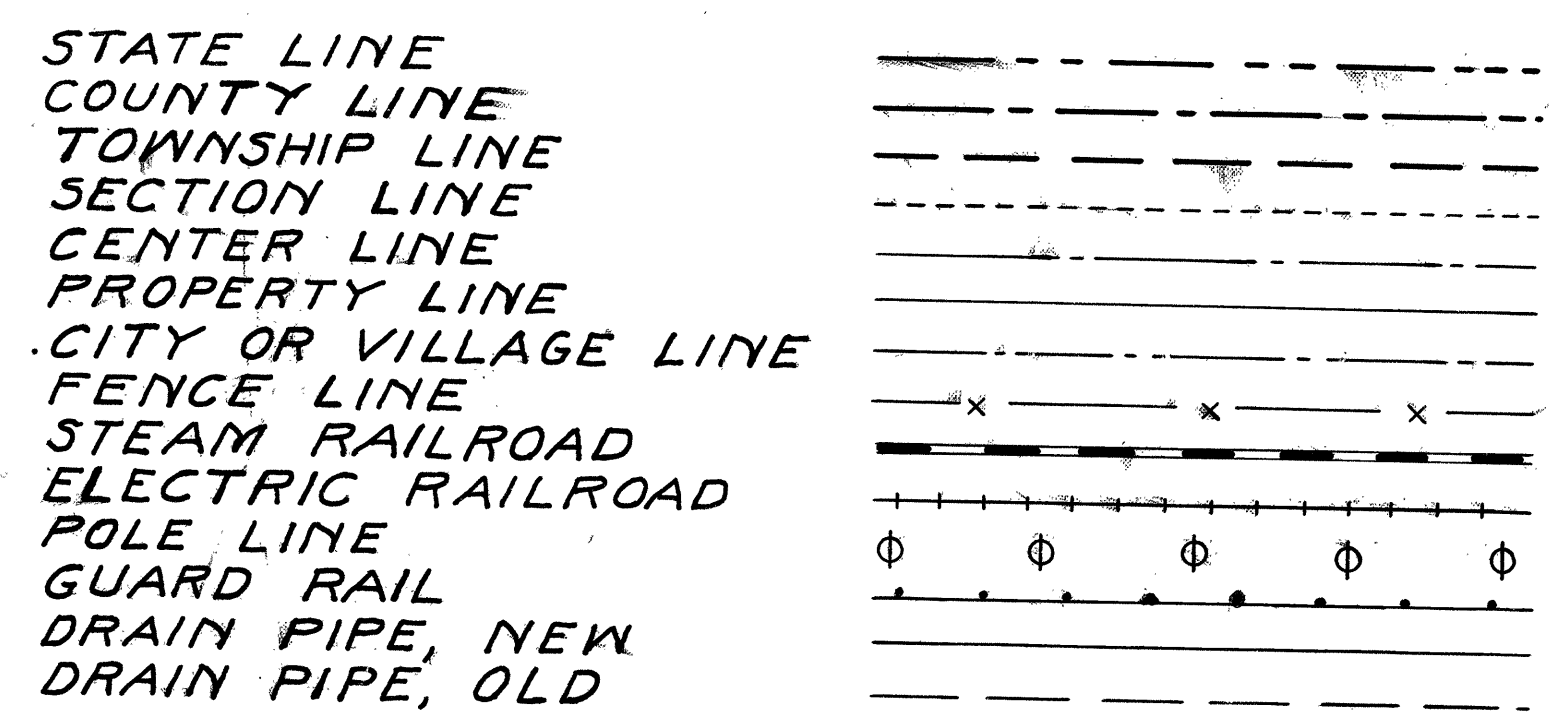


STATE OF OHIO
DEPARTMENT OF HIGHWAYS
HICKSVILLE - DEFIANCE ROAD
S.H. 420 SECTION "E"
DEFIANCE COUNTY
NOBLE TOWNSHIP
NET LENGTH OF PROJECT 16892 LIN. FT. OR 3.199 MI.

CONVENTIONAL SIGNS



INDEX OF SHEETS

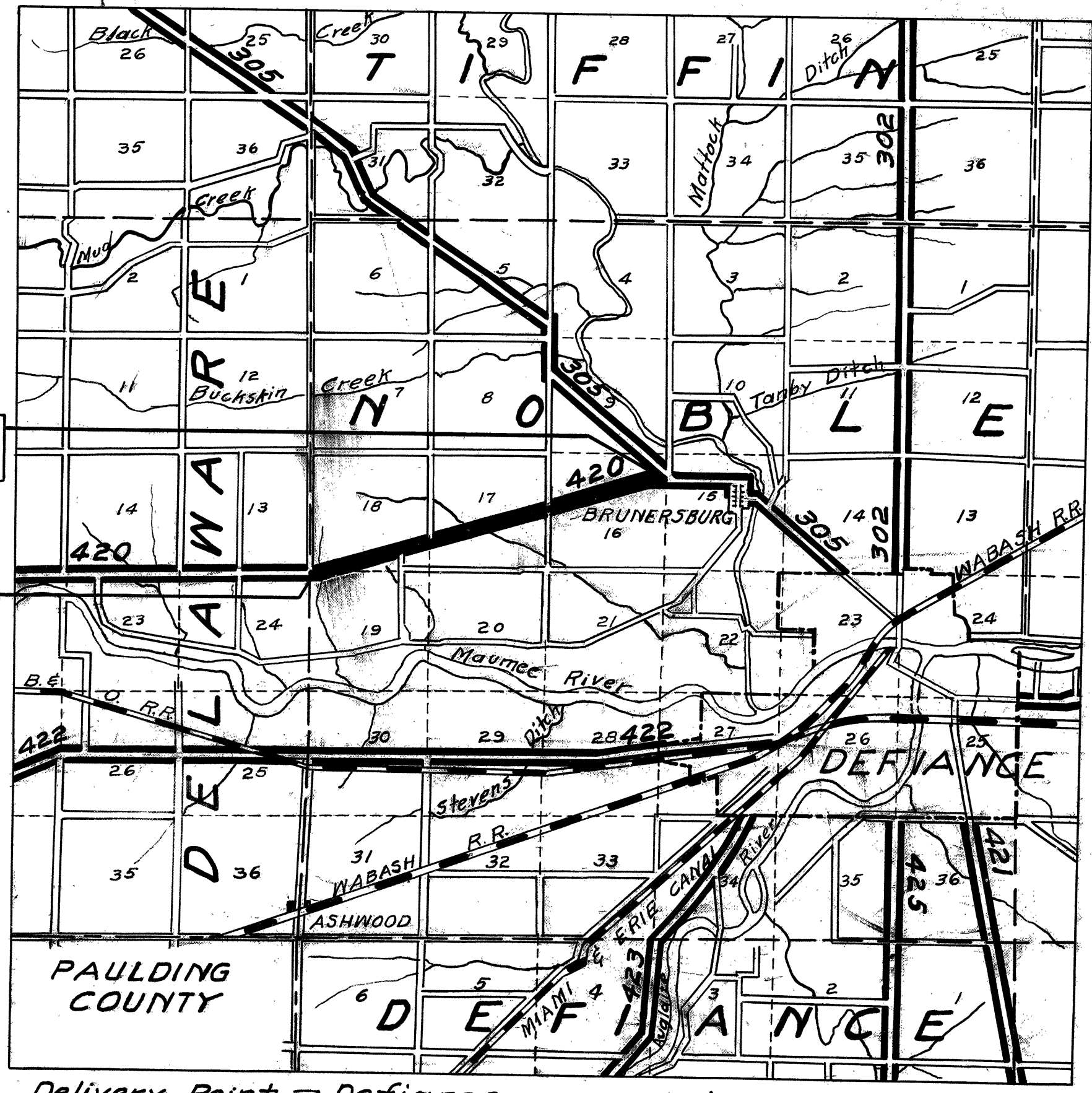
TITLE SHEET	1
TYPICAL SECTION	2
PLAN AND PROFILE	3-8
CROSS SECTIONS	9-20
SUPERELEVATION TABLES	21
PAVEMENT COMPUTATIONS	21
SUMMARY OF QUANTITIES	21

LINE DATA

Beginning of Project Sta. 0+00
End of Project Sta. 168+92
Net Length = Gross Length of Project 16892 Lin. Ft.
or 3.199 Miles.

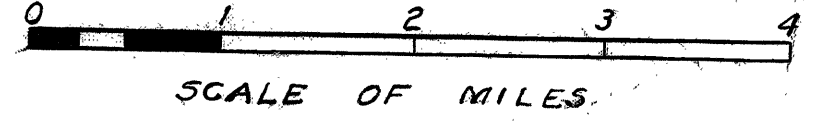
SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE
E-305 Revised	5-1-41
164 Adopted	3-24-41



Delivery Point - Defiance Average Haul = 35 Mi.

LOCATION PLAN



PORTION TO BE IMPROVED
DETOURS SHOWN THUS
STATE HIGHWAYS
OTHER HIGHWAYS

SCALES

PLAN 1" = 100'
PROFILE - VERTICAL 1" = 10'
PROFILE - HORIZONTAL 1" = 100'
CROSS SECTIONS 1" = 5'

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

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and provisions for the maintenance and safety of traffic 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 A. C. Zolli
Date 7-24-41 Division Deputy Director

Approved _____
Date _____ Chief Engineer, Bureau of Maintenance

Approved _____
Date _____ Chief Engineer, Bureau of Bridges & R.R. Crossings

Approved Murray D. Shuff
Date 8-11-41 Chief Engineer, Location & Right of Way

Approved _____
Date 8-11-41 First Asst. Director & Chief Engineer

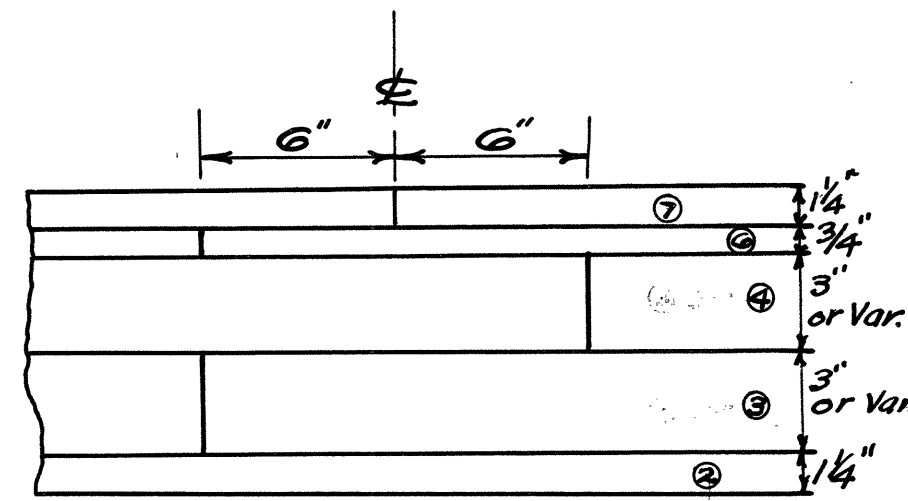
Approved J. B. Sims
Date 8-11-41 Director of Highways

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

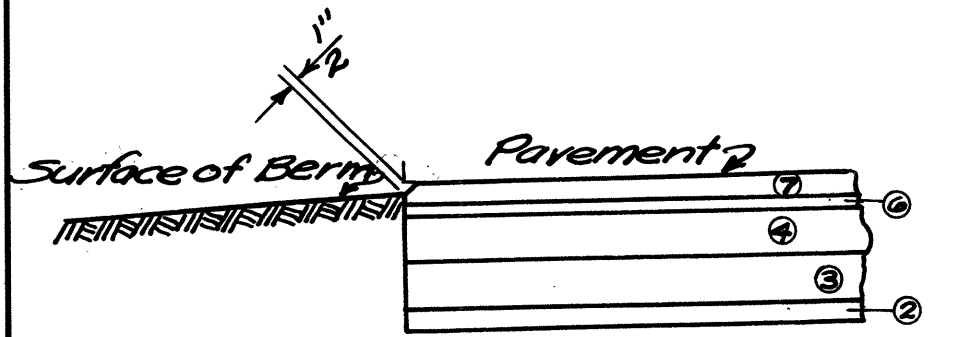
DRAWING	DATE	DRAWING	DATE
S-27 PC 3	3-1-39		
G-7.07	10-33		
E-5 No. 1	7-1-40		

FILE DEFIANCE - S.H. 420 SECTION E.
NO. DATE OF LETTING
CONTRACT NO.

