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STATE OF OHIO
DEPARTMENT OF HIGHWAYS
LOR-254-0.00-B
LORAIN COUNTY
CITY OF AMHERST
BROWNHELM & AMHERST TWP'S
GRADE SEPARATION WITH THE N.Y.C. R.R. CO.

F-U-1115 (2)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-U-1115(2)	

1/325

LORAIN COUNTY
LOR-254-0.00-B

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LINE DATA

F-1115(2)
NET LENGTH OF PROJECT 6,650 LIN. FT. OR 1.259 MILES
NET LENGTH OF WORK 12,871.12 LIN. FT. OR 2.438 MILES

U-1115(2)
NET LENGTH OF PROJECT 17,840 LIN. FT. OR 3.378 MILES
NET LENGTH OF WORK 21,337.70 LIN. FT. OR 4.041 MILES

TOTAL NET LENGTH OF PROJECTS 24,490.00 LIN. FT. OR 4.638 MILES
TOTAL NET LENGTH OF WORK 34,208.82 LIN. FT. OR 6.478 MILES

FOR DETAILS OF LINE DATA SEE SHEET No. 4

CONVENTIONAL SIGNS

COUNTY LINE
TOWNSHIP LINE
LOT LINE
CORPORATION LINE
CENTER LINE
FENCE LINE
TELEPHONE POWER
POLE LINE
RAILROAD
GUARD RAIL
DRAIN PIPE
RIGHT OF WAY LINE — R/W
LIMITED ACCESS LINE — LA
LIMITED ACCESS AND RIGHT OF WAY LINE — LA R/W

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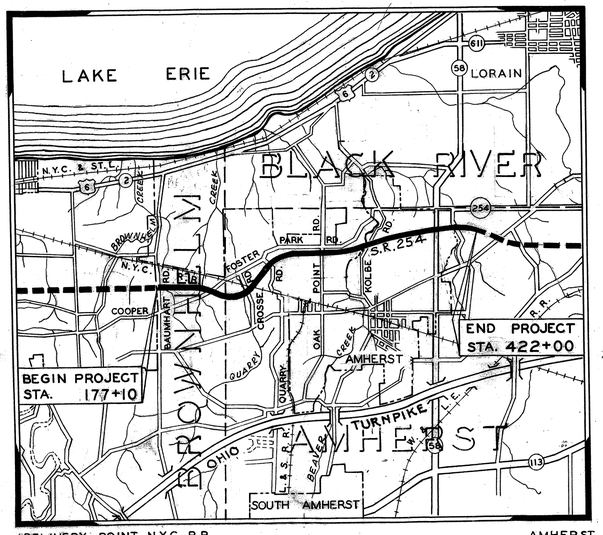
Sheet Nos. 249, 263, 264, 265, 266, 267, 268 and 269 revised 1-14-65
Sheet No. 261 revised 10-29-65



DELIVERY POINT N.Y.C. R.R.
AVERAGE HAUL FROM SIDING

AMHERST
2.7 MILES

LOCATION MAP

0 1 2 3 4
SCALE IN MILES

PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER ROADS

SCALES

PLAN	1" = 50'
PROFILE - HORIZONTAL	1" = 50'
PROFILE - VERTICAL	1" = 10'
CROSS SECTIONS	1" = 10'

1963 SPECIFICATIONS

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE REVISED CODE OF OHIO.

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

THE RIGHT-OF-WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF THE HIGHWAY TO TRAFFIC AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THESE PLANS AND ESTIMATES.

APPROVED: Dale Emmons
DATE: 7-27-64 DIVISION DEPUTY DIRECTOR

APPROVED: C. H. Abbrates
DATE: 9-11-64 ENGINEER OF BRIDGES

APPROVED: R.N. Richter
DATE: 9-15-64 ENGINEER OF LOCATION & DESIGN

APPROVED: R.E. Shultz
DATE: 9-15-64 DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION

APPROVED: T. H. Borland
DATE: 8-7-64 DEPUTY DIRECTOR OF RIGHT OF WAY

APPROVED: E. W. Wilson
DATE: 9-18-64 DEPUTY DIRECTOR OF PLANNING & PROGRAMMING

APPROVED:
DATE: _____ FIRST ASSISTANT DIRECTOR

APPROVED: P. E. Masheter
DATE: 9/18/64 DIRECTOR OF HIGHWAYS

APPROVED:
DATE: _____ DIRECTOR SERVICE - SAFETY, CITY OF AMHERST

PREPARED AND RECOMMENDED BY
SHAFFER PARRETT & ASSOCIATES
CONSULTING ENGINEERS
MANSFIELD OHIO WOOSTER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:

DIVISION ENGINEER DATE

STANDARD DRAWINGS

B-T-70-71	11-15-60	I-8 C.B. No. 6	2-1-63	L-1	4-1-50	FAC1-2	2-25-64	AS-1-54	7-5-62				
B-T-71R	3-2-53	I-8 M.H. No. 1	2-1-63	L-3	4-1-50	I-8 M.H. NO. 1-A	2-1-63	AR-1-57	4-2-62				
DR-1	1-3-55	I-8 M.H. No. 2	2-1-63	L-3-A	4-1-50	I-15 NO. 5-B	2-1-63	FSB-1-62	1-15-63				
G-7.07	4-1-64	I-12	2-1-63	L.J. No. 1	7-1-55	I-15 NO. 6	2-1-63	SD-1-63, SH. 1-4	11-12-63				
HW-E	2-1-63	I-14 G	1-22-52	RI-1	7-15-58	T-35	1-2-56						
I-1	11-15-60	I-15 No. 1	11-15-60	SP-53	6-30-61	F-2	2-1-63						
I-8 C.B. 2-2-A&B	2-1-63	I-15 No. 2-A	8-1-60	T.J.	9-12-60	F-3	2-1-63						
I-8 C.B. 2-3 & 2-4	2-1-63	I-21-23	8-1-56	FAC1-1	2-25-64	I-8 C.B. NO 7	2-1-63						

SUPPLEMENTAL SPECIFICATIONS

T-335		10-28-63
I-212	R.	6-23-61
S-307		8-23-60
I-124	R.	3-20-61
CE-101.04		5-22-56
S-101		7-12-62
I-127	R.	1-15-62
I-128		7-31-59
I-129	R.	4-5-61
M-107.18	R.	4-3-61

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FILE NO. 316-2
LORAIN COUNTY - LOR-254-0.00-B
DATE OF LETTING _____ 19
CONTRACT NO _____

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FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LOR-254-0.00-B

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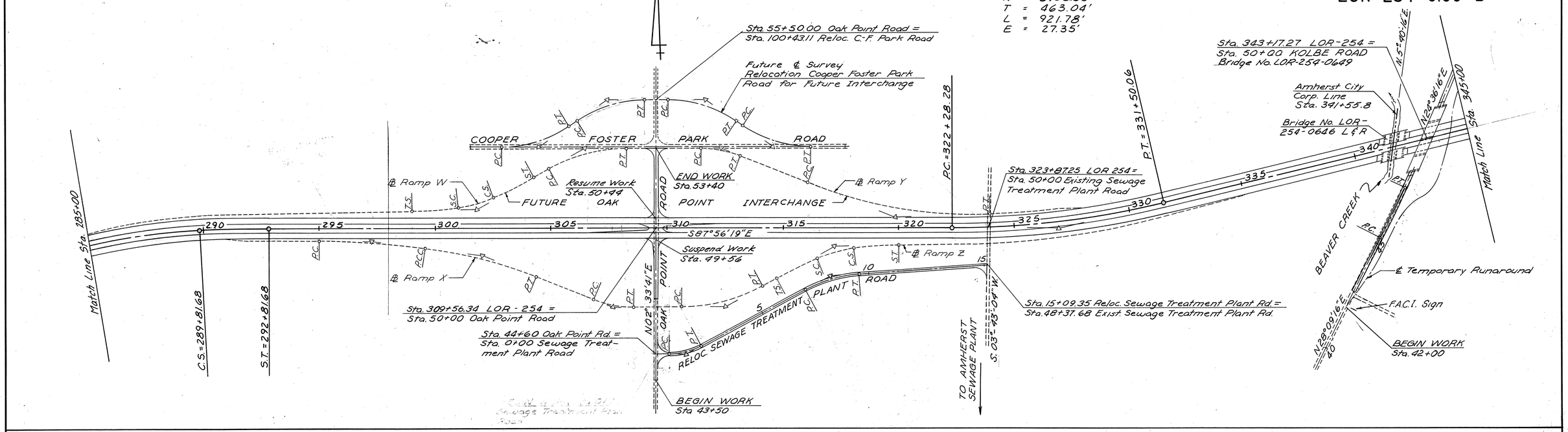
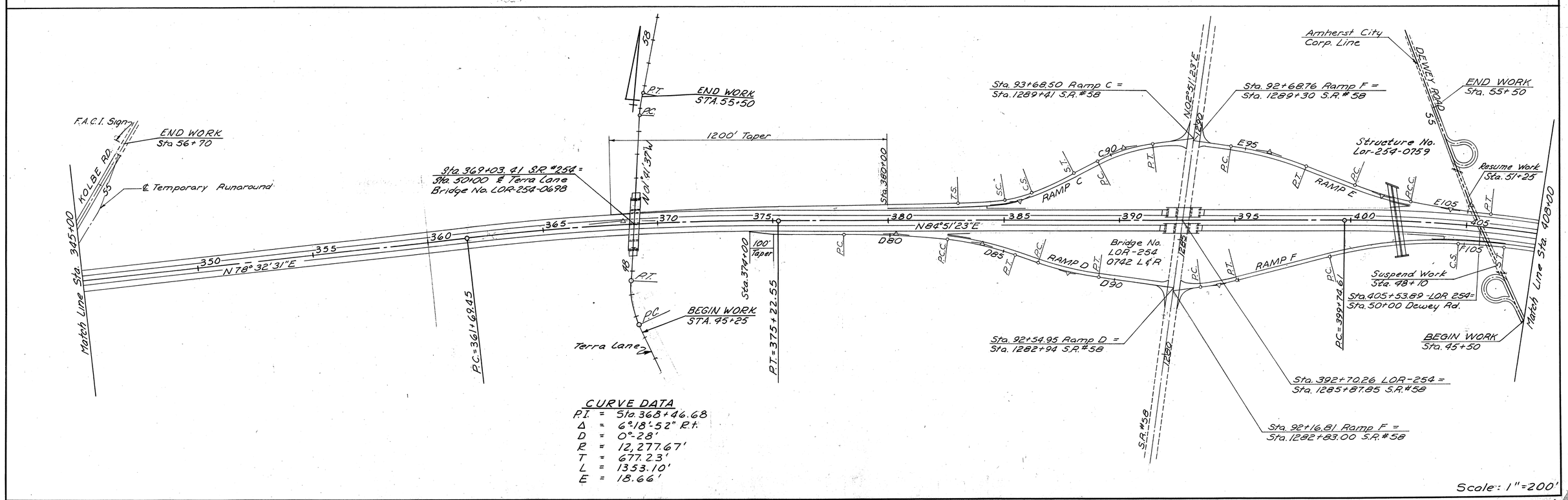
CURVE DATA

