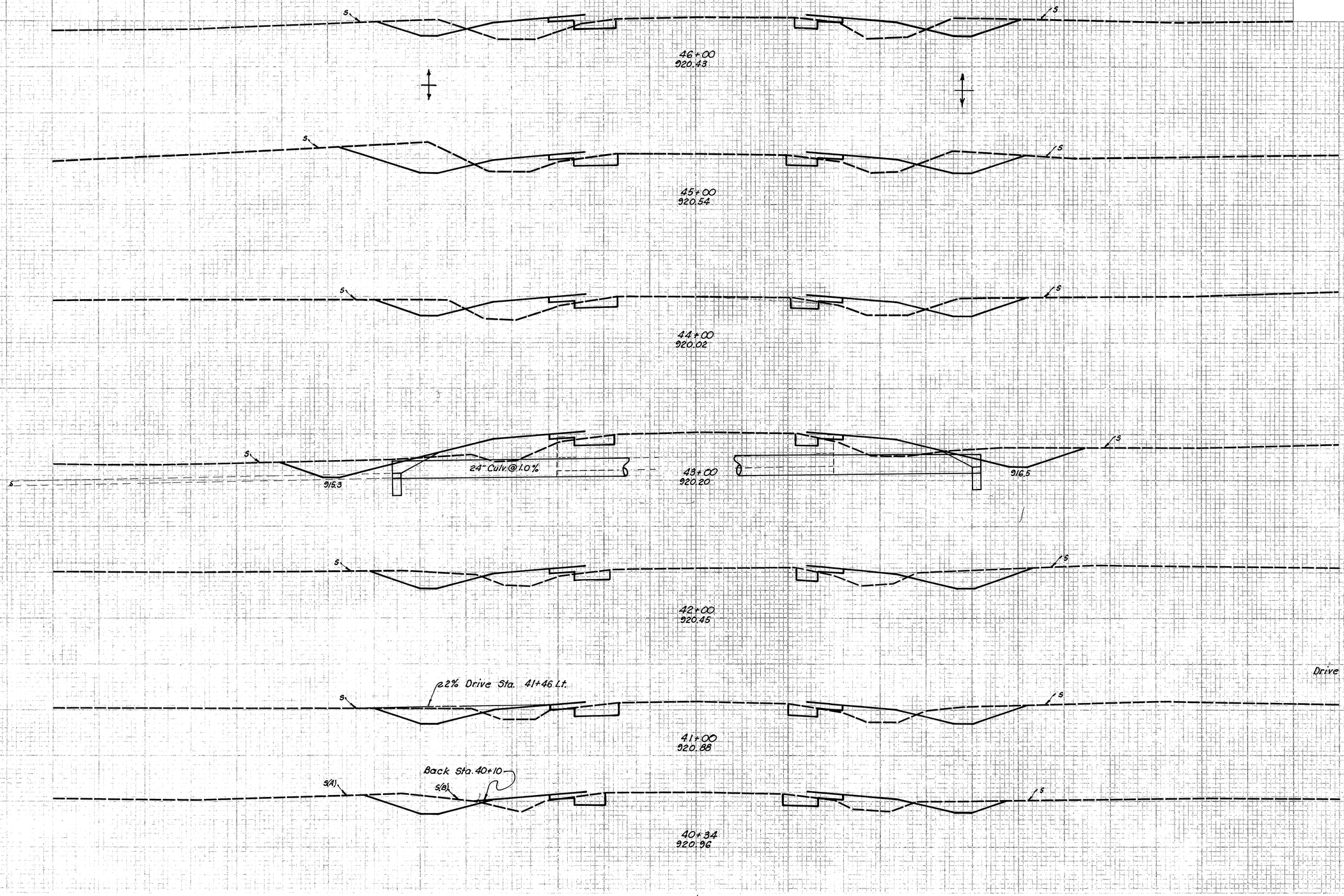
70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

Sta. 34+73 To Sta. 39+83

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

31

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



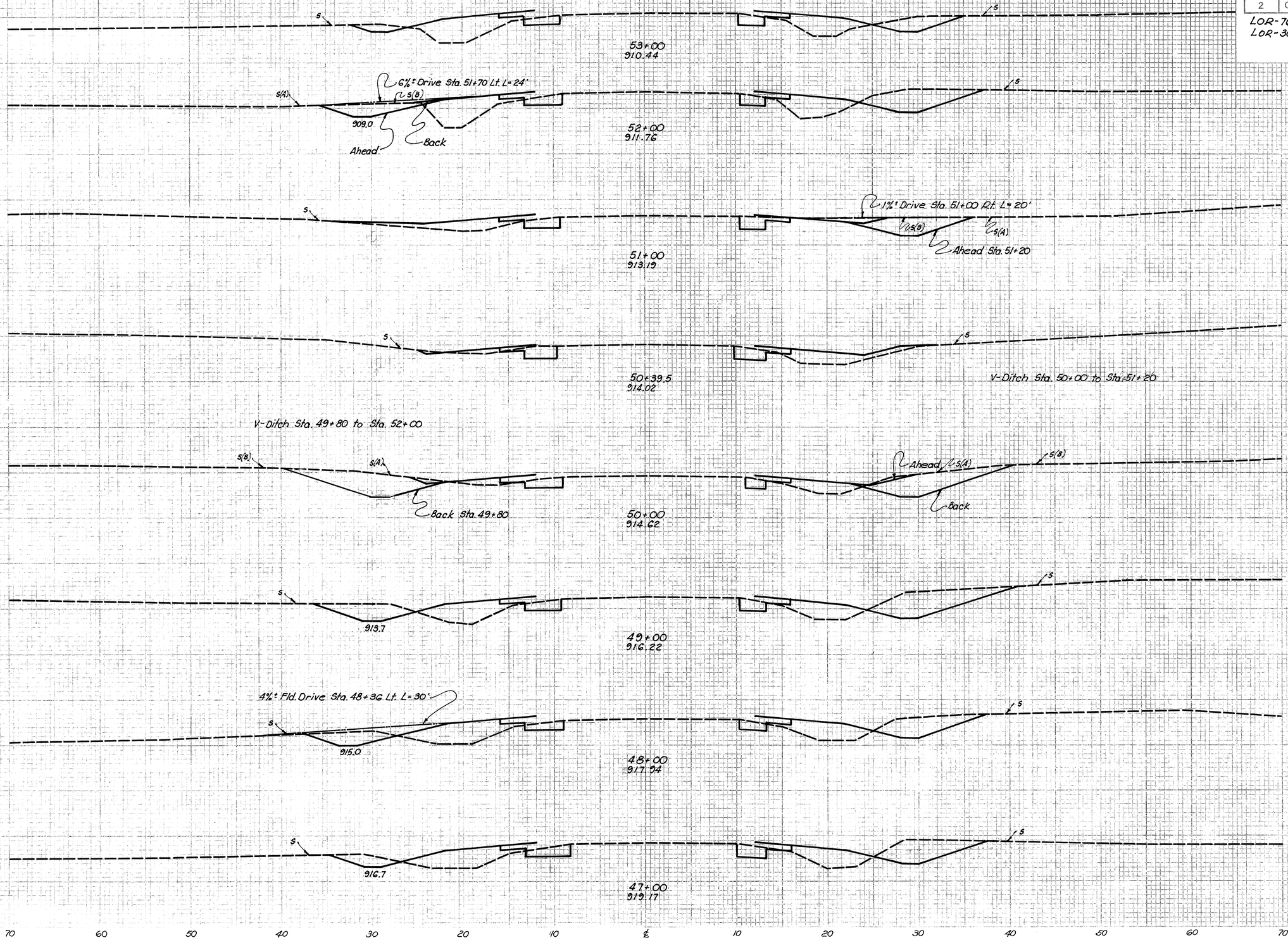
END AREA		CU. YDS.	
CUT.	FILL	CUT.	FILL
27	31		
		144	102
51	24		
		152	96
31	28		
		133	119
41	36		
		143	107
36	22		
		135	76
Drive Sta. 41+46 Lt.		1	2
37	19		
		83	44
31	17		
		28	15
Sta. 40+10 Ahead	31	17	
Back	15	17	16 14
Sta. 39+83	18	11	

Sta. 40+34 To Sta. 46+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

32

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



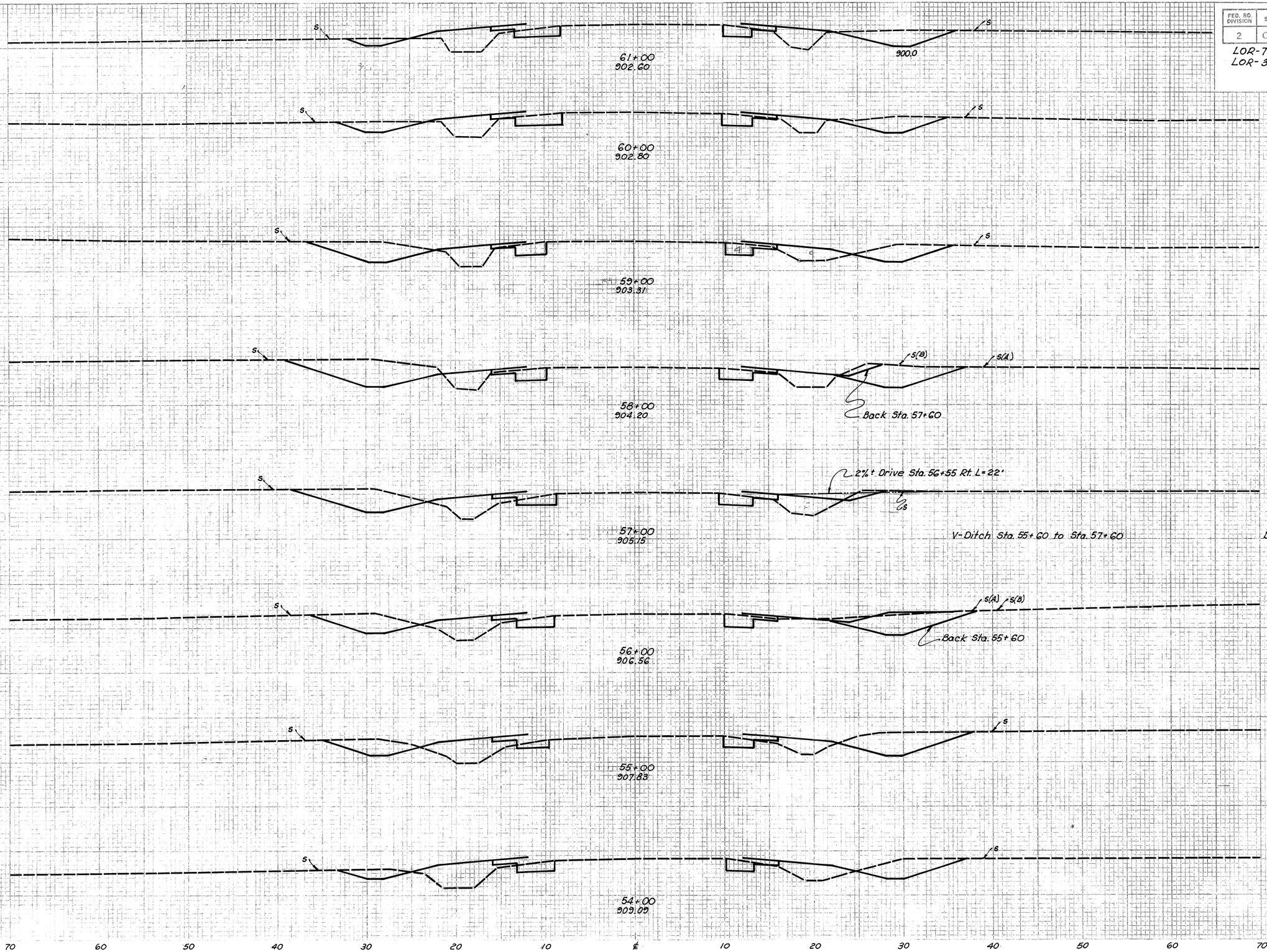
		END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
Sta. 53+00		20	37		
				106	195
Drive Sta. 51+70 Lt.				3	1
Sta. 52+00	Ahead	37	36		
	Back	27	36		
				58	77
Drive Sta. 51+00 Rt.				1	1
Sta. 51+20	Ahead	12	16		
	Back	28	16		
				21	12
Sta. 51+00		28	16		
				42	34
		9	15		
				12	21
	Ahead	8	13		
	Back	30	13		
				22	10
Sta. 49+80	Ahead	30	13		
	Back	52	13		
				197	76
		81	28		
				213	120
Drive Sta. 48+36 Lt.				4	3
		34	37		
				126	128
		34	32		
				113	117
Sta. 46+00		27	31		

Sta. 47+00 To Sta. 53+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

33

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



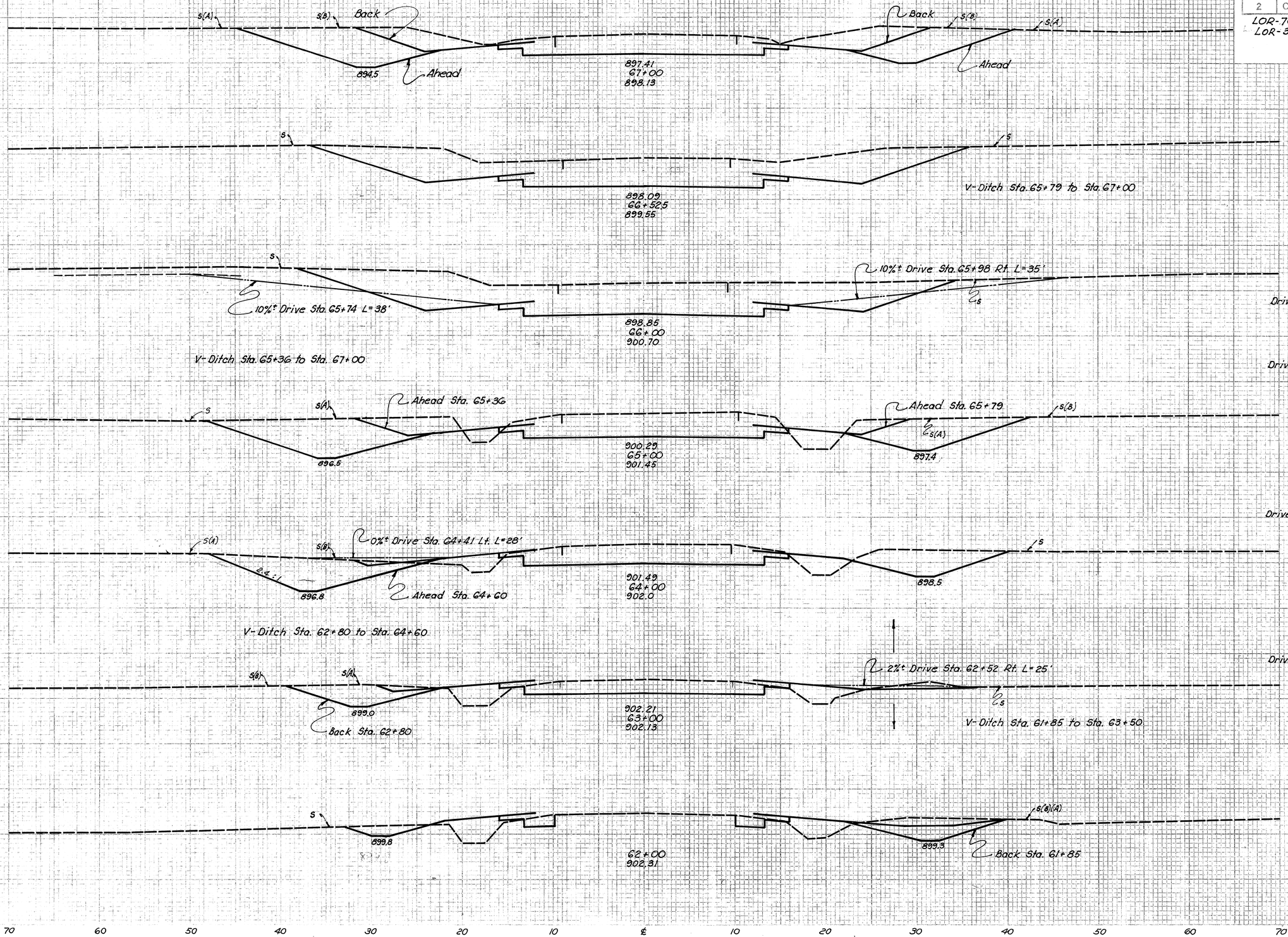
		END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
Sta. 61+00		27	27		
				102	87
Sta. 60+00		28	20		
				122	72
		38	190		
				185	69
		62	18		
				92	27
Sta. 57+60	Ahead	62	18		
	Back	44	18		
				85	47
		32	24		
Drive Sta. 56+55 Rt.				1	3
				109	72
		27	15		
				40	22
Sta. 55+60	Ahead	27	15		
	Back	46	15		
				99	47
		43	27		
				133	104
		29	29		
				91	122
Sta. 53+00		20	37		

Sta. 54+00 To Sta. 61+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

34

LOR-7G-0.00 MED-7G-15.08
LOR-303-(16.40-16.63)(16.69)



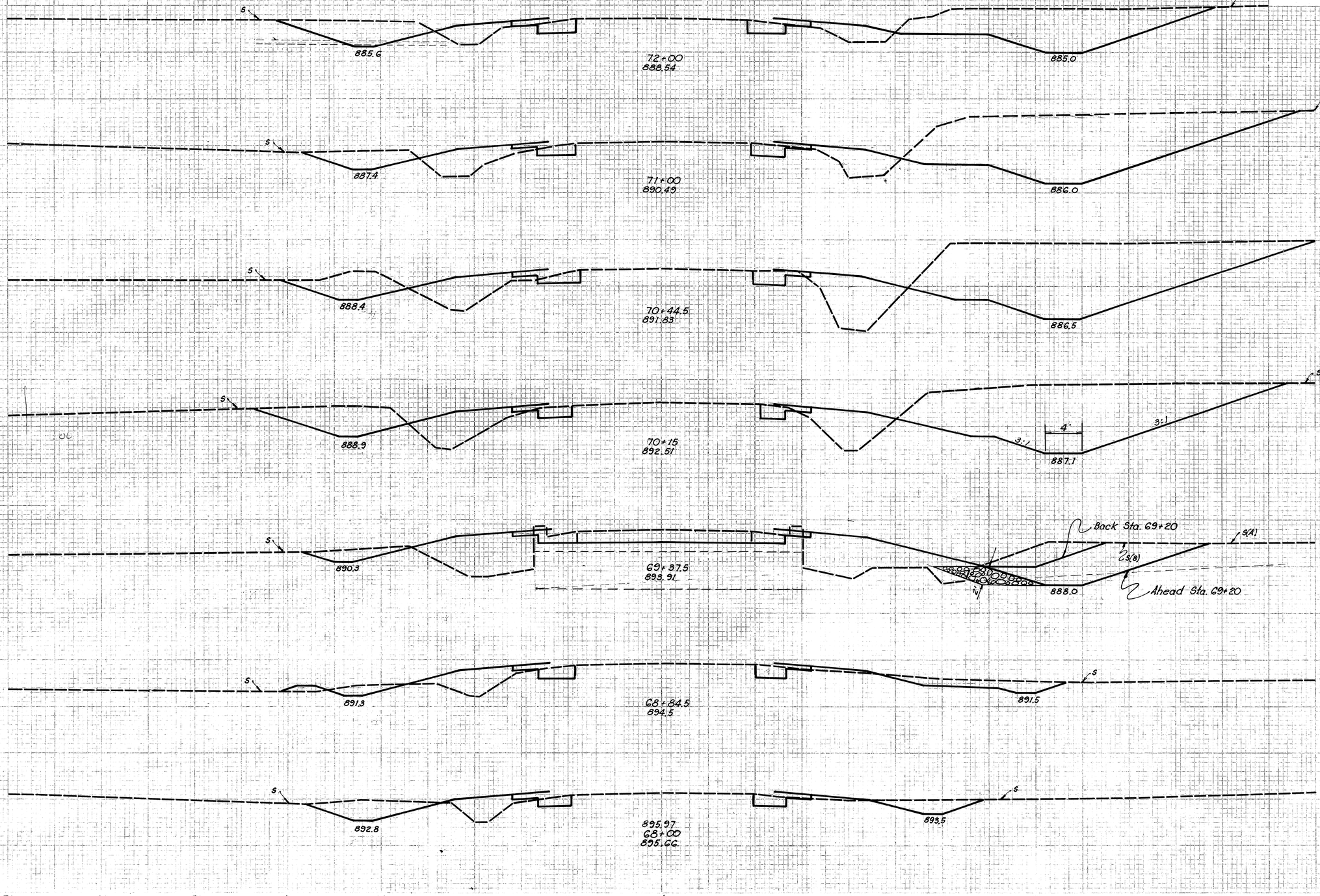
		END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
Sta. 67+00	Ahead	178	0		
	Back	91	0		
				246	0
		188	0		
				384	0
		207	0		
Drive Sta. 65+98 Rt.				10	7
				118	6
Sta. 65+79	Ahead	98	16		
	Back	128	16		
Drive Sta. 65+74 Lt.				11	6
				137	17
Sta. 65+36	Ahead	128	16		
	Back	171	16	317	30
Sta. 65+00		171	16		
				229	26
Sta. 64+60	Ahead	138	19		
	Back	88	19		
				196	42
Drive Sta. 64+41 Lt.				2	3
		88	19		
				235	73
Drive Sta. 62+52 Rt.				1	3
		39	23		
				29	17
Sta. 62+80	Ahead	39	23		
	Back	61	23		
				149	86
Sta. 61+85	Ahead	24	26		
	Back	39	26		
				104	83
Sta. 61+00		27	27		

Sta. 62+00 To Sta. 67+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

35

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63) (16.69)



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
181	23		
		635	119
212	41		
		471	106
246	62		
		256	62
222	51		
		464	214
101	98		
		66	64
Sta. 69+20 Ahead	101	98	
Back	51	98	
		53	80
29	23		
		106	59
39	15		
		402	28
Sta. 67+00 Ahead	178	0	
Back			

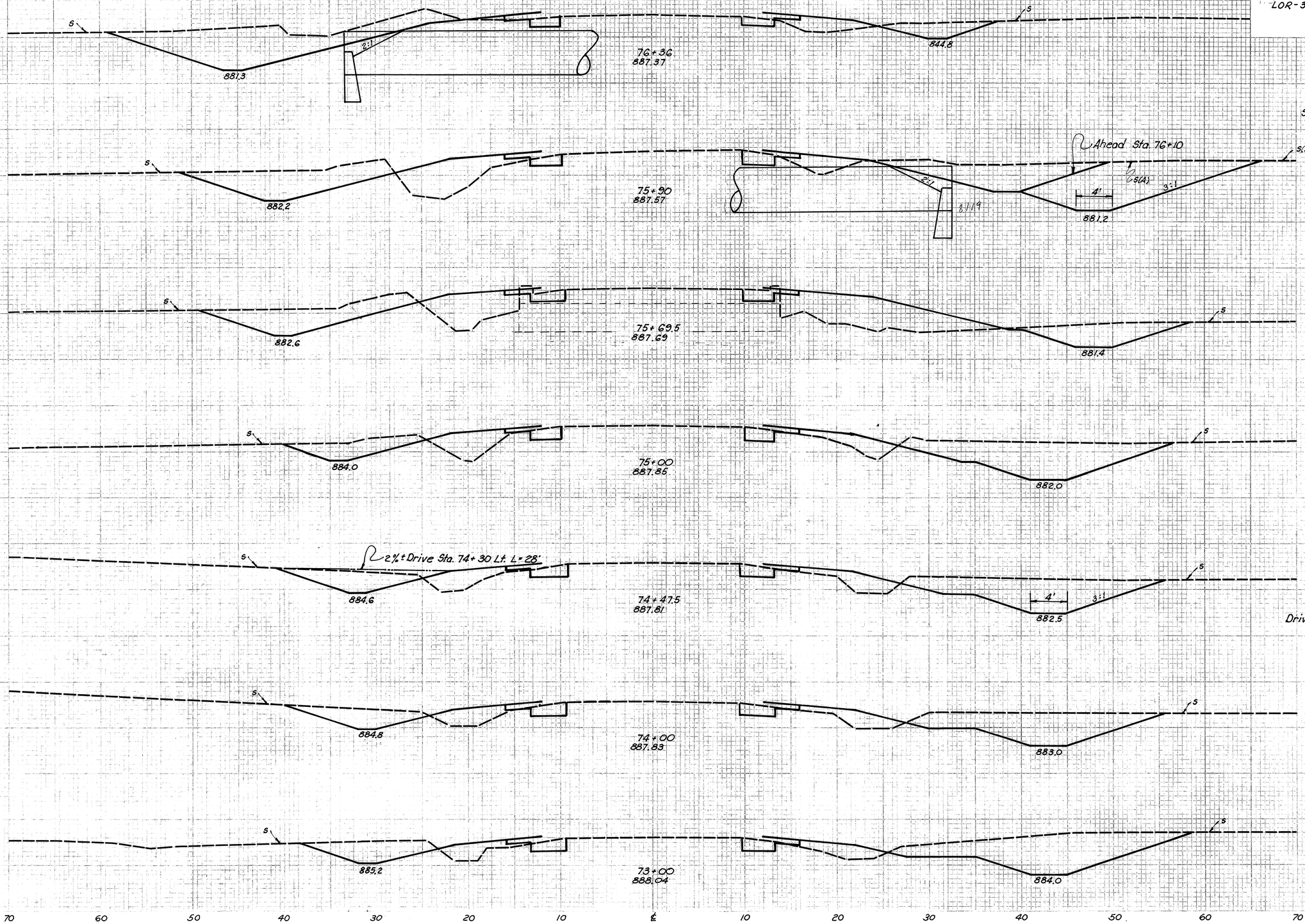
70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

Sta. 68+00 To Sta. 72+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

36

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63) (16.69)



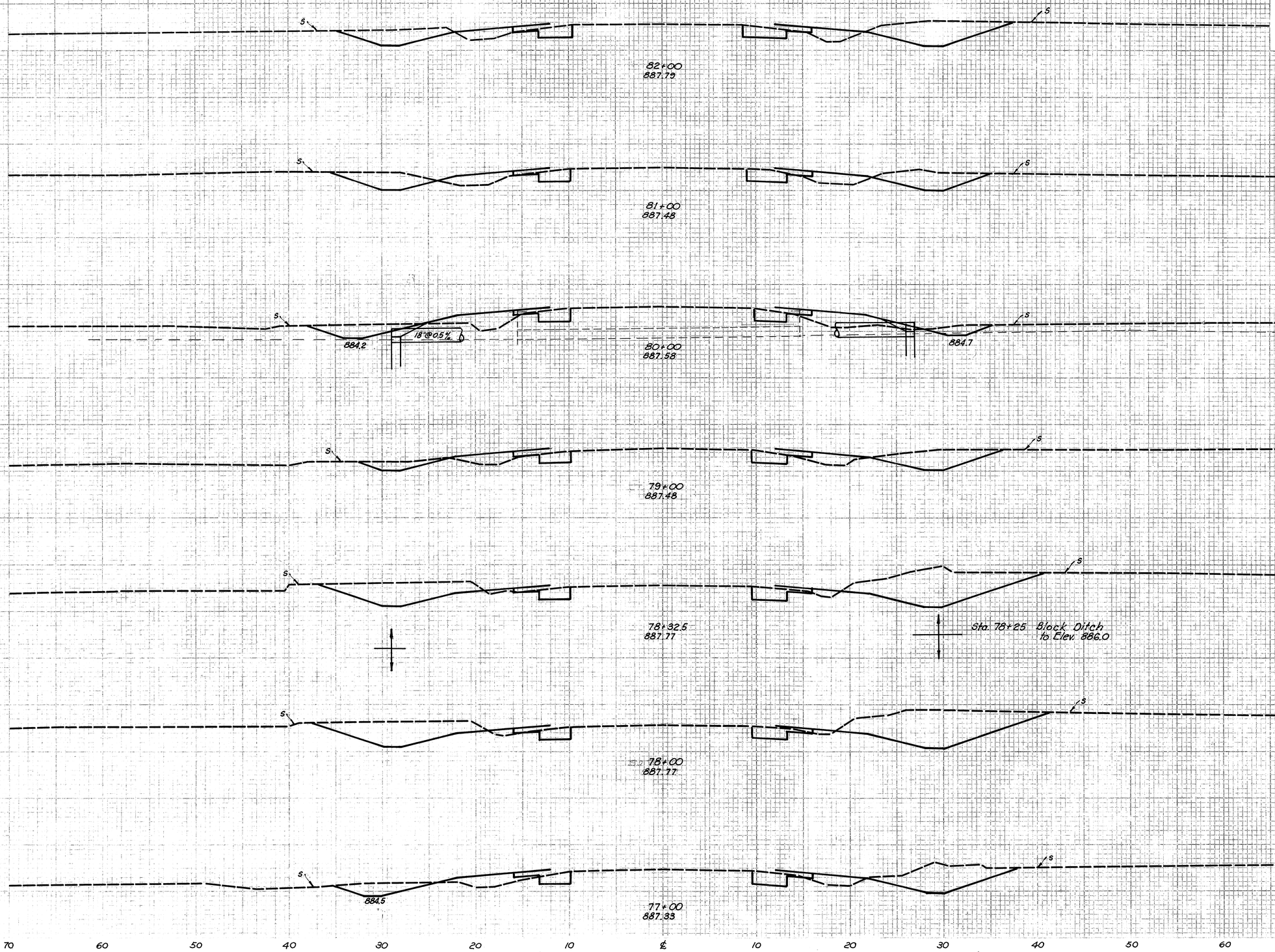
	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	107	10		
			100	25
Sta. 76+10 Ahead	101	42		
Back	175	42		
			130	31
	175	42		
			96	49
	78	88		
			227	151
	98	29		
			183	54
	90	26		
Drive Sta. 74+30 Lt.	2	2		
			157	44
	88	24		
			372	85
	113	22		
			452	83
Sta. 72+00	131	23		

Sta. 73+00 To Sta. 76+30

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

37

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63) (16.69)



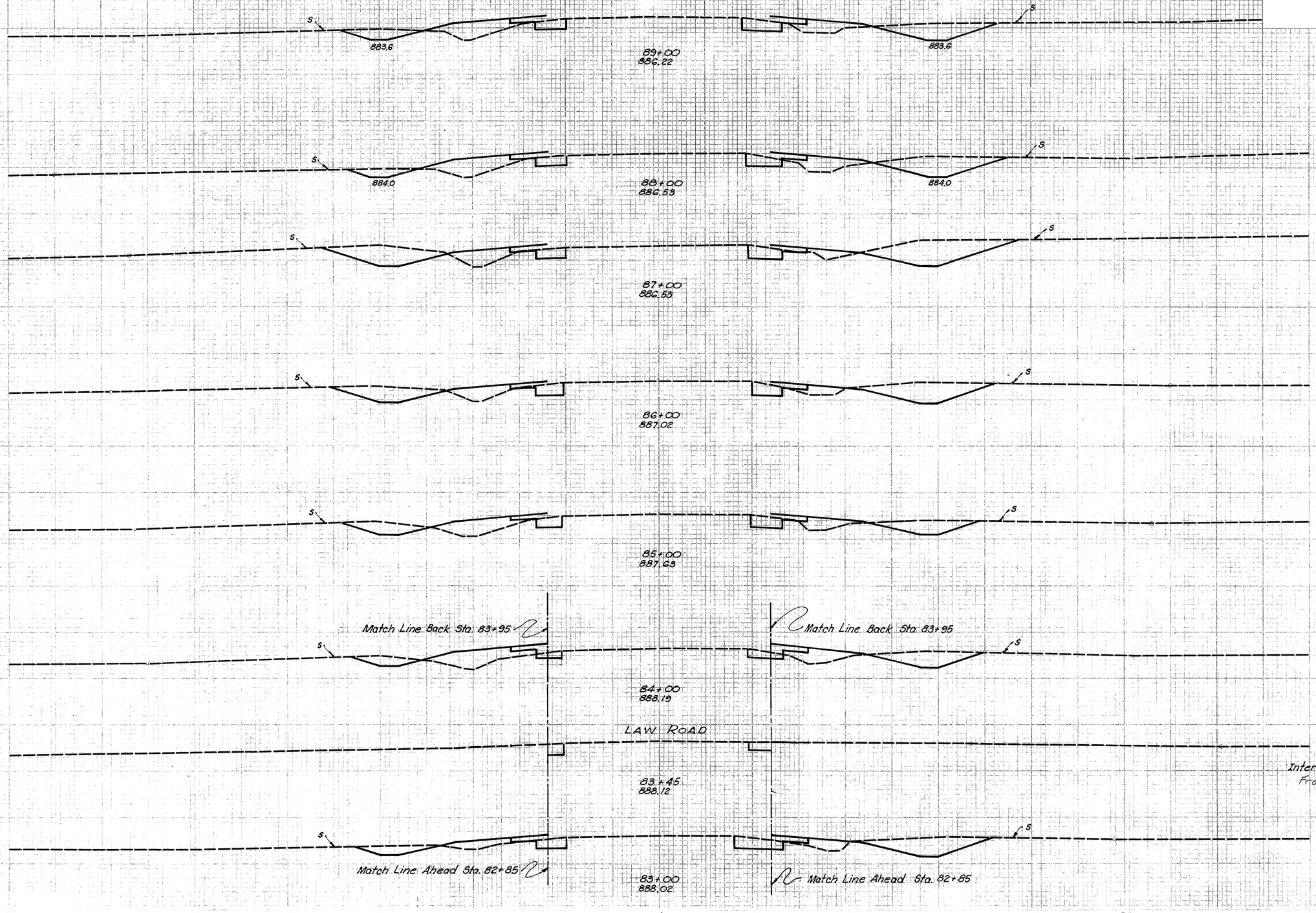
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
48	11		
		161	48
39	15		
		117	72
24	24		
		106	65
33	11		
		146	18
84	3		
		108	3
95	2		
		265	31
48	15		
		184	29
Sta. 76+36	107	10	

Sta. 77+00 TO Sta. 82+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

38

LOR-76-0.00 MED-76-15.08
└LOR-303-(16.40-16.63)(16.69)



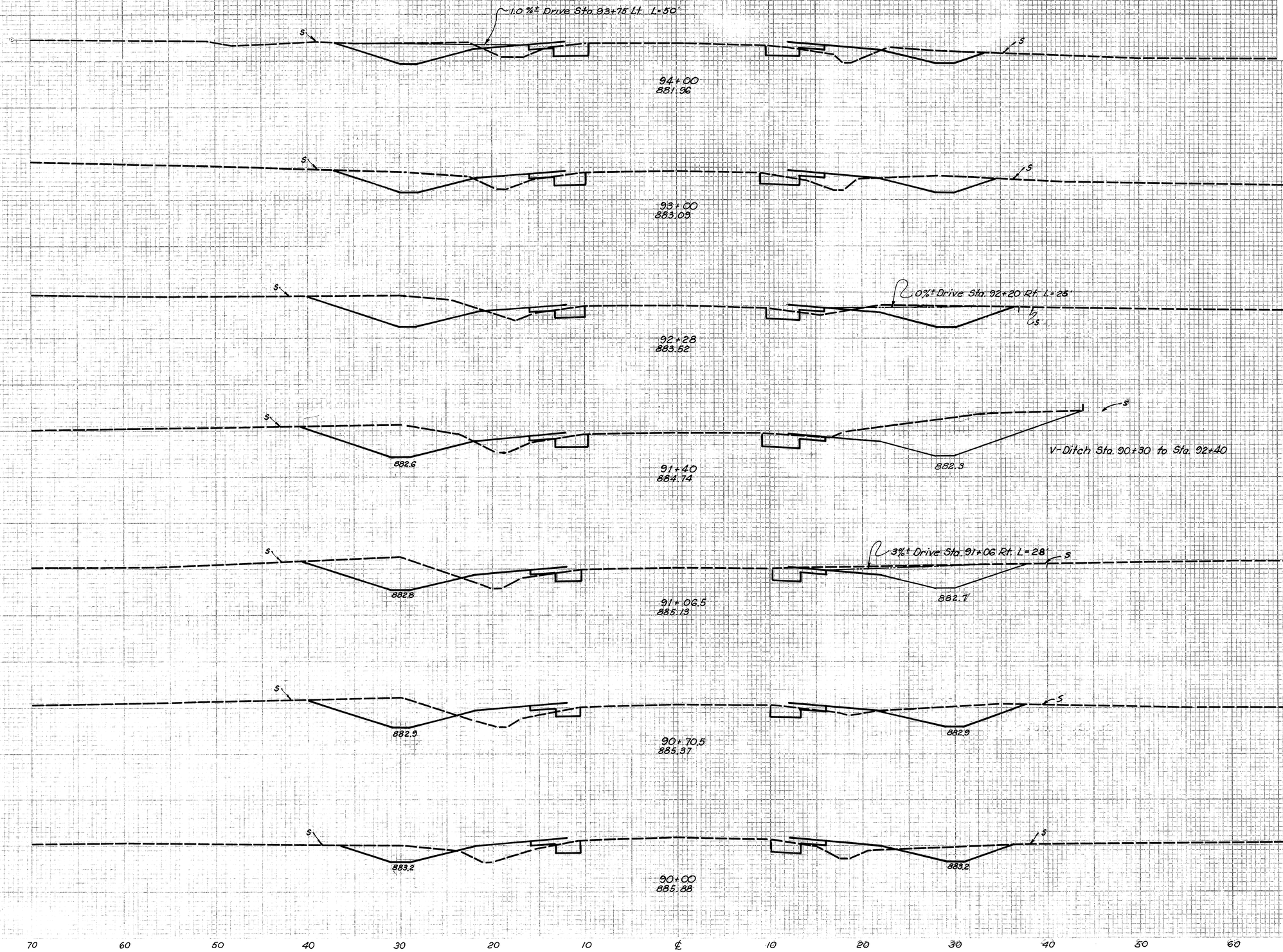
	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	29	21		
			109	81
	30	23		
			156	65
	54	12		
			178	46
	42	13		
			128	61
	27	20		
			93	76
	23	21	4	4
Sta. 83+95 Ahead	23	21		
Back	3	0	8	0
	5	0		
Intersection Law Rd. From Sh 3			112	39
			10	0
	7	0	4	0
Sta. 82+85 Ahead	7	0		
Back	35	10	131	33
Sta. 82+00	48	11		

Sta. 83+00 To Sta. 89+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

39

LOR-76-0.00 MED-76-15.08
LOR-303 (16.40-16.63) (16.69)



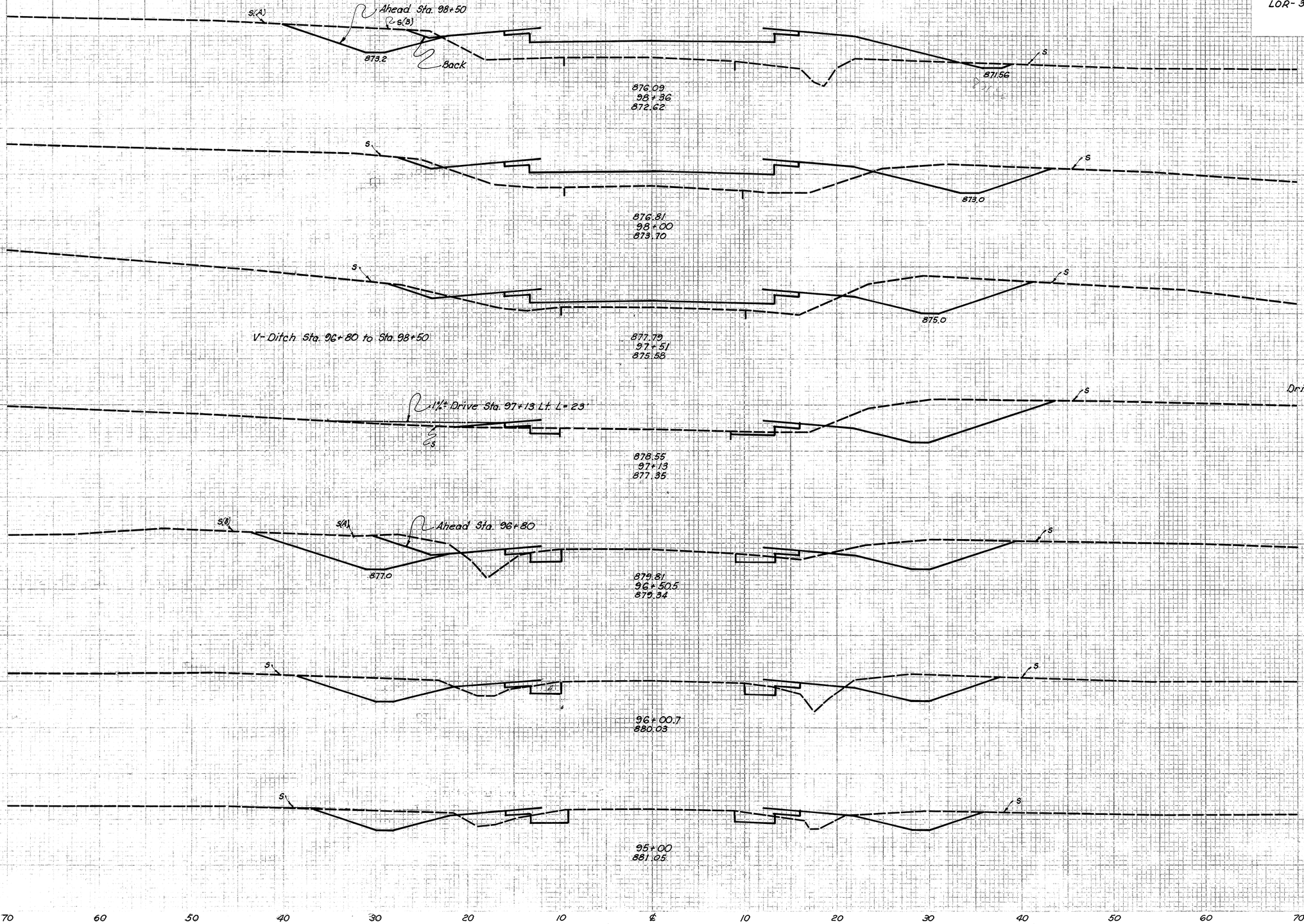
	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	41	13		
Drive Sta. 93+75 Lt.			2	2
			150	54
	40	16		
			122	30
Drive Sta. 92+20 Rt.			2	3
	51	6		
			266	21
	112	7		
			115	10
Drive Sta. 91+06 Rt.	74	10	2	4
			86	19
	55	18		
			115	49
	33	19		
			115	74
Sta. 89+00	29	21		