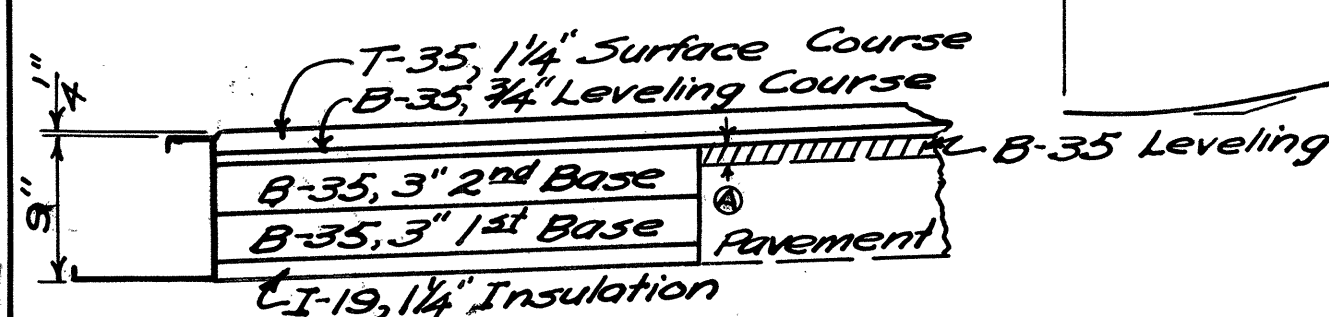
TYPICAL SECTIONS TYPE T-35 SCALE: 1"=2'



Details of Forming Offset Center Joint
Scale: 2"=1'

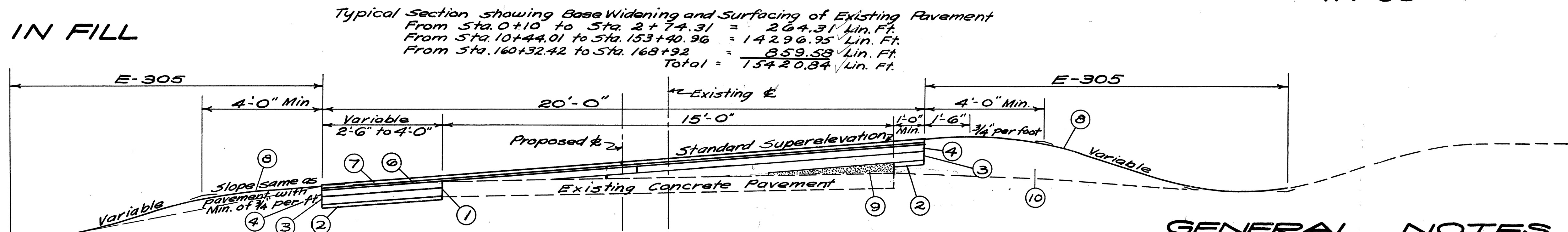
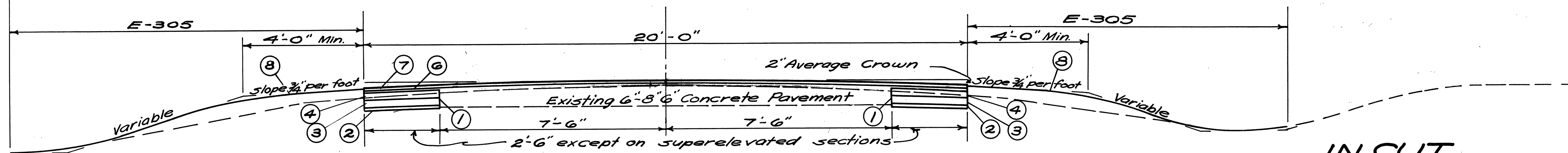


Detail Showing berm treatment at edge of pavement metal except on upper side of super-elevated curves.
Scale: 1"=1'



FORM & COURSE DETAIL

Variable depth not to be less than 1/4". Where the dimension @ exceeds 1" the shaded portion of the leveling course shall be spread and compacted in a separate operation. The forms shall be braced in a manner to prevent lateral and vertical movement.



Typical Section showing application of widening and Surfacing to curved sections of Existing Pavement.
From Sta. 2+74.31 to Sta. 10+44.01 = 769.70 Lin. Ft.
From Sta. 153+40.96 to Sta. 160+32.42 = 691.46 Lin. Ft.
Total = 1461.16 Lin. Ft.

GENERAL NOTES

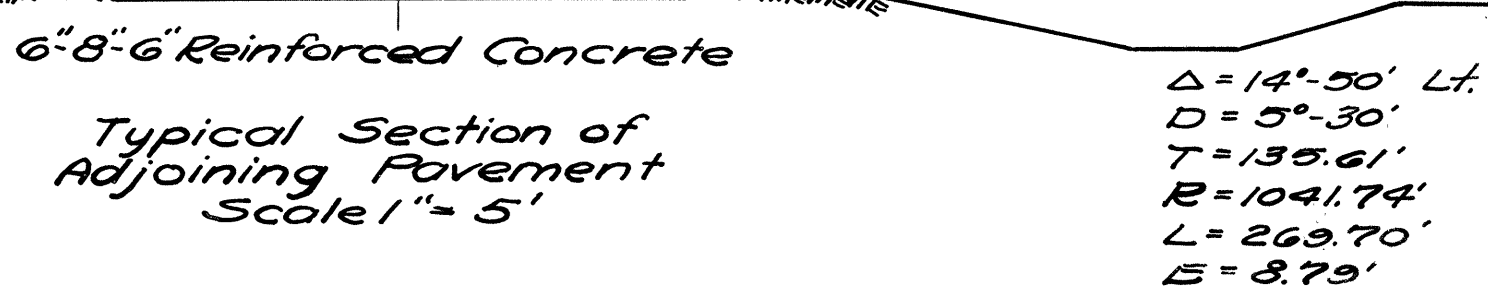
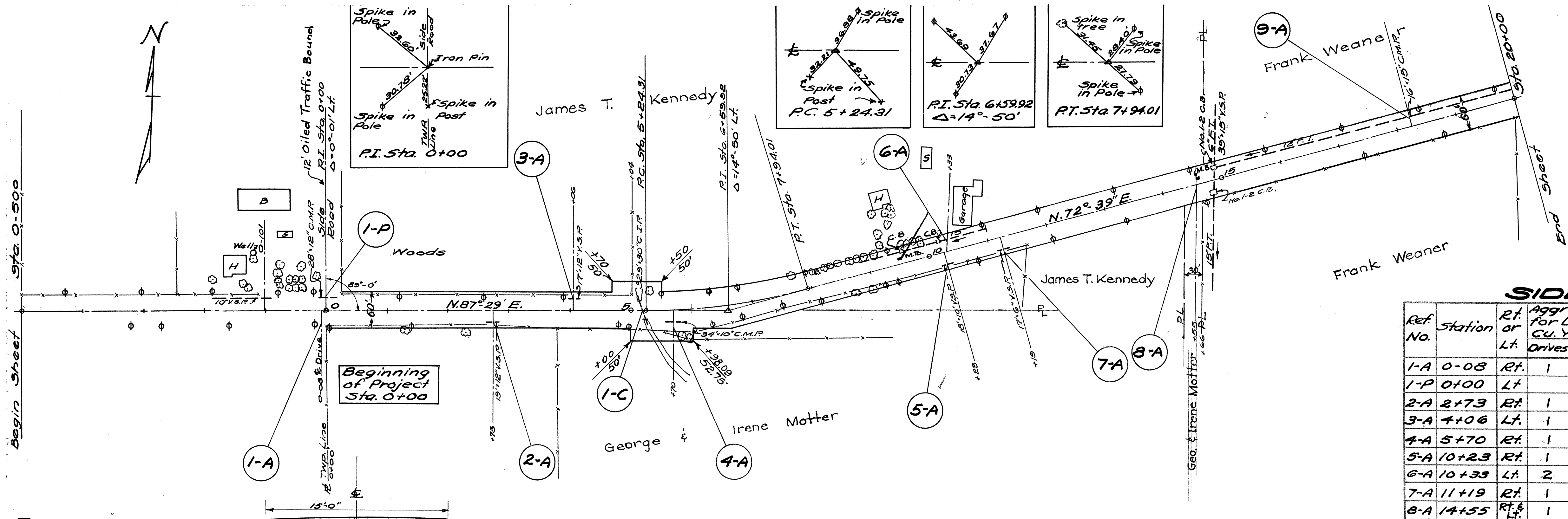
- PROFILE** - The profile for the asphaltic concrete surface course shall be approximately 2" above that of the existing pavement except at super-elevated curves.
- SIDE FORMS** - Side forms, set to line and grade established by Engineer, will be required on this project.
- WIDENING** - In general, the widening on this project will be carried out as shown on the typical sections. However, if necessary, widening may be placed on one side of the roadway in the direction of the Engineer. Widening shall not be placed in widths less than one foot.
- SIDE APPROACHES** - Aggregate for side approaches shall be composed of 60% No. 34 size and 40% of No. 7 size, placed as directed by the Engineer and compacted with a roller weighing not less than 2 1/2 tons.
- TRAFFIC** - Traffic shall be maintained at all times to the satisfaction of the Division Engineer. The item of maintaining traffic shall include furnishing lights, signs, barricades and watchmen, necessary to secure the unimpeded flow of traffic twenty-four (24) hours daily.
- FEATHERING** - The Asphaltic Concrete Surface Course shall be feathered out at the beginning and end of work and at side approaches in a manner approved by the Engineer.
- EMBANKMENT** - Watering embankment and density requirements as referred to in paragraph E-105 of the General Specifications, will not be required on this project except at super-elevated curves.
- EARTHWORK** - All suitable material resulting from Roadway Excavation (Unclassified), together with the necessary Borrow shall be used to construct the Roadway Shoulders as indicated on the cross-sections.
- COMPACTION OF SUBGRADE** - Loosening and watering of subgrade in cuts, according to section E-111, will not be required if density requirements can be met by additional rolling.
- RIPRAP** - Material obtained from the Removal of Existing Pavement (Item E-8), and Removal of Existing Structure (Item E-21) may be used to supply Riprap.

- Item E-10, Sealing (only) of edge of existing pavement using Bituminous Material Sec. M-5.12 AE-3, applied at the rate of 0.25 Gal. per Sq. Yd. (Not less than two applications)
- Item I-19, 1/4" Insulation Course
- Item B-35, 3" Asphaltic Concrete First Base Course
- Item B-35, 3" Asphaltic Concrete Second Base Course
- Item B-35, 3/4" Minimum Thickness Asphaltic Concrete Leveling Course
- Item T-35, 1 1/4" Asphaltic Concrete Surface Course, Type "A"
- Item E-305, Seeding and Protecting Roadway Areas
- Item E-4, Borrow using No. 7 Screenings Sec. M-31 placed over existing pavement in layers not over 3" thick
- Item E-4, Borrow using earth.

Note: - 3" Maximum thickness layers of screenings shall be compacted over the existing pavement. Earth embankment shall be placed and compacted adjacent to the screenings over the existing berm in the same operation. No. 7 Screenings Sec. M-31 shall be considered to weigh 3200 pounds per cubic yard compacted in place. Payment for this item shall be made by converting weight to volume on this basis in lieu of the end area method prescribed in Sec. E-4.02

SUPERELEVATION - Curves shall be super-elevated by applying a wedge course of Stone Screenings, Item E-4, as per the typical section on this sheet. Super-elevated curves shall be built without crown. The crown shall be worked out of the pavement in that portion between beginning of transition and the point where the super-elevation equals twice the crown.

SEEDING - Supplemental Specification E-305 shall be followed except that the following seed mixture shall be used throughout limits of project: 40% Kentucky Blue Grass, 15% Perennial Rye Grass, 15% Red Top, 15% Oats, 15% Alsike. Mixture to be made only after seed is tested and approved.

