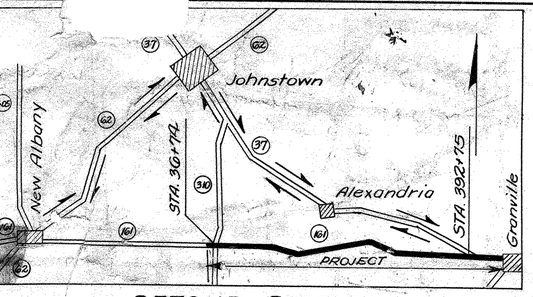


DETOUR ROUTES

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
LIC-161-5.12
LIC-37-15.09
JERSEY-ST. ALBANS-GRANVILLE TOWNSHIPS
VILLAGE OF GRANVILLE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	STATE	

1/238

G-3

LIC-161-5.12
LIC-37-15.09

523

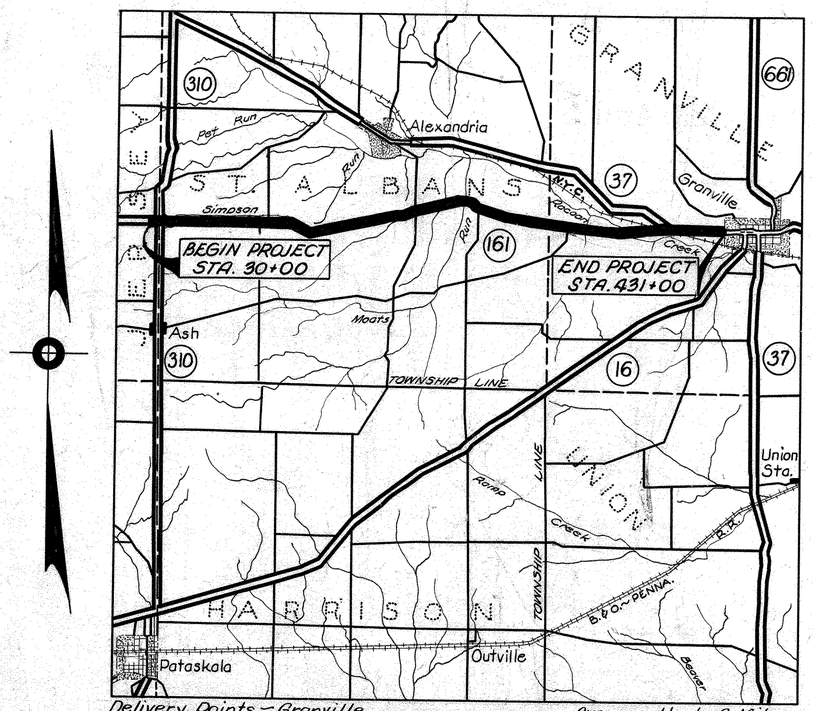
LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway between Station 30+00.65 and Station 337+69 by action of the Director of Highways in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

CONVENTIONAL SIGNS

County Line
Township Line
Corporation Line
Fence Line
Center Line
Railroad
Guard Rail
Pole Line

Telephone Ø Ø Power Ø Ø



Delivery Points – Granville, Pataskala
Average Haul – 4 Miles
Average Haul – 8 Miles

LOCATION PLAN

Scale of Miles

Portion to be Improved
State Highways
Other Roads

SCALES

Plan	1" = 50'
Profile – Horizontal	1" = 50'
Profile – Vertical	1" = 5'
Cross Sections	1" = 10'

INDEX OF SHEETS

LINE DATA

Begin Project Sta. 30+00		
End Project Sta. 431+00		
Gross Length Project	40,100.00 Lin. Ft.	
Deduct for R.R. Crossing	31.97 Lin. Ft.	
Net Length of Project	40,068.03 Lin. Ft.	or 7.588 Miles
Begin Work Sta. 28+50		
End Work Sta. 432+36		
Total	40,386.00 Lin. Ft.	
Add for Approaches S.R. 310 (120-306)	426.00 Lin. Ft.	
Gross Length Work	40,812.00 Lin. Ft.	
Deduct for R.R. Crossing	31.97 Lin. Ft.	
Net Length Work	40,780.03 Lin. Ft.	or 7.723 Miles

LICKING COUNTY
Sec. LIC-161-5.12 – LIC-37-15.09
Date of Letting 1956
Contract No.

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 require the closing of a portion of the highway to traffic, except as noted on sheet 5, and that detours will be provided as indicated on the plans. Provisions for the maintenance and safety of traffic on the remaining portions of the highway will be as set forth on the plans and estimates.

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

Approved Oscar F. Schilling
Date 5-31-56 Division Deputy Director

See attached letter dated 7-27-56

Approved John Heier
Date 7-31-56 Deputy Director of Planning & Programming

Approved D.M. Overman
Date 7-27-56 Engineer of Bridges

Approved E.S. Preston
Date 7-31-56 Engineer of Location and Design

Approved I.T. Gerald
Date 7-31-56 Deputy Director of Design & Construction

Approved V.P. Schaublin
Date 8-2-56 First Assistant Director

Approved S. Kinzell
Date 8-2-56 Director of Highways

CONSTRUCTION BUREAU DEC 28 1959 GROUND PHOTOLAB

CONSTRUCTION BUREAU FEB 10 1960 GROUND PHOTOLAB

Move

STANDARD CONSTRUCTION DRAWINGS

		CS-1-54 (2 Shts)	7-16-56	I-15 Nº 2A	7-2-56
		A-1-54	12-1-54	I-12	7-1-54
G-7.07	6-1-56	D-1-54	12-1-54	AS-1-54	12-1-54
DR-1	1-3-55	S-27 P.C. 3	2-20-45	SIB-1-47	1-20-48
I-1-2-3-4&5	2-20-45	S-27 P.C. 4	1-4-54	SP-53	7-21-53
I-14G	1-22-52	I-80B-1-2A&B	5-1-52	I-8 C.B. Nº 7	5-1-52
RI-1	1-3-55	I-8 CB-2-2A&B	5-1-52	I-8 C.B. Nº 3	5-1-52
T-35	1-2-56	I-15 No. 1	8-1-55	I-8 C.B. Nº 3-A	5-1-52
L-3	4-1-50	I-15 No. 2	12-1-54	I-8 C.B. 1-3&1-4	5-1-52
L-3-A	4-1-50	I-15 No. 4	12-1-54	I-8 C.B. 2-3&2-4	5-1-52
S-27 P.C. 1	5-1-52	L-1	4-1-50	I-8 M.H. Nº 1-A	1-3-55

SUPPL. SPECIFICATIONS

G		12-28-55
L-209.12		7-17-54
M-106.6 (d)		11-30-54
B-119	Rev.	6-30-56
CE-101.04		5-22-56

Revised location of Drive 54A on Sheets 21, 54 & 229 – 12-19-56 by G.W.S.

TYPICAL SECTIONS
TYPE T-35 ON B-20

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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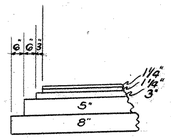
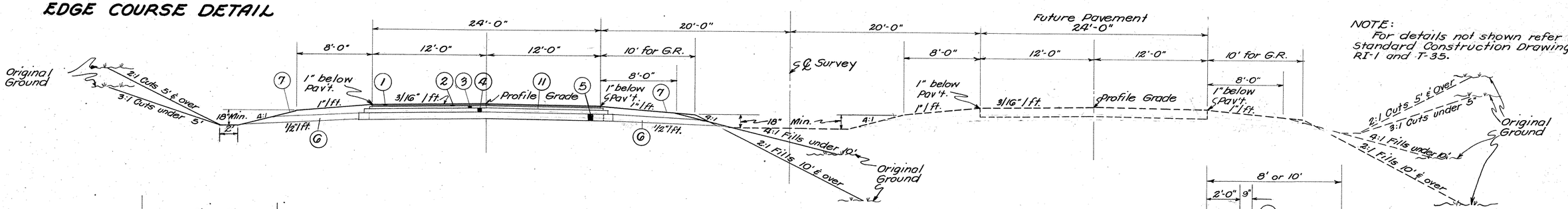
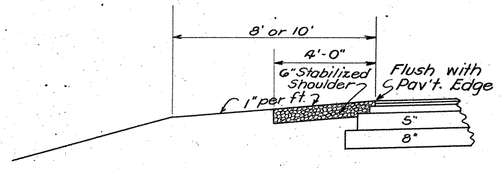
LIC-161-5.12
LIC-37-15.09

EDGE COURSE DETAIL





NOTE:
For details not shown refer to Standard Construction Drawings RI-1 and T-35.



DETAIL OF STABILIZED SHOULDER I-18

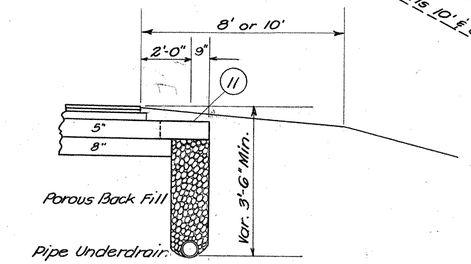
NOTE: Stabilized Shoulder to be used to prevent erosion on steep grades. Est. Quat. 0.0106 C.Y. per Lin. Ft.

NORMAL SECTION NEW PAVEMENT (S.R. 161)

Schedule of Stationing

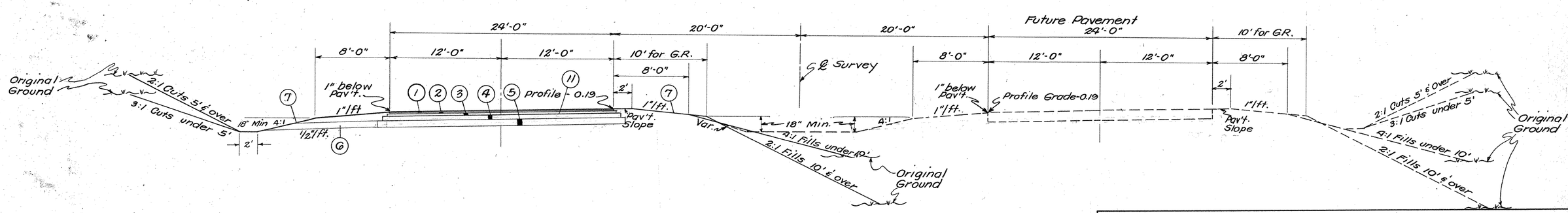
30+00	232+13.67	= 20,213.67 Lin. Ft.	= 47.66 Lin. Ft.
232+13.67	232+61.33 (BR. NO. LIC-161-0895 & APPRS.)		
232+61.33	244+15.27	= 1,153.94 Lin. Ft.	= 184.60 Lin. Ft.
244+15.27	245+99.87 (BR. NO. LIC-161-0918 & APPRS.)		
245+99.87	337+23.00	= 9,123.13 Lin. Ft.	= 90.00 Lin. Ft.
337+23.00	338+13.00 (BR. NO. LIC-161-1094 & APPRS.)	587.00 Lin. Ft.	
338+13.00	344+00.00	31,077.74 Lin. Ft.	

Total



DETAIL OF I-4 UNDERDRAINS

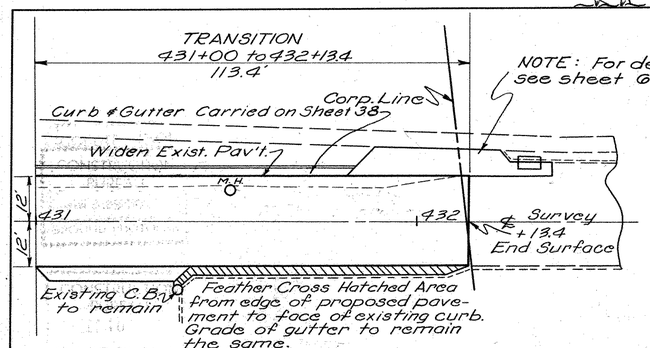
For Locations and grades of I-4 Underdrains see plan and profile sheets.



SUPERELEVATED SECTION

For Stationing See Superelevation Table, Sheets 40 & 41

(1) T-35 1¼" Asphaltic Concrete Surface Course, Type 'A' (70-80)
(2) B-35 1¼" Asphaltic Concrete Leveling Course (70-80)
(3) B-35 3" Asphaltic Concrete Base Course (70-80)
(4) B-20 5" Waterbound Macadam Base Course
(5) I-22 8" Subbase
(6) I-9 Stone Underdrains No. 2
(7) L-9 Seeding and Protecting
(11) T-30 Bituminous Prime Coat, Sec. M-5.7, RT-2 or RT-3; or Sec. M-5.3, MC-0 or MC-1 applied at rate of 0.35 Gal./Sq. Yd.



⊗ ESTIMATED QUANTITIES

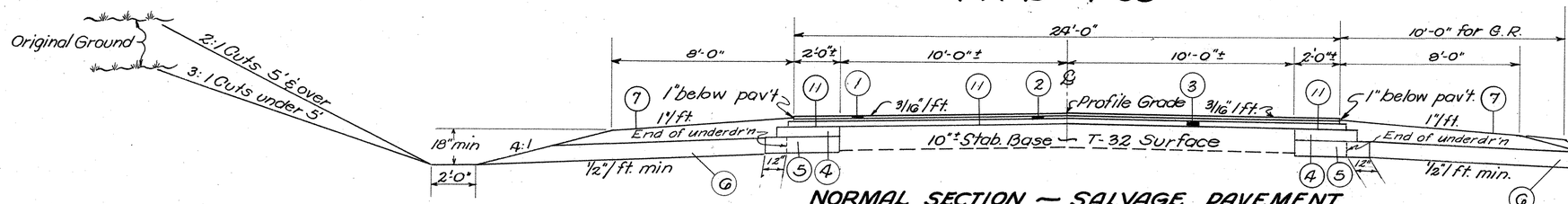
*T-35	Asphaltic Concrete Surface Course	11.20 Cu. Yds.
B-35	1¼" Asphaltic Concrete Leveling Course	10.50 Cu. Yds.
B-35	3" Asphaltic Concrete Leveling Course	3.42 Cu. Yds.
B-20	5" Waterbound Macadam Base Course	43 Sq. Yds.
I-22	8" Subbase	12 Cu. Yds.
T-30	Bituminous Prime Coat	15 Gals.
*	Includes Quantity for Feathered area	
⊗	Carried to Calculations	

TYPICAL SECTIONS
TYPE T-35

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

3 / 238

LIC-161-5.12
LIC-37-15.09

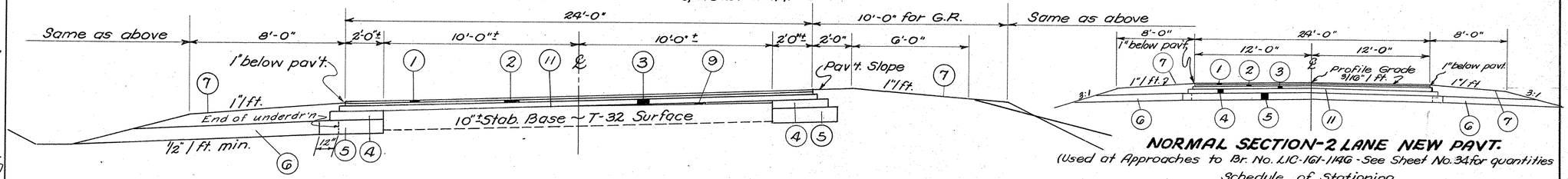


NOTE:
For Details not shown refer to Standard Construction Drawings RI-1 and T-35.

NORMAL SECTION — SALVAGE PAVEMENT

Schedule of Stationing

344+00	-364+00	= 2,000 Lin. Ft.	
364+78.21	- 366+92.60 (BR. NO. LIC-161-11.46 & APPR'S)	=	= 214.39 Lin. Ft.
367+50	- 386+69.24	= 1,919.24 Lin Ft.	
386+69.24	- 387+01.21 (R.R. Crossing)	=	= 31.97 Lin. Ft.
	Total	3,919.24 Lin. Ft.	



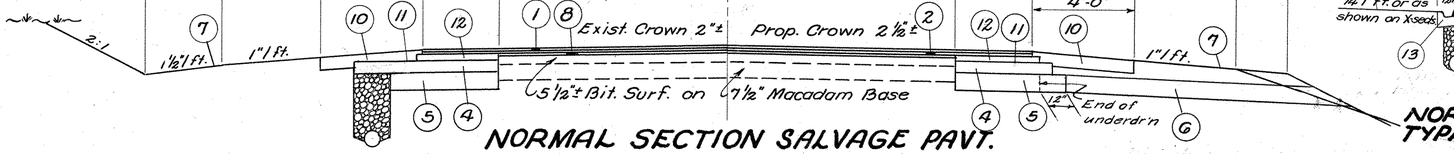
SUPERELEVATED SECTION

NORMAL SECTION-2 LANE NEW PAVT.

(Used at Approaches to Br. No. LIC-161-11.46 - See Sheet No. 34 for quantities

Schedule of Stationing

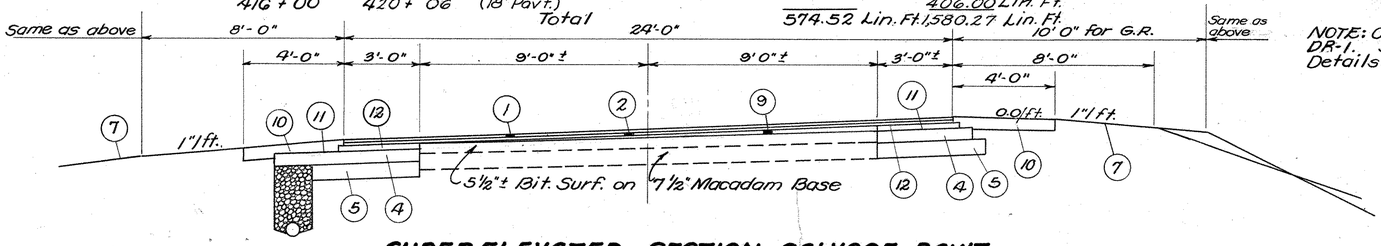
364+00	- 364+78.21	=	78.21 Lin. Ft.
366+92.60	- 367+50	=	57.40 Lin. Ft.
	Total		135.61 Lin. Ft.



NORMAL SECTION SALVAGE PAVT.

Schedule of Stationing

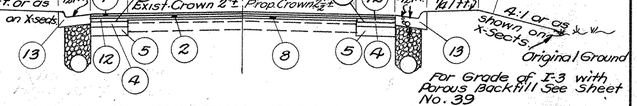
387+01.21	392+75.73 (End S.R. 161 & 20' Pav't.)	= 574.52 Lin. Ft.	
392+75.73	395+50.00 (18' Pav't.)	=	274.27 Lin. Ft.
401+00	410+00 (18' Pav't.)	=	900.00 Lin. Ft.
416+00	420+06 (18' Pav't.)	=	406.00 Lin. Ft.
	Total	574.52 Lin. Ft.	1,580.27 Lin. Ft.



SUPERELEVATED SECTION SALVAGE PAV'T.

Schedule of Stationing

395+50	401+00 =	550 Lin. Ft.	
410+00	416+00 =	600 Lin. Ft.	
Total (18' Pav't.)		1150 Lin. Ft.	



For Grade of I-3 with Porous Backfill See Sheet No. 39

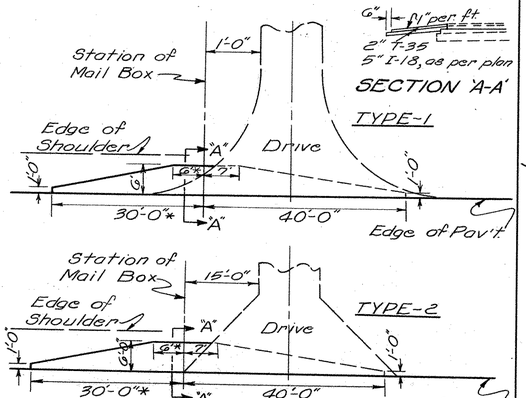
NORMAL SECTION SALVAGE PAVT. USING TYPE 2 CURB & GUTTER AS PER PLAN

Schedule of Stationing

420+06 - 422+50 = 244 Lin. Ft. (Curb & Gutter on Lt. only)
422+50 - 431+00 = 850 Lin. Ft. (Curb & Gutter Lt. & Rt.)
Total 1094 Lin. Ft.

NOTE: Curb to be depressed at Driveways as per Std. Drwg. DR-1. See Sheet No. 185 for Curb and Roadway Drainage Details.

MAIL BOX TURNOUTS



* 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 3: Mail Box turnouts not located adjacent to residence drives shall be constructed as per Std. Construction Drwg. DR-1 and paved with 2" T-35 on 5" I-18, as per plan.

QUANTITIES EACH

Item	Description	Quantity Each Type 1	Type 2	Type 3	Unit
T-35	2" Bit. Conc. Surf.	0.75	0.85	1.71	C.Y.
I-18	5" Cr. Agg. as per plan	1.89	2.43	4.82	C.Y.
T-30	Bit. Prime Coat	48	61	122	Gals.

ESTIMATED QUANTITIES

Type	Estimated Number Req.	T-35 Asph. Conc. Cu. Yds.	I-18 as per plan Cu. Yds.	T-30 Bit. Prime Gals.
1	27	20.25	51.0	130
2	15	12.75	36.5	92
3	10	17.10	48.2	122
* Totals		50.10	135.7	344

* Carried to Sht. 8, Table 4

ESTIMATED QUANTITY SUPERELEVATING MATERIAL

Station From	Station To	I-35 Asph. Conc. Leveling Cu. Yds.
347+00	364+00	102
376+50	385+50	56
395+50	401+00	34
410+00	416+00	52
* Total		244

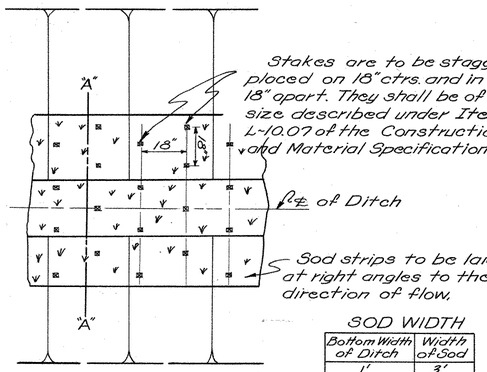
* Carried to Calculations

(1) T-35 1 1/4" Asphaltic Concrete Surface Course Type A (70-80)
(2) I-35 1 1/4" Asphaltic Concrete Leveling Course (70-80)
(3) I-35 3" Asphaltic Concrete Base Course (70-80)
(4) I-20 5" Waterbound Macadam Base Course
(5) I-22 8" Subbase
(6) I-9 Stone Underdrains No. 2
(7) L-9 Seeding and Protecting
(8) I-35 1" Min. Asphaltic Concrete Pre-leveling Course (Crown Correction)(70-80)
(9) I-35 Variable Thickness Asphaltic Concrete Leveling Course (Superelevation)(70-80) (For Estimated Quantity, See Table)
(10) I-18 6" Stabilized Crushed Aggregate Shoulder and Approaches.
(11) T-30 Bituminous Prime Coat, Sec. M-5.7 RT-2 or RT-3 or Sec. M-5.3 MC-0 or MC-1 applied at rate of 0.35 gal/sq. yd.
(12) I-35 3" Asphaltic Concrete Leveling Course (70-80)
(13) I-12 Type 2 Combination Curb and Gutter As Per Plan

TYPICAL DETAILS
DRAINAGE

FED. RD. DIVISION	STATE	PROJECT		4 / 238
2	OHIO			

LIC-161-5.12
LIC-37-15.09



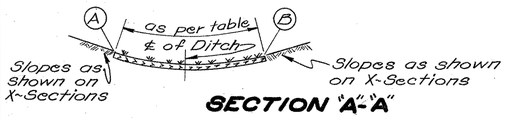
Stakes are to be staggered, placed on 18" ctrs. and in rows 18" apart. They shall be of the size described under Item L-10.07 of the Construction and Material Specifications.

Sod strips to be laid at right angles to the direction of flow.

PLAN

SOD WIDTH

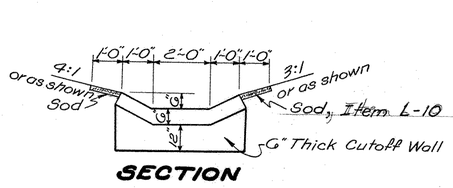
Bottom Width of Ditch	Width of Sod
1'	3'
2'	6'



SECTION "A"-"A"

Notes: Points A and B as shown in Section "A"-"A" shall be the same elevation. The location of the sodded ditches as shown on the Plan Sheets are subject to change or revision during Construction to fit ground conditions at the direction of the Engineer.

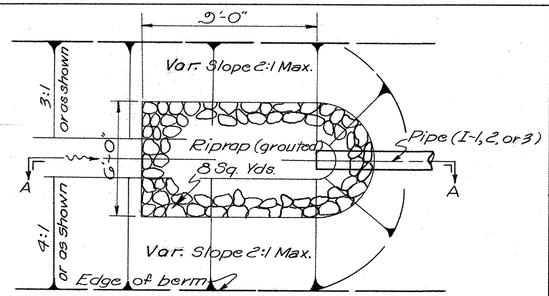
SOD DITCH



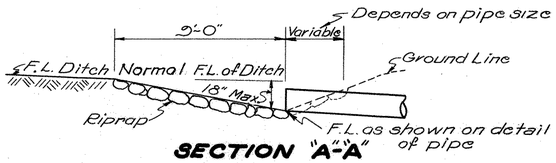
SECTION

Note: The location of Paved Gutter as shown on the plan sheets are subject to change or revision during construction to fit ground conditions at the direction of the Engineer.

PAVED GUTTER, TYPE I

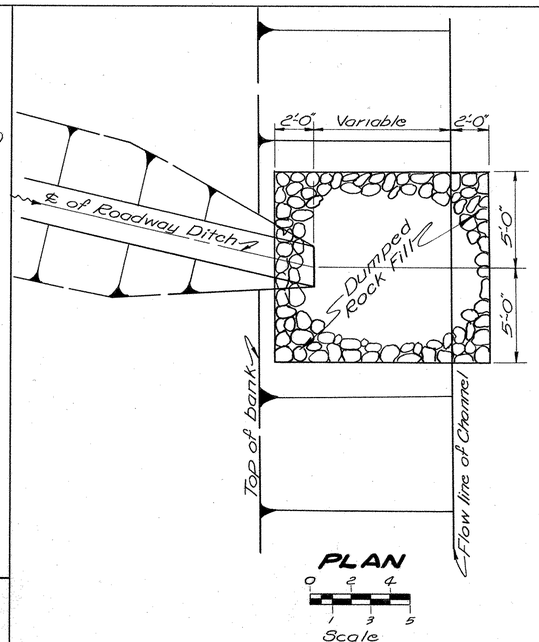


PLAN



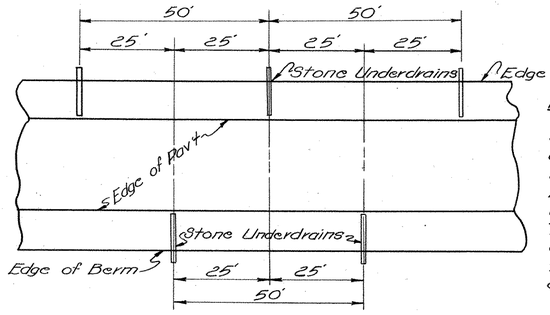
SECTION "A"-"A"

DETAIL FOR RIPRAP INLET



PLAN

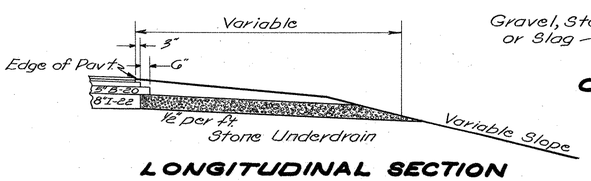
0 2 4
1 3 5
Scale



Notes:
Stone Underdrains shall be staggered on alternate sides and spaced on 50' centers in normal sections; the stone underdrains shall be omitted on the high side and spaced at 25' centers on the low side of superelevated sections. The location and number are subject to change or revision during construction to fit ground conditions at the direction of the Engineer.

PLAN

CROSS SECTION



LONGITUDINAL SECTION

For 8' Berm & 4:1 Slope Length = 11.50
For 10' Berm & 2:1 Slope Length = 11.28
For 8' Berm & 3:1 Slope Length = 10.45

I-9 STONE UNDERDRAIN NO. 2, AS PER PLAN

ESTIMATED QUANTITIES

Number	Length	Lin. Ft.
344	11.50	3956
170	11.28	1918
248	10.45	2592
Total		8466*

*Carried to Gen. Summary

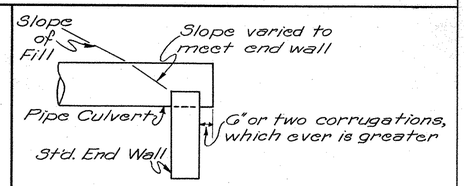
LOCATION & ESTIMATED QUANITITIES OF STAB. BERM

Station From	Station To	Side	I-18 Stabilized Shoulder Lin. Ft.
38+50	47+50	Rt	900
44+00	48+00	Lt	400
77+00	89+00	Lt	1200
77+00	101+50	Rt	2450
126+00	132+00	Lt	600
126+00	132+00	Rt	600
148+50	162+50	Lt	1400
157+00	162+50	Rt	550
195+50	201+50	Lt	600
195+50	200+50	Rt	500
217+50	226+00	Lt	850
217+50	226+00	Rt	850
246+00	254+00	Rt	800
279+00	294+00	Lt	1500
279+00	294+00	Lt	1500
133+50	140+50	Lt	700
TOTAL			15,400
Deduct for Dr. & Apprs.			574
Net Total			14,826*

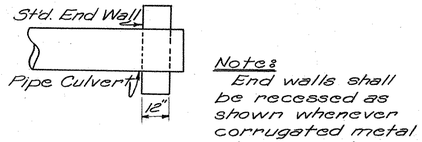
*14,826 x 0.0706 Cu. Yds. per L.F. = 1047 Cu. Yds. ⊗
⊗ Carried to General Summary

Note:-
Stabilized shoulder shall be omitted at all drives, approaches, and mail box turnouts. A deduction has been made for drives, approaches and mail box turnouts as shown on these plans. However additional mail box turnouts may be needed or some may be combined with drives. Therefore payment shall be made on final measurement.

Correction to Earthwork for Stabilized Berm
7900 Lin. Ft. (in cut) x .0706 = 558 Cu. Yds. — Add to excavation.
6926 Lin. Ft. (in all) x .0706 = 489 Cu. Yds. — Deduct from embankment.



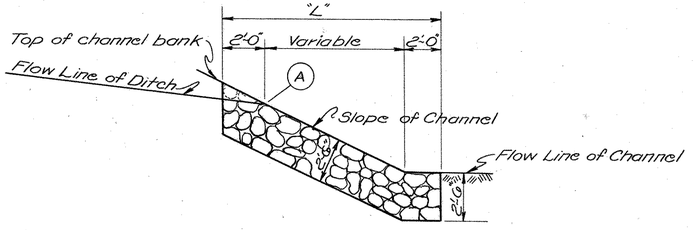
SIDE VIEW



Notes:
End walls shall be recessed as shown whenever corrugated metal pipe is used.

PLAN

METHOD OF RECESSING ENDWALL



LONGITUDINAL SECTION DITCH ENTRANCE TO CHANNEL —

Station	Side of Left Lane	Ⓐ Elevation	"L" Distance Lin. Ft.	I-10 Dumped Rock Fill Cu. Yds.	E-3 Channel Excavation Cu. Yds.
61+19	Rt.	1031.8	7.0	7	7
61+45	Lt.	1131.4	8.0	8	8
71+55	Rt.	1117.8	13.5	14	14
71+80	Rt.	1117.6	12.0	12	12
84+73	Lt.	1097.0	14.0	14	14
85+34	Rt.	1101.8	20.5	21	21
95+16	Lt.	1076.7	7.0	7	7
95+72	Rt.	1077.0	12.0	12	12
232+23	Rt.	955.7	7.0	7	7
285+50	Rt.	952.12	13.0	14	14
296+05	Rt.	936.0	10.0	11	11
320+88	Lt.	929.0	12.0	12	12
320+95	Rt.	928.0	10.0	11	11
133+71	Rt.	934.0	30.0	29	29
Total				179*	179*

*Carried to sheet 7, Table 2

~ DO NOT USE CLEANING FLUID ~

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LIC-161 ~ 5.12
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GENERAL NOTES

DESIGN SPEED

THE DESIGN SPEED IS 60 M.P.H.

UTILITIES

ANY AND ALL WORK FOR PUBLIC OR PRIVATE UTILITIES SHALL BE DONE BY AND AT THE EXPENSE OF THEIR RESPECTIVE OWNERS.

TELEPHONE: NEWARK TELEPHONE CO., NEWARK, OHIO
NEW YORK CENTRAL RAILROAD CO., NEWARK, OHIO
CENTRAL TELEPHONE CO., ALEXANDRIA, OHIO

ELECTRIC: COLUMBUS, SOUTHERN POWER CO., COLUMBUS, OHIO
OHIO POWER CO., NEWARK, OHIO

GAS: OHIO FUEL GAS CO., COLUMBUS, OHIO
PURE TRANSPORTATION CO., DAYTON, OHIO

WATER: VILLAGE OF GRANVILLE

SANITARY SEWER: DENISON UNIVERSITY, GRANVILLE, OHIO

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE IN ACCORDANCE WITH SEC. S-0.01 (b) HAVING A MINIMUM FLOOR SPACE OF 250 SQ.FT. 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 OR CATCH BASINS ARE INVOLVED, THE COST OF REMOVAL AND DISPOSAL OF THE HEADWALLS OR CATCH BASINS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM E-12 "PIPE REMOVED".

PAVED OR SODDED DITCHES

PAVED OR SODDED DITCHES HAVE BEEN PROVIDED FOR ALL OPEN WATERWAYS WHERE EROSION MAY OCCUR. THE ENGINEER MAY MAKE MINOR RELOCATIONS OF THE SOD OR PAVED DITCHES SHOWN ON THE PLANS OR HE MAY OMIT THIS CONSTRUCTION IF CONDITIONS ENCOUNTERED WARRANT SUCH ACTION.

AN ADDITIONAL AMOUNT OF SODDING AND PAVED GUTTER, TYPE I, DETAILED ON SHEET 4 IS PROVIDED FOR USE AT LOCATIONS, AS DIRECTED BY THE ENGINEER, WHERE EROSION MIGHT 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.

ESTIMATE 400 SQ. YDS. OF SODDING AS PER PLAN ADDITIONAL AND 200 LIN.FT. OF PAVED GUTTER TYPE I ADDITIONAL WILL BE REQUIRED TO PROTECT AREAS SUBJECT TO EROSION.

FILLING MAJOR DEPRESSIONS

ANY MAJOR DEPRESSIONS IN THE EXISTING PAVEMENT, WHERE RESURFACING AND WIDENING IS INDICATED, SHALL BE FILLED AND COMPACTED WITH BITUMINOUS CONCRETE LEVELING MATERIAL IN ADVANCE OF PLACING THE REGULAR LEVELING COURSE. THESE DEPRESSIONS SHALL BE FILLED IN LAYERS NOT TO EXCEED THREE INCHES IN DEPTH WHEN COMPACTED.

PROFILE

THE PROFILE OF THE PROPOSED SURFACE COURSE, WHERE WIDENING AND RESURFACING IS INDICATED, SHALL BE APPROXIMATELY 3½" TO 6" ABOVE THAT OF THE EXISTING PAVEMENT AS INDICATED ON THE TYPICAL SECTIONS EXCEPT WHERE OTHERWISE SHOWN ON THE PLANS.

EXCESS EXCAVATION

ANY EXCAVATION IN EXCESS OF THAT REQUIRED TO COMPLETE THE EMBANKMENT FOR THE LANES BEING CONSTRUCTED AT THIS TIME SHALL BE PLACED IN THE EMBANKMENT AREAS OF THE FUTURE LANES AT LOCATIONS APPROVED BY THE ENGINEER. PLACEMENT AND METHODS SHALL BE IN ACCORDANCE WITH SEC. E-1.08. EMBANKMENT SO PLACED SHALL BE SEEDED IN CONFORMANCE WITH ITEM L-9 AND THE SEEDING SHALL BE PAID FOR AT THE UNIT PRICE BID PER SQ.YD. FOR ITEM L-9 "SEEDING AND PROTECTING". NO UNSUITABLE MATERIAL SHALL BE DISPOSED OF WITHIN THE AREA OF THE FUTURE EMBANKMENT.

RAILROAD CROSSING

THE CROWN SHALL BE WORKED OUT OF THE PAVEMENT EACH SIDE OF THE RAILROAD CROSSING AS DETAILED ON THE CROSS SECTIONS AND AS NOTED ON SHEET NO. 35.

PREPARATION OF AREAS TO BE SODDED

THE COST OF EARTHWORK NECESSARY TO ACCOMPLISH THE PREPARATION OF AREAS TO BE SODDED IS INCLUDED IN UNIT PRICE BID PER SQ.YD. OF SOD. 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.

~~SUBGRADE COMPACTION~~

~~THE SUBGRADE UNDER PAVED DRIVES [illegible] SHALL BE COMPACTED TO A DEPTH OF SIX INCHES TO THE DENSITY REQUIREMENTS IN TABLE III, ITEM E-1. PAYMENT FOR SUBGRADE COMPACTION UNDER PAVED DRIVES AS SPECIFIED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM E-1 "ROADWAY EXCAVATION".~~

I-18 STABILIZED CRUSHED AGGREGATE SHOULDERS AND APPROACHES, AS PER PLAN

ALL PROVISIONS OF ITEM I-18 SHALL BE MET EXCEPT THE USE OF CRUSHED SLAG OR GRAVEL WILL NOT BE PERMITTED. AGGREGATE MEETING THE REQUIREMENTS OF CRUSHED LIMESTONE SHALL BE USED.

SEEDING AND PROTECTING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN LINES TEN FEET OUTSIDE THE CONSTRUCTION LIMITS AS SHOWN ON THE CROSS SECTIONS OR TO THE RIGHT-OF-WAY LINE IF SUCH LINE IS LESS THAN 10 FEET FROM THE CONSTRUCTION LIMITS. SEEDING IS CALCULATED FOR CHANNEL CHANGE AREAS FROM A POINT TWO FEET ABOVE NORMAL WATER LINE TO A POINT 10 FEET OUTSIDE THE CONSTRUCTION LIMIT AS DETAILED ON THE PLANS.

ALL AREAS OUTSIDE THESE LIMITS WHERE THE VEGETATIVE GROWTH HAS BEEN INJURIOUSLY DISTURBED OR DESTROYED BY THE CONTRACTOR SHALL BE RESTORED AND SEEDED IN CONFORMANCE WITH THE PROVISIONS OF ITEM L-9 BY THE CONTRACTOR AT HIS OWN EXPENSE.

SUPERELEVATION

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

DRIVE LOCATIONS

ANY DRIVE LOCATED OUTSIDE OF THAT PART OF THIS PROJECT WHICH HAS BEEN DECLARED "LIMITED ACCESS", MAY BE RELOCATED AT THE DIRECTION OF THE ENGINEER PROVIDING THE RELOCATION CAN BE MADE AT NO ADDITIONAL COST TO THE STATE.

EXISTING PAVEMENT

ALL AREAS PAVED WITH BITUMINOUS MATERIAL OVER WHICH EMBANKMENT IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF THE EMBANKMENT, WITH PAYMENT THEREFOR INCLUDED IN THE UNIT PRICE BID FOR ITEM E-1 "ROADWAY EXCAVATION". PAVED AREAS OUTSIDE OF THE CONSTRUCTION LIMITS, WHEN DESIGNATED FOR REMOVAL, SHALL BE REMOVED FOR THE FULL DEPTH OF THE BITUMINOUS MATERIAL. THESE AREAS SHALL THEN BE SCARIFIED, LEVELED TO ELIMINATE TRENCH SCAR, AND SEEDED. PAYMENT FOR THESE OPERATIONS, EXCEPT SEEDING, IS INCLUDED IN THE UNIT PRICE BID FOR ITEM E-8 "REMOVAL AND DISPOSAL OF EXISTING PAVEMENT". PAVEMENT REMOVED, UNLESS OTHERWISE INDICATED, IS INCLUDED IN E-1 "EXCAVATION".

T-30 PRIME COAT

BITUMINOUS PRIME COAT, ITEM T-30, IS CALLED FOR OVER THE EXISTING SURFACE IN SALVAGE AREAS ON S.R. 161. THE ENGINEER MAY OMIT OR DECREASE THE RATE OF APPLICATION OF THE BITUMINOUS MATERIAL IF THE BITUMINOUS CONTENT OF THE SURFACE WARRANTS IT AT THE TIME OF CONSTRUCTION. PAYMENT SHALL BE ON FINAL MEASUREMENT.

DUMPED ROCK FILL AS PER PLAN

ALL DUMPED ROCK USED AS CHANNEL, DITCH OR SLOPE PROTECTION 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) LBS. EACH. MAXIMUM SIZE OF STONE AS SPECIFIED UNDER I-10.03 MAY BE WAIVED PROVIDED THE STONES ARE PLACED IN A MANNER SUCH THAT THE SURFACE CONFORMS SUBSTANTIALLY TO GRADES AS SHOWN ON THE PLANS.

E-9 REMOVAL OF TREES AND STUMPS

PAYMENT FOR 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. 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. SEE SHEET Nº 38 FOR TREES REQUIRING AGGREGATE FOR ROOT AERATION.

SIZES	12"-18"	18"-24"	24"-30"	30"-36"	36"-42"	42"-48"	OVER 48"
TREES	175	85	57	22	21	6	10
STUMPS	26	11	4	3	0	0	0

TRAFFIC:

ATTENTION IS INVITED TO THE FACT THAT BETWEEN STATIONS [illegible] AND 336+75 THE CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC AND TIME BETWEEN OPERATIONS SHALL BE A DETOUR, SHOWN ON SHEET 1, HAS BEEN PROVIDED TO CARRY THROUGH TRAFFIC AROUND THE PROJECT TO STA. 392+75. THE DETOUR SHALL NOT BE PLACED INTO EFFECT PRIOR TO APRIL 1, 1957, UNLESS OTHERWISE APPROVED IN WRITING BY THE DIRECTOR. UNTIL THE DETOUR IS PLACED INTO EFFECT, TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. THEREAFTER, TRAFFIC SHALL BE MAINTAINED BETWEEN STA. 392+75 AND STA. 432+36.

IN ORDER TO CARRY LOCAL TRAFFIC, THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY RUNAROUND ROAD, BETWEEN STATION 28+50 ON S.R. 161 AND STATION 1+00 RT. OF S.R. 310, AS DESCRIBED UNDER GENERAL NOTE ENTITLED "S-15 TEMPORARY RUNAROUND AS PER PLAN.

ALL LOCAL TRAFFIC BETWEEN STATION 36+74 (S.R.310) AND STATION 392+75 (S.R.37) SHALL BE MAINTAINED AS PER SEC. G 4.05, USING TRAFFIC COMPACTED SURFACE COURSE AND CHLORIDE AS DIRECTED BY THE ENGINEER. PAYMENT FOR MATERIALS SO USED SHALL BE AT THE UNIT PRICE BID. THE CONTRACTORS ATTENTION IS FURTHER INVITED TO THE MAINTENANCE OF LOCAL TRAFFIC WHILE CONSTRUCTING BRIDGES. NO EXISTING STRUCTURE OR ANY PORTIONS OF THE EXISTING HIGHWAY, THE REMOVAL OF WHICH WOULD IMPEDE LOCAL TRAFFIC SHALL BE MADE UNSAFE FOR TRAVEL UNTIL A TEMPORARY STRUCTURE OR TEMPORARY TRAFFIC LANE, ACCEPTABLE TO THE ENGINEER IS IN PLACE. EVERY EFFORT SHALL BE MADE TO AVOID TEARING UP PORTIONS OF THE EXISTING SURFACE FAR IN ADVANCE OF COMPLETING THE WORK IN THE AREA OR DURING INCLEMENT WEATHER. IN ANY CASE THE CONTRACTOR SHALL NOTIFY THE ADJACENT PROPERTY OWNER REGARDING A PROPOSED TEMPORARY TRAFFIC LANE.

BETWEEN STATION 392+75 AND THE END OF PROJECT, THE CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES EXCEPT WHILE PLACING T-35 SURFACE AND LEVELING COURSES AT WHICH TIME ONE-WAY TRAFFIC MAY BE MAINTAINED CONSISTENT WITH THE REQUIREMENTS OF T-35.23 AND B-35.25.

TEMPORARY TRAFFIC LANES SHALL BE CONSTRUCTED ON THE LEFT, MAKING MAXIMUM USE OF THE EXISTING PAVEMENT, AS SHOWN ON THE CROSS SECTIONS. ALL CONSTRUCTION SHALL THEN BE COMPLETED ON THE RIGHT EXCEPT THE RESURFACING.

TRAFFIC SHALL THEN BE PLACED ON THE RIGHT BERM AND PAVEMENT AS SHOWN ON THE CROSS SECTIONS WHILE WORK IS COMPLETED ON THE LEFT.

TRAFFIC COMPACTED SURFACE COURSE AND CALCIUM CHLORIDE HAVE BEEN SET UP FOR USE AS DIRECTED BY THE ENGINEER IN MAINTAINING LOCAL TRAFFIC AND TO MAINTAIN TWO-WAY TRAFFIC BETWEEN STA. 392+75 AND END OF PROJECT AS DESCRIBED ABOVE.

T-10 TRAFFIC COMPACTED SURFACE COURSE, 1000 CU.YDS.

T-10 TRAFFIC COMPACTED SURFACE COURSE, AS PER PLAN, 1000 CU.YDS.

M-10 CALCIUM CHLORIDE, 40 TONS.

PAYMENT FOR CONSTRUCTION, MAINTENANCE AND REMOVAL, WHERE REQUIRED, OF TEMPORARY TRAFFIC LANES OTHER THAN S-15 ITEMS AND EXCEPT FOR FURNISHING AND PLACING ITEMS T-10 AND M-10, IS INCLUDED IN THE LUMP SUM BID FOR "MAINTAINING TRAFFIC."

THESE METHODS OF HANDLING TRAFFIC MAY BE VARIED AT THE DIRECTION OF THE ENGINEER PROVIDING THERE IS NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC AND NO ADDITIONAL COST TO THE STATE.

GENERAL NOTES CONTINUED ON SHEET Nº 6

~ DO NOT USE CLEANING FLUID ~

RECAP OF LINE SHEET TABLES
TABLE 1

From Line Sheet	DITCHES: L-10 Sodding Sq. Yds.	DITCHES: I-14 Type 1 Pavd. Gutter Lin. Ft.	DITCHES: I-14 Type 4 Pavd. Gutter Lin. Ft.	GUARD RAIL: I-15 Guard Rail Lin. Ft.	GUARD RAIL: I-15 G.R. Posts Without Rail Each	GUARD RAIL: I-15 G.R. Rem. & Disp. of Lin. Ft.	PIPE & PAV'T. REMOVED: E-12 Pipe Removed Lin. Ft. 15" & Under	PIPE & PAV'T. REMOVED: E-12 Pipe Removed Lin. Ft. Over 15"	PIPE & PAV'T. REMOVED: I-16 Catch Basin Abandoned Each	PIPE & PAV'T. REMOVED: E-8 Rem. & Disp. of Exist. Pvt. Sq. Yds.	PIPE UNDERDR'N: I-4 Pipe Undd'rn. Lin. Ft. 6"	PIPE UNDERDR'N: I-4 Outlet 6"	PIPE UNDERDR'N: I-5 Pipe Spec. Each 6" Y
12	584						283				1766	20	1
13	722									712	1876	20	
14	558	68		1050							1358	30	
15	706	28		775			27			298	1600	20	
16	423			612.5						1240	1292	10	
17	535									111	2106	20	
18	601	640		875		922	95			273	1762	40	
19	128	113		325						2220	2582	20	
20	407				21		16			197	1670	20	
21	330			75			126			50	1798	50	1
22	67									1003	2988	20	
23	472	166		1125							1246	30	1
24	839	150		250			181		1	125	1644	20	
25	318			14.70						460	1516	30	
26	780			1523.69			30			1954	1074	30	1
27	272			200		514				1201	2504	10	1
28	699			100			40			1126	2192	20	
29	720	82		125		76				946	824	30	1
30	250	304		425							1966	20	
31	280	55		775						944	1348	30	
32	384			367.5						576	548	10	
33						114	38				1310	20	
34							24						
35													
36				100		80	52				878	20	
37			450	37.50			39				1336	10	
38				37.50			503		2		85		
5	400	200											
100													
102													
120													
★	401												
Totals	10,876	1,806	450	8,793.39	21	1,706	1,454*		3	13,436	39,269	550	6

From Line Sheet	STORM SEWER: S-1 Conc. for Struct. Cu. Yds. Cl. "E"	S-1 Cl. "C"	S-4 Reinf. Steel lbs.	I-5 Pipe Specials M6.4(c) Lin. Ft. 12"	I-2 Class "A" Storm Sewer M6.4(c) Lin. Ft. 12"	I-2 Class "A" Lin. Ft. 12"	I-2 Class "A" 15"	I-2 Class "A" 18"	I-2 Class "A" 21"	I-2 Class "A" Under Pav't. Lin. Ft. 12"	Under Pav't. 15"	Under Pav't. 18"	Under Pav't. 21"	I-8 Catch Basins Each 2-2A	I-8 #7	I-8 #3	I-8 1-2A	I-10 Riprap Sq. Yds.	I-10 D.R. Fill Cu. Yds.	EARTHWORK & SEEDING: E-1 Excav. Cu. Yds.	Emb. Cu. Yds.	Emb. +15% Cu. Yds.	L-9 Seed. & Prot. Sq. Yds.	From Line Sheet
12																				6,773	2,337	2,688	13,709	12
13																				11,918	2,412	2,773	16,467	13
14																				20,211	24,324	27,973	23,400	14
15																				13,030	15,474	17,795	18,044	15
16																				6,669	10,118	11,636	18,021	16
17																				16,833	5,340	6,141	16,528	17
18																				35,171	31,805	36,563	27,940	18
19		1.5	29								96							18		51,922	17,665	20,315	31,008	19
20																				10,520	1,305	1,501	13,832	20
21																				5,591	5,481	6,303	15,516	21
22																				17,517	83	95	16,150	22
23																				9,167	25,201	28,981	18,457	23
24																				9,250	7,859	9,038	15,731	24
25																				12,152	3,793	4,362	17,982	25
26																				9,831	51,430	59,145	25,189	26
27																				19,245	3,245	3,732	18,358	27
28																				19,764	4,000	4,600	19,553	28
29																				12,372	6,438	7,404	18,329	29
30																				18,051	7,760	8,924	19,124	30
31										90				1				8		44,598	27,730	31,890	29,398	31
32																				1,870	5,993	6,892	14,642	32
33																				1,063	1,250	1,438	9,729	33
34																				545	866	996	8,589	34
35																				390	1,622	1,865	10,696	35
36								34	264				40	1						1,349	2,201	2,531	11,290	36
37							458	160						2				2		1,185	1,418	1,631	8,047	37
38						24	58				22				2		1			502	1,174	1,350	7,239	38
5																								
100	2.5			2	40													12						
102	0.2				114									1					5					
120					60									1				11						
★																								
Totals	2.7*	1.5*	29*	2	214	24	516	194	264	90	118		40	6	2		1	51*	5*	357,489	268,324	308,562	462,968	

* Carried to Sheet 7 Table 2
★ Add for 1' Strip along each side of Nº 1 Paved Gutter.

GENERAL NOTES
(CONTINUED FROM SHEET 5)

S-15 TEMPORARY RUNAROUND AS PER PLAN :~
The item S-15 Temporary Runaround as per plan shall consist of the constructing, maintaining and the removing as described below, of a temporary runaround road between Station 28+50 on S.R.161 and 1+00 Right on S.R. 310. Line and grade shall be as shown on the plan and profile sheets and cross sections for the area. The surface shall be 22 ft. wide on a roadway of 26 ft. and shall be Type "B" as described in Item S-15. All provisions of S-15 shall apply except that no temporary bridge is involved. Two temporary culverts will be needed as shown on Sheet Nº. 12 and the cost of their installation and removal shall be included in the lump sum bid for the Item S-15 Temporary Runaround as per plan.
When no longer needed to maintain traffic the **temporary pavement** shall be removed, the embankment sloped to drain, and the entire area seeded as per Item L-9.12. The seeding shall be paid for at the unit price bid per sq. yd. for Item L-9 Seeding and Protecting.

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, except in areas where salvage is specified, and used as T-10 modified on the temporary traffic lanes. The material from the present pavement may be used without further tests for gradation or quality. Payment shall be at the unit price bid per cu. yd. for Item T-10 Traffic Compacted Surface Course, as per plan. Measurement of old pavement so used may be by weight or by volumetric means approved by the Engineer. No removals of the existing surface shall be made which would impose additional inconvenience on abutting property owners or the traveling public. Areas where removal of the existing surface for use as T-10 Modified is proposed shall be approved by the Engineer before any removal is accomplished.

B-20 WATERBOUND MACADAM BASE COURSE AS PER PLAN :~
All provisions of Item B-20 shall apply except that Nº. 2 Stone 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.
Drain tile encountered in areas where excavation is indicated shall be outletted into the nearest roadside ditch, but in no case, shall any sanitary sewage be outletted into the roadside ditches. Care shall be exercised by the contractor to avoid undue damage to existing pipe lines.
The following quantities and sizes of I-3 "Roadway Drainage" pipe have been provided to be used as outlets for drain pipes encountered.
4"-200 lin.ft. 6"-200 lin.ft. 8"-200 lin.ft. 10"-200' lin.ft. 12"-200 lin.ft.
The use shall be as directed by the Engineer and payment shall be on final measurement.

I-9 STONE UNDERDRAIN Nº. 2 :~
Stone Underdrains Nº. 2 shall be placed in all locations where I-4 Pipe Underdrains are not specified. Stone underdrains shall be placed as detailed on Sheet Nº. 4. An estimated amount of I-9 required, together with the length needed for the various berm width and ditch slopes is also shown on Sheet Nº. 4. However, the Engineer may vary locations or place additional underdrains to meet conditions encountered during construction. Payment shall be made on final measurement.
The outlets of all stone underdrains shall be cleaned of all straw or loose earth after the placing of materials required for the completion of Item L-9 "Seeding and Protecting". Payment for cleaning the outlets shall be included in the price bid per sq. yd. for Item L-9, "Seeding and Protecting".

UTILITY POLES :~
Attention of the contractor is called to the fact that between Station 391+98.3 and Station 431+00 on the Left and between Station 394+25 and Station 431+00 on the Right, work is being performed outside the existing right-of-way in areas covered by work agreements obtained by the State Highway Department. It will be necessary for the contractor to work around existing poles and to cooperate closely with the utility companies in these areas. The requirements of Sec. E-1.08(g) in areas inaccessible to a roller shall be waived, unless otherwise directed by the Engineer, when compaction operations are being carried on adjacent to poles in the above work agreement areas.

CONNECTION OF PRIVATE DRAINS TO STORM SEWERS OR ROADWAY DRAINAGE :~
The contractor shall not connect to any storm sewer placed under this contract, pipes or drains from a house or other building, septic tank, or filter bed unless the property owner has received a permit or other written statement from the Licking County Health Department to the effect that the drain is free from any contamination or objectionable wastes. It shall be the responsibility of the contractor to advise the Engineer of such drains as they may be encountered during construction. Where directed, the contractor shall plug the tile ends with concrete, payment for which shall be included in the unit price bid for Item E-1, Roadway Excavation. An inspection well as per the detail on these plans shall be constructed at each pipe or drain connected to any storm sewer or roadway drainage pipe.

FILLING BASEMENTS & REMOVING EXISTING FOUNDATIONS :~
All abandoned dug wells, basements or foundations lying within the Right-of-Way or work agreement areas shall be either removed or filled to the level of the surrounding ground, and the area seeded as described below. Cost of well removal and backfilling shall be included in the 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 which protrude above the surrounding ground shall be removed to a depth of two feet below the finished grade and the entire area shall be backfilled to the original ground level in accordance with Sec. E-1.08.
After basement, septic tank or cesspool walls have been removed to two feet below ground, the entire basement, tank or vault shall be backfilled as per Sec. E-1.08 and the area shall then be seeded.

CONSTRUCTION LAYOUT STAKES:
See note in proposal describing the work included in this Lump Sum pay item.

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STRUCTURES 20' SPAN & UNDER
TABLE NO. 2

No.	Station	E-2 Excav. for Struct Cu. Yds.	E-3 Channel EXCAV. Cu. Yds.	S-1 Conc. for Structure Cu. Yds. Class "C"	S-1 Conc. for Structure Cu. Yds. Class "E"	S-4 Reinforc. Steel Lbs.	S-14 Bridge Rail Lin. Ft.	S-24 Rem. of Exist. Str. Lump	S-22 Rem. of Portions of Exist Str. Lump	S-23 Dowel Holes Lin. Ft.	S-29 Porous Backfill Cu. Yds.	S-27 Pipe for Roadway Culvert Lin. Ft. 36"	M-G.G.(b) 15"	M-G.A.(d)(i) 29"x18" 12 Ga.	M-G.A.(d)(i) 72"x44" 8 Ga.	M-G.G.(b) or M-G.B.(b) 12"	M-G.G.(b) or M-G.B.(b) 15"	M-G.G.(b) or M-G.B.(b) 24"	M-G.G.(b) or M-G.B.(b) 30"	M-G.G.(b) or M-G.B.(b) 18"	M-G.G.(c) or M-G.A.(f) 36"	M-G.G.(c) or M-G.A.(f) 54"	M-G.A.(d) or M-106.G.(d) 8 Ga. 54"	M-G.A.(g) or M-G.G.(c) 10-106a. 72"	Cattle Pass	S-28 Sect. C.M. Structure Lin. Ft. 10-106a. 7'1"8"x 5'3"	10-106a. 8'7"x 5'11"	8-76a. 11'7"x 7'5"	10-86a. 108"	7-56a. 132"	E-12 Pipe Removed 15" & Under	E-12 Pipe Removed Over 15"	I-10 Riprap Type "A" Grouted Sq. Yds.	I-10 Dumped Rock Fill As Per Plan Cu. Yds	I-8 Catch Basin Each I-3	I-8 Catch Basin Each 2-2A	I-8 Catch Basin Each 1-A M.H.	I-8 Catch Basin Each 2-3	S-3 Type C Water Proofing Sq. Yds.	S-9 1/2" Exp. Joint Filler Sq. Ft.
1	49+96.9	70	4		10														74																					
1(a)	Dr. Sta. 7+08	15			7.5																																			
2	58+14.2																																							
3	61+22.43	76	300		15.6			Lump																																
4	71+95.85	386	309		15.8																			188																
5	78+05	(Removed under E-1)																																						
6	85+53.37	230	544		10.9																		114																
7	95+7.5	80	20		15.9			Lump																																
8	107+88.8	55	30		0.9														90																				
9	110+62																																							
10	118+92.8	(Removed under E-1)																																						
11	124+50	29	181		0.5								112																										
12	133+69.98	875	2230		18.2			Lump																																
13	167+76.5	90	40		5.0				Lump						80																									
14	176+82.5	30	61		0.6															102																			
15	181+80.7																																							
16	202+37.78	50	330		6.6			Lump																		128														
17	232+37.5	120	600	29.2	93.3	9,251	35.3	Lump			26																														
18	236+50	27	45		0.5													80																					
19	257+31.97	328	240		10.0																		152																
20	269+00.75																																							
21	269+25	(To remain in place)																																						
22	274+45																																							
23	279+89.54	39	53		1.0														96																				
24	287+65.7	30	165		1.1							94																												
25	296+00	159	417		8.6			Lump																																
26	304+45	60	600		5.7										108																									
27	309+00	16			0.5													62																					
28	312+06.05																																							
29	316+35							Lump																																
30	320+86.74	70	332		5.6																																			
31	352+98	(No work required)																																						
32	384+69.72	2			0.7	9				3								10																					
33	389+08.89																																							
33(a)	S.R. 37	17			0.9										42																									
34	394+00	30	20		8.1			Lump										50																					
35	399+53.04	20			25.8							20																												
36	410+98.05	2			0.8												26																						
37	417+79.28	3			0.3												22																						
38	422+37.65	3			8.4													24																					
39	429+10.0	5			0.3													16																					
39(a)	433+50	265	1483		5.6																																			
From Sheet No. 4			179																																					
From Sheet 6, Table 1				1.5	2.7	29																																		
Totals		3,182	8,183	30.7	278.4	9,289	35.3	Lump	Lump	3	26	114		112		150	80	48	142	100	260	102		152	#114	188	128	*100 **88	40	78	104	102	202	1600	133	188	730	1	1	1	1	80	16

If the contractor elects to use 54" M-6.4(d) pipe the gage shall be #8 or heavier.

* Design A-3, B-2 or C-1
** Design A-2, B-1 or C-1

APPROACHES
TABLE NO. 3

Station	Side	Type	T-35 Asph. Conc. Surface Course Cu. Yds.	B-35 Asph. Conc. Leveling Course Cu. Yds.	B-20 Waterbound Macadam Base Sq. Yds.	T-30 Bituminous Prime Coat Gals.	I-18 Crushed Aggreg. As Per Plan Cu. Yds.	I-22 Subbase Cu. Yds	E-8 Rem. & Disp. of Exist. Pavt. Sq. Yds.	I-10 Riprap Type "A" Grouted Sq. Yds.	I-12 Type G Conc. Curb Lin. Ft.	I-2 Storm Sewer Under Pav't. Lin. Ft. 12"	15"	18"	24"	I-8 Catch Basin Each 1-2A	E-1 Compacted Subgrade Sq. Yds.
36+74.42	Lt.	S.R	28.92	46.31	870	305		153		12			96				833
36+74.42	Rt.	S.R.	15.29	24.46	455	160		81		8			96				441
102+91.56	Rt.	Co. R.	6.93	8.32		73	72.5										200
108+89.59	Lt.	Co. R.	7.08	8.50		74	89.2								80		204
210+00.32	Lt.	Co. R.	12.16	14.61		128	71.0							96			350
210+00.32	Rt.	Co. R.	13.15	15.78		138	76.5					88					379
258+36.07	Rt.	Co. R.	13.61	16.35		144	79.8							94		1	392
324+22.35	Rt.	Co. R.	16.23	19.48		168	93.1										468
392+75.13	Lt.	S.R.	20.30	24.0	62	22		14	71		108						
From Sheet No. 211				2.5	30	11		7									
TOTALS			133.67*	180.31*	1,417*	1,223*	482.1 ⊛	255*	71 ⊛	20 ⊛	108	88	192	190	80	1	3,267*

* Carried to Calculations. ⊛ Carried to Sheet 8 Table 4

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LIC-161-5.12
LIC-37-15.09

CALCULATIONS

LINE NO.	CALCULATIONS				QUANTITY	UNIT
1	T-35 ASPHALTIC CONCRETE SURFACE COURSE, TYPE A (70-80)					
2	Sheets 2&3 - 1 1/4" [(31,077.74 + 3,919.24 + 574.52 + 1,580.27 + 1,150 + 1,094) × 24 ÷ 9]					
3	× .0347	=	3,645.42	Cu.Yds.		
4	Sheets 7&8, Tables 3&4 (Drives & Approaches) = 133.67 + 408.19	=	541.86	Cu.Yds.		
5	Sheets 12, 2, 34 & 200 (Transitions & BR. No. LIC-161-0895 & 1140) = 8.5 + 11.2 + 15.5 + 35.4	=	70.60	Cu.Yds.		
6	Lines 93 & 94 (160.00 + 106.67) × .0694	=	18.51	Cu.Yds.		
7	TOTAL	=	4,276.39	Cu.Yds.	4,277	Cu.Yds.
8						
9						
10	B-35 ASPHALTIC CONCRETE LEVELING COURSE (70-80)					
11	Line 3 - 1 1/4"	=	3,645.42	Cu.Yds.		
12	Sheet 3 - 3" (574.52 × 4.5 ÷ 9) × .0833	=	23.93	Cu.Yds.		
13	Sheet 3 - 3" [(1,580.27 + 1,150) × 6.5 ÷ 9] × .0833	=	164.26	Cu.Yds.		
14	Sheet 3 - 3" [(244 × 6.25 ÷ 9) + (850 × 6 ÷ 9)] × .0833	=	61.32	Cu.Yds.		
15	Sheet 3 - Extra Material for Superelevation	=	244.00	Cu.Yds.		
16	Sheet 3 - 1" Min. Pre-leveling - ((574.52 × 20 ÷ 9) + [(1,580.27 + 1094.00) × 18 ÷ 9]) × .0417 (1 1/2" Ave.)	=	276.27	Cu.Yds.		
17	Sheet 7, Table 3 (Approaches)	=	180.31	Cu.Yds.		
18	Sheets 12, 2 & 34 (Transitions & BR. No. LIC-161-1146 = 11.10 + 13.92 + 35.40	=	60.42	Cu.Yds.		
19	TOTAL	=	4,655.93	Cu.Yds.	4,656	Cu.Yds.
20						
21						
22	B-35 ASPHALTIC CONCRETE BASE COURSE (70-80)					
23	Sheets 2&3 - 3" [(31,077.74 + 3,919.24) × 24.5 ÷ 9] × .0833	=	7,935.95	Cu.Yds.		
24	Sheet 34 (BR. No. LIC-161-1146)	=	30.80	Cu.Yds.		
25	TOTAL	=	7,966.75	Cu.Yds.	7,967	Cu.Yds.
26						
27						
28	B-20 5" WATERBOUND MACADAM BASE COURSE, AS PER PLAN					
29	Sheet 2 31,077.74 × 25.5 ÷ 9	=	88,053.60	Sq.Yds.		
30	Sheet 3 (3,919.24 + 574.52) × 5.5 ÷ 9	=	2,746.19	Sq.Yds.		
31	Sheet 3 (1,580.27 + 1,150) × 7.5 ÷ 9	=	2,275.22	Sq.Yds.		
32	Sheet 3 (244 × 6.75 ÷ 9) + (850 × 6 ÷ 9)	=	749.67	Sq.Yds.		
33	Sheets 2&3 (Extra Width for I-4) = 37,580 Est. L.F. of I-4 × 2 ÷ 9	=	8,351.11	Sq.Yds.		
34	Sheet 7, Table 3 (Approoches)	=	1,417.00	Sq.Yds.		
35	Sheets 12, 2 & 34 (Transitions & BR. No. LIC-161-1146) = 420 + 43.0 + 384.0	=	469.00	Sq.Yds.		
36	TOTAL	=	104,061.79	Sq.Yds.	104,062	Sq.Yds.
37						
38						
39	I-22 SUBBASE					
40	Sheet 2 (31,077.74 × 26.5 ÷ 9) × .2222	=	20,932.78	Cu.Yds.		
41	Sheet 3 [(3,919.24 + 574.52) × 6.5 ÷ 9] × .2222	=	721.15	Cu.Yds.		
42	Sheet 3 [(1,580.27 + 1,150) × 8.5 ÷ 9] × .2222	=	572.96	Cu.Yds.		
43	Sheet 3 [(244 × 7.25 ÷ 9) + (850 × 6 ÷ 9)] × .2222	=	169.59	Cu.Yds.		
44	Sheet 7, Table 3 (Approoches)	=	255.00	Cu.Yds.		
45	Sheets 12, 2 & 34 (Transitions & BR. No. LIC-161-1146) = 11.8 + 12.0 + 105.8	=	129.60	Cu.Yds.		
46	TOTAL	=	22,181.08	Cu.Yds.	22,181	Cu.Yds.
47						
48						
49	T-30 BITUMINOUS PRIME COAT					
50	Total of lines 29 to 33 incl. = 102,174.94 Sq.Yds. × 0.35 gal's. per sq. yd.	=	35,761.23	Gals.		
51	Sheet 3 (See General Note) (3,919.24 × 20 ÷ 9) × 0.35 gal's. per sq. yd.	=	3,048.27	Gals.		
52	Sheets 7 & 8, Tables 3&4 (Drives & Approaches) = 1,223 + 2,750	=	3,973.00	Gals.		
53	Sheets 12, 2 & 34 (Transitions & BR. No. LIC-161-1146) = 15.0 + 15.0 + 136.0	=	166.00	Gals.		
54	TOTAL	=	42,948.50	Gals.	42,950	Gals.
55						
56						
57	T-30 BITUMINOUS TACK COAT @ 0.10 Gal. Per Sq. Yd. (See Note in Proposal)					
58	Lines 93 & 94 (160.00 + 106.67) × 0.10 Gal's. per sq. yd.	=	26.67	Gals.		
59	Sheet 34 (BR. No. LIC-161-1146)	=	8.00	Gals.		
60	TOTAL	=	34.67	Gals.	35	Gals.
61						
62						
63	E-1 COMPACTED SUBGRADE					
64	Sheet 2 (New Pav't.) (31,077.74 + 135.61) × 24 ÷ 9	=	83,235.60	Sq.Yds.		
65	Sheet 7, Table 3 (Approaches)	=	3,267.00	Sq.Yds.		
66	TOTAL	=	86,502.60	Sq.Yds.	86,503	Sq.Yds.
67						
68						
69	E-11 WATER					
70	Sheet 6 Table 1, Sheet 9 & Line 46 = 268,324 Emb. + 3,767 I-18,					
71	+ 22,181 I-22 = 294,272 Cu.Yds. × 5 ÷ 1000	=	1,471.36	M-Gals.	1,470	M-Gals.
72						
73						
74						

LINE NO.	CALCULATIONS				QUANTITY	UNIT
75	L-9 SEEDING AND PROTECTING					
76	Sheet 6, Table 1	=	462,968	Sq.Yds.		
77	Sheet 4 (Deduct for Stabilized Shoulder) = 14,826 × 4 ÷ 9	=	-6,589	Sq.Yds.		
78	TOTAL	=	456,379	Sq.Yds.	456,379	Sq.Yds.
79						
80						
81	L-9 COMMERCIAL FERTILIZER (10-6-4)					
82	Line 78 & Sheet 6, Table 1 = 456,379 (Seeding) + 10,475 (Sod) =					
83	466,854 × 9 × 20 ÷ (1000 × 2000)	=	42.02	Tons	42.02	Tons
84						
85						
86	L-9 AGRICULTURAL LIMING MATERIAL					
87	Line 83 = 466,854 × 9 × 100 ÷ (1000 × 2000)	=	210.08	Tons.	210.08	Tons
88						
89						
90	I-7 REINFORCED CONCRETE APPROACH SLABS					
91	Thickness = 10" BR. No. LIC-161-0895 = 30 × 24 ÷ 9	=	80.00	Sq.Yds.		
92	BR. No. LIC-161-1095 = 30 × 24 ÷ 9	=	80.00	Sq.Yds.		
93	TOTAL	=	160.00	Sq.Yds.	160	Sq.Yds.
94	Thickness = 11 1/2" BR. No. LIC-161-0918 = 40 × 24 ÷ 9	=	106.67	Sq.Yds.	107	Sq.Yds.

DRIVES
TABLE NO. 4

* M-6.4(a) Pipe

* If the contractor elects to use 54" M-6.4(a) pipe the gage shall be #10 or heavier.

From Sheet No.	T-35 Asph. Conc. Surface Cu. Yds.	E-8 Pavement Removal Sq. Yds.	I-18 Crush. Aggr. As Per Plan Cu. Yds.	T-30 Bituminous Prime Coat Gal.	I-1 Driveways Pipe for Lin. Ft. *12"	*15"	*18"	*21"	*24"	36"	‡54"	I-8 Catch Basins Each	I-10 Riprap Type A Grouted Sq. Yds.
48	19.01		107.5	129	34	40							
49	19.56		81.1	132	46								6
50	13.59		96.3	92	124	36							8
51	8.66		58.8	59	32								
52	15.65		102.4	106	76								8
53	20.37		132.5	137	60								
54	23.44		144.0	159	32	36							16
55	23.83		83.9	161		68	36						
56	13.15		84.9	89		68	74						12
57	9.72		68.3	66									
58	8.29		77.7	56	32								
59	9.12		61.2	62	72								8
60	9.03		91.2	68	70	64							20
61	9.87		88.2	67	68								
62	19.59		113.0	133	94								
63	15.85		124.9	106	36		42	38					
64	14.49		130.5	98	40								8
65	27.19		96.8	182	68		30						
66	10.90		79.2	74	102								
67	8.50		87.2	53	68	28			36				
68	5.44		53.3	36	30	64							
69	33.52	35	87.6	210	56					42	46		
213	19.32		52	131									
3	50.10		135.7	344									
7	Table 3	71	482.1										20
Totals	408.19*	106	2,720.3	2,750*	1140	404	182	38	36	42	46		106

* Carried to Calculations

GENERAL SUMMARY

LIC-161-5.12
LIC-37-15.09

FED. RD. DIVISION	STATE	PROJECT	
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ITEM	QUANTITY	UNIT	DESCRIPTION	CARRIED FROM SHEET No.	CARRIED FROM TABLE
			ROADWAY		
E-1	357,489	Cu.Yds.	Roadway Excavation, as per plan	6	1
E-1	86,503	Sq.Yds.	Compacted Subgrade	8	
E-8	3,095	Sq.Ft.	Removal and Disposal of Existing Sidewalk	38	
E-8	13,542	Sq.Yds.	Removal and Disposal of Existing Pavement, as per plan	6 & 8	1 & 4
E-8	658	Sq.Yds.	Removal and Disposal of Existing Wearing Course	34	
E-9	Lump	Lump	Removal of Trees and Stumps	5	
E-11	1,470	M.Gals.	Water	8	
I-13	2,739	Sq.Ft.	4" Concrete Sidewalk	38	
I-13	400	Sq.Ft.	6" Concrete Sidewalk	38	
I-15	1,706	Lin.Ft.	Guard Rail Removed and Disposed of	6	1
I-15	8,793.33	Lin.Ft.	Guard Rail, Steel Beam Type (Deep)	6	1
I-15	21	Each	Wood Guard Rail Posts Without Rail	6	1
I-18	1,047	Cu.Yds.	Stabilized Crushed Aggregate Shoulders and Approaches	4	
I-18	2,720	Cu.Yds.	Stabilized Crushed Aggregate Shoulders and Approaches Using Crushed Limestone, as per plan	8	4
T-10	1,000	Cu.Yds.	Traffic Compacted Surface Course for Maintaining Traffic	5	
T-10	1,000	Cu.Yds.	Traffic Compacted Surface Course for Maintaining Traffic, Modified as per plan	5	
M-10	40	Tons	Calcium Chloride Furnished and Applied for Maintaining Traffic	5	
L-8	15	Cu.Yds.	Aggregate for Tree Root Aeration	38	
L-9	456,379	Sq.Yds.	Seeding and Protecting	8	
L-9	42.02	Tons	Commercial Fertilizer (10-6-4)	8	
L-9	210.08	Tons	Agricultural Liming Material	8	
L-10	10,876	Sq.Yds.	Sodding, as per plan	6	1
S-14	35.3	Lin.Ft.	Railing (Type I-15.13 With Steel Posts)	7	2
S-15	Lump	Lump	Temporary Runaround Road Using Class "B" Pavement, As Per Plan	5	
SS CE-101.04	125	Hours	Compaction Using Heavy Pneumatic Tired Roller		
			DRAINAGE		
E-2	3,182	Cu.Yds.	Excavation for Structures	7	2
E-3	8,183	Cu.Yds.	Channel Excavation	7	2
E-12	1,600	Lin.Ft.	Pipe Removed 15" and Under	7	2
E-12	133	Lin.Ft.	Pipe Removed Over 15"	7	2
S-1	278.4	Cu.Yds.	Concrete for Structures, Class "E"	7	2
S-1	30.7	Cu.Yds.	Concrete for Structures, Class "C"	7	2
S-3	654	Sq.Yds.	Waterproofing, Type "C"	7 & 34	2
S-4	9,289	Lbs.	Reinforcing Steel	7	2
S-9	16	Sq.Ft.	1/4" Premoulded Expansion Joint Filler, Sec. M-10.01	7	2
S-22	Lump	Lump	Removal of Portions of Existing Structures	7	2
S-23	3	Lin.Ft.	Dowel Holes	7	2
S-24	Lump	Lump	Removal of Existing Structures	7	2
S-27	114	Lin.Ft.	36" Pipe for Roadway Culverts	7	2
S-27	112	Lin.Ft.	15" Pipe for Roadway Culvert, Sec. M-6.6(b)	7	2
S-27	150	Lin.Ft.	29"x18" Paved Bituminous Coated Corrugated Metal Arch with Integral Base, Sec. M-6.4(d)(i) for Roadway Culverts., 12 Gage	7	2
S-27	80	Lin.Ft.	72" x 44" Paved Bituminous Coated Corrugated Metal Arch with Integral Base, Sec. M-6.4(d)(i) for Roadway Culverts, 8 Gage	7	2
S-27	48	Lin.Ft.	12" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	7	2
S-27	142	Lin.Ft.	15" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	7	2
S-27	102	Lin.Ft.	18" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	7	2
S-27	100	Lin.Ft.	24" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	7	2
S-27	260	Lin.Ft.	30" Pipe for Roadway Culverts, Sec. M-6.6(b) or Sec. M-6.8(b)	7	2
S-27	152	Lin.Ft.	36" Pipe for Roadway Culverts, Sec. M-6.6(c) or Sec. M-6.4(d)	7	2
S-27	114	Lin.Ft.	54" Pipe for Roadway Culverts, Sec. M-6.6(c) or Sec. M-6.4(d), 8 Gage	7	2
S-27	188	Lin.Ft.	54" Pipe for Roadway Culverts, Sec. M-6.4(d), 8 Gage Elongated or Sec. M-106.6(d)	7	2
S-27	128	Lin.Ft.	72" Pipe for Roadway Culverts, Sec. M-6.4(g), 10-10 Gage or Sec. M-6.6(c)	7	2
S-27	100	Lin.Ft.	Pipe Cattle Pass Structure, Design A-3, B-2 or C-1	7	2
S-27	88	Lin.Ft.	Pipe Cattle Pass Structure, Design A-2, B-1 or C-1	7	2
S-28	40	Lin.Ft.	7'3" x 5'3" Sectional Corrugated Metal Structures, Sec. M-6.4(g) 10-10 Gage	7	2
S-28	78	Lin.Ft.	8'7" x 5'11" Sectional Corrugated Metal Structures, Sec. M-6.4(g) 10-10 Gage	7	2
S-28	104	Lin.Ft.	11'7" x 7'5" Sectional Corrugated Metal Structure, Sec. M-6.4(g), 8-7 Gage	7	2
S-28	102	Lin.Ft.	108" Sectional Corrugated Metal Structure, Sec. M-6.4(g) 10-8 Gage	7	2
S-28	202	Lin.Ft.	132" Sectional Corrugated Metal Structure, Sec. M-6.4(g) 7-5 Gage	7	2
S-29	26	Cu.Yds.	Porous Backfill	7	2

ITEM	QUANTITY	UNIT	DESCRIPTION	CARRIED FROM SHEET No.	CARRIED FROM TABLE
			DRAINAGE (Continued)		
I-1	1,140	Lin.Ft.	12" Pipe for Driveways, Sec. M-6.4 (a)	8	4
I-1	404	Lin.Ft.	15" Pipe for Driveways, Sec. M-6.4(a)	8	4
I-1	182	Lin.Ft.	18" Pipe for Driveways, Sec. M-6.4(a)	8	4
I-1	38	Lin.Ft.	21" Pipe for Driveways, Sec. M-6.4(a)	8	4
I-1	30	Lin.Ft.	24" Pipe for Driveways, Sec. M-6.4(a)	8	4
I-1	42	Lin.Ft.	36" Pipe for Driveways	8	4
I-1	46	Lin.Ft.	54" Pipe for Driveways	8	4
I-2	120	Lin.Ft.	6" Class "B" Storm Sewer, as per plan	39	
I-2	60	Lin.Ft.	6" Class "B" Storm Sewer, Encased As Per Plan	39	
I-2	34	Lin.Ft.	15" Class "B" Storm Sewer	39	
I-2	18	Lin.Ft.	18" Class "B" Storm Sewer	39	
I-2	28	Lin.Ft.	21" Class "B" Storm Sewer	39	
I-2	214	Lin.Ft.	12" Class "A" Storm Sewer, Sec. M-6.4 (c)	6	1
I-2	24	Lin.Ft.	12" Class "A" Storm Sewer	6	1
I-2	516	Lin.Ft.	15" Class "A" Storm Sewer	6	1
I-2	194	Lin.Ft.	18" Class "A" Storm Sewer	6	1
I-2	264	Lin.Ft.	21" Class "A" Storm Sewer	6	1
I-2	178	Lin.Ft.	12" Class "A" Storm Sewer Under Pavement or Approaches, Sec. M-6.5(b) or Sec. M-6.8(b)	6 & 7	1 & 3
I-2	310	Lin.Ft.	15" Class "A" Storm Sewer Under Pavement or Approaches, Sec. M-6.5(b) or Sec. M-6.8(b)	6 & 7	1 & 3
I-2	190	Lin.Ft.	18" Class "A" Storm Sewer Under Pavement or Approaches, Sec. M-6.5(b) or Sec. M-6.8(b)	7	3
I-2	40	Lin.Ft.	21" Class "A" Storm Sewer Under Pavement or Approaches, Sec. M-6.6(a) or Sec. M-6.8(b)	6	1
I-2	80	Lin.Ft.	24" Class "A" Storm Sewer Under Pavement or Approaches, Sec. M-6.6(a) or Sec. M-6.8(b)	7	3
I-3	290	Lin.Ft.	15" Roadway Drainage	197	
I-3	200	Lin.Ft.	4" Roadway Drainage	5	
I-3	200	Lin.Ft.	6" Roadway Drainage	5	
I-3	200	Lin.Ft.	8" Roadway Drainage	5	
I-3	200	Lin.Ft.	10" Roadway Drainage	5	
I-3	200	Lin.Ft.	12" Roadway Drainage	5	
I-3	1180	Lin.Ft.	12" Roadway Drainage Under Pavement or Approaches With Porous Backfill, As Per Plan, Sec. M-6.5(b) or Sec. M-6.8(b)	39	
I-3	640	Lin.Ft.	15" Roadway Drainage Under Pavement or Approaches With Porous Backfill, As Per Plan, Sec. M-6.5(b) or Sec. M-6.8(b)	39	
I-3	150	Lin.Ft.	18" Roadway Drainage Under Pavement or Approaches With Porous Backfill, As Per Plan, Sec. M-6.5(b) or Sec. M-6.8(b)	39	
I-3	90	Lin.Ft.	21" Roadway Drainage Under Pavement or Approaches With Porous Backfill, As Per Plan, Sec. M-6.6(a) or Sec. M-6.8(b)	39	
I-4	39,269	Lin.Ft.	6" Underdrains	6	1
I-4	550	Lin.Ft.	8" Outlets for Underdrains, Sec. M-6.4(a)	6	1
I-5	10	Each	6" Pipe Specials for Class "B" Storm Sewers	39	
I-5	6	Each	6" Pipe Specials for Underdrains	6	1
I-5	2	Each	12" Pipe Specials for Class "A" Storm Sewer, Sec M-6.4(c)	6	1
I-5	10	Each	6" Pipe Specials for Class "B" Storm Sewer, Encased As Per Plan	39	
I-5	5	Each	12" Pipe Specials for Roadway Drainage Under Pavement or Approaches with Porous Backfill, As Per Plan, Sec. M-6.5(b) or Sec. M-6.8(b)	39	
I-5	4	Each	15" Pipe Specials for Roadway Drainage Under Pavement or Approaches with Porous Backfill, As Per Plan, Sec. M-6.5(b) or Sec. M-6.8(b)	39	
I-5	4	Each	18" Pipe Specials for Roadway Drainage Under Pavement or Approaches with Porous Backfill, As Per Plan, Sec. M-6.5(b) or Sec. M-6.8(b)	39	
I-5	2	Each	21" Pipe Specials for Roadway Drainage Under Pavement or Approaches with Porous Backfill, As Per Plan, Sec. M-6.6(a) or Sec. M-6.8(b)	39	
I-8	2	Each	Standard No. 7 Side Ditch Catch Basins	6	1
I-8	2	Each	Standard No. 1-2A Catch Basins	6 & 7	1 & 3
I-8	7	Each	Standard No. 2-2A Catch Basins	6 & 7	1 & 2
I-8	1	Each	Standard No. 3 Catch Basin	39	
I-8	7	Each	Standard No. 3-A Catch Basins	39	
I-8	1	Each	Standard No. 1-3 Catch Basin	7	2
I-8	1	Each	Standard No. 2-3 Catch Basin	7	2
I-8	1	Each	Standard No. 1-A Manhole	7	2
I-9	8,400	Lin.Ft.	Stone Underdrains No. 2	4	
I-10	294	Sq.Yds.	Riprap, Type "A" Grout Filled	7 & 8	2 & 4
I-10	730	Cu.Yds.	Dumped Rock Fill, as per plan	7	2
I-14	1,806	Lin.Ft.	Standard Type 1 Paved Gutter	6	1
I-14	450	Lin.Ft.	Standard Type 4 Paved Gutter	6	1
I-16	3	Each	Catch Basins Abandoned	6	1
			PAVEMENT		
T-35	4,267	Cu.Yds.	Asphaltic Concrete Surface Course, Type "A" (70-80)	8	
B-35	4,656	Cu.Yds.	Asphaltic Concrete Leveling Course (70-80)	8	
B-35	7,967	Cu.Yds.	Asphaltic Concrete Base Course (70-80)	8	
B-20	104,062	Sq.Yds.	5" Waterbound Macadam Base Course, as per plan	8	
T-30	42,950	Gals.	Bituminous Prime Coat, Sec. M-5.7, RT-2 or RT-3 or Sec. M-5.3, MC-0 or MC-1	8	
T-30	35	Gals.	Bituminous Tack Coat, as per plan	8	
I-7	160	Sq.Yds.	Reinforced Concrete Approach Slabs (T= 10")	8	
I-7	107	Sq.Yds.	Reinforced Concrete Approach Slabs (T= 11½")	8	
I-22	22,181	Cu.Yds.	Subbase	8	
I-12	1,970	Lin.Ft.	Standard Type 2 Combination Curb and Gutter, as per plan	38	
I-12	108	Lin.Ft.	Standard Concrete Curb, Type G	7	3
			Structures Over 20 Foot Span - For Estimated Quantities See Sheets No. 220 & 223		
	Lump	Lump	Construction Layout Stakes	7	

LOCATION PLAN

Scale 1" = 500'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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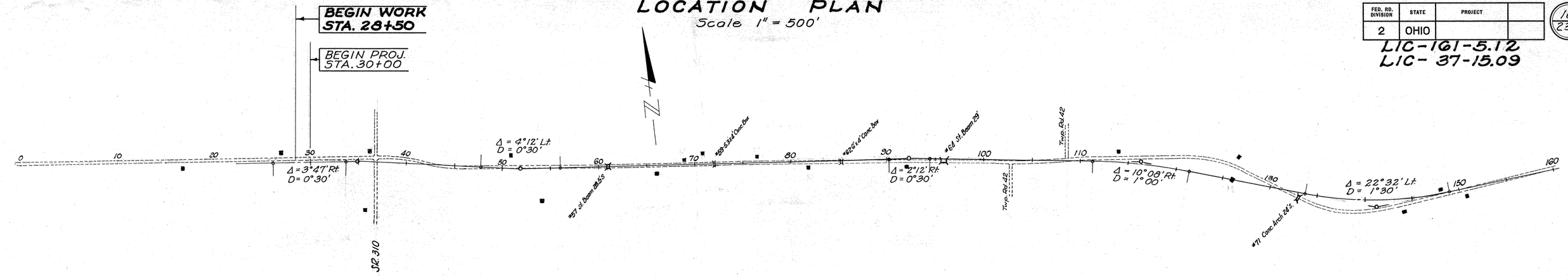
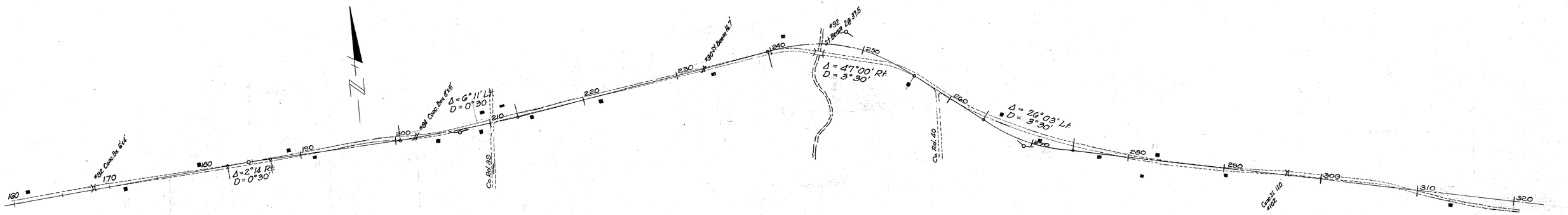
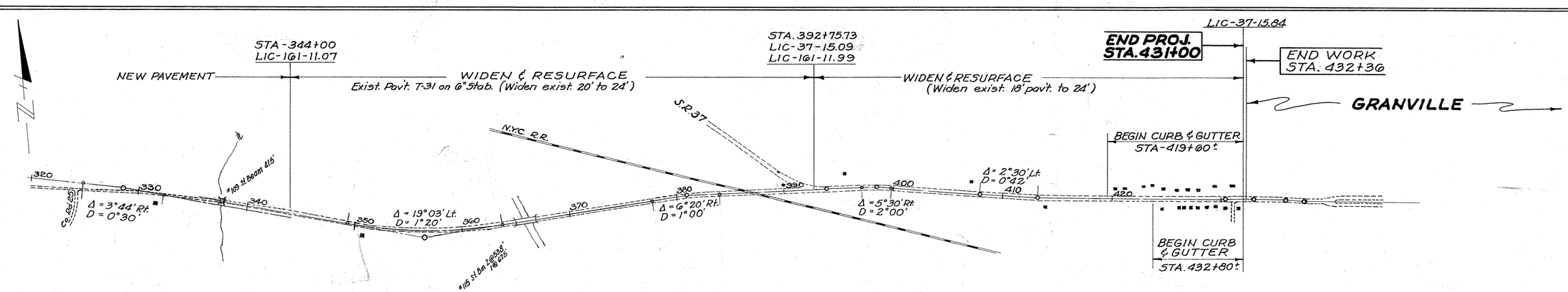
LIC-161-5.12
LIC-37-15.09





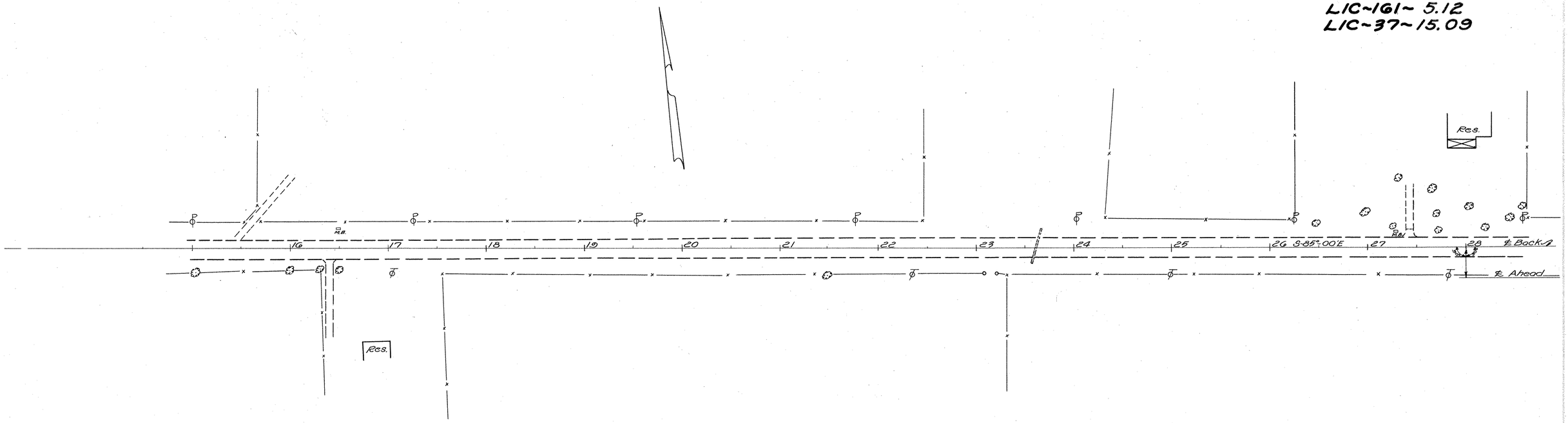


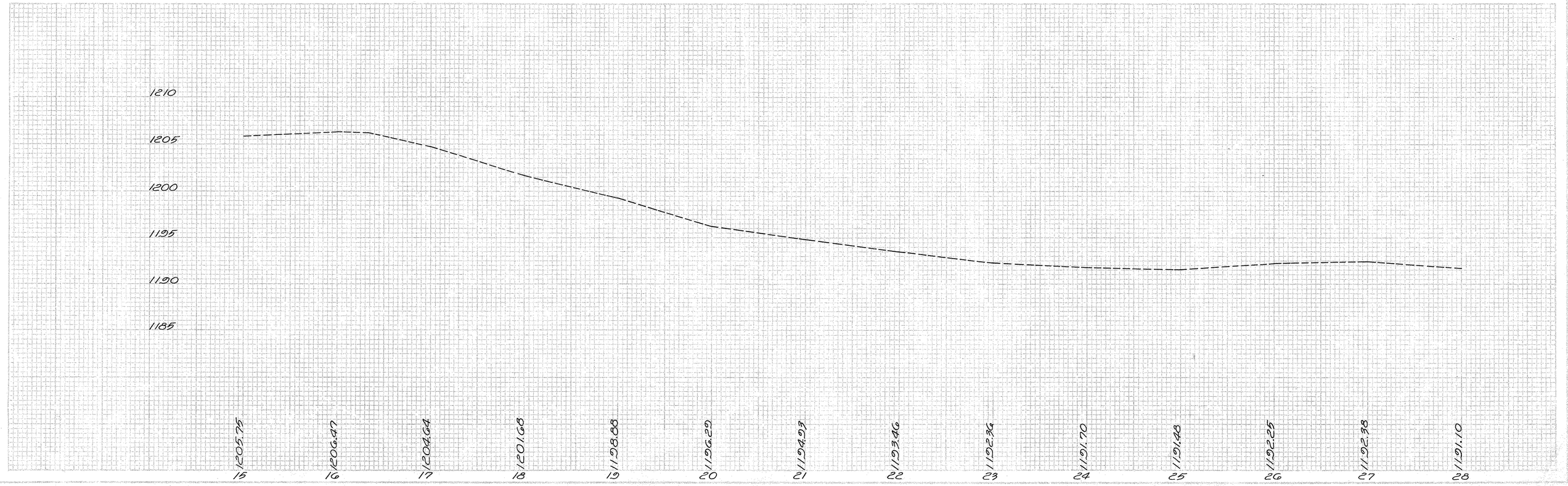
SUPPLEMENTAL ALIGNMENT

FED. RD. DIVISION	STATE	PROJECT	TOTAL FORMS
2	OHIO		

11
238

LIC-161-5.12
LIC-37-15.09





BEGIN PROJECT S.R. 161 S.L.M. 5.12
END PROJECT S.R. 161 S.L.M. 12.71 =
S.R. 37 S.L.M. 15.81

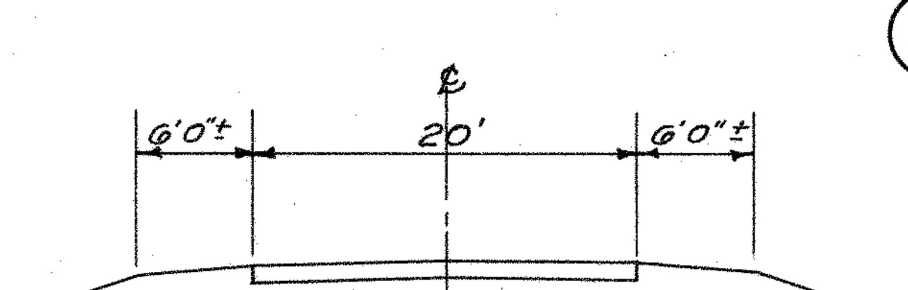
LIC-161-5.12
LIC-37-15.09

Transition from 20' pavt. at Sta. 29+00 to 24' pavt. at Sta. 30+00 using width of widening courses as shown in standard constr. drawing T-35.

ESTIMATED QUANTITIES

T-35	1¼"	Asph. Conc. Surf. Crse.	8.5 * Cu. Yds.
B-35	1¼"	Asph. Conc. Leveling Crse.	8.5 * Cu. Yds.
B-35	3"	Asph. Conc. Leveling Crse.	26 * Cu. Yds.
B-20	5"	Waterbound Mac. Base Crse.	42 Sq. Yds.
I-22	8"	Subbase	11.8 * Cu. Yds.
T-30		Bituminous Prime Coat	15.0 * Gals.

* Carried to Calculations



T-35 Surface on T-32 with Traffic Bound Base
TYPICAL SECTION OF ADJOINING PAVT.

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
1-A	34+75	Lt.	Res.	48
2-A	2+28 Lt. on S.R. 310	Lt.	Res.	43
3-A	36+74.42	Lt.	Appr. S.R. 310	42 & 43
4-A	36+74.42	Rt.	Appr. S.R. 310	42 & 43

(D) DITCHES

Mark	Station		Side of Lt. Lane	L-10 Sodding Sq. Yds.
	From	To		
1-D	37+15	40+00	Rt.	194
2-D	37+30	43+00	Lt.	390
Totals				584

(H) PIPE REMOVED

Mark	Beginning Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft.	
			15" & Und.	Over 15"
1-H	35+43	Lt.	116	
2-H	36+59	Lt.	67	
3-H	36+12	Rt.	100	
Totals			283	

(U) PIPE UNDERDRAINS

Mark	Station		Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Outlet Pipe Lin. Ft.	I-5-6" Pipe Spec. Wye Each
	From	To				
1-U	30+00	36+00	Rt.	594	10	1
2-U	30+00	35+50	Lt.	554		
3-U	37+25	43+00	Lt.	568	10	
4-U	42+50	43+00	Rt.	50		
Totals				1766	20	1

All Elevations refer to U.S.G.S. Datum.

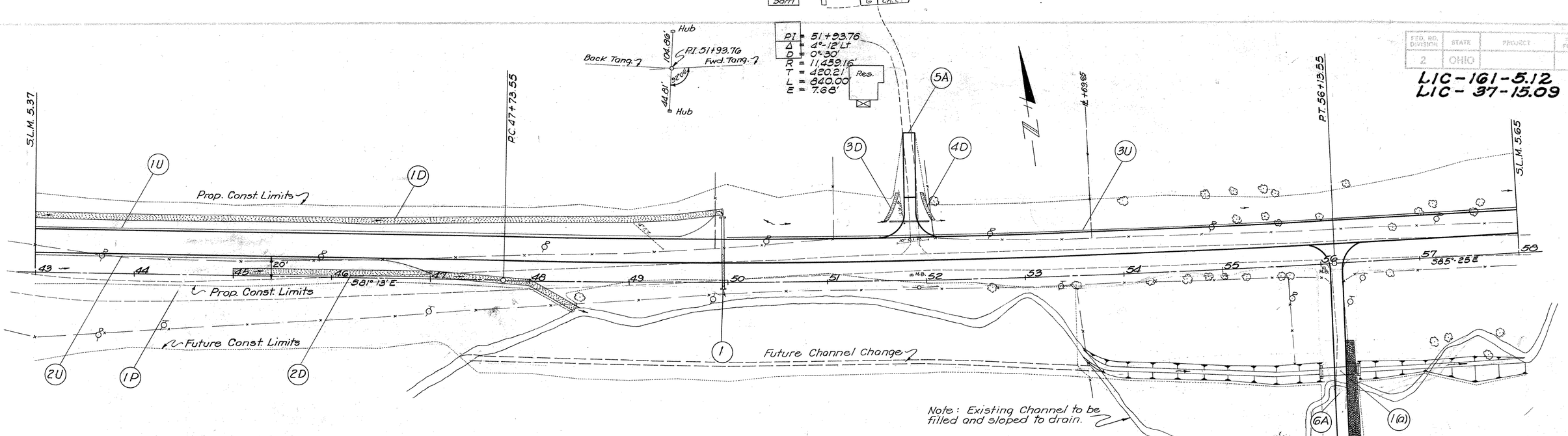
B.M. □ S.E. Corn. Conc. Well Platform 135' Lt. 36+46 Elevation 1188.35

Seeding 13,709 Sq. Yds.

Excavation	6,773	Cu. Yds.
Embank	2,337	Cu. Yds.
Emb+15%	2,688	Cu. Yds.

FED. RD. DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		13 / 238

LIC-161-5.12
LIC-37-15.09



(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
5-A	51+85	Lt.	Res.	48
6-A	56+14	Rt.	Res.	213

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
1	0550	49+96.9	Pipe	21"	32'	Pipe	30"	74'	186
1 (a)		Dr. Sta. 1+08	Pipe	36"	12'	Pipe Arch	7'-3" x 5'-3"	40'	213

(D) DITCHES

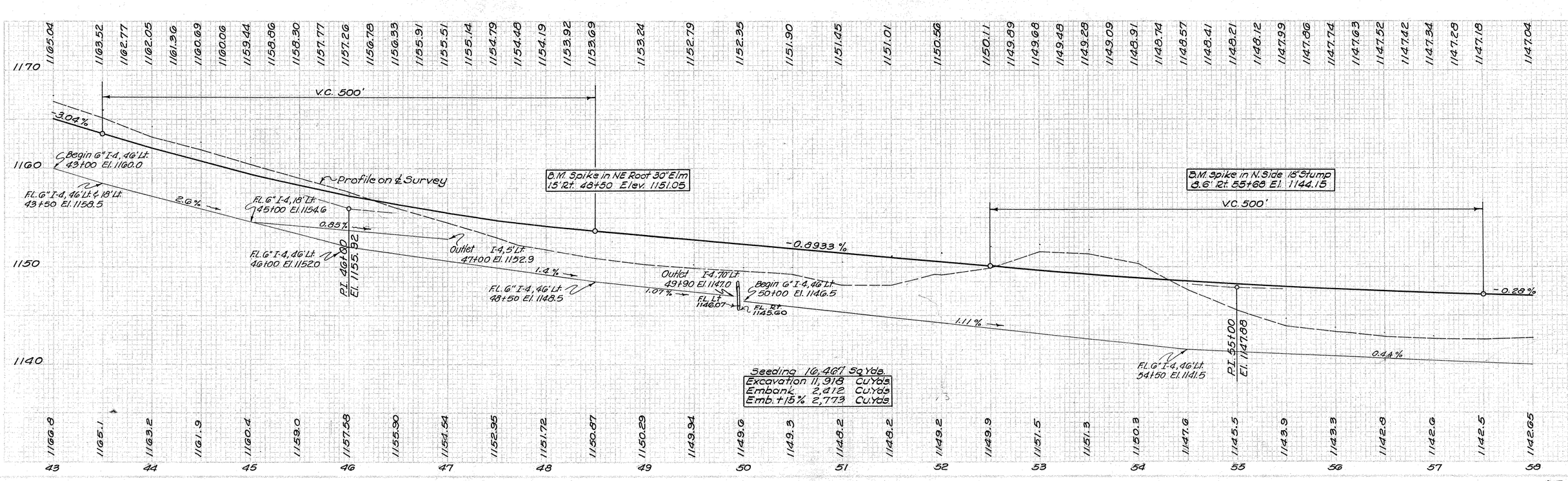
Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	
1-D	43+00	49+97	Lt.	465	
2-D	45+00	48+46	Rt.	235	
3-D	Dr. Sta. 0+60	Dr. Sta. 0+90	Lt.	11	
4-D	Dr. Sta. 0+60	Dr. Sta. 0+90	Rt.	11	
Totals				722	

(P) PAVEMENT REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. of Exist. Pavt. Sq. Yds.	
1-P	42+63	48+00	712	
Totals			712	

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Outlet Pipe Lin. Ft.	
1-U	43+00	49+90	Lt.	684	10	
2-U	43+00	47+00	Rt.	392	10	
3-U	50+00	58+00	Lt.	800		
Totals				1876	20	

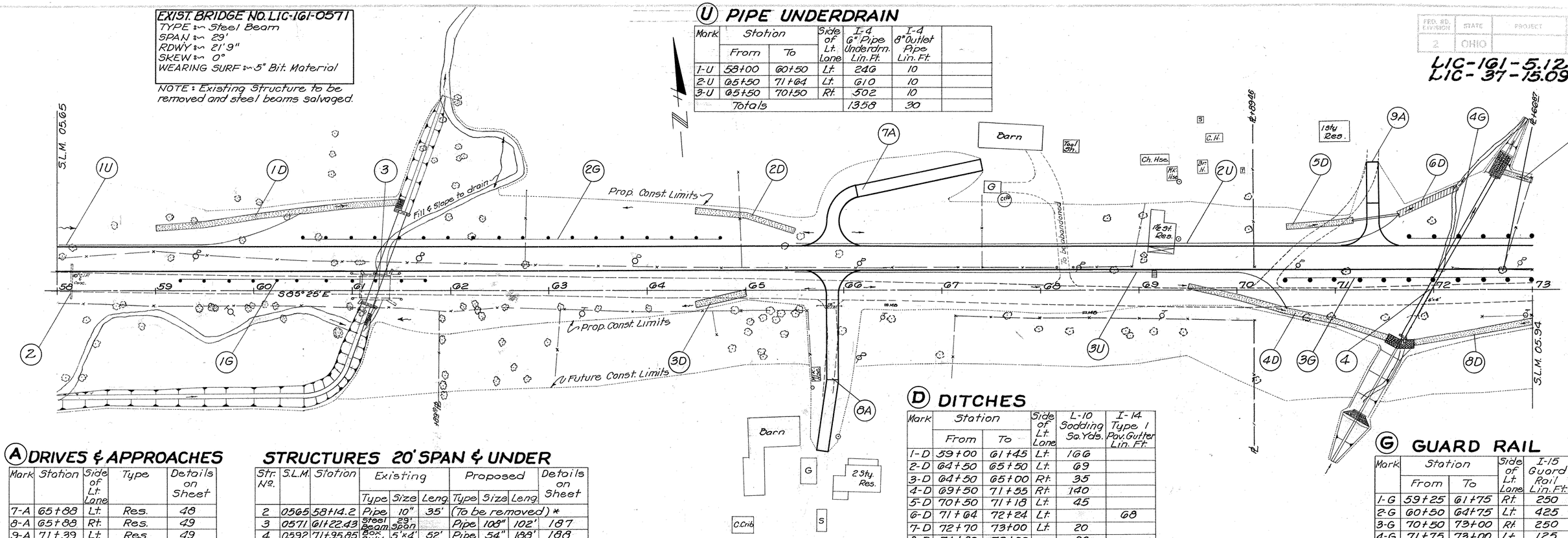


FED. RD. DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			14 / 238

LIC-161-5.12
LIC-37-15.09

EXIST. BRIDGE NO. LIC-161-0571
TYPE :- Steel Beam
SPAN :- 29'
RDWY :- 21'9"
SKEW :- 0°
WEARING SURF :- 5" Bit. Material

NOTE : Existing Structure to be removed and steel beams salvaged.



U PIPE UNDERDRAIN

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Outlet Pipe Lin. Ft.	
1-U	58+00	60+50	Lt.	246	10	
2-U	65+50	71+64	Lt.	610	10	
3-U	65+50	70+50	Rt.	502	10	
Totals				1358	30	

D DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
1-D	59+00	61+45	Lt.	166	
2-D	64+50	65+50	Lt.	69	
3-D	64+50	65+00	Rt.	35	
4-D	69+50	71+55	Rt.	140	
5-D	70+50	71+18	Lt.	45	
6-D	71+64	72+24	Lt.		68
7-D	72+70	73+00	Lt.	20	
8-D	71+80	73+00		93	
Totals				558	68

A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
7-A	65+88	Lt.	Res.	48
8-A	65+88	Rt.	Res.	49
9-A	71+39	Lt.	Res.	49

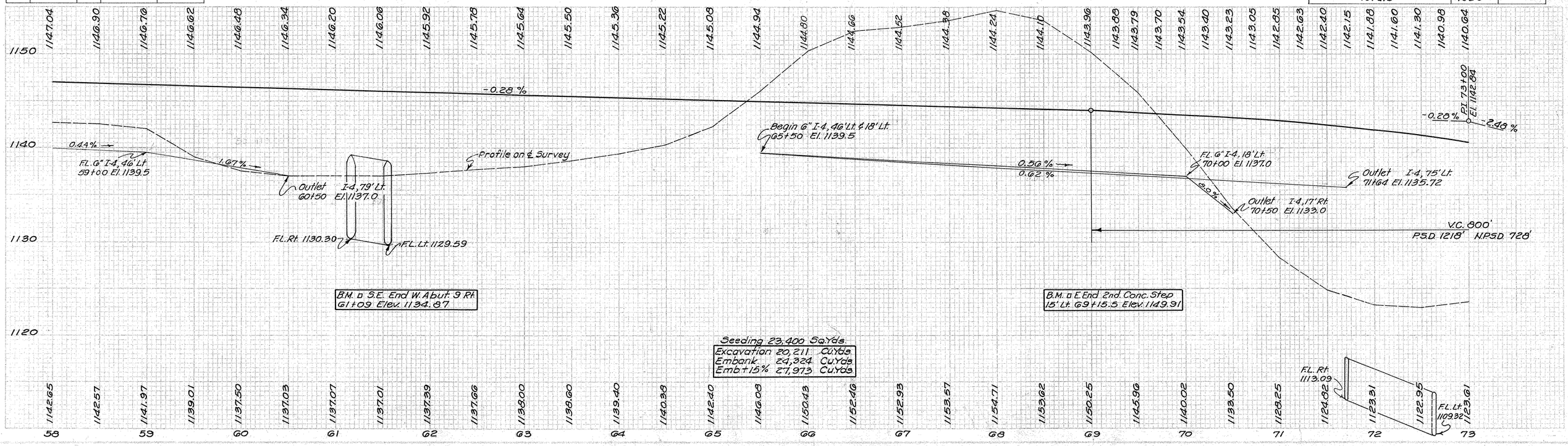
STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing Type	Existing Size	Existing Leng.	Proposed Type	Proposed Size	Proposed Leng.	Details on Sheet
2	0.505	58+14.2	Pipe	10"	35'	(To be removed) *			
3	0.571	61+22.43	Steel Beam Span	29'		Pipe	108"	102'	187
4	0.592	71+95.85	Box Culv.	5'x4'	52'	Pipe	54"	188'	188

* Estimated Quantity carried to Struct. Table

G GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	59+25	61+75	Rt.	250	
2-G	60+50	64+75	Lt.	425	
3-G	70+50	73+00	Rt.	250	
4-G	71+75	73+00	Lt.	125	
Totals				1050	

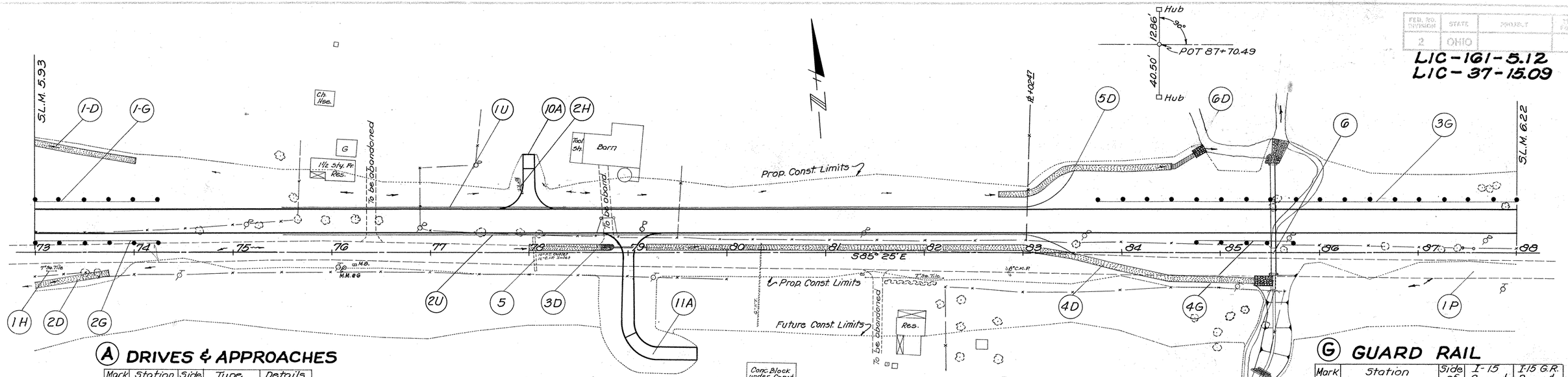


58 ~ 73

FED. RD. DIVISION	STATE	PROJECT	TOT. SHEETS
2	OHIO		

15
238

LIC-161-5.12
LIC-37-15.09



A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
10A	78+00	Lt.	Res.	49
11-A	79+00	Rt.	Res.	50

STRUCTURES 20' SPAN & UNDER

Str No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
5	0603	78+05	Pipe	10'-12"	35'	(to be removed in Excav.)			
6	0617	85+53.37	Box Culv.	6'x4'	42'	Pipe	54"	114'	189

U PIPE UNDERDRAIN

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Outlet Pipe Lin. Ft.	
1-U	75+50	83+50	Lt.	804	10	
2-U	75+50	83+50	Rt.	796	10	
Totals				1600	20	

D DITCHES

Mark	Station		Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
1-D	73+00	74+00	Lt.	70	
2-D	73+00	73+75	Rt.	50	
3-D	78+00	78+73	Rt.	49	
4-D	79+18	85+34	Rt.	414	
5-D	82+75	84+50	Lt.	123	
6-D	84+50	84+73	Lt.		28
Totals				706	28

G GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	73+00	74+25	Lt.	125	
2-G	73+00	74+25	Rt.	125	
3-G	83+75	88+00	Lt.	425	
4-G	84+75	85+75	Rt.	100	
Totals				775	

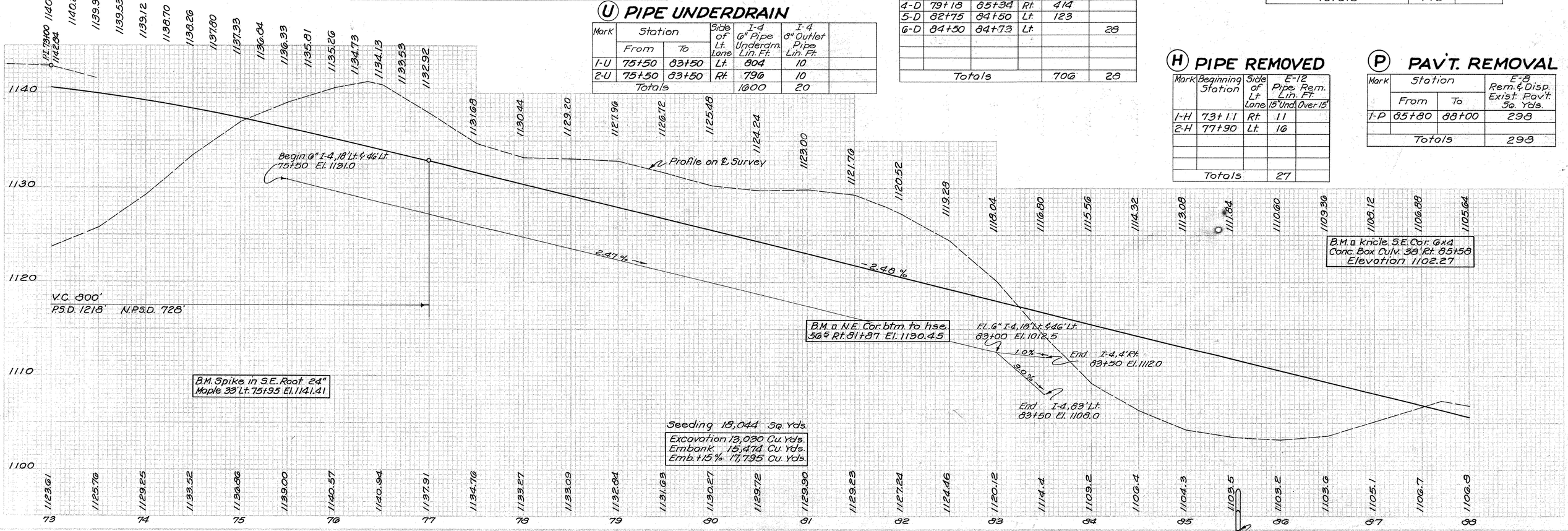
For Detail & Est. Quan., see sht. 69

H PIPE REMOVED

Mark	Beginning Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft. 15" Und.	Over 15"	
1-H	73+11	Rt.	11		
2-H	77+90	Lt.	16		
Totals			27		

P PAV'T. REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	85+80	88+00	298
Totals			298



Seeding 18,044 Sq. Yds.

Excavation 13,030 Cu. Yds.
Embank. 15,474 Cu. Yds.
Emb. +15% 17,795 Cu. Yds.

73-88

LIC-161-5.12
LIC-37-15.09

EXIST. BRIDGE NO. LIC-161-0637
TYPE :- Steel Beam
SPAN :- 29' 0"
RDWY. :- 21' 9"
SKEW :- 0°
WEARING SURF. :- 4" Bituminous

NOTE:- Exist. Struc. to be removed and steel beams to be salvaged.

P.I. = 92+02.29
Δ = 2°12' Rt.
D = 0°30' Rt.
R = 11,459.2'
T = 220.02'
L = 440.00'
E = 2.06'

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	88+00	92+00	Rt.	392	10	
2-U	96+50	103+00	Lt.	650		
3-U	100+50	103+00	Rt.	250		
Totals				1292	10	

Hub
49.22'
37.75'
91°06'
Back Tang.
Forw'd Tang.
PI 92+02.29
Hub
23.72'
21.33'
90°
POT 102+23.22
S.L.M. 6.22
S.L.M. 6.50
1G
12A
2D
2G
7
2U
3D
Prop. Const. Limits
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
S85°25'E
S83°13'E
Exist. Pavt. to remain 92+25 to 92+37
1U
1P
13A
1D
3G
3U
2P
14A
1½ Sty. Fr. Res.
To be abandoned
P.C. 89+82.27
P.T. 94+22.27
Prop. Const. Limits
Future Const. Limits
SIMPSON RUN
Dr. to be abandoned

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
12-A	92+31	Lt.	Field	50
13-A	92+31	Rt.	Res.	50
14-A	102+91.56	Rt.	Co. Rd. 42	44

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
7	0637	95+75	Steel Beam	29' Span	21'9" Rdwy.	Steel Pl. Arch	11'7"x7'5"	104'	190

(D) DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-10 Dumped Rock Fill Cu. Yds.
1-D	92+57	95+72	Rt.	212	
2-D	93+00	95+16	Lt.	144	
3-D	102+00	103+00	Lt.	67	
Totals				423	

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & disp. of Lin. Ft.
1-G	88+00	90+25	Lt.	225	
2-G	93+00	96+00	Lt.	300	
3-G	95+37.5	95+87.5	Rt.	87.5	
Totals				612.5	

(P) PAVEMENT REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pavt. Sq. Yds.
1-P	88+00	94+50	1050
2-P	100+65	102+60	190
Totals			1240

1105.64
1104.40
1103.16
1101.92
1100.68
1099.44
1098.20
1096.96
1095.72
1094.48
1093.24
1092.00
1090.76
1089.52
1088.28
1087.04
1085.80
1084.56
1083.32
1082.71
1082.11
1081.54
1080.97
1080.43
1079.90
1079.39
1078.90
1078.42
1077.96
1077.51
1077.09
1076.68
1076.28
1075.90
1075.54
1075.20
1074.87
1074.56
1074.27
1073.99
1073.73
1073.49
1073.26
1100
1090
1080
1070
Begin 6" I-4, 18' Lt. 88+00 El. 1100.0
2.33 %
F.L. 6" I-4, 18' Lt. 91+00 El. 1093.0
1.2 %
End I-4 ⊕ 92+00 El. 1091.8
-2.48%
V.C. 1000'
B.M. □ N.E. Cor. E. Abut. Steel Br. 8' Rt. 96+08 Elev. 1080.92
B.M. □ N.W. End N. Abut. Iron Br. on Twp. Rd. 42 - 94' Rt. 102+85 Elev. 1072.21
Begin 6" I-4, 46' Lt. 96+50 El. 1079.0
F.L. Rt. 1072.93
F.L. Lt. 1073.45
Seeding 18,021 Sq. Yds.
Excavation 6,669 Cu. Yds.
Embank. 10,118 Cu. Yds.
Emb. + 15% 11,636 Cu. Yds.
2.0 %
F.L. 6" I-4, 46' Lt. & Begin 18' Lt. 100+50 El. 1071.0
1.20%
P.I. 102+00 El. 1070.92
F.L. 6" I-4, 46' Lt. & 18' Lt. 103+00 El. 1068.0
1106.8
1105.1
1103.8
1103.6
1101.8
1099.7
1097.6
1095.8
1093.6
1091.3
1089.4
1085.9
1083.0
1080.8
1080.1
1076.5
1074.8
1078.9
1080.9
1081.4
1079.3
1077.7
1076.8
1075.9
1075.0
1074.76
1074.41
1074.26
1074.09
1073.60
1073.07
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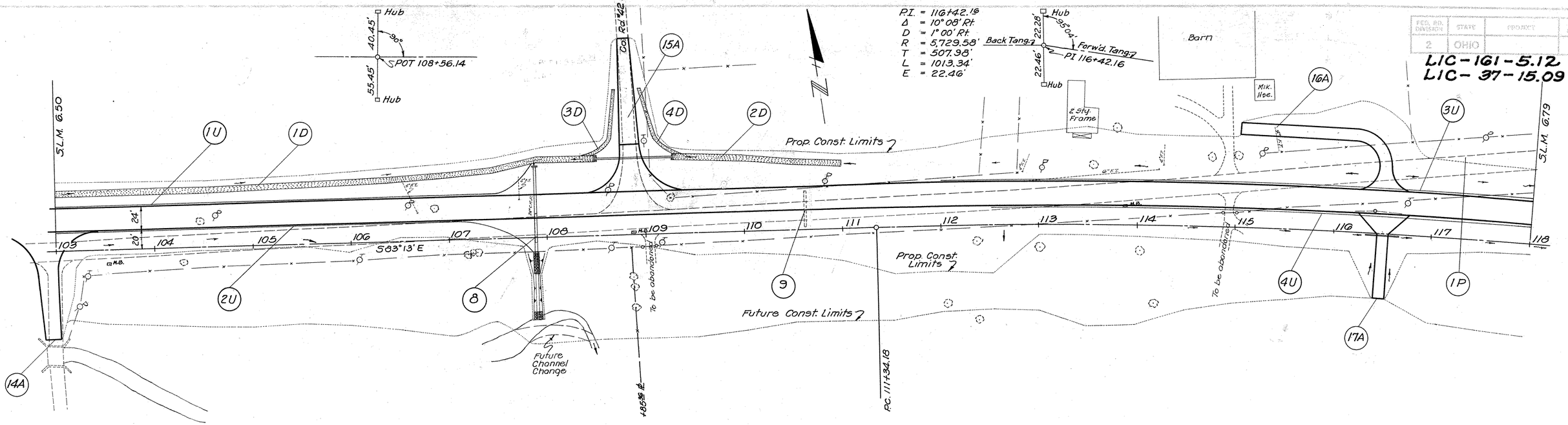


(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
14-A	102+91.56	Rt.	Appr. Co. Rd. 42	44
15-A	108+89.59	Lt.	Appr. Co. Rd. 42	44
16-A	116+50	Lt.	Res.	51
17-A	116+50	Rt.	Field	50

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
8	0660	107+88.8	Pipe	24"	18'	Pipe	27"	90'	191
9	0665	110+62	Pipe	12"	36'	(To be removed)*			

* Estimated Quantity carried to Struct. Table

(D) DITCHES

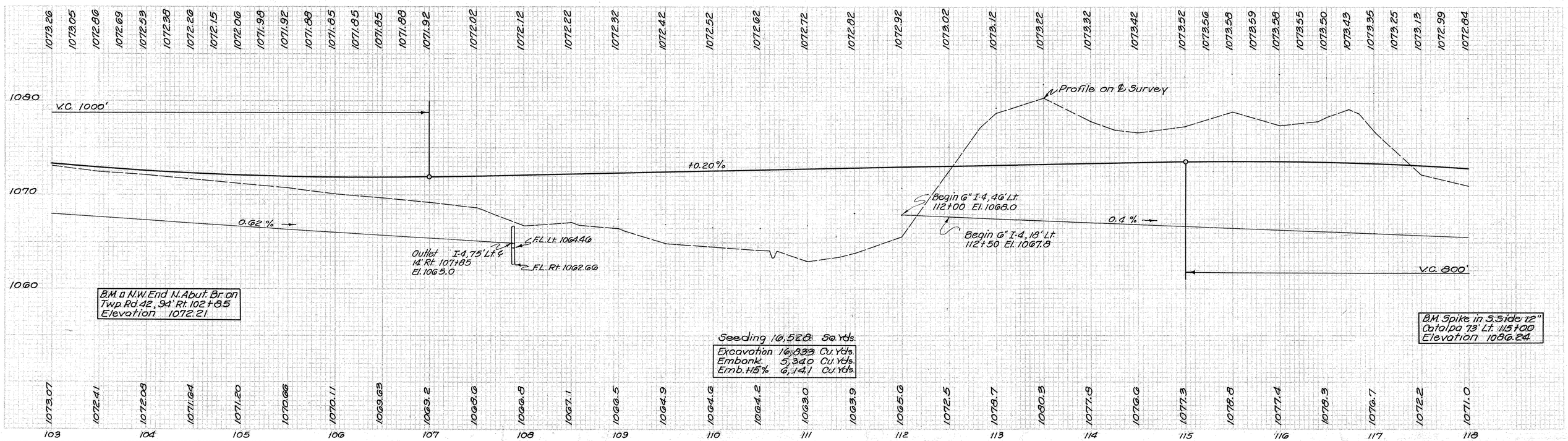
Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	
1-D	103+00	108+53	Lt.	369	
2-D	109+29	111+00	Lt.	114	
3-D	Appr. Sta. 0+81	Appr. Sta. 1+25	Lt.	25	
4-D	Appr. Sta. 0+81	Appr. Sta. 1+30	Rt.	27	
Totals				535	

(P) PAVEMENT REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	117+00	118+00	111
Totals			111

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	103+00	107+85	Lt.	476	10	
2-U	103+00	107+85	Rt.	480	10	
3-U	112+00	119+00	Lt.	600		
4-U	112+50	118+00	Rt.	550		
Totals				2106	20	



103 to 118

LIC-161-5.12
LIC-37-15.09

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
18-A	130+00	Lt.	Res.	52
19-A	130+00	Rt.	Res.	52

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
10	0681	118+93	Pipe	24"	31.2'	To be remov. in Excav.			
11	0691	124+50	(none)			Pipe	15"	112'	192
12	0708	133+69.98	Conc. Arch 24' Span			Pipe	132"	202'	193 & 194

(D) DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
1-D	120+50	121+50	Rt.	70	
2-D	121+00	123+00	Lt.	136	
3-D	121+50	123+00	Rt.		154
4-D	123+00	124+50	Lt.		154
5-D	123+00	124+47	Rt.	98	
6-D	127+60	129+95	Lt.	157	
7-D	130+23	133+50	Lt.		332
8-D	Drive Sta. 0+73	Drive Sta. 1+40	Rt.	30	
9-D	119+00	120+00	Lt.	110	
Totals				601	640

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	121+75	126+25	Rt.	450	
2-G	123+25	124+75	Lt.	150	
3-G	129+33	133+99	Lt.&Rt.		480
4-G	129+87	134+16	Lt.&Rt.		442
5-G	130+75	133+50	Lt.	275	
Totals				875	922

(H) PIPE REMOVED

Mark	Beginning Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft. 15" & Und	E-12 Pipe Rem. Lin. Ft. Over 15"	
1-H	127+61	Lt.	75		
2-H	130+02	Rt.	20		
Totals			95		

(P) PAV'T. REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	118+00	118+78	173
2-P	131+00	132+40	100
Totals			273

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.
1-U	118+00	121+50	Rt.	354	10
2-U	118+00	122+50	Lt.	442	10
3-U	126+00	130+50	Lt.	452	10
4-U	126+50	131+50	Rt.	514	10
Totals				1762	40

Seeding 27,940 Sq. Yds.

Excavat. 35,171 Cu. Yds.
Embank. 31,805 Cu. Yds.
Emb. +15% 36,563 Cu. Yds.

118 ~ 133+50

STATE	PROJECT	TYPE FUNDS
OHIO		

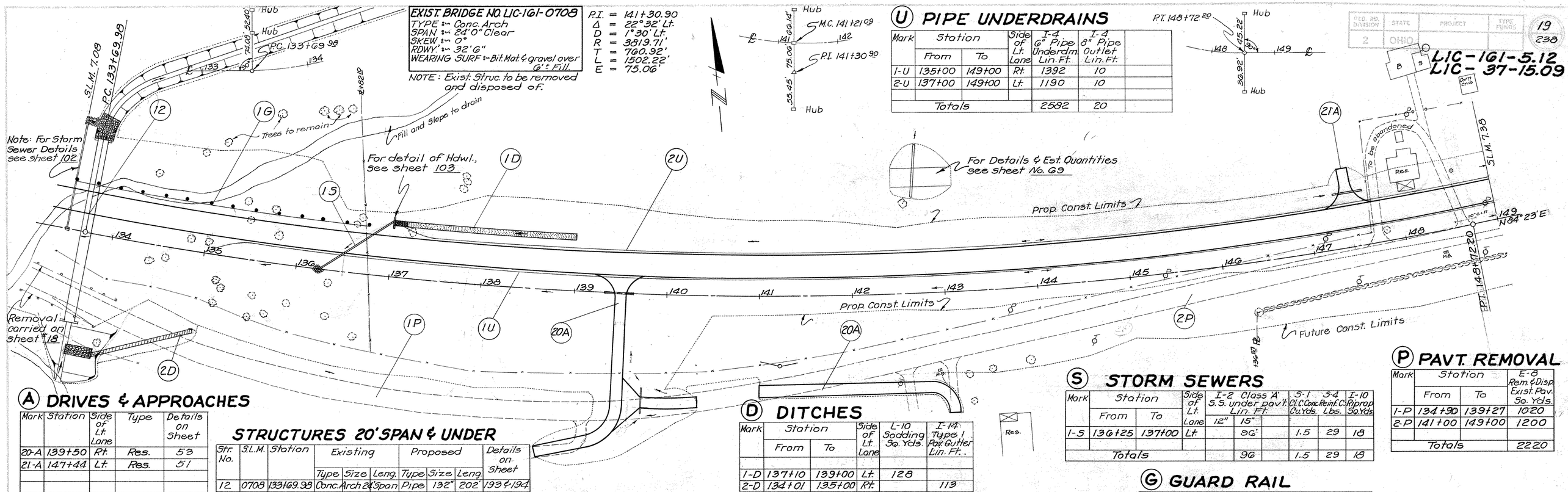
19
238

LIC-161-5.12
LIC-37-15.09

EXIST. BRIDGE NO. LIC-161-0708
TYPE = Conc. Arch
SPAN = 24'0" Clear
SKEW = 0°
RDWY = 32'6"
WEARING SURF = Bit. Mat. & gravel over Earth Fill

NOTE: Exist. Struc. to be removed and disposed of.

P.I. = 141+30.90
Δ = 22°32' Lt.
D = 1°30' Lt.
R = 3819.71'
T = 760.92'
L = 1502.22'
E = 75.06'



(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
20-A	139+50	Rt.	Res.	53
21-A	147+44	Lt.	Res.	51

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
12	0708	133+69.98	Conc. Arch	24'	Span	Pipe	132"	202'	193 & 194

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	135+00	149+00	Rt.	1392	10	
2-U	137+00	149+00	Lt.	1190	10	
Totals				2582	20	

(D) DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Paved Gutter Lin. Ft.
1-D	137+10	139+00	Lt.	128	
2-D	134+01	135+00	Rt.		113
Totals				128	113

(S) STORM SEWERS

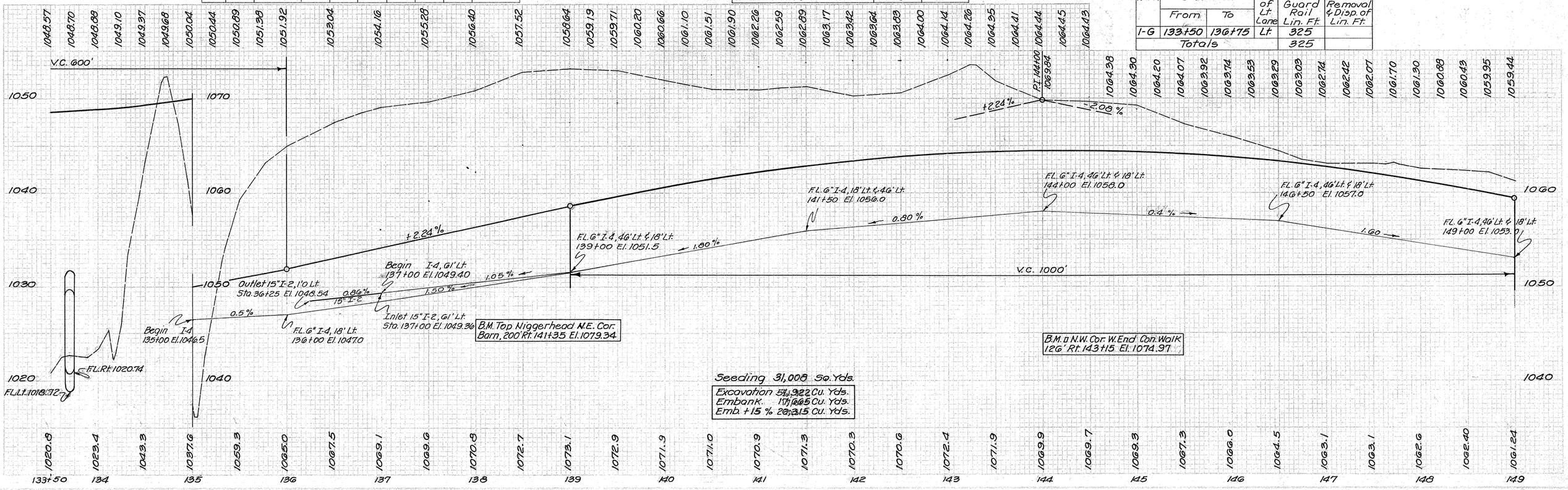
Mark	Station From	Station To	Side of Lt. Lane	I-2 Class A S.S. under pav't Lin. Ft. 12"	15"	S-1 S-4 Cl. C Conc. Reinf. C. Cu. Yds.	Lbs.	I-10 Riprap Sq. Yds.
1-S	136+25	137+00	Lt.		96'	1.5	29	18
Totals					96	1.5	29	18

(P) PAVT. REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav. Sq. Yds.
1-P	134+90	139+27	1020
2-P	141+00	149+00	1200
Totals			2220

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Removal & Disp. of Lin. Ft.
1-G	133+50	136+75	Lt.	325	
Totals				325	



Seeding 31,008 Sq. Yds.

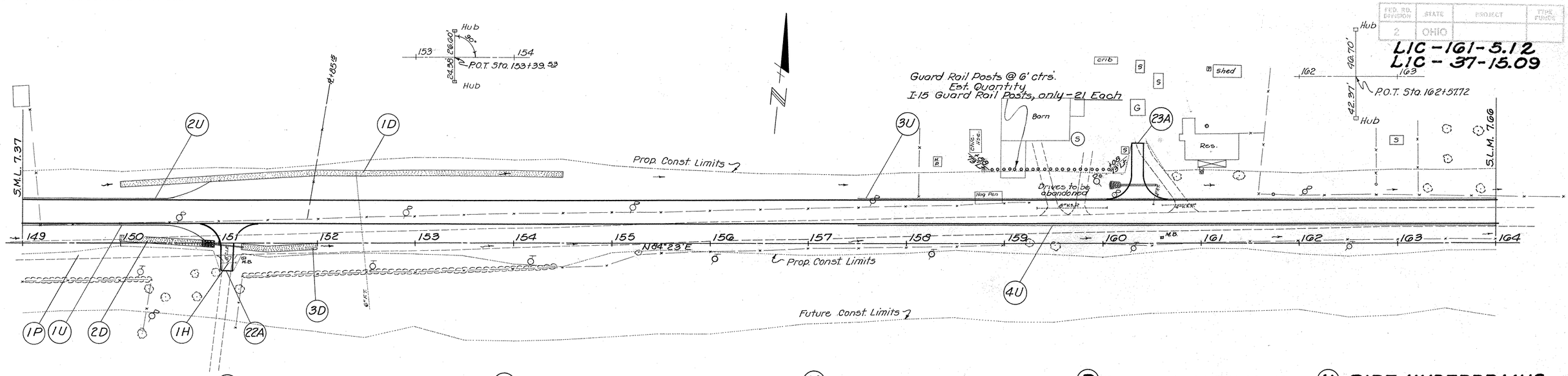
Excavation 54,922 Cu. Yds.
Embank. 17,607 Cu. Yds.
Emb. +15% 20,248 Cu. Yds.

133+50 ~ 149

FED. RD. DIVISION	STATE	PROJECT	TYPE WORK
2	OHIO		

20
238

LIC-161-5.12
LIC-37-15.09



A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
22A	151+08	Rt.	Res.	54
23A	160+30	Lt.	Res.	54

D DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	
1-D	150+00	154+50	Lt.	300	
2-D	150+00	150+83	Rt.	55	
3-D	151+22	152+00	Rt.	52	
Totals				407	

H PIPE REMOVED

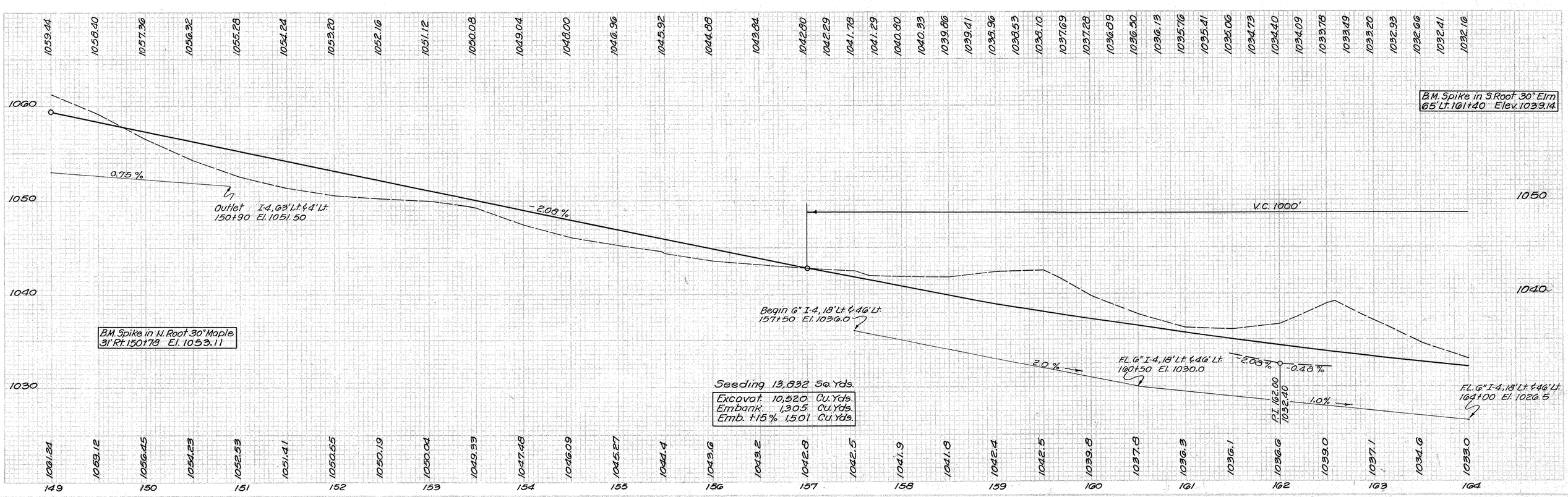
Mark	Beginning Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft. 15" & Und.	Over 15"	
1-H	151+01	Rt.	16		
Totals			16		

P PAVEMENT REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.	
1-P	149+00	151+00	197	
Totals			197	

U PIPE UNDERDRAINS

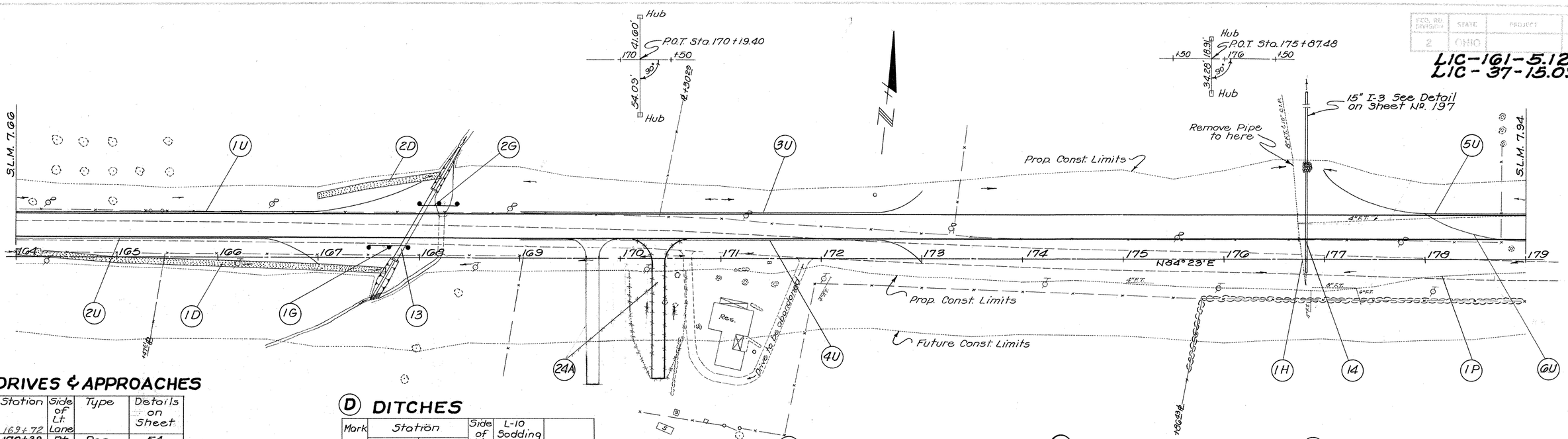
Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	149+00	150+90	Rt.	184	10	
2-U	149+00	150+90	Lt.	186	10	
3-U	157+50	164+00	Lt.	650		
4-U	157+50	164+00	Rt.	650		
Totals				1670	20	



149 ~ 164

FED. RD. DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		21 238

LIC-161-5.12
LIC-37-15.09



A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
24-A	~~170+38~~ 169+72	Rt.	Res.	54

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
13	0773	167+76.5	Box Culv.	6'x4'	35'	Pipe	~~54"~~ 72" CMP	80'	195
14	0790	176+82.5	Pipe	10"	41'	Pipe	18"	102'	196

D DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	
1-D	164+00	167+68	Rt.	247	
2-D	167+00	168+20	Lt.	83	
Totals				330	

G GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Removal & Disp. of Lin. Ft.
1-G	167+52.5	167+90	Rt.	37.5	
2-G	168+00	168+37.5	Lt.	37.5	
Totals				75.0	

H PIPE REMOVED

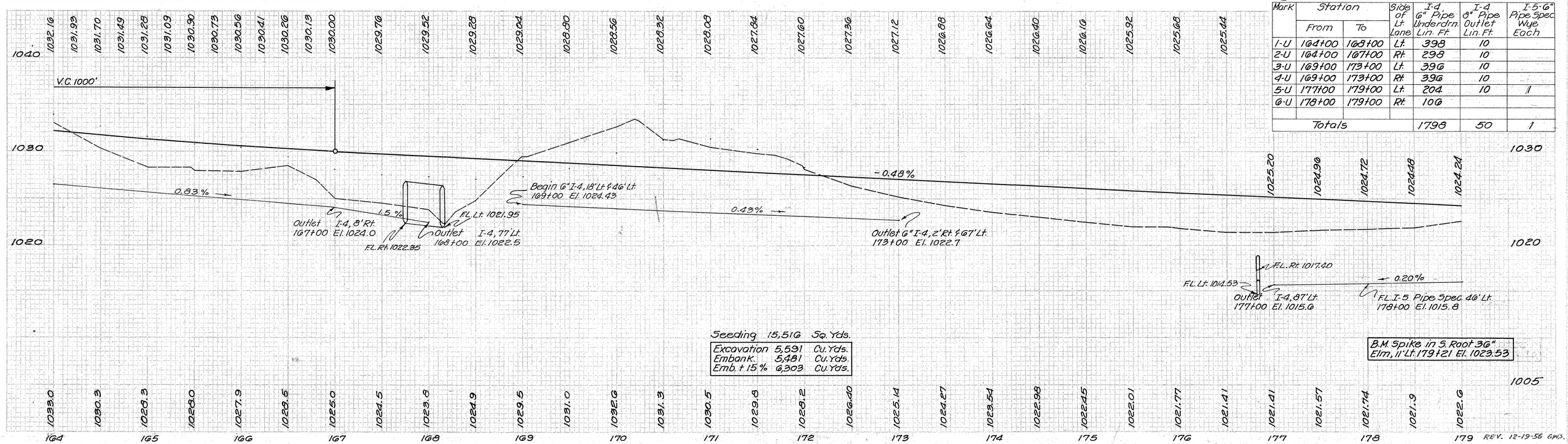
Mark	Beginning Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft. 15" & Und.	E-12 Pipe Rem. Lin. Ft. Over 15"	
1-H	176+73	Lt.	126		
Totals			126		

P PAVEMENT REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pavt. Sq. Yds.
1-P	178+00	179+00	50
Totals			50

U PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 6" Pipe Outlet Lin. Ft.	I-5-6" Pipe Spec. Wye Each
1-U	164+00	168+00	Lt.	398	10	
2-U	164+00	167+00	Rt.	298	10	
3-U	169+00	173+00	Lt.	396	10	
4-U	169+00	173+00	Rt.	396	10	
5-U	177+00	179+00	Lt.	204	10	1
6-U	178+00	179+00	Rt.	106		
Totals				1798	50	1



Seeding 15,516 Sq. Yds.

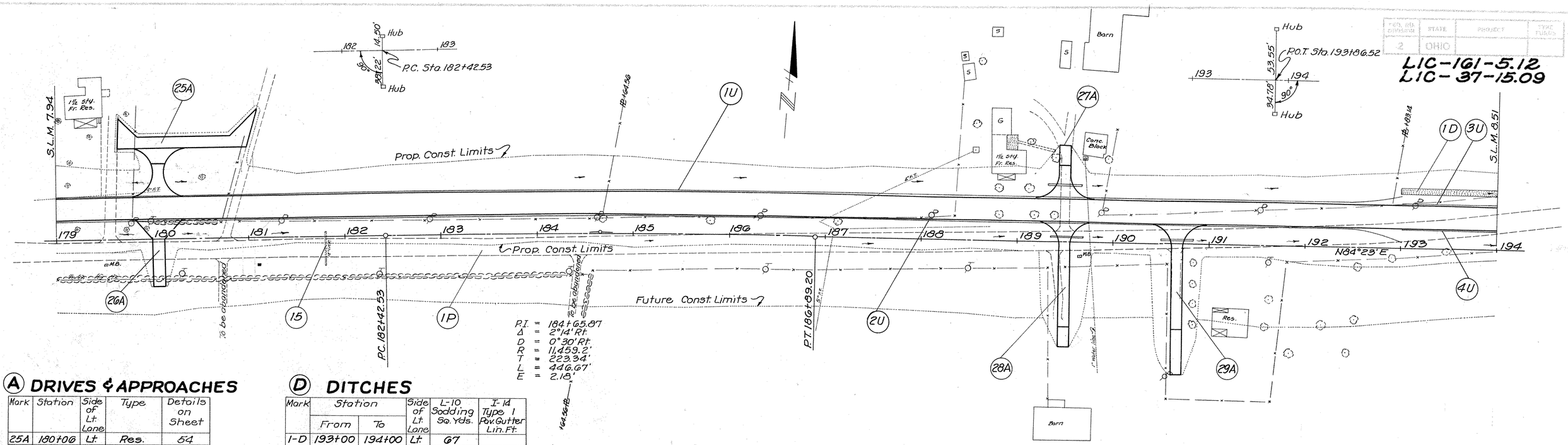
Excavation	5,591	Cu. Yds.
Embank.	5,481	Cu. Yds.
Emb. + 15%	6,303	Cu. Yds.

B.M. Spike in S. Root 36"
Elm, 11' Lt. 179+21 El. 1023.53

REV. 12-19-56 GWS.

164 ~ 179

LIC-161-5.12
LIC-37-15.09



A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
25A	180+06	Lt.	Res.	54
26A	180+06	Rt.	Field	54
27A	189+50	Lt.	Res.	55
28A	189+50	Rt.	Res.	55
29A	190+67	Rt.	Res.	55

D DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
1-D	193+00	194+00	Lt.	67	
Totals				67	

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	0800	181+80.7	Pipe	12"	35'	(To be removed		*)	

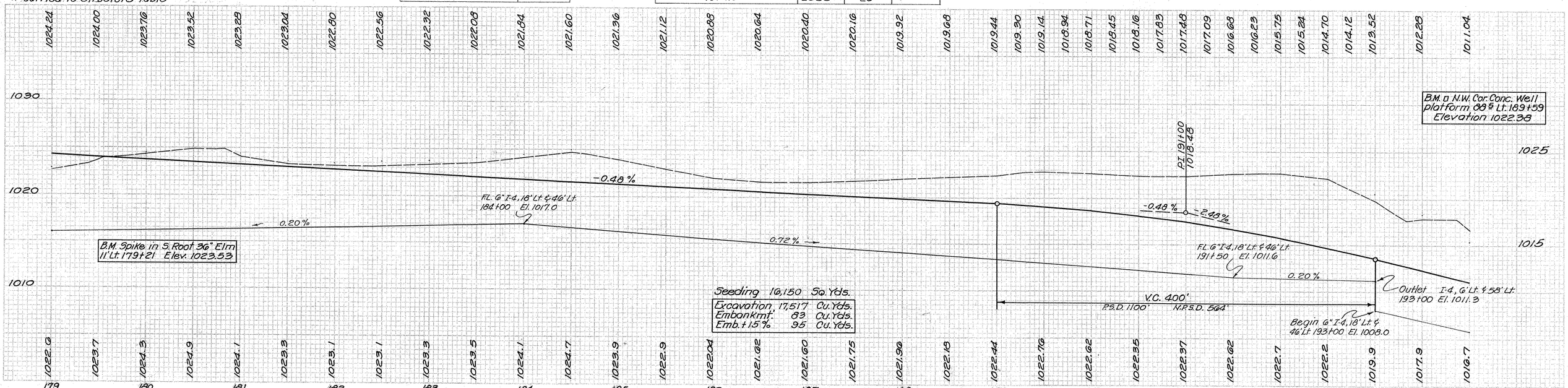
* Carried to Structure Table

P PAVEMENT REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	179+00	189+00	1003
Totals			1003

U PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	179+00	193+00	Lt.	1394	10	
2-U	179+00	193+00	Rt.	1394	10	
3-U	193+00	194+00	Lt.	100		
4-U	193+00	194+00	Rt.	100		
Totals				2988	20	



Seeding 16,150 Sq. Yds.

Excavation	17,517	Cu. Yds.
Embankmt.	63	Cu. Yds.
Emb. + 15%	95	Cu. Yds.