P.I. = Sta. 326+91.32
Δ = 13°-31'-10" Lt
D = 1°-28'
R = 3906.53'
T = 463.04'
L = 921.78'
E = 27.35'





CURVE DATA

P.I. = Sta. 368+46.68
Δ = 6°-18'-52" R.t.
D = 0°-28'
R = 12,277.67'
T = 677.23'
L = 1353.10'
E = 18.66'

Scale: 1" = 200'

SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

6/325

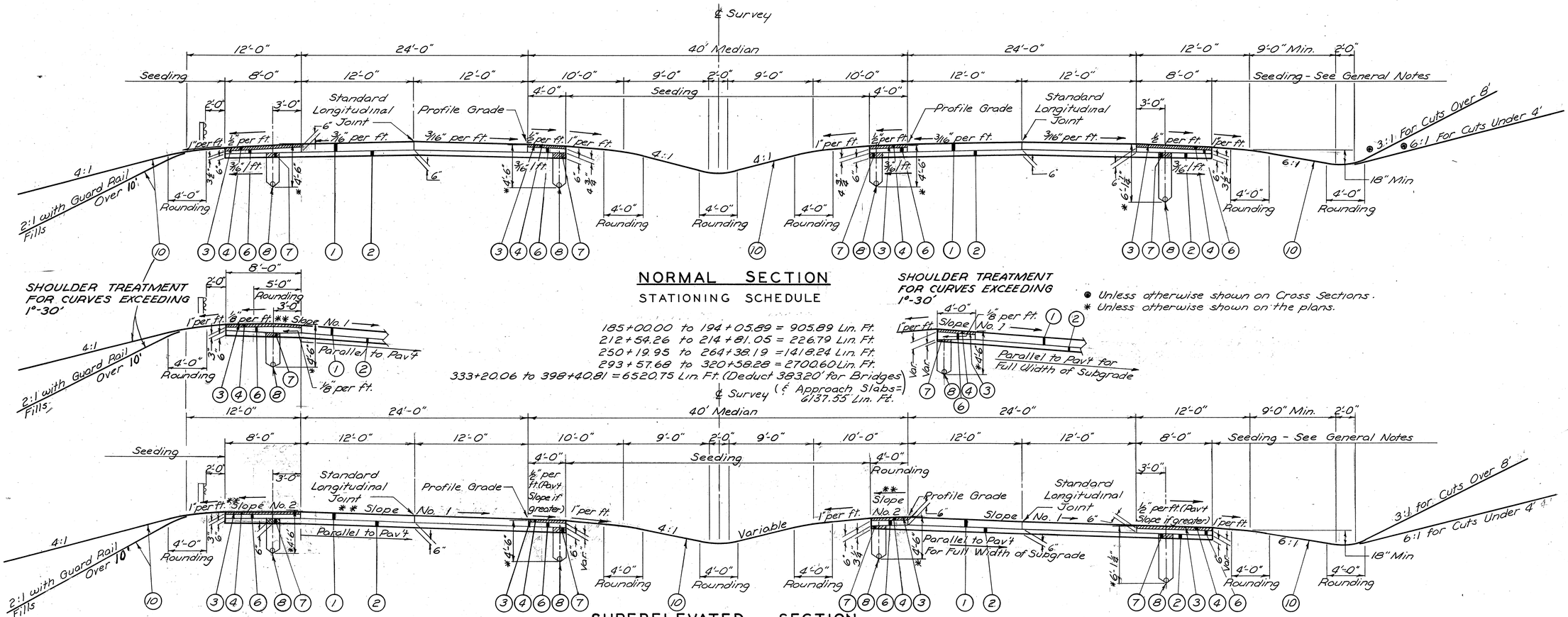
LOR-254-0.00-B

NOTE: For Details not Shown See Std. Dwg. RI-1

TYPICAL SECTIONS

TYPE T-71

SCALE: $\frac{3''}{16} = 1'-0''$



NORMAL SECTION

STATIONING SCHEDULE

185+00.00 to 194+05.89 = 905.89 Lin. Ft.
212+54.26 to 214+81.05 = 226.79 Lin. Ft.
250+19.95 to 264+38.19 = 1418.24 Lin. Ft.
293+57.68 to 320+58.28 = 2700.60 Lin. Ft.
333+20.06 to 398+40.81 = 6520.75 Lin. Ft. (Deduct 383.20' for Bridges & Approach Slabs = 6137.55 Lin. Ft.)

● Unless otherwise shown on Cross Sections.
* Unless otherwise shown on the plans.

SUPERELEVATED SECTION

STATIONING SCHEDULE

194+05.89 to 212+54.26 = 1848.37 Lin. Ft.
214+81.05 to 250+19.95 = 3538.90 Lin. Ft. (Deduct 352.12' for Bridge & Approach Slabs) = 3186.78 Lin. Ft.
264+38.19 to 266+50.00 = 211.81 Lin. Ft.
276+75.00 to 293+57.68 = 1682.68 Lin. Ft.
320+58.28 to 333+20.06 = 1261.78 Lin. Ft.
398+40.81 to 422+00.00 = 2359.19 Lin. Ft.

**

Degree of Curvature	Slope No. 1	Slope No. 2
1°00'	0.032½	-3/16" / ft.
1°28'	0.047½	-⅛" / ft.
2°00'	0.064½	——
2°20	0.075½	——

LEGEND

(1) T-71 9" Reinforced Portland Cement Concrete Pavement

(2) I-22 Subbase, Grading A or B As Per Plan (Depth as Shown)

(3) T-31 Bituminous Surface Treatment Using 0.008 Cu. yd. No. 6 Aggregate per Sq. yd. and 0.25 Gal. Bituminous Material per Sq. yd. (See Note in Proposal)

(4) #B-21 3" Waterproofed Aggregate Base Course (Type "A" T-35 or T-335 Material May be Used in Construction of this Course (See Note in Proposal)

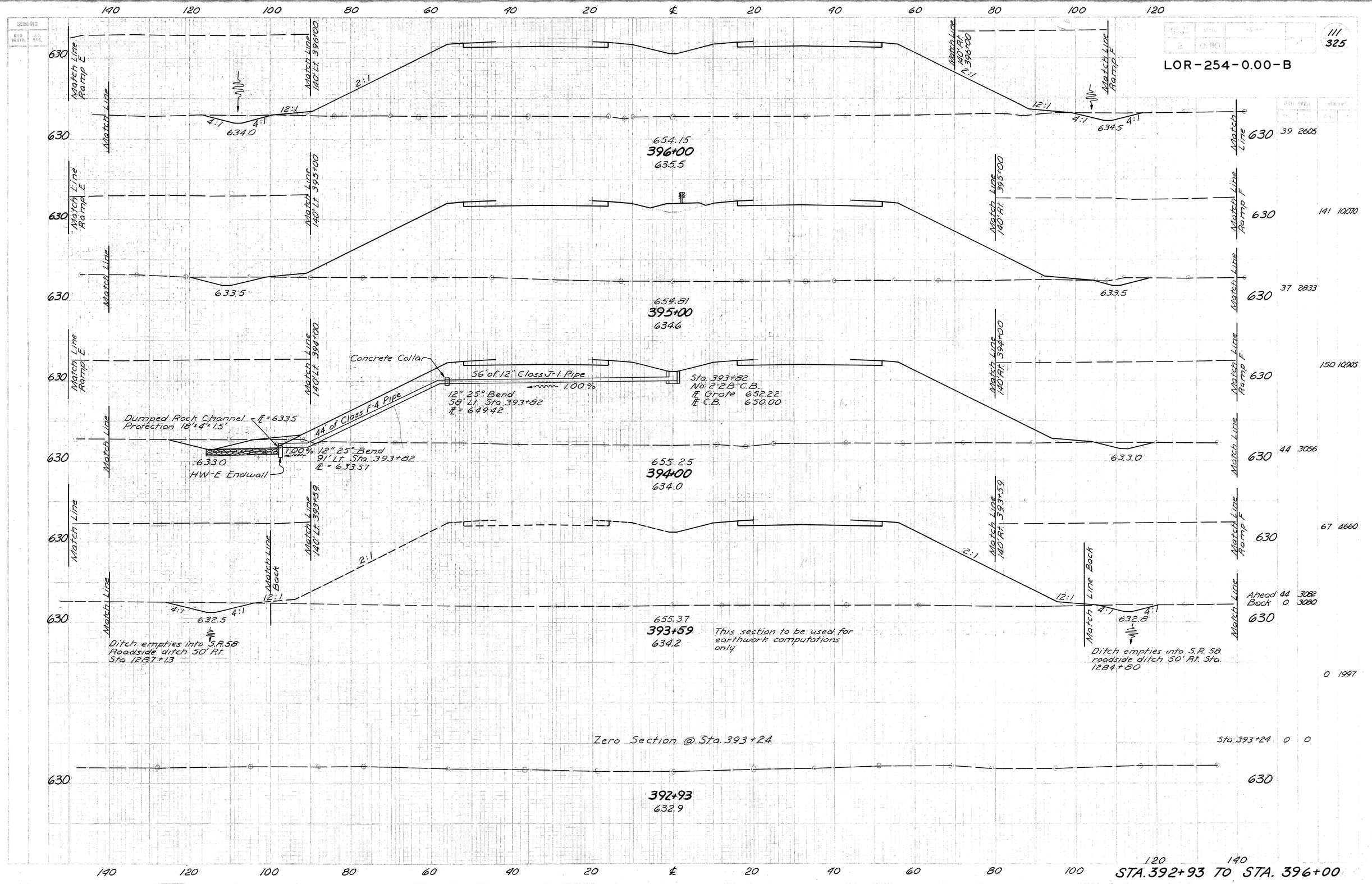
(6) B-19 AggregateBase Course (Depth as Shown)