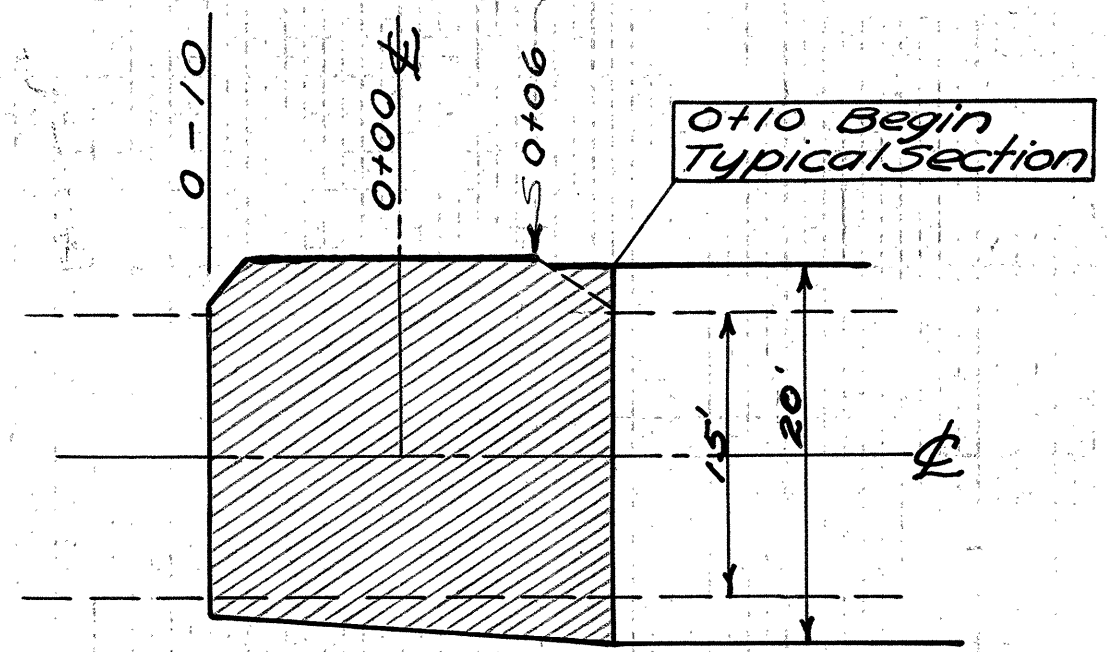


$\Delta = 14^{\circ} 50'$ Lt.
 $D = 5^{\circ} 30'$
 $T = 135.61'$
 $R = 1041.74'$
 $L = 269.70'$
 $E = 8.79'$

B.M. #1. Spike in pole. 27' Lt.
 Sta. 0+19. El. 711.87.

B.M. #2. Spike in guy pole.
 31' Rt. Sta. 6+33. El. 710.59.

B.M. #3. Spike in pole. 27' Lt.
 Sta. 14+48. El. 712.27.



DETAIL OF INTERSECTION I-P
 Sta. 0+00

Item T-35 to be feathered out
 to meet existing pavement at
 Sta. 0-10

Note - New profile grade line shall be approximately
 2" above existing profile grade line.

PAVEMENT QUANTITIES

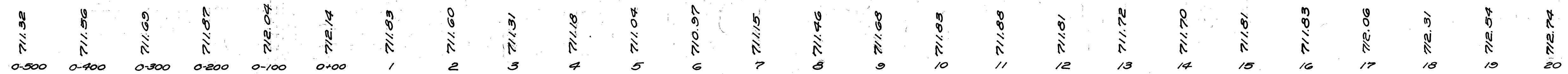
- I-19, 1 1/4" Insulation Course 5 Sq. Yds.
- B-35, 3" Asphaltic Concrete First Base Course 0.5 Cu. Yd.
- B-35, 3" Asphaltic Concrete Second Base Course 0.5 Cu. Yd.
- T-35, Asphaltic Concrete Surface Course Type A 1.0 Cu. Yd.
- E-10, Sealing only Existing Edge 25 Lin. Ft.

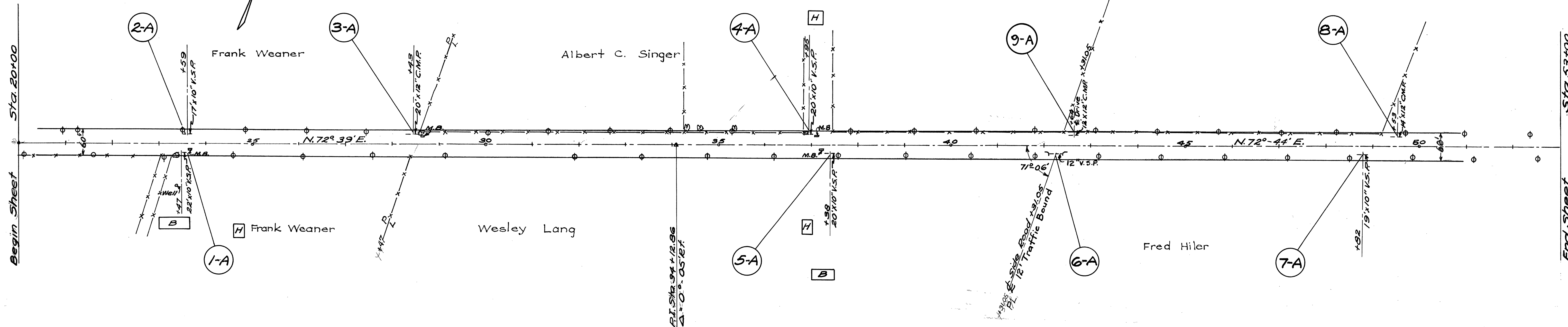
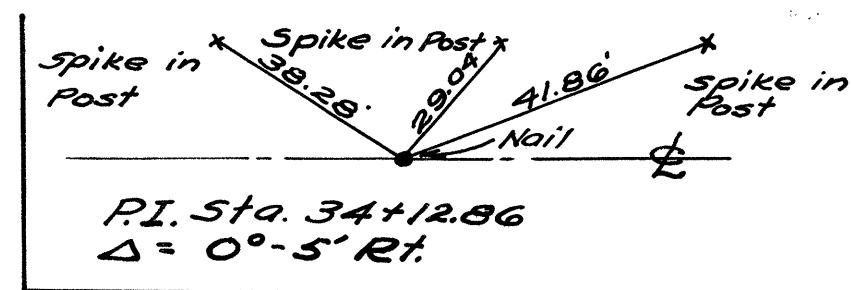
SIDE APPROACHES

Ref. No.	Station	Rt. or Lt.	Aggregate for Drives or Mail Boxes	I-19 Insulation Course Sq. Yd.	B-35 First Base Course Cu. Yd.	B-35 Second Base Course Cu. Yd.	T-35 Surface Course Cu. Yd.	Sealing only Existing Edge Lin. Ft.	Remarks	
1-A	0-08	Rt.	1						No Pipe Required	
1-P	0+00	Lt.		5	0.5	0.5	1.0	25	" " "	
2-A	2+73	Rt.	1						" " "	
3-A	4+06	Lt.	1						" " "	
4-A	5+70	Rt.	1						" " "	
5-A	10+23	Rt.	1						" " "	
6-A	10+33	Lt.	2	2					" " "	
7-A	11+19	Rt.	1						" " "	
8-A	14+55	Rt.	1	2					" " "	
9-A	18+23	Lt.	1						" " "	
Total			10	4	5	0.5	0.5	1.0	25	

STRUCTURES

Ref. No.	Station	Type	Size	Remarks
1-C	5+21	Pipe Culvert	60' x 30'	See Sheet No. 9





B.M. #4 Spike in Pole 27' Lt.
 Sta. 20+98 El. 712.95

B.M. #5 Spike in Pole 27' Rt.
 Sta. 27+58 El. 713.34

B.M. #6 Spike in Pole 27' Rt.
 Sta. 34+77 El. 715.22

B.M. #7 NE. Cor. of N.E. Headwall
 18.5' Rt. Sta. 42+45 El. 712.91

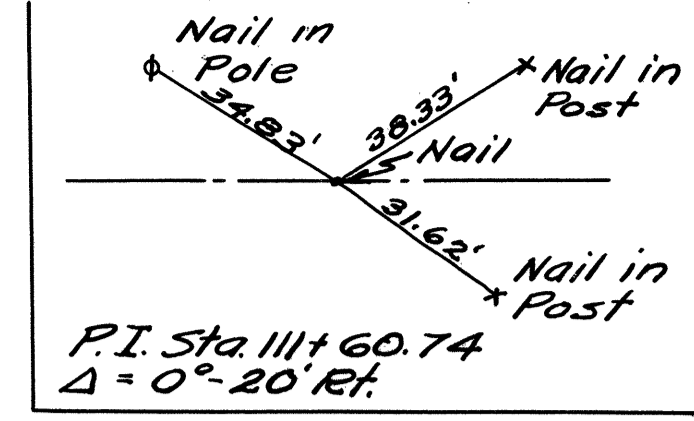
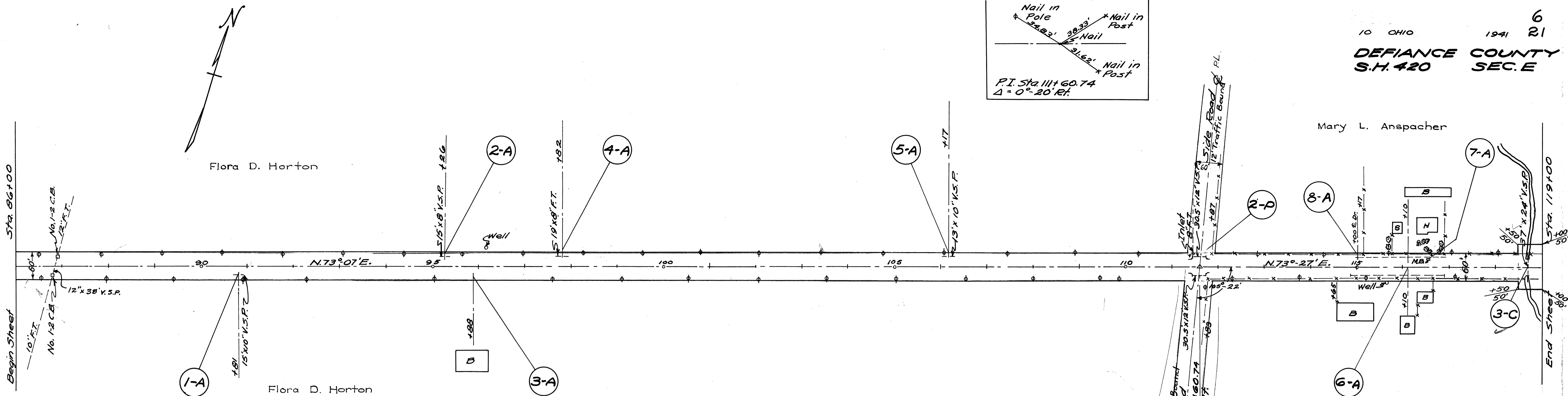
B.M. #8 Spike in Pole
 27' Rt. Sta. 49+85 El. 712.02

SIDE APPROACHES

Ref. No.	Station	Rt. or Lt.	Aggregate for Drives		Remarks
			Drives	Mail Boxes	
1-A	23+47	Rt.	1	2	No pipe required
2-A	23+59	Lt.	1		" " "
3-A	28+43	Lt.	1	2	" " "
4-A	36+95	Lt.	1	2	" " "
5-A	37+38	Rt.	1	2	" " "
6-A	42+31	Rt.	2		" " "
7-A	48+92	Rt.	1		" " "
8-A	49+53	Lt.	1		" " "
9-A	42+64	Lt.	1		" " "
Total			10	8	

Note: New profile grade line shall be approximately 2" above existing profile grade line.