Sta. 90+00 To Sta. 94+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

40

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



		END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
Sta. 98+50 Ahead		31	125		
Back		4	125	2	65
Sta. 98+36		4	125		
				27	138
		37	82		
				81	108
		52	37		
				84	30
Drive Sta. 97+13 Lt.				1	3
		67	5		
				73	10
Sta. 96+80 Ahead		52	12		
Back		91	12	99	13
		91	12		
				142	25
		63	15		
				204	56
		47	15		
				163	52
Sta. 94+00		41	13		

Sta. 95+00 To 98+36

FED. RD. DIVISION	STATE	PROJECT	TYPE
2	OHIO		

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63) (16.69)

	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	95	59		
			324	217
	80	58		
Drive Sta. 102+18 Rt.			3	10
			296	215
	80	58		
			287	233
	75	68		
			100	139
	33	82		
			78	413
	9	141		
			8	76
Drive Sta. 98+85 Rt.			3	32
	19	125		
			32	160

S
866.75
870.21
103+50
869.83
4.2:1
4'
864.8

S
867.25
2% ± Drive Sta. 102+18 Rt. L=43'
4% ±
870.45
102+50
869.85
4.7:1
865.2

S
868.1
870.89
101+50
870.04
4.5:1
865.6

S
868.8
871.95
100+50
870.43
4'
866.0

S
869.6
872.81
100+00
870.70
867.0

S
871.8
874.81
99+00
871.59
869.0

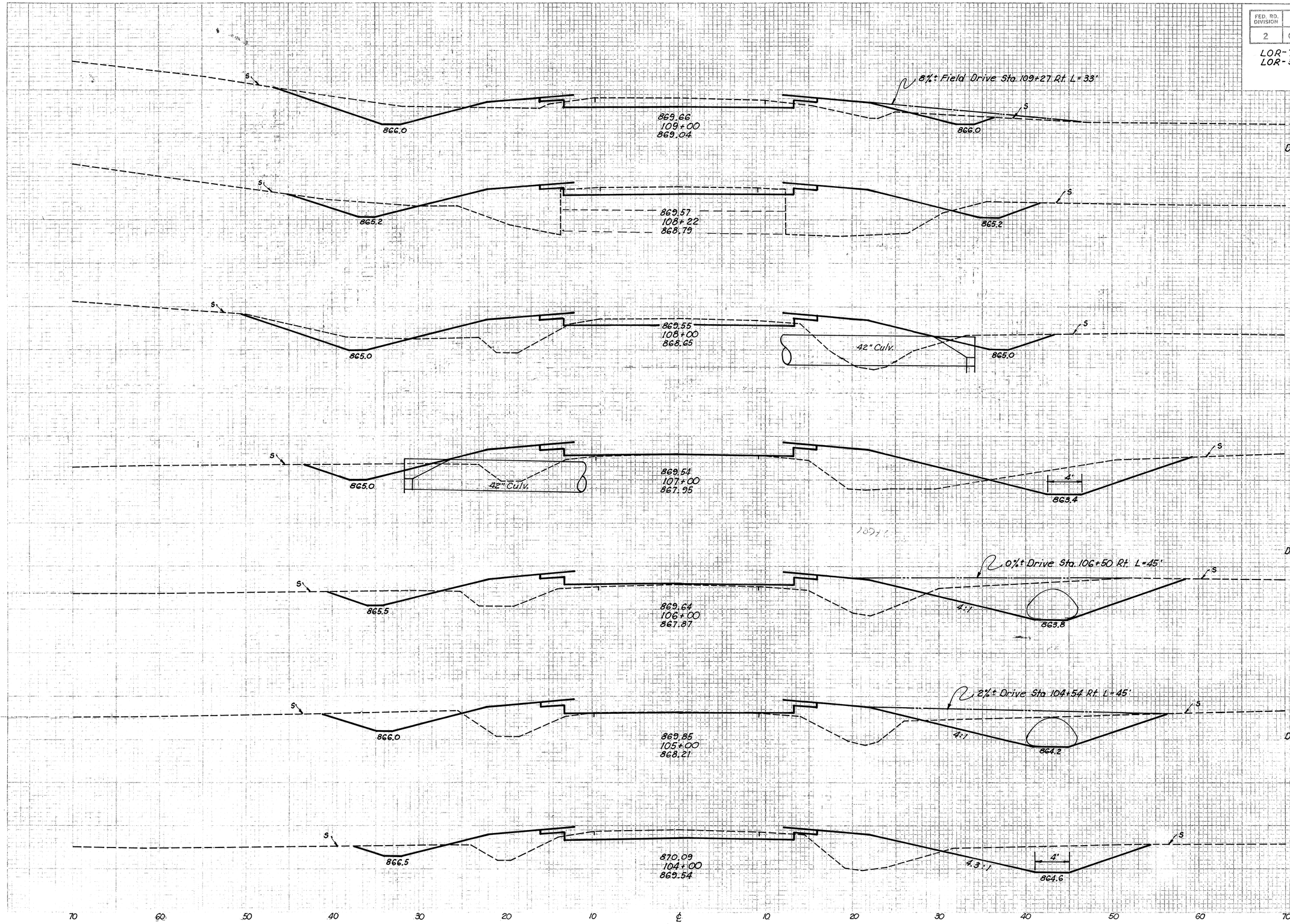
S
872.0
8% ± Drive Sta. 98+85 Rt. L=53'
875.12
98+84.5
871.77
869.6

70 60 50 40 30

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

42

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	58	24		
Drive Sta. 109+27 Rt.			3	9
			156	218
	50	127		
			40	90
	48	95		
			198	354
	59	96		
			272	319
Drive Sta. 106+50 Rt.			2	12
	88	76		
			304	269
	76	69		
Drive Sta. 104+54 Rt.			3	18
			281	246
	76	64		
			159	114
Sta. 103+50	95	59		

Sta. 104+00 To Sta. 109+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

43

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

10.0%± Drive Sta. 113+28 Lt. L=55'

870.46
113+00
875.24

870.36
112+50
874.25

870.26
112+00
872.12

870.16
111+50
872.16

8%± Drive Sta. 111+83 L=33'

870.06
111+00
871.33

867.0

869.86
110+00
869.45

Ahead

Back

V-Ditch Sta. 110+00 to Sta. 112+25

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Drive Sta. 113+28 Lt.			10	3
	471	0		
	814	0		
	408	0		
	644	0		
	287	0		
	517	0		
Drive Sta. 111+83 Rt.			22	2
	271	0		
	458	0		
	223	0		
	669	19		
Sta. 110+00 Ahead	198		10	
Back	148		9	
	381	61		
Sta. 109+00	58	24		

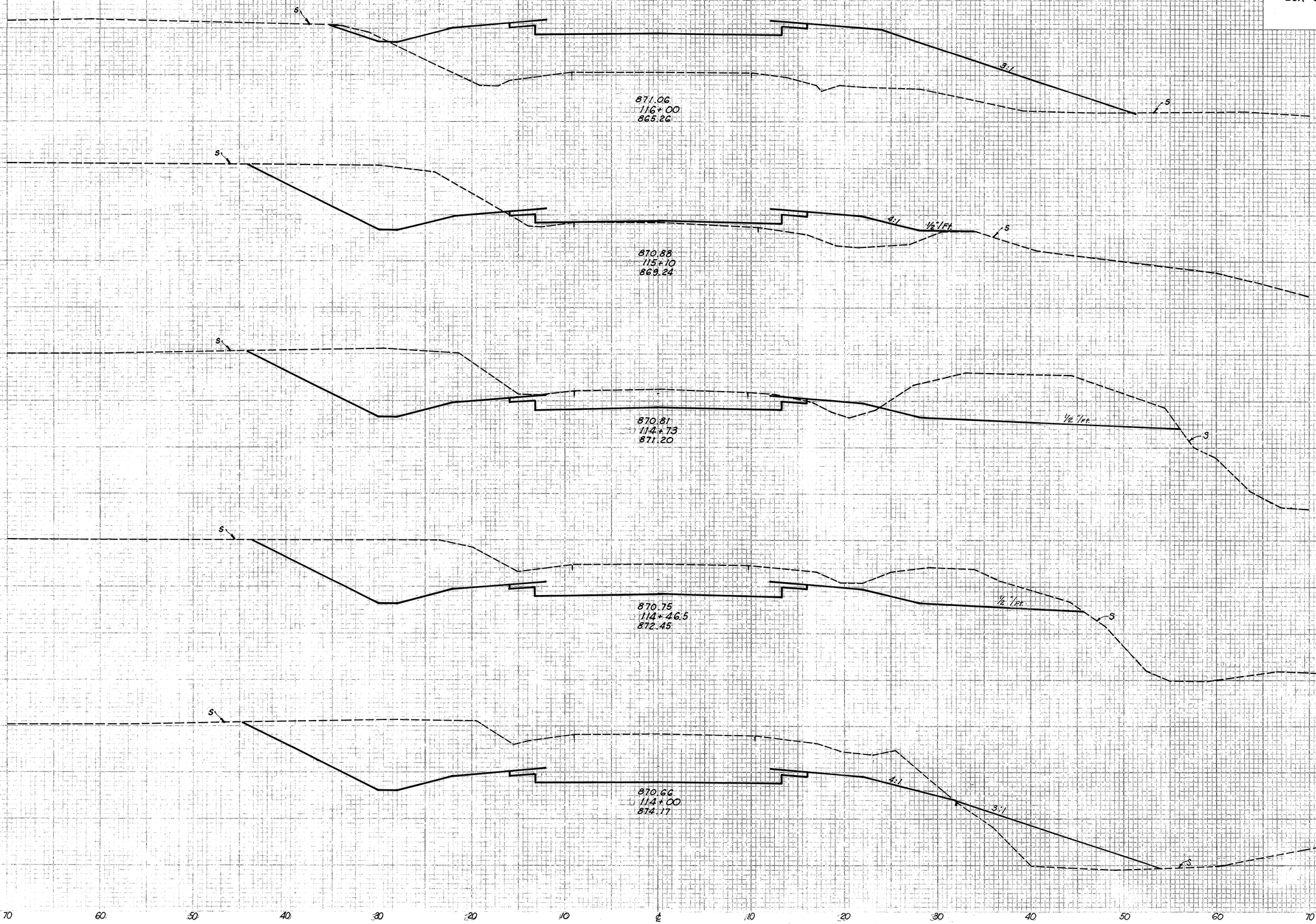
Sta. 110+00 To Sta. 113+00

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

44

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



	END AREA		CU. YDS.	
	CUT.	FILL	CUT.	FILL
	3	931		
			178	630
	104	47		
			277	37
	300	8		
	273	4		
	256	0		
			505	37
	331	43		
			1485	80
Sta. 113+00	471	0		

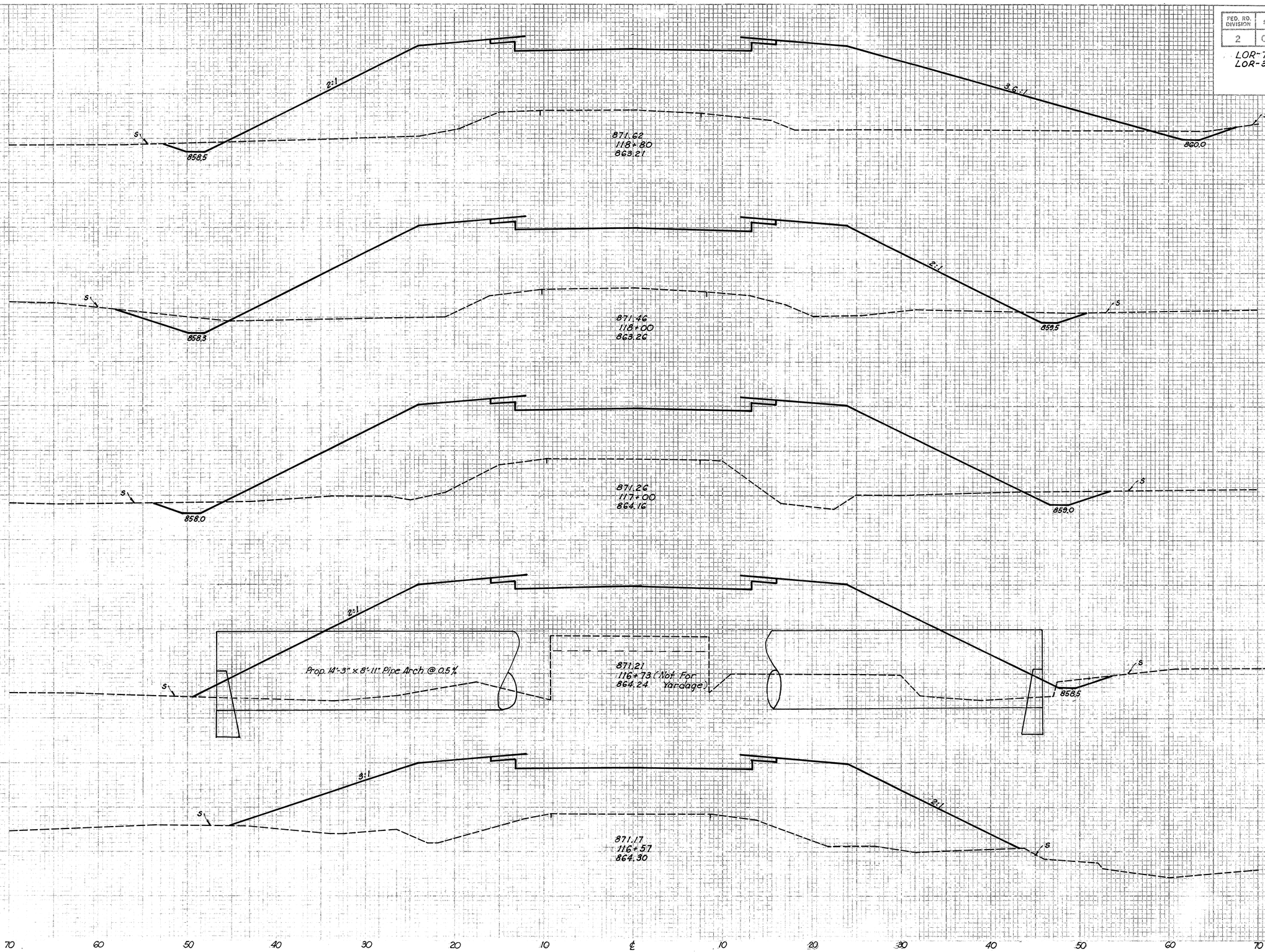
70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

Sta. 114+00 To Sta. 116+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

45

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



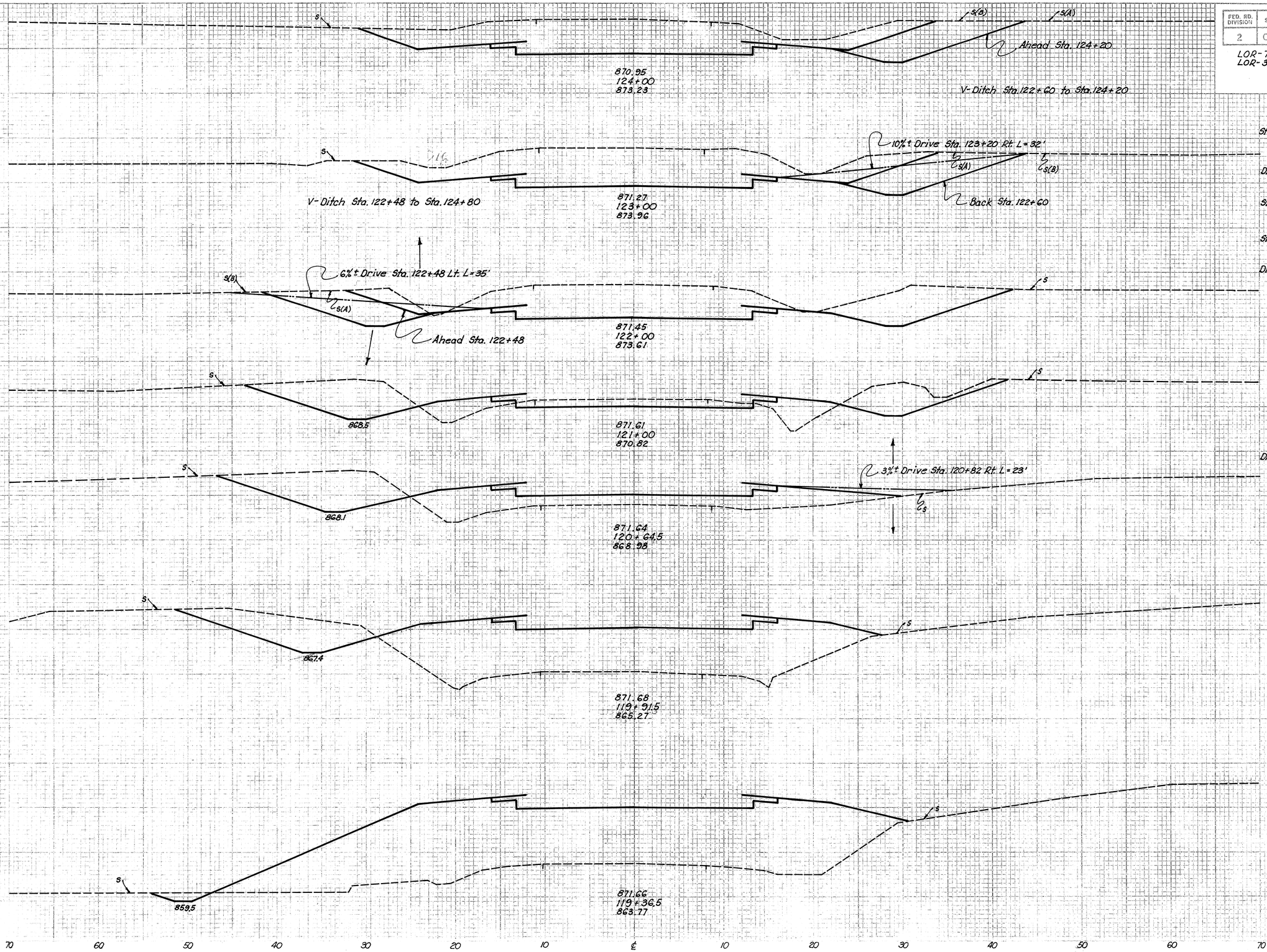
END AREA		CU YDS.	
CUT	FILL	CUT	FILL
11	643		
		45	1809
19	570		
		69	2133
18	574		
		14	857
0	503		
		3	880
Sta. 116+00	3	331	

Sta. 116+57 To Sta. 118+80

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

46

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



		End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Sta. 124+20	Ahead	206	0		
	Back	163	0	121	0
Sta. 124+00		163	0		
				650	0
Drive Sta. 123+20 Rt.				10	0
Sta. 123+00		188	0		
				278	0
Sta. 122+60	Ahead	188	0		
	Back	232	0		
				89	0
Sta. 122+48	Ahead	169	0		
	Back	205	0		
				167	0
Drive Sta. 122+48 Lt.				15	1
		205	0		
				565	61
		100	33		
				104	77
Drive Sta. 120+82 Rt.				3	3
		59	84		
				151	480
		53	271		
				58	751
		4	466		
				10	1161
Sta. 118+80		11	643		

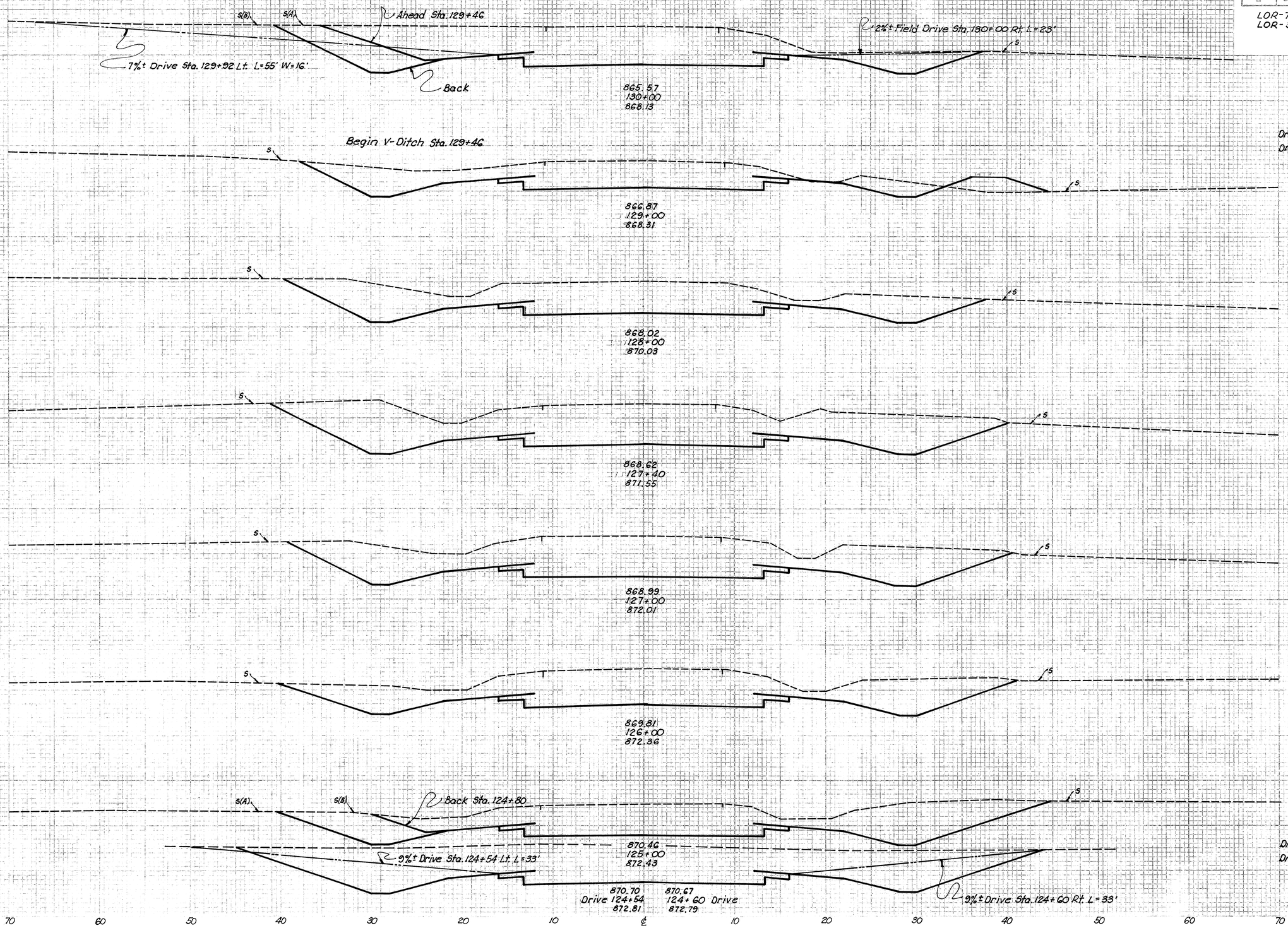
70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

Sta. 119+36.5 To Sta. 124+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

47

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Sta. 130+00	200	0	54	0
Sta. 129+46 Ahead	200	0		
Back	238	0		
Drive Sta. 129+92 Lt.			34	0
Drive Sta. 130+00 Rt.			33	11
			1	0
	146	13		
			633	24
	196	0		
			283	0
	275	0		
			395	0
	258	0		
			876	0
	215	0		
			802	0
	218	0		
Sta. 124+80 Ahead	218	0		
Back	188	0		
Drive Sta. 124+60 Rt.			2	0
Drive Sta. 124+54 Lt.			3	0
			44	0
Sta. 124+20 Ahead	206	0		

Sta. 125+00 To Sta. 130+

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

48

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
967	0		
		247	0
940	0		
		2810	0
692	0		
		2231	0
Drive Sta. 132+08 Lt.		136	0
Sta. 132+00 Ahead	513	0	
Back	468	0	
		1394	0
285	0		
		898	0
Sta. 130+00	200	0	

Sta. 131+00 To Sta. 134+00

S

858.73
134+00
868.60

S

858.87
133+93
868.59

S

860.67
133+00
868.40

S(A) S(B)

Back

8% Drive Sta. 132+08 Lt. L=86'

Ahead

110 100 90 80 70

862.47
132+00
867.90

End V-Ditch Sta. 132+00

S

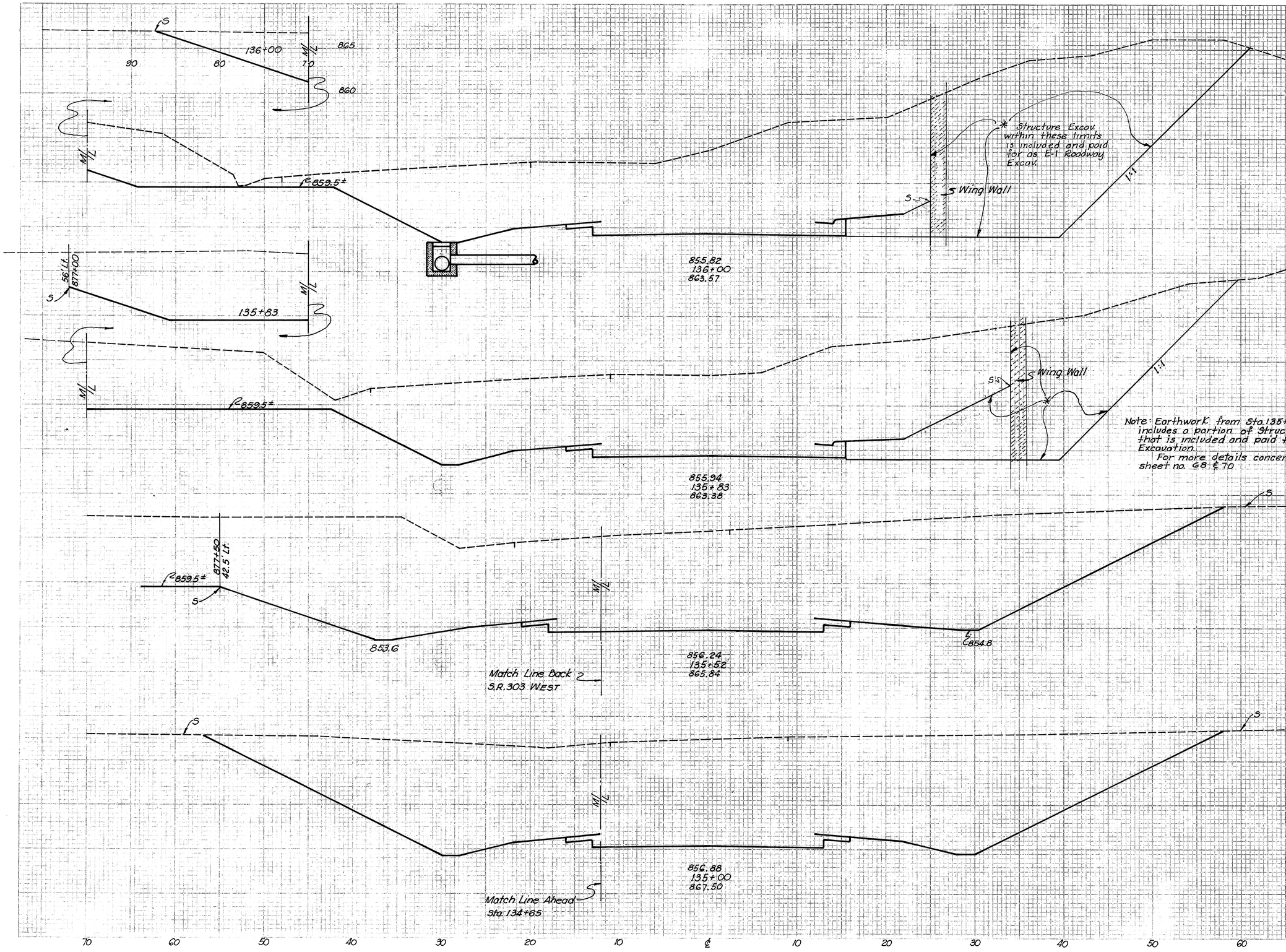
864.10
131+00
867.85

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

49

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



Note: Earthwork from Sta. 135+52 to Sta. 137+42.5 includes a portion of Structure Excav. and backfill that is included and paid for as E-1 Roadway Excavation.
For more details concerning this work see sheet no. 68 & 70

		END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
		1264	497		
				834	255
		1385	314		
				1454	180
Sta. 135+52	Ahead	1148	0		
	Back	685	0		
				2262	0
Sta. 134+65	Ahead	719	0		
	Back	1105	0		
				2494	0
	Sta. 134+00	967	0		

Sta. 135+00 To Sta. 136+0

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

50

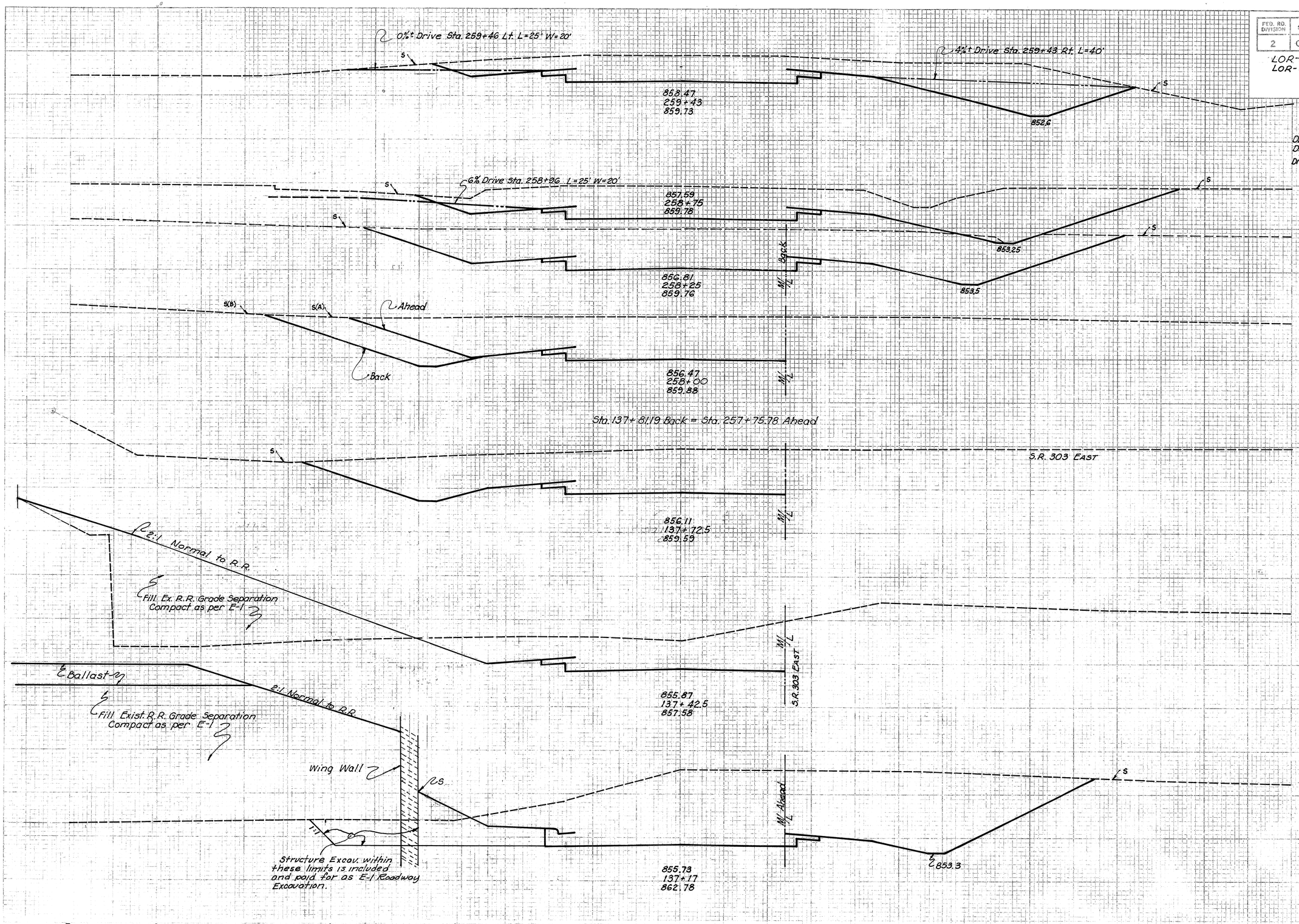
LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	910 287		
	1320 412		
	1531 493		

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

51

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)



	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	230	0		
Drive Sta. 259+43 Rt.			1	0
Drive Sta. 259+46 Lt.			3	0
Drive Sta. 258+96 Rt.			2	0
			649	0
	285	0		
			403	0
Sta. 258+25 Ahead	150	0		
Back	188	0		
			180	0
Ahead	200	0		
Back	260	0		
			293	0
	230	0		
			227	0
	178	0		
			225	27
Ahead	299	58		
Back	528	58		
			472	109
Sta. 137+00	970	287		

Sta. 137+17 To Sta. 259+43

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

52

1. LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

263+00
858.95

END WORK STA. 262+00

262+00
859.15

END PROJECT STA. 261+50

Ahead Sta. 261+50

Back Sta. 261+50

859.51
261+00
859.42

859.02
260+00
859.59

3:1

2:1

S

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

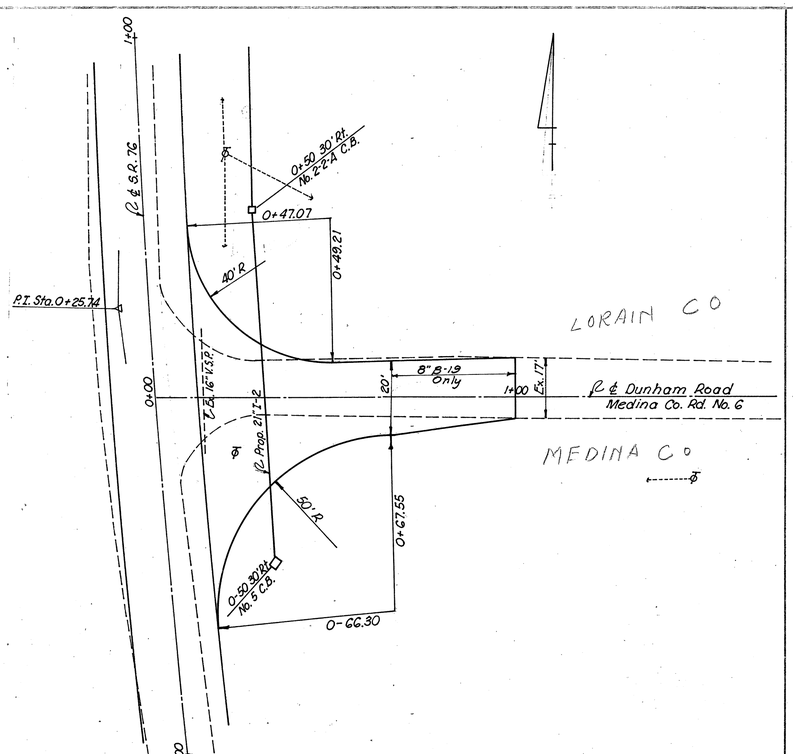
	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
			0	0
			0	22
Ahead	261+50	0	23	
Back	261+50	38	23	
			63	43
			38	23
			209	56
			75	7
			322	7
Sta. 259+43		230	0	

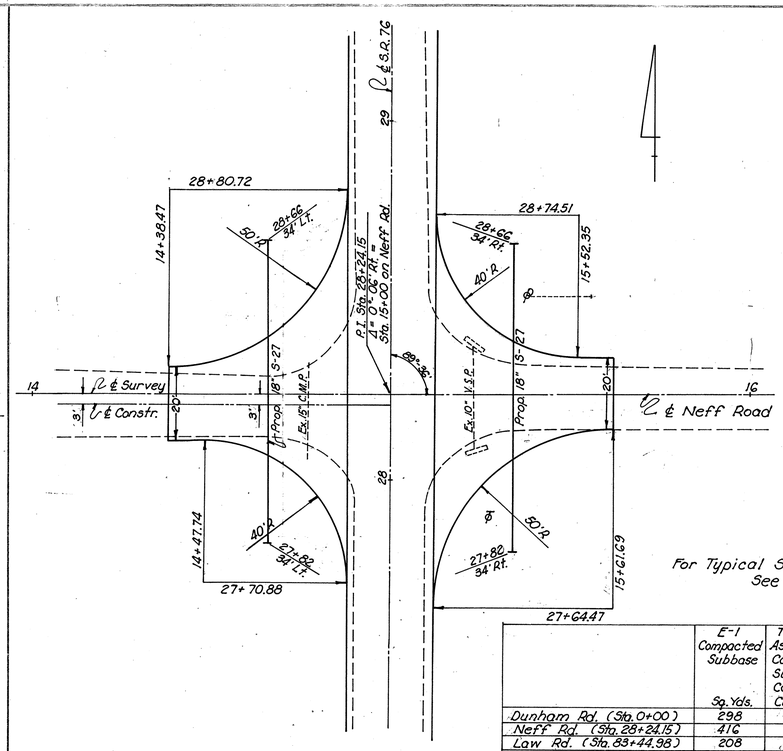
Sta. 260+00 To Sta. 263+0

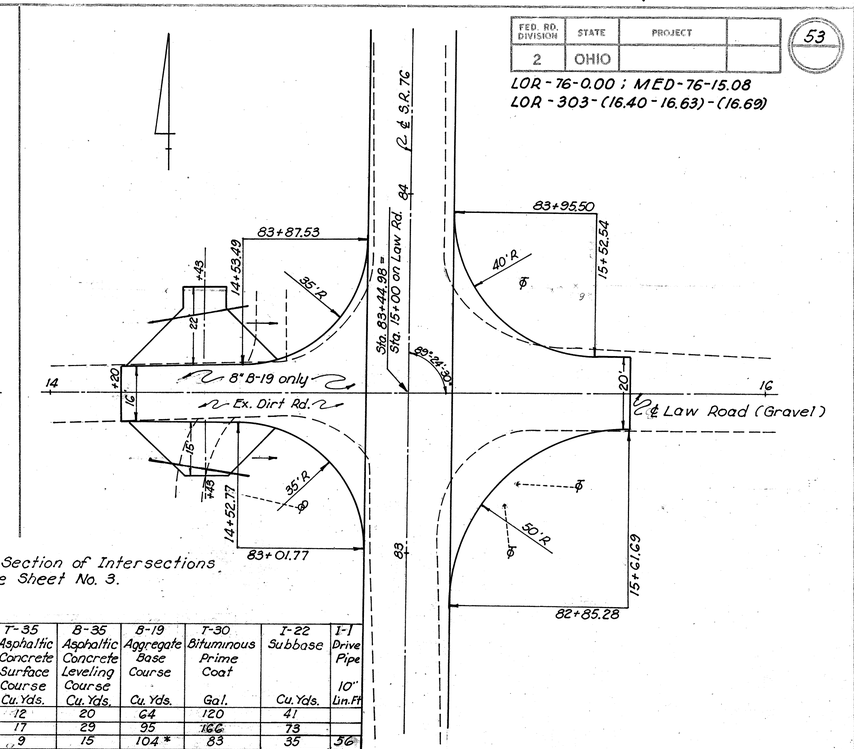
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

53

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



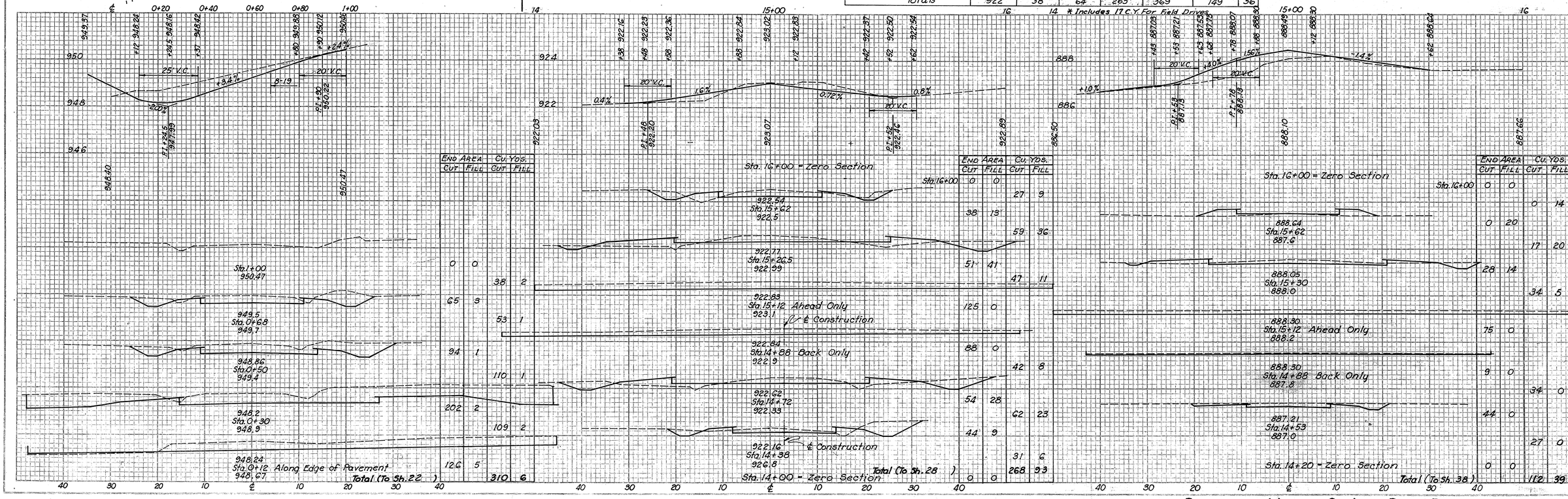




For Typical Section of Intersections See Sheet No. 3.

