STATE OF OHIO
DEPARTMENT OF HIGHWAYS

LIC-40-8.67
LICKING COUNTY
ETNA, HARRISON & UNION TOWNSHIPS
GRADE SEPARATION WITH N.Y.C. R.R.

LIMITED ACCESS

This improvement 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, Revised Code of Ohio, and is especially designed for through traffic.

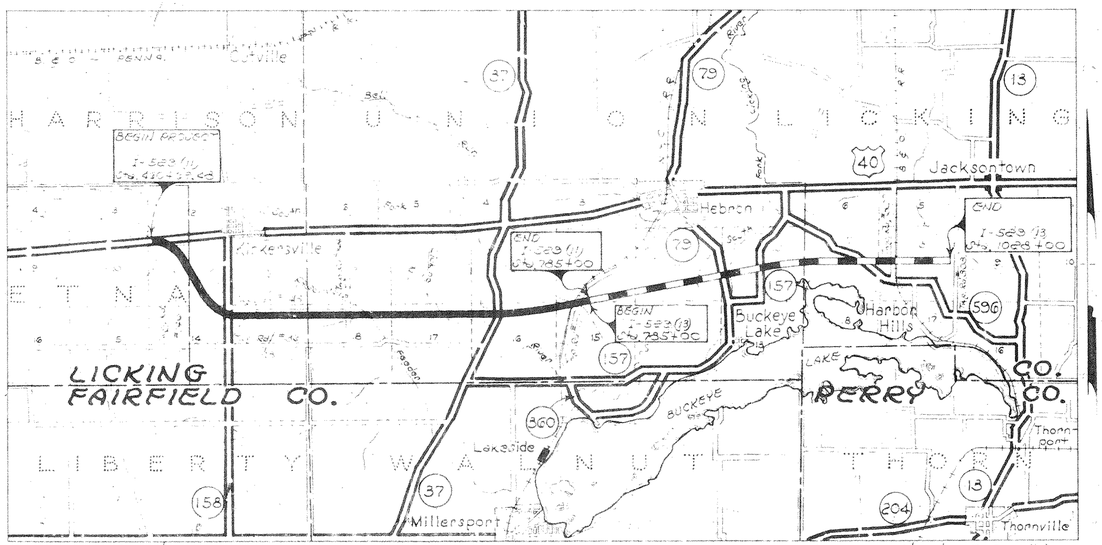
I-523 (1)

ENTIONAL SIGNS

Telephone & Power
New
Old New
Center Line

INDEX OF SHEETS

Title Sheet	1	U.S. 37 Interchange	82-100
Typical Section	2-3	Twp. Road 17	107-112
Typical Details	4	Cross Sections	115-188
General Notes	5-6	Structures 20' Span & Under	189-219
Table Summary & Calculations	7-11	Channel Changes	220-225
Location Plan	12	Structures Over 20' Span	226-232
Plan & Profile	13-36	R/W Fence	234
Superelevation Tables	37-38	R/W Plans	265-287
U.S. Bound Ramp	39-42	R.R. Final Adjustment	288
S.R. Mound Ramp	43-45		
Twp. Road 17	46-49		
U.S. 37 Plan & Profile	50-76		
Twp. Road 17	77-81		



Delivery Point :- Hebron — Average Haul 5.0 Miles

LINE DATA

I-523 (1) 410 + 66.19
I-523 (3)

[illegible] Lin. Ft. or 6.148 Miles

TWP. RD. 144		TWP. RD. 144	U.S. 37	TWP. RD. 171
	4+51	3+50	44+00	16+63.44
	0+00	23+50	70+00	34+00
10	2250.33	1600.00	3200.00	2130.56
3	0.384	0.284	0.606	0.403

Total 4.968 Lin. Ft.
Total 0.938 Miles

R Work = 43,201.08 Lin. Ft. or 8.182 Miles

LOCATION PLAN

Scale of Miles

Portion to be Improved — this contract
Portion to be Improved — by others
State Highways
Other Roads

Scales in Feet
Plan
Profile (Hor)
Profile (Vert)
Cross Sections

D-2

M-24

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

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

The Right of Way necessary for this improvement will be provided by the State of Ohio.

Approved — Oscar F. Schilling
Date 10-15-56 — Division Deputy Director.

Approved — [illegible]
Date [illegible] — Deputy Director of [illegible]ning & Programming.

Approved — [illegible]
Date 11-16-56 — Engineer of Bridges.

Approved — [illegible]
Date 11-20-56 — Engineer of Location & Design.

Approved — [illegible]
Date 11-20-56 — Deputy Director of Design & Construction.

Approved — [illegible]
Date 11-21-56 — First Assistant Director.

Approved — S. O. [illegible]
Date 11-21-56 — Director of Highways.

Approved — F. H. SIMPSON
Date 11-26-56 — Chief Engineer N.Y.C. R.R.

STANDARD CONSTRUCTION DRAWINGS

[illegible]			I-16	7-1-54	B-T-71.R
CE-1		C.O.-67 R.C.3	I-14G	1-22-52	C.J. N2-1
RT-1		C.O.-67 R.C.4	I-15 N2-1	8-1-55	T.J.
3C	1-56	I-16, 3, 4 & 5	I-15 N2-2	10-1-54	B-T-50-70-71 E&I
-1	54	I-5C.B, 2C.A & B	I-15 N2-4	1-1-54	SP-53
		I-5C.B, 2C & E-4	I-15 N2 E-A	7-2-54	AS-1-54
-3	1-50	I-8C.B. N2-7	I-21-23	10-1-54	CO-1-54 (2 Sht.)
[illegible]			C.S.B 1-55 (Sht. 1 & 2)	7-16-54	RB-1-55
			A 1-52	12-1-54	S.B-1-47
			P-54	12-1-54	

SUPPL. SPECIFICATIONS

L-209.12		7-1-54
18	Rev.	9-1-55
3		10-28-55
M-11C.27		9-2-52
9-114		8-30-55
5		6-8-56
E-119	Rev.	6-30-56
MF-109.23	Rev.	4-20-56

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED :-

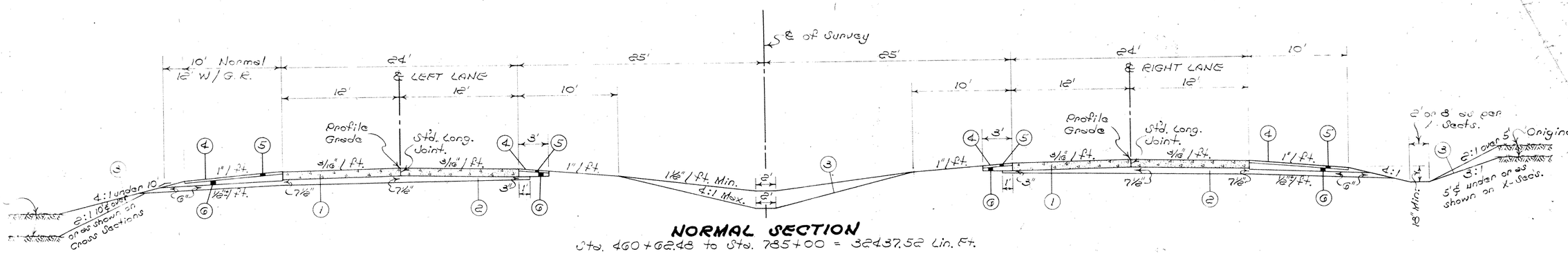
DISTRICT ENGINEER — DATE

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

LIC-40-8.67

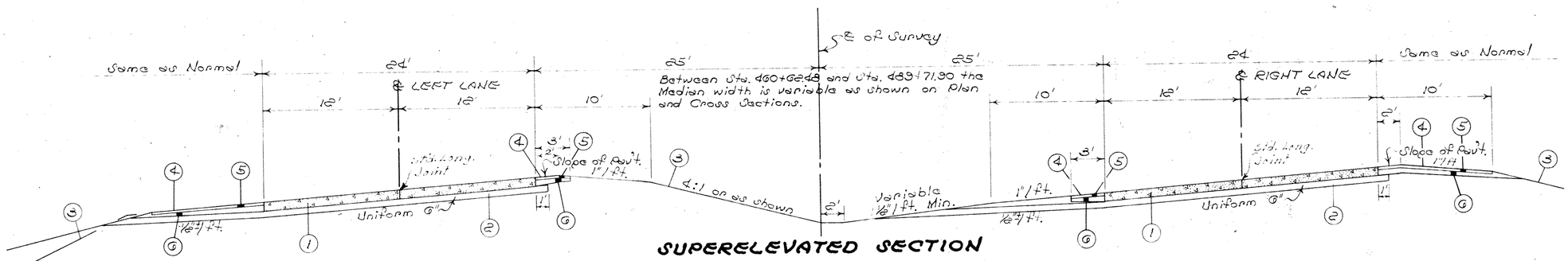
TYPICAL SECTIONS

TYPE T-71

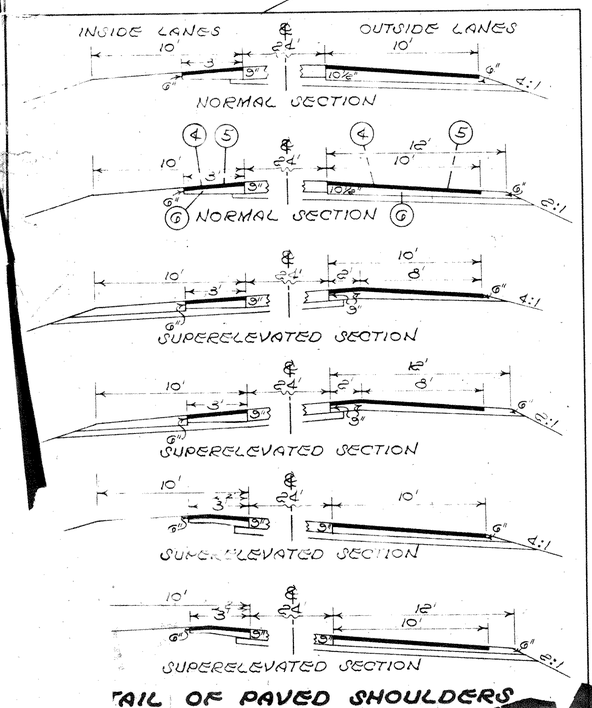


NORMAL SECTION

Sta. 460+62.48 to Sta. 785+00 = 32437.52 Lin. Ft.



SUPERELEVATED SECTION



TAIL OF PAVED SHOULDERS

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

(2) I-22 Subbase

(3) L-9 Seeding and Protecting.

(4) T-31 { Bituminous Surface Treatment :~
(a) No.6 Aggregate at 0.008 Cu. Yds. per Sq. Yd.
(b) Bituminous Material (Sec. as noted in table) applied at the rate of 0.25 Gal. per Sq. Yd.

(5) B-33 3" Bituminous Macadam Base Course

(6) I-18 Stabilized Crushed Aggregate Shoulder and Approaches.

ITEM T-31 :~

Upon completion of the B-33 construction, a seal coat shall be applied to the surface of the penetration macadam in accordance with Item T-31, consisting of 0.25 gal. bituminous material per sq. yd. and 0.008 cu. yd. No. 6 aggregate per sq. yd.

The variety and grade of bituminous material used in the seal coat shall depend upon the type of bituminous material used in the B-33 Bituminous Macadam Base Course as indicated in the table below.

Bituminous Material used in Item B-33 Bituminous Macadam Base Course.	Bituminous Material to be used for Item T-31 Bituminous Surface Treatment.
Sec. M 5.7 RT-11 or RT-12	Sec. M 5.7 RT-8 or RT-9
Sec. M 5.1, 85-100 or Sec. M 5.5 RS-1.	Sec. M 5.2 RC 3; Sec. M 5.3 MC 3; Sec. M 5.5 RS-1 or RS-2; or Sec. M 5.12 CBAE-3

Shields shall be used on the distributor to prevent bituminous material being spread onto the adjacent pavement. The cover aggregate shall be laid with an approved spreader box and care shall be taken to spread the material to the neat lines indicated on the plans.

M-24

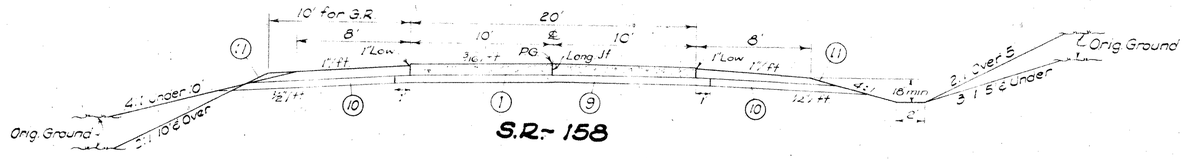
TYPICAL SECTION

TYPICAL SECTIONS

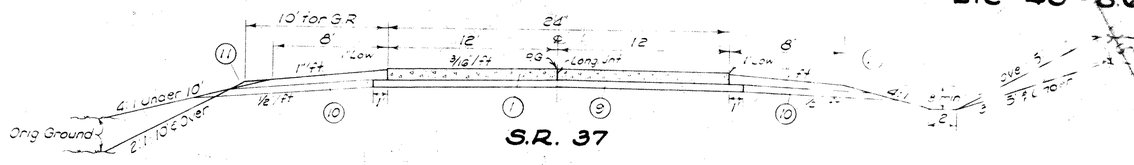
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

LIC-40-8.67

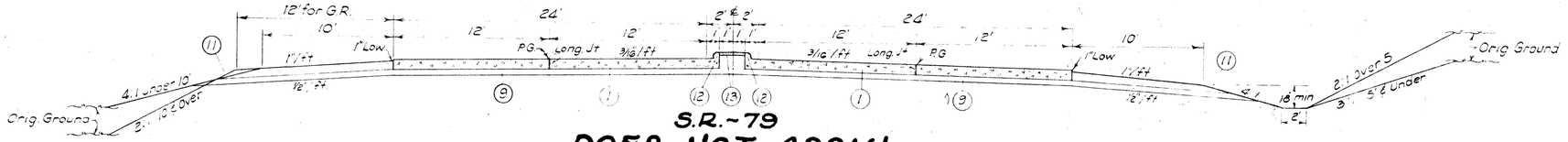
3 287



S.R.- 158

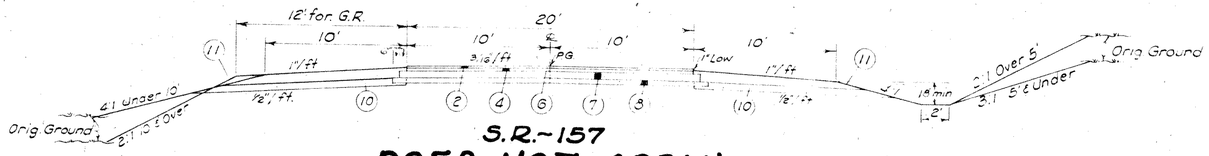


S.R. 37



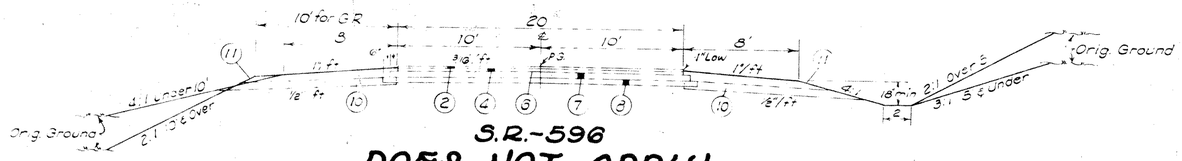
S.R.- 79

DOES NOT APPLY



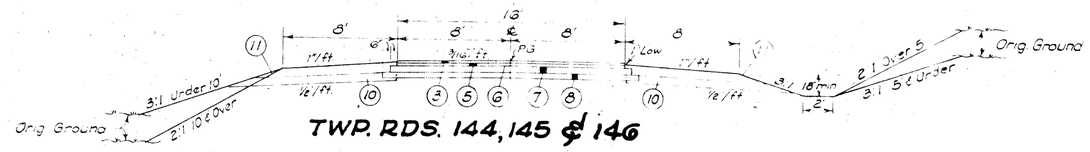
S.R.- 157

DOES NOT APPLY

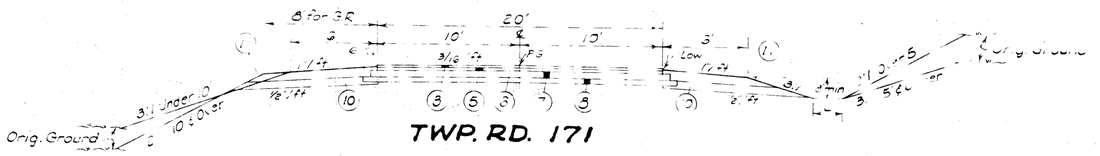


S.R.-596

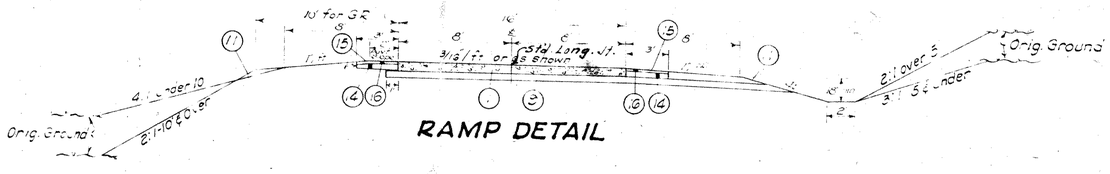
DOES NOT APPLY



TWP. RDS. 144, 145 & 146



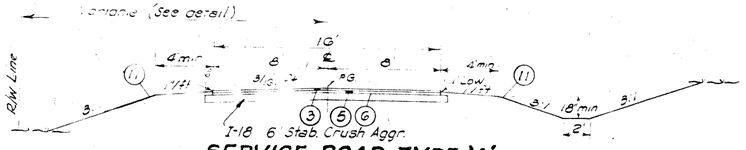
TWP. RD. 171



RAMP DETAIL

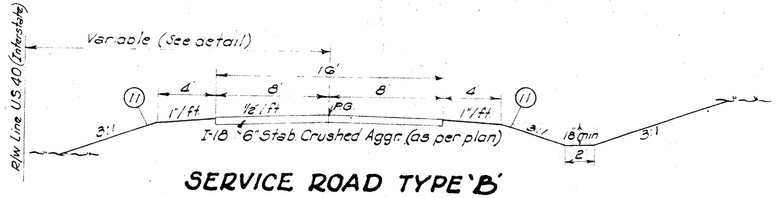
LOOP DETAIL

DOES NOT APPLY



SERVICE ROAD TYPE 'A'

DOES NOT APPLY



SERVICE ROAD TYPE 'B'

DOES NOT APPLY

	(1) T-71	9" Reinforced Portland Cement Concrete Pavement.
Void	(2) T-35	1½" Asphaltic Concrete Surface Course, Type 'A' (70-80)
	(3) T-35	1¼" Asphaltic Concrete Surface Course, Type 'A' (85-100)
Void	(4) B-35	2½" Asphaltic Concrete Leveling Course, (70-80)
	(5) B-35	2" Asphaltic Concrete Leveling Course, (85-100)
	(6) T-30	Bituminous Prime Coat, Sec. M-5.7 R.T.-2 or RT-3, or Sec. M-5.3 M.C-0 or M.C-1 applied at the rate of 0.35 gallon per sq. yd.
	(7) B-20	5" Waterbound Macadam Base Course, Using No. 2 Coarse Aggr.
	(8) I-22	4" Subbase
	(9) I-22	6" Subbase
	(10) I-9	Stone Underdrains, No. 2
	(11) L-9	Seeding and Protecting
Void	(12) I-12	Std. Type No. 2-A Concrete Curb
Void	(13) I-21	4" Portland Cement Concrete Median Pavement, Type I
	(14) I-18	Stabilized Crushed Aggregate Shoulders and Approaches (var. thickness)
	(15) T-31	Bituminous Surface Treatment: (a) No. 6 Aggregate at 0.008 Cu. Yds. per Sq. Yd (b) Bit. Material, as per table sheet No 2.
	(16) B-33	3" Bituminous Macadam Base Course

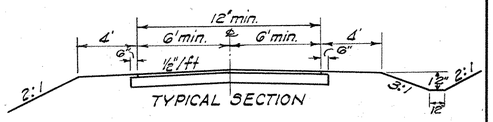
TYPICAL SECTIONS

TYPICAL DETAILS

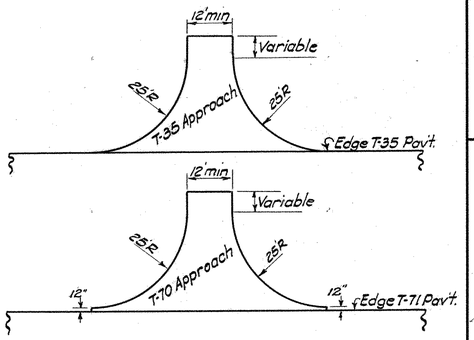
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

4 / 287

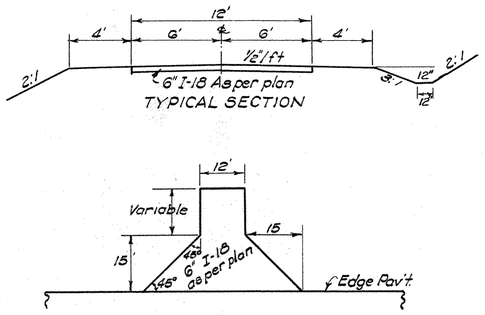
LIC ~ 40 ~ 8.67



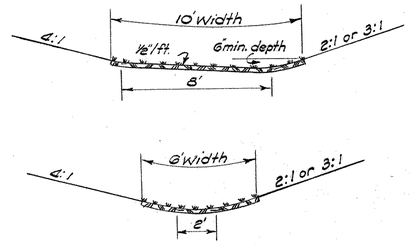
NOTE:
If Adjoining Pav't. is T-71, Approach will be 7" T-70
If Adjoining Pav't. is T-35, Approach will be 2" T-35 on 5" I-18



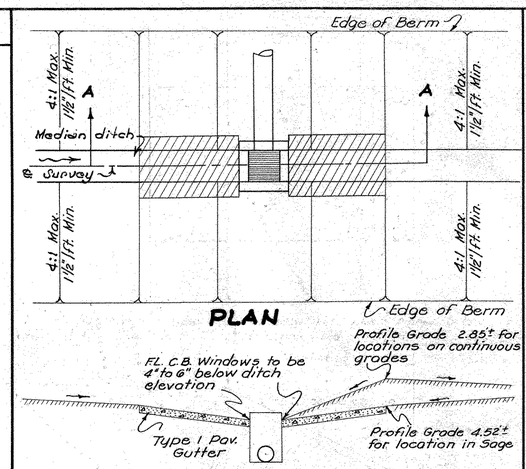
DETAILS OF RESIDENCE APPROACH



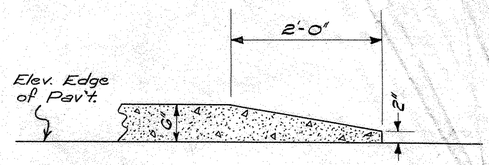
DETAILS OF FIELD DRIVE



DETAILS OF SODDED DITCHES

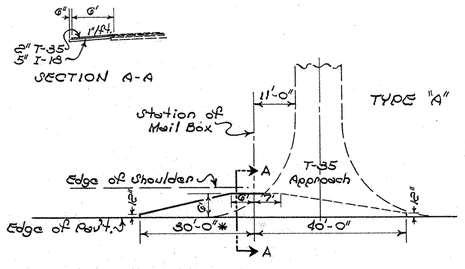


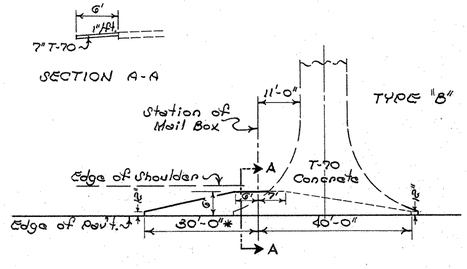
DETAILS OF MEDIAN DITCH OUTLET INTO CATCH BASINS



The Curb Heighth shall be reduced from 6" to 2" in 2' Transition at the end of all Curb length.

CURB HEIGHT AT END



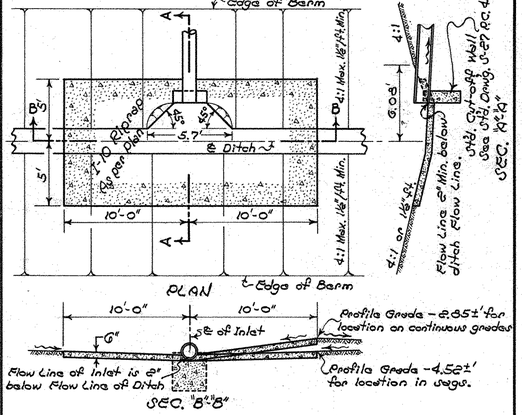


* Add 2 feet for each additional Mail Box. Where feasible mail box turnouts shall be combined with residence drives as shown by dashed lines and the quantities adjusted by the Engineer.

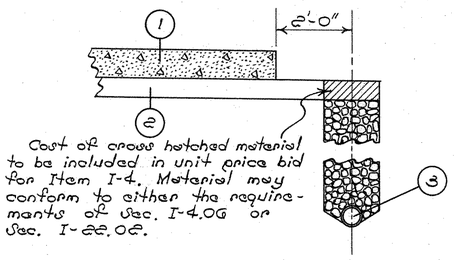
TYPE A ~ T-35 Mail Box Approach not located adjacent to Residence Drive.
TYPE A-1 ~ T-35 Mail Box Approach adjacent to Residence Drive.
TYPE B ~ T-70 Mail Box Approach not located adjacent to Residence Drive.
TYPE B-1 ~ T-70 Mail Box Approach adjacent to Residence Drive.

Item	Description	Quantities Each				Unit
		Type A	Type A-1	Type B	Type B-1	
T-35	2" Asph. Conc. Surface	1.7	0.7			Cu. Yds.
I-18	5" Crushed Aggregate	4.3	1.8			Cu. Yds.
T-30	Bituminous Prime Coat	12	5			Gals.
T-70	7" P.C. Conc. Pav't.			30.8	13.0	Sq. Yds.

DETAILS OF MAIL-BOX TURNOUTS



DETAILS RIPRAP ENTRANCE MEDIAN DRAIN



Cost of cross hatched material to be included in unit price bid for Item I-4. Material may conform to either the requirements of Sec. I-4.06 or Sec. I-22.06.

(1) T-71 9" Reinf. Portland Cement Concrete Pav't.
(2) I-22 Subbase, as per plan Var. Thickness 3" Min.-7½" Max.
(3) I-4 6" Pipe Underdrains (See Std. Dr'wg. RI-1.)

DETAIL OF I-4 PIPE UNDERDRAIN

M-24

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

6
287

LIC-40-8.67

GENERAL NOTES

DESIGN SPEED :~

Design Speed on LIC-40 is 70 M.P.H.
Design Speed on other State Routes is 50 M.P.H.
Design Speed on County and Township Roads is 35 M.P.H.

TRAFFIC :~

Traffic shall be maintained at all times during construction on U.S. Route 40, S.R. 158, S.R. 37 and Township Roads # 171 and # 145. No work shall be performed which would make existing surfaces on these routes impassable before temporary lanes have been provided substantially as detailed and noted in these plans.

Township Roads # 146 and # 144 may be closed to traffic during actual work thereon, but every effort shall be made to avoid tearing up existing surfaces far in advance of actual work on the respective pavement or on the separation structure. The contractor shall notify residents and place warning signs at the cross roads nearest construction before beginning work. The work shall be expedited in a manner which will insure minimum inconvenience to normal users. All provisions of Sec. G-4.05 for residents adjacent to the improvement shall apply.

Types of temporary surface for various routes are specified in the Table on Sheet # 10. All materials, methods of construction and maintenance responsibilities for the temporary traffic lanes shall be as described in Items S-15, T-10 & M-10 of the specifications and the General Note entitled, "S-15 Temporary Runaround, As Per Plan."

The temporary lanes shall remain in use and shall be maintained by the contractor to the satisfaction of the Engineer until the new pavement and structures are available to traffic.

The methods of handling traffic described herein may be varied, if the Engineer so directs, provided there is no additional inconvenience to the traveling public and no additional cost to the State.

Payment for construction, maintenance and subsequent removal of temporary traffic lanes, other than S-15 items, and except for furnishing and placing M-10 and T-10 items, is included in the lump sum bid for "Maintaining Traffic."

U.S. 40

Temporary lanes shall be constructed along the north side of the existing westbound lanes on present Route 40 substantially as detailed on the cross sections. Minimum roadway width shall be 30 feet with 24 foot wide pavement. The pavement shall be Class "A", with a transverse slope of 3/16 per foot.

S.R. 158

Temporary runaround shall be built to approximate line and grade shown on cross sections for S.R. 158. Pavement shall be 20 feet wide on a minimum 26 foot roadway and the temporary pavement surface shall be Class "B" with 3/16 transverse pavement slope. Temporary guard rail shall be placed along west end of structure at Station 554+00. Care shall be used while placing new pavement to insure minimum pavement widths and roadway available to traffic at all times.

S.R. 37

Maximum use shall be made of the existing pavement to carry S.R. 37 traffic while the overpass structure is being constructed. Temporary lanes shall be constructed on the right between Stations 44+00 and 49+00 and between Stations 64+25 and 75+50 as shown on cross sections. The temporary pavement shall be 20 feet wide on a minimum roadway of 26 feet with a transverse slope of 3/16" per foot and shall be Class "B".

TWP. RD. # 171

Temporary traffic lanes shall be constructed approximately as shown on the cross sections. The surface shall be traffic compacted and may be either T-10 or T-10 Modified, using calcium chloride for dust control. Minimum pavement width shall be 16 feet on a 22 foot roadway. The runaround surface shall have a transverse slope of 1/4" per foot.

TWP. RD. # 145

The western terminus of Township Road # 145 (at S.R. 158) shall be completed before any work is performed on Township Road # 144, which would render the eastern terminus of Township Road # 145 impassable.

S-15 TEMPORARY RUNAROUND AS PER PLAN :~

The item S-15 Temporary Runaround as per plan shall consist of constructing, maintaining, including placing of surface of the type as noted under "Traffic", and subsequent removing to plan lines of temporary runaround roads at locations called for in the traffic note. All provisions of Item S-15 shall apply except that no temporary bridges are involved. Pavement surfaces, Class "A" and Class "B", shall be as specified in S-15. Any temporary culverts or other drainage structures, additional excavation or embankment necessary for the construction of temporary runarounds shall be furnished by the contractor and removed by him when no longer needed to maintain traffic. The cost of installation and removal shall be included in the lump sum bid for the Item S-15 Temporary Runaround as per plan. After temporary runarounds have been removed, all those areas outside normal construction which were used for temporary routes shall be restored to original ground contour and shall then be seeded in accordance with Item L-3. The cost of seeding shall be paid for at the unit price bid for Item L-3 Seeding and Protecting.

PREPARATION OF EMBANKMENT AREAS :~

On some sections of this project, the depth of topsoil, roots and ground cover is deeper than normally encountered. Therefore, it may be necessary to remove more than the nominal 2" to 3" depth during scalping operations. In lieu of the provisions of Sec. E-1.04, "Preparations for Embankments", which requires removal of a 6" depth of foundation soil at the contract unit price bid for Item E-1 Excavation, on this project, the contractor shall remove unsuitable foundation soil to a depth of 12" below normal scalping depth, when so ordered by the Engineer, at the contract unit price bid for Item E-1 Excavation. Material so removed shall be stockpiled for use in the finishing operation as per E-1.03 (a) and E-1.05 (d). The extra depth removal shall be made only under areas to be paved and the adjacent shoulders.

HAND FINISHING :~

Hand finishing methods as described under Sec. T-71.21 may be used in small irregular areas when the use of ordinary finishing machines is impractical in the opinion of the Engineer. No other requirements of Sec. T-70 or T-71 shall be waived.

T-10 AND T-10 AS PER PLAN :~

A quantity of T-10 Traffic Compacted Surface Course; T-10 Traffic Compacted Surface Course as per plan (described in paragraph 2 of this note) has been provided to be placed as temporary surface on Township Roads # 171 and # 145 as noted on Sheet # 10 and elsewhere in these notes to provide surface for temporary access roads to abutting farms when directed by the Engineer.

For the Item "T-10 Traffic Compacted Surface Course as per plan", all provisions of T-10 shall apply except that No. 3 or No. 34 aggregate shall be used, or the present wearing course may be removed in construction areas and used as T-10 Modified on the temporary lanes. The materials from the present pavements may be used without further tests for gradation or quality. Measurement of old pavement so used may be by weight or by volumetric means approved by the Engineer. Any existing surface proposed for use as T-10 Modified shall be approved by the Engineer for such use prior to removal. Payment shall be at the unit price bid per cu. yd. for the Item T-10 Traffic Compacted Surface Course as per plan.

FILLING AREAS OUTSIDE CONSTRUCTION LIMITS :~

All areas outside limits of actual construction and within the right of way such as old channels, interchange areas between ditches, or minor depressions shall be filled and sloped to drain. Material which has been stockpiled for use in the finishing operation may be used and compaction requirements shall be waived. Cost of this work shall be included in Item E-1 Roadway Excavation

BACKFILL FOR STRUCTURES :~

Backfill for structures placed under Item S-27 or S-28 and for which the excavation has been performed under Item E-3, shall be placed in accordance with Sec. E-2.08. Payment for placing backfill shall be included in the unit price bid for Item E-3 Channel Excavation, E-1 Roadway Excavation or E-4 Borrow which ever is applicable.

FLAP GATES :~

All flap gates shall be fitted with brass studs, nuts and bushings.

COOPERATION :~

The bidder shall give consideration to the probability that contracts will be awarded for the construction of other projects adjacent to the project involved in this proposal and shall cooperate to the fullest extent with contractors on adjacent projects in a manner that will result in a minimum amount of interference with other contractors.

The Contractor shall co-operate with adjacent property owners who have severed portions of their land under cultivation by permitting access to the severed portions across the area under construction; provided such crossing does not create damage to work already completed.

Specific attention is called to Parcel 19-LA where this condition will exist until the County Road # 144 including bridges is complete.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

G 257

LIC-40-8.67

GENERAL NOTES

I-10 DUMPED ROCK FILL AS PER PLAN:

This item shall consist of placing sound durable stone, or broken concrete as bank or channel protection. All material placed under this item shall be uniformly placed to grade and cross section shown on plans. At least fifty (50) percent of the volume shall consist of pieces weighing at least seventy-five (75) pounds each. Maximum size stone specified under I-10.05 may be waived provided the stones are placed in a manner such that the surface conforms to the plans.

6" CONCRETE RIPRAP TYPE "A" AS PER PLAN:

All riprap placed under this item shall be placed using a concrete slab as described under I-10.03 except that the reinforcing steel shall be omitted

SUPERELEVATION:

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

DRIVE LOCATIONS:

Any drive located outside the Limited Access portions of this project may be relocated at the direction of the Engineer, provided there is no additional cost to the State.

UTILITIES:

Any and all work for public or private utilities shall be done by and at the expense of their respective owners.

Telephone: Ohio Consolidated Telephone Co.
Electric: Ohio Power Co., Newark, Ohio
Gas: Ohio Fuel Gas Co., Columbus, Ohio
National Gas Co., Newark, Ohio
Water: Village of Hebron

FIELD OFFICE:

The contractor shall provide a suitable field office in accordance with Sec. S-0.01(b) having a minimum floor space of 300 sq. ft. for the exclusive use of the Engineer. The contractor shall have a telephone installed and maintained in this office during the construction of this project.

REMOVALS:

All items marked for removal shall become the property of the contractor unless otherwise noted and shall be disposed of by him. Where pipe is marked for removal and headwalls, catch basins, manholes or encasements are involved, the cost of removal and disposal of headwalls, catch basins, manholes or encasements shall be included in the unit price bid for Item E-12 Pipe Removal.

SEEDING AND PROTECTING:

Quantities for seeding and protecting on Route 40 and the interchanges are calculated for the soil areas between lines 10 feet outside construction limits as shown on cross sections. On side roads, service roads or temporary runarounds in removal areas where work is indicated, seeding is calculated to construction limits only. Seeding is calculated to one foot above flowline in all channel changes.

All areas outside these limits where vegetation growth has been injuriously disturbed or destroyed by the contractor shall be restored and seeded in conformance with the provisions of Sec. G-7.09 by the contractor at his own expense.

PAVED OR SODDED DITCHES:

Paved or sodded ditches have been provided for all waterways where erosion may occur. The engineer may make minor relocations or he may omit paving or sodding if conditions encountered during construction warrant such action.

An additional amount of sodding and paved gutter, Type 1, is provided for use at locations directed by the Engineer where erosion is likely to occur on backslopes or wherever he may deem necessary. Payment for all sodding and paved gutter shall be made on final measurement at the unit price bid for the respective items. It is estimated 250 sq. yds. additional sod and 250 lin. ft. paved gutter will be required.

WATERBOUND MACADAM BASE COURSE AS PER PLAN

All provisions of Item 13-20 shall apply except that No. 2 Aggregate only shall be used for coarse aggregate.

EXISTING PIPES:

The location and sizes of existing pipes are shown as accurately as available information will permit. The State, however, will not be responsible for variations found during construction. All known major tile drains which cannot be intercepted by roadside ditches have been replaced between ditches with "Storm Sewer Under Pavement". No. 2-218 Catch Basins have been provided as connector boxes at each end of the storm sewer under pavement and are placed outside ditches. Any additional lines encountered during construction shall be outletted into the nearest roadside ditch using pipe for roadway drainage as provided below, or, in case the existing line is of a major type and is too deep to outlet in roadside ditches, it shall be replaced between ditches with I-2 "Storm Sewer under Pavement" of the nearest larger size and proper strength than the pipe being replaced for which the contractor has submitted bids elsewhere on this project. Payment shall be made on final measurement at the unit price bid for the item concerned.

Estimate 250 lin. ft. 6" pipe for roadway drainage will be required.
Estimate 250 lin. ft. 8" pipe for roadway drainage will be required.
Estimate 250 lin. ft. 10" pipe for roadway drainage will be required.
Estimate 250 lin. ft 12" pipe for roadway drainage will be required.

HIGH PRESSURE GAS LINES:

Specific attention is invited to a 16" high pressure (700 P.S.I.) gas line which crosses center line at approximately Sta. 67G+35. Extreme caution shall be used during any operations in this vicinity.

FILLING BASEMENTS AND REMOVING FOUNDATIONS:

All abandoned dug wells, basements, concrete slabs or foundations lying within the right of way work agreement areas shall be either removed or filled in accordance with E-1.08 to the level of the surrounding ground and the area seeded as described below. Cost of any removals and backfilling shall be included in the unit price bid per cu. yd. for Item E-1 Excavation. The cost of seeding shall be paid at the unit price bid per sq. yd. for Item L-9 Seeding and Protecting.

Stone or Masonry within the construction area which protudes above ground shall be removed to a depth of two feet below finished grade and the entire area backfilled to original ground level in accordance with Sec. E-1.08. Stone or Masonry appearing above ground but outside the construction area shall be removed as noted above and backfilled except that compaction requirements of E-1.08 shall be waived.

PREPARATION OF AREAS TO BE SODDED:

The cost of earthwork necessary to accomplish the preparation of areas to be sodded is included in the unit price bid per sq. yd. for Item L-10 Sodding. Commercial fertilizer (10-6-4) shall be applied at the rate of 20 lbs. per 1000 sq. ft. of area and agricultural liming materials shall be applied at the rate of 100 lbs. per 1000 sq. ft. of area. Both shall be worked into the soil prior to laying the sod. The sod bed shall have two inches of loose soil on which sod is laid after excavation for sod thickness.

E-9 TREE AND STUMP REMOVAL:

Payment for the removal of trees and stumps shall be by lump sum for all trees and stumps designated for removal by the Engineer within the areas required by these plans and no additional compensation will be allowed.

The estimated number of trees and stumps to be removed, listed below, was arrived at by diligent effort, but the State does not guarantee the accuracy thereof:

Sizes	12"-18"	18"-24"	24"-30"	30"-36"	36"-42"	42"-48"	Over 48"
Trees	1115	191	78	35	15	2	8
Stumps	7	3	4	3	1	0	0

I-9 STONE UNDERDRAINS NO. 2:

Stone underdrains No. 2 have been provided to drain the base of all secondary pavements involved in this project.

These underdrains shall be placed at 50' intervals on each side of the pavement and staggered. They shall be installed on the low side only at superelevated curves and shall be on 25 foot intervals. Extreme care shall be exercised to secure adequate outlets for the stone underdrains. Outlets must be freed of straw or earth after the seeding operation. Cost of cleaning straw and earth from the outlets shall be included in the price bid per sq. yd. for Item L-9 Seeding and Protecting.

CONSTRUCTION LAYOUT STAKES:

See note in proposal describing the work included in this lump sum pay item.

I-18 STABILIZED CRUSHED AGGREGATE SHOULDERS & APPROACHES USING CRUSHED LIMESTONE AS PER PLAN:

In this item, all provisions of Item I-18 shall apply except that the use of crushed slag or crushed gravel will not be permitted. Crushed limestone only shall be used.

COMPACTED SUBGRADE UNDER PAVED DRIVES:

Subgrade under paved drives shall be compacted to a depth of 6 inches to the pertinent density shown in Table III under Item E-1 Roadway Excavation. Payment shall be included in the unit price bid per cu. yd. for Item E-1, Roadway Excavation.

TRANSITIONS:

An additional amount of Asphaltic Concrete Surface Course, Item 1-35, in the amount of 25 cu. yds. has been provided for use as directed by the Engineer to insure the securing of smooth transitions at the beginning and end of the new pavements. Payment shall be made on final measurement.

FENCE TYPE "A", AS PER PLAN

Fence shall be 39 inches high. See details sheet No. 204.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

7
287

LIC-40-8.67

(1) EARTHWORK & SEEDING

From Sheet Nº	E-1 Excav'tn. Cu.Yds.	Embank. Cu.Yds.	Embank. +20 % Cu.Yds.	L-9 Seeding Sq.Yds.
14	28118	47303	57484	29532
15	86211	45734	54881	33263
16	145012	0	0	23493
17	31325	20030	24036	24078
18	12935	22041	26449	22134
19	34952	389	467	18433
20	27800	8558	10270	21843
21	9629	2293	2752	18989
22	3821	10191	12229	20166
23	11300	4429	5315	21518
24	13449	1719	2063	22578
25	13245	9485	11382	23019
26	17153	6737	8084	22191
27	7903	29564	35477	26705
28	11979	26247	31496	22582
29	3135	39434	47321	22184
30	18922	32396	38875	36215
31	3238	20040	24048	46453
32	4380	20442	24530	23426
33	17293	17945	21534	29623
34	4822	176829	212195	375GG
35	2372	130652	156782	24541
To Tab-7	44911	319714	383655	185157
To Summry	553905	992772	1,191,325	755691

(2) PAVEMENT

From Sheet Nº	I-71 9" Reinf. P.C. Conc. Pav't. Sq.Yds.	I-22 Subbase Cu.Yds.	E-1 Compact. Subgr'de Sq.Yds.	I-18 Crush.Ag. Shoulder & Apprs. Cu.Yds.	B-33 Bit. Mac. Base Course Sq.Yds.		I-7 10" Reinf. Concrete Appr. Sl.. Sq.Yds.	I-7 11½" Reinf. Concrete Appr. Sl. Sq.Yds.	I-7 13" Reinf. Concrete Appr. Sl. Sq.Yds
14	7316.2	1860	7423	455	3109			106.7	
15	7404.7	1660	7404	609	4011				
16	6400.0	1242	6400	542	3467				
17	8000.0	1896	8000	704	4333				
18	8000.0	2025	8000	452	2911				
19	6333.3	1686	6333	534	3689				
20	8000.0	1795	8000	455	2943				
21	8000.0	1679	8000	678	4333				
22	7765.3	2115	7925	671	4293		160.0		
23	8000.0	2221	8000	678	4333				
24	8000.0	2221	8000	678	4333				
25	7449.4	2112	7609	653	4122		160.0		
26	8000.0	1832	8000	678	4333				
27	8000.0	2221	8000	678	4333				
28	7102.7	2018	7263	668	3934		160.0		
29	8000.0	2221	8000	684	4333				
30	8000.0	1896	8000	461	2901				
31	8000.0	2170	8000	667	4267				
32	8000.0	1896	8000	461	2901				
33	8000.0	1941	8000	639	4333				
34	8000.0	2178	8000	715	4333				
35	6261.0	1812	6528	662	3455			[illegible]	266.7
Tab B	366554	11133	48708	1335	8404		53.3	71.1	333.3
TO SUMMARY	204688	53834	217593	14757	93404		533	178.	600.

(3) GUARD RAIL

From Sheet Nº	I-15 Guard Rail Lin Ft.	I-15 G.R.Poste w/o Rails Each
14	1200.	
15	1712.5	
17	675	
18	300	
20	162.5	
22	144	10
25	382.04	10
28	1634.54	10
30	1256.81	
34	2762.5	4
35	2137.5	10
Tab B	15747.57	
TO SUMMARY	28114.36	40

(4) PIPE UNDERD'N.

From Sheet Nº	I-4 6" Pipe Undrains Lin. Ft.	I-4 8' Outlets for Undr. Lin. Ft.	I-5 6" Pipe Specials Each
14	320	10	1
15	1516	30	3
16	2388	20	2
17	1554	30	3
18	1098	20	2
19	2550	20	4
20	1800	20	3
21	2446	10	1
22	396	10	1
26	1834	40	4
33	1284	20	2
Table 12	1082	20	2
TO SUMMARY	18268	250	28

(5) DITCHES

From Sheet Nº	L-10 Sodding Sq.Yds.		I-14 Type 1 Pav. Gut. Lin. Ft.	I-10 Dumped Rock Fill Cu.Yds.
14	688		16	
15	1218		176	
16	2879		15	
17	322			
18	429			
19	200			
20	2722			
22	126		15	
24	1289			
25	880			62
26	727			
27	168			
28			20	
30	222			
34	715			
35	455			
Tab 6 Gen Notes	95		205	
Table 10	250		250	
TO SUMMARY	1405		20	
	14,790		717	62*

*To Str. Tab. Sheet 3

(6) STORM SEWERS

	I-2 Storm Sewers Lin. Ft. 12" Cl. A Und. P.	15" Cl. A Und. P.	18" Cl. A Und. P.	24" Cl. A Und. P.	24" Cl. A M-64c	24" Cl. A M-6.8a or M-6.8b		30" Cl. A M-6.8a or M-6.8b	36" Cl. A M-6.8a or M-6.8b	36" Cl. A Und. P.	I-8 Catch Basins Each 2-2A	2-2B	2-3	E-3 Channel Excava. Cu.Yds	I-10 Riprap "A" as per pl. Sq.Yds	I-10 Dumped Rock Fill Cu.Yds.	I-14 Type 1 Pav. Gutth. Lin.Ft.	L-10 Sodding Sq.Yds.	S-1 Concrete Class E Cu.Yds.	I-5 24" Auto. Drainage Gate Each		
14										150												
15					606								1									
17		88									1						15	4				
18		158	74								2				22		30	12	0.3			
19		348	64								4						15					
20			90								1						15	5				
23			200												44			12	0.6			
24			72	72				90	90						44				0.7			
25			144		44										44			6	1.0	1		
26				72											22				0.4			
27		178									2						40	12				
29		86									1						20	6				
30	250	150										2			44			12	0.6			
31			86												22			2	0.3			
32			76	76											44			9	0.6			
33		88									1						20	4				
34		184									2			6		6	35	5				
35		90									1						15	6				
To Sh. 7 Tab. 2																	205	95				
To Sh. 9 Str. Table											15		1	6	286	6			4.5			
TO SUMMARY	250	1376	806	220	44	*606		90	90	150		2								1		

↳ M-6.5(b) or M-6.8(b) ↑ ↳ M-6.6(b) or M-6.8(b)

*with Shallow Cover

TABLE SUMMA

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

8
287

LIC-40-8.67

(7) EARTHWORK & SEEDING

From Sheet No.	E-1 Roadw'y Excav'tn. Cu.Yds.	Embank. Cu.Yds.	Embank. +20 % Cu.Yds.	L-9 Seeding Sq.Yds.
40	3920	6259	7511	6386
43	995	7782	9338	7977
46	2797	10033	12040	8883
52	488	15272	18326	6687
55	887	5616	6739	5204
58	1316	5931	7117	6110
61	2890	14022	16826	9314
64	1772	26517	31820	12885
68	990	39575	47490	17677
69	690	3785	4542	5460
77	1432	21647	25976	11867
83	3431	18490	22188	8956
86	4209	16673	20008	9502
90	794	18921	22705	6891
93	646	21439	25727	7839
96	1818	6634	7961	7876
97	2675	66418	79702	17410
98	1834	1802	2162	6604
107	6901	7647	9176	11798
108	4426	5251	6301	9231
To YAB 1 Sh. No 7	44911	319714	383655	185157

(8) PAVEMENT

From Sheet No.	T-71 9" Reinf. P.C. Conc. Pavem't. Sq.Yds.	T-35 Asphal. Concrete Surface Cu.Yds.	B-35 Asphal. Concrete Leveling Cu.Yds.	T-30 Bitumin. Prime Coat Gals.	B-20 5" W.B. Macadm. Base Sq.Yds.	I-22 Subbase Cu.Yds.	E-1 Compt'd Subgrde Sq.Yds.	I-9 Stone Underdn No.2 Lin.Ft.	I-18 Crushed Agg. Sh. & Appr's. Cu.Yds	B-33 3" Bit.M. Base Course Cu.Yds	I-7 10" Reinf. Conc. App. Slabs Sq.Yds.	I-7 11½" Rein. Conc. App. Slabs Sq.Yds.	I-7 13" Reinf. Conc. App. Slabs Sq.Yds.	I-12 Type 2A Concrete Curb Lin.Ft.	I-21 Type 1 Conc. Med Pavem't Sq.Yds.
40	2133.8					488	2134		94	719				178	25.2
43	2617.6					752	2618		115	885				107	
46		61.5	98.4	659	1884	222	1842	450				71.1			
52	2461.8					723	2462		111	794				179	26.0
55	2111.5					607	2112		95	646				105	
58	2766.4					742	2766		133	899				179	29.0
61	2534.4					754	2534		115	865				105	
64		86.0	137.6	919	2632	310	2475	730							
68	2712.0					520	2823	507					111.1		
69	1055.5					194	1056	220							
77		109.3	146.5	977	2790	345	2777	655			53.3		88.9		
83	3129.3					1089	3129		127	1028				179	13.7
86	2300.2					680	2300		96	770				105	
90	3129.3					1089	3129		127	1028				179	13.7
93	2300.2					680	2300		96	770				105	
96	2159.8					390	2160	440							
97	3254.7					612	3388	670					133.3		
98	1988.9					359	1989	420							
107		79.2	126.6	838	2394	279	2279	325							
108		84.6	135.4	895	2557	298	2435	300							
From Tab. 11		64.1	46.1	457					226						
Ded. Not Sh. 8		25.													
To Tab. 6 Sheet 2	36655.4					11133	48708		1335	8404	53.3	71.1	333.3		
To Summary		510.	691.	4745	12257			4717						1421	108.

(9) GUARD RAIL

From Sheet No.	I-15 Guard Rail Lin. Ft	I-15 Gd. Rail Removal & Disposal Lin. Ft.
40	425.	375
46	750.	
52	900.	
55	525.	
58	237.50	
61	937.50	
64	1250.	
68	1112.50	
69	50.	
77	1066.88	
83	1428.13	
86	494.50	
90	1010.50	
93	969.	
96	287.50	
97	516.	
107	87.50	
To Sh. 3 Tab. 3	15177.57	
To Summary		375

(10) DITCHES

From Sheet No.	L-10 Sodding Sq.Yds.		I-14 Type 1 Paved Gutter Lin.Ft.	
40			20	
43	150			
46	483			
55	94			
58	543			
69	135			
To Sh. 7 Tab 5	1405		20	

(11) DRIVES AND APPROACHES

From Sheet No.	T-70 7" P.C. Concrete Pavem't. Sq Yds	T-35 Asp. Con. Surface Course Cu.Yds.	B-35 Asp. Con. Leveling Course Cu.Yds	T-30 Bitum. Prime Coat Gals.	I-18 5" Crushed Ag. Shoul. & Appr. Cu.Yds.	I-18 6" Crushed Ag. Shoul. as per plan Cu.Yds.	I-1 Pipe for Driveways Lin. Ft. 12"	15"	18"	42"
40	157.0	28.8	46.1	309	147				38	
43	369.1	5.0								
46		5.4		34	15	14		32		
68	205.8						32			
69						23	66			
77		17.3		114	44	84	96	50		
97						5.1			62	
98						24	60			
107		7.6			20					68
To Table 8		64.1	46.1	457	226					
To SUMMARY	732.					196	254	82	100	68

(12) PIPE UNDERDRAINS

From Sheet No	I-4 6" Underdr. Lin.Ft.	I-4 8" Outlets for Undedrns Lin. Ft	I-5 6" Pipe Specials for Undr. Each
40	300	10	1
52	326	10	1
58	456		
To Tab 4 Sh 7	1082	20	2

(13) PAVEMENT REMOVAL

From Sheet No.	E-8 Rem. & Disposl. of Exist. Pavem't. Sq.Yds.	
40	8525	
43	747	
96	1280	
To SUMMARY	10,552	

(14) PIPE REMOVAL

From Sheet No.	E-12 Pipe Removed 15" & Und. Lin. Ft.	
40	38	
To SUMMARY	38	

(15) STORM SEWERS

From Sheet No.	I-2 Storm Sewers under Pavement Lin. Ft 15" Cl. A M-86c	18" Cl. A M-86c		I-2 Class A Storm Sewers 12" Lin. Ft.	I-2 Class A Storm Sewers 42" Lin. Ft.	I-8 Std #7 S.D. Catch Basin Each
46				150		2
61	128					
64	134					
107					246	
To SUMMARY	262			150	246	2

TABLE SUMMARY

STRUCTURES 20' SPAN & UNDER

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

9 / 287

LIC-40-8.67

Struc. No.	Station	Details on Sheet	E-2 Excava for Struct. Cu.Yds.	E-3 Channel Excav. Cu.Yds.	S-1 Concrete for Struct. C.Y. Class "C"	S-1 Concrete for Struct. C.Y. Class "E"	S-4 Reinfg. Steel Lbs.	S-9 Struct'l. Expn & Cont. Jnts Lump	S-14 Railing Type I-15.13 Lin. Ft.	S-23 Dowel Holes Lin. Ft.	S-24 Removal of Exist. Struct. Lump	S-29 Porous Backfill Cu.Yds.	S-27 Pipe for Roadway Culverts Lin. Ft. M-6.6(b) or M-6.8(b) 15"	18"	24"	27"	30"	24" M-6.6b	30" M-6.6b	24" M-6.6c	42" M-6.4d 10 Ga.	42" M-6.6c M-6.4d 10 Ga.	78"x72" Pipe for Cat. Pass	36"	42"	48"	18"x11" CM Arch M-6.4d-1 16 Ga.	S-28 Sect. Corr. Metal Structures Lin. Ft. 7'-3"x5'-3" M6.4g 5-3 Ga	8'-6"x6'-5" M-6.4g 10-8 Ga	9'-6"x6'-5" M-6.4g 7-5 Ga.	9'-2"x6'-5" M-6.4g 8-7 Ga	5'-6"x9'-5" M-6.4g 5-3 Ga	96" M-6.4g 10-8 Ga	I-8 Catch Basins Each 22A	23	I-10 Riprap Type 'A' as per Plan Sq. Yds	I-10 Dumped Rock Fill as per Pl. Cu.Yds.	I-2 18" Cl. B Storm Sewers und. Pav. Lin. Ft.	E-12 18" Conc. Pipe Rem and Stored Lin Ft
1	467+06 G8	199	30	8		1.5	18			6					78					86																
2	W. End Ramp G+30.62	200	24	11		1.1	18			6																										
3	E. End Ramp 5+80	44	52	18		1.0											94																1	1	16	8	GG	
4	476+50	201-202	35	92 G2		43.4																														6		
5	483+00	203	36	1175		36.5																					504								112	345		
6	510+22 37	204	191	150		1.7																				222			236	152					107		
7	518+00	205	203	178		1.7																				174									24		
8	522+60 16	206	85	50		1.7																				168											
9	530+57 1	207	155	30		1.5																			218												
10	534+36	208	210	171		1.5																													17			
11	558+70	209	145	240		10.2															154																
12	SE. 158 45+12	210	32	126		7.1					Lump																			232						50		
13	NW Ramp 158 1+71	211	189	250		1.5																							130								
14	NW Ramp 158 3+25	212	80	15		1.5																130															
15	SW Ramp 158 7+29	213	124	201		1.5																150															
16	579+19	214-215	300	156 G	45.8	202.2	15,418	Lump	56			80													108											39		
17	607+00	216	180			0.9										174																			33		
18	TWP. RD. 146 33+00	48	14			0.6							78																					1				
19	TWP. RD. 145 13+44.68	67	9	7		0.6																																
20	701+00	174	2			0.5							164															42									
21	707+00	217	70	14,174		15.1																																
22	NW Ramp 37 G+18.19	85	12	5		0.6								84																	212				185			
23	SW Ramp 37 4+93.83	87	55			0.6								102																						5		
24	SE. Ramp 37 G+78.19	92	12			0.6								76																								
25	NE. Ramp 37 4+23.33	94	11			0.6								96																								
26	S.B. 37 54+00	100	35			0.8												114																				
27	S.B. 37 66+00	105	90			1.0													114																			
28	736+50	184	4			0.6																																
29	749+00	189	2			0.5							154															146									
30	762+68	216	180			4.7																																
31	TWP. RD 171 28+00	111	18			0.5							66												280												16
32	TWP. RD 171 32+37.5	218	35			1.2																				G2											
From Table 5		Sheet 7																																				
From Table 6		Sheet 7		6		4.5																														6 2		
																																	15	1	286	6		
Quantities to Summary			2626	27643	45.8	349.5	15454	Lump	56	12	Lump	80	462	358	78	174	94	114	114	86	154	280	286	62	326	564	188	130	232	236	152	212	504		16	3	616	685	66	16

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

10 / 287

LIC-40-8.67

Line	CALCULATIONS			EST. QUANTITY	UNIT
1	**E-4 BORROW**				
2	From Sheet 7, Table 1 Emb. +20% = 1,191,325 minus Excav. = 553,905		= 637,420		
3	637,420 minus 37,420 (Estimated from Channel Excav.)		= 600,000	600,000	Cu. Yds.
4					
5					
6	**E-11 WATER**				
7	From Sheet 7, Table 1, Embank.	992,772 Cu. Yds			
8	From Sheet 7, Table 2, I-18	14,757 Cu. Yds			
9	From Sheet 7, Table 2, I-22	53,834 Cu. Yds			
10	From Sheet 8, Table II, I-18 as per plan	196 Cu. Yds			
11	Total	1,061,559 Cu. Yds	X 5 ÷ 1000 = 5307.80 use	5310	M. Gals.
12					
13					
14					
15	**L-9 COMMERCIAL FERTILIZER (10-6-4)**				
16	From Sheet 7, Table 1, Seeding	755,691 Sq. Yds.			
17	From Sheet 7, Table 5, Sodding	14,790 Sq. Yds.			
18	Total	770,481 Sq. Yds	X .00009 = 69.34	69.34	Tons
19					
20					
21					
22					
23	**L-9 AGRICULTURAL LIMING MATERIAL**				
24	From Line 18	770,481 Sq. Yds	X .00045 = 346.72	346.72	Tons
25					
26					
27					
28	**T-31 BITUMINOUS SURFACE TREATMENT, BITUMINOUS MATERIAL**				
29	From Sheet 7 Table 2, B-33	93,404 Sq. Yds.	X 0.25 =	23,351	Gals.
30					
31					
32					
33	**T-31 BITUMINOUS SURFACE TREATMENT, No. 6 AGGREGATE**				
34	From Sheet 7, Table 2, B-33	93,404 Sq. Yds.	X 0.008 = 747.23 use	748	Cu. Yds.

R/W FENCE

LEFT SIDE STATION From	LEFT SIDE STATION To	R/W Fence Lin. Ft.	RIGHT SIDE STATION From	RIGHT SIDE STATION To	R/W Fence Lin. Ft.
*219+14.4	*224+10	500	463+80	475+50	1075
*224+10	*224+65	62	475+50	476+75	140
*224+65	*227+42.2	277	476+75	483+17	590
*227+47.7	*231+45	462	483+48	484+93	138
*237+80(Rt.)	*236+70.29(Rt.)	125	484+93	485+21	35
*236+70.29(Rt.)	480+88(Lt.)	340	485+21	490+09.9	487
480+88	31+50.3(146)	1875	490+09.9	494+73.5	480
506+45	527+00	2010	494+73.5	28+83.7(146)	1070
527+00	54+81.1(158)	630	28+63(146)	531+00	2450
54+00(158)	545+25	985	531+00	47+15(158)	625
** 545+25	616+90	7125	47+05(158)	544+25	770
18+46(144)	625+97.8	850	544+25	616+45	7190
625+97.8	625+95	16	617+90	652+01.4	3417
625+95	627+15	125	652+01.4	668+76.1	1680
627+15	628+75	160	668+76.1	679+00	1024
631+70	677+50	4580	679+90	695+95.6	1611
678+75	702+00	2345	695+95.6	706+65	1069
702+00	706+75	475	707+35	710+50	315
707+30	709+60	230	710+50	54+91.1(37)	700
709+60	712+00	250	55+10(37)	722+50	450
712+00	65+10.6(37)	520	722+50	725+00	270
65+04.6(37)	725+00	760	725+00	769+69	4469
725+00	734+89.1	994	771+80	785+00	1320
734+89.1	759+50	2460			
759+50	763+46.56	375			
763+46.56	772+58.1	913			
22+82(171)	785+00	1012			
Column Total		30,406	Column Total		31,375
Total R/W Fence Required			61,781 Lin. Ft.		

* Station on (1951) Survey

* * Fence on left to be 105' to left of center line

TEMPORARY TRAFFIC LANES

ROUTE	STATION From	STATION To	Length Lin. Ft.	Pav't. Type	Width Pav't.	Width R/W.	Const. Item	REMARKS
U.S. 40	462+10	11+80 W.B. Ramp		Class A			S-15	Temporary traffic lanes shown on Sheets No. 115, 116 & 42
S.R. 158	42+50	68+00		Class B			S-15	Temporary traffic lanes shown on Sheets No. 70 thru 76
S.R. 37	44+00	49+00		Class B			S-15	Temporary traffic lanes shown on Sheet No. 99
S.R. 37	644+25	75+50		Class B			S-15	Temporary traffic lanes shown on Sheets No. 104 thru 106
Twp. Rd. #171	12+69	34+00		* T-10			Maintaining Traffic	Lanes constructed under "Maintaining Traffic" Surface to be T-10 with calcium (650 Cu. Yds. T-10 13 Tons calcium req'd.) *
Twp. Rd. #145	0+10	13+50		* T-10				Place New Embankment and use T-10 and calcium thereon for temp. surface, (Estimate 50 Cu. Yds. T-10 req'd. 1 Ton calcium) *
ADJOINING PROPERTIES				* T-10	See X-Sections	See X-Sections	Maintaining Traffic	Use T-10 and calcium as necessary to comply with Sec. G-4.05 (Estimate 150 Cu. Yds. T-10 req'd. 3 Tons calcium) *

* Total Traffic compacted Surface Course 850 Cu. Yds. Use 425 Cu. Yds. T-10 & 425 Cu. Yds. T-10 As per plan.
Use 17 Tons M-10 Calcium Chloride.

SUMMARY OF QUANTITIES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-529(11)	

11 / 287

LIC-40-8.67

CODE TYPE 7221

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	Carried From Sheet	Carried From Table
			ROADWAY		
E-1	553,905	Cu.Yds.	Roadway Excavation	7	1
E-1	217,583	Sq.Yds.	Compacted Subgrade	7	2
E-4	600,000	Cu.Yds.	Borrow	10	Calcul.
E-8	10,552	Sq.Yds.	Removal and Disposal of Existing Pavement,	8	13
E-9	Lump	Lump	Removal of Trees and Stumps.	6	G.Notes
E-11	5310.	M.Gal.	Water	10	Calcul.
				8	8
I-15	375.	Lin.Ft.	Guard Rail Removed and Disposed of.	8	9
I-15	28,114.93	Lin.Ft.	Guard Rail, Steel Beam Type, Deep	7	3
I-15	40.	Each	Wood Guard Rail Posts, without rails.	7	3
				7	2
I-18	1360	Cu.Yds.	Stabilized Crushed Aggregate Shoulders and Approaches, using Crushed Limestone, as per plan.	8	11
L-9	755,620	Sq.Yds.	Seeding and Protecting	7	1
L-9	69.34	Tons	Commercial Fertilizer (10-6-4)	10	Calcul.
L-9	346.72	Tons	Agricultural Liming Materials	10	Calcul.
L-10	14,790.	Sq.Yds.	Sodding, as per plan.	7	5
T-10	425	Cu.Yds.	Traffic Compacted Surface Course for Maintaining Traffic	10	G.Notes
T-10	425	Cu.Yds.	Traffic Compacted Surface Course for Maintaining Traffic, Modified as per plan	10	G.Notes
M-10	17	Tons	Calcium Chloride Furnished and Applied for Maintaining Traffic.	10	G.Notes
S-15	Lump	Lump	Temporary Runaround Road Using Class "A" Pavement, as per plan		
S-15	Lump	Lump	Temporary Runaround Roads Using Class "B" Pavement, as per plan		
559-18	61,781	Lin.Ft.	Fence, Type 'A' as per plan.	10	
Spec.	.5	Each	Bridge Type Overhead Sign Assembly Type 'A', 44' Span.	18-20, 30-32-18	
			DRAINAGE		
E-2	2620	Cu.Yds.	Excavation for Structures	9	Struc.
E-3	27,643	Cu.Yds.	Channel Excavation	9	Struc.
E-12	38	Lin.Ft.	Pipe Removed, 15" & Under	8	14
E-12	16	Lin.Ft.	Pipe Removed for Storage, 48"	9	Struc.
S-1	349.5	Cu.Yds.	Concrete for Structures, Class 'E'	9	Struc.
S-1	45.8	Cu.Yds.	Concrete for Structures, Class 'C'	9	Struc.
S-4	15,454	Lbs.	Reinforcing Steel	9	Struc.
S-9	Lump	Lump	Structural Expansion and Contraction Joints	9	Struc.
S-14	56	Lin.Ft.	Railing, Type I-15.13 with Galvanized steel bolts and Posts.	9	Struc.
S-23	12	Lin.Ft.	Dowel Holes	9	Struc.
S-24	Lump	Lump	Removal of Existing Structure	9	Struc.
S-27	462	Lin.Ft.	15" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	9	Struc.
S-27	358	Lin.Ft.	18" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	9	Struc.
S-27	78	Lin.Ft.	24" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	9	Struc.
S-27	174	Lin.Ft.	27" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	9	Struc.
S-27	94	Lin.Ft.	30" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	9	Struc.
S-27	114	Lin.Ft.	24" Pipe for Roadway Culverts, Sec. M-6.6(b)	9	Struc.
S-27	114	Lin.Ft.	30" Pipe for Roadway Culverts, Sec. M-6.6(b)	9	Struc.
S-27	86	Lin.Ft.	24" Pipe for Roadway Culverts, Sec. M-6.6(c)	9	Struc.
S-27	154	Lin.Ft.	42" Pipe for Roadway Culverts Sec. M-6.4(d) 10 Gage	9	Struc.
S-27	**280**	Lin.Ft.	42" Pipe for Roadway Culverts Sec. M-6.6(c) or M-6.4(d) 10 Gage	9	Struc.
S-27	62	Lin.Ft.	36" Pipe for Roadway Culverts	9	Struc.
S-27	**326**	Lin.Ft.	42" Pipe for Roadway Culverts	9	Struc.
S-27	504	Lin.Ft.	48" Pipe for Roadway Culverts	9	Struc.
S-27	188	Lin.Ft.	18"x 11" Corrugated Metal Arch, Sec. M-6.4(d)(1)	9	Struc.
S-27	286	Lin.Ft.	78"x 72" Pipe **Cattle Pass Structure Design C-2**	9	Struc.
S-28	130	Lin.Ft.	7'-3" x 5'-3" Sectional Corrugated Metal Structure Sec M-6.4(g) 5-3 Gage	9	Struc.
S-28	232	Lin.Ft.	9'-6" x 6'-5" Sectional Corrugated Metal Structure Sec M-6.4(g) 10-8 Gage	9	Struc.
S-28	236	Lin.Ft.	9'-6"x 6'-5" Sectional Corrugated Metal Structure Sec. M-6.4(g) 7-5 Gage	9	Struc.
S-28	152	Lin.Ft.	9'-6"x 6'-5" Sectional Corrugated Metal Structure Sec. M-6.4(g) 8-7 Gage	9	Struc.
S-28	212	Lin.Ft.	15'-6"x 9'-5" Sectional Corrugated Metal Structure Sec. M-6.4(g) 5-3 Gage	9	Struc.
S-28	504	Lin.Ft.	96" Sectional Corrugated Metal Structure Sec. M-6.4(g) 10-8 Gage	9	Struc.
S-29	80	Cu.Yds.	Porous Backfill	9	Struc.
I-1	254	Lin.Ft.	12" Pipe for Driveways Sec. M-6.4(a)	8	11
I-1	82	Lin.Ft.	15" Pipe for Driveways Sec. M-6.4(a)	8	11
I-1	100	Lin.Ft.	18" Pipe for Driveways Sec. M-6.4(a)	8	11
I-1	68	Lin.Ft.	42" Pipe for Driveways	8	11

ITEM No.	QUANTITY	UNIT	DESCRIPTION	Carried From Sheet	Carried From Table
I-2	66	Lin.Ft.	18" Class 'B' Storm Sewers under Pavement or Approaches	9	Struc.
I-2	250	Lin.Ft.	12" Class 'A' Storm Sewers under Pavement or Approaches Sec. M-6.5(b) or M-6.8(b)	7	G
I-2	1376	Lin.Ft.	15" Class 'A' Storm Sewers under Pavement or Approaches Sec. M-6.5(b) or M-6.8(b)	7	G
I-2	806	Lin.Ft.	18" Class 'A' Storm Sewers under Pavement or Approaches Sec. M-6.5(b) or M-6.8(b)	7	G
I-2	220	Lin.Ft.	24" Class 'A' Storm Sewers under Pavement or Approaches Sec. M-6.6(a) or M-6.8(b)	7	G
I-2	262	Lin.Ft.	15" Class 'A' Storm Sewers under Pavement or Approaches Sec M-6.6(c)	8	15
I-2	44	Lin.Ft.	24" Class 'A' Storm Sewers Sec. M-6.4(c)	7	6
I-2	606	Lin.Ft.	24" Class 'A' Storm Sewers **with Shallow Cover, Sec. M-6.6(a) or Sec. M-6.8(b)**	7	G
I-2	150	Lin.Ft.	12" Class 'A' Storm Sewers	8	15
I-2	90	Lin.Ft.	30" Class 'A' Storm Sewers, Sec. M-6.6(a) or M-6.8(b)	7	G
I-2	90	Lin.Ft.	36" Class 'A' Storm Sewers, Sec. M-6.6(a) or M-6.8(b)	7	G
I-2	150	Lin.Ft.	36" Class 'A' Storm Sewers under Pavement or Approaches, Sec M-6.6(a), M-6.8(b)	7	G
I-2	240	Lin.Ft.	42" Class 'A' Storm Sewers	8	15
I-3	250	Lin.Ft.	6" Roadway Drainage	6	G.Notes
I-3	250	Lin.Ft.	8" Roadway Drainage	6	G.Notes
I-3	250	Lin.Ft.	10" Roadway Drainage	6	G.Notes
I-3	250	Lin.Ft.	12" Roadway Drainage	6	G.Notes
I-3	110	Lin.Ft.	12" Roadway Drainage under Pavement or Approaches, Sec. M-6.5(b) or Sec. M-6.8(b)	18	
I-3	132	Lin.Ft.	15" Roadway Drainage	68	
I-4	18,268	Lin.Ft.	6" Underdrains	7	4
I-4	250	Lin.Ft.	8" Outlets for Underdrains, Sec. M-6.4(a)	7	4
I-5	28	Each	6" Pipe Special for Underdrains	7	4
I-5	1	Each	24" Automatic Drainage Gate, Armco Model 100, or Brown & Brown Type M Class 1, or approved equal, as per plan	7	6
I-8	16	Each	Standard No. 2-2A Catch Basins	9	Struc.
I-8	2	Each	Standard No. 2-2B Catch Basins	7	6
I-8	3	Each	Standard No 2-3 Catch Basins	9	Struc.
I-8	2	Each	Standard No. 7 Side Ditch Catch Basins	8	15
I-9	4717	Lin.Ft.	Stone Underdrains, No 2.		
I-10	616	Sq.Yds.	Riprap, Type 'A' as per plan.	9	Struc.
I-10	685	Cu.Yds.	Dumped Rock Fill as per plan.	9	Struc.
I-14	717	Lin.Ft.	Standard Type I Paved Gutter.	7	5
			PAVEMENT		
I-7	533	Sq.Yds.	Reinforced Concrete Approach Slabs (T=10")	7	2
I-7	178	Sq.Yds.	Reinforced Concrete Approach Slabs (T=11½")	7	2
I-7	600	Sq.Yds.	Reinforced Concrete Approach Slabs (T=13")	7	2
I-12	1421	Lin.Ft.	Standard Type 2-A Concrete Curb	8	8
I-18	14,757	Cu.Yds.	Stabilized Crushed Aggregate Shoulders and Approaches.		
I-21	108	Sq.Yds.	Standard Type I Portland Cement Concrete Median Pavement	8	8
I-22	53,834	Cu.Yds.	Subbase	7	2
B-20	12,257	Sq.Yds.	5" Waterbound Macadam Base Course, Using Size No 2 Coarse Aggregate.	8	8
B-33	93,404	Sq.Yds.	3" Bituminous Macadam Base Course	7	2
B-35	691	Cu.Yds.	Asphaltic Concrete Leveling Course (70-80)	8	8
T-30	4745	Gals.	Bituminous Prime Coat: Sec. M-5.7, R.T-2 or RT-3; or M-5.3, M.C. 0 or M.C-1	8	8
T-31	23,351	Gals.	Bituminous Surface Treatment Bituminous Material, as per plan.	10	Calcul.
T-31	748	Cu.Yds.	Bituminous Surface Treatment, No. 6 Aggregate	10	Calcul.
T-35	510	Cu.Yds.	Asphaltic Concrete Surface Course, Type 'A' (70-80)	8	8
T-70	732	Sq.Yds.	7" Portland Cement Concrete Pavement	8	11
T-71	204,688	Sq.Yds.	9" Reinforced Portland Cement Concrete Pavement.	7	2

Quantities for Structure No. LIC-40-0896 on Sheet 227
Quantities for Structure No. LIC-40-0953 on Sheet 233
Quantities for Structure No. LIC-40-1010 on Sheet 238
Quantities for Structure No. LIC-40-1163 on Sheet 243
Quantities for Structure No. LIC TWP RD #144 on Sheet 248
Quantities for Structure No. LIC-40-1194 on Sheet 250
Quantities for Structure No. LIC-40-1279 on Sheet 252
Quantities for Structure No. LIC-40-1354 on Sheet 254
Quantities for Structure No. LIC-40-1454 on Sheet 259

	Lump	Lump	Construction Layout Stakes		

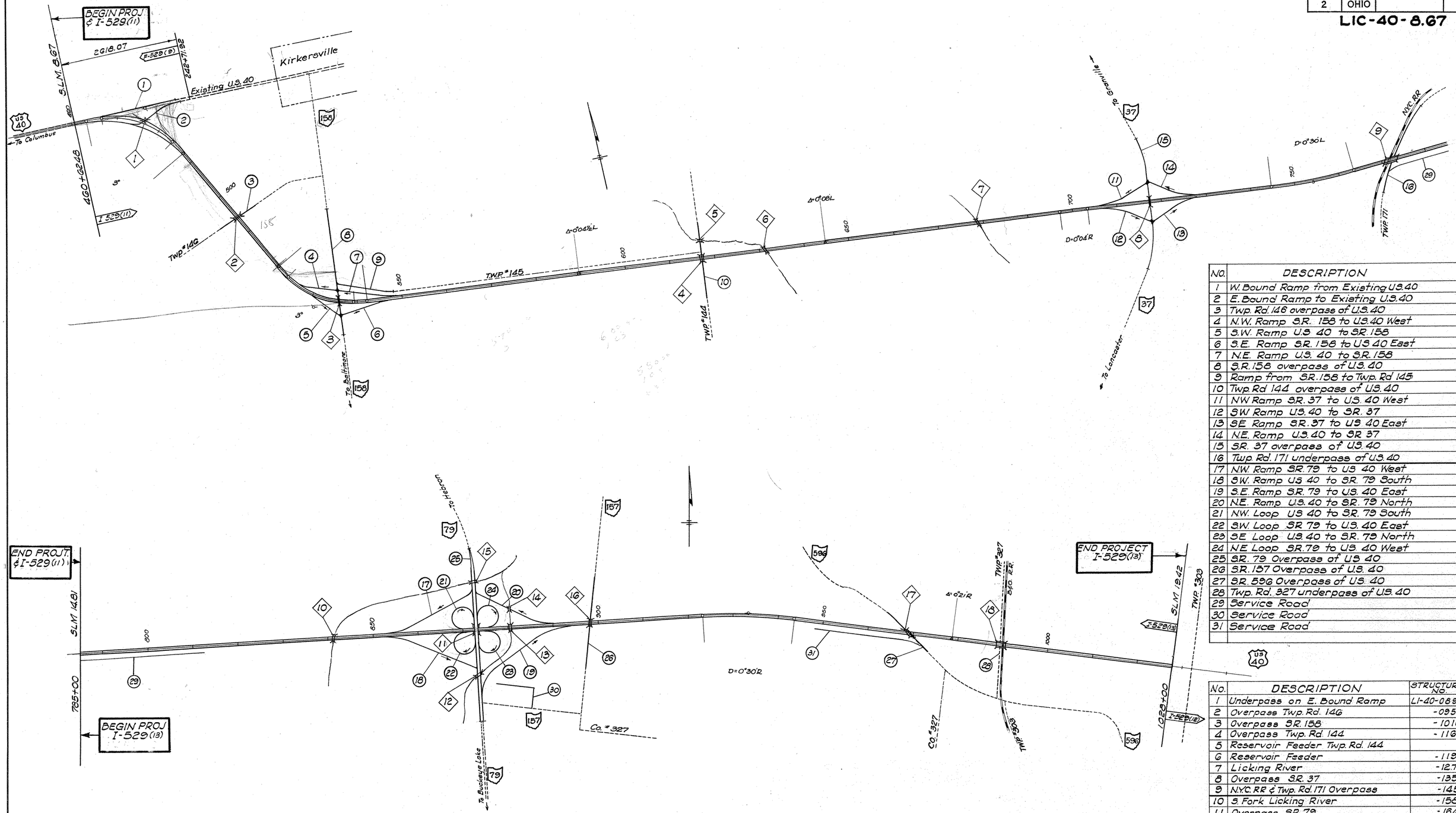
R.R. Force Account ~ Sheet No 263

LOCATION PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LIC-40-8.67

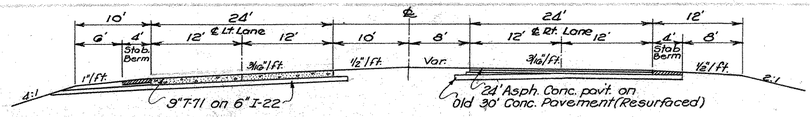
12
287



NO.	DESCRIPTION	For Details See Sheets
1	W. Bound Ramp from Existing U.S.40	39 - 42
2	E. Bound Ramp to Existing U.S.40	43 - 45
3	Twp. Rd. 146 overpass of U.S.40	46 - 49
4	N.W. Ramp S.R. 158 to U.S.40 West	52 - 54
5	S.W. Ramp U.S 40 to S.R. 158	55 - 57
6	S.E. Ramp S.R. 158 to U.S 40 East	58 - 60
7	N.E. Ramp U.S. 40 to S.R. 158	61 - 63
8	S.R. 158 overpass of U.S. 40	68 - 76
9	Ramp from S.R. 158 to Twp. Rd 145	64 - 67
10	Twp. Rd 144 overpass of U.S. 40	77 - 81
11	NW Ramp S.R. 37 to U.S. 40 West	82 - 85
12	SW Ramp U.S. 40 to S.R. 37	86 - 88
13	SE Ramp S.R. 37 to U.S 40 East	90 - 92
14	N.E. Ramp U.S. 40 to S.R 37	93 - 95
15	S.R. 37 overpass of U.S. 40	96 - 106
16	Twp. Rd. 171 underpass of U.S. 40	107 - 114
17	N.W. Ramp S.R. 79 to U.S. 40 West	
18	S.W. Ramp U.S. 40 to S.R. 79 South	
19	S.E. Ramp S.R. 79 to U.S. 40 East	
20	N.E. Ramp U.S. 40 to S.R. 79 North	
21	N.W. Loop U.S 40 to S.R. 79 South	
22	S.W. Loop S.R 79 to U.S. 40 East	
23	S.E. Loop U.S. 40 to S.R. 79 North	
24	N.E. Loop S.R. 79 to U.S. 40 West	
25	S.R. 79 Overpass of U.S 40	
26	S.R. 157 Overpass of U.S. 40	
27	S.R. 596 Overpass of U.S. 40	
28	Twp. Rd. 327 underpass of U.S. 40	
29	Service Road	
30	Service Road	
31	Service Road	

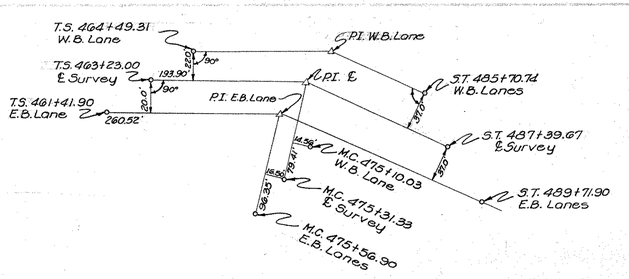
US 40

No.	DESCRIPTION	STRUCTURE NO.	FOR DETAILS SEE SHEET
1	Underpass on E. Bound Ramp	LI-40-0896	226 - 231
2	Overpass Twp. Rd. 146	-0953	232 - 236
3	Overpass S.R. 158	-1010	237 - 241
4	Overpass Twp. Rd. 144	-1163	242 - 246
5	Reservoir Feeder Twp. Rd. 144		247 - 248
6	Reservoir Feeder	-1194	249 - 250
7	Licking River	-12.79	251 - 252
8	Overpass S.R. 37	-1354	253 - 257
9	N.Y.C. RR & Twp. Rd. 171 Overpass	-1454	258 - 263
10	S. Fork Licking River	-1588	
11	Overpass S.R. 79	-1648	
12	Buckeye Lake Overflow (Under S.R. 79)	LI-79-0011	
13	Buckeye Lake Overflow (Under U.S. 40)	LI-40-1658	
14	Buckeye Lake Overflow (Under N.E. Ramp)		
15	S. Fork Licking River	LI-79-0049	
16	Overpass S.R. 157	LI-40-1696	
17	Overpass S.R. 596	-1831	
18	B&O RR & Twp. Rd. 327 overpass	-18.68	



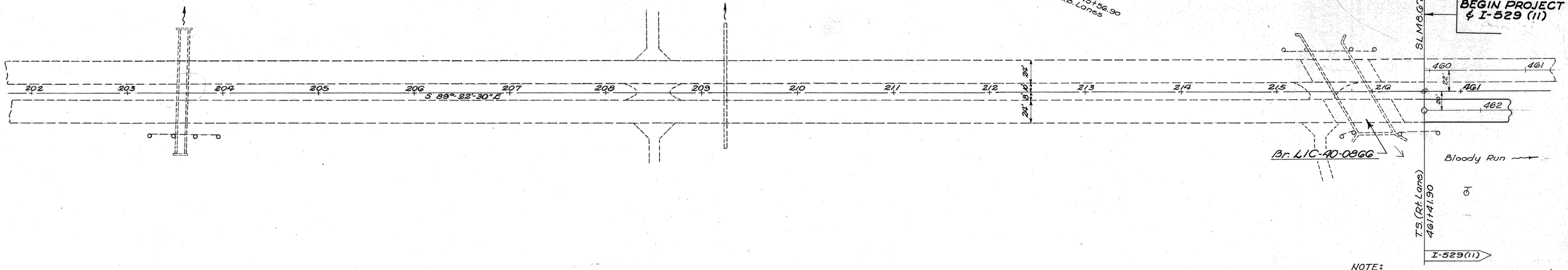
TYPICAL SECTION OF ADJOINING PAVEMENT

BEGIN PROJECT I-529 (11) **STA. 460+62.48 SLM 8.67**
END PROJECT I-529 (11) **STA. 785+00 SLM 14.81**

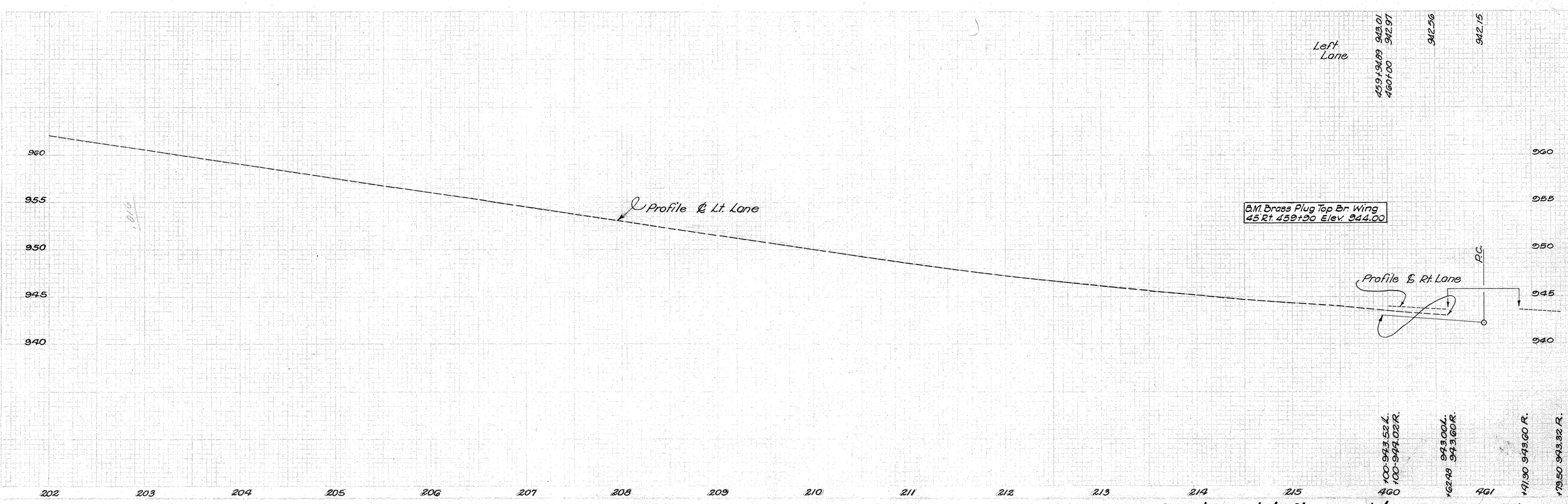


LIC-40-8.67

EQUATION
℄ STA. 216+53.85 (Back) =
℄ STA. 460+62.48 (Ahead) =
Rt. Lane 461+41.90 (Ahead) =
Lt. Lane 459+94.89 (Ahead)



NOTE:
Marker to be furnished & erected on the right by State Forces before acceptance of this improvement.



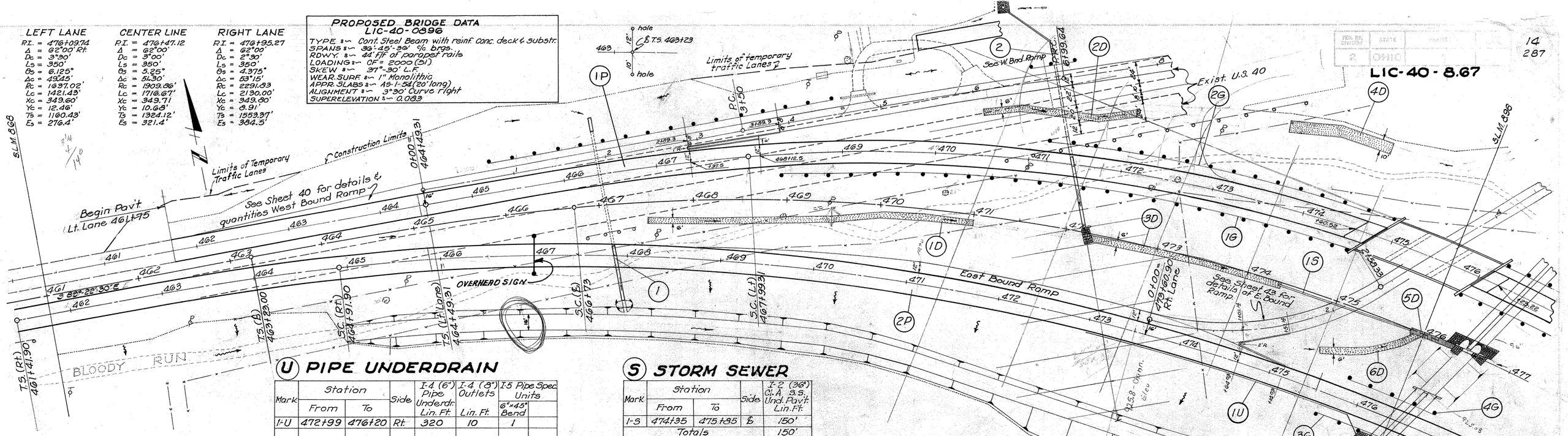
Supplemental Alignment ℄ 460+62.48 – 461+00

LEFT LANE		CENTER LINE		RIGHT LANE	
P.I. =	476+09.74	P.I. =	476+47.12	P.I. =	476+95.27
Δ =	62°00' Rt.	Δ =	62°00'	Δ =	62°00'
Dc =	3°30'	Dc =	3°00'	Dc =	2°30'
Ls =	350'	Ls =	350'	Ls =	350'
θs =	6.125°	θs =	5.25°	θs =	4.375°
Δc =	49.25'	Δc =	51.30'	Δc =	53°15'
Rc =	1637.02'	Rc =	1909.86'	Rc =	2291.83'
Lc =	1421.43'	Lc =	1716.67'	Lc =	2130.00'
Xc =	349.60'	Xc =	349.71'	Xc =	349.80'
Yc =	12.46'	Yc =	10.68'	Yc =	8.91'
Ts =	1160.43'	Ts =	1324.12'	Ts =	1553.37'
Es =	276.4'	Es =	321.4'	Es =	384.5'

PROPOSED BRIDGE DATA
LIC-40-0896

TYPE :— Cont. Steel Beam with reinf. Conc. deck & substr.
SPANS :— 39'-45'-39' c/c brgs.
RDWY. :— 44' F/F of parapet rails
LOADING :— CF = 2000 (51)
SKEW :— 27°-30' L.F.
WEAR. SURF :— 1" Monolithic
APPR. SLABS :— 45-I-54 (20' long)
ALIGNMENT :— 3°30' Curve Right
SUPERELEVATION :— 0.083

PER. NO. DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO	LIC-40-8.67	14	287



(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 (6") Pipe Underdr. Lin. Ft.	I-4 (8") Outlets Lin. Ft.	I-5 Pipe Spec. Units 6"×45° Bend	
1-U	472+99	476+20	Rt.	320	10	1	

(S) STORM SEWER

Mark	Station From	Station To	Side	I-2 (36") C.A.S.S. Und. Pav't. Lin. Ft.
1-S	474+35	475+85	℄	150'
Totals				150'

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Cr. Aggreg. Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	B-33 Bit. Mac. Base Crse Sq. Yds.	I-7 (11½") Appr. Slabs Sq. Yds.
1-P	461+75	476+23.22	3428.0	885.	135.	3535	1221.	106.7
2-P	461+41.90	476+00	3888.2	975	270	3888	1888	
Totals			7316.2	1860	455	7423	3109	106.7

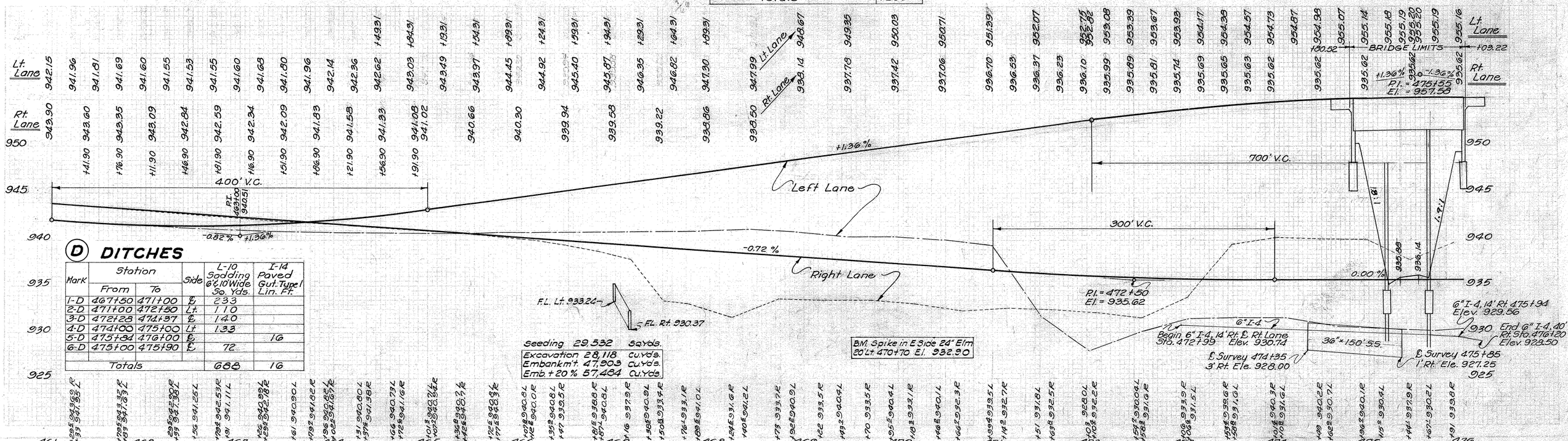
STRUCTURES 20' SPAN & UNDER

Str. No.	SLM	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
1	0.879	467+06.68	Pipe	24"	133.86	Pipe	24"	199.86	199

(G) GUARD RAIL

Mark	Station From	Station To	Lane	Side	I-15 Guard Rail Lin. Ft.
1-G	463+35.6	474+60.6	Lt.	Rt.	625
2-G	471+19.4	474+94.4	Lt.	Lt.	375
3-G	475+63	476+63	Rt.	Rt.	100
4-G	475+82	476+82	Rt.	Lt.	100
Totals					1200

OVERHEAD SIGN
TYPE: OS-2-A
STA. 467+00 RT
SPAN: 44' ; H= 3'
4 SIGN SUPPORTS: 3',3',9',9' from beam splice



(D) DITCHES

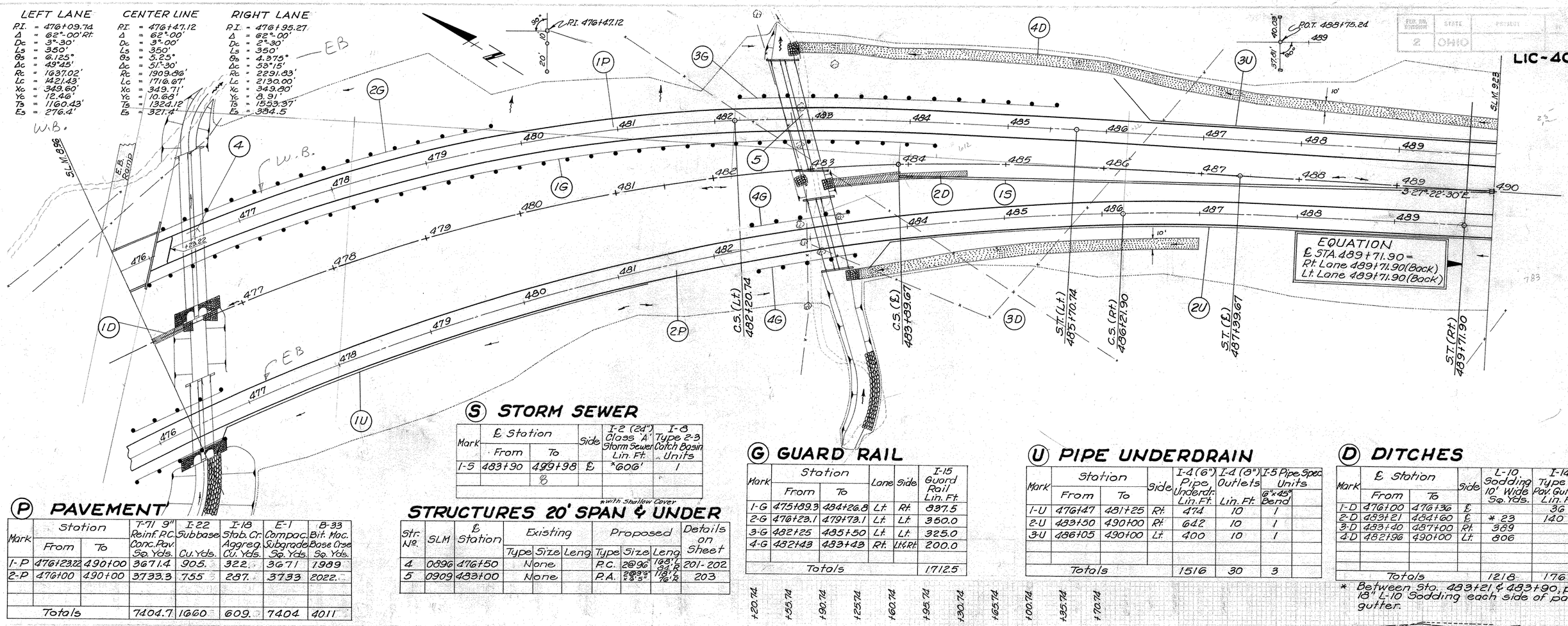
Mark	Station From	Station To	Side	L-10 Sodding 6' & 10' Wide Sq. Yds.	I-14 Paved Gut. Type I Lin. Ft.
1-D	467+50	471+00	℄	233	
2-D	471+00	472+50	Lt.	110	
3-D	472+28	474+37	℄	140	
4-D	474+00	475+00	Lt.	133	
5-D	475+84	476+00	℄		16
6-D	475+00	475+90	℄	72	
Totals				688	16

4G1+00 ~ 4G6+00

FED. AID DIVISION	STATE	PROJECT	SH. NO.	15
2	OHIO			287

LIC-40-8.67

LEFT LANE	CENTER LINE	RIGHT LANE
P.I. = 476+09.74	P.I. = 476+47.12	P.I. = 476+95.27
Δ = 62°-00' Rt.	Δ = 62°-00'	Δ = 62°-00'
Dc = 3°-30'	Dc = 3°-00'	Dc = 2°-30'
Ls = 350'	Ls = 350'	Ls = 350'
θs = 6.125°	θs = 5.25°	θs = 4.375°
Δc = 49°45'	Δc = 51°-30'	Δc = 53°15'
Rc = 1637.02'	Rc = 1909.86'	Rc = 2291.83'
Lc = 1421.43'	Lc = 1716.67'	Lc = 2130.00'
Xc = 349.60'	Xc = 349.71'	Xc = 349.90'
Yc = 12.46'	Yc = 10.69'	Yc = 8.91'
Ts = 1160.43'	Ts = 1324.12'	Ts = 1553.37'
Es = 276.4'	Es = 321.4'	Es = 384.5



(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Cr. Aggreg. Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	B-33 Bit. Mac. Base Crse Sq. Yds.
1-P	476+23.22	490+00	3671.4	905.	322.	3671	1989
2-P	476+00	490+00	3733.3	755	287.	3733	2022.
Totals			7404.7	1660	609.	7404	4011

(S) STORM SEWER

Mark	℄ Station From	℄ Station To	Side	I-2 (24") Class 'A' Storm Sewer Lin. Ft.	I-8 Type 2-3 Catch Basin Units
1-S	483+90	499+98	℄	*606'	1
		⑧			

STRUCTURES 20' SPAN & UNDER

*with Shallow Cover

Str. No.	SLM	℄ Station	Existing Type	Existing Size	Existing Leng	Proposed Type	Proposed Size	Proposed Leng	Details on Sheet
4	0896	476+50	None			P.C.	20'0"	198' Sq. R	201-202
5	0909	483+00	None			P.A.	20'0" x 5'5"	197' 90° R	203

(G) GUARD RAIL

Mark	Station From	Station To	Lane	Side	I-15 Guard Rail Lin. Ft.
1-G	475+89.3	484+26.8	Lt.	Rt.	837.5
2-G	476+23.1	479+73.1	Lt.	Lt.	350.0
3-G	482+25	485+50	Lt.	Lt.	325.0
4-G	482+43	483+43	Rt.	Lt. & Rt.	200.0
Totals					1712.5

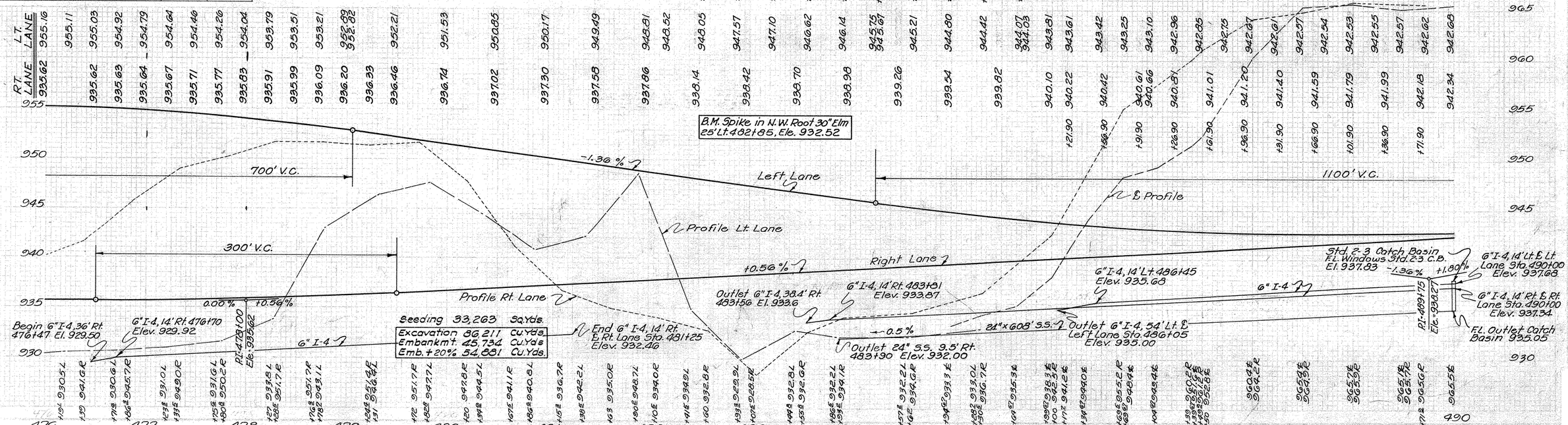
(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 (6") Pipe Underdr. Lin. Ft.	I-4 (8") Outlets Lin. Ft.	I-5 Pipe Spec. Units 6"×45° Bend	
1-U	476+47	481+25	Rt.	474	10	1	
2-U	483+50	490+00	Rt.	642	10	1	
3-U	486+05	490+00	Lt.	400	10	1	
Totals				1516	30	3	

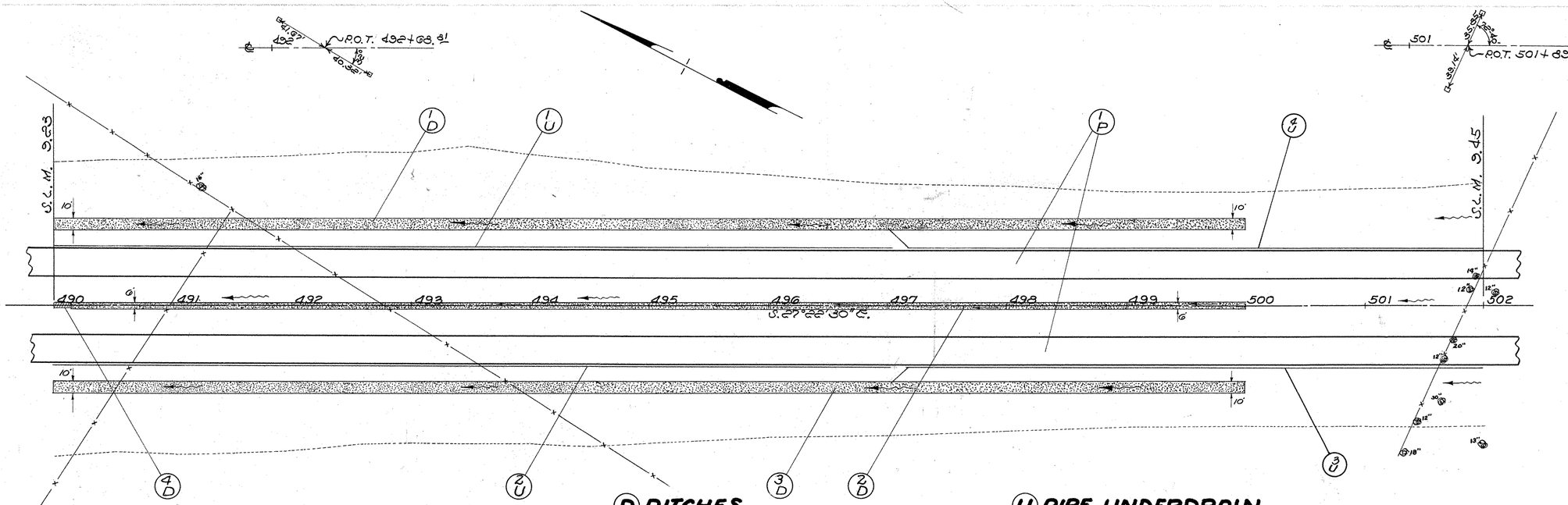
(D) DITCHES

Mark	℄ Station From	℄ Station To	Side	L-10 Sodding 10' Wide Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
1-D	476+00	476+36	℄		36
2-D	483+21	484+60	℄	* 23	140
3-D	483+40	487+00	Rt.	369	
4-D	482+96	490+00	Lt.	906	
Totals				1218	176

* Between Sta. 483+21 & 483+90, place 18" L-10 Sodding each side of paved gutter.



LIC~40~8.67



(P) PAVEMENT

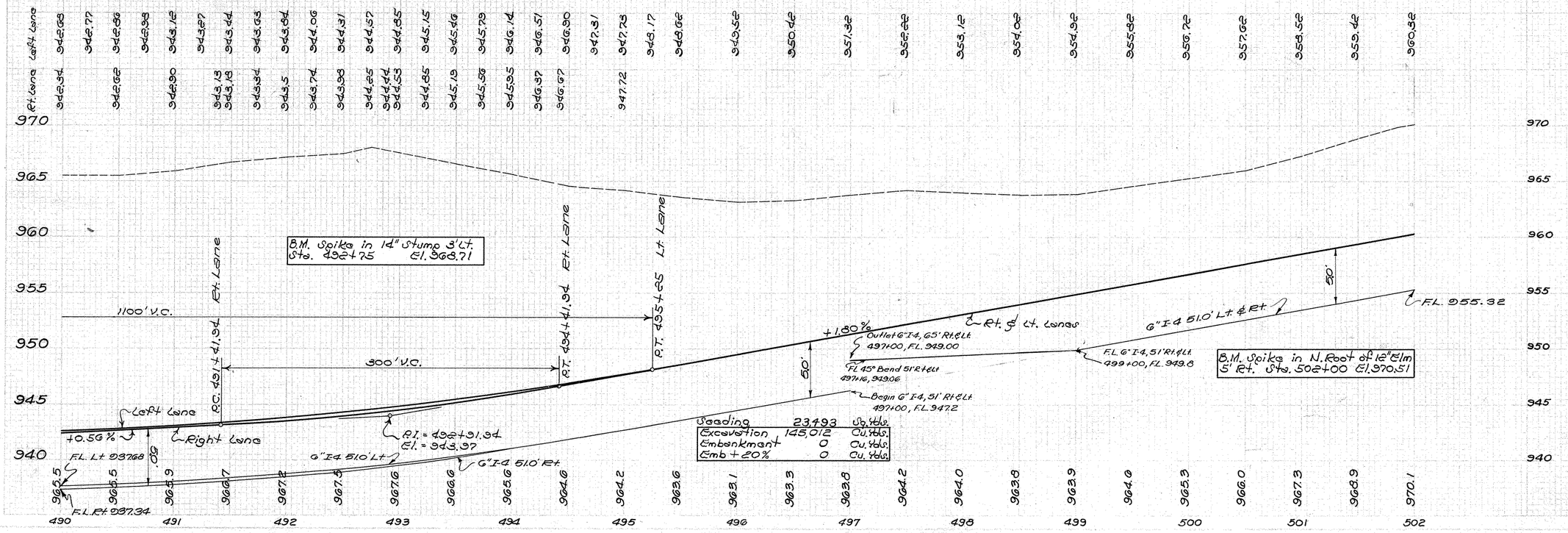
Mark	Station From	Station To	T-71 9" Reinf. P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.		
1-P	490+00	502+00	6400.0	1242	6400	542	3467		

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.	I-14 Type 1 Paved Gutter Lin. Ft.
1-D	490+00	500+00	Lt.	1111	
2-D	490+15	500+00	℄	657	
3-D	490+00	500+00	Rt.	1111	
4-D	490+00	490+15	℄		15
Total				2879	15

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrain Lin. Ft.	I-4 8" Pipe Outlets lin. ft	I-5 Pipe Spec. 45° Bend Each
1-U	490+00	497+00	Lt.	700		
2-U	490+00	497+00	Rt.	700		
3-U	497+00	502+00	Lt.	494	10	1
4-U	497+00	502+00	Rt.	494	10	1
Total				2388	20	2



490+00 ~ 502+00

SOIL PROFILE

LICKING COUNTY

LIC-40-8.67

STATE HIGHWAY TESTING AND RESEARCH LABORATORY

O. S. U. CAMPUS, COLUMBUS, OHIO

STA 745+00 TO 749+00
60' TO 100' RT — SWAMP

DITCH

RAILROAD

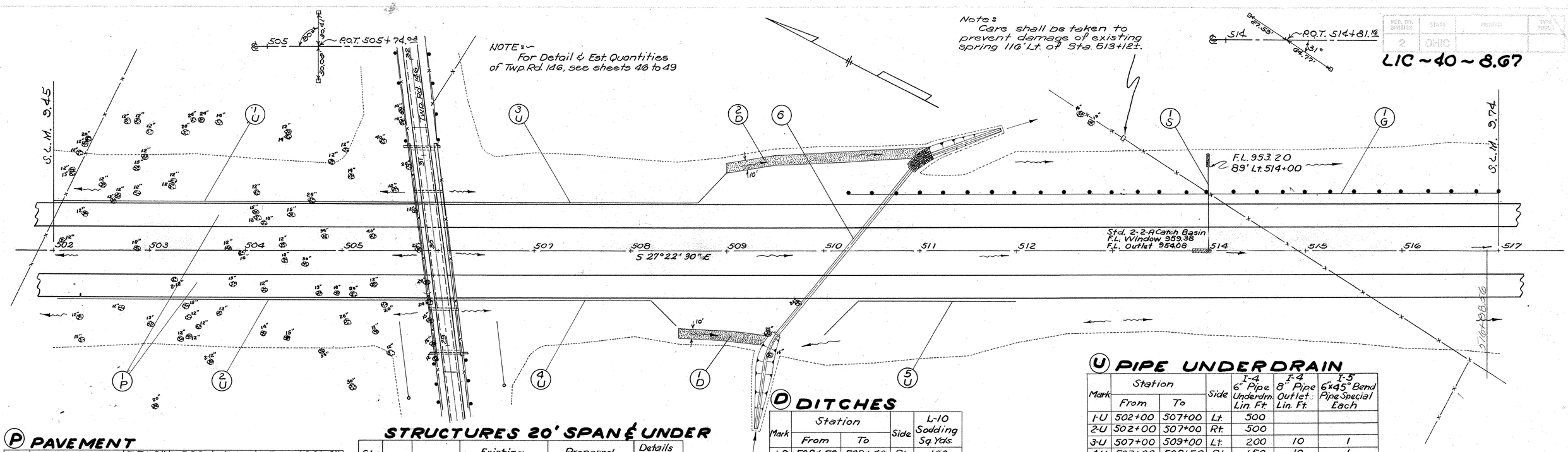
SWAMPY

BLACKTOP ROAD

REFUSAL

FED. AID DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			287

LIC-40-8.67



P PAVEMENT

Mark	Station From	Station To	T-71-9" Reinf. P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33-3" Bit. Mac. Base Crse. Sq. Yds.
1-P	502+00	517+00	8000.0	1896	8000	704	4333

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
6	09.64	510+22.37		None		Pipe	48"	222'	204

D DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.
1-D	508+50	509+40	Rt.	100
2-D	509+00	511+00	Lt.	222
Total				322

G GUARD RAIL

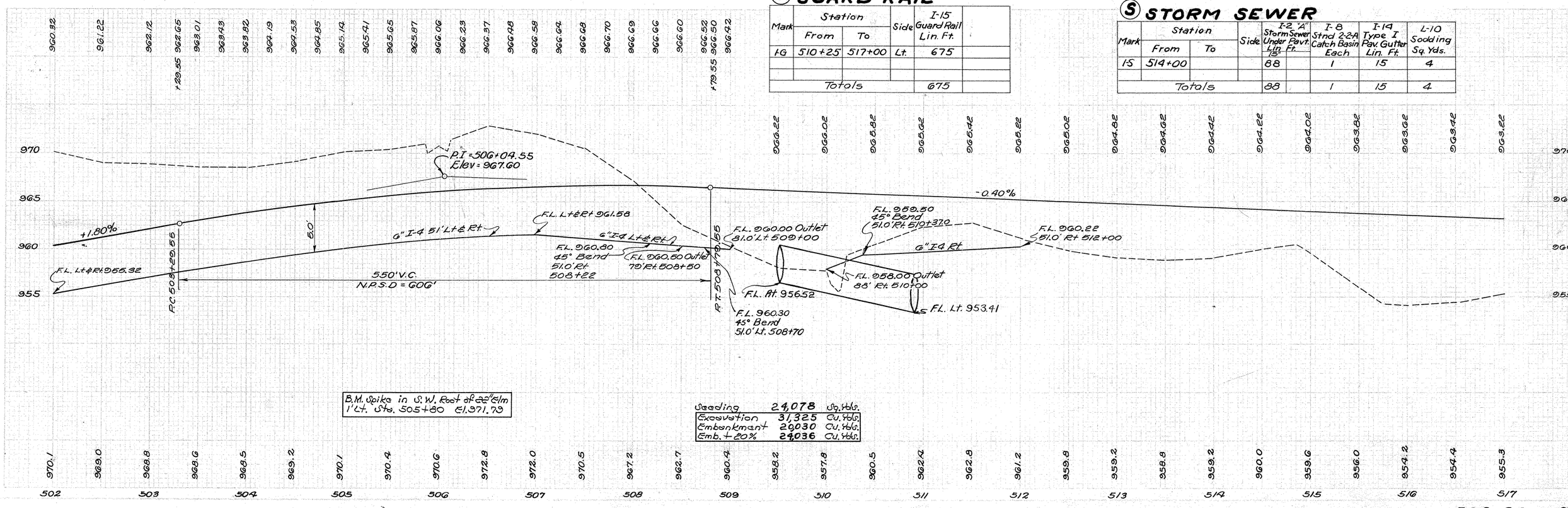
Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
1G	510+25	517+00	Lt.	675	
Totals				675	

U PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	I-5 6"x45° Bend Pipe Special Each
1-U	502+00	507+00	Lt.	500		
2-U	502+00	507+00	Rt.	500		
3-U	507+00	509+00	Lt.	200	10	1
4-U	507+00	508+50	Rt.	150	10	1
5-U	510+00	512+00	Rt.	204	10	1
Total				1554	30	3

S STORM SEWER

Mark	Station From	Station To	Side	I-2 "A" Storm Sewer Under Pavt. Lin. Ft.		I-8 Stnd 2-2-A Catch Basin Each	I-19 Type I Pav. Gutter Lin. Ft.	L-10 Sodding Sq. Yds.
1S	514+00			88		1	15	4
Totals				88		1	15	4

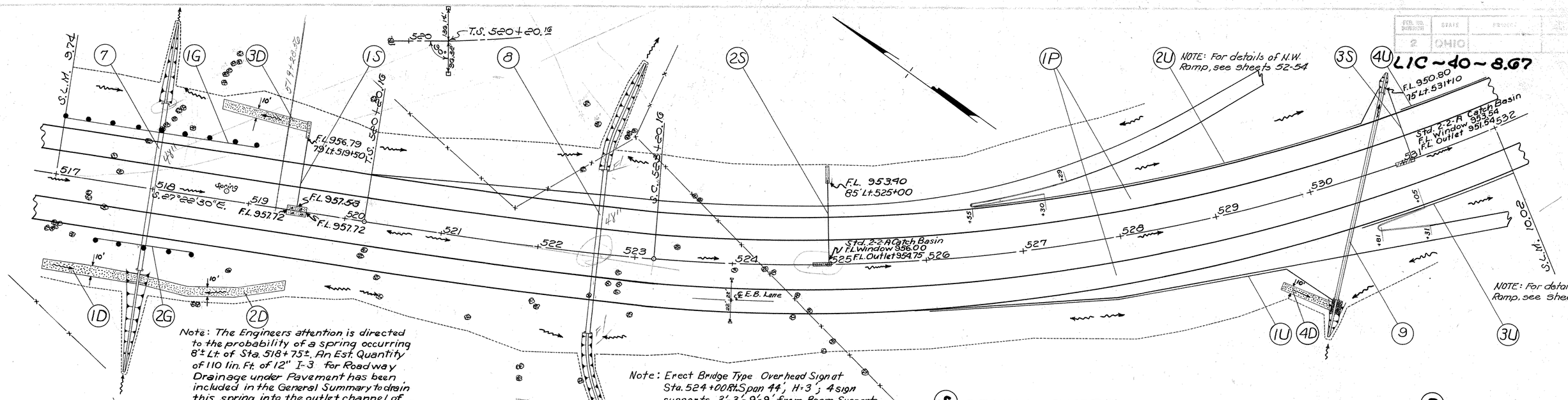


B.M. Spike in S.W. Root of 22" Elm 1' Lt. Sta. 505+80 El. 971.79

Seeding	24,078	Sq. Yds.
Excavation	31,325	Cu. Yds.
Embankment	20,030	Cu. Yds.
Emb. + 20%	24,036	Cu. Yds.

502+00 - 517+00

FED. ROAD DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO		18	287



NOTE: For details of N.W. Ramp, see sheets 52-54

NOTE: For details of S.W. Ramp, see sheets 55-57

Note: The Engineers attention is directed to the probability of a spring occurring 8'± Lt of Sta. 518+75±. An Est. Quantity of 110 lin. Ft. of 12" I-3 for Roadway Drainage under Pavement has been included in the General Summary to drain this spring into the outlet channel of the culvert at Sta. 518+00.

Note: Erect Bridge Type Overhead Sign at Sta. 524+00 Rt. Span 44', H=3'; 4 sign supports 3'-3'-9'-9' from Beam Supports. TYPE: 05-2-A

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.
1-P	517+00	532+00	8000.0	2025	8000	452	2911

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	517+00	519+00	Lt.	200
2-G	517+50	518+50	Rt.	100
		Total		300

STRUCTURES 20' SPAN & UNDER

Str. No	S.L.M.	Station	Proposed Type	Size	Leng.	Details on Sheet
7	0967	518+00	Pipe	48"	174'	205
8	0984	522+60.16	Pipe	48"	168'	206
9	0999	530+57.7	Pipe	42"	218'	207

(S) STORM SEWERS

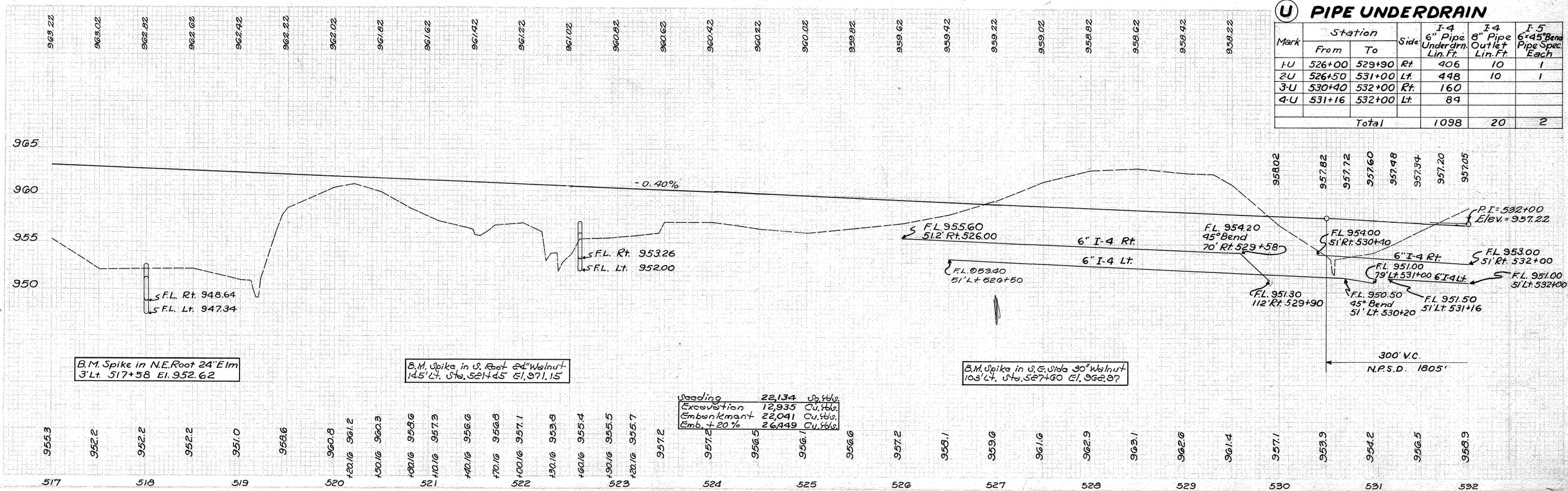
Mark	Station From	Station To	Side	I-2 "A" Storm Sewer Under Pavt. Lin. Ft. 15"	18"	I-8 Std. 2-2-A Catch Basin Each	I-14 Type 1 Paved Gutter Lin. Ft.	I-10 Riprap as per plan Sq. Yds.	L-10 Sodding Sq. Yds.	S-1 Class "E" Concrete Cu. Yds.
1-S	519+50				74			22	6	0.3
2-S	525+00			84		1	15		6	
3-S	531+10			74		1	15			
		Total		158	74	2	30	22	12	0.3

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.
1-D	517+00	517+99	Rt.	110
2-D	518+01	519+50	Rt.	166
3-D	518+60	519+49	Lt.	99
4-D	429+50	429+88	Rt.	54
		Total		429

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	I-5 6"x45° Bend Pipe Spec. Each
1-U	526+00	529+90	Rt	406	10	1
2-U	526+50	531+00	Lt	448	10	1
3-U	530+40	532+00	Rt	160		
4-U	531+16	532+00	Lt	84		
		Total		1098	20	2



B.M. Spike in N.E. Root 24" Elm 3' Lt. 517+58 El. 952.62

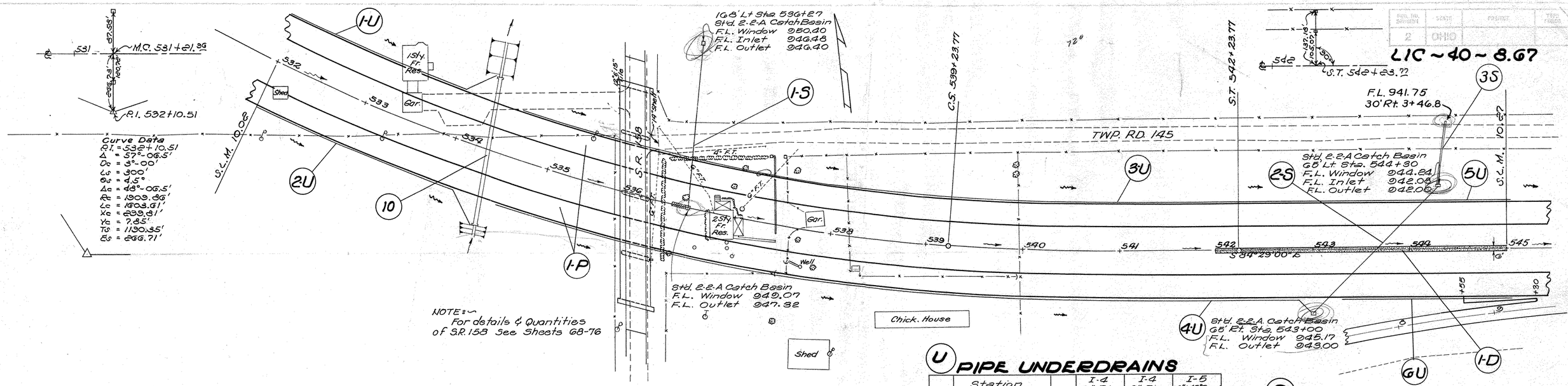
B.M. Spike in S. Root 24" Walnut 14.5' Lt. Sta. 521+45 El. 971.15

B.M. Spike in S.E. Side 30" Walnut 103' Lt. Sta. 527+60 El. 966.97

Seeding	22,134	Sq. Yds.
Excavation	12,935	Cu. Yds.
Embankment	22,041	Cu. Yds.
Emb. + 20%	26,449	Cu. Yds.

517+00 - 532+00

LIC-40-8.67



NOTE: For details & Quantities of S.R. 158 See Sheets 68-76

P PAVEMENT

Mark	Station From	Station To	T-71-9" Reinf. P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.	
1-P	532+00	545+00	6333.3	1686	6333.	534	3689	

STRUCT. 20' & UNDER

No	Station	SLM	Proposed Type	Size	Leng	Details on Sheet No.
10	534+36	1007	Pipe	42"	154'	208

D DITCHES

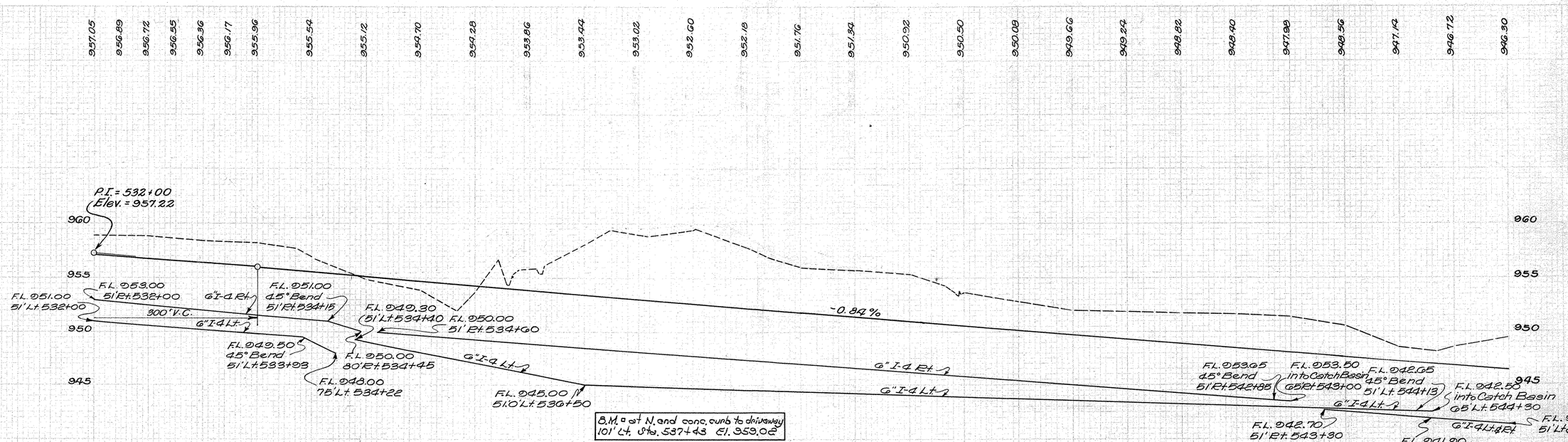
Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.
1-D	542+00	545+00	Rt	200
Total				200

U PIPE UNDERDRAINS

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrain Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	I-5 6"x45° Bend Pipe Spec. Each
1-U	532+00	534+22	Lt	216	10	1
2-U	532+00	534+46	Rt	244	10	1
3-U	534+40	544+30	Lt	992		1
4-U	534+45	543+00	Rt	858		1
5-U	544+30	545+00	Lt	70		
6-U	543+30	545+00	Rt	170		
Totals				2550	20	4

S STORM SEWERS

Mark	Station From	Station To	Side	I-2 S.S. Under Pavt. Lin. Ft. 15"A	18"A	I-8 Std. 2.2-A Catch Basin Each	I-14 Type-1 Paved Gutter Lin. Ft.
1-S	536+50	536+27	Lt	166		2	15
2-S	543+00	544+30	Lt & Rt	182		2	
3-S	N.E. RAMP 3+46.8	N.E. RAMP 3+58	Lt.		64		
Totals				348	64	4	15

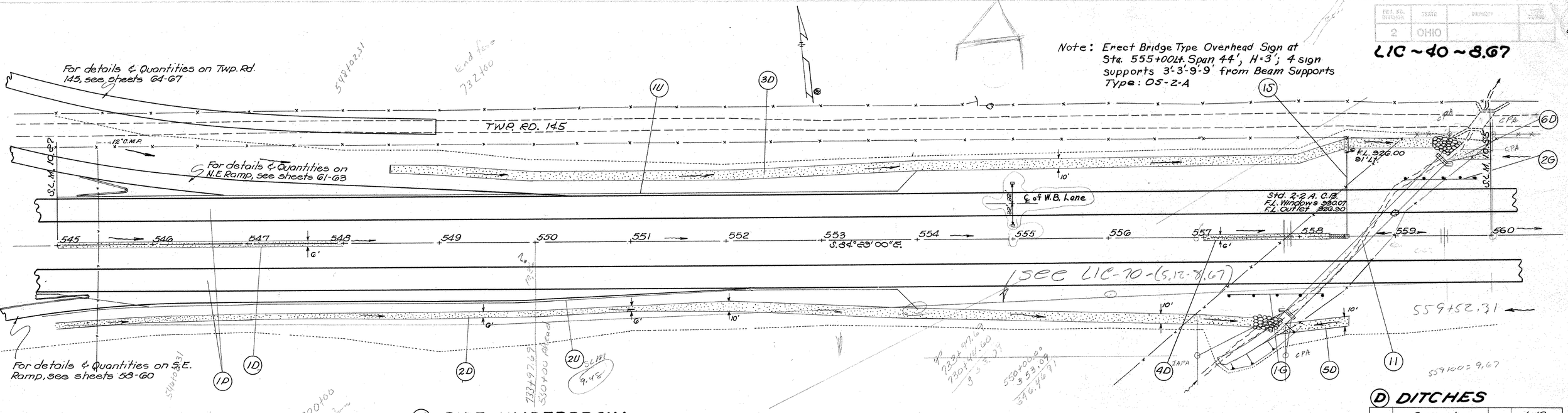


Seeding	18.433	Sq. Yds.
Excavation	34952	Cu. Yds.
Embankment	389	Cu. Yds.
Emb. + 20 %	467	Cu. Yds.

532+00 - 545+00

FED. RD. DIVISION 2 | STATE OHIO | PROJECT | TOTAL SHEETS
20
287

LIC ~ 40 ~ 8.67



(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Concrete Sq. Yds	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33 3" Bit. Moc. Base Crse Sq. Yds.
1-P	545+00	560+00	8000.0	1795	8000	455	2943

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4(6") Pipe Underdrn. Lin. Ft.	I-4(8") Outlets Lin. Ft.	I-5 Pipe Spec. Units 6"x45° Bend	I-5 Pipe Spec. Units 6"Y Spec.
1-U	545+00	554+00	Lt.	900	10	1	
2-U	545+00	554+00	Rt.	900	10	1	1
	Total			1800	20	2	1

(S) STORM SEWER

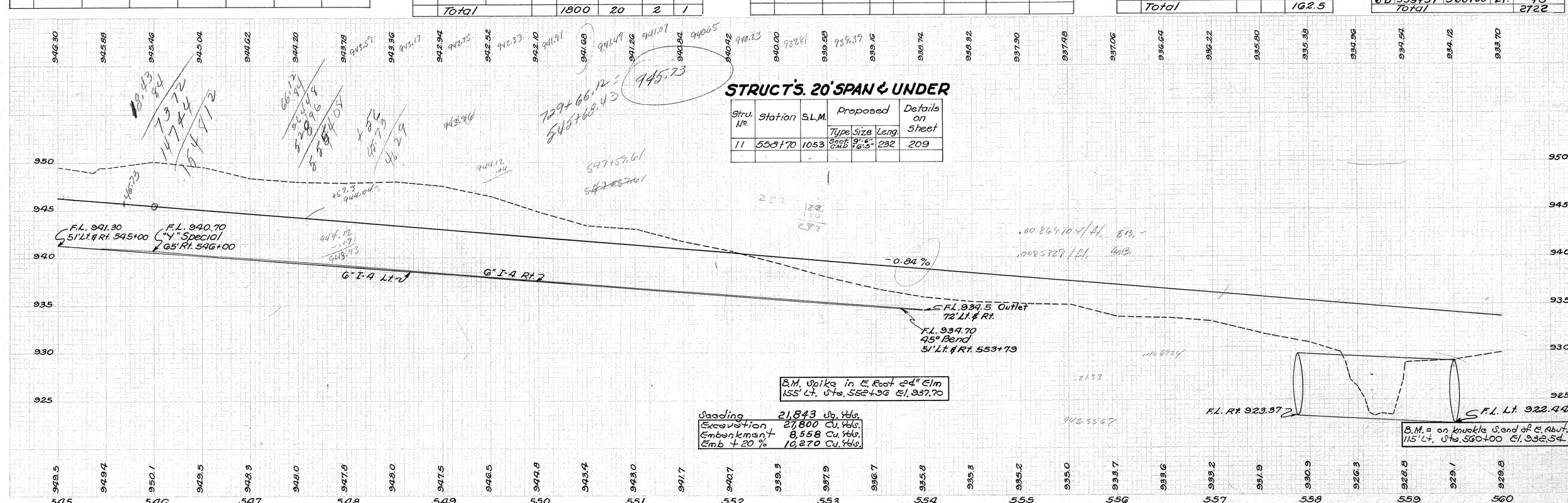
Mark	Station From	Station To	Side	I-2(18") S. Sewer Und. Pvt. Lin. Ft. "A"	I-8 #2-2A C. Basin Units	I-14 Type 1 Pav. Gutter Lin. Ft.	L-10 Sodding 3' Wide Sq. Yds.
1-S	558+50		Lt.	90	1	15	5

(G) GUARD RAIL

Mark	Station From	Station To	Lane	Side	I-15 Guard Rail Lin. Ft.
1-G	557+25	558+25	Rt.	Rt.	100.0
2-G	559+10	559+725	Lt.	Lt.	62.5
	Total				162.5

(D) DITCHES

Mark	℄ Station From	℄ Station To	Side	L-10 Sodding Sq. Yds.
1D	545+00	548+00	℄	200
2D	545+00	557+50	Rt.	1100
3D	548+50	559+40	Lt.	1210
4D	557+00	558+34	℄	89
5D	557+80	558+50	Rt.	78
6D	559+57	560+00	Lt.	45
	Total			2722



STRUCT'S. 20' SPAN & UNDER

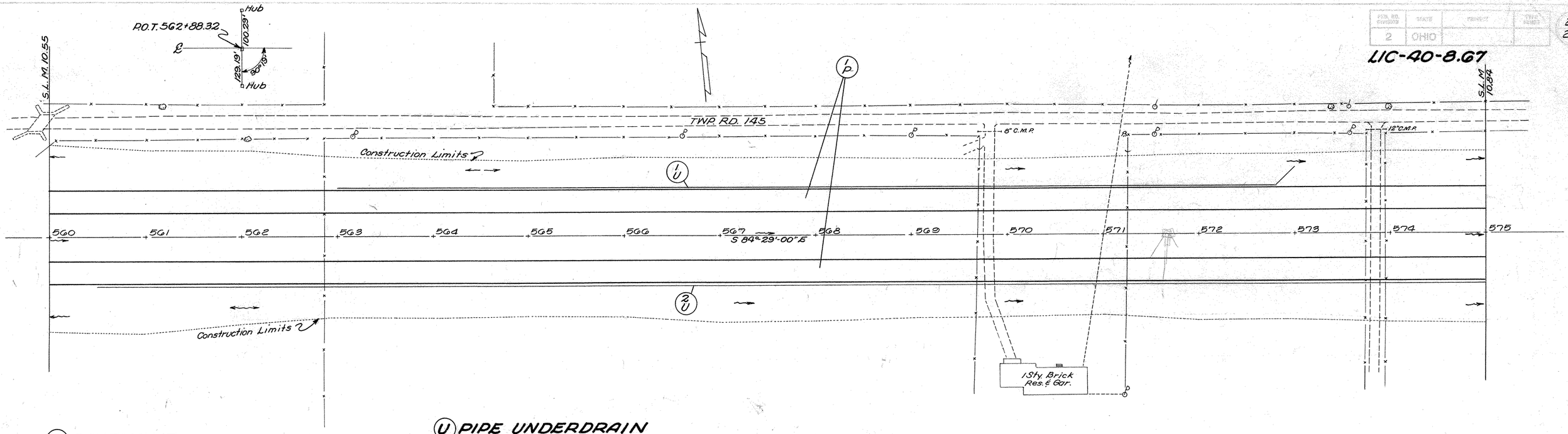
Stru. No.	Station	S.L.M.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
11	558+70	1053	Sect. C.M.P.	9'-6" x 6'-5"	232	209

Seeding	21,843 Sq. Yds.
Excavation	27,800 Cu. Yds.
Embankment	8,558 Cu. Yds.
Emb + 20 %	10,270 Cu. Yds.

545+00 – 560+00

FED. ROAD DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		21 / 287

LIC-40-8.67

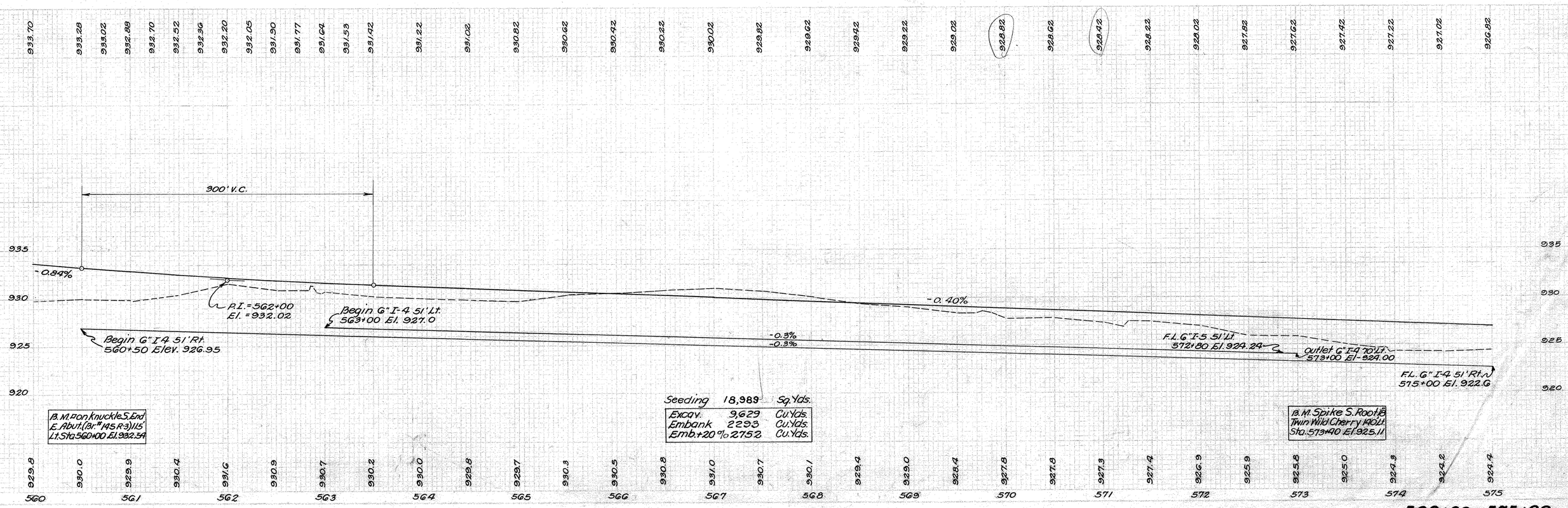


(P) PAVEMENT

Mark	Station From	Station To	I-71 9" Reinf. P.C. Conc. Pvt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu. Yds.	B-33 3" Bit. Mac. Base Crse Sq. Yds.
1P	560+00	575+00	8000.0	1679	8000	678	4333

(U) PIPE UNDERDRAIN

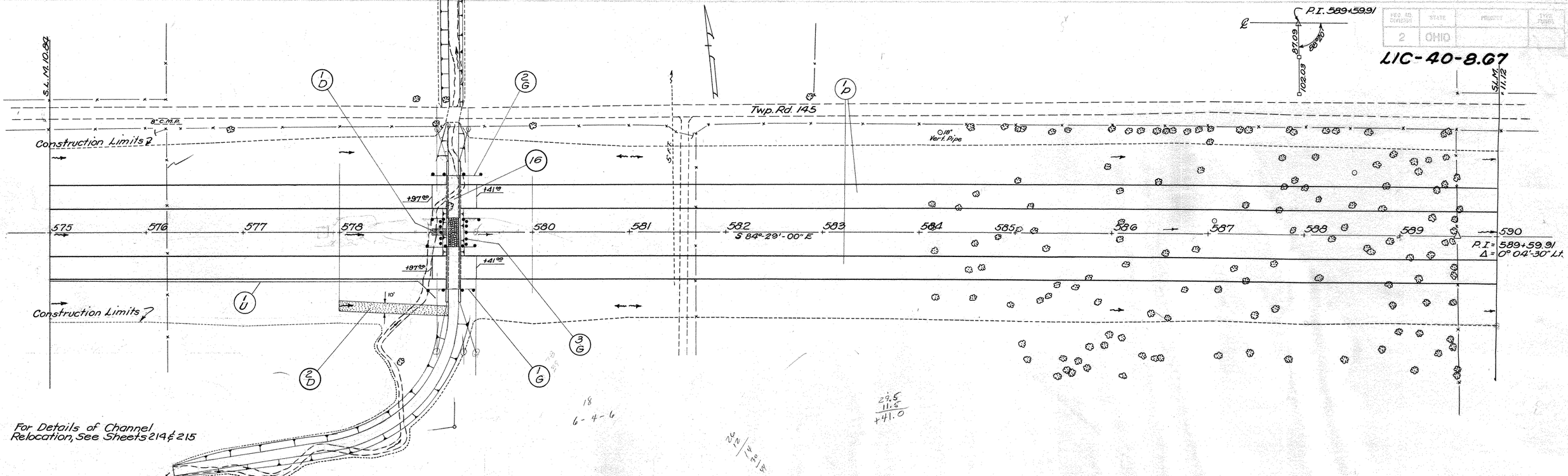
Mark	Station From	Station To	Side	I-4 6" Pipe Underdrain Lin. Ft.	I-4 6" Outlets for Underdrns Lin. Ft.	I-5 6"x45° Bend Units
1U	563+00	573+00	Lt.	996	10	1
2U	560+50	575+00	Rt.	1450		
		Totals		2446	10	1



Seeding	18,989	Sq. Yds.
Excav.	9,629	Cu. Yds.
Embank	2293	Cu. Yds.
Emb. +20%	2752	Cu. Yds.

560+00 - 575+00

LIC-40-8.07



(P) PAVEMENT

Mark	Station From	Station To	T-71-9" Reinf. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu. Yds.	B-33 3" Bit. Mac. Base Ose Sq. Yds.	I-7 10" Reinf. Conc. Appr. Slabs Sq. Yds.
1-P	575+00	590+00	7765.3	2115	7925	671	4293	1600

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
16	10.91	579+19		None		S.B.	12'-0"	2@44'	214-215

(G) GUARD RAIL

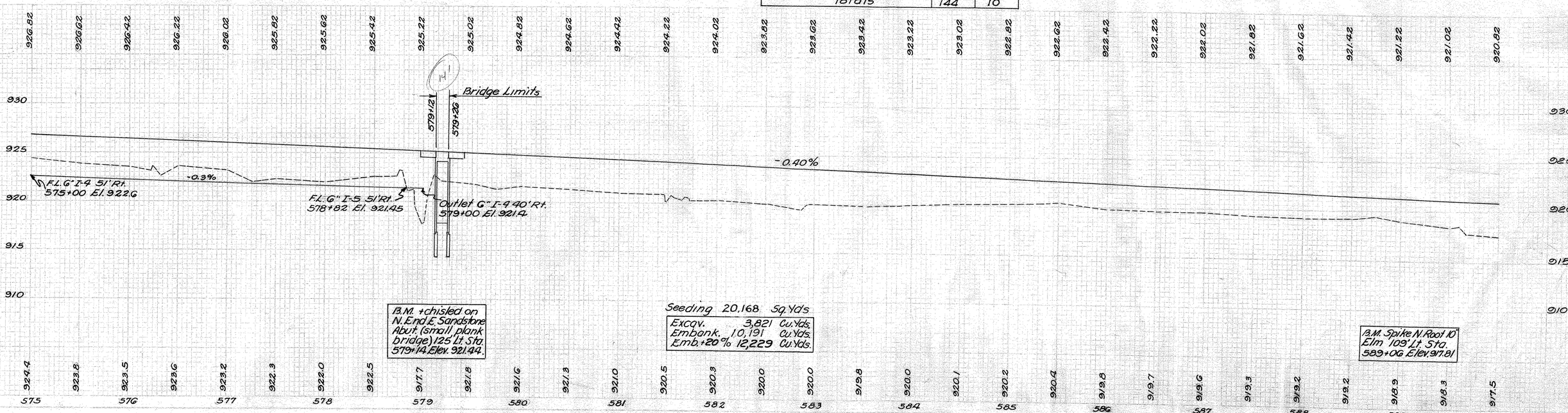
Mark	Station From	Station To	Lane	Side	I-15 Guard Rail Lin. Ft.	I-15 Guard Rail Posts w/o Rail Each
1-G	578+90.87	579+40.87	Rt.	Rt. & Lt.	100	
2-G	578+97.12	579+47.12	Lt.	Rt. & Lt.	100	
3-G	579+06	579+32	℄	Rt. & Lt.		10
Deduct for Bridge					56	
Totals					144	10

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.	I-14 Type I Pav. Gutter Lin. Ft.
1-D	578+96.5	579+11.5	℄		15
2-D	578+00	579+13	Rt.	126	
Totals				126	15

(U) PIPE UNDERDRAIN

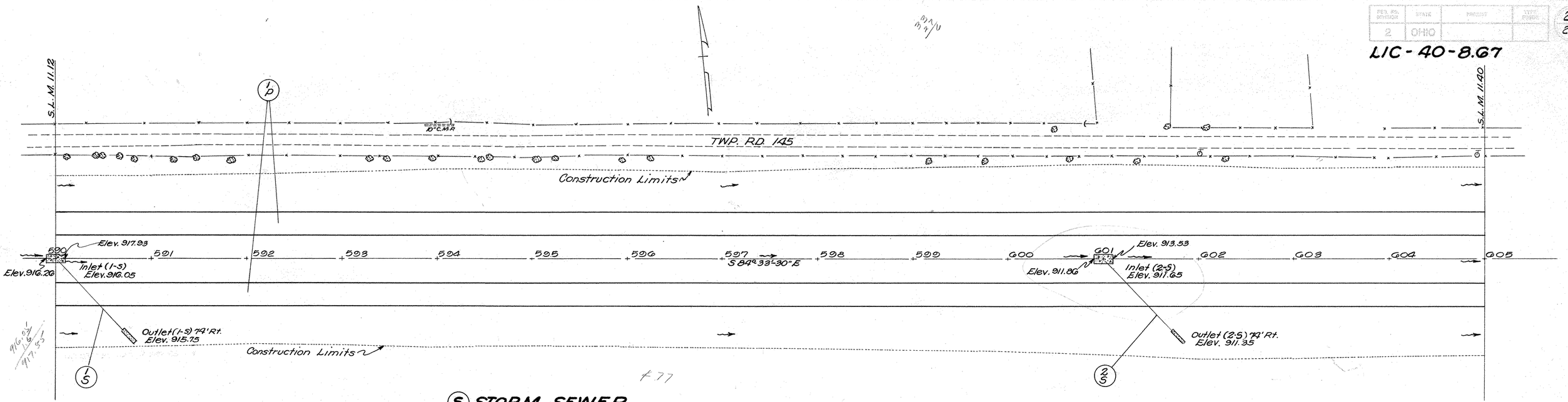
Mark	Station From	Station To	Side	I-4 6" Pipe Underdr. Lin. Ft.	I-4 8" Outlets Underdr. Lin. Ft.	I-5 6"×45° Bend Units
1-U	575+00	579+00	Rt.	396	10	1
Totals				396	10	1



FED. AID DIVISION	STATE	PROJECT	SHT. NO.
2	OHIO		

23
287

LIC-40-8.67

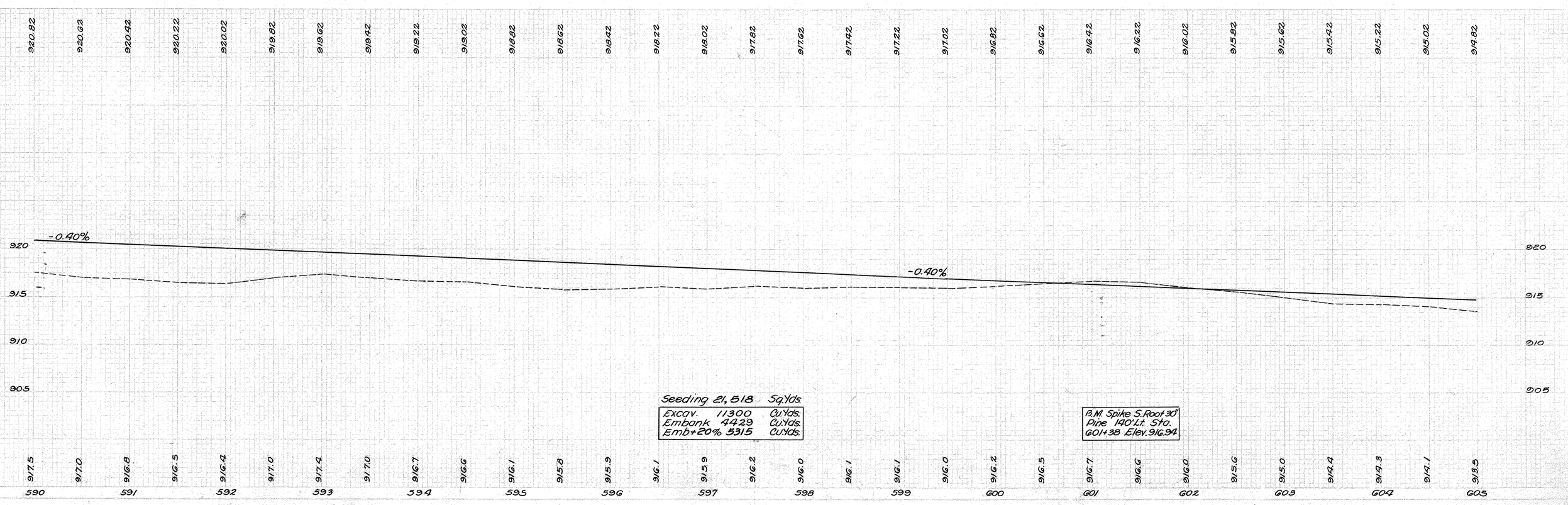


(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.
1-P	590+00	605+00	8000.0	2221	8000	678	4333

(S) STORM SEWER

Mark	Station From	Station To	Side			S.S. Under Pvt. Lin. Ft. 18" Cl. 'A'		I-10 Riprap As Per Plan Sq. Yds.	L-10 Sodding Sq. Yds.	S-1 Conc. for Structures Class 'S' Cu. Yds.
1-S	590+00	590+71	Rt.			100		22	6	0.3
2-S	601+00	601+71	Rt.			100		22	6	0.3
Totals						200		44	12	0.6



Seeding 21,518 Sq. Yds.

Excav.	11300	Cu. Yds.
Embank	4429	Cu. Yds.
Emb+20%	5315	Cu. Yds.

B.M. Spike S. Root 30" Pine 140' Lt. Sta. 601+38 Elev. 916.94

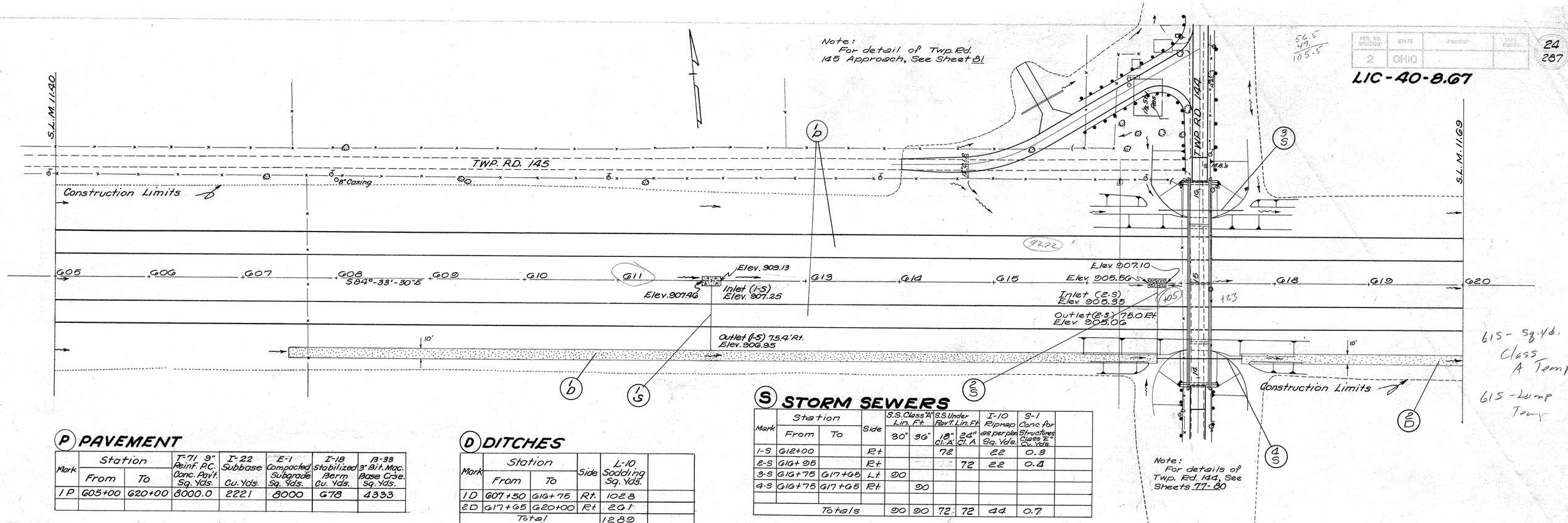
590+00 - 605+00

FED. RD. DIVISION	STATE	PROJECT	SHT. NO.	
2	OHIO			24 287

LIC-40-8.67

56.5
49
105.5

Note:
For detail of Twp. Rd. 145 Approach, See Sheet 81



615 - Sq. Yd. Class A Temp

615 - Lump Temp

(P) PAVEMENT

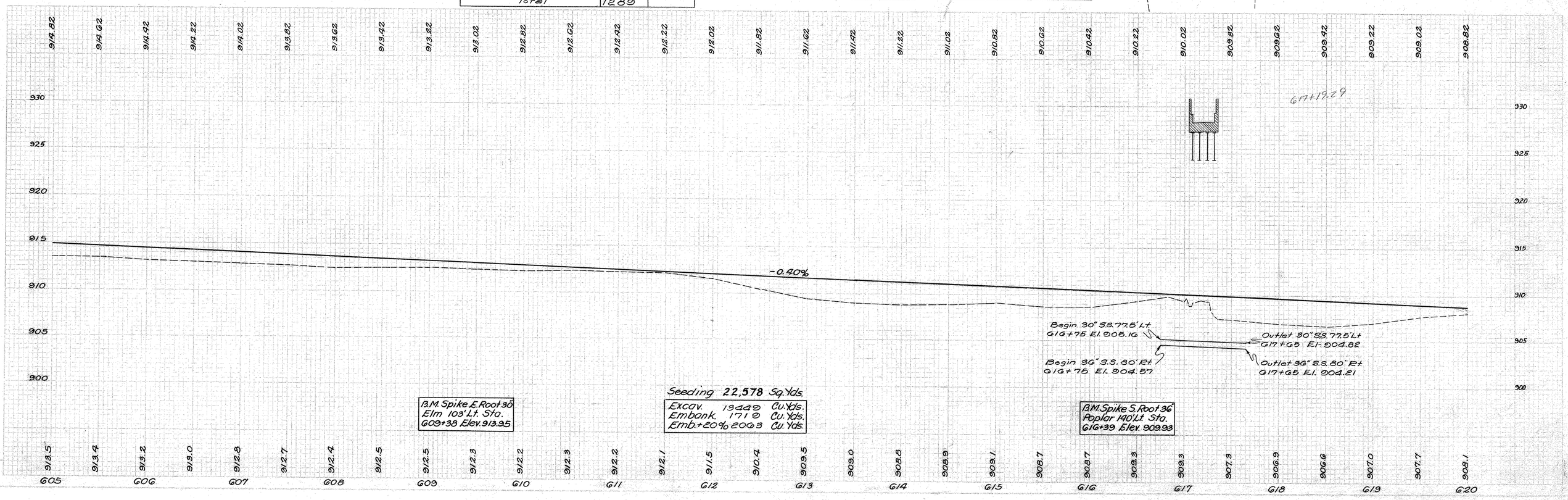
Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav't. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.
1P	G05+00	G20+00	8000.0	2221	8000	G78	4333

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.	
1D	G07+50	G16+75	Rt.	1028	
2D	G17+65	G20+00	Rt.	261	
Total				1289	

(S) STORM SEWERS

Mark	Station From	Station To	Side	S.S. Class "A" Lin. Ft. 30"	36"	S.S. Under Pav't. Lin. Ft. 18" Cl. A	24" Cl. A	I-10 Riprap as per plan Sq. Yds.	S-1 Conc. for Structures Class "E" Cu. Yds.	
1-S	G12+00		Rt			72		22	0.3	
2-S	G16+95		Rt				72	22	0.4	
3-S	G16+75	G17+65	Lt	90						
4-S	G16+75	G17+65	Rt		90					
Totals				90	90	72	72	44	0.7	



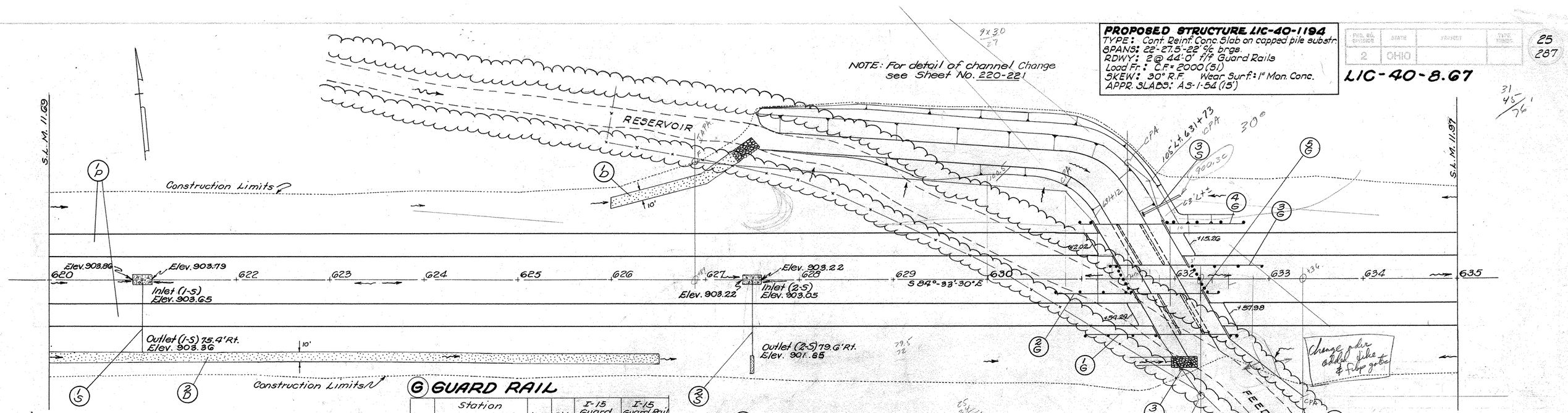
G05+00 - G20+00

PROJECT NO. DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		25 / 287

LIC-40-8.67

PROPOSED STRUCTURE LIC-40-1194
TYPE: Cont Reinf. Conc Slab on capped pile substr.
SPANS: 22-27.5-22'0" brgs.
RDWY: 2 @ 44'-0" f/f Guard Rails
Load Fr.: C.F.=2000(51)
SKEW: 30° R.F. Wear Surf.: 1" Mon. Conc.
APPR. SLABS: AS-1-54 (15')

NOTE: For detail of channel Change see Sheet No. 220-221



P PAVEMENT

Mark	Station From	Station To	T-71 9" Rein P.C. Conc. Pvt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compact Subgrade Sq. Yds.	I-18 Stabil. Berm Cu. Yds.	13-33 3" Bit. Mac. Base Crse Sq. Yds.	I-71 10" Rein Conc App. Slabs Sq. Yds.
1P	620+00	635+00	7449.4	2112	7609	653	4122	160.0

G GUARD RAIL

Mark	Station From	Station To	Lane	Side	I-15 Guard Rail Lin. Ft.	I-15 Guard Rail Posts, w/o Rail
1 G	631+03.29	632+63.79	Rt.	Rt.	162.50	
2 G	630+71.93	632+96.93	Rt.	Lt.	175.00	
3 G	631+37.33	632+91.82	Lt.	Rt.	162.50	
4 G	630+97.96	632+92.96	Lt.	Lt.	175.00	
5 G	631+45.0	632+27.5	℄	Rt&Lt.		10
Deduct for Bridge					292.96	
Totals					382.04	10

S STORM SEWER

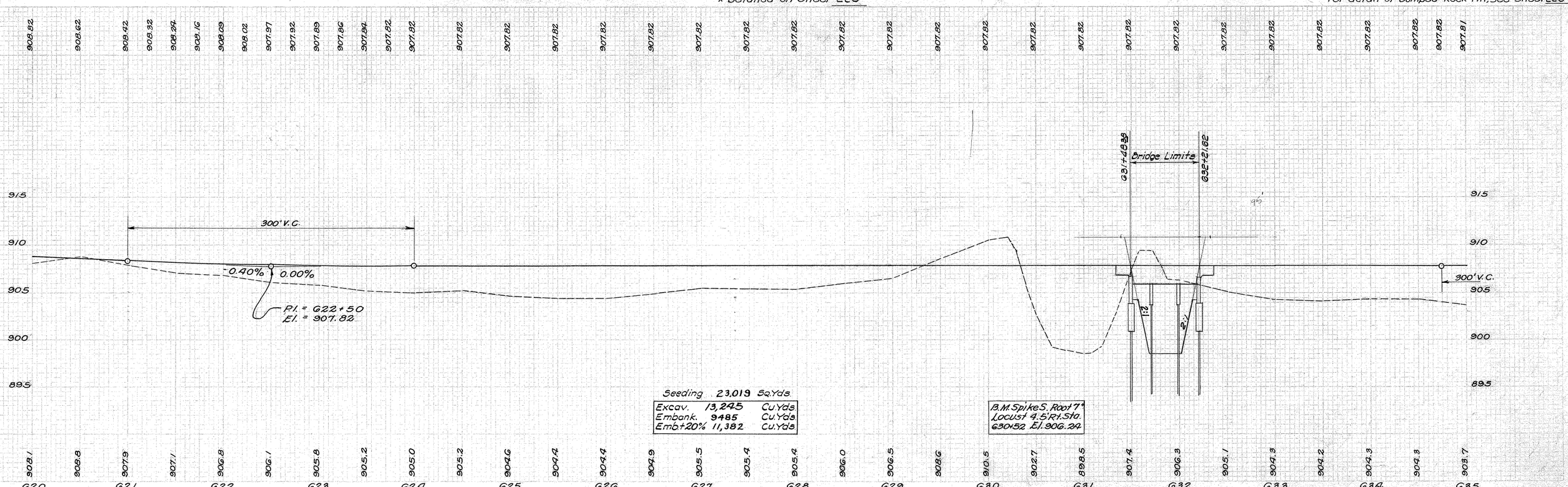
Mark	Station From	Station To	Side	Class A 3.5 Lin. Ft. 24" #64(c)	Class A 3.5 Under Rt. Lin. Ft. 18" C.P.A.	I-10 Riprap As Per Plan Sq. Yds.	I-10 Sodding Sq. Yds.	S-1 Conc. for Structures Class E Cu. Yds.	I-5 24" Spec. Flap Water Gate Each
1-S	621+00		Rt.		72	22		0.3	
2-S	627+50		Rt.		72	22	G	0.3	
* 3-S	631+65.59	632+03.69	Lt.	44				0.4	1
Totals				44	144	44	G	1.0	1

* Detailed on sheet 220

D DITCHES

Mark	Station From	Station To	Side	I-10 Sodding Sq. Yds.	I-10 Dump Rock as per plan Cu. Yds.
1D*	620+00	627+30	Lt.	158	31
2D	620+00	620+50	Rt.	722	
3D*	632+11		Rt.		31
Totals				880	62

*For detail of Dumped Rock Fill, see sheet 220



Seeding 23,019 Sq.Yds.

Excav.	13,245	Cu.Yds.
Embank.	9485	Cu.Yds.
Emb+20%	11,382	Cu.Yds.

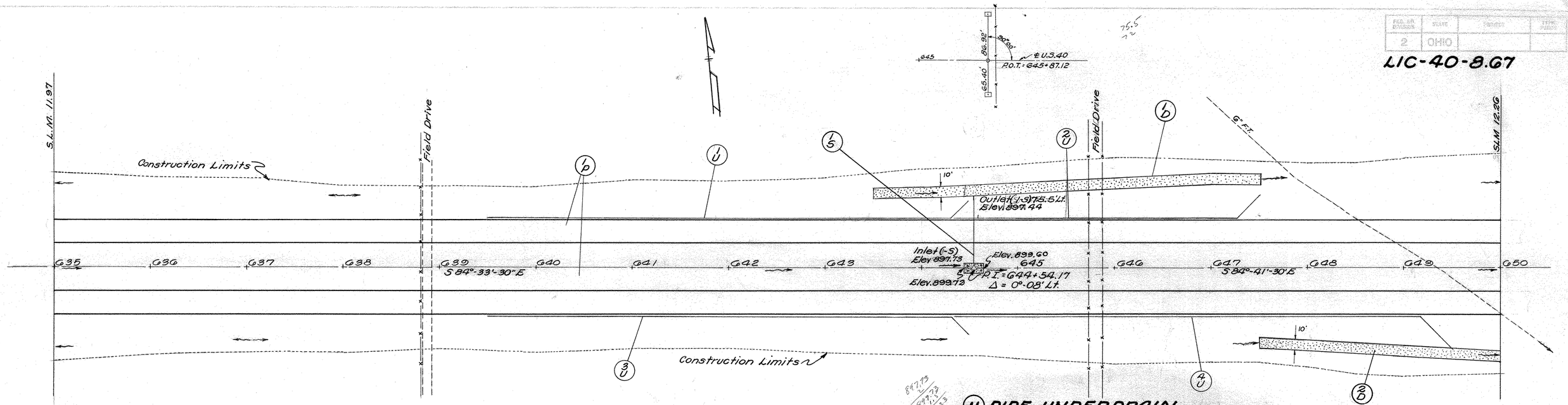
B.M. Spike S. Root 7" Locust 4.5' Rt. Sta. 630+52 El. 906.24

620+00 – 635+00

DIST. NO. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

20
287

LIC-40-8.67



(P) PAVEMENT

Mark	Station From	Station To	I-71 9" Reinf. Rt. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu. Yds.	13-33 3" Bit. Mac. Base Crse. Sq. Yds.
1P	G35+00	G50+00	8000.0	1832	8000	G78	4333

(S) STORM SEWER

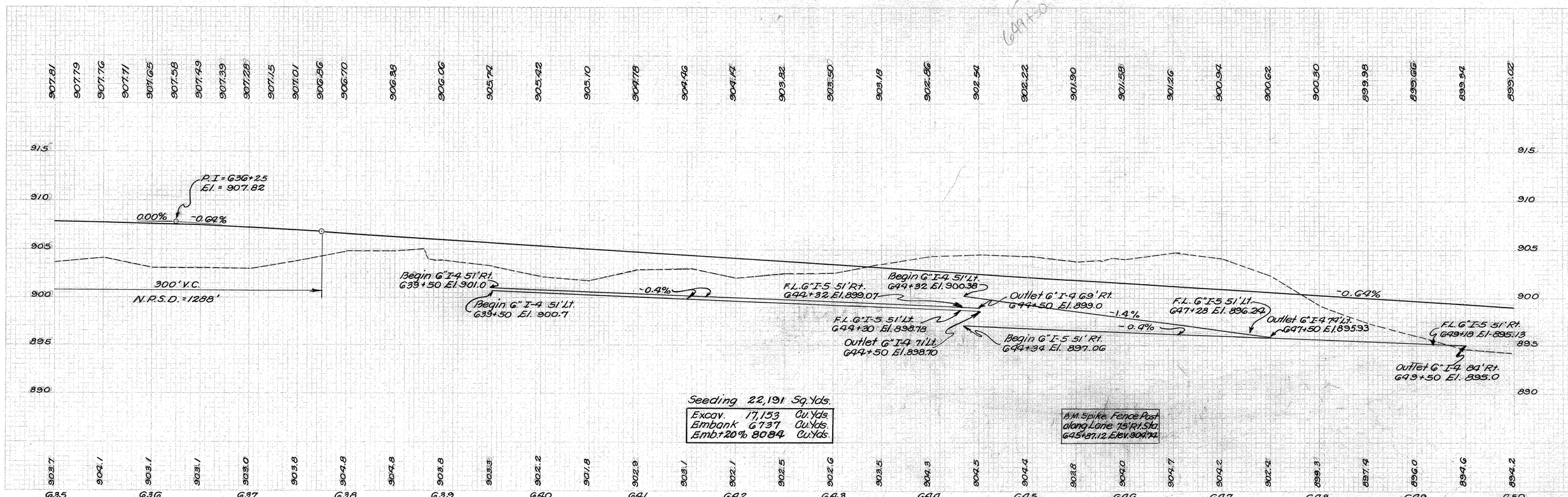
Mark	Station From	Station To	Side			SS Under Pvt. Lin. Ft. 24" Cl. IV		I-10 Riprap As Per Plan Sq. Yds.	S-1 Conc. for Structures Class E Cu. Yds.	
1-S	G44+54		Lt.			72		22	0.4	
Totals						72		22	0.4	

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrain Lin. Ft.	I-4 6" Outlets for Underdrains Lin. Ft.	I-5 6" x 45° Bend Units
1U	G39+50	G44+50	Lt.	496	10	1
2U	G44+32	G47+50	Lt.	320	10	1
3U	G39+50	G44+50	Rt.	498	10	1
4U	G44+34	G43+50	Rt.	520	10	1
Totals				1834	40	4

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.	
1D	G43+50	G47+50	Lt.	449	
2D	G47+50	G50+00	Rt.	278	
Totals				727	



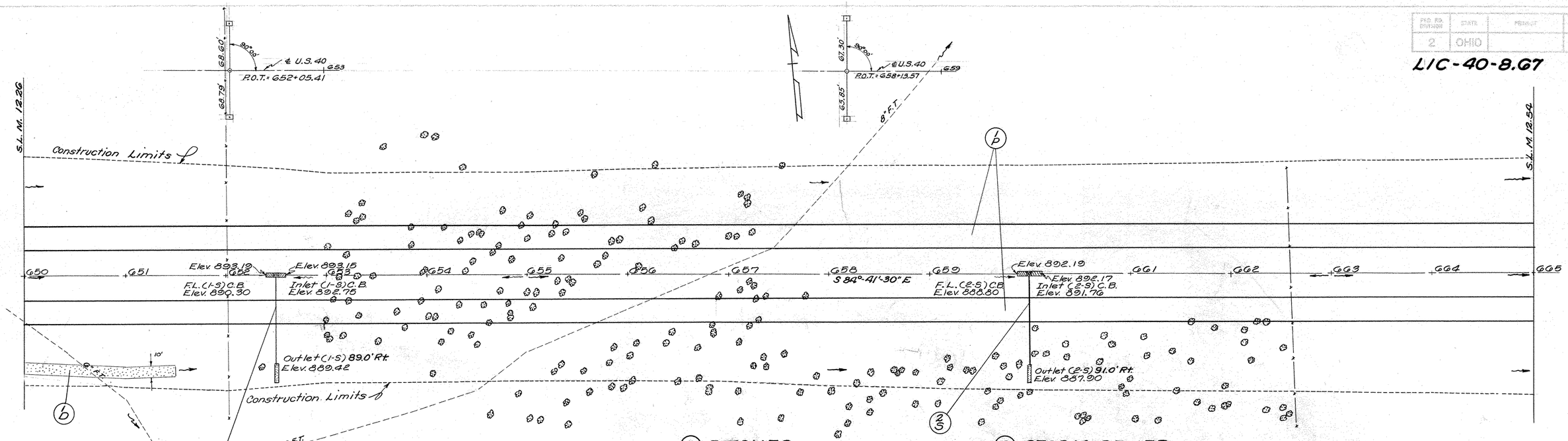
Seeding 22,191 Sq. Yds.

Excav.	17,153	Cu. Yds.
Embank	6737	Cu. Yds.
Emb. + 20%	8084	Cu. Yds.