20	712.74	21	712.80	22	712.99	23	713.26	24	713.58	25	713.58	26	713.65	27	713.74	28	713.89	29	713.92	30	713.97	31	714.07	32	714.15	33	714.23	34	714.21	35	714.13	36	713.91	37	713.66	38	713.42	39	713.11	40	713.07	41	713.04	42	713.04	43	712.96	44	712.92	45	712.85	46	712.69	47	712.60	48	712.58	49	712.46	50	712.32	51	712.12	52	711.89	53	711.64
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STRUCTURES

Ref. No.	Station	Type	Size	Remarks
3-C	118+71	Pipe Culvert	64"x24"	see Sheet No.17

B.M. #14 Spike in Pole 27' Lt.
Sta. 91+77 El. 711.43

B.M. #15 Spike in Pole 27' Lt.
Sta. 98+26 El. 712.20

B.M. #16 Spike in Pole 28' Lt.
Sta. 104+74 El. 711.66

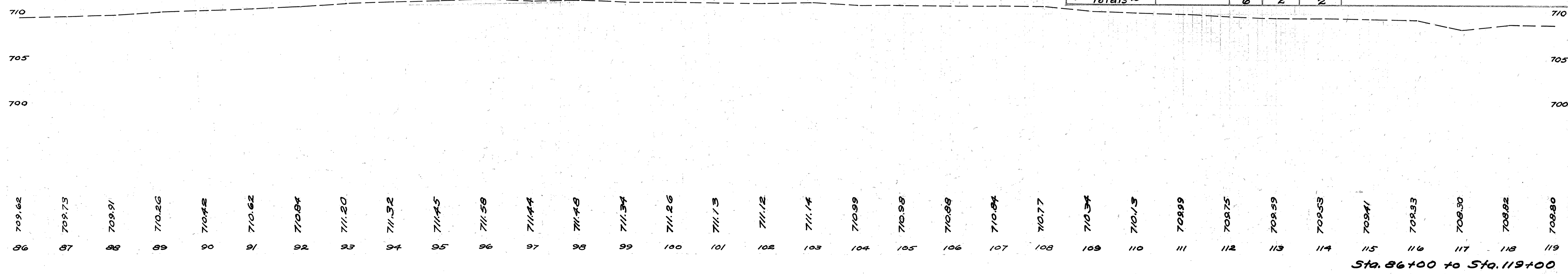
B.M. #17 SW. Cor. Conc. Headwall
19' Rt. Sta. 111+41 El. 709.66

B.M. #18 NE Cor. Conc. Headwall
20' Rt. Sta. 116+89 El. 708.30

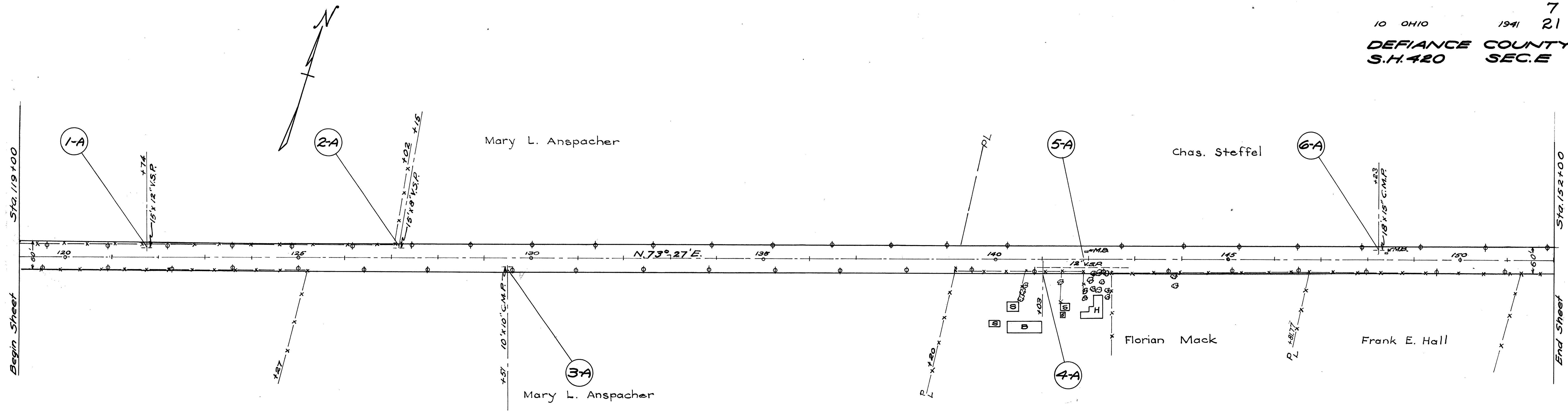
SIDE APPROACHES

Ref. No.	Station	Rt. or Lt.	Aggregate for Drives		T-35 Surface Course Cu.Yd.	Remarks
			Drives	Nail Boxes		
1-A	90+81	Rt.	1			No pipe required
2-A	95+26	Lt.	1			" " "
3-A	95+88	Rt.	1			" " "
4-A	97+82	Lt.	1			" " "
5-A	106+17	Lt.	1			" " "
2-P	111+61	Rt.			1	T-35 to resurface intersection To be placed at direction of Engineer
6-A	116+10	Rt.			1	T-35 to resurface drive. To be placed at direction of Engineer
7-A	116+55	Lt.		2		
8-A	115+00	Lt.	1			
Totals ~			6	2	2	

Note: New profile grade line shall be approximately 2" above existing profile grade line.



20209004



B.M.*19 Spike in Pole 27' Lt.
 Sta. 123+57 El. 709.65

B.M.*20 Spike in Pole 26' Lt.
 Sta. 130+01 El. 709.99

B.M.*21 Spike in Pole 26' Lt.
 Sta. 136+50 El. 708.97

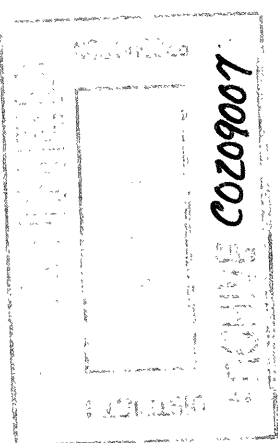
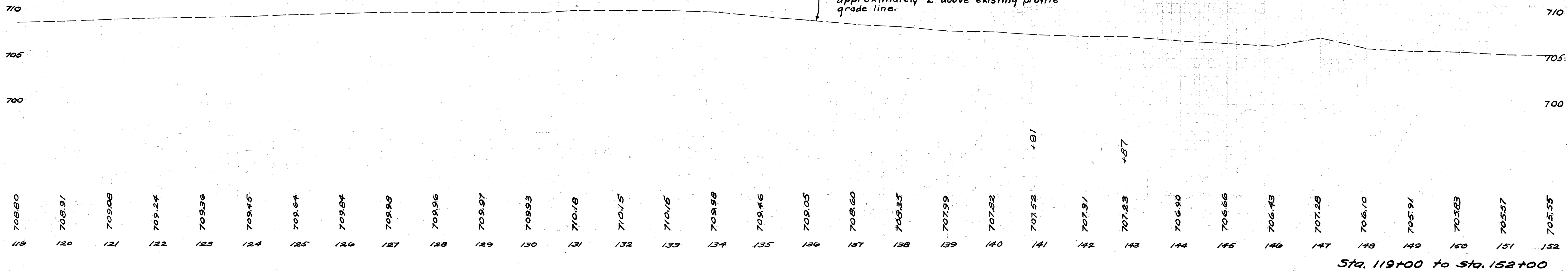
B.M.*22 Spike in Pole 27' Lt.
 Sta. 142+71 El. 707.84

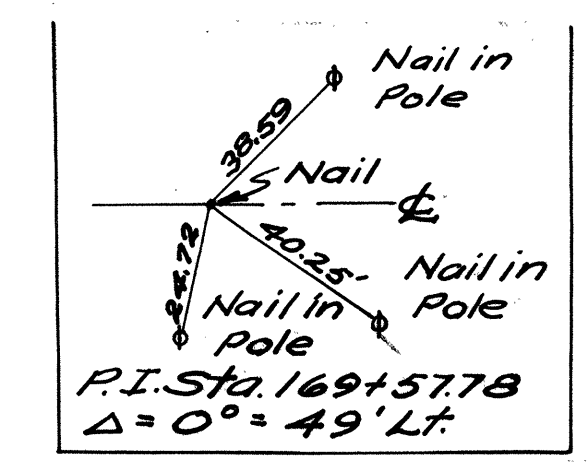
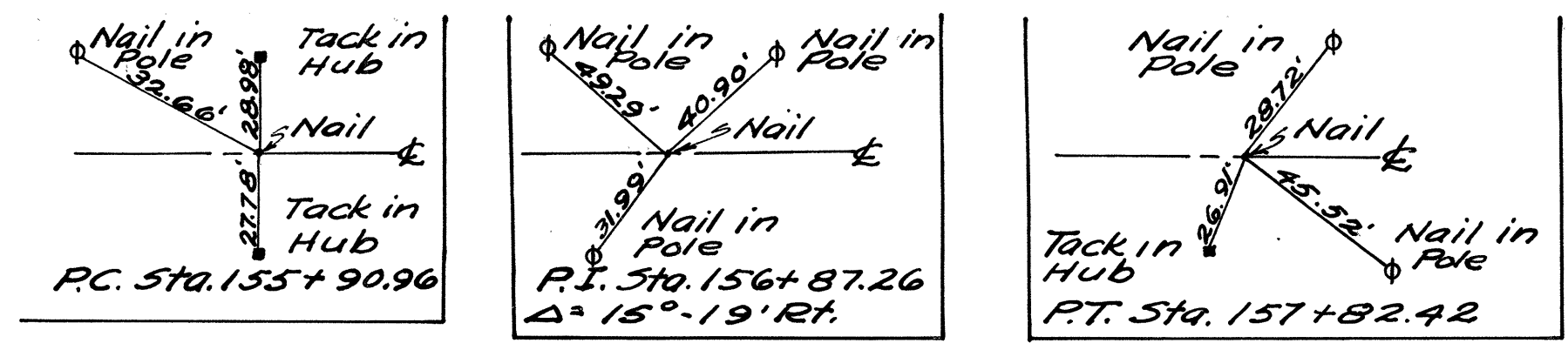
B.M.*23 Spike in Pole 27' Lt.
 Sta. 149+14 El. 706.41