	E-1 Compacted Subbase Sq. Yds.	T-35 Asphaltic Concrete Surface Course Cu. Yds.	B-35 Asphaltic Concrete Leveling Course Cu. Yds.	B-19 Aggregate Base Course Cu. Yds.	T-30 Bituminous Prime Coat Gal.	I-22 Subbase Cu. Yds.	I-1 Drive Pipe 10" Lin. Ft.
Dunham Rd. (Sta. 0+00)	298	12	20	64	120	41	
Neff Rd. (Sta. 28+24.15)	416	17	29	95	166	73	
Law Rd. (Sta. 83+44.98)	208	9	15	104 *	83	35	36
Totals	922	38	64	263	369	149	56

* Includes 17 C.Y. For Field Drives



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
0	0		
		38	2
65	3		
		53	1
94	1		
		110	1
202	2		
		109	2
126	5		
		310	6

Sta. 16+00	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	0	0		
			27	9
	38	13		
			59	36
	51	41		
			47	11
	125	0		
			42	8
	88	0		
			54	28
	44	9		
			31	6
	0	0	268	93

Sta. 16+00	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	0	0		
			0	14
	0	20		
			17	20
	28	14		
			34	5
	75	0		
			9	0
			34	0
	44	0		
			27	0
	0	0	112	39

DUNHAM, NEFF, & LAW ROAD INTERSECTIONS

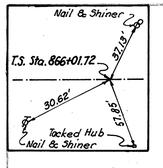
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

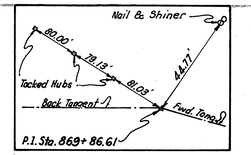
54

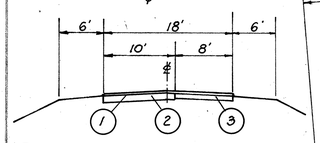
LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

12-S Structure No. LOR-303-1648
Sta. 869+95 D.A.=10 Acres Cover @ ℄ 4.4'
Existing: 15" C.I.P. to be removed
Proposed: 24"×96' S-27
Skew: 26° R.F.

CURVE DATA
P.I. Sta. 869+86.61
Δ = 20°-32'-40" Rt.
Dc = 4°-00'
Ls = 250'
R = 1432.40'
Xc = 249.81'
Yc = 7.27'
Ts = 384.89'
Lc = 263.41'







① Open Graded Road Mix
② 10" Water Bound Macadam
③ 8" Traffic Bound
TYPICAL SECTION OF ADJOINING PAVEMENT

STA. 865+50
BEGIN WORK

STA. 866+00 S.L.M. = 16.40
BEGIN PROJECT

5-50 (7)

Marker to be furnished and erected on the right by the State of Ohio before final acceptance of this project.

NOTE
FOR TYPICAL SECTION SEE SHEET NO. 3
FOR TABLE OF QUANTITIES SEE SHEET NO. 57

Marker to be furnished and erected on the left by the State of Ohio before final acceptance of this project.

STA. 878+09.98 S.L.M. = 16.63
SUBPEND PROJECT & WORK

B.M. Chis. "X" S.E. Cor. Stone Slab at Church 148' Lt. Sta. 872+45 Elev. 864.45

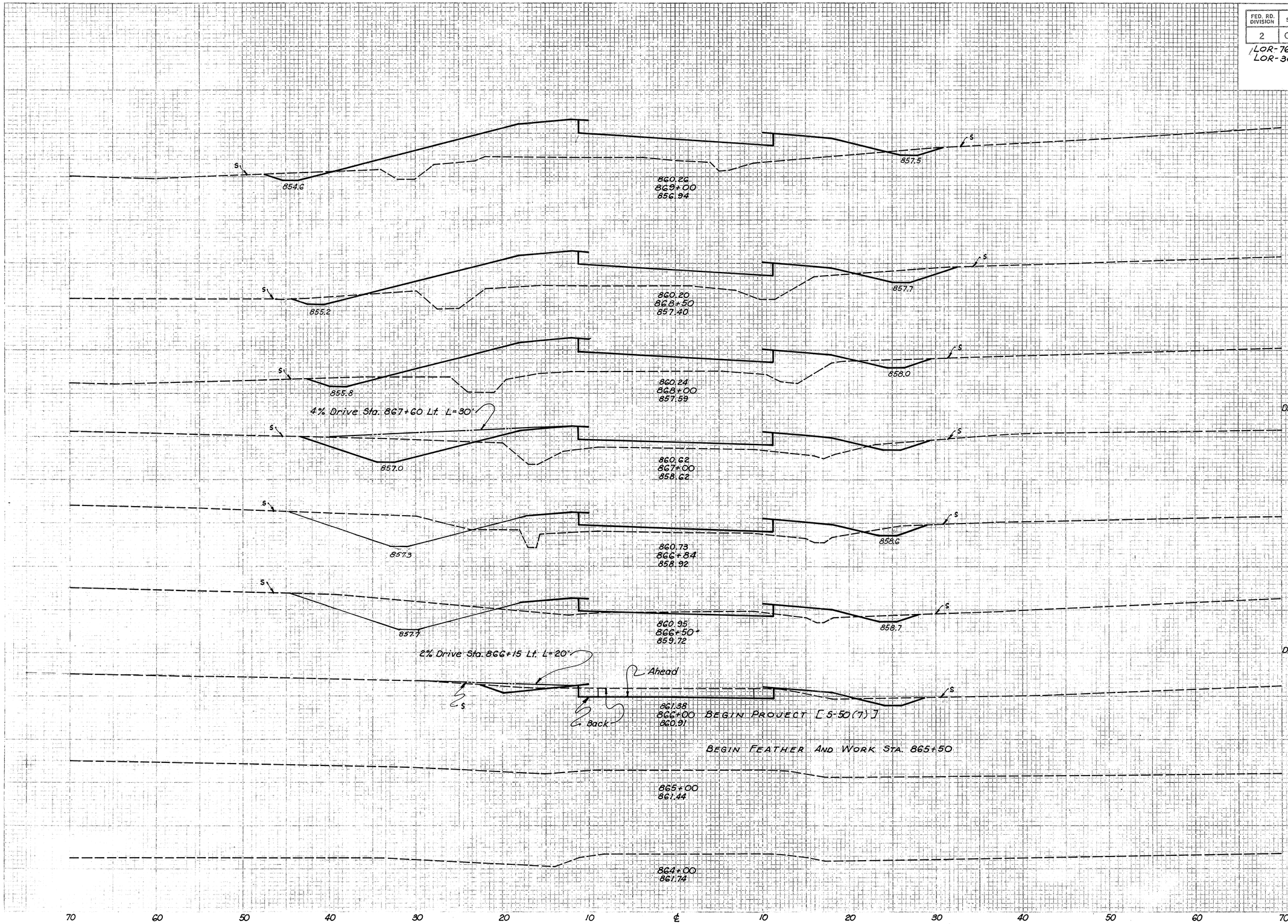
Excavation	14907	Cu. Yds.
Embankment	2134	Cu. Yds.
Embankment +20 %	2561	Cu. Yds.

Intersection LOR-303 West

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

55

LOR-76-0.00 MED-76-15.08
LOR-303 (16.40-16.63) (16.69)



	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	7	161		
			17	269
	11	129		
			20	235
	10	125		
			81	352
Drive Sta. 867+60 Lt.			0	8
	34	65		
			24	33
	48	48		
			65	45
	56	23		
			81	25
Drive Sta. 866+15 Lt.			3	2
Ahead	31	4		
Back	13	4		
			12	4
Sta. 865+50	0	0		

CROSS SECTIONS ON S.R. 303
SHEET 1 OF 3

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

56

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

860.45
874+00
864.63

860.99
873+00
864.19

861.14
872+50
864.79

1% Approach Sta. 872+00 Lt. L=104' W=18'

8% Drive Sta. 872+00 Rt. L=30'

860.0

859.0

861.21
872+00
864.09

859.0

858.0

861.19
871+50
862.08

858.0

857.0

861.10
871+00
860.48

857.0

856.0

860.92
870+50
858.38

853.5

854.5

860.66
870+00
855.88

854.0

856.5

860.41
869+50
855.24

Sta. 869+00 7 16.1

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	438	0		
				1339 0
	285	0		
			496	0
Cul-de-Sac			20	0
	250	0		
			438	0
Drive Sta. 872+00 Rt.			5	0
Appr. Sta. 872+00 Lt.			71	2
	223	0		
			364	2
	170	2		
			219	22
	66	22		
			79	139
	19	128		
			62	304
	48	200		
			53	364
	9	193		
			15	328

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

CROSS SECTIONS ON S.R. 303
SHEET 2 OF 3

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

57

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

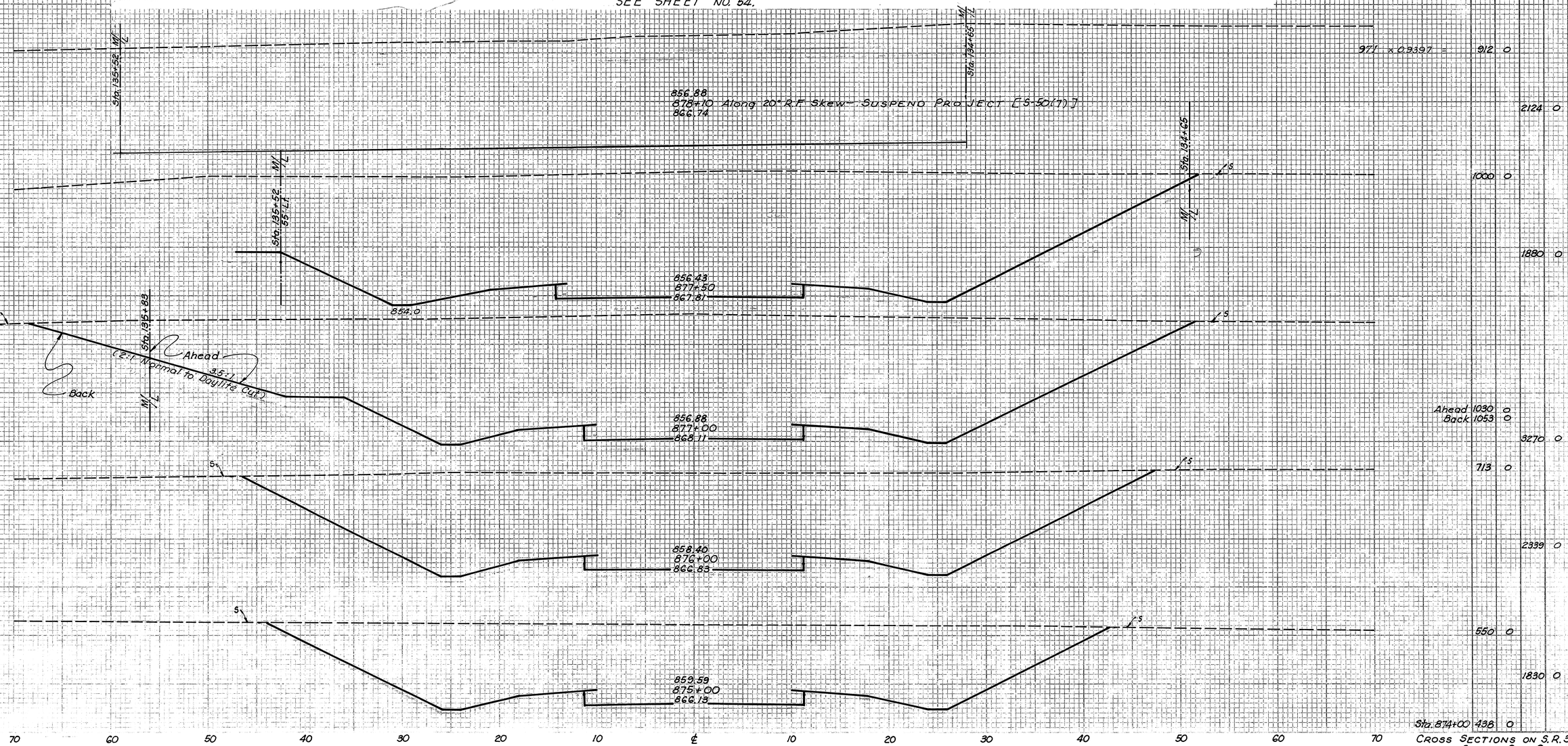
Ref. No.	Station	B-35 Asphaltic Concrete Leveling Course Cu.Yds. 2½"	T-30 Bituminous Prime Coat Gals.	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	B-19 Crushed Aggregate Base Cu.Yds.	I-1 Pipe for Driveways Lin.Ft. 12"	I-3 Roadway Drainage Lin.Ft. 6"	I-3 Roadway Drainage Lin.Ft. 12"	I-8 #1 Inlets Each	I-22 Subbase 6" Cu.Yds.	E-12 Pipe Removed 15" & Under Lin.Ft.
1-A	866+15 Lt. L=20'			2.9	7.6 (5")						
2-A	867+60 Lt. L=30'				10.8 (6")	32					
3-A	872+00 Rt. L=30'				10.8 (6")						
4-A	872+00 Lt. L=104'			13.2	49.5 (7")*						
5-A	Cul-de-sac (As Shown)			17.3	34.6 (7")*						
6-A	Flares @ 877+75	8.5	49	5.0°	28.4 (8")					22.2	
1-D	865+70 to 867+00 Lt.						30	30	1		
1-F	865+50 to 866+00	7.2		3.9°	3.4 (8")					3.2	
1-R	866+11 to 866+85 Lt.										74
	Totals	15.7	49	42.3	145.1	32	30	30	1	25.4	74

* Includes 1 Cu.Yd. for adjustment of adjacent drive
° 1.5" thick

Ref. No.	Station	E-2 Excavation for Structures Cu.Yds.	S-1 Concrete for Structure Class "E" Cu.Yds.	S-27 Pipe for Roadway Culverts Lin.Ft. 24"	L-10 Sodding 6' Wide Sq.Yds.	S-24 Removal of Existing Structures Lump Sum
12-S	869+95	4.4	0.41	96		1
1-SD	869+50 to 870+15 Rt.				44	
2-SD	869+70 to 870+50 Lt.				53	
	Totals	44	0.41	96	97	1

QUANTITIES S.R. 303 (WEST) STA. 865+50 To STA. 878+09.98

SEE SHEET NO. 54.



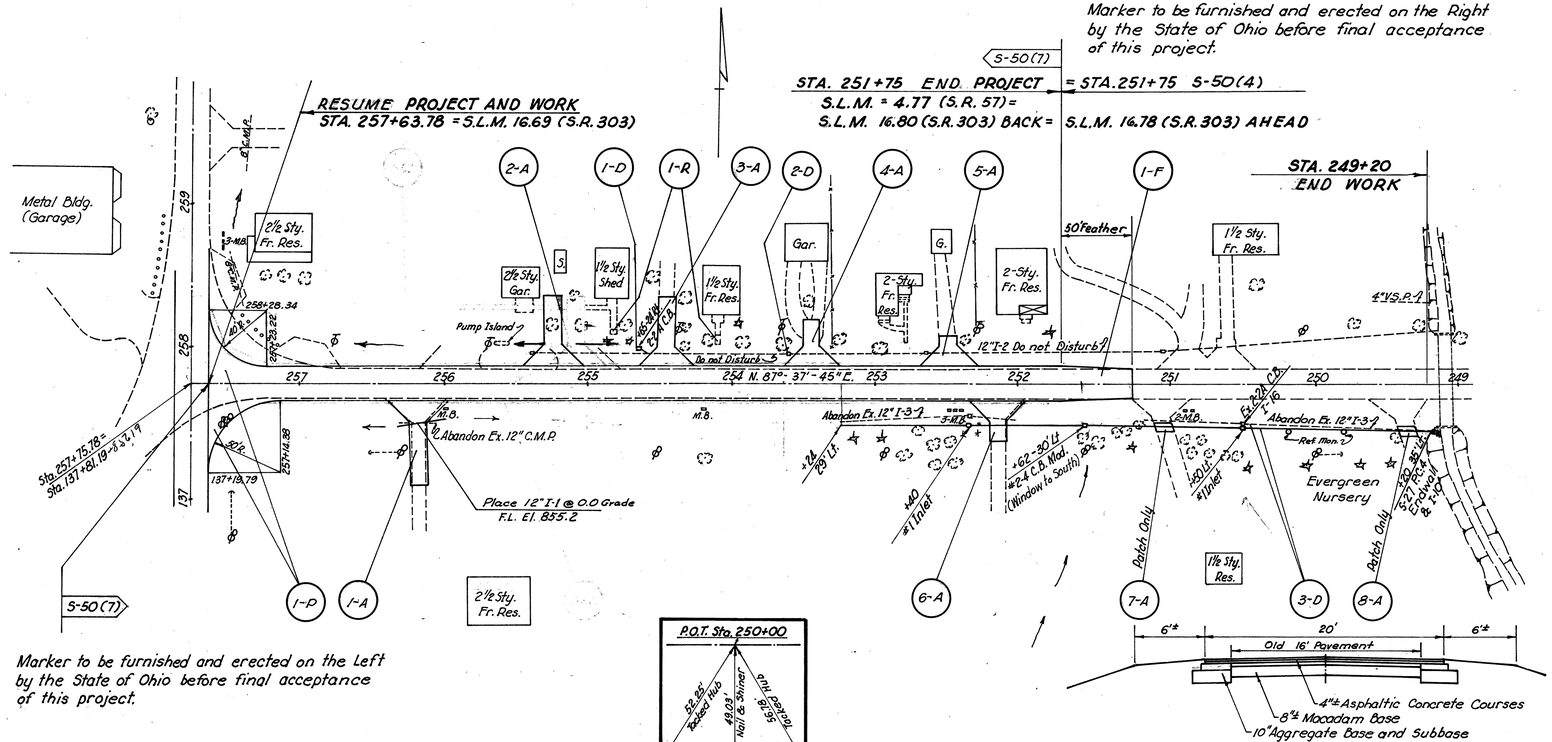
End Area	Cu. Yds.
Cut	Fill	Cut	Fill

Cross Sections on S.R. 303
Sheet 3 of 3

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

58

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



Ref. No.	Station	B-35 Asphaltic Concrete Leveling Course Cu.Yds. 2½"	B-35	T-35 Asphaltic Concrete Surface Course Cu.Yds. 2"	T-35	T-30 Bituminous Prime Coat Gal.	B-19 Aggregate Base Course Cu.Yds. 5"	I-22 Subbase Cu.Yds. 6"	I-1 Pipe for Driveways Lin.Ft. 12"	E-8 Removal & Disposal of Existing Sidewalk Sq.Ft.
1-A	256+20 Lt. L=52'			5.3			14.0		36	
2-A	255+24 Rt. L=48'			5.0			13.2			
3-A	254+48 Rt. L=48'			5.0			13.2			
4-A	253+45 Rt. L=33'			3.8			10.2			
5-A	252+50 Rt. L=20'			2.9			7.6			
6-A	252+20 Lt. L=28'			3.9			9.2			
7-A	251+04 Lt. 6' Patch			0.5			1.1			
8-A	249+35 Lt. 6' Patch						1.4*			
1-P	257+50± Flares Only	6.8		4.1°		39	21.8°	16.3		
1-F	251+25 to 251+75	2.8		4.2°			3.8	3.8		
1-R	254+10 & 254+83 Rt.									28
	Totals	9.6		34.7		39	95.5	20.1	36	28

* 6" B-19 Without Asphaltic Concrete Surface
° Thickness as shown on Typical Section

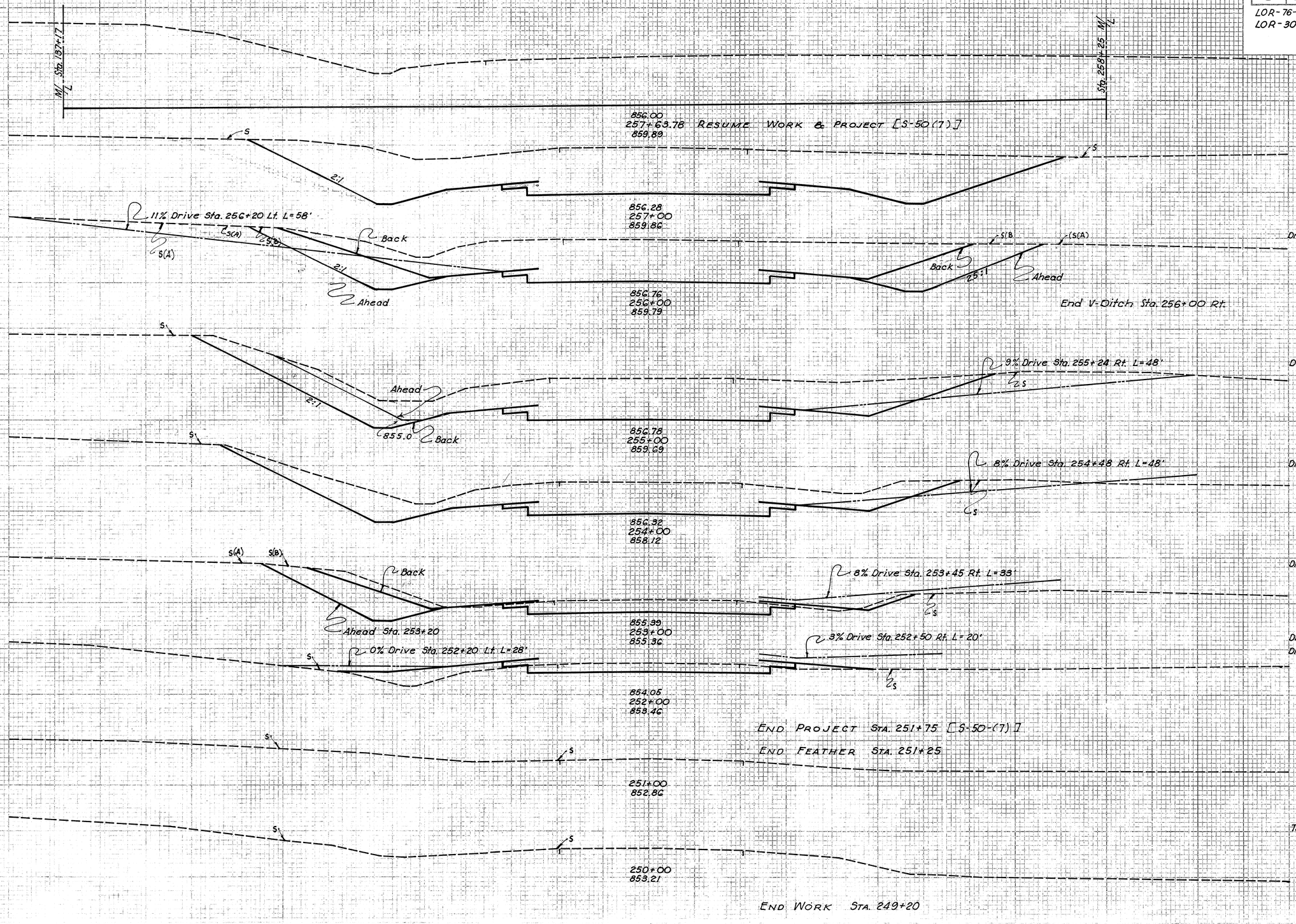
Ref. No.	Station	E-12 Pipe Removed 15" & Under Lin.Ft.	I-2 Storm Sewer Class "B" Lin.Ft. 24"	I-3 Roadway Drainage Lin.Ft. 12"	I-8 Each #1 Inlets	I-8 Each Catch Basins Adjusted to Grade	I-8 Each #2-2.4 Catch Basins	I-8 Each #2-4 Catch Basin (Med.)	I-16 Catch Basins Abandoned Each	S-1 Concrete for Structures Class "E" Cu.Yds.	I-10 Dumped Rock Channel Protect. Cu.Yds.
1-D	254+56 to 256+40 Rt.	82		10			1		1		
2-D	253+62 Rt.					1					
3-D	249+20 to 253+24 Lt.		238	158	2			1	1	0.41	2
	Totals	82	238	168	2	1	1	1	2	0.41	2

INTERSECTION LOR-303 EAST

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

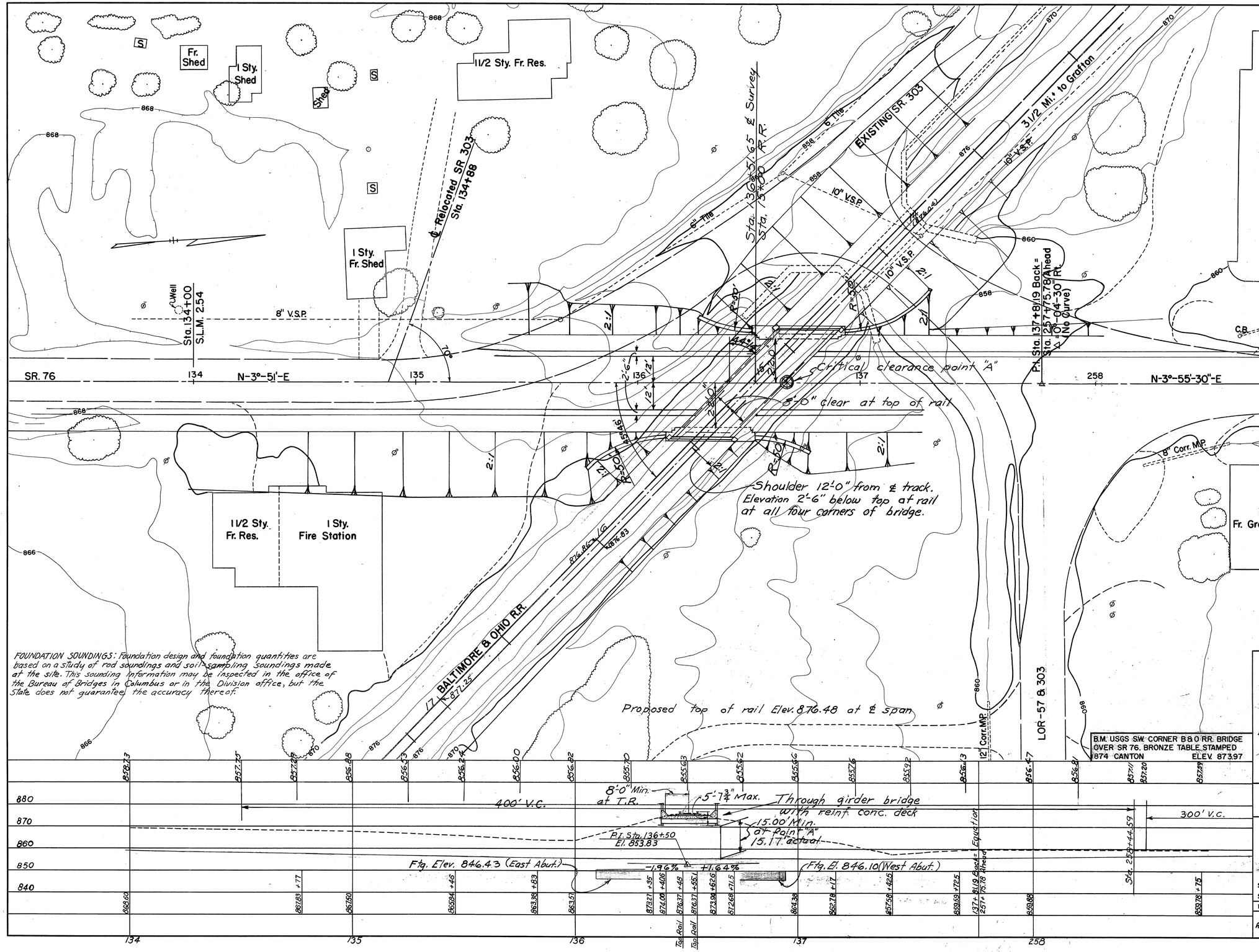
59

LOR-76-0.00 ; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



		End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
		663	0		
				1199	0
		0			
		349			
				1237	
					0
Drive Sta. 256+20 Lt.				14	0
	Ahead	363	0		
	Back	244	0		
				846	0
Drive Sta. 255+08 Rt.				29	0
	Ahead	213	0		
	Back	276	0		
				464	0
Drive Sta. 254+48 Rt.				22	0
		188	0		
				414	3
Sta. 253+20	Ahead	91	2		
	Back	53	2		
Drive Sta. 253+45 Rt.				6	2
				39	1
		53	2		
				144	43
Drive Sta. 252+50 Rt.				5	2
Drive Sta. 252+20 Lt.				0	4
		25	21		
				23	20
Sta. 251+75	Ahead	25	21		
	Back	0	21		
				0	19
Sta. 251+25		0	0		
Total This Sheet				4654	94

CROSS SECTIONS - LOR-303 EAST



EXISTING STRUCTURE
LOR-76-0257
B. & O. R.R. Bridge over S.R. 76
Sufficiency Rating: 47 (1959=67)
Type: Plate Girder with stone Abutments
Span: 35'

PROPOSED STRUCTURE
TYPE: Through-girder bridge with reinf. conc. deck & reinf. conc. substr. substr.
SPAN: 44'-0" clear (normal to ℄ highway).
WIDTH: One track (18'-6" c/c girders).
LOADING: Coopers E-72.
ALIGNMENT: Tangent.
SKEW: 44°-14'.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. LOR-76-0257
UNDER B. & O. R.R.
LORAIN CO. SR-76
SEC. LOR-76-0.00 STA. 136+51.65
SCALE 1" = 20'

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

BFG a.J.T. 1-5-61

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

61

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

For R R Force Account

GIRDERS: 70'-0" b. to b. end angles. 69'-10" c/c bearings.
6'-6½" b. to b. flange angles.

Max. End Shear = 421,400#
421,400 ÷ 11000 = 38.31 □"
Web 78 x ½ = 39.00 □" Furnished
Rivet Pitch # As shown
End Stiffeners: 4 Ls 8x6x⅜ (Fills)
Inter. Stiffeners: L 6x4x½ (Fill I. S.)
L 6x4x⅜ (Crimp O.S.)

Max. Moment = 6,457,600 in#
(6,457,600 x 12) ÷ 18,000 = 4,305 in³ S.M. Req'd.

Section Furnished:	Gross I	Net I
1 Web 78 x ½ (Not spliced)	124987 in⁴	109002 in⁴
4 Ls 8x8x¾ (Not spliced)		
2 Cover Pls 18x⅜ (F.L. Top & Bottom)		
2 Cover Pls 18x⅜ (49' Top & Bottom)	44011	39121
2 Cover Pls 18x⅜ (37' Top & Bottom)	37935	33707
Total	206933 in⁴	181830 in⁴
Net Section Modulus Furnished:		4395 in³

4 Lines of rivets in cover Pl.

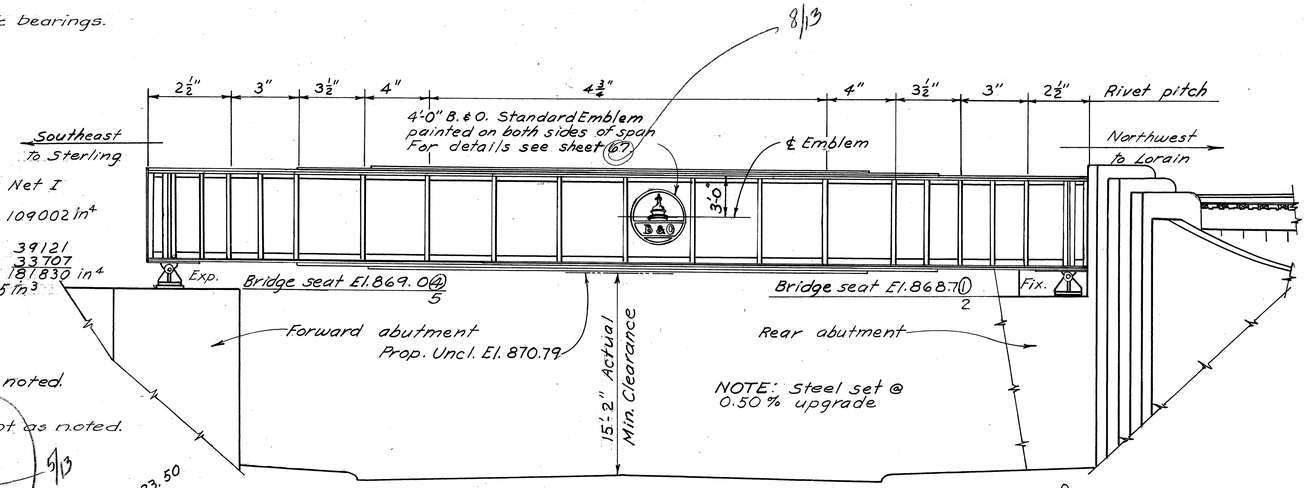
MAIN FLOOR BEAMS: 18'-6" c. to c. girders
2'-5" c. to c. fl. beams.

Max. End Shear = 38,500#
End connection: 2 Ls 6x4x½
Rivets: 8-D.S., 10-S.S., unless otherwise noted.
Max. Moment = 241,000 in#
(241,000 x 12) ÷ 18,000 = 161 in³ S.M. Req'd.
Use 24WF76 = 175.4 in³ S.M. Furnished except as noted.

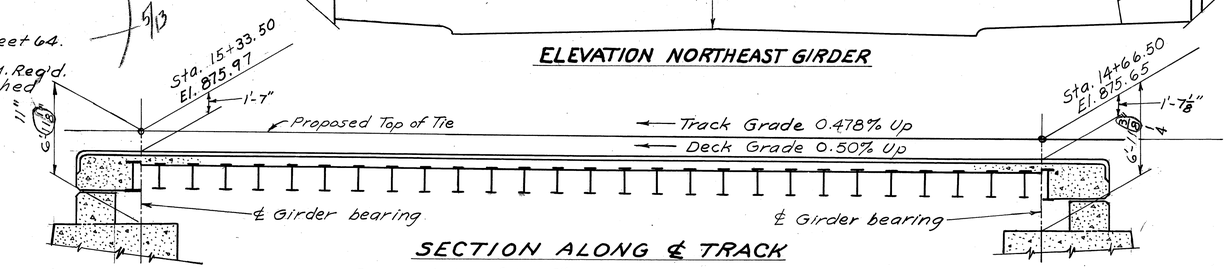
END FLOOR BEAMS:
Max. Shear = 136,000#
End connection: As shown on Sheet 64.
Max. Moment = 841,000 in#
(841,000 x 12) ÷ 18,000 = 560 in³ S.M. Req'd.
Use 30WF190 = 586.1 in³ S.M. Furnished

ALL RIVETS shall be ⅞" ϕ.

FIELD CONNECTIONS shall be made with ⅞" ϕ rivets.

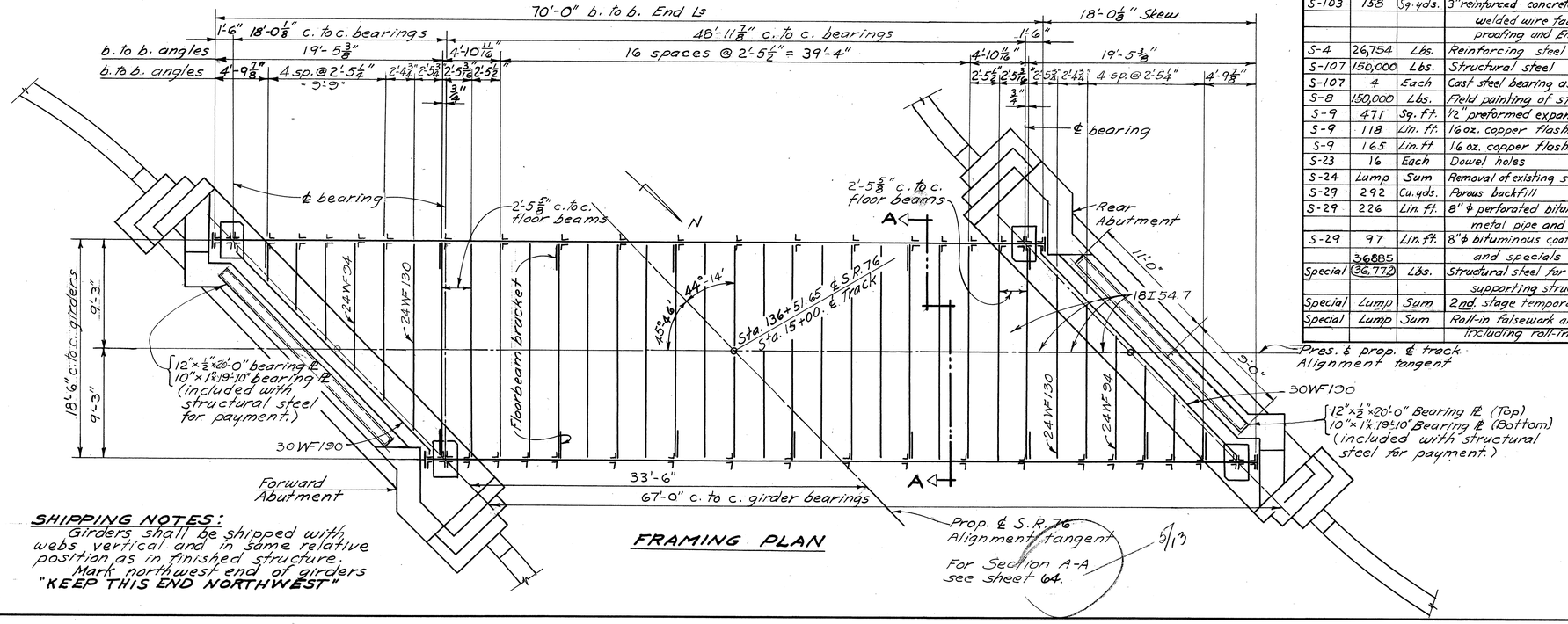


ELEVATION NORTHEAST GIRDER



SECTION ALONG ℄ TRACK

Proposed top of tie 8" below proposed top of rail



FRAMING PLAN

SHIPPING NOTES:
Girders shall be shipped with webs vertical and in same relative position as in finished structure.
Mark northwest end of girders "KEEP THIS END NORTHWEST"

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Super.	Abuts.	Wings.	Gen'l.
E-2	Lump	Sum	Cofferdams, cribs and sheeting				Lump
E-2	1495	Cu. yds.	Unclassified excavation		415	1080	
E-2	215	Cu. yds.	Shale excavation		100	115	
S-1	76	Cu. yds.	Class "C" concrete, superstructure	76			
S-1	270	Cu. yds.	Class "E" concrete, footings		151	119	
S-1	802	Cu. yds.	Class "E" concrete above footings		481	321	
S-3	465	Sq. yds.	Waterproofing, Type "A"		215	250	
S-3	32	Sq. yds.	Waterproofing, Type "B"			32	
S-103	178	Sq. yds.	Three-ply membrane waterproofing, Type "B"	178			
S-103	158	Sq. yds.	3" reinforced concrete protection (including welded wire fabric, plastic cement waterproofing and Embeco grout seal)	158			
S-4	26,754	Lbs.	Reinforcing steel	7868	10,667	8,219	
S-107	150,000	Lbs.	Structural steel	150,000			
S-107	4	Each	Cast steel bearing assembly, including painting	4			
S-8	150,000	Lbs.	Field painting of structural steel	150,000			
S-9	471	Sq. ft.	½" preformed expansion joint filler		108	363	
S-9	118	Lin. ft.	16 oz. copper flashing, 18" wide		19	99	
S-9	165	Lin. ft.	16 oz. copper flashing, 6" wide	165			
S-23	16	Each	Dowel holes		16		
S-24	Lump	Sum	Removal of existing structure, as per plan				Lump
S-29	292	Cu. yds.	Porous backfill		150	142	
S-29	226	Lin. ft.	8" ϕ perforated bituminous coated corrugated metal pipe and specials				226
S-29	97	Lin. ft.	8" ϕ bituminous coated corrugated metal pipe and specials				97
Special	36885 (36,772)	Lbs.	Structural steel for 1st. stage temporary supporting structure, furnishing only				36885 (36,772)
Special	Lump	Sum	2nd. stage temporary supporting structure				Lump
Special	Lump	Sum	Roll-in falsework and appurtenances, including roll-in operation				Lump

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

2

STRESS SHEET & ESTIMATED QUANTITIES

BRIDGE No. LOR-76-0257
B. & O. R.R. over S.R. 76

LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Innes	Innes	N.L.D.	MPB	BFG	3-17-61	3-17-61
				apg	1-5-61	6-7-61

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

62

GENERAL NOTES

DESIGN: A.R.E.A. Specifications for Steel Railway Bridges, 1959 Edition, and Cooper's E-72 live load. (Diesel only)

CONSTRUCTION SPECIFICATIONS: State of Ohio, Department of Highways, Construction and Material Specifications, dated January 1959, Supplemental Specifications No. S-101, dated December 2, 1959, No. S-103, revised February 16, 1955 , No. S-107, revised February 16, 1955, and No. S-207 dated April 28, 1955.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain highway traffic the existing superstructure shall be removed in its entirety and shall become the property of the Contractor. The abutments and wingwalls shall be removed to at least 12 inches below the surface of the ground or bottom of the railroad ballast.