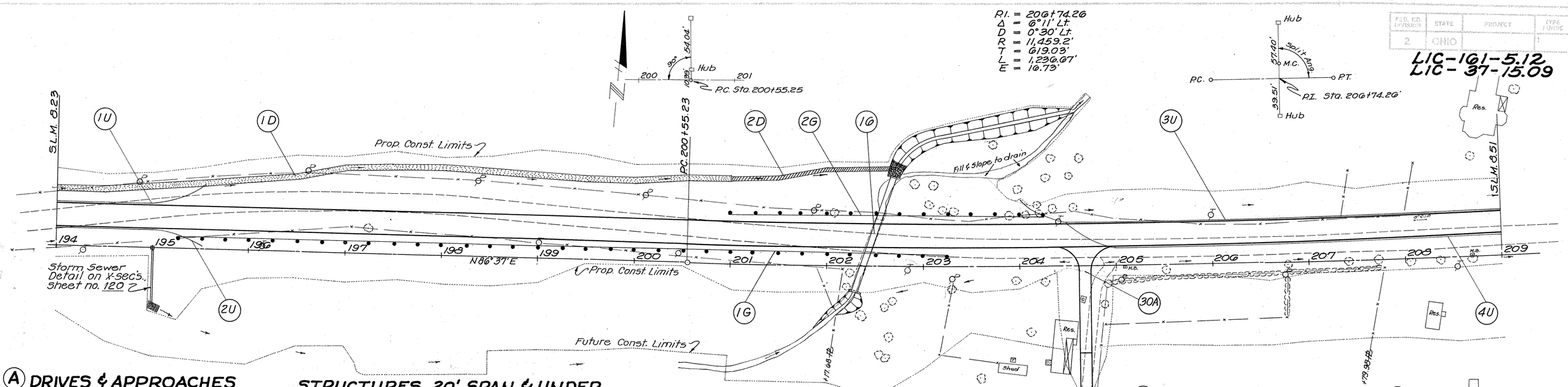
179 ~ 194

FED. RD. DIVISION	STATE	PROJECT	FAP# FUNDS
2	OHIO		

23
238

LIC-161-5.12
LIC-37-15.09

P.I. = 206+74.26
Δ = 6°11' Lt.
D = 0°30' Lt.
R = 11,459.2'
T = 619.03'
L = 1,236.07'
E = 16.73'



A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
30A	204+68	Rt.	Res.	G2

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng	Type	Size	Leng	
16	0839	202+37.78	Box Culv.	8'x6'	50.31'	Pipe	72"	128'	198

U PIPE UNDERDRAINS

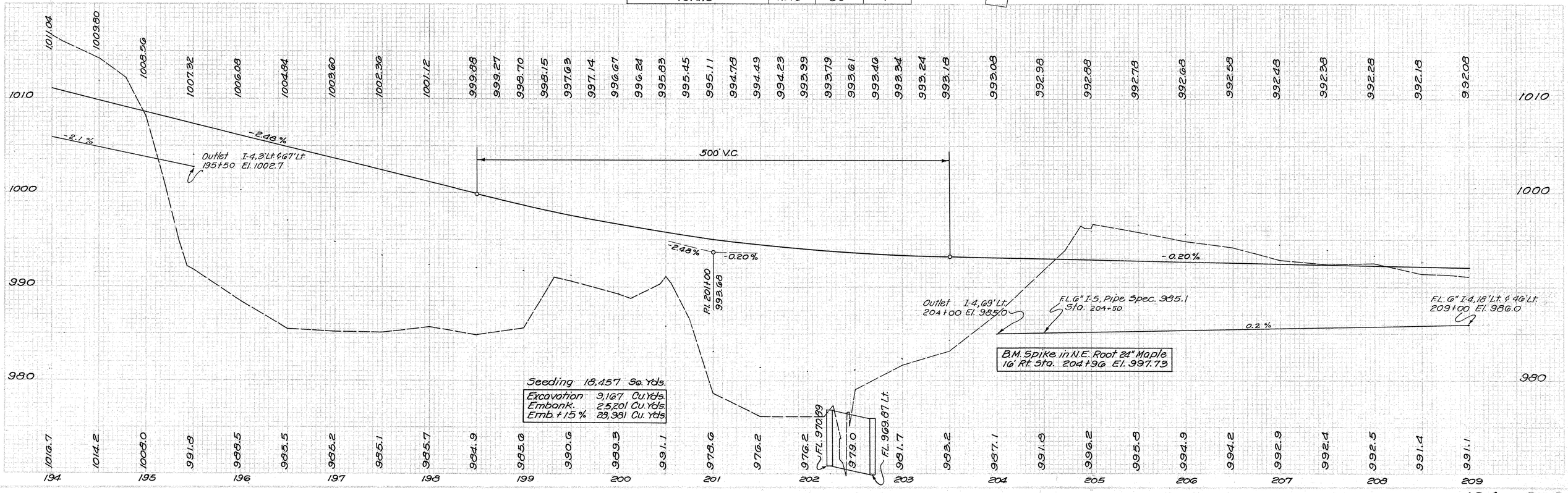
Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	I-5 6" Pipe Spec. Wye Each
1-U	194+00	195+50	Lt.	150	10	
2-U	194+00	195+50	Rt.	146	10	
3-U	204+00	209+00	Lt.	496	10	1
4-U	204+50	209+00	Rt.	454		
Totals				1246	30	1

D DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
1-D	194+00	201+00	Lt.	472	
2-D	201+00	202+66	Lt.		166
Totals				472	166

G GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem & Disp. of Lin. Ft.
1-G	195+25	203+25	Rt.	800	
2-G	201+00	204+25	Lt.	325	
Totals				1125	



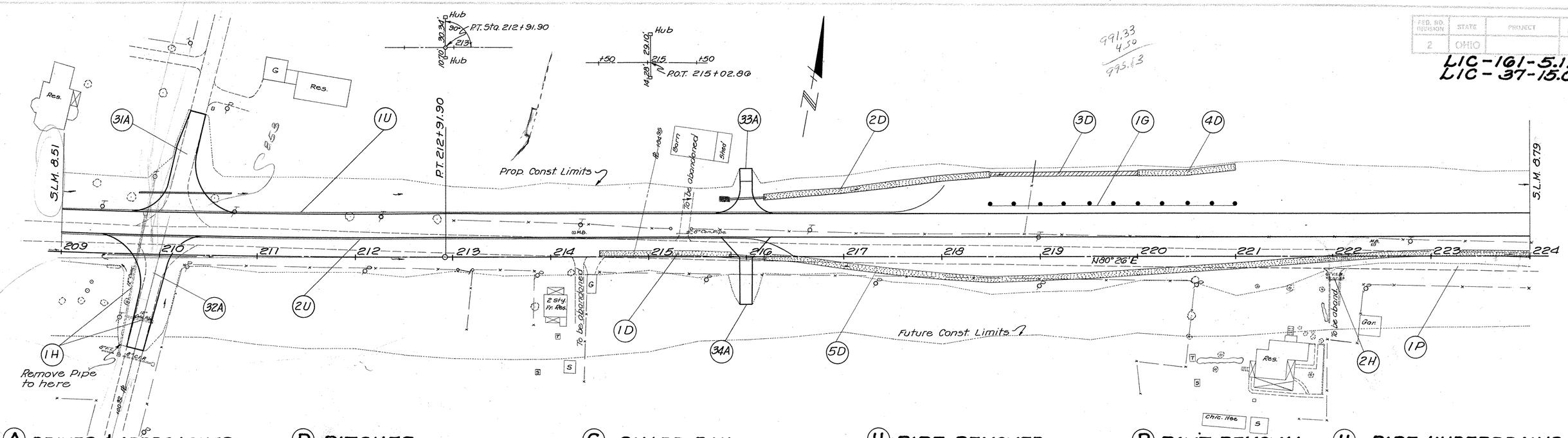
194 ~ 209

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

24
238

LIC-161-5.12
LIC-37-15.09

991.33
4.50
995.83



(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
31-A	210+00.32	Lt.	Co. Rd. 39	45
32-A	210+00.32	Rt.	Co. Rd. 39	45
33-A	216+00	Lt.	Res.	56
34-A	216+00	Rt.	Res.	56

(D) DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type I Pav. Gutter Lin. Ft.
1-D	214+50	215+84	Rt.	99	
2-D	216+16	218+50	Lt.	115	
3-D	218+50	220+00	Lt.		150
4-D	220+00	221+00	Lt.	67	
5-D	216+18	224+00	Rt.	527	
Totals				839	150

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 Rem. & Disp. of Lin. Ft.
1-G	218+50	221+00	Lt.	250	
Totals				250	

(H) PIPE REMOVED

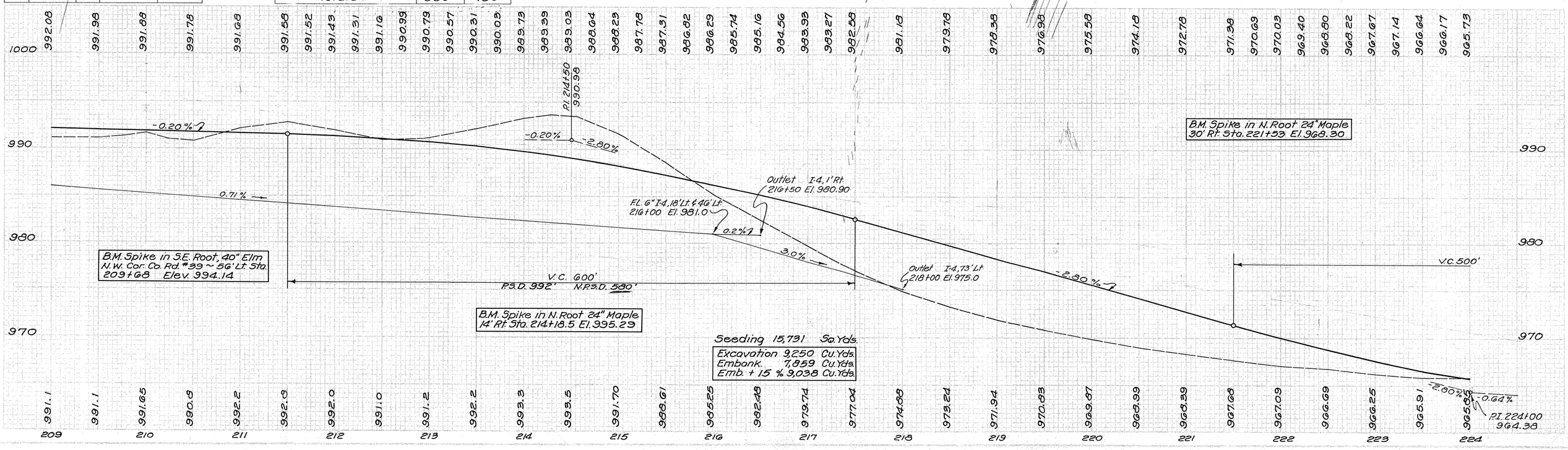
Mark	Beginning Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft. 15" & Und.	E-12 Pipe Rem. Lin. Ft. Over 15"	I-16 Catch Basin Abandoned Each
1-H	209+78	Rt. & Lt.	162		1
2-H	221+72	Rt.	19		
Totals			181		1

(P) PAVT. REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pavt. Sq. Yds.
1-P	222+00	224+00	125
Totals			125

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	209+00	213+00	Lt.	900	10	
2-U	209+00	210+50	Rt.	744	10	
Totals				1644	20	



209 ~ 224

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

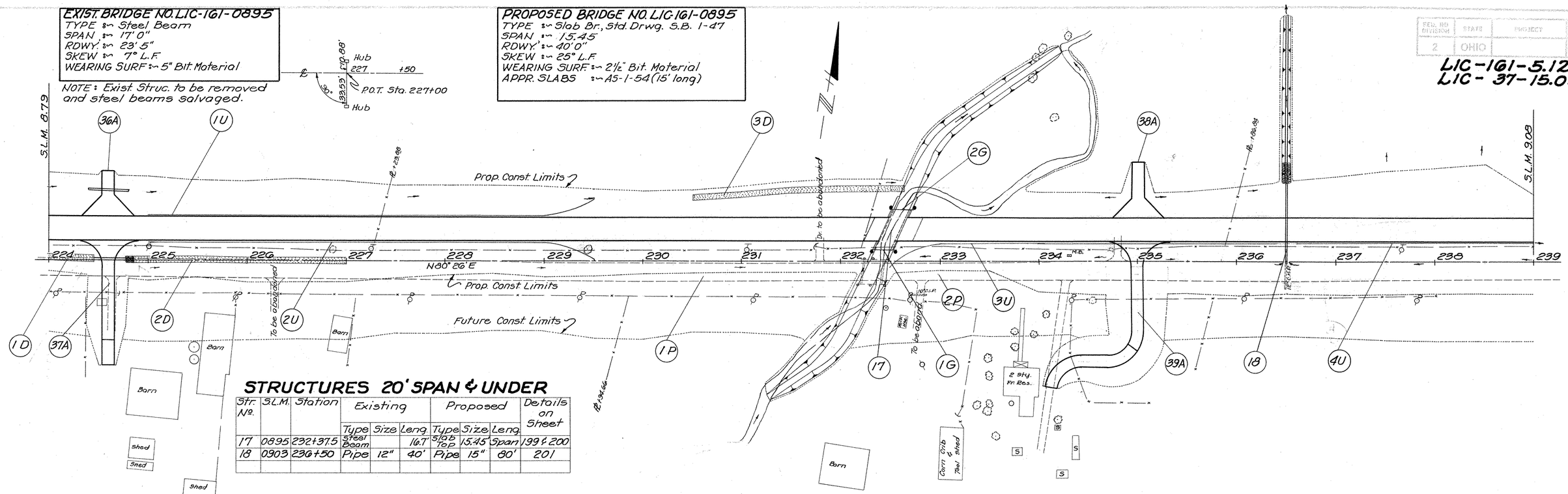
25
238

LIC-161-5.12
LIC-37-15.09

EXIST. BRIDGE NO. LIC-161-0895
TYPE :— Steel Beam
SPAN :— 17'0"
RDWY :— 23'5"
SKEW :— 7° L.F.
WEARING SURF :— 5" Bit. Material

NOTE: Exist. Struc. to be removed and steel beams salvaged.

PROPOSED BRIDGE NO. LIC-161-0895
TYPE :— Slab Br., Std. Drwg. S.B. 1-47
SPAN :— 15.45
RDWY :— 40'0"
SKEW :— 25° L.F.
WEARING SURF :— 2½" Bit. Material
APPR. SLABS :— AS-1-54 (15' long)



STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
17	0895	232+37.5	Steel Beam		16.1'	Slab Top	15.45	Span	199 & 200
18	0903	230+50	Pipe	12"	40'	Pipe	15"	80'	201

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt Lane	Type	Details on Sheet
36-A	224+60	Lt.	Field	56
37-A	224+60	Rt.	Res.	56
38-A	235+00	Lt.	Field	57
39-A	235+00	Rt.	Res.	57

(D) DITCHES

Mark	Station From	Station To	Side of Lt Lane	L-10 Sodding Sq. Yds.	I-14 Type I Pav. Gutter Lin. Ft.
1-D	224+00	224+46	Rt.	31	
2-D	224+84	227+00	Rt.	144	
3-D	230+50	232+64	Lt.	143	
Totals				318	

(P) PAV'T. REMOVAL

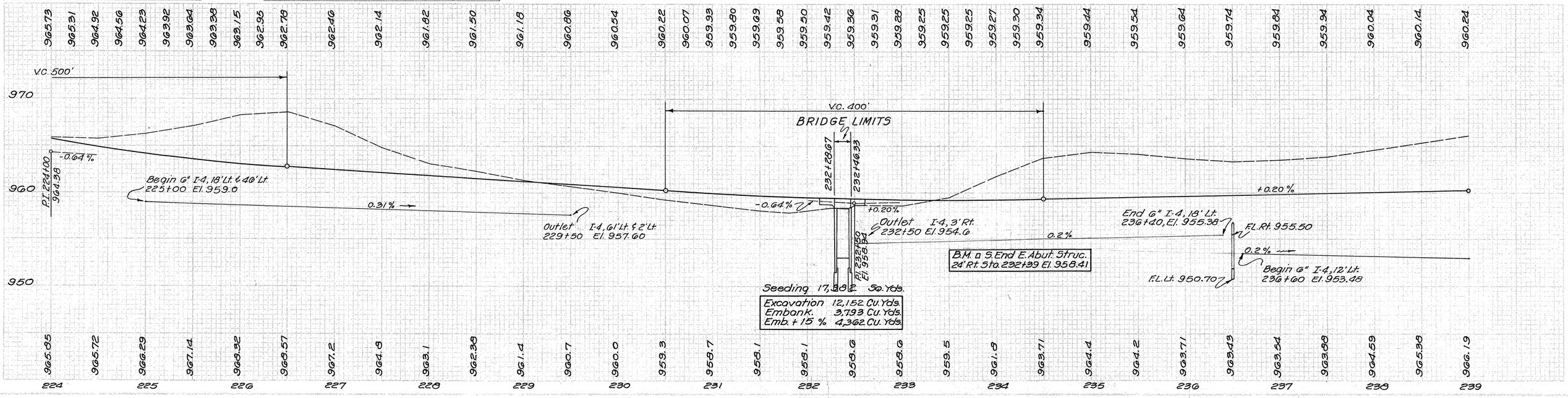
Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	227+50	232+15	340
2-P	232+50	233+75	120
Totals			460

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	225+00	229+50	Lt.	444	10	
2-U	225+00	229+50	Rt.	444	10	
3-U	232+50	236+40	Rt.	388	10	
4-U	236+60	239+00	Rt.	240		
Totals				1516	30	

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	232+30.48	232+55.48	Rt.	25	
2-G	232+49.30	232+74.30	Lt.	25	
Note: Deduct for Str. Quan.				-35.3	
Totals				14.7	



Seeding 17,388 Sq. Yds.

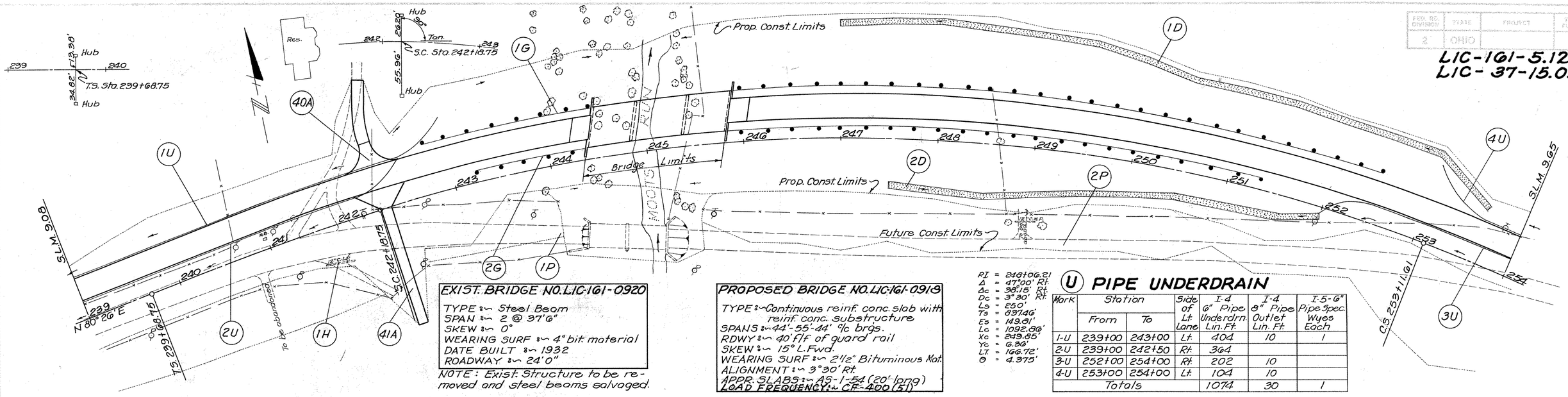
Excavation	12,152 Cu. Yds.
Embank.	3,793 Cu. Yds.
Emb. + 15 %	4,362 Cu. Yds.

224 ~ 239

FED. RD. DIVISION	STATE	PROJECT	FIVE FUNDS
5	OHIO		

26
238

LIC-161-5.12
LIC-37-15.09



EXIST. BRIDGE NO. LIC-161-0920

TYPE :– Steel Beam
SPAN :– 2 @ 37'6"
SKEW :– 0°
WEARING SURF :– 4" bit. material
DATE BUILT :– 1932
ROADWAY :– 24'0"

NOTE: Exist. Structure to be removed and steel beams salvaged.

PROPOSED BRIDGE NO. LIC-161-0918

TYPE :– Continuous reinf. conc. slab with reinf. conc. substructure
SPANS :– 44'-55'-44' c/c brgs.
RDWY :– 40' f/f of guard rail
SKEW :– 15° L. Fwd.
WEARING SURF :– 2½" Bituminous Mat.
ALIGNMENT :– 3°30' Rt.
APPR. SLABS :– AS-1-54 (20' long)
LOAD FREQUENCY :– CF-400 (51)

P.I.	= 246+06.21
Δ	= 47°00' Rt.
Δc	= 38°15' Rt.
Dc	= 3°30' Rt.
Ls	= 250'
Ts	= 237.46'
Es	= 149.81'
Lc	= 1092.86'
Xc	= 249.85'
Yc	= 6.36'
LT	= 1166.72'
θ	= 4.375°

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
40 A	242+25	Lt.	Res.	58
41 A	242+25	Rt.	Field	58

(D) DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type I Pav. Gutter Lin. Ft.
1-D	247+00	253+50	Lt.	480	
2-D	247+50	252+00	Rt.	300	
Totals				780	

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	242+19.34	252+48.55	Lt.	1000.00	
2-G	243+24.91	251+31.85	Rt.	812.50	
(Deduct for Struct.)			Lt. & Rt.	-288.81	
Totals				1523.69	

(H) PIPE REMOVED

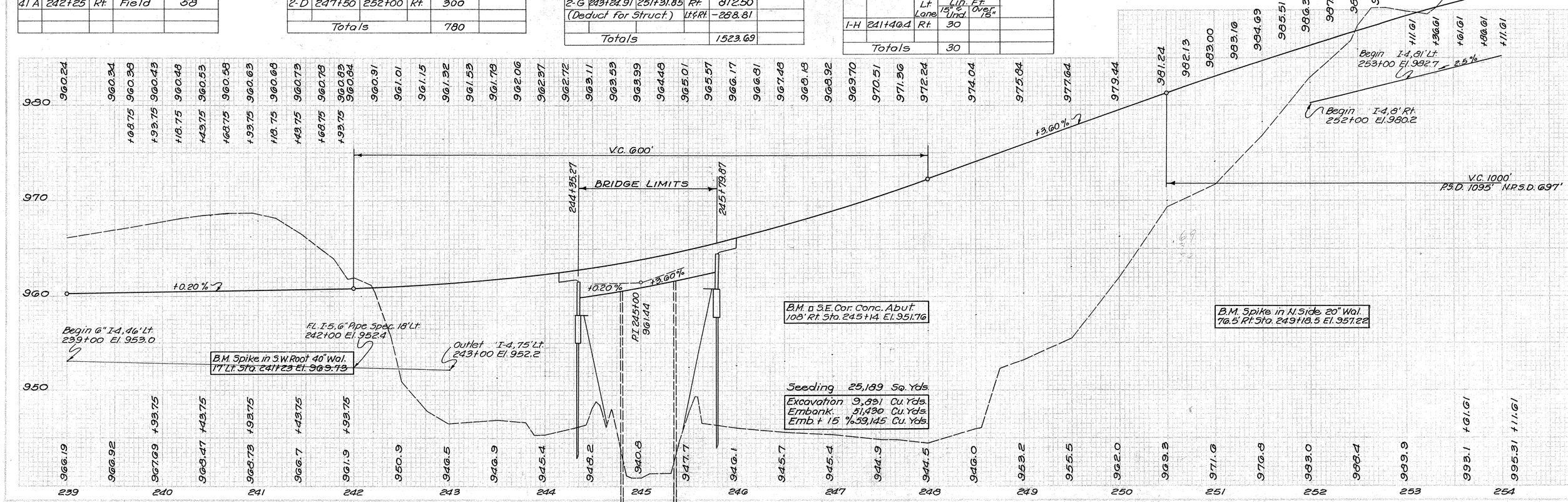
Mark	Beginning Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft. 15" & Und.	Over 15"	
1-H	241+40.4	Rt.	30		
Totals			30		

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	I-5-6" Pipe Spec. Wyes Each
1-U	239+00	243+00	Lt.	404	10	1
2-U	239+00	242+50	Rt.	364		
3-U	252+00	254+00	Rt.	202	10	
4-U	253+00	254+00	Lt.	104	10	
Totals				1074	30	1

(P) PAV'T. REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pavt. Sq. Yds.
1-P	243+00	244+25	234
2-P	245+32	254+00	1720
Totals			1954



Seeding 25,189 Sq. Yds.

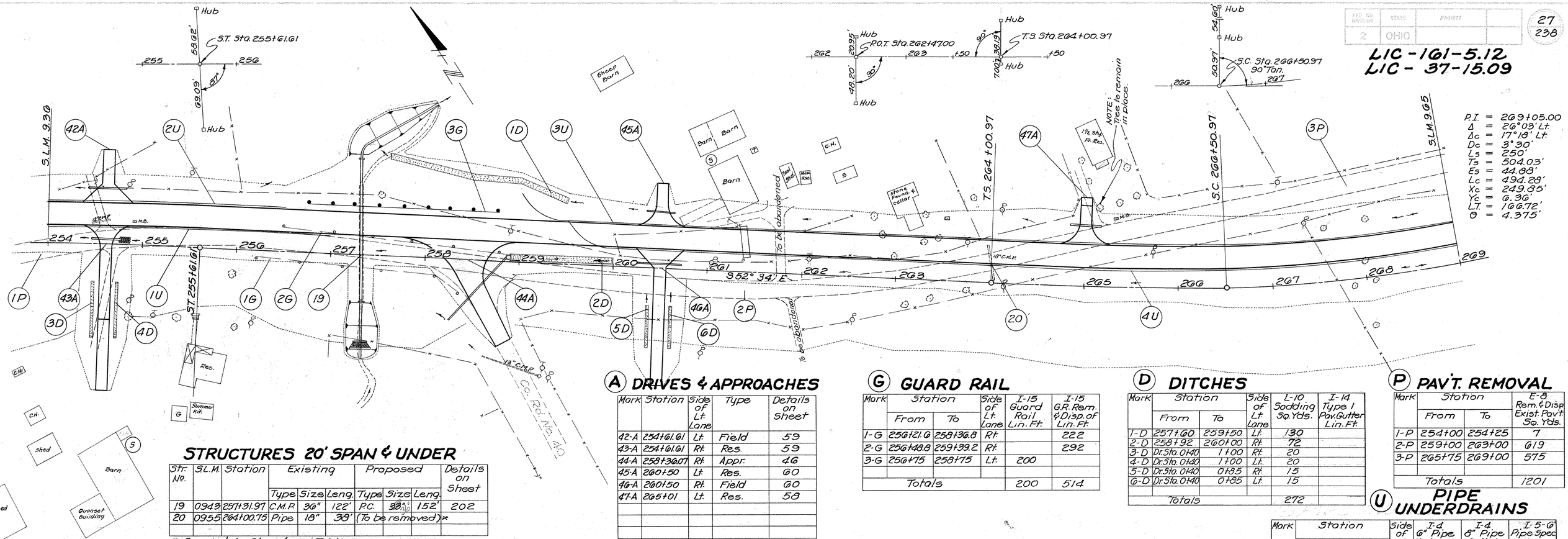
Excavation	9,831 Cu. Yds.
Embank.	51,430 Cu. Yds.
Emb. + 15 %	59,145 Cu. Yds.

239 ~ 254

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

27
238

LIC-161-5.12
LIC-37-15.09



P.I = 269+05.00
Δ = 26°03' Lt.
Δc = 17°18' Lt.
Dc = 3°30'
Ls = 250'
Ts = 504.03'
Es = 44.99'
Lc = 494.28'
Xc = 249.35'
Yc = 0.36
L.T. = 166.72'
θ = 4.375'

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
19	0943	257+91.97	C.M.P.	30"	122'	P.C.	38"	152'	202
20	0955	264+00.75	Pipe	18"	38'	(To be removed)*			

* Carried to Structure Table.

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
42-A	254+61.61	Lt.	Field	59
43-A	254+61.61	Rt.	Res.	59
44-A	258+36.07	Rt.	Appr.	46
45-A	260+50	Lt.	Res.	60
46-A	260+50	Rt.	Field	60
47-A	265+01	Lt.	Res.	58

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	256+21.6	258+36.8	Rt.		222
2-G	256+48.8	259+39.2	Rt.		292
3-G	256+75	258+75	Lt.	200	
Totals				200	514

(D) DITCHES

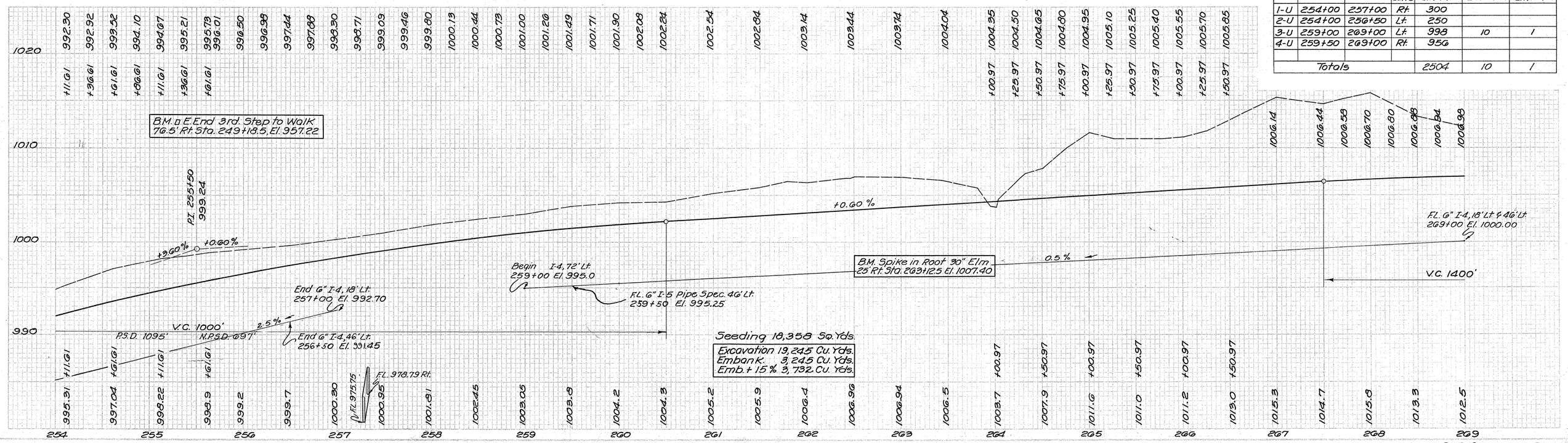
Mark	Station From	Station To	Side of Lt. Lane	I-10 Sodding Sq. Yds.	I-14 Type I Pav. Gutter Lin. Ft.
1-D	257+60	259+50	Lt.	130	
2-D	258+92	260+00	Rt.	72	
3-D	Dr. Sta. 0+40	1+00	Rt.	20	
4-D	Dr. Sta. 0+40	1+00	Lt.	20	
5-D	Dr. Sta. 0+40	0+85	Rt.	15	
6-D	Dr. Sta. 0+40	0+85	Lt.	15	
Totals				272	

(P) PAV'T. REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	254+00	254+25	7
2-P	259+00	263+00	619
3-P	265+75	269+00	575
Totals			1201

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	I-5-6 Pipe Spec Wye Lin. Ft.
1-U	254+00	257+00	Rt.	300		
2-U	254+00	256+50	Lt.	250		
3-U	259+00	269+00	Lt.	998	10	1
4-U	259+50	269+00	Rt.	956		
Totals				2504	10	1



Seeding 18,358 Sq. Yds.

Excavation 19,245 Cu. Yds.
Embank. 3,245 Cu. Yds.
Emb. + 15% 3,732 Cu. Yds.

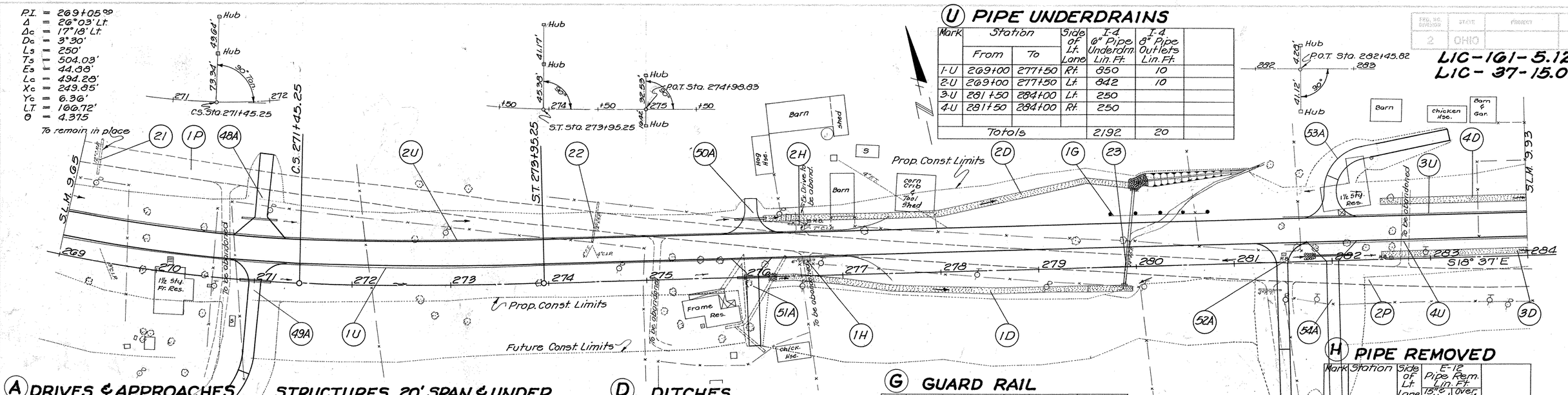
254 ~ 269

REG. NO. DIVISION	STATE	PROJECT		
2	OHIO			

28
238

LIC-161-5.12
LIC-37-15.09

P.I. = 269+05.99
Δ = 26°03' Lt.
Δc = 17°18' Lt.
Dc = 3°30'
Ls = 250'
Ts = 504.03'
Es = 44.38'
Lc = 494.28'
Xc = 249.85'
Yc = 6.36'
L.T. = 166.72'
θ = 4.315



A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
48-A	271+00	Lt.	Field	G1
49-A	271+00	Rt.	Res.	G1
50-A	276+03	Lt.	Res.	G0
51-A	276+08	Rt.	Field	G0
52-A	281+50	Rt.	Res.	G4
53-A	282+00	Lt.	Res.	G4
54-A	282+00	Rt.	Field	G4

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
21	0965	269+25	C.M.P.	12"	38'	To Remain in place			
22	0975	274+45	V.S.P.	12"	40'	To be removed			*
23	0985	279+89.5	V.S.P.	24"	42'	Pipe	30"	96'	203

* Carried to Struc. Table.

D DITCHES

Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
1-D	276+29	279+95	Rt.	244	
2-D	276+22	279+95	Lt.	255	
3-D	282+50	284+00	Rt.	100	
4-D	282+50	284+00	Lt.	100	
Totals				699	

U PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlets Lin. Ft.
1-U	269+00	277+50	Rt.	850	10
2-U	269+00	277+50	Lt.	842	10
3-U	281+50	284+00	Lt.	250	
4-U	281+50	284+00	Rt.	250	
Totals				2192	20

G GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	279+75	280+75	Lt.	100	
Totals				100	

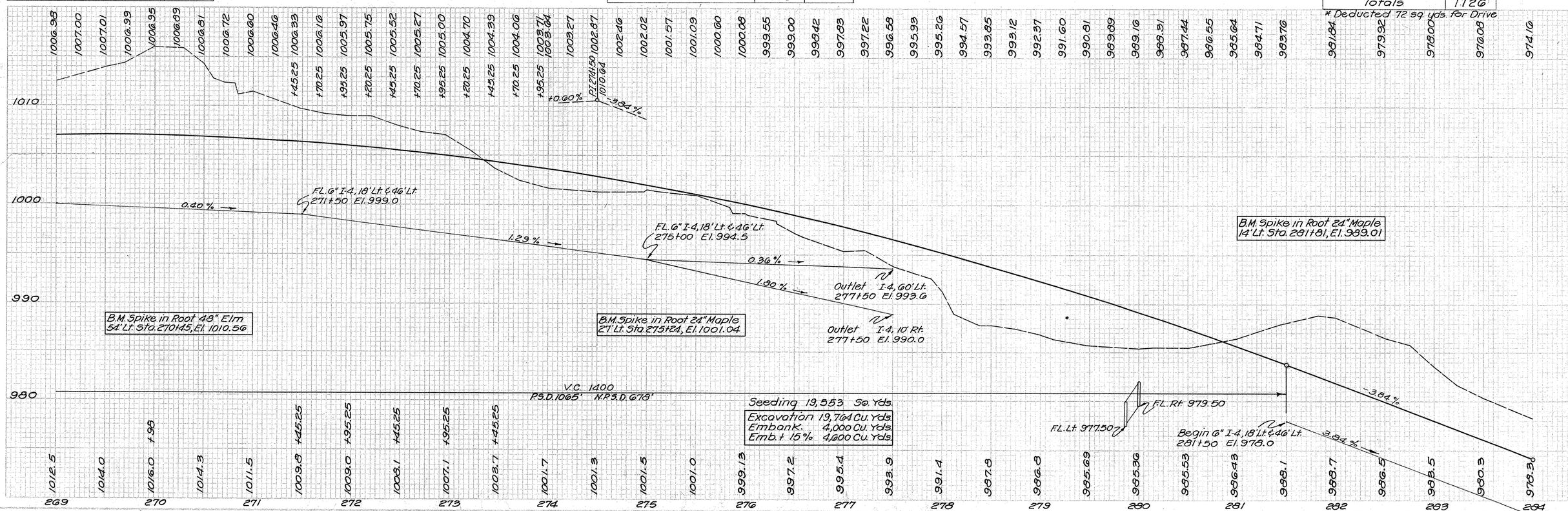
H PIPE REMOVED

Mark	Station	Side of Lt. Lane	E-12 Pipe Rem. Lin. Ft. 15" & Und.	E-12 Pipe Rem. Lin. Ft. Over 15"	
1-H	276+54.2	Rt.	18		
2-H	276+46	Lt.	22		
Totals			40		

P PAV'T. REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	269+00	274+50	884 *
2-P	282+38	284+00	242
Totals			1126

* Deducted 72 sq. yds. for Drive



269 to 284

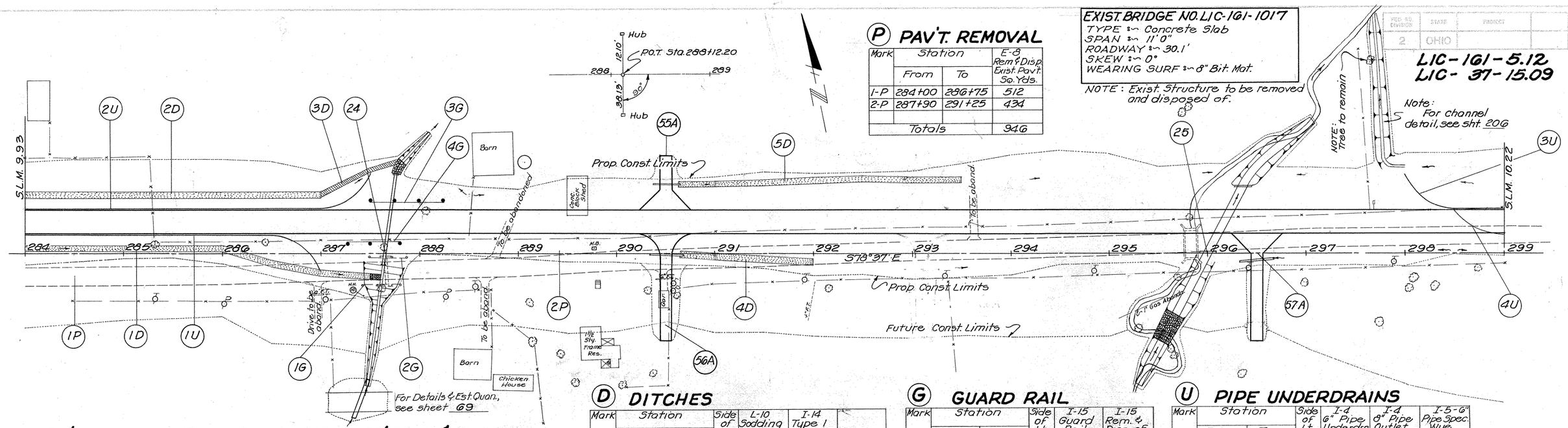
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

29
238

LIC-161-5.12
LIC-37-15.09

EXIST. BRIDGE NO. LIC-161-1017
TYPE :- Concrete Slab
SPAN :- 11'0"
ROADWAY :- 30.1'
SKEW :- 0°
WEARING SURF :- 8" Bit. Mat.

NOTE: Exist. Structure to be removed and disposed of.



(P) PAV'T. REMOVAL

Mark	Station From	Station To	E-8 Rem & Disp. Exist. Pav't. Sq. Yds.
1-P	284+00	286+75	512
2-P	287+90	291+25	434
Totals			946

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
55A	290+50	Lt.	Field	62
56A	290+50	Rt.	Res.	62
57A	296+50	Rt.	Field	62

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
24	1000	287+65.7	Box Culv.	2-5'x2'	30'	Pipe Arch	8'-7"x5'-11"	94'	204
25	1016	296+00	Conc. Slab	11 Span	30'	Pipe Arch	8'-7"x5'-11"	78'	205

(D) DITCHES

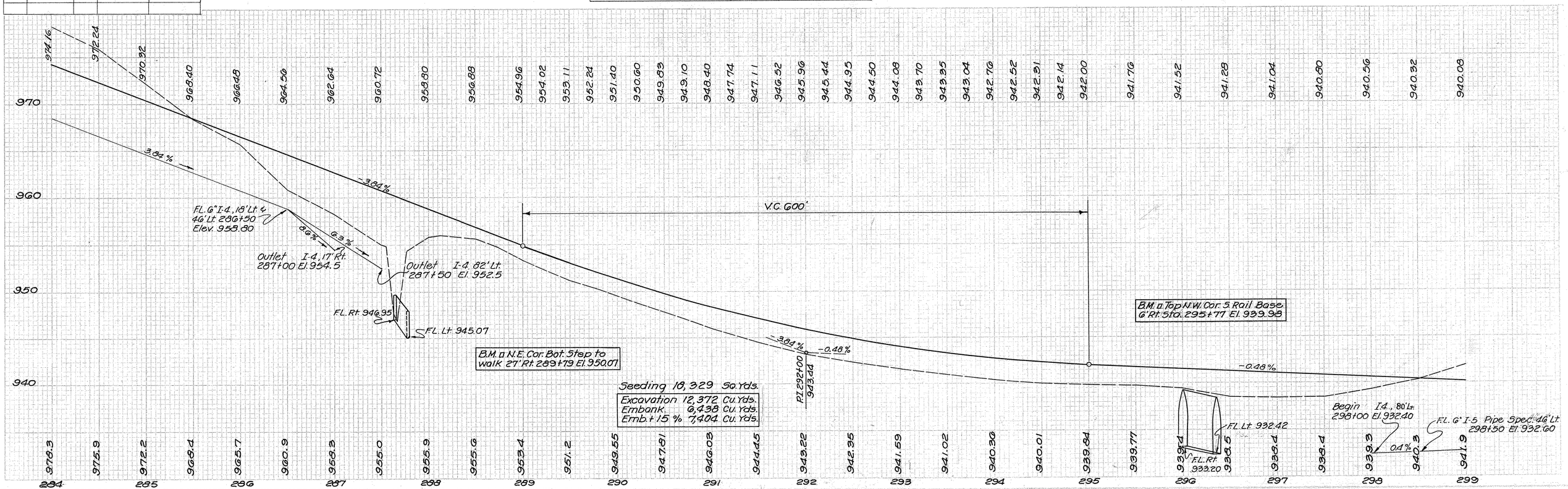
Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type I Pav. Gutter Lin. Ft.
1-D	284+00	287+50	Rt.	235	
2-D	284+00	287+00	Lt.	200	
3-D	287+00	287+75	Lt.		82
4-D	290+63	292+00	Rt.	91	
5-D	290+65	293+50	Lt.	194	
Totals				720	82

(G) GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 Rem. & Disp. of Lin. Ft.
1-G	287+41	287+79	Rt.		38
2-G	287+49	287+87	Rt.		38
3-G	287+50	288+25	Lt.	75	
4-G	287+25	287+75	Rt.	50	
Totals				125	76

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 6" Pipe Outlet Lin. Ft.	I-5-6" Pipe Spec. Wye Each
1-U	284+00	287+00	Rt.	304	10	
2-U	284+00	287+50	Lt.	356	10	
3-U	298+00	299+00	Lt.	104	10	1
4-U	298+50	299+00	Rt.	60		
Totals				824	30	1

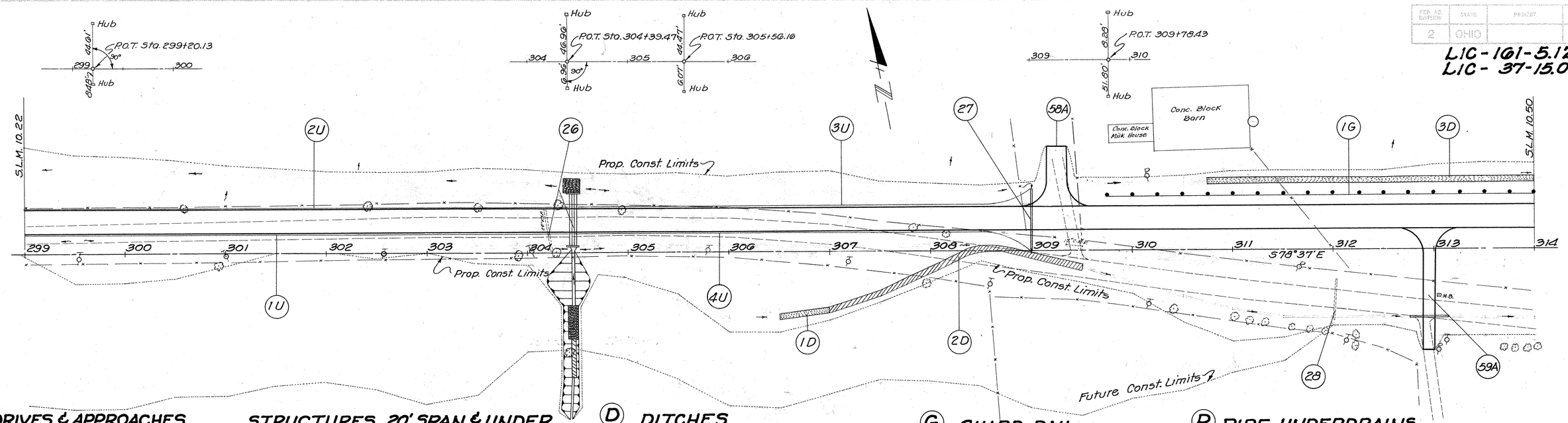


284 ~ 299

FED. AID DIVISION	STATE	PROJECT	
2	OHIO		

30
238

LIC-161-5.12
LIC-37-15.09



A DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
58A	309+25	Lt.	Busn.	G3
59A	312+96	Rt.	Res.	G3

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
26	1032	304+45	Pipe	24"	43'	Pipe	2-23"x18"	54'	206
27	1040	309+00	(none)			Pipe	15"	62'	207
28	1040	312+06.05	Pipe	24"	40'	(to be removed)			*

* Carried to Struct. Table

D DITCHES

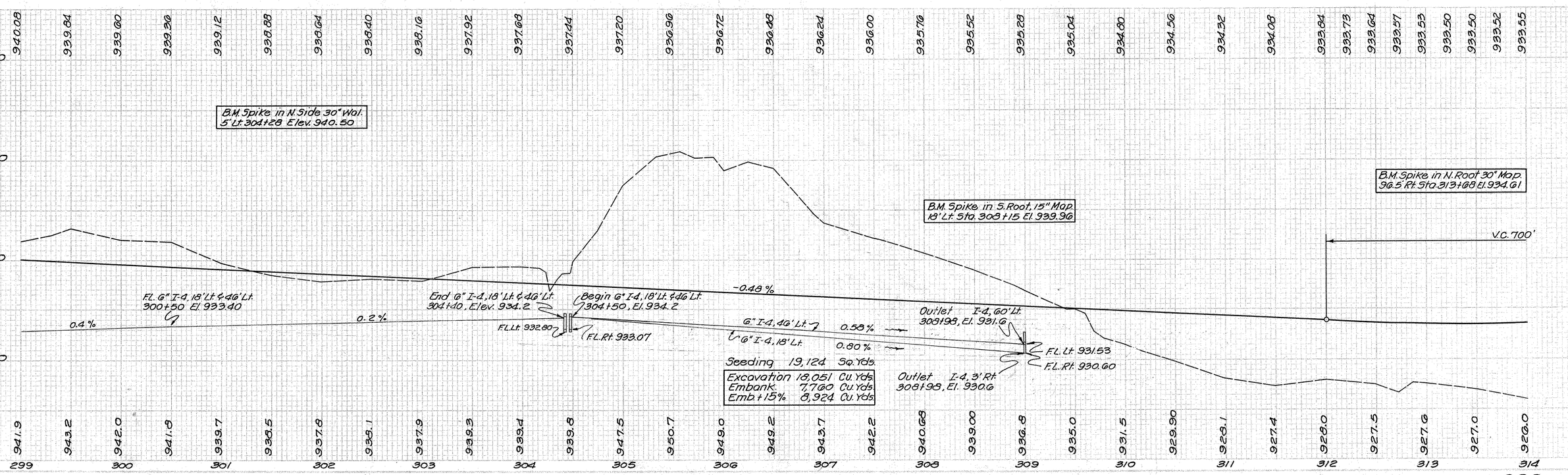
Mark	Station From	Station To	Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type I Pav. Gutter Lin. Ft.	
1-D	306+50	307+00	Rt.	33		
2-D	307+00	309+50	Rt.		265	
3-D	310+75	314+00	Lt.	217		
*Carried from Sheet 206					* 39	
Totals				250	304	

G GUARD RAIL

Mark	Station From	Station To	Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.	
1-G	309+75	314+00	Lt.	425'		
Totals				425		

P PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	299+00	304+40	Rt.	540		
2-U	299+00	304+40	Lt.	540		
3-U	304+50	308+98	Lt.	442	10	
4-U	304+50	308+98	Rt.	444	10	
Totals				1966	20	



299 ~ 314

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LIC-161-5.12
LIC-37-15.09

(A) DRIVES & APPROACHES

Mark	Station	Side of Lt. Lane	Type	Details on Sheet
60A	321+50	Lt.	Field	63
61A	321+50	Rt.	Field	63
62A	324+22.35	Rt.	Appr.	46

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
29	1054	316+35	Box Pipe Ex.	3'x3' x36"	44'	(To be removed)			*
30	1063	320+87	Pipe	36"	60'	Cattle Pass		100'	208

* Carried to Structure's Table

(D) DITCHES

Mark	Station		Side of Lt. Lane	L-10 Sodding Sq. Yds.	I-14 Type 1 Pav. Gutter Lin. Ft.
	From	To			
1-D	314+00	316+32	Lt.	155	
2-D	320+85	321+32	Lt.		55
3-D	327+00	329+00	Rt.	125*	
Totals				280	55

* Deducted 8 Sq. Yds. for Riprap

(S) STORM SEWERS

Mark	Station		Side of Lt. Lane	I-2 Class 'A' S.S. under Pav't. Lin. Ft.			I-8 Catch Basin Each	I-10 Riprap Sq. Yds.
	From	To		12"			#2-2A	
1-S	327+50	328+20		90			1	8
Totals				90			1	8

(G) GUARD RAIL

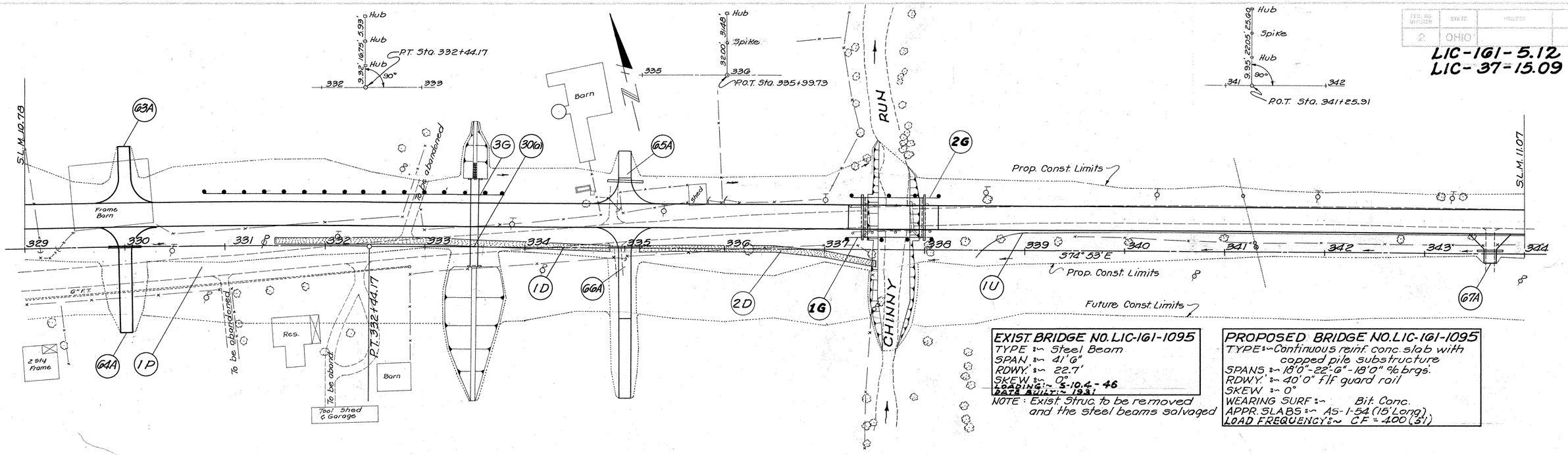
Mark	Station		Side of Lt. Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
	From	To			
1-G	314+00	321+25	Lt.	725	
2-G	320+50	321+00	Rt.	50	
Totals				775	

(P) PAV'T. REMOVAL

Mark	Station		E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
	From	To	
1-P	324+57	329+00	944
Totals			944

(U) PIPE UNDERDRAINS

Mark	Station		Side of Lt. Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
	From	To				
1-U	321+00	327+50	Lt.	646	10	
2-U	321+00	328+18	Rt.	702	20	
Totals				1348	30	



EXIST. BRIDGE NO. LIC-161-1095
TYPE :- Steel Beam
SPAN :- 41'6"
RDWY. :- 22.7'
SKEW :- 0°
LOADING :- S-10.4-46
DATE BUILT :- 1931
NOTE : Exist. Struc. to be removed and the steel beams salvaged

PROPOSED BRIDGE NO. LIC-161-1095
TYPE :- Continuous reinf. conc. slab with capped pile substructure
SPANS :- 18'0"-22'-6"-18'0" ctrs. brgs.
RDWY. :- 40'0" f/f guard rail
SKEW :- 0°
WEARING SURF :- Bit. Conc.
APPR. SLABS :- AS-1-54 (15' Long)
LOAD FREQUENCY :- CF = 400 (31)

(A) DRIVES & APPROACHES

Mark	Station	Side of Left Lane	Type	Details on Sheet
63A	330+00	Lt.	Res.	65
64A	330+00	Rt.	Res.	65
65A	335+00	Lt.	Res.	65
60A	335+00	Rt.	Res.	65
67A	343+66	Rt.	Field	66

(D) DITCHES

Mark	Station From	Station To	Side of Left Lane	L-10 Sodding Sq. Yds.	I-14 Type I Paved Gutter Lin. Ft.
1-D	331+50	334+88	Rt.	225	
2-D	335+14	337+50	Rt.	159	
Totals				384	

(G) GUARD RAIL

Mark	Station From	Station To	Side of Left Lane	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	337+21.28	338+08.78	Rt.	87.50	
2-G	337+27.53	338+15.03	Lt.	87.50	
3-G	330+66	333+78.5	Lt.	312.5	
Note: Deduct for Br. Quant.				-120.00 ✓	
Totals				367.5	

(P) PAVEMENT REMOVAL

Mark	Station From	Station To	E-8 Rem. & Disp. Exist. Pav't. Sq. Yds.
1-P	329+00	333+75	576 *
Totals			576

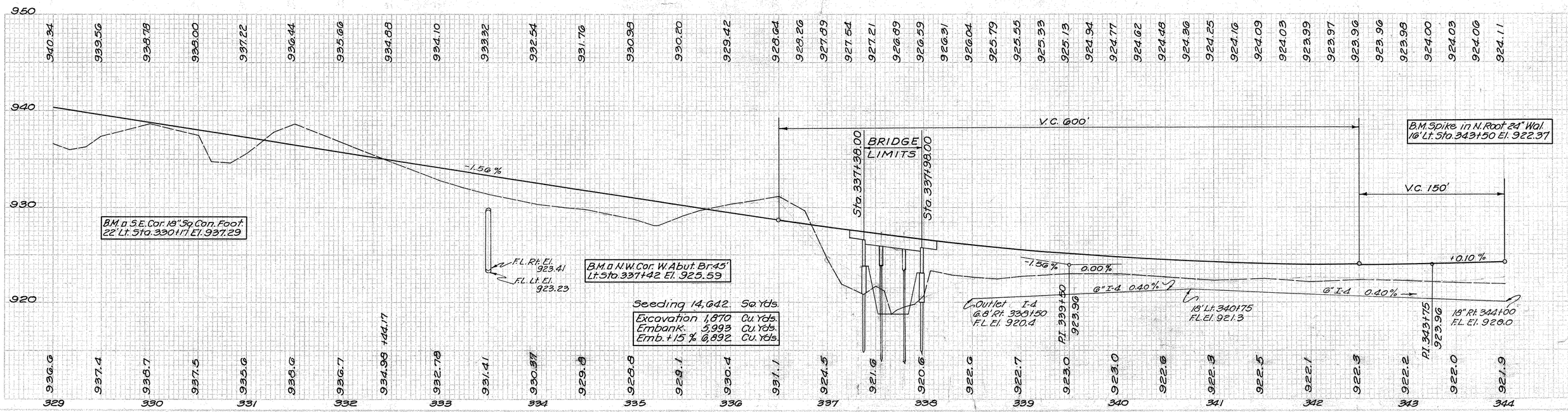
* 91 Sq. Yds. deducted for drives

(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side of Left Lane	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	338+50	344+00	Rt.	548	10	
Totals				548	10	

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(a)	10.87	333+50	(none)			Cattle Pass		88'	213



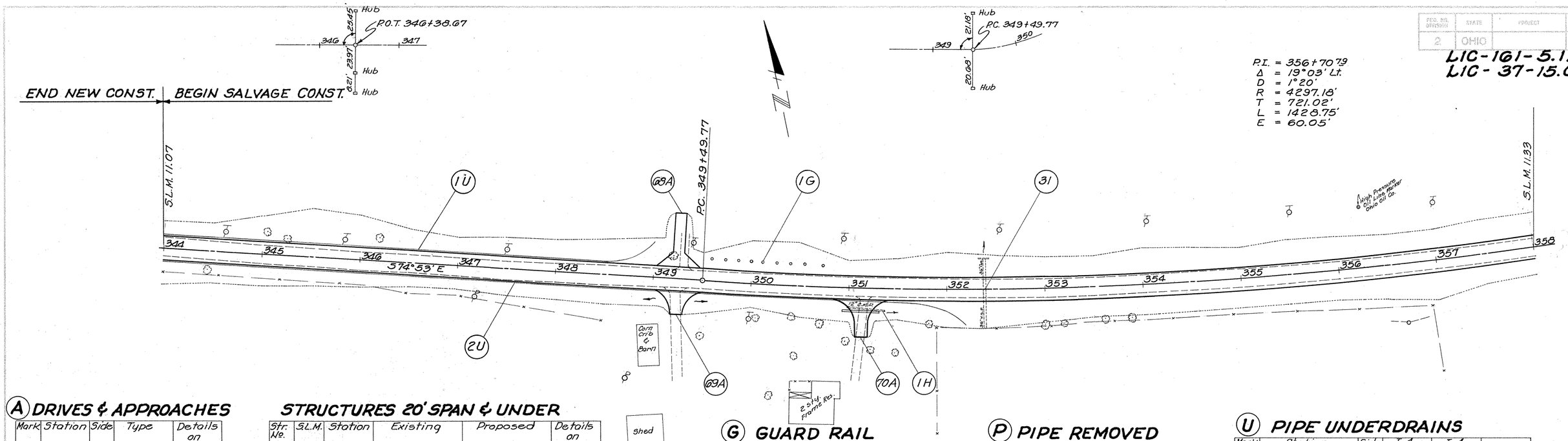
329 ~ 344

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

33
238

LIC-161-5.12
LIC-37-15.09

P.I. = 356+70.79
Δ = 19°03' Lt.
D = 1°20'
R = 4297.18'
T = 721.02'
L = 1428.75'
E = 60.05'



(A) DRIVES & APPROACHES

Mark	Station	Side	Type	Details on Sheet
69A	349+25	Lt.	Field	GG
69A	349+25	Rt.	Res.	GG
70A	351+13	Rt.	Res.	GG

STRUCTURES 20' SPAN & UNDER

Str. No.	S.L.M.	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
31	11.23	352+38.5	Conc. Pipe	36"	70.2'	(no work req.)			

(G) GUARD RAIL

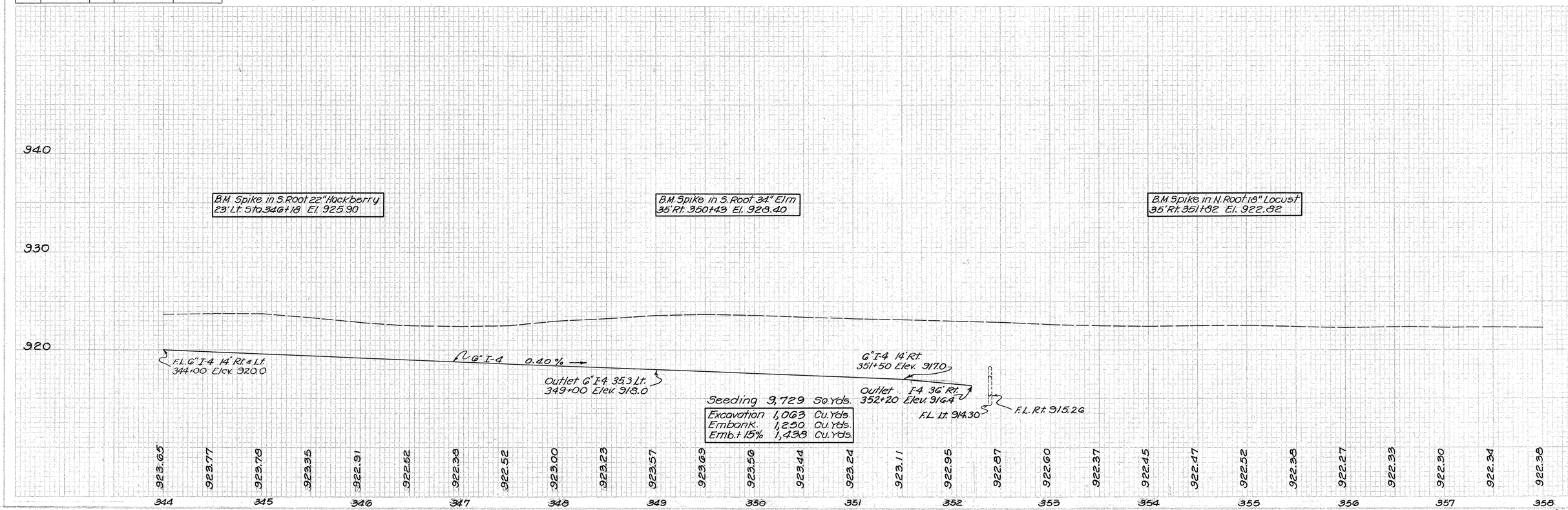
Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	349+58.0	350+72.7	Lt.		114'
Totals					114

(P) PIPE REMOVED

Mark	Beginning Station	Side	E-12 Pipe Rem. Lin. Ft. 15" & Und.	Over 15"	
1-H	350+99	Rt.	38'		
Total			38		

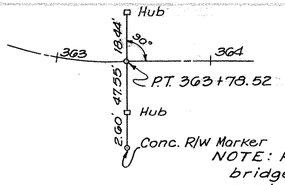
(U) PIPE UNDERDRAINS

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	344+00	349+00	Lt.	496	10	
2-U	344+00	352+20	Rt.	814	10	
Totals				1310	20	



344-358

P.I. = 356+70.79
Δ = 19°03' Lt.
D = 1°20'
R = 4297.18'
T = 721.02'
L = 1428.75'
E = 60.05'



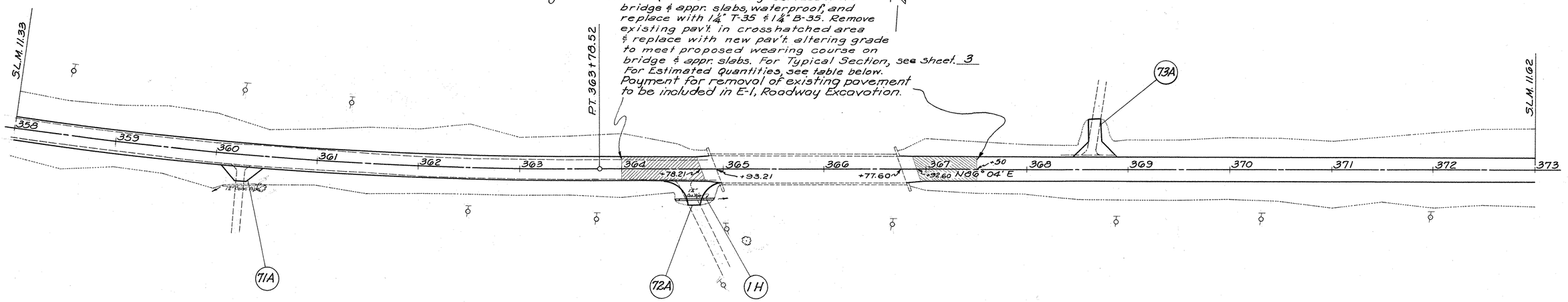
EXIST. BRIDGE NO. LIC.-161-1146
TYPE :- Cont. Steel Beam
SPANS :- 56'-70'-56'
RDWY. :- 27'-8"
SKEW :- 20° R. Fwd.
WEARING SURF. :- 2" Bituminous Mat.

FED. AID DIVISION	STATE	PROJECT	
2	OHIO		

34
238

LIC-161-5.12
LIC-37-15.09

NOTE: Remove wearing surface from bridge & appr. slabs, waterproof, and replace with 1¼" T-35 & 1¼" B-35. Remove existing pav't. in crosshatched area & replace with new pav't. altering grade to meet proposed wearing course on bridge & appr. slabs. For Typical Section, see Sheet 3
For Estimated Quantities, see table below.
Payment for removal of existing pavement to be included in E-1, Roadway Excavation.



(A) DRIVES & APPROACHES

Mark	Station	Side	Type	Details on Sheet
71A	360+27	Rt.	Field	GG
72A	364+72	Rt.	Bus.	GG
73A	368+68	Lt.	Field	GG

(H) PIPE REMOVED

Mark	Beginning Station	Side	E-12 Pipe Rem. Lin. Ft. 15" & Und.	E-12 Pipe Rem. Lin. Ft. Over 15"	
1-H	364+57	Rt.	24'		
Totals			24'		

ESTIMATED QUANTITIES BR. Nº LIC-161-1146 & APPRS.

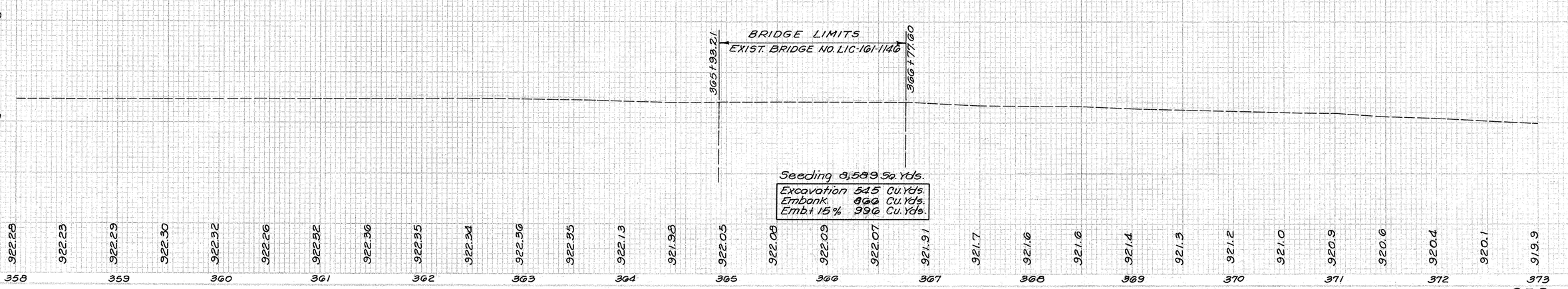
	Item	Description	Bridge & Appr. Slabs	Transition	Total
*	T-35	1¼" Asph. Conc. Surf. Course	22.8 Cu. Yds.	12.6 Cu. Yds.	35.4 Cu. Yds.
*	B-35	1¼" Asph. Conc. Leveling Course	22.8 Cu. Yds.	12.6 Cu. Yds.	35.4 Cu. Yds.
*	B-35	3" Asph. Conc. Base Course		30.8 Cu. Yds.	30.8 Cu. Yds.
*	B-20	5" Waterbound Mac. Base		384 Sq. Yds.	384 Sq. Yds.
*	I-22	8" Subbase		105.8 Cu. Yds.	105.8 Cu. Yds.
*	T-30	Bituminous Prime Coat		136 gals.	136 gals.
*	T-30	Bituminous Tack Coat	8 gals.		8 gals.
x	S-3	Waterproofing	574 Sq. Yds.		574 Sq. Yds.
x	E-8	Rem. of Exist. Wearing Course	658 Sq. Yds.		658 Sq. Yds.

* Carried to Calculations.
x Carried to General Summary

940
930
920

B.M. Spike in N. Side 24" Wal. 30.4' Rt. 360+47 El. 922.34

B.M. □ S.E. Cor. E. Wingwall Br. LI-161-115 20.7' Rt. Sta. 366+83 Elev. 922.50



Seeding 8,589 Sq. Yds.

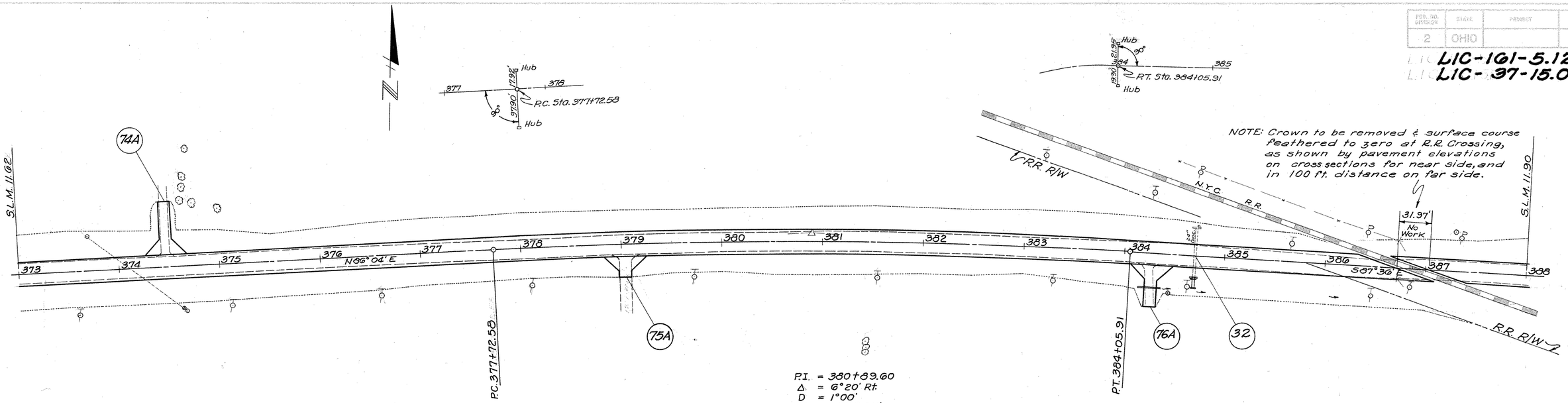
Excavation	545	Cu. Yds.
Embank.	866	Cu. Yds.
Emb. + 15%	996	Cu. Yds.

358-373

FED. NO. DIVISION	STATE	PROJECT	
2	OHIO		

35
238

LIC-161-5.12
LIC-37-15.09

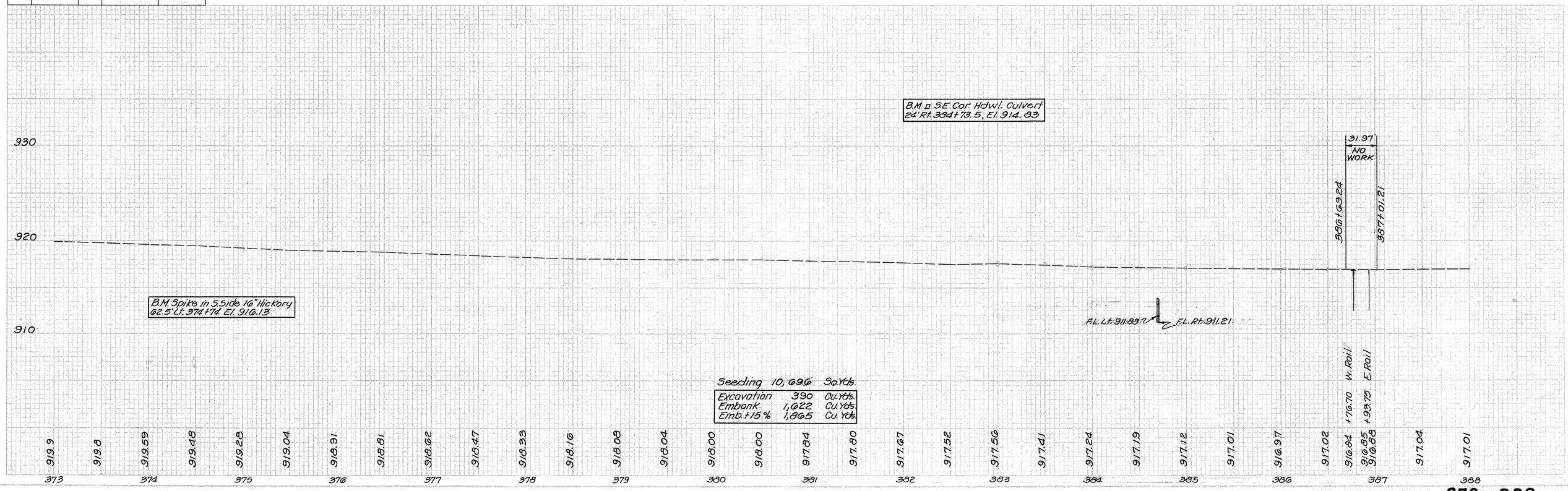


(A) DRIVES & APPROACHES

Mark	Station	Side	Type	Details on Sheet
74A	374+47	Lt.	Field	G7
75A	379+03	Rt.	Field	G7
76A	384+27	Rt.	Field	G7

STRUCTURES 20' SPAN & UNDER

Str. Nº	SLM	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
32	1184	384+69.72	Pipe Culv.	24"	53.08	Pipe Culv.	24"	63.08	209

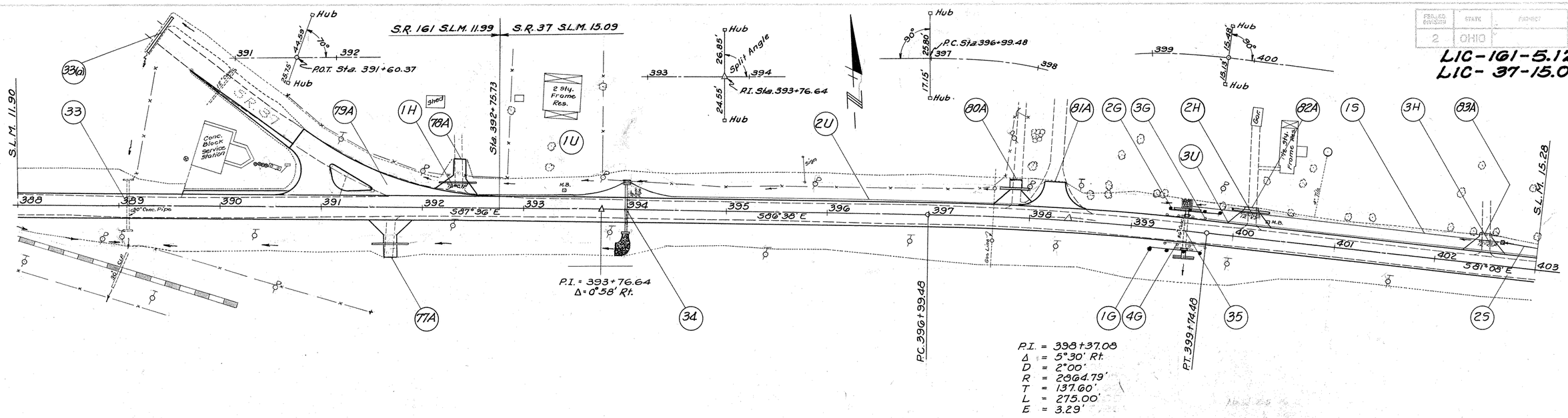


373-388

FEDERAL DIVISION	STATE	PROJECT	
2	OHIO		

36
238

LIC-161-5.12
LIC-37-15.09



(A) DRIVES & APPROACHES

Mark	Station	Side	Type	Details on Sheet
77A	391+66	Rt.	Field	67
79A	392+36	Lt.	Res.	67
79A	392+75.73	Lt.	Rd. Appr.	47
80A	397+84	Lt.	Field	67
81A	398+23	Lt.	Bus.	67
82A	400+15	Lt.	Res.	68
83A	402+48	Lt.	Field	68

STRUCTURES 20'SPAN & UNDER

Str. Nº	SLM	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
33	1192	389+08.89	Pipe	30"		To remain in place			
34	1511	394+00	Pipe	18"	36.25'	Pipe	24"	50'	211
35	1522	399+53.04	Pipe	36"	31.1'	Pipe	36"	51.10'	210
33(a)	1502	Appr. Sta 3+85	None			Pipe Arch	29"x18"	42'	47

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin.Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	399+20	399+70	Rt.	50	
2-G	399+35	399+85	Lt.	50	
3-G	399+33	399+73	Lt.		40
4-G	399+34.5	399+74.5	Rt.		40
Totals				100	80

(H) PIPE REMOVED

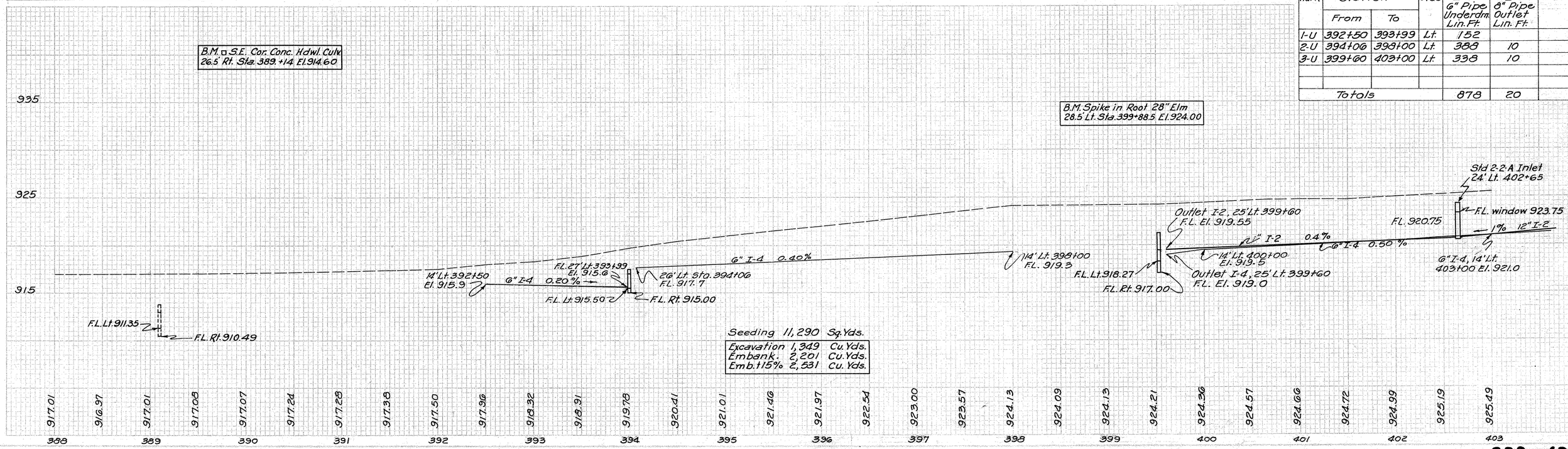
Mark	Station	Side	E-12 Pipe Rem. Lin. Ft. 15" & Und.	E-12 Pipe Rem. Lin. Ft. Over 15	
1-H	392+30	Lt.	16'		
2-H	400+05	Lt.	20'		
3-H	402+45	Lt.	16'		
Totals			52		

(S) STORM SEWERS

Mark	Station From	Station To	Side	Cl. A Storm Sewer Lin. Ft. 18"	Cl. A Storm Sewer Lin. Ft. 21"	Cl. A, SS under Pavt. Lin. Ft. 21"			Catch Basins Each I-8 "2-2-A	
1-S	399+60	402+64	Lt.		264	40			1	
2-S	402+66	403+00	Lt.	34						
Totals				34	264	40			1	

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	392+50	393+99	Lt.	152		
2-U	394+06	399+00	Lt.	388	10	
3-U	399+60	403+00	Lt.	338	10	
Totals				878	20	



Seeding 11,290 Sq. Yds.

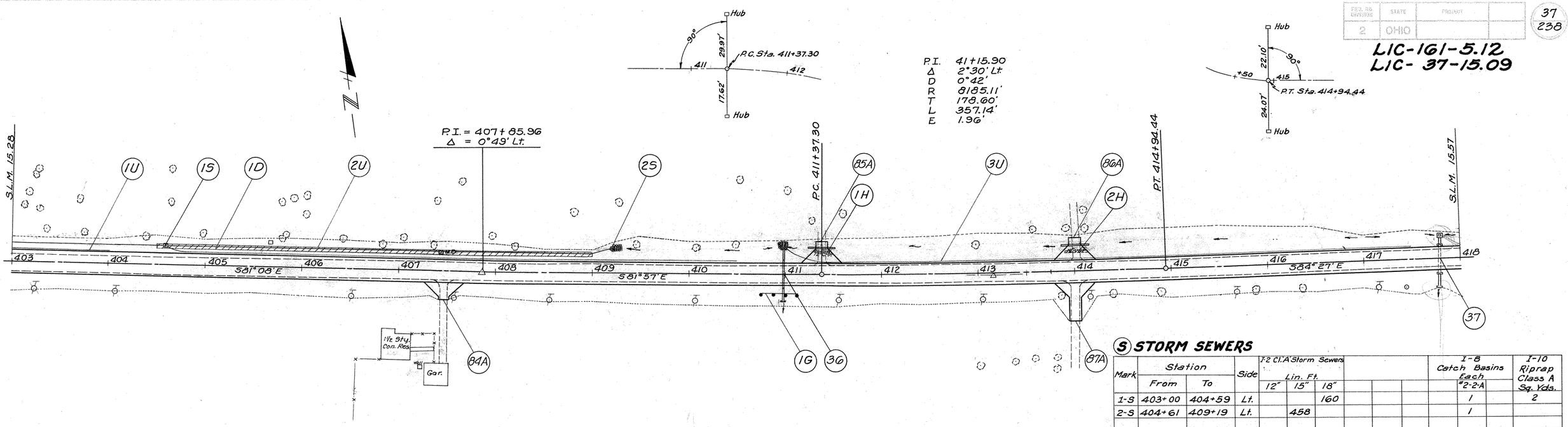
Excavation	1,349	Cu. Yds.
Embank.	2,201	Cu. Yds.
Emb. ↑15%	2,531	Cu. Yds.

388 ~ 403

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

37
238

LIC-161-5.12
LIC- 37-15.09



(A) DRIVES & APPROACHES

Mark	Station	Side	Type	Details on Sheet
84A	407+46.5	Rt.	Res.	G8
85A	411+38.5	Lt.	Field	G8
86A	414+00	Lt.	Field	G8
87A	414+00	Rt.	Field	G8

STRUCTURES 20' SPAN & UNDER

Str. No	SLM	Station	Existing			Proposed			Details on Sheet
			Type	Size	Leng.	Type	Size	Leng.	
36	15.44	410+98.05	Pipe	12"	29'-3"	Pipe Ext.	12"	55'-3"	2.10
37	15.56	417+79.28	Pipe	12"	30'-6"	Pipe Ext.	12"	52'-6"	2.11

(D) DITCHES

Mark	Station From	Station To	Side	L-10 Sodding Sq. Yds.	I-14 Pav. Gutter Types 4 Lin. Ft.
1-D	404+50	409+00	Lt.		450
Totals					450

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.	I-15 G.R. Rem. & Disp. of Lin. Ft.
1-G	410+75	411+12.5	Rt.	37.50'	
Totals				37.50	

(S) STORM SEWERS

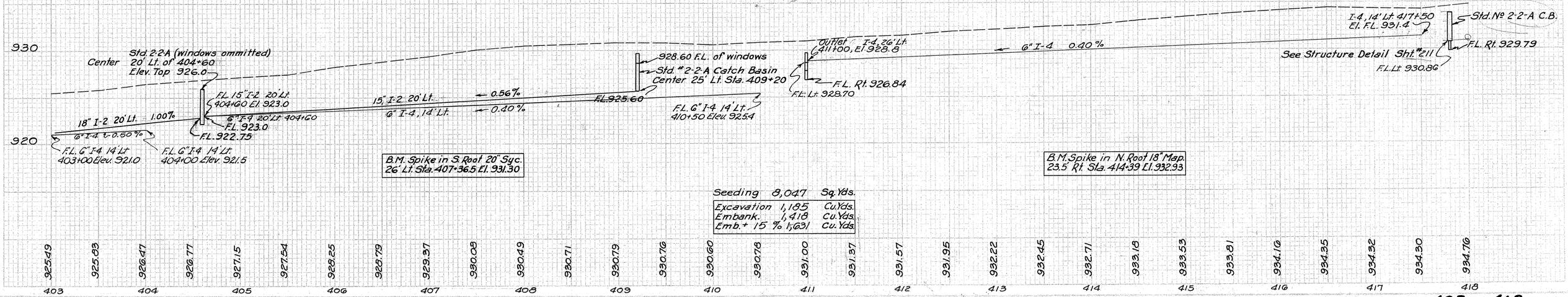
Mark	Station From	Station To	Side	I-2 Cl. A Storm Sewers Lin. Ft. 12"	15"	18"				I-8 Catch Basins Each #2-2-A		I-10 Riprap Class A Sq. Yds.
1-S	403+00	404+59	Lt.			160				1		2
2-S	404+61	409+19	Lt.		458					1		
Totals					458	160				2		2

(H) PIPE REMOVED

Mark	Beginning Station	Side	E-12 Pipe Rem. Lin. Ft. 15" & Und.	Over 15"	
1-H	411+31	Lt.	14'		
2-H	413+91	Lt.	25'		
Totals			39		

(U) PIPE UNDERDRAIN

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrn. Lin. Ft.	I-4 8" Pipe Outlet Lin. Ft.	
1-U	403+00	404+00	Lt.	100		
2-U	404+60	410+50	Lt.	592		
3-U	411+00	417+50	Lt.	644	10	
Totals				1336	10	



Seeding 8,047 Sq. Yds.

Excavation	1,185	Cu. Yds.
Embank.	1,418	Cu. Yds.
Emb. + 15 %	1,631	Cu. Yds.

403 - 418

BEGIN PROJ. S.R. 161 - S.L.M. 5.12
END PROJ. S.R. 161 - S.L.M. 12.71 = S.R. 37 - S.L.M. 15.81

(A) DRIVES & APPROACHES

Mark	Station	Side	Type	Details on Sheet
88A	418+60	Lt.	Field	69
89A	419+79	Lt.	Res.	69
90A	421+83	Lt.	Res.	69
91A	422+47	Lt.	Res.	69
92A	422+99	Lt.	Res.	69
93A	423+87	Lt.	Res.	69
94A	424+89	Rt.	Res.	69
95A	426+37	Lt.	Res.	69
96A	426+77	Rt.	Res.	69
97A	427+16.5	Rt.	Res.	69
98A	427+31	Lt.	Res.	69
99A	427+81.6	Rt.	Res.	69
100A	428+20.5	Lt.	Res.	69
101A	428+47	Rt.	Res.	69
102A	429+11.5	Rt.	Res.	69
103A	429+82	Rt.	Res.	69
104A	430+05	Lt.	Res.	69
105A	431+20	Rt.	Appr.	69
106A	432+06.5	Lt.	Res.	69

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
38	15.65	422+37.65	Pipe	24"	19'10"	Pipe Ext.	24"	43'10"	212
39	15.78	429+10	Pipe	24"		Pipe Ext.	24"	16' Ext.	212

(B) CURB & GUTTER

Mark	Station From	Station To	Side	I-12 Type 2 Curb & Gutter, as per plan Lin. Ft.
1-B	420+06	431+83	Lt.	1144.24 *
2-B	422+50	431+00	Rt.	825.43 *
⊗ Totals				1970

*Deducted 4 Catch Basins @ 8.19' = 32.76'
*Deducted 3 Catch Basins @ 8.19' = 24.57'
⊗ Carried to General Summary

(G) GUARD RAIL

Mark	Station From	Station To	Side	I-15 Guard Rail Lin. Ft.
1-G	422+12.5	422+50	Rt.	37.5
Totals				37.5

(H) PIPE REMOVED

Mark	Station	Side	E-12 Pipe Rem. Lin. Ft. 15" & Und.	E-12 Pipe Rem. Lin. Ft. Over 15"	I-16 Catch Basin Abandoned Each
1-H	418+53	Lt.	15		
2-H	419+67	Lt.	103		
3-H	422+38	Lt.	169		1
4-H	429+90	Lt.	216		1
Totals			503		2

(W) SIDEWALK

Mark	Station From	Station To	Side	I-13 Con. Sidewalk Sq. Ft. 4"	I-13 Con. Sidewalk Sq. Ft. 6"	E-8 Rem. & disp. of Ex. Sidewalk Sq. Ft.
1-W	424+76.3	432+23	Lt.	2587	400	2987
2-W	427+56.3		Rt.	42		36
3-W	428+25		Rt.	30		12
4-W	430+99		Rt.	40		20
5-W	431+33.5		Rt.	40		40
⊗ Totals				2739	400	3095

⊗ Carried to General Summary

(S) STORM SEWER

Mark	Station From	Station To	Side	I-2 Class 'A' Storm Sewers Lin. Ft. 12"	15"		I-2 Class 'A' S.S. und. Pavt. & Appr. Lin. Ft. 12"	15"	18"	21"	I-8 Catch Basins Each #7	1-2A			I-10 Riprap Sq. Yds.
1-S	418+00	418+81	Lt.		58			22				1			
*2-S	429+26		Rt.	12'							1				
*3-S	430+00		Rt.	12'							1				
Totals				24	58			22			2	1			

*NOTE: For F.L. of Pipe & Catch Basins, see sheet 39

(U) PIPE UNDERDR'N.

Mark	Station From	Station To	Side	I-4 6" Pipe Underdrn. Lin. Ft.
1U	418+00	418+85	Lt.	85
Totals				85

NOTE: For details and elevations of pipe underdrains, see cross sections.

NOTE: For Details and Estimated Quantities of I-3, Roadway Drainage with Porous backfill, Sta. 420+05 to Sta. 432+30, see sheet no. 39.

Seeding	7239	Sq. Yds.
Excavation	502	Cu. Yds.
Embank.	1174	Cu. Yds.
Emb. + 15%	1350	Cu. Yds.

— NOTE —

Between Station 420+00 and End of Project extreme care shall be used to avoid damage or removal of trees. Aggregate for tree root **aeration** has been set up for the trees marked * and none of these trees shall be removed unless specifically requested by the property owner or unless the tree has become a traffic hazard in the opinion of the Engineer.
Aggregate for **aeration** shall be placed as shown on Std. Drwg. L-1 and payment shall be made on final measurement.
Estimate 15 Cu. Yd. Aggregate for tree aeration will be required

FED. HWY. DIVISION	STATE	PROJECT	TYPE PHASE
2	OHIO		

39
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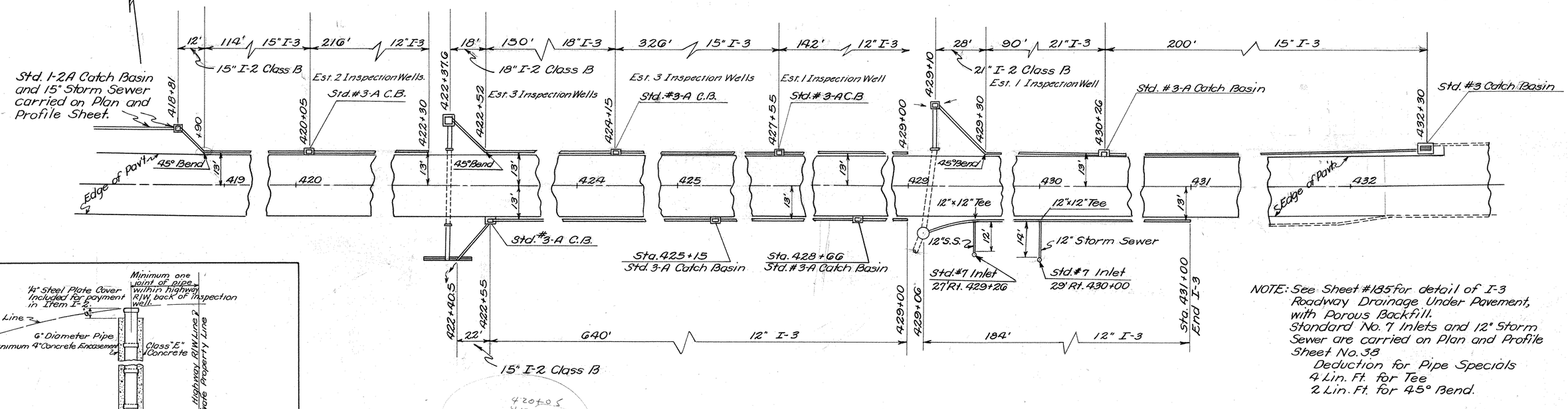
LIC-161-5.12
LIC-37-15.09

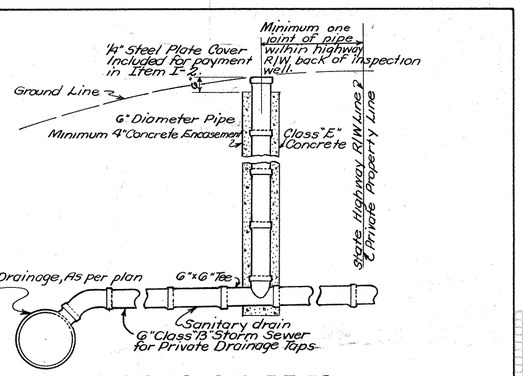
ROADWAY DRAINAGE DETAIL

STA. 418+81 TO STA. 432+30



NOTE: See Sheet #185 for detail of I-3 Roadway Drainage Under Pavement, with Porous Backfill.
Standard No. 7 Inlets and 12" Storm Sewer are carried on Plan and Profile Sheet No. 38

Deduction for Pipe Specials
4 Lin. Ft. for Tee
2 Lin. Ft. for 45° Bend.



ESTIMATED QUANTITIES

I-2	6" Class B Storm Sewer for Private Drainage Taps	120 Lin. Ft.
I-2	6" Class B Storm Sewer Encased for Private Drainage Taps	60 Lin. Ft.
I-5	Pipe Special for Class B Storm Sewer	6"x45° Ells 10 Each
I-5	Pipe Special for Class B Storm Sewer	6"x6" Tee 10 Each
I-5	Pipe Special for Rdwy. Drainage Under Pav't.	6"on 12" Tee 3 Each
I-5	Pipe Special for Rdwy. Drainage Under Pav't.	6"on 15" Tee 3 Each
I-5	Pipe Special for Rdwy. Drainage Under Pav't.	6"on 18" Tee 3 Each
I-5	Pipe Special for Rdwy. Drainage Under Pav't	6"on 21" Tee 1 Each

INSPECTION WELL FOR PRIVATE DRAINAGE TAPS

Tees for Roadway Drainage have been estimated on the basis of known sanitary outlets, allowing 4 Lin. Ft. for each tee connection. If it is determined during construction that the connection is not needed, tees shall be non-performed and I-3 Pipe substituted. Payment shall be made on final measurement.

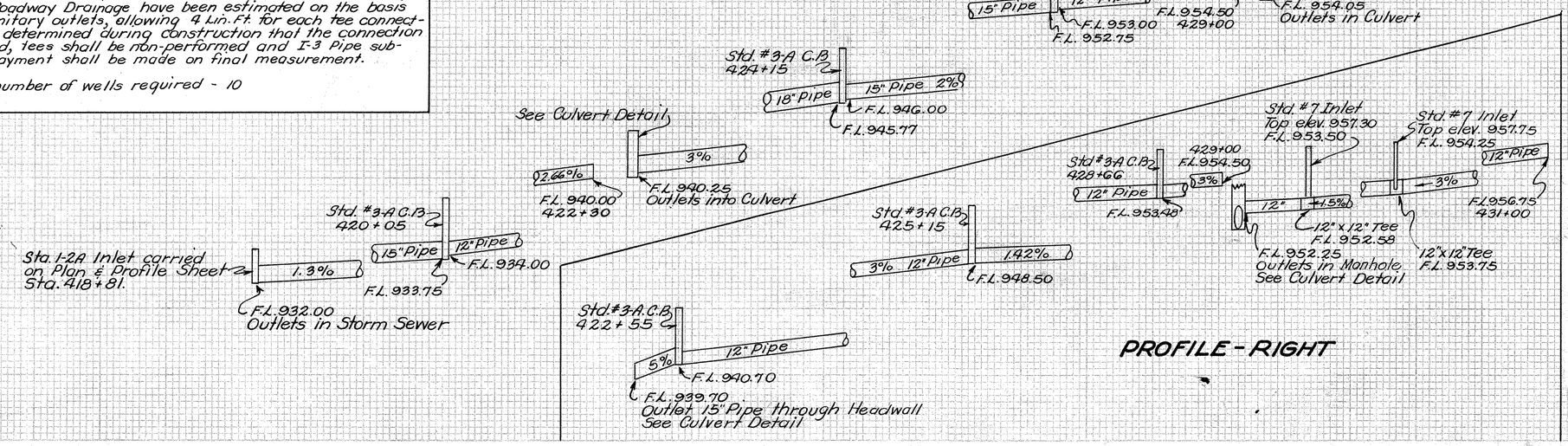
Estimated number of wells required - 10

420+05
418+93
1 1 5

PLAN

0 10 20

PROFILE - LEFT



PROFILE - RIGHT

ESTIMATED QUANTITIES

I-2	15" Storm Sewer Class B	34 L.F.
I-2	18" Storm Sewer Class B	18 L.F.
I-2	21" Storm Sewer Class B	28 L.F.
I-3	12" Pipe for Rdwy. Drainage under Pav't, as per plan	1180 L.F.
I-3	15" Pipe for Rdwy. Drainage under Pav't, as per plan	640 L.F.
I-3	18" Pipe for Rdwy. Drainage under Pav't, as per plan	150 L.F.
I-3	21" Pipe for Rdwy. Drainage under Pav't, as per plan	90 L.F.
I-5	Pipe Special for Rdwy. Drainage under Pav't. 12"x12" Tee	2 Ea.
I-5	Pipe Special for Rdwy. Drainage under Pav't. 15"-45°	1 Ea.
I-5	Pipe Special for Rdwy. Drainage under Pav't. 18"-45°	1 Ea.
I-5	Pipe Special for Rdwy. Drainage under Pav't. 21"-45°	1 Ea.
I-8	Catch Basin Standard #3	1 Ea.
I-8	Catch Basin Standard #3-A	7 Ea.

SUPERELEVATION TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LIC-161-5.12
LIC-37-15.09

P.C. = 31+08.78 L = 756.67'
P.T. = 37+65.45
D = 0° 30' Rt.
Δ = 3° 47' Rt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1188.11	1188.30	1188.11	30+25
1188.03	1188.16	1187.97	+50
1187.96	1188.02	1187.83	+75
1187.89	1187.88	1187.69	31+00
1187.84	1187.74	1187.55	+25
1187.78	1187.60	1187.41	+50
1187.65	1187.46	1187.27	+75
1187.51	1187.32	1187.13	32+00
1187.37	1187.18	1186.99	+25
1187.23	1187.04	1186.85	+50
1187.09	1186.90	1186.71	+75
1186.95	1186.76	1186.57	33+00
1186.81	1186.62	1186.43	+25
1186.67	1186.48	1186.29	+50
1186.52	1186.33	1186.14	+75
1186.34	1186.15	1185.96	34+00
1186.13	1185.94	1185.75	+25
1185.90	1185.71	1185.52	+50
1185.65	1185.46	1185.27	+75
1185.37	1185.18	1184.99	35+00
1185.06	1184.87	1184.68	+25
1184.72	1184.53	1184.34	+50
1184.36	1184.17	1183.98	+75
1183.98	1183.79	1183.60	36+00
1183.57	1183.38	1183.19	+25
1183.13	1182.94	1182.75	+50
1182.67	1182.48	1182.29	+75
1182.18	1181.99	1181.80	37+00
1181.66	1181.47	1181.28	+25
1181.03	1180.93	1180.74	+50
1180.37	1180.37	1180.18	+75
1179.72	1179.78	1179.59	38+00
1179.03	1179.16	1178.97	+25
1178.32	1178.51	1178.32	38+50

P.C. = 47+73.55 L = 840.00'
P.T. = 56+13.55
D = 0° 30' Lt.
Δ = 4° 12' Lt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1155.72	1155.91	1155.72	46+75
1155.26	1155.45	1155.32	47+00
1154.82	1155.01	1154.95	+25
1154.41	1154.60	1154.60	+50
1154.00	1154.19	1154.29	+75
1153.64	1153.82	1154.00	48+00
1153.35	1153.54	1153.73	+25
1153.12	1153.31	1153.50	+50
1152.89	1153.08	1153.27	+75
1152.67	1152.86	1153.05	49+00
1152.45	1152.64	1152.83	+25
1152.22	1152.41	1152.60	+50
1152.00	1152.19	1152.38	+75
1151.78	1151.97	1152.16	50+00
1151.55	1151.74	1151.93	+25
1151.33	1151.52	1151.71	+50
1151.11	1151.30	1151.49	+75
1150.88	1151.07	1151.26	51+00
1150.66	1150.85	1151.04	+25
1150.44	1150.63	1150.82	+50
1150.21	1150.40	1150.59	+75
1149.99	1150.18	1150.37	52+00
1149.77	1149.96	1150.15	+25
1149.54	1149.73	1149.92	+50
1149.32	1149.51	1149.70	+75
1149.11	1149.30	1149.49	53+00
1148.91	1149.10	1149.29	+25
1148.71	1148.90	1149.09	+50
1148.52	1148.71	1148.90	+75
1148.34	1148.53	1148.72	54+00
1148.17	1148.36	1148.55	+25
1148.00	1148.19	1148.38	+50
1147.84	1148.03	1148.22	+75
1147.64	1147.83	1148.02	55+00
1147.55	1147.74	1147.93	+25
1147.42	1147.61	1147.80	+50
1147.31	1147.50	1147.67	+75
1147.26	1147.45	1147.55	56+00
1147.24	1147.43	1147.44	+25
1147.20	1147.39	1147.33	+50
1147.17	1147.46	1147.23	+75
1147.14	1147.33	1147.15	57+00
1147.06	1147.25	1147.06	+25
1146.99	1147.18	1146.99	+50
1146.92	1147.11	1146.92	57+75

P.C. = 89+82.27 L = 440.00'
P.T. = 94+22.27
D = 0° 30' Rt.
Δ = 2° 12' Rt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1103.59	1103.78	1103.59	88+75
1102.98	1103.16	1102.97	89+00
1102.41	1102.54	1102.35	+25
1101.86	1101.92	1101.73	+50
1101.31	1101.30	1101.11	+75
1100.78	1100.68	1100.49	90+00
1100.24	1100.06	1099.87	+25
1099.63	1099.44	1099.25	+50
1099.01	1098.82	1098.63	+75
1098.39	1098.20	1098.01	91+00
1097.77	1097.58	1097.39	+25
1097.15	1096.96	1096.77	+50
1096.53	1096.34	1096.15	+75
1095.91	1095.72	1095.53	92+00
1095.29	1095.10	1094.91	+25
1094.67	1094.48	1094.29	+50
1094.05	1093.86	1093.67	+75
1093.43	1093.24	1093.05	93+00
1092.81	1092.62	1092.43	+25
1092.19	1092.00	1091.81	+50
1091.56	1091.38	1091.19	+75
1090.86	1090.76	1090.57	94+00
1090.16	1090.14	1089.95	+25
1089.46	1089.52	1089.33	+50
1088.77	1088.90	1088.71	+75
1088.09	1088.28	1088.09	95+00

P.C. = 111+34.18 L = 1013.34
P.T. = 121+47.52
D = 1° 00' Rt.
Δ = 10° 08' Rt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1072.33	1072.52	1072.33	110+00
1072.44	1072.57	1072.38	+25
1072.56	1072.62	1072.43	+50
1072.68	1072.67	1072.48	+75
1072.82	1072.72	1072.53	111+00
1072.95	1072.77	1072.58	+25
1073.08	1072.85	1072.63	+50
1073.20	1072.94	1072.68	+75
1073.30	1073.01	1072.73	112+00
1073.36	1073.07	1072.78	+25
1073.41	1073.12	1072.83	+50
1073.46	1073.17	1072.88	+75
1073.51	1073.22	1072.93	113+00
1073.56	1073.27	1072.98	+25
1073.61	1073.32	1073.03	+50
1073.66	1073.37	1073.08	+75
1073.71	1073.42	1073.13	114+00
1073.76	1073.47	1073.18	+25
1073.81	1073.52	1073.23	+50
1073.86	1073.57	1073.28	+75
1073.91	1073.62	1073.33	115+00
1073.95	1073.66	1073.37	+25
1073.97	1073.68	1073.39	+50
1073.98	1073.69	1073.40	+75
1073.97	1073.68	1073.39	116+00
1073.94	1073.65	1073.36	+25
1073.89	1073.60	1073.31	+50
1073.82	1073.53	1073.24	+75
1073.74	1073.45	1073.16	117+00
1073.64	1073.35	1073.06	+25
1073.52	1073.23	1072.94	+50
1073.38	1073.09	1072.80	+75
1073.23	1072.94	1072.65	118+00
1073.05	1072.76	1072.47	+25
1072.86	1072.57	1072.28	+50
1072.66	1072.37	1072.08	+75
1072.43	1072.14	1071.85	119+00
1072.19	1071.90	1071.61	+25
1071.92	1071.63	1071.34	+50
1071.64	1071.35	1071.06	+75
1071.35	1071.06	1070.77	120+00
1071.03	1070.74	1070.45	+25
1070.70	1070.41	1070.12	+50
1070.35	1070.06	1069.77	+75
1069.91	1069.66	1069.40	121+00
1069.46	1069.23	1069.01	+25
1068.99	1068.80	1068.61	+50
1068.48	1068.38	1068.19	+75
1067.94	1067.94	1067.75	122+00
1067.42	1067.48	1067.29	+25
1066.87	1067.00	1066.81	+50
1066.32	1066.51	1066.32	+75
1065.81	1066.00	1065.81	123+00

P.C. = 133+69.98 L = 1502.22'
P.T. = 148+72.20
D = 1° 30' Lt.
Δ = 22° 32' Lt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1048.53	1048.72	1048.53	132+00
1048.39	1048.58	1048.39	+25
1048.24	1048.43	1048.30	+50
1048.12	1048.31	1048.25	+75
1048.00	1048.19	1048.25	133+00
1047.91	1048.11	1048.29	+25
1047.90	1048.14	1048.38	+50
1047.94	1048.23	1048.51	133+75

Continued next Column

1°30' Curve Lt. - Continued from Column 4

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1048.02	1048.36	1048.69	134+00
1048.15	1048.53	1048.91	+25
1048.32	1048.75	1049.18	+50
1048.63	1049.06	1049.49	+75
1048.99	1049.42	1049.85	135+00
1049.39	1049.82	1050.25	+25
1049.84	1050.27	1050.70	+50
1050.33	1050.76	1051.19	+75
1050.87	1051.30	1051.73	136+00
1051.43	1051.86	1052.29	+25
1051.99	1052.42	1052.85	+50
1052.55	1052.98	1053.41	+75
1053.11	1053.54	1053.97	137+00
1053.67	1054.10	1054.53	+25
1054.23	1054.66	1055.09	+50
1054.79	1055.22	1055.65	+75
1055.35	1055.78	1056.21	138+00
1055.91	1056.34	1056.77	+25
1056.47	1056.90	1057.33	+50
1057.03	1057.46	1057.89	+75
1057.59	1058.02	1058.45	139+00
1058.14	1058.57	1059.00	+25
1058.66	1059.09	1059.52	+50
1059.15	1059.58	1060.01	+75
1059.61	1060.04	1060.47	140+00
1060.05	1060.48	1060.91	+25
1060.46	1060.89	1061.32	+50
1060.85	1061.28	1061.71	+75
1061.21	1061.64	1062.07	141+00
1061.54	1061.97	1062.40	+25
1061.84	1062.27	1062.70	+50
1062.12	1062.55	1062.98	+75
1062.37	1062.80	1063.23	142+00
1062.59	1063.02	1063.45	+25
1062.78	1063.21	1063.64	+50
1062.95	1063.38	1063.81	+75
1063.09	1063.52	1063.95	143+00
1063.21	1063.64	1064.07	+25
1063.30	1063.73	1064.16	+50
1063.36	1063.79	1064.22	+75
1063.39	1063.82	1064.25	144+00
1063.40	1063.83	1064.26	+25
1063.38	1063.81	1064.24	+50
1063.33	1063.76	1064.19	+75
1063.25	1063.68	1064.11	145+00
1063.15	1063.58	1064.01	+25
1063.02	1063.45	1063.88	+50
1062.87	1063.30	1063.73	+75
1062.69	1063.12	1063.55	146+00
1062.48	1062.91	1063.34	+25
1062.24	1062.67	1063.10	+50
1061.98	1062.41	1062.84	+75
1061.69	1062.12	1062.55	147+00
1061.37	1061.80	1062.23	+25
1061.02	1061.45	1061.88	+50
1060.65	1061.08	1061.51	+75
1060.25	1060.68	1061.11	148+00
1059.93	1060.31	1060.69	+25
1059.57	1059.91	1060.24	+50
1059.19	1059.48	1059.76	+75
1058.77	1059.01	1059.25	149+00
1058.36	1058.57	1058.73	+25
1058.00	1058.20	1058.21	+50
1057.56	1057.75	1057.69	+75
1057.11	1057.30	1057.17	150+00
1056.65	1056.84	1056.65	+25
1056.13	1056.32	1056.13	150+50

SUPERELEVATION TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

41/238

LIC-161-5.12
LIC-37-15.09

P.C. = 182+42.53 L = 446.67
P.T. = 186+89.20
D = 0° 30' Rt.
Δ = 2° 14' Rt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1022.97	1023.16	1022.97	181 +25
1022.86	1023.04	1022.85	+50
1022.79	1022.92	1022.73	+75
1022.74	1022.80	1022.61	182 +00
1022.69	1022.68	1022.49	+25
1022.66	1022.56	1022.37	+50
1022.60	1022.44	1022.25	+75
1022.51	1022.32	1022.13	183 +00
1022.39	1022.20	1022.01	+25
1022.27	1022.08	1021.89	+50
1022.15	1021.96	1021.77	+75
1022.03	1021.84	1021.65	184+00
1021.91	1021.72	1021.53	+25
1021.79	1021.60	1021.41	+50
1021.67	1021.48	1021.29	+75
1021.55	1021.36	1021.17	185+00
1021.43	1021.24	1021.05	+25
1021.31	1021.12	1020.93	+50
1021.19	1021.00	1020.81	+75
1021.07	1020.88	1020.69	186+00
1020.95	1020.76	1020.57	+25
1020.81	1020.64	1020.45	+50
1020.62	1020.52	1020.33	+75
1020.41	1020.40	1020.21	187 +00
1020.22	1020.28	1020.09	+25
1020.03	1020.16	1019.97	+50
1019.87	1020.04	1019.85	+75
1019.73	1019.92	1019.73	188 +00

P.C. = 200+55.23 L = 1236.67
P.T. = 212+91.90
D = 0° 30' Lt.
Δ = 6° 11' Lt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
997.96	998.15	997.96	199 + 25
997.44	997.63	997.44	+50
996.89	997.08	996.95	+75
996.35	996.54	996.48	200+00
995.86	996.05	996.05	+25
995.35	995.54	995.64	+50
994.90	995.09	995.26	+75
994.54	994.73	994.92	201+00
994.21	994.40	994.59	+25
993.92	994.11	994.30	+50
993.66	993.85	994.04	+75
993.42	993.61	993.80	202+00
993.22	993.41	993.60	+25
993.04	993.23	993.42	+50
992.89	993.08	993.27	+75
992.77	992.96	993.15	203+00
992.67	992.86	993.05	+25
992.61	992.80	992.99	+50
992.56	992.75	992.94	+75
992.51	992.70	992.89	204+00
992.46	992.65	992.84	+25
992.41	992.60	992.79	+50
992.36	992.55	992.74	+75
992.31	992.50	992.69	205+00
992.26	992.45	992.64	+25
992.21	992.40	992.59	+50
992.16	992.35	992.54	+75
992.11	992.30	992.49	206+00
992.06	992.25	992.44	+25
992.01	992.20	992.39	+50
991.96	992.15	992.34	+75
991.91	992.10	992.29	207+00
991.86	992.05	992.24	207+25

Continued next Column

991.33 991.71

0° 30' Curve Lt. - Continued from Column 1

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
991.81	992.00	992.19	207+50
991.76	991.95	992.14	+75
991.71	991.90	992.09	208+00
991.66	991.85	992.04	+25
991.61	991.80	991.99	+50
991.56	991.75	991.94	+75
991.51	991.70	991.89	209+00
991.46	991.65	991.84	+25
991.41	991.60	991.79	+50
991.36	991.55	991.74	+75
991.31	991.50	991.69	210+00
991.26	991.45	991.64	+25
991.21	991.40	991.59	+50
991.16	991.35	991.54	+75
991.11	991.30	991.49	211+00
991.06	991.25	991.44	+25
991.01	991.20	991.39	+50
990.95	991.14	991.33	+75
990.86	991.05	991.24	212+00
990.74	990.93	991.12	+25
990.59	990.78	990.97	+50
990.44	990.63	990.80	+75
990.31	990.50	990.60	213+00
990.17	990.36	990.38	+25
989.99	990.18	990.12	+50
989.78	989.97	989.84	+75
989.54	989.73	989.54	214+00
989.20	989.39	989.20	214+25

T.S. = 239+68.75 Ls = 250'
S.C. = 242+18.75 Lc = 1092.86
C.S. = 253+11.61 Dc = 3° 30' Rt.
S.T. = 255+61.61 Δ = 47° 00' Rt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
960.00	960.19	960.00	238+75
960.06	960.24	960.05	239+00
960.17	960.29	960.10	+25
960.29	960.34	960.15	+50
960.38	960.38	960.19	+68.75
960.53	960.43	960.24	+93.75
960.68	960.49	960.29	240+18.75
960.92	960.63	960.34	+43.75
961.17	960.78	960.39	+68.75
961.43	960.93	960.44	+93.75
961.69	961.09	960.49	241+18.75
961.93	961.24	960.54	+43.75
962.19	961.39	960.59	+68.75
962.44	961.54	960.64	+93.75
962.66	961.69	960.70	242+18.75
962.70	961.72	960.72	+25
962.82	961.82	960.82	+50
962.96	961.96	960.96	+75
963.13	962.13	961.13	243+00
963.34	962.34	961.34	+25
963.59	962.59	961.59	+50
963.87	962.87	961.87	+75
964.18	963.18	962.18	244+00
964.53	963.53	962.53	+25
964.92	963.92	962.92	+50
965.34	964.34	963.34	+75
965.80	964.80	963.80	245+00
966.29	965.29	964.29	+25
966.82	965.82	964.82	+50
967.38	966.38	965.38	+75
967.98	966.98	965.98	246+00
968.62	967.62	966.62	+25
969.29	968.29	967.29	+50
969.99	968.99	967.99	+75
970.73	969.73	968.73	247+00
971.51	970.51	969.51	247+25

Continued next Column

3° 30' Curve Rt. - Continued from Column 2

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
972.32	971.32	970.32	247+50
973.17	972.17	971.17	+75
974.05	973.05	972.05	248 +00
974.95	973.95	972.95	+25
975.85	974.85	973.85	+50
976.75	975.75	974.75	+75
977.65	976.65	975.65	249+00
978.55	977.55	976.55	+25
979.45	978.45	977.45	+50
980.35	979.35	978.35	+75
981.25	980.25	979.25	250+00
982.15	981.15	980.15	+25
983.05	982.05	981.05	+50
983.94	982.94	981.94	+75
984.81	983.81	982.81	251+00
985.67	984.67	983.67	+25
986.50	985.50	984.50	+50
987.32	986.32	985.32	+75
988.11	987.11	986.11	252+00
988.89	987.89	986.89	+25
989.65	988.65	987.65	+50
990.39	989.39	988.39	+75
991.11	990.11	989.11	253+00
991.42	990.43	989.44	+11.61
991.94	991.04	990.14	+36.61
992.41	991.61	990.81	+61.61
992.86	992.17	991.47	+86.61
993.31	992.71	992.11	254+11.61
993.72	993.22	992.73	+36.61
994.11	993.72	993.33	+61.61
994.49	994.20	993.91	+86.61
994.87	994.68	994.48	255+11.61
995.31	995.21	995.02	+36.61
995.73	995.73	995.54	+61.61
995.97	996.01	995.82	+75
996.39	996.50	996.31	256+00
996.80	996.98	996.79	+25
997.25	997.44	997.25	256+50

T.S. = 264+00.97 Ls = 250'
S.C. = 266+50.97 Lc = 494.28'
C.S. = 271+45.25 Dc = 3° 30' Lt.
S.T. = 273+95.25 Δ = 26° 03' Lt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
1003.55	1003.74	1003.55	263+00
1003.69	1003.88	1003.70	+25
1003.79	1003.98	1003.85	+50
1003.86	1004.05	1004.00	+75
1003.95	1004.14	1004.15	264+00
1003.96	1004.15	1004.16	+00.97
1004.02	1004.21	1004.31	+25.97
1004.06	1004.27	1004.46	+50.97
1004.03	1004.32	1004.61	+75.97
1003.98	1004.37	1004.76	265+00.97
1003.92	1004.42	1004.91	+25.97
1003.86	1004.46	1005.06	+50.97
1003.82	1004.51	1005.21	+75.97
1003.76	1004.56	1005.36	266+00.97
1003.71	1004.61	1005.51	+25.97
1003.69	1004.67	1005.66	+50.97
1003.80	1004.80	1005.80	+75
1003.95	1004.95	1005.95	267+00
1004.10	1005.10	1006.10	+25
1004.25	1005.25	1006.25	+50
1004.39	1005.39	1006.39	+75
1004.51	1005.51	1006.51	268+00
1004.61	1005.61	1006.61	+25
1004.69	1005.69	1006.69	+50
1004.75	1005.75	1006.75	+75
1004.79	1005.79	1006.79	269+00
1004.81	1005.81	1006.81	+25
1004.82	1005.82	1006.82	+50
1004.80	1005.80	1006.80	+75
1004.76	1005.76	1006.76	270+00
1004.70	1005.70	1006.70	+25
1004.62	1005.62	1006.62	+50
1004.53	1005.53	1006.53	+75
1004.41	1005.41	1006.41	271+00
1004.27	1005.27	1006.27	+25
1004.17	1005.15	1006.14	+45.25
1004.17	1005.07	1005.97	+70.25
1004.18	1004.98	1005.78	+95.25
1004.17	1004.86	1005.56	272+20.25
1004.13	1004.73	1005.33	+45.25
1004.09	1004.59	1005.08	+70.25
1004.03	1004.42	1004.81	+95.25
1003.93	1004.22	1004.51	273+20.25
1003.80	1004.01	1004.20	+45.25
1003.58	1003.77	1003.87	+70.25
1003.33	1003.52	1003.52	+95.25
1003.27	1003.46	1003.45	274+00
1002.95	1003.14	1003.08	+25
1002.62	1002.81	1002.68	+50
1002.27	1002.46	1002.27	+75
1001.83	1002.02	1001.83	275+00

P.C. = 324+97.50 L = 746.67
P.T. = 332+44.17
D = 0° 30' Rt.
Δ = 3° 44' Rt.

Lt. Edge Elev.	℄ Pvt. Elev.	Rt. Edge Elev.	Station
944.94	945.13	944.94	324+00
945.02	945.15	944.96	+25
945.08	945.15	944.96	+50
945.11	945.11	944.92	+75
945.14	945.04	944.85	325+00
945.12	944.95	944.76	+25
945.01	944.82	944.63	+50
944.85	944.66	944.47	+75
944.66	944.47	944.28	326+00
944.44	944.25	944.06	+25
944.18	943.99	943.80	+50
943.90	943.71	943.52	+75
943.59	943.40	943.21	327+00
943.24	943.05	942.86	+25
942.87	942.68	942.49	+50
942.48	942.29	942.10	+75
942.09	941.90	941.71	328+00
941.70	941.51	941.32	+25
941.31	941.12	940.93	+50
940.92	940.73	940.54	+75
940.53	940.34	940.15	329+00
940.14	939.95	939.76	+25
939.75	939.56	939.37	+50
939.36	939.17	938.98	+75
938.97	938.78	938.59	330+00
938.58	938.39	938.20	+25
938.19	938.00	937.81	+50
937.80	937.61	937.42	+75
937.41	937.22	937.03	331+00
937.02	936.83	936.64	+25
936.63	936.44	936.25	+50
936.24	936.05	935.86	+75
935.85	935.66	935.47	332+00
935.45	935.27	935.08	+25
934.98	934.88	934.69	+50
934.49	934.49	934.30	+75
934.04	934.10	933.91	333+00
933.58	933.71	933.52	+25
933.13	933.32	933.13	333+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

42
238

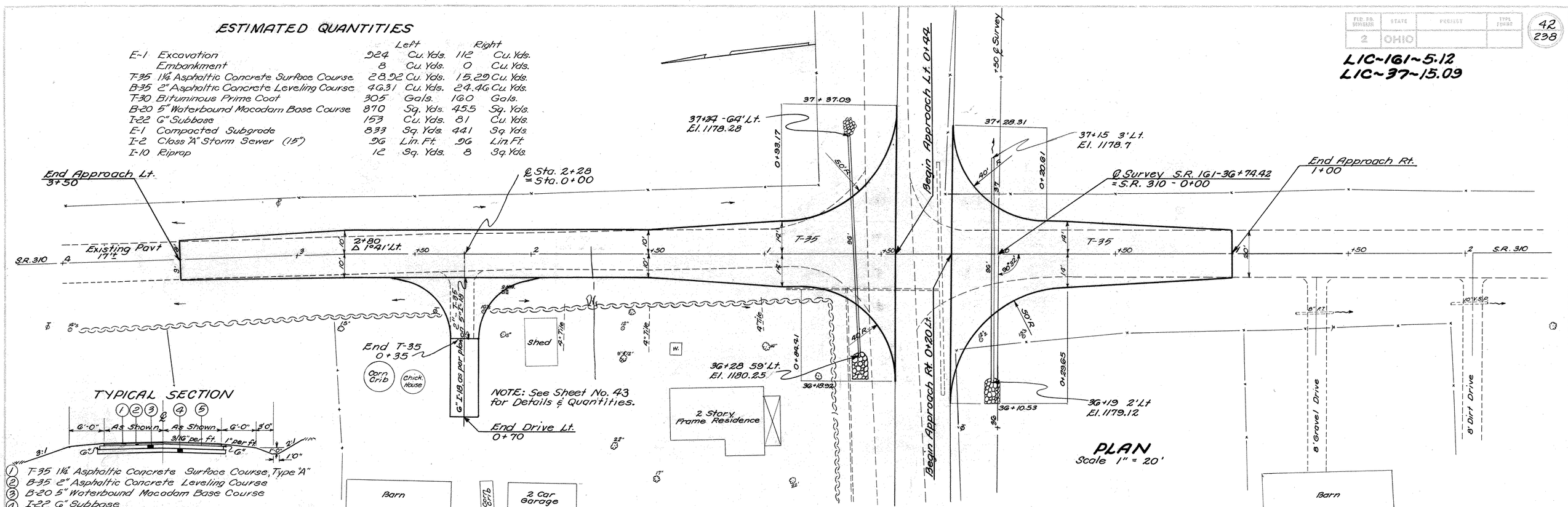
LIC-161-5.12
LIC-37-15.09

ESTIMATED QUANTITIES

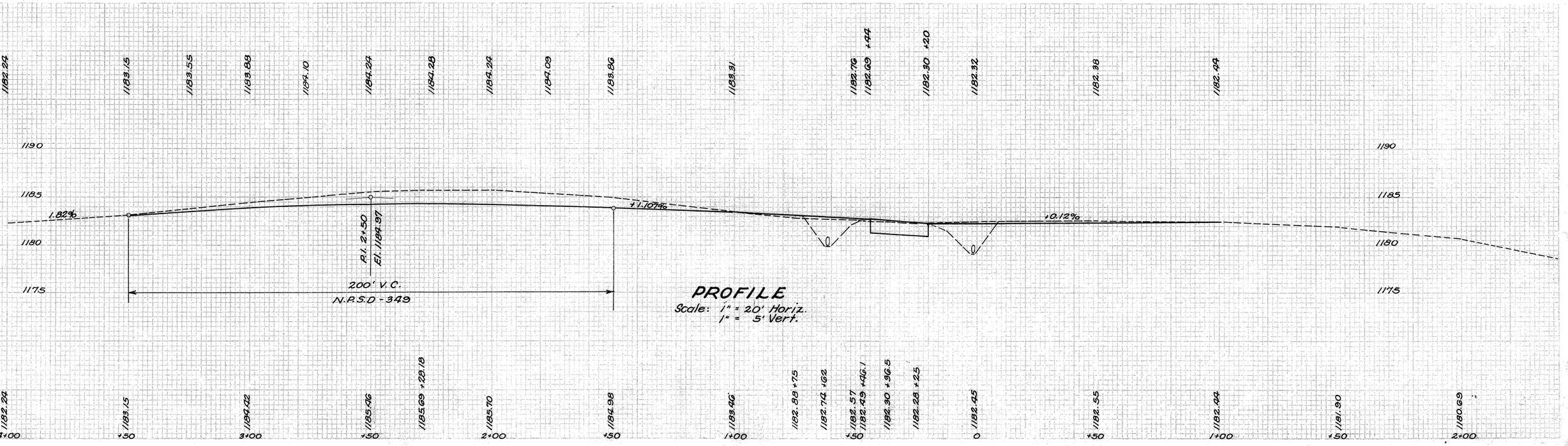
		Left		Right	
E-1	Excavation	924	Cu. Yds.	112	Cu. Yds.
	Embankment	8	Cu. Yds.	0	Cu. Yds.
T-35	1½ Asphaltic Concrete Surface Course	28.92	Cu. Yds.	15.29	Cu. Yds.
B-35	2" Asphaltic Concrete Leveling Course	46.31	Cu. Yds.	24.46	Cu. Yds.
T-30	Bituminous Prime Coat	305	Gals.	160	Gals.
B-20	5" Waterbound Macadam Base Course	870	Sq. Yds.	455	Sq. Yds.
I-22	6" Subbase	153	Cu. Yds.	81	Cu. Yds.
E-1	Compacted Subgrade	833	Sq. Yds.	441	Sq. Yds.
I-2	Class "A" Storm Sewer (15")	96	Lin. Ft.	96	Lin. Ft.
I-10	Riprap	12	Sq. Yds.	8	Sq. Yds.

TYPICAL SECTION

1. T-35 1½" Asphaltic Concrete Surface Course, Type "A"
2. B-35 2" Asphaltic Concrete Leveling Course
3. B-20 5" Waterbound Macadam Base Course
4. I-22 6" Subbase
5. T-30 Bituminous Prime Coat



PLAN
Scale 1" = 20'



PROFILE
Scale: 1" = 20' Horiz.
1" = 5' Vert.

APPROACH Rt. & Lt. STA. 36+74.42

LIC-161-5.12
LIC-37-15.09

End Drive 0+70

0+70 0+00

ESTIMATED QUANTITIES

E-1 Excavation	25	Cu.Yds.	1184.28
Embankment	4	Cu.Yds.	**2+28**
T-35 Asphaltic Concrete Surface Course	3.51	Cu.Yds.	1185.69
I-18 Crushed Aggregate Base 5"	2.36	Cu.Yds.	
T-30 Bituminous Prime Coat	24	Gals.	
I-18 Crushed Aggregate Base 6"	8	Cu.Yds.	

Profile Drive Left

Carried to Sheet No. 48

4+00
1182.24

9.0' 8.0'

3+50
1183.15

9.71' 9.43'

1183.88
3+00
1184.42

1184.24
2+50
1185.46

19.6 1182.40 | 1184.24 **2+00** 1185.70 | 19.6 1182.4

1183.86
1+50
1184.98

13.30 13.30

1083.31
1+00
1183.46

1183.04
0+75
1182.98

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
28	0		
		68	2
46	2		
		133	2
98	0		
		223	0
143	0		
		222	0
97	0		
		171	1
88	1		
		82	2
90	4		
		25	1
0+60 0	0		

APPROACH STA. 36+74.42 LT.

60 40 20 ℄ 20 40 60

1182.44
1+00
1182.44

1182.38
0+50
1182.55

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
24	0		
		72	0
54	0		
		40	0
0+10 0	0		

APPROACH STA. 36+74.42 RT.

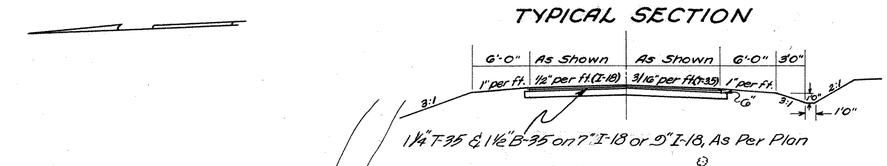
60 40 20 ℄ 20 40

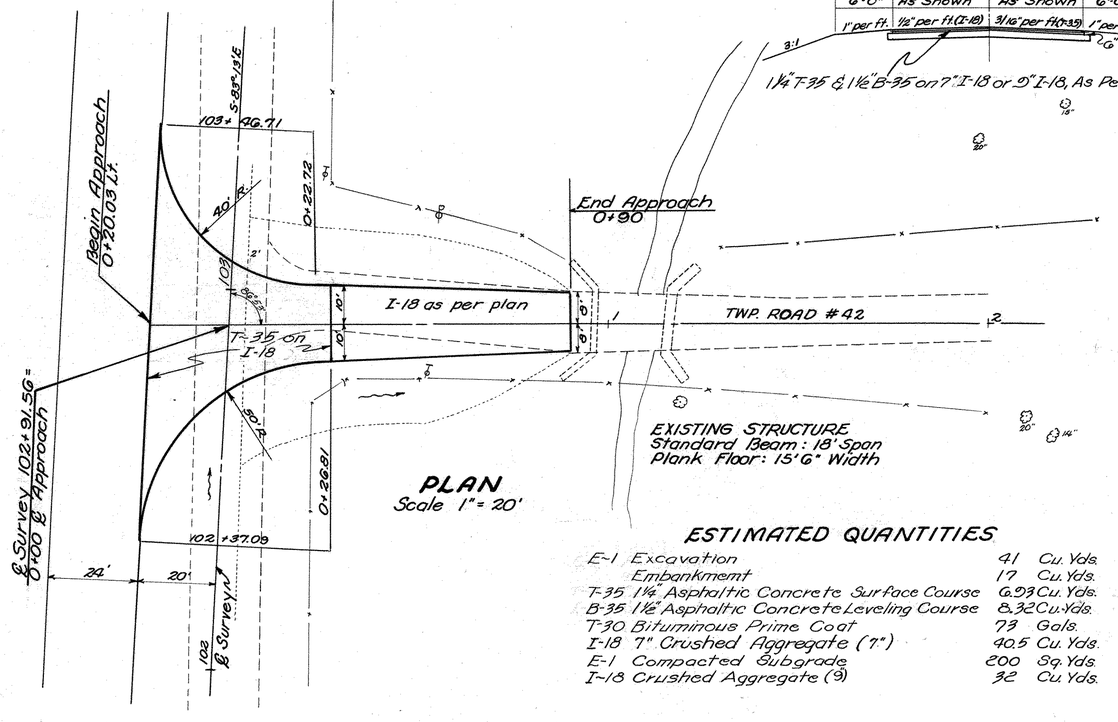
APPROACH STA 36+74.42 RT. & LT.

FED. AID DIVISION	STATE	PROJECT	TYPE POINTS
2	OHIO		

LIC-161-5.12
LIC-37-15.09

TYPICAL SECTION



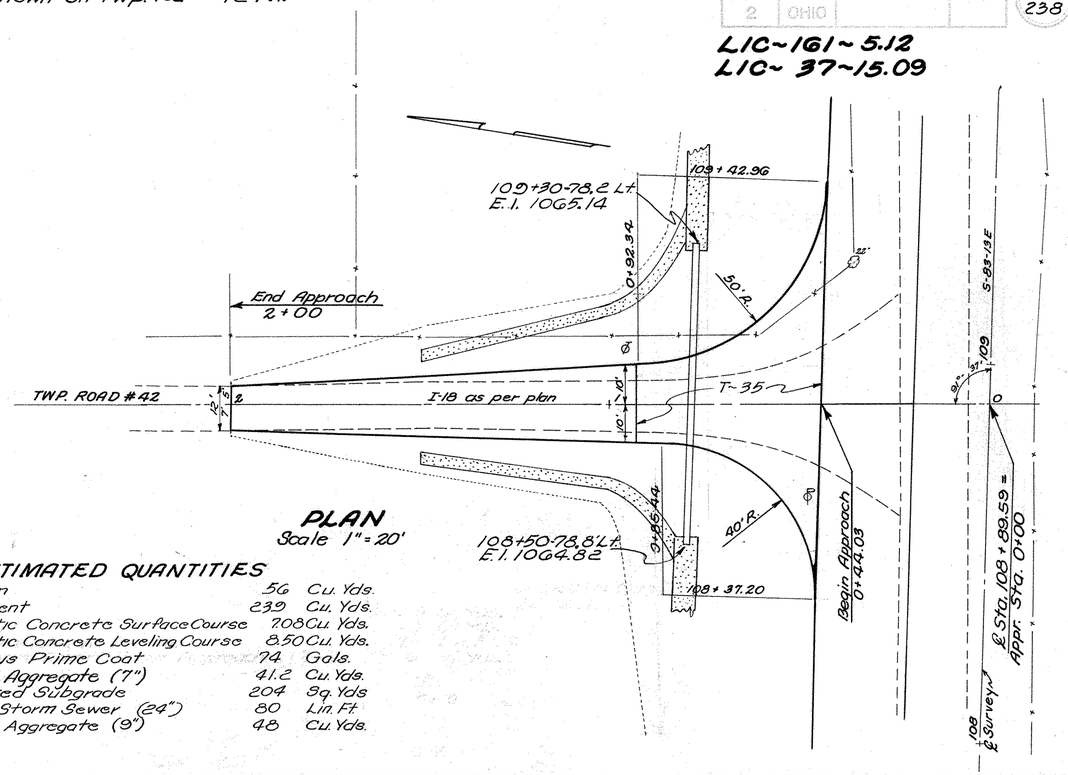


PLAN
Scale 1" = 20'

ESTIMATED QUANTITIES

E-1 Excavation	41	Cu. Yds.
Embankment	17	Cu. Yds.
T-35 1¼" Asphaltic Concrete Surface Course	6.03	Cu. Yds.
B-35 1½" Asphaltic Concrete Leveling Course	8.32	Cu. Yds.
T-30 Bituminous Prime Coat	73	Gals.
I-18 7" Crushed Aggregate (7")	40.5	Cu. Yds.
E-1 Compacted Subgrade	200	Sq. Yds.
I-18 Crushed Aggregate (9)	32	Cu. Yds.

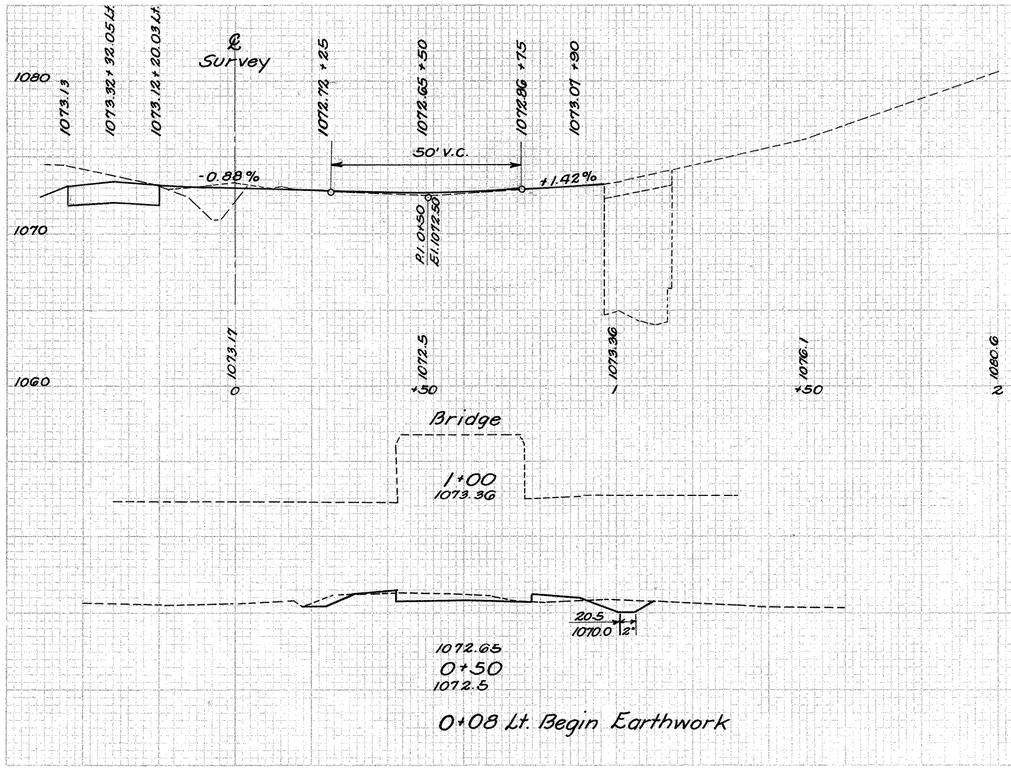
Typical As Shown on Twp. Rd # 42 Rt.



PLAN
Scale 1" = 20'

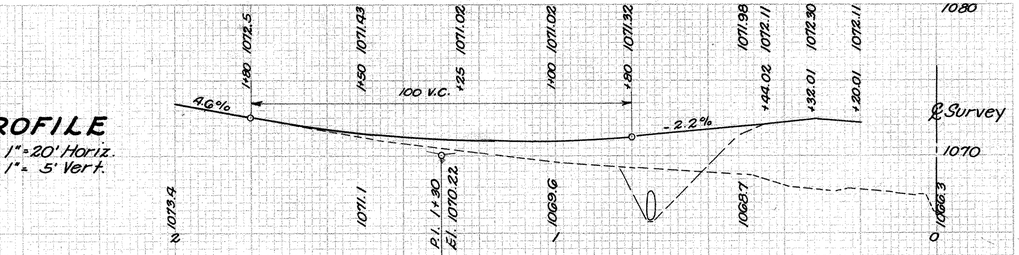
ESTIMATED QUANTITIES

E-1 Excavation	56	Cu. Yds.
Embankment	239	Cu. Yds.
T-35 1¼" Asphaltic Concrete Surface Course	7.08	Cu. Yds.
B-35 1½" Asphaltic Concrete Leveling Course	8.50	Cu. Yds.
T-30 Bituminous Prime Coat	74	Gals.
I-18 Crushed Aggregate (7")	41.2	Cu. Yds.
E-1 Compacted Subgrade	204	Sq. Yds.
I-2 Class "A" Storm Sewer (24")	80	Lin. Ft.
I-18 Crushed Aggregate (9")	48	Cu. Yds.

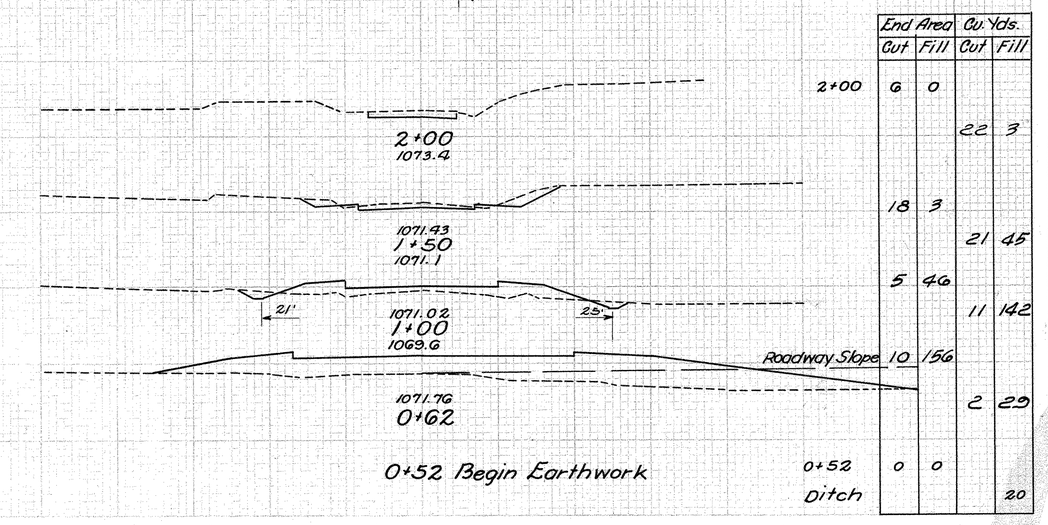


PROFILE
Scale 1" = 20' Horiz.
1" = 5' Vert.

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0+90	6	0	21	3
0+50	22	4	20	4
	0			10
Ditch				



PROFILE
Scale 1" = 20' Horiz.
1" = 5' Vert.



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
2+00	6	0		
			22	3
	18	3		
			21	45
	5	46		
			11	142
Roadway Slope	10	156		
			2	29
0+52	0	0		
Ditch				20

APPROACH TWP. RD. #42 STA. 102+91.56 Rt.
APPROACH TWP. RD. #42 STA. 108+89.59 Lt.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

45
238

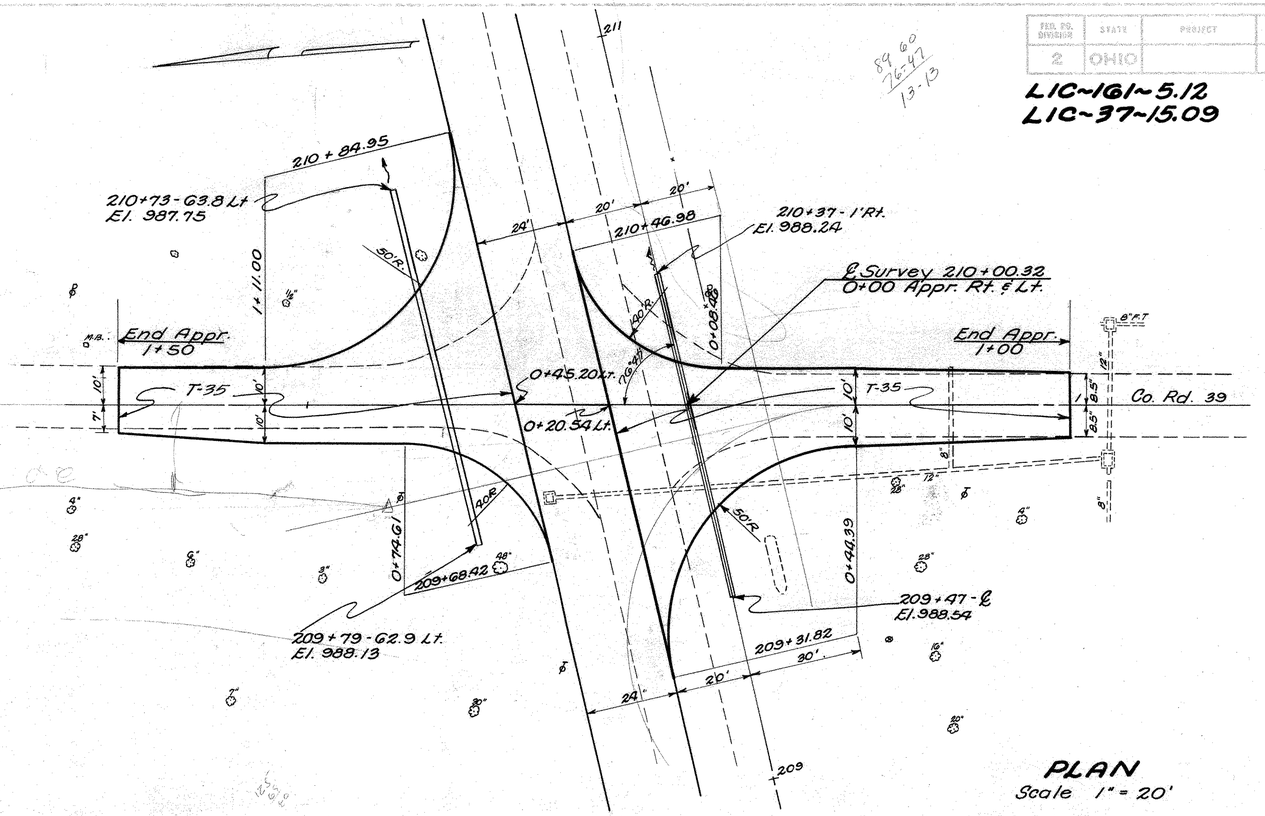
LIC-161-5.12
LIC-37-15.09

89 60
16-47
13-13

ESTIMATED QUANTITIES

	LEFT		RIGHT	
E-1 Excavation	101	Cu. Yds.	31	Cu. Yds.
Embankment	0	Cu. Yds.	30	Cu. Yds.
T-35 1½" Asphaltic Concrete Surface Course	12.16	Cu. Yds.	13.15	Cu. Yds.
B-35 1½" Asphaltic Concrete Leveling Course	14.61	Cu. Yds.	15.78	Cu. Yds.
T-30 Bituminous Prime Coat	128	Gals.	138	Gals.
I-18 7" Crushed Aggregate	71.0	Cu. Yds.	76.5	Cu. Yds.
E-1 Compacted Subgrade	350	Sq. Yds.	379	Sq. Yds.
I-2 Class "A" Storm Sewer (Rt.12" & Lt.18")	96	Lin. Ft.	88	Lin. Ft.

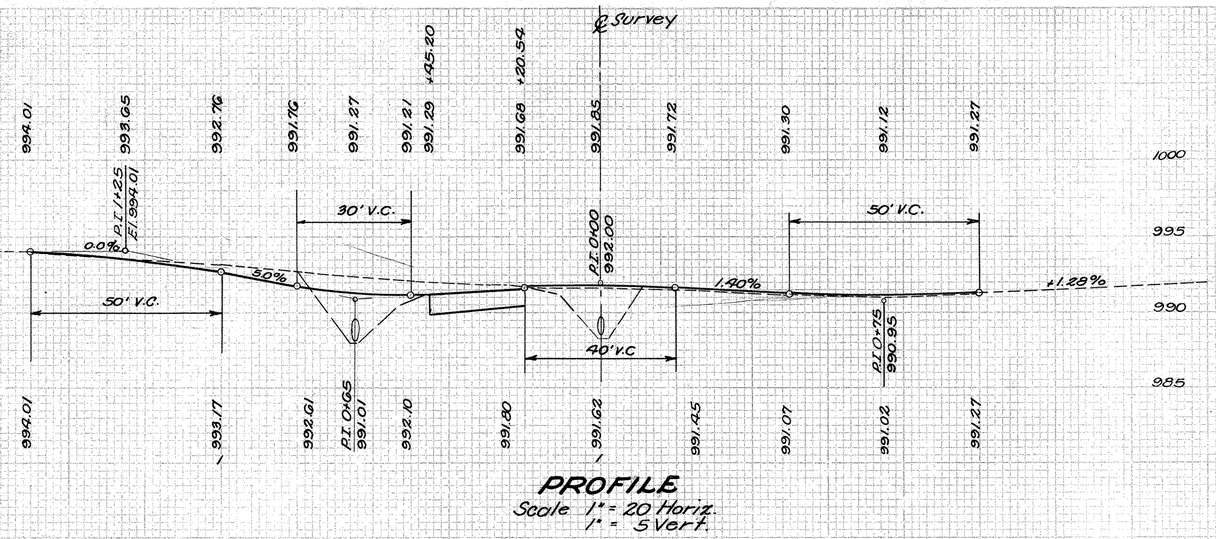
NOTE: For Typical Section See Sheet 44



PLAN
Scale 1" = 20'

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
1+50 Lt. 994.01	14	0		
			59	0
992.76 1+00 Lt. 993.17	50	0		
			37	0
991.76 0+80 Lt. 992.61	50	0		
			5	0
0+75 Lt. Begin Earthwork	0	0		

	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
991.27 1+00 Rt. 991.27	10	0		
			7	5
991.12 0+75 Rt. 991.02	6	11		
			7	11
991.30 0+50 Rt. 991.07	9	12		
			12	11
991.65 0+25 Rt. 991.45	17	12		
			5	3
0+10 Rt. Begin Earthwork	0	0		



PROFILE
Scale 1" = 20 Horiz.
1" = 5 Vert.

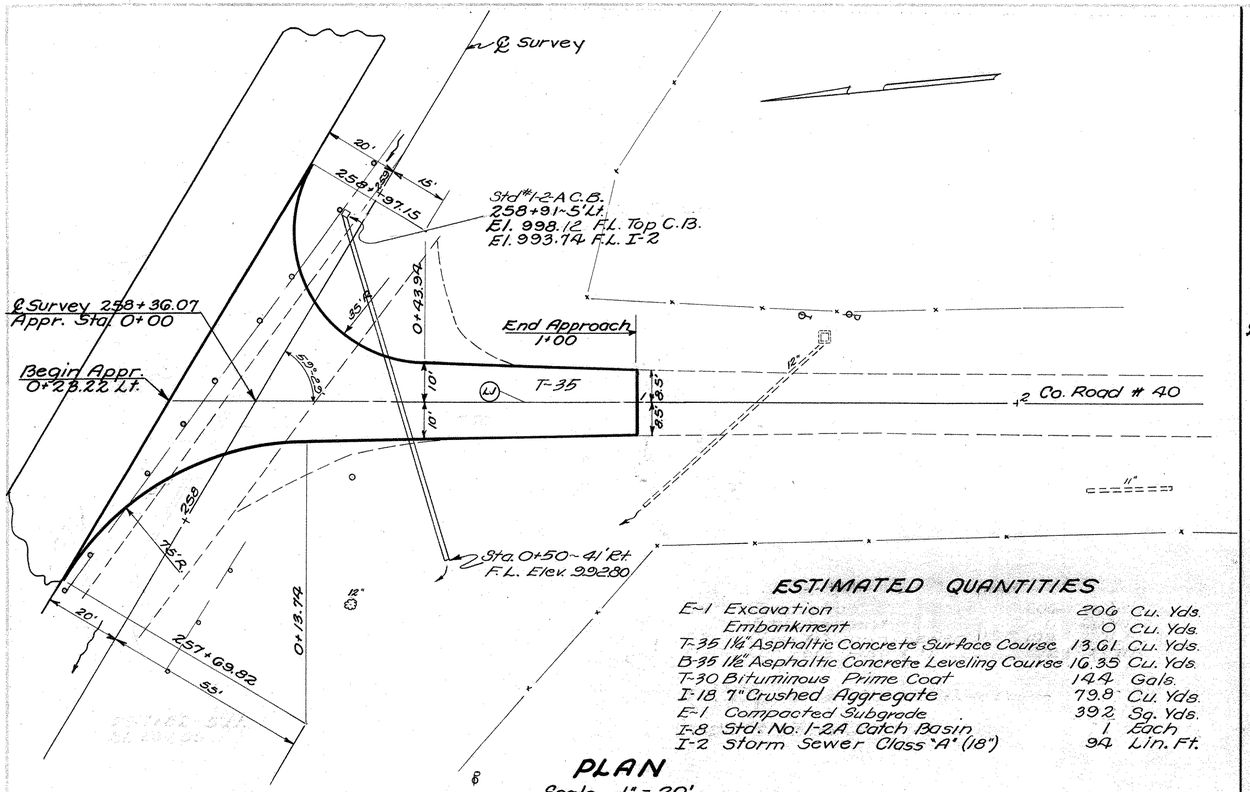
$\frac{37}{65.74} = \frac{x}{100}$

APPROACH Rt. & Lt. STA. 210+00.32

REV. OR SUPPLEM.	STATE	PROJECT	TYPE WORK
2	OHIO		

46
238

LIC-161-5.12
LIC-37-15.09

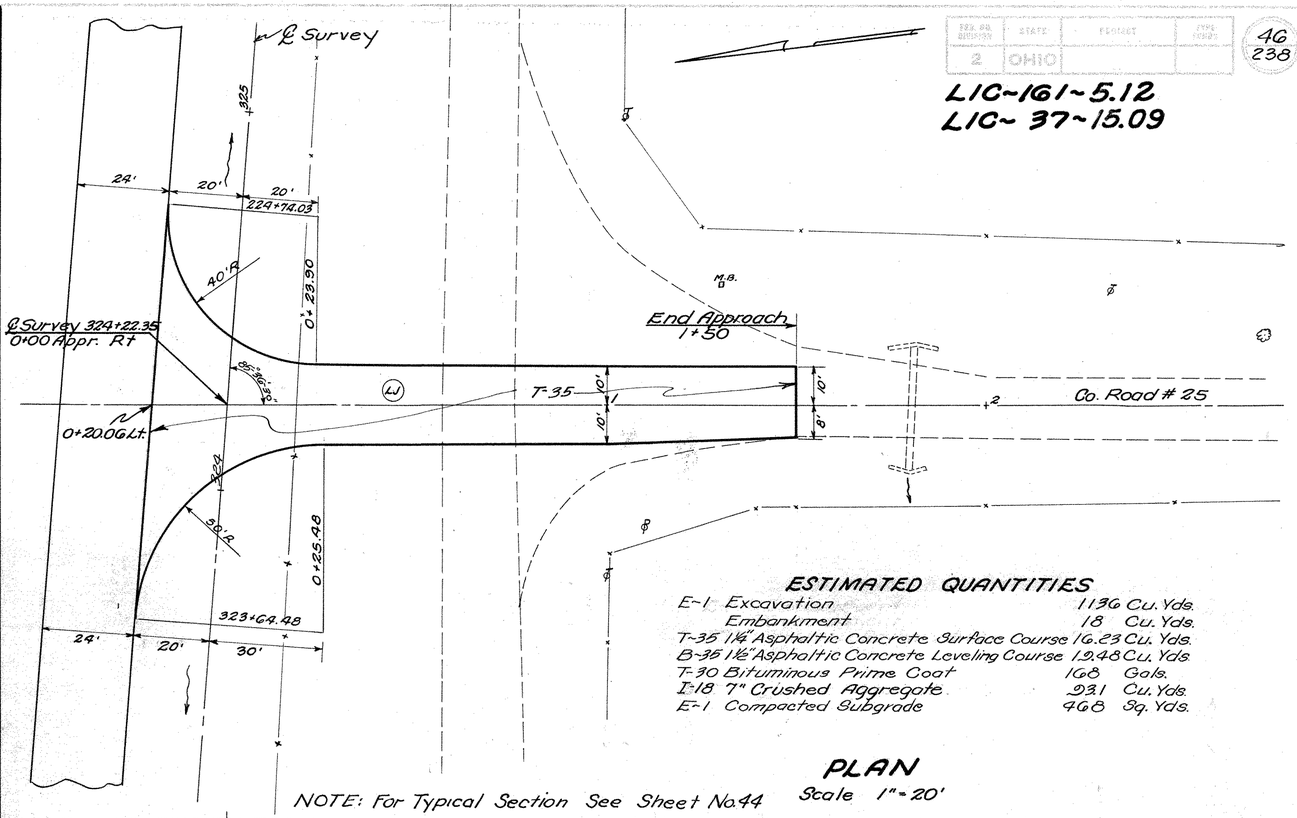


ESTIMATED QUANTITIES

E-1	Excavation	206 Cu. Yds.
	Embankment	0 Cu. Yds.
T-35	1½" Asphaltic Concrete Surface Course	13.61 Cu. Yds.
B-35	1½" Asphaltic Concrete Leveling Course	16.35 Cu. Yds.
T-30	Bituminous Prime Coat	144 Gals.
I-18	7" Crushed Aggregate	79.8 Cu. Yds.
E-1	Compacted Subgrade	392 Sq. Yds.
I-8	Std. No. 1-2A Catch Basin	1 Each
I-2	Storm Sewer Class "A" (18")	94 Lin. Ft.

PLAN
Scale 1" = 20'

NOTE: For Typical Section See Sheet No.44

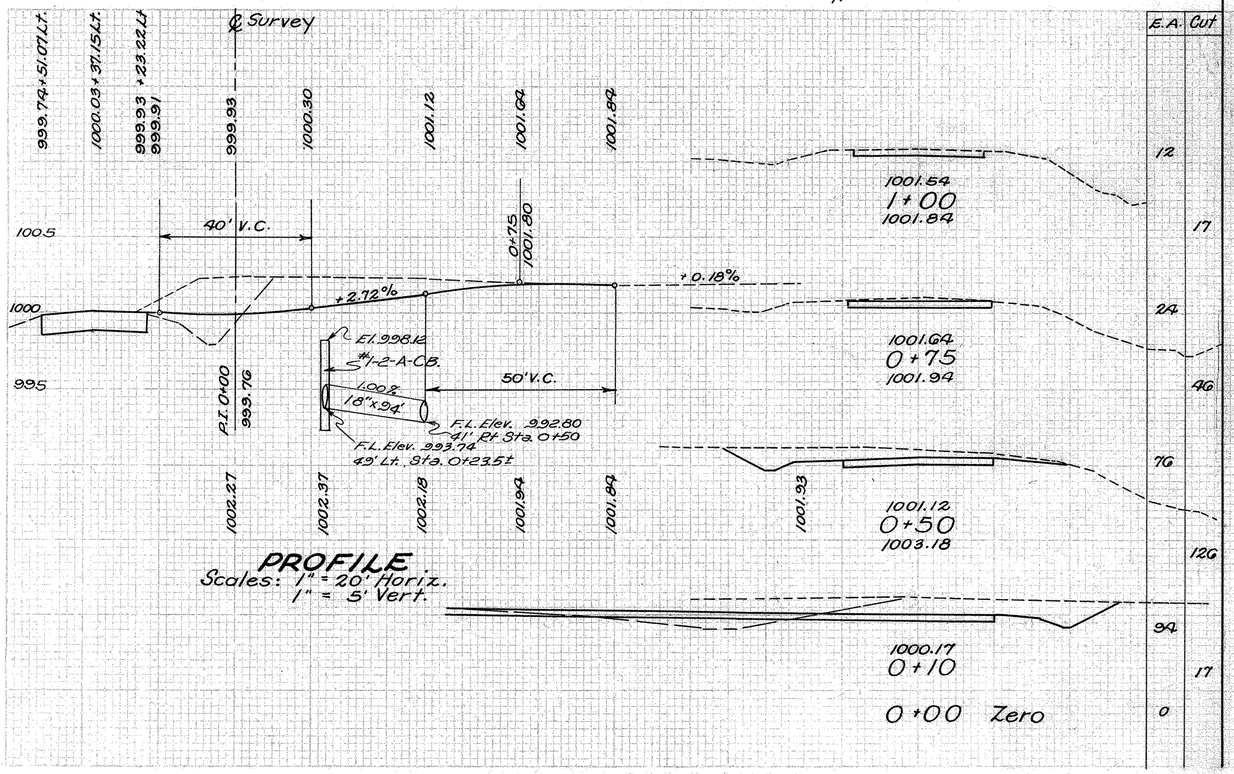


ESTIMATED QUANTITIES

E-1	Excavation	1136 Cu. Yds.
	Embankment	18 Cu. Yds.
T-35	1½" Asphaltic Concrete Surface Course	16.23 Cu. Yds.
B-35	1½" Asphaltic Concrete Leveling Course	19.48 Cu. Yds.
T-30	Bituminous Prime Coat	168 Gals.
I-18	7" Crushed Aggregate	931 Cu. Yds.
E-1	Compacted Subgrade	468 Sq. Yds.

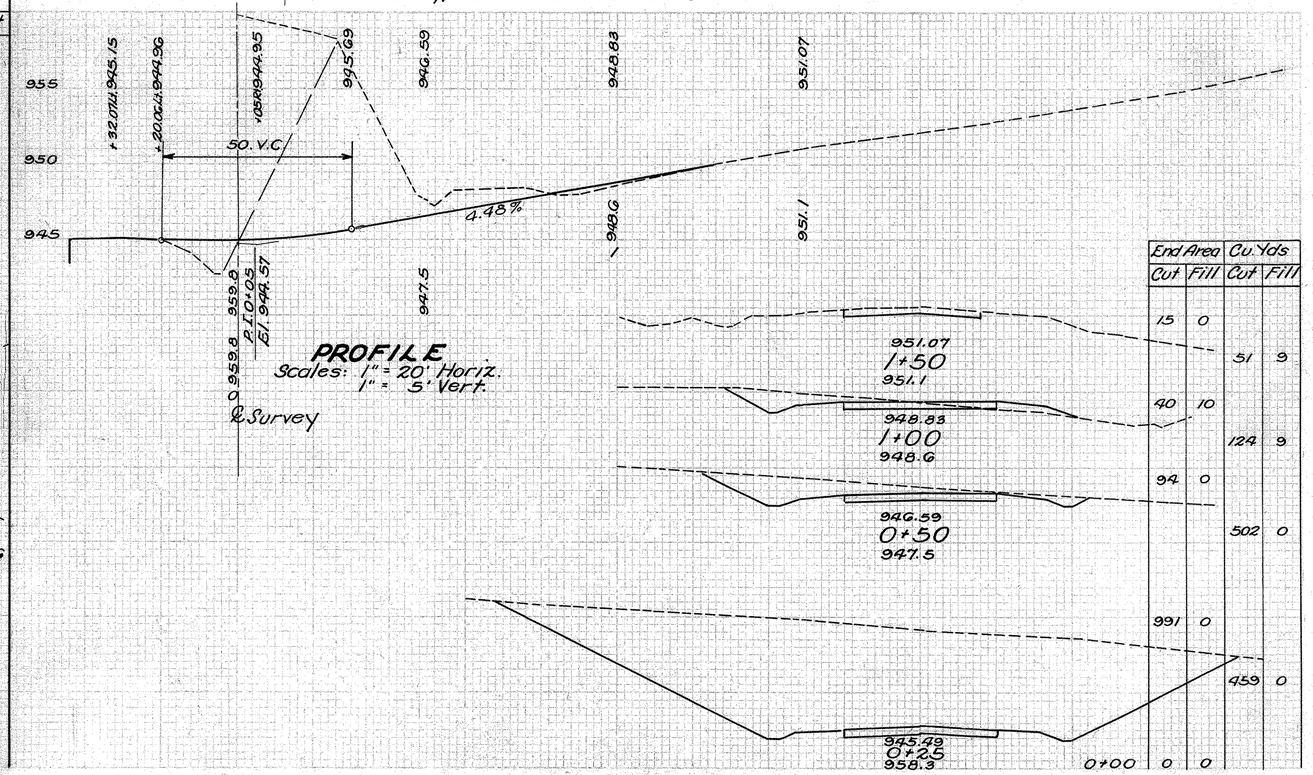
PLAN
Scale 1" = 20'

NOTE: For Typical Section See Sheet No.44



PROFILE
Scales: 1" = 20' Horiz.
1" = 5' Vert.

E.A. Cut
12
17
24
46
76
126
94
17
0



PROFILE
Scales: 1" = 20' Horiz.
1" = 5' Vert.