B.M. Spike. Fence Post along Lane 75' Rt. Sta. G45+87.12 Elev. 904.72

G35+00 – G50+00

LIC-40-8.67



(P) PAVEMENT

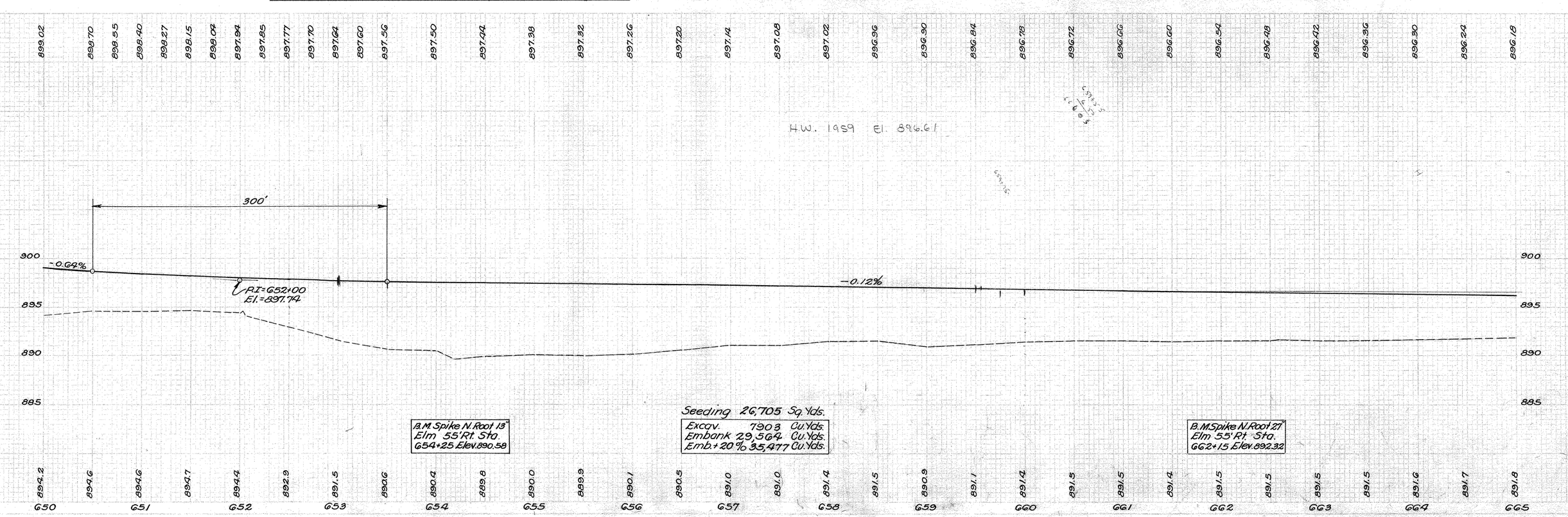
Mark	Station From	Station To	T-71 9" Rein. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.
1 P	650+00	665+00	8000.0	2221	8000	678	4333

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.
1 D	650+00	651+50	Rt.	168
		Totals		168

(S) STORM SEWER

Mark	Station From	Station To	Side	S.S. Under Pvt. Lin. Ft. Cl. 'A' 15"	I-14 Type I Pav. Gutter Lin. Ft.	L-10 Sodding Sq. Yds.	I-8 Std. 22-A Catch Basin Ea.
1-S	652+50		Rt.	88	20	6	1
2-S	660+00		Rt.	90	20	6	1
		Totals		178	40	12	2

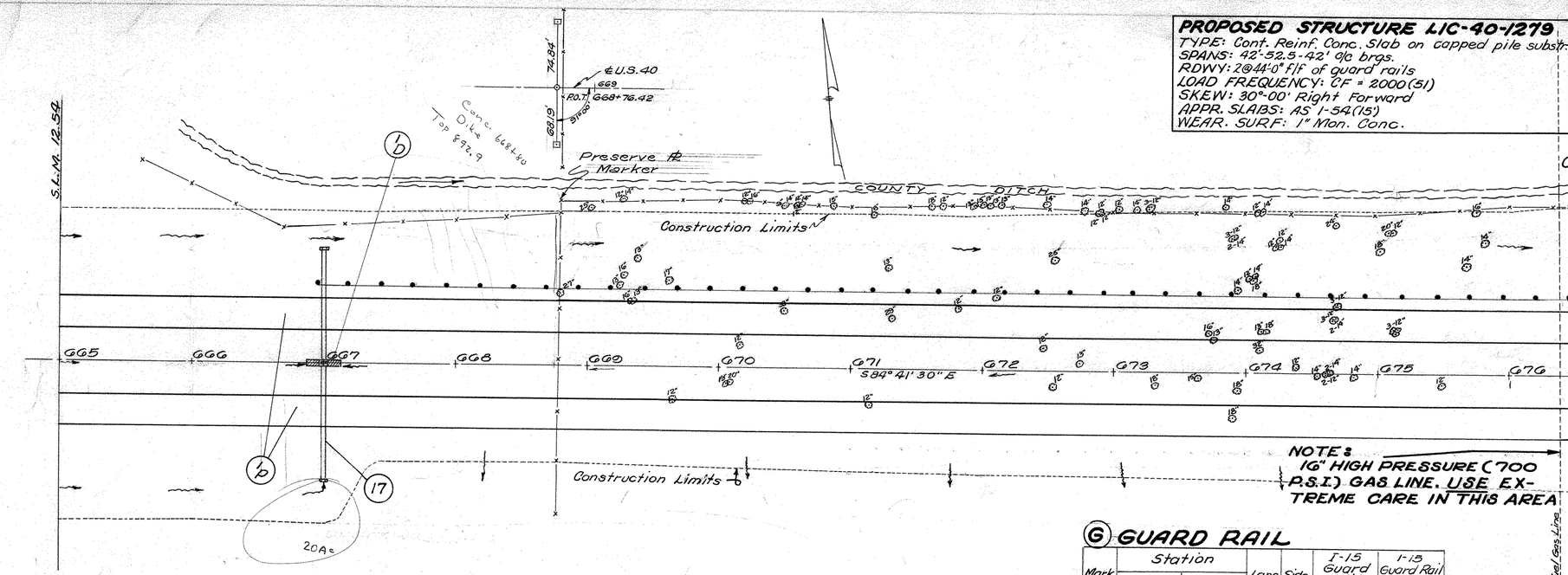


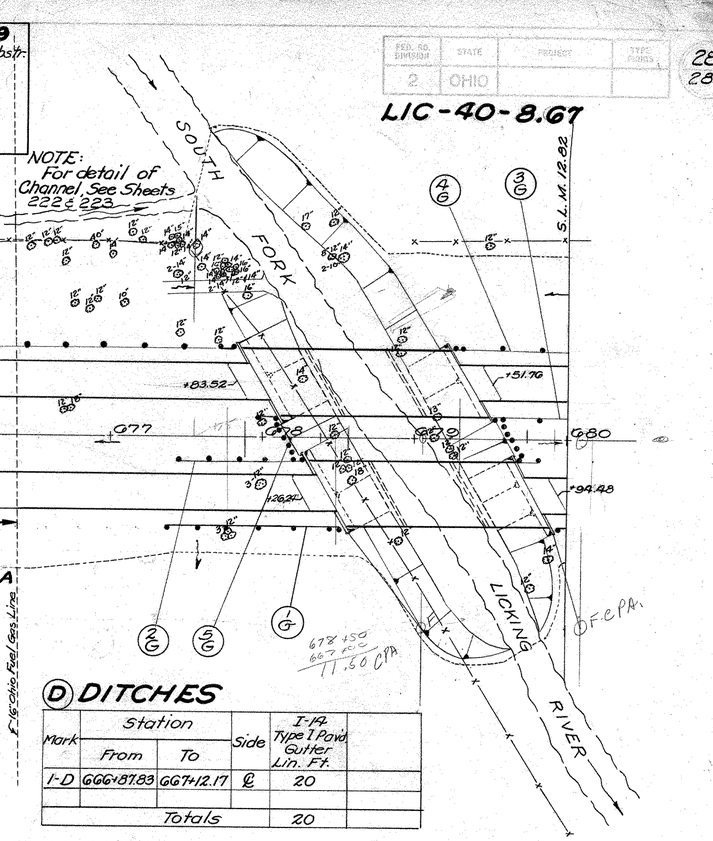
650+00 – 665+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
5	OHIO		

LIC-40-8.67

PROPOSED STRUCTURE LIC-40-1279
TYPE: Cont. Reinf. Conc. Slab on capped pile substr.
SPANS: 42'-52.5-42' c/c brgs.
RDWY: 2@44'-0" f/f of guard rails
LOAD FREQUENCY: CF = 2000(51)
SKEW: 30°-00' Right Forward
APPR. SLABS: AS 1-54(15')
WEAR. SURF: 1" Mon. Conc.





(P) PAVEMENT

Mark	Station From	Station To	I-71 9" Rein. P.C. Conc. Pvt. Sq.Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu.Yds.	B-33 3" Bit. Mac. Base Crse Sq.Yds.	I-71 10' Rein. Conc. App. Slabs Sq. Yds.
1 P	GG5+00	G80+00	7102.7	2016	7203	GG8	3934	160.0

STRUCTURES 20' SPAN & UNDER

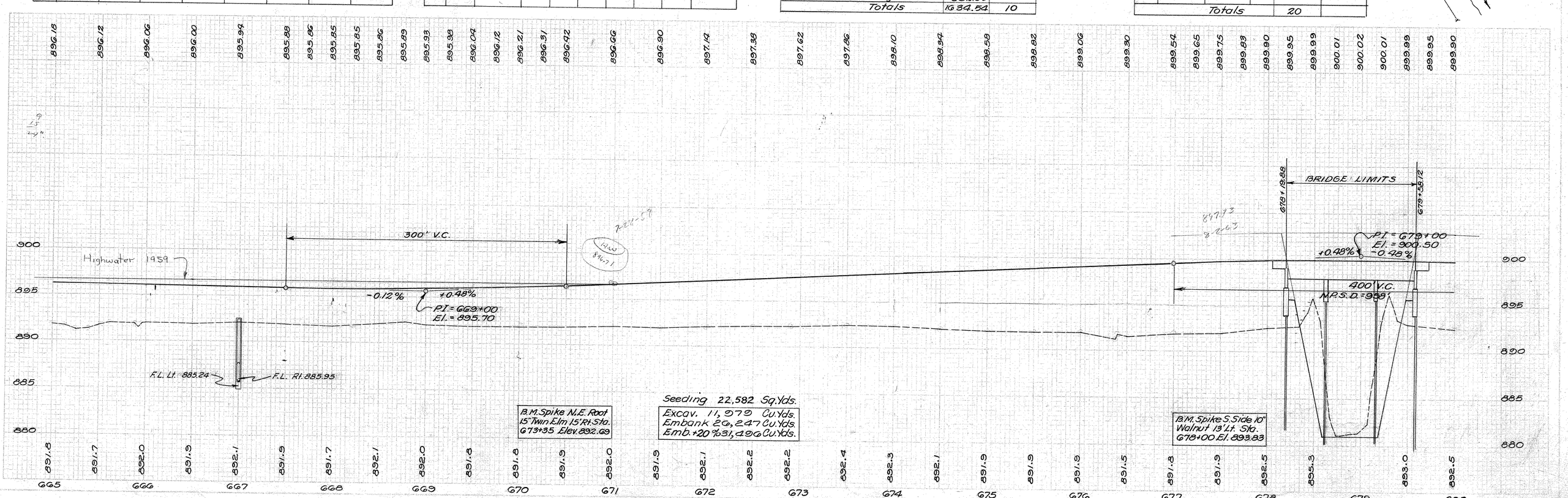
Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
17	12.58	GG7+00		None		P.C.	27"	177'	216

(G) GUARD RAIL

Mark	Station From	Station To	Lane	Side	I-15 Guard Rail Lin. Ft.	I-15 Guard Rail Posts w/o Rail Each
1 G	G77+37.5	G80+00.0	Rt.	Rt.	262.50	
2 G	G77+44.38	G79+81.88	Rt.	Lt.	237.50	
3 G	G77+96.11	G80+33.61	Lt.	Rt.	237.50	
4 G	GGG+95.71	G81+45.71	Lt.	Lt.	1450.00	
5 G	G78+14.5	G79+65.0	℄	Rt & Lt.		10
Deduct for Bridge					552.96	
Totals					1634.54	10

(D) DITCHES

Mark	Station From	Station To	Side	I-19 Type I Pav'd Gutter Lin. Ft.	
1-D	GGG+87.83	GG7+12.17	℄	20	
Totals				20	

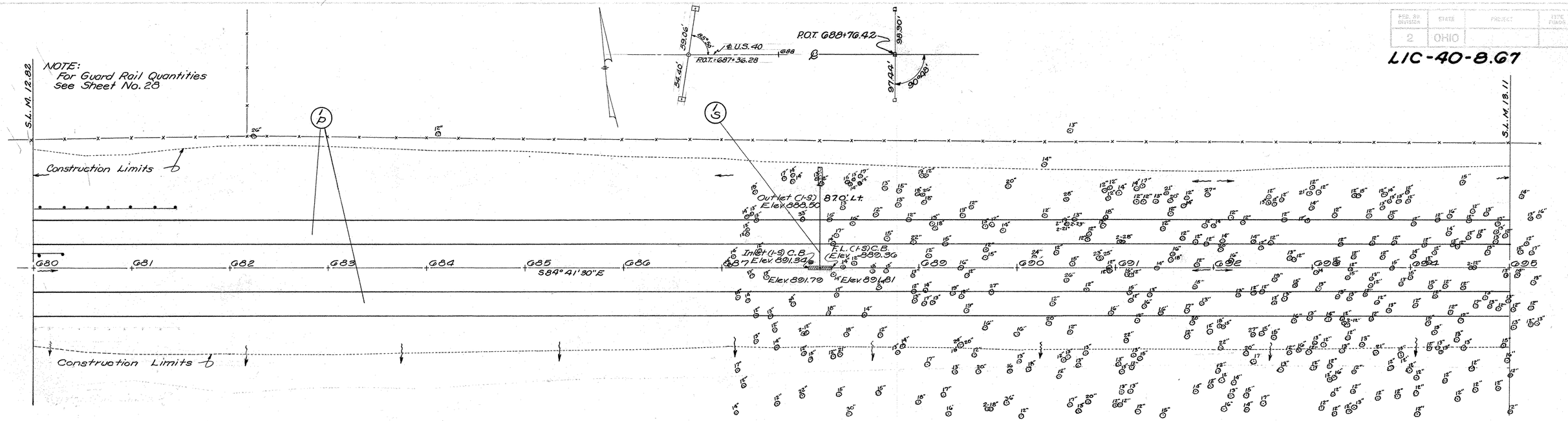


FED. AID DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		

29
287

LIC-40-8.67

NOTE:
For Guard Rail Quantities
see Sheet No. 28

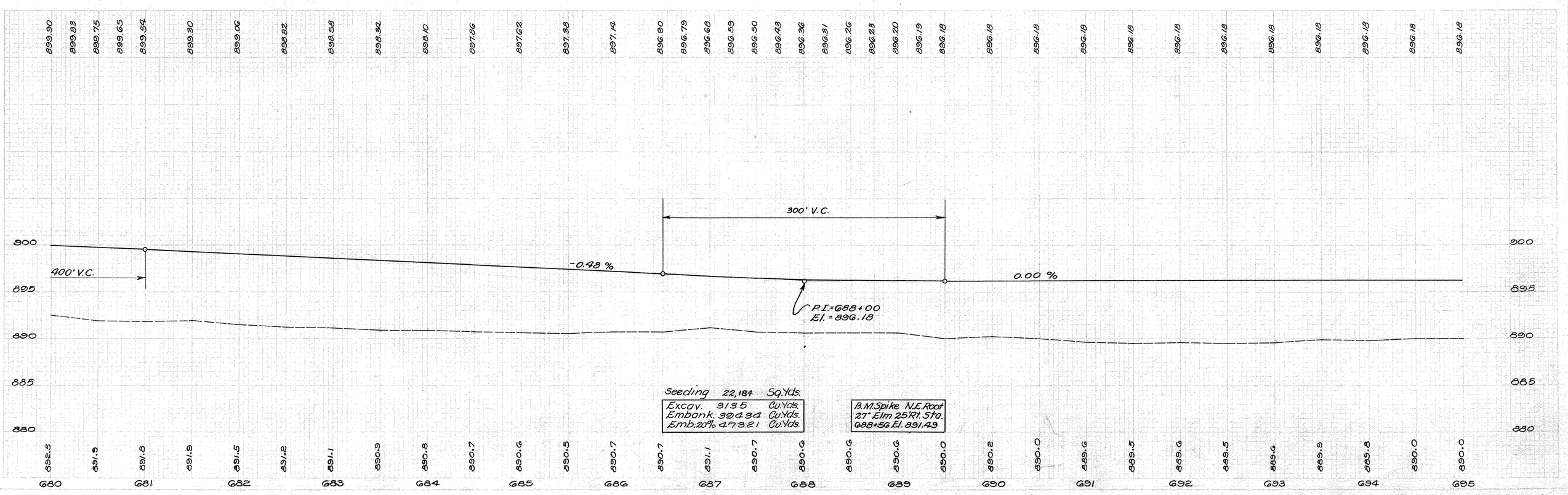


(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Rein. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-18 Stabilized Berm Cu. Yds.	13-33 3" Bit. Mac. Base Crse Sq. Yds.
1-P	680+00	695+00	8000.0	2221	8000	684	4333

(S) STORM SEWER

Mark	Station From	Station To	Side			SS Under Rdwy. Lin. Ft. Cl. A. 15"		I-14 Type-1 Pav. Gutter Lin. Ft.	L-10 Sodding Sq. Yds.	I-8 Std. 22.2 A Catch Basin Each
1-S	688+00		Lt.			86		20	6	1
Totals						86		20	6	1



Seeding 22,184 Sq. Yds.

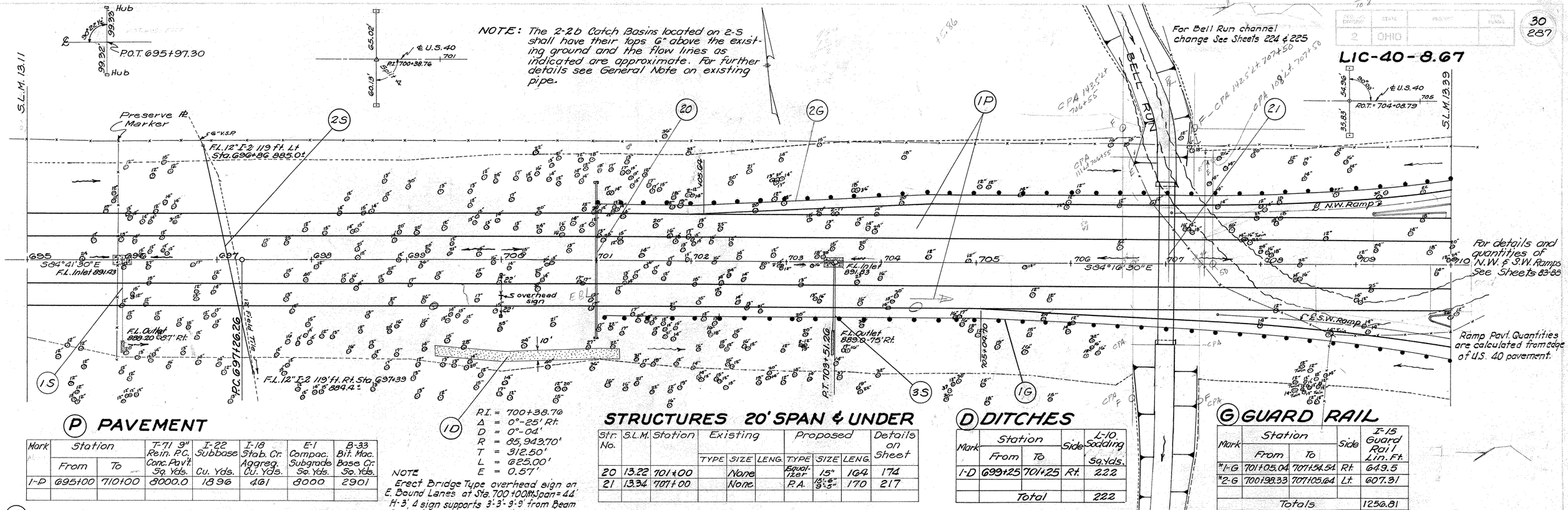
Excav.	3135 Cu. Yds.
Embank.	3041.34 Cu. Yds.
Emb. 20%	473.21 Cu. Yds.

B.M. Spike N.E. Roof
27" Elm 25 Rt. Sta.
688+56 El. 891.49

680+00 - 695+00

LIC-40-8.67

NOTE: The 2-2b Catch Basins located on 2-S shall have their tops 6" above the existing ground and the flow lines as indicated are approximate. For further details see General Note on existing pipe.



P.I. = 700+38.76
Δ = 0°-25' Rt.
D = 0°-04'
R = 85,943.70'
T = 312.50'
L = 625.00'
E = 0.57'

NOTE
Erect Bridge Type overhead sign on E. Bound Lanes at Sta. 700+00 R. Span = 44' H-3' 4 sign supports 3'-3'-9'-9' from Beam Supports. Type OS-2-A

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Rein. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Cr. Aggreg. Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	B-33 Bit. Mac. Base Cr. Sq. Yds.
1-P	695+00	710+00	8000.0	1896	461	8000	2901

(S) STORM SEWER

Mark	Station From	Station To	Side	I-2 Storm Sewer Under Pvt. Lin. Ft. 12A	15A	I-8 Catch Basin 2-2B Each	Each	I-10 Riprap As per Plan Sq. Yds.	L-10 Sodding Sq. Yds.	S-1 Conc. for Stru. Class E Cu. Yds.		
1-S	G96+00		Rt.		84			22	4	0.3		
2-S	G97+12		Rt&L.	250			2					
3-S	703+50		Rt.		72			22	8	0.3		
		Total		250	156		2	44	12	0.6		

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing TYPE	SIZE	LENG.	Proposed TYPE	SIZE	LENG.	Details on Sheet
20	13.22	701+00		None					174
21	13.34	707+00		None		P.A.	15'-6" 31'-5"	170	217

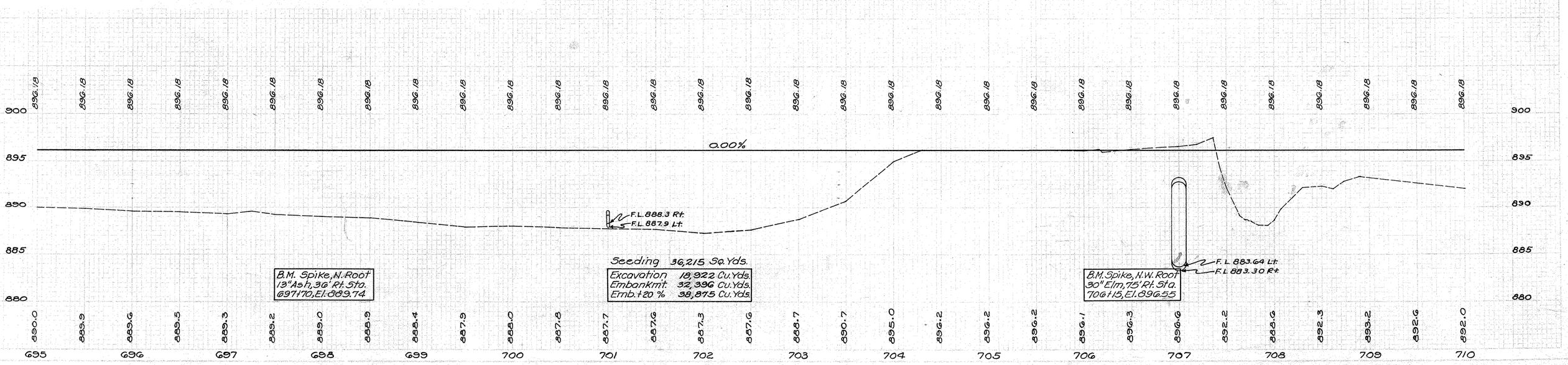
(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.
1-D	699+25	701+25	Rt.	222
	Total			222

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
*1-G	701+05.04	707+54.54	Rt.	649.5
*2-G	700+98.33	707+05.64	Lt.	607.31
	Totals			1256.81

* For additional guard rail quantities see N.W. & S.W. Ramp details & S.R. 37 line sheets.



695+00 - 710+00

SHEET NO.	STATE	PROJECT	SHEET TOTAL
2	OHIO		

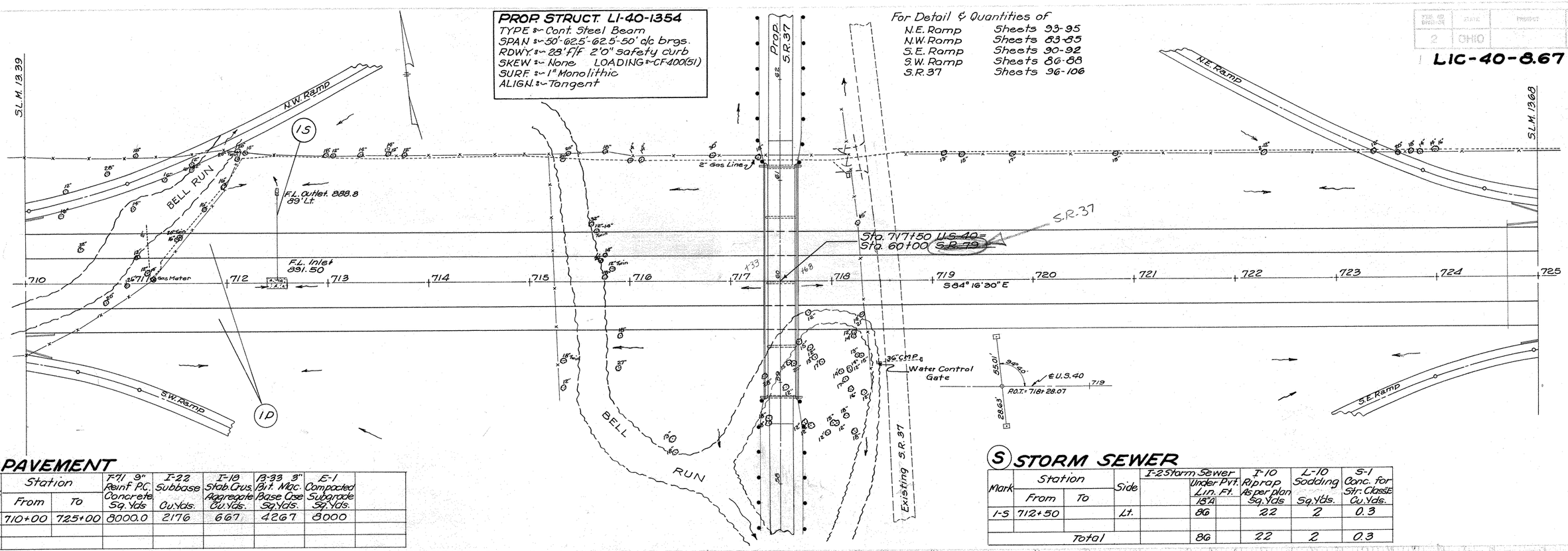
31
287

LIC-40-8.67

PROP. STRUCT. LI-40-1354
TYPE :- Cont. Steel Beam
SPAN :- 50'-62.5'-62.5'-50' c/c brgs.
RDWY :- 28'f/f 2'0" safety curb
SKEW :- None LOADING :- CF400(51)
SURF. :- 1" Monolithic
ALIGN. :- Tangent

For Detail & Quantities of

N.E. Ramp	Sheets 93-95
N.W. Ramp	Sheets 83-85
S.E. Ramp	Sheets 90-92
S.W. Ramp	Sheets 86-88
S.R. 37	Sheets 96-106

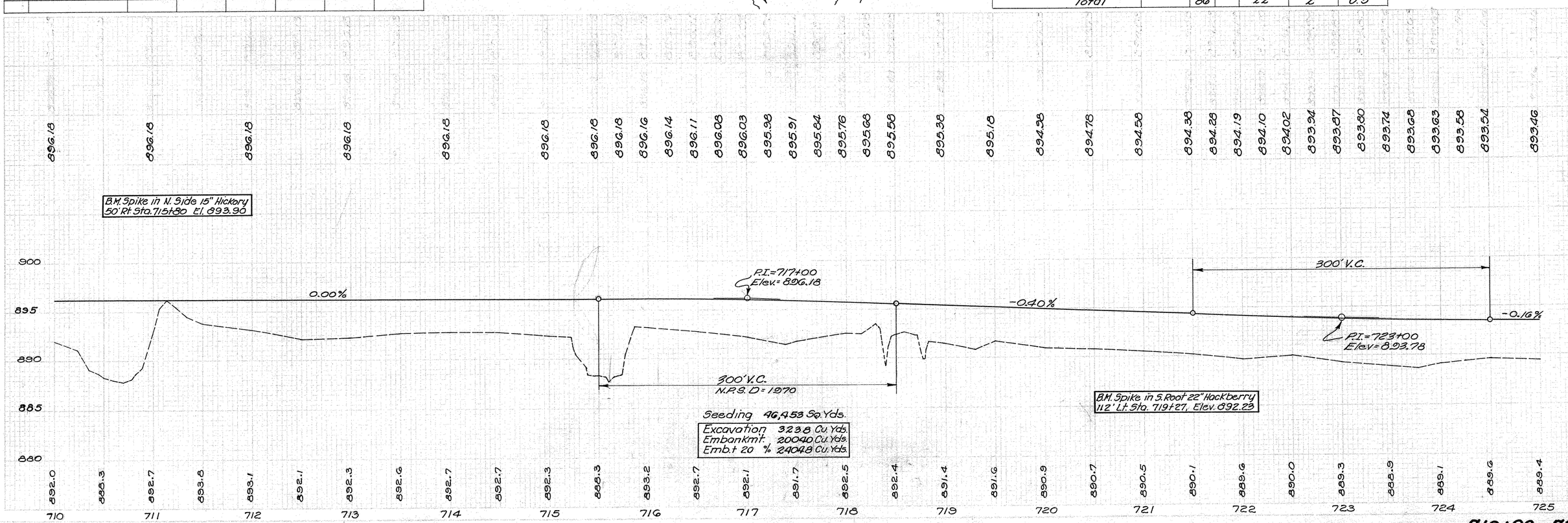


(P) PAVEMENT

Mark	Station From	Station To	F-71 9" Reinf P.C. Concrete Sq. Yds	I-22 Subbase Cu. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	I-33 3" Bit. Mac. Base Cse Sq. Yds.	E-1 Compacted Subgrade Sq. Yds.	
1-P	710+00	725+00	8000.0	2176	667	4267	8000	

(S) STORM SEWER

Mark	Station From	Station To	Side	I-2 Storm Sewer Under Pvt. Lin. Ft. 18"Ø	I-10 Riprap As per plan Sq. Yds	L-10 Sodding Sq. Yds.	S-1 Conc. for Str. Class E Cu. Yds.
1-S	712+50		Lt.	86	22	2	0.3
Total				86	22	2	0.3



Seeding 46,453 Sq. Yds.

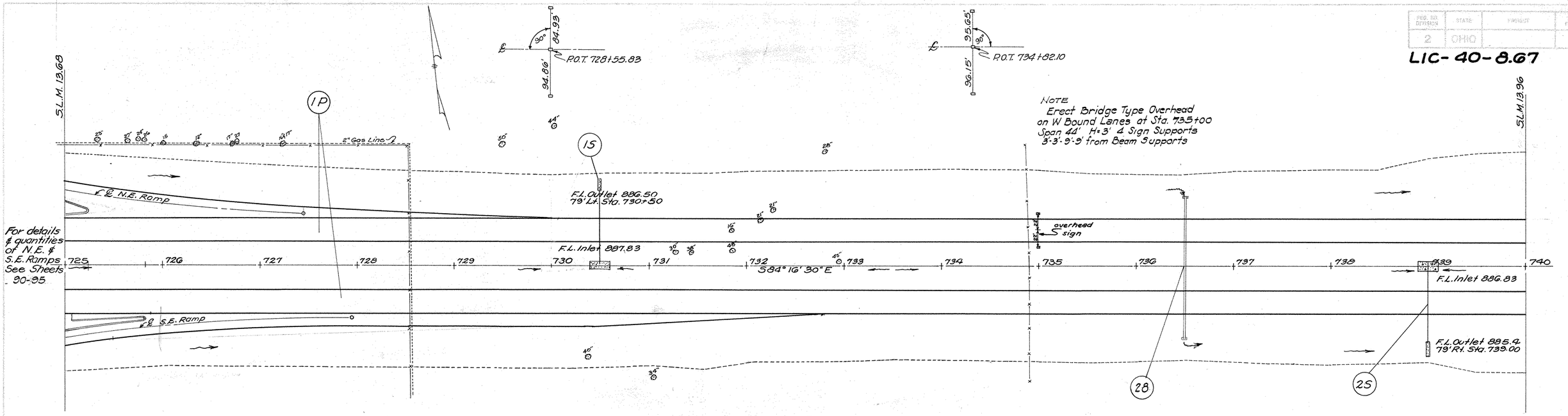
Excavation	3238 Cu. Yds.
Embankmt.	20040 Cu. Yds.
Emb. t 20 %	24048 Cu. Yds.

710+00 – 725+00

REG. HWY. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

32
287

LIC-40-8.67



(P) PAVEMENT

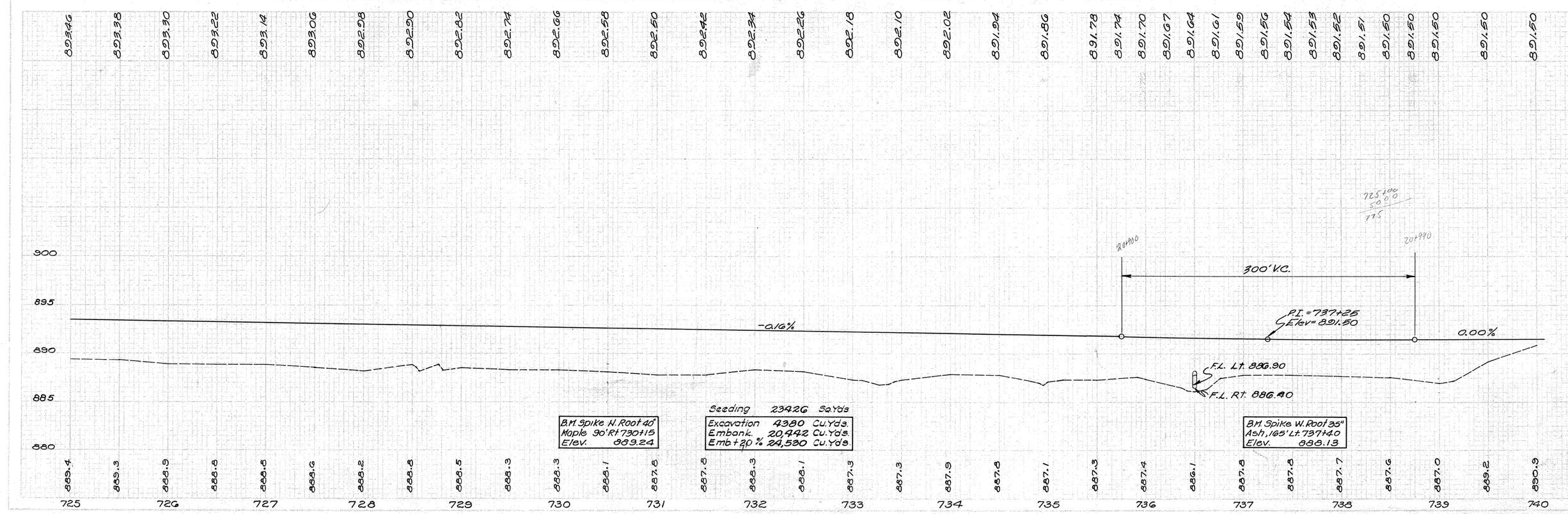
Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stabl. Cr. Aggreg. Cu. Yds.	18.33 3" Bit. Mac. Base Crse Sq. Yds	E-1 Compacted Subgrade Sq. Yds.
1-P	725+00	740+00	8000.0	1896	461	2901	8000

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
28	13.89	736+50		None		Equal-Arch	18'x11'	146	184

(S) STORM SEWER

Mark	Station From	Station To	Side	I-2 Storm Sewer Under Pvt. Lin. Ft. 18"A	24"A	L-10 Sodding Sq. Yds	I-10 Riprap As Per Plan Sq. Yds.	S-1 Conc. for Str. Class E Cu. Yds
1-S	730+50		Lt.		76	4	22	0.3
2-S	739+00		Rt.	76		5	22	0.3
Total				76	76	9	44	0.6



Seeding 23426 Sq.Yds

Excavation	4380	Cu.Yds.
Embank.	20,442	Cu.Yds.
Emb + 20 %	24,530	Cu.Yds.

B.M. Spike N. Root 40" Maple 90' Rt. 730+15 Elev. 889.24

B.M. Spike W. Root 35" Ash, 165' Lt. 737+40 Elev. 888.13

725+00 – 740+00

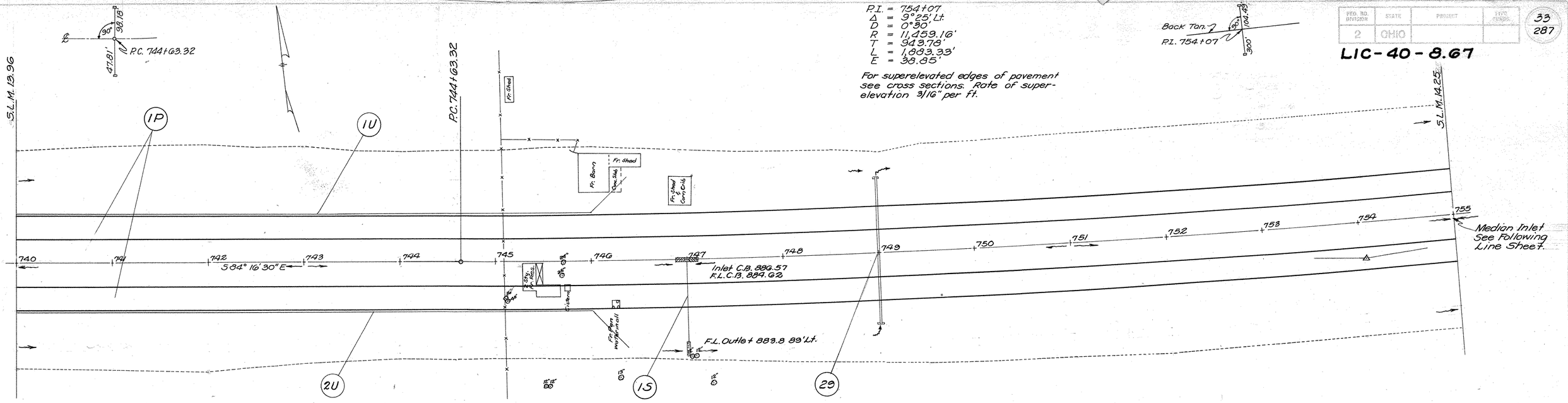
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

33
287

LIC-40-8.67

P.I. = 754+07
Δ = 9°25' Lt.
D = 0°30'
R = 11,459.16'
T = 943.78'
L = 1,883.33'
E = 38.85'

For superelevated edges of pavement see cross sections. Rate of superelevation 3/16" per ft.



(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Rein. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stabl. Cr. Aggr. Cu. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.	E-1 Comp. Subgr. Sq. Yds.
1-P	740+00	755+00	8000.0	1941	639	4333	8000

STRUCTURES 20' SPAN & UNDER

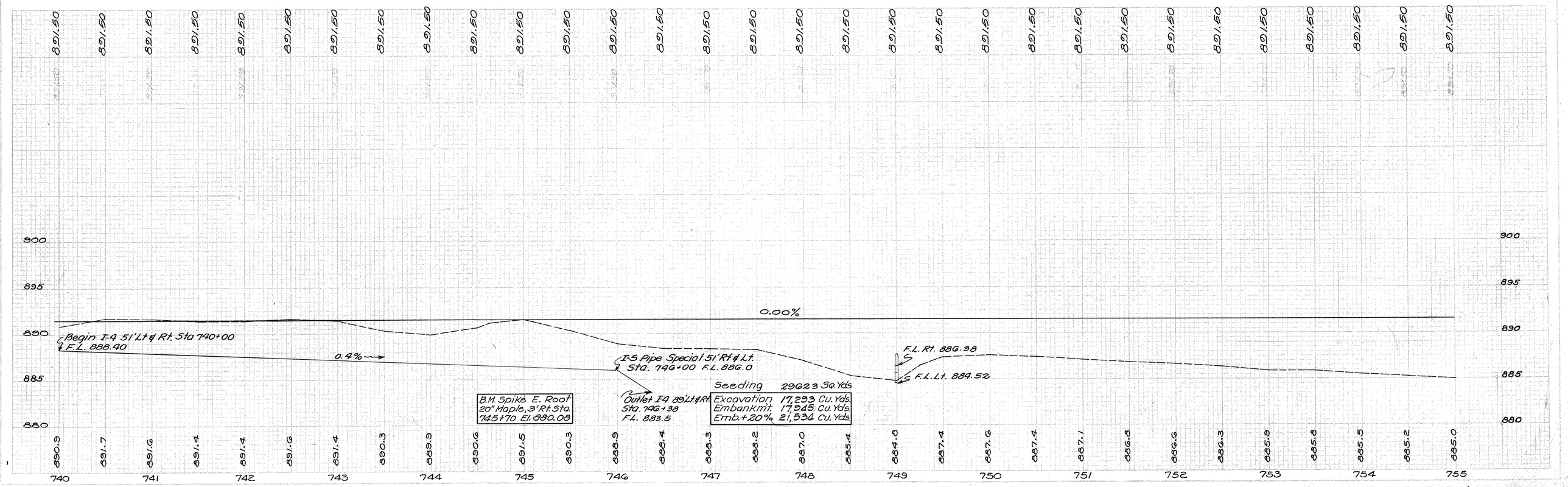
Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
29	14.14	749+00		None		Equalizer	15"	154	189

(S) STORM SEWER

Mark	Station From	Station To	Side	I-2 Storm Sewer				I-14 Std. Type I Pvd. Gutter Lin. Ft.	I-8 Std. 2-2A Catch Basin Each	L-10 Sodding Sq. Yds.
						Under Pvt. Lin. Ft. 15" A				
1-S	747+00		Rt.			88		20	1	4

(U) UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrain Lin. Ft.	I-4 8" Outlet for Underdrain Lin. Ft.	I-5 6"×45° Bend Each
1-U	740+00	746+38	Lt.	642	10	1
2-U	740+00	746+38	Rt.	642	10	1
Totals				1284	20	2



740+00-755+00

DIST. NO.	STATE	PROJECT	TYPE FUNDS
2	OHIO		

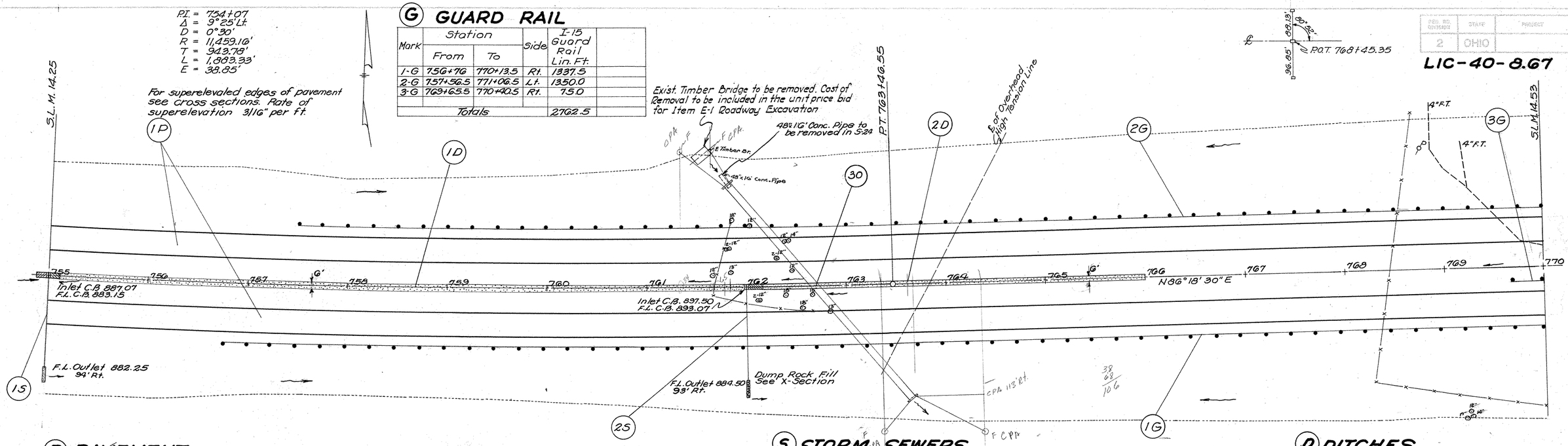
LIC-40-8.67

P.I. = 754+07
Δ = 9°25' Lt.
D = 0°30'
R = 11,459.16'
T = 943.78'
L = 1,883.33'
E = 38.85'

For superelevated edges of pavement see cross sections. Rate of superelevation 3/16" per ft.

G GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
1-G	750+76	770+13.5	Rt.	1337.5	
2-G	757+56.5	771+06.5	Lt.	1350.0	
3-G	760+65.5	770+90.5	Rt.	750	
	Totals			2762.5	



P PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stabl. Cr. Aggr. Cu. Yds.	B-33.3 Bit. Mac. Base Crse Sq. Yds	E-1 Comp. Subgr. Sq. Yds.
1-P	755+00	770+00	8000.0	2173	715	4333	8000

STRUCTURES 20' SPAN & UNDER

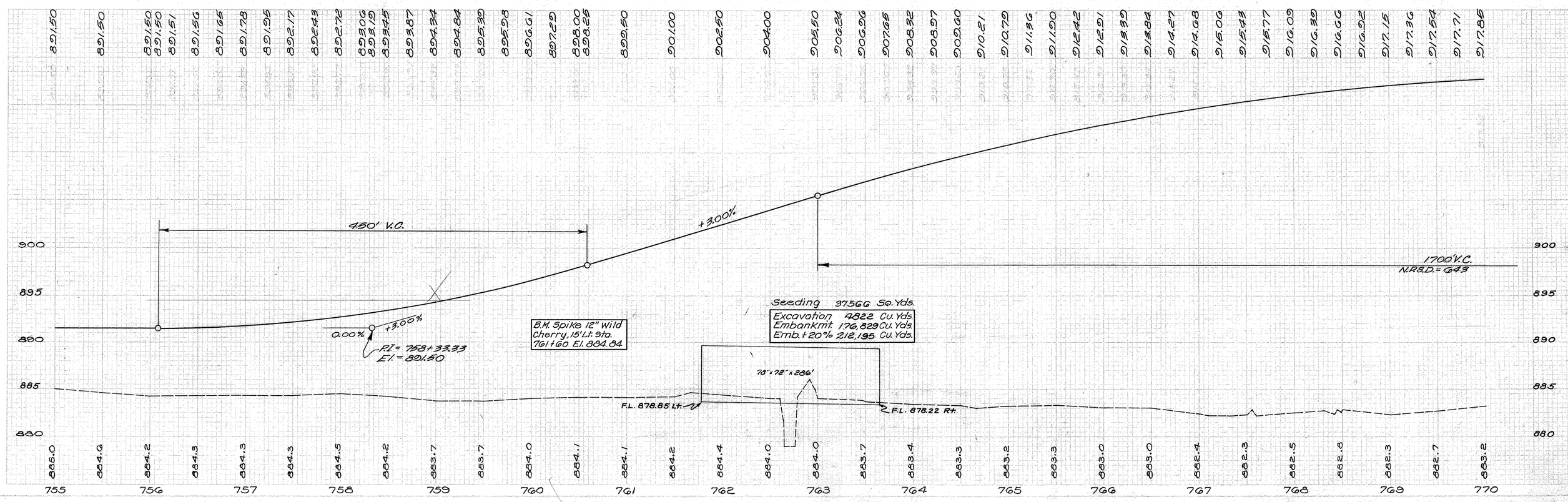
Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
30	14.38	762+68		None		P.C.	78"x72"	286'	210

S STORM SEWERS

Mark	Station From	Station To	Side		I-2 S.S. Under Pvt. Lin. Ft. 15" A	I-14 Std. Type I Paved Gutter Lin. Ft.	I-8 Std. 2-2A Catch Basin Each	I-10 Sodding Sq. Yds.	I-10 Dump Rock Fill Cu. Yds.	E-3 Channel Excav. Cu. Yds.
1-S	755+00		Rt.		92	20	1	5		
2S	762+00		Rt.		92	15	1		G	G
	Total				184	35	2	5	G	G

D DITCHES

Mark	Station From	Station To	Side	I-10. Sodding Sq. Yds. Lin. Ft.
1-D	755+11	761+99	℄	459
2D	762+16	766+00	℄	256
	Total			715



755+00 – 770+00

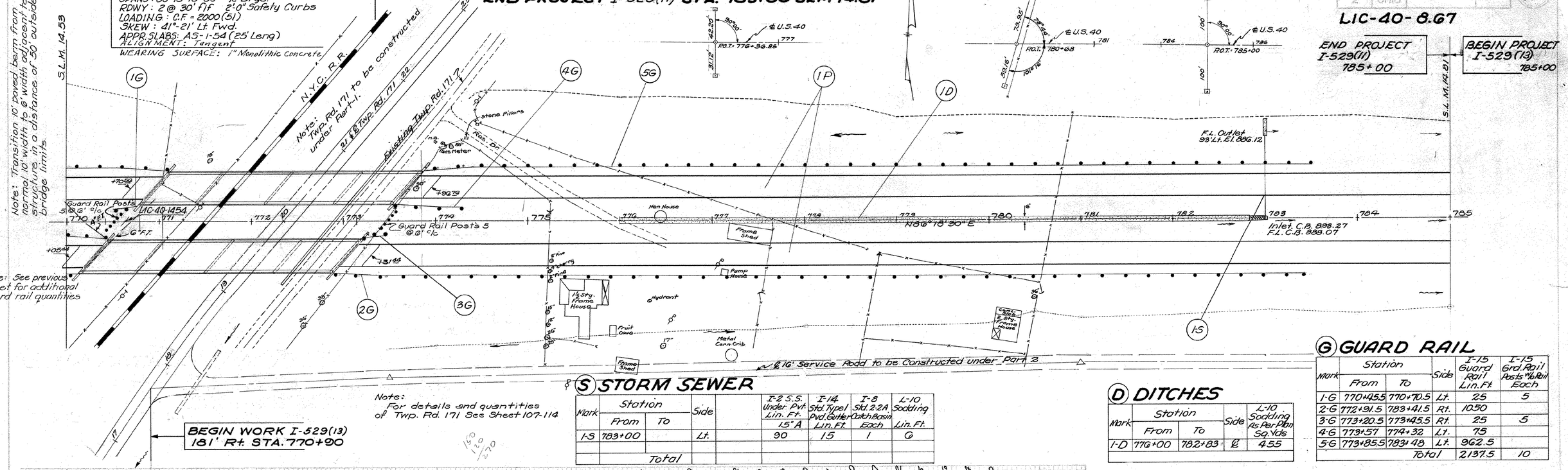
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

35
287

LIC-40-8.67

PROPOSED STRUCTURE LIC-40-1454
TYPE : Cont. Steel Beam with reinf. Conc. deck & Sub. Str.
SPANS : 60-75'-75'-60' c/c brgs.
RDWY : 2 @ 30' f/f 2'-0" Safety Curbs
LOADING : C.F. = 2000 (51)
SKEW : 41°-21' Lt. Fwd.
APPR. SLABS: AS-1-54 (25' Leng)
ALIGNMENT: Tangent
WEARING SURFACE: 1" Monolithic Concrete

BEGIN PROJECT I-529(11) STA. 460+62.48 SLM 8.67
END PROJECT I-529(11) STA. 785+00 SLM 14.81



(S) STORM SEWER

Mark	Station From	Station To	Side		I-2 S.S. Under Pvt. Lin. Ft. 15" A	I-14 Std. Type I Pvd. Gutter Lin. Ft.	I-8 Std. 2.2A Catch Basin Each	L-10 Sodding Lin. Ft.
1-S	783+00		Lt.		90	15	1	6
		Total						

(D) DITCHES

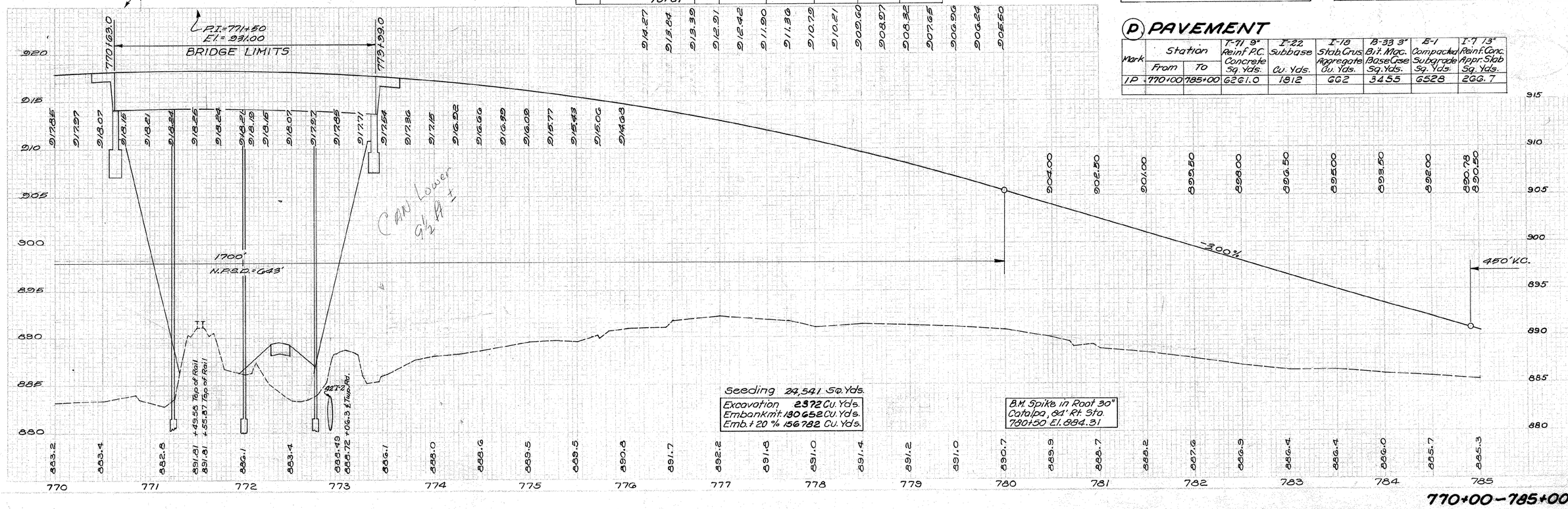
Mark	Station From	Station To	Side	L-10 Sodding As Per Plan Sq. Yds
1-D	776+00	782+83	℄	455

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	I-15 Grd. Rail Posts w/o Rail Each
1-G	770+45.5	770+70.5	Lt.	25	5
2-G	772+91.5	783+41.5	Rt.	1050	
3-G	773+20.5	773+45.5	Rt.	25	5
4-G	773+57	774+32	Lt.	75	
5-G	773+85.5	783+48	Lt.	962.5	
			Total	2137.5	10

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33 3" Bit. Mac. Base Crse Sq. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-7 13" Reinf. Conc. Appr. Slab Sq. Yds.
1P	770+00	785+00	6261.0	1812	662	3455	6528	266.7



770+00 – 785+00

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

36
287

LIC-40-8.67

END PROJECT & I-529(11)
PART I 785+00

END PROJ.

785 786 787 788 789 790 791 792 793 795 796 797 798 799 800

890.50 889.79 889.12 888.49 887.90 887.36 886.86 886.40 885.98 885.72 885.60 885.27 884.98 884.73 884.52 884.36 884.24 884.16 884.12 884.12 884.12 884.14 884.16 884.18 884.20 884.22 884.24 884.26 884.28 884.30 884.32 884.34 884.36 884.38 884.40 884.42 884.44 884.46 884.48 884.50 884.52 884.54

900

450' V.C.

880

3.00%

+0.04%

P.I. = 787+15.79
F.L. = 884.03

+0.04%

F.L. 880.40 ℄
F.L. 880.60 ℄
F.L. 880.44 Lt. & Rt.
F.L. 880.34 65' Lt. & Rt.

880

885.3 885.3 884.9 884.5 884.2 884.3 884.5 884.7 885.2 885.9 886.0 885.5 884.8 884.5 884.1 883.7 883.6 883.2 882.9 881.9 881.4 881.8 881.9 881.4 881.3 880.8 880.7 880.6 880.5 880.6 880.5

785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800

SUPPLEMENTAL ALIGNMENT STA. 785+00-800

SUPERELEVATION TABLES

LIC-40-8.67

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

37 / 287

EAST BOUND LANES

T.S. 461+41.90 Dc = 2°30' Rt. C.S. 486+21.90
S.C. 464+91.90 Rate of Super. 069/ft. S.T. 489+71.90

LEFT		CENTER				RIGHT	
Edge of Pavement	± From Rt. Edge	Station	Profile Grade	℄ Pavt. Elevation		Deduct From Pr.Gr.	Edge of Pavement
943.79		461+41.90	943.60	943.60		-.19	943.41
943.54		+76.90	943.35	943.35			943.16
943.28		462+11.90	943.09	943.09			942.90
943.05		+46.90	942.84	942.85			942.65
942.86		+81.90	942.59	942.63			942.40
942.76		463+16.90	942.34	942.46			942.15
942.70		+51.90	942.09	942.30			941.90
942.65		+86.90	941.83	942.15			941.64
942.59		464+21.90	941.58	941.99			941.39
942.54		+56.90	941.33	941.84			941.14
942.46		+91.90	941.08	941.68			940.89
942.41		465	941.02	941.62			940.83
942.30		+ 25	940.84	941.48			940.65
942.13	+1.66	+50	940.66	941.30			940.47
941.95		+ 75	940.48	941.12			940.29
941.77		466	940.30	940.94			940.11
941.59		+25	940.12	940.76			939.93
941.41		+50	939.94	940.58			939.75
941.23		+75	939.76	940.40			939.57
941.05		467	939.58	940.22			939.39
940.87		+25	939.40	940.04			939.21
940.69		+50	939.22	939.86			939.03
940.51		+75	939.04	939.68			938.85
940.33		468	938.86	939.50			938.67
940.15		+25	938.68	939.32			938.49
939.97		+50	938.50	939.14			938.31
939.79		+75	938.32	938.96			938.13
939.61		469	938.14	938.78			937.95
939.43		+25	937.96	938.60			937.77
939.25		+50	937.78	938.42			937.59
939.07		+75	937.60	938.24			937.41
938.89		470	937.42	938.06			937.23
938.71		+25	937.24	937.88			937.05
938.53		+50	937.06	937.70			936.87
938.35		+75	936.88	937.52			936.69
938.17		471	936.70	937.34			936.51
938.00		+25	936.53	937.17			936.34
937.84		+50	936.37	937.01			936.18
937.70		+75	936.23	936.87			936.04
937.57		472	936.10	936.74			935.91
937.46		+25	935.99	936.63			935.80
937.36		+50	935.89	936.53			935.70
937.28		+75	935.81	936.45			935.62
937.21		473	935.74	936.38			935.55
937.16		+25	935.69	936.33			935.50
937.12		+50	935.65	936.29			935.46
937.10		+75	935.63	936.27			935.44
937.09		474	935.62	936.26			935.43
937.09		+25	935.62	936.26			935.43
937.09		+50	935.62	936.26			935.43
937.09		+75	935.62	936.26			935.43
937.09		475	935.62	936.26			935.43
937.09		+25	935.62	936.26			935.43
937.09		+50	935.62	936.26			935.43
937.09		+75	935.62	936.26			935.43
937.09		476	935.62	936.26			935.43
937.09		+25	935.62	936.26			935.43
937.09		+50	935.62	936.26			935.43
937.10		+75	935.63	936.27			935.44
937.11		477	935.64	936.28			935.45
937.14		+25	935.67	936.31			935.48
937.18		+50	935.71	936.35			935.52
937.24		+75	935.77	936.41			935.58
937.30		478	935.83	936.47			935.64
937.38		+25	935.91	936.55			935.72
937.46		+50	935.99	936.63			935.80
937.56		+75	936.09	936.73			935.90
937.67		479	936.20	936.84			936.01
937.80		+25	936.33	936.97			936.14
937.93	.13	+50	936.46	937.10	+ .13		936.27
938.07	.07	+75	936.60	937.24	+ .07		936.41
938.21	.09	480	936.74	937.38	+ .09		936.55
938.35	.13	+25	936.88	937.52	+ .13		936.69
938.49	.13	+50	937.02	937.66	+ .13		936.83
938.63	.13	+75	937.16	937.80	+ .13		936.97
938.77	.13	481	937.30	937.94	+ .13		937.11
938.91	.13	+25	937.44	938.08	+ .13		937.25
939.05	.13	+75	937.58	938.22	+ .13		937.39
939.19	.13	+50	937.72	938.36	+ .13		937.53
939.33	.13	482	937.86	938.50	+ .13		937.67
939.47		+25	938.00	938.64			937.81
939.61		+50	938.14	938.78			937.95
939.75		+75	938.28	938.92			938.09
939.89		483	938.42	939.06			938.23
940.03		+25	938.56	939.20			938.37
940.17		+50	938.70	939.34			938.51
940.31		+75	938.84	939.48			938.65
940.45		484	938.98	939.62			938.79
940.59		+25	939.12	939.76			938.93
940.73	+1.66	+50	939.26	939.90		-.19	939.07

EAST BOUND LANES (Continued)

T.S. 461+41.90 Dc = 2°30' Rt. C.S. 486+21.90
S.C. 464+91.90 Rate of Super. 069/ft. S.T. 489+71.90

LEFT		CENTER				RIGHT	
Edge of Pavement	± From Rt. Edge	Station	Profile Grade	℄ Pavt. Elevation		Deduct From Pr.Gr.	Edge of Pavement
940.87	+1.66	484+75	939.40	940.04		-.19	939.21
941.01	+1.66	485	939.54	940.18			939.35
941.15	+1.66	+25	939.68	940.32			939.49
941.29	+1.66	+50	939.82	940.46			939.63
941.43	+1.66	+75	939.96	940.60			939.77
941.57	+1.66	486	940.10	940.74			939.91
941.64	+1.61	C.S.+21.90	940.22	940.84			940.03
941.71	+1.48	+50.90	940.42	940.97			940.23
941.76	+1.34	+91.90	940.61	941.09			940.42
941.80	+1.18	487+20.90	940.81	941.21			940.62
941.84	+1.02	+61.90	941.01	941.33			940.82
941.87	+ .86	+96.90	941.20	941.44			941.01
941.91	+ .70	488+31.90	941.40	941.56			941.21
941.94	+ .54	+66.90	941.59	941.67			941.40
942.00	+ .40	489+01.90	941.79	941.80			941.60
942.08	+ .28	+36.90	941.99	941.99			941.80
942.18	+ .19	S.T.+71.90	942.18	942.18			941.99
942.19	+ .18	+75	942.20	942.20			942.01
942.27	+ .12	490	942.34	942.34			942.15
942.35	+ .06	+25	942.48	942.48			942.29
942.45	+ .02	+50	942.62	942.62			942.43
942.57	+ .00	+75	942.76	942.76			942.57
942.71	+ .00	491	942.90	942.90		-.19	942.71

WEST BOUND LANES

T.S. 464+49.31 Dc = 3°30' Rt. C.S. 482+20.74
S.C. 467+99.31 Rate of Super. 083/ft S.T. 485+70.74

LEFT		CENTER				RIGHT	
Edge of Pavement	± From Rt. Edge	Station	Profile Grade	℄ Pavt. Elevation		+ or - Pr.Gr.	Edge of Pavement
941.50	-.38	461+75	941.69	941.69		+ .19	941.88
941.41	-.38	462	941.60	941.60		+ .19	941.79
941.36	-.38	+25	941.55	941.55		+ .19	941.74
941.34	-.38	+50	941.53	941.53		+ .19	941.72
941.36	-.38	+75	941.55	941.55		+ .19	941.74
941.41	-.38	463	941.60	941.60		+ .19	941.79
941.49	-.36	+25	941.68	941.68		+ .17	941.85
941.62	-.30	+50	941.80	941.80		+ .12	941.92
941.82	-.18	+75	941.96	941.96		+ .04	942.00
942.05	-.05	464	942.14	942.14		- .02	942.10
942.32	+ .07	+25	942.36	942.36		- .11	942.25
942.63	+ .19	T.S.+49.31	942.63	942.63		- .19	942.44
943.16	+ .32	+84.31	943.03	943.03			942.84
943.76	+ .46	465+19.31	943.49	943.53			943.30
944.36	+ .58	+54.31	943.97	944.07			943.78
945.05	+ .79	+89.31	944.45	944.66			944.26
945.72	+ .99	466+24.31	944.92	945.23			944.73
946.40	+1.19	+59.31	945.40	945.81			945.21
947.07	+1.39	+94.31	945.87	946.38			945.68
947.76	+1.60	467+29.31	946.35	946.96			946.16
948.43	+1.80	+64.31	946.82	947.53			946.63
949.06	+1.95	+99.31	947.30	948.07			947.11
949.07	+1.95	468	947.31	948.08			947.12
949.46	+2.00	+25	947.65	948.46			947.46
949.80		+50	947.99	948.80			947.80
950.14		+75	948.33	949.14			948.14
950.48		469	948.67	949.48			948.48
950.82		+25	949.01	949.82			948.82
951.16		+50	949.35	950.16			949.16
951.50		+75	949.69	950.50			949.50
951.84		470	950.03	950.84			949.84
952.18		+25	950.37	951.18			950.18
952.52		+50	950.71	951.52			950.52
952.86		+75	951.05	951.86			950.86
953.20		471	951.39	952.20			951.20
953.54		+25	951.73	952.54			951.54
953.88		+50	952.07	952.88			951.88
954.22		+75	952.41	953.22			952.22
954.56		472	952.75	953.56			952.56
954.89		+25	953.08	953.89			952.89
955.20		+50	953.39	954.20			953.20
955.48		+75	953.67	954.48			953.48
955.74		473	953.93	954.74			953.74
955.98		+25	954.17	954.98			953.98
956.19		+50	954.38	955.19			954.19
956.38		+75	954.57	955.38			954.38
956.54		474	954.73	955.54			954.54
956.68		+25	954.87	955.68			954.68
956.79		+50	954.98	955.79			954.79
956.88		+75	955.07	955.88			954.88
956.95		475	955.14	955.95			954.95
956.99		+25	955.18	955.99			954.99
957.01		+50	955.20	956.01			955.01
957.00	+2.00	+75	955.19	956.00		-.19	955.00

WEST BOUND LANES (Continued)

T.S. 464+49.31 Dc = 3°30' Rt. C.S. 482+20.74
S.C. 467+99.31 Rate of Super. 083/ft. S.T. 485+70.74

LEFT		CENTER				RIGHT	
Edge of Pavement	± From Rt. Edge	Station	Profile Grade	℄ Pavt. Elevation		Deduct From Pr.Gr.	Edge of Pavement
956.97	+2.00	476	955.16	955.97		-.19	954.97
956.92		+25	955.11	955.92			954.92
956.84		+50	955.03	955.84			954.84
956.73		+75	954.92	955.73			954.73
956.60		477	954.79	955.60			954.60
956.45		+25	954.64	955.45			954.45
956.27		+50	954.46	955.27			954.27
956.07		+75	954.26	955.07			954.07
955.85		478	954.04	954.85			953.85
955.60		+25	953.79	954.60			953.60
955.32		+50	953.51	954.32			953.32
955.02		+75	953.21	954.02			953.02
954.70		479	952.89	953.70			952.70
954.36		+25	952.55	953.36			952.36
954.02		+50	952.21	953.02			952.02
953.68		+75	951.87	952.68			951.68
953.34		480	951.53	952.34			951.34
953.00		+25	951.19	952.00			951.00
952.66		+50	950.85	951.66			950.66
952.32		+75	950.51	951.32			950.32
951.98		481	950.17	950.98			949.98
951.64		+25	949.83	950.64			949.64
951.30		+50	949.49	950.30			949.30
950.96		+75	949.15	949.96			948.96
950.62	-2.00	482	948.81	949.62			948.62
950.29	+1.96	C.S.+20.74	948.52	949.31			948.33
949.66	+1.80	+55.74	948.05	948.76			947.86
948.98	+1.60	+90.74	947.57	948.18			947.38
948.30	+1.39	483+25.74	947.10	947.61			946.91
947.62	+1.19	+60.74	946.62	947.03			946.43
946.94	+ .99	+95.74	946.14	946.45			945.95
946.27	+ .79	484+30.74	945.67	945.88			945.48
945.60	+ .58	+65.74	945.21	945.31			945.02
945.01	+ .40	485+00.74	944.80	944.81			944.61
944.52	+ .29	+35.74	944.42	944.42			944.23
944.08	+ .20	S.T.+70.74	944.07	944.07			943.88
944.02	+ .18	+75	944.03	944.03			943.84
943.73	+ .11	486	943.81	943.81			943.62
943.47	+ .05	+25	943.61	943.61			943.42
943.25	+ .02	+50	943.42	943.42			943.23
943.06	+ .00	+75	943.25	943.25		-.19	943.06

EAST AND WEST BOUND LANES

T.S. 520+20.16 Dc = 3°00' Lt. C.S. 539+23.77
S.C. 523+20.16 Rate of Super. 083/f. S.T. 542+23.77

LEFT		CENTER				RIGHT	
Edge of Pavement	Deduct From Pr.Gr.	Station	Profile Grade	℄ Pavt. Elevation		+ or - Pr.Gr.	Edge of Pavement
962.23	- .19	519	962.42	962.42		- .19	962.23
962.13	- .19	+25	962.32	962.32		- .19	962.13
962.03	- .19	+50	962.22	962.22		- .14	962.08
961.93	- .19	+75	962.12	962.12		- .09	962.03
961.83	- .19	520	962.02	962.02		- .04	961.98
961.75	- .19	+20.16	961.94	961.94		- .00	961.94
961.68	- .19	+50.16	961.82	961.82		+ .10	961.92
961.50	- .20	+80.16	961.70	961.70		+ .20	961.90
961.28	- .30	521+10.16	961.58	961.58		+ .30	961.88
961.06	- .40	+40.16	961.46	961.46		+ .40	961.86
960.84	- .50	+70.16	961.34	961.34		+ .50	961.84
960.62	- .60	522+00.16	961.22	961.22		+ .60	961.82
960.40	- .70	+30.16	961.10	961.10		+ .70	961.80
960.18	- .80	+60.16	960.98	960.98		+ .80	961.78
959.96	- .90	+90.16	960.86	960.86		+ .90	961.76
959.74	-1.00	523+20.16	960.74	960.74		+1.00	961.74
959.62		+50	960.62	960.62			961.62
959.52		+75	960.52	960.52			961.52
959.42		524	960.42	960.42			961.42
959.32		+25	960.32	960.32			961.32
959.22		+50	960.22	960.22			961.22
959.12		+75	960.12	960.12			961.12
959.02		525	960.02	960.02			961.02
958.95		+17	959.95	959.95			960.95
958.92		+25	959.92	959.92			960.92
958.82		+50	959.82	959.82			960.82
958.72		+75	959.72	959.72			960.72
958.68		+86	959.68	959.68			960.68
958.62		526	959.62	959.62			960.62
958.52		+25	959.52	959.52			960.52
958.42		+50	959.42	959.42			960.42
958.32		+75	959.32	959.32			960.32
958.22	-1.00	527	959.22	959.22		+1.00	960.22

EAST AND WEST BOUND LANES (Continued)

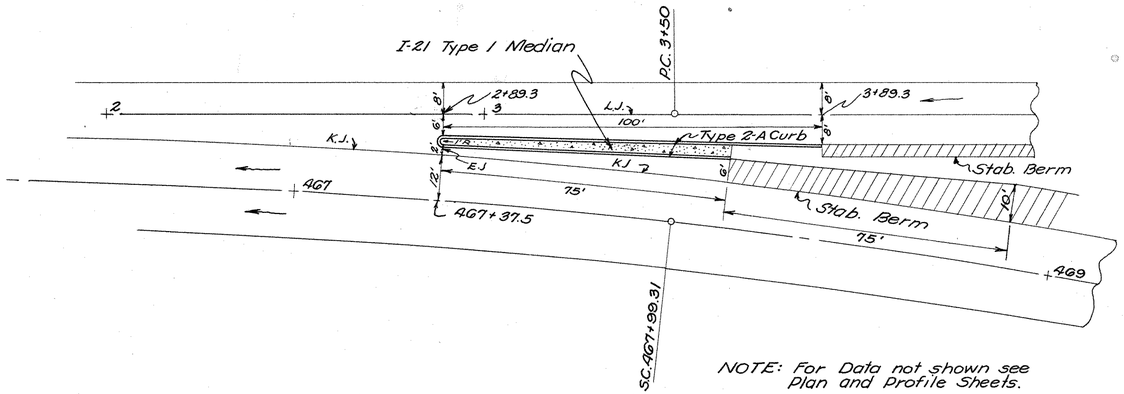
T.S. 520+20.16 Dc = 3°00' Lt. C.S. 539+23.77
S.C. 523+20.16 Rate of Super. 083/ft. S.T. 542+23.77

LEFT		CENTER				RIGHT	
Edge of Pavement	Deduct From Pr.Gr.	Station	Profile Grade	℄ Pavt. Elevation		+ or - Pr.Gr.	Edge of Pavement
958.12	-1.00	527+25	959.12	959.12		+1.00	960.12
958.02		+50	959.02	959.02			960.02
958.00		+53.84	959.00	959.00			960.00
957.92		+75	958.92	958.92			959.92
957.88		+86	958.88	958.88			959.88
957.82		528	958.82	958.82			959.82
957.72		+25	958.72	958.72			959.72
957.62		+50	958.62	958.62			959.62
957.52		+75	958.52	958.52			959.52
957.42		529	958.42	958.42			959.42
957.32		+25	958.32	958.32			959.32
957.22		+50	958.22	958.22			959.22
957.12		+75	958.12	958.12			959.12
957.02		530	958.02	958.02			959.02
956.92		+25	957.92	957.92			958.92
956.82		+50	957.82	957.82			958.82
956.72		+75	957.72	957.72			958.72
956.60		531	957.60	957.60			958.60
956.48		+25	957.48	957.48			958.48
956.34		+50	957.34	957.34			958.34
956.20		+75	957.20	957.20			958.20
956.05		532	957.05	957.05			958.05
955.89		+25	956.89	956.89			957.89
955.72		+50	956.72	956.72			957.72
955.55		+75	956.55	956.55			957.55
955.36		533	956.36	956.36			957.36
955.17		+25	956.17	956.17			957.17
954.96		+50	955.96	955.96			956.96
954.75		+75	955.75	955.75			956.75
954.54		534	955.54	955.54			956.54
954.33		+25	955.33	955.33			956.33
954.12		+50	955.12	955.12			956.12
953.91		+75	954.91	954.91			955.91
953.70		535	954.70	954.70			955.70
953.49		+25	954.49	954.49			955.49
953.28		+50	954.28	954.28			955.28
953.07		+75	954.07	954.07			955.07
953.01		+82.43	954.01	954.01			955.01
952.98		+85.50	953.98	953.98			954.98
952.96		+88.58	953.96	953.96			954.96
952.86		536	953.86	953.86			954.86
952.85		+101.38	953.85	953.85			954.85
952.82		+104.46	953.82	953.82			954.82
952.80		+107.53	953.80	953.80			954.80
952.65		+25	953.65	953.65			954.65
952.44		+50	953.44	953.44			954.44
952.23		+75	953.23	953.23			954.23
952.02		537	953.02	953.02			954.02
951.81		+25	952.81	952.81			953.81
951.60		+50	952.60	952.60			953.60
951.39		+75	952.39	952.39			953.39
951.18		538	952.18	952.18			953.18
950.97		+25	951.97	951.97			952.97
950.76		+50	951.76	951.76			952.76
950.55		+75	951.55	951.55			952.55
950.34		539	951.34	951.34			952.34
950.14	-1.00	C.S. +23.77	951.14	951.14		+1.00	952.14
949.99	- .90	+53.77	950.89	950.89		+ .90	951.79
949.84	- .80	+83.77	950.64	950.64		+ .80	951.44
949.69	- .70	540+13.77	950.39	950.39		+ .70	951.09
949.54	- .60	+43.77	950.14	950.14		+ .60	950.74
949.38	- .50	+73.77	949.88	949.88		+ .50	950.38
949.23	- .40	541+03.77	949.63	949.63		+ .40	950.03
949.08	- .30	+33.77	949.38	949.38		+ .30	949.68
948.93	- .20	+63.77	949.13	949.13		+ .20	949.33
948.68	- .19	+93.77	948.87	948.87		+ .10	948.97
948.63	- .19	542	948.90	948.90		+ .00	948.90
948.43	- .19	S.T. +23.77	948.62	948.62		+ .00	948.62
948.21	- .19	+50	948.40	948.40		+ .05	948.35
948.00	- .19	+75	948.19	948.19		+ .10	948.09
947.79	- .19	543	947.98	947.98		+ .15	947.83
947.58	- .19	+25	947.77	947.77		+ .19	947.58

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

38
287

LIC-40-8.67



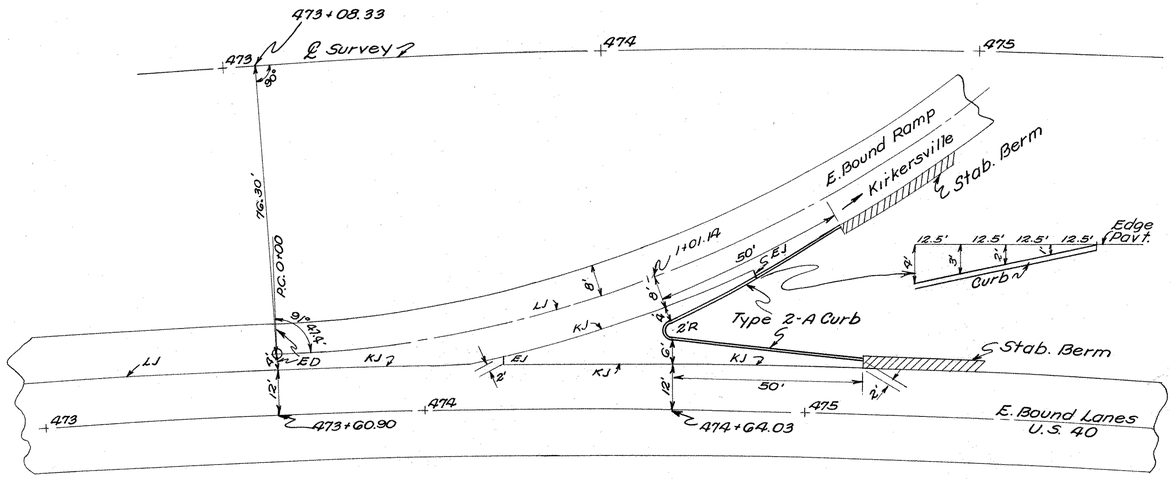
NOTE: For Data not shown see Plan and Profile Sheets.

NOSE DETAIL WEST BOUND RAMP

Scale of Feet
0 5 10 20

LEGEND

LJ-Standard Longitudinal Joint
KJ-Standard Key Joint Without Tie Bars
EJ-Expansion Joint Without Dowels
ED-Standard Expansion Joint



NOTE: For Data not shown see Plan and Profile Sheets.

NOSE DETAIL EAST BOUND RAMP

Scale of Feet
0 5 10 20

EAST BOUND RAMP

P.C. 0+00 Dc = 18°00' P.T. 2+58.33
S = .083

LEFT		CENTER		RIGHT
Edge of Pavement	Width of Deceleration Lane	Station	℄ Pavt. Elevation	Edge of Pavement
939.89	.00	4G8+6090		
939.78	.68	+75		
939.58	1.88	4G9		
939.38	3.08	+25		
939.18	4.28	+50		
938.98	5.48	+75		
938.79	6.68	470		
938.59	7.88	+25		
938.39	9.08	+50		
938.19	10.28	+75		
937.99	11.48	471		
937.91	12.00	+10.90		
937.81		+25		
937.65		+50		
937.51		+75		
937.36		472		
937.20		+25		
937.02		+50		
936.84		+75		
936.66		473		
936.48		+25		
936.30		+50		
936.22	12.00	+6090=0+00	936.81	937.11
936.04		+25	936.63	937.10
935.86		+50	936.48	937.09
935.70		+75	936.32	936.93
935.57		1 +00	936.19	936.80
935.47		+25	936.09	936.70
935.43		+50	936.03	936.63
935.43		+75	935.99	936.55
935.46		2 +00	935.98	936.49
935.53		+25	935.98	936.42
935.63		+50	935.99	936.35
935.72		+75	936.00	936.28
935.82		3 +00	936.02	936.21
935.92		+25	936.04	936.15
936.01		+50	936.05	936.09
936.13		+75	936.08	936.03
936.30		4 +00	936.17	936.05
936.44		+25	936.31	936.19
		+50		

Elevation Same as Lt. Edge of Rt. Lane U.S. 40.

EAST BOUND RAMP

T.S. 6+58 Dc = 7°00' C.S. 9+99.19
S.C. 9+08 S = .083 S.T. 11+99.19

LEFT	CENTER			RIGHT
Edge of Pavement	Profile Grade	Station	℄ Pav't. Elevation	Edge of Pavement
940.38	940.25	6 +50	940.25	940.12
940.60	940.47	+58	940.47	940.34
941.40	941.17	+83	941.22	941.04
942.20	941.87	7 +08	941.97	941.74
943.01	942.57	+33	942.72	942.44
943.82	943.27	+58	943.48	943.14
944.63	943.97	+83	944.24	943.84
945.43	944.67	8 +08	944.99	944.54
946.24	945.37	+33	945.74	945.24
947.05	946.07	+58	946.50	945.94
947.79	946.71	+83	947.19	946.58
948.47	947.28	9 +08	947.81	947.15
948.82	947.63	+25	948.16	947.50
949.24	948.07	+49.19	948.59	947.94
949.48	948.45	+74.19	948.90	948.32
949.67	948.77	+99.19	949.16	948.64
949.77	949.01	10 +24.19	949.33	948.88
949.81	949.18	+49.19	949.43	949.05
949.81	949.32	+74.19	949.50	949.19
949.81	949.46	+99.19	949.57	949.33
949.82	949.59	11 +24.19	949.65	949.47
949.83	949.73	+49.19	949.73	949.63

WEST BOUND RAMP

P.C. 3+50 Dc = 0°45' P.R.C.G+99.64
P.R.C.G+99.64 S = .016 P.T. 10+49.28

LEFT		CENTER		RIGHT
Edge of Pavement	Width of Deceleration Lane	Station	℄ Pavt. Elevation	Edge of Pavement
941.41		4G1+99.31		
941.41	.03	4G2		
941.34	1.23	+25		
941.30	2.43	+50		
941.30	3.63	+75		
941.33	4.83	4G3		
941.40	6.03	+25		
941.51	7.23	+50		
941.72	8.43	+75		
941.98	9.63	4G4		
942.28	10.83	+25		
942.63	12.00	4931-0+00	942.63	
943.10		+25	943.04	
943.57		+50	943.47	
944.04		+75	943.91	
944.47		1 +00	944.34	
944.96		+25	944.83	
945.45		+50	945.32	
945.94		+75	945.81	
946.43		2 +00	946.30	
946.92		+25	946.79	
947.42		+50	947.29	
947.89		+75	947.76	
948.20		3 +00	948.07	947.97
948.66		+25	948.53	948.42
948.95		+50	948.82	948.71
949.19		+75	949.06	948.94
949.36		4 +00	949.23	949.10
949.48		+25	949.35	949.22
949.54		+50	949.41	949.28
949.54		+75	949.41	949.28
949.48		5 +00	949.35	949.22
949.37		+25	949.24	949.11
949.19		+50	949.06	948.93
948.96		+75	948.83	948.70
948.66		6 +00	948.53	948.40
948.30		+25	948.17	948.04
947.90		+50	947.77	947.64
947.40		+75	947.33	947.26
946.89		7 +00	946.89	946.89
946.38		+25	946.45	946.52
945.88		+50	946.01	946.14
945.44		+75	945.57	945.70

Elevation Same as Lt. Edge of Lt. Lane U.S. 40.

Same Pavement Slope Continues From 7+75 to 11+00. See Plan and Profile Sheet for West Bound Ramp for ℄ Grade.

NOSE DETAILS & SUPERELEVATION TABLES
EAST & WEST BOUND RAMPS

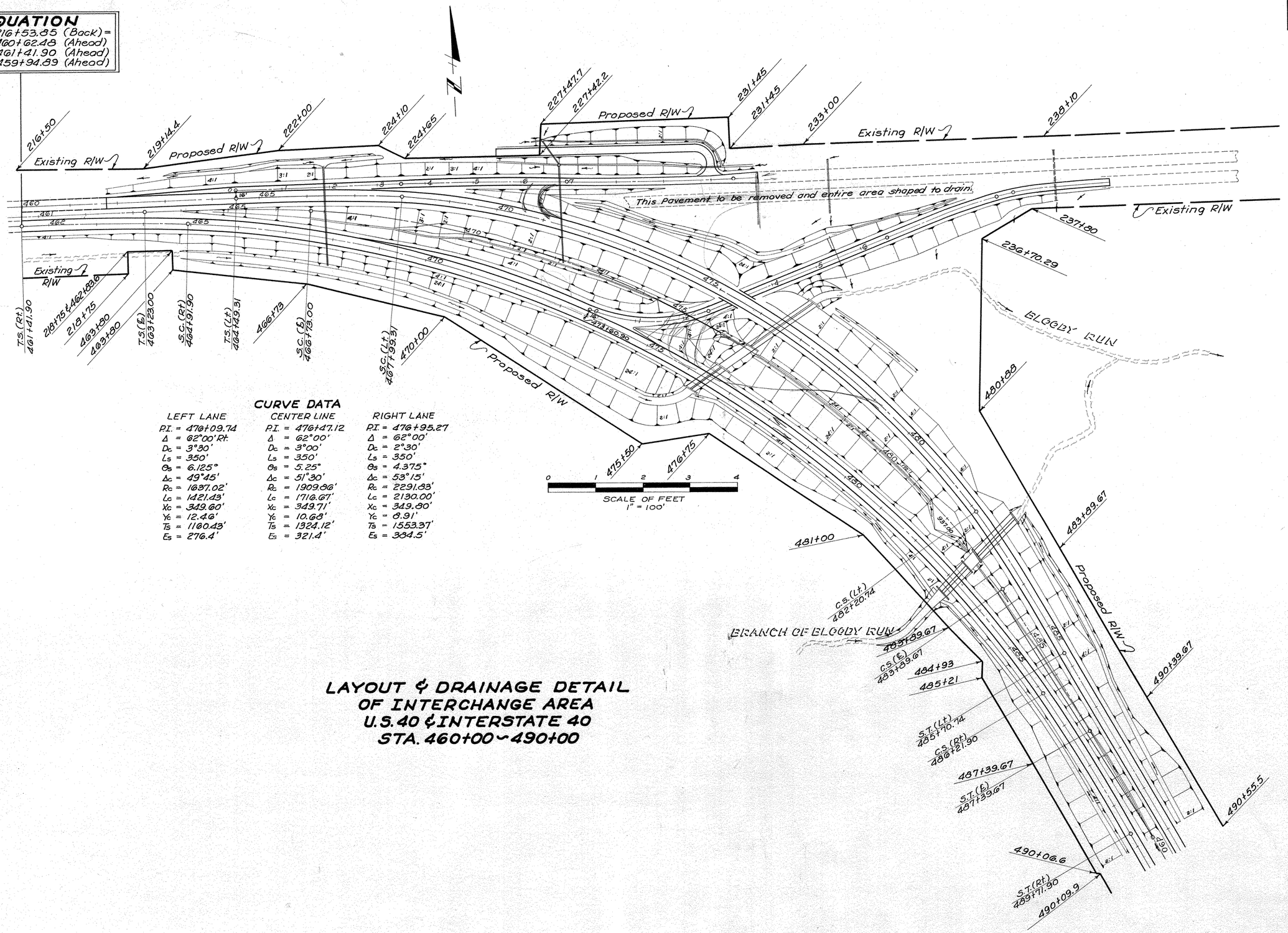
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LIC-40-8.67

39
287

EQUATION

℄ Sta. 216+53.85 (Back) =
℄ Sta. 460+62.48 (Ahead)
Rt Lane 461+41.90 (Ahead)
Lt Lane 459+94.89 (Ahead)



CURVE DATA

LEFT LANE	CENTER LINE	RIGHT LANE
P.I. = 476+09.74	P.I. = 476+47.12	P.I. = 476+95.27
Δ = 62°00' Rt.	Δ = 62°00'	Δ = 62°00'
D_c = 3°30'	D_c = 3°00'	D_c = 2°30'
L_s = 350'	L_s = 350'	L_s = 350'
θ_s = 6.125°	θ_s = 5.25°	θ_s = 4.375°
Δ_c = 49°45'	Δ_c = 51°30'	Δ_c = 53°15'
R_c = 1637.02'	R_c = 1909.86'	R_c = 2291.83'
L_c = 1421.43'	L_c = 1716.67'	L_c = 2130.00'
X_c = 349.60'	X_c = 349.71'	X_c = 349.80'
Y_c = 12.46'	Y_c = 10.63'	Y_c = 8.91'
T_s = 1160.43'	T_s = 1324.12'	T_s = 1553.37'
E_s = 276.4'	E_s = 321.4'	E_s = 384.5'

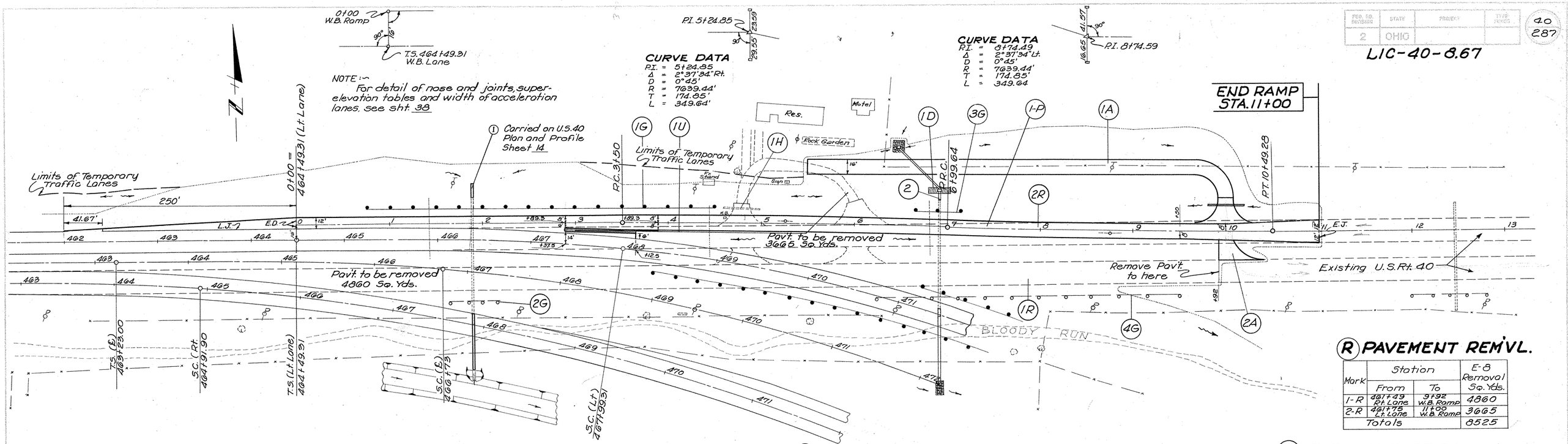
LAYOUT & DRAINAGE DETAIL OF INTERCHANGE AREA U.S. 40 & INTERSTATE 40 STA. 460+00 ~ 490+00

GENERAL LAYOUT & DRAINAGE DETA
STA. 460+00 - 490+00

FED. RD. DIVISION	STATE	PROJECT	TYPE WORKS
2	OHIO		

40
287

LIC-40-8.67



(R) PAVEMENT REM'VL.

Mark	Station From	Station To	E-8 Removal Sq. Yds.
1-R	461+49 Rt. Lane	9+92 W.B. Ramp	4860
2-R	461+78 Lt. Lane	11+00 W.B. Ramp	3665
Totals			8525

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Cr. Aggreg. Cu. Yds.	E-1 Compoc. Subgrade Sq. Yds.	B-33 Bit. Moc. Base Crse Sq. Yds.	I-21 P.C. Conc. Median Sq. Yds.	I-12 Type 2-A Conc. Curb Lin. Ft.
1-P	461+99.31	11+00	2133.8	488	94	2134	719.	25.2	178

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	I-15 G. R. Removal Lin. Ft.
1-G	0+75	4+50	Lt.	375	
2-G	1+62	2+12	Rt.		50
3-G	6+65	7+15	Lt.	50	
4-G	6+24	9+49	Lt.		325
Totals				425	375

(A) DRIVES & APPROACHES

Mark	Station	Side	Type	T-70(7") P.C. Conc. Pavt. Sq. Yds.	T-35 (1¼") Asph. Conc. Surf. Crse. Cu. Yds.	T-30 Bit. Prime Coat Gals.	B-35 (2") Asph. Conc. Leveling Cu. Yds.	I-18-5" Stab. Cr. Aggreg. Cu. Yds.	I-1 Pipe for Drives 18"		Details on Sheet
1-A	10+00	Lt.	Service Road	* 99.0	28.8	309	46.1	147.0	38		41
2-A	10+00	Rt.	Res.	58.0							41
Totals				157.0	28.8	309	46.1	147.0	38		

* Includes Mail Box Approaches

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 (6") Pipe Underdr. Lin. Ft.	I-4 (8") Outlets Lin. Ft.	I-5 Pipe Spec. Units 6"×45° Bend	
1-U	3+00	5+92	Rt.	300	10	1	
Totals				300	10	1	

STRUCTURES 20' SPAN & UNDER

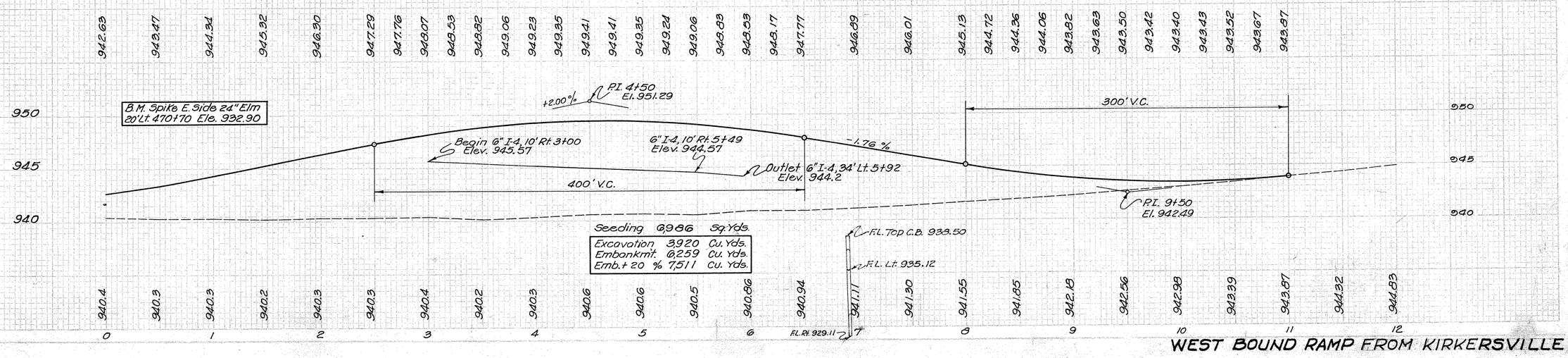
Stru. No.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
2	6+90.64	Pipe	24"	124.62	P.C.	24"	210.62	200

(H) PIPE REMOVAL

Mark	Beginning Station	Side	E-12 Pipe Rem. 15" & Und. Lin. Ft.
1-H	4+59.7	Lt.	38
Totals			38

(D) DITCHES

Mark	Station From	Station To	Side	I-14 Paved Gut. Type 1 Lin. Ft.
1-D	6+80	7+03	Lt.	20
Totals				20

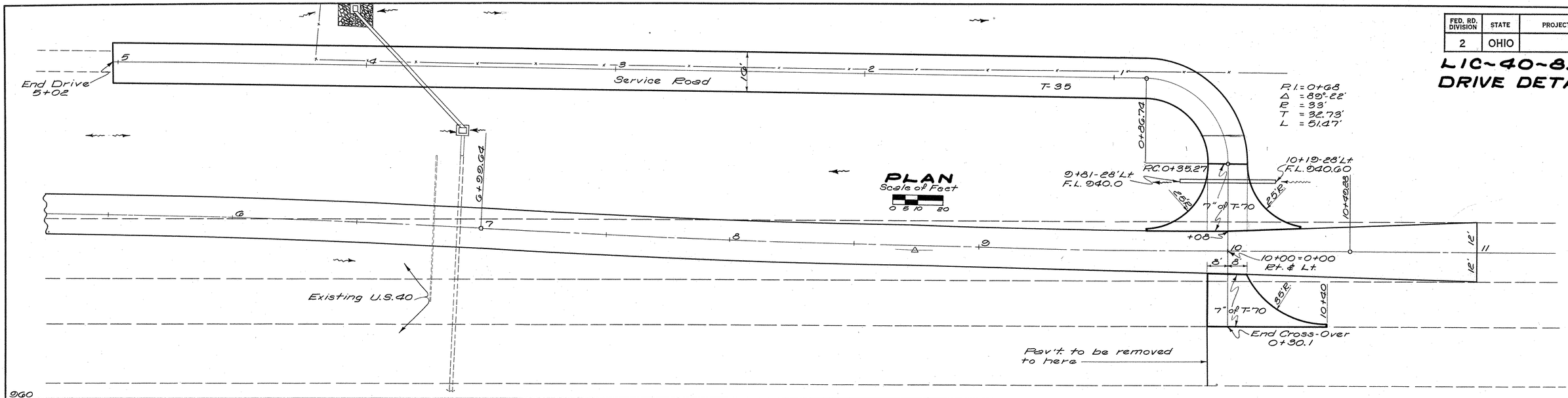


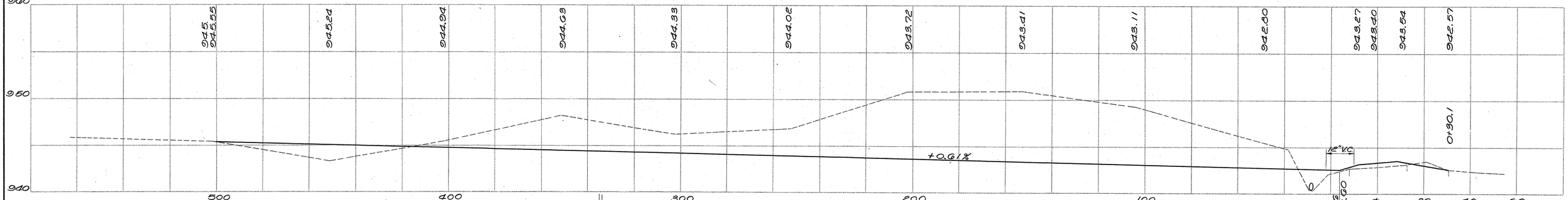
WEST BOUND RAMP FROM KIRKERSVILLE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

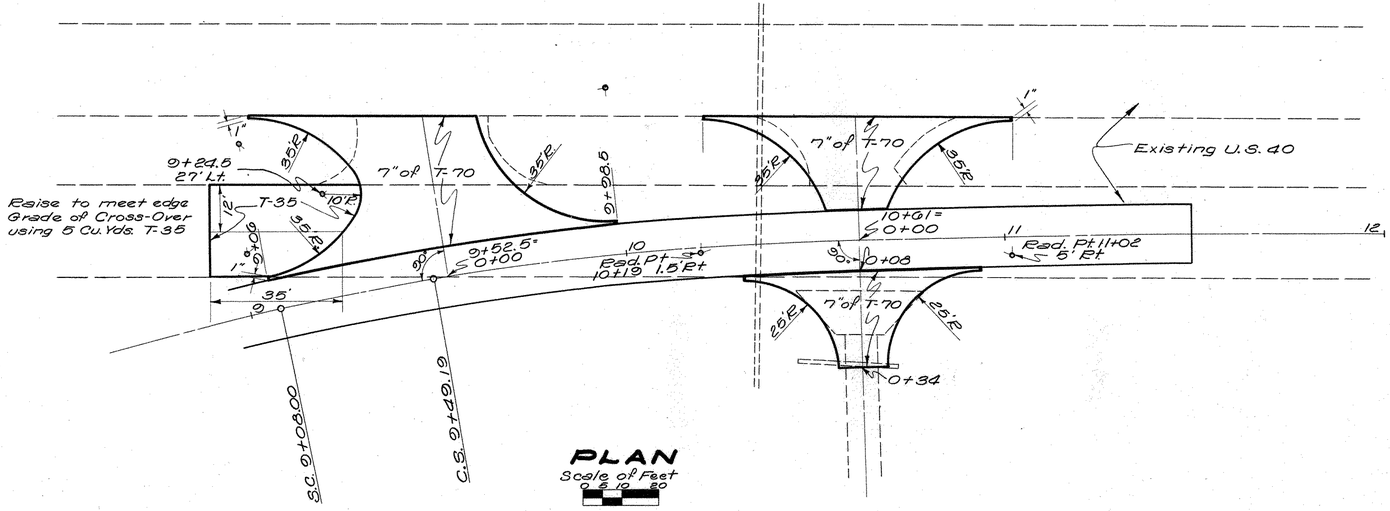
41
287

LIC-40-8.67
DRIVE DETAILS

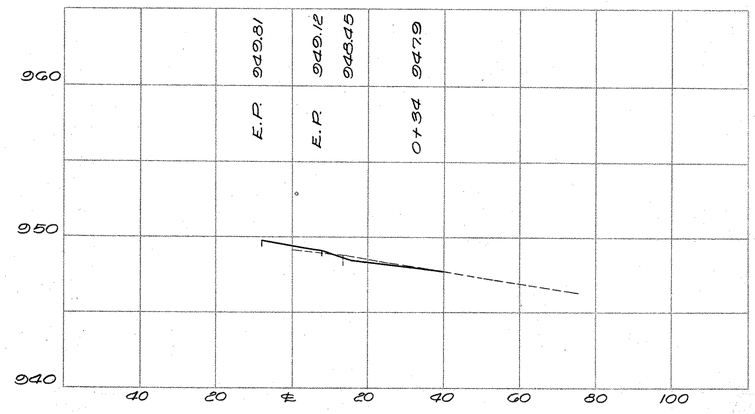




PROFILE OF SERVICE ROAD

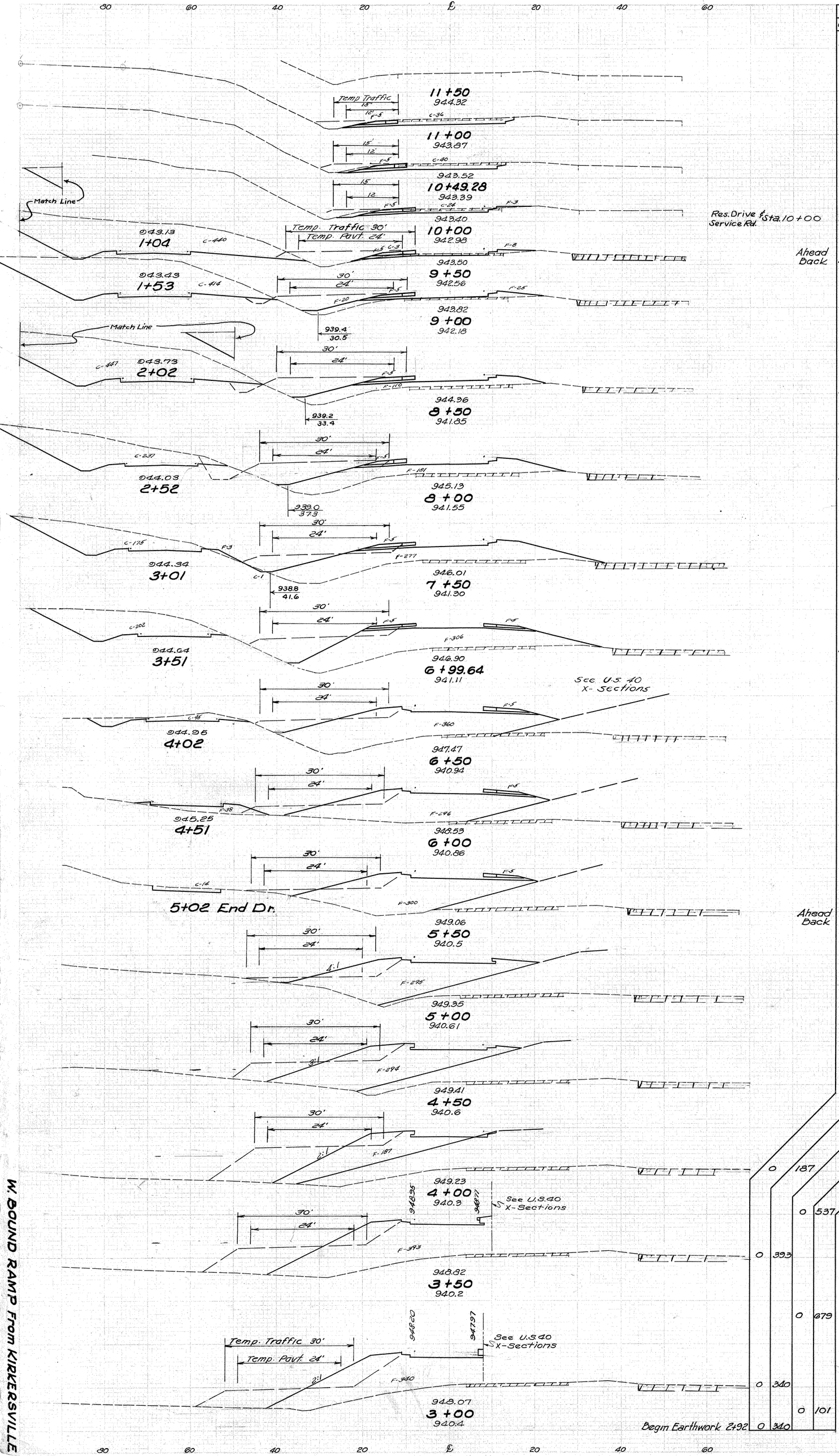


PLAN
Scale of Feet
0 5 10 20

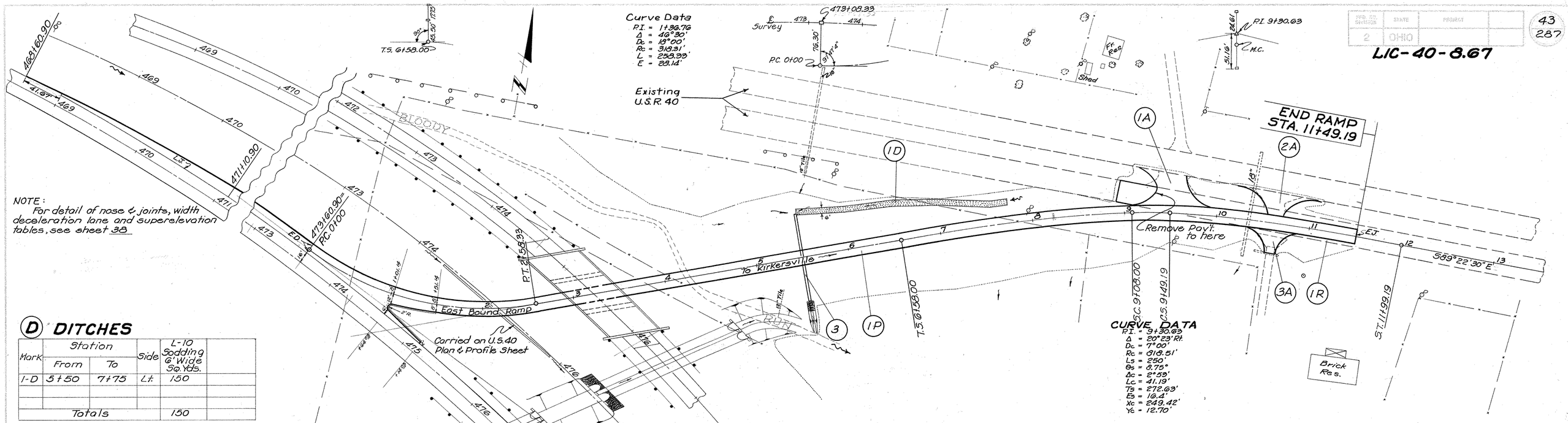


RESIDENCE DRIVE PROFILE
0 5 10 20 Hor.
Scales
0 1 2 3 4 5 Vert.

DRIVE DETAILS


60 40 20 ℄ 20 40 60
Temp Traffic
18'
12'
F-5
C-36
11+50
944.32
11+00
943.87
C-40
943.52
10+49.28
943.39
C-24
F-3
943.40
Match Line
Res. Drive & Service Rd.
Sta. 10+00
943.13
1+04
C-440
Temp. Traffic 30'
Temp. Pavt. 24'
10+00
942.98
C-3
F-8
943.50
Ahead 3 13
Back 443 13
943.43
1+53
C-414
30'
24'
9+50
942.56
F-20
F-25
943.82
9+00
942.18
939.4
30.5
Match Line
C-447
943.73
2+02
F-119
944.36
8+50
941.85
939.2
33.4
C-257
944.03
2+52
F-181
945.13
8+00
941.55
939.0
37.3
C-175
944.34
3+01
F-277
946.01
7+50
941.30
938.8
41.6
C-202
944.64
3+51
F-306
946.90
6+99.64
941.11
See U.S. 40 X-Sections
C-85
944.95
4+02
F-360
947.47
6+50
940.94
F-38
945.25
4+51
F-296
948.53
6+00
940.86
C-14
5+02 End Dr.
F-300
949.06
5+50
940.5
2:1
F-295
949.35
5+00
940.61
F-294
949.41
4+50
940.6
F-187
949.23
4+00
940.3
948.36
948.11
See U.S.40 X-Sections
F-393
948.32
3+50
940.2
948.20
947.97
See U.S.40 X-Sections
F-340
948.07
3+00
940.4
Begin Earthwork Z+92
End Area Cut Fill
Cu. Yds. Cut Fill
36 5
71 9
40 5
58 12
24 8
525 5
25 13
794 58
414 50
797 153
447 115
633 279
237 186
382 436
176 285
353 560
202 316
227 626
45 365
42 652
0 339
13 592
Ahead 14 300
Back 0 300
0 551
0 295
0 545
0 294
0 445
0 187
0 537
0 393
0 679
0 340
0 101
0 340
W. BOUND RAMP From KIRKERSVILLE
LIC-40-8.67
42
287

LIC-40-8.67



(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding 6' Wide Sq. Yds.	
1-D	5+50	7+75	Lt.	150	
Totals				150	

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Cr. Aggreg. Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	B-33 Bit. Mac. Base Crse. Sq. Yds.	I-12 Type 2-A Conc. Curb Lin. Ft.
1-P	468+60.90	11+49.19	2617.6	752	115	2618	885	107

STRUCT'S. 20' SPAN & UNDER

Struc. No.	Station		Proposed Type	Size	Leng.	Details on Sheet
3	5+50		P.C.	30"	94'	44

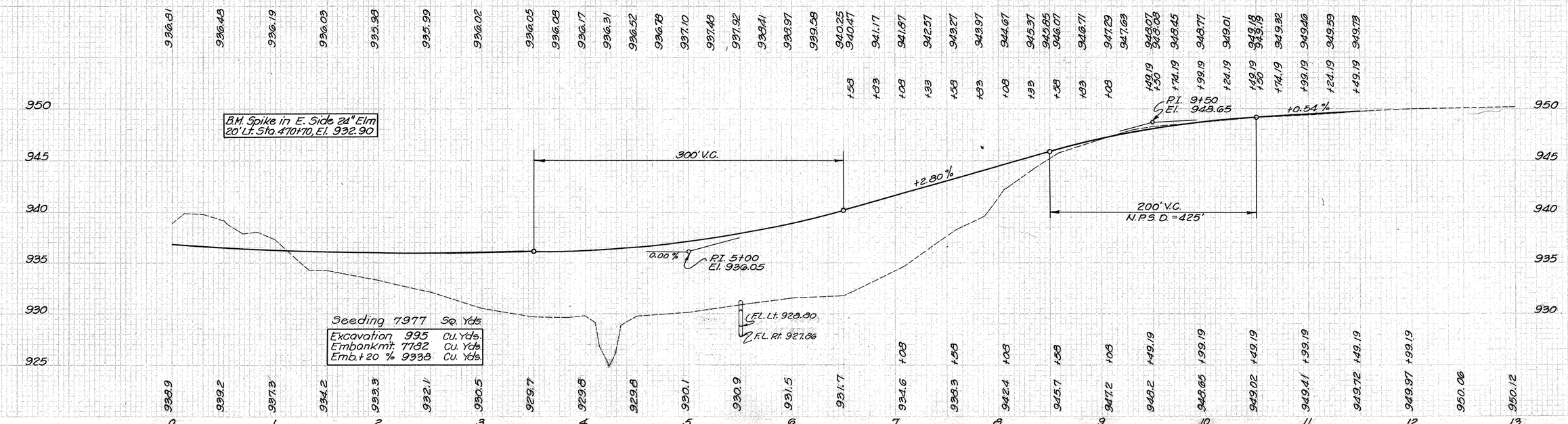
(A) DRIVES & APPROACHES

Mark	Station	Side	Type	T-70 (7") P.C. Conc. Pavt. Sq. Yds.	T-35 (2") Asph. Conc. Surf. Crse. Cu. Yds.	Details on Sheet
1-A	9+52.5	Lt.	Cross Over	191.2	5	41
2-A	10+61	Lt.	Cross Over	95.1		41
3-A	10+61	Rt.	Res.	* 82.8		41
Totals				369.1	5	

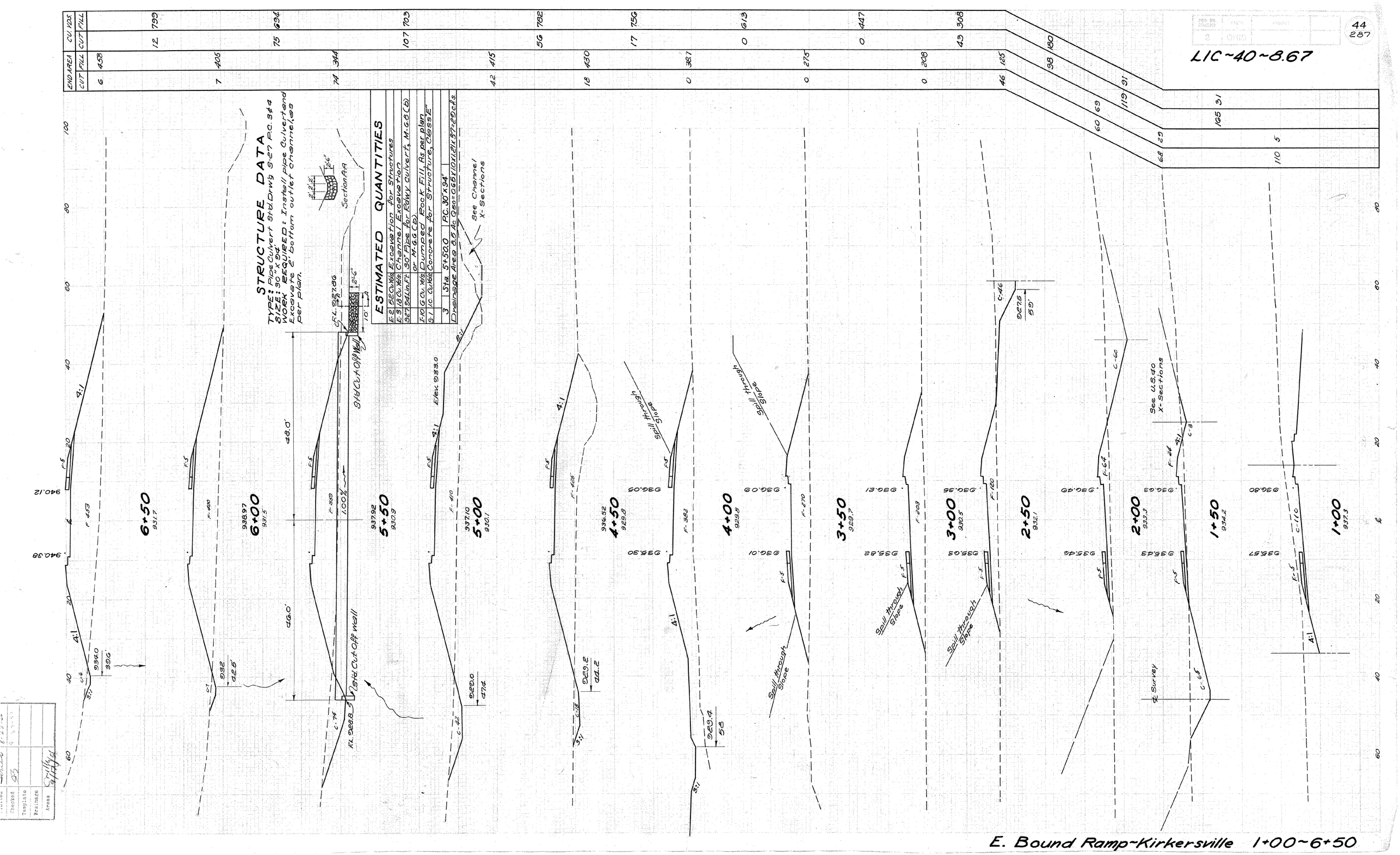
* Includes Mail Box Approach

(R) PAV'T. REMOVAL

Mark	Station From	Station To	E-8 Removal Sq. Yds.
1-R	9+28	11+49.19	747
Totals			747



EAST BOUND RAMP TO KIRKERSVILLE



E. Bound Ramp~Kirkersville 1+00~6+50

DIST. NO. DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		

45
287

LIC-40-8.67

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
0	3		6
19	3	18	
0	23	18	24
33	50	30	68
21	51	31	85
16	60	20	94
10	106	50	154
8	290	37	222
0	415	35	393
7	653	30	134
5	679		

Cross over # Drive 1061

Cross over 94525

End E. Bound Ramp

11+49.19
949.75

10+99.19
949.44

10+49.19
949.05

9+99.19
948.68

9+49.19
948.2

9+08
947.2

8+58
946.7

8+08
942.4

7+58
938.3

7+08
934.8

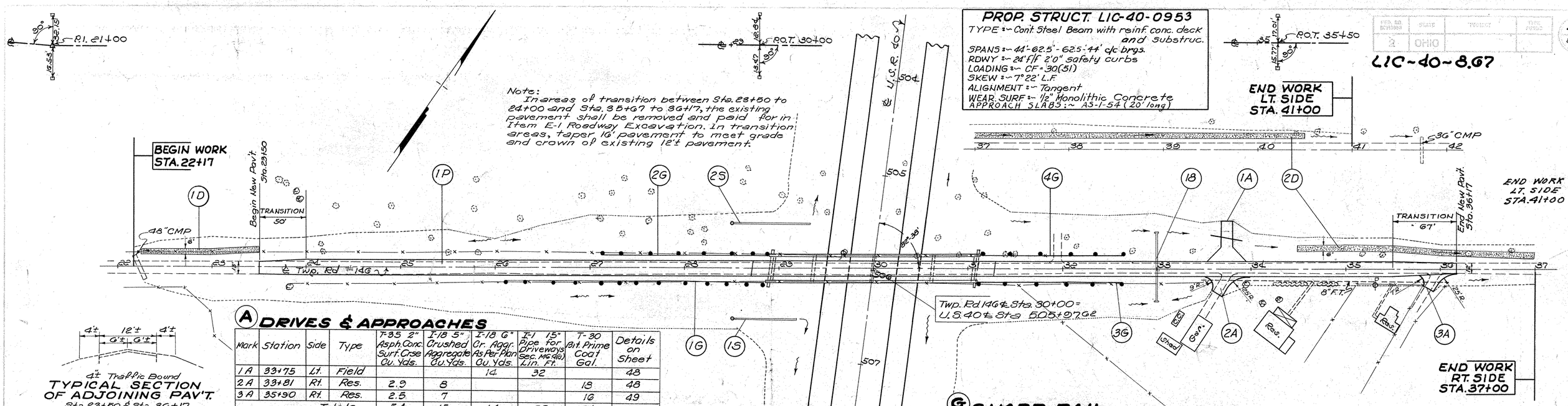
E. Bound Ramp ~ Kirkersville 7+08 ~ 11+49.19

LIC-40-8.67

PROP. STRUCT. LIC-40-0953

TYPE :- Cont. Steel Beam with reinf. conc. deck and substruc.
SPANS :- 44'-62.5'-62.5-44' c/c brgs.
RDWY :- 24'f/f 2'0" safety curbs
LOADING :- CF-30(51)
SKEW :- 7°22' L.F.
ALIGNMENT :- Tangent
WEAR. SURF :- 1/2" Monolithic Concrete
APPROACH SLABS :- AS-1-54 (20' long)

Note:
In areas of transition between Sta. 28+50 to 29+00 and Sta. 35+67 to 36+17, the existing pavement shall be removed and paid for in Item E-1 Roadway Excavation. In transition areas, taper 16' pavement to meet grade and crown of existing 12' pavement.



4'± 12'± 4'±
6'± 6'±
4" Thick Pvmt.
TYPICAL SECTION OF ADJOINING PAV'T.
Sta. 23+50 & Sta. 36+17

A DRIVES & APPROACHES

Mark	Station	Side	Type	T-35 2" Asph. Conc. Surf. Crse Cu. Yds.	I-18 5" Crushed Aggregate Cu. Yds.	I-18 6" Cr. Aggr. As Per Plan Cu. Yds.	I-1 15" Pipe for Driveways Sec. Metal Lin. Ft.	T-30 Bit. Prime Coat Gal.	Details on Sheet
1A	33+75	Lt.	Field			14	32		48
2A	33+81	Rt.	Res.	2.9	8			18	48
3A	35+90	Rt.	Res.	2.5	7			16	49
			Totals	5.4	15	14	32	34	

P PAVEMENT

Mark	Station From	Station To	T-35 1½" Asph. Conc. Surf. Crse Cu. Yds.	B-35 2" Asph. Conc. Level Crse Cu. Yds.	T-30 Bit. Prime Coat Gals.	B-20 W.B. Macadam Base Crse Sq. Yds.	I-22 4" Subbase Cu. Yds.	E-1 Comp. Subgrade Sq. Yds.	I-7 11½" Rein. Conc. App. Slab Sq. Yds.	I-9 Stone Underdrn Lin. Ft.
1-P	23+50	36+17	61.5	98.4	659	1884	222	1842	71.1	450

STRUCT'S 20' SPAN & UNDER

Str. No.		Station	Proposed Type	Size	Leng.	Details on Sheet
1B		33+00	Pipe	15"	78	48

G GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
1-G	26+11.0	28+86.0	Rt.	275	
2-G	27+14.0	28+89.0	Lt.	175	
3-G	31+12.5	32+62.5	Rt.	150	
4-G	31+15.5	32+65.5	Lt.	150	
Total				750	

S STORM SEWER

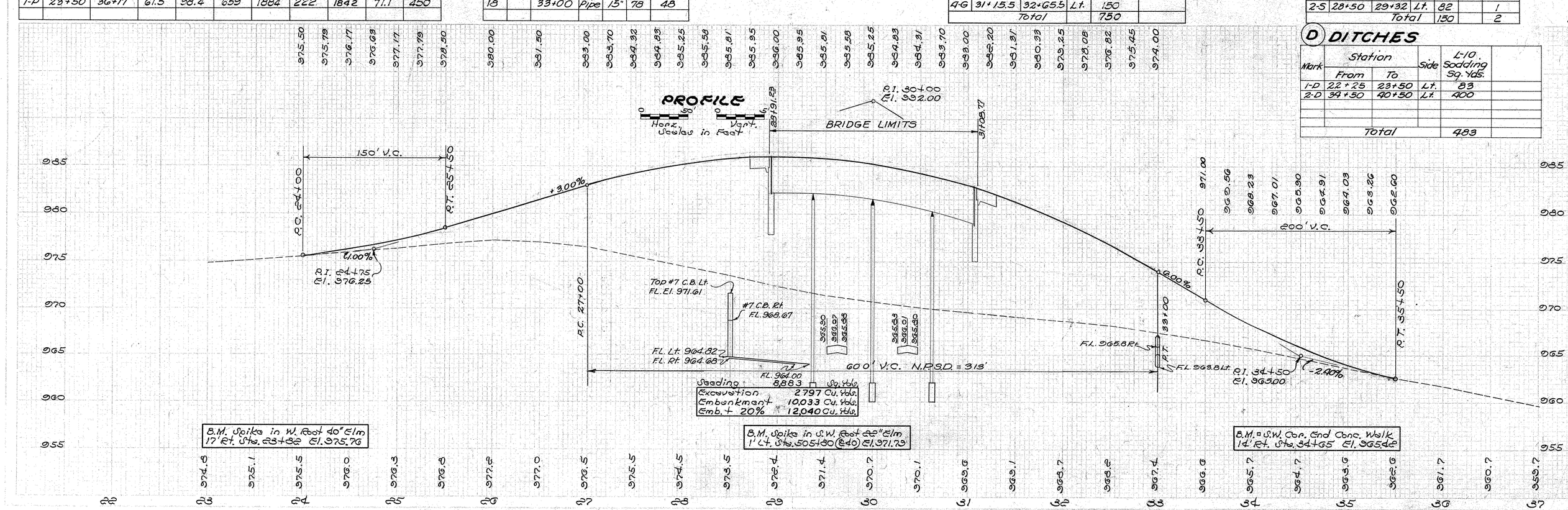
Mark	Station From	Station To	Side	I-2 Class A Storm Sewer Lin. Ft. 12"		I-8 7.C.B. Each
1-S	28+50	29+18	Rt.	68		1
2-S	28+50	29+32	Lt.	82		1
Total				150		2

D DITCHES

Mark	Station From	Station To	Side	L-10. Sodding Sq. Yds.	
1-D	22+25	23+50	Lt.	83	
2-D	34+50	40+50	Lt.	400	
Total				483	

PROFILE

Horz. Scales in Feet
0 50'
Vert. 0 6'



22+00 ~ 41+00

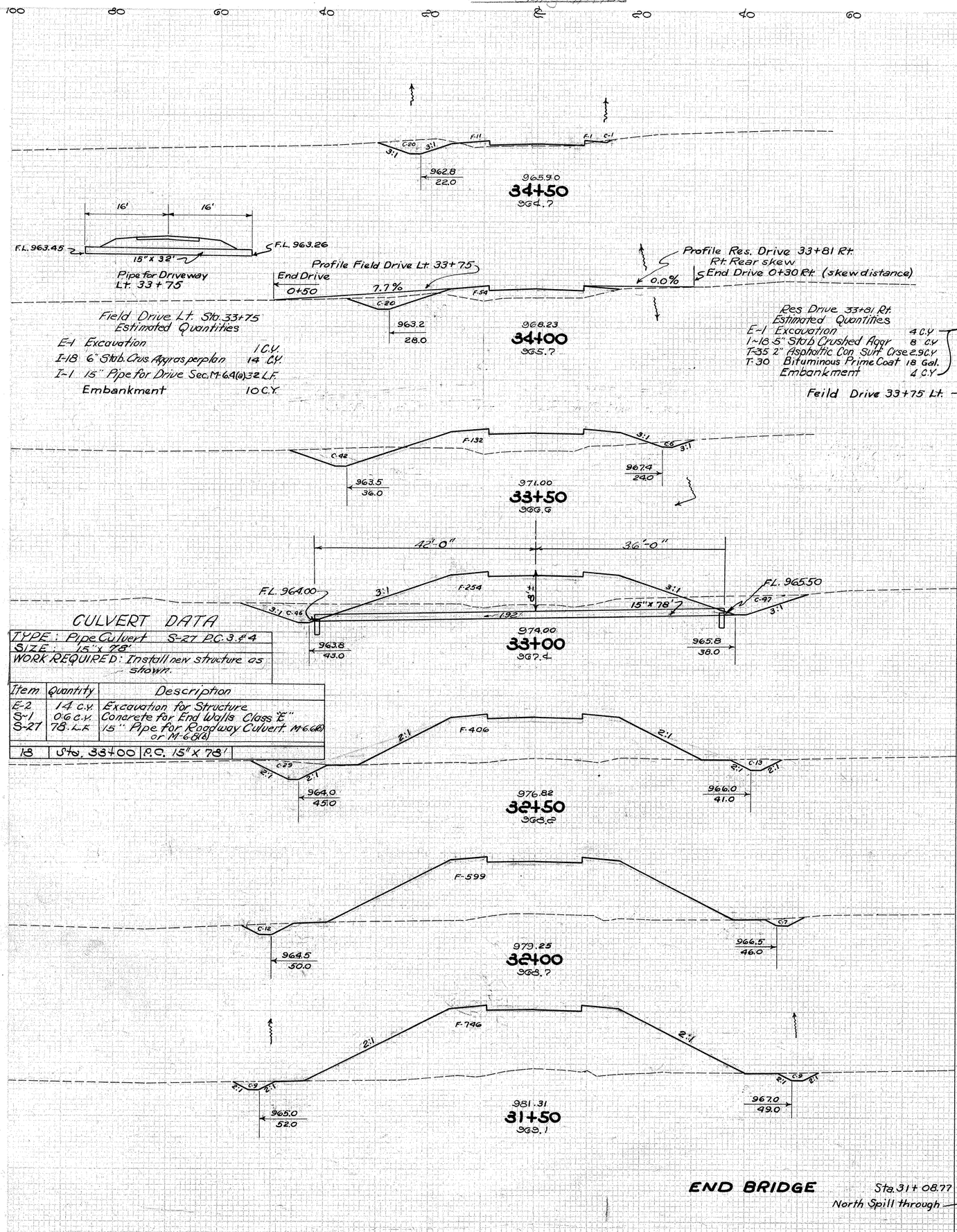
FED. RD. DIVISION	STATE	PROJECT	TOTAL SHEETS
2	OHIO		

47 / 287

LIC-40-8.67

23+00 — 28+50

23+00 ~ 28+50
U.S. 40 & TWP. RD. 146 OVERPASS



CULVERT DATA

TYPE: Pipe Culvert S-27 P.C. 3 & 4	
SIZE: 15" x 78'	
WORK REQUIRED: Install new structure as shown.	

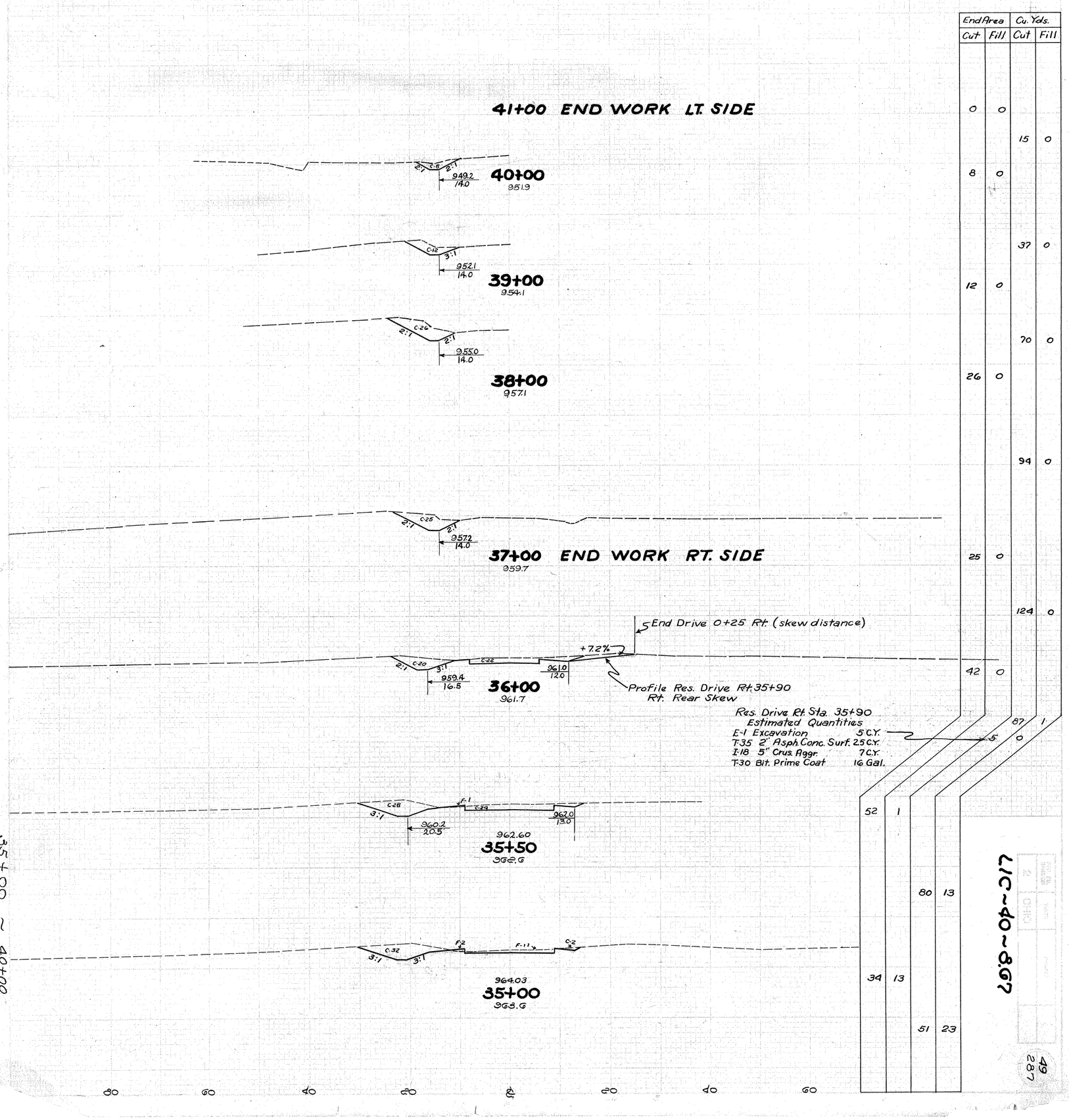
Item	Quantity	Description
E-2	14 C.Y.	Excavation for Structure
S-1	0.6 C.Y.	Concrete for End Walls Class "E"
S-27	78 L.F.	15" Pipe for Roadway Culvert M-6.6(b) or M-6.8(b)
18	Sta. 33+00	P.C. 15" x 78'

END BRIDGE

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	21	12		
			38	61
	20	54		
			4	4
			63	172
			1	10
	48	132		
			131	357
	93	254		
			125	704
	42	406		
			56	931
	19	599		
			34	1245
	18	746		
			14	1139
Sta. 31+08.77	0	746		
North Spill through				600

LIC-40-8.67

48
287



Res. Drive Rt. Sta. 35+90
Estimated Quantities

E-1 Excavation	5 C.Y.
T-35 2" Asph. Conc. Surf.	2.5 C.Y.
I-18 5" Crus. Aggr.	7 C.Y.
T-30 Bit. Prime Coat	16 Gal.

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	0		
		15	0
8	0		
		37	0
12	0		
		70	0
26	0		
		94	0
25	0		
		124	0
42	0		
		87	1
5	0		
52	1		
		80	13
34	13		
		51	23

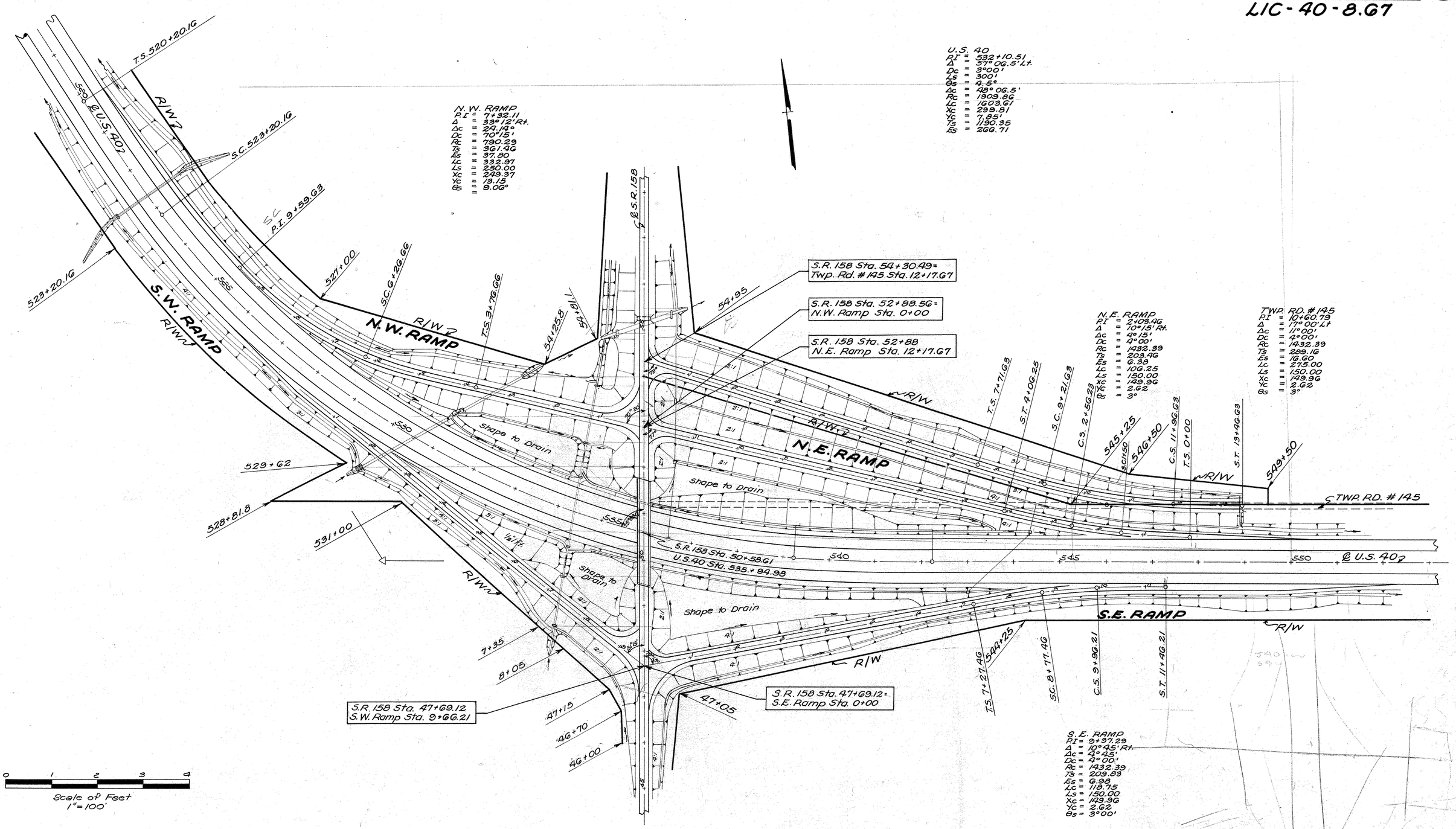
217-40-8.97

49
287

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

50
287

LIC-40-8.67



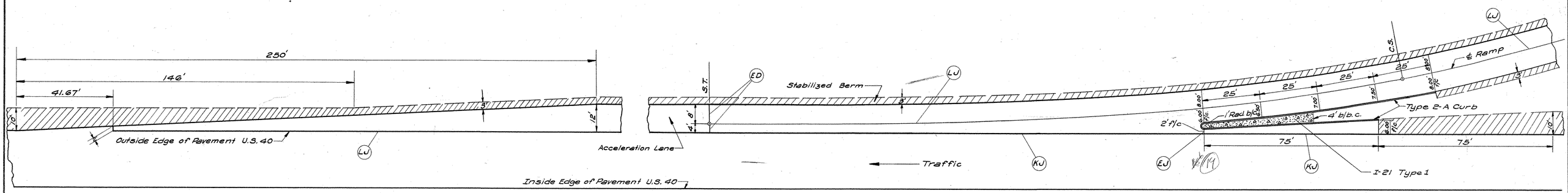
NOTE: Seeding areas between U.S. Route 40 and Ramps is included in U.S. 40 Seeding Quantities Sheet 19.

U.S. 40 & S.R. 158 INTERCHANGE GENERAL LAYOUT & DRAINAGE DETAIL

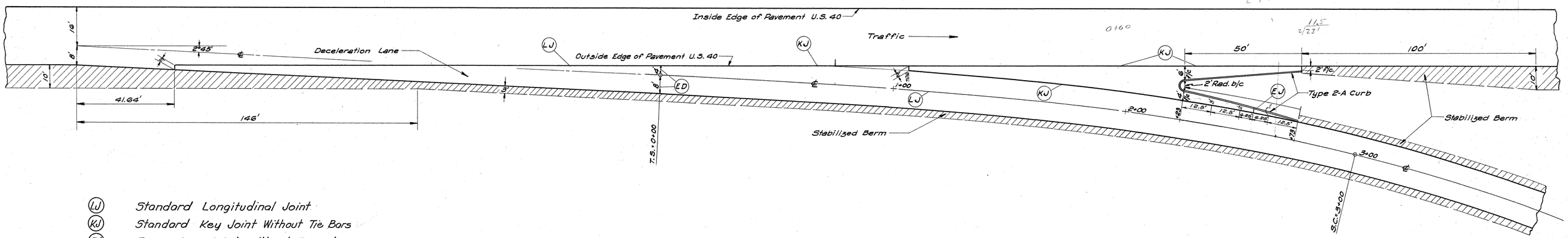
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

51
287

LIC~40~8.67

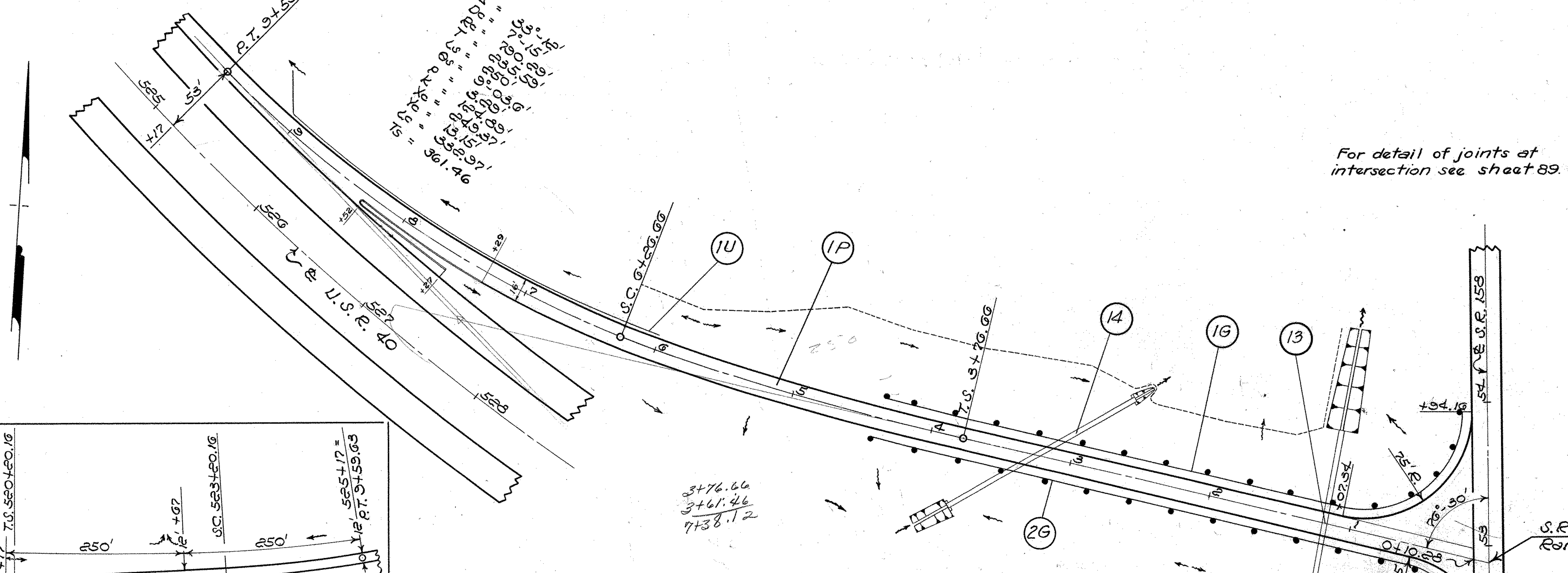


DETAIL OF RAMP ENTRANCE ONTO U.S. 40



LJ Standard Longitudinal Joint
KJ Standard Key Joint Without Tie Bars
EJ Expansion Joint Without Dowels
ED Standard Expansion Joint

DETAIL OF RAMP EXIT FROM U.S. 40

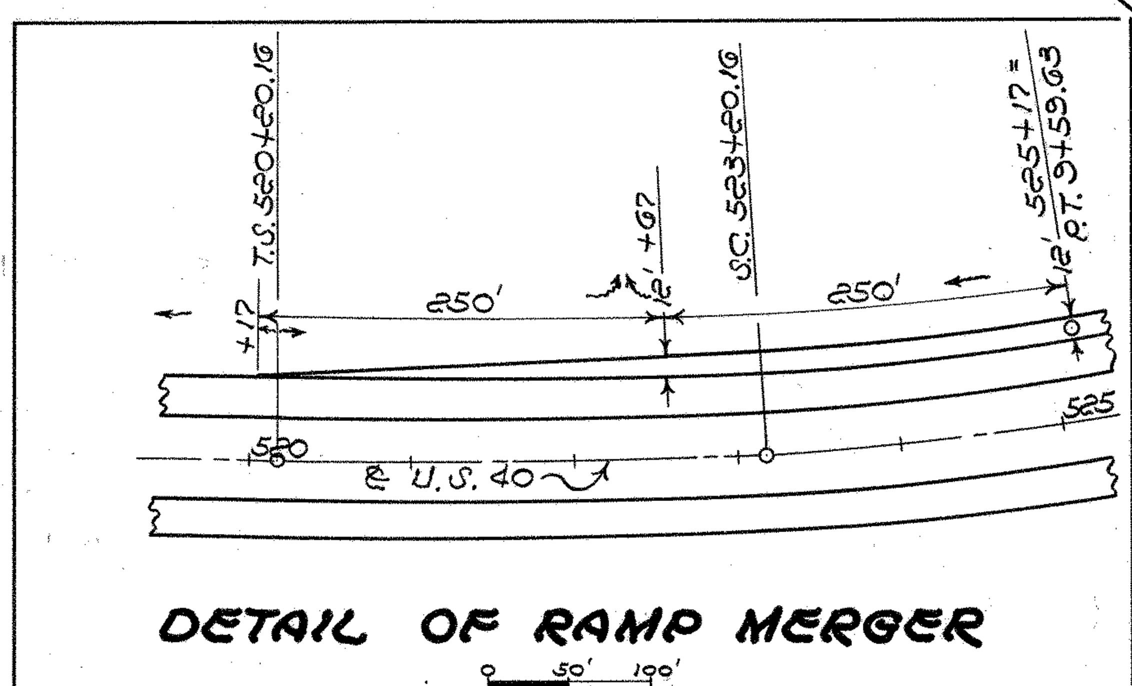


For detail of joints at intersection see sheet 89.

S.R. 158 ~ Sta. 52+88.56 = Ramp ~ Sta. 0+00

PLAN

Scale in Feet



DETAIL OF RAMP MERGER

Scale in Feet

Note :~ Merger and Ramp pavement quantities carried on this sheet. Earthwork quantities from Sta. 6+26.66 carried with U.S. 40. For curb, paved median & joint detail see sheet 51.

Ⓤ PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdr. Lin. Ft.	I-4 8" Outlets Underdr. Lin. Ft.	I-5 6"x45° Bend Each
1-U	6+00	9+29	Rt.	326	10	1

STRUCTURES 20' SPAN & UNDER

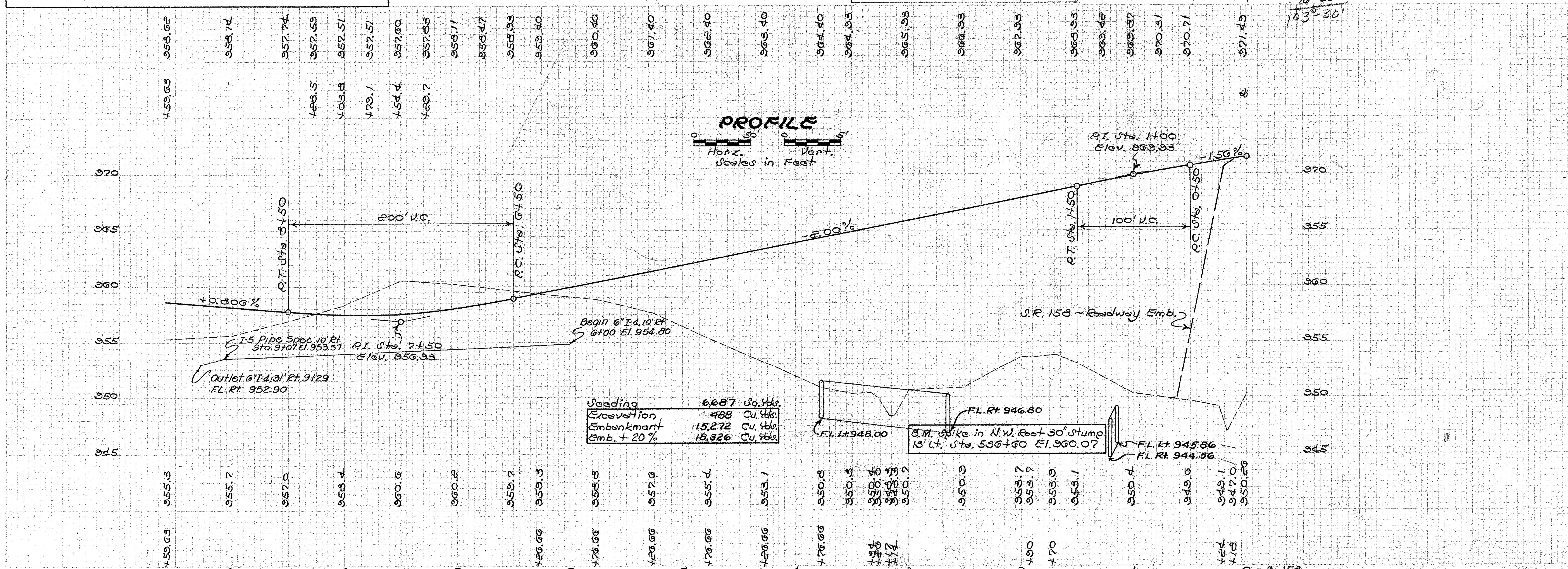
Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
13		1+17		None		Pipe	42"	130'	211
14		3+25		None		Pipe	42"	150'	212

Ⓖ GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft
1-G	53+94 S.R. 158	4+36.4	Rt	450
2-G	52+33.5 S.R. 158	4+39.9	Lt.	450
			Total	900

Ⓟ PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pvt. Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Berm Cu. Yds.	E-1 Compact. Subgrade Sq. Yds.	B-33 3" Bit. Mac. Base Crse. Sq. Yds.	I-12 Type 2-A Curb Lin. Ft.	I-21 4" Type 1. Pvd. Median Sq. Yds.
1-P	0+10.28	520+17	2461.8	723	111	2462	794	179	26



PROFILE

Horz. Vert.
Scales in Feet

Seeding	6,687	Sq. Yds.
Excavation	488	Cu. Yds.
Embankment	15,272	Cu. Yds.
Emb. + 20 %	18,326	Cu. Yds.

SUPERELEVATION TABLE

Equ. Sta. on U.S. 40	Station	Lt. Edge	℄	Rt. Edge
	3+00	966.05	965.93	965.81
	+25	965.55	965.43	965.31
	+50	965.05	964.93	964.81
	+76.66	964.52	964.40	964.28
	4+01.66	964.07	963.90	963.73
	+26.66	963.62	963.40	963.18
	+51.66	963.18	962.90	962.62
	+76.66	962.74	962.40	962.06
	5+01.66	962.29	961.90	961.51
	+26.66	961.84	961.40	960.96
	+51.66	961.40	960.90	960.40
	+76.66	960.95	960.40	959.85
	6+01.66	960.51	959.90	959.29
	+26.66	960.06	959.40	958.74
	+50	959.59	958.93	958.27
	+75	959.13	958.47	957.81
	7+00	958.77	958.11	957.45
	+25	958.48	957.82	957.16
527+50	+29.7	958.48	957.82	957.16
527+25	+54.4	958.26	957.60	956.94
527+00	+79.1	958.17	957.51	956.85
526+75	8+03.8	958.17	957.51	956.85
526+50	+28.5	958.25	957.59	956.93
526+29	+50	958.50	957.84	957.18
526+25	+53.1	958.52	957.88	957.21
526+00	+77.6	958.62	958.14	957.47
525+75	9+02.0	958.72	958.32	957.65
525+50	+26.5	958.82	958.47	957.80
525+25	+51.6	958.92	958.60	957.92
525+17	+59.63	958.95	958.62	957.95

N.W. RAMP 0+00 ~ 9+59.63
U.S. 40 & S.R. 158 INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	TOTAL SHEETS
2	OHIO		

LIC-40-8.67

53
287

End Areas		Cu. Yds.	
Cut	Fill	Cut	Fill
10	763		
		12	807
15	872		
		48	1657
37	918		
		79	1716
48	935		
		68	1625
25	874		
		31	1691
8	952		
		13	2078
6	1292		
6	2157		
0	1038	0	768
0	0	0	0

F-739 — 2:1 — C-10 — 9500 / 50 — 2:1 — 3+76.66 — 350.8

F-868 — 2:1 — C-11 — 9490 / 52 — C-4 — 9520 / 50 — 2:1 — 3+50 — 350.3

F-914 — 2:1 — C-18 — 9450 / 360 — C-24 — 9520 / 60 — 3+00 — 350.7

F-931 — 2:1 — C-18 — 9530 / 50 — 2+50 — 350.3

F-870 — 2:1 — C-25 — 9540 / 60 — 2+00 — 353.7

F-948 — 2:1 — C-8 — 9530 / 52 — 1+50 — 353.1

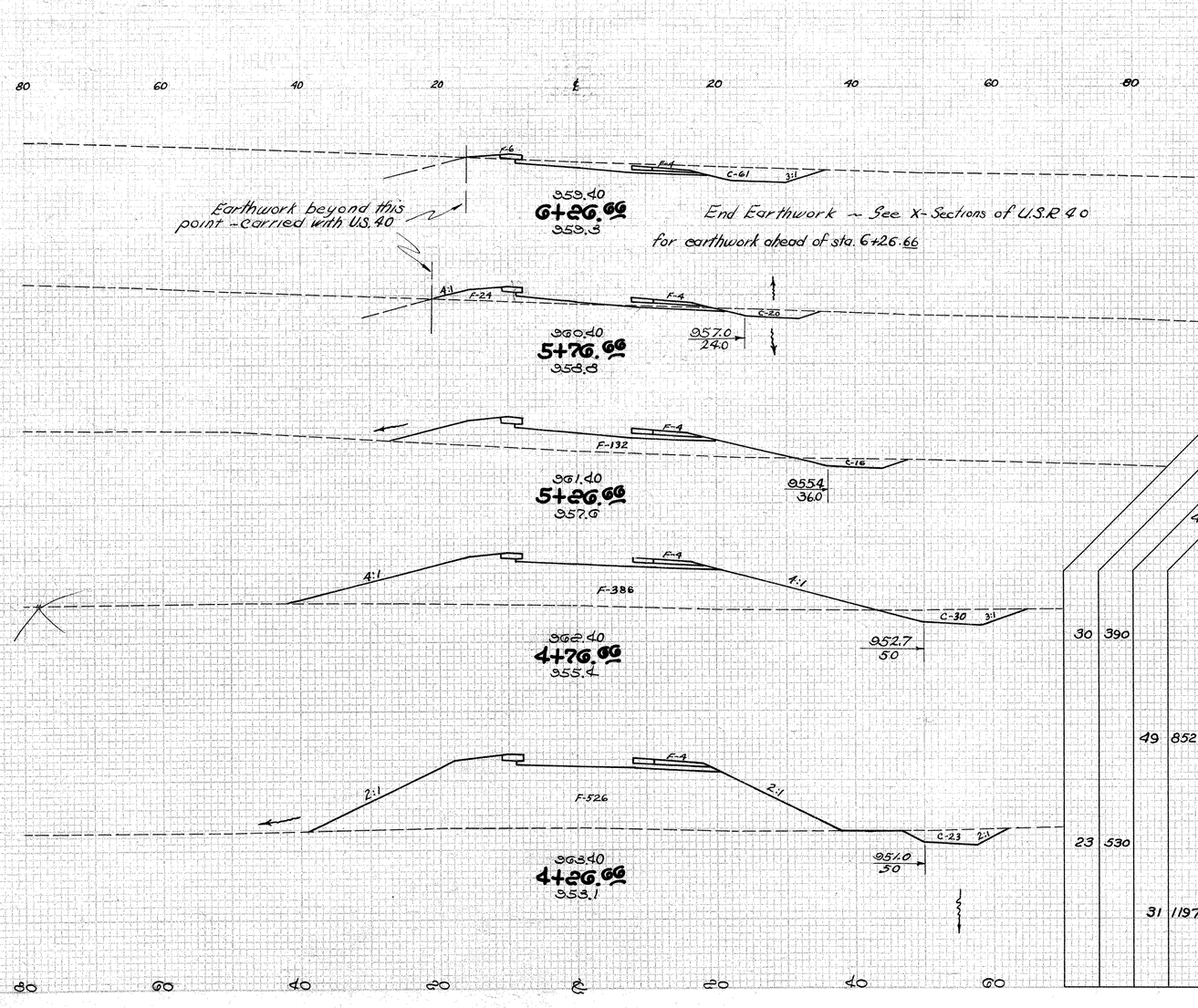
F-1288 — 2:1 — C-8 — 9510 / 590 — 1+00 — 350.4

F-4 — F-1034 — Limits of Embankment S.R. 158 — 0+28.04 — 0+50 — 349.6

N.W. RAMP 0+50 ~ 3+76.66
U.S. 40 & S.R. 158 INTERCHANGE

Areas | 15-18-36 | TAB

Areas W.S.&S. 5/14/56



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
61	10		
		75	35
20	28		
		33	152
16	136		
		43	487
30	390		
		49	852
23	530		
		31	1197

N.W. Radio 4+26.66 ~ 6+26.66
U.S. 40 & U.S. 158 Interchange

C.I.C.-40-8.97

FED. ROAD PROJECT NO.	STATE	INTERSTATE	TURN. PROJECT
2	OHIO		

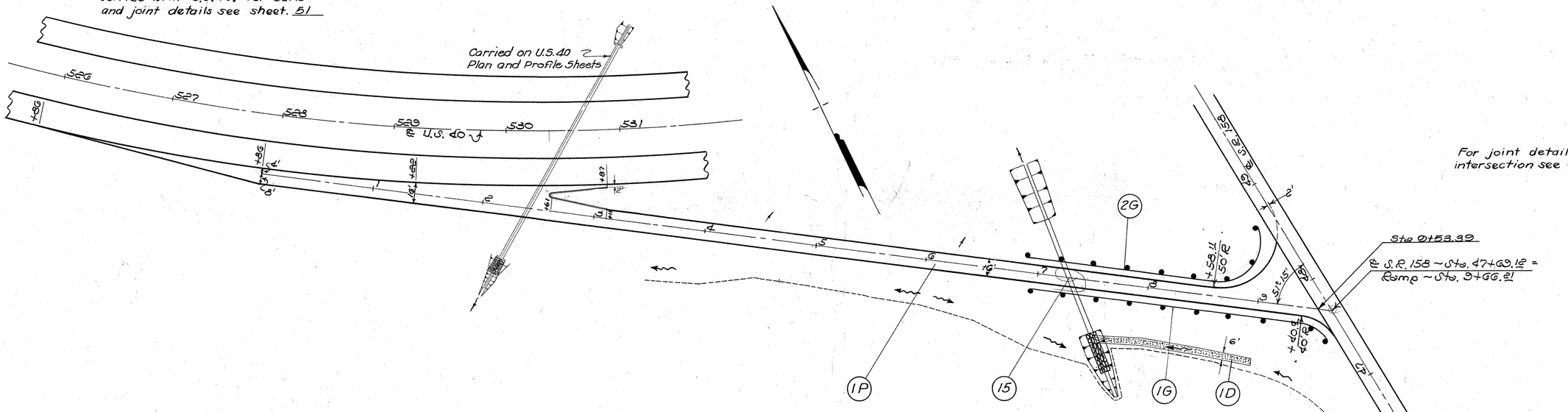
54
287

FED. RD. DIVISION	STATE	PROJECT	YEAR FILING
2	OHIO		

55
287

LIC-40-8.67

Note :~ Manger and Ramp pavement quantities carried on this sheet. Earthwork quantities to Sta. 2+64.1 carried with U.S. 40. For curb and joint details see sheet. 51



PLAN
0 50'
Scale in Feet

(P) PAVEMENT

Mark	Station From	Station To	T-71 0" Reink P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33 Bit. Mac. Base Crse. Sq. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-12 Type 2-A Curb L.in.Ft.		
1-P	525+86	9+53.39	2111.5	607	95	646	2112	105		

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	6+96	47+46 S.R. 158	Rt.	275
2-G	6+89	48+67 S.R. 158	Lt.	250
		Total		525

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng	Proposed Type	Proposed Size	Proposed Leng	Details on Sheet
15		7+29		None		Pipe	42"	108'	213

(D) DITCHES

Mark	Station From	Station To	Side	L-10. Sodding Sq. Yds.	I-19 Type I Pav. Gutter Lin. Ft.
1D	7+60	9+00	Rt.	94	
Totals				94	

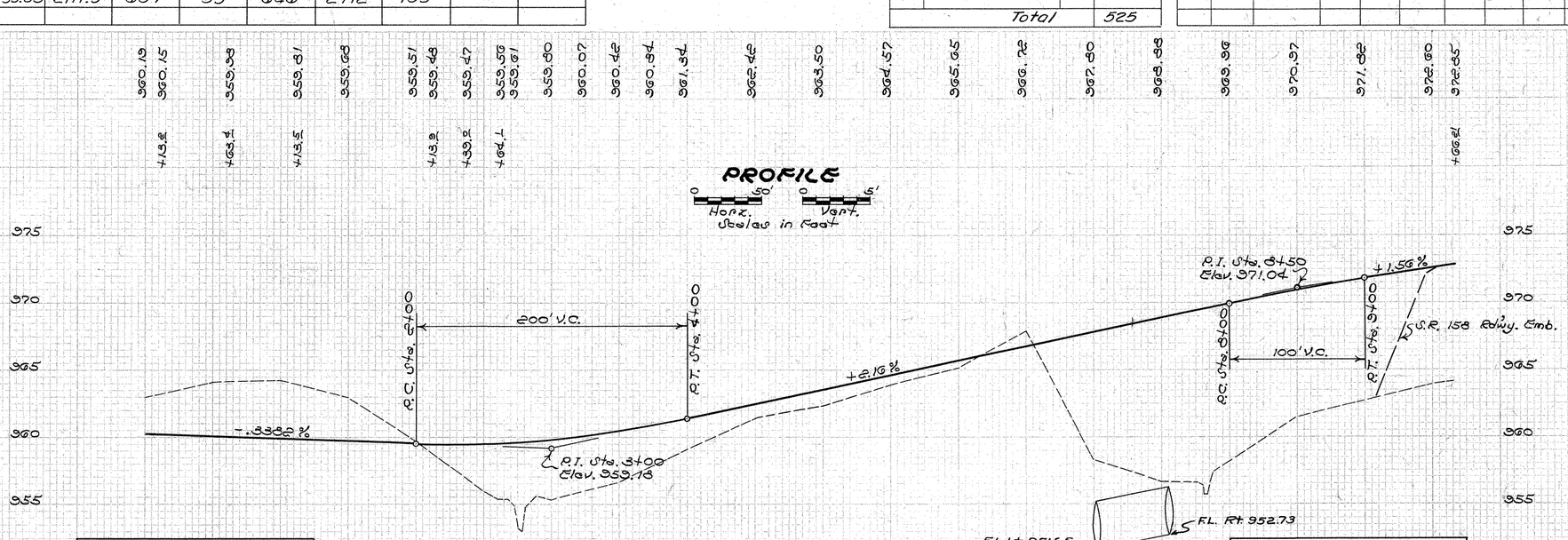
SUPERELEVATION TABLE

Ramp Sta	Station*	Lt. Edge	℄ of Ramp	Rt. Edge
0+00 =	527+86	959.88	960.19	960.81
	528+00	959.82	960.15	960.76
	+25	959.72	960.06	960.65
	+50	959.62	959.98	960.52
	+75	959.52	959.89	960.38
	529+00	959.42	959.80	960.24
	+22	959.33	959.73	960.13
	+25	959.33	959.73	960.11
	+50	959.30	959.64	959.98
	+75	959.26	959.55	959.84
	530+00	959.25	959.48	959.71
	+25	959.29	959.47	959.65
2+69.1 =	+50	959.44	959.56	959.68

3/16'/ft slope to left continues the distance of Ramp

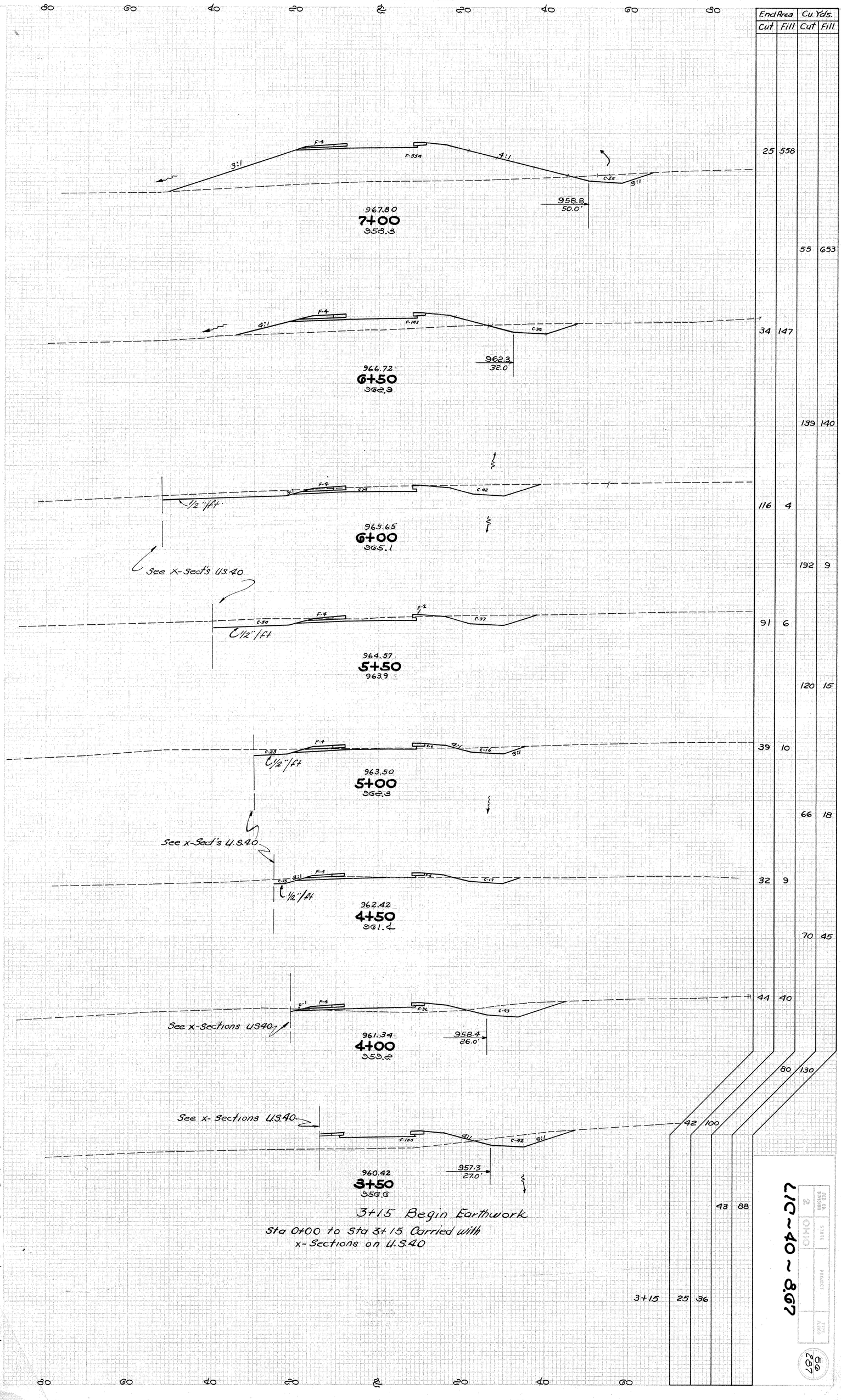
*Lt. Edge of Ramp = Rt. Edge U.S. 40

PROFILE
0 50' Horz. 0 5' Vert.
Scales in Feet



Seeding	5,204	Sq. Yds.
Excavation	887	Cu. Yds.
Embankment	5,616	Cu. Yds.
Emb. + 20 %	6,739	Cu. Yds.

S.W. RAMP 0+00 ~ 9+66.21
U.S. 40 & S.R. 158 INTERCHANGE

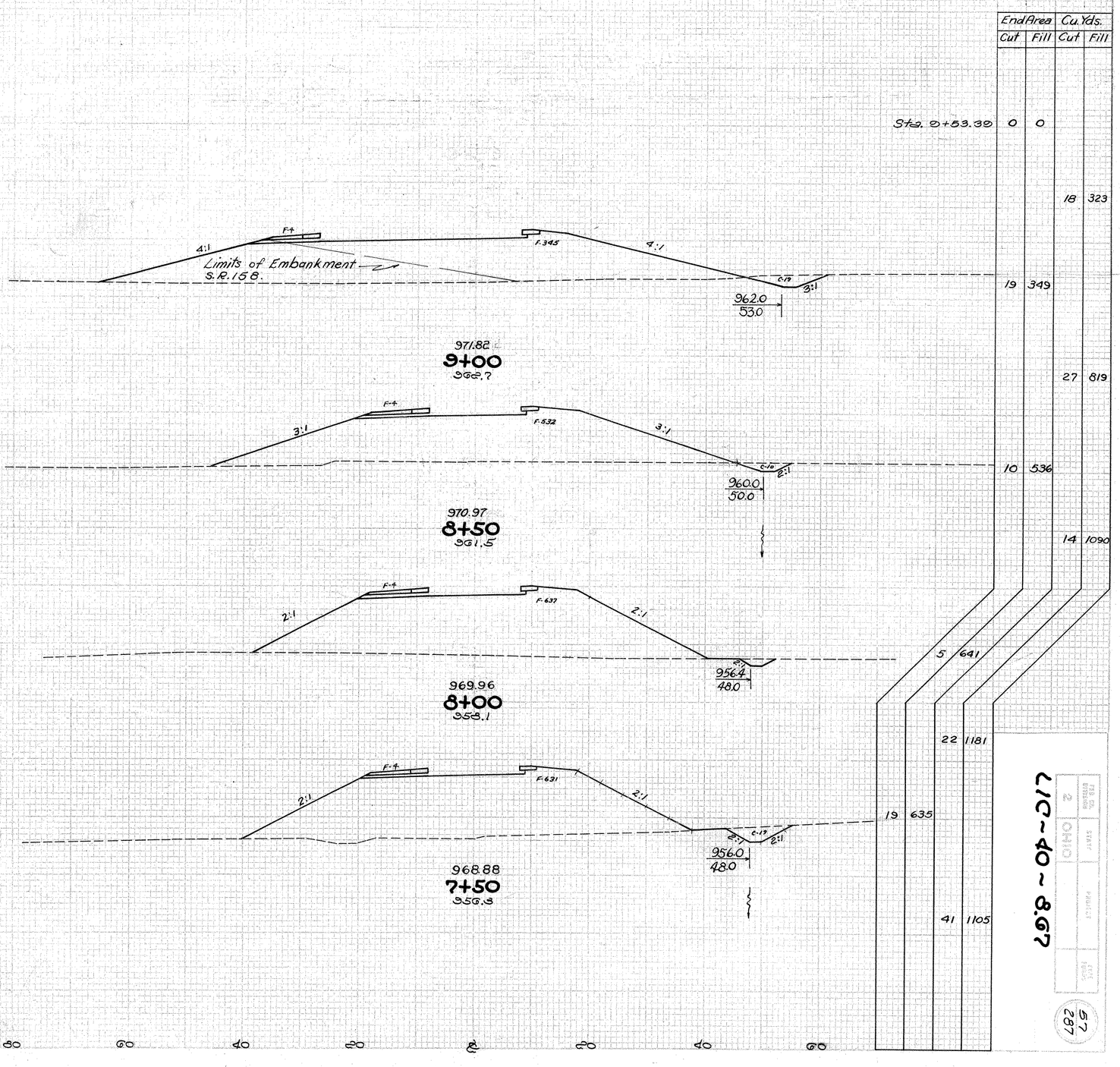


S.W. RAMP 3+50 ~ 7+00
U.S. 40 & S.R. 158 INTERCHANGE

LIC-40-8.67

FED. RD. DIVISION 2 | STATE OHIO | PROJECT | TYPE PAPER

56
287



Sta.	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Sta. 9+53.39	0	0		
			18	323
	19	349		
			27	819
	10	536		
			14	1090
	5	641		
			22	1181
	19	635		
			41	1105

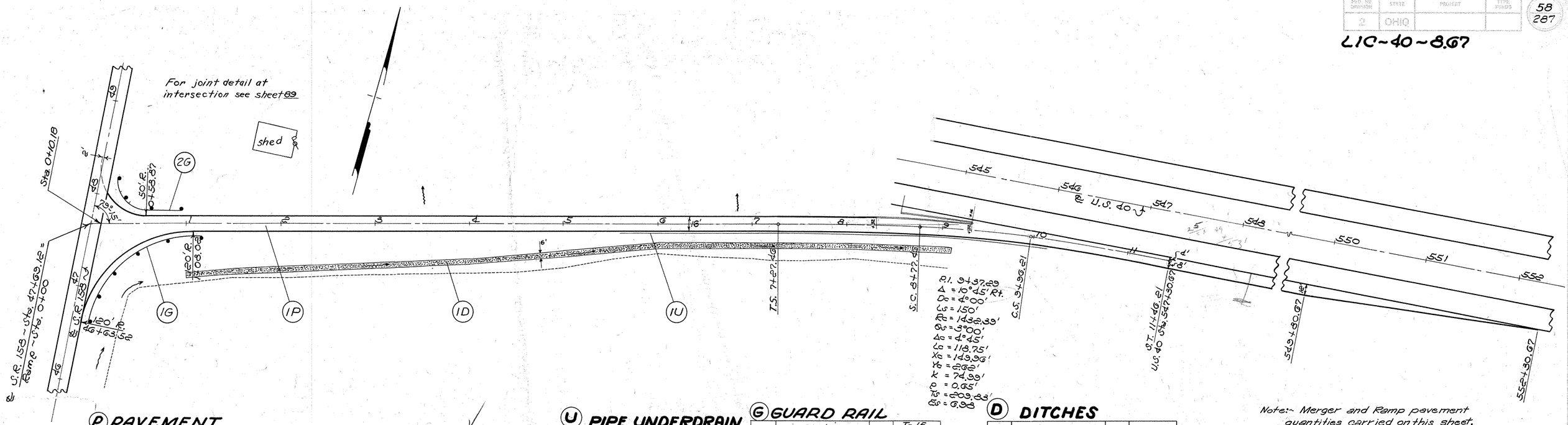
S.W. RAMP
U.S. 40 & S.R. 158 INTERCHANGE
7+50 ~ 9+00

C-17-40-8.67

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

58
287

LIC-40-8.67



Note:- Merger and Ramp pavement quantities carried on this sheet. Earthwork quantities from Sta 8+13.5 carried with U.S.40. For details of curb paved median & joints see sheet 51.