EMBANKMENT AND BACKFILL in and around the existing structure shall be in accordance with Item E-1.08 and E-2.08. The top of the embankment shall be 24 feet wide, centered on the center line of track, and 2'-6" below the top of rail. The side slopes shall be 2:1. The embankment shall be included with Item S-24 for payment.

FOOTINGS shall extend a minimum of 1'0" into firm shale or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Footings are designed for a maximum bearing pressure of 5 tons per square foot.

PAINTING AT STIFFENER CRIMPS. The requirement of the last portion of the last sentence in Sec. S-7.14 of the Construction and Material Specifications which states ".....and any remaining openings shall be filled with a metallic compound of a non-shrinking type before the shop paint is applied" shall not apply and the following requirement shall be substituted therefor: "Prior to the assembly of a girder the web plate, the flange angle and the stiffener angle at the location of the crimp in the stiffener angle shall be given a shop coat of paint."

SURFACE FINISH OF CONCRETE: Abutment walls shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.

WATERPROOFING: 3-Ply membrane waterproofing, type "b", with 3" reinforced concrete protection shall comply with Supplemental Specification No. S-103.

Type "A" waterproofing shall be used for damp-proofing the back surfaces of the abutments and wingwalls. The Type "A" waterproofing shall cover all of the surfaces on the wingwalls from the top of the footings to one foot below the top of the finished ground line and all surfaces of the back of the abutments and pylons from the top of the footing to elevation 874.1 at the rear abutment and to elevation 874.4 at the forward abutment, except as covered by three-ply membrane waterproofing. Type "B" waterproofing shall cover the construction joints between the wingwalls and the abutments as shown on the plans.

REINFORCING STEEL: All reinforcing steel shall be deformed bars and shall meet the requirements of Sec. M 7.1, intermediate grade billet steel.

POROUS BACKFILL, 2 ft. thick, shall extend up to the railroad ballast and to the surface of the earth shoulders, and outward to the ends of the wingwalls and the surface of the embankment slopes. The porous backfill shall extend down to the flow line of the 8" diameter perforated bituminous coated corrugated metal pipe abutment and wingwall drain.

RIVETS shall be 7/8" ϕ. Rivet holes shall be 15/16" ϕ. Rivets shall be used for shop and final field connections. High strength bolts shall be used for temporary field connections of jacking brackets.

SHOP DRAWINGS (four sets of prints) shall be submitted to the Director for approval by the Dept. of Highways and by the B.&O.R.R. Structural steel shall be subject to inspection at both mill and shop by the Research Department of the B.&O.R.R., and, in connection therewith, the railroad shall be furnished shipping statements and mill orders in triplicate. Upon completion of the structure, the railroad shall be furnished reproduced tracings on linen cloth of all shop detail plans for the steel work.

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 existing railroad structure, shall be submitted to the Director for approval by the Department of Highways and by the B. & O. Railroad Company.

ROLL-IN FALSEWORK AND APPURTENANCES INCLUDING THE ROLLING-IN OPERATION: This item consists of the construction by the Contractor of the roll-in falsework for the purpose of supporting the superstructure while it is being erected along side its permanent position. The Contractor shall furnish all materials, labor, equipment, and incidentals necessary to construct the falsework as shown on Sheet No 71 of the Plans. This item also includes the work to be done by the Contractor's forces in performing the rolling-in operation which includes all equipment and incidentals necessary to roll-in and jack down the deck into its final position. The method and equipment to be used by the Contractor in this operation shall meet the approval of the Regional Engineer of the B.&O. Railroad Company and the Director.

Railroad forces will place ballast, ties and rails on the deck before the roll-in operation is performed, lay rails on 2nd stage construction, and make the rail connections on the approaches after the superstructure is placed at its permanent position.

All rolling-in work as set forth in this item shall be done at a time prescribed by the Railroad Company and without interference to railroad traffic.

The Contractor may submit an alternate or modified plan of the roll-in falsework to the Regional Engineer of the B.&O. Railroad Company and the Director for approval.

All salvaged roll-in falsework material will become the property of the Contractor and shall be removed from the site by him.

This special item shall be paid for at the lump sum price bid for Roll-in Falsework and Appurtenances including the "Rolling-in Operation."

CONSTRUCTION PROCEDURE

RAILROAD WORK

1. Construct the 1st stage temporary supporting structure, raising the track to meet the revised grade.

5. Place the ballast, ties, rails and timber ballast stops on the proposed superstructure.
6. Remove 1st stage temporary supporting structure.

10. Place road-bed ballast, ties, and rails over approach fill at forward abutment and rails over 2nd stage temporary supporting structure.

16. Remove the rails from the existing railroad bridge and the 2nd stage temporary supporting structure.

19. Place road-bed ballast, ties, and rails and restore railroad traffic to normal usage.

CONTRACT WORK

2. Construct the abutments to the elevation of the girder bearing seats and the wingwalls as per plan and to the elevation of the horizontal construction joints in the walls, if any.
3. Construct the temporary roll-in falsework and erect the proposed superstructure thereon.
4. Install drainage, waterproofing and backfill around the abutments and wingwalls as per plan.

7. Roll-in the proposed superstructure and lower onto girder bearings.
8. Erect the 2nd stage temporary supporting structure.

9. Complete the approach road-bed fill at the forward abutment.

11. Complete superstructure, abutments and wingwalls (except northwest wingwall) and waterproof.
12. Remove roll-in falsework. Install highway drainage and complete pavement under structure to permit re-routing highway traffic thru new facility, at least in part.
13. Complete northwest wingwall.
14. Complete wingwall drainage and waterproofing.
15. Place and compact fill under existing railroad bridge and around the rear abutment and wingwalls of the new structure as per General Note "Embankment and Backfill."

17. Remove the existing railroad deck girder span and portions of the existing abutments and wingwall as per General Note "Removal of existing structure," and the 2nd. stage temporary supporting structure.

18. Complete the approach road-bed fills.

20. Complete all contract items.

MATERIAL FOR RAILROAD FORCE ACCOUNT - FIRST STAGE TEMPORARY SUPPORTING STRUCTURE

	No.	Description	Remarks
UNTREATED TIMBER	50	12"ϕ x 23'-0" } finished length	Bearing piles
	27	12"ϕ x 28'-0" }	Bearing piles
	21	12" x 12" x 16'-0"	Pier caps and blocking
	3	8" x 12" x 16'-0"	Pier blocking
	3	6" x 12" x 16'-0"	Pier blocking
	4	8" x 16" x 16'-0"	Pier blocking
	1	12" x 14" x 10'-0" or }	Blocking @ existing abutment
	2	8" x 12" x 10'-0" }	
	5	12" x 12" x 13'-0"	Pier caps
	40	12" x 12" x 7'-6"	Cross caps
	4	8" x 16" x 12'-6"	Timber stringers (forward spans)
	4	8" x 16" x 24'-6"	Timber stringers (forward spans)
	8	8" x 16" x 24'-0"	Timber stringers (forward spans)
	1	8" x 16" x 26'-0"	Timber stringers (forward spans)
	1	8" x 16" x 24'-8"	Timber stringers (forward spans)
	1	8" x 16" x 21'-1"	Timber stringers (forward spans)
	1	8" x 16" x 19'-10"	Timber stringers (forward spans)
	1	8" x 16" x 14'-0"	Timber stringers (forward spans)
	1	8" x 16" x 12'-8"	Timber stringers (forward spans)
	1	8" x 16" x 9'-1"	Timber stringers (forward spans)
	1	8" x 16" x 7'-10"	Timber stringers (forward spans)
	8	8" x 16" x 24'-8"	Timber stringers (center spans)
	8	8" x 16" x 13'-3"	Timber stringers (center spans)
	81	7⅞" x 8" x 9'-6"	Ties T1
	49	8" x 9" x 9'-6"	Ties T2 (Dapped)
	11	8" x 9" x 9'-6"	Ties T3 (Dapped)
	3	8" x 9" x 9'-6"	Ties T4 (Dapped)
	10	8" x 9" x 9'-6"	Ties T5 (Dapped)
	3	8" x 9" x 9'-6"	Ties T6 (Dapped)
	29	4" x 7¾" x 14'-6"	Joist J1
	18	4" x 9" x 14'-6"	Joist J2 (Dapped)
	4	4" x 9" x 14'-6"	Joist J3 (Dapped)
	2	4" x 9" x 14'-6"	Joist J4 (Dapped)
	1	4" x 9" x 14'-6"	Joist J5 (Dapped)
	12	8" x 12" x 3'-9"	Yoke blocking
	24	8" x 12" x 1'-6"	Yoke blocking
	12	8" x 12" x 3'-4 7/8"	Yoke blocking
	4	8" x 12" x 2'-6"	Yoke blocking
	4	8" x 14" x 1'-6"	Yoke blocking
	2	8" x 14" x 3'-5"	Yoke blocking
	24	2" x 6" x 1'-6"	Yoke scabs
	6	6" x 12" x 12'-0"	Backwall planks
	22	5" x 8" x 16'-0"	Guard Rails
	32	3" x 10" x 10'-0"	Sway bracing
	8	3" x 10" x 5'-6"	Sway bracing
	24	3" x 10" x 14'-0"	Sway bracing
	30	3" x 10" x 16'-0"	Sway bracing
	24	3" x 10" x 18'-0"	Sway bracing
	6	3" x 10" x 20'-0"	Sway bracing
	51	4" x 6" x 7'-0"	Railing posts (Dapped)
	1056 lin.ft.	2" x 6" x 16'-0"	Railing and scabs
	51	2" x 6" x 4'-0"	Railing post braces
	1960 F.B.M.	2" x 8" x 14'-0"	Footwalk plank
HARDWARE	65	¾" ϕ bolts x 21" (Std. thd.-Sq. H. & N.)	Sway bracing to piles
	225	¾" ϕ bolts x 18" (Std. thd.-Sq. H. & N.)	Sway bracing to piles and caps
	6	¾" ϕ bolts x 22" (Std. thd.-Sq. H. & N.)	Backwall plank to piles
	80	¾" ϕ bolts x 35" (Std. thd.-Sq. H. & N.)	Thru 4-Ply stringers
	36	¾" ϕ bolts x 26" (Std. thd.-Sq. H. & N.)	Joists to timber stringers
	22	¾" ϕ Timber deck hook bolt x 12" (Std. thd.-Sq. nut)	Joists to WF beams
	89	½" D x 16" boat spike	Ties to timber stringers
	10	¾" ϕ drift bolts x 20"	Backwall planks
	75	¾" ϕ drift bolts x 24"	Pile caps to piles
	80	¾" ϕ drift bolts x 22"	Cross caps to caps
	72	¾" ϕ drift bolts x 22"	Pier blocking to cross caps
	40	¾" ϕ drift bolts x 24"	Timber stringers to pier caps or blocking
	2	¾" ϕ x 8" lag bolts	18 WF beams to cross caps
	300	Washer head spike, as per plan	Guard rail to ties
	150	2½" ϕ split ring connector	Guard rail
	110	½" ϕ Carriage bolt x 5" (Std. thd.-Sq. N.)	Brace to post
	110	½" ϕ Carriage bolt x 7" (Std. thd.-Sq. N.)	Brace to joist
	110	½" ϕ Carriage bolt x 9" (Std. thd.-Sq. N.)	Post to joist
	220	⅝" ϕ Carriage bolt x 8" (Std. thd.-Sq. N.)	Railing to post
	80	⅞" ϕ x 3" lag bolts	Pile points
	640	¼" D x 3" boat spikes	Pile points
	750	O.G. washers for ¾" ϕ bolts	
	40	O.G. washers for 1" ϕ bolts	Yokes
	12 lbs.	std. flat washers ½" ϕ	
	3 lbs.	std. flat washers ⅜" ϕ	
	43 lbs.	20d nails	Footwalk and railing
	2	¾" ϕ bolts x 48" (Std. thd.-Sq. H. & N.)	WF Beam anchor blocking to WF Beam anchor blocking
	8	¾" ϕ bolts x 32" (Std. thd.-Sq. H. & N.)	

Superseded by Sheet 62A.

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

3

GEN. NOTES, CONSTRUCTION PROCEDURE AND BILL OF MATERIAL

BRIDGE No. LOR-76-0257
B. & O. R.R. over S. R. 76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Innes	Innes	N.L.D.	MPB	BFG / APH	3-17-61 / 1-5-61	3-17-61 / 6-1-61

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

62A

GENERAL NOTES

DESIGN: A.R.E.A. Specifications for Steel Railway Bridges, 1959 Edition, and Cooper's E-72 live load. (Diesel only)

CONSTRUCTION SPECIFICATIONS: State of Ohio, Department of Highways, Construction and Material Specifications, dated January 1959, Supplemental Specifications No. S-101, dated December 2, 1958, No. S-103, revised February 16, 1955, No. S-107, revised February 16, 1955, and No. S-207 dated April 23, 1953.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain highway traffic the existing superstructure shall be removed in its entirety and shall become the property of the Contractor. The abutments and wingwalls shall be removed to at least 12 inches below the surface of the ground or bottom of the railroad ballast.

EMBANKMENT AND BACKFILL in and around the existing structure shall be in accordance with Item E-1.08 and E-2.08. The top of the embankment shall be 24 feet wide, centered on the centerline of track, and 2'-6" below the top of rail. The side slopes shall be 2:1. The embankment shall be included with Item S-24 for payment.

FOOTINGS shall extend a minimum of 1'-0" into firm shale or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Footings are designed for a maximum bearing pressure of 5 tons per square foot.

PAINTING AT STIFFENER CRIMPS: The requirement of the last portion of the last sentence in Sec. S-7.14 of the Construction and Material Specifications which states ".....and any remaining openings shall be filled with a metallic compound of a non-shrinking type before the shop paint is applied" shall not apply and the following requirement shall be substituted therefor. "Prior to the assembly of a girder the web plate, the flange angle and the stiffener angle at the location of the crimp in the stiffener angle shall be given a shop coat of paint.".

SURFACE FINISH OF CONCRETE: Abutment walls shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.

WATERPROOFING: 3-Ply membrane waterproofing, type "B", with 3" reinforced concrete protection shall comply with Supplemental Specification No. S-103.

Type "A" waterproofing shall be used for damp-proofing the back surfaces of the abutments and wingwalls. The Type "A" waterproofing shall cover all of the surfaces on the wingwalls from the top of the footings to one foot below the top of the finished ground line and all surfaces of the back of the abutments and pylons from the top of the footing to elevation 874.1 at the rear abutment and to elevation 874.4 at the forward abutment, except as covered by three-ply membrane waterproofing. Type "B" waterproofing shall cover the construction joints between the wingwalls and the abutments as shown on the plans.

REINFORCING STEEL: All reinforcing steel shall be deformed bars and shall meet the requirements of Sec. M-7.1, Intermediate grade billet steel.

POROUS BACKFILL, 2ft. thick, shall extend up to the railroad ballast and to the surface of the earth shoulders, and outward to the ends of the wingwalls and the surface of the embankment slopes. The porous backfill shall extend down to the flow line of the 8" diameter performed bituminous coated corrugated metal pipe abutment and wingwall drain.

RIVETS shall be 7/8" ϕ. Rivet holes shall be 15/16" ϕ. Rivets shall be used for shop and final field connections. High strength bolts shall be used for temporary field connections of jacking brackets.

SHOP DRAWINGS (four sets of prints) shall be submitted to the Director for approval by the Dept. of Highways and by the B. & O. R.R. Structural steel shall be subject to inspection at both mill and shop by the Research Department of the B. & O. R.R., and, in connection therewith, the railroad shall be furnished shipping statements and mill orders in triplicate. Upon completion of the structure, the railroad shall be furnished reproduced tracings on linen cloth of all shop detail plans for the steel work.

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 existing railroad structure, shall be submitted to the Director for approval by the Department of Highways and by the B. & O. Railroad Company.

ROLL-IN FALSEWORK AND APPURTENANCES INCLUDING THE ROLLING-IN OPERATION: This item consists of the construction by the Contractor of the rolling-in falsework for the purpose of supporting the superstructure while it is being erected along side its permanent position. The Contractor shall furnish all materials, labor, equipment, and incidentals necessary to construct the falsework as shown on Sheet No. 71 of the Plans. This item also includes the work to be done by the Contractor's forces in performing the rolling-in operation which includes all equipment and incidentals necessary to rolling-in and jack down the deck into its final position. The method and equipment to be used by the Contractor in this operation shall meet the approval of the Regional Engineer of the B. & O. Railroad Company and the Director.

Railroad forces will place ballast, ties and rails on the deck before the rolling-in operation is performed, lay rails on 2nd stage construction, and make the rail connections on the approaches after the superstructure is placed at its permanent position.

All rolling-in work as set forth in this item shall be done at a time prescribed by the Railroad Company and without interference to rail traffic.

The Contractor may submit an alternate or motified plan of the roll-in falsework to the Regional Engineer of the B. & O. R.R. Co. and the Director for approval.

All salvaged roll-in falsework material will become the property of the Contractor and shall be removed from the site by him.

This special item shall be paid for at the lump sum price bid for Roll-in Falsework and Appurtenances including the "Rolling-in Operation".

CONSTRUCTION PROCEDURE

RAILROAD WORK

1. Construct the 1st stage temporary supporting structure, raising the track to meet the revised grade.

5. Place the ballast, ties, rails and timber ballast stops on the proposed superstructure.
Remove ties, stringers and caps of 1st stage temporary supporting structure from the single bent at Station 15+60 to the abutment at Station 16+09 and replace ballast, ties, rail, etc.

*6. Remove remainder of ties and stringers of 1st stage temporary supporting behind forward abutment, from the double bent at Sta. 15+51 to the single bent at Sta. 15+60. Remove all ties, superstructure, blocking and caps of 1st stage temporary supporting from double bent at Sta. 14+49 to double bent at Sta. 15+51.

*10. Place ballast, ties and rails over 2nd stage temporary supporting structure, and connect rails on slab, to restore railroad traffic.

16. Remove the rails from the 2nd stage temporary supporting structure.

19. Place road bed ballast, ties and rails, and restore railroad traffic.
20. Remove rails from existing railroad bridge.

23. Place road bed ballast, ties and rails and restore railroad traffic to normal.

CONTRACT WORK

2. Construct the abutments to the elevation of the girder bearing seats and the wingwalls as per plan and to the elevation of the horizontal construction joints in the walls, if any.

3. Construct the temporary roll-in falsework and erect the proposed superstructure thereon.

4. Install drainage, waterproofing and backfill around the abutments and wingwalls as per plan.
Backfill behind breast wall of forward abutment in track area to El. 868±, and complete approach road bed fill from single bent at Station 15+60 to Abutment at Station 16+09 to El. 874±.

*7. Roll-in the proposed superstructure and lower onto girder bearings.
*8. Erect 2nd stage temporary supporting structure.
*9. Place additional road bed fill between double bent at Sta. 15+51 and single bent at Sta. 15+60.

11. Complete superstructure, abutments and wingwalls (except northwest wingwall) and waterproof.
12. Remove rollin falsework. Install highway drainage and complete pavement under structure to permit re-routing highway traffic thru new facility, at least in part.
13. Complete northwest wingwall.
14. Complete wingwall drainage and waterproofing.
15. Place and compact fill under existing railroad bridge and around the rear abutment and wingwalls of the new structure as per General Note, "Embankment and Backfill".

17. Remove the 2nd stage temporary supporting structure.
18. Complete approach roadbed fills.

21. Remove the existing railroad girder span and portions of the existing abutments and wingwalls as per General Note, "Removal of existing structure".
22. Complete road bed fills.

24. Complete all contract items.

*Items 6 thru 10 shall be completed in one (1) day's time.

UNTREATED TIMBER BILL OF MATERIAL

FOR RAILROAD FORCE ACCOUNT - FIRST STAGE TEMPORARY SUPPORTING STRUCTURE

No.	Description	Remarks
50	12"ϕ x 23'-0" } finished length	Bearing piles
27	12"ϕ x 28'-0" } (Order 82 12"ϕ x 35'-0" piles)	
21	12" x 12" x 16'-0"	Pier caps and blocking
3	8" x 12" x 16'-0"	Pier blocking
3	6" x 12" x 16'-0"	
4	8" x 16" x 16'-0"	
1	11½" x 12" x 16'-0"	
16	6" x 8" x 4'-0"	Braces
1	12" x 14" x 10'-0" or }	Blocking @ existing abutment
2	8" x 12" x 10'-0" }	
5	12" x 12" x 13'-0"	Pier caps
40	12" x 12" x 7'-6"	Cross caps
2	8" x 12" x 12'-0" }	WF beam anchor
1	4" x 12" x 4'-0"	
4	8" x 16" x 12'-6"	Timber stringers (forward spans)
4	8" x 16" x 24'-6"	
8	8" x 16" x 24'-0"	
1	8" x 16" x 26'-0"	
1	8" x 16" x 24'-8"	
1	8" x 16" x 21'-1"	
1	8" x 16" x 19'-10"	
1	8" x 16" x 14'-0"	
1	8" x 16" x 12'-8"	
1	8" x 16" x 9'-1"	
1	8" x 16" x 7'-10"	
81	7¾" x 8" x 9'-6"	Ties T1
44	8" x 9" x 9'-6"	Ties T2
11	8" x 9" x 9'-6"	Ties T3
3	8" x 9" x 9'-6"	Ties T4
10	8" x 9" x 9'-6"	Ties T5 (Dapped)
3	8" x 9" x 9'-6"	Ties T6
1	8" x 9" x 9'-6"	Tie T7
3	8" x 9" x 9'-6"	Ties T8
1	8" x 9" x 9'-6"	Tie T9
29	4" x 7¾" x 14'-6"	Joist J1
17	4" x 9" x 14'-6"	Joist J2
4	4" x 9" x 14'-6"	Joist J3
2	4" x 9" x 14'-6"	Joist J4 (Dapped)
1	4" x 9" x 14'-6"	Joist J5
1	4" x 9" x 14'-6"	Joist J6
20	8" x 12" x 3'-9"	Yoke blocking
32	8" x 12" x 1'-6"	
12	8" x 12" x 3'-4⅞"	
6	8" x 12" x 2'-6"	
5	8" x 14" x 1'-6"	
2	8" x 14" x 3'-5"	
24	2" x 6" x 1'-6"	Yoke scabs
6	6" x 12" x 12'-0"	Backwall planks
27	5" x 8" x 16'-0"	Guard rails
32	3" x 10" x 10'-0"	Sway bracing
8	3" x 10" x 5'-6"	
12	3" x 10" x 14'-0"	
30	3" x 10" x 16'-0"	
6	3" x 10" x 18'-0"	
12	3" x 10" x 20'-0"	
8	3" x 10" x 22'-0"	
8	3" x 10" x 24'-0"	
10	3" x 10" x 26'-0"	
51	4" x 6" x 7'-0"	Railing posts (Dapped)
1056	lin. ft. 2" x 6" x 16'-0"	Railing and scabs
51	2" x 6" x 4'-0"	Railing post braces
1960	F.B.M. 2" x 8" x 14'-0"	Foot walk plank
8	8" x 16" x 24'-8"	Timber stringers (center spans)
8	8" x 16" x 13'-3"	

HARDWARE BILL OF MATERIAL

FOR RAILROAD FORCE ACCOUNT — FIRST STAGE TEMPORARY SUPPORTING STRUCTURE

No.	Description	Remarks
65	¾" ϕ bolts x 21" (Std. thd. - Sq. H. & N.)	Sway bracing to piles
225	¾" ϕ bolts x 18" (Std. thd. - Sq. H. & N.)	Sway bracing to piles and caps
6	¾" ϕ bolts x 22" (Std. thd. - Sq. H. & N.)	Backwall plank to piles
80	¾" ϕ bolts x 35" (Std. thd. - Sq. H. & N.)	Thru 4-Ply stringers
36	¾" ϕ bolts x 26" (Std. thd. - Sq. H. & N.)	Joists to timber stringers
32	¾" ϕ bolts x 32" (Std. thd. - Sq. H. & N.)	Braces to caps
22	¾" ϕ timber deck hook bolt x 12" (Std. thd. - Sq. Nut)	Joists to WF beams
89	½" □ x 16" boat spike	Ties to timber stringers
10	¾" ϕ drift bolts x 20"	Backwall planks
75	¾" ϕ drift bolts x 24"	Pile caps to piles
80	¾" ϕ drift bolts x 22"	Cross caps to caps
72	¾" ϕ drift bolts x 22"	Pier blocking to cross caps
40	¾" ϕ drift bolts x 24"	Timber stringer to pier caps or Blocking
2	¾" ϕ x 10" lag bolts	18 WF beams to cross caps
310	Washer head spike, as per plan	Guard rail to ties
155	2½" ϕ split ring connector	Guard rail
110	½" ϕ Carriage bolt x 5" (Std. thd. - Sq. N.)	Brace to post
110	½" ϕ Carriage bolt x 7" (Std. thd. - Sq. N.)	Brace to joist
110	½" ϕ Carriage bolt x 9" (Std. thd. - Sq. N.)	Post to joist
220	⅜" ϕ Carriage bolt x 8" (Std. thd. - Sq. N.)	Railing to post
82	¾" ϕ x 3" lag bolts }	Pile points
656	¼" □ x 3" boat spikes }	
925	O.G. washers for ¾" ϕ bolts	Yokes
55	O.G. washers for 1" ϕ bolts	
151 lbs.	Std. flat washers ½" ϕ	
51 lbs.	Std. flat washers ⅜" ϕ	
43 lbs.	20d nails	Foot walk and railing
2	¾" ϕ bolts x 48" (Std. thd. - Sq. H. & N.) }	WF Beam anchor blocking to blocking
8	¾" ϕ bolts x 32" (Std. thd. - Sq. H. & N.) }	
15	Track spikes	WF beam anchors

This sheet supersedes Sheet 62.

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

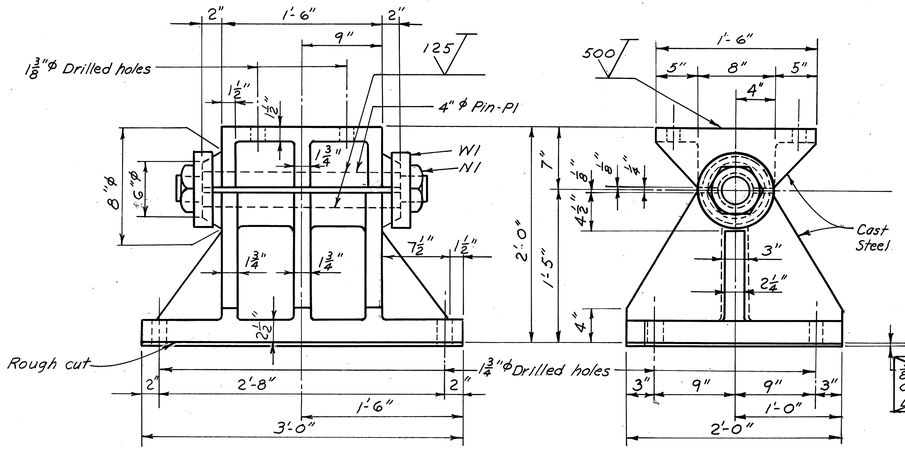
GEN. NOTES, CONSTRUCTION PROCEDURE AND BILL OF MATERIAL

BRIDGE No. LOR-76-0257
B. & O. R.R. over S.R. 76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Innes		N.L.D.	MPB	MPB	6-1-61	

FED. RD. DIVISION	STATE	PROJECT		63
2	OHIO			

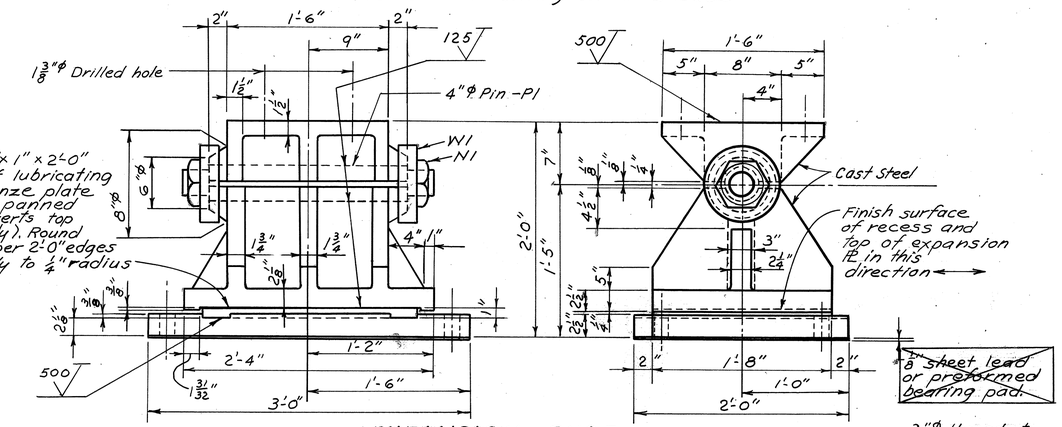
LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



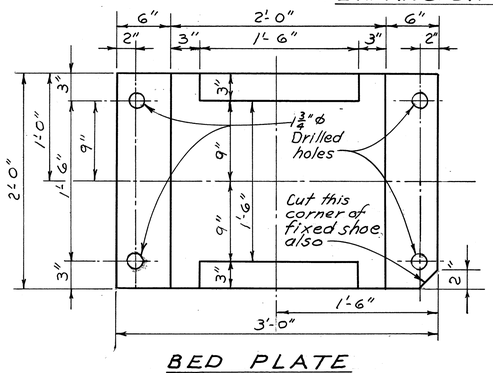
FIXED SHOE

See Bed Pl. for cutting corner of base.

If cast bronze is used, it must be finished on the top surface in the direction of movement and finished on the bottom surface. O.H. Structural Steel: A.S.T.M. A7-58T Cast Steel: A.S.T.M. A27-58 [Grade G.T.-35 (Annealed) Min. Yield Point 33,000 lbs. per sq. in.] Bronze Plates shall be Lubrite Expansion Plates with Trepanned Inserts as manufactured by Merrimam Bros., Inc., Boston, Mass. or equal to provide for self lubrication, allowance for change in length of span to be at the rate of 1 in. in 100 ft.
The manufacturer of the bronze expansion plates shall furnish lubricant in stick form for use in the field. Surfaces of lower expansion shoe casting, in contact with bronze plates, shall be coated with stick lubricant at the time of assembly in the field.
Coat finished surfaces of pins, pin holes, and recesses for bronze plates in the bottom of lower expansion shoe castings, with white lead and tallow.

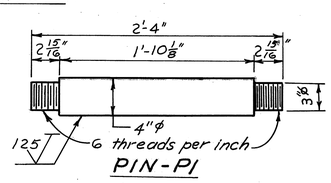


EXPANSION SHOE



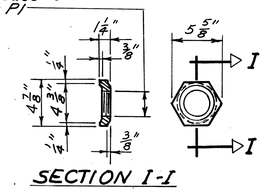
BED PLATE

For expansion shoe
Structural steel



PIN-Pl

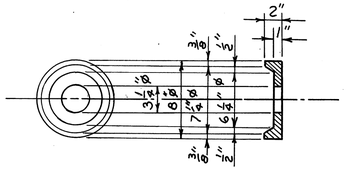
Structural Steel



SECTION I-I

RECESS NUT-N1

Pressed Steel



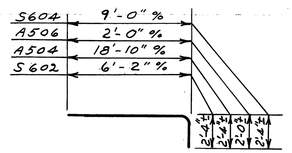
WASHER-W1

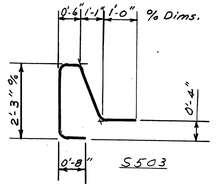
Structural steel

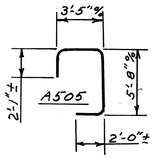
REINFORCING STEEL LIST

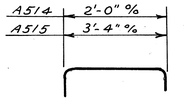
Mark	No.	Length	Weight	Shp.
Superstructure				
S601	84	34'-6"	4353	S
S602	24	8'-4"	300	B
S603	14	9'-0"	189	S
S604	12	11'-2"	201	B
S501	98	16'-4"	1669	S
S502	4 Series of 9 increments each	4'-8" to 15'-0" in of 1'-3½"	369	S
S503	124	6'-1"	787	B
Abutments				
A901	84	8'-0"	2285	S
A601	84	10'-8"	1346	B
A602	28	4'-8"	196	B
A603	16	9'-8"	232	B
A501	20	21'-4"	445	S
A502	54	18'-5"	1037	S
A503	8	21'-0"	175	S
A504	68	21'-0"	1491	B
A505	96	12'-9"	1276	B
A506	108	3'-10"	432	B
A507	36	8'-3"	311	B
A508	12	9'-7"	120	S
A509	12	8'-7"	107	S
A510	12	7'-7"	95	S
A511	8	12'-10"	107	B
A512	28	4'-0"	117	S
A513	16	8'-9"	146	B
A514	20	3'-0"	63	B
A515	16	4'-4"	72	B
A516	12	21'-6"	270	B
A517	12	10'-8"	134	B
A518	4	7'-1"	30	S
D601	60	2'-0"	180	S

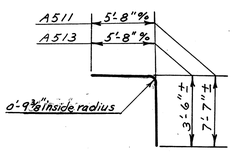
Bending Diagrams

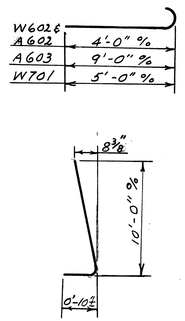


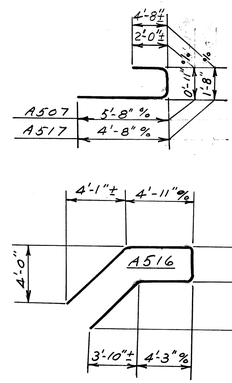












Mark	No.	Length	Weight	Shp.
Wingwalls				
W701	124	5'-10"	1478	B
W601	108	10'-8"	1730	B
W602	16	4'-8"	112	B
W501	22	23'-8"	543	S*
W502	4	18'-6"	77	S*
W503	8	14'-3"	118	S*
W504	4	10'-3"	42	S*
W505	4	6'-6"	28	S*
W506	8	2'-6"	20	S*
W507	68	19'-9"	1401	S*
W508	4	20'-9"	86	S*
W509	4	8'-3"	34	S*
W510	6	13'-1"	82	S
W511	4	15'-2"	63	S
W512	22	17'-2"	394	S
W513	10	19'-0"	198	S
W514	4	20'-10"	87	S
W515	4	22'-8"	95	S
W516	6	20'-6"	128	S
W517	6	22'-4"	140	S
W518	4	24'-2"	101	S
W519	24	6'-0"	150	S
W520	32	7'-0"	234	S
W521	8	21'-0"	175	S*
W522	4	22'-6"	94	S*
W523	2	24'-6"	51	S*
W524	8	17'-9"	148	S*
W525	8	19'-0"	159	S*
W526	4	20'-6"	86	S*
D601	55	2'-0"	165	S
Replacement Bars				
RE901	1	6'-10"	—	S
RE701	1	6'-2"	—	S
RE601	1	5'-11"	—	S
RE501	1	5'-7"	—	S

*These bars shall be field bent to fit the wingwall curvature. Field bending shall be included in the unit price bid for Item S-4, Reinforcing Steel, for payment.
REPLACEMENT BARS: If reinforcing bars are fabricated from stock which has been previously tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Sec. S-4.02 need not be furnished and replacement bars will not be required.
BAR SIZE is indicated in the bar mark. The first digit indicates the bar size number. For example, A901 is a No. 9 size bar.

BEARING NOTES:
Fillets for castings shall have ¾" radii. Self-lubricated bronze plates shall be flat, smooth and true to dimensions and shall be press fitted into recesses in the bed plates in the shop, care being taken to obtain good bearing on the bottom of the recesses.
Bed plate assemblies shall be held in place and finished surfaces protected against damage during shipping and storage. All other exposed finished surfaces of bearing parts shall be similarly protected.

All structural and pressed steel parts, lubricant, lead or preformed bearing pads, self-lubricating bronze plates and anchor bolts are included in the unit price bid for each of Item S-107, Cast Steel Bearing Assemblies.
Furnish 4-1¼"ϕ anchor bolts per bearing unit; set 1'-0" into masonry after bearings are in place.
The self-lubricating bronze plates shall meet the requirements of ASTM Spec. B100-58. Alloy No. 1 for rolled plates or ASTM Spec. B22-52. Alloy B for cast plates. Bronze plates shall not be painted.