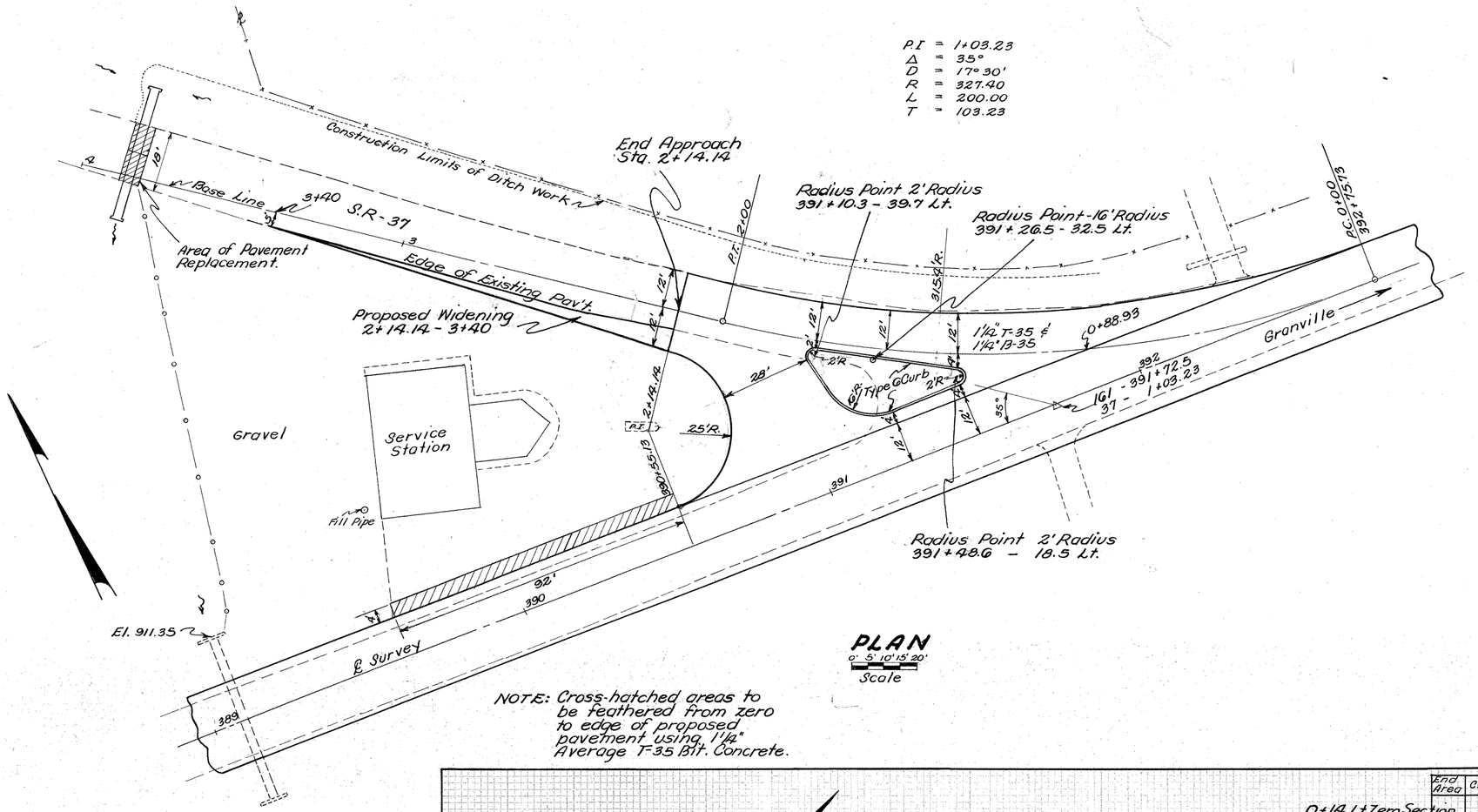
End Area		Cu. Yds	
Cut	Fill	Cut	Fill
15	0		
		51	9
40	10		
		124	9
94	0		
		502	0
991	0		
		459	0
0+00	0	0	

APPROACH RIGHT STA. 258+36.07
APPROACH RIGHT STA. 324+22.35

DIST. OR DIVISION	STATE	PROJECT	SHEET NUMBER
2	OHIO		47 / 238

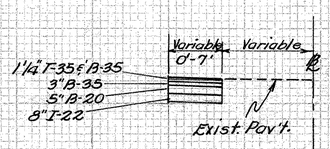
LIC-161-5.12
LIC-37-15.09

P.I = 1+03.23
Δ = 35°
D = 17° 30'
R = 327.40
L = 200.00
T = 103.23

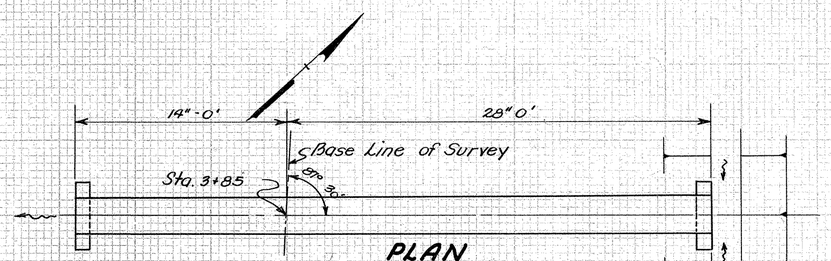


PLAN
0 5' 10' 15' 20'
Scale

NOTE: Cross-hatched areas to be feathered from zero to edge of proposed pavement using 1½" Average T-35 Bit. Concrete.



SECTION OF WIDENING
S.R. 37

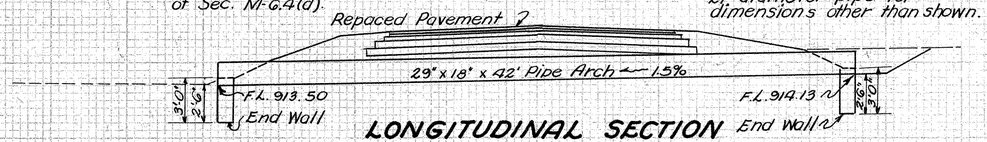


PLAN
0 5
Scale

CULVERT DATA

TYPE Metal Arch with integral Base Std. Drwgs. S-27 P.C.-3 & 4
SIZE 29" x 18" x 42'
WORK REQ-Install Culvert and replace pavement as shown. Metal arch to be paved bituminous coated in accordance with the requirements of Sec. M-6.4(d).

NOTE: End walls to be as shown in Standard Construction Drawings S-27 P.C. 4 for a 27" diameter pipe for dimensions other than shown.



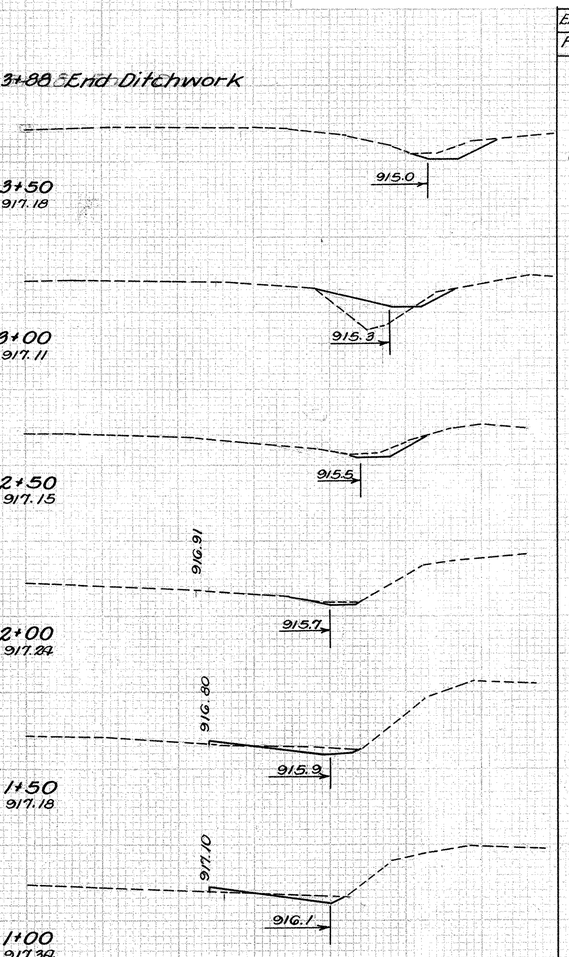
LONGITUDINAL SECTION

NOTE: Cost of removing the existing pavement shall be included in price per unit bid for Item E-2 Excavation for Structure. Pavement replacement shall be the courses as shown on the Typical Section for new pavement.

	End Area	C.Y.
0+14 Lt. Zero Section		
End Wall		1
		2
913.62		
0+06 Lt		12
916.7		
		10
913.98		
0+18 Rt.		11
917.0		
		2
914.08		
0+25 Rt		6
915.8		
End Wall		1
0+28 Rt. Zero Section		1
Total		17

DA = 1.5 AC Q10 = 55 x .6 x .86 x .65 = 18 cfs.

33-A	Sta. 3+85	PC-29"x18"x42'	LIC-37-15.00



	End Area Fill	End Area Cut	Cu. Yds. Fill	Cu. Yds. Cut
	0	0		
			0	2
	0	3		
			5	4
	6	1		
			5	3
	0	2		
			0	3
	0	1		
			0	3
	0	2		
			0	4
	0	2		
			0	1
				43
	0	0		
Total			10	

ESTIMATED QUANTITIES

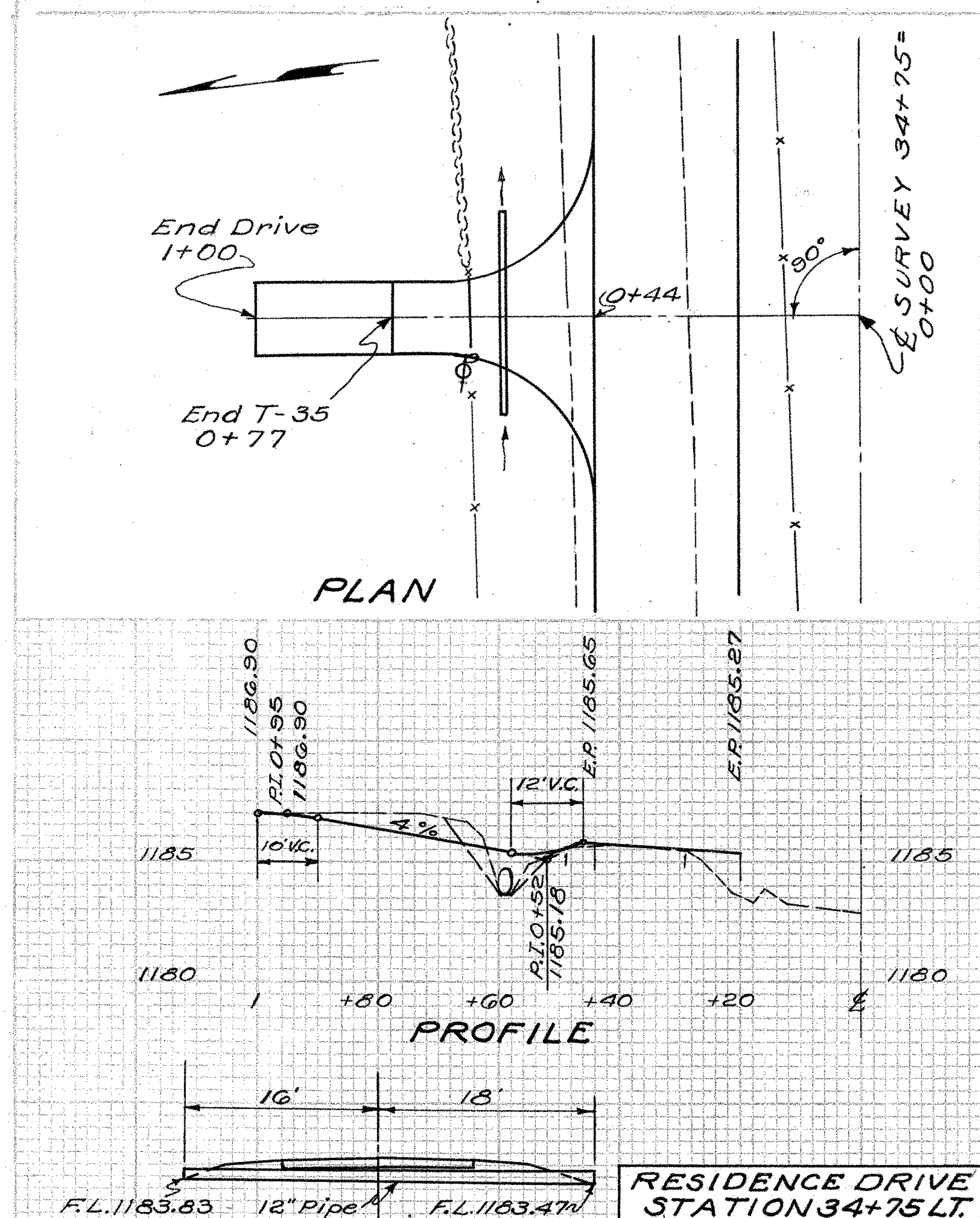
E-1	Roadway Excavation	63 Cu.Yds.
* E-2	Excavation for Structure	17 Cu.Yds.
E-8	Removal Existing Pavement	71 Sq.Yds.
I-35	1 1/4" Asphaltic Concrete Surface Course Type "A"	223 Cu.Yds.
B-35	1 1/4" Asphaltic Concrete Leveling Course	18.9 Cu.Yds.
B-35	3" Asphaltic Concrete Leveling Course	5.1 Cu.Yds.
B-20	5" Waterbound Macadam Base Course	62 Sq.Yds.
I-22	8" Subbase	14 Cu.Yds.
T-30	Bituminous Prime Coat	22 Gals.
I-12	Type G Concrete Curb	108 Lin.Ft.
* S-1	Concrete for End Walls Class "E"	0.9 Cu.Yds.
* S-27	29" x 18" Paved Bit. Coated Corr. Metal Arch M-6.4(d)(i), 12 Gage	42 Lin.Ft.
	Embankment	10 Cu.Yds.

* Carried to Table 2 Sheet 7

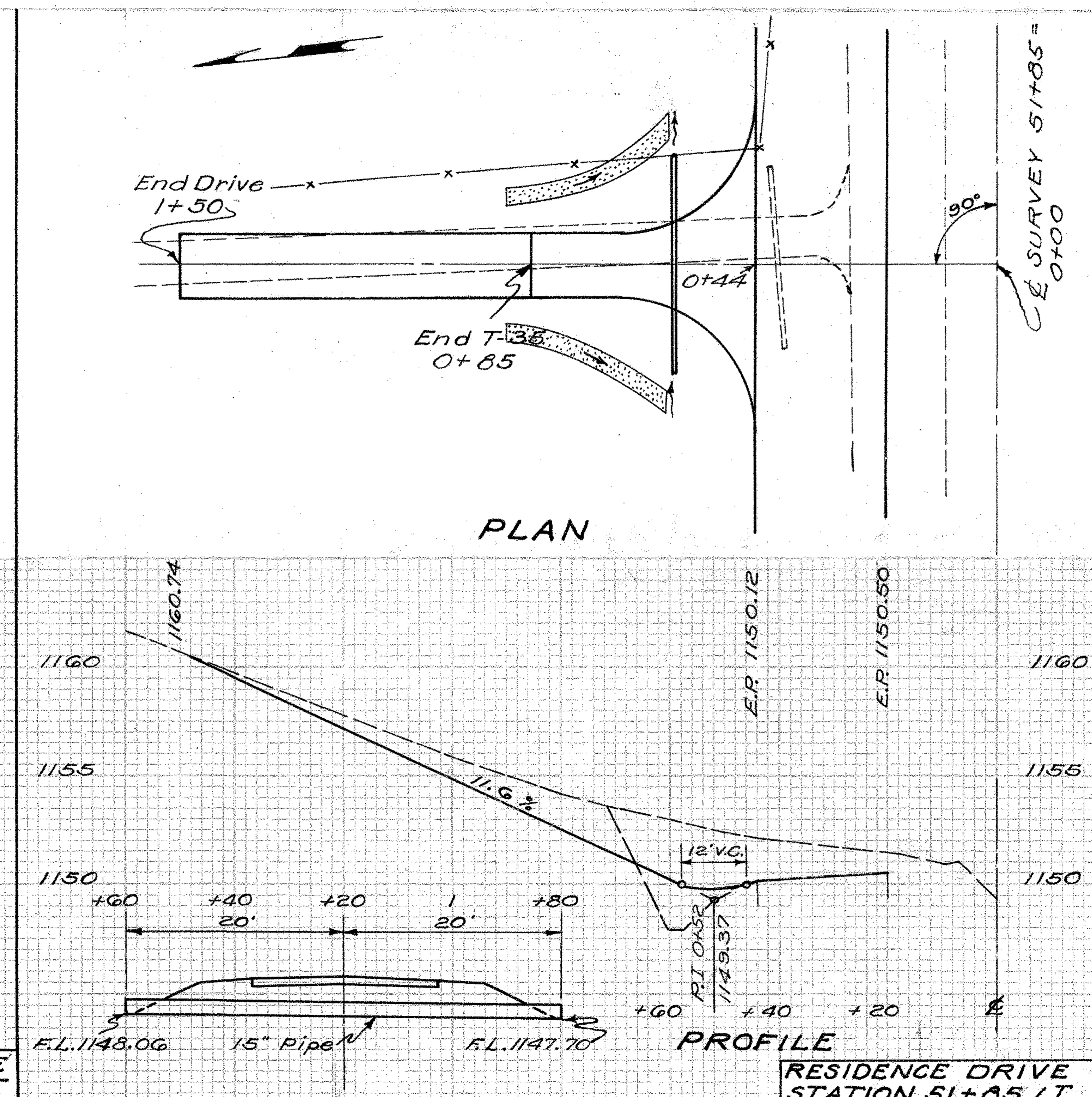
APPROACH LT. STA 392+75.73

FED. RD. DIV. NO.	STATE	PROJECT	TYPE
2	OHIO		

LIC~161~5.12
LIC~37~15.09

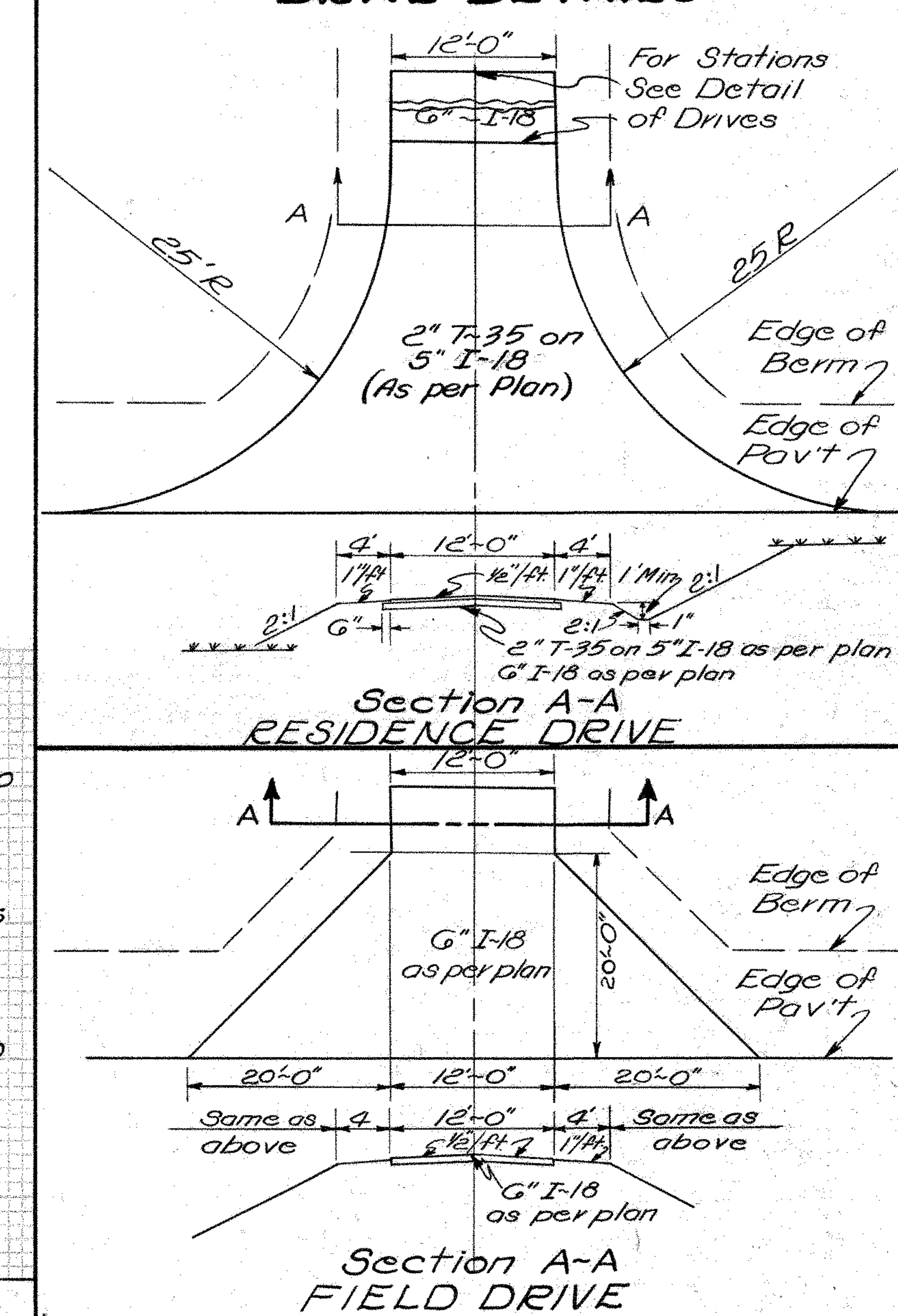


RESIDENCE DRIVE
STATION 34+75 LT.



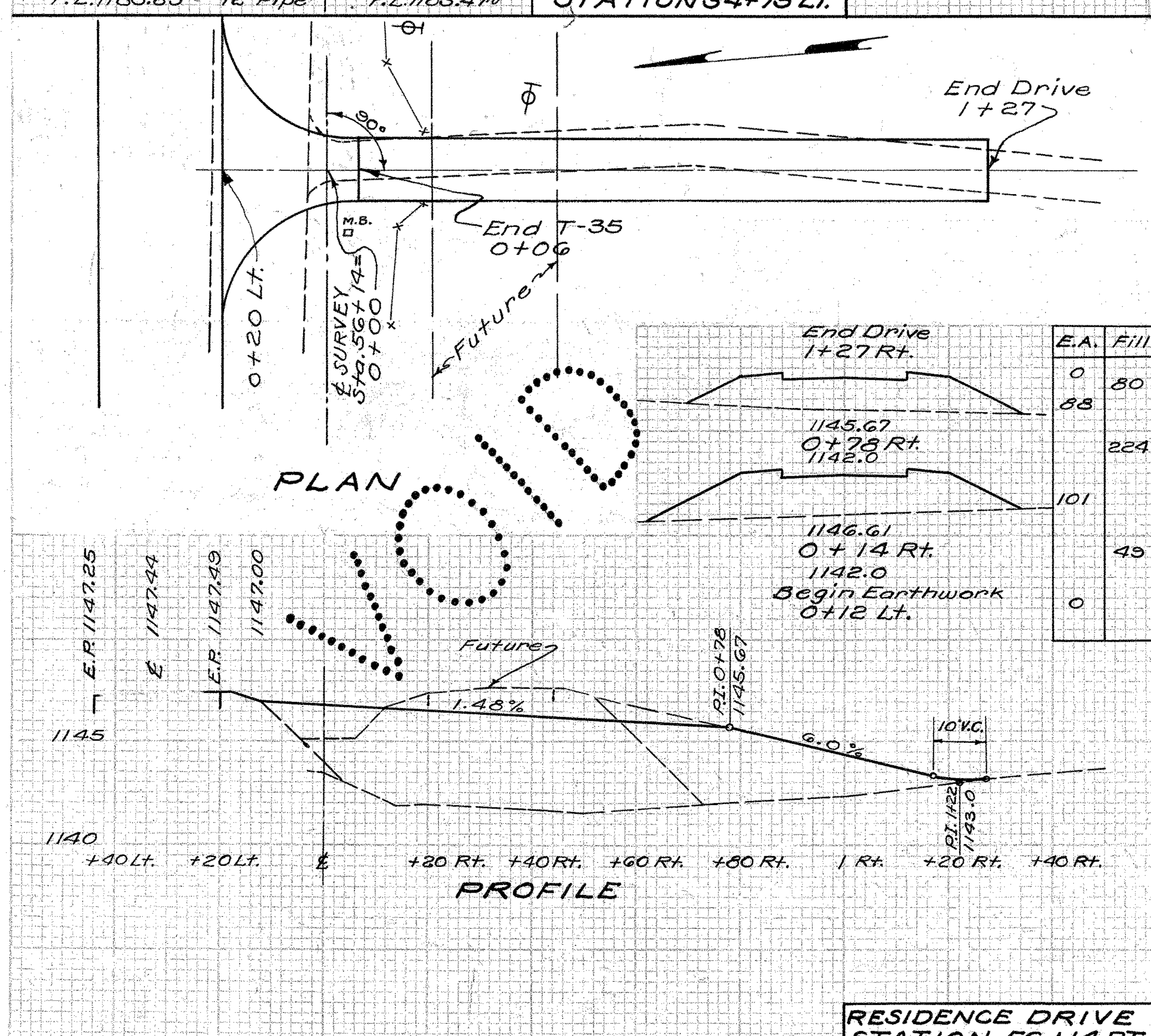
RESIDENCE DRIVE
STATION 51+85 LT.

DRIVE DETAILS

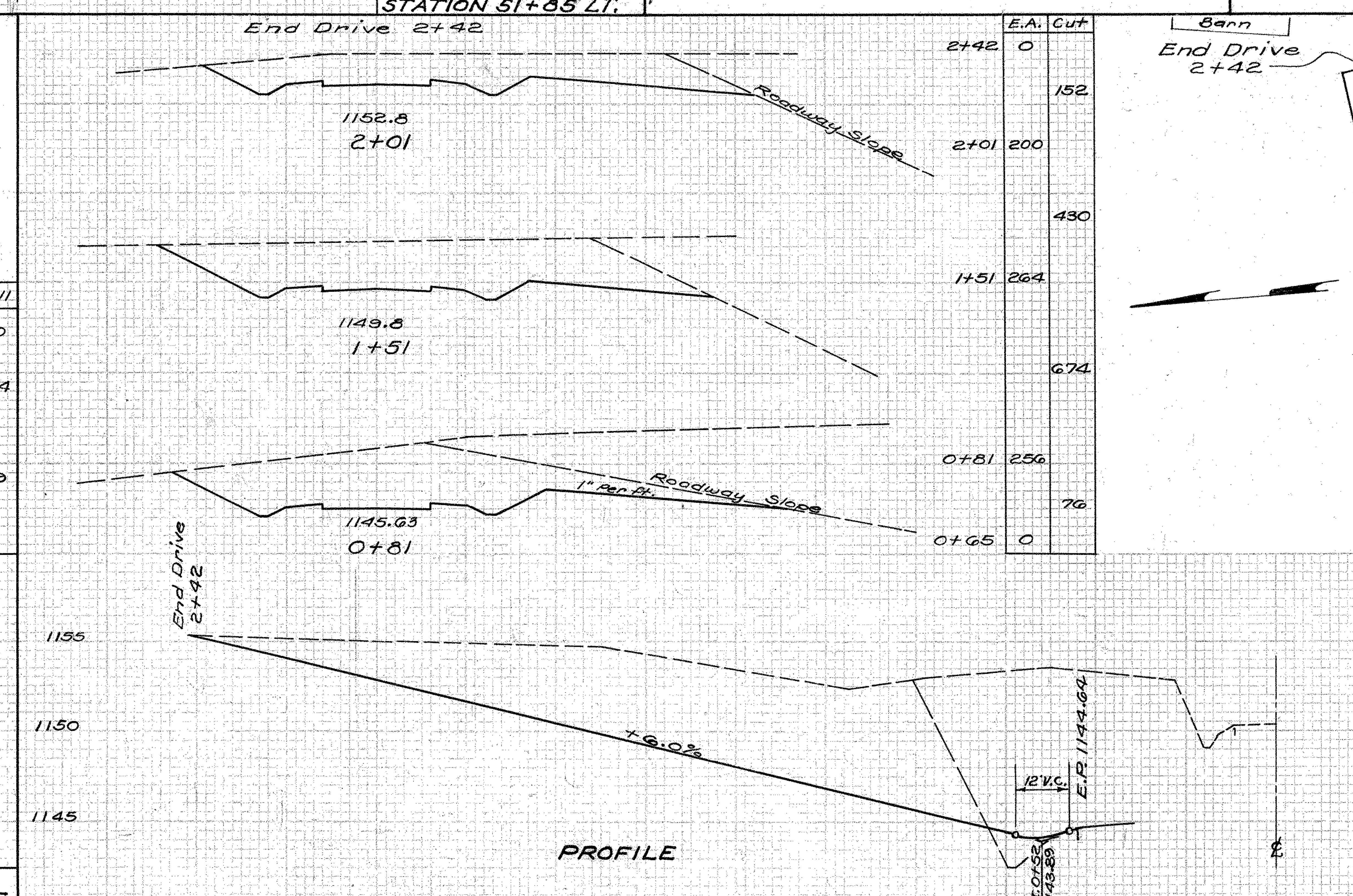


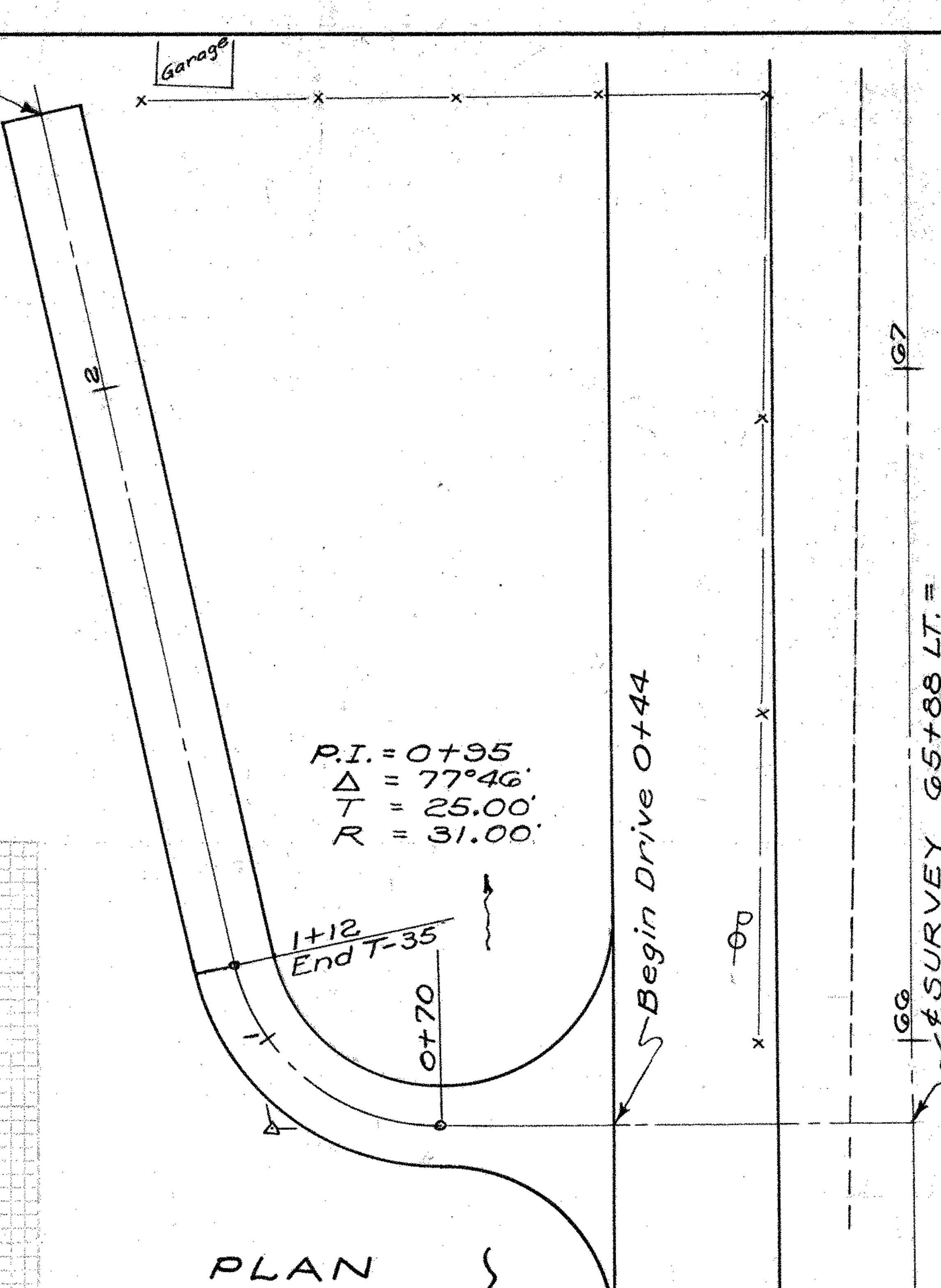
ESTIMATED QUANTITES

Mark	Station	Side	Earthwork Cu. Yds. Excav	Earthwork Cu. Yds. Emb	2" T~35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I~18 As per plan Cu. Yds. 5"	I~18 As per plan Cu. Yds. 6"	I~1 Pipe for Drives 12"	I~1 Pipe for Drives 15"			I~10 Riprap Sq. Yds.
1-A	34+75	Lt	26	7	4.10	28	11.0	5.1	34				
5-A	51+85	Lt	175	20	4.70	32	12.6	14.5		40			
7-A	65+88	Lt	1332	7	6.70	45	18.0	28.9					
From Sheet No. 43			25	4	3.51	24	9.4	8.0					
Totals					19.01	129	107.5		34	40	0	0	0



RESIDENCE DRIVE
STATION 56+14 RT.





RESIDENCE DRIVE
65+88 Lt.

STD. RD. DIMENSION	STATE	PROJECT	SHEET NUMBER
2	OHIO		

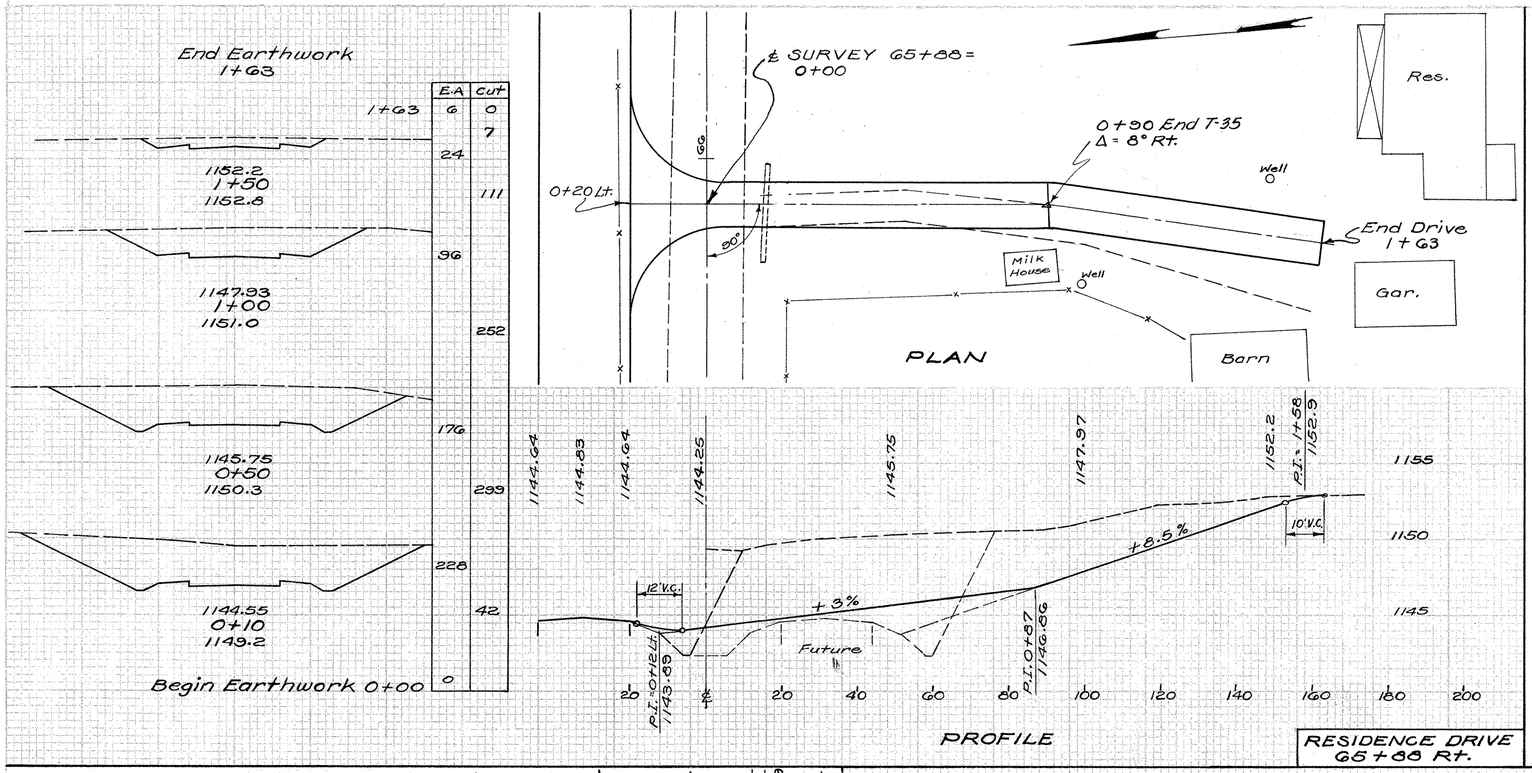
49
238

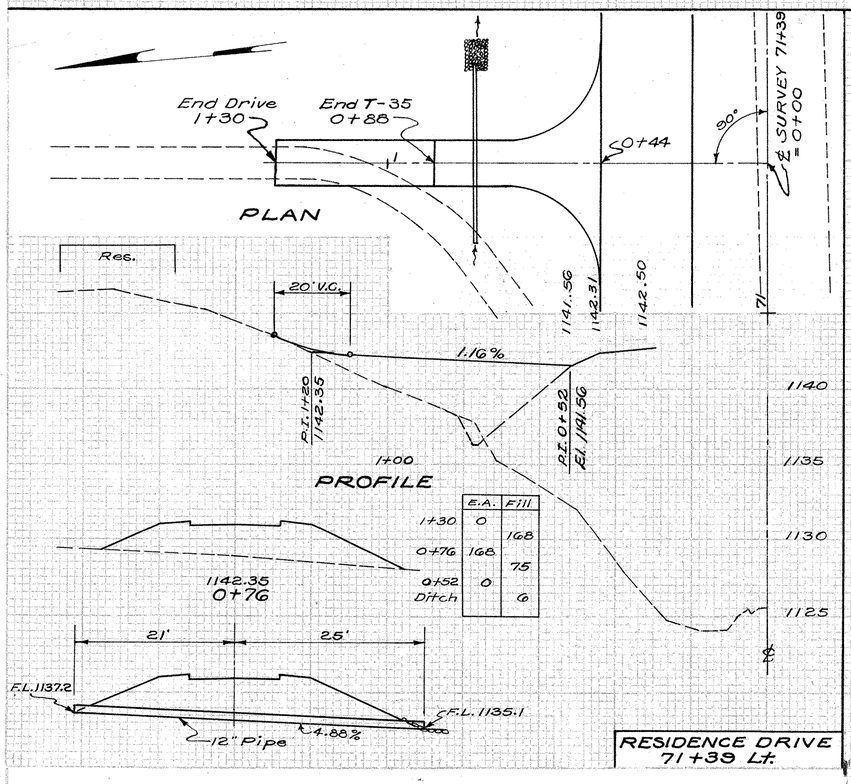
LIC-161-5.12
LIC-37-15.09

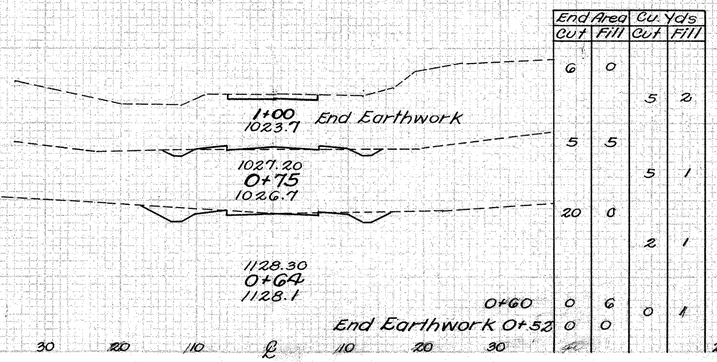
ESTIMATED QUANTITIES

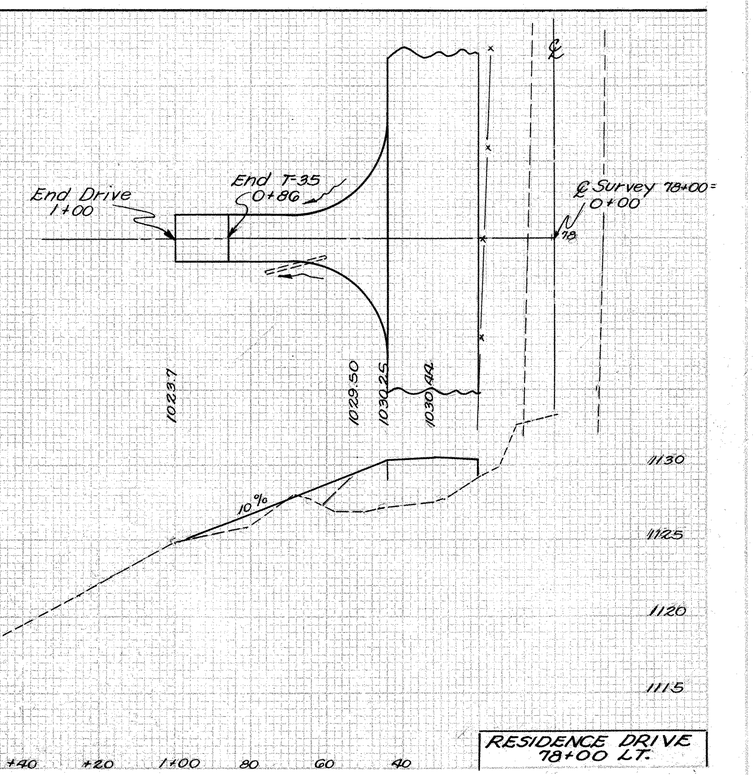
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per plan Cu. Yds. 5"	I-18 As per plan Cu. Yds. 6"	I-1 Pipe for Drives, Lin. Ft. 12"	I-10 Riprap Sq. Yds.
8-A	65+88	Rt	711	8	9.87	67	26.4	16.2		
9-A	71+39	Lt	0	249	4.92	33	13.2	9.3	96	6
10-A	78+00	Lt	12	5	4.77	32	12.8	3.1		
Totals					19.56	132	81.10	96		6

NOTE: For Details See Sheet No. 48









FED. OR DIVISION	STATE	PROJECT	TYPE PROJ.
2	OHIO		

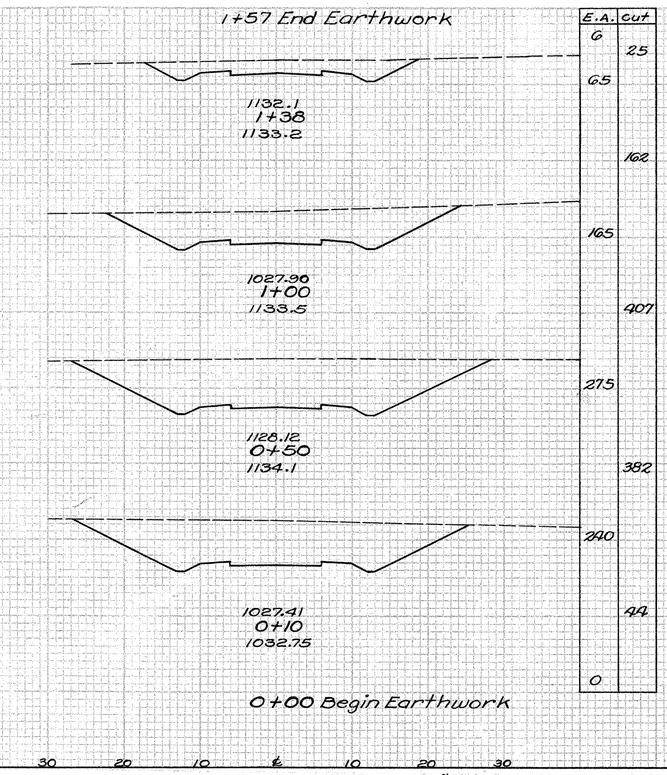
50
238

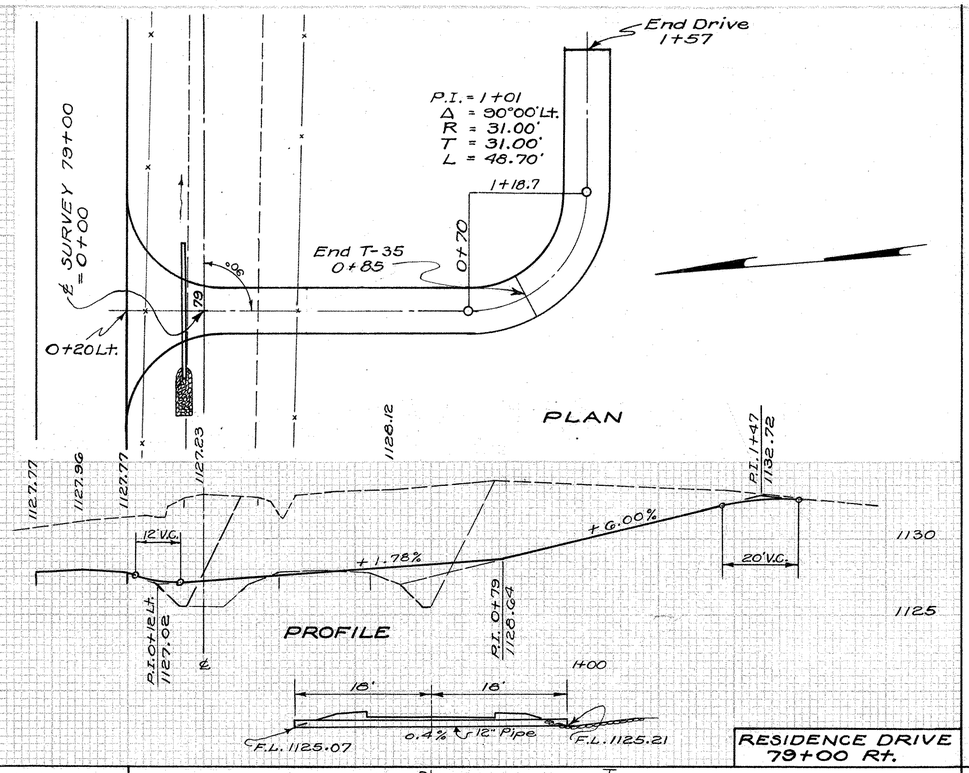
LIC~161~5.12
LIC~37~15.09

ESTIMATED QUANTITIES

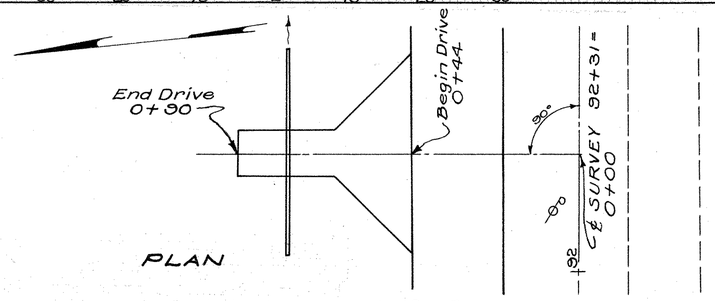
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per plan Cu. Yds 5"	I-18 As per plan Cu. Yds 6"	I-1 Pipe For Drive, Lin. Ft. 12"	I-1 Pipe For Drive, Lin. Ft. 15"	I-10 Riprap Sq. Yds.
11A	79+00	Rt	1020	8	9.49	64	25.4	160	36		8
12A	92+31	Lt	0	96				17.6	54		
13A	92+31	Rt	0	25	4.10	28	11.0			36	
17A	116+50	Rt	231	12			26.3		34		
Totals					13.59	92	90.3		124	36	8

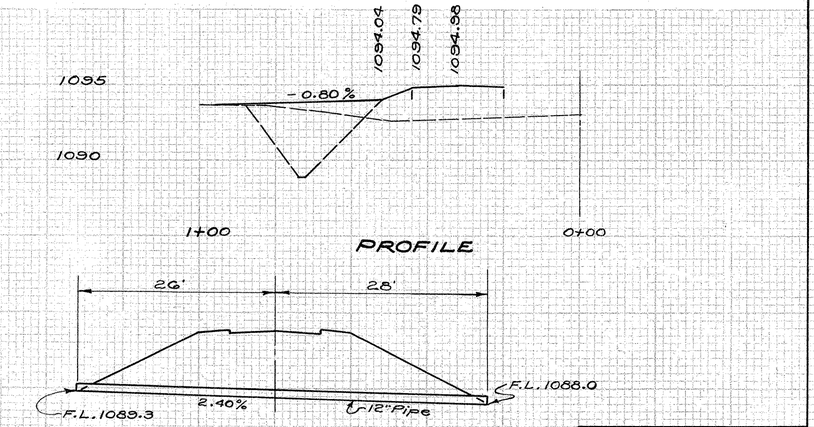
NOTE: For Details See Sheet No. 48



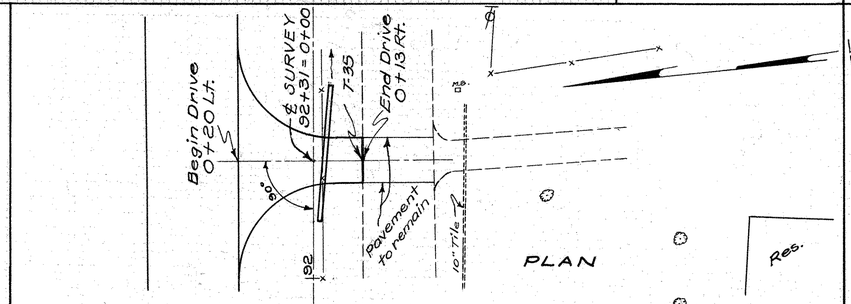


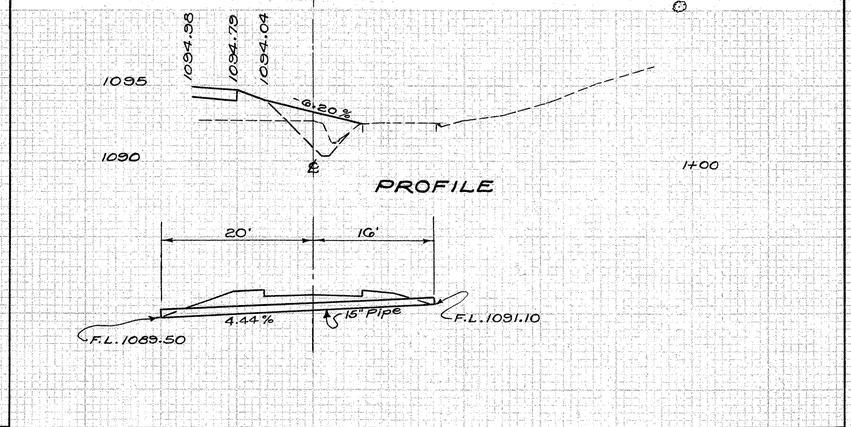
RESIDENCE DRIVE
79+00 Rt.



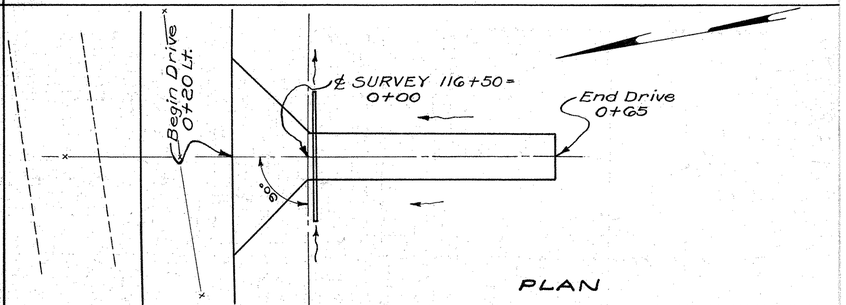


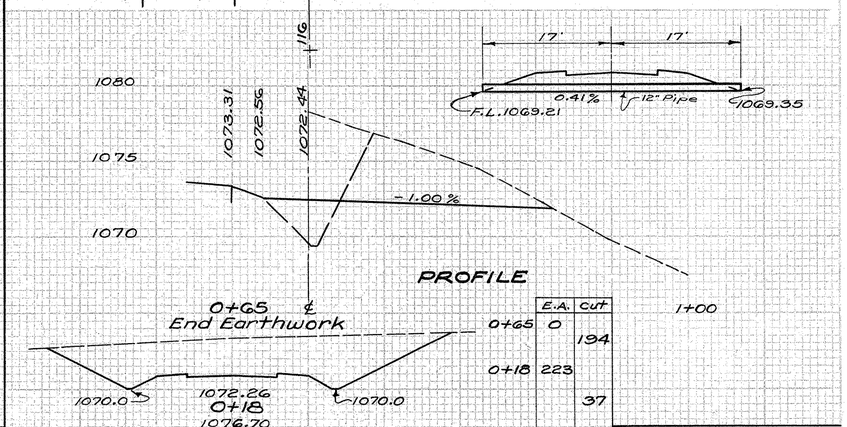
FIELD DRIVE
92+31 Lt.





RESIDENCE DRIVE
92+31 Rt.





FIELD DRIVE
116+50 Rt.

STATE	PROJECT	TYPE STUDY
OHIO		

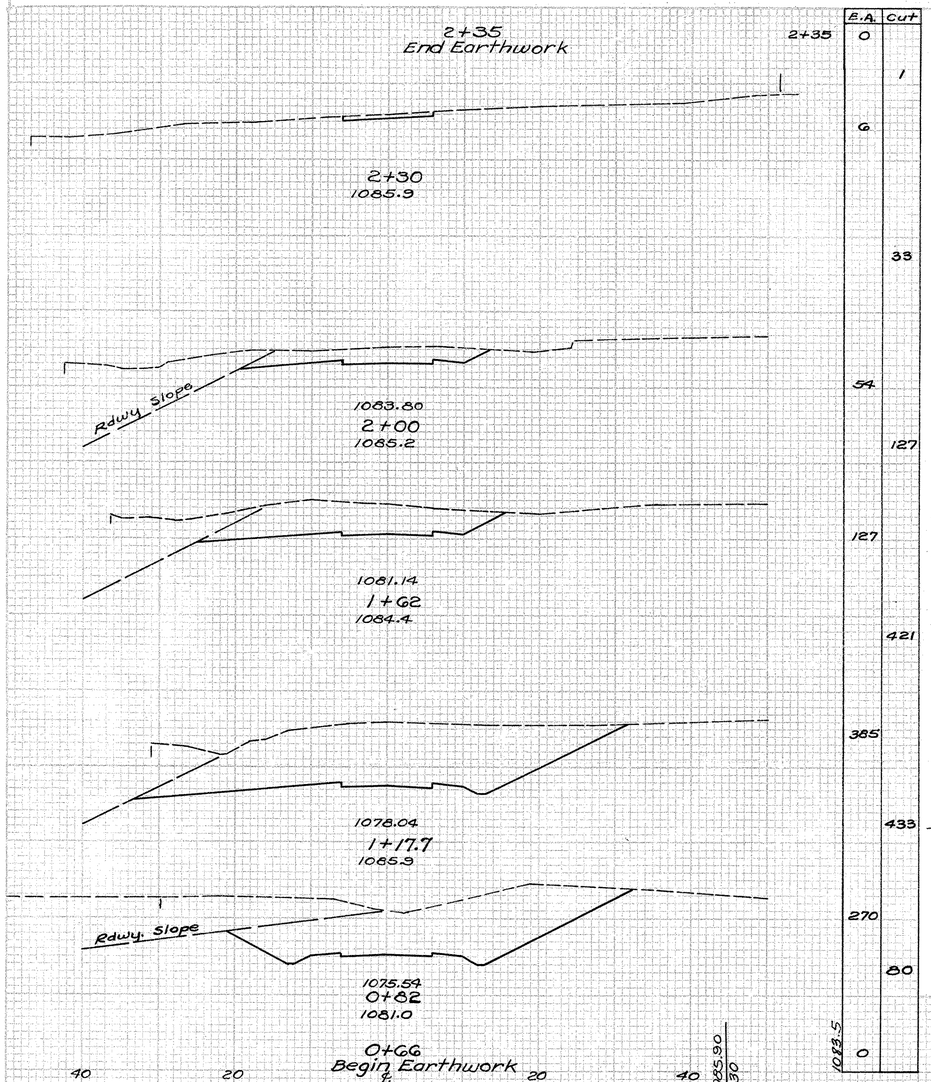
51
238

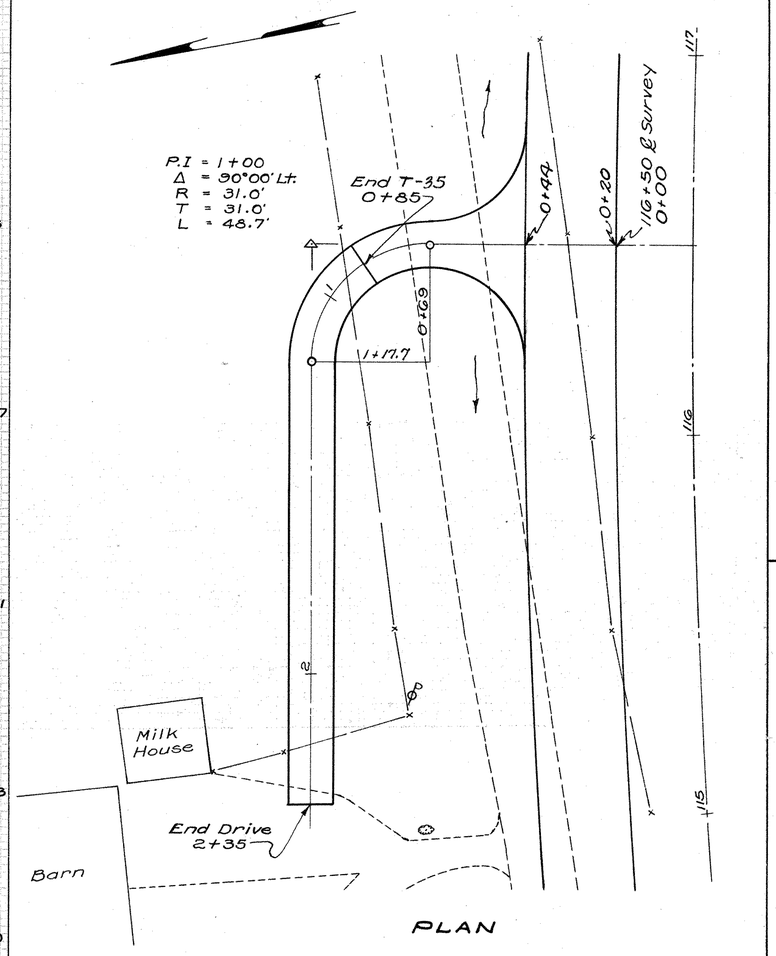
LIC~161~5.12
LIC~37~15.09

ESTIMATED QUANTITIES

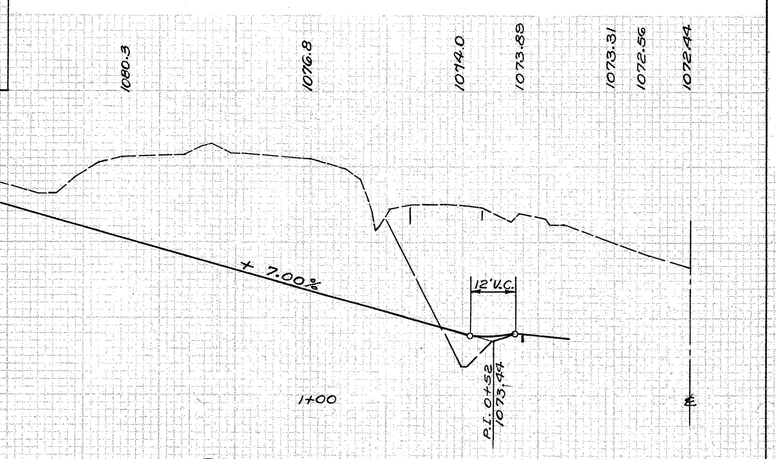
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per plan Cu. Yds. 5"	I-18 As per plan Cu. Yds. 6"	I-1 Pipe for Drive, Lin. Ft. 12"	I-1 Pipe for Drive, Lin. Ft. 15"			I-10 Riprap Sq. Yds.
16A	116+50	Lt.	1095	8	4.70	32	12.6	33.4					
21A	147+44	Lt.	8	8	3.96	27	10.6	2.2	32				
Totals					8.66	59	58.8		32	0	0	0	0

NOTE: For Details See Sheet No. 48



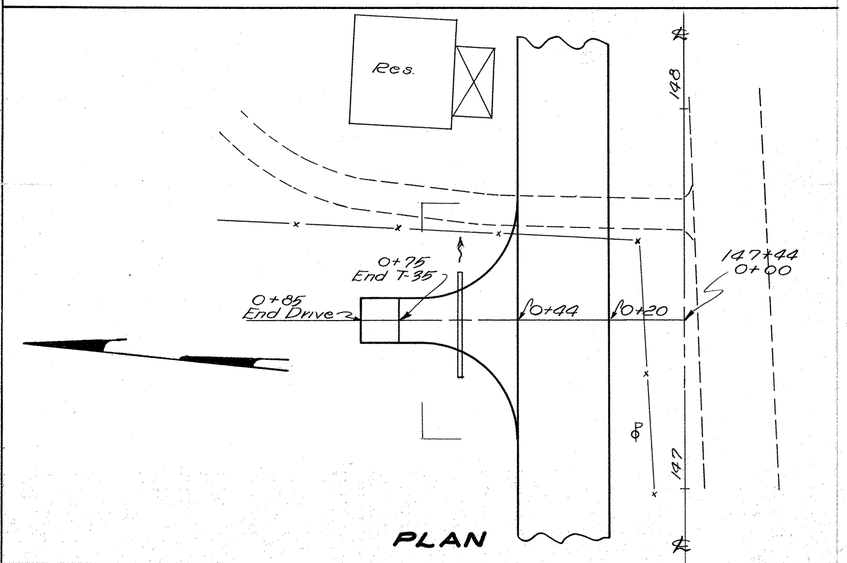


PLAN

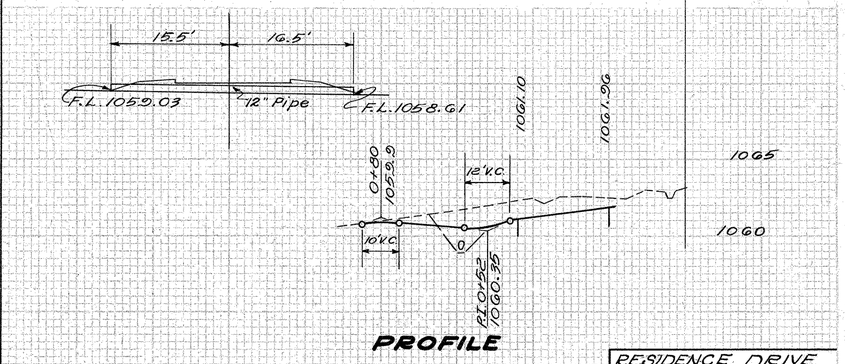


PROFILE

RESIDENCE DRIVE
116+50 Lt.



PLAN



PROFILE

RESIDENCE DRIVE
147+44 Lt.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

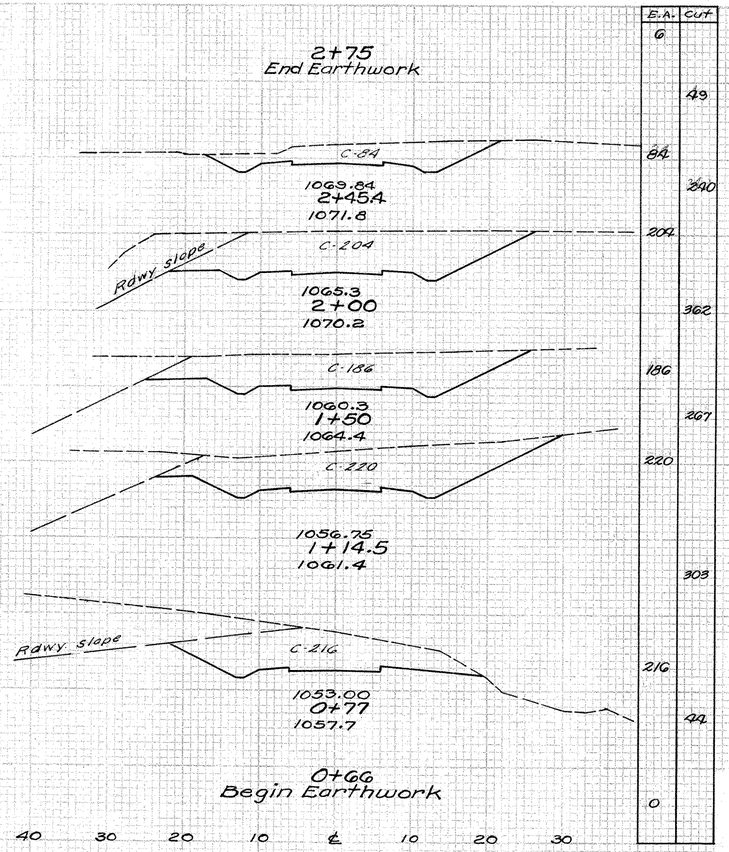
52
238

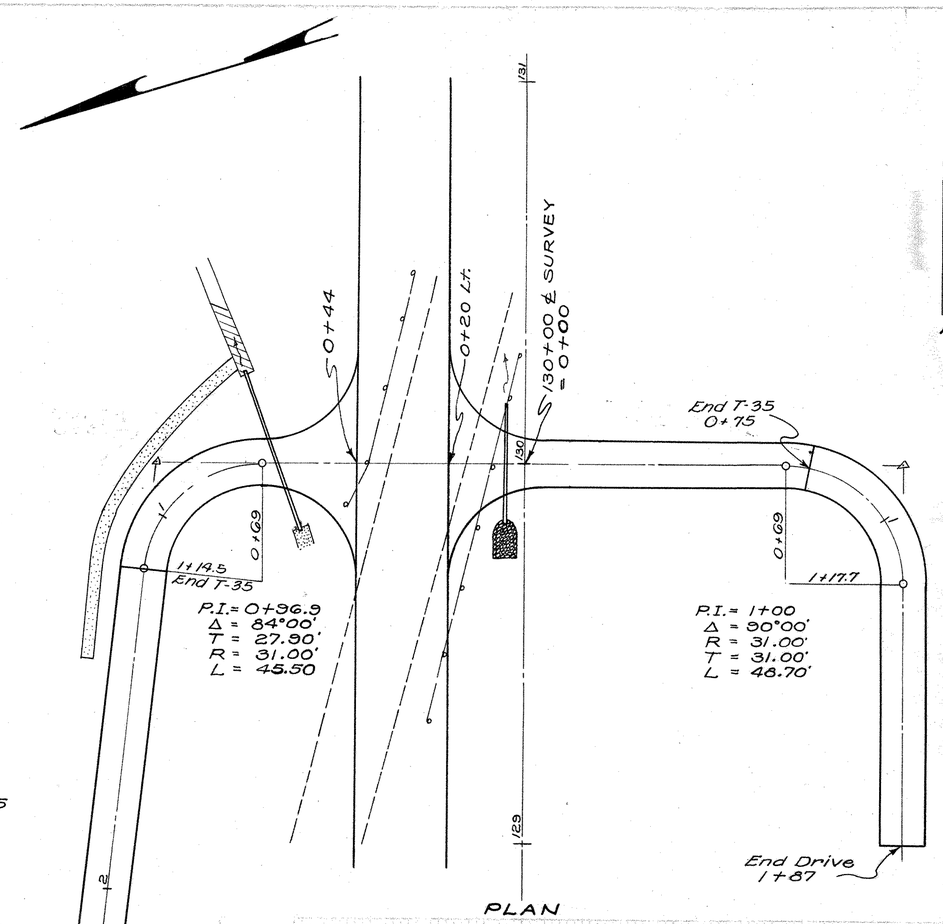
LIC-161-5.12
LIC-37-15.09

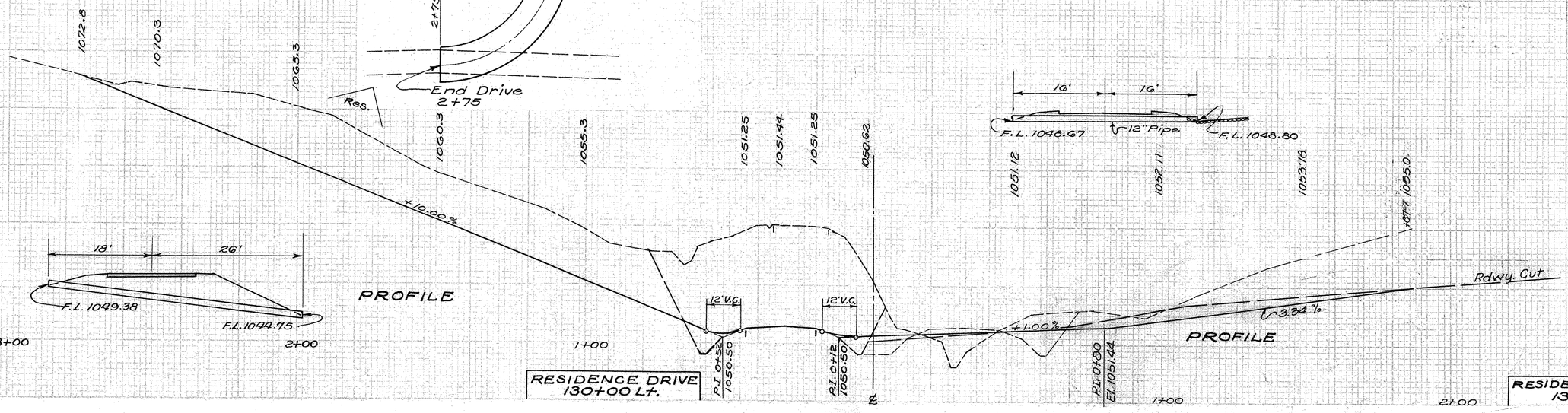
ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds Exc.	Earthwork Cu. Yds Emb.	2"T-35 Asph Conc Cu. Yds.	T-30 Bit. Prime Gals	I-18 As per plan Cu. Yds 5"	I-18 As per plan Cu. Yds 6"	I-1 Pipe for Driveway Lin.Ft. 12"	I-1 Pipe for Driveway Lin.Ft. 15"	I-10 Riprap Sq. Yds.
18A	130+00	Rt.	120	10	8.72	59	23.4	24.9	32		8
19A	130+00	Lt.	1265	8	6.91	47	18.5	35.6	44		
Total					15.65	106	102.4	76			8

NOTE: For Details See Sheet No. 48







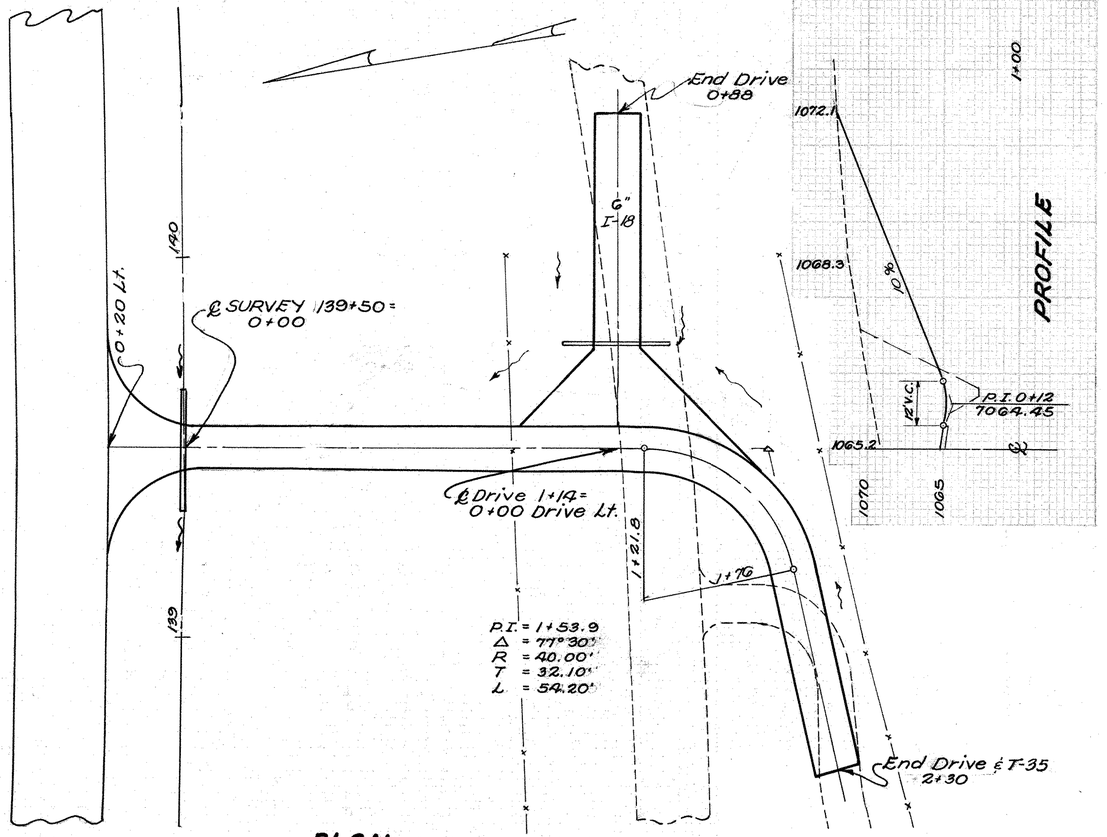
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	53 / 238
2	OHIO			

LIC-161-5.12
LIC-37-15.09

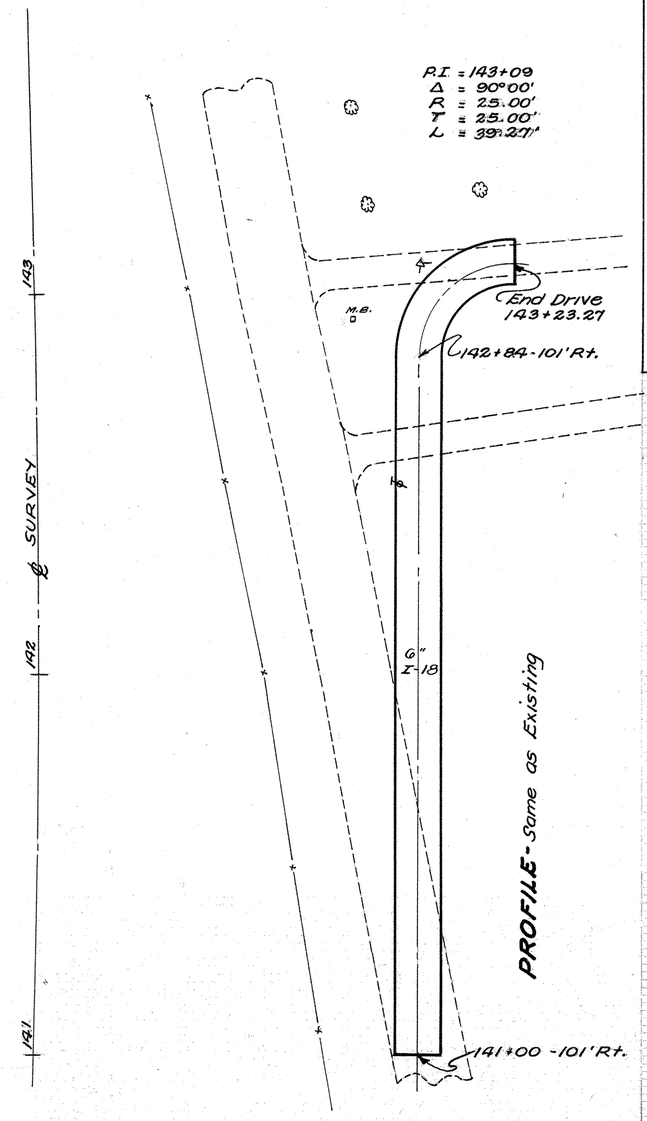
ESTIMATED QUANTITIES

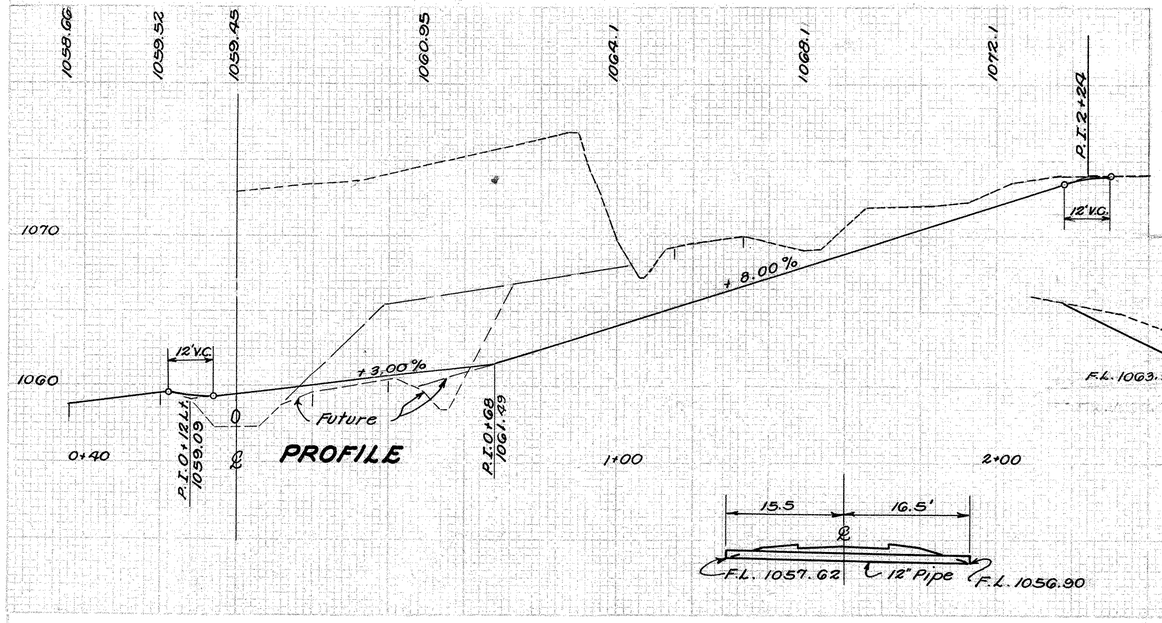
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per plan 5"	I-18 As per plan 6"	I-1 Pipe for Drive, Lin. Ft. 12"	I-10 Riprap Sq. Yds.
20A	139+50	Rt.	1265	35	20.37	137	599	78.1	60	
Totals					20.37	137	132.5		60	

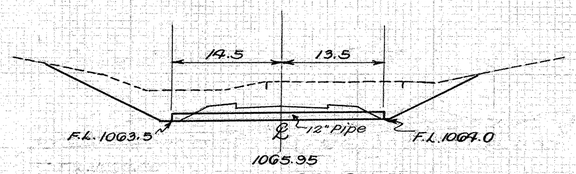
NOTE: For Details See Sheet No. 48

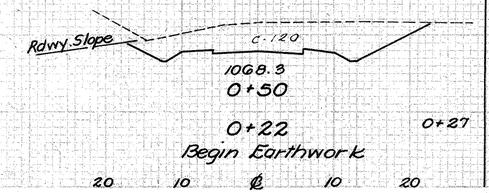


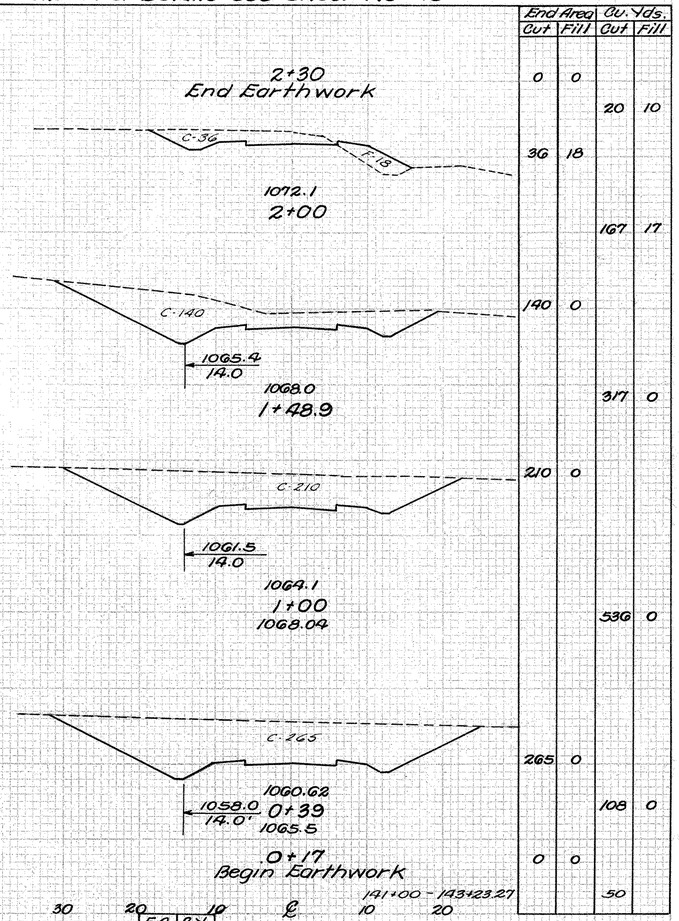
PLAN









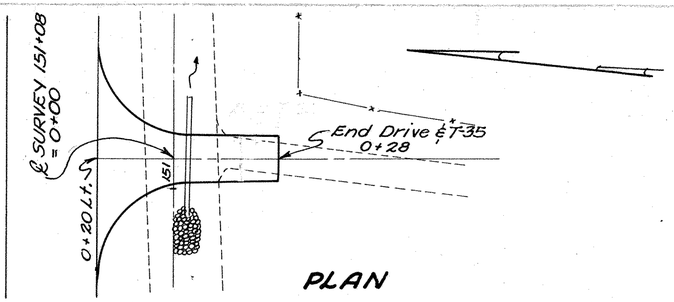


End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	0		
		20	10
36	18		
		167	17
140	0		
		317	0
210	0		
		536	0
265	0		
		108	0
0	0		
		50	

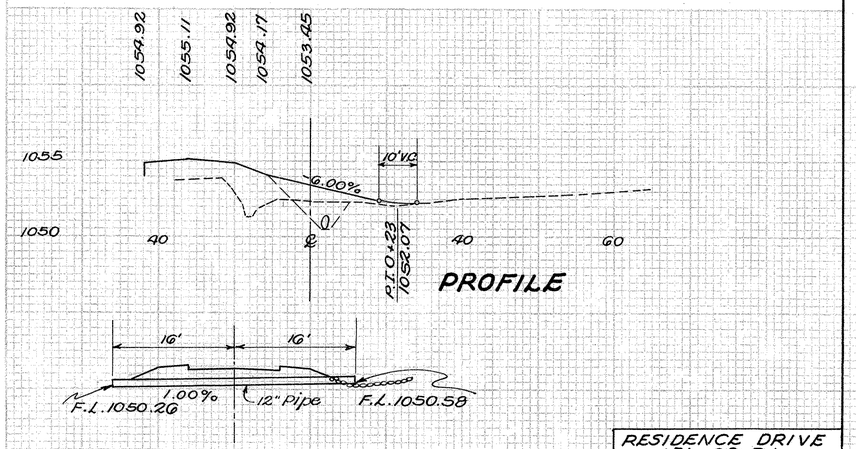
RESIDENCE DRIVES
139+50 Rt.

FED. AID DIVISION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			54 / 238

LIC-161-5.12
LIC-37-15.09

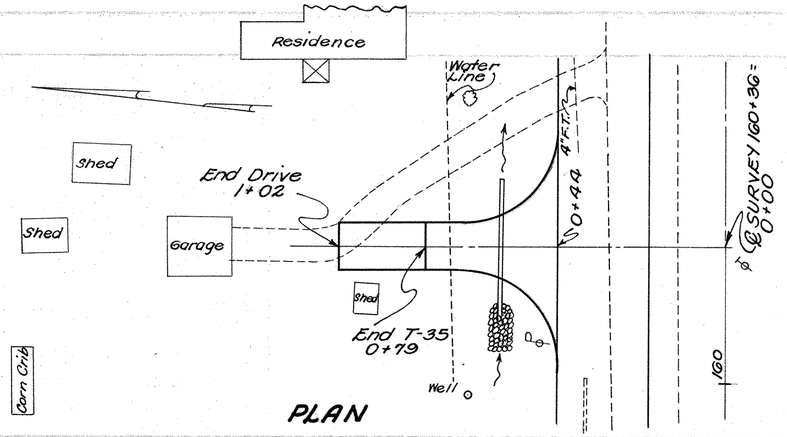


PLAN

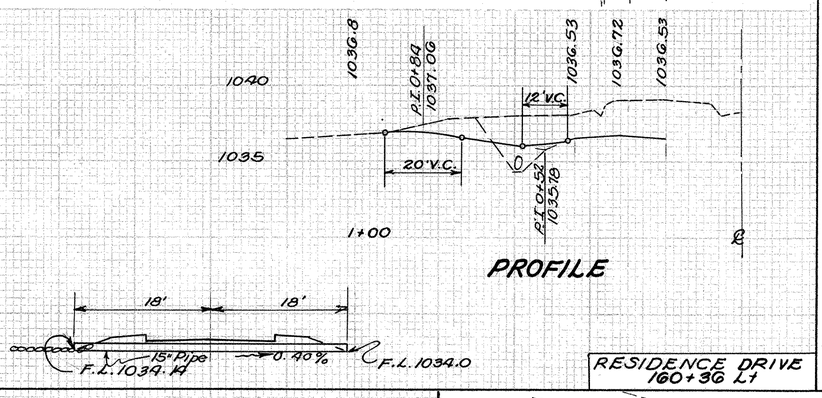


PROFILE

RESIDENCE DRIVE
151+08 Rt.



PLAN



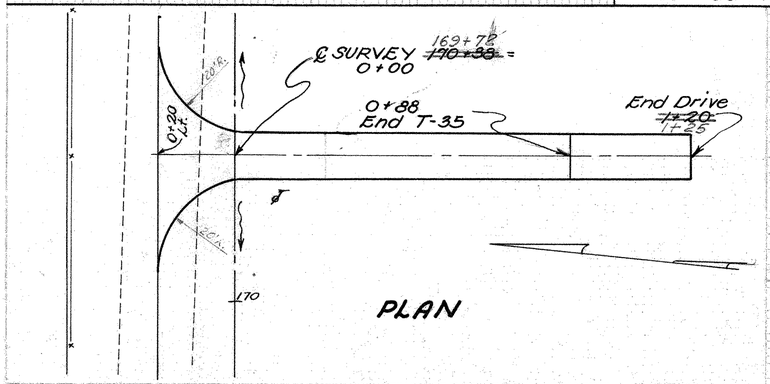
PROFILE

RESIDENCE DRIVE
160+36 Lt

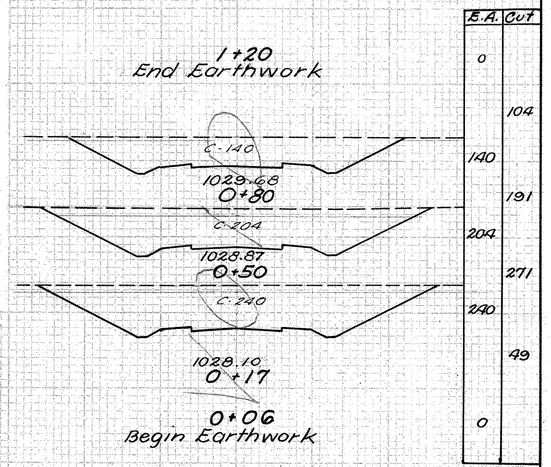
ESTIMATED QUANTITIES

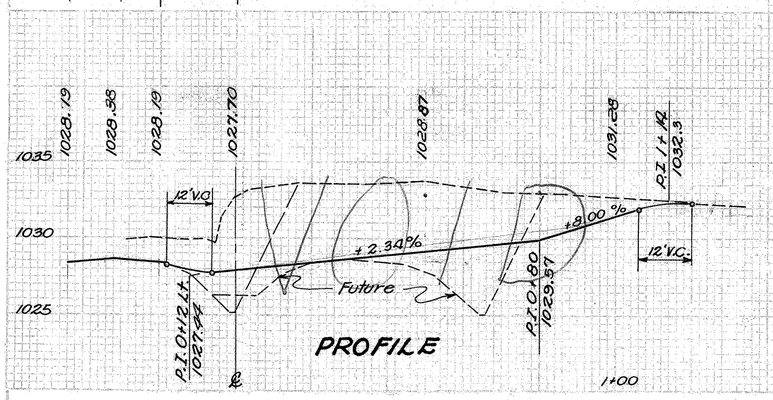
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per plan Cu. Yds.	I-1 Pipe for Drive, Lin. Ft. 5"	I-1 Pipe for Drive, Lin. Ft. 6"	I-1 Pipe for Drive, Lin. Ft. 12"	I-1 Pipe for Drive, Lin. Ft. 15"	I-10 Riprap Sq. Yds.
22-A	151+08	Rt.	0	10	5.22	35	14.0	0	32			8
23-A	160+36	Lt.	40	8	4.25	29	11.4	5.1		36		8
24-A	~~170+38~~ 169+72	Rt.	615	8	9.72	66	26.0	7.1				
25-A	180+06	Lt.	60	8	4.25	29	11.4	46.0				
26-A	180+06	Rt.	30	8				23.0				
Totals					23.44	159	144.0	32	36			16

NOTE: For Details See Sheet No. 48



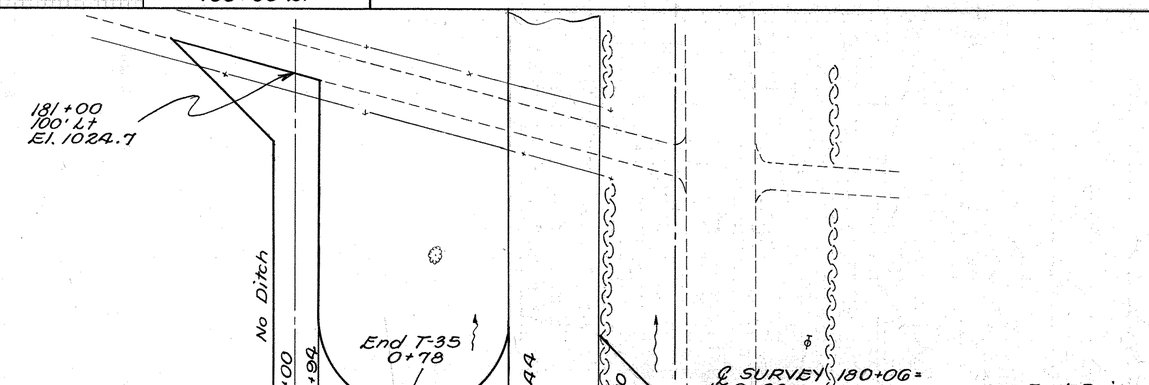
PLAN

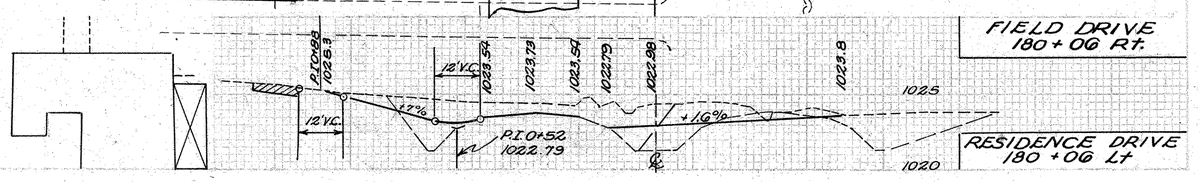




PROFILE

RESIDENCE DRIVE
~~170+38~~ 169+72 Rt.





FIELD DRIVE
180+06 Rt.

RESIDENCE DRIVE
180+06 Lt

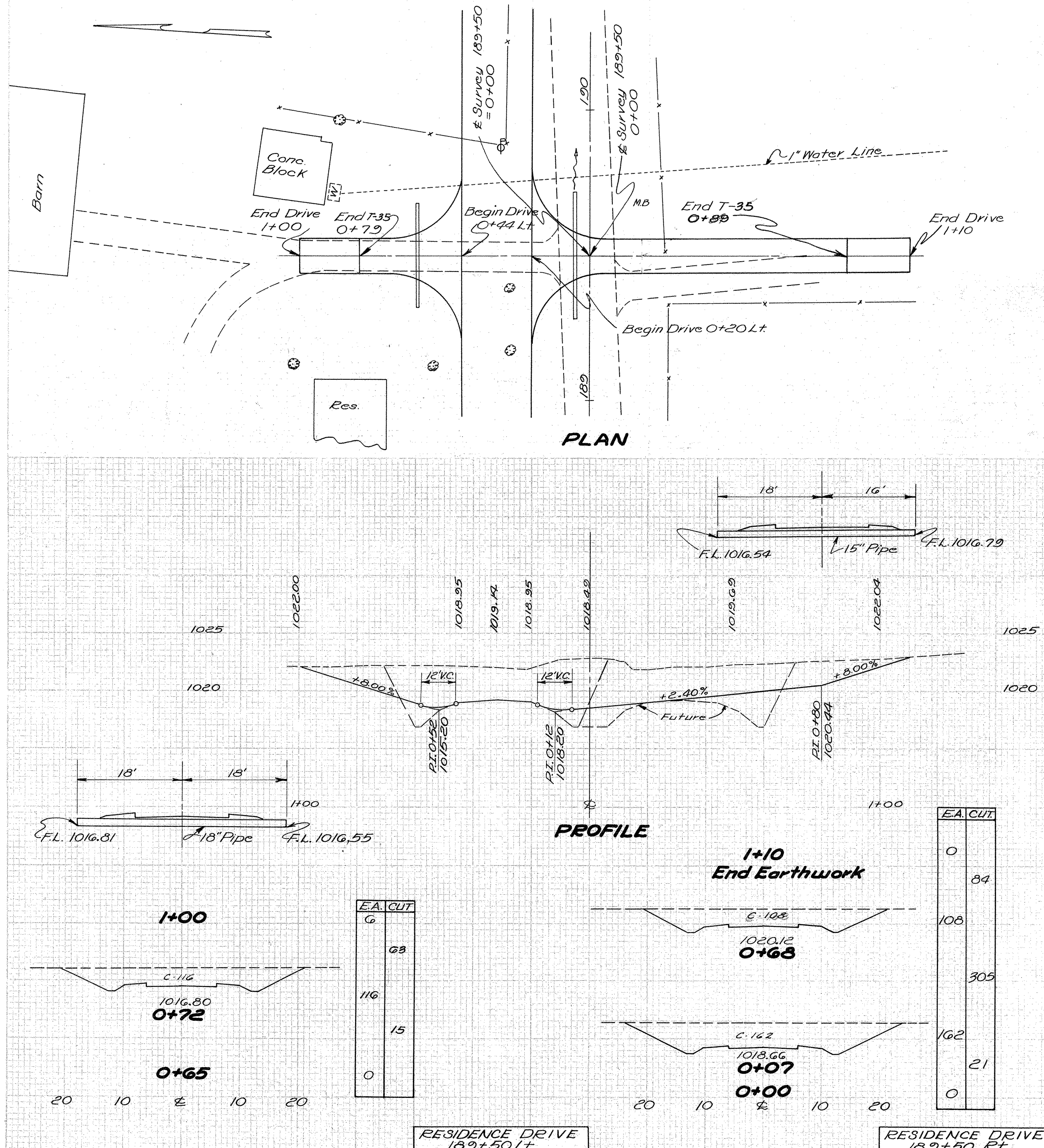
REV. 12-19-56 G.W.S.

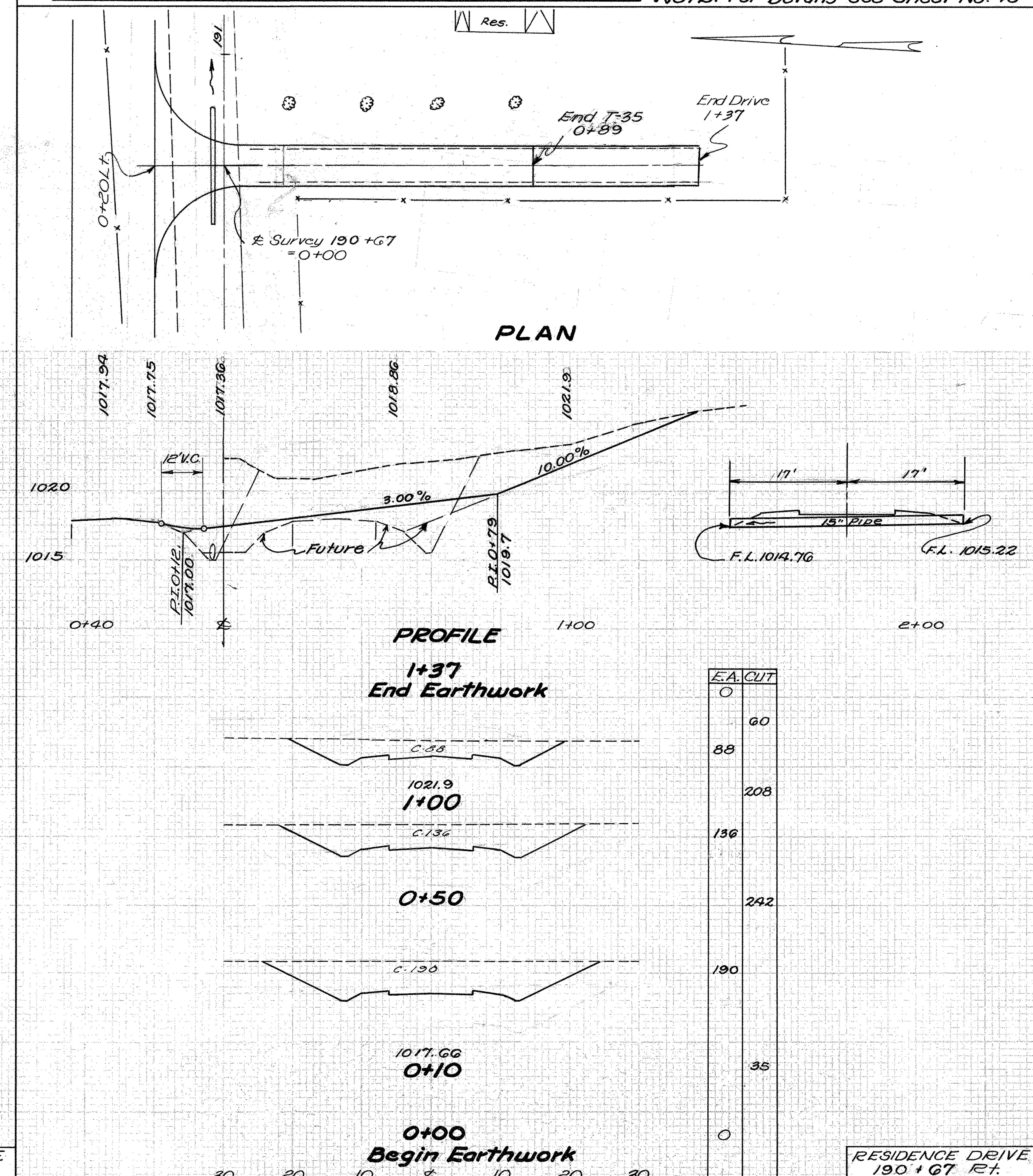
LIC~161~5.12
LIC~37~15.09

ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals	I-18 As per plan 5"	I-18 As per plan 6"	I-1 Pipe for Drives, Lin. Ft. 12"	I-1 Pipe for Drives, Lin. Ft. 15"	I-1 Pipe for Drives, Lin. Ft. 18"		I-10 Riprap Sq. Yds.
27-A	189+50	Lt.	78	10	4.25	29	11.4	4.7			36		
28-A	189+50	Rt.	410	8	9.79	66	26.2	4.7		34			
29-A	190+67	Rt.	545	10	9.79	66	26.2	10.7		34			
Totals					23.83	161	83.9			68	36		

NOTE: For Details See Sheet No. 48

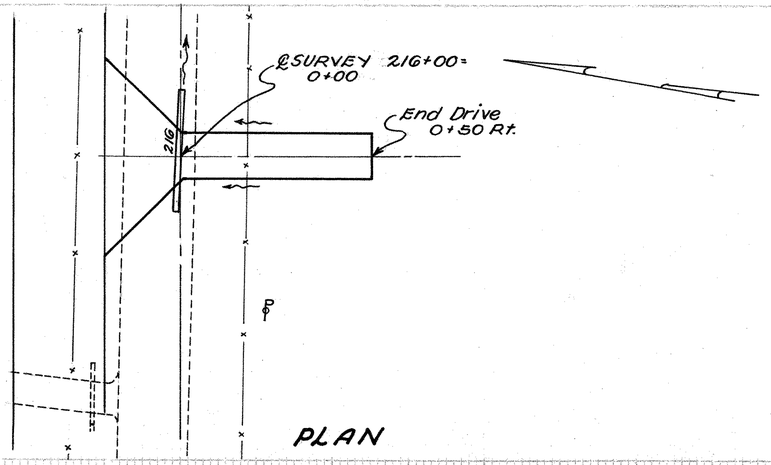




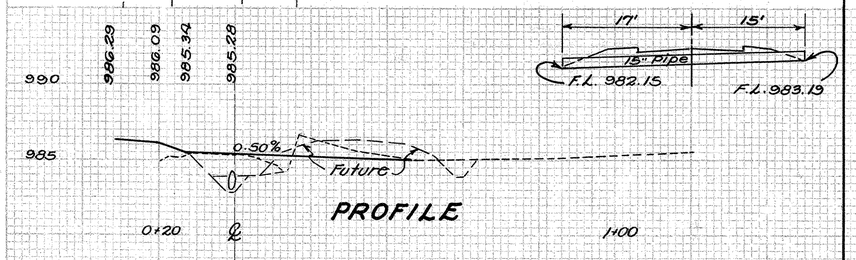
FED. AID PROJECTS	STATE	PROJECT	TYPE FUNDS
2	OHIO		

56
238

LIC-161-5.12
LIC-37-15.09

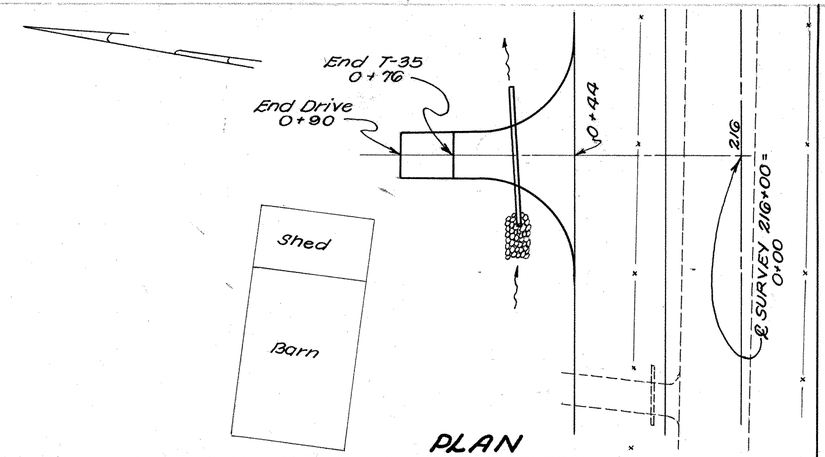


PLAN

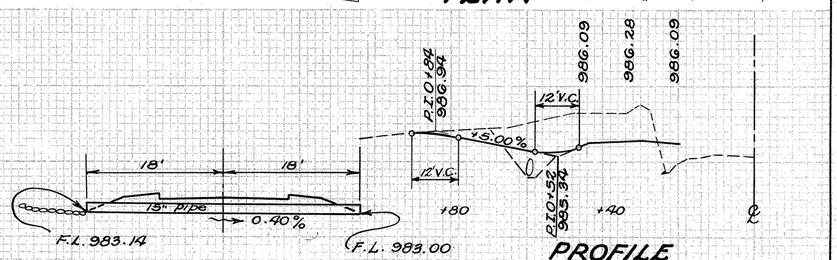


PROFILE

FIELD DRIVE
216 + 00 Rt.



PLAN



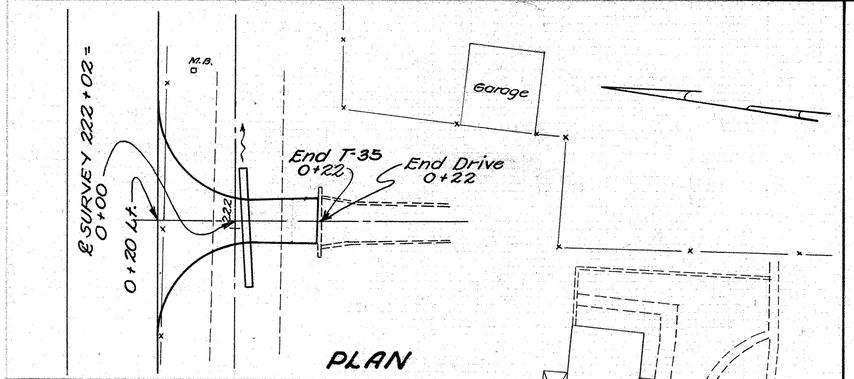
PROFILE

RESIDENCE DRIVE
216 + 00 Lt.

ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-13 Asphalt Cu. Yds. 5"	I-13 Asphalt Cu. Yds. 6"	I-1 Pipe for Drive Lin. Ft. 12"	I-1 Pipe for Drive Lin. Ft. 15"	I-1 Pipe for Drive Lin. Ft. 18"	I-10 Riprap Sq. Yds.
33A	216+00	Lt.	15	8	4.03	27	10.8	3.1		36		8
34A	216+00	Rt.	20	15				23.0		32		
36A	224+60	Lt.	1	89				17.6			40	
37A	224+60	Rt.	179	0	9.12	62	24.4	6.0			34	4
Totals					13.15	89	84.9		68	74		12

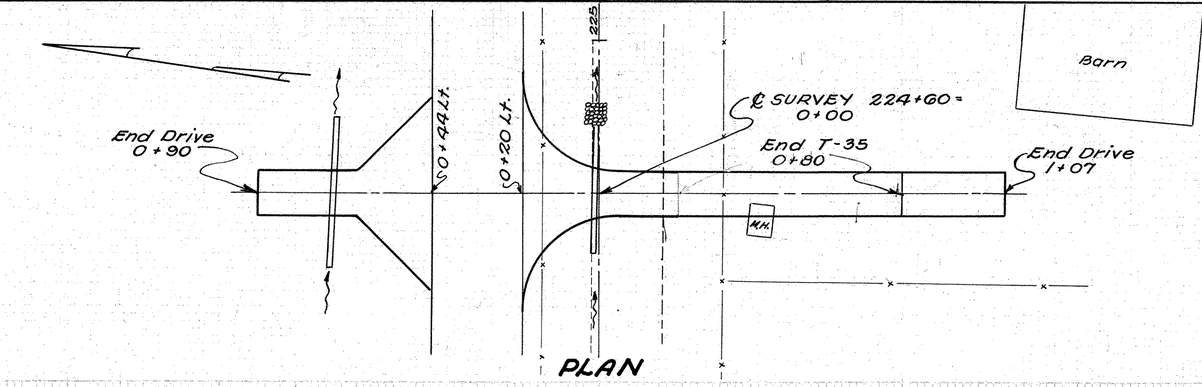
NOTE: For Details See Sheet No. 48



PLAN

PROFILE

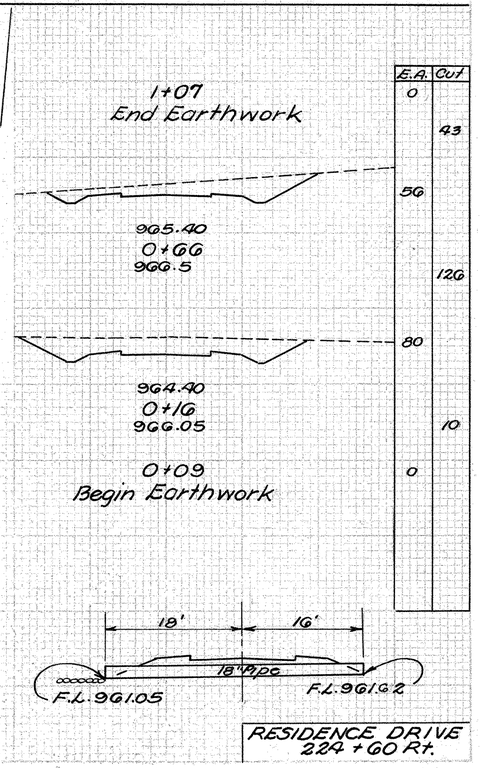
RESIDENCE DRIVE
222 + 02 Rt.



PLAN

PROFILE

FIELD DRIVE
224 + 60 Lt.

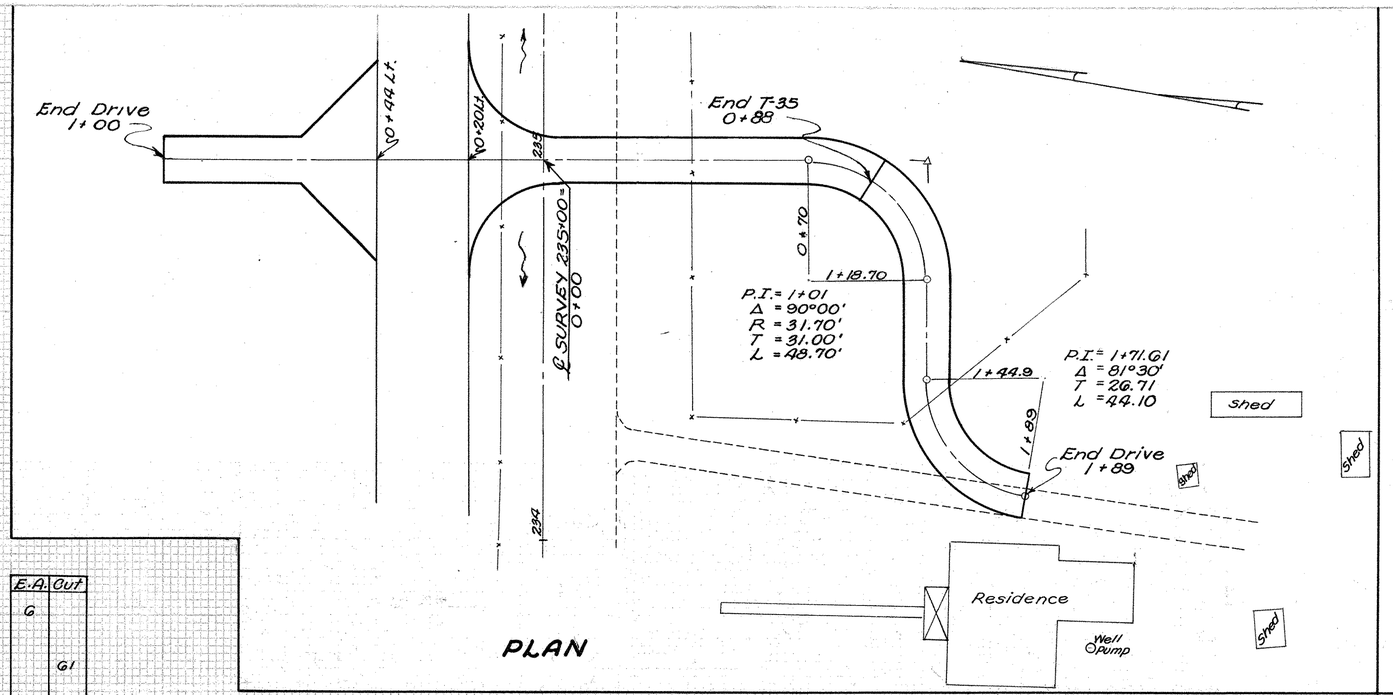


RESIDENCE DRIVE
224 + 60 Rt.

FED. HWY. DIVISION	STATE	PROJECT	FIVE YEARS
2	OHIO		

57
238

LIC-161-5.12
LIC-37-15.09

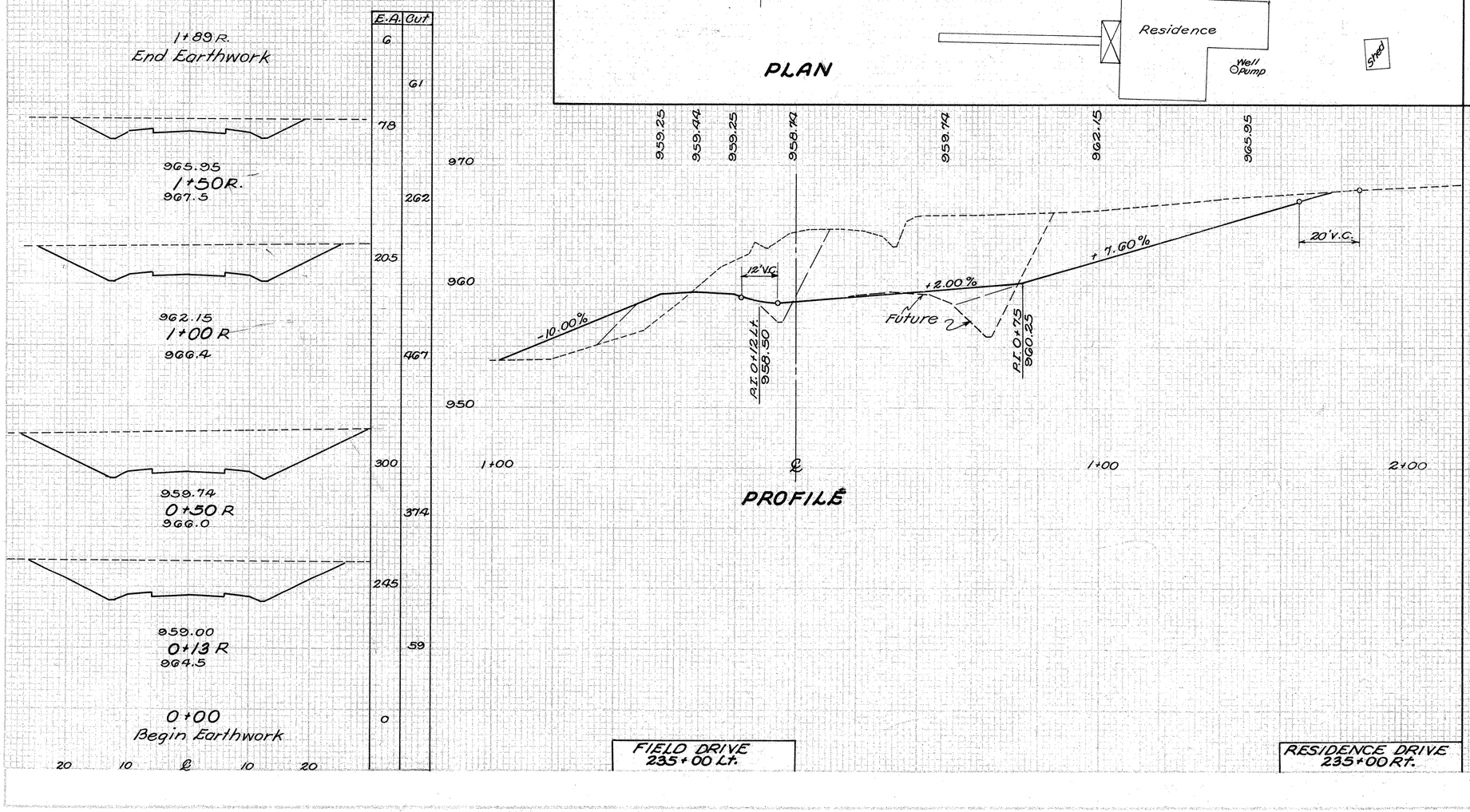


PLAN

ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-19 As per plan Cu. Yds 5"	I-19 As per plan Cu. Yds 6"	I-1 Pipe for Drives, Lin Ft.	I-10 Riprap Sq. Yds.
38-A	235+00	Lt.	0	50				19.9		
39-A	235+00	Rt.	1223	0	9.72	66	26.0	22.4		
Total					9.72	66	68.3			

NOTE: For details See Sheet No. 48

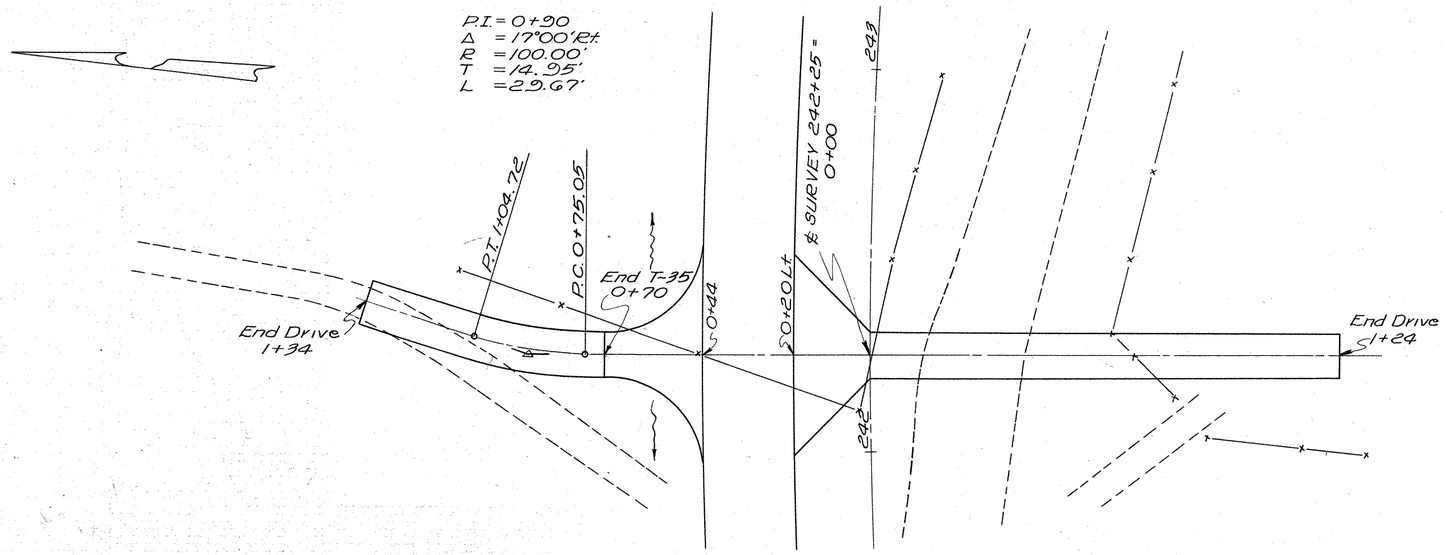


PROFILE

FED. RD. DIVISION	STATE	PROJECT	TYPE CODES
2	OHIO		

58
238

LIC-161-5.12
LIC-37-15.09

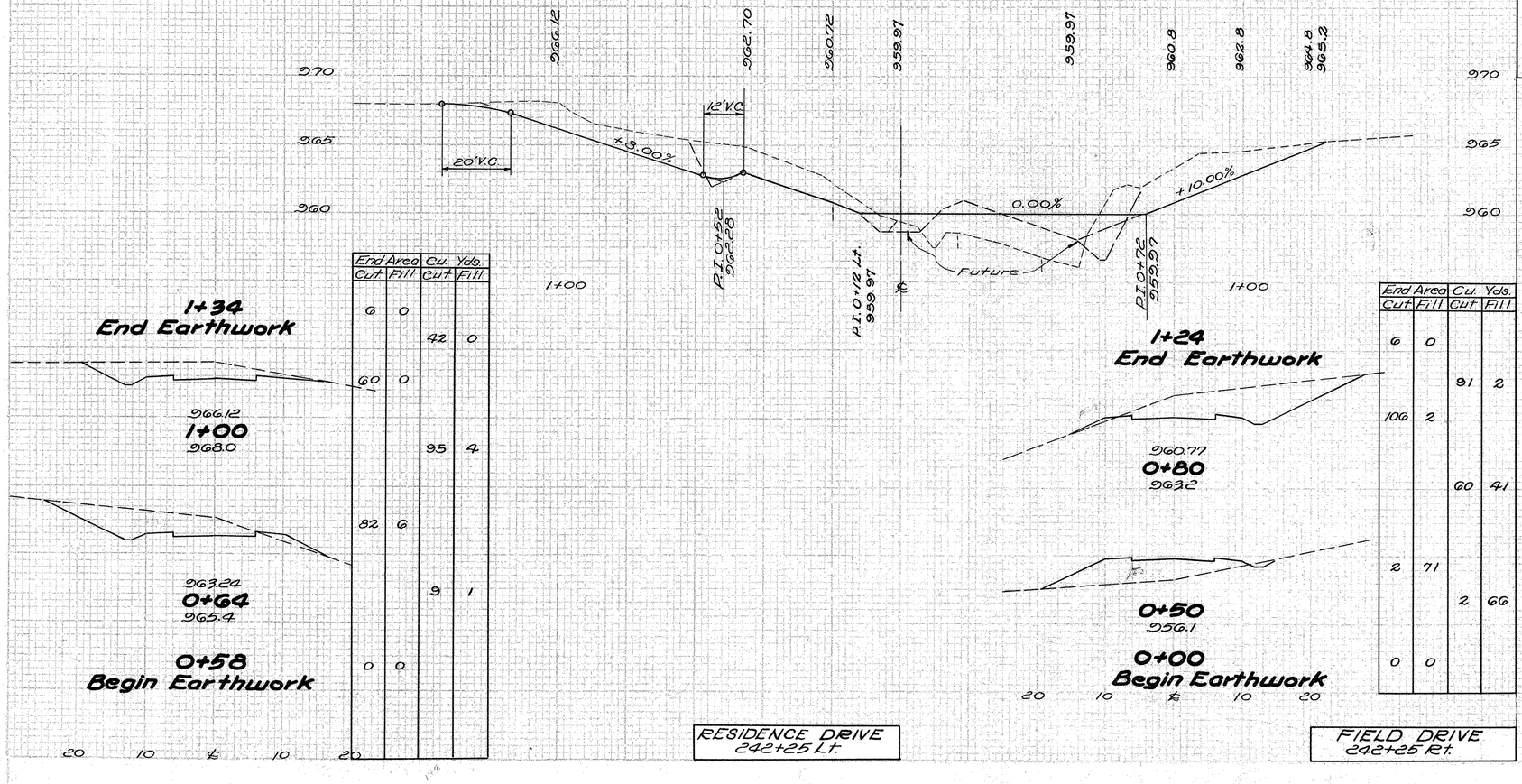


PLAN

ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit Prime Gals.	I-18 As per plan Cu. Yds 5"	I-18 As per plan Cu. Yds 6"	I-1 Pipe for Drive, Lin. Ft. 12"	I-1 Pipe for Drive, Lin. Ft. 15"	I-1 Pipe for Drive, Lin. Ft.	I-1 Pipe for Drive, Lin. Ft.	I-10 Riprap Sq. Yds.
40A	242+25	Lt.	146	5	3.59	24	9.4	14.2					
41A	242+25	Rt.	153	109				39.5					
47A	265+01	Lt.	10	10	4.70	32	12.6	2.0	32				
Total					8.29	56	77.7		32				

NOTE: For Details See Sheet No. 48



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
6	0		
		42	0
60	0		
		95	4
82	6		
		9	1
0	0		

1+34
End Earthwork

966.12
1+00
968.0

963.24
0+64
965.4

0+58
Begin Earthwork

RESIDENCE DRIVE
242+25 Lt.

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
6	0		
		91	2
106	2		
		60	41
2	71		
		2	66
0	0		

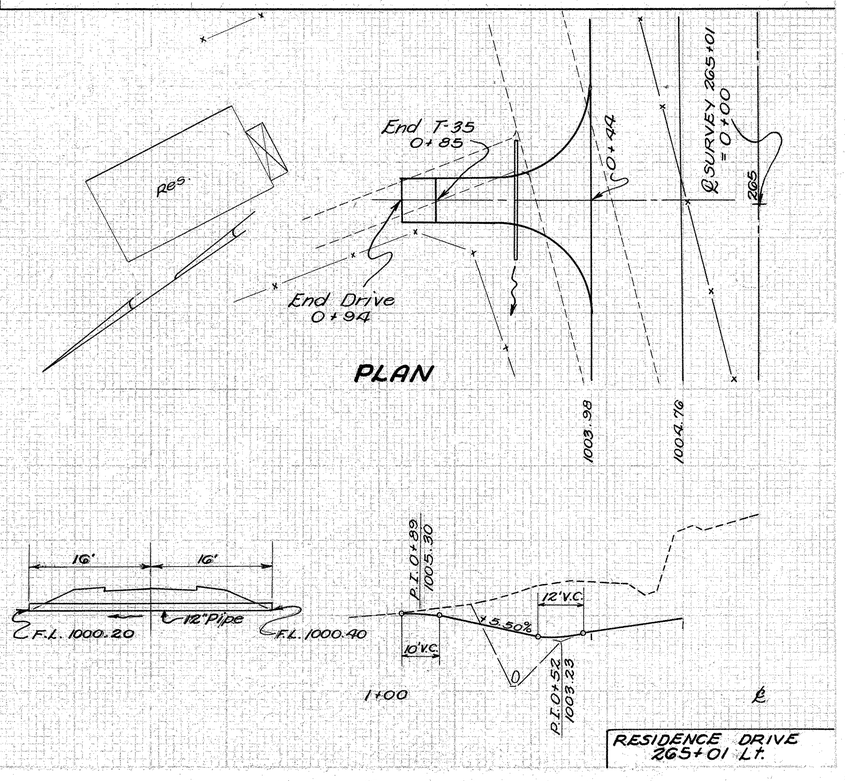
1+24
End Earthwork

960.77
0+80
963.2

959.1
0+50
956.1

0+00
Begin Earthwork

FIELD DRIVE
242+25 Rt.



PLAN

RESIDENCE DRIVE
265+01 Lt.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

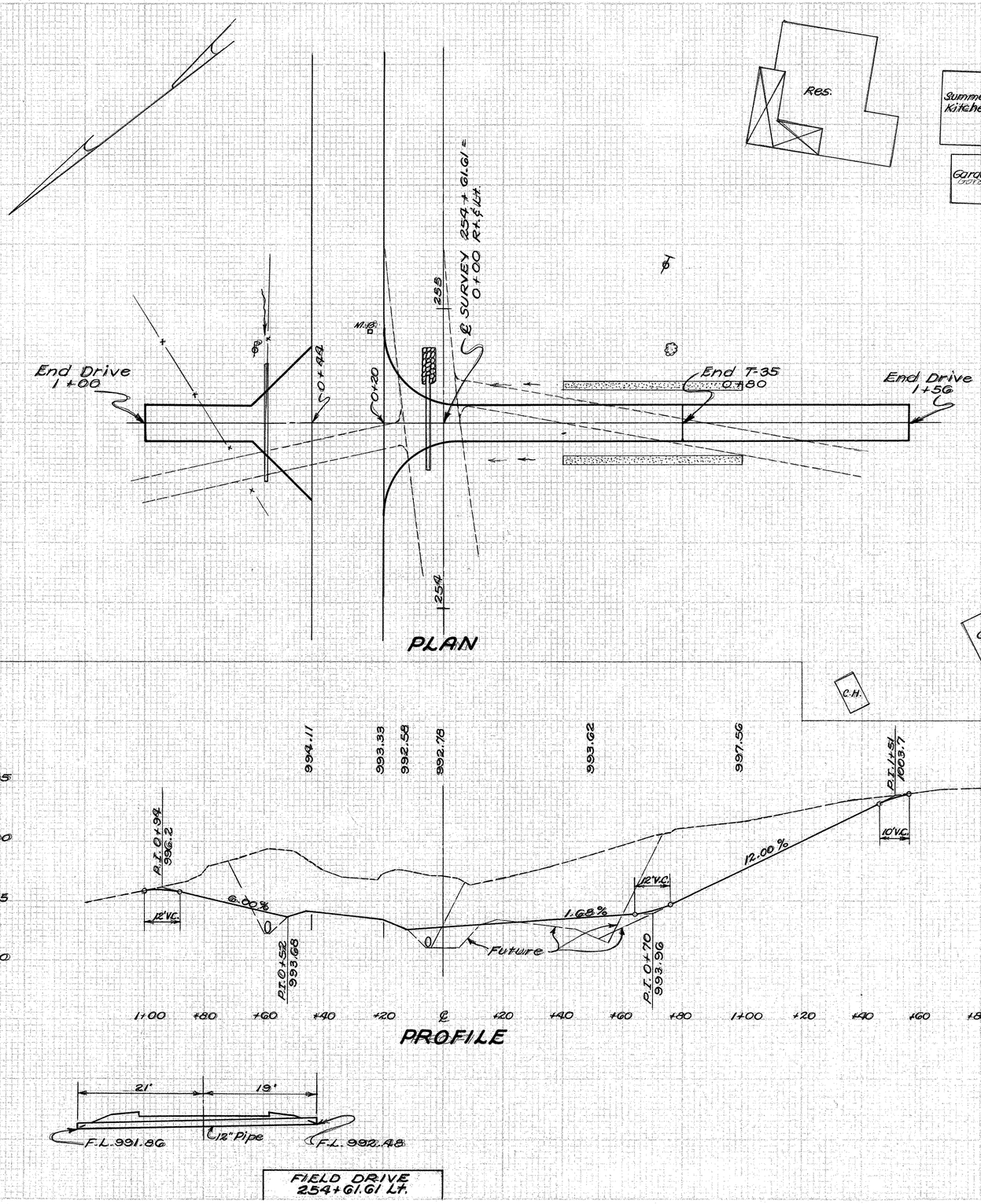
59
238

LIC-161-5.12
LIC-37-15.09

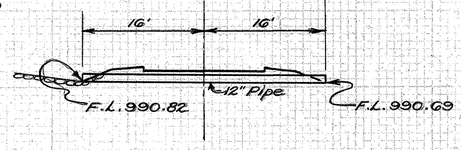
ESTIMATED QUANTITIES

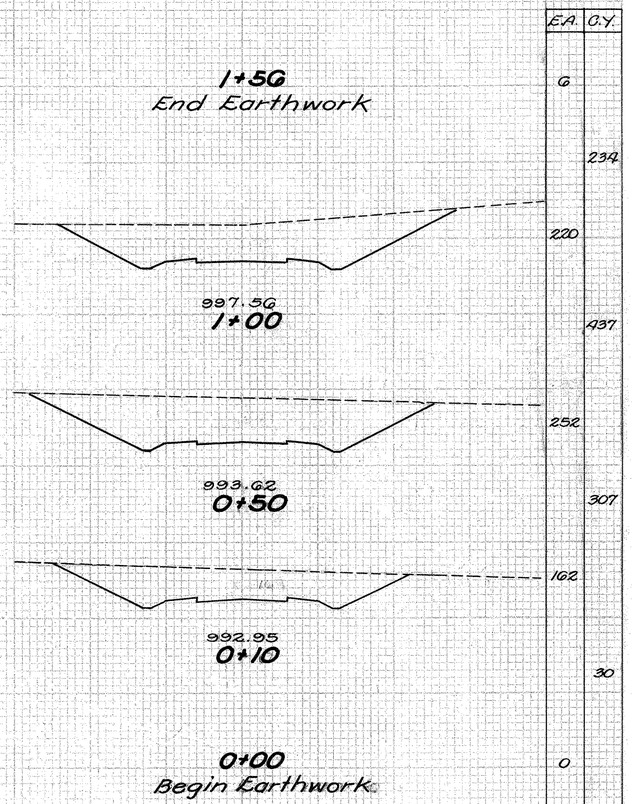
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Coat Gals.	I-12 Asp. Pav. Cu. Yds. 5"	I-12 Asp. Pav. Cu. Yds. 6"	I-1 Pipe for Drives Lin. ft. 12"	I-10 Riprap Sq. Yds.
42A	254+61.61	Lt.	80	8				19.9	40	
43A	254+61.61	Rt.	1008	8	9.12	62	24.4	16.9	32	8
Totals					9.12	62	61.2		72	8

NOTE: For details see Sheet No. 48.



FIELD DRIVE
254+61.61 Lt.





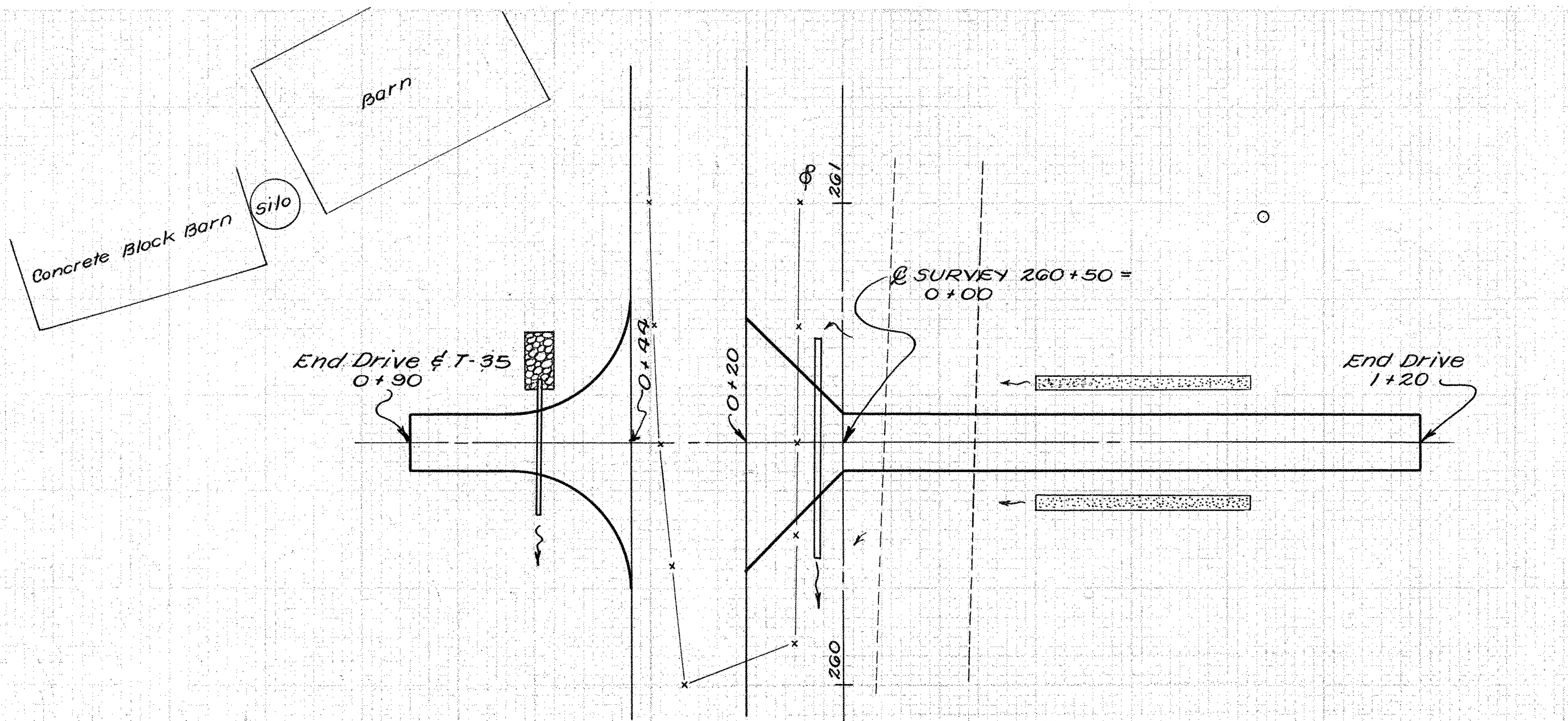
RESIDENCE DRIVE
254+61.61 Rt.

LIC-161-5.12
LIC- 37-15.09

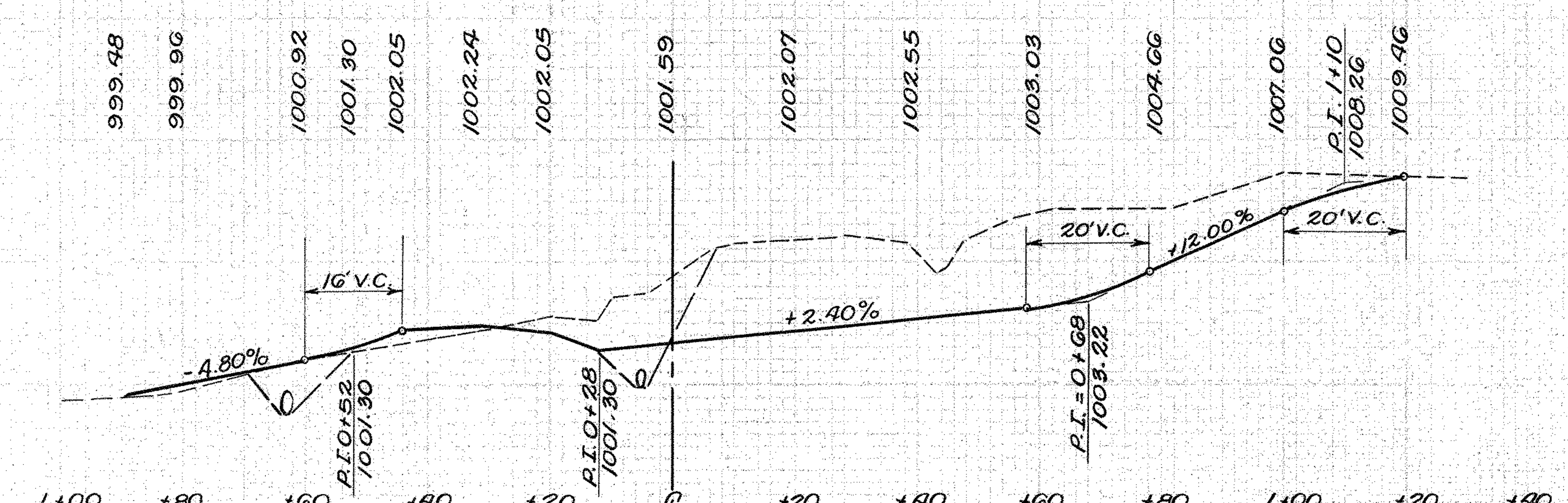
ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds.		2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per plan Cu. Yds.		I-1 Pipe for Drive, Lin. Ft.				I-10 Rip rap Sq. Yds.
			Exc.	Emb.			5"	6"	12"	15"			
45-A	260+50	Lt.	5	8	5.07	41	13.6		28				8
46-A	260+50	Rt.	551	8				38.5	42				
50-A	276+08	Lt.	4	7	3.96	27	10.6	1.1		32			8
51-A	276+08	Rt.	15	10				27.4		32			4
	Totals				9.03	68	91.2		70	64			20

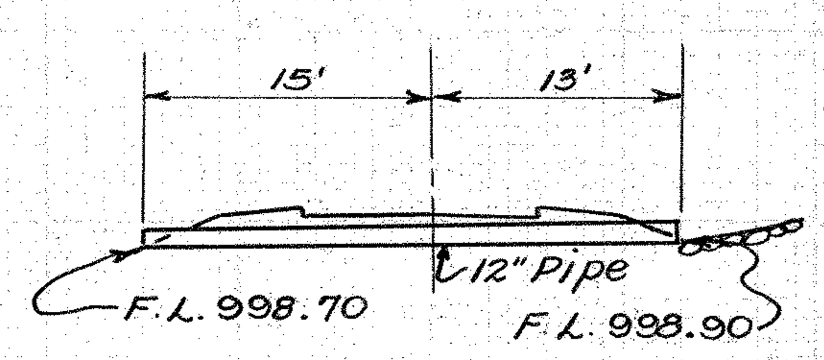
NOTE: For details see Sheet No. 48.

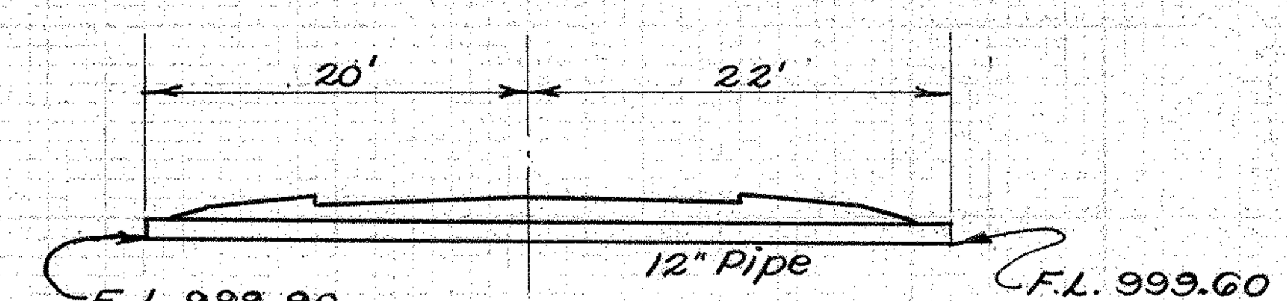


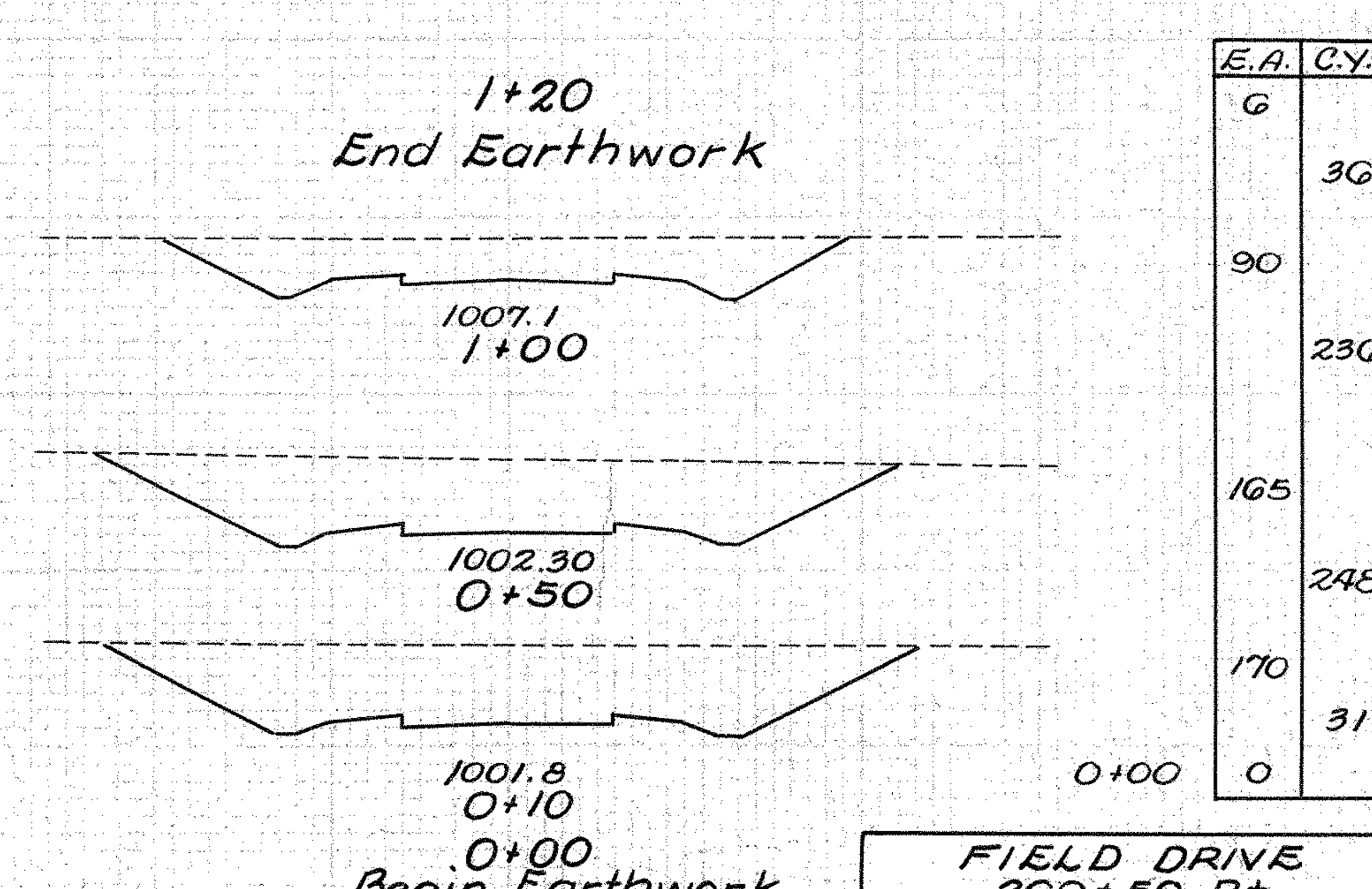
PLAN



PROFILE

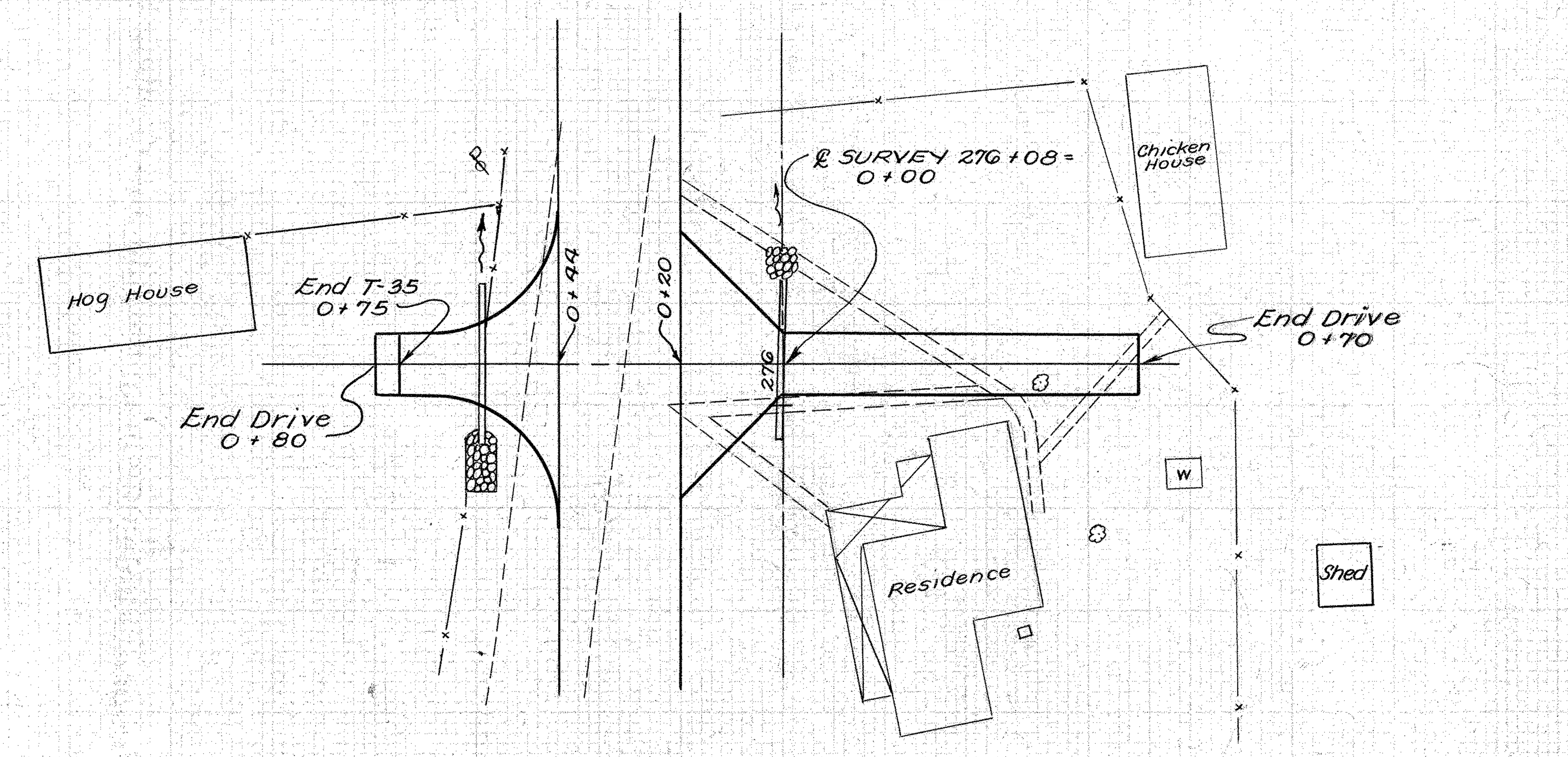




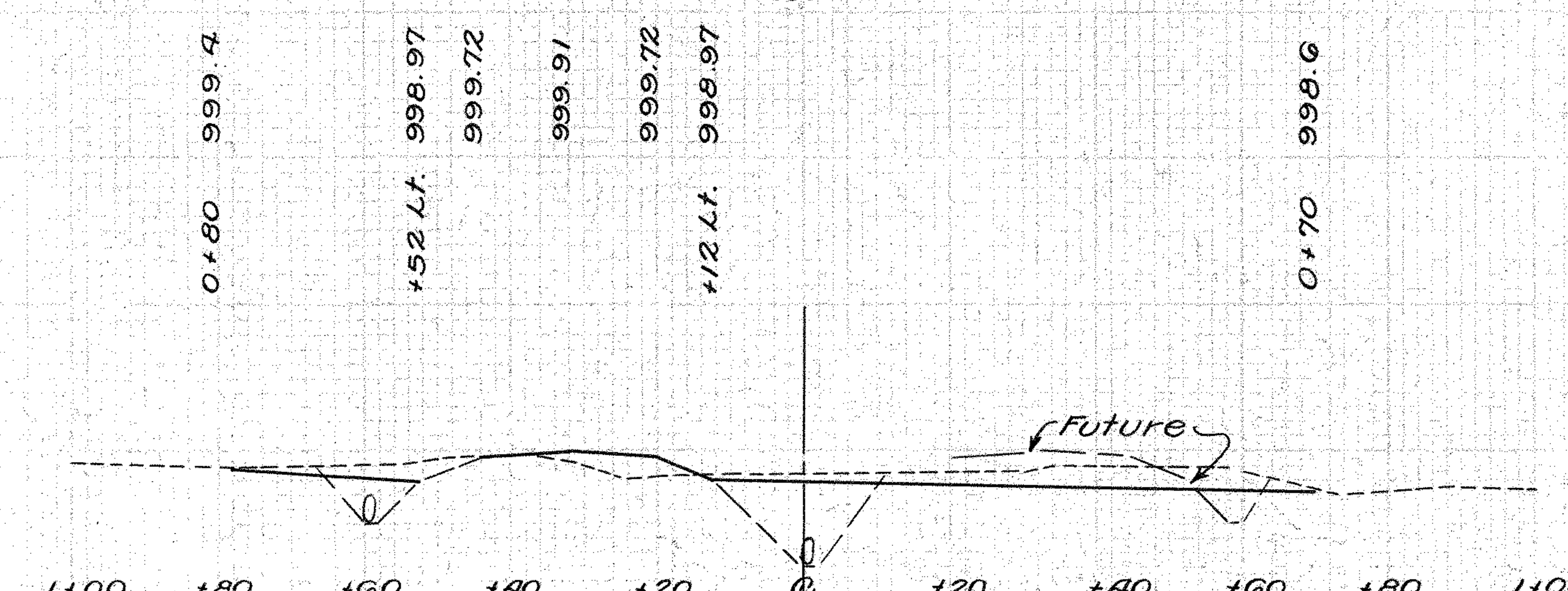


RESIDENCE DRIVE
260+50 Lt.

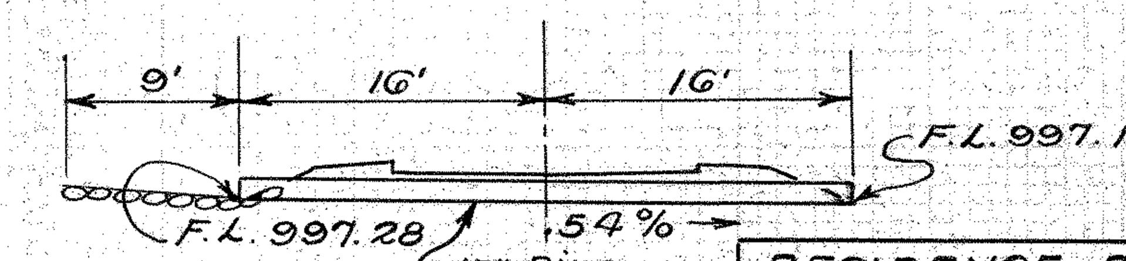
FIELD DRIVE
260+50 Rt.



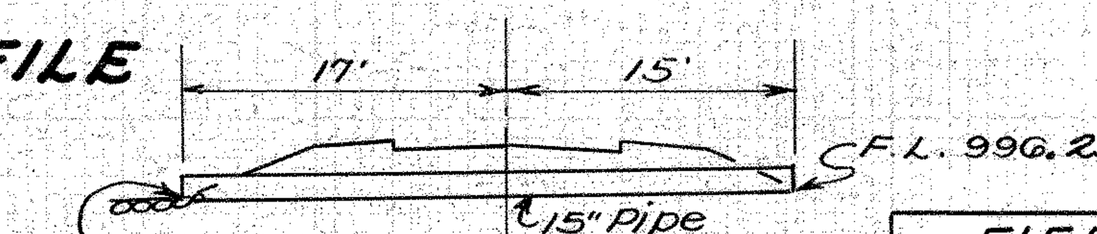
PLAN



PROFILE



RESIDENCE DRIVE
276+08 Lt.

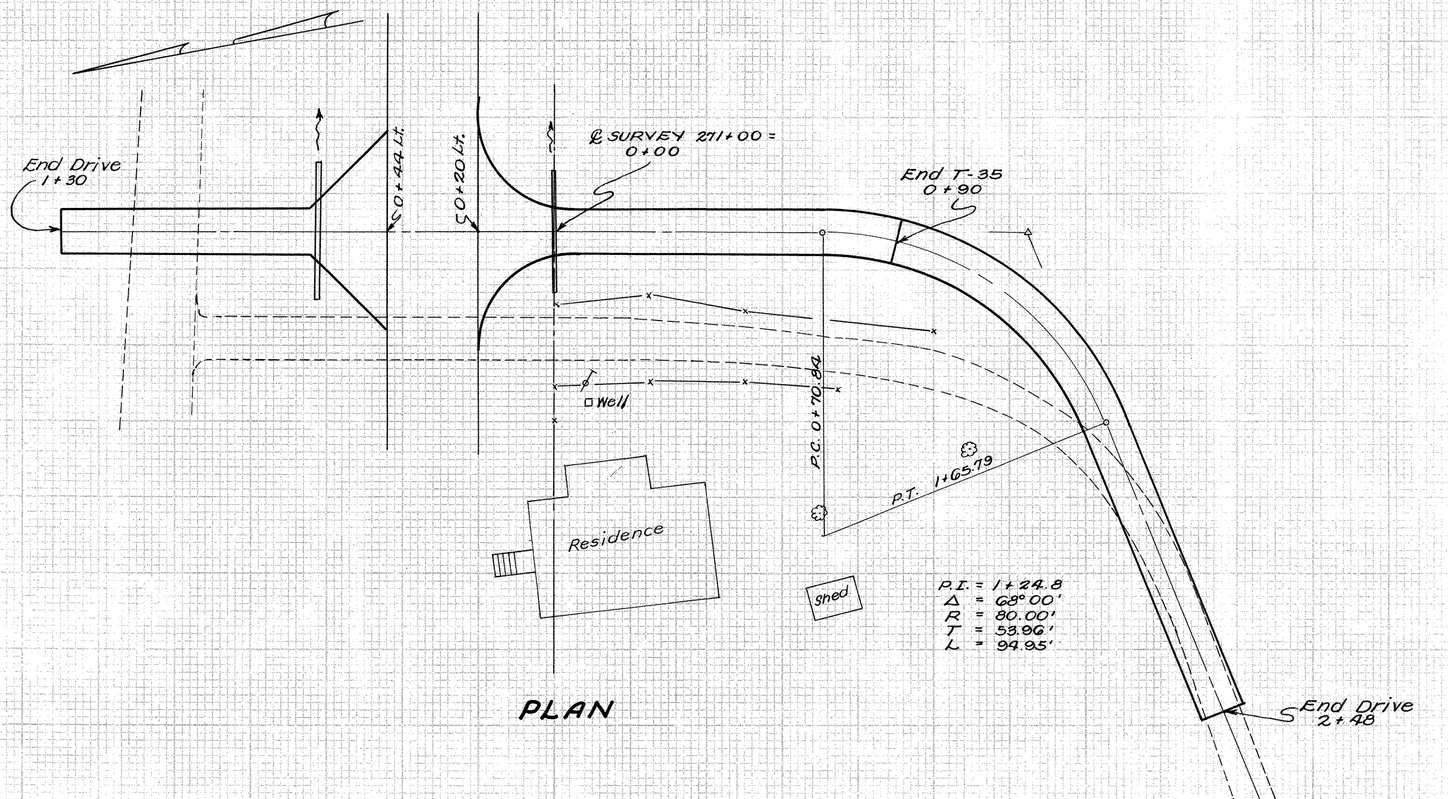


FIELD DRIVE
276+08 Rt.