(P) PAVEMENT

Mark	Station From	Station To	I-71 9" Reinf. P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	I-10 Stab. Crus. Aggregate Cu. Yds.	I-33 3" Bit. Mac. Base Crse Sq. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-12 Type 2-A Curb Lin. Ft.	I-21 4" Type I Paved Median Sq. Yds.
1P	0+10.18	552+30.67	2766.4	742	133	899	2766	179	23.0

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrain Lin. Ft.
*1-U	5+60	10+16	Rt.	456

* For additional I-4 see U.S. 40

(G) GUARD RAIL

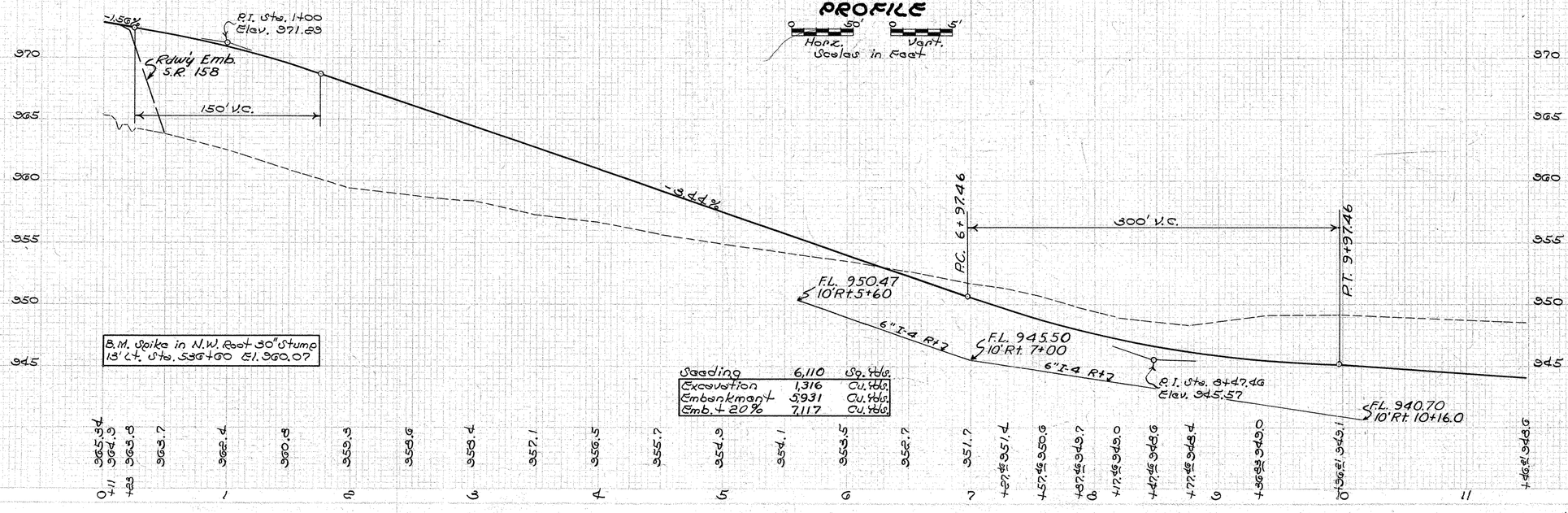
Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	4G+60 4SR 1SB	1+15.7	Rt.	162.5
2-G	4B+12.5 1SR 1SB	0+95	Lt.	75.
		Total		237.5

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.
1-D	1+00	9+14.5	Rt.	543

PROFILE

Horz. 0 50' 100' Scales in Feet
Vert. 0 5'



SUPERELEVATION TABLE

Station	Lt. Edge Elevation	℄ of Survey Elevation	Rt. Edge Elevation
7+27.46	949.86	949.74	949.62
+57.46	949.02	948.85	948.64
+87.46	948.27	948.06	947.85
8+17.46	947.61	947.36	947.11
+47.46	947.05	946.76	946.47
+77.46	946.56	946.23	945.90
9+00	946.28	945.92	945.56
+14.5	946.09	945.73	945.37
+40.7	945.83	945.47	945.11
+65.6	945.65	945.29	944.93
+80.7	945.56	945.20	944.84
+90.8	945.48	945.17	944.88
+96.21	945.43	945.15	944.82
10+26.21	945.17	944.97	944.74
+56.21	944.92	944.78	944.61
+86.21	944.67	944.57	944.43
11+16.21	944.42	944.35	944.22
+46.21	944.17	944.11	943.99

S. E. RAMP 0+00 ~ 11+46.21
U.S. 40 & S.R. 158 INTERCHANGE

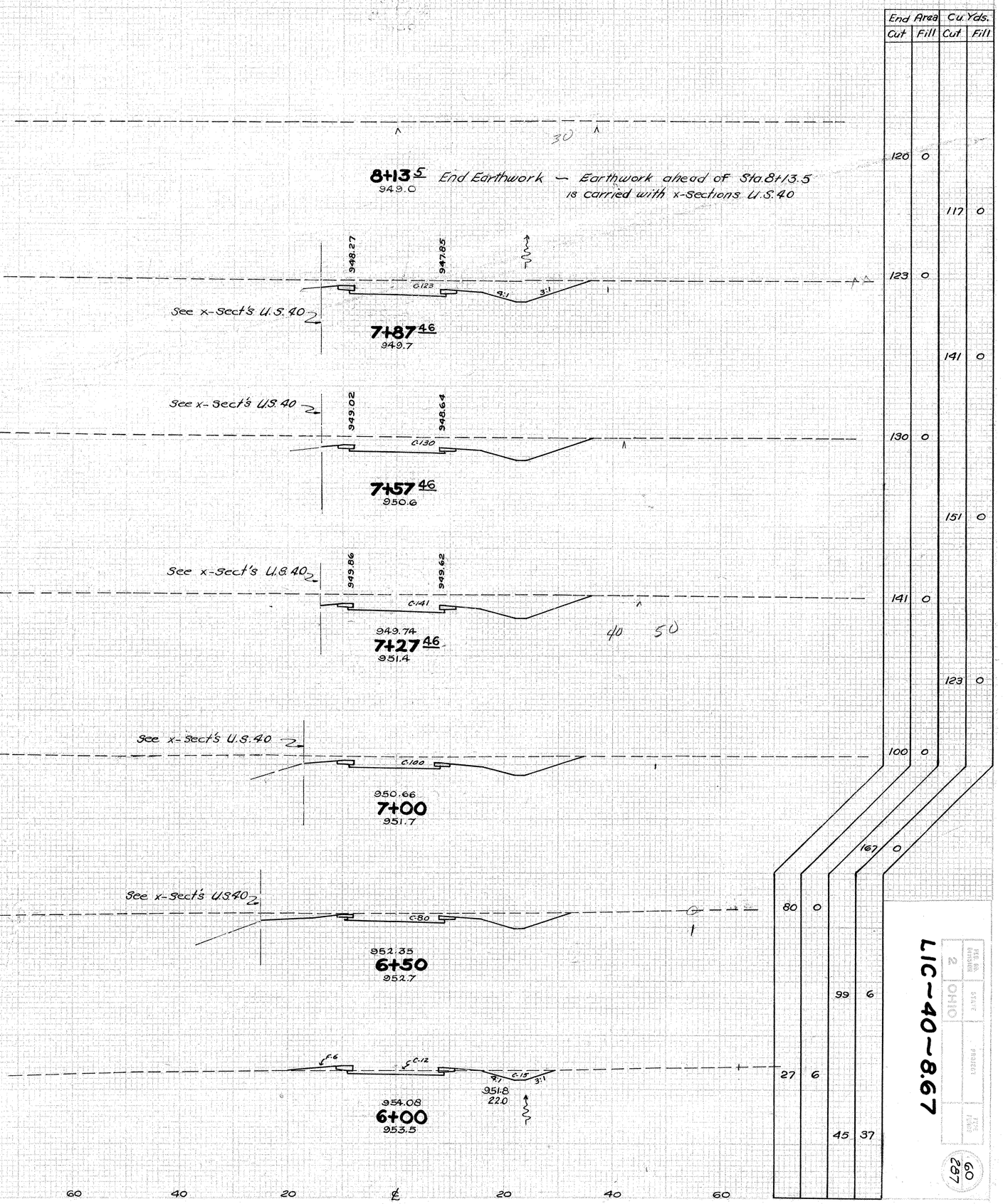
FED. ROAD DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

59
287

LIC-40-8.67

	END AREA	CU. YDS.
	CUT / FILL	CUT / FILL
955.81 5+50 954.1	22 / 34	
		57 / 97
957.53 5+00 954.9	40 / 71	
		80 / 181
959.65 4+50 955.7	46 / 124	
		61 / 290
960.97 4+00 956.5	41 / 189	
		69 / 388
963.69 3+50 957.1	34 / 230	
		49 / 494
964.41 3+00 958.4	19 / 304	
		32 / 638
966.13 2+50 958.6	16 / 365	
		26 / 781
967.85 2+00 959.3	12 / 459	
		20 / 885
969.63 1+50 960.8	10 / 497	
		25 / 873
970.94 1+00 962.4	17 / 446	
		25 / 837
972.02 0+50 963.7	10 / 458	
		9 / 424
Sta 0+10.18	0 / 0	

S.E. RAMP 0+50 ~ 5+50
U.S. 40 & S.R. 158 INTERCHANGE



S.E. RAMP
U.S 40 & S.R. 158 INTERCHANGE
6+00 ~ 8+13.5

LIC-40-8.67

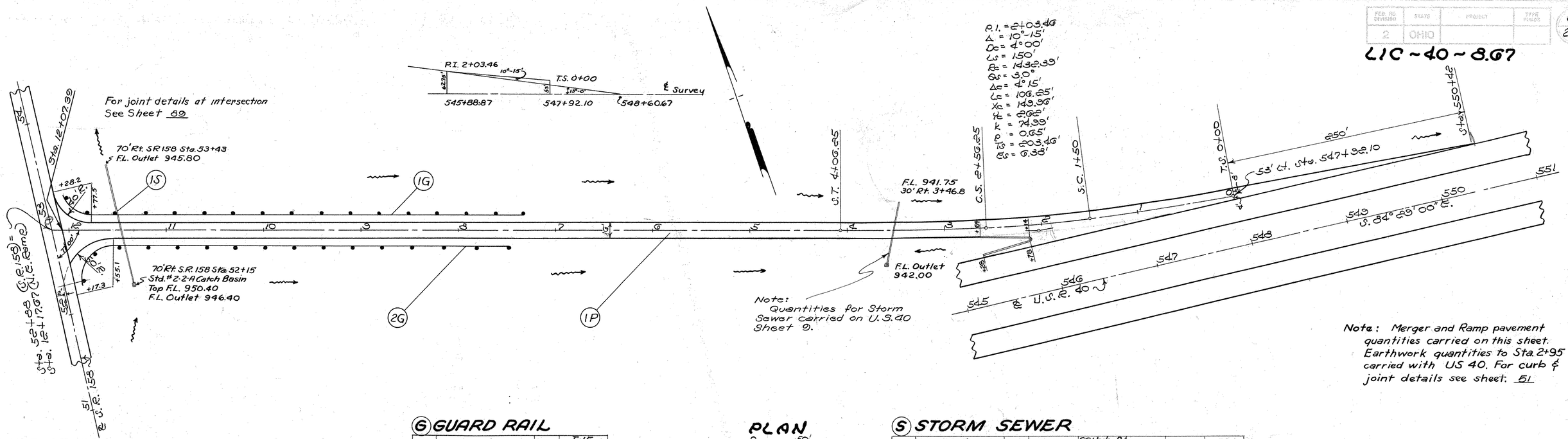
2	OHIO		

60
287

FED. AID DIVISION	STATE	PROJECT	TYPE WORK
2	OHIO		

G1
287

LIC-40-8.67



Note: Merger and Ramp pavement quantities carried on this sheet. Earthwork quantities to Sta. 2+95 carried with US 40. For curb & joint details see sheet: 51

(P) PAVEMENT

Mark	Station From	Station To	I-71 9" Reinf. P.C. Concrete Sq. Yds.	I-22 Subbase Cu. Yds.	I-18 Stab. Crus. Aggregate Cu. Yds.	B-33 3" Bit. Mac. Base Crse Sq. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-12 Type 2A Curb Lin. Ft.
1-P	550+42	12+07.39	2534.4	754	115	865	2534	105

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	7+33.5	53+19 S.R. 158	Rt.	475
2-G	7+47	52+25 S.R. 158	Lt.	462.5
		Total		937.5

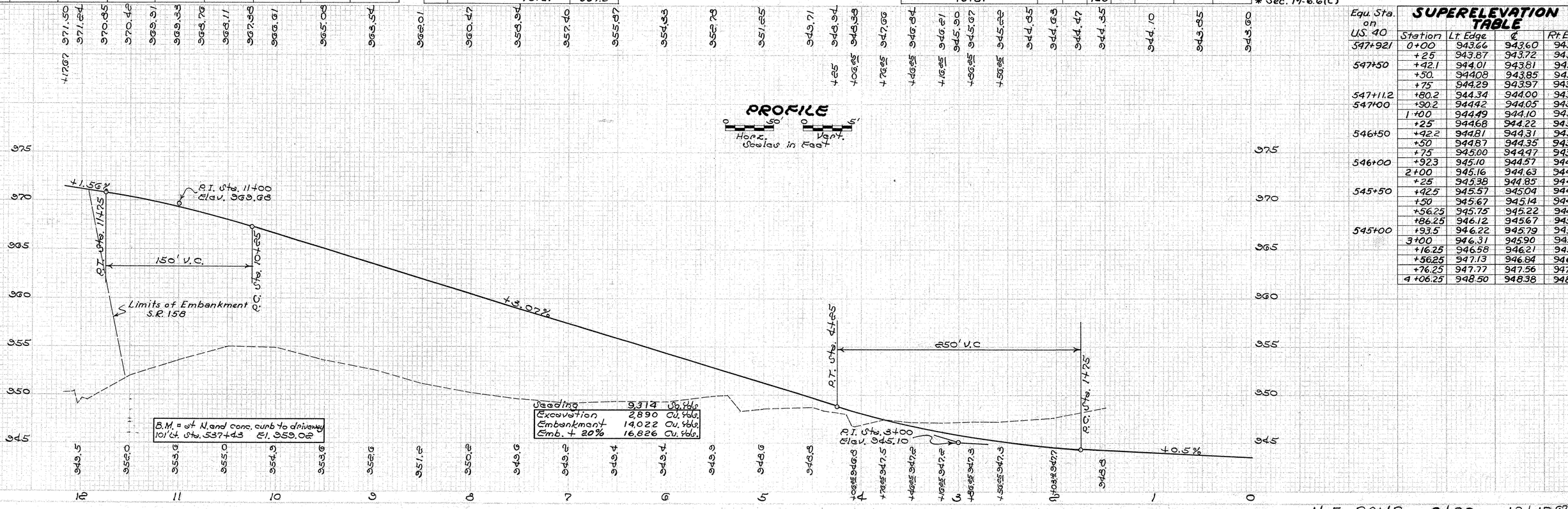
PLAN

0 50' 100'
Scale in Feet

(S) STORM SEWER

Mark	Station From	Station To	Side	S.S. Under Rd. Lin. Ft. */5' Cl. A
1-S	52+15 S.R. 158	53+43 S.R. 158	Rt.	128
Total				*128

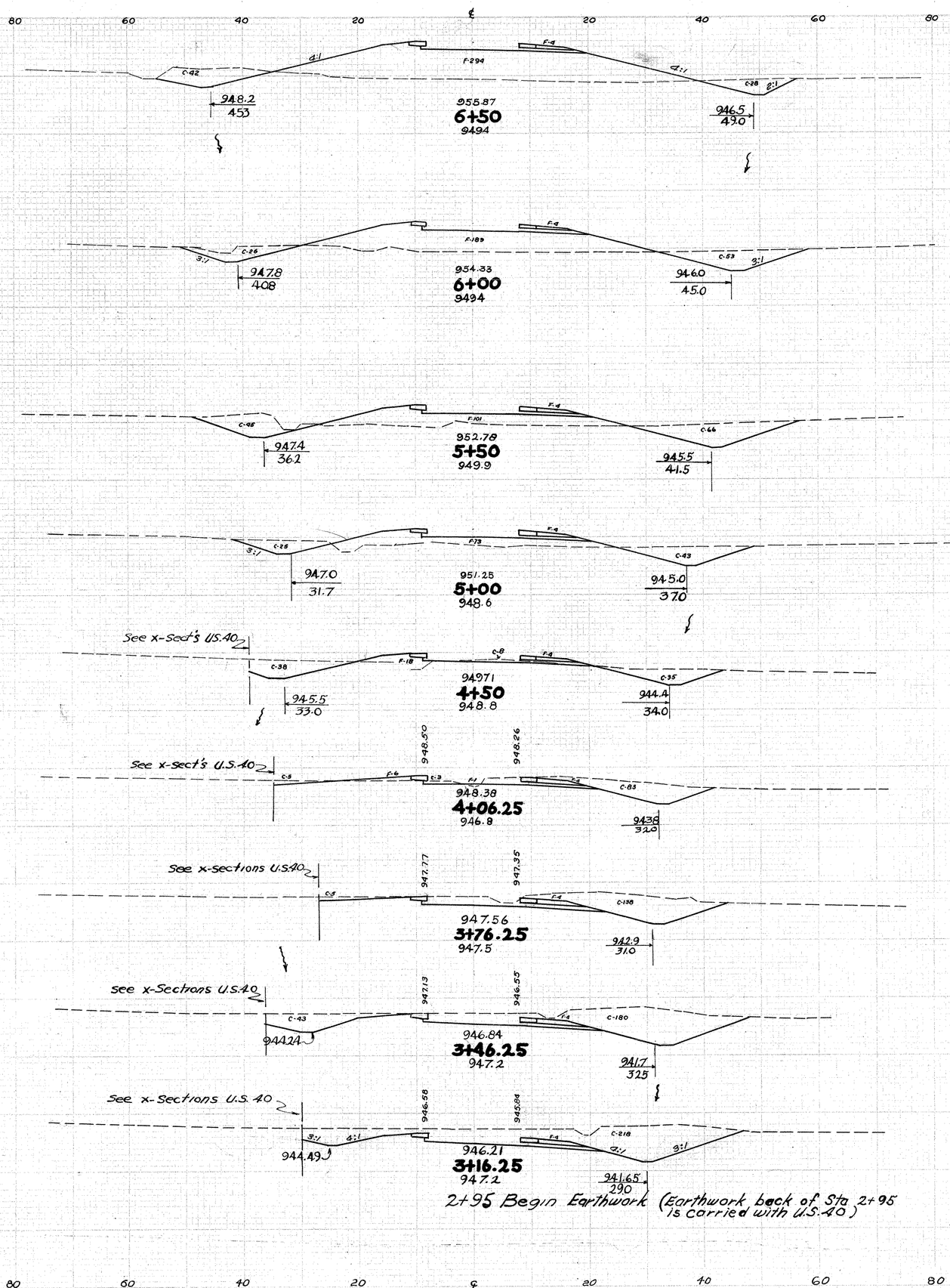
* Sec. M-6.6(C)



Equ. Sta. on US 40	Station	Lt. Edge	℄	Rt. Edge
547+92.1	0+00	943.66	943.60	943.48
	+25	943.87	943.72	943.48
547+50	+42.1	944.01	943.81	943.55
	+50	944.08	943.85	943.57
	+75	944.29	943.97	943.63
547+11.2	+80.2	944.34	944.00	943.65
547+00	+90.2	944.42	944.05	943.69
	1+00	944.49	944.10	943.71
	+25	944.68	944.22	943.76
546+50	+42.2	944.81	944.31	943.81
	+50	944.87	944.35	943.83
	+75	945.00	944.47	943.94
546+00	+92.3	945.10	944.57	944.04
	2+00	945.16	944.63	944.10
	+25	945.38	944.85	944.32
545+50	+42.5	945.57	945.04	944.51
	+50	945.67	945.14	944.60
	+56.25	945.75	945.22	944.69
	+86.25	946.12	945.67	945.22
545+00	+93.5	946.22	945.79	945.36
	3+00	946.31	945.90	945.49
	+16.25	946.58	946.21	945.81
	+56.25	947.13	946.84	946.55
	+76.25	947.77	947.56	947.35
	4+06.25	948.50	948.38	948.26

SUPERELEVATION TABLE

N.E. RAMP 0+00 ~ 12+17.67
U.S. 40 & S.R. 158 INTERCHANGE



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
70	298		
		138	455
79	193		
		176	276
111	105		
		166	169
68	77		
		138	92
81	22		
		139	27
91	11		
		130	8
143	4		
		203	4
223	4		
		245	4
218	4		
		160	2
2+95 188	0		

W.E. RAMP SR 158 & 40 INTERCHANGE
3+16.25 to 6+50

LIC-40-8.67

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	0		
		31	1201
34	1297		
		117	2100
92	971		
		179	1608
101	766		
		234	1272
152	608		
		211	1119
76	601		
		136	1093
71	579		
		109	1047
47	552		
		76	1030
35	560		
		69	969
39	486		
		102	860
71	493		
		131	686

LIC-40-8.67

03
287

Sta. 12+07.39

Limits of Embankment S.R. 158

11+50
952.0

10+50
965.0

10+00
954.9

9+50
953.6

9+00
952.6

8+50
951.2

8+00
950.2

7+50
949.6

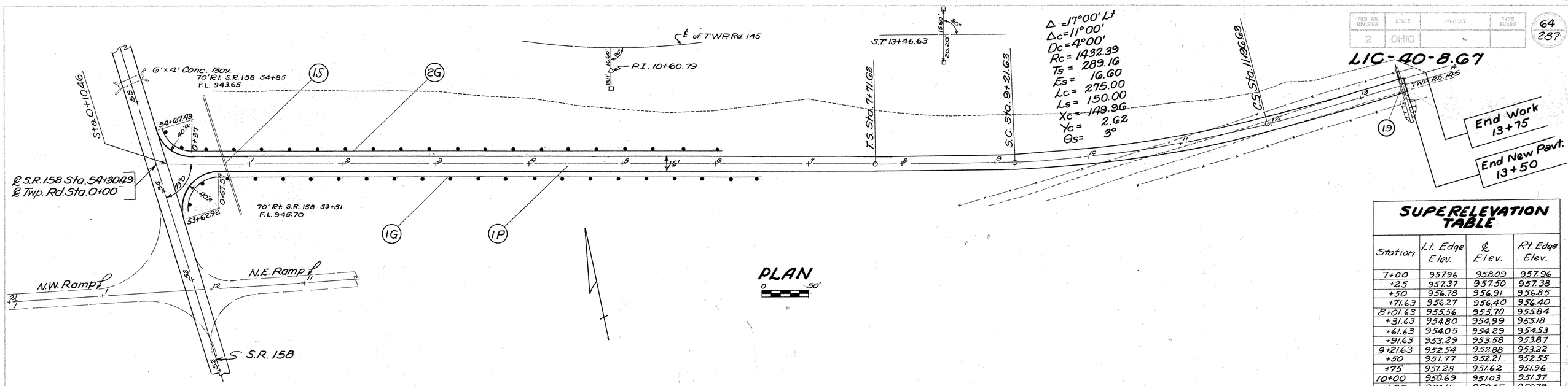
7+00
949.2

N.E. RAMP 40 & 158 Interchange
7+00 — 11+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

64
287

LIC-40-8.67



PLAN
0 50'

SUPERELEVATION TABLE

Station	Lt. Edge Elev.	℄ Elev.	Rt. Edge Elev.
7+00	957.96	958.09	957.96
+25	957.37	957.50	957.38
+50	956.78	956.91	956.85
+71.63	956.27	956.40	956.40
8+01.63	955.56	955.70	955.84
+31.63	954.80	954.99	955.18
+61.63	954.05	954.29	954.53
+91.63	953.29	953.58	953.87
9+21.63	952.54	952.88	953.22
+50	951.77	952.21	952.55
+75	951.28	951.62	951.96
10+00	950.69	951.03	951.37
+25	950.11	950.45	950.79
+50	949.52	949.86	950.20
+75	948.93	949.27	949.61
11+00	948.34	948.68	949.02
+25	947.76	948.10	948.44
+50	947.17	947.51	947.85
+75	946.58	946.92	947.26
+96.63	946.07	946.41	946.75
12+26.63	945.45	945.71	945.97
+56.63	944.84	945.01	945.18
+86.63	944.18	944.31	944.34
13+16.63	943.58	943.71	943.67
+46.63	943.07	943.20	943.07

(P) PAVEMENT

Mark	Station From	Station To	T-35 1½" Asph. Conc. Surf. Crse Cu. Yds.	B-35 2" Asph. Conc. Level. Crse Cu. Yds.	T-30 Bituminous Prime Coat Gals.	B-20 5" Water-bnd Mac. Base Sq. Yds.	I-22.4 Subbase as per plan Cu. Yds.	I-9 Stone Underdrn Lin. Ft.	E-1 Compacted Subgrade Sq. Yds.
1P	0+10.46	13+50	86.0	137.6	919	2632	310	730	2475

STRUCT'S. 20' SPAN & UNDER

No.	SLM	Station	Proposed Type	Size	Leng.	Details on Sheet
19		13+44.88	Pipe Arch	18"/11"	42'	67

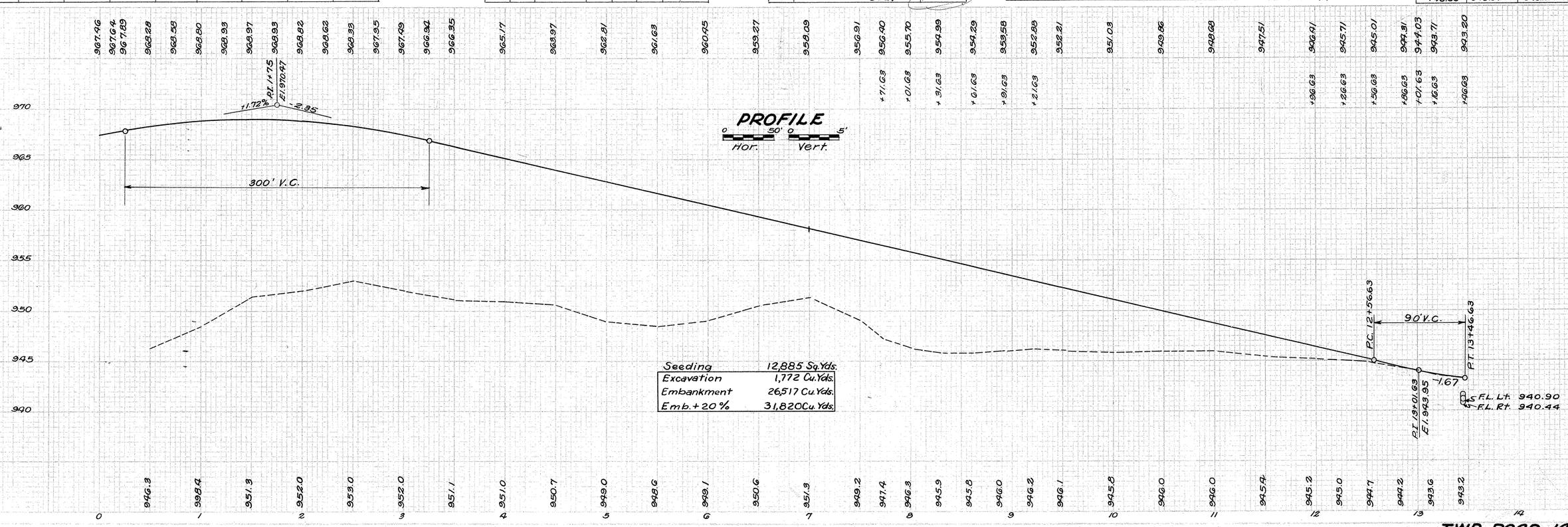
(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	53+69.4 S.R. 158	G+50	Rt.	637.5
2G	54+67.5 S.R. 158	G+07.5	Lt.	612.5
	Total			1250.0

STORM SEWER

Mark	Station From	Station To	Side			S.S. Under Prt. Lin. Ft. 15" Cl. A	
1-S	53+51 S.R. 158	54+85 S.R. 158	Rt.			*134	

*Sec. M-6.6 (c)



Seeding	12,885 Sq. Yds.
Excavation	1,772 Cu. Yds.
Embankment	26,517 Cu. Yds.
Emb. + 20%	31,820 Cu. Yds.

TWP. ROAD 145
APPROACH TO S.R. 158

End Area	Cu. Yds.
Cut / Fill	Cut / Fill
5 / 766	27 / 1368
24 / 711	61 / 1388
92 / 788	72 / 1544
36 / 680	90 / 1611
61 / 860	118 / 1588
66 / 855	95 / 1752
37 / 1037	68 / 2005
36 / 1128	51 / 2346
19 / 1406	23 / 2839
1 / 1660	4 / 1230
0 / 0	0 / 0

REG. NO. DIVISION	STATE	PROJECT	SHT. NO.
2	OHIO	-	

65
287

LIC-40-8.67

F-766
962.91
5+00
949.0
See X-Sections N.E. Ramp
2:1
2:1
2:1
C-11
947.0
51.5

F-711
963.97
4+50
950.7
See X-Sections N.E. Ramp
2:1
C-24
946.6
54.0

F-788
965.17
4+00
951.0
See X-Sections N.E. Ramp
2:1
C-42
946.3
57.5

F-880
966.35
3+50
951.1
See X-Sections N.E. Ramp
2:1
C-35
946.0
60.8

F-860
967.49
3+00
952.0
See X-Sections N.E. Ramp
2:1
C-40
945.6
65.0

F-855
968.33
2+50
953.0
See X-Sections N.E. Ramp
2:1
C-64
945.3
65.0

F-1037
968.82
2+00
952.0
See X-Sections N.E. Ramp
2:1
C-35
946.0
66.5

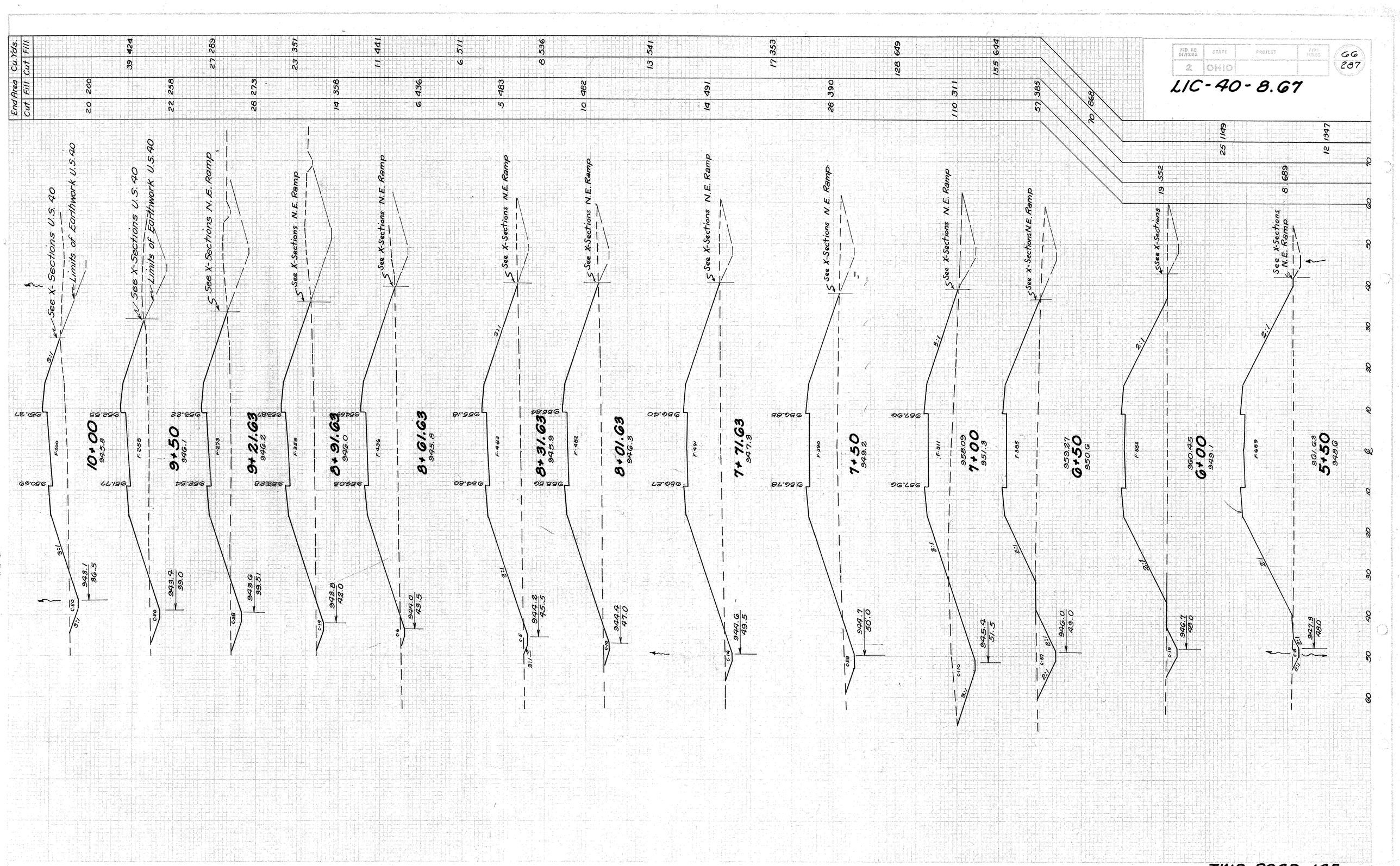
F-1128
968.87
1+50
951.3
See X-Sections N.E. Ramp
2:1
C-38
944.6
68.0

F-1406
968.80
1+00
948.4
See X-Sections
2:1
C-17
944.3
68.5

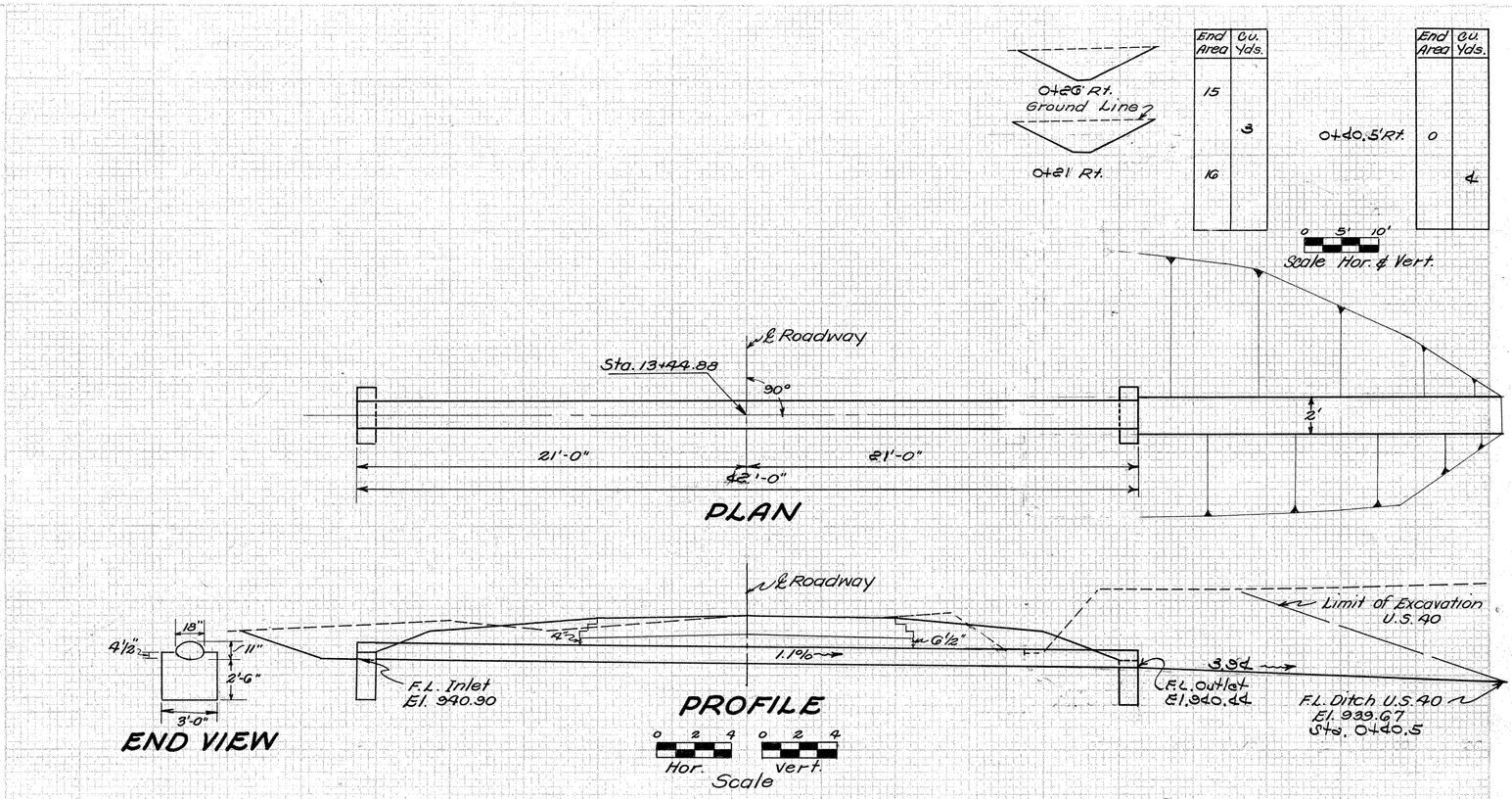
F-1660
968.28
0+50
946.3
See X-Sections
2:1
C-8
944.1
72.5

Sta. 0+10.46

TWP ROAD 145
0+50 — 5+00



TWP. ROAD 145
STA. 5+50 - 10+00



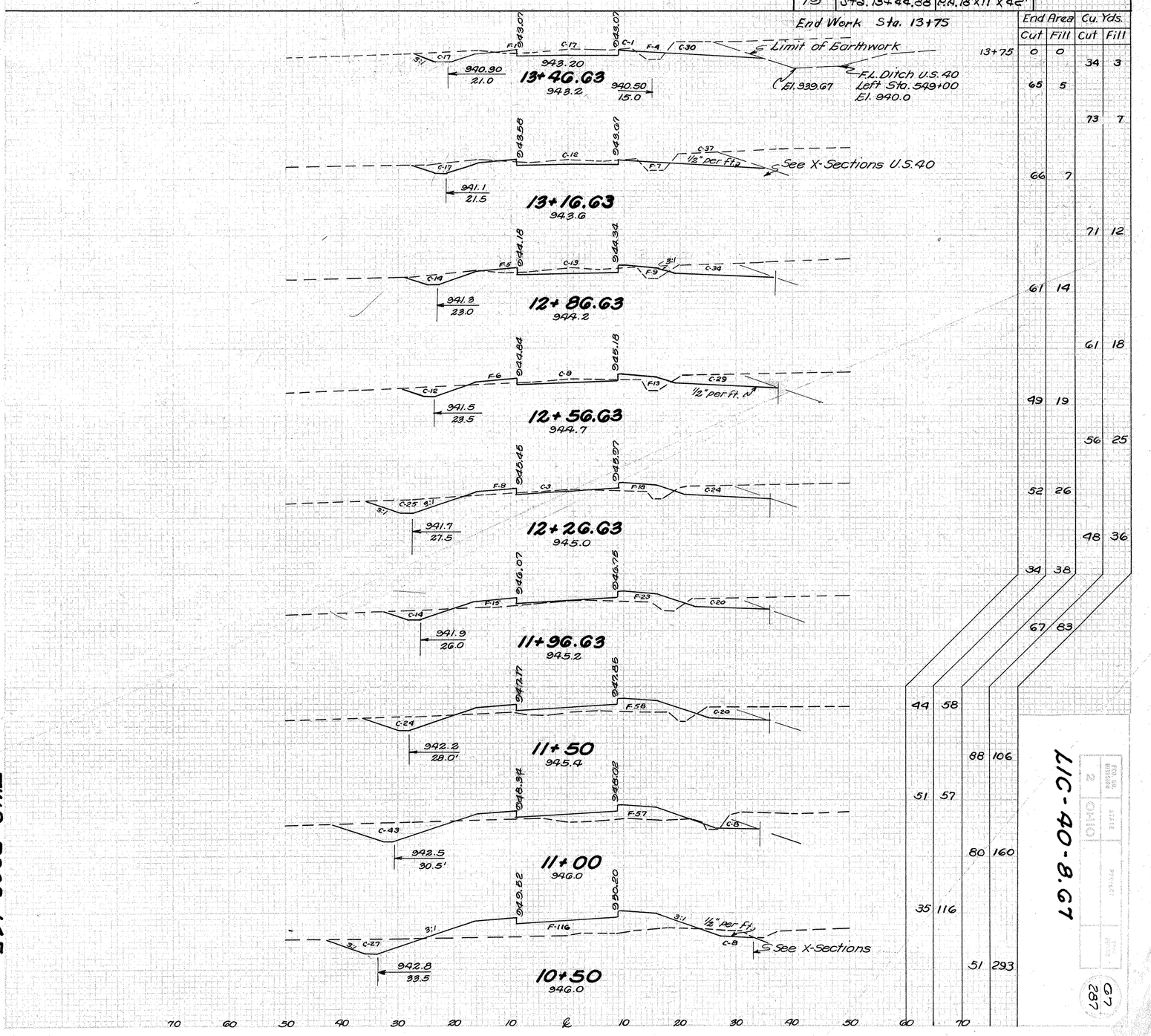
CULVERT DATA

TYPE: Pipe Arch Std. Drwg. P.C. 3 & 4
SIZE: 18"x11"x42'
WORK REQUIRED: Install new Structure as per plan. Excavate outlet channel.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	9 C.Y.	Excavation for Structure
E-3	7 C.Y.	Channel Excavation
S-1	0.6 C.Y.	Concrete for End Walls Class "E"
S-27	42 L.F.	18"x11" Paved Bit. Coated Corr. Metal Arch Sec. M-6.4(d)(i).

19	Sta. 13+44.88	P.A. 18"x11"x42'



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
13+75	0	0		
			34	3
	65	5		
			73	7
	66	7		
			71	12
	61	14		
			61	18
	49	19		
			56	25
	52	26		
			48	36
	34	38		
	67	83		
	44	58		
			88	106
	51	57		
			80	160
	35	116		
			51	293

LIC-40-8.67

G7
287

TWP. ROAD 145
STA. 10+50-13+46.63 & DETAIL OF STRUCTURE

LIC-40-1010

PROPOSED STRUCTURE

TYPE: Cont. Steel Beam with reinforced concrete deck & substructure
SPANS: 50'-62.5'-62.5'-50' % brgs.
Roadway: 28'-0" f/f 2'-0" safety curbs
Load Frequency: C.F. = 400(51)
Skew: 14°-22' L.F. Approach Slabs: AS-1-54 25'Long
Alignment: Tangent
Wearing Surface: 1" Monolithic Conc.

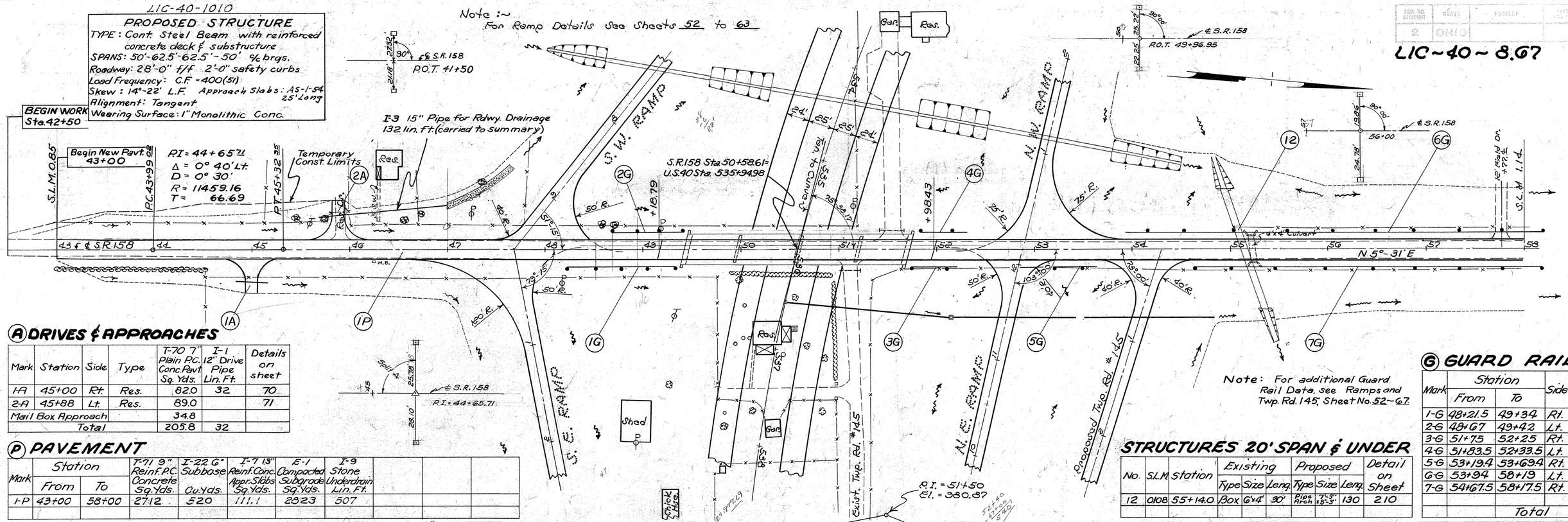
BEGIN WORK Sta. 42+50

Note :~ For Ramp Details See Sheets 52 to 63

FED. RD. DIVISION	STATE	PROJECT	SHT.
2	OHIO		

68
287

LIC-40-8.67



(A) DRIVES & APPROACHES

Mark	Station	Side	Type	T-70 7" Plain P.C. Conc. Pavt. Sq. Yds.	I-1 12" Drive Pipe Lin. Ft.	Details on sheet
1-A	45+00	Rt.	Res.	82.0	32	70
2-A	45+88	Lt.	Res.	89.0		71
Mail Box Approach				34.8		
Total				205.8	32	

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Concrete Sq. Yds.	I-22 6" Subbase Cu. Yds.	I-7 13" Reinf. Conc. Appr. Slabs Sq. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-9 Stone Underdrain Lin. Ft.
1-P	43+00	58+00	2712	520	111.1	2823	507

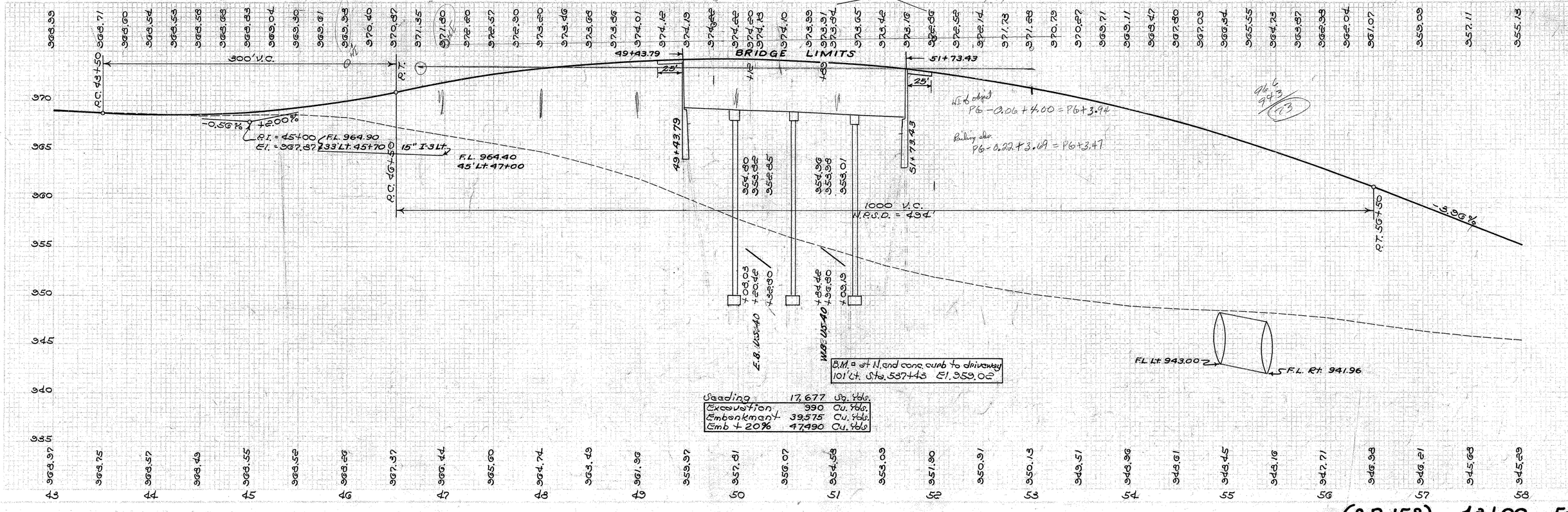
(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	48+21.5	49+34	Rt.	112.5
2-G	48+67	49+42	Lt.	75.0
3-G	51+75	52+25	Rt.	50.0
4-G	51+83.5	52+33.5	Lt.	50.0
5-G	53+19.4	53+69.4	Rt.	50.0
6-G	53+94	58+19	Lt.	425.0
7-G	54+67.5	58+17.5	Rt.	350.0
			Total	1112.5

Note: For additional Guard Rail Data, see Ramps and Twp. Rd. 145, Sheet No. 52~67.

STRUCTURES 20' SPAN & UNDER

No.	S.I.M.	Station	Existing Type	Size	Leng.	Proposed Type	Size	Leng.	Detail on Sheet
12	0108	55+14.0	Box	6'4'	30'	Pipe Arch	71"x 15'-3"	130	210



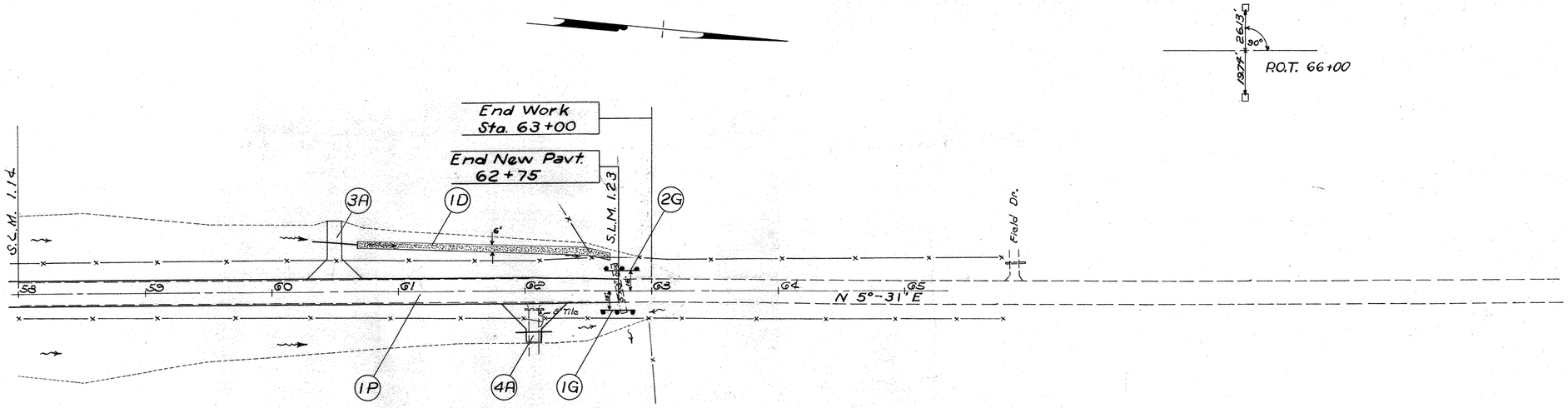
Seeding	17,677	Sq. Yds.
Excavation	990	Cu. Yds.
Embankment	39,575	Cu. Yds.
Emb + 20%	47490	Cu. Yds.

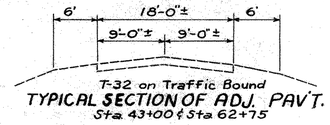
(S.R. 158) 43+00 ~ 58+00

PER. ED. DIVISION	STATE	PROJECT	TYPE, FUNDS.
2	OHIO		

G9
287

LIC-40-8.67





TYPICAL SECTION OF ADJ. PAV'T.
Sta. 43+00 & Sta. 62+75

(P) PAVEMENT

Mark	Station From	Station To	7-7½ 9" Reinf. P.C. Concrete Sq. Yds.	I-22 6" Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-9 Stone Underdrn. Lin. Ft.
1P	58+00	62+75	1055.5	194	1056	220

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1G	62+61	62+86	Rt.	25.0
2G	62+69	62+94	Lt.	25.0
Total				50.0

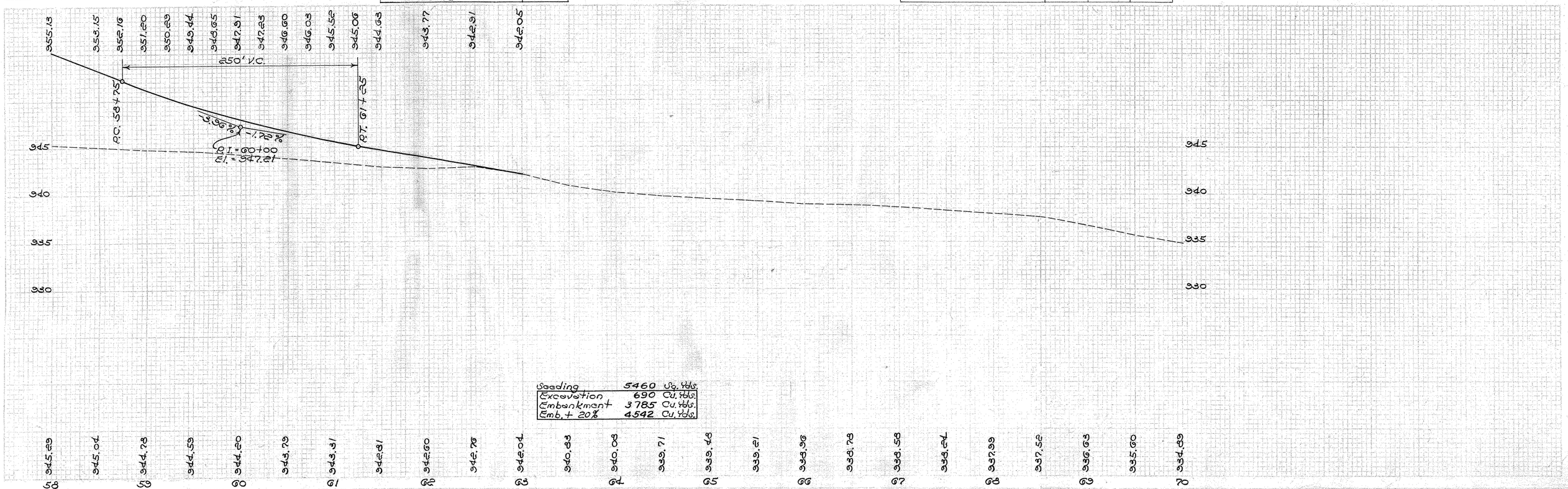
(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding 6' Wide Sq. Yds.
1D	60+66	62+68	Lt.	135

(A) DRIVES & APPROACHES

Mark	Station	Side	Type	I-18 (6") Stab. Cr. Aggregate As Per Plan Cu. Yds.	Fl. (12") Pipe for Drives Lin. Ft.	Details on Sheet
3A	60+50	Lt.	Field	13	36	76
4A	62+07	Rt.	Field	10	30	76
				23	66	

Note:
Any existing pavement that must be removed near the Beginning & End of New Pav't shall be removed & paid for in Item E-1 Roadway Excavation.



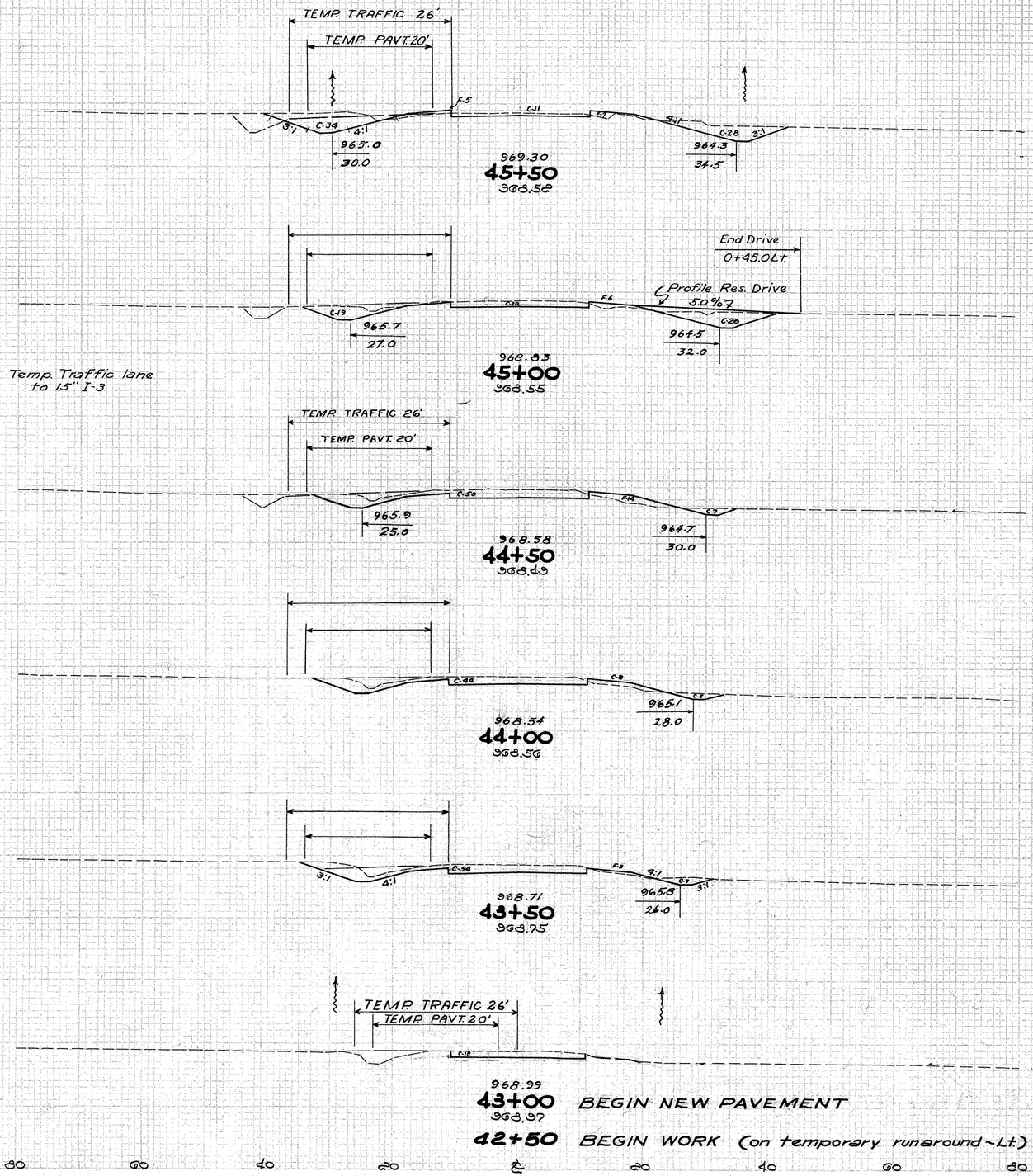
Seeding	5460	Sq. Yds.
Excavation	690	Cu. Yds.
Embankment	3785	Cu. Yds.
Emb. + 20%	4542	Cu. Yds.

(S.R. 158) 58+00 ~ 70+00

FED. RD. DIVISION	STATE	PROJECT	FILE NUMBER
2	OHIO		

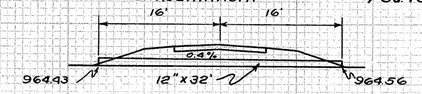
70
287

LIC-40-8.67



Estimated Quantities Dr. 45+00

T-70	7" Plain P.C. Conc. Pavement	82.0 Sq. Yds.
I-1	12" Drive Pipe	32 Lin. Ft.
	Embankment	7 Cu. Yds.



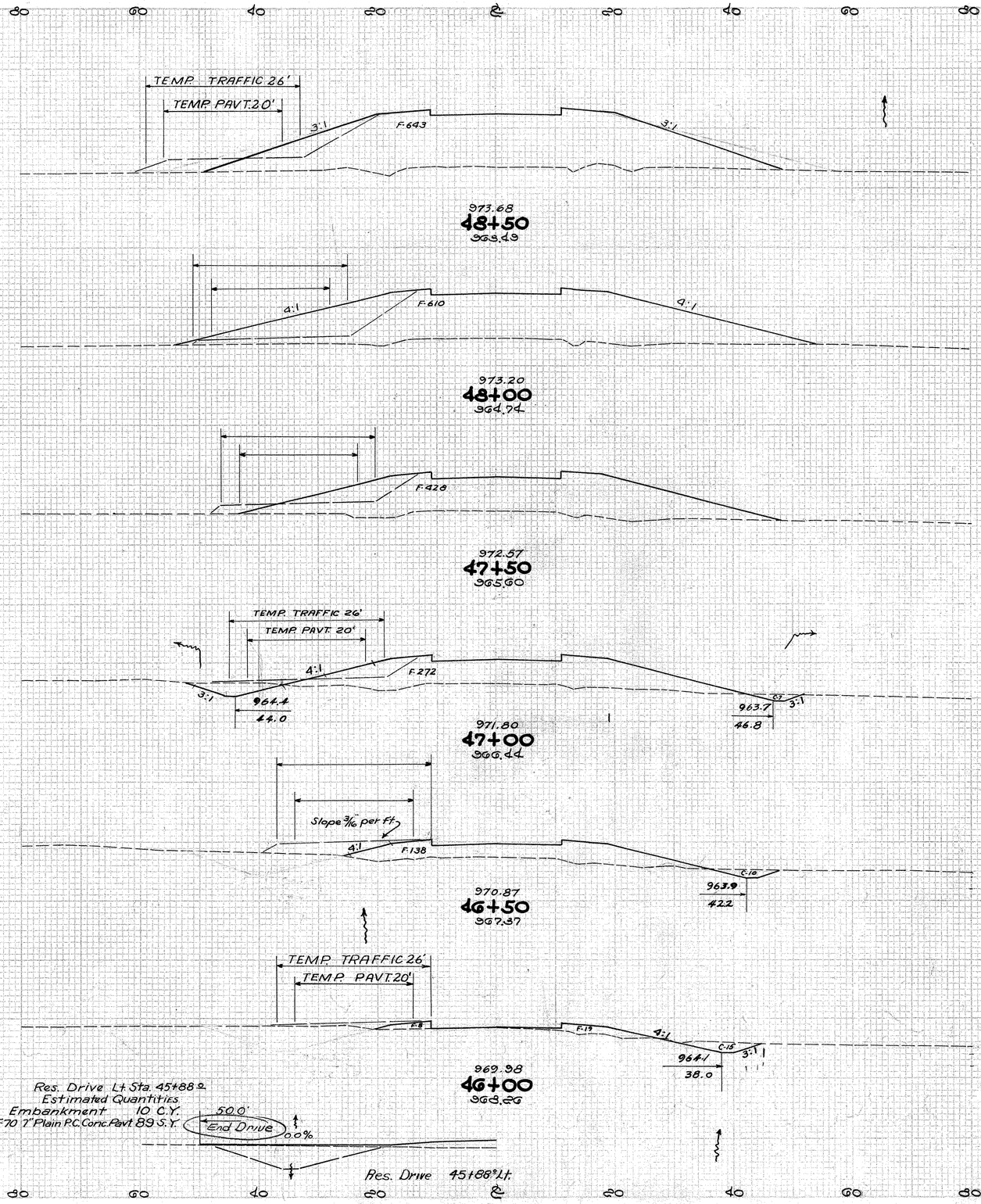
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
73	12		
		128	17
			7
65	6		
		113	19
57	19		
		98	20
49	8		
		102	10
61	3		
		79	3
18	0		

(S.R. 158) 43+00 ~ 45+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

71
287

LIC-40-8.67



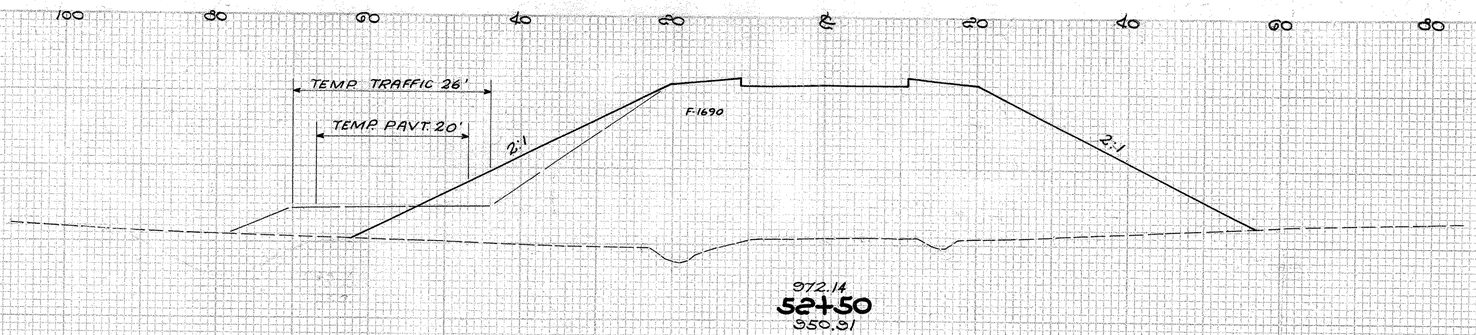
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	643		
		0	1160
0	610		
		0	961
0	428		
		25	648
Ahead	27	272	
Back	7	272	
		16	380
10	138		
		23	153
15	27		
		81	36

Res. Drive Lt 45+88 → 10

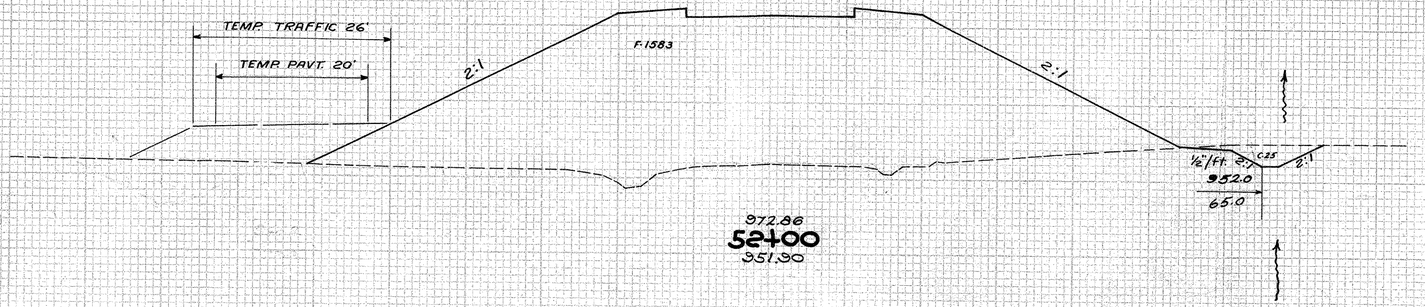
(S.R. 158) 46+00 ~ 48+50

FED. RD. DIVISION	STATE	PROJECT	SHEET NUMBER	72 287
2	OHIO			

LIC-40-8.67



972.14
52+50
950.81

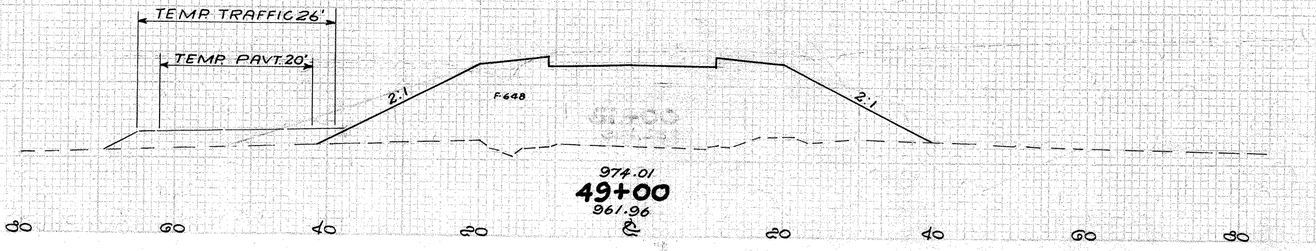


972.86
52+00
951.90

51+73.43

BRIDGE LIMITS

49+43.79



974.01
49+00
961.96

	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	0	1690		
				23 3031
	25	1583		
				12 1558
END BRIDGE – 51+73.43	0	1583		
North Spill through → 2200				
South Spill through → 900				
BEGIN BRIDGE – 49+43.79	0	648		
			0	1051
	0	648		
			0	1195

(S.R. 158) 49+00 – 52+50

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			73 287

LIC-40-8.67

100 80 60 40 20 0 20 40 60 80

TEMP. TRAFFIC 26'
TEMP. PAVT. 20'
2:1
F. 1584
2:1
3" C.25
2:1
2:1
943.8
87.5

967.80
54+50
948.61

F. 1630

969.11
54+00
948.36

F. 1732

970.27
53+50
949.51

2:1
C.24
2:1
946.5
70.0

TEMP. TRAFFIC 26'
TEMP. PAVT. 20'
2:1
F. 1700
2:1

971.28
53+00
950.13

100 80 60 40 20 0 20 40 60 80

	END AREA Cut	END AREA Fill	CU. YDS. Cut	CU. YDS. Fill
Ahead	25	1584		
Back	0	1584		
				0 2976
	0	1630		
				22 3113
	24	1732		
				22 3178
	0	1700		
				0 3139

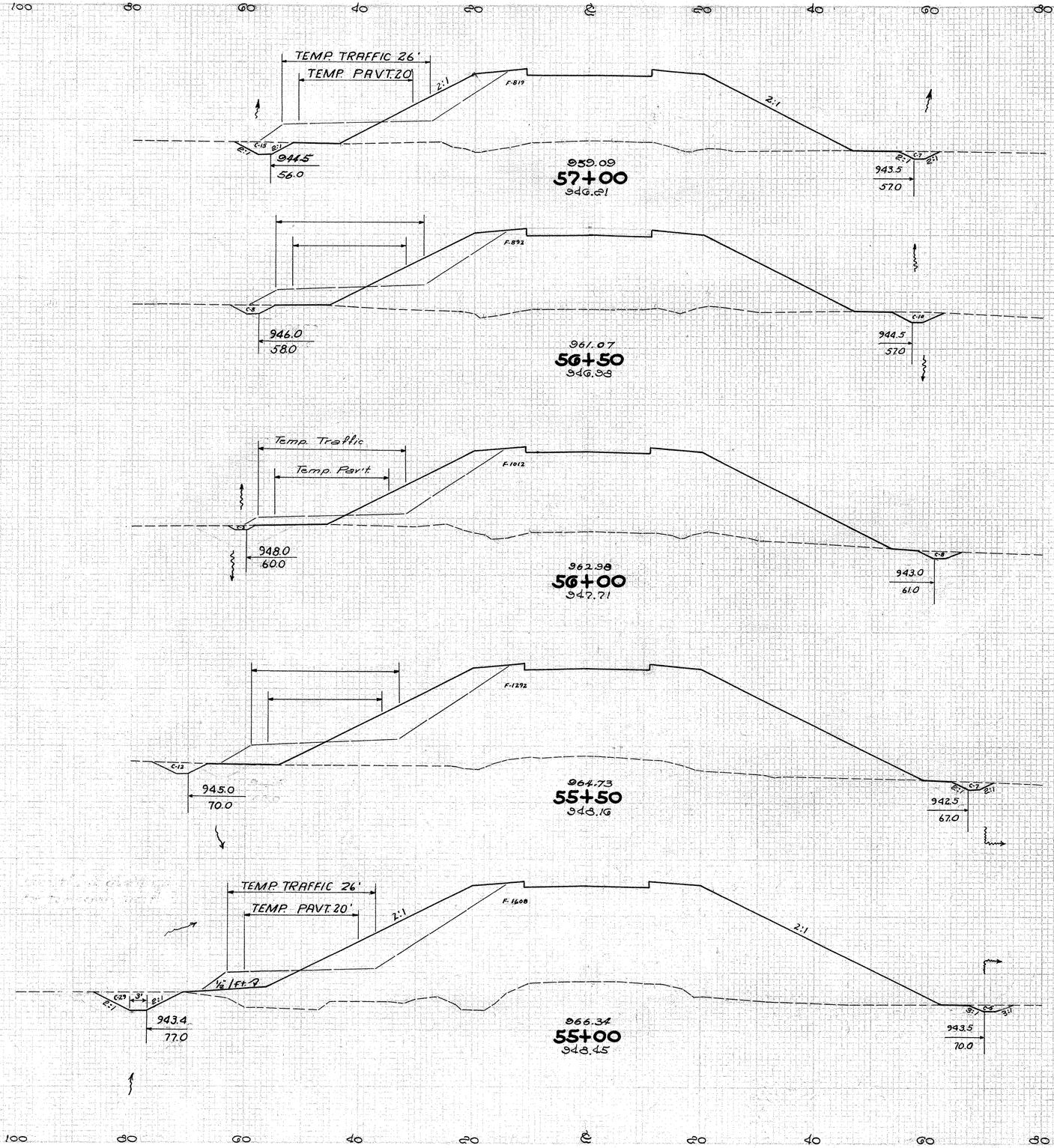
(S.R. 158) 53+00 ~ 54+50

PJL 9/14/56

FED. RD. DIVISION	STATE	PROJECT	SHT. NO.
2	OHIO		

74
287

LIC-40-8.67

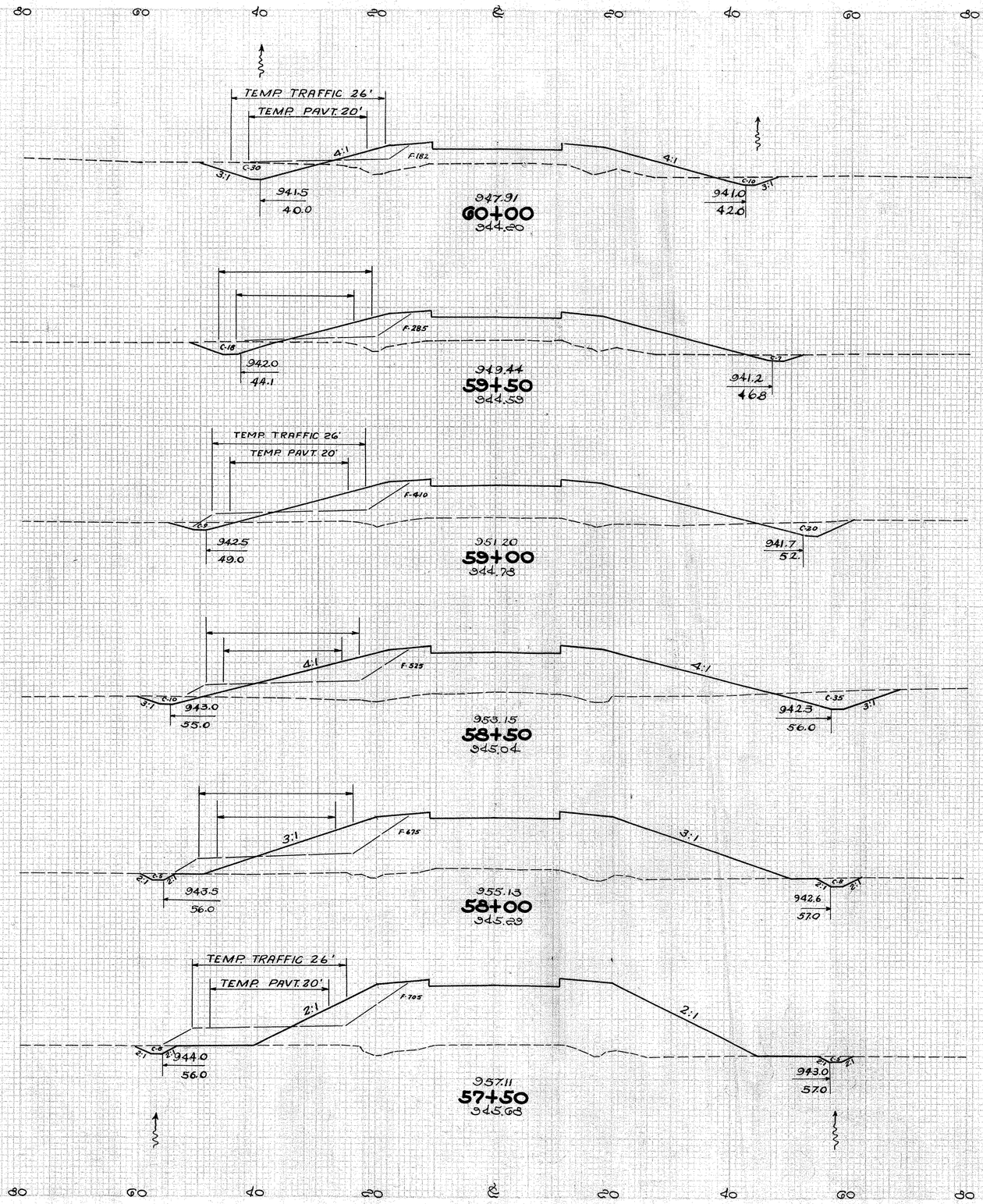


END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
22	819		
		37	1584
18	892		
		27	1763
11	1012		
		28	2133
19	1292		
		99	2685
34	1608		
		55	2956

(S.R. 158) 55+00 ~ 57+00

STA. NO. DESIGNATION	STATE	PROJECT	TYPE WORK	
2	GA			75 287

LIC-40-8.67



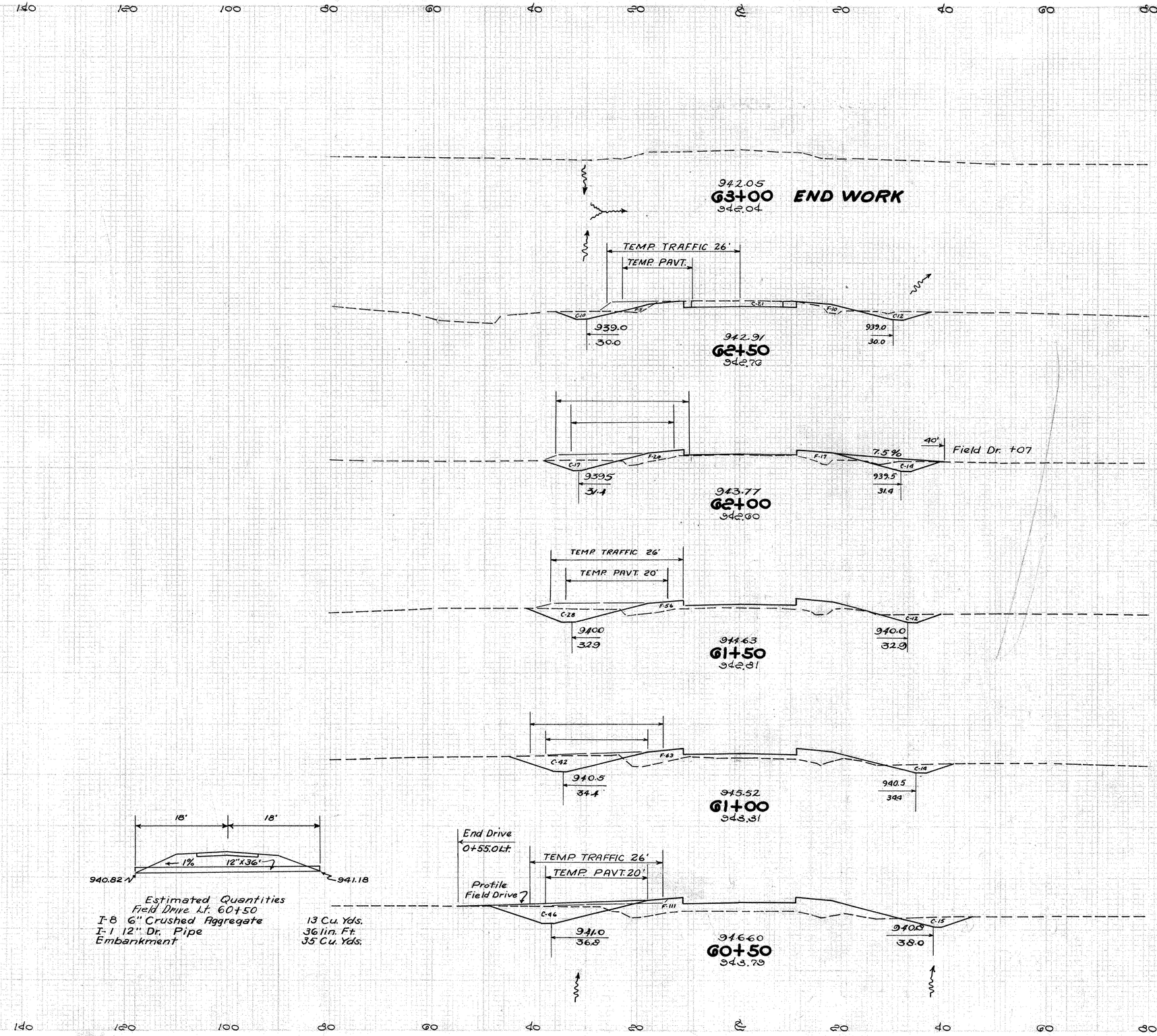
END AREA		CU. YDS.	
Cut	Fill	Cut	Fill
40	182		
		60	432
25	285		
		50	643
29	410		
		69	866
45	525		
		54	1111
13	675		
		24	1278
13	705		
		32	1411

(S.R. 158) 57+50 ~ 60+00

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

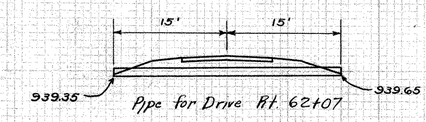
76
287

LIC~40~8.67



Estimated Quantities
Field Drive Lt. 60+50

I-8 6" Crushed Aggregate	13 Cu. Yds.
I-1 12" Dr. Pipe	36 lin. Ft.
Embankment	35 Cu. Yds.



Pipe for Drive Rt. 62+07

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
END NEW PAV'T.~62+75	21	0		
			30	7
	43	15		
Field Drive Rt. Sta. 62+07			69	48
Estimated Quantities				
E-1 Excavation 1CY.			1	
I-18 6" Stab. Crus. Aggr. as per plan 10CY.				
I-1 12" Pipe for drive 30LF.				
Embankment 15CY.				15
	31	37		
			66	86
	40	56		
			89	110
	56	63		
			108	161
Field Drive Lt. 60+50				35
	61	111		
			94	271

M-24

(S.R. 158) 60+50 ~ 63+00

PROPOSED STRUC. LI-40-11 64

TYPE :- Cont. Steel beams with reinf. conc. deck & reinf. conc. Substructure.
SPANS :- 44'-@2.5'- @2.5'-44' c/c bearings
RDWY :- 24'0" F/F 2'0" safety curbs
LOADING :- CF= 30 (S1) SKEW :- None
WEAR. SURF. :- 1/2" Mono. Conc.
APPR. SLABS :- AS-1-54 (25' long)
ALIGNMENT :- Tangent

PROPOSED STRUCTURE

TYPE :- Cont. reinf. conc. Slab on capped pile Substr.
SPANS :- 30'-0", 37'-6", 30'-0" c/c bearings
RDWY :- 28'-0" F/F guard rail
LOADING :- CF= 30(S1) SKEW :- 15° Lt. Fwd.
WEAR. SURF :- 1/2" Mono. Conc.
APPR. SLABS :- AS-1-54 (15' long)
ALIGNMENT :- Tangent

Note: For detail of Twp. Rd. 145 Approach, See Sheet 81

Bridge No. 144-Q-5
EXISTING BRIDGE DATA

TYPE :- Pony Truss
SPAN :- 45' F/F abutments
RDWY :- 14.1' between trusses
SURFACE :- Plank with plank tread
ABUTMENTS :- Sandstone

LIC-40-8.67
TWP. RD. 144-

P.I. Sta. 8+50 — Fwd. Tangent — P.O.T. Sta. 10+30.90

BEGIN WORK STA. 8+50

END WORK STA. 23+50

P.I. Sta. 21+00 — Fwd. Tangent

Note: Care shall be exercised during construction to prevent damage to existing structure.

P.I. = 8+50 Δ = 0°12' Lt.

P.I = 21+00 Δ = 0°44' Rt.

1 1/2 Pipe (Spring) Trough

Township Road 145

Sta. 6+17.929 U.S. 40 Int. = Sta. 15+00 Twp. Rd. 144

RESERVOIR FEEDER

Frame Corn Crib; Frame Barn; 2 Story Frame Res.; 1 1/2 Story Frame Residence; Frame Wash House; Frm. Gar.; Frm. Barn; 1 1/2 Story Frame Res.; Frm. Gar. Barn; Frame Barn

P.O.T. Sta. 16+77.53

Transition 50

1163

TYPICAL SECTION OF ADJOINING PAV'T.

Sta. 8+50 & Sta. 23+50

4'± 12'± 4'± (6'± 6'±)

6"± Traffic Bound

Note: In areas of transition between Sta. 8+50 to 9+00 and Sta. 23+00 to 23+50, the existing pavement shall be removed and paid for in Item E-1 Roadway Excavation. In transition areas, taper 16' pavement to meet grade and crown of existing 12'± pavement.

(P) PAVEMENT

Mark	Station From	Station To	T-35 11/2" Asph. Conc. Surf. Crse. Cu. Yds.	B-35 2" Asph. Conc. Lev. Crse. Cu. Yds.	T-30 Bit. Prime Coat Gals.	B-20 5" Waterbnd. Mac. Base Sq. Yds.	I-22 4" Subbase Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	I-7 10" Reinf. Conc. Appr. Slabs Sq. Yds.	I-7 13" Reinf. Conc. Appr. Slabs Sq. Yds.	I-9 Stone, Underdrn. Lin. Ft.
1-P	8+50	23+50	81.8	109.1	730	2084	263	2104	53.3	83.9	500
2-P	0+18.5	3+47.0	28.1	37.4	247	706	82	673			155
Totals			109.9	146.5	977	2790	345	2777	53.3	83.9	655

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	11+72.5	13+85.0	Rt.	212.5
2-G	11+72.5	13+85.0	Lt.	212.5
3-G	16+21.2	Twp. Rd. 145 Sta. 1+49.5	Lt.	190.0
4-G	Twp. Rd. 145 Sta. 1+49.4	19+47.8	Lt.	325.0
5-G	16+21.2	19+46.2	Rt.	325.0
Deduct for Bridge				198.12
Totals				1066.88

(A) DRIVES & APPROACHES

Mark	Station	Side	Type	T-35 2" Asph. Conc. Surf. Crse. Cu. Yds.	I-18 5" Crushed Aggreg. Cu. Yds.	I-18 6" Cr. Aggr. as per plan Cu. Yds.	I-1 Pipe for Drive Lin. Ft. 12"	15"	T-30 Bit. Prime Coat Gals.	Details on Sheet
1-A	9+11.5	Rt.	Field			8				78
2-A	9+40.0	Lt.	Res.	3.5	9				22	78
3-A	10+30.0	Lt.	Res.	3.5	9	2	28		22	78
4-A	11+25.0	Lt.	Field			20	38			78
5-A	17+50.0	Lt.	Appr.	For Quant., see Pavt. Table 2-P						81
6-A	19+80.0	Rt.	Field			31				80
7-A	21+11.0	Lt.	Res.	3.5	9	3	30		22	80
8-A	Twp. Rd. 145 Sta. 1+78.0	Rt.	Field			20		50		81
Mail Box Appr. (est. no. 4)				6.8	17				48	77
Totals				17.3	44	84	96	50	114	

Note: For Storm Sewer Details, See Sheet 24

P.I. = 15+00
E.I. = 936.55
+5.00% -5.00%

BRIDGE LIMITS

Sta. 13+91.25 — Sta. 16+08.75

234' span

6%

250' V.C.

650' V.C.
N.P.S.D = 308'

294' sight distance

909.95 909.95

-1.84% +5.00%

P.I. 10+25 Elev. 912.80

Seeding 11,867 Sq. Yds.

Excavation 1432 Cu. Yds.
Embankmt. 21647 Cu. Yds.
Emb.t 20 % 25976 Cu. Yds.

BRIDGE LIMITS

Sta. 18+22.47 — Sta. 19+21.53

120' span

-5.00%

Extreme High Water 904.6

250' V.C.

-5.00% -0.78%

P.I. 21+75 Elev. 902.80

B.M. Spike S. Root 36" Poplar 140' Lt. U.S. 40 Sta. 6+16+39 Elev. 909.93

B.M. + E. End S. Abut. Br. No. 144-Q-5 Elev. 907.94

935 930 925 920 915 910 905 900 895

909.38 909.39 910.50 911.47 912.08 912.08 911.83 911.81 911.62 911.21 910.89 910.20 909.75 909.47 909.35 909.31 909.41 909.71 909.38 909.08 909.03 908.87 906.39 905.15 904.17 903.52 903.11 902.74 902.56 901.83 901.37 901.07

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

TOWNSHIP ROAD 144

100 80 60 40 20 ℄ 20 40 60 80 100

	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
Spill-Thru Emb.				250
Begin Bridge End Earthwork	50	1175		
			94	1655
	73	992		
			125	1701
	62	845		
			107	1372
	54	687		
			92	1040
	45	486		
			73	798
	34	376		
Field Drive ~ 11+25.0 Lt.			58	531
			2	102
	29	193		
Residence Drive ~ 10+50.0 Lt.			52	252
			2	6
	27	74		
			33	87
	14	20		
			33	20
Residence Drive ~ 9+40.0 Lt.	22	2		
			13	0
Field Drive ~ 9+11.5 Rt.			50	2
			8	0
			32	0
			43	0
	14	0		

13+91.25 — 909.75 — **BEGIN BRIDGE**
927.51
909.2 / 56.9' — 906.1 / 57.1'

13+50 — 910.20
926.69
907.0 / 53.6' — 906.5 / 54.6'

13+00 — 910.69
925.85
903.0 / 49.0' — 907.0 / 51.0'

12+50 — 911.21
923.62
909.0 / 43.5' — 907.5 / 46.5'

12+00 — 911.62
921.50
909.5 / 33.3' — 903.0 / 41.3'

12"x 38' ~ 0.4% — F.L. ~ 910.08 — F.L. ~ 909.92

ESTIMATED QUANTITIES

I-18	6" Stab. Crushed Agg. As per plan	20 Cu. Yds
E-1	Excavation	2 Cu. Yds
	Embankment	102 Cu. Yds
I-1	12" Drive Pipe [Sec. III-64.(a)]	38 Lin. Ft.

11+50 — 911.81
919.05
909.9 / 40.5' — 908.5 / 45.0'
End I-18 As per plan 80.0' Lt. — 8.0%

Field Drive Sta. 11+25.0 Lt.
910.0 / 37.0'

Barn

11+00 — 911.83
916.71
910.1 / 33.2' — 909.0 / 36.5'

ESTIMATED QUANTITIES

T-30	Bit. Prime Coat	22 Gals.
T-35	2" Asph. Conc. Surf. Crse.	3.5 Cu. Yds.
I-18	5" Stab. Crushed Agg.	9 Cu. Yds.
I-18	6" Stab. Crushed Agg. As per plan	2 Cu. Yds.
E-1	Excavation	2 Cu. Yds.
	Embankment	6 Cu. Yds.
I-1	12" Drive Pipe [Sec. M-64.(a)]	28 Lin. Ft.

End I-18, as per plan 41.0' Lt.
End T-35 33.0' Lt. 8.0%

Residence Drive Sta. 10+50.0 Lt.
910.3 / 27.0'

10+50 — 912.08
914.68
909.5 / 23.9'

12"x 28' ~ 0.4% — F.L. ~ 910.36 — F.L. ~ 910.24

10+00 — 912.08
912.97
910.5 / 20.8' — 910.0 / 22.3'

ESTIMATED QUANTITIES

T-35	2" Asph. Conc. Surf. Crse.	3.5 Cu. Yds.
I-18	5" Stab. Crushed Agg.	9 Cu. Yds.
T-30	Bit. Prime Coat	22 Gals.
E-1	Excavation	1.3 Cu. Yds.

End T-35 33.0' Lt. 0.0%
910.7 / 16.0' — 910.2 / 17.0'

9+50 — 911.47
911.58
End I-18, as per plan 23.0' Rt. 0.0%

Residence Drive Sta. 9+40.0 Lt.
Field Drive Sta. 9+11.5 Rt.

House

ESTIMATED QUANTITIES

I-18	6" Stab. Cr. Aggreg., as per plan	8 Cu. Yds.
E-1	Excavation	8 Cu. Yds.

9+00 — 910.50
909.6 / 16.0' — 910.50 — 909.6 / 16.0'

8+50 — 909.38 — **BEGIN WORK**

8+00 — 908.28

100 80 60 40 20 ℄ 20 40 60 80 100

TWP. RD. 144
8+50 ~ 14+00

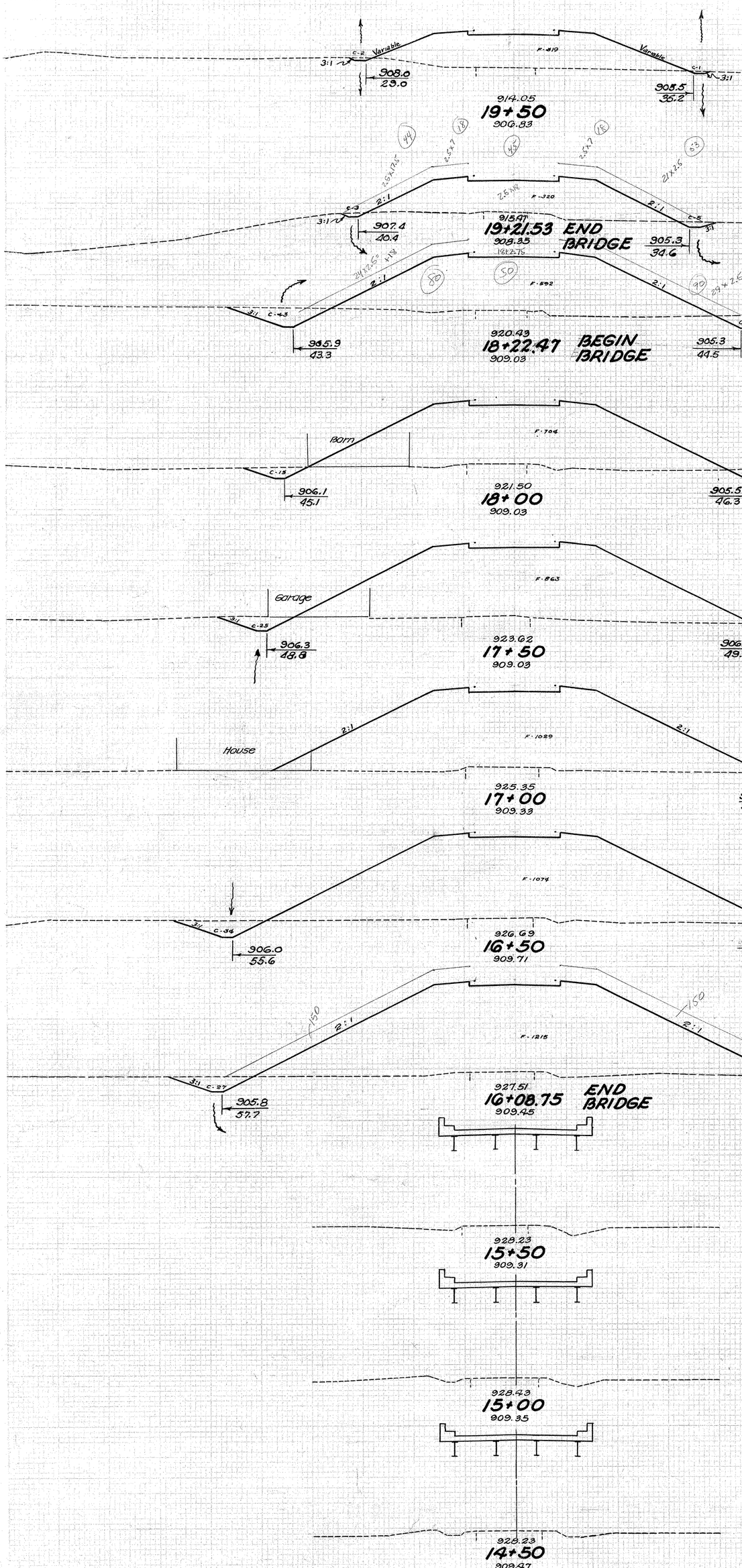
LIC-40-8.67
TWP. RD. 144

78
287

Areas Cr/14 12/12/56 RJL 9/18/56

1100 80 60 40 20 ℄ 20 40 60 80 100

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Field Drive-19+80. Rt			1	624
	3	319		
			6	337
End Bridge Begin Earthwork	8	320		
Spill-thru Emb.			2	28
Spill-Thru Emb.				74
Begin Bridge End Earthwork	64	592		
			40	539
	31	704		
			59	1451
	33	863		
Twp. Rd. #145 Approach			119	3402
			38	1752
	8	1029		
			56	1947
	52	1074		
			76	1749
	48	1215		
End Bridge Begin Earthwork				
Spill Thru Emb				250

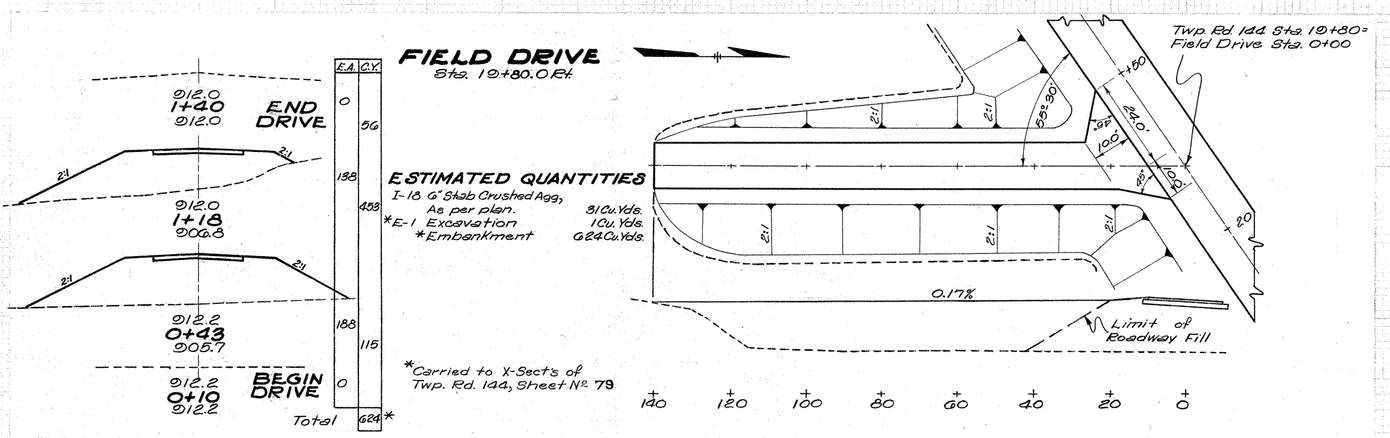


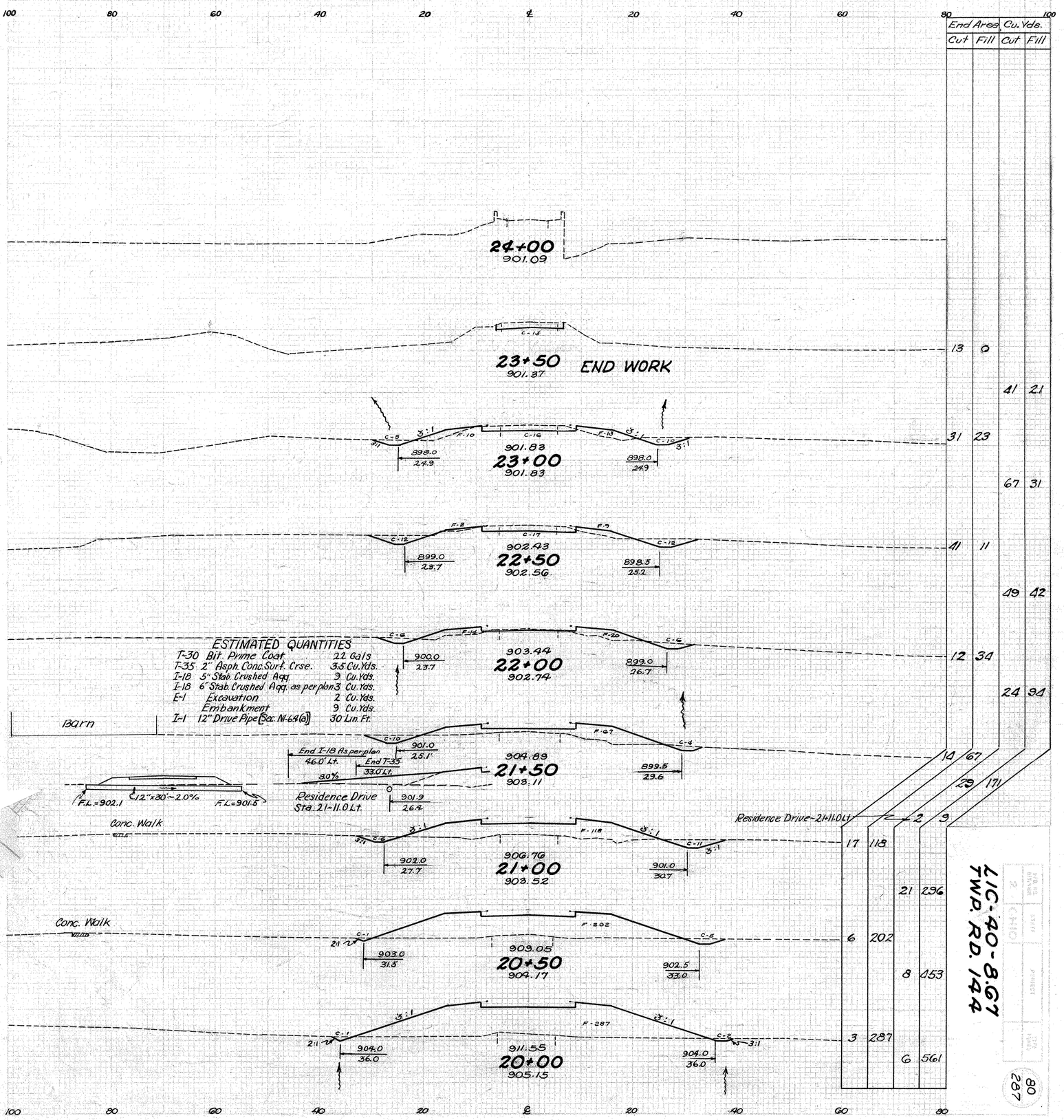
TWP RD. 144
14+50 ~ 19+50

L/C-40-8.67
TWP. RD. 144.

79
287

100 80 60 40 20 ℄ 20 40 60 80





End Areas		Cu. Yds.	
Cut	Fill	Cut	Fill
13	0		
		41	21
31	23		
		67	31
41	11		
		49	42
12	34		
		24	94
14	67		
23	171		
2	9		
17	118		
		21	236
6	202		
		8	453
3	287		
		6	561

LIC-40-8.67
TWP. RD. 144

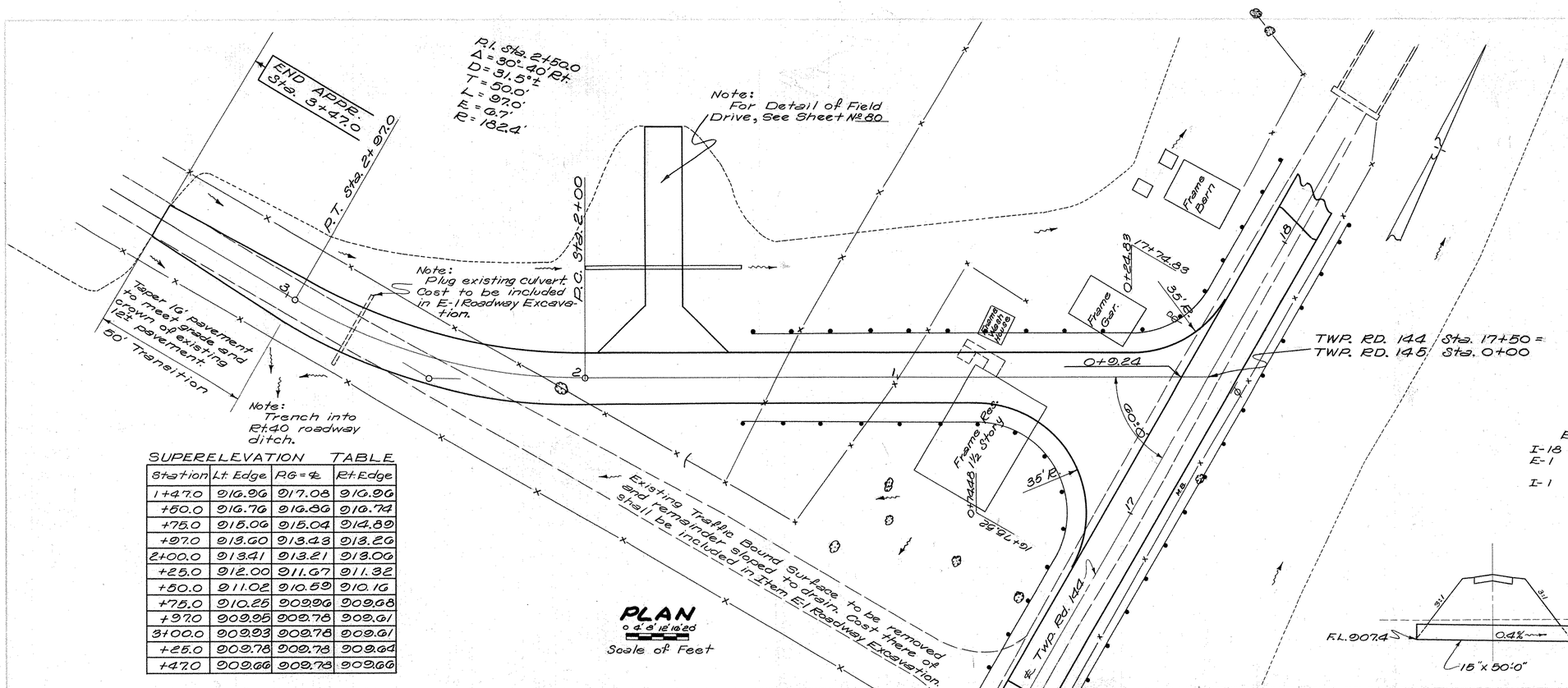
TWP RD. 144

80
287

FED. AID PROJECT	STATE	PROJECT	SHEET TOTAL
2	OHIO		

81
287

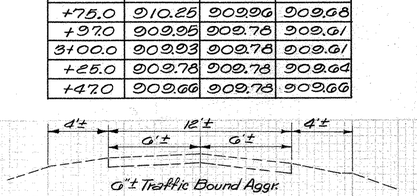
LIC-40-8.67
TWP. RD. 145 APPROACH



PLAN

0 4' 8' 12' 16' 20'
Scale of Feet

SUPERELEVATION TABLE			
Station	Lt. Edge	RG = ℄	Rt. Edge
1+47.0	910.96	910.08	910.96
+50.0	910.76	910.86	910.74
+75.0	910.06	910.04	910.89
+97.0	910.60	910.48	910.26
2+00.0	910.41	910.21	910.06
+25.0	910.00	910.07	911.32
+50.0	911.02	910.59	910.16
+75.0	910.25	909.96	909.68
+97.0	909.95	909.78	909.61
3+00.0	909.93	909.78	909.61
+25.0	909.78	909.78	909.64
+47.0	909.66	909.78	909.66

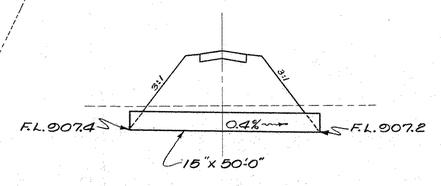


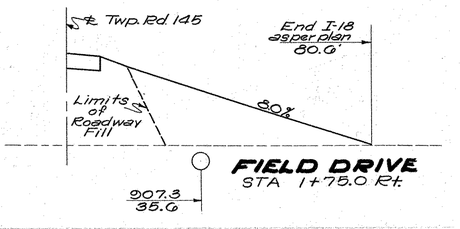
TYPICAL SECTION OF ADJOINING PAV'T.
Sta. 3+47.0

Note: All Estimated Quantities for Twp. Rd. 145 Approach and Field Drive (including 1988 Sq. Yds. of Seeding) are carried to tables of Twp. Rd. 144. See sheet 77

ESTIMATED QUANTITIES

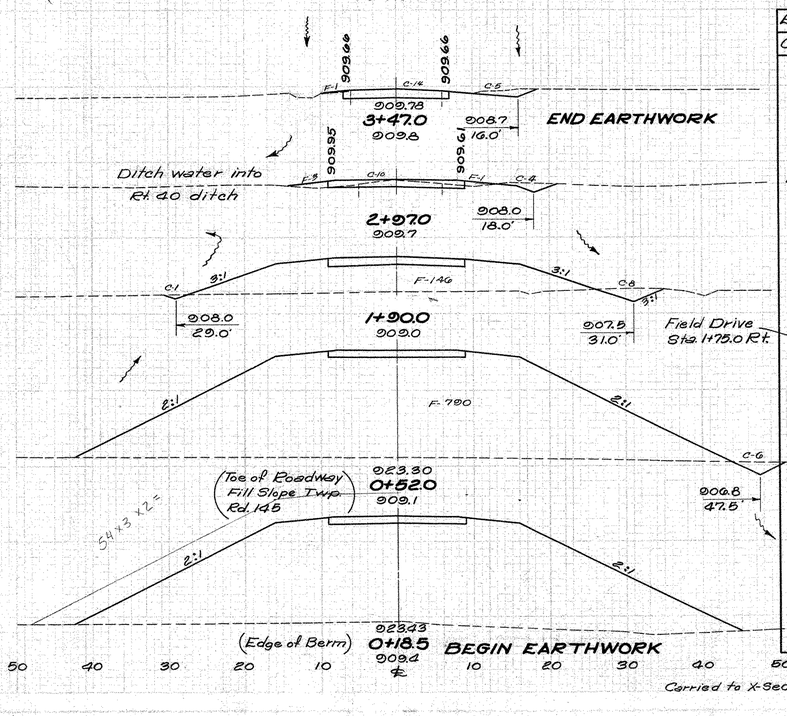
I-18	6" Cr. Agg., As per plan	20 Cu. Yds.
E-1	Excavation	1 Cu. Yds.
	Embankment	116 Cu. Yds.
I-1	15" Drive Pipe [Sec. M-6.4(a)]	50 Lin. Ft.





M-24

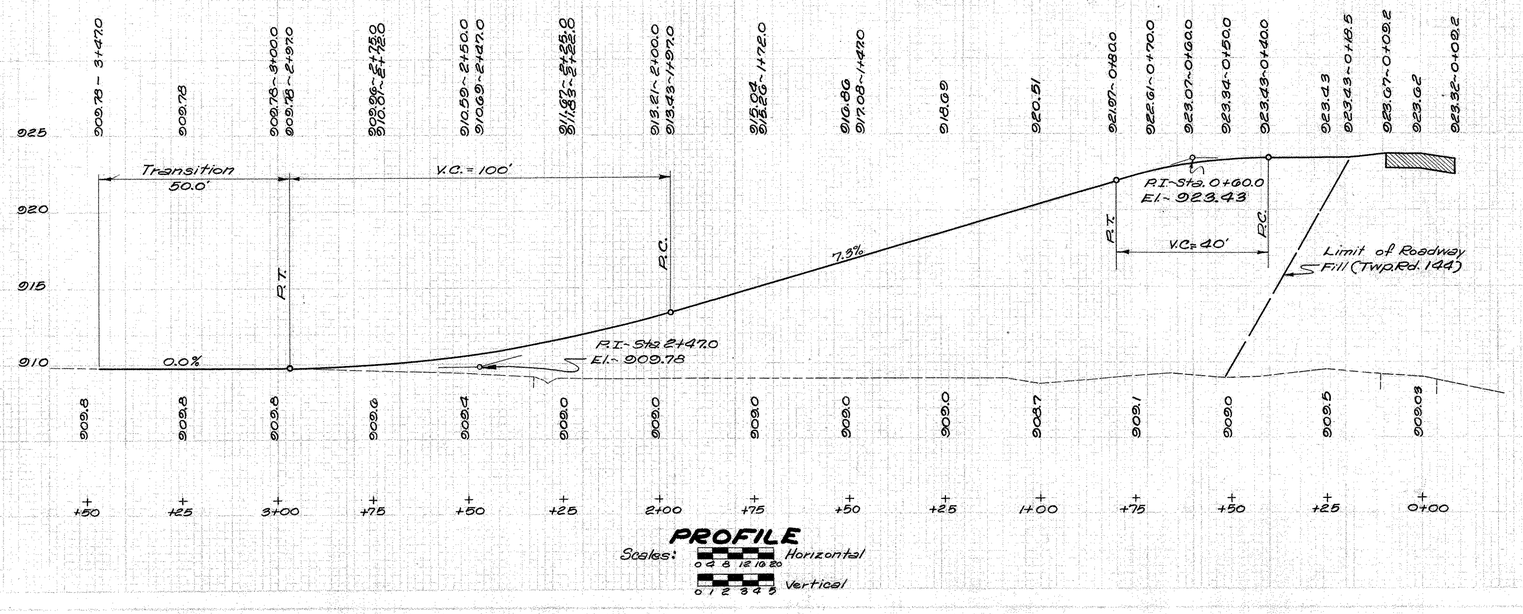
CROSS-SECTION
Scales: 0 2 4 6 8 10 Vert. & Horiz.



End Areas		Cu. Yds.	
Cut	Fill	Cut	Fill
19	1		
		31	5
14	4		
		43	278
0	140		
		1	116
		40	2613
6	790		
		4	490
0	0		
		119	3402

Totals

Carried to X-Section of Twp. Rd. 144



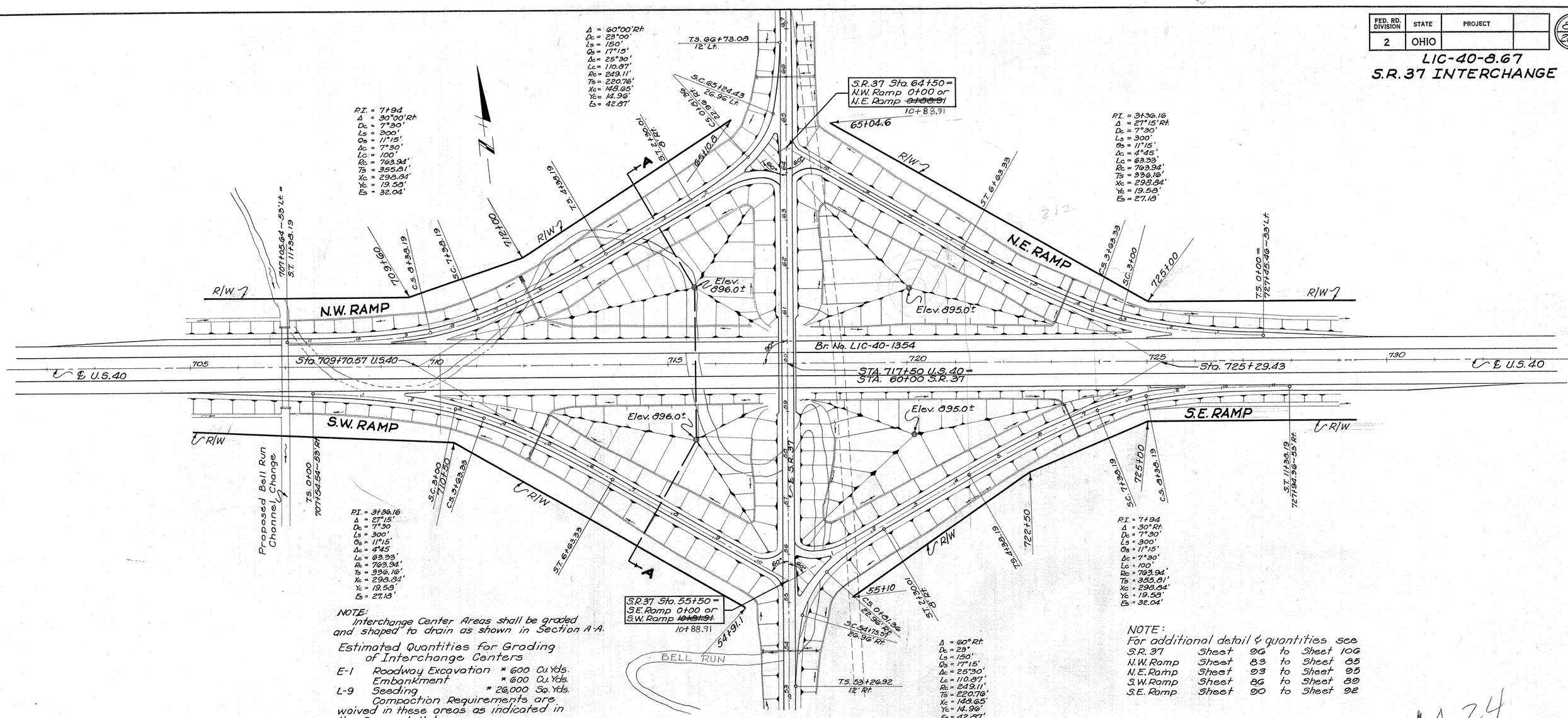
PROFILE
Scales: 0 2 5 10 15 20 Horizontal
0 1 2 3 4 5 Vertical

TWP. RD. 145 APPROACH

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

82
287

LIC-40-8.67
S.R. 37 INTERCHANGE



NOTE:
Interchange Center Areas shall be graded and shaped to drain as shown in Section A-A.

Estimated Quantities for Grading of Interchange Centers

E-1	Roadway Excavation	* 600	Cu. Yds.
	Embankment	* 600	Cu. Yds.
L-9	Seeding	* 26,000	Sq. Yds.

Compaction Requirements are waived in these areas as indicated in the General Notes.

* Carried on Line Sheet No. 31

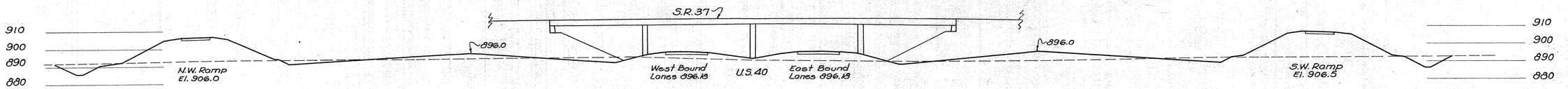
NOTE:
For additional detail & quantities see

S.R. 37	Sheet	96	to	Sheet	106
N.W. Ramp	Sheet	83	to	Sheet	85
N.E. Ramp	Sheet	93	to	Sheet	95
S.W. Ramp	Sheet	86	to	Sheet	89
S.E. Ramp	Sheet	90	to	Sheet	92

M-24

U.S.40 & S.R.37 INTERCHANGE GENERAL LAYOUT & DRAINAGE DETAIL

0 1 2 3 4
Scale of Feet
1" = 100'



SECTION 'A'-'A'

U.S.40 & S.R.37 INTERCHANGE
GENERAL LAYOUT & DRAINAGE DETAIL

LIC-40-8.67
S.R. 37 INTERCHANGE
N.W. RAMP

(P) PAVEMENT

Mark	Station From	Station To	I-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	I-18 Stab. Cr. Aggr. Cu. Yds.	B-33 3" Bit. Mac. Base Cr. Sq. Yds.	I-12 Type 2A Con. Curb Lin. Ft.	I-21 (4") Type 1 Med. Pav. Sq. Yds.
1-P	702+05.64	0+13.86	3129.3	1089	3129	127	1028	179	13.7

STRUCTURES 20' SPAN & UNDER

Str. No.		Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
22		6+18.19		None		P.C.	18"	84'	85

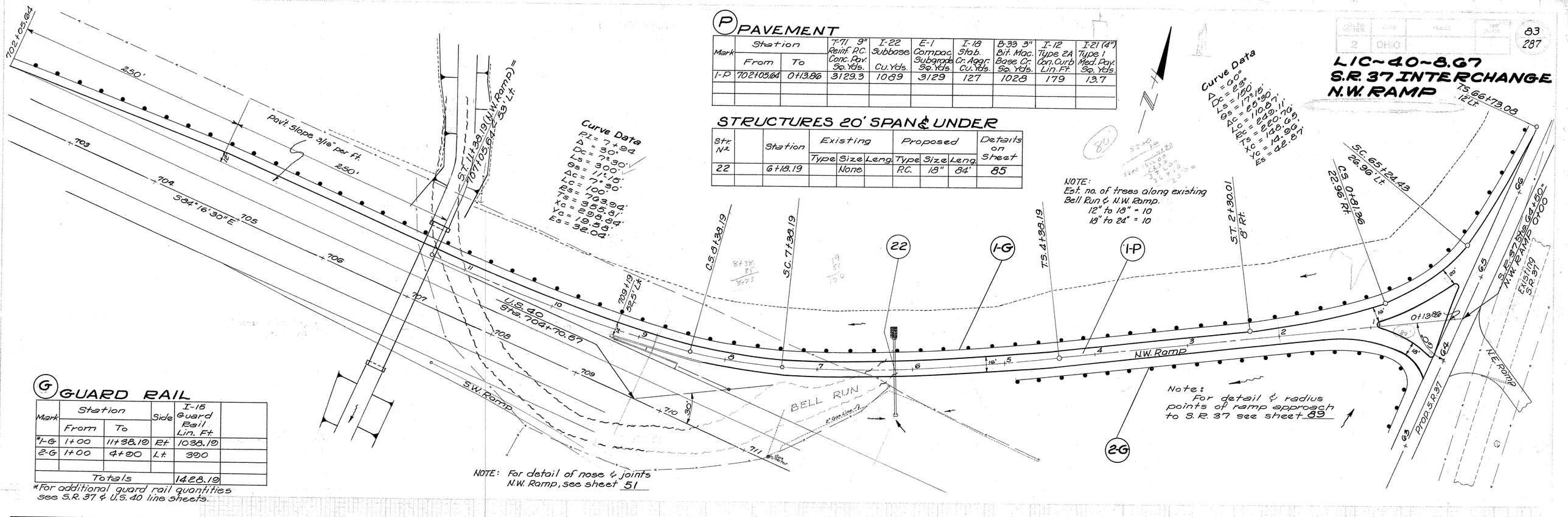
(G) GUARD RAIL

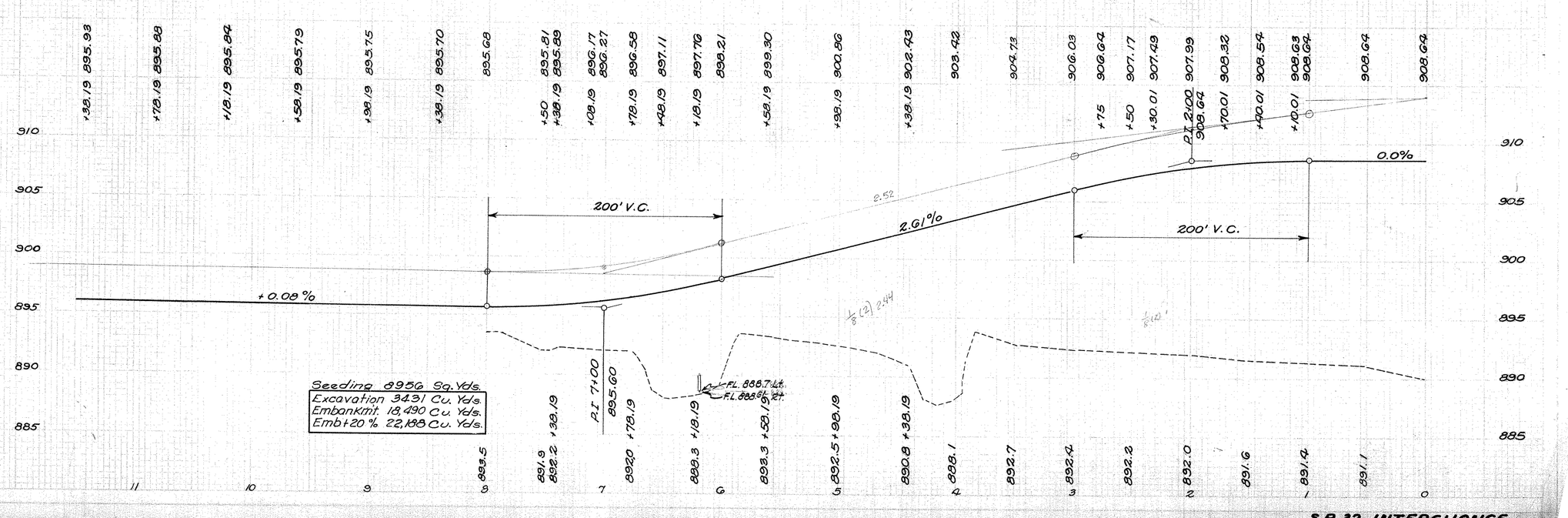
Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
*1-G	1+00	11+38.19	Rt	1038.19	
2-G	1+00	4+00	Lt	300	
Totals				1428.19	

*For additional guard rail quantities see S.R. 37 & U.S. 40 line sheets.

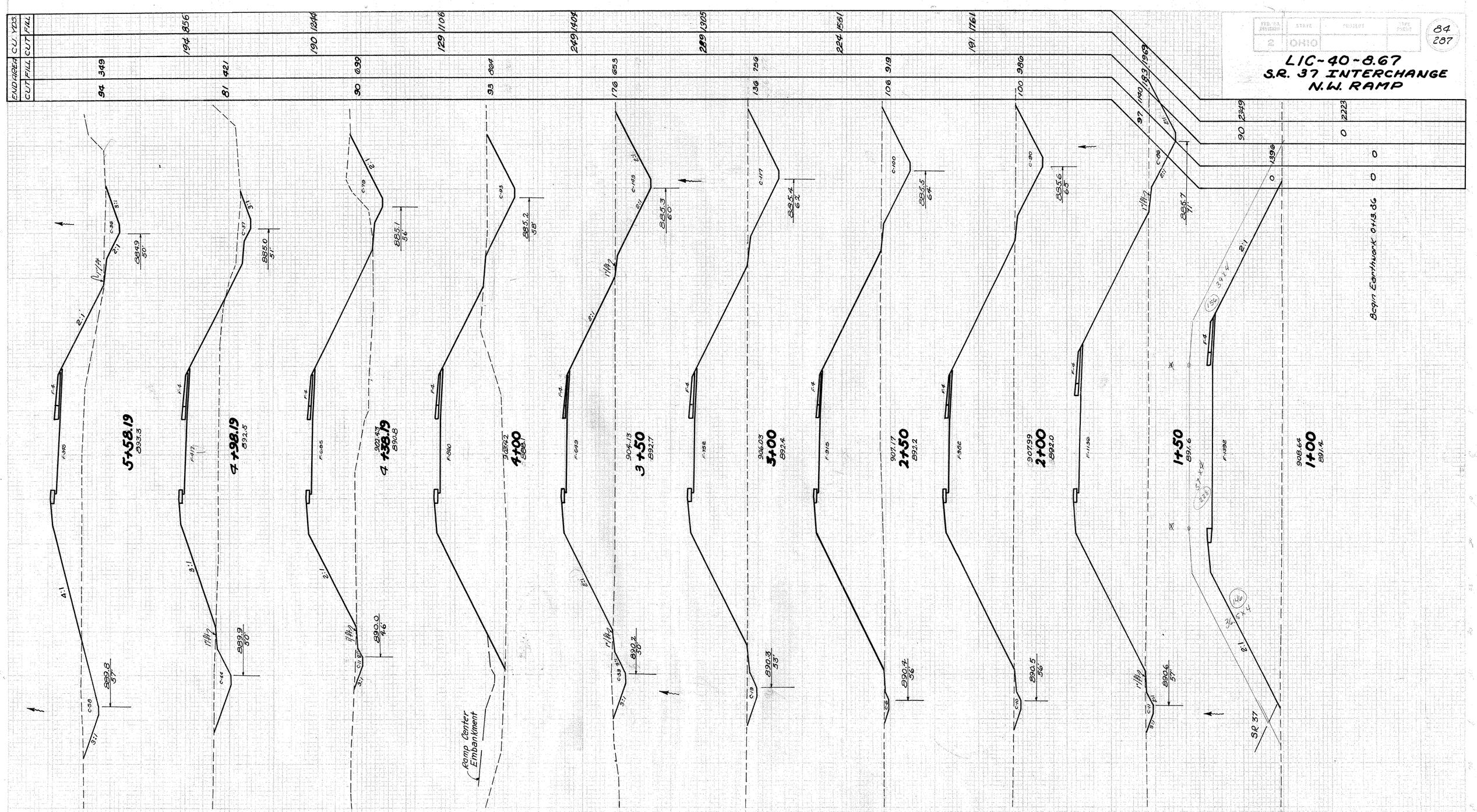
SUPERELEVATION TABLE

Station	Lt. Edge	℄	Rt. Edge
4+38.19	902.56	902.43	902.30
+68.19	901.96	901.78	901.59
+98.19	901.36	901.13	900.89
5+28.19	900.76	900.48	900.18
+58.19	900.16	899.82	899.47
+88.19	899.56	899.16	898.76
6+18.19	898.96	898.50	898.05
+48.19	898.36	897.85	897.34
+78.19	897.76	897.20	896.64
7+08.19	897.16	896.55	895.93
+38.19	896.72	896.08	895.41
+50	896.58	895.90	895.32
+75	896.40	895.75	895.11
8+00	896.35	895.68	895.01
+25	896.34	895.69	895.04
+38.19	896.32	895.70	895.07
+68.19	896.25	895.73	895.17
+98.19	896.14	895.75	895.30
9+28.19	896.02	895.77	895.42
+58.19	↓	895.79	895.49
+88.19	U.S. 40	895.82	895.54
10+18.19	Edge	895.84	895.60
+48.19	of	895.86	895.65
+78.19	Pavt.	895.88	895.70
11+08.19	↓	895.91	895.75
11+38.19		895.93	895.80





S.R. 37 INTERCHANGE
N.W. RAMP



FED. RD. DIVISION	STATE	PROJECT	TYPE PROJECT
2	OHIO		

84
287

LIC-40-8.67
S.R. 37 INTERCHANGE
N.W. RAMP

S.R. 37 INTERCHANGE
N.W. RAMP

END AREA	CU. YDS.
CUT / FILL	CUT / FILL

STA.	CUT	FILL
181	27	
180	93	281
180	174	334
180	198	79
130	337	367
347	854	595
162	432	284
		868

FED. AID DIVISION	STATE	PROJECT	SHT. NO.
5	OHIO		85 / 287

LIC-40-8.67
S.R. 37 INTERCHANGE
N.W. RAMP

End Earthwork Sta 8+42
for area see USAO
x Sects Sta 7+00

For Earthwork filleed See SP40 x Sects sheets

8+00 891.9

7+50 891.9

7+38.19 892.2

6+78.19 892.0

6+18.19 888.3

Fl. Outlet 888.6L

CULVERT Data
Type: Pipe Culvert Std Drwg S-27 PC 3'4"
Size: 18"x34"
Work Regd Install Pipe Culvert as per plan
Culvert Shall be normal to NW. Ramp ℄
Excavate Channel for Dump Rock Fill,
4' wide ℄ 2% deep

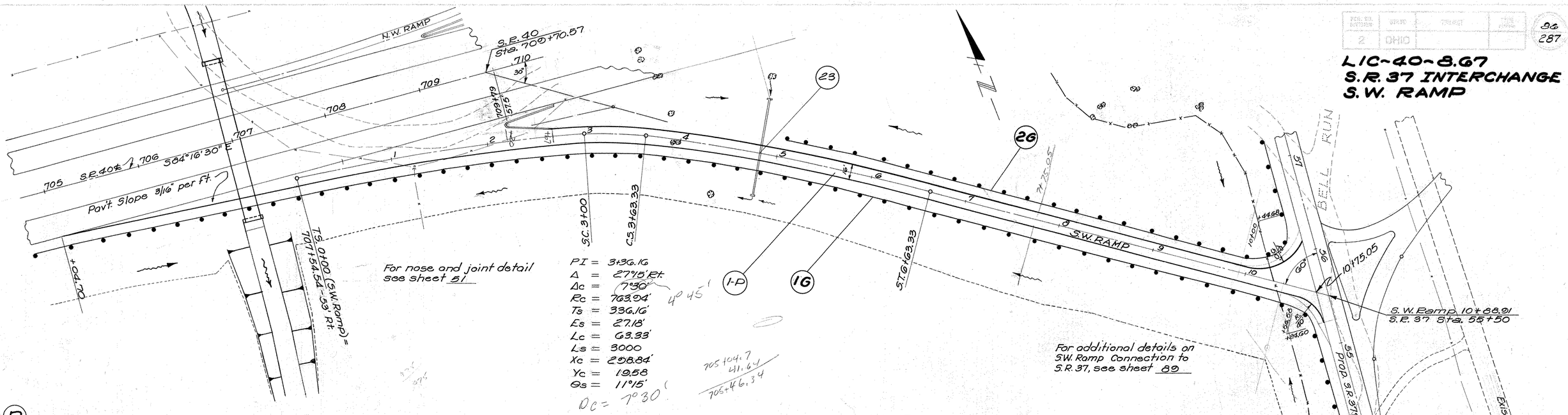
ESTIMATED QUANTITIES

E-2	Excavation for Structure 12 C.Y.
E-3	Channel Excavation 5 C.Y.
I-10	Dump Rock Fill as per plan 35 C.Y.
S-1	Concrete for Structure Class E 0.6 C.Y.
S-27	18" Pipe for Roadway (Culvert) 84 L.F.
	M.G.S (b) or M.G.S (b).

Drainage Area Ac.:	Qp = 32 x 12 x .65 = 18 x .10 CFS
22	Sta. 6+78.19 Pc 78"x38"

S.R. 37 INTERCHANGE
N.W. RAMP

LIC-40-8.67
S.R. 37 INTERCHANGE
S.W. RAMP



PI = 3+36.16
Δ = 27°15' Rt.
Δc = 7°30'
Rc = 763.94'
Ts = 336.16'
Es = 27.18'
Lc = 63.33'
Ls = 3000
Xc = 298.84'
Yc = 19.58
Θs = 11°15'

4°45'

Dc = 7°30'

705+04.7
41.64
705+46.34

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	B-33 3" Bit. Mac. Base Cr. Sq. Yds.	I-18 Stab. Cr. Aggreg. Cu. Yds.	I-12 Type 2-A Con. Curb Lin. Ft.
1-P	705+04.70	0+13.86	2300.2	680	2300	770	96	105

STRUCTURES 20' SPAN & UNDER

Str. Nº		Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
23		4+83.33		None		P.C.	18"	102'	87

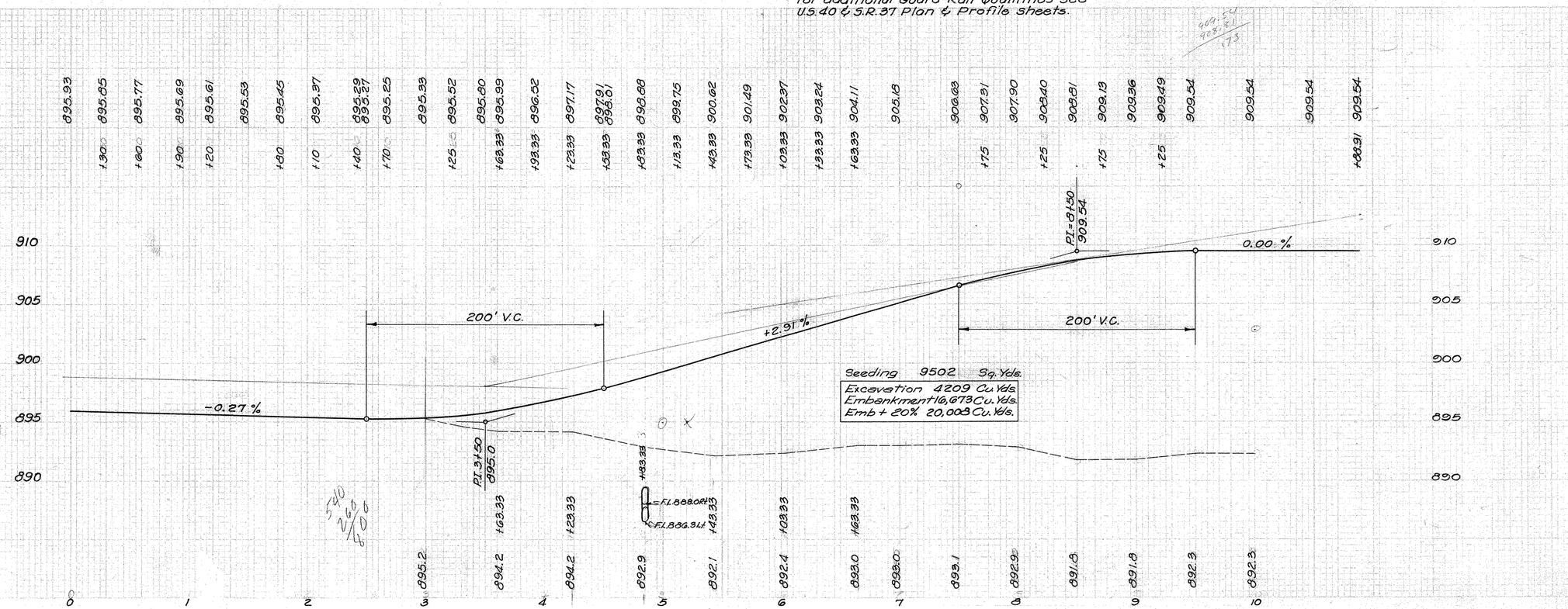
(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
1-G	10+00	0+00	Rt.	1000	
2-G	10+00	5+05.5	Lt.	494.5	
Total				1494.5	

For additional Guard Rail Quantities see U.S. 40 & S.R. 37 Plan & Profile sheets.

SUPERELEVATION TABLE

Station	Lt. Edge	℄	Rt. Edge
0+00		895.93	895.80
+30	U.S. 40	895.85	895.70
+60	Edge	895.77	895.61
+90	of	895.69	895.51
1+20	Pav't.	895.6	895.41
1+50		895.53	895.32
1+80		895.45	895.22
2+10	895.62	895.37	895.12
+40	895.75	895.29	894.97
+70	895.87	895.25	894.81
3+00	896.00	895.33	894.66
+25	896.19	895.52	894.85
+63.33	896.66	895.99	895.32
+93.33	897.14	896.52	895.90
4+23.33	897.73	897.17	896.61
+53.33	898.52	898.01	897.50
+83.33	899.33	898.88	898.43
5+13.33	900.15	899.75	899.35
+43.33	900.97	900.62	900.27
+73.33	901.78	901.49	901.20
6+03.33	902.61	902.37	902.13
+33.33	903.42	903.24	903.06
+63.33	904.24	904.11	903.98



S.R. 37 INTERCHANGE
S.W. RAMP

S.R. 37 INTERCHANGE
S.W. RAMP

END AREA	CU. YDS.
CUT	FILL

FED. RD. DIVISION	STATE	PROJECT		TYPE FUNDS
2	OHIO			

88
287

LIC-40-8.67
S.R. 37 INTERCHANGE
S.W. RAMP

End Earthwork 10+75.05

0 | 0

104 | 1583

75 | 1144

165 | 2099

103 | 1120

185 | 2099

97 | 1146

193 | 2047

111 | 1064

260 | 1813

10+000
909.64
892.3

9+50
909.54
892.3

9+000
909.36
891.8

8+50
909.81
891.8

F-1140

F-1116

F-1142

F-1080

C-19

C-19

C-19

C-19

C-18

C-18

C-18

C-18

C-32

C-32

C-32

C-32

2:1

2:1

2:1

2:1

2:1

2:1

2:1

2:1

2:1

2:1

2:1

2:1

11.8%

11.8%

11.8%

11.8%

836.9
65'

836.8
65'

836.7
88

836.6
65'

889.6
67

889.5
62'

889.4
60

3:1

3:1

3:1

3:1

C-24

C-24

C-24

C-24

C-31

C-31

C-31

C-31

F-6

F-6

F-6

F-6

S.R. 37

175 x 4.5

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

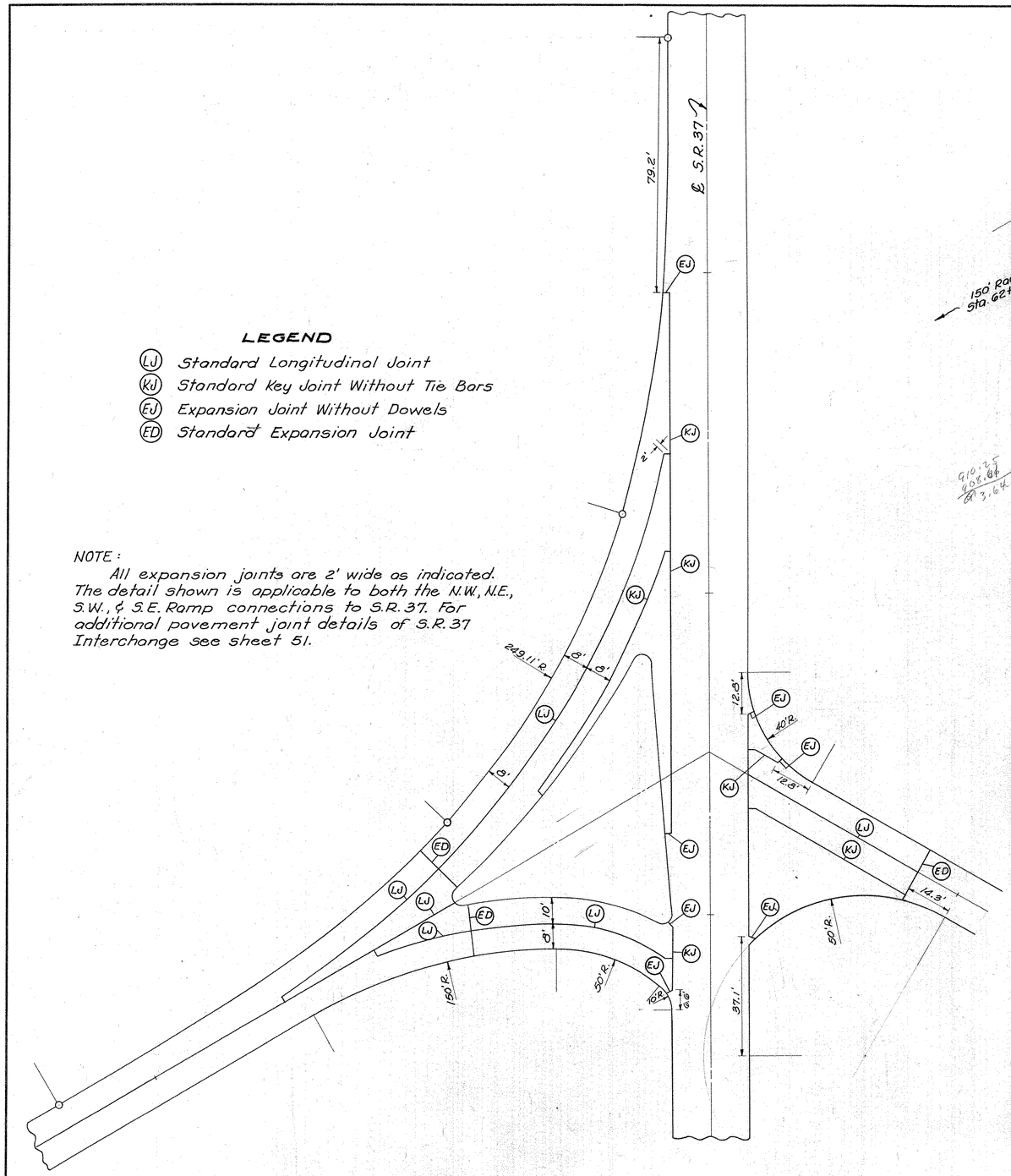
89
287

LIC-40-8.67

LEGEND

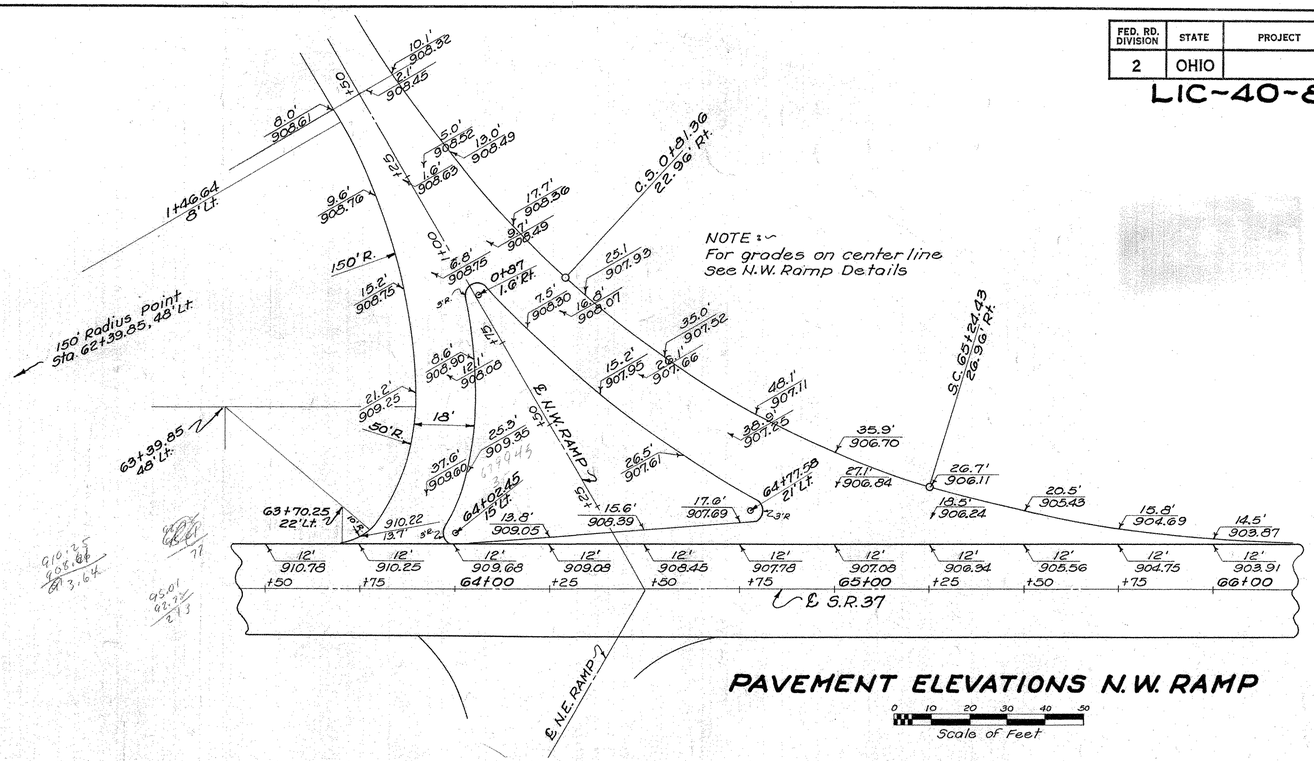
- (LJ) Standard Longitudinal Joint
- (KJ) Standard Key Joint Without Tie Bars
- (EJ) Expansion Joint Without Dowels
- (ED) Standard Expansion Joint

NOTE:
All expansion joints are 2' wide as indicated. The detail shown is applicable to both the N.W., N.E., S.W., & S.E. Ramp connections to S.R. 37. For additional pavement joint details of S.R. 37 Interchange see sheet 51.



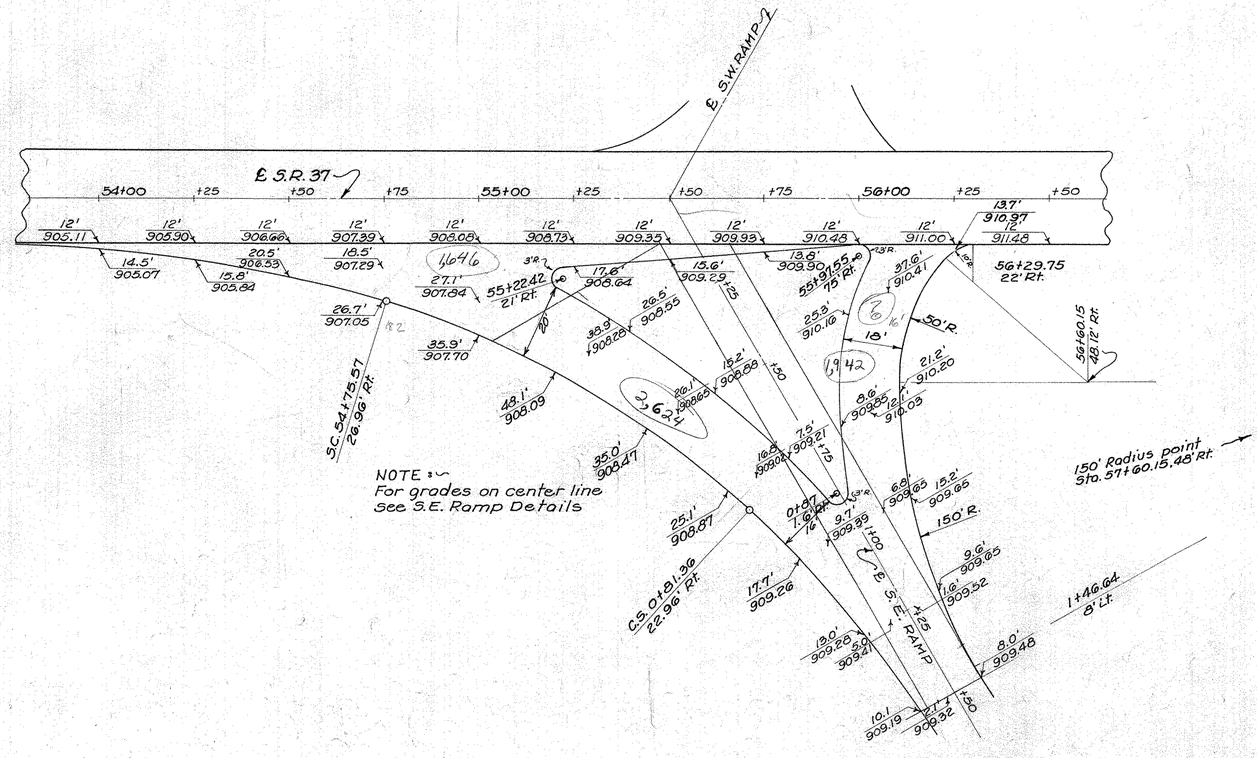
PAVEMENT JOINT DETAIL FOR RAMP CONNECTIONS TO S.R. 37

Scale of Feet
0 5 10 20



PAVEMENT ELEVATIONS N.W. RAMP

Scale of Feet
0 10 20 30 40 50



PAVEMENT ELEVATIONS S.E. RAMP

Scale of Feet
0 10 20 30 40 50

RAMP CONNECTIONS S.R. 37 & 40 INTERCHANGE

LIC-40-8.67
S.R.-37-INTERCHANGE
S.E. RAMP

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	B-33 3" Bit. Mac. Base Cr. Sq. Yds.	I-18 Stabl. Cr. Agg. Cu. Yds.	I-12 Type 2A Con. Curb Lin. Ft.	I-21 4" Type 1 Med. Pav. Sq. Yds.
1-P	0+13.86	732+94.4	3129.3	1089	3129	1028	127	179	13.7

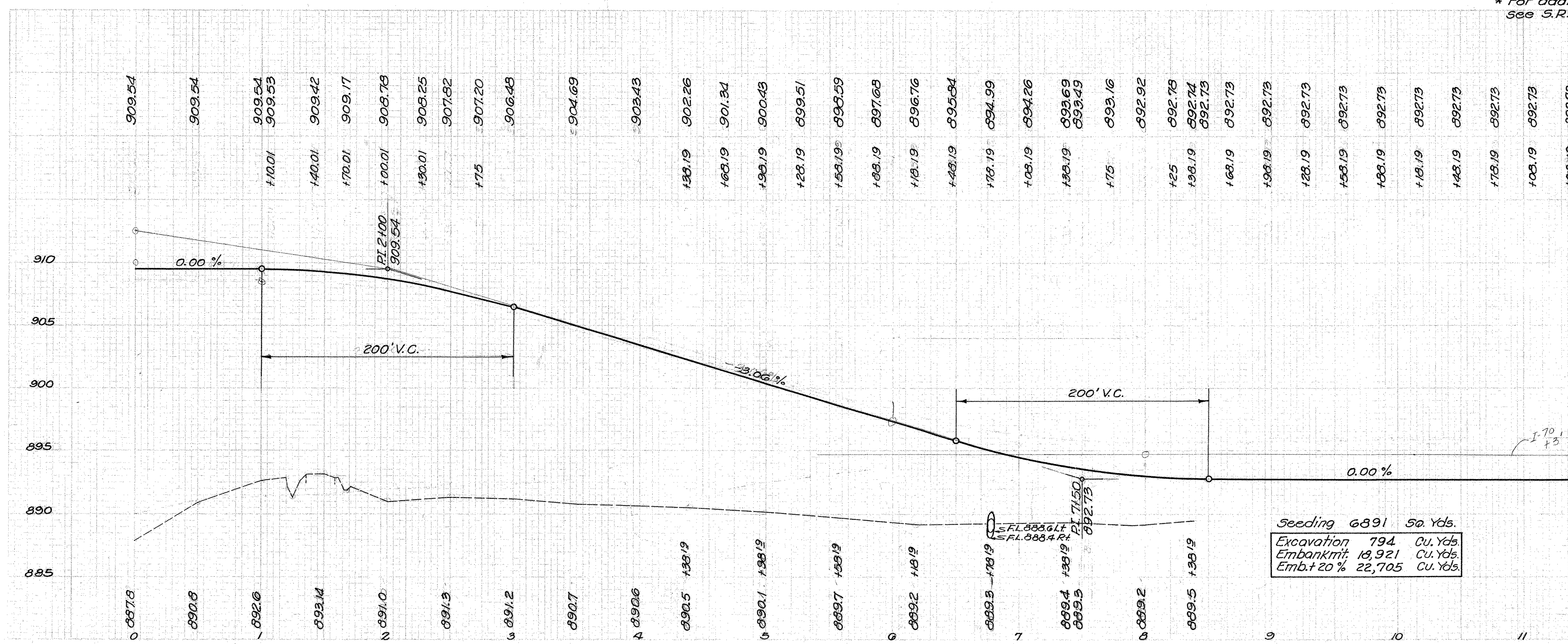
STRUCTURES 20' SPAN & UNDER

Str. No.		Station	Existing Type	Existing Size	Existing Leng	Proposed Type	Proposed Size	Proposed Leng	Details on Sheet
24		6+78.19		None		P.C.	18"	76'	92

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
*1-G	1+00	6+08	Rt.	508	
*2-G	1+00	6+02.5	Lt.	502.5	
Total				1010.5	

* For additional guard rail quantities see S.R. 37



Seeding 6891 Sq. Yds.

Excavation	794	Cu. Yds.
Embankmt.	18,921	Cu. Yds.
Emb. + 20 %	22,705	Cu. Yds.

SUPERELEVATION TABLE

Station	Lt. Edge	℄	Rt. Edge
4+38.19	902.39	902.26	902.13
+68.19	901.55	901.34	901.16
+98.19	900.71	900.43	900.19
5+28.19	899.87	899.51	899.23
+58.19	899.02	898.59	898.26
+88.19	898.18	897.68	897.29
6+18.19	897.34	896.76	896.32
+48.19	896.49	895.84	895.35
+78.19	895.65	894.99	894.38
7+08.19	894.92	894.26	893.69
+38.19	894.36	893.69	893.02
+50	894.16	893.49	892.82
+75	893.83	893.16	892.49
8+00	893.59	892.92	892.25
+25	893.45	892.78	892.17
+38.19	893.39	892.74	892.14
+68.19	893.25	892.73	892.18
+98.19	893.12	892.73	892.29
9+28.19	893.00	892.73	892.37
+58.19	↓	892.73	892.43
+88.19	U.S. 40	892.73	892.46
10+18.19	Edge	892.73	892.49
+48.19	of	892.73	892.51
+78.19	Pavt.	892.73	892.54
11+08.19		892.73	892.57
+38.19	↓	892.73	892.60

END AREA	CU YDS.
CUT / FILL	CUT / FILL
22 / 796	45 / 1431
30 / 811	61 / 1607
36 / 824	76 / 1831
46 / 1053	98 / 1985
60 / 1094	138 / 1994
89 / 1063	130 / 2261
51 / 1329	72 / 1939
0	0

FED. ROAD DIVISION	STATE	PROJECT	TYPE NUMBER
2	OHIO		

91
287

LIC-40-8.67
S.R. 37 INTERCHANGE
S.E. RAMP

BEGIN EARTHWORK
0+13.86

903.43
4+00
890.6

904.96
3+50
890.7

906.48
3+00
891.2

907.92
2+50
891.3

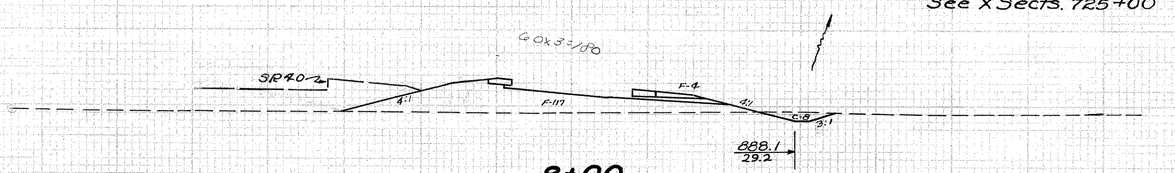
908.78
2+00
891.0

1+50
893.2

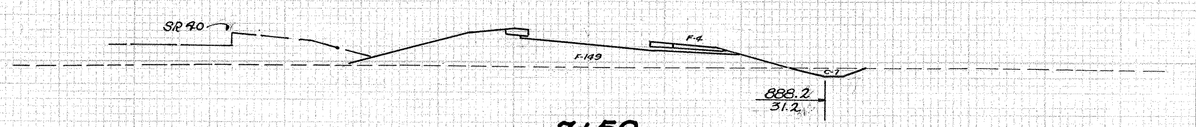
909.54
1+00
892.6

S.R. 37 INTERCHANGE
S.E. RAMP

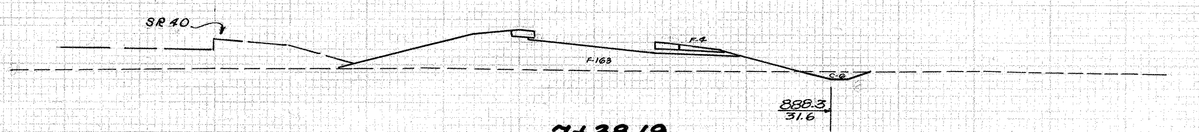
END EARTHWORK
8+46
For additional Earthwork
See X Sects. 725+00



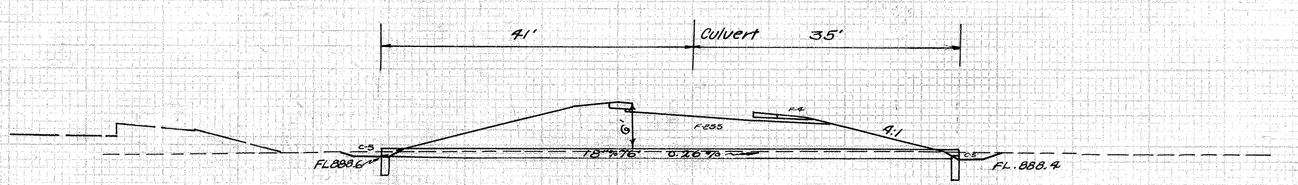
8+00
889.2



7+50
889.3



7+38.19
889.4



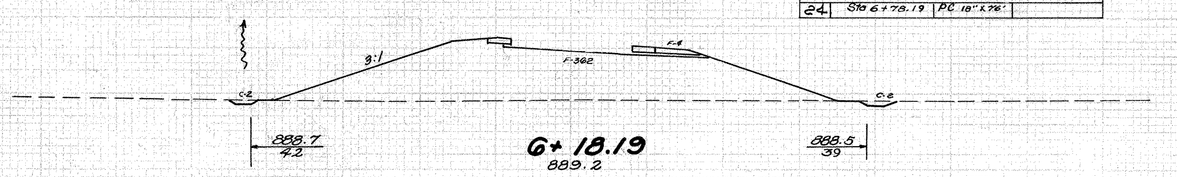
6+78.19
889.3

CULVERT DATA
Type Pipe Culvert Std drwg S-27.pc3&4
Size 18"x 76'

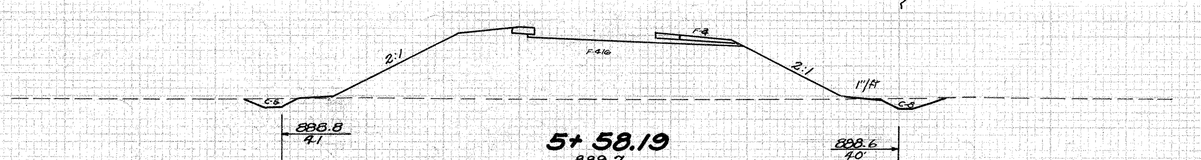
Work Reqd: Install new 18"x76' Pipe Culvert as per plan. Culvert shall be normal to S.E. Ramp ℄

ESTIMATED QUANTITIES
E-2.12 CuYds Structure Excavation
S-1.0.6. = cuyds Concrete structure Class E
S-27.76 Lin.Ft 18" Pipe for Roadway Culverts Sec M-6.6(b) or M6.8(b)

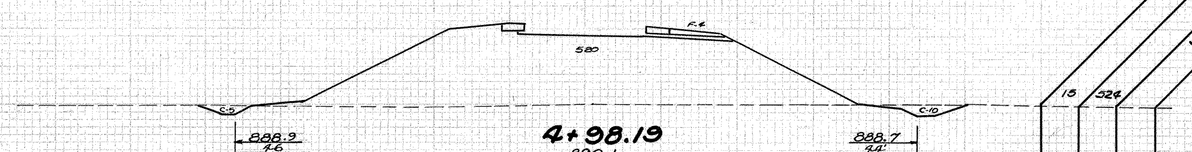
D.A.= 4 Ac Q50= 22 x1.2 x .65 x 6 = 106 cfs.
24. Sta 6+78.19 PC 18"x76'



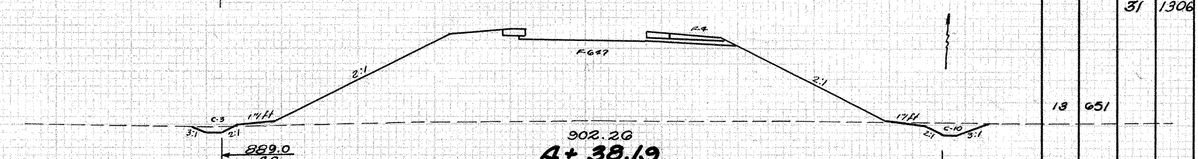
6+18.19
889.2



5+58.19
889.7



4+98.19
890.1



902.26

4+38.19
890.5

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
7	87		
		14	174
8	121		
		14	254
7	153		
		3	70
6	167		
		18	473
10	259		
		16	694
4	360		
		19	874
13	420		
		31	1048
15	526		
		31	1306
13	651		
		25	980

30 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50

S.R. 37 INTERCHANGE
S.E. RAMP

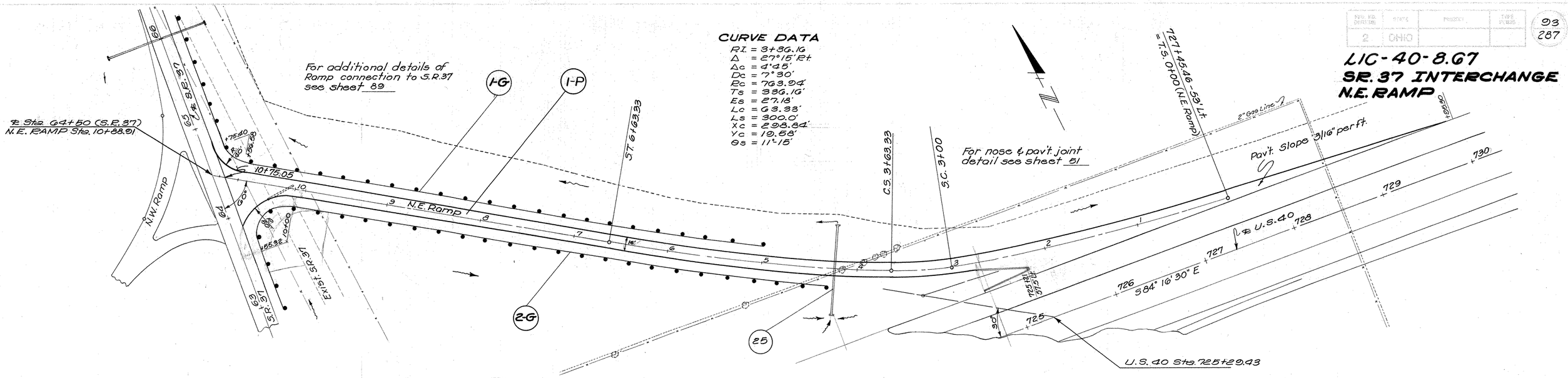
L/C-40-8.67
S.R. 37 INTERCHANGE
S.E. RAMP

92
287

FED. ROAD DESIGNATION	STATE	PROJECT	TOTAL SHEETS
2	OHIO		

93
287

LIC-40-8.67
SR. 37 INTERCHANGE
N.E. RAMP



(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	B-33 3" Bit. Mac. Base Cr. Sq. Yds.	I-18 Sta b. Cr. Aggr. Cu. Yds.	I-12 Type 2A con. curb Lin. Ft.
1-P	0+13.86	729+95.30	2300.2	680	2300	770	96	105

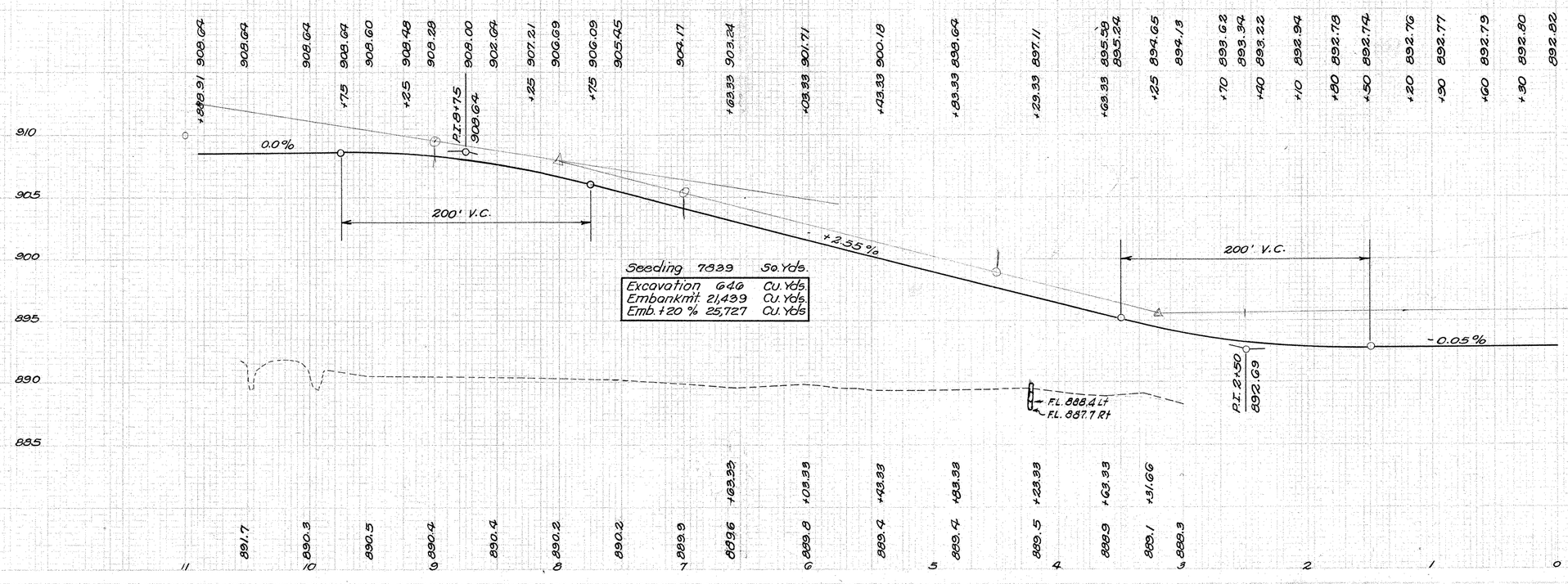
STRUCTURES 20' SPAN & UNDER

Str. No.		Station	Existing Type	Existing Size	Existing Leng	Proposed Type	Proposed Size	Proposed Leng	Detail on Sheet
25		4+23.33		None		P.C.	18"	96'	94

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
1-G	5+00.5	10+00	Rt	499.5	
2-G	4+30.5	10+00	Lt	569.5	
Total				1069.0	

For additional Guard Rail Quantities see S.R. 37 Plan & Profile Sheets.



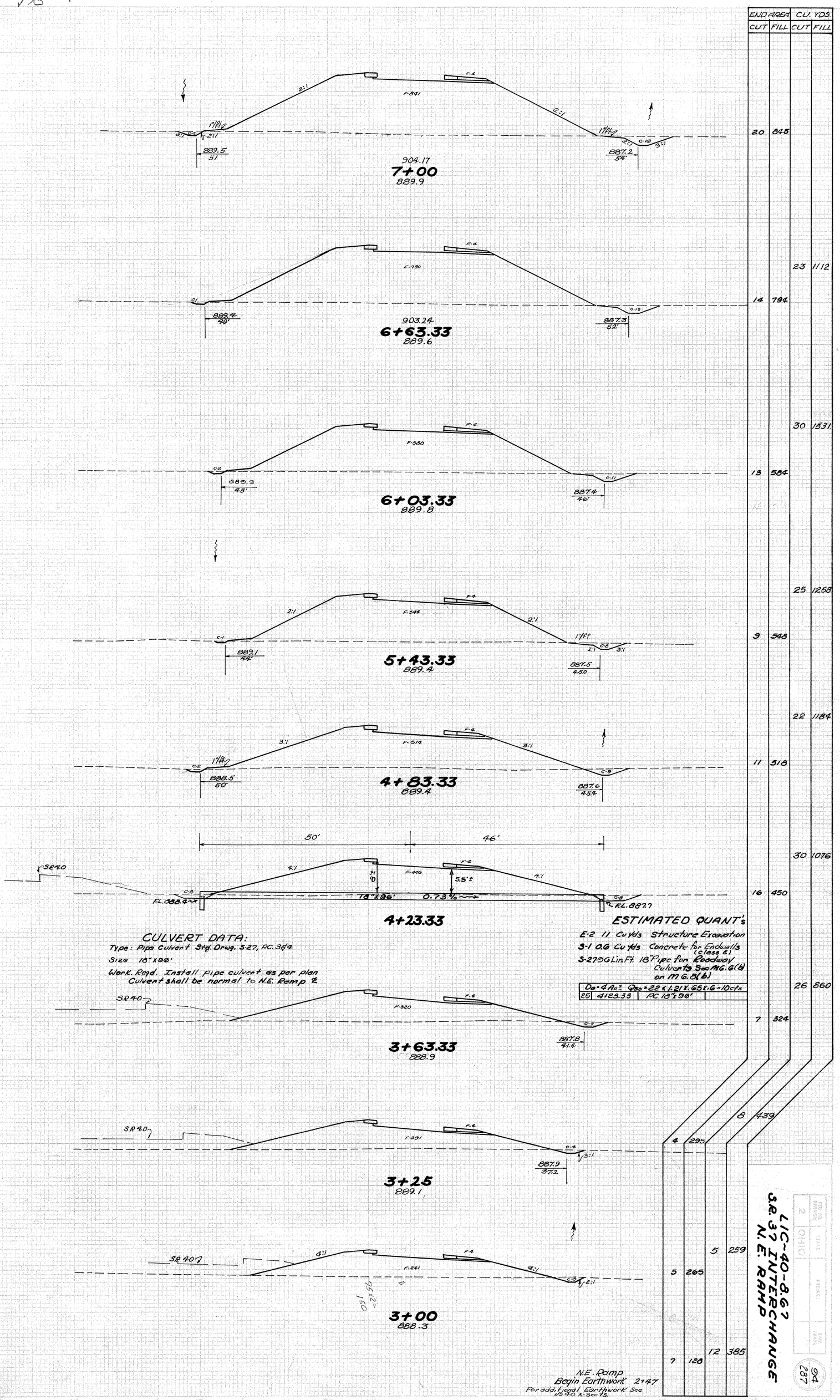
Seeding 7839 Sq. Yds.

Excavation	640 Cu. Yds.
Embankmt.	21,439 Cu. Yds.
Emb. +20 %	25,727 Cu. Yds.