SIDE APPROACHES

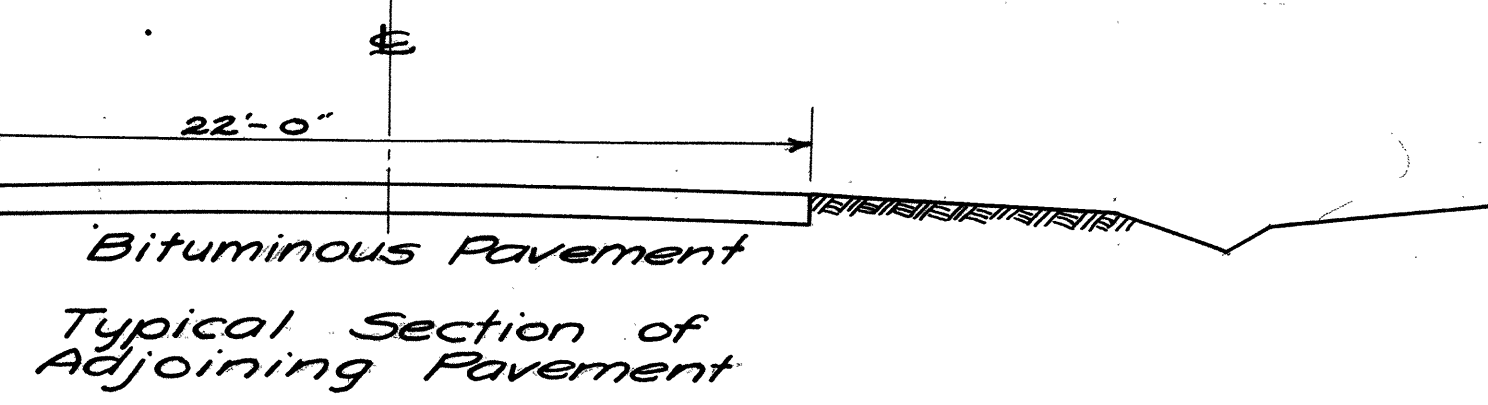
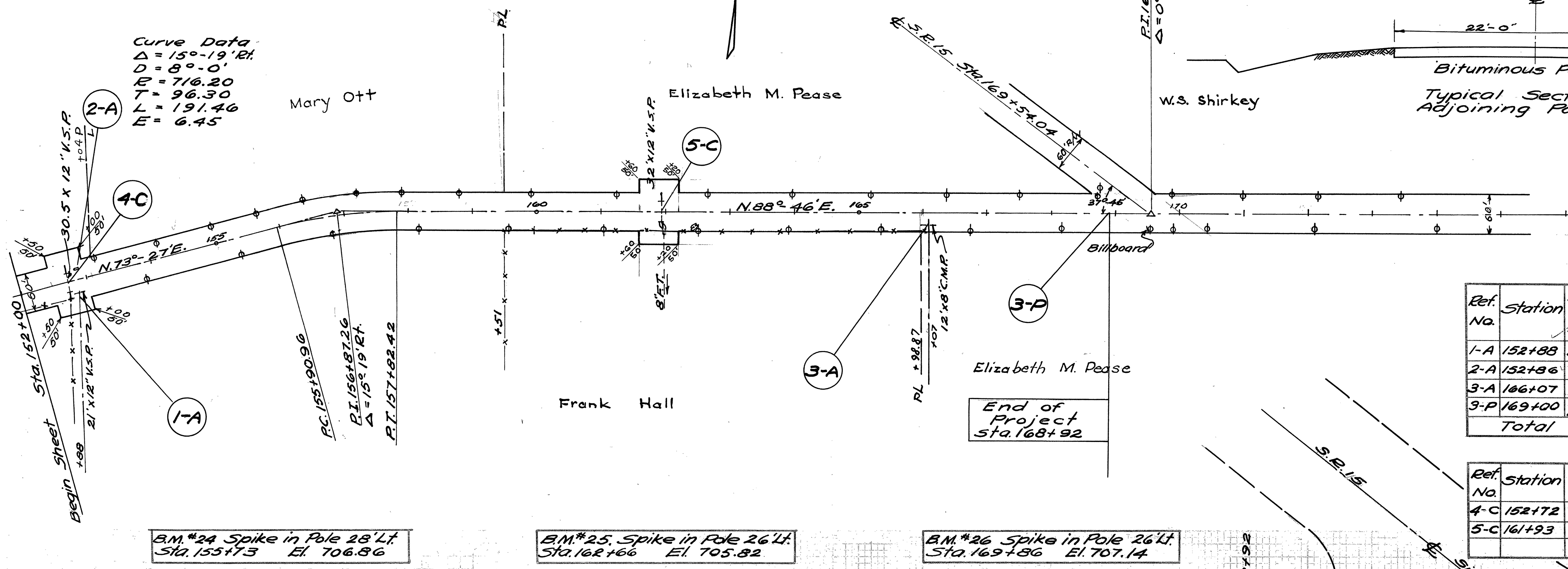
Ref. No.	Station	Rt. or Lt.	Aggregate for Drives Cu. Yds.		Remarks
			Drives	Mail Boxes	
1-A	121+74	Lt.	1		No pipe required
2-A	127+15	Lt.	1		" " "
3-A	129+51	Rt.	1		" " "
4-A	141+03	Rt.	1		" " "
5-A	141+97	Lt.		2	" " "
6-A	148+23	Lt.	1	2	" " "
Total			5	4	

Note: New profile grade line shall be approximately "2" above existing profile grade line.





Curve Data
 $\Delta = 15^\circ-19' \text{ Rt.}$
 $D = 8^\circ-0'$
 $R = 716.20$
 $T = 96.30$
 $L = 191.46$
 $E = 6.45$



SIDE APPROACHES

Ref. No.	Station	Rt. or Lt.	Pipe for Driveways Lin. Ft.	Sealing only existing edge Lin. Ft.	Aggregate for Drives CU. Yds.	Pipe Removed & Stored Lin. Ft.	1-19 Insulation Course Sp. Yds.	8-35 First Base Course Cu. Yd.	8-35 Second Base Course Cu. Yd.	7-35 Top Surface Course Cu. Yd.	Remarks
1-A	152+88	Rt.	24		1						
2-A	152+86	Lt.				2					No pipe required
3-A	166+07	Rt.			1						" "
3-P	169+00	Rt.		59			10	1	1	1	
Total			24	59	2	2	21	10	1	1	

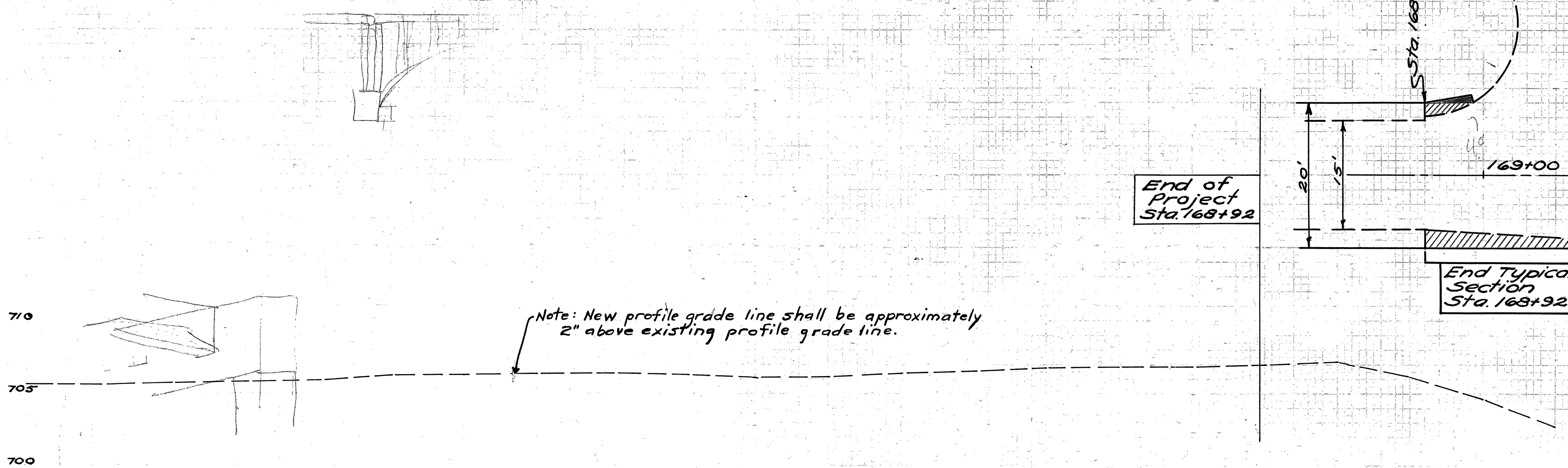
STRUCTURES

Ref. No.	Station	Type	Size	Remarks
4-C	152+72	Pipe Culvert	54.5" x 12" V.S.P.	Extension - Riprap ends (See Sheet No. 19)
5-C	161+93	Pipe Culvert	56" x 12" V.S.P.	Extension - Riprap ends (See Sheet No. 20)

B.M. #24 Spike in Pole 28' Lt.
 Sta. 155+73 El. 706.86

B.M. #25 Spike in Pole 26' Lt.
 Sta. 162+66 El. 705.82

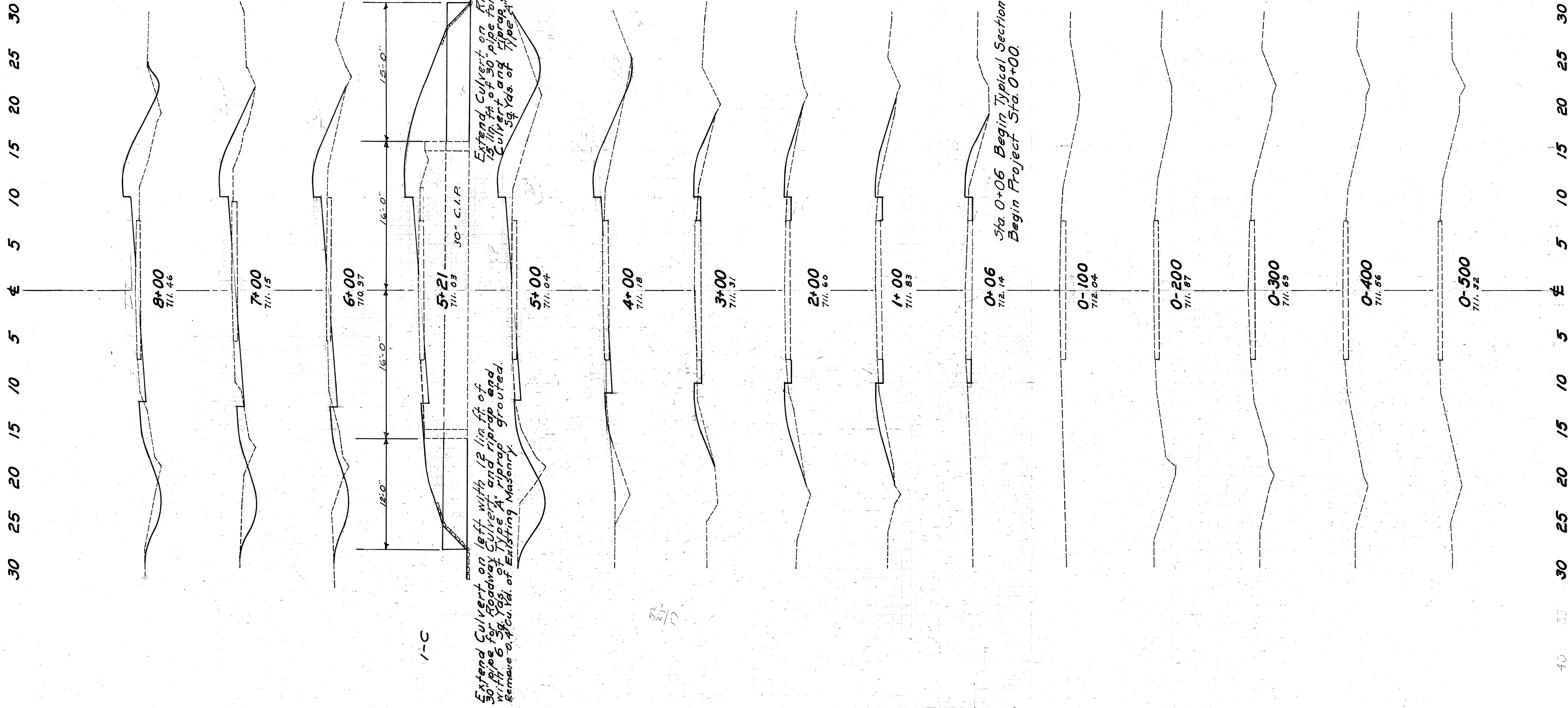
B.M. #26 Spike in Pole 26' Lt.
 Sta. 169+86 El. 707.14



DETAIL OF TRANSITION 3-P
 Note: - Shaded area to have Insulation Course First and Second Base Course only.
 Cross hatched area to have Complete Pavement

705.55	705.52	705.61	705.82	705.92	706.21	706.24	706.39	706.45	706.92	706.19	706.17	706.42	706.52	706.78	706.79	706.79	707.00	707.20	706.12	704.59	702.64	
152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174

Cozomog



Excavation	253 Cu.Yds.
Embankment	806 Cu.Yds.
Embankment+20%	967 Cu.Yds.

Sta. 0-10

Sta. 0+06 Begin Typical Section.
Begin Project Sta. 0+00.