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

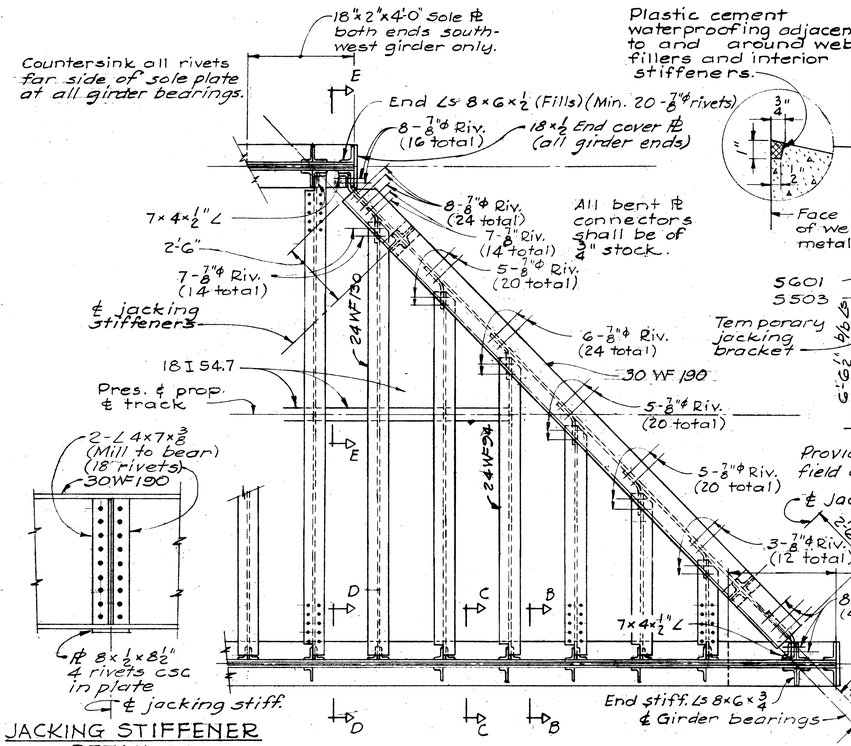
BEARING DETAILS & REINFORCING STEEL LIST

BRIDGE No. LOR-76-0257
B. & O.R.R. over S.R. 76.
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Innes	Innes	N.L.D.	MFP	BFG	3-17-61	2-17-61
				A.J.F.	1-5-61	6-7-61

FED. RD. DIVISION	STATE	PROJECT		64
2	OHIO			

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



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

SUPERSTRUCTURE DETAILS

BRIDGE № LOR-76-0257
B. & O. R.R. over S.R.76

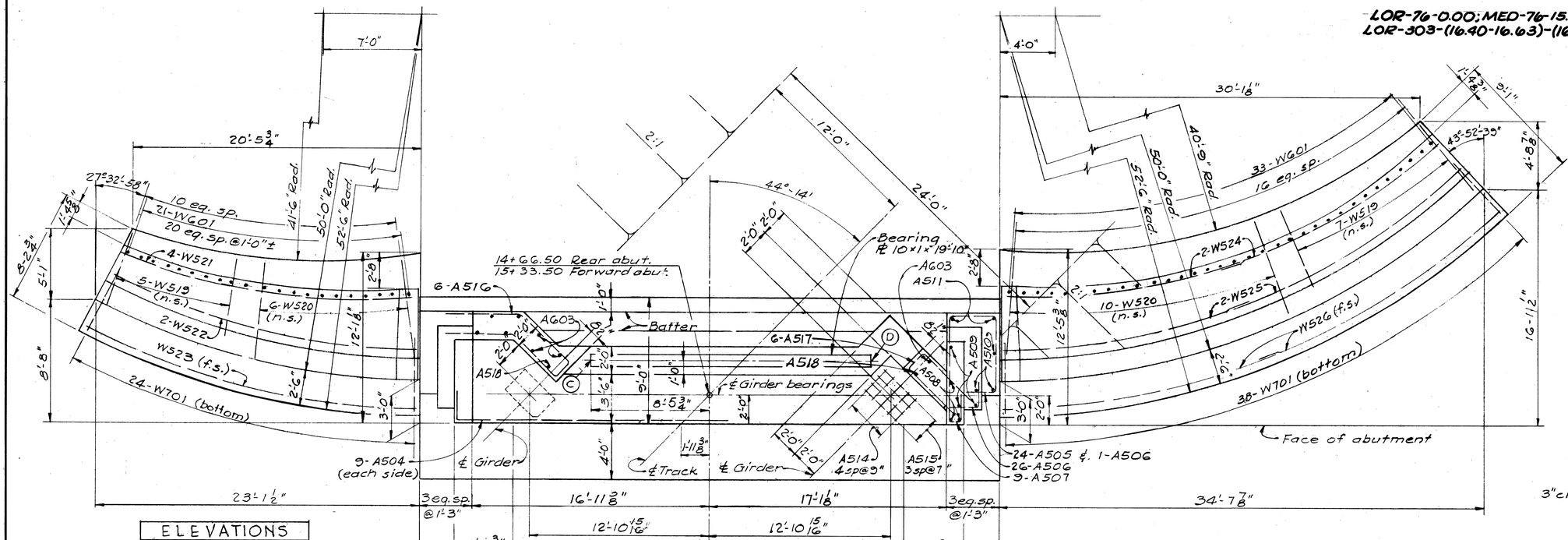
LORAIN COUNTY Sta. 13G+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BRG	DATE	REVISED
INNES	INNES		MPB	3-17-61	3-17-61	6-14-61

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

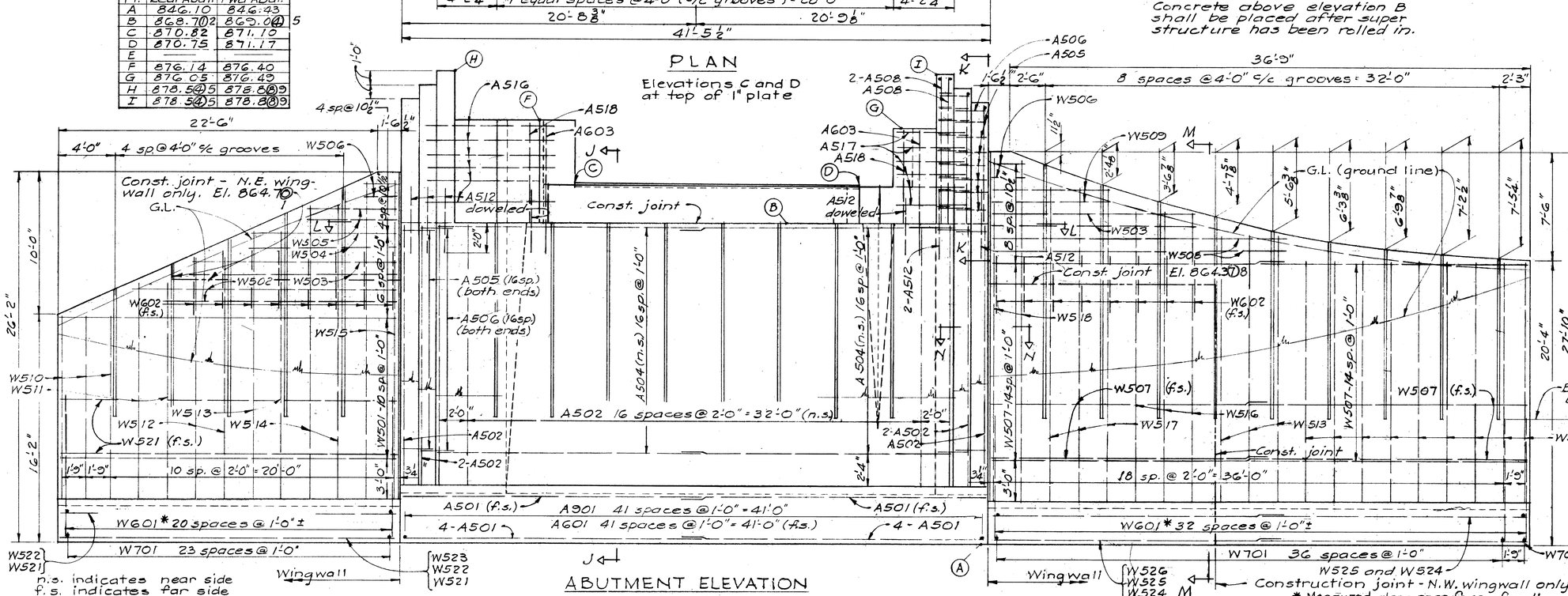
FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

65

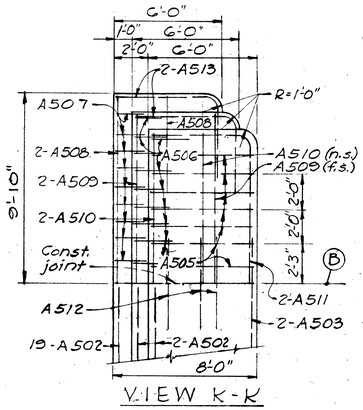


SECTION J-J

ELEVATIONS		
Pt.	Rear Abut.	Fwd Abut.
A	846.10	846.43
B	868.70 (2)	865.06 (4) 5
C	870.82	871.15
D	870.75	871.17
E	——	——
F	876.14	876.40
G	876.05	876.49
H	878.54 (4) 5	878.88 (3) 9
I	878.54 (4) 5	878.88 (3) 9



Concrete above, elevation B shall be placed after super structure has been rolled in.



VIEW K-K

For Sections L-L, M-M & N-N, see sheet 66.

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

6

ABUTMENT AND WINGWALL DETAILS

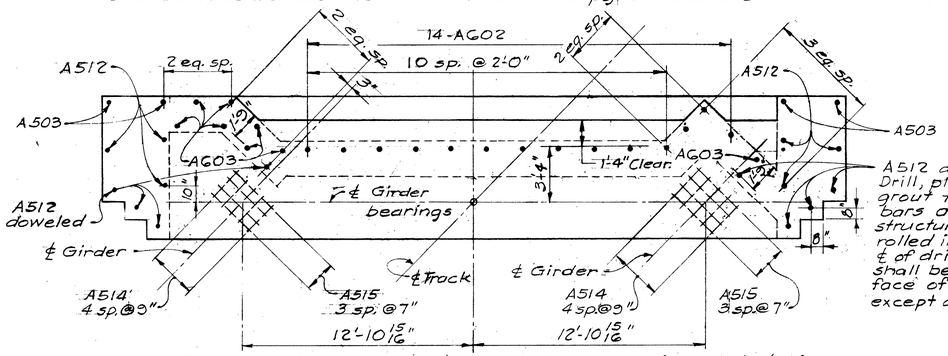
BRIDGE Nº LOR-76-0257
B. & O. R.R. over S.R. 76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		MPB	BFG MAH	3-17-61	3-17-61 6-1-61

FED. RD. DIVISION	STATE	PROJECT		66
2	OHIO			

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

Dashed lines indicate extent of backwalls and pylons above elev. B



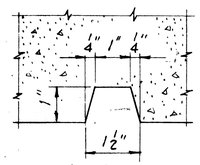
A512 doweled. Drill, place and grout these A512 bars after superstructure has been rolled into place. ℄ of drilled hole shall be 8" from face of concrete, except as noted.

A514 and A515 bars shall be placed 3" below elevation B with open end down.

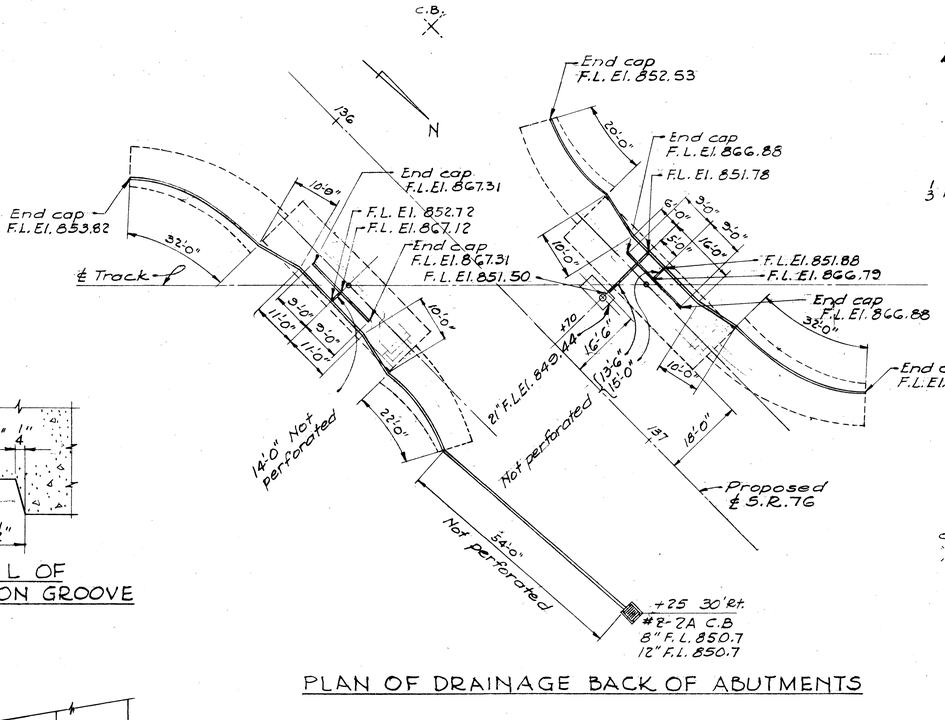
AG03 bars adjacent to ℄ girders extended may be placed to avoid interference with equipment used for jacking operations.

SECTION L-L

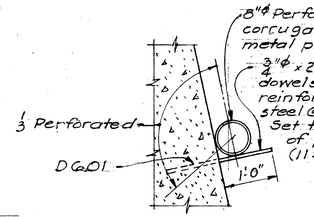
(Showing reinforcing steel projecting above elev. B)



DETAIL OF RUSTICATION GROOVE



PLAN OF DRAINAGE BACK OF ABUTMENTS

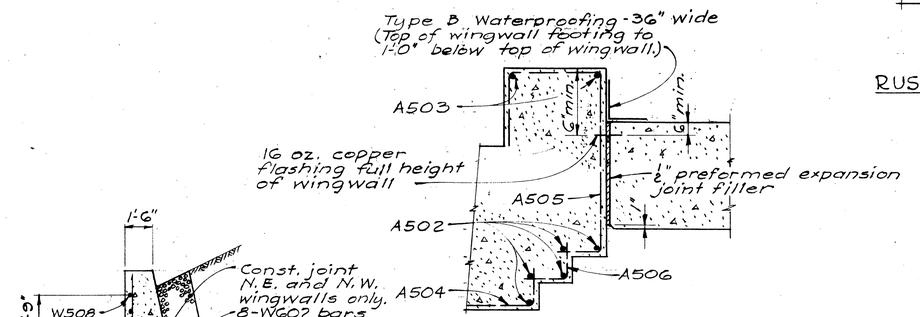


DRAIN DETAIL

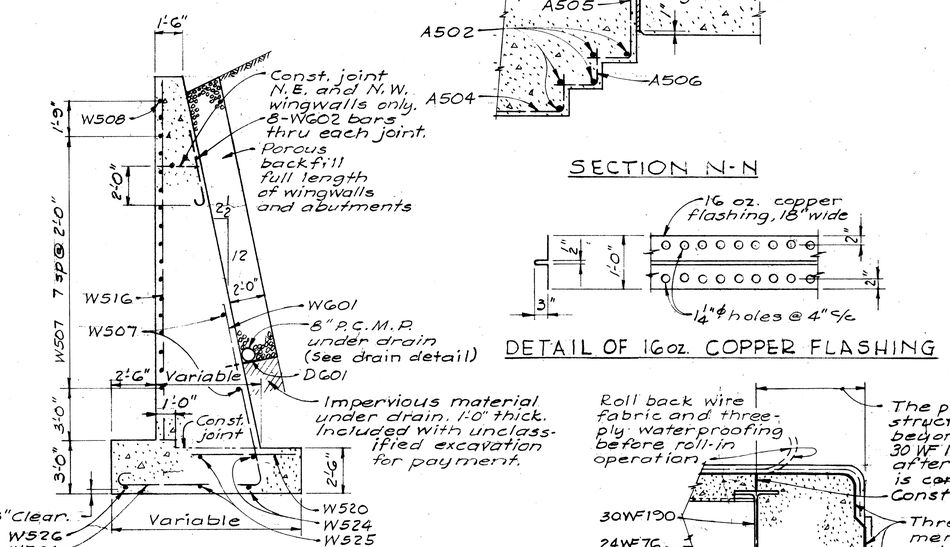
Dowels (DG01) included with Item 5-4, Reinforcing steel, for payment.

NOTE:
All corrugated metal pipe shall be .8" diameter, 16 gage, galvanized and asphalt coated in accordance with Sec. M-6.4(c). All pipe shall be perforated as shown, except as otherwise noted and shall meet the requirements of Sec. M-6.4 (f).

C.B.

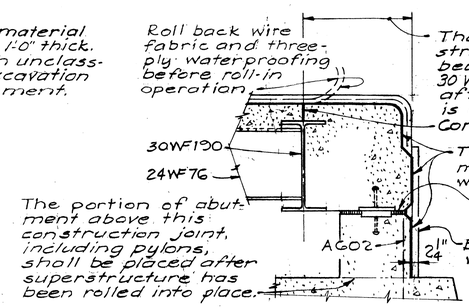


SECTION N-N

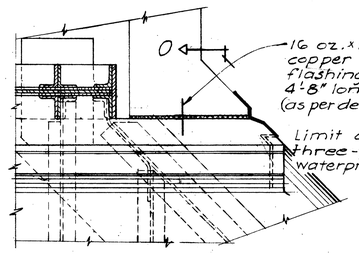


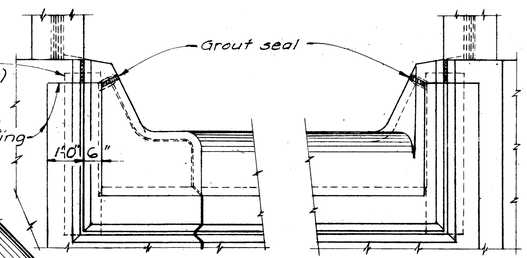
SECTION M-M

DETAIL OF 16 oz. COPPER FLASHING

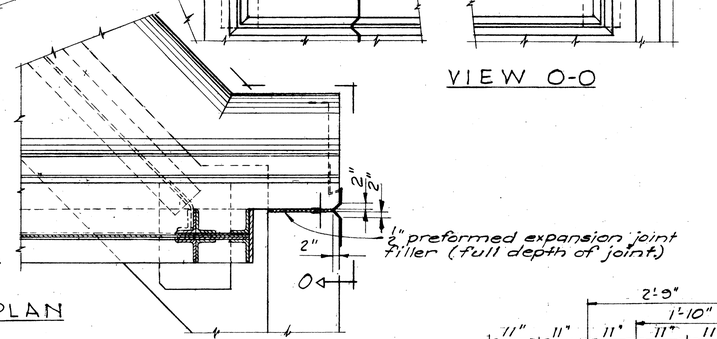


FINISH AT ABUTMENTS



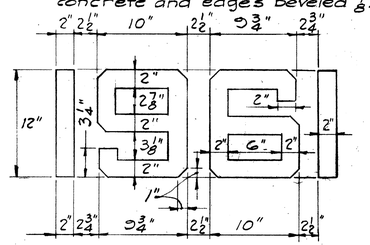


VIEW O-O



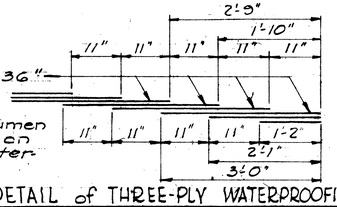
PART PLAN

Numbers to be depressed 1" into concrete and edges beveled ½".



STANDARD DATE NUMBERS

To be placed as directed by the Engineer



Full width of fabric 36"

3 layers of fabric
4 mappings of bitumen
1 coat of primer on surface to be waterproofed.

DETAIL of THREE-PLY WATERPROOFING

WATERPROOFING DETAILS

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

WATERPROOFING, DRAINAGE and MISC. ABUTMENT DETAILS

BRIDGE No. LOR-76-0257
B. & O. R.R. over S.R. 76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		MPB	BFG	3-17-61	

FED. RD. DIVISION	STATE	PROJECT		62
2	OHIO			

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

DIMENSIONS							
A	1'-0	1'-6"	2'-0"	2'-6"	3'-0"	4'-0"	5'-0"
B	9/16"	7/8"	1 1/8"	1 7/16"	1 3/4"	2 1/4"	2 13/16"
C	5/8"	15/16"	1 1/4"	1 9/16"	1 7/8"	2 1/2"	3 1/16"
D	1/2"	11/16"	15/16"	1 1/8"	1 3/8"	1 7/8"	2 3/8"
E	3 1/4"	4 7/8"	6 5/8"	8 3/8"	9 3/4"	1'-1 1/8"	1'-4 3/8"
F	1/2"	11/16"	15/16"	1 1/8"	1 3/8"	1 7/8"	2 3/8"
G	6"	9 1/16"	1'-0 1/16"	1'-3 1/8"	1'-6 1/8"	2'-0 1/8"	2'-6 3/16"
H	2 3/4"	4 1/8"	5 1/2"	6 13/16"	8 1/4"	11"	1'-1 3/4"
J	2 1/2"	3 3/4"	5"	6 1/4"	7 1/2"	10"	1'-0 1/2"
K	2 1/4"	3 3/8"	4 1/2"	5 5/8"	6 3/4"	9"	11 1/4"
L	1 13/16"	2 3/4"	3 5/8"	4 9/16"	5 1/2"	7 1/4"	9 1/8"
M	2 9/16"	3 7/8"	5 1/8"	6 7/16"	7 3/4"	10 1/4"	1'-0 3/4"
N	1/4"	3/8"	1/2"	11/16"	3/4"	1"	1 1/4"
P	3/8"	9/16"	3/4"	15/16"	1 1/8"	1 1/2"	1 7/8"
Q	1/16"	1/16"	1/16"	1/16"	1/8"	3/16"	1/4"
R	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
S	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"
T	5 3/4"	8 5/8"	11 1/2"	1'-2 3/8"	1'-5 1/4"	1'-11"	2'-4 3/4"
U	4 3/4"	7 1/8"	9 1/2"	11 7/8"	1'-2 1/4"	1'-7"	1'-11 3/4"
V	4 1/4"	6 3/8"	8 1/2"	10 5/8"	1'-0 3/4"	1'-5"	1'-9 1/4"
W	3 1/2"	5 1/4"	7"	8 3/4"	10 1/2"	1'-2"	1'-5 1/2"
X	1 1/8"	1 11/16"	2 1/4"	2 13/16"	3 3/8"	4 1/2"	5 5/8"
Y	3/4"	1 1/8"	1 1/2"	1 7/8"	2 1/4"	3"	3 3/4"

GENERAL NOTES.

THE EMBLEM SHOWN IS 1'-6" OUTSIDE DIAMETER. THE DIMENSIONS FOR OTHER DIAMETERS ARE SHOWN IN THE TABLE.

STENCILS FOR USE IN PAINTING ARE TO BE PREPARED FROM THIS DRAWING AND TABLE. FULL SIZE BLUE PRINTS OF THE VARIOUS SIZES ARE ON FILE IN THE OFFICE OF THE ENGINEER OF BRIDGES & BUILDINGS AT BALTIMORE, AND PRINTS MAY BE OBTAINED UPON REQUEST.

THE EMBLEM SHALL BE PAINTED AN APPROVED SHADE OF BLUE ON AN ALUMINUM BACKGROUND.

THE EMBLEM SHALL BE INCLUDED WITH ITEM 5-8, FIELD PAINTING OF STRUCTURAL STEEL, FOR PAYMENT.

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

8

STANDARD EMBLEM

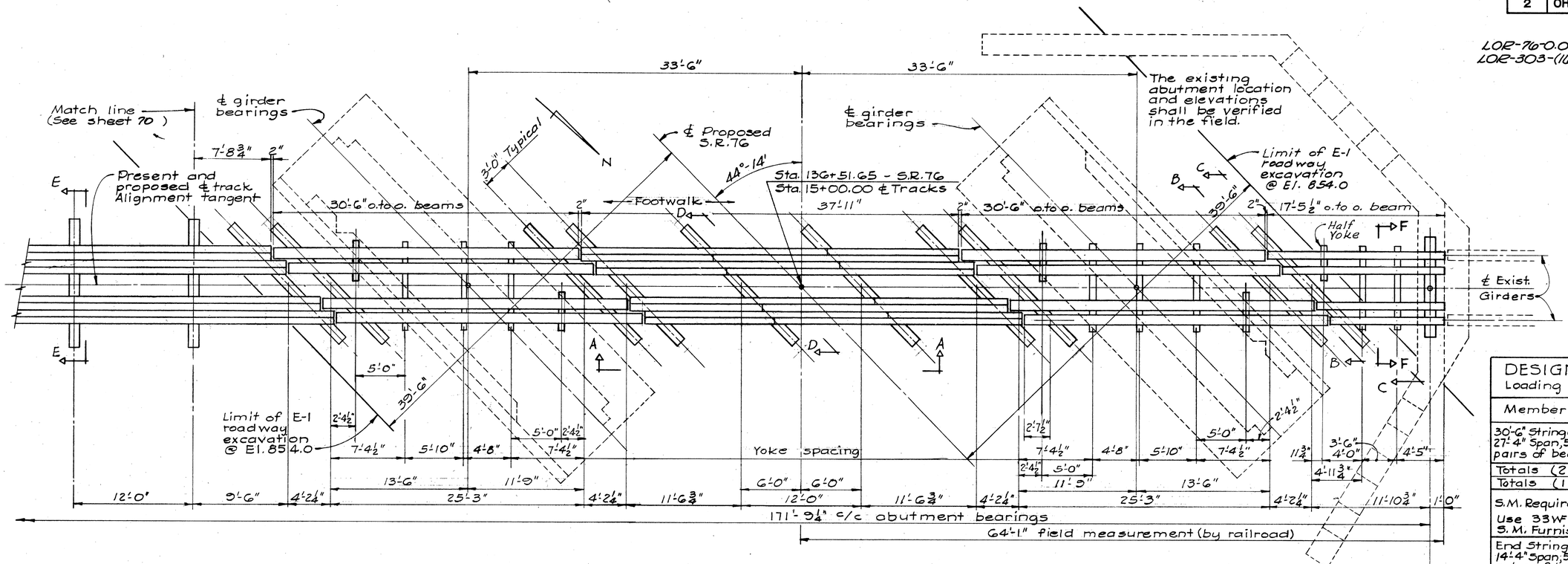
BRIDGE Nº LOR-76-0257
B. & O. R.R. over S.R. 76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
				BFG	1-5-61	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

68

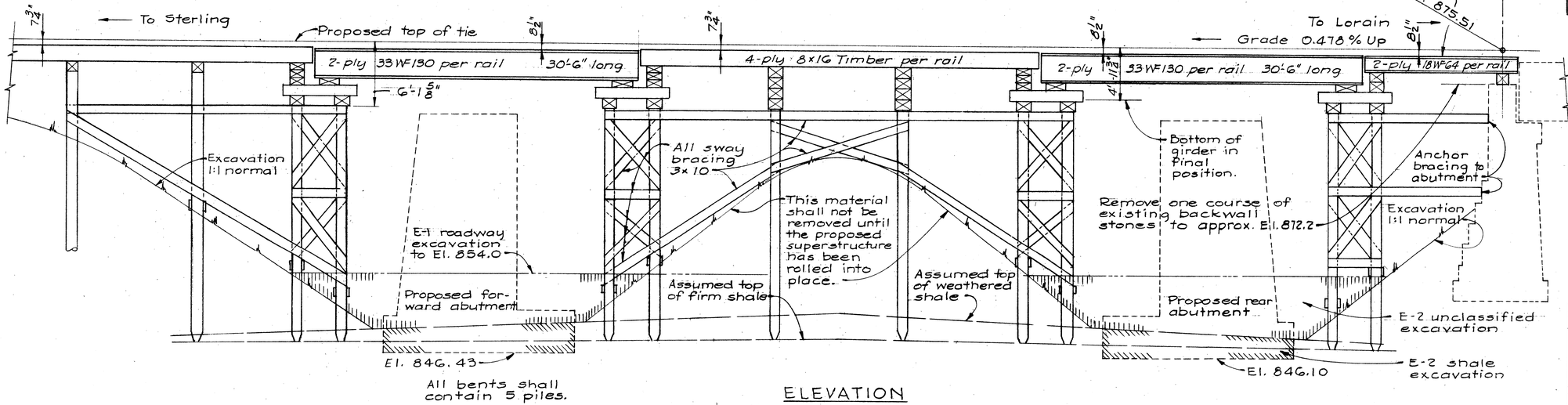
LOR-76-0.00; MED-76-15.08
LOR-303-(116.40-116.63)-(116.69)



PLAN OF TEMPORARY BENTS & STRINGERS

(For View A-A and Sections B-B thru F-F, see sheet 69)

Sta. 14+36.52
This span to remain for second stage supporting
El. 875.51



All bents shall contain 5 piles.

ELEVATION

Excavation and proposed abutment sections taken along ℄ of tracks.

DESIGN SCHEDULE

Loading - Cooper's E-72

Member	Load	Shear kips	Moment ft.-kips
30'-6" Stringers 27'-4" Span, 5-0% pairs of beams	D.L.	8	56.0
	L.L.	107	632.9
	Impact	63	370.9
Totals (2 beams)		178	1059.8
Totals (1 beam)		89	529.9

S.M. Required = $\frac{529.9\,(12)}{24} = 265.0\ in.^3$
Use 33WF130
S.M. Furnished = $405\ in.^3$

End Stringers 14'-4" Span, 5-0% pairs of beams	D.L.	3	12.1
	L.L.	70	207.1
	Impact	42	123.4
Totals (2 beams)		115	342.6
Totals (1 beam)		58	171.3

S.M. Required = $\frac{171.3\,(12)}{24} = 85.7\ in.^3$
Use 18WF64
S.M. Furnished = $117\ in.^3$

NOTE:
Core drill holes in fill for piles. Holes to be drilled down to excavation lines as shown in ELEVATION or deeper, if necessary. Drive piles to refusal on shale. As excavation proceeds, piles are to be carefully braced against movement. If proper penetration for piles adjacent to abutments has not been obtained, cut piles and block them to firm shale.

For sections and additional details, see sheets 68 & 70.

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

1st STAGE SUPPORTING STRUCTURE

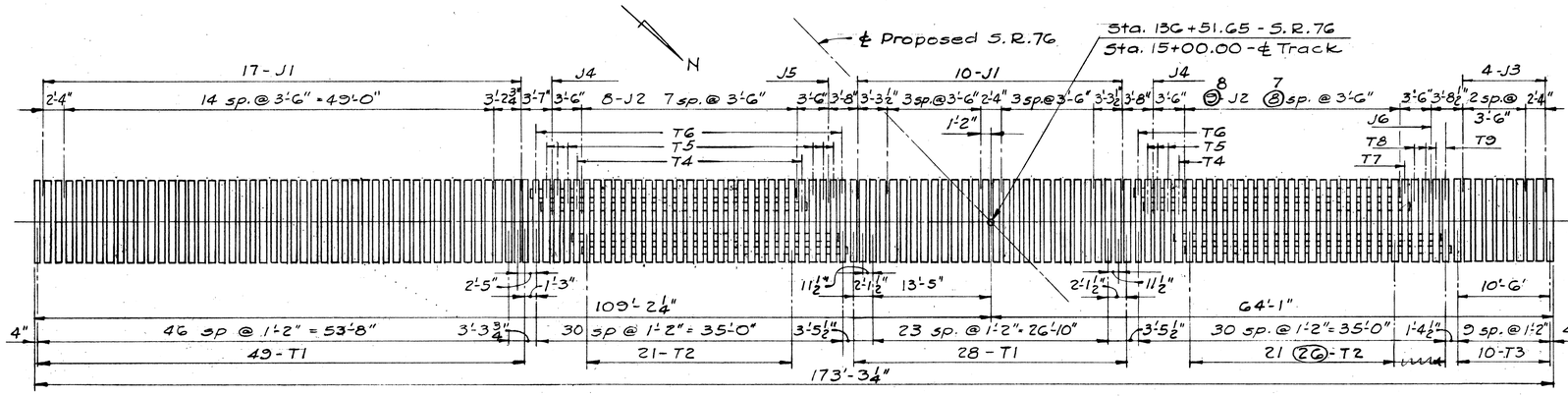
BRIDGE Nº LOR-76-0257
B.&O. R.R. over S.R. 76
LORAIN COUNTY Sta. 136+51.65

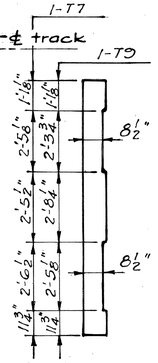
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Balt (B&O)	INNES		MPB	NHH	3-17-61	3-17-61 6-1-61

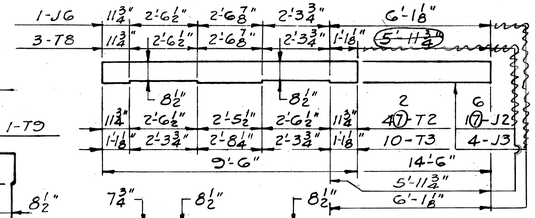
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

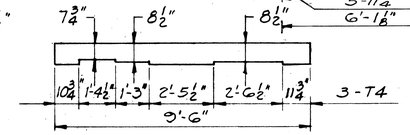
69

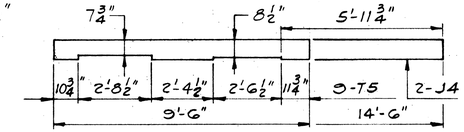
LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

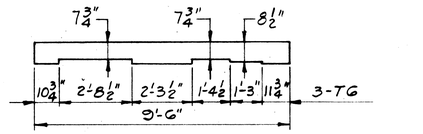


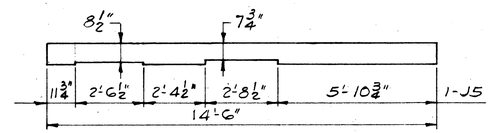








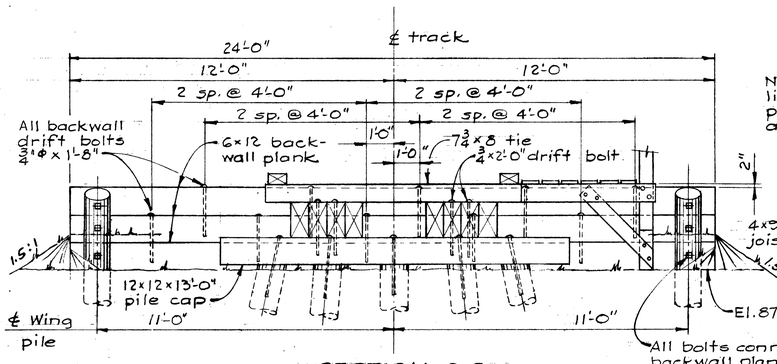




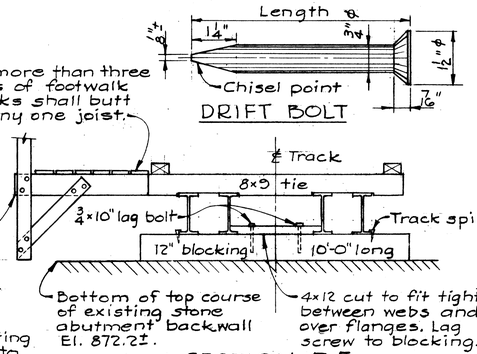
77 - T1 7¾" × 8" × 9'-6" No dapping.
All other ties 8"×9" × 9'-6" Dap as shown.
27 - J1 4½ 7¾" × 14'-6" No dapping
All other joists 4"×9" × 14'-6" Dap as shown.

TIE AND JOIST DETAILS

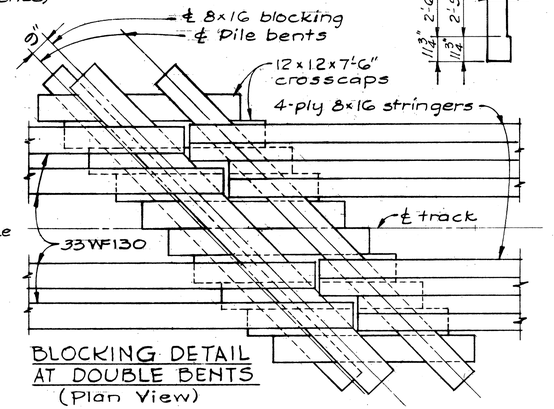
TIE PLAN
(33WF130 stringers shown for reference)



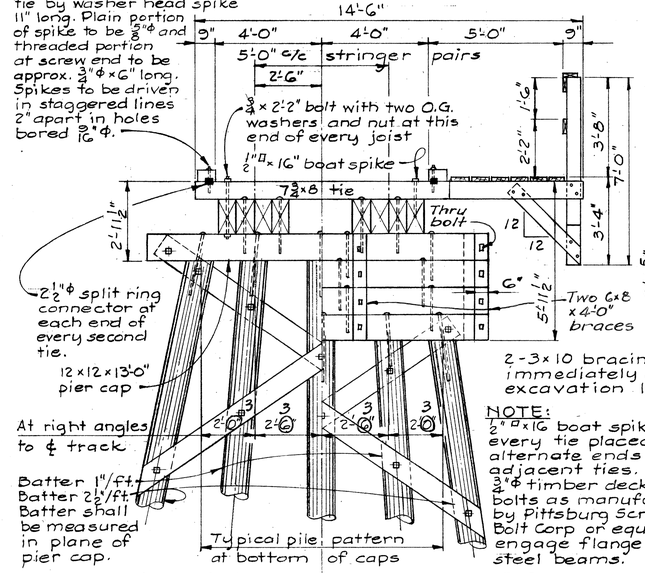
SECTION G-G



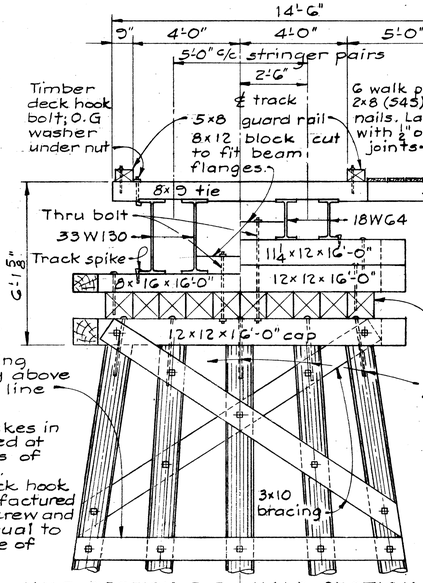
SECTION F-F



BLOCKING DETAIL AT DOUBLE BENTS
(Plan View)



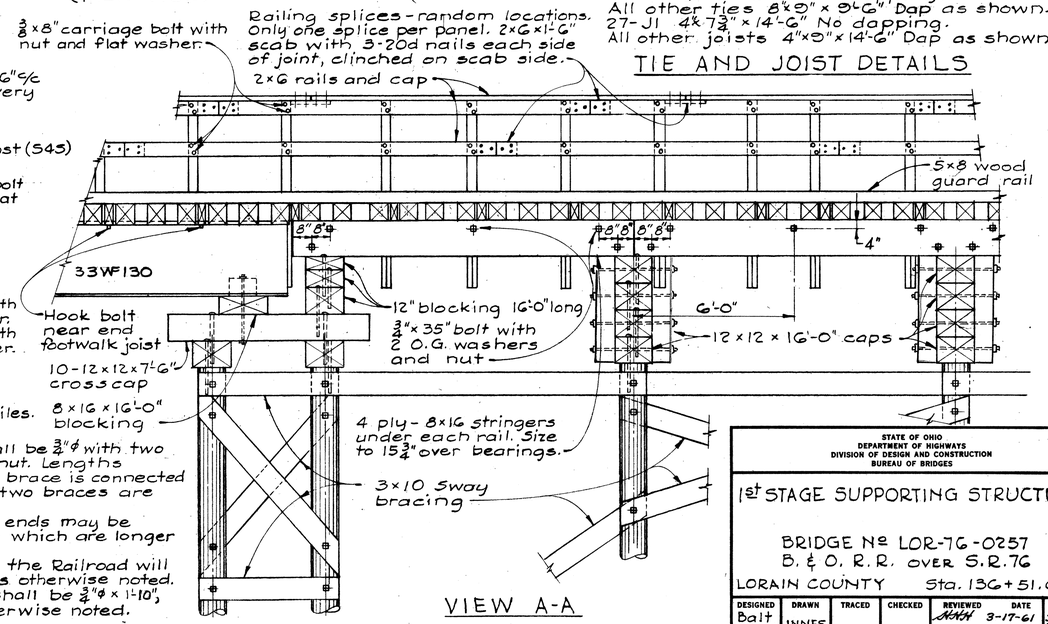
HALF SECTION E-E



HALF SECTION B-B | HALF SECTION C-C

NOTE:
½"x8"x16" boat spikes in every tie placed at alternate ends of adjacent ties.
¾"Φ timber deck hook bolts as manufactured by Pittsburg Screw and Bolt Corp or equal to engage flange of steel beams.

NOTE:
Sway bracing bolts shall be ¾"Φ with two O.G. washers and one nut. Lengths shall be 18" where one brace is connected to a pile and 21" where two braces are connected to a pile.
Rods threaded at both ends may be substituted for bolts which are longer than standard.
Timber furnished by the Railroad will not be sized, except as otherwise noted.
All drift bolts shall be ¾"Φ x 1'-10", except as otherwise noted.



VIEW A-A

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

1st STAGE SUPPORTING STRUCTURE

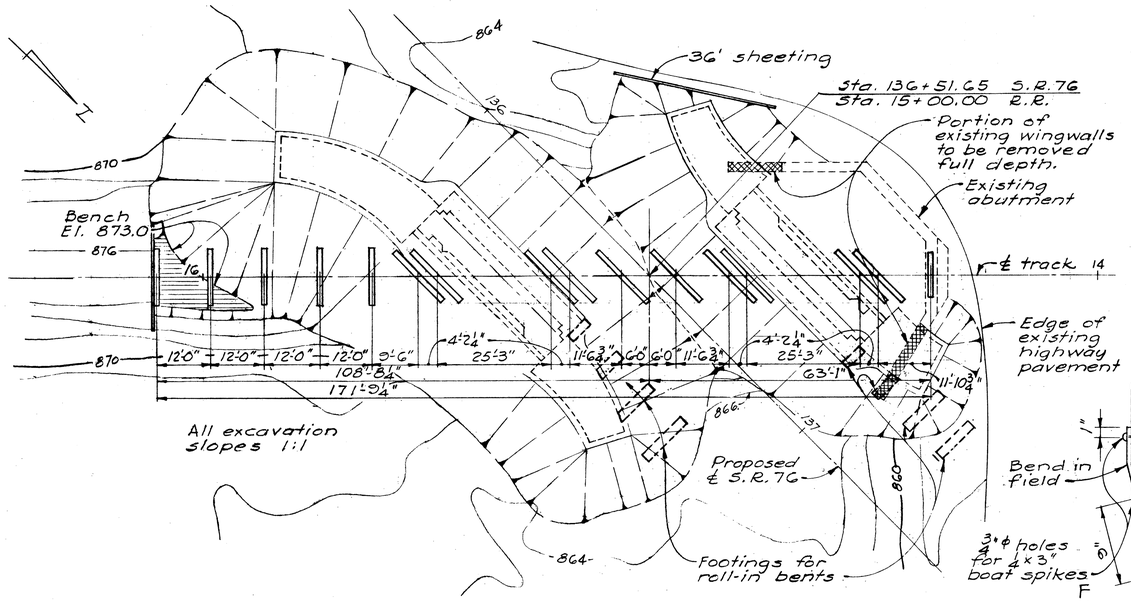
BRIDGE Nº LOR-76-0257
B. & O. R. R. over S.R.76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Bolt (B.&O.)	INNES		MPB	[illegible]	3-17-61	3-17-61

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

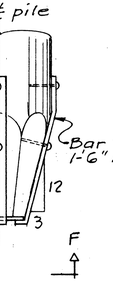
70

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



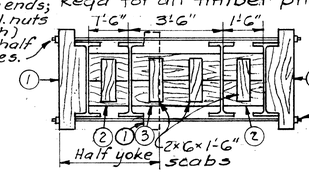
EXCAVATION PLAN FOR CONSTRUCTION OF ABUTMENTS AND WINGWALLS WITH 1st STAGE SUPPORTING STRUCTURE

Additional excavation for the footings of the roll-in bents other than as shown above shall be included with special item "Roll-in falsework and appurtenances..." for payment. Sheeting and bracing shall be used where necessary to prevent the excavation for the footings of the roll-in bents from encroaching upon the existing roadway pavement.