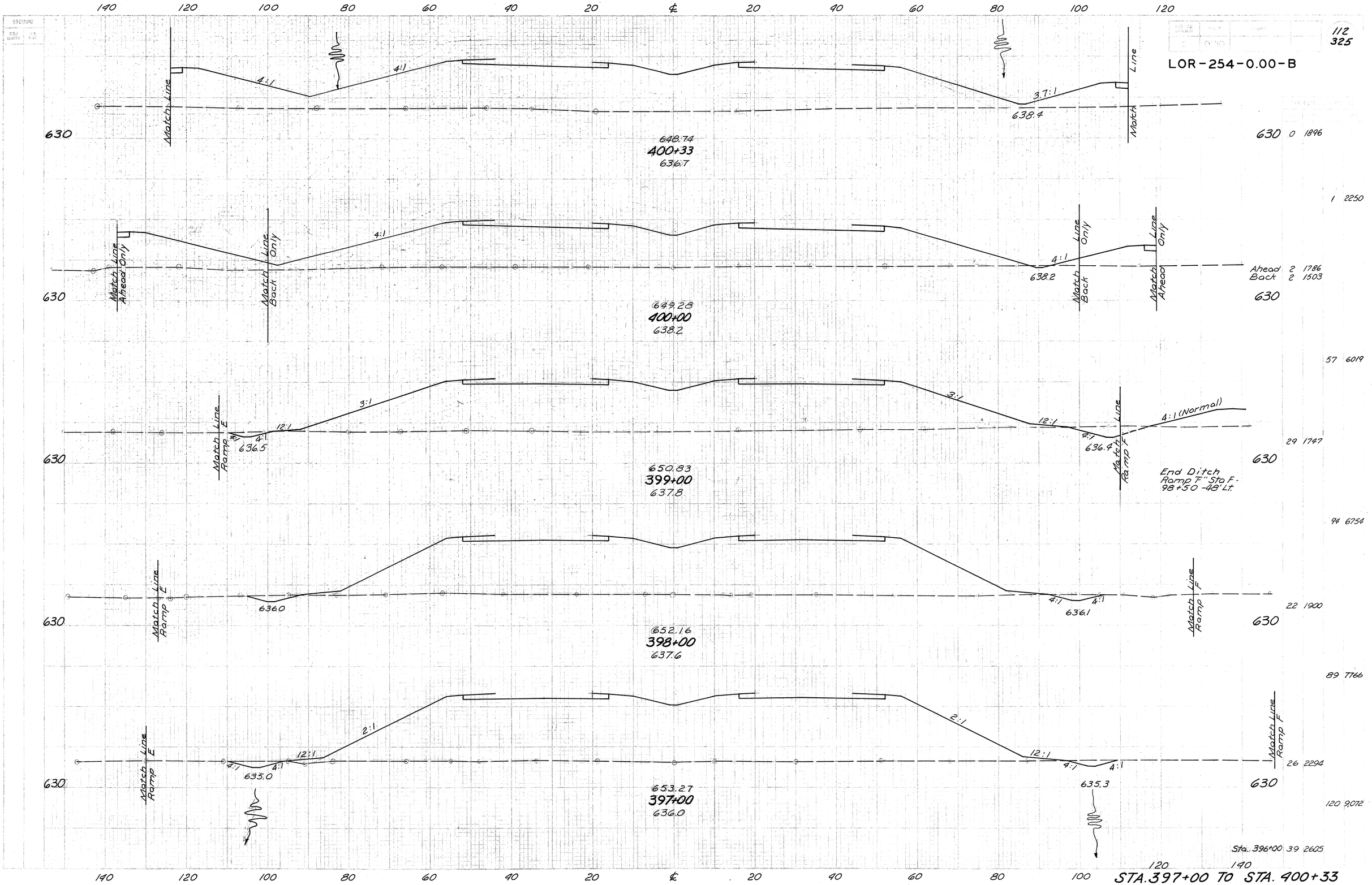
(7) Remove Subbase for Width of Item I-1 Trench and Replace with Type 3 Backfill Material. Immediately Prior to Placing the Item B-19 AggregateBase Course. Payment for this operation shall be included in the unit price bid for Item I-1, 6" Pipe, Class I-3.

(8) I-1 6" Pipe, Class I-3

(10) L-9 Seeding & Protecting

Thickness shown is designed thickness as described in Sec B-21.01


LOR-254-0.00-B
111
325
Match Line Ramp E
Match Line
Match Line 140' Lt. 396+00
Match Line 140' Rt. 396+00
Match Line Ramp F
2:1
12:1
4:1
634.0
634.5
654.15
396+00
635.5
Match Line 140' Lt. 395+00
Match Line 140' Rt. 395+00
633.5
654.81
395+00
634.6
Match Line 140' Lt. 394+00
Match Line 140' Rt. 394+00
Concrete Collar
56' of 12" Class J-1 Pipe
1.00%
12" 25° Bend
58' Lt. Sta. 393+82
℄ = 649.42
Sta. 393+82
No. 2 C.B. C.B.
℄ Grate 652.22
℄ C.B. 650.00
44' of Class F-4 Pipe
Dumped Rock Channel Protection 18"x4"x1.5'
℄ = 633.5
633.0
HW-E Endwall
12" 25° Bend
91' Lt. Sta. 393+82
℄ = 633.57
655.25
394+00
634.0
Match Line 140' Lt. 393+59
Match Line 140' Rt. 393+59
Match Line Back
632.5
Ditch empties into S.R. 58 Roadside ditch 50' Rt. Sta. 1287+13
655.37
393+59
634.2
This section to be used for earthwork computations only
632.8
Ditch empties into S.R. 58 roadside ditch 50' Rt. Sta. 1284+80
Zero Section @ Sta. 393+24
392+93
632.9
630
140
120
100
80
60
40
20
℄
39 2605
141 10070
37 2833
150 10925
44 3056
67 4660
Ahead 44 3082
Back 0 3080
0 1997
Sta. 393+24 0 0
STA. 392+93 TO STA. 396+00


112
325
LOR-254-0.00-B
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120
Match Line
4:1
3.7:1
638.4
630
648.74
400+33
636.7
630 0 1896
1 2250
Match Line Ahead Only
Match Line Back Only
Match Line Only
Match Back
Match Ahead
638.2
649.28
400+00
638.2
Ahead 2 1786
Back 2 1503
57 6019
Match Line Ramp E
3:1
12:1
4:1
636.5
636.4
4:1 (Normal)
650.83
399+00
637.8
29 1747
End Ditch
Ramp "F" Sta F-
98+50 -48' Lt.
94 6754
636.0
636.1
652.16
398+00
637.6
22 1900
89 7766
2:1
635.0
635.3
653.27
397+00
636.0
26 2294
120 9072
Sta. 396+00 39 2625
STA. 397+00 TO STA. 400+33

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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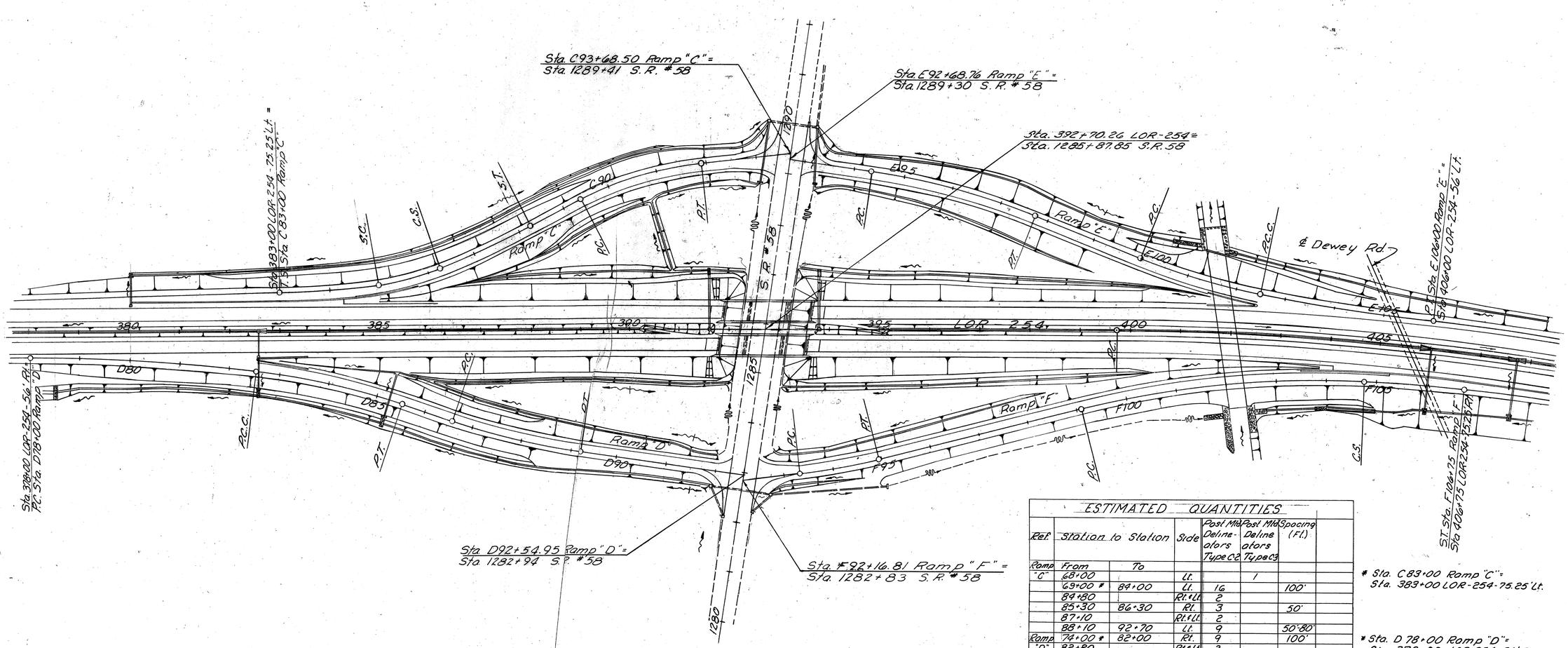
Scale: 1" = 100'



Ramps	T-71 Reinforced Portland Cement Concrete Pavement 9"	T-31 Bitum. Surface Treatment Bitum. Mat'l.	T-31 Bitum. Surface Treatment No. 6 Aggregate	B-21 Water-Proofed Aggregate Base Course 6"	B-19 Aggregate Base Course	I-22 Subbase Grading Per B As Per Plan	All Quantities Include Speed Change Lanes	
	Sq. Yds.	Gal.	Cu. Yds.	Cu. Yds.	Cu. Yds.	Cu. Yds.	From	To
Ramp C	9223.15	507.70	16.25	338.47	168.27	990.80	368+00	380+00
Ramp D	3,531.31	324.80	10.39	216.54	106.77	782.82	374+00	378+00
Ramp E	3,396.97	328.71	10.52	219.14	108.25	761.23	406+00	411+00
Ramp F	4,900.91	569.01	18.21	379.34	187.66	1,142.87	409+75	421+75
Totals	16,052.34	1,730.22	55.37	1,153.49	570.95	3,677.72		

ESTIMATED QUANTITIES

Ref.	Station to Station		Side	Post Mtd. Delineators Type C2	Post Mtd. Delineators Type C3	Spacing (Ft.)	
Ramp	From	To					
"C"	68+00		Lt.		1		
	69+00 *	84+00	Lt.	16		100'	
	84+80		Rt. & Lt.	2			
	85+30	86+30	Rt.	3		50'	
	87+10		Rt. & Lt.	2			
	88+10	92+70	Lt.	9		50' 80'	
Ramp	74+00 *	82+00	Rt.	9		100'	
"D"	82+80		Rt. & Lt.	2			
	83+60	85+20	Lt.	3		80'	
	86+00		Rt. & Lt.	2			
	86+80	92+60 *	Rt.	7		80'	
Ramp	93+80	97+00	Lt.	5		80'	
"E"	97+80		Rt. & Lt.	2			
	98+80	101+20	Rt.	4		80'	
	102+00		Rt. & Lt.	2			
	103+00 *	111+00	Lt.	9			
Ramp	92+95	95+75	Rt.	5		70'	
"F"	96+75	120+75		25			
	121+75				1		
	Totals *			107	2		

* Sta. C83+00 Ramp "C" = Sta. 383+00 LOR-254-75.25' Lt.