SUPERELEVATION TABLE

Station	Lt. Edge	℄	Rt. Edge
0+00		892.82	892.69
+30	U.S.40	892.80	892.67
+60	Edge	892.79	892.65
+90	of	892.77	892.63
1+20	Pav't.	892.76	892.61
+50		892.74	892.59
+80		892.73	892.59
2+10	893.20	892.91	892.65
+40	893.64	893.22	892.76
+70	894.19	893.62	893.01
3+00	894.80	894.13	893.46
+25	895.32	894.65	893.99
+50	895.91	895.24	894.57
+83.33	896.25	895.58	894.91
+93.33	896.96	896.35	895.73
4+23.33	897.67	897.11	896.55
+53.33	898.39	897.83	897.36
+83.33	899.10	898.64	898.18
5+13.33	899.81	899.41	899.00
+43.33	900.52	900.18	899.82
+73.33	901.23	900.94	900.64
6+03.33	901.95	901.71	901.45
+33.33	902.66	902.47	902.27
+63.33	903.37	903.24	903.09

S.R. 37 INTERCHANGE
N.E. RAMP


END AREA
CUT FILL
CU. YDS.
CUT FILL
F-841
2:1
1'/1ft.
C-16
889.5
51
887.2
57
904.17
7+00
889.9
20 845
F-730
889.4
49'
887.3
52'
903.24
6+63.33
889.6
23 1112
F-580
889.3
45'
887.4
46'
6+03.33
889.8
30 1831
F-548
889.1
44'
887.5
43.0
5+43.33
889.4
25 1258
F-519
888.5
50'
887.6
45.4
4+83.33
889.4
22 1184
50'
46'
F-446
5.5'±
18"x96'
0.73%
FL. 888.4
FL. 887.7
4+23.33
11 518
16 450
30 1076
F-320
887.8
41.4
3+63.33
888.9
7 324
26 860
F-331
887.9
37.2
3+25
889.1
4 295
8 439
F-261
95'x2=
190
3+00
888.3
5 265
5 259
7 180
12 385
SR 40
CULVERT DATA:
Type: Pipe Culvert Std. Drwg. S-27, RC-38A
Size 18"x96'
Work Reqd. Install pipe culvert as per plan
Culvert shall be normal to N.E. Ramp ℄
ESTIMATED QUANT's
E-2 11 Cu Yds Structure Excavation
S-1 0.6 Cu Yds Concrete for Endwalls (Class A)
S-27 9 Lin Ft. 18" Pipe for Roadway Culverts See MG.6(4) on MG.3(6)
Do=4 Ac.ft Qso=22 x 1.21 x .65 x 1.6 = 10 cfs
25 4123.33 RC 18"x96'
N.E. Ramp
Begin Earthwork 2+47
For addl. road Earthwork See US 40 X-Sec 13
LIC-40-8.67
S.R. 37 INTERCHANGE
N.E. RAMP
S.R. 37 INTERCHANGE
N.E. RAMP
OHIO
94
287

END AREA	CU. YDS.
CUT / FILL	CUT / FILL
0	0
68 / 1589	45 / 1144
91 / 2132	49 / 1158
77 / 2146	34 / 1139
63 / 2093	34 / 1101
63 / 1949	34 / 992
58 / 1786	28 / 932
45 / 1646	

FED. RT. DIVISION	STATE	PROJECT	SHT. NUMBER
2	OHIO		

95
287

LIC-40-8.67
S.R. 37 INTERCHANGE
N.E. RAMP

End Earthwork
Sta. 10+75.05

10+00
908.64
890.3

9+50
908.60
890.5

9+00
909.28
890.4

8+50
907.64
890.4

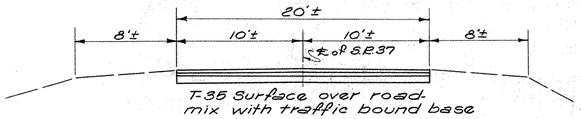
8+00
906.69
890.2

7+50
905.45
890.2

S.R. 37

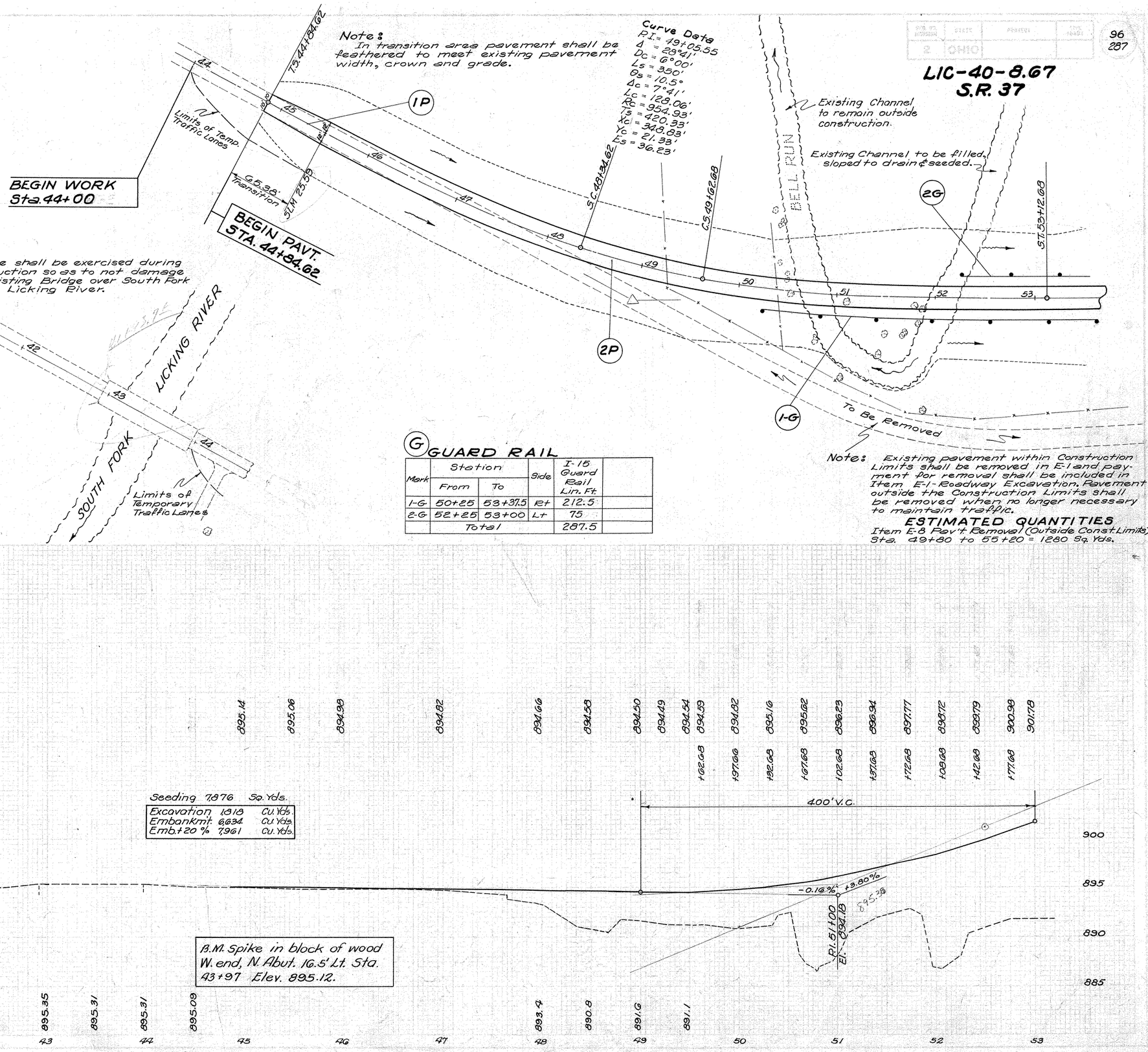
S.R. 37 INTERCHANGE
N.E. RAMP

LIC-40-8.67
S.R. 37



T-36 Surface over road-mix with traffic bound base

TYPICAL SECTION OF A'JOIN. PAV'T STA. 44+84



(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	I-9 Stone Underdrn. Lin. Ft.	
1-P	44+84.62	45+50	159.8	29	160	40	
2-P	45+50	53+00	2000	361	2000	400	
Totals			2159.8	390	2160	440	

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
1-G	50+25	53+37.5	Rt	212.5	
2-G	52+25	53+00	Lt	75	
	Total			287.5	

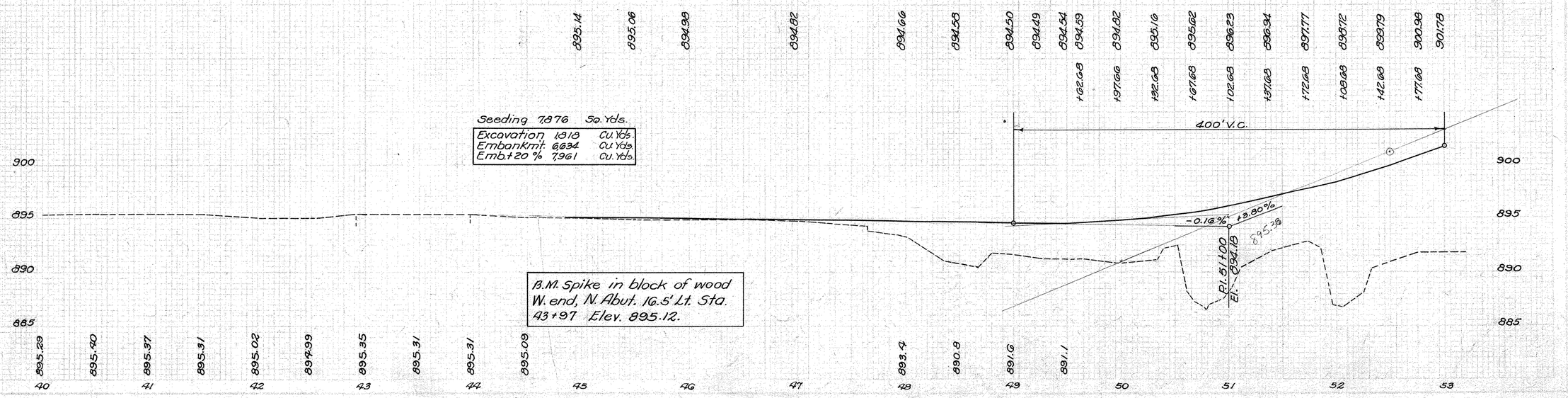
Note: Existing pavement within Construction Limits shall be removed in E-1 and payment for removal shall be included in Item E-1-Roadway Excavation. Pavement outside the Construction Limits shall be removed when no longer necessary to maintain traffic.

ESTIMATED QUANTITIES

Item E-8 Pav't Removal (Outside Const. Limits) Sta. 49+80 to 55+20 = 1280 Sq. Yds.

SUPERELEVATION TABLE

Station	Lt. Edge	℄	Rt. Edge
45+19.62	894.84	895.10	895.05
+54.62	894.86	895.14	895.29
+89.62	894.81	895.17	895.53
46+24.62	894.75	895.21	895.66
+59.62	894.69	895.24	895.78
+94.62	894.64	895.27	895.90
47+29.62	894.58	895.31	896.03
+64.62	894.53	895.34	896.15
+99.62	894.47	895.38	896.28
48+34.62	894.41	895.40	896.34
+50	894.39	895.38	896.38
+75	894.35	895.34	896.34
49+00	894.31	895.30	896.30
+25	894.30	895.29	896.29
+50	894.35	895.34	896.34
+62.68	894.40	895.39	896.39
+97.66	894.63	895.63	896.62
50+32.68	894.97	895.96	896.96
+67.68	895.43	896.42	897.42
51+02.68	896.04	897.03	898.03
+37.68	896.75	897.74	898.74
+72.68	897.58	898.57	899.57
52+07.68	898.53	899.52	900.40
+42.68	899.60	900.03	901.10
+77.68	900.79	901.24	901.69
53+12.68	902.09	902.28	902.38
+25	902.52	902.71	902.65
+50	903.42	903.61	903.46
+75	904.28	904.47	904.28



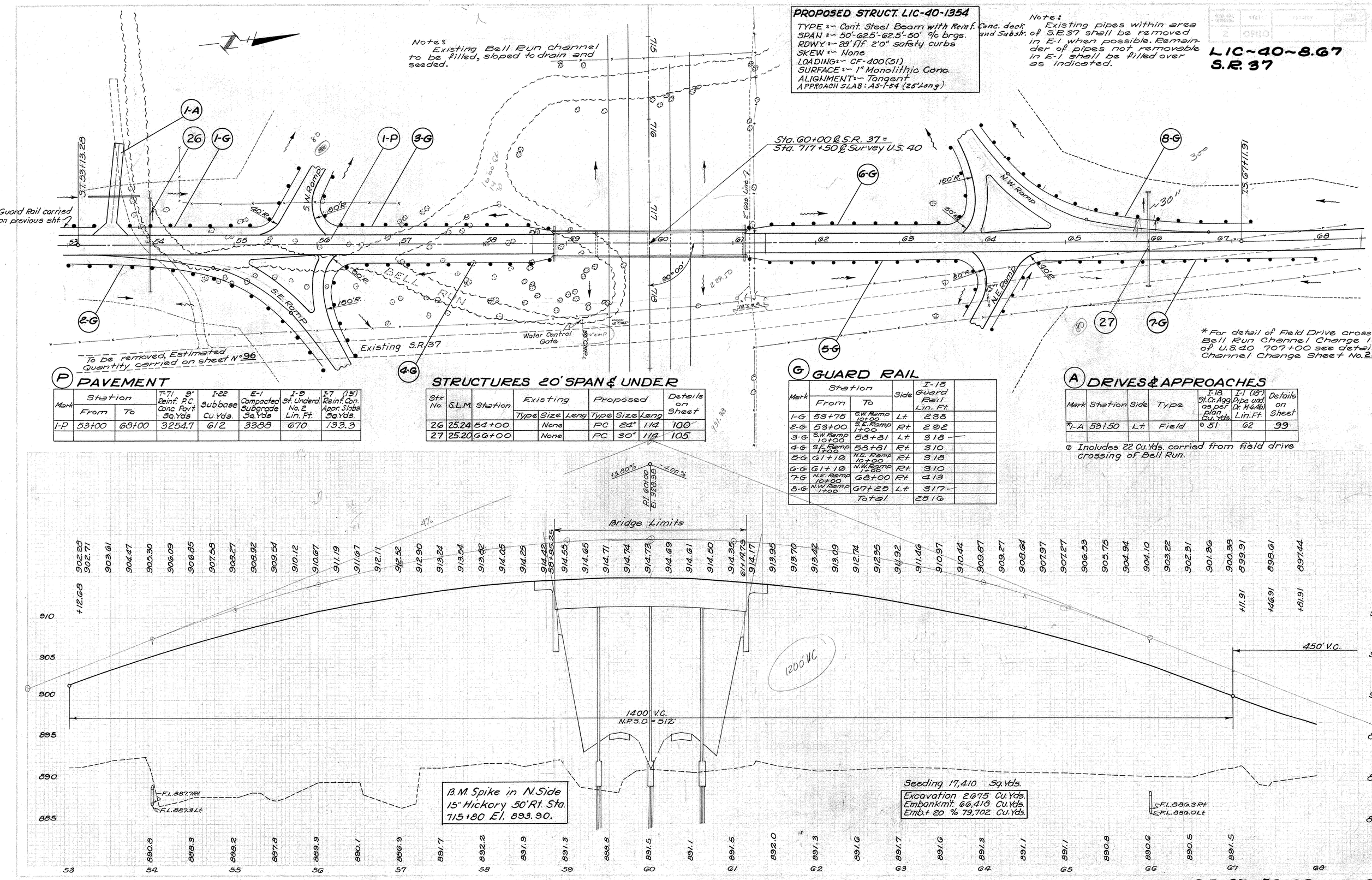
S.R. 37 38+00 – 53+00

LIC-40-8.67
S.R. 37

PROPOSED STRUCT. LIC-40-1354

TYPE :- Cont. Steel Beam with Reinf. Conc. deck and Substr.
SPAN :- 50'-62.5'-62.5'-50' c/c brgs.
RDWY. :- 28' f/f 2'0" safety curbs
SKEW :- None
LOADING :- CF-400(51)
SURFACE :- 1" Monolithic Conc.
ALIGNMENT :- Tangent
APPROACH SLAB : AS-1-54 (25' Long)

Note: Existing pipes within area of S.R. 37 shall be removed in E-1 when possible. Remainder of pipes not removable in E-1 shall be filled over as indicated.



* For detail of Field Drive crossing of Bell Run Channel Change 1570' Rt. of U.S. 40 707+00 see detail of Channel Change Sheet No. 224

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. Conc. Pavt. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compacted Subgrade Sq. Yds.	I-9 St. Underd. No. 2 Lin. Ft.	I-7 (13") Reinf. Con. Appr. Slabs Sq. Yds.
1-P	53+00	68+00	3254.7	612	3388	670	133.3

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng	Proposed Type	Proposed Size	Proposed Leng	Details on Sheet
26	25.24	54+00		None		PC	24"	114	100
27	25.20	66+00		None		PC	30"	114	105

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	
1-G	53+75	S.W. Ramp 10+00	Lt.	238	
2-G	53+00	S.E. Ramp 1+00	Rt.	292	
3-G	S.W. Ramp 10+00	58+81	Lt.	318	
4-G	S.E. Ramp 1+00	58+81	Rt.	310	
5-G	61+19	N.E. Ramp 10+00	Rt.	318	
6-G	61+19	N.W. Ramp 1+00	Rt.	310	
7-G	N.E. Ramp 10+00	68+00	Rt.	413	
8-G	N.W. Ramp 1+00	67+25	Lt.	317	
		Total		2516	

(A) DRIVES & APPROACHES

Mark	Station	Side	Type	I-18 St. Cr. Agg. as per plan Cu. Yds.	I-1 (18") Pipe und. Dr. M-6.46) Lin. Ft.	Details on Sheet
*1-A	53+50	Lt.	Field	① 51	62	99

① Includes 22 Cu. Yds. carried from field drive crossing of Bell Run.

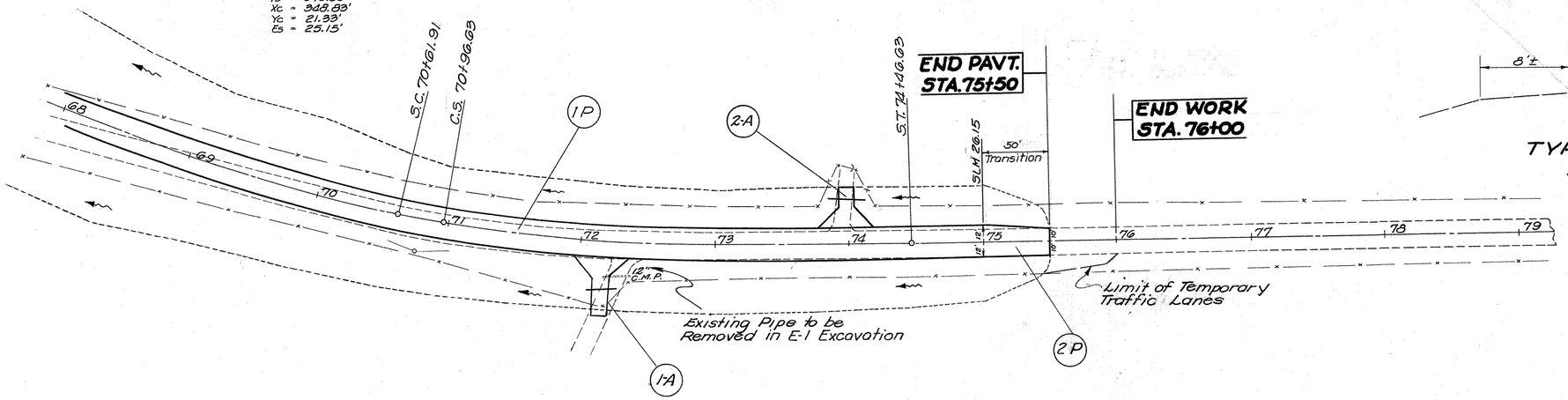
S.R. 37 53+00 – 68+00

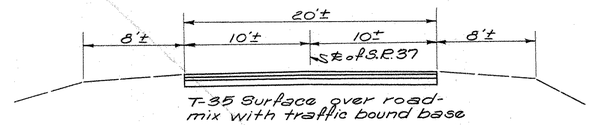
FED. AID PROJECT	STATE	PROJECT		SHEET NO.	TOTAL SHEETS
2	OHIO			98	287

LIC-40-8.67
S.R. 37

Δ = 23°05'
Dc = 6°00'
Ls = 350'
θs = 10.5°
Δc = 2°05'
Lc = 34.72'
Rc = 954.93'
Ts = 370.90'
Xc = 348.83'
Yc = 21.33'
Es = 25.15'

Note:
In transition area pavement shall be feathered to meet existing pavement width, crown and grade.





T-35 Surface over road-mix with traffic bound base

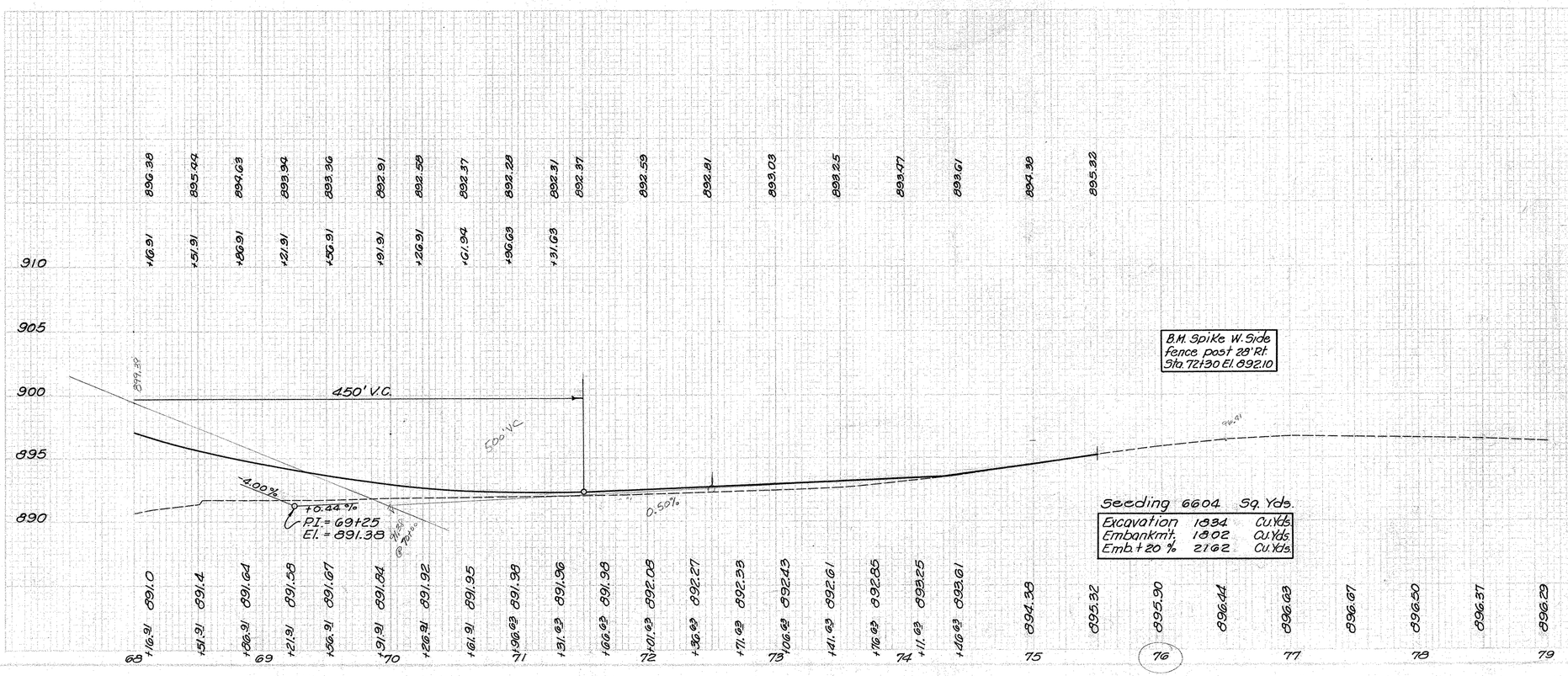
TYPICAL SECTION OF A'JOIN. PAV'T STA. 75+50

(P) PAVEMENT

Mark	Station From	Station To	T-71 9" Reinf. P.C. conc. Pav. Sq. Yds.	I-22 Subbase Cu. Yds.	E-1 Compac. Subgrade Sq. Yds.	I-9 Stone Underdrn. Lin. Ft.
1-P	68+00	75+00	1806.7	337	1867	380
2-P	75+00	75+50	122.2	22	122	40
Totals			1928.9	359	1989	420

(A) DRIVES & APPROACHES

Mark	Station	Side	Type	E-18 6" Cr. Aggr. As Per Plan Cu. Yds.	I-1 Dr. Pipe M.G.A. (C) 12" Lin. Ft.			Details on Sheet
1-A	72+16	Rt.	Field	14	32			106
2-A	73+98	Lt.	Field	10	28			106
Totals				24	60			



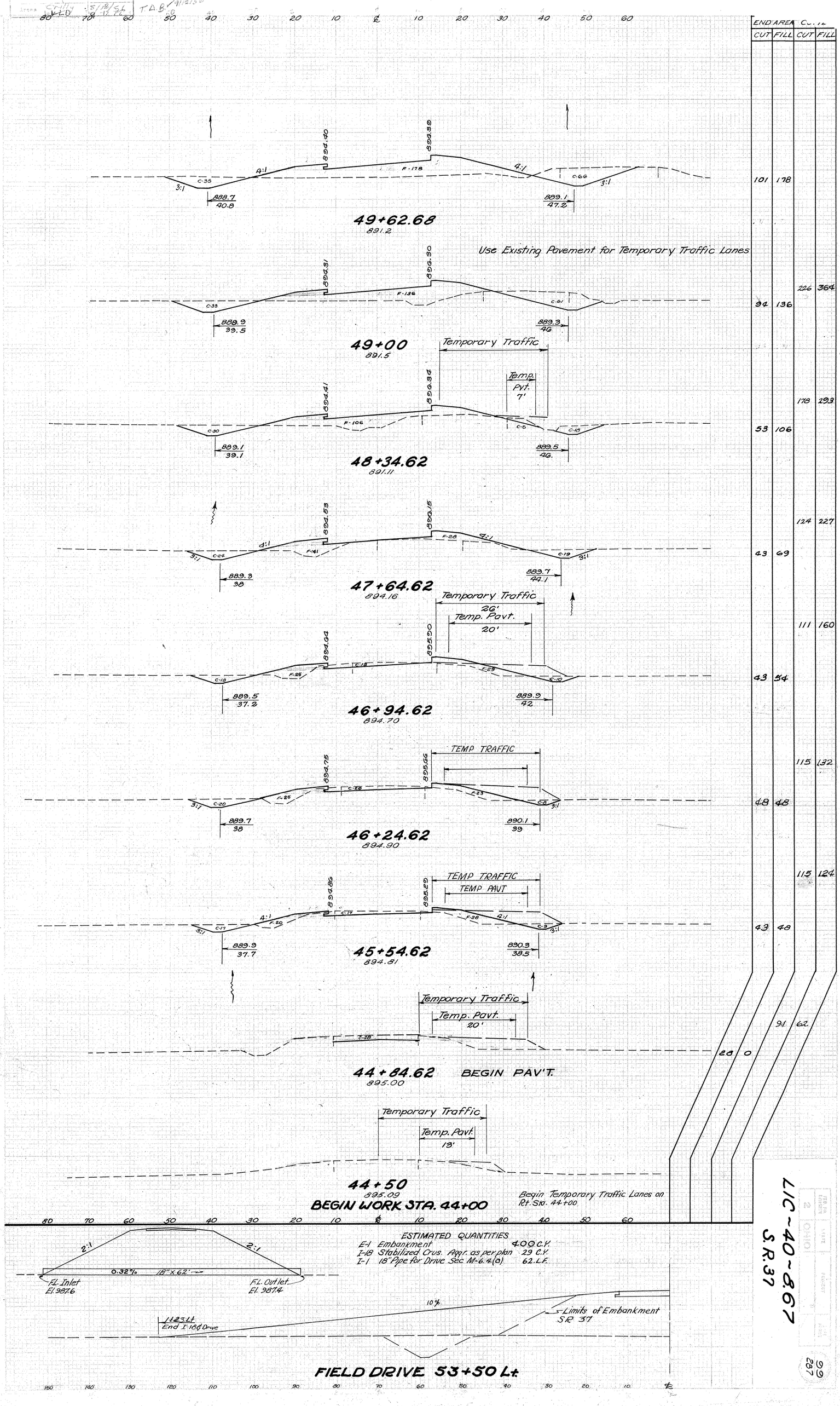
Seeding 6604 Sq. Yds.

Excavation	1934	Cu. Yds.
Embankmt.	1802	Cu. Yds.
Emb. + 20 %	2162	Cu. Yds.

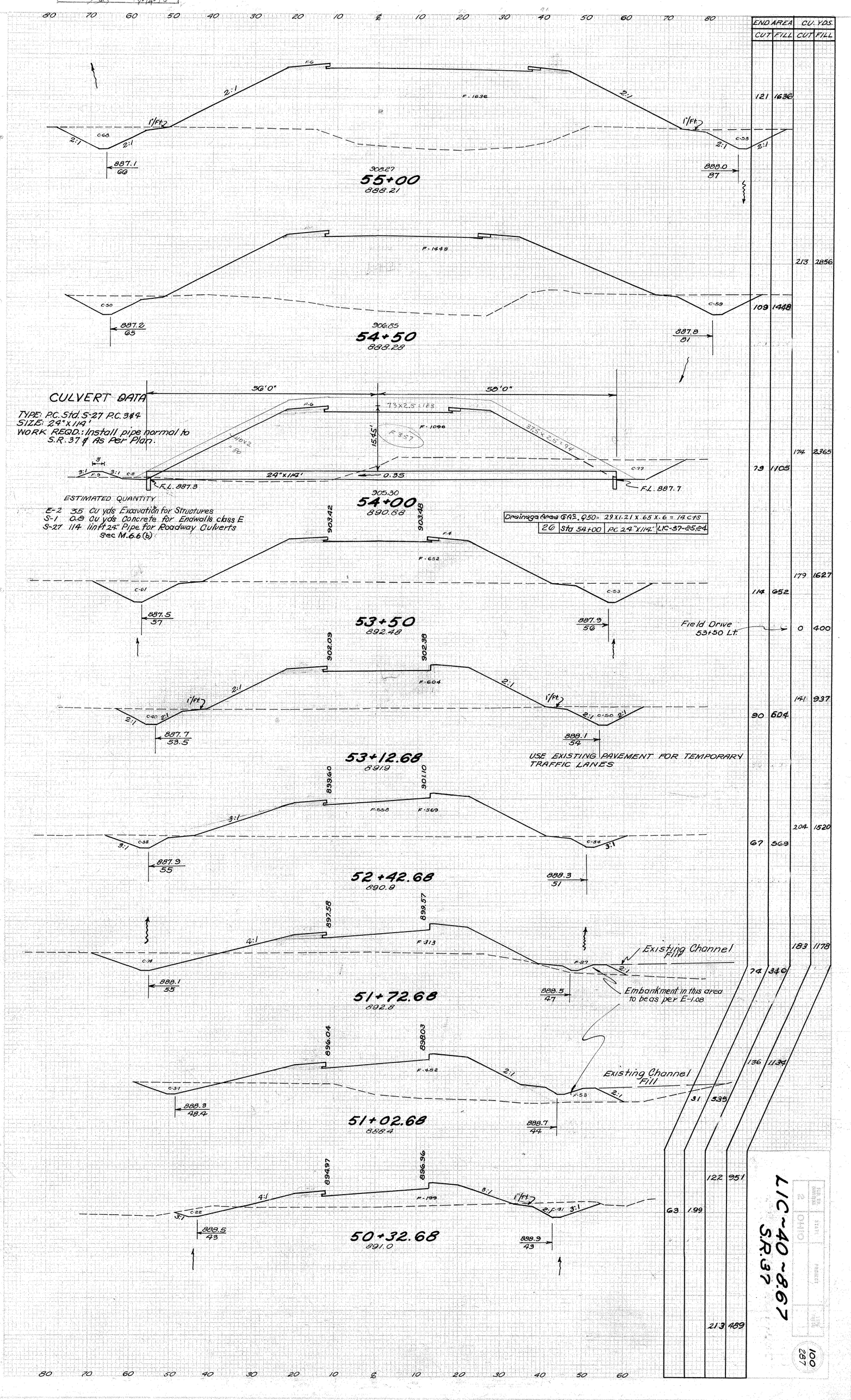
SUPERELEVATION TABLE

Station	Lt. Edge	℄	Rt. Edge
66+50	902.12	902.31	902.12
+75	901.17	901.36	901.25
67+00	900.19	900.38	900.36
+11.91	899.72	899.91	900.05
+46.91	898.82	898.88	899.34
+81.91	897.25	898.01	898.76
68+16.91	896.19	897.19	898.09
+51.91	895.25	896.25	897.24
+86.91	894.44	895.44	896.43
69+21.91	893.75	894.75	895.74
+56.91	893.17	894.17	895.16
+91.91	892.72	893.72	894.71
70+26.91	892.39	893.39	894.38
+61.91	892.18	893.18	894.17
+96.63	892.09	893.09	894.08
71+31.63	892.12	893.08	894.04
+66.63	892.25	893.13	894.00
72+01.63	892.41	893.19	893.96
+36.63	892.56	893.24	893.92
+71.63	892.72	893.30	893.88
73+06.63	892.87	893.36	893.84
+41.63	893.02	893.41	893.80
+76.63	893.18	893.47	893.76
74+11.63	893.33	893.53	893.72
+46.63	893.49	893.63	893.68
150	893.50	893.69	893.68
+75	893.61	893.80	893.71
75+00	893.72	893.91	893.72

S.R. 37
68+00 ~ 79+00



END AREA CUTS
CUT FILL CUT FILL
101 178
49+62.68
891.2
Use Existing Pavement for Temporary Traffic Lanes
226 364
94 136
49+00
891.5
Temporary Traffic
Temp. Pvt. 7'
178 293
53 106
48+34.62
891.11
124 227
43 69
47+64.62
894.16
Temporary Traffic 26'
Temp. Pavt. 20'
111 160
43 54
46+94.62
894.70
TEMP TRAFFIC
115 132
48 48
46+24.62
894.90
TEMP TRAFFIC
TEMP PAVT
115 124
43 48
45+54.62
894.81
Temporary Traffic
Temp. Pavt. 20'
91 62
28 0
44+84.62 BEGIN PAV'T.
895.00
Temporary Traffic
Temp. Pavt. 13'
44+50
895.09
BEGIN WORK STA. 44+00
Begin Temporary Traffic Lanes on Rt. Sta. 44+00
ESTIMATED QUANTITIES
E-1 Embankment 400 C.Y.
I-18 Stabilized Crus. Aggr. as per plan 29 C.Y.
I-1 18" Pipe for Drive Sec M-6.4(a) 62 L.F.
2:1
0.32% 18" X 62'
F.L. Inlet El. 987.6
F.L. Outlet El. 987.4
10%
1+23 Lt End I-18 Drive
Limits of Embankment SR 37
FIELD DRIVE 53+50 Lt.
44+50~49+62.68
S.R. 37
LIC~40~8.67
S.R. 37

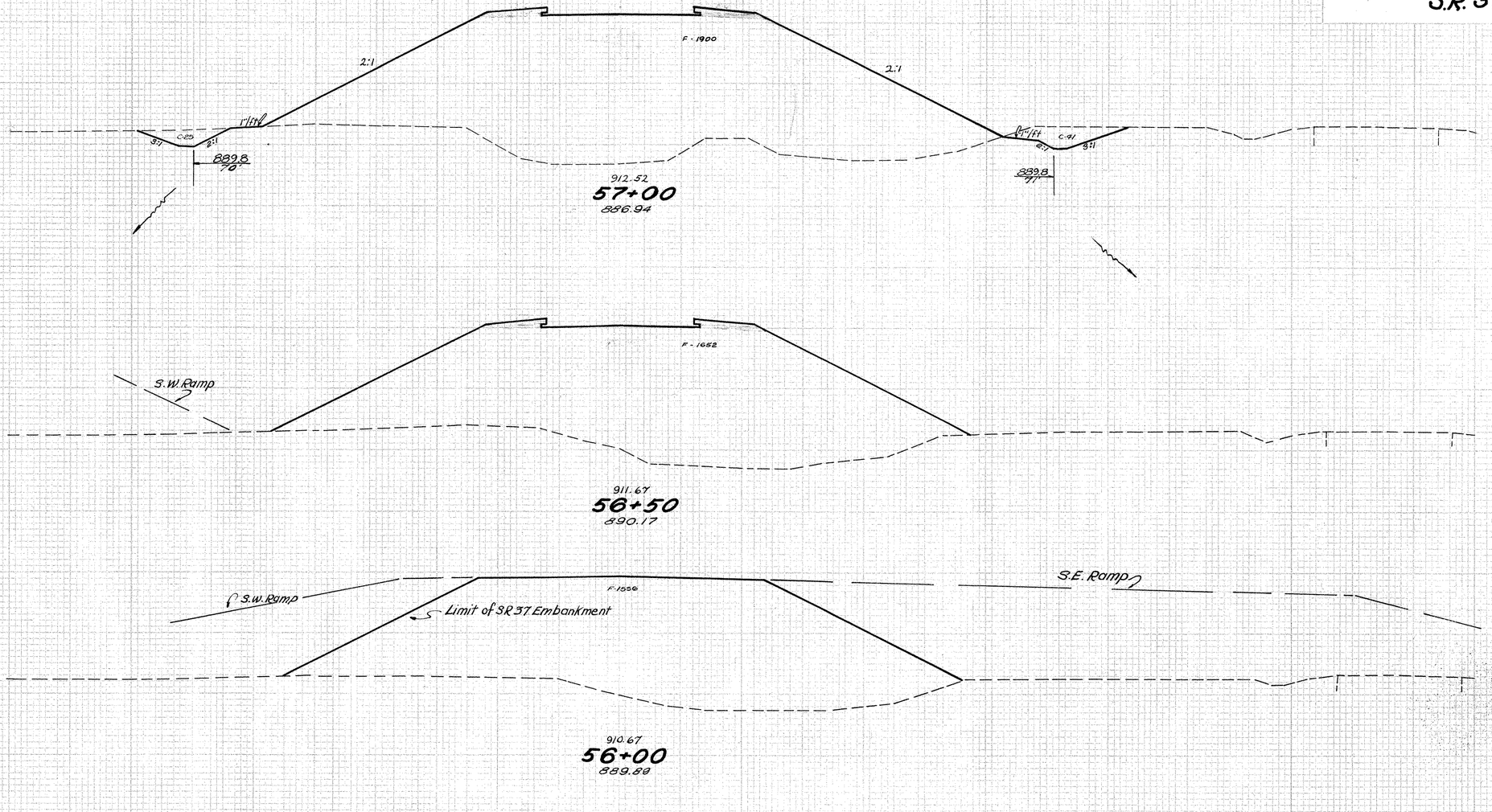


END AREA
CUT FILL
CU. YDS.
CUT FILL
121 1636
213 2856
109 1448
174 2365
73 1105
179 1627
114 652
0 400
141 937
90 604
204 1520
67 569
183 1178
74 340
136 1134
31 535
122 951
63 199
213 489
55+00
908.27
888.21
54+50
906.85
888.28
CULVERT DATA
TYPE: P.C. Std. S-27 P.C. 3&4
SIZE: 24"x114'
WORK REQD.: Install pipe normal to S.R. 37 & As Per Plan.
36'0"
58'0"
24"x114'
0.35
F.L. 887.3
F.L. 887.7
ESTIMATED QUANTITY
E-2 35 Cu yds Excavation for Structures
S-1 0.8 Cu yds Concrete for Endwalls class E
S-27 114 lin ft 24" Pipe for Roadway Culverts Sec M.6.6(b)
54+00
905.30
890.88
Drainage Area 64 Sq. Q50 = 29 x 1.21 x .65 x .6 = 14 cfs
26 Sta 54+00 PC 24"x114' LIC-37-85.24
53+50
892.48
Field Drive 53+50 Lt.
53+12.68
891.9
USE EXISTING PAVEMENT FOR TEMPORARY TRAFFIC LANES
52+42.68
890.9
Existing Channel Fill
Embankment in this area to be as per E-1.08
51+72.68
892.8
Existing Channel Fill
51+02.68
888.4
50+32.68
891.0
50+32.68~55+00
S.R. 37
LIC~40~8.67
S.R. 37

FED. RD. DIVISION	STATE	PROJECT	TOTAL SHEETS
2	OHIO		101 / 287

LIC-40-8.67

S.R. 37



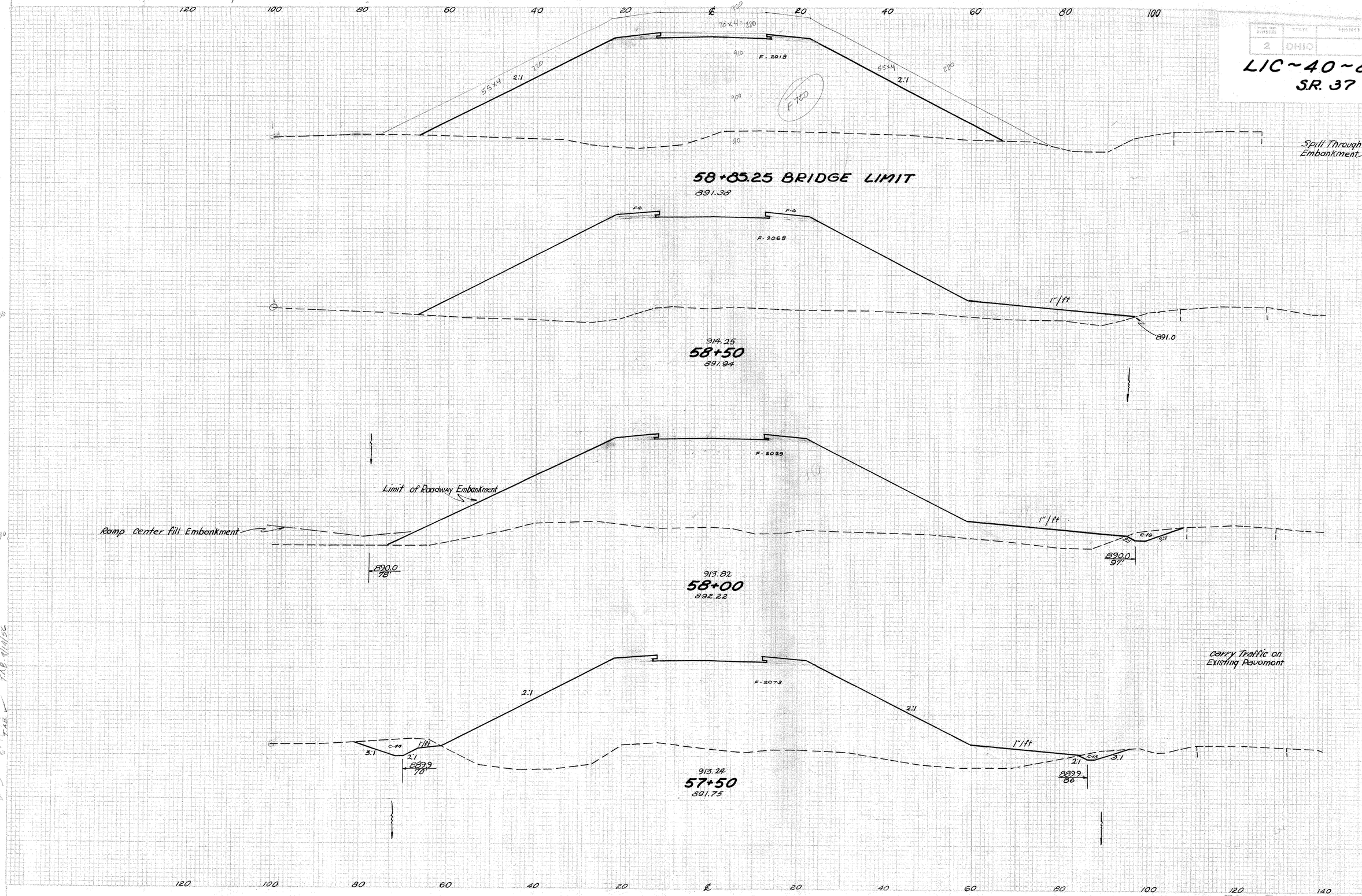
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
66	1900		
		61	3271
0	1652		
		0	2971
0	1556		
		0	2755
0	1419		
		112	2829

55+50 - 57+00

S.R. 37

DIVISION	STATE	PROJECT	TYPE SURVEY
2	OHIO		

LIC~40~8.67
S.R. 37



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
0	2018		330
		0	2667
0	2068		
		15	3794
16	2029		
		68	3798
57	2073		
		114	3679

Spill Through Embankment

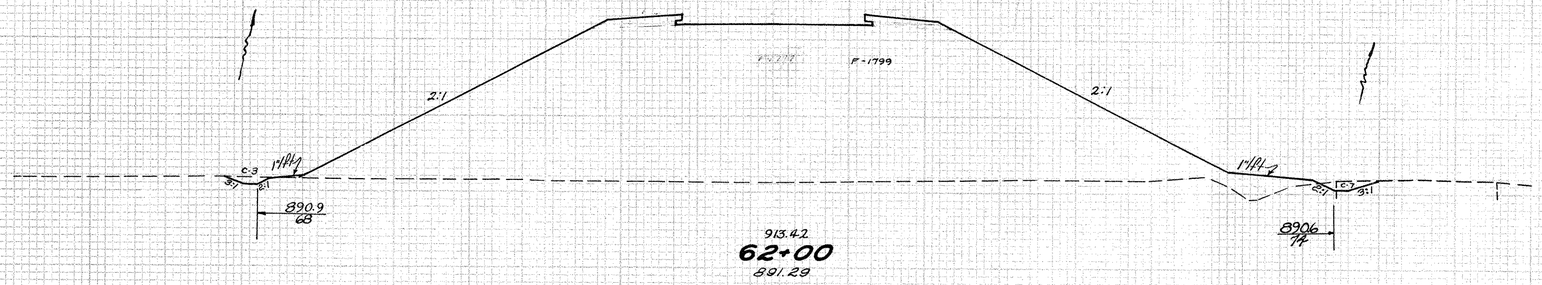
57+50 ~ 58+85.25

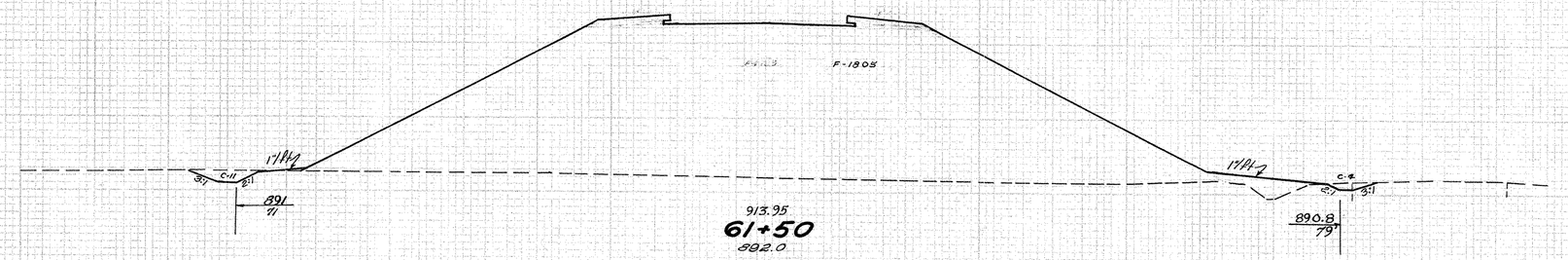
S.R. 37

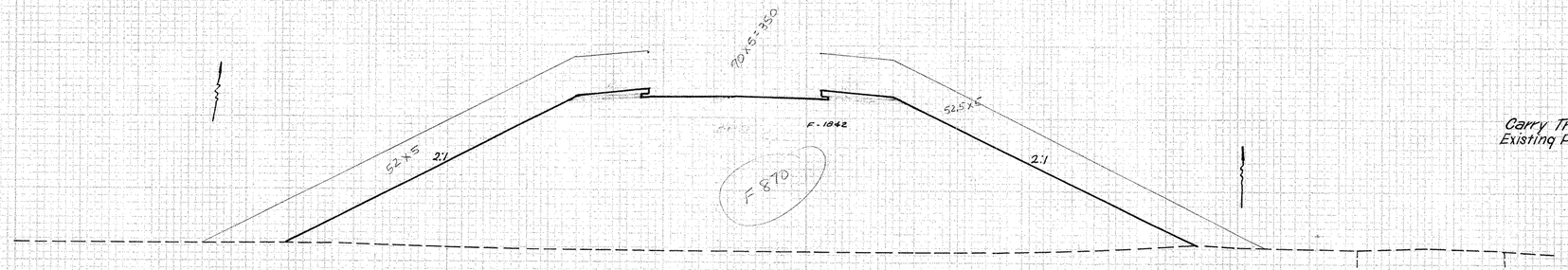
FED. HWY. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

103
287

LIC~40~8.67
S.R. 37







61+14.75 BRIDGE LIMIT
891.57

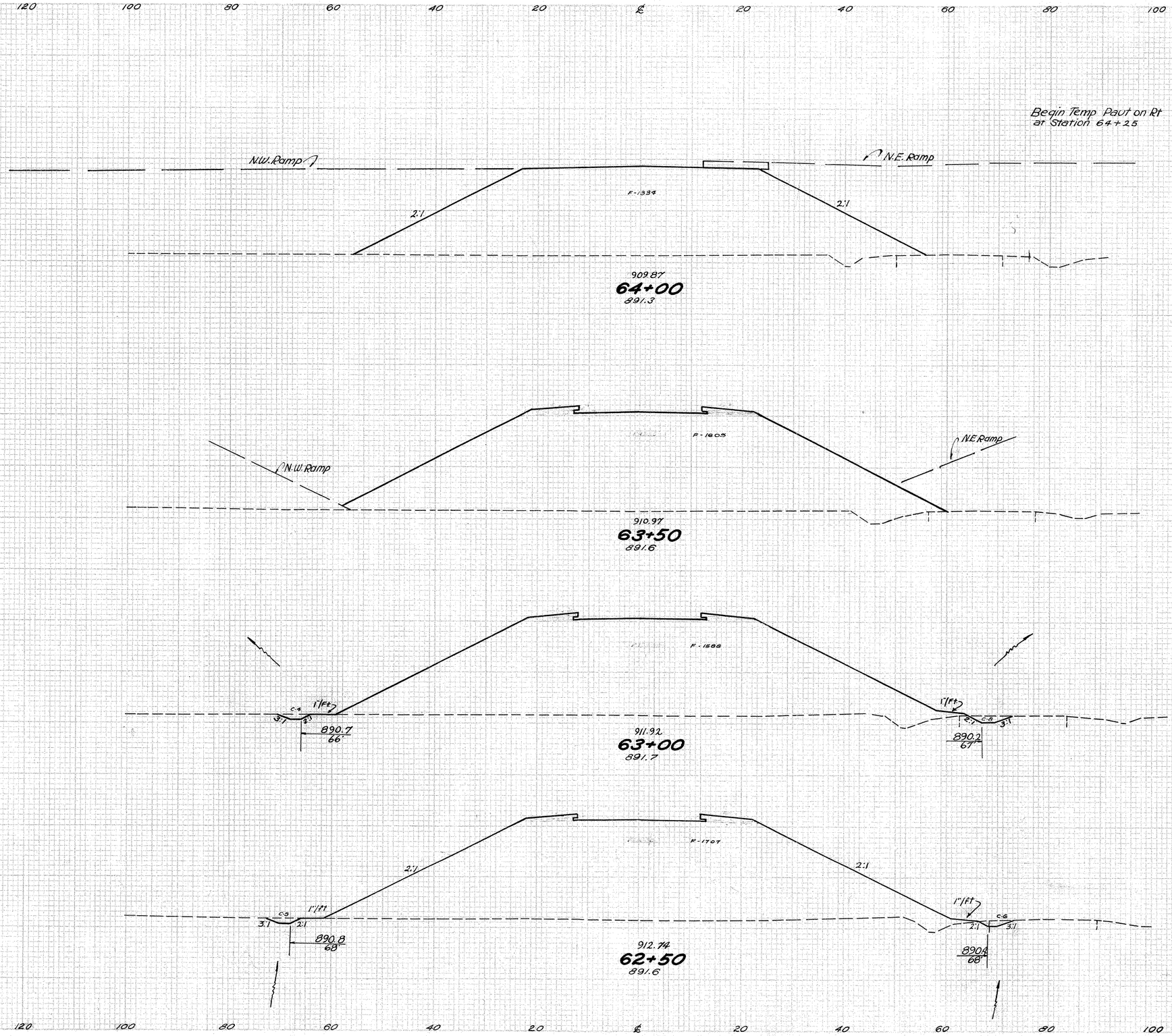
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
10	1799		
		23	2338
15	1805		
		10	2380
0	1842		

61+14.75 ~ 62+00
S.R. 37

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			104 / 287

LIC ~ 40 ~ 8.67
S.R. 37

Begin Temp Paut on Rt at Station 64+25



Carry Traffic on Existing Pavement

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
0	1334		
		0	2722
0	1605		
		11	2957
12	1588		
		21	3051
11	1707		
		19	3247

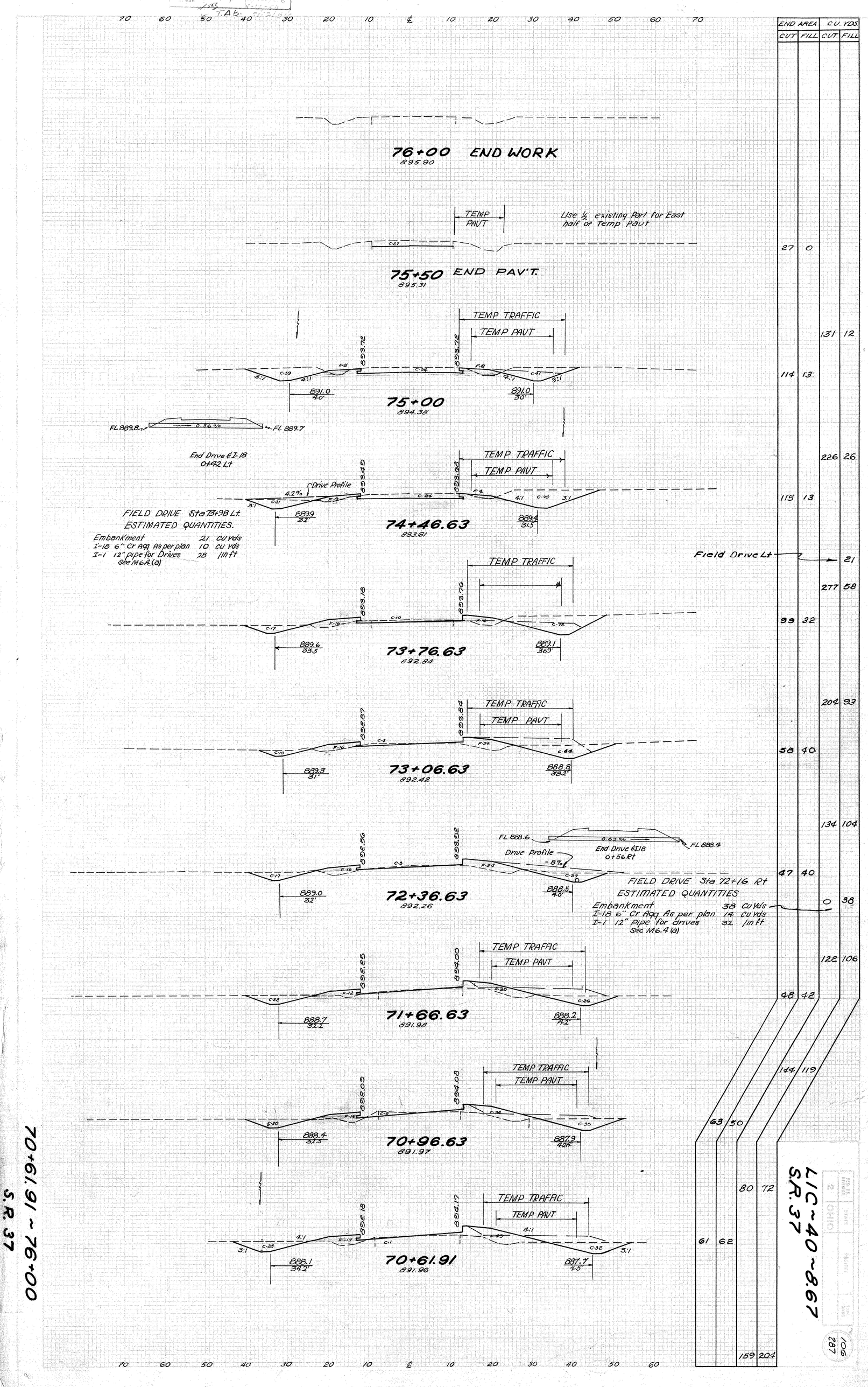
62+50 ~ 64+00
S.R. 37

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LIC ~ 40 ~ 8.67
S.R. 37

64+50 ~ 69+91.91

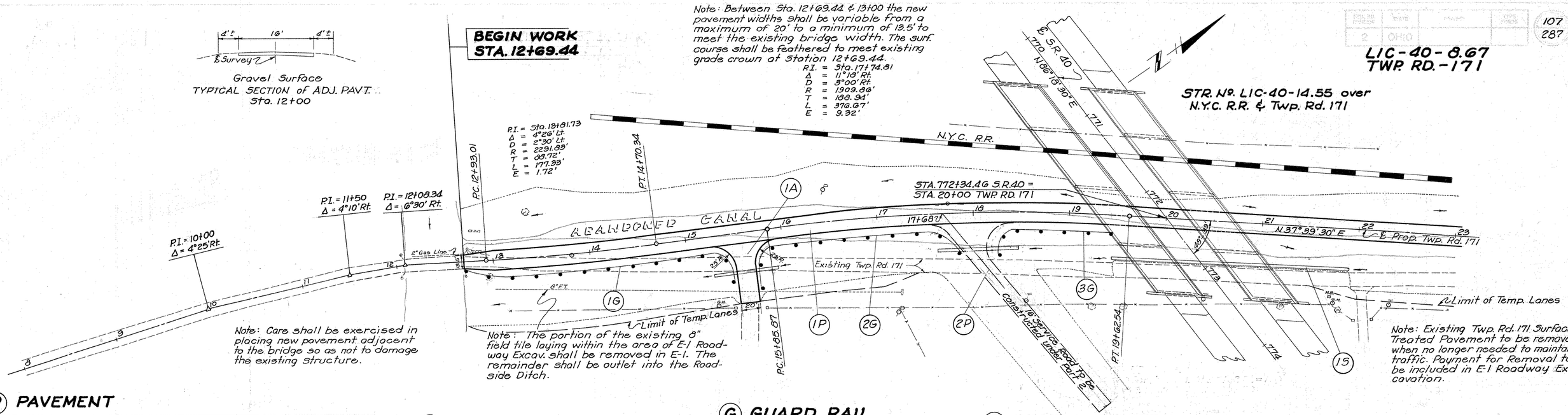
S.R. 37



END AREA
CUT
FILL
CU. YDS.
CUT
FILL
76+00 END WORK
895.90
TEMP PAVT
Use ½ existing Part for East half of Temp Pavt
75+50 END PAV'T.
895.31
TEMP TRAFFIC
TEMP PAVT
75+00
894.38
FL 889.8
FL 889.7
End Drive ℄ I-18 0+42 Lt
Drive Profile
74+46.63
893.61
FIELD DRIVE Sta 73+98 Lt.
ESTIMATED QUANTITIES.
Embankment 21 cu yds
I-18 6" Cr Agg As per plan 10 cu yds
I-1 12" pipe for Drives 28 lin ft
See M6.4 (a)
Field Drive Lt
73+76.63
892.84
73+06.63
892.42
FL 888.6
FL 888.4
End Drive ℄ I18 0+56 Rt
Drive Profile
72+36.63
892.26
FIELD DRIVE Sta 72+16 Rt
ESTIMATED QUANTITIES
Embankment 38 cu yds
I-18 6" Cr Agg As per plan 14 cu yds
I-1 12" pipe for drives 32 lin ft
See M6.4 (a)
71+66.63
891.98
70+96.63
891.97
70+61.91
891.96
70+61.91 ~ 76+00
S.R. 37
LIC ~ 40 ~ 8.67
S.R. 37

LIC-40-8.67
TWP. RD.-171

STR. No. LIC-40-14.55 over N.Y.C. R.R. & Twp. Rd. 171



(P) PAVEMENT

Mark	Station From	Station To	T-35 1¼" Asph. Con. Surf. Crse. Cu. Yds.	B-35 2" Asph. Con. Lev. Crse. Cu. Yds.	T-30 Bit. Prime Coat Gals.	B-20 5" Wat. Bnd. Mac. Base Sq. Yds.	I-22 4" Subbase Cu. Yds.	I-9 Stone Underdr. Lin. Ft.	E-1 Comp. Sub Gr. Sq. Yds.
1-P	12+69.44	23+00	79.2	126.6	838	2394	279	325	2279

(A) DRIVES & APPROACHES

Mark	Station	Side	Type	T-35 2" Asph. Con. Surface Cu. Yds.	I-18 5" Stab. Cr. Aggr. Cu. Yds.	I-1 Pipe for Drive. Lin. Ft. 42"
1-A	15+58.1	Rt.	Business	6.2	16	68
	Mail Box Approaches			1.4	4	
	Totals			7.6	20	68

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	12+69.44	Dr. Sta. 0+50	Rt.	300
2-G	Dr. Sta. 0+60	Serv. Rd. Sta. 0+55	Rt.	250
3-G	Serv. Rd. Sta. 0+70	Twp. 171 Sta. 19+45	Rt.	137.5
Totals				687.5

(S) STORM SEWERS

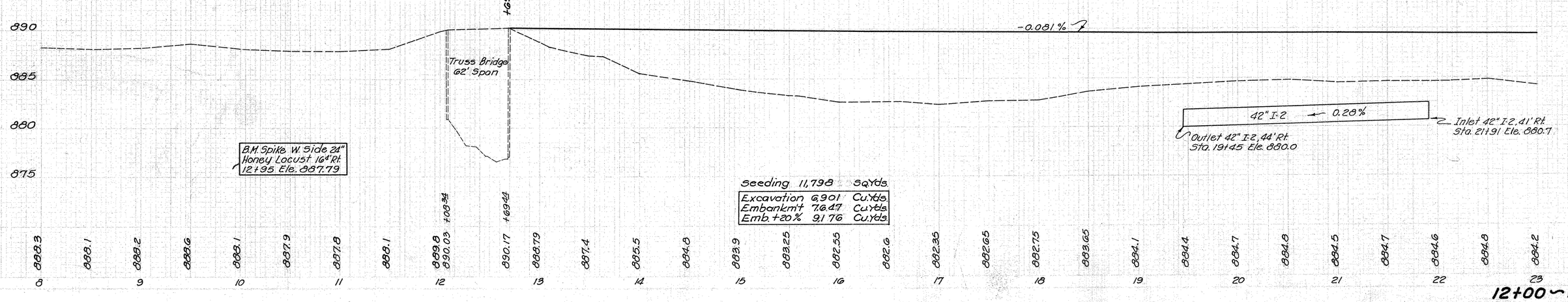
Mark	Station From	Station To	Side	I-2 Storm Sewers Lin. Ft. 42" A
1-S	19+45	21+91	Rt.	246
Total				246

SUPERELEVATION TABLE

Station	Lt. Edge Elev.	℄ Elev.	Rt. Edge Elev.
12+69.44	890.07	890.17	889.97
+93.01	889.99	890.15	890.03
13+00	889.99	890.15	890.05
+25	889.96	890.12	890.12
+50	889.94	890.10	890.16
+75	889.92	890.08	890.19
14+00	889.90	890.06	890.22
+25	889.88	890.04	890.20
+50	889.86	890.02	890.18
+70.34	889.89	890.00	890.12
+75	889.91	890.00	890.07
15+00	889.94	889.98	890.01
+25	889.96	889.96	889.96
+50	890.04	889.99	889.92
+75	890.12	890.00	889.88
+85.87	890.16	890.01	889.86
16+00	890.20	890.02	889.84
+25	890.29	890.04	889.80

TABLE CONTD.

Station	Lt. Edge Elev.	℄ Elev.	Rt. Edge Elev.
+50	890.37	890.06	889.76
+75	890.45	890.08	889.72
17+00	890.54	890.10	889.68
+25	890.62	890.13	889.64
+50	890.60	890.11	889.62
+75	890.53	890.09	889.60
18+00	890.56	890.07	889.58
+25	890.54	890.05	889.56
+50	890.52	890.03	889.54
+75	890.49	889.97	889.52
19+00	890.24	889.91	889.50
+25	890.09	889.85	889.48
+50	889.95	889.79	889.46
+62.54	889.88	889.30	889.45
+75	889.91	889.72	889.44
20+00	889.66	889.66	889.42
+25	889.52	889.60	889.40
+50	889.38	889.54	889.38



Seeding 11,798 SQYds.

Excavation	6,901 Cu.Yds.
Embankm't	7,647 Cu.Yds.
Emb. +20%	9,176 Cu.Yds.

12+00 ~ 23+00

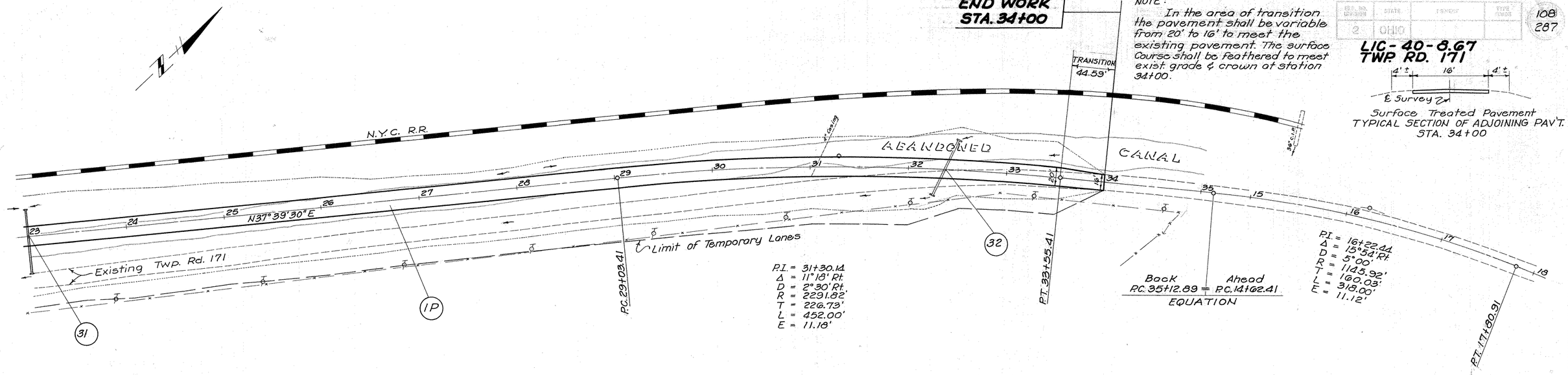
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

LIC-40-8.67
TWP. RD. 171

Surface Treated Pavement
TYPICAL SECTION OF ADJOINING PAV'T.
STA. 34+00

END WORK
STA. 34+00

NOTE:
In the area of transition the pavement shall be variable from 20' to 16' to meet the existing pavement. The surface Course shall be feathered to meet exist. grade & crown at station 34+00.



(P) PAVEMENT

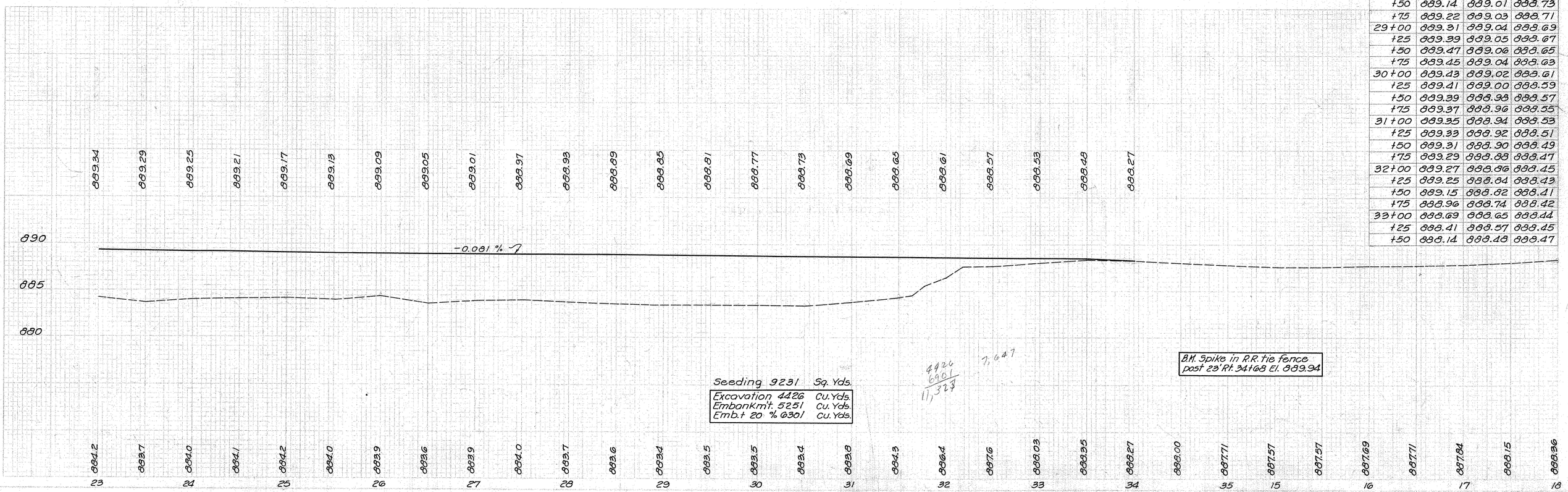
Mark	Station From	Station To	T-35 1¼" Asph. Con. Surface Cu. Yds.	B-35 2" Asph. Con. Leveling Cu. Yds.	T-30 Prime Coat Gals.	B-20 5" Wat. bnd. Mac. Base Sq. Yds.	I-22 4" Subbase Cu. Yds.	I-9 Stone Underdr. Lin. Ft.	E-1 Compac. Subgrade Sq. Yds.
1-P	23+00	34+00	84.6	135.4	895	2557	298	300	2435

STRUCTURES 20' SPAN & UNDER

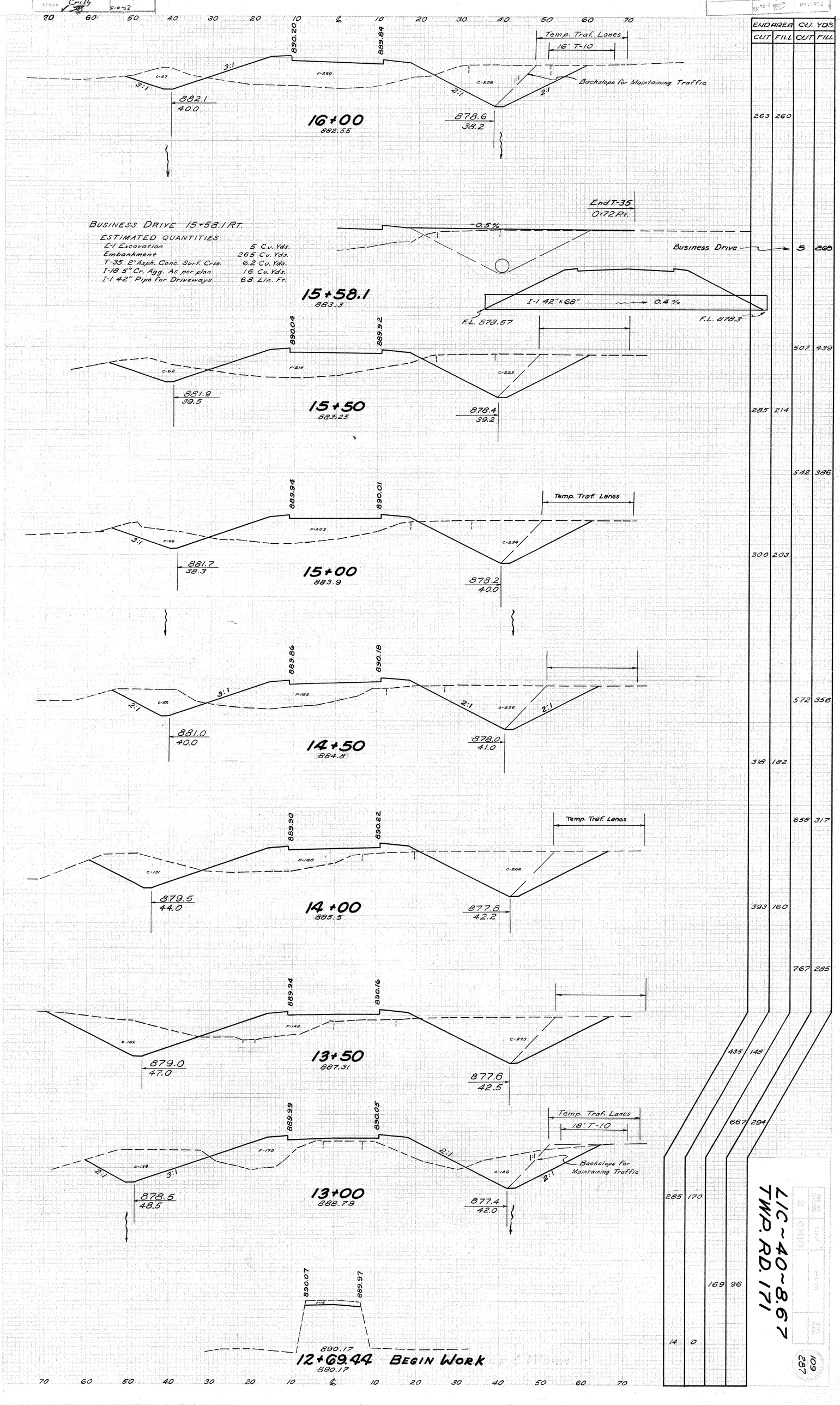
Str. No.		Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
31		23+00	None			P.C.	15"	66'	111
32		32+37.5	None			P.C.	36"	62'	218

SUPERELEVATION TABLE

Station	Lt. Edge Elev.	℄ Elev.	Rt. Edge Elev.
27+50	888.81	888.97	888.81
+75	888.89	888.98	888.79
28+00	888.97	888.93	888.77
+25	889.06	890.01	888.75
+50	889.14	889.01	888.73
+75	889.22	889.03	888.71
29+00	889.31	889.04	888.69
+25	889.39	889.05	888.67
+50	889.47	889.06	888.65
+75	889.45	889.04	888.63
30+00	889.43	889.02	888.61
+25	889.41	889.00	888.59
+50	889.39	888.98	888.57
+75	889.37	888.96	888.55
31+00	889.35	888.94	888.53
+25	889.33	888.92	888.51
+50	889.31	888.90	888.49
+75	889.29	888.88	888.47
32+00	889.27	888.86	888.45
+25	889.25	888.84	888.43
+50	889.15	888.82	888.41
+75	888.96	888.74	888.42
33+00	888.69	888.65	888.44
+25	888.41	888.57	888.45
+50	888.14	888.48	888.47



23+00 ~ 35+00



BUSINESS DRIVE 15+58.1 RT.

ESTIMATED QUANTITIES

E-1 Excavation	5 Cu. Yds.
Embankment	265 Cu. Yds.
T-35 2" Asph. Conc. Surf. Crse.	6.2 Cu. Yds.
I-18 5" Cr. Agg. As per plan	16 Cu. Yds.
I-1 42" Pipe for Driveways	68 Lin. Ft.

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
263	260		
		5	265
		507	439
285	214		
		542	386
300	203		
		572	356
318	182		
		658	317
393	160		
		767	285
435	148		
		667	294
285	170		
		169	96
14	0		

LIC ~ 40 ~ 8.67
TWP. RD. 171

109
287

	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
20+00	0	155		106 326
19+50	114	197	180	381
19+00	80	215	148	419
18+50	80	238	165	429
18+00	98	225	209	432
17+50	128	242	297	477
17+00	193	273	405	504
16+50	244	271	469	492

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

110
287

LIC-40-8.67
TWP. RD. 171

20+00
884.7

Limit of Spill Thru Embankment

42" ϕ

889.42

Piers

889.66

3:1

19+50
884.4

Temp. Traf. Lanes
8' T:10

Backslope for Maintaining Traffic

2:1

880.0
42.9

889.46

889.35

Pier

19+00
884.1

2:1

879.8
36.2

889.50

890.24

18+50
883.65

2:1

879.6
36.5

889.54

890.52

18+00
882.75

2:1

879.4
36.0

889.58

890.56

3:1

882.9
38.0

17+50
882.65

Temp. Traf. Lanes
11' T:10

879.2
37.5

889.62

890.60

Variable

17+00
882.35

879.0
37.5

889.68

890.54

882.5
39.5

16+50
882.7

Temp. Traf. Lanes
16' T:10

Backslope for Maintaining Traffic

878.8
38.5

889.76

890.37

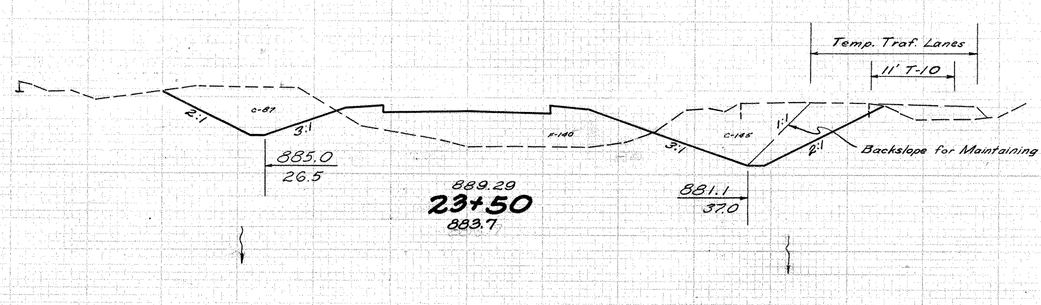
3:1

882.3
40.0

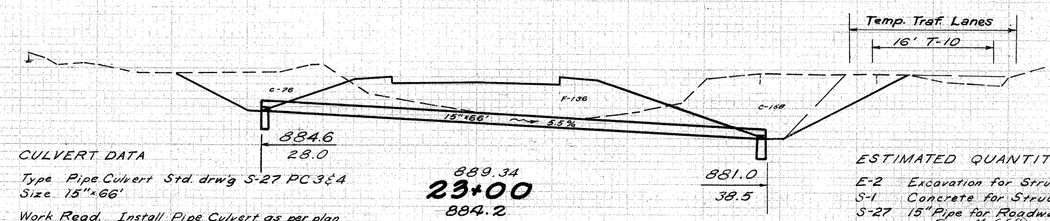
Variable

16+50 ~ 20+00

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



889.29
23+50
883.7



CULVERT DATA

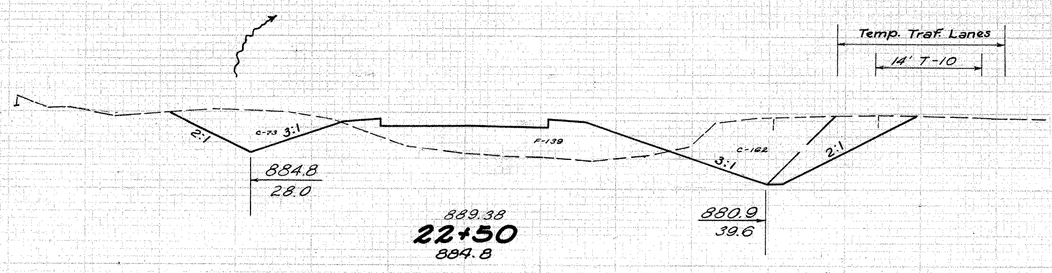
Type Pipe Culvert Std. drw'g S-27 PC 3.4
Size 15"x66'
Work Reqd. Install Pipe Culvert as per plan

889.34
23+00
884.2

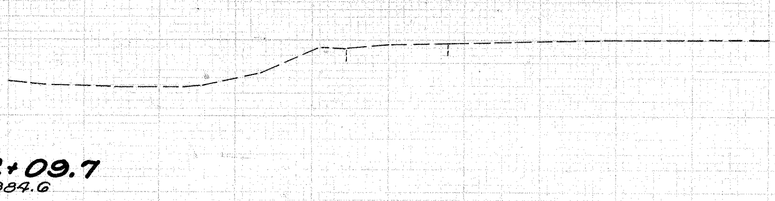
ESTIMATED QUANTITIES

E-2	Excavation for Structures	18 Cu. Yds.
S-1	Concrete for Structures Class E	0.5 Cu. Yds.
S-27	15" Pipe for Roadway Culverts Sec. M-6.6(b) or M-6.8(b)	66 Lin. Ft.

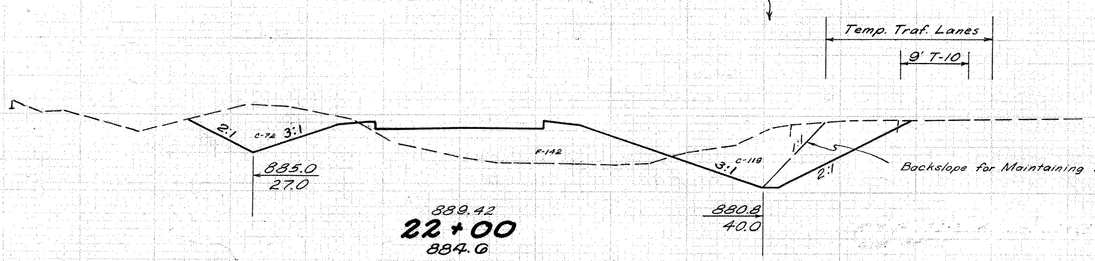
Drainage A = 1 Ac±	Q_{10} = .5×3×1 = 1.5 cfs	
31	Sta 23+00	15"×66' PC



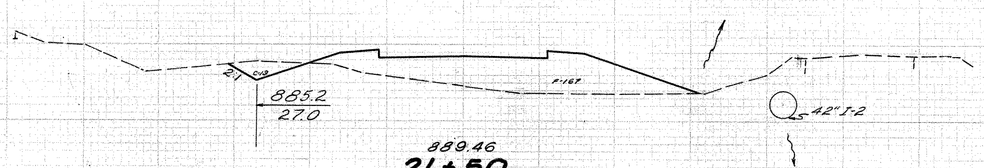
889.38
22+50
884.8



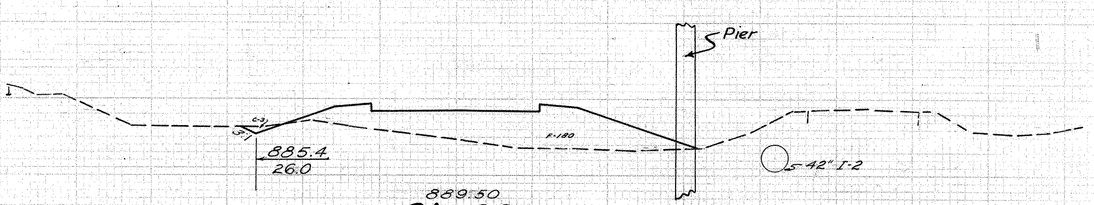
22+09.7
884.6



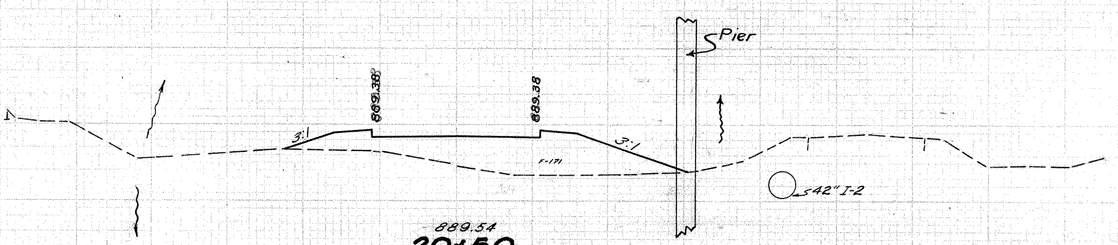
889.42
22+00
884.6



889.46
21+50
884.7



889.50
21+00
884.5



889.54
20+50
884.8

Maintain Traffic on Existing Pavement

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
232	140		
		431	256
234	136		
		434	255
235	139		
		394	260
191	142		
		189	286
13	167		
15	321		
3	180		
		3	325
0	171		
		0	302

LIC-40-8.67
TWP. RD. 171

20+00 - 23+50

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

111
287

End Area		Cu. Yds	
Cut	Fill	Cut	Fill
131	129	238	247
126	138	230	260
122	143	225	266
121	144	231	270
128	148	255	276
147	150	284	279
160	145	334	279
201	156	401	274

112
287

LIC-40-8.67
TWP. RD. 171

Temp. Traf. Lanes
16' T-10
Backslope for Maintaining Traffic

888.97
27+50
884.0
888.0
17.8

889.01
27+00
883.9
887.0
19.5

889.05
26+50
883.6
886.3
21.7

889.09
26+00
883.9
886.0
22.5

889.13
25+50
884.0
885.8
24.0

889.17
25+00
884.2
885.6
25.0

889.21
24+50
884.1
885.4
25.5

889.25
24+00
884.0
885.2
26.0

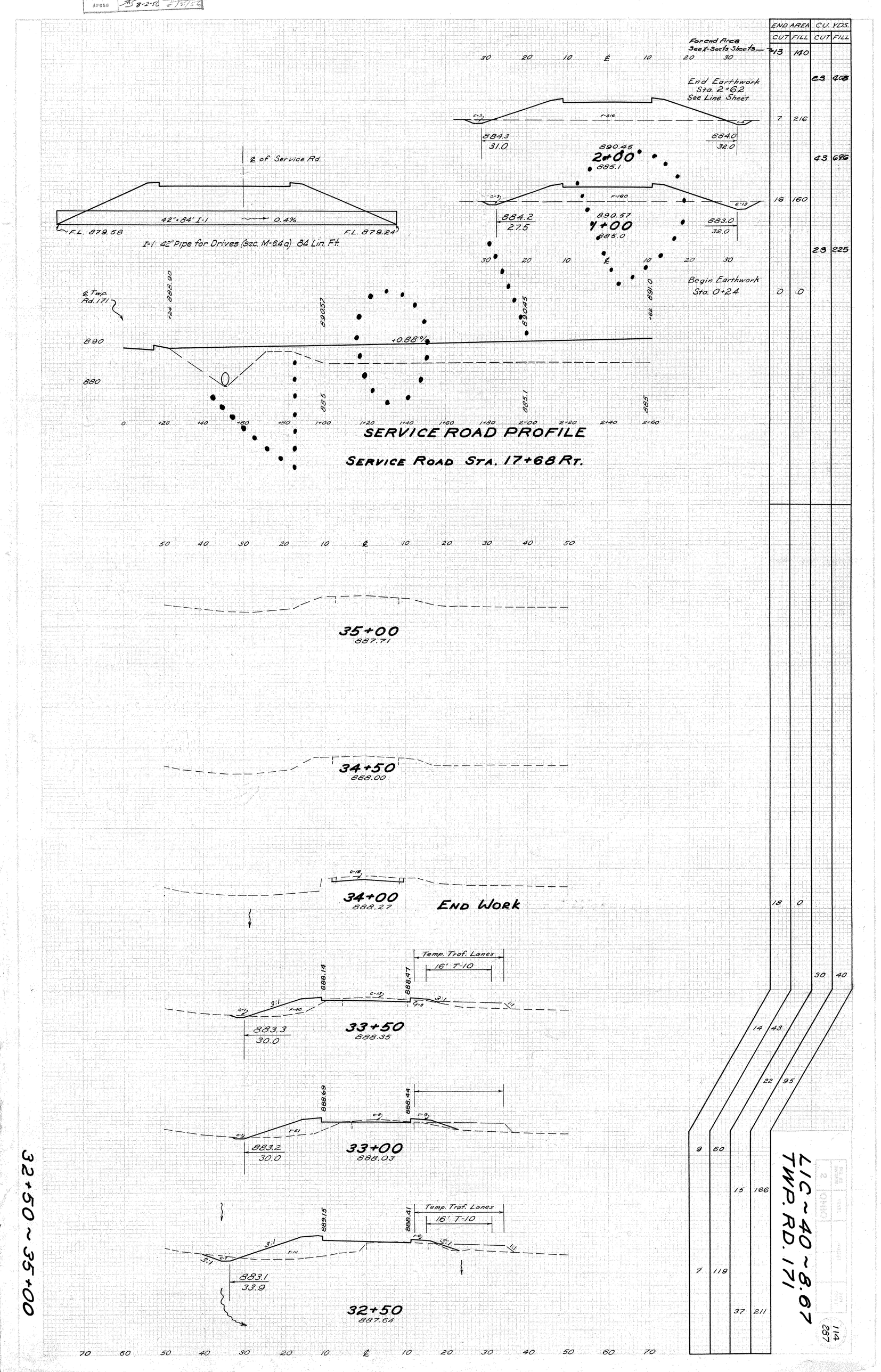
24+00 ~ 27+50

END AREA		CU. YDS.
CUT	FILL	FILL
	33	109
	79	219
	52	127
	115	246
	72	139
	156	260
	96	142
	185	272
	104	152
	204	281
	116	152
	222	281
	124	152
	239	280
134	150	
	248	259
134	130	
	245	240

FOR RE BIDDING | STATE | PROJECT | SHEET NUMBER | 113 / 287
OHIO

LIC-40-8.67
TWP. RD. 171

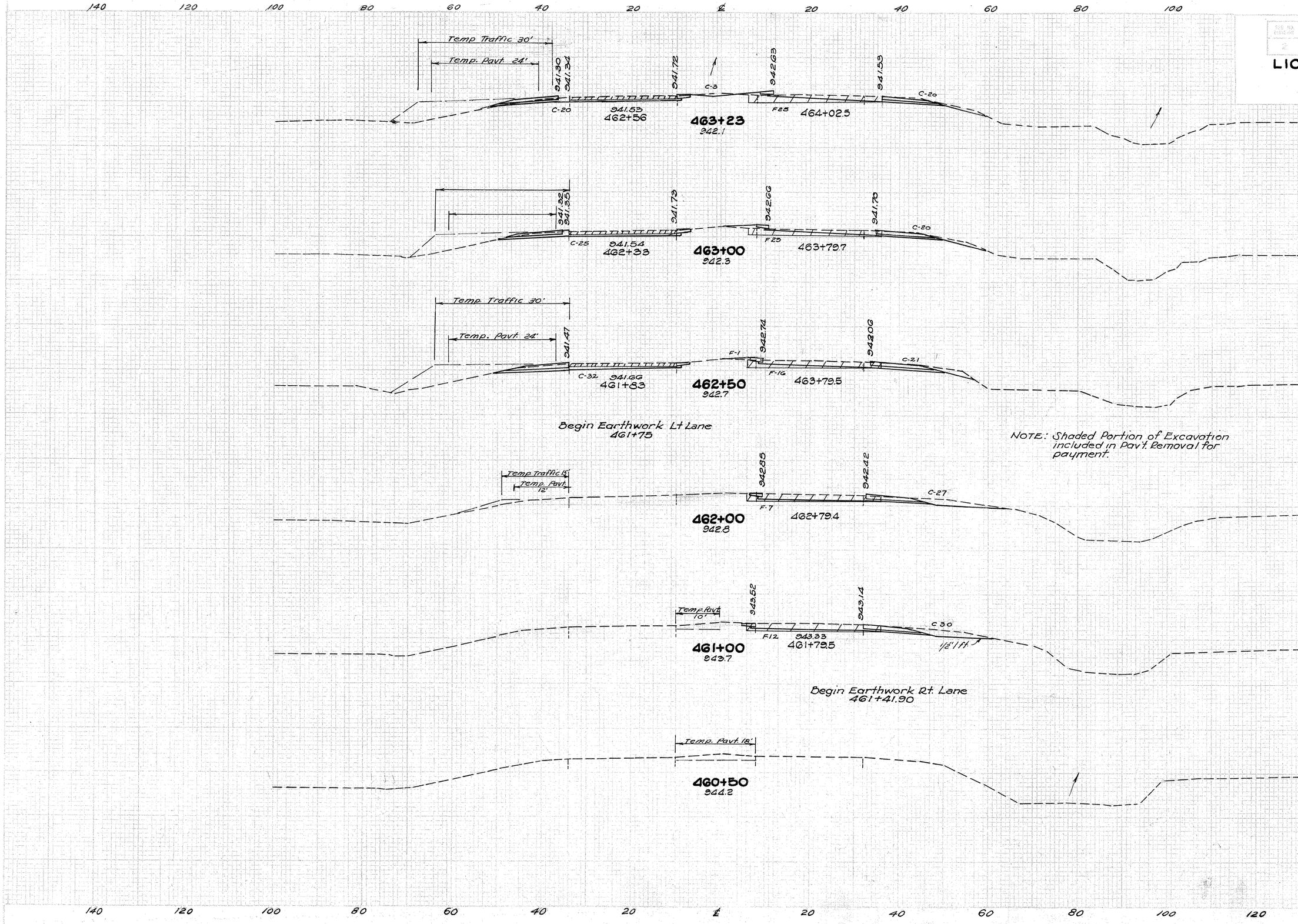
28+00 ~ 32+00



END AREA
CUT FILL
CU. YDS.
CUT FILL
For end Area See X-Sects Sheets
End Earthwork Sta. 2+62 See Line Sheet
Begin Earthwork Sta. 0+24
℄ of Service Rd.
42"×84' I-1
0.4%
F.L. 879.58
F.L. 879.24
I-1 42" Pipe for Drives (Sec. M-6.4a) 84 Lin. Ft.
℄ Twp. Rd. 171
+0.88%
2+00
1+00
35+00
887.71
34+50
888.00
34+00
888.27
END WORK
Temp. Traf. Lanes
16' T-10
33+50
888.35
33+00
888.03
32+50
887.64
LIC ~ 40 ~ 8.67
TWP. RD. 171
32+50 ~ 35+00
114
287

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

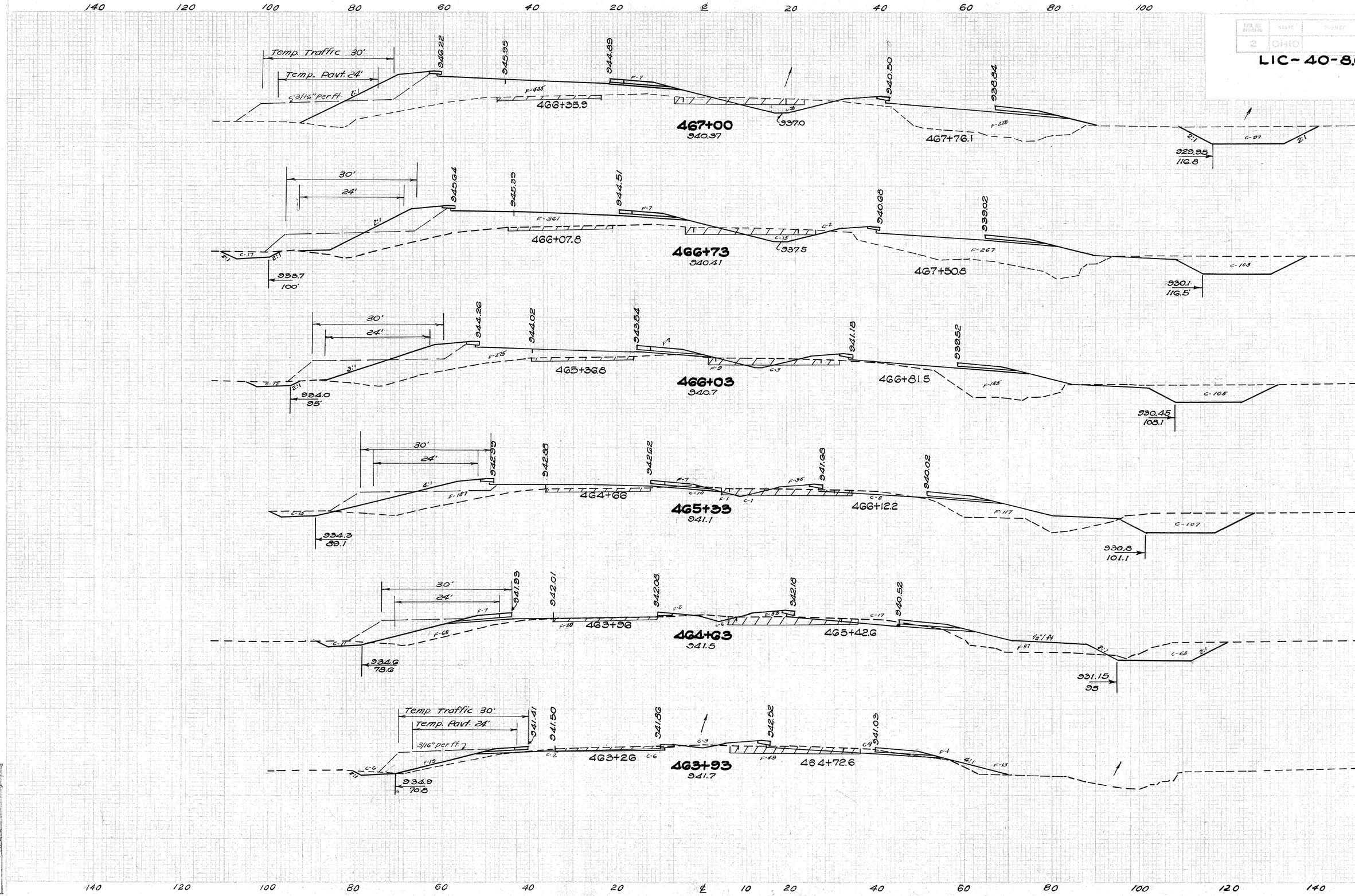
LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
43	25		
		37	23
45	29		
		91	43
53	17		
		74	22
27	7		
		106	35
30	12		

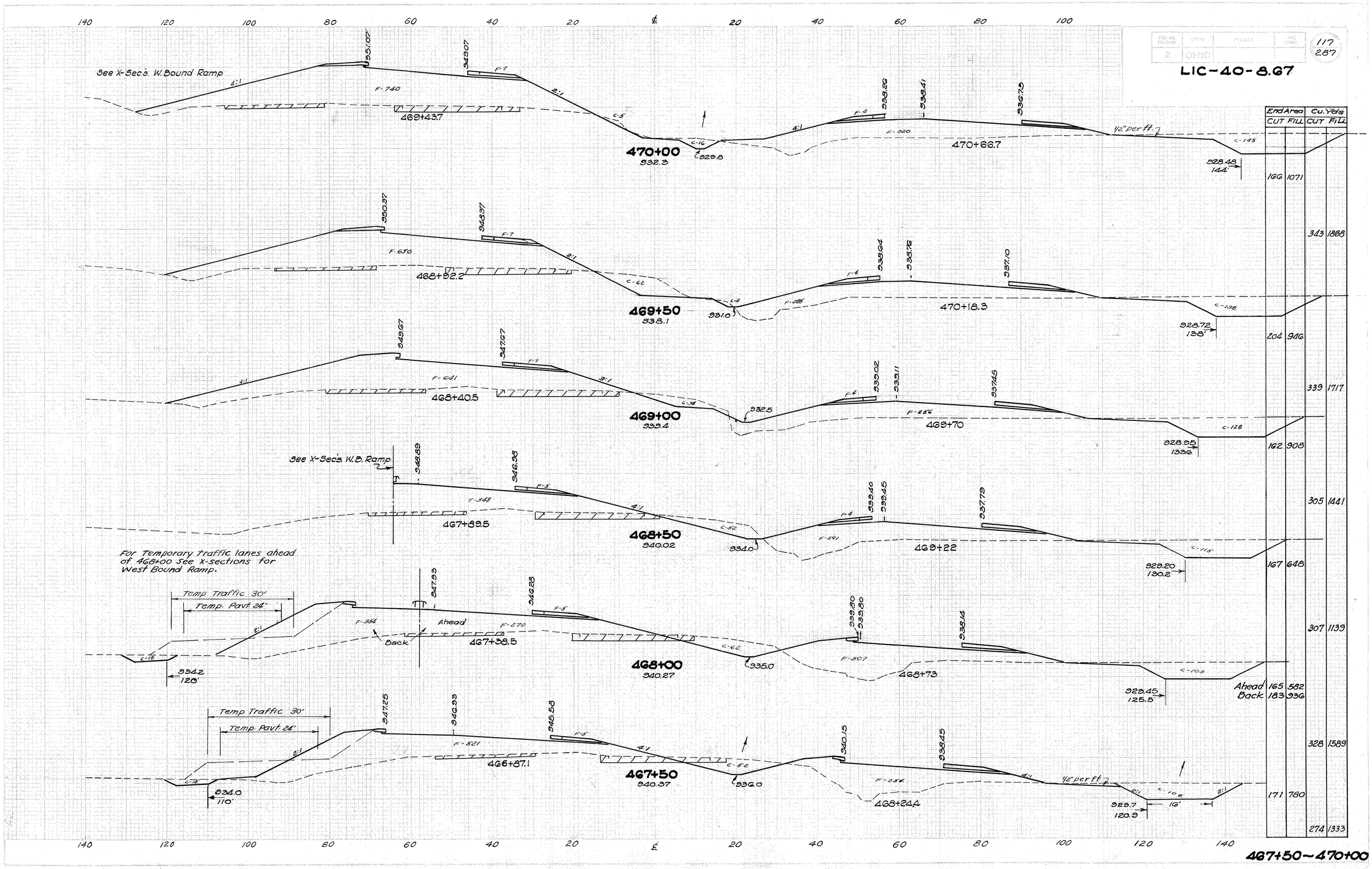
460+50 ~ 463+23

LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
125	660		
		131	648
137	635		
		333	1440
120	476		
		338	1067
141	347		
		309	760
97	239		
		159	408
26	76		
		89	131

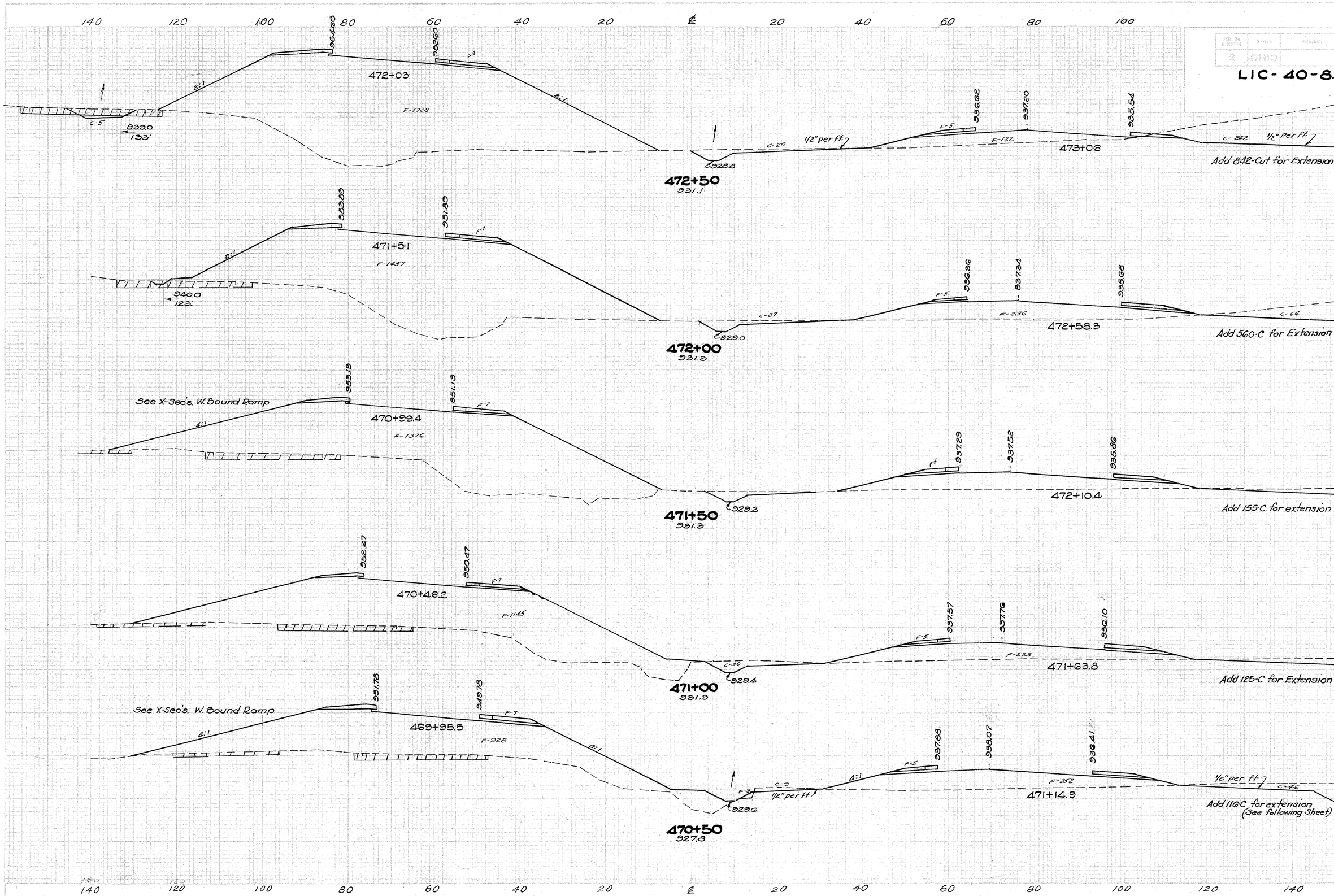
463+93 – 467+00



117
287
LIC-40-8.67
See X-Sec's. W. Bound Ramp
469+43.7
470+00
932.3
470+66.7
1/2" per ft.
928.48
144'
468+92.2
469+50
938.1
470+18.3
928.72
138'
468+40.5
469+00
939.4
469+70
928.95
133.6
See X-Sec's. W.B. Ramp
467+89.5
468+50
940.02
469+22
929.20
130.2
For Temporary traffic lanes ahead of 468+00 see X-sections for West Bound Ramp.
Temp. Traffic 30'
Temp. Pavt. 24'
Ahead
Back
467+38.5
468+00
940.27
468+73
934.2
120'
929.45
125.5
Temp. Traffic 30'
Temp. Pavt. 24'
466+87.1
467+50
940.37
468+24.4
1/2" per ft.
934.0
110'
929.7
120.9
16'
End Area
Cu. Yds
CUT FILL
CUT FILL
166 1071
343 1868
204 946
339 1717
162 908
305 1441
167 648
307 1139
Ahead 165 582
Back 183 936
328 1589
171 780
274 1333
467+50~470+00

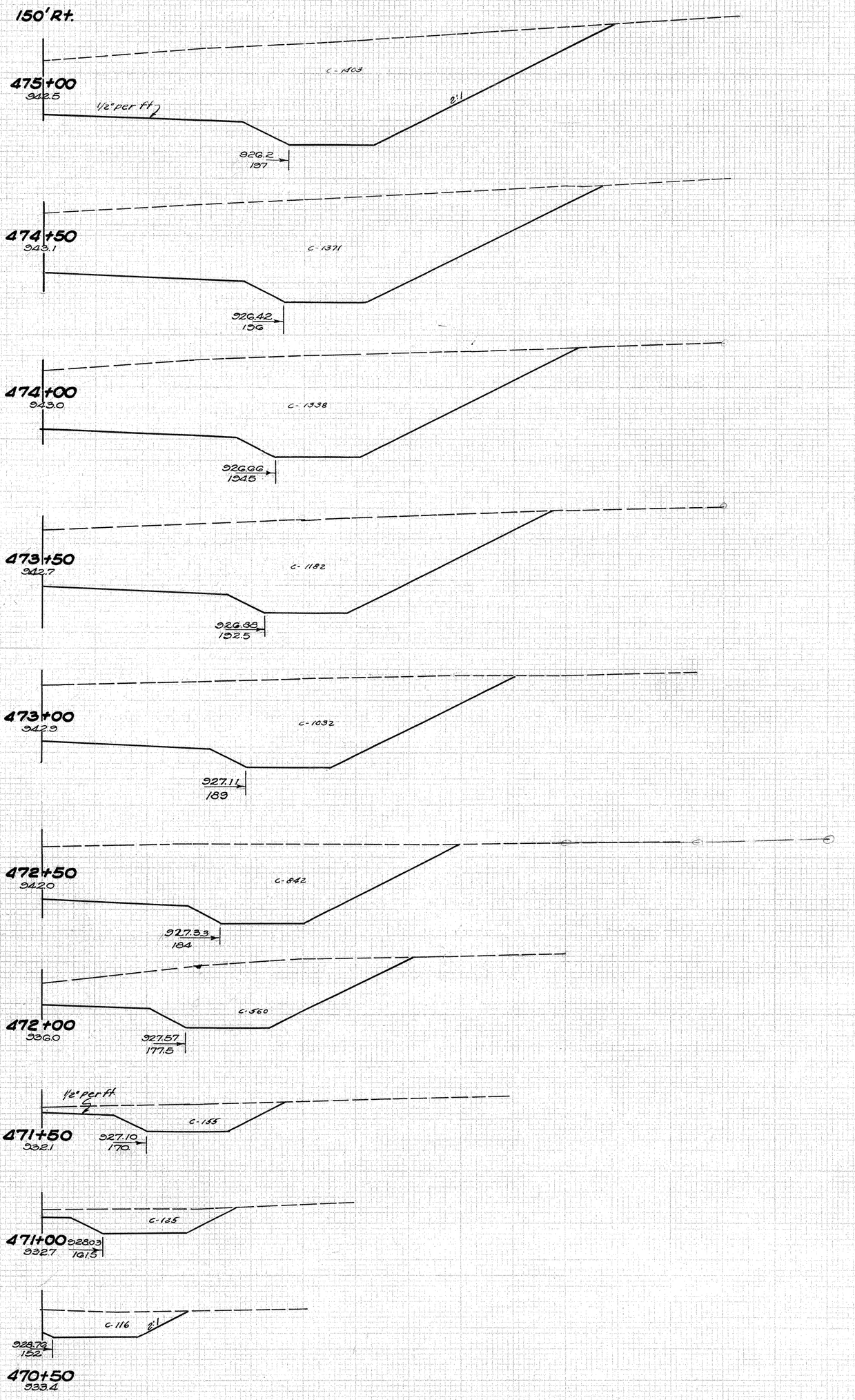
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
1118	1862		
		1638	3303
651	1705		
		788	3061
200	1601		
		352	2760
180	1380		
		325	2384
171	1195		
		312	2098

470+50-472+50

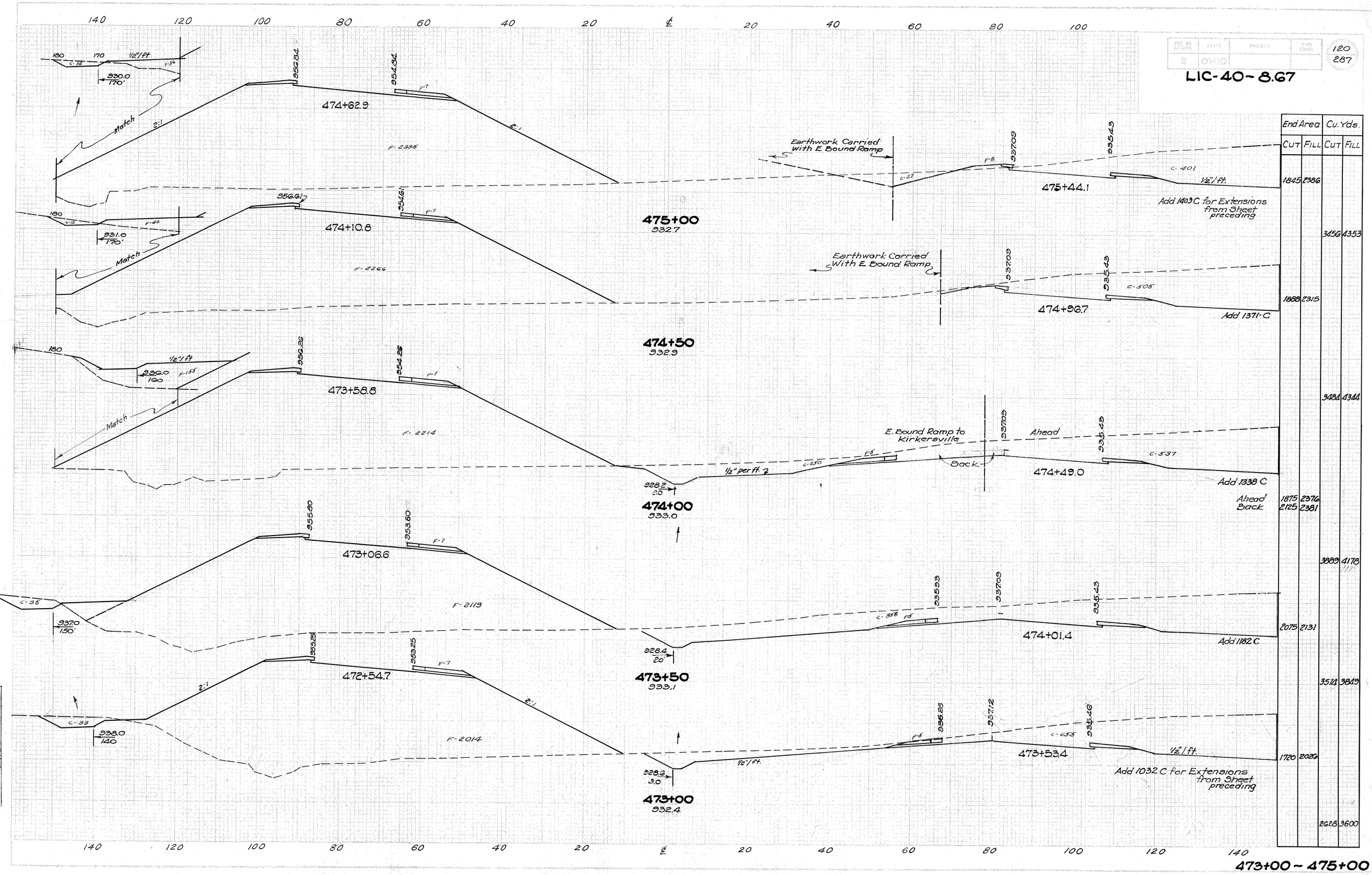


Note: End Areas of the extensions shown on this Sheet are carried with the Roadway X-Section of their corresponding Station.

X-Sec. Extensions 470+50-475+00

LIC-40-8.67

119
287

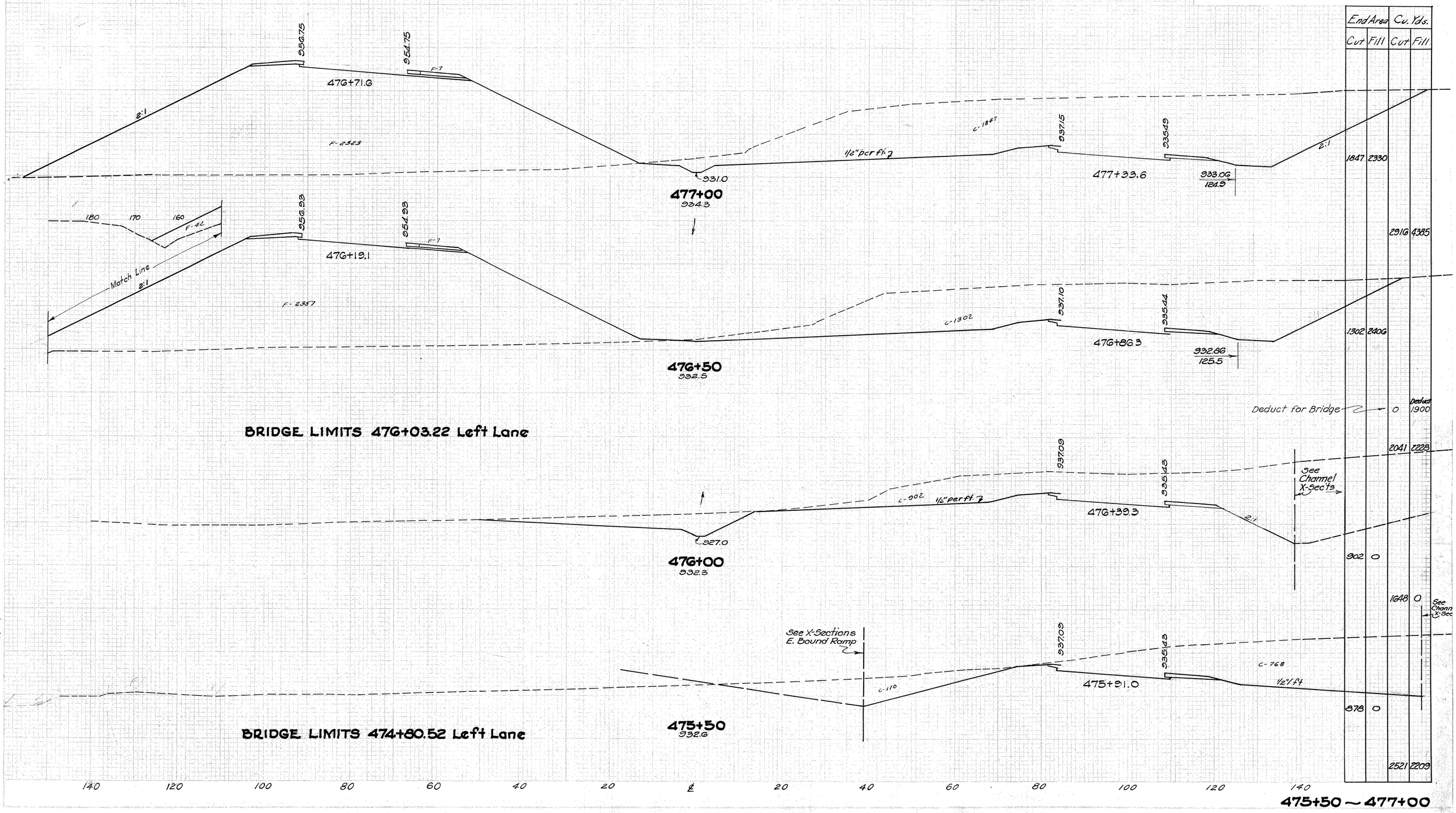


LIC-40-8.67
120
287
End Area
Cu. Yds.
CUT
FILL
CUT
FILL
474+62.9
475+00
932.7
474+10.8
474+50
932.9
473+58.8
474+00
933.0
473+06.6
473+50
933.1
472+54.7
473+00
932.4
475+44.1
474+96.7
474+49.0
474+01.4
473+53.4
Earthwork Carried with E Bound Ramp
E. Bound Ramp to Kirkersville
Ahead
Back
Match
Add 1403 C for Extensions from Sheet preceding
Add 1371-C
Add 1338 C
Add 1182 C
Add 1032 C for Extensions from Sheet preceding
1/2" per ft.
1/2" / ft.
1845 2386
3456 4353
1888 2315
3484 4344
1875 2376
2125 2381
3889 4178
2075 2131
3514 3849
1720 2026
2628 3600
473+00 ~ 475+00

FED. RD. DIVISION	STATE	PROJECT	TYPE WORKS	
2	OHIO			121 / 287

LIC-40-8.67

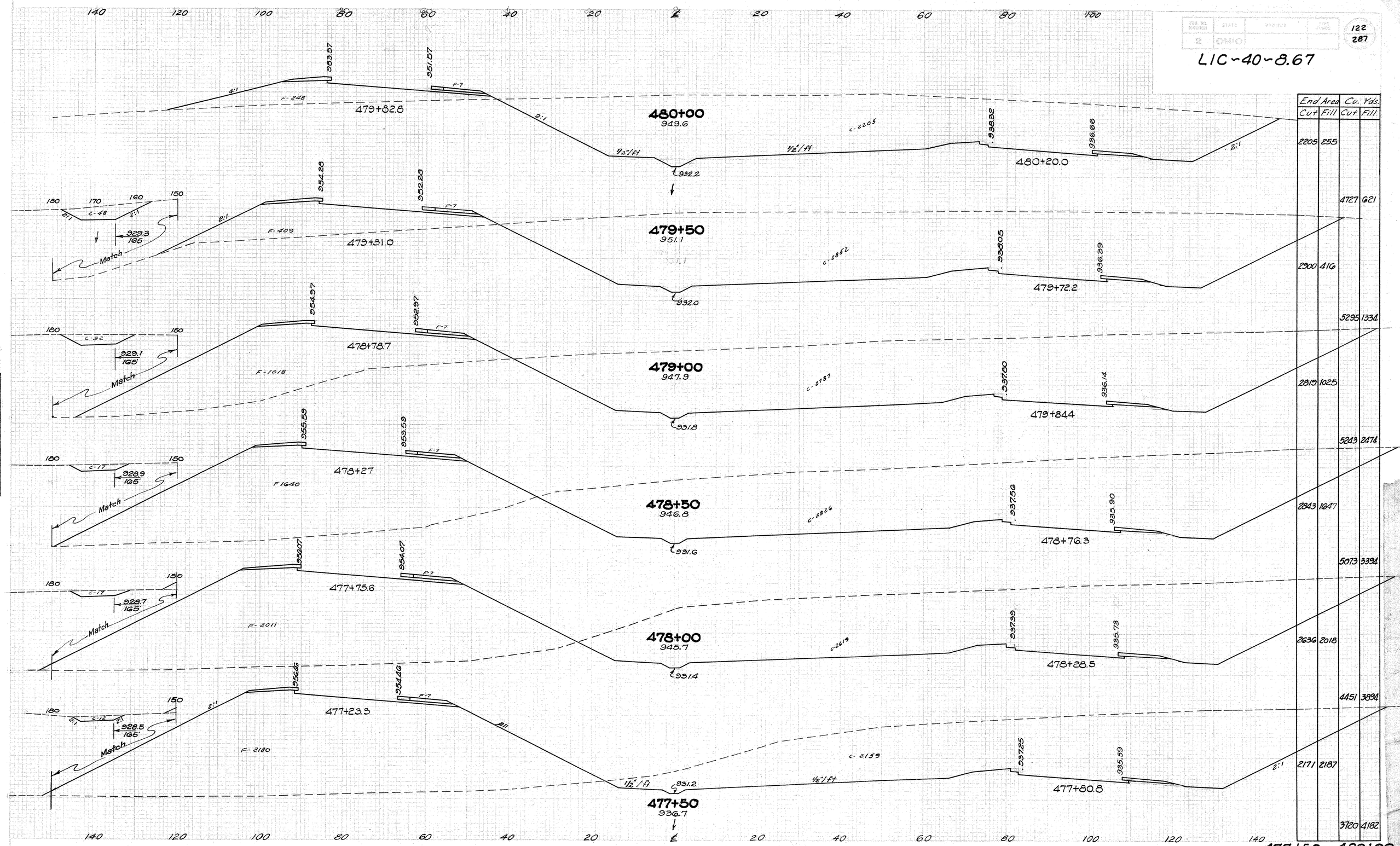
140 120 100 80 60 40 20 ℄ 20 40 60 80 100



	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
	1847	2330		
			2916	4385
	1302	2406		
	2041	2228		
	902	0		
	1648	0		
	878	0		
	2521	2209		

475+50 ~ 477+00

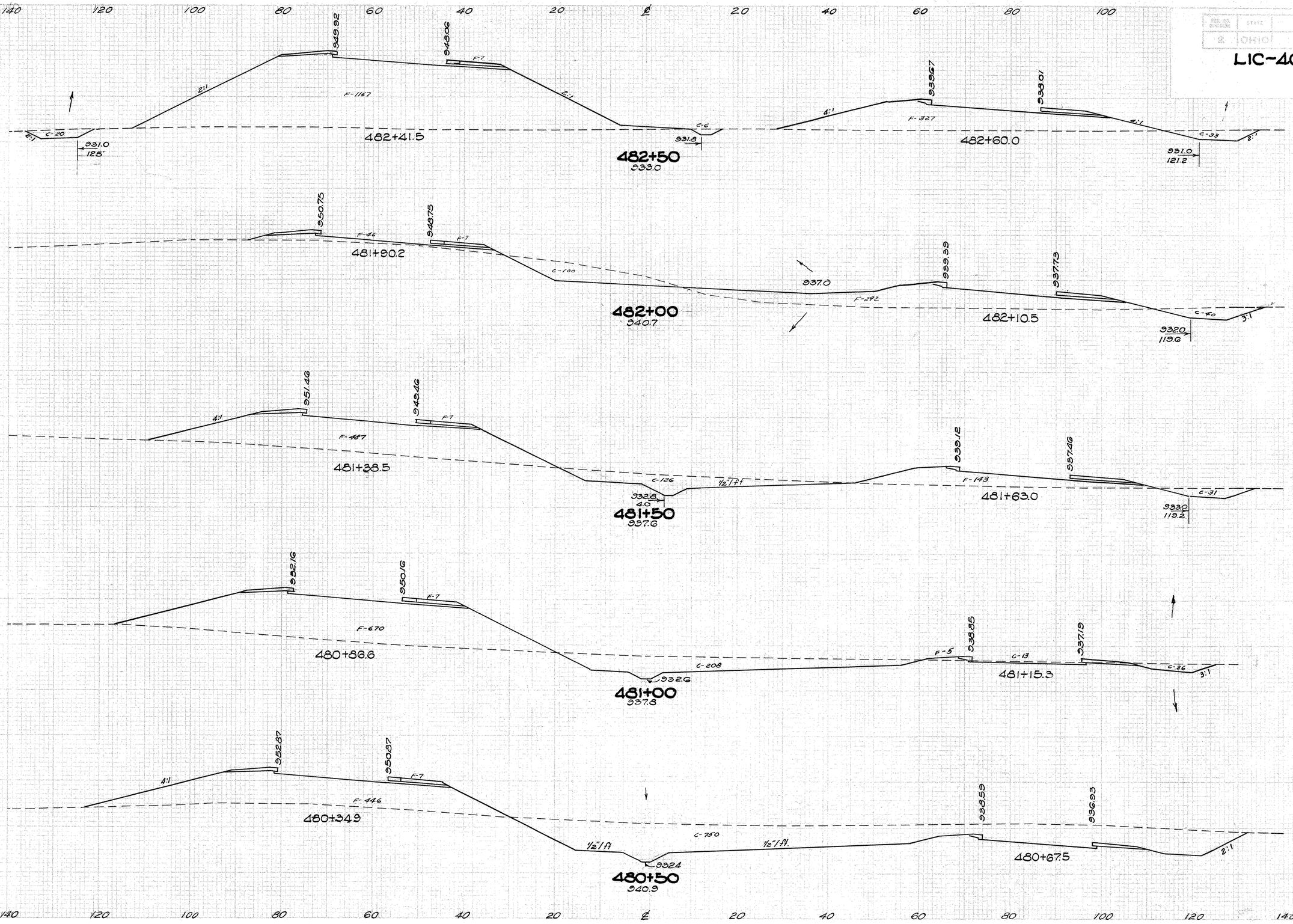
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
2205	255		
		4727	621
2900	416		
		5295	1334
2819	1025		
		5243	2474
2843	1647		
		5073	3394
2636	2018		
		4451	3894
2171	2187		
		3720	4182

477+50 ~ 480+00

LIC-40-8.67

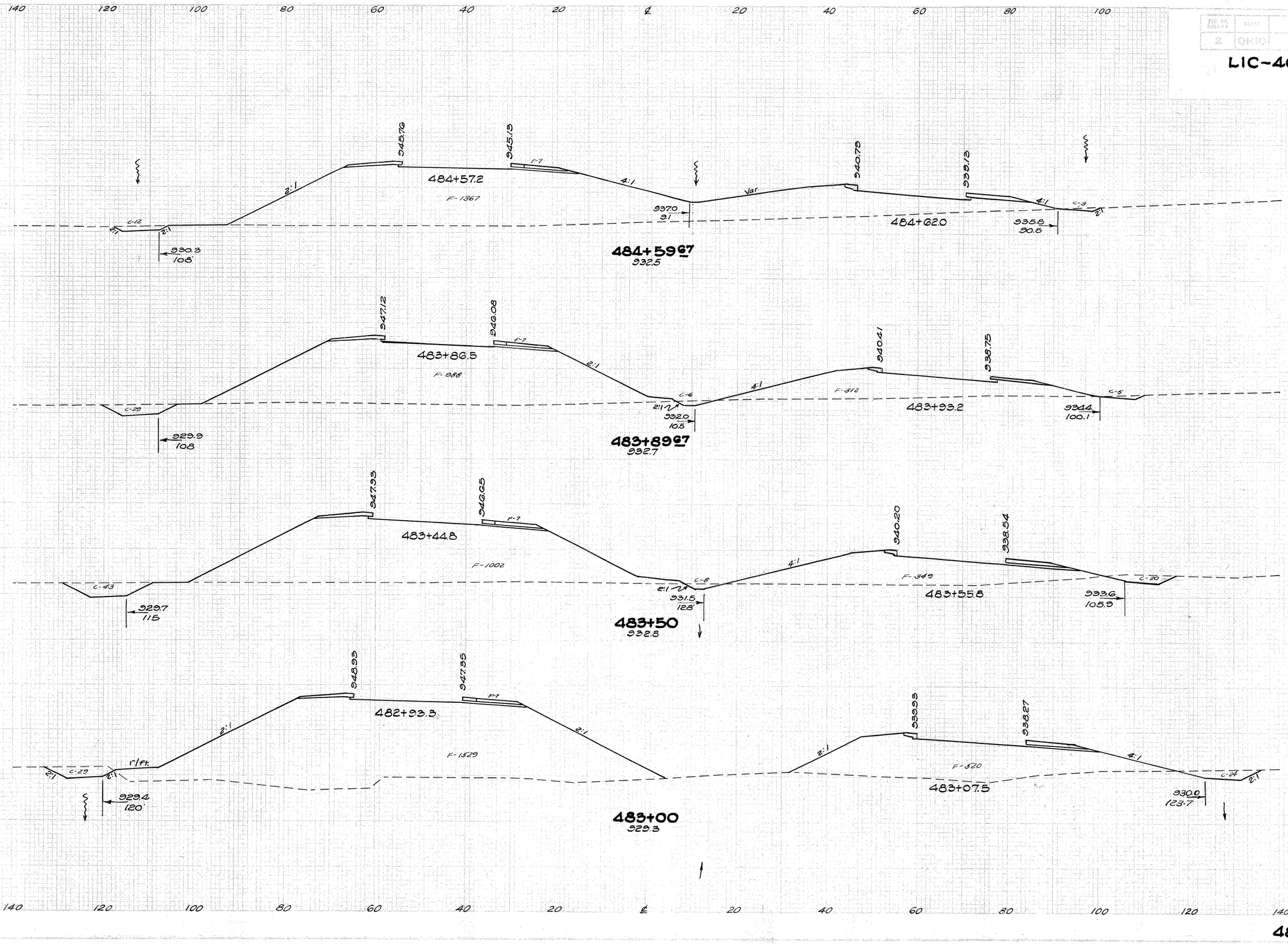


End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
59	1501		
		184	1709
140	345		
		275	909
157	637		
		374	1221
247	682		
		923	1051
750	453		
		2736	656

480+50–482+50

FED. ROAD DIV.	STATE	PROJECT	SHEET NO.
5	OHIO		124 287

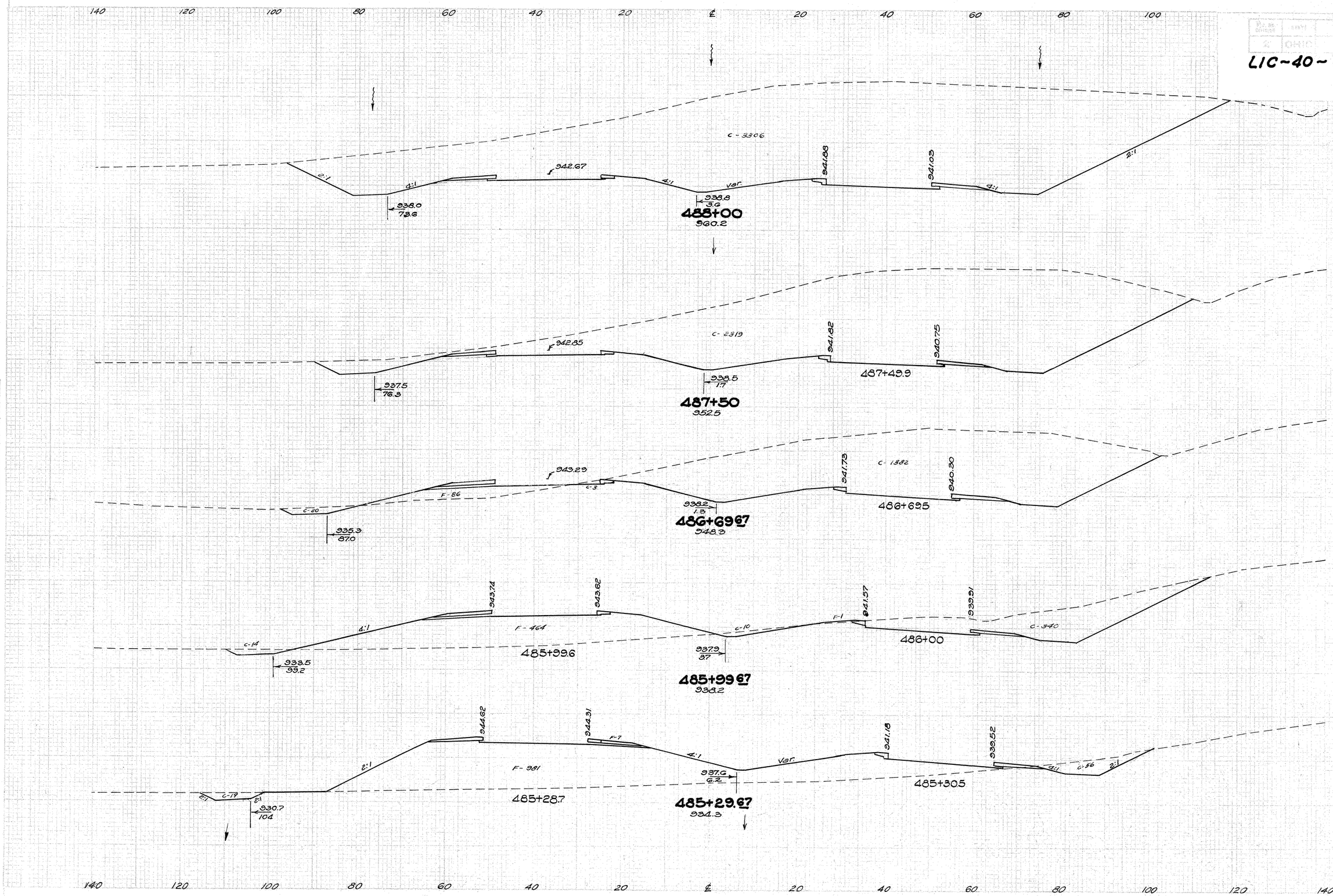
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
15	1374		
		71	3475
40	1307		
		82	1958
71	1358		
		114	3161
53	2056		
		103	3294

483+00 – 484+59 C7

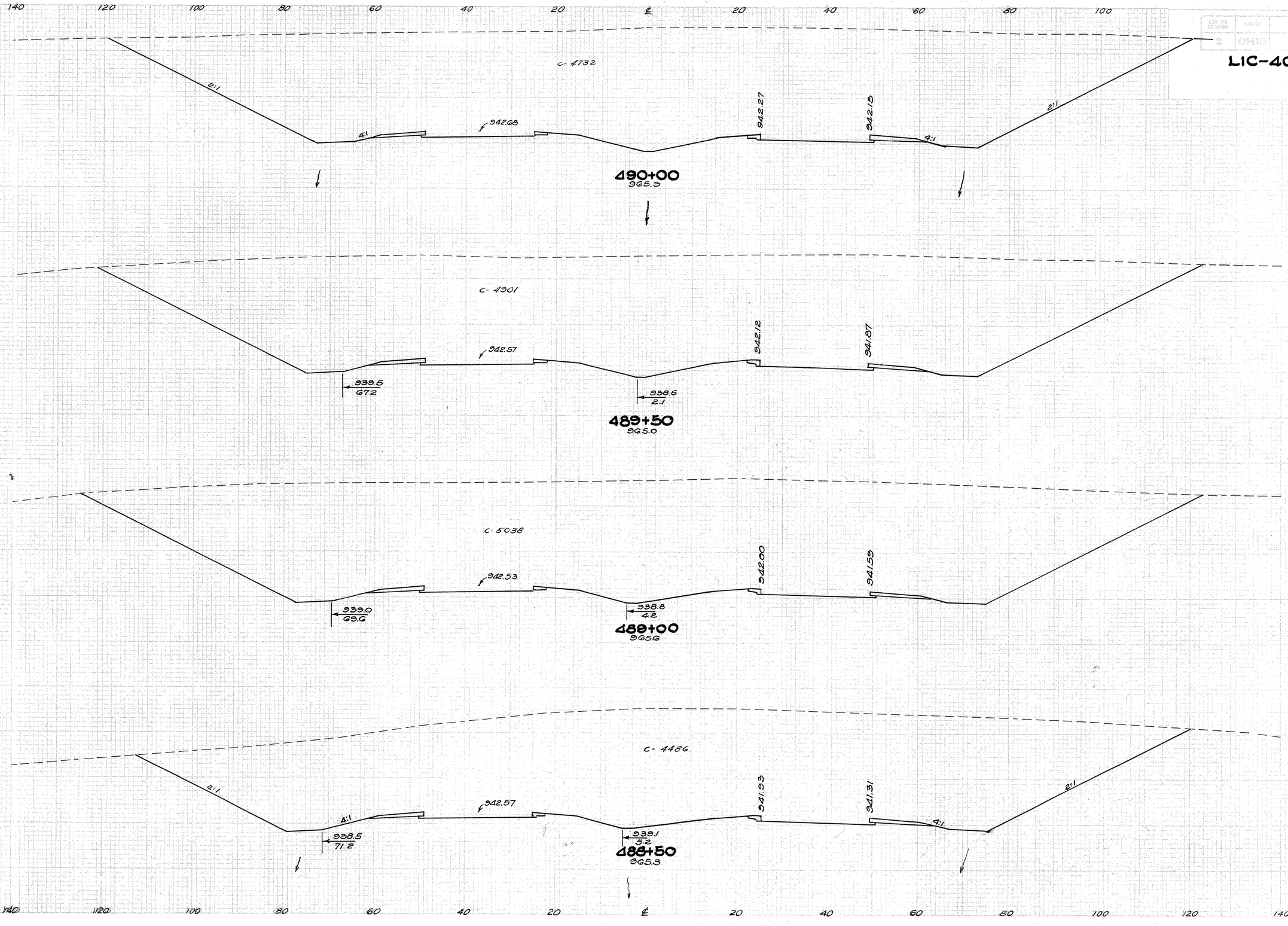
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
3306	0		
		5208	0
2319	0		
		5540	128
1405	86		
		2293	714
364	465		
		569	1884
75	988		
		117	3062

485+29.67 – 488+00

LIC-40-8.67

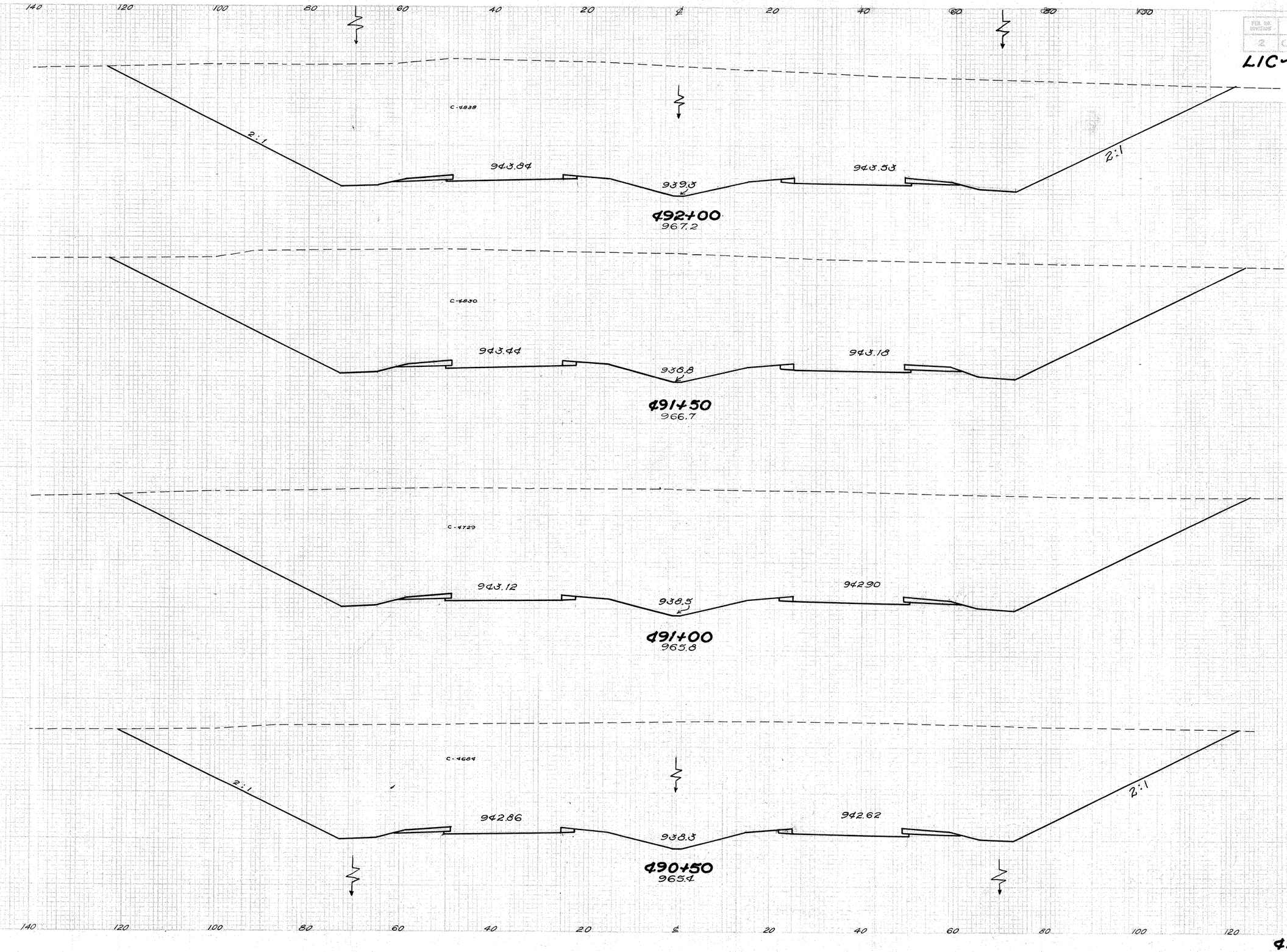


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
4732	0		
		8919	0
4901	0		
		9203	0
5038	0		
		8819	0
4486	0		
		7215	0

488+50 ~ 490+00

FED. ROAD DIVISION	STATE	PROJECT	TYPE WORK	127 287
2	OHIO			

LIC-40-8.67

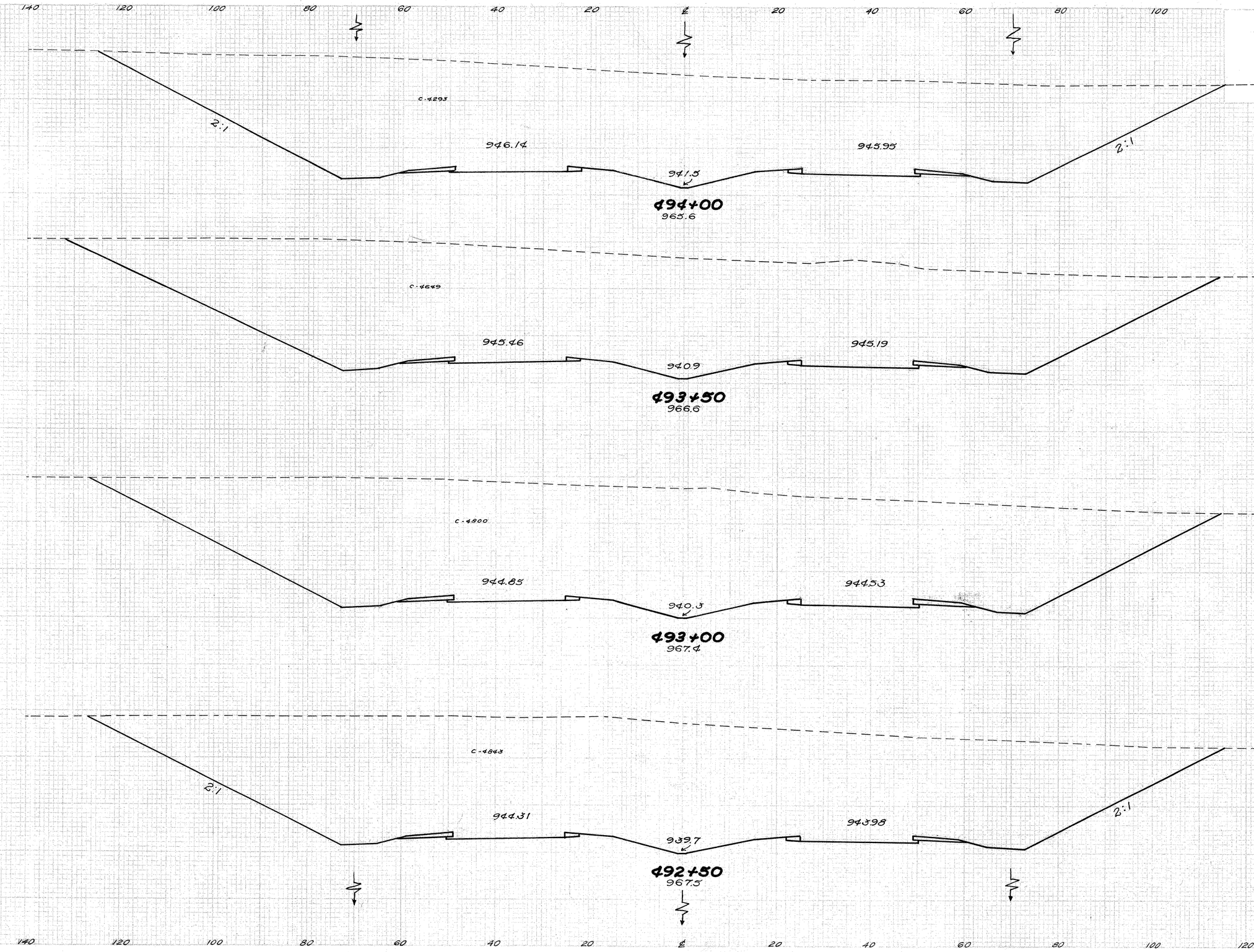


End Areas		Cu. Yds.	
Cut	Fill	Cut	Fill
4838	0		
		8952	0
4830	0		
		8851	0
4729	0		
		8716	0
4684	0		
		8719	0

490+50 to 492+00

DIST. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			128 287

LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
4293	0		
		8280	0
4649	0		
		8749	0
4800	0		
		8929	0
4843	0		
		8969	0

492+50 - 494+00

SEQ. NO. DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			129 287

LIC-40-8.67

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

C-2527

2:1 946.7 951.32 2:1

497+00
963.9

C-3064

944.9 949.52

496+00
963.1

C-3457

947.73 943.1 947.72

495+00
964.1

C-3936

2:1 946.90 942.3 946.82 2:1

494+50
964.5

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

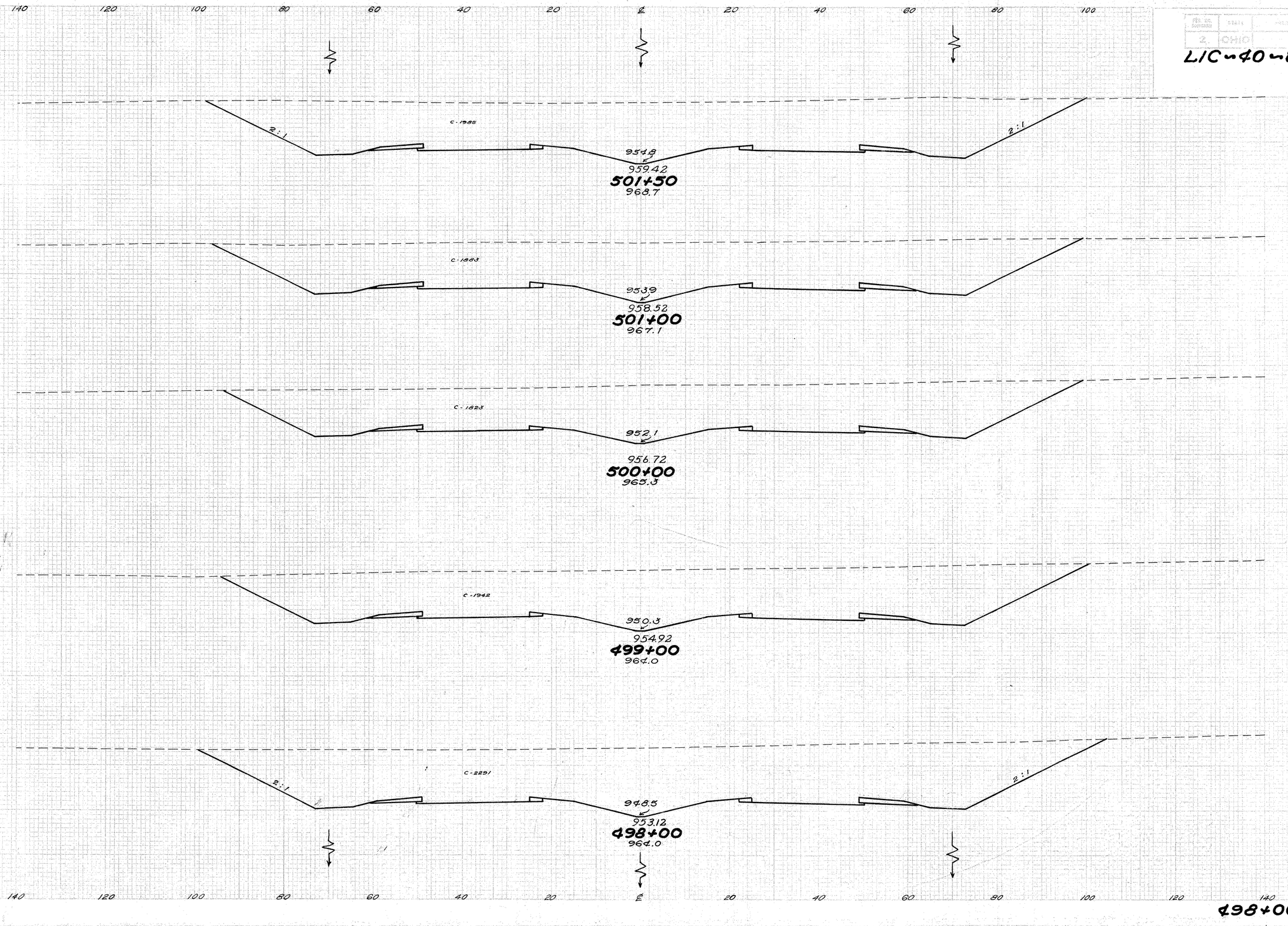
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
2527	0		
		10353	0
3064	0		
		12076	0
3457	0		
		6845	0
3936	0		
		7619	0

494+50 to 497+00

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

130
287

LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
1985	0		
		3581	0
1883	0		
		6863	0
1823	0		
		6972	0
1942	0		
		7839	0
2291	0		
		8922	0

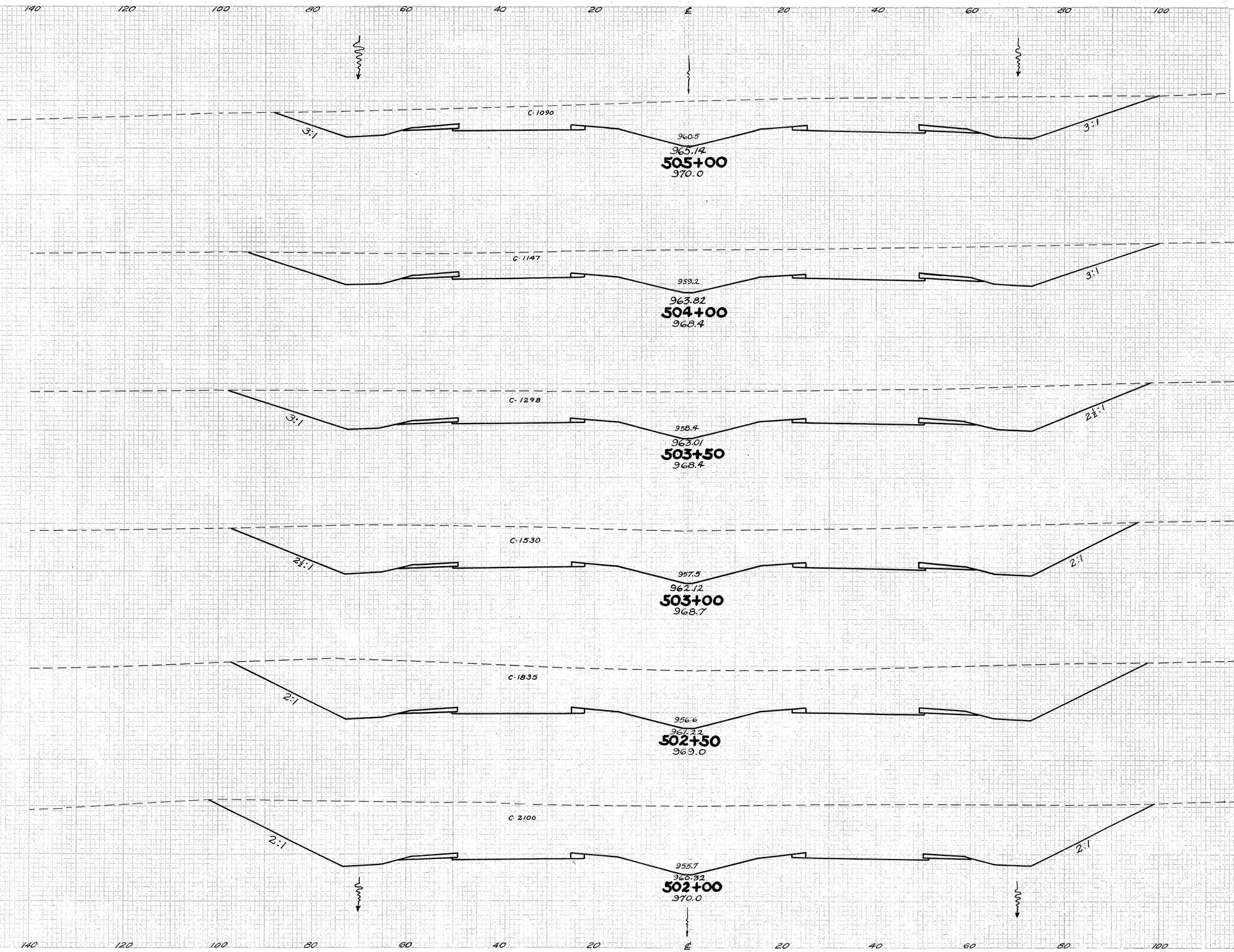
498+00 ~ 501+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FORM
2	OHIO		

131
287

LIC-40-8.67

Check T.A.B. 1/15/52



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
1090	0		
		4143	0
1147	0		
		2264	0
1298	0		
		2619	0
1530	0		
		3116	0
1835	0		
		3644	0
2100	0		
		3782	0

502+00 ~ 505+00

FED. RD. DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		

132
287

LIC ~ 40 ~ 8.67

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

C-296
962.4
966.69
508+00
967.1
3:1
962.7
70.9
F-9
C-20
3:1
962.7
70.9

C-870
962.6
966.68
507+50
970.5
962.9
70.0'
962.9
70.0'

C-1235
962.8
966.58
507+00
971.9
963.1
68.8'
963.1
68.8'

C-1401
963.0
966.57
506+50
972.8
963.3
68.0
963.3
68.0

C-930
963.2
966.06
506+00
970.7

C-1038
961.0
965.65
505+50
970.4
3:1
3:1

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

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
316	9		
		1098	8
870	0		
		1949	0
1235	0		
		2441	0
1401	0		
		2158	0
930	0		
		1822	0
1038	0		
		1970	0

505+50 ~ 508+00

9/15/56

FED. RD. DIVISION	STATE	PROJECT	TYPE WORK
2	OHIO		

133
287

LIC-40-8.67

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

965.62
511+00
962.4

2:1 F-365 C-10 F-5 C-430 2:1
959.0
81.7

965.82
510+50
960.5

3:1 F-340 C-17 2:1 C-356
954.5
95.0
958.1
85.7

966.02
510+00
957.8

4:1 F-906 C-23 3:1 C-152 3:1
956.5
92.0
957.3
89.7

966.22
509+50
958.1

F-970 961.6 C-23 C-21
957.5
89.8
957.4
89.9

966.42
509+00
960.2

F-590 962.0 C-23 C-17
959.5
82.7
959.0
84.6

966.60
508+50
962.7

3:1 C-33 F-150 962.2 F-205 C-1 C-26 3:1
961.5
75.3
960.0
81.6

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

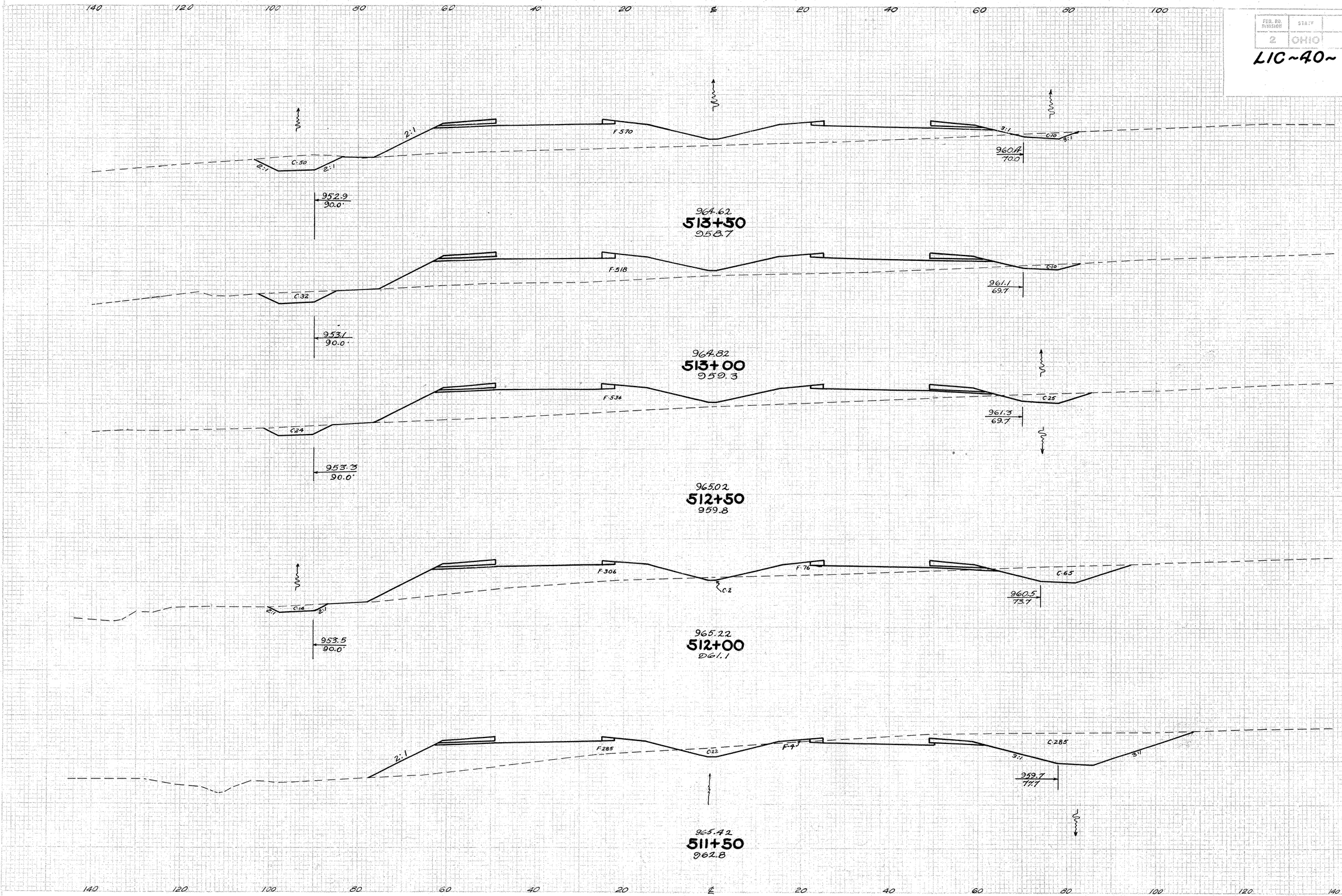
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
440	370		
		753	843
373	540		
		507	1339
175	906		
		203	1736
44	970		
		78	1444
40	590		
		93	875
60	355		
		348	337

508+50 - 511+00

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

134
287

LIC~40~ 8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
60	570		
		94	1007
42	518		
		84	976
49	536		
		120	850
81	382		
		359	621
307	289		
		692	610

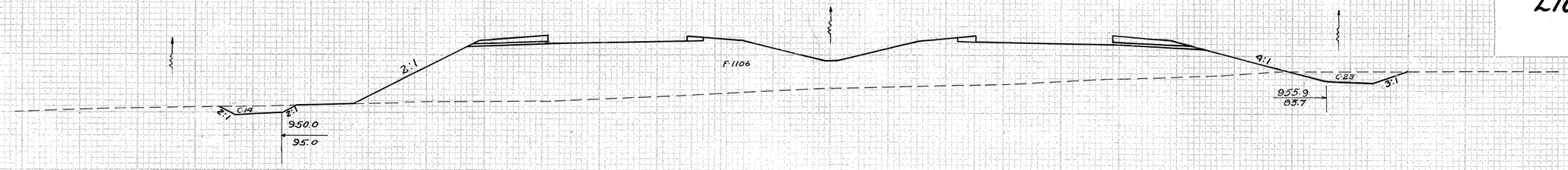
511 +50 ~ 513+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUND.
2	OHIO		

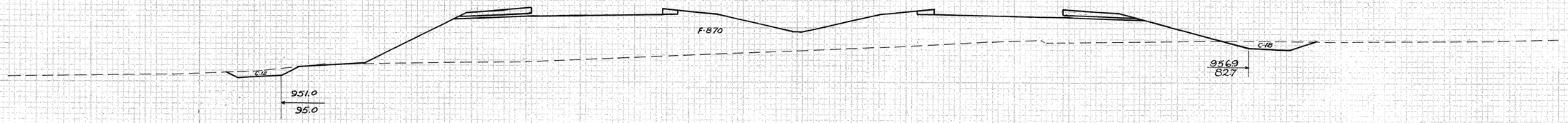
135
287

LIC-40-8.67

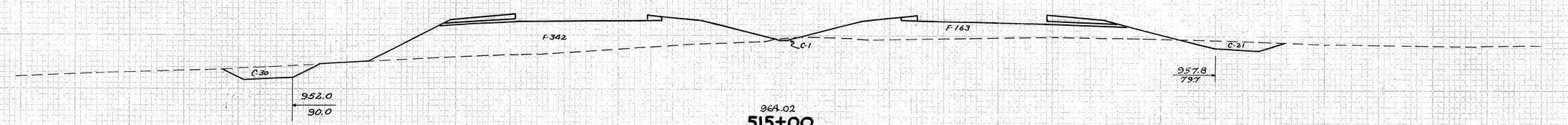
140 120 100 80 60 40 20 ℄ 20 40 60 80 100



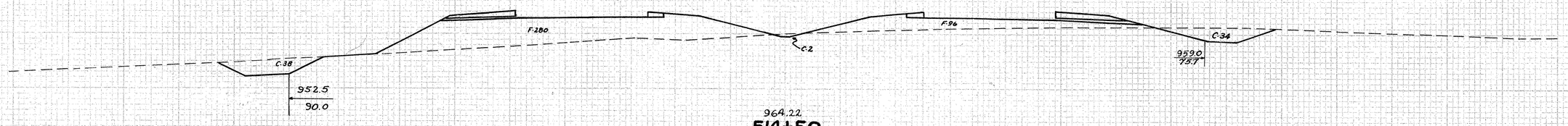
963.62
516+00
954.1



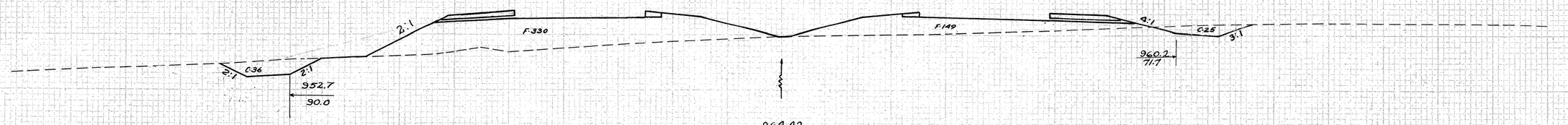
963.82
515+50
955.9



964.02
515+00
959.5



964.22
514+50
960.0



964.42
514+00
959.0

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

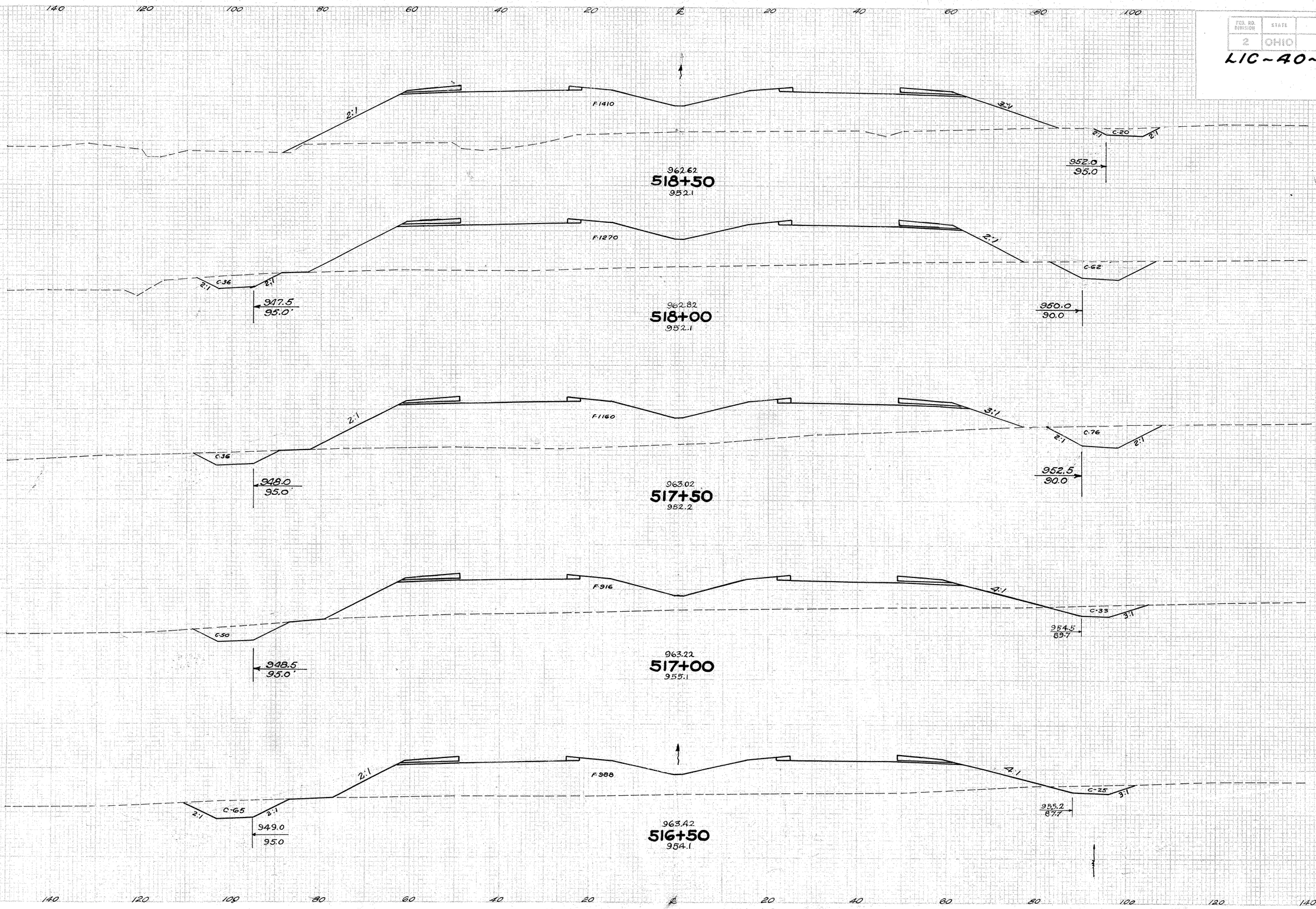
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
37	1106		
		62	1830
30	870		
		76	1273
52	505		
		117	816
74	376		
		125	792
61	479		
		112	971

514+00 ~ 516+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

136
287

LIC-40-8.67



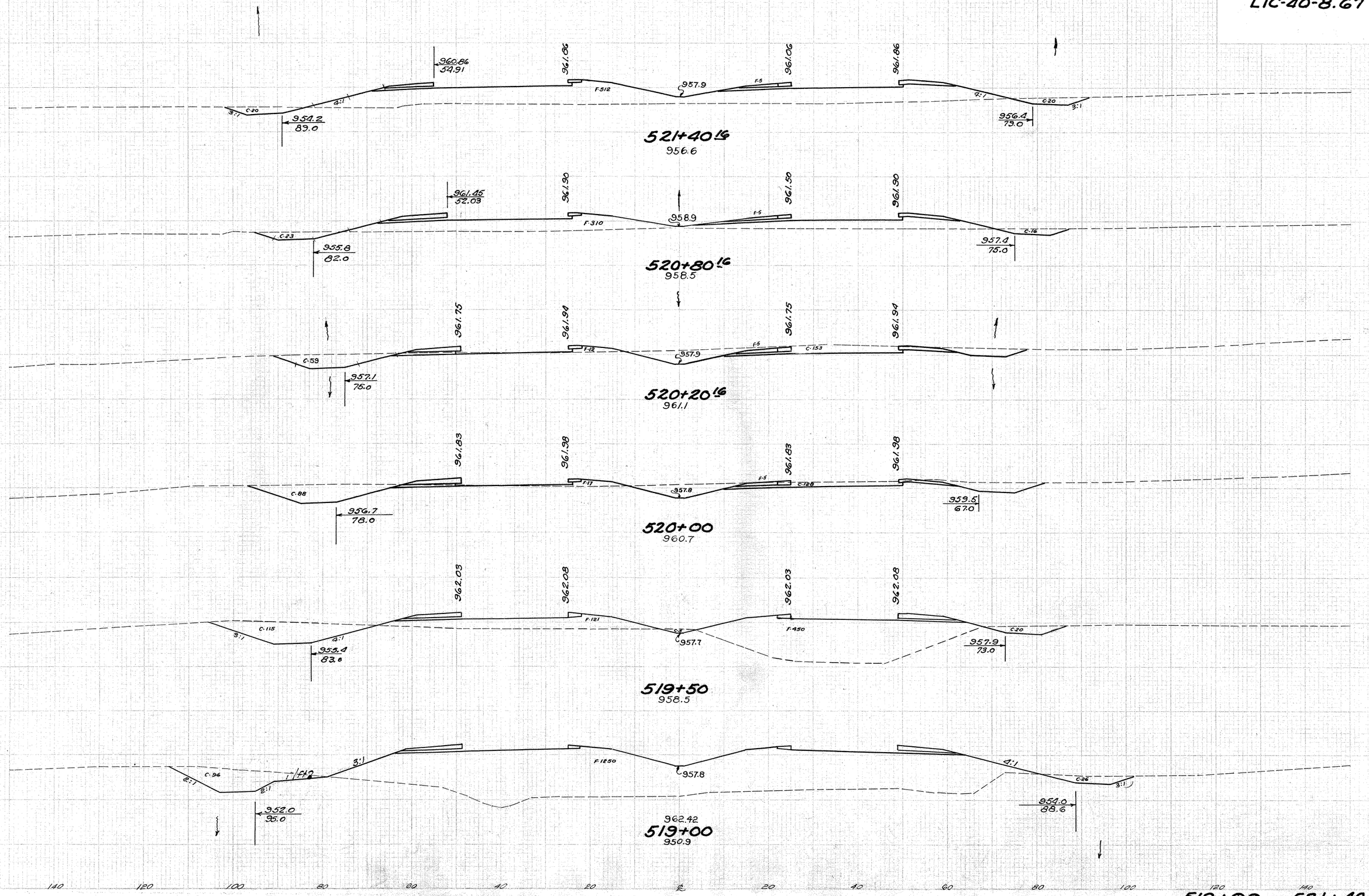
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
20	1410		
		109	2481
98	1270		
		194	2250
112	1160		
		181	1922
83	916		
		160	1763
90	988		
		118	1939

516+50 ~ 518+50

FED. AID DIVISION	STATE	PROJECT		137 287
2	OHIO			

LIC-40-8.67

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



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
40	517		
		88	924
39	315		
		279	369
212	17		
		160	15
216	22		
		330	549
140	571		
		243	1686
122	1250		
		131	2463

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

519+00 ~ 521+40 16

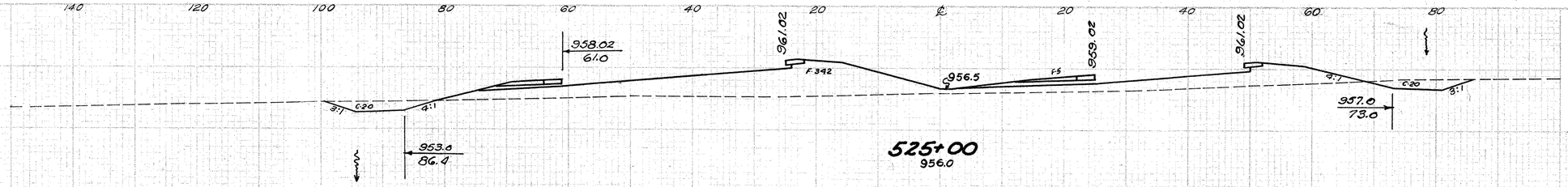
22

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

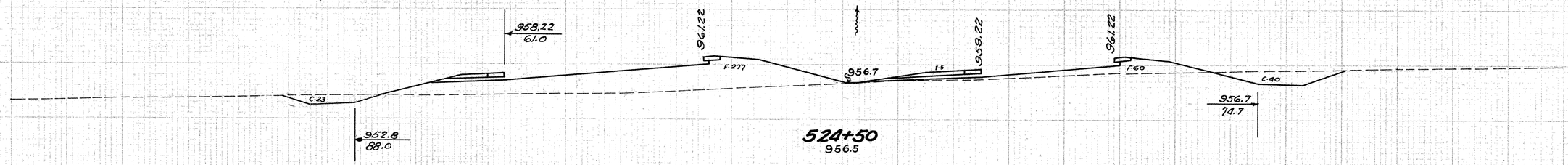
138
287

LIC-40-8.67

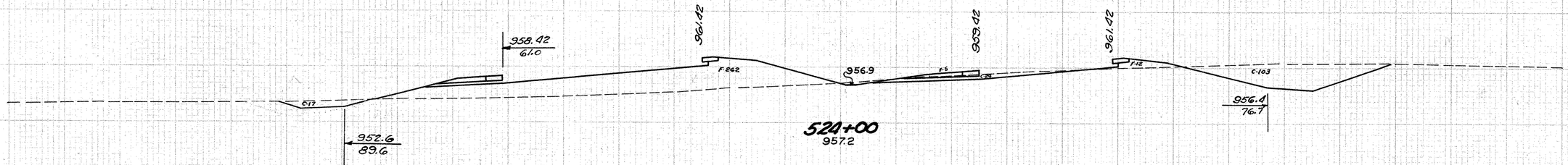
160 140 120 100 80 60 40 20 ℄ 20 40 60 80



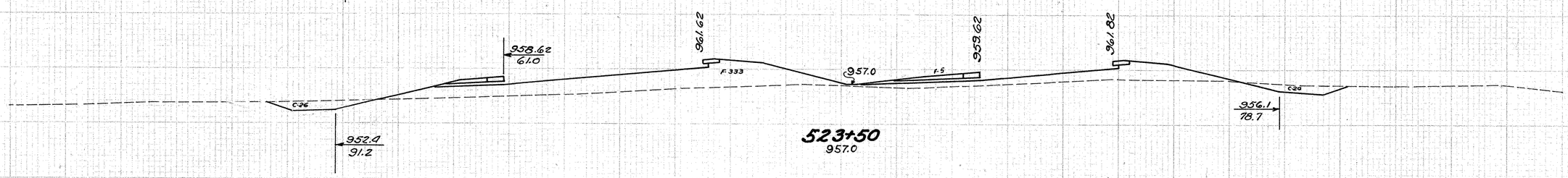
525+00
956.0



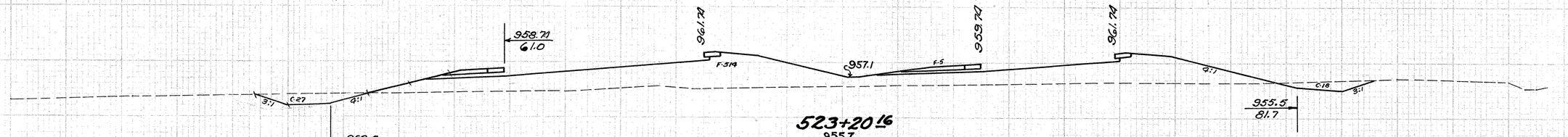
524+50
956.5



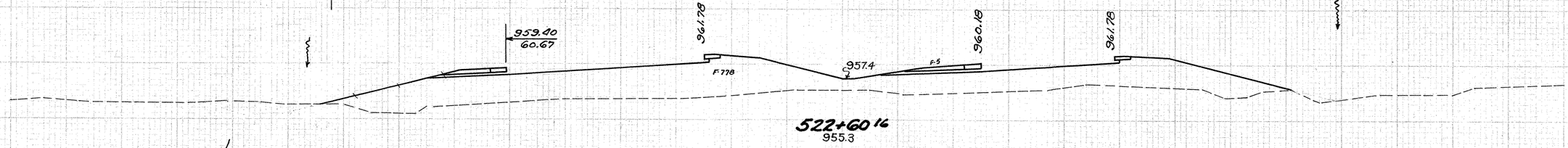
524+00
957.2



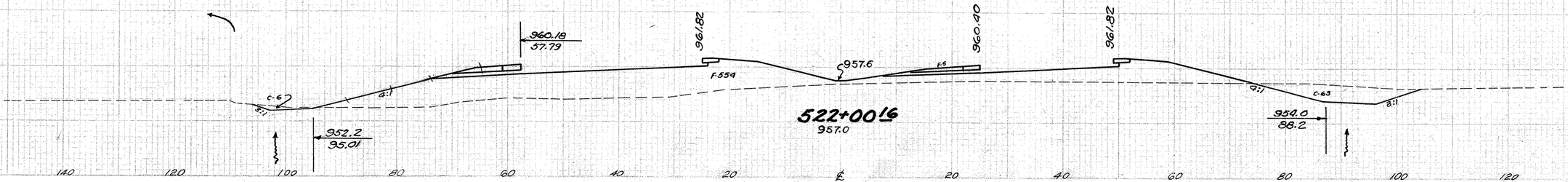
523+50
957.0



523+20 16
955.7



522+60 16
955.3



522+00 16
957.0

160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
40	347		
		95	638
63	342		
		192	575
144	279		
		176	571
46	338		
		50	474
45	519		
		50	1447
0	783		
		77	1491
69	559		
		121	1196

522+00 16 ~ 525+00

LIC-40-8.67

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

See X-Sect's N.W. Ramp

957.42 959.42 957.42 959.42 63.9 960.24 3:1

c-887 F-5 954.9 957.7 80.0

529+00
962.6

Earthwork of Ramp ahead of Sta. 528+50 carried with detail of Ramp.