STEEL PILE POINT

Req'd for all timber piles

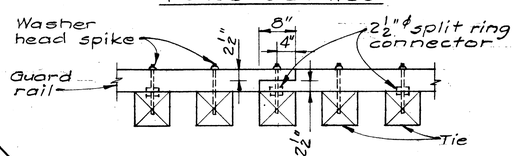


1"ϕ x 4'-0" Yoke rods (5" thread both ends; 2 H.H. nuts each) for half yokes.

Yoke rod with two nuts and two O.G. washers. 1"ϕ x 9'-0"

YOKE DATA			
	Block size (8" thick)		
Beam	1	2	3
33WF130	1-12"x3'9"	2-12"x1'6"	2-12"x3'4½"
18WG4	1-12"x2'6"	1-14"x1'6"	1-14"x3'5"

YOKE DETAILS

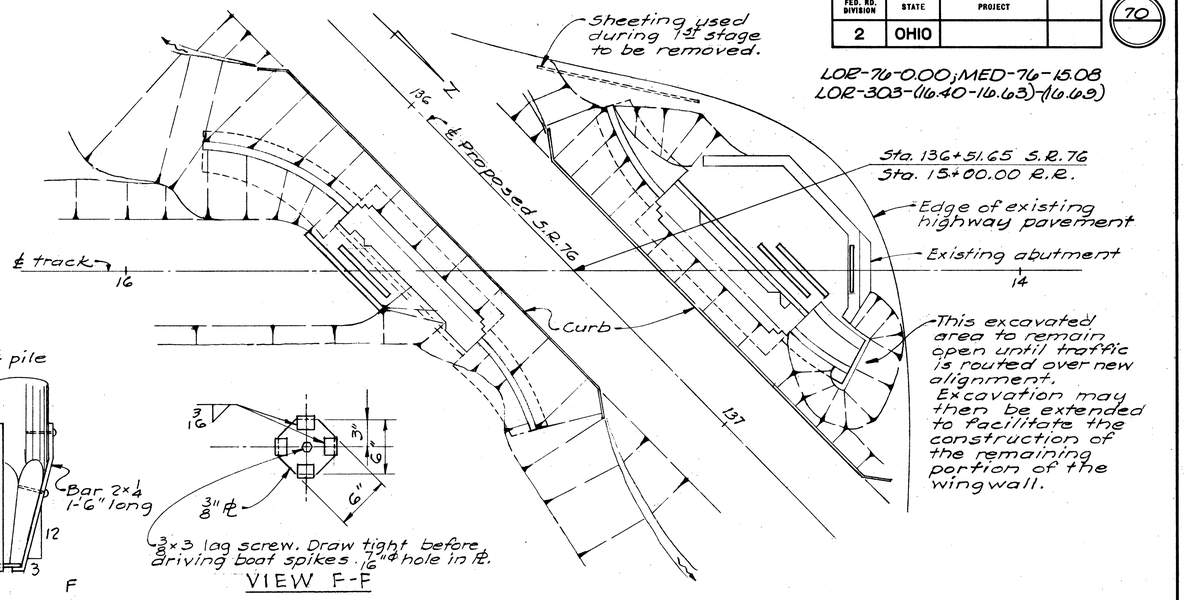


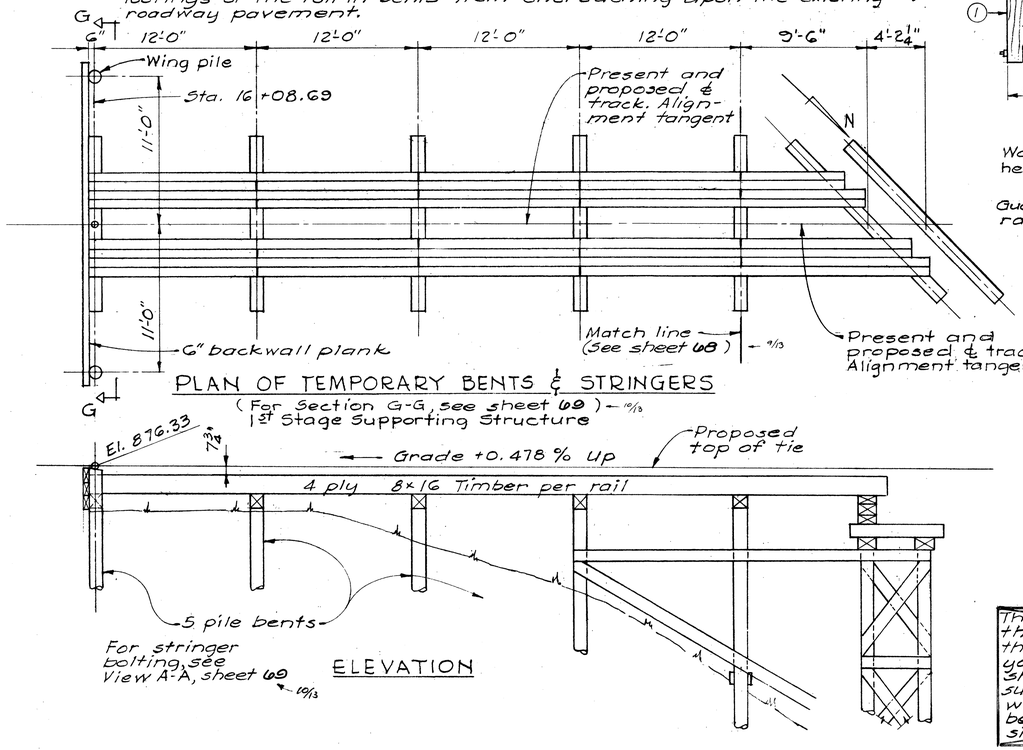
GUARD RAIL SPLICE

Splice guard rail every 12th tie

VIEW F-F

GRADING PLAN AFTER ROLLING-IN WITH 2nd STAGE SUPPORTING STRUCTURE

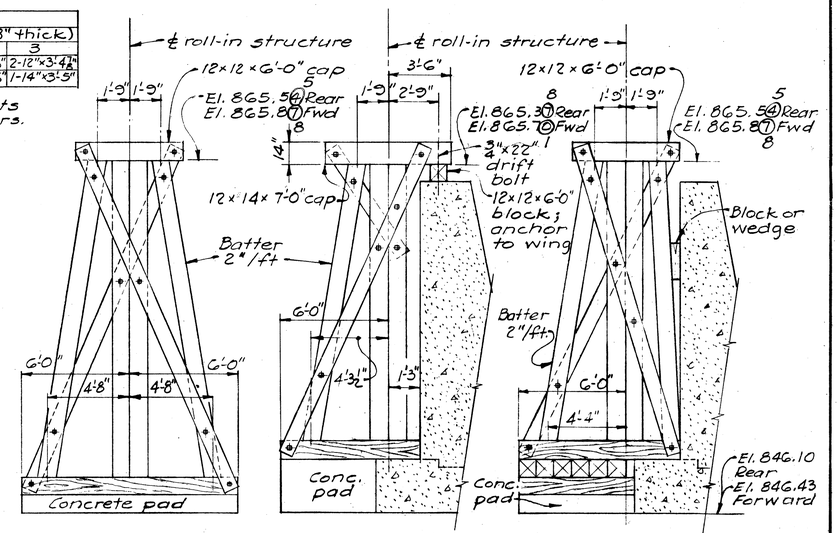




PLAN OF TEMPORARY BENTS ℄ STRINGERS

(For Section G-G, see sheet 69) 10/13
1st Stage Supporting Structure

ELEVATION 10/13



SECTION F-F SECTION E-E SECTION D-D

Bents for roll-in falsework, see sheet 71
For details not shown see Section C-C, sheet 71

CONTRACTOR'S BILL OF MATERIAL

1st Stage Supporting Structure

No	Description	Weight
8	33WF130 x 30'-6" beams	31720#
1	18WF64 x 17'-5½" beam	1117#
1	18WF64 x 16'-0" beam	1024#
1	18WF64 x 12'-7" beam	805#
1	18WF64 x 11'-1½" beam	712#
16	1"ϕ x 9'-0" Yoke rod (5" thd both ends & 2 H.H. nuts each)	394#
77	Steel pile points @ 13# ea.	1000#
	TOTAL	36772# 36885
10	1"ϕ x 4'-0" Yoke rod (5" thd both ends and ½ H.H. nuts each)	113#

See Sheet 72 for revised note.

The Railroad Company by force account will construct, maintain and remove the 1st stage temporary supporting structure and will furnish all material therefore, except the WF beams, yoke rods and steel pile points. The WF beams, yoke rods and steel pile points shall be furnished by the Contractor and shall be paid for under Special Item Structural steel for 1st stage temporary supporting structure, furnish only. The steel beams shall be in accordance with supplemental Spec. S-107. When no longer needed for supporting, the steel beams shall become the property of the Contractor and be removed from the site by him.

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

EARTHWORK and MISCELLANEOUS DETAILS

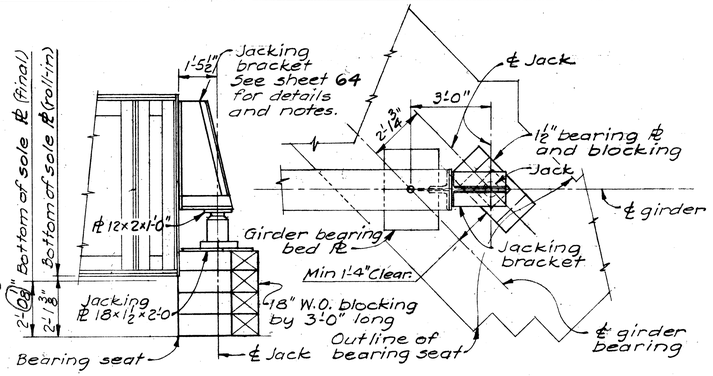
BRIDGE Nº LOR-76-0257
B.&O.R.R. UNDER S.R.76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Balt (B&O.)	INNES		MPB	AHH	3-17-61	3-17-61 6-1-61

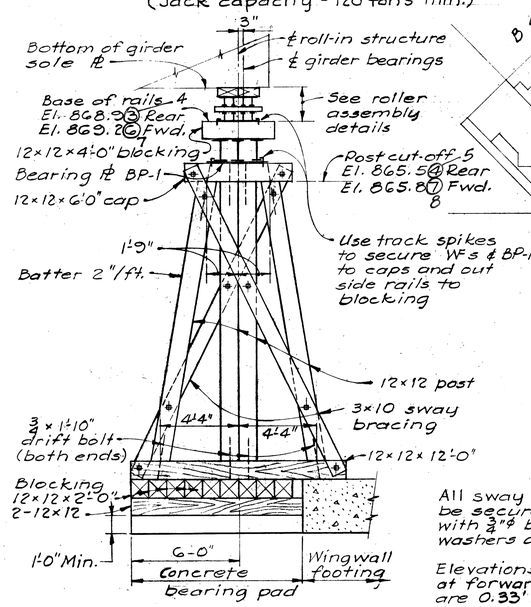
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

71

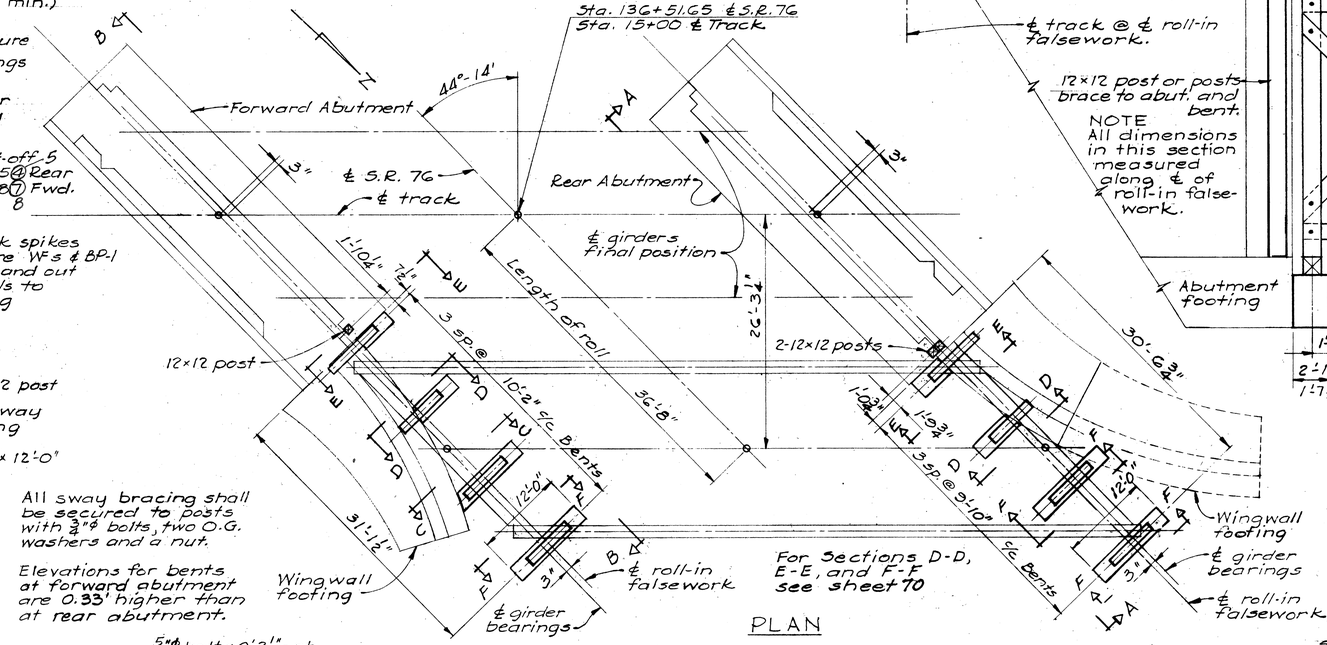
LOR-76-000, MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)



METHOD OF JACKING GIRDERS
(Jack capacity - 120 tons min.)

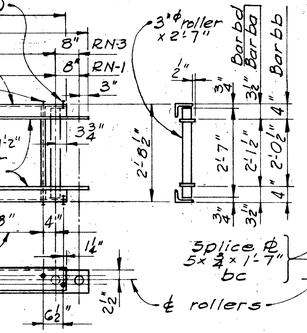


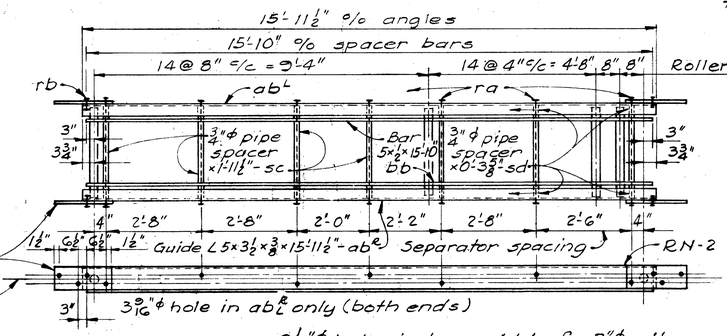
SECTION C-C



PLAN

For Sections D-D, E-E, and F-F see sheet 70

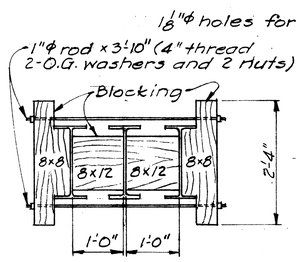




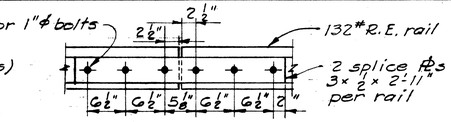
To splice RN-1 and RN-3 to RN-2 remove splice plates bc and end roller of RN-2, line up holes in plates of RN-1 and RN-3 with RN-2 and replace end roller and splice plates.

DETAIL OF ROLLER NEST

3 13/16"ϕ holes in ba and bb for 3"ϕ rollers.
11/16"ϕ holes for ⅝"ϕ rods and bolts.

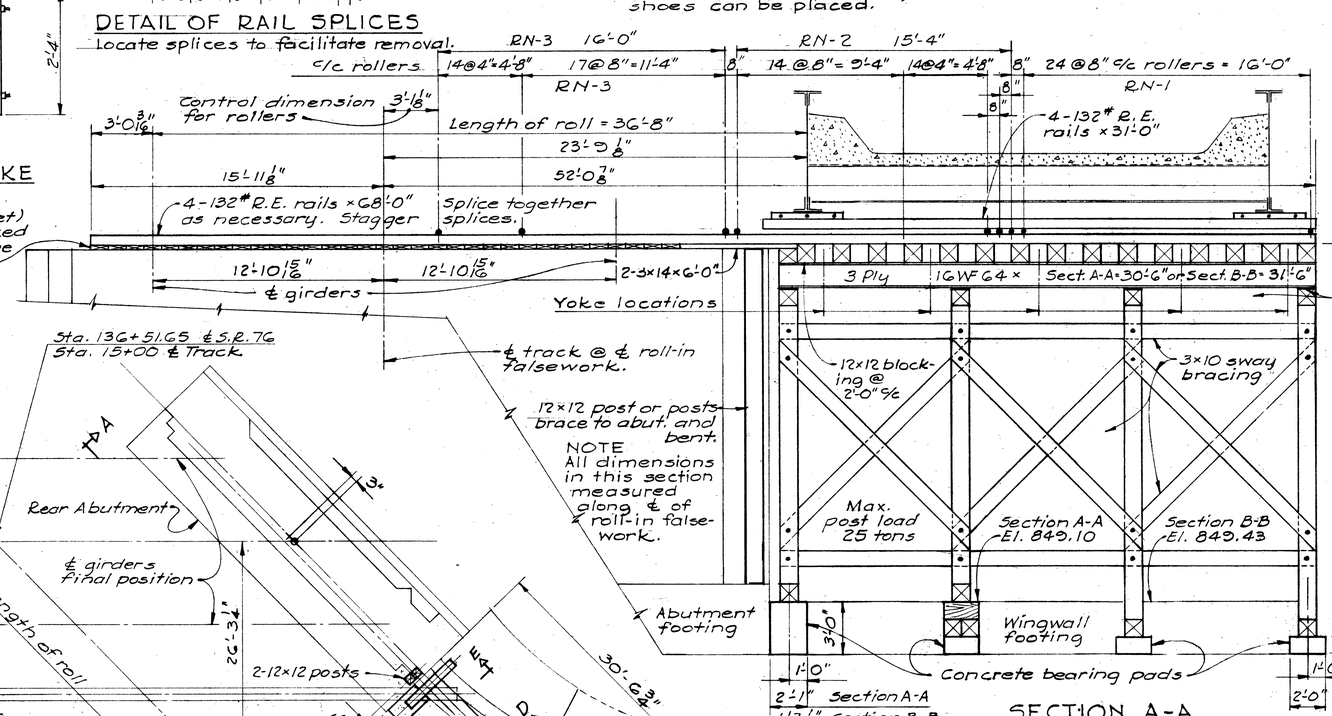


DETAIL OF YOKE

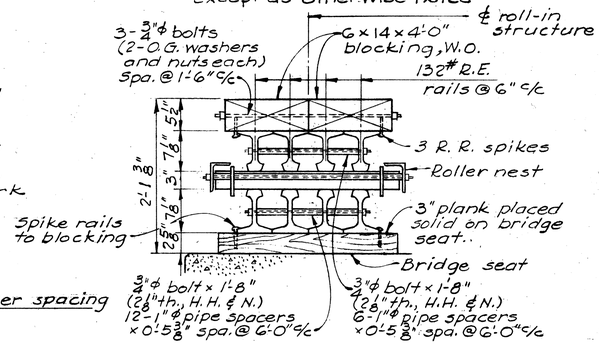


DETAIL OF RAIL SPLICES

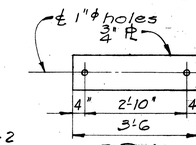
SPAN ERECTED 1¾" HIGH FOR ROLLING
Live load to be carried by rollers until shoes can be placed.



SECTION A-A
Section B-B opposite hand except as otherwise noted



ROLLER ASSEMBLY



BP-1
(8 Req'd)

See General Notes for note pertaining to Roll-in Falsework and Appurtenances, including Roll-in Operation.

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

ROLL-IN FALSEWORK

BRIDGE № LOR-76-0257
B. & O. R.R. over S.R. 76
LORAIN COUNTY Sta. 136+51.65

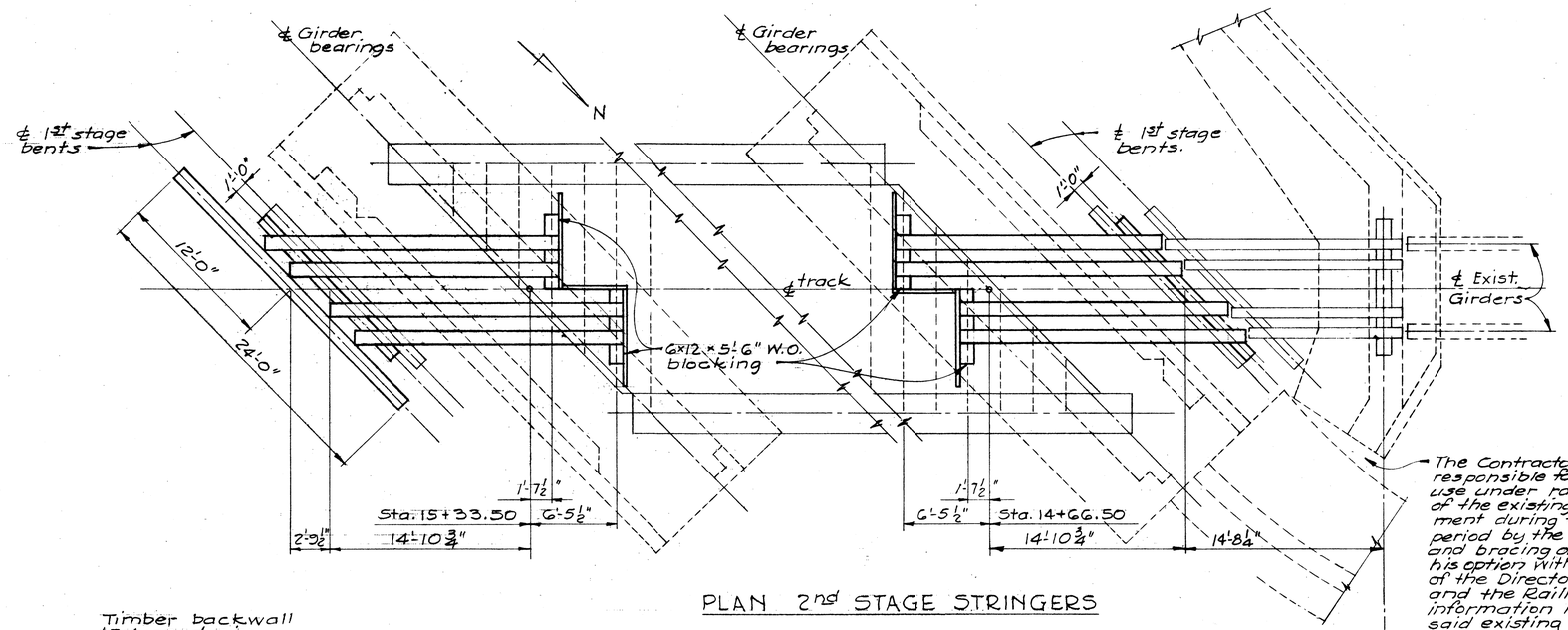
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Balt (B.&O.)	INNES		MPB	BFG	3-17-61	3-17-61 6-1-61

FED. RD. DIVISION	STATE	PROJECT		72
2	OHIO			

LOR-76-0.00; MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

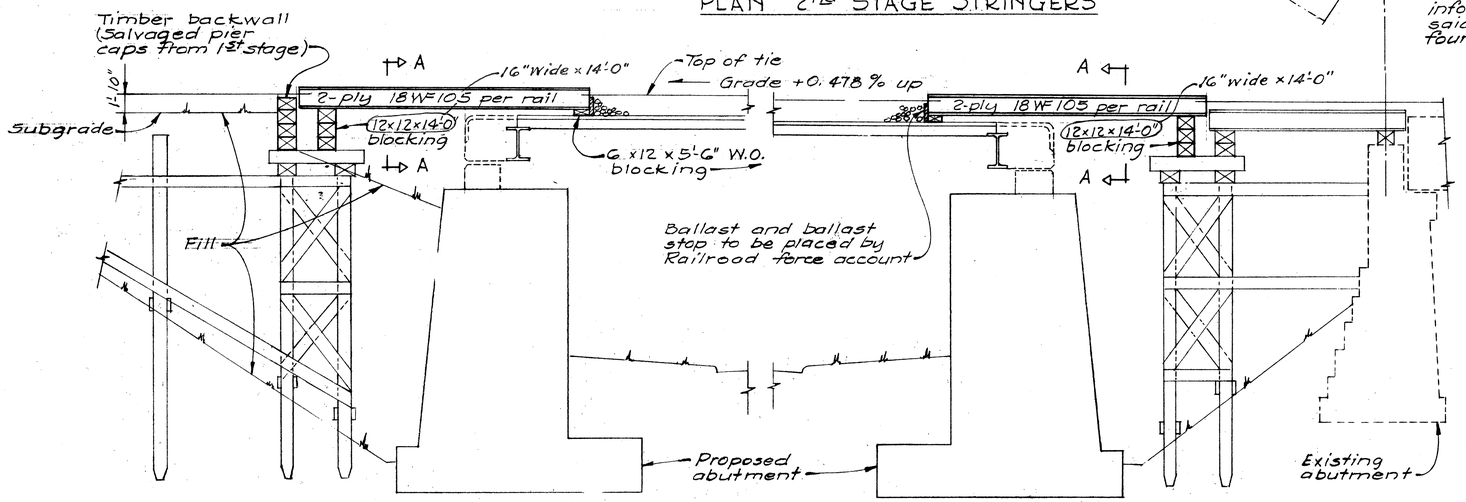
Revised note for Sheet 70.

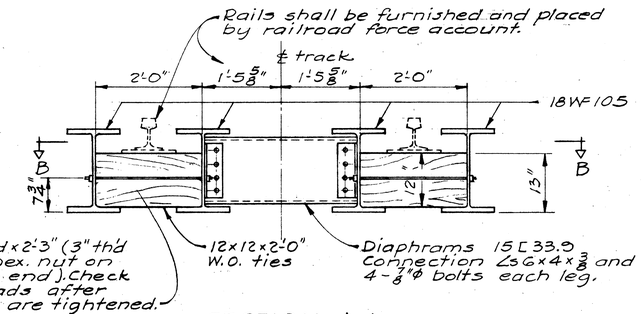
The Railroad Company by force account will construct and maintain the 1st stage temporary supporting structure, will furnish all material therefor, except the WF beams, yoke rods and steel pile points, and shall remove all of the 1st stage temporary supporting structure to the bottom of the pile caps. The Contractor shall become the owner of all of the above removed material and remove the same from the site. The WF beams, yoke rods and steel pile points shall be furnished by the Contractor and shall be paid for under Special Item, Structural Steel for 1st Stage Temporary Supporting Structure, Furnishing only. The steel beams shall be in accordance with Supplemental Spec. 5-101. The Contractor shall remove all piles and bracing in accordance with Item 5-24.02 and to 2'-0" below ties where applicable, shall become the owner of the same and remove them from the site. Payment for all Contractor removal items, above, shall be included in the lump sum price bid for Special Item, 2nd stage temporary supporting structure.



PLAN 2nd STAGE STRINGERS

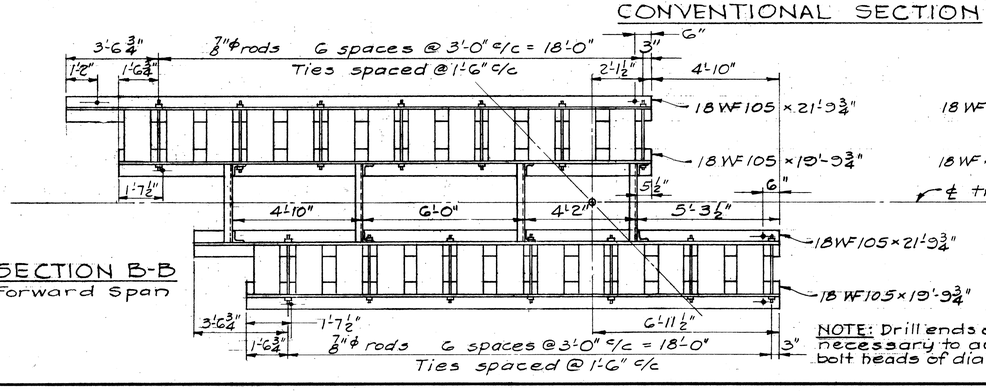
The Contractor shall be responsible for the continued use under railroad traffic of the existing bridge abutment during the construction period by the use of sheeting and bracing or other means at his option with the approval of the Director of Highways and the Railroad. Foundation information indicates that the said existing abutment is founded on soft weathered shale.





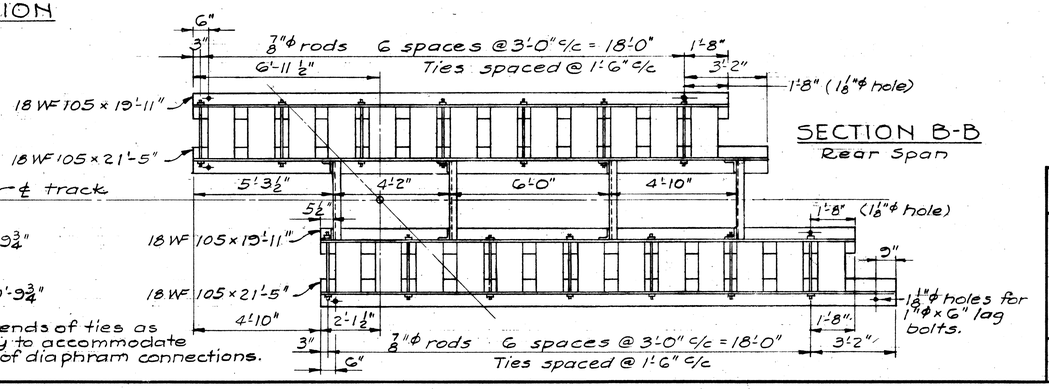
SECTION A-A

CONVENTIONAL SECTION



SECTION B-B
Forward Span

NOTE: Drill ends of ties as necessary to accommodate bolt heads of diaphram connections.



SECTION B-B
Rear Span

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

2nd STAGE SUPPORTING STRUCTURE

BRIDGE Nº LOR-76-0257
B. & O. R.R. UNDER S.R. 76
LORAIN COUNTY Sta. 136+51.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Balt (B&O)	INNES		MPB	MPB	3-17-61	3-17-61 6-1-61

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

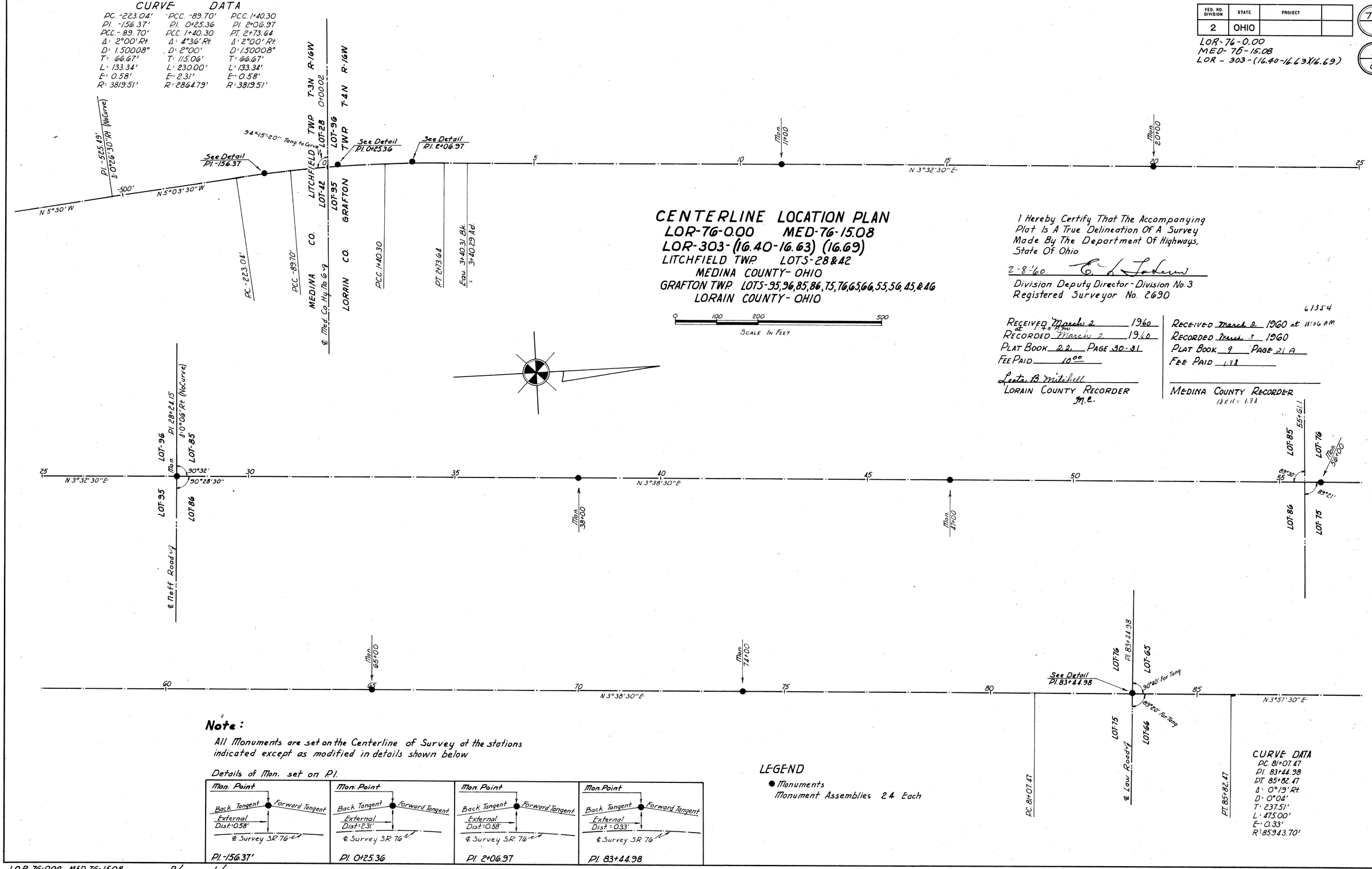
73

1/2

LOR-76-0.00
MED-76-15.08
LOR - 303 - (16.40-16.63)(16.69)

CURVE DATA

PC. -223.04'	PCC. -89.70'	PCC. 1+40.30
PI. -156.37'	PI. 0+25.36	PI. 2+06.97
PCC. -89.70'	PCC. 1+40.30	PT. 2+73.64
Δ: 2°00' Rt	Δ: 4°36' Rt	Δ: 2°00' Rt
D: 1.50008°	D: 2°00'	D: 1.50008°
T: 66.67'	T: 115.06'	T: 66.67'
L: 133.34'	L: 230.00'	L: 133.34'
E: 0.58'	E: 2.31'	E: 0.58'
R: 3819.51'	R: 2864.79'	R: 3819.51'



CENTERLINE LOCATION PLAN

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63) (16.69)
LITCHFIELD TWP LOTS-28 & 42
MEDINA COUNTY-OHIO
GRAFTON TWP. LOTS-95,96,85,86,75,76,65,66,55,56,45,&46
LORAIN COUNTY-OHIO

0 100 200 500
SCALE IN FEET

I Hereby Certify That The Accompanying Plat Is A True Delineation Of A Survey Made By The Department Of Highways, State Of Ohio

2-8-'60 C. L. Todhunter
Division Deputy Director-Division No. 3
Registered Surveyor No. 2690

61354

RECEIVED March 2 1960 at 1:36 PM
RECORDED March 2 1960
PLAT BOOK 22 PAGE 30-31
FEE PAID 10.00
Leota B. Mitchell
LORAIN COUNTY RECORDER
M.E.

RECEIVED March 2 1960 at 11:06 AM
RECORDED March 3 1960
PLAT BOOK 9 PAGE 21A
FEE PAID 1.98
MEDINA COUNTY RECORDER
18x11 = 1.98

Note:

All Monuments are set on the Centerline of Survey at the stations indicated except as modified in details shown below

Details of Mon. set on PI.

Mon. Point	Mon. Point	Mon. Point	Mon. Point
Back Tangent / Forward Tangent	Back Tangent / Forward Tangent	Back Tangent / Forward Tangent	Back Tangent / Forward Tangent
External Dist: 0.58'	External Dist: 2.31'	External Dist: 0.58'	External Dist: 0.33'
℄ Survey SR 76	℄ Survey SR 76	℄ Survey SR 76	℄ Survey SR 76
PI. -156.37'	PI. 0+25.36	PI. 2+06.97	PI. 83+44.98

LEGEND

● Monuments
Monument Assemblies 24 Each

CURVE DATA

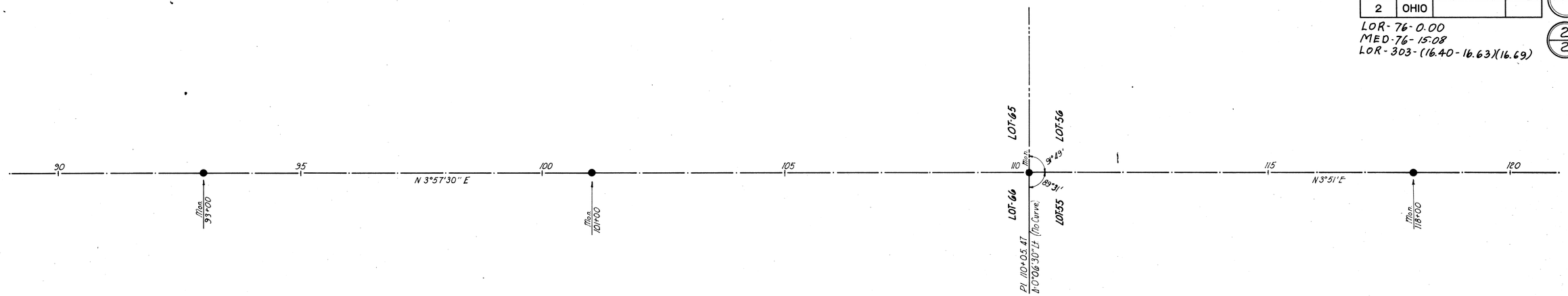
PC. 81+07.47
PI. 83+44.98
PT. 85+82.47
Δ: 0°19' Rt
D: 0°04'
T: 237.51'
L: 475.00'
E: 0.33'
R: 859343.70'

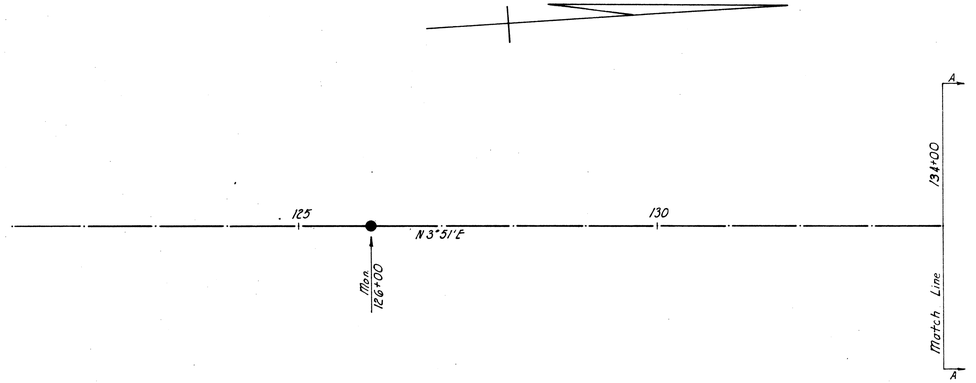
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

74

2/2

LOR-76-0.00
MED-76-15.08
LOR-303-(16.40-16.63)(16.69)

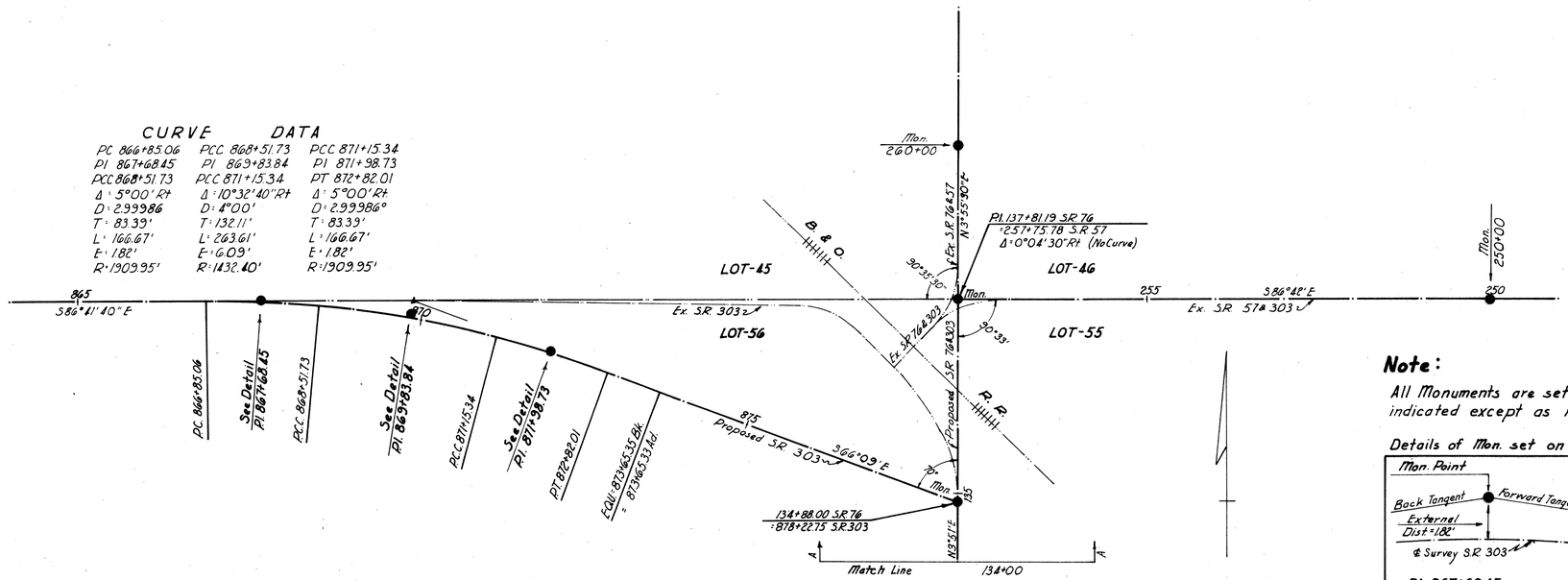




CENTERLINE LOCATION PLAN

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63) (16.69)
LITCHFIELD TWP. LOTS-28 & 42
MEDINA COUNTY-OHIO
GRAFTON TWP. LOTS-95,96,85,86,75,76,65,66,55,56,45 & 46
LORAIN COUNTY-OHIO

0 100 200 500
SCALE IN FEET

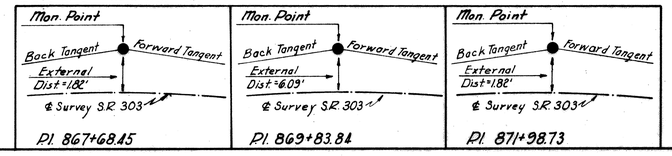


Note:

All Monuments are set on the Centerline of Survey at the stations indicated except as modified in details shown below

See page 30 for receiving stamp

Details of Mon. set on P.I.