FED. RD. DIVISION	STATE	PROJECT	TYPE TENDC
2	OHIO		

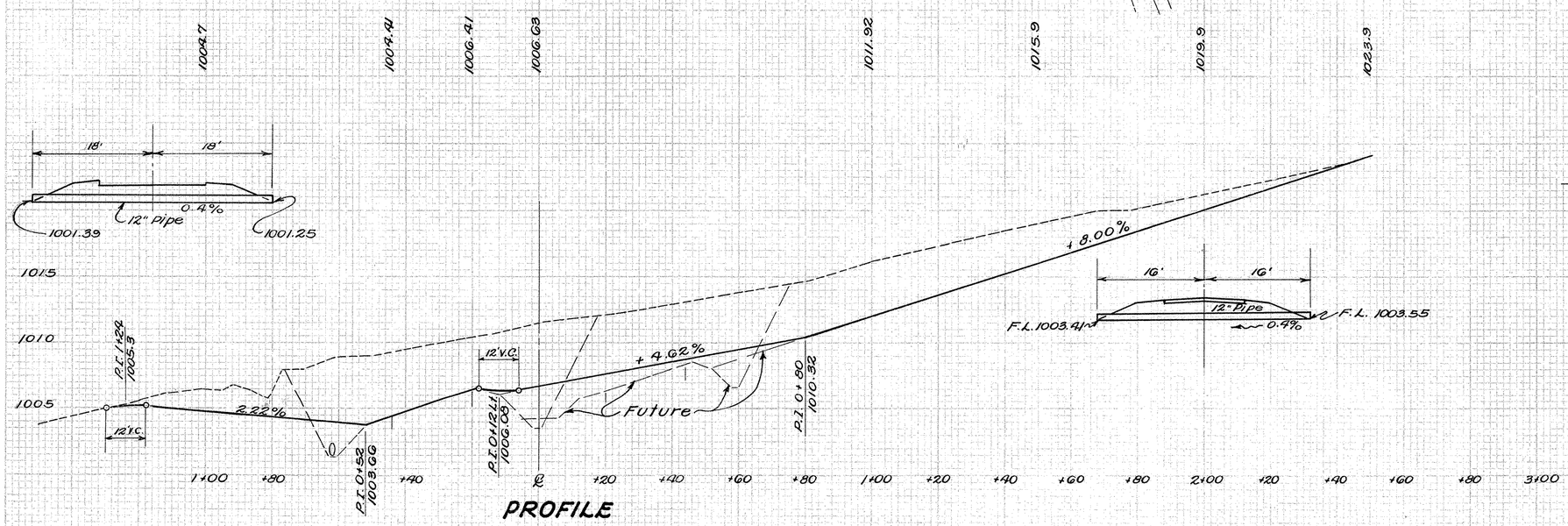
61
238

LIC-161-5.12
LIC-37-15.09



P.I. = 1+24.8
Δ = 68°00'
R = 80.00'
T = 53.96'
L = 94.95'

PLAN



PROFILE

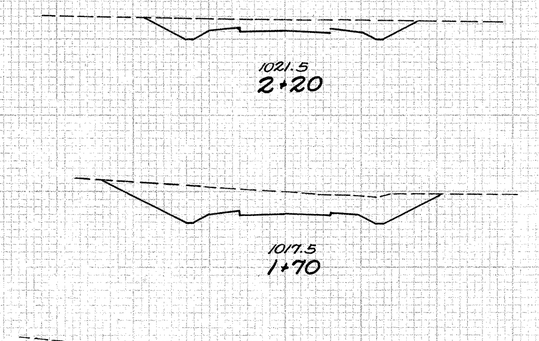
FIELD DRIVE
271+00 Lt.

ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit Prime Gals.	I-18 As per plan Cu. Yds. 5"	I-18 As per plan Cu. Yds. 6"	I-1 pipe for Drive, Lin. Ft. 12"	I-10 Rip-rap Sq. Yds.
48A	271+00	Lt.	116	10				26.6	36	0
49A	271+00	Rt.	1376	10	9.87	67	26.4	35.2	32	0
	Totals				9.87	67	88.2	68		

NOTE: For details see Sheet No. 48

2+48
End Earthwork



0+08
Begin Earthwork

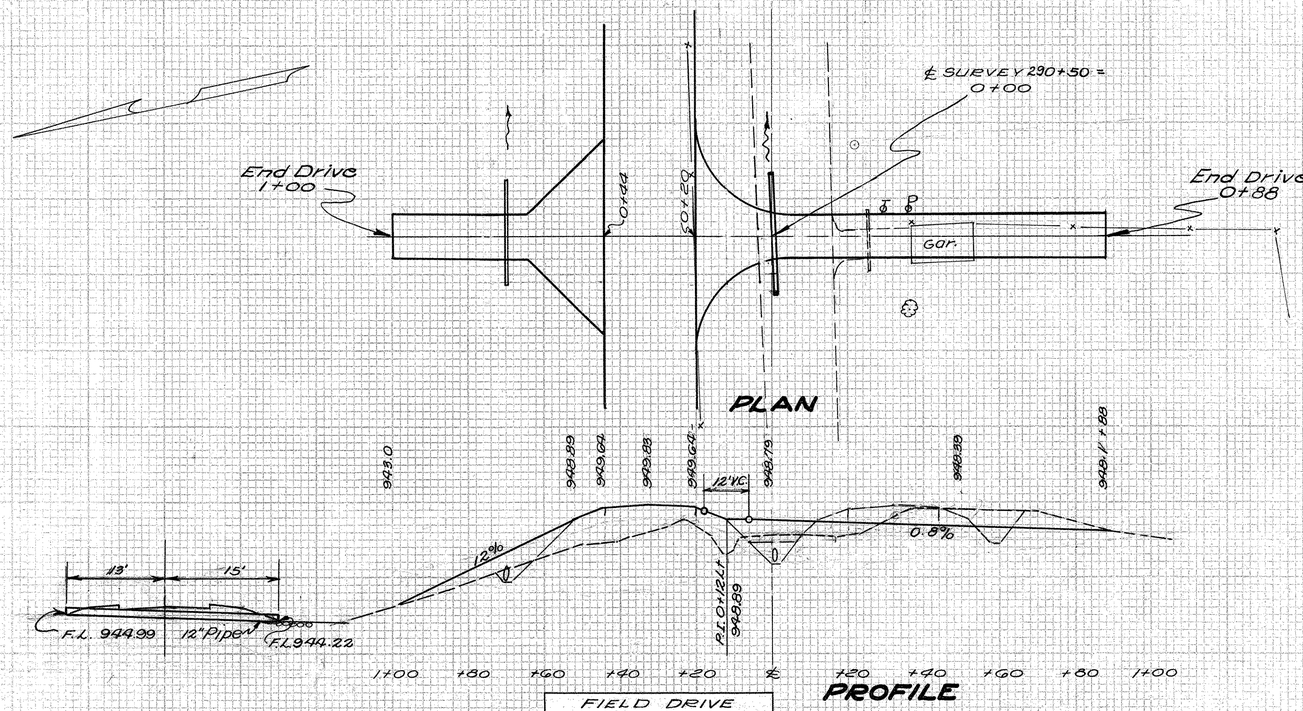
E.A.	C.Y.
6	
	34
60	
	173
127	
	303
200	
	397
228	
	419
224	
	50
0	

RESIDENCE DRIVE
271+00 Rt.

FED. RD. DIVISION	STATE	PROJECT	TYPE WORK
2	OHIO		

G2
238

LIC-161-5.12
LIC-37-15.09



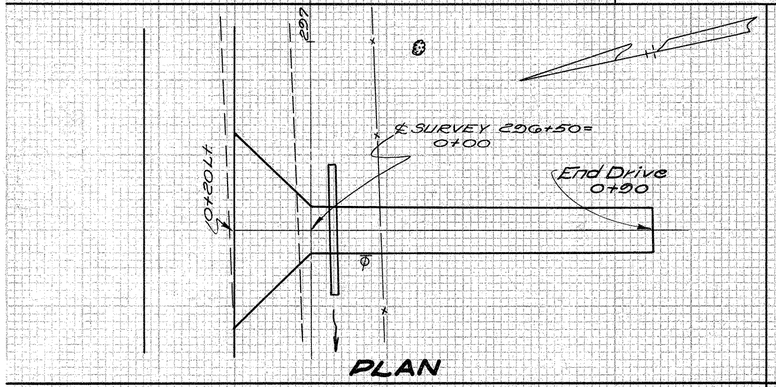
ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu.Yds. Exc.	Earthwork Cu.Yds. Emb.	2" T-35 Asph. Conc. Cu.Yds	T-30 Bit. Prime Gals.	I-18 As per plan Cu. Yds.	I-1 Pipe for Drive, Lin.Ft. 5"	I-1 Pipe for Drive, Lin.Ft. 6"	I-1 Pipe for Drive, Lin.Ft. 12"	I-1 Pipe for Drive, Lin.Ft. 15"	I-10 Riprap Sq. Yds.
30A	204+68	Rt.	710	8	9.87	67	26.4	8.9				
55A	290+50	Lt.	0	32			19.9	28				
56A	290+50	Rt.	50	35	9.72	66	26.0	32				
57A	296+50	Rt.	5	105			31.8	34				
Totals					19.59	133	113.0	94				

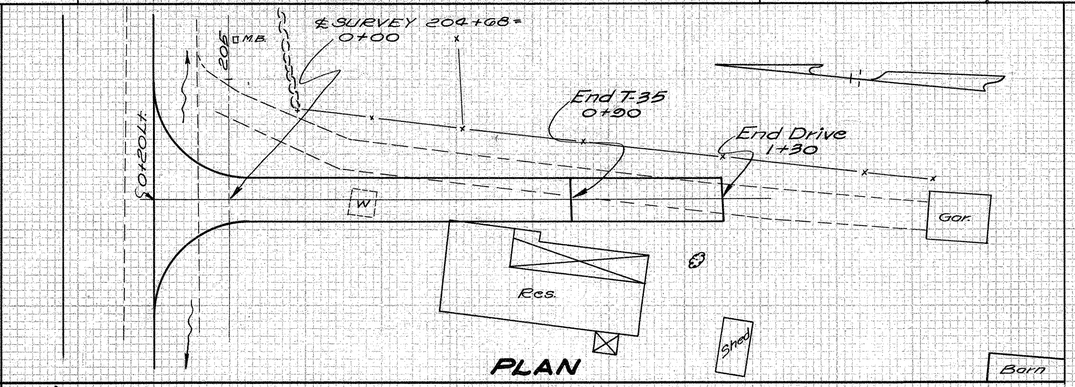
NOTE: For details see Sheet No. 48

FIELD DRIVE
290 + 50 Lt.

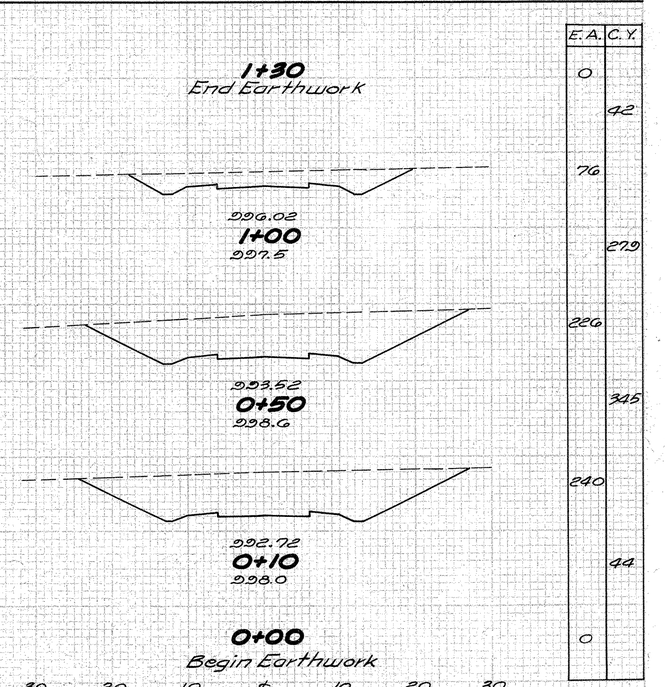
RESIDENCE DRIVE
290+50 Rt.



FIELD DRIVE
296+50 Rt.



RESIDENCE DRIVE
204+68 Rt.

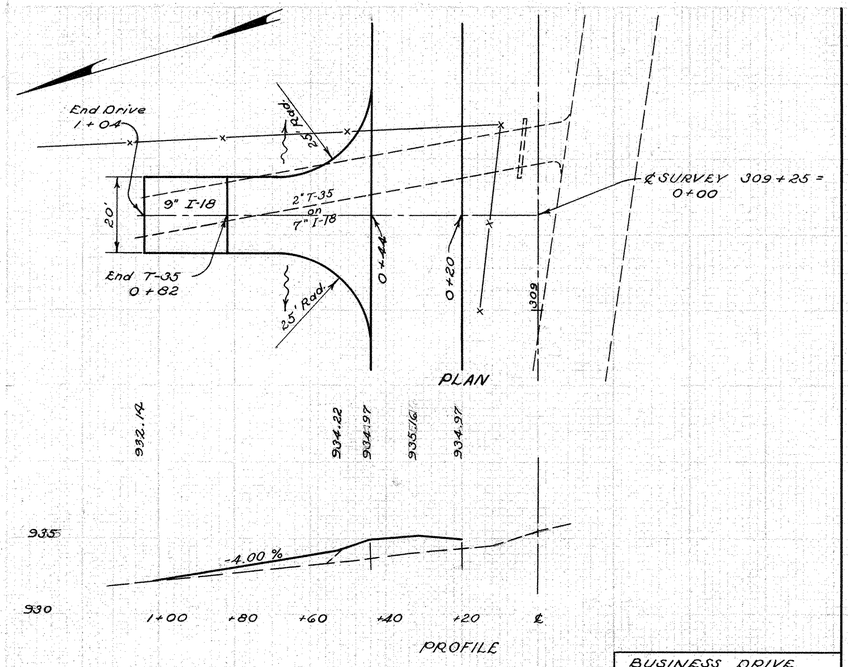


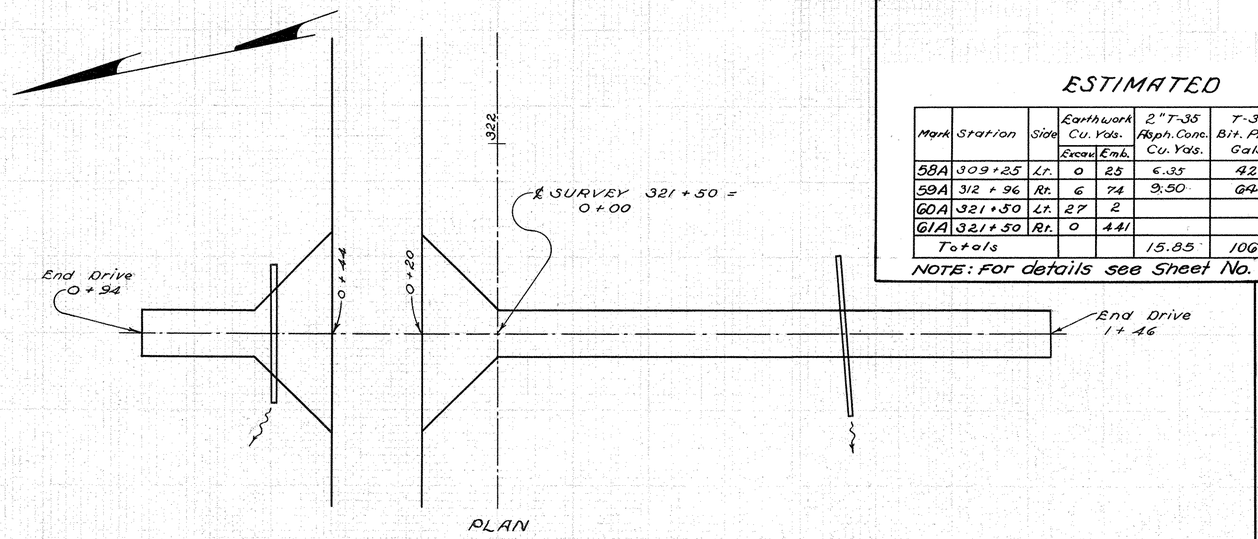
LIC-161-5.12
LIC-37-15.09

ESTIMATED QUANTITIES

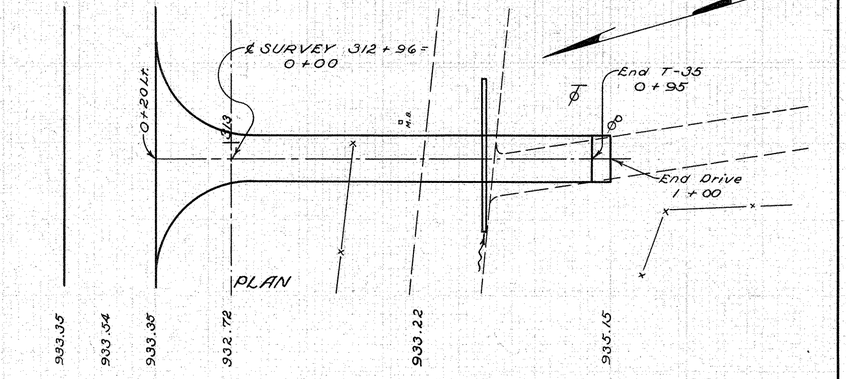
Mark	Station	Side	Earthwork Cu. Yds. Excav.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per Plan Cu. Yds. 5"	I-18 As per Plan Cu. Yds. 6"	I-18 As per Plan Cu. Yds. 7"	I-18 As per Plan Cu. Yds. 9"	I-1 Pipe for Drives Lin. Ft. 12"	I-1 Pipe for Drives Lin. Ft. 18"	I-1 Pipe for Drives Lin. Ft. 21"	I-10 Riprap Sq. Yds.
58A	309+25	Lt.	0	25	6.35	42			23.6	12.3				
59A	312+96	Rt.	6	74	9.50	64	25.4	11					38	
60A	321+50	Lt.	27	2				18.5			36			
61A	321+50	Rt.	0	441				44.0				42		
Totals					15.85	106		124.9			36	42	38	

NOTE: For details see Sheet No. 48

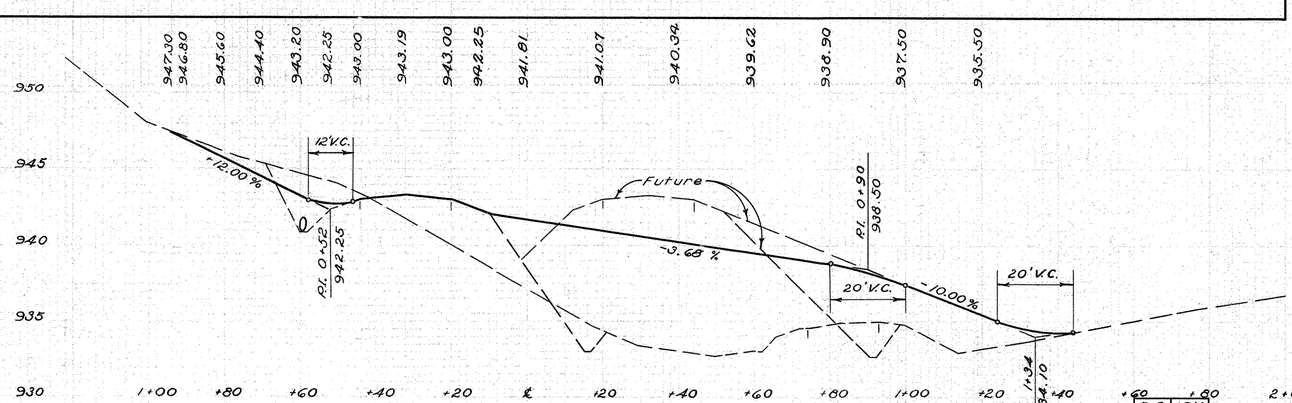


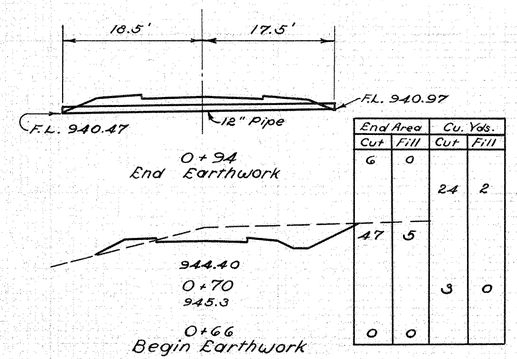


BUSINESS DRIVE
309+25 Lt.

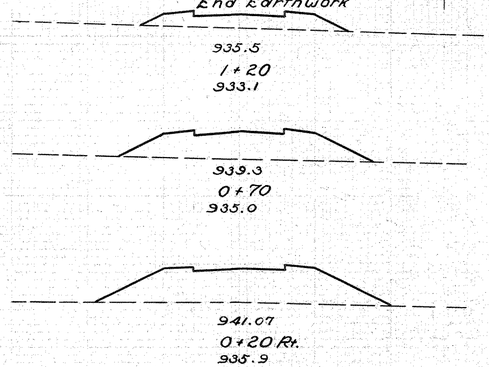


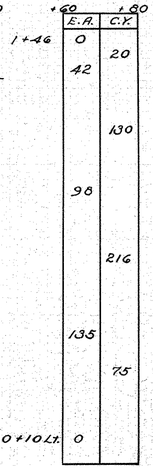
RESIDENCE DRIVE
312+96 Rt.

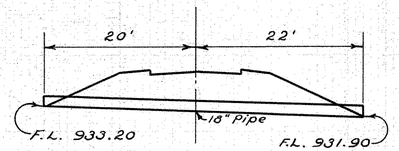




FIELD DRIVE
321+50 Lt.

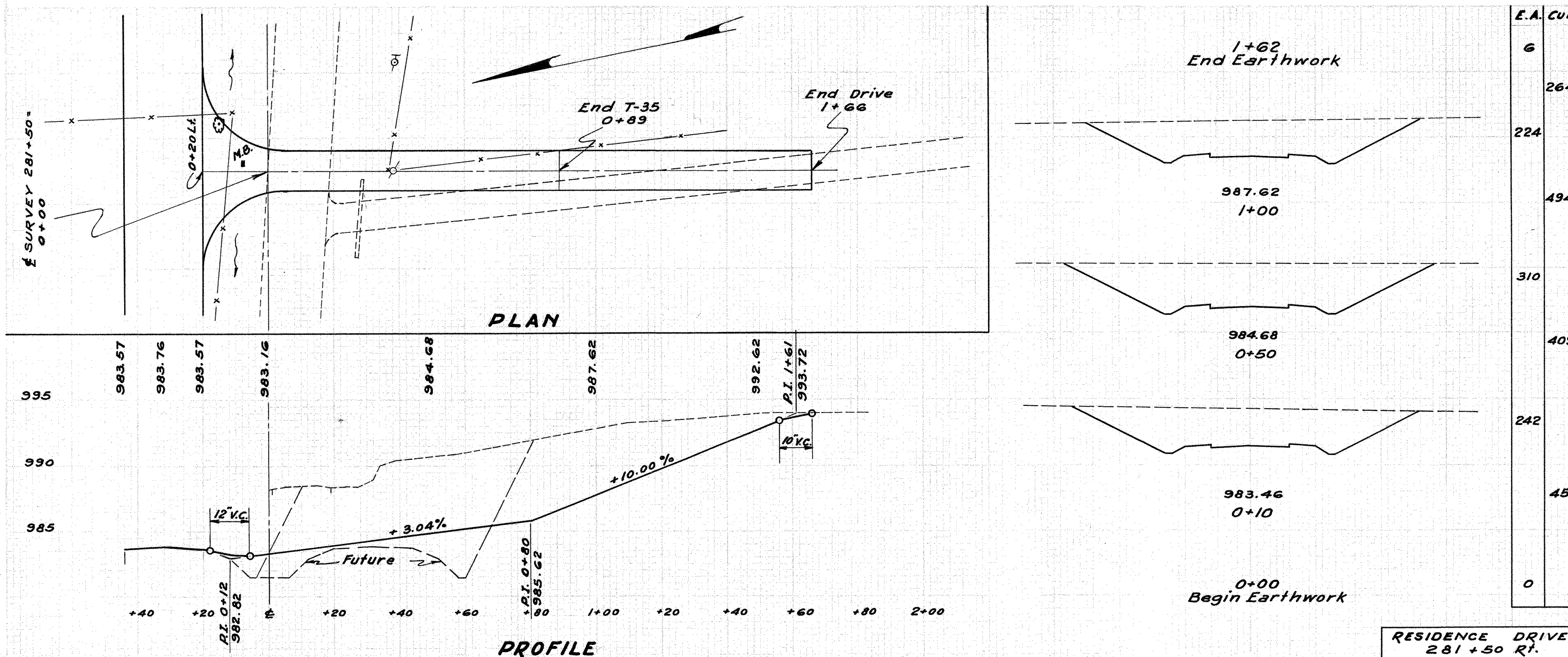






FIELD DRIVE
321+50 Rt.

LIC-161-5.12
LIC-37-15.09



ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Excav.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gal's.	I-18 As per plan Cu. Yds. 5"	I-18 As per plan Cu. Yds. 6"	I-1 Pipe for Drives Lin. Ft. 12"				I-10 Riprap Sq. Yds.
52A	281+50	Rt.	1212	8	9.79	66	26.2	17.1					
53A	282+00	Lt.	375	8	4.70	32	12.6	29.4					
54A	282+00	Rt.	1369	8				45.2	40				8
Totals					14.49	98	130.5		40				8

NOTE: For details see Sheet No. 48.

FED. AID PROJECT	STATE	PROJECT	
2	OHIO		

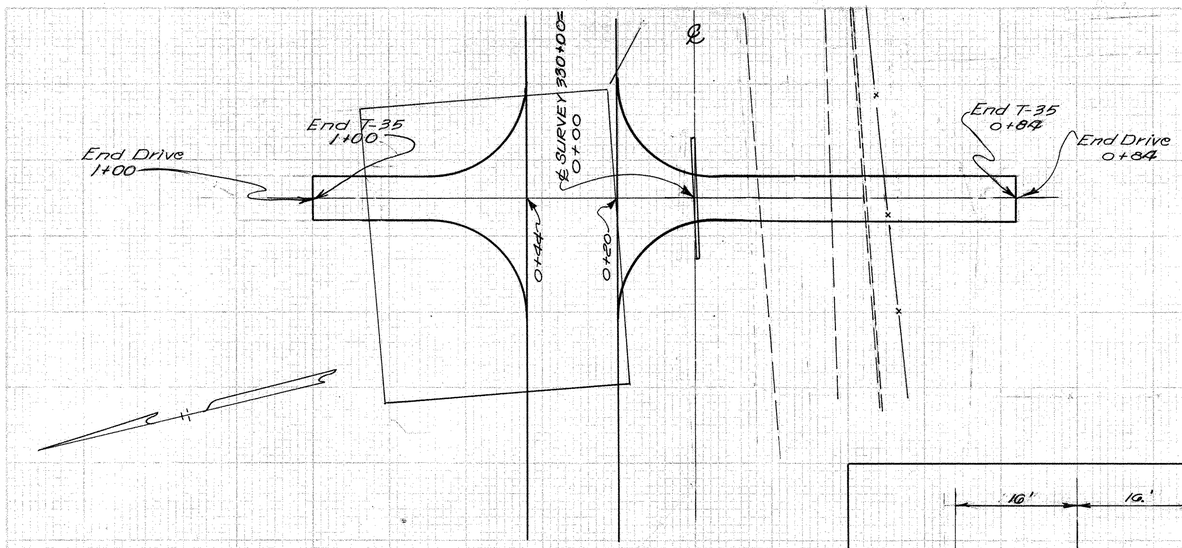
65
238

LIC-161-5.12
LIC-37-15.09

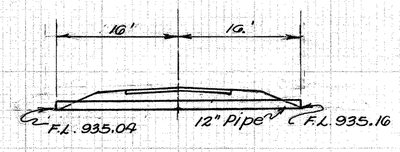
ESTIMATED QUANTITIES

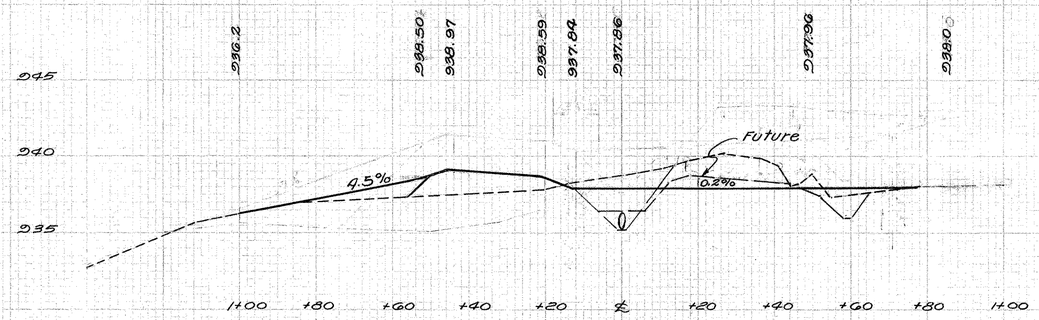
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 Asperplan Cu. Yds. 5"	I-18 Asperplan Cu. Yds. 6"	I-1 Pipe Per Drive, Lin. Ft. 12"	I-1 Pipe Per Drive, Lin. Ft. 15"	I-1 Pipe Per Drive, Lin. Ft. 18"	I-10 Riprap Sq. Yds.
G3A	330+00	Lt.	5	10	5.82	39	15G	0				
G4A	330+00	Rt.	129	10	9.42	G3	252	0	32			
G5A	335+00	Lt.	1	25	3.58	24	9.6	G.2	36			
GGA	335+00	Rt.	5	160	8.37	5G	22.9	17.8			30	
TOTAL					27.19	182	96.8	G8			30	

NOTE: For details see Sheet No. 48

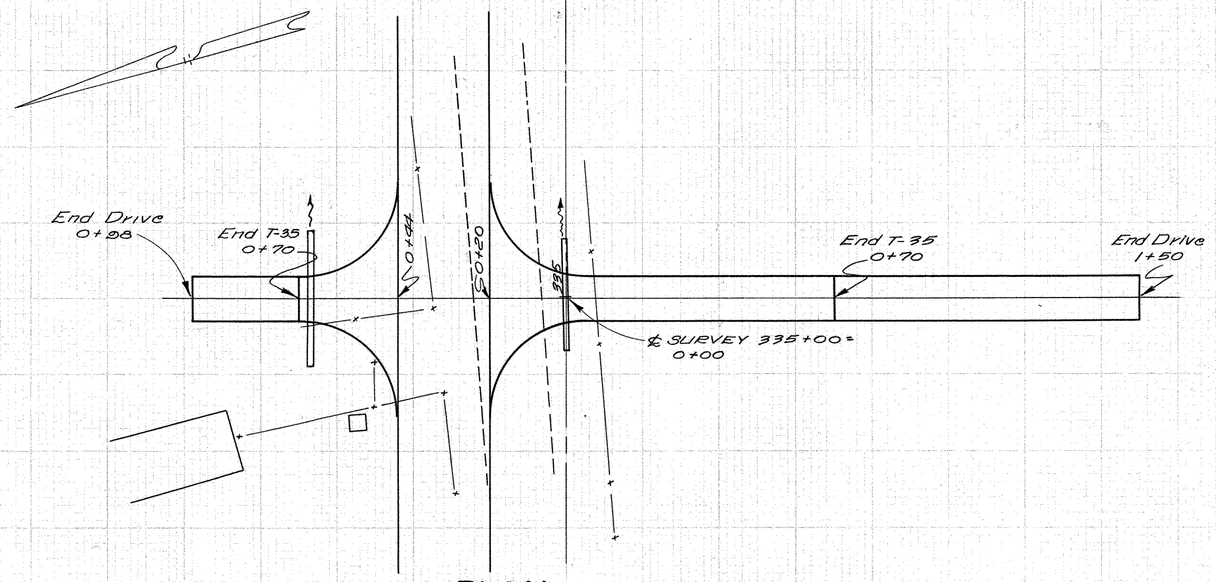


PLAN

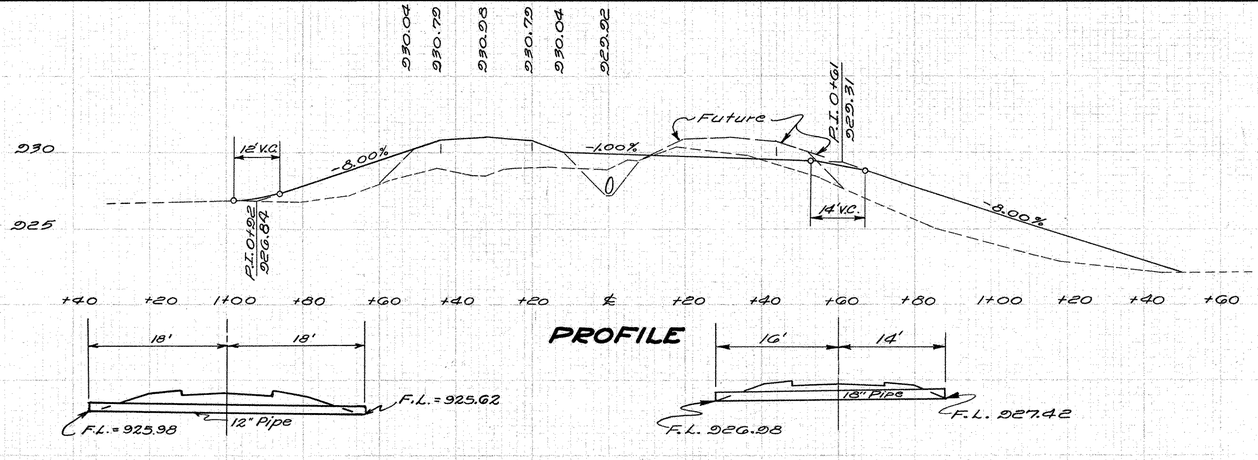




PROFILE

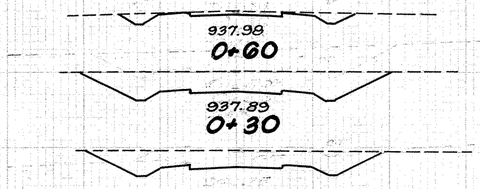


PLAN



PROFILE

0+84
End Earthwork



0+10
Begin Earthwork

Emb. Ditch

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
6	0		
		6	0
8	0		
		62	0
104	0		
		55	0
80	0'		
		6	0
0	0		10

RESIDENCE DRIVE 330+00 Lt.

RESIDENCE DRIVE 330+00 Rt.

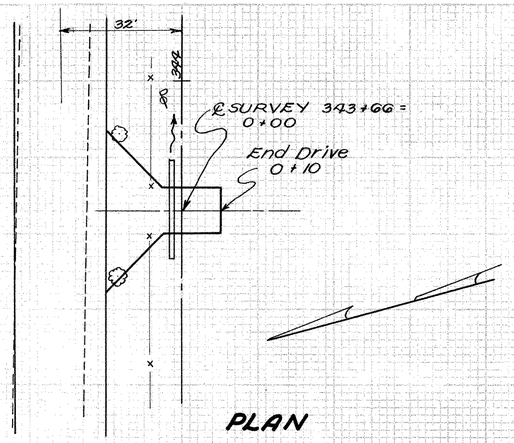
RESIDENCE DRIVE 335+00 Lt.

RESIDENCE DRIVE 335+00 Rt.

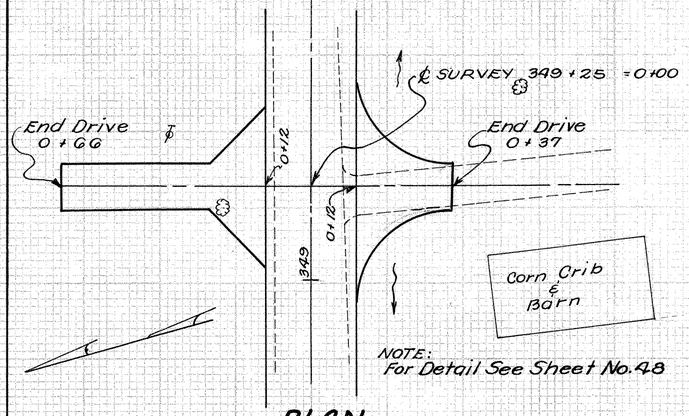
DEP. OF TRANSPORTATION	STATE	PROJECT	TYPE WORK
2	OHIO		

66
238

LIC-161-5.12
LIC-37-15.09

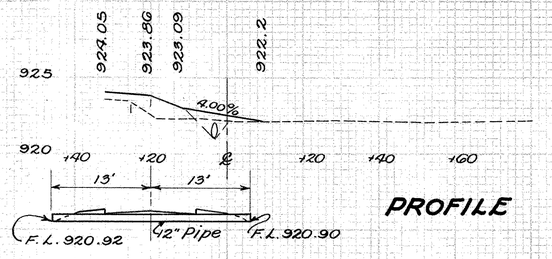


PLAN



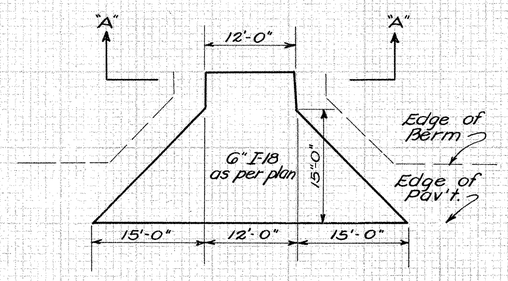
NOTE:
For Detail See Sheet No. 48

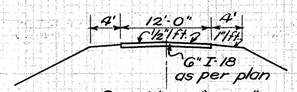
PLAN



PROFILE

PROFILE





Section "A-A"
FIELD DRIVE

DRIVE DETAIL

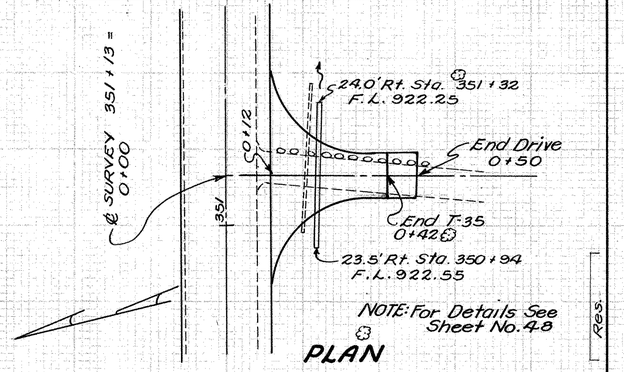
ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	5" I-18 Aggregate As Per Plan Cu. Yds.	6" I-18 Aggregate As Per Plan Cu. Yds.	I-1 Pipe for Drives, Lin Ft. 12"	15"			T-30 Bit. Prime Coat. Gals.
67A	343+66	Rt.	0	5			11	26				
68A	349+25	Lt.	0	25			16					
69A	349+25	Rt.	2	2	3.51	9.4						24
70A	351+13	Rt.	10	6	3.88	10.4	2	38				26
71A	360+27	Rt.	1	0			8					
72A	364+72	Rt.	0	5	3.51	9.4		38				24
73A	368+68	Lt.	0	10			13					
Totals					10.90	79.2		102				74

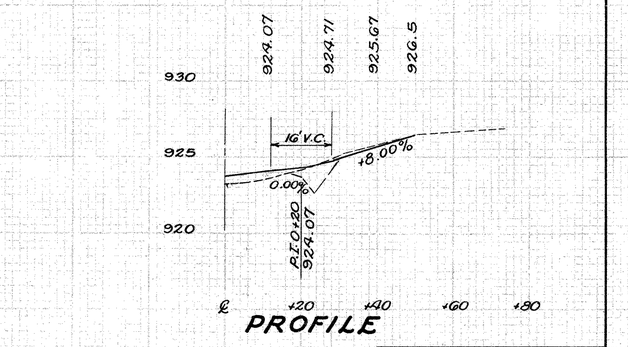
FIELD DRIVE
343+66 RT.

FIELD DRIVE
349+25 LT.

RESIDENCE DRIVE
349+25 RT.

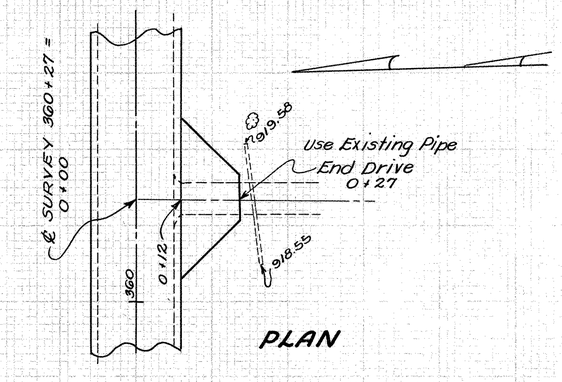


PLAN

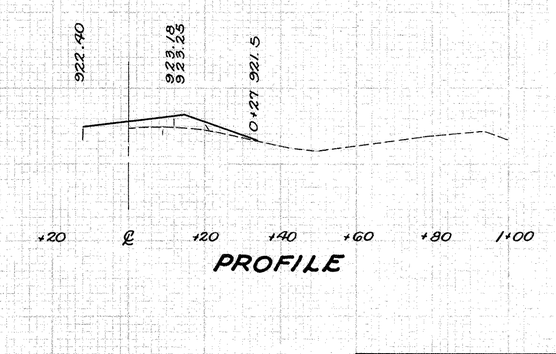


PROFILE

RESIDENCE DRIVE
351+13 RT.

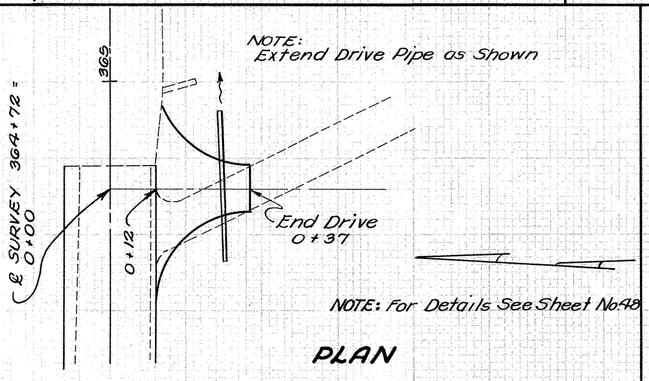


PLAN

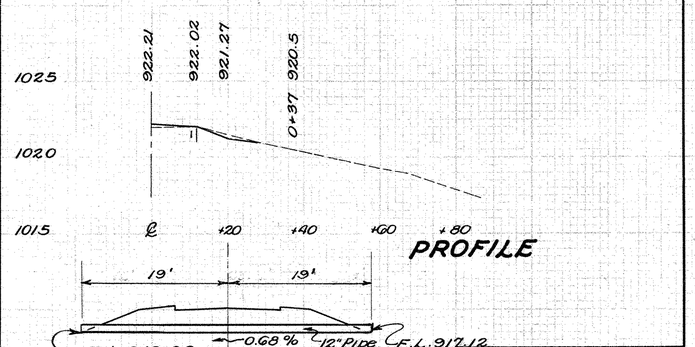


PROFILE

FIELD DRIVE
360+27 RT.

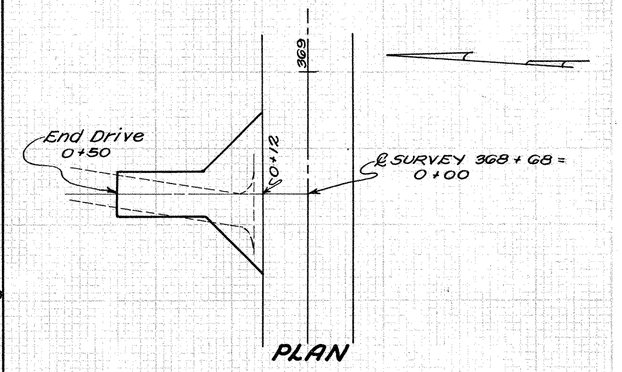


PLAN

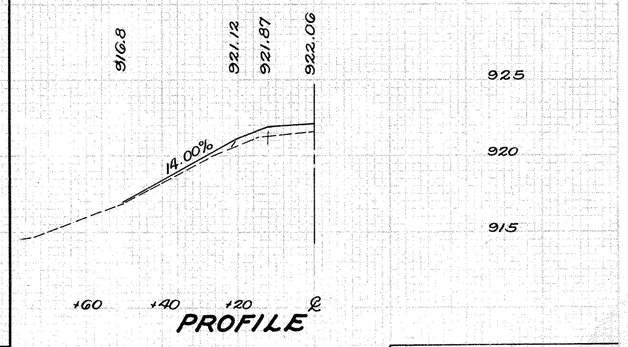


PROFILE

RESIDENCE DRIVE
364+72 RT.



PLAN

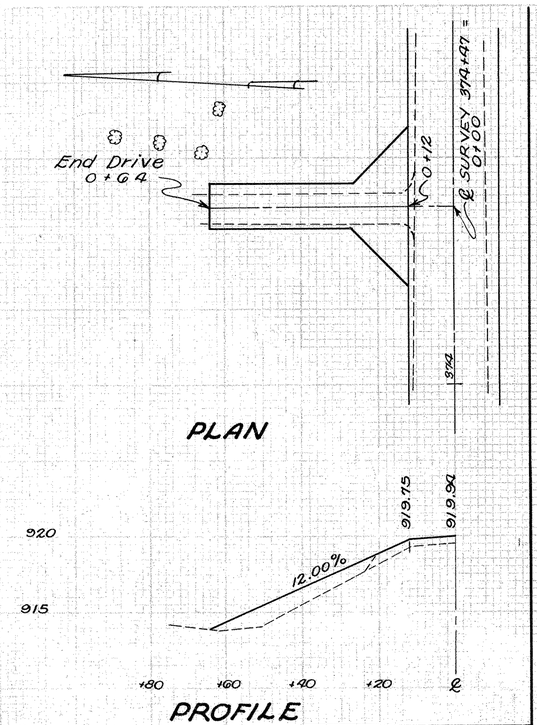


PROFILE

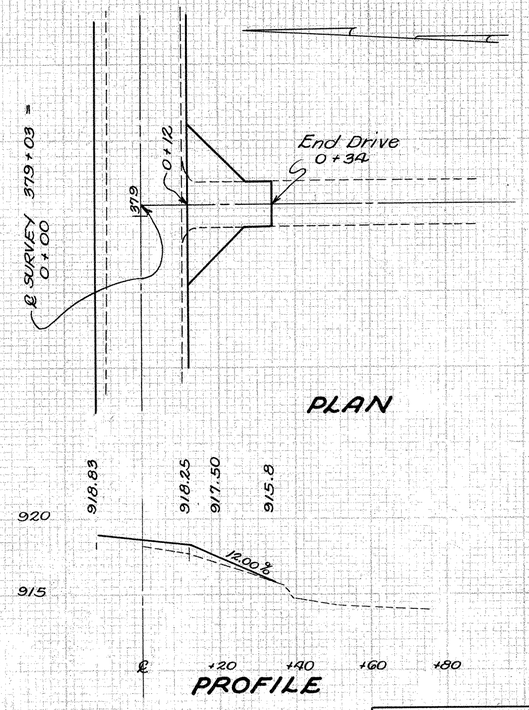
FIELD DRIVE
368+68 LT.

DRIVES

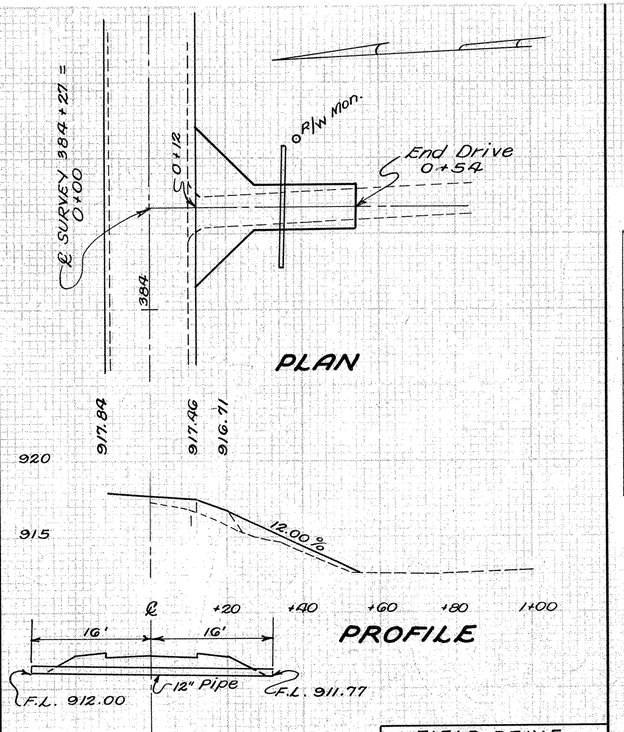
LIC-161-5.12
LIC- 37-15.09



FIELD DRIVE
374 + 47 LT.



FIELD DRIVE
379 + 03 RT.



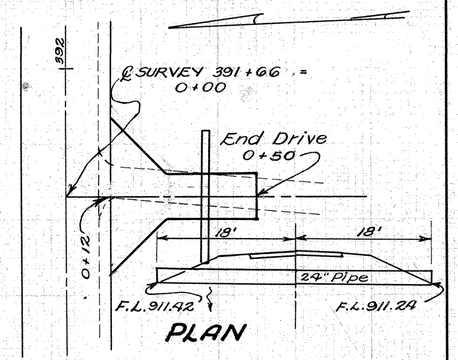
FIELD DRIVE
384 + 27 RT.

ESTIMATED QUANTITIES

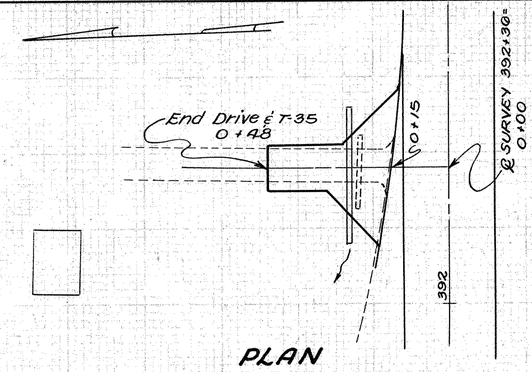
Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Coat Gals.	I-18 Aggregate As per Plan Cu. Yds. 3/4"	I-18 Aggregate As per Plan Cu. Yds. 1 1/2" & 6"	I-1 Pipe for Drives-Lin. Ft. 12"	I-1 Pipe for Drives-Lin. Ft. 15"	I-1 Pipe for Drives-Lin. Ft. 24"	I-10 Riprap Sq. Yds.	
74A	374+47	Lt.	0	27				15.7					
75A	379+03	Rt.	0	4				9.1					
76A	384+27	Rt.	0	11				13.5	32				
77A	391+66	Rt.	2	10				12.6			36		
78A	392+36	Lt.	2	2	3.75	22	8.9		36				
80A	397+84	Lt.	0	8				10.0		28			
81A	398+23	Lt.	25	2	4.75	31		*17.4					
Totals					8.50	53	87.2		68	28	36		

*7" Course on Business Drive

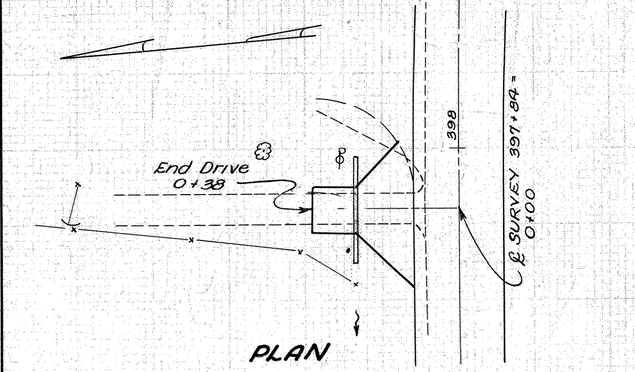
NOTE: For details see sheets 66 & 68.



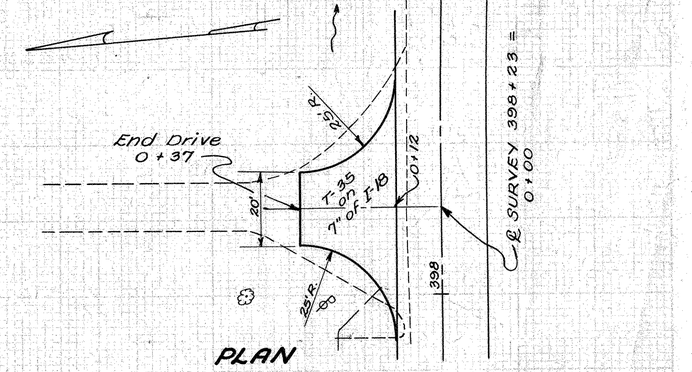
FIELD DRIVE
391 + 66 RT.



RESIDENCE DRIVE
392 + 36 LT.



FIELD DRIVE
397 + 84 LT.

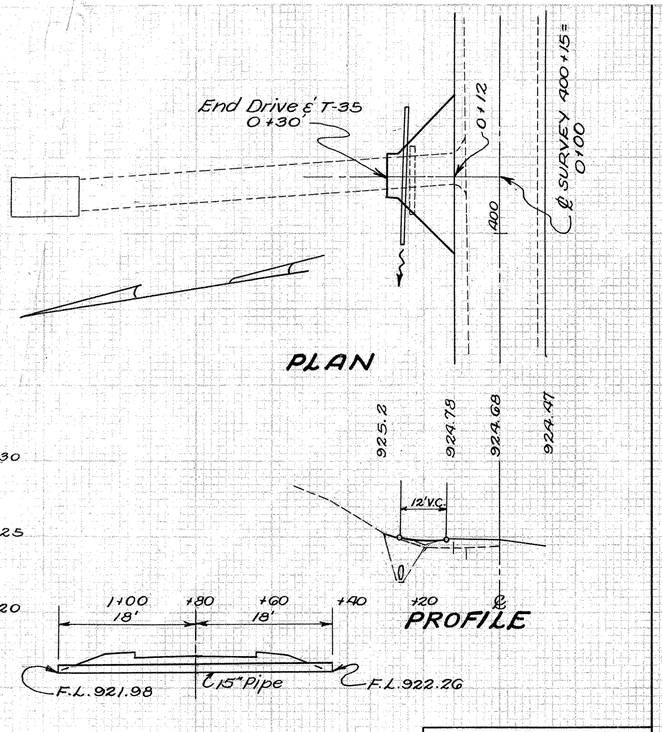


BUSINESS DRIVE
398 + 23 LT.

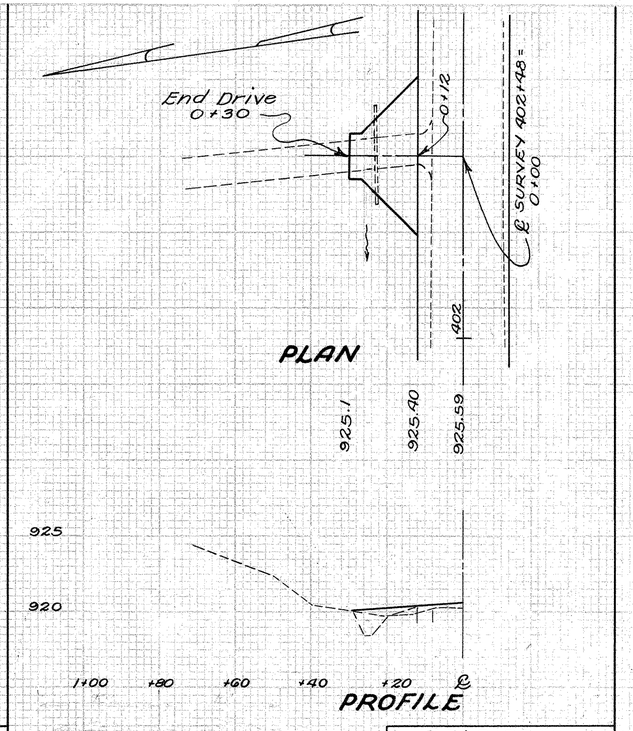
DRIVES

ST. RD. SYSTEM	STATE	PROJECT	TITLE PAGE	68
2	OHIO			238

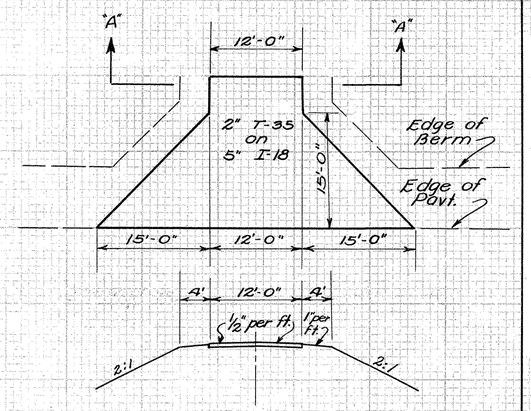
LIC-161-5.12
LIC- 37-15.09



RESIDENCE DRIVE
400+15 Lt.



FIELD DRIVE
402 + 48 Lt.



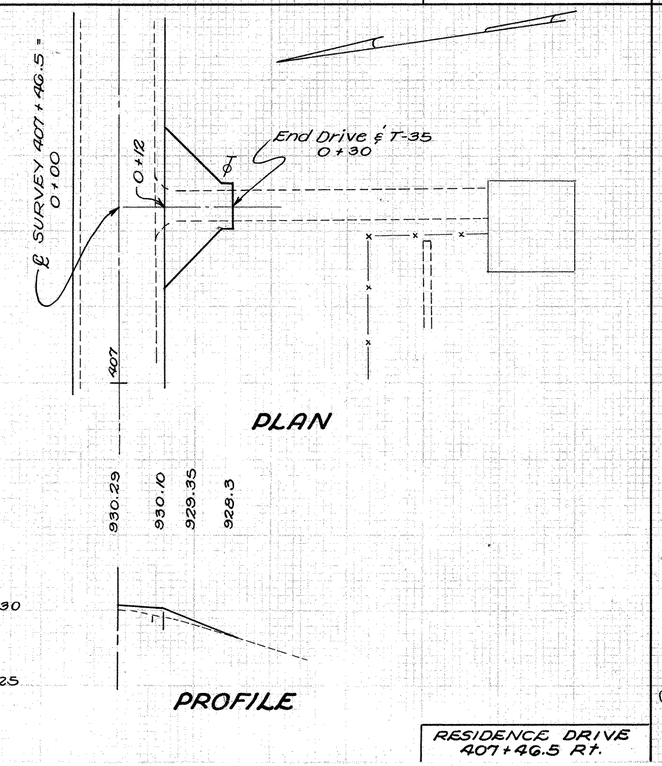
Section "AA"
RESIDENCE DRIVE

DRIVE DETAIL

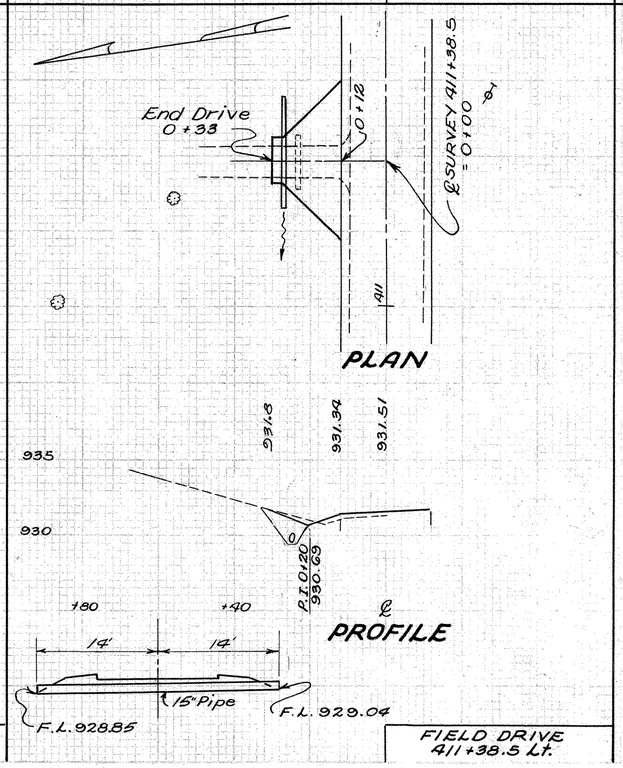
ESTIMATED QUANTITIES

Mark	Station	Side	Earthwork Cu. Yds. Exc.	Earthwork Cu. Yds. Emb.	2" T-35 Asph. Conc. Cu. Yds.	T-30 Bit. Prime Gals.	I-18 As per Plan Cu. Yds. 5"	I-18 As per Plan Cu. Yds. 6"	I-1 Pipe for Drives, Lin. Ft. 12"	I-1 Pipe for Drives, Lin. Ft. 15"	I-10 Riprap Sq. Yds.
82A	400+15	Lt.	2	5	2.72	18	7.1			36	
83A	402+48	Lt.	2	5				8.2			
84A	407+46.5	Rt.	5	1	2.72	18	7.1				
85A	411+38.5	Lt.	0	5				8.9		28	
86A	414+00	Lt.	0	4				9.0	30		
87A	414+00	Rt.	0	15				13.0			
Totals					5.44	36	53.3		30	64	

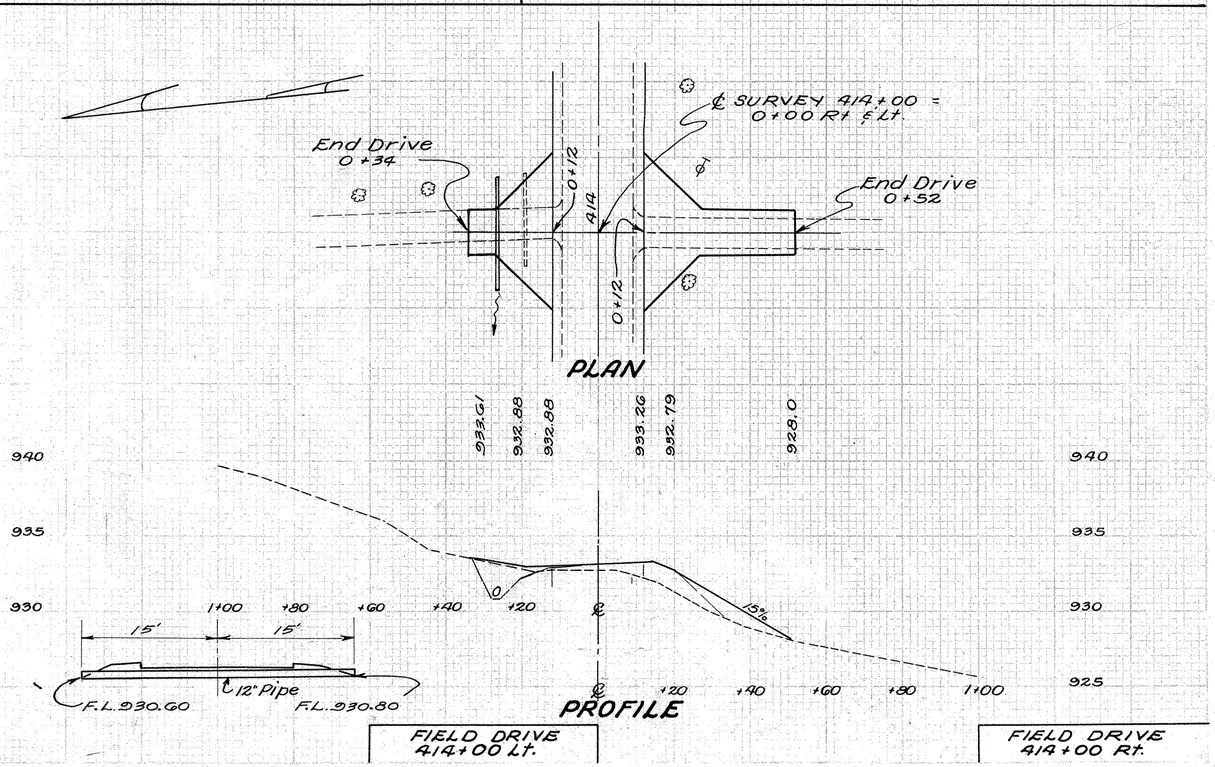
NOTE: For details see Sheet No. 48.



RESIDENCE DRIVE
407+46.5 Rt.



FIELD DRIVE
411+38.5 Lt.



FIELD DRIVE
414+00 Lt.

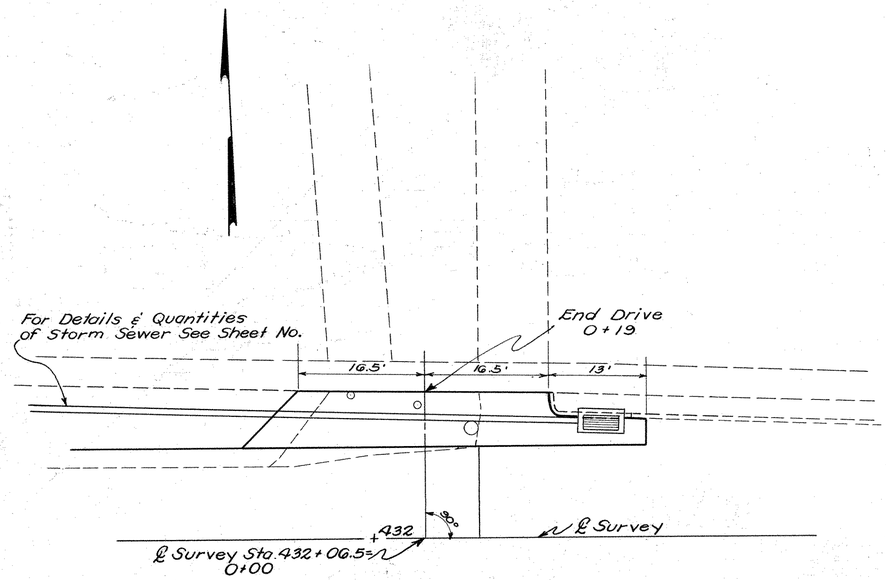
FIELD DRIVE
414+00 Rt.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

69
238

LIC-161-5.12
LIC-37-15.09

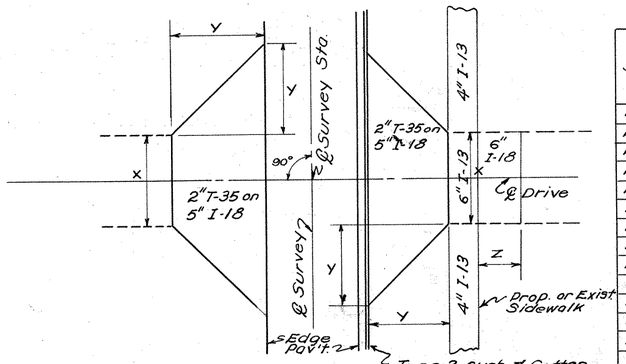
DRIVES 418+60 to 431+20
DIMENSIONS & ESTIMATED QUANTITIES



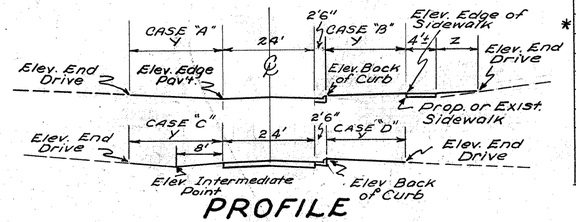
ESTIMATED QUANTITIES

E-1	Excavation	7 Cu. Yds
* E8	Pavement Removal	35 Sq. Yds
T-35	2" Asphaltic Surface Course	2.06 Cu. Yds.
I-18	5" Aggregate	3.3 Cu. Yds.
T-30	Bituminous Prime	13 Gals.

* Carried to Sheet No. 8 Table No. 4



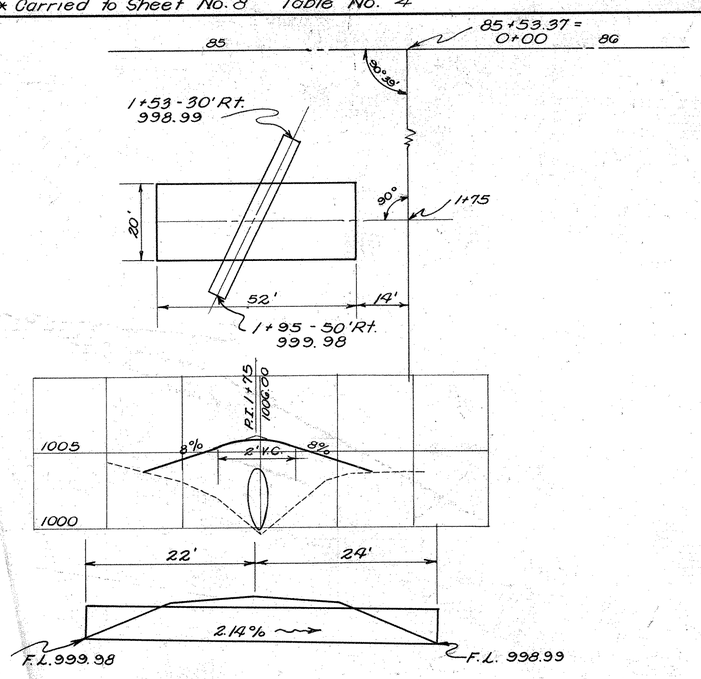
PLAN



PROFILE

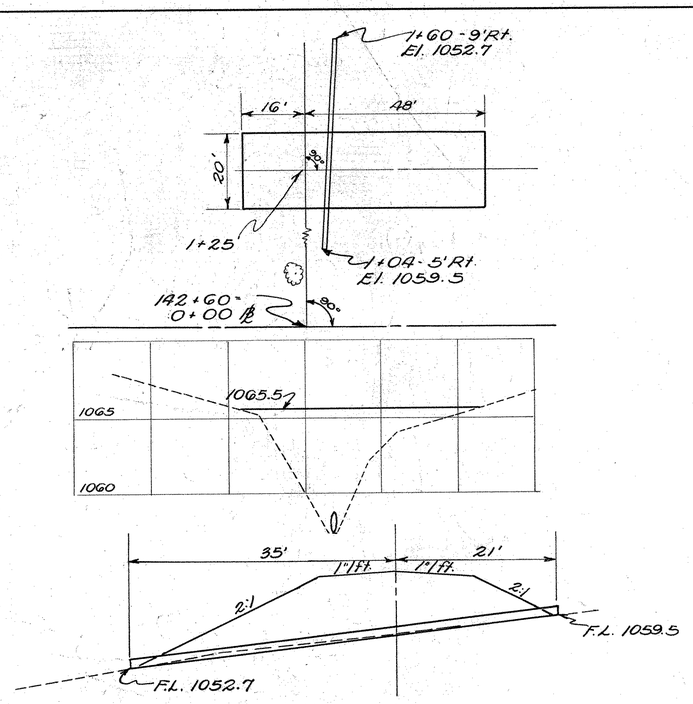
Station	Side	Type	DIMENSIONS: Dist Edge Pav't. to End Drive Y Ft.	DIMENSIONS: Width of End Drive X Ft.	PROFILE: Case	Elev. Edge Pav't. or Back Curb	Elev. Intermediate Point	Elev. Edge of S.W.	Dist. S.W. to End Drive Z Ft.	Elev. End Drive	ESTIMATED QUANTITIES: Earthwork Excav.	Earthwork Emb.	T-35 Surface Cu. Yds.	I-18 Aggreg Cu. Yds.	T-30 Prime Gals.
418+60	Lt.	Field	15'	12'	C	935.48	935.48			935.76	2	0	2.50	6.5	16
419+79	Lt.	Res.	15'	12'	A	937.97				939.80	5	0	2.50	6.5	16
421+83	Lt.	Res.	12.5'	34'	D	943.95				944.1	12	0	3.59	9.2	23
422+47	Lt.	Res.	12.5'	12'	D	945.21				944.8	9	0	1.89	4.9	12
422+99	Lt.	Res.	12.5'	12'	D	946.61				947.1	9	0	1.89	4.9	12
423+87	Lt.	Res.	12.5'	12'	D	949.47				951.0	13	0	1.89	4.9	12
424+89	Rt.	Res.	12.5'	12'	D	952.59				952.6	4	0	1.89	4.9	12
426+37	Lt.	Res.	10.5'	12'	B	955.27		955.77			7	0	1.46	3.8	10
426+77	Rt.	Res.	7.5'	12'	B	955.77		955.15			0	3	0.90	2.4	6
427+16.5	Rt.	Res.	7.5'	12'	B	956.31		956.27			0	0	0.90	2.4	6
427+31	Lt.	Res.	9.8'	12'	B	956.81		957.14			7	0	1.32	3.4	9
427+81.6	Rt.	Res.	12.5	12'	B	957.33				957.7	8	0	1.89	4.9	12
428+20.5	Lt.	Res.	9.5'	31'	B	957.65		958.11			11	0	2.38	6.1	15
428+47	Rt.	Res.	5.5'	12'	D	957.84				956.9	1	0	0.66	1.8	5
429+11.5	Rt.	Res.	12.5'	12'	D	958.48				957.1	2	0	1.89	4.9	12
429+82	Rt.	Res.	12.5'	12'	D	959.51				959.0	3	0	1.89	4.9	12
430+05	Lt.	Res	8.8'	12'	B	959.79		960.38	13.0	960.80	2	6	1.13	5.9	7
* 431+20	Rt.	Appr.	4'	32'	A	963.15				962.94			0.89		
432+06.5	Lt.	Res	See Detail								7	0	2.06	5.3	13
Totals													33.52	87.6	210

* NOTE: The T-35 Surface will be used to feather from the edge of the proposed pavement over an area as described above.



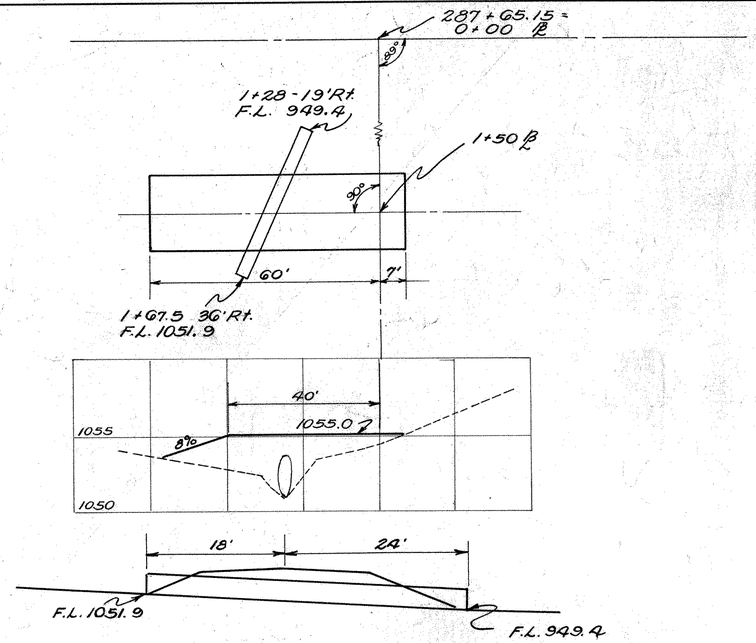
ESTIMATED QUANTITIES

	Embankment	185 Cu. Yds.
I-1	Pipe 54"	46 Lin. Ft.



ESTIMATED QUANTITIES

E-1	Excavation	
	Embankment	356 Cu. Yds.
I-1	Pipe 12"	56 Lin. Ft.

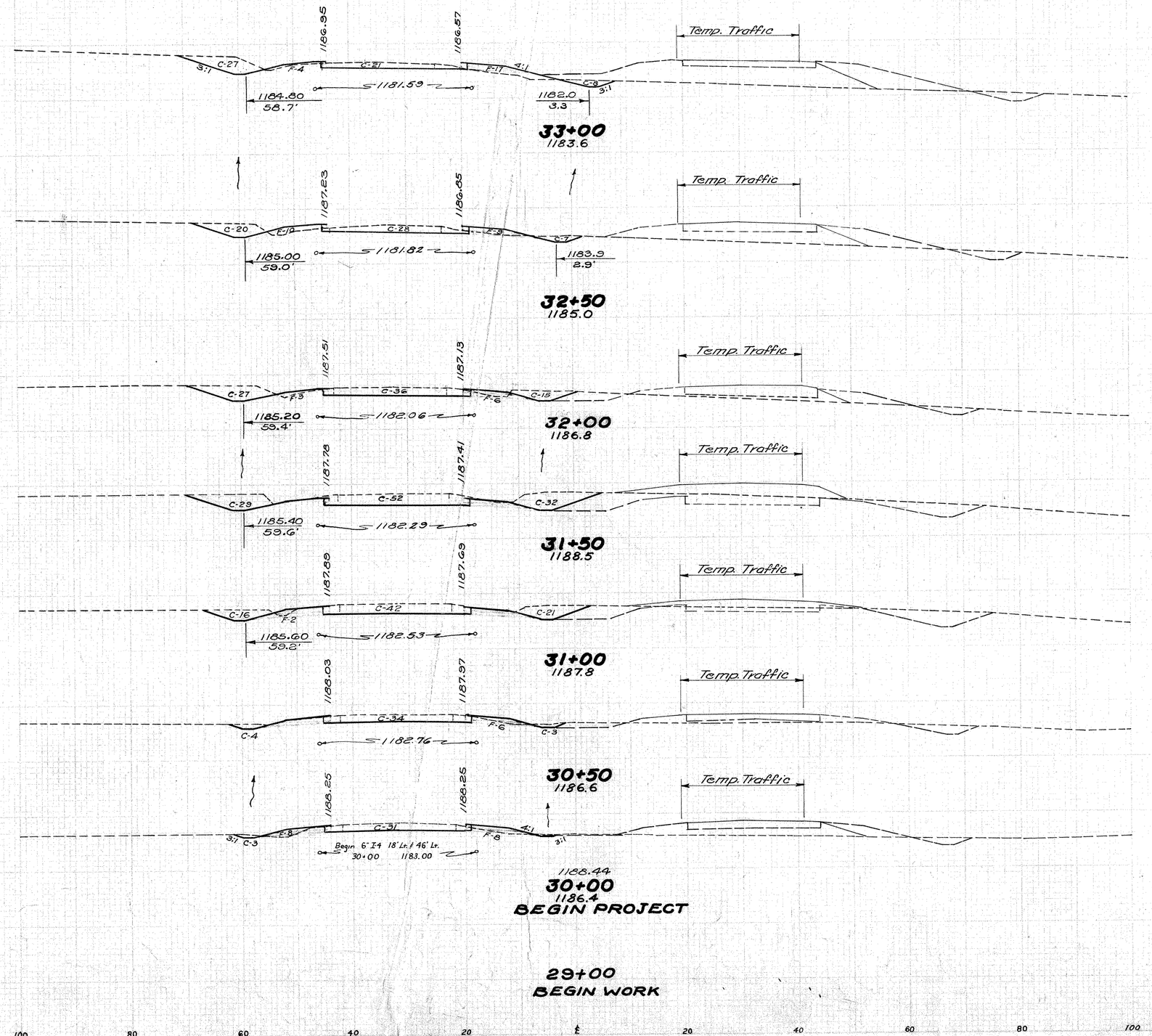


ESTIMATED QUANTITIES

	Embankment	150 Cu. Yds.
I-1	Pipe for Driveways (36")	42 Lin. Ft.

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100



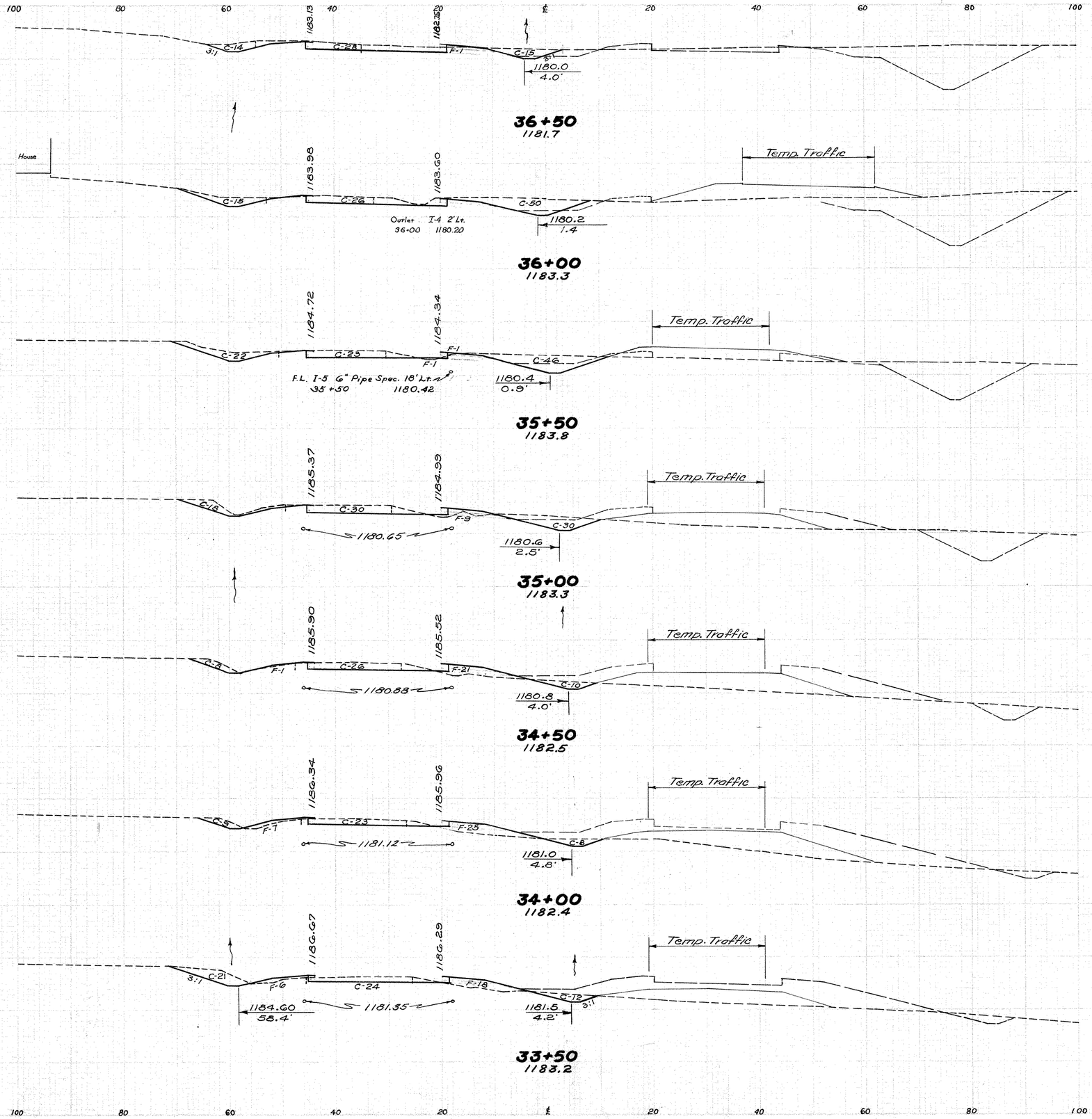
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
56	21		
		103	37
55	19		
		123	26
78	9		
		177	8
113	0		
		178	2
79	2		
		111	9
41	6		
		60	20
34	16		
		63	9
0	0		

G-3

100 80 60 40 20 ℄ 20 40 60 80 100

30+00 ~ 33+00

LIC-161-5.12
LIC-37-15.09



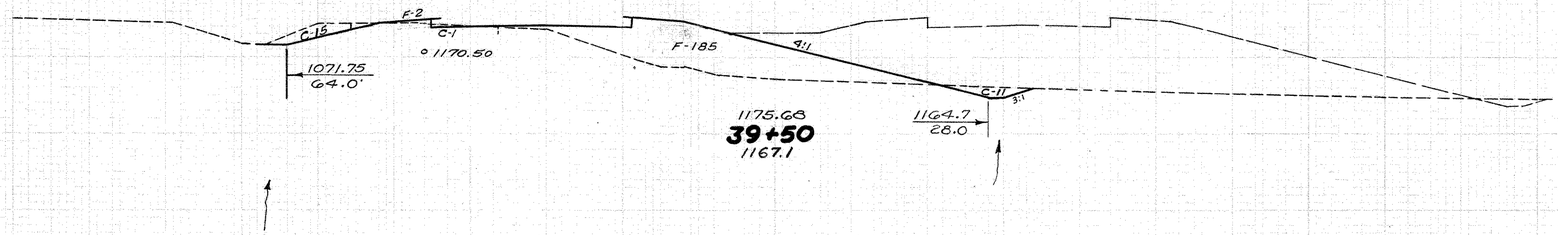
Res. Drive 34+75 Lt.

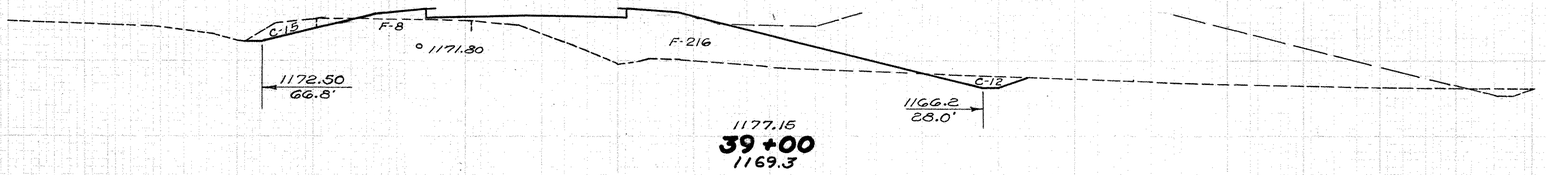
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
57	1		
		137	7
91	0		
		169	2
91	2		
		156	10
78	9		
		113	20
44	22	26	7
		78	50
40	32		
		90	52
57	24		
		105	42

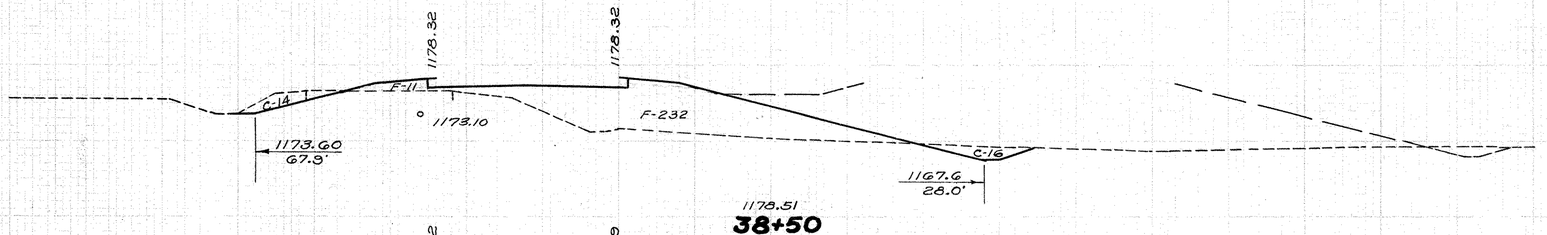
33+50 ~ 36+50

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100







100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
27	187		
		50	381
27	224		
		53	432
30	243		
		51	410
25	210		
		72	260
53	70		
		99	73
54	9		
		103	5
		924	8
		112	0
		25	4

Approach 36+74.42 Lt.
Approach 36+74.42 Rt.
Drive from Approach Lt.

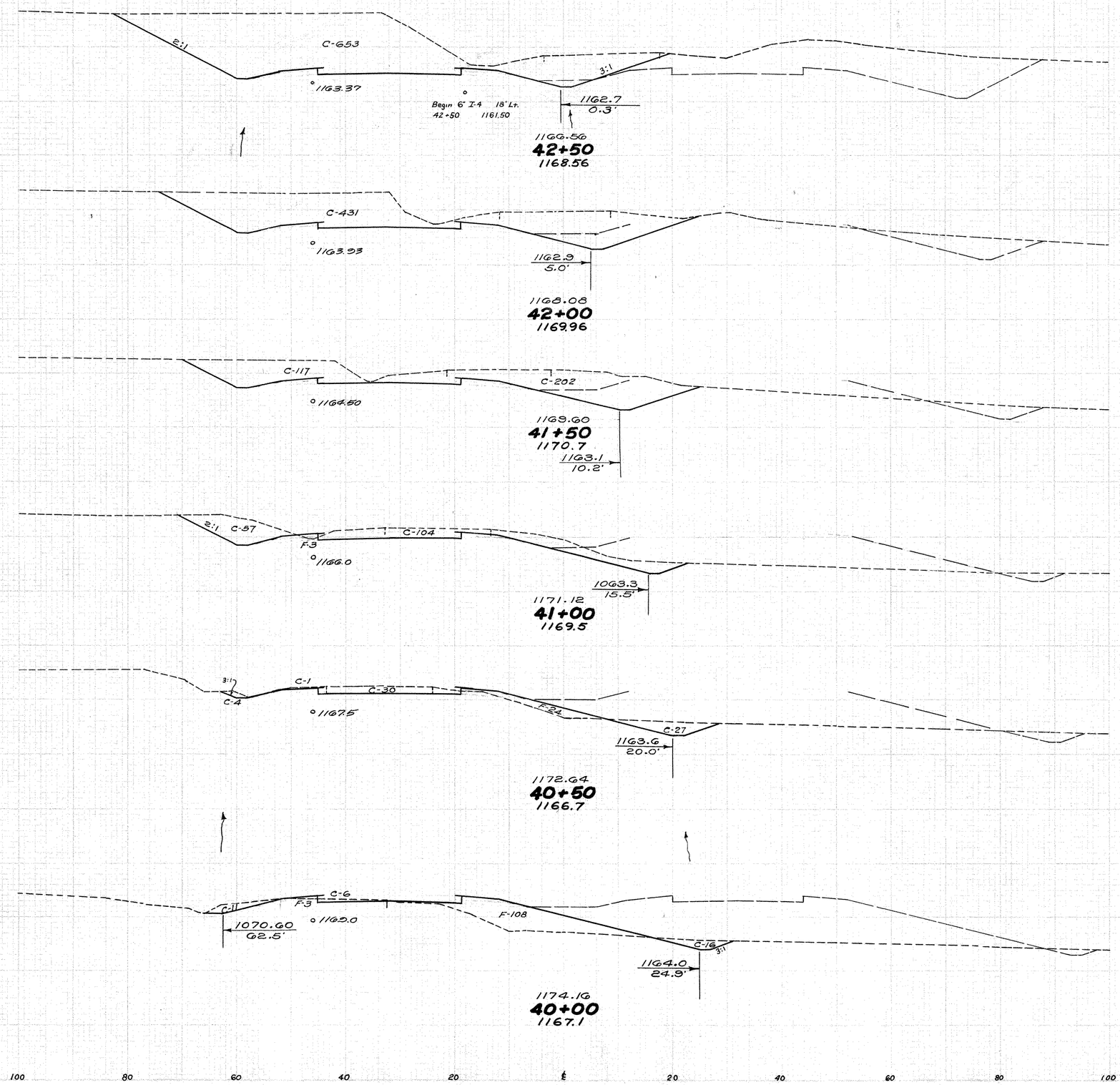
37+00 ~ 39+50

END OF DIVISION	STATE	FED. NO.	FISCAL YEAR
2	OHIO		

73
238

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
653	0		
		1004	0
431	0		
		694	0
319	0		
		444	3
161	3		
		206	25
62	24		
		88	125
33	111		
		56	276

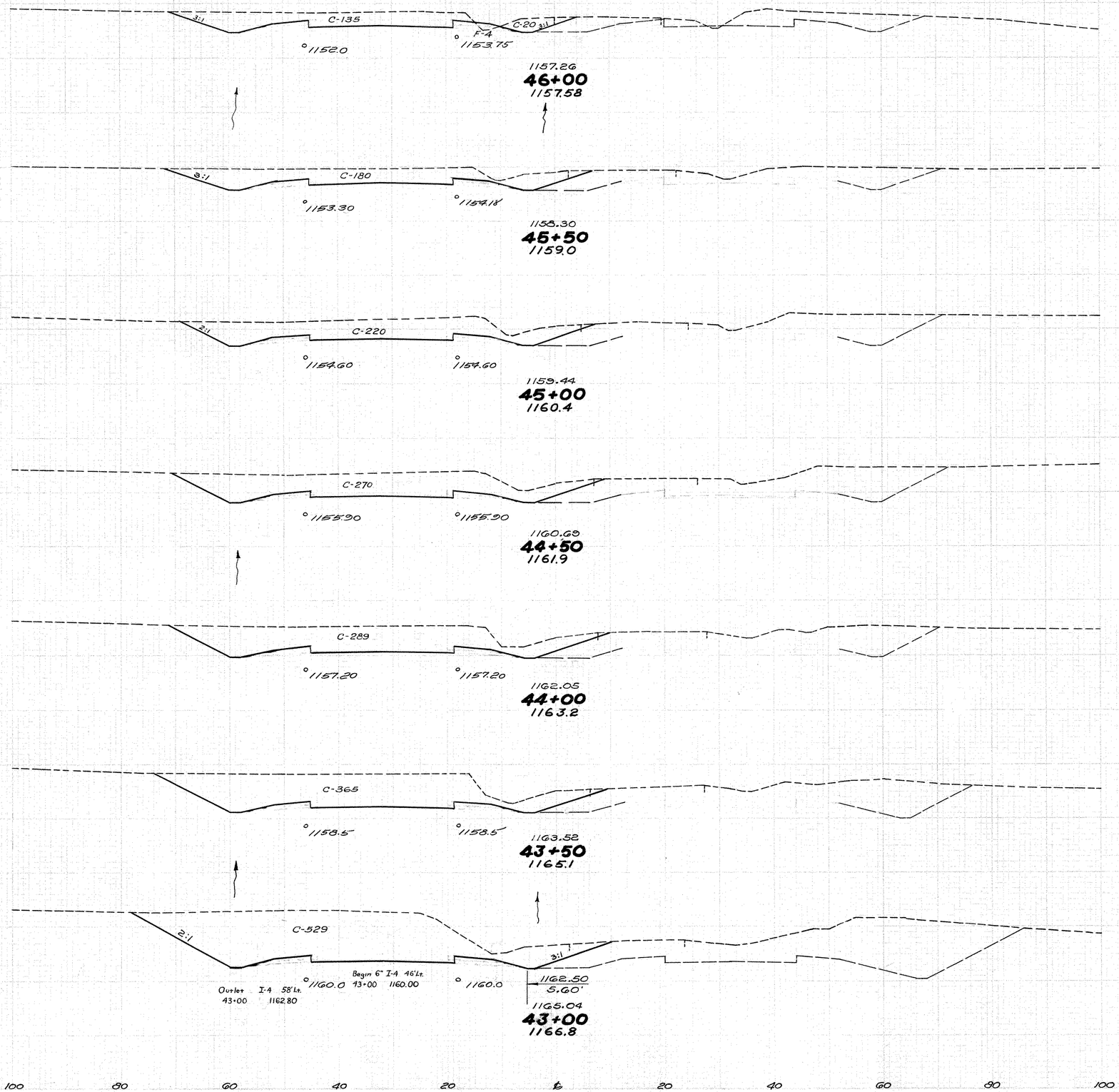
40+00 - 42+50

FED. RD. DIVISION	STATE		FISCAL YEAR
2	OHIO		

74
238

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
155	4		
		310	4
180	0		
		370	0
220	0		
		454	0
270	0		
		518	0
289	0		
		609	0
365	0		
		828	0
529	0		
		1094	50

43+00~46+00

FED. AID PROJ. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

75
238

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

1152.22 1152.60

3:1 C-54 C-4 F-4 F-36 4:1

1148.2
65.2'

1147.43

49+50
1149.94

1152.67 1153.05

C-25 C-3 F-5 F-43 4:1

1149.0
63.6'

1147.97

49+00
1150.29

1153.12 1153.50

3:1 C-38 C-29 F-4 F-35 C-33 ½"/ft.

1149.9
62.0'

1148.5

48+50
1150.87

1153.64 1154.00

2:1 C-51 C-21 F-27 C-8 3:1

1150.7
60.8'

1149.70

48+00
1151.72

1154.41 1154.60

2:1 C-48 C-26 F-18 C-8

1151.7
60.0'

1149.90

1151.6
2.0'

47+50
1152.95

1155.26 1155.32

3:1 C-35 C-30 F-12 C-9

1152.8
59.0'

1150.60

1152.8
4.9'

Outlet I-4 5' Lt.
47+00 1152.90

47+00
1154.54

1156.14 1156.14

3:1 C-93 F-4 C-12 3:1

1151.30

1153.33

1156.33
46+50
1155.90

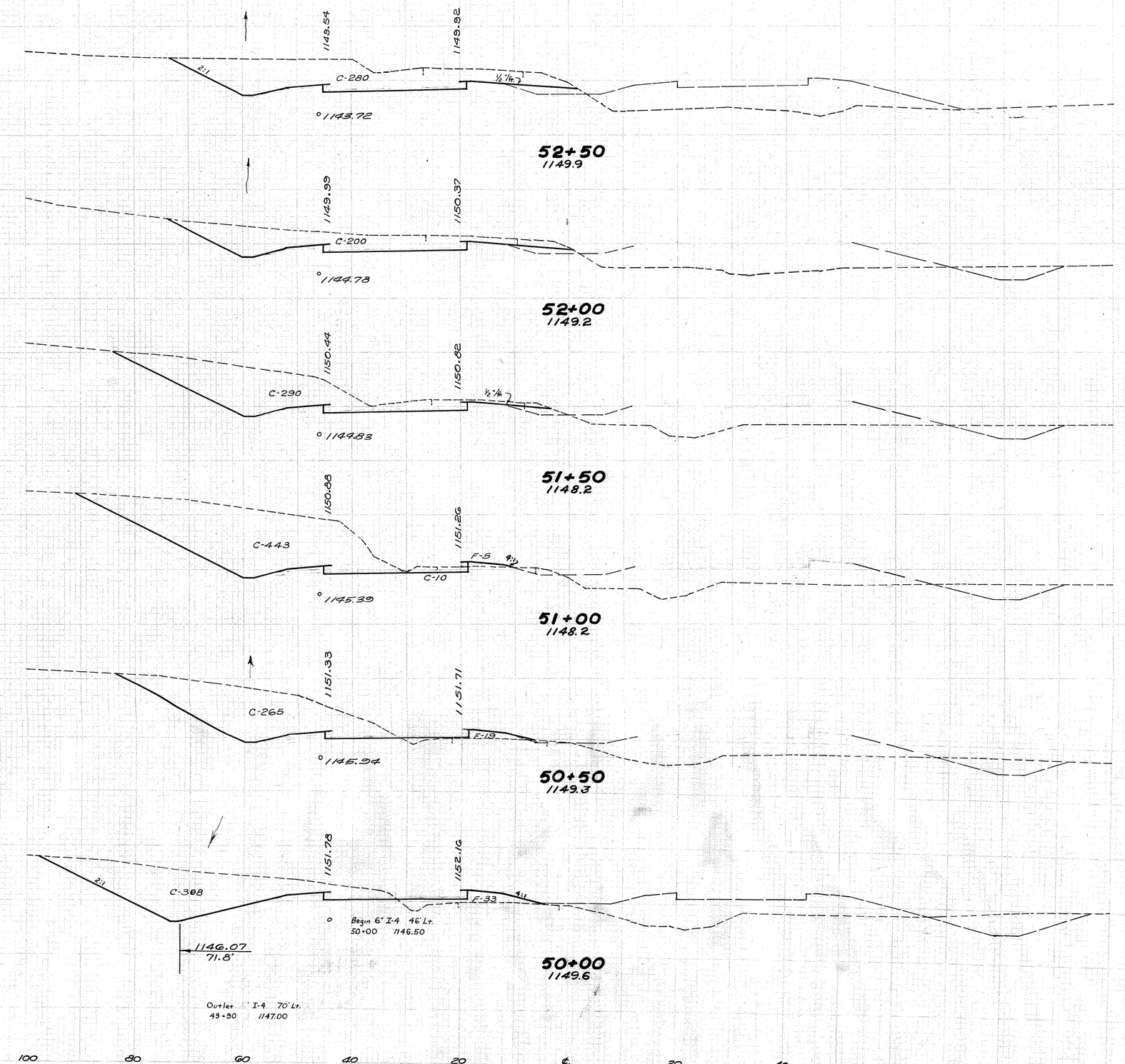
100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
58	40		
		80	81
28	48		
		118	81
100	39		
		167	61
80	27		
		150	43
82	19		
		144	29
74	12		
		168	15
107	4		
		243	7

46+50 ~ 49+50

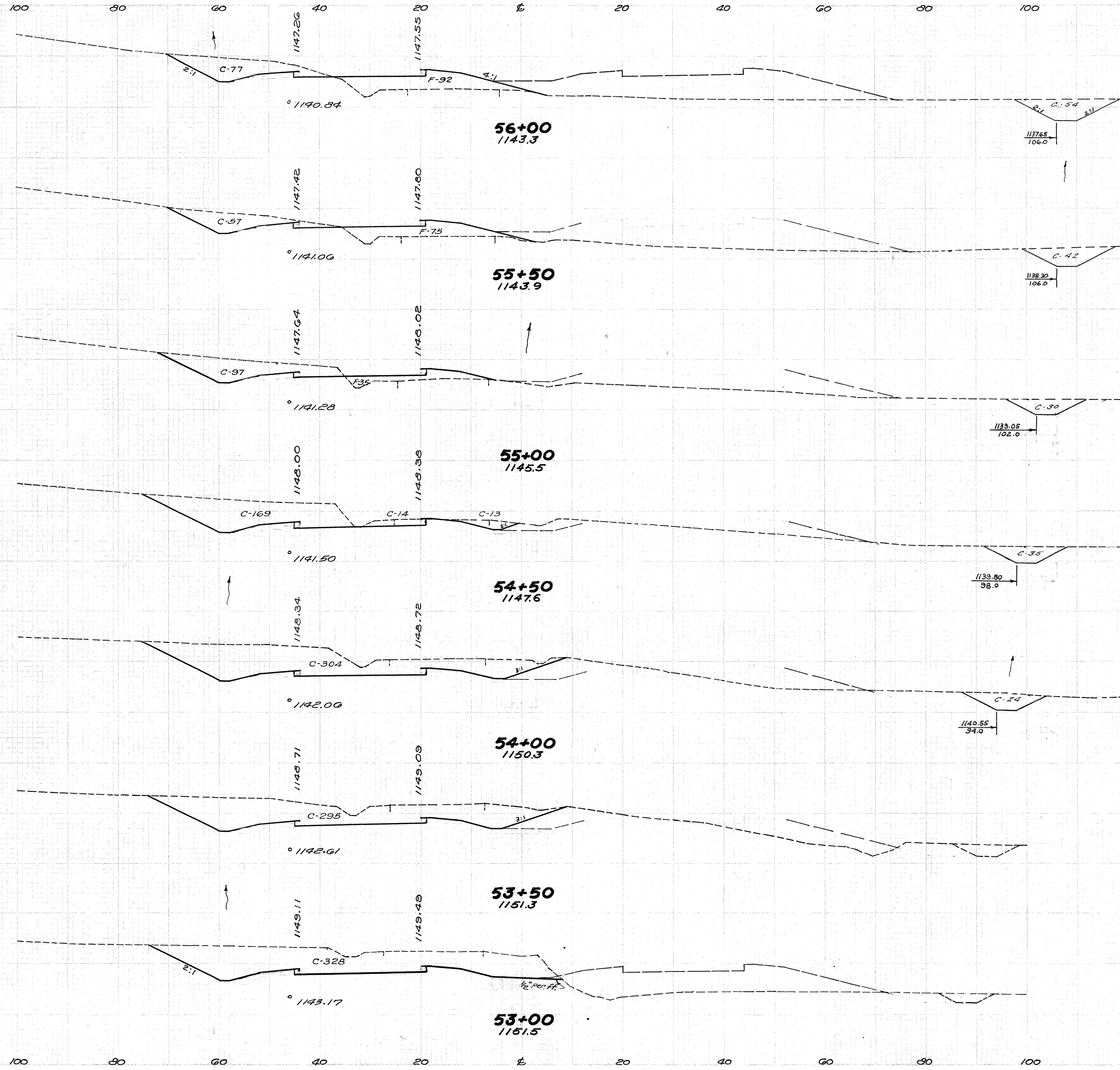
LIC-161-5.12
LIC-37-15.09

100 90 60 40 20 ℄ 20 40 60 80 100



	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	280	0		
			444	0
	200	0		
			454	0
Res. Drive 51+85 Lt.			175	20
	290	0		
			688	5
	453	5		
			666	22
	265	19		
			531	48
	308	33		
			339	68

LIC ~ 161 ~ 5.12
LIC ~ 37 ~ 15.09



Dr. Rt. Sta 56+14

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
		0	737
131	92		
		213	155
99	75		
		209	102
127	35		
		331	32
231	0		
		518	0
328	0		
		577	0
295	0		
		577	0
328	0		
		563	0

LIC ~ 161 ~ 5.12
LIC ~ 37 ~ 15.09

100 80 60 40 20 ℄ 20 40 60 80 100

C-452 2:1 4:1 F-80 F-82 2:1 C-36 2:1
1143.5 / 61.3' ° 1139.52
1146.76
59+00
1141.97
1134.40 / 106.0

C-498 F-70 F-67 C-35
1144.0 / 59.8' ° 1139.74
1146.90
58+50
1142.57
1135.15 / 106.0

C-270 C-1 F-135 C-31
1144.2 / 58.6' ° 1139.96
1147.04
58+00
1142.65
1135.90 / 106.0

C-20 F-1 1146.99 1146.99 F-150 C-54
1144.4 / 59.4' ° 1140.18
1147.18
57+50
1142.5
1136.65 / 106.0

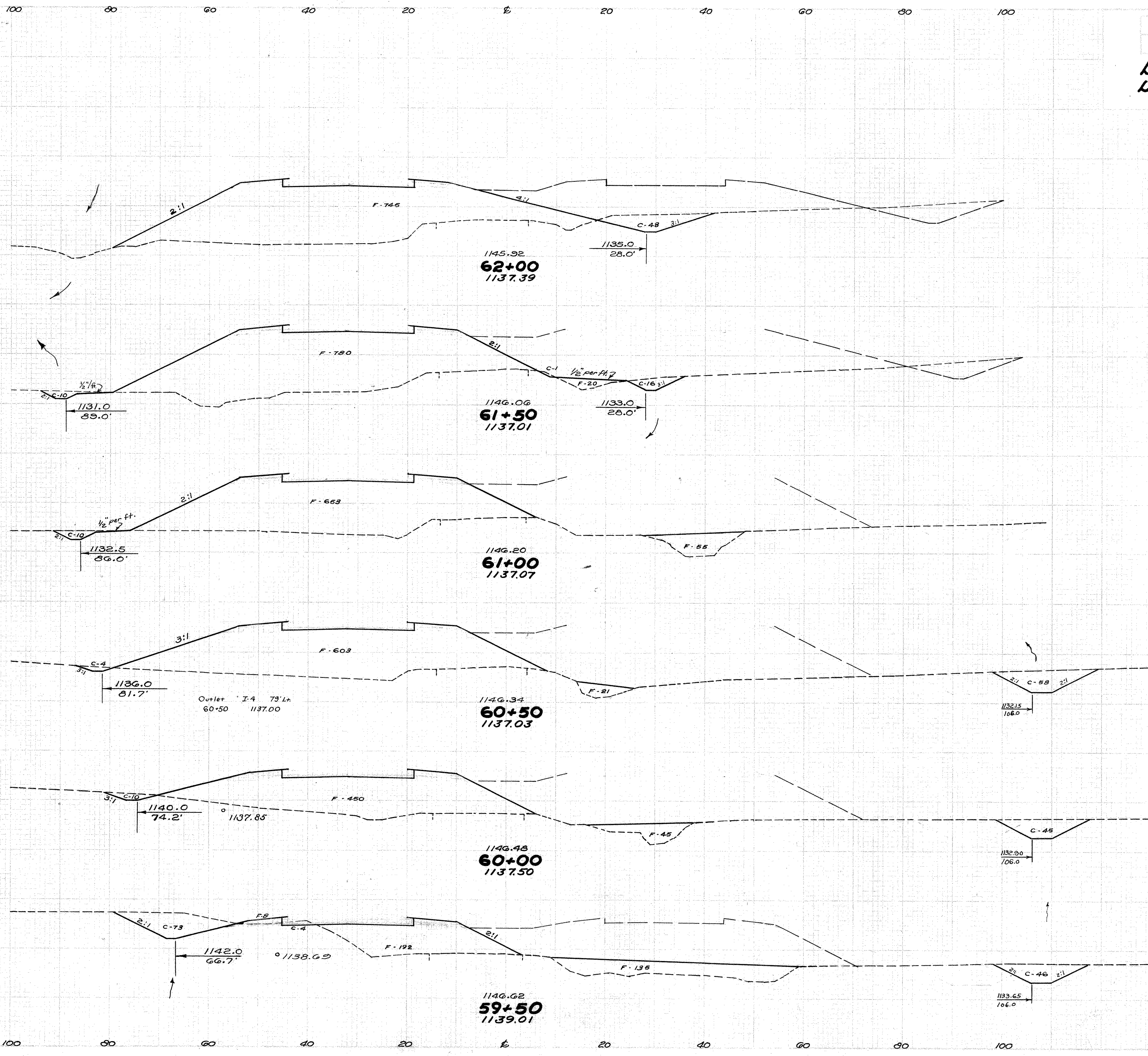
C-175 1147.14 1147.15 F-118 C-17
1144.6 / 59.2' ° 1140.40
57+00
1142.6
1137.15 / 106.0

2:1 C-95 1147.20 1147.33 C-2 F-105 2:1 C-36 2:1
1144.8 / 58.6' ° 1140.62
56+50
1142.8
1137.46 / 106.0

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
488	132		
		945	249
533	137		
		764	262
292	135		
		513	265
262	151		
		420	249
192	118		
		301	200
133	105		
		244	182

56+50 ~ 59+00

LIC~161~5.12
LIC~37~15.09



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
48	745		
		69	1431
27	800		
		34	1345
10	708		
		67	1233
62	624		
		108	1036
55	495		
		165	768
123	335		
		560	432

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

2:1 C-235. C-80 3:1
1142.3 58.8' Begin 6°I4 46'Lt. & 18'Lt. 65+50 1139.50 1141.48 1.9'
1144.94
65+50
1146.08

4:1 4:1 F-113
3:1 C-20 C-10
1138.5 75.0' 1141.0 0.0'
1145.08
65+00
1142.40

2:1 F-367 C-14
½"/ft. 2:1 C-10
1133.5 80.0' 1137.8 13.9'
1145.22
64+50
1140.38

F-482 C-12
C-10 1137.0 17.7'
1132.0 83.0'
1145.36
64+00
1139.40

F-532 C-8
C-15 1136.5 20.2'
1131.5 84.0'
1145.50
63+50
1138.60

F-537 C-10
C-29 1136.0 22.8'
1131.3 85.0'
1145.64
63+00
1138.00

2:1 F-596 9:1
½"/ft. C-18 3:1
2:1 C-29 1135.5 25.4'
1131.1 86.0'
1145.78
62+50
1137.66

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
315	0		
		319	105
30	113		
		50	444
24	367		
		43	786
22	482		
		42	939
23	532		
		57	990
39	537		
		80	1049
47	596		
		88	1248

62+50 ~ 65+50

FED. ROAD DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		

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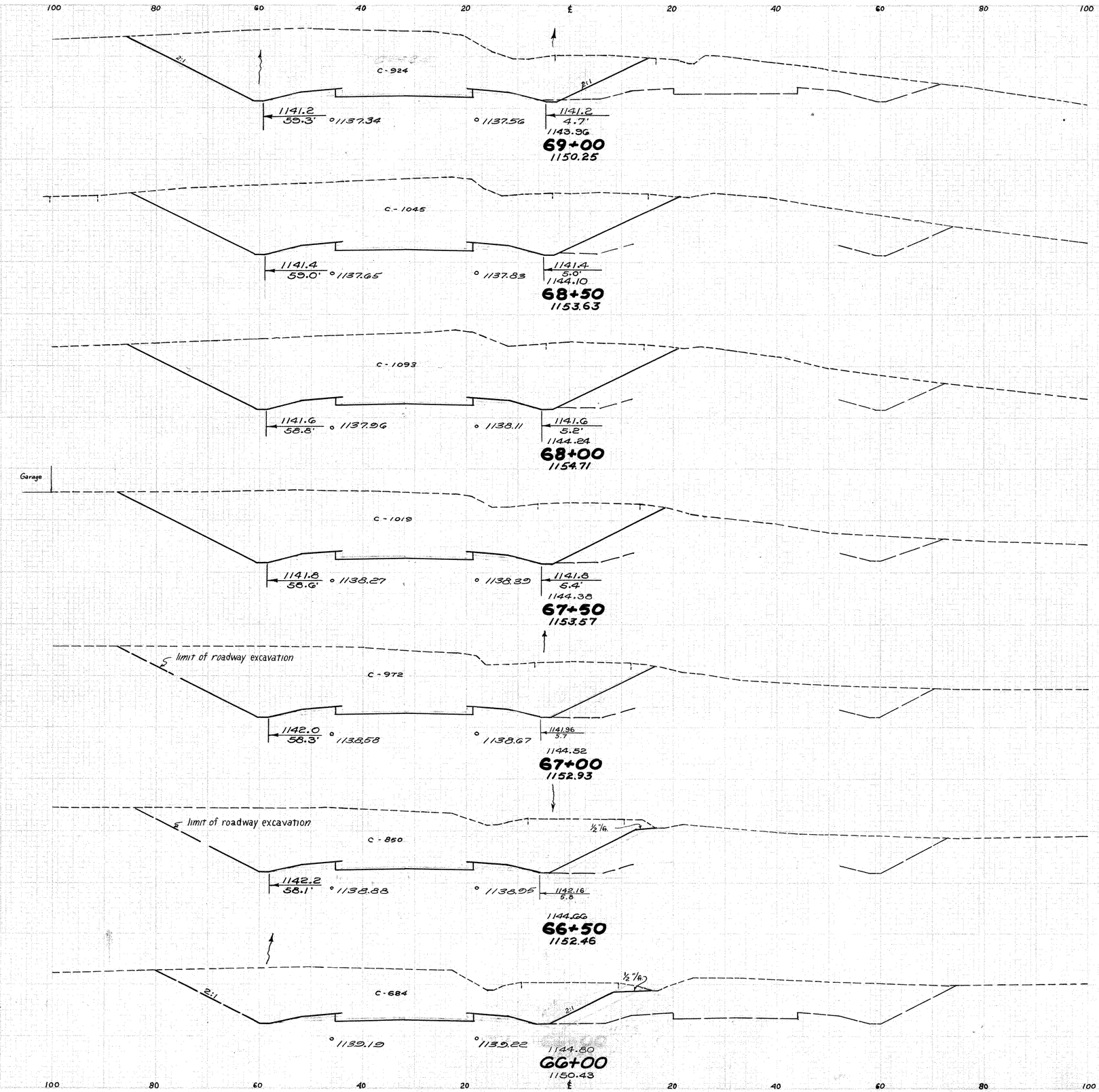
LIC-161-5.12
LIC-37-15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
924	0		
		1823	0
1045	0		
		1980	0
1093	0		
		1956	0
1019	0		
		1842	0
972	0		
		1687	0
850	0		
		1420	0
684	0		
		925	0
		711	8
		1332	7

Res. Dr. 65+88 Rt.
Res. Dr. 65+88 Lt.

66+00 ~ 69+00

FED. AID PROJ. NO.	STATE	COUNTY	SHEET NO.
2	OHIO		

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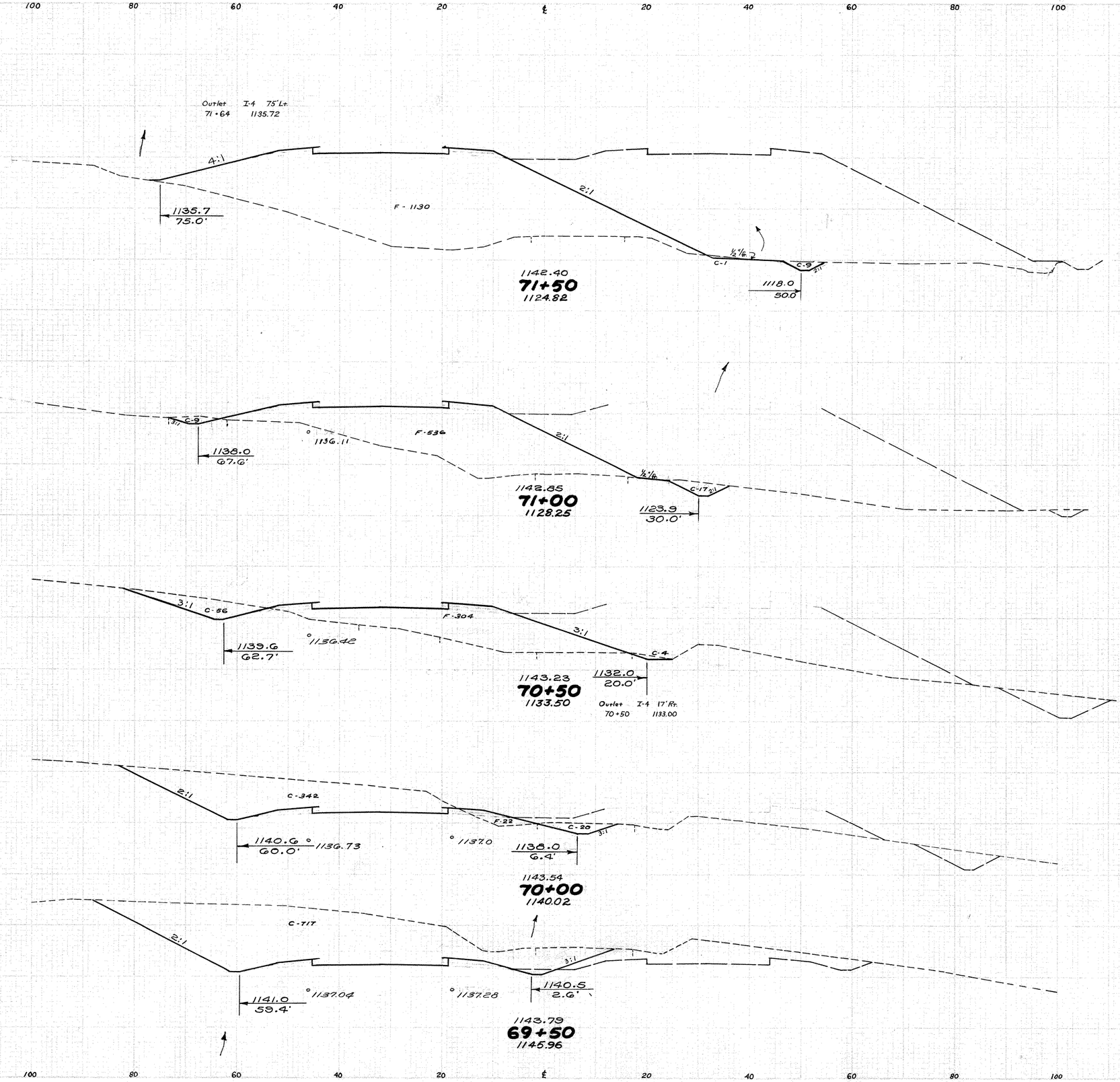
LIC-161-5.12
LIC-37-15.09



Res. Drive 71+39 Lt.

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
		30	257
10	1130		
		33	1593
		0	249
26	536		
		80	778
60	304		
		391	302
362	22		
		899	20
717	0		
		1519	0

69+50 ~ 71+50

FED. ROAD DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

F-548

2:1 2:1 ½"/ft. 2:1 C-18 2:1

1123.0
92.0'

1139.12
74+00
1129.25

F-1289

½"/ft. 2:1 C-17 2:1

C-10

1124.5
25.0'

1117.0
101.0'

1139.98
73+50
1125.76

F-1663

½"/ft. 2:1 C-7

C-9

1114.0
110.0'

1121.0
32.0'

1140.64
73+00
1123.61

F-1873

C-17

1119.0
38.0

1141.30
72+50
1122.95

F-1663

2:1 2:1 ½"/ft. 2:1 C-8 2:1

½" Per ft. 2:1 C-24 2:1

1123.5
93.0'

1118.0
48.0

1141.88
72+00
1123.31

100 80 60 40 20 ℄ 20 40 60 80 100

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
18	548		
		42	1701
27	1289		
		40	2733
16	1663		
		31	3274
17	1873		
		45	3265
32	1653		

72+00 ~ 74+00

FED. AID PROJECT	STATE	PROJECT	FISCAL YEAR
2	OHIO		

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238

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

½" Per Ft.

C-166 — 2:1 — 3:1 — ℄ 1126.07

1131.68
77+50
1134.76

C-426 — 2:1 — 3:1 — ℄ 1127.30

1132.92
77+00
1137.91

C-498 — 2:1 — ℄ 1128.53

1134.13
76+50
1140.94

76+40

House

C-547 — 3:1 — ℄ 1129.77

1132.0
61.3'

1135.26
76+00
1140.57

C-360 — 2:1 — Begin 6" I.A , 18 Lt. & 46 Lt.
75+50 1131.00

1131.4
68.0

1136.30
75+50
1139.00

C-81 — 3:1 — F-3 — C-33 — F-2 — F-1 — C-16 — 3:1 — F-1 — ½" per ft.

1130.0
76.0'

1137.33
75+00
1136.26

F-207 — 4:1 — 4:1 — C-27 — 3:1

1128.3
88.0

1136.26
74+50
1133.52

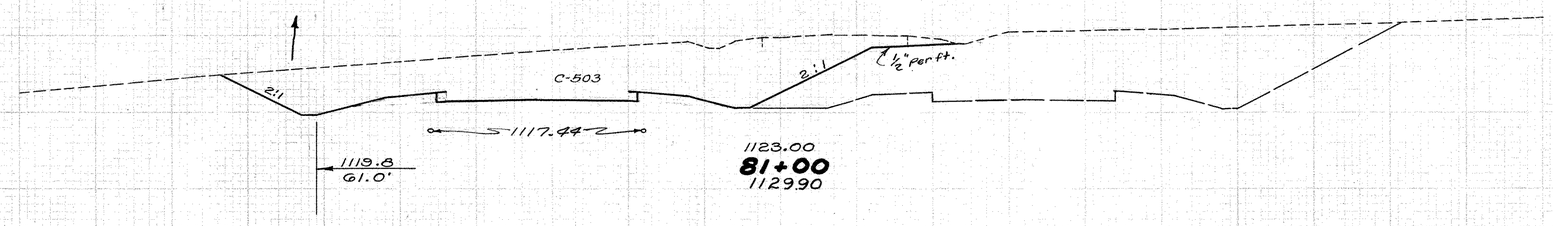
100 80 60 40 20 ℄ 20 40 60 80 100

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
166	0		
		548	0
426	0		
		856	0
498	0		
		968	0
547	0		
		840	0
360	0		
		459	6
130	7		
		145	198
27	207		
		42	699

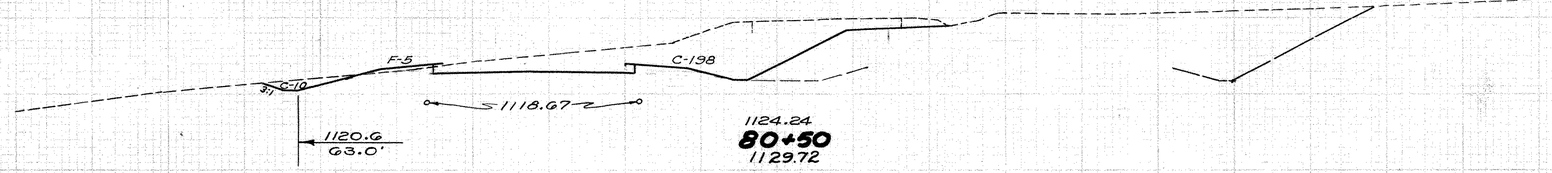
74+50 ~ 77+50

LIC-161-5.12
LIC-37-15.09

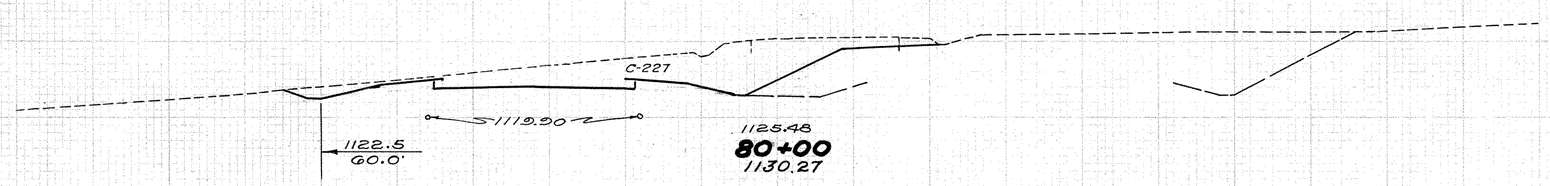
100 80 60 40 20 ℄ 20 40 60 80 100



1123.00
81+00
1129.90

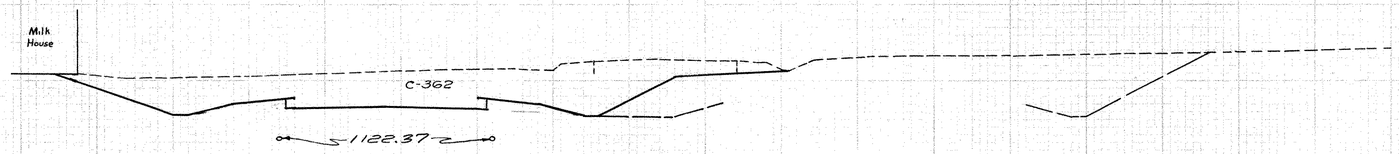


1124.24
80+50
1129.72

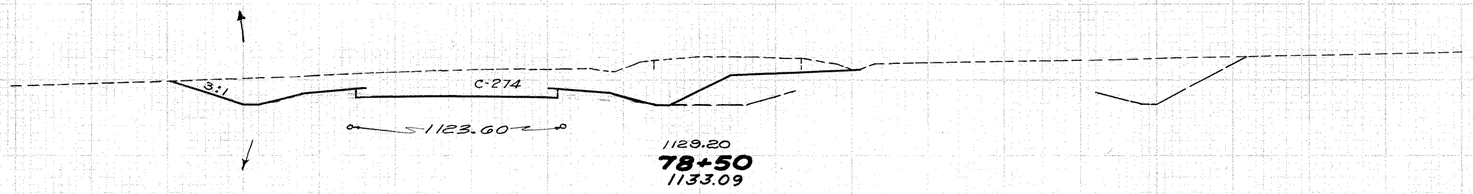


1125.48
80+00
1130.27

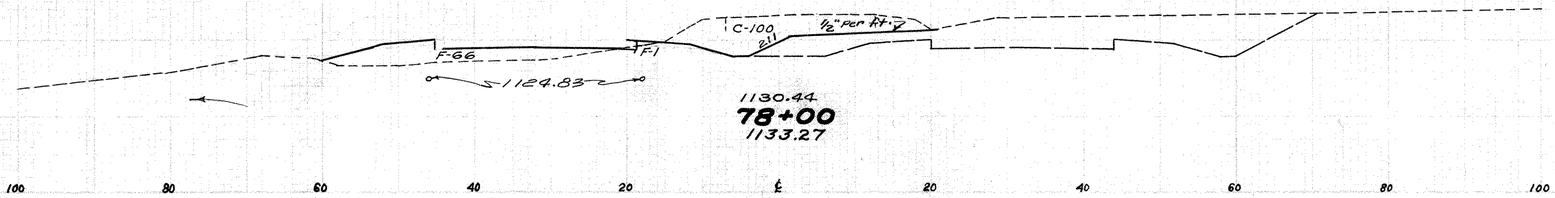
1126.72
79+50
1131.63



1127.96
79+00
1132.84



1129.20
78+50
1133.09



1130.44
78+00
1133.27

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
503	0		
		658	5
208	5		
		403	5
227	0		
		510	0
324	0		
		635	0
362	0		
		1020	8
		589	0
274	0		
		346	62
100	67		
		246	62
		12	5

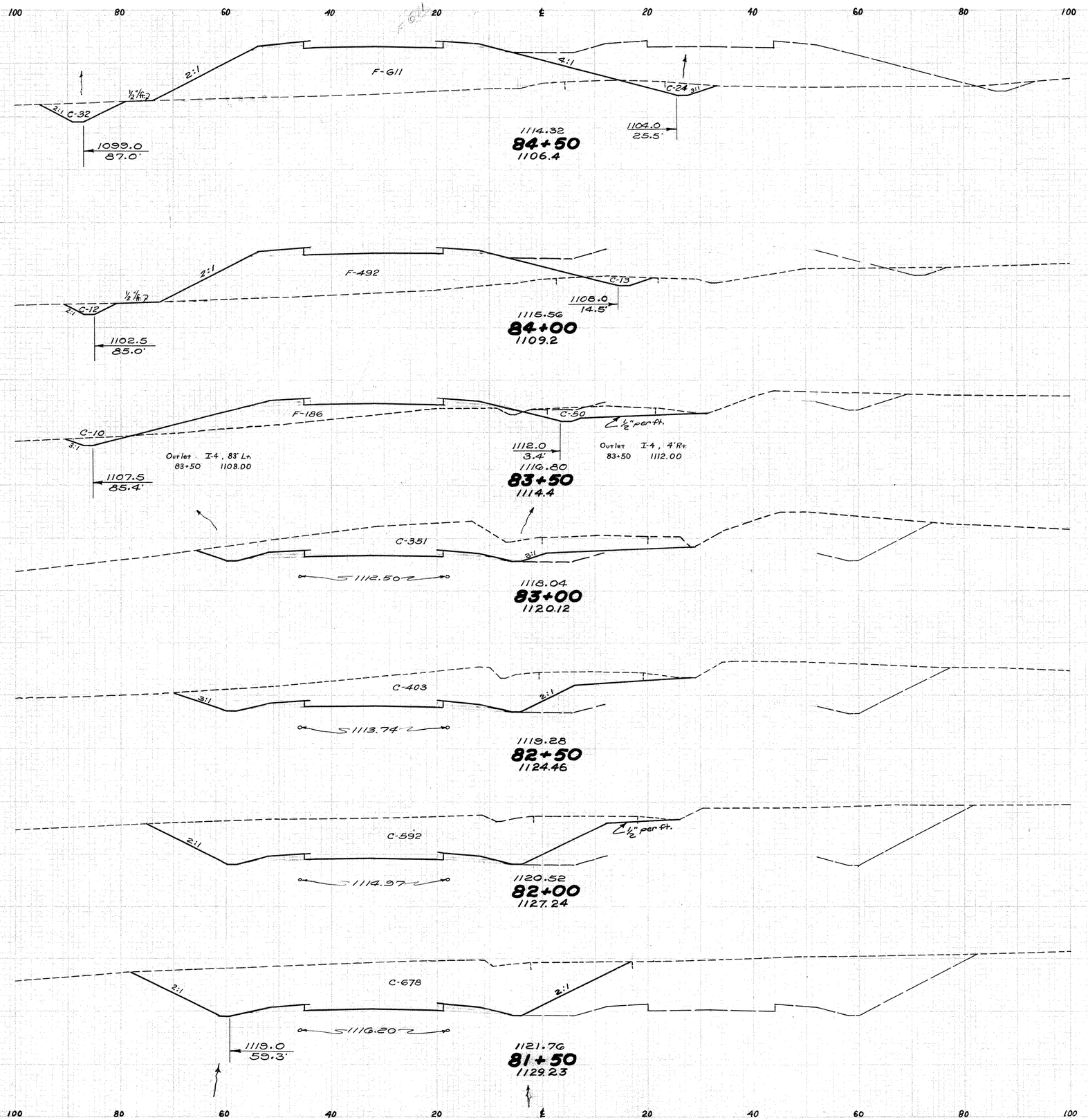
Res. Drive 79+00 Rt.

Res. Drive 78+00 Lt.

78+00 - 81+00

FED. ROAD DIVISION	STATE	PROJECT	PROJECT YEAR	
2	OHIO			86 238

LIC-161-5.12
LIC-37-15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
56	611		
		75	1021
25	492		
		79	625
60	186		
		381	172
351	0		
		698	0
403	0		
		921	0
592	0		
		1170	0
678	0		
		1092	0

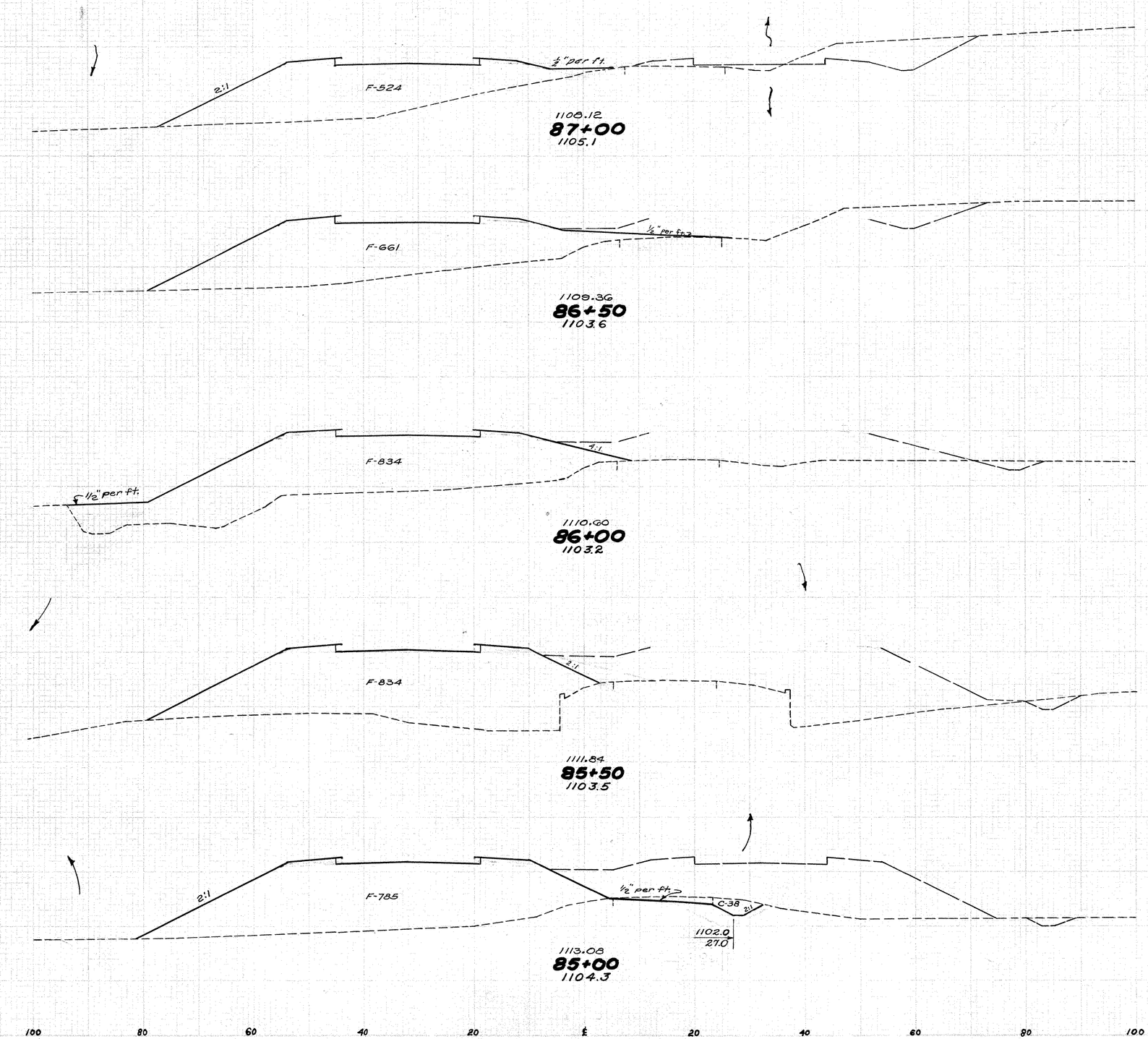
81+50 ~ 84+50

REVISIONS	STATE	PROJECT	SHEET NO.
2	OHIO		

87
238

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	524		
		0	1097
0	661		
		0	1389
0	834		
		0	1589
0	834		
		35	1499
		0	185
38	785		
		87	1293

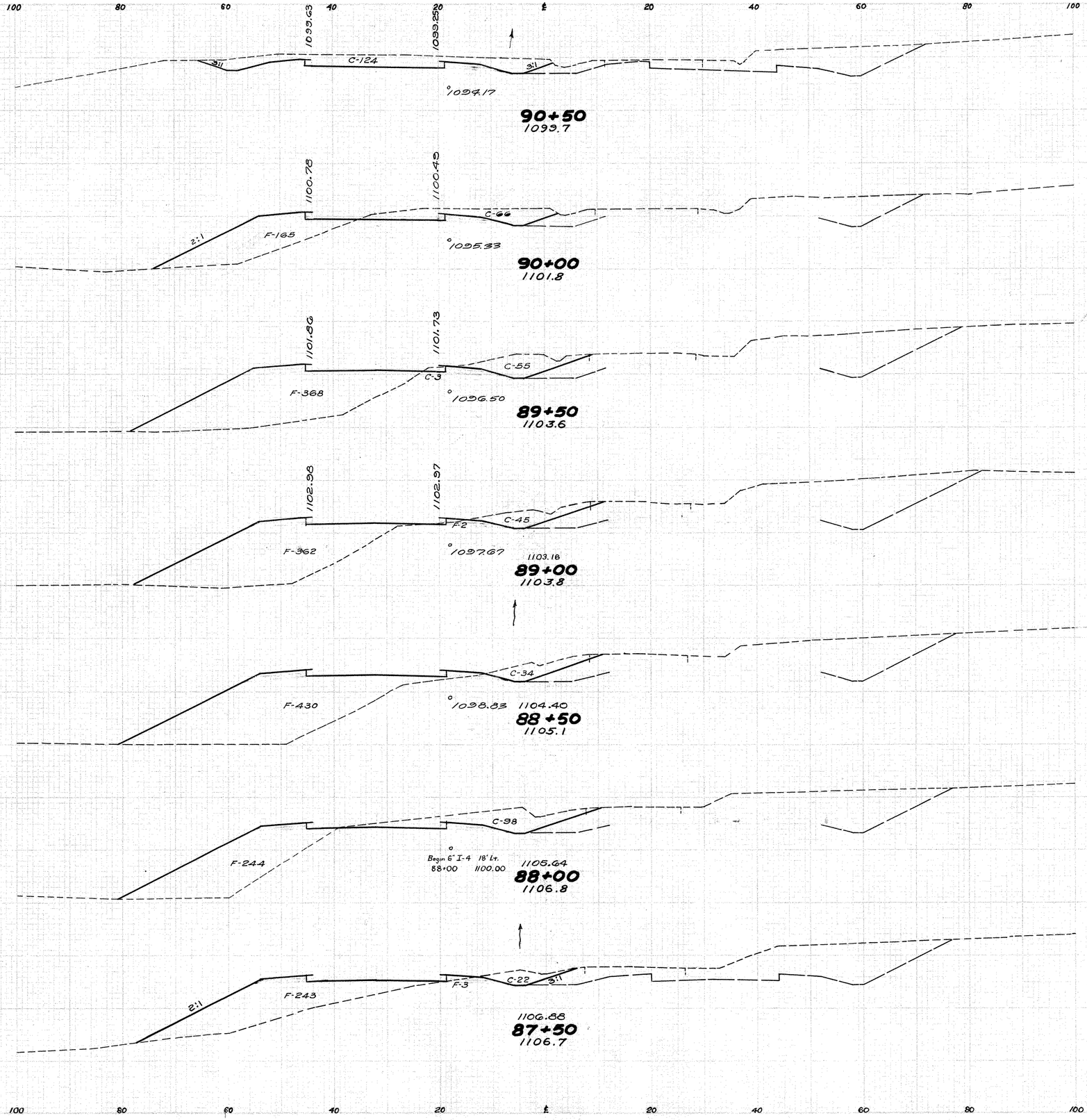
Fill over Pipe 85+53.37 Lt.

85+00 ~ 87+00

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

88
238

LIC-161-5.12
LIC-37-15.09



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
124	0		
		176	153
66	165		
		115	494
58	368		
		96	678
46	364		
		74	735
34	430		
		122	624
98	244		
		111	457
22	246		
		20	713

87+50 ~ 90+50

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

1092.19 1091.81

3:1 C-13 ½" per ft.) 2:1 F-440 4:1 C-11 3:1

1080.7 84.0' 1084.0 16.2'

93+50
1085.9

1093.43 1093.05

3:1 C-14 F-242 C-1 F-3 C-9

1083.4 82.0' 1086.5 11.2'

93+00
1089.4

1094.67 1094.29

C-98 4:1 F-85 C-6

1088.2 76.0 1089.5 4.0'

92+50
1091.3

1095.91 1095.53

C-80 F-74 4:1 C-11 1091.8

End I-4 ℄
92+00 1091.80

1089.4 76.0'

92+00
1093.6

1097.15 1096.77

C-51 F-66 C-7 3:1

1090.7 76.0' 1092.4 1094.00 3.9

91+50
1095.8

1098.39 1098.01

4:1 C-15 3:1 F-92 F-2 C-1 C-24 3:1

1091.9 76.0' 1093.0 1095.00 4.0

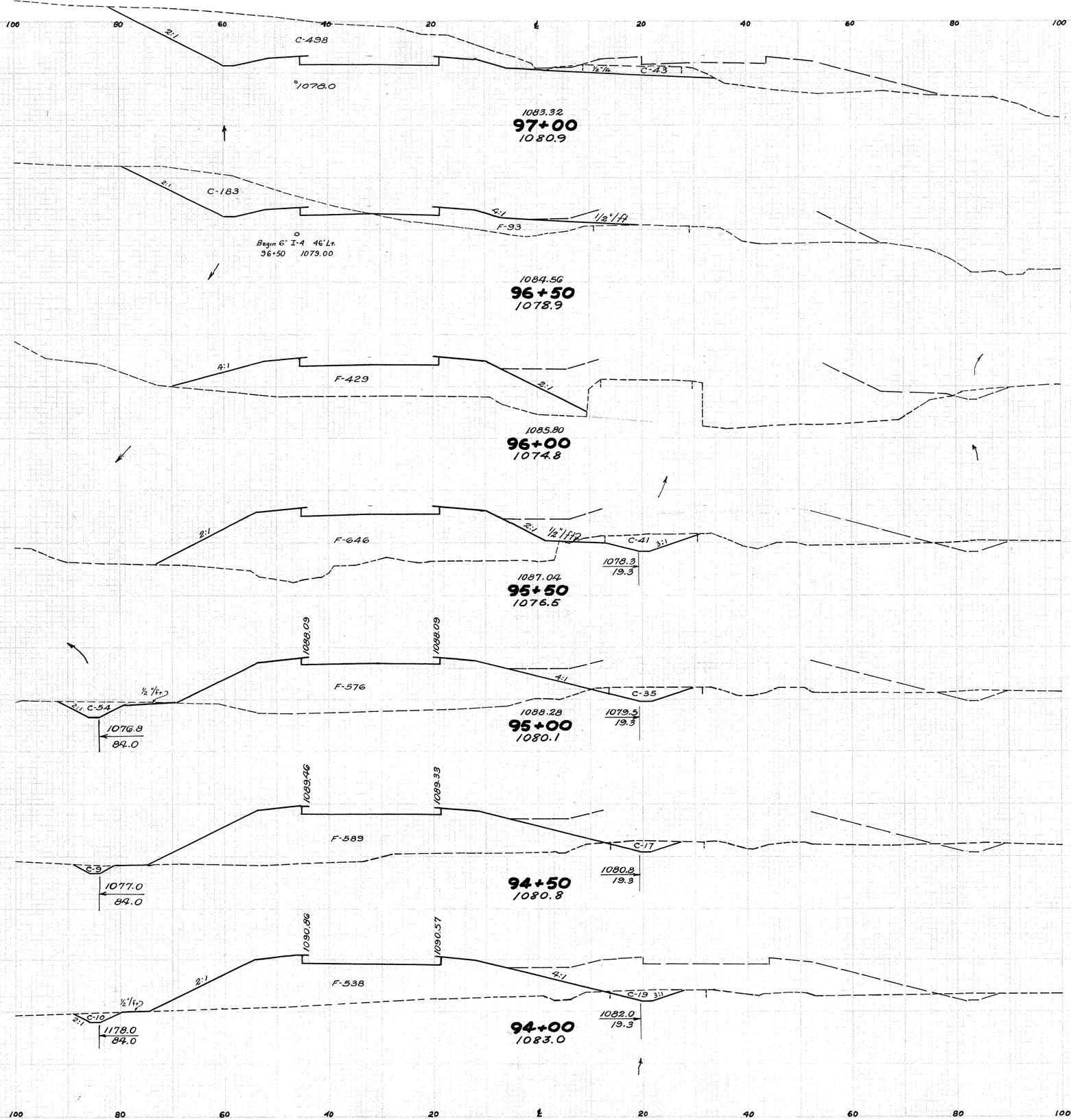
91+00
1097.6

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
30	440		
		50	634
24	245		
		119	306
104	85		
		181	147
		0	25
		0	96
91	74		
		143	130
63	66		
		95	148
40	94		
		152	87

Res. Drive 92+31 Rt.
Field Drive 92+31 Lt.