* Sta. D78+00 Ramp "D" = Sta. 378+00 LOR-254-56' Rt.

* Sta. E106+00 Ramp "E" = Sta. 406+00 LOR-254-56' Lt.

* Sta. F106+75 Ramp "F" = Sta. 406+75 LOR-254-75.25' Rt.

* Totals Carried to the General Summary Sheet

S.R. #58 INTERCHANGE GRADING PLAN

STRUCTURE NO. LOR-254-0759
Sta. 401+95 ℄ Survey LOR-254
Twin 16'×12' Box Culvert
9°-45' R.F. Skew

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

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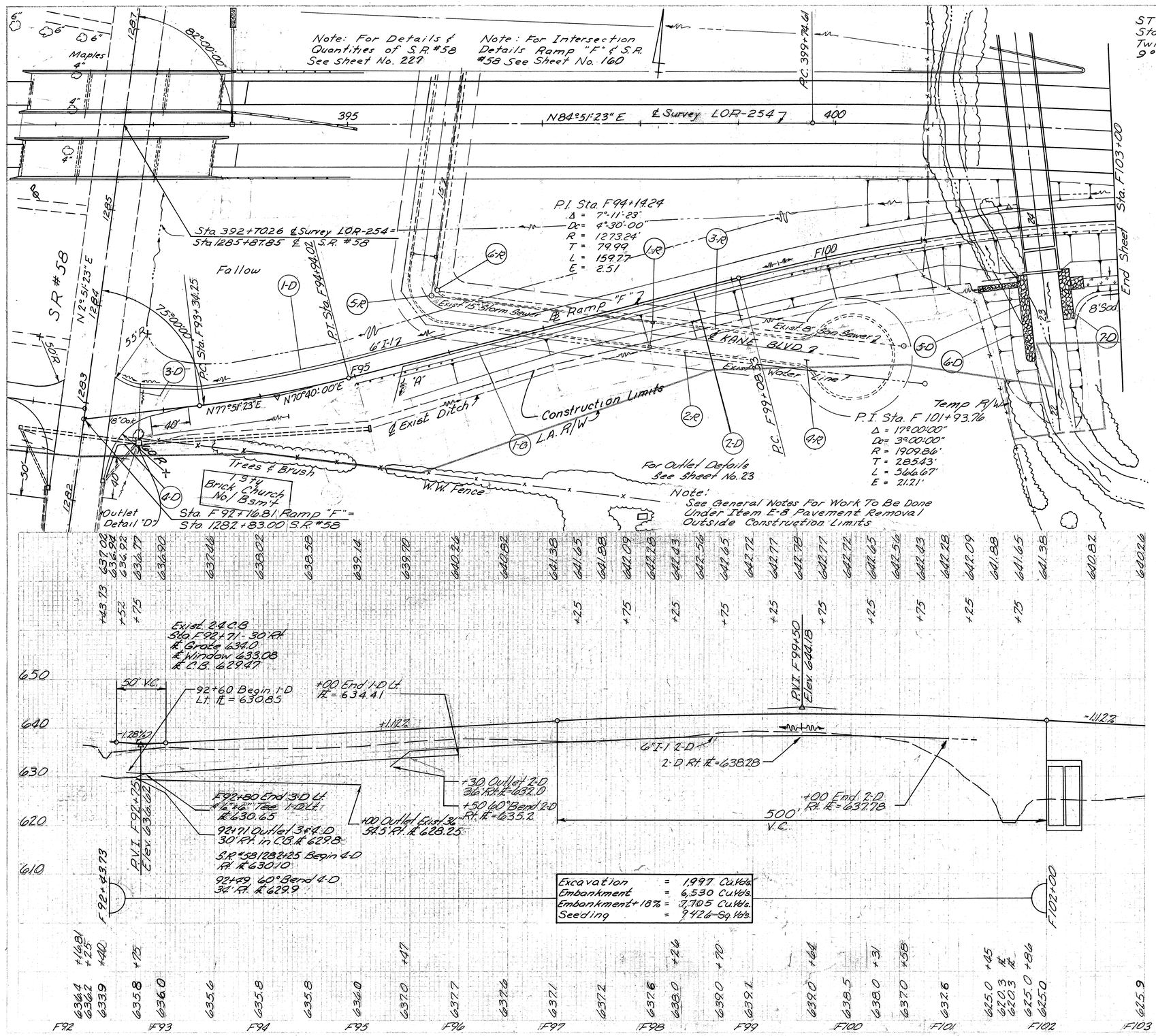

ESTIMATED QUANTITIES

Ref. No.	Station From	Station To	Side	I-1 Pipe Class I-3 Short low 6"	Deep 6"	Smooth Wall Pipe 6"	Class F-4 Sec. Wall Pipe 8"	6"	I-15 Guard Rail Sill Beam Type Deep	I-5 Pipe Specials Class I-3 6"-90° Tee	6"-60° Bend
				Lin. Ft.					Lin. Ft.	Each	
1-D	F92+60	F96+00	Lt.		330					1	
2-D	F95+30	F101+00	Rt.	580			10				1
3-D	F92+71	F92+80	Lt. & Rt.			50		10			
4-D	S.R. 58 1282+25	F92+71	Rt.		48			10			1
1-G	F95+00	F101+00	Rt.						600		
Totals				580	378	50	10	20	600	1	2

ESTIMATED QUANTITIES

Ref. No.	Station From	Station To	Side	I-10 Dumped Rock Channel Protection 30" Thick Cu. Yds.	E-3 Channel Excavation Cu. Yds.	I-16 Catch Basins Abandoned Ea.	E-8 Removal & Disposal of Exist. Curb & Gutter Lin. Ft.	E-8 Removal & Disposal of Exist. Pavement Sq. Yds.	I-16 Manholes Abandoned Ea.
5-D	22+58	23+49.35	Lt.	84.6					
6-D	21+35	23+49.35	Lt. & Rt.		598				
7-D	23+00	23+49.35	Rt.	54.8					
1-R	F98+00		Rt.			2			
2-R	F97+25	F100+45	Rt.				240		
3-R	F98+00	F100+45	Rt.				300		
4-R	F97+70	F100+45	Rt.					910	
5-R	F95+97		Lt.						1
6-R	F96+04		Lt.						1
		Totals		139.4	598	2	540	910	2

To Bridge - Sheet 291

RAMP "F" Sta. F92+16.81 TO Sta. F103+00

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FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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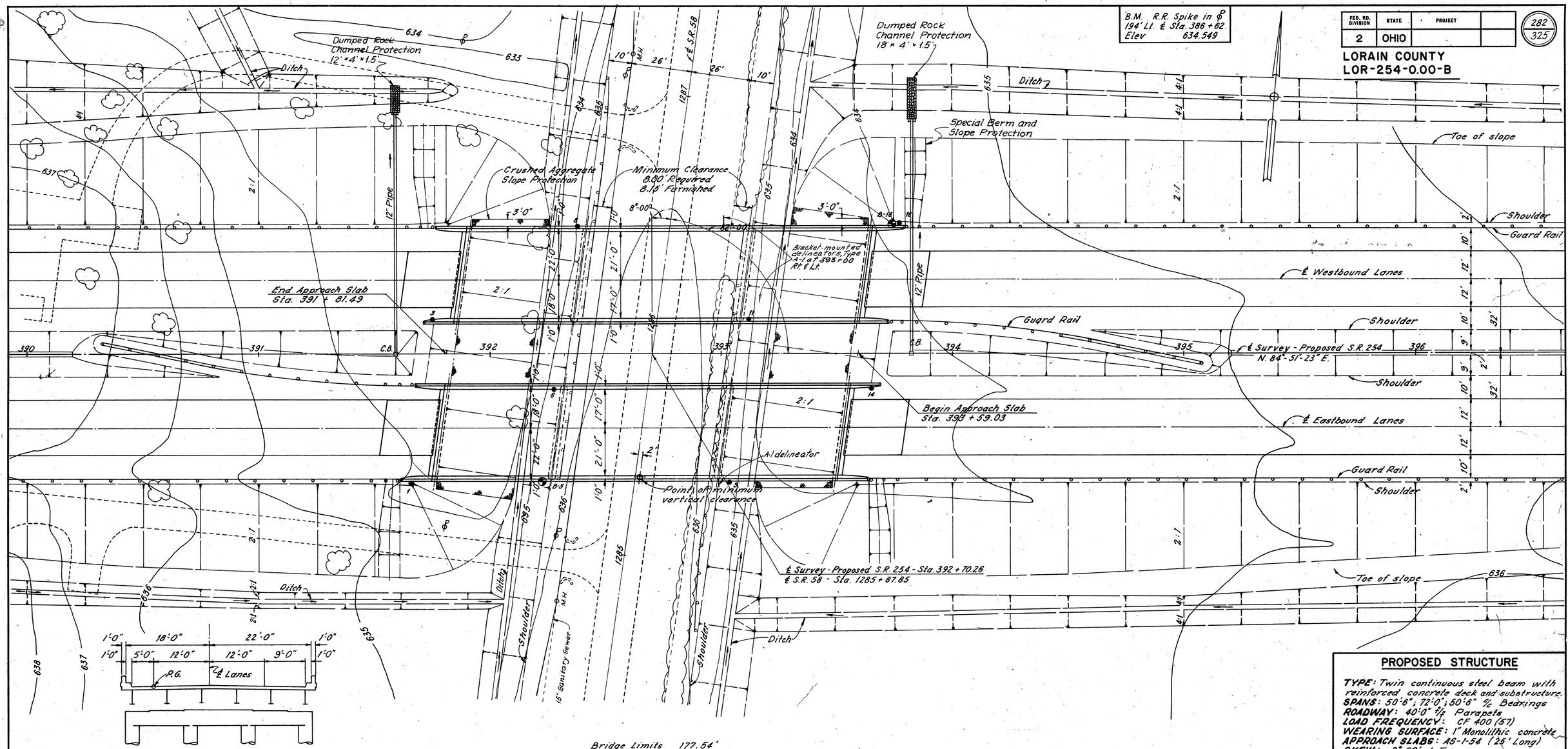
LORAIN COUNTY
LOR-254-0.00-B

B.M. R.R. Spike in ℄ 194' Lt. ℄ Sta. 386+62. Elev 634.549



TYPICAL SECTION
(Eastbound Lanes)

PROPOSED STRUCTURE

TYPE: Twin continuous steel beam with reinforced concrete deck and substructure.
SPANS: 50'-6"; 72'-0"; 50'-6" ℅ Bearings
ROADWAY: 40'-0" ℄ Parapets
LOAD FREQUENCY: CF 400 (57)
WEARING SURFACE: 1" Monolithic concrete
APPROACH SLABS: AS-1-54 (25' Long)
SKEW: 8°-00' L.F.
ALIGNMENT: Tangent
AVERAGE DAILY TRAFFIC: 17,600 (S.R. 254) 6900 (S.R. 58) - 1980 figures

FOUNDATION INVESTIGATION LEGEND
● Indicates core boring
• Indicates rod sounding

SHAFFER, PARRETT AND ASSOCIATES
Consulting Engineers
MANSFIELD, OHIO.