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

75

1/9

RIGHT OF WAY PLANS
SCALE 1"=50'

LOR-76-0.00 MED-76-15.08
LOR-303 (16.40-16.63) - (16.69)

PARCEL Nº	PROPERTY OWNER	AREA TAKEN	STRUCTURE	SHEET Nº	REMARKS
1	Wilbur J. & L. Frieda Koudelka	0.09		2	
2	Paul Dangelo Et Al.	0.18		2	
2A	" " " "	0.009		2	
3	Jane & Eugene Rappert	1.15		2	
4	Edmond J. & Leone C. Toll	0.39		2	
4B	" " " " "	0.007		2	
5	Michael J. & Rose M. Sutmaier	0.51		2	
6	Walter F. & Mary E. Odon	0.17		2	
7	Boy Scouts of Amercia an Ohio Corp.	0.68		2&3	
7X	" "	0.21		2	
7A	" "	0.01		3	
8	Gordon J. & Viola R. Blackhall	0.56		2&3	
8X	" " " " "	0.22		2	
8A	" " " " "	0.004		3	
9	Charles & Pearl Gest	0.83	YES	3	
9A	" " "	0.001		3	
9X	" " "	0.02		3	
10	Thomas D. & Rose E. Buzas	1.17		3	
10A	" " " " "	0.003		3	
11	Patrick & Mary R. Dangelo	0.08		3	
12	Paul Dangelo Et Al.	0.38		3	
13	Carol Brouse	0.57		3&4	
14	Steven J. & Sophia Dukowski	0.68		3&4	
15	Irven J. & Linda I. Benton	0.37		4	
16	John R. & Evelyn K. Keller	0.21		4	
17	Irene Joppeck	0.30		4	
18	Howard L. & Thyrsa M. Parish	0.81		4	
19	Daniel L. & Horace Belden	2.89		4B5&6	
19X	" " " "	0.33		4	
19Y	" " " "	0.42		6	
20	William H. & Vernies S. Gest	1.10		4&5	
20A	" " " "	0.003		5	
20B	" " " "	0.002		5	
21					Not Assigned
22	William E. & Waunetta Jean Zacharias	0.38A	Yes	5	
23	John F. & Helen Macaulay	0.16		5	
24	Marian I. Furman	0.18		5	
25	John A. & Genevieve Magyor	0.19		5	
26	Bruce W. & Annie L. Singleton	0.18		5	
26X	" " " " "	0.04		5	
27	Joseph Kado	0.15		5	
27X	" "	0.26		5	
28	Walter C. & Inez E. Meyer	0.07	Yes	5	
29	Howard & Freda Klinect	0.80		5&6	
30	Kenneth W. & Katherine H. Klinect	0.07		6	
31	James A., Alice H. & Francis D. Schaefer	0.07		6	
32	Board of Education (Belden Village)	0.27		6&7	
32WA	" " " " "	0.01		6	
33	James A., Alice H. & Francis D. Schaefer	0.53		6&7	
34	Belden Grange Trustees	0.06	yes	7	
35	Grafton Township Trustees	0.15	Yes	7	
36	Robert C. & Betty L. FlicKinger	0.15		7	
37	Edna G. Klinect	0.02		7	
38	Louis & Rose Kurman			7	No R/W Needed
39	Erwin C. & Joyce M. Miller			7	" " "
40	William Klinect, Clarence W. Landin (Life Est.)			7	" " "
41	Cora S. Ladd			7	" " "
42	George E. Hills (Life Est.)			7	" " "
43	Maurice C. & Dorothy M. Hills	0.06		7	

PARCEL Nº	PROPERTY OWNER	AREA TAKEN	STRUCTURE	SHEET Nº	REMARKS
44	Valerie D. Krocsen	0.10	Yes	7	
45	Lee Williams & Helen H. Klinect			7	No R/W Needed
46	James Schafer			7&8	No R/W Needed
47	Baltimore & Ohio Railroad	0.10		7&8&9	See Other Parcels
48	Ruth Wideman (Adm.)	0.40	Yes	7	
49	Ruth Esther Wideman	0.15	Yes	7&8	
50	Clayton H. & Pauline L. Sooy		Yes	7&8	See 50T also
51				8	No R/W Needed
52	Katherine C. & Delbert M. Connors	0.16		8	
50T	Clayton H. & Pauline L. Sooy	0.05		8	
47SL	Baltimore & Ohio Railroad	0.02		9	
47SL-1	" " " "	0.02		9	
47SL-2	" " " "	0.03		9	
47SL-3	" " " "	0.02		9	

7-22-60 Rev. 9-8-77
1-4-60 Complete

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LOR-76-0.00 MED-76-15.08
LOR-303-(16.40-16.63)-(16.69)

R/W PLANS

SCALE 1"=50'

76 — 2 / 9

LOT-28

Wilbur J. & L. Frieda Koudelka

1

P.I. -525.49'
Δ = 0°-26'-30" Rt. Chd Curve)

2 Sty. Fr. Res.

30' -400'

45' -300'

45' -223.04'

45' -89.70'

40.54' 0+02.99

LOT-28 COUNTY

LOT-96 COUNTY

45' 0+04.77

45' 1+40.30

45' 2+73.64

1 Sty. Fr. Res.

3

Jane & Eugene Rappert

R: 3864.51'

R: 2909.79'

R: 3864.51'

Temporary Dr.

Temporary Dr.

98°03

-700' N. 5°-30' W. -600'

-500'

-400' N. 5°-03'-30" W. -300'

-200' S.E. of Tie 2

-100'

1" to 6" Locusts

6" Fld. Tile

45' 8+00

N. 3°-32'-30" E.

SR-76

R: 3769.51'

50' -300'

50' -223.04'

50' -89.70'

50' -50.0'

50' -35.10'

100' -40.39'

2814.79'

50' 0+40

50' 0+24.81

21.48' -01.58'

100' 0+19.52

50' -05.26'

50' 1+40.30

50' 2+73.64

50' 8+00

30' -400'

1½ Sty. Fr. Res.

65'

2/A

4/B

2 Sty. Fr. Res.

MEDINA CO. LORAIN

LOT-42

LOT-95

Paul Dangelo Et Al.

2

Edmond J. & Leone C. Toll

4

5

℄ CHOOSE

PC. -223.04'
PI. -156.37'
PCC. -89.70'
Δ = 2°00'
D = 1.50008°
T = 66.67'
L = 133.34'
E = 0.58'
R = 3819.51'

PC.C. -89.70'
PI. 0+25.36
PCC. 1+40.30
Δ = 4°36'
D = 2°00'
T = 115.06'
L = 230.00'
E = 2.31'
R = 2864.79'

PC.C. 1+40.30
PI. 2+02.97
PT. 2+73.64
Δ = 2°00'
D = 1.50008°
T = 66.67'
L = 133.34'
E = 0.58'
R = 3819.51'

PC. -223.04'

PCC. -89.70'

PC.C. 1+40.30

PT. P-73.64

EQU. 3+40.31 BK. = 3+40.29 AD.

℄ 8+40.6

LITCHFIELD TWP LOT-42 T-3N R-16W

GRAFTON TWP LOT-95 T-4N R-16W

LOT-96

Jane & Eugene Rappert

3

45' 8+00

45' 9+00

1" to 6" Locusts

20' V.S.P. - Do Not Disturb -

12" Existing 12" Inlet

20' V.S.P.

SR-76

N. 3°-32'-30" E.

6" Fld. Tile to be Abandon

50' 8+00

30' 8+40.8

50' 8+41.0

4" Tile

8" Sanitary

50' 12+50

70' 15+50

1½ Sty. Fr. Res.

5

Michael J. & Rose M. Sutmaier

4

℄ 8+40.6

80' 16+50

30' 16+15.11

70' 16+75.31

℄ 16+74.92

1½ Sty. Conc. Blk.

6

Walter F. & Mary E. Odon

℄ 18+57.84

18+18.7

170' 18+40

170' 18+90

80' 18+40

80' 18+89

30' 18+17.3

7

Boy Scouts of America an Ohio Corp.

80' 19+90

80' 20+00

50' 23+00

30' 18+59.51

70' 18+61.92

70' 18+90

70' 19+60

70' 20+00

Gordon J. & Viold R. Blackhall

8

210' 19+60

210' 18+90

GRAFTON TWP LOT-95 T-4N R-16W

1-4-60 - Complete

LOR 76-0.00 MED 76-15.08
LOR 303(16.40-16.63)-(16.69) R/W 2 OF 9

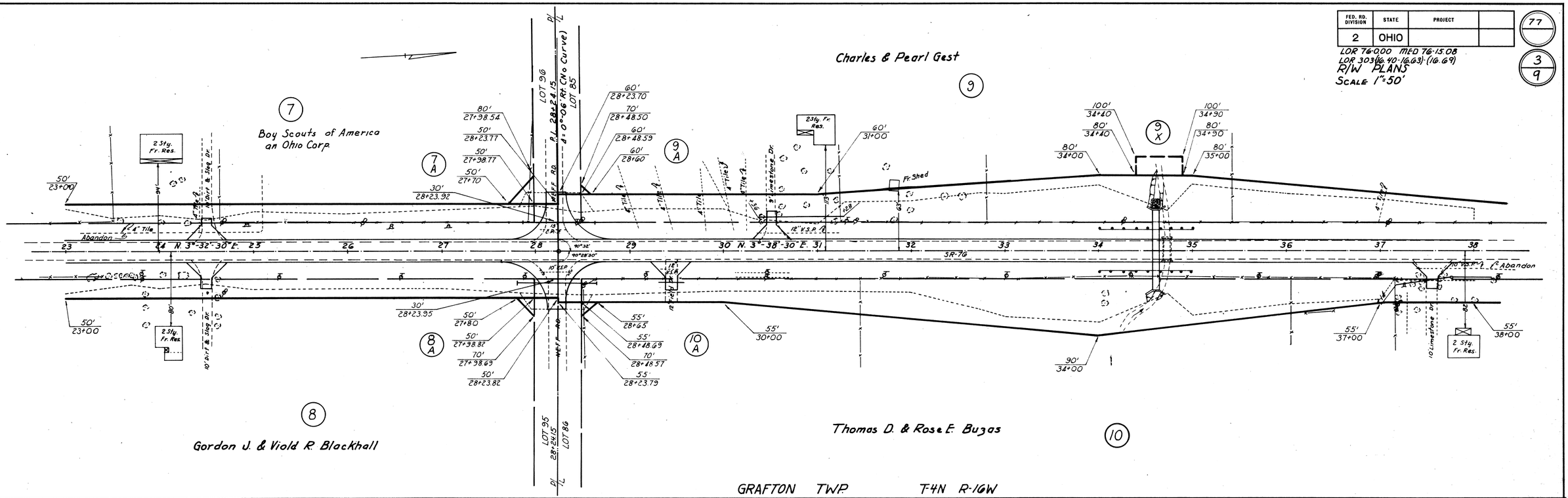
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

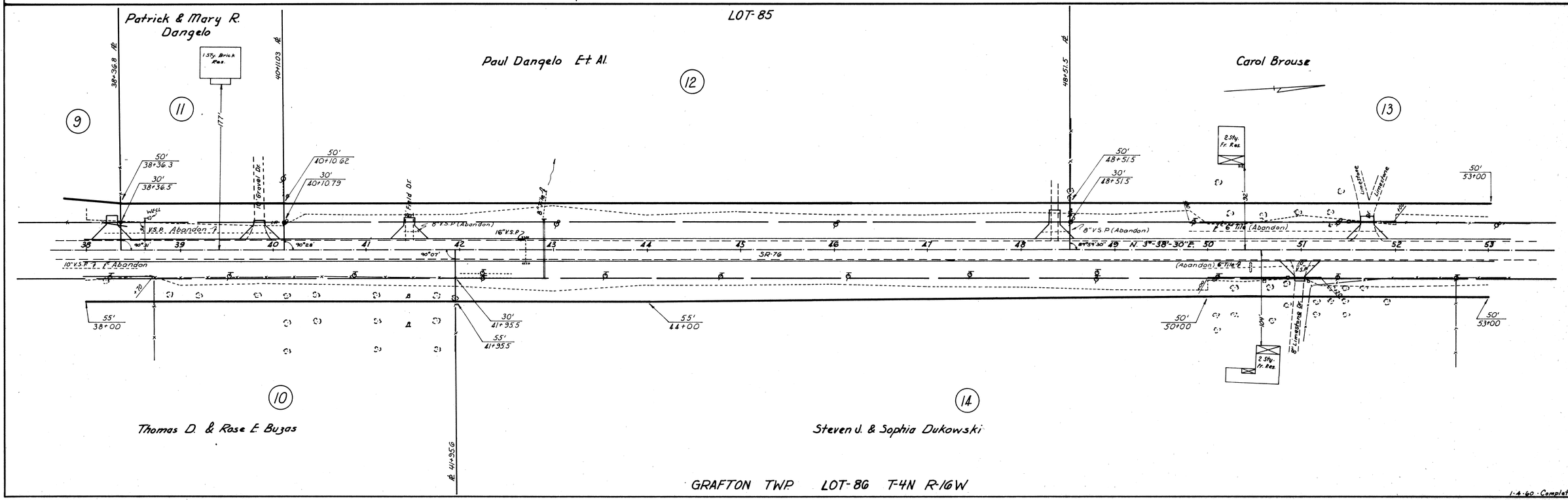
LOR 76-0.00 MED 76-15.08
LOR 303-(16.40-16.63)-(16.69)

77

3
9

R/W PLANS
SCALE 1"=50'





1-4-60 - Complete

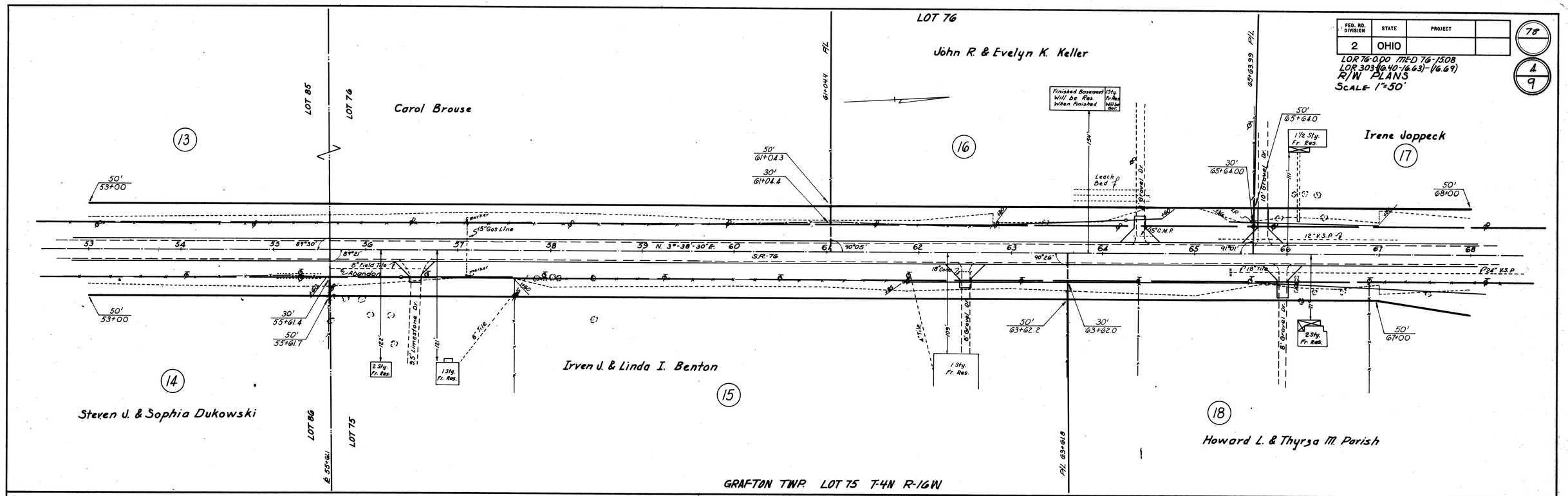
LOR 76-0.00 MED 76-15.08
LOR 303-(16.40-16.63)-(16.69) R/W 3 OF 9

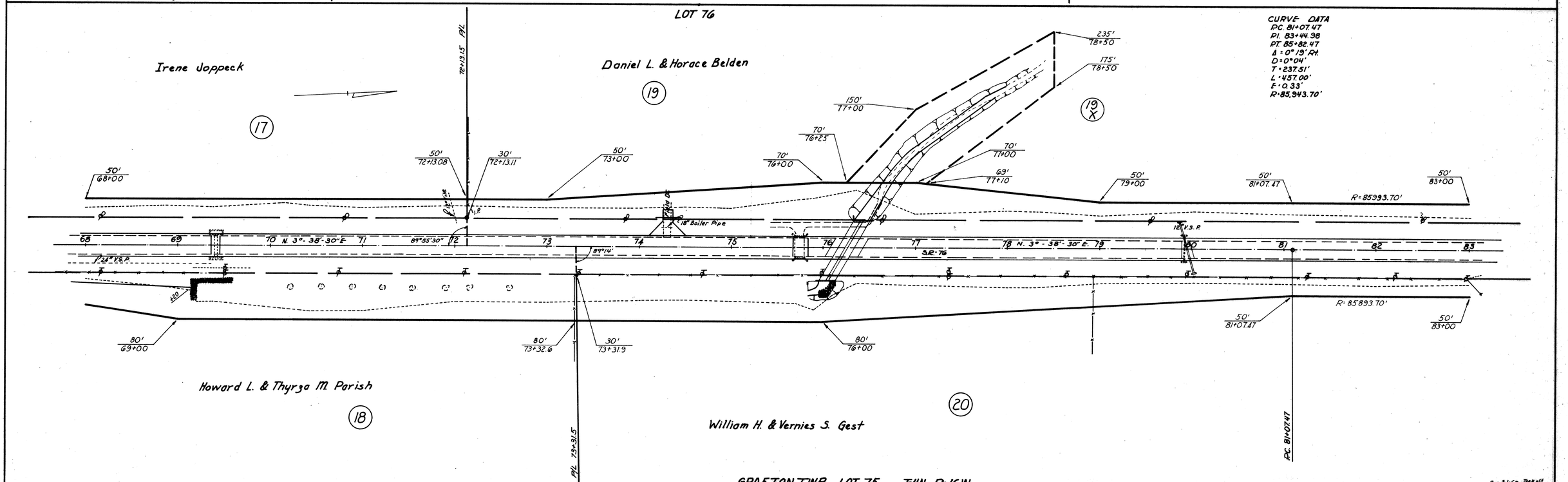
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

78

4/9

LOR 76-0.00 MED 76-15.08
LOR 303-(16.40-16.63)-(16.69)
R/W PLANS
SCALE 1"=50'





LOR 76-0.00 MED 76-15.08
LOR 303-(16.40-16.63)-(16.69) R/W 4 OF 9

Rev. 2-1-60 Took off 16 W.A.
1-4-60 Comp.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

79

5/9

LOR 76-0.00 MED.76-15.08
LOR 303-(16.40-16.63)-(16.69)
RIGHT OF WAY PLANS
SCALE-1"=50'

CURVE DATA
PC. 81+07.47
PI. 83+44.98
PT. 85+82.47
Δ-0°19'Rt.
D-0°04'
T-237.51'
L-475.00'
E-0.33'
R-85,943.70'

LOT 65

Daniel L. & Horace Belden

LOT 76 — LOT 65 — 83+44.98

19 — 19 — 19

50' 83+00 — 50' 83+44.40 — 30' 83+44.63 — 50' 85+82.47 — 50' 90+00 — 45' 93+50 — 50' 95+00 — 50' 98+00

R= 85993.70'

Shed — Corn Crib — Shed — 2 Sty. Fr. Res. — Well — Gravel Dr. — Abandon — 10" V.S.P. — 8" V.S.P.

83 — 84 — 85 — 86 — 87 — 88 — 89 — 90 — 91 — 92 N. 3°-57'-30" E. — 93 — 94 — 95 — 96 — 97 — 98

S.P.-76 — 90° — 6" Tile Abandon — 8" Tile — Abandon

R= 85893.70'

50' 83+00 — 50' 83+10 — 50' 83+20.56 — 70' 83+20.79 — 50' 83+80 — 50' 83+70.56 — 70' 83+70.79 — 30' 83+45.33 — 50' 83+45 — 50' 85+82.47 — 30' 90+11.26 — 50' 90+11.26

Gar. — 1½ Sty. Fr. Res. — Field Dr.

LOT 75 — LA W. ROAD — LOT 66

William H. & Vernies S. Gest

20A — 20B — 20 — 20 — 22 — William E. & Wounetta Jean Zacharias

P.T. 85+82.47

90+11.26 P.I.

GRAFTON TWP. LOT66 T-4N R-16W

LOT 65

Daniel L. & Horace Belden

19 — 19 — 19

LOT 65 — 110+05.47 — LOT 56

50' 98+00 — 50' 104+00 — 60' 108+00 — 60' 113+00

¾" Gas Line — 24" Field Tile — 12" Field Dr.

98 — 99 — 100 — 101 — 102 — 103 N. 3°-57'-30" E. — 104 — 105 — 106 — 107 — 108 — 109 N. 3°-57'-30" E. — 110 — 111 — 112 N. 3°-51'-E. — 113

1¼" Boiler Pipe — 10' Grave. — Twin 36" Conc. Pipes — 9' Gravel — 15' Gravel — 12" Field Tile — Abandon — 25' Gravel Dr.

50' 98+00 — 30' 98+53.89 — 50' 98+54.13 — 65' 100+00 — 30' 100+84.25 — 65' 100+84.61 — 160' — Conc. Blk. Res. — 30' 103+14.38 — 65' 103+14.78 — 1½ Sty. Fr. Res. — 30' 105+44.86 — 65' 105+45.21 — 1½ Sty. Fr. Res. — 65' 107+40 — 30' 107+75.12 — 65' 107+75.45 — 115' 107+75.91 — 61.8' 108+7.5 — 65' 108+50 — 185' 108+75 — 210' 108+30 — 30' 110+05.64 — 45' 110+05.78 — Well (Pump) — 13½ Brick Res. — 45' 112+05.78 — 30' 112+05.64

John F. & Helen Macaulay — John A. & Genevieve Magyor — Bruce W. & Annie L. Singleton — Joseph Kado — Walter C. & Inez E. Meyer

22 — 23 — 24 — 25 — 26 — 26X — 27 — 27X — 28 — 29

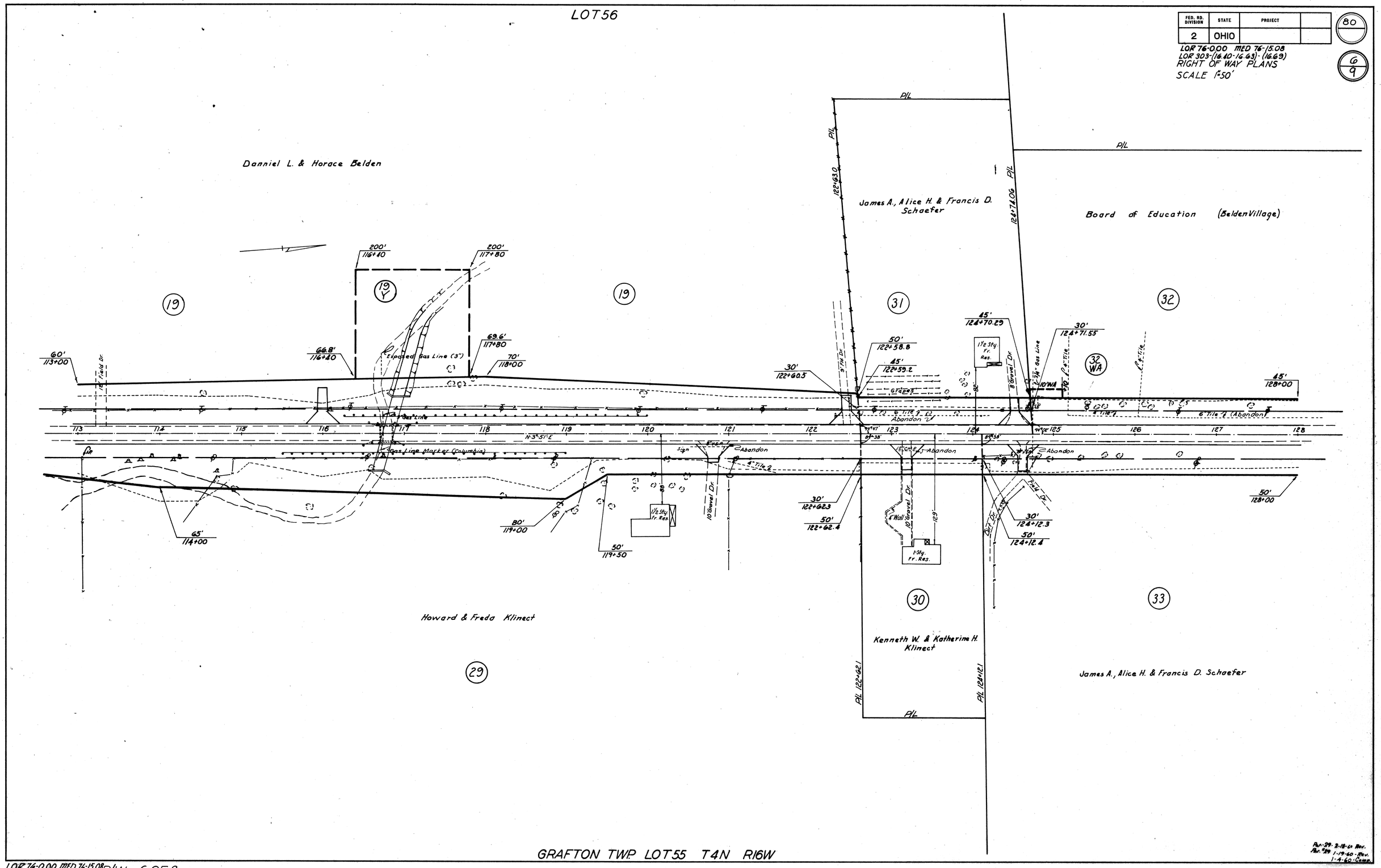
℄ 98+53.52 — ℄ 100+83.90 — ℄ 103+14.02 — ℄ 105+44.55 — ℄ 107+74.84

Marian I. Furman

P.I. 110+05.47 Δ=0°-06'-30"Lt. — Concrete Block Hog House — Conc. Hog Trough 2'

GRAFTON TWP. LOT66 T-4N R-16W

Rev. 12-19-60 Rev. Permit No. 1-19-60 Rev. Permit No. 1-19-60 Rev. 1-4-60 Rev. 1-4-60 Comp.


LOT56
FED. RD. DIVISION 2
STATE OHIO
PROJECT
80
LOR 76-0.00 MED 76-15.08
LOR 303-(16.40-16.63)-(16.69)
RIGHT OF WAY PLANS
SCALE 1"=50'
6/9
Danniel L. & Horace Belden
James A., Alice H. & Francis D. Schaefer
Board of Education (Belden Village)
Howard & Freda Klinect
Kenneth W. & Katherine H. Klinect
James A., Alice H. & Francis D. Schaefer
Exposed Gas Line (3")
Gas Line Marker (Columbia)
Abandon
1½ Sty. Fr. Res.
1-Sty. Fr. Res.
P/L
GRAFTON TWP. LOT55 T4N R16W
LOR 76-0.00 MED 76-15.08
LOR 303-(16.40-16.63)-(16.69)
R/W 6 OF 9

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

81

7/9

LOR 76-0.00 MED 76-15.08
LOR 303-(16.40-16.63)-(16.69)
R/W PLANS
Scale 1"=50'

LOT-56

LOT-45

Board of Education (Belden Village)

32

Grafton Twp School
3 Sty Brick

60' 132+13.47

30' 132+13.95

45' 128+00

45' 131+00

Flag pole
18' Conc Base

Gravel Dr.

Abandon

50' 128+00

50' 131+00

James A., Alice H. & Francis D. Schaefer

33

132+14.43 P/L

50

See Sheet No. 8 for SR 303 R/W

60' 876+72.2

96' 134+59.0 (SR-76) - 60' 877+42.4 (SR 303)

P/L 876+50.4

30' 133+06.9

96' 133+88.4

60' 133+06.4

48

Ruth Wideman (Adm.)

34

Belden Parents Hall

Old Fr. Church

Belden Grange Trustees

133+07.4 P/L

P/L 877+20.6

19

Ruth Esther Wideman

The Shed

Dirt Shed

Well

Wall 185.5'

6" Tile

Abandon

LOR-76

90°55'

N 3°51'E

128 129 130 131 132 133 134 135 136 137

18' Gas

10" Tile

30' 134+07.70

70' 134+07.64

30' 135+76.44

80' 135+27.79

134+07.74 P/L

35

Grafton Township Trustees

See Sheet No. 9 for R.R. R/W

BALTIMORE & OHIO RAILROAD

136+05.63 R.R. R/W

137+21.43 R.R. R/W

47

1½ Sty Res.

1¾ Sty Fr. & Stone Station

134+88.0 S.A. 1¾

137+22.75 S.B. 303

0' 137+21.43

75.78' 136+41.63

0' 137+31.79

C.M.P. 24"

Telephone

2½ Sty Frame Res.

133'

75.78' 137+21.19 (SR-76) - 60' 257+00 (SR 517 & 303)

LOR-ST & 303

Drainage Ditch

Shed

1½ Sty Frame Res.

Maurice C. & Dorothy M. Hills

43

30' 254+38

Metal Barn

254+38 P/L

Flat Top Shed

45' 254+38

60' 254+01.8

P/L 254+01.8

50' 254+01.8

1½ Sty Frame Res.

George E. Hills (Life Est.)

42

Gar.

253+34 P/L

Robert C. & Betty L. Flickinger

36

37

Edna G. Klinect

2 Sty Frame

Cora S. Ladd

41

Gar.

252+35 P/L

P/L 252+01.8

50' 252+01.8

2 Sty Frame Res.

40

William Klinect
Clarence W. Landin (Life Est.)

38

Louis & Rose Kurman

MATCH LINE

251+00

250+75 P/L

1½ Sty Frame Res.

39

James Schafer

46

Retaining Wall

Metal Building (Garage)

Stone

Toilet

Pool

Ex. & Prop. R/W

136+86.55

P.I. 137+81.19 (SR-76)
1°00'30" Rt (No Curve)
257+75.78 (SR-517)

N 4°45'W

RR R/W

136+13.82 (SR-76) - 877+03.2 SR 303

136+16.79 RR R/W

Ex. LOR-303

24.3' 876+41.5

47.8' 877+03.2 SR 303

2.5 Sty Fr. Res.

LOT 56

LOT 45

LOT 55

LOT 46

257

Ex. LOR-76

LOR-57 & 76

258 LOT 45 259 N 3°55'30"E 261 262

Valerie D. Krocsen

44

70' 258+55.78 (SR 517 & 76) - 80' 257+05.78 SR 517 & 303

256+03 P/L

30' 258+55.78

50' 259+65

30' 258+75.78

65' 260+70

1½ Sty Frame Gro. & Res.

Well

45' 256+03

30' 256+03

Lee Williams & Helen H. Klinect

45

GRAFTON TWP. T-4N R-16W LOT-55

LOT-46

LOR 76-0.00 MED 76-15.08 R/W 7/9
LOR 303-(16.40-16.63)-(16.69)

7-25-60 Rev 9-30-60
1-4-60 Comp.

Erwin C. & Joyce M. Miller

250+75 P/L

249+08 P/L

1½ Sty. Fr. Res.

39

251+00

LOR-517 & 303

250

249

Abandon Dr.

EX. & REFERENCE mon.

Evergreen Nursery

MATCH LINE

1½ Sty. Res.

38

Louis & Rose Kurman

LOT- 45

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

82

8/9

LOR-76-0.00 MED-76-15.08
LOR-303 - (16.40-16.63) - (16.69)
RIGHT OF WAY PLANS
SCALE 1" = 50'

Katherine C. & Delbert M. Connors

52

51

46

47

50

50 T

49

Clayton H. & Pauline L. Sooy

P/L

866+07.52

30' 866+00

50' 866+85.06

93.83' 871+03.63

84.18' 871+06.78

2 Sty. Fr. Res.

Cistern with Pump

8" C.M.P.

Fr. Church

Stone Parking Area

Grass

N 41°52'W BALTIMORE & OHIO RR

Metal Building (Garage)

Stone

DI 137+81.19 (G.R.-76) Δ=0°04'30" Rt (No Curve) =2374.75.78 (S.R.37)

259 LOR-51.76

258

257

6" Tile

866 S 36° 41' 40" E 865

866

867

868

869

870

871

872

873

874

875

876

877

6" Field Tile

871 Leach Bed

1½ Sty. Fr. Res.

Septic Tank

0.36" Gas Line

Equip. Shed Fr.

Fr. Shed

Gas Line

Septic Tank

Leach Bed

Fire place

Born (Frame)

S 66° 09' E

Cistern

Farm Pond

Stone Dr

2 Sty. Fr. Res.

Cistern

Railway Tile

Manhole

2 Sty. Fr. Res.

8" Dirt Dr.

Fr. Gar.

Road-Pkwy

8" V.S.P. Sanitary

1 Sty. Fire Station

1½ Sty. Res.