91+00 – 93+50



90
238

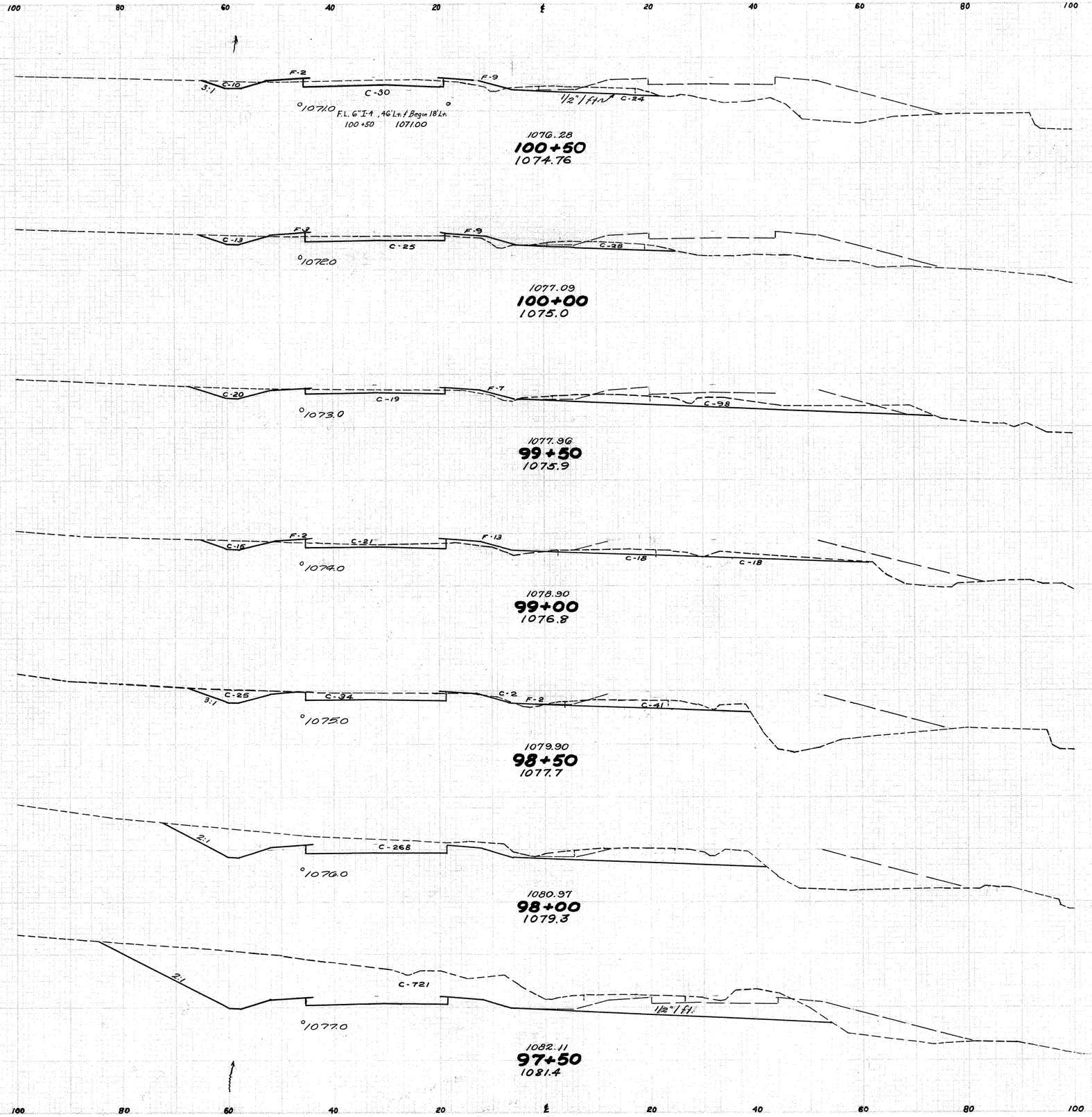
LIC-161-5.12
LIC-37-15.09

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
541	0		
		670	86
183	93		
		169	483
0	429		
		38	995
41	646		
		120	1131
89	576		
		106	1079
26	589		
		51	1043
29	538		
		55	906

94+00 ~ 97+00

FED. RD. DESIGNATION	STATE	PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
2	OHIO			91	238

LIC-161-5.12
LIC-37-15.09



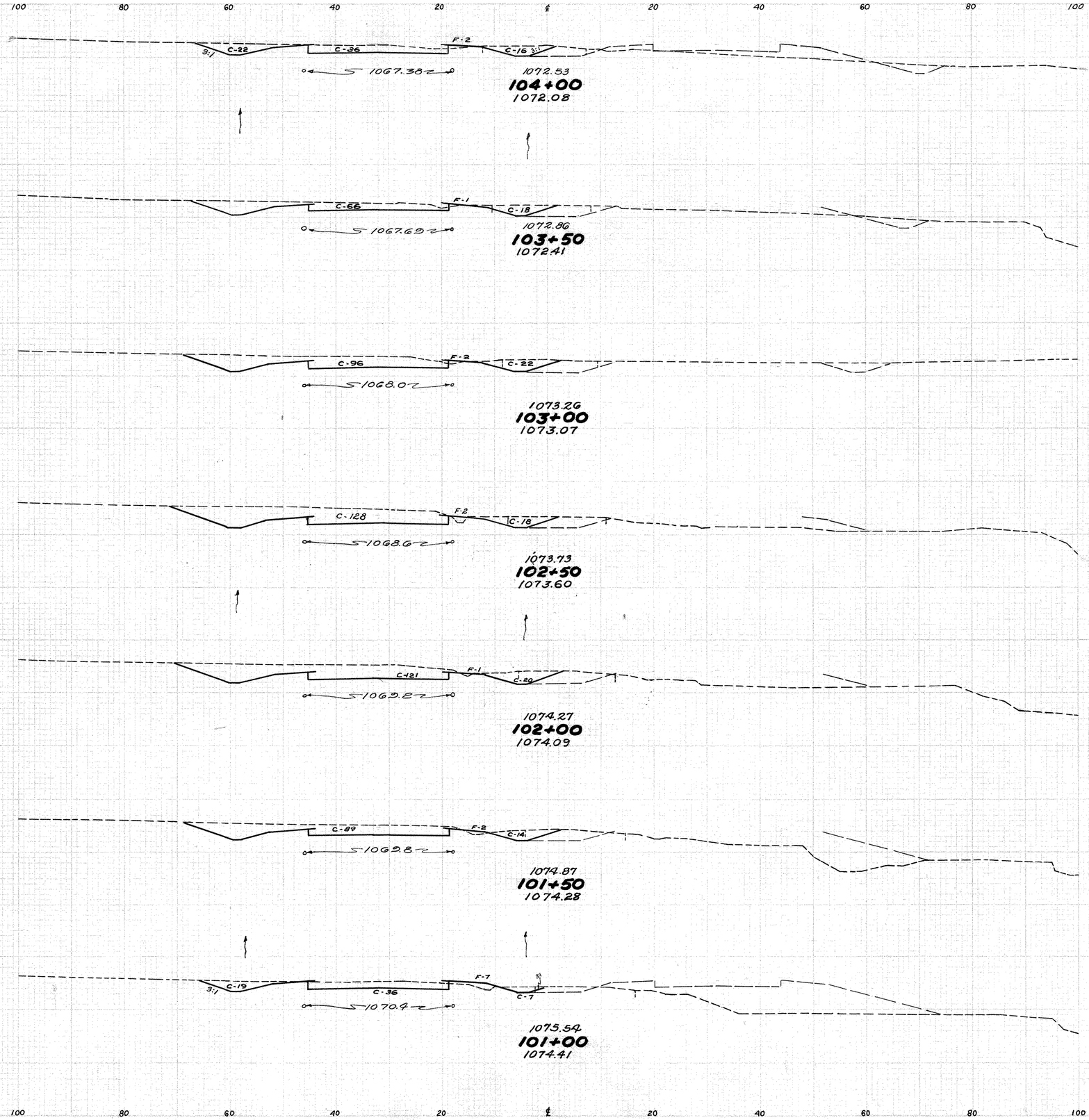
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
64	11		
		120	21
66	12		
		188	18
137	7		
		194	20
72	15		
		161	16
102	2		
		393	2
268	0		
		516	0
721	0		
		1168	0

97+50 ~ 100+50

ENG. DIV. DIVISION	STATE	PERMIT	FISCAL YEAR
12	OHIO		

92
238

LIC-161-5.12
LIC-37-15.09

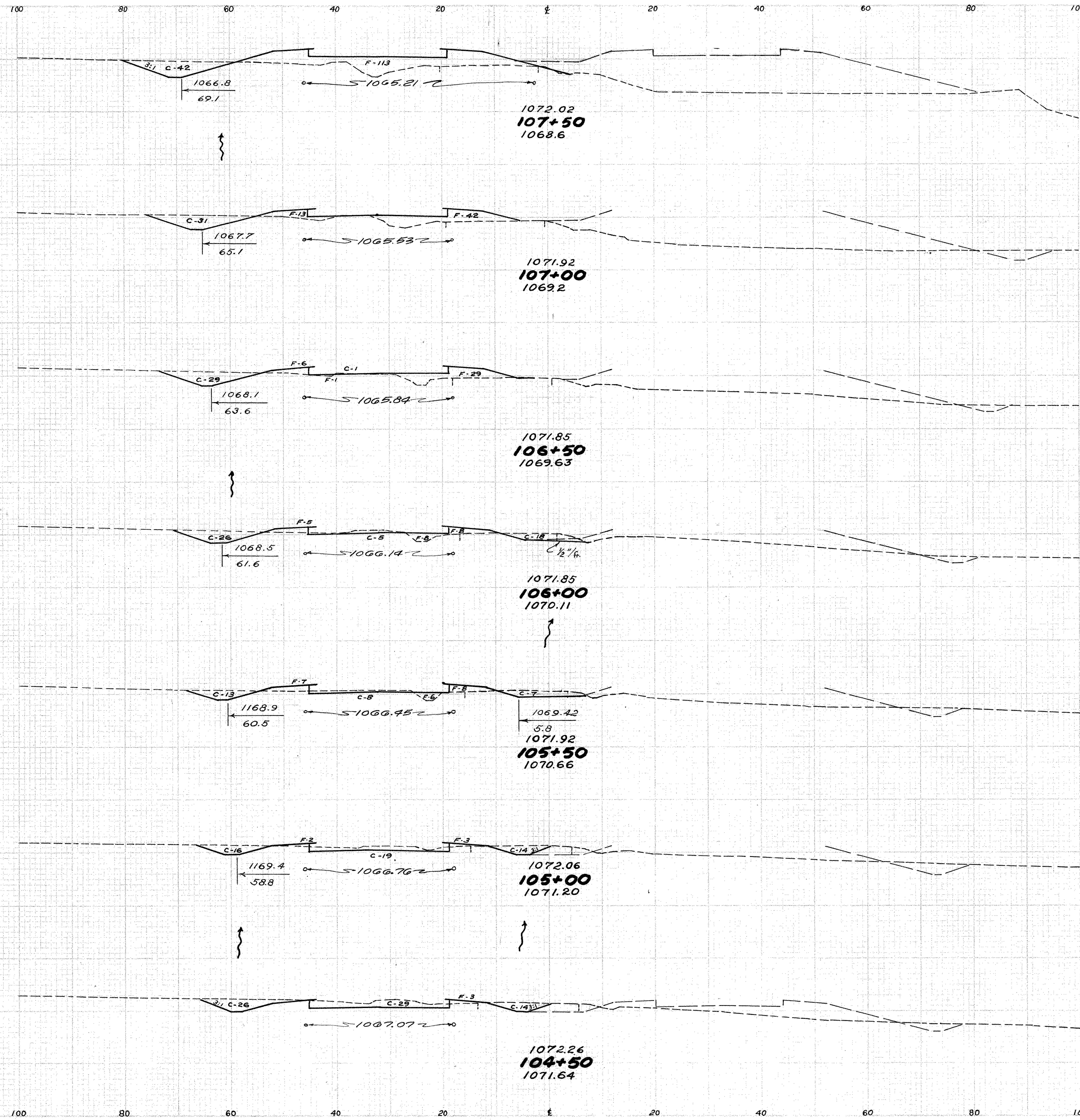


	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	74	2		
			146	3
	84	1		
			187	12
	118	12		
			244	13
Approach 102+91.56 Rt.			41	17
	146	2		
			260	3
	141	1		
			220	3
	103	2		
			153	8
	62	7		
			117	17

101+00 ~ 104+00

2 OHIO

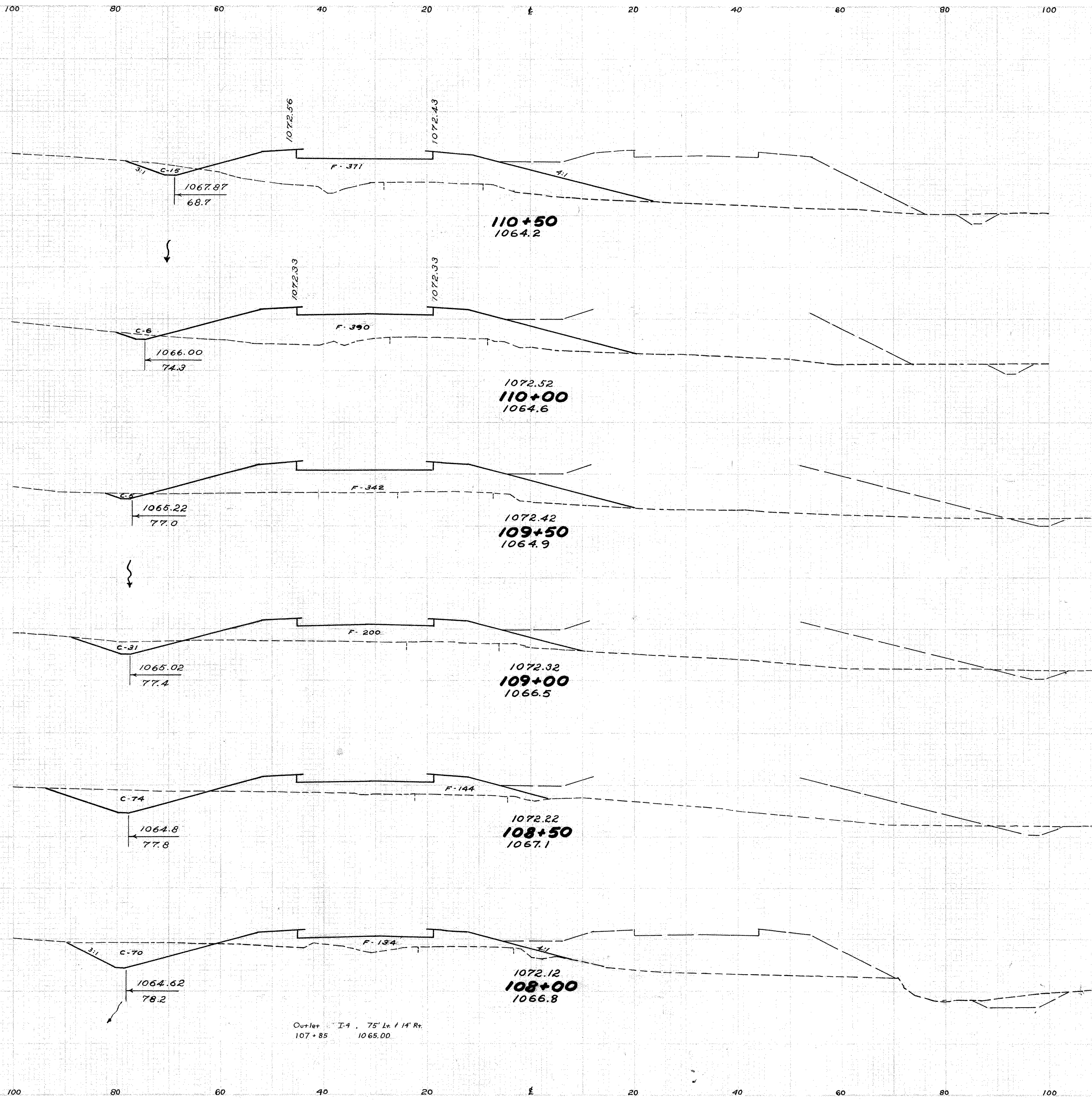
LIC~161~5.12
LIC~37~15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
42	113		
		68	156
31	55		
		57	84
31	36		
		74	53
49	21		
		71	39
28	21		
		71	24
49	5		
		109	7
69	3		
		132	5

104+50 → 107+50

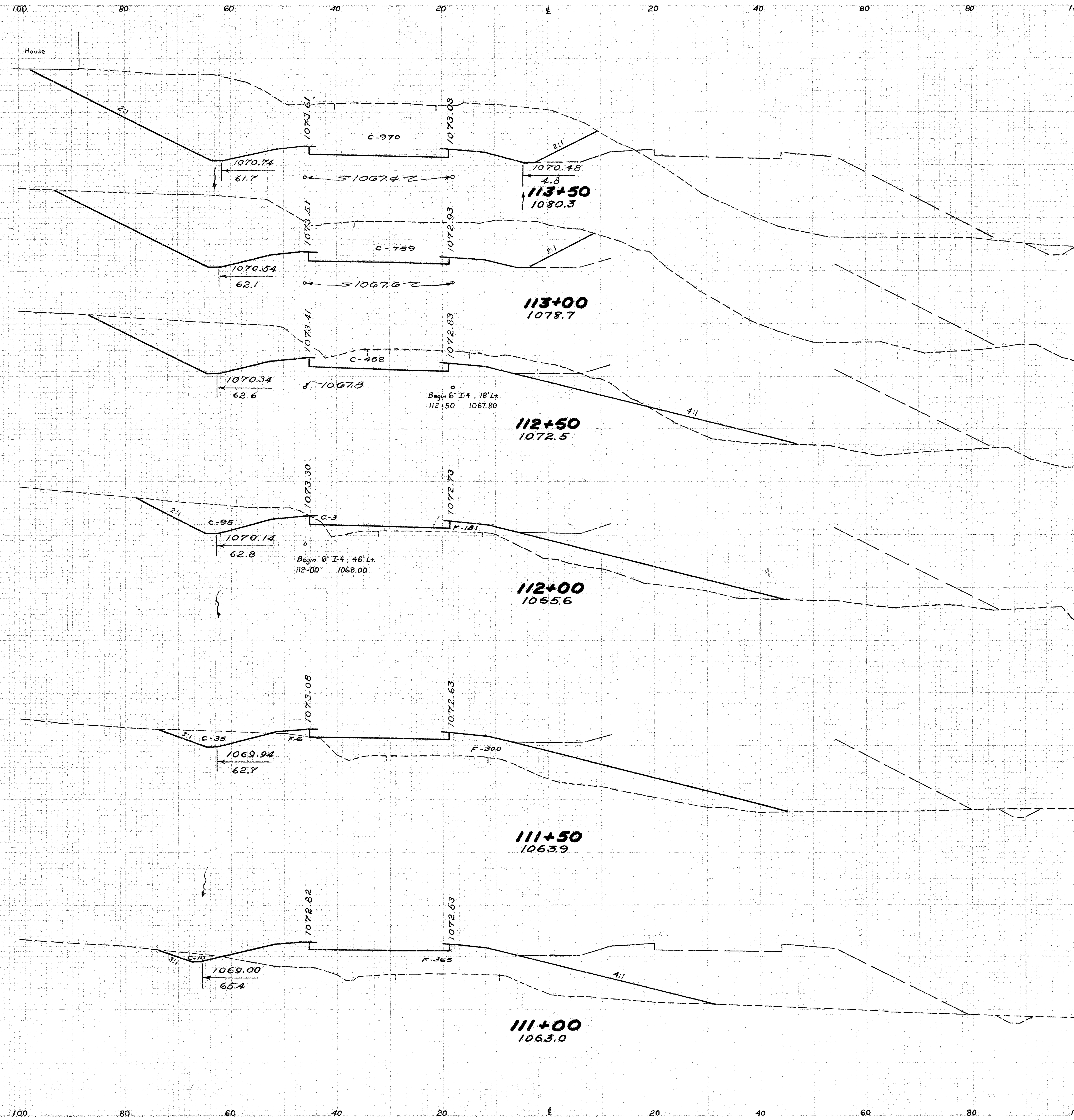
LIC~161~5.12
LIC~37~15.09



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
15	371		
		19	705
6	390		
		10	678
5	342		
		33	502
31	200		
		97	319
		56	239
74	144		
		133	257
70	134		
		104	229

Approach 108+89.59 Lt. (56 | 239)

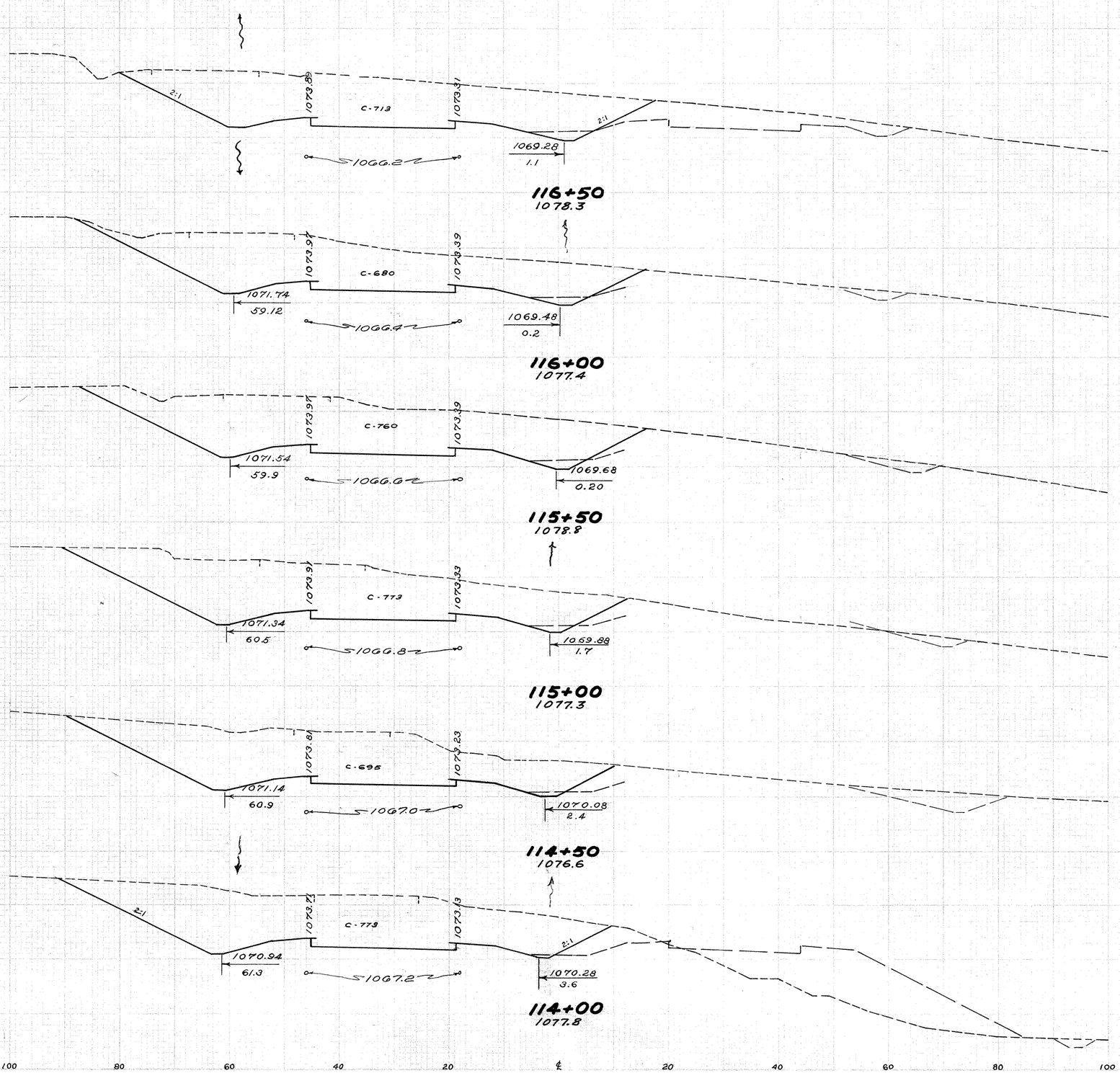
LIC~161~5.12
LIC~37~15.09


100 80 60 40 20 ℄ 20 40 60 80 100
House
2:1
1073.61
1073.03
C-970
1070.74
61.7
S1067.4
1070.48
4.8
113+50
1080.3
1073.51
1072.93
C-759
1070.54
62.1
S1067.6
113+00
1078.7
1073.41
1072.83
C-452
1070.34
62.6
1067.8
Begin 6" I-4, 18' Lt.
112+50 1067.80
4:1
112+50
1072.5
1073.30
1072.73
C-95
C-3
F-181
1070.14
62.8
Begin 6" I-4, 46' Lt.
112+00 1068.00
112+00
1065.6
1073.08
1072.63
3:1
C-35
F-6
F-300
1069.94
62.7
111+50
1063.9
1072.82
1072.53
C-10
F-365
1069.00
65.4
111+00
1063.0

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
970	0		
		1601	0
759	0		
		1121	44
452	47		
		509	211
98	181		
		123	451
35	306		
		42	621
10	365		
		23	681

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

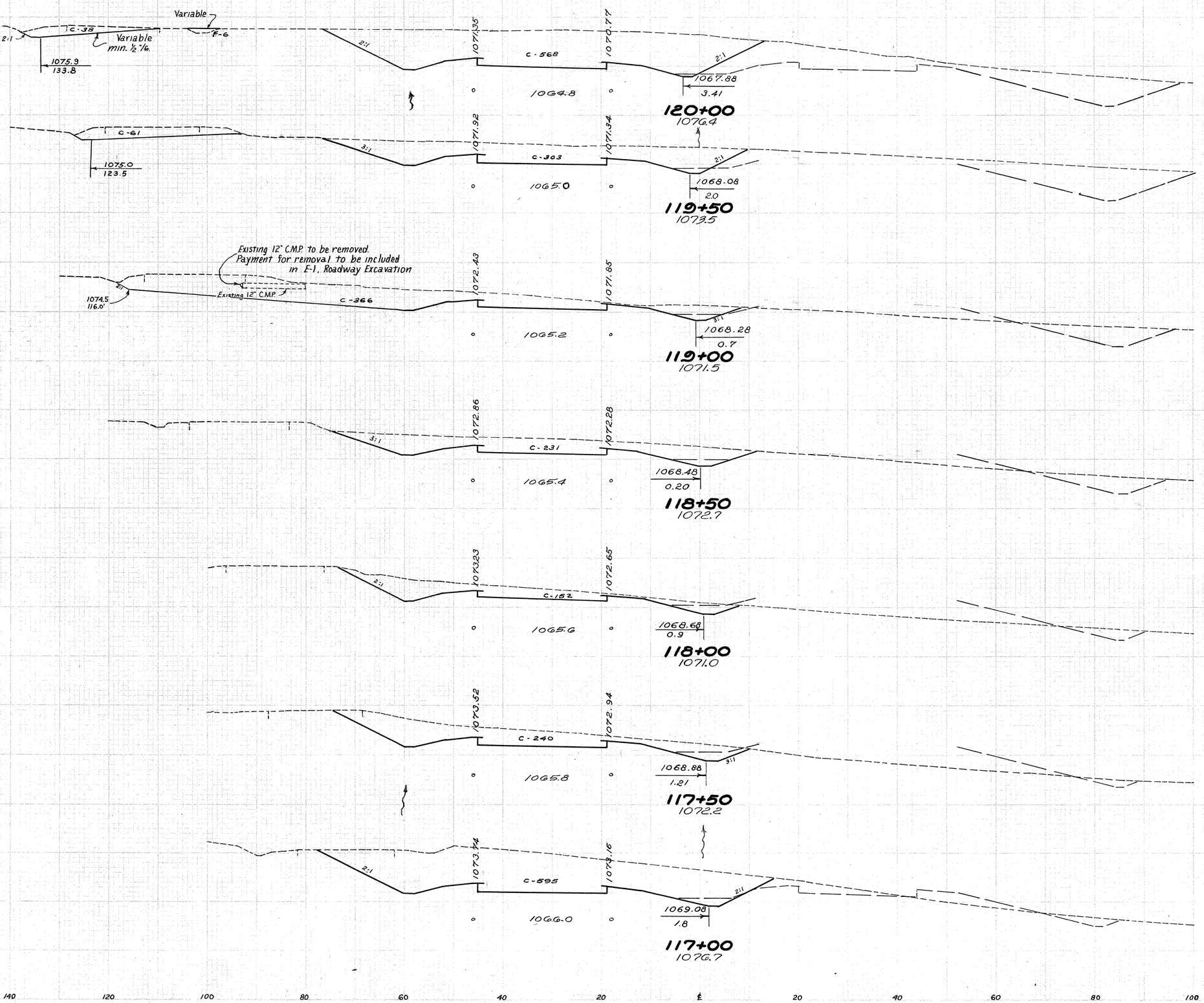


	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
	713	0		
			1290	0
Field Drive 116+50 Rt.			231	12
Res. Drive 116+50 Lt.			1095	8
	680	0		
			1333	0
	760	0		
			1419	0
	773	0		
			1353	0
	695	0		
			1353	0
	773	0		
			1619	0

114+00 ~ 116+50

LIC-161-5.12
LIC-37-15.09

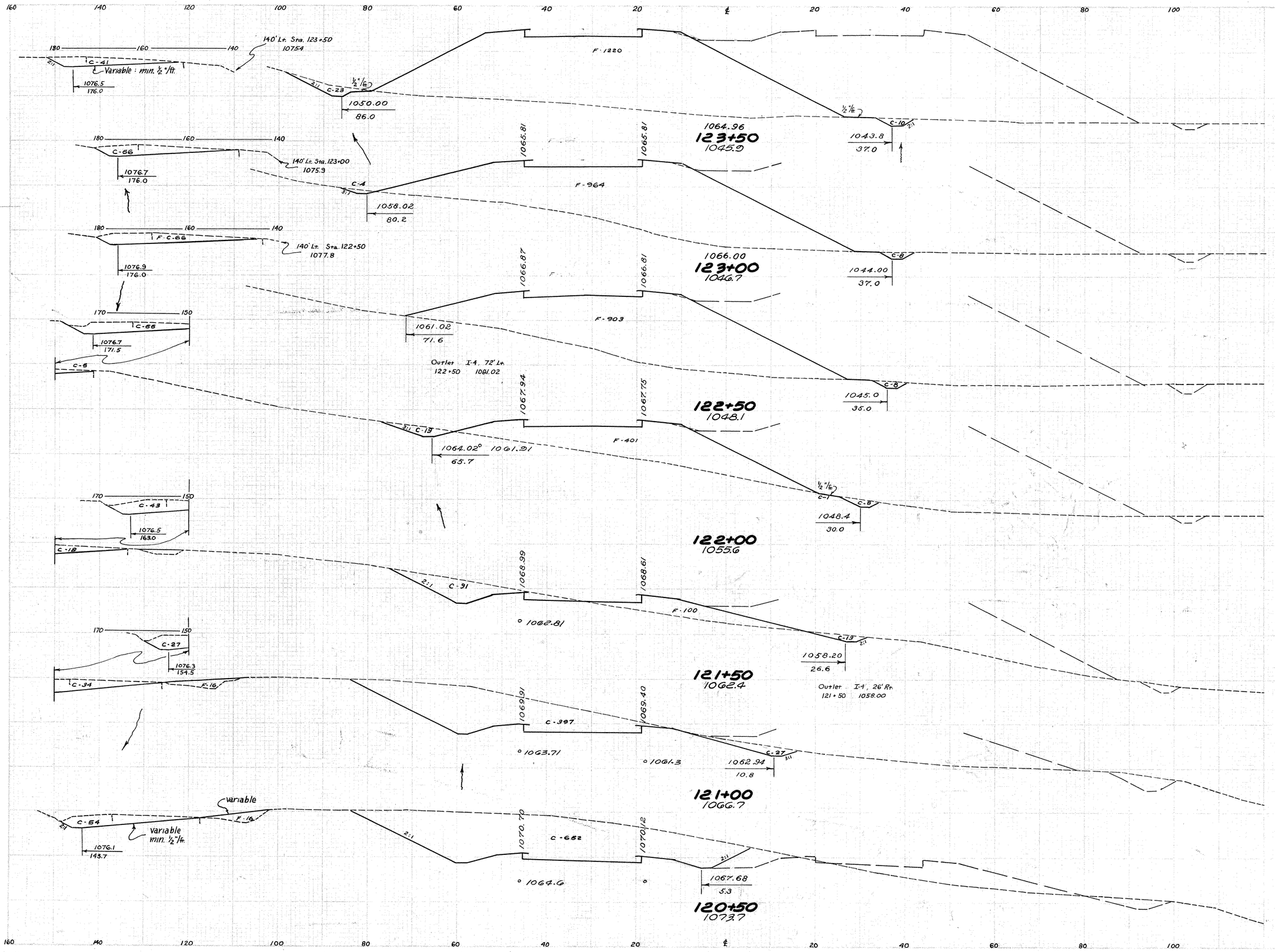
160 140 120 100 80 60 40 20 ℄ 20 40 60 80 100



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
606	6		
		899	5
364	0		
		694	8
366	0		
		353	0
231	0		
		355	0
152	0		
		363	0
240	0		
		773	0
595	0		
		1211	0

117+00 ~ 120+00

LIC-161-5.12
LIC-37-15.09



End Areas		Cu. Yds.	
Cut	Fill	Cut	Fill
74	1220		
		131	2022
68	964		
		131	1729
74	903		
		150	1207
88	401		
			234464
165	100		
		602	107
485	16		
		1103	30
706	16		
		1215	20

120+50 ~ 123+50

LIC-161-5.12
LIC-37-15.09

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

C-101 variable : min. ½"/ft.
2:1
1071.0
132.0
C-1472
2:1
1052.94
1058.72
126+50
1071.0
Begin 6" I-1, 18' Lt.
126+50 1052.94
¼"/ft.

C-92
1072.8
145.0
C-332
170 150 130
130' Lt. Sta. 125+50
1076.92
C-46
1075.0
157.5
1054.0
Begin 6" I-1, 46' Lt.
126+00 1054.00
F-190
1059.76
126+00
1048.9
C-14
1055.41
69.8
F-905
1060.80
125+50
1044.4

170 150 130
130' Lt. Sta. 125+00
1076.0
C-51
1075.4
165.0
2:1
C-13
1053.50
81.6
F-1064
1061.84
125+00
1046.8

180 160 140
140' Lt. Sta. 124+50
1076.7
C-40
1075.8
167.2
1½:1
½"/ft.
C-28
1048.00
86.1
F-1076
½"/ft.
C-17
2:1
1041.84
34.0
1062.88
124+50
1046.5

180 160 140
140' Lt. Sta. 124+00
1076.1
2:1
C-38
variable : ½"/ft.
1076.0
171.0
½"/ft.
2:1
C-15
1048.50
87.0
F-1129
½"/ft.
C-72
2:1
1042.0
37.0
1063.92
124+00
1046.5

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
		3473	0
1573	0		
		1849	176
424	190		
		498	1013
60	905		
		115	1823
64	1064		
		138	1381
85	1076		
		130	2041
65	1128		
		129	2174

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

124+00~126+50

LIC~161~5.12
LIC~37~15.09


130+00
1051.44
1055.0
1045.50
129+50
1052.48
1058.7
1046.56
129+00
1053.52
1063.2
1047.63
128+50
1054.56
1064.5
1048.69
128+00
1055.60
1067.8
1049.75
127+50
1056.64
1070.8
1050.81
127+00
1057.68
1071.1
1051.88
C-653
C-1122
C-1627
C-2001
C-2169
C-2304
C-2129
Earthwork beyond this Line to be performed by others.
Match Line
Outlet of Intercepting Ditch
Sta. 127 +50
12" Corrugated Metal Pipe
22 ½" Bends
PLAN
Scale 1"=10'
F.L. 968.00
Std. Headwall
S-27 PC.1
F.L. 954.25

Estimated Quantities *

I-2	12" Class "A" Storm Sewer (M-640)	40 Lin. Ft.
I-5	Pipe Special ~ 12" - 22½° bend	2 Each
I-10	Riprap Type A (Grouted)	12 Sq. Yds.
S-1	Conc. for Structures Cl. "E"	2.5 Cu. Yds.

* Carried to Sheet 6, Table 1

Note: ~ The Engineer shall re-crossection the area on the right between Stations 127+00 and 130+00 before Contractor performs any Earthwork in this area.

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
713	33		
		1699	31
1122	0		
		2545	0
1627	0		
		3359	0
2001	0		
		3861	0
2169	0		
		4142	0
2304	0		
		4150	0
2178	0		

FED. AID PROJECT	STATE	PROJECT	FINAL YEAR
2	OHIO		

101
238

LIC-161-5.12
LIC-37-15.09

J23

100 80 60 40 20 ℄ 20 40 60 80 100

1046.00 1048.25 ½ 1/ft 2:1

1044.70
1.0

F-2817

2:1 ½ 1/ft C-12 2:1

1020.0
113.0

133+00
1022.4

1046.24 1048.30 ½ 1/ft 4:1

1045.30
2.0

F-2094

C-40

1022.6
108.0

132+50
1031.6

1048.53 1048.53

1045.55
3.0

F-1285

1048.72
132+00
1041.9

C-15

1025.2
104.0

C-22 2:1

1049.13
131+51.92
1049.7

F-829

Outlet I-4, 44' Rt.
131+50 1042.31

C-12

1029.0
97.0

C-122 2:1

3:1

F-395

°1043.47 1049.72
131+00
1053.21

½ 1/ft 2:1 C-10

1033.00
91.0

C-291

2:1

4:1

F-134

°1044.44 1050.49
130+50
1056.0

C-10 2:1

1040.50
88.2

Outlet I-4, 83' Lt.
130+50 1042.00

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
12	2817		
		48	4547
40	2094		
		51	3120
15	1285		
		44	1918
34	829		
		157	1150
132	395		
		401	490
301	134		
		939	155
		120	10
		1265	8

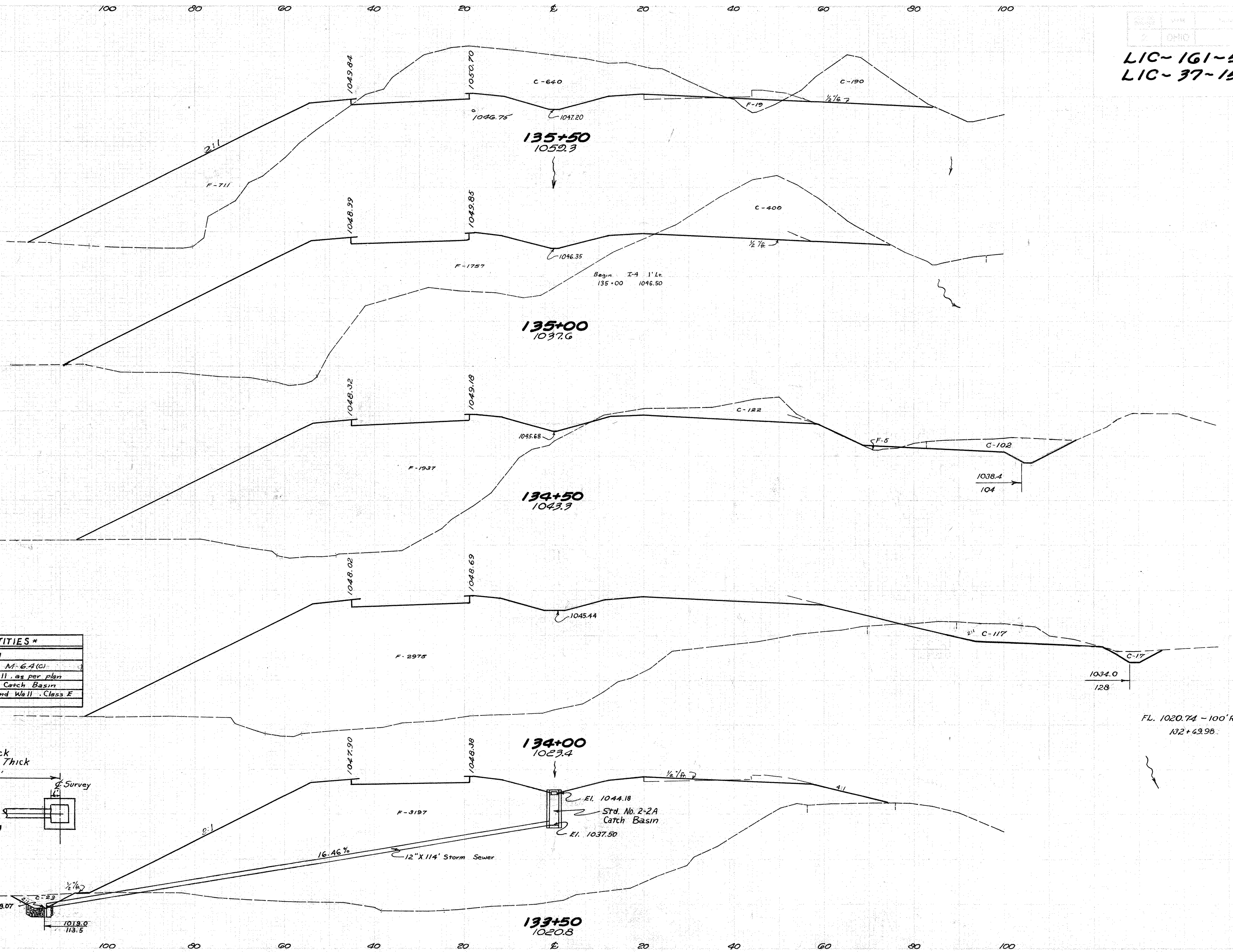
Res. Drive 130+00 Rt.
Res. Drive 130+00 Lt.

53

161-5.12
-37-15.09

130+50~133+00

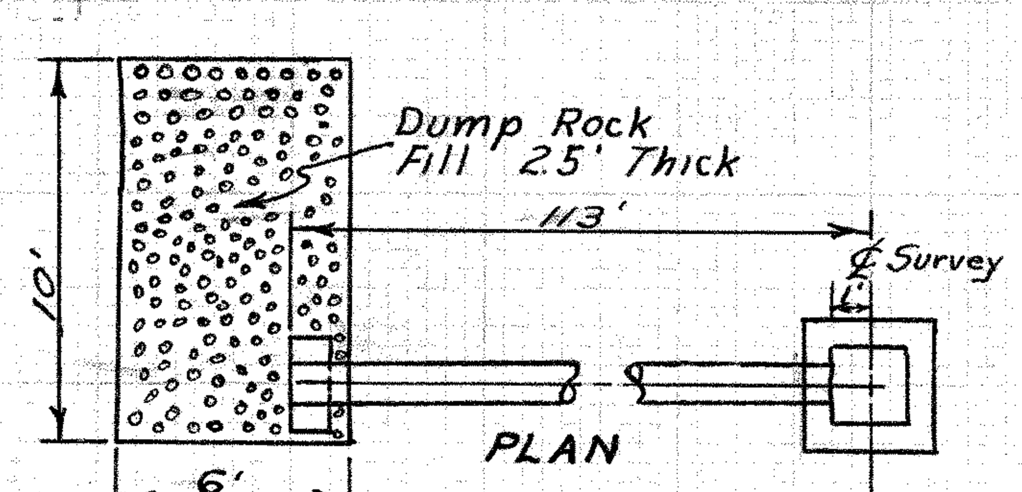
LIC~161~5.12
LIC~37~15.09



100 80 60 40 20 ℄ 20 40 60 80 100
135+50
1052.3
135+00
1037.6
134+50
1043.3
134+00
1023.4
133+50
1020.8
1049.84
1050.70
1046.75
1047.20
C-640
C-190
F-19
F-711
2:1
1048.99
1049.85
1046.35
C-400
F-1757
Begin I-4 1' Lt.
135+00 1046.50
1048.32
1049.18
1045.68
C-122
F-5
C-102
F-1937
1038.4
104
1048.02
1048.69
1045.44
C-117
C-17
F-2975
1034.0
128
FL. 1020.74 ~ 100' Rt.
132+69.98
1047.90
1048.38
El. 1044.18
Std. No. 2-2A
Catch Basin
El. 1037.50
F-3197
16.46%
12" X 114' Storm Sewer
4:1
C-23
F.L. Pipe 1019.07
1019.0
113.5

ESTIMATED QUANTITIES*			
Item	Quantity	Unit	Description
I-2	114	lin.ft.	12" Class 'A' S.S. M-6.4(C)
I-10	5	cu.Yds.	Dumped Rock Fill, as per plan
I-8	1	each	St'd. No. 2-2A Catch Basin
S-1	0.2	cu.yds.	Concrete for End Wall. Class E

* Carried to Sheet 6, Table 1.

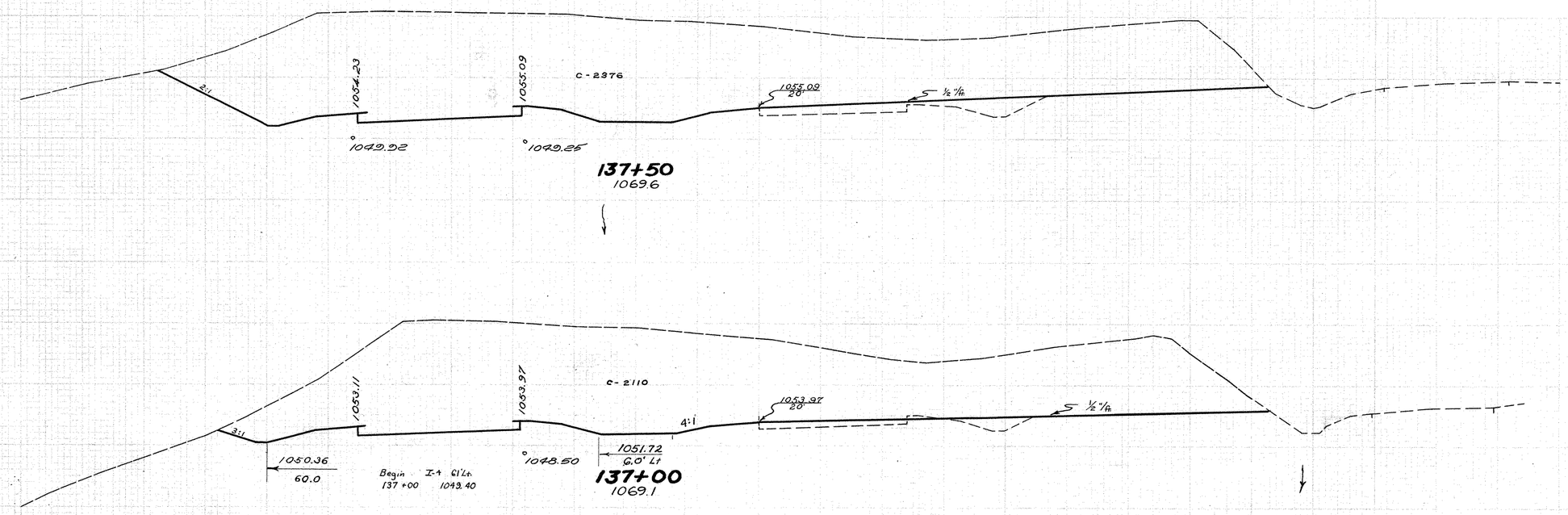


END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
830	730		
		1139	2303
400	1757		
		578	3925
224	1942		
		331	4553
134	2975		
		145	5715
23	3197		
		32	5568

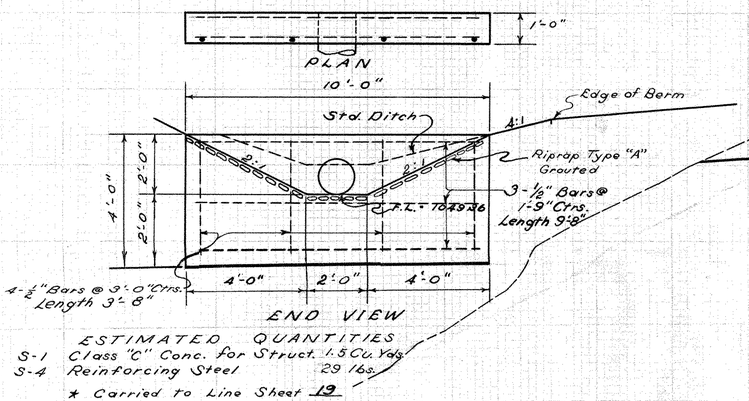
133+50~135+50

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100



DETAIL OF HEADWALL

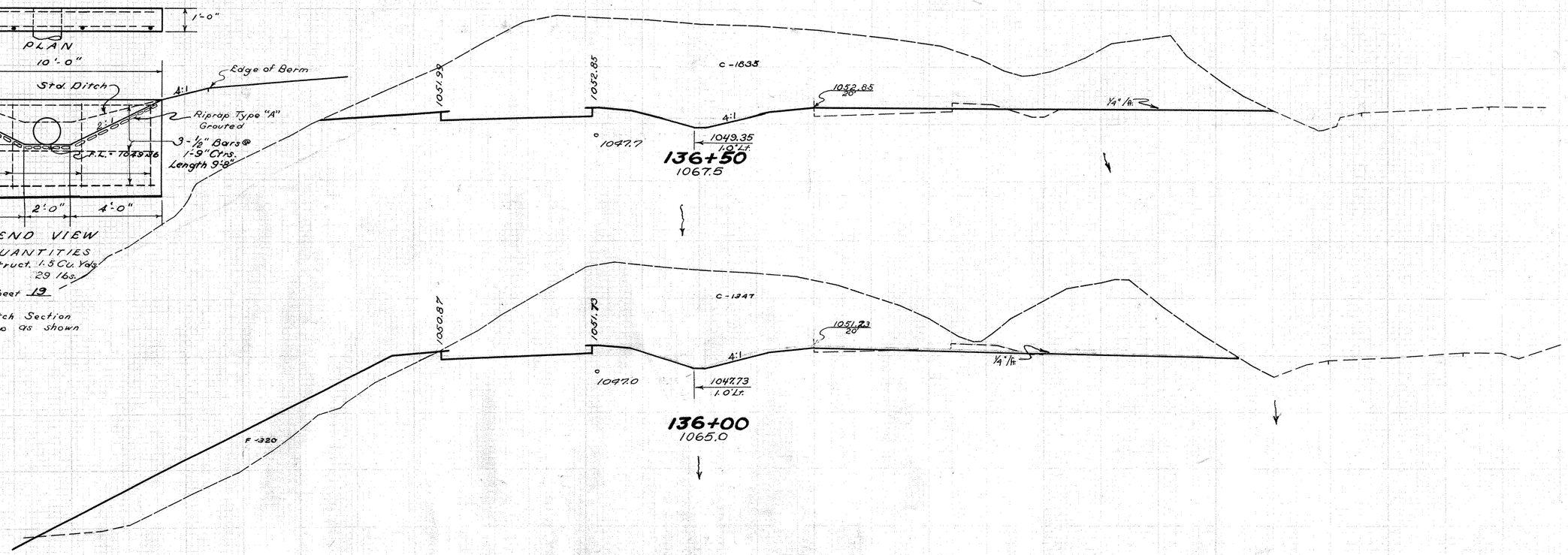


ESTIMATED QUANTITIES

S-1 Class "C" Conc. for Struct. 1.5 Cu. Yds.
S-4 Reinforcing Steel 29 lbs.

* Carried to Line Sheet 19

Note : Return to Std. Ditch Section in 10 feet, Riprap as shown

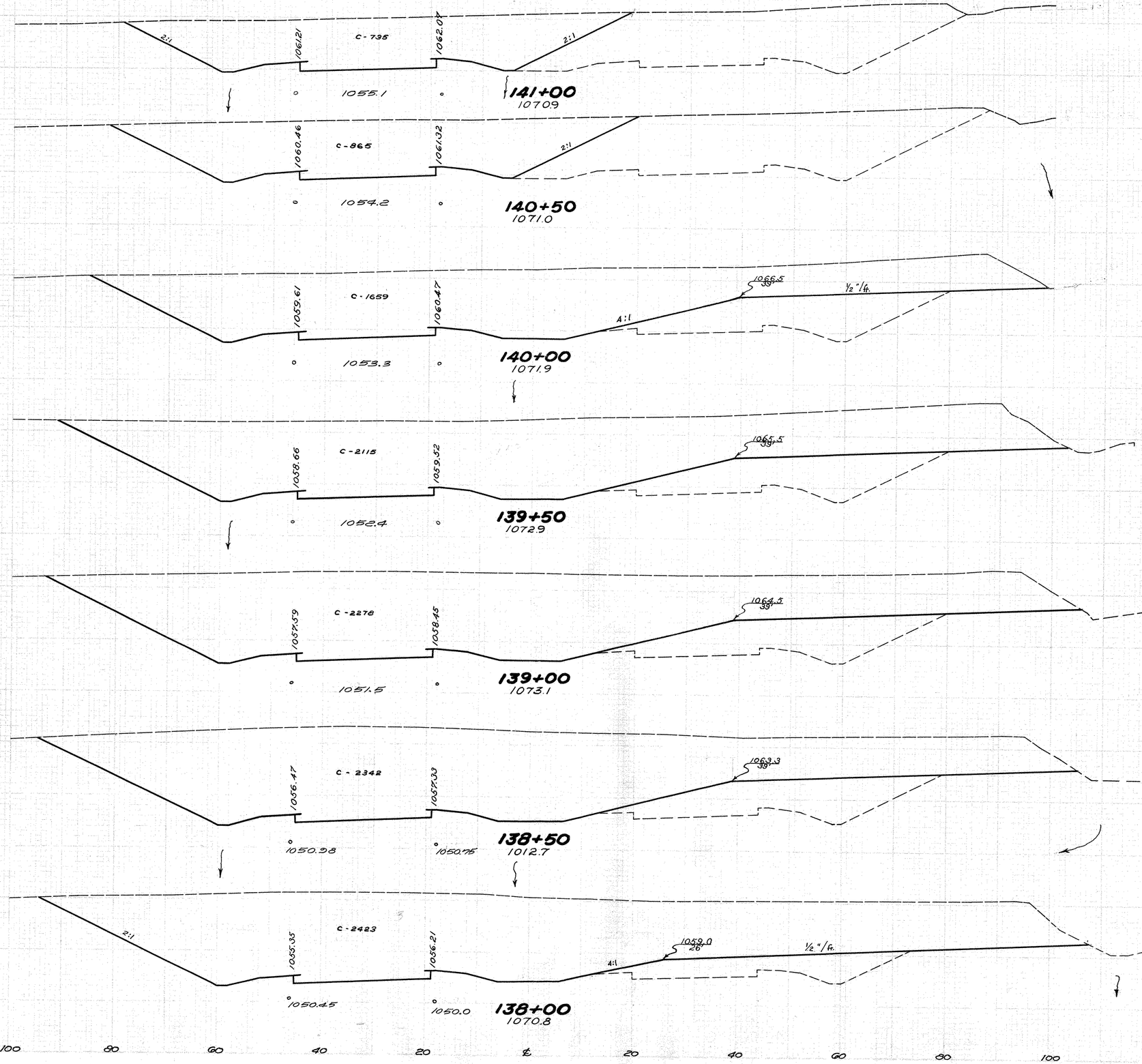


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
2376	0		
		4154	0
2110	0		
		3653	0
1835	0		
		2946	296
1347	320		
		2016	972

136+00 - 137+50

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

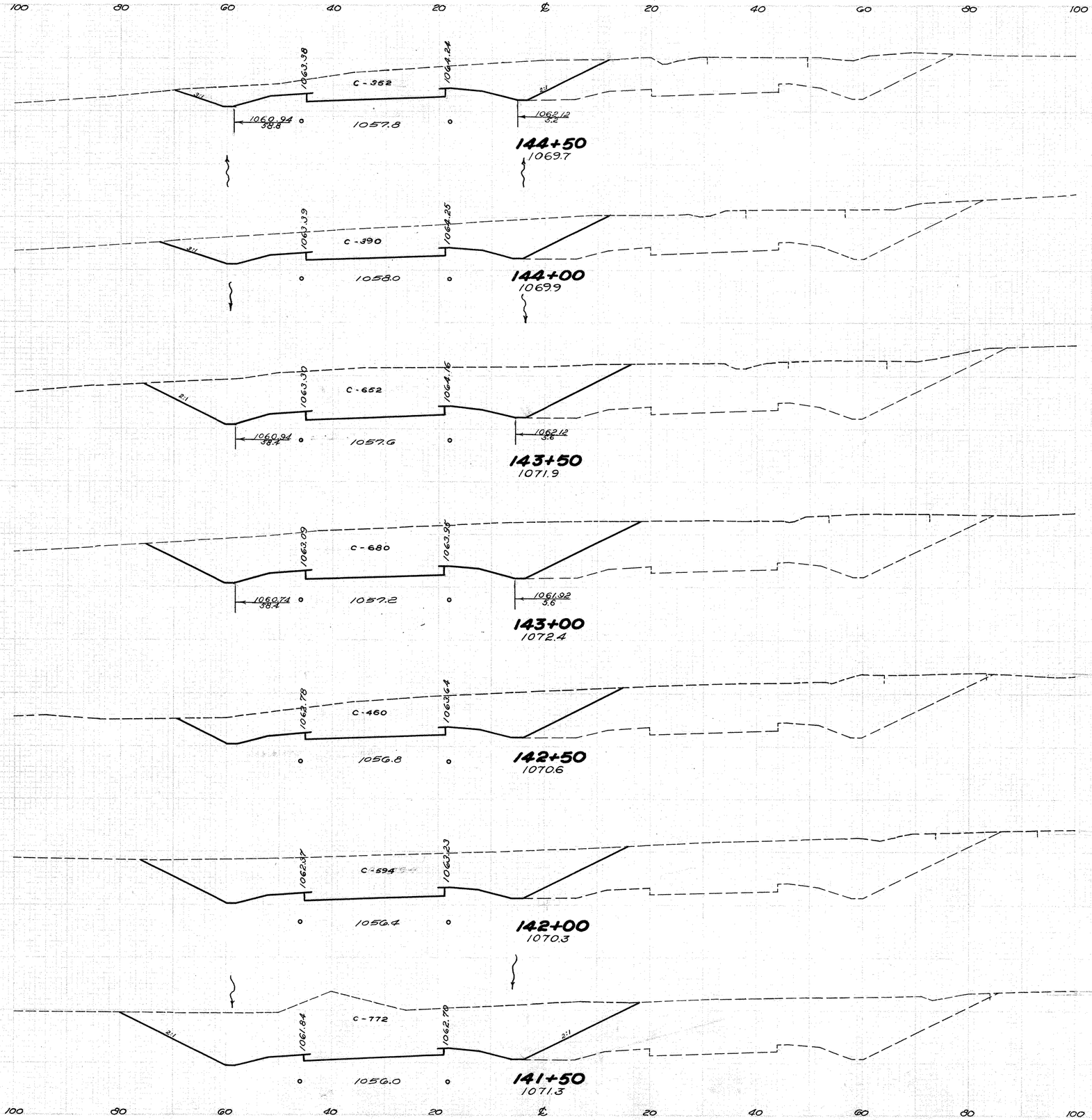


ENDAREA		CU. YDS.	
CUT	FILL	CUT	FILL
735	0		
		1481	0
865	0		
		2937	0
1659	0		
		3494	0
2115	0		
		4067	0
		1265	35
2278	0		
		4278	0
2342	0		
		4412	0
2423	0		
		4443	0

Res. Drive 139+50 Rt.

138+00 to 141+00

LIC-161-5.12
LIC-37-15.09

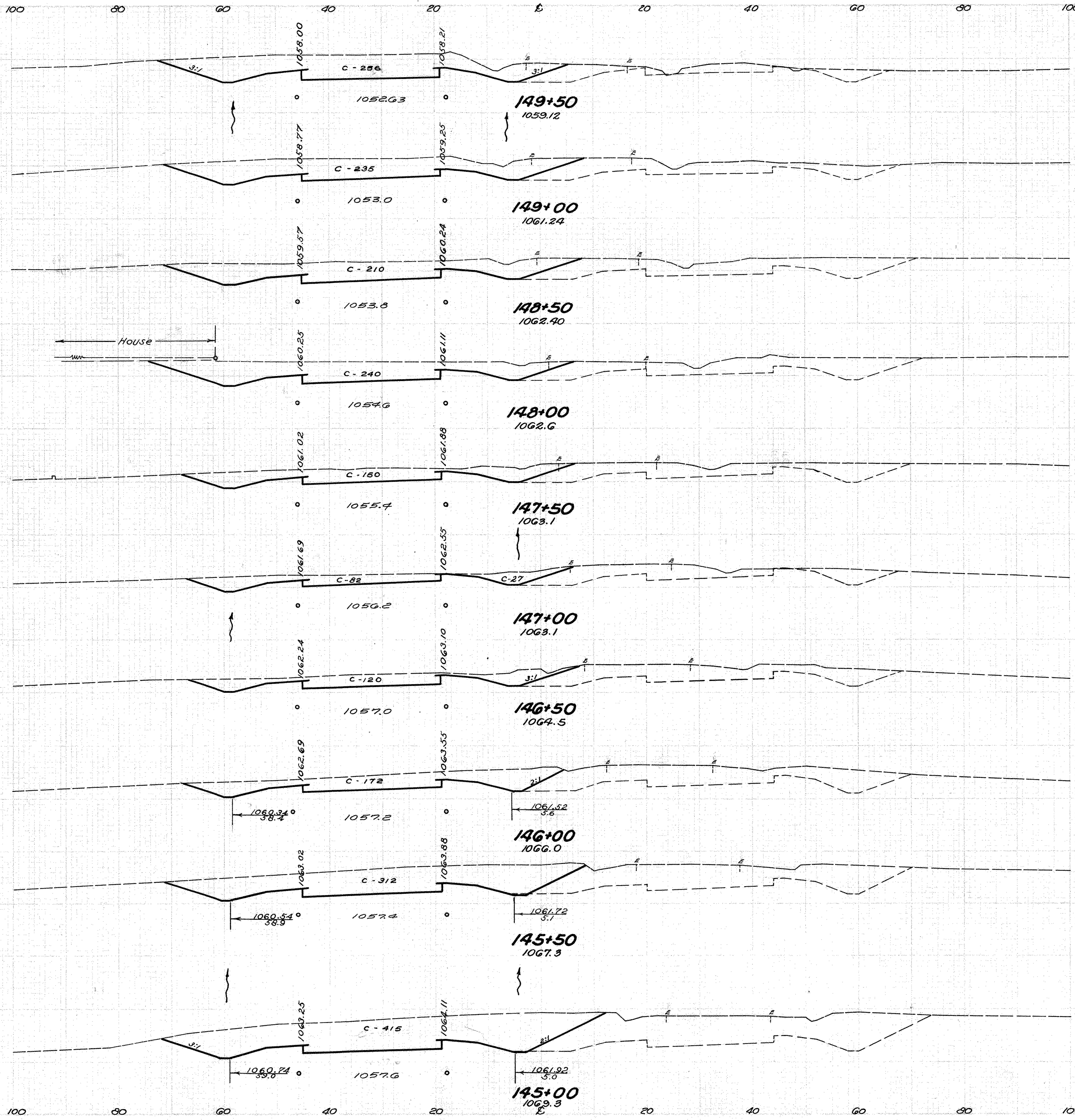


Fill over pipe 142+60 Lt.

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
352	0		
		687	0
390	0		
		965	0
652	0		
		1233	0
680	0		
		1050	0
		0	356
460	0		
		976	0
594	0		
		1265	0
772	0		
		1305	0

141+50 ~ 144+50

LIC~161~5.12
LIC~37~15.09


100
80
60
40
20
℄
20
40
60
80
100
1058.00
1058.21
C - 256
3:1
3:1
1052.63
149+50
1059.12
1058.77
1059.25
C - 235
1053.0
149+00
1061.24
1059.57
1060.24
C - 210
1053.8
148+50
1062.40
House
1060.25
1061.11
C - 240
1054.6
148+00
1062.6
1061.02
1061.88
C - 160
1055.4
147+50
1063.1
1061.69
1062.55
C - 82
C - 27
1056.2
147+00
1063.1
1062.24
1063.10
C - 120
3:1
1057.0
146+50
1064.5
1062.69
1063.55
C - 172
2:1
1060.34
38.4
1061.52
3.6
1057.2
146+00
1066.0
1063.02
1063.88
C - 312
1060.54
38.9
1061.72
5.1
1057.4
145+50
1067.3
1063.25
1064.11
C - 415
3:1
2:1
1060.74
39.0
1061.92
5.0
1057.6
145+00
1069.3

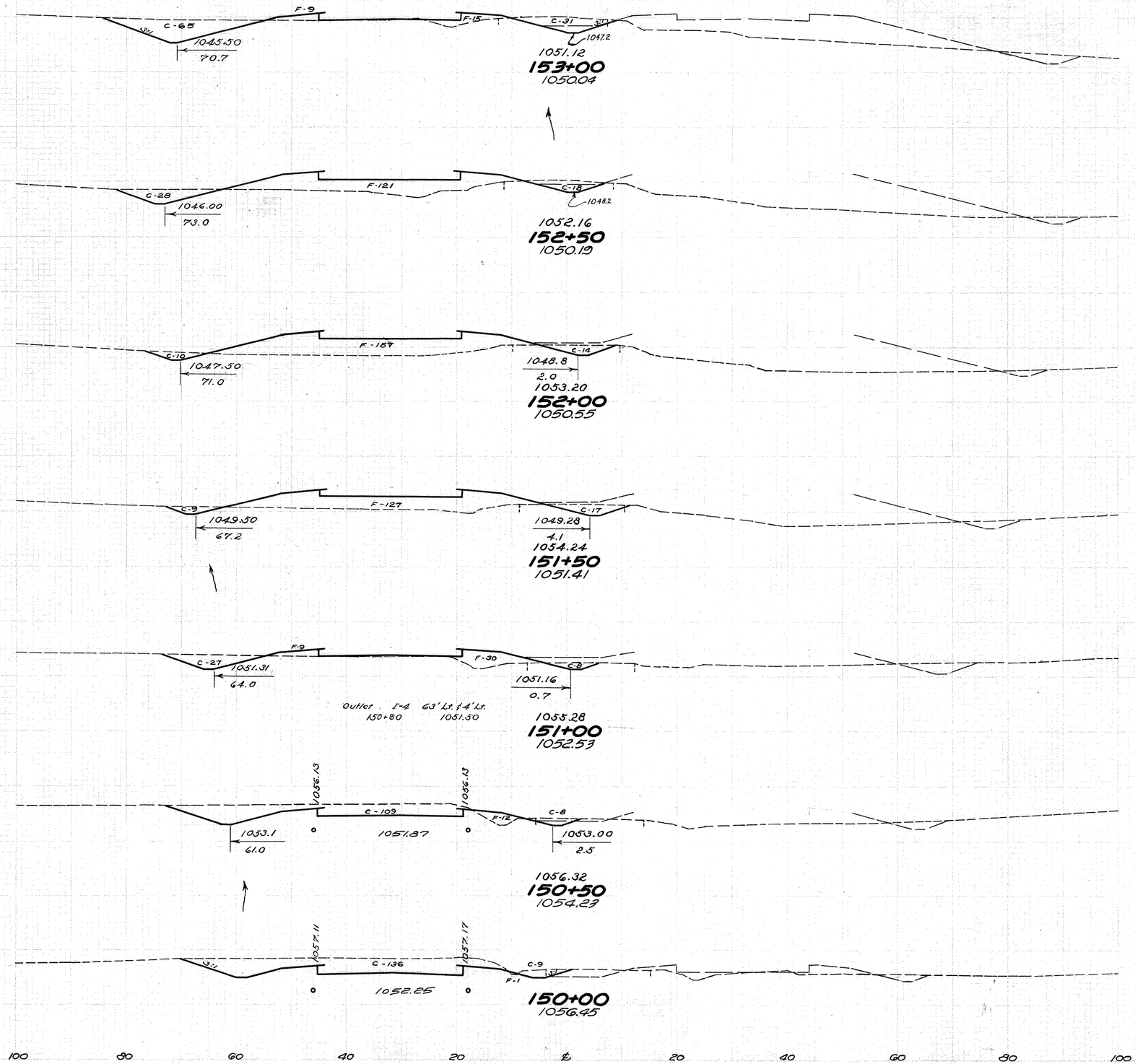
Res. Drive 147+44 Lt.

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
256	0		
		455	0
235	0		
		412	0
210	0		
		417	0
240	0		
		361	0
150	0		
		240	0
		8	8
109	0		
		212	0
120	0		
		270	0
172	0		
		448	0
312	0		
		673	0
415	0		
		710	0

145+00 – 149+50

LIC. ~161 ~ 5.12
LIC. ~37 ~ 15.09

100 80 60 40 20 ℄ 20 40 60 80 100

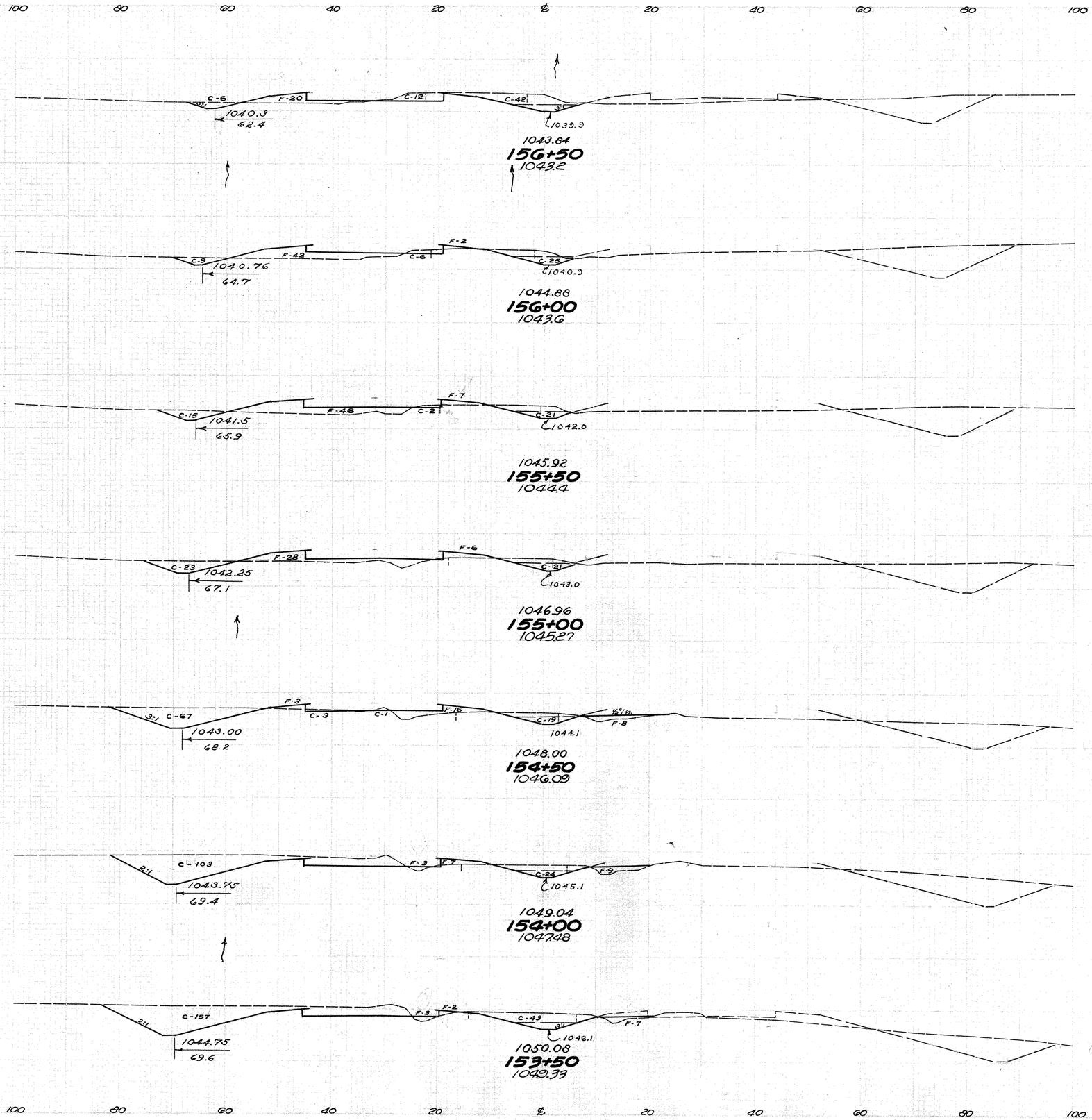


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
96	24		
		131	134
46	121		
		65	257
24	157		
		46	263
26	127		
		50	154
35	39		
		0	10
		141	47
117	12		
		243	12
145	1		
		371	1

Res. Drive 151+08 Rt.

150+00 ~ 153+00

LIC. ~161~5.12
LIC. ~37~15.09



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
60	20		
		53	59
40	44		
		72	90
38	53		
		76	81
44	34		
		124	56
90	27		
		201	43
127	19		
		303	29
200	12		
		274	33

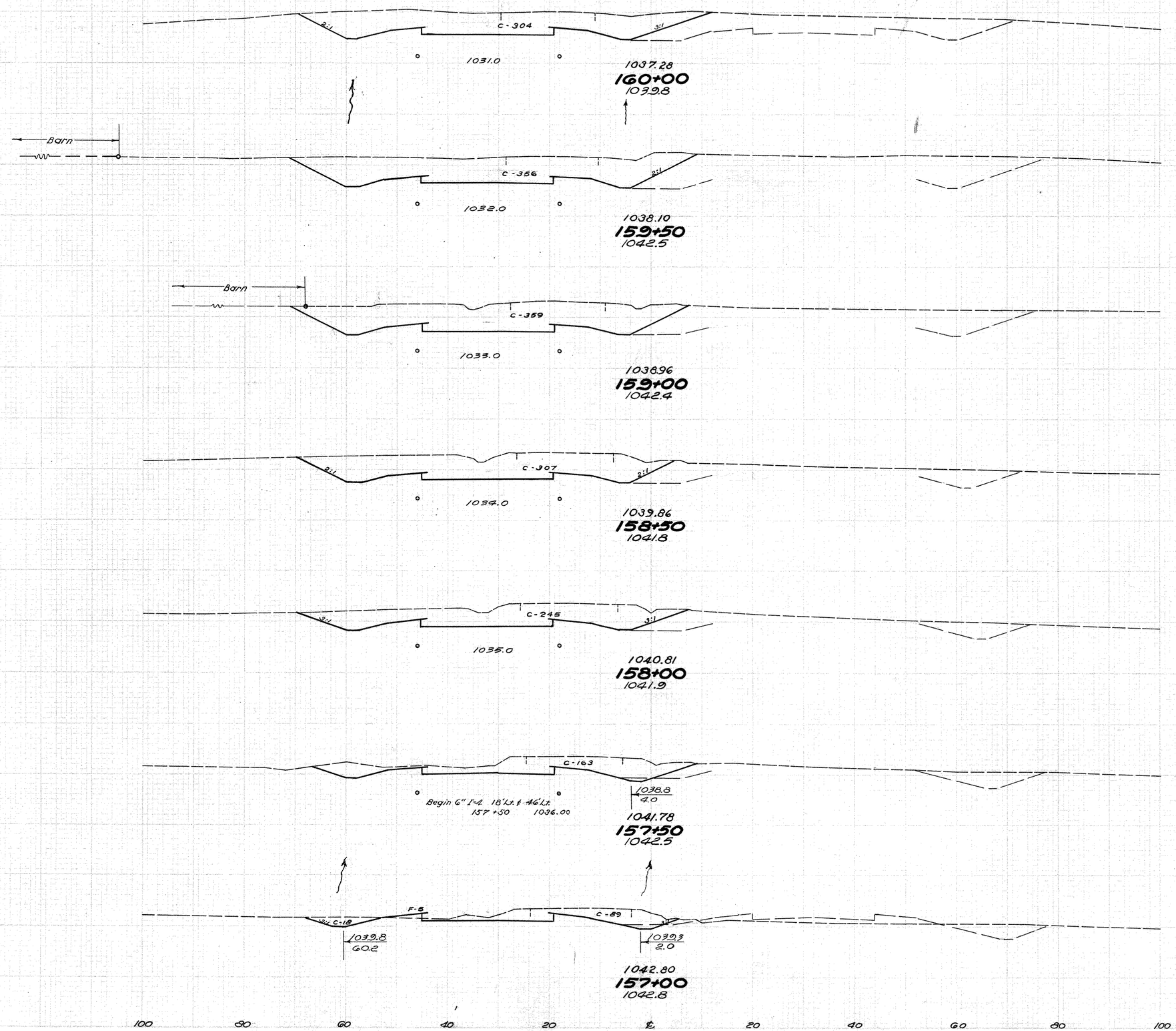
153+50 ~ 156+50

FED. HIGHWAY DIVISION	STATE	PROJECT	TOTAL SHEETS
2	OHIO		

109
238

LIC.~161~5.12
LIC.~37~15.09

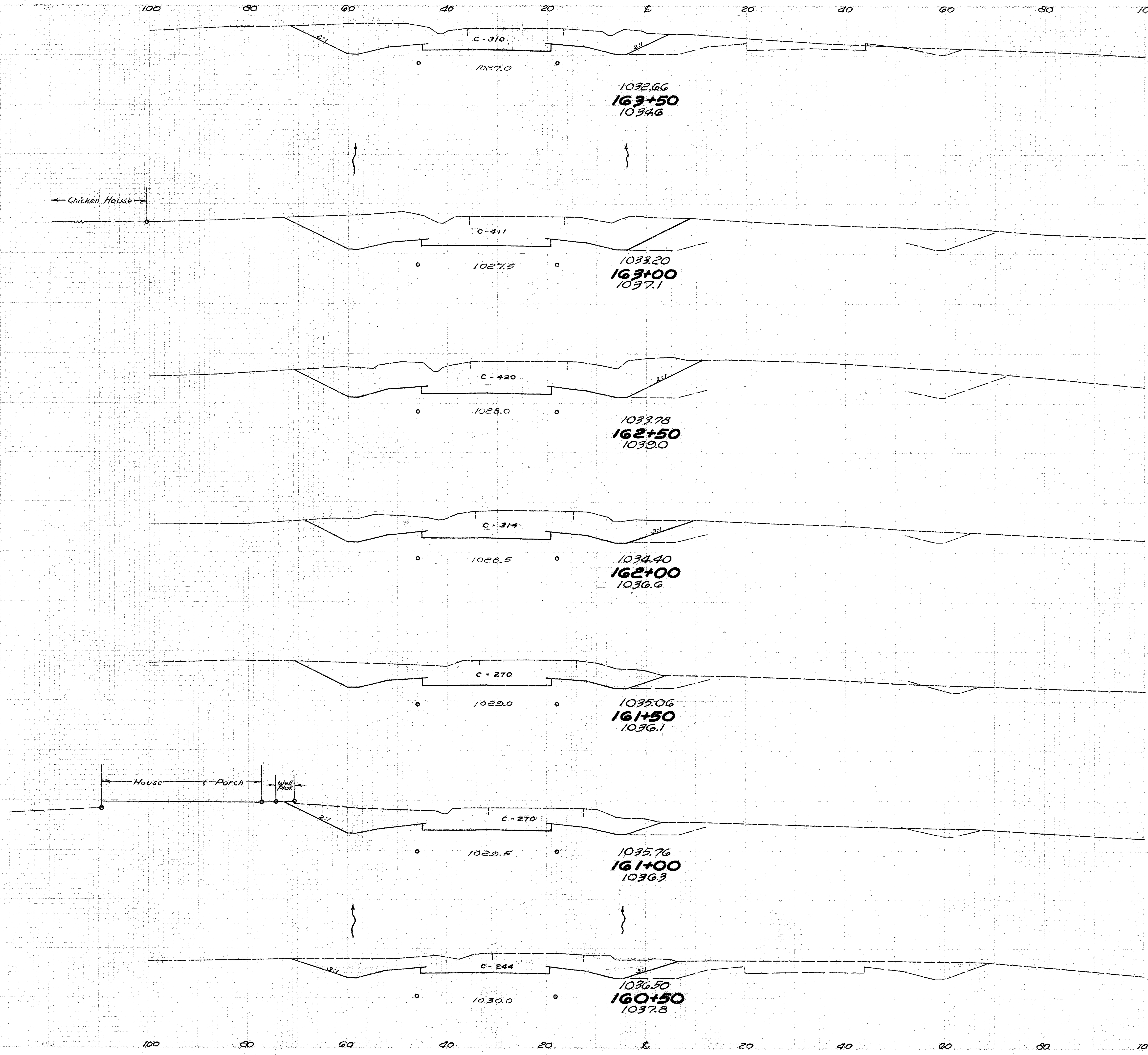
100 80 60 40 20 ℄ 20 40 60 80 100



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
304	0		
		611	0
356	0		
		662	0
359	0		
		617	0
307	0		
		511	0
245	0		
		378	0
163	0		
		250	5
107	5		
		155	23

157+00~160+00

LIC.~161~5.12
LIC.~37~15.09

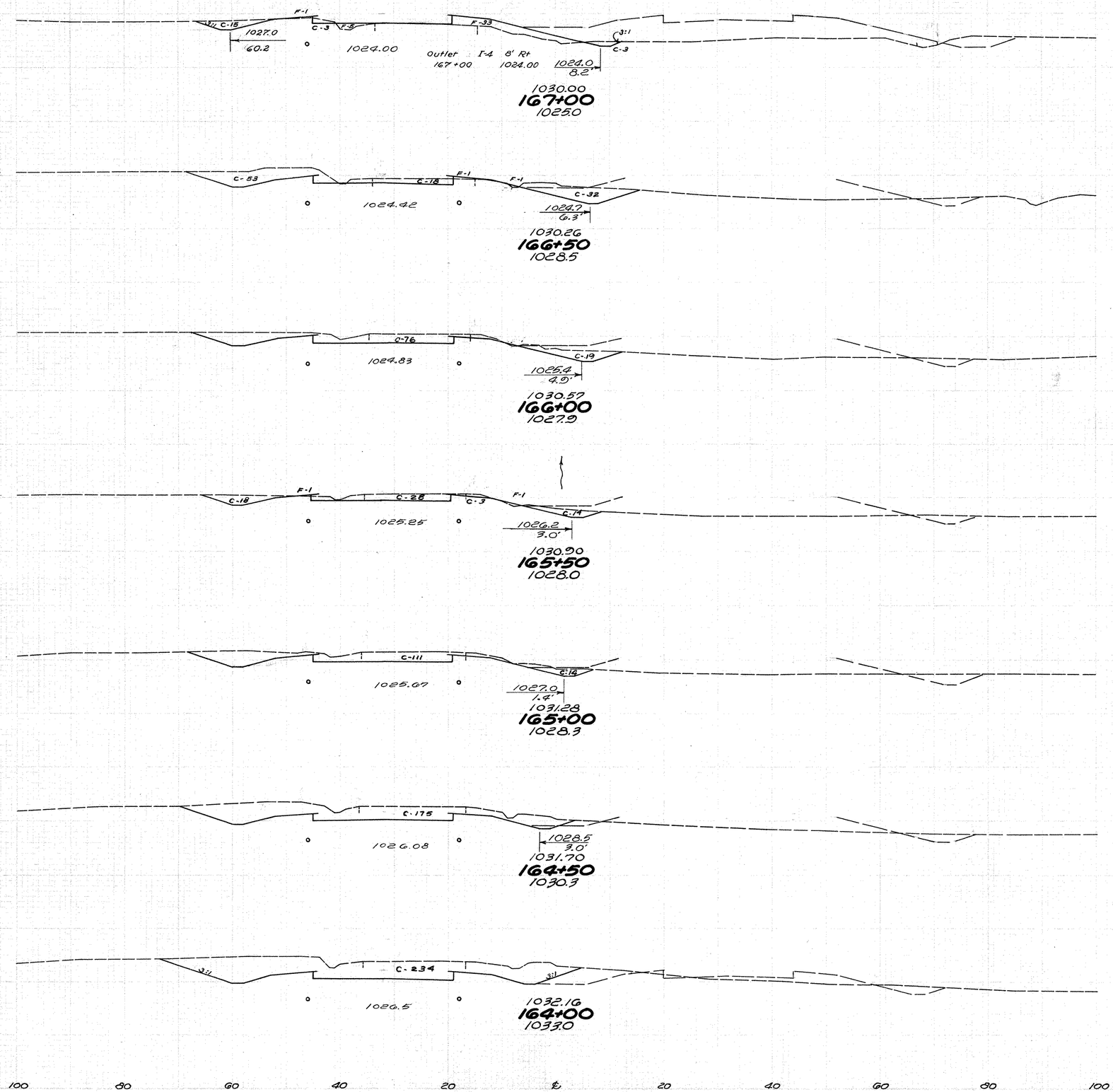


End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
310	0		
		668	0
411	0		
		769	0
420	0		
		680	0
314	0		
		541	0
270	0		
		500	0
270	0		
		476	0
244	0		
		507	0
		40	8

Res. Drive 160+36 Lt.

LIC.~161~5.12
LIC.~37~15.09

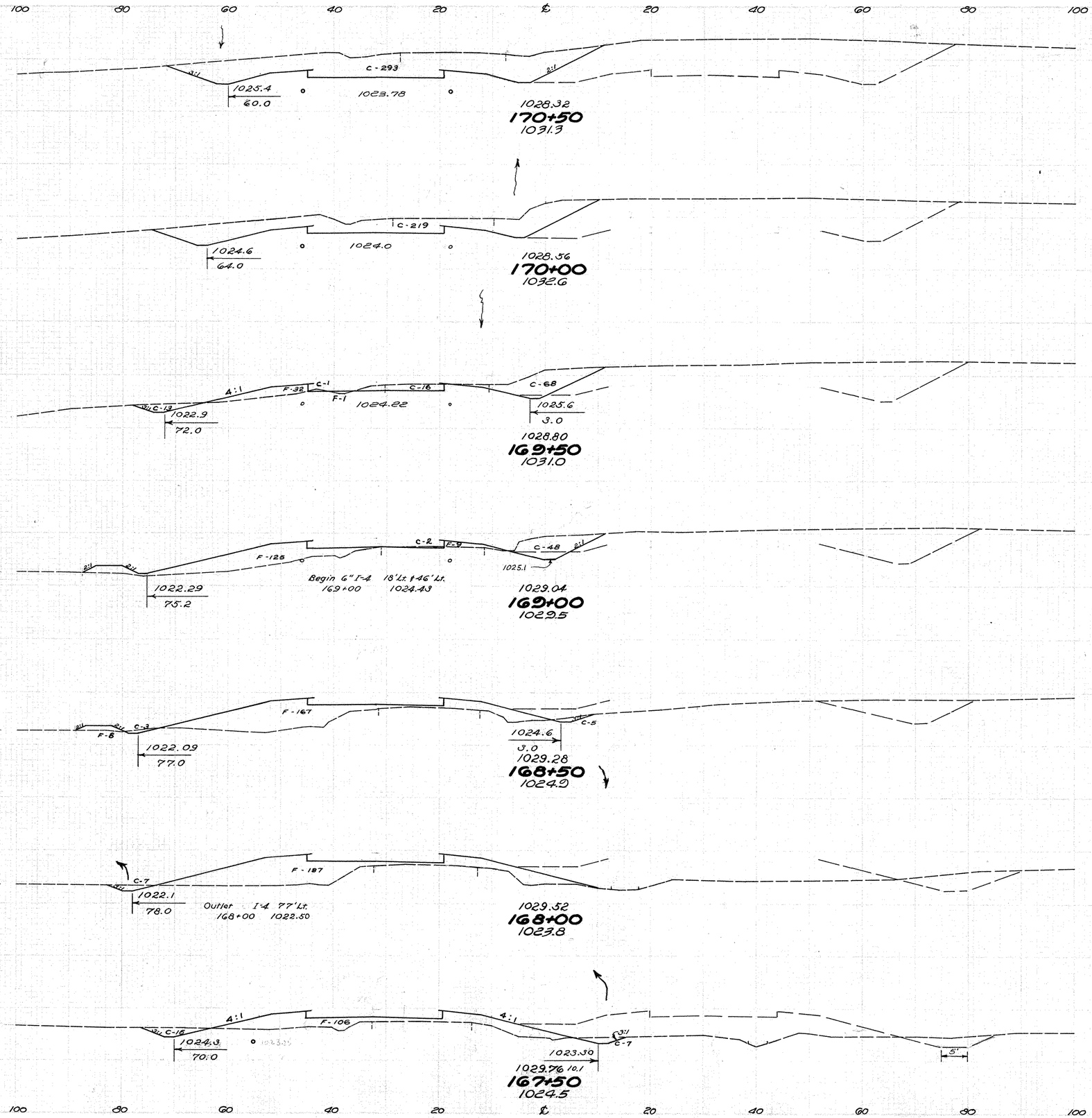
100 80 60 40 20 ℄ 20 40 60 80 100



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
21	39		
		115	38
103	2		
		183	3
95	1		
		140	3
63	2		
		174	2
125	0		
		278	0
175	0		
		329	0
234	0		
		504	0

164+00~167+00

LIC~161~5.12
LIC~37~15.09

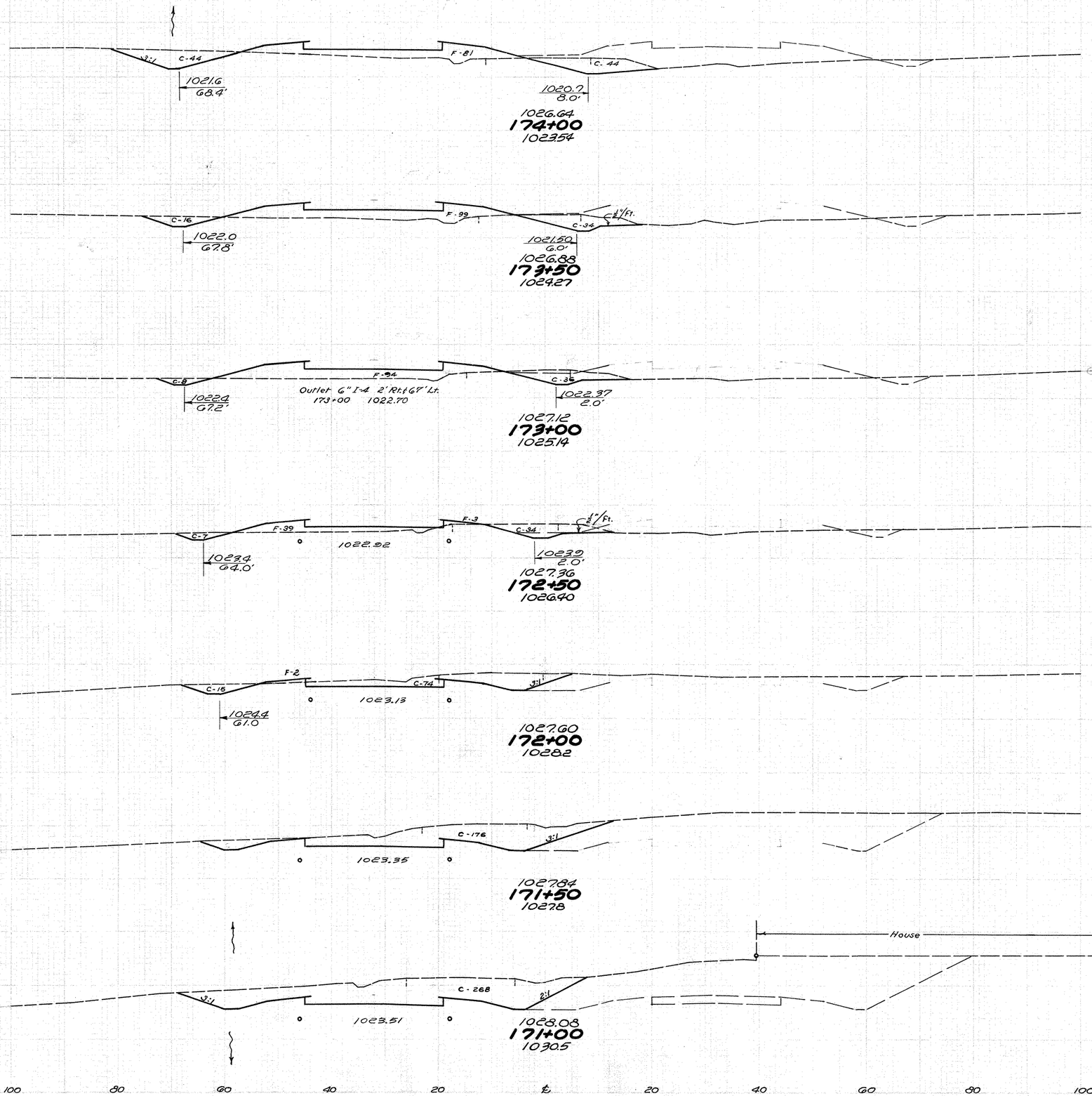


	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	293	0		
Res. Drive 170+38 Rt.			615	8
			474	0
	219	0		
			294	31
	98	33		
			137	155
	50	134		
			54	286
	8	175		
			14	335
	7	187		
			27	271
	22	106		
			40	134

167+50~170+50

LIC.~161~5.12
LIC~37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

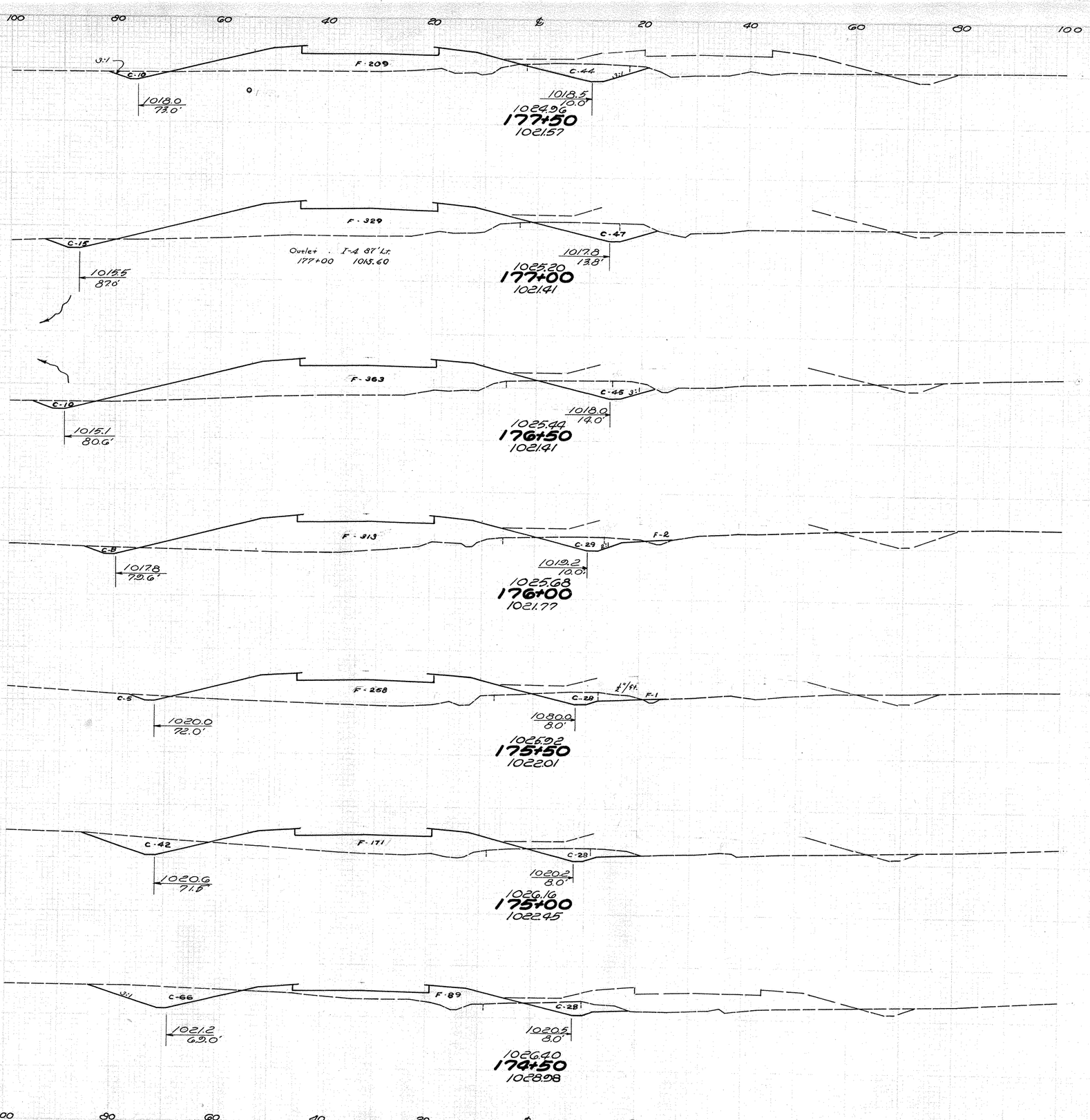


END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
88	81		
		128	165
50	97		
		87	177
44	94		
		79	126
41	42		
		120	41
89	2		
		245	2
176	0		
		411	0
268	0		
		519	0

171+00 ~ 174+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	114 238
2	OHIO			

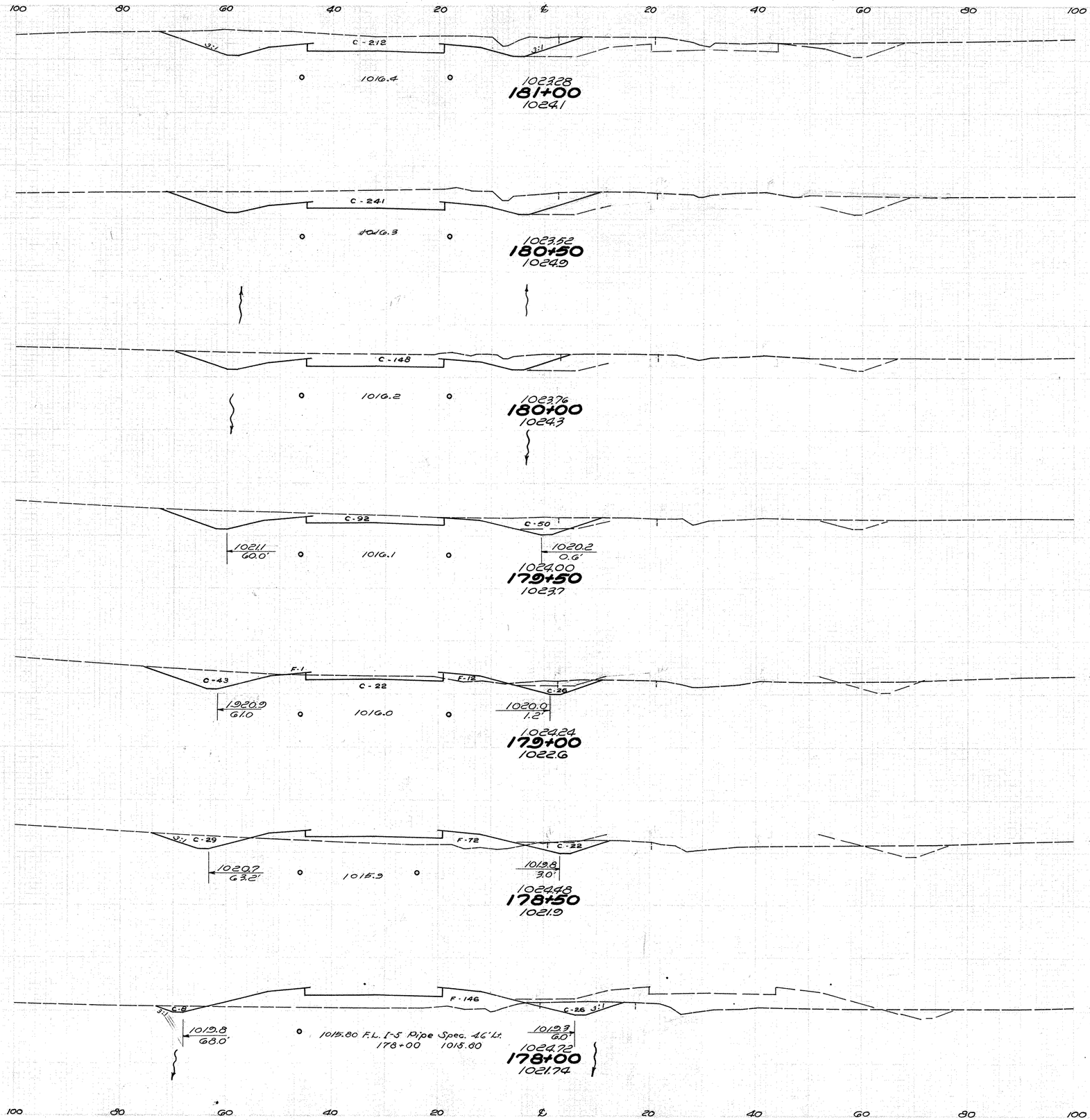
LIC-161-5.12
LIC-37-15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
54	209		
		107	498
62	329		
		108	641
55	363		
		85	628
37	315		
		65	531
33	259		
		95	398
70	171		
		152	241
94	89		
		169	157

FED. AID DIVISION	STATE	PROJECT	FISCAL YEAR	115
5	OHIO			238

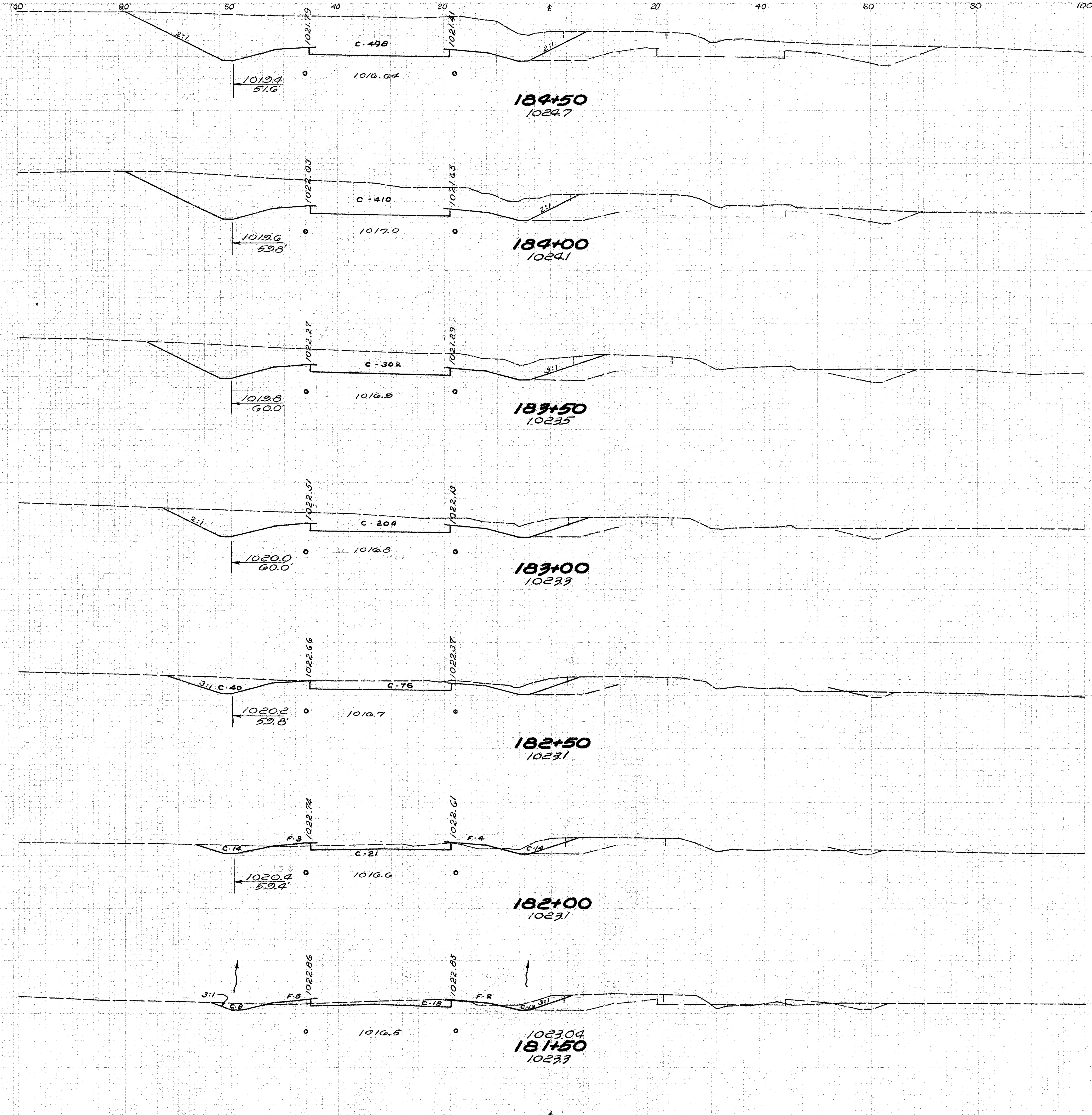
LIC.~161~5.12
LIC~37~15.09



	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	212	0		
			419	0
	241	0		
			360	0
Field Drive 180+06 Rt.			30	8
Res. Drive 180+06 Lt.			60	8
	148	0		
			269	0
	142	0		
			216	12
	91	13		
			131	79
	51	72		
			79	202
	34	146		
			81	329

178+00~181+00

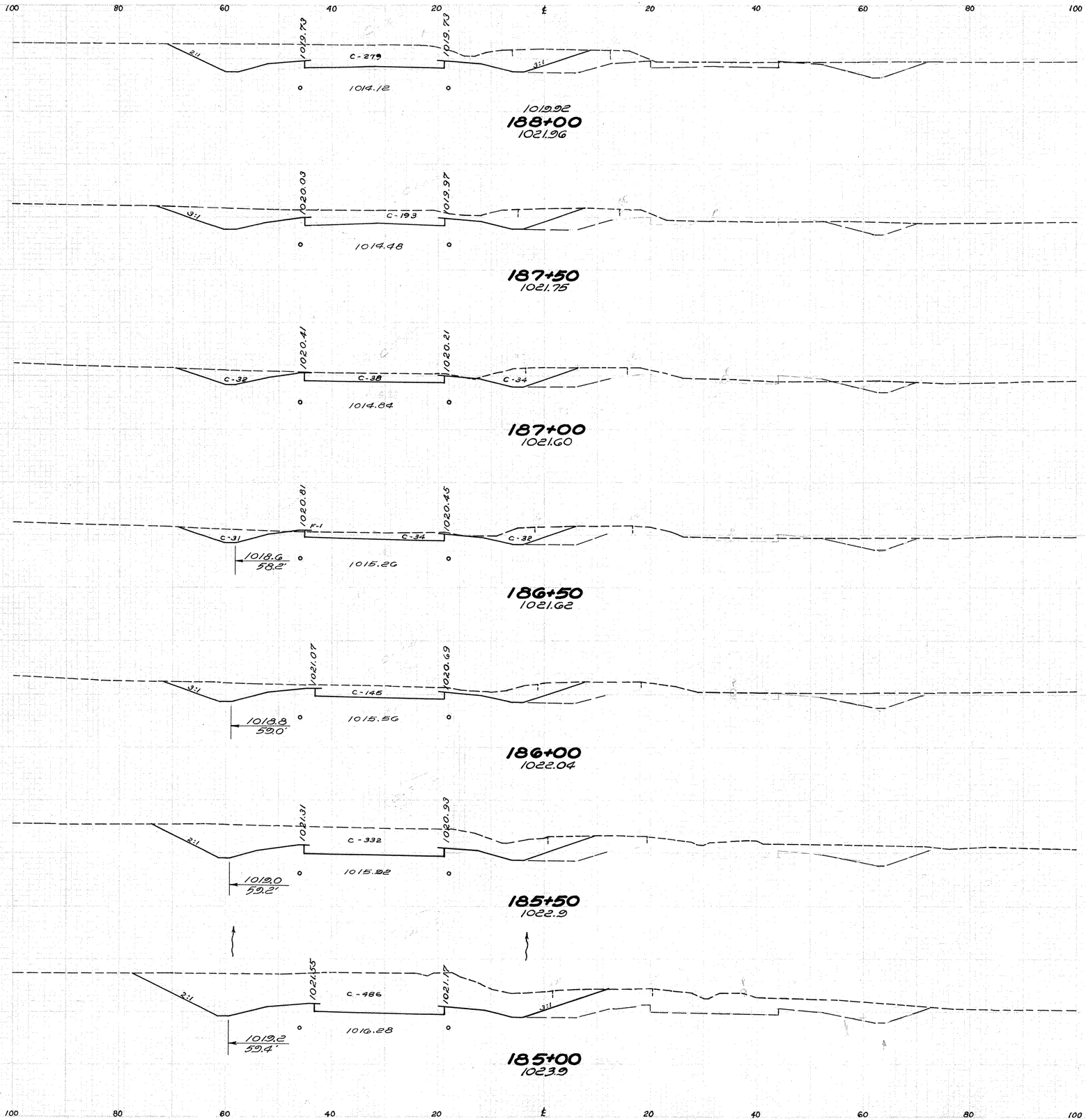
LIC.~161~5.12
LIC.~37~15.09



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
498	0		
		841	0
410	0		
		659	0
302	0		
		469	0
204	0		
		296	0
116	0		
		153	6
49	7		
		81	13
39	7		
		232	6

181+50~184+50

LIC.~161~5.12
LIC.~37~15.09

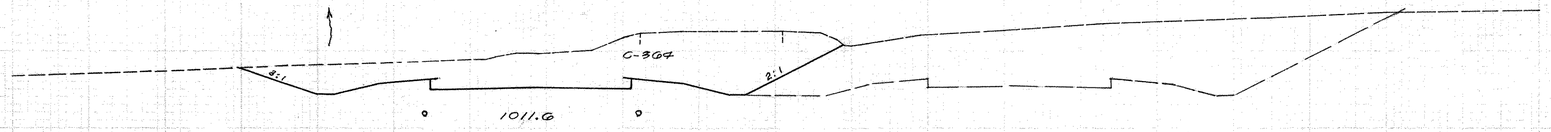


END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
279	0		
		437	0
193	0		
		275	0
104	0		
		186	1
97	1		
		224	1
145	0		
		442	0
332	0		
		757	0
486	0		
		911	0

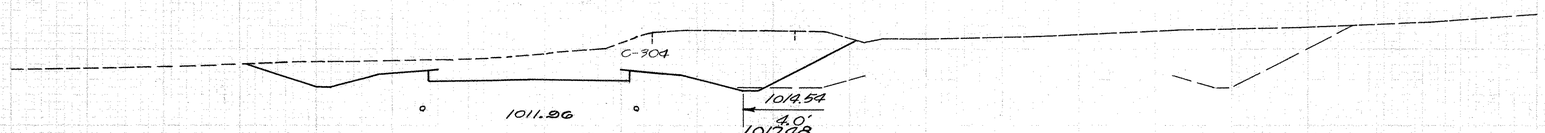
185+00 ~ 188+00

LIC.~161~5.12
LIC.~37~15.09

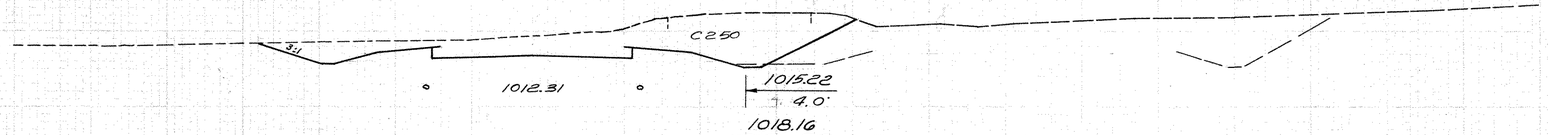
100 80 60 40 20 ℄ 20 40 60 80 100



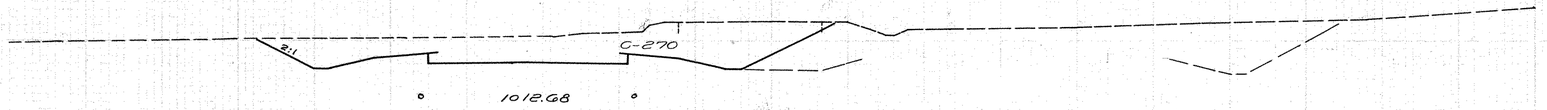
1016.68
191+50
1022.62



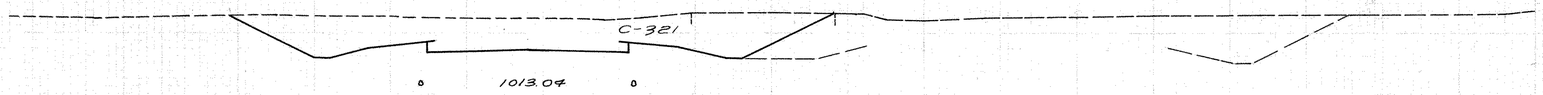
1017.48
191+00
1022.37



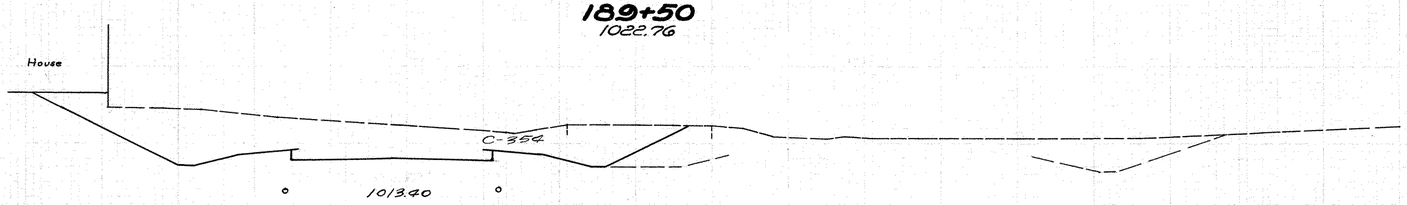
1018.16
190+50
1022.35



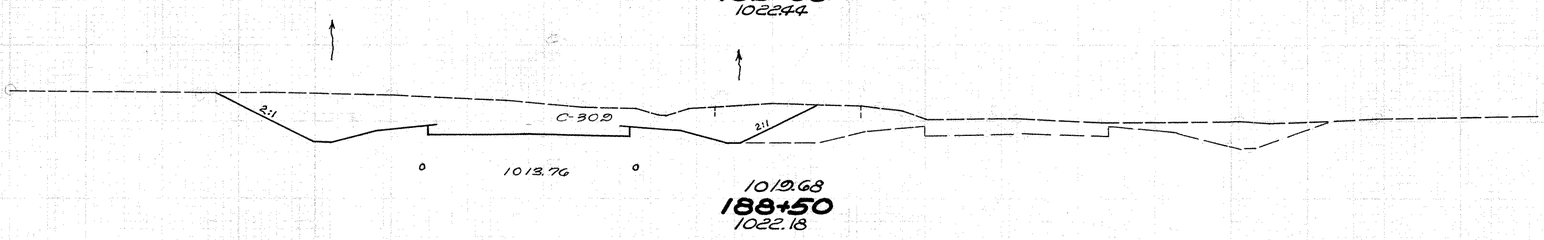
1018.71
190+00
1022.62



1019.14
189+50
1022.76



1019.44
189+00
1022.44



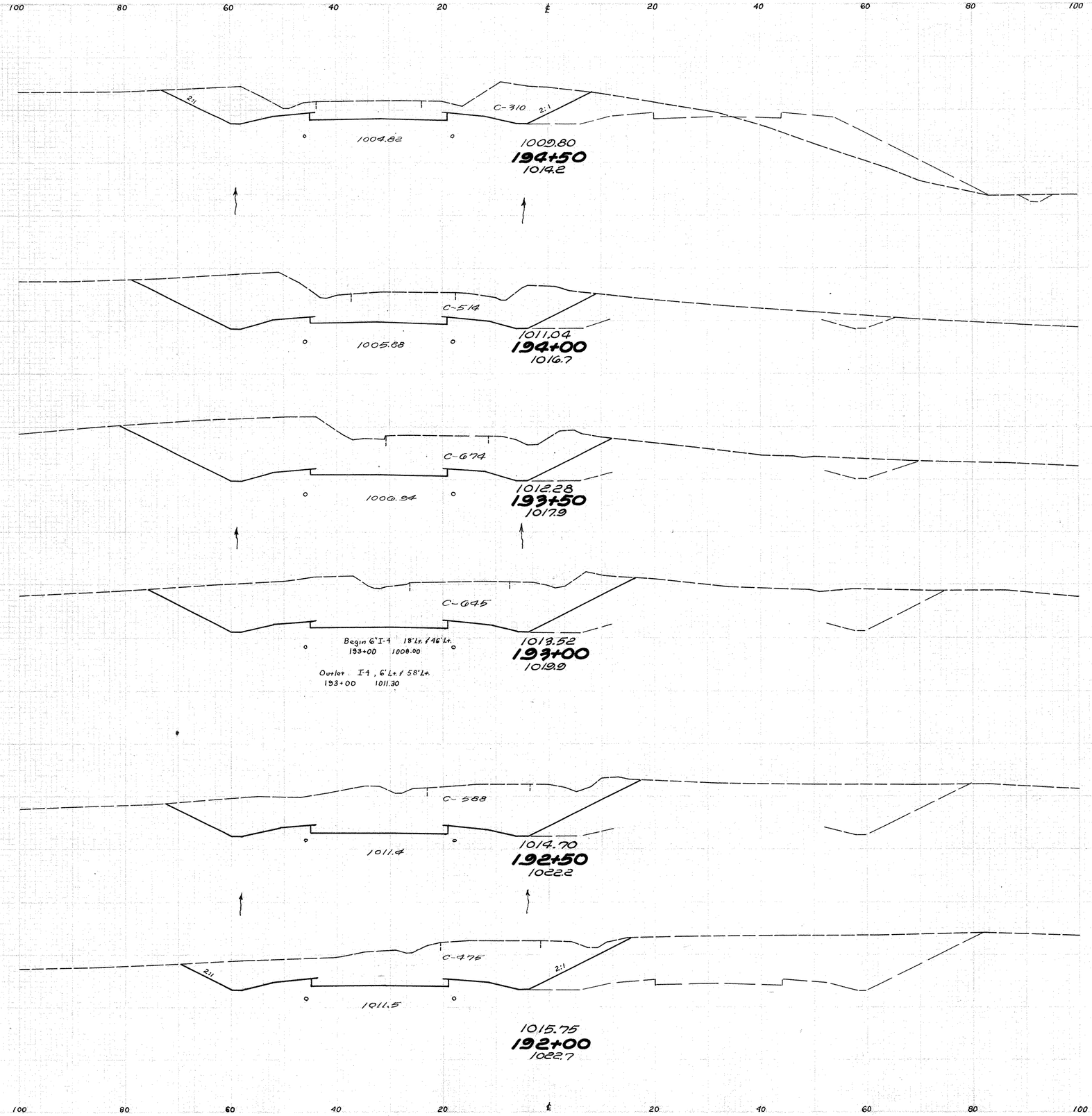
1019.68
188+50
1022.18

100 80 60 40 20 ℄ 20 40 60 80 100

	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	364	0		
			619	0
	304	0		
			513	0
	250	0		
Res. Drive 190+67 Rt.			545	10
			481	0
	270	0		
			547	0
	321	0		
			410	8
Res. Drive 189+50 Rt.			78	10
Res. Drive 189+50 Lt.			625	0
	354	0		
			614	0
	309	0		
			544	0

188+50~191+50

LIC.~161~5.12
LIC.~37~15.09

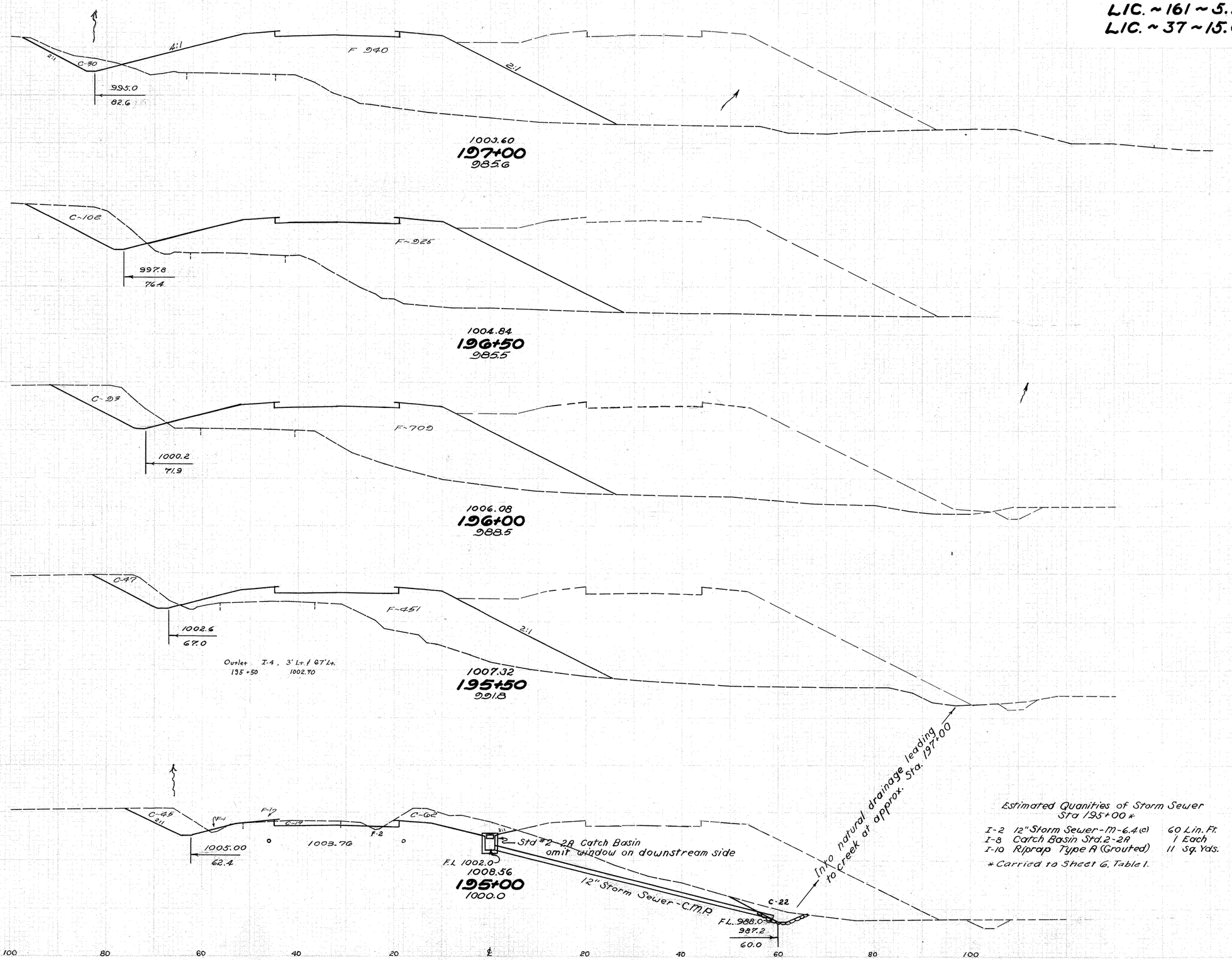


END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
310	0		
		763	0
514	0		
		1100	0
674	0		
		1221	0
645	0		
		1142	0
588	0		
		984	0
475	0		
		777	0

192+00~194+50

LIC. ~ 161 ~ 5.12
LIC. ~ 37 ~ 15.09

100 80 60 40 20 ℄ 20 40 60 80 100



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
30	940		
		122	1727
102	925		
		181	1513
23	709		
		180	1074
47	451		
		179	421
146	4		
		422	4

Estimated Quantities of Storm Sewer
Sta 195+00 *

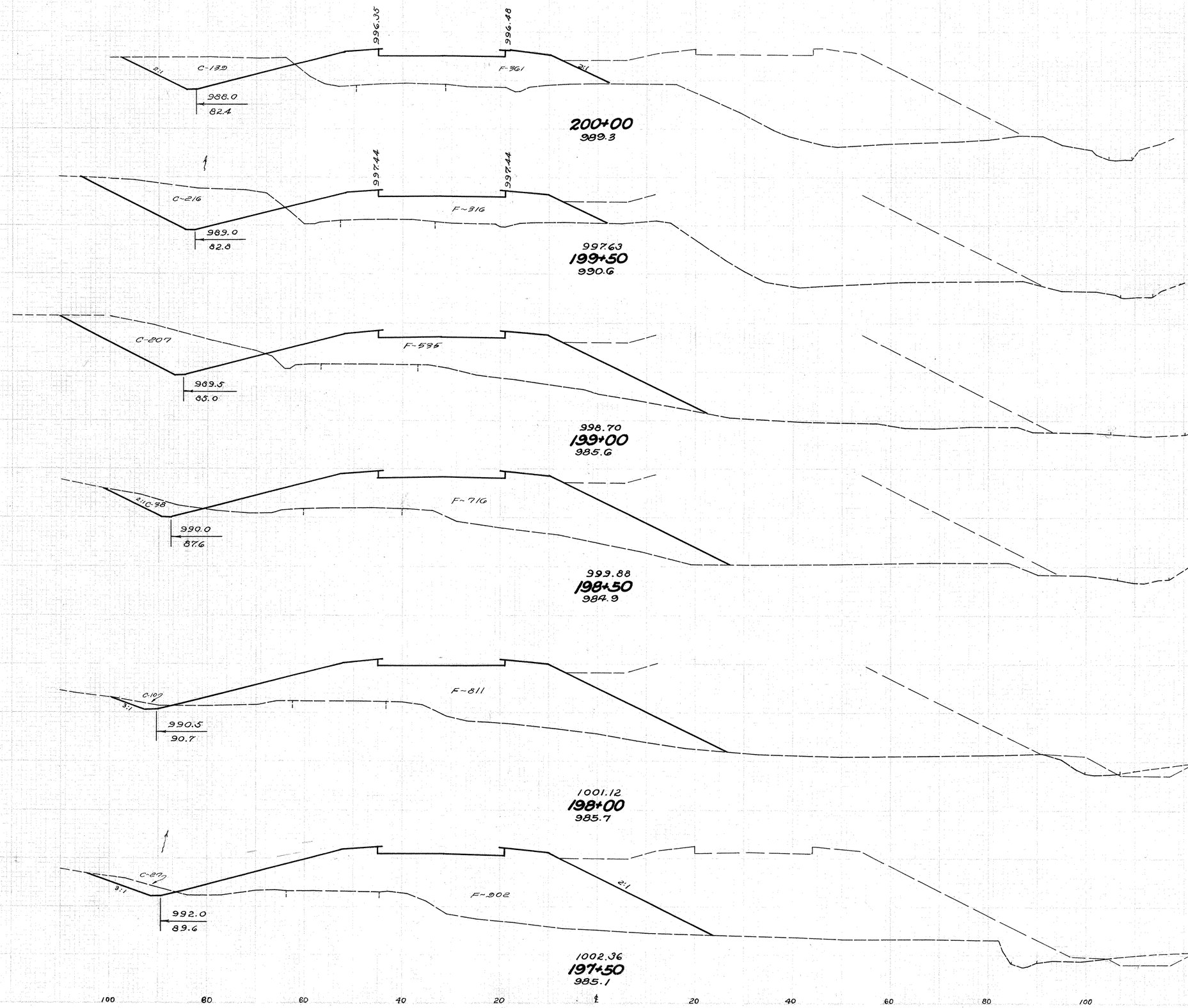
I-2	12" Storm Sewer - M-6.4 (c)	60 Lin. Ft.
I-8	Catch Basin Std. 2-2A	1 Each
I-10	Riprap Type A (Grouted)	11 Sq. Yds.

* Carried to Sheet 6, Table 1.

195+00 ~ 197+00

LIC.~161~5.12
LIC.~37~15.09

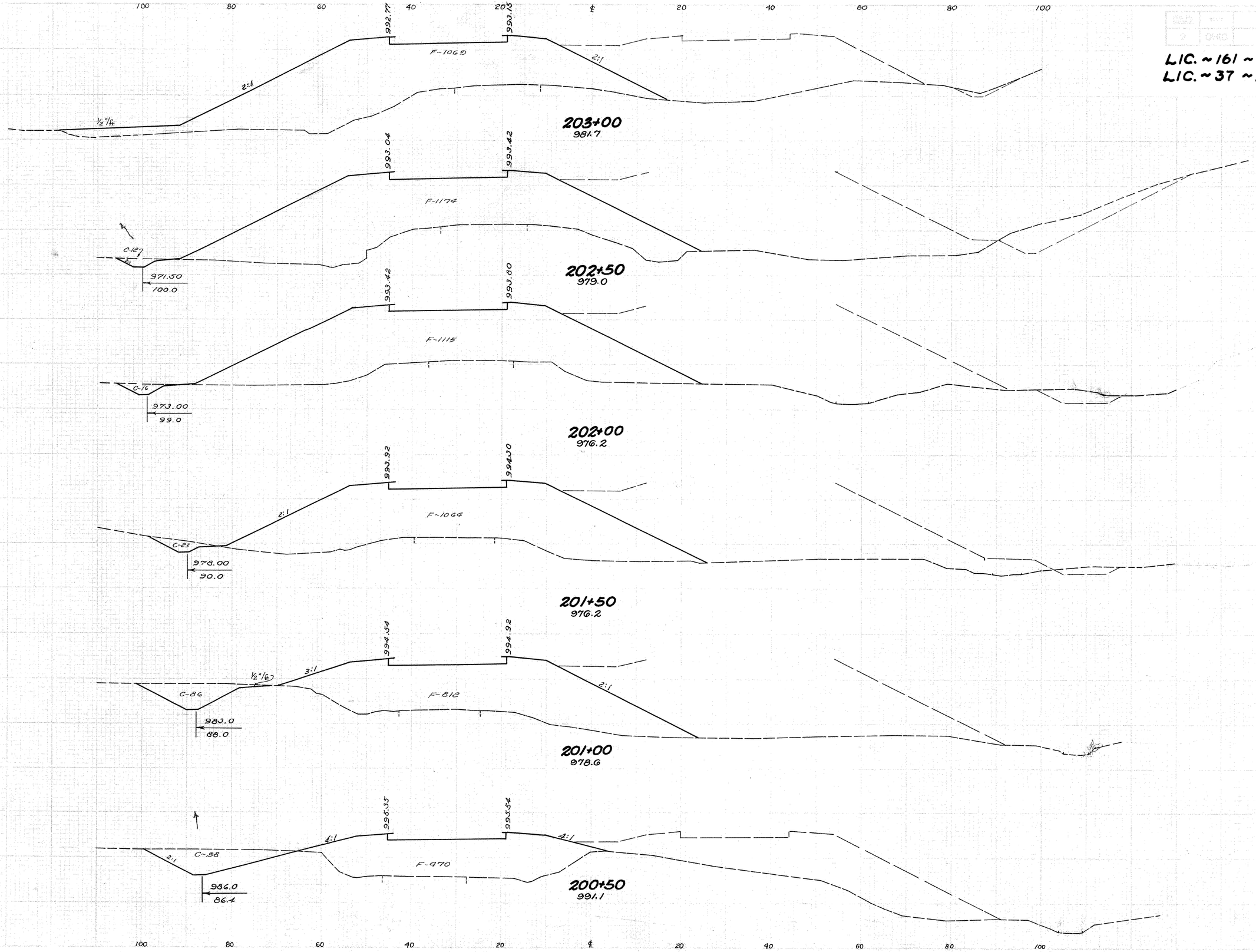
100 80 60 40 20 ℄ 20 40 60 80 100



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
139	361		
		320	627
216	316		
		392	788
207	535		
		227	1158
38	716		
		44	1414
10	811		
		34	1680
27	902		
		53	1706

197+50 – 200+00

LIC. ~ 161 ~ 5.12
LIC. ~ 37 ~ 15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
0	1069		
		11	2077
12	1174		
		26	2119
16	1115		
		36	2018
23	1064		
		101	1737
86	812		
		170	1187
98	470		
		219	769

200+50 — 203+00

LIC.-161-5.12
LIC.-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

992.11 C-329 992.49 2:1 2:1
989.64 58.88 985.4 989.94 3.68

206+00
994.9

992.21 C-411 992.59
989.84 58.48 985.3 990.14 4.08

205+50
995.8

992.31 C-436 992.69
990.04 58.08 985.2 990.34 4.48

205+00
996.2

992.41 C-148 2:1 992.79 F-8 C-6 C-4
990.24 58.00 990.54 4.80
F.L. 6"I-5 Pipe Spec. 46'Lt.
204+50 985.10

House

204+50
991.8

992.57 C-7 ½"/ft C-2 992.89 F-180 C-52
988.1 5.0
Outlet I-4 69'Lt.
204+00 985.00

Shed

204+00
987.1

992.61 2:1 992.99 F-1042 2:1 C-33 3:1
990.3 13.0
½"/ft

203+50
983.2

100 80 60 40 20 ℄ 20 40 60 80 100

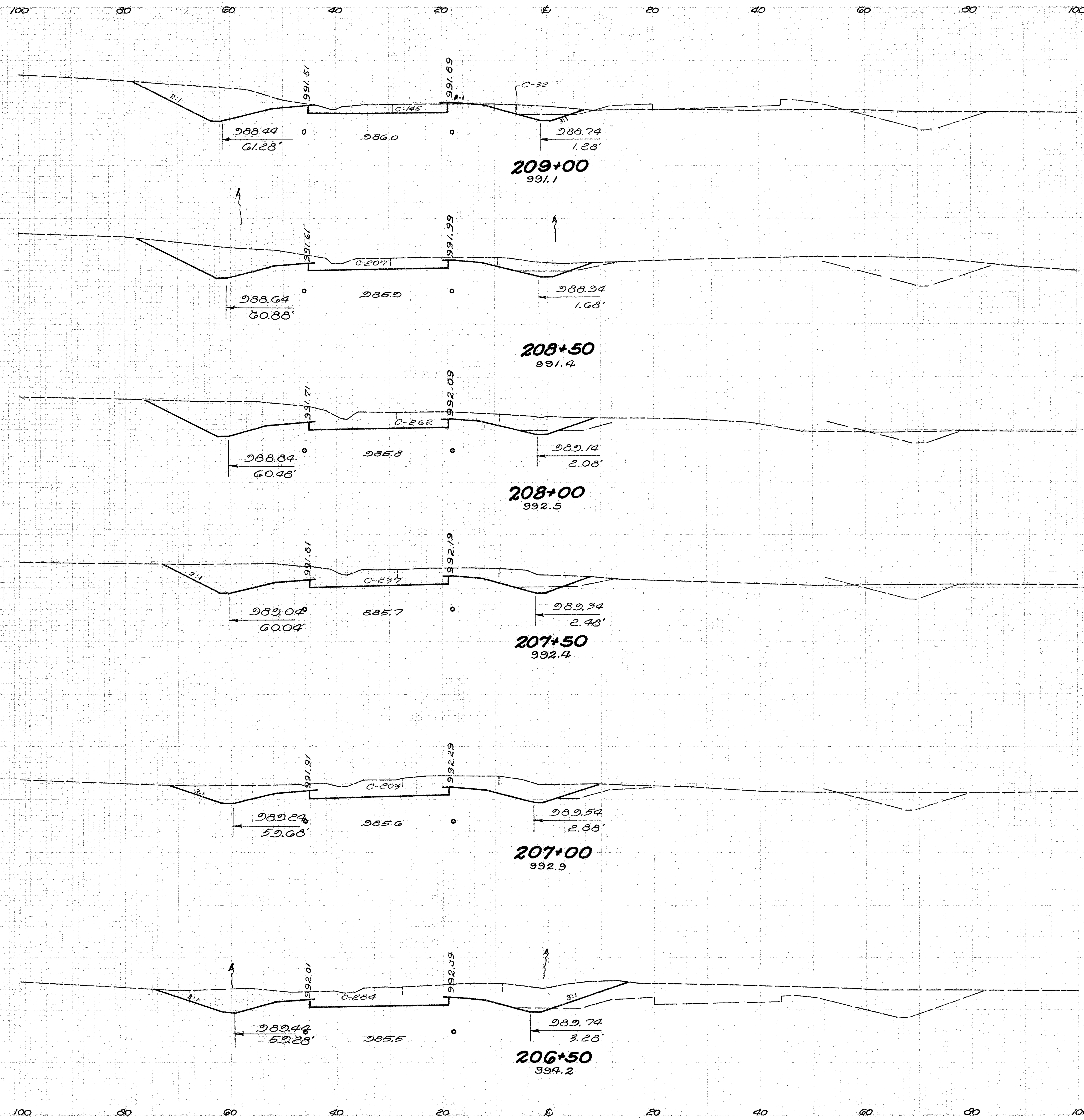
Res. Drive 204+68 Rt.

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
329	0		
		685	0
411	0		
		784	0
436	0		
		550	7
		710	8
158	8		
		203	174
61	180		
		87	1181
33	1042		
		31	1955

203+50 - 206+00

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO		

LIC 161-5.12
LIC 37-15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
177	1		
		356	1
207	0		
		434	0
262	0		
		462	0
237	0		
		407	0
203	0		
		451	0
284	0		
		568	0

206+50-209+00

LIC.-161-5.12
LIC.-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

990.59 990.97 C-85 C-75 2:1 3:1
987.04 63.20 983.50 987.34 0.64

212+50
991.0

990.86 991.24 C-250 3:1
987.24 63.48 983.86 987.54 0.92

212+00
992+00

991.10 991.39 C-314 2:1
987.44 63.28 984.22 987.74 0.72

211+50
992.8

991.11 991.49 C-295 3:1
987.64 62.88 984.57 987.94 0.32

211+00
992.2

991.21 991.59 C-245 2:1
987.84 62.48 984.93 988.14 0.08

210+50
990.8

991.31 991.69 C-82 C-40 3:1
988.04 62.08 985.29 988.34 0.48

210+00
991.05

991.41 991.79 C-77 C-257 C-32 Pump F-1 F-2 2:1 3:1
988.24 61.68 985.64 988.54 0.88

209+50
991.1

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
160	0		
		417	0
290	0		
		559	0
314	0		
		564	0
295	0		
		500	0
245	0		
		340	0
122	0	31	30
		101	0
		237	3
134	3		
		288	4

Approach 210+00.32 Rt.
Approach 210+00.32 Lt.

209+50 – 212+50

100 80 60 40 20 ℄ 20 40 60 80 100

126
238

LIC.-161-5.12
LIC.-37-15.09

C-127 F-3 F-1 C-38 2"/Ft.
3:1
981.00
982.8
2.0
986.28
216+00
985.25

Barn
C-351 C-2 F-2
3:1 3:1
981.36
984.1
3.0
987.31
215+50
988.61

C-461
3:1
981.72
985.3
4.0
988.23
215+00
991.7

C-469
3:1
986.24
59.40
982.07
986.1
4.0
989.03
214+50
993.3

House
Foundation 996.87
989.54 989.54
C-375
3:1
986.44
61.40
982.43
986.74
3.80
989.73
214+00
993.3

989.99 990.12
C-207
3:1
986.64
62.40
982.79
986.94
1.16
213+50
992.2

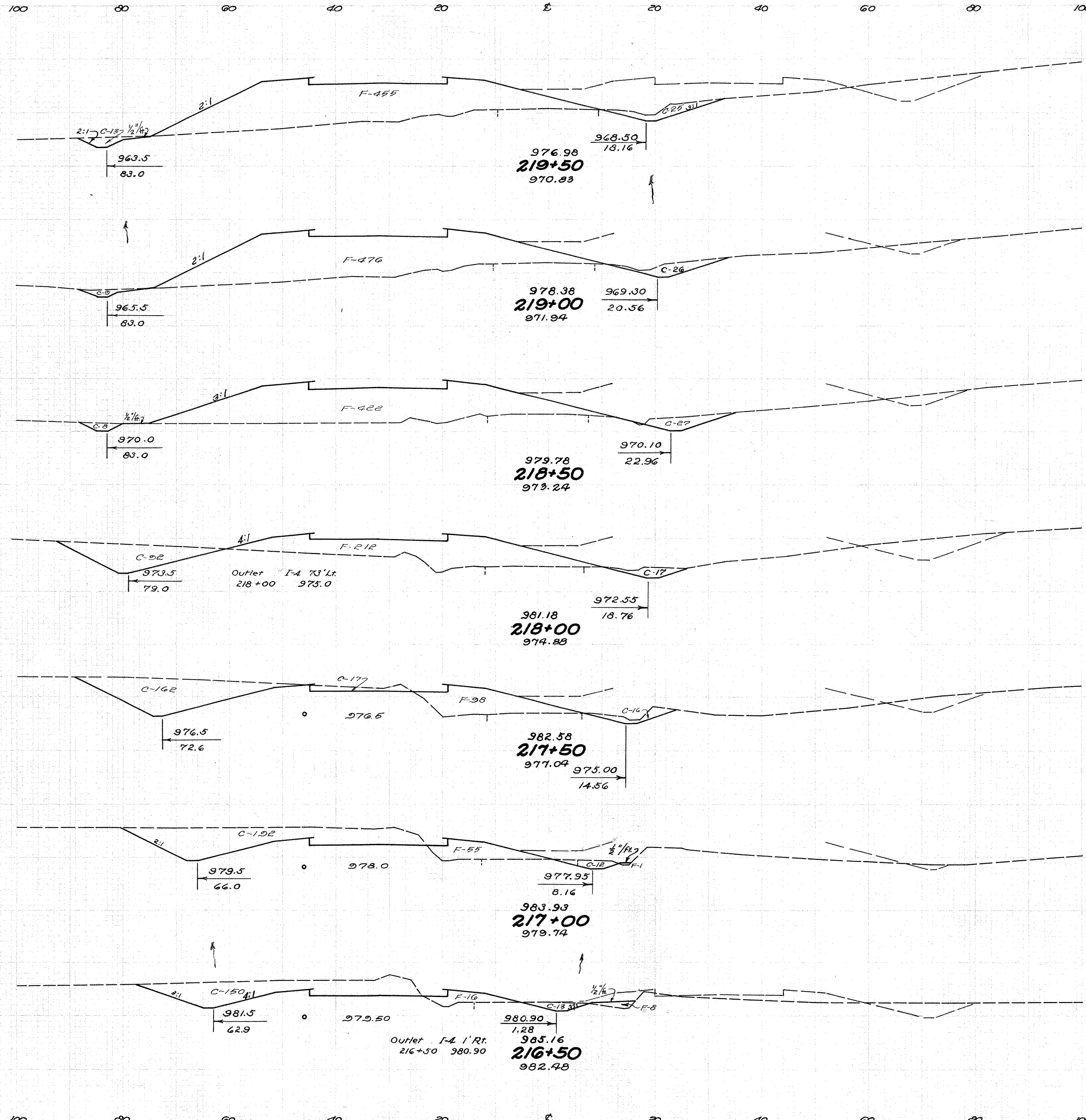
990.31 990.60
C-2 F-3
3:1 C-25 F-4
C-101
3:1
986.84
62.88
983.14
987.14
0.04
213+00
991.2

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
165	4		
		480	6
353	2		
		754	2
461	0		
		861	0
469	0		
		781	0
375	0		
		539	0
207	0		
		308	8
126	0		
		265	8

213+00 - 216+00

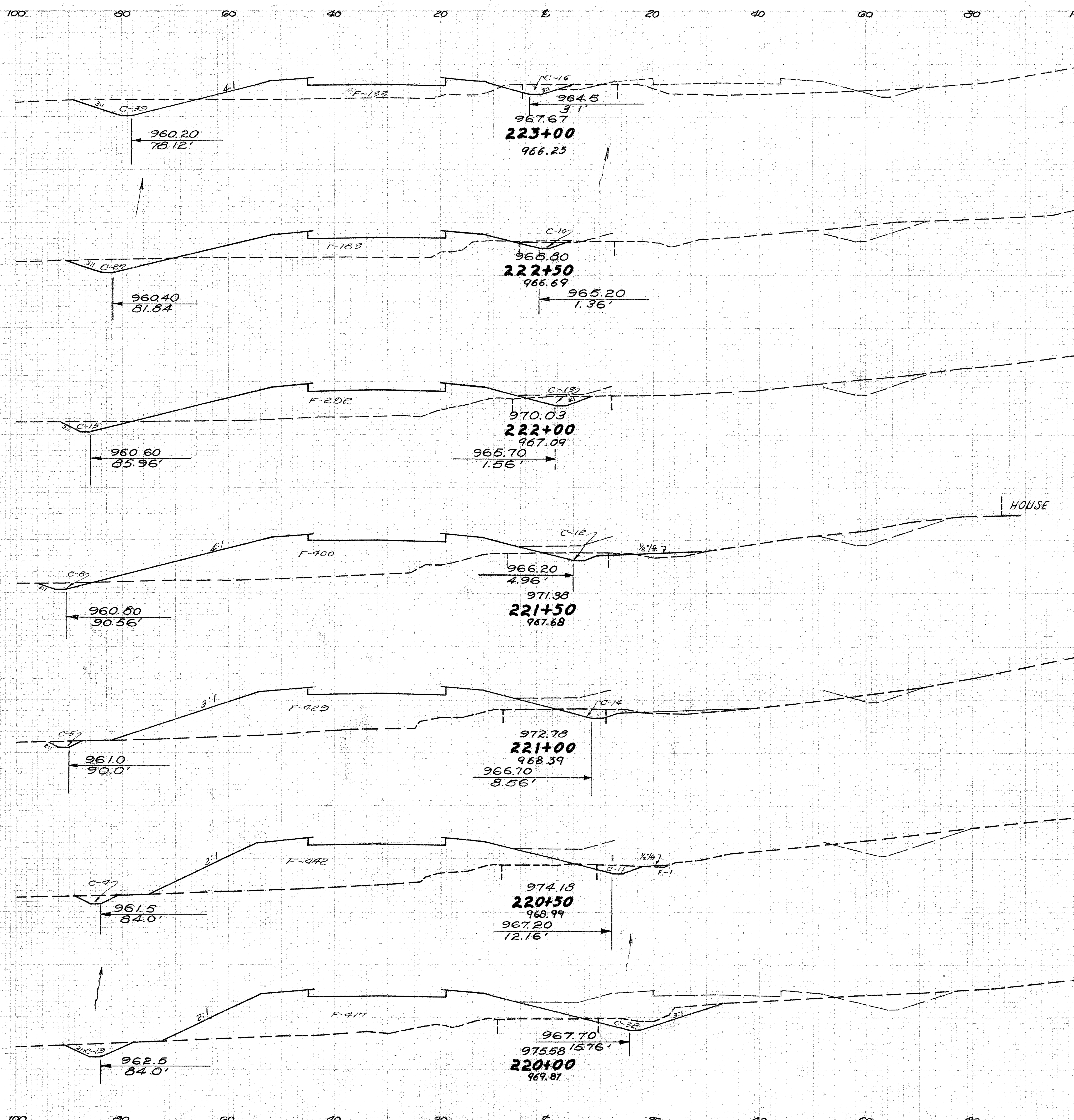
LIC-161-5.12
LIC-37-15.09


100 80 60 40 20 ℄ 20 40 60 80 100
2:1
C-13
½"/ft
2:1
F-455
C-29 3:1
963.5
83.0
976.98
219+50
970.83
968.50
18.16
2:1
F-476
C-9
C-26
965.5
83.0
978.38
219+00
971.94
969.30
20.56
3:1
F-422
C-8
½"/ft
C-27
970.0
83.0
979.78
218+50
973.24
970.10
22.96
4:1
C-92
F-212
973.5
79.0
Outlet I-4 73' Lt.
218+00 975.0
C-17
972.55
18.76
981.18
218+00
974.88
C-162
C-17
F-98
C-16
976.5
72.6
976.5
982.58
217+50
977.04
975.00
14.56
2:1
C-192
F-55
½"/ft
C-12
F-1
979.5
66.0
978.0
977.95
8.16
983.93
217+00
979.74
4:1
C-150
4:1
F-16
C-13 3:1
½"/ft
F-8
981.5
62.9
979.50
980.90
1.28
Outlet I-4 1' Rt.
216+50 980.90
985.16
216+50
982.48
100 80 60 40 20 ℄ 20 40 60 80 100

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
38	455		
		68	862
35	476		
		65	831
35	422		
		133	587
109	212		
		281	287
195	98		
		369	143
204	56		
		390	74
163	24		
		304	26
		20 15	15 8

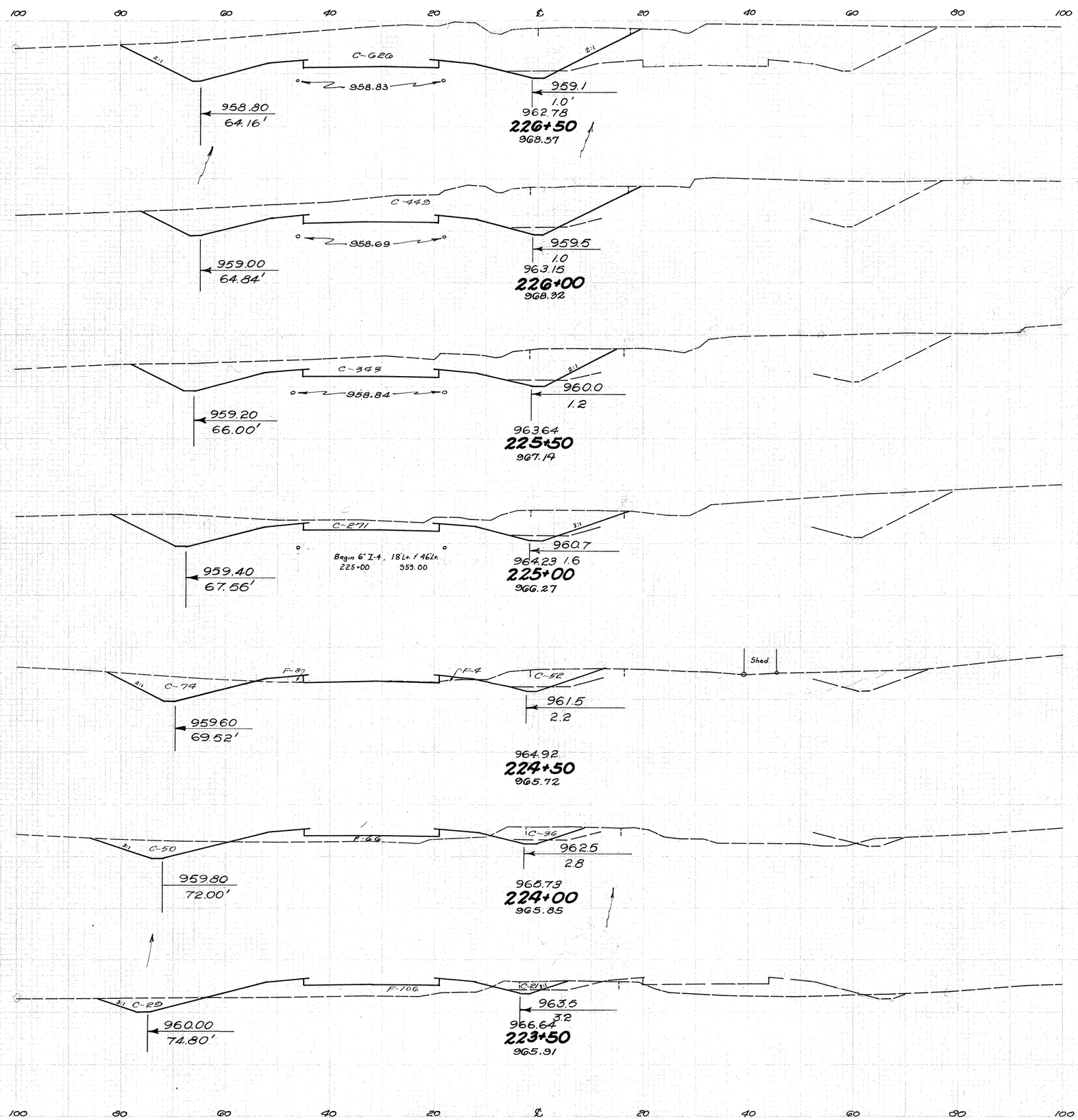
Field Dr. 216+00 Rt.
Res. Dr. 216+00 Lt.

LIC.-161-5.12
LIC.-37-15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
55	133		
		85	293
37	183		
		60	440
28	292		
		44	648
20	408		
		36	784
19	429		
		35	817
19	443		
		65	796
51	417		
		82	807

LIC.-161 - 5.12
LIC.-37 - 15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
626	0		
		995	0
449	0		
		738	0
348	0		
		573	0
271	0		
		369	11
Res. Drive 224+60 Rt.		179	0
Field Drive 224+60 Lt.		1	89
127	12		
		197	72
86	66		
		126	159
50	106	...	
		97	221

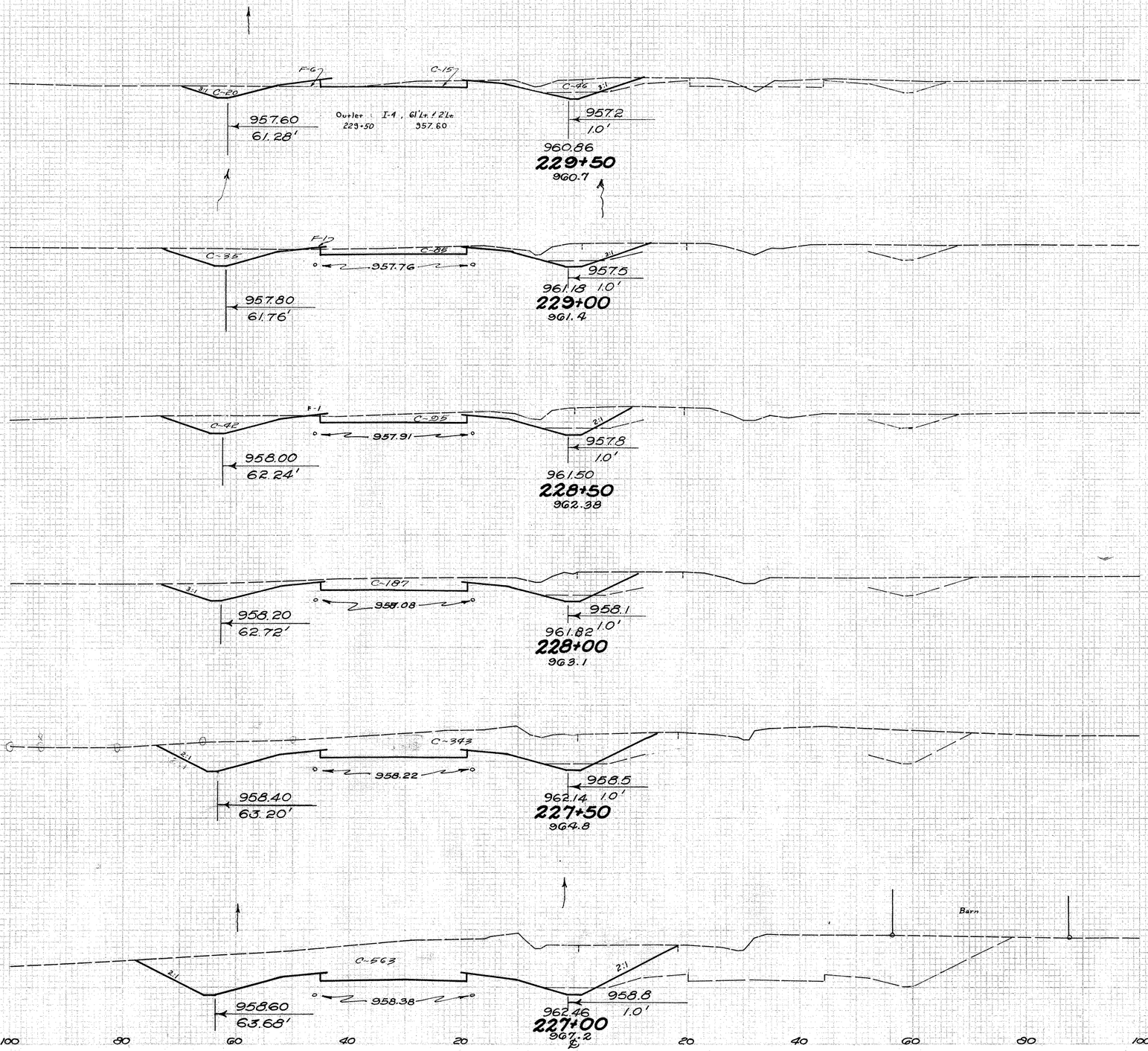
223+50 - 226+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

130
238

LIC.-161-5.12
LIC.-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100



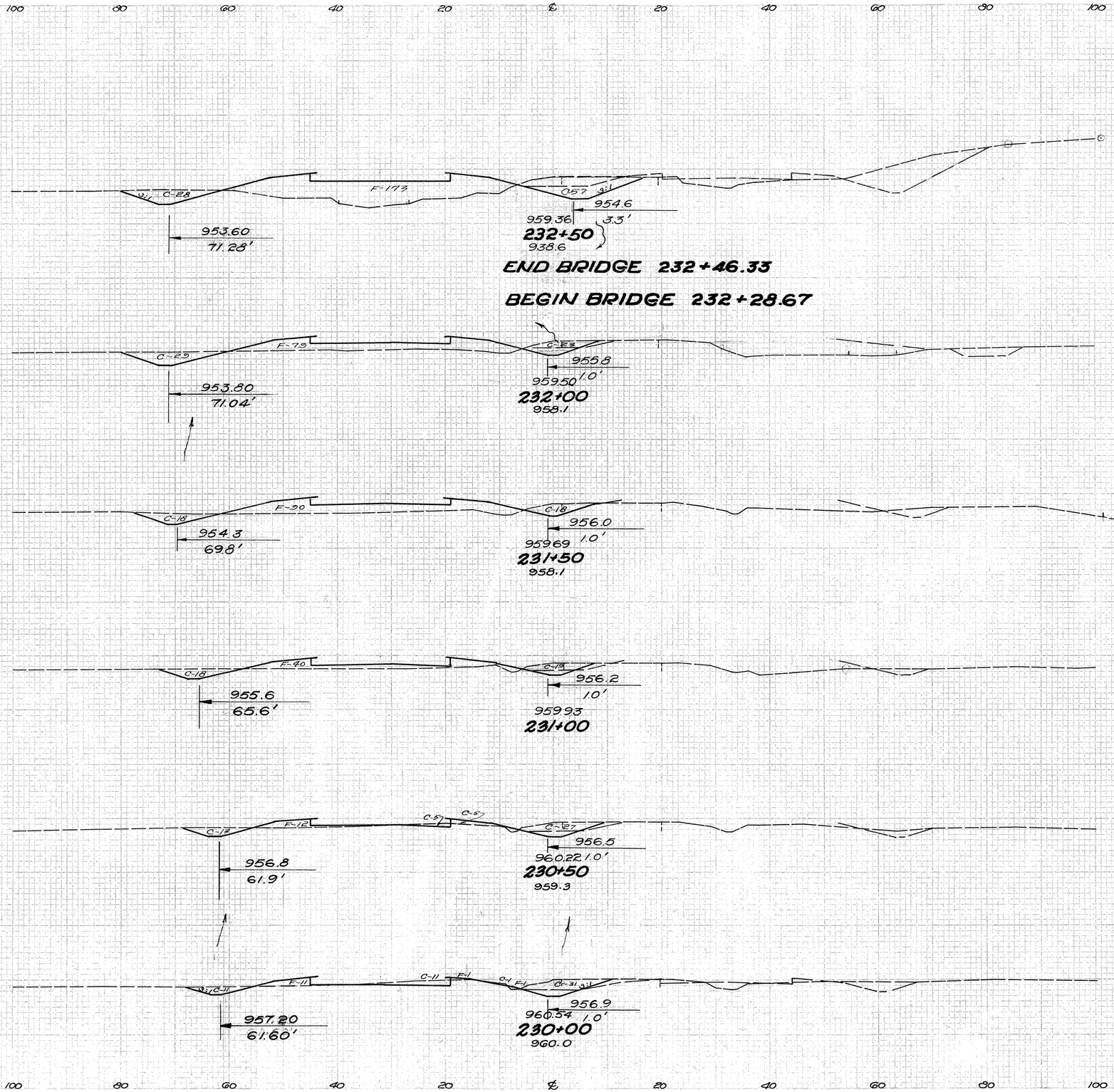
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
81	6		
		186	6
120	1		
		238	2
137	1		
		300	1
187	0		
		491	0
343	0		
		839	0
563	0		
		1101	0

227+00 - 229+50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

131
238

LIC.-161-5.12
LIC.-37-15.09



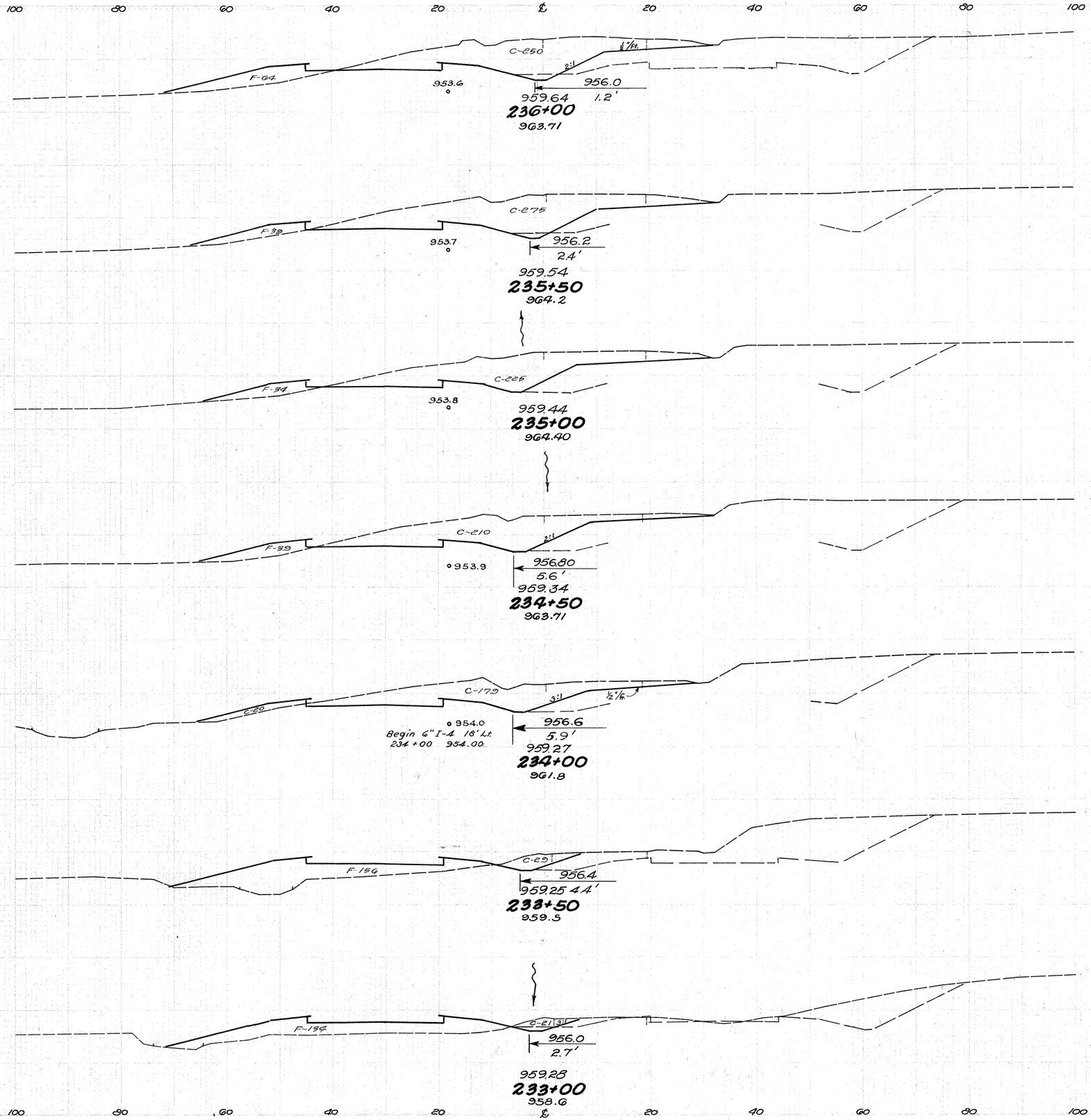
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
85	172		
		12	24
85	172		
52	79		
		55	84
52	79		
		81	156
36	90		
		68	120
37	40		
		76	54
45	18		
		92	29
59	13		
		125	18

End Bridge - Begin Earthwork
Sta. 232+46.33

Begin Bridge - End Earthwork
Sta. 232+28.67

230+00 — 232+50

LIC.-161 - 5.12
LIC.-37 - 15.09

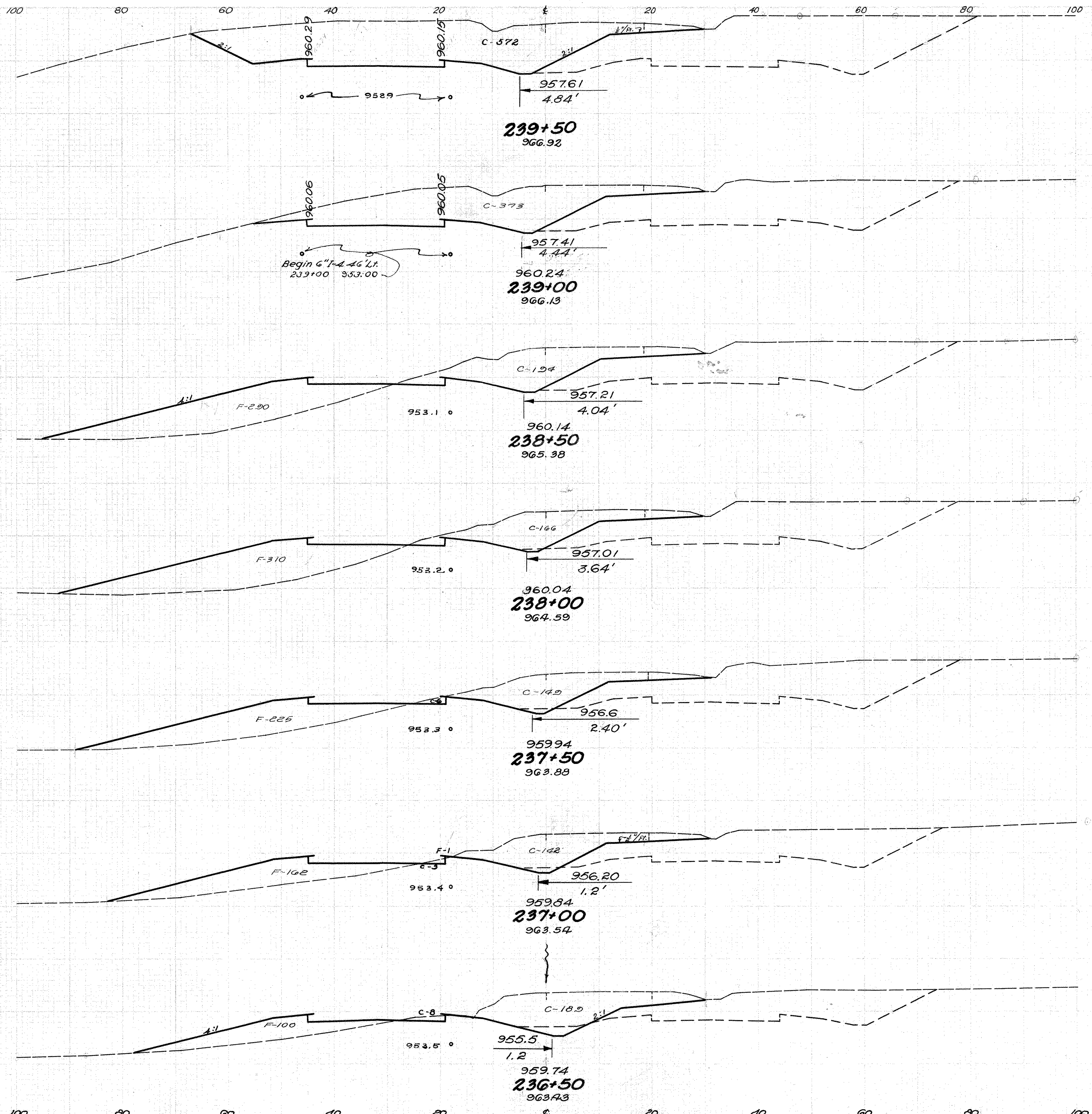


	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	250	64		
			486	95
	275	39		
			463	68
	225	34		
Res. Dr. 235+00 Rt Field Dr. 235+00 Lt.			1223 0	0 50
			403	68
	210	30		
			360	55
	179	20		
			193	163
	29	156		
			46	269
	21	134		
			98	284

233+00 - 236+00

133
238

LIC~161~5.12
LIC~37~15.09



100 80 60 40 20 ℄ 20 40 60 80 100
960.29
960.15
C-572
2:1
957.61
4.84'
9529
239+50
966.92
960.06
960.05
C-373
957.41
4.44'
Begin 6"T-4.46' Lt.
239+00 953.00
960.24
239+00
966.13
C-194
F-290
4:1
953.1
957.21
4.04'
960.14
238+50
965.38
C-166
F-310
953.2
957.01
3.64'
960.04
238+00
964.59
C-149
F-225
953.3
956.6
2.40'
959.94
237+50
963.88
F-1
C-3
C-142
F-162
953.4
956.20
1.2'
959.84
237+00
963.54
C-8
C-18.9
F-100
4:1
2:1
953.5
955.5
1.2
959.74
236+50
963.43
100 80 60 40 20 ℄ 20 40 60 80 100

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
572	0		
		875	0
373	0		
		525	269
194	290		
		333	556
166	310		
		297	495
155	225		
		278	259
145	163		
		317	244
197	100		
		414	152

236+50~239+50

LIC-161-5.12
LIC-37-15.09

100 80 60 963.13 40 961.13 ℄ 20 40 60 80 100

Outlet I-4 75'Lt.
243+00 952.20

F-1325

½"/Ft.

2:1 C-25 2:1

344.50
94.84'

243+00
946.5

962.82 960.82

F-578

½"/Ft.

952.30

242+50
950.9

F.L. 15 6" Pipe Spec. 15'Lt.
242+00 952.40

962.44 960.64

2:1 C-412 2:1

½"/Ft.

F-27

952.41

241+93.75
961.9

961.93 960.54

C-610

3:1

952.51

241+43.75
966.7

961.45 960.44

C-591

2:1

952.61

240+93.75
968.73

960.92 960.34

C-667

957.99
5.60

952.71

240+43.75
968.47

960.53 960.24

2:1 C-656 2:1

½"/Ft.