SITE PLAN
BRIDGE NO. LOR-254-0742 L & R OVER S.R. 58

LORAIN COUNTY S.R. 254
STA. 391+81.49 TO STA. 393+59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RAK	JEG	Ed	JEG			

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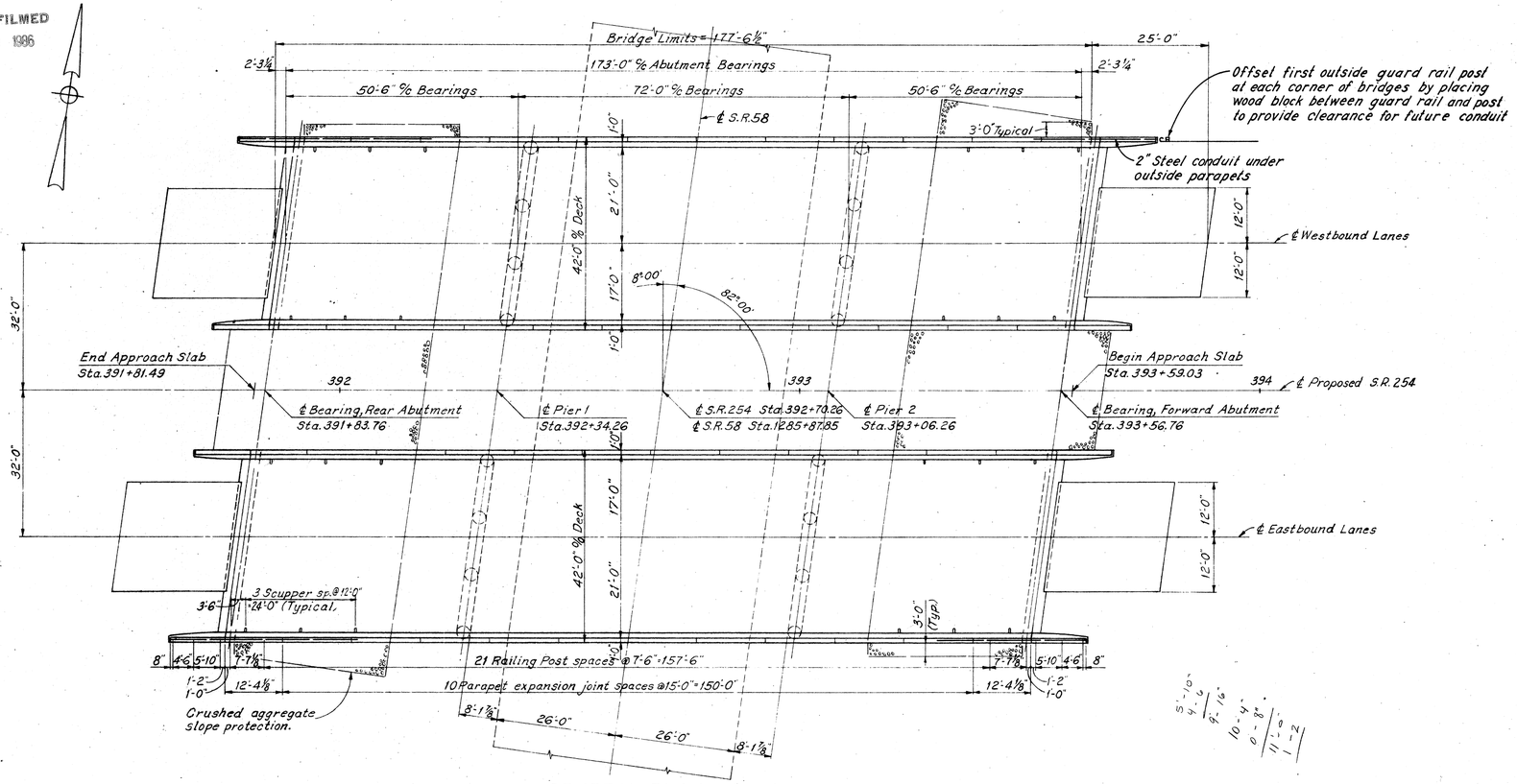
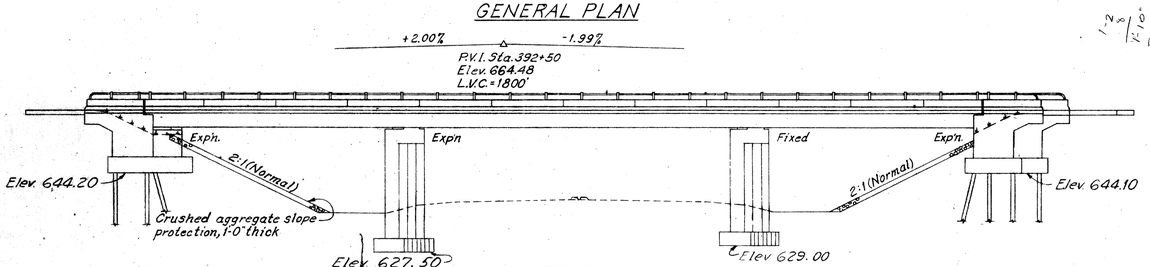
SEP 8 1996

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LORAIN COUNTY
LOR - 254 - 0.00 - B



GENERAL PLAN



ELEVATION

GENERAL NOTES

UNIT STRESSES

Design Loading - CF 400 (57)
Concrete Class "C" - basic unit stress 1,333 psi.
Concrete Class "E" - basic unit stress 1,133 psi.
Structural Steel - ASTM A36 - basic unit stress 20,000 psi. (except piling) ASTM A7 and A373 steel not permitted.
Reinforcing Steel - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 psi, except spiral reinforcement may be plain Structural Grade with basic unit stress of 18,000 psi.

REFERENCE shall be made to Standard Drawings AS-1-54 (Revised 7-5-62) AR-1-57 (Revised 4-2-62), FSB-1-62 (Revised 1-15-63), SD-1-63, Sheets 1 thru 4 (dated 11-12-63) and to Supplemental Specifications S-101 (dated 7-12-62), and S 307 (dated 8-23-60) and I-127 of 1-15-62.

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

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

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

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

EXCAVATION QUANTITIES includes removal of till material required for construction of the abutments.

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

ABUTMENT PILES shall be driven to firm contact with shale. If the length of penetration is approximately equal to the depth to shale according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec S-18.05 is not less than the following value for a pile hammer of the indicated energy rating: 55 tons per pile using a 7000 ft. lb. hammer,
50 tons per pile using an 11,000 ft.-lb. hammer, or
45 tons per pile using a 15,000 ft.-lb. or greater hammer.
If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 38 tons per pile.

PIER FOOTINGS shall extend a minimum of 3" into undisturbed shale or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 4.7 tons per sq. ft.

CONTINUOUS BEAM SHOP ASSEMBLY: Reference paragraph 4, Sec. S-7.12 of the Construction and Material Specifications, if rolled beams are field spliced only at supports, for the purpose of checking the fit-up of weld joint preparation, only two adjacent beams need be shop assembled at a time in their correct unloaded positions. All beams shall be assembled and match marked.

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

MAINTENANCE AND PROTECTION OF TRAFFIC: Four lanes of traffic with a minimum horizontal width of 54'-0" shall be maintained on S.R. 58 at all times. The Contractor shall safeguard the travelling public by providing platforms, nets or other suitable protection above the travelled lanes. A minimum vertical clearance of 13'-6" shall be provided at all times.

SURFACE FINISH OF CONCRETE: The requirements of Sec. S-1.22, Rubbed Finish, shall apply to the entire superstructure except the top and bottom surfaces of safety curbs and roadway and the entire surface of piers and abutments except bridge seats, backwalls and the face of spill-through abutments between outside beams.

CONDUIT: Two-inch rigid galvanized steel conduit and fittings shall meet American Association Specifications for Rigid Steel Conduit, Designation C80.1, and shall be installed under parapets as shown. One #10 galvanized steel pull wire shall be installed in each conduit. All conduit and fittings shall be galvanized after threading. If field threads are required, they shall be painted with a zinc rich base paint prior to assembly. Connect conduit to ground rod outside bridge limits using one No. 1/0 7-strand soft annealed insulated copper cable with exothermic welded connections. Ground straps shall be used where electrical continuity of metal conduit is interrupted. Conduit shall be placed at the end of the structure by location or direction so that it will clear pavement and when extended will clear guard rail post. Ground rod to be solid wrought iron 1" × 10'-0". If a ground resistance of 15 ohms maximum is not obtained, either additional rods shall be driven 6' apart or sectional rods may be employed to obtain the specified low resistance ground at greater depth. Rods to be connected to conduit in parallel. The cost and installation of all conduit, fittings, ground cable, pull wire and ground rods shall be considered as paid for in the lump sum bid price paid for Item S-25.