Limits of Earthwork Sta. 528+50 ahead

3:1 c-65 956.0 957.62 959.62 957.62 959.62 62.3 960.52

c-848 F-5 955.1 958.1 78.0

528+50
963.1

957.82 959.82 957.82 959.82 61.3 960.76

c-925 F-5 955.3 958.4 77.0

528+00
962.9

957.6 80.4 957.75 958.02 960.02 958.02 57.4 960.72

c-844 F-5 955.5 958.7 71.4

955.0 95.4

527+50
961.5

956.85 73.2 960.22 958.22 52.8 960.54

c-209 F-8 F-5 c-202 c-98 955.7 958.5 66.8

954.5 88.0

527+00
959.6

956.33 67.0 960.42 958.42 50.5 960.58

c-105 F-37 c-44 F-5 F-8 c-40 955.9 958.1 67.0

954.0 84.0

526+50
958.0

957.47 62.9 960.62 958.62 49.2 960.64

c-55 F-116 c-28 F-5 F-72 c-38 956.1 957.6 69.0

953.6 83.7

960.82 958.82 960.82

c-36 F-187 F-5 F-79 c-20 956.3 957.3 72.0

957.80 61.3

953.3 84.6

525+50
956.5

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

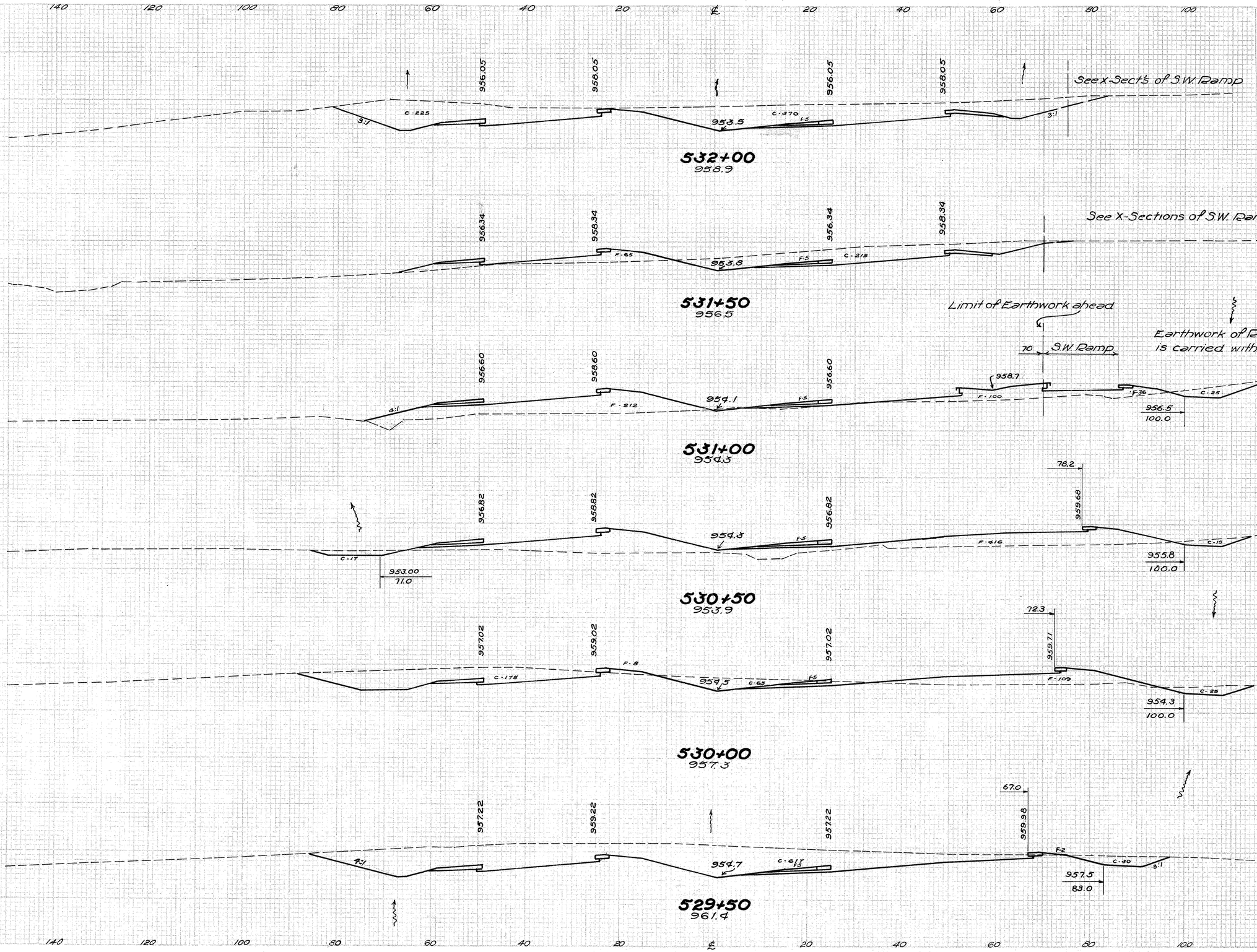
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
887	5		
		1606	9
Ahead 848	5		
Back 913	5		
		1702	9
925	5		
		1638	9
844	5		
		1021	14
259	10		
		415	74
189	70		
		284	188
118	133		
		161	356
56	251		
		89	554

525+50 to 529+00

FED. HWY. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

140
287

LIC-40-8.67

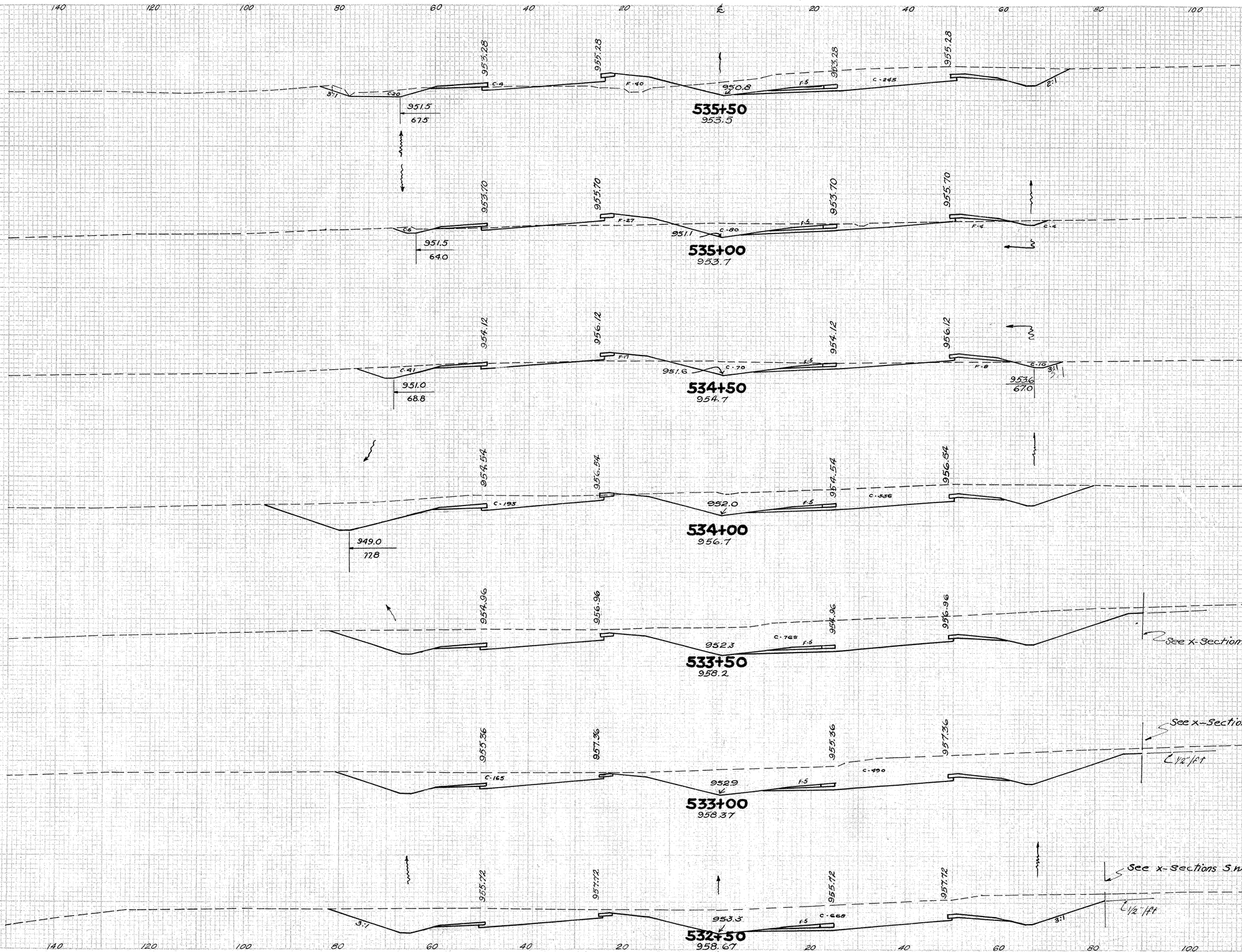


End Area		C.U. Yds.	
Cut	Fill	Cut	Fill
595	5		
		750	69
215	70		
		201	358
Ahead	2	317	
Back	25	353	
		53	717
32	421		
		275	503
265	122		
		844	119
647	7		
		1420	11

529+50 to 532+00

FED. RD. DIVISION	STATE	PROJECT	TYPE PLANS	141 287
2	OHIO			

LIC-40-8.67



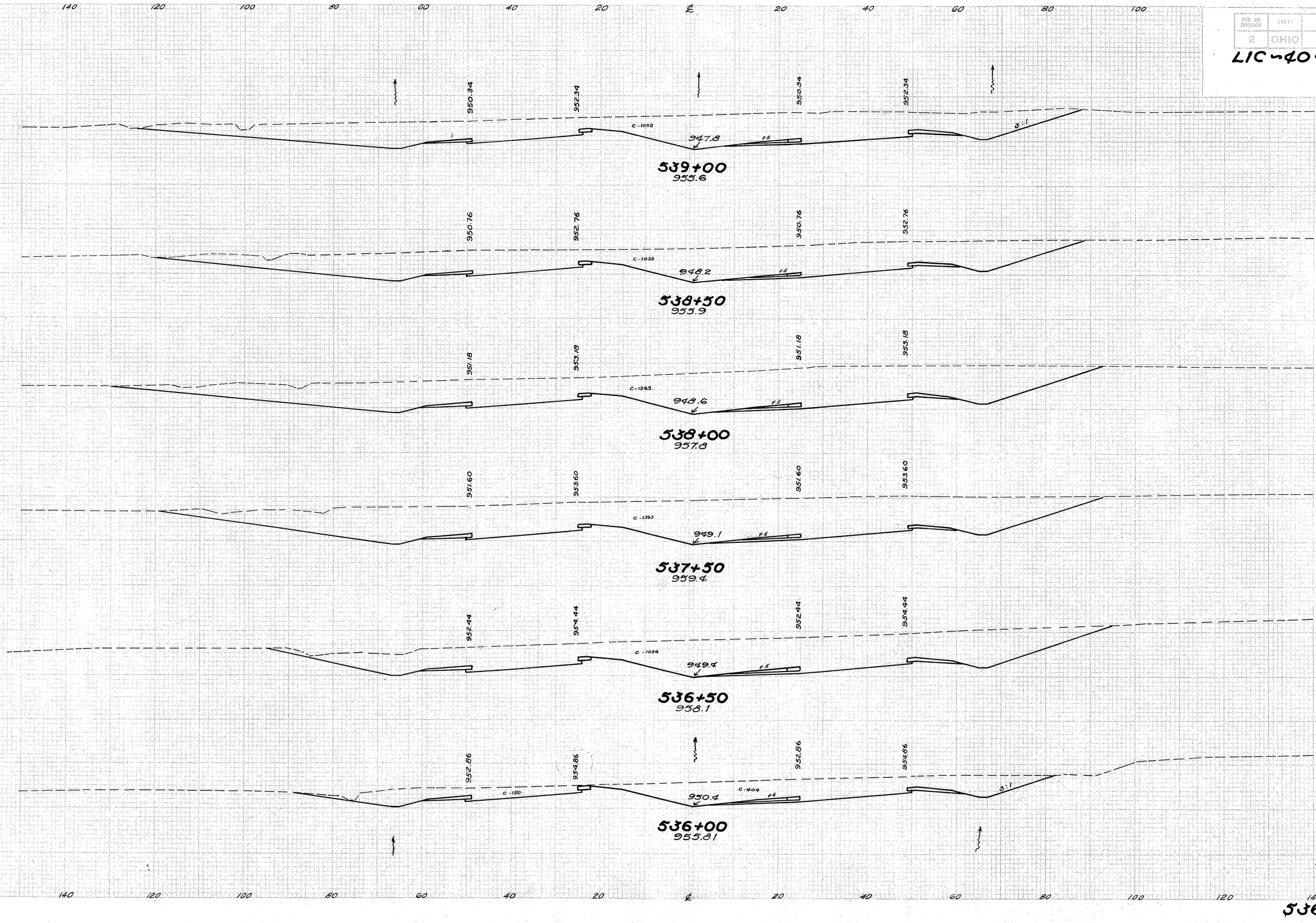
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
269	95		
		332	25
90	36		
		195	61
121	30		
		604	32
531	5		
		1200	9
765	5		
		1315	9
655	5		
		1225	9
668	5		
		1169	9

532+50–535+50

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.	SHEETS
2	OHIO			

142
287

LIC-40-8.67



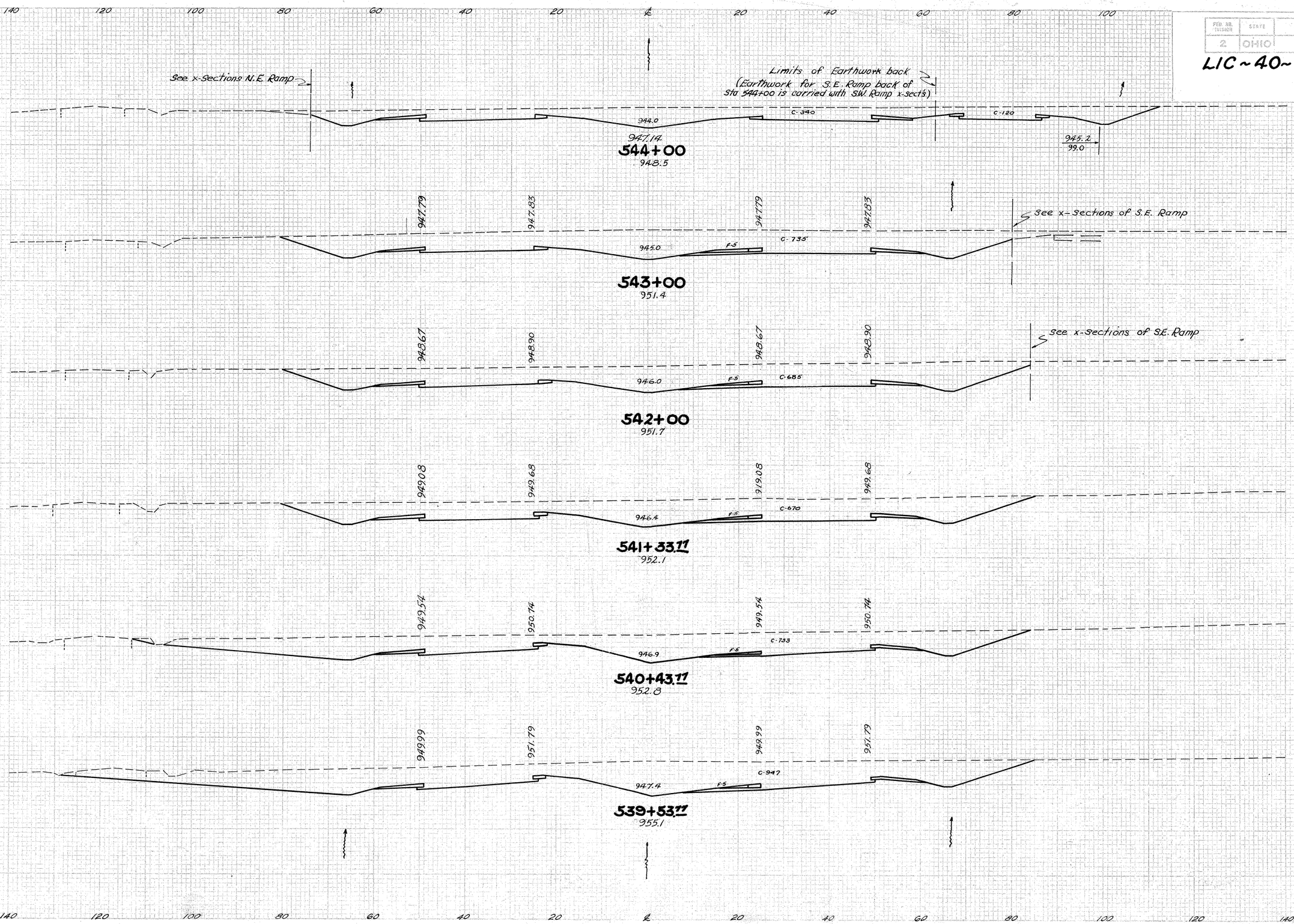
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
1002	5		
		1884	9
1033	5		
		2127	9
1265	5		
		2461	9
1393	5		
		4494	19
1034	5		
		1470	9
559	5		
		762	46

536+00 - 539+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

143
287

LIC-40-8.67



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Ahead	460	0		
Back	340	0		
			1991	9
	735	5		
			2630	19
	685	5		
			1662	12
	670	5		
			2338	17
	733	5		
			2800	17
	947	5		
			1941	10

539+53.11 ~ 544+00

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

144
287

LIC~40~8.67

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

941.88 / 51.0
C-100
3:1
939.7 / 64.7
C-523
937.50
941.74 / 60.1
C-224
3:1
942.10
550+00
944.7

942.64 / 55.8
C-168
940.0 / 71.8
C-840
938.34
942.57 / 61.0
C-370
942.94
549+00
947.5

943.40 / 61.0
C-125
940.5 / 78.0
C-720
939.2
943.41 / 61.0
C-177
943.78
548+00
947.9

943.69 / 66.0
940.8 / 83
C-900
940.0
944.22 / 61.1
C-114
944.62
547+00
948.3

944.04 / 75.9
C-136
941.1 / 93
C-780
941.0
944.76 / 62.6
C-130
945.46
546+00
950.2

945.36 / 946.22 / 77.5
Limits of Earthwork
(Earthwork for N.E. Ramp back of Sta 545+00 is carried with N.E. Ramp x-sections.)
3:1
C-138
941.5 / 114
C-50
944.8
C-697
942.0
945.37 / 70.5
C-113
3:1
946.30
545+00
949.5

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

	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	847	0		
			9120	0
	1378	0		
			9999	0
	1022	0		
			3770	0
	1019	0		
			3815	0
	1046	0		
			3785	0
Ahead	998	0		
Back	810	0		
			2352	0

516

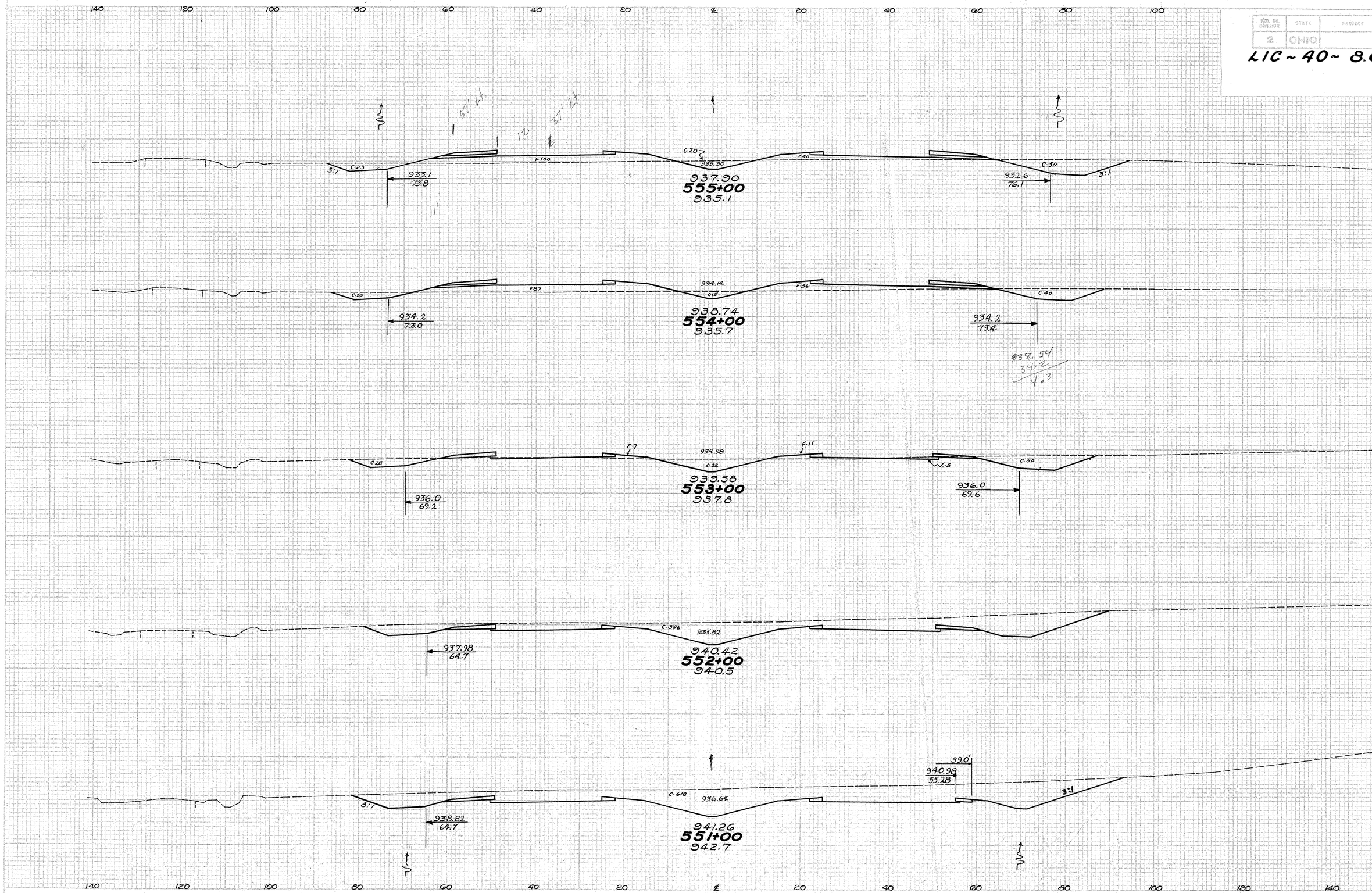
Backing 40-8.67

545+00 ~ 550+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

145
287

LIC ~ 40 ~ 8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
93	140		
		317	524
78	143		
		357	298
115	18		
		946	33
396	0		
		1878	0
618	0		
		2713	0

551+00 ~ 555+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

14G 287

LIC ~ 40 ~ 8.67

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

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
151	793		
		287	1933
159	755		
		261	1226
123	569		
		198	825
91	322		
		140	572
60	296		
		224	974
61	230		
		285	685

931.6
934.54
559+00
928.7
C-103
2:1
925.0
93.1
F-793
C-48
3:1
927.8
81.9

930.47
934.96
558+50
926.3
C-113
3:1
925.5
92.8
F-755
2:1
C-46
3:1
927.6
84.4

930.8
935.38
558+00
930.9
C-27
929.8
77.3
F-187
F-382
2:1
C-96
2:1
925.0
90.0
927.37

931.2
935.80
557+50
931.7
C-26
930.35
76.7
F-192
F-180
2:1
C-65
925.0
86.0

931.6
C-40
936.22
557+00
933.0
C-30
930.9
76.2
F-118
F-178
2:1
C-20
3:1
929.4
82.2

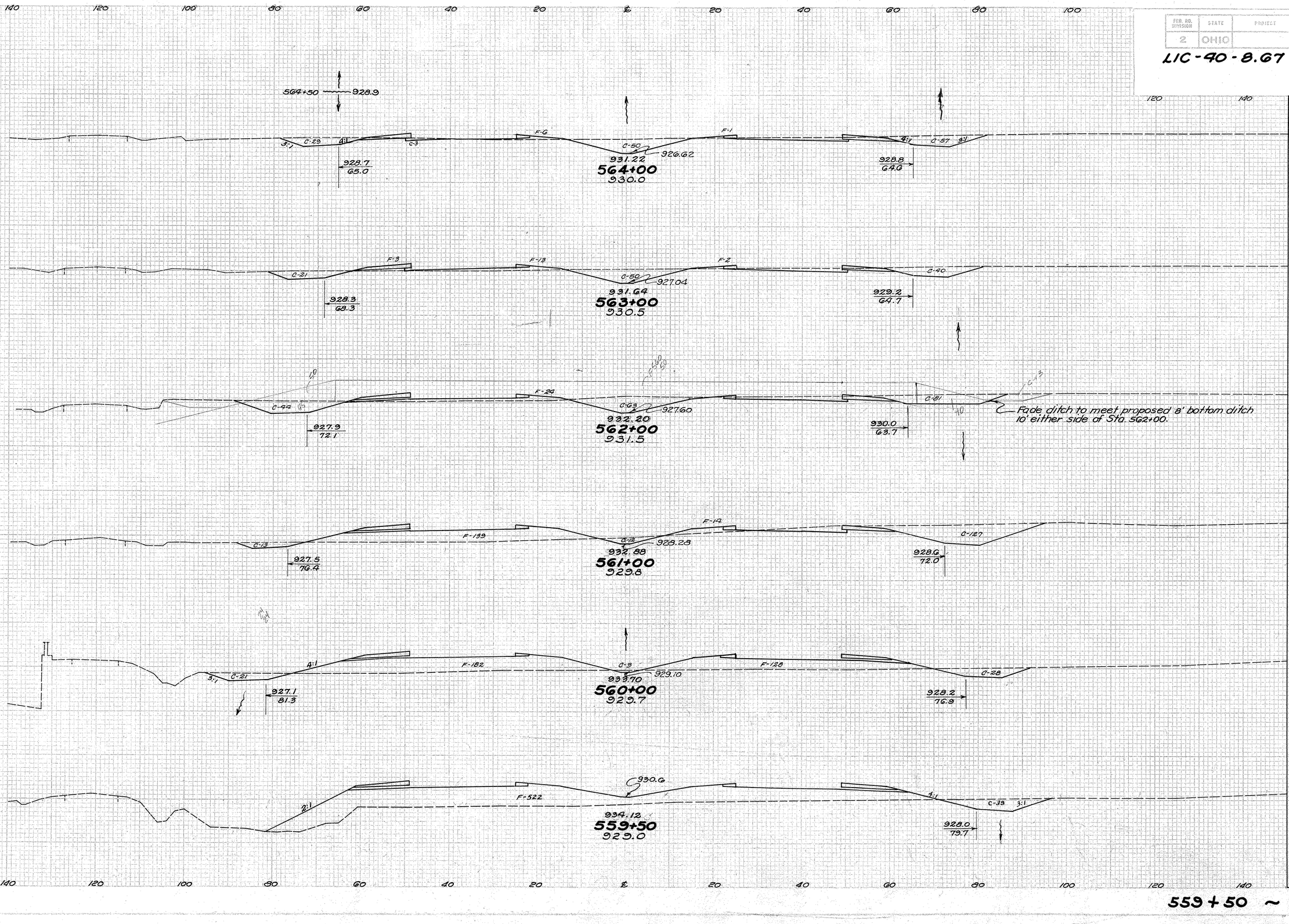
932.4
C-18
937.06
556+00
933.7
3:1
C-26
932.0
75.2
F-90
F-140
C-20
3:1
931.0
79.2

556+00 ~ 559+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

147
287

LIC-40-8.67



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
139	7		
		463	46
111	18		
		554	78
188	24		
		630	328
152	153		
		378	857
52	310		
		84	770
39	522		
		176	1218

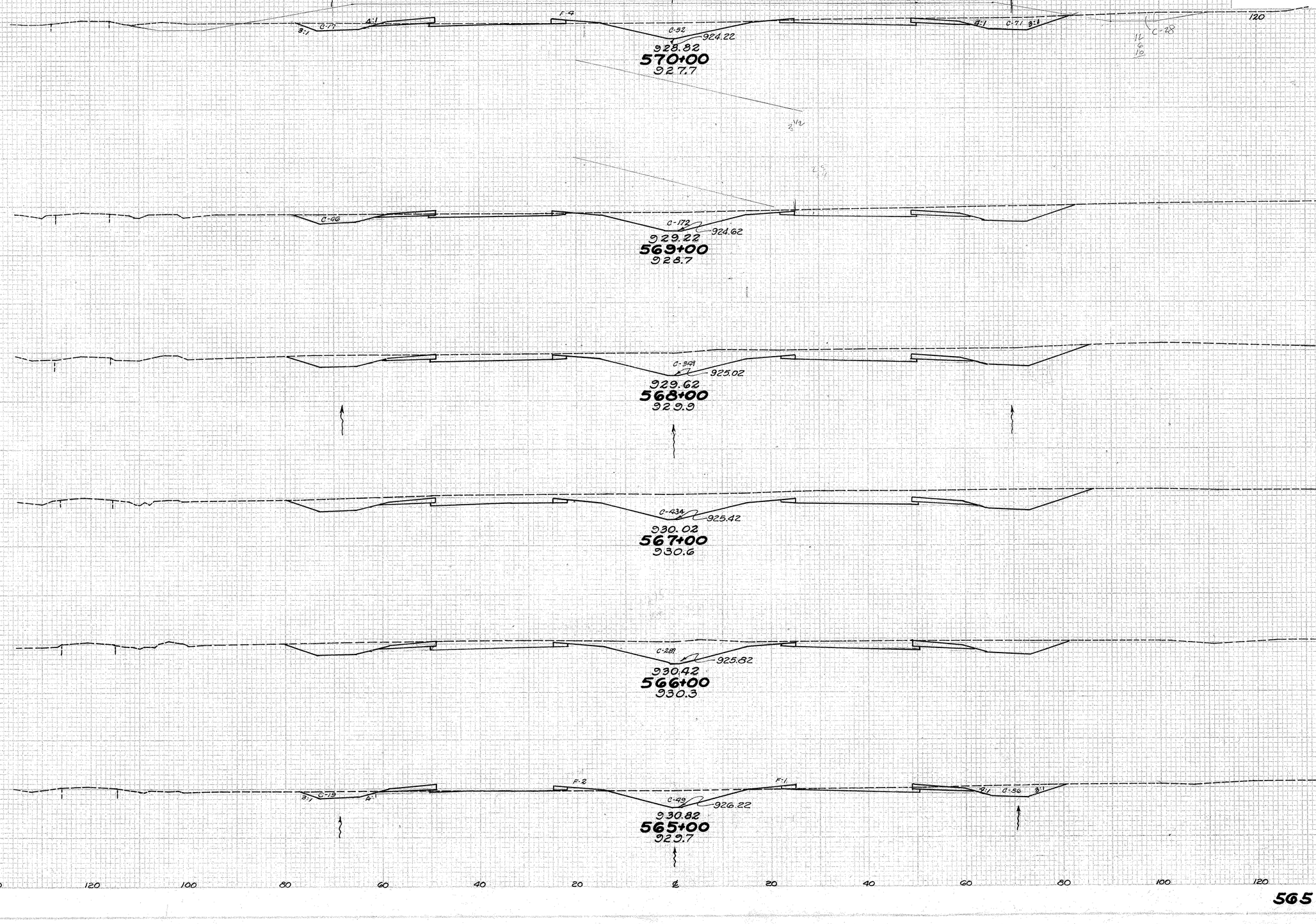
559+50 ~ 564+00

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

148
287

LIC-40-8.67

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



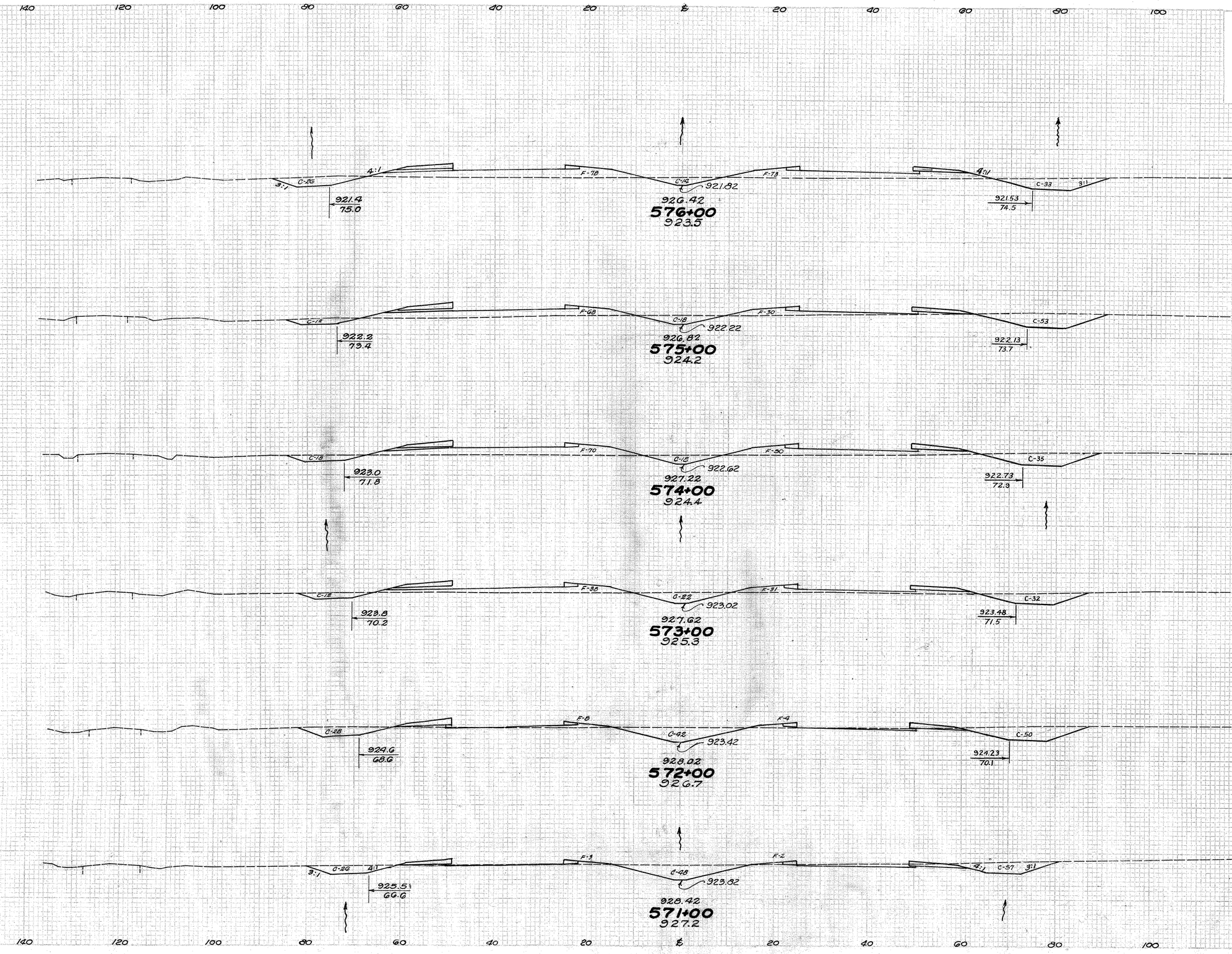
	END AREA		C.U. YDS.	
	CUT	FILL	CUT	FILL
140	4			
			663	7
218	0			
			1050	0
349	0			
			1450	0
434	0			
			1389	0
289	0			
			765	6
124	3			
			487	19

565+00 ~ 570+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

149
287

LIC-40-8.67



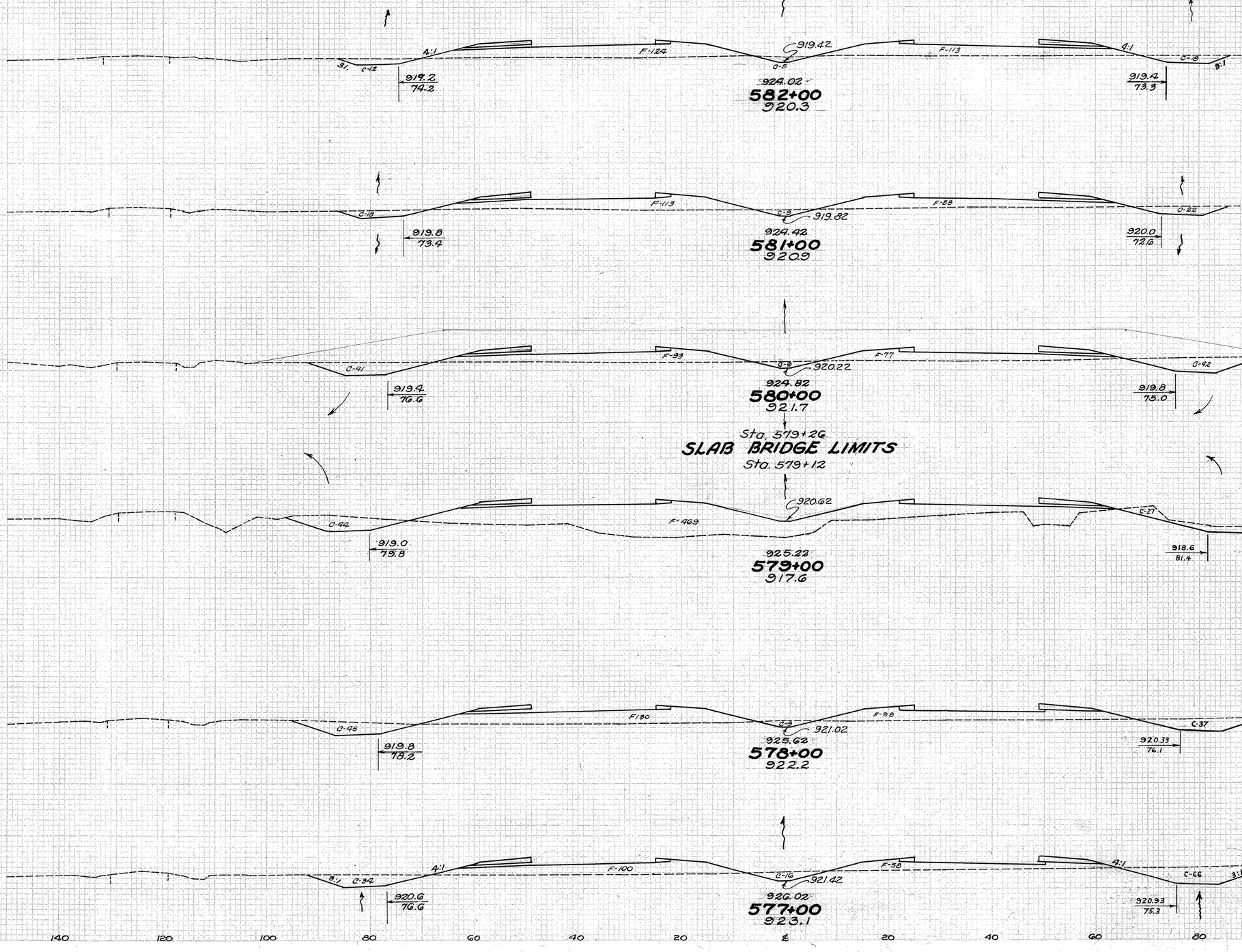
END AREA		CU. YDS	
CUT	FILL	CUT	FILL
		350	572
73	151		
		289	461
83	98		
		285	404
71	120		
		254	350
66	69		
		344	150
120	12		
		465	31
131	5		
		502	17

571+00 ~ 576+00

SEC. TO DIVISION	STATE	PROJECT	TYPE FORM	150
2	OHIO			287

LIC-40-8.67

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



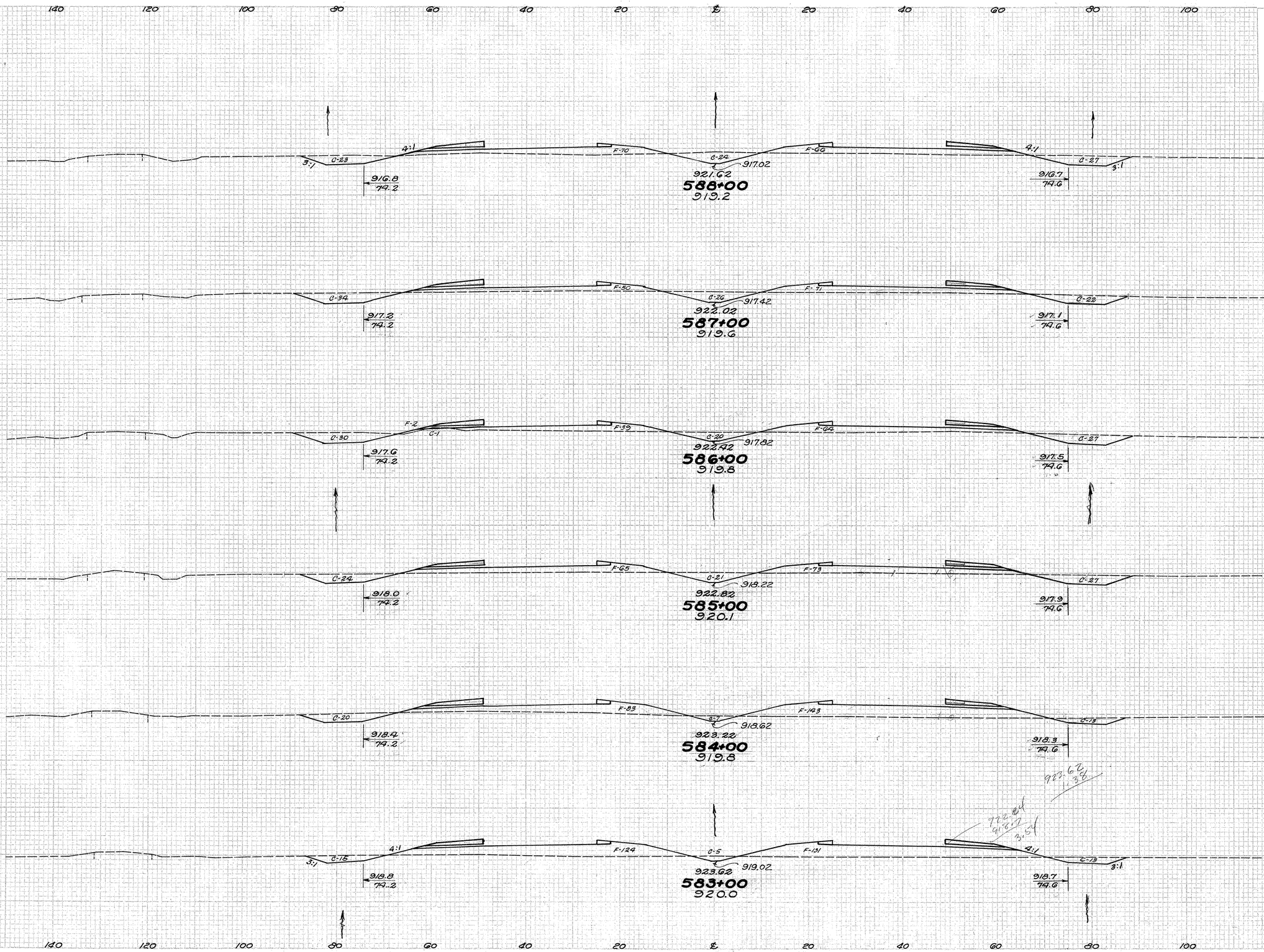
	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	35	237		
			150	811
	49	201		
			261	687
	92	170		
			252	466
Begin Earthwork-Sta. 579+26	92	170		
			32	208
End Earthwork – Sta. 579+12	71	469		
	71	469		
			300	1291
	91	228		
			383	715
	116	158		

577+00 ~ 582+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

151
287

LIC-40-8.67



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
74	136		
		289	476
82	121		
		296	419
78	105		
		279	450
72	138		
		207	674
40	226		
		135	891
33	255		
		120	911

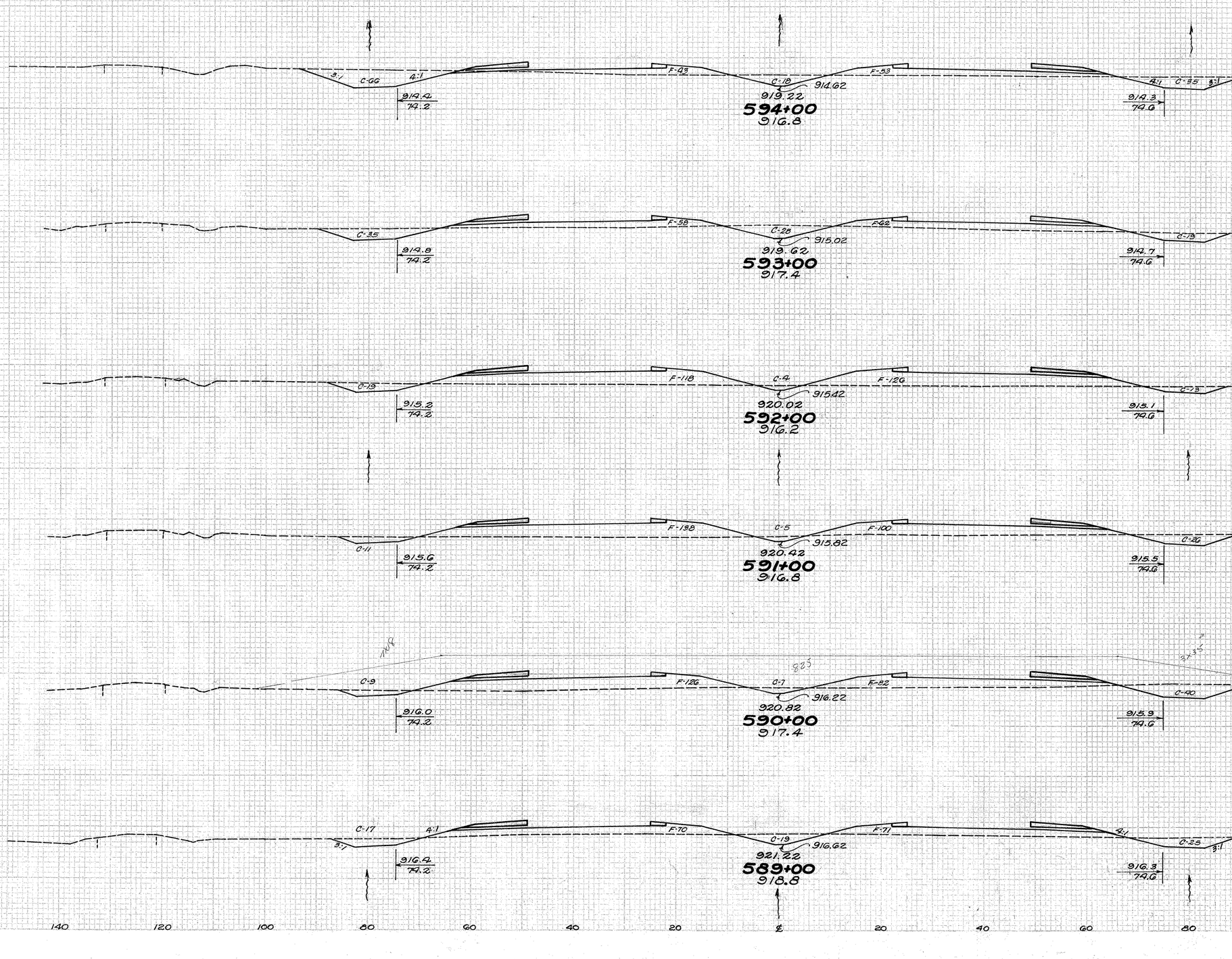
583+00 ~ 588+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

152
287

LIC-40-8.67

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



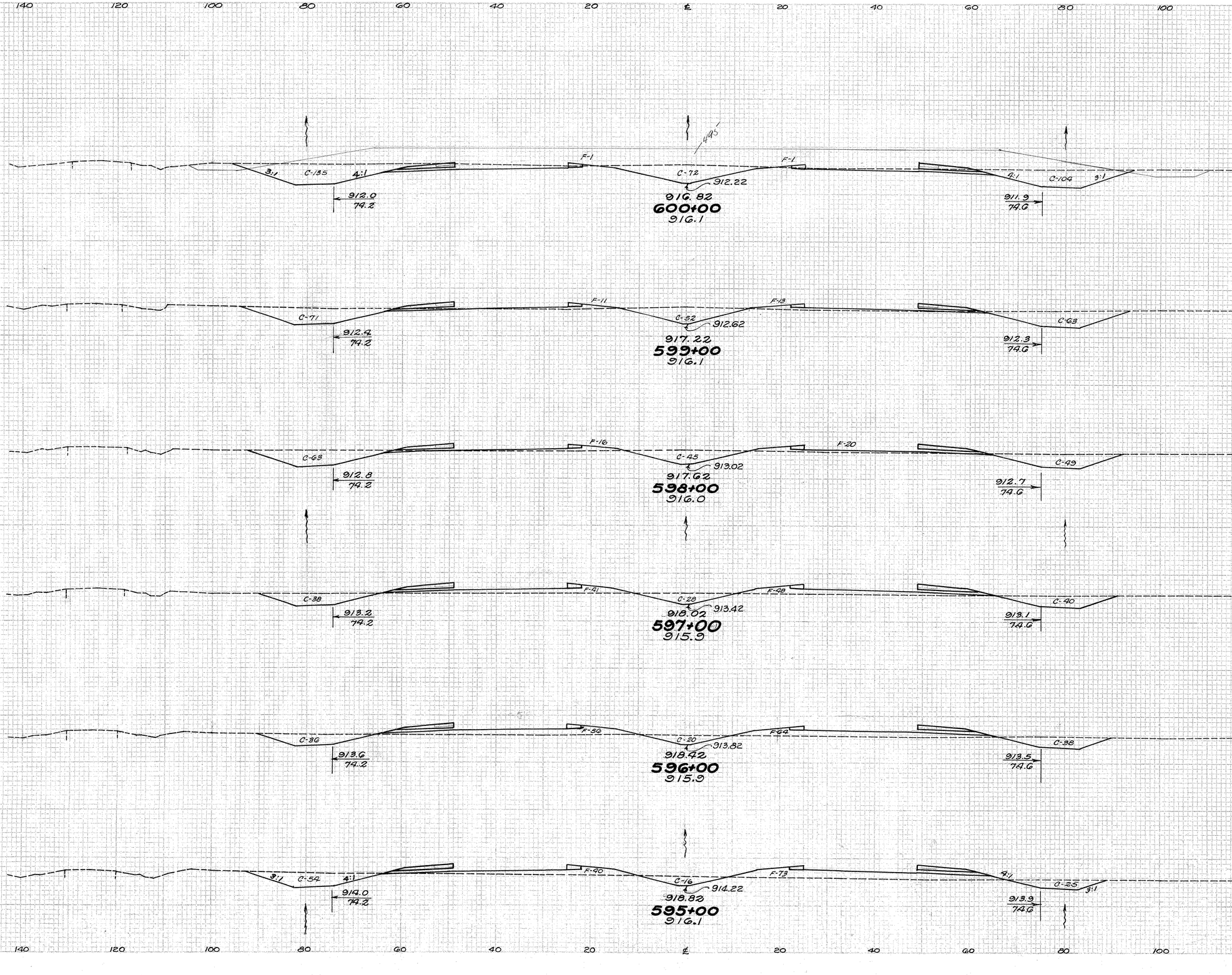
END AREA		C.U. YDS.	
CUT.	FILL.	CUT	FILL
119	96		
		372	400
82	120		
		219	674
36	244		
		142	893
42	238		
		181	826
56	208		
		217	696
61	141		
		250	513

589+00 ~ 594+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FEDRS
2	OHIO		

153
287

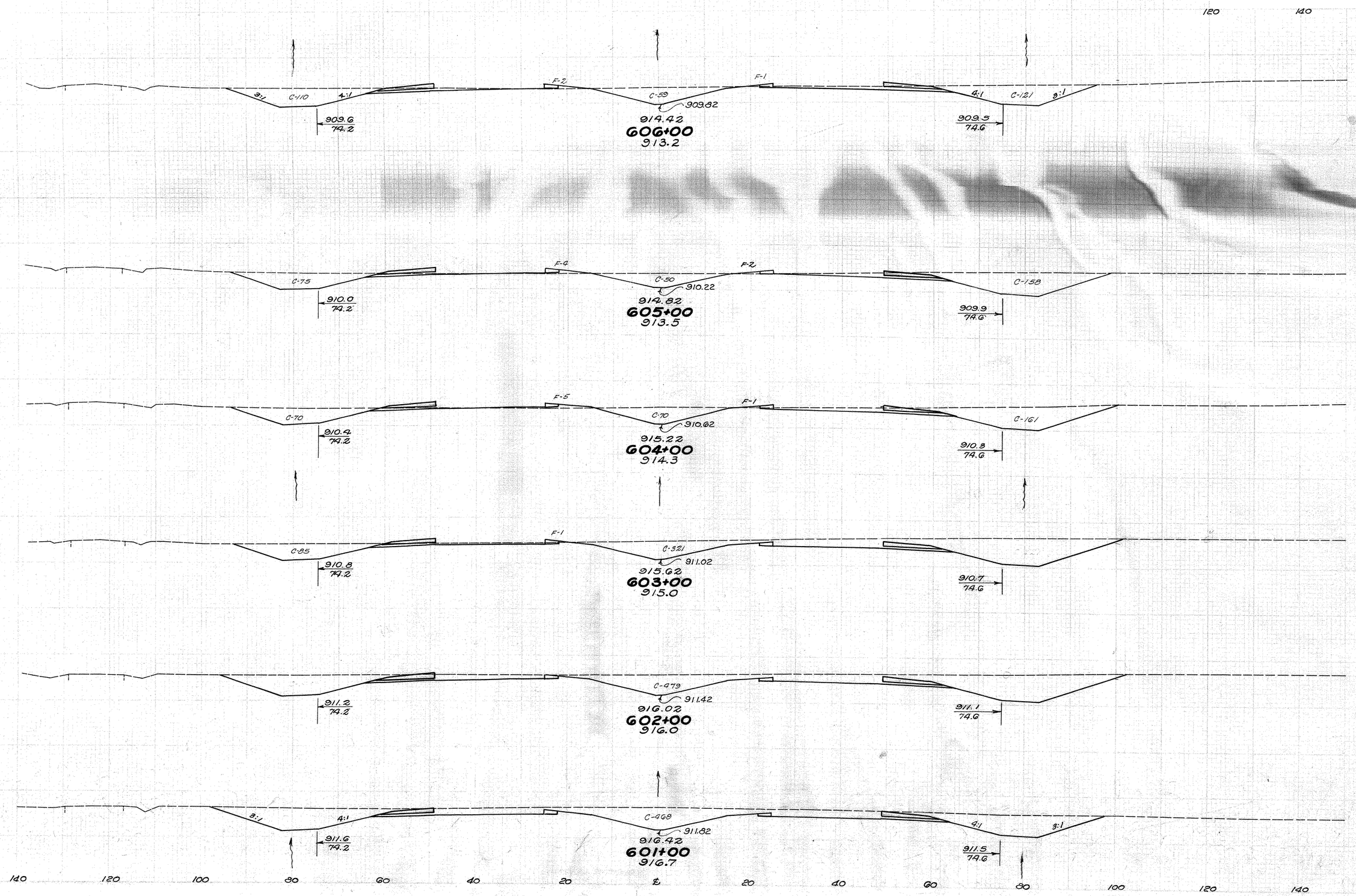
LIC-40-8.67



	END AREA		CU. YDS.	
	CUT.	FILL	CUT	FILL
	311	2		
			920	48
	186	24		
			635	111
	157	36		
			487	231
	106	89		
			370	387
	94	120		
			350	431
	95	113		
			396	387

595+00 ~ 600+00

LIC-40-8.67



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
290	3		
		1061	17
283	6		
		1081	22
301	6		
		1309	13
406	1		
		1639	2
479	0		
		1754	0
468	0		
		1443	4

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

155
28

LIC-40-8.67

120 140

907.30
73.8
C-91
3:1
4:1
C-80
907.42
912.02
612+00
911.5
4:1
C-140
3:1
906.8
75.8

907.68
73.9
C-384
907.82
912.42
611+00
912.2
907.3
75.4

908.06
74.0
C-137
C-82
908.22
912.82
610+00
912.2
907.9
74.6
C-166

908.44
74.0
C-154
F-1
908.62
C-74
913.22
609+00
912.4
908.3
74.6
C-105

908.82
74.1
C-110
F-2
F-1
909.02
C-59
913.62
608+00
912.5
909.7
74.6
C-105

909.2
74.2
3:1
C-94
4:1
F-4
F-1
C-56
909.42
914.02
607+00
912.0
909.1
74.6
4:1
C-122
3:1

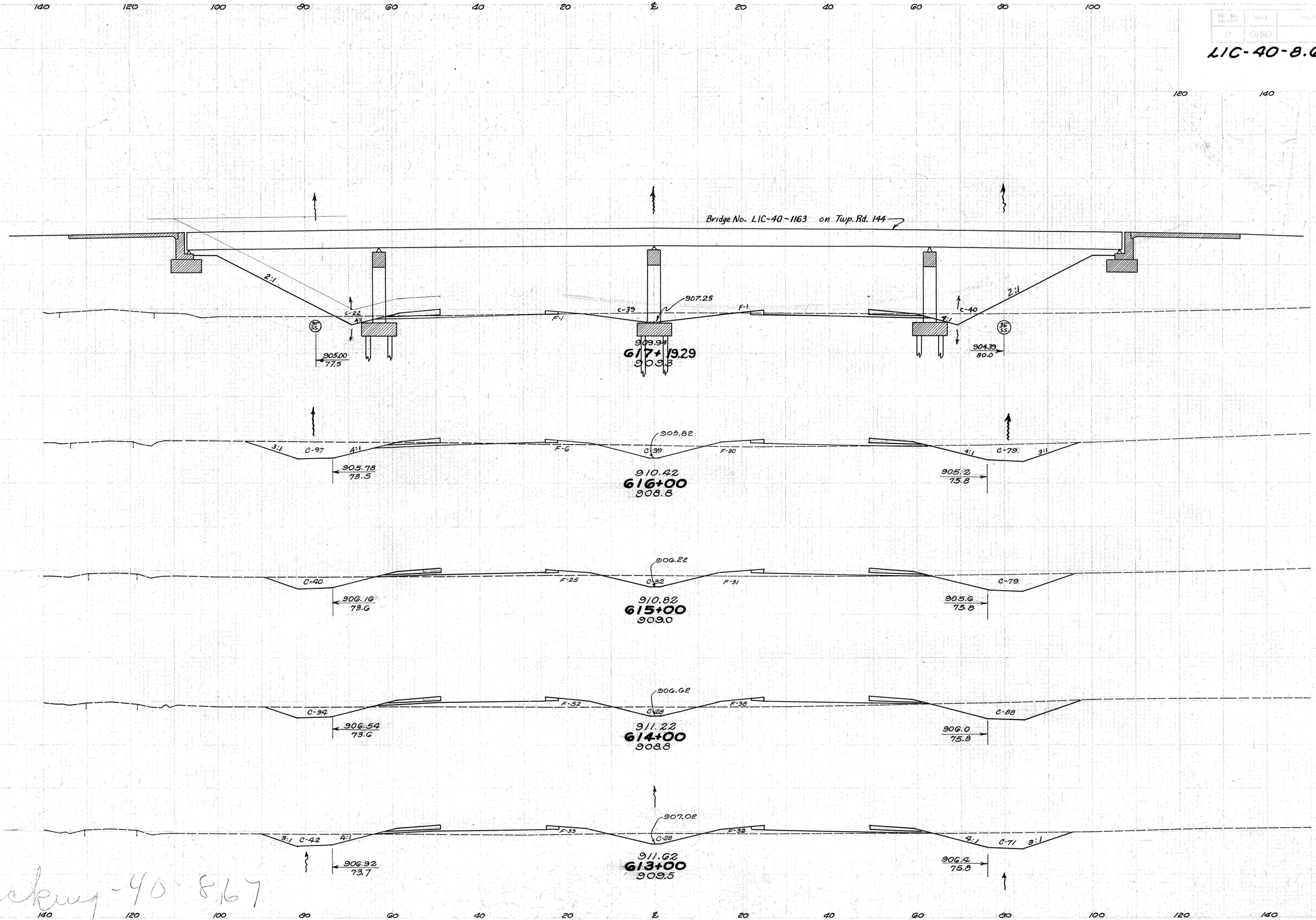
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
311	0		
		1287	0
384	0		
		1424	0
385	0		
		1330	2
333	1		
		1124	7
274	3		
		1011	15
272	5		
		1091	15

607+00 ~ 612+0

156
287

LIC-40-8.67



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
		330	199
101	2		
		698	84
215	36		
		678	170
151	56		
		557	270
150	90		
		539	298
141	71		
		837	131

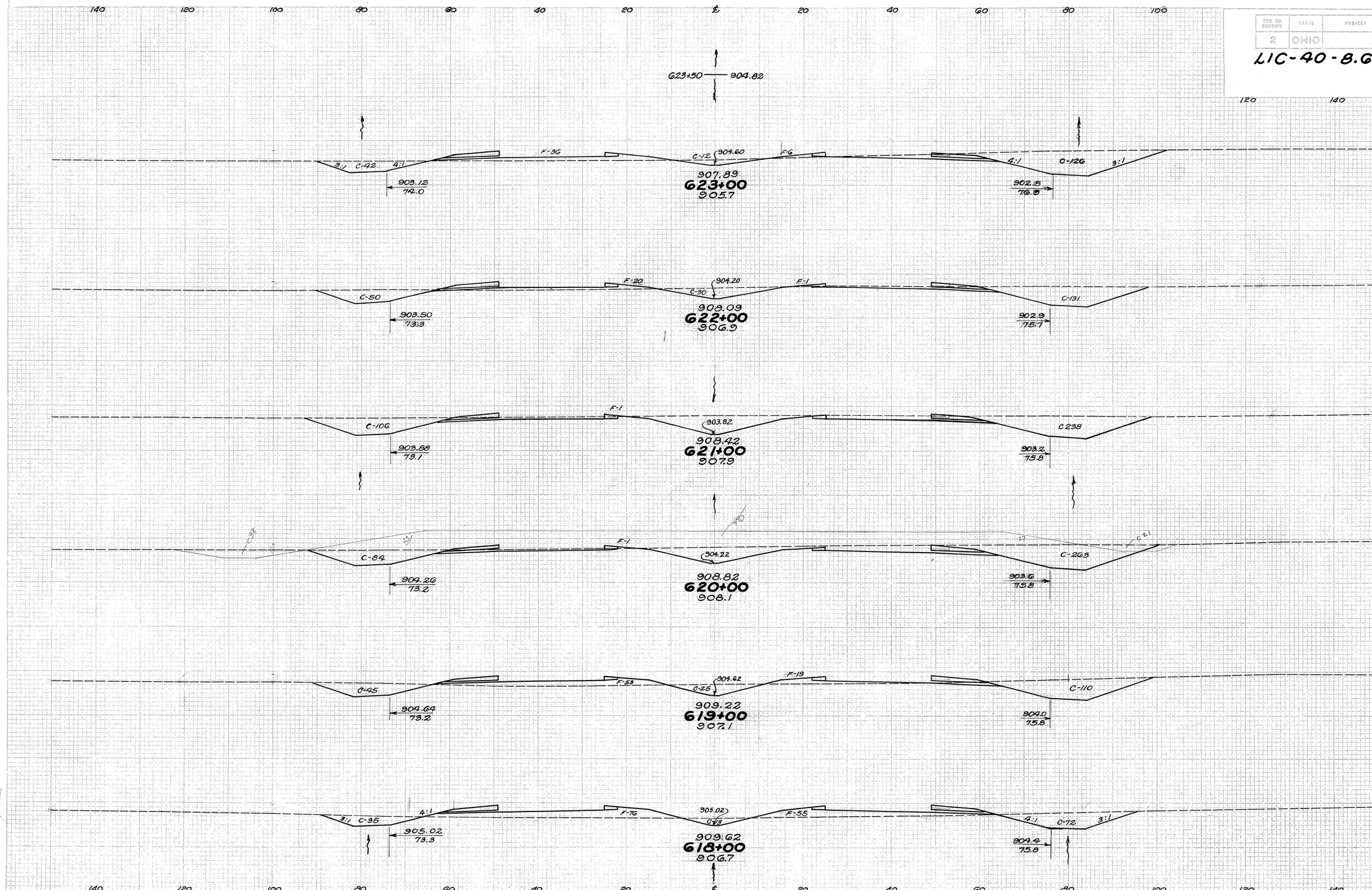
Licking-40-8.67

613+00 ~ 617+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

157
287

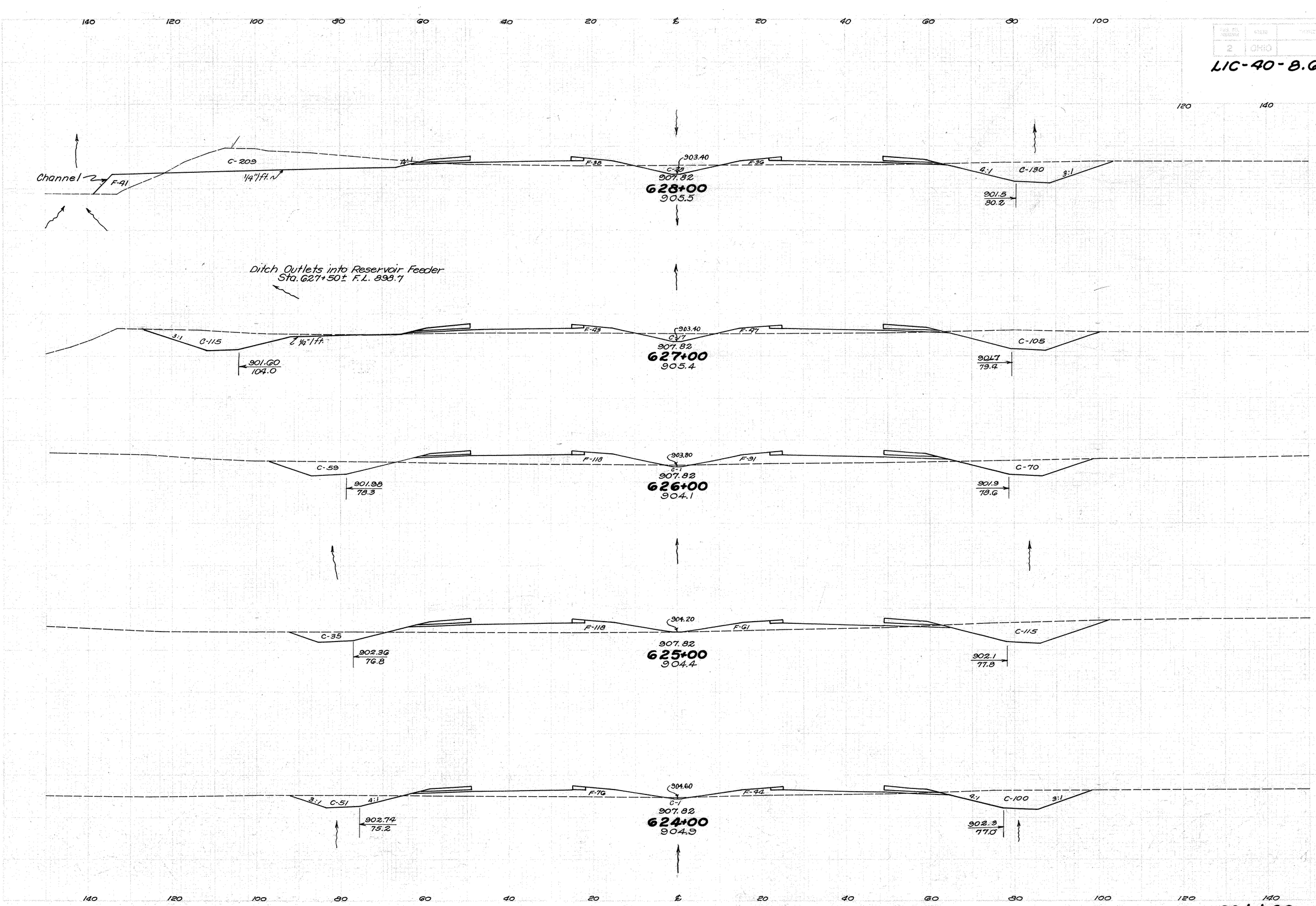
LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
180	42		
		724	117
211	21		
		1028	41
344	1		
		1280	4
347	1		
		976	135
180	72		
		556	376
120	131		

618+00 ~ 623+00

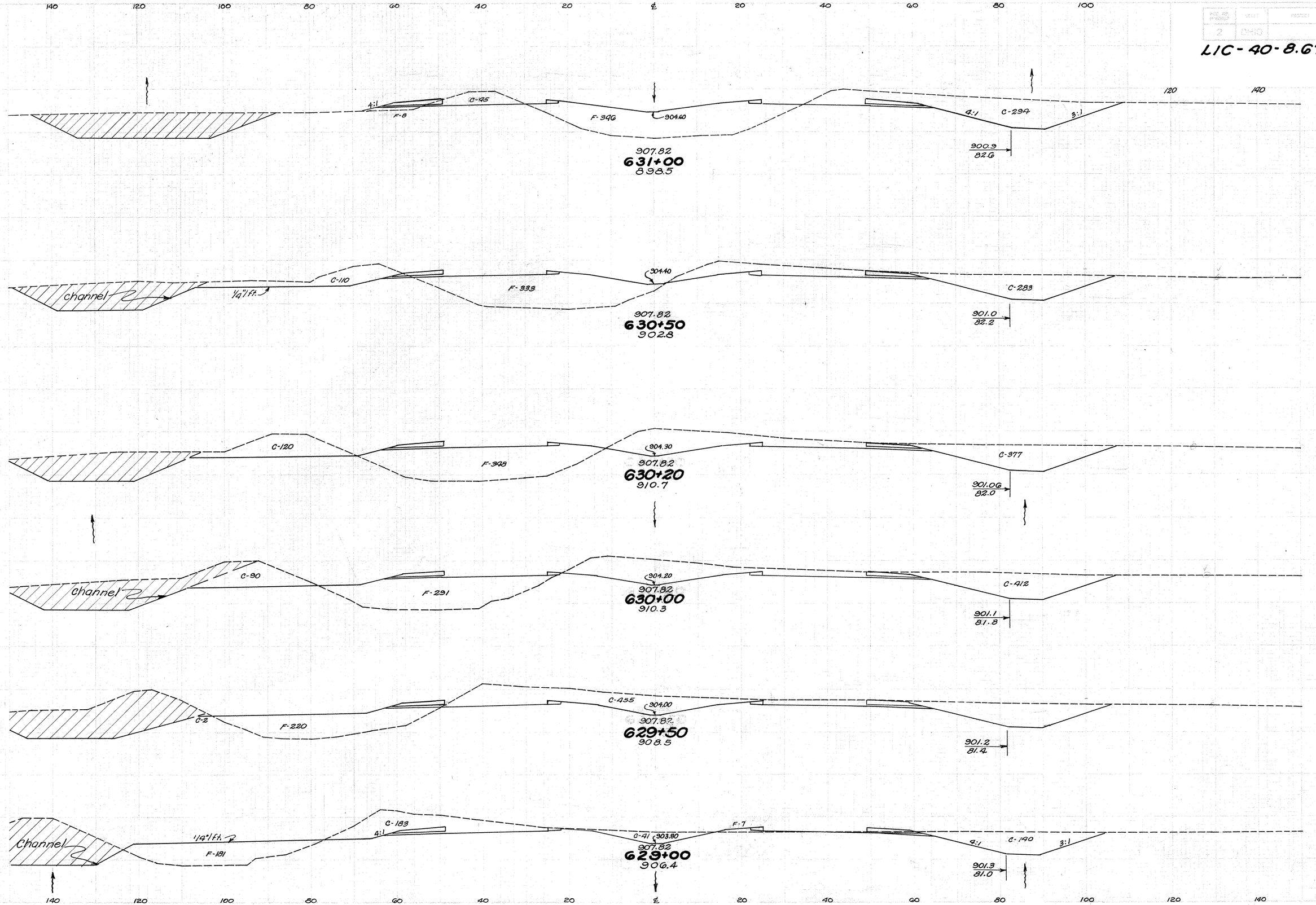
LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
367	115		
		1087	380
220	90		
		648	554
130	209		
		519	718
150	179		
		559	554
152	120		
		615	300

624+00 ~ 628+00

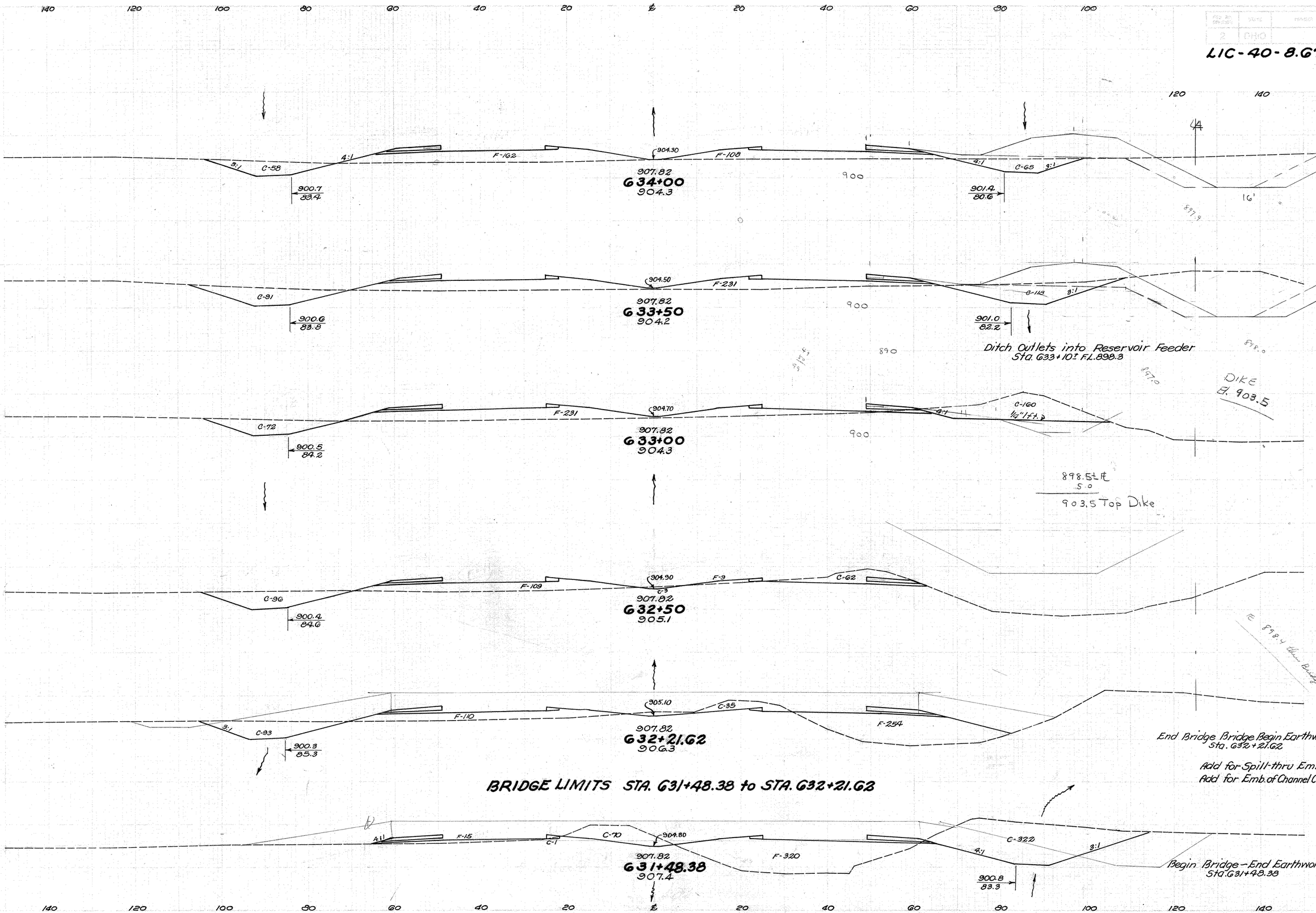
LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
339	354		
		678	636
393	333		
		494	378
497	348		
		370	237
502	291		
		888	473
457	220		
		760	378
364	188		
		1354	561

629+00 ~ 631+00

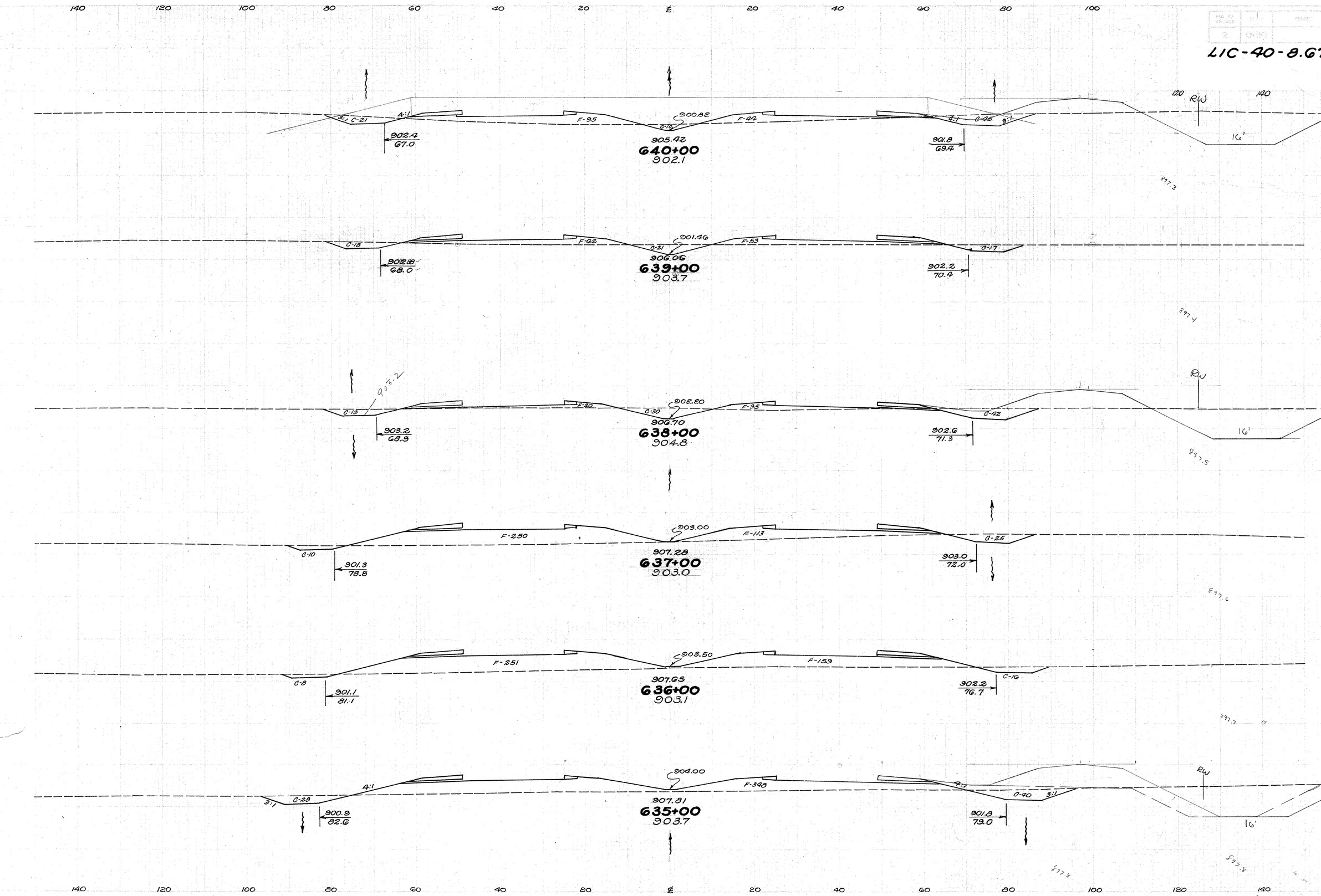
LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
123	270		
		307	464
209	231		
		408	428
232	231		
		364	323
161	118		
		152	253
128	364		
			92
			833
393	335		
		656	617

631+48.38 ~ 634+00

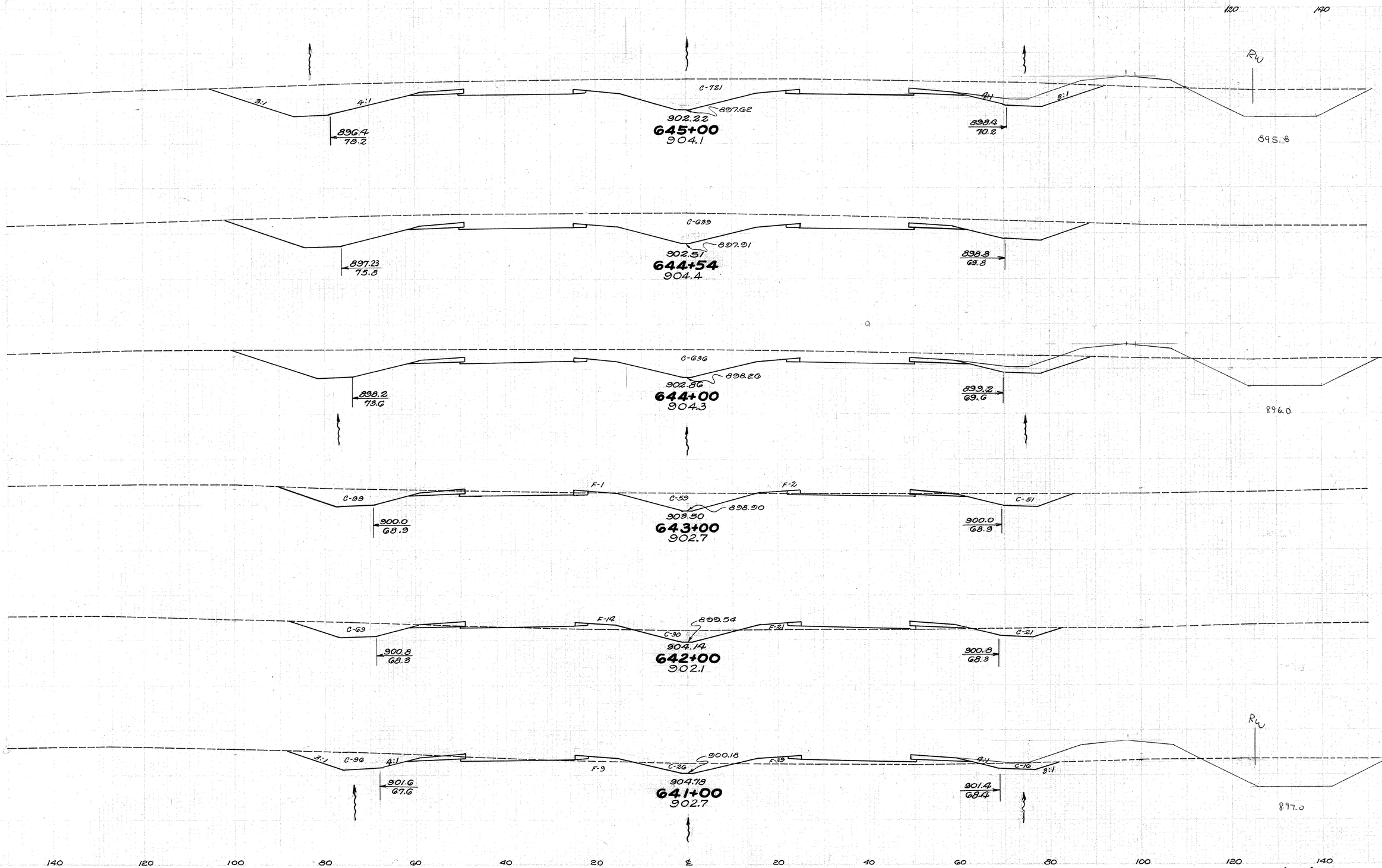
LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
76	139		
		244	470
56	115		
		272	315
91	55		
		233	774
35	363		
		109	1431
24	410		
		170	1404
68	348		
		354	1144

635+00 ~ 640+00

LIC-40-8.67



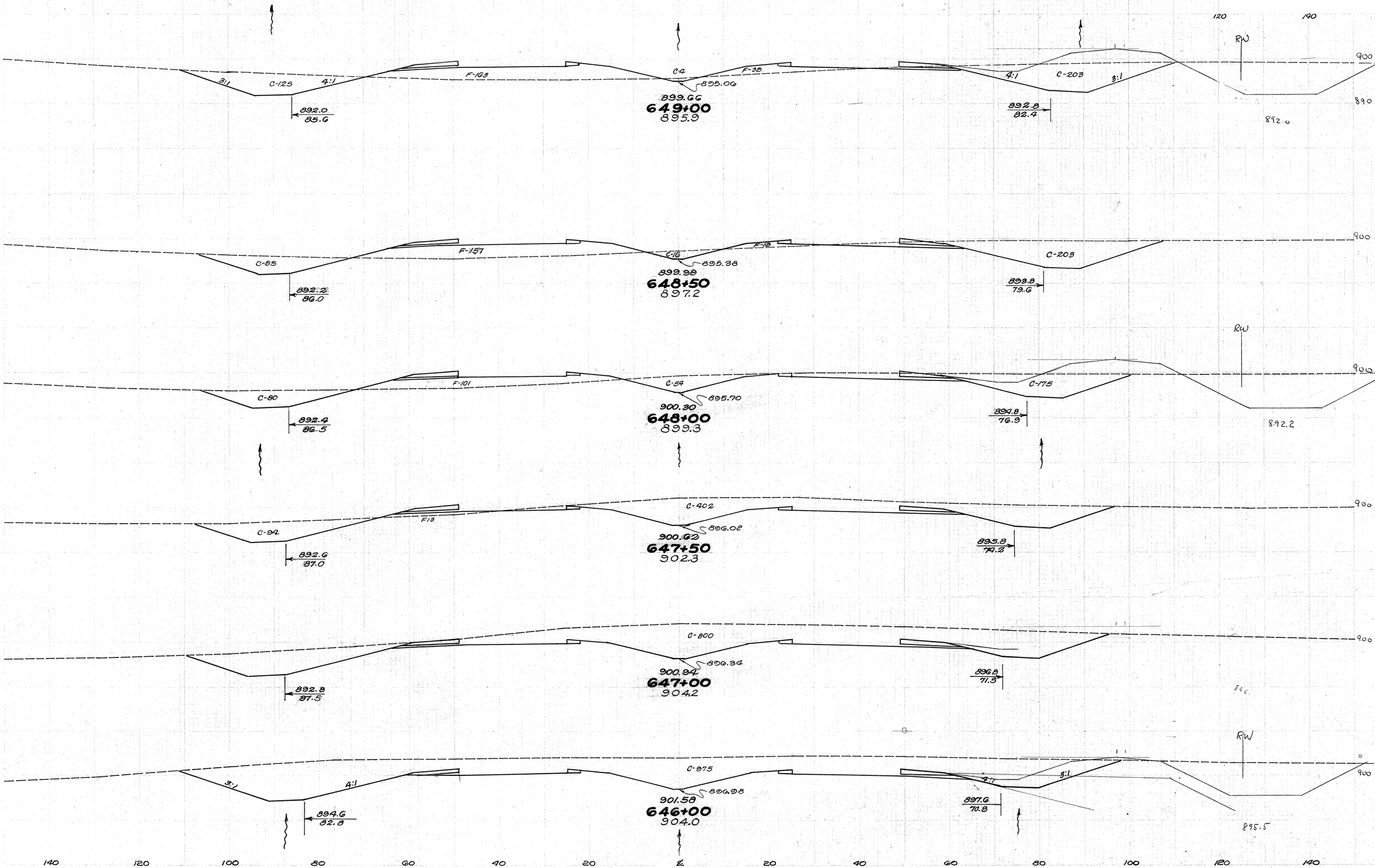
END AREA CUT	END AREA FILL	CU.YDS. CUT	CU.YDS. FILL
721	0		
		1159	0
639	0		
		1275	0
636	0		
		1565	6
209	3		
		609	70
120	35		
		478	154
138	48		
		396	346

641+00 ~ 645+00

SHEET NO.	STATE	PROJECT	FILE
2	OHIO		

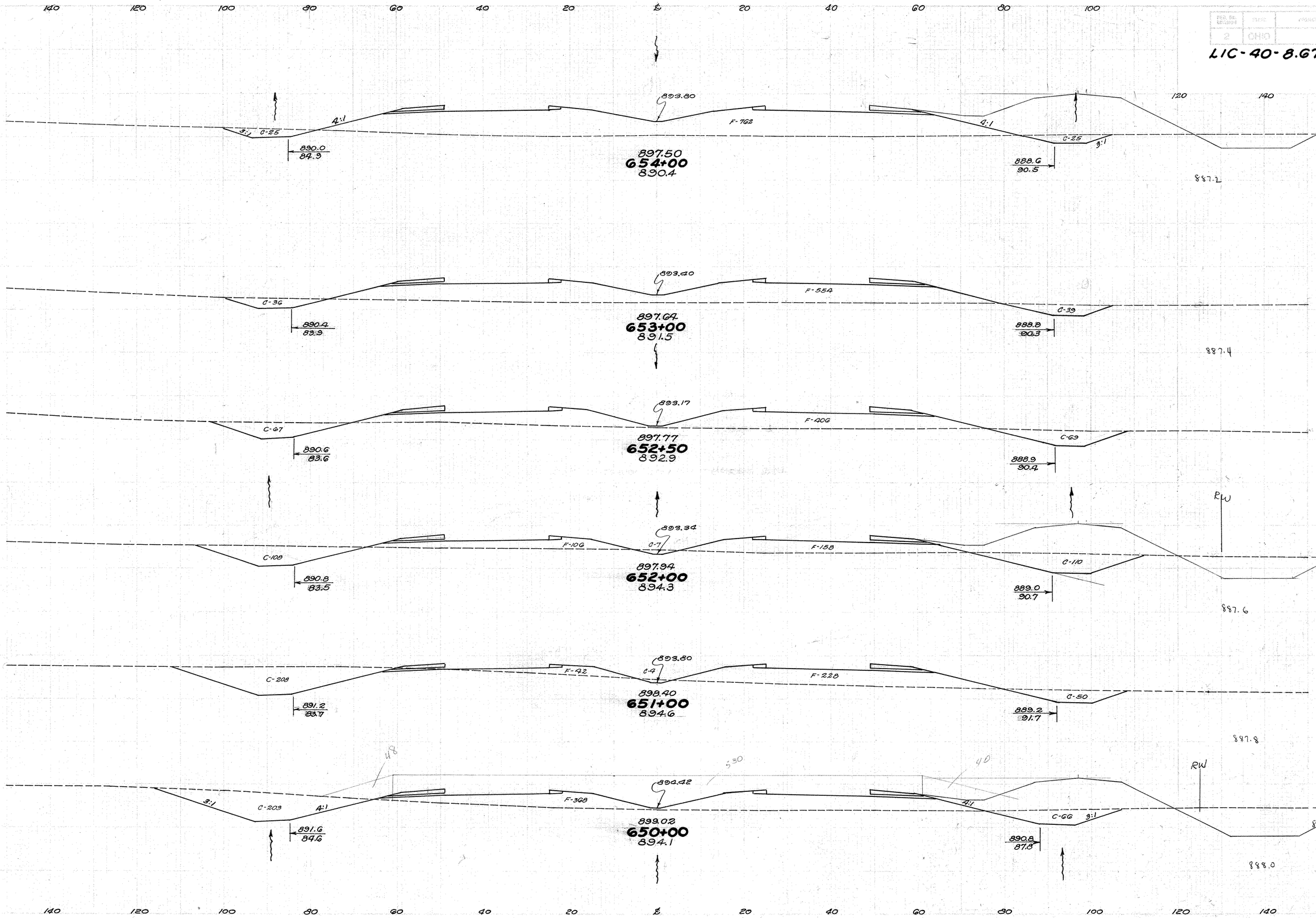
163
287

LIC-40-8.67



646+00 ~ 649+00

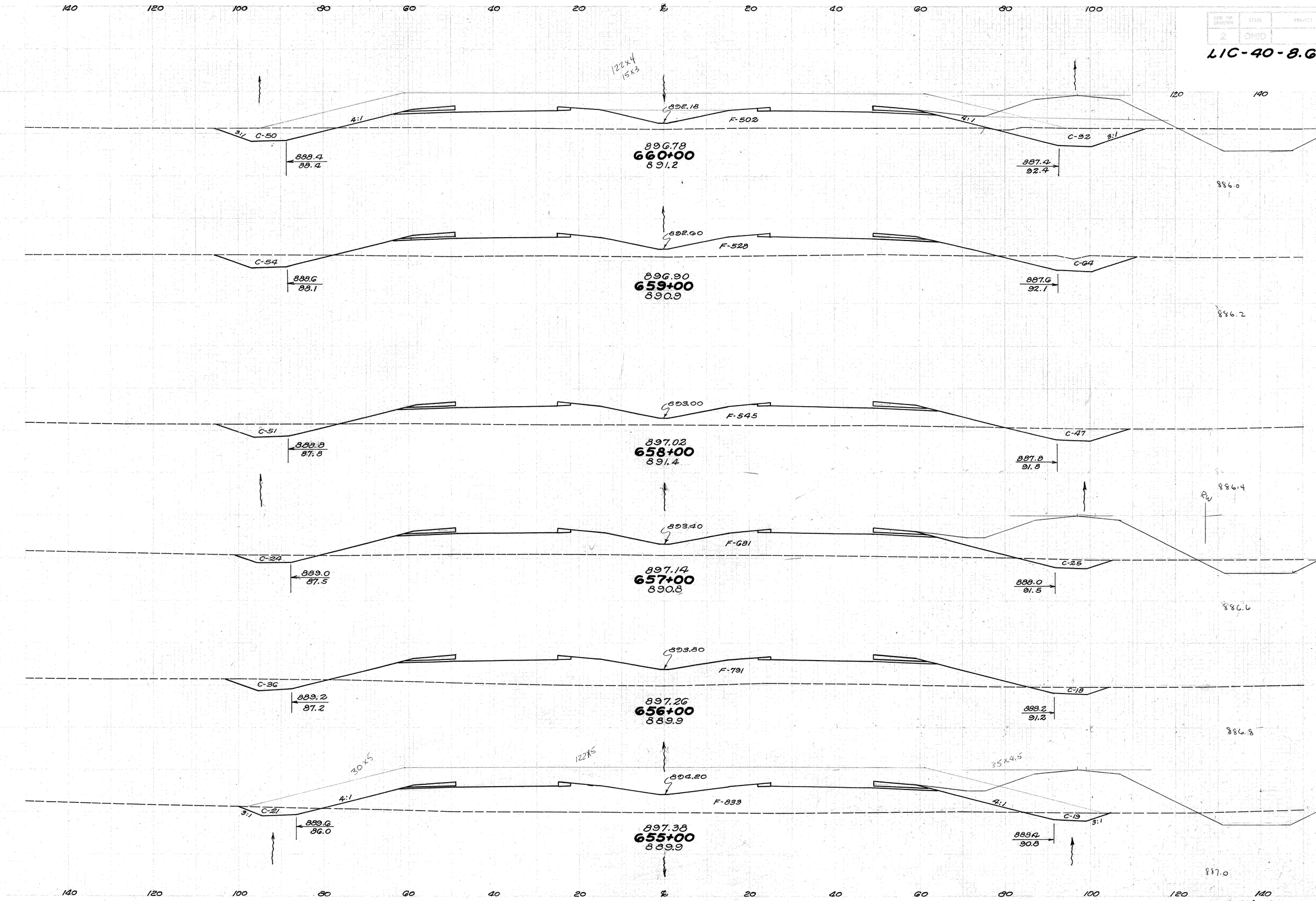
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
50	762		
		231	2437
75	554		
		195	889
136	406		
		334	620
225	264		
		902	989
262	270		
		983	1181
269	368		
		1113	1054

650+00 ~ 654+00

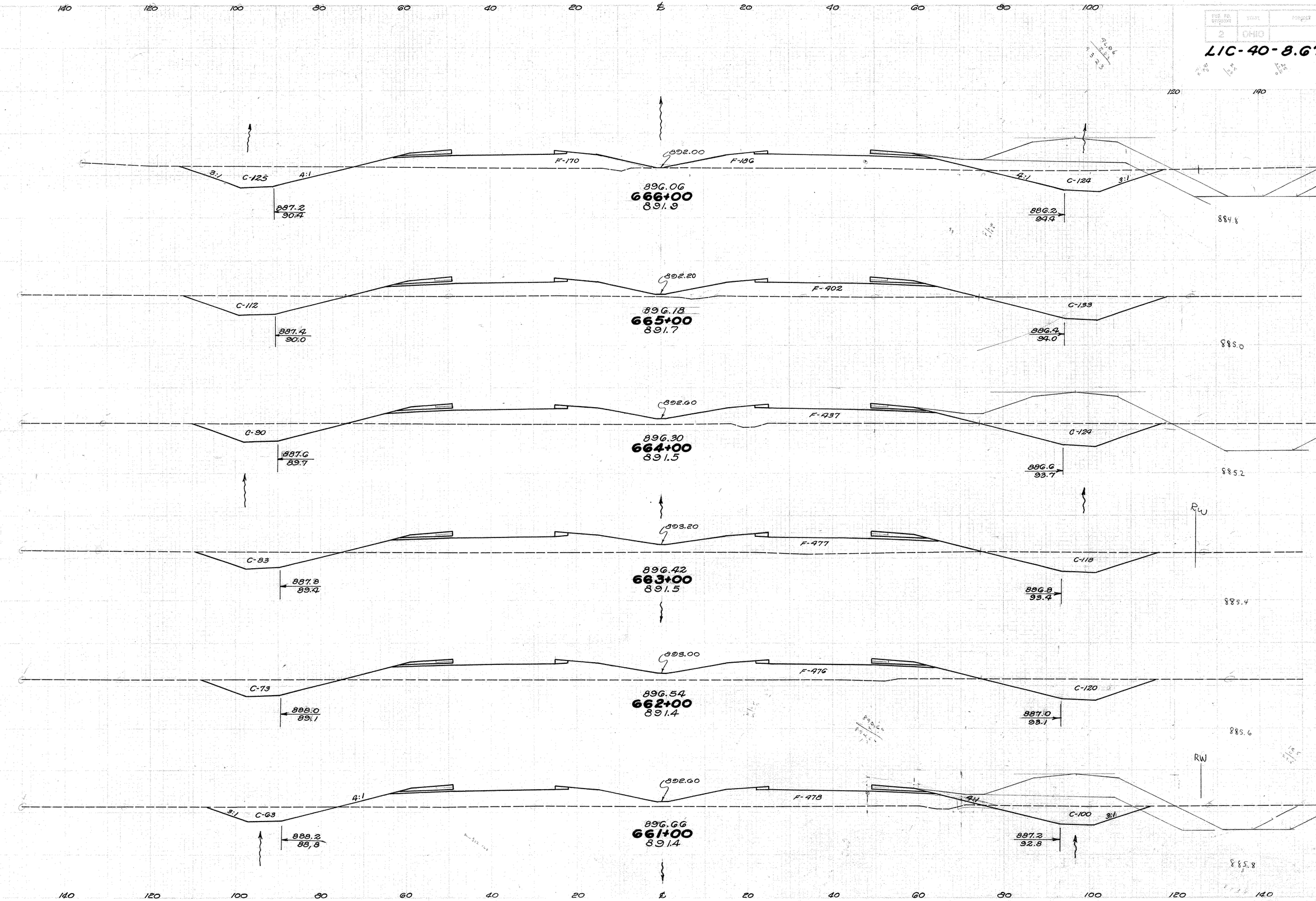
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
142	502		
		481	1908
118	528		
		400	1987
98	545		
		272	2271
49	681		
		191	2726
54	791		
		174	3008
40	833		
		167	2954

655+00 ~ 660+00

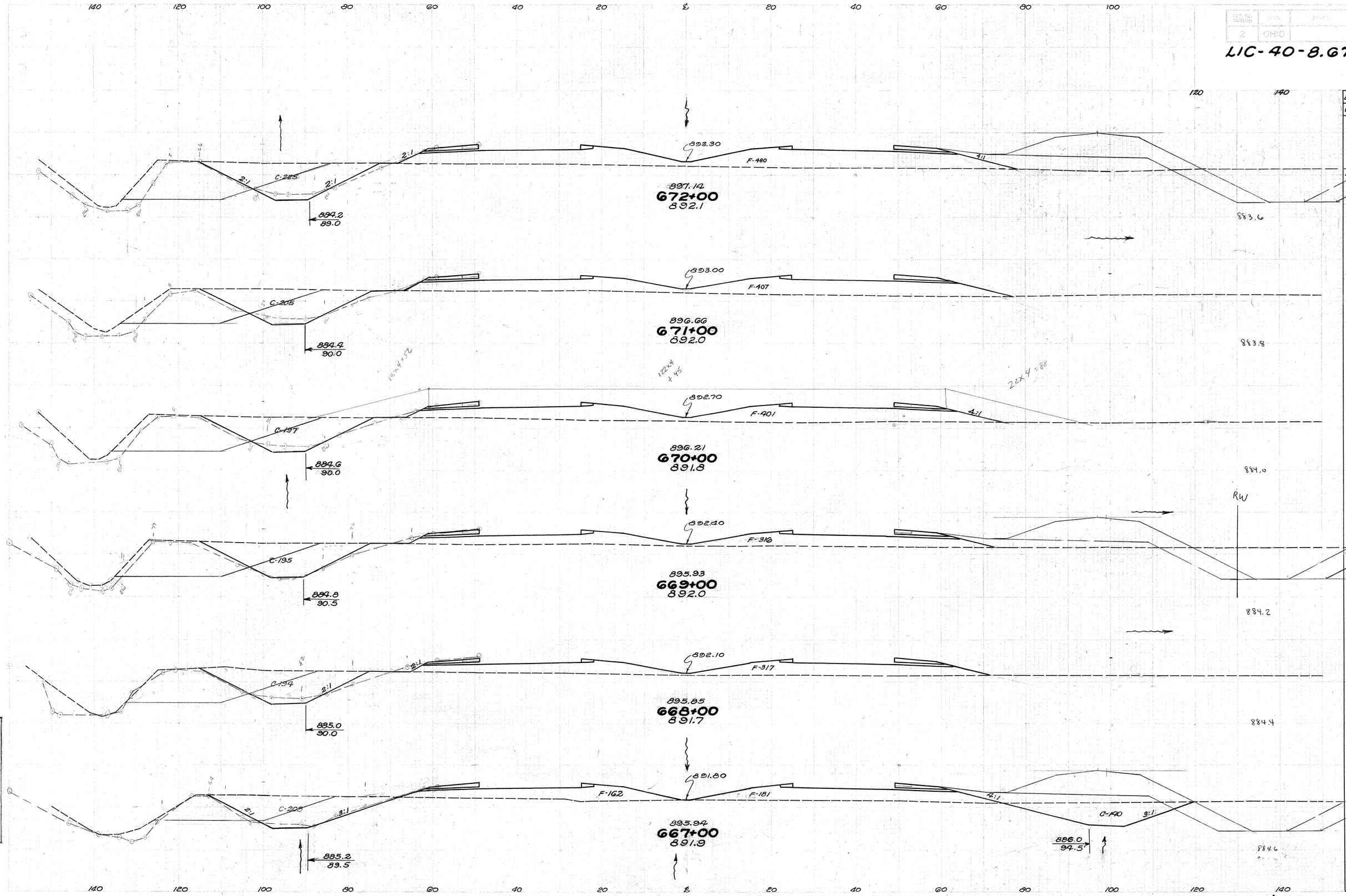
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
249	356		
		915	1404
245	402		
		850	1554
214	437		
		769	1693
201	477		
		730	1765
193	476		
		659	1767
163	478		
		565	1815

661+00 ~ 666+00

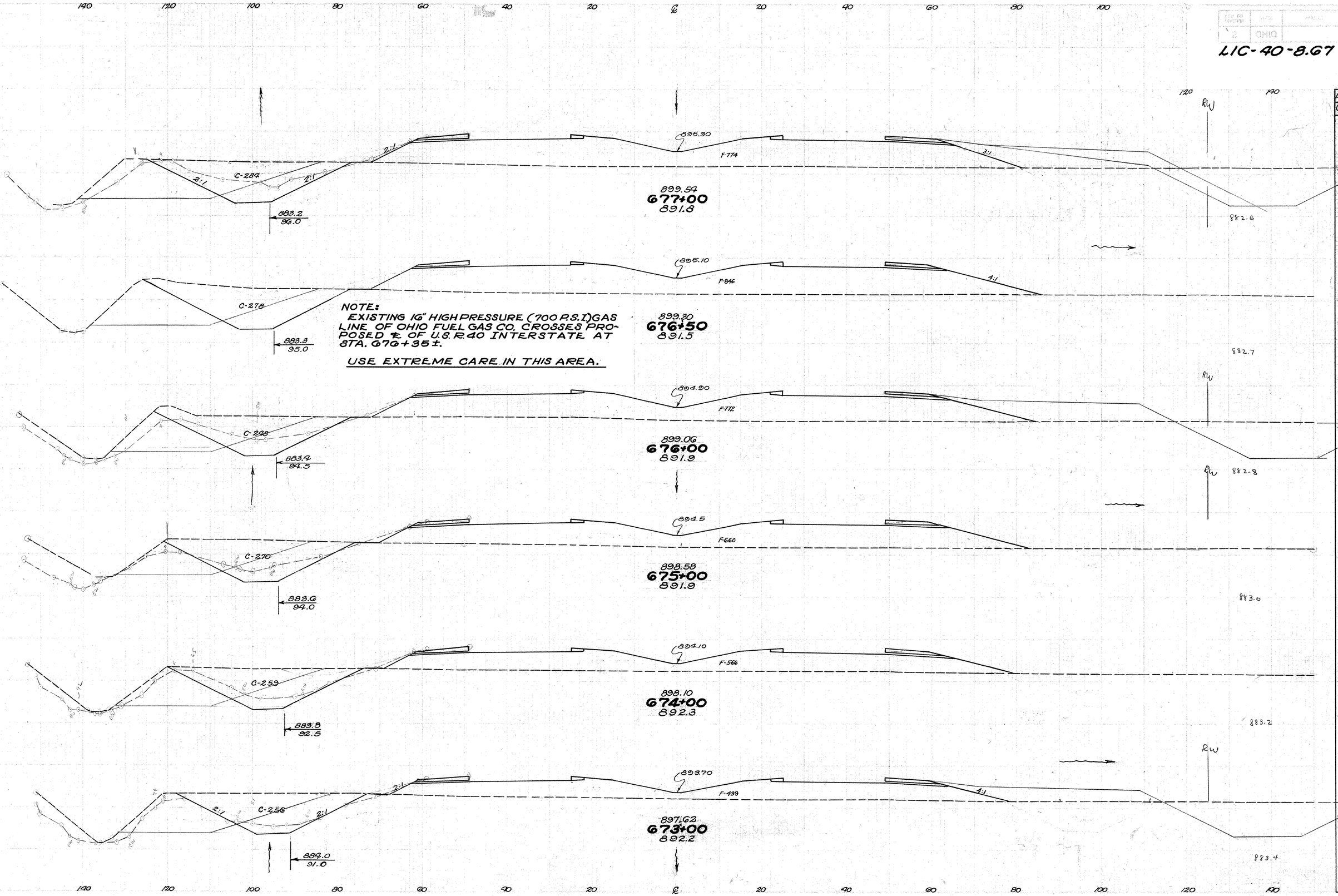
LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
225	480		
		796	1643
205	407		
		744	1496
197	401		
		726	1328
195	316		
		720	1172
194	317		
		994	1222
343	343		
		1096	1294

667+00 ~ 672+00

LIC-40-8.67



NOTE:
EXISTING 16" HIGH PRESSURE (700 P.S.I.) GAS LINE OF OHIO FUEL GAS CO. CROSSES PROPOSED ℄ OF U.S. R.40 INTERSTATE AT STA. 676+35±.

USE EXTREME CARE IN THIS AREA.

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
284	774		
		520	1500
278	846		
		487	1498
248	772		
		959	2652
270	660		
		980	2270
259	566		
		954	1972
256	499		
		891	1813

673+00 ~ 677+0

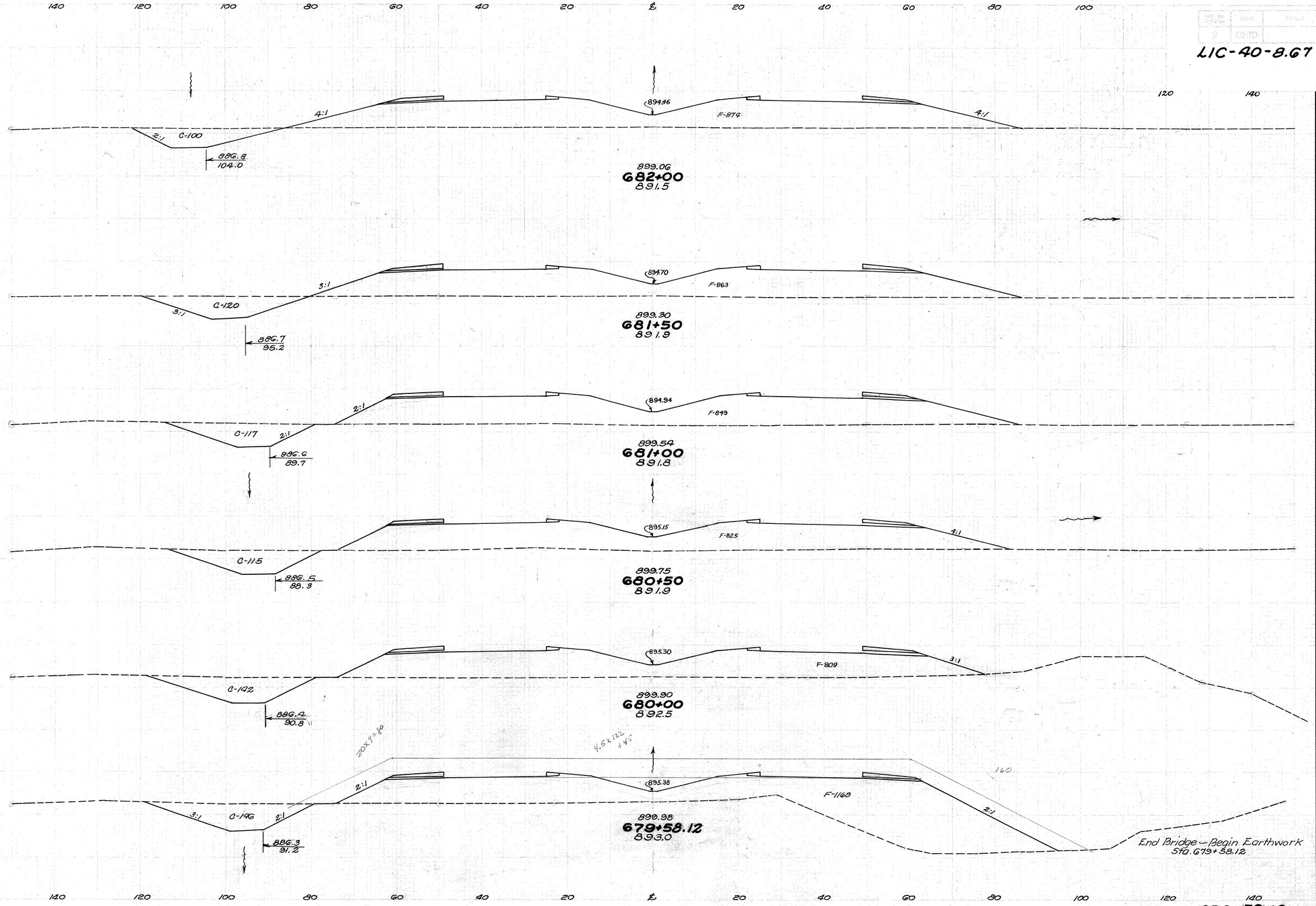
169
287

LIC-40-8.67

End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
			169
0	733		
		414	1889
320	729		
		559	1387

677+50 ~ 678+19.88

LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
100	874		
		204	1608
120	863		
		219	1585
117	849		
		215	1550
115	825		
		238	1513
142	809		
		224	1538
146	1168		

679+58.12 ~ 682+00

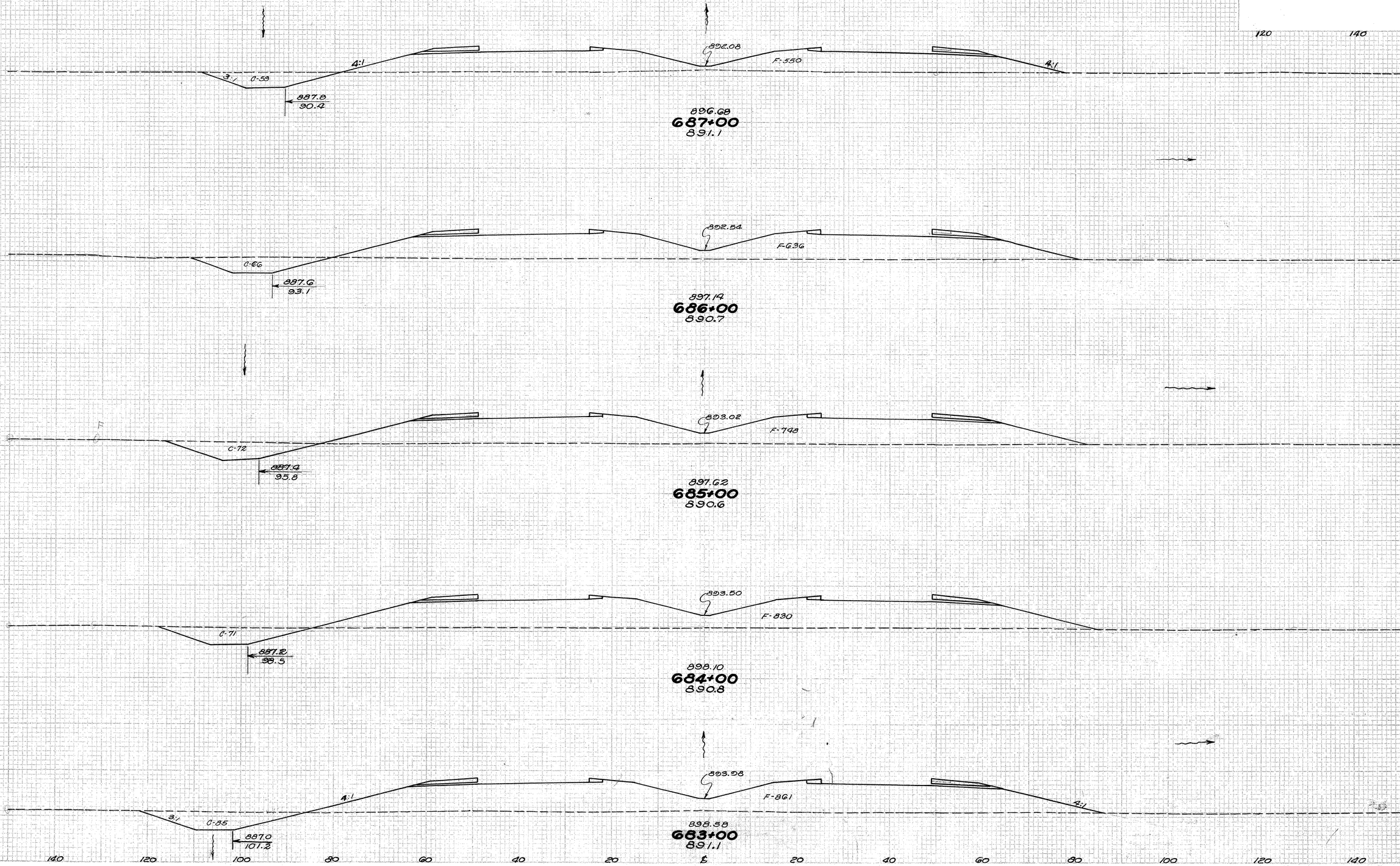
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	171 / 287
2	OHIO			

LIC-40-8.67

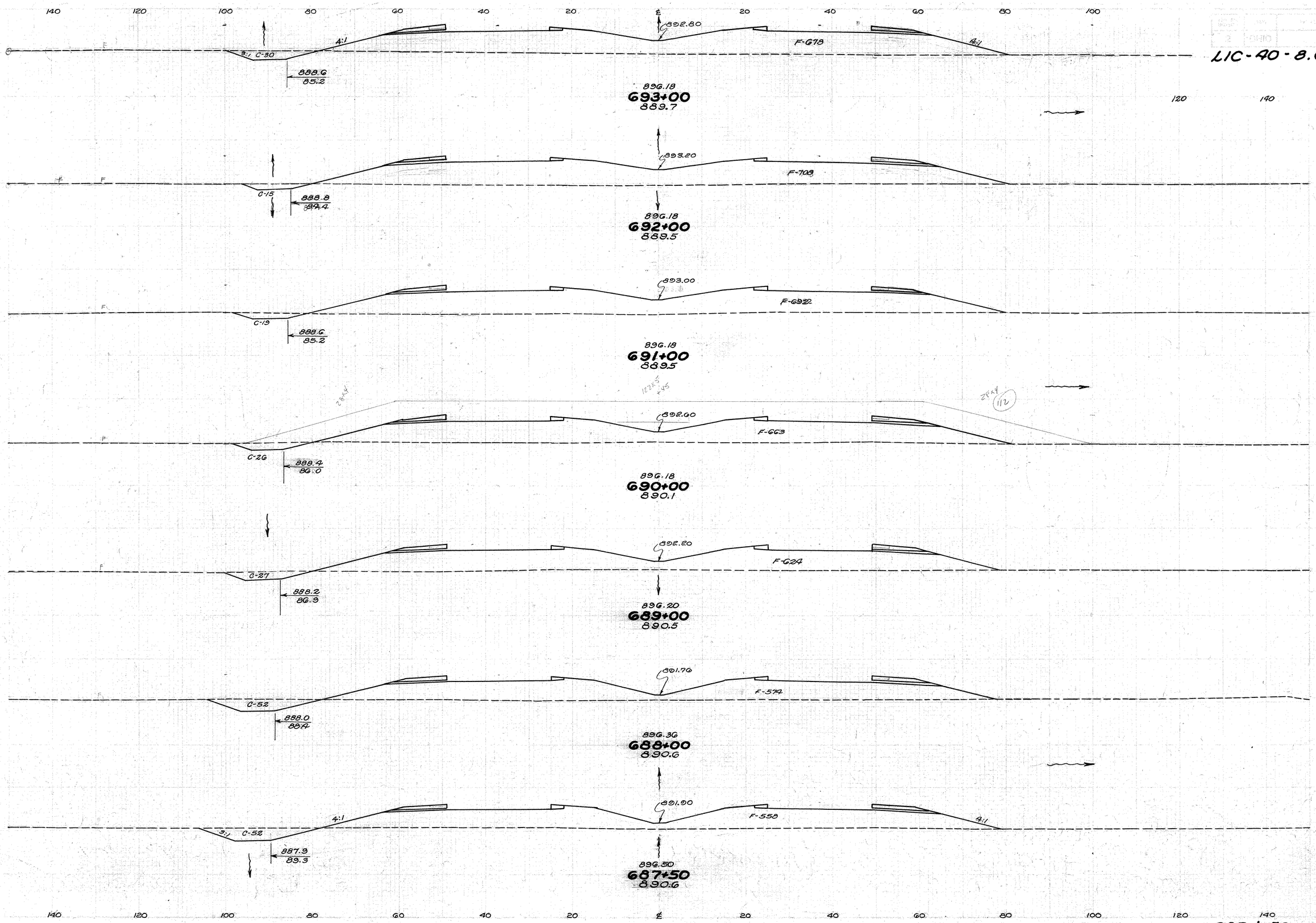
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

	End Area		Cu Yds.	
	Cut	Fill	Cut	Fill
	59	550		
			231	2196
	66	636		
			256	2563
	72	748		
			265	2922
	71	830		
			289	3132
	85	861		
			343	3213

683+00 ~ 687+00



LIC-40-8.67

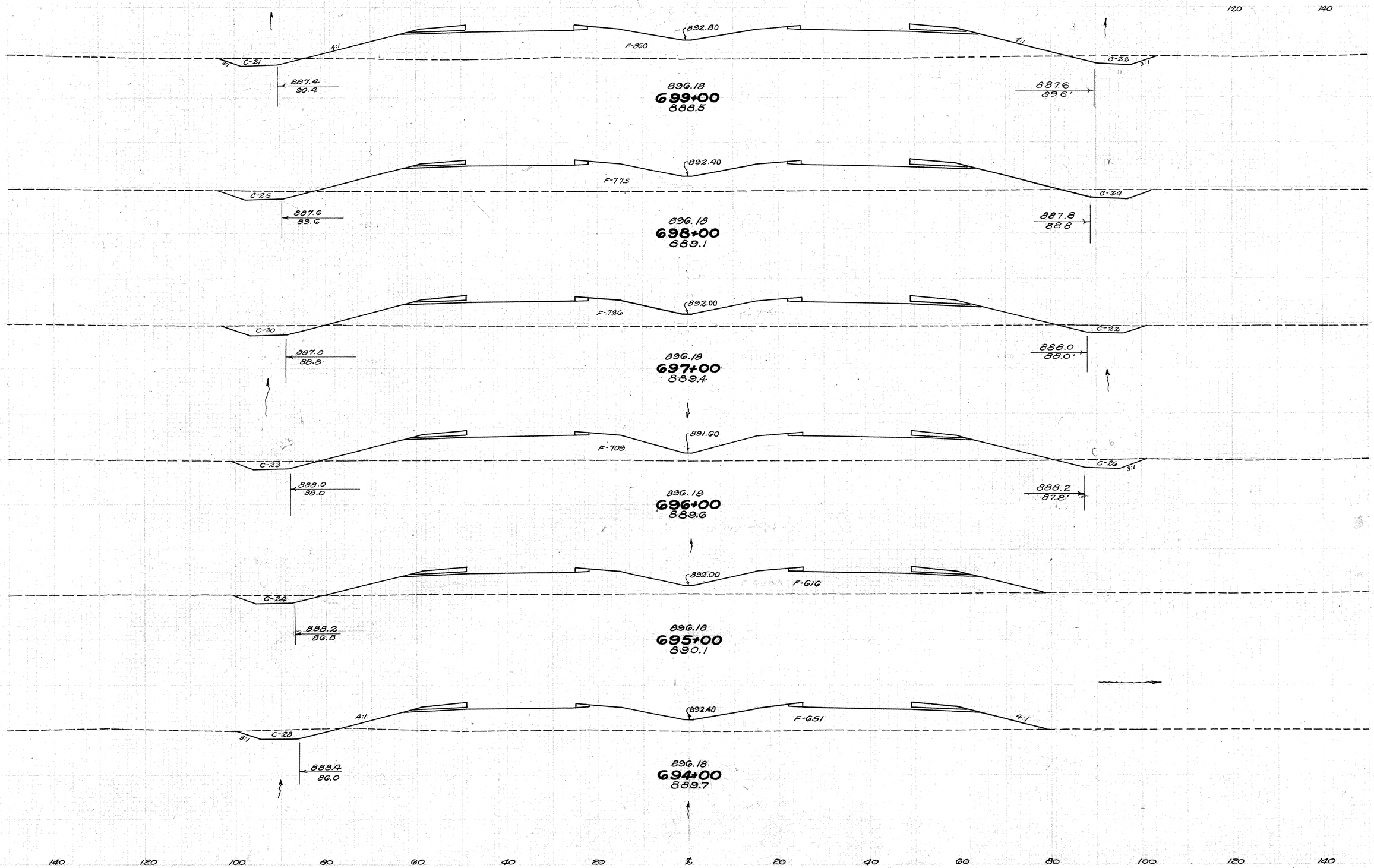


End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
30	678		
		83	2567
15	708		
		63	2593
19	692		
		83	2509
26	663		
		98	2383
27	624		
		146	2219
52	574		
		96	1048
52	558		
		103	1026

687+50 ~ 693+00

LIC-40-8.67

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

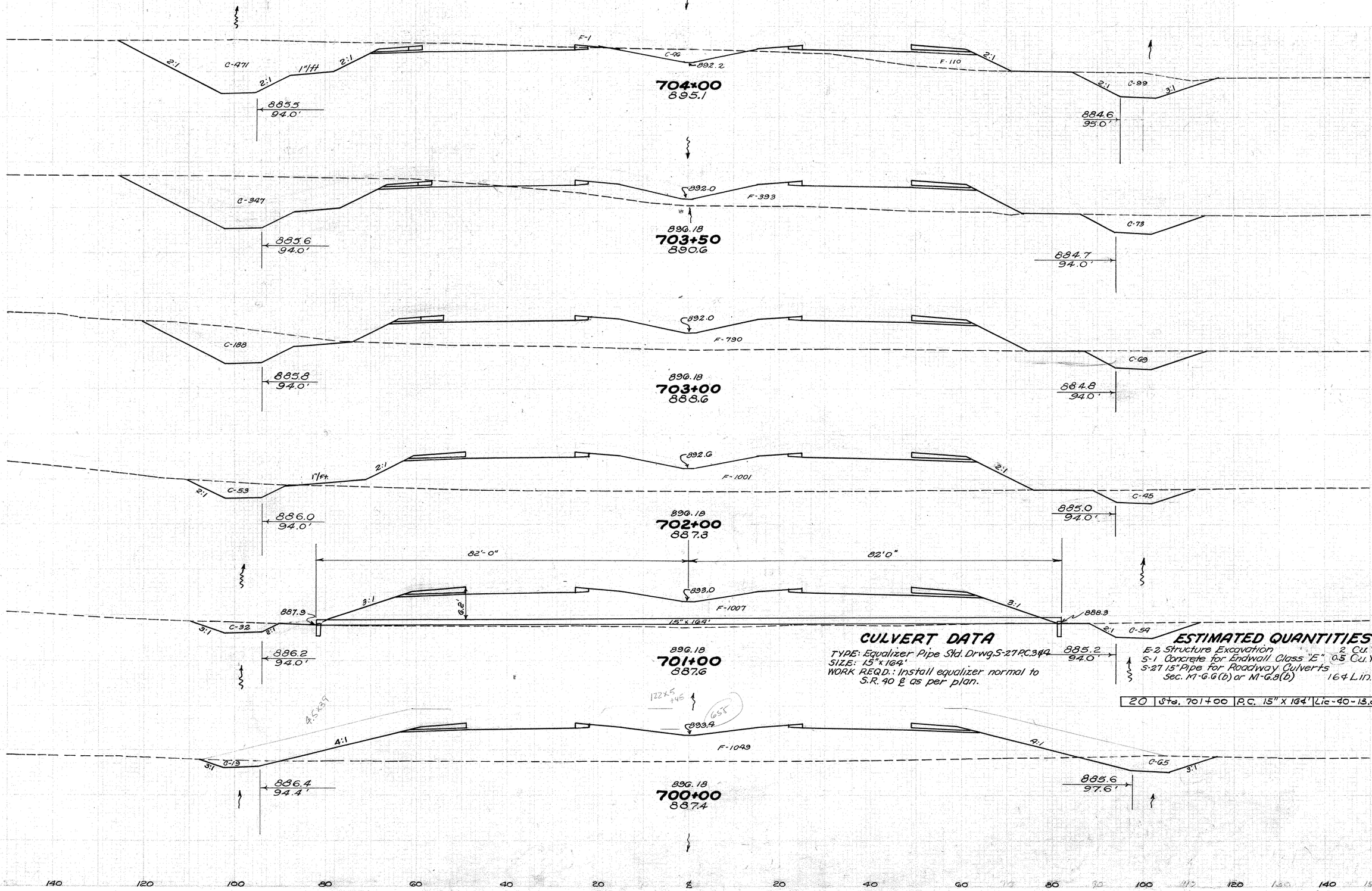


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
43	860		
		170	3028
49	775		
		187	2798
52	736		
		187	2676
49	709		
		135	2454
24	616		
		96	2340
28	651		
		107	2461

694+00 ~ 699+00

LIC-40-8.67

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



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
616	111		
		959	467
420	393		
		627	1095
257	790		
		657	3317
98	1001		
		341	3719
86	1007		
		315	3807
84	1049		
		235	3535

CULVERT DATA

TYPE: Equalizer Pipe Std. Drwg. S-27 P.C. 3/4
SIZE: 15" x 164'
WORK REQD.: Install equalizer normal to S.R. 40 ℄ as per plan.

ESTIMATED QUANTITIES

E-2 Structure Excavation 2 Cu. Yds.
S-1 Concrete for Endwall Class "E" 0.5 Cu. Yds.
S-27 15" Pipe for Roadway Culverts
Sec. M-6.6(b) or M-6.8(b) 164 Lin. Ft.

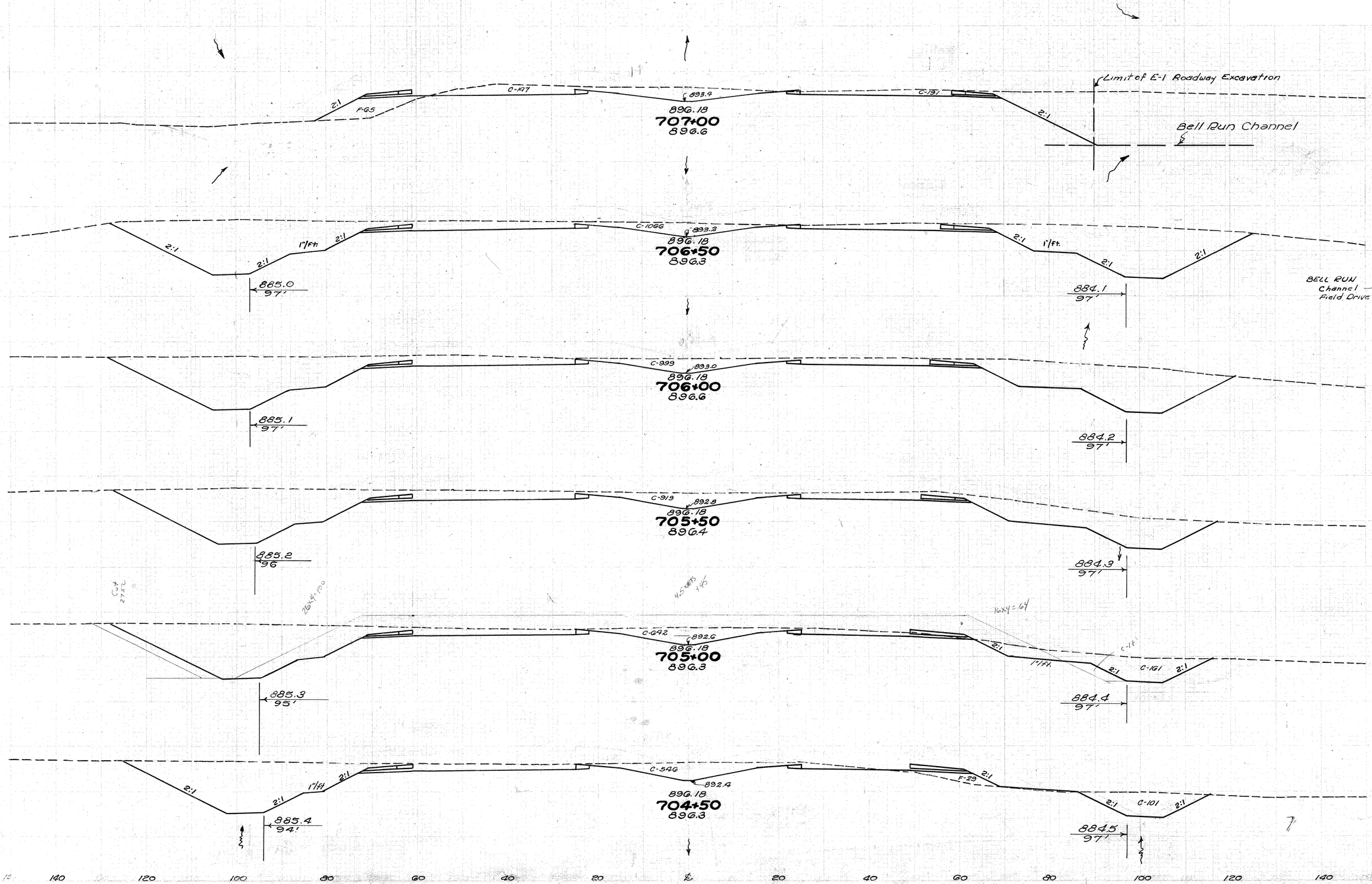
20	Sta. 701+00	P.C. 15" x 164'	Lic-40-13.22

700+00 ~ 704+00

DIST. NO. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

175
287

LIC-40-8.67

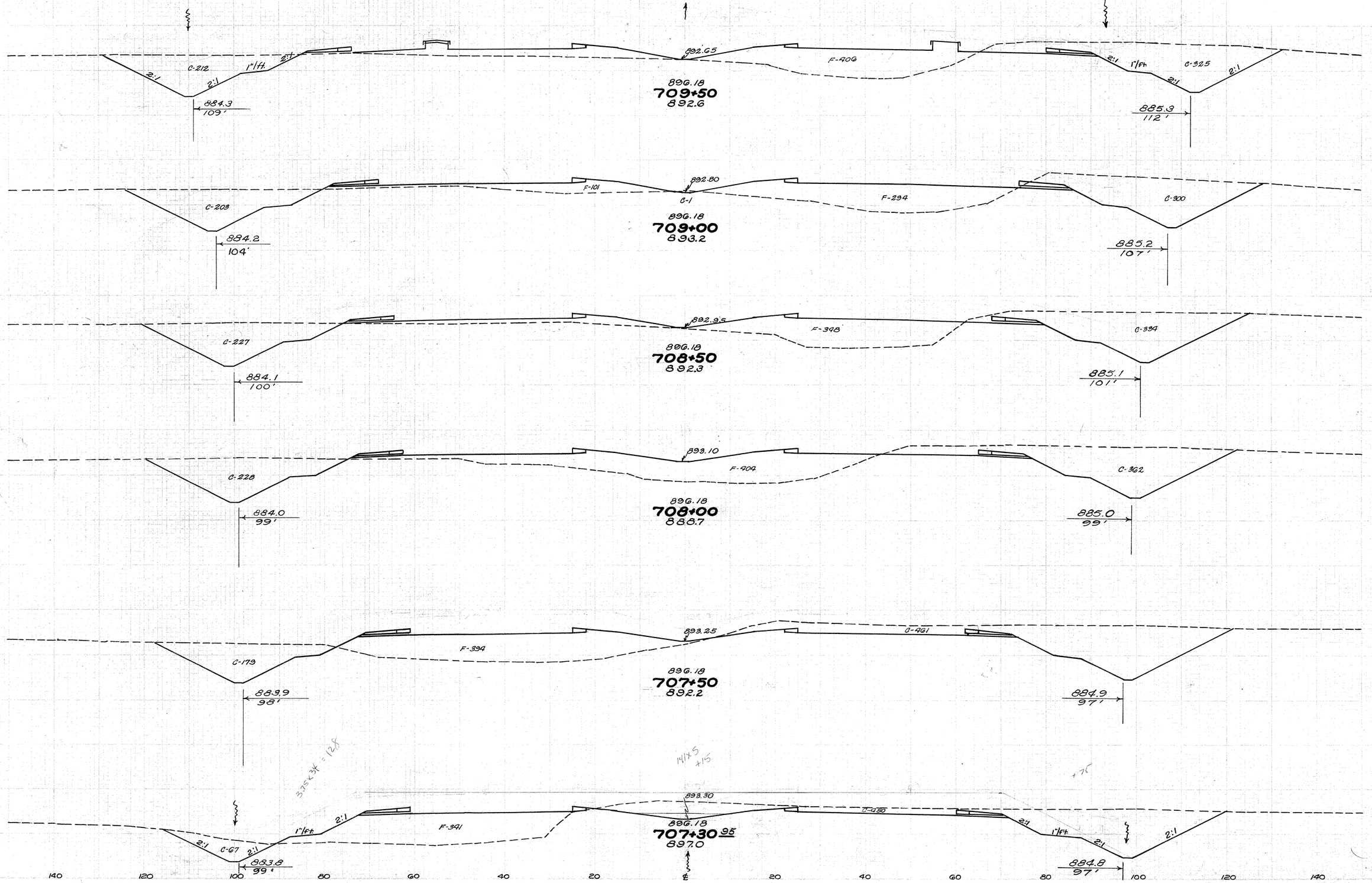


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
938	G5		
		1300	G0
1066	0		
BELL RUN Channel			825
Field Drive			320
		1912	0
999	0		
		1776	0
919	0		
		1594	0
803	0		
		1343	27
G47	29		
		1169	130

704+50 ~ 707+00

LIC-40-8.67

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

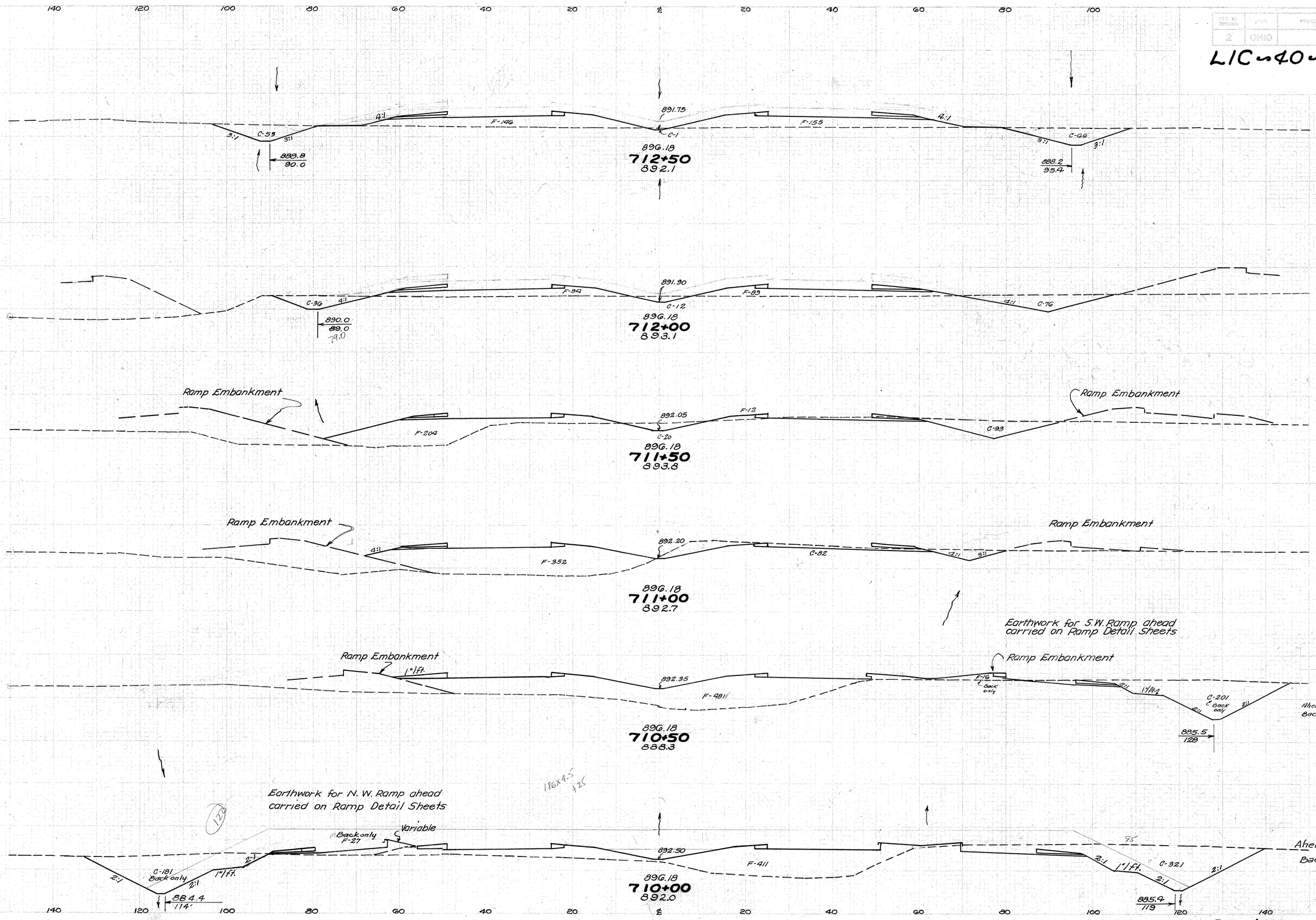


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
537	406		
		964	742
504	395		
		986	688
561	348		
		1066	696
590	404		
		1839	739
640	394		
		407	253
517	391		
		491	233

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

707+30.95 ~ 709+50

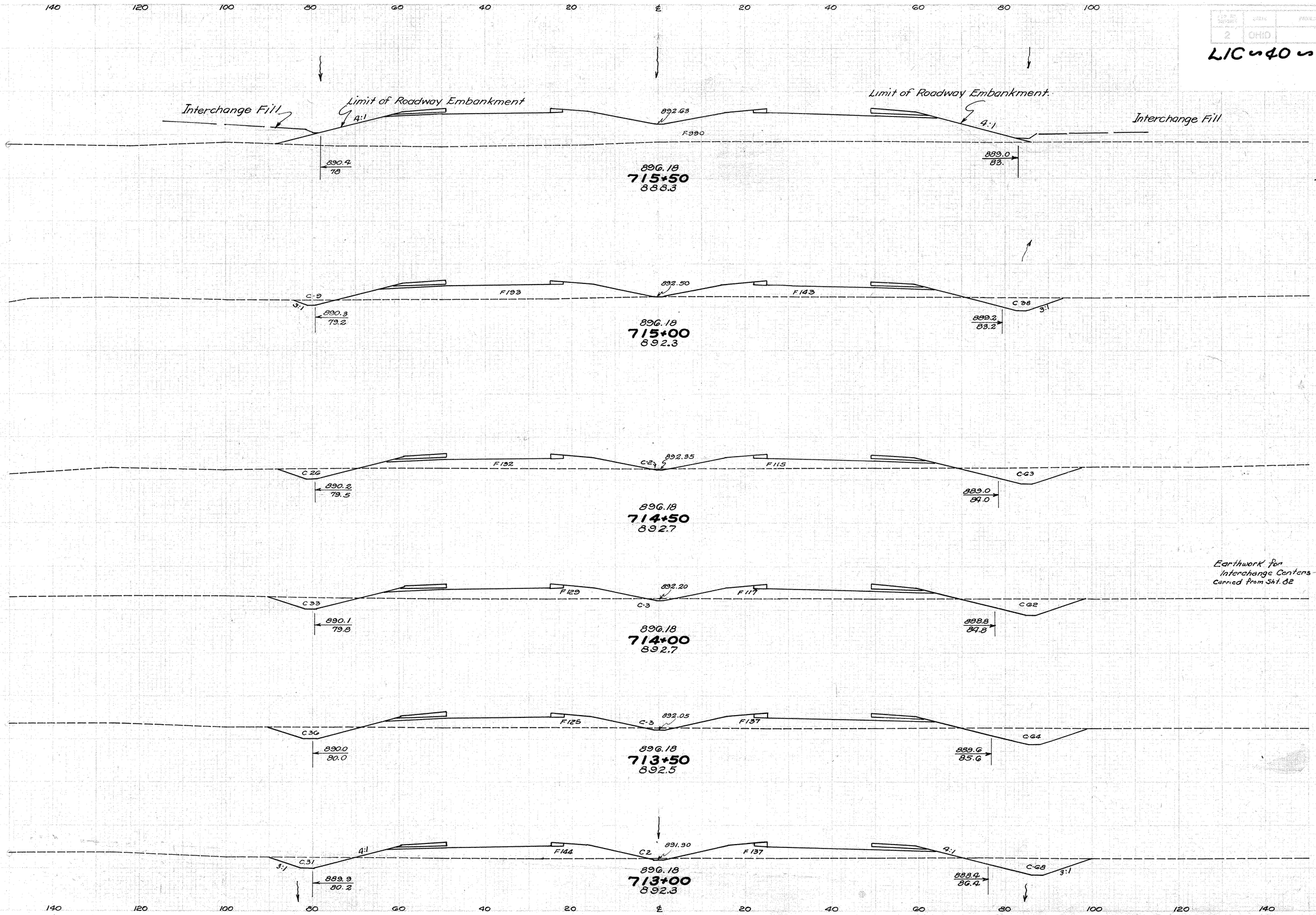
LIC-40-8.67



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	120	301		
			226	448
	124	183		
			219	369
	113	216		
			181	526
	82	352		
			762	725
Ahead	0	481		
Back	201	497		
			502	841
Ahead	321	411		
Back	502	438		
			962	781

710+00 ~ 712+50

LIC ~ 40 ~ 8.67

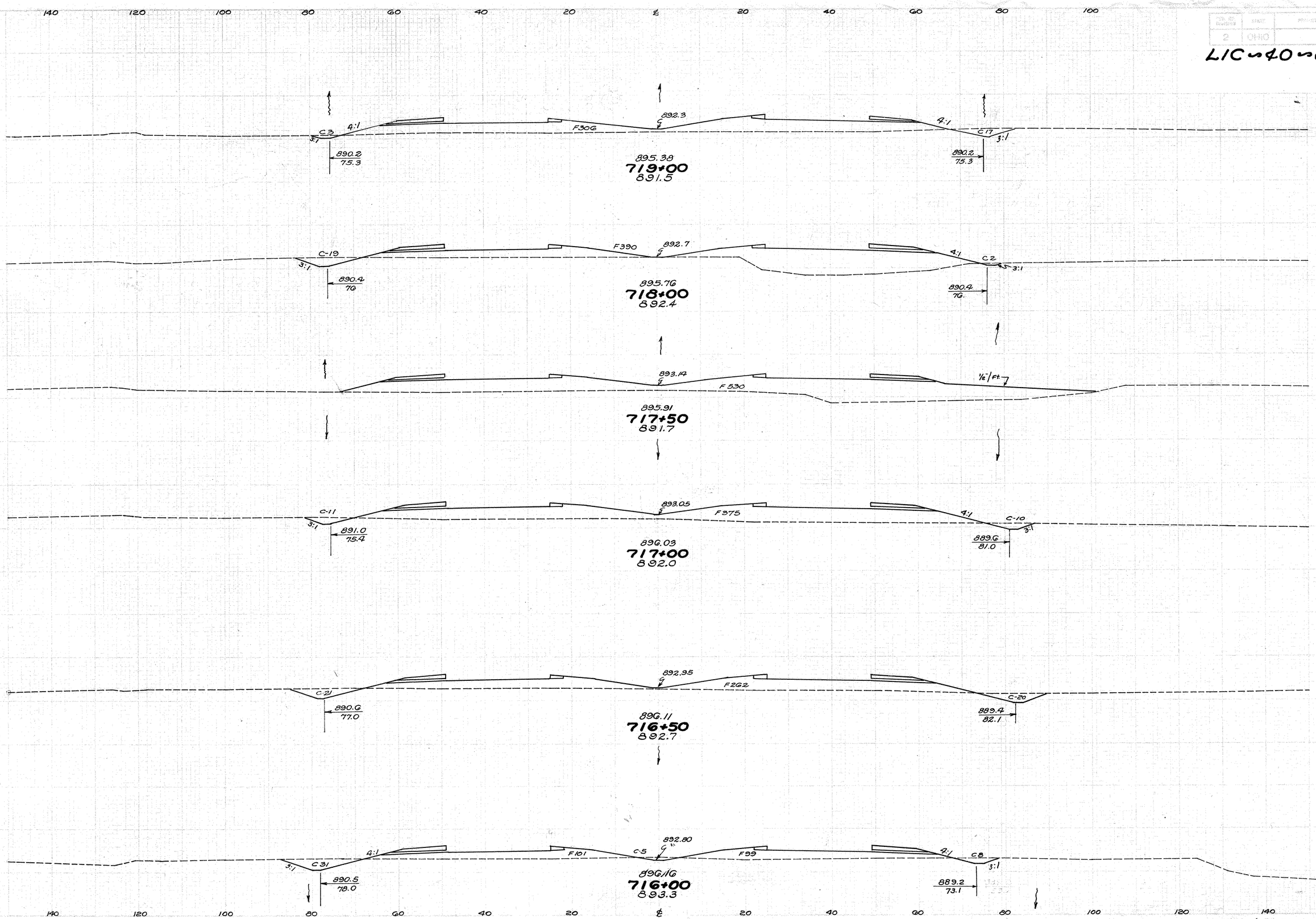


End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	990		
		44	1228
47	336		
		91	540
91	247		
		175	456
		600	600
98	246		
		186	470
103	262		
		189	503
101	281		
		205	539

Earthwork for Interchange Centers Carried from Sht. 82

713+00 ~ 715+50

LIC ~ 40 ~ 8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
20	306		
		76	1289
21	390		
		19	852
0	530		
		19	838
21	375		
		57	590
41	262		
		79	428
44	200		
		41	1102

716+00 ~ 719+00

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

180
287

L/C ~ 40 ~ 8.67

N.E. Ramp Embankment.

4:1

890.3

F358

4:1

N.E. Ramp Embankment

893.63
724+00
889.1

N.E. Ramp Embankment

890.7

CG

3:1

888.2
77.2

F387

C-1

888.7
75.2

893.87
723+00
889.4

891.1

C8

F414

C4

888.4
77.7

889.2
74.5

894.19
722+00
889.5

891.5

C10

F337

C5

888.6
79.3

889.8
74.5

894.58
721+00
890.4

4.5 x 112
+20
+180

4:1

C12

3:1

891.9

F285

4:1

C-11

3:1

888.8
80.1

890.0
74.5

894.98
720+00
891.0

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

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	358		
		13	1380
7	387		
		35	1483
12	414		
		50	1391
15	337		
		70	1152
23	285		
		85	1094

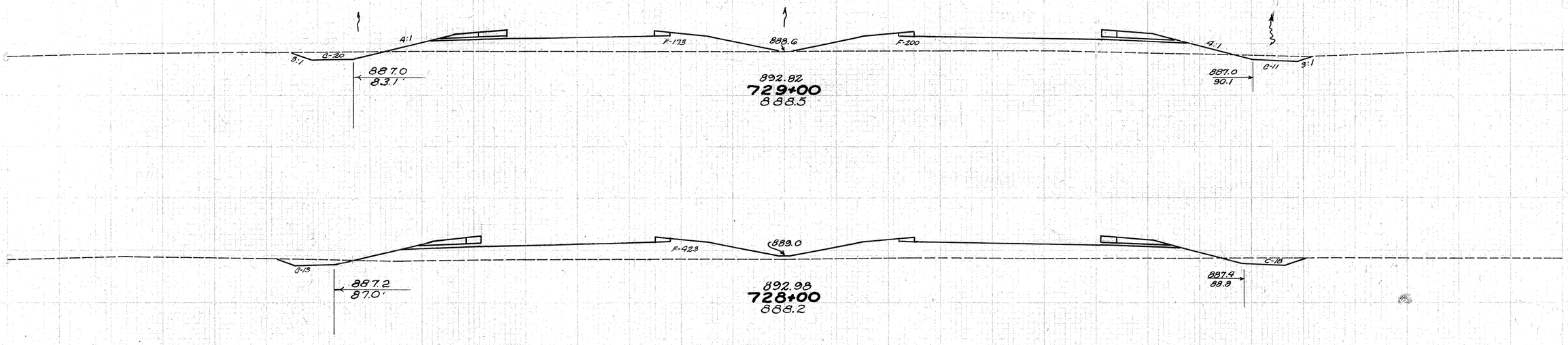
720+00 ~ 724+00

FED. ROAD DIV. NO.	STATE	PROJECT	SHEET
2	OHIO		

181
287

LIC-40-8.67

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



N.E. Ramp
For Earthwork back of Sta. 725+00
See Ramp Detail Sheet No.

For S.E. Ramp Earthwork back of Sta. 725+00
See Ramp Detail Sheets

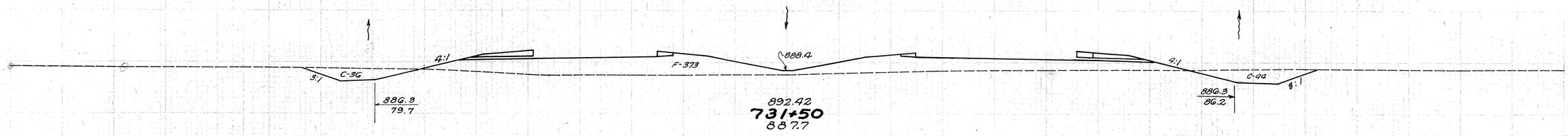
	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
	31	373		
			115	1474
	31	423		
			120	1643
	34	464		
			124	1672
	33	439		
			91	1711
Ahead	16	503		
Back	0	288		
			0	1196

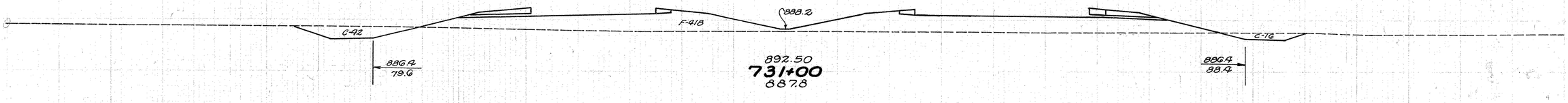
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

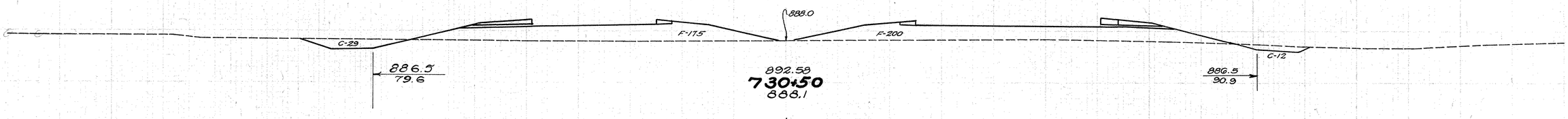
725+00 ~ 729+00

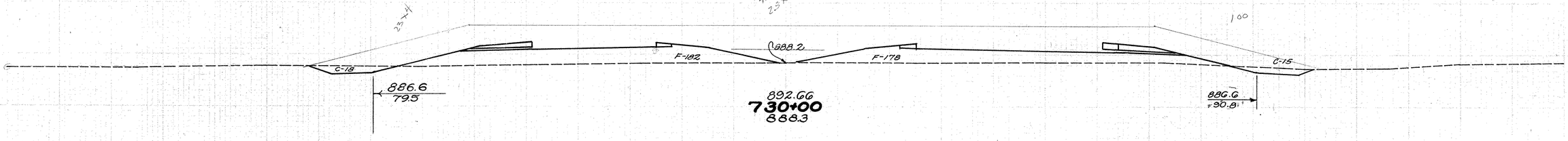
LIC~40~8.67

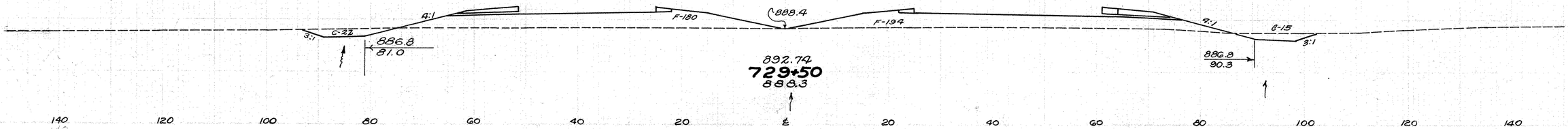
140 120 100 80 60 40 20 ℄ 20 40 60 80 100









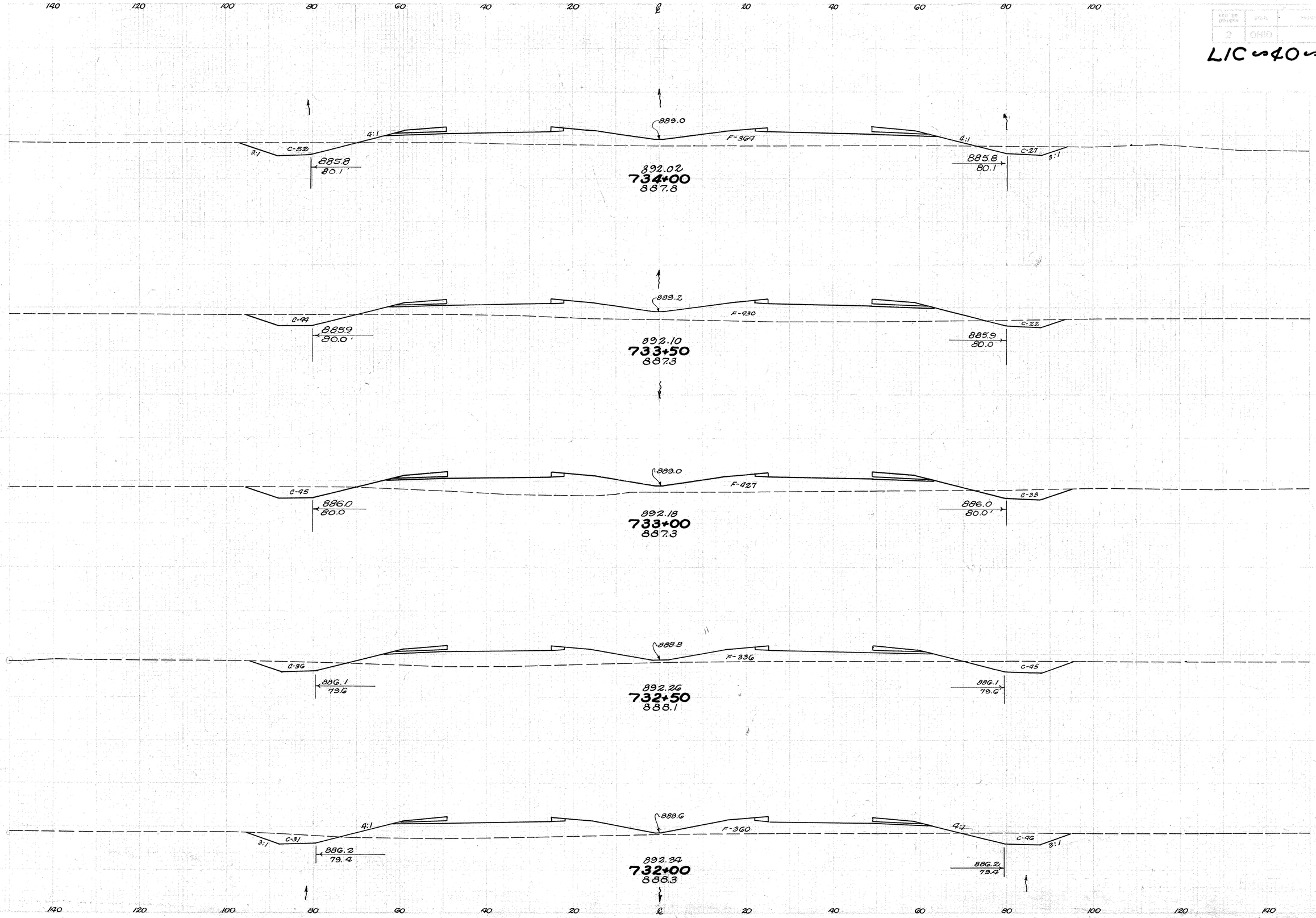


140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
80	373		
		128	732
58	418		
		92	734
41	375		
		69	681
33	360		
		65	680
37	371		
		63	692

729+50 ~ 731+50

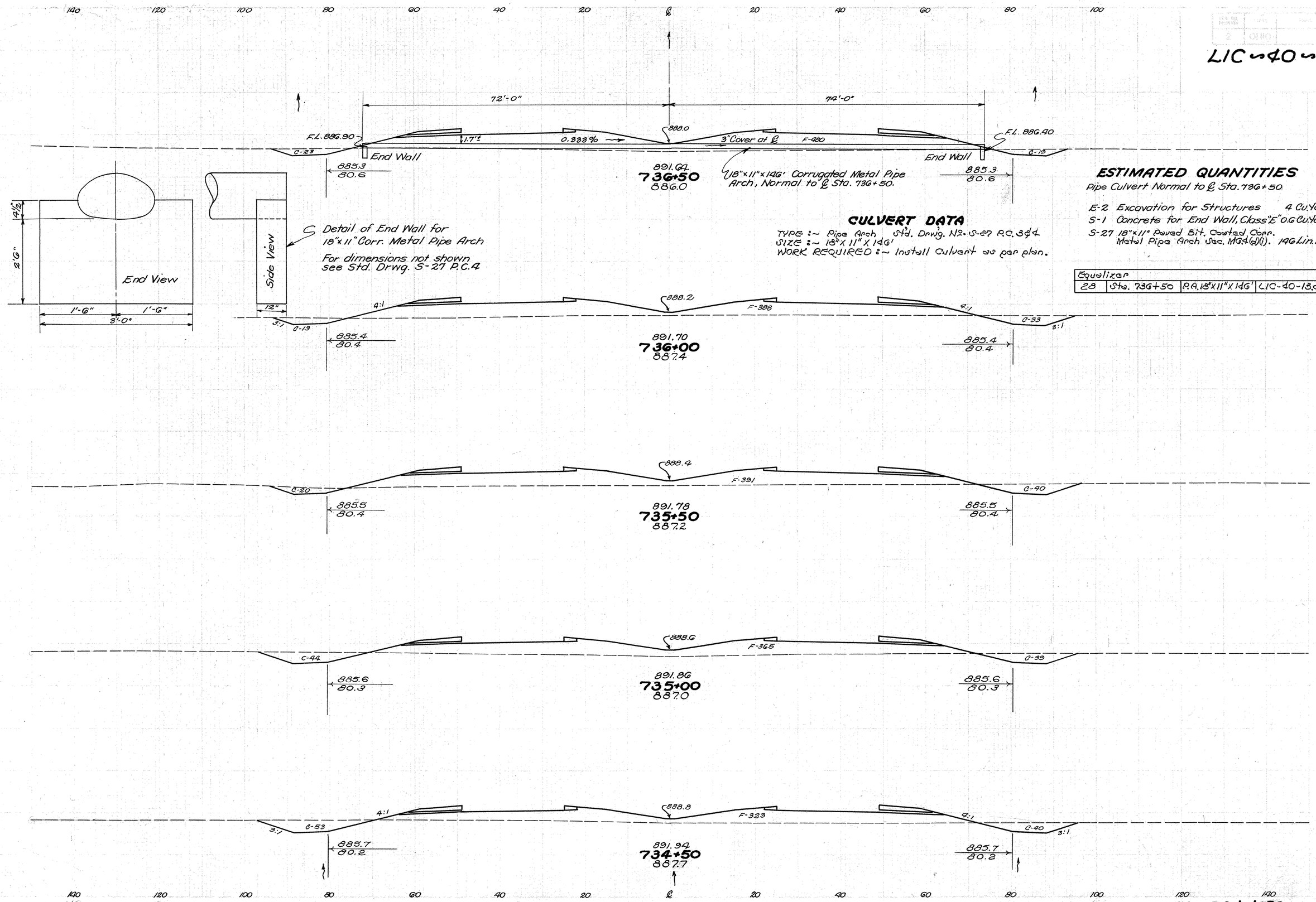
LIC ~ 40 ~ 8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
79	364		
		134	735
66	430		
		133	794
78	427		
		147	706
81	336		
		146	644
77	360		
		145	679

732+00 ~ 734+00

LIC-40-8.67



CULVERT DATA

TYPE :~ Pipe Arch Std. Drwg. No. S-27 P.C. 3 & 4
SIZE :~ 18" X 11" X 146'
WORK REQUIRED :~ Install Culvert as per plan.

ESTIMATED QUANTITIES

Pipe Culvert Normal to ℄ Sta. 736+50

E-2 Excavation for Structures 4 Cu.Yds.
S-1 Concrete for End Wall, Class "E" 0.6 Cu.Yds.
S-27 18"x11" Paved Bit. Coated Corr. Metal Pipe Arch Sec. M6.4(d)(i). 146 Lin.Ft.