957.79
5.20'

55.0 952.81

239+93.75
967.69

100 80 60 40 20 20 40 60 80 100

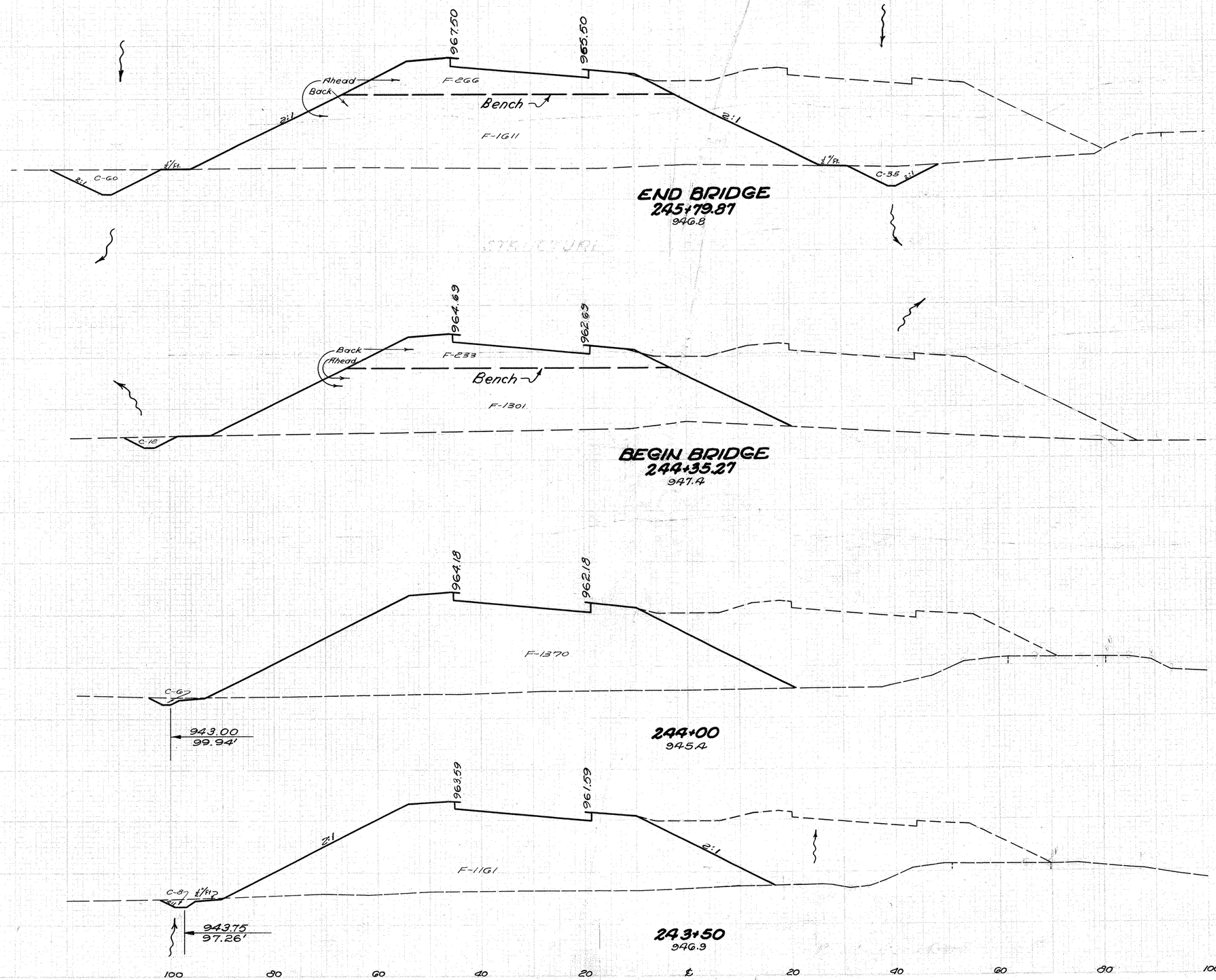
END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
25	1325		
		23	1762
0	578		
		429	630
Field Drive 242+28 Rt.			
Res. Drive 242+25 Rt.		153	109
		196	5
412	27		
		946	25
610	0		
		1112	0
591	0		
		1165	0
667	0		
		1225	0
656	0		
		995	0

239+93.75 — 243+00

100 80 60 40 20 ℄ 20 40 60 80 100

FED. ROAD PROJECT	STATE	PROJECT	TOTAL SHEETS
2	OHIO		135 238

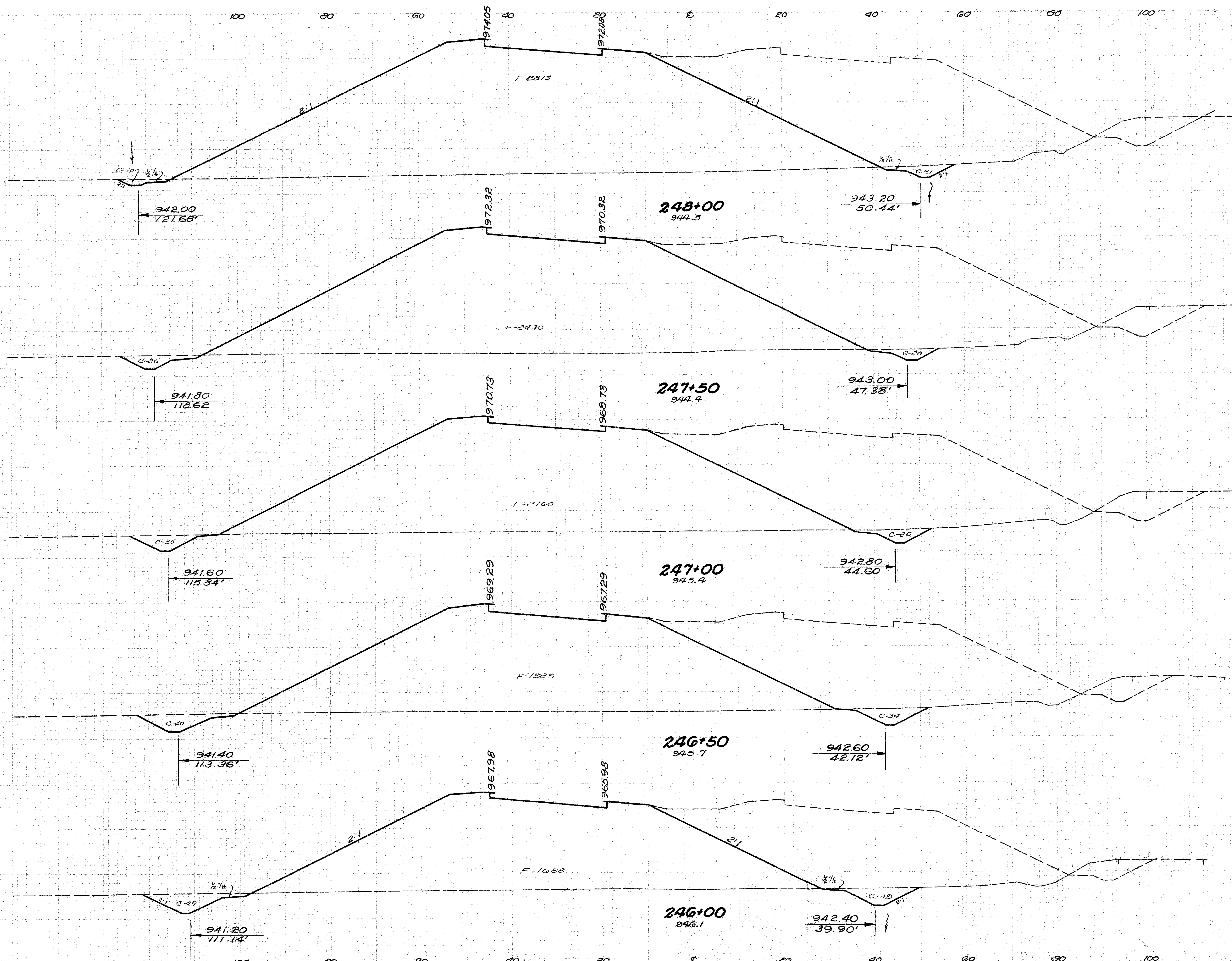
LIC-161-5.12
LIC-37-15.09



		END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
				67	1230
End Bridge	245+79.87 Ahead	95	161		
End Bench	245+79.87 Back	0	1345		
				0	744
Begin Bench - Begin Earthwork	245+50	0	0		
End Bench - End Earthwork	244+65	0	0		
				0	588
Begin Bench	244+35.27 Ahead	0	1068		
Begin Bridge	244+35.27 Back	12	1301		
				12	1745
				6	1370
				13	2343
				8	1161
				31	2302

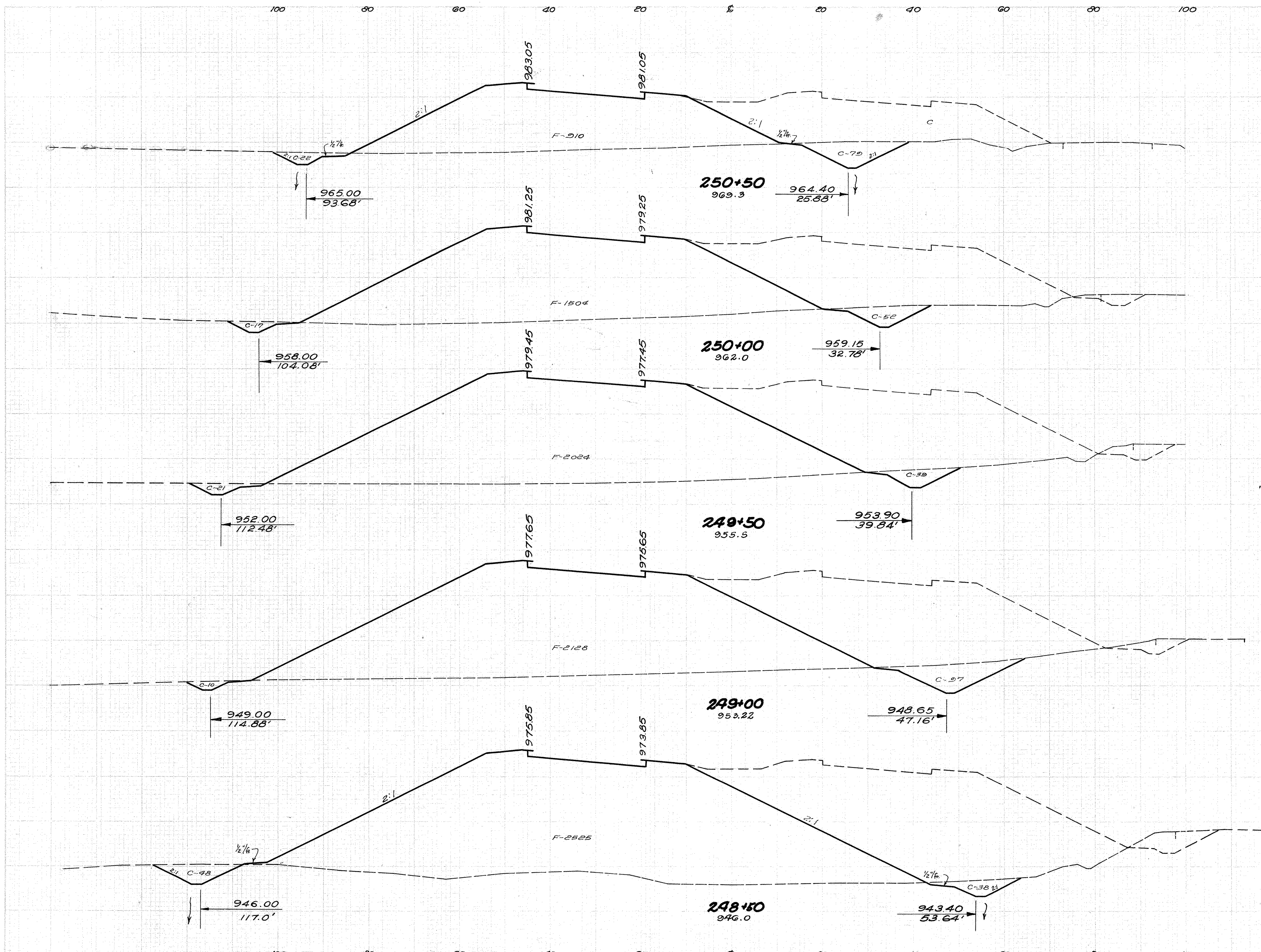
243+50 - 245+79.87

LIC~161~5.12
LIC~37~15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
31	2813		
		71	4854
46	2430		
		94	4250
55	2160		
		119	3786
74	1929		
		148	3349
86	1688		

LIC.-161-5.12
LIC.-37-15.09



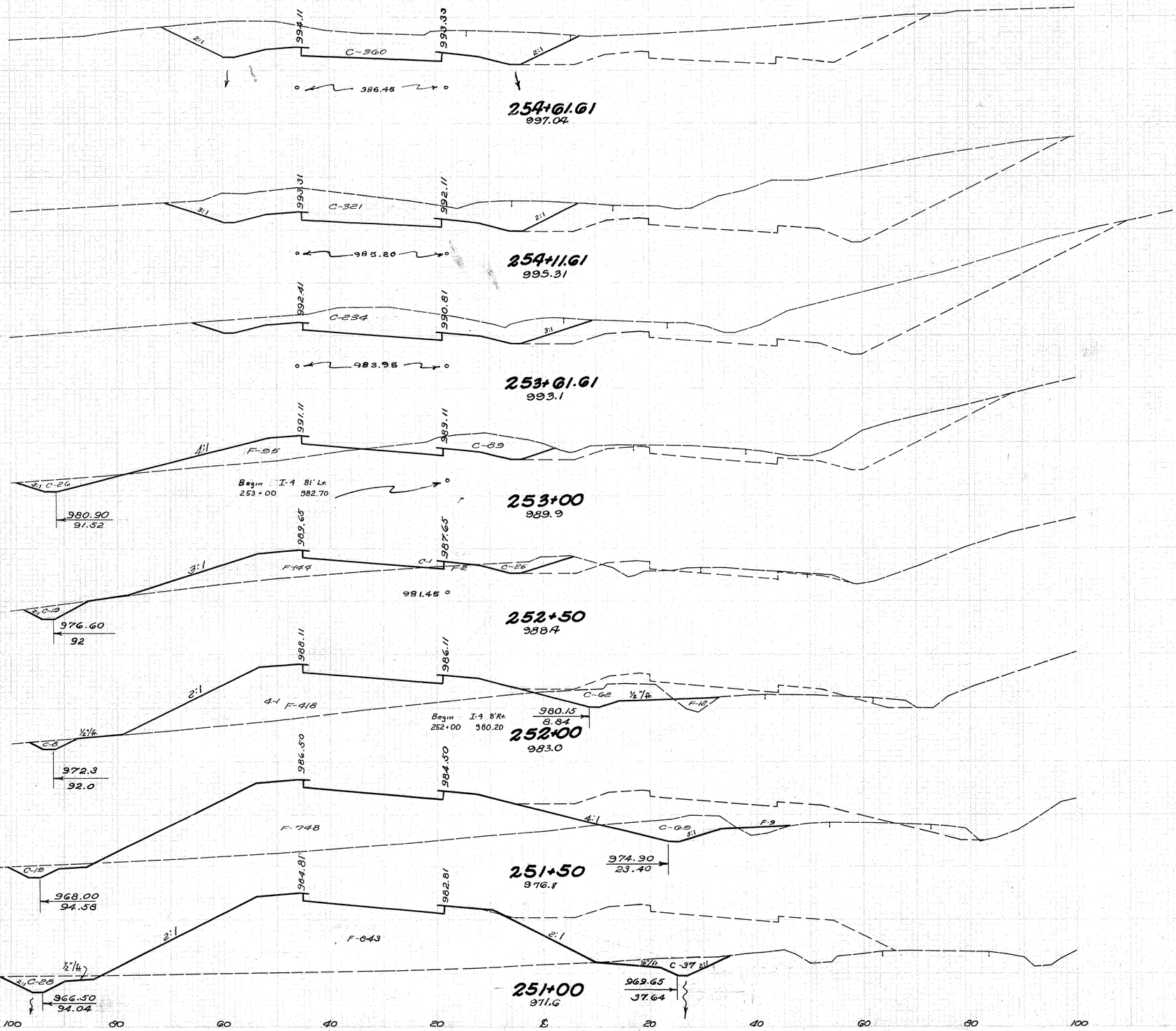
END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
101	910		
		157	2235
69	1504		
		119	3267
60	2024		
		155	3844
107	2128		
		179	4308
86	2525		
		108	4942

FED. RD. DEMON.	STATE	PROJECT	FISCAL YEAR
2	OHIO		

138
238

LIC-161-5.12
LIC-37-15.09

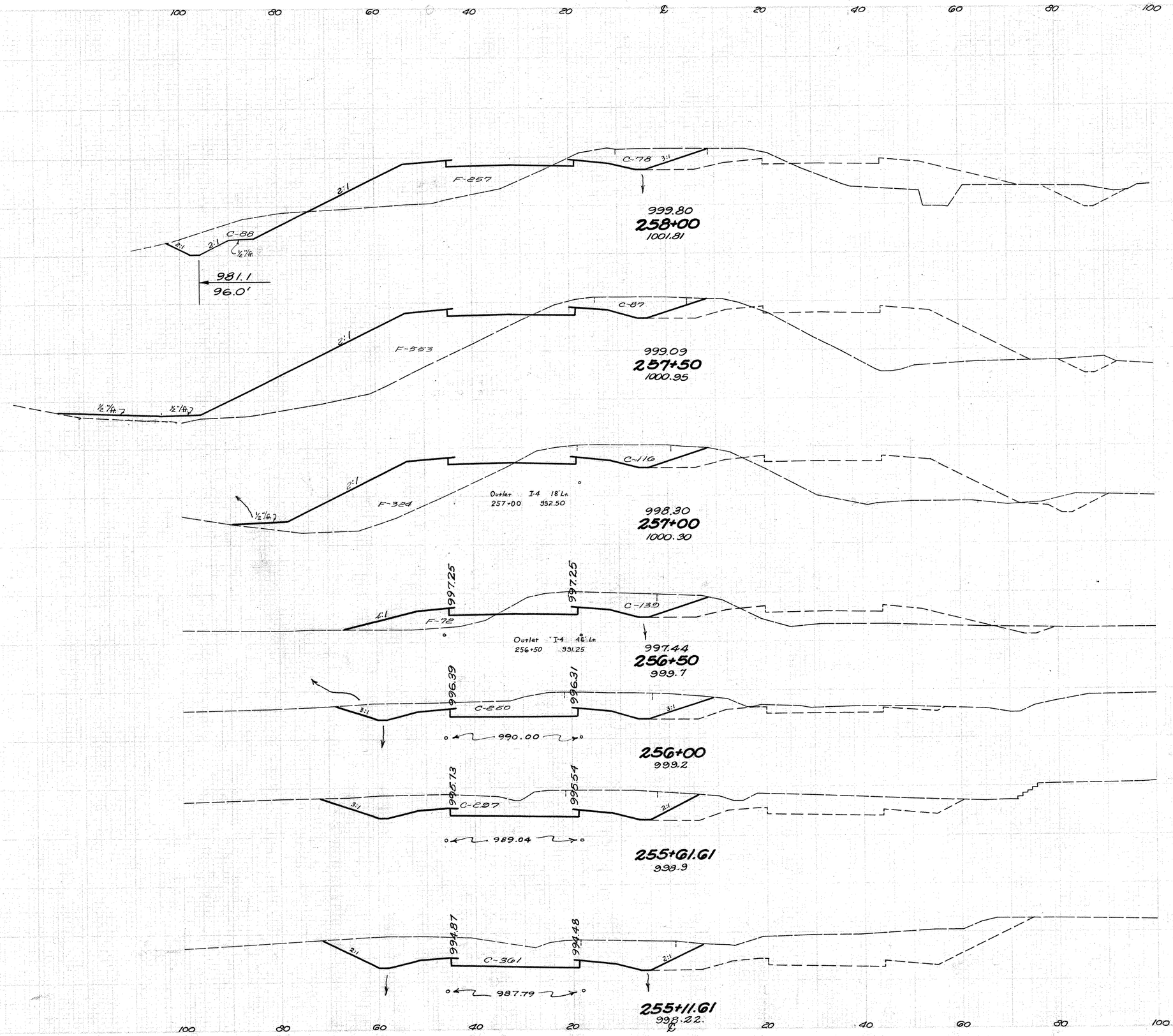
100 80 60 40 20 ℄ 20 40 60 80 100



	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	360	0		
Reb. Drive 254+61.61 Rt.			1008	8
Field Drive 254+61.61 Rt.			80	8
			631	0
	321	0		
			514	0
	234	0		
			398	108
	115	95		
			148	223
	45	144		
			106	533
	70	430		
			146	1099
	88	757		
			142	1481
	65	842		
			154	1623

251+00 — 254+6

LIC.-161-5.12
LIC-35-15.09

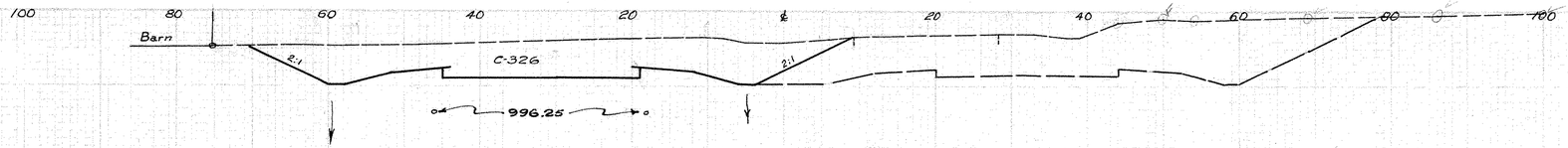


END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
		282	454
166	257		
		234	750
87	553		
		188	812
116	324		
		236	367
139	72		
		360	67
250	0		
		389	0
297	0		
		609	0
361	0		
		668	0

63

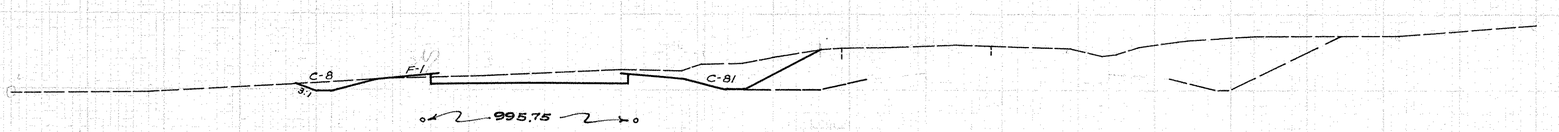
255+11.61 - 258+00

LIC 161~5.12
LIC 37~15.09

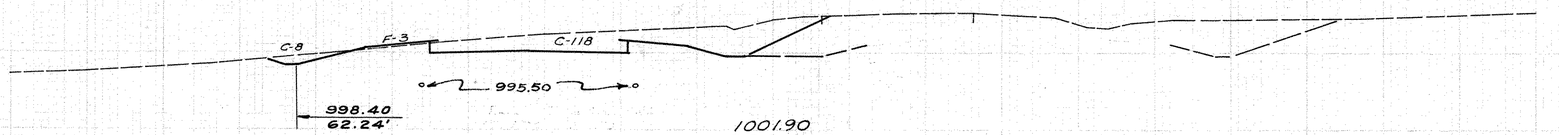


1002.84
261+50
1005.9

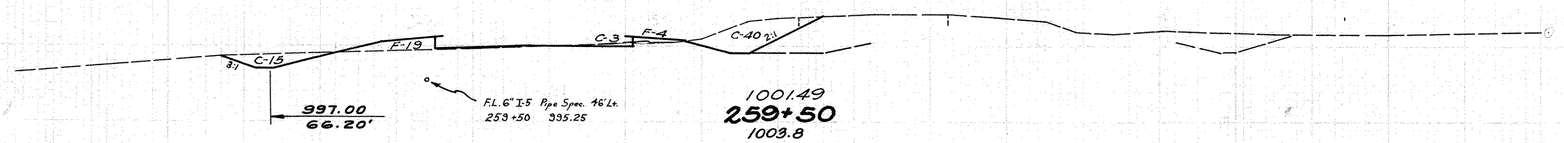
1002.54
261+00
1005.2



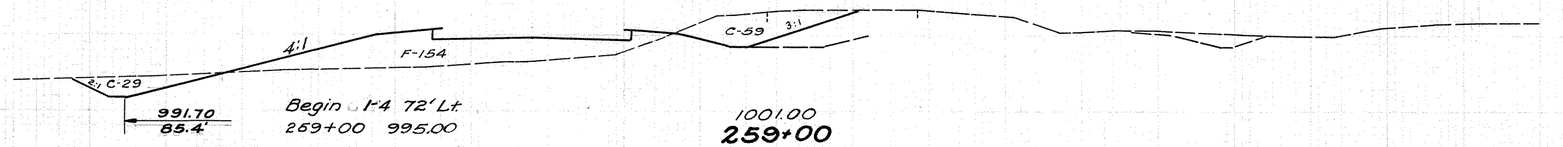
1002.24
260+50
1004.3



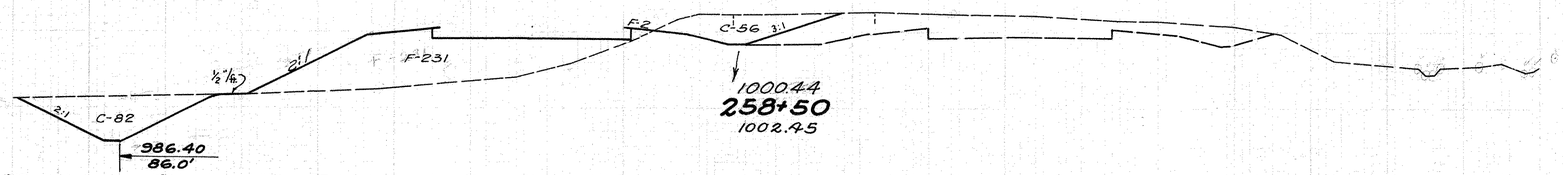
1001.90
260+00
1004.2



1001.49
259+50
1003.8



1001.00
259+00
1003.05



1000.44
258+50
1002.45

	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	326	0		
			537	0
	254	0		
			318	1
	89	1		
Field Drive 260+50 Rt.			551	8
Res. Drive 260+50 Lt.			5	8
			199	4
	126	3		
			170	24
	58	23		
			135	164
	88	154		
			210	358
	139	233		
Approach 258+36.07 Rt.			206	0

258+50 — 261+50

FED. DIV.	STATE	PROJECT	PROJECT YEAR
5	OHIO		

141
238

LIC 161-5.12
LIC 37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

1003.98 1004.76 C-461 2:1 2:1 998.00 1000.30 63.72'

265+00.97
1011.6

1004.06 1004.46 C-273 2:1 2:1 997.75 1000.00 65.24'

264+50.97
1007.9

1003.96 1004.16 C-115 F-108 2:1 997.50

264+00.97
1003.7

1003.79 1003.85 C-297 2:1 2:1 997.25

263+50
1006.5

1003.55 1003.55 C-334 old basement found. 2:1 997.00

1003.74
263+00
1006.94

C-179 2:1 996.75

1003.44
262+50
1006.96

Milk House C-236 2:1 2:1 996.50

1003.14
262+00
1006.44

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
461	0		
		680	0
273	0		
		359	100
115	108		
		389	102
297	0		
		584	0
334	0		
		476	0
179	0		
		384	0
236	0		
		520	0

262+00 - 265+00.97

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

C-556 — 1004.69 — 1006.69 — 2:1 — 999.75 — 1004.48 / 4.48'

268+50
1013.3

C-750 — 1004.51 — 1006.51 — 999.50 — 1002.12 / 58.36'

268+00
1013.8

C-666 — 1004.25 — 1006.25 — 999.25 — 1001.80 / 58.80'

267+50
1014.7

C-738 — 1003.95 — 1005.95 — 999.00 — 1001.50 / 58.80'

267+00
1015.3

C-600 — 1003.69 — 1005.66 — 998.75 — 1001.20 / 58.84'

266+50.97
1013.0

C-489 — 1003.76 — 1005.36 — 998.50 — 1000.90 / 60.44'

266+00.97
1011.2

C-477 — 1003.36 — 1005.06 — 2:1 — 998.25 — 1000.60 / 62.04'

265+50.97
1011.0

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
556	0		
		1209	0
750	0		
		1311	0
666	0		
		1300	0
738	0		
		1215	0
600	0		
		1008	0
489	0		
		894	0
477	0		
		868	0
		10	10

Res. Drive 265+01 Lt.

265+50.97 = 268+50

LIC-161-5.12
LIC-37-15.09

100 80 60 40 20 ℄ 20 40 60 80 100

1004.18 C-288 1005.78
2:1 ½"/ft 2:1
1000.90 62.12' 998.42 1002.8 2.00'

271+95.25
1009.0

1004.17 C-376 1006.14
1001.12 61.20' 999.02 1003.30 0.92'

271+45.25
1009.8

1004.41 C-500 1006.41
½"/ft
1001.32 61.36' 999.20 1003.48 1.60'

271+00
1011.5

1004.62 C-667 1006.62
1001.54 61.32' 999.40 1003.68 1.56'

270+50
1014.3

Shed

1004.76 C-736 1006.76
1001.77 61.00' 999.60 1003.89 1.84

269+98
1016.0

1004.82 C-535 1006.82
1001.98 60.36' 999.80 1004.08 2.36'

269+50
1014.0

1004.79 C-420 1006.79
2:1 2:1
1002.20 59.36' 1000.00 1004.28 3.28'

269+00
1012.5

100 80 60 40 20 ℄ 20 40 60 80 100

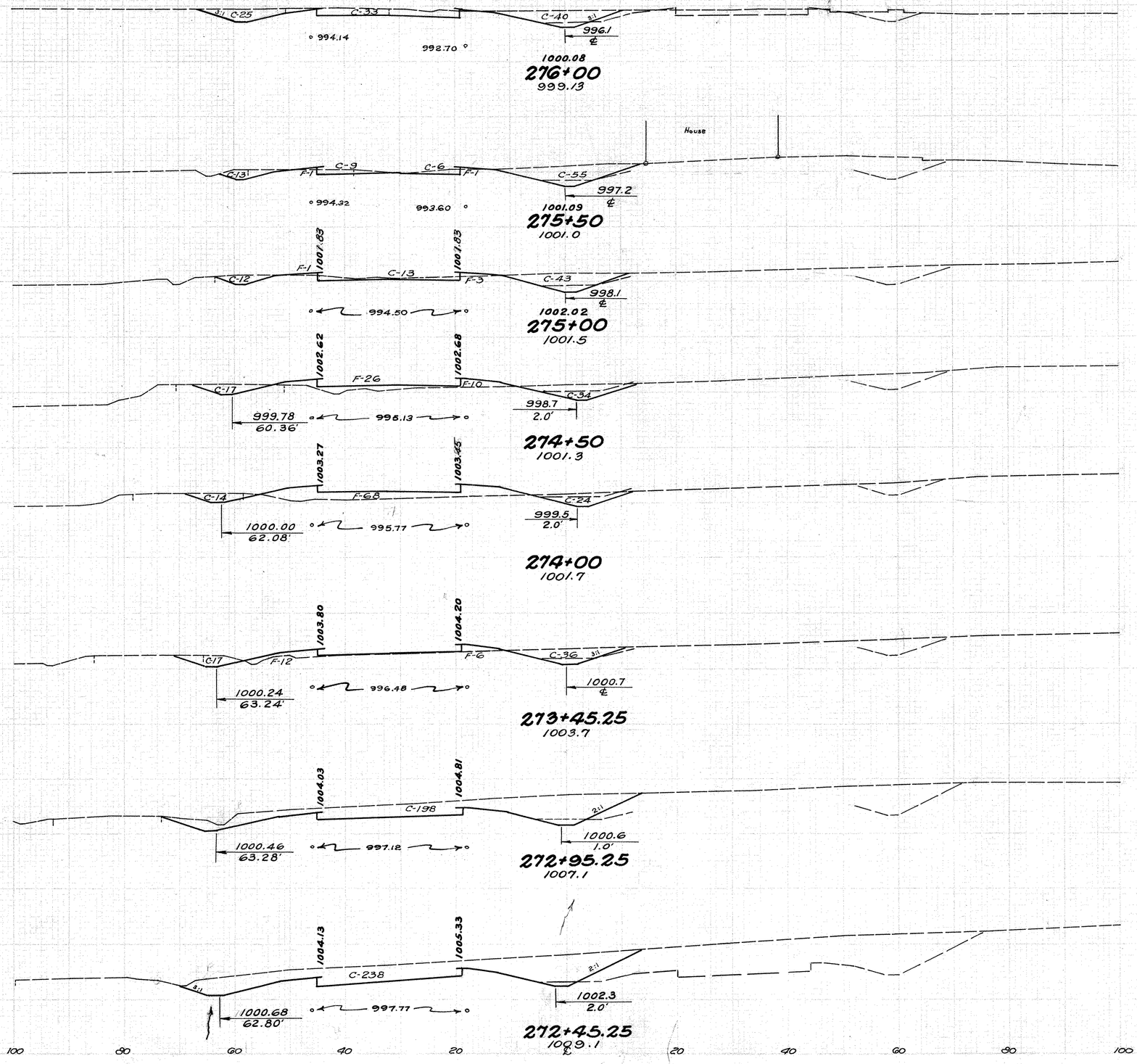
	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	288	0		
			615	0
	376	0		
			734	0
	500	0		
Res. Drive 271+00 Rt.			1376	10
Field Drive 271+00 Lt.			116	10
			1081	0
	667	0		
			1351	0
	736	0		
			1130	0
	535	0		
			884	0
	420	0		
			904	0

269+00 – 271+95.25

PROJ. NO. DIVISION	STATE	PROJECT	TOTAL SHEETS
2	OHIO		144 238

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
98	1		
		168	3
83	2		
		140	6
68	4		
		110	37
51	36		
		82	96
38	63		
		93	87
53	18		
		232	17
198	0		
		404	0
238	0		
		487	0

272+45.25 — 276+00

LIC 161- 5.12
LIC 37- 15.09

100 80 60 40 20 ℄ 20 40 60 80 100

C-27 3:1 F-410 C-1 F-1 C-20 3:1
980.97 87.60'
990.81
279+50
985.69
981.8 20.0

C-47 F-331 C-16
984.92 78.00'
992.37
279+00
986.8
983.42 20.0'

F-41 F-135 C-7
988.87 68.16'
984.9 20.0'
993.85
278+50
987.8

C-92 C-4 F-86 C-37
991.00 65.3'
987.1 17.0'
995.26
278+00
991.4

C-86 F-33 C-40
993.5 60.6'
Outlet I-4 60' Lt. 993.60
277+50 10' Rt. 990.00
989.3 13.0'
996.58
277+50
993.9

C-35 F-1 C-15 F-10 C-28
° 993.78
990.90 °
992.5 5.5'
997.83
277+00
995.4

C-21 3:1 C-40 F-1 C-16 3:1
° 993.96
991.80 °
995.1 ℄
999.00
276+50
997.2

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
48	411		
		103	687
63	331		
		103	487
48	135		
		168	260
133	86		
		240	110
126	33		
		189	41
78	11		
		144	11
77	1		
		16.2	2
		15	10
		4	7

Field Drive 276+08 Rt.
Residence Drive 276+08 Lt.

276+50 — 279+50

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

2:1 C-697 2:1

972.24

978.00
283+00
983.5

C-660

974.16

979.92
282+50
986.5

House

C-610

976.08

981.84
282+00
988.7

2:1 C-274 2:1

980.0
63.3

Begin 6" I-A , 18'Lt. & 46'Lt.
281+50 978.00

983.76
281+50
988.1

3:1 F-75 F-1 C-1 C-50 3:1

982.70
4.0'

985.64
281+00
986.43

2:1 F-361 C-35 3:1

982.50
4.0'

987.44
280+50
985.53

Channel

2:1 ½"/ft. 3:1 C-26 F-489 C-26

977.50
80.00'

982.3
11.0'

989.16
280+00
985.36

100 80 60 40 20 ℄ 20 40 60 80 100

	END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
	697	0		
			1247	0
	650	0		
			1167	0
	610	0		
			818	0
Field Drive 282+00 Rt.			1369	8
Res. Drive 282+00 Lt.			375	8
	274	0		
			301	70
Res. Drive 281+50 Rt.			1212	8
	51	76		
			80	405
	35	361		
			81	787
	52	489		
			93	833

280+00 – 283+00

FED. ROAD DIV.	STATE	PROJECT	SHEET NO.
2	OHIO		

147
238

LIC 161~ 5.12
LIC 37~ 15.09

100 80 60 40 20 ℄ 20 40 60 80 100

C-894
2:1
960.72
962.3
1.0'
966.48
286+00
965.7

C-870
962.64
968.40
285+50
968.4

C-800
964.56
970.32
285+00
972.2

C-903
966.48
972.24
284+50
973.9

C-885
968.40
974.16
284+00
973.3

C-770
970.32
976.08
283+50

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
		1436	0
894	0		
		1633	0
870	0		
		1546	0
800	0		
		1573	0
899	0		
		1652	0
885	0		
		1532	0
770	0		
		1358	0

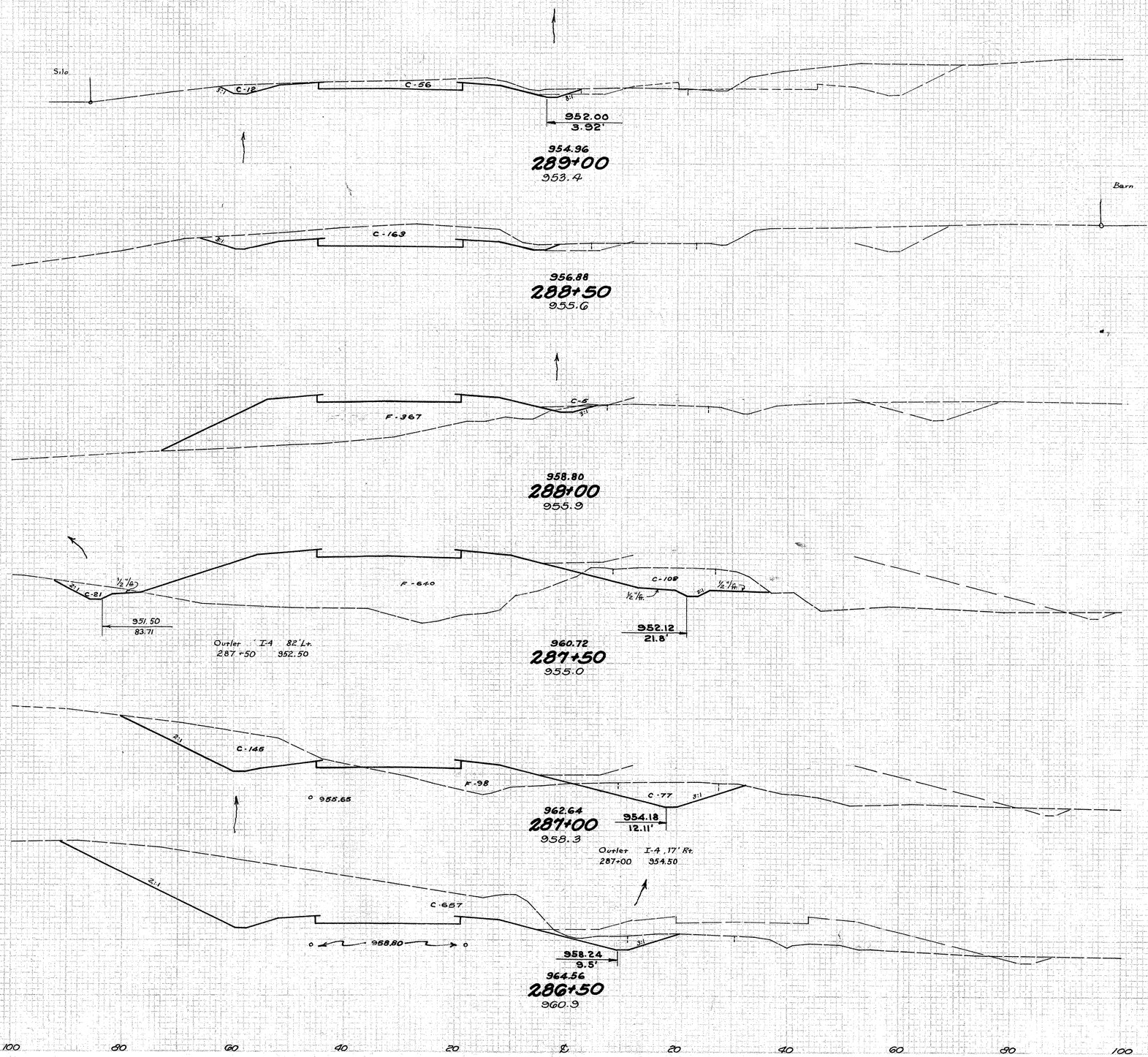
283+50 – 286+00

ENG. DIV.	STATE	PROJECT	FED. FUNDS
2	OHIO		

148
238

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100



ENDAREA		CU. YDS.	
CUT	FILL	CUT	FILL
68	0		
		214	0
163	0		
		156	340
5	367		
		124	932
		0	150
129	640		
		325	683
222	98		
		814	91
657	0		

Fill over Pipe 287+65.15

286+50 – 289+00

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

C-177 C-44
3:1 3:1
938.5
14.0'
944.95
938.30
74.84'
292+50
942.35

F-151
C-13 C-64
938.8
12.8'
945.96
939.90
72.48'
292+00
943.22

F-33 F-2
C-34 F-32 C-25
942.1
4.3'
947.11
941.50
70.68'
291+50
944.45

F-19 F-20
C-24 C-17
944.0
1.8'
948.40
943.10
69.44'
291+00
946.03

Garage
F-32
C-6 C-5 F-18 C-16
945.9
℄
949.83
944.70
68.76'
290+50
947.81

House
F-118
C-4 C-14
947.7
1.0'
951.40
945.80
70.64'
290+00
949.55

F-74
C-5 C-19
3:1
949.50
1.3'
953.11
948.00
68.68'
289+50
951.2

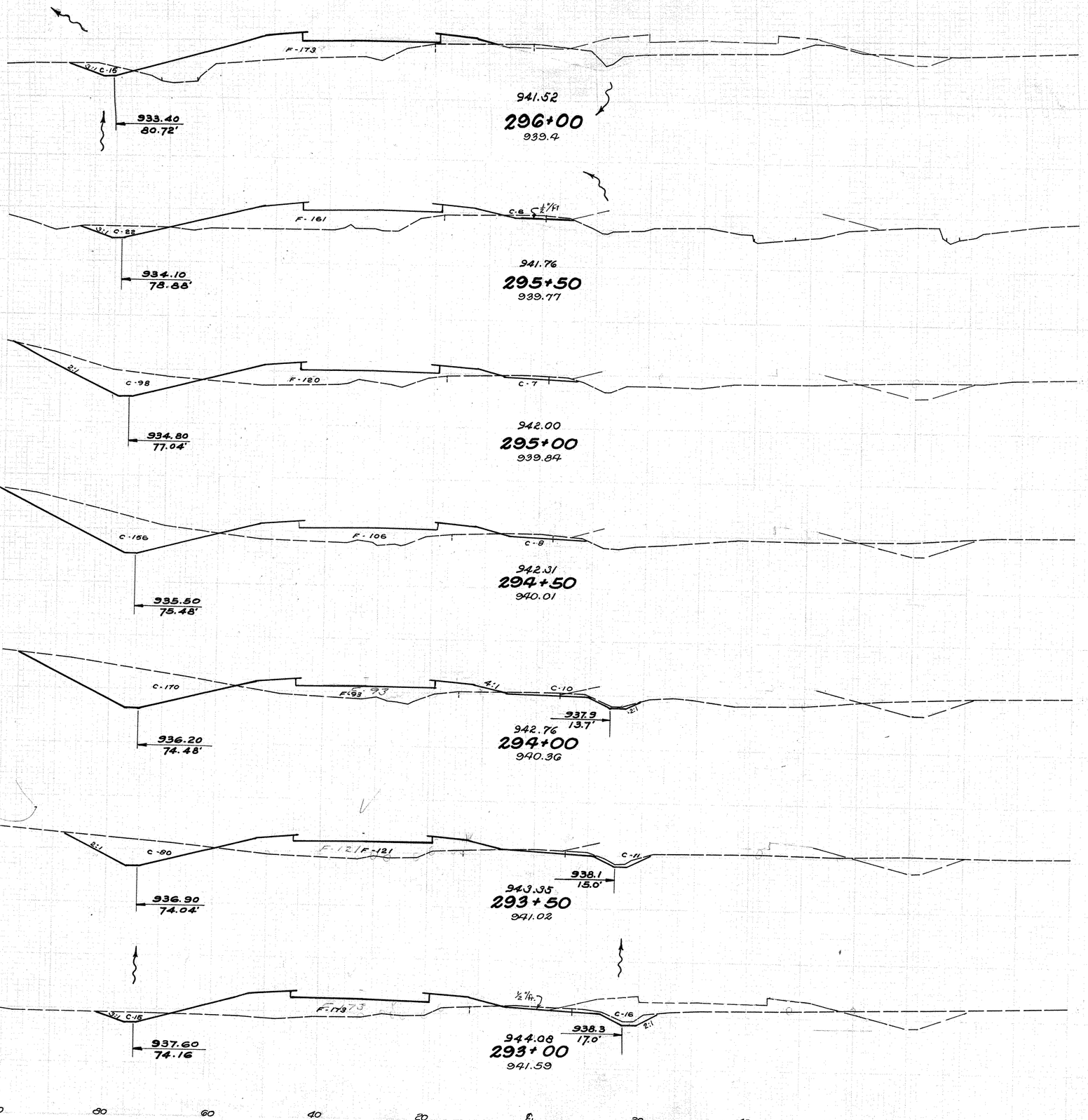
100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
52	177		
		110	304
67	151		
		117	202
59	67		
		95	98
44	33		
		66	80
27	47		
		0	32
		50	35
		42	153
18	118		
		34	178
19	74		
		81	69

Field Drive 290+50 Lt.
Res. Drive 290+50 Rt.

289+50 - 292+50

100 80 60 40 20 ℄ 20 40 60 80 100



150
238

LIC 161~5.12
LIC 37~15.09

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
15	173		
		40	309
28	161		
		123	260
105	120		
		249	209
164	106		
		319	184
180	93		
		251	198
91	121		
		113	272
31	173		
		77	324

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

March Line

C-536 2:1 2:1
931.15
84.0'
932.80
940.08
299+00
941.9

F-26 C-2 C-63
C-84 3:1
931.0
86.1'
F.L. 6" I-5 Pipe Spec., 46' Lt.
298+50 932.60
940.32
298+50
940.3

C-6 F-3 C-33 2:1
F-102
C-57
930.85
87.1'
938.8
0.8'
Begin I-4 80' Lt.
298+00 932.40
940.56
298+00
939.3

F-139
C-13
933.70
76.6'
C-17 3:1
936.6
1.2'
940.80
297+50
938.4

F-145
C-9
933.5
78.4'
C-15
936.4
2.8'
941.04
297+00
938.4

F-163
3:1 C-16
933.3
79.0'
C-18 3:1
936.2
4.6'
941.28
296+50
938.5

Field Drive 296+50 Rt.

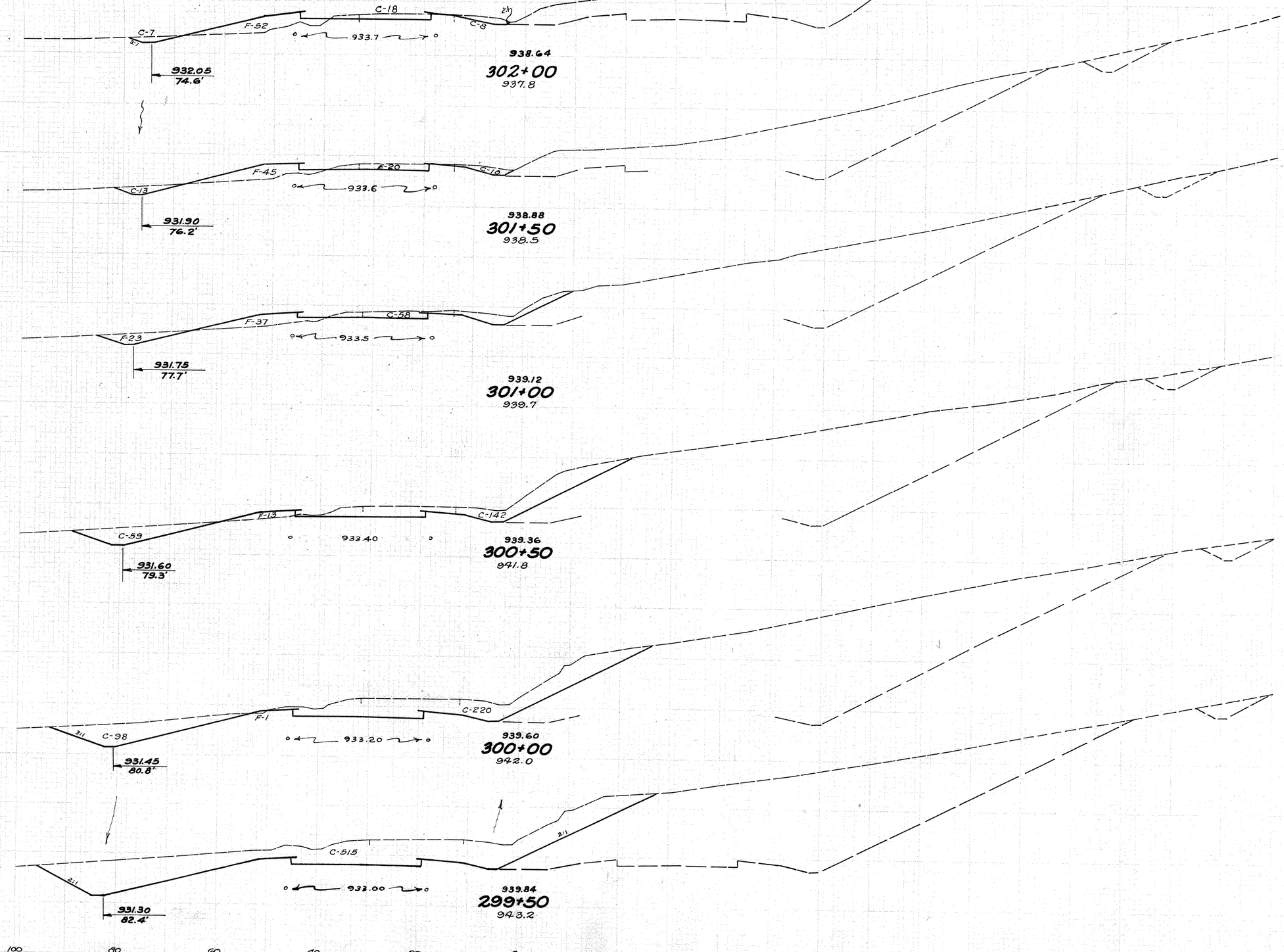
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
536	0		
		634	24
149	26		
		227	121
96	105		
		117	226
30	139		
		50	263
24	145		
		54	285
34	163		
		5	105
		45	311

100 80 60 40 20 ℄ 20 40 60 80 100

100 80 60 40 20 0 20 40 60 80 100

152
238

LIC 161-5.12
LIC 37-15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
33	52		
		70	90
43	45		
		115	76
81	37		
		261	46
201	13		
		481	13
318	1		
		771	1
515	0		
		973	0

100 80 60 40 20 0 20 40 60 80 100

153
238

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

C-975
2:1 2:1
933.6 933.4
936.96
305+50
950.7

C-688
933.9 933.8
937.20
305+00
947.5

C-328
2:1 2:1
932.8
66.8'
Begin 6" I-14 46' Lt. & 18' Lt.
Sta. 304+50 Elev. 934.2
937.44
304+50
939.8

End 6" I-14 46' Lt. & 18' Lt
Sta. 304+40 Elev. 934.2

F-4 C-133
3:1 C-61 3:1
934.1
932.65
68.4'
937.68
304+00
939.4

F-6 C-1 C-81
F-1
C-64 3:1
934.0
932.50
69.9'
937.92
303+50
939.3

F-28 C-52
C-22 2:1
933.9
932.35
71.5'
938.16
303+00
937.4

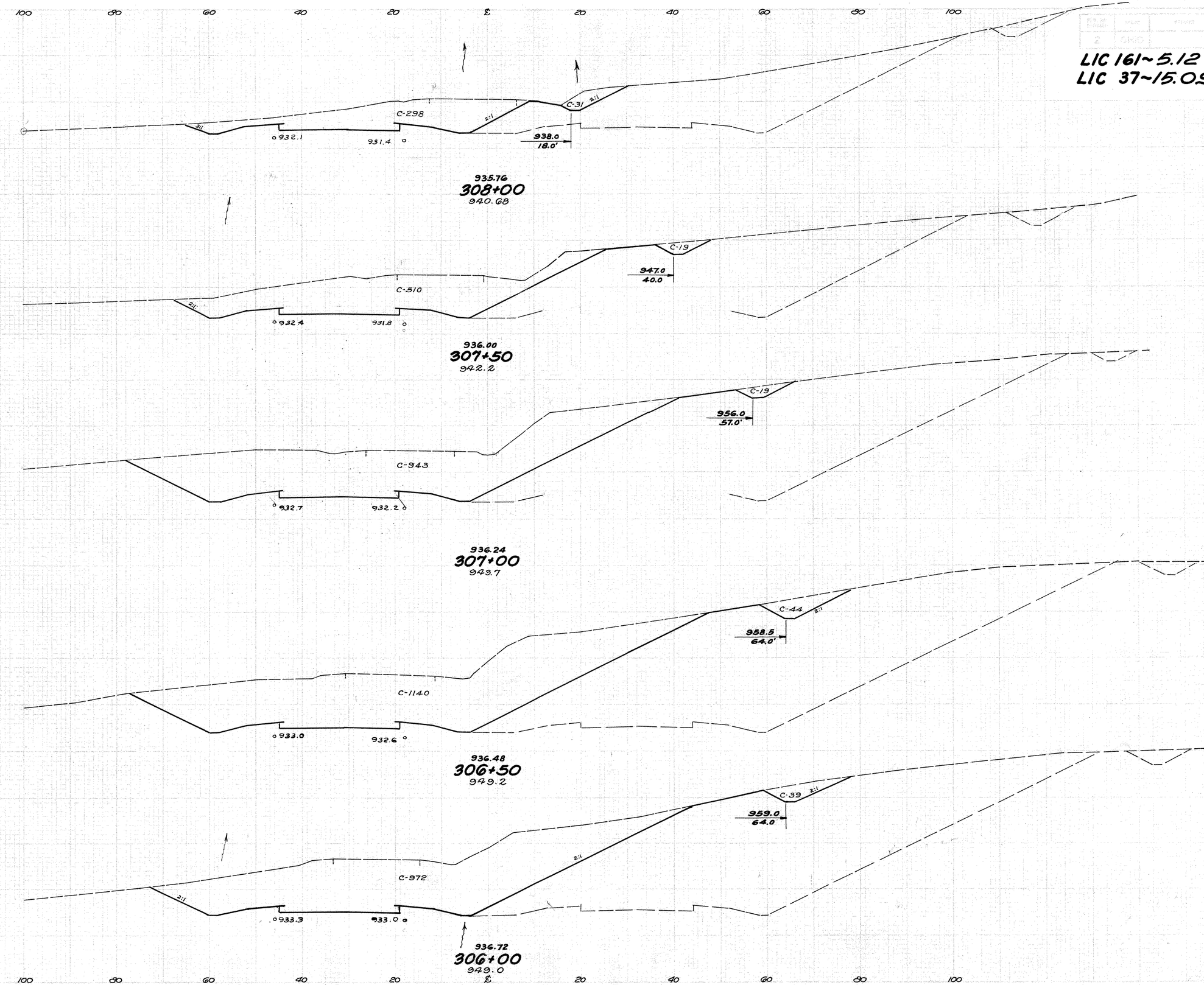
C-18 F-1
C-8 F-40 C-13 3:1
3:1
933.8
932.20
73.0'
938.40
302+50
938.1

100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU YDS.	
CUT	FILL	CUT	FILL
975	0		
		1540	0
688	0		
		941	0
328	0		
		483	4
194	4		
		315	10
146	7		
		204	92
74	28		
		105	64
39	41		
		67	86

302+50 — 305+50

LIC 161~5.12
LIC 37~15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
329	0		
		794	0
529	0		
		1381	0
962	0		
		1987	0
1148	0		
		2051	0
1031	0		
		1857	0

306+00 — 308+00

FED. AID DIVISION	STATE	PROJECT	TYPE WORK
2	OHIO		

155
238

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

Barn

2:1 E-5 2:1

926.5
67.2'

F-427

C-258 2:1

927.9
58.0'

934.32
311+00
928.1

4'-0" 2'-0" 2'-0"

2:1 2:1 2:1

Scale 3/8" = 1'

DETAIL OF DIKE & DITCH
Sta. 310+75 — Sta. 316+32

Barn

C-3 2:1

926.8
67.3'

F-303

C-158

929.9
45.0'

934.56
310+50
929.9

Milk House

C-6 2:1

927.5
66.4'

F-200

C-122

930.1
31.0'

934.80
310+00
931.5

C-7

F-42

C-1

F-5

C-128

930.0
67.0'

930.3
16.0'

935.04
309+50
933.0

C-12 2:1

Outlet 6" I-4 60' Lt.
308+98 Elev. 931.6

C-220

930.5
3.4'

Outlet I-4 3' Rt.
308+98 Elev. 930.6

935.28
309+00
936.8

Bus. Drive 309+25 Lt.

C-192 2:1

935.52
308+50
939.0

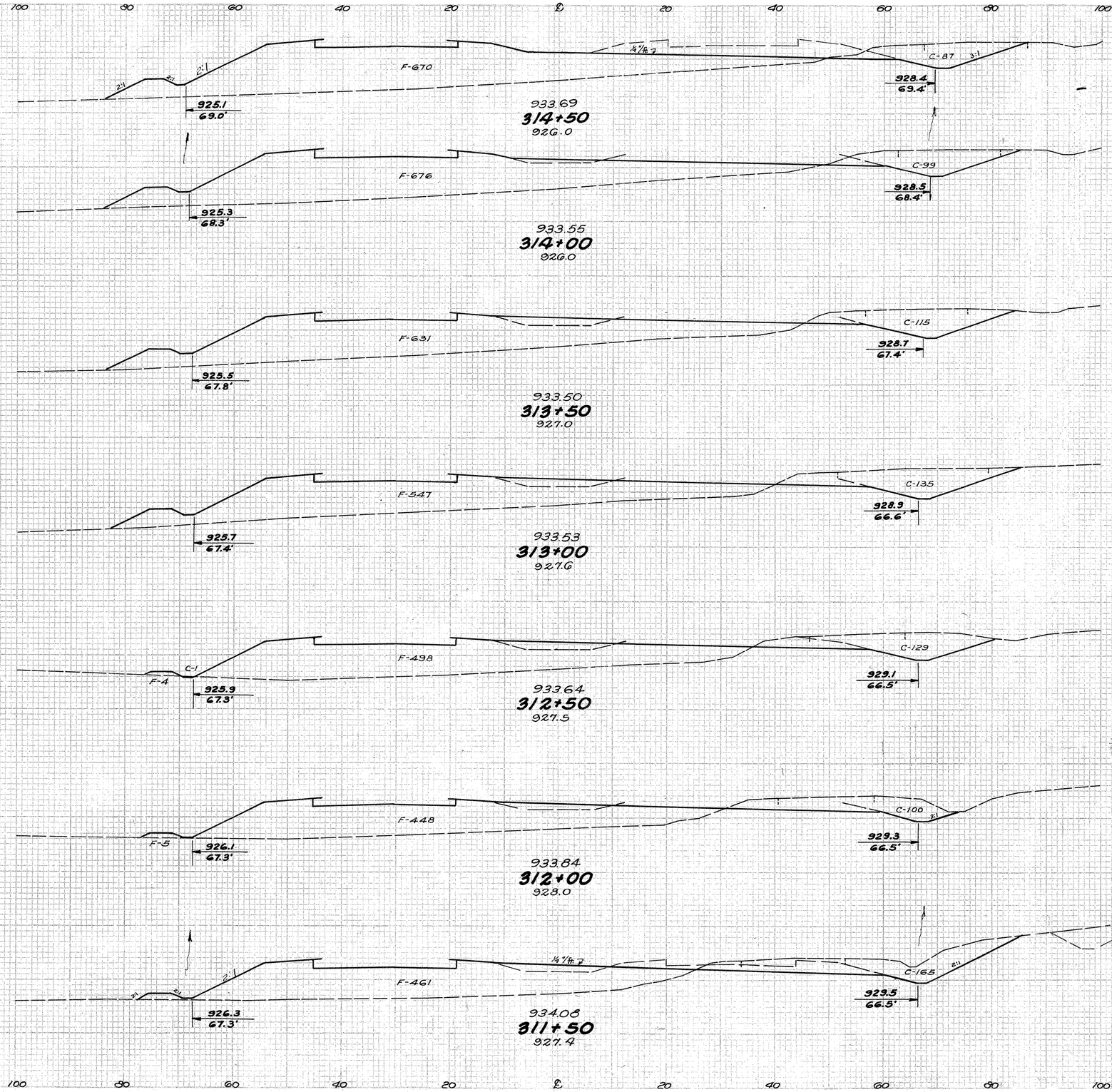
100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
263	427		
		393	676
161	303		
		268	466
128	200		
		244	229
136	47		
		341	44
232	0		
		0	25
		393	0
192	0		
		482	0

308 + 50 — 311 + 00

FED. AID PROJECT NO.	STATE	PROJECT	TYPE FUNDS	SHEET NO.
-2	OHIO			156 238

LIC 161~ 5.12
LIC 37~ 15.09



END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
87	670		
		172	1246
99	676		
		198	1210
115	631		
		231	1091
135	547		
		6	74
		245	971
130	502		
		213	884
100	453		
		245	846
165	461		
		396	822

Res. Drive 312+96 Rt.

311+50 – 314+50

FED. RD. DIST. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
2	OHIO			157 / 238

LIC 161~5.12
LIC 37~15.09

100 80 60 40 20 ℄ 20 40 60 80 100

F-1062 — 2:1 — ¼"/ft. — 2:1 C-51 — ½"/ft.
927.40 / 100'

937.03
318+00
926.7

F-898 — C-56
927.55 / 100'

936.30
317+50
926.8

F-820 — C-60
927.75 / 100'

935.65
317+00
926.6

F-800 — C-62
927.9 / 100'
¼"/ft. — 928.0 / 97.0 — ½"/ft.

935.09
316+50
926.6

316+35

F-774 — 2:1 — 2:1 — C-64
924.5 / 72.0'
928.1 / 94.0'

934.62
316+00
926.0

F-718 — C-55 3:1
924.7 / 70.8'
928.2 / 78.0'

934.23
315+50
926.4

F-675 — 2:1 — 2:1 — ¼"/ft. — C-62 3:1
924.9 / 63.8'
928.3 / 70.7'

933.92
315+00
926.1

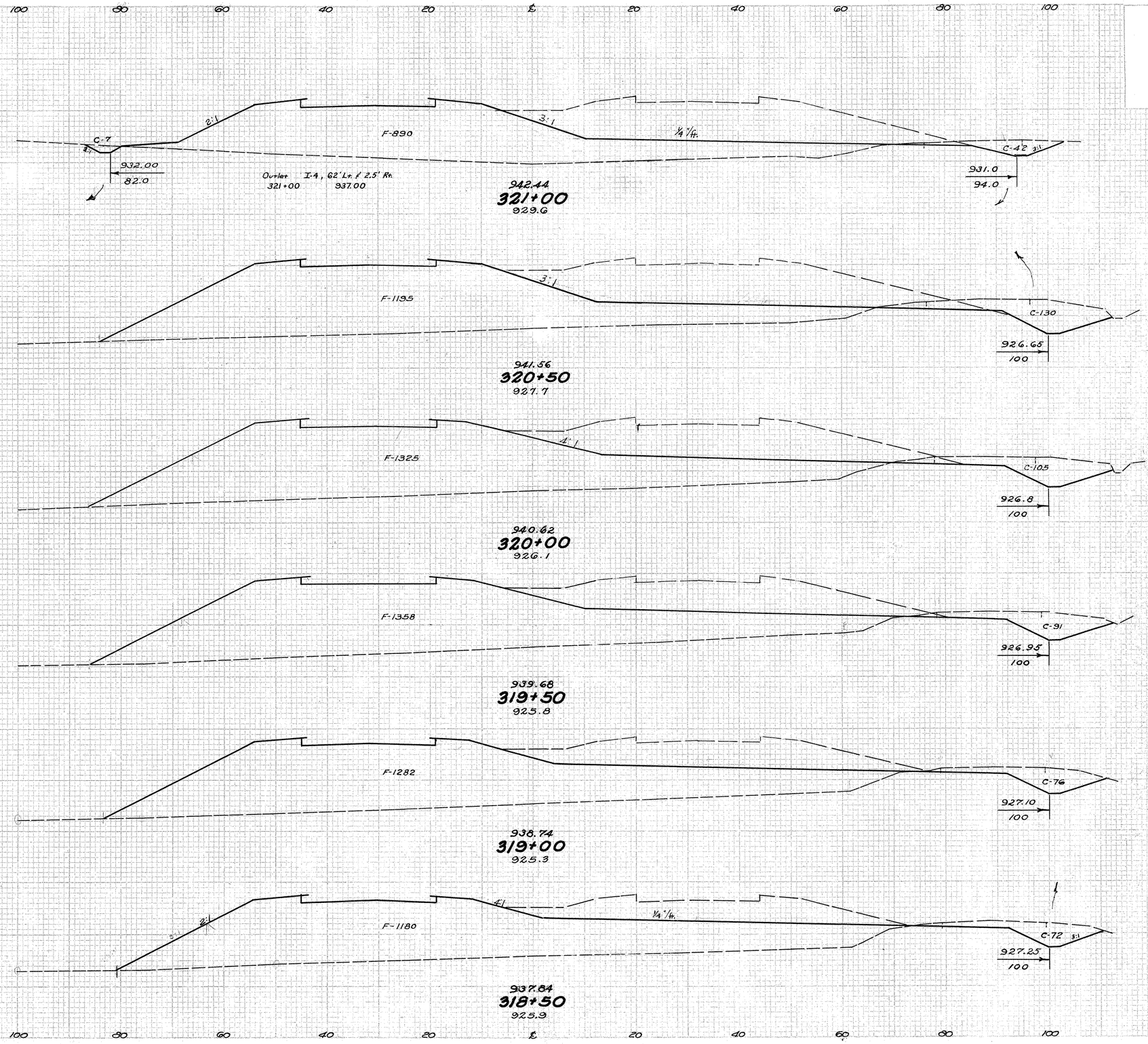
100 80 60 40 20 ℄ 20 40 60 80 100

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
51	1062		
		99	1815
56	898		
		107	1591
60	820		
		113	1560
62	800		
		117	1457
64	774		
		110	1381
55	718		
		108	1290
62	675		
		138	1245

315+00 — 318+00

FED. RD. DIV.NO.	STATE	PROJECT	TYPE FUNDS	158 238
2	OHIO			

LIC.-161-5.12
LIC.-37-15.09



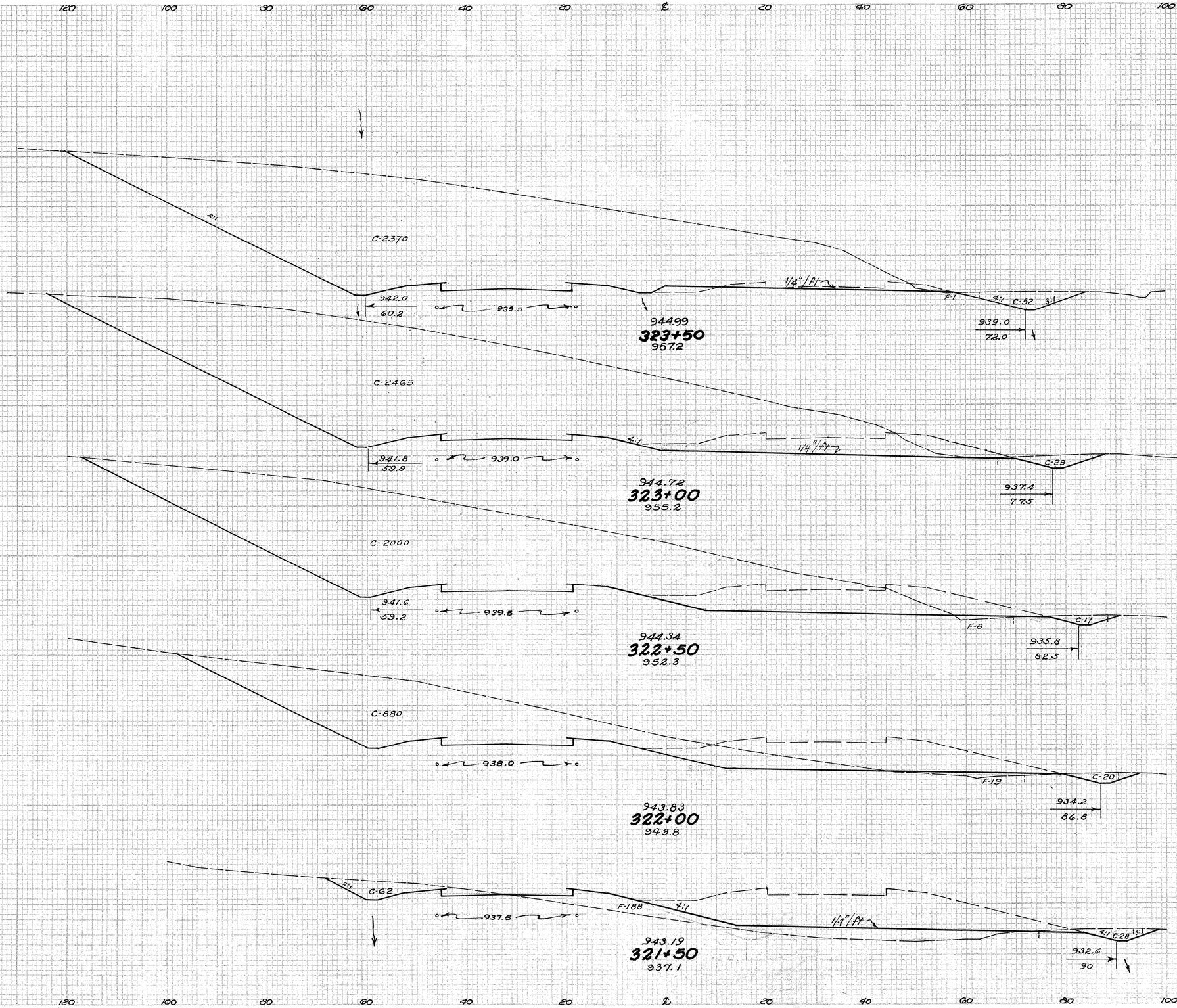
END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
49	890		
		166	1931
130	1195		
		218	2333
105	1325		
		181	2484
91	1358		
		155	2444
76	1282		
		137	2280
72	1180		
		114	2076

318+50 — 321+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

159
238

LIC.-161-5.12
LIC.-37-15.09



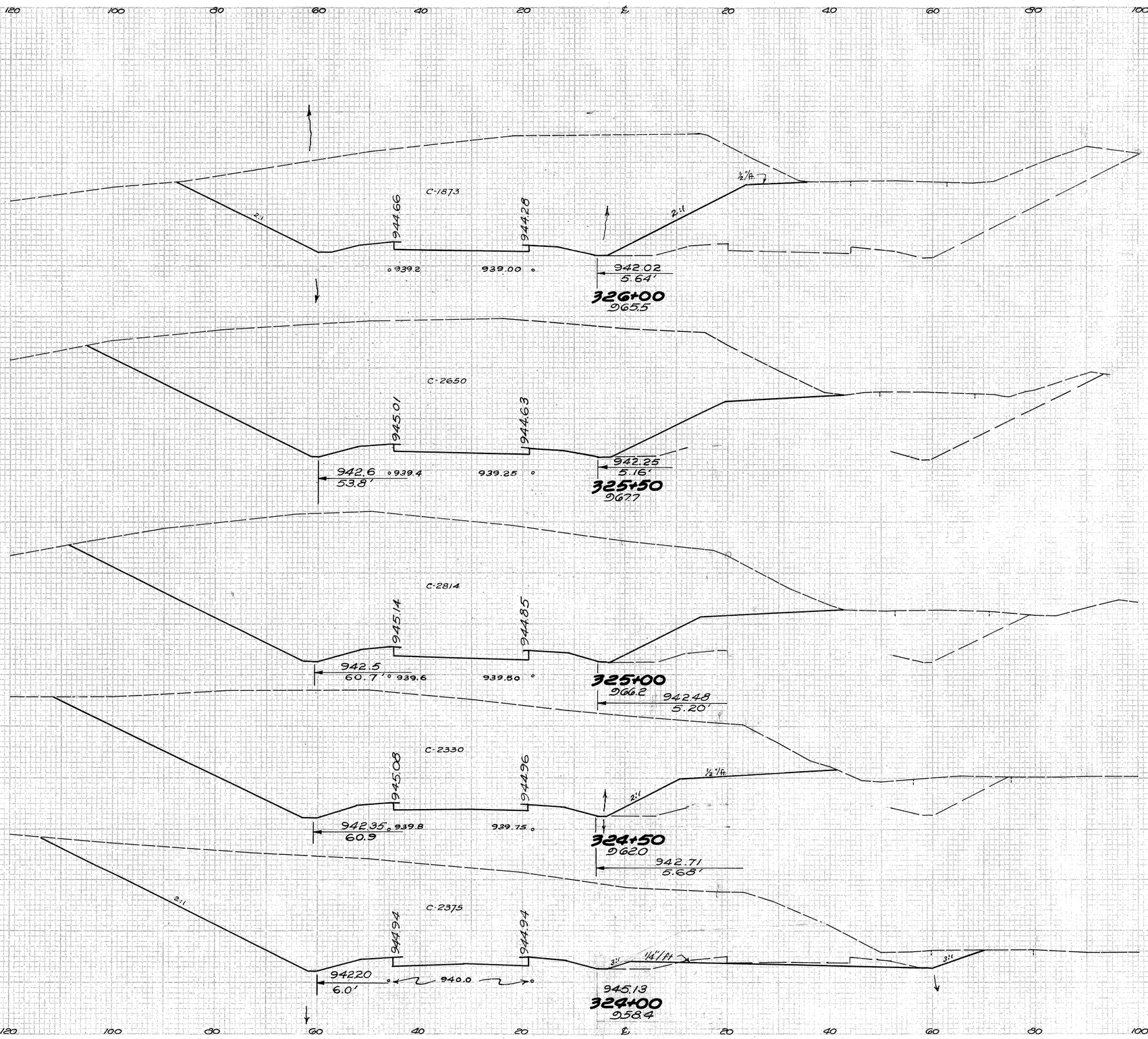
END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
		4442	1
2422	1		
		4552	1
2494	0		
		4177	7
2017	8		
		2701	25
900	19		
		917	192
Field Drive 321+50 Rt.		0	441
Field Drive 321+50 Lt.		27	2
90	188		
		129	998

321+50 - 323+50

FED. RD. DIVISION	STATE	-	PAGE	TYPE FORMS
2	OHIO			

160
238

LIC.-161 - 5.12
LIC.-37 - 15.09

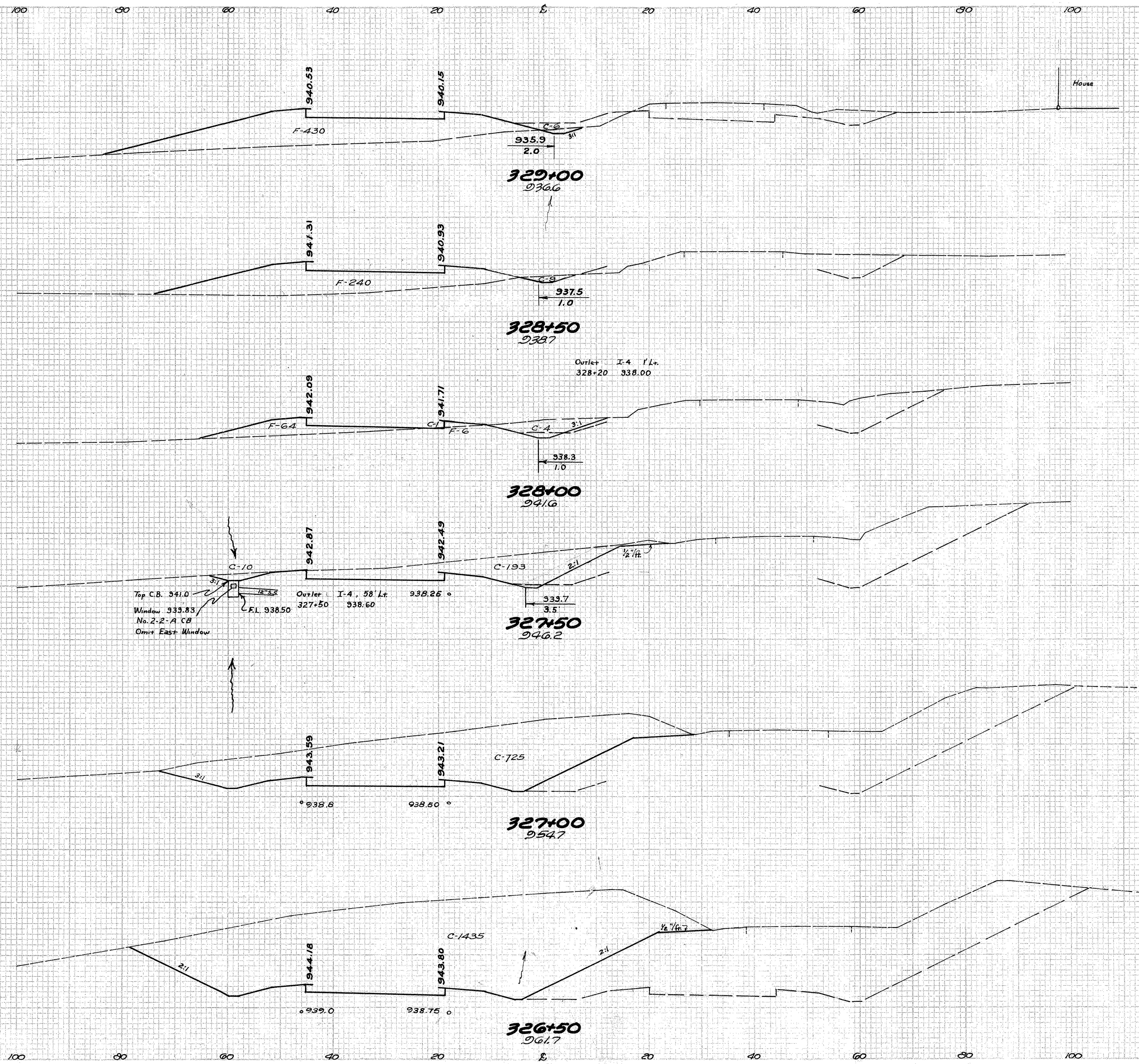


END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
		3063	0
1873	0		
		4188	0
2650	0		
		5059	0
2814	0		
		4763	0
2330	0		
		4366	0
Approach 324+22.35 Rt.		1136	18
2375	0		

324+00 - 326+00

FED. RD. DIVISION	STATE	PROJECT	TYPE ROADS	
2	OHIO			161 / 238

LIC 161~ 5.12
LIC 37~ 15.09



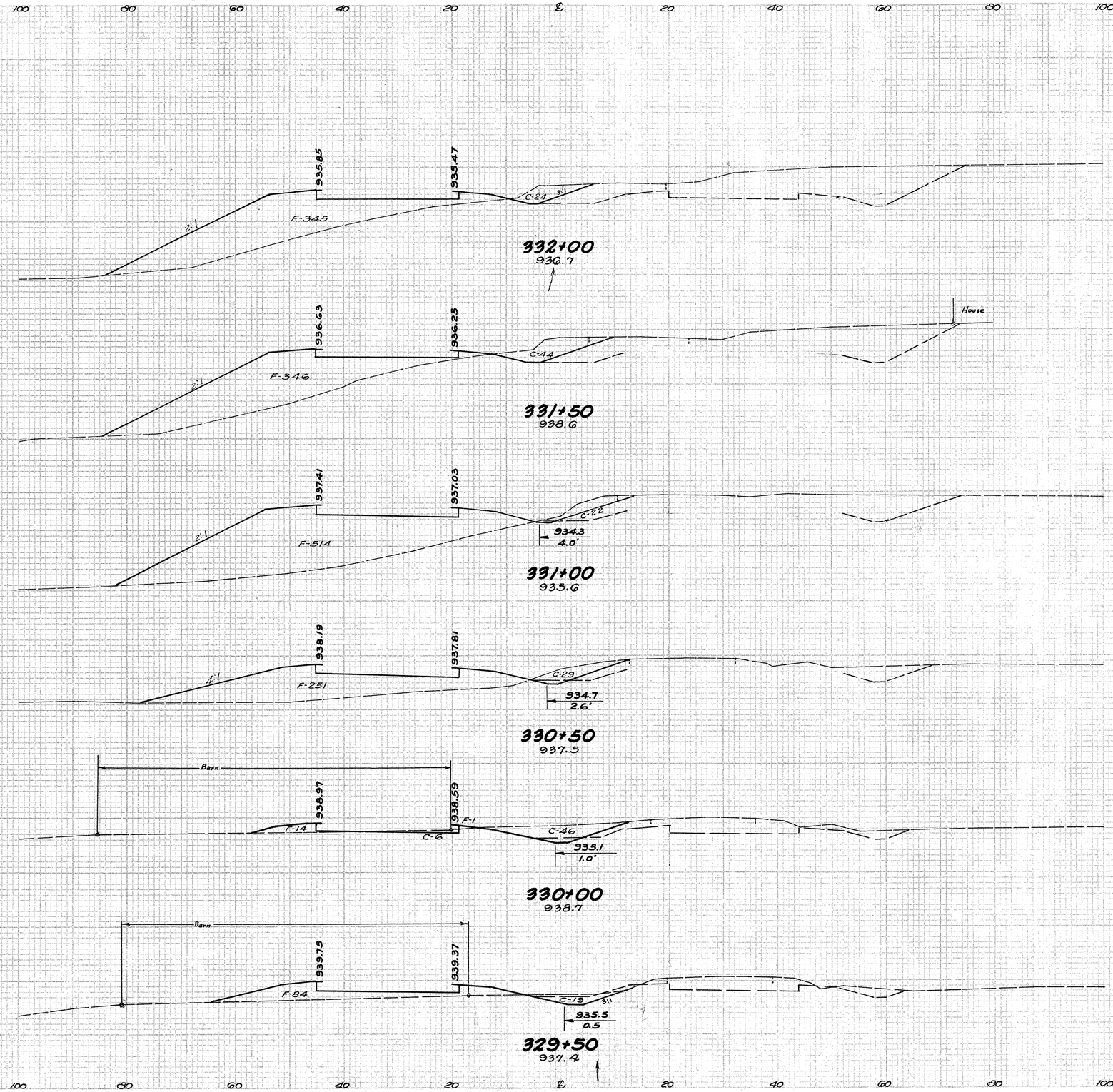
END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
6	430		
		14	620
9	240		
		50	287
45	70		
		230	65
203	0		
		859	0
725	0		
		2000	0
1435	0		

326+50 – 329+00

STATE	PROJECT	TYPE FUNDS
OHIO		

162
238

LIC 161~5.12
LIC 37~15.09



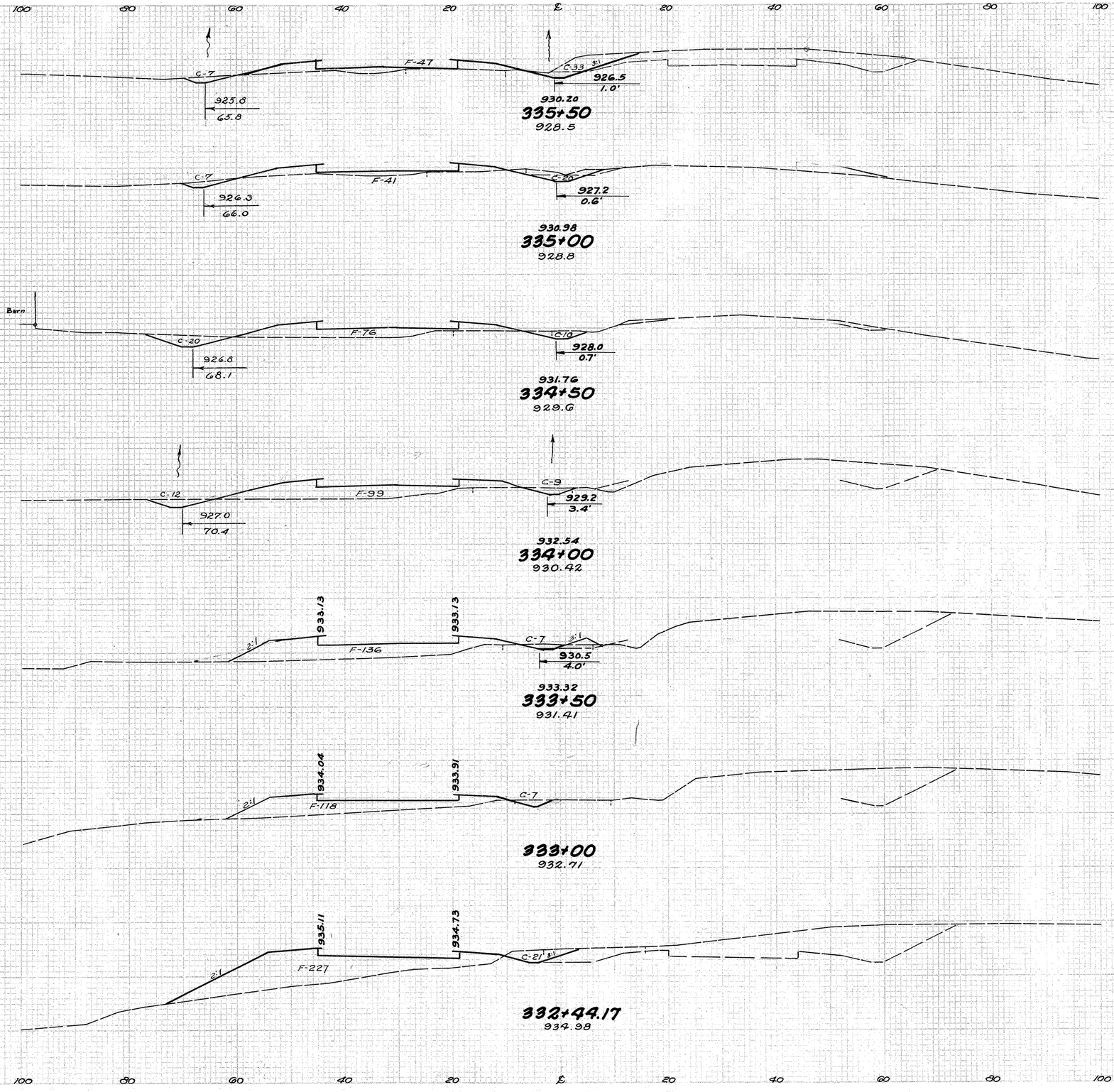
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
24	345		
		63	640
44	346		
		61	796
22	514		
		47	708
29	251		
		75	246
52	15		
Res. Drive 330+00 Lt.		5	10
Res. Drive 330+00 Rt.		129	10
		66	92
19	84		
		23	476

329+50 ~ 332+00

FED. ROAD DIVISION	STATE	PROJECT	FED. FUNDS
5	OHIO		

163
238

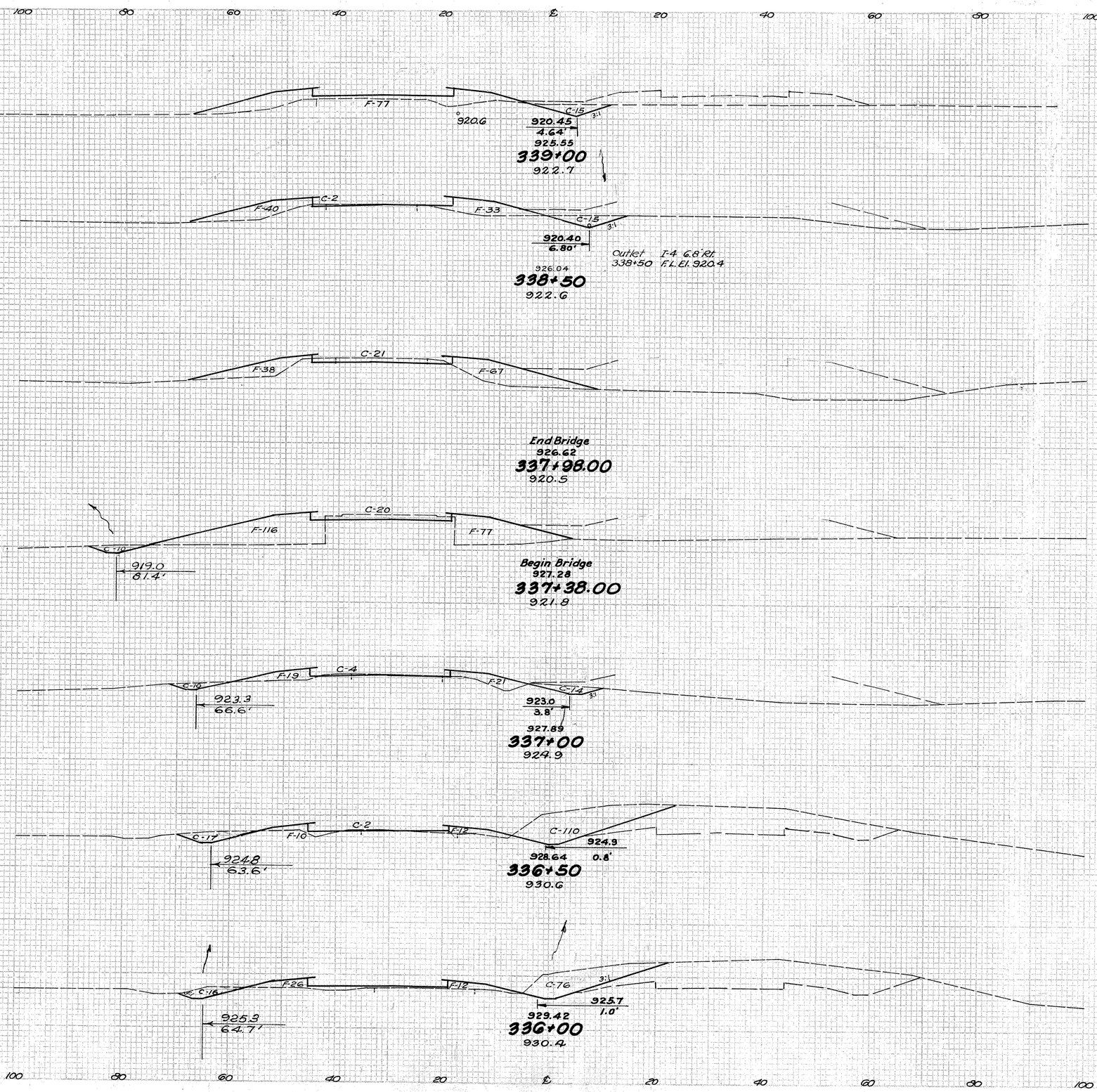
LIC 161~ 5.12
LIC 37~ 15.09



	END AREA		CU. YDS.	
	CUT	FILL	CUT	FILL
	40	47		
			62	81
Res. Drive 335+00 Rt.	27	41	5	160
Res. Drive 335+00 Lt.			1	23
			53	108
	80	76		
			47	162
	21	99		
			26	218
	7	136		
			13	235
	7	118		
			29	357
	21	227		
			37	468

332+44.17~ 335+50

LIC 161~ 5.12
LIC 37~ 15.09



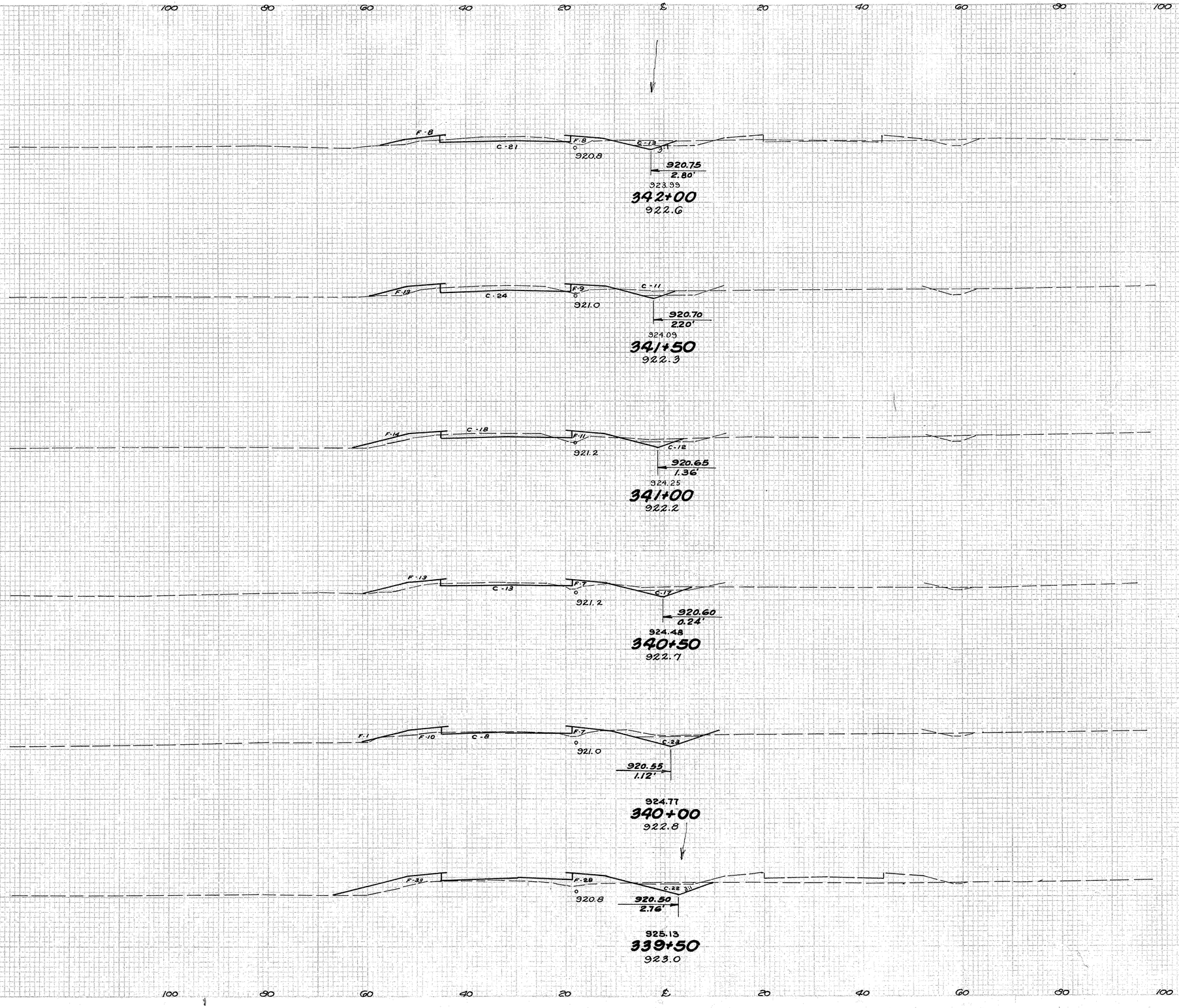
	END AREA		CU YDS.	
	CUT	FILL	CUT	FILL
	15	77		
			30	139
	17	73		
			37	171
End Bridge Begin Earthwork 337+98.00	21	105		
Spill thru Embankment				42
Begin Bridge End Earthwork 337+38.00	30	193		
			54	164
	28	40		
			146	57
	129	22		
			205	56
	92	38		
			122	79

336+00 — 339+00

SECTION DESIGNATION	STATE	PROJECT	SHEET NUMBER
4	OHIO		

165
238

LIC 161~ 5.12
LIC 37~ 15.09



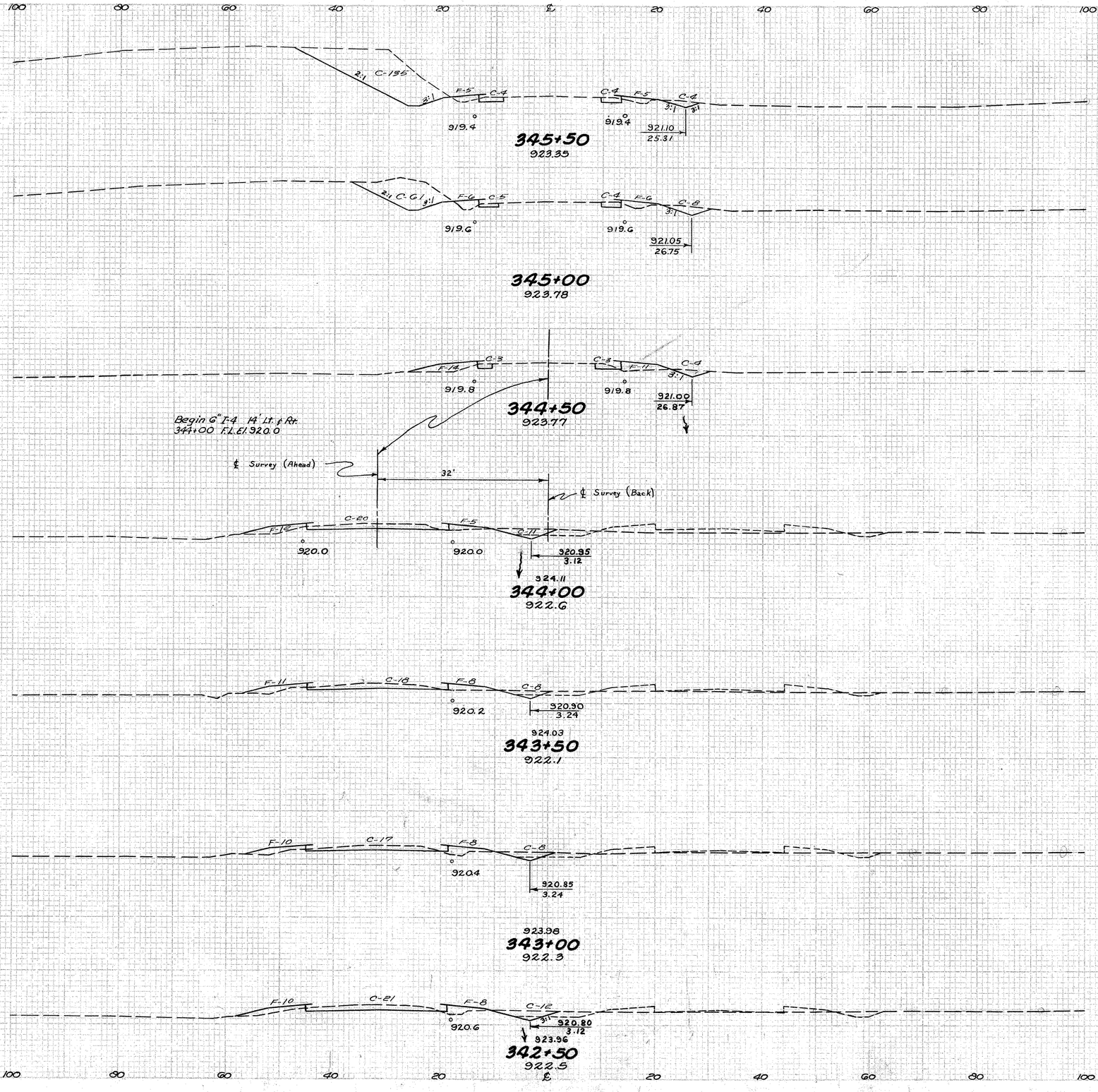
END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
34	16		
		64	35
35	22		
		60	44
30	25		
		56	42
30	20		
		56	35
31	18		
		49	73
22	61		
		34	128

339+50 — 342+00

FED. DIV.	STATE	PROJECT	TYPE FUNDS
2	OHIO		

166
238

LIC.-161 - 5.12
LIC.-37 - 15.09



END AREA CUT	END AREA FILL	CU. YDS. CUT	CU. YDS. FILL
147	10		
		206	20
76	12		
		81	34
11	25		
		39	39
31	17		
		53	33
		0	5
26	19		
		47	34
25	18		
		54	33
33	18		
		62	31

Field Drive 343+66 Rt.

342+50 - 345+50

END AREA		CU. YDS.	
CUT	FILL	CUT	FILL
6	41	19	46
15	5	22	43
2	37	2	2
0		0	25
9	37	12	67
4	35	6	61
3	31	8	46
0	19	10	34
5	18	25	33
22	18	117	31
104	10	232	24

DESIGN DIVISION	STATE	PROJECT	TYPE WORK
2	OHIO		

167
238

LIC-161-5.12
LIC-37-15.09

Res. Drive 349+25 Rt.
Field Drive 349+25 Lt.

Barn

Outlet 6"I.P. 353' Lt.
349+00 F.L.El. 918.0

350+00
923.56

349+50
923.69

349+00
923.57

348+50
923.23

348+00
923.00

347+50
922.52

347+00
922.38

346+50
922.52

346+00
922.91

346+00 ~ 350+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

168
238

LIC~161~5.12
LIC~37~15.09

350+50 ~ 354+00

END AREA		CU. YDS.	
Cut	Fill	Cut	Fill
6 27		12 50	
7 27		11 54	
5 31		13 54	
9 27		16 49	
8 26		15 45	
8 23		14 42	
7 22		13 43	
7 24		13 49	

DIV. NO.	STATE	PROJECT	SHEET NO.
2	OHIO		

169
238

LIC-161-5.12
LIC-37-15.09

358+00
922.28

357+50
922.34

357+00
922.30

356+50
922.33

356+00
922.27

355+50
922.38

355+00
922.52

354+50
922.47

923.13 C-3 F-9 922.35 C-3 F-18

923.14 C-4 F-10 922.36 C-4 F-17

923.15 C-3 F-18 922.37 C-2 F-19

923.15 C-4 F-18 922.37 C-5 F-14

923.16 C-4 F-10 922.38 C-4 F-16

923.27 C-4 F-8 922.49 C-4 F-15

923.37 C-3 F-12 922.59 C-5 F-10

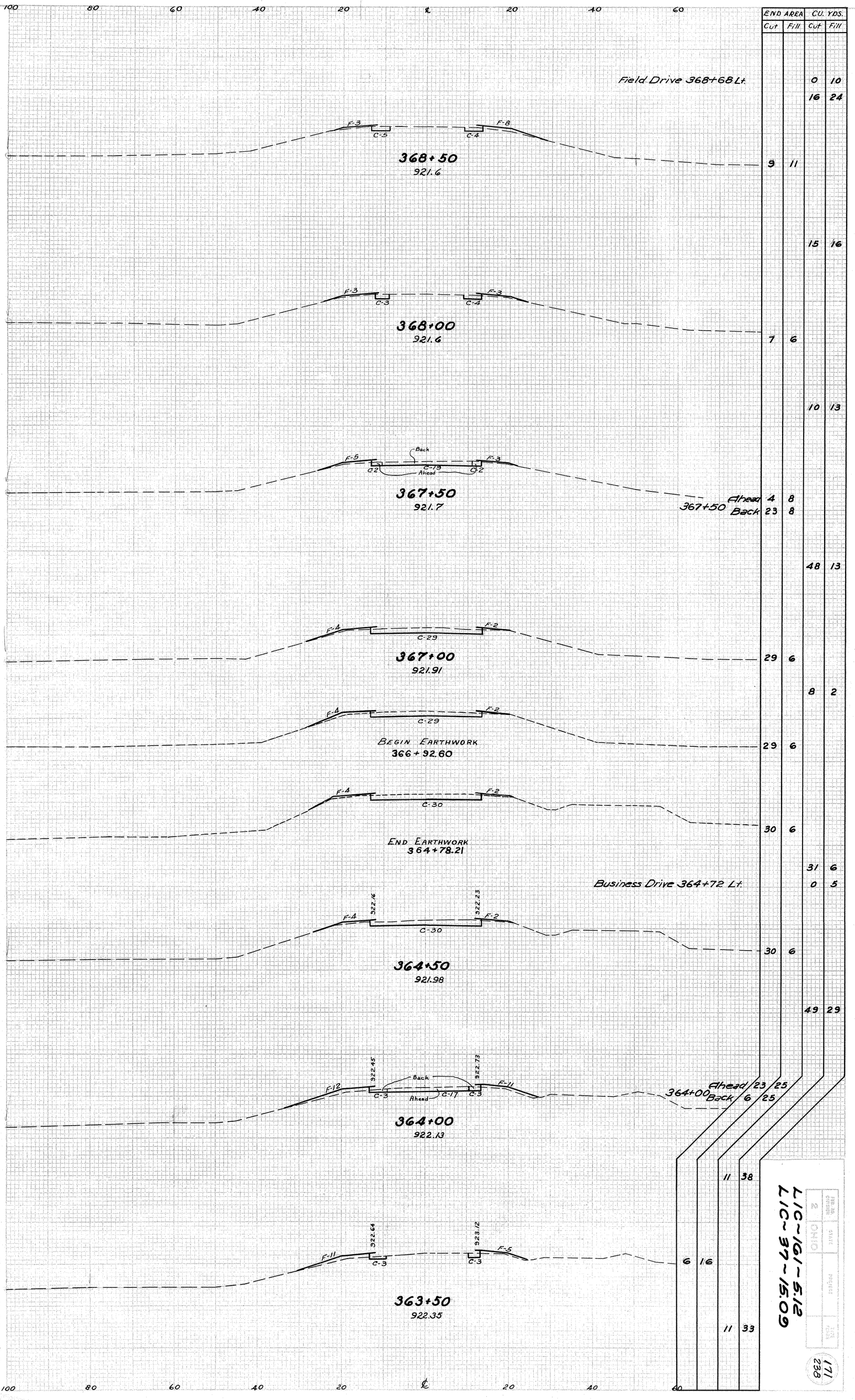
923.36 C-4 F-12 922.60 C-3 F-12

354+50 ~ 358+00

FED. RD. DIVISION	STATE	PROJECT	SHEET NO.
2	OHIO		170 / 238

LIC-161~5.12
LIC-37~15.09

358+50 ~ 363+00


100 80 60 40 20 ℄ 20 40 60
END AREA Cut Fill
CU. YDS. Cut Fill
Field Drive 368+68 Lt.
0 10
16 24
F-3 C-5 F-8 C-4
368+50
921.6
9 11
15 16
F-3 C-3 F-3 C-4
368+00
921.6
7 6
10 13
F-5 C2 Back C-19 Ahead C-2 F-3
367+50
921.7
Ahead 4 8
367+50
Back 23 8
48 13
F-4 C-29 F-2
367+00
921.91
29 6
8 2
F-4 C-29 F-2
BEGIN EARTHWORK
366+92.60
29 6
F-4 C-30 F-2
30 6
END EARTHWORK
364+78.21
31 6
Business Drive 364+72 Lt.
0 5
322.16 322.23
F-4 C-30 F-2
364+50
921.98
30 6
49 29
322.45 322.73
F-12 C-3 Back C-17 Ahead C-3 F-11
364+00
922.13
Ahead 23 25
Back 6 25
11 38
322.64 323.12
F-11 C-3 C-3 F-5
363+50
922.35
6 16
11 33
363+50 ~ 368+50
LIC-161-5.12
LIC-37-15.09
171
238

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

172
238

LIC-161-5.12
LIC-37-15.09

		372+50	372+00	371+50	371+00	370+50	370+00	369+50	369+00
END AREA	Cut	8	9	8	8	8	8	8	8
	Fill	28	20	13	19	14	18	16	15
CU. YDS.	Cut	16	16	15	15	15	15	15	8
	Fill	44	31	30	31	30	31	29	15

	372+50	372+00	371+50	371+00	370+50	370+00	369+50	369+00
	920.1	920.4	920.6	920.9	921.0	921.2	921.3	921.4
	C-4	C-4	C-4	C-4	C-4	C-4	C-4	C-4
	F-14	F-14	F-6	F-14	F-8	F-8	F-8	F-7
	C-4	C-5	C-4	C-4	C-4	C-4	C-4	C-4
	F-14	F-16	F-7	F-5	F-6	F-10	F-8	F-8

℄

369+00 ~ 372+50

FED. RD. DIVISION	STATE	PROJECT	[illegible]
2	OHIO		

173
238

LIC-161-5.12
LIC-37-15.09

END AREA		CU. YDS.	
Cut	Fill	Cut	Fill
7	26		
		12	48
6	26		
		9	46
4	24		
		7	56
4	36		
		9	59
6	28		
		0	27
		9	59
4	36		
		11	59
8	28		
		15	50
8	26	15	50

373+00 ~ 376+50

FED. RD. DIVISION	STATE	PROJECT	TOTAL SHEETS	174
2	OHIO			238

LIC-161-5.12
LIC-37-15.09

END AREA Cut	END AREA Fill	CU. YDS. Cut	CU. YDS. Fill
5	29	9	56
5	32	8	54
4	26	8	44
5	22	0	4
4	28	8	46
5	32	8	56
7	28	11	56
14	63		
14	61		
8	40		

Field Dr. 379+03 Rt.

380+50 9/8.00 — F-11 C-2 9/8.09 — F-18 C-3 9/8.67
380+00 9/8.00 — F-14 C-2 9/8.17 — F-18 C-3 9/8.75
379+50 9/9.04 — F-14 C-2 9/8.21 — F-12 C-2 9/8.79
379+00 9/8.08 — F-6 C-2 9/8.25 — F-16 C-3 9/8.83
378+50 9/8.16 — F-10 C-1 9/8.38 — F-18 C-3 9/8.96
378+00 9/8.33 — F-10 C-2 9/8.55 — F-22 C-3 9/9.04
377+50 9/8.47 — F-12 C-3 9/8.74 — F-19 C-4 9/9.08
377+00 9/8.62 — F-16 C-4 9/8.92 — F-24 C-4 9/9.10

377+00 ~ 380+50

FED. RD. DIVISION	STATE	PROJECT	TYPE WORK
2	OHIO		

175
238

LIC-161-5.12
LIC-37-15.09

	Cut	Fill	Cu. Yds. Cut	Cu. Yds. Fill
381+00	10	25	19	31
	9	34	18	55
382+00	12	34	19	63
	5	33	16	62
382+50	4	38	0	11
	6	35	8	66
383+00	6	37	9	68
	5	34	11	67
383+50	9	65	10	66
	8	61		
384+00	8	55		
	5	36		
384+50	4	30		
	5	60		

Field Dr. 384+27 Rt.

381+00
917.84

382+00
917.67

382+50
917.52

383+00
917.56

383+50
917.41

384+00
917.24

384+50
917.19

385+00
917.12

385+50
917.01

381+00 ~ 385+50

FED. RD. DIVISION	STATE	PROJECT	FIVE FUNDS
2	OHIO		

LIC 161~5.12
LIC 37~15.09

386+00 ~ 390+00

	AREA	CU. YDS.
	Cut.	Fill
	69	67
	33	34
	55	75
	26	47
	79	80
	59	39
	79	67
	26	33
	54	53
	32	24
	65	33
	63	10
	38	12
	74	18
	2	2
	42	7
	69	12
	2	10
	33	6
	53	19
	35	28
	24	31
	14	16
	24	14
	14	40

FED. ROAD DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

177
238

LIC-161-5.12
LIC-37-15.09

Temp. Traffic Lt.

C-4 F-30 3:1 C-3 0 9181

395+00
921.01

Temp. Traffic Rt.

C-3 F-41 C-4 0 9179

394+50
920.41

Begin 6" I-4 26' Lt. Sta. 394.06 £1,917.7

C-4 F-39 2:1 C-18 C-3 0 9176

394+00
919.78

912.5
38.3'

C-3 F-33 C-14 C-3 0 9163

393+50
918.91

912.26
38.0'

Temp. Traffic Rt.

C-3 F-24 3:1 C-20 C-3 0 9158

393+00
918.32

912.0
37.1'

Approach 392+75.73 Lt.

Temp. Traffic Lt.

C-4 C-12 C-28 C-1 0 9159

Begin 6" I-4 19' Lt. Sta. 392+50 £1,919.59

392+50
917.96

911.75
36.9'

Res. Drive 392+36 Lt.

C-5 F-6 C-36 C-7

392+00
917.50

911.5
35.5'

Field Drive 391+66 Rt.

C-3 F-6 C-27 C-3

391+50
917.38

911.25
35.5'

C-3 F-14 C-19 C-3

391+00
917.28

911.0
37.0'

Temp. Traffic Rt.

C-2 F-16 C-8 C-4

390+50
917.24

910.75
37.0'

End 6" I-4 27' Lt. Sta. 393+98 £1,915.6 Outlet into side ditch inlet

C-3 C-34 0 9176 26.0'

C-3 C-6 0 9163 917.53 76.0'

C-3 C-6 0 9158 916.98 26.0'

C-1 C-5 2:1 9167.2 916.72 26.0'

C-7 F-1

C-3

C-3

C-4

390+50 ~ 395+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FORM
2	OHIO		

178
238

LIC-161-5.12
LIC-37-15.09

395+50 ~ 400+00

END AREA		CU. YDS.	
Cut	Fill	Cut	Fill
6	30	11	54
6	28	11	54
8	19	13	44
8	19	15	35
6	24	13	40
8	30	13	50
8	28	2	5
8	27	15	54
14	63	15	51
2	5		
7	41		

STD. NO. EHS-1158	STATE	PROJECT	SHT. NO.
2	OHIO		

179
238

LIC-161-5.12
LIC-37-15.09

Res. Drive 400+15 Lt.

Field Drive 402+48

Begin Paved Gutter Type 4 - 404+50

Begin 6"I-1 20' Lt. 404+60 923.00

Temp. Traffic Rt. C-1 F-19 C-4 F-11 5' 3:1

404+50
926.77
926.4
26.0

Temp. Traffic Lt. C-1 F-18 C-5 F-10 9218 1'/1'/2

End 6"I-1 14' Lt. 404+00 921.5

404+00
926.42

C-3 F-15 C-5 F-4 924.8 ◦ 921.25 22.0

403+50
925.83

C-3 F-18 C-5 F-7 1'/1'/2 924.10 ◦ 921.0 23.0

403+00
925.49

C-1 F-21 C-5 F-3 ◦ 920.75

402+50
925.19

C-3 C-21 C-5 F-9 8:1.0" 923.6 ◦ 920.50 23.0

402+00
924.99

C-3 F-22 C-5 F-6 923.4 ◦ 920.25 23.0

401+50
924.72

Temp. Traffic Lt. C-5 F-4 923.2 ◦ 920.00 23.0

401+00
924.66

C-3 F-29

Temp. Traffic Rt. C-3 F-30 C-4 F-11 8'-0' 1'/1'/2 922.8 ◦ 919.75 24.5

400+50
924.57

400+50 ~ 404+50

FED. RD. DIVISION
STATE
PROJECT
2
OHIO
180
238
LIC ~ 161 ~ 5.12
LIC ~ 37 ~ 15.09
END AREA
CU. YDS.
Cut
Fill
Res. Drive 407+46.5 Rt.
409+00
930.79
408+50
930.71
408+00
930.49
407+50
930.08
407+00
929.37
406+50
928.79
406+00
928.25
405+50
927.34
405+00
927.15
Temp. Traffic Rt.
Temp. Traffic Lt.
End Paved Gutter Type 4 ~ 409+00
405+00 ~ 409+00

181
238
2
OHIO
LIC~161~5.12
LIC~37~15.09
END AREA
CU. YDS.
Cut
Fill
Field Drive 414+00 Rt.
Field Drive 414+00 Lt.
Field Drive 411+38.5 Lt.
414+00
932.71
413+50
932.45
413+00
932.22
412+50
931.95
412+00
931.57
411+50
931.37
411+00
931.00
410+50
930.78
410+00
930.60
409+50
930.76
409+50~414+00

2 OHIO
182
238
LIC~161~5.12
LIC~37~15.09
END AREA Cut Fill
CU. YDS. Cut Fill
419+00
936.02
418+50
935.34
418+00
934.76
417+50
934.30
417+00
934.32
416+50
934.35
416+00
934.16
415+50
933.81
415+00
933.53
414+50
933.18
Field Drive 418+60 Lt.
End 6" I-4 14' Lt.
418+85 F.L 933.2
414+50~419+00

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

183
238

LIC-161-5.12
LIC-37-15.09

	END AREA		CU. YDS	
	CUT	FILL	CUT	FILL
424+00	9	0	16	7
			13	0
423+50	8	8	15	20
			9	0
423+00	8	14	15	63
			9	0
422+50	8	34	15	55
			9	0
422+00	8	5	17	6
			12	0
421+50	10	2	16	13
			7	12
421+00	7	12	14	65
			8	38
420+50	8	38	15	109
			8	60
420+00	8	60	15	107
			5	0
419+50	8	55		

Res. Drive Lt. +87

Res. Drive Lt. +99

Begin Curb & Gutter on right
422+50

Res. Drive Lt. +47

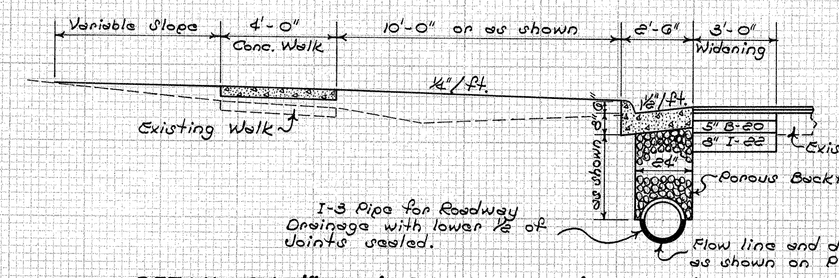
Res. Drive Lt. +83

Res Drive Lt. +79

Begin Curb & Gutter on Left
420+06

419+50 ~ 424+00

FED. RD. DIVISION
STATE
PROJECT
TYPE FUNDS
2
OHIO
184
238
LIC~161~5.12
LIC~37~15.09
END AREA CUT FILL
CU. YDS. CUT FILL
Res. Dr. 428+47 Rt.
Res. Dr. 428+11 Lt.
Res. Dr. 427+81.6 Rt.
Res. Dr. 427+31 Lt.
Res. Dr. 426+77 Rt.
Res. Dr. 426+37 Lt.
Res. Dr. 424+39 Rt.
428+50
957.90
428+00
957.48
427+50
956.90
427+00
956.12
426+50
955.49
426+00
954.91
425+50
954.08
425+00
952.97
424+50
951.72
S.W.
424+50~428+50



DETAIL OF 4" CONCRETE SIDEWALK AND ROADWAY DRAINAGE WITH POROUS BACKFILL, AS PER PLAN

	END AREA		CU. YDS.	
	Cut	Fill	Cut	Fill
S.W.				
432+50 963.47				
+36	0	0		
Res. Drive Lt +06.5			2	0
			7	0
S.W. C-3	3	0		
432+00 965.69				
			6	6
End Curb and Gutter 431+83 on Left.				
Feather Surface on right to utilize existing curb and gutter.				
F-7 C-3 S.W.	3	7		
431+50 963.18				
			8	20
F-8 S.W. C-3 C-9	6	15		
431+00 962.69				
End Curb and Gutter 431+00 on Right.			13	58
F-32 S.W. C-3 C-3 F-16	8	48		
430+50 961.02				
			18	76
Res. Drive Lt. +05			2	6
F-18 S.W. C-7 C-4 F-18	11	34		
430+00 959.85				
Res. Drive Rt +82			3	0
			19	65
S.W. F-30 C-6 C-3 F-2	9	36		
429+50 959.15				
Sta. 429+10 ~ Outlet I-3 into culvert F.L. 954.05				
			15	69
Res. Drive Rt +11.5			2	0
3:1 S.W. F-31 C-6 C-3 F-2 3:1	7	39		
429+00 958.39				
			13	63

429+00 ~ 432+50

L.I.C ~ 161 ~ 5.12
L.I.C ~ 37 ~ 15.09

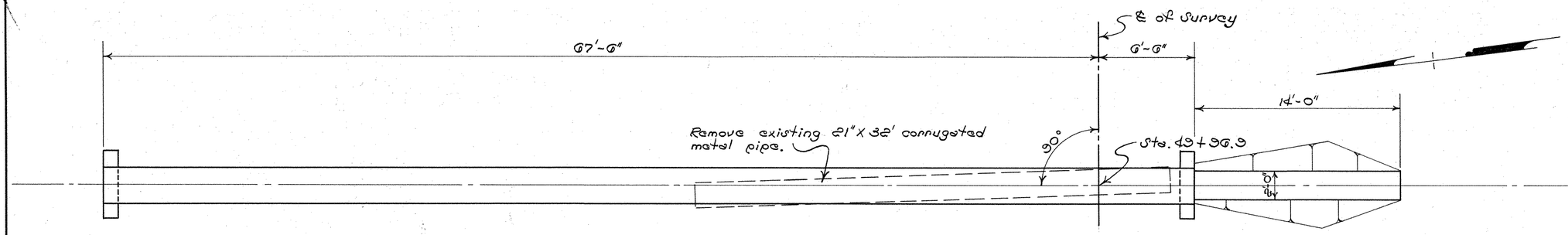
OHO 2

185
238

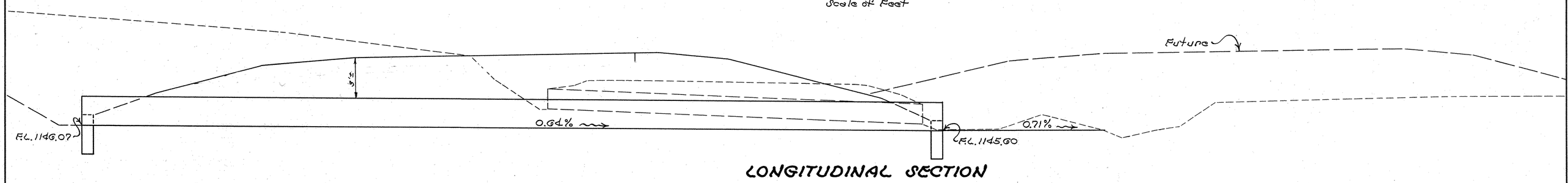
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

186
238

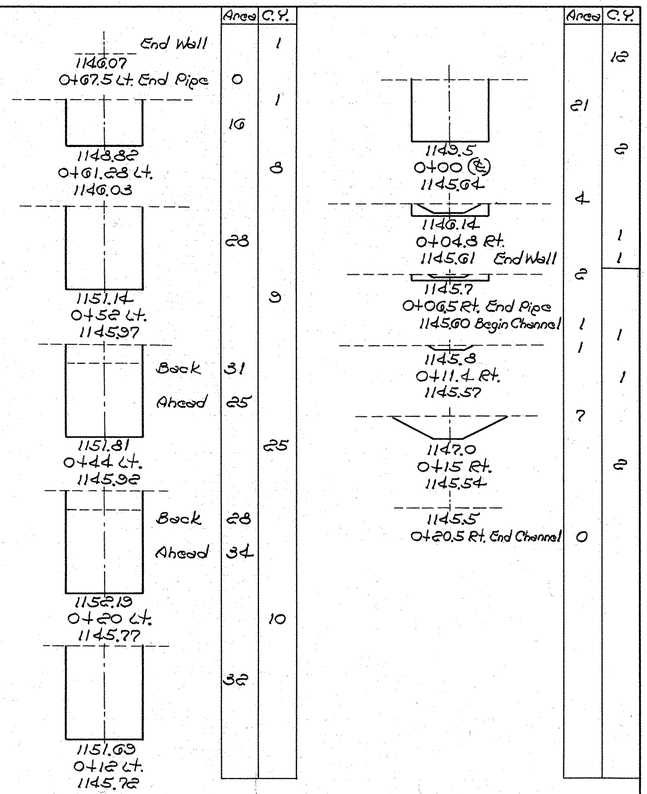
LIC-161-5.12
LIC-37-15.09



PLAN
Scale of Feet



LONGITUDINAL SECTION



	Area	C.Y.
End Wall		1
1146.07 0+67.5 Lt. End Pipe	0	
		1
	16	
		8
	28	
		9
Back	31	
Ahead	25	
		25
Back	28	
Ahead	34	
		10
	32	

	Area	C.Y.
		12
	21	
		5
	4	
		1
	2	1
	1	1
	1	
		1
	7	
		5
	0	

CROSS SECTIONS
0 1' 2' 3' 4' 5'
Scale of Feet

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg. N2.S-27 P.C. 3'd4
SIZE :~ 30"X 74'
WORK REQUIRED :~ Remove existing 21"X 32' corrugated metal pipe. Install new pipe culvert as per plan.
Payment for removal of existing pipe culvert is included with excavation for structure.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	70 C.Y.	Excavation for Structure
E-3	4 C.Y.	Channel Excavation
S-1	1.0 C.Y.	Concrete for End Walls Class "E"
S-27	74 L.F.	30" Standard Strength Reinforced Concrete Culvert Pipe Sec. M6.6(b), or 30" Extra Strength Vitrified Sewer Pipe Sec. 6.8(b).

Drainage Area 12 Ac. Qas = .65X1X1X42 = 27 c.f.s.			
1	Sta. 49+36.9	P.C. 30"X 74'	LIC-161-0550

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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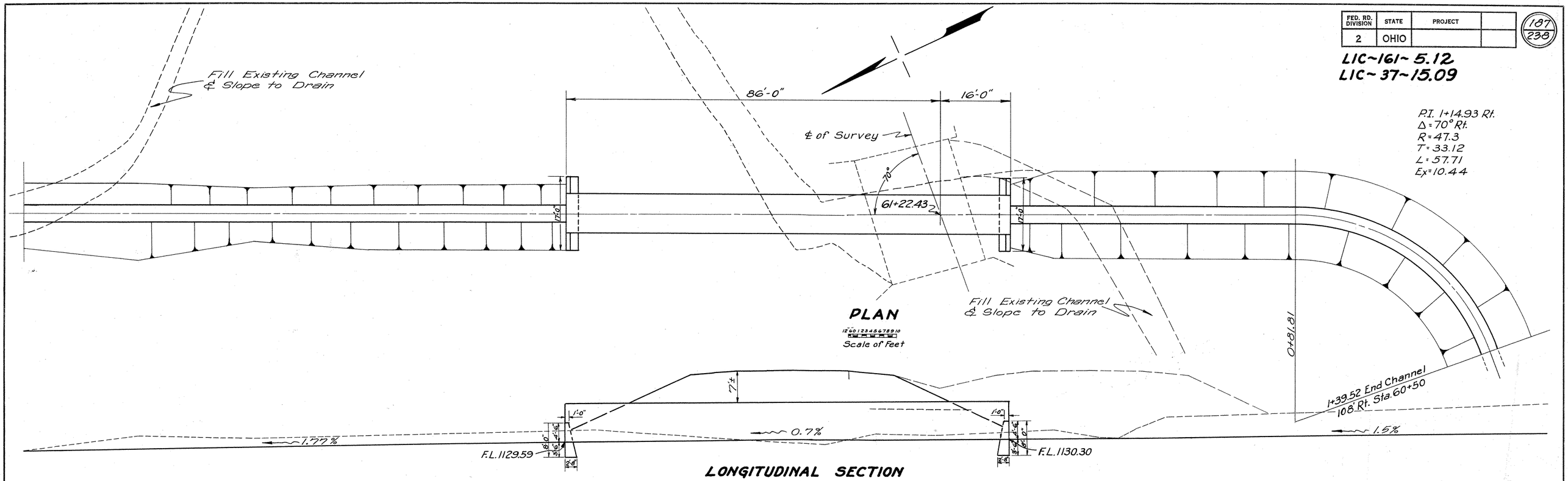
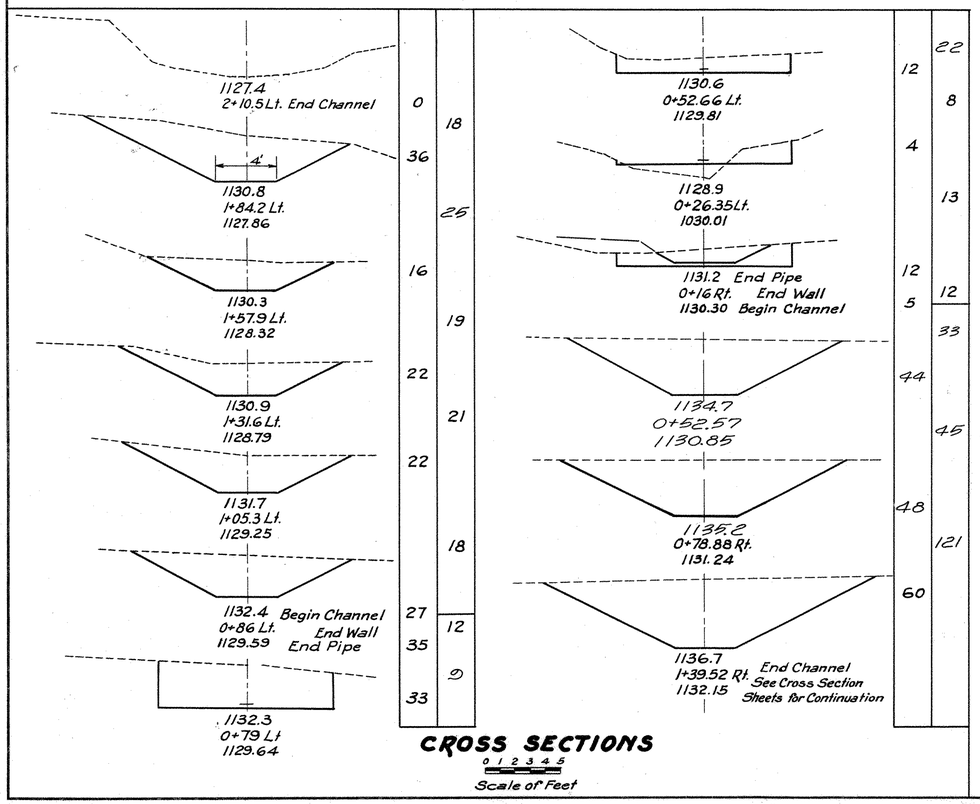
LIC-161-5.12
LIC-37-15.09





STRUCTURE DATA

TYPE: Pipe Culvert **STD.DWG.Nº** S-27-PC-3, SP-53

SIZE: 108"x102'

WORK REQUIRED: Remove existing bridge. Install new pipe culvert as per plan. Excavate inlet and outlet channels.

NOTE: The Steel beams shall be carefully removed and piled along the right of way for disposal by State Forces, the remainder shall become the property of the Contractor.

ESTIMATED QUANTITIES

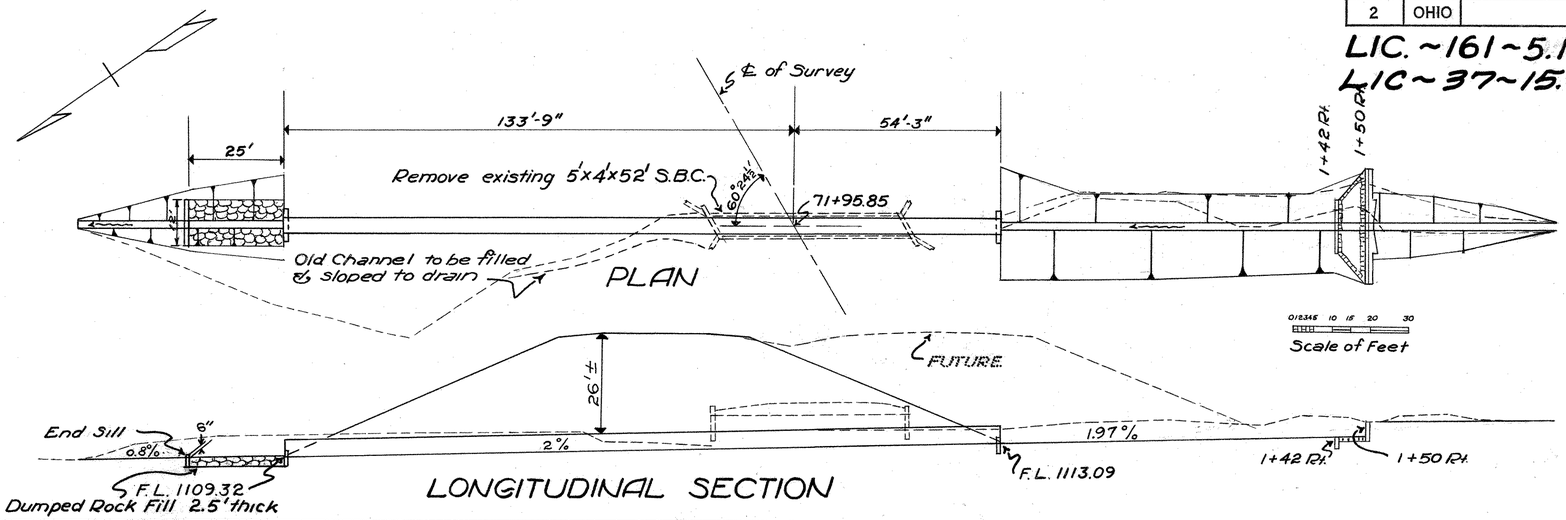
ITEM	QUANTITY	DESCRIPTION
E-2	76 c.y.	Excavation for Structure
E-3	300 c.y.	Channel Excavation
S-1	15.6 c.y.	Concrete for End Walls Class E
S-24	Lump Sum	Removal of Existing Structure
S-28	102 Lin. Ft.	108" Sectional Corrugated Metal Pipe
		Gages 10 and 8

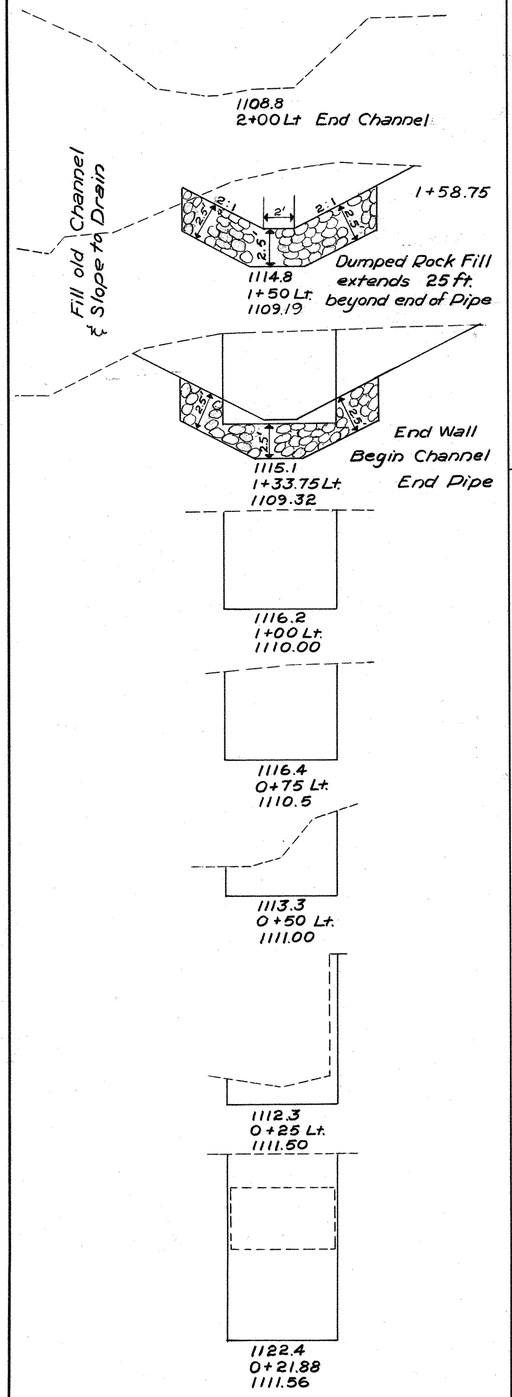
DRAINAGE AREA 1.1 SQ. MI. Q-25=700(K)(K)(K)(F)=455 c.f.s.			
3	STA. 61+22.43	P.C. 108×102	LIC-161-0571

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

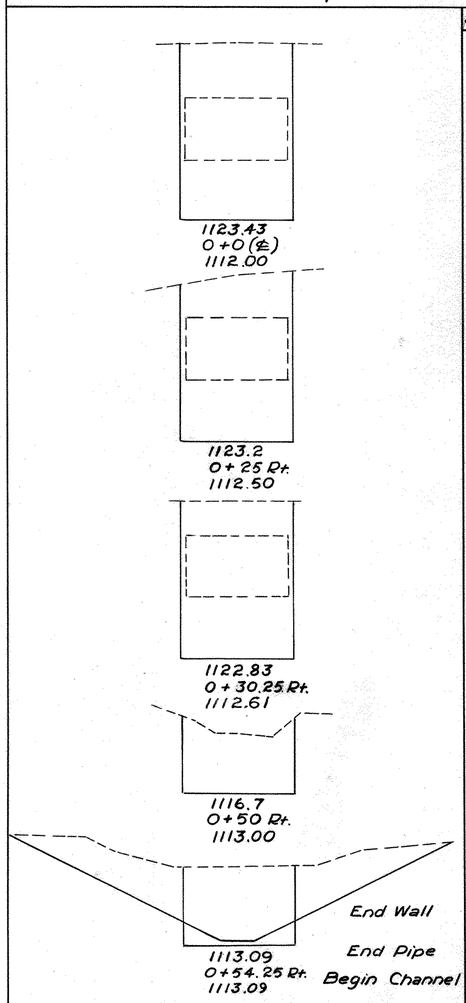
188/238

LIC.-161-5.12
LIC-37-15.09

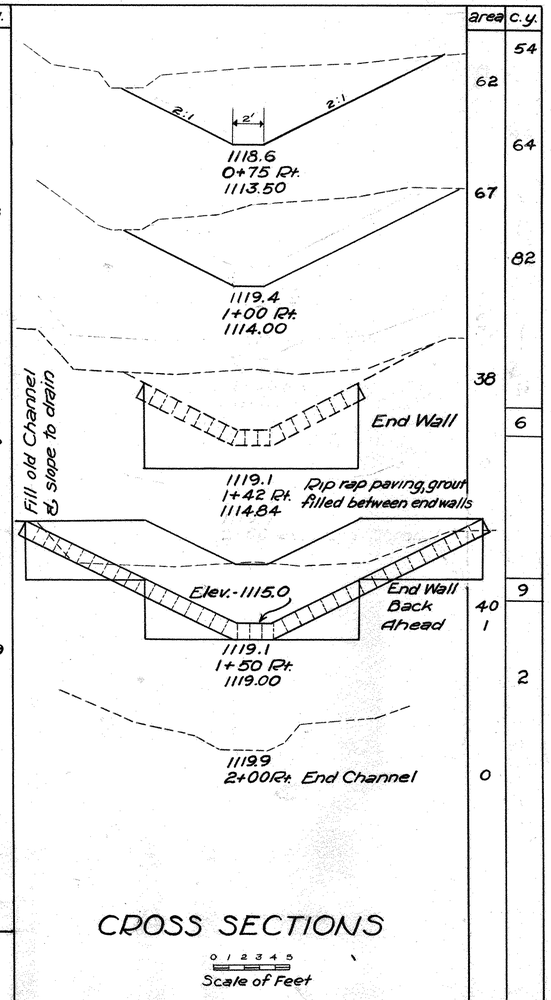




area	c.y.
0	
	25
33	
59	
	82
	1
115	
45	
	58
48	
	44
46	
	33
25	
	19
15	
	6
82	
	69

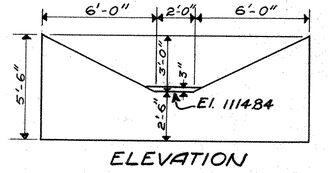


area	c.y.
87	
	78
	80
	16
	76
	39
	31
	7
	1
	39
	79

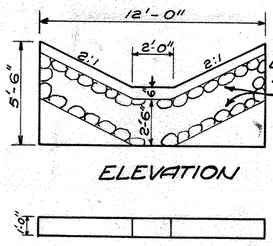


area	c.y.
	54
62	
	64
67	
	82
	38
	6
	9
40	
1	
	2
	0

DETAIL OF END WALL AT STA. 1+50 RT.



DETAIL OF END WALL AT STA. 1+42 RT.



DETAIL OF END SILL - 1+58.75 Lt.

CULVERT DATA

TYPE-Pipe Culvert Std. Drwg. Nº S-27 P.C. 3℄
SIZE-54"x188'
WORK REQUIRED - Remove existing small box culvert (5'x4'x52'). Install new pipe culvert as per plan. Payment for removal of existing culvert is included with structure excavation. Excavate inlet and outlet channel. Construct walls and pave inlet channels as detailed.

NOTE:
If corrugated metal is furnished for this structure, it shall be shop elongated to produce and maintain a 5% vertical elongation.

ESTIMATED QUANTITIES

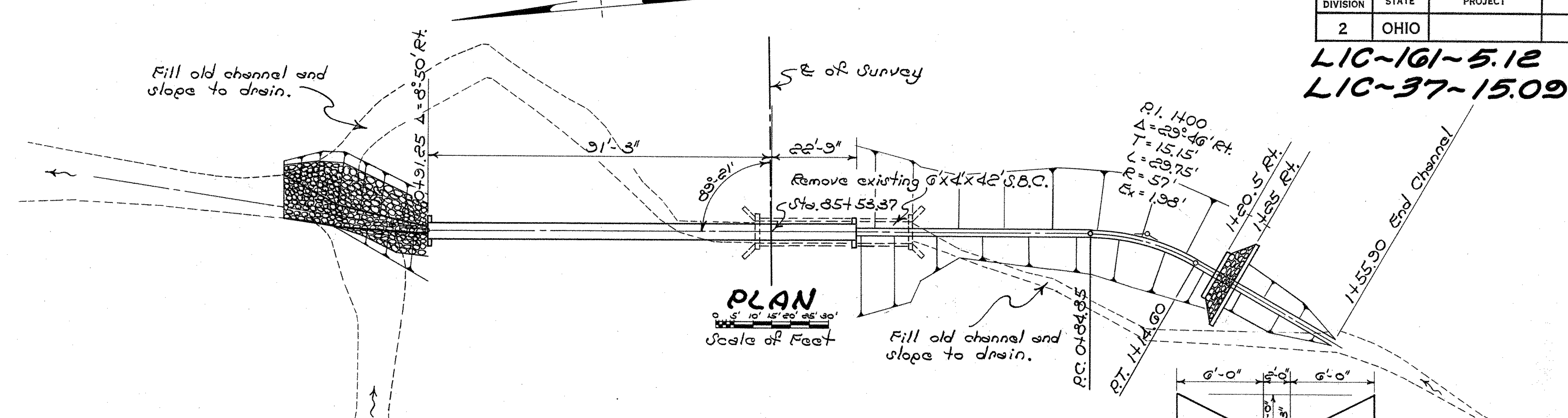
ITEM	QUANTITY	DESCRIPTION
I-10	21 sq.y.	Riprap Type "A" Grout filled
E-2	386 c.y.	Excavation for Structure
E-3	309 c.y.	Channel Excavation
S-1	15.8 c.y.	Concrete for End Walls. Class E
I-10	32 c.y.	Dumped Rock Fill, as per plan.
S-27	188 L.F.	54" Paved Bituminous Coated corrugated Metal Pipe, Sec. M-64(d) 8 Gage or Sec. M-106.6(d) Heavy duty reinforced concrete culvert Pipe.

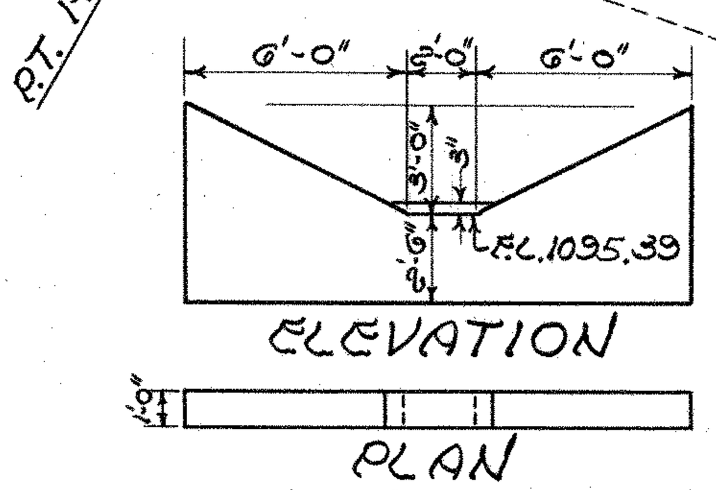
Drainage Area 160 A^S Q_as = 65x1x1x2.50 = 163 c.f.s.

4	STA. 71+95.85	P.C. 54"x188'	LIC-161-0591

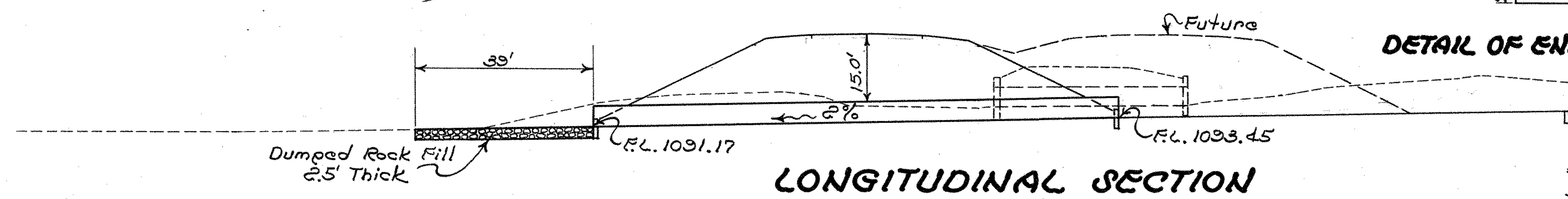
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LIC-161-5.12
LIC-37-15.09

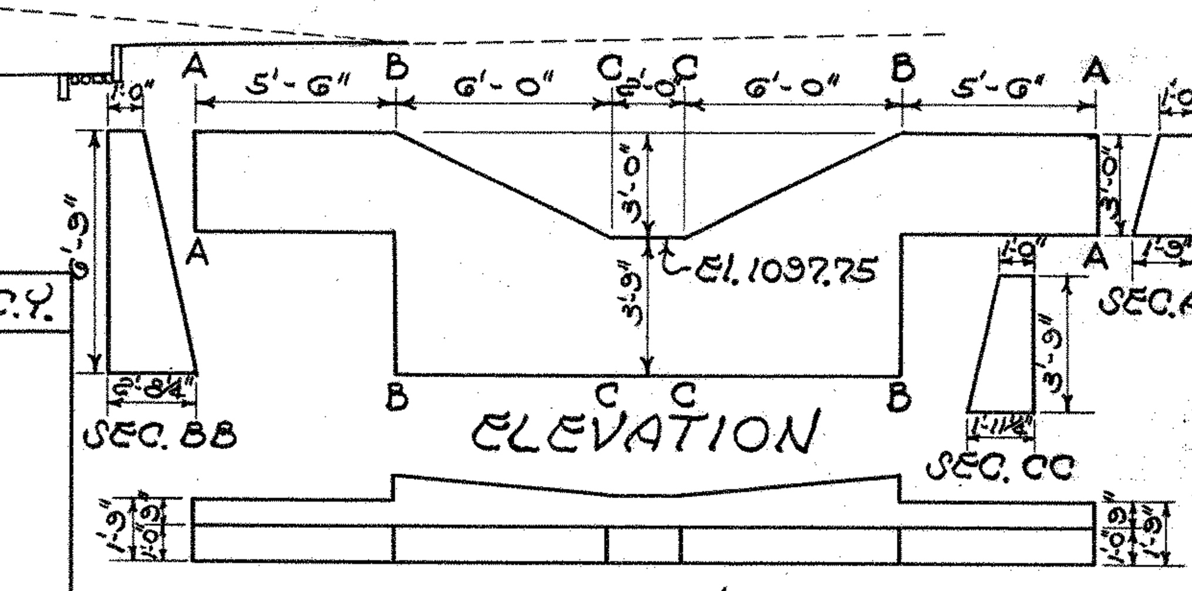




DETAIL OF END WALL AT STA. 1+20.5 Rt.



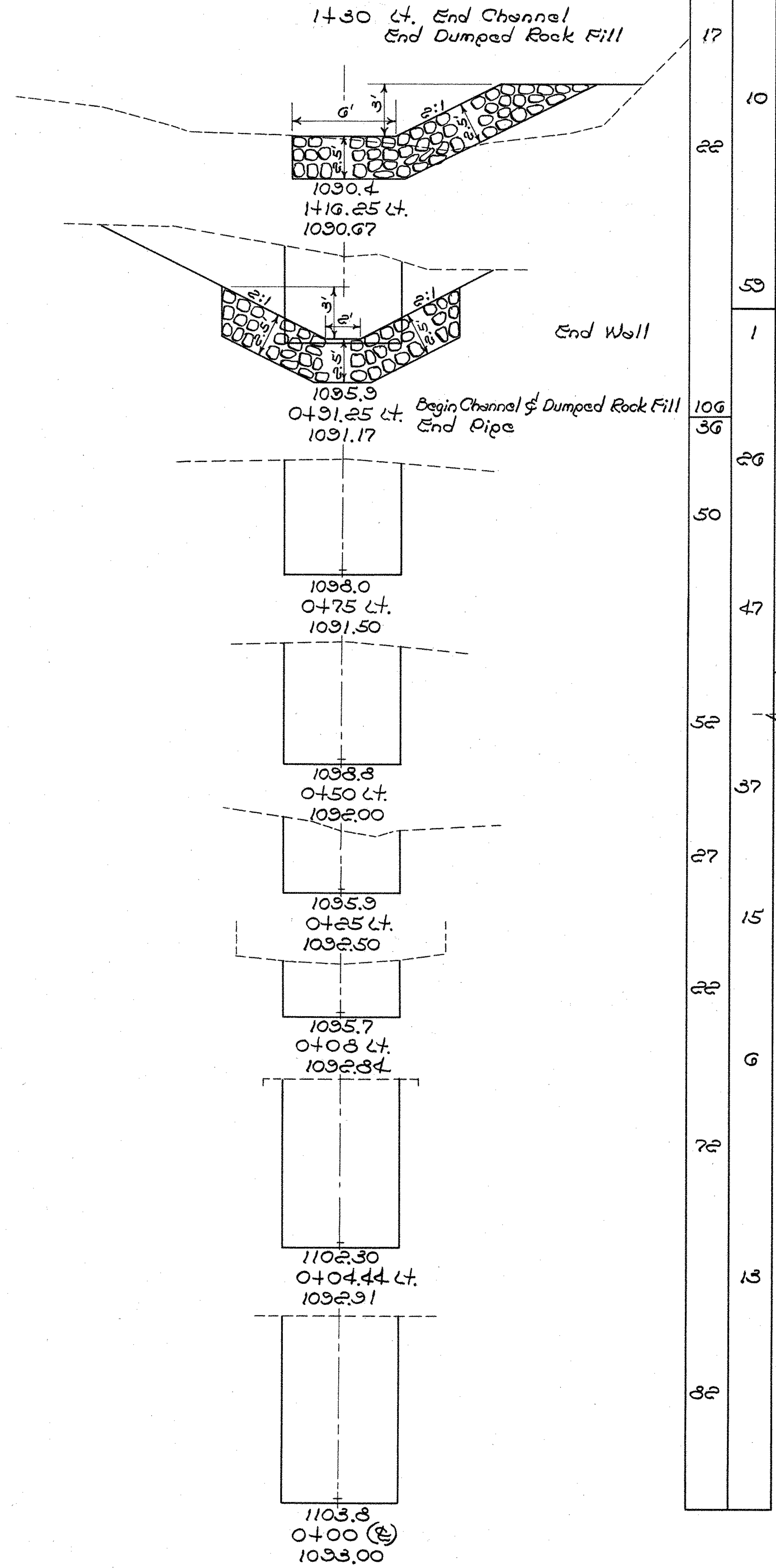
LONGITUDINAL SECTION

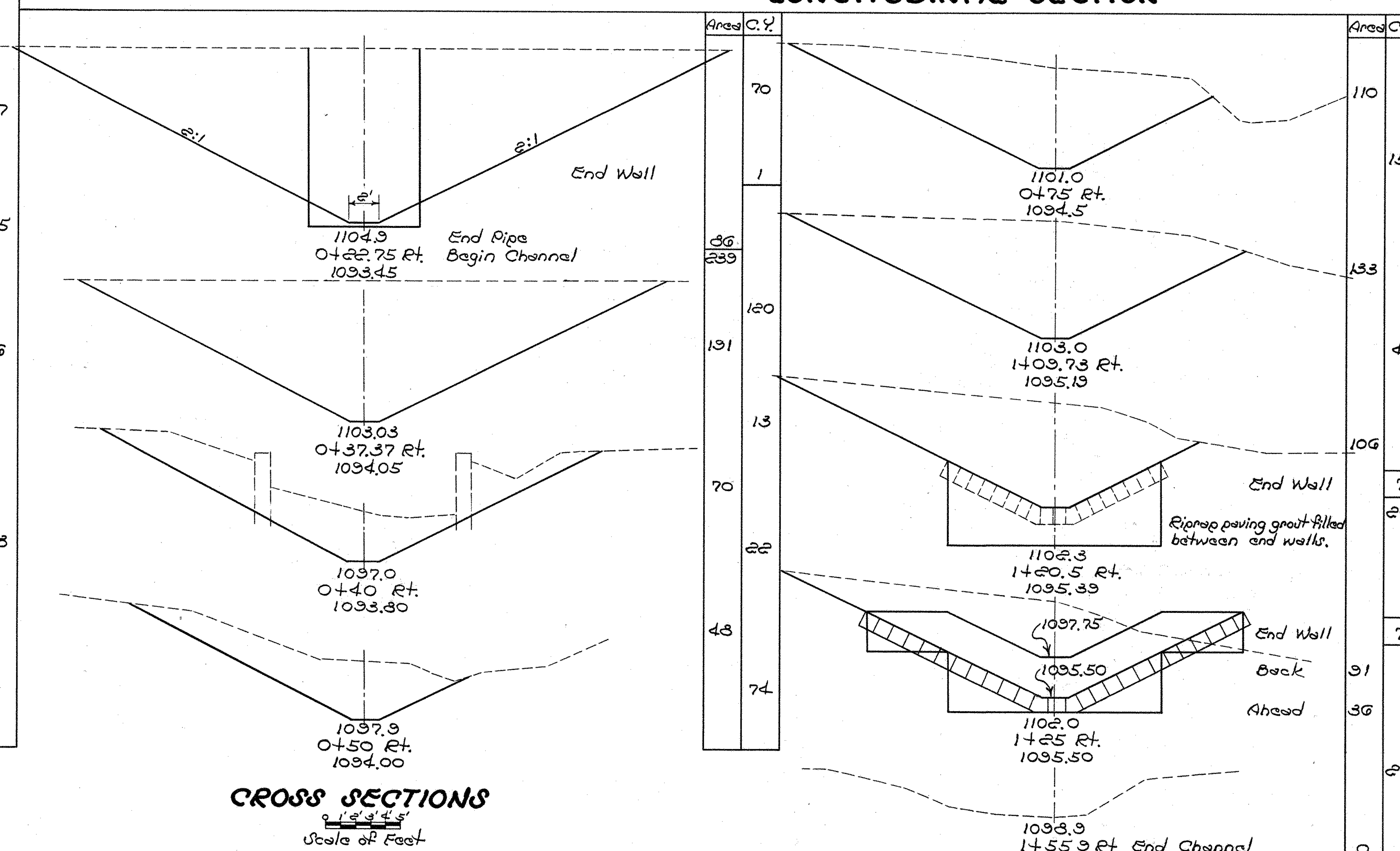


DETAIL OF END WALL AT STA. 1+25 Rt.

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drw'g. No. S-27 P.C. 3 & 4
SIZE :~ 54" x 114'
WORK REQUIRED :~ Remove existing structure. Install new pipe culvert as per plan. Payment for removal of existing 6'x4'x42' box culvert is included with excavation for structure.





CROSS SECTIONS
Scale of Feet

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	230 C.Y.	Excavation for Structure.
E-3	544 C.Y.	Channel Excavation.
S-1	10.9 C.Y.	Concrete for End Walls Class "E".
I-10	52 C.Y.	Dumped Rock Fill as per plan.
S-27	114 L.F.	54" Extra Strength Reinforced Concrete Culvert Pipe Sec. M6.6 (c), or 54" Paved Bituminous Coated Corrugated Metal Pipe Sec. M-6.4d.
I-10	13 S.Y.	Riprap Type "A" grout filled

Drainage Area 160 Ac. Q_{15} = .65 x 1 x 1 x 250 = 160 c.f.s.

6	STA. 85+53.37	P.C. 54" x 114'	LIC-161-0617

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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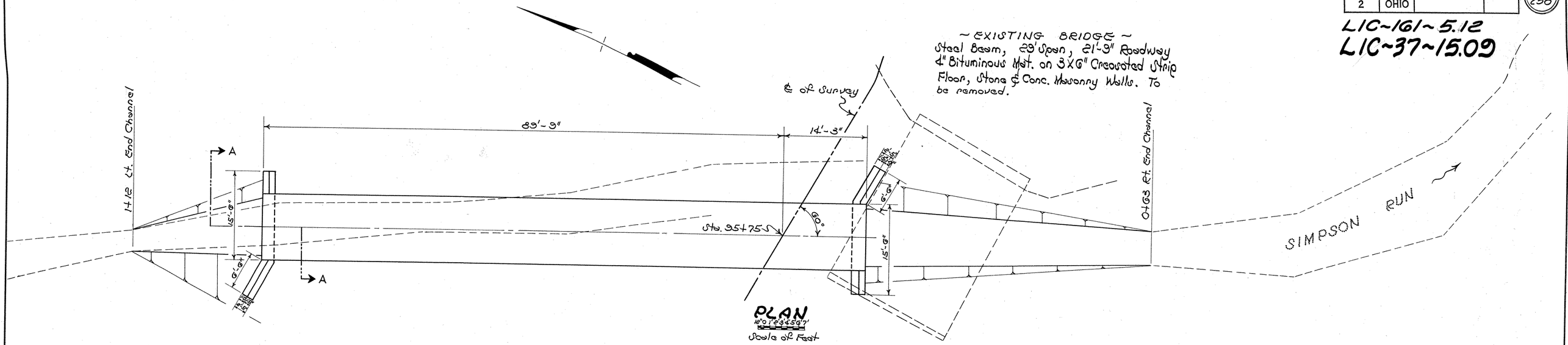
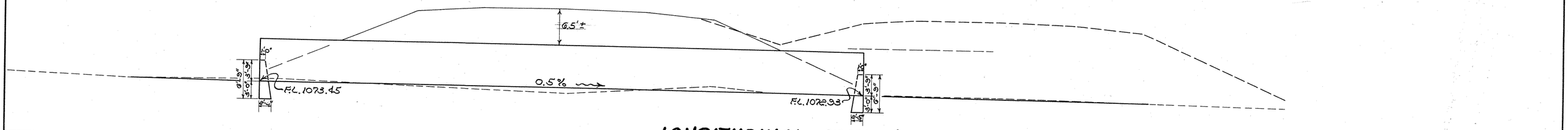
LIC-161-5.12
LIC-37-15.09

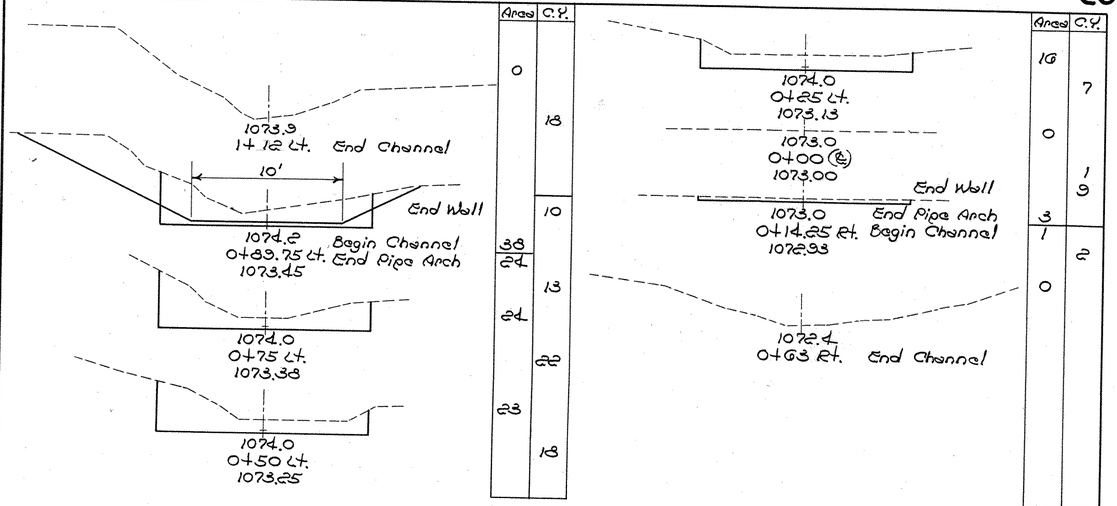
~ EXISTING BRIDGE ~
Steel Beam, 29' Span, 21'-9" Roadway
4" Bituminous Mat. on 3"x6" Creosoted Strip
Floor, Stone & Conc. Masonry Walls. To
be removed.