Shed

Shed

Well

R=1372.40'

R=1849.95'

30' 865+00

40' 866+85.06

60' 868+51.73

60' 871+15.34

60' 872+82.01

60' 876+28.46

60' 876+72.2

80.9' 812+82.01

50' 812+82.01

170'

760'

PC 866+85.06

PCC 868+51.73

PCC 871+15.34

PT 872+82.01

Equ. Sta 873+65.35 Ah = Sta 873+83.33 AD

134+88.00 = 878+22.75

P/L 876+50.4

Δ 8TH 20.6

N 3°-51' E

CURVE DATA

PC. 866+85.06	PCC. 868+51.73	PCC. 871+15.34
PI. 867+68.45	PI. 869+83.84	PI. 871+98.73
PCC. 868+51.73	PCC. 871+15.34	PT. 872+82.01
Δ: 5°00' Rt.	Δ: 10°32'40" Rt.	Δ: 5°00' Rt.
D: 2.99986°	D: 4°	D: 2.99986°
T: 83.39'	T: 132.11'	T: 83.39'
L: 166.67'	L: 263.61'	L: 166.67'
E: 1.82'	E: 6.09'	E: 1.82'
R: 1909.95'	R: 1432.40'	R: 1909.95

GRAFTON TWP T-4N R-16W LOT-56

LOR-76-0.00 MED-76-15.08 R/W 8/9
LOR-303 - (16.40-16.63) - (16.69)

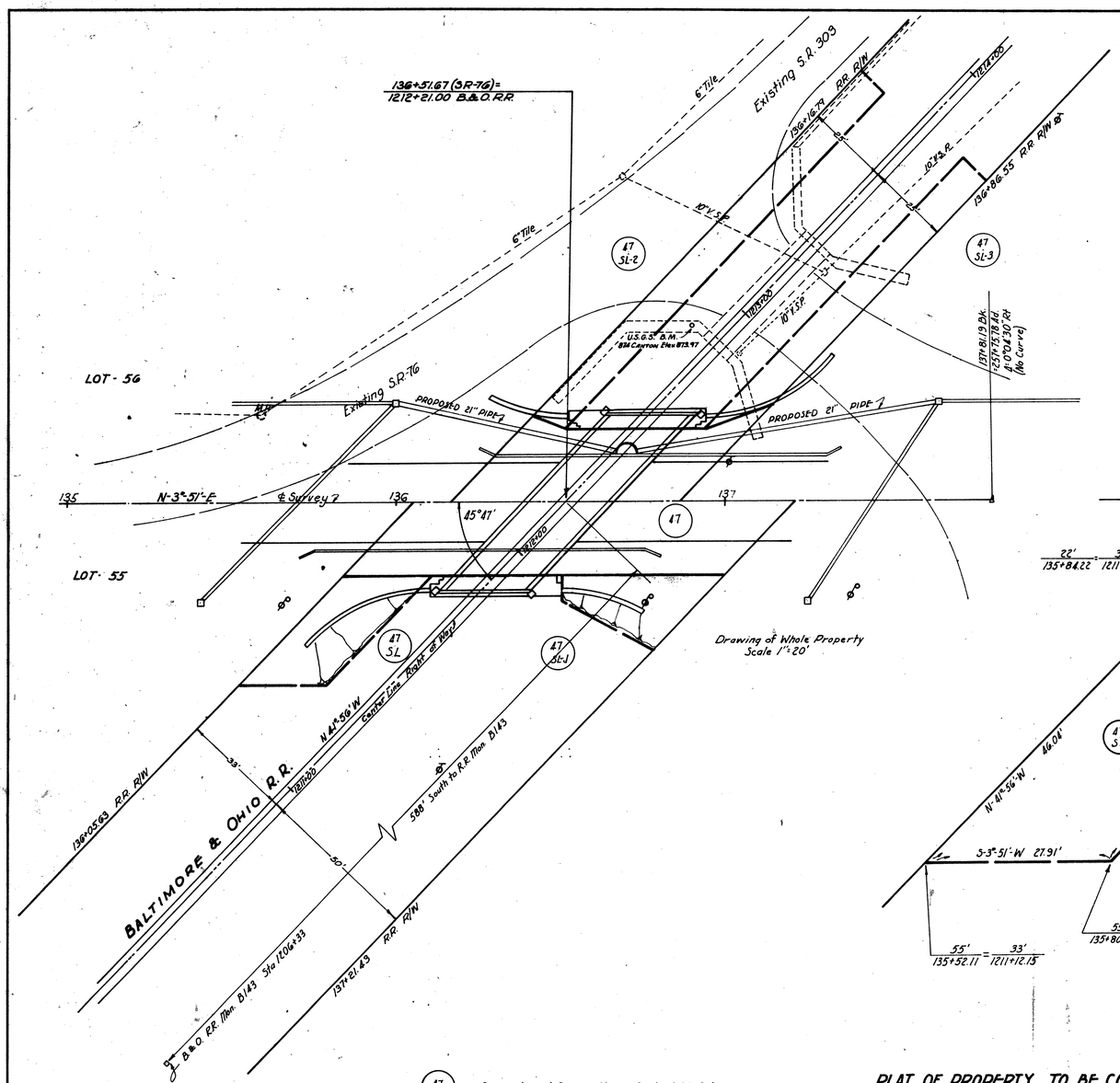
1-4-60-Comp.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

83/83

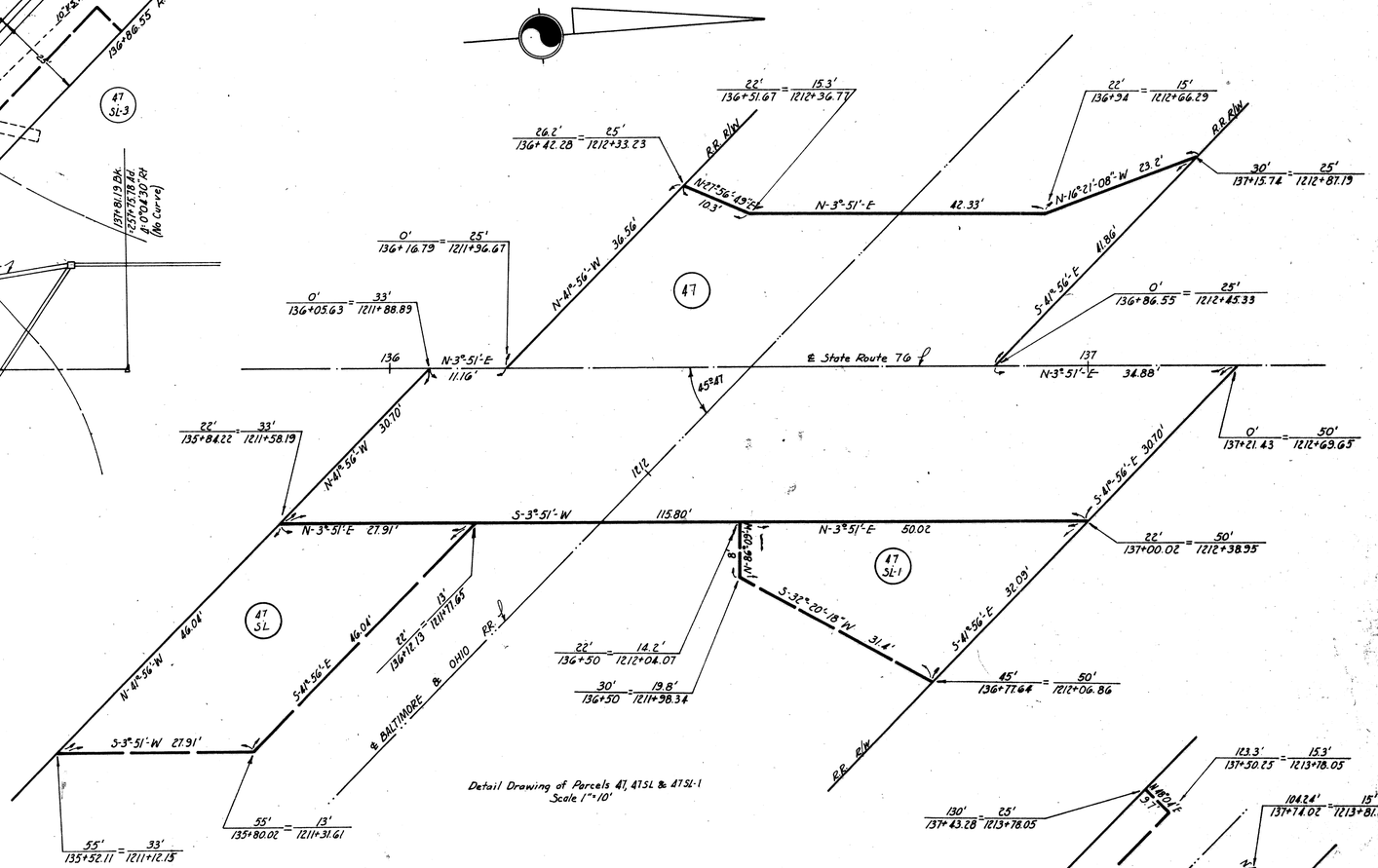
9/9

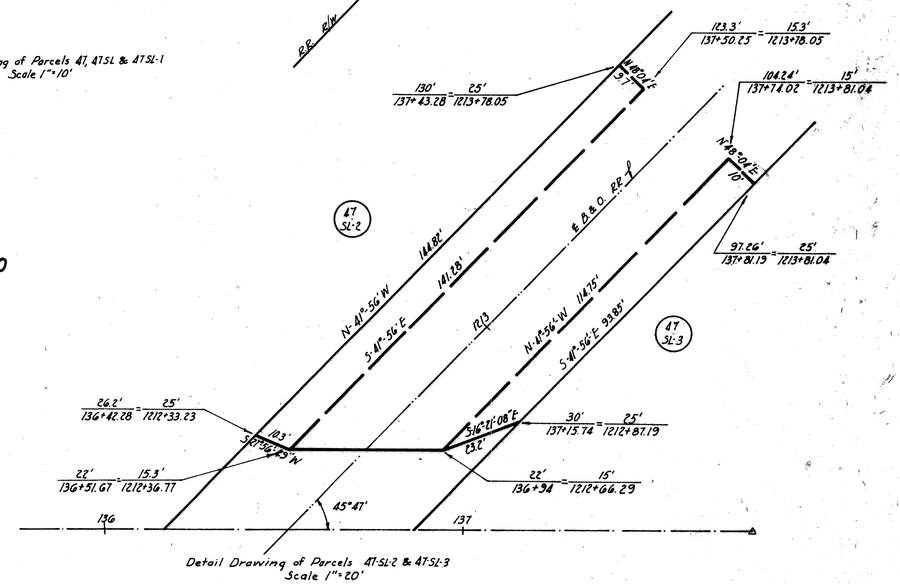
LOR 76-0.00 MED 76-15.08
LOR-303 (16.40-16.63)-(16.69)
Right of Way Plan



47	Occupational Easement	Conts. 0.10 Ac±
47 SL	Slope Easement	Conts. 0.02 Ac±
47 SL-1	Slope Easement	Conts. 0.02 Ac±
47 SL-2	Slope Easement	Conts. 0.03 Ac±
47 SL-3	Slope Easement	Conts. 0.02 Ac±

PLAT OF PROPERTY TO BE CONVEYED TO THE STATE OF OHIO
OWNED BY
THE BALTIMORE & OHIO RAILROAD COMPANY
LOR-76-0.00 MED-76-15.08 MED-303-(16.40-16.63)-(16.69)
GRAFTON TWP. LOT-55 & 56 T-4N R-16W LORAIN CO., OHIO





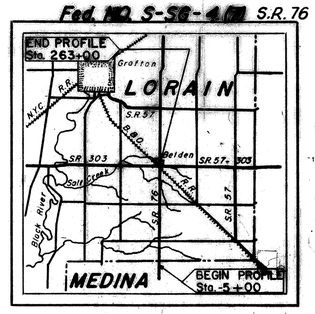
TE-54-A
200-1-55

SOIL PROFILE
LORAIN COUNTY
LOR-76-0.00 MED-76-15.08
LOR-303 (16.40-16.63)-(16.69)
OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS 10, OHIO

1/5

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. S-50 (7) S.R. 303
Fed. NO. S-50-4(7) S.R. 76



LOCATION MAP

Recon. C.J.K. - 5-22-59

Drilling - Core - E.M. - 8-5-59 to 8-6-59
Auger - J.R.G. - 7-9-59 to 7-16-59

Drafting - W.M.R. - 9-4-59

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS- 158 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 with sand and silt	A-2-4 (0)	A-2-4	50	1	5	23	12	25	5	13	1
Sandy silt	A-4 (1)	A-4a	14	8	14	37	27	26	7	16	10
Silt	A-4 (8)	A-4b	3	2	5	56	34	31	9	20	3
Silt and clay	A-6 (6)	A-6a	10	4	6	39	41	33	12	17	60
Silty clay	A-6 (11)	A-6b	3	3	6	39	49	36	18	20	14
Elastic Clay	A-7-5 (0)	A-7-5	0	3	4	37	56	43	12	27	4
Clay	A-7-6 (13)	A-7-6	6	3	4	34	53	45	19	19	23
Weathered shale		CLASSIFIED BY VISUAL INSPECTION									30
Shale		CLASSIFIED BY VISUAL INSPECTION									13

Auger boring-plan view. — W Free water — Sod and/or Topsoil=X'=Approximate depth.

Auger boring plotted to vertical scale only. — Berm material

Water content nearly equal to or greater than liquid limit. — Number of blows for "Standard Penetration" test. X=number of blows for first 6 inches. Y=number of blows for second 6 inches.

NOTE: Figures beside borings indicate water content in percent. e.g. 15

Drive sample-core boring - plan view.

Samples Tested
Lab. Nos. So.
26291-26302 incl.,
27083-27102 incl.,
27148-27195 incl.,
27201-27278 incl.

SUMMARY OF SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index column 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.	SHTL CLASS.
*4+00	12'Lt	1.0-5.0	6	1	2	38	50	42	21	18	A-7-6*
		5.0-7.0	0	1	1	40	58	38	15	16	A-6a
		7.0-10.0	8	0	1	43	48	38	15	20	A-6a
-1+00	12'Rt	0.6-4.5	15	4	4	34	43	40	13	22	A-6a*
		4.5-10.0	43	2	3	23	29	36	12	11	A-6a
3+40	12'Lt	1.0-4.5	5	1	2	37	55	40	24	7	A-7-6*
		4.5-8.0	0	2	5	41	52	37	14	14	A-6a
		8.0-10.0	0	2	1	46	51	41	18	42	A-7-6
7+00	12'Rt	0.8-1.5	27	0	12	28	24	26	0	20	A-4a*
		1.5-6.5	0	3	8	45	44	33	17	25	A-6b*
		6.5-10.0	17	1	1	32	49	35	12	14	A-6a
11+00	12'Lt	0.8-1.5	8	4	8	32	48	36	18	18	A-6b*
		1.5-5.5	7	1	1	32	59	39	18	17	A-6b*
		5.5-8.0	0	0	1	43	56	38	20	16	A-6b
		8.0-9.0	Gray Extremely Weathered Shale							12	Visual
15+00	12'Lt	1.0-3.0	0	4	7	32	48	34	16	25	A-6b*
		3.0-9.0	Gray Extremely Weathered Shale							13	Visual
		9.0-11.5	Gray Weathered Shale							8	Visual
19+00	12'Lt	1.0-4.5	6	5	0	40	40	28	12	15	A-6a
		4.5-8.5	0	0	4	53	43	31	13	23	A-6a
		8.5-9.5	0	12	8	45	26	25	7	14	A-4a
		9.5-14.5	Gray Extremely Weathered Shale							0	Visual
20+00	12'Rt	1.0-4.0	27	14	0	28	22	28	0	17	A-4a
		4.0-7.0	8	5	10	45	32	27	12	18	A-6a
		7.0-9.0	12	0	0	31	39	28	11	14	A-6a
		9.0-10.0	Gray Weathered Shale							10	Visual
		10.0-12.5	Gray Extremely Weathered Shale							15	Visual
24+00	12'Lt	1.0-5.5	13	5	10	33	39	29	11	14	A-6a*
		5.5-9.0	0	5	8	35	43	28	13	14	A-6a
		9.0-11.0	Brown & Gray Extremely Weathered Shale							12	Visual
28+00	12'Rt	1.0-5.5	3	3	7	38	49	38	18	19	A-6b*
		5.5-9.0	13	6	7	43	31	26	13	13	A-6a
		9.0-10.0	13	2	1	46	38	31	11	11	A-6a
32+00	12'Lt	1.0-5.0	3	2	4	60	31	29	9	12	A-4b*
		5.0-7.5	8	5	5	33	49	36	14	15	A-6a
		7.5-9.0	Gray Weathered Shale							13	Visual
34+00	12'Lt	1.0-3.0	20	5	2	45	28	31	13	12	A-6a
		3.0-6.0	5	4	10	42	39	29	11	25	A-6a
		6.0-12.5	Gray Firm Shale							8	Visual
36+00	12'Lt	1.0-5.5	0	2	8	44	46	40	21	24	A-6b
		5.5-6.5	50	1	5	23	12	25	5	19	A-2-4
		6.5-12.0	Gray Weathered Shale							12	Visual
40+00	12'Rt	1.0-5.5	0	7	7	37	49	35	12	23	A-6a*
		5.5-8.0	9	5	6	41	39	27	6	21	A-4a
		8.0-10.0	Gray Weathered Shale							10	Visual
44+00	12'Rt	1.0-3.0	7	3	5	48	37	35	14	14	A-6a*
		3.0-5.0	3	6	13	21	57	47	19	24	A-7-6
		5.0-7.5	0	4	4	44	39	36	11	12	A-6a
		7.5-11.0	Gray Clay Shale							6	Visual
48+00	12'Lt	1.0-2.5	2	6	17	32	43	31	11	24	A-6a*
		2.5-6.0	0	1	1	38	60	40	20	19	A-7-6*
		6.0-10.0	13	5	3	30	49	34	11	13	A-6a
52+00	12'Rt	1.0-2.5	0	4	22	41	33	33	11	16	A-6a*
		2.5-5.0	0	1	0	47	52	37	16	17	A-6b*
		5.0-10.0	54	3	3	26	20	31	11	15	A-6a
56+00	12'Lt	1.0-2.5	6	5	10	37	42	32	12	18	A-6a*
		2.5-5.0	0	0	0	42	58	40	18	17	A-6b*
		5.0-8.5	Gray Weathered Shale (Soft)							9	Visual
59+50	12'Rt	1.0-2.0	11	3	2	43	41	29	11	17	A-6a*
		2.0-4.0	0	1	7	36	56	43	22	27	A-7-6*
		4.0-7.0	0	2	3	26	69	49	22	25	A-7-6
		7.0-10.0	Gray Extremely Weathered Clay Shale							10	Visual
64+00	12'Lt	1.0-5.0	11	3	11	39	36	35	16	24	A-6b*
		5.0-10.0	10	5	3	37	45	35	13	15	A-6a
		10.0-12.0	Gray Firm Clay Shale							10	Visual
68+00	12'Lt	1.0-2.5	2	7	24	46	21	NP	NP	18	A-4a*
		2.5-6.0	0	1	2	37	60	41	18	19	A-7-6
		6.0-10.0	27	1	0	30	42	32	11	13	A-6a
		10.0-11.5	29	1	1	39	30	36	16	19	A-6a
72+00	12'Rt	1.0-3.0	0	6	10	37	47	35	18	17	A-6b*
		3.0-5.0	5	5	8	38	44	34	15	18	A-6a
		5.0-9.5	Gray Extremely Weathered Clay Shale							12	Visual
		9.5-12.0	Gray Extremely Weathered Clay Shale							22	Visual
76+00	12'Lt	1.0-7.0	0	3	0	46	42	31	13	24	A-6a*
		7.0-9.0	21	14	16	27	22	21	5	10	A-4a
		9.0-17.0	37	2	3	33	25	28	9	9	A-4a
		17.0-23.0	Gray Weathered Shale							8	Visual
80+00	12'Rt	1.0-3.0	0	2	10	42	46	30	11	23	A-6a*
		3.0-8.5	0	2	8	37	53	42	22	24	A-7-6
		8.5-10.0	Gr. & Cr. Extremely Weathered Clay Shale							12	Visual
84+00	12'Lt	1.0-6.0	0	4	8	30	58	52	24	17	A-7-6*
		6.0-10.0	49	0	1	25	25	36	11	15	A-6a
88+00	12'Rt	1.0-2.5	6	3	5	55	31	30	8	20	A-4b*
		2.5-6.0	0	0	1	37	62	44	15	19	A-7-6*
		6.0-10.0	0	1	4	44	51	37	12	19	A-6a
92+00	12'Lt	1.0-3.0	0	1	2	44	53	42	17	19	A-7-6*
		3.0-5.0	0	3	5	35	57	41	13	15	A-7-6
		5.0-10.0	Gray Weathered Clay Shale							8	Visual
96+00	12'Rt	0.8-2.0	0	1	2	47	50	42	16	21	A-7-6*
		2.0-4.0	0	5	6	40	49	43	12	23	A-7-5*
		4.0-8.0	23	3	3	29	42	45	20	16	A-7-6
		8.0-10.0	Gray Weathered Shale							13	Visual
99+50	12'Lt	0.8-2.0	0	2	7	47	44	34	14	22	A-6a*
		2.0-5.5	0	2	0	40	49	34	14	10	A-6a
		5.5-10.5	Gray Weathered Shale							11	Visual
104+00	12'Lt	0.8-4.0	5	4	24	34	33	30	12	22	A-6a*
		4.0-5.5	0	2	3	32	63	44	19	20	A-7-6
		5.5-10.0	Gray Firm Clay Shale							7	Visual
107+00	12'Rt	0.8-2.0	0	3	21	46	30	28	8	20	A-4a*
		2.0-5.5	0	6	34	32	28	26	5	20	A-6a
		5.5-6.5	17	1	3	37	42	30	13	25	A-6a
		6.5-10.0	15	1	1	40	43	35	11	17	A-6a
111+00	12'Rt	0.5-6.5	14	1	4	27	54	46	21	18	A-7-6*
		6.5-12.0	Gray Clay Shale							6	Visual
114+00	12'Lt	0.5-5.5	0	5	7	35	53	36	13	14	A-6a*
		5.5-12.0	45	2	0	25	28	41	15	10	A-7-6*
117+25	12'Lt	0.5-3.0	0	1	6	61	32	37	12	27	A-6a
		3.0-6.5	0	0	7	52	41	34	10	29	A-4b
		6.5-12.0	Gr. Weathered Firm Clay Shale							9	Visual
118+25	25'Rt	0.5-3.0	0	6	7	30	57	46	14	25	A-7-5
		3.0-10.0	Gr. Extremely Weathered Clay Shale							9	Visual
119+00	35'Lt	0.5-2.0	0	1	2	38	59	41	11	20	A-7-5
		2.0-4.5	0	1	1	38	60	44	13	20	A-7-5
		4.5-8.0	Gray Firm Clay Shale							8	Visual
121+50	12'Rt	0.8-2.0	0	5	7	37	51	36	15	17	A-6a*
		2.0-7.5	0	4	5	37	44	38	13	13	A-6a*
		7.5-10.0	Gray Clay Shale							7	Visual
125+00	12'Lt	0.8-5.5	4	4	9	41	42	36	13	15	A-6a*
		5.5-8.5	9	0	2	39	50	32	11	15	A-6a
		8.5-14.0	Gray Weathered Shale							7	Visual
129+00	12'Lt	1.0-5.5	0	3	9	45	43	35	14	18	A-6a*
		5.5-8.0	8	5	9	36	42	32	12	16	A-6a
		8.0-10.5	Gray Weathered Shale							11	Visual
133+00	12'Rt	0.8-2.0	6	6	9	36	43	45	16	22	A-7-6
		2.0-7.5	0	4	8	25	54	32	12	15	A-6a
		7.5-13.0	Gray Clay Shale							8	Visual*
		13.0-17.0	Gray Clay Shale							7	Visual
135+95	CL	1.0-4.5	16	6	9	30	39	32	13	15	A-6a
		4.5-7.5	10	5	10	39	36	24	6	14	A-4a
		7.5-11.0	Gray Extremely Weathered Shale							12	Visual*
137+50	CL	0.5-6.5	30	5	8	28	29	41	16	14	A-7-6*
		6.5-11.0	Gray Clay	Shale						9	Visual
262+00	15'Rt	0.8-2.0	8	11	4	40	37	43	20	14	A-7-6*
		2.0-11.0	0	4	5	38	44	39	13	17	A-6a*
		11.0-13.5	0	6	11	43	40	38	11	26	A-6a
		13.5-18.0	6	1	1	41	57	44	18	27	A-7-6
		18.0-23.0	12	1	3	40	44	37	11	11	A-6a
		23.0-25.0	13	2	6	40	39	54	27	13	A-7-6
S.R. 303											
867+00	10'Rt	0.5-5.0	25	9	11	27	28	28	13	11	A-6a*
		5.0-7.5	4	3	5	33	55	37	17	18	A-6b
		7.5-10.0	Dk. Gr. Ext. Weathered Clay Shale							13	Visual
870+50	CL	0.5-3.5	5	5	9	37	44	30	14	14	A-6a
		3.5-6.0	Wet. Br. & Gr. Ext. Weathered Shale							15	Visual
		6.0-10.0	Gray Clay Shale							8	Visual
872+35	CL	0.5-5.5	6	6	8	34	46	29	12	14	A-6a*
		5.5-7.5	5	5	4	36	49	30	12	18	A-6a
		7.5-12.0	Gray Weathered Shale							9	Visual
875+00	CL	0.5-7.5	3	5	14	30	30	30	14	16	A-6a*
		7.5-10.0	6	4	7	41	42	33	11	18	A-6a
		10.0-12.0	Gray Shale							9	Visual
877+50	CL	0.5-4.5	0	3	6	45	46	30	24	10	A-6b
		4.5-9.5	3	4	7	40	46	30	11	16	A-6a
		9.5-14.0	Gray Extremely Weathered Shale							10	Visual*
S.R. 57-303											
251+50	15'Lt	0.5-6.5	16	7	9	31	37	38	17	23	A-6b*
		6.5-10.0	Gray Extremely Weathered Shale							11	Visual
254+50	15'Lt	0.5-3.0	40	1	1	35	23	26	11	13	A-6a*
		3.0-7.0	Brown Weathered Shale							12	Visual*
		7.0-11.0	Gray Shale							10	Visual

SOIL PROFILE
LORAIN COUNTY
LOR-76-0.00, MED-76-15.08
LOR-303 (16.40-16.63)-(16.69)
OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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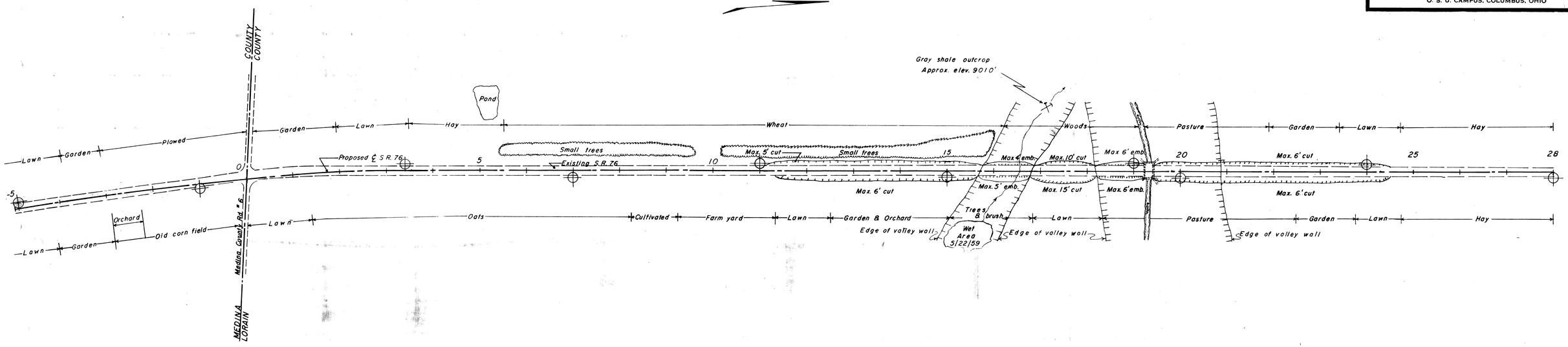

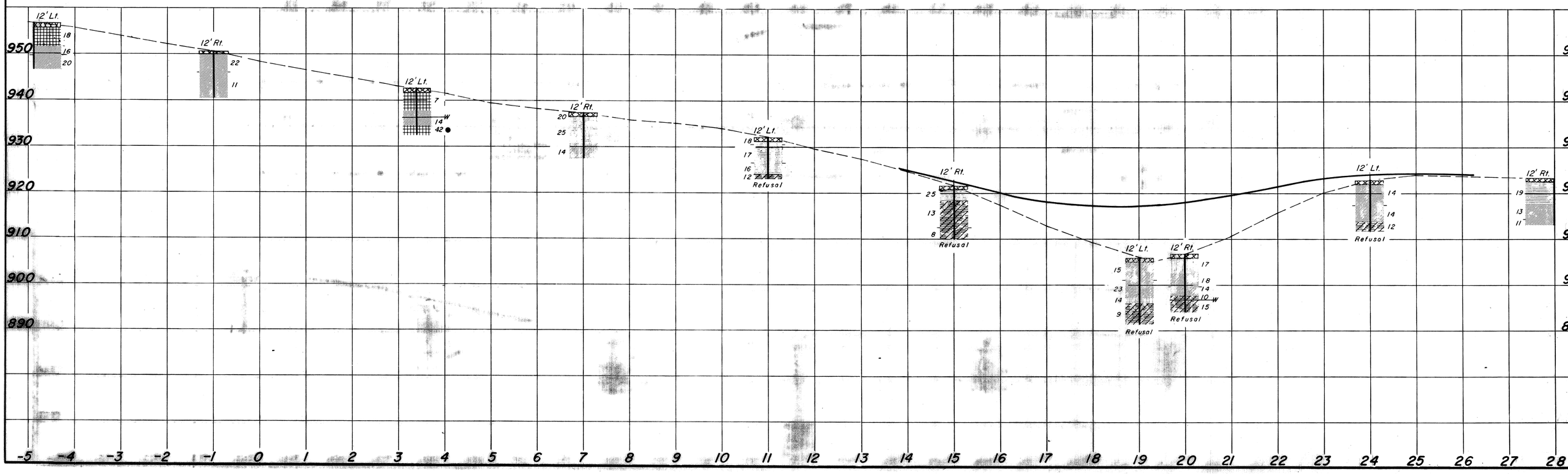

SOIL PROFILE

LORAIN COUNTY

LOR-76-0.00- MED-76-15.08
LOR-303 (16.40-16.63)-(16.69)
OHIO STATE HIGHWAY
TESTING - LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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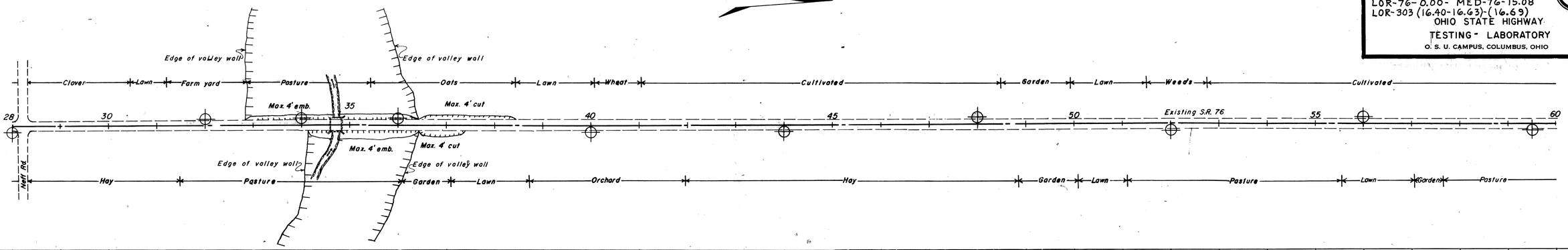

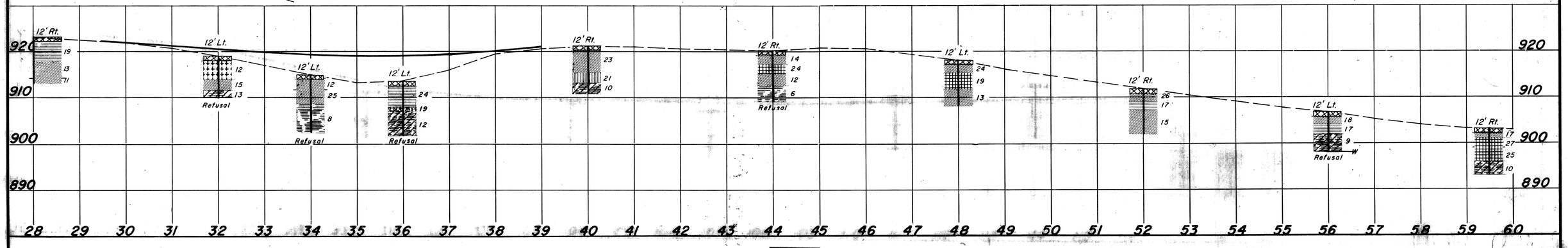

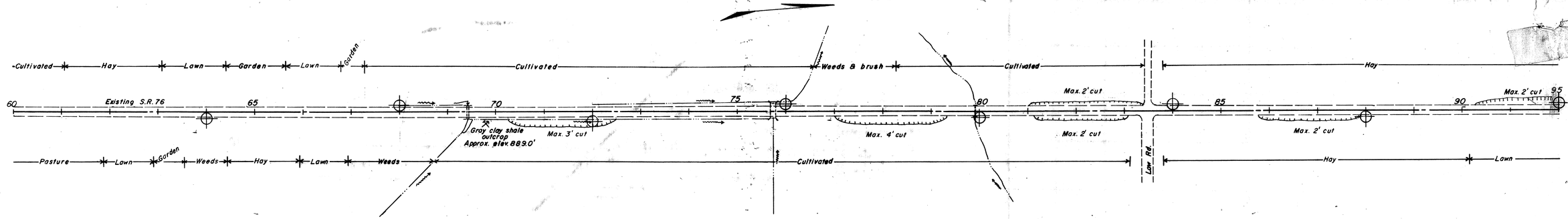

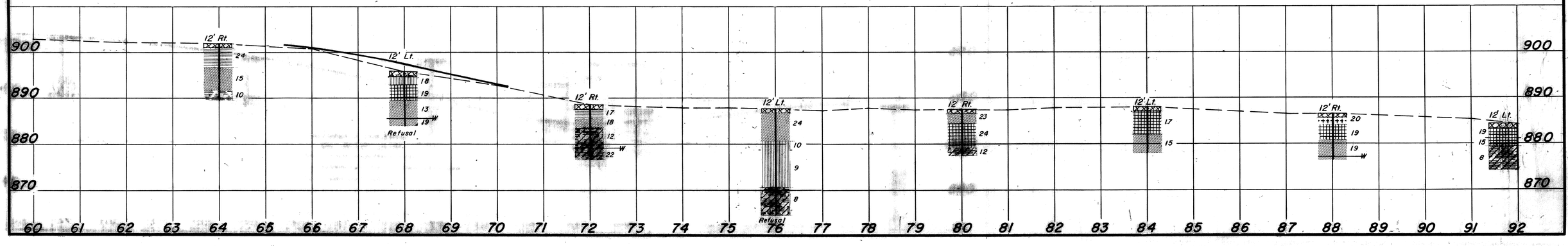

SOIL PROFILE
LORAIN COUNTY

LOR-76-0.00, MED-76-15.08
LOR-303 (16.40-16.63)-(16.69)
OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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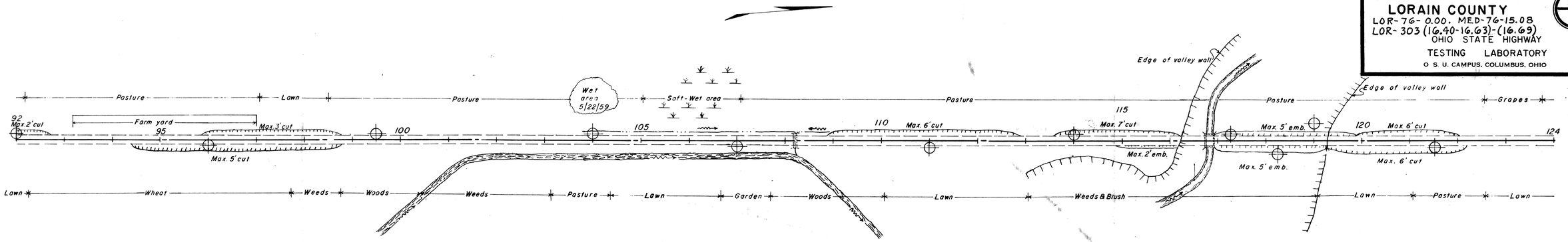
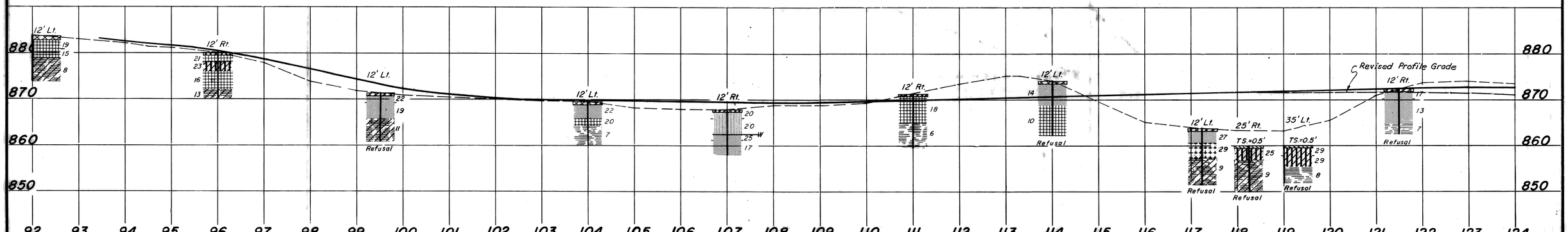
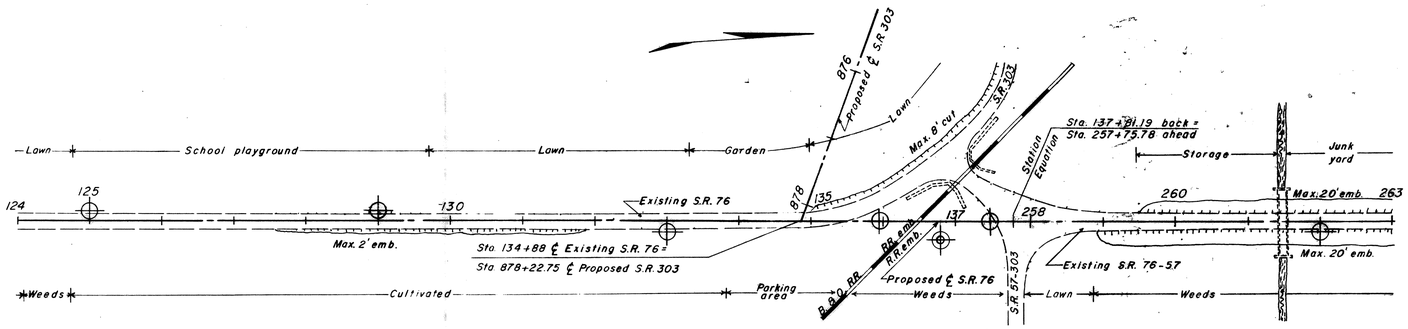
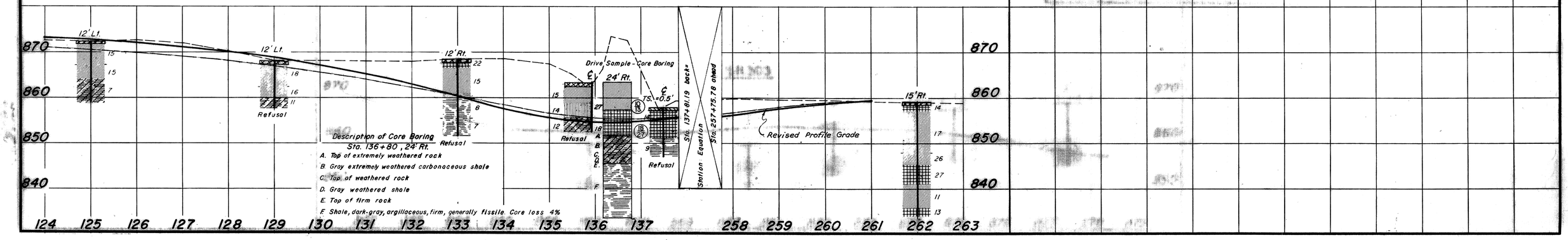








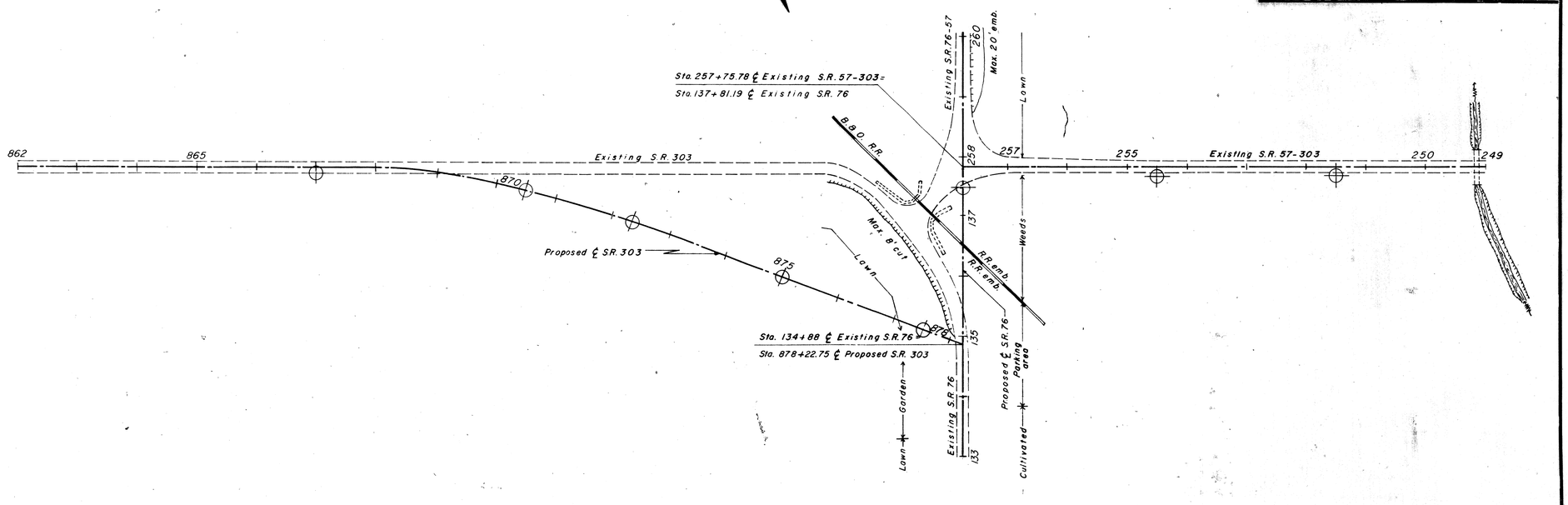
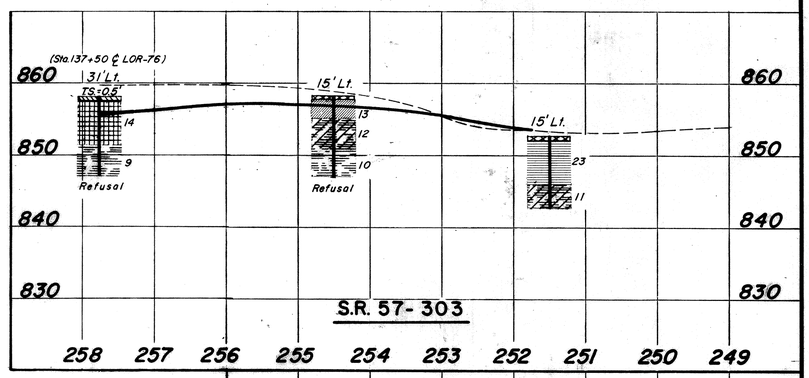
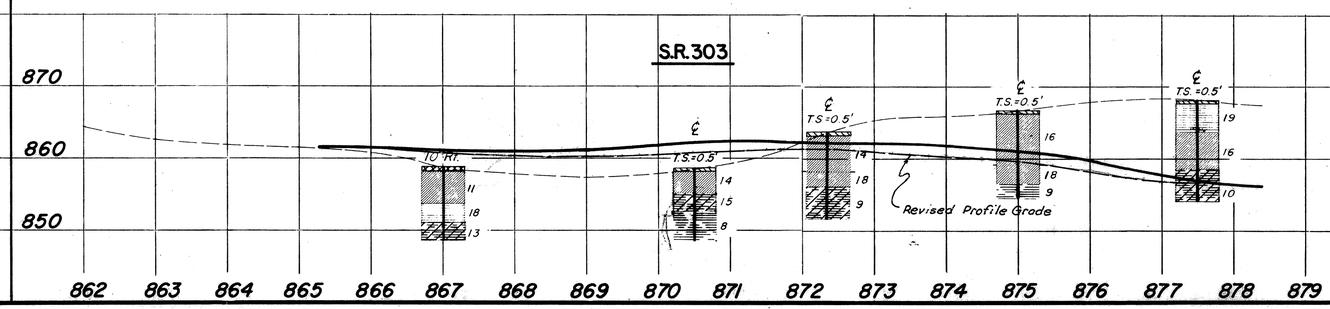
Description of Core Boring
Sta. 136+80, 24' Rt.

A. Top of extremely weathered rock
B. Gray extremely weathered carbonaceous shale
C. Top of weathered rock
D. Gray weathered shale
E. Top of firm rock
F. Shale, dark-gray, argillaceous, firm, generally fissile. Core loss 4%

SOIL PROFILE

LORAIN COUNTY

LOR-76-0.00, MED-76-15.08
LOR-303-(16.40-16.63)-(16.83)

OHIO STATE HIGHWAY
TESTING LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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