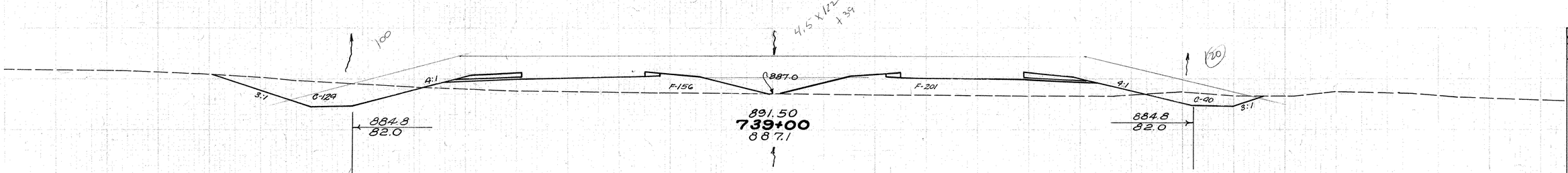
Equalizer			
28	Sta. 736+50	P.A. 18"x11"x146'	LIC-40-13.89

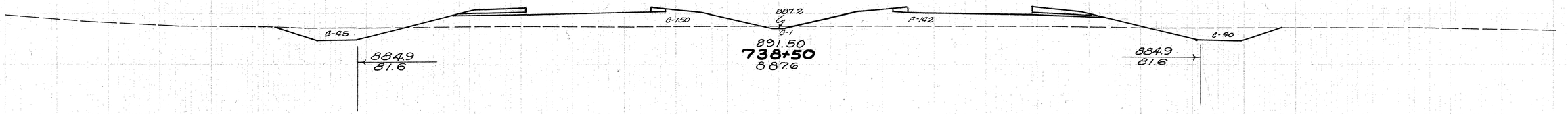
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
42	480		
		87	804
52	388		
		104	721
60	391		
		132	700
83	365		
		163	637
93	323		
		159	636

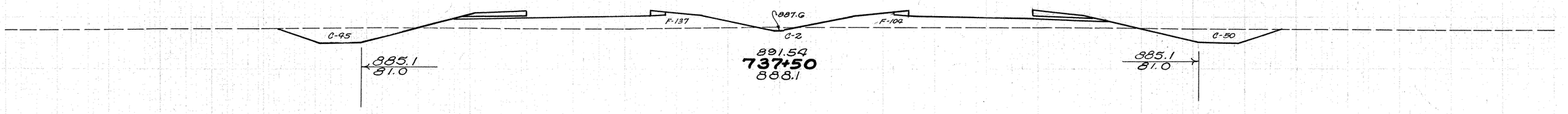
734+50 ~ 736+50

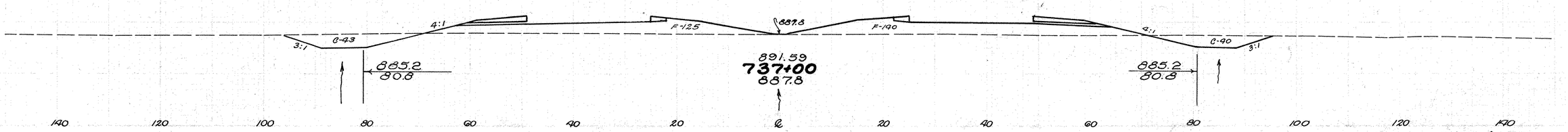
LIC~40~8.67

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





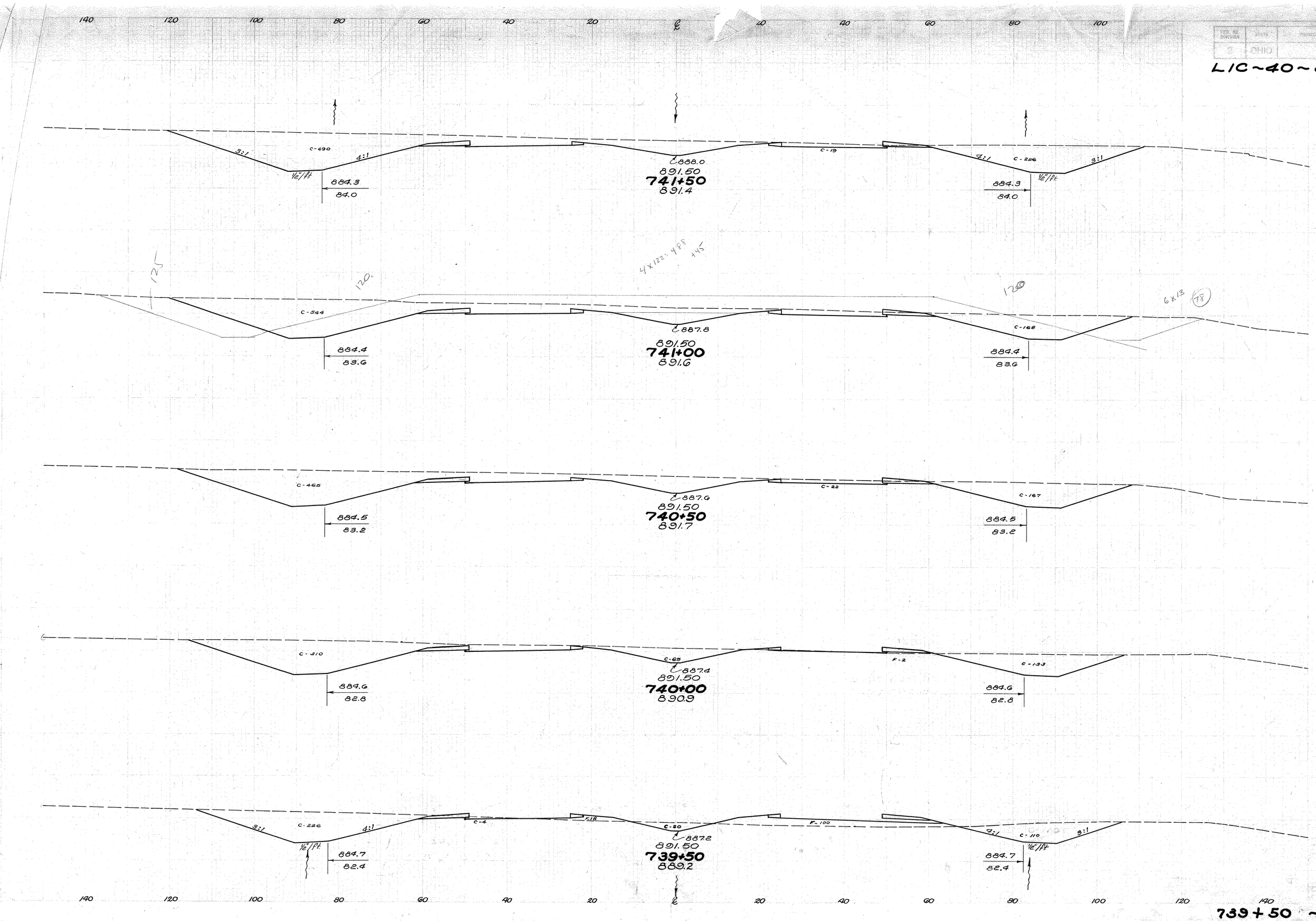




End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
164	357		
		231	601
80	292		
		175	535
103	286		
		185	488
97	241		
		167	469
83	265		
		116	690

737+00 ~ 739+00

LIC~40~8.67



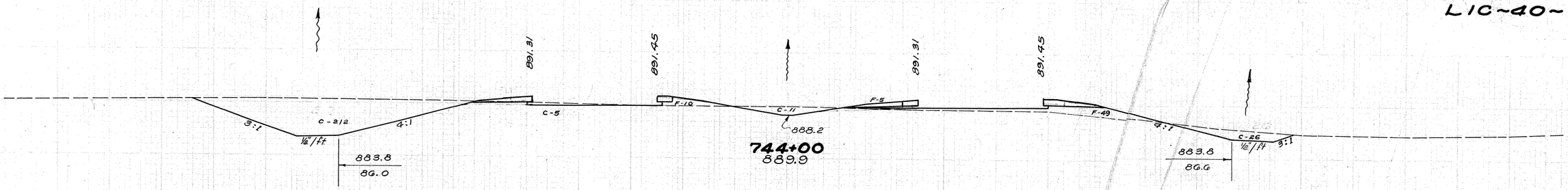
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
735	0		
		1340	0
712	0		
		1265	0
654	0		
		1076	2
508	2		
		804	111
360	118		
		485	440

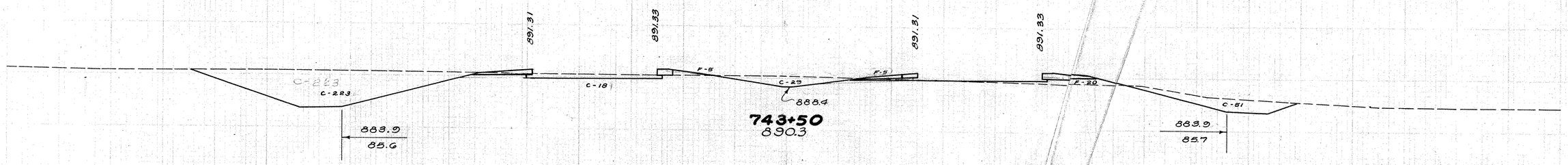
739+50 ~ 741+50

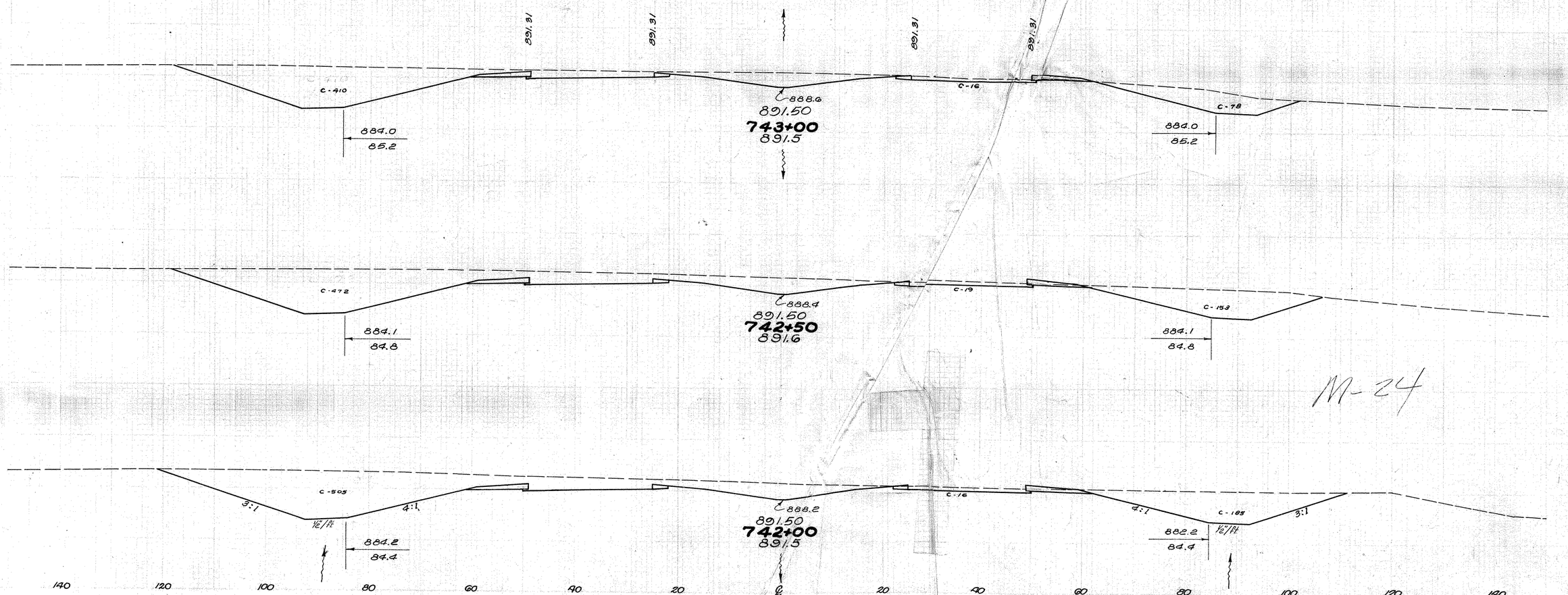
140 120 100 80 60 40 20 ℄ 20 40 60 80 100

187
287

LIC-40-8.67







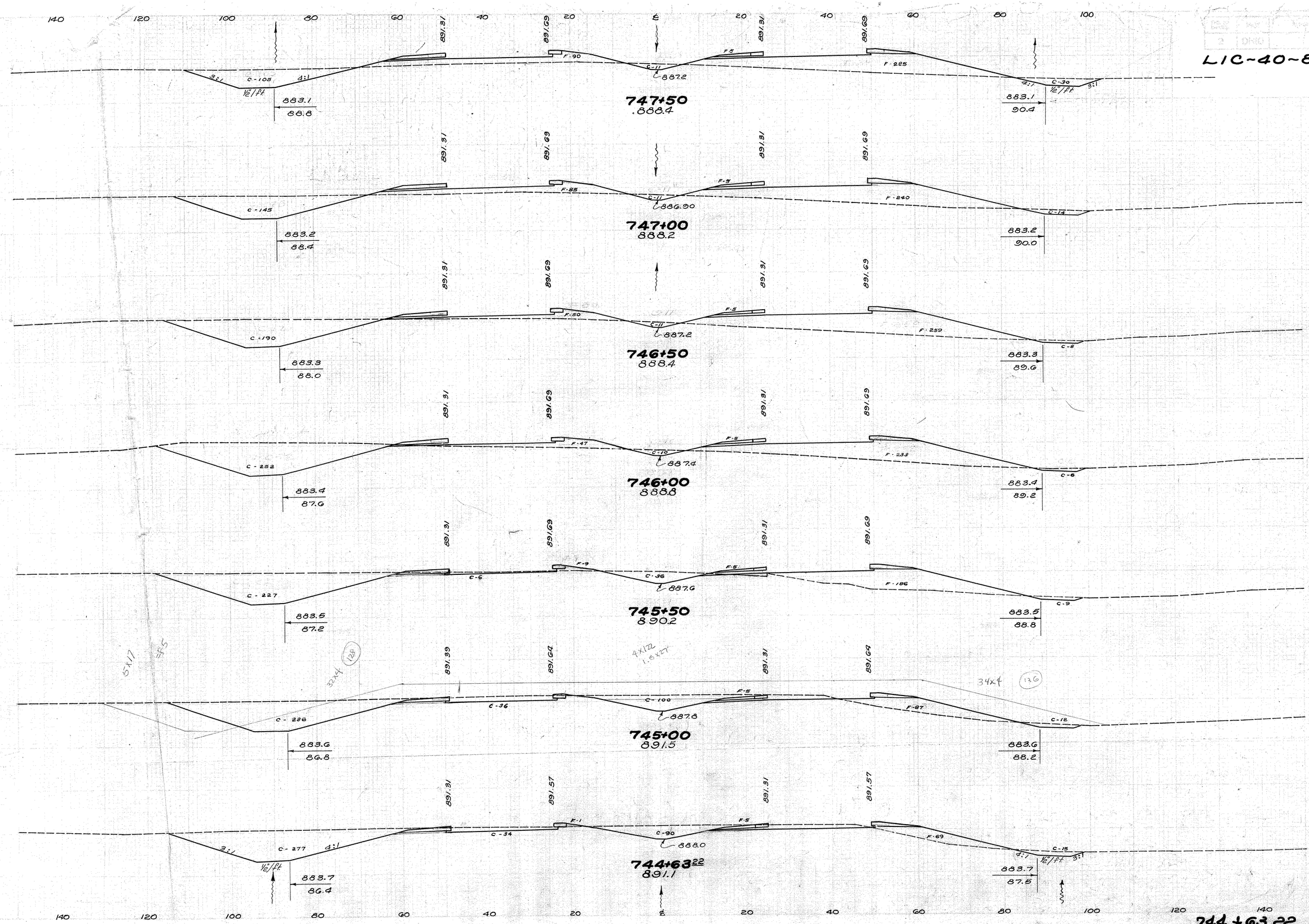
End Area		Cu Yds	
Cut	Fill	Cut	Fill
254	64		
		532	87
321	30		
		764	28
504	0		
		1063	0
644	0		
		1250	0
706	0		
		1334	0

M-24

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

742+00 ~ 741+00

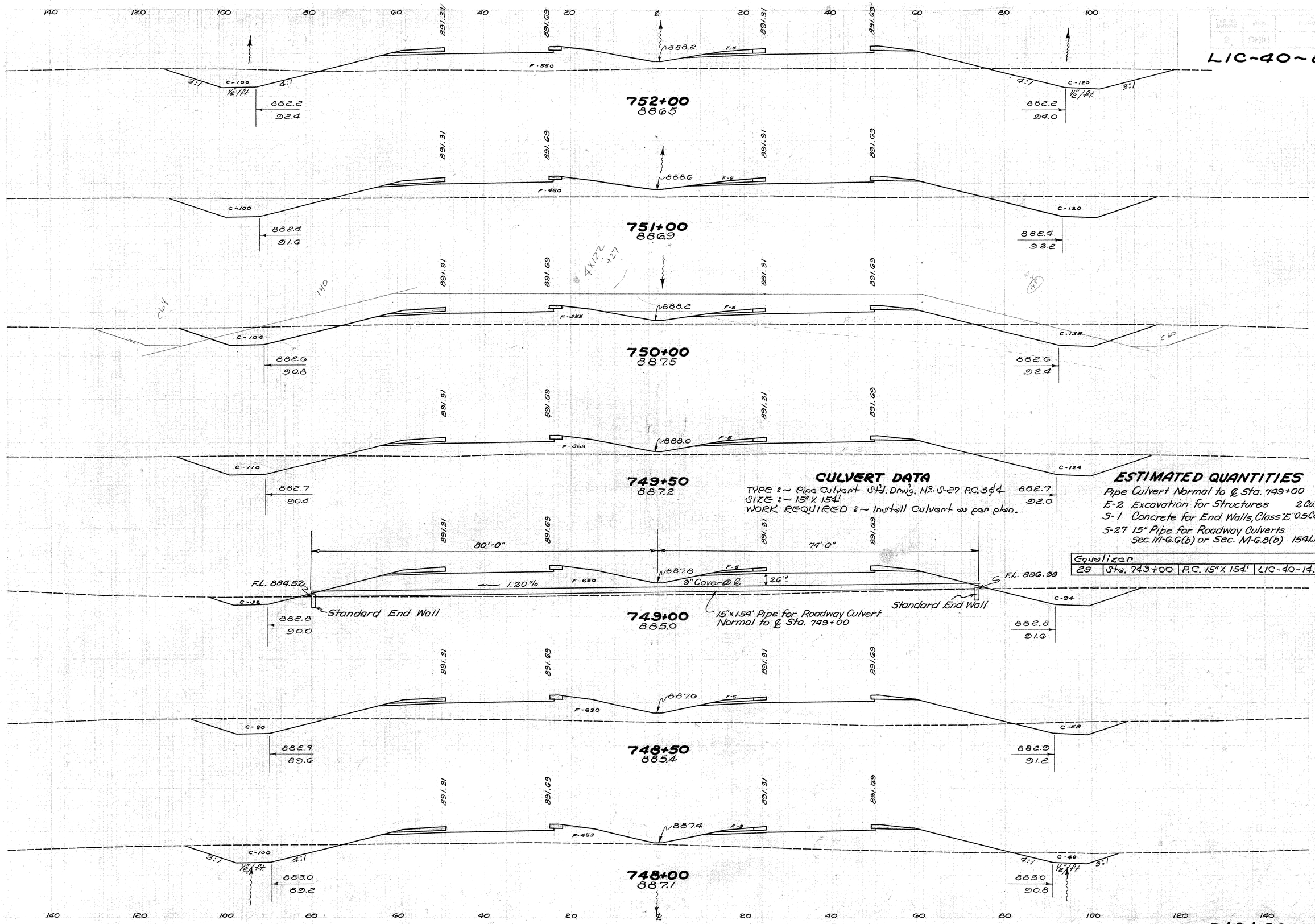
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
146	920		
		293	602
170	330		
		351	596
209	314		
		442	555
268	285		
		506	449
278	200		
		604	270
374	92		
		541	114
416	75		

744+63.22 ~ 747

LIC-40-8.67



CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg. No. S-27 P.C. 3 & 4
SIZE :~ 15" X 154'
WORK REQUIRED :~ Install Culvert as per plan.

ESTIMATED QUANTITIES

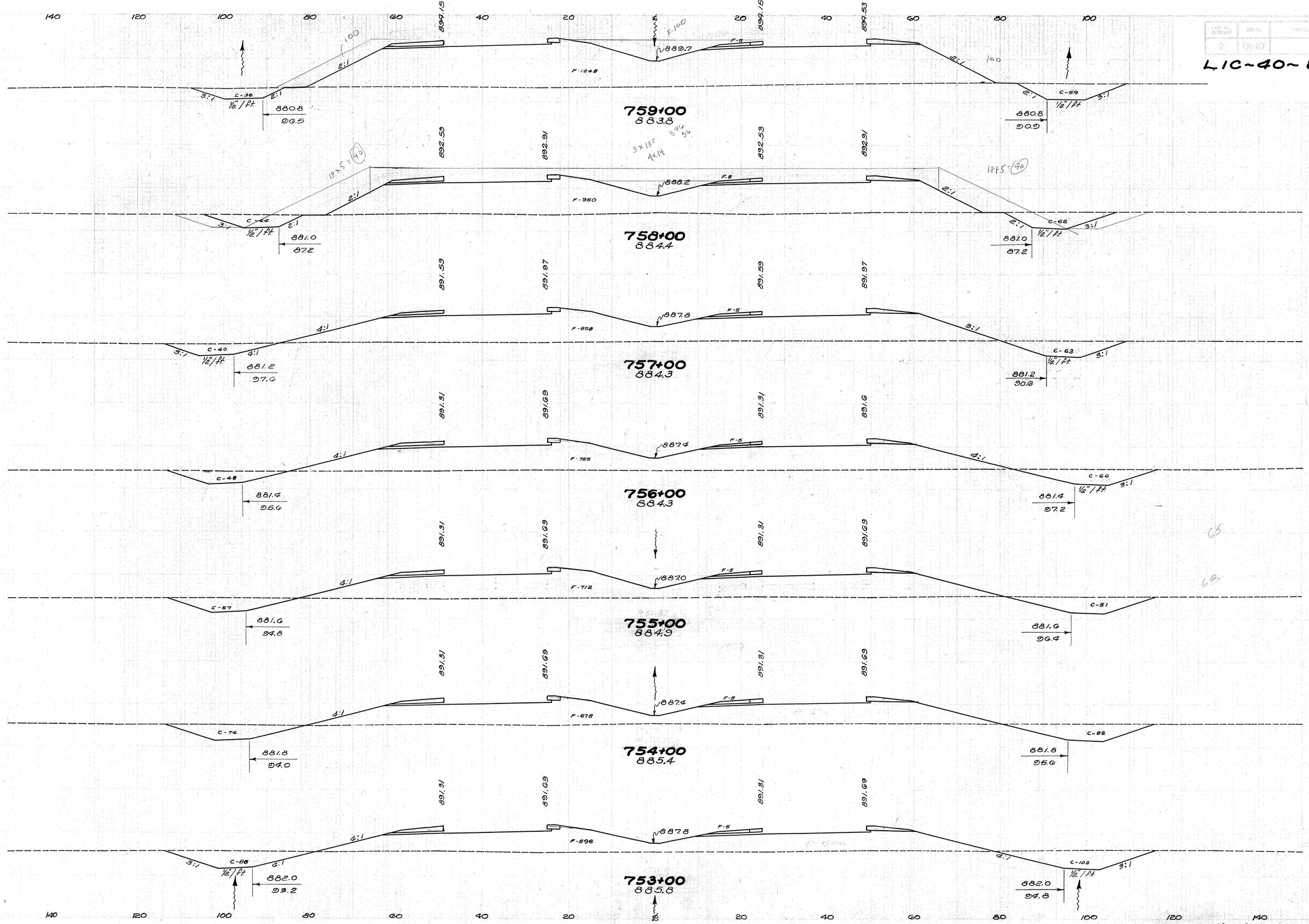
Pipe Culvert Normal to ℄ Sta. 749+00
E-2 Excavation for Structures 2 Cu.Yds
S-1 Concrete for End Walls, Class "E" 0.5 Cu.Yds
S-27 15" Pipe for Roadway Culverts Sec. M-6.6(b) or Sec. M-6.8(b) 154 Lin.Ft.

Equalizer			
29	Sta. 749+00	P.C. 15" X 154'	LIC-40-14.14

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
220	555		
		815	1889
220	465		
		856	1528
242	360		
		441	676
234	370		
		333	949
126	655		
		244	1194
138	635		
		257	1012
140	458		
		265	720

748+00 ~ 752+00

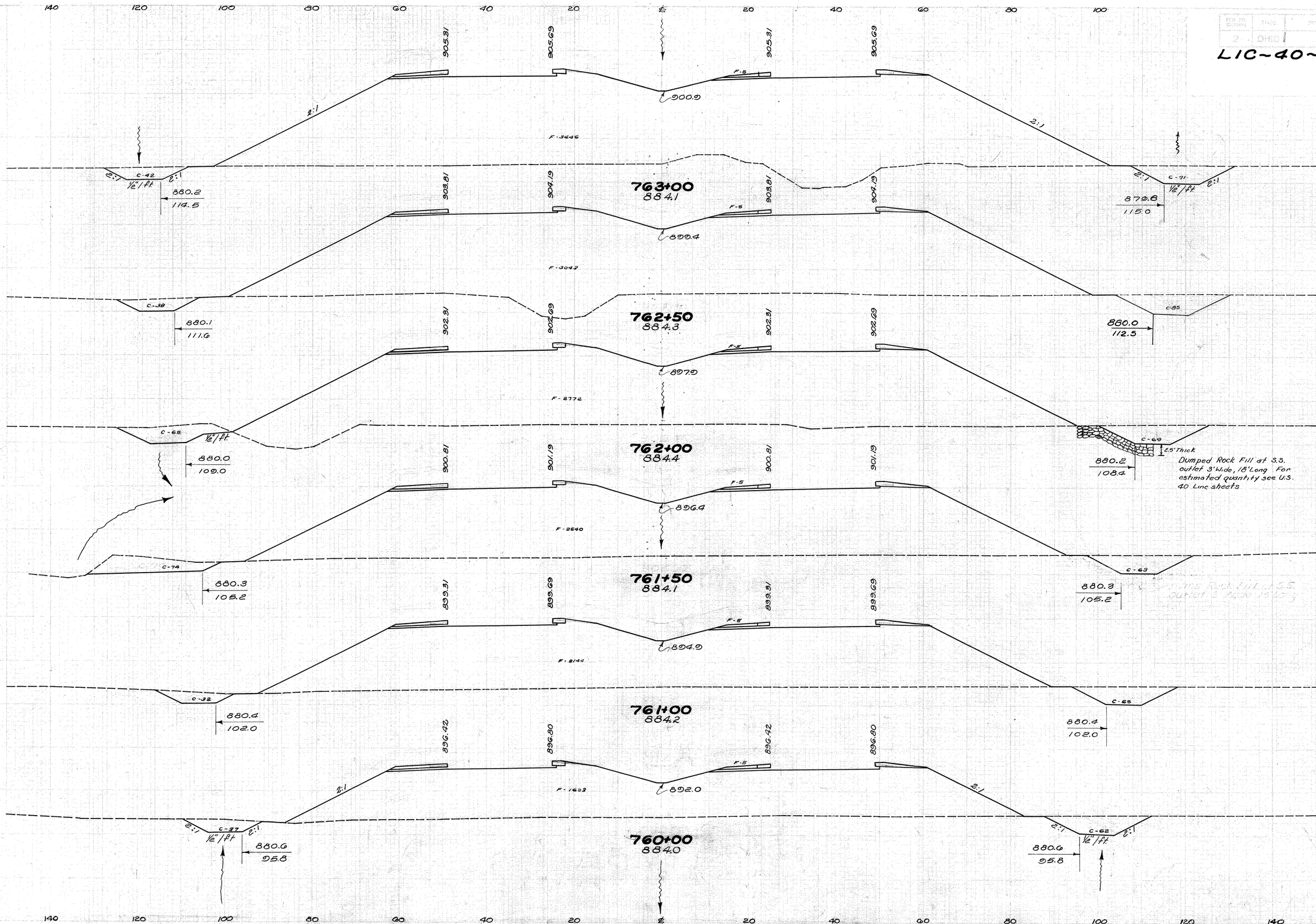
LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds Cut	Cu. Yds Fill
95	1253		
		372	4089
106	955		
		387	3367
103	863		
		402	3005
114	760		
		467	2735
138	717		
		544	2593
156	683		
		637	2378
188	601		
		756	2140

753+00 ~ 759+00

LIC-40-8.67



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
113	3451		
		219	6017
123	3048		
		238	5393
134	2777		
		251	4928
137	2545		
		217	4346
97	2149		
		363	6994
99	1628		
		359	5335

760+00 ~ 763+00

LIC-40-8.67

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

914.68
767+00
882.4

F-5659

4:1 4:1 2:1 2:1

C-16 2:1 2:1 881.0 132.2

2:1 C-30 2:1 880.7 132.8

912.91
766+00
882.9

F-4491

C-20 880.8 128.8

C-38 880.5 120.4

910. 910. 910. 910.

910.79
765+00
883.2

F-4190

C-30 880.6 124.7

908.32 908.45 F-5 908.32 908.45

2:1 C-55 2:1 880.3 125.3

764+00
883.4

F-3890

C-40 880.4 113.9

906.71 907.00 4:1 4:1 F-5 906.71 907.00

763+46.55
883.6

F-3686

2:1 2:1

2:1 C-42 2:1 880.3 117.0

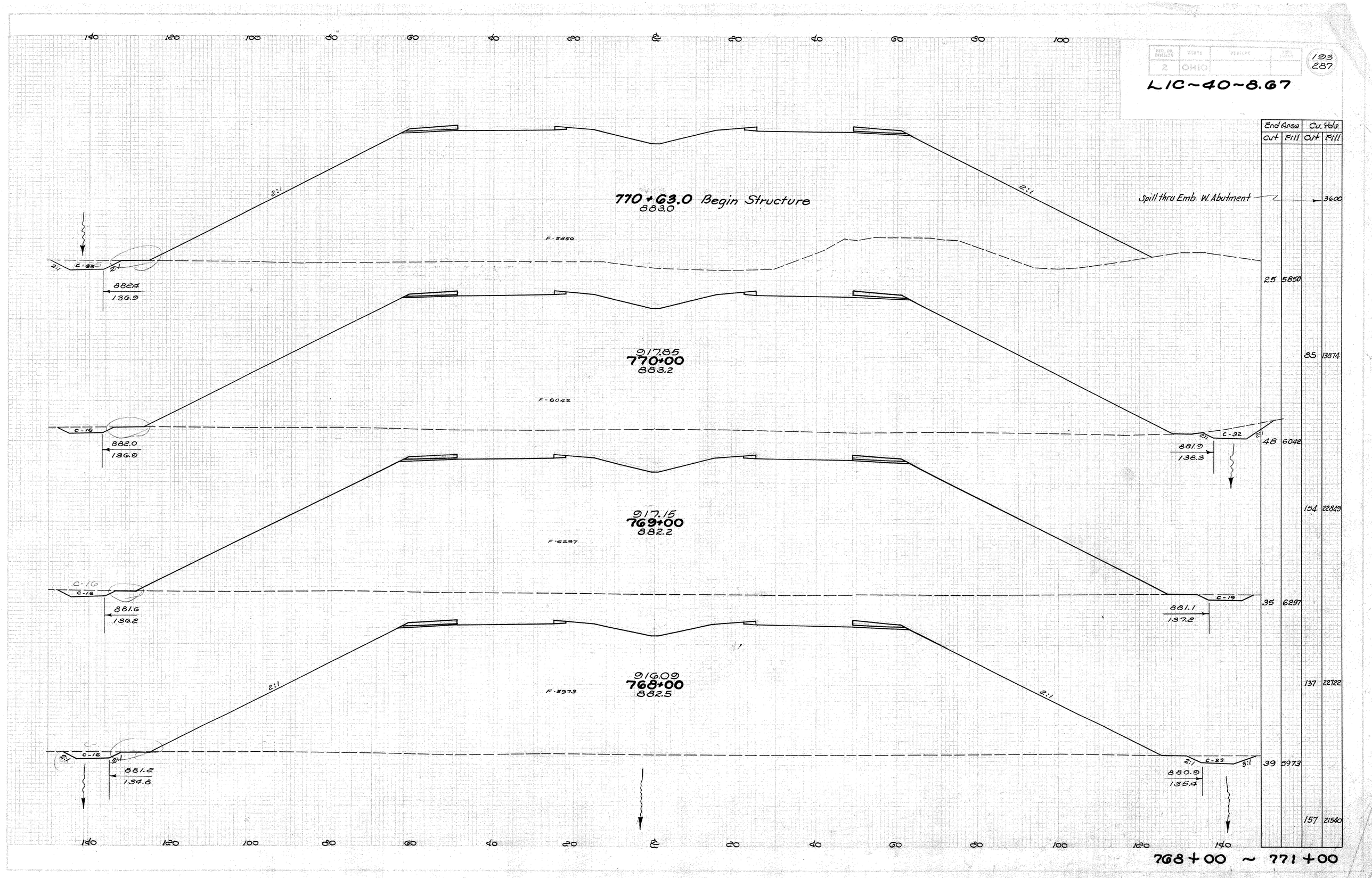
2:1 C-105 2:1 879.6 118.5

117 Ft.

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

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
46	5659		
		193	18796
58	4491		
		265	16075
85	4190		
		232	14972
40	3895		
		185	7505
147	3691		
		224	6157

763+46.55 ~ 767+00



2 OHIO
193
287
LIC~40~8.67
770+63.0 Begin Structure
883.0
F-5850
2:1
C-25
882.4
136.9
917.85
770+00
883.2
F-6042
C-16
882.0
136.9
C-32
881.9
138.3
917.15
769+00
882.2
F-6297
C-16
881.6
136.2
C-19
881.1
137.2
916.09
768+00
882.5
F-5973
C-16
881.2
134.8
C-23
880.9
135.4
Spill thru Emb. W. Abutment
3600
25 5850
85 13874
48 6042
154 22849
35 6297
137 22722
39 5973
157 21540
768+00 ~ 771+00

FED. ROAD DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

194
287

LIC-40-8.67

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

2:1 F-5564 2:1

917.54
773+50
886.1

885.5
129.3

C-8

2:1 F-5360 2:1

773+39
888.4

END STRUCTURE

884.5
131.9

C-4

Spill-thru Emb. East Abutment → 3000

772+50
883.4

772+00
886.1

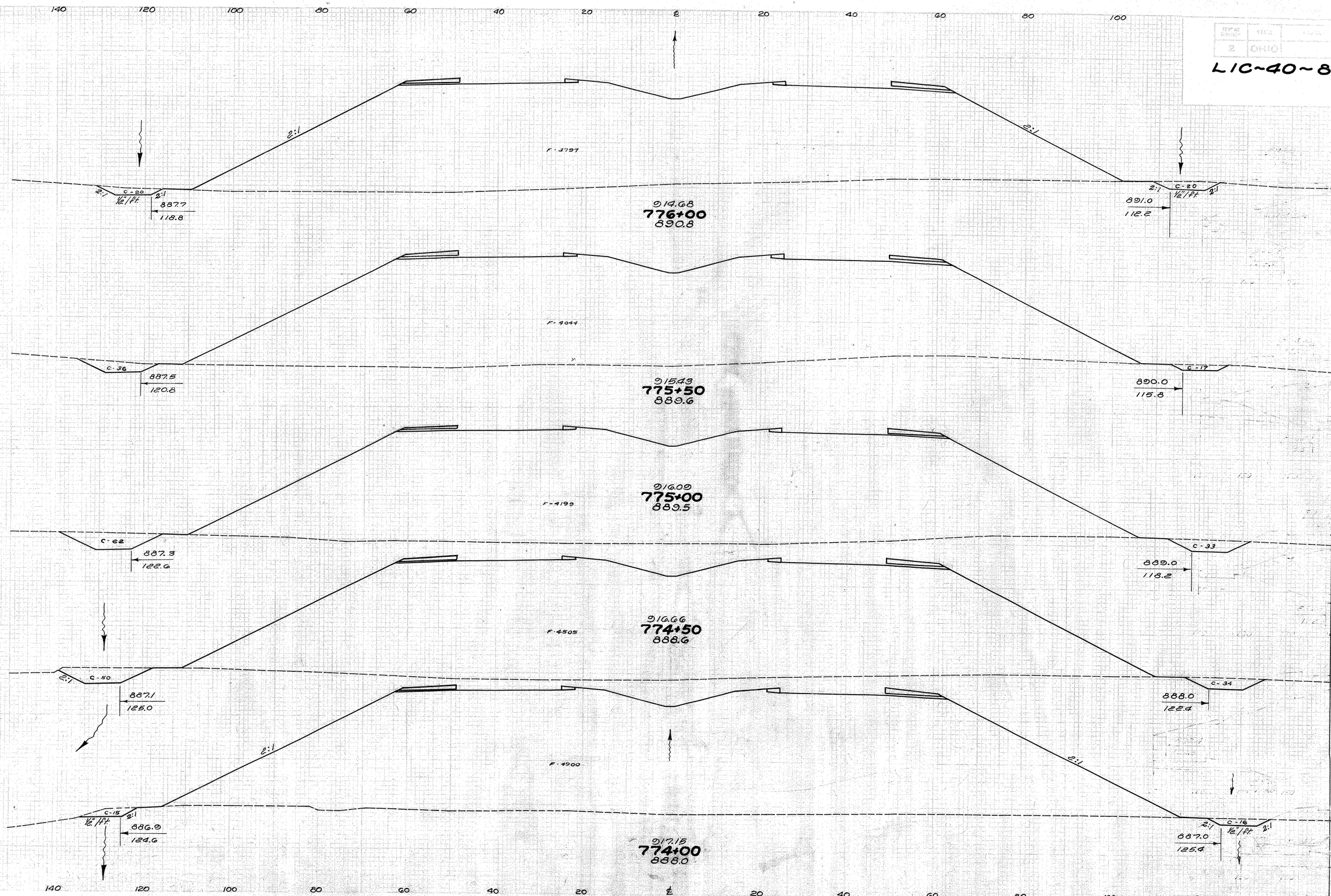
771+50
891.0

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

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
8	5564		
		2	2225
4	5360		

771+50 ~ 773+50

LIC-40-8.67



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
40	3797		
		86	7260
53	4044		
		137	7632
95	4199		
		166	8059
84	4505		
		106	8708
31	4900		
		36	9689

774+00 ~ 776+00

CO. NO.	STATE	ROUTE	SHEET NO.	TOTAL SHEETS
2	OHIO			

196
287

LIC ~ 40 ~ 8.67

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

F-2658

2:1 2:1

3:1 C-29 2:1 888.7 106.2

909.60
778+50
891.5

2:1 C-18 3:1 890.0 103.6

F-2805

2:1 C-42 888.5 108.9

910.79
778+00
891.1

C-8 890.5 104.9

F-2932

Shed

C-58 888.3 111.7

911.90
777+50
891.8

C-16 891.0 106.3

F-3178

C-50 888.1 114.2

912.91
777+00
892.2

C-12 891.5 107.4

F-3504

2:1 2:1

2:1 C-42 2:1 887.9 117.6

913.84
776+50
891.6

2:1 C-12 2:1 891.8 108.8

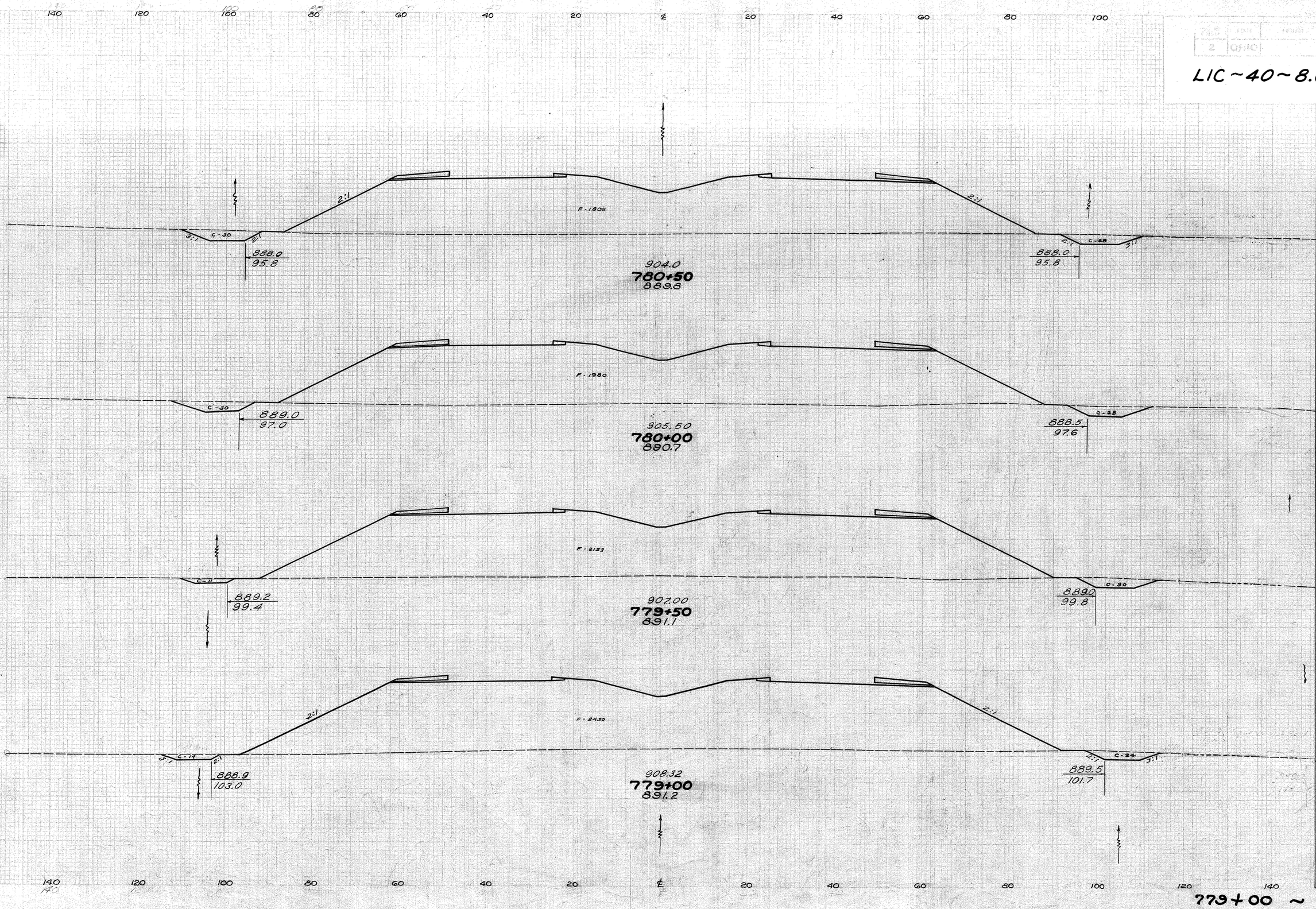
140 120 100 80 60 40 20 ℄ 20 40 60 80 100 120 140

17

END AREA CUT	END AREA FILL	CU.YDS. CUT	CU.YDS. FILL
44	2658		
		87	3058
50	2805		
		115	5313
74	2933		
		126	5658
62	3178		
		110	6187
56	3504		
		83	6760

776+50 ~ 778+50

LIC ~ 40 ~ 8.67



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
58	1805		
		107	3505
58	1980		
		92	3827
41	2153		
		73	4213
38	2430		
		76	4711

779+00 ~ 780+50

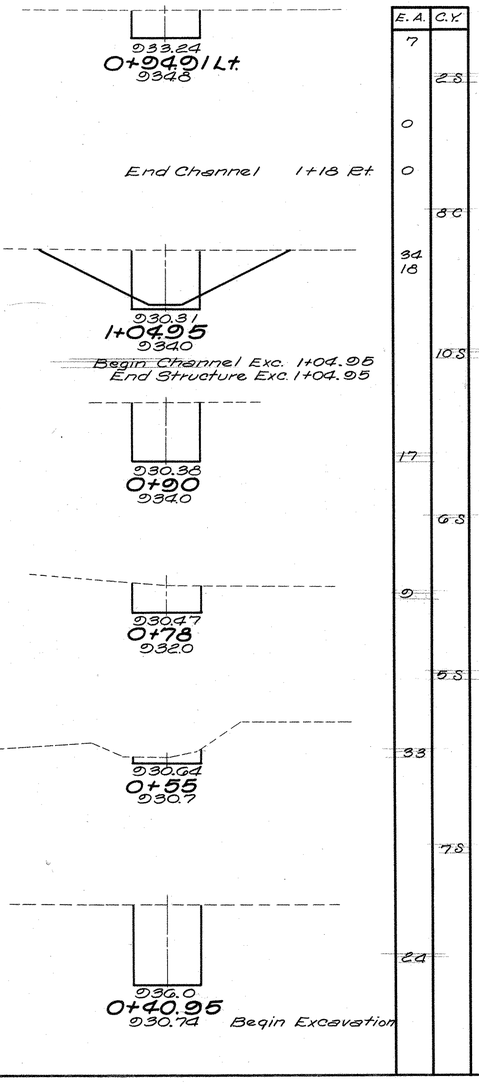
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

199
287

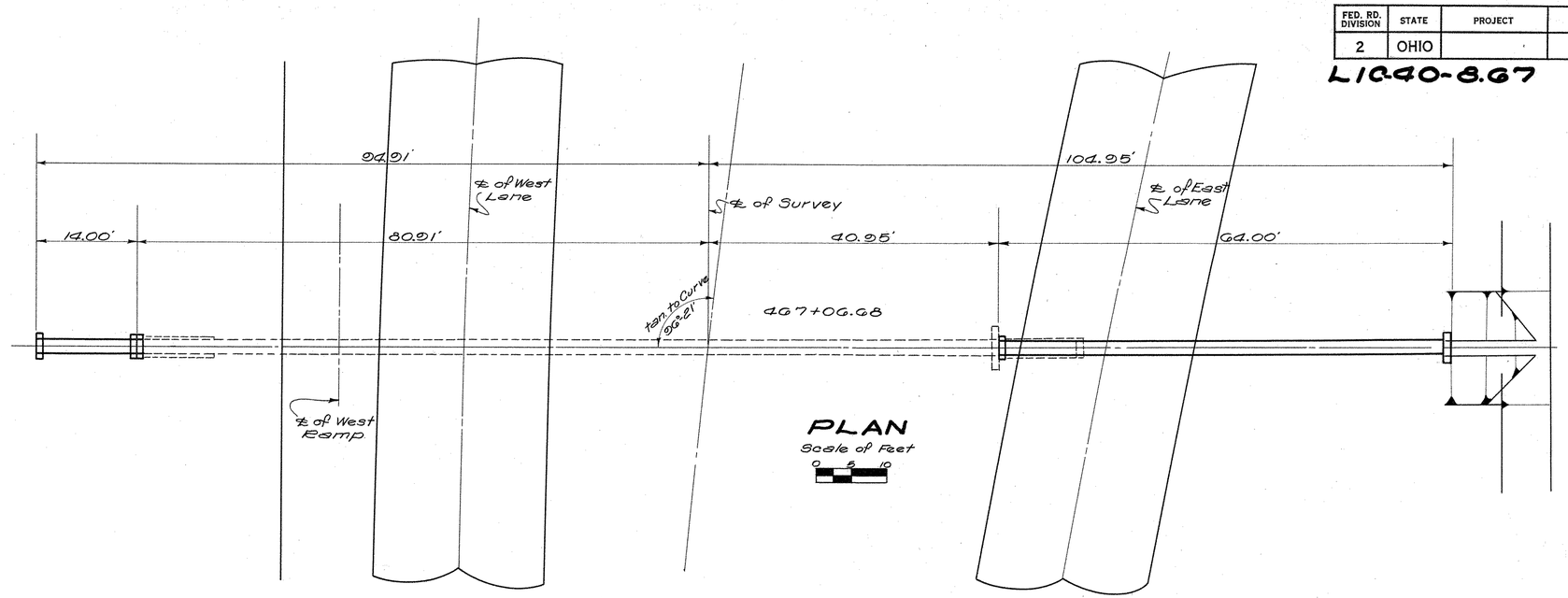
LIC40-8.67

CROSS SECTIONS

Scale of Feet
0 25 5

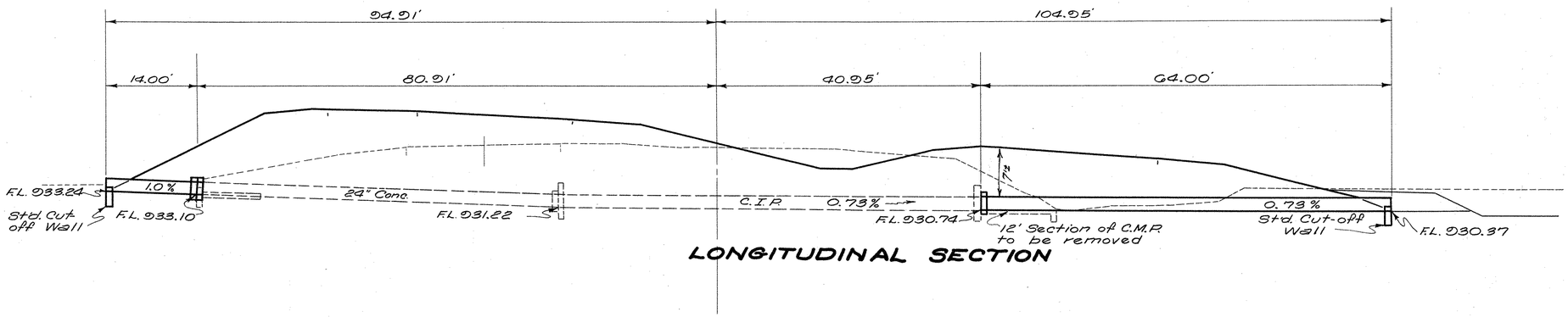


E.A.	C.Y.
7	
	2.8
0	
0	
	8.C
34 18	
	10.8
17	
	6.8
9	
	5.8
33	
	7.8
24	



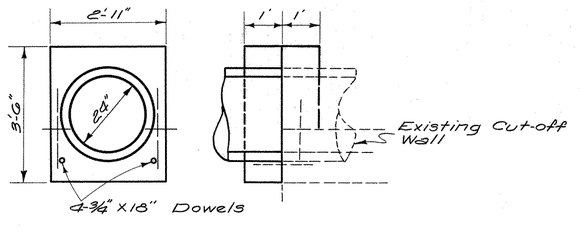
PLAN

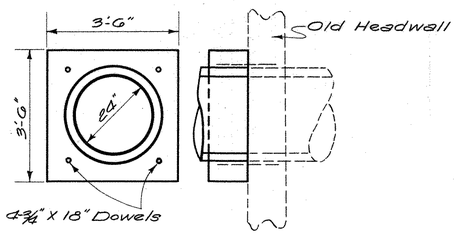
Scale of Feet
0 5 10



LONGITUDINAL SECTION

COLLAR DETAILS





TYPE: Pipe Culvert, Std Drwgs. S-27 P.C. 3&4
SIZE: 24" X 199.86'
WORK REQUIRED: Install pipe extensions as per plan. Excavate outlet channel and remove existing 24" X 12' C.M.P. extention. Price of removal of Pipe and cradle to be included with E-2 for payment.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	30 Cu. Yds.	Structure Excavation
E-3	8 Cu. Yds.	Channel Excavation
S-1	1.5 Cu. Yds.	Concrete for Structures, Class "E"
S-27	78 Lin. Ft	24" Pipe for Roadway Culverts Sec. M-6.8(b) or M-6.6(b)
S-23	6 Lin. Ft	Dowel Holes
S-4	18 Lbs.	Reinforcing Steel

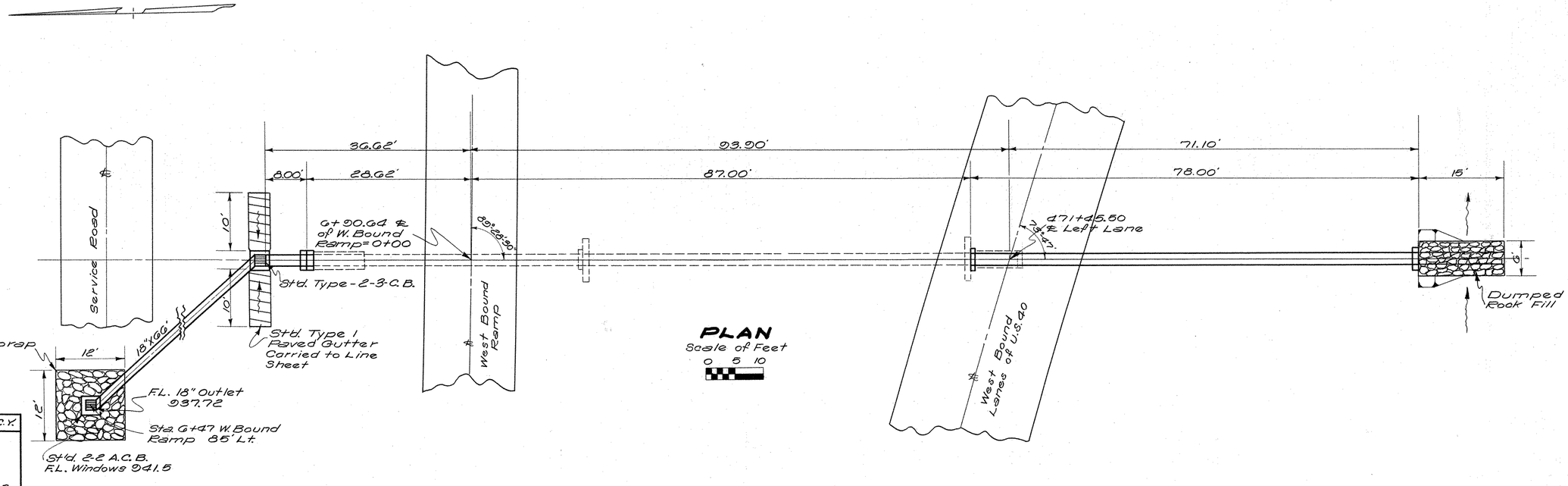
Drainage Area = 8 Ac. Q50 = 36 X .65 X 1.21 X .8 = 17 cfs

1	467+06.68	24" x 199.86'	LIC-40-0879

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

200
287

LIC-40-8.67

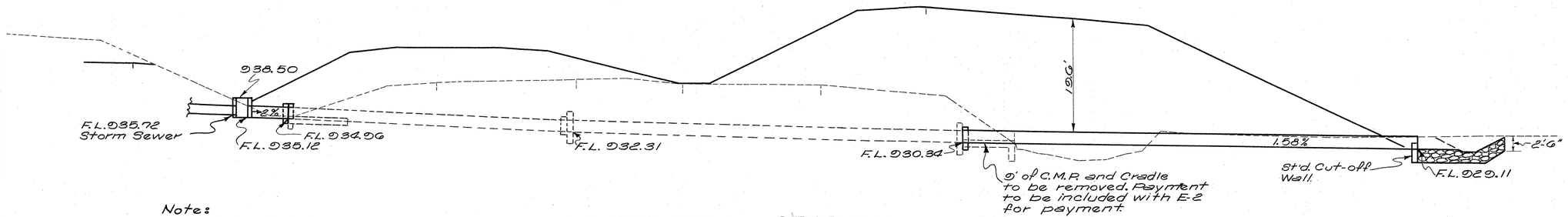


PLAN
Scale of Feet
0 5 10

CROSS SECTIONS

Scale of Feet
0 1 2 5

	Area	C.Y.
END CHANNEL 1+80	15	3
	23	
END WALL	11	1
929.11		
1+65		6
	11	
929.34		
1+50		
931.3		12
	12	
929.50		
1+21		1
932.2		
1+18	0	0
0+96	0	
	25	4
930.34		
0+87 Rt.		
936.0		



LONGITUDINAL SECTION

Note:
For Collar Detail
See Sheet No. 199

CULVERT DATA

TYPE: Pipe Culvert, Std. Drwgs, S-27 P.C. 3&4
SIZE: 24" X 201.62'
WORK REQUIRED Install Pipe Culvert as per plan. Build Std. 2-2-A Catch Basin, place dumped rock fill at outlet and paved Gutter at inlet.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	24 Cu. Yds.	Excavation for Structures
E-3	11 Cu. Yds.	Channel Excavation
S-1	1.1 Cu. Yds.	Concrete for Structures, Class "E"
S-27	86 Lin. Ft.	24" Pipe for Rdwy. Culvert, Sec. M-6-6 (c)
I-8	1 Each	Std. 2-3 Catch Basin
I-10	8 Cu. Yds.	Dumped Rock Fill, as per plan
I-10	16 Sq. Yds.	Riprap Type "A", as per plan.
I-8	1 Each	Std. Type 2-2-A Catch Basin
I-2	66 Lin. Ft.	18" Class "B" Storm Sewer Under Pav't.
S-23	6 Lin. Ft.	Dowels Holes
S-1	18 Lbs.	Reinforcing Steel

Drainage Area 8 Ac Q_{50}: 38 x .65 x 1.21 x .8 = 17 ft³/s

2	Sta. G+90.64	P.C. 24" X 201.62'	LIC-40-

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

201
287

LIC-40-8.67

P.I. = 2+10
Δ = 45° Rt.
R = 75'
T = 31.07'
L = 58.91'

2+37.84
End Channel

1+78.93

88.00'

85.02'

104.14'

39.42'

℄ of Survey

10'

12.47'

47G+50=
0+00 P.T. ℄ Lt.

10'

9'

Riprap

℄ Left Lane

℄ Right Lane

11'

50'

Dumped Rock Fill

2+10

2:1

2+45

2+05

Riprap

Dumped Rock Fill

1+45

1+26

P.C. 1+58.1
P.I. = 2+21
Δ = 64° Rt.
R = 100.52'
D = 57°00'
T = 62.81'
L = 112.28'

P.T. 2+70.47

For Location of Channel beyond 2+70.47 See X-Sections

PLAN

Scale of Feet
0 10 20

PROFILE

0.5%
F.L. 923.93

F.L. 924.77

F.L. 925.08

F.L. 925.50

0.5%

CROSS SECTIONS

Scale of Feet
0 5 10

E.A.	C.Y.
120	
	2539
125	
	2169
111	
	1592

926.14
2+70.47
945.9

925.85
2+14.33
946.4

925.57
1+58.19
945.2

E.A.	C.Y.
361	
	611
209	
	546
291	
	464
	20

Removed in Rdwy. Exc.

1+00
942.3

Removed in Rdwy Exc.

925.03
0+50
942.2

924.78
0+00
932.7

Add for I-10 Dump Rock Fill Lt. & Rt. Sta. 0+00

E.A.	C.Y.
0	
	88
125	
	76
150	
	204
165	
	306
165	
	347
210	

2+50
923.5

End Channel
2+37.84 Left

Fill to elev. 933.00

½"/ft.

923.78
2+00
929.2

Fill to elev. 933.00

½"/ft.

923.95
1+85
929.8

924.03
1+50
929.9

924.78
1+00
930.6

924.53
0+50 Lt.
931.4

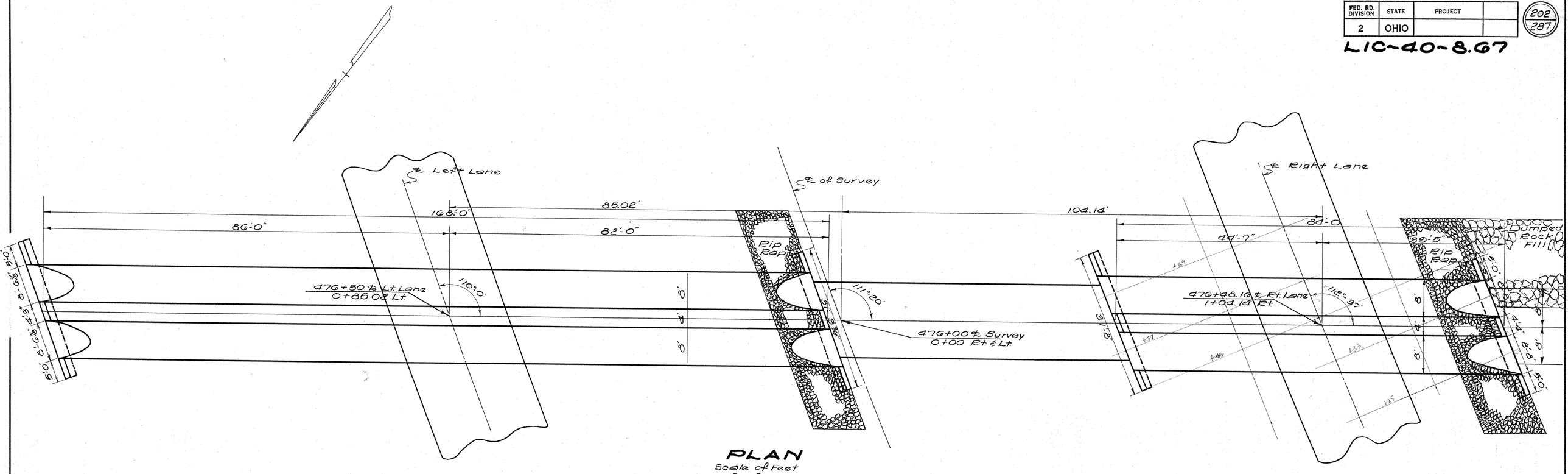
Channel Detail 47G+50

1/2

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

202
287

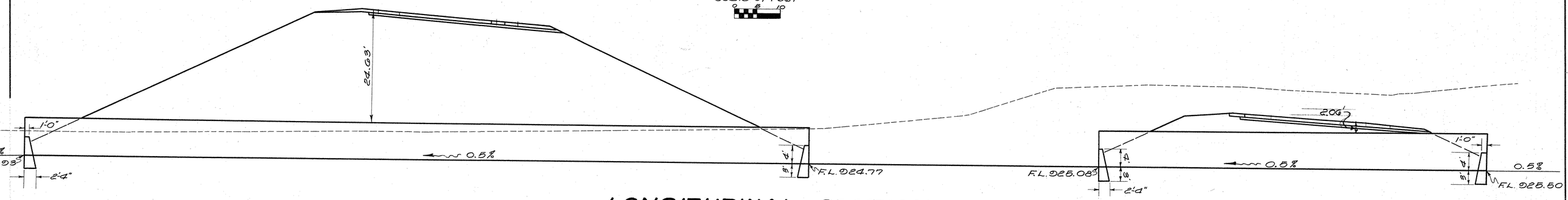
LIC-40-8.67



PLAN

Scale of Feet

0 5 10



LONGITUDINAL SECTION

CULVERT DATA

TYPE: Sectional Corrugated Metal Pipe, Std. Drwgs. S-27 P.C. 3 & S.P. 53
SIZE: 2- 96"x84' & 2-96"x168'
WORK REQUIRED: Install culvert as per plan. Excavate Inlet & Outlet channels and place riprap and dumped rock fill as shown.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	35 Cu.Yds.	Excavation for Structures
E-3	9202 C.Y.	Channel Excavation
S-1	~~43.4~~ C.Y.	Concrete for Structure - Class "E"
S-28	504 Lin.ft.	96" Sectional Corrugated Metal Pipe MG.4(g) 10-8 Gage
I-10	112 Sq.Yds.	Riprap, Type "A" as per plan.
I-10	~~345~~ Cu.Yds.	Dumped Rock Fill, as per plan.

M-24

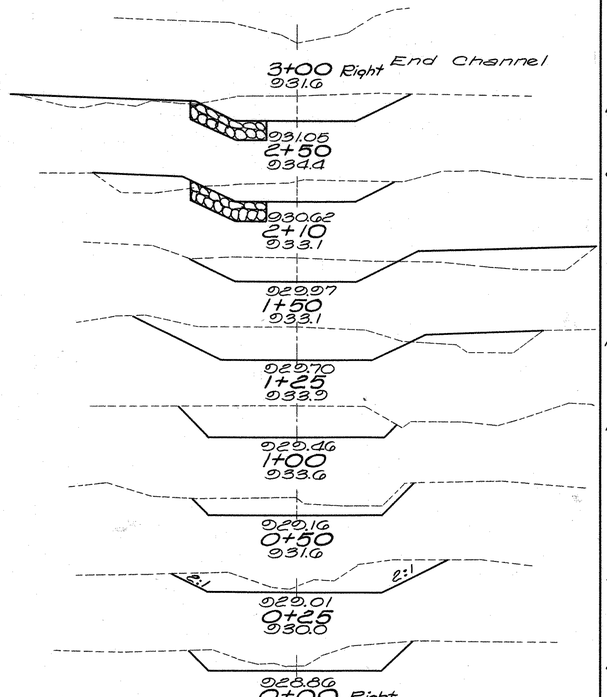
Drainage Area = 1270 Ac Qes = 550 c.f.s.			
4	47G+50	Twin Pipes	Lic-40-8.67

202
287

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

203
287

LIC-40-8.67

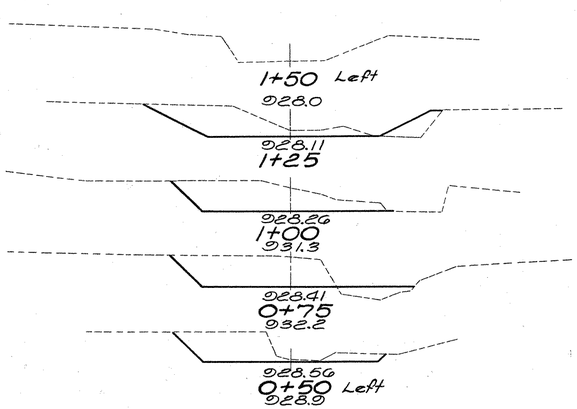


E.A.	C.Y.
0	
	98
106	
	141
84	
	167
66	
	86
120	
	103
102	
	143
52	
	57
72	59
56	102

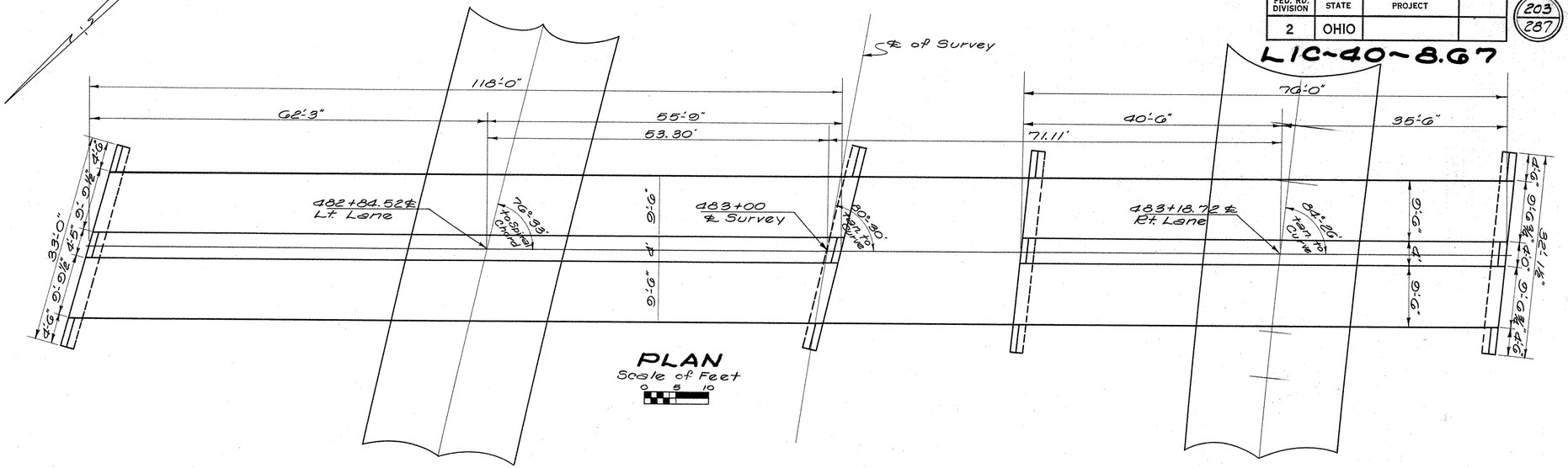
CROSS SECTIONS

Scale of Feet

0 5 10



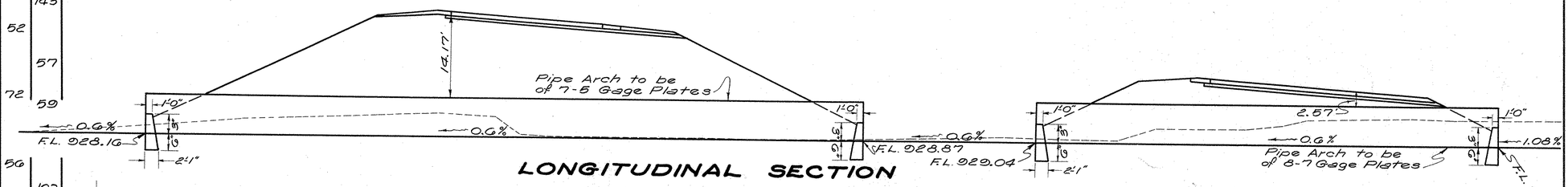
E.A.	C.Y.
0	
	28
60	
	62
74	
	69
74	
	50
54	



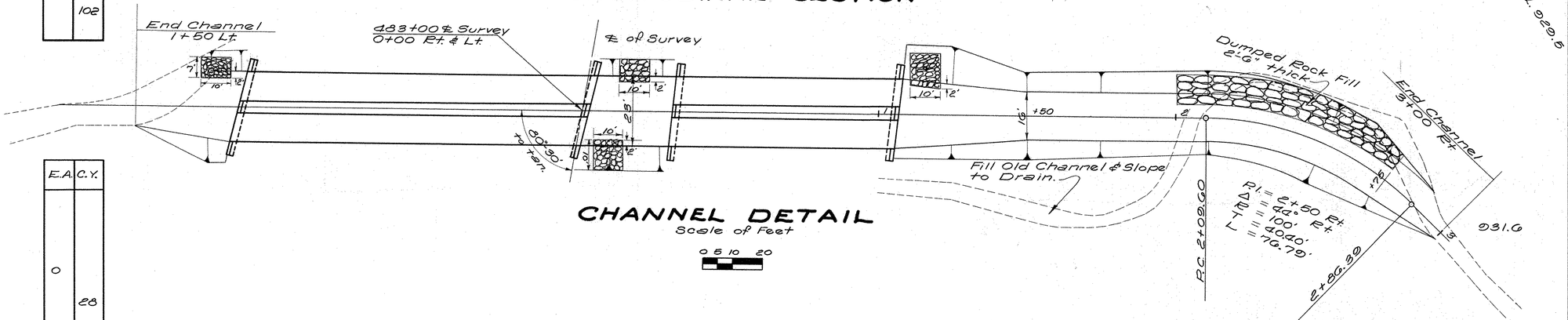
PLAN

Scale of Feet

0 5 10



LONGITUDINAL SECTION



CHANNEL DETAIL

Scale of Feet

0 5 10 20

CULVERT DATA

TYPE: Pipe Arch Culvert Std. Drwg. S.P. 53
SIZE: 2@ 9'-6"x6'-5"x118 and 2@ 9'-6"x6'-5"x 76'
WORK REQUIRED: Install Pipe-Arch Culvert as per plan. Excavate inlet and outlet channels.

ESTIMATED QUANTITIES

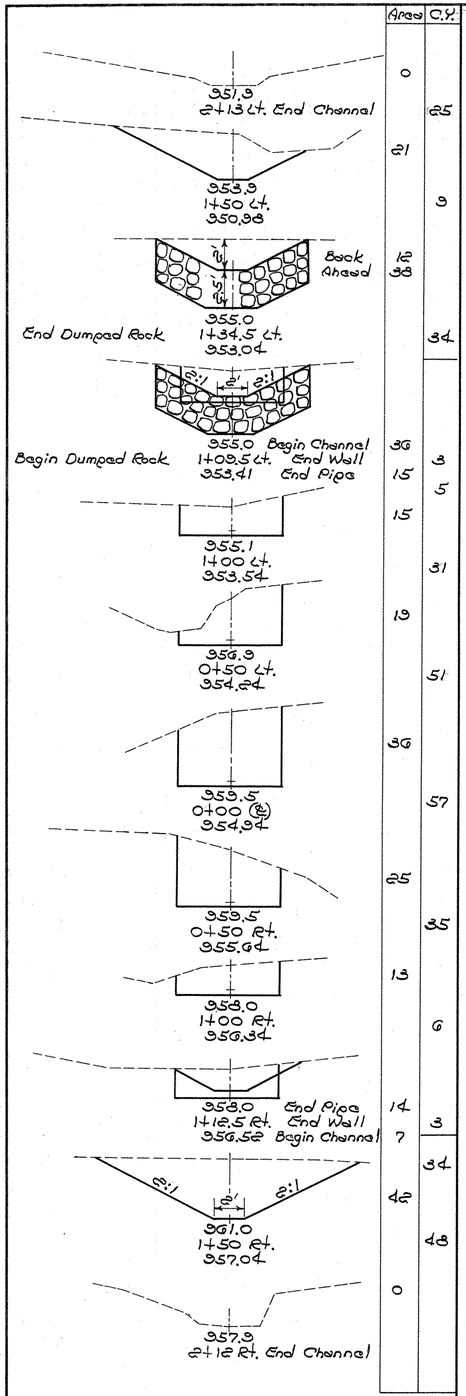
Item	Quantity	Description
E-2	36 Cu.Yds.	Excavation for Structures
E-3	1175 Cu.Yds.	Channel Excavation
S-1	36.5 Cu.Yds.	Concrete for Structures, Class "E"
S-28	236 Lin.Ft.	9'-6"x6'-5" 7-5 Gage Sectional Corrugated Pipe Arch MG4(G)
S-28	152 Lin.Ft.	9'-6"x6'-5" 8-7 Gage Sectional Corrugated Pipe Arch MG4(G)
I-10	107 Cu.Yds.	Dumped Rock Fill, as per plan

Drainage Area 1.5 Sq. Mi. Q25 = 480 c.f.s.			
5	483+00	F.A.9'-6"x6'-5"	LIC-40-0896

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

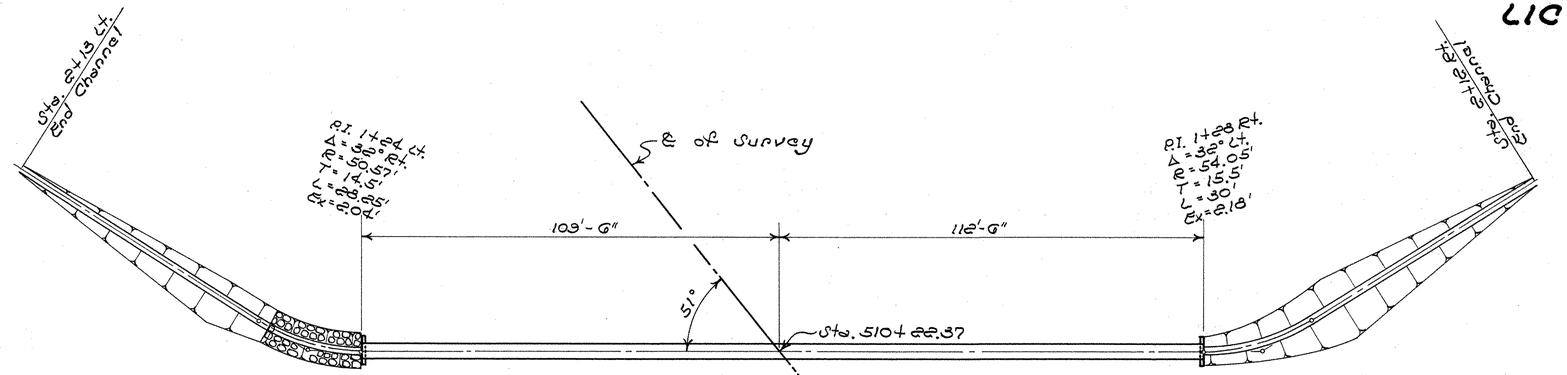
204
287

LIC-40-8.67



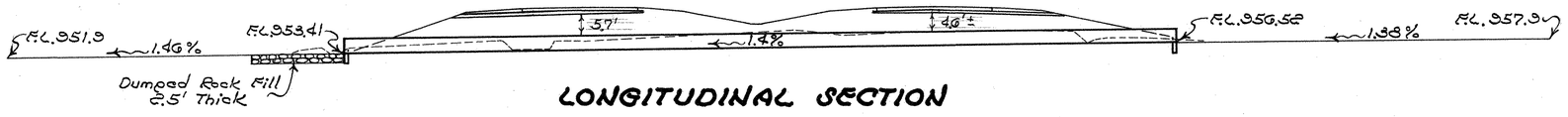
CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet



PLAN

0 5' 10' 15' 20' 25'
Scale of Feet



LONGITUDINAL SECTION

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg. No. S-27 P.C. 3 & 4
SIZE :~ 48" x 222'
WORK REQUIRED :~ Install new pipe culvert as per plan.
Place dumped rock fill at outlet end.

ESTIMATED QUANTITIES

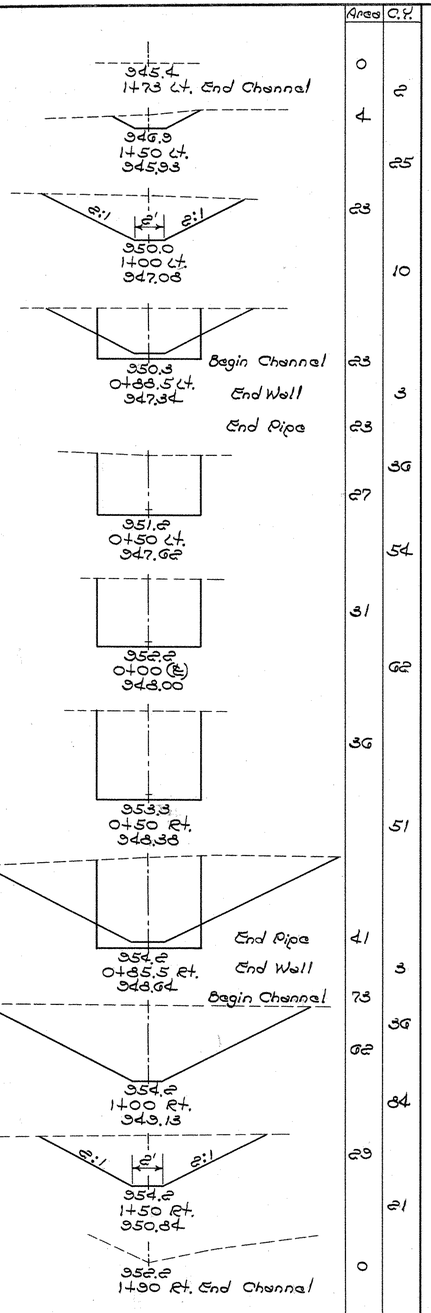
Item	Quantity	Description
E-2	191 C.Y.	Excavation for Structure
E-3	150 C.Y.	Channel Excavation
S-1	1.7 C.Y.	Concrete for End Walls, Class "E"
I-10	24 C.Y.	Dumped Rock Fill as per plan.
S-27	222 L.F.	48" Pipe for Roadway Culvert

Drainage Area 80 Ac. Q50 = .65 x .8 x 1.21 x 160 = 100 c.f.s.			
6	Sta. 510+22.37	P.C. 48" x 222'	LIC-40-0964

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

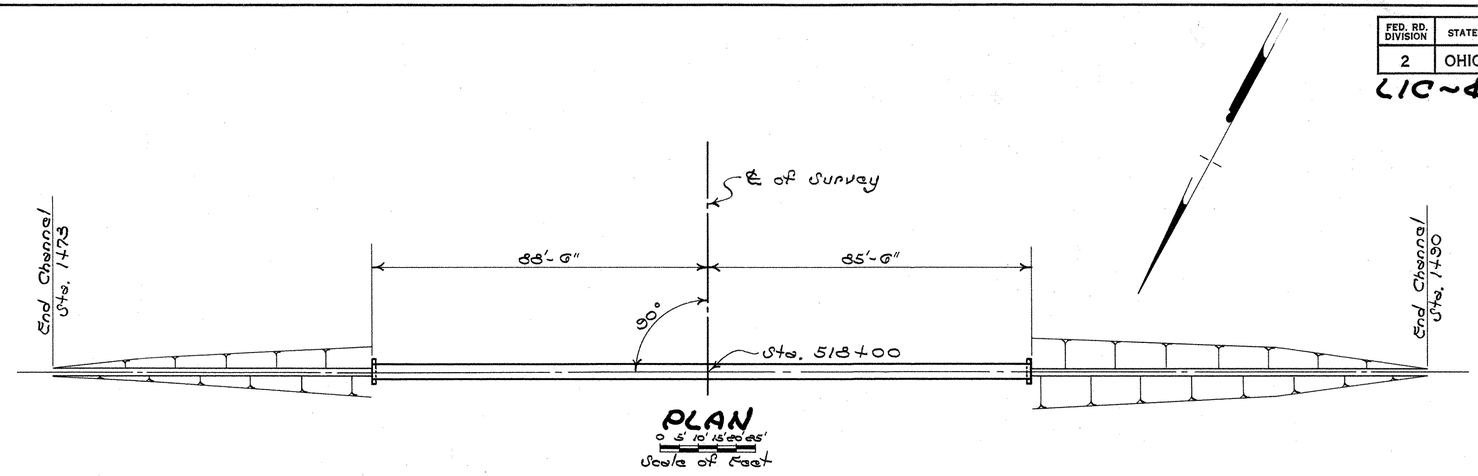
205/287

LIC~40~8.67



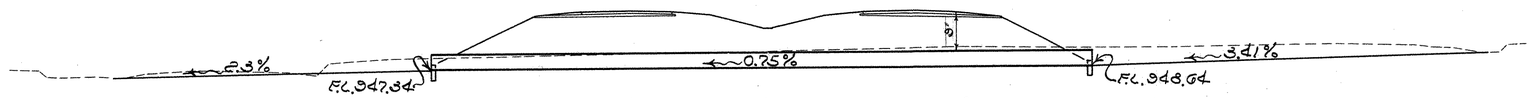
CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet



PLAN

0 5' 10' 15' 20' 25'
Scale of Feet



LONGITUDINAL SECTION

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg. No. S-27 P.C. 3 & 4
SIZE :~ 48" x 174'
WORK REQUIRED :~ Install new pipe culvert as per plan.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	209 C.Y.	Excavation for Structure
E-3	178 C.Y.	Channel Excavation
S-1	1.7 C.Y.	Concrete for End Walls Class "E"
S-27	174 L.F.	48" Pipe for Roadway Culvert.

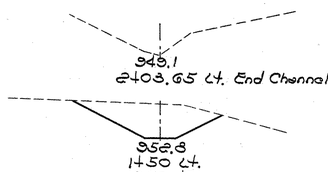
Drainage Area 85 Ac. Q50 = .65 x .8 x 1.21 x 170 = 107 c.f.s.

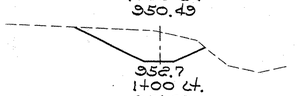
7	Sta. 518+00	P.C. 48" x 174'	LIC-40-0967

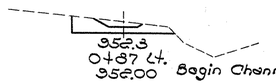
FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

206
287

LIC-40-8.67

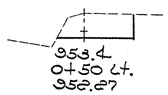


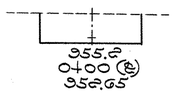


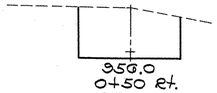


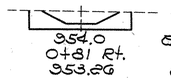
End Wall

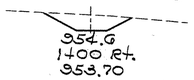
End Pipe

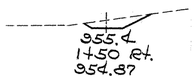


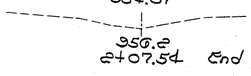








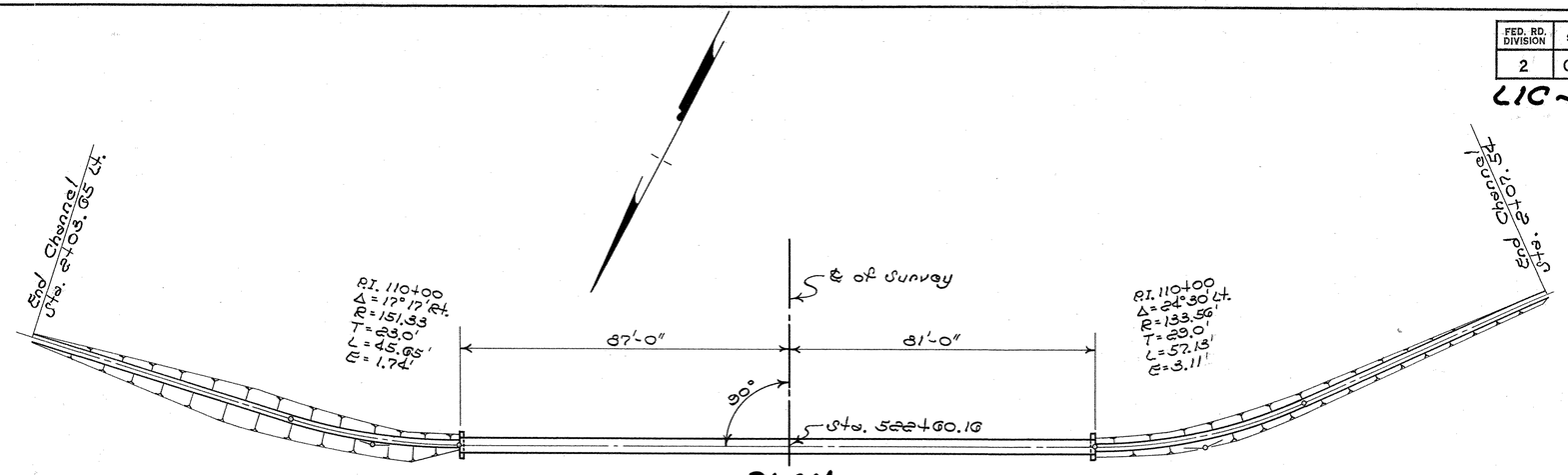




Area	C.Y.
0	
	14
14	
	23
11	
	3
1	
3	
5	8
7	
	20
14	
	33
22	
	18
8	
3	
3	
	2
4	
	6
2	
	2
0	

CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet



PLAN

0 5' 10' 15' 20' 25'
Scale of Feet

LONGITUDINAL SECTION

CULVERT DATA

TYPE :~ Pipe Culvert Std. Dwg. No. S-27 R.C. 3&4
SIZE :~ 48" X 168'
WORK REQUIRED :~ Install new pipe culvert as per plan.
Excavate inlet and outlet channels

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	85 C.Y.	Excavation for Structure
E-3	50 C.Y.	Channel Excavation
S-1	1.7 C.Y.	Concrete for End Walls Class "E"
S-27	168 L.F.	48" Pipe for Roadway Culvert

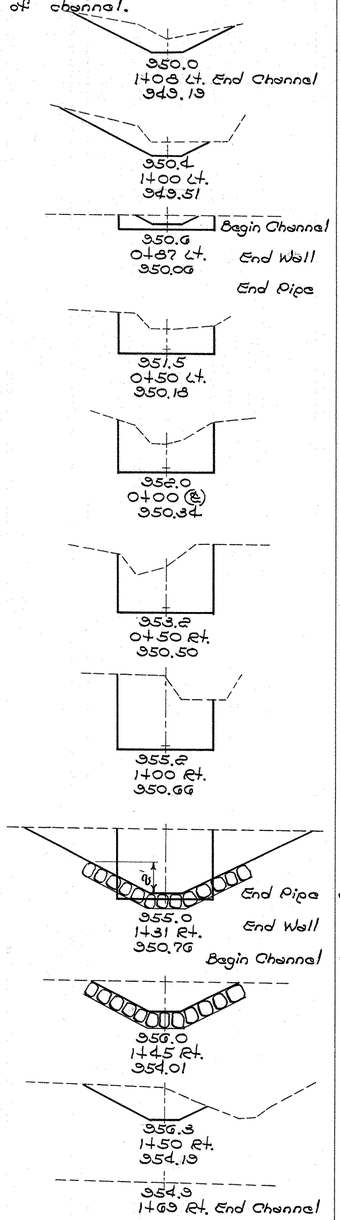
Drainage Area 77 Ac. Q50 = .65 X .8 X 1.21 X 160 = 100 c.f.s.			
8	Sta. 552+60.16	R.C. 48" X 168'	LIC-40-0984

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

207/287

LIC-40-8.67

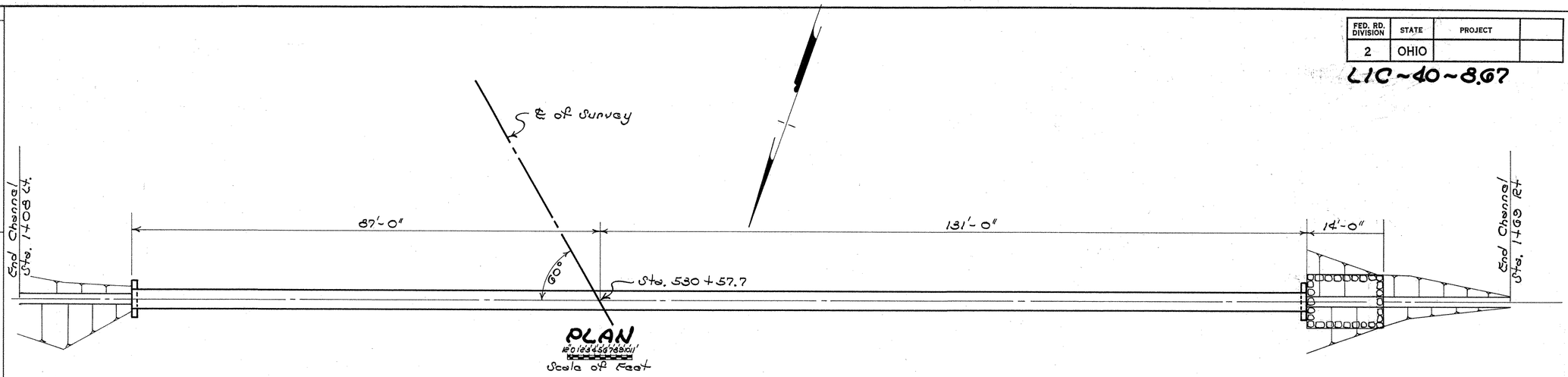
See Structure at Sta. 3+25 on N.W. Ramp S.R. 158 for continuation of channel.



Area	C.Y.
8	
	5
8	
	3
2	
	2
6	
	12
12	
	27
17	
	37
23	
	44
25	
	31
29	
	2
44	
	15
12	
	2
11	
	5
0	

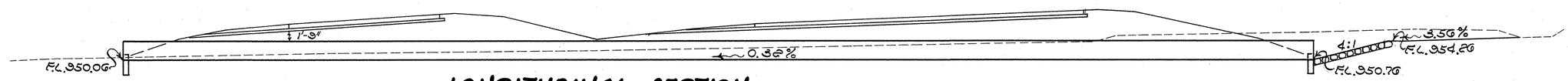
CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet



PLAN

Scale of Feet



LONGITUDINAL SECTION

CULVERT DATA

TYPE :- Pipe Culvert Std. Drwg. No. S-27 P.C. 3 & 4
SIZE :- 42" x 218'
WORK REQUIRED :- Install new pipe culvert as per plan.
Place riprap paving on down drop at inlet.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	155 C.Y.	Excavation for Structure
E-3	30 C.Y.	Channel Excavation
S-1	1.5 C.Y.	Concrete for End Walls Class "E"
I-10	17 S.Y.	Riprap Type "A" as per plan.
S-27	218 L.F.	42" Pipe for Roadway Culvert

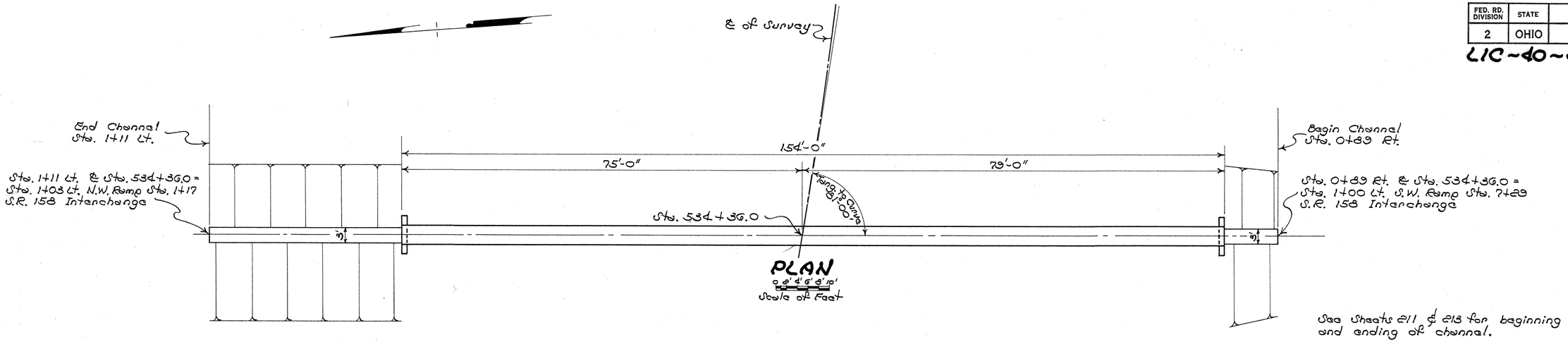
Drainage Area 60 Ac. Q_{50} = .65 X .8 X 1.25 X 135 = 85 c.f.s.

9	Sta. 530+57.7	P.C. 42" x 218'	LIC-40-0999

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

208
287

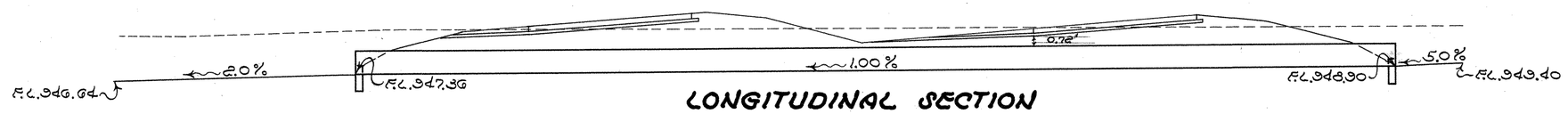
LIC-40-8.67



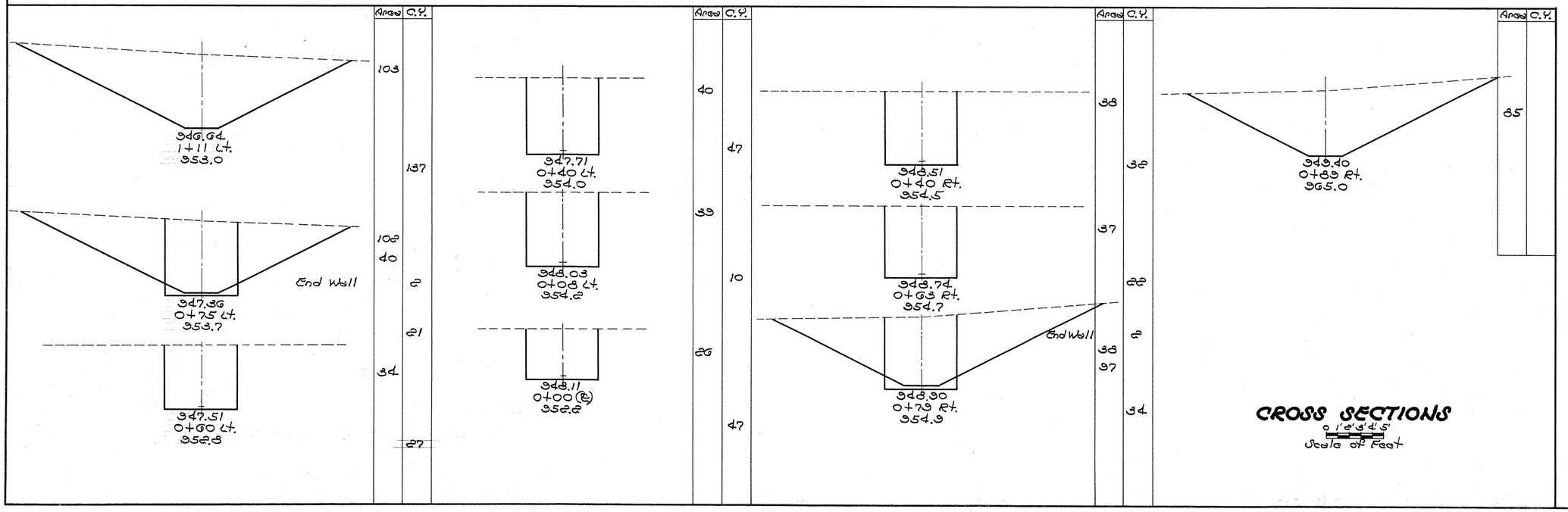
PLAN

0 2' 4' 6' 8' 10'
Scale of Feet

See Sheets 211 & 213 for beginning and ending of channel.



LONGITUDINAL SECTION



CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg No. S-27 P.C. 3 & 4
SIZE :~ 42" x 154'
WORK REQUIRED :~ Install pipe culvert as per plan. Excavate inlet and outlet channels.

ESTIMATED QUANTITIES

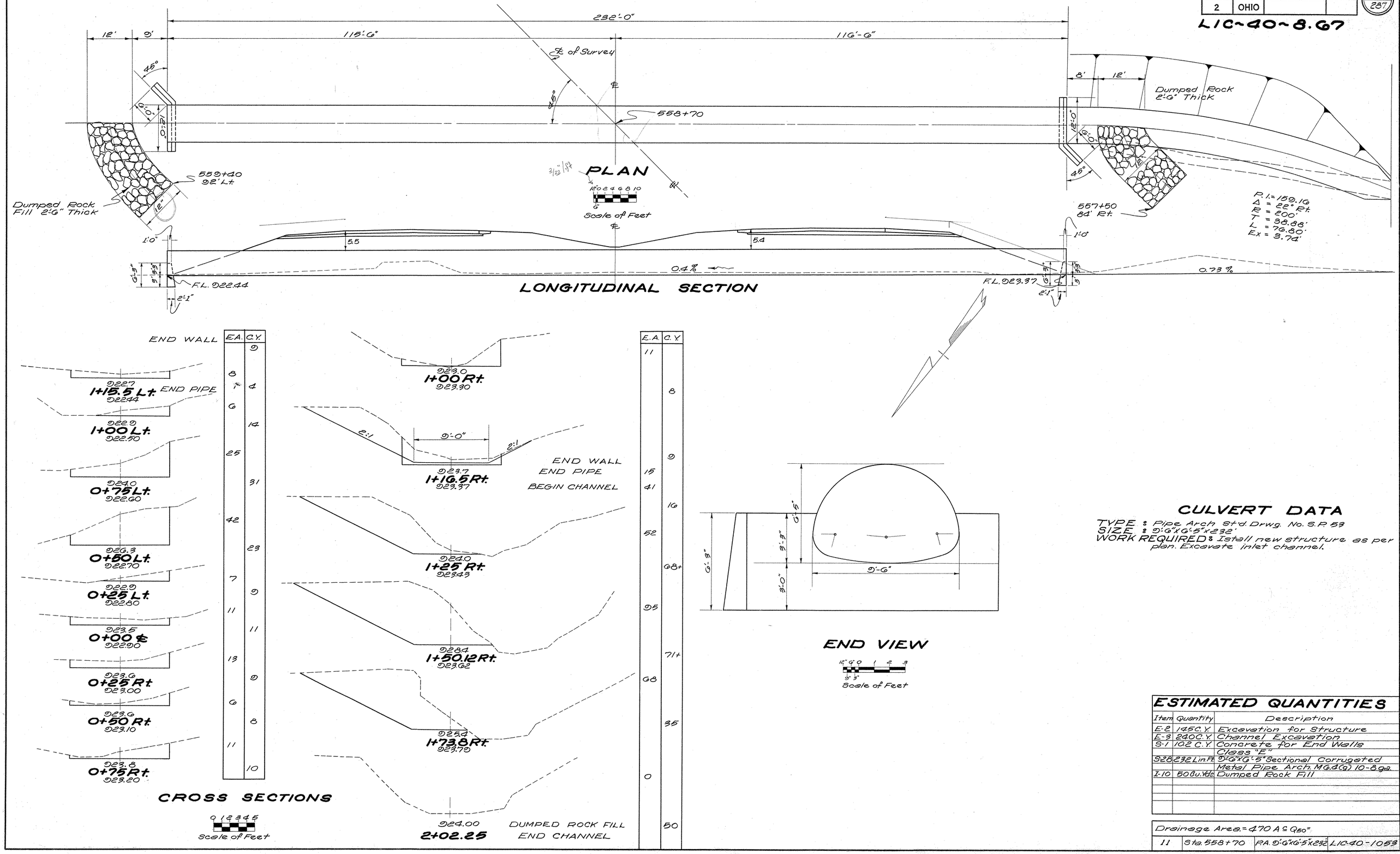
Item	Quantity	Description
E-2	210 C.Y.	Excavation for Structures.
E-3	171 C.Y.	Channel Excavation.
S-1	1.5 C.Y.	Concrete for End Walls, Class "E."
S-27	154 L.F.	42" Pipe for Roadway Culvert.
		M 6.4 (d) 10 gage

Drainage Area = 38 A.C.	Q50 = .65 x .8 x 1.21 x 100 = 65 c.f.s.		
10	Sta. 534+36.0	P.C. 42" x 154'	LIC-40-1007

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

209
287

LIC-40-8.67



PLAN

LONGITUDINAL SECTION

E.A.	C.Y.
	9
8	
1	4
6	
	14
25	
	31
42	
	23
7	
	9
11	
	11
13	
	9
6	
	8
11	
	10

E.A.	C.Y.
11	
	8
	9
15	
41	
	16
52	
	68+
95	
	71+
68	
	35
0	
	50

CROSS SECTIONS

END VIEW

CULVERT DATA

TYPE : Pipe Arch St'd. Drwg. No. S.P. 53
SIZE : 9'-6"x6'-5"x232'
WORK REQUIRED : Install new structure as per plan. Excavate inlet channel.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	145 C.Y.	Excavation for Structure
E-3	240 C.Y.	Channel Excavation
S-1	10.2 C.Y.	Concrete for End Walls Class "E"
S-28	232 Lin.Ft.	9'-6"x6'-5" Sectional Corrugated Metal Pipe Arch. M6.4(g) 10-8 ga.
I-10	50 Cu.Yds.	Dumped Rock Fill

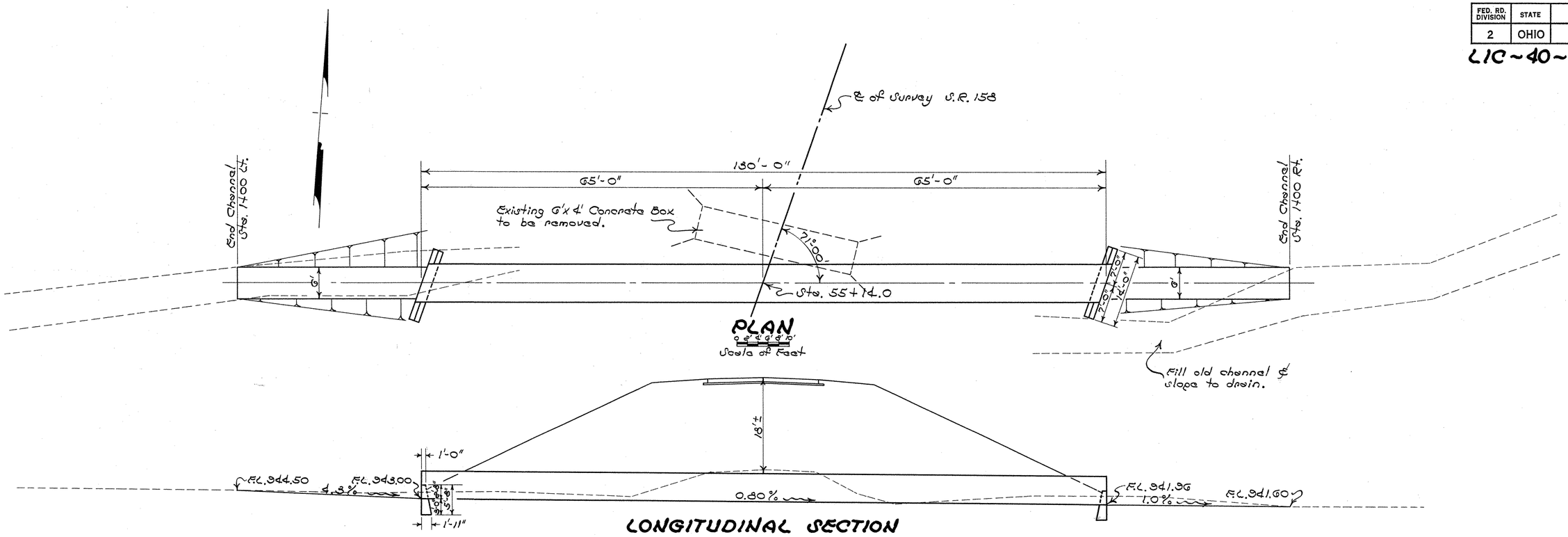
Drainage Area = 470 A ≤ Q_{50} =

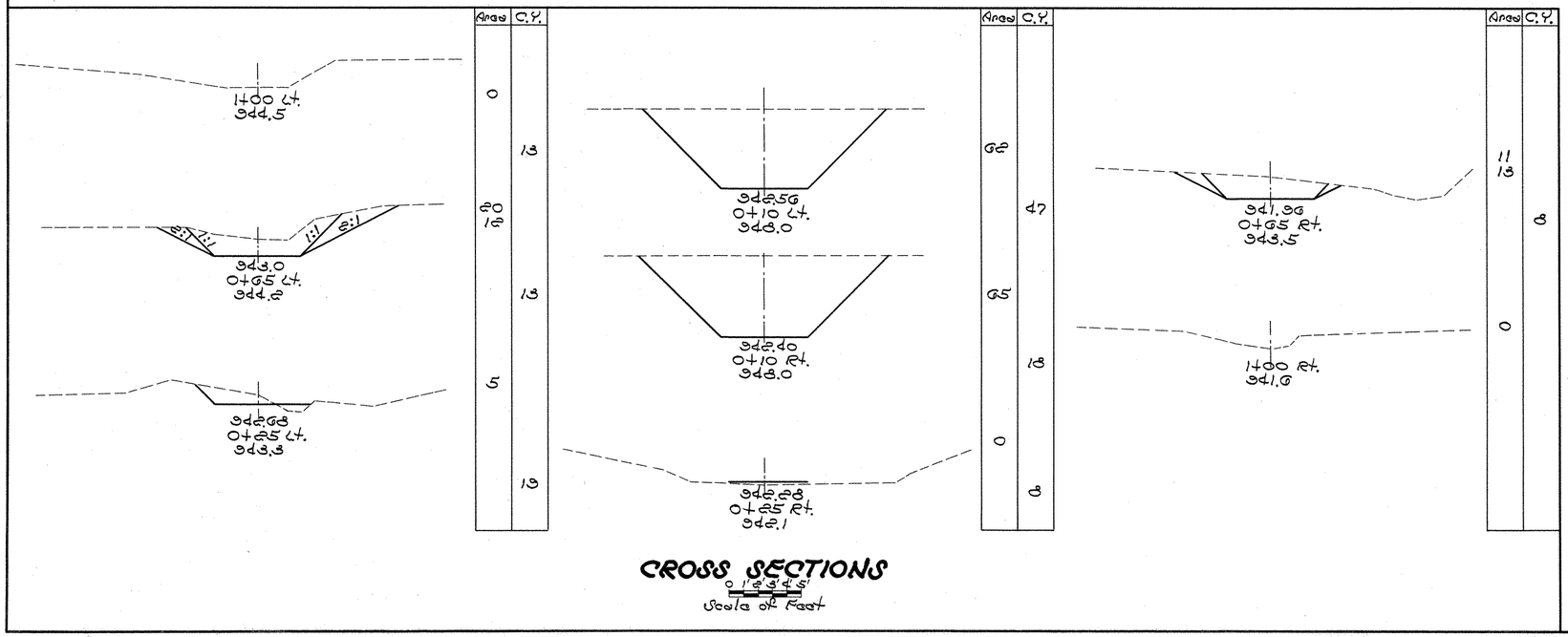
11	Sta. 558+70	P.A. 9'-6"x6'-5"x232'	LIC-40-1053

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

210
287

LIC-40-8.67





CULVERT DATA

TYPE :~ Pipe Arch, Std. Drwg. Nº. S.R. 53
SIZE :~ 7'-3" x 5'-3" x 130'
WORK REQUIRED :~ Install pipe arch as per plan. Excavate new channel; channel excavation has been calculated across the road bed for the entire length of culvert before structure excavation has been calculated.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	32 C.Y.	Excavation for Structure
E-3	166 C.Y.	Channel Excavation
S-1	7.1 C.Y.	Concrete for End Walls, Class "E"
S-24	Lump	Removal of Existing Structure
S-28	130 L.F.	7'-3" x 5'-3" Sectional Corrugated Metal Structure M64(g) 5-3 gage.

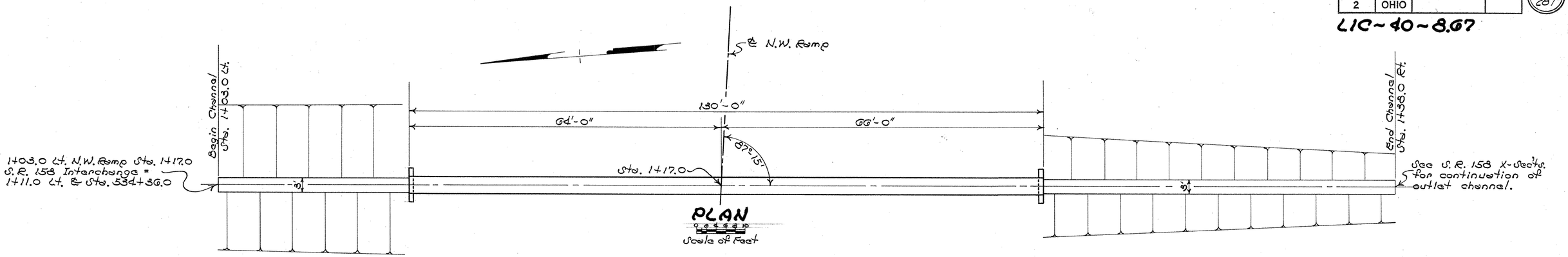
Drainage Area = 0.8 Ac.
Use 12" @ 555+36 and 55cfs @ 550+57+7 Qdo = 150cfs

12	S.R. 158 Sta. 55+74.0	RA 7'-3"x5'-3"x130'	LIC-158-0108

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

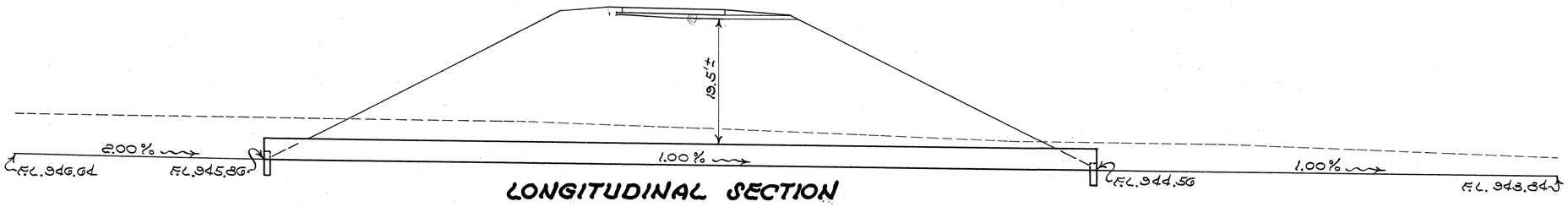
211
287

LIC-40-8.67

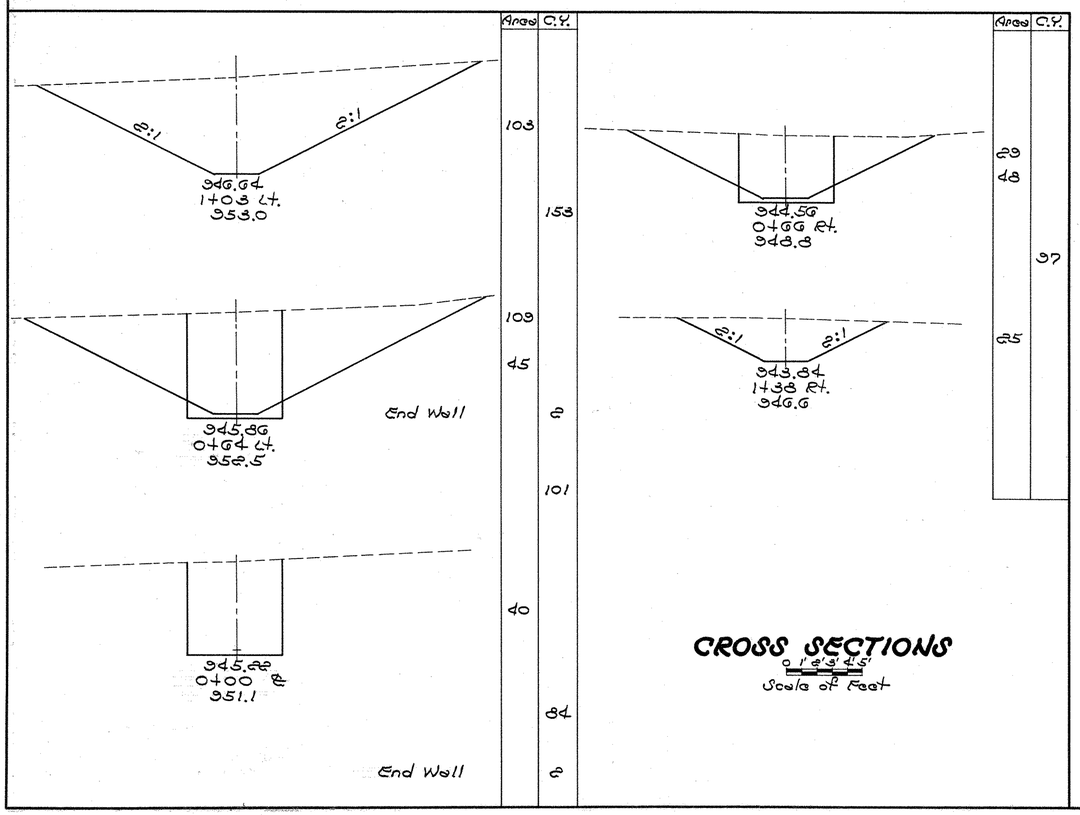


PLAN

0 2 4 6 8 10
Scale of Feet



LONGITUDINAL SECTION



Area	C.Y.
103	
	153
109	
45	
	2
	101
40	
	84
	2

Area	C.Y.
29	
48	
	97
25	

CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet

CULVERT DATA

TYPE :- Pipe Culvert Std. Drwg. No S-27 P.C. 3 & 4
SIZE :- 42" X 130'
WORK REQUIRED :- Install pipe culvert as per plan using Extra Strength Reinforced Concrete Culvert Pipe Sec. M-6.6(c) or Paved Bituminous Coated Corrugated Metal Pipe Sec. M-6.4(d).
Excavate inlet and outlet channels.

ESTIMATED QUANTITIES

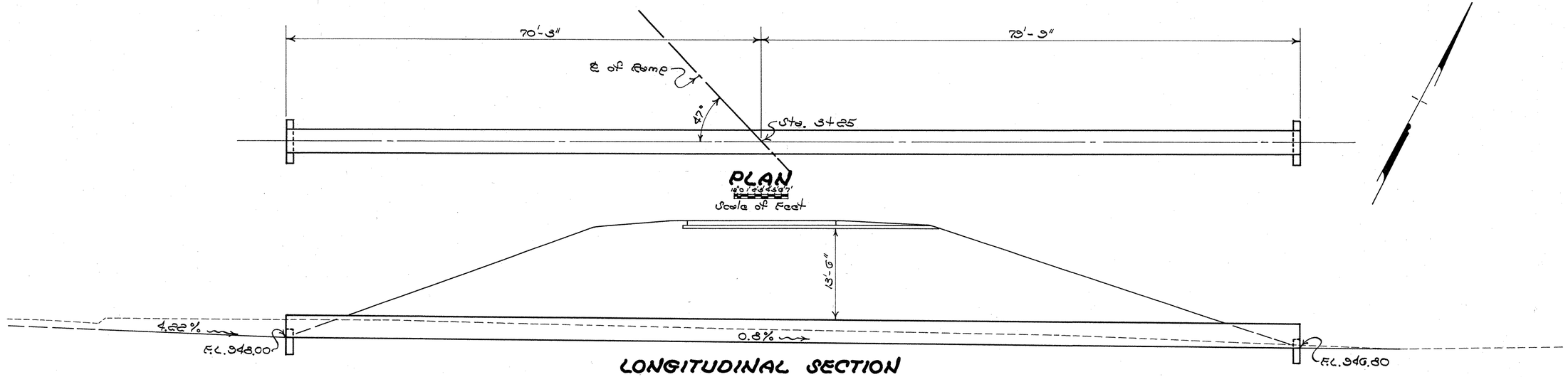
Item	Quantity	Description
E-2	189 C.Y.	Excavation for Structure
E-3	250 C.Y.	Channel Excavation
S-1	1.5 C.Y.	Concrete for End Walls, Class "E"
S-27	130 L.F.	42" Pipe for Roadway Culvert, Sec. M-6.6(c) or Sec. M-6.4(d) 10 gage

NORTH WEST RAMP ~ S.R. 158 INTERCHANGE			
Drainage Area 38 Ac. Q_{50} = .65 X .8 X 1.21 X 100 = 65 c.f.s.			
13	Sta. 1+17.0	P.C. 42" X 130'	LIC-40-

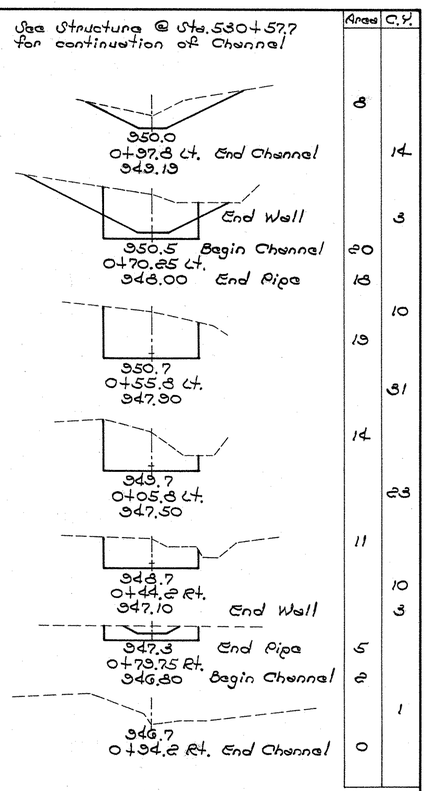
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

212
287

LIC-40-8.67



LONGITUDINAL SECTION



Area	C.Y.
8	
	14
	3
20	
18	
	10
19	
	31
14	
	23
11	
	10
	3
5	
2	
	1
0	

CROSS SECTIONS

0 1'-6" 3'-0" 4'-5"
Scale of Feet

CULVERT DATA

TYPE :- Pipe Culvert Std. Dwg. No. S-27 R.C. Type 4
SIZE :- 42" X 150'
WORK REQUIRED :- Install new pipe culvert as per plan.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	80 C.Y.	Excavation for Structure
E-3	15 C.Y.	Channel Excavation
S-1	1.5 C.Y.	Concrete for End Walls Class "E"
S-27	150 L.F.	42" Pipe for Roadway Culvert

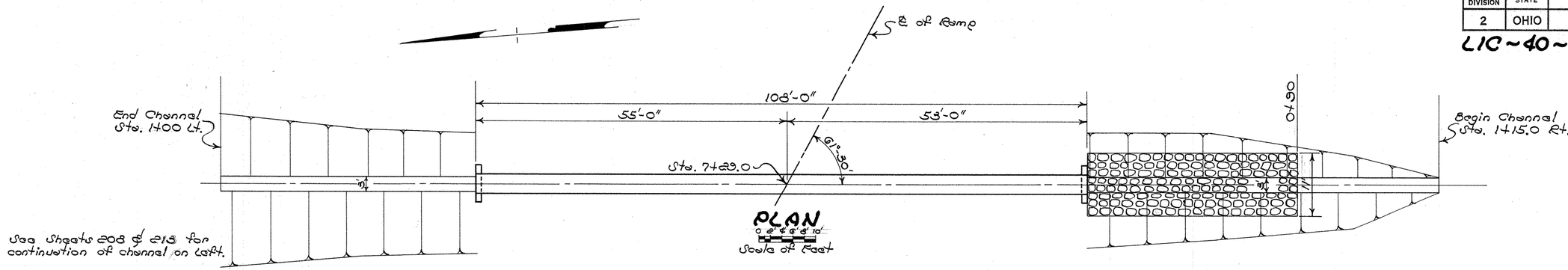
N.W. RAMP - S.R. 158 INTERCHANGE
Drainage Area 60 Ac. Q50=.65 X .8 X 1.21 X 135 = 85 cfs

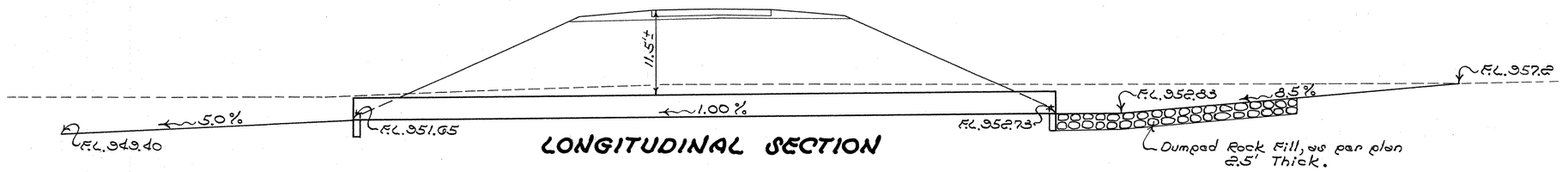
14	Sta. 3+25	R.C. 42" X 150'	LIC-40-

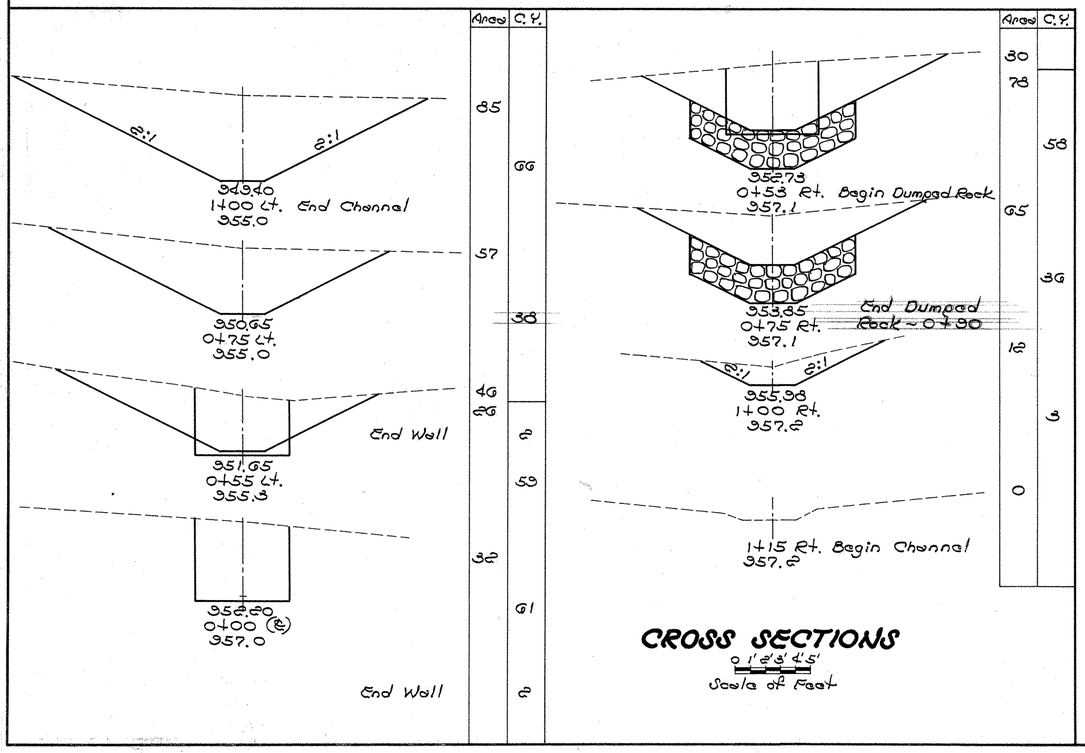
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

213 / 287

LIC-40-8.67







CULVERT DATA

TYPE :~ Pipe Culvert Std. Dwg. No. S-27 RC-3&4
SIZE :~ 42" X 108'
WORK REQUIRED :~ Install new pipe culvert as per plan. Excavate inlet and outlet channels. Place dumped rock fill, as per plan, in inlet channel.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	124 C.Y.	Excavation for Structure.
E-3	201 C.Y.	Channel Excavation.
S-1	1.5 C.Y.	Concrete for End Walls, Class "E"
S-27	108 L.F.	42" Pipe for Roadway Culvert
I-10	39 C.Y.	Dumped Rock Fill, as per plan.

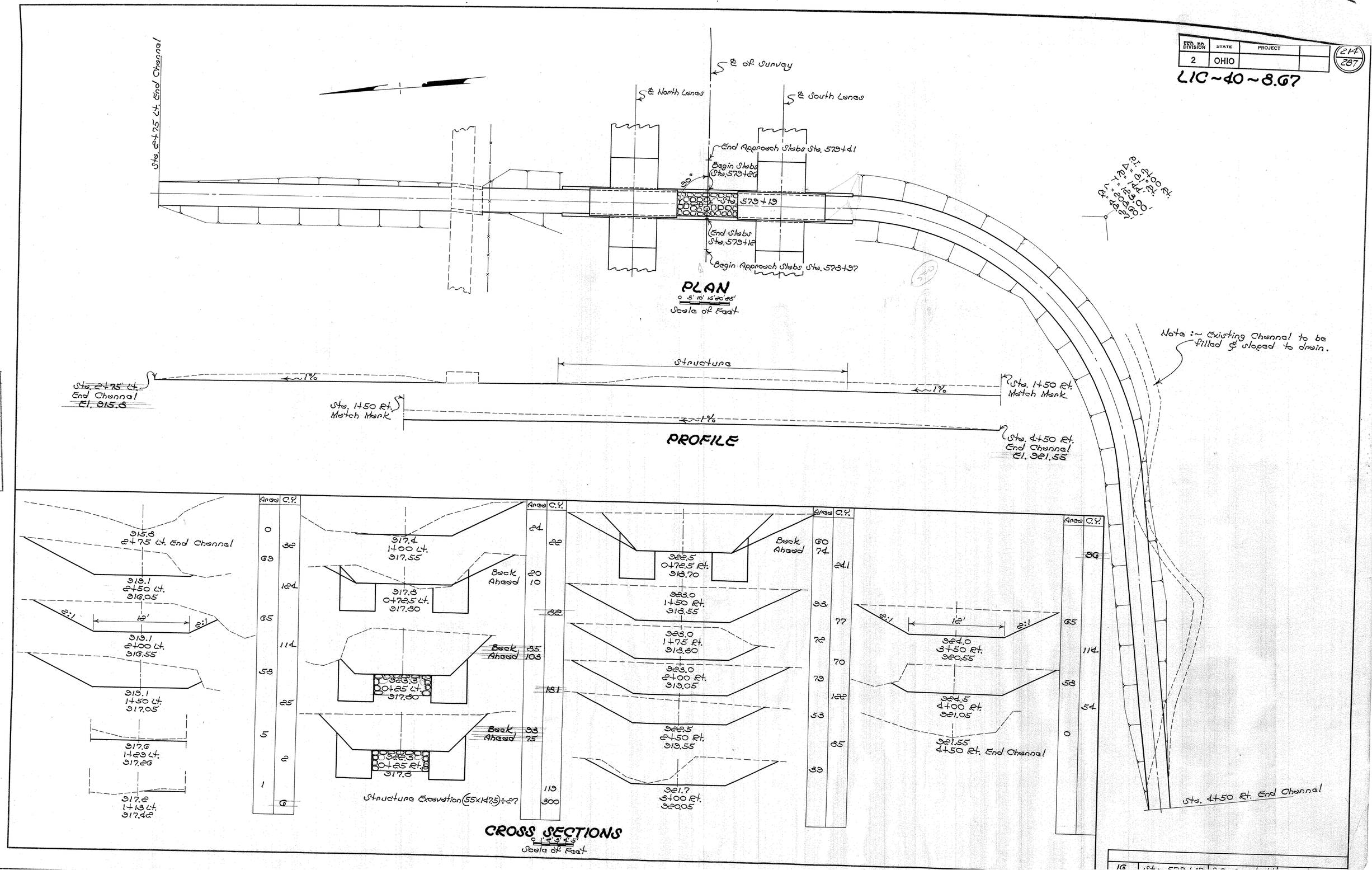
SOUTH WEST RAMP ~ S.R. 158 INTERCHANGE
Drainage Area 38 AS: $Q_{50} = .65 \times .8 \times 121 \times 100 = 65$ c.f.s.

15	Sta. 7+29.0	R.C. 42" X 108'	LIC-40-

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

214/287

LIC-40-8.67

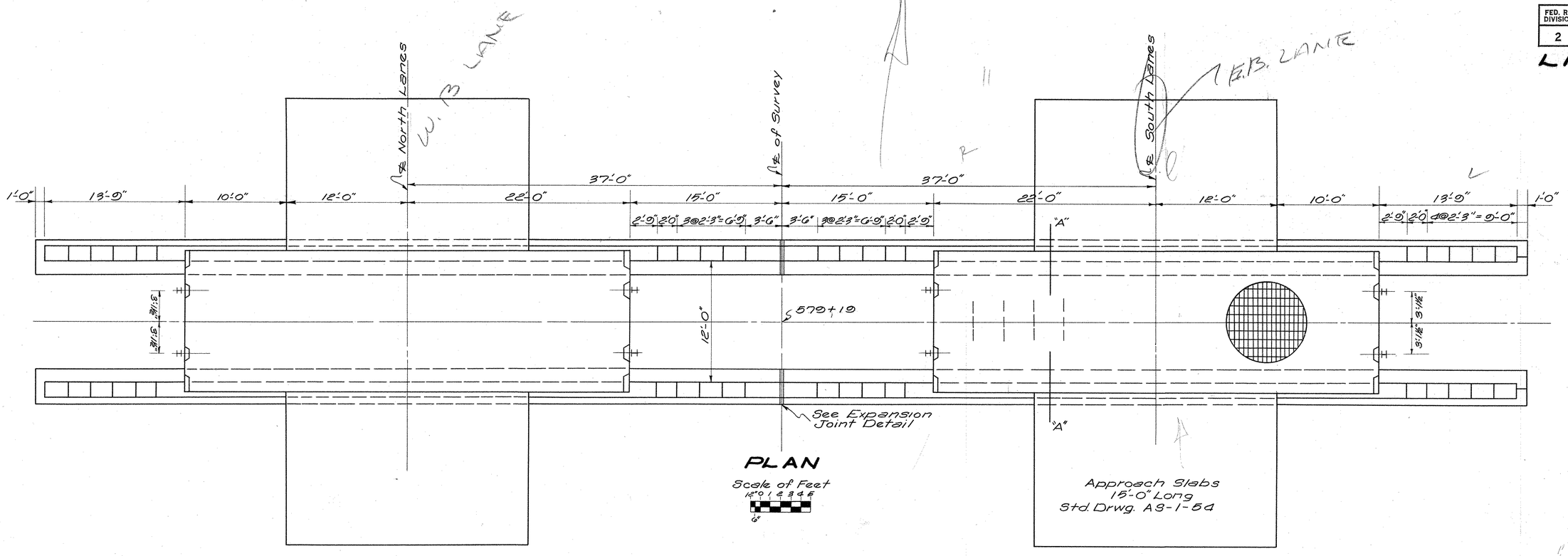


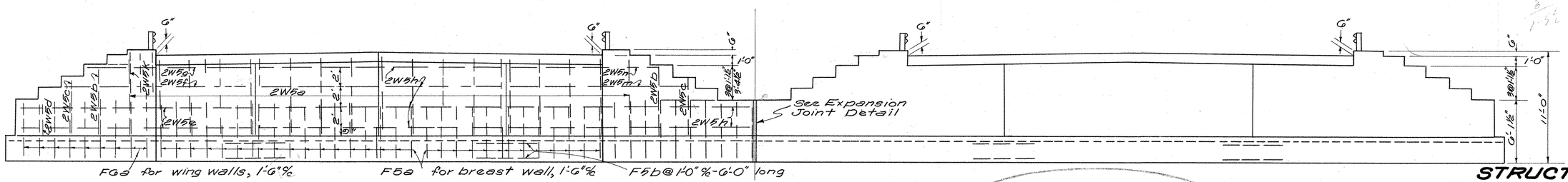
Designed	P.H.	7-26-56
Traced	R.W.	8-10-56
Checked	Baker	10-6-56

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

215 / 287

LIC-40-8.67

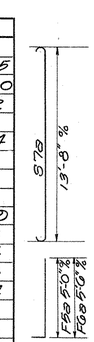


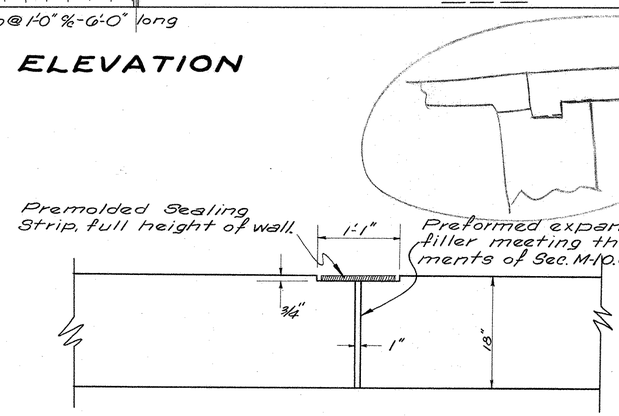


ELEVATION

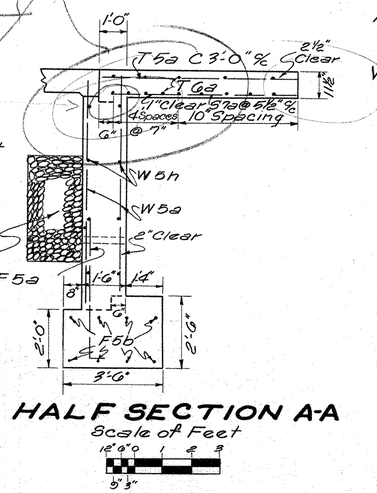
STEEL LIST

Mark	Size	Shape	N°	Length	Wt.
S7a	⅞ ϕ	Bent	190	15'-2"	5955
TGa	¾ ϕ	Strt	58	43'-6"	3700
T5a	⅝ ϕ	Strt	30	13'-6"	422
FGa	¾ ϕ	Bent	76	6'-2"	704
F5a	⅝ ϕ	Bent	124	5'-6"	711
F5b	⅝ ϕ	Strt		6'-0"	
W5a	⅝ ϕ	Strt	152	7'-9"	1229
W5b	⅝ ϕ	Strt	16	6'-9"	113
W5c	⅝ ϕ	Strt	16	5'-7½"	94
W5d	⅝ ϕ	Strt	8	4'-6"	38
W5e	⅝ ϕ	Strt	16	23'-0"	384
W5f	⅝ ϕ	Strt	8	18'-6"	154
W5g	⅝ ϕ	Strt	8	16'-3"	136
W5K	⅝ ϕ	Strt	48	4'-0"	200
W5h	⅝ ϕ	Strt	48	24'-0"	1202
W5m	⅝ ϕ	Strt	8	18'-3"	152
W5n	⅝ ϕ	Strt	8	16'-0"	134
TOTAL					15,918





EXPANSION JOINT DETAIL



HALF SECTION A-A
Scale of Feet
12" 0 1 2 3
6" 3"

STRUCTURE DATA

TYPE: Slab Bridge Std. Drwg N° SB-1-47
SPAN: 12' RDY-2@44
LOADING: S-20-46
ATTACH RAILING As per Std. Drwg N° CS1-54
WORK REQUIRED: Build new structure as per plan.
WEARING SURFACE ¾" Monolithic Concrete.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	300 C.Y.	Excavation for Structure
E-3	1566 C.Y.	Channel Excavation
S-1	458 C.Y.	Concrete for Slabs Class "C"
S-1	115.7 C.Y.	Concrete for Walls Class "E"
S-1	86.5 C.Y.	Concrete for Footings Class "E"
S-4	15,418 lb.	Reinforcing Steel
S-9	Lump Sum	Structural Expansion and contraction Joints.
S-14	56 Lin Ft.	Railing (Steel Beam Deep)
E-10	33 Cu. Yds.	Dumped Rock Fill
S-29	80 Cu. Yds.	Porous Backfill

Drainage Area 540 A℄

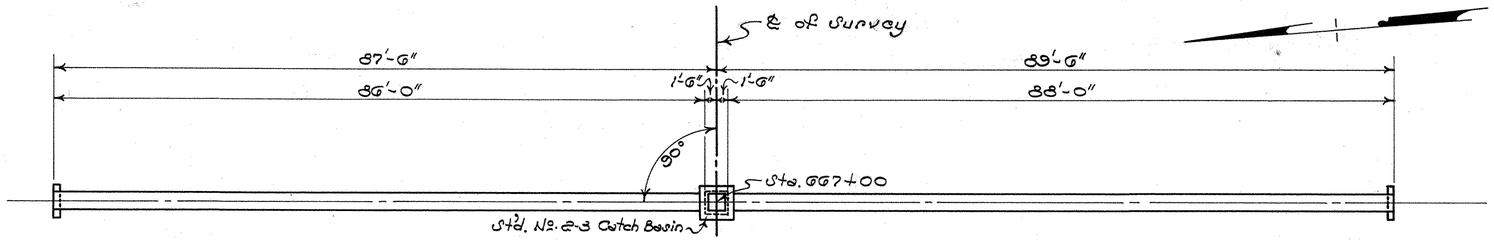
16	Sta 570+19	S.B. 12'x2@44'	LIC-40-1091

2/2

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

216 / 287

LIC-40-8.67

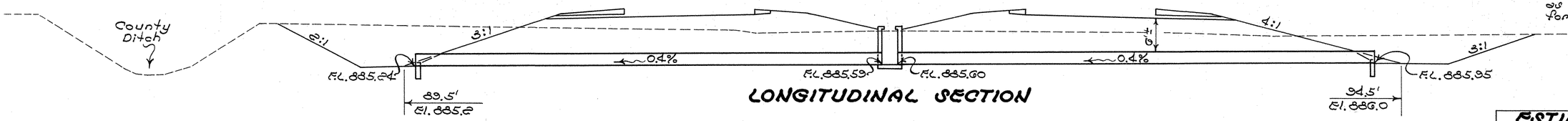


PLAN

Scale of Feet

CULVERT DATA

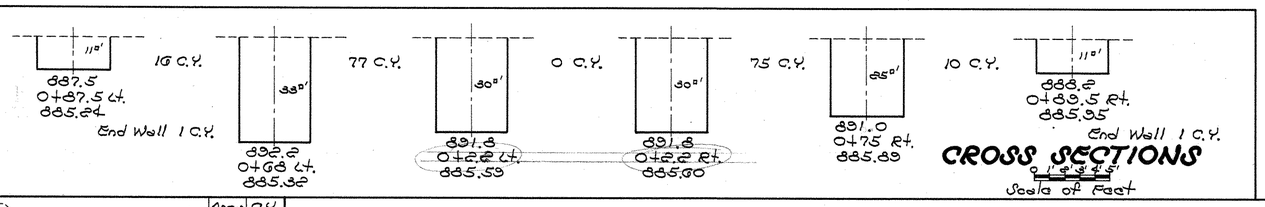
TYPE :~ Pipe Culvert Std. Dwg. S-27 R.C. 3 & 4
SIZE :~ 27"X 177' I-8 C.B. E-3
WORK REQUIRED :~ Install new Pipe Culvert as per plan, using E-3 Catch Basin for Median Inlet.



LONGITUDINAL SECTION

ESTIMATED QUANTITIES

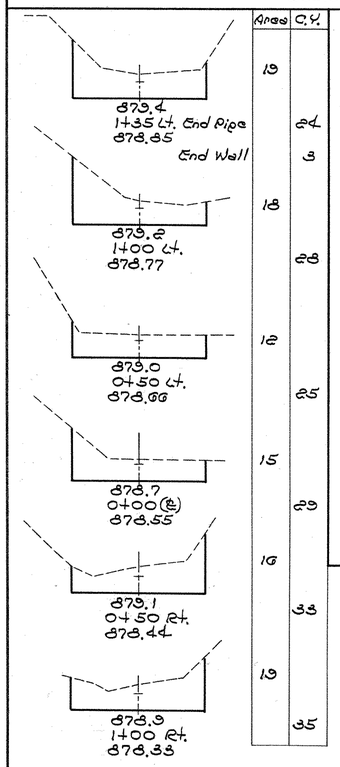
Item	Quantity	Description
E-2	180 C.Y.	Excavation for Structure
I-8	1 Only	Std. No. E-3 Catch Basin
S-1	0.9 C.Y.	Concrete for End Walls, Class "E"
S-27	174 L.F.	27" Pipe for Roadway Culvert
		Sec. M6.6(b) or M6.8(b).



CROSS SECTIONS

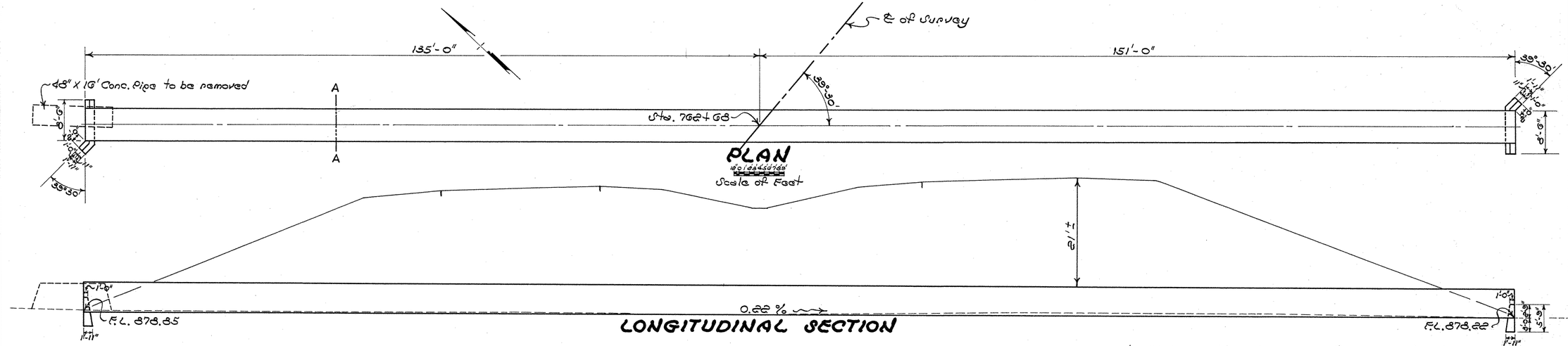
Scale of Feet

Drainage Area 80 A2. Qso=.65X.85X1.21X.65=42c.f.s.			
17	Sta. 667+00	R.C. 27"X177'	LIC-40-12.58



CROSS SECTIONS

Scale of Feet

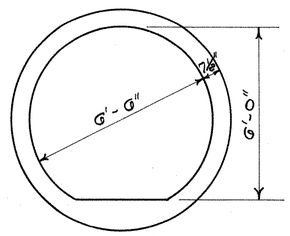


PLAN

Scale of Feet

LONGITUDINAL SECTION

NOTE :~ Cattle Pass pipe for this structure shall meet the requirements for alternate design C-2 as shown on Sheet No. 219.



SECTION A-A

Scale of Feet

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	180 C.Y.	Excavation for Structure
S-1	4.7 C.Y.	Concrete for End Walls, Class "E"
E-12	16 L.F.	48" Concrete Pipe Removed & Stored.
S-27	286 L.F.	78"x 76" Pipe for Cattle Pass Sec. M-6.6 (c).

CULVERT DATA

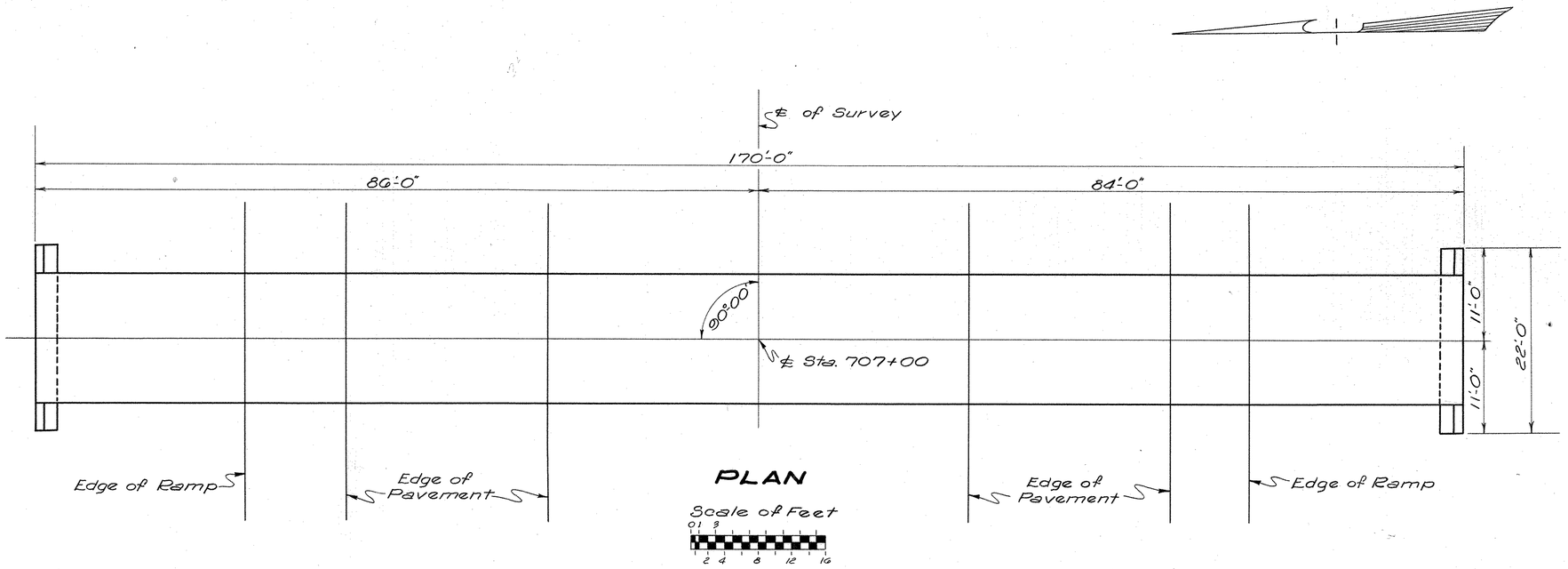
TYPE :~ Flat Base Pipe Culvert Std. Dwg. S-27 R.C. 3, S.P.-53
SIZE :~ 78"X 76" X 286'
WORK REQUIRED :~ Remove existing concrete pipe. Install new pipe culvert as per plan.

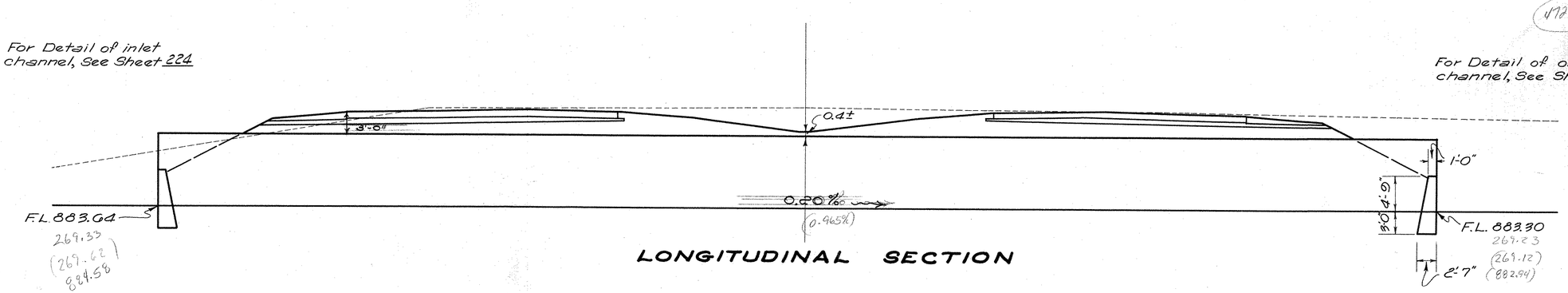
Drainage Area 300 A2. Qso=.65X.4X1.21X300=250 c.f.s.			
30	Sta. 762+68	R.C. 78"X76"X286'	LIC-40-14.39

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

217
287

L IC-40-8.67





Note:
For Cross Sections, See Sheet 225

CULVERT DATA

47c
4724.4mm x 2670.2mm

TYPE: Pipe-Arch Std. Drwg Nº S P-53
SIZE: 15'-6"x 9'-5"x 170'
WORK REQUIRED: Install Sectional Corrugated Metal Pipe-Arch culvert, as per plan. Excavate inlet and outlet channels. Bottom and corner plates to be #3 gage, all other plates to be #5 gage. Channel excavation was calculated across the roadbed for the length of the pipe culvert before structure excavation was calculated.

ESTIMATED QUANTITIES

Item	Quantity	Description
E 2	70 Cu Yds.	Excavation for Structures
E 3	14,174 C.Y.	Channel Excavation
S 1	15.1 Cu. Yds.	Concrete for Endwalls, Class E
328	170 Lin. Ft.	15'-6"x 9'-5" Sectional Corrugated Metal Structure
		M-6.4 (g) 5-3 Gage
328	42 Lin. Ft.	15'-6"x 9'-5" Sectional Corrugated
		Metal Structure M-6-4 (g)
		5-3 Gage
I-10	185 Sq. Yds.	Type "A" Riprap, as per plan

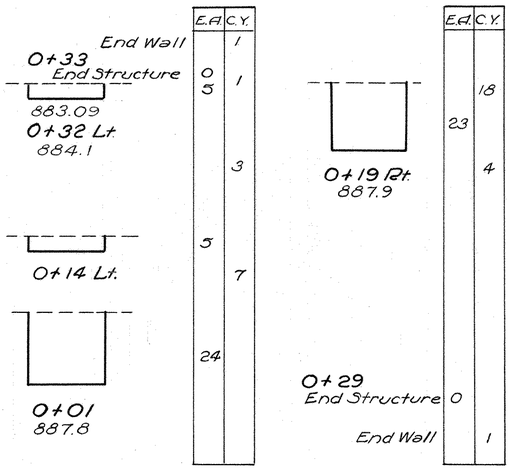
Drainage Area = 6 Sq. Miles Q_{25} = 585 c.f.s.

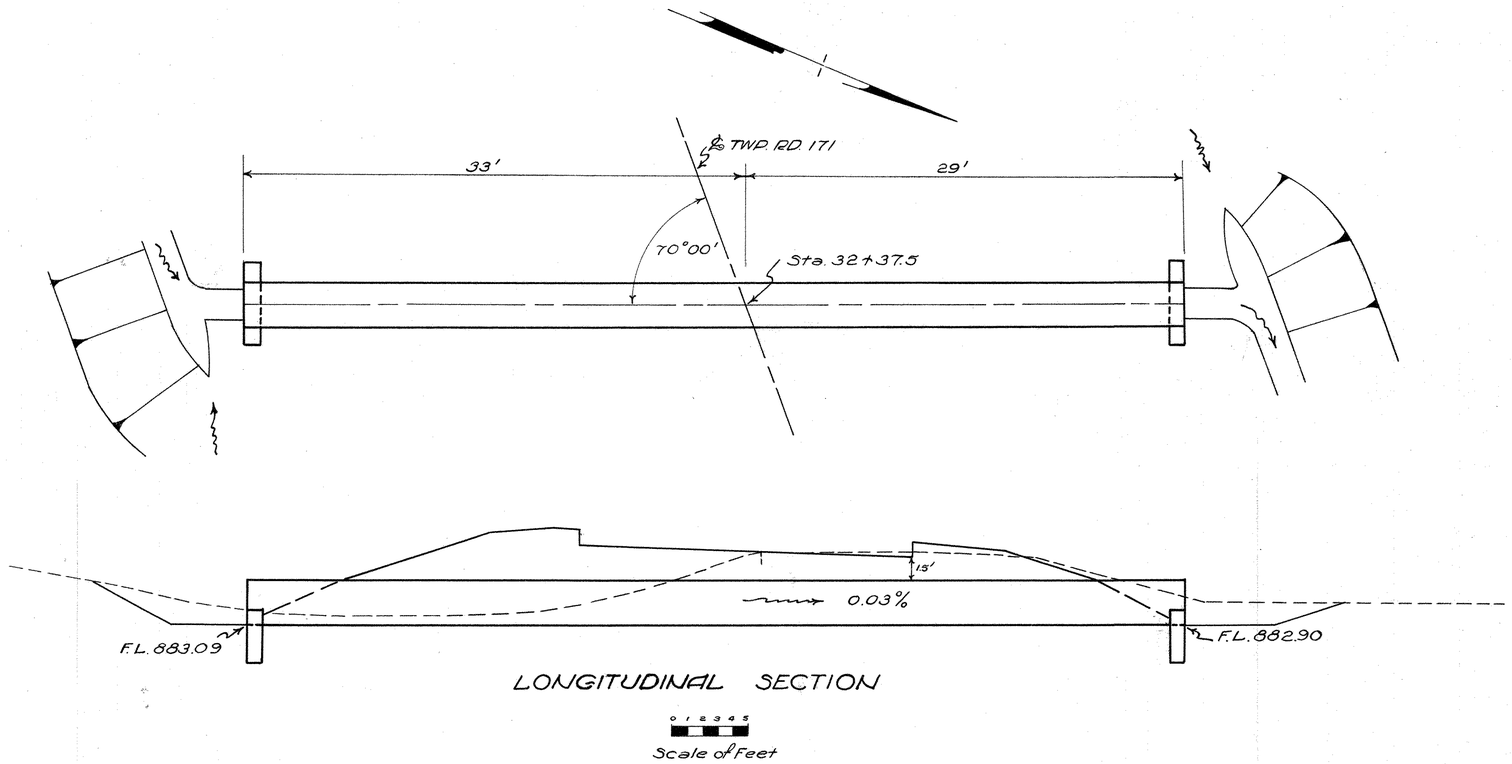
21	Sta. 707+00	R.A. 15'-6"x 9'-5"x 170'	L IC-40-13.34

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

218
287

LIC-40-8.67





LONGITUDINAL SECTION

Scale of Feet

CULVERT DATA

TYPE · Pipe Culvert Std. Drwg. S-27 PC3&4
SIZE · 36"x62'
WORK REQUIRED · Install pipe culvert as per plan.

ESTIMATED QUANTITIES

Item	Quantity	DESCRIPTION
E-2	35 Cu.Yds.	Excavation for Structures
S-1	12 Cu.Yds.	Concrete for Endwalls, Class "E"
S-27	62 Lin.Ft.	36" Pipe for Roadway Culverts

Drainage Area 20 Ac. Q50=.65X1.21X64X.6=30 c.f.s.

32	Sta. 32+37.5	PC. 36"x62'	TWP. RD 171

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

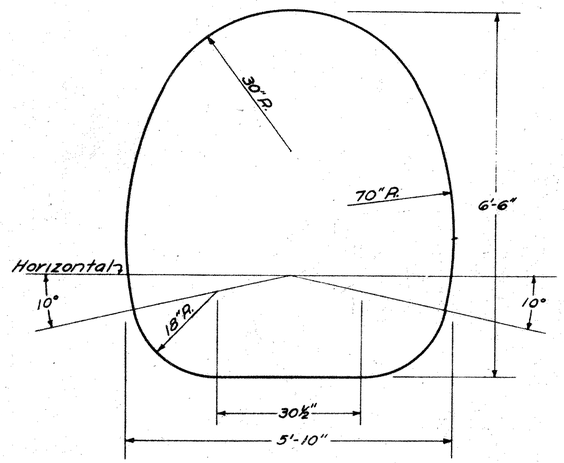
219/287

LIC-40-8.67

PIPE CATTLE PASS STRUCTURES

When a pipe cattle pass structure is specified, either of the alternates shown hereon may be used. The design shall be in accordance with the appropriate table giving effect to the cover over the top of the pipe.

ALTERNATE "A"



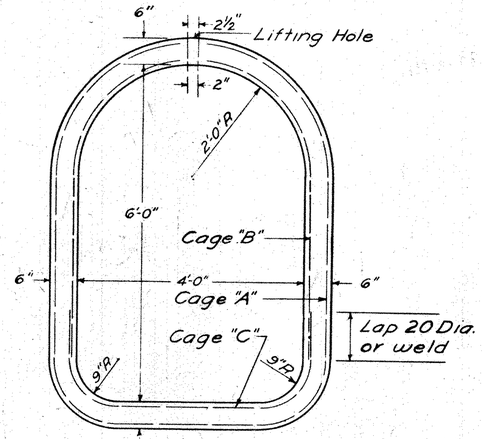
SECTION
SECTIONAL CORRUGATED METAL PIPE ARCH
scale ¾" = 1'-0"

If alternate "A" cattle pass structure is used, materials and construction shall be in accordance with Section M-6.4(g), standard drawing SP-53 and Item 5-28, except that the structure shall be measured and paid for as Item 5-27. The pipe shall be paved in accordance with Section M-6.4(e).

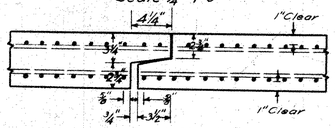
DESIGN	COVER	GAGE *
A-1	2'-3'	8-7
A-2	3'-10'	10-8
A-3	10'-12'	8-7
A-4	12'-14'	7-5
A-5	14'-16'	5-3
A-6	16'-18'	1-1

* The first number indicates the gage of all plates except the bottom and corner plates. The second number indicates the gage of bottom and corner plates.

ALTERNATE "B"



SECTION
scale ¾" = 1'-0"



JOINT DETAIL
scale 1½" = 1'-0"

4'×6' REINFORCED CONCRETE PIPE

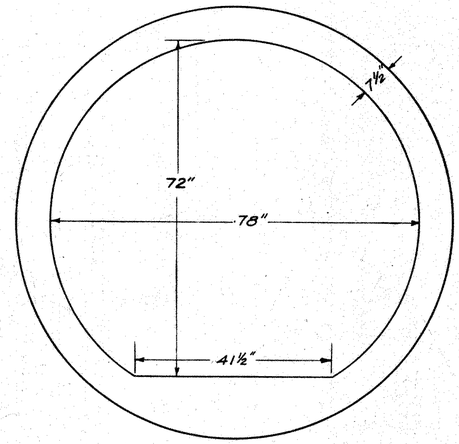
All splices in cage "A" shall be welded or have 20 bar diameters lap for deformed bars and 40 bar diameters lap for wire.

Minimum steel requirements are listed below.

Materials, design and manufacturing methods shall meet the requirements of Sec. M-6.6, Reinforced Concrete Pipe, except as otherwise noted. Concrete stresses shall have a minimum ultimate compressive value of 4500 lbs. per sq. in. Sections of pipe shall have a minimum length of four feet.

DESIGN	COVER ft.	STEEL AREA PER FT. OF PIPE IN SQ. IN.		
		Cage "A"	Cage "B"	Cage "C"
B-1	2-11	0.28	0.28	0.28
B-2	11-14	0.28	0.28	0.36
B-3	14-17	0.28	0.28	0.44
B-4	17-19	0.28	0.28	0.50
Minimum longitudinal steel = 2.1 sq. in. equally spaced				

ALTERNATE "C"



SECTION
78"×72" REINFORCED CONCRETE PIPE
scale ¾" = 1'-0"

Materials, design and manufacturing methods shall meet the requirements of Sec. M-6.6, Reinforced Concrete Pipe, except as otherwise noted. Concrete stresses shall have a minimum ultimate compressive value of 4500 lbs. per sq. in.

DESIGN	COVER	PIPE CLASS.
C-1	2' to 16'	Sec. M-6.6(b)
C-2	16' to 24	Sec. M-6.6(c)

ALTERNATES A & B ARE VOID

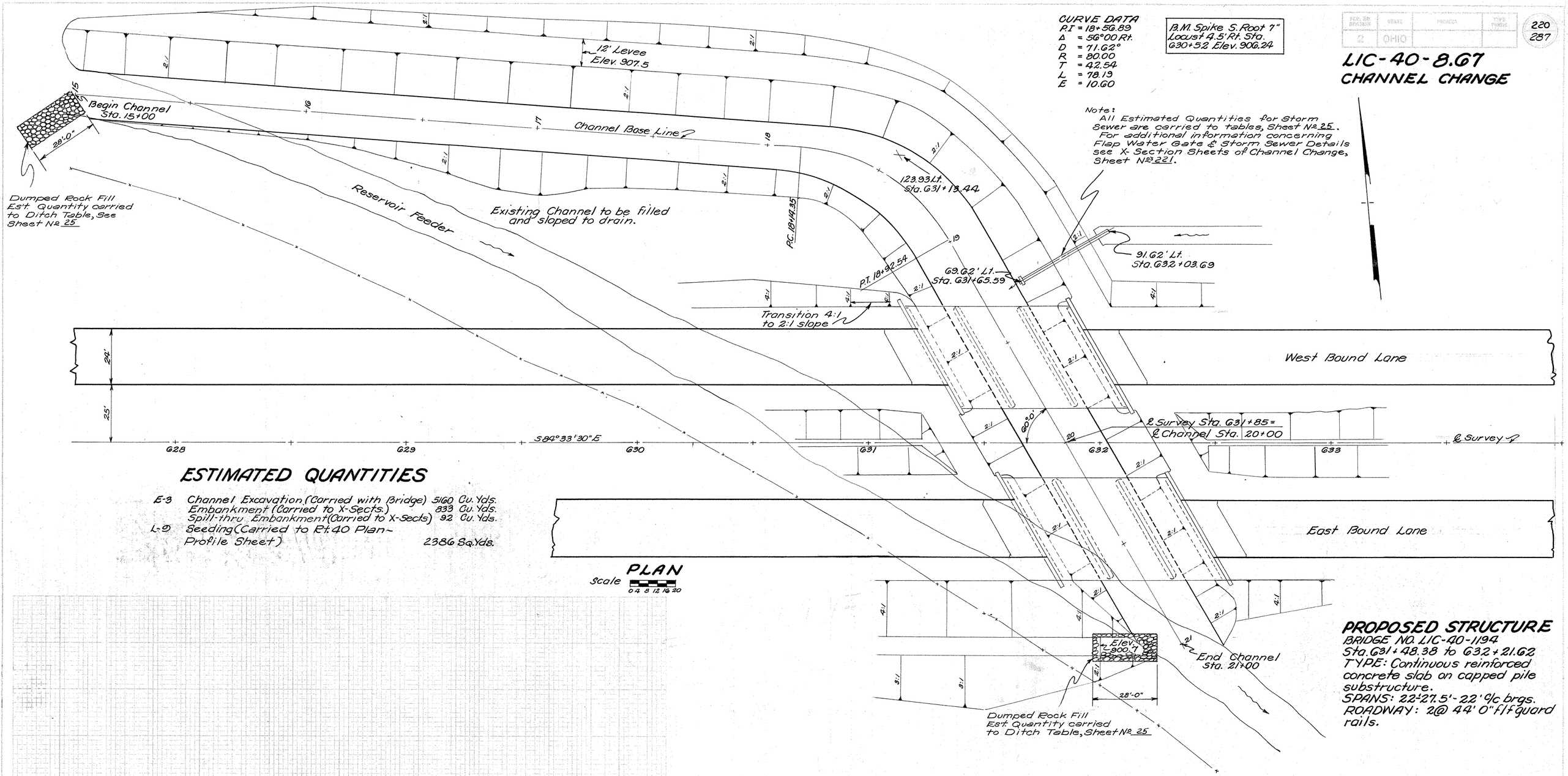
CATTLE PASS STRUCTURE DETAILS
7-4-55

LIC-40-8.67
CHANNEL CHANGE

CURVE DATA
P.I = 18+56.89
Δ = 56°00 Rt.
D = 71.62°
R = 80.00
T = 42.54
L = 78.19
E = 10.60

B.M. Spike S. Root 7" Locust 4.5' Rt. Sta. 630+52 Elev. 906.24

Note:
All Estimated Quantities for Storm Sewer are carried to tables, Sheet No. 25.
For additional information concerning Flap Water Gate & Storm Sewer Details see X-Section Sheets of Channel Change, Sheet Nos. 221.

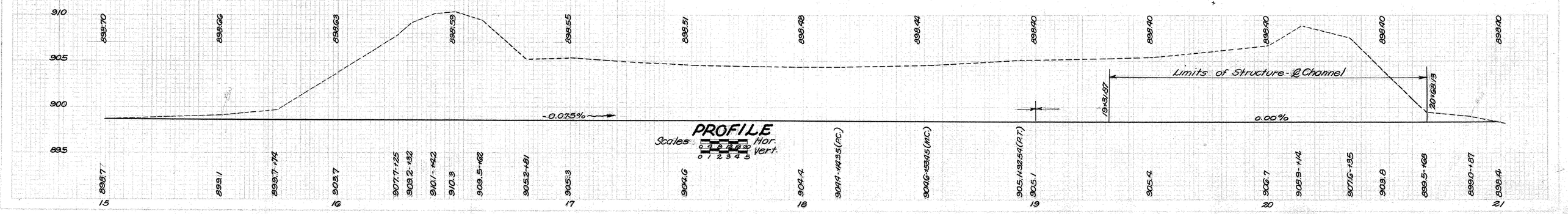


ESTIMATED QUANTITIES

E-3	Channel Excavation (Carried with Bridge)	5160 Cu. Yds.
	Embankment (Carried to X-Sects.)	833 Cu. Yds.
	Spill-thru Embankment (Carried to X-Sects)	92 Cu. Yds.
L-9	Seeding (Carried to Rt. 40 Plan-Profile Sheet)	2386 Sq. Yds.

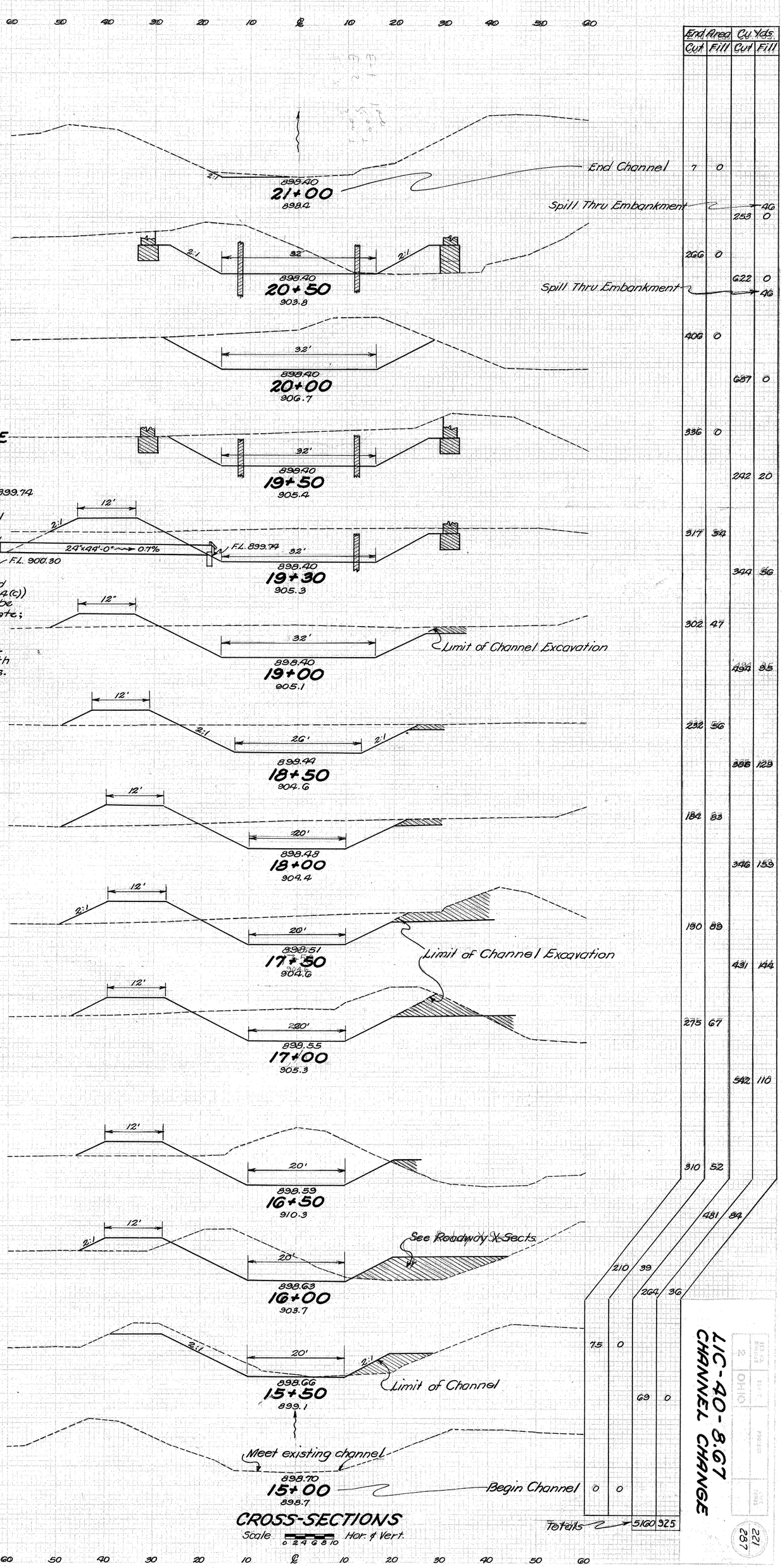
PLAN
Scale 0 4 8 12 16 20

PROPOSED STRUCTURE
BRIDGE NO. LIC-40-1194
Sta. 631+48.38 to 632+21.62
TYPE: Continuous reinforced concrete slab on capped pile substructure.
SPANS: 22'-27.5'-22' c/c brgs.
ROADWAY: 2@ 44' 0" f/f guard rails.



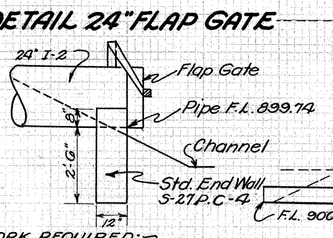
PROFILE
Scales Hor. 0 4 8 12 16 20 Vert. 0 1 2 3 4 5

RESERVOIR FEEDER STA. 631+85



Sta.	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
21+00	7	0		
			40	0
			253	0
20+50	266	0		
			622	0
			46	
20+00	406	0		
			687	0
19+50	336	0		
			242	20
19+30	317	342		
			344	56
19+00	302	47		
			494	85
18+50	232	56		
			386	128
18+00	184	83		
			346	153
17+50	180	89		
			431	144
17+00	275	67		
			542	110
16+50	310	52		
			481	84
16+00	210	39		
			264	36
15+50	75	0		
			69	0
15+00	0	0		
Totals			5160	925

DETAIL 24" FLAP GATE



WORK REQUIRED:—
Install 24" Bituminous Coated Corrugated Metal Pipe (Sec. M-6.4(c)) as per plan. Flap Gate is to be 24" Automatic Drainage Gate; Armco Model 100, Brown & Brown Type M-5 Class 1, or approved equal, as per plan. Flap Gate shall be fitted with brass studs, nuts & bushings.

Note:— Elevation of Levee = 907.5'

RESERVOIR FEEDER STA. 631+85

LIC-40-8.67
CHANNEL CHANGE

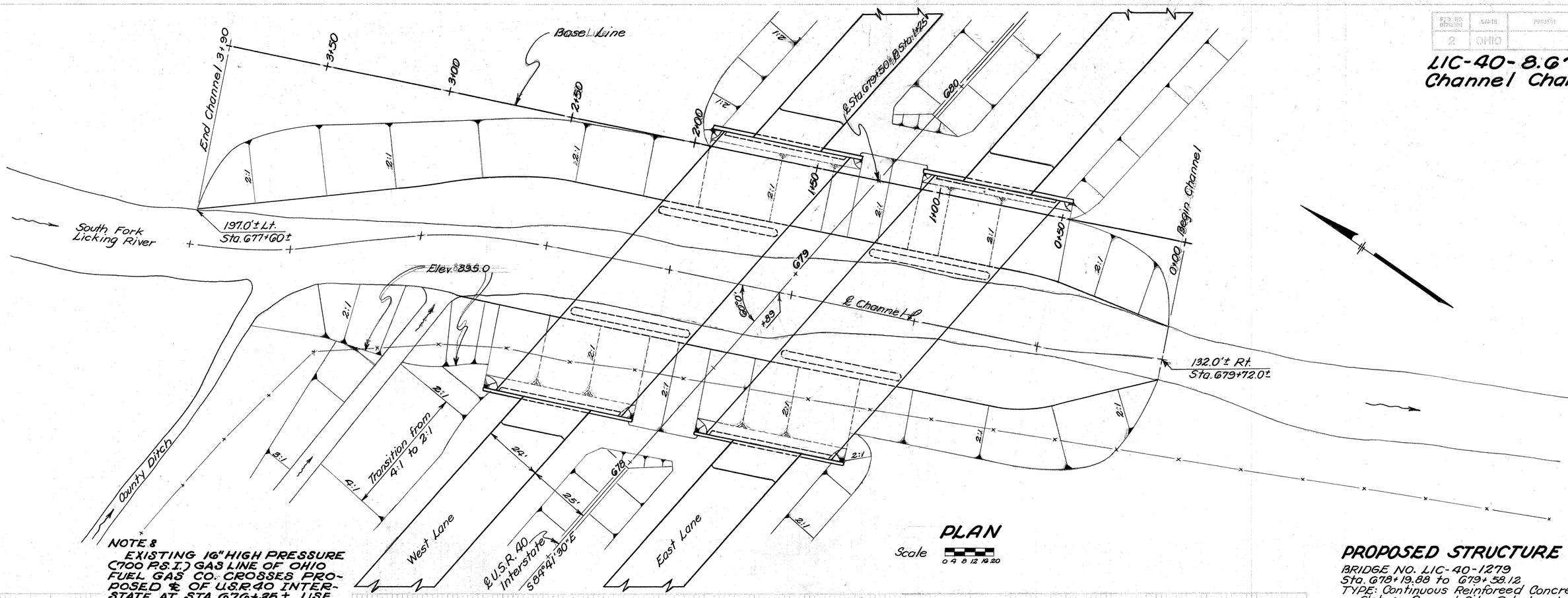
2	OHIO	SHEET NO.	
		TOTAL SHEETS	
		CONTRACT NO.	
		DRAWING NO.	

221
237

FED. ROAD DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

222
287

LIC-40-8.67
Channel Change

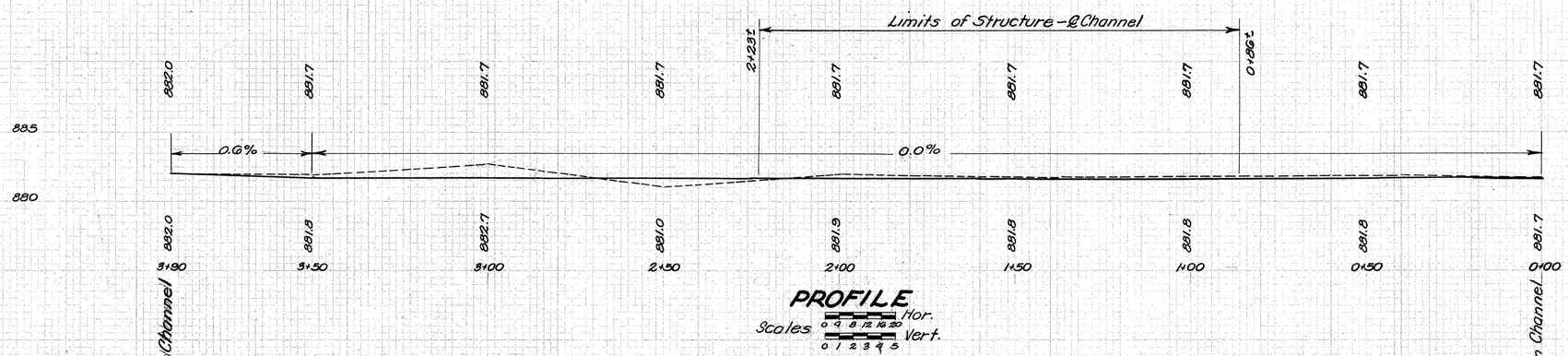


NOTE:
EXISTING 16" HIGH PRESSURE (700 P.S.I.) GAS LINE OF OHIO FUEL GAS CO. CROSSES PROPOSED ℄ OF U.S.R. 40 INTERSTATE AT STA. G76+35±. USE EXTREME CARE IN THIS AREA.

PLAN

Scale 0 4 8 12 16 20

B.M. Spike S. Side 10" Walnut 13' Lt. Sta. 678+00 El. 893.83



PROFILE

Scales Hor. 0 4 8 12 16 20
Vert. 0 1 2 3 4 5

PROPOSED STRUCTURE

BRIDGE NO. LIC-40-1279
Sta. G78+19.88 to G79+58.12
TYPE: Continuous Reinforced Concrete Slab on Capped Pile Substructure
Spans: 42'-52.5'-42' ℄ brg's.
Roadway: 44'-0" f/f Guard Rails

ESTIMATED QUANTITIES

E-3	Channel Excavation (Carried with Bridge)	5358 Cu. Yds.
	Spill Thru Embankment (Carried to X-Sects)	169 Sq. Yds.
L-9	Seeding (Carried to Line Sheet)	2004 Sq. Yds.

SOUTH FORK LICKING RIVER STA. 67

FED. AID PROJECTS	STATE	PROJECT	TYPE YEARS
2	OHIO		

223
287

LIC-40-8.67
Channel Change

CROSS SECTIONS

Scales: 0 2 4 6 8 10 Hor. & Vert.