End Area	Cu. Yds.	Cut	Fill
10	30		
14	22		
14	21		
3	20		
22	30		
3	3		
3	9		
3	11		
3	12		
3	6		
1	0		
24	206		
10	58		
46	80		
11	41		
11	37		
11	43		
11	31		
1	2		
44	96		
52	80		

10 OHIO
DEFIANCE
S.H. 420

1941
COUNTY
SEC. E

Sta. 0-500 to Sta. 8+00

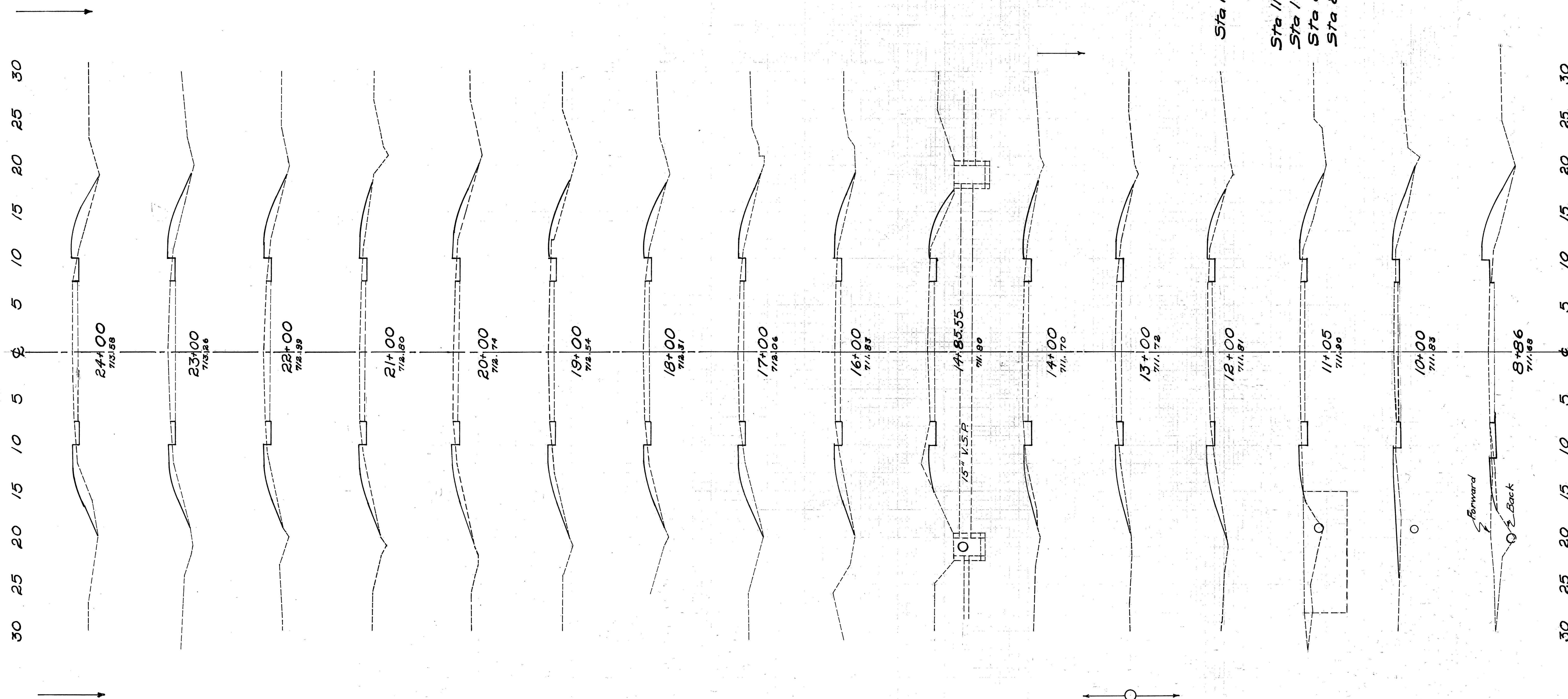
1917 - C. Beck

2020900

END AREA	CUT	FILL	CUT	FILL
3	16			
3	13			
3	11			
4	9			
3	11			
4	10			
3	11			
2	13			
3	11			
7	5			
4	8			
4	9			
3	11			
4	9			
4	12			
2	17			
10	30			

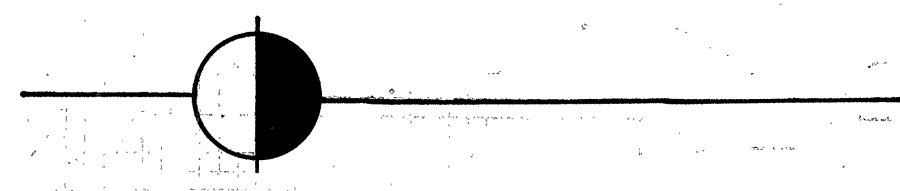
Excavation 120 Cu. Yds.
 Embankment 409 Cu. Yds.
 Embankment +20% 491 Cu. Yds.

Excavation 121 Cu. Yds.
 Embankment 336 Cu. Yds.
 Embankment +20% 403 Cu. Yds.



10 OHIO 1941 21
 DEFIANCE COUNTY
 S.H. 420 SEC. E

Sta 12+00
 Sta 11+05
 Sta 10+00
 Sta 8+86
 Sta 8+00

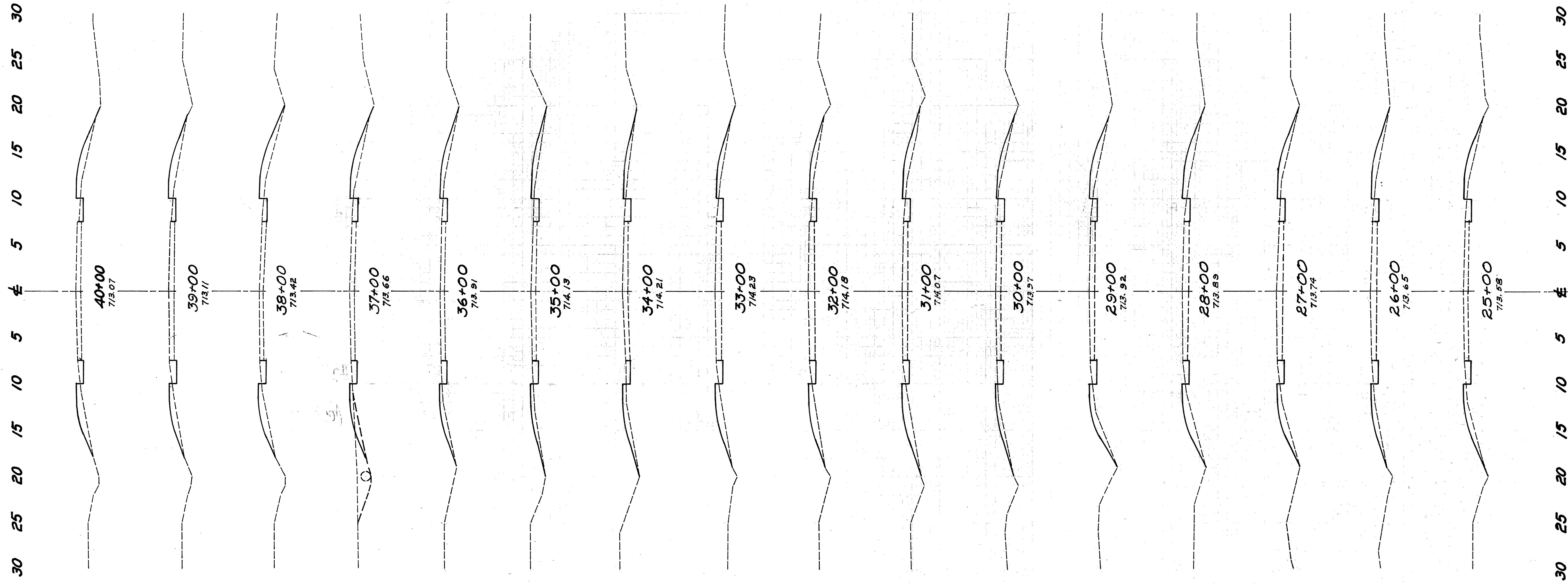


1000015 / AC

END AREA	CUT	FILL	CUT	FILL
3	10	11	37	
3	10	11	39	
3	11	11	39	
3	10	11	33	
3	8	11	28	
3	7	11	28	
3	8	13	31	
4	9	13	33	
3	9	11	37	
3	11	13	35	
4	8	15	33	
4	10	13	41	
5	12	11	43	
3	11	11	37	
3	9	11	35	
3	10	11	48	
3	16			

Excavation 116 Cu. Yds.
 Embankment 340 Cu. Yds.
 Embankment + 20% 408 Cu. Yds.

10 OHIO 1941 21
 DEFIANCE COUNTY
 S.H. 420 SEC. E



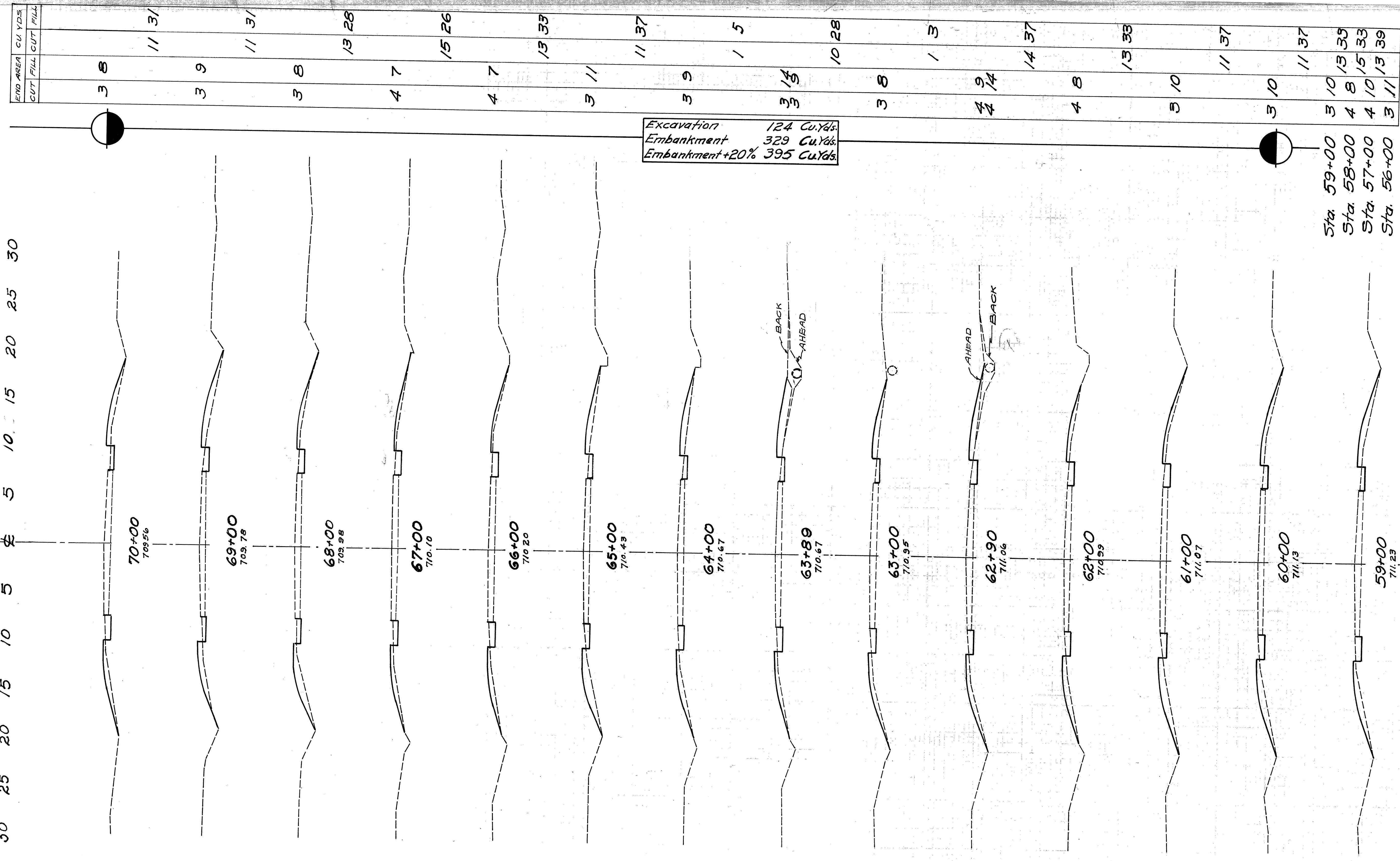
Sta. 27+00
 Sta. 26+00
 Sta. 25+00
 Sta. 24+00

Sta. 25+00 to Sta. 40+00

Noted by JHC
Checked V.A.R. - JHC

30 25 20 15 10 5 0 5 10 15 20 25 30

0209013



Excavation 124 Cu.Yds.
Embankment 329 Cu.Yds.
Embankment+20% 395 Cu.Yds.