ESTIMATED QUANTITES - 2 BRIDGES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUTS.	PIERS	GEN'L.
E-2	692	Cu. Yds.	Unclassified excavation		435	257	
E-2	22	Cu. Yds.	Shale excavation			22	
E-2	Lump	Sum	Cofferdams, cribs and sheeting				Lump
S-1	437	Cu. Yds.	Class "C" concrete, superstructure	437			
S-1	127	Cu. Yds.	Class "C" concrete, piers above footings			127	
S-1	75	Cu. Yds.	Class "E" concrete, pier footings			75	
S-1	315	Cu. Yds.	Class "E" concrete, abutments		315		
S-4	174,756	Lbs.	Reinforcing steel	121,145	18,916	34,695	
S-7	375,000	Lbs.	Structural steel	375,000			
S-8	375,000	Lbs.	Field painting of structural steel	375,000			
S-14	794.75	Lin. Ft.	Railing, Type A (aluminum rail supports and concrete parapet)	698.75	96.00		
S-16	Lump	Sum	First test pile				Lump
S-18	660	Lin. Ft.	Steel piles, 12 BP53		660		
S-25	375	Lin. Ft.	Electric lighting system (2" galvanized steel conduit)	350	25		
S-29	61	Cu. Yds.	Porous backfill		61		
S-29	24	Each	Scuppers, including supports	24			
S-101	437	Each	Water-reducing, set-retarding admixture	437			
T-10	1014	Sq. Yds.	Crushed aggregate slope protection				1014
T-127	2	Each	Delineators, bracket-mounted, Type A-1	2			

SHAFFER, PARRETT AND ASSOCIATES
Consulting Engineers
MANSFIELD, OHIO.

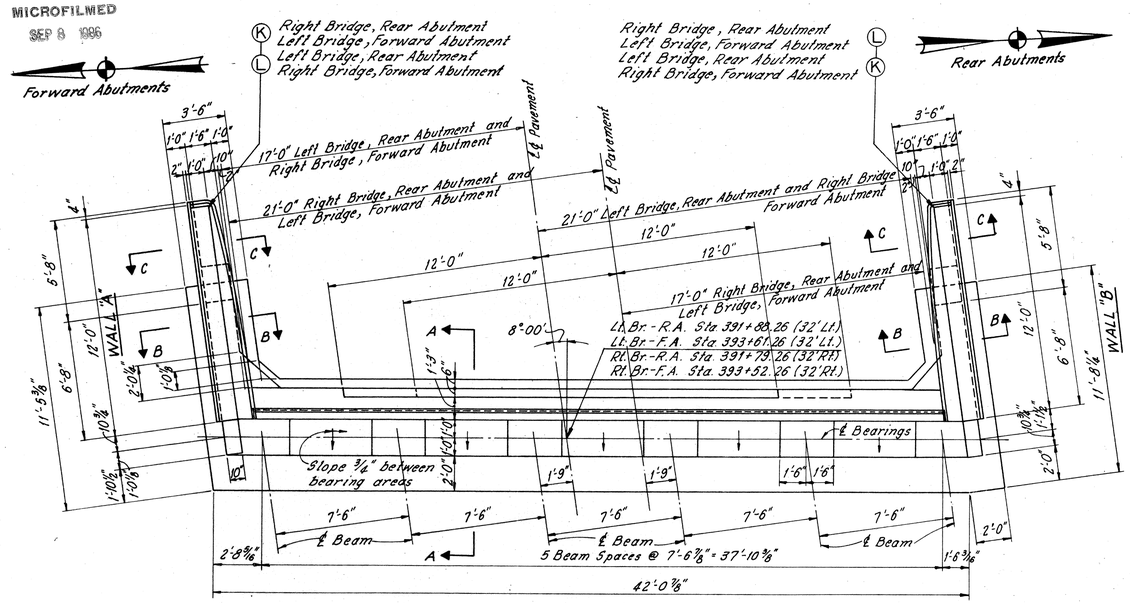
GENERAL PLAN, GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO. LOR-254-0742 L & R
OVER S.R. 58
LORAIN COUNTY — S.R. 254
STA. 391+81.49 TO STA. 393+59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.A.K	J.C.Z.	J.R.B.	J.E.G			

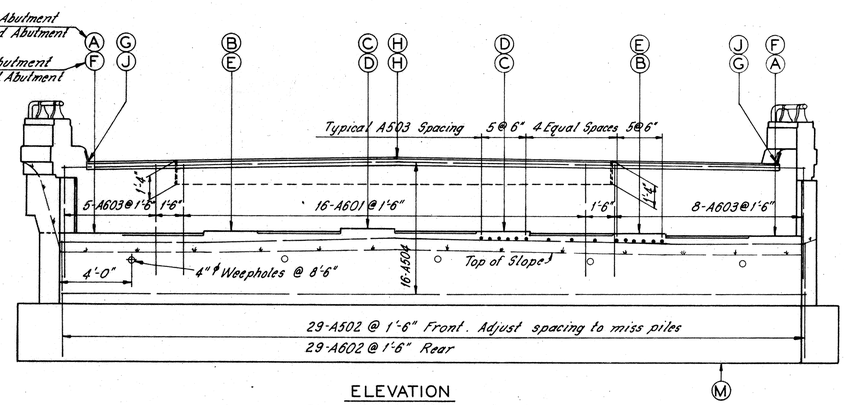
MICROFILMED
SEP 8 1986

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LORAIN COUNTY
LOR - 254 - 0.00 - B

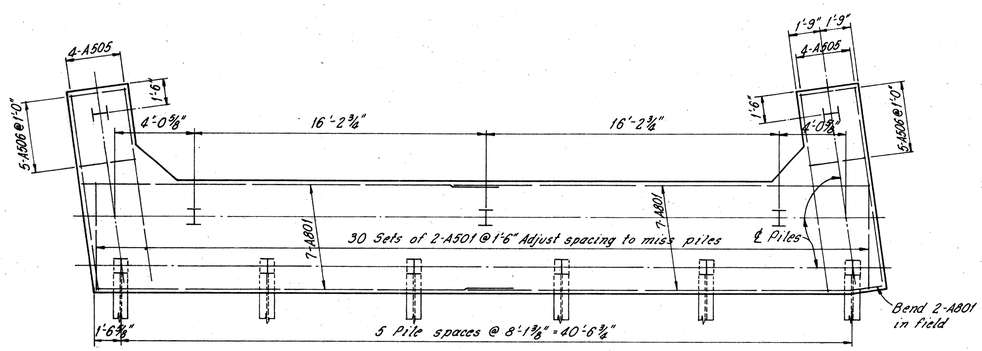


PLAN

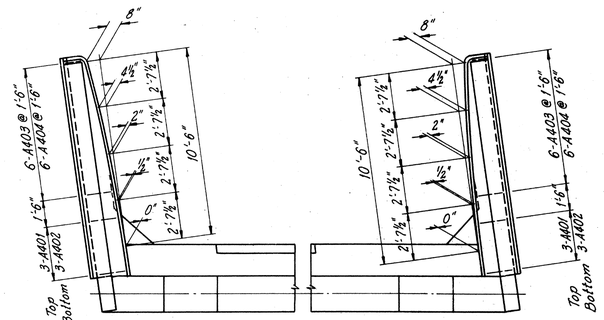


ELEVATION

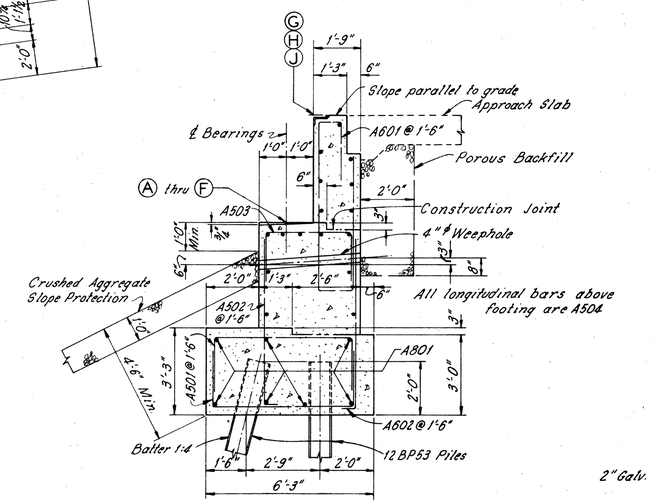
Piles omitted from Elevation View



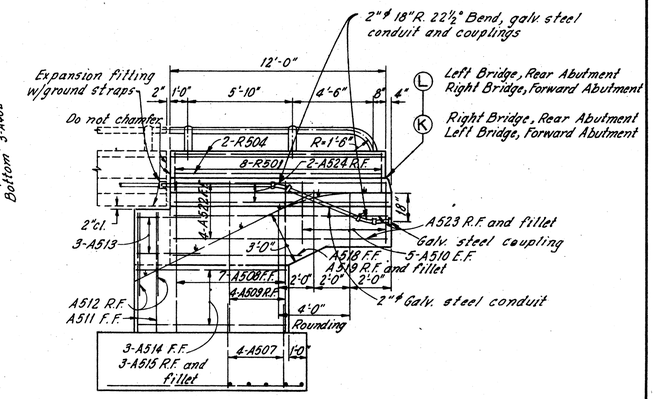
FOOTING PLAN



WINGWALL PLAN

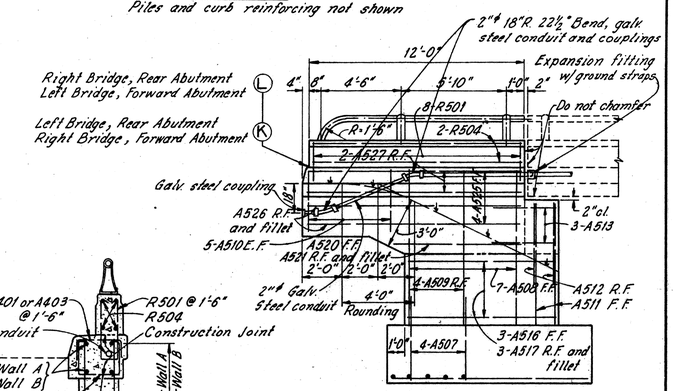


SECTION A-A



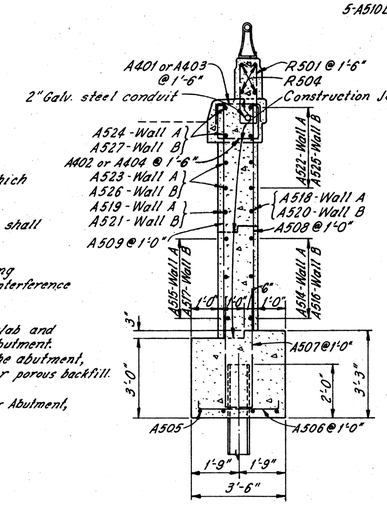
WALL "A"

Piles and curb reinforcing not shown

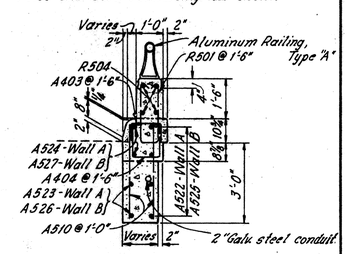


WALL "B"

Piles and curb reinforcing not shown



SECTION B-B



SECTION C-C

NOTES:

CONCRETE: All abutment concrete shall be Class "E" except parapet, which shall be Class "C".