PLAN
Scale of Feet



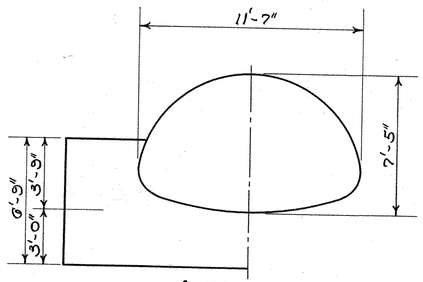
LONGITUDINAL SECTION



Area	C.Y.
0	
	18
38	
	10
24	
	13
21	
	22
23	
	18

Area	C.Y.
16	
	7
0	
	1
	9
3	
1	2
0	

CROSS SECTIONS
0 1' 2' 3' 4' 5'
Scale of Feet



VIEW A-A
6' 0' 1' 2' 3'
Scale of Feet

STRUCTURE DATA

TYPE :~ Pipe Arch Std. Dwg. No. S.R. 53
SIZE :~ 11'-7" x 7'-5" x 104'
WORK REQUIRED :~ Remove existing structure. Install new Pipe Arch as per plan. Excavate inlet and outlet channels. The bottom and corner plates shall be 7 gage the balance of the plates 8 gage.

The existing steel beams shall be carefully removed and piled along the Right of Way for disposal by State Forces. The remainder shall become the property of the contractor.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	80 C.Y.	Excavation for Structure
E-3	20 C.Y.	Channel Excavation
S-1	15.9 C.Y.	Concrete for End Walls Class "E"
S-24	Lump Sum	Removal of Existing Structure
S-28	104 L.F.	11'-7" x 7'-5" Sectional Corrugated Metal Plate Arch Structure. (8-7 ga.)

Drainage Area 1.7 Sq. Mi.
7 Sta. 35+25 RA 11'-7"x7'-5"x104' LIC-161-05.32

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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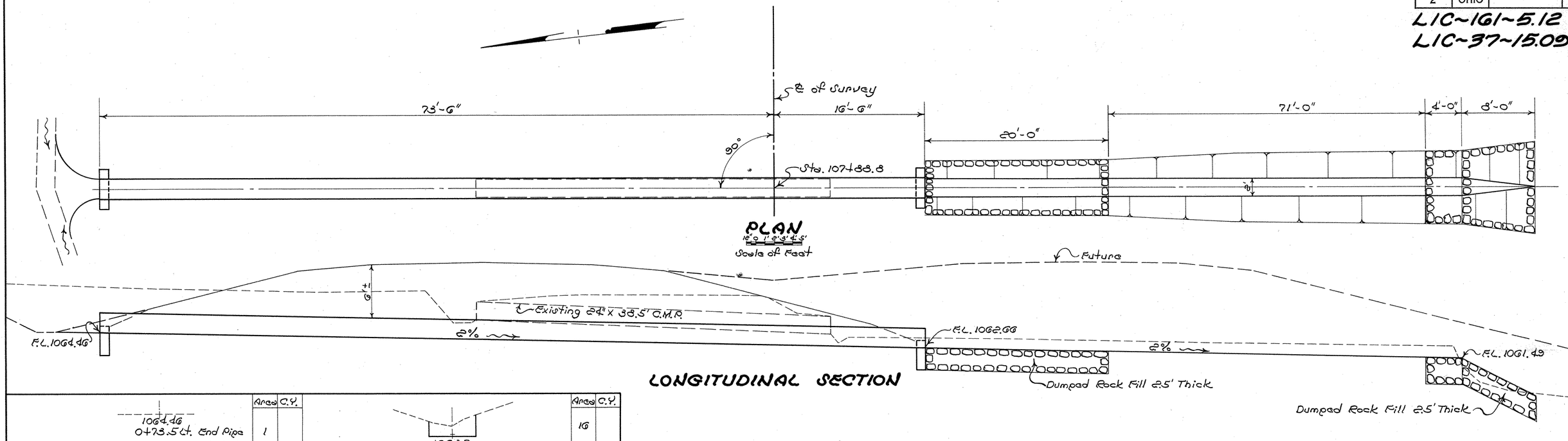
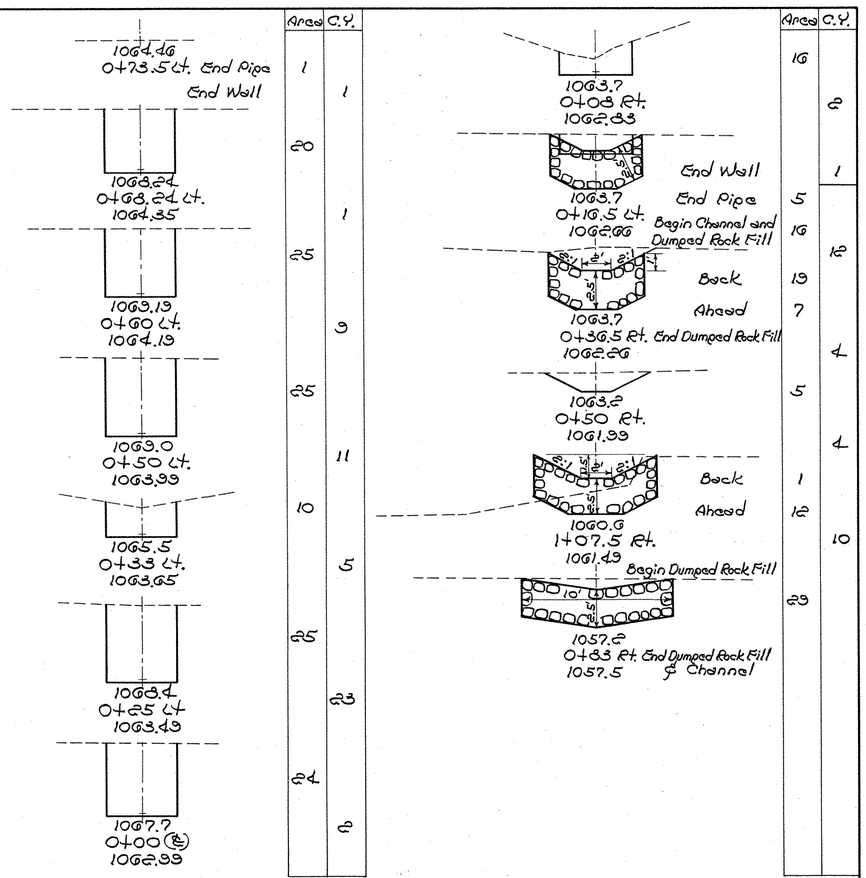
LIC-161-5.12
LIC-37-15.09



LONGITUDINAL SECTION



CROSS SECTIONS

Scale of Feet

CULVERT DATA

TYPE :- Pipe Culvert Std. Drwg. No. S-27 RC. 3 ℄
SIZE :- 30" X 30'
WORK REQUIRED :- Remove existing pipe culvert. Install new pipe culvert as per plan. Excavate outlet channel. Payment for removal of existing culvert to be included in Structure Excavation.

ESTIMATED QUANTITIES

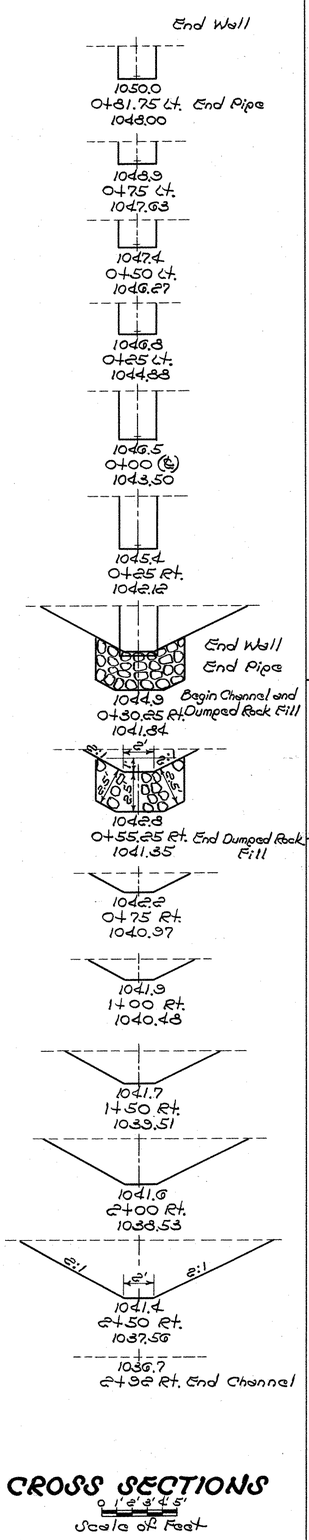
Item	Quantity	Description
E-2	55 C.Y.	Excavation for Structure
E-3	30 C.Y.	Channel Excavation
S-1	0.9 C.Y.	Concrete for End Walls, Class "E"
I-10	25 C.Y.	Dumped Rock Fill, as per plan
S-27	90 L.F.	30" Standard Strength Reinforced Concrete Culvert Pipe, Sec. M.6.6(b) or Extra Strength Vitrified Sewer Pipe, Sec. M.6.8(b)

Drainage Area 16.2 AS. Qas = .65 X 1.X1. X 55 = 36 c.f.s.			
8	Sta. 107+88.8	RC. 30" X 30'	LIC-161-0660

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

102/238

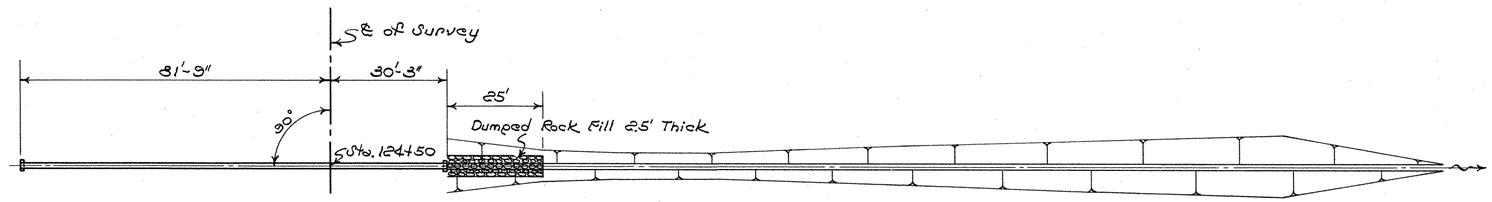
LIC-161-5.12
LIC-37-15.09



Area	C.Y.
6	1
6	1
4	4
4	4
4	5
6	7
8	8
8	8
6	6
2	2
1	1
41	30
23	
7	5
6	6
7	19
14	
35	
25	57
37	
	29
0	

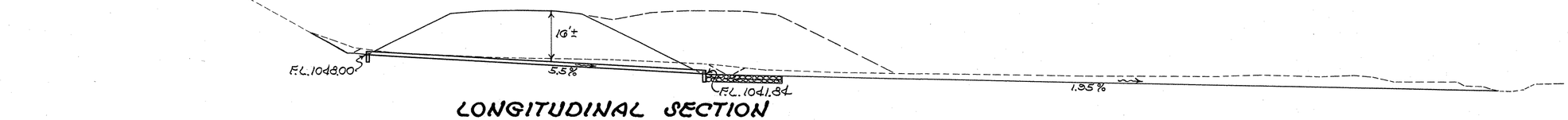
CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet



PLAN

0' 5' 10' 15' 20' 25' 30'
Scale of Feet



LONGITUDINAL SECTION

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg. No. S-27 RC. 3&4
SIZE :~ 15" X 112'
WORK REQUIRED :~ Install new pipe culvert as per plan. Excavate outlet channel.

ESTIMATED QUANTITIES

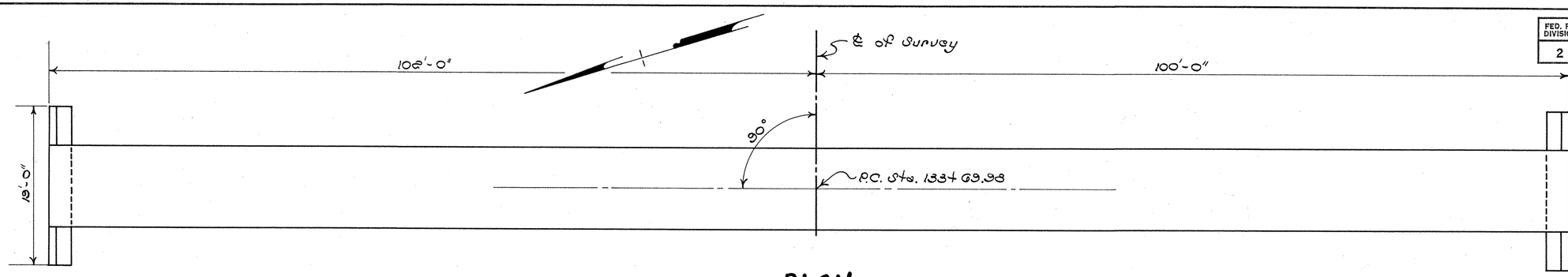
Item	Quantity	Description
E-2	23 C.Y.	Excavation for Structure
E-3	181 C.Y.	Channel Excavation
S-1	0.5 C.Y.	Concrete for End Walls Class "E"
I-10	15 C.Y.	Dumped Rock Fill as per plan.
S-27	112 L.F.	15" Standard Strength Reinforced Concrete Culvert Pipe Sec. M.6.6 (b)

Drainage Area 3 A.S. Qas = .65 X 1 X 1 X 15 = 10 c.f.s.			
11	Sta. 124+50	P.C. 15" X 112'	LIC-161-0691

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

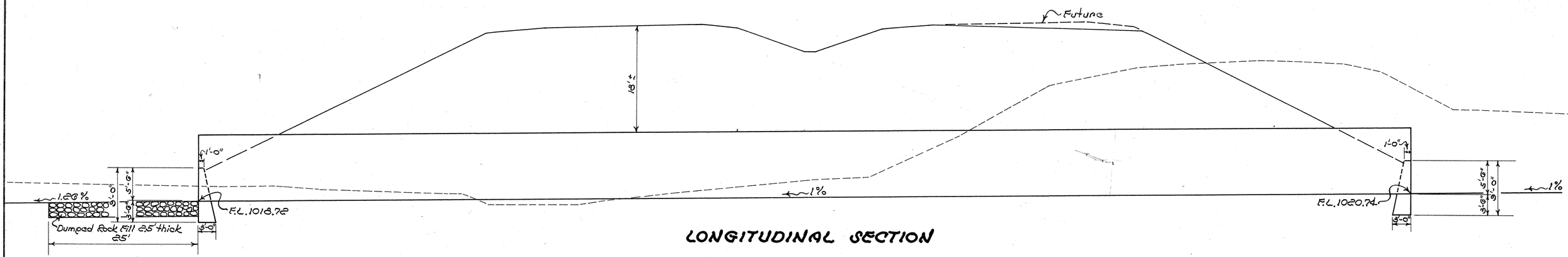
103/238

LIC-161-5.12
LIC-37-15.09

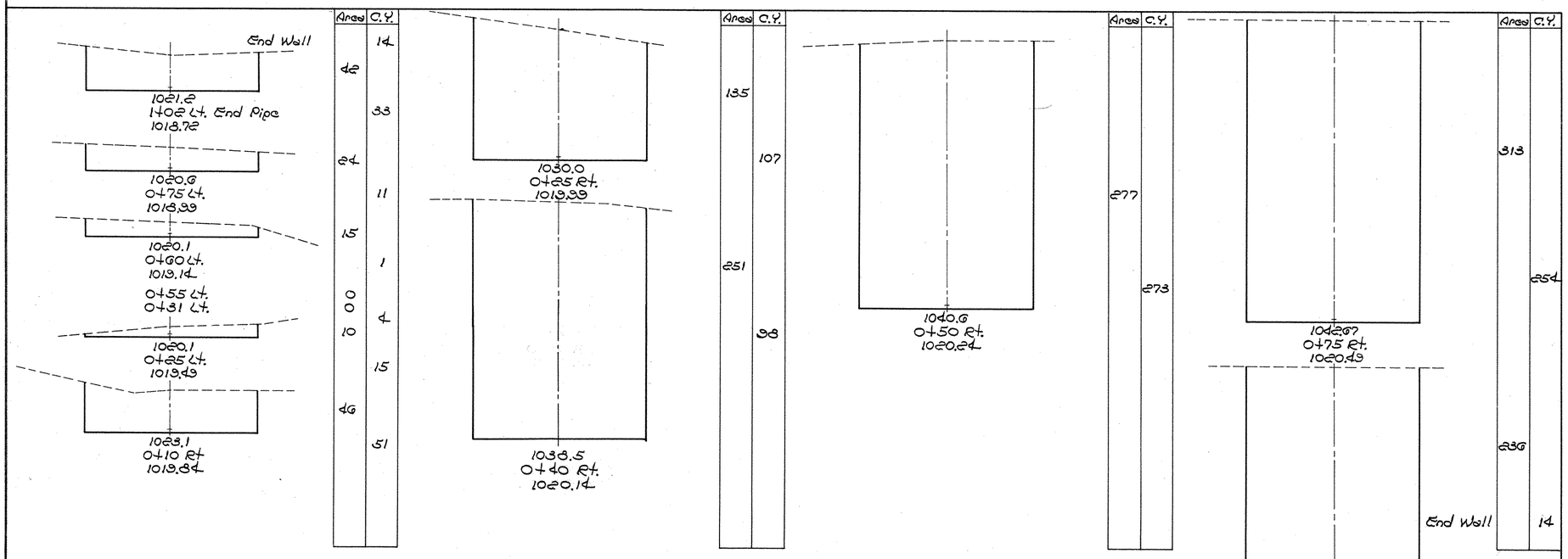


PLAN

0 1 2 3 4 5 6 7 8 9 10
Scale of Feet



LONGITUDINAL SECTION



CROSS SECTIONS

0 1 2 3 4 5
Scale of Feet

STRUCTURE DATA

TYPE :~ Pipe Culvert Std. Drwg. Nº SP-53, SP-27, RC-3
SIZE :~ 132"X20'
WORK REQUIRED :~ Install new structure as per plan.
Excavate inlet and outlet channels.
Remove existing 24"X52' Conc. Arch.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	375 C.Y.	Excavation for Structure
E-3	2230 C.Y.	Channel Excavation
S-1	18.2 C.Y.	Concrete for End Walls Class "E"
S-25	202 L.F.	132" Sectional Corrugated Metal Pipe
		Gage of Plates shall be 7 and 5.
I-10	45 C.Y.	Dumped Rock Fill as per plan.
S-24	Lump	Removal of Existing Structure.

Drainage Area 2.4 Sq. Mi.		Qes = 700 c.f.s.	
12	Sta. 133+69.98	P.C. 132"X20'	LIC-161-0709

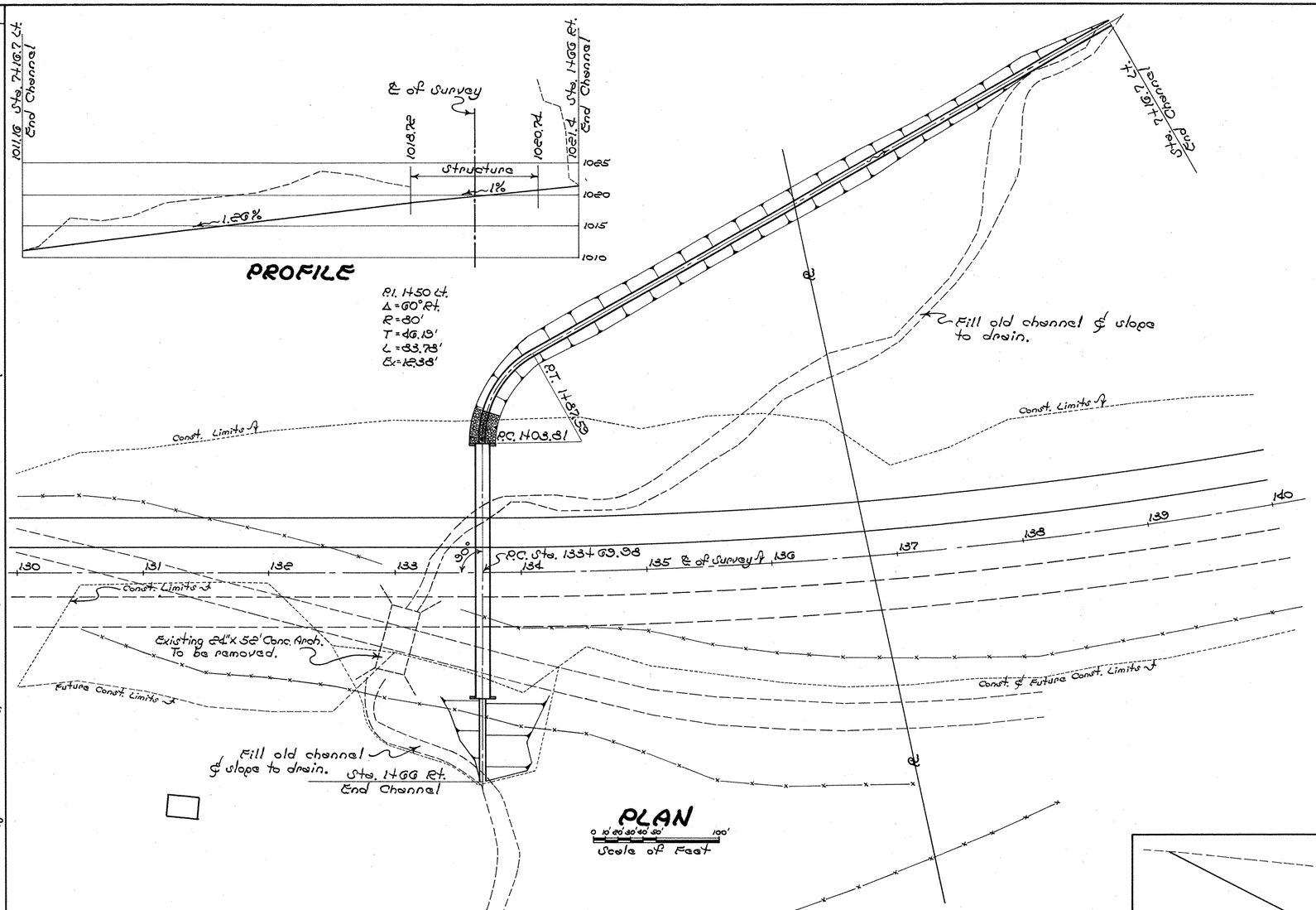
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

104
238

LIC-161-5.12
LIC-37-15.09

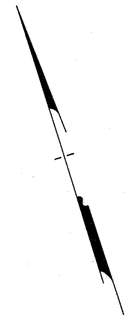
PROFILE

P.I. 1+50 Lt.
Δ = 60° Rt.
R = 30'
T = 16.19'
L = 33.79'
Ex = 12.38'

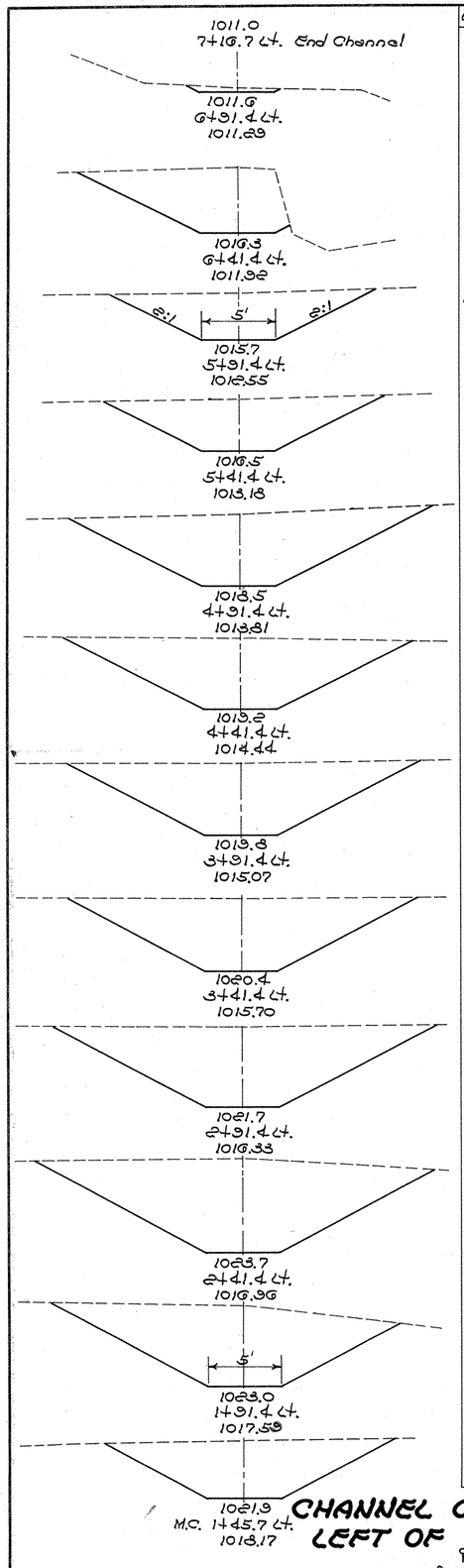


PLAN

0 10' 20' 30' 40' 50' 100'
Scale of Feet



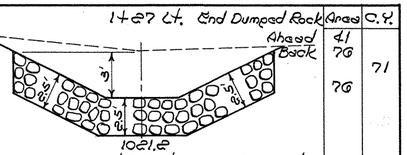
Fill old channel ℄ slope to drain.



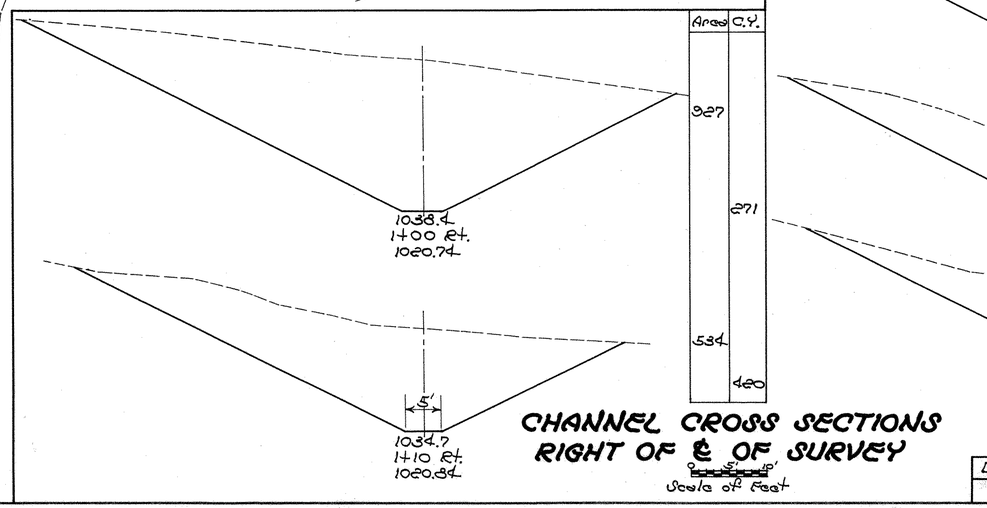
CHANNEL CROSS SECTIONS
LEFT OF ℄ OF SURVEY

Scale of Feet

Area	C.Y.
0	1
6	41
46	78
36	71
39	105
70	133
69	157
68	186
68	146
85	170
98	160
75	106
46	32



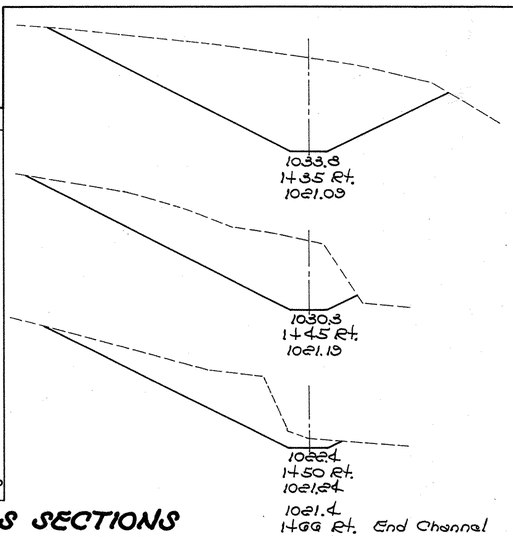
Dumped Rock Fill is to extend 25' beyond end of structure.



Area	C.Y.
927	271
534	460

CHANNEL CROSS SECTIONS
RIGHT OF ℄ OF SURVEY

Scale of Feet



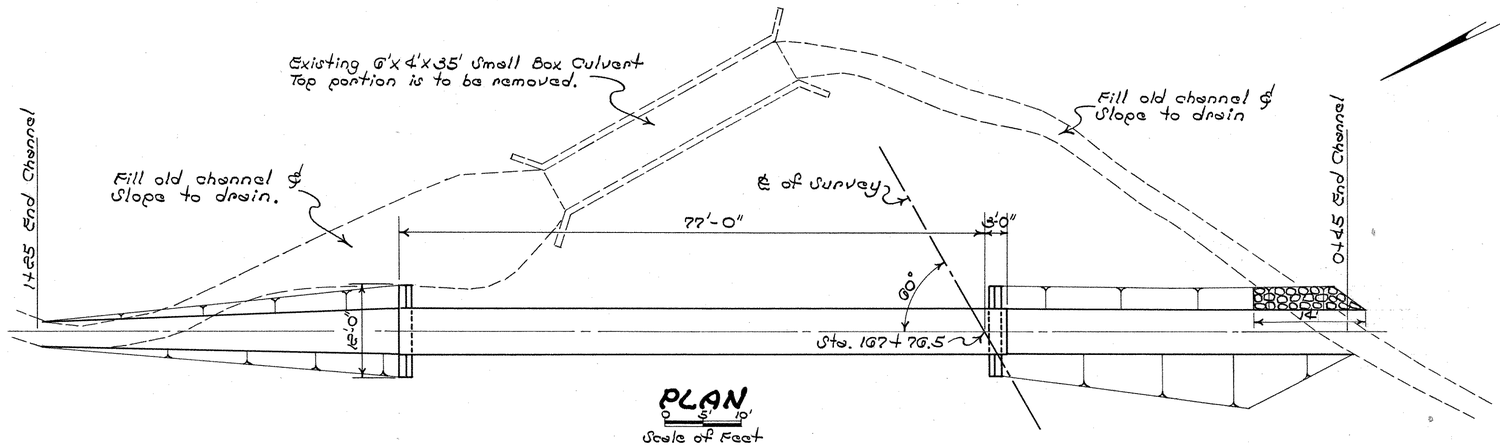
Area	C.Y.
373	114
240	34
128	38
0	

Drainage Area 2.4 Sq. Mi			Qes = 700 c.f.s.
12	Sta. 133+69.98	P.C. 132"x 208'	LIC-161-0708

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

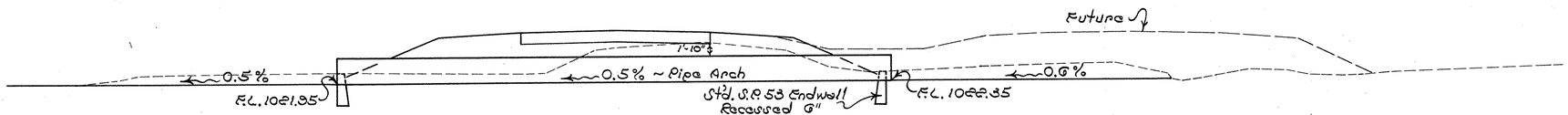
105
238

LIC-161-5.12
LIC-37-15.09

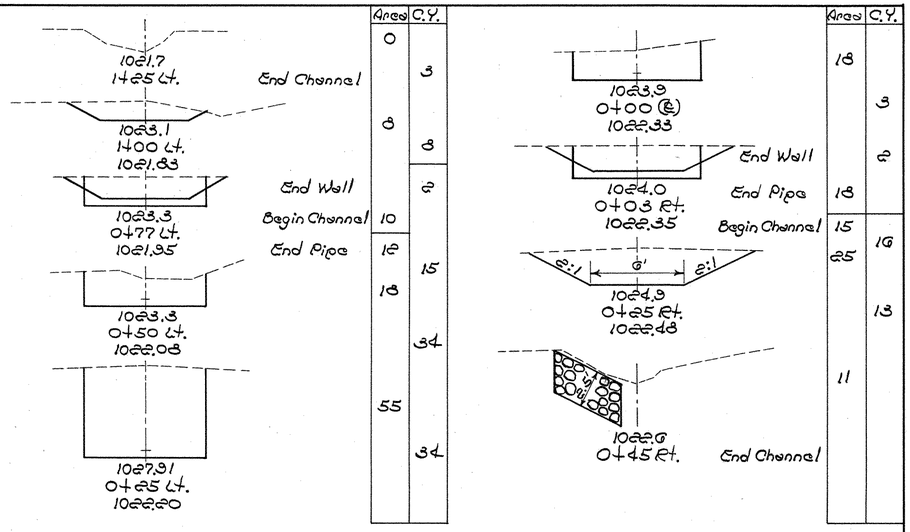


PLAN

0 5' 10'
Scale of Feet



LONGITUDINAL SECTION



CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet

CULVERT DATA

TYPE :~ Corrugated Metal Arch Std. Drwg. (S-27, PC.3) SP-53
SIZE :~ 72"x44"x30'
WORK REQUIRED :~ Install culvert and construct endwalls as shown.

Culvert to be Corrugated Metal Arch with Integral Base (M-6.4(i)) and is paved in accordance with requirements of M 6-4(d).

Excavate inlet & outlet channels.

Place dumped rock fill at upper end of inlet channel.

Remove top portion of existing structure and backfill as per Sec. E-2.08. Cost of backfilling included in item "E-1, Roadway Excavation" for payment.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	90 C.Y.	Excavation for Structure
E-3	40 C.Y.	Channel Excavation
S-1	5 C.Y.	Concrete for End Walls Class "E"
S-22	Lump Sum	Removal of Portion of Exist. Structure
I-10	5 C.Y.	Dumped Rock Fill, as per plan.
S-27	80 L.F.	72"x44" Paved Bituminous Coated Corr. Metal Arch M-6.4(d)(i), 8 Gage

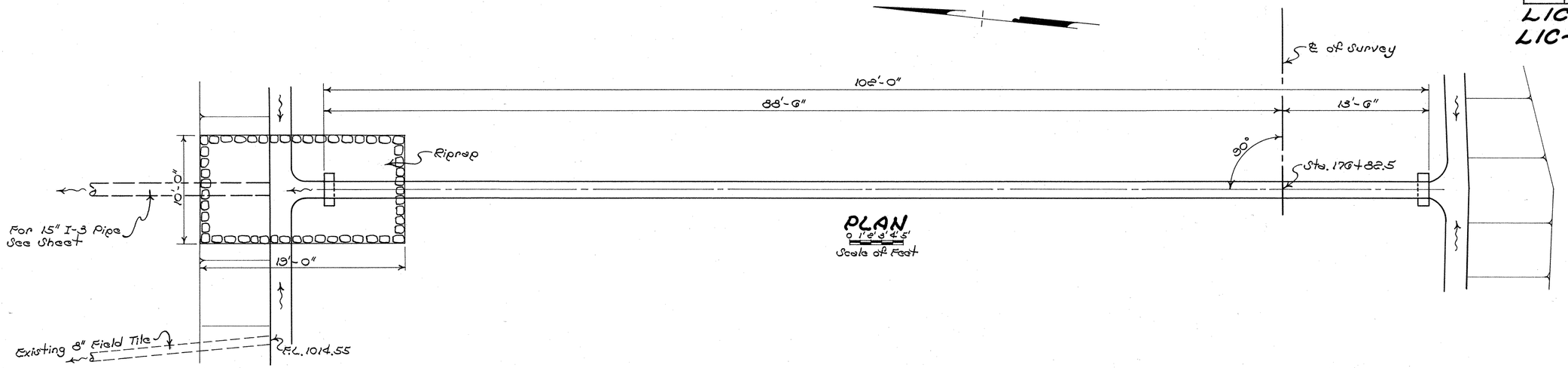
Drainage Area 90 AS. Qes = .65 x 1 x .8 x 175' = 90 c.f.s.

13	Sta. 1674 76.5	P.C. 72"x44"x30'	LIC-161-0778

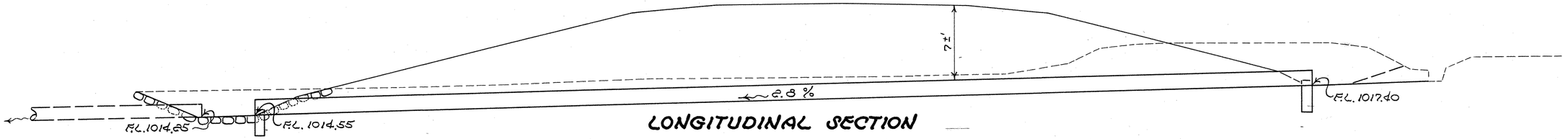
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

106
238

LIC-161-5.12
LIC-37-15.09



PLAN
0 1'6" 3' 4'5'
Scale of Feet



LONGITUDINAL SECTION

	Area	C.Y.
0+88.5 Lt. End Stru. Exc.	0	1
		1
End Wall	7	
1014.76		
0+81 Lt.		

	Area	C.Y.
		3
	13	
1016.83		
0+07 Lt.		
1020.9		3

CULVERT DATA

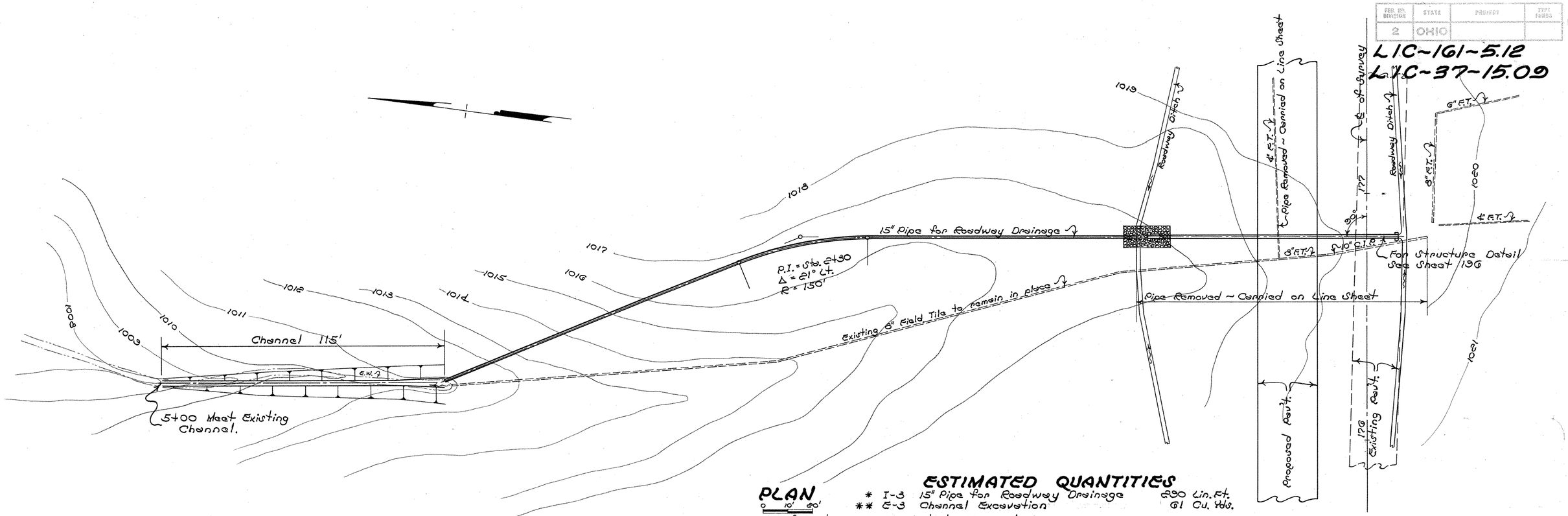
TYPE :~ Pipe Culvert Std. Dwg. No. S-27 Ref. 3 & 4
SIZE :~ 18" X 102'
WORK REQUIRED :~ Install Pipe Culvert as shown.

Designed	
Traced	
Checked	

FED. RD. DIVISION	STATE	PROJECT	TEST FUNDS
2	OHIO		

107
238

LIC-161-5.12
LIC-37-15.09

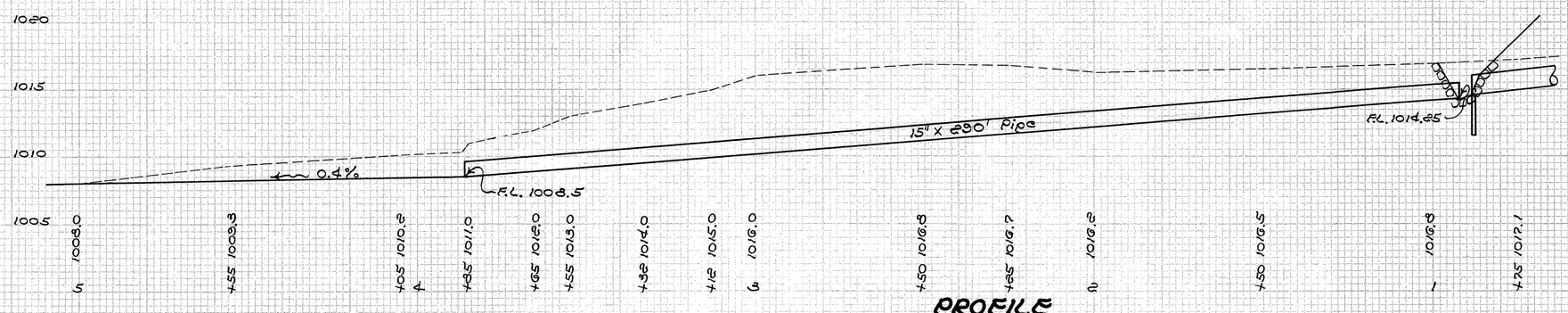


PLAN

Scale of Feet

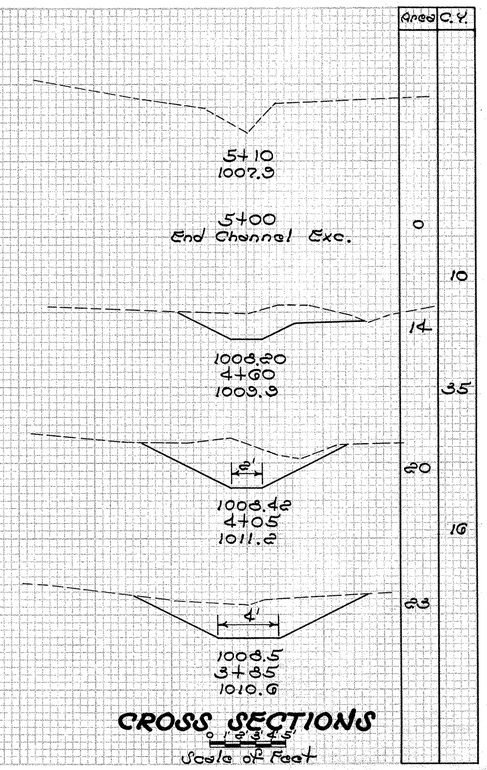
ESTIMATED QUANTITIES

*	I-3 15" Pipe for Roadway Drainage	290 Lin. Ft.
**	E-3 Channel Excavation	61 Cu. Yds.
*	Carried to General Summary	
**	Carried to Structure 14 Sheet 196	



PROFILE

Scale Vertical 0 1' 2' 3' 4' 5'
Scale Horizontal 0 10' 50'
Scales of Feet



CROSS SECTIONS

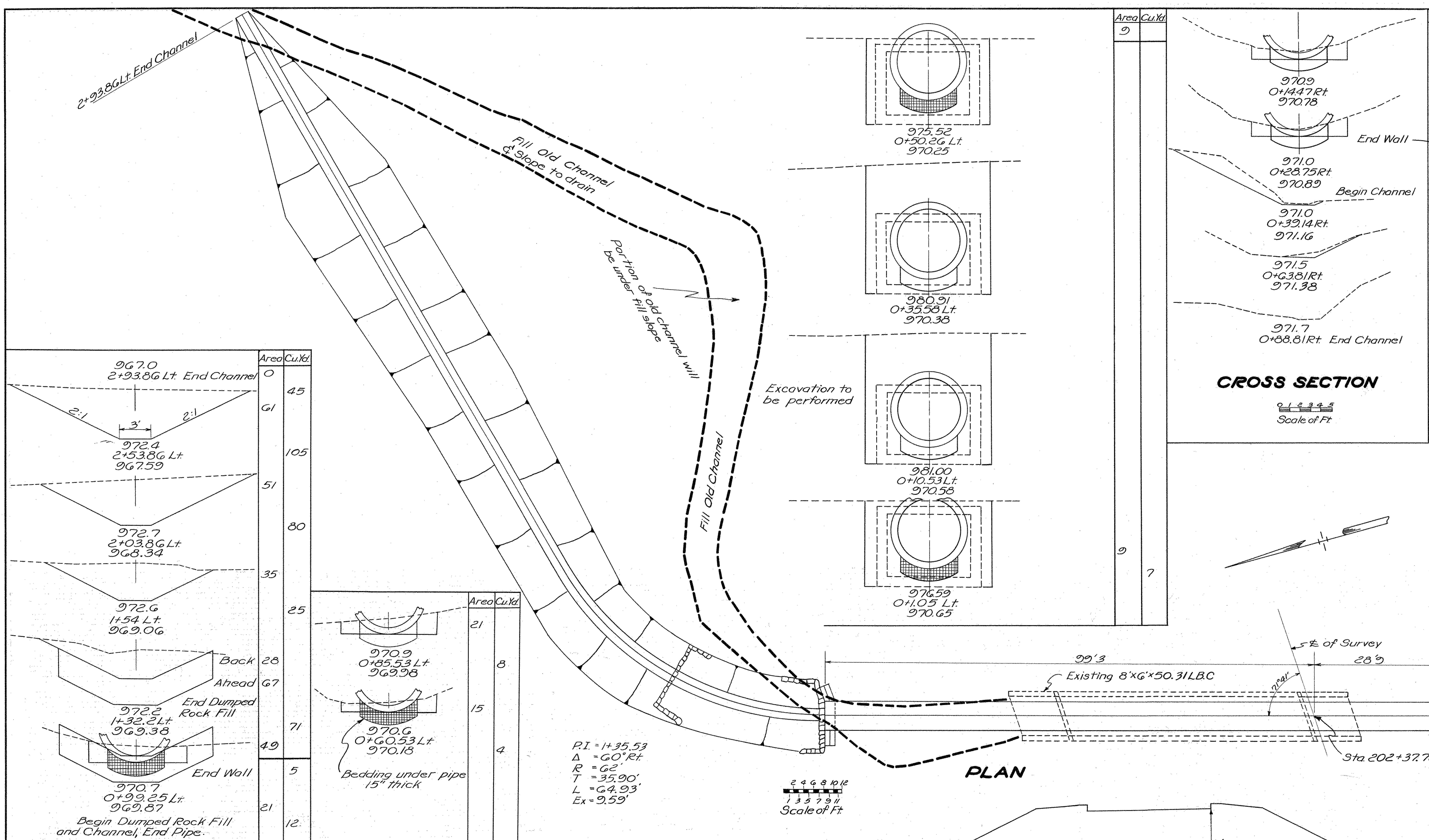
0 1' 2' 3' 4' 5'
Scale of Feet

LATERAL DRAINAGE @ STA. 176+82.5

LIC-161-5.12
LIC-37-15.09

CULVERT DATA

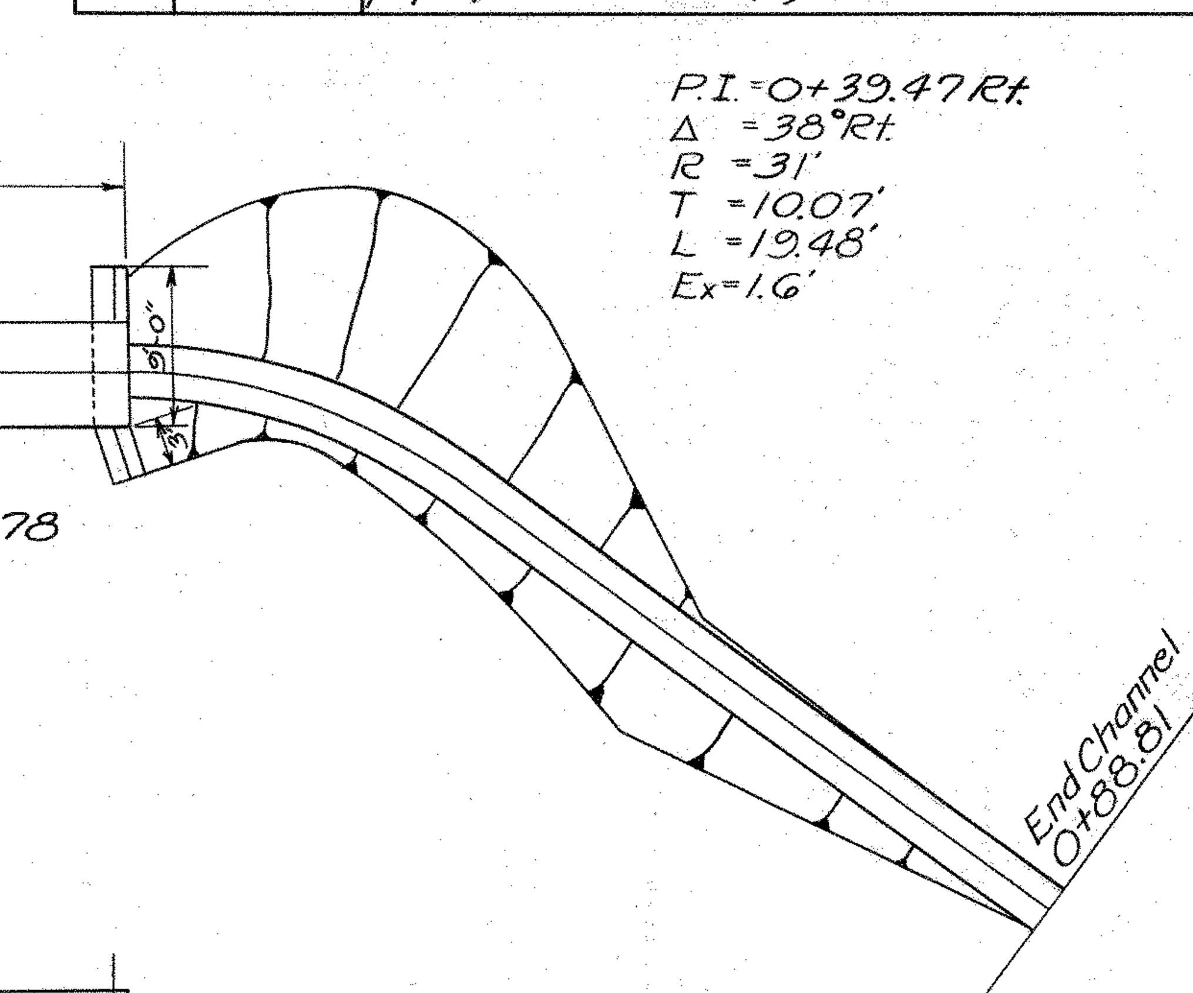
Type–Pipe Culvert STD.DRWG.N°SP-53, S-27 P.C.3
SIZE–72"×128'
WORK REQUIRED–Remove existing 8'×6'×50.31' large box culvert. Install new pipe culvert, as per plan. Bedding is shown for entire length of pipe. However bedding may be omitted outside the limits of the existing structure providing suitable foundation is encountered.



2+93.8G Lt. End Channel
Fill Old Channel & Slope to drain
Portion of old channel will be under fill slope
Fill Old Channel
Excavation to be performed
967.0
2+93.8G Lt. End Channel
2:1
3'
2:1
972.4
2+53.8G Lt
967.59
972.7
2+03.8G Lt.
968.34
972.6
1+54 Lt.
969.06
Back
Ahead
End Dumped Rock Fill
972.2
1+32.2 Lt
969.38
End Wall
970.7
0+99.25 Lt.
969.87
Begin Dumped Rock Fill and Channel, End Pipe.
Area
Cu.Yd.
0
45
61
105
51
80
35
25
28
67
71
49
5
21
12
970.9
0+85.53 Lt.
969.98
970.6
0+60.53 Lt.
970.18
Bedding under pipe 15" thick
21
8
15
4
975.52
0+50.26 Lt.
970.25
980.91
0+35.58 Lt.
970.38
981.00
0+10.53 Lt.
970.58
976.59
0+1.05 Lt.
970.65
9
9
7
970.9
0+14.47 Rt.
970.78
971.0
0+28.75 Rt.
970.89
End Wall
Begin Channel
971.0
0+39.14 Rt.
971.16
971.5
0+63.81 Rt.
971.38
971.7
0+88.81 Rt. End Channel
CROSS SECTION
Scale of Ft.
15
9
17
5
2
1
12
2
3
1
0
P.I. = 1+35.53
Δ = 60° Rt.
R = 62'
T = 35.90'
L = 64.93'
Ex = 9.59'
Scale of Ft.
PLAN
Existing 8'×6'×50.31 L.B.C.
99'3
28'9
℄ of Survey
Sta. 202+37.78

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	50 Cu.Yds.	Excavation for Structure
E-3	330 Cu.Yds.	Channel Excavation
S-1	6.6 Cu.Yds.	Concrete for End Walls ~ Class "E."
S-24	Lump Sum	Removal of Existing Structure
I-10	50 Cu.Yds.	Dump Rock Fill, as per plan
S-27	128 Lin.Ft.	72" Sectional corrugated metal pipe, gage 10-10, Sec. M-6.46 or extra strength reinforced concrete culvert pipe, Sec. M-6.6 (c).



Drainage Area 550A±	Q_2 = 65×.6×1×600 = 234 cfs		
16	Sta 202+37.78	P.C. 72"×128'	LIC-161-0838

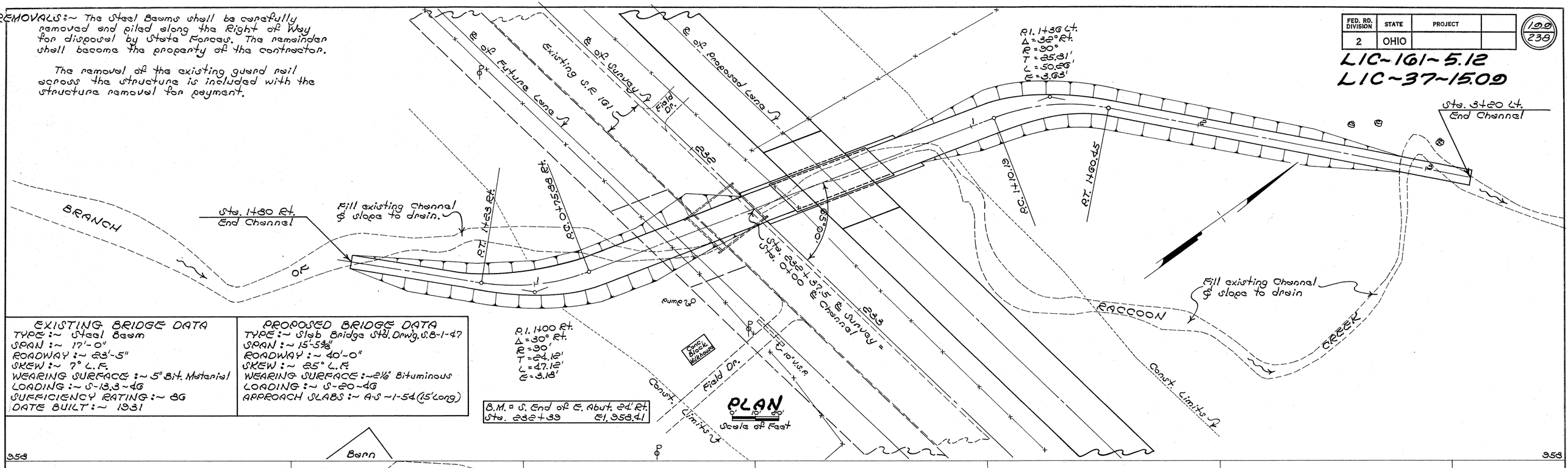
REMOVALS:~ The Steel Beams shall be carefully removed and piled along the Right of Way for disposal by State Forces. The remainder shall become the property of the contractor.

The removal of the existing guard rail across the structure is included with the structure removal for payment.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

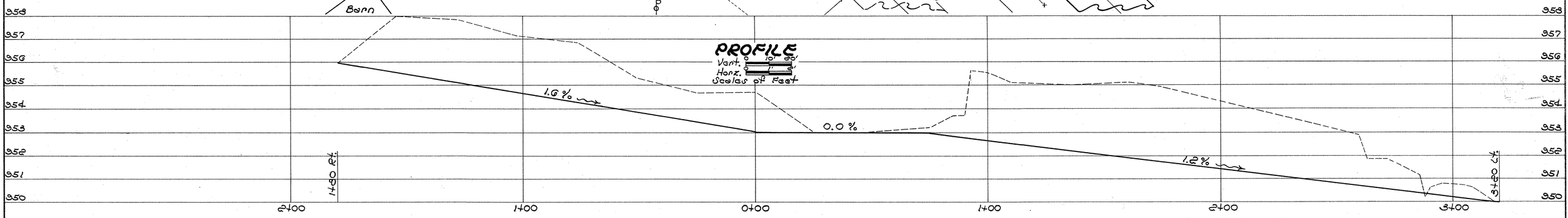
109
238

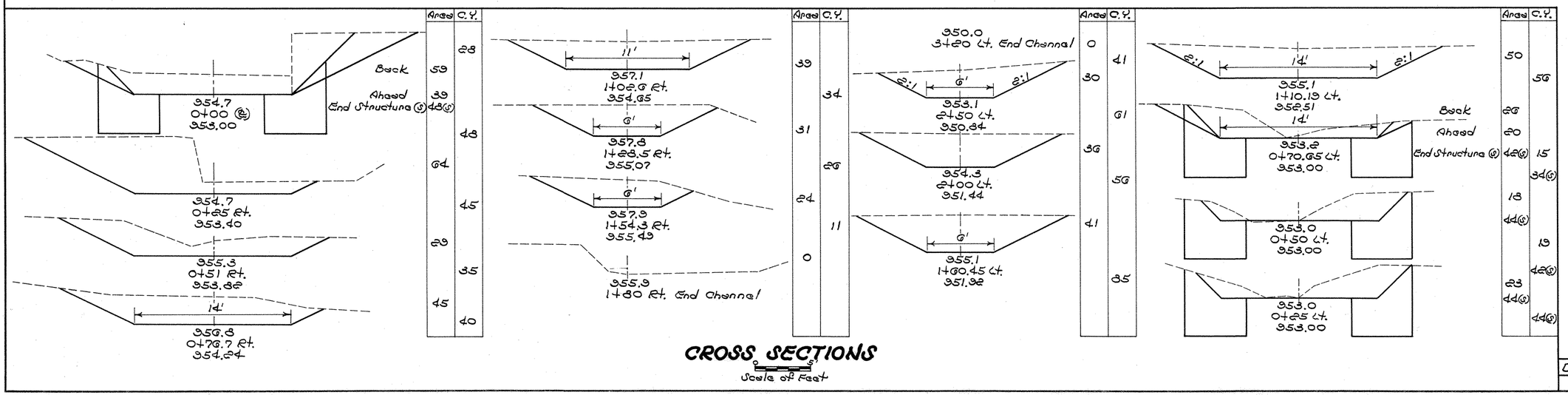
LIC-161-5.12
LIC-37-15.09



EXISTING BRIDGE DATA	PROPOSED BRIDGE DATA
TYPE :~ Steel Beam	TYPE :~ Slab Bridge Std. Drwg. S.B-1-47
SPAN :~ 17'-0"	SPAN :~ 15'-5⅜"
ROADWAY :~ 23'-5"	ROADWAY :~ 40'-0"
SKEW :~ 7° L.F.	SKEW :~ 25° L.F.
WEARING SURFACE :~ 5" Bit. Material	WEARING SURFACE :~ 2½" Bituminous
LOADING :~ S-13.3~46	LOADING :~ S-20~46
SUFFICIENCY RATING :~ 86	APPROACH SLABS :~ A-S ~1-54 (15' Long)
DATE BUILT :~ 1931	

B.M. = S. End of E. Abut. 24' Rt. Sta. 232+39 El. 358.41





CROSS SECTIONS
Scale of Feet

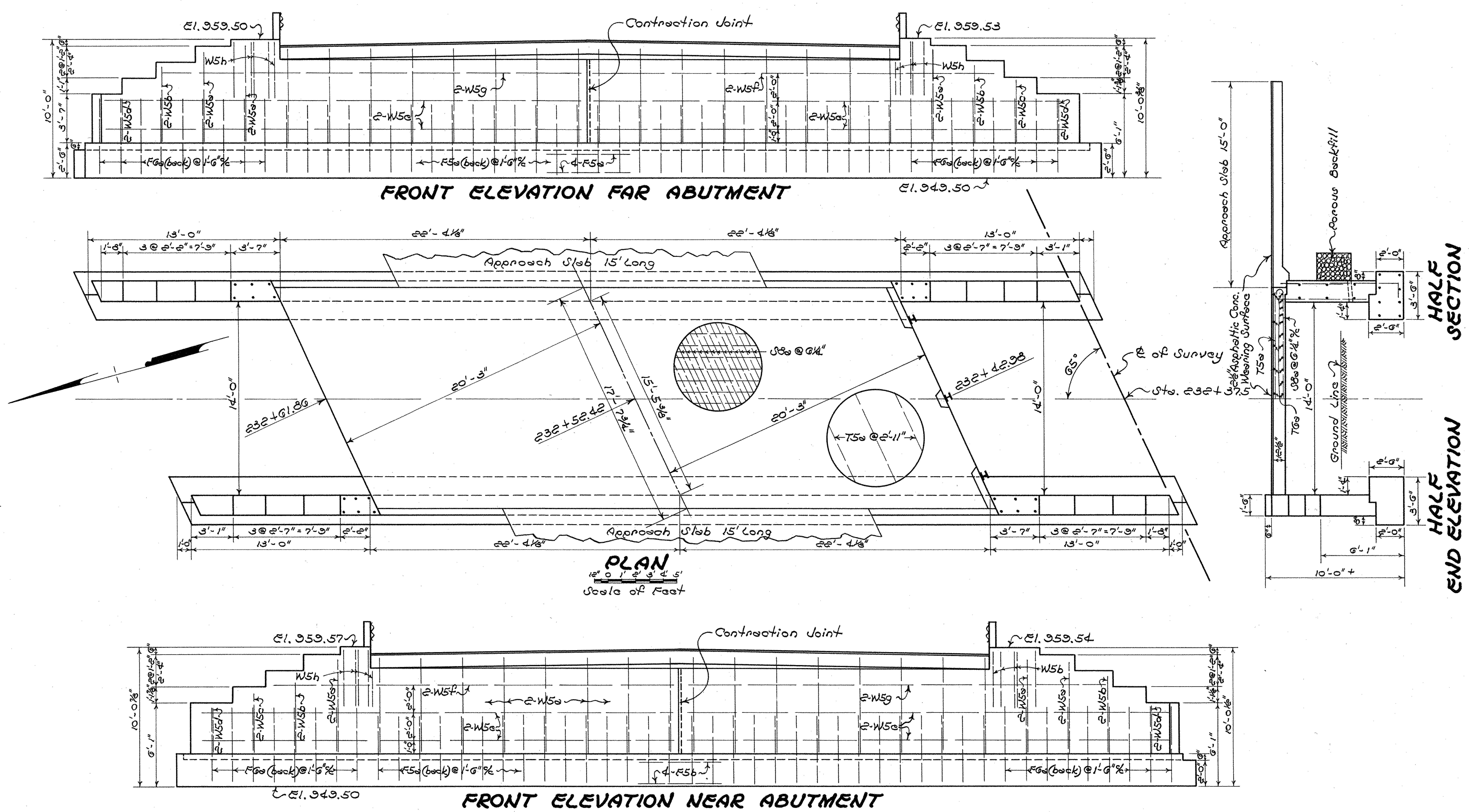
Drainage Area 0.9 sq. mi.

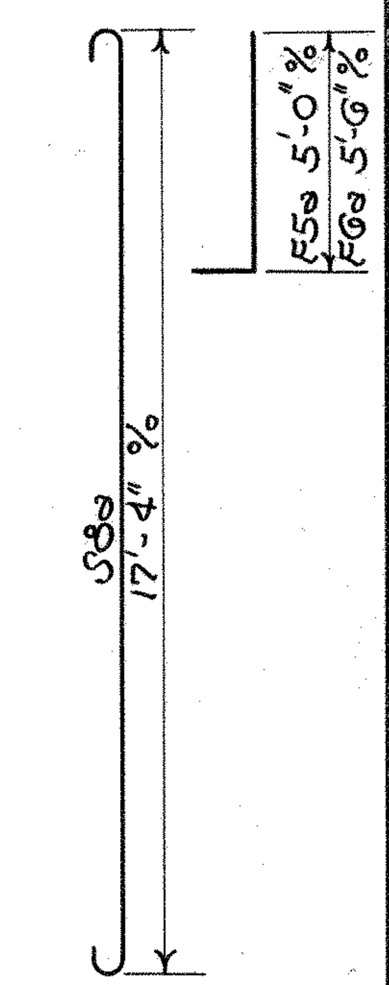
17	Sta. 232+37.5	S.B. 15.5'x40'x10'	L.I.C.-161-0895	

1/2

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LIC-161-5.12
LIC-37-15.09





STEEL LIST				
Mark	No.	Shape	Length	Wt.
F5a	60	Bent	5'-6"	344
F6a	34	Bent	6'-2"	315
F5b	16	Strt.	6'-0"	100
W5a	76	Strt.	6'-9"	535
W5b	8	Strt.	5'-7"	47
W5c	4	Strt.	4'-5"	18
W5d	8	Strt.	3'-4"	28
W5e	16	Strt.	34'-0"	567
W5f	4	Strt.	28'-3"	118
W5g	4	Strt.	29'-9"	124
W5h	24	Strt.	4'-0"	100
S8a	86	Bent	19'-0"	4363
T6a	35	Strt.	44'-3"	2326
T5a	15	Strt.	17'-0"	266
Total				9251

In the reinforcing steel bar marks, the number following the first letter is the bar number which indicates the size of the bar.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	120 C.Y.	Excavation for Structure.
E-3	600 C.Y.	Channel Excavation.
S-1	29.2 C.Y.	Concrete for Slab Class "C".
S-1	49.5 C.Y.	Concrete for Walls Class "E".
S-1	43.8 C.Y.	Concrete for Footings Class "E".
S-4	9251 Lb.	Reinforcing Steel.
S-24	Lump Sum	Removal of Existing Structure.
S-29	26 C.Y.	Porous Backfill.
S-14	35.3 L.F.	Railing Sec. I-15.13 Steel Beam deep.
S-3	80 S.Y.	Waterproofing Type "C"
* T-35	5.5 C.Y.	Asphaltic Concrete Wearing Course
S-9	16 S.F.	¼" Premolded Expansion Joint Filler

* Carried to Calculations

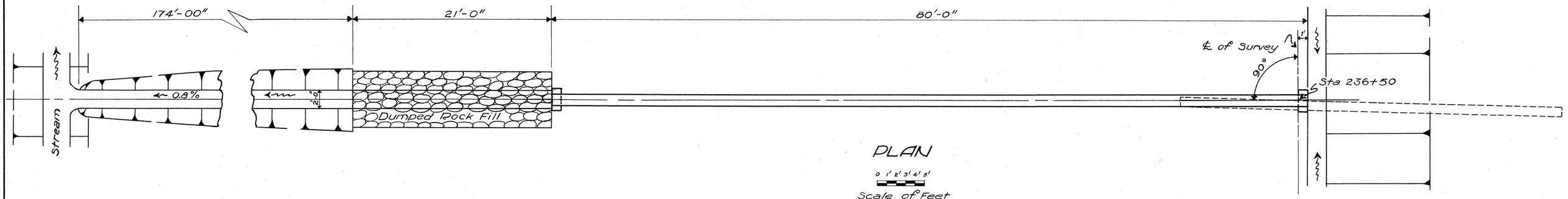
Drainage Area 0.9 sq. mi.

17	Sta. 232+37.5	S.B. 15.45' x 40' x 10'	LIC-161-0895

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

201
238

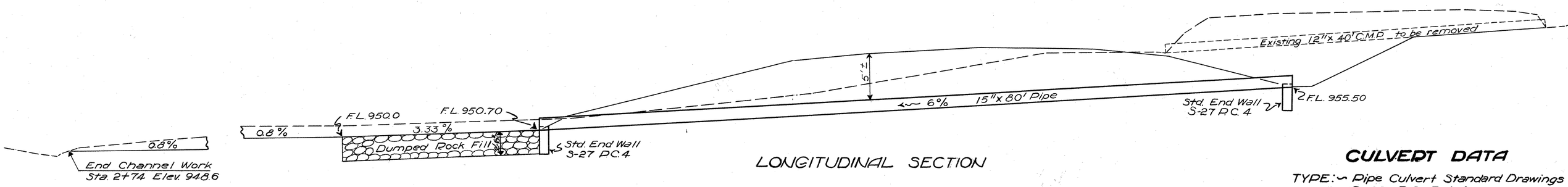
LIC.~161~5.12
LIC-37-15.09



PLAN

0 1' 2' 3' 4' 5'

Scale of Feet



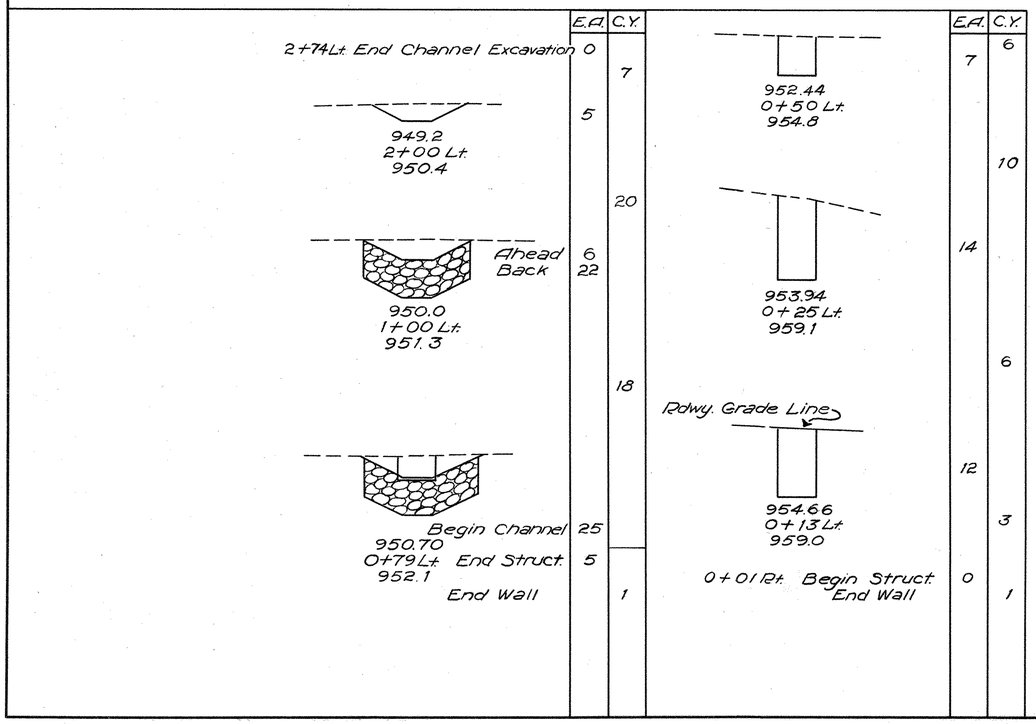
LONGITUDINAL SECTION

CULVERT DATA

TYPE:~ Pipe Culvert Standard Drawings S-27 P.C. 3 & 4

SIZE:~ 15"x80'

WORK REQUIRED:~ Install Culvert and construct Channel as shown. Payment for removal of existing 12"x 40' C.M.P. to be included in E-1 Roadway Excavation.



CROSS SECTIONS

0 1' 2' 3' 4' 5'

Scale of Feet

ESTIMATED QUANTITIES

ITEM	QUANTITY	DESCRIPTION
E-2	27 Cu Yds	Excavation for Structure
E-3	45 Cu Yds	Channel Excavation
I-10	14 Cu Yds	Dumped Rock Fill, as per plan
S-1	05 Cu Yds	Concrete for End Wall Class "E"
S-27	80 Lin. Ft.	15" Standard Strength reinforced concrete culvert pipe. Sec. M-6.6(b) or extra strength vitrified sewer pipe. Sec. M-6.8(b).

Drainage Area = 3A^s Q25 = CiA = .55x4.75x3 = 8 c.f.s.

18	236+50	P.C. 15"x80'	LIC-161-0903

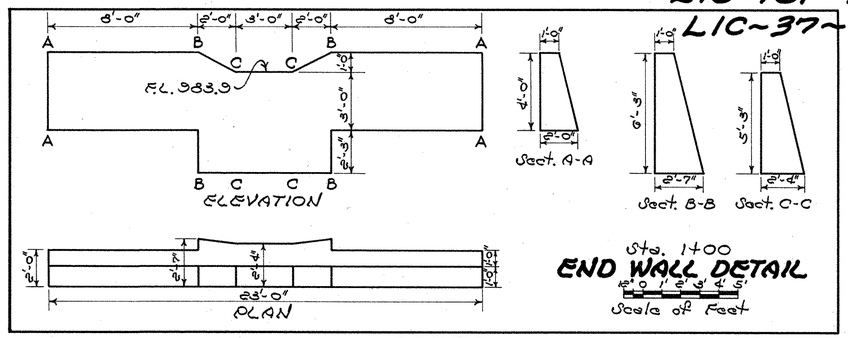
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

202
238

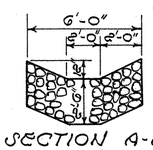
LIC-161-5.12
LIC-37-15.09

End Channel
Sta. 2+05 Lt.

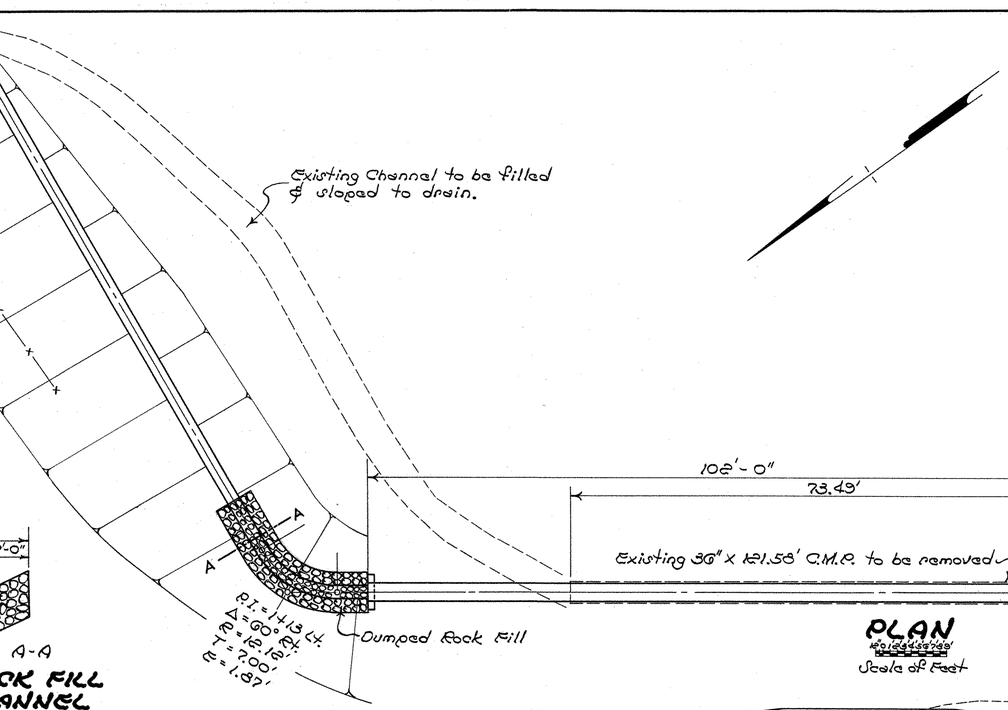
Existing Channel to be filled & sloped to drain.



Sta. 14+00
END WALL DETAIL
Scale of Feet



SECTION A-A
DUMPED ROCK FILL OUTLET CHANNEL
Estimated Quantities ~ 14 Cu. Yds.

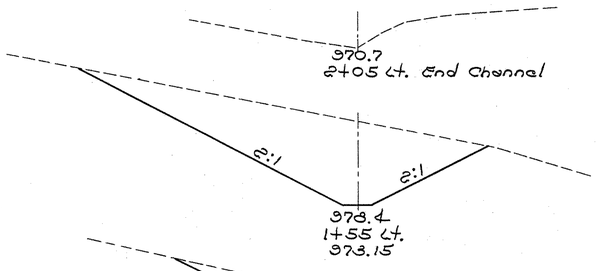


PLAN
Scale of Feet

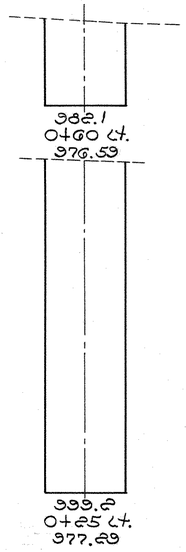
LONGITUDINAL SECTION

CULVERT DATA

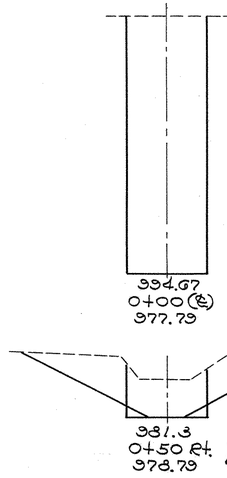
TYPE :~ Pipe Culvert Std. Dwg. No. S-27 RC. 3 & 4
SIZE :~ 36" x 152'
WORK REQUIRED :~ Remove existing pipe culvert. Install new pipe culvert as per plan. Excavate inlet and outlet channels. Payment for removal of existing 36" C.M.P. to be included in E-2 Structure Excavation.



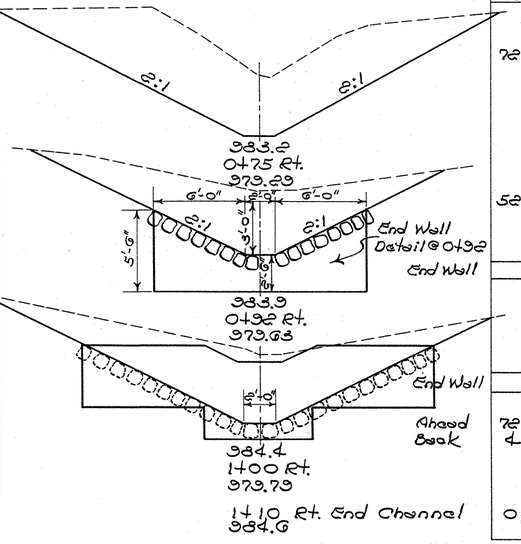
Area	C.Y.
0	
	52
56	
	70
20	
18	
	1



Area	C.Y.
30	
	37
	91
110	



Area	C.Y.
85	
	30
	93
15	
30	
	1



Area	C.Y.
72	47
	39
52	
	5
	18
	10
72	1
4	
0	

CROSS SECTIONS
Scale of Feet

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	388 C.Y.	Excavation for Structure.
E-3	240 C.Y.	Channel Excavation.
S-1	10.0 C.Y.	Concrete for End Walls, Class "E".
S-27	152 L.F.	36" Extra Strength Reinforced Concrete Culvert Pipe, Sec. MG.6(G) or Paved Bituminous coated Corrugated Metal Pipe Sec. MG.4(d),
I-10	30 C.Y.	Dumped Rock Fill as per plan

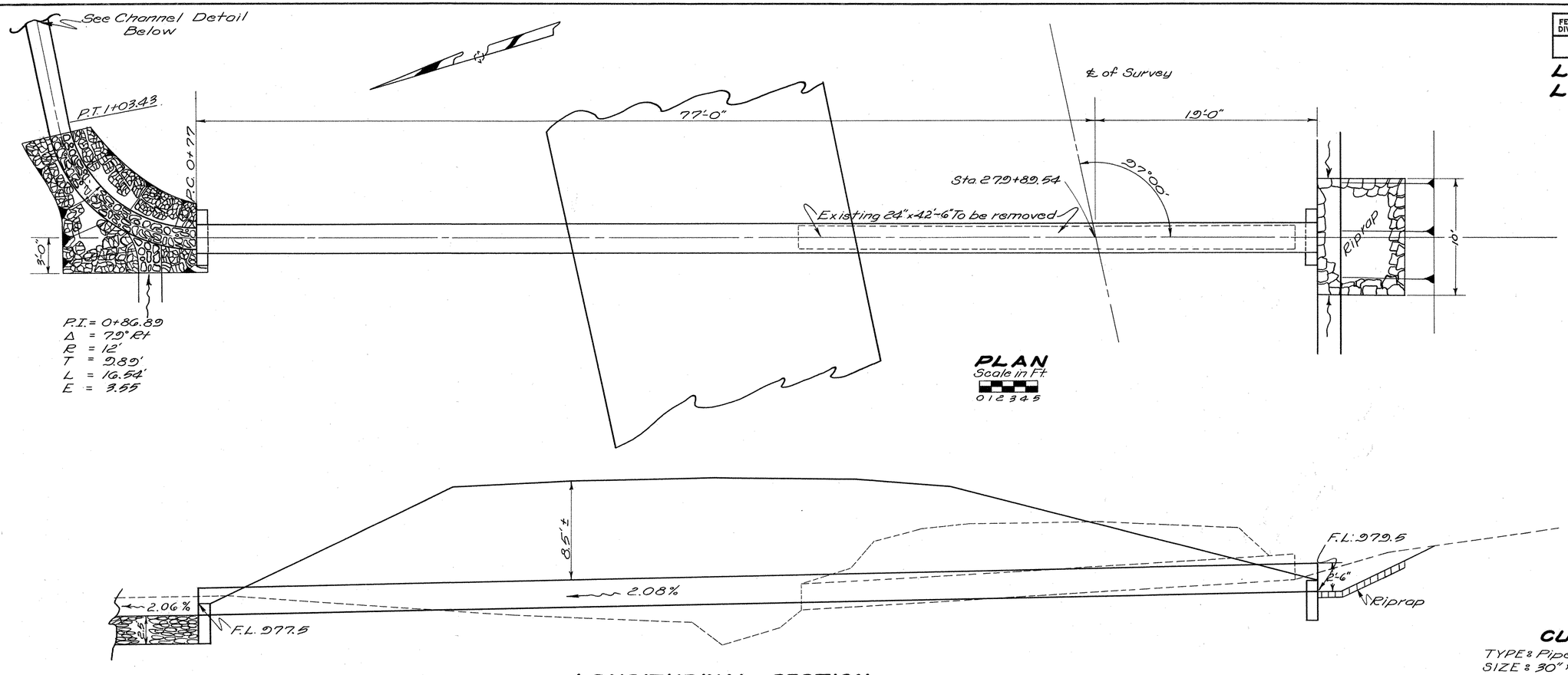
Drainage Area 23 Ac. Qes = .65 x 1 x 1 x 80 = 50 c.f.s.

19	Sta. 257+31.97	RC. 36" x 152'	LIC-161-0343

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

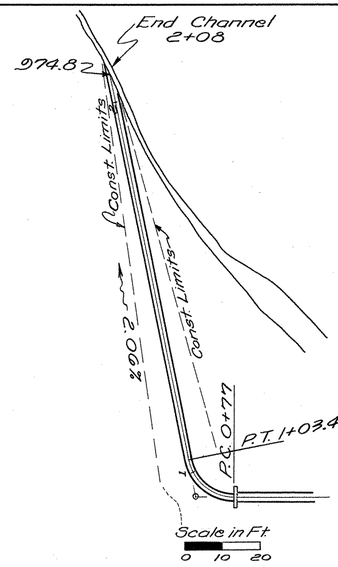
203
238

LIC-161-5.12
LIC-37-15.09

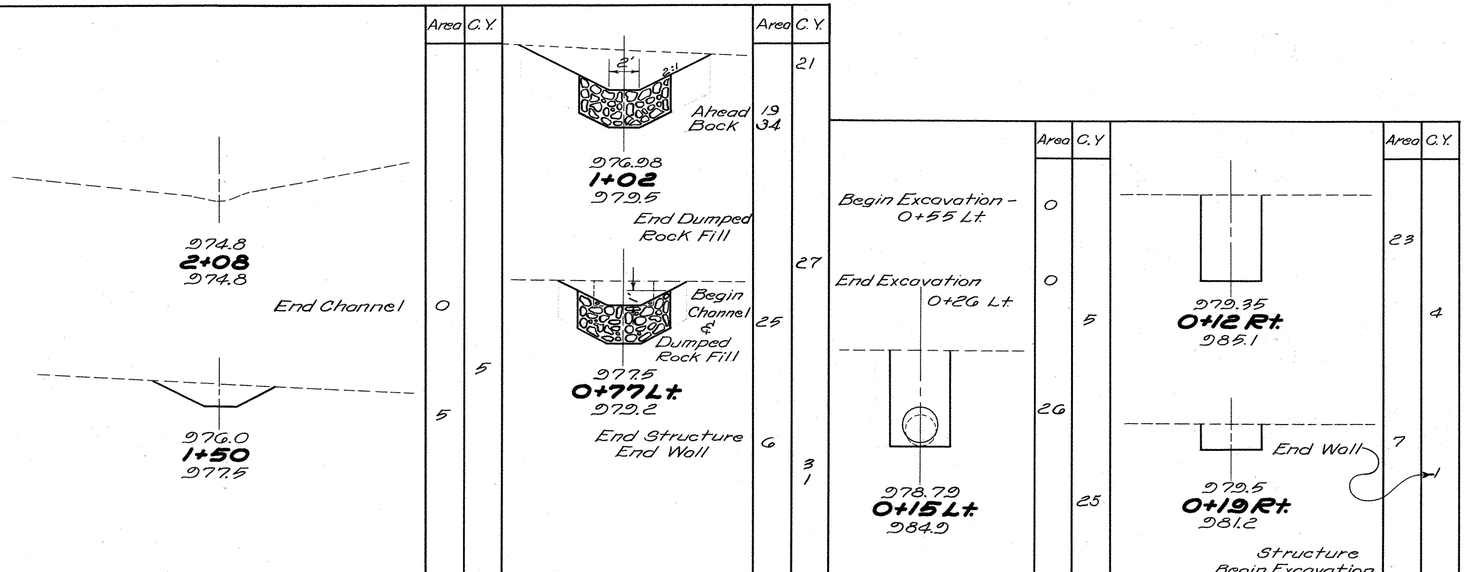


CULVERT DATA

TYPE: Pipe Culvert, Std. Drwg. S-27 P.C. 3&4
SIZE: 30" x 96'
WORK REQUIRED: Excavate for & place Dumped Rock Fill at outlet. Install pipe culvert as per plan. Payment for removal of existing pipe culvert to be included in structure excavation. Place Riprap as shown at inlet.



CHANNEL DETAIL



ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	39 Cu. Yds.	Structure Excavation
E-3	53 Cu. Yds.	Channel Excavation
S-1	10 Cu. Yds.	Concrete for Headwalls, Class "E"
T-10	13 Cu. Yds.	Dumped Rock Fill, As Per Plan
S-27	96 Lin. Ft.	30" Standard Strength reinforced concrete culvert pipe, Sec. M-6.6 (b) or extra strength vitrified sewer pipe, Sec. M-6.8 (b)
T-10	9 Sq. Yds.	Riprap type A Grout-filled

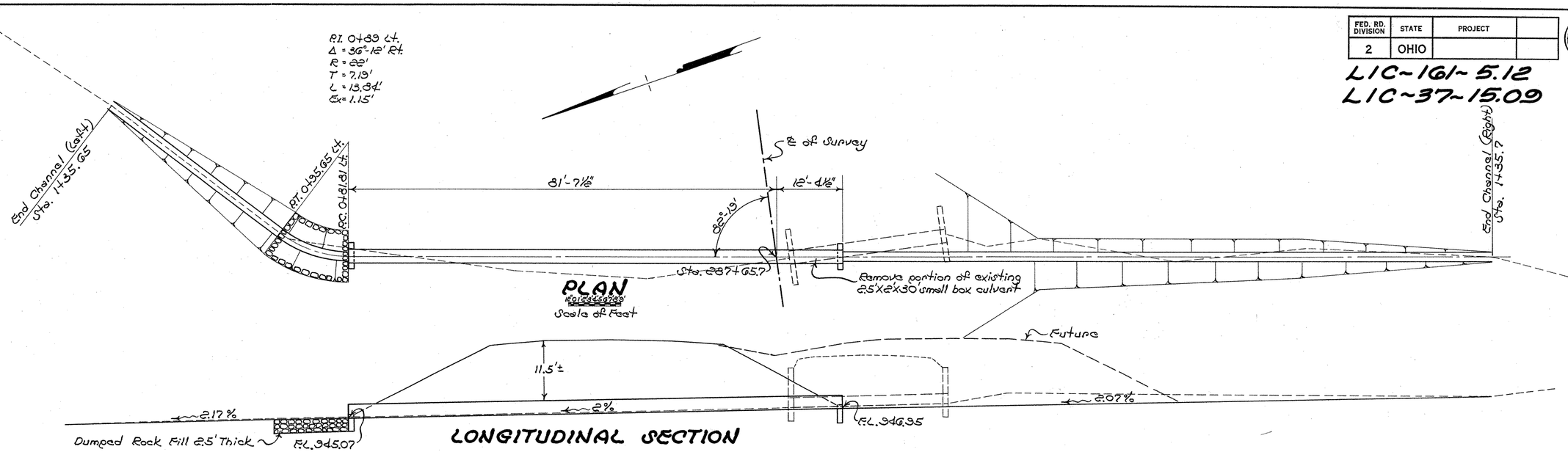
Drainage Area = 21 Ac± Q-25 = C8 x I x I x .65 = 44 c.f.s.

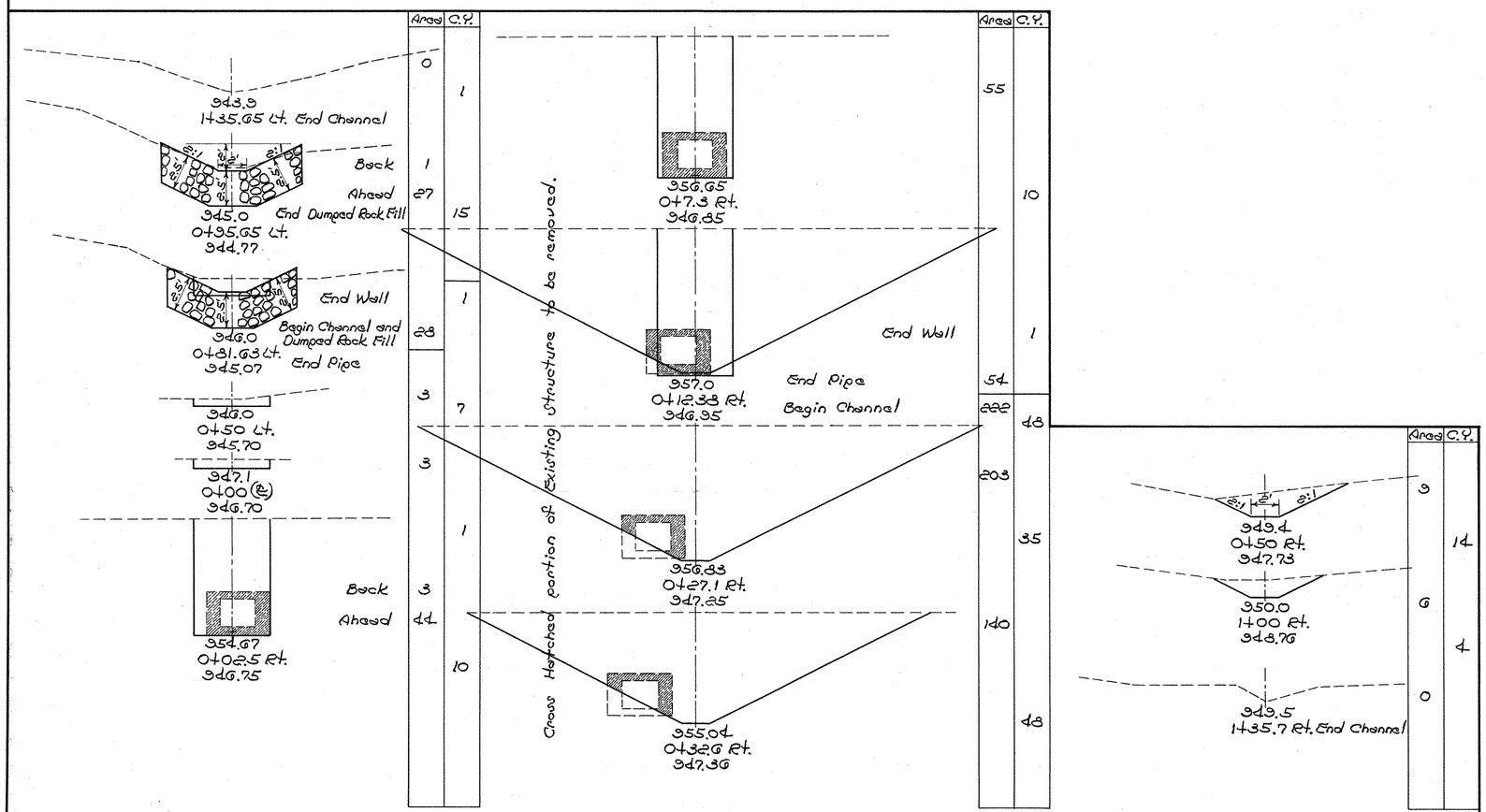
23	Sta. 279+89.54	P.C. 30" x 96'	LIC-161-0985

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

204
238

LIC-161-5.12
LIC-37-15.09





CROSS SECTIONS
0 1' 2' 3' 4' 5'
Scale of Feet

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg No. S-27 P.C. 36"
SIZE :~ 36" x 94'
WORK REQUIRED :~ Remove portion of existing small box culvert. Install new pipe culvert as per plan. Payment for removal of portion of existing culvert is included in Item E-3 Channel Excavation.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	30 C.Y.	Excavation for Structure
E-3	165 C.Y.	Channel Excavation
S-1	1.1 C.Y.	Concrete for End Walls, Class "C"
I-10	14 C.Y.	Dumped Rock Fill, as per plan
S-27	94 L.F.	36" Pipe for Roadway Culvert

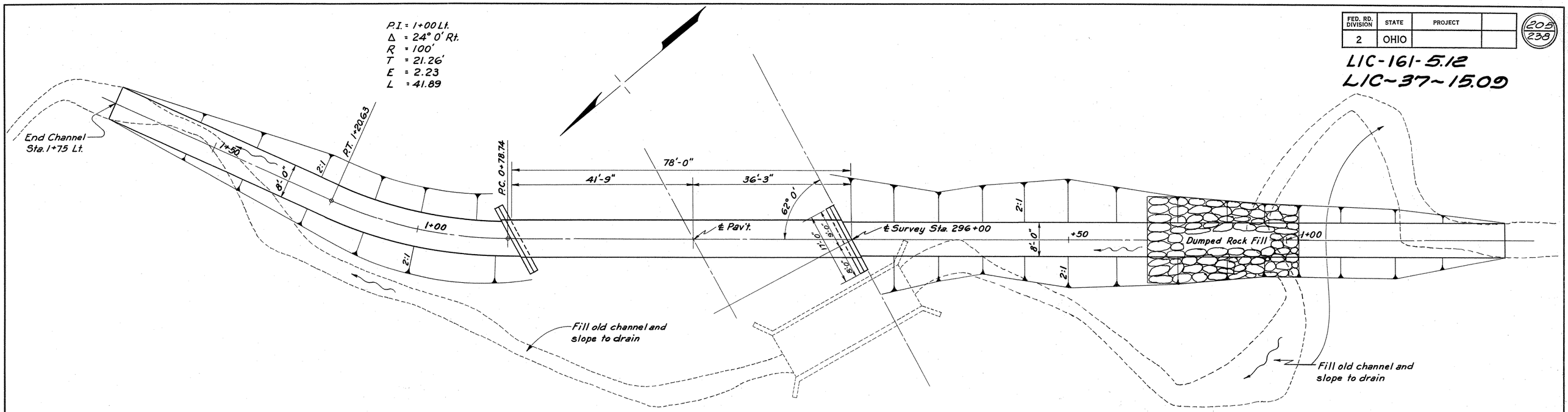
Drainage Area 30 Ac.	Qes=.65x1x1x87 = 57 c.f.s.		
24	Sta. 287+65.7	P.C. 36" x 94'	LIC-161-1000

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

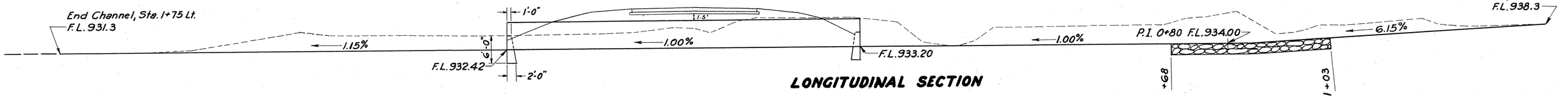
205
238

LIC-161-5.12
LIC-37-15.09

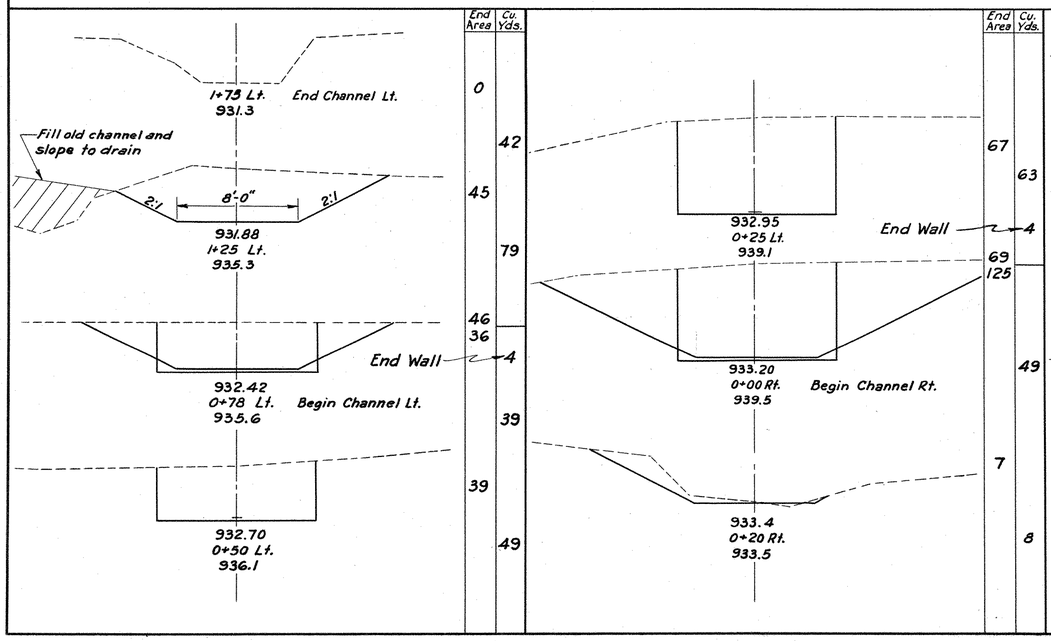
P.I. = 1+00 Lt.
Δ = 24° 0' Rt.
R = 100'
T = 21.26'
E = 2.23
L = 41.89



PLAN
Scale of Feet



LONGITUDINAL SECTION



CROSS SECTIONS
0 1' 2' 3' 4' 5'
Scale of Feet

CULVERT DATA

TYPE: Sectional Corrugated Metal Arch
SIZE: 8'-7"×5'-11"×78'-0" Std. Dwg's. S-27 P.C.3 SP53
WORK REQUIRED: Install pipe arch as per plan. Excavate inlet and outlet channels. Place dumped rock fill as shown. Remove existing concrete slab bridge; fill old channel and slope to drain. Bottom and corner plates to be 8 gage; all other plates to be 10 gage.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	159 c.y.	Excavation for Structures
E-3	417 c.y.	Channel Excavation
I-10	65 c.y.	Dumped Rock Fill, as per plan
S-28	78 lin.ft.	8'-7"×5'-11" Sectional Corrugated Metal Structures (10-ga
S-1	8.6 c.y.	Concrete for Structure, Class "E"
S-24	Lump	Removal of Existing Structure

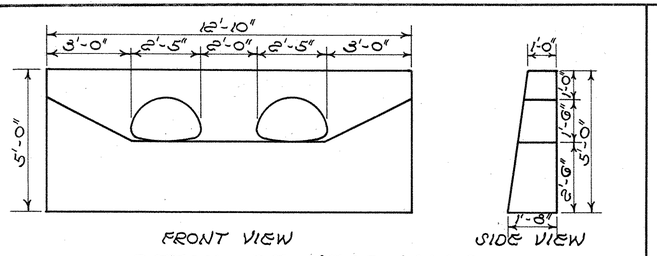
Drainage Area = 320 Ac. $Q_{25} = 400 \times 0.65 \times 1 \times 1 = 260$ c.f.s.

25	P.A. 8'-7"×5'-11"×78'-0"	Sta. 296+00	LIC-161-1016

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

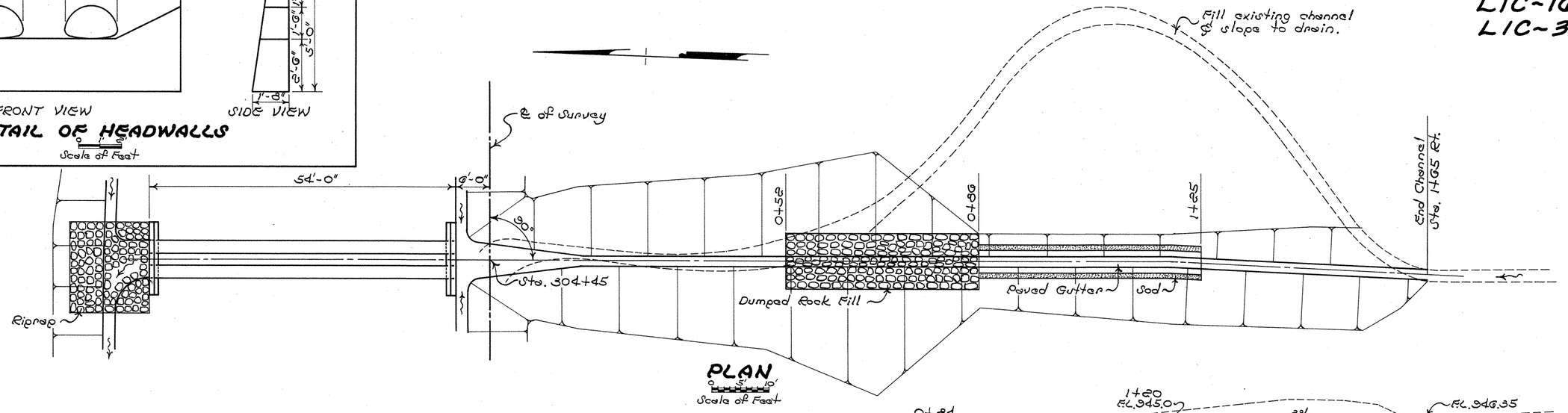
206
238

LIC-161-5.12
LIC-37-15.09



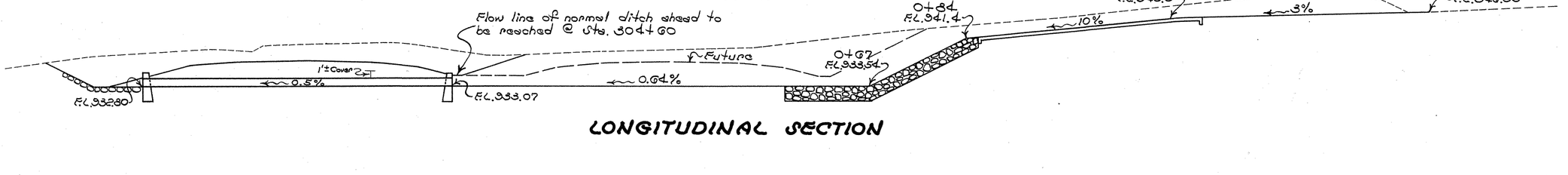
DETAIL OF HEADWALLS

Scale of Feet



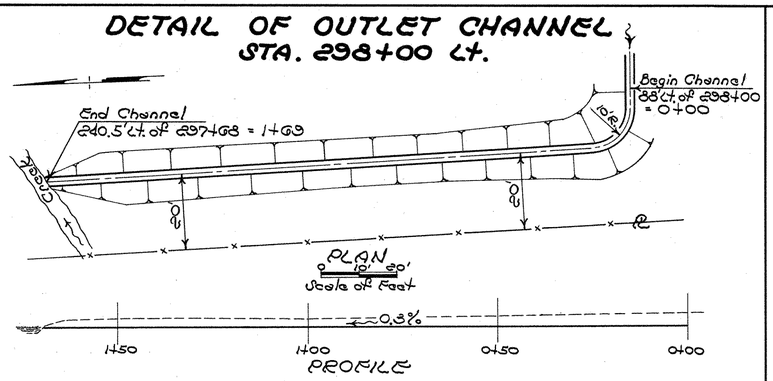
PLAN

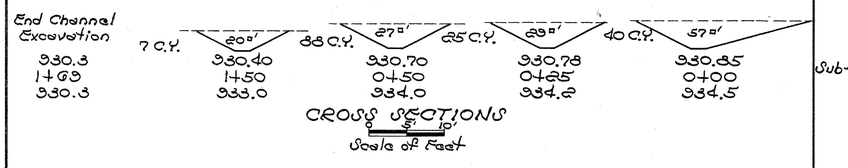
Scale of Feet



LONGITUDINAL SECTION

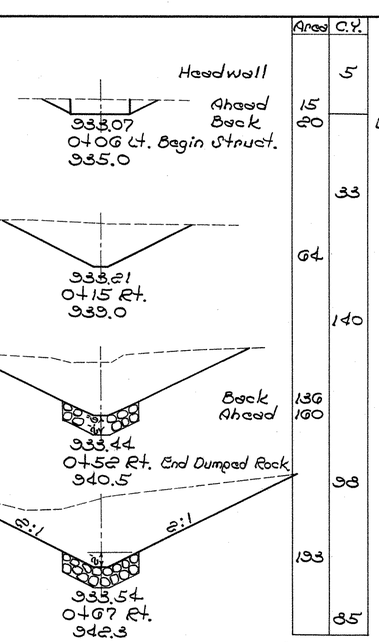
DETAIL OF OUTLET CHANNEL STA. 298+00 Lt.





ESTIMATED QUANTITIES
(Carried to Structure Quantities)
E-3 Channel Excavation 160 Cu. Yds.

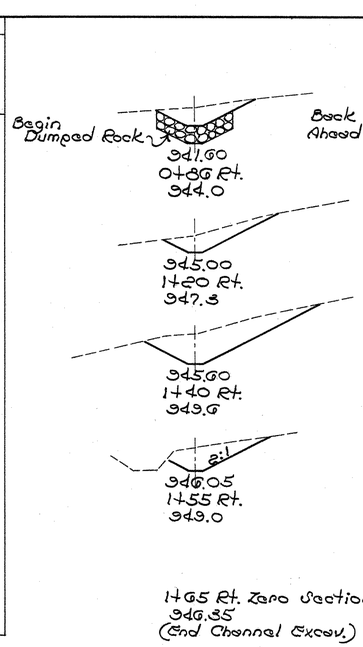
	Area	C.Y.
0+66 Lt. Zero Sect. (End Channel Excav.)	0	2
Ahead / Back	19 / 14	
932.80 0+60 Lt. End Struct. 934.5		6
Headwall		5
	29	
932.84 0+52 Lt. 936.5		9
Ahead / Back	36 / 24	
Sub-base		21
932.88 0+44 Lt. 937.42		
Ahead / Back	23 / 35	
Sub-base		9
933.00 0+20 Lt. 937.42		
	28	
933.04 0+16 Lt. 936.5		5



	Area	C.Y.
Headwall Ahead / Back	15 / 20	5
		33
	64	
		140
	136 / 160	
		98
	193	
		85

CROSS SECTIONS

Scale of Feet



Area	C.Y.
45	
20	25
21	
	29
56	
	23
26	
	5
0	

CULVERT DATA

TYPE :- Multi-Coil Pipe Arch Std. Drwgs S-27 R.C.-3
SIZE :- 29"x 18"x 54'
WORK REQUIRED :- Excavate and protect channel. Install culverts and construct headwall as shown. Culvert to be corrugated metal arch with integral base. (M-6.4(i) and is to be paved in accordance with requirements of M-6.4(d). Remove existing 24" V.S.P. @ Sta. 304+20 Lt.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	60 C.Y.	Excavation for Structure
E-3	600 C.Y.	Channel Excavation
S-1	5.7 C.Y.	Concrete for Headwall Class "E"
S-27	108 L.F.	29"x 18" Paved Bituminous Coated Corr. Metal Arch M-6.4(d)(i), 12 Gage
I-10	25 S.Y.	Riprap, Type "A" (grouted)
I-10	32 C.Y.	Dumped Rock Fill as per plan
I-14	39 L.F.	Paved Gutter Type I as per plan (Carried to Line Sheet # 30)
E-12	43 L.F.	Pipe Removed (15" & over)

Drainage Area 18 AS. Qes = 60 X 1 X 1 X 65 = 39 c.f.s.

26	Sta. 304+45	R.C. 29"x 18"x 54'	LIC-161-10.32

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

207
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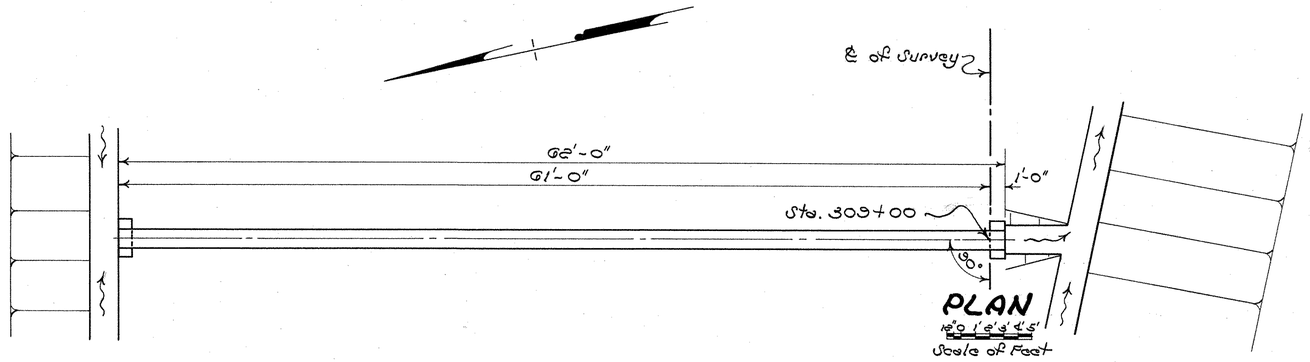
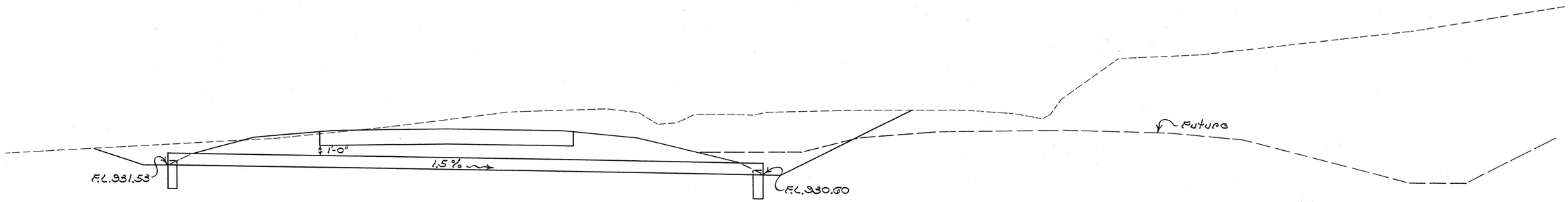
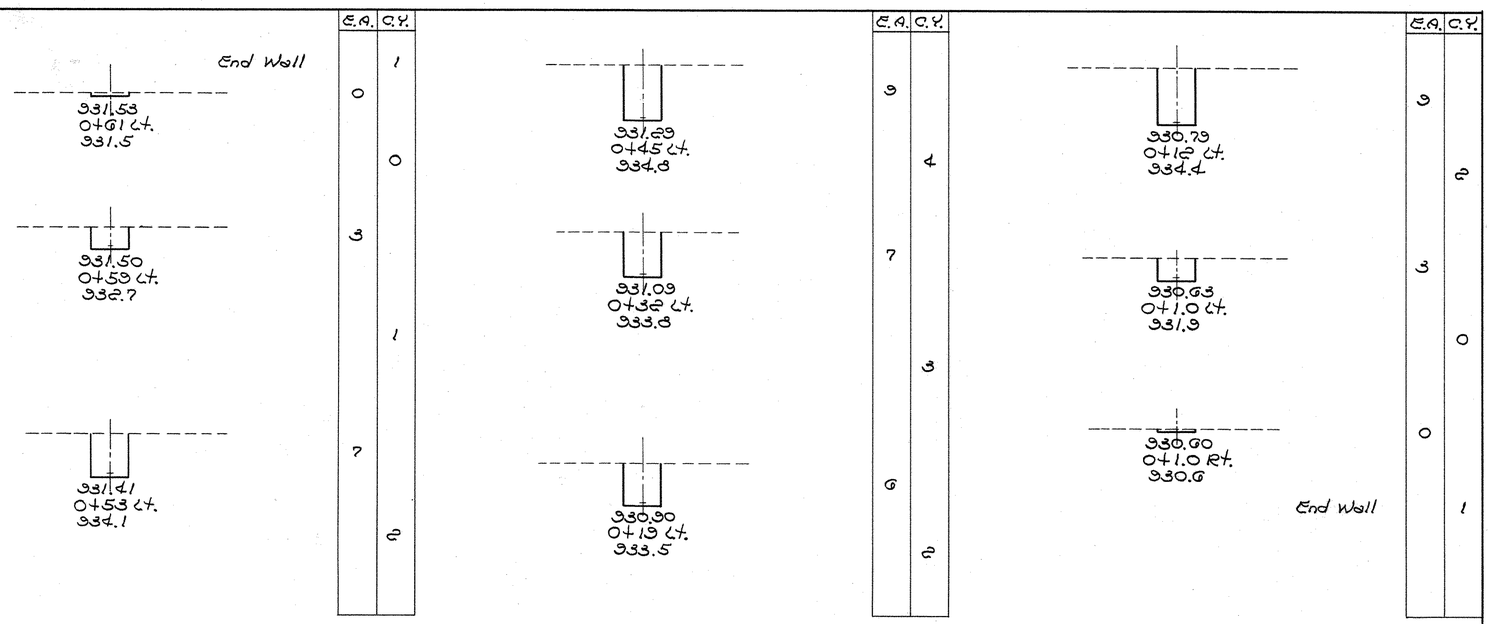
LIC-161-5.12
LIC-37-15.09





LONGITUDINAL SECTION



E.A.	C.Y.
0	1
	0
3	
	1
7	
	2

E.A.	C.Y.
3	
	4
7	
	3
6	
	2

E.A.	C.Y.
3	
	2
3	
	0
0	
	1

CROSS SECTIONS
0 1' 2' 3' 4' 5'
Scale of Feet

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg. No. S-27, RC-33-4
SIZE :~ 15" x 62'
WORK REQUIRED :~ Install pipe culvert as per plan.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	16 C.Y.	Excavation for Structure
S-1	0.5 C.Y.	Concrete for Structures, Class "E"
S-27	62 L.F.	15" Standard Strength Reinforced Concrete Culvert Pipe Sec. MG.6(b), or Extra Strength Vitrified Sewer Pipe Sec. MG.8(b).

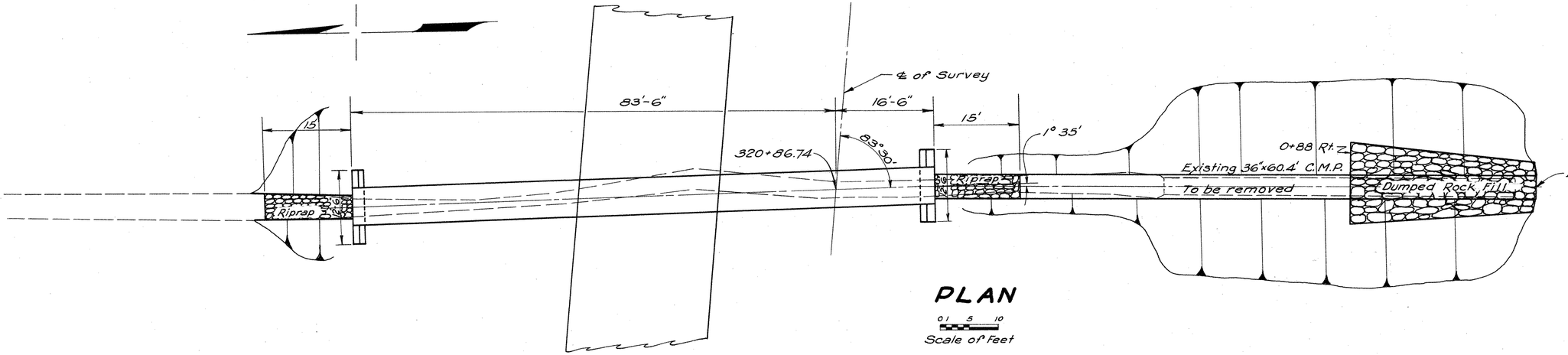
Drainage Area 0.4 AC. Qes = C.I.A = 0.65 x 6.5 x 0.4 = 1.7 cfs.

277	Sta. 309+00	R.C. 15" x 62'	LIC-161-1040

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

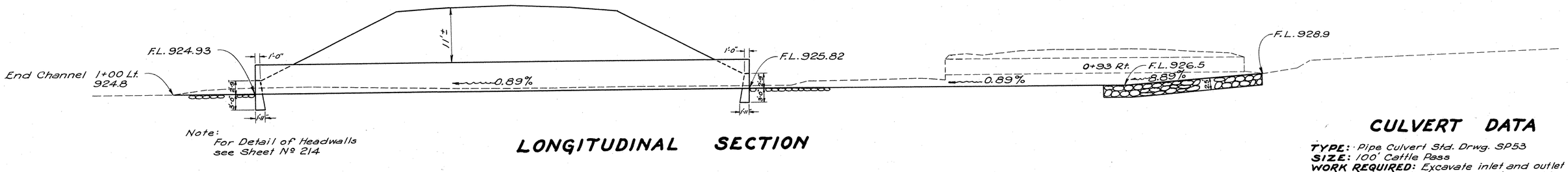
208
238

LIC-161-5.12
LIC-37-15.09



PLAN

0 1 5 10
Scale of Feet



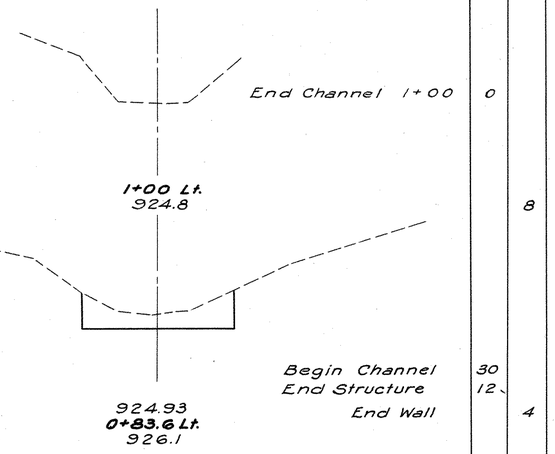
Note:
For Detail of Headwalls see Sheet Nº 214

LONGITUDINAL SECTION

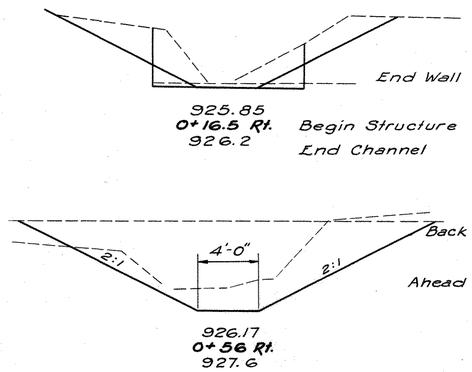
CULVERT DATA

TYPE: Pipe Culvert Std. Drwg. SP53
SIZE: 100' Cattle Pass
WORK REQUIRED: Excavate inlet and outlet channel, place dumped rock fill, and install cattle pass as per plan. Payment for removal of existing 36"x60.4' Corrugated Metal Pipe to be included in E-3 Channel Excavation.

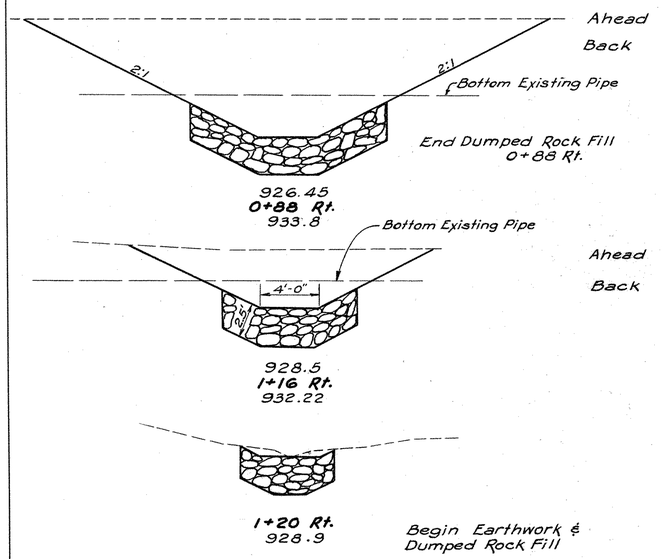
Note:
Cattle pass pipe for the structure shall meet the requirements for the alternate design B-2, A-3, C-1 as shown on Sheet Nº 215.



	Area	C.Y.
End Channel 1+00	0	
		8
Begin Channel	30	
End Structure	12	
End Wall		4



	Area	C.Y.
		62
		4
Begin Structure	20	
End Channel	25	
		38
Back	97	
Ahead	28	



	Area	C.Y.
Ahead	153	148
Back	188	
		134
Ahead	71	
Back	45	
		4
		13

CROSS SECTIONS

0 1 2 3 4 5
Scale of Feet

ESTIMATED QUANTITIES

ITEM	QUANTITY	DESCRIPTION
E-2	70 Cu.Yds.	Structure Excavation
E-3	332 Cu.Yds.	Channel Excavation
S-1	5.6 Cu.Yds.	Concrete for Endwalls, Class "E"
I-10	34 Cu.Yds.	Dumped Rock Fill, as per plan
S-27	100 Lin.Ft.	Pipe for Cattle Pass
I-10	13 Sq.Yds.	Riprap, Type "A", Grouted

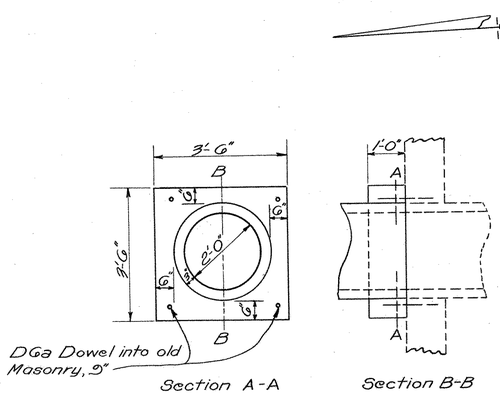
Drainage Area = 51 Ac. Q_{25} = 120×1×1×.65 = 78 c.f.s.

30	Sta. 320+86.74	Cattle Pass 100'	LIC-161-1063

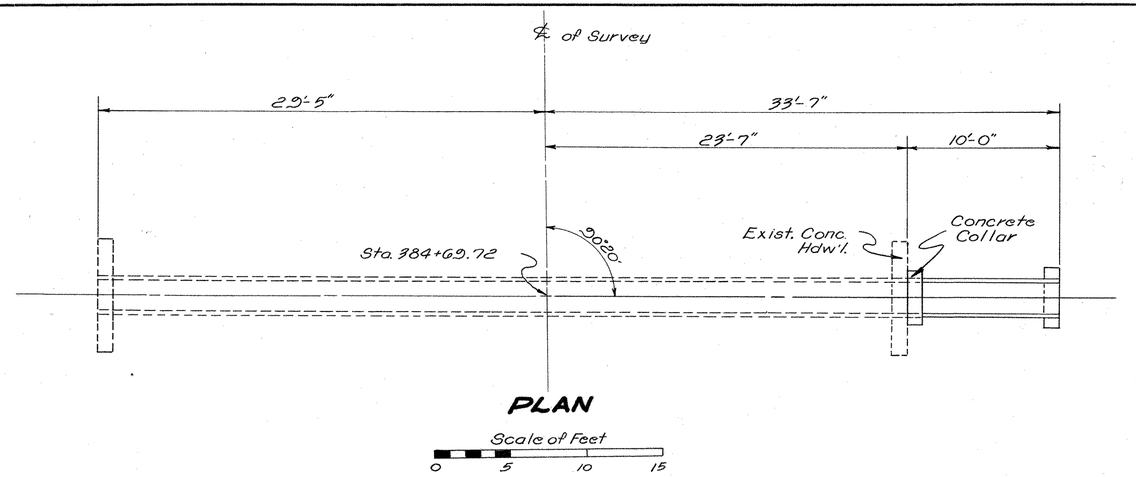
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

209
238

LIC-161-5.12
LIC-37-15.09

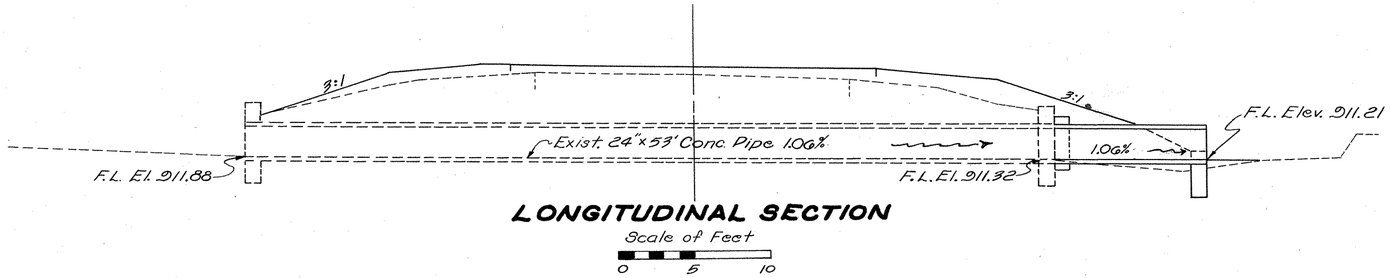


DETAIL OF COLLAR



PLAN

Scale of Feet
0 5 10 15



LONGITUDINAL SECTION

Scale of Feet
0 5 10

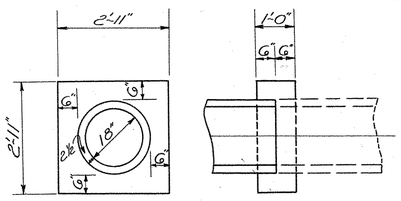
CULVERT DATA

TYPE:- Pipe Culvert, Std. Drwg. No. S-27 P.C. 3,&4
SIZE:- 24"x63'
WORK REQUIRED:- Extend existing culvert, as per plan

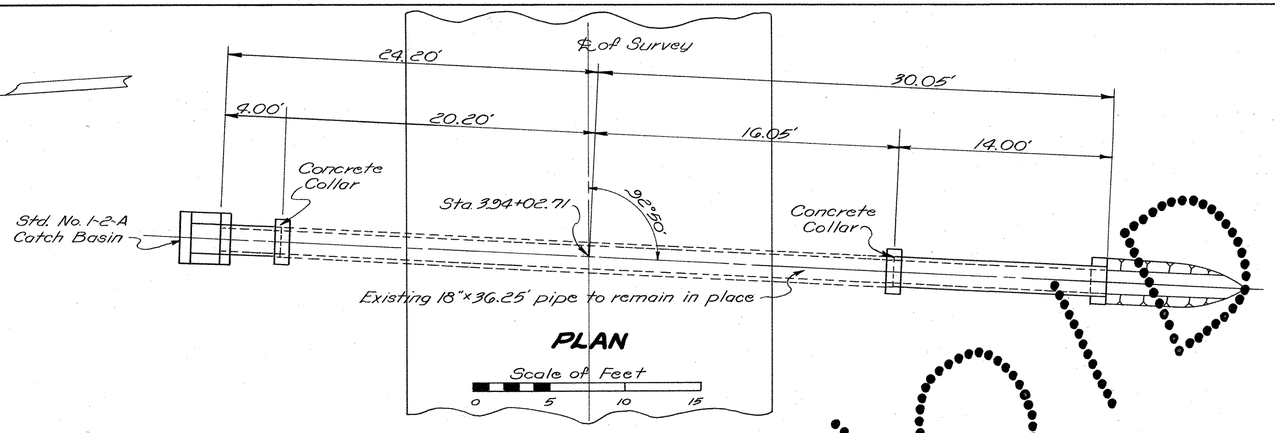
ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	2 Cu. Yds.	Excavation for Structures
S-1	0.7 Cu. Yds.	Concrete for Collar & End Wall, Class "E"
S-4	9 Lb.	Reinforcing Steel (4-¾" ϕ x 1'-6")
S-23	3 Lin. Ft.	Dowel Holes
S-27	10 Lin. Ft.	24" Pipe for Roadway Culvert Sec. M G.8(b) or Sec. M G.6 (b)

Drainage Area. 14 Ac. Q25 = .65 x 1 x 6 x 51 = 20 c.f.s.			
32	Sta. 384+69.72	P.C. 24"x63'	LIC-161-1184



DETAIL OF COLLAR

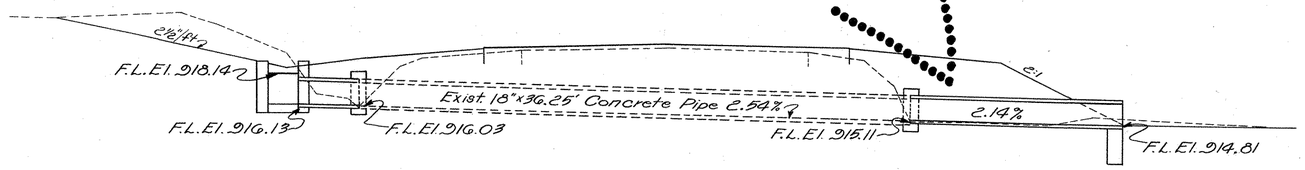


PLAN

Scale of Feet
0 5 10 15

CULVERT DATA

TYPE:- Pipe Culvert, Std. Drwg. S-27 P.C. 1, 3, & 4 & I-18 No. 2-A C.B.
SIZE:- 18"x54.25'
WORK REQUIRED:- Etend existing culvert as per plan



LONGITUDINAL SECTION

Scale of Feet
0 5 10

ESTIMATED QUANTITIES

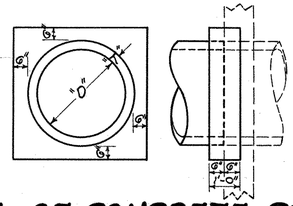
Item	Quantity	Description
E-2	2 Cu. Yds.	Excavation for Structures
E-3	3 Cu. Yds.	Excavation for Channel
I-8	1 Each	Std. No. 1-2-A Catch Basin
S-1	0.7 Cu. Yds.	Concrete for Collars & End Walls, Class "E"
S-27	18 Lin. Ft.	18" Pipe for Roadway Culverts, Sec. M G.8(b) or Sec. M G.6 (b)

34	Sta. 394+02.71	P.C. 18"x54.25'	LIC-161-1201

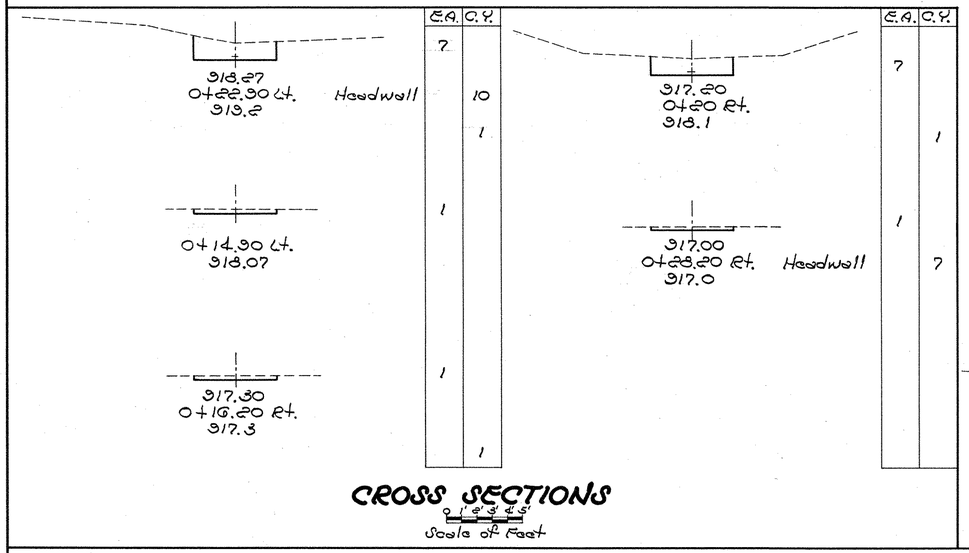
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

210
238

LIC-161-5.12
LIC-37-15.09

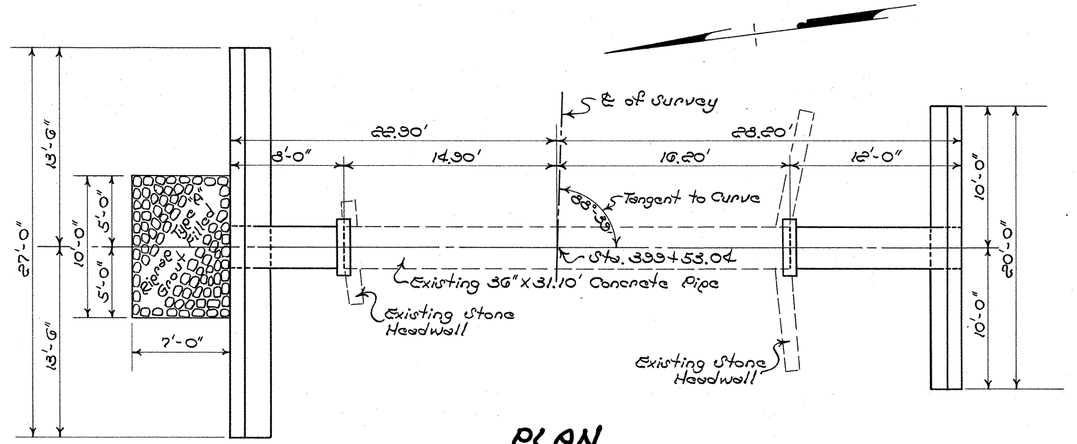


DETAIL OF CONCRETE COLLAR



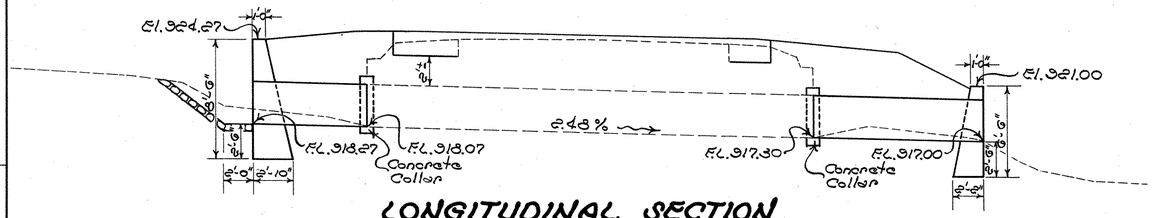
CROSS SECTIONS

0 1' 2' 3' 4' 5'
Scale of Feet



PLAN

0 1' 2' 3' 4' 5'
Scale of Feet



LONGITUDINAL SECTION

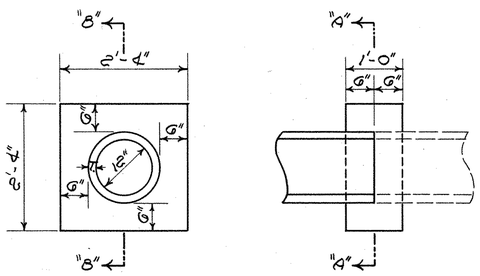
CULVERT DATA

TYPE :~ Pipe Ext. Std. Drwg. S-27 R.C. 3, S.A.-53
SIZE :~ 36" X 51.10'
WORK REQUIRED :~ Extend existing pipe culvert as per plan. Place riprap at entrance. Construct headwalls as shown.
Remove existing stone headwalls, cost of removal included in E-2, Excavation for Structure.

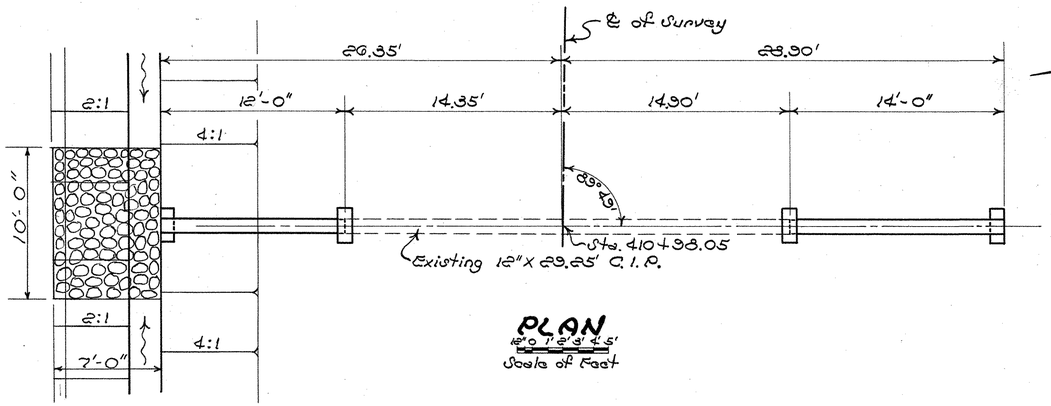
ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	20 C.Y.	Excavation for Structure
S-1	25.8 C.Y.	Concrete for Structure, Class "E"
S-27	20 L.F.	36" Pipe for Roadway Culverts
I-10	8 S.Y.	Riprap, Type "A" Grout Filled

Drainage Area 35 Ac.	Q10 = 0.65X0.3X0.86X35 = 16 c.f.s.		
35	Sta. 333+53.04	Pipe Ext. 36"X51.10'	LIC-37-1522

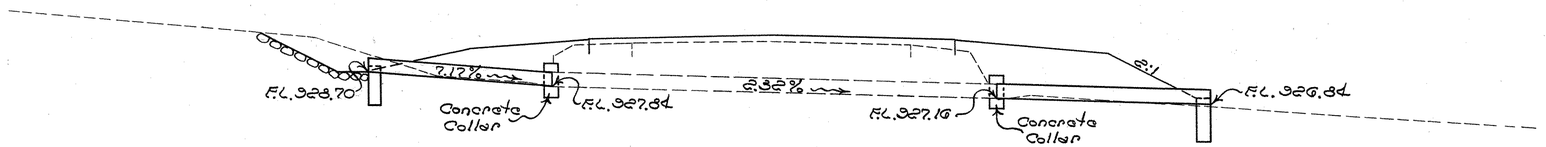


DETAIL OF CONCRETE COLLAR



PLAN

0 1' 2' 3' 4' 5'
Scale of Feet



LONGITUDINAL SECTION

CULVERT DATA

TYPE :~ Pipe Culvert Std. Drwg. S-27 R.C. 3 & 4
SIZE :~ 12"X 55.25'
WORK REQUIRED :~ Extend existing pipe culvert as per plan. Place riprap at inlet end of pipe as per plan.

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	2 C.Y.	Excavation for Structure
S-1	0.8 C.Y.	Concrete for End Wall & Collars
S-27	26 L.F.	12" Pipe for Roadway Culvert,
		Sec. M-6.6(b) or Sec. M-6.8(b).
I-10	8 S.Y.	Riprap, Type "A" Grout Filled

Drainage Area 1.25 Ac.	Q25 = 7.69X1.1X1.1X0.5 = 5 c.f.s.		
36	Sta. 410+38.05	R.C. 12"X 55.25'	LIC-37-1544

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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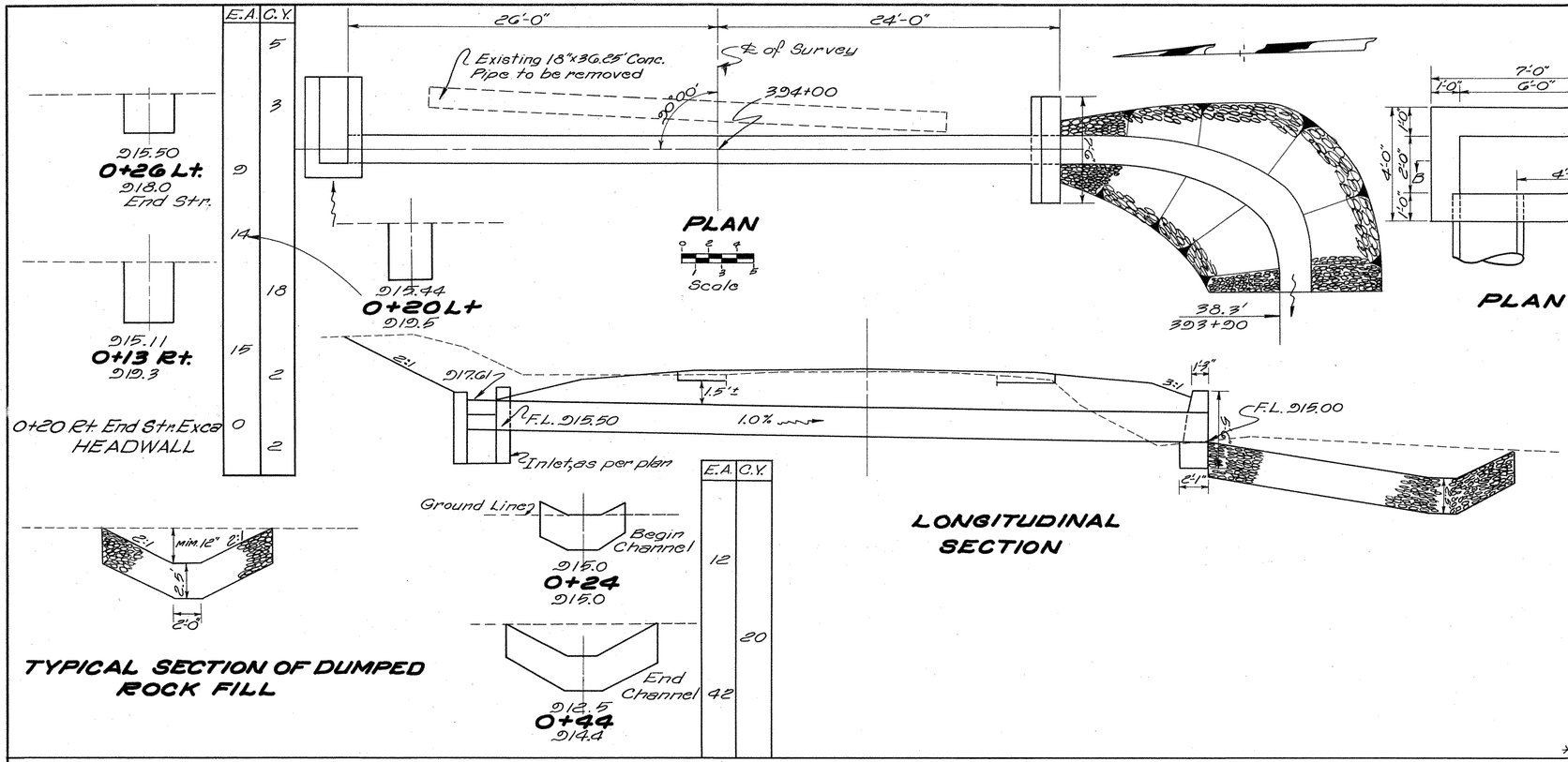
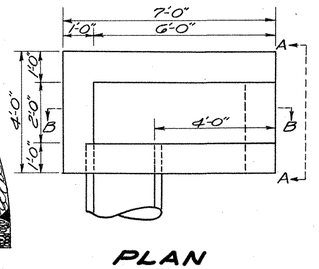
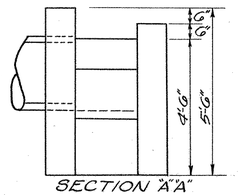
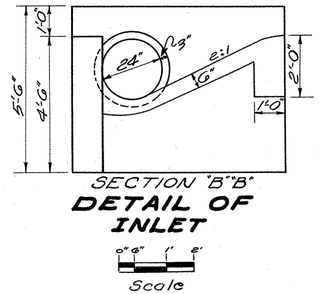
LIC-161-5.12
LIC-37-15.09









CULVERT DATA

TYPE : Pipe Culvert, Std. Drw'g. S-27, P.C. 1 & 3
SIZE : 24"x 50'
WORK REQUIRED : Install inlet 24" pipe & End Wall As Per Plan. Place dumped Rock Fill at outlet and remove existing 18"x36.25' Concrete Pipe.

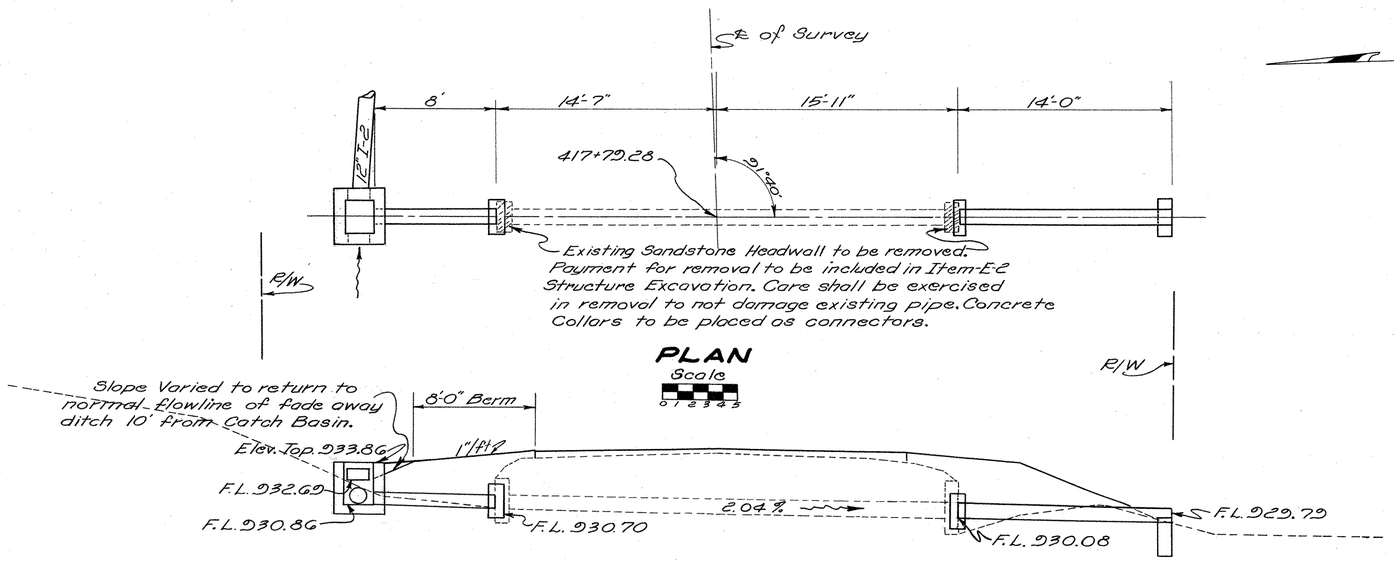
ESTIMATED QUANTITIES

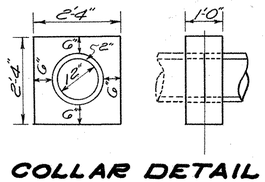
	Item	Quantity	Unit	Description
	E-2	30	Cu.Yds.	Structure Excavation
	E-3	20	Cu.Yds.	Channel Excavation
	S-1	8.1	Cu.Yds.	Concrete for Structures Class "E"
	S-27	50	Lin.Ft.	24" Pipe for Roadway Culverts See M.G.G(b) or See M.G.8(b)
	S-24	LUMP	Lump	Removal of existing Structures
	I-10	20	Cu.Yds.	Dumped Rock Fill, As Per Plan
*	B-35	2.5	Cu.Yds.	3" A.C. Leveling Course
*	T-30	11	Gals.	T-30 Bituminous Prime
*	B-20	30	Sq.Yds.	5" W.B Mac. Base
*	I-22	7	Cu.Yds.	8" Subbase

*Carried to table No 3 - Sheet 7

Drainage Area = 25 Ac. Q_{10} = 75 x .5 x .65 x .86 = 21 c.f.s.

34	Sta 394+00	P.C. 24"x50'	LIC-37-1511





CULVERT DATA

TYPE : Pipe Culvert, Std. drwg. S-27 P.C. 3 & 4
I-8 No. 2-2 A.
SIZE : 12" x 52'-6"
WORK REQUIRED : Extend existing culvert as per plan. Install 2-2-A Catch Basin at inlet end.

ESTIMATED QUANTITIES

Item	Quantity	Unit	Description
E-2	3	Cu.Yds.	Structure Excavation
S-1	0.3	Cu.Yds.	Concrete for Endwall & Collars, Class "E"
I-8	1	Each	Std. No 2-2-A Catch Basin.
S27	22	Lin.ft.	12" Pipe for Roadway Culverts. See M-G.G.(b) or See M-G.8 (b)

Drainage Area = 5 Ac Q_{10} = 26 x 04 x .65 x .86 = 5.8 c.f.s.

37	Sta. 417+79.28	P.C. 12" x 52'-6"	LIC-161-1246

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2	OHIO		

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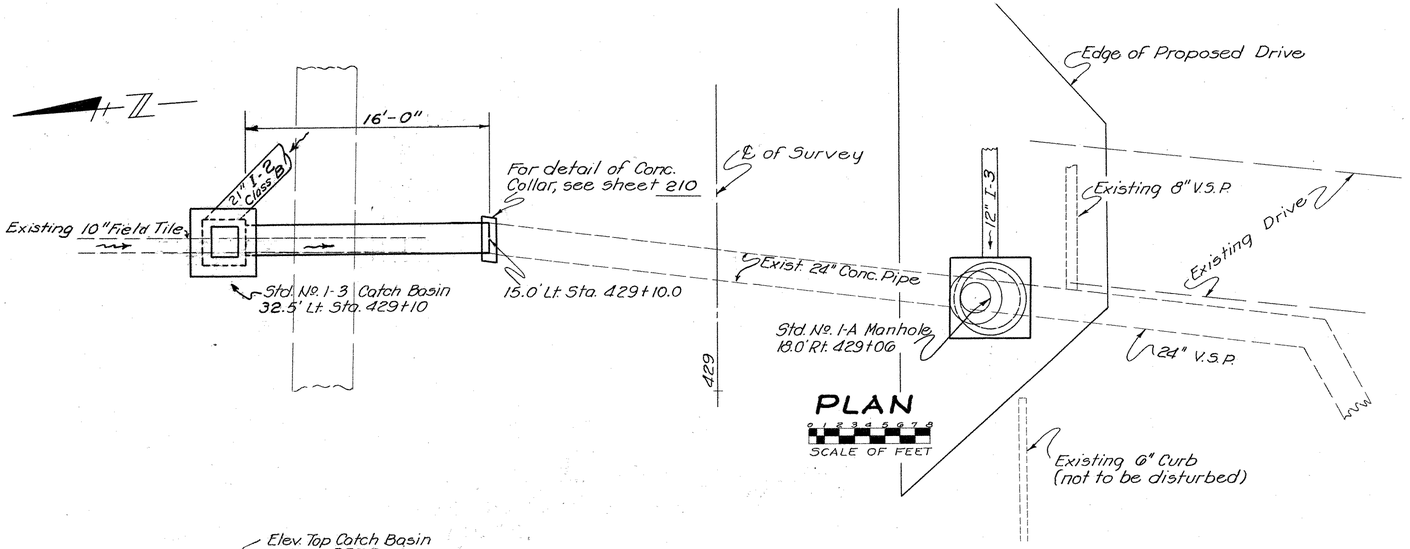
NOTE:
Payment for removal, replacement and/or connection of existing facilities to the proposed catch basin and manhole shall be included in the unit price bid per Item I-8, Std. No. 1-3 Catch Basin and Item I-8, Std. No. 1-A Manhole.



LONGITUDINAL SECTION

CULVERT DATA

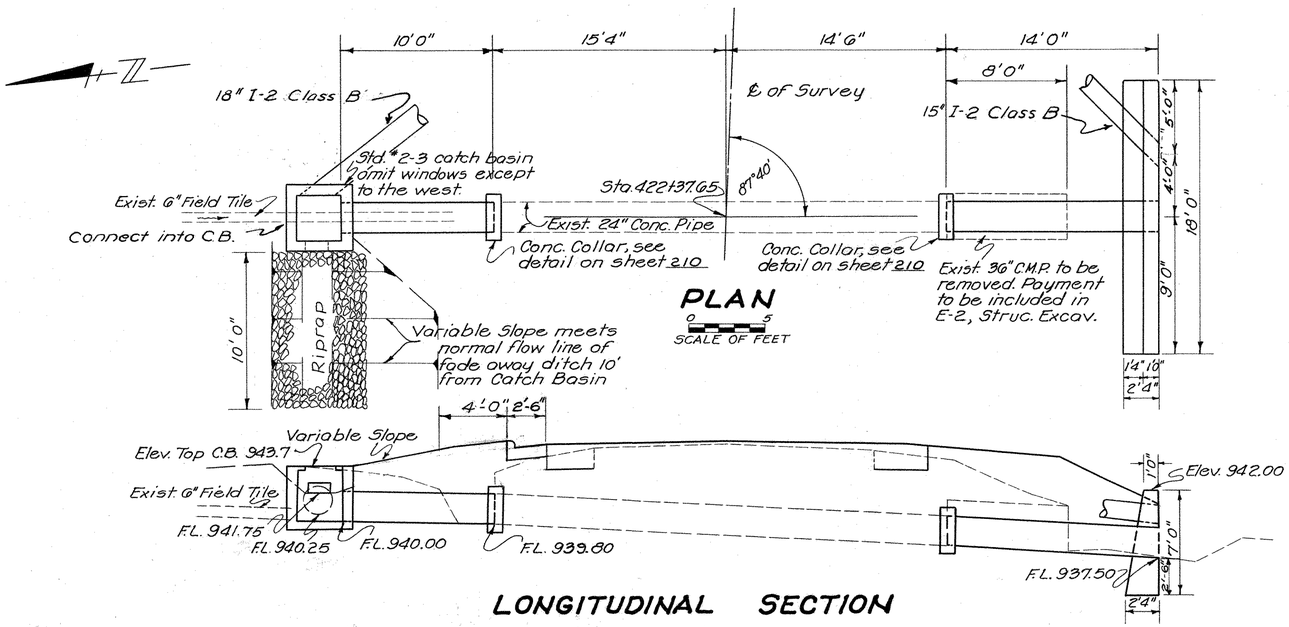
TYPE: Pipe Culv, Std. Drwg., S-27 P.C. 3 & 4, I-8 No. 1-3 & No. 1-A
SIZE: 24"
WORK REQ.: Install pipe culv. extension, as per plan.

ESTIMATED QUANTITIES

Item	Quan.	Description
I-8	1 Ea.	Standard No. 1-3, Catch Basin
I-8	1 Ea.	Standard No. 1-A, Manhole
S-1	0.3 C.Y.	Conc. for Collar, Class 'E'
S-27	16 L.F.	24" Standard Strength Reinforced Conc. Culv. Pipe, Sec. M-6.6 (b) and Sec. M-6.8 (b)
E-2	5 C.Y.	Excavation for Structure

Drainage Area 14 acres $Q_{10} = 50 \times 1 \times .86 \times .65 = 28$ c.f.s.

39	STA 429+10.0	P.C. 24"	LIC-37-15.78



LONGITUDINAL SECTION

CULVERT DATA

TYPE: Pipe Culv, Std. Drwg., S-27 P.C. 3 & 4, S.P.53 I-8 No. 2-3
SIZE: 24"×43'10"
WORK REQ.: Extend existing culvert, as per plan.