END AREA	CU. YDS.	
CUT	FILL	
3	8	11 3/1
3	9	11 3/1
3	8	13 28
4	7	15 26
4	7	13 33
3	11	11 37
3	9	1 5
3	15	10 28
3	8	1 3
4	14	14 37
4	8	13 38
5	10	11 37
3	10	11 37
3	10	13 39
4	8	15 33
4	10	13 39
3	11	

Sta. 59+00
Sta. 58+00
Sta. 57+00
Sta. 56+00

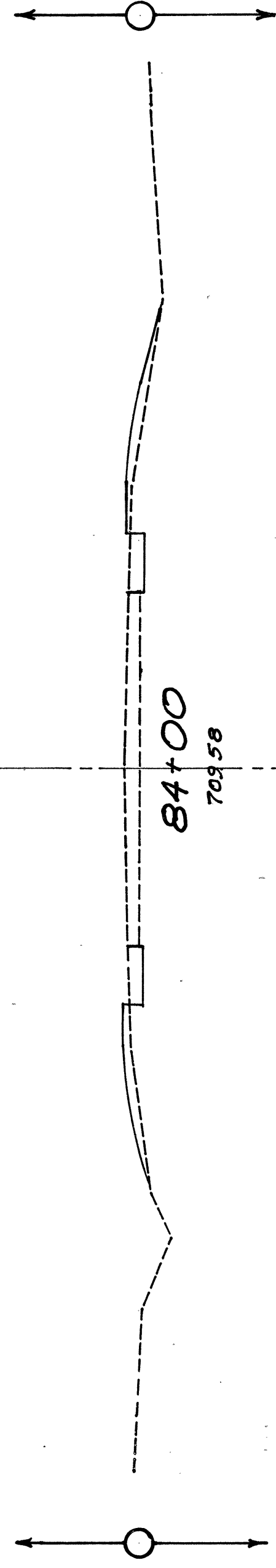
10 OHIO 1941
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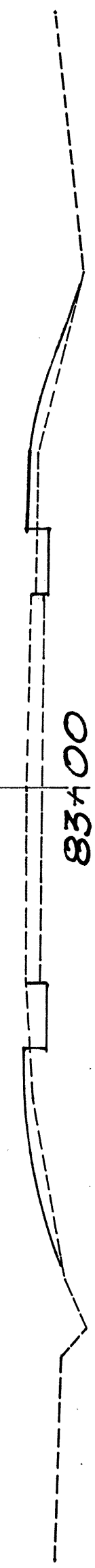
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 R + ATV

202090 H

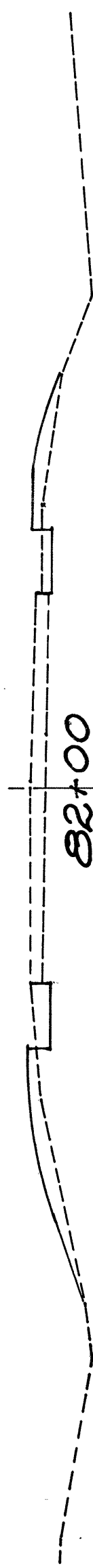
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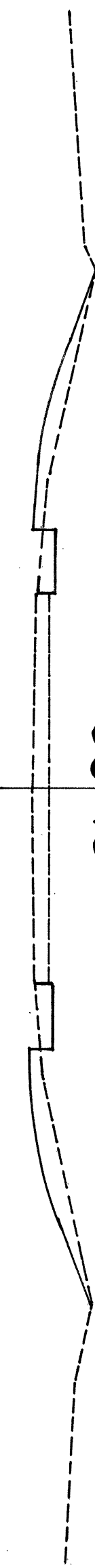
84+00
709.58



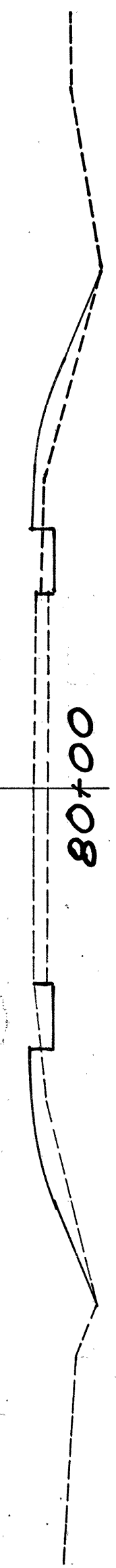
83+00
709.43



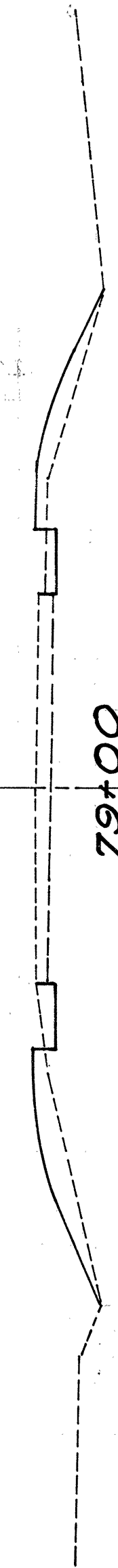
82+00
709.30



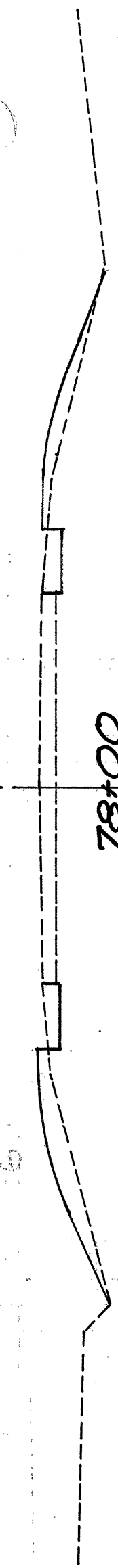
81+00
709.40



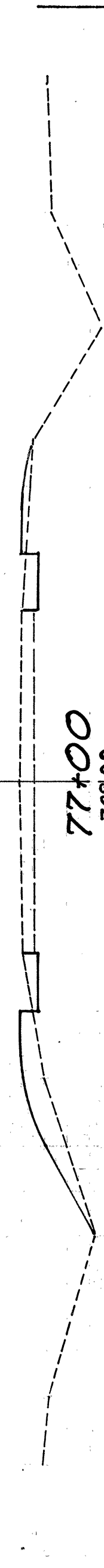
80+00
709.40



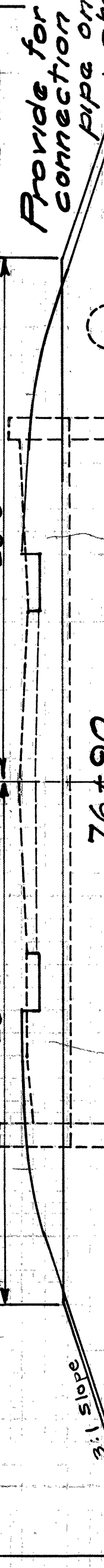
79+00
709.44



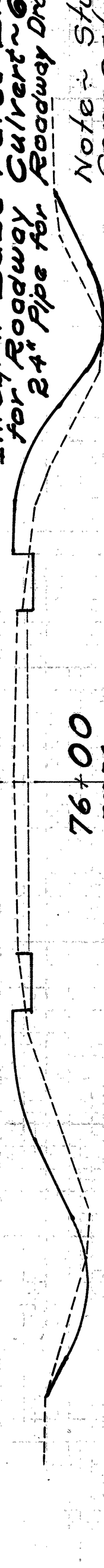
78+00
709.29



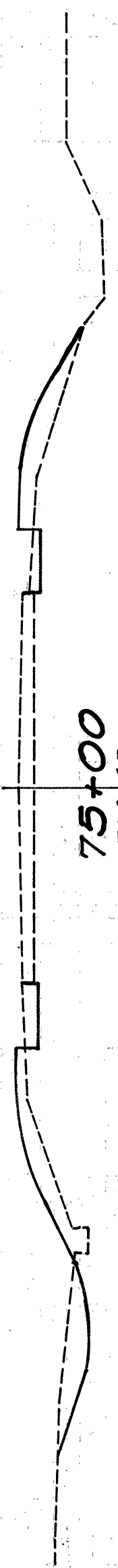
77+00
709.03



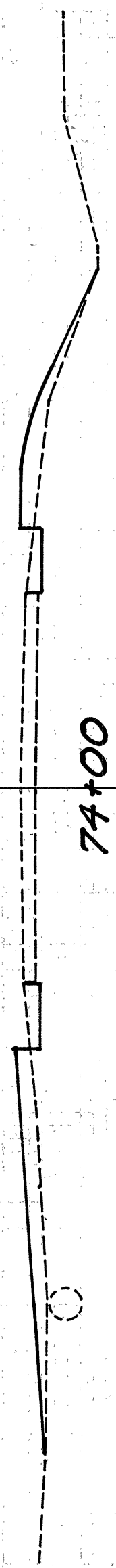
76+90
709.01



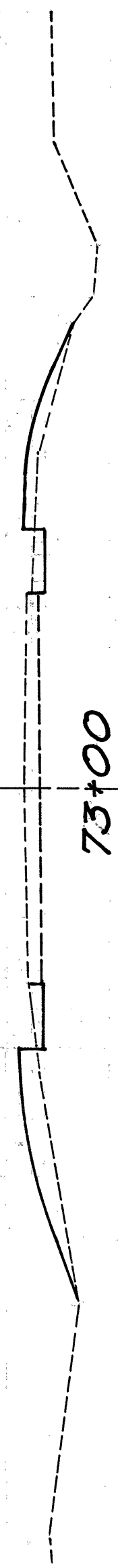
76+00
709.34



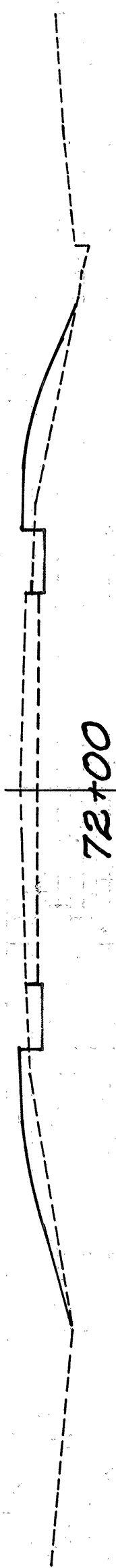
75+00
709.43



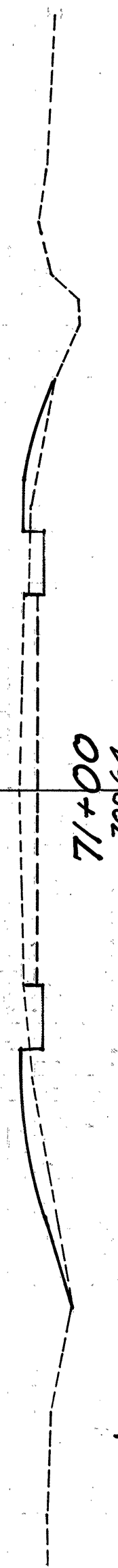
74+00
709.37



73+00
709.35



72+00
709.45



71+00
709.64

Sta 73+00
Sta 78+00
Sta 71+00
Sta 70+00

Excavation - 147 Cu.Yds.
 Embankment - 456 Cu.Yds.
 Embankment +20% 547 Cu.Yds.

Remove existing Structure - Lump
 S-27 24" Corrugated Metal arch with
 Integral Base Covered Bituminous Coated
 for Roadway Culvert - 62 L x 17 ft
 for 24" Pipe for Roadway Drain Outlet - 6 L x 17 ft

Note: Stub for 24" Connection to be prefabricated.