RAILING: See AR-1-57 and Sheet 283. Tubing on abutment wingwalls shall be continuous.

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

POROUS BACKFILL, 2'-0" thick, shall extend upward to the approach slab and to the surface of the earth shoulders and for the full length of the abutment. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

NOTATION: F.F.-Front Face, R.F.-Rear Face, E.F.-Each Face, R.A.-Rear Abutment, F.A.-Forward Abutment, Lt. Br.-Left Bridge, Rt. Br.-Right Bridge.

GENERAL NOTES: See Sheet 283.

TABLE OF ELEVATIONS

LOCATION		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(J)	(K)	(L)	(M)
LEFT BRIDGE	Rear Abutment	651.27	651.38	651.50	651.56	651.44	651.32	655.31	655.64	655.37	656.14	656.18	644.20
	Forward Abutment	651.17	651.29	651.41	651.47	651.36	651.24	655.21	655.55	655.29	656.03	656.11	644.10
RIGHT BRIDGE	Rear Abutment	651.25	651.37	651.48	651.55	651.43	651.32	655.29	655.62	655.36	656.12	656.19	644.20
	Forward Abutment	651.20	651.32	651.43	651.49	651.37	651.25	655.25	655.57	655.30	656.07	656.12	644.10

SHAFFER, PARRETT AND ASSOCIATES
Consulting Engineers
MANSFIELD, OHIO.

ABUTMENTS

BRIDGE NO. LOR-254-0742 L&R OVER S.R. 58

LORAIN COUNTY — S.R. 254

STA. 391+81.49 TO STA. 393 + 59.03

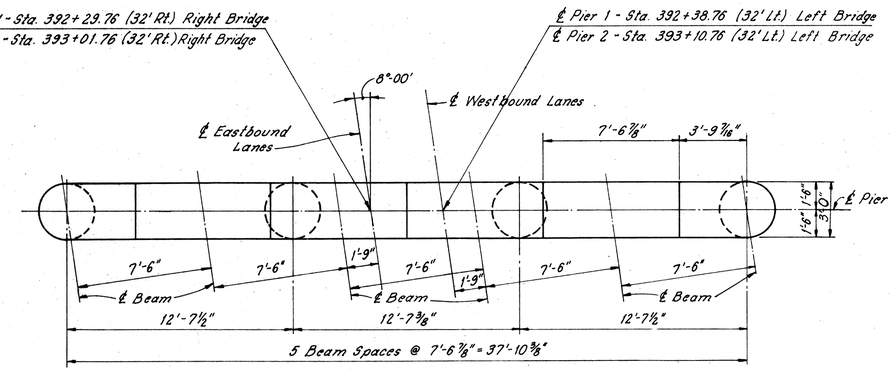
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RAK	RAK	JEG	JEG			-

MICROFILMED
SEP 8 1986

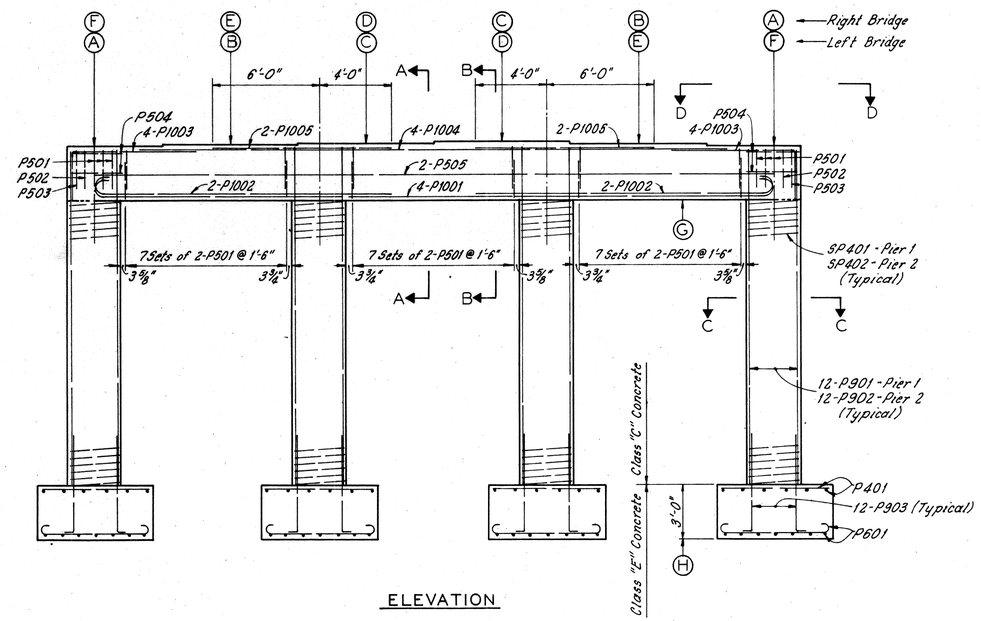
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

285
325

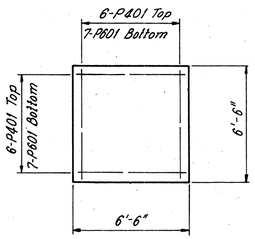
LORAIN COUNTY
LOR - 254 - 0.00 - B



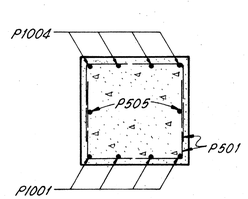
PLAN



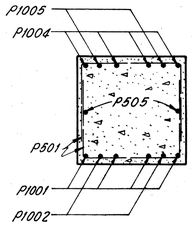
ELEVATION



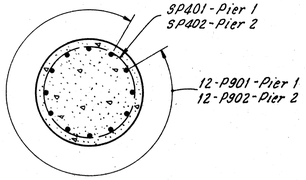
PLAN OF TYPICAL FOOTING



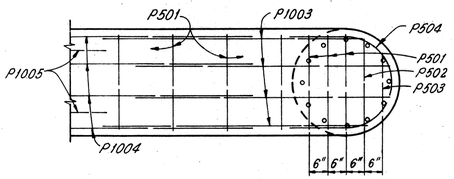
SECTION A-A



SECTION B-B



SECTION C-C



VIEW D-D

TABLE OF ELEVATIONS									
LOCATION		(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
LEFT BRIDGE	PIER 1	651.27	651.39	651.50	651.57	651.45	651.33	648.27	627.50
	PIER 2	650.94	651.06	651.18	651.24	651.12	651.07	647.94	629.00
RIGHT BRIDGE	PIER 1	651.26	651.38	651.50	651.56	651.46	651.33	648.26	627.50
	PIER 2	650.95	651.07	651.19	651.25	651.13	651.01	647.95	629.00

NOTES:

CONCRETE: All concrete for pier footings shall be Class "E." All pier concrete above footings shall be Class "C."

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

GENERAL NOTES: See Sheet 283.

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Consulting Engineers
MANSFIELD, OHIO.

PIERS

BRIDGE NO. LOR-254-0742 L & R OVER S.R. 58

LORAIN COUNTY . S.R. 254

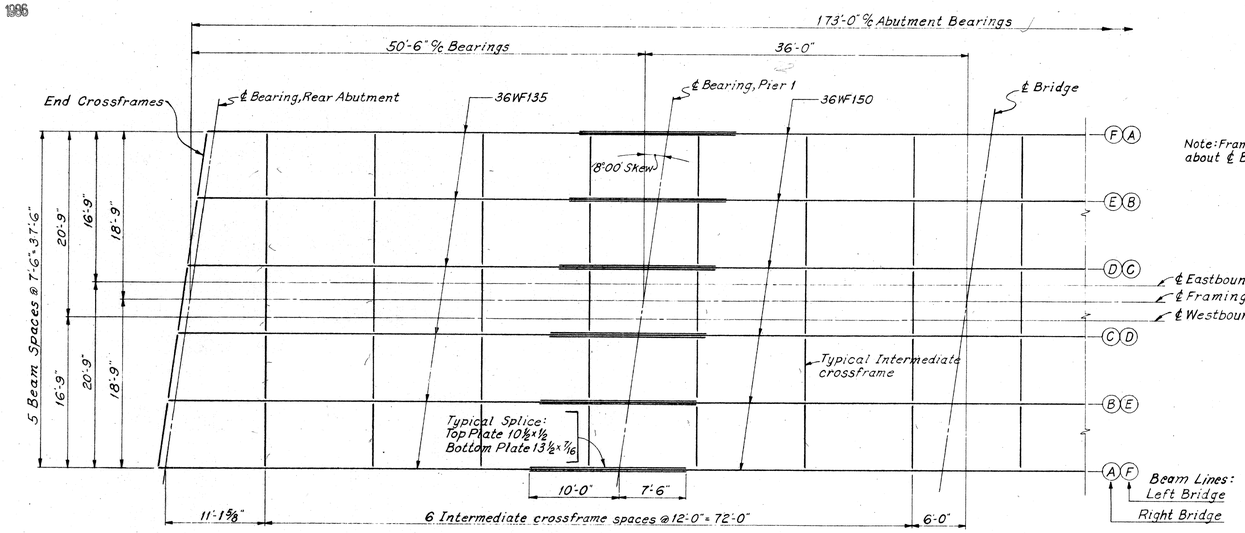
STA. 391 + 81.49 TO STA. 393 + 59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.A.K.	R.A.K.	J.E.G.	J.E.G.			

MICROFILMED
SEP 8 1986

FED. RD. DIVISION	STATE	PROJECT	

LORAIN COUNTY
LOR-254-0.00-B



Note: Framing symmetrical by rotation about ℄ Bridge

HALF FRAMING PLAN

NOTES
CAMBERING of each beam is required in accordance with the following table:

DEFLECTION AND CAMBER	OUTSIDE BEAMS		INSIDE BEAMS	
	END SPANS	MIDDLE SPAN	END SPANS	MIDDLE SPAN
Deflection due to weight of steel	1/32	1/8	1/32	3/32
Deflection due to remaining dead load	3/16	9/16	1/8	3/8
Convexity required for vertical curve	3/32	3/16	3/32	3/16
Sum of deflection and convexity	5/16	7/8	1/4	21/32
Required camber	0	7/8	0	0

END CROSSFRAMES, END DAMS, GUTTERS, SCUPPERS, CURB PLATE DETAILS AND BEAM SPLICE DETAILS: See Std Dwg. SD-1-63 Sheets 1 thru 4 of 4.
For beam splices use R=1⅜"

RAILING: See Std. Dwg. AR-1-57.