ESTIMATED QUANTITIES

Item	Quan.	Description
E-2	3 C.Y.	Structure Excav.
S-1	8.4 C.Y.	Conc. for End Wall & Collar, Class 'E'
S-27	24 L.F.	Pipe for Rdwy. Culv., Sec. M-6.6 (b) or Sec. M-6.8 (b), 24"
I-8	1 Ea.	Std. No. 2-3, Catch Basin
I-10	7 S.Y.	Riprap, Type 'A' Grouted

Drainage Area 15 acres

$Q_{10} = 55 \times .5 \times .86 \times 56 = 15$ c.f.s. + 4 c.f.s. = 19 c.f.s. *
* 4 c.f.s. carried from Structure at Sta. 429+10

38	STA. 422+37.65	P.C. 24"×43'10"	LIC-37-15.65

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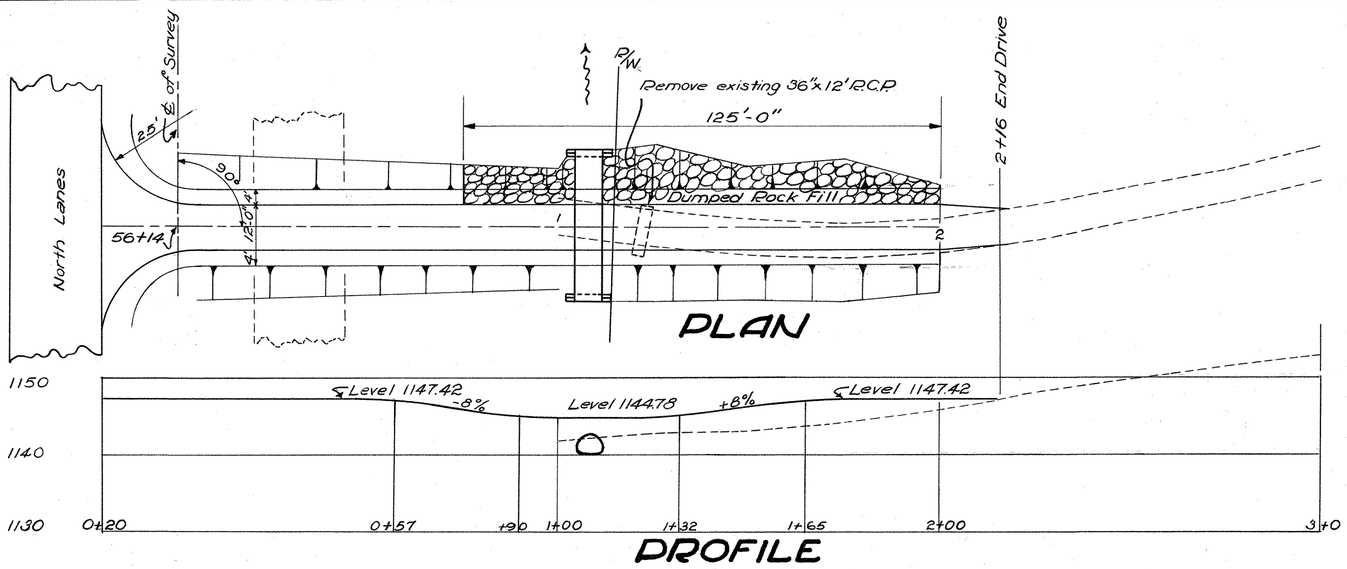
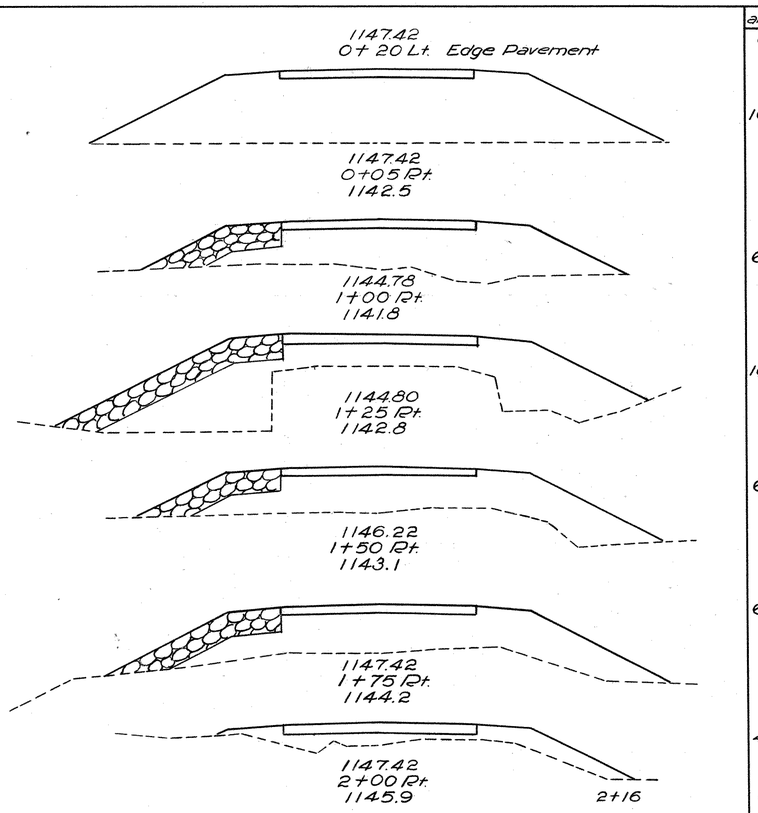


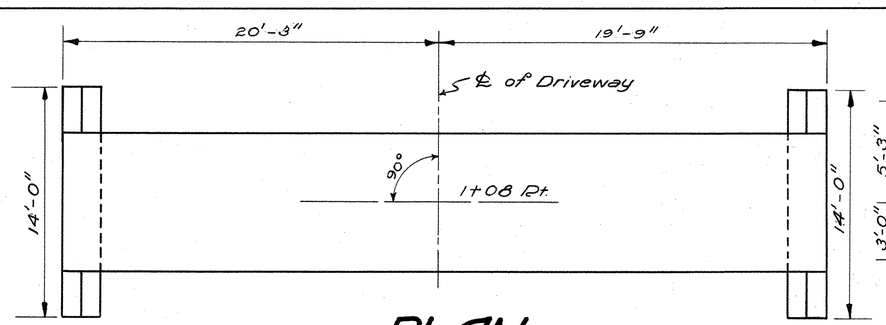


DRIVEWAY CROSS SECTIONS

Embankment
I-10 Dumped Rock Fill

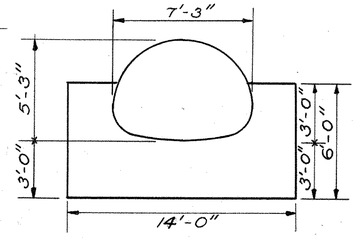
0 1 2 3 4 5
Scale of Feet

area	c.y.
0	
	75
161	
	389
60	
	74
100	
	76
65	
	61
68	
	50
41	
	12
0	
	737
	50

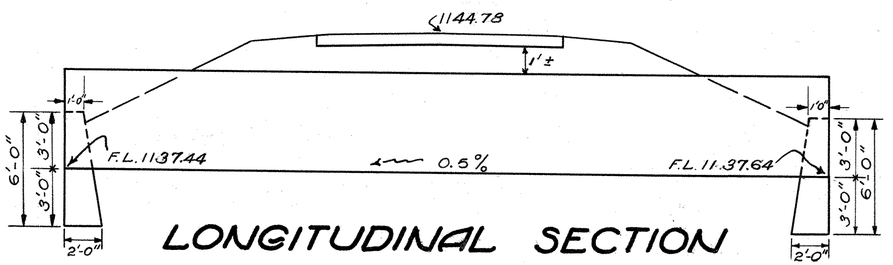


PLAN

12" 6" 0 1 2 3
Scale of Feet



END VIEW



LONGITUDINAL SECTION

CULVERT DATA

TYPE - Pipe Arch Std. Drwg. No. S-27-PC-3 S.P. 53
SIZE - 7'-3" x 5'-3" x 40'
WORK REQUIRED - Remove existing Pipe Culvert. Install new pipe arch culvert as per plan.

ESTIMATED QUANTITIES

	Item	Quantities	Description
	E-2	15 Cu. Yds.	Excavation for Structure
	S-1	7.5 Cu. Yds.	Concrete for End Walls, Class E
	S-28	40 Lin. Ft.	7'-3" x 5'-3" Sectional C.M.P. Arch 10 ga.
	E-12	12 Lin. Ft.	Remove 36" reinforced conc. pipe
**		737 Cu. Yds.	Embankment
	I-10	100 Cu. Yds.	Dumped Rock Fill
*	T-35	19.32 Cu. Yds.	2" Asphaltic Concrete Surface Course
*	T-30	131 gal.	Prime Coat
*	I-18	52 Cu. Yds.	Crushed Aggregate as per plan

* Carried to Table No. 4, Sheet No. 8
** Carried to Cross Sect's.

Drainage Area = 700 A's Q = 65 x 1 x 1 x 690 = 450 cf's

1 (a)	Sta. 56+14	P.A. 7'-3" x 5'-3" x 40	Drive Pipe

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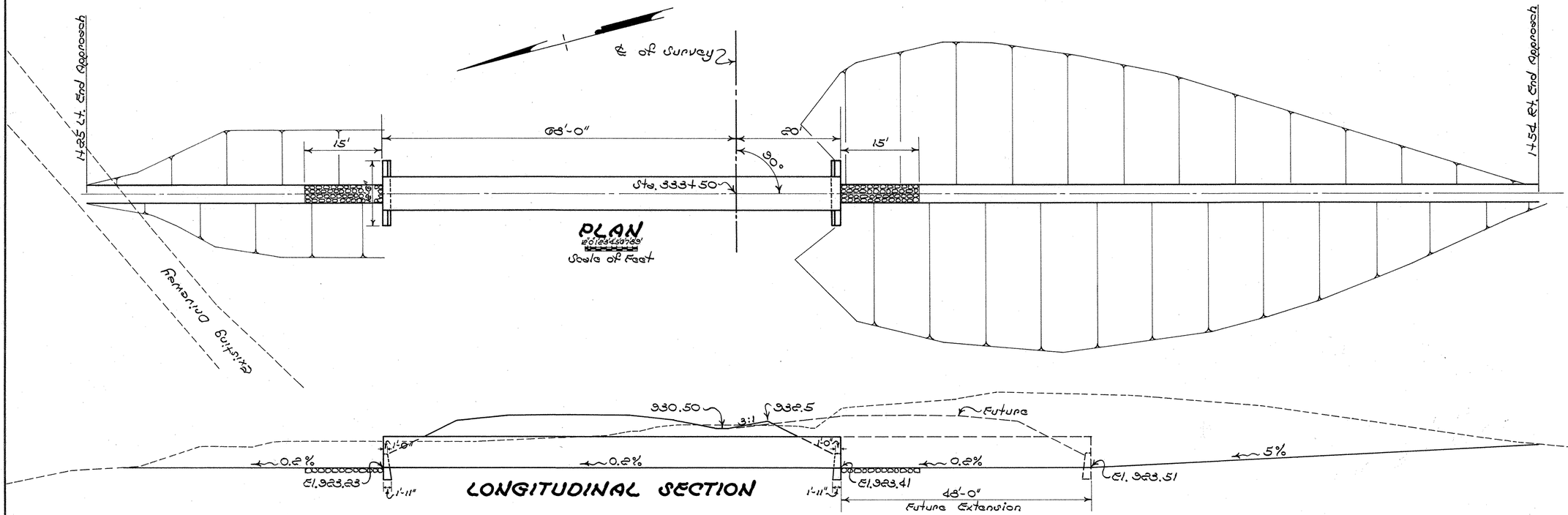

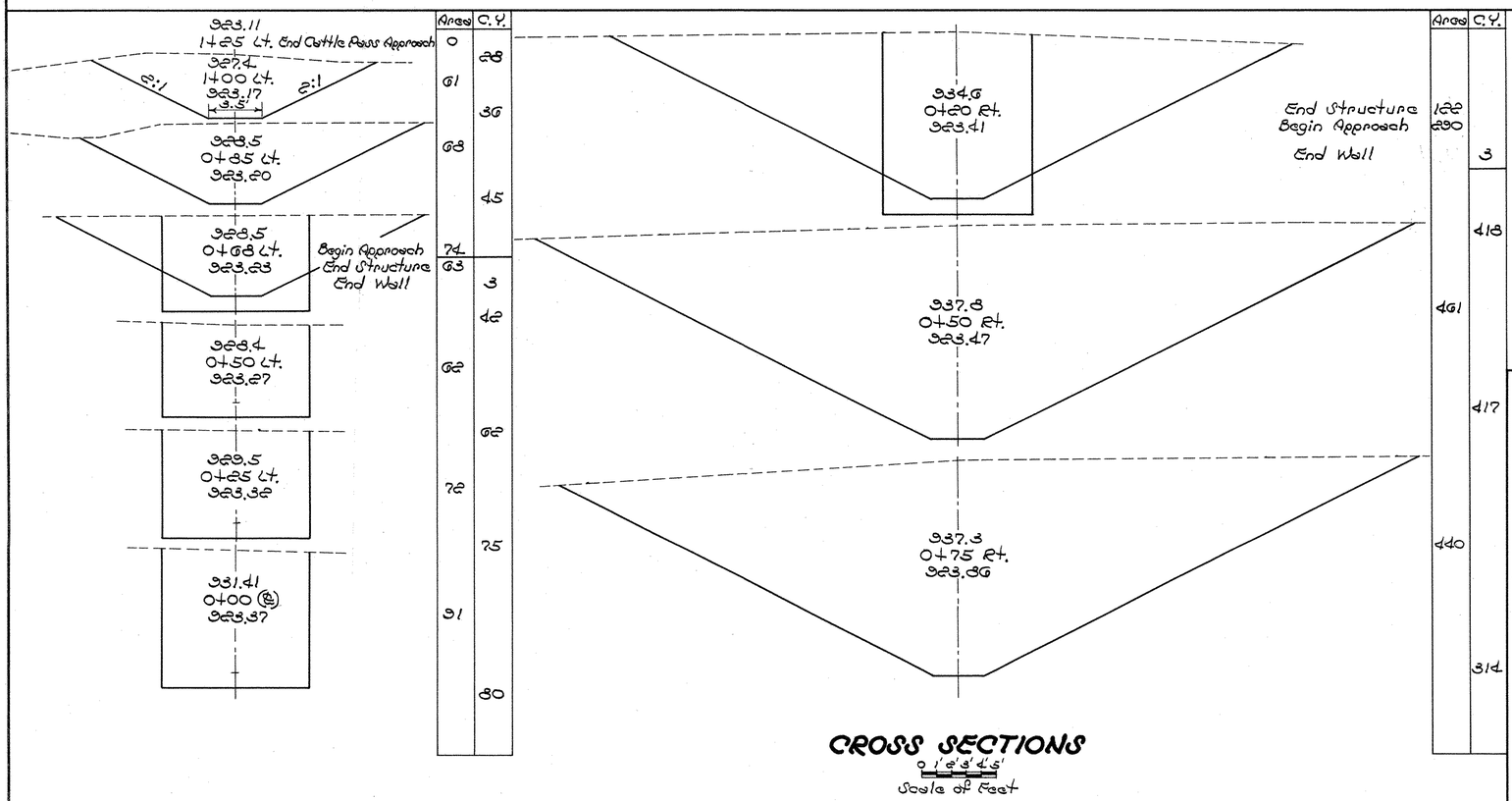

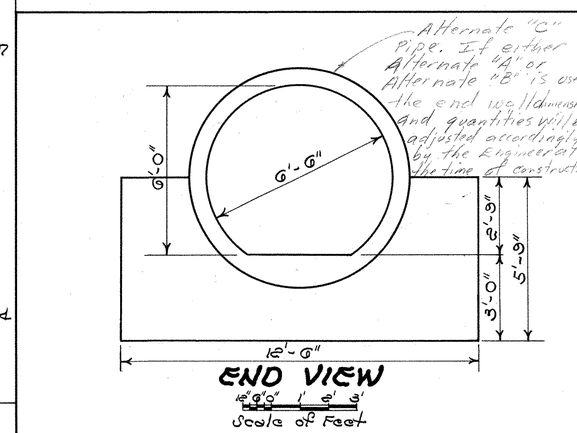

STRUCTURE DATA

TYPE :~ Cattle Pass Pipe See Sheet No. 214
SIZE :~ X 88'
WORK REQUIRED :~ Install cattle pass as per plan. Excavate approaches at each end.
NOTE :~ Cattle Pass Pipe for this structure shall meet the requirements for alternate design B-1, A-2 or C-1 as shown on Sheet 215

ESTIMATED QUANTITIES

Item	Quantity	Description
E-2	265 C.Y.	Excavation for Structure
E-3	1483 C.Y.	Channel Excavation
S-1	5.6 C.Y.	Concrete for End Walls Class "E"
I-10	12 S.Y.	Riprap Type "A", Grout Filled
S-27	88 L.F.	Pipe for Cattle Pass

Cattle Pass
30 (2) | Sta. 333+50 | RC. X 88' | LIC-161-1087

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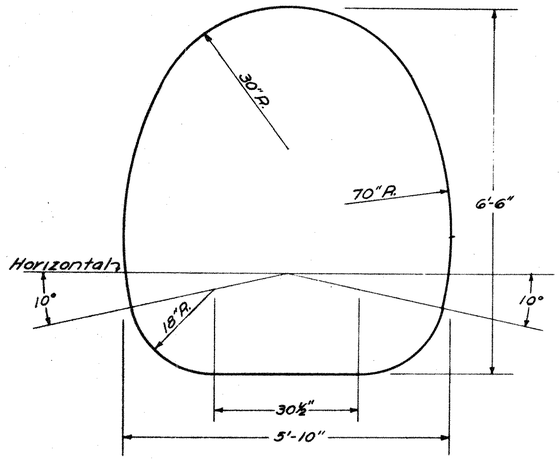
PIPE CATTLE PASS STRUCTURES

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"



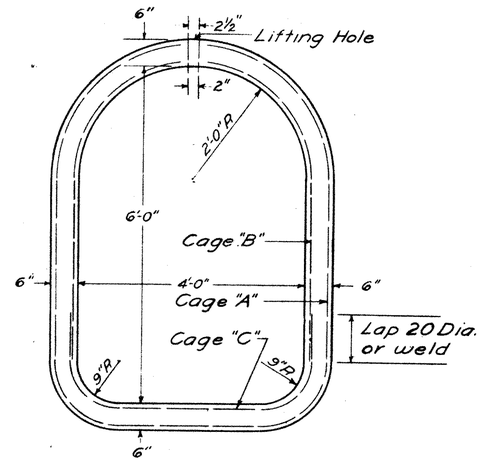
SECTION
SECTIONAL CORRUGATED METAL PIPE ARCH
scale ¾" = 1'-0"

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 S-28, except that the structure shall be measured and paid for as Item S-27. The pipe shall be paved in accordance with Section M-6.4(e).

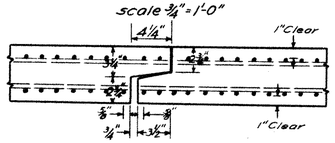
DESIGN	COVER	GAGE *
A-1	2'-3'	8-7
A-2	3'-10'	10-8
A-3	10'-12'	8-7
A-4	12'-14'	7-5
A-5	14'-16'	5-3
A-6	16'-18'	1-1

* 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

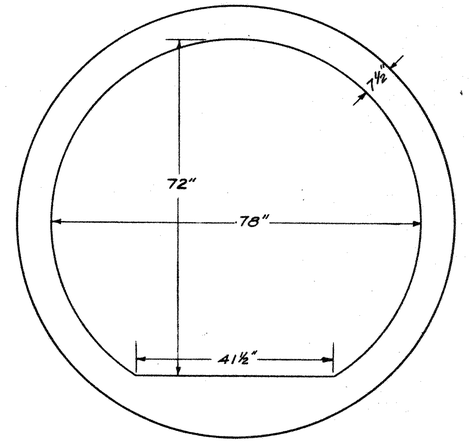
All splices in cage "A" shall be welded or have 20 bar diameters lap for deformed bars and 40 bar diameters lap for wire.

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"



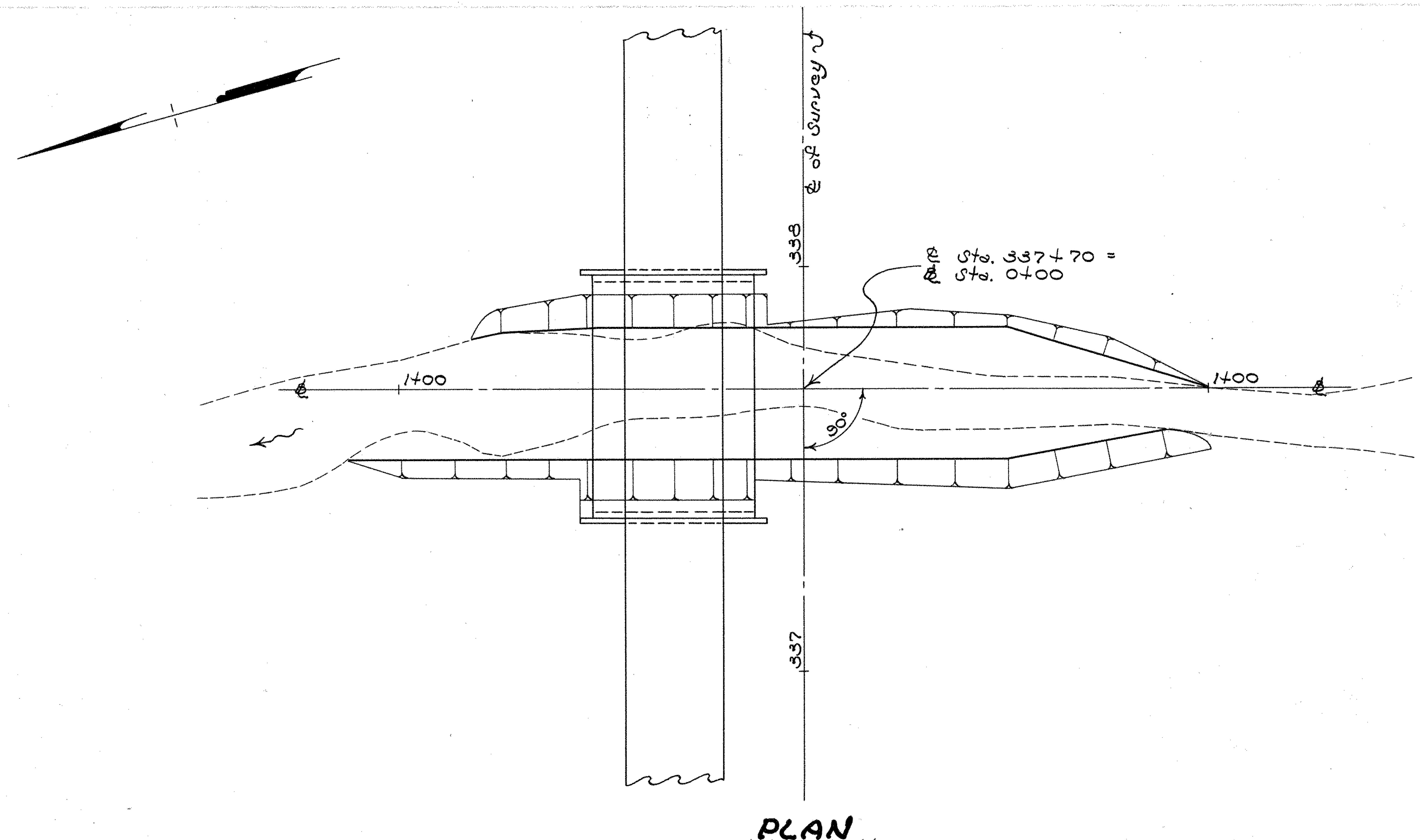
SECTION
78"×72" REINFORCED CONCRETE PIPE
scale ¾" = 1'-0"

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 12'	Sec. M-6.6(b)
C-2	12' to 19'	Sec. M-6.6(c)
C-3	19' to 25'	Sec. M-106.6(d)

CATTLE PASS STRUCTURE DETAILS
4-4-55

LIC-161-5.12
LIC-37-15.09



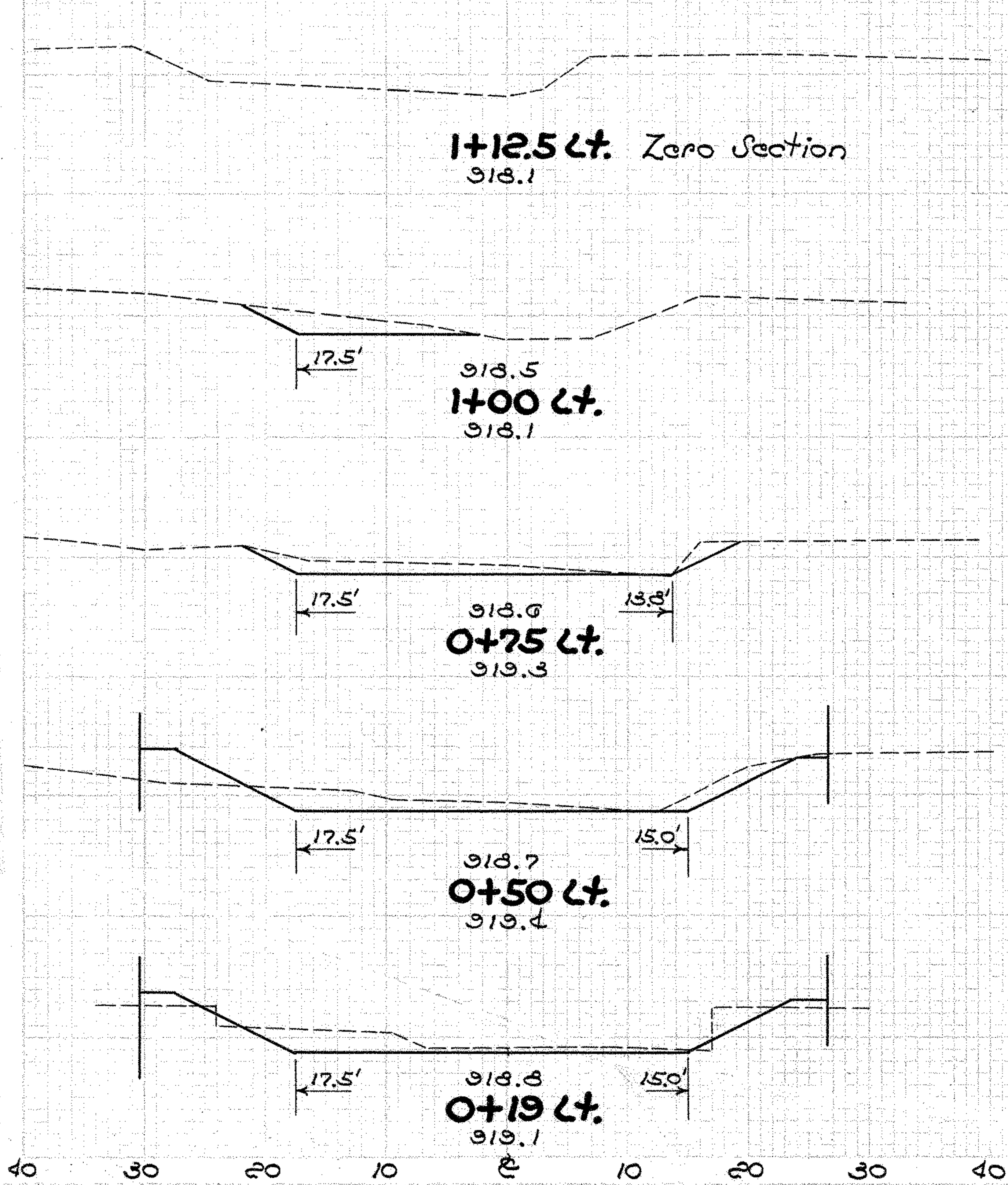
PLAN

Scale of Feet

ESTIMATED QUANTITIES

E-3 Channel Excavation	*	237 Cu. Yds.
Spill-through Embankment	**	42 Cu. Yds.

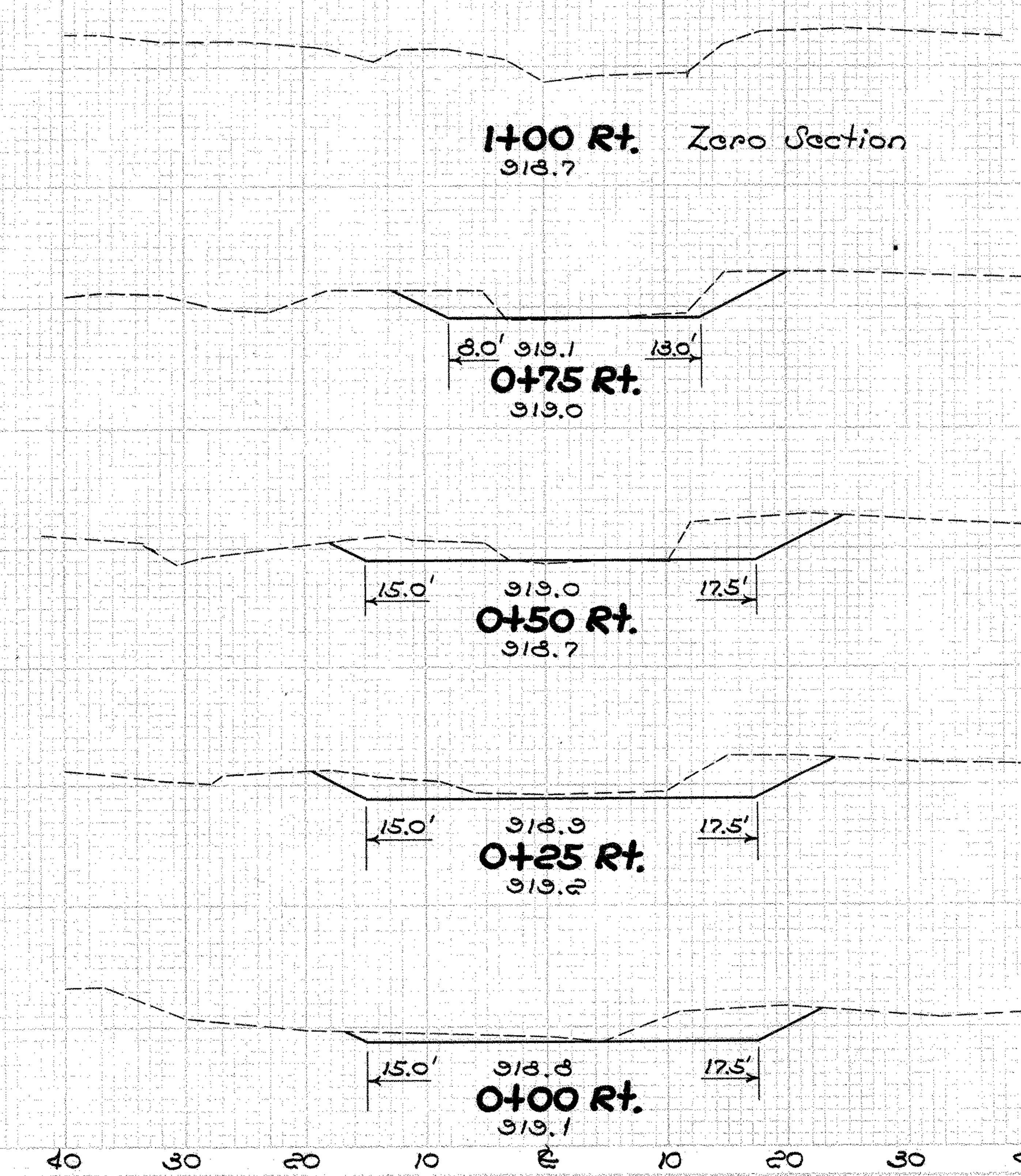
* Carried to Bridge Quantities.
** Carried to Cross Sections.



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	0		
		8	0
18	0		
		24	0
33	0		
		35	6
43	13		
		43	11
32	7		
		28	25

CROSS SECTIONS

Scale of Feet



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	0		
		15	0
31	0		
		42	0
53	0		
		54	0
56	0		
		48	0
47	0		
Totals		237	42

CHANNEL CHANGE @ STA. 337+70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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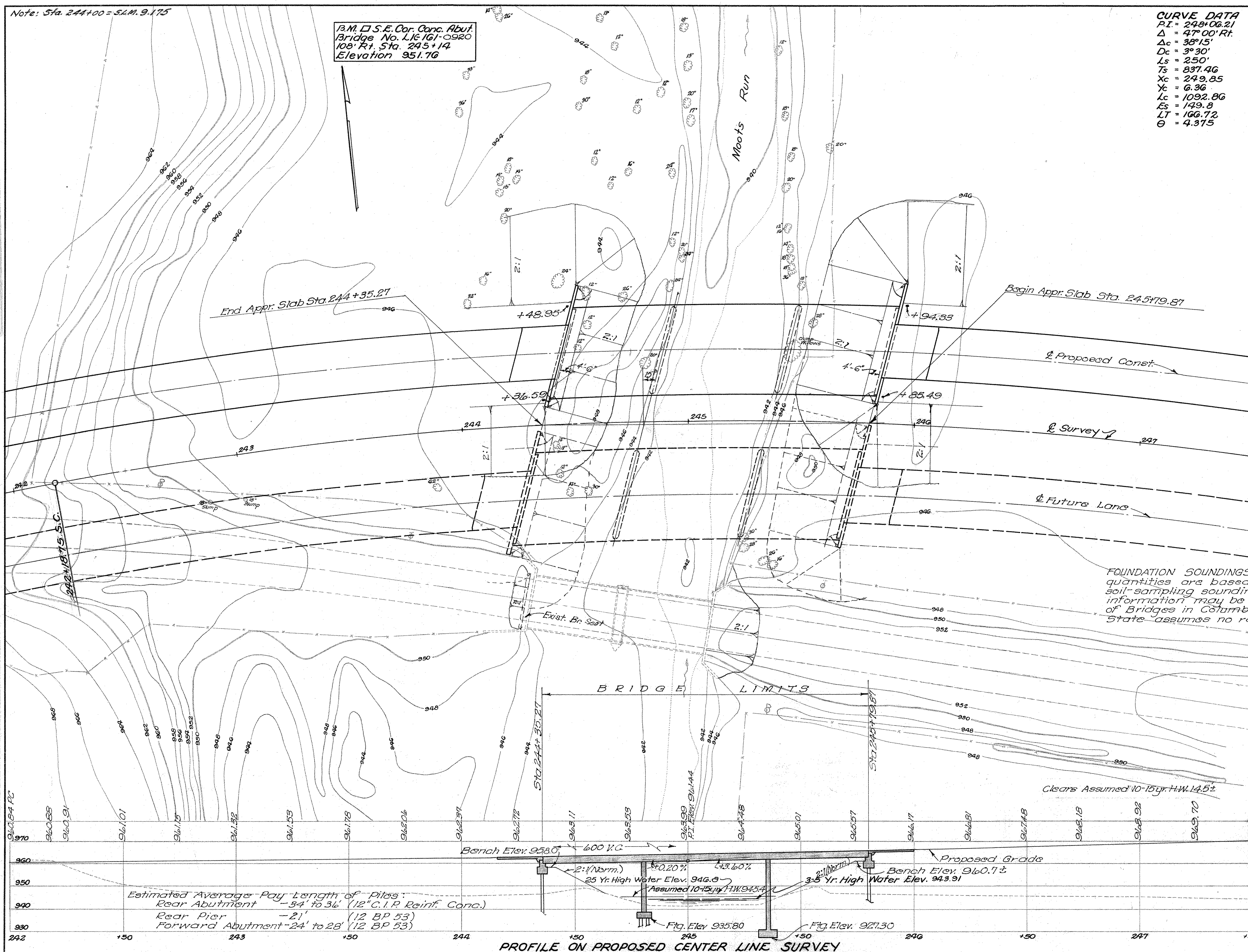
LICKING COUNTY
LIC-161-5.12 3.5 Mi.± W.
LIC-37-15.09 of GRANVILLE



Note: Sta. 244+00 = SLM. 9.175
B.M. □ S.E. Cor. Conc. Abut. Bridge No. LIC-161-0920 108' Rt. Sta. 245+14 Elevation 951.76
CURVE DATA
P.I. = 248+06.21
Δ = 47° 00' Rt.
Δc = 38°15'
Dc = 3°30'
Ls = 250'
Ts = 837.46
Xc = 249.85
Yc = 6.36
Lc = 1092.86
Es = 149.8
LT = 166.72
θ = 4.375
Moots Run
End Appr. Slab Sta. 244+35.27
Begin Appr. Slab Sta. 245+79.87
+48.95
+94.33
+36.59
+85.49
4'-6"
2:1
℄ Proposed Const.
℄ Survey
℄ Future Lane
242+18.75 S.C.
Exist. Br. Seat
BRIDGE LIMITS
Sta. 244+35.27
Sta. 245+79.87
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.
Clears Assumed 10-15 yr. H.W. 14.5±
Bench Elev. 958.0
600 V.C.
+0.20%
+3.60%
Proposed Grade
2:1 (Norm.)
25 Yr. High Water Elev. 946.8
Assumed 10-15 yr. H.W. 945.4
3-5 Yr. High Water Elev. 943.91
Bench Elev. 960.7±
Ftg. Elev. 935.80
Ftg. Elev. 927.30
Estimated Average Pay Length of Piles:
Rear Abutment -34' to 36' (12" C.I.P. Reinf. Conc.)
Rear Pier -21' (12 BP 53)
Forward Abutment -24' to 28' (12 BP 53)
PROFILE ON PROPOSED CENTER LINE SURVEY

PROPOSED STRUCTURE

TYPE: Continuous reinf. concrete slab with reinf. concrete substructure.
SPANS: 44'-55'-44' c/c brgs.
ROADWAY: 40 ft. face to face of guard rails.
LOAD FREQUENCY: CF = 400(51)
SKEW: 15° L.F.
WEARING SURFACE: Bituminous
Appr. SLABS: AS-1-54 (20' long)
ALIGNMENT: 3° 30' Curve right
SUPERELEV. .083' per ft.

EXISTING BRIDGE DATA

TYPE: Steel Beam
SPAN: 2@ 37'-6"
SKEW: 0°
WEARING SURFACE: 4" Bit. Material
SUFF. RATING: 98
LOADING: H-15
DATE BUILT: 1932
ROADWAY: 24'-0"

DRAINAGE AREA - 10 Sq. Mi.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES AND R.R. CROSSINGS

1/5

SITE PLAN
BRIDGE NO. LIC-161-0918 over MOOTS RUN

LICKING CO. S.R. 161
STA. 244+35.27
245+79.87
SCALE 1" = 20'

PRESENT TOPO		PROPOSED WORK			
SURVEY	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		J.E.P.	J.E.P.	D.H.S.	P.E.S.

BFG
a.J. 7-24-56

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LICKING COUNTY
LIC-161-5.12
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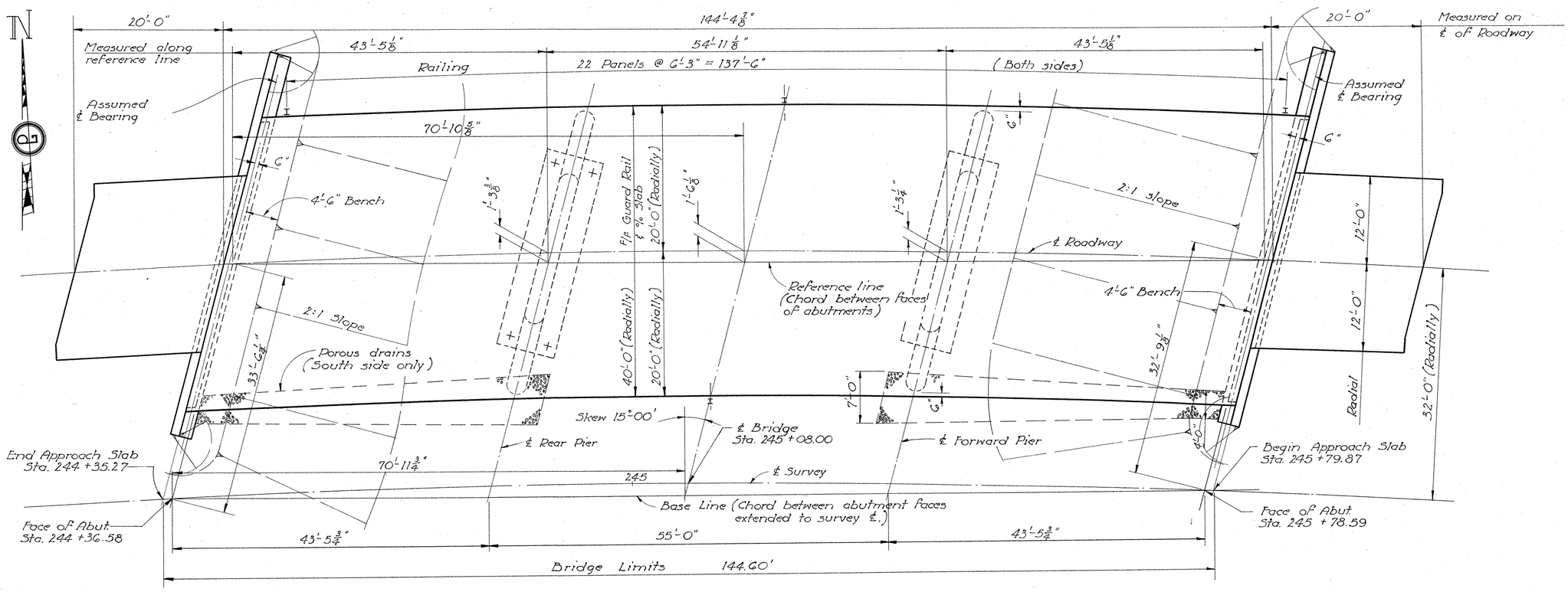
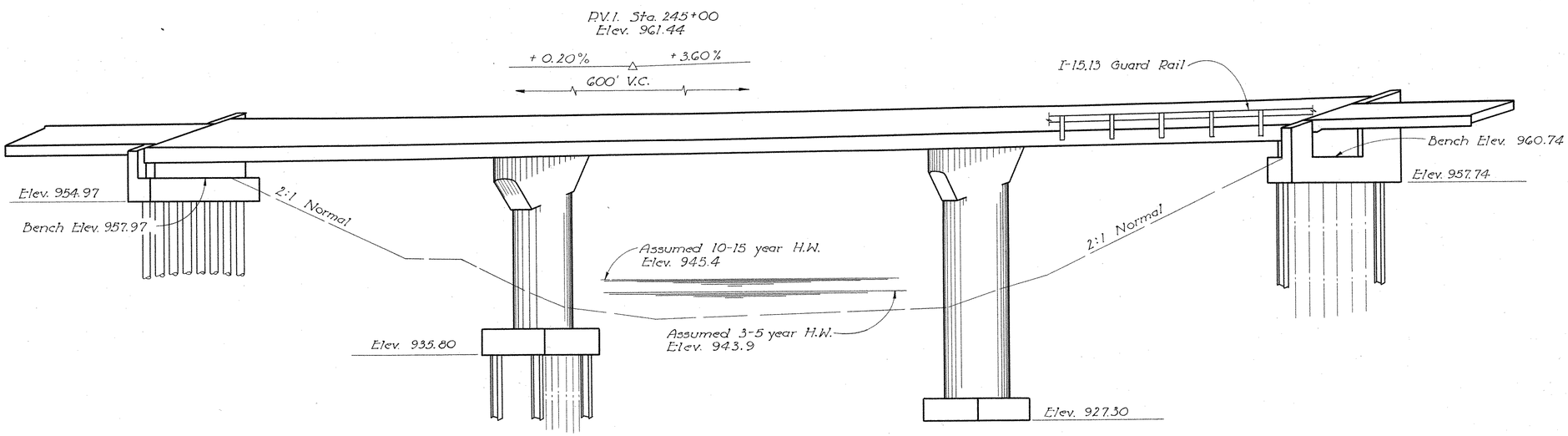


~ GENERAL PLAN ~



~ ELEVATION ~

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

GENERAL PLAN & ELEVATION
BRIDGE NO. LIC-161-0918
OVER MOOT'S RUN

LICKING CO. STA. 244+35.28
245+79.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES	Grasselli	J.V.G.	BFG A.J.P.	7-24-56	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LICKING COUNTY
LIC-161- 5.12
LIC- 37-15.09

GENERAL NOTES

REFERENCES: Reference shall be made to Standard Drawings A-1-54, revised 12-1-54, and CS-1-54, revised 7-16-56, except that the M-bar and N-bar designations shall be changed such that MA and NA bars shall be placed in the west end span, MB and NB bars shall be placed in the center span and MC and NC bars shall be placed in the east end span.

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.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic the existing structure shall be removed. Steel beams shall be carefully dismantled and piled along the right-of-way for disposal by the State's forces. The rear abutment shall remain in place except that the backwall shall be removed to the bridge seat elevation. The pier shall be removed to ground line. The forward abutment shall be removed to ground line at the face of the abutment. Both abutment slopes shall be dressed at 2:1. Suitable waste masonry shall be used as bank protection where directed by the Engineer. The remainder of the removed materials shall become the property of the Contractor. Slope dressing as required above shall be included with Item S-24, "Removal of Existing Structure" for payment.

PILES for the rear abutment shall be driven to a minimum bearing capacity of 41 tons. 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.

PILES for the rear pier and forward abutment shall be driven with a hammer of not less than 15,000 '# energy per blow, to firm contact with shale which shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is at least 75 tons per pile for the pier piles and 60 tons for the abutment piles and if the length of penetration is approximately equal to the depth to shale according to the bridge foundation investigation report. (The design load is 45 tons per pile for the pier piles and 41 tons for the abutment piles.) 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.

FOOTING for the forward pier shall extend a minimum of 3" into solid shale, or to the elevation shown, whichever is lower.

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.

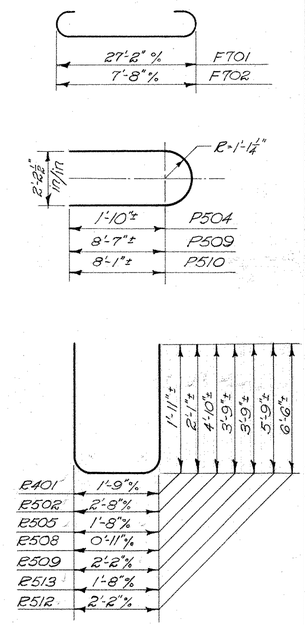
POROUS DRAINS, extending from face of abutment to Elev. 942, shall be provided as shown on the General Plan. The drains shall be 7 feet wide at the low end, tapering to 4 Ft. wide at the face of the abutment, and one foot thick.

REINFORCING STEEL shall clear all surfaces of concrete by 2 inches, unless otherwise noted on the plans.

REINFORCING STEEL LIST

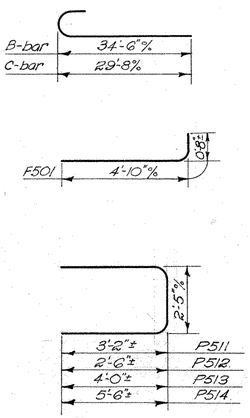
MARK	No.	LENGTH	WEIGHT	SHP.
ABUTMENTS				
E401	64	5'-5"	231	B
E501	16	28'-11"	483	S
E502	156	6'-7"	1,072	B
E503	16	21'-1"	352	S
E504	12	5'-9"	72	S
E505	16	11'-1"	185	B
E506	4	10'-11"	46	S
E507	8	8'-0"	67	S
E508	20	8'-2"	170	B
E509	10	9'-5"	98	B
E510	4	11'-2"	47	S
E511	8	13'-6"	113	S
E512	10	14'-11"	156	B
E513	18	12'-11"	242	B
E514	12	9'-9"	122	S
E515	4	10'-2"	42	S
E516	4	9'-3"	39	S
E517	4	8'-6"	35	S
E518	4	7'-8"	32	S
E519	4	6'-10"	28	S
E520	4	8'-9"	36	S
E801	16	29'-5"	1,257	S
E1001	16	21'-11"	1,509	S

BENDING DIAGRAM



MARK	No.	LENGTH	WEIGHT	SHP.
PIERS				
F501	88	5'-4"	490	B
F601	7	26'-5"	278	S
F701	4	28'-10"	236	B
F702	30	9'-4"	572	B
F801	27	6'-8"	481	S
P501	22	20'-7"	472	S
P502	22	30'-8"	704	S
P503	46	20'-2"	968	S
P504	52	7'-3"	398	B
P505	1	16'-10"	18	S
P506	1	14'-10"	15	S
P507	1	26'-10"	28	S
P508	1	24'-11"	26	S
P509	2	20'-9"	43	B
P510	2	19'-9"	41	B
P511	40	8'-6"	354	B
P512	8	7'-8"	60	B
P513	12	10'-2"	127	B
P514	66	13'-2"	907	B
P515	4	2'-6"	11	S
P516	8	20'-9"	173	S
P517	8	19'-6"	163	S
P518	4	28'-0"	117	S
P1101	40	20'-9"	1,410	S

BENDING DIAGRAM



NOTE: MA & NA Bars for west end span MB & NB Bars for center span MC & NC Bars for east end span.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four digits are used, indicate the bar size number. For example, KG01 is a No. 6 size bar and A1154 is a No. 11 size bar.

MARK	No.	LENGTH	WEIGHT	SHP.
SUPERSTRUCTURE				
A1154	105	50'-4"	28,079	S
B1154	34	36'-11"	6,488	B
C1154	34	31'-1"	5,615	B
D1154	17	32'-6"	2,936	S
E1154	17	24'-2"	2,183	S
F1154	98	38'-0"	19,785	S
G1154	48	19'-11"	5,079	S
H1154	48	14'-7"	3,719	S
J601	48	28'-11"	2,085	S
K601	24	21'-11"	790	S
MA701	44	41'-2"	3,702	S
MB701	52	40'-9"	4,331	S
MC701	44	40'-7"	3,650	S
NA601	27	41'-2"	1,670	S
NB601	33	40'-9"	2,020	S
NC601	27	40'-7"	1,646	S
REPLACEMENT STEEL				
RE401	1	5'-3"	4	S
RE501	1	5'-7"	6	S
RE601	1	5'-11"	9	S
RE701	1	6'-3"	13	S
RE801	1	6'-6"	17	S
RE1001	1	7'-3"	31	S
RE1101	4	7'-6"	160	S

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

STEEL LIST & GENERAL NOTES
BRIDGE No. LIC-161-0918
OVER MOOT'S RUN
LICKING COUNTY Sta. 244+35.28
245+79.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BFG.	DATE	REVISED
INNES	INNES	RBT	J.V.G.	A.J.F.	7-24-56	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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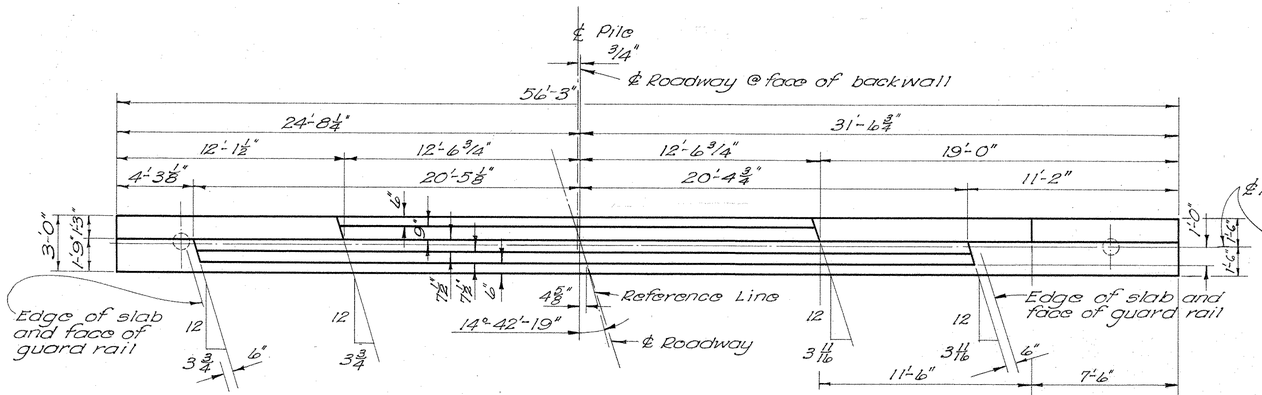
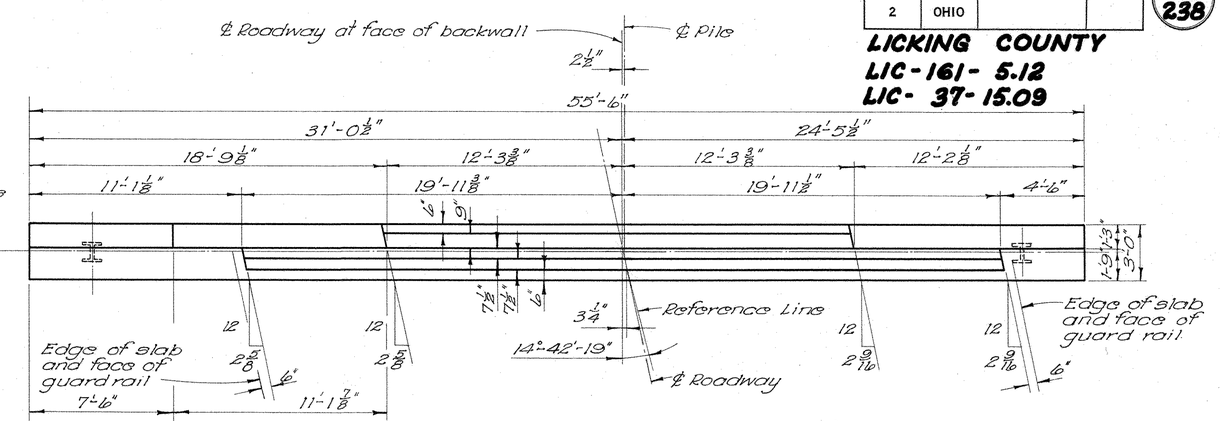
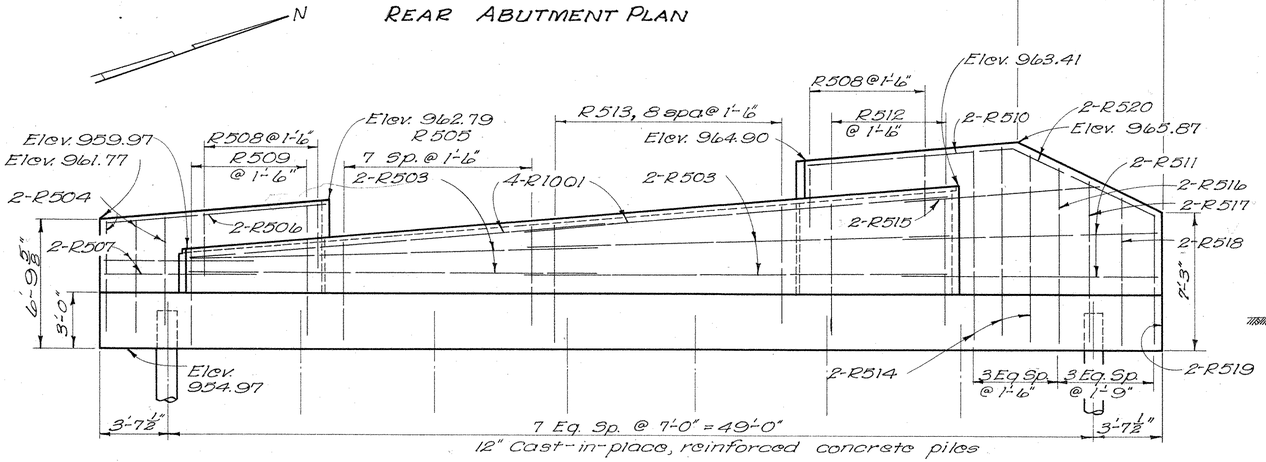
LICKING COUNTY
LIC-161- 5.12
LIC- 37- 15.09



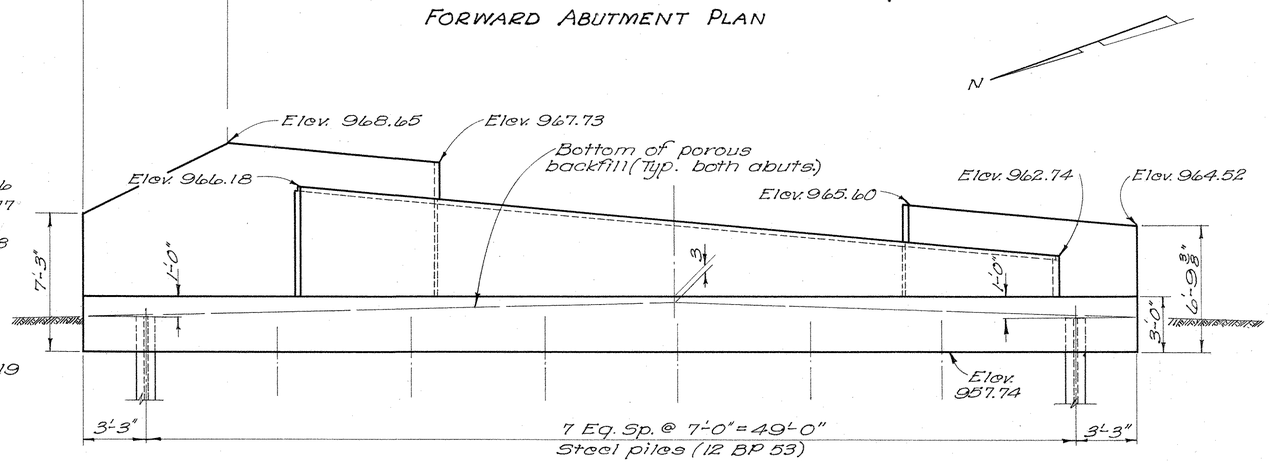
REAR ABUTMENT PLAN



FORWARD ABUTMENT PLAN



REAR ABUTMET ELEVATION



FORWARD ABUTMENT ELEVATION

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPERST.	ABUTS.	PIERS	GEN.		
E-2	lump	sum	Coffordams, cribs and sheeting				Lump		
E-2	332	cu.yd.	Unclassified excavation		64	268			
S-1	419	cu.yd.	Class "C" concrete, superstructure	419					
S-1	71	cu.yd.	Class "E" concrete, abutments		71				
S-1	146	cu.yd.	Class "C" concrete, pier walls			146			
S-1	53	cu.yd.	Class "E" concrete, pier footings			53			
S-3	705	sq.yd.	Type "C" waterproofing	705					
S-4	113,097	lb.	Reinforcing steel	93,778	6,434	12,145	240		
S-14	288.81	lin.ft.	Railing (Type I-15.13 with galvanized steel posts and bolts)	288.81					
S-16	lump	sum	First test pile (steel or concrete)				Lump		
S-18	280	lin.ft.	12" Cast-in-place, reinforced concrete piles		280				
S-18	550	lin.ft.	Steel piles (12 BP 53)		210	340			
S-24	lump	sum	Removal of existing structure				Lump		
S-29	18	cu.yd.	Porous drains on embankment slopes				18		
S-29	36	cu.yd.	Porous backfill		36				
T-35	46	cu.yd.	Asphaltic concrete surface course Type "A" or "C" (70-80)	46					

NOTES:

DETAILS: For details and notes not shown refer to Standard Drawing A-1-54.

REINFORCING STEEL same as shown on Standard Drawing A-1-54, except as hereon noted. The same size and length of bars and bar arrangement shown on the rear abutment shall be used on the forward abutment.

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

ABUTMENT DETAILS & ESTIMATED QUANTITIES

BRIDGE No. LIC-161-0918
OVER MOOTS RUN
LICKING COUNTY STA. 244+35.28
STA. 245+79.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES	R.H.D.	J.V.G.	BFG	7-24-56	

LICKING COUNTY
LIC-161- 5.12
LIC- 37- 15.09

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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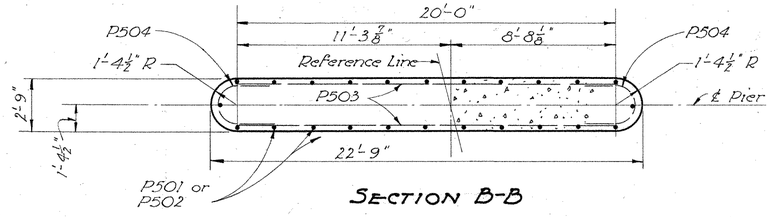
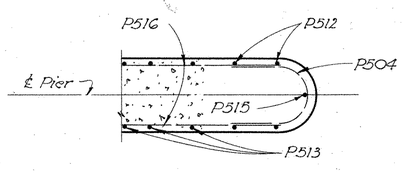
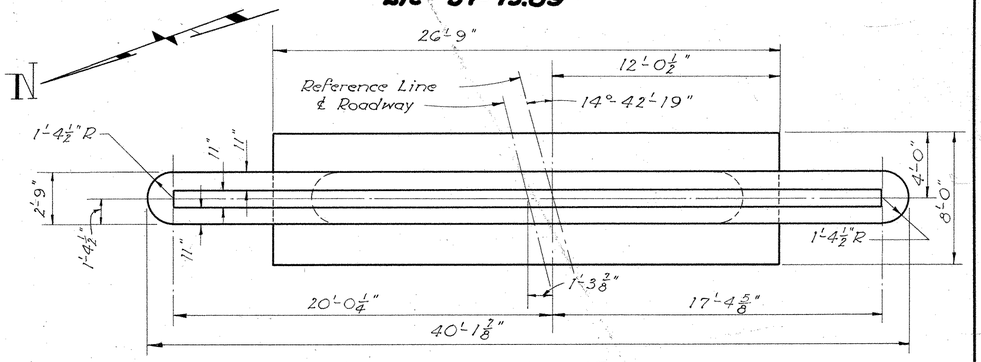


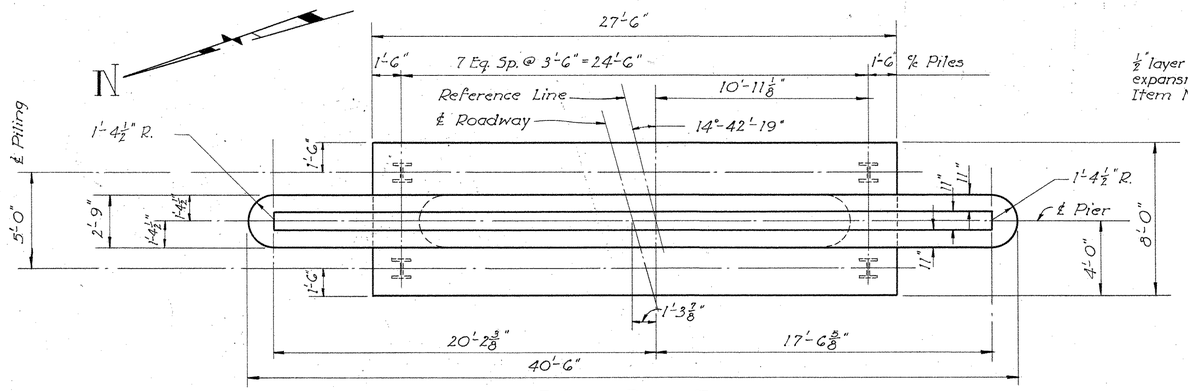
SECTION B-B



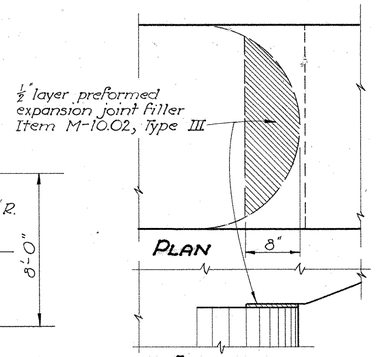
SECTION C-C



FORWARD PIER PLAN

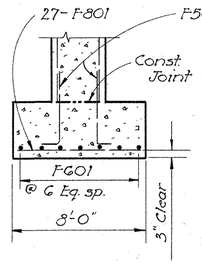


REAR PIER PLAN

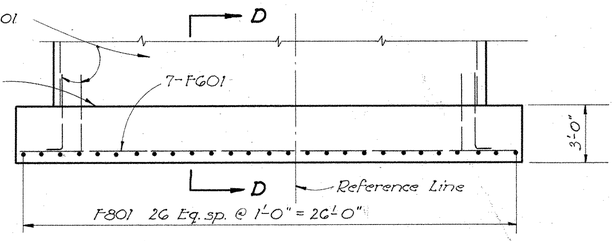


PLAN

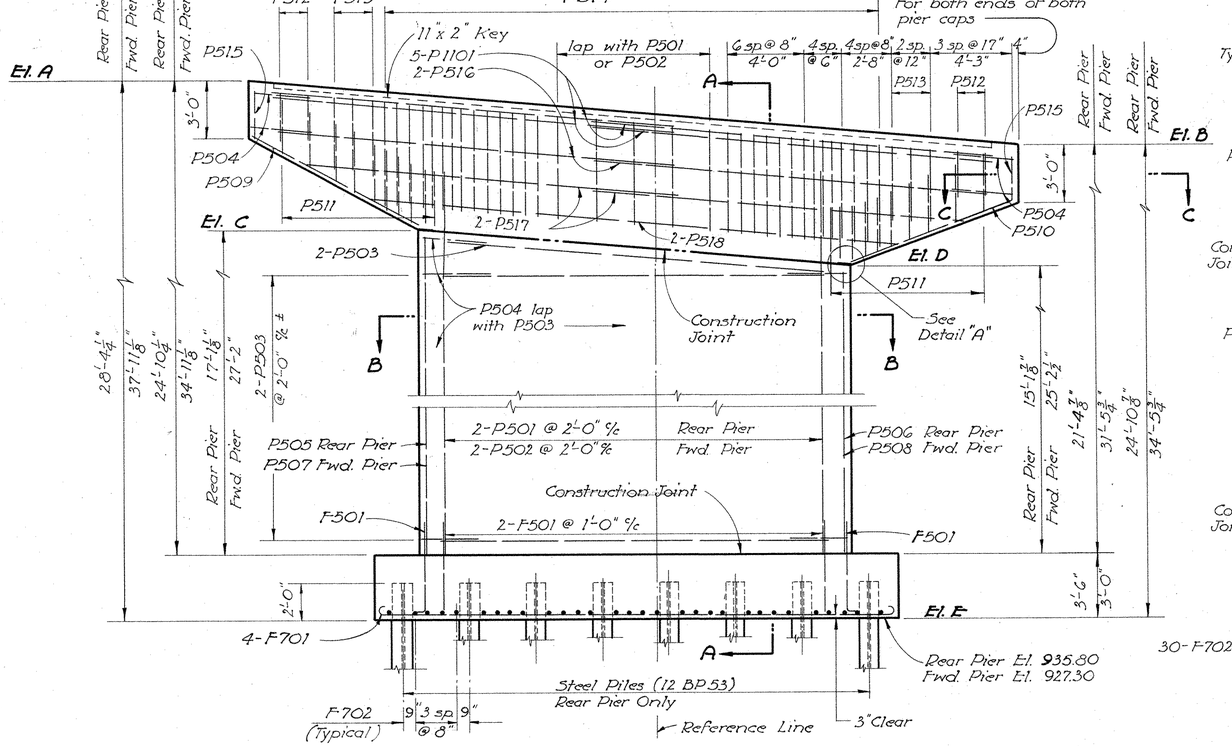
ELEVATION
DETAIL "A"



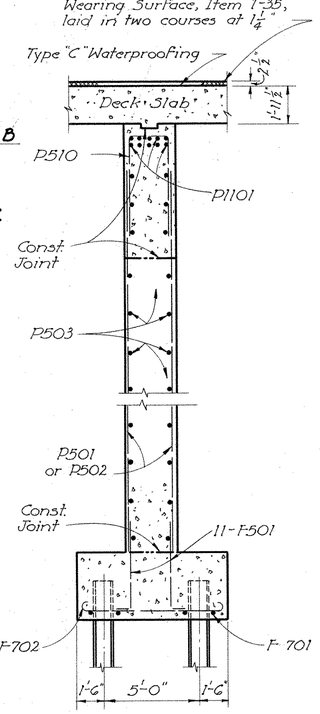
SECTION D-D



FORWARD PIER FOOTING ELEVATION



ELEVATION
Showing details of
Rear Pier Footing only.



SECTION A-A
Showing details of
Rear Pier Footing only.

TABLE OF ELEVATIONS					
Pier	A	B	C	D	E
Rear	964.15	960.70	956.40	954.46	935.80
Forward	965.23	961.79	957.47	955.51	927.30

NOTE:
PREFORMED EXPANSION JOINT FILLER called for in Detail "A" shall be included with Item 3-1, Class "C" Concrete, Pier Walls, for payment.

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

PIER DETAILS

BRIDGE NO. LIC-161-0918
OVER MOOT'S RUN

LICKING CO. STA. 244+35.28
245+79.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES	Grassell	J.V.G.	BFG	7-24-56	


FED. RD. DIVISION 2
STATE OHIO
PROJECT
222
238
LICKING COUNTY
LIC-161-5.12
LIC-37-15.09
1.8± Miles West of Granville
NOTE: Sta. 337+00 = SLM 10.932
EXISTING BRIDGE DATA
TYPE: ~ Steel Beam
SPAN: ~ 41'6"
ROADWAY: ~ 22.7'
LOADING: ~ S-10.4-46
SKEW: ~ None
CONDITION: ~ Good
SUFF. RATING: ~ 86
DATE BUILT: ~ 1931
Excavate channel to El. 918.5±
Transition 2:1 to 4:1 slope at all four corners of bridge.
Shed
+33.78
+02.53
6.25
Proposed ℄ Construction
Place waste Masonry here.
335
336
337
338
339
340
341
S 74° 53' E
℄ Survey
End approach slab sta. 337 + 38.00
Begin approach slab sta. 337+98.00
Remove this tree (Stump to remain in place)
Proposed Future Lanes
PROPOSED STRUCTURE
TYPE: Continuous reinf. conc. slab with capped pile substructure
SPANS: 18'-22.5'-18' c/c brgs.
ROADWAY: 40'-0" f/f of guard rails
LOAD FREQUENCY: CF=400(51)
SKEW: None
WEARING SURFACE: Bituminous
APPRO. SLABS: AS-1-54 (15' long)
ALIGNMENT: Tangent.
CHINNY RUN
Excavate channel to El. 919.1
Clears assumed 5 to 10 yr. H.W. 0.9±
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.
B.M. a N.W. Cor. W. Abut. Br. 13' Lt. Sta. 337+42 Elevation 925.59
Bridge Limits
Sta. 337+38.00
Sta. 337+98.00
600' V.C.
Drainage Area = 3.0 Sq. Miles
Assumed 5 to 10 yr. H.W. El. 924.0
20 yr. High Water (1939) 200' South 925.7
3-5 yr. High Water 923.47
Bench Elev. 922.9± V
Bench El. 923.6±
Estimated average pay length of piles:
Rear Abutment 26'
Rear Pier 33'
Forward Pier 34'
Forward Abutment 27'
Excavate channel to El. 918.7± thru str.
All piles 14" cast-in-place reinforced concrete
1.56%
0.00%
P.T. 339+00
El. 923.96
930
920
910
900
PROFILE ON PROPOSED CENTER LINE OF SURVEY
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES AND RAILROAD CROSSINGS
SITE PLAN
BRIDGE NO. LIC-161-1095
over CHINNY RUN
LICKING CO.
S.R. 161
STA. 337+38.00
337+98.00
SCALE 1" = 20'
PRESENT TOPO
SURVEY W. M.
PROPOSED WORK
DRAWN W. B.
DESIGNED J.H.G.
DRAWN J.H.B.
CHECKED D.I.C.
REVIEWED G.E.S.
7-16-56

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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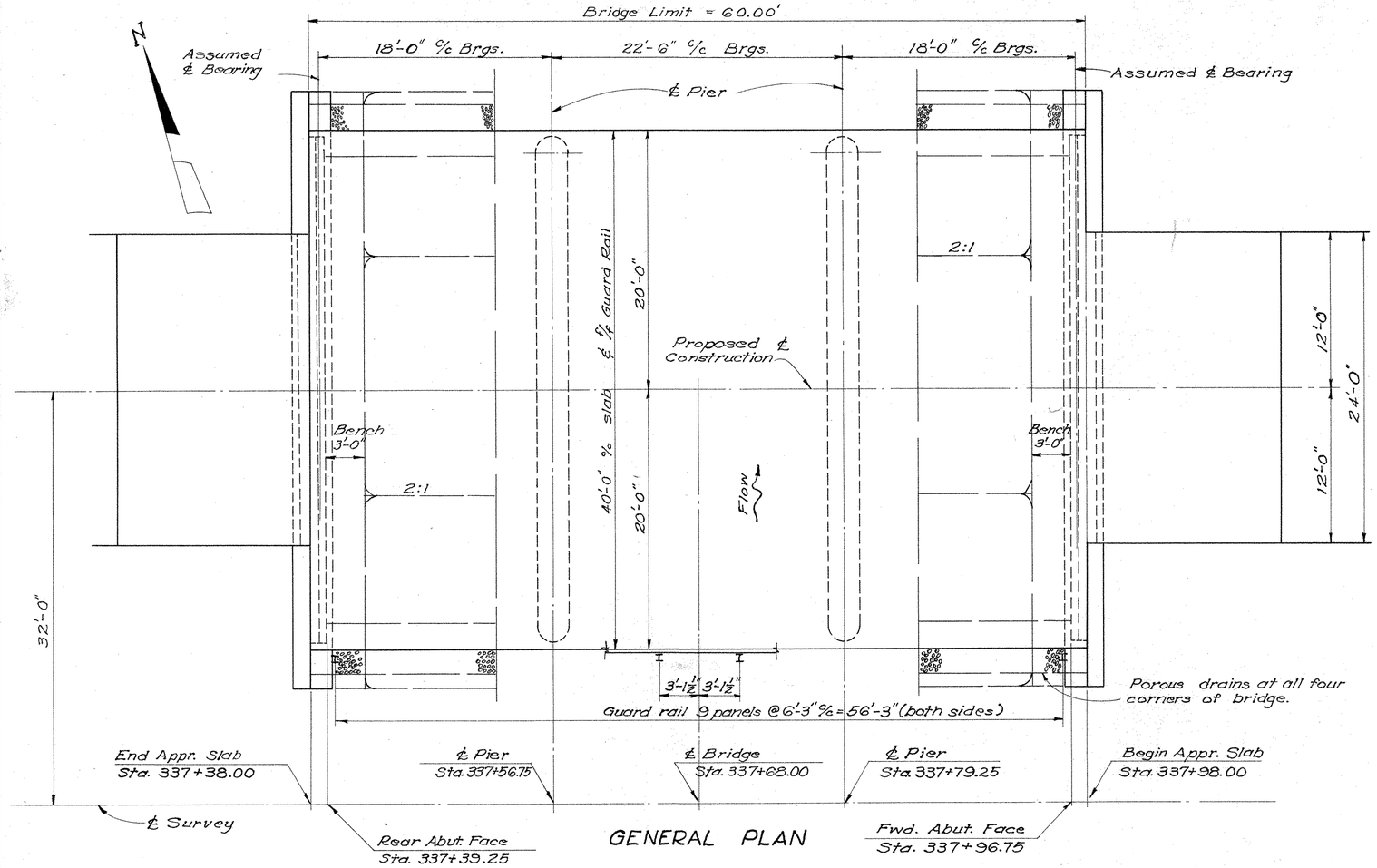
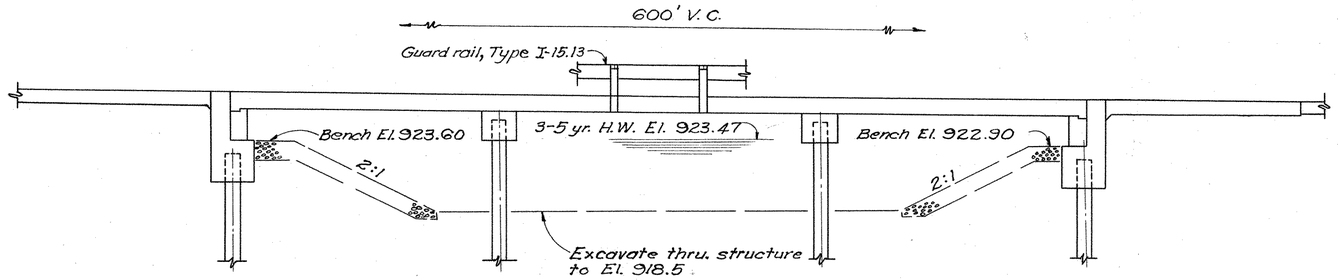
LICKING COUNTY
LIC-161-5.12
LIC - 37-15.09



GENERAL PLAN



GENERAL NOTES

REFERENCE shall be made to Standard Drawings CS-1-54 revised 7-16-56, A-1-54 and P-1-54 both revised 12-1-54.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic, the existing structure shall be removed. Steel beams and steel beam guard rail shall be carefully dismantled and piled along the right-of-way for disposal by State's forces. The substructure shall be removed to proposed ground line and to whatever extent is necessary to avoid interference with the new construction, including pile driving. Suitable waste masonry shall be disposed of as bank protection as directed by the Engineer. Other waste masonry may be placed in the embankment under and adjacent to the proposed structure at the direction of the Engineer. The remainder of the removed materials shall become the property of the Contractor.

PILES shall be driven to a minimum bearing capacity of 22 tons for the abutments and 26 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.

PIER PILE ENCASEMENT as shown on Std. Dwg. No. 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 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.

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.

GALVANIZING of all members which are specified to be galvanized shall be as called for in Sec. M-7.4 (d).

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. 918.5, shall be provided at all four corners of the bridge. The drains shall be 4 ft. wide and one foot thick.

ASPHALTIC CONCRETE SURFACE COURSE, Item T-35, laid in two courses, shall be provided.

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Superst.	Abut.	Piers	Gen.		
E-2	70	cu.yd.	Unclassified excavation		70				
E-3	297	cu.yd.	Channel excavation				297		
S-1	102	cu.yd.	Class "C" concrete, superstructure and pier caps.	87		14			
S-1	45	cu.yd.	Class "E" concrete, abutments.		45				
S-3	282	sq.yd.	Type "C" waterproofing	282					
S-4	31,715	lbs.	Reinforcing steel	22,553	5049	4010	103		
S-14	120	lin.ft.	Railing (Type I-15,13 with galvanized steel posts and bolts.)	120					
S-16	lump	sum	First test pile				lump		
S-18	840	lin.ft.	14" cast-in-place reinforced concrete piles		370	470			
S-24	lump	sum	Removal of existing structure				lump		
S-29	17	cu.yd.	Porous backfill		17				
S-29	9	cu.yd.	Porous drains on embankment slopes.				9		
T-35	17	cu.yd.	Asphaltic concrete surface course Type "A" or "C" (70-80)	17					

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

GENERAL PLAN and ELEVATION NOTES and ESTIMATED QUANTITIES

BRIDGE NO. LIC-161-1095
over CHINNY RUN
Licking County Sta. 337+38.00
337+98.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
S.Y.	S.Y.	J.E.G.	J.V.G.	BFG	7-16-56	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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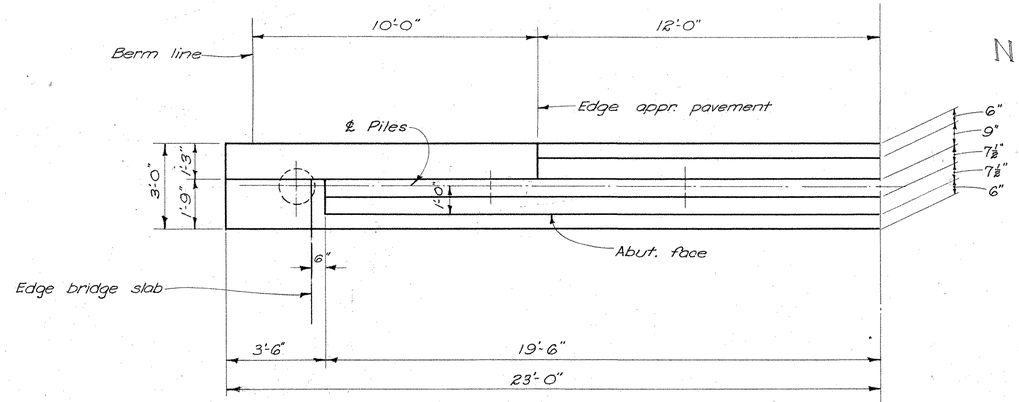
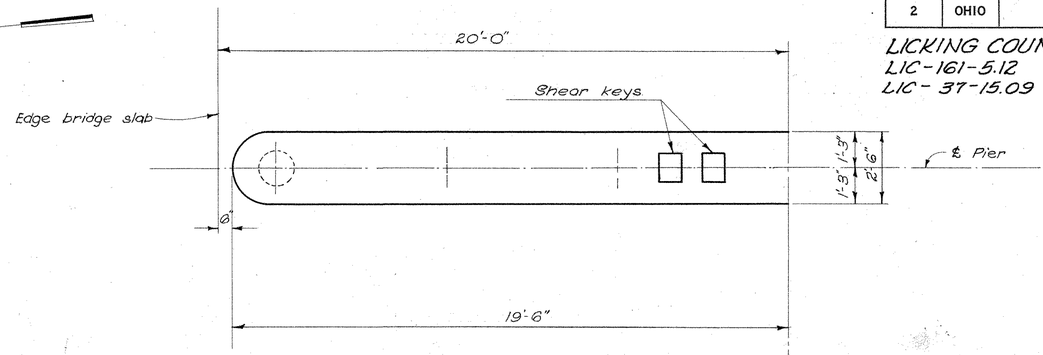
238

LICKING COUNTY
LIC-161-5.12
LIC-37-15.09



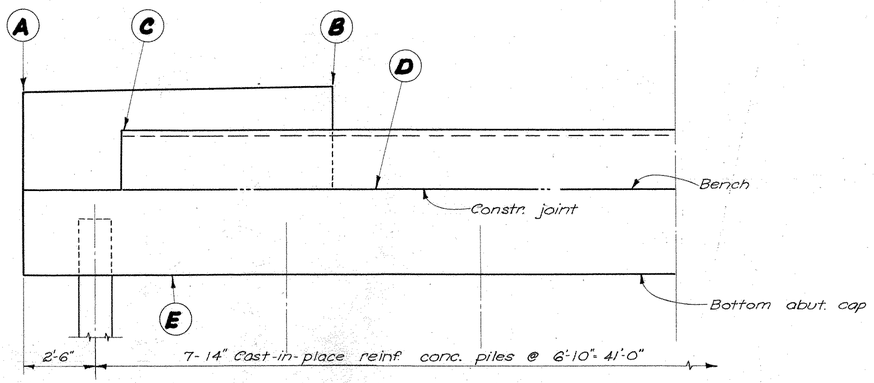
HALF PLAN ABUTS.



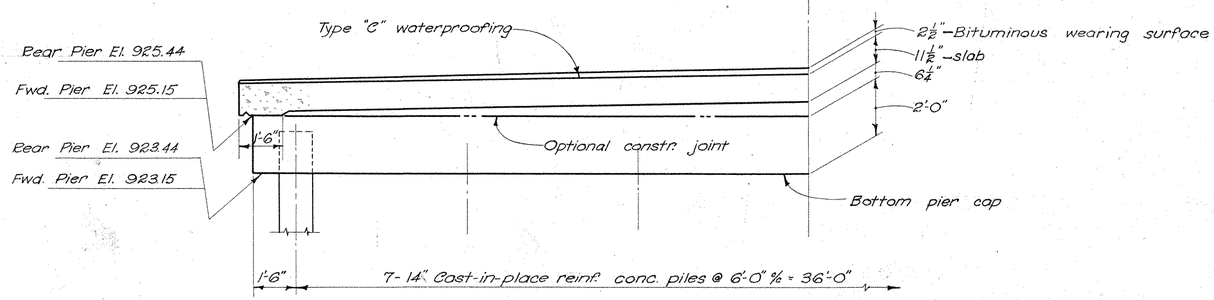
HALF PLAN PIER

Symmetrical about proposed ℄ construction

ELEVATION ON ABUTMENTS		
Point	Rear Abut.	Fwd. Abut.
A	926.87	926.11
B	927.18	926.43
C	925.66	924.94
D	923.60	922.90
E	920.60	919.90



HALF ELEVATION ABUTS.

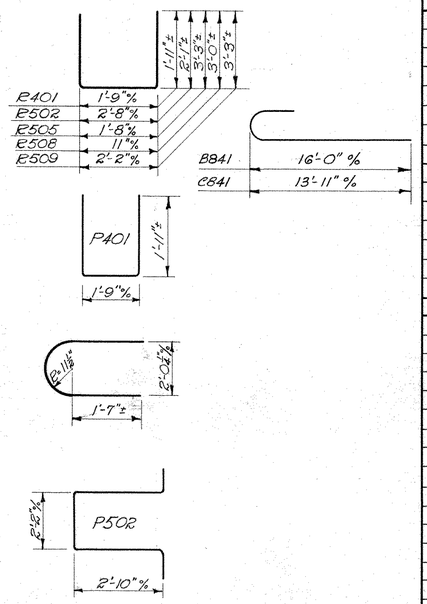


HALF ELEVATION PIER

REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHP.
Abutments				
E401	56	5'-5"	202	B
E501	16	23'-7"	394	S
E502	136	6'-7"	934	B
E503	8	20'-1"	168	S
E504	24	5'-4"	134	S
E505	32	7'-11"	264	B
E506	8	10'-8"	89	S
E507	16	4'-11"	82	S
E508	20	6'-8"	139	B
E509	20	8'-5"	175	B
E801	16	24'-1"	1,028	S
E1001	16	20'-11"	1,440	S
Piers				
P401	56	5'-5"	202	B
P501	4	36'-6"	152	S
P502	60	9'-0"	563	B
P503	8	6'-4"	53	B
P701	84	4'-0"	687	S
P901	8	36'-6"	993	S
P1001	8	39'-6"	1,360	S

BENDING DIAGRAM



MARK	No.	LENGTH	WEIGHT	SHP.
Superstructure				
A841	102	21'-7"	5,878	S
B841	34	17'-1"	1,551	B
C841	32	15'-0"	1,282	B
D841	17	17'-4"	787	S
E841	16	12'-4"	427	S
F841	78	16'-2"	3,366	S
G841	38	8'-6"	863	S
H841	38	7'-6"	761	S
J601	40	11'-10"	711	S
K601	20	11'-4"	341	S
M601	67	39'-8"	3,975	S
N601	44	39'-6"	2,611	S
Replacement Bars				
RE401	1	5'-3"	4	S
RE501	1	5'-7"	6	S
RE601	1	5'-11"	9	S
RE701	1	6'-2"	13	S
RE801	1	6'-6"	17	S
RE901	1	6'-10"	23	S
RE1001	1	7'-2"	31	S

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

DETAILS OF ABUTMENTS AND PIERS, STEEL LIST

BRIDGE No. LIC-161-1095
OVER BRANCH OF CHINNY RUN
LICKING COUNTY Sta. 337+38.00
Sta. 337+98.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
S.Y.	S.Y.	RBT	J.V.G.	PFG	7-16-56	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LIC.-161-5.12, LIC-37-15.09
R/W PLAN
LIMITED ACCESS

For Detail on SR 310
See R/W Sheet 14

BEGIN LIMITED ACCESS
STA. 30+00.65

BEGIN WORK
STA. 29+00

BEGIN PROJ.
STA. 30+00

Louis J. & Janet H. Hooffstetter
(1)

Licking Co. Jersey Twp.
Sec 11 4th 1/4 T.2 R.15 U.S.M.L.

Russell R. Richards
(2 LA) Cont 2.23 Ac.±
P.I.2.0. 1.04 Ac.±

(2) Cont 0.04 Ac.±
P.I.2.0. 0.03 Ac.±

(2 WA)

Conc Gar

Ft. Res

Sec. 11
Sec. 20

Lot 1
Lot 8

Existing R/W

Const Limits

℄ Proposed ℄ S.R. 161 (1956 Survey)

℄ Proposed R/W

℄ Existing R/W

Existing ℄

Licking Co. St Albans Twp.
Lot 1 3rd 1/4 T.2 R.14 U.S.M.L.

Arthur & Rhoda Fyler
(4 LA) Cont 2.25 Ac.±
P.I.2.0. 1.32 Ac.±

(4) Cont 0.01 Ac.±
P.I.2.0. 0.24 Ac.±

(4)

S 83°00' E

S 81°13' E

PC 31+00.78

PT 39+05.45

Farms Barn

Range Line

Jersey Twp. R.15

St. Albans Twp. R.14

P.I. 34+87.16
Δ · 3°47'12" Rt.
D · 0°30'
T · 376.38'
L · 756.67'
E · 6.19'
R · 11,459.16'

Russell R. Richards
(2 LA) Cont 2.23 Ac.±
P.I.2.0. 1.04 Ac.±

William H. & Vera A. Gosnell
(3 LA) Cont 1.04 Ac.±
P.I.2.0. 0.43 Ac.±

Walter & Helen Coakley
(5 LA) Cont 4.46 Ac.±
P.I.2.0. 1.30 Ac.±

(1) Arthur & Rhoda Fyler
V.3 Pg. 75
Lic. Co. Easement Rec.
(2) Claude & Eva Richards
V.3 Pg. 73
Lic. Co. Easement Rec.

Licking Co. Jersey Twp.
Sec. 20 4th 1/4 T.2 R.15 U.S.M.L.

Licking Co. St Albans Twp.
Lot 8 3rd 1/4 T.2 R.14 U.S.M.L.

Licking Co. St Albans Twp.
Lot 1 3rd 1/4 T.2 R.14 U.S.M.L.

Arthur & Rhoda Fyler
(4 LA) Cont 2.25 Ac.±
P.I.2.0. 1.32 Ac.±

(1) Arthur & Rhoda Fyler
V.3 Pg. 75
Lic. Co. Easement Rec.

(3) Lydia Coakley et al.
V.3 Pg. 79
Lic. Co. Easement Rec.

Barn

P.I. 51+93.76
Δ · 4°12' Lt.
D · 0°30'
R · 11,459.16'
T · 420.21'
L · 840.00'
E · 7.68'

(4 WA)

Res

PC 47+73.55

PT 56+13.55

Lot 1
Lot 2

Lot 2
Lot 7

Lot 8
Lot 1

Harry C. & Daisy Carlock
(6 LA) Cont 2.80 Ac.±
P.I.2.0. 1.13 Ac.±

Walter & Helen Coakley
(5 LA) Cont 4.39 Ac.±
P.I.2.0. 1.30 Ac.±

(5 X) Cont 0.27 Ac.±

(5 WA)

Note:-
Location Plan recorded Vol. G, Pg. 78 of Lic. Co. Plat Rec.

Licking Co. St Albans Twp.
Lot 8 3rd 1/4 T.2 R.14 U.S.M.L.

Licking Co. St Albans Twp.
Lot 7 3rd 1/4 T.2 R.14 U.S.M.L.

Licking Co. St Albans Twp.
Lot 2 3rd 1/4 T.2 R.14 U.S.M.L.

FED. RD. DIVISION	STATE	PROJECT	
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LIC.-161-5.12, LIC-37-15.09
R/W PLAN
LIMITED ACCESS

Licking Co. St Albans Twp.
Lot 2 3rd 1/4 T.2 R.14 U.S.M.L.

Harry C. & Daisy Carlock
(6 LA) Cont. 2.80 Ac.±
P.R.O. 1.13 Ac.±
(6 X) Cont. 0.30 Ac.±

Lawrence Leslie Nichols Jr. & Carol J. Nichols
(8 LA) Cont. 0.34 Ac.±
P.R.O. 0.17 Ac.±
(8 X) Cont. 0.04 Ac.±

Licking Co. St Albans Twp.
Lot 3 3rd 1/4 T.2 R.14 U.S.M.L.

Walter & Helen Coakley
(5 LA) Cont. 4.39 Ac.±
P.R.O. 1.30 Ac.±
(5 X) Cont. 0.27 Ac.±

Licking Co. St Albans Twp.
Lot 7 3rd 1/4 T.2 R.14 U.S.M.L.

Russell F. & Esther B. Jacob
(7 LA) Cont. 1.41 Ac.±
P.R.O. 0.57 Ac.±

Licking Co. St Albans Twp.
Lot 6 3rd 1/4 T.2 R.14 U.S.M.L.

Albert M. & Madileen M. Bukey
(9 LA) Cont. 2.78 Ac.±
P.R.O. 1.23 Ac.±
(9 X) Cont. 0.09 Ac.±

Licking Co. St Albans Twp.
Lot 3 3rd 1/4 T.2 R.14 U.S.M.L.

Roy C. & Margaret M. Williams
(10 LA) Cont. 1.68 Ac.±
P.R.O. 0.71 Ac.±

Licking Co. St Albans Twp.
Lot 6 3rd 1/4 T.2 R.14 U.S.M.L.

Albert M. & Madileen M. Bukey
(9 LA) Cont. 2.78 Ac.±
P.R.O. 1.23 Ac.±
(9 Y) Cont. 0.11 Ac.±

Victor & Ada Smith
(11 LA) Cont. 3.05 Ac.±
P.R.O. 1.80 Ac.±
(11) Cont. 0.02 Ac.±
P.R.O. 0.04 Ac.±

Note:-
Location Plan recorded in Vol. G, Pg. 78 of Lic. Co. Plat Rec.

Licking Co. St Albans Twp.
Lot 6 3rd 1/4 T.2 R.14 U.S.M.L.

FED. RD. DIVISION 2
STATE OHIO
PROJECT
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LIC.-161-5.12; LIC-37-15.09
R/W PLAN
LIMITED ACCESS
Licking Co. St. Albans Twp.
Lot 4 3rd 1/4 T.2 R.14 U.S.M.L.
Victor & Ada Smith
11 LA Cont. 3.05 Ac.± P.R.O. 1.80 Ac.±
11 Cont. 0.02 Ac.± P.R.O. 0.04 Ac.±
Proposed R/W
Const. Limits
Existing R/W
Proposed ℄ S.R. 161 (1956 Survey)
S 83°23' E
S 83°13' E
Existing ℄
Lot 4
Lot 5
℄ Existing R/W
℄ Const. Limits
SIMPSON RUN
1 1/2 Sty. Fr. Res.
Marshal M. & Zora M. Mowrey
12 LA Cont. 1.55 Ac.± P.R.O. 1.03 Ac.±
P.I. 92+02.29
Δ = 2°12'12"
D = 0°30'
R = 11,459.2'
T = 220.02'
L = 440.00'
E = 2.06'
PC 89+82.27
PT. 94+22.27
Co. Rd. No. 42
Lot 5
Lot 7
Licking Co. St. Albans Twp.
Lot 5 3rd 1/4 T.2 R.14 U.S.M.L.
Licking Co. St. Albans Twp.
3rd 1/4 T.2 R.14 U.S.M.L.
Elmous Neil Mowrey & Elgene M. Mowrey
14 LA Cont. 7.13 Ac.± P.R.O. 2.40 Ac.±
14 Cont. 0.02 Ac.± P.R.O. 0.03 Ac.±
14 WA
Barn
Milk Hse.
2 Sty. Fr. Res.
Note:~
Location Plan recorded in Vol. 6, Pg. 78 of Lic. Co. Plat Rec.
Proposed ℄ S.R. 161 (1956 Survey)
Lot 7
George M. & Patricia A. Simon
13 LA Cont. 1.50 Ac.± P.R.O. 0.44 Ac.±
Elmous Neil Mowrey & Elgene M. Mowrey
14 LA Cont. 7.13 Ac.± P.R.O. 2.40 Ac.±
℄ Proposed R/W
PC. 111+34.18
P.C. Sta.
Licking Co. St. Albans Twp.
Lot 7 3rd 1/4 T.2 R.14 U.S.M.L.

FED. RD. DIVISION 2
STATE OHIO
PROJECT
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LIC.-161-5.12; LIC-37-15.09
R/W PLAN
LIMITED ACCESS
Licking Co. St. Albans Twp.
3rd ¼ T.2 R.14 U.S.M.L.
Elmous Neil Mowrey & Elgene M. Mowrey
14 LA Cont. 7.13 Ac.±
P.R.O. 2.40 Ac.±
Existing R/W
Existing ℄
Lot 7
Lot 8
Const. Limits
Existing R/W
Proposed R/W
Florence N. Wright (Life Estate)
Mary Livana Price
16 LA Cont. 2.32 Ac.±
P.R.O. 1.95 Ac.±
16 WA
℄ Proposed ℄ S.R. 161 (563ur.) S73°05'E
P.T. 121+47.32
Proposed R/W
Shed Barn
15 WA
Elmous Neil Mowrey
Elgene M. Mowrey
14 LA Cont. 7.13 Ac.±
P.R.O. 2.40 Ac.±
14 X Cont. 0.20 Ac.±
P.I. 116+42.16
Δ = 10°08' Rt.
D = 1°00' Rt.
R = 5,729.58'
T = 507.98'
L = 1013.34'
E = 22.46'
9 William S. & Florence Wright
Vol. 1, Pg. 343
Lic. Co. Easement Rec.
7 John Mossholder
Vol. 1, Pg. 337
Lic. Co. Easement Rec.
8 Lewis & Mary L. Price
Vol. 1, Pg. 333
Lic. Co. Easement Rec.
Lewis J. & Mary L. Price
13 LA Cont. 1.96 Ac.±
P.R.O. 0.67 Ac.±
15 X Cont. 0.11 Ac.±
Licking Co. St. Albans Twp.
Lot 8 3rd ¼ T.2 R.14 U.S.M.L.
Note:~
Location Plan recorded in
Vol. 6, Pg. 78 of Lic. Co. Plat Rec.
Licking Co. St. Albans Twp.
3rd ¼ T.2 R.14 U.S.M.L.
10 Mary E. Reece
Vol. 1, Pg. 343
Lic. Co. Easement Rec.
11 Dennis C. Brown
Vol. 1, Pg. 327
Lic. Co. Easement Rec.
Florence N. Wright & Mary Livana Price
16 LA Cont. 2.32 Ac.±
P.R.O. 1.95 Ac.±
16 X Cont. 0.76 Ac.±
Note:~
For Channel Detail
See R/W Sheet No. 14
P.I. 141+30.90
Δ = 22°32' Lt.
D = 1°30' Lt.
R = 3819.71'
T = 760.92'
L = 1502.22'
E = 73.06'
18 X
Simpson Run
Everett W. & Beulah V. Brown
18 LA Cont. 4.11 Ac.±
P.R.O. 1.53 Ac.±
18 X Cont. 1.00 Ac.±
18 WA
Proposed R/W
Const. Limits
S73°05'E
N84°25'E
℄ Proposed ℄ S.R. 161 (1956 Survey)
Existing R/W
Existing ℄
Lot 9
℄ Const. Limits
℄ Proposed R/W
℄ Existing R/W
Lot 8
10
11
15 LA
13 X
17 WA
Leo B. & Pella L. Fairchild
17 LA Cont. 0.17 Ac.±
P.R.O. 0.53 Ac.±
Charles H. & Hazel R. Law
19 LA Cont. 3.23 Ac.±
P.R.O. 1.33 Ac.±
Licking Co. St. Albans Twp.
Lot 8 3rd ¼ T.2 R.14 U.S.M.L.
Licking Co. St. Albans Twp.
Lot 9 3rd ¼ T.2 R.14 U.S.M.L.

FED. RD. DIVISION	STATE	PROJECT	
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LIC.-161-5.12; LIC-37-15.09
R/W PLAN
LIMITED ACCESS

Everett W. & Beulah V. Brown
(18 LA) Cont. 4.11 Ac.±
P.120. 1.33 Ac.±

Licking Co. St. Albans Twp.
3rd 1/4 T.2 R.14 U.S.M.L.

Wilbert E. Turnbull
(20 LA) Cont. 1.78 Ac.±
P.120. 1.27 Ac.±

Charles H. & Hazel R. Law
(19 LA) Cont. 3.23 Ac.±
P.120. 1.33 Ac.±

Licking Co. St. Albans Twp.
Lot 9 3rd 1/4 T.2 R.14 U.S.M.L.

Licking Co. St. Albans Twp.
3rd 1/4 T.2 R.14 U.S.M.L.

Wilbert E. Turnbull
(20 LA) Cont. 1.78 Ac.±
P.120. 1.27 Ac.±

(20 X) Cont. 0.03 Ac.±

George L. Davison, et al.
(22 LA) Cont. 3.15 Ac.±
P.120. 1.59 Ac.±

Russel & Mary Judy
(21 LA) Cont. 1.84 Ac.±
P.120. 0.71 Ac.±

Licking Co. St. Albans Twp.
Lot 9 3rd 1/4 T.2 R.14 U.S.M.L.

Licking Co. St. Albans Twp.
Lot 25 4th T.2 R.14 U.S.M.L.

George L. Davison, et al.
(22 LA) Cont. 3.15
P.120. 1.59

Licking Co. St. Albans Twp.
Lot 26 4th 1/4 T.2 R.14 U.S.M.L.

Note:~
Location Plan recorded in Vol. 6, Pgs. 78 & 79 of Lic. Co. Plat Rec.

REV. 12-13-56 G.W.S.

FED. RD. DIVISION	STATE	PROJECT		230 / 238
2	OHIO			

LIC.-161-5.12; LIC-37-15.09
R/W PLAN
LIMITED ACCESS

George L. Davison, et al.
(22 LA) Cont± 3.15 Ac.±
P.I.2.0. 1.59 Ac.±

Lewis H. Scott
(23 LA) Cont± 3.07 Ac.±
P.I.2.0. 1.78 Ac.±

Licking Co. St. Albans Twp.
4th ¼ T.2 R.14 U.S.M.L.

Note:~ Location Plan recorded in Vol. G, Pg. 79 of Lic. Co Plat Rec.

P.I. 184+65.87
Δ = 2°14'12"
D = 0°30'
R = 11,459.2'
T = 223.34'
L = 446.67'
E = 2.18'

Ralph W. Stalnaker, et al.
(24 LA) Cont± 1.91 Ac.±
P.I.2.0. 1.26 Ac.±
(24 X) Cont± 0.27 Ac.±

Frank P. Hartsough
(25 LA) Cont± 1.21 Ac.±
P.I.2.0. 0.39 Ac.±

William E. Starbuck
(26 WD) Cont± 0.62 Ac.±

P.I. 206+74.26
Δ = 6°11'14"
D = 0°30'
R = 11,459.2'
T = 619.03'
L = 1239.67'
E = 16.73'

FED. RD. DIVISION	STATE	PROJECT		
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LIC.-161-5.12; LIC-37-15.09
R/W PLAN
LIMITED ACCESS

Robert E. & Sara M. Baker
27 LA Cont 0.50 Ac.± P.R.O. 0.40 Ac.±
Grace Montgomery
28 LA Cont 5.28 Ac.± P.R.O. 2.33 Ac.±
Co. Rd. No. 39
Existing R/W
Proposed R/W
Const. Limits
Existing ℄
Proposed ℄ S.R. 161 (1956 Survey)
N80°26'E
House
Barn
Gar.
2 Story Brick & Fr. House
Chicken House
Lot 29
Lot 30
Lot 31
Lot 32
Lot 33
26 WD
24 LA
28 WA
Note:~
Location Plan recorded in Vol. 6, Pg. 79 of Lic. Co. Plat Rec.
Licking Co. St. Albans Twp. 4th 1/4 T. 2 R. 14 U.S.M.L.
Ellis Gallant
29 LA Cont. 2.08 Ac.± P.R.O. 0.99 Ac.±
29 X Cont. 0.03 Ac.±
29 Y Cont. 0.09 Ac.±
29 Z Cont. 0.54 Ac.±
29 WA
Henry A. & DaLee W. Stair
30 LA Cont. 7.60 Ac.± P.R.O. 3.83 Ac.±
30 X Cont. 0.13 Ac.±
2 sty. Frame Res.
Corn Crib & Tool Shed
Shed

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LIC.-161-5.12, LIC-37-15.09
R/W PLAN
LIMITED ACCESS

Proposed R/W

Const. Limits

℄ Proposed ℄ S.R. 161 (1956 Survey)

℄ Existing R/W

℄ Existing ℄

Existing R/W

℄ Proposed R/W

Const. Limits

Pl. 248+06.21
Δ = 47° 00' 12"
Δc: 38° 15'
Dc: 3° 30'
Ls: 250'
Ts: 837.46'
Es: 149.8'
Lc: 1092.86'
Xc: 249.85'
Yc: 6.56'
Lt+ 166.72'
Θ = 43.75°
R: 1637.02'

Henry A. & Da Lee W. Stair
(30 LA) Cont 7.60 Ac.±
P.R.O. 3.85 Ac.±

Licking Co. 4th ¼ T.2 R.14 St. Albans Twp. U.S.M.L.

Lot 33 / Lot 34

Note:~ Location Plan recorded in Vol. 6, Pg. 79 of Lic. Co. Plat Rec.

(11) Harry S. & Genevieve Forsythe
V. 3, Pg. 431
Licking Co. Easement Rec.

(12) Harry T. Smith
V. 3, Pg. 433
Lic. Co. Easement Rec.

Pl. 269+05.00
Δ = 26° 03' Lt
Δc: 17° 13'
Dc: 3° 30'
Ls: 250'
Ts: 304.03'
Es: 44.88'
Lc: 494.28'
Xc: 249.85'
Yc: 6.56'
Lt+ 166.72'
Θ = 43.75°
R: 1637.02'

Lot 35 / Lot 34

Barn
Silo
Trough
Barn
Shed
Round Cellar
1½ Sty. Frame Res.
Ch. Wall

Existing R/W

℄ Existing ℄

℄ Proposed R/W

Const. Limits

℄ Proposed ℄ S.R. 161 (1956 Survey)

Existing R/W

Co. Rd. No. 40

Existing R/W

Lot 36 / Lot 35

Henry A. & Da Lee W. Stair
(30 LA) Cont 7.60 Ac.±
P.R.O. 3.85 Ac.±

(30 Y) Cont 0.05 Ac.±

Licking Co. 4th ¼ T.2 R.14 St. Albans Twp. U.S.M.L.

G. Dewey Geiger & E. Esther Geiger
(31 LA) Cont 4.50 Ac.±
P.R.O. 2.13 Ac.±

(31 X) Cont 0.14 Ac.±

FED. RD. DIVISION	STATE	PROJECT		
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(233)
(238)

LIC.-161-5.12; LIC-37-15.09
R/W PLAN
LIMITED ACCESS

PC = 270+03.00
Δ = 20° 03' Lt
Δc = 17° 18'
Dc = 3° 30'
Ls = 2.50
Ts = 304.03
Es = 44.88
Lc = 494.28
Xc = 249.85
Lt = 166.72
Ø = .4375°
R = 1637.02
Yc = 6.36

Existing ℄
Proposed ℄ S.R. 161 (1956 Survey)
℄ Proposed R/W
℄ Existing R/W
Const. Limits
℄ Const. Limits
S 78° 37' E
S 18° 37' E
S 11° 45' 25" E
S 27° 95.25
1½ story Fr. Res.
Frame Res.
Chic. Hse.
Wall & Pump
Barn
Silo
Hog Hse.
Shed
Water Trough
Corn Crib
Tool Shed
Barn & Silo
Barn & Gar.
1½ story Frame Res.
Fr. Gar. Dwelling
Conc. Blk.
Lot 39
Lot 37
Lot 40

Wilkin T. Jones
(32 LA) Cont. 2.50 Ac.±
P.I.2.0. 1.14 Ac.±

Kenneth M. & Mary Lou Hankinson
(33 LA) Cont. 0.20 Ac.±
P.I.2.0. 0.10 Ac.±

Archie & Florella Hankinson
(34 LA) Cont. 4.40 Ac.±
P.I.2.0. 1.99 Ac.±

Talbott Loyd Van Ness & Marilyn June Van Ness
(35 LA) Cont. 4.69 Ac.±
P.I.2.0. 1.05 Ac.±
(35 X) Cont. 0.12 Ac.±

(34 X) Cont. 0.04 Ac.±
(34 Y) Cont. 0.04 Ac.±
(34 Z) Cont. 0.10 Ac.±
(34 V) Cont. 0.04 Ac.±

(36 LA) (36 X) Cont. 0.15 Ac.±

Licking Co. St. Albans Twp.
4th ¼ T. 2 R. 14 U.S.M.L.

Note:- Location Plan recorded in Vol. 6, Pg. 79 of Lic. Co. Plat Rec.


FED. RD. DIVISION | STATE | PROJECT
2 | OHIO
234
238
LIC.-161-5.12, LIC-37-15.09
R/W PLAN
LIMITED ACCESS
Licking Co. St Albans Twp.
4th. 1/4 T.2 R.14 U.S.M.L.
Licking Co. St. Albans Twp.
4th 1/4 T.2 R.13 U.S.M.L.
Paul S. & Gertrude C. Lyons
36 LA Cont 3.67 Ac.± P.R.O. 1.73 Ac.±
36 X Cont 0.15 Ac.±
Conc Blk. Barn
Conc Blk. Milk Hse.
Silo
Proposed R/W
Const. Limits
Existing R/W
Existing ℄
℄ Existing R/W
℄ Proposed ℄ S.R. 161 (1956 Survey)
S 78° 37' E
℄ Const. Limits
Proposed R/W
Lot 41
Lot 40
Talbott Loyd Van Ness & Marilyn June Van Ness
35 LA Cont 4.69 Ac.± P.R.O. 1.05 Ac.±
35 X Cont 0.12 Ac.±
Paul S. & Gertrude C. Lyons
36 LA Cont 3.67 Ac.± P.R.O. 1.73 Ac.±
Note:~ Location Plan recorded in Vol. 6, Pg. 79 & 80 of Lic. Co. Plat Rec.
Licking Co. Granville Twp.
3rd 1/4 T.2 R.13 U.S.M.L.
Granville Twp.
St. Albans Twp.
Oliver Franklin O'Bannon
Sarah Frances O'Bannon
37 LA Cont 3.17 Ac.± P.R.O. 1.21 Ac.±
Charles W. Montgomery, etal.
38 LA Cont 4.37 Ac.± P.R.O. 1.99 Ac.±
℄ Proposed ℄ S.R. 161 (1956 Survey)
Existing R/W
Existing ℄
℄ Existing R/W
℄ Const. Limits
℄ Proposed R/W
℄ Co. Rd.
2.5 Sty Frame House
Oliver Franklin O'Bannon
Sarah Frances O'Bannon
37 LA Cont 3.17 Ac.± P.R.O. 1.21 Ac.±
P.I. 328+70.96
Δ = 3°44'124
D: 0°30'
R: 11,459.16
T: 373.46
L: 746.67
E: 6.07

FED. RD. DIVISION 2
STATE OHIO
PROJECT
235
238
LIC.-161-5.12; LIC-37-15.09
R/W PLAN
LIMITED ACCESS
Charles W. Montgomery, etal.
38 LA Cont. 4.37 Ac.± P.R.O. 1.99 Ac.±
D. Earl Van Ness & Catherine L. Van Ness
39 Cont 1.68 Ac.± P.R.O. 1.30 Ac.±
Frame Barn
2 Story Stucco Res.
2 Story Frame
Tool Shed
Chinny Run
Proposed R/W
Existing R/W
Existing ℄
Const. Limits
℄ Proposed ℄ S.R. 161 (1956 Survey)
Pipe Line
S 74°53' E
END LIMITED ACCESS STA. 337+69
Licking Co. Granville Twp. 3rd 1/4 T.2 R.13 U.S.M.L.
39 Y Cont 0.01 Ac.±
39 X Cont 0.01 Ac.±
Lot 27
Lot 28
Lot 26
Lot 25
Lot 24
Note:~ Location Plan recorded in Vol. 6, Pg. 80 of Lic. Co. Plat Rec.
P.I. 356+70.79
Δ = 19°03' Lt.
D = 1°20'
R = 4297.18'
T = 721.02'
L = 1428.75'
E = 60.05'
39 SL Cont 0.08 Ac.±
Oil line Marker
R/W Mon.
Corn Crib & Barn
10' Gravel Dr.
2 Sty Frame Res.
Shed
Barn
D. Earl Van Ness & Catherine Van Ness
H. P. Montgomery, Estate Vol. 3 Page 504 Lic. Co. Easement Rec.
Cora B. & J.S. Everett Vol. 3 Page 499 Lic. Co. Easement Records.

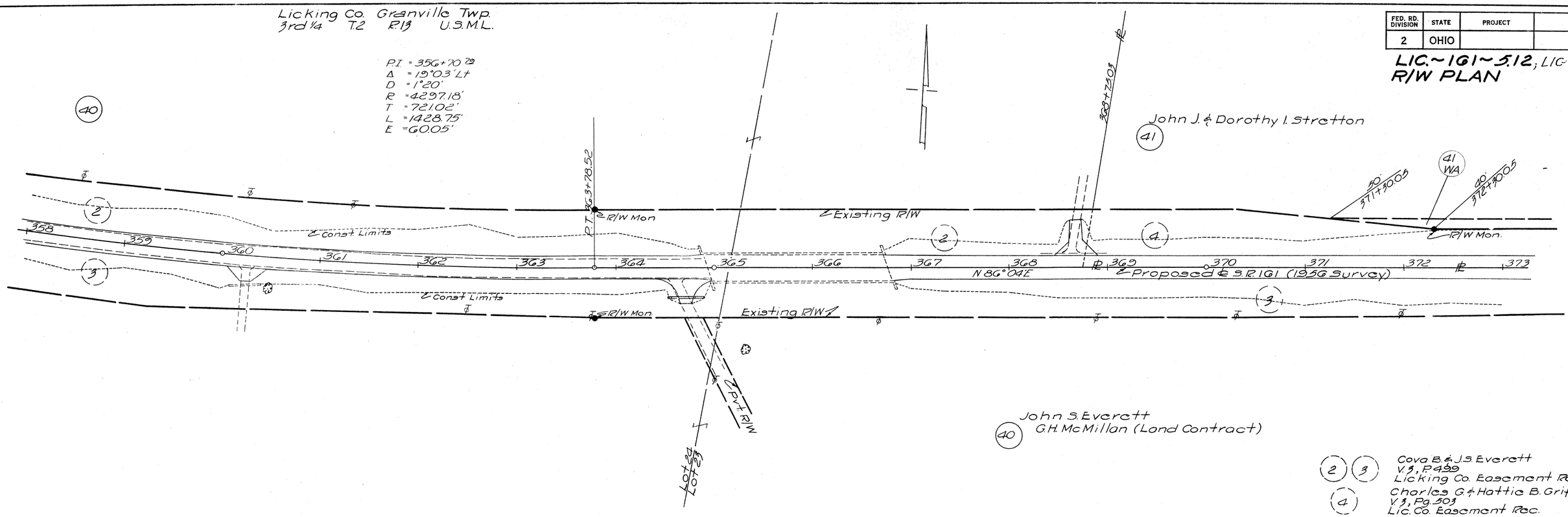
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

236
238

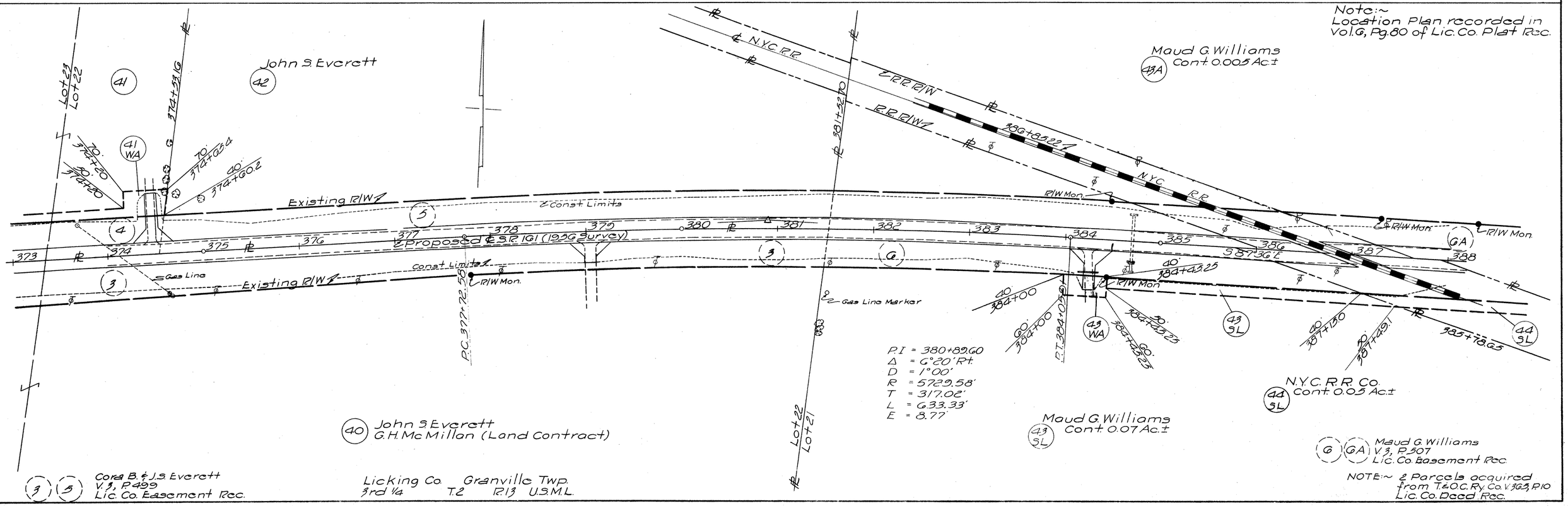
LIC.~161~5.12; LIC-37-15.09
R/W PLAN

Licking Co. Granville Twp.
3rd 1/4 T.2 R.13 U.S.M.L.

P.I = 356+70.72
Δ = 19°03' Lt
D = 1°20'
R = 4297.18'
T = 721.02'
L = 1428.75'
E = 60.05'



Note:~
Location Plan recorded in Vol.6, Pg.80 of Lic. Co. Plat Rec.



P.I = 380+89.60
Δ = 6°20' Rt.
D = 1°00'
R = 5729.58'
T = 317.02'
L = 633.33'
E = 8.77'

Licking Co. Granville Twp.
3rd 1/4 T.2 R.13 U.S.M.L.

NOTE:~ 2 Parcels acquired from T. & O.C. Ry. Co. V.363, P.10 Lic. Co. Deed Rec.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

237
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LIC.-161-5.12; LIC-37-15.09
LIC.-37-15.09
R/W PLAN

Wellington A. & Ruby V. McDaniel
(45) (43 A) Cont. 0.005 Ac.±

James W. & Anne M. Bone
(46B WA)

Julia A. Dunaway, et al.
(46 A) (46A SL) Cont. 0.03 Ac.±

Dwight & Ruth Sawyer
(47 SL) Cont. 0.06 Ac.±

Julia A. Dunaway, et al.
(46) (46 SL) Cont. 0.24 Ac.±
(46) (46 SL) Cont. 0.18 Ac.±

J. H. Snedeker
(48 SL) Cont. 0.26 Ac.±

Licking Co. Granville Twp.
3rd ¼ T2 R13 U.S.M.L.

Note:- Location Plan recorded in Vol. 6, Pg. 80 Lic. Co. Plat Rec.

THORNEWOOD ADDITION

John F. Montgomery
(49 SL) Cont. 0.24 Ac.±

Julius Romei
(50 SL) Cont. 0.33 Ac.±

James E. & Mary Ann Pleasants
(50)

Orrie K. & Beatrice Hanby
(51)

J. H. Snedeker
(52 SL) Cont. 0.07 Ac.±

Raymond W. Welsh
(53 SL) Cont. 0.02 Ac.±

J. H. Snedeker
(54 SL) Cont. 0.04 Ac.±

J. H. Snedeker
(55 SL) Cont. 0.27 Ac.±

J. H. SNEDEKER ADDITION NO. 3

Thornewood Drive

Existing R/W

Proposed ℄ S.R. 161 & 37 (1956 Survey)

℄ Const. Limits

℄ Proposed R/W

℄ N.Y.C. R.R. ℄ R.R. R/W

Conc. Mon.

Gas Line Marker

P.I. = 398+37.08
Δ = 5°30' Rt.
D = 2°00'
R = 2864.79'
T = 137.60'
L = 275.00'
E = 3.29'

P.I. 413+15.90
Δ = 2°30' Lt.
D = 0°42'
R = 8185.11'
T = 178.60'
L = 357.14'
E = 1.96'


FED. RD. DIVISION 2
STATE OHIO
PROJECT
238 / 238
LIC.-161-5.12 ; LIC-37-15.09
LIC.-37-15.09
R/W PLAN
END WORK STA. 432+36
END PROJ. STA. 431+00
P.I. = 430+45.83
Δ = 1°40' Lt.
D = 0°42'
R = 8185.11'
T = 119.09'
L = 238.09'
E = 0.90'
Denison University
Julius Romoi Cont. 0.33 Ac.±
James E. & Lois M. Patterson
Cephus L. & Florence A. Stephens
G. Alberta Ickes
Lot 17
Lot 16
William Lee Smith & Cornelia Spencer Smith
Hubert K. & Grace Foster
John H. & Lucille D. Chilcote
Hubert D. Robinson
Raymond K. Montgomery et al
Thelma B. Sheppard
1 Sty. Frame Res.
2 Sty. Frame Res.
1½ Sty. Frame Res.
Green House
Gravel Dr.
Cinder Dr.
Asphalt Dr.
Conc. Dr.
Const. Limits
Existing R/W
Proposed ℄ S.R. 161 & 37 (1956 Survey)
S 84°27' E
418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433
P.C. 429+26.74
P.T. 431+64.83
J.H. Snedeker Cont. 0.27 Ac.±
Myron & Alberta G. Ickes
Archie G. & Catherine L. Shafer
Licking Co. Granville Twp. 3rd ¼ T2 R13 U.S.M.L.
Conc. Mon.
Street
Maud A. Montgomery
Charles L. & Marjorie Louise Daniels
Oliver E. & Irene Strimple
Willard G. & Bernice C. James
Clyde E. & Mabel A. Abels
James W. Remmele
Nancy Eloise Lewis
Elvessie Thomas
Louise Williams Wright
H. Robinson
Shepardson St.
SHEPARDSON ADDITION
Granville Corp. Line
GRANVILLE
P.C. 432+08.04
Exist. R/W
Sec. 11
Lot 1
S.R. 310
Proposed R/W
Δ = 1°41' Lt.
Frame Barn
Corn Crib
Chic. Hse.
Conc. Blk. Gar.
Latrine
Well
Constr. Limits
Existing R/W
Proposed ℄ S.R. 161 ℄ (1956 Survey)
36+74.42
90°32' Tan. to Curve
Note:- Location Plan recorded in Vol. 6, Pg. 80 Lic. Co. Plat Rec.
RUN
SIMPSON
Const. Limits
P.C. 133+69.98
P.C. Sta. 140
Proposed ℄ S.R. 161 (1956 Survey)
S 73°03' E
132 133 134 135 136 137 138 139 140

SOIL PROFILE
LICKING COUNTY
LIC-161-5.12
LIC-37-15.09
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

1/7

NOTE: THE INFORMATION SHOWN BY THIS SOIL 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.

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS- 349 SAMPLES TESTED

DESCRIPTION	H.R.B. CLASS	OHIO CLASS	% AGG	% C SAND	% F SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	% MOIST. DENS.
GRAVEL	A-1-a(0)	A-1-a	67	16	6	6	5	22	2	9	93
GRAVEL WITH SAND	A-1-b(0)	A-1-b	49	24	14	13	8	23	2	11	93
GRAVEL WITH SAND AND SILT	A-2-4(0)	A-2-4	49	15	10	16	10	26	7	13	29
GRAVEL WITH SAND, SILT AND CLAY	A-2-6(1)	A-2-6	46	15	10	15	14	34	14	18	14
GRAVEL WITH SAND, SILT AND CLAY	A-2-7(2)	A-2-7	50	12	9	12	17	41	21	19	1
SANDY SILT	A-4(5)	A-4a	17	7	16	36	24	25	6	16	115
SILT	A-4(0)	A-4b	4	4	11	57	24	28	5	23	26
SILT AND CLAY	A-6(8)	A-6a	11	5	12	41	31	31	13	20	80
SILTY CLAY	A-6(10)	A-6b	13	4	12	37	34	37	18	21	25
ELASTIC CLAY WITH OR WITHOUT ORGANIC MATERIAL	A-7-5(17)	A-7-5	2	2	7	53	36	58	23	39	7
CLAY	A-7-6(17)	A-7-6	6	3	7	45	39	43	21	27	32
SHALE	(VISUAL CLASSIFICATION)										

TOPSOIL - TS=X= APPROXIMATE DEPTH

BERM MATERIAL

AUGER BORING - PLAN VIEW

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY

W FREE WATER

WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT

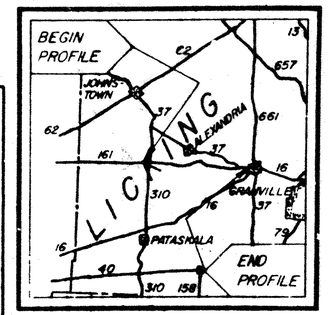
NOTE A: THIS A-4a SOIL WILL BE RUBBERY AND UNSTABLE AT WATER CONTENTS WHICH EXCEED THE OPTIMUM.

NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT

SAMPLES TESTED
LAB NOS SO 32400 THRU 32430; 32470, 32751 THRU 32878; 33091 THRU 33111; 33113 THRU 33165; 33167 THRU 33221; 33379 THRU 33438.

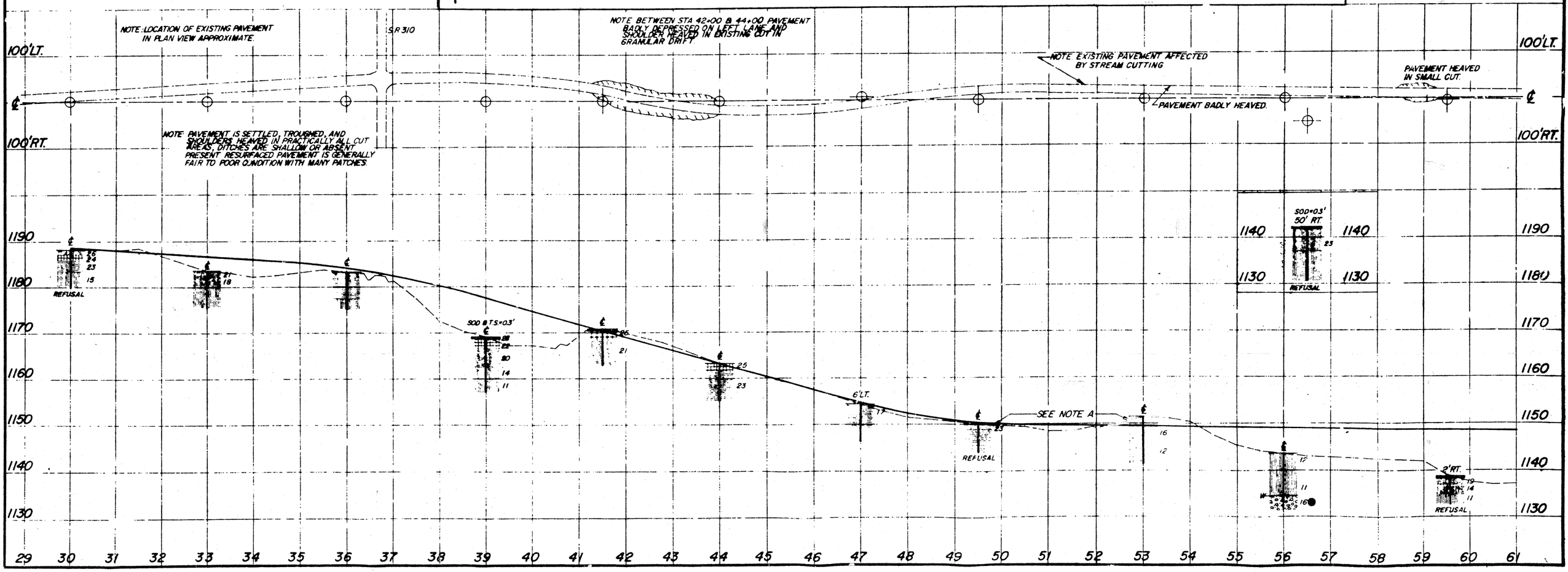
MOISTURE DENSITY SAMPLES TESTED
LAB. NOS SO 32470; 33379 & 33380.

SAMPLES CLASSIFIED VISUALLY
LAB. NOS SO 33112 & 33166.



LOCATION MAP

FIELD 6/29/55
DRAFTING 2/20/56



SOIL PROFILE
LICKING COUNTY
LIC-161-5.12
LIC-37-15.09
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O S U CAMPUS COLUMBUS OHIO

2/7

100'LT. ℄ 100'RT.

MAX 6' CUT
MAX 2' CUT
MAX 6' CUT PAVEMENT HEAVED
MAX 3' CUT
MAX 10' CUT (PAVEMENT HEAVED THROUGHOUT THIS CUT)
MAX 10' CUT
SMALL (0-1') CUT, PAVEMENT HEAVED
SHALLOW CUT
SMALL CUT
MAX 25' EMB.
MAX 4' CUT PAVEMENT HEAVED
TWP. RD. 42

B-1 B-2 B-3 B-4

8'RT 3
12'LT 14 13 12
2'LT REFUSAL 3
12'RT 24 22 12
12'RT 14 REFUSAL
10'RT 14 12 REFUSAL
6'LT 14 13 SEE NOTE A
3'LT 14 REFUSAL
3'RT 16 18 22 REFUSAL
5'RT 14 11
SEE NOTE A 10'RT 23 23 25 25
10'RT 16 12 11
SOD=0.2' 12'RT 22 REFUSAL
3'RT 17 17 11 REFUSAL
4'LT 21 11 9 SEE NOTE A
12'RT 16
11 REFUSAL
7'LT 19 21 REFUSAL
SOD=0.2' 9'LT 18 14
SOD=0.1' SEE NOTE A 18 15
SOD=0.1' 22
SOD=0.1' 22 22 52
SOD=0.2' 50'RT 22 12 REFUSAL
SOD=0.2'
SOD=0.1' 23 21 19 13 REFUSAL

LOG OF OFFSET BORING
B-1 Centerline TS =0.9'
1070 3/8/11 10/11/14 10/16/17 9 10 12
1060 30/28/31 31/20/25 10 10
50~4" 11
38/9/16 11
111 112 113

LOG OF OFFSET BORING
B-2 45' RT
1060 6/6/14 5/5/5 12 16
1050 5/4/5 2/2/4 17 19
12/17/24 11
5/7/9 12
112 113 114

LOG OF OFFSET BORING
B-3 30' RT TS =0.9'
1080 3/5/6 10/13/14 22/14/20 9 15 12
50~5" 11
1070 27/12/15 16/18/20 14 13

LOG OF OFFSET BORING
B-4 60' RT TS =0.5'
1040 6/8/9 13/14/20 40/16/10 10 11 12
6/7/8 23/9/11 12 11
1030 20/7/14 16
23/14/12 9
123 124

61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93
93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125
1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020

SOIL PROFILE

LICKING COUNTY
LIC-161-5.12
LIC-37-15.09
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
THE O.S.U. CAMPUS COLUMBUS OHIO

3/7

SHALY, FOSSILIFEROUS SANDSTONE AND SHALE IN CREEK BED 25-50' LEFT ELEV 1020 FT.

EXISTING FILL

SOD @ T.S. +0.2'
25' LT
REFUSAL
SEE NOTE A
12' LT
2' RT
SEE NOTE A
SCALPED SECTION STA. 134+75 TO 135+00
SOD @ T.S. +0.2'
SEE NOTE A
SOD @ T.S. +0.2'
SOD @ T.S. +0.2'
SEE NOTE A
SOD @ T.S. +0.2'
18' LT
3' LT
12' LT
3' RT
2' LT.

NOTE: STA. 126+50 TO STA. 130+00, SOILS BELOW GRADE IN THIS AREA ARE SANDY SILTS SIMILAR TO THOSE ENCOUNTERED IN THE BORINGS FROM STA. 137+00 TO STA. 143+00. BOTH AREAS ARE IN GLACIAL DRIFT.

STA 134+75 TO 135+00 - ℄
COMPOSITE SAMPLE (0-11.5')
MAX. DRY WT. 112.9 LB./CU. FT.
OPT. MOISTURE 13.5 %

100'LT. ℄ 100'RT.

1070 1060 1050 1040 1030 1020

125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157

PAVEMENT TROUGHED, SHOULDERS HEAVED

B-5

B-6

2' LT.
8' LT.
12' LT.
SOD=0.1' 10' LT
SEE NOTE A
B-5 30" RT
3/4/8
9/9/11
14/18/19
15' LT.
12' LT.
10' LT.
SEE NOTE A
4' RT.
15' RT.
2' LT.
SOD @ T.S.=0.2'
B-6 30" RT
2/3/4
4/5/9
5/6/10
5' LT.
REFUSAL
BROWN SILTY CLAY, LITTLE ASPHALT FRAGMENTS & CINDERS

PAVEMENT SURVEY
STA. 174+00

OFFSET	DESCRIPTION	DEPTH	CLASS	AGG.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.
6' LT.	BIT. PVT.	0.0-0.4'	-	-	-	-	-	-	-	-
		0.4-0.9'	A-1-a	55	27	10	4	4	N.P.	N.P.
		0.9-3.5'	A-6a	3	2	10	38	47	36	15
		3.5-8.0	A-6a	8	5	11	48	28	29	17
℄	BIT. PVT.	0.0-0.4'	-	-	-	-	-	-	-	-
		0.4-1.0'	A-1-a	68	22	9	4	3	N.P.	N.P.
		1.0-5.0'	A-6b	8	1	8	46	37	36	23
6' RT.	BIT. PVT.	0.0-.45'	-	-	-	-	-	-	-	-
		.45-1.8'	A-1-b	53	18	12	8	9	N.P.	N.P.
		1.8-3.0'	A-6a	1	5	8	44	42	33	21

SOIL PROFILE
LICKING COUNTY
LIC-161-5.12
LIC-37-15.09
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O.S.U. CAMPUS COLUMBUS OHIO
4
7
100'LT.
100'RT.
B-7
B-8
B-12
B-13
EMBANKMENT
LOG OF OFFSET BORING
B-7
25' RT
TS =1.1'
LOG OF OFFSET BORING
B-13
30' RT
TS =0.3'
B-8
65' RT
TS =2.4'
B-12
70' RT
TS =1.0'
SEE NOTE A
REFUSAL
ORGANIC
HOLE CAVED
CREEK
HIGH WATER-948.2 FT.
GRAVELLY AREA
1020
1010
1000
990
980
970
960
950
940
930
189
190
191
192
193
194
195
196
197
198
199
200
201
202
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253

SOIL PROFILE

LICKING COUNTY
LIC-161-5.12
LIC-37-15.09
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O S U CAMPUS COLUMBUS OHIO

5/7

100'LT. 100'RT.
1010
1000
990
980
970
960
253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285

5'CUT
20' EMB
20' RD @ 4%
B-14
15'CUT
12' RT
SOD @ T.S.=0.3'
20' LT
REFUSAL
SOD @ T.S.=0.2'
SOD @ T.S.=0.3'
REFUSAL
SOD @ T.S.=0.2'
EXISTING ROAD ON EMB VERY POOR
SHALLOW FILL EXISTING PAVEMENT POOR
20' LT
STA 281+00 - 286+00, SHALLOW CUT PAVEMENT POOR.
6' LT.
4' LT.
SEE NOTE A
7' RT.

LOG OF OFFSET BORING
B-14
80' RT
TS =0.3'
4/8/12 9
12/13/14 12
16/12/11 15 1000
7/6/7 13
4/4/6 12
4/4/8 13 990
9/20/50 11
253 254 255

MAX. 2'CUT
MAX. 6'CUT
MAX. 5'CUT
2'EMB
BOTTOM LAND
B-15
B-16
B-17
B-18

9' RT
SEE NOTE A
10' LT
5' RT
SEE NOTE A
5' LT.
10' LT.
SOD @ 0.2'
9' LT.
SCALPED SECTION STA 306+00-℄
9' LT
SEE NOTE A
A-2-7
4' LT.
REFUSAL
5' RT
SEE NOTE A
SOD @ T.S.=0.2'
REFUSAL
SOD @ T.S.=0.3'
SOD @ T.S.=0.3'

LOG OF OFFSET BORING
B-17
100' RT
TS =1.8'
960 3/4/10 20
13/16/22 10
5/11/21 11
5/7/5 6
950 8/8/6 7
6/7/8 13
940 7/6/6 11
2/5/7 13
930 3/6/10 12
13/16/17 11
305 306

LOG OF OFFSET BORING
B-15
100' RT
TS =0.8'
960 4/5/11 14
7/11/23
9/13/17 13
8/10/11 10
950 4/4/5 23
5/3/4 26
940 10/6/9 21
4/6/9 24

LOG OF OFFSET BORING
B-16
100' RT
TS =0.7'
960 5/3/3 25
12/13/18 10
11/13/18 8
950 8/8/6 6
5/5/7 13 W
940 7/6/5
5/6/10 11
930 6/7/11 11

STA 306+00-℄
COMPOSITE SAMPLE (00-6.1 FT.)
MAX. DRY WT. -105.6 LB./CU. FT.
OPTIMUM MOISTURE - 18.7 %

LOG OF OFFSET BORING
B-18
100' RT
TS =0.9'
950 3/5/7 21
6/11/17 11
940 10/14/18 11
9/10/8 5
15/8/10 10
930 10/14/14 8
12/11/10 9
50~0" 7

285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317

SOIL PROFILE

LICKING COUNTY
LIC-161-5.12
LIC-37-15.09
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O S U CAMPUS COLUMBUS OHIO

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NOTE: EXISTING PAVEMENT LIES ON A 0-8' EMB. ALONG UPLAND TO STA 352+00 WITH EMB. ON LT. AND FROM 352+00 IT EXTENDS ON EMB. ACROSS VALLEY. PAVEMENT IN FAIR CONDITION.

NOTE: STA 322+00 TO STA 328+00, THIS AREA IS MORAINE AND THE SOILS BELOW GRADE ARE SIMILAR TO THOSE ENCOUNTERED IN THE BORINGS BETWEEN STA 324+00 AND STA 328+00

NOTE: FROM STA 365+00 TO STA 427+00 EXISTING GROUND LINE ELEVATIONS NOT AVAILABLE AT TIME PROFILE WAS PREPARED. AUGER BORINGS ARE SHOWN AS LOGS ONLY. NO DIFFERENCES IN ELEVATION BETWEEN BORING ARE INDICATED ON THIS PROFILE.

SOIL PROFILE

LICKING COUNTY
LIC-161-5.12
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STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O.S.U. CAMPUS COLUMBUS, OHIO

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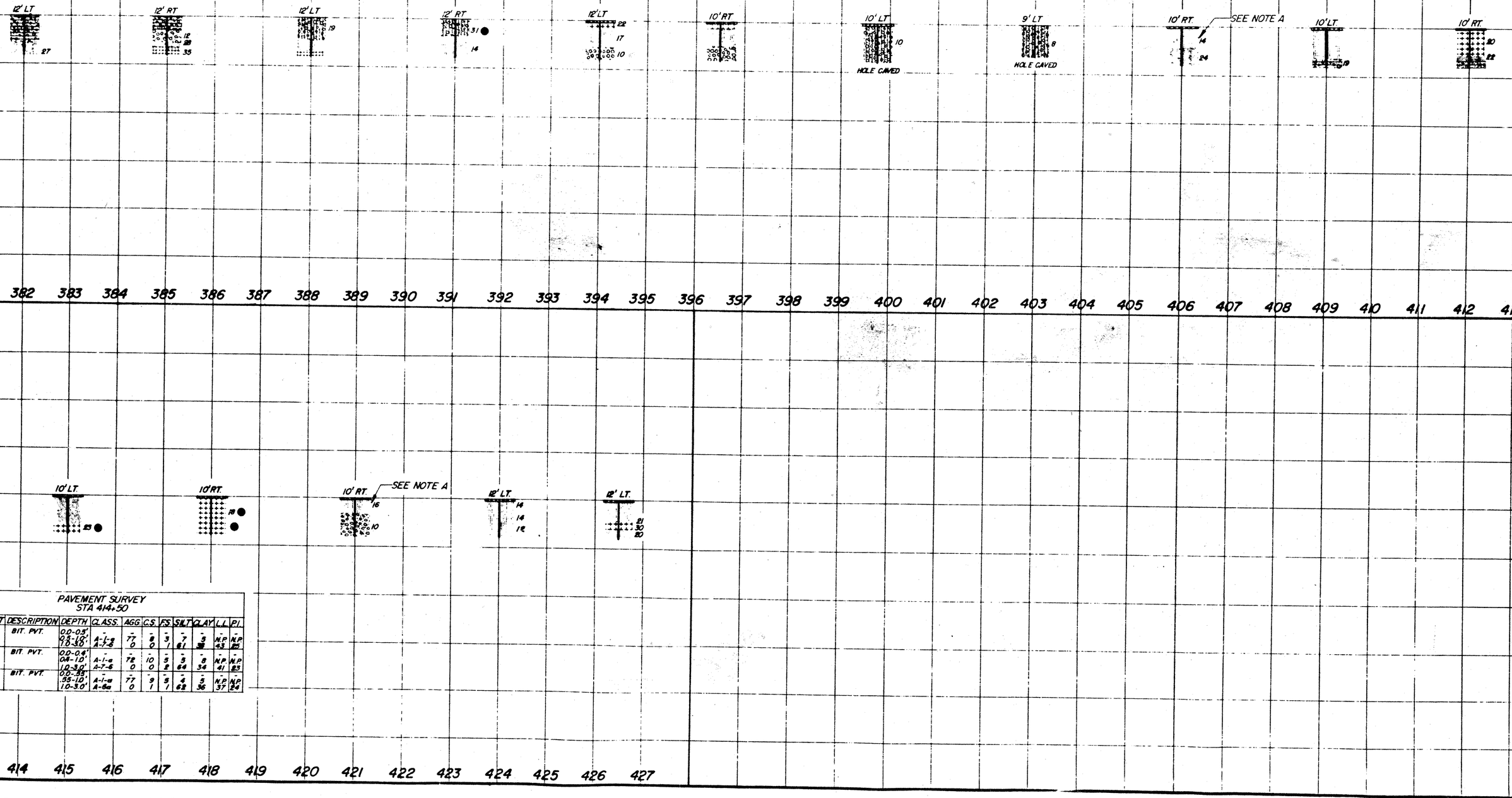

PAVEMENT SURVEY
STA 414+50

OFFSET	DESCRIPTION	DEPTH	CLASS.	AGG	C.S.	F.S.	SILT	CLAY	L.L.	P.I.
8' LT.	BIT. PVT.	0.0-0.5'	-	-	-	-	-	-	-	-
		0.5-1.6'	A-1-a	77	8	3	7	3	N.P.	N.P.
		1.6-3.0'	A-2-5	0	0	1	61	38	43	25
℄	BIT. PVT.	0.0-0.4'	-	-	-	-	-	-	-	-
		0.4-1.0'	A-1-a	72	10	5	3	8	N.P.	N.P.
		1.0-3.0'	A-7-6	0	0	2	64	34	41	23
8' RT.	BIT. PVT.	0.0-0.5'	-	-	-	-	-	-	-	-
		0.5-1.0'	A-1-a	77	9	5	4	5	N.P.	N.P.
		1.0-3.0'	A-6a	0	1	1	62	36	37	24

SUMMARY OF SOIL TEST DATA

NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC.

LIC-161-5.12

STATION & OFFSET	FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	LL	PI	W.C.	SHTL CLASS
112+50, ℄ B-1	0.0 – 1.5	TOPSOIL							9	VISUAL
	1.5 – 3.0	17	9	14	26	34	27	13	10	A-6a
	3.0 – 4.5	30	8	10	-52-				12	VISUAL
	6.0 – 7.5	BROWN SILTY CLAY, SOME SAND, LITTLE GRAVEL, TRACE ROOT HAIRS							10	VISUAL
	8.5 – 10.0	MOTTLED GRAY AND BROWN SILTY CLAY, LITTLE SAND, SOME GRAVEL							10	VISUAL
	13.5 – 13.83	GRAY SILTY CLAY, SOME SAND AND GRAVEL							11	VISUAL
	18.5 – 20.0	SAME AS 13.5 – 13.83							11	VISUAL
113+00, 45' RT. B-2	1.0 – 2.5	10	7	18	29	36	27	9	12	A-4a
	3.5 – 5.0	12	7	14	30	37	32	19	16	A-6b
	6.0 – 7.5	MOTTLED GRAY & BROWN SILTY CLAY, SOME SAND, LITTLE GRAVEL, TRACE ORGANICS							17	VISUAL
	8.5 – 10.0	GRAY SILTY CLAY, SOME SAND AND GRAVEL, TRACE SHALE FRAGMENTS, TRACE ORGANICS							19	VISUAL
	13.5 – 15.0	BROWNISH GRAY SILTY CLAY, SAND AND GRAVEL, TRACE SHALE FRAG.							11	VISUAL
	18.5 – 20.0	SAME AS 13.5 – 15.0							12	VISUAL
120+00, 30' RT. B-3	0.0 – 1.5	TOPSOIL							9	VISUAL
	1.5 – 3.0	4	4	13	-79-				15	VISUAL
	3.0 – 4.5	BROWN SILTY CLAY, SOME SAND, TRACE GRAVEL							12	VISUAL
	6.0 – 6.42	SAME AS 3.0 – 4.5							11	VISUAL
	8.5 – 10.0	6	8	16	30	40	28	15	14	A-6a
	10.5 – 12.0	SAME AS 3.0 – 4.5							13	VISUAL
124+00, 60' RT. B-4	0.0 – 1.5	BROWN CLAYEY SILT, SOME SAND AND GRAVEL, TRACE ROOT HAIRS							10	VISUAL
	1.5 – 3.0	SAME AS 0.0 – 1.5							11	VISUAL
	3.0 – 4.5	18	7	14	28	33	28	12	12	A-6a
	6.0 – 7.5	DARK BROWN SILTY CLAY, SOME SAND, LITTLE GRAVEL (SAME AS 3.0 – 4.5)							12	VISUAL
	8.5 – 10.0	MOTTLED GRAY AND BROWN SILTY CLAY, SOME SAND, LITTLE GRAVEL							11	VISUAL
	13.5 – 15.0	SAME AS 8.5 – 10.0							16	VISUAL
	18.5 – 20.0	BROWN SILTY SAND, SOME ROCK FRAGMENTS							9	VISUAL
164+00, 30' RT B-5	0.0 – 1.5	TOPSOIL							8	VISUAL
	1.5 – 3.0	6	2	11	26	55	42	24	17	A-7-6
	3.5 – 5.0	BROWN CLAY, SOME SILT, LITTLE SAND, TRACE GRAVEL (SAME AS 1.5-3)							15	VISUAL
186+00, 30' RT B-6	0.0 – 1.5	TOPSOIL							13	VISUAL
	1.5 – 3.0	BROWN SILTY CLAY, LITTLE SAND, GRAVEL, ASPHALT FRAGMENTS & CINDERS (FILL)							16	VISUAL
	3.5 – 5.0	8	4	18	30	40	34	17	16	A-6b
189+10, 25' RT B-7	0.0 – 1.5	TOPSOIL							14	VISUAL
	1.5 – 3.0	BROWN SILTY CLAY, TRACE SAND AND GRAVEL, TRACE ROOT HAIRS							23	VISUAL
	3.0 – 4.5	SAME AS 1.5 – 3.0							16	VISUAL
	6.0 – 7.5	10	9	17	29	35	24	9	15	A-4a
	8.5 – 10.0	MOTTLED GRAY & BROWN SILT CLAY, SOME SAND, LITTLE GRAVEL (SAME AS 6.0 – 7.5)							14	VISUAL
	10.5 – 12.0	SAME AS 8.5 – 10.0							13	VISUAL
195+50, 65' RT B-8	1.0 – 2.5	TOPSOIL							18	VISUAL
	3.5 – 5.0	17	10	16	26	31	26	13	11	A-6a
	6.0 – 7.5	BROWNISH GRAY SILTY CLAY, SOME SAND, LITTLE GRAVEL (SAME AS 3.5 – 5.0)							11	VISUAL
	8.5 – 10.0	GRAY SAND AND GRAVEL, SOME SILTY GLAY							10	VISUAL
	13.5 – 15.0	GRAY SILTY CLAY AND SAND AND GRAVEL							12	VISUAL
	18.5 – 20.0	SAME AS 13.5 – 15.0							11	VISUAL
199+90, 70' RT B-12	1.0 – 2.5	BROWN SILT AND SAND, TRACE CLAY, TRACE GRAVEL							12	VISUAL
	3.5 – 5.0	18	11	12	29	30	24	8	11	A-4a
	6.0 – 7.5	GRAY SILTY CLAY, SOME SAND, LITTLE GRAVEL (SAME AS 3.5 – 5.0)							10	VISUAL
	8.5 – 10.0	SAME AS 6.0 – 7.5							11	VISUAL
	13.5 – 15.0	SAME AS 6.0 – 7.5							11	VISUAL
	18.5 – 20.0	SAME AS 6.0 – 7.5							11	VISUAL
210+05, 30' RT B-13	0.0 – 1.5	BROWN CLAYEY SILT AND SAND AND GRAVEL							8	VISUAL
	1.5 – 3.0	0	2	4	38	56	51	22	25	A-7-6
	3.0 – 4.5	DARK GRAY SILTY CLAY, TRACE SAND							33	VISUAL
	6.0 – 7.5	SAME AS 3.0 – 4.5							48	VISUAL
	8.5 – 10.0	GRAY CLAYEY SILT, TRACE SAND							24	VISUAL
254+11, 80' RT B-14	0.0 – 1.5	BROWN CLAYEY SILT, SOME SAND, LITTLE GRAVEL							9	VISUAL
	1.5 – 3.0	SAME AS 0.0 – 1.5							12	VISUAL
	3.0 – 4.5	4	5	14	40	37	24	8	15	A-4a
	6.0 – 7.5	3	40	33	-24-				13	VISUAL
	8.5 – 10.0	BROWN SAND, SOME CLAYEY SILT, TRACE GRAVEL (SAME AS 6.0 – 7.5)							12	VISUAL
	13.5 – 15.0	GRAY SILTY CLAY, LITTLE SAND AND GRAVEL							13	VISUAL
	18.5 – 20.0	BROWN SILTY CLAY, SOME SAND AND GRAVEL (SILTSTONE FRAGMENTS)							11	VISUAL
298+50, 100' RT B-15	1.0 – 2.5	MOTTLED GRAY & BROWN SILTY CLAY, SOME SAND, TRACE GRAVEL, TRACE ROOT HAIRS							14	VISUAL
	3.5 – 5.0	8	7	15	30	40	27	13	12	A-6a
	6.0 – 7.5	MOTTLED GRAY & BROWN SILTY CLAY, SOME SAND, TRACE GRAVEL (SAME AS 3.5 – 5.0)							13	VISUAL
	8.5 – 10.0	SAME AS 6.0 – 7.5							10	VISUAL
	13.5 – 15.0	BROWN SAND AND GRAVEL, TRACE SILT							23	VISUAL
	18.5 – 20.0	0	3	72	-25-				26	VISUAL
	23.5 – 25.0	GRAY SANDY SILT, TRACE CLAY							21	VISUAL
	28.5 – 30.0	SAND, SOME SILT							24	VISUAL

STATION & OFFSET	FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	LL	PI	W.C.	SHTL CLASS
303+00, 100' RT B-16	1.0 – 2.5	BROWN SILTY CLAY, SOME SAND,TRACE GRAVEL, TRACE ROOT STRUCTURE							25	VISUAL
	3.5 – 5.0	7	6	15	34	38	26	12	10	A-6a
	6.0 – 7.5	BROWN SILTY CLAY, SOME SAND, TRACE GRAVEL (SAME AS 3.5 – 5.0)							8	VISUAL
	8.5 – 10.0	BROWN GRAVEL, STONE FRAGMENTS, AND SAND, TRACE SILT							6	VISUAL
	13.5 – 15.0	BROWN SILTY CLAY AND SAND AND GRAVEL							13	VISUAL
	18.5 – 20.0	BROWNISH GRAY SAND AND GRAVEL, SOME SILTY CLAY								VISUAL
	23.5 – 25.0	GRAY SILTY CLAY AND SAND AND GRAVEL							11	VISUAL
	28.5 – 30.0	GRAY SILTY CLAY, SOME SAND AND GRAVEL							11	VISUAL
306+00, 100' RT B-17	1.0 – 2.5	BROWN SILTY CLAY, TRACE SAND, TRACE ROOT STRUCTURES							20	VISUAL
	3.5 – 5.0	11	6	14	31	38	27	13	10	A-6a
	6.0 – 7.5	BROWN SILTY CLAY AND SAND AND GRAVEL							11	VISUAL
	8.5 – 10.0	47	14	16	-23-				6	A-1-b
	13.5 – 15.0	GRAVEL, SOME SAND, SOME CLAYEY SILT (SAME AS 8.5 – 10.0)							7	VISUAL
	18.5 – 20.0	BROWN CLAYEY SILT AND SAND AND GRAVEL							13	VISUAL
	23.5 – 25.0	SAME AS 18.5 – 20.0							11	VISUAL
	28.5 – 30.0	12	10	18	29	31	22	5	13	A-4a
	33.5 – 35.0	GRAY SILTY CLAY, SOME SAND, LITTLE GRAVEL, TRACE SILTSTONE FRAG.							12	VISUAL
	38.5 – 40.0	SAME AS 33.5 – 35.0							11	VISUAL
310+60, 100' RT B-18	1.0 – 2.5	4	4	13	29	50	37	17	21	A-6b
	3.5 – 5.0	BROWN SILTY CLAY, LITTLE SAND, TRACE GRAVEL							11	VISUAL
	6.0 – 7.5	SAME AS 3.5 – 5.0							11	VISUAL
	8.5 – 10.0	41	34	14	-11-				5	A-1-b
	13.5 – 15.0	18	12	18	28	24	20	9	10	A-4a
	18.5 – 20.0	56	16	10	-18-				8	A-1-b
	23.5 – 25.0	BROWN GRAVEL, SOME SAND, LITTLE SILT (SAME AS 18.5 – 20.0)							9	VISUAL
	28.5 – 30.0	SAME AS 23.5 – 25.0							7	VISUAL
17+00, 40' LT B-9	0.0 – 1.5	TOPSOIL							12	VISUAL
	1.5 – 3.0	TOPSOIL							7	VISUAL
	3.0 – 4.5	0	1	6	53	40	31	11	23	A-6a
	6.0 – 7.5	0	4	51	-45-				22	VISUAL
	8.5 – 10.0	0	2	42	32	24	NP	NP	24	A-4a
	13.5 – 15.0	10	45	24	-21-				26	A-1-b
	18.5 – 20.0	GRAY SAND, SOME SILTY CLAY, LITTLE GRAVEL (SAME AS 13.5 – 15.0)							32	VISUAL
	23.5 – 25.0	0	1	1	60	38	31	12	32	A-6a
	28.5 – 30.0	GRAY ORGANIC CLAYEY SILT, TRACE GRAVEL (SAME AS 23.5 – 25.0)							27	VISUAL
21+00, 60' LT B-19	0.0 – 1.5	TOPSOIL							11	VISUAL
	1.5 – 3.0	44	12	9	18	17	24	9	8	A-2-4
	3.0 – 4.5	BROWN GRAVEL AND CLAYEY SILT, SOME SAND (SAME AS 1.5 – 3.0)							12	VISUAL
	6.0 – 7.5	DARK GRAY SANDY SILT, LITTLE CLAY							17	VISUAL
	8.5 – 10.0	1	5	45	-49-				21	VISUAL
	13.5 – 15.0	DARK GRAY ORGANIC SAND, SOME GRAVEL, LITTLE CLAYEY SILT							23	VISUAL
	18.5 – 20.0	SAME AS 13.5 – 15.0							21	VISUAL
	23.5 – 25.0	0	1	2	63	34	29	9	25	A-4b
	28.5 – 30.0	GRAY ORGANIC SILT, SOME CLAY, TRACE SAND (SAME AS 23.5 – 25.0)							25	VISUAL
29+50, 40' LT B-10	0.0 – 1.5	TOPSOIL							13	VISUAL
	1.5 – 3.0	16	8	12	32	32	30	14	13	A-6a
	3.0 – 4.5	BROWN SILT & CLAY, SOME SAND, LITTLE GRAVEL (SAME AS 1.5 – 3.0)							13	VISUAL
	6.0 – 7.5	SAME AS 3.0 – 4.5							13	VISUAL
	8.5 – 10.0	31	15	14	-40-				13	VISUAL
	13.5 – 15.0	64	24	6	-6-				14	A-1-a
	18.5 – 20.0	0	0	14	59	27	NP	NP	21	A-4b
	23.5 – 25.0	GRAY CLAYEY SILT, LITTLE SAND (SAME AS 18.5 – 20.0)							18	VISUAL
	28.5 – 30.0	SAME AS 23.5 – 25.0							25	VISUAL
35+00, 50' LT B-20	0.0 – 1.5	TOPSOIL							11	VISUAL
	1.5 – 3.0	12	7	12	37	32	31	13	17	A-6a
	3.0 – 4.5	BROWN CLAYEY SILT, LITTLE SAND, LITTLE GRAVEL (SAME AS 1.5 – 3.0)							15	VISUAL
	6.0 – 7.5	0	0	11	-89-				27	VISUAL
	8.5 – 10.0	GRAY SILTY CLAY, LITTLE SAND (SAME AS 6.0 – 7.5)							27	VISUAL
	13.5 – 15.0	SAND AND GRAVEL, LITTLE SILTY CLAY							26	VISUAL
	18.5 – 20.0	GRAY ORGANIC CLAYEY SILT, TRACE SAND							27	VISUAL
	23.5 – 25.0	BROWN SAND AND GRAVEL, LITTLE SILTY CLAY							17	VISUAL
	28.5 – 28.92	SAME AS 23.5 – 25.0								VISUAL
43+00, 60' LT B-11	0.0 – 1.5	TOPSOIL								VISUAL
	1.5 – 3.0	7	9	37	-47-				12	VISUAL
	3.0 – 4.5	DARK GRAY CLAYEY SILT & SAND, TRACE GRAVEL (SAME AS 1.5 – 3.0)								VISUAL
	6.0 – 6.42	DARK GRAY ORGANIC CLAYEY SAND WITH LARGE WOOD OBSTRUCTION								VISUAL
	8.5 – 10.0	DARK GRAY ORGANIC CLAYEY SAND, SOME SILT, SOME GRAVEL								VISUAL
	13.5 – 15.0	SAME AS 8.5 – 10.0								VISUAL
	18.5 – 20.0	11	40	11	-38-				23	VISUAL
	23.5 – 25.0	GRAY CLAYEY SILT (SAME AS 28.5 – 30.0)								VISUAL
	28.5 – 30.0	0	0	0	61	39	31	9	22	A-4b
47+00, 40' LT B-21	0.0 – 1.5	BROWN CLAYEY SILT, SOME ROOT HAIRS, TRACE GRAVEL (TOPSOIL)							22	VISUAL
	1.5 – 3.0	SAME AS 0.0 – 1.5							19	VISUAL
	3.0 – 4.5	0	1	6	57	36	33	16	23	A-6b
	6.0 – 7.5	0	0	1	61	38	38	14	34	A-6a
	8.5 – 10.0	GRAY SAND, SOME SILTY CLAY, LITTLE GRAVEL							36	VISUAL
	13.5 – 15.0	SAME AS 8.5 – 10.0							26	VISUAL
	18.5 – 20.0	0	1	14	61	24			24	VISUAL
	23.5 – 25.0	SAND AND GRAVEL, TRACE SILT							17	VISUAL
	28.5 – 30.0	SAME AS 23.5 – 25.0							15	VISUAL

RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
WESTERVILLE, OHIO 43081
(614) 885-1959

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DATE: 12/30/93 | DRAWN: JCR | CHECKED: DLK