	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
	0			
			79	00
	85	0	339	0
	135	0	812	0
	542	0	1025	0
Spill thru Embankment	565	0	951	0
	462	0	849	76
Spill thru Embankment	455	0	837	0
	416	0		
	449	0		
Totals	5339	0		

Base Line

End Channel

Existing Ground
3+90
882.0

C-335
2:1
881.7
54.0'

3+50
881.8

C-335
881.7
30.0'

3+00
882.7

C-412
881.7
25.0'

2+50
881.0

C-130
881.7
79.0'

F-19
814.8

C-340
881.7
25.0'

2+00
881.3

C-285
881.7
79.0'

F-20
814.0

C-232
881.7
25.0'

1+50
881.8

C-230
881.7
79.0'

F-16
816.0

C-150
881.7
25.0'

1+00
881.8

C-305
881.7
79.0'

F-15
819.0

C-149
2:1
881.7
25.0'

0+50
881.8

C-300
2:1
881.7
79.0'

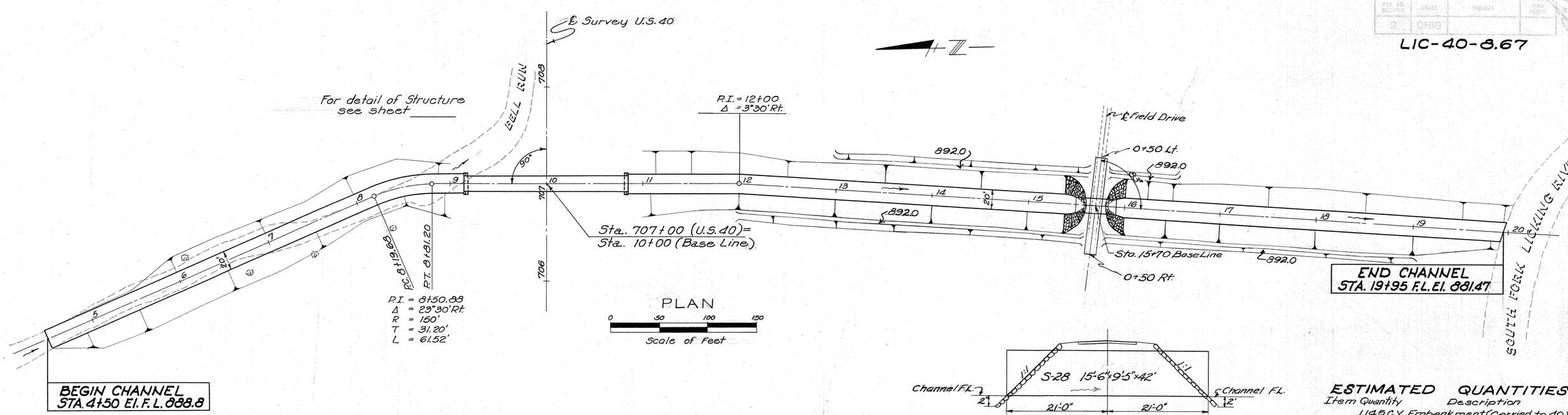
Base Line

Begin Channel

Existing Ground
0+00
881.7

SOUTH FORK LICKING RIVER - STA. 6+18+89

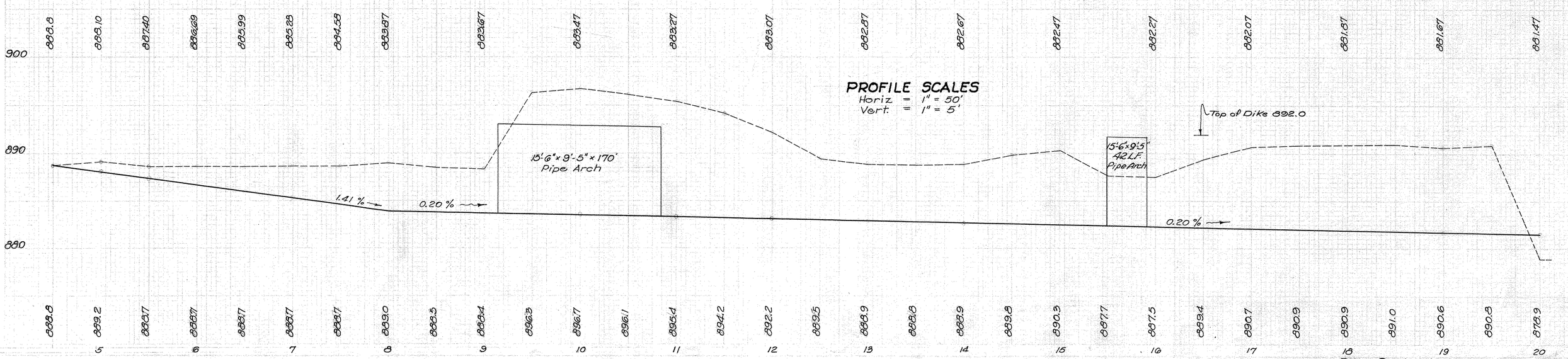
LIC-40-8.67



ESTIMATED QUANTITIES

Item	Quantity	Description
	1145 C.Y.	Embankment (Carried to 40 X-Sects.
* E-3	14,174 C.Y.	Channel Excav. (Carr. to Struct. Detail
L-9	8137	Seeding (carried to U.S. 40 Line Sheet
* I-10	185 S.Y.	Riprap Type "A" as per plan.
¤ I-18	22 C.Y.	Stab. Crus. Aggr. as per plan.
* S-28	42 L.F.	Sectional Corrugated Metal Structure #5-3 Gage M 6.4(g)

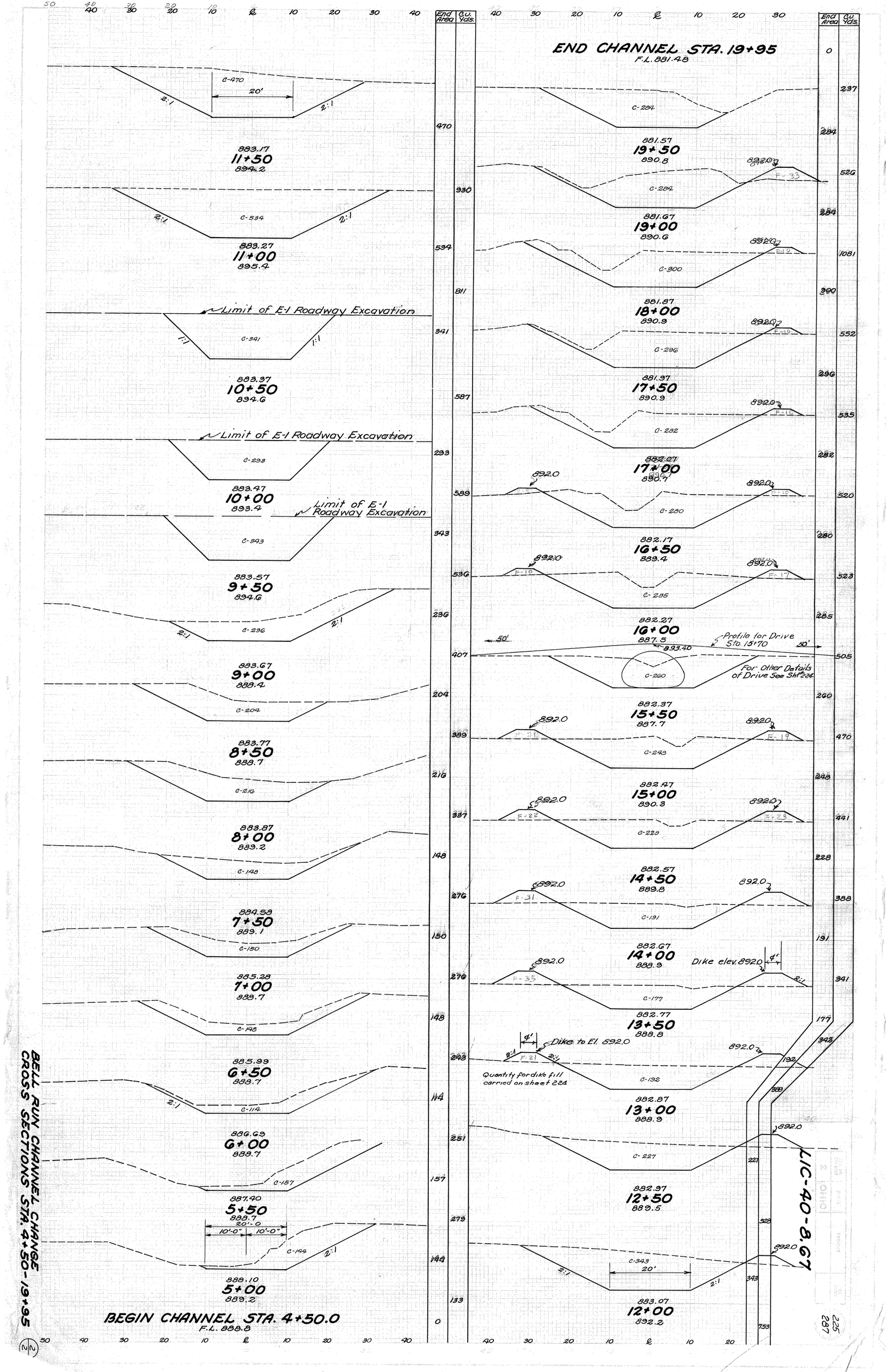
Emb. = 320 Cu.Yds. Field Drive + 825 Cu.Yds. Channel = 1145 C.Y.
* Carried to Structure detail Sheet 217
¤ Carried to S.R. 37 Sheet 91



BELL RUN CHANNEL CHANGE
℄ STA. 707+00 (U.S. 40)

1/2

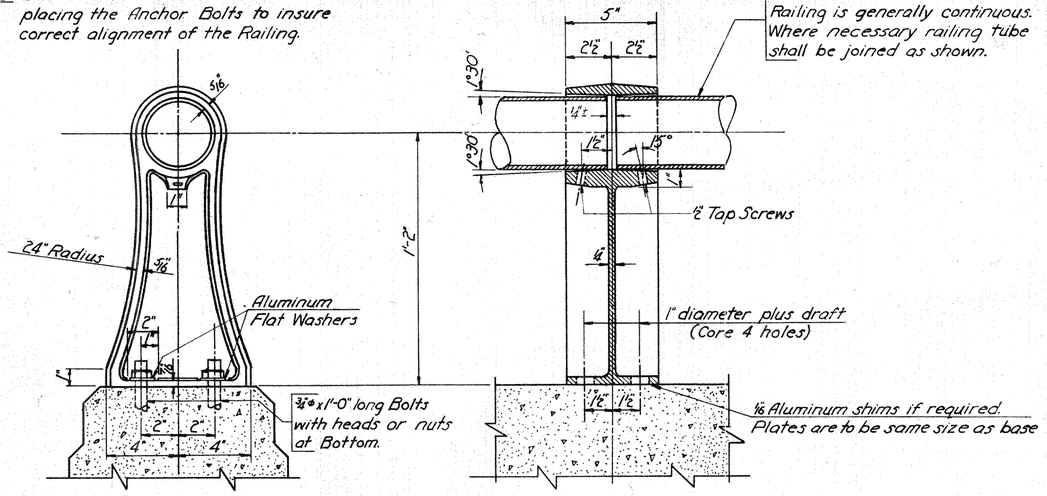
BELL RUN CHANNEL CHANGE
CROSS SECTIONS STA. 4+50 - 19+95



FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

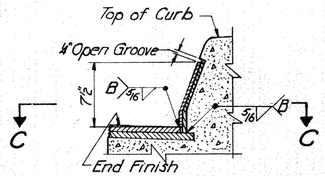
LIC-40-8.67

NOTE: Extreme care shall be exercised in placing the Anchor Bolts to insure correct alignment of the Railing.

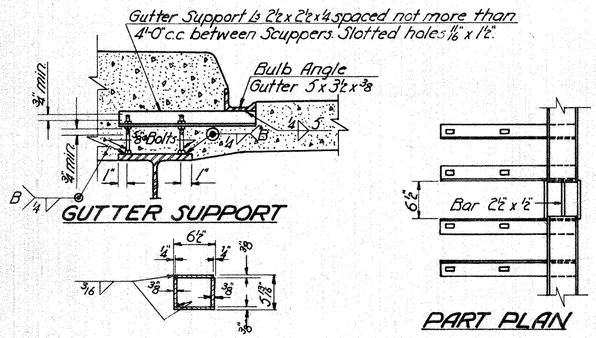


NOTE: Reference shall be made to Supplemental Specification No. S-114, Aluminum for Bridge Railing, dated 8-30-55.

ALUMINUM RAILING DETAIL

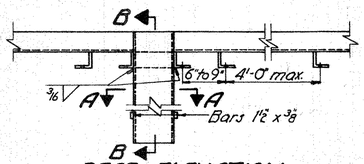


SPLASH GUARD DETAIL



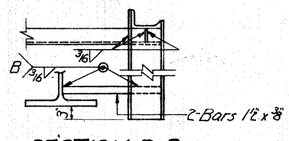
GUTTER SUPPORT

SECTION A-A

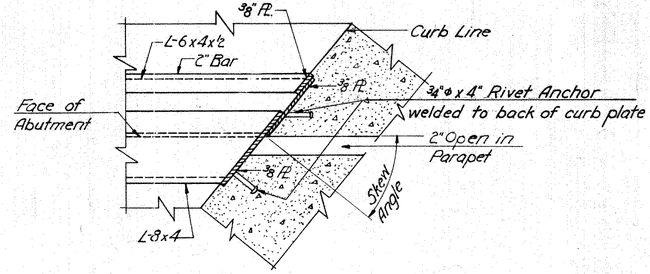


REAR ELEVATION

PART PLAN



SECTION B-B

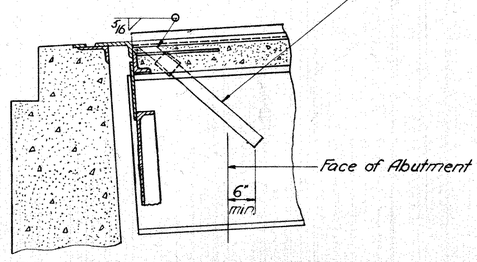


SECTION C-C

GUTTER AND SCUPPER NOTES

- See General Plan for spacing of scuppers. Scuppers must be spaced to clear crossframes.
- Milled joints will be permitted in bulb angles, but individual lengths shall be made as long as practicable.
- Supports shall be placed 6" to 9" on each side of joints.
- Gutters shall be accurately adjusted for alignment and grade, with allowance for dead load deflection, before concrete is placed.
- Welding shall be Class "A" except as shown. Any welds shown as field welds may, at the option of the Contractor, be made in the shop.

3" Diameter Standard Steel Pipe. Weld stub end full perimeter to Bulb L and provide coupling.



SCUPPER DETAIL AT LOW END FINISH

Locate at ends of bridge where grade slopes down to end finish.

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

COMMON DETAILS

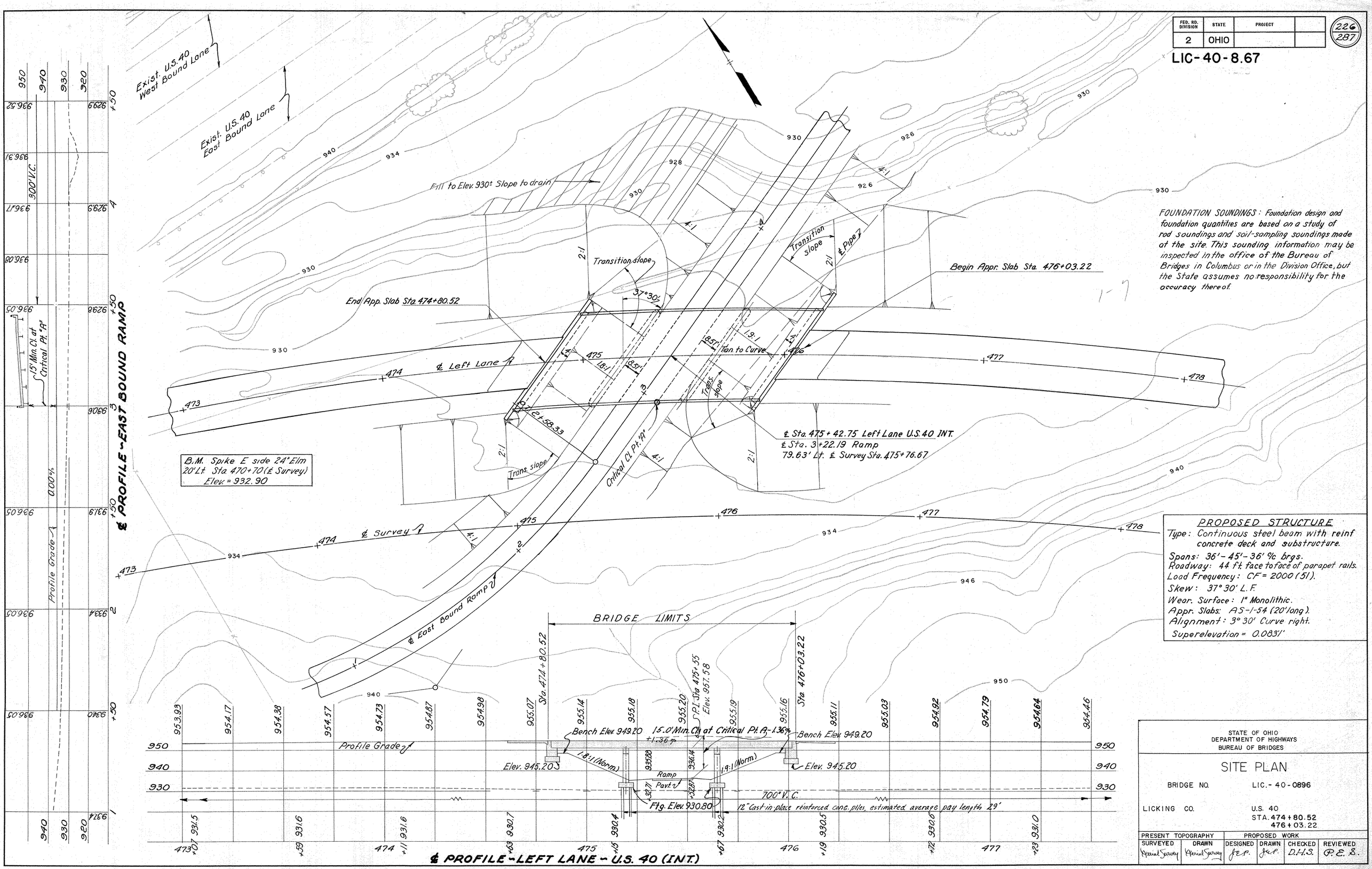
LICKING COUNTY — LIC-40-8.6

Designed	Drawn	Traced	Checked	Reviewed Date	Revis
—	P.D.	P.D.	J.P.R.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

226
287

LIC-40-8.67



FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division Office, but the State assumes no responsibility for the accuracy thereof.

PROPOSED STRUCTURE

Type: Continuous steel beam with reinf concrete deck and substructure.
Spans: 36'-45'-36' c/c brgs.
Roadway: 44 ft. face to face of parapet rails.
Load Frequency: CF = 2000 (51).
Skew: 37° 30' L.F.
Wear. Surface: 1" Monolithic.
Appr. Slabs: AS-1-54 (20' long).
Alignment: 3° 30' Curve right.
Superelevation = 0.083'/'

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. LIC.-40-0896

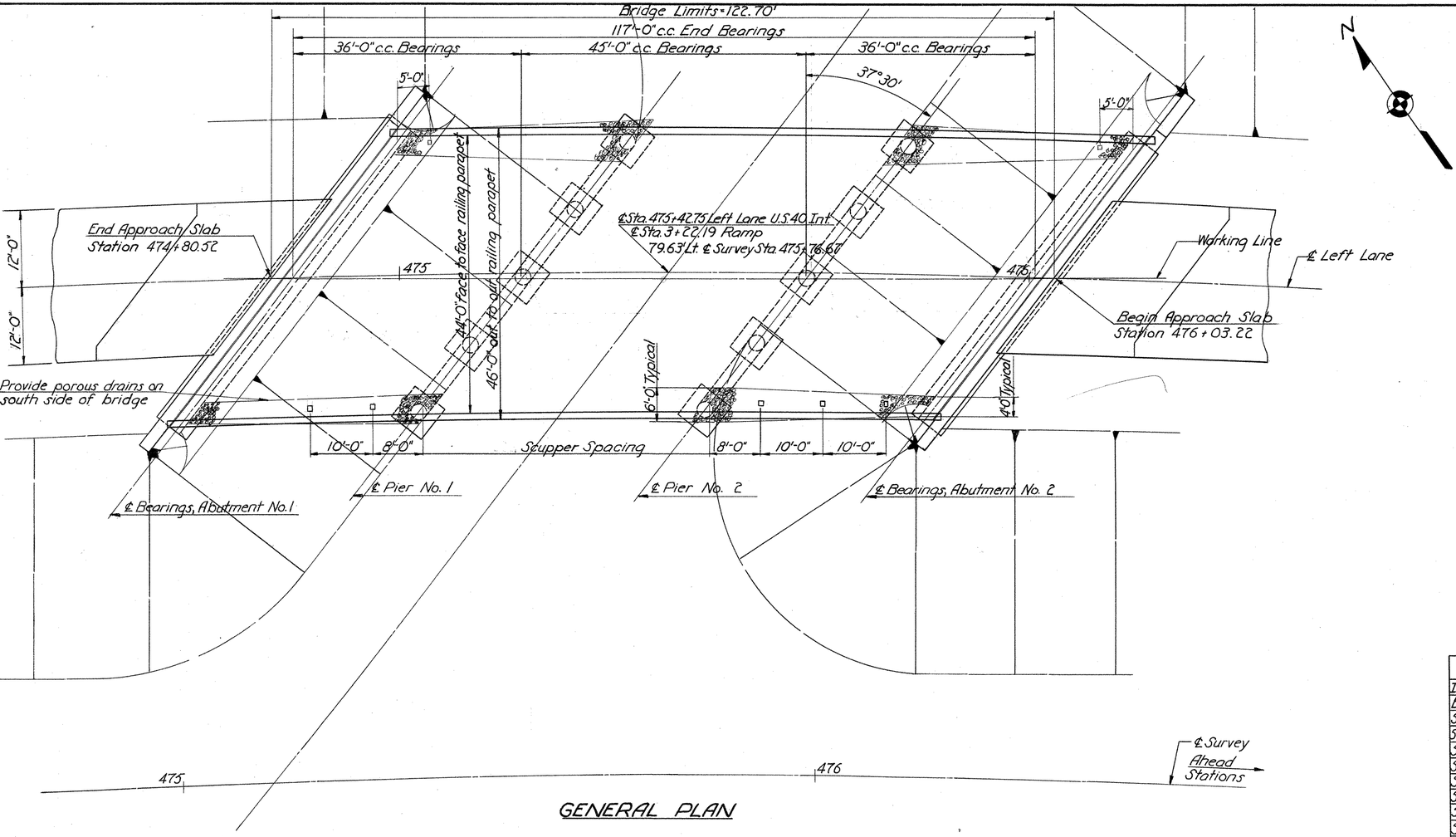
LICKING CO. U.S. 40
STA. 474+80.52
476+03.22

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

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

227
287

LIC-40-8.67



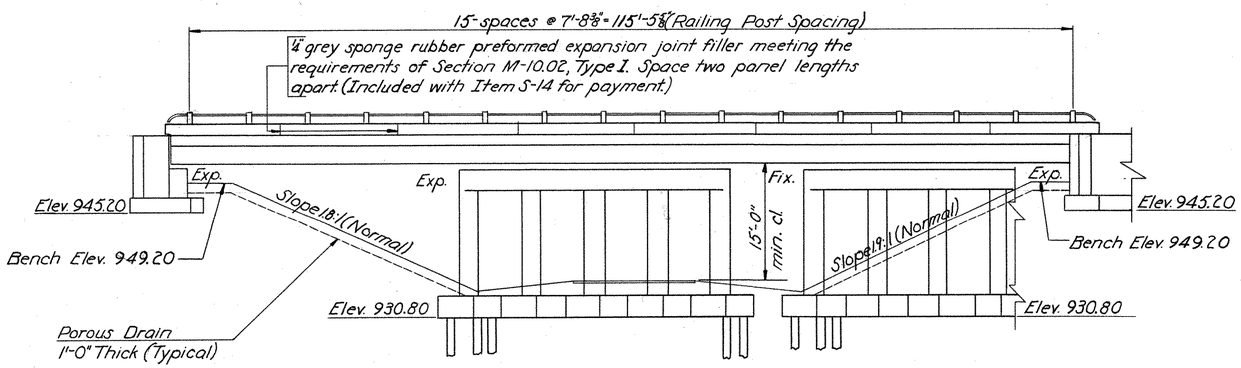
GENERAL PLAN

GENERAL NOTES

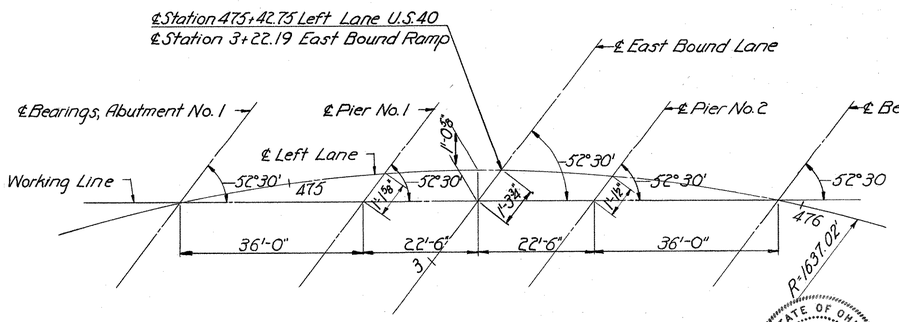
- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 10-1-51, together with revisions thereof dated 7-15-52, 4-1-54 and 2-1-55.
- Loading: C.F. 2000-51.
- Reference shall be made to Sheets 1 & 2 of Standard Drawing CSB-1-55 (dated 3-1-55 and revised 7-16-56) and to Supplemental Specifications No. 51-14, dated 8-30-55.
- Gravel, if used as the coarse aggregate, shall be according to Section M-3.93 instead of M-3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Section M-3.93 also may be used for other concrete in this structure.
- Surface Finish of Concrete: Railing end posts, curb faces, fascias of deck and exposed surfaces of piers, abutments and wing walls shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.
- Paint, both shop and field, shall be applied by brushing. Spray application will not be permitted.
- Porous drains, extending from face of abutment to Elev. 936, shall be provided at the four corners of the bridge. The drains shall be 6 feet wide at the low end, tapering to 4 feet wide at the face of the abutment and one foot thick.
- Welding shall be Class "A". Any welds shown as field welds may, at the option of the contractor, be made in the shop.
- Piles shall be driven to a minimum bearing capacity of 35 tons for the piers. The length of penetration of every pile shall be at least 80% of the estimated average length of penetration of the piles in the pertinent pier as indicated on the plan unless a lesser penetration is approved by the Director.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Superstr.	Abuts.	Piers	General		
E-2	340	Cu.Yd.	Unclassified Excavation		160	180			
S-1	166	Cu.Yd.	Class "C" Concrete, Superstructure	166					
S-1	65	Cu.Yd.	Class "C" Concrete, Pier Columns & Caps.			65			
S-1	126	Cu.Yd.	Class "E" Concrete, Abutments above Footings		126				
S-1	100	Cu.Yd.	Class "E" Concrete, Footings.		53	47			
S-4	72,320	Lbs.	Reinforcing Steel	46,962	9,670	15,590	93		
S-7	114000	Lbs.	Structural Steel	114000					
S-8	114000	Lbs.	Field Painting of Structural Steel	114000					
S-14	245	Lin.Ft.	Railing (Aluminum Rail & Supports, Concrete Parapet)	245					
S-16	Lump	Sum	First Test Pile						
S-18	1130	Lin.Ft.	12" Cast-in-place Reinforced Concrete Piles.			1,130			
S-29	36	Cu.Yd.	Porous Backfill		36				
S-29	30	Cu.Yd.	Porous Drains on Embankment Slopes.				30		



ELEVATION



LAYOUT PLAN

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

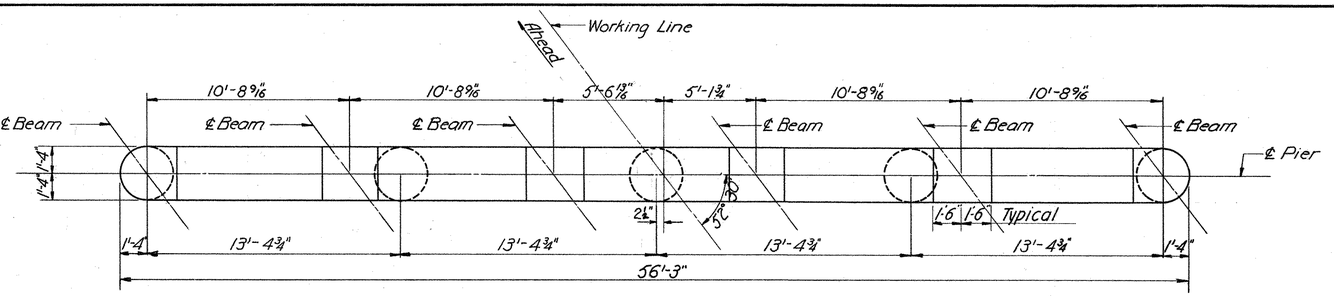
BRIDGE NO. LIC-40-0896
WEST BOUND LANE OVER
EAST BOUND RAMP
U.S. 40
STA. 474+80.52
476+03.22
LICKING COUNTY

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
F.K.	P.D.	P.D.	A.F.O.		

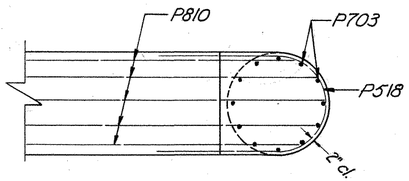
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

228
287

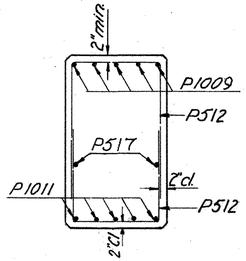
LIC-40-8.67



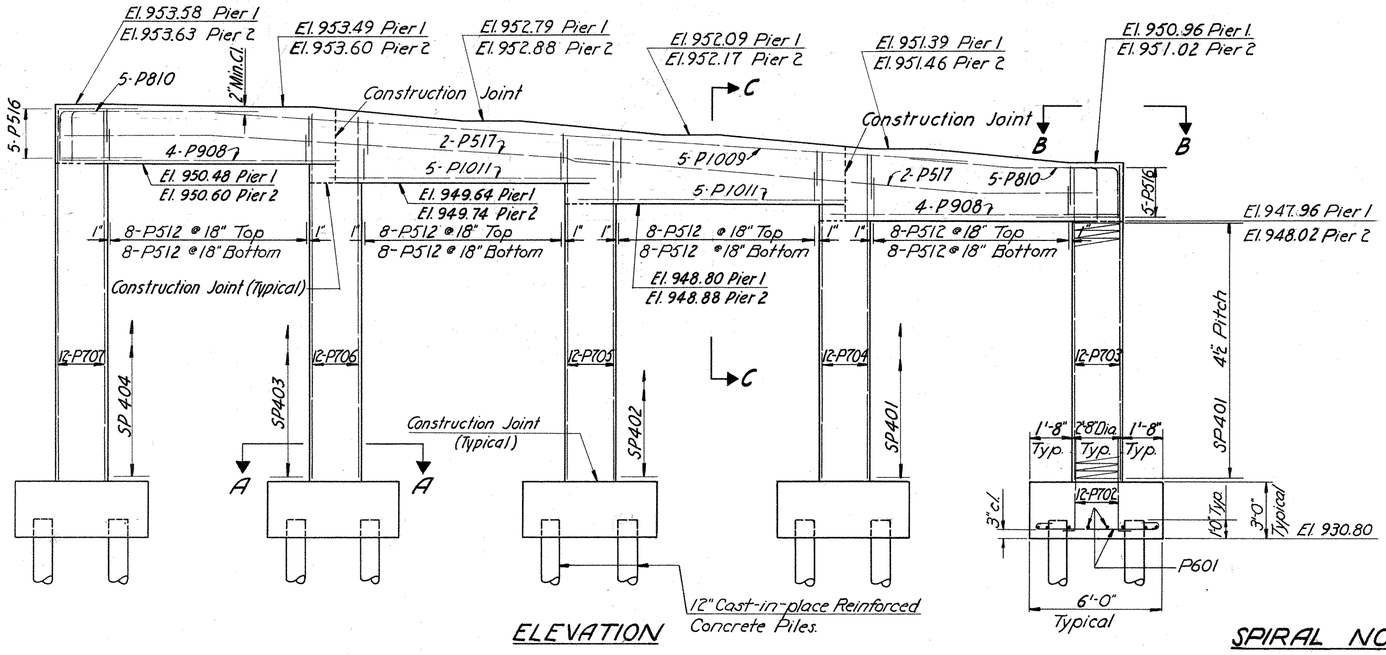
PLAN OF PIER CAP



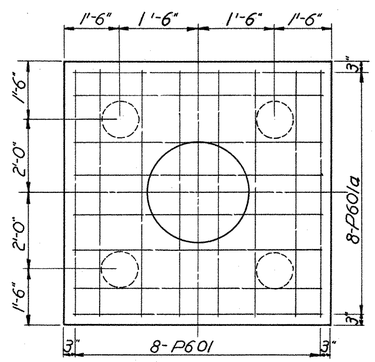
SECTION B-B



SECTION C-C



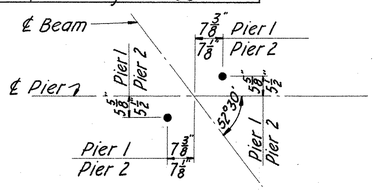
ELEVATION



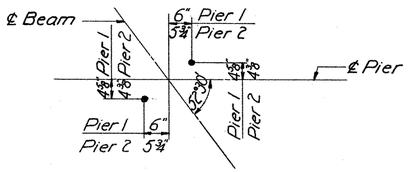
SECTION A-A

REPLACEMENT BAR SCHEDULE

Mark	No.	Size	Type	Length	Weight
RE401	1	4	Str.	5'-3"	4
RE502	1	5	Str.	5'-7"	6
RE603	2	6	Str.	5'-11"	18
RE704	2	7	Str.	6'-2"	25
RE805	1	8	Str.	6'-6"	17
RE906	1	9	Str.	6'-10"	23
				Total Weight =	93#

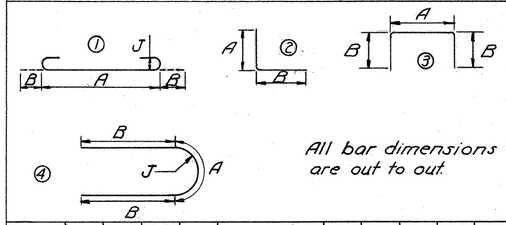


ANCHOR BOLT LAYOUT
FOR 27 WF 145 BEAMS



ANCHOR BOLT LAYOUT
FOR 30 WF 124 BEAMS

BAR SCHEDULE FOR PIERS



All bar dimensions are out to out.

Mark	Pier1	Pier2	Total	Size	Length	Type	A	B	J	Weight
P601	40	40	80	6	8'-0"	1	6'-8"	8"	6"	962
P702	60	60	120	7	5'-4"	2	5'-0"	6"		1307
P703	12	12	24	7	16'-10"	Str.				826
P704	12	12	24	7	17'-3"	Str.				846
P705	12	12	24	7	18'-1"	Str.				887
P706	12	12	24	7	19'-6"	Str.				957
P707	12	12	24	7	19'-7"	Str.				961
P908	8	8	16	9	13'-6"	Str.				735
P1009	5	5	10	10	40'-0"	Str.				1720
P810	10	10	20	8	13'-5"	2	10'-10"	2'-10"		716
P1011	10	10	20	10	13'-6"	Str.				1161
P512	64	64	128	5	6'-7"	3	2'-4"	2'-3"		879
P516	10	10	20	5	7'-0"	4	3'-8"	1'-8"	1'-2"	146
P517	4	4	8	5	27'-6"	Str.				230
P601a	40	40	80	6	7'-0"	1	5'-8"	8"	6"	841

Mark	Pier1	Pier2	Total	Size	Length	Pitch	No. of Turns	Core Dia.	Weight
SP401	2	2	4	4	14'-2"	4½"	40	28"	900
SP402	1	1	2	4	15'-0"	4½"	43	28"	482
SP403	1	1	2	4	15'-10"	4½"	45	28"	506
SP404	1	1	2	4	16'-8"	4½"	47	28"	529

TOTAL WEIGHT: 15,590#

NOTES:

- Special care shall be taken when placing reinforcing steel in the beam seat so that it will not interfere with the drilling of anchor bolt holes.

SPIRAL NOTES:

- 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 in the steel list for the spiral bars 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 5-4. 1½ closed coils shall be provided at the ends of each spiral unit.
- Three Steel Channel, tee or angle spacers, weighing approximately 0.68 lbs. per lin. ft., 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 lbs. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIERS

BRIDGE NO. LIC-40-0896
WEST BOUND LANE OVER
EAST BOUND RAMP
U.S. 40
STA. 474 + 80.52
476 + 03.22
LICKING COUNTY

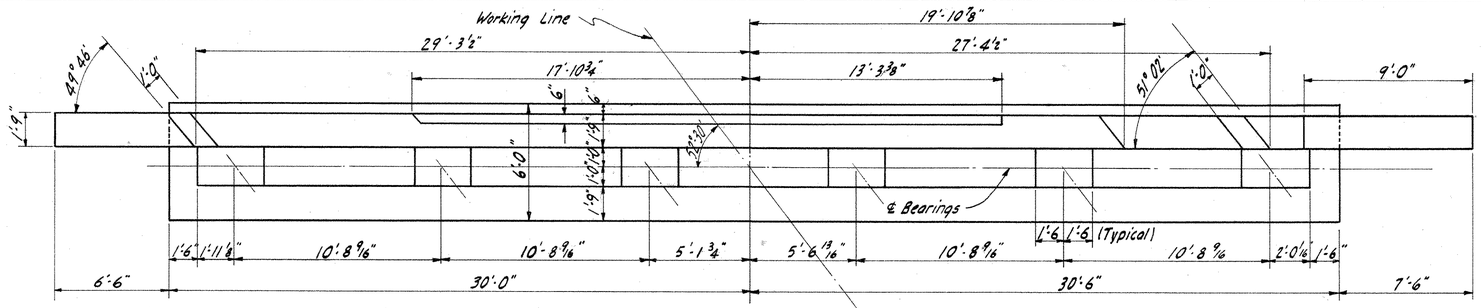
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
J.P.R.	P.D.	P.D.	M.L.F.		

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

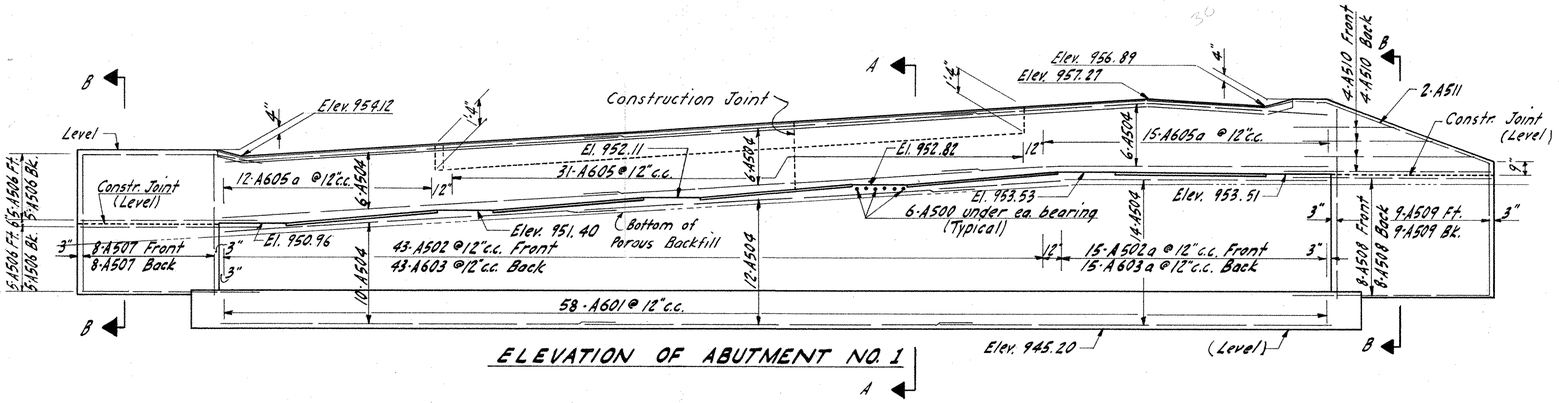
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

229/287

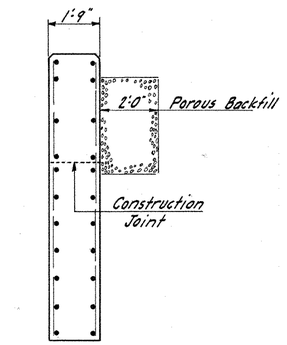
LIC-40-8.67



PLAN OF ABUTMENT NO.1

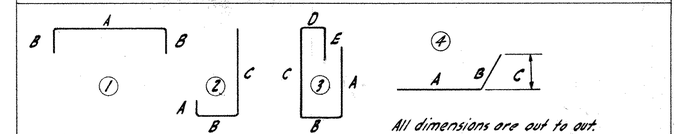


ELEVATION OF ABUTMENT NO. 1

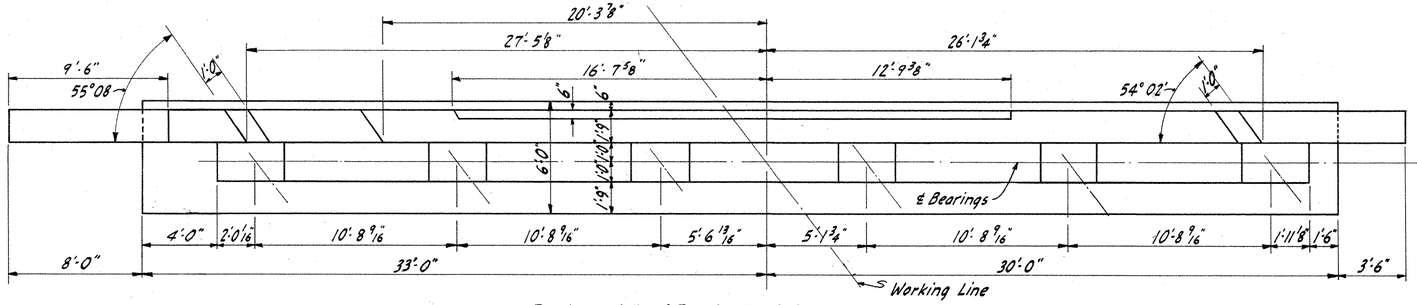


SECTION B-B

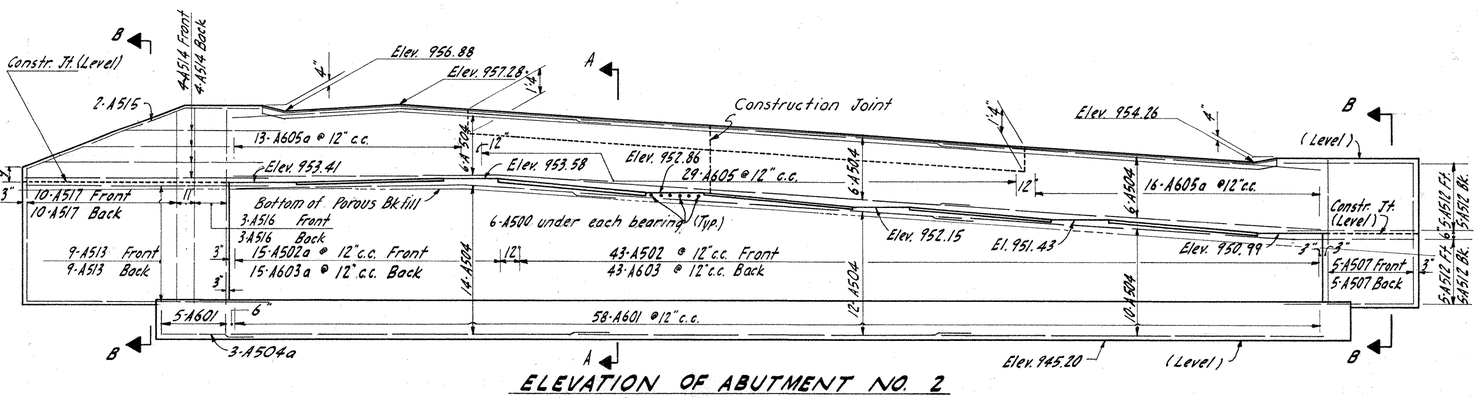
BAR SCHEDULE FOR ABUTMENTS



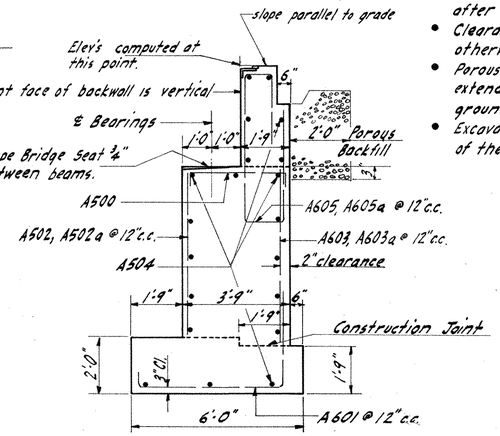
Mark	Abut.1	Abut.2	Total	Size	Length	Type	A	B	C	D	E	Weight
A500	36	36	72	5	4'-0"	1	3'-5"	5"				300
A601	58	63	121	6	9'-0"	2	8"	5'-2"	3'-6"			1636
A502	43	43	86	5	3'-4" to 6'-0"	Str.	2 each vary by 3/4"					418
A502a	15	15	30	5	6'-0"	Str.						188
A603	43	43	86	6	3'-8" to 6'-4"	Str.	2 each vary by 3/4"					646
A603a	15	15	30	6	6'-3"	Str.						282
A504	54	54	108	5	20'-0"	Str.						2253
A605	31	29	60	6	13'-0"	3	3'-11"	1'-5"	5'-3"	11"	2'-2"	1172
A605a	27	29	56	6	13'-10"	3	5'-3"	1'-5"	5'-3"	1'-5"	1'-2"	1163
A506	20		20	5	10'-0"	Str.						208
A507	16	10	26	5	7'-0"	Str.						190
A508	16		16	5	11'-0"	Str.						184
A509	18		18	5	7'-0" to 9'-8"	Str.	2 each vary by 4"					156
A510	8		8	5	5'-0" to 11'-0"	Str.	2 each vary by 2'-0"					67
A511	2		2	5	10'-9"	4	9'-3"	1'-6"	6"			22
A512		20	20	5	7'-0"	Str.						146
A513		18	18	5	14'-0"	Str.						263
A514		8	8	5	8'-0" to 18'-0"	Str.	2 each vary by 2'-0"					92
A515		2	2	5	13'-0"	4	10'-0"	3'-0"	1'-6"			27
A516		6	6	5	10'-0"	Str.						63
A517		20	20	5	6'-10" to 10'-0"	Str.	2 each vary by 4"					176
A504a		3	3	5	6'-0"	Str.						18
											TOTAL	9,670#



PLAN OF ABUTMENT NO.2



ELEVATION OF ABUTMENT NO. 2



SECTION A-A

- Steel End Finish shall be used as a template for top of backwall.
- Concrete above bridge seat construction joint shall not be placed until after steel work is erected.
- Clearance of reinforcing steel from face of concrete shall be 2" unless otherwise shown.
- Porous Backfill, 2 feet thick, full length of the abutments and wings shall extend up to the underside of the approach slab and up to the finished ground surface, and outward to the surface of the embankment slope.
- Excavation Quantity includes the removal of fill material between the top of the earth bench and the bottom of the abutment.

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENTS

BRIDGE NO. LIC-40-0896
WEST BOUND LANE OVER
EAST BOUND RAMP
U.S. 40
STA. 474 + 80.52
476 + 03.22
LICKING COUNTY

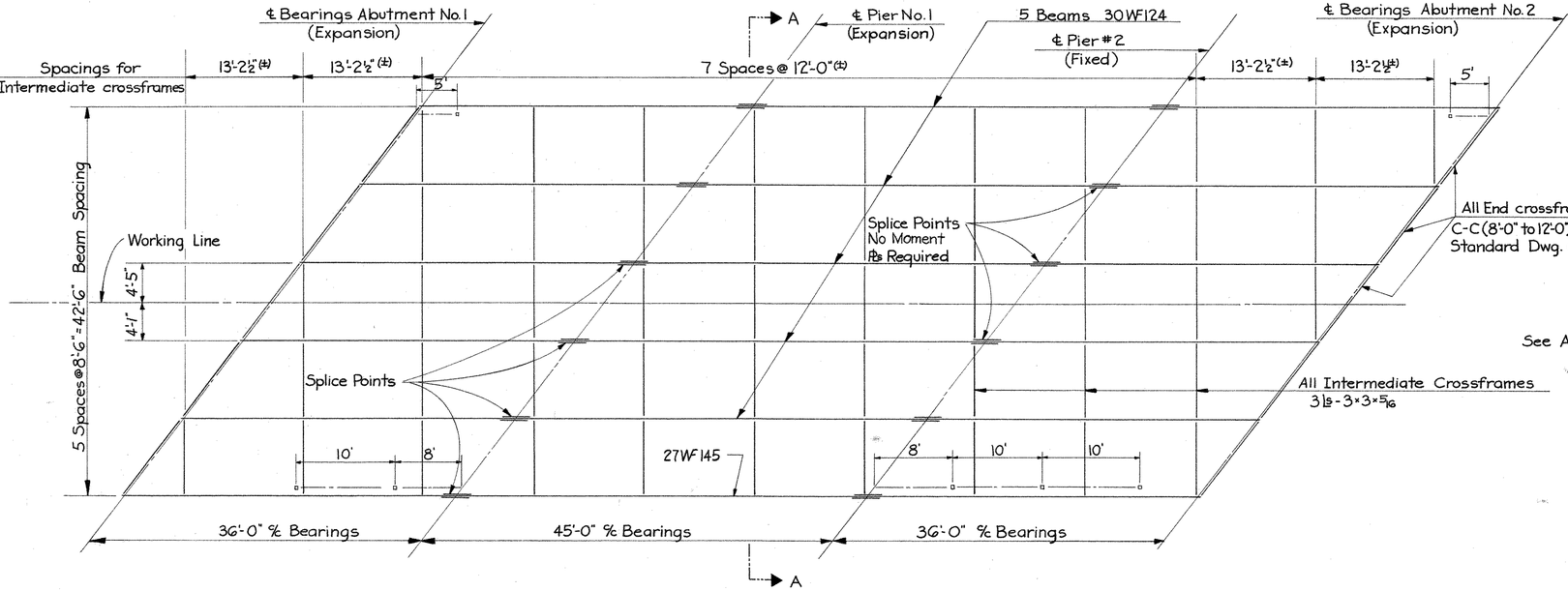
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
G.T.K.	G.T.K.	M.M.	A.F.O.		

STATE OF OHIO
Michael Baker, Jr.
No. 9065
REGISTERED PROFESSIONAL ENGINEER

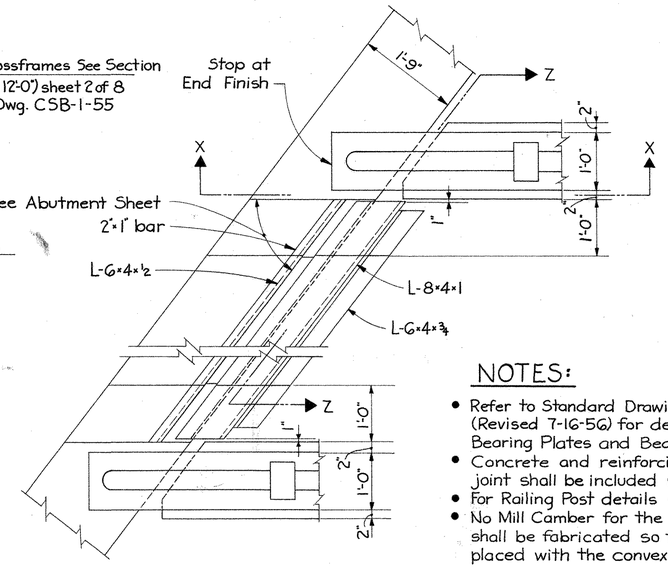
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

230
287

LIC-40-8.67

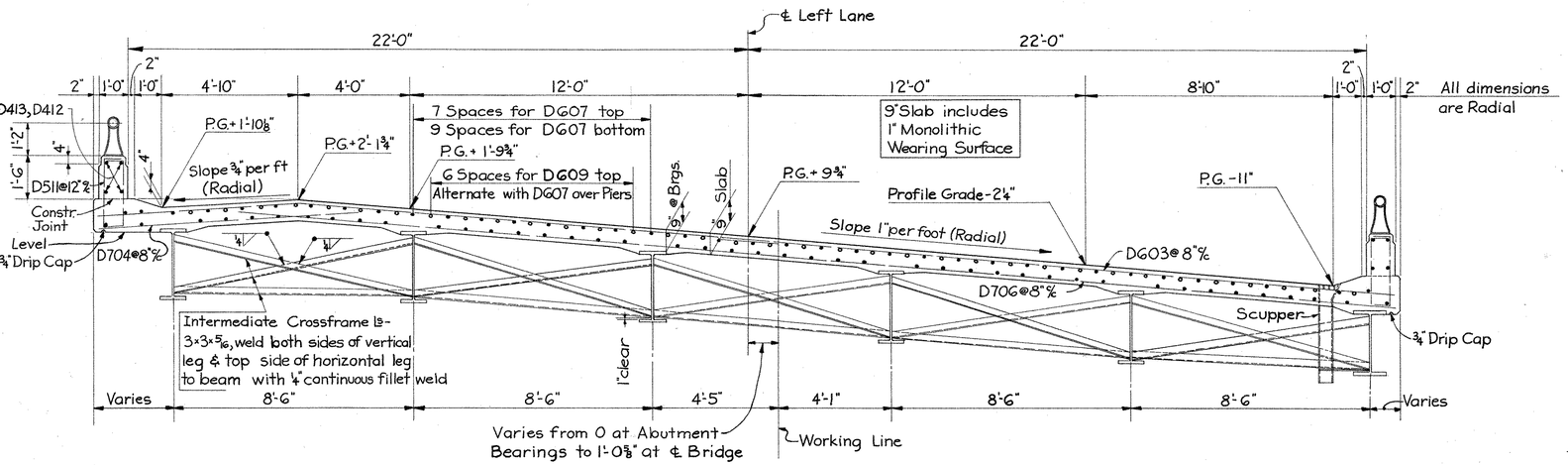


STEEL FRAMING PLAN



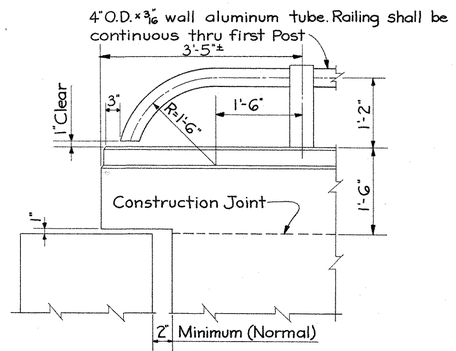
NOTES:

- Refer to Standard Drawing CSB-1-55, Sheets 1 and 2 of 8 (Revised 7-16-54) for details of End Finish, End Cross Frames, Bearing Plates and Beam Splice.
- Concrete and reinforcing above parapet construction joint shall be included with railing for payment.
- For Railing Post details see Common Details Sheet.
- No Mill Camber for the beams is required, but the beams shall be fabricated so that any curved beams will be placed with the convex flange up.

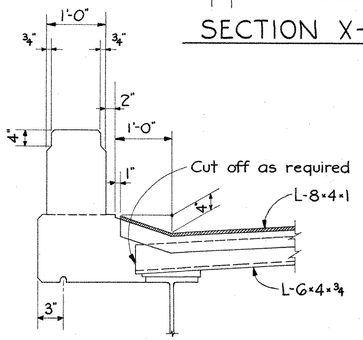


SECTION A-A

DETAILS OF END FINISH AND PARAPET



SECTION X-X



SECTION Z-Z

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

SUPERSTRUCTURE

BRIDGE NO. LIC-40-0896
WEST BOUND LANE OVER
EAST BOUND RAMP

U.S. 40
STA. 474 + 80.52
476 + 03.22

LICKING COUNTY

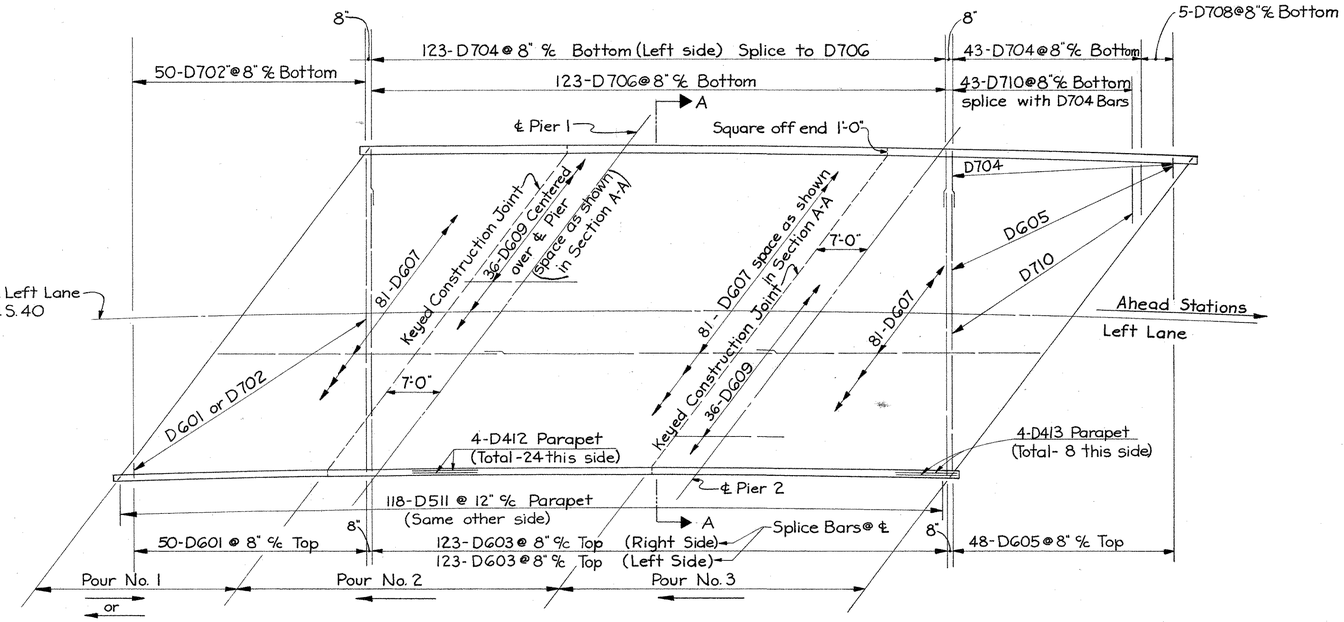
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
F.K.	F.K.	J.R.H	A.F.O		

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

231
287

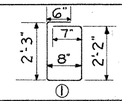
LIC-40-8.67



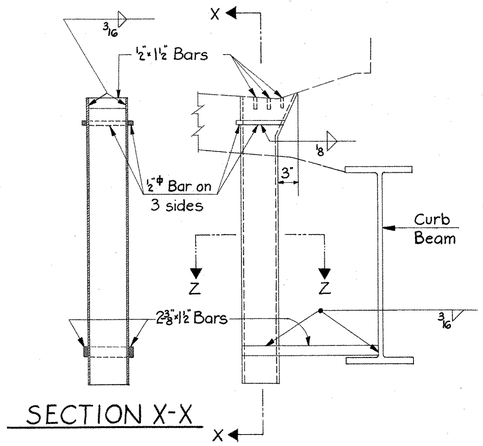
DECK PLAN OF REINFORCING

Deck Construction Procedure:
Deck slab shall be placed in sections between transverse construction Joints in the numerical order and in the direction indicated above in order that the major portion of dead load deflection may occur prior to placing concrete over each pier.

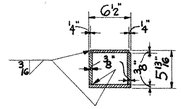
BAR SCHEDULE FOR DECK



Mark	No.	Size	Length	Type	Weight	Remarks
DG01	50	6	3'-0"to45'-0"	Str.	1802	1Ea.Vary by 10¼"
D702	50	7	3'-0"to45'-0"	Str.	2453	1Ea.Vary by 10¼"
DG03	246	6	24'-0"	Str.	8868	
D704	166	7	9'-3"	Str.	3139	
DG05	48	6	3'-6"to45'-6"	Str.	1766	Vary by 10¾"
D706	123	7	40'-6"	Str.	10,182	
DG07	243	6	40'-6"	Str.	14,782	
D708	5	7	3'-6"to7'-6"	Str.	56	1 Ea. Varies by 1'-0"
DG09	72	6	18'-0"	Str.	1947	
D710	43	7	4'-0"to40'-9"	Str.	1967	1Ea.Vary by 10½"
D511	236	5	5'-6"	①		Included with
D412	48	4	15'-0"	Str.		Railing
D413	16	4	14'-6"	Str.		for Payment
				Total	46,962	Lbs.



SECTION X-X



SECTION Z-Z

SCUPPER DETAILS

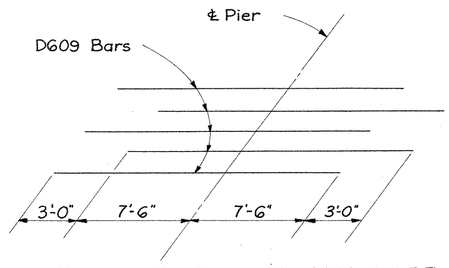


DIAGRAM SHOWING STAGGER OF DG09 BARS OVER PIERS

6/6

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

STATE OF OHIO
Michael Baker, Jr.
No. 9065
REGISTERED PROFESSIONAL ENGINEER

SUPERSTRUCTURE DETAILS

BRIDGE NO. LIC-40-0896
WEST BOUND LANE OVER
EAST BOUND RAMP
U.S. 40
STA. 474+80.5/
476+03.2
LICKING COUNTY

Designed	Drawn	Traced	Checked	Reviewed-Date	Revsd
GJH	FJK	J.R.H.	AFO		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

232/287

LIC-40-8.67

PROFILE CENTER LINE OF US 40 INTERSTATE

150	969.2		964.53
			964.85
505	970.1		965.14
			965.41
150	970.4		965.65
			965.87
506	970.6		966.23
150	972.8		966.37
			966.48
507	972.0		966.58
			966.64
150	970.5		966.68

960 970 980

+1.80%

550' V.C.

-0.40%

P.I. = 506+04.55
El. = 967.60

966.06
966.09

960 970 980

Hub
P.I. 21+00
32.15'
22
16.53'
Hub

Hub
12.84'
90°
31
℄ P.O.T. IV 30+00
13.47'
Hub

Hub
17.01'
90°
36
℄ P.O.T. V 35+00
15.77'
Hub

End Approach Slab Sta. 28+91.23

Begin Approach Slab Sta 31+08.77

℄ Eastbound Lanes

℄ Westbound Lanes

7°22'

2:1 4:1 3:1

11.48'

13'-5"

Critical Cl. Pt. "A"

Transition Slope

505

506

507

967 966 965 964 963 962 961 960 959 958 957 956 955 954 953 952 951 950 949 948 947 946 945 944 943 942 941 940 939 938 937 936 935 934 933 932 931 930 929 928 927 926 925 924 923 922 921 920 919 918 917 916 915 914 913 912 911 910 909 908 907 906 905 904 903 902 901 900 899 898 897 896 895 894 893 892 891 890 889 888 887 886 885 884 883 882 881 880 879 878 877 876 875 874 873 872 871 870 869 868 867 866 865 864 863 862 861 860 859 858 857 856 855 854 853 852 851 850 849 848 847 846 845 844 843 842 841 840 839 838 837 836 835 834 833 832 831 830 829 828 827 826 825 824 823 822 821 820 819 818 817 816 815 814 813 812 811 810 809 808 807 806 805 804 803 802 801 800 799 798 797 796 795 794 793 792 791 790 789 788 787 786 785 784 783 782 781 780 779 778 777 776 775 774 773 772 771 770 769 768 767 766 765 764 763 762 761 760 759 758 757 756 755 754 753 752 751 750 749 748 747 746 745 744 743 742 741 740 739 738 737 736 735 734 733 732 731 730 729 728 727 726 725 724 723 722 721 720 719 718 717 716 715 714 713 712 711 710 709 708 707 706 705 704 703 702 701 700 699 698 697 696 695 694 693 692 691 690 689 688 687 686 685 684 683 682 681 680 679 678 677 676 675 674 673 672 671 670 669 668 667 666 665 664 663 662 661 660 659 658 657 656 655 654 653 652 651 650 649 648 647 646 645 644 643 642 641 640 639 638 637 636 635 634 633 632 631 630 629 628 627 626 625 624 623 622 621 620 619 618 617 616 615 614 613 612 611 610 609 608 607 606 605 604 603 602 601 600 599 598 597 596 595 594 593 592 591 590 589 588 587 586 585 584 583 582 581 580 579 578 577 576 575 574 573 572 571 570 569 568 567 566 565 564 563 562 561 560 559 558 557 556 555 554 553 552 551 550 549 548 547 546 545 544 543 542 541 540 539 538 537 536 535 534 533 532 531 530 529 528 527 526 525 524 523 522 521 520 519 518 517 516 515 514 513 512 511 510 509 508 507 506 505 504 503 502 501 500 499 498 497 496 495 494 493 492 491 490 489 488 487 486 485 484 483 482 481 480 479 478 477 476 475 474 473 472 471 470 469 468 467 466 465 464 463 462 461 460 459 458 457 456 455 454 453 452 451 450 449 448 447 446 445 444 443 442 441 440 439 438 437 436 435 434 433 432 431 430 429 428 427 426 425 424 423 422 421 420 419 418 417 416 415 414 413 412 411 410 409 408 407 406 405 404 403 402 401 400 399 398 397 396 395 394 393 392 391 390 389 388 387 386 385 384 383 382 381 380 379 378 377 376 375 374 373 372 371 370 369 368 367 366 365 364 363 362 361 360 359 358 357 356 355 354 353 352 351 350 349 348 347 346 345 344 343 342 341 340 339 338 337 336 335 334 333 332 331 330 329 328 327 326 325 324 323 322 321 320 319 318 317 316 315 314 313 312 311 310 309 308 307 306 305 304 303 302 301 300 299 298 297 296 295 294 293 292 291 290 289 288 287 286 285 284 283 282 281 280 279 278 277 276 275 274 273 272 271 270 269 268 267 266 265 264 263 262 261 260 259 258 257 256 255 254 253 252 251 250 249 248 247 246 245 244 243 242 241 240 239 238 237 236 235 234 233 232 231 230 229 228 227 226 225 224 223 222 221 220 219 218 217 216 215 214 213 212 211 210 209 208 207 206 205 204 203 202 201 200 199 198 197 196 195 194 193 192 191 190 189 188 187 186 185 184 183 182 181 180 179 178 177 176 175 174 173 172 171 170 169 168 167 166 165 164 163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143 142 141 140 139 138 137 136 135 134 133 132 131 130 129 128 127 126 125 124 123 122 121 120 119 118 117 116 115 114 113 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

U.S.R. 40 Interstate Sta. 505+97.62 = ℄ Survey Twp. Rd. 146 - Sta. 30+00

507 = SLM 0935

24' 50' 24'

BRIDGE LIMITS

Sta. 28+91.23

Sta. 31+08.77

B.M. Spike in S.W. Root 22" Elm 1' Lt. Sta. 505+80 El. 971.79

Corn. Crib

Wagon Shed & Corn Crib

Conc. Block Garage

PROPOSED STRUCTURE

Type: Continuous steel beams with reinforced concrete deck and substructure.
Spans: 44' - 62.5' - 62.5' - 44' c/c bearings
Roadway: 24 ft. face to face of 2'-0" safety curbs
Load Frequency: CF = 30 (51)
Skew: 7° 22' L.F.
Wearing Surface: ½" Monolithic
Approach Slabs: AS-1-54 (20' long)
Alignment: Tangent

FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office, but the State assumes no responsibility for the accuracy thereof.

990 980 970 960

Bench Elev. 979.9

Elev. 976.9

12" cast-in-place reinforced conc. piles. (Estimated average pay length-25')

2:1 (Norm.)

+3.00%

Pl. = 30+00
El. = 992.00

-6.00%

15'-2½" Min. Vert. Clearance at Critical Pt. "A"

Elev. 959.0

+50.59 965.90
+62.69 966.07
+74.79 965.88
Elev. 959.0
600' V.C.
+25.21 965.83
+37.31 966.01
+49.41 965.86

2:1 (Norm.)

3:1 (Norm.)

Elev. 959.0

Bench Elev. 976.7

Elev. 973.7

12" cast-in-place reinforced concrete piles (Estimated average pay length-28')

12" cast-in-place reinforced concrete piles. (Estimated average pay length 25')

975.5 974.5 973.5 972.4 971.4 970.7 970.1 969.6 969.1 968.7 968.2

+50 28 +50 29 +50 30 +50 31 +50 32

PROFILE ON PROPOSED CENTER LINE OF TWP. RD. 146

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN
BRIDGE No. LIC-40-0953
UNDER
TWP. ROAD No. 146

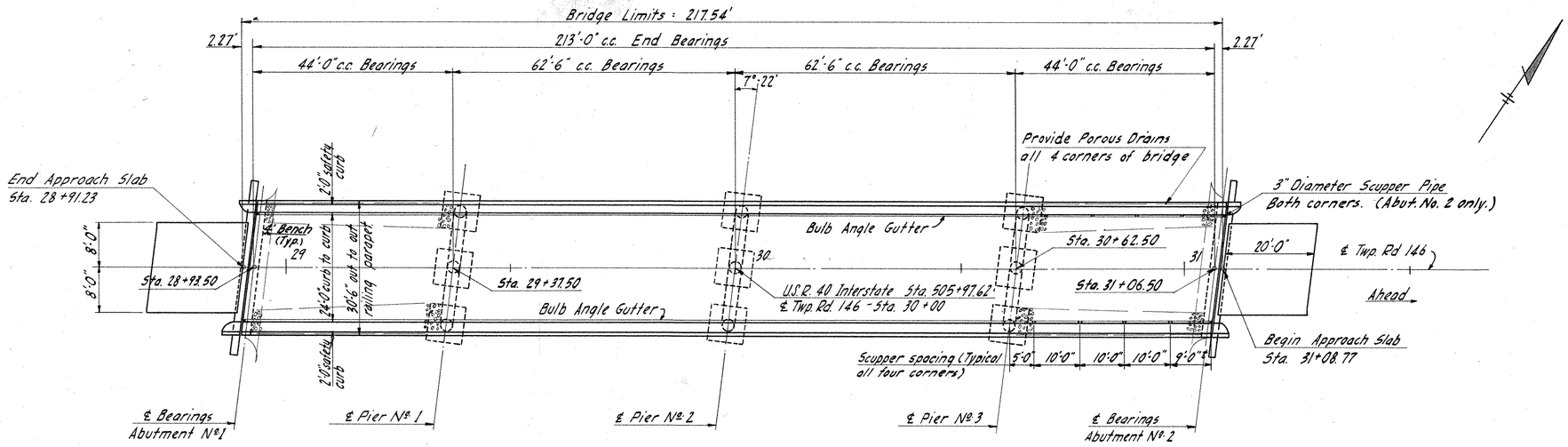
LICKING CO.
Sec. LIC.-40.-8.67 Sta. 505+97.62
Scale 1" = 20'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
R. Beck	W. Baker Tr. Deck	J.K.P.	J.K.P.	J.W.B.	P.E.S.

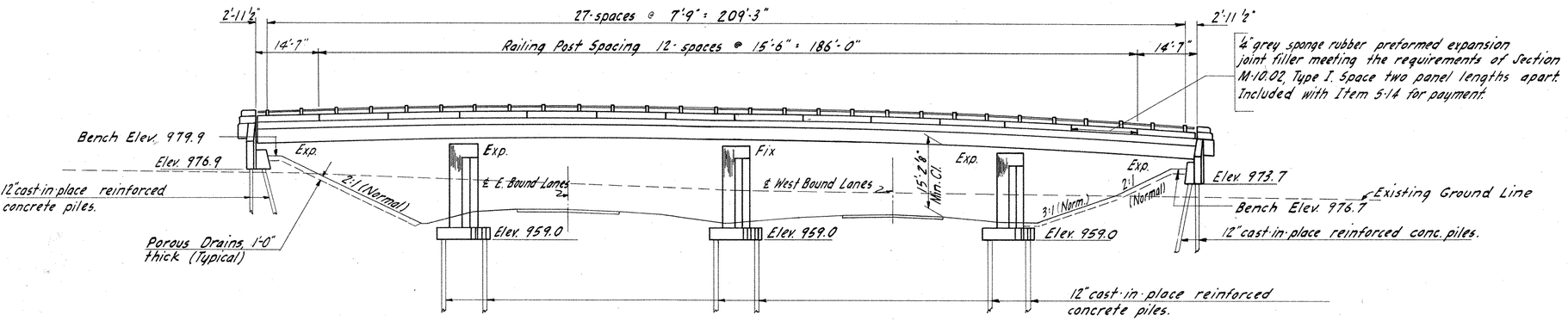
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

233
287

LIC-40-8.67



GENERAL PLAN



ELEVATION

GENERAL NOTES:

- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 10-1-51 together with revisions thereof dated 7-15-52, 4-1-54 and 2-1-55.
- Loading: C.F. 30-51.
- Reference shall be made to Sheet No. 2 of 8 of Standard Drawing C.S.B.-1-55 (dated 3-1-55 & revised 7-16-56) and to Standard Drawing RB-1-55, (dated 3-1-55), and to Supplemental Specification No. 5114 revised 8-30-55.
- Porous Drains, extending from face of abutment to Elev. 962.0 , shall be provided at all four corners of the bridge. The drains shall be 6 feet wide at the low end, tapering to 4 feet at the face of the abutment, and one foot thick, centered under scuppers.
- Gravel, if used as the coarse aggregate, shall be according to Section M.3.93 instead of M.3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Section M.3.93 also may be used for other concrete in this structure.
- Surface Finish of Concrete: Railings end posts, curb faces, fascias of deck and exposed surfaces of piers, abutments and wing walls shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item 5.1.
- Paint, both shop and field, shall be applied by brushing. Spray application will not be permitted.
- Excavation Quantity includes the removal of fill material between the top of the earth bench and the bottom of the abutment.
- Piles shall be driven to a minimum bearing capacity of 24 tons for the abutments and 40 tons for the piers. The length of penetration of every pile shall be at least 80% of the estimated average pay length of the piles in the pertinent pier or abutment as indicated on the plans unless a lesser penetration is approved by the director.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Superstr.	Abuts.	Piers	General		
E.2	200	Cu.Yd.	Unclassified Excavation		66	134			
E.2	Lump	Sum	Cofer dams, Cribs and Sheeting						
5.1	188	Cu.Yd.	Class "C" Concrete, Superstructure	188					
5.1	67	Cu.Yd.	Class "C" Concrete, Pier Columns & Caps			67			
5.1	92	Cu.Yd.	Class "E" Concrete, Abutments		92				
5.1	53	Cu.Yd.	Class "E" Concrete, Pier Footings			53			
5.4	69,781	Lbs.	Reinforcing Steel	48,831	5414	15464	72		
5.7	136,000	Lbs.	Structural Steel	136,000					
5.8	136,000	Lbs.	Field Painting of Structural Steel	136,000					
5.14	450	Lin.Ft.	Railing (Aluminum Rail and Supports Concrete Parapet & End Posts	450					
5.16	Lump	Sum	First Test Pile						
5.18	1530	Lin.Ft.	12" Cast-in-place Reinforced Concrete Piles		400	1130			
5.29	22	Cu.Yd.	Porous Backfill		22				
5.29	30	Cu.Yd.	Porous Drains on Embankment Slopes				30		

REPLACEMENT BAR SCHEDULE

Size	No.	Length	Type	Weight
RE 401	1	5'-3"	Str.	4
RE 501	1	5'-7"	Str.	6
RE 601	2	5'-11"	Str.	18
RE 701	1	6'-2"	Str.	13
RE 1001	1	7'-2"	Str.	31
			TOTAL:	72

STATE OF OHIO * Michael Baker, Jr. No. 9065 * REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

BRIDGE NO. LIC-40-0953
UNDER TWP. RD. NO. 146

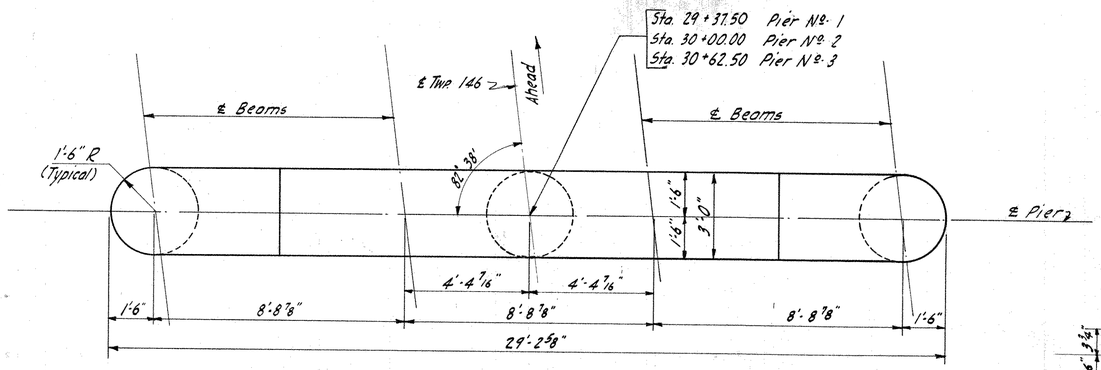
LICKING COUNTY STA. 505+97.62

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
C.LO	M.M.	M.M.	J.D.		

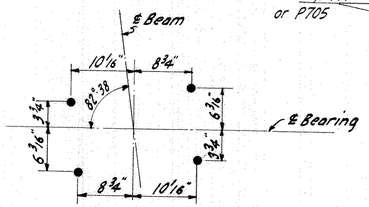
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

234
287

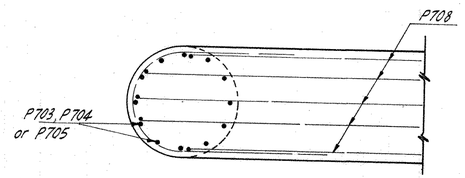
LIC-40-8.67



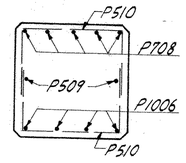
PIER CAP PLAN



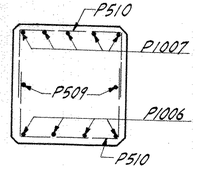
ANCHOR BOLT LAYOUT
PIER NO. 2 ONLY



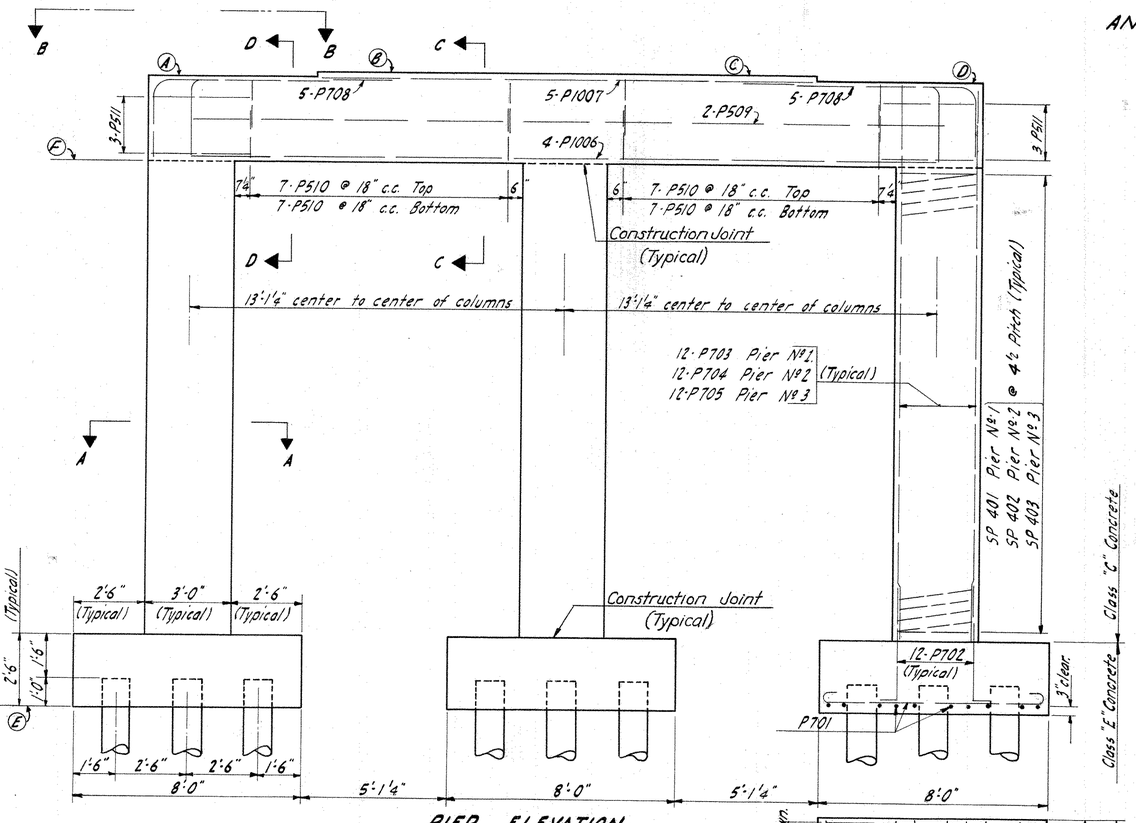
SECTION B-B



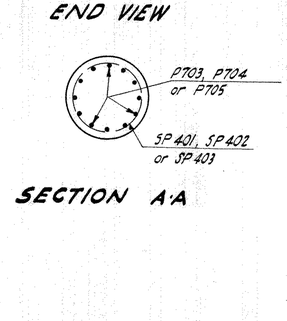
SECTION D-D



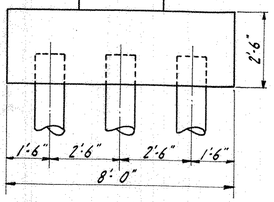
SECTION C-C



PIER ELEVATION



FOOTING PLAN



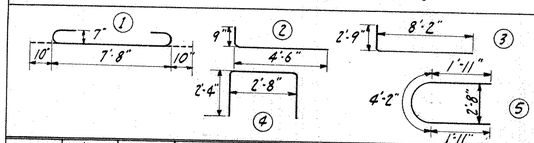
END VIEW

SECTION A-A

BEAM SEAT ELEVATIONS

Beam Number	A	B	C	D	E	F
Pier No. 1	981.29	981.42	981.43	981.31	959.00	978.29
Pier No. 2	980.63	980.77	980.79	980.68	959.00	977.63
Pier No. 3	979.39	979.54	979.56	979.47	959.00	976.39

BAR SCHEDULE FOR PIERS



Mark	Pier 1	Pier 2	Pier 3	Total	Size	Length	Type	Weight
P701	60	60	60	180	7	9'-4"	1	3033
P702	36	36	36	108	7	5'-1"	2	1121
P703	36	—	—	36	7	19'-6"	Str.	1435
P704	—	36	—	36	7	19'-0"	Str.	1398
P705	—	—	36	36	7	17'-8"	Str.	1300
P1006	4	4	4	12	10	26'-3"	Str.	1355
P1007	5	5	5	15	10	17'-4"	Str.	1119
P708	10	10	10	30	7	10'-9"	3	659
P509	2	2	2	6	5	26'-3"	Str.	164
P510	28	28	28	84	5	7'-1"	4	620
P511	6	6	6	18	5	8'-0"	5	150

SPIRAL BARS

Mark	Pier 1	Pier 2	Pier 3	Total	Size	Length	Pitch	No. Turns	Core Dia.	Weight
SP401	3	—	—	3	4	16'-9"	4½"	48	32"	944
SP402	—	3	—	3	4	16'-2"	4½"	47	32"	922
SP403	—	—	3	3	4	14'-10"	4½"	43	32"	844

TOTAL 15,464#

SPIRAL NOTES:

- 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 in the steel list for the spiral bars 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 544.
- 1½ closed coils shall be provided at the ends of each spiral unit.
- Four steel channel tee or angle spacers, weighing approximately 0.68 pounds 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 pound per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.
- Care shall be used in placing cap reinforcement to avoid interference with anchor bolts.
- Clearance of reinforcing steel from face of concrete shall be 2" unless otherwise shown.

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIERS

BRIDGE NO. LIC-40-0953
UNDER TWP. RD. NO. 146

LICKING COUNTY STA. 505+97.62

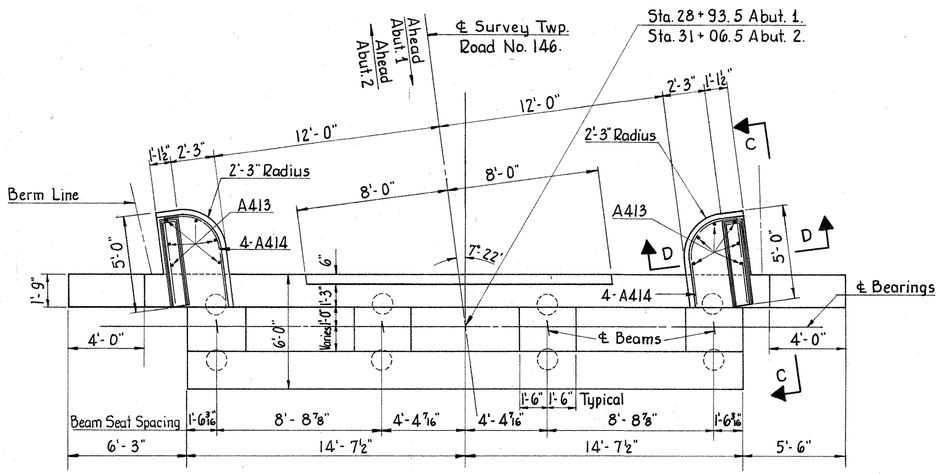
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
C.L.O	C.L.O	M.M.	J.D.		

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

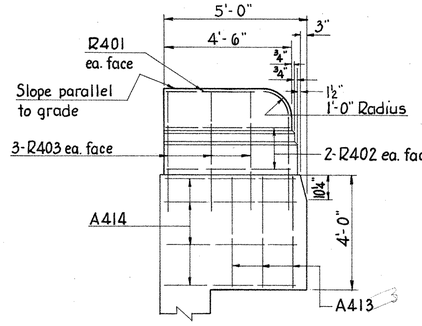
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

235/287

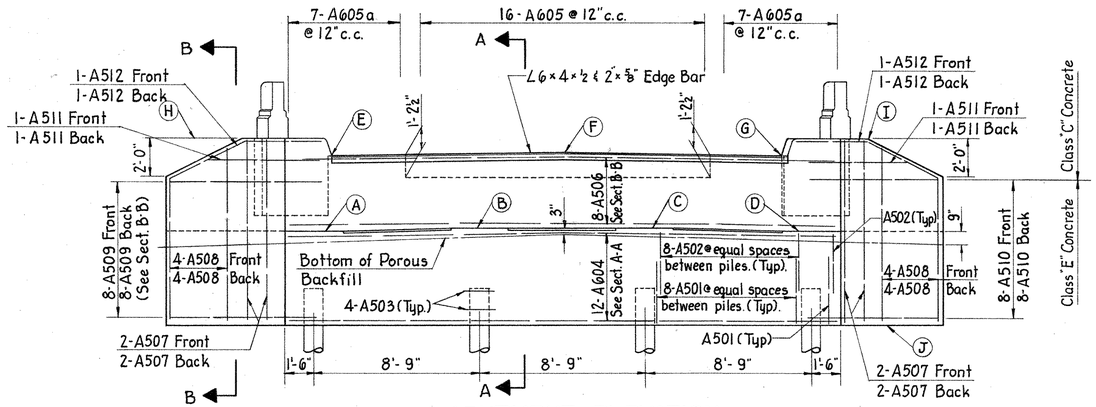
LIC-40-8.67



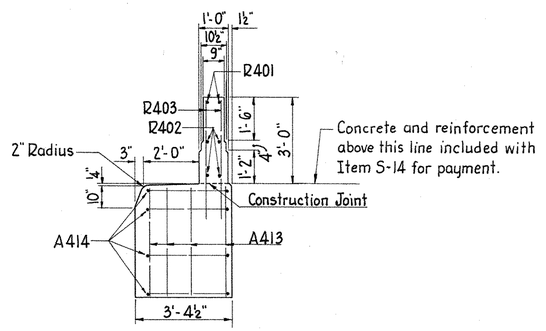
ABUTMENT PLAN



SECTION C-C

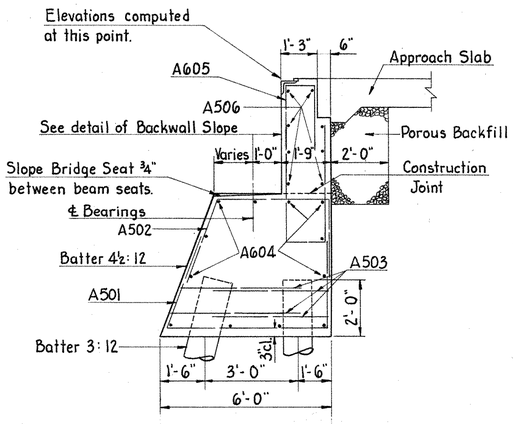


ABUTMENT ELEVATION

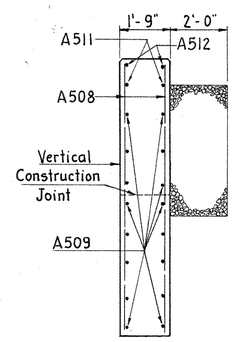


Concrete and reinforcement above this line included with Item S-14 for payment.

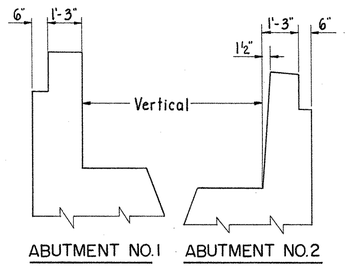
SECTION D-D



SECTION A-A

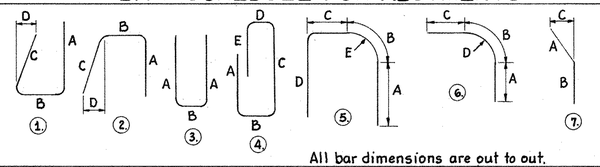


SECTION B-B



DETAIL OF BACKWALL SLOPE

BAR SCHEDULE FOR ABUTMENTS



All bar dimensions are out to out.

Mark	Abut. 1	Abut. 2	Total	Size	Length	Type	A	B	C	D	E	Weight
A501	26	26	52	5	11'-10"	1	3'-2"	5'-7"	3'-4"	1'-2"		642
A502	26	26	52	5	10'-1"	2	3'-2"	3'-10"	3'-4"	1'-2"		547
A503	16	16	32	5	8'-7"	3	3'-8"	1'-6"				286
A604	12	12	24	6	28'-11"	Str.						1043
A605	16	16	32	6	13'-0"	4	3'-10"	1'-5"	5'-3"	11"	2'-3"	625
A605a	14	14	28	6	13'-8"	4	5'-3"	1'-5"	5'-3"	1'-5"	1'-0"	575
A506	8	8	16	5	28'-11"	Str.						483
A507	8	8	16	5	9'-4"	Str.						156
A508	16	16	32	5	7'-4" to 8'-10"	Str.	8 each Vary by 6"					270
A509	16	16	32	5	7'-10"	Str.						261
A510	16	16	32	5	7'-1"	Str.						236
A511	4	4	8	5	5'-10"	Str.						49
A512	4	4	8	5	8'-3"	7	4'-4"	4'-0"	2'-2"			69
A413	12	12	24	4	3'-8"	Str.						59
A414	8	8	16	4	10'-7"	5	2'-4"	2'-11"	1'-0"	4'-5"	1'-10"	113
R401	4	4	8	4	7'-11"	6	3'-3"	1'-4"	3'-4"	10"		Included with Item S-14 for payment
R402	8	8	16	4	4'-2"	Str.						
R403	12	12	24	4	4'-0"	Str.						
										Total		5414

NOTES

- Porous Backfill 2' thick full length of the abutment and wings shall extend up to the underside of the approach slab or up to the finished ground surface, and outward to the surface of the embankment slopes.
- Clearance of reinforcing steel from face of concrete shall be 2" unless otherwise shown.
- Concrete above bridge seat construction joint shall not be placed until after steel-work is erected.
- Steel end finish shall be used as a template for top of backwall.
- Procedure: The embankment shall be placed and compacted to the height of the earth bench, after which excavation shall be made for the abutment.

TABLE OF ELEVATIONS

	A	B	C	D	E	F	G	H	I	J
Abutment No. 1	981.93	982.05	982.05	981.93	985.81	986.00	985.81	986.66	986.66	976.90
Abutment No. 2	978.68	978.84	978.87	978.78	982.53	982.77	982.63	983.35	983.47	973.70

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENTS

BRIDGE NO. LIC-40-0953
UNDER TWP. RD. NO. 146

LICKING COUNTY — STA. 505+97.62

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
K.K.F.	K.K.F.	P.T.R.	J.D.		

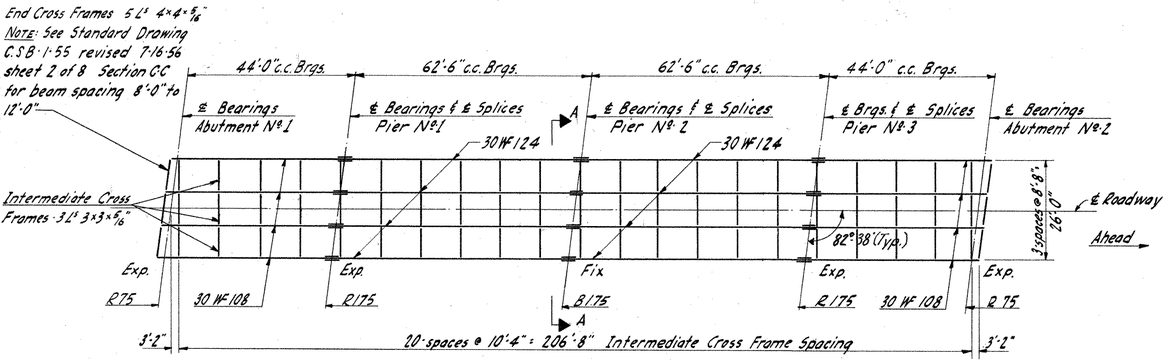
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

236
287

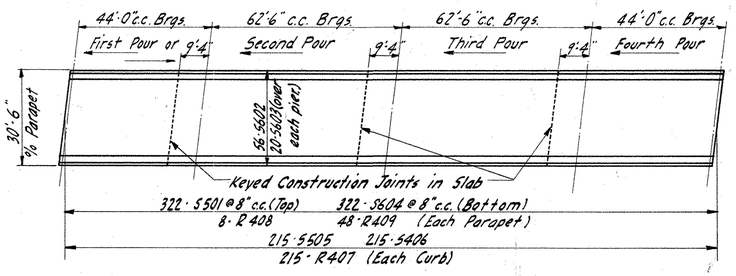
LIC-40-8.67

End Cross Frames $5\ L^s\ 4\times4\times\frac{5}{16}$"

NOTE: See Standard Drawing CSB-1-55 revised 7-16-56 sheet 2 of 8 Section CC for beam spacing 8'-0" to 12'-0"



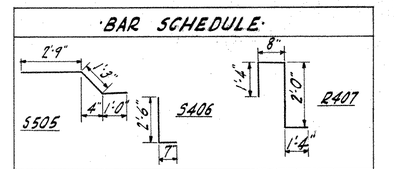
STEEL FRAMING PLAN



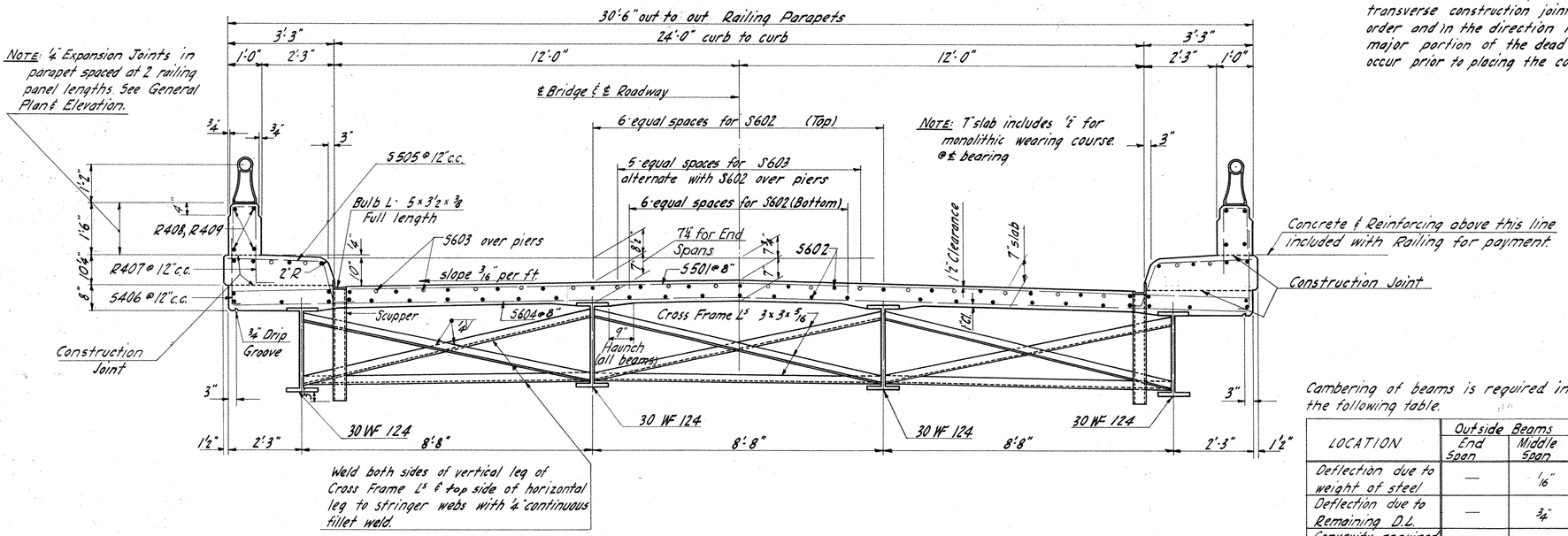
DECK SLAB PLAN

NOTE:
The Deck Slab shall be placed in sections between transverse construction joints, in the numerical order and in the direction indicated so that the major portion of the dead load deflection may occur prior to placing the concrete over the piers.

BAR SCHEDULE



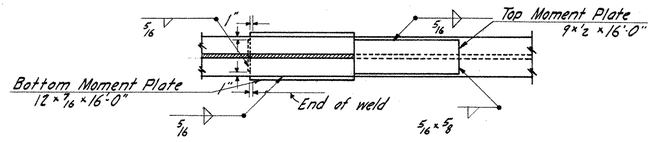
Mark	No.	Size	Length	Type	Weight
S501	322	5	30'-4"	Str.	10,186
S602	336	6	37'-3"	Str.	18,799
S603	60	6	23'-0"	Str.	2,073
S604	322	6	30'-4"	Str.	14,669
S505	430	5	5'-0"	Bent	2,242
S406	430	4	3'-0"	Bent	862
R407	430	4	5'-0"	Bent	Included with
R408	16	4	14'-0"	Str.	Railing for
R409	96	4	15'-0"	Str.	payment
			TOTAL:		48,831#



SECTION A-A

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

LOCATION	Outside Beams End Span	Outside Beams Middle Span	Inside Beams End Span	Inside Beams Middle Span
Deflection due to weight of steel	—	1/16"	—	1/16"
Deflection due to Remaining D.L.	—	3/4"	—	9/16"
Convexity required for V.C.	—	7/8"	—	7/8"
Sum of deflection and convexity	—	1 11/16"	—	1½"
Required Camber	none	1 11/16"	none	1½"



SECTION B-B

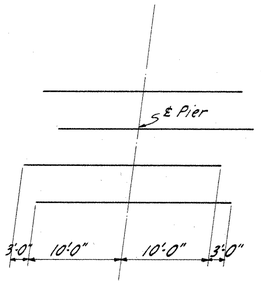
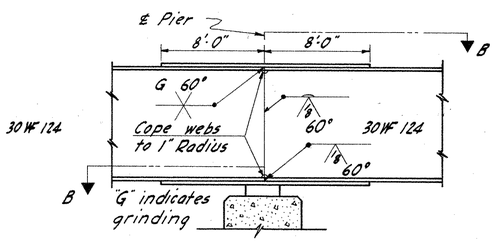
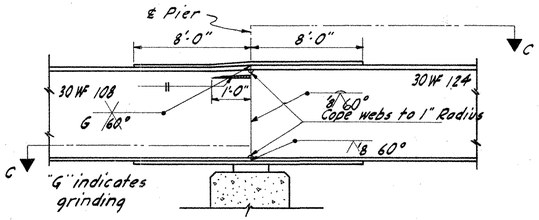


DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS





NOTE: Section C-C same as Section B-B.

BEAM SPLICE DETAILS

NOTES:

- Refer to Standard Drawing CSB-1-55 (Revised 7-16-56) sheet 2 of 8 for details of End Cross Frames and End Finish.
- Beam Splice Welding Procedure:
  1. Raise end of beam at Pier No. 2, 1¼".
  2. Butt weld beam flanges & webs at Pier No. 1, using the following sequence: make one pass on each flange, then one on the web; repeat until welds are completed.
  3. Weld top & bottom flange moment plates at Pier No. 1.
  4. Lower end of beam at Pier No. 2.
  5. Make splice at Piers No. 2 & No. 3 in the same manner raising the end of the beams 1 7/16" at Pier No. 3 and 9/16" at the abutment.
- Welding shall be Class "A". Any welds shown as field welds may at the option of the contractor, be made in the shop.
- End Finish need not be copper-bearing steel. A welded butt joint in the end finish, at the center-line of roadway, will be required for that portion of the end finish attached to the superstructure. This portion attached to the backwall shall be placed in segments which shall be closely butted, with one of the joints at the apex of the crown, but shall not be welded.
- Concrete shall be Class "C."
- Refer to Common Details Sheet for details of gutters & scuppers.
- Refer to Standard Drawing RB-1-55 for details of rockers and bolsters.
- Concrete and Reinforcing above parapet construction joint included with railing for payment.

STATE OF OHIO — Michael Baker, Jr. — Date: 5/10/63 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

SUPERSTRUCTURE

BRIDGE NO. LIC-40-0953
UNDER TWP. RD. NO. 146

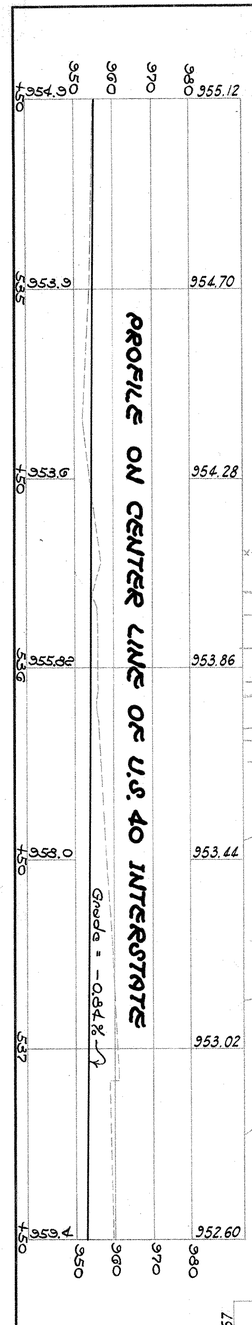
LICKING COUNTY — STA. 505 + 97.62

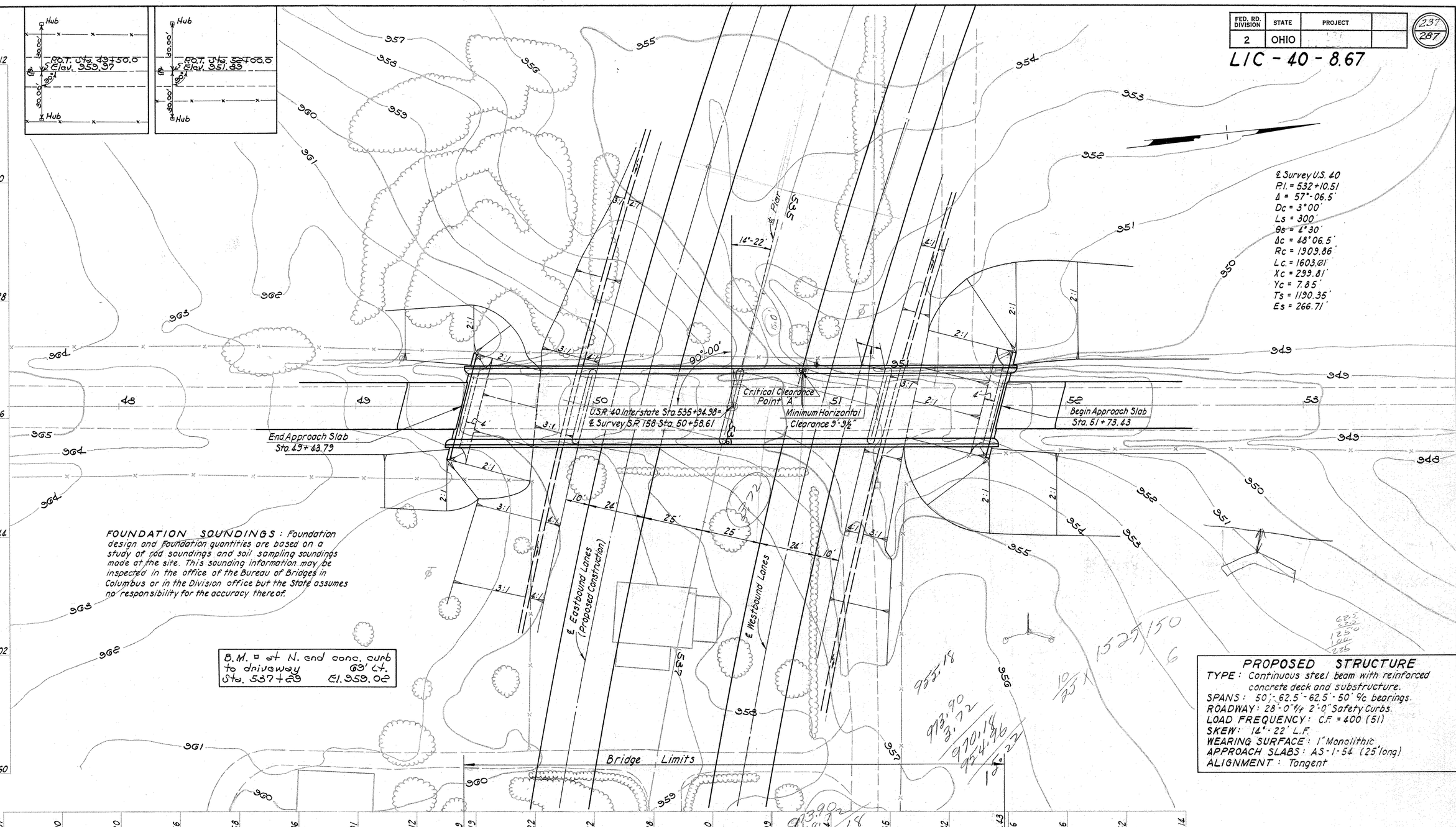
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
C.L.O.	M.M.	M.M.	J.D.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

237
287

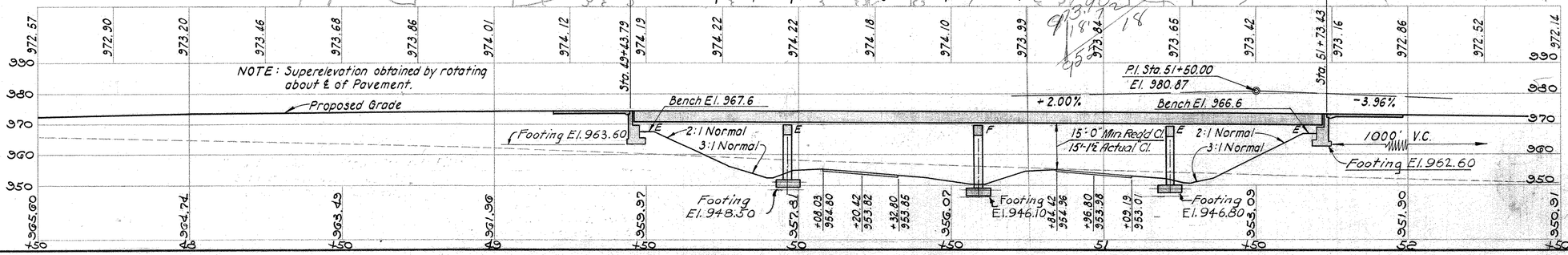
LIC - 40 - 8.67





PROPOSED STRUCTURE

TYPE: Continuous steel beam with reinforced concrete deck and substructure.
SPANS: 50'-62.5'-62.5'-50' ℄ bearings.
ROADWAY: 28'-0" ℄ 2'-0" Safety Curbs.
LOAD FREQUENCY: C.F. = 400 (51)
SKEW: 14°-22' L.F.
WEARING SURFACE: 1" Monolithic
APPROACH SLABS: AS-1-54 (25' long)
ALIGNMENT: Tangent



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN
BRIDGE No. LIC-40-1010
S.R. 158 OVER
U.S. 40 INTERSTATE
LICKING CO.
Sta. 535+94.98

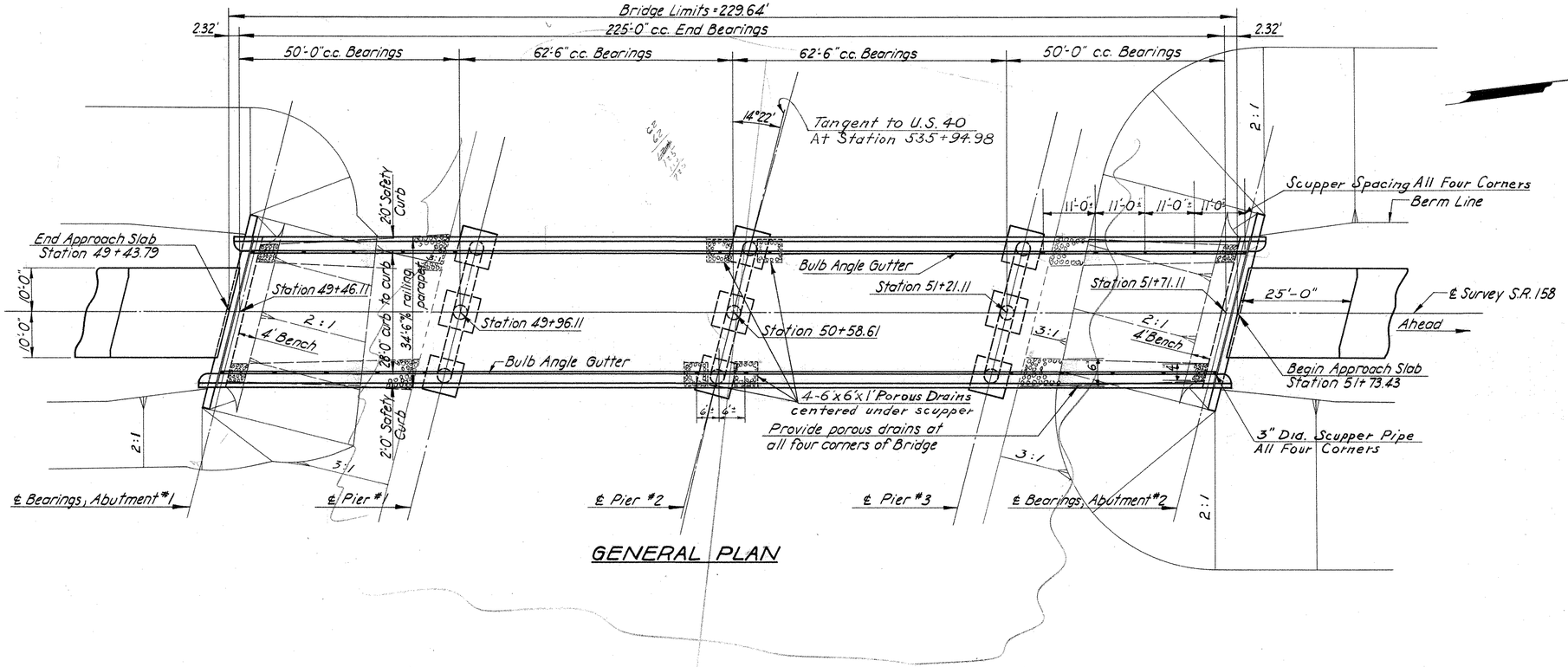
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		D.H.S.	D.H.S.	D.I.C.	P.E.S.

PROFILE ON PROPOSED CENTER LINE OF S.R. 158

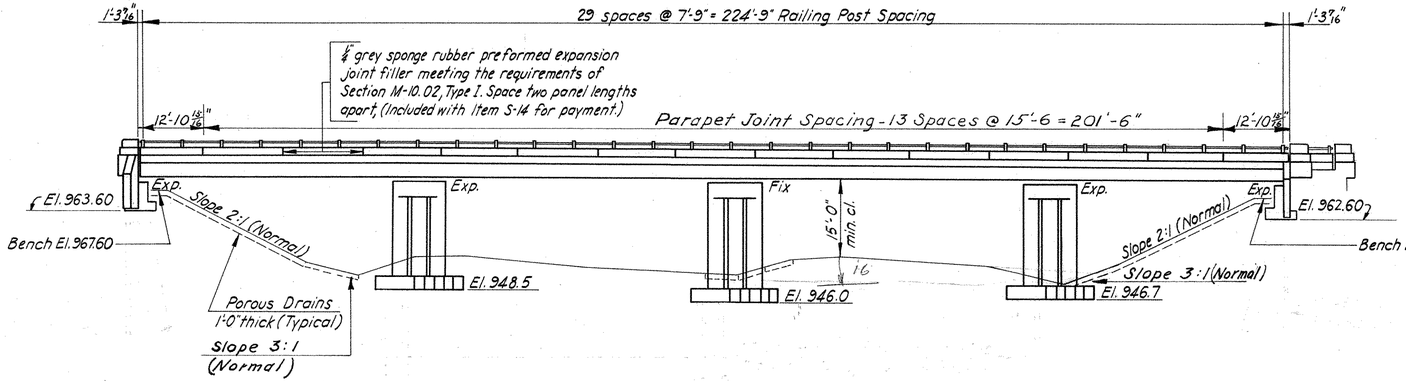
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

238
287

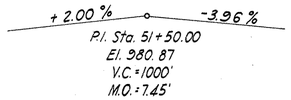
LIC-40-8.67



GENERAL PLAN



ELEVATION



GRADE DATA

GENERAL NOTES

- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 10-1-51, together with revisions thereof dated 7-15-52, 4-1-54 & 2-1-55.
- Loading: C.F. 400-51.
- Reference shall be made to Sheet 2 of 8 of Standard Drawing CSB-1-55 (dated 3-1-55 and revised 7-16-56) and to Standard Drawing RB-1-55 (dated 3-1-55), and to Supplemental Specification No. S-1114 dated 8-30-55.
- Welding of structural steel shall be Class "A". Any welds shown as field welds may, at the option of the contractor, be made in the shop.
- Porous drains, extending from face of abutment to Elev. 951, shall be provided at all four corners of the bridge. The drains shall be 6 feet wide at the low end, tapering to 4 feet at the face of the abutment and one foot thick, centered under scuppers.
- Gravel, if used as the coarse aggregate, shall be according to Section M-3.93 instead of M-3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Section M-3.93 also may be used for other concrete in this structure.
- Surface Finish of Concrete: Railing end posts, curb faces, fascias of deck and exposed surfaces of piers, abutments and wing walls shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.
- Paint, both shop and field, shall be applied by brushing. Spray application will not be permitted.
- Excavation quantity includes the removal of fill material between the top of the earth bench and the bottom of the abutment.

- Welded Steel: The steel for all beams shall conform to ASTM Designation A-373. All other structural steel shall conform to either ASTM A-7 (as per Sec. M-7.4 (a) of the Construction and Material Specifications) or to A-373.

ESTIMATED QUANTITIES

		Item	Total	Unit	Description	Superstr.	Abuts.	Piers	General
		E-2	252	Cu.Yd.	Unclassified Excavation		77	175	
		E-2	Lump	Sum	Cofferdams, Cribs and Sheeting				
		S-1	252	Cu.Yd.	Class "C" Concrete, Superstructure	252			
		S-1	74	Cu.Yd.	Class "C" Concrete, Pier Columns & Caps			74	
		S-1	114	Cu.Yd.	Class "E" Concrete, Abutments		114		
		S-1	54	Cu.Yd.	Class "E" Concrete, Pier Footings			54	
		S-4	85,608	Lbs.	Reinforcing Steel	61,984	5,493	18,031	100
		S-7	212,560	Lbs.	Structural Steel	212,560			
		S-8	212,560	Lbs.	Field Painting of Structural Steel	212,560			
		S-14	474	Lin.Ft.	Railing (Aluminum Rail & Supports, Concrete Parapet & End Posts)				474
		S-29	30	Cu.Yd.	Porous Backfill		30		
		S-29	38	Cu.Yd.	Porous Drains on Embankment Slopes & @ Center Pier				38

REPLACEMENT BAR LIST

MARK	No	Size	Length	Type	Weight
RE 1001	1	10	7'-2"	Str.	31
RE 802	1	8	6'-6"	Str.	17
RE 703	1	7	6'-2"	Str.	13
RE 604	2	6	5'-11"	Str.	18
RE 505	3	5	5'-7"	Str.	17
RE 404	1	4	5'-3"	Str.	4

STATE OF OHIO
Michael Baker, Jr.
No. 9065
REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

BRIDGE NO. LIC-40-1010
S.R. 158 OVER U.S. 40 INTERSTATE

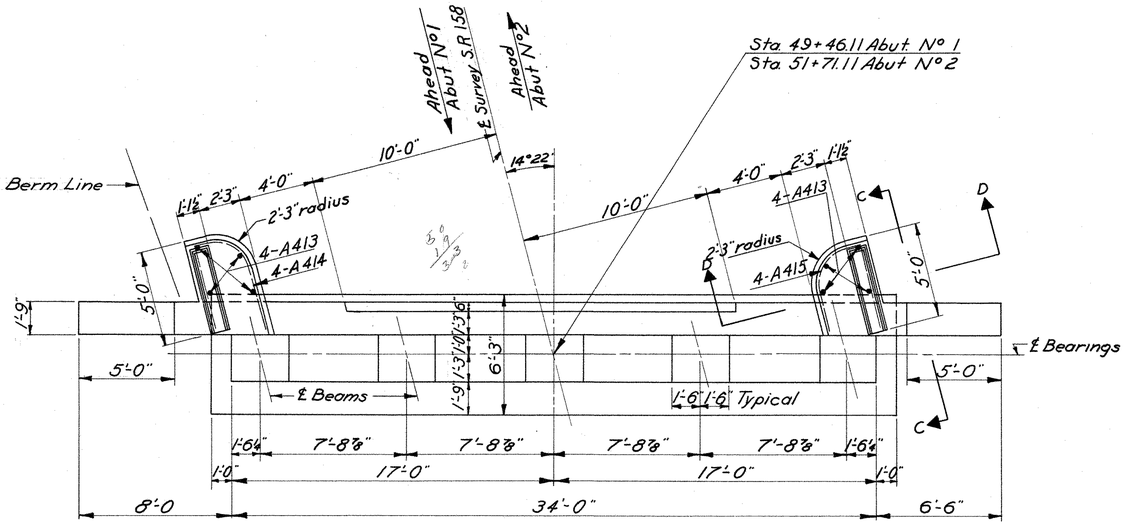
LICKING COUNTY STA. 535+94.98

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
N.L.F.	P.D.	H.Y.	J.P.R.		

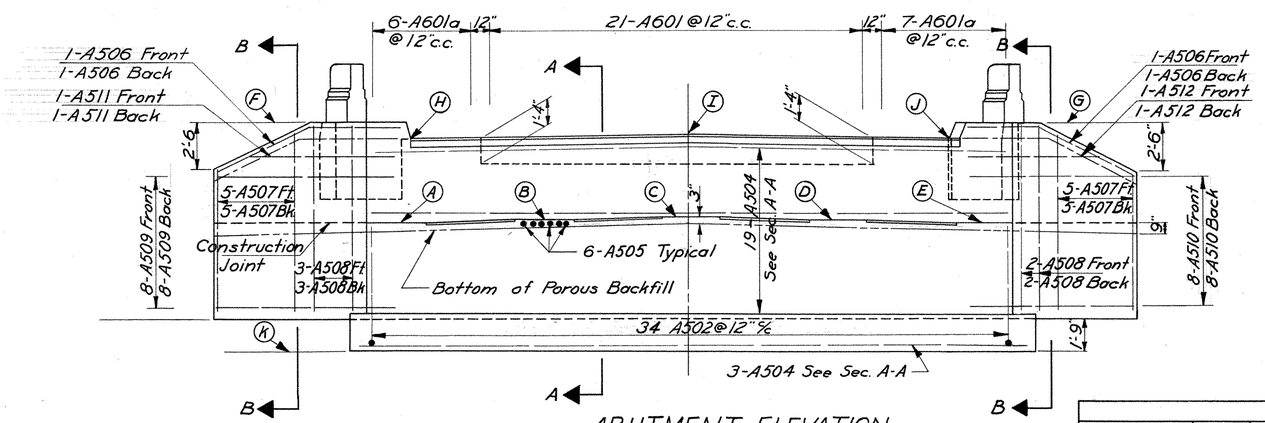
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

239
287

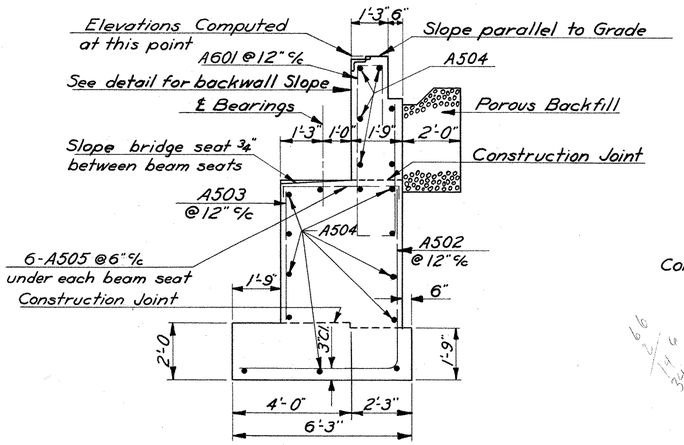
LIC-40-8.67



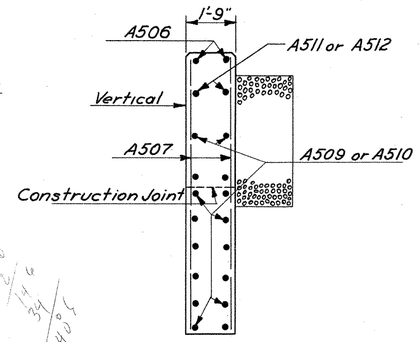
ABUTMENT PLAN



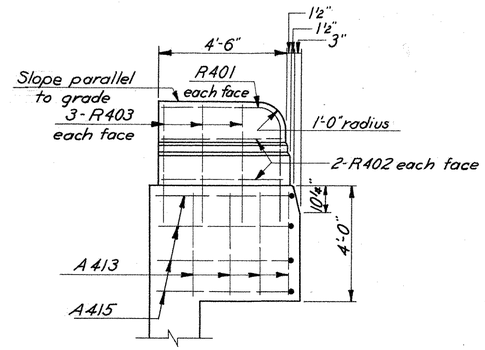
ABUTMENT ELEVATION



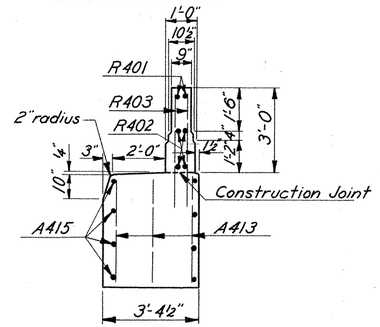
SECTION A-A



SECTION B-B

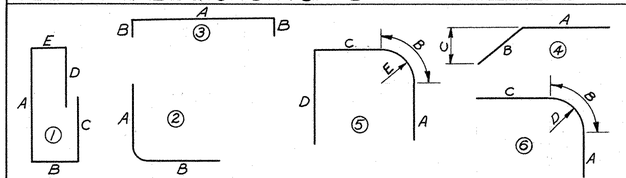


SECTION C-C



SECTION D-D

REINFORCING BARS



All bar dimensions are out to out.

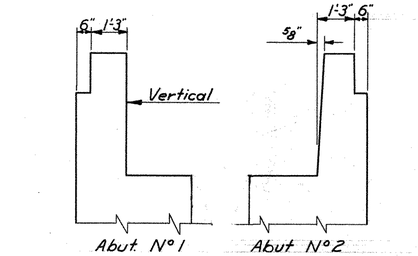
Mark	Abut1	Abut2	Total	Size	Length	Type	A	B	C	D	E	Weight
A601	21	21	42	6	14'-8"	1	6'-1"	1'-5	4'-7	2'-4	11"	925
A601a	13	13	26	6	15'-4"	1	6'-1"	1'-5	6'-1"	1'-0	1'-5	599
A502	34	34	68	5	10'-0"	2	5'-3	5'-11				709
A503	34	34	68	5	3'-8"	S						260
A504	19	19	38	5	33'-8"	S						1331
A505	30	30	60	5	5'-5"	3	3'-8	1'-0				338
A506	4	4	8	5	8'-11"	4	3'-6	5'-7	2'-6			75
A507	20	20	40	5	6-8 to 8-8	S	8 each vary by 6"					320
A508	10	10	20	5	9'-0"	S						187
A509	16	16	32	5	8'-6"	S						284
A510	16	16	32	5	7'-6"	S						250
A511	2	2	4	5	7'-0"	S						29
A512	2	2	4	5	6'-10"	S						28
A413	8	8	16	4	3'-8"	S						39
A414	4	4	8	4	11'-7"	5	3'-4	2'-11	1'-0	4'-5	1'-10	63
A415	4	4	8	4	10'-6"	5	2'-1	2'-11	1'-0	4'-7	1'-10	56
R401	4	4	8	4	7'-11"	6	3'-3	1'-4	3'-4	10"		included with railing for payment
R402	8	8	16	4	4'-2"	S						
R403	12	12	24	4	4'-0"	S						
										Total		5,493

TABLE OF ELEVATIONS

	A	B	C	D	E	F	G	H	I	J	K
Abutment N°1	969.66	969.77	969.89	969.78	969.68	974.80	974.82	973.95	974.18	973.97	963.60
Abutment N°2	968.65	968.77	968.91	968.81	968.73	973.76	973.86	972.93	973.19	973.01	962.60

NOTES

- Porous Backfill 2 feet thick full length of Abutment and wings shall extend up to the underside of the approach slab and up to the finished ground surface and outward to the surface of the embankment slopes.
- Clearance of Reinforcing Steel from face of concrete shall be 2" unless otherwise shown.
- Concrete above bridge seat construction joint shall not be placed until after Steelwork is erected.
- Steel End Finish shall be used as a template for the top of the backwall.
- The embankment shall be placed and compacted to the height of the earth bench, after which excavation shall be made for the abutment.



DETAIL OF BACKWALL SLOPE

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENTS

BRIDGE NO. LIC-40-1010
S.R.158 OVER U.S.40 INTERSTATE

LICKING COUNTY STA. 535+94.98

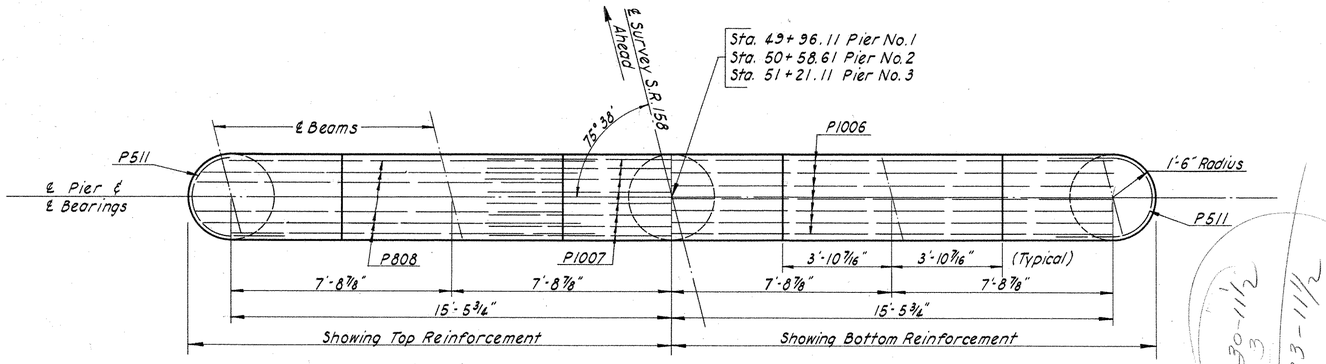
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
K.F.	M.F.	M.F.	J.P.R.		

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

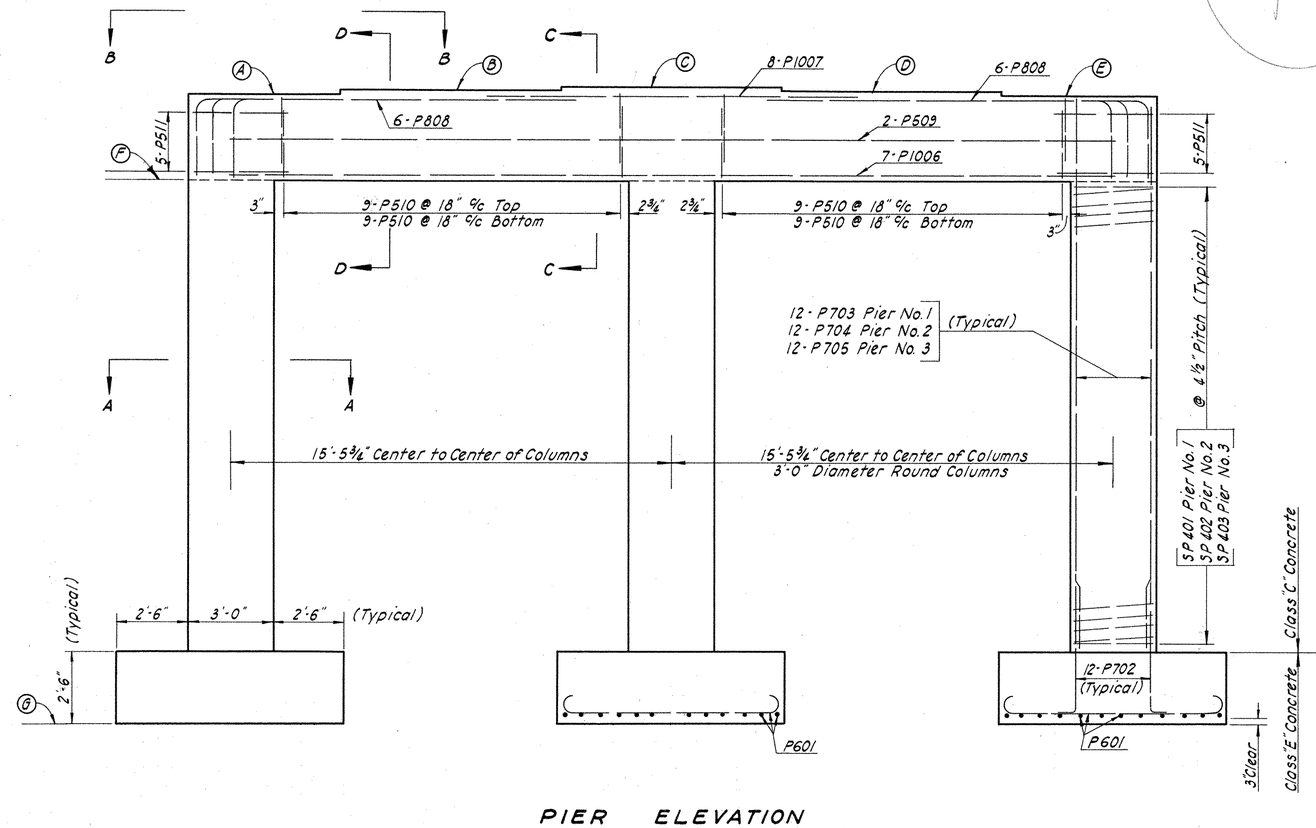
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

240 / 287

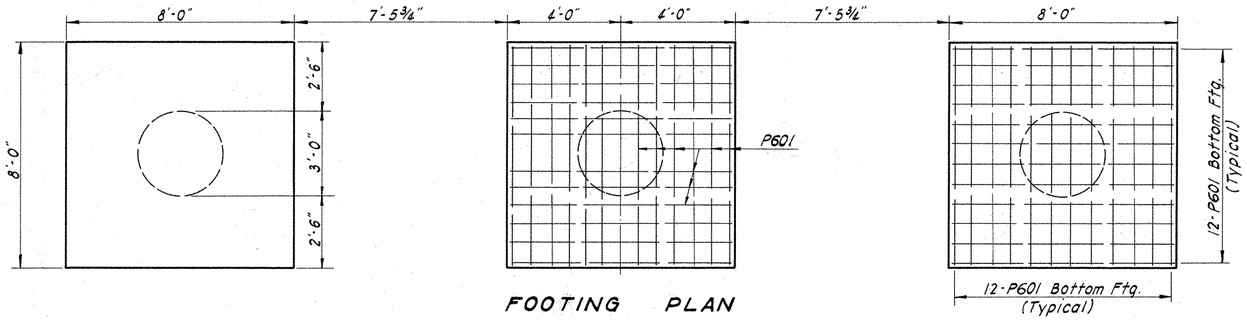
LIC-40-8.67



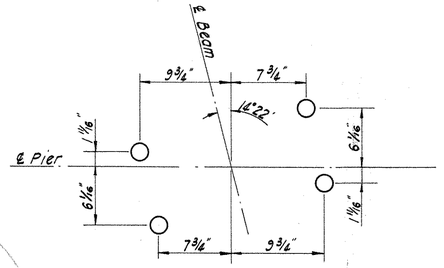
PIER CAP PLAN



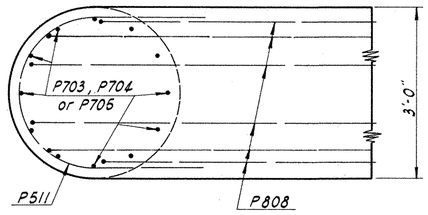
PIER ELEVATION



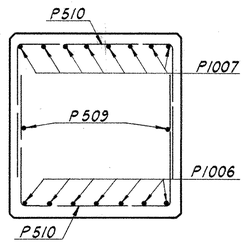
FOOTING PLAN



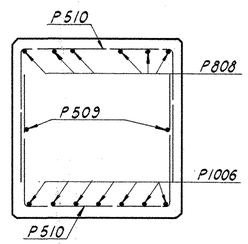
TYPICAL ANCHOR BOLT LAYOUT
PIER No. 2 ONLY



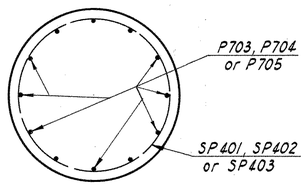
VIEW B-B



SECTION C-C

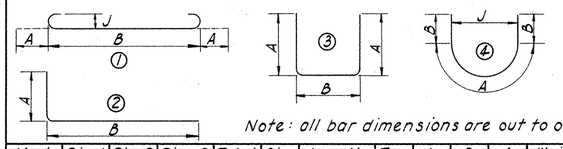


SECTION D-D



SECTION A-A

BAR SCHEDULE FOR PIERS



Note: all bar dimensions are out to out

Mark	Pier 1	Pier 2	Pier 3	Total	Size	Length	Type	A	B	J	Weight
P601	72	72	72	216	6	9'-4"	1	10"	7'-8"	7"	3,028
P702	36	36	36	108	7	4'-11"	2	8"	4'-5"		1,086
P703	36			36	7	18'-2"	Str.				1,337
P704		36		36	7	20'-6"	Str.				1,508
P705			36	36	7	19'-5"	Str.				1,429
P1006	7	7	7	21	10	31'-0"	Str.				2,801
P1007	8	8	8	24	10	13'-0"	Str.				1,343
P808	12	12	12	36	8	15'-5"	2	2'-10"	12'-10"		1,482
P509	2	2	2	6	5	31'-0"	Str.				194
P510	36	36	36	108	5	7'-1"	3	2'-4"	2'-8"		798
P511	10	10	10	30	5	8'-0"	4	4'-2"	1'-11"	2'-8"	250

SPIRAL BARS

Mark	Pier 1	Pier 2	Pier 3	Total	Size	Length	Pitch	No. Turns	Core Dia.	Weight
SP401	3			3	4	15'-4"	4½"	44	32"	865
SP402		3		3	4	17'-8"	4½"	50	32"	985
SP403			3	3	4	16'-7"	4½"	47	32"	925

Total Weight = 18,031#

NOTES

- 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 Turns" shown in the steel list for the spiral bars 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 3-4. 1½ Closed coils shall be provided at the ends of each spiral unit.
  - Four Steel Channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil
  - The number of pounds of these spacers, based on 0.68 lbs. per lin ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.
- Clearance of Reinforcing Steel from face of concrete shall be 2" unless otherwise shown.
- Special Care shall be taken in placing reinforcing steel in the bridge seat so that it will not interfer with the drilling of anchor bolt holes.

PIER ELEVATIONS

	A	B	C	D	E	F	G
Pier No. 1	969.36	969.46	969.58	969.46	969.36	966.36	948.50
Pier No. 2	969.19	969.30	969.42	969.31	969.22	966.19	946.10
Pier No. 3	968.78	968.90	969.03	968.93	968.84	965.78	946.80

STATE OF OHIO — Michael Baker, Jr. No. 9069 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIERS

BRIDGE NO. LIC-40-1010
S.R.158 OVER U.S.40 INTERSTATE

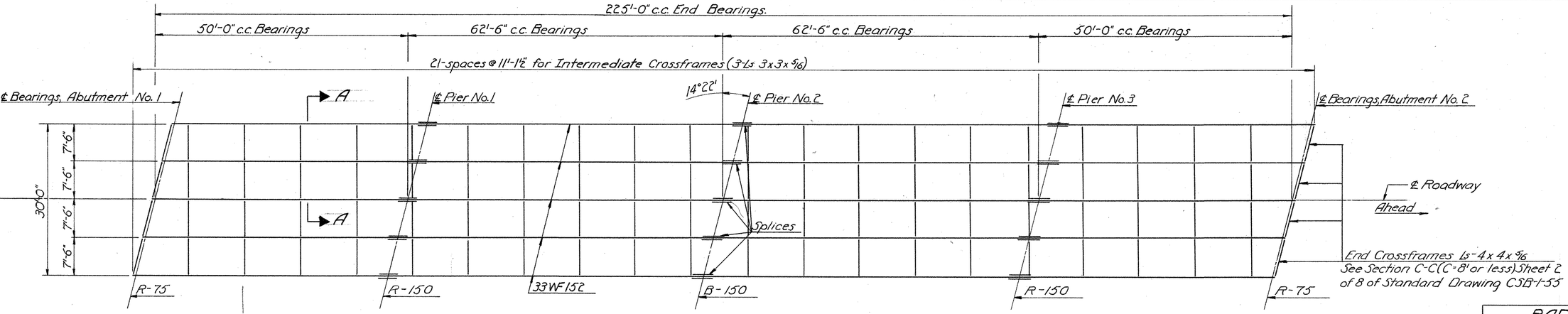
LICKING COUNTY — STA. 535+94.98

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
K.E.F.	K.E.F.	H.O.	J.P.R.		

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

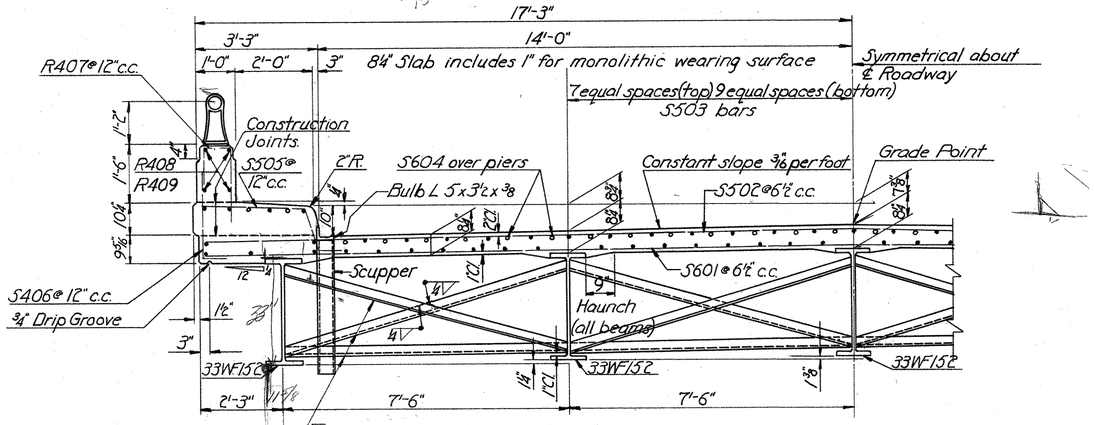
241 / 287

LIC-40-8.67



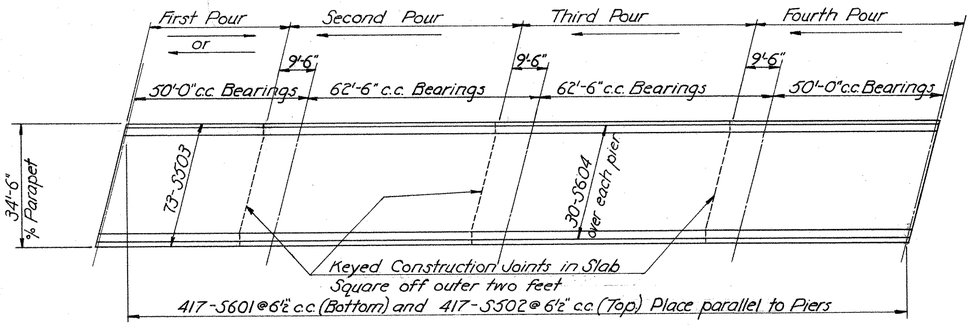
STEEL FRAMING PLAN

17'-3" / 2'-3" / 15'



15'-6"

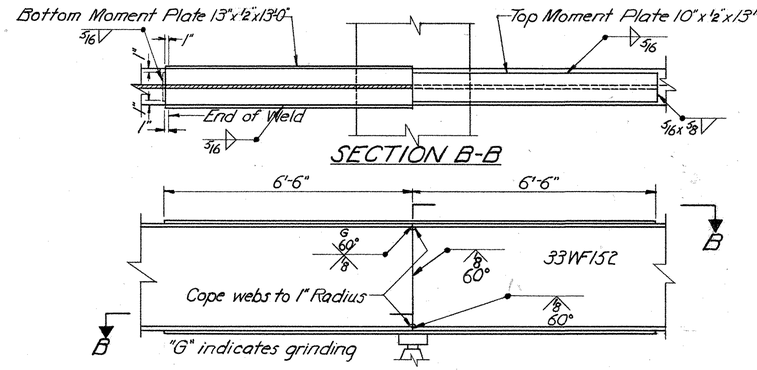
TRANSVERSE HALF SECTION A-A



DECK SLAB PLAN

DECK CONSTRUCTION PROCEDURE:

Deck slab shall be placed in sections between transverse construction joints in the numerical order and in the direction indicated above in order that the major portion of dead load deflection may occur prior to placing concrete over each pier.



SECTION B-B

BEAM SPLICE DETAILS

8¼" / 33½ / 41¾

3'-5¾"

3.48 / .24 / 3.72 / 15.00 / 18.72

SPLICE WELDING PROCEDURE

1. Raise end of beam at Pier #2 - 1⅛".
2. Butt weld beam flanges and web at Pier #1 using the following sequence: make one pass on each flange, then one on the web, repeat until welds are complete.
3. Weld top and bottom flange moment plates at Pier #1.
4. Lower ends of beams at Pier #2.
5. Make splices at Piers #2 and #3 in the same manner raising the ends of the beams 1⅛" at Pier #3 and 0⅝" at the abutment.

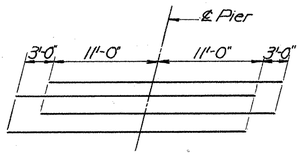


DIAGRAM SHOWING STAGGER OF S504 BARS OVER PIERS

BAR SCHEDULE FOR DECK

A B C D ① — A B ② — B C A ③

All dimensions are out to out.

Mark	No.	Size	Length	Type	A	B	C	D	Weight
S601	417	6	35'-3"	Str.					22,078
S502	417	5	35'-3"	Str.					15,331
S503	511	5	33'-9"	Str.					17,988
S604	90	6	25'-0"	Str.					3,380
S505	452	5	4'-8"	1	2'-9"	3"	1'-4"	10"	2,202
S406	452	4	3'-4"	2	2'-9"	8"			1,005
R407	452	4	4'-0"	3	2'-2"	8"	1'-2"		Included
R408	104	4	15'-2"	Str.					with Railing
R409	16	4	12'-3"	Str.					for Payment
						Total Weight = 61,984#			

NOTES:

- Refer to Standard Drawing CSB-1-55 Sheet 2 of 8 (revised 7-16-56) for details of End Finish.
- Refer to Standard Drawing RB-1-55 for details of Rockers and Bolsters.
- Concrete and reinforcement above parapet construction joints included with railing for payment.
- Refer to Common Details Sheet for details of Gutter, Scupper, Splash Guard and Railing.
- Joints in end finish: A welded butt joint in the end finish, at the centerline of roadway, will be required for that portion of the end finish attached to the superstructure. The portion attached to the backwall shall be placed in segments which shall be closely butted, with one of the joints at the apex of the crown, but shall not be welded.
- Concrete shall be Class "C".

STATE OF OHIO — Michael Baker, Jr. No. 9065 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

SUPERSTRUCTURE

BRIDGE NO. LIC-40-1010
S.R.158 OVER U.S.40 INTERSTATE

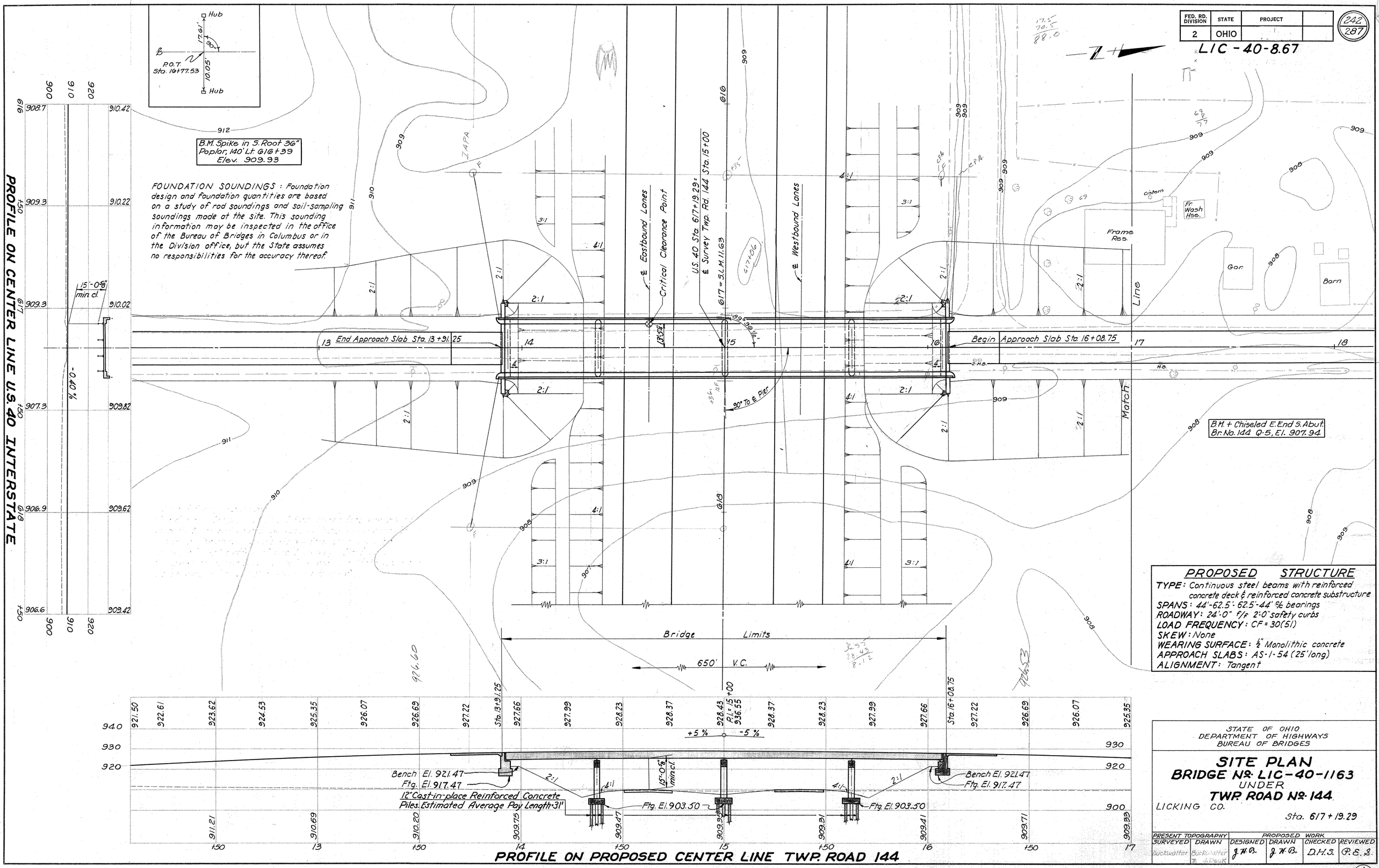
LICKING COUNTY — STA. 535 + 94.98

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
A.L.F.	P.D.	P.D.	J.P.R.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

242/287

LIC-40-8.67



PROPOSED STRUCTURE

TYPE: Continuous steel beams with reinforced concrete deck & reinforced concrete substructure
SPANS: 44'-62.5'-62.5'-44' c/c bearings
ROADWAY: 24'-0" f/f 2'-0" safety curbs
LOAD FREQUENCY: CF = 30(51)
SKEW: None
WEARING SURFACE: ½" Monolithic concrete
APPROACH SLABS: AS-1-54 (25' long)
ALIGNMENT: Tangent

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN
BRIDGE No. LIC-40-1163
UNDER
TWP. ROAD No. 144

LICKING CO.

Sta. 617+19.29

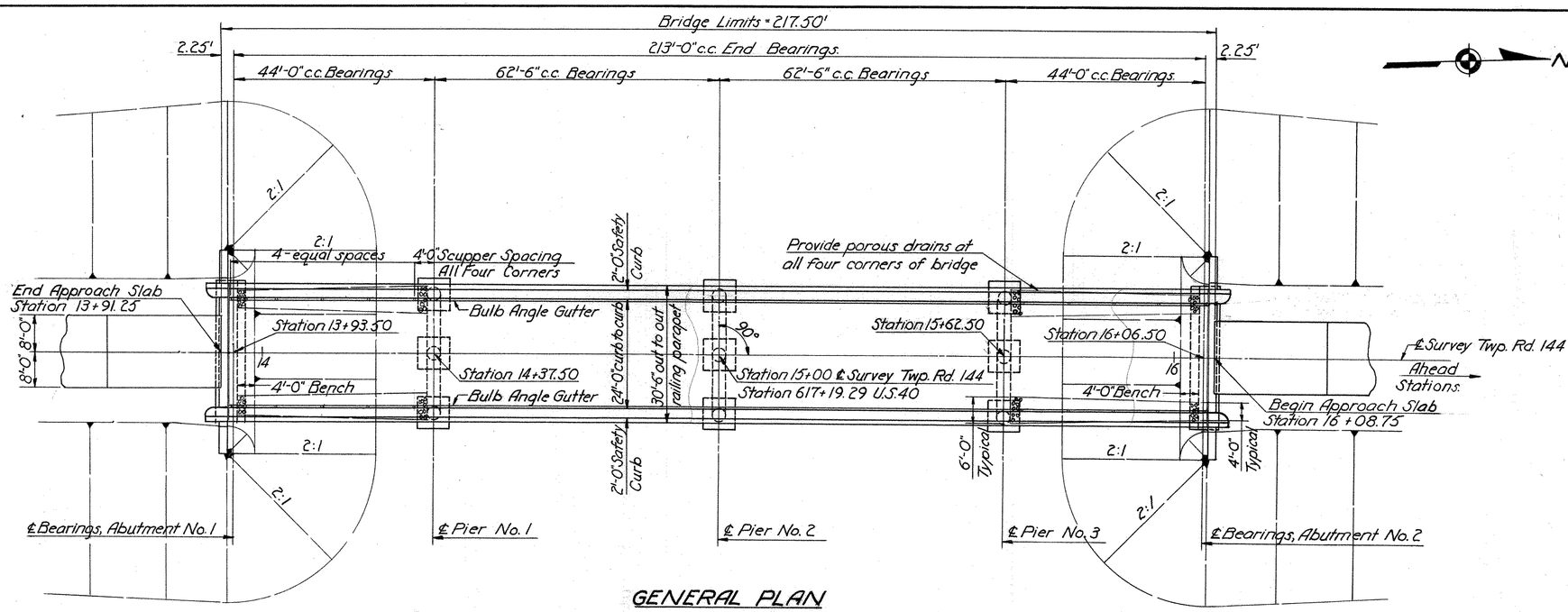
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
Buckwalter	Buckwalter & J. Deck	J.H.B.	J.H.B.	D.H.S.	P.E.S.

1/2

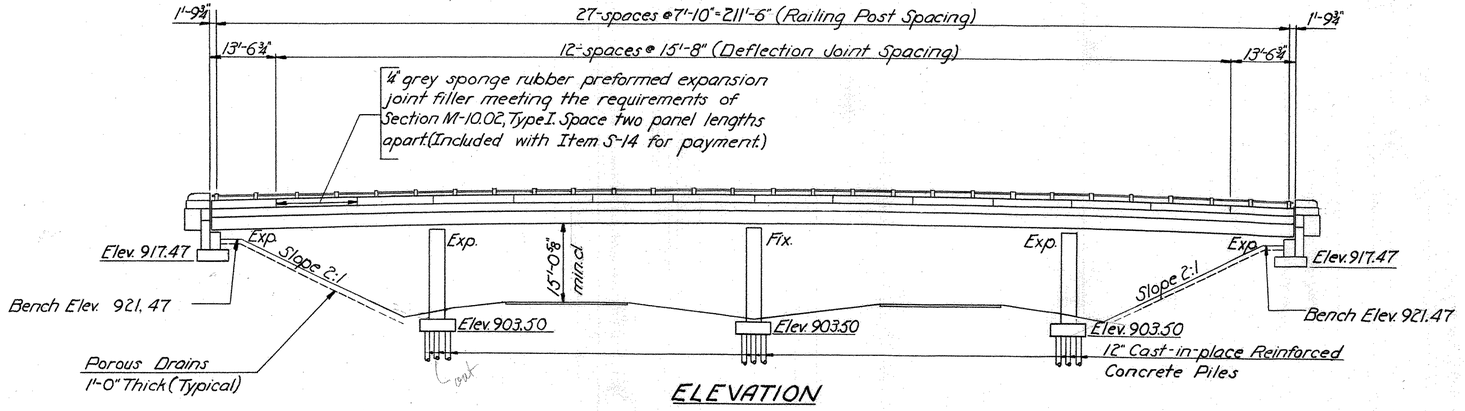
FED. RD. DIVISION	STATE		FUNDS
2	OHIO		

(LAJ 287)

LIC-40-8.67



GENERAL PLAN



ELEVATION

GENERAL NOTES

- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 10-1-51, together with revisions thereof dated 7-1-52, 4-1-54 and 2-1-55.
- Loading: C.F. 30-51.
- Excavation quantity includes the removal of fill material between the top of the earth bench and the bottom of the footing.
- Gravel, if used as the coarse aggregate, shall be according to Section M-3.93 instead of M-3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Section M-3.93 also may be used for other concrete in this structure.
- Surface Finish of Concrete: Railing end posts, curb faces, fascias of deck and exposed surfaces of piers, abutments and wingwalls shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.
- Paint, both shop and field, shall be applied by brushing. Spray application will not be permitted.
- Porous drains, extending from face of abutment to Elev. 907.50, shall be provided at all four corners of the bridge. The drains shall be 6 feet wide at the low end, tapering to 4 feet wide at the face of the abutment, and one foot thick.
- Welding shall be Class "A". Any welds shown as field welds may, at the option of the contractor, be made in the shop.
- Piles shall be driven to a minimum bearing capacity of 40 tons for the piers. The length of penetration of every pile shall be at least 80% of the estimated average length of penetration of the piles in the pertinent pier as indicated on the plan unless a lesser penetration is approved by the Director.
- Reference shall be made to Sheets 1 & 2 of Standard Drawing CSB-1-55 (dated 3-1-55 and revised 7-16-56), to Standard Drawing RB-1-55 dated 3-1-55, and to Supplemental Specification No. S-114 revised 3-1-56.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Superstr.	Abuts.	Piers	General		
E-2	196	Cu.Yd.	Unclassified Excavation		88	108			
S-1	188	Cu.Yd.	Class "C" Concrete, Superstructure	188					
S-1	64	Cu.Yd.	Class "C" Concrete, Pier Columns and Caps			64			
S-1	72	Cu.Yd.	Class "E" Concrete, Abutments above Footings		72				
S-1	67	Cu.Yd.	Class "E" Concrete, Footings		26	41			
S-4	68,008	Lbs.	Reinforcing Steel	48,299	5157	14,444	108		
S-7	135,000	Lbs.	Structural Steel	135,000					
S-8	135,000	Lbs.	Field Painting of Structural Steel	135,000					
S-14	450	Lin.Ft.	Railing (Aluminum Rail and Supports, Concrete Parapet and End Posts)	450					
S-16	Lump	Sum	First Test Pile				Lump		
S-18	1180	Lin.Ft.	12" Cast-in-place Reinforced Concrete Piles			1180			
S-29	20	Cu.Yd.	Porous Backfill		20				
S-29	30	Cu.Yd.	Porous Drains on Embankment Slopes				30		

REPLACEMENT BAR SCHEDULE

Mark	No.	Size	Type	Length	Weight
RE401	1	4	Str.	3'-3"	4
RE502	1	5	Str.	5'-7"	6
RE603	2	6	Str.	5'-11"	18
RE804	1	8	Str.	6'-6"	17
RE905	1	9	Str.	6'-10"	23
RE1106	1	11	Str.	7'-6"	40
				Total Weight = 108#	

STATE OF OHIO * Michael Baker, Jr. No. 9065 * REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

BRIDGE NO. LIC-40-1163
UNDER TWP. RD. NO. 144

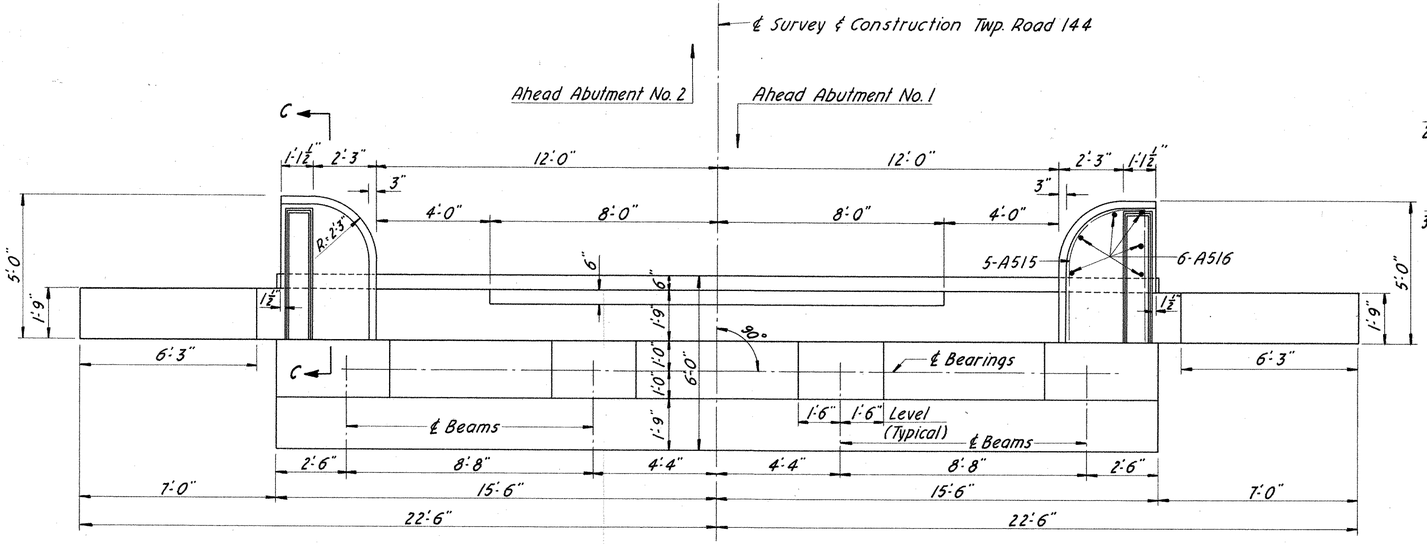
LICKING COUNTY — STA. 617+19.29

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
R.D.C.	P.D.	P.D.	F.W.L.		

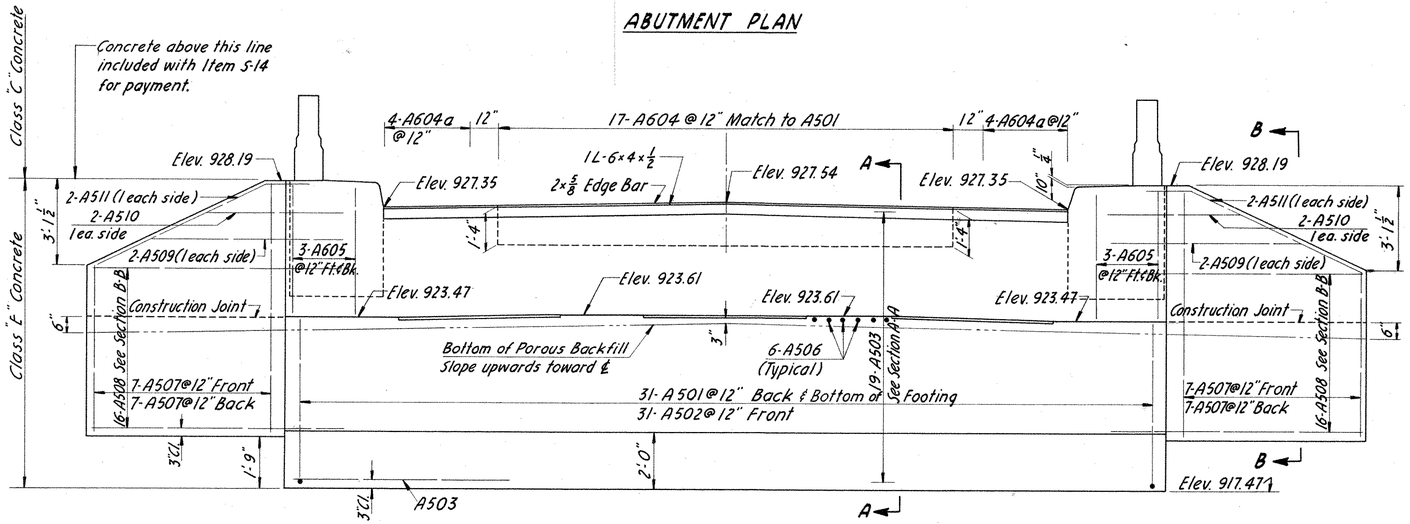
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

244
287

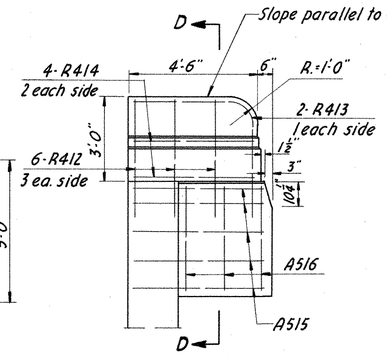
LIC-40-8.67



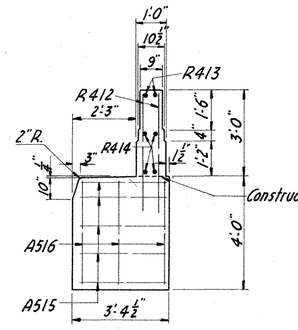
ABUTMENT PLAN



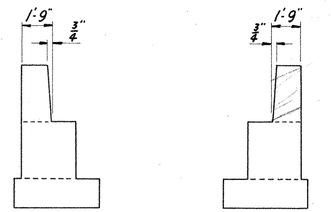
ABUTMENT ELEVATION



SECTION C-C



SECTION D-D



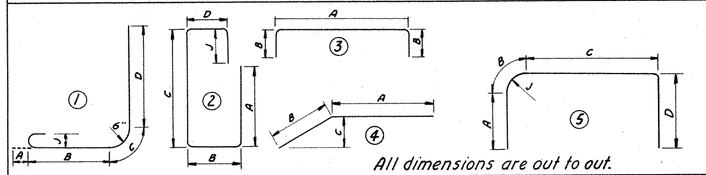
ABUTMENT No. 1 ABUTMENT No. 2

DETAIL SHOWING BACKWALL SLOPES

NOTES

- Porous backfill 2 feet thick full length of the abutments and wings shall extend up to the underside of the approach slab and up to the finished ground surface, and outward to the surface of the embankment slopes.
- Clearance of the reinforcing steel from face of concrete shall be 2" unless otherwise shown.
- Concrete above bridge seat construction joint shall not be placed until after steel work is erected.
- Steel end finish shall be used as a template for top of backwall.
- Maximum foundation pressure = 1¼ tons/sq. ft.
- The embankment shall be placed and compacted to the height of the earth bench, after which excavation shall be made for the abutment.

BAR SCHEDULE FOR TWO ABUTMENTS

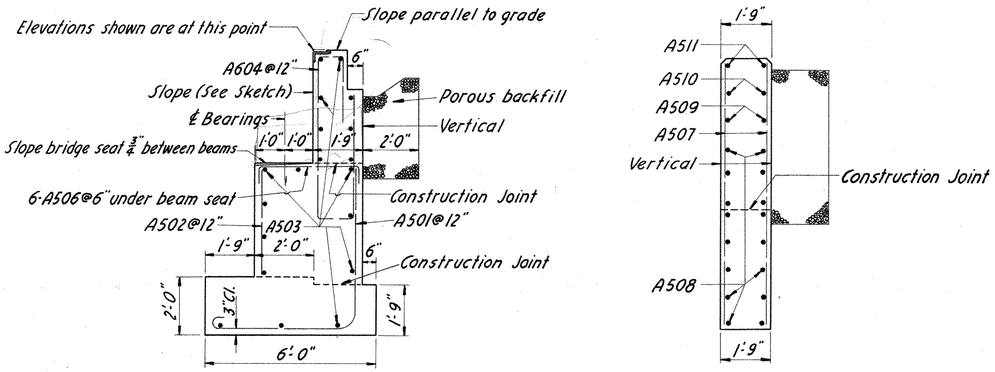


All dimensions are out to out.

MARK	NUMBER	SIZE	LENGTH	TYPE	A	B	C	D	J	WEIGHT
A501	62	5	11'-1"	1	7"	4'-7"	10"	5'-1"	5"	716
A502	62	5	3'-8"	Str.						237
A503	38	5	30'-8"	Str.						1216
A604	34	6	13'-10"	2	4'-6"	1'-5"	5'-8"	11"	2'-0"	706
A604a	16	6	14'-6"	2	5'-8"	1'-5"	5'-8"	1'-5"	1'-0"	348
A605	24	6	4'-6"	Str.						162
A506	48	5	4'-2"	3	3'-5"	6"				209
A507	56	5	8'-8" to 5'-8"	Str.	8 each vary by 6"					419
A508	64	5	10'-0"	Str.						668
A509	8	5	7'-0"	Str.						58
A510	8	5	5'-0"	Str.						42
A511	8	5	8'-8"	4	2'-0"	6'-9"	2'-9"			72
*R412	24	4	4'-0"	Str.						
*R413	8	4	7'-11"	5	3'-3"	1'-4"	3'-4"	0'-0"	10"	
*R414	16	4	4'-3"	Str.						
A515	20	5	10'-2"	5	2'-4"	2'-11"	11"	4'-2"	1'-10"	212
A516	24	5	3'-8"	Str.						92

* Included with Item 514 for payment.

TOTAL = 5157 lbs.



SECTION A-A

SECTION B-B

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENTS

BRIDGE NO. LIC-40-1163
UNDER TWP. RD. NO. 144

LICKING COUNTY STA. 617+19.29

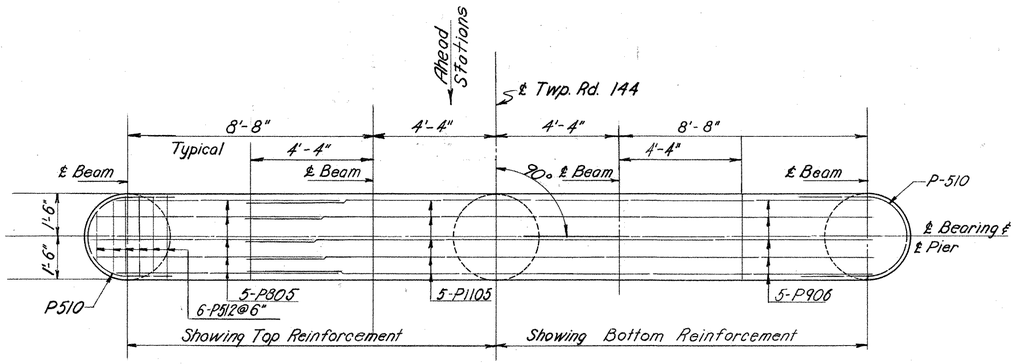
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
R.D.C.	R.D.C.	C.W.C.	F.W.L.		

STATE OF OHIO · Michael Baker, Jr. · No. 9065 · REGISTERED PROFESSIONAL ENGINEER

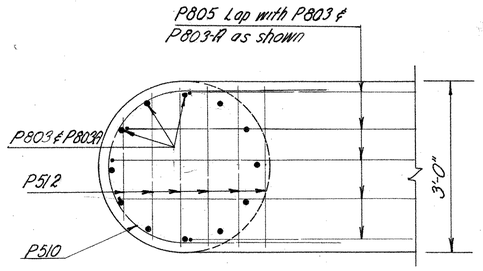
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

24.5 / 287

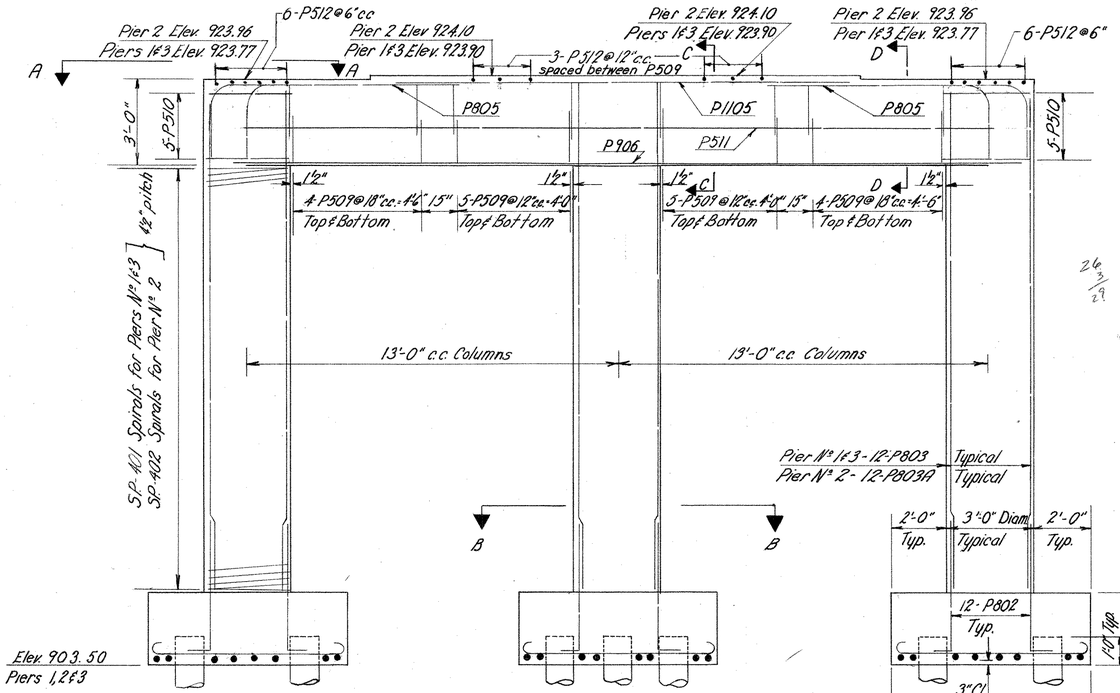
LIC-40-8.67



PLAN OF PIER CAP

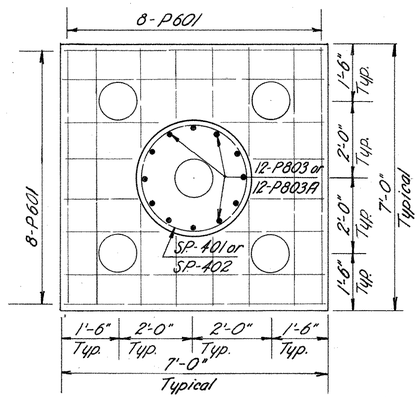


SECTION A-A

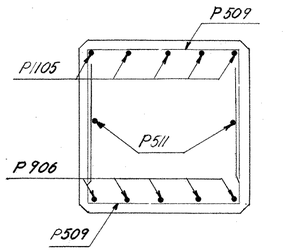


ELEVATION OF PIER

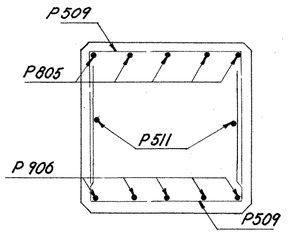
* Piers 1,2 & 3
Center Footing - 5 piles
Outside Footings - 4 piles



SECTION B-B

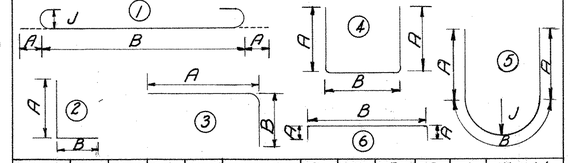


SECTION C-C



SECTION D-D

BAR SCHEDULE FOR PIERS 1,2 & 3



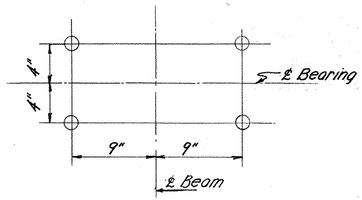
Mark	Piers 1&3	Pier 2	Total	Size	Length	Type	A	B	C	J	Weight
P601	96	48	144	6	8'-0"	1	8"	6'-8"		6"	1,730
P802	72	36	108	8	5'-4"	2	4'-9"	10"			1,537
P803	72		72	8	17'-7"	Str.					3,380
P803A		36	36	8	17'-9"	Str.					1,706
P805	20	10	30	8	12'-9"	3	10'-3"	2'-9"			1,021
P906	10	5	15	9	25'-8"	Str.					1,309
P1105	10	5	15	11	16'-0"	Str.					1,275
P509	72	36	108	5	7'-1"	4	2'-4"	2'-8"			793
P510	20	10	30	5	8'-0"	5	1'-11"	4'-2"		1'-4"	250
P511	4	2	6	5	25'-8"	Str.					161
P512	36	18	54	5	4'-0"	6	10"	2'-8"			225

* All dimensions are out to out

Mark	Piers 1&3	Pier 2	Total	Size	Length	Pitch	No. of turns	Cor. Diam.	Weight
SP401	6		6	4	14'-9"	4½"	43	32"	700 — 1690
SP402		3	3	4	14'-11"	4½"	43	32"	352 — 847
								Total ·	14,444 lbs. 15,929

NOTES

- 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. Turns" shown in the steel list for the spiral bars is the "length" divided by the pitch, plus 3 turns, (total number of closed coils), expressed as the nearest whole number.
  - Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the end 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 spaces, based on 0.68 lbs. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.
- Clearance of Reinforcing Steel from the face of concrete shall be 2" unless otherwise shown.
- Special care shall be taken in placing reinforcing steel in the bridge seat so that it will not interfere with the drilling of anchor bolt holes.



TYPICAL ANCHOR BOLT LAYOUT
PIER N° 2 ONLY

Revised 5-7-57

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIERS

BRIDGE NO. LIC-40-1163
UNDER TWP. RD. NO. 144

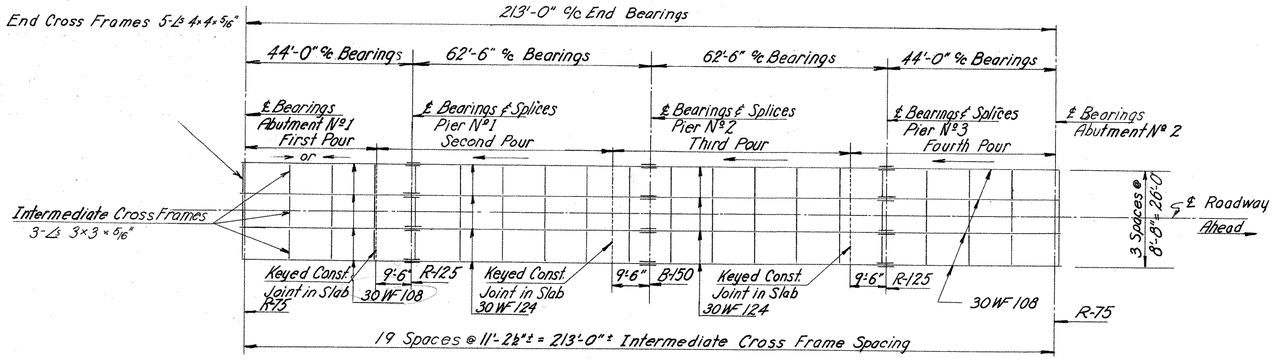
LICKING COUNTY STA. 617+19.29

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
F.W.L.	F.W.L.	RM	R.D.C.		