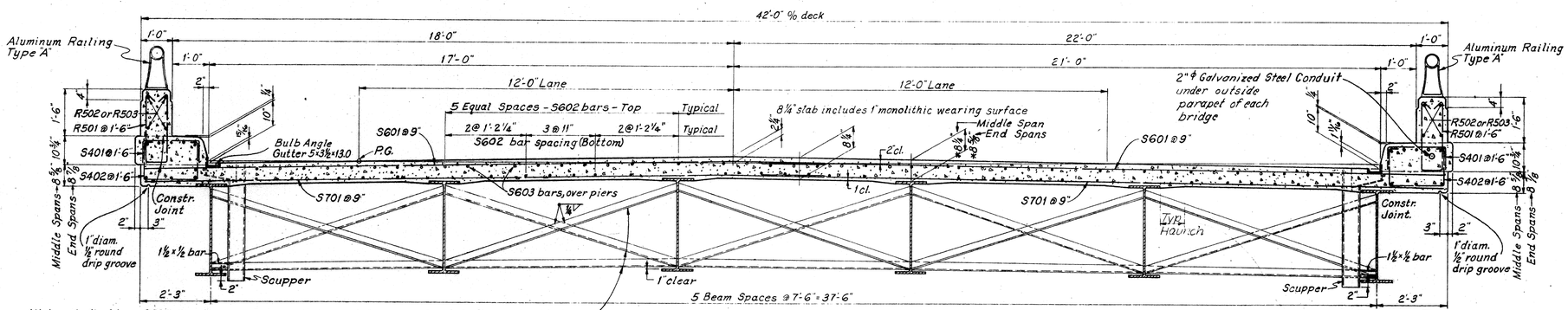
RAILING POST, PARAPET EXPANSION JOINT, AND SCUPPER SPACING: See Sheet 283

CONCRETE: All superstructure shall be Class "C".

BEARINGS: See Std Dwg. FSB-1-62 for the following:
E-100 Abutments
E-200 Pier 1
F-200 Pier 2

BEAM SPLICE WELDING PROCEDURE:
1. Raise the abutment ends of the beams the amount 1⅜"
2. Butt-weld the beam flanges and web, using the following sequence: make two passes on the web, then two on each flange, repeat, using one or two passes at each location, until welds are completed.
3. Weld the bottom and top moment plates.
4. Lower the beam ends to final position.

GENERAL NOTES: See Sheet 283.



All longitudinal bars S602 except as otherwise shown. Lap S602 bars 1'-11" minimum.

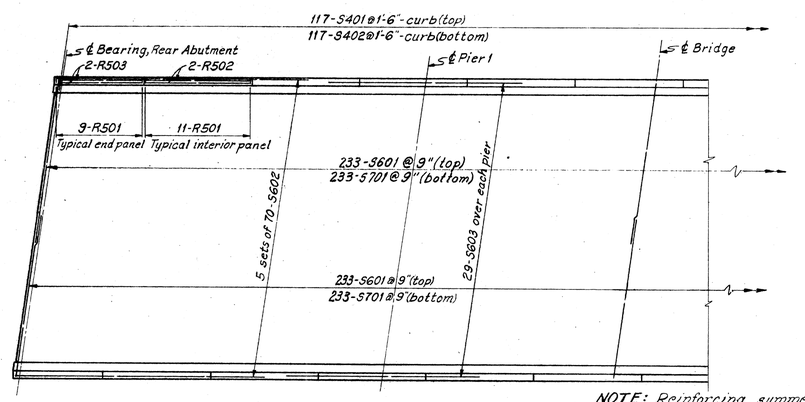
Intermediate crossframe angles 3x3x5/16. Weld both sides of vertical leg and top side of horizontal leg to beam with ¼" continuous fillet weld.

TRANSVERSE SECTION

Right Bridge shown
Left Bridge opposite hand

* These are nominal dimensions. The quantity of deck concrete to be paid for shall be based on these dimensions, even though deviation from them may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per Sec. 1.25 of the Construction and Material Specifications.

A typical haunch width shall be used for computing quantity of concrete. However the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.



HALF SLAB PLAN

NOTE: Reinforcing symmetrical by rotation about ℄ Bridge.

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Consulting Engineers
MANSFIELD, OHIO.

SUPERSTRUCTURE

BRIDGE NO. LOR-254-0742 L & R
OVER S.R. 58

LORAIN COUNTY — S. R. 254

STA. 391+81.49 TO STA. 393 + 59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RAK	RAK	JCZ	J.E.G.			

MICROFILMED
SEP 8 1986

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LORAIN COUNTY
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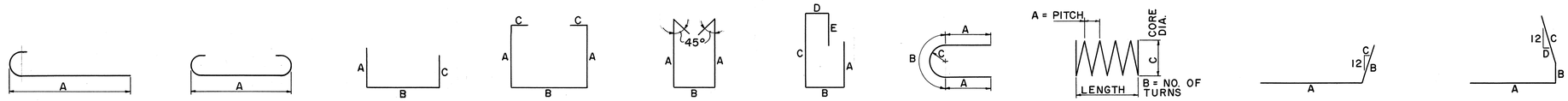

ABUTMENTS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
R501	64	5'-9"	5	2'-3"	8"				384
R504	32	11'-8"	Str.						*
A401	24	2'-9"	3	8"	1'-8"	8"			44
A402	24	4'-4"	4	1'-3"	1'-8"	4"			69
A403	48	(2)	3	8"	(1)	8"			76
A404	48	(3)	4	1'-3"	(1)	4"			127
A501	240	9'-4"	3	2'-2"	5'-3"	2'-2"			2,336
A502	116	6'-11"	3	6'-6"	6"	0"			837
A503	204	6'-10"	3	1'-10"	3'-5"	1'-10"			1,454
A504	64	41'-8"	Str.						2,781
A505	32	11'-0"	Str.						367
A506	40	3'-5"	3	4"	3'-0"	4"			143
A507	32	9'-10"	3	4'-4"	1'-2"	4'-7"			328
A508	56	8'-6"	Str.						496
A509	32	8'-9"	Str.						292
A510	80	3'-6"	Str.						292
A511	16	6'-9"	Str.						113
A512	16	4'-8"	Str.						79
A513	24	7'-5"	3	3'-7"	6"	3'-7"			186
A514	12	10'-3"	10	8'-3"	7"	1'-7"	1 11/16		128
A515	12	7'-1"	9	2'-8"	4'-6"	10 3/8			89
A516	12	7'-9"	9	6'-3"	1'-7"	1 11/16			97
A517	12	8'-2"	9	3'-0"	5'-3"	13 15/16			102
A518	4	9'-1"	10	7'-1"	7"	1'-7"	1 11/16		38
A519	4	9'-0"	9	4'-7"	4'-6"	10 3/8			38
A520	4	8'-6"	9	7'-0"	1'-7"	1 11/16			35
A521	4	8'-11"	9	3'-9"	5'-3"	13 15/16			37
A522	16	13'-11"	10	11'-11"	7"	1'-7"	1 11/16		232
A523	8	12'-7"	9	8'-2"	4'-6"	10 3/8	Bend in field		105
A524	8	11'-8"	Str.	Bend in field					97
A525	16	13'-1"	9	11'-7"	1'-7"	1 11/16			218
A526	8	13'-6"	9	8'-4"	5'-3"	13 15/16			113
A527	8	11'-11"	Str.	Bend in field					99
A601	64	14'-6"	6	4'-8"	1'-4"	6'-2"	10"	2'-2"	1,394
A602	116	6'-10"	3	6'-6"	6"	0			1,191
A603	52	13'-5"	3	6'-2"	1'-4"	6'-2"			1,048
A801	56	23'-1"	Str.						3,451
						TOTAL WEIGHT			18,916

(1) 1'-7" to 1'-0" Vary 16 each by 3 1/2"
(2) 2'-8" to 2'-1" Vary 16 each by 3 1/2"
(3) 4'-3" to 3'-8" Vary 16 each by 3 1/2"

PIERS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
P401	192	6'-0"	Str.						770
P501	192	6'-9"	3	2'-2"	2'-8"	2'-2"			1,352
P502	8	6'-7"	3	2'-2"	2'-6"	2'-2"			55
P503	8	6'-0"	3	2'-2"	1'-11"	2'-2"			50
P504	16	7'-4"	7	1'-7"	4'-2"	1'-4"			122
P505	8	37'-10"	Str.						316
P601	224	7'-4"	2	6'-0"					2,467
P901	96	20'-7"	Str.						6,178
P902	96	18'-9"	Str.						6,120
P903	192	5'-11"	3	5'-6"	6"	0			3,862
P1001	16	40'-8"	2	37'-10"					2,800
P1002	16	18'-0"	1	16'-7"					1,239
P1003	32	9'-9"	3	7'-0"	2'-10"	0			1,343
P1004	16	32'-9"	Str.						2,255
P1005	16	10'-0"	Str.						688
SP401	8	17'-9"	8	4 1/2"	51	32"			2,671
SP402	8	15'-11"	8	4 1/2"	46	32"			2,407
						TOTAL WEIGHT			34,695

SUPERSTRUCTURE

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
R501	512	5'-9"	5	2'-3"	8"				3,071
R502	160	14'-8"	Str.						*
R503	32	12'-0"	Str.						*
S401	468	2'-9"	3	8"	1'-8"	8"			860
S402	468	4'-4"	4	1'-3"	1'-8"	4"			1,355
S601	932	22'-0"	Str.						30,797
S602	700	36'-5"	Str.						38,289
S603	116	27'-0"	Str.						4,704
S701	932	22'-1"	Str.						42,069
						TOTAL WEIGHT			121,145

* These railing bars are included with Item S-14 for pavement.

REPLACEMENT BARS

MARK	NO.	LENGTH
RE 400	1	5'-3"
RE 500	1	5'-7"
RE 600	4	5'-11"
RE 700	3	6'-3"
RE 800	1	6'-6"
RE 900	1	6'-10"
RE 1000	1	7'-2"

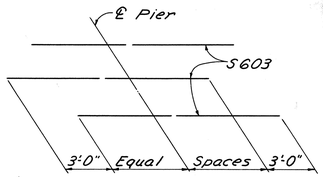

DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS

NOTES:

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is a No. 5 size bar and P1001 is a No. 10 size bar.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1 1/2 closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

SHAFFER, PARRETT AND ASSOCIATES
Consulting Engineers
MANSFIELD, OHIO.

REINFORCING STEEL

BRIDGE NO. LOR-254-0742 L&R
OVER S.R. 58

LORAIN COUNTY S.R. 254

STA. 391 + 81.49 TO STA. 393 + 59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.A.K.	J.R.B	J.R.B.	J.E.G.			