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

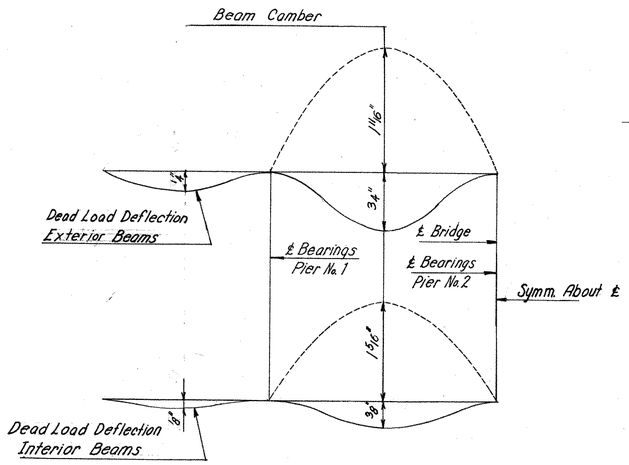
246
287

LIC-40-8.67



STEEL FRAMING PLAN

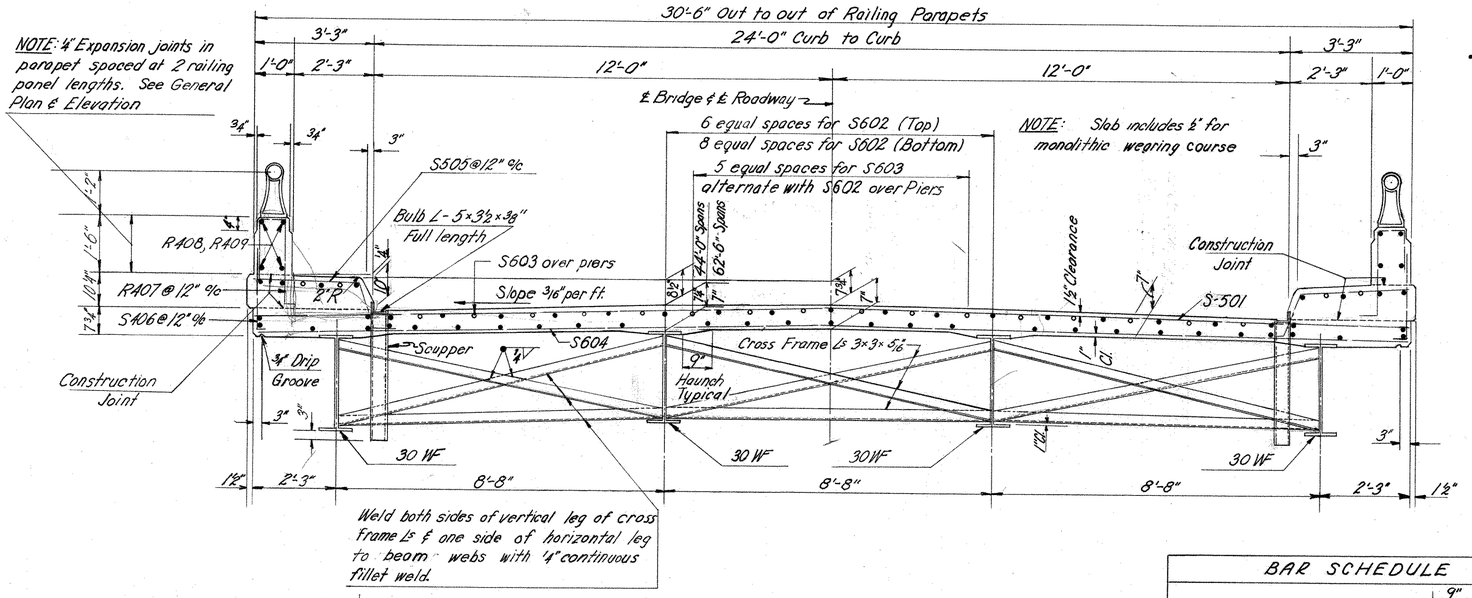
Deck Construction Procedure:
Deck slab shall be placed in sections between transverse construction joints in the numerical order and in the direction indicated above in order that the major portion of dead load deflection may occur prior to placing concrete over each pier.



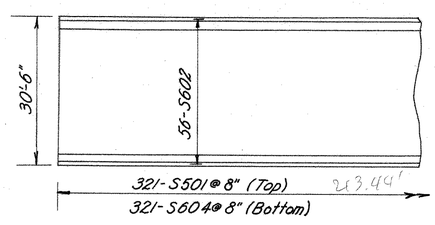
DEAD LOAD & VERTICAL CURVE CAMBER

NOTES:
- Refer to Standard Drawing C.S.B-1-55 (Revised 7-16-56) sheet 2 of 8 for details of End Cross Frames and End Finish.
- Beam Splice Welding Procedure: (All Beams)
  1. Raise end of beam at Pier N° 2, 1¼".
  2. Butt weld beam flanges & webs of Pier N° 1, using the following sequence: make one pass on each flange, then one on the web, repeat until welds are completed.
  3. Weld top & bottom flange moment plates at Pier N° 1.
  4. Lower end of beam at Pier N° 2.
  5. Make splice at Pier N° 2 & 3 in the same manner raising the end of the beams 1½" at Pier N° 3 and ⅝" at the abutment.
- Welding shall be "Class A". Any welds shown as field welds may at the option of the contractor, be made in the shop.
- Concrete shall be Class "C."
- Refer to Common Detail Sheet for details of gutter & scupper.
- Refer to Standard Drawing RB-1-55 for details of rockers, and bolsters.
- Concrete and reinforcement above parapet construction joint is included with Item S-14 for payment.

NOTE: ¼" Expansion joints in parapet spaced at 2 railing panel lengths. See General Plan & Elevation



TYPICAL TRANSVERSE SECTION



DECK SLAB PLAN

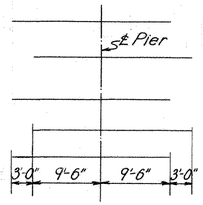
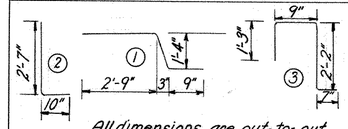


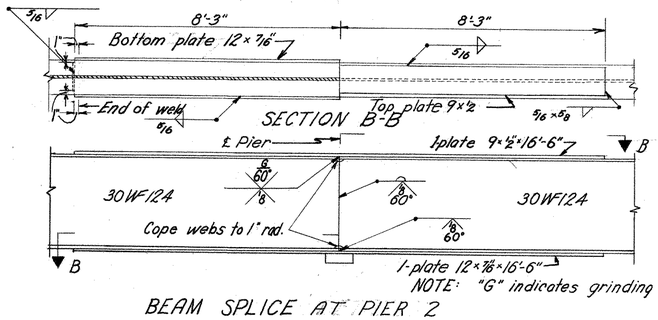
DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS

BAR SCHEDULE

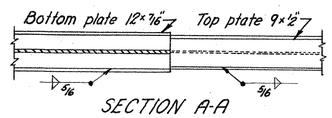


All dimensions are out-to-out

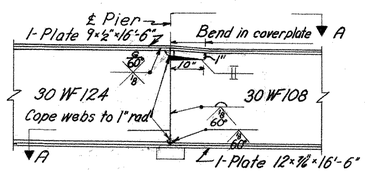
Mark	No.	Size	Length	Type	Weight
S501	321	5	30'-2"	Str.	10,101
S602	336	6	37'-0"	Str.	18,673
S603	60	6	22'-0"	Str.	1,983
S604	321	6	30'-2"	Str.	14,546
S505	428	5	4'-7"	1	2,044
S406	428	4	3'-4"	2	952
R407	428	4	4'-5"	3	Included with
R408	96	4	15'-4"	Str.	Item S-14
R409	16	4	13'-2"	Str.	for payment
			Total		48,299 lbs.



BEAM SPLICE AT PIER 2



SECTION A-A



BEAM SPLICE AT PIERS 1 & 3

NOTE:
Center cover plates over pier. Weld at ends of plates similar to Pier 2 splice detail above.

STATE OF OHIO · Michael Baker, Jr. No. 9065 · REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

SUPERSTRUCTURE

BRIDGE NO. LIC-40-1163
UNDER TWP. RD. NO. 144

LICKING COUNTY — STA. 617 + 19.29

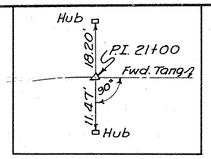
Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
ADC	RM	RM	FWL		

FED. RD. DIVISION	STATE	PROJECT		247 287
2	OHIO			

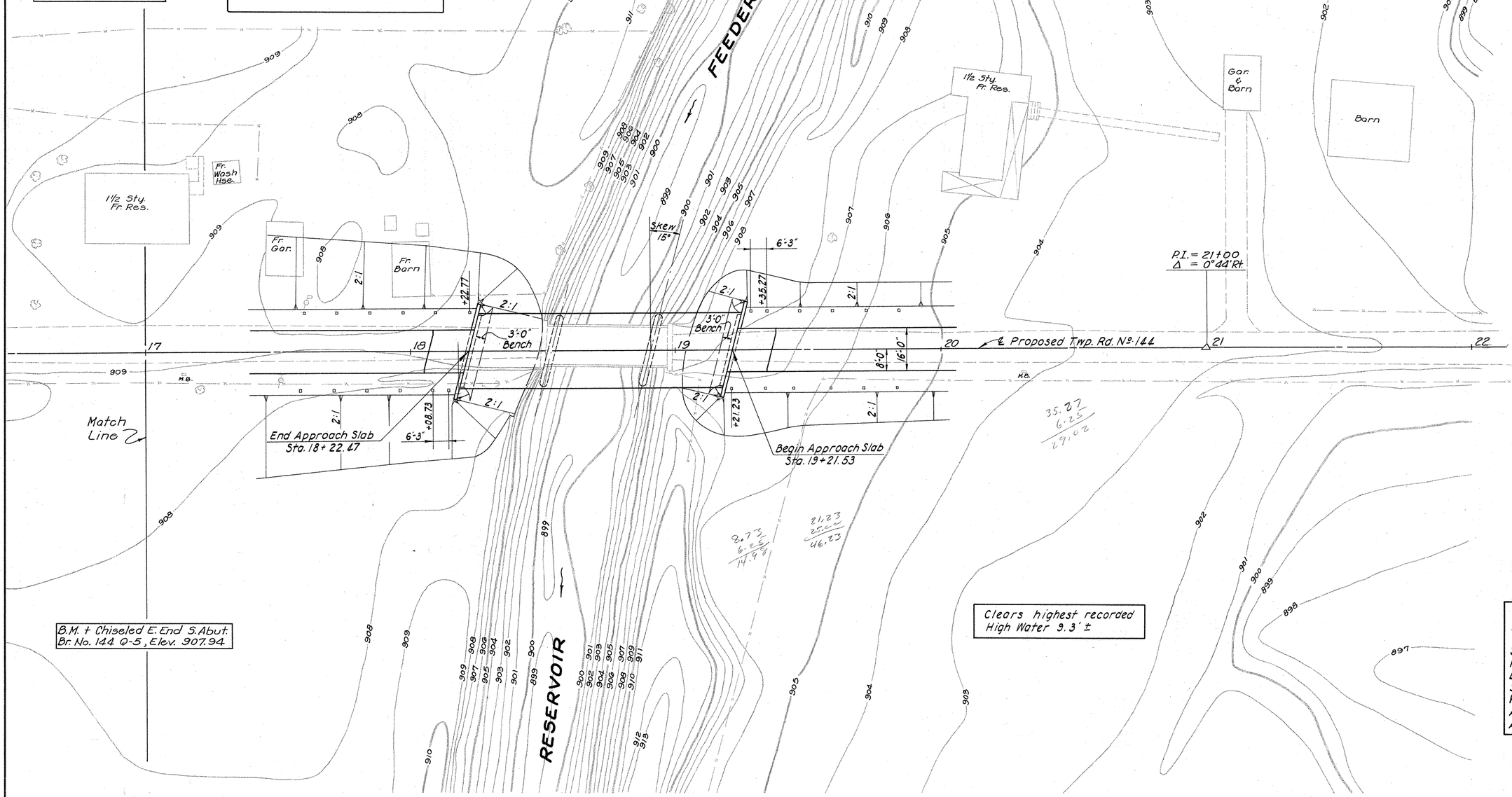
LIC - 40 - 8.67

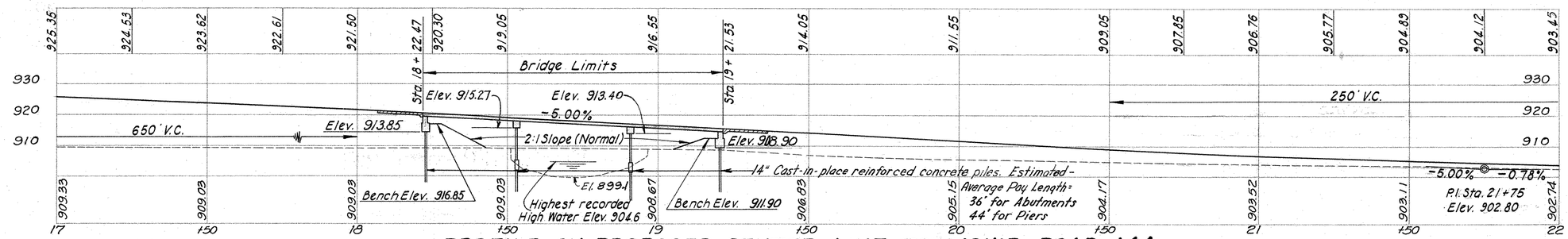
BRIDGE NO. 144-0-5

EXIST. BRIDGE DATA
TYPE :- Pony Truss
SPAN :- 45' f/f abutments
RDWY. :- 14.1' between trusses
SURF :- Plank with plank tread
ABUT. :- Sandstone



FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office, but the State assumes no responsibilities for the accuracy there of.





PROFILE ON PROPOSED CENTER LINE TOWNSHIP ROAD 144

PROPOSED STRUCTURE
Type: Continuous reinforced concrete slab on capped pile substructure.
Spans: 30'-0", 37'-6", 30'-0" c/c bearings
Roadway: 28'-0" f/f guard rails
Load Frequency: CF = 30 (51)
Skew: 15° Left Forward
Wearing Surface: ½" monolithic concrete
Approach Slabs: AS-1-54 (15' long)
Alignment: Tangent

Drainage Area = 7.3 Sq. Miles

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN
BRIDGE ON Twp. Rd. No. 144
OVER
RESERVOIR FEEDER

LICKING CO. Sta. 18+22.47
Sec. Sta. 19+21.53
Scale 1" = 20'

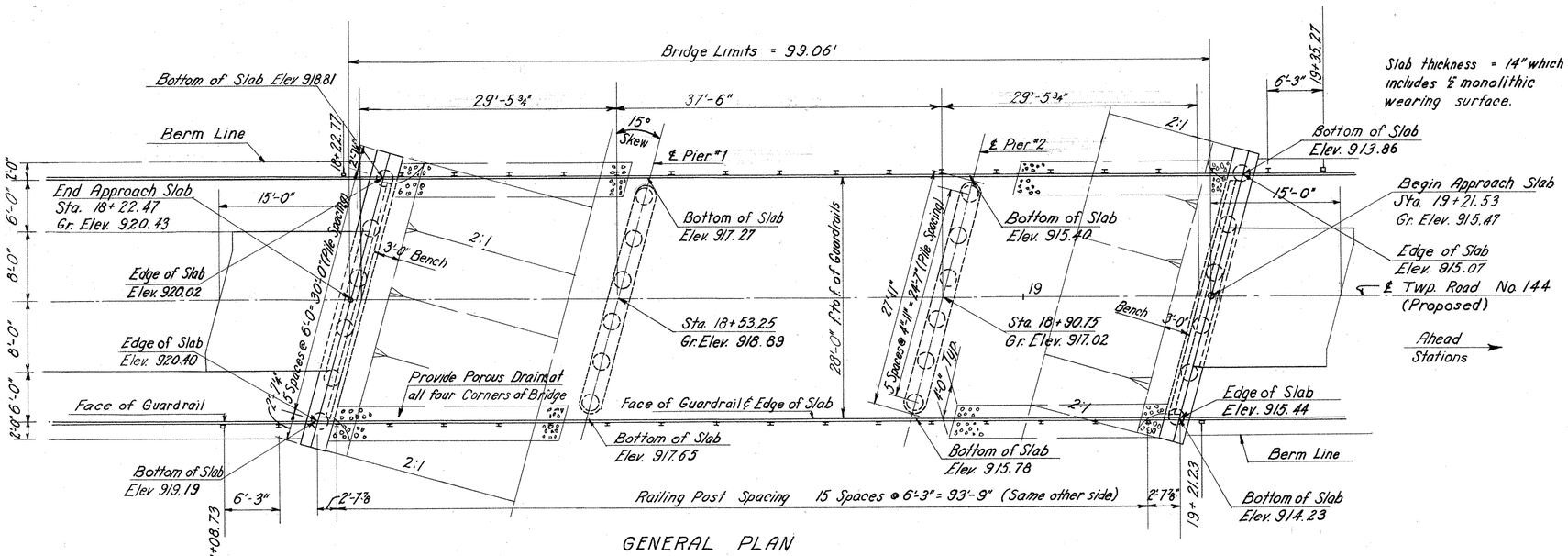
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
Buckwalter	Buckwalter	INNES	INNES	D.I.C.	P.E.S.

2/2

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

245 287

LIC-40-8.67



GENERAL PLAN

Slab thickness = 14" which includes ½" monolithic wearing surface.

N

GENERAL NOTES:

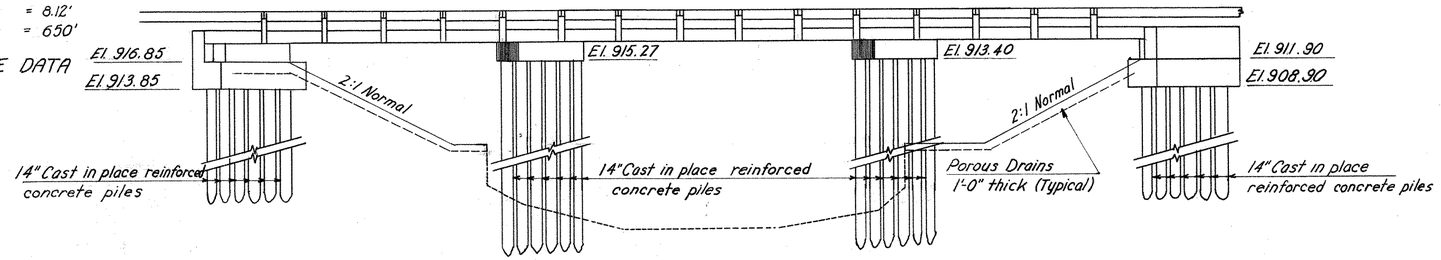
- Reference shall be made to the following Standard Drawings:
  Slab C.S.-1-54 Date 7-1-54 Revised 12-1-54 & 7-16-56
  Abutment A-1-54 Date 7-1-54 Revised 12-1-54
  Piers P-1-54 Date 7-1-54 Revised 12-1-54
- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways dated 10-1-51, together with revisions thereof dated 7-15-52, 4-1-54 and 2-1-55.
- Piles shall be driven to a minimun bearing capacity of 24 tons for the abutments and 32 tons for the piers. The length of penetration of every pile shall be at least 80% of the estimated average length of penetration of the piles in the pertinent pier or abutment as indicated on the plans unless a lesser penetration is approved by the director.
- Galvanizing of all members which are specified to be galvanized shall be as called for in Sec. M-7.4(d)
- Porous Drains, extending from face of abutment to Elevation 908.00 shall be provided at all four corners of the bridge. The drains shall be four feet wide and one foot thick, centered under edge of deck.
- Gravel, if used as the coarse aggregate, shall be according to Sec. M-3.93 instead of M-3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Sec. M-3.93 also may be used for other concrete in this structure.
- Pier Pile Encasement as shown on Standard Drawing Number P-1-54 may be omitted, provided that the tapered portion, if any, of all Pier Piles does not extend above the stream bed or the proposed surface of the ground. If the tapered portion of any pile extends above these limitations, the encasement will be required for all the pier piles. If the encasement is omitted, the pile casing shall have a thickness of metal not less than No. 7 gauge, and the pointing of the piles shall extend to low water elevation or, if the proposed surface of the ground is above low water, it shall extend to at least one foot below the proposed surface of the ground.
- Removal of Existing Structure: When no longer needed to maintain traffic, the existing structure shall be removed to the ground line or to the elevation necessary for new construction and shall become the property of the contractor.

+5.00% -5.00%

P.I. Sta. = 15+00
P.I. Elev. = 936.55'
M.O. = 8.12'
V.C. = 650'

GRADE DATA El. 916.85 El. 913.85

-5.00%



ELEVATION

34,245

ESTIMATED QUANTITIES

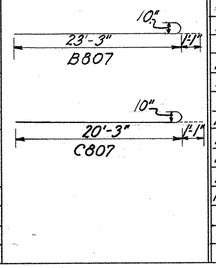
Item	Total	Unit	Description	Super.	Piers	Abut.	Gen.		
E-2	41	C.Y.	Unclassified Excavation			41			
S-1	132	C.Y.	Class "C" Concrete, Superstructure & Pier Caps	122	10				
S-1	33	C.Y.	Class "E" Concrete, Abutments			33			
S-4	34,070	Lbs.	Reinforcing Steel	27,264	2,754	3,960	100		
S-14	198.12	Lin.Ft.	Railing (Type I-15.13 with Galvanized Steel Bolts & Posts)	198.12					
S-16	Lump	Sum	First Test Pile				Lump		
S-18	930	Lin.ft.	14" Cast-in-place Reinforced Concrete Piles		530	400			
S-24	Lump	Sum	Removal of Existing Structure						
S-29	13	C.Y.	Porous Drains on Enbankment Slopes				13		
S-29	10	C.Y.	Porous Backfill			10			

REINFORCING STEEL LIST — All bar dimensions are out to out

SUPERSTRUCTURE

Mark	No.	Length	Weight	Type
F907	56	25'-3"	4,808	Str
G907	28	13'-11"	1,325	Str
H907	26	10'-0"	884	Str
A807	84	34'-7"	7,755	Str
B807	28	24'-4"	1,819	B
C807	26	21'-4"	1,480	B
D807	14	22'-0"	822	Str
E807	13	16'-10"	584	Str
M601	91	28'-5"	3885	Str
J601	28	20'-5"	859	Str
K601	14	16'-10"	354	Str
N601	63	28'-5"	2,689	Str

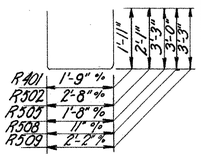
Bending Diagram



Abutments

Mark	No.	Length	Weight	Type
R1001	16	15'-5"	1,062	Str
R801	16	18'-8"	797	Str
R501	16	18'-2"	303	Str
R502	116	6'-7"	796	B
R503	8	14'-6"	120	Str
R504	24	5'-4"	133	Str
R505	20	7'-11"	165	B
R506	8	9'-0"	75	Str
R507	16	5'-1"	85	Str
R508	16	6'-8"	111	B
R509	16	8'-5"	140	B
R401	48	5'-5"	173	B

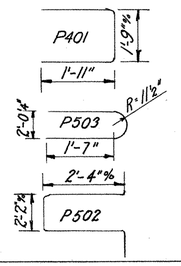
Bending Diagram



PIERS

Mark	No.	Length	Weight	Type
P1001	8	28'-5"	978	Str
P901	8	25'-4"	690	Str
P701	72	4'-0"	588	Str
		40		
P501	4	25'-4"	105	Str
P502	20	8'-0"	167	B
P503	8	6'-4"	53	B
P401	48	5'-5"	173	B

Bending Diagram



REPLACEMENT BAR SCHEDULE

Size	No.	Length	Shape
4	1	5'-3"	Str.
5	1	5'-7"	Str.
6	1	5'-11"	Str.
7	1	6'-2"	Str.
8	1	6'-6"	Str.
9	1	8'-10"	Str.
10	1	7'-2"	Str.

STATE OF OHIO * Michael Baker, Jr. No. 9065 * REGISTERED PROFESSIONAL ENGINEER

Revised 3-12-57

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

BRIDGE ON TWP. RD. NO. 144
OVER RESERVOIR FEEDER

STA. 18+22.47
19+21.53

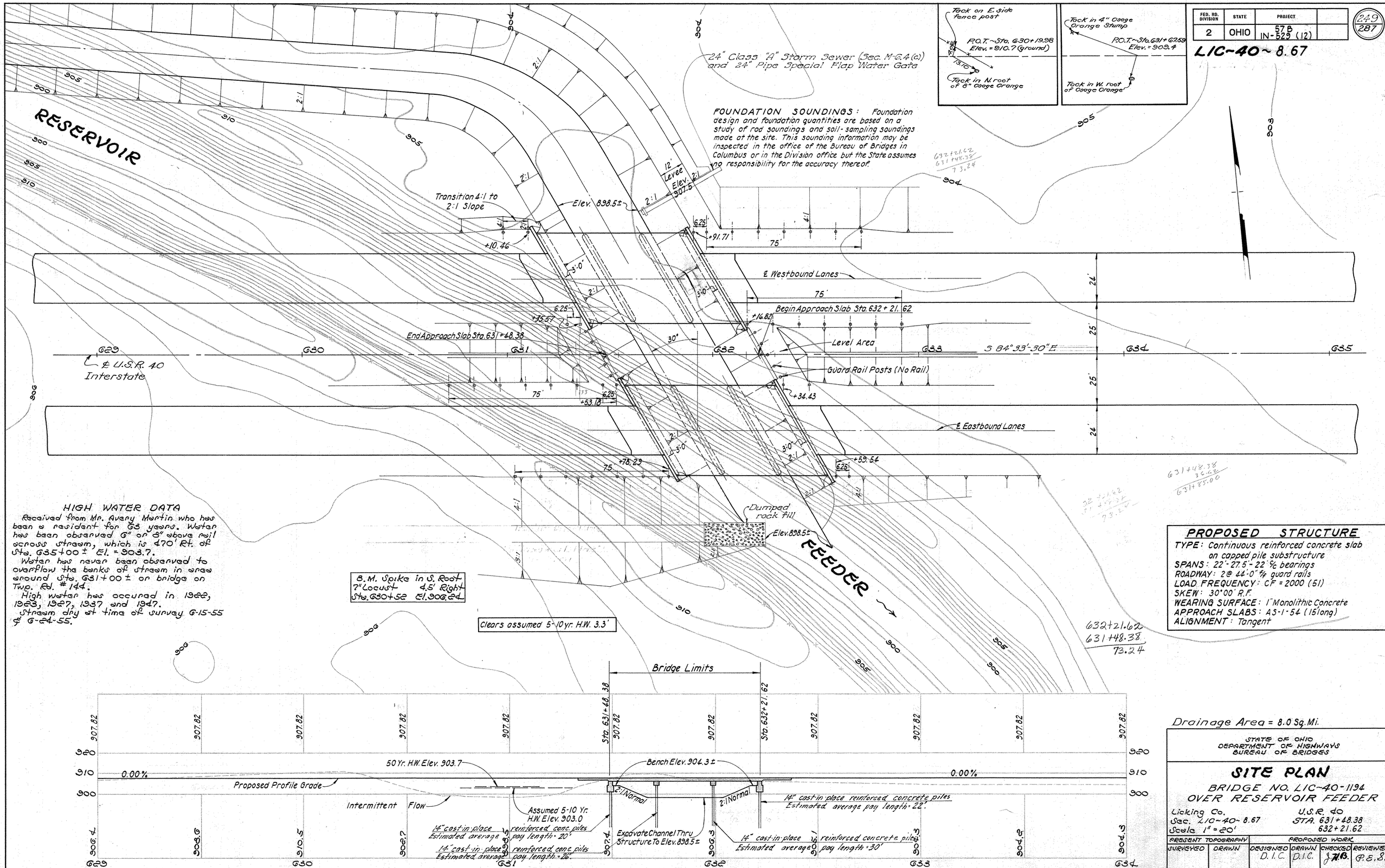
LICKING COUNTY

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
F.W.L.	F.W.L.		AFO		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	57 B IN-529 (12)	

249/287

LIC-40~8.67



HIGH WATER DATA

Received from Mr. Avery Martin who has been a resident for 63 years. Water has been observed 6" or 8" above rail across stream, which is 470' Rt. of Sta. 635+00± El. = 903.7.

Water has never been observed to overflow the banks of stream in area around Sta. 631+00± or bridge on Twp. Rd. #144.

High water has occured in 1922, 1923, 1927, 1937 and 1947.

Stream dry at time of survey 6-15-55 & 6-24-55.

PROPOSED STRUCTURE

TYPE: Continuous reinforced concrete slab on capped pile substructure
SPANS: 22'-27.5'-22' c/c bearings
ROADWAY: 2@ 44'-0" f/f guard rails
LOAD FREQUENCY: CF = 2000 (51)
SKEW: 30°00' R.F.
WEARING SURFACE: 1" Monolithic Concrete
APPROACH SLABS: AS-1-54 (15' long)
ALIGNMENT: Tangent

Drainage Area = 8.0 Sq. Mi.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. LIC-40-1194
OVER RESERVOIR FEEDER

Licking Co. U.S.R. 40
Sec. LIC-40-8.67 STA. 631+48.38
Scale 1" = 20' 632+21.62

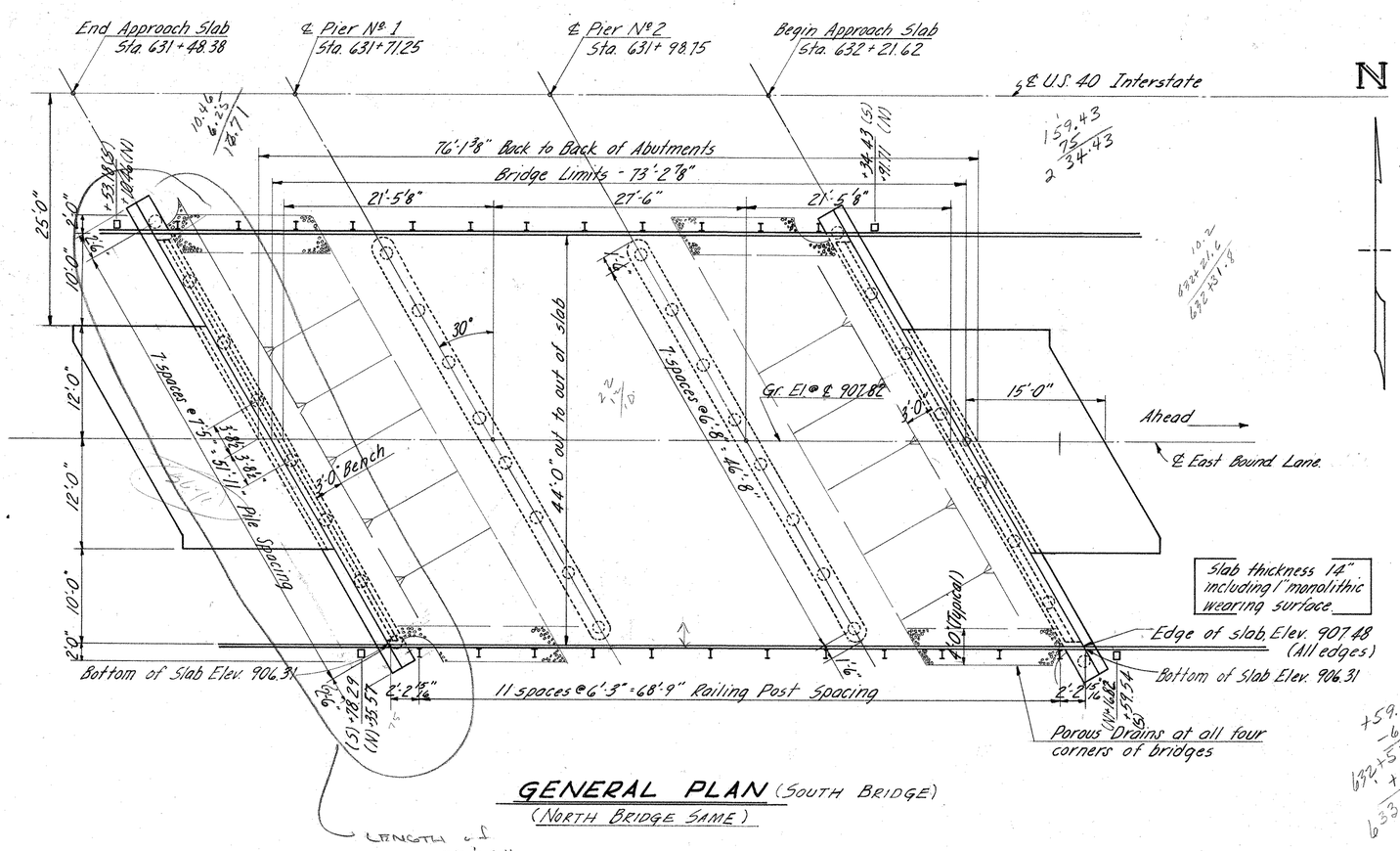
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED D.I.C.	DRAWN D.I.C.	CHECKED J.H.B.	REVIEWED P.E.S.

℄ PROFILE OF U.S. ROUTE 40 INTERSTATE

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

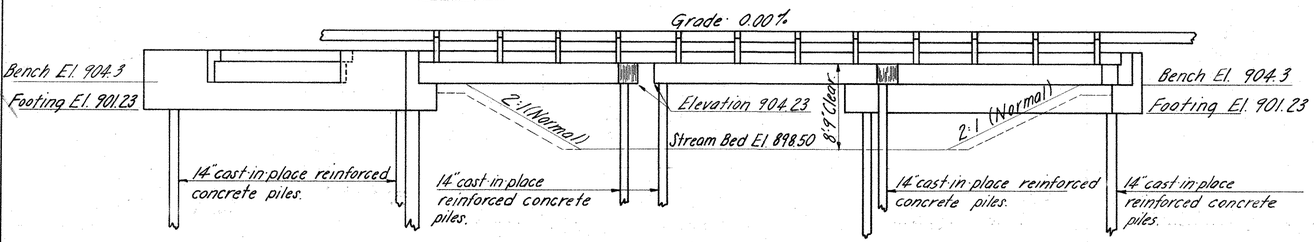
250
287

LIC-40-8.67



GENERAL PLAN (SOUTH BRIDGE)
(NORTH BRIDGE SAME)

LENGTH c.l ABUT 57'-9"



ELEVATION
— BOTH BRIDGES —

GENERAL NOTES:

- Reference shall be made to the following Standard Drawings:

Slab	CS-1-54	Date 7-1-54	Revised 12-1-54 & 7-16-56
Abutments	A-1-54	Date 7-1-54	Revised 12-1-54
Piers	P-1-54	Date 7-1-54	Revised 12-1-54

- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structure" of the State of Ohio, Department of Highways dated 10-1-51, together with revisions thereof dated 7-15-52, 4-1-54 and 2-1-55.
- Piles shall be driven to a minimum bearing capacity of 23 tons for the abutments and 30 tons for the piers. The length of penetration of every pile shall be of least 80% of the estimated average length of penetration of the piles in the pertinent pier or abutment as indicated on the plans unless a lesser penetration is approved by the director.
- Galvanizing of all members which are specified to be galvanized shall be as called for in Sec. M-7.4.
- Porous Drains, extending from face of abutment to Elevation 898.5, shall be provided at all four corners of each bridge. The drains shall be four feet wide and one foot thick, centered under edge of slab.
- Gravel, if used as the coarse aggregate, shall be according to Sec. M-3.93 instead of M-3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Sec. M-3.93 also may be used for other concrete in this structure.
- Pier Pile Encasement as shown on Standard Drawing Number P-1-54 may be omitted provided that the tapered portion, if any, of all pier piles does not extend above the stream bed or the proposed surface of the ground. If the tapered portion of any pile extends above these limitations, the encasement will be required for all the pier piles. If the encasement is omitted, the painting of the piles shall extend to low water elevation or, if the proposed surface of the ground is above low water, it shall extend to at least one foot below the proposed surface of the ground.

— ESTIMATED QUANTITIES —

Item	Total	Unit	Description	Super	Piers	Abut.	Gen.
E-2	212	cu. yd.	Unclassified Excavation			212	
S-1	324	cu. yd.	Class "C" Conc. Superstructure & Pier Caps	282	40		
S-1	116	cu. yd.	Class "E" Concrete Abutments			116	
S-4	97,023	pounds	Reinforcing Steel	74,224	10,060	12,624	115
S-14	292.96	Lin. Ft.	Railing (Type T-15.13 with galvanized steel bolts & posts.)	292.96			
S-16	Lump	Sum	First Test Pile				Lump
S-18	1542	Lin. Ft.	14" Cast-in-place reinforced concrete piles		870	672	
S-29	20	cu. yd.	Porous Drains on embankment slopes				20
S-29	36	cu. yd.	Porous backfill				36
E-3	5160	cu. yd.	Channel excavation				5160

REINFORCING STEEL LIST

NOTE: All bar dimensions are out to out.

Two Superstructures

Mark	No.	Length	Weight	Type	Bending Diagram
A863	258	25'-11"	17,856	Str.	
B863	80	19'-7"	4,182	Bent	
C863	88	16'-6"	3,876	Bent	
D863	40	14'-8"	1,566	Str.	
E863	44	14'-4"	1,684	Str.	
F963	164	26'-2"	14,592	Str.	
G963	80	14'-7"	3,946	Str.	
H963	80	12'-10"	3,490	Str.	
J601	84	12'-11"	1,630	Str.	
K601	42	6'-10"	430	Str.	
N601	200	26'-2"	7,860	Str.	
M701	244	26'-3"	13,092	Str.	10" 1:1 B863 18'-6" C863 15'-5"

Four Abutments

Mark	No.	Length	Weight	Type	Bending Diagram
R1001	32	26'-6"	3648	Str.	
R801	32	30'-0"	2564	Str.	
R501	32	29'-6"	984	Str.	
R502	312	6'-7"	2142	Bent	
R503	16	25'-6"	424	Str.	
R504	48	5'-4"	266	Str.	
R505	76	7'-11"	628	Bent	
R506	16	14'-3"	238	Str.	
R507	32	5'-8"	188	Str.	
R508	56	6'-8"	388	Bent	
R509	56	8'-5"	490	Bent	
R401	128	5'-5"	464	Bent	R509 3'-3" R401 1'-11" R502 2'-1" R505 3'-3" R508 3'-0" 1'-9" 2'-8" 1'-8" 11" 2'-2"

Four Piers

Mark	No.	Length	Weight	Type	Bending Diagram
P1001	32	26'-9"	3684	Str.	
P901	32	24'-10"	2702	Str.	
P701	192	4'-0"	1568	Str.	
P501	16	24'-3"	404	Str.	
P502	136	8'-0"	1136	Bent	
P503	16	6'-4"	104	Bent	
P401	128	5'-5"	462	Bent	P401 1'-11" 1'-4" P503 2'-0¼" R-11½" 1'-7" 2'-2" P502 2'-4" 10"

REPLACEMENT BAR SCHEDULE

Size	No.	Length	Type
4	1	5'-3"	Str.
5	1	5'-7"	Str.
6	1	5'-11"	Str.
7	1	6'-2"	Str.
8	2	6'-6"	Str.
9	2	6'-10"	Str.
10	1	7'-2"	Str.

STATE OF OHIO — Michael Baker, Jr. No. 9063 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION
BRIDGE NO. LIC-40-1194
OVER
RESERVOIR FEEDER
U.S. 40
STA. 631+48.38
632+21.62
LICKING COUNTY

Designed	Drawn	Traced	Checked	Reviewed Date	Revise
J.P.R.	J.P.R.	M.M.	R.L.F.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

251/287

LIC ~ 40 ~ 8.67

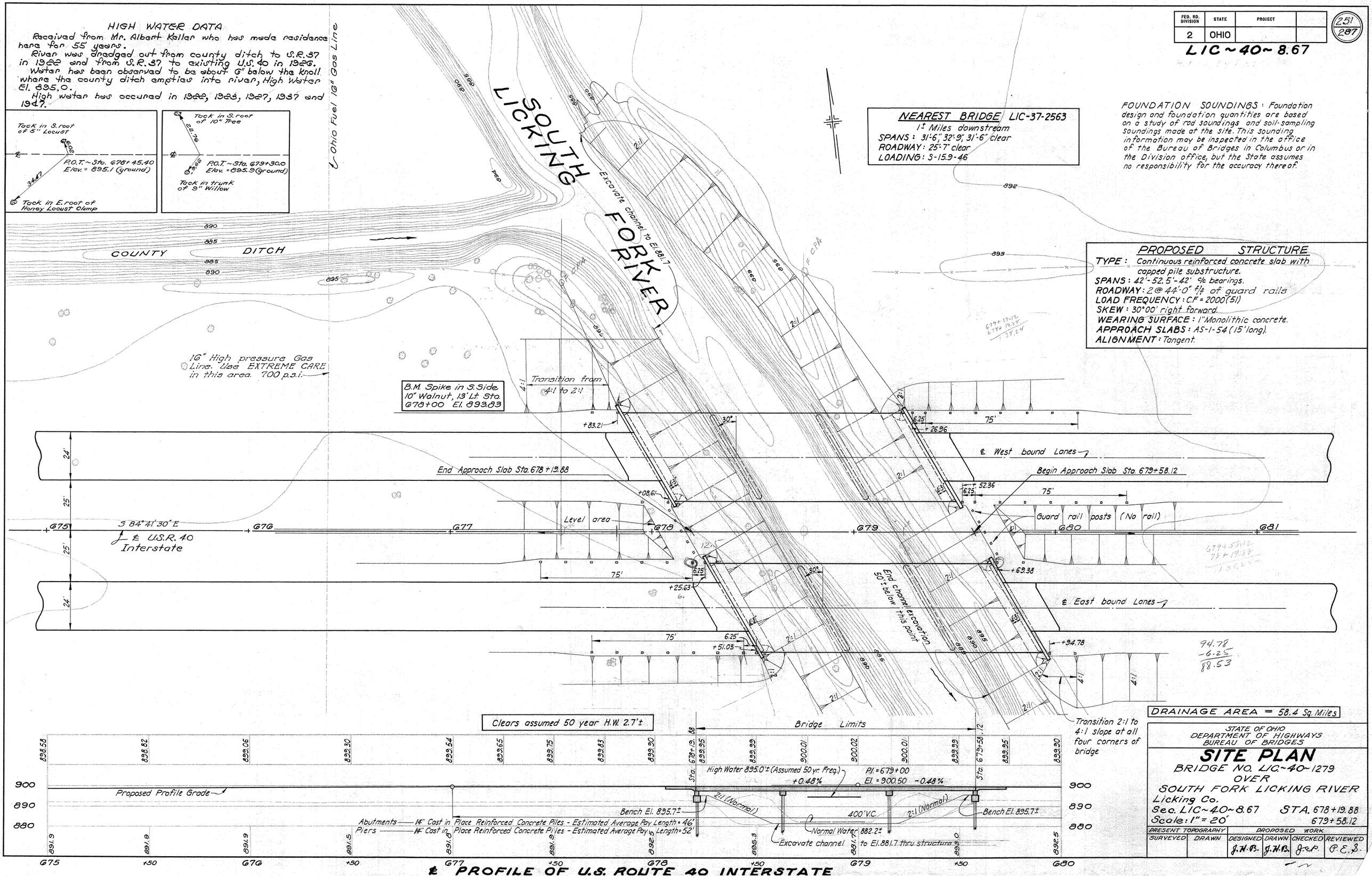
HIGH WATER DATA

Received from Mr. Albert Keller who has made residence here for 55 years.

River was dredged out from county ditch to S.R. 37 in 1922 and from S.R. 37 to existing U.S. 40 in 1926.

Water has been observed to be about 6" below the knoll where the county ditch empties into river, High Water El. 895.0.

High water has occured in 1922, 1923, 1927, 1937 and 1947.



NEAREST BRIDGE LIC-37-2563

1± Miles downstream

SPANS: 31'-6", 32'-9", 31'-6" clear

ROADWAY: 25'-7" clear

LOADING: S-15.9-46

FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office, but the State assumes no responsibility for the accuracy thereof.

PROPOSED STRUCTURE

TYPE: Continuous reinforced concrete slab with capped pile substructure.

SPANS: 42'-52.5'-42' c/c bearings.

ROADWAY: 2 @ 44'-0" f/f of guard rails

LOAD FREQUENCY: C.F = 2000 (51)

SKEW: 30°00' right forward.

WEARING SURFACE: 1" Monolithic concrete.

APPROACH SLABS: AS-1-54 (15' long).

ALIGNMENT: Tangent.

DRAINAGE AREA = 58.4 Sq. Miles

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. LIC-40-1279
OVER
SOUTH FORK LICKING RIVER
Licking Co.
Sec. LIC-40-8.67 STA. 678+19.88
Scale: 1" = 20' 679+58.12

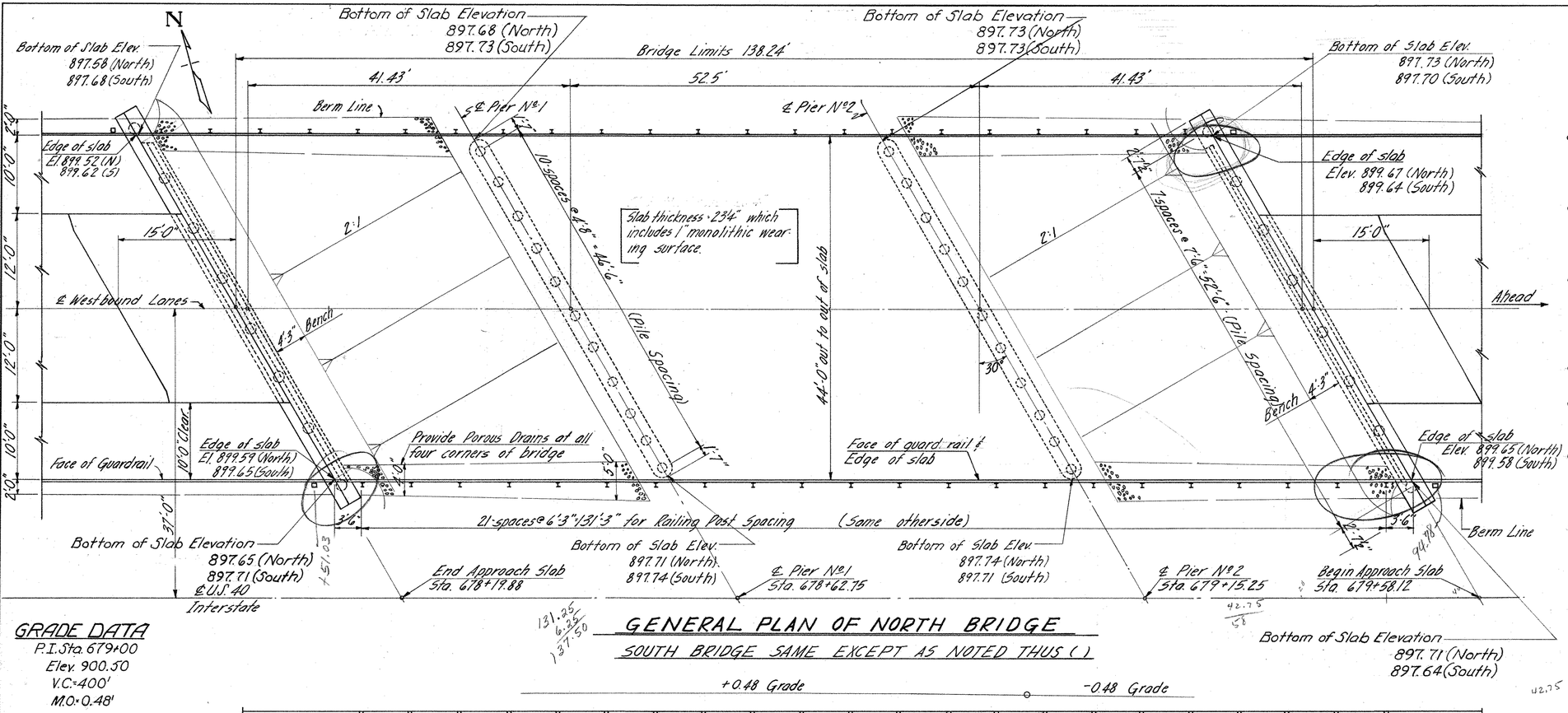
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		J.H.B.	J.H.B.	J.E.P.	P.E.S.

℄ PROFILE OF U.S. ROUTE 40 INTERSTATE

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

252
287

LIC-40-8.67

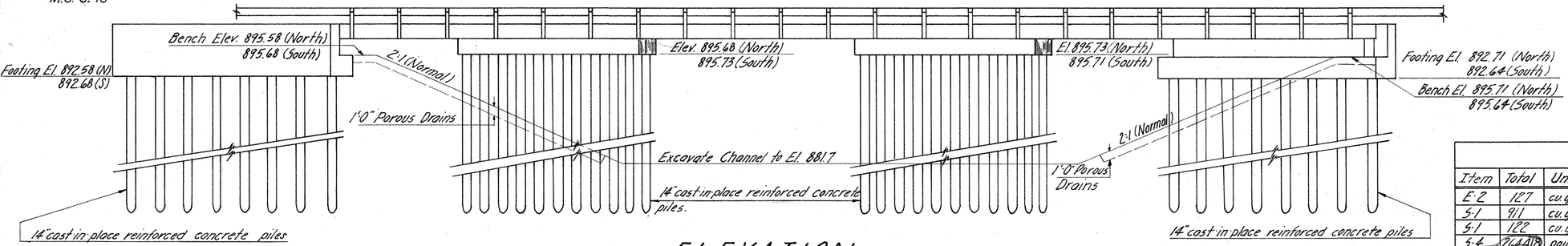


GRADE DATA

P.I. Sta. 679+00
Elev. 900.50
V.C. = 400'
M.O. = 0.48'

GENERAL PLAN OF NORTH BRIDGE

SOUTH BRIDGE SAME EXCEPT AS NOTED THUS ( )



ELEVATION

GENERAL NOTES:

- Reference shall be made to the following Standard Drawings:
  Slab C.S.1-54 Date 7-1-54 Revised 12-1-54 & 7-16-56.
  Abutments A-1-54 Date 7-1-54 Revised 12-1-54
  Piers P-1-54 Date 7-1-54 Revised 12-1-54
- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structure" of the State of Ohio, Department of Highways dated 10-1-51, together with revisions thereof dated 7-15-52, 4-1-54 and 2-1-55.
- Piles shall be driven to a minimum bearing capacity of 36 tons for the abutments and 46 tons for the piers. The length of penetration of every pile shall be at least 80% of the estimated average length of penetration of the piles in the pertinent pier or abutment as indicated on the plans unless a lesser penetration is approved by the director.
- Galvanizing of all members which are specified to be galvanized shall be as called for in Sec. M-7.4 (d)
- Porous Drains, extending from face of abutment to Elevation 882.2 shall be provided at all four corners of the bridge. The drains shall be four foot wide and one foot thick.
- Gravel, if used as the coarse aggregate, shall be according to Sec. M-3.93 instead of M-3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Sec. M-3.93 also may be used for other concrete in this structure.
- Pier Pile Encasement as shown on Standard Drawing Number P-1-54 may be omitted, provided that the tapered portion, if any, of all Pier Piles does not extend above the stream bed or the proposed surface of the ground. If the tapered portion of any pile extends above these limitations, the encasement will be required for all the pier piles. If the encasement is omitted, the painting of the piles shall extend to low water elevation or, if the proposed surface of the ground is above low water, it shall extend to at least one foot below the proposed surface of the ground.

—ESTIMATED QUANTITIES—

Item	Total	Unit	Description	Super.	Piers	Abut.	Gen
E-2	127	cu.yd	Unclassified Excavation			127	
S-1	911	cu.yd	Class "C" Conc. Superstructure & Pier Caps	875	36		
S-1	122	cu.yd	Class "E" Concrete Abutments			122	
S-4	264410	pounds	Reinforcing Steel 203,215 — 240630		12,396	11035	357
S-14	552.96	Lin.Ft	Railing (Type T-15.13 with galvanized steel bolts & posts)	552.96			
S-16	Lump	Sum	First Test Pile				Lump
S-18	3708	Lin.Ft	14" Cast-in-place reinforced concrete piles		2236	1472	
S-29	51	cu.yd	Porous Drains on embankment slopes				51
S-29	50	cu.yd	Porous Backfill			50	
E-3	5358	cu.yd.	Channel Excavation				5358

— REINFORCING STEEL LIST —

NOTE: All bar dimensions are out to out.

Two Superstructures

Mark	Nº	Length	Weight	Type
F1173	200	41'-6"	44098	Str.
G1173	100	23'-11"	12707	Str.
H1173	96	18'-6"	9436	Str.
M1073	264	48'-0"	54,520	Str.
B1073	88	34'-2"	12,930	Bent
C1073	84	30'-3"	10,930	Bent
D1073	44	31'-6"	5,960	Str.
E1073	42	23'-2"	4,190	Str.
M701	532	27'-2"	29550	Str.
T601	100	27'-8"	4,155	Str.
K601	50	15'-10"	1,189	Str.
N601	332	27'-2"	13550	Str.

B1073: 1'-0½" | 32'-11" | 1:5
C1073: 1'-0½" | 29'-0" | 1:5

Four Abutments

Mark	Nº	Length	Weight	Type
R1001	32	26'-5"	3640	Str.
R801	32	30'-2"	2570	Str.
R501	32	29'-6"	985	Str.
R502	312	6'-7"	2142	Bent
R503	16	25'-6"	425	Str.
R504	48	5'-4"	260	Str.
R505	72	7'-11"	590	Bent
R506	16	14'-2"	240	Str.
R507	32	5'-8"	190	Str.
R508	56	6'-8"	390	Bent
R509	56	8'-5"	501	Bent
R401	128	5'-5"	463	Bent

R401: 1'-11"± | P502: 2'-1"± | P505: 3'-3"± | P508: 3'-0"± | P509: 3'-3"±
1'-9"%
2'-8"%
1'-8"%
0'-11"%
2'-2"%

Four Piers

Mark	Nº	Length	Weight	Type
P1001	32	27'-0"	3720	Str.
P901	32	25'-0"	2720	Str.
P701	264	4'-0"	2160	Str.
P501	16	25'-0"	420	Str.
P502	136	9'-0"	1270	Bent
P503	16	6'-4"	105	Bent
P401	176	5'-5"	640	Bent

P502: 2'-10"% | 10 | 2'-2"
P503: 1'-7"± | R-11½" | 2'-04"
P401: 1'-9" | 1'-11"

REPLACEMENT BAR SCHEDULE

Size	Nº	Length	Type
4	1	5'-3"	Str.
5	1	5'-7"	Str.
6	1	5'-11"	Str.
7	2	6'-2"	Str.
8	1	6'-6"	Str.
9	1	6'-10"	Str.
10	5	7'-2"	Str.
11	3	7'-5"	Str.

STATE OF OHIO · Michael Baker, Jr. No. 9065 · REGISTERED PROFESSIONAL ENGINEER

Revised 3-12-57

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

BRIDGE NO. LIC-40-1279
OVER
SOUTH FORK OF LICKING RIVER
STA. 678+19
679+58
LICKING COUNTY

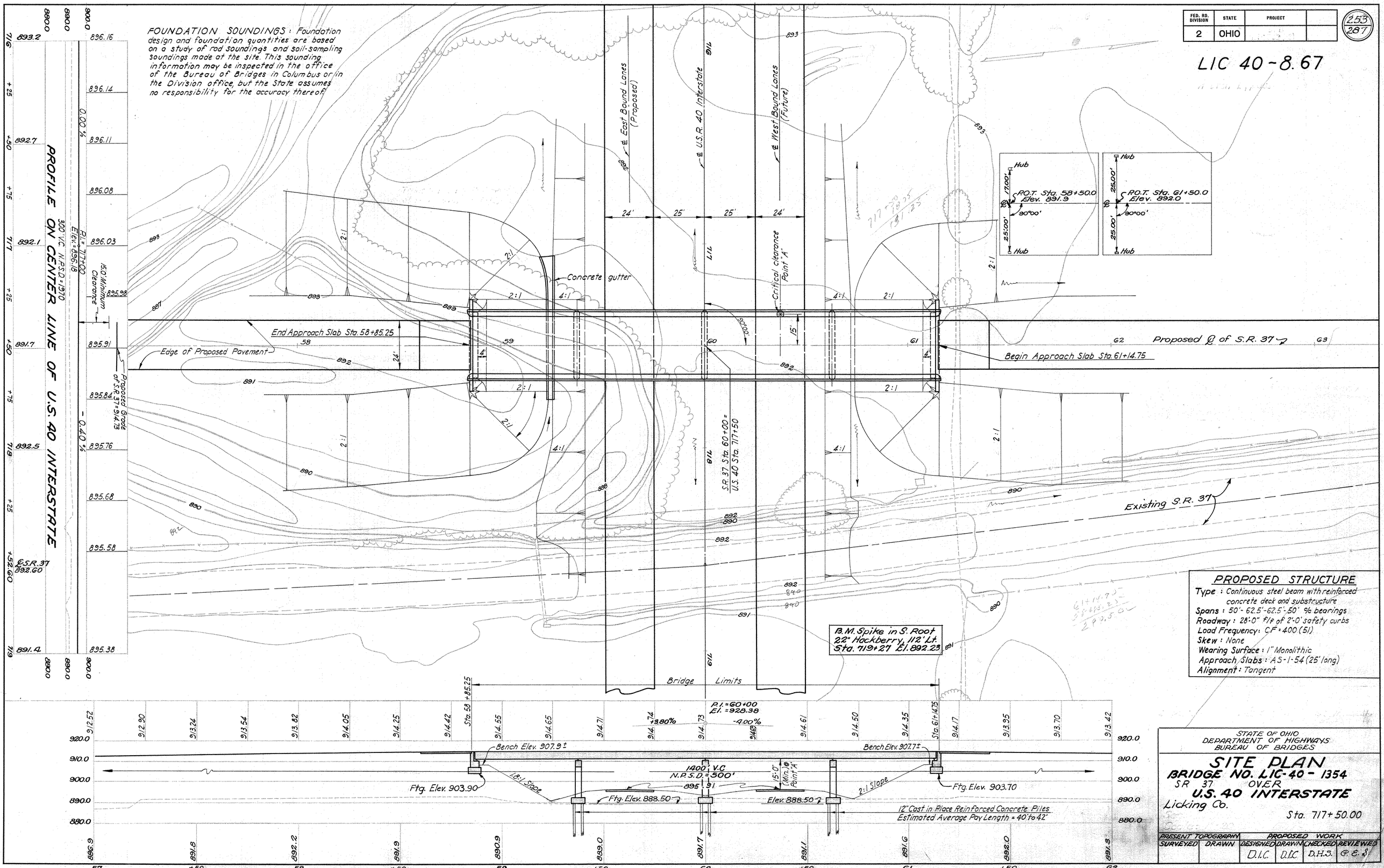
Designed	Drawn	Traced	Checked	Reviewed	Date
F.W.L.	F.W.L	M.M.	J.P.R.		

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

253/287

LIC 40-8.67

FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office, but the State assumes no responsibility for the accuracy thereof.



PROFILE ON PROPOSED CENTER LINE OF S.R. 37

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck and substructure
Spans: 50'-62.5'-62.5'-50' c/c bearings
Roadway: 28'-0" f/f of 2'-0' safety curbs
Load Frequency: CF=400 (51)
Skew: None
Wearing Surface: 1" Monolithic
Approach Slabs: AS-1-54 (25' long)
Alignment: Tangent

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN
BRIDGE NO. LIC-40-1354
SR 37 OVER
U.S. 40 INTERSTATE
Licking Co.

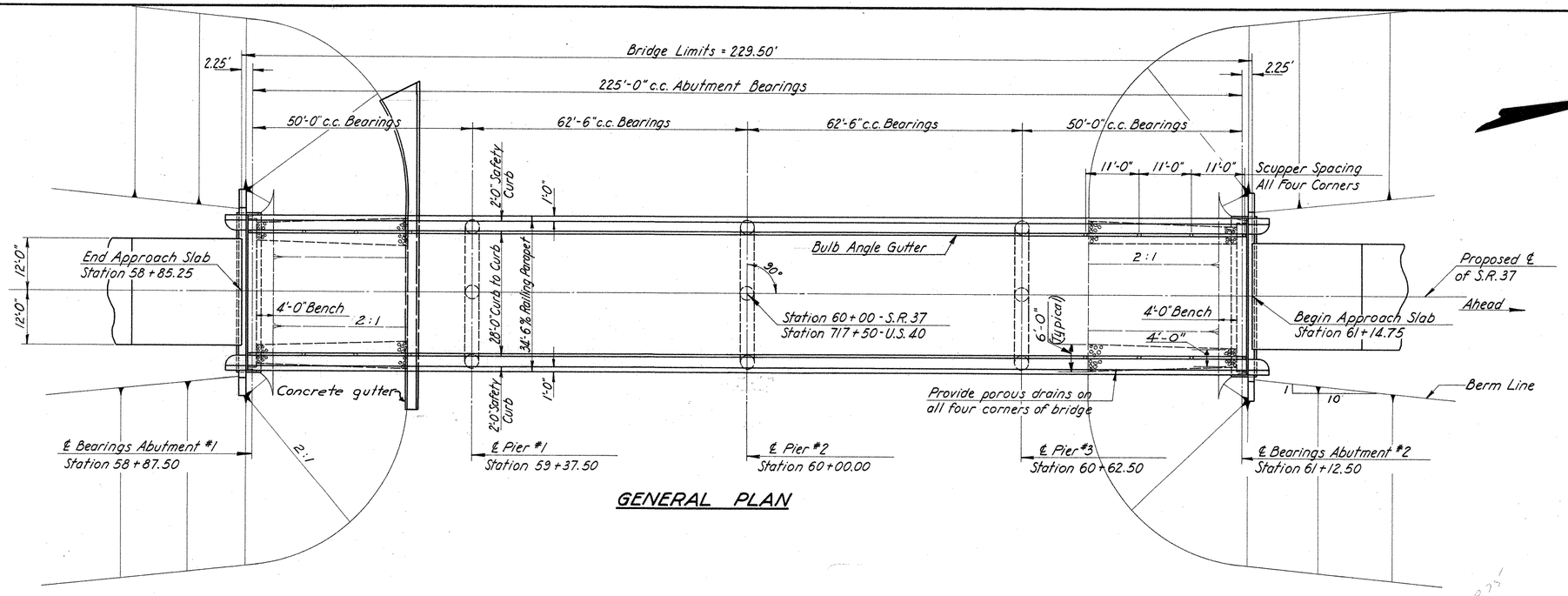
Sta. 717+50.00

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		D.I.C.	D.I.C.	D.H.S.	P.E.S.

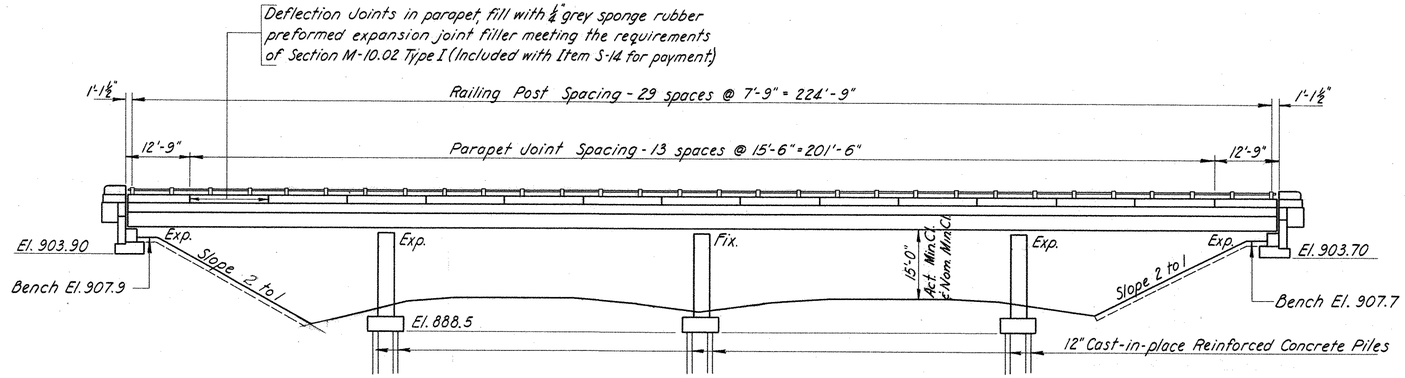
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

254 / 287

LIC - 40 - 8.67



GENERAL PLAN



ELEVATION

+3.80% ◎ −4.00%

P.I. Station 60+00
El. 928.38
V.C. 1400'
M.O. = 13.65'

GRADE DATA

GENERAL NOTES

- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 10-1-51, together with revisions thereof dated 7-15-52, 4-1-54 and 2-1-55.
- Reference shall be made to Standard Drawings RB-1-55, dated 3-1-55, and Sheet Nº 2 of 8 of CSB-1-55, Revised 7-16-56 and to Supplemental Specifications No. S-114, dated Aug. 30, 1955.
- Loading: C.F. 400-51.
- Excavation quantity includes the removal of fill material between the top of the earth bench and the bottom of the abutment.
- Piles shall be driven to a minimum bearing capacity of 30 tons for the piers. The length of penetration of every pile shall be at least 80% of the estimated average length of penetration of the piles in the pertinent pier as indicated on the plans unless a lesser penetration is approved by the director.
- Gravel, if used as the coarse aggregate, shall be according to Sec. M-3.93 instead of M-3.91 for Class "C" Concrete in the superstructure. Gravel meeting the requirements of Sec. M-3.93 also may be used for other concrete in this structure.
- Welding shall be Class A except as otherwise shown.
- Surface Finish of Concrete: Railing end posts, curb faces, fascias of deck and exposed surfaces of piers, abutments and wing walls, shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.
- Paint, both shop and field, shall be applied by brushing. Spray application will not be permitted.
- Porous drains, extending from face of abutment to Elevation 892, shall be provided at all four corners of the bridge. The drains shall be 6 feet wide at the low end, tapering to 4 feet wide at the face of the abutment, and one foot thick, centered under scuppers.

ESTIMATED QUANTITIES

		Item	Total	Unit	Description	Superstr.	Abuts	Piers	General
		E-2	180	Cu.Yd.	Unclassified Excavation		90	90	
		S-1	252	Cu.Yd.	Class "C" Concrete, Superstructure	252			
		S-1	68	Cu.Yd.	Class "C" Concrete, Pier Columns & Caps			68	
		S-1	78	Cu.Yd.	Class "E" Concrete, Abutments above Footings		78		
		S-1	91	Cu.Yd.	Class "E" Concrete, Footings		27	64	
		S-4	80,037	Lbs.	Reinforcing Steel	59,661	4,599	15,681	96
		S-7	212,560	Lbs.	Structural Steel	212,560			
		S-8	212,560	Lbs.	Field Painting of Structural Steel	212,560			
		S-14	474	Lin.Ft.	Railing (Aluminum Rail & Supports, Concrete Parapet and End Posts)	474			
		S-16	Lump Sum		First Test Pile				Lump
		S-18	1558	Lin.Ft.	12" Cast-in-place Reinforced Concrete Piles			1558	
		S-29	27	Cu.Yd.	Porous Backfill		27		
		S-29	22	Cu.Yd.	Porous Drains on Embankment Slopes				22

- Welded Steel: The steel for all beams shall conform to A.S.T.M. Designation A-373. All other structural steel shall conform to either A.S.T.M. (As per Sec. M-7.4 (c) of The Construction and Material Specifications) or to A-373.

NOTES: (Cont'd)

The earth embankment shall be placed to the finished 2:1 ground lines, full height of proposed subgrade, and for a distance of 100 feet back of each abutment before any excavation may be made for the earth benches, abutments, and the rear and forward piers.

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

BRIDGE NO. LIC-40-1354
S.R. 37 OVER
U.S. 40 INTERSTATE

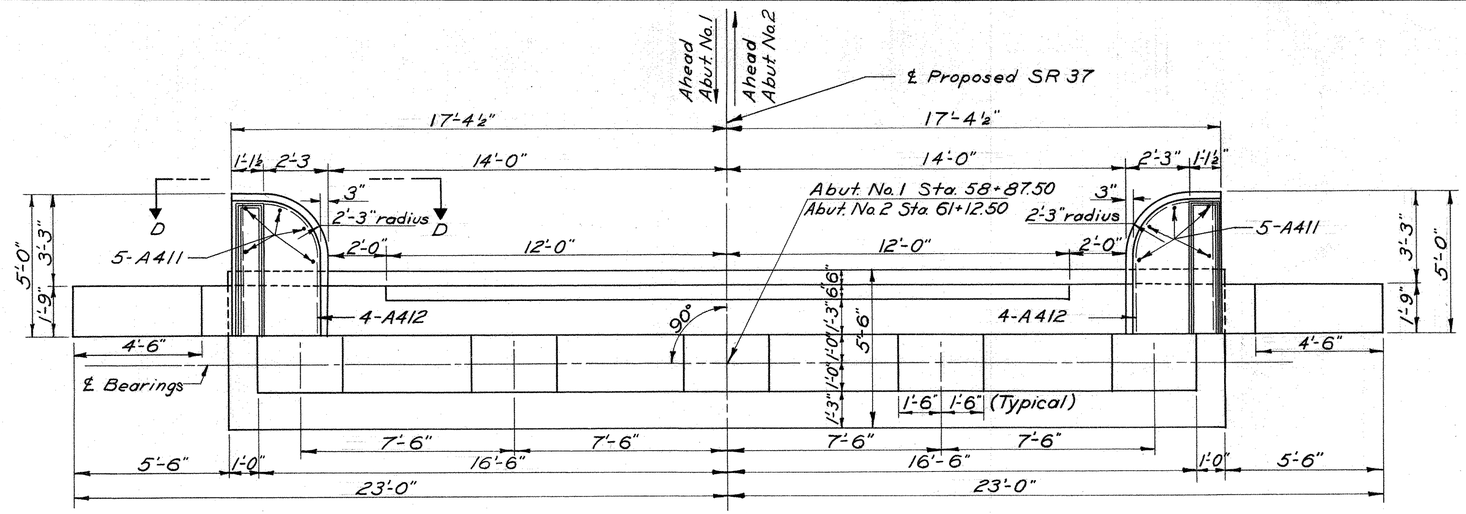
LICKING COUNTY — STA. 717 + 50.00

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
K.E.F.	P.D.	H.Y.	J.P.R.		

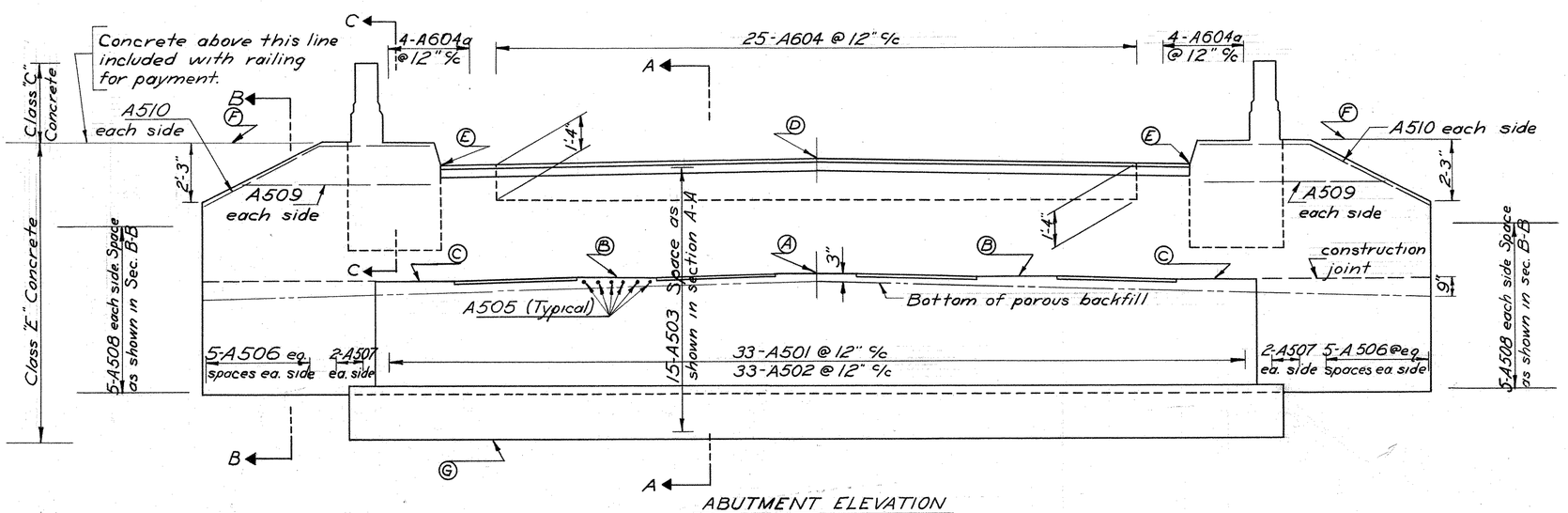
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

255 / 287

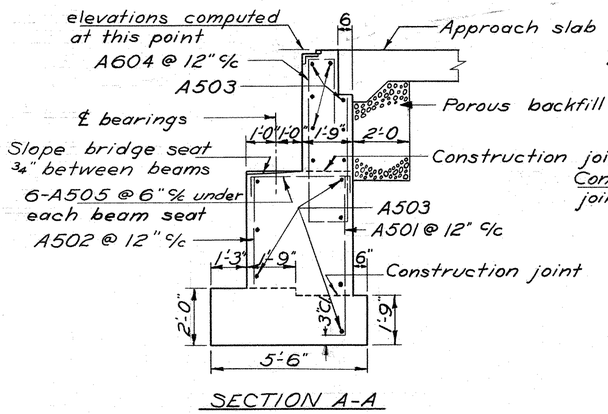
LIC-40-8.67



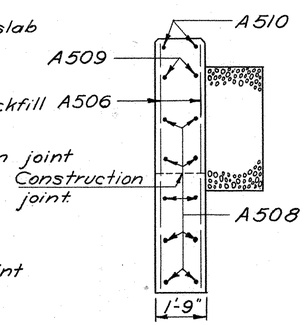
ABUTMENT PLAN



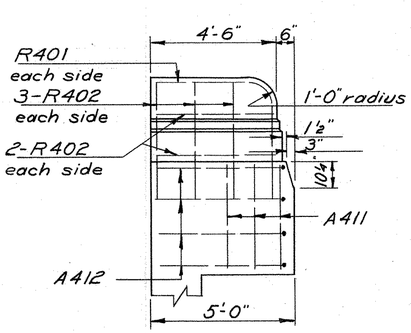
ABUTMENT ELEVATION



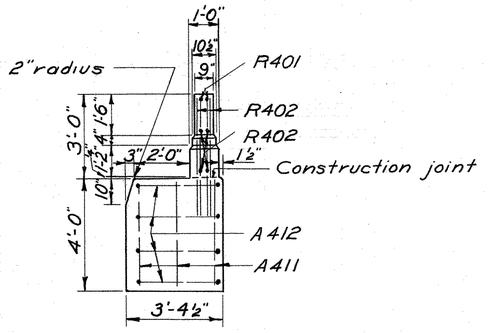
SECTION A-A



SECTION B-B

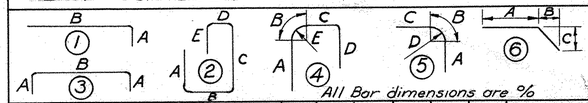


SECTION C-C



SECTION D-D

BAR SCHEDULE FOR ABUTMENTS



All Bar dimensions are %

MARK	ABUT	ABUT	TOTAL	SIZE	LENGTH	TYPE	A	B	C	D	E	WEIGHT
A501	33	33	66	5	6'-4"	1	10¾	5'-7				436
A502	33	33	66	5	3'-10"	S						264
A503	15	15	30	5	32'-8"	S						1022
A504	25	25	50	6	14'-6	2	4'-6	1'-5	6'-0	11"	2'-4	1089
A604a	8	8	16	6	15'-2"	2	6'-0	1'-5	6'-0	1'-5	1'-0	365
A505	30	30	60	5	4'-11"	3	10¾	3'-5				308
A506	20	20	40	5	7'-0 to 9'-0	S	8 each	vary by 6"				334
A507	8	8	16	5	9'-2"	S						153
A508	20	20	40	5	8'-0"	S						334
A509	4	4	8	5	6'-6"	S						54
A510	4	4	8	5	9'-0	6	4'-0	4'-6	2'-3			75
A411	10	10	20	4	3-8	S						49
A412	8	8	16	4	10'-10"	4	2'-7	2'-11	1'-0	4'-5	1'-10	116
R401	4	4	8	4	7'-11"	5	3'-3	1'-4	3'-4	10"		—
R402	10	10	20	4	4'-2"	S						—
											Total =	4,599

ELEVATIONS

	A	B	C	D	E	F	G
Abutment No1	910.20	910.08	909.98	914.48	914.26	915.11	903.90
Abutment No2	909.97	909.85	909.75	914.26	914.04	914.89	903.70

NOTES

- Clearance of reinforcing steel from face of concrete shall be 2" unless otherwise shown.
- Porous Backfill, two feet thick, full length of abutment and wings shall extend up to the underside of the approach slab and to the surface of the earth shoulders, and outward to the surface of the embankment slopes.
- Concrete above bridge seat construction joint shall not be placed until after steelwork is erected.
- Steel end finish shall be used as a template for top of backwall.
- Maximum foundation pressure 2 tons per square foot.

See Sheet 255a for revisions to this sheet. 3-12-58

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENTS

BRIDGE NO. LIC-40-1354
S.R. 37 OVER
U.S.40 INTERSTATE

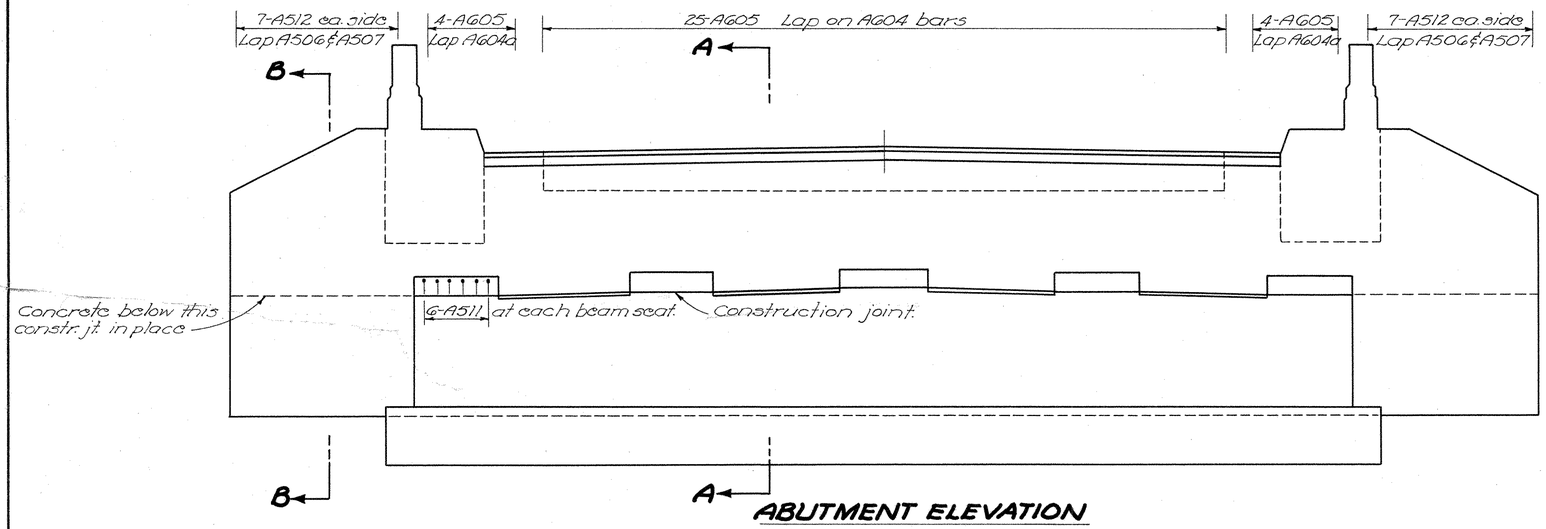
LICKING COUNTY STA. 717+50.00

Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
K.L.F.	K.L.F.	M.F.	J.P.R.			3-12-58

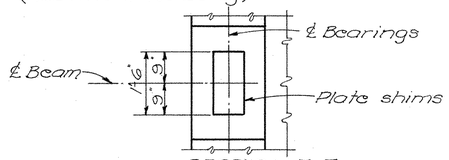
STATE OF OHIO · Michael Baker, Jr. No. 9068 · REGISTERED PROFESSIONAL ENGINEER

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

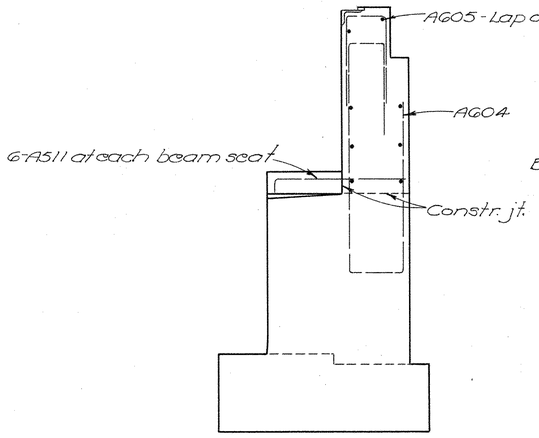
255a
287



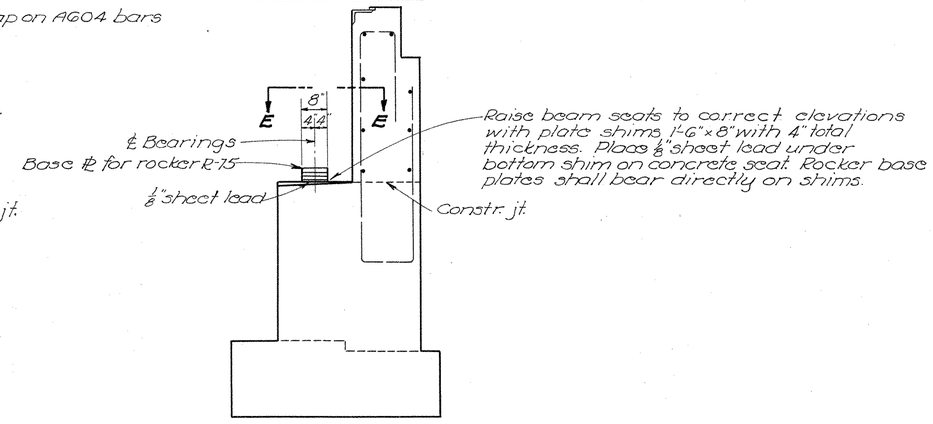
ABUTMENT ELEVATION
(Abutment No. 2 only.)



SECTION E-E



SECTION A-A
ABUTMENT NO. 2



SECTION A-A
ABUTMENT NO. 1

Extra Reinforcing Bars Required - Abutment No. 2

Mark	No.	Size	Length	Shape	Weight
A511	30	5	3'-8"	Bent	115
A512	28	5	2'-2"	Straight	64
A605	33	6	5'-8"	Bent	281
				Total	460

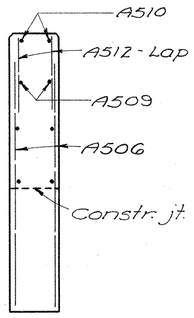
REASON FOR THESE REVISIONS: After portions of the abutments were placed (conrete below the bridge seat construction joint), settlement of the embankments on which the abutments are founded occurred, necessitating the revisions shown hereon.

Refer to Sheet 255 for all details not affected by these revisions.

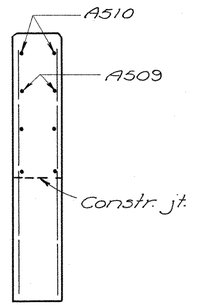
All beam seat, backwall, and wing wall elevations shown on Sheet 255 shall be maintained.

Add the following to Estimated Quantities:

5-1 Class "E" Concrete, Abutments above Footings	3.4 cu. yds.
5-7 Structural steel	816 lbs.
5-4 Reinforcing steel	460 lbs.



SECTION B-B
ABUTMENT NO. 2



SECTION B-B
ABUTMENT NO. 1

This sheet supplements Sheet 255

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

ABUTMENT REVISIONS

BRIDGE No. LIC-40-1354
S.R. 37 OVER
U.S. 40 INTERSTATE

LICKING COUNTY Sta. 717+50.00

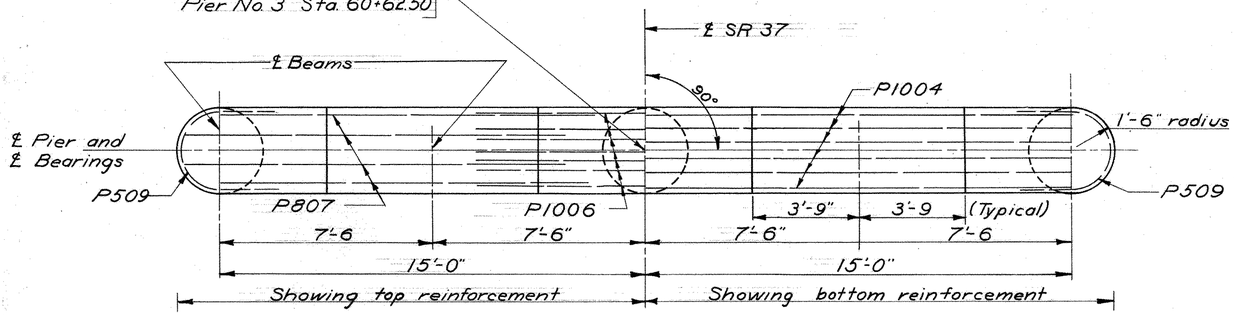
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	WJJ	Rice	BGF	BFG	3-12-53	

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

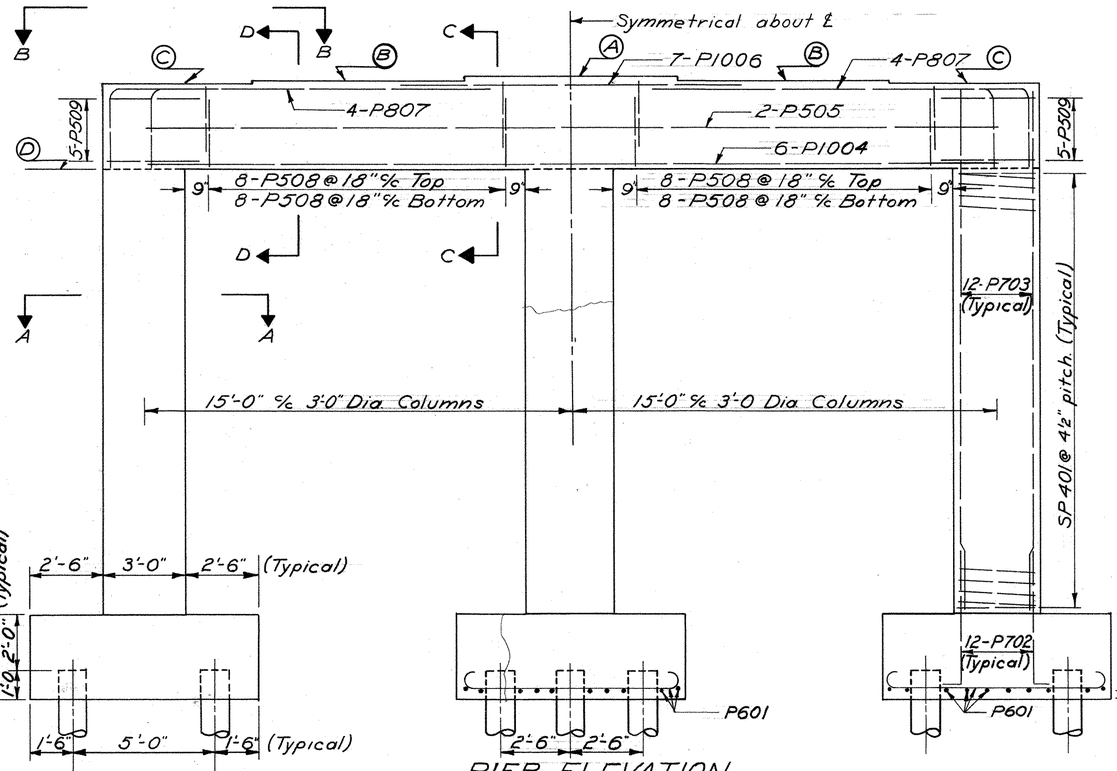
256
287

LIC-40-8.67

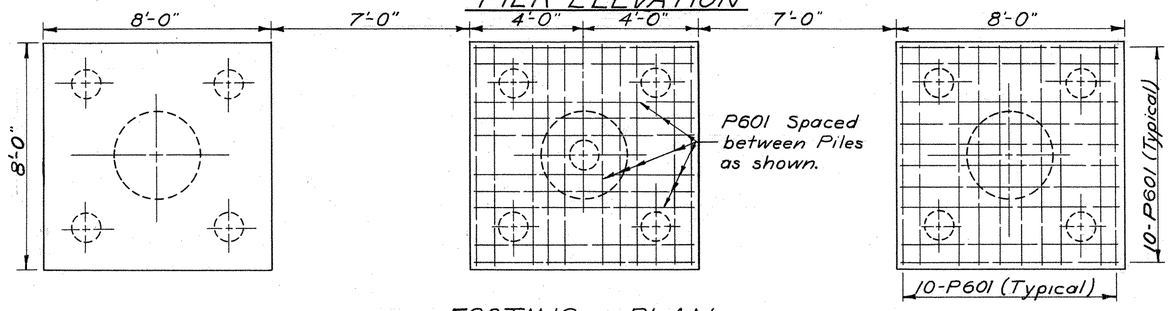
Pier No. 1 Sta. 59+37.50
Pier No. 2 Sta. 60+00.00
Pier No. 3 Sta. 60+62.50



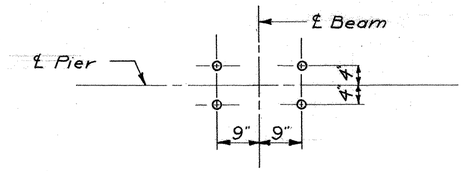
PIER CAP PLAN



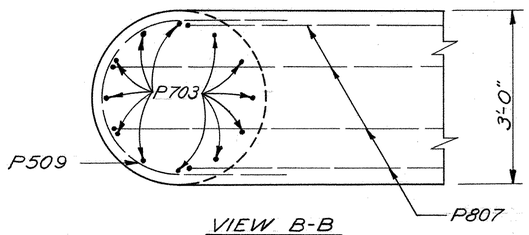
PIER ELEVATION



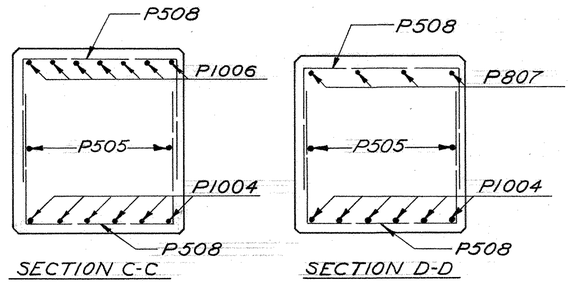
FOOTING PLAN



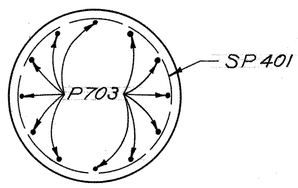
TYPICAL ANCHOR BOLT LAYOUT
PIER NO. 2 ONLY



VIEW B-B



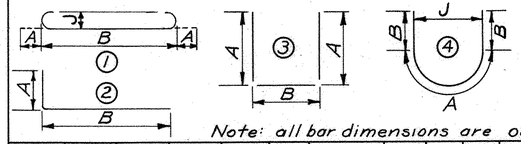
SECTION C-C SECTION D-D



SECTION A-A

ELEVATIONS					
	A	B	C	D	E
Pier No. 1	910.04	909.92	909.82	906.82	888.50
Pier No. 2	910.08	909.96	909.86	906.86	888.50
Pier No. 3	909.91	909.79	909.69	906.69	888.50

BAR SCHEDULE FOR PIERS



Note: all bar dimensions are out to out

MARK	PIER1	PIER2	PIER3	TOTAL	SIZE	LENGTH	TYPE	A	B	J	WEIGHT
P601	60	60	60	180	6	9'-0	1	8"	7'-8"	6"	2,433
P702	36	36	36	108	7	5'-5	2	8"	4'-11		1,196
P703	36	36	36	108	7	18'-0"	S				3,974
P1004	6	6	6	18	10	30'-0"	S				2,324
P505	2	2	2	6	5	30'-0"	S				188
P1006	7	7	7	21	10	12'-0"	S				1084
P807	8	8	8	24	8	15'-5"	2	2'-10	12'-10		988
P508	32	32	32	96	5	7'-1"	3	2'-4"	2'-8		709
P509	10	10	10	30	5	8'-0"	4	4'-2"	1'-11	2'-8"	250

SPIRAL BARS

MARK	PIER 1	PIER 2	PIER 3	TOTAL	SIZE	LENGTH	PITCH	NO. TURNS	CORE DIA.	WEIGHT
SP401	3	3	3	9	4	15'-2"	4½	43	32"	2,535
								TOTAL = 15,681 Lbs		

NOTES:

- 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. Turns" shown in the steel list for the spiral bars is the "length" divided by the pitch, plus 3 turns, (total number of closed coils), expressed as the nearest whole number.
  - Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4.
  - 1½ Closed coils shall be provided at the ends of each spiral unit.
  - Four Steel Channel, tee or angle spacers, weighing approximately 0.68 lb per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lbs. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.
- Clearance of Reinforcing Steel from face of concrete shall be 2" unless otherwise shown.
- Special Care shall be taken in placing reinforcing steel in the bridge seat so that it will not interfer with the drilling of anchor bolt holes.

STATE OF OHIO — Michael Baker, Jr. No. 9043 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIERS

BRIDGE NO. LIC-40-1354
S.R. 37 OVER
U.S. 40 INTERSTATE

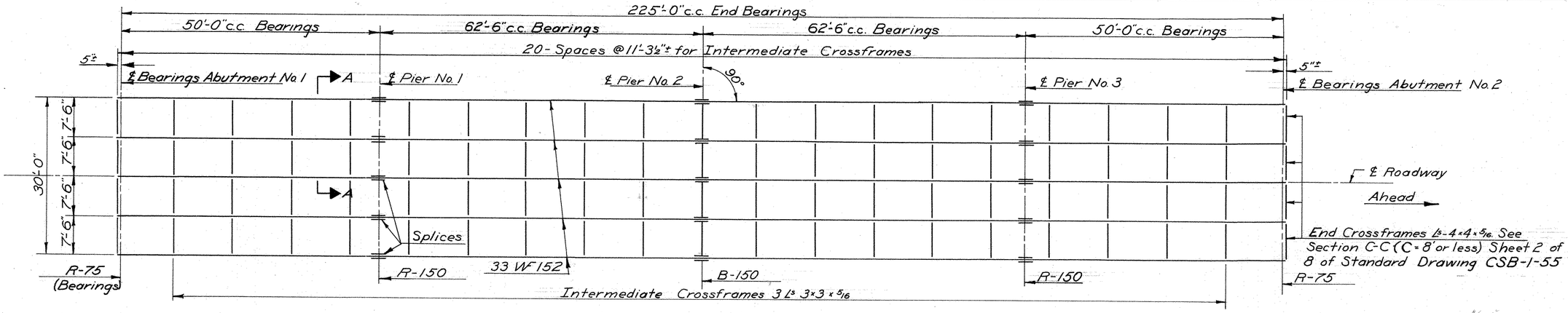
LICKING COUNTY — STA. 717 + 50.00

Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
R.L.F.	R.L.F.	M. F.	J.P.R.			

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

LIC-40-8.67

257/287



STEEL FRAMING PLAN

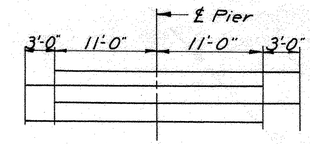
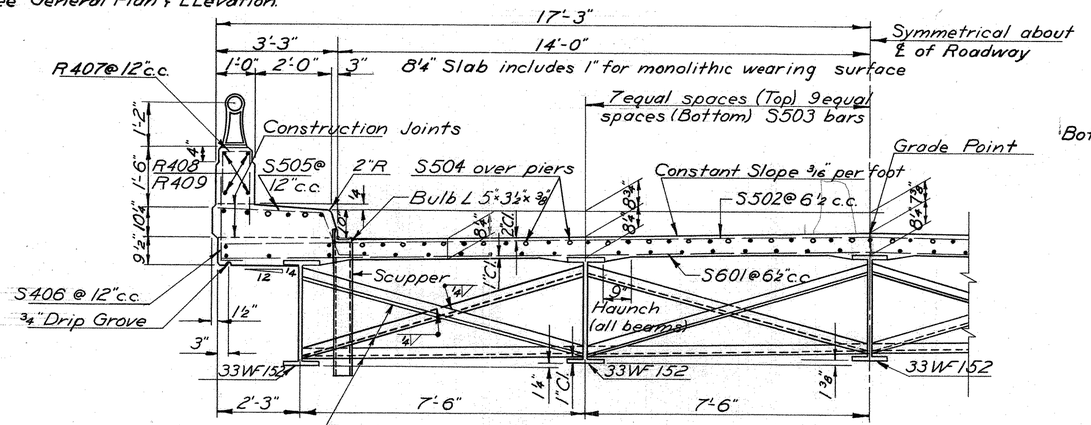


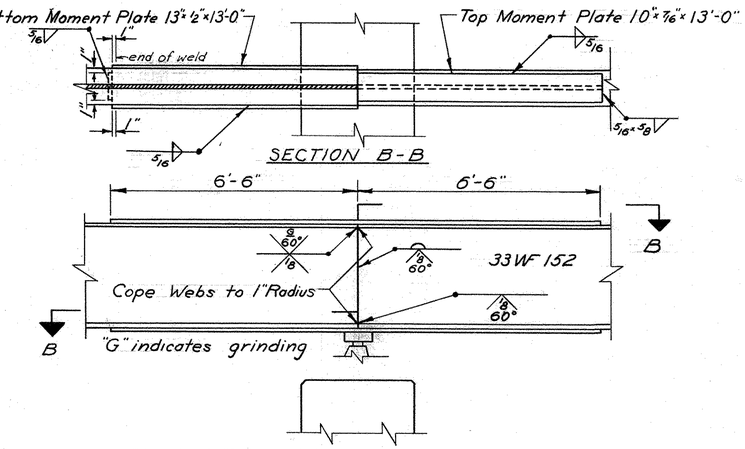
DIAGRAM SHOWING STAGGER OF S503 BARS OVER PIERS

NOTE: ¼" Deflection Joints in Parapet Spaced at 2 Railing Panel Lengths. See General Plan & Elevation.

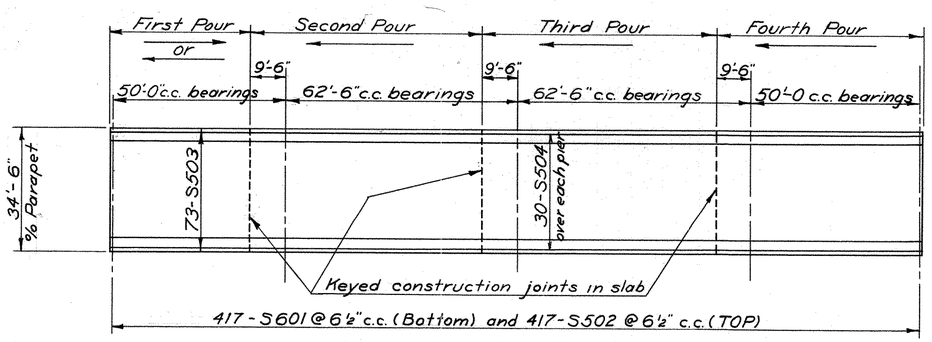


Intermediate crossframes - L's 3 x 3 x 5/16 Weld both sides of vertical leg and top side of horizontal leg to beam with 4" continuous fillet weld.

TRANSVERSE HALF SECTION A-A



BEAM SPLICE DETAILS



DECK SLAB PLAN

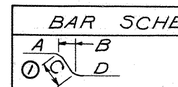
DECK CONSTRUCTION PROCEDURE

Deck slab shall be placed in sections between transverse construction joints in the numerical order and in the direction indicated above in order that the major portion of the dead load deflection may occur prior to placing concrete over each pier.

SPLICE WELDING PROCEDURE

1. Raise end of beam at Pier No. 2 - 1 1/16"
2. Butt weld beam flanges and web at Pier 1 using the following sequence: make one pass on each flange, then one on the web, repeat until welds are complete.
3. Weld top & bottom flange moment plates at Pier No. 1
4. Lower ends of beams at Pier No. 2.
5. Make splices at Piers 2 and 3 in the same manner, raising the ends of the beams 1⅛" at pier 3 and 0⅝" at the abutment

BAR SCHEDULE FOR DECK



All dimensions are out to out

Mark	No.	Size	Length	Type	A	B	C	D	Weight
S601	417	6	34'-0"	S					21,295
S502	417	5	34'-0"	S					14,787
S503	511	5	33'-9"	S					17,988
S504	90	5	25'-0"	S					2,347
S505	452	5	4'-9"	1	2'-10"	3"	1'-4"	10"	2,239
S406	452	4	3'-4"	2	2'-9"	8"			1,005
R407	452	4	3'-10"	3	2'-2"	8"	1'-2"		Included with railing for payment.
R408	104	4	15'-2"	S					
R409	16	4	12'-3"	S					
					Total Weight = 59,661				

REPLACEMENT BAR SCHEDULE

Mark	No.	Size	Length	Type	Weight
R1001	1	10	7'-2"	S	31
R801	1	8	6'-6"	S	18
R701	1	7	6'-2"	S	13
R601	2	6	5'-11"	S	18
R501	2	5	5'-7"	S	12
R401	1	4	5'-3"	S	4

NOTES:

- Refer to Standard Drawing CSB-1-55 Revised 7-15-56, Sheet 2 of 8 for details of End Finish.
- Refer to Standard Drawing RB-1-55 for Rocker and Bolster details.
- Concrete and reinforcement above parapet construction joint included with railing for payment.
- For details of Gutter, Scupper, Splash Guard and Railing refer to Common Detail Sheet.

STATE OF OHIO — Michael Baker Jr. No. 9068 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

SUPERSTRUCTURE
BRIDGE NO. LIC-40-1354
S.R. 37 OVER
U.S. 40 INTERSTATE

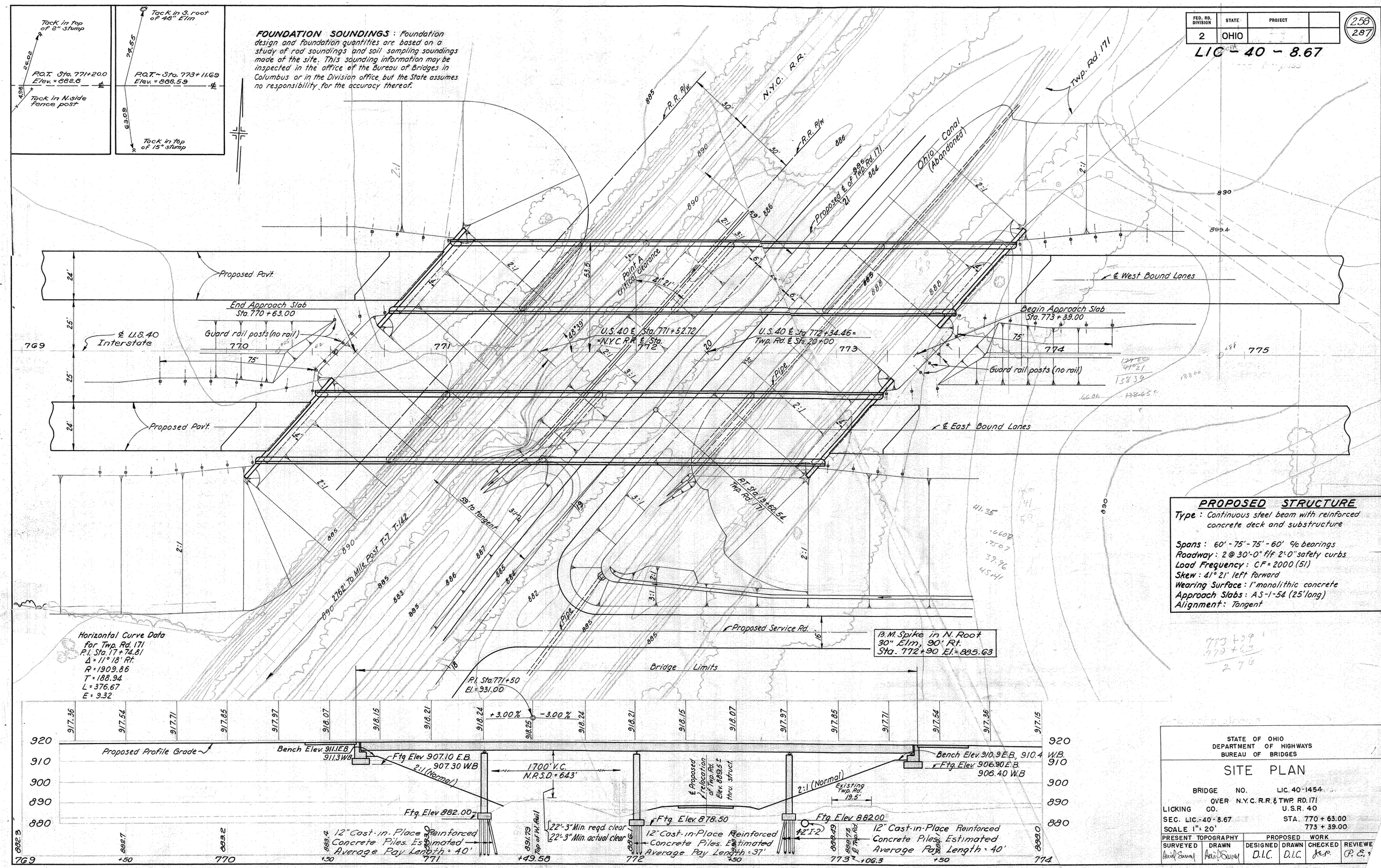
LICKING COUNTY — STA. 717 + 50.00

Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
M.L.F.	P.D.	M.F.	J.P.R.			

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

258
287

LIC - 40 - 8.67



FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil sampling soundings made of the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus or in the Division office, but the State assumes no responsibility for the accuracy thereof.

PROPOSED STRUCTURE

Type: Continuous steel beam with reinforced concrete deck and substructure

Spans: 60' - 75' - 75' - 60' c/c bearings
Roadway: 2 @ 30'-0" f/f 2'-0" safety curbs
Load Frequency: CF = 2000 (51)
Skew: 41° 21' left forward
Wearing Surface: 1" monolithic concrete
Approach Slabs: AS-1-54 (25' long)
Alignment: Tangent

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. LIC. 40-1454
OVER N.Y.C. R.R. & TWP. RD. 171
LICKING CO. U.S.R. 40
SEC. LIC.-40-8.67 STA. 770 + 63.00
SCALE 1" = 20' 773 + 39.00

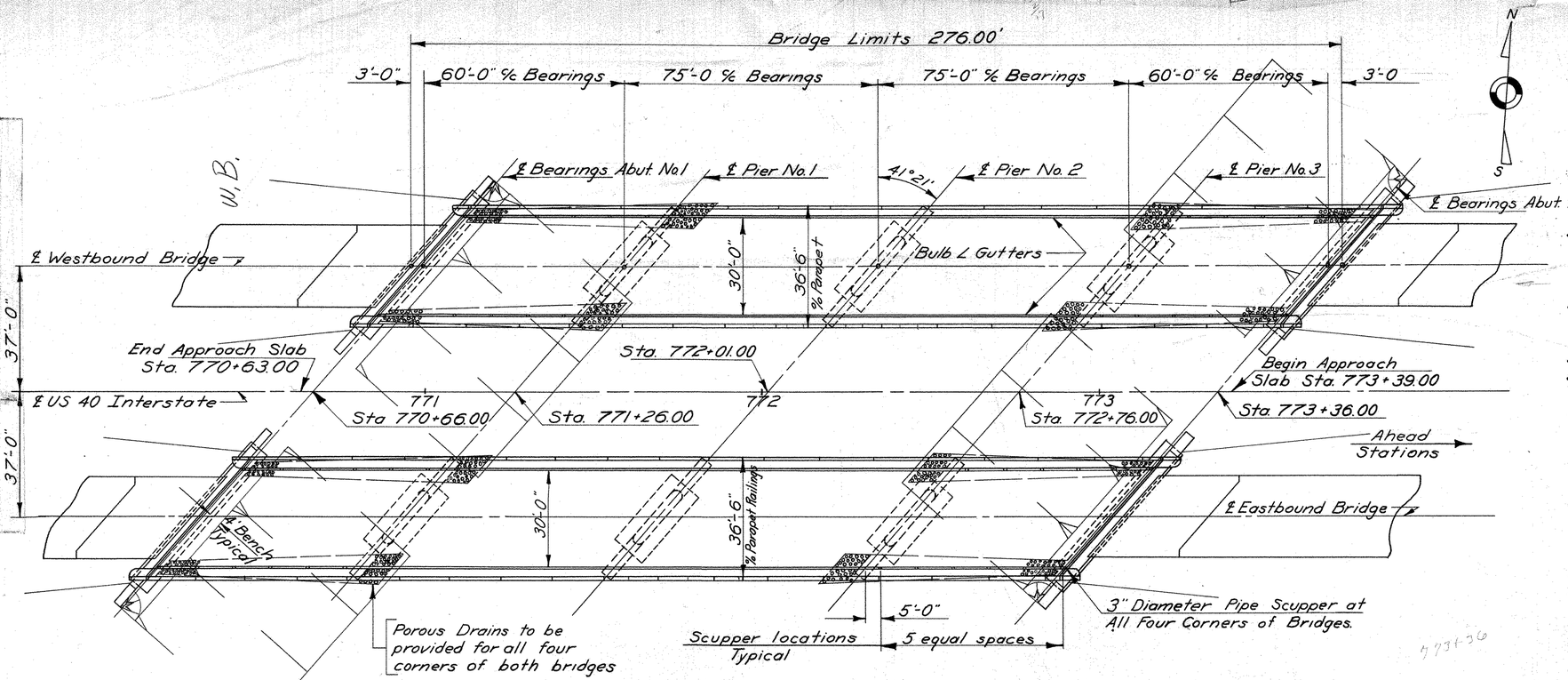
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
[signature]	[signature]	D.I.C.	D.I.C.	[signature]	P.E.

℄ PROFILE OF U.S. ROUTE 40 INTERSTATE

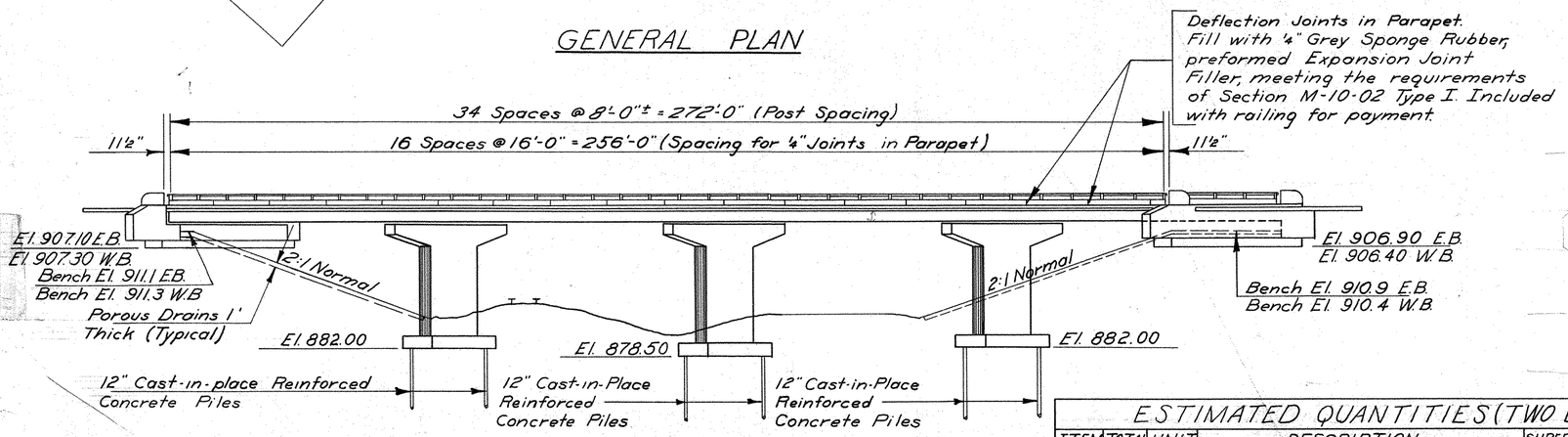
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

259/287

LIC-40-8.67



GENERAL PLAN



GENERAL ELEVATION
(Both Bridges Same)

GENERAL NOTES

- Design Specifications: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 10-1-51 together with revisions thereof dated 7-15-52 and 4-1-54 and 2-1-55.
- Reference shall be made to Standard Drawings RB-1-55 dated 3-1-55 and Sheet 2 of 8 CSB-1-55 dated 3-1-55 and revised 7-16-56 and to Supplemental Specifications No. S114 dated Aug. 30, 1955.
- Loading C.F. 2000-51
- Excavation Quantity includes the removal of till material between the top of the earth bench and the bottom of the abutment.
- Piles shall be driven to a minimum bearing capacity of 30 tons for piers 1 and 3 and 30 tons for pier 2. The length of penetration of every pile shall be at least 80% of the estimated average length of penetration of the piles in the pertinent pier as indicated on the plans, unless a lesser penetration is approved by the director
- Gravel, if used as the coarse aggregate, shall be according to Section M-3.93 instead of Section M-3.91 for Class "C" concrete in the superstructure. Gravel meeting the requirements of Section M-3.93 may be used for other concrete in this structure.
- Welding of Structural Steel shall be Class A, except as otherwise shown.
- Surface Finish of Concrete: Railing, End posts, Curb faces and fascias of deck shall recieve a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item 5-1.
- Paint both shop and field shall be applied by brushing. Spray application will not be permitted. One extra field coat of shop paint is required in the track span.
- Porous Drains, extending from face of abutment to El. 888.0 shall be provided at all four corners of both bridges. The drains shall be 8 feet wide at the low end, taper to 4 feet at the face of the abutment and 1 foot thick, centered under the scuppers.
- The Steel for all Beams shall conform to ASTM designation A-373. All other structural steel shall conform to either ASTM A-7 (as per Sec. M-7.4(a) of the Construction and Materials Specifications) or to A-373.
- Construction Clearance of 19 feet vertically above the top of the Railroad tracks and 8 feet horizontally from the center of tracks shall be maintained at all times.
- Sheeting and Bracing: Before construction is started, six sets of prints, showing details of the sheeting and bracing to be used for excavation adjacent to the Railroad tracks shall be submitted to the director for approval by the Department of Highways and by the Railroad Company
- Aligning Railroad Tracks: After the Contractor has completed all excavation and backfill adjacent to the Railroad tracks in compliance with Sec. E-2.04 and E 2.08 of the Construction and Materials Specifications subject to the supervision of the Railroad Company, nothing in Sections E-2.04, E-2.08 or G-8.07 shall be construed to hold the Contractor liable for aligning and resurfacing the Railroad tracks
- The Earth Embankment shall be placed to the finished 2:1 ground lines, full height of proposed subgrade, and for a distance of 100 feet back of each abutment, before any excavation may be made for the earth benches, abutments, or the rear and forward Piers.
- Traffic: The Contractor shall provide platforms, nets, or other suitable devices above the traveled lanes of Twp. Rd. 171. Cost of this protection is included in the lump sum bid for Maintaining Traffic.

ESTIMATED QUANTITIES (TWO BRIDGES)

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	PIERS	ABUT.	GEN.
E-2	Lump Sum		Cofferdams, Cribs and Sheeting				
E-2	690	Cu. Yd.	Unclassified Excavation		400	290	
S-1	665	Cu. Yd.	Class "C" Concrete Superstructure	665			
S-1	525	Cu. Yd.	Class "C" Concrete Piers above Footings		525		
S-1	212	Cu. Yd.	Class "E" Concrete Pier Footings		212		
S-1	352	Cu. Yd.	Class "E" Concrete Abutments			352	
S-4	238,380	Lbs.	Reinforcing Steel	175,594	46,154	16,460	166
S-7	628,000	Lbs.	Structural Steel	628,000			
S-8	628,000	Lbs.	Field Painting of Structural Steel (3 coats in track span)	628,000			
S-14	1132	Lin. Ft.	Railing (Aluminum Rail & Supports, Concrete Parapet and End Posts)				1132
S-16	Lump Sum		First Test Pile				Lump
S-18	4874	Lin. Ft.	12" Cast-in-Place Reinforced Concrete Piles		4874		
S-29	132	Cu. Yd.	Porous Drains on Embankment Slopes				132
S-29	100	Cu. Yd.	Porous Backfill			100	

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

GENERAL PLAN & ELEVATION

BRIDGE NO. LIC-40-1454
OVER N.Y.C.R.R. & TWP. RD. 171
U.S.R. 4(
STA. 770+63.(
773+39.
LICKING COUNTY

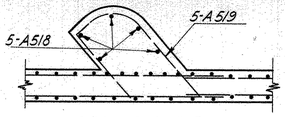
Designed	Drawn	Traced	Checked	Reviewed-Date	Re
F.K.	M.F.	M.F.	W.B.		

STATE OF OHIO — Michael Baker, Jr. No. 9068 — REGISTERED PROFESSIONAL ENGINEER

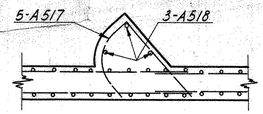
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

200
287

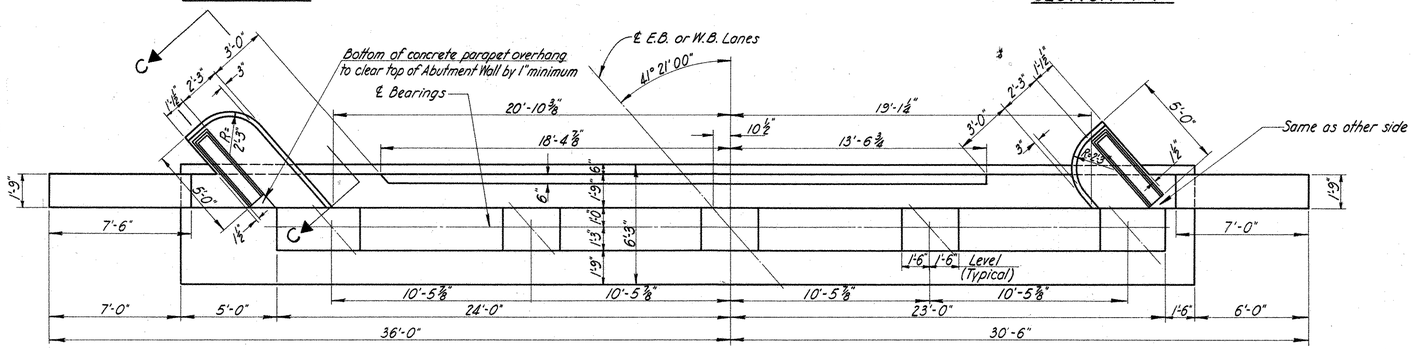
LIC-40-8.67



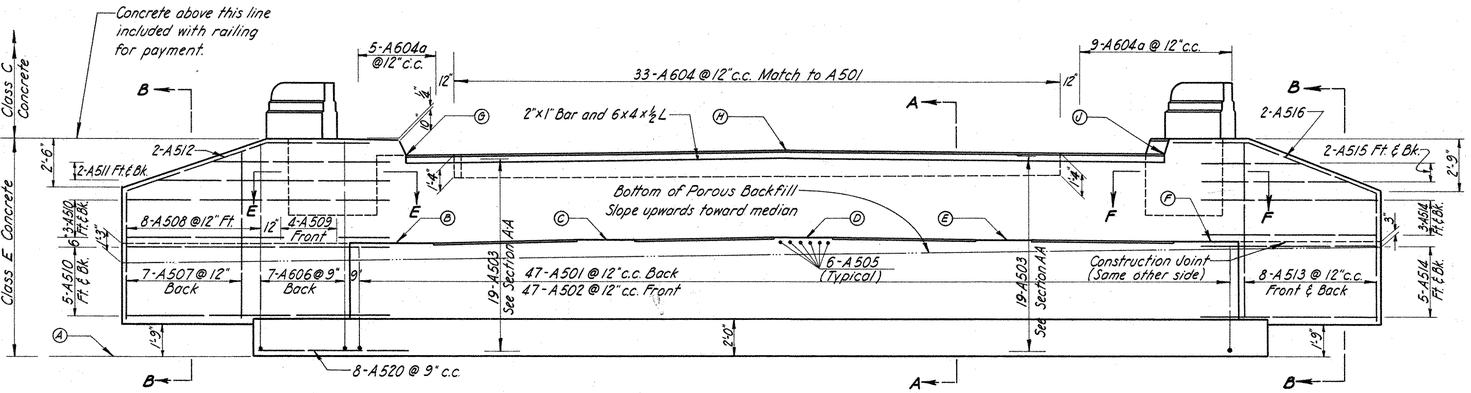
SECTION E-E



SECTION F-F



PLAN OF ABUTMENT



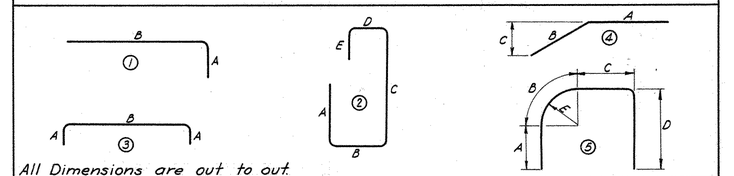
ELEVATION OF ABUTMENT

ABUTMENT	A	B	C	D	E	F	G	H	J
Nº 1 East Bound	907.10	913.12	913.28	913.43	913.33	913.24	917.71	918.01	917.82
Nº 1 West Bound	907.30	913.35	913.48	913.62	913.51	913.40	917.94	918.20	917.99
Nº 2 East Bound	906.90	912.93	913.09	913.25	913.17	913.08	917.52	917.83	917.68
Nº 2 West Bound	906.40	912.47	912.65	912.82	912.75	912.68	917.06	917.40	917.28

NOTES

- Porous backfill 2 feet thick full length of the abutments and wings shall extend up to the underside of the approach slab and up to the finished ground surface, and outward to the surface of the embankment slopes.
- Clearance of the reinforcing steel from face of concrete shall be 2" unless otherwise shown.
- Concrete above bridge seat construction joint shall not be placed until after steel work is erected.
- Steel end finish shall be used as a template for top of backwall.

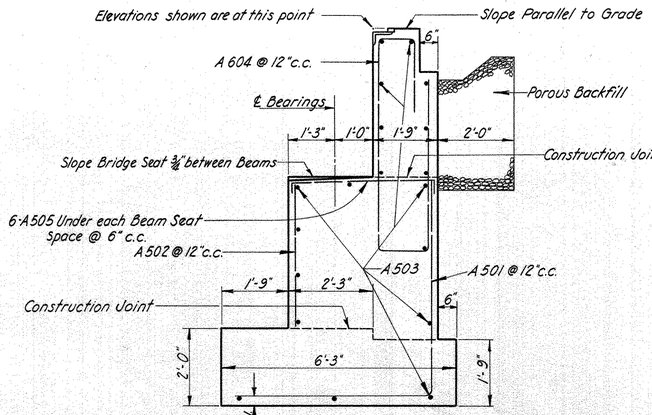
BAR SCHEDULE FOR FOUR ABUTMENTS



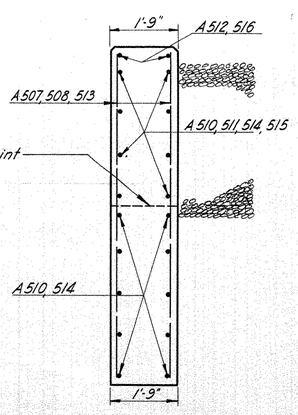
All Dimensions are out to out.

MARK	NUMBER	SIZE	LENGTH	TYPE	A	B	C	D	E	WEIGHT
A 501	188	5	11'-0"	1	5'-9"	5'-5"				2157
A 502	188	5	4'-0"	Str.						784
A 503	152	5	24'-0"	Str.						3804
A 604	132	6	15'-5"	2	5'-3"	1'-5"	6'-5"	11"	2'-0"	3057
A 604a	56	6	16'-1"	2	6'-5"	1'-5"	6'-5"	1'-5"	1'-0"	1353
A 505	120	5	5'-2"	3	10¾"	3'-8"				646
A 606	28	6	16'-0"	1	5'-3"	10'-11"				673
A 507	28	5	7'-0" to 9'-0"	Str	4 each vary by 4"					234
A 508	32	5	7'-0" to 9'-4"	Str.	4 each vary by 4"					272
A 509	16	5	9'-6"	Str.						159
A 510	64	5	14'-0"	Str.						935
A 511	16	5	9'-0" & 12'-0"	Str.	8 each					176
A 512	8	5	13'-4"	4	5'-6"	7'-10"	2'-6"			111
A 513	64	5	6'-9" to 9'-6"	Str.	8 each vary by 4½"					542
A 514	64	5	9'-6"	Str.						634
A 515	16	5	5'-0" & 8'-0"	Str.	8 each					108
A 516	4	5	11'-6"	4	4'-0"	7'-6"	2'-9"			48
A 517	20	5	7'-8"	5	9"	1'-5"	11"	4'-9"	1'-10"	160
A 518	32	5	3'-8"	Str.						122
A 519	20	5	11'-2"	5	4'-9"	1'-5"	11"	4'-3"	1'-10"	233
A 520	32	5	7'-6"	Str.						250
R 401	48	4	4'-0"	Str.						
R 402	16	4	9'-2"	5	3'-0"	3'-2	3'-0"	0'-0"	1'-0"	
R 403	32	4	4'-3"	Str						

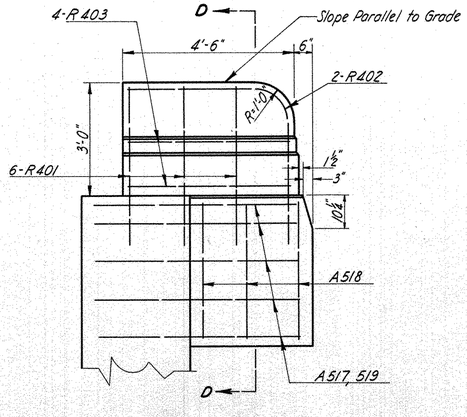
Total = 16,460 Lbs



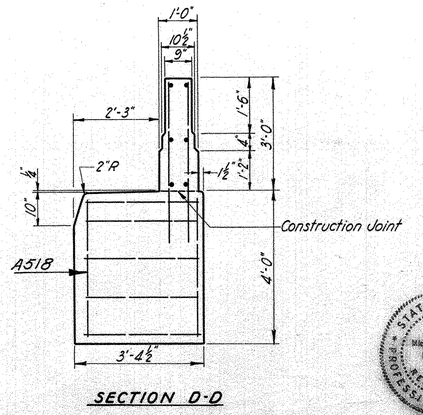
SECTION A-A



SECTION B-B



ELEVATION C-C



SECTION D-D

STATE OF OHIO
Michael Baker, Jr.
No. 9065
REGISTERED PROFESSIONAL ENGINEER

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

ABUTMENTS

BRIDGE NO. LIC-40-1454
OVER N.Y.C.R.R. & TWP. RD. 171
U.S.R. 40

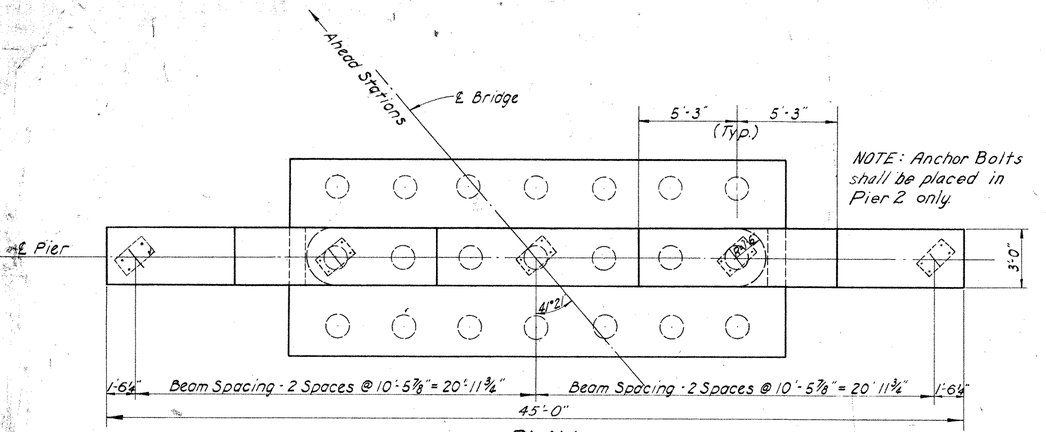
LICKING COUNTY
STA. 770 + 63
773 + 39

Designed	Drawn	Traced	Checked	Reviewed-Date	R
DJK.	DJK.	GT	W.B.		

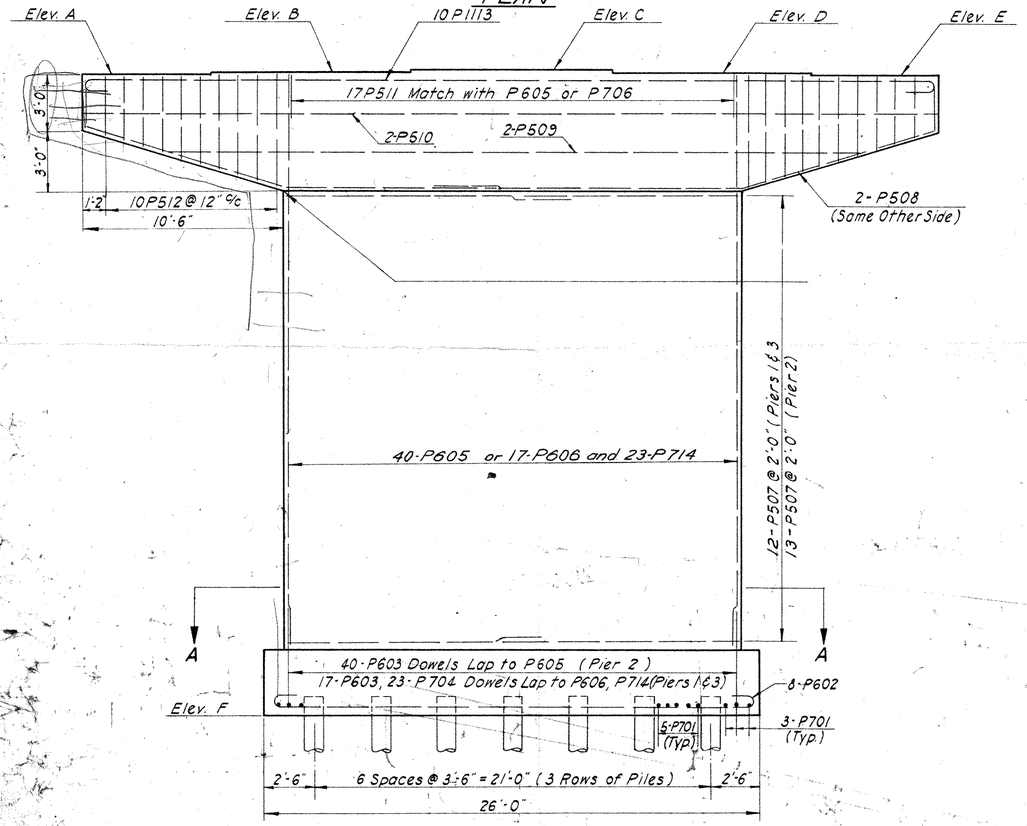
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

261 287

LIC-40-8.67



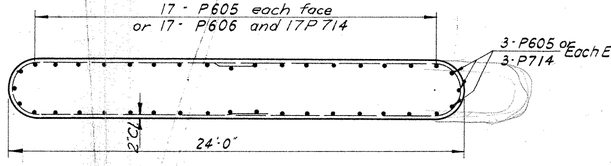
PLAN



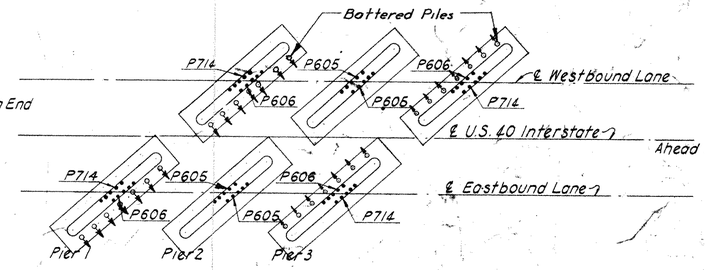
ELEVATION

PIER ELEVATIONS						
West	El. A	El. B	El. C	El. D	El. E	El. F
Pier 1	913.08	913.19	913.31	913.19	913.08	882.0
Pier 2	912.91	913.05	913.20	913.09	912.99	878.5
Pier 3	912.56	912.71	912.88	912.79	912.72	882.0
East						
Pier 1	913.05	913.15	913.26	913.12	913.00	882.0
Pier 2	913.07	913.19	913.31	913.19	913.08	878.5
Pier 3	912.88	913.02	913.16	913.06	912.97	882.0

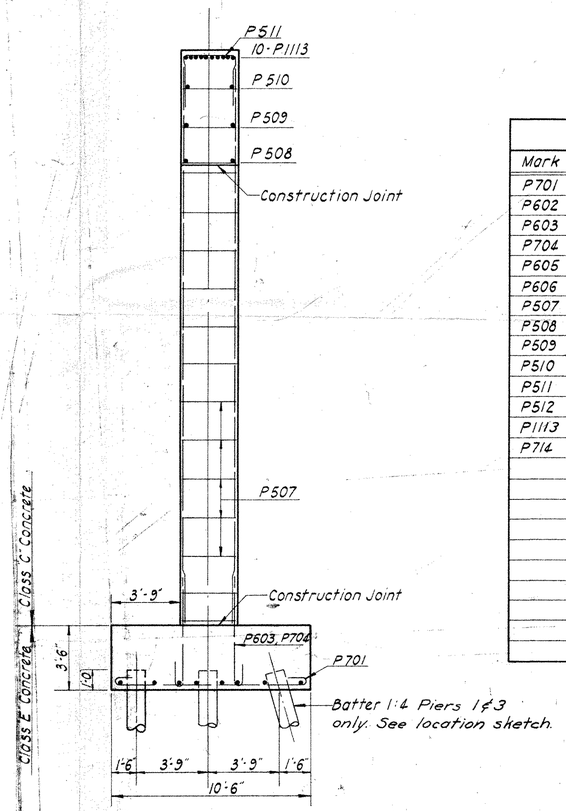
NOTE: Pier 2 reinforcing in the bridge seat shall be carefully spaced to miss the holes that are drilled for the bolster anchor bolts.



SECTION A-A



LOCATION OF P605, P606 & P714 BARS AND BATTERED PILES

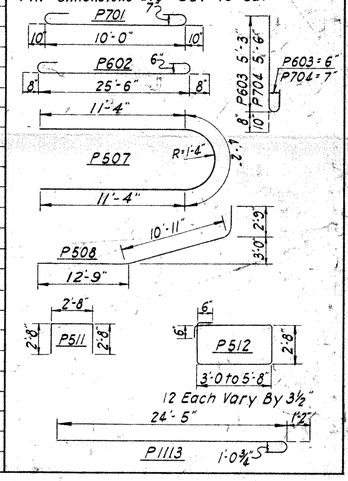


TYPICAL SECTION

BAR SCHEDULE FOR PIERS							
Mark	Pier 1	Pier 2	Pier 3	Size	Length	Shape	Weight
P701	72	72	72	7	11'-8"	B	5151
P602	16	16	16	6	26'-10"	B	1935
P603	34	80	34	6	5'-11"	B	1316
P704	46		46	7	6'-4"	B	1190
P605		80		6	31'-0"	S	3725
P606	34		34	6	27'-0"	S	2758
P507	48	52	48	5	26'-10"	B	4144
P508	8	8	8	5	26'-2"	B	655
P509	4	4	4	5	34'-8"	S	438
P510	4	4	4	5	44'-8"	S	559
P511	34	34	34	5	7'-9"	B	825
P512	40	40	40	5	11'-9 to 7'-1"	B	1805
P1113	40	40	40	11	26'-0"	B	16576
P714	46		46	7	27'-0"	S	5077

Bending Diagram

All dimensions are out to out



Total Weight = 46,154 Lbs.

REPLACEMENT BAR SCHEDULE				
Mark	No.	Size	Length	Type
R400	1	4	5'-3"	S
R500	2	5	5'-7"	S
R600	7	6	5'-11"	S
R700	4	7	6'-2"	S
R1100	1	11	7'-7"	S

LIC-70-1367

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

PIERS

BRIDGE NO. LIC-40-1454
OVER N.Y.C.R.R. & TWP. RD. 171
U.S.R. 40
STA. 770+63.00
773+39.00
LICKING COUNTY

Designed	Drawn	Traced	Checked	Reviewed-Date	Revised
T.R.A.	J.P.K.	M.O.	W.B.		

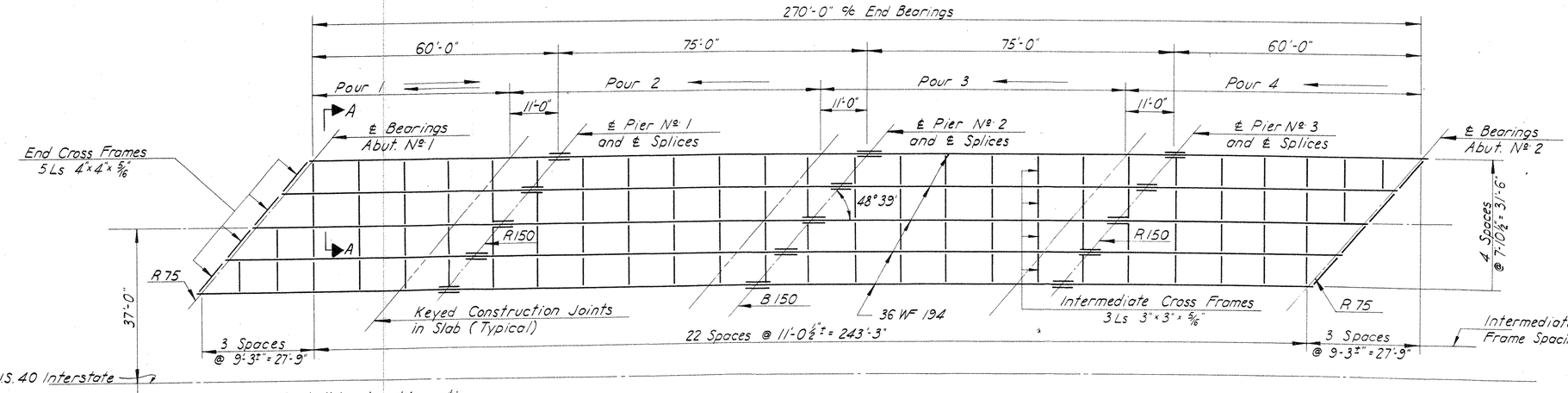
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

262/287

LIC-40-8.67
HEBRON BY-PASS

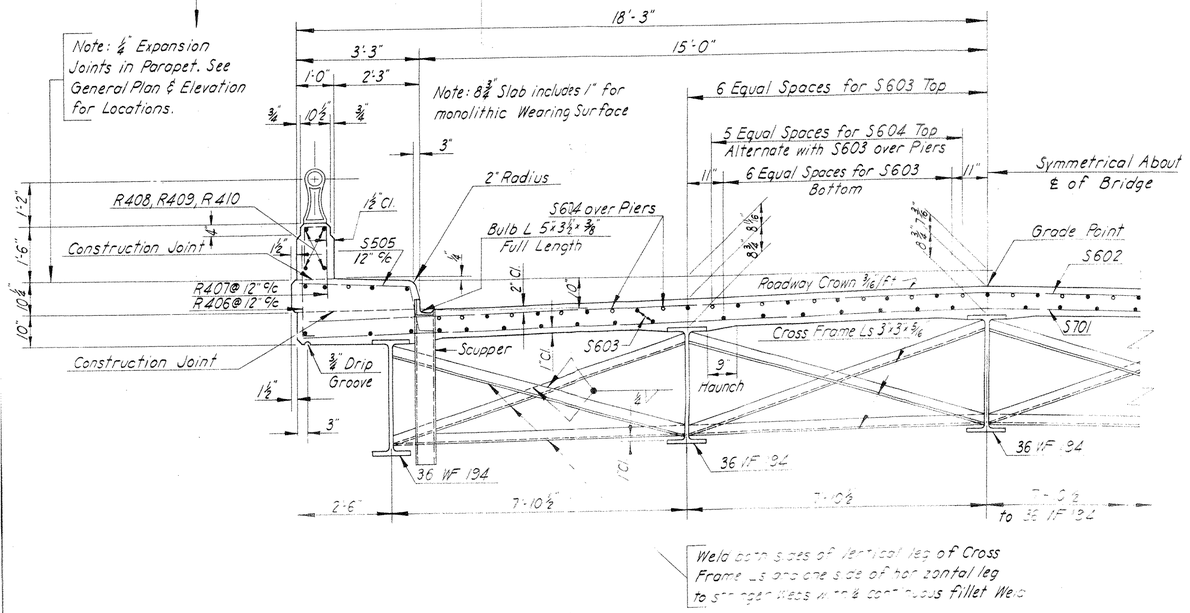
NOTES

- Refer to Standard Drawing CSB-1-55 sheet 2 of 8 for details of End finish and End Cross frames.
- Refer to Standard Drawing RB-1-55 for details of Rockers and Bolsters.
- Reference shall be made to Common Details sheet for details of Railing Post, Splash Guards, Gutter Support and Scuppers.
- Concrete and Reinforcing above parapet construction joint included with Railing for payment.
- Camber: No cambering of beams is required but the beams shall be so fabricated that any curved beams will be placed with the convex flange up.
- End Finish: A Welded Butt joint in the end finish at the center line of roadway, will be required for that portion of the end finish attached to the Superstructure. The portion attached to the backwall shall be placed in segments. which shall be closely butted, with one of the joints at the apex of the crown, but shall not be Welded. End finish need not be copper bearing steel.



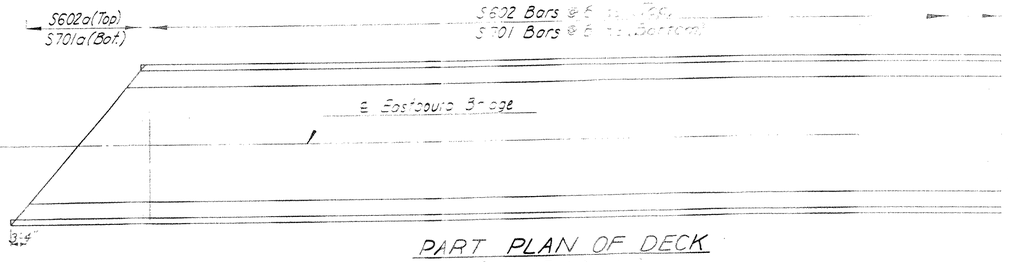
Note: Deck Slab shall be placed in sections between transverse construction joints in the numerical order, and in the direction indicated in order that the mayor portion of the dead load deflection may occur prior to the placing of concrete over each pier.

STEEL FRAMING PLAN

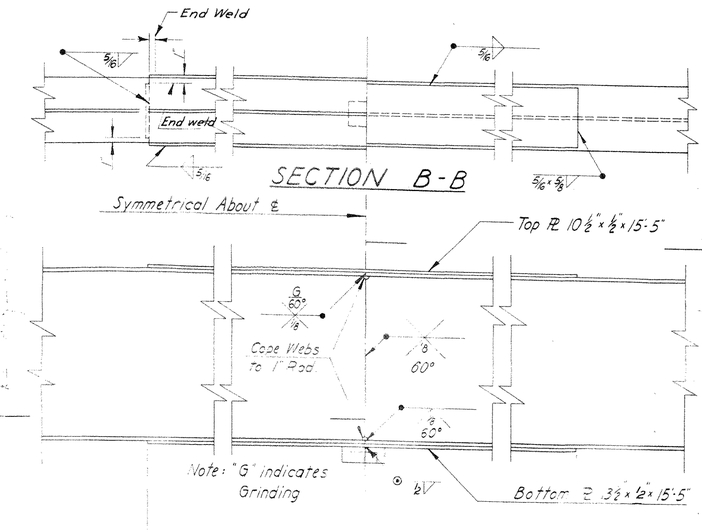


Weld both sides of vertical leg of Cross Frame Ls and one side of horizontal leg to stronger web with a continuous fillet Weld

SECTION A-A



PART PLAN OF DECK
(Other End Similar)

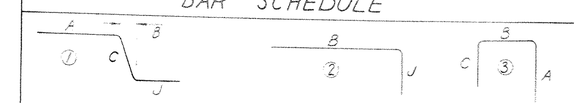


WF BEAM SPLICE DETAIL

BEAM SPLICE WELDING PROCEDURE

1. Raise ends of beam at Pier 2 ℄
2. Butt Weld beam flanges and web at Pier 1 using the following procedure: Make one pass on each flange then one on the web. Repeat until welds are complete
3. Weld top and bottom flange tension plates at Pier 1
4. Lower ends of beams at Pier 2
5. Make splices at Piers 2 and 3 in the same manner raising the ends of the beams 2" at Pier 3 and at the abutments 1⅛".

BAR SCHEDULE



All Dimensions are out to out.

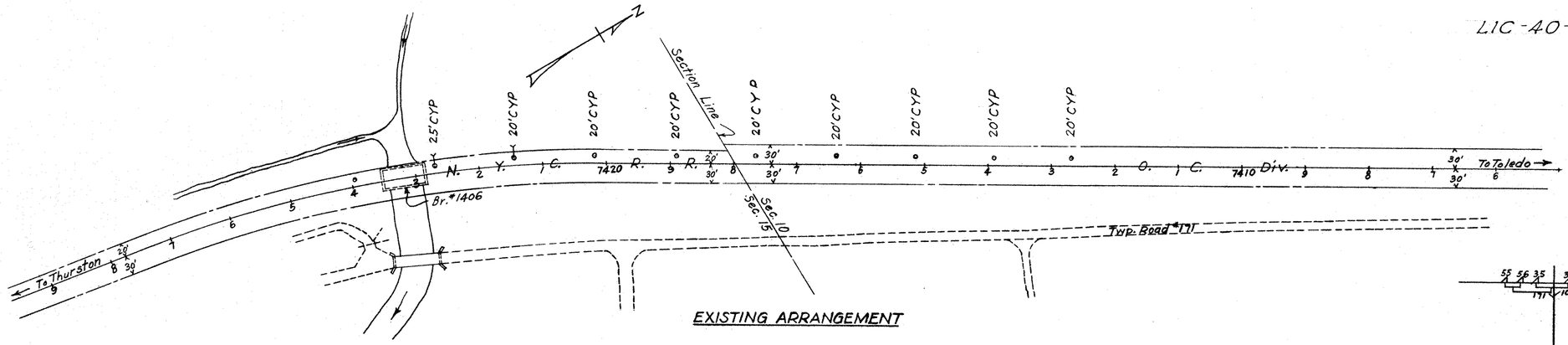
Mark	№	Size	Length	Type	A	B	C	J	Weight
S701	722	7	36'-0"	S					53,127
S701a	168	7	3'-0" to 35'-0"	S	4 each vary by 9⅜" ±				6,524
S602	722	6	36'-0"	S					39,040
S602a	168	6	3'-0" - 35'-0"	S	4 each vary by 9⅜" ±				4,794
S603	1206	6	31'-9"	S					57,512
S604	156	6	30'-0"	S					7,029
S505	1080	5	4'-7"	1	2'-9"	3"	1'-5"	8½"	5,163
S406	1080	4	3'-4"	2		2'-7"		10"	2,405
R407	1080	4	4'-0"	3	2'-2"	9"	1'-3"		included with railing for payment.
R408	256	4	15'-6"	S					
R409	16	4	12'-8"	S					
R410	16	4	4'-8"	S					
								Total Weight	175,594

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

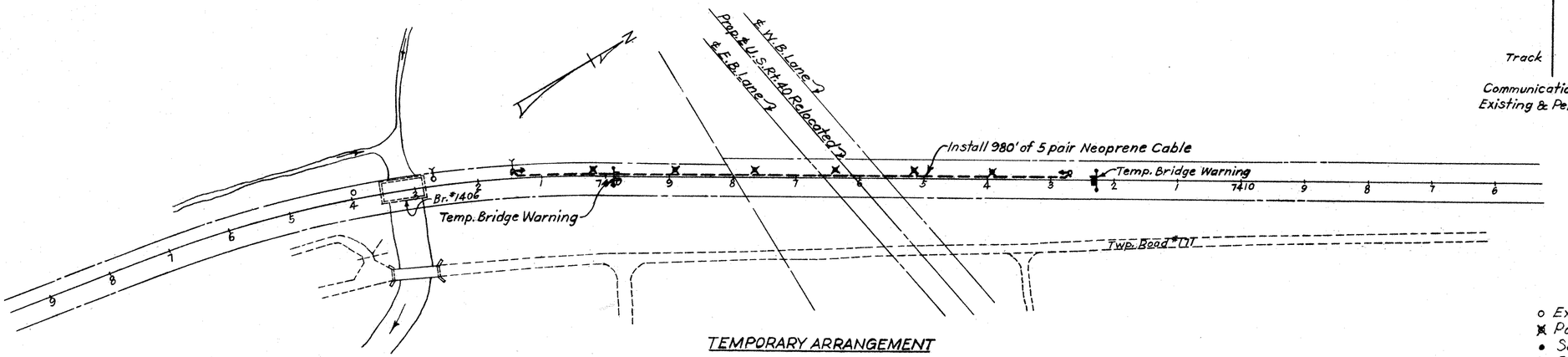
SUPERSTRUCTURE
BRIDGE NO. LIC-40-1455
OVER N.Y.C.R.R. & TWP. RD. 171
U.S.R. 40
STA. 770+63.00
LICKING COUNTY 773+39.00

Designed	Drawn	Traced	Checked	Reviewed/Date	Revised
A.	M.F.	HY	W.B.		

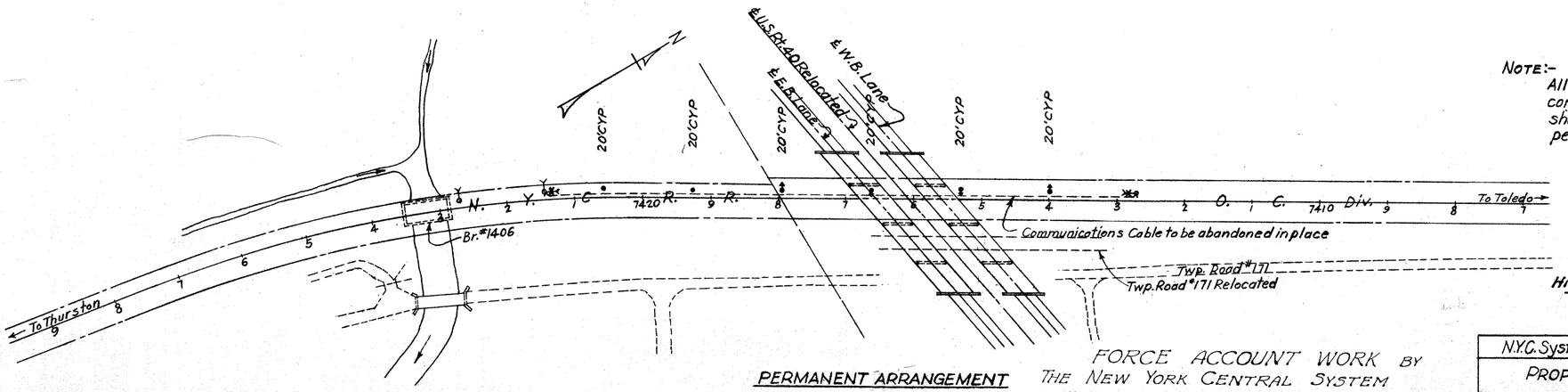
LIC-40-8.67



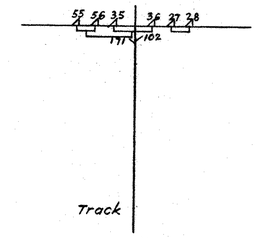
EXISTING ARRANGEMENT



TEMPORARY ARRANGEMENT



PERMANENT ARRANGEMENT



o Existing Pole
⊠ Pole to be removed
• Salvaged Pole
•→ Salvaged Pole & Patent

NOTE:-
All labor and the furnishing of all mate
connection with changes as shown on
sheet and called for in the estimate w
performed by the N.Y.C.R.R. force ac

Highway Bridge No. LIC-

FORCE ACCOUNT WORK BY THE NEW YORK CENTRAL SYSTEM

1. Preliminary Engineering
2. Construction Engineering and Inspection
3. Track Work
4. Communication Line Changes
5. Protection of Railroad Traffic
6. Accounting
7. Insurance

N.Y.C. System	Office of Chief Engr.

PROPOSED OVERHEAD GRADE SE
U.S. ROUTE 40 (RE
2 Miles.
HEBR
Proposed Com

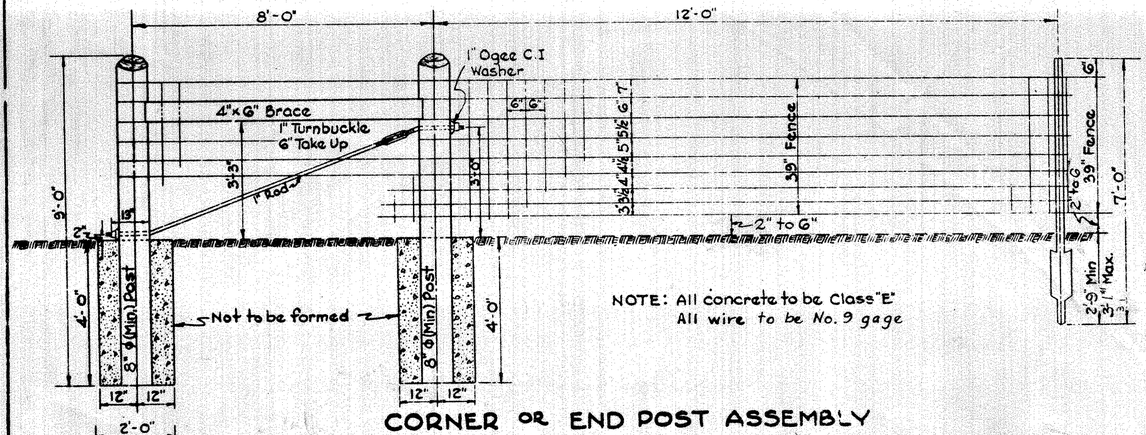
Western District	
Scale: 1" = 100'	Sept.

TYPE "A" FENCE DETAIL

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

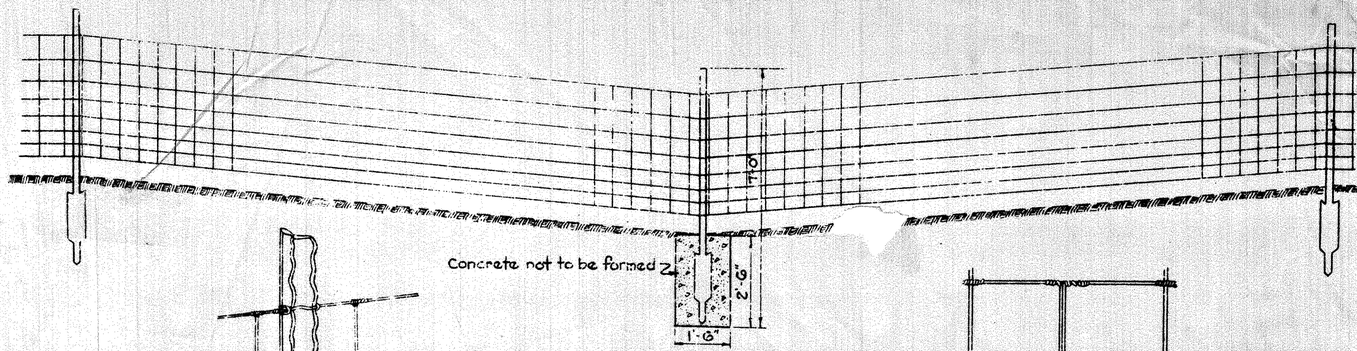
264
287

LIC 40-8.67

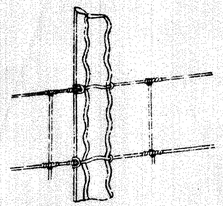


NOTE: All concrete to be Class "E"
All wire to be No. 9 gage

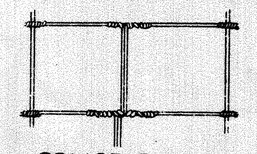
CORNER OR END POST ASSEMBLY



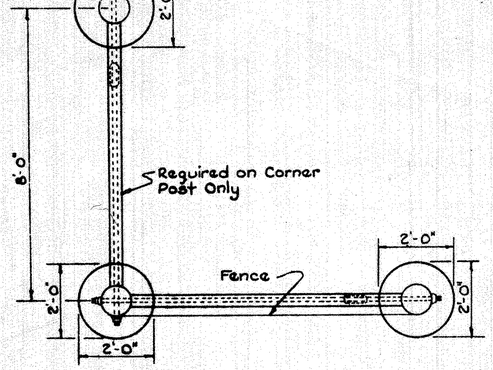
LINE POST IN DIP SECTION



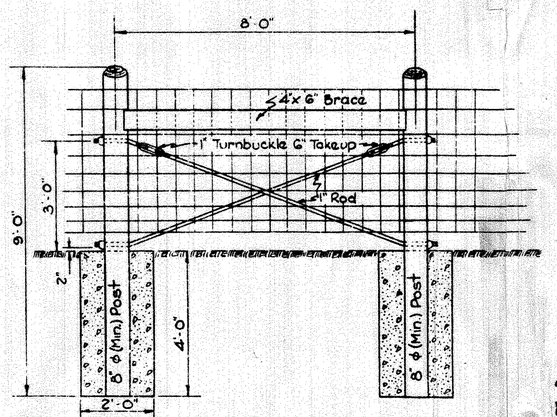
METHOD OF FASTENING FENCE AT LINE POST



SPLICE DETAIL

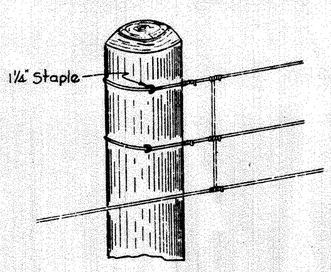


PLAN OF CORNER OR END POST ASSEMBLY

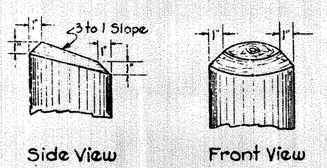


To be placed at locations shown on Plan or shifted if directed by the Engineer.

INTERMEDIATE ANCHOR POST ASSEMBLY

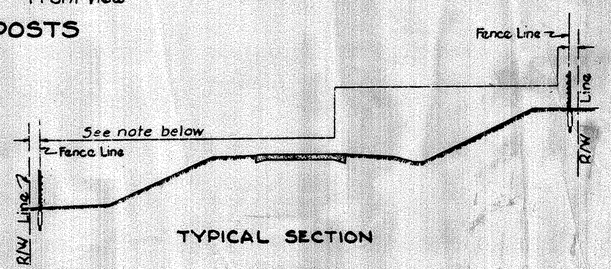


METHOD OF FASTENING FENCE AT END, CORNER POST AND ONE POST OF INTERMEDIATE ANCHOR POST ASSEMBLY

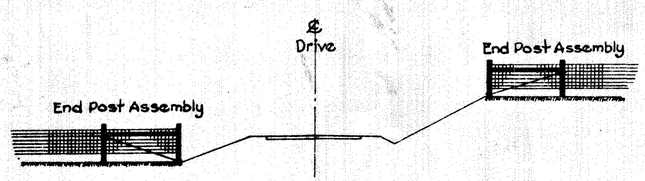


Side View Front View

TOP OF POSTS



TYPICAL SECTION



R/W FENCE TREATMENT AT DRIVES

R/W FENCE TREATMENT AT CULVERTS

Notes:

Maximum spacing between intermediate anchor post assemblies or between end post assemblies and intermediate post assemblies shall be 660 Lin. Ft.

At points where individual spans of fence change alignment in excess of 4 degrees and less than 30 degrees, an intermediate anchor post assembly shall be built. If the change in alignment is 30 degrees or more a corner post assembly shall be built at the point of change.

Specification No. 18 ti... Posts, Corner Posts, and Intermediate Anchor Posts or Pull Posts shall b... ed so that the side of the posts toward the highway is two feet from the ... of-Way line.

In lieu of the requirement of Supplemental

Rev. 7-26-56

TYPE "A" FENCE DETAIL

LEGEND FOR PROJECT – AVERAGE RESULTS OF TESTS – 76 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 & Silt	A-2-4(0)	A-2-4	57	3	7	16	17	26	9	15	1
Gravel with Sand, Silt, & Clay	A-2-6(1)	A-2-6	48	3	14	15	20	29	12	27	1
Sandy Silt	A-4(5)	A-4a	14	8	18	31	29	23	6	15	39
Silt	A-4(8)	A-4b	5	3	8	56	29	28	6	26	4
Silt and Clay	A-6(8)	A-6a	9	4	14	35	38	30	12	23	21
Silty Clay	A-6(11)	A-6b	13	7	6	32	42	39	19	23	5
Elastic Clay	A-7-5(8)	A-7-5	0	3	6	45	46	41	11	32	1
Clay	A-7-6(15)	A-7-6	2	2	11	42	43	45	24	26	4

Berm Material

Sod or Topsoil = X'= Approx. Depth

Auger Boring - Plan View

Auger Boring - Plotted to Vertical Scale Only

W Free Water

● Water Content nearly equal to or greater than Liquid Limit.

◉ This 4a Soil will tend to be rubbery and unstable at Water Contents which exceed the Optimum.

NOTE: Figures beside borings indicate Water Content in per cent.

Samples Tested
Lab. Nos. So 45937 – 46012 Incl.

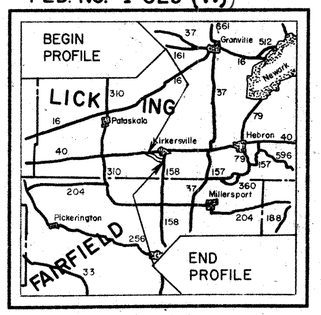
SOIL PROFILE

LICKING COUNTY
LIC-40-8.67

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

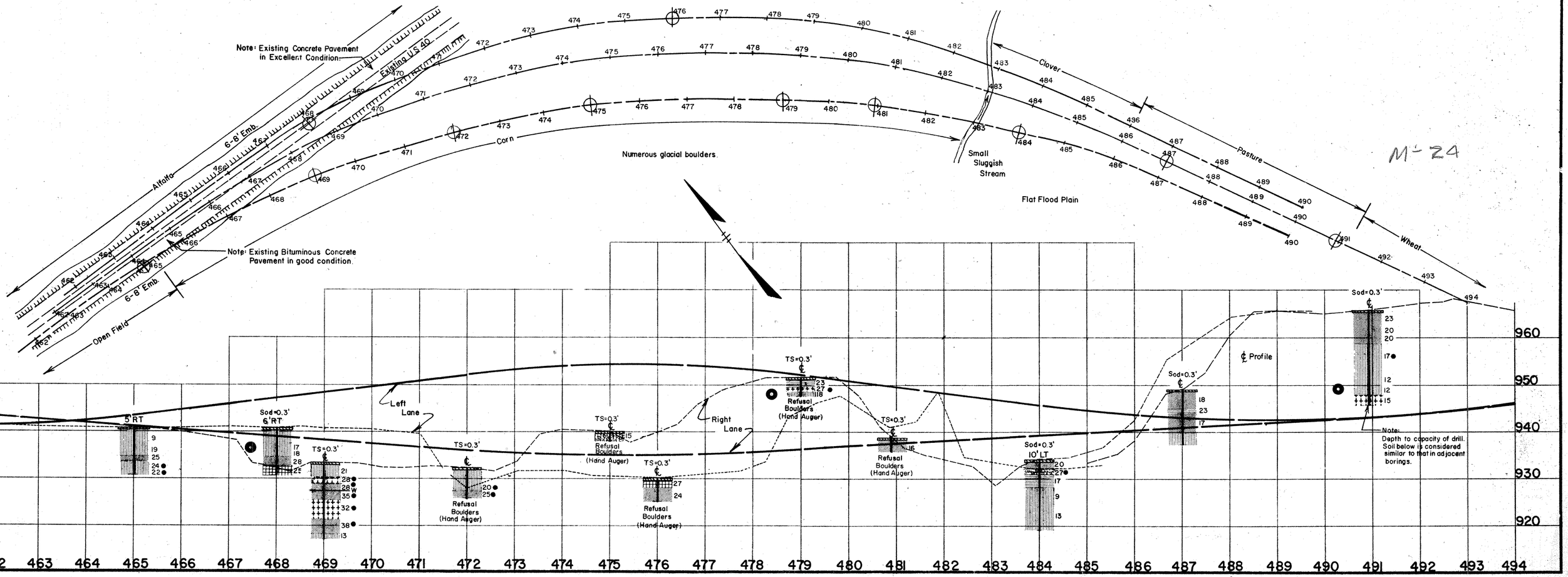
NOTE: THE INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS SECURED FOR THE USE OF THE STATE OF OHIO AND IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING THE CONSTRUCTION OF THE PROJECT.

FED. NO. I-529 (11)



LOCATION MAP

Recon-LOT-7/20/56
Field-DH-8/1/56
Drafting-PAH-8/23/56

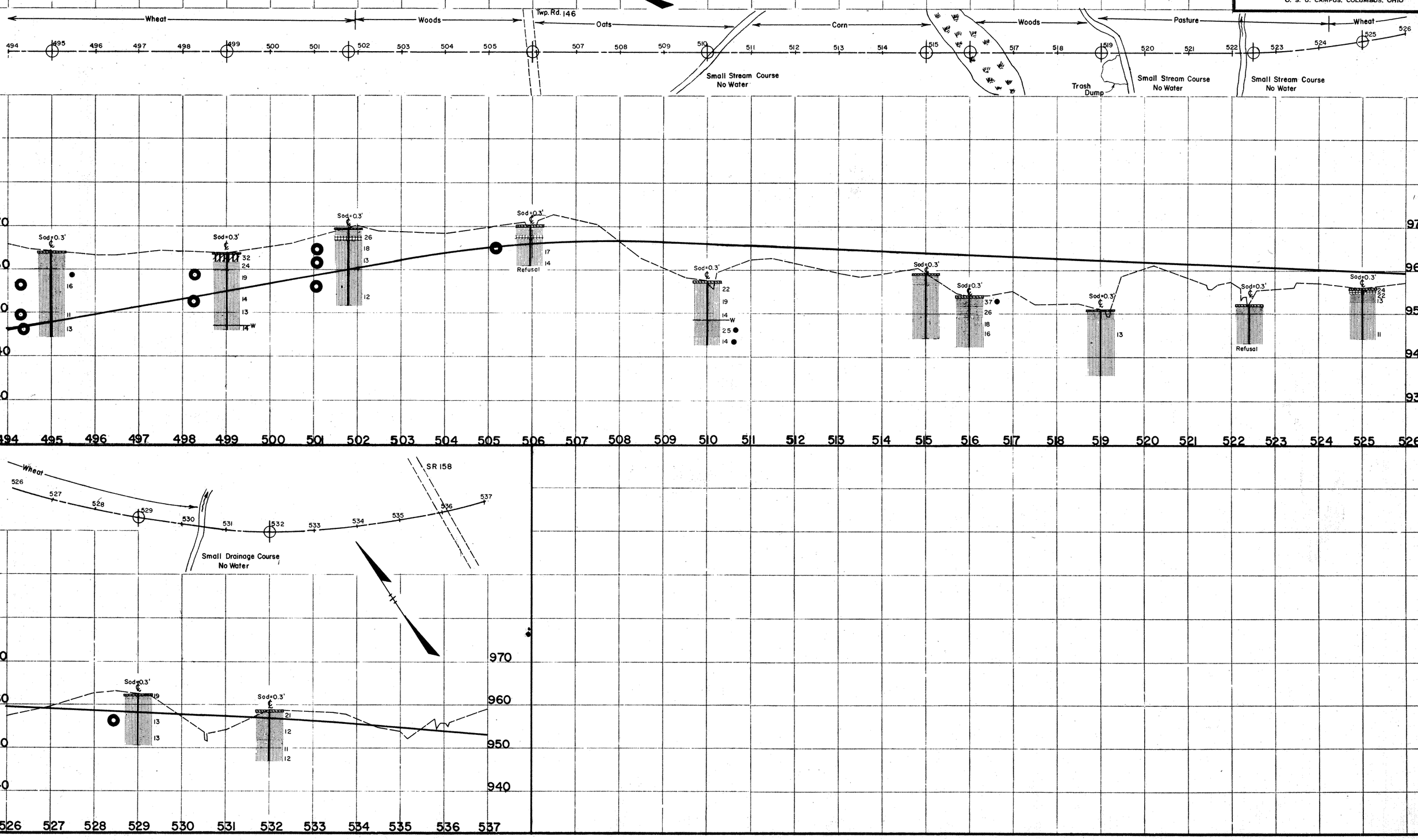


SOIL PROFILE

LICKING COUNTY
LIC-40-8.67

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

2/6

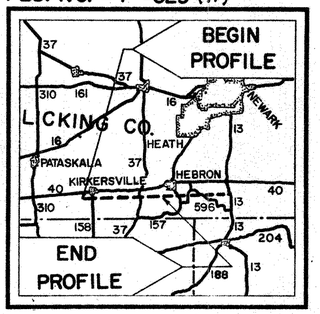


SOIL PROFILE
LICKING COUNTY
LIC-40-8.67
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

3/6

NOTE: THE INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS SECURED FOR THE USE OF THE STATE OF OHIO AND IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING THE CONSTRUCTION OF THE PROJECT.

FED. NO.—I -529 (11)



LOCATION MAP

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS— 346 SAMPLES TESTED

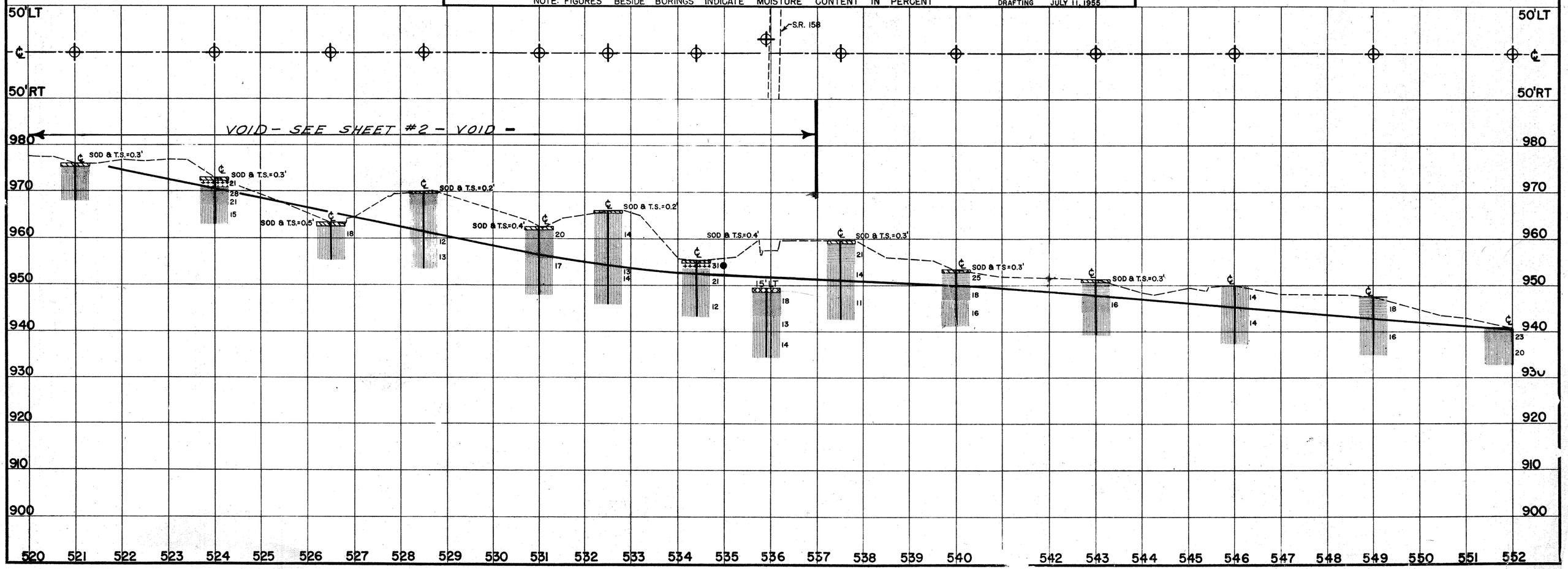
DESCRIPTION	H. R. B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
GRAVEL	A-1-a(0)	A-1-a	57	19	11	6	7	NP	NP	17	2
GRAVEL WITH SAND	A-1-b(0)	A-1-b	40	25	15	11	9	NP	NP	17	12
COARSE AND FINE SAND	—	A-3a	4	22	45	16	13	NP	NP	24	4
GRAVEL WITH SAND & SILT	A-2-4(0)	A-2-4	42	17	15	13	13	26	6	19	14
GRAVEL WITH SAND, SILT, AND CLAY	A-2-6(0)	A-2-6	39	19	14	11	17	30	13	21	10
SANDY SILT	A-4(5)	A-4a	13	8	19	33	27	24	6	19	117
SILT	A-4(8)	A-4b	1	2	7	59	31	28	5	26	32
SILT AND CLAY	A-6(8)	A-6a	11	7	13	34	35	33	13	24	63
SILTY CLAY	A-6(11)	A-6b	10	5	12	36	37	37	18	26	33
ELASTIC CLAY	A-7-5(18)	A-7-5	0	1	4	34	61	59	26	42	8
CLAY	A-7-6(16)	A-7-6	3	3	7	38	49	48	25	30	51

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY	TOPSOIL—T.S.=X'=APPROXIMATE DEPTH
AUGER BORING—PLAN VIEW	BERM MATERIAL
W— FREE WATER	
● MOISTURE CONTENT NEARLY EQUAL TO OR GREATER THAN THE LIQUID LIMIT	

SAMPLES TESTED
LAB NO'S S.O. 18558—18665 INCL
18831—18964 INCL
19185—19218 INCL
19512—19543 INCL
19739—19776 INCL

NOTE: FIGURES BESIDE BORINGS INDICATE MOISTURE CONTENT IN PERCENT

FIELD WORK JUNE 22, 1955
DRAFTING JULY 11, 1955



SOIL PROFILE

LICKING COUNTY

LIC-40-8.67

STATE HIGHWAY TESTING AND RESEARCH LABORATORY

O. S. U. CAMPUS, COLUMBUS, OHIO

4/6

50'LT

50'RT

DRAINAGE DITCH

DITCH

940

930

920

910

552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584

SOD & T.S.=0.3'

T.S.=1'

T.S.=0.6'

REFUSAL (BOULDERS)

WOODS

920

910

900

584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616

SOD & T.S.=0.4'

T.S.=0.7'

SOD & T.S.=0.3'

TWP ROAD

RESERVOIR FEEDER

WHEAT

910

900

890

880

870

616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 644 645 646 647 648

SOIL PROFILE

LICKING COUNTY

LIC-40-8.67

STATE HIGHWAY TESTING AND RESEARCH LABORATORY

O. S. U. CAMPUS, COLUMBUS, OHIO

5/6

STA 653+00 TO 657+50
WOODS AREA IS DAMP

STA 669+00 TO 678+50
LOW & SWAMPY WITH TREES, BUSHES, AND WEEDS

STA 676+50
16" GAS LINE

CREEK

WHEAT

DENSE WOODS WITH HEAVY GROUND COVER

STA 698+50 TO 703+50
LOW AND WET

OPEN WOODS

BELL RUN

SWAMPY WITH TREES

STA 709+00, 40'RT
LOG OF AUGER BORING

STA 732+50, 50'LT
LOG OF AUGER BORING