Enchred	Cu. Yds	Cut	Fill	Cu. Yds
4	6	13	26	11
3	8	11	30	11
3	8	11	37	11
3	12	11	44	11
3	12	11	46	11
3	13	11	44	11
3	11	11	37	11
3	9	2	5	20
5	15	20	60	28
7	21	28	61	20
8	12	20	46	11
3	13	11	46	11
3	12	11	44	11
3	12	11	37	11
3	12	11	37	11
3	8	11	30	11

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Sta. 71+00 to Sta 81+00

1 Kelly KAC
 CHECKED ROAD
 RFA+V

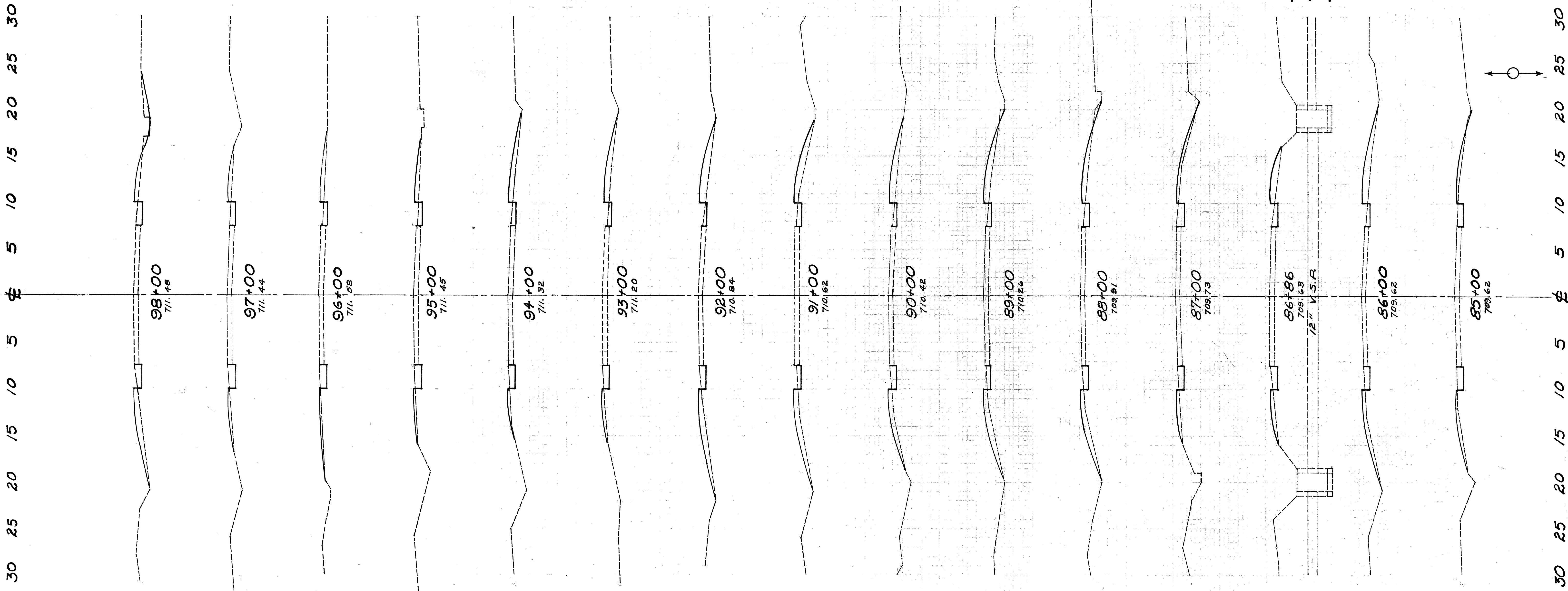
00209015

End Area Cu. Yds.	Cut	Fill	Cut	Fill
6	8	19	20	13
4	3	13	13	13
3	4	13	15	15
4	4	13	19	19
3	6	11	24	24
3	7	11	35	35
3	12	11	44	44
3	12	11	39	39
3	9	11	35	35
3	10	13	33	33
4	8	15	24	24
4	5	2	3	3
4	7	11	27	27
3	10	13	26	26
4	4	4	15	19

Excavation 130 Cu. Yds.
 Embankment 271 Cu. Yds.
 Embankment +20% 325 Cu. Yds.

Excavation 186 Cu. Yds.
 Embankment 304 Cu. Yds.
 Embankment +20% 365 Cu. Yds.

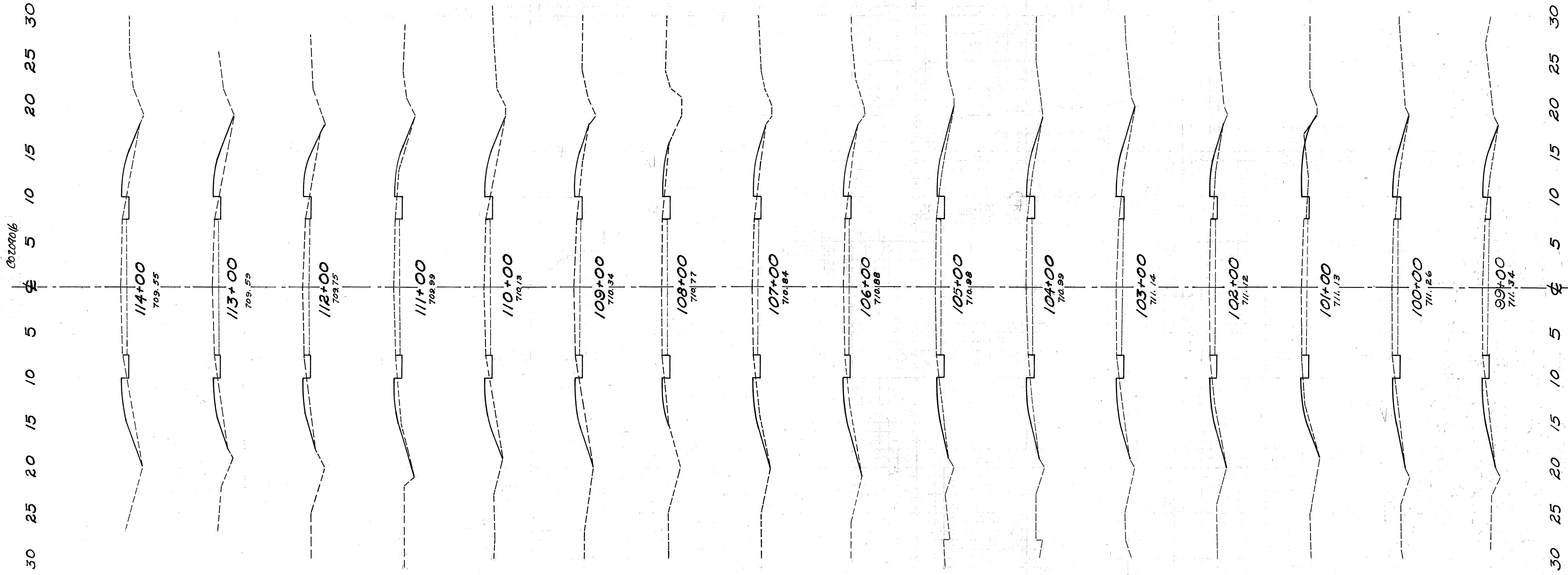
Sta 86+86
 Sta 86+00
 Sta 85+00
 Sta 84+00



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Sta. 85+00 to Sta. 98+00

Notes on p. 11
Checked by [Signature]



End Area	Cu. Yds.	Cut	Fill	Cu. Yds.	End Area	Cu. Yds.	Cut	Fill	Cu. Yds.
3	13				9	46			
2	12				9	39			
3	9				13	31			
4	8				13	39			
3	13				11	44			
3	11				13	28			
4	4				13	24			
3	9				11	35			
3	10				13	33			
4	8				13	30			
3	8				11	33			
3	10				11	33			
3	8				11	26			
3	6				11	26			
3	8				11	31			
3	9				17	31			
6	8								

Excavation 150 Cu.Yds.
Embankment 546 Cu.Yds.
Embankment +20% 655 Cu.Yds.

Excavation 118 Cu.Yds.
Embankment 312 Cu.Yds.
Embankment +20% 375 Cu.Yds.

Sta. 101+00
Sta. 100+00
Sta. 99+00
Sta. 98+00

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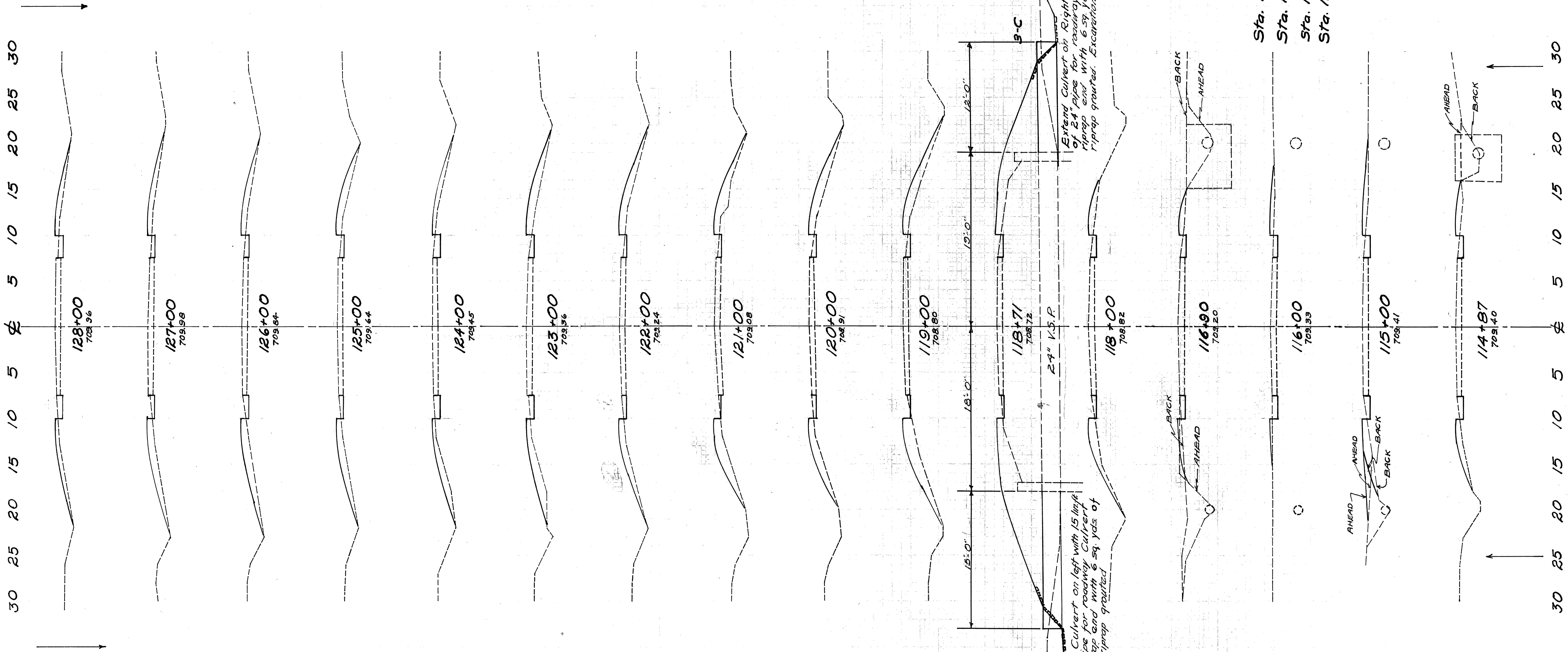
Sta. 99+00 to Sta. 114+00

Check by R. M. C.

02020017

End Area	Cu. Yds.	Cut	Fill
3	10		
2	13		
3	15		
2	15		
4	12		
3	17		
2	14		
2	16		
3	15		
3	21		
22	103		
3	10		
1	3		
3	4		
1	4		
3	3		
3	3		

Excavation 96 Cu. Yds.
 Embankment 512 Cu. Yds.
 Embankment +20% 615 Cu. Yds.



Extend Culvert on Right with 12 lin. ft. of 24" pipe for roadway Culvert and riprap end with 6 sq. yds. of Type A riprap grouted. Excavation (Rt. & Lr.) 3cu. yds.

Extend Culvert on left with 15 lin. ft. of 24" pipe for roadway Culvert and riprap end with 6 sq. yds. of type A riprap grouted

Sta. 116+00
 Sta. 115+00
 Sta. 114+87
 Sta. 114+00

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Sta. 114+87 to Sta. 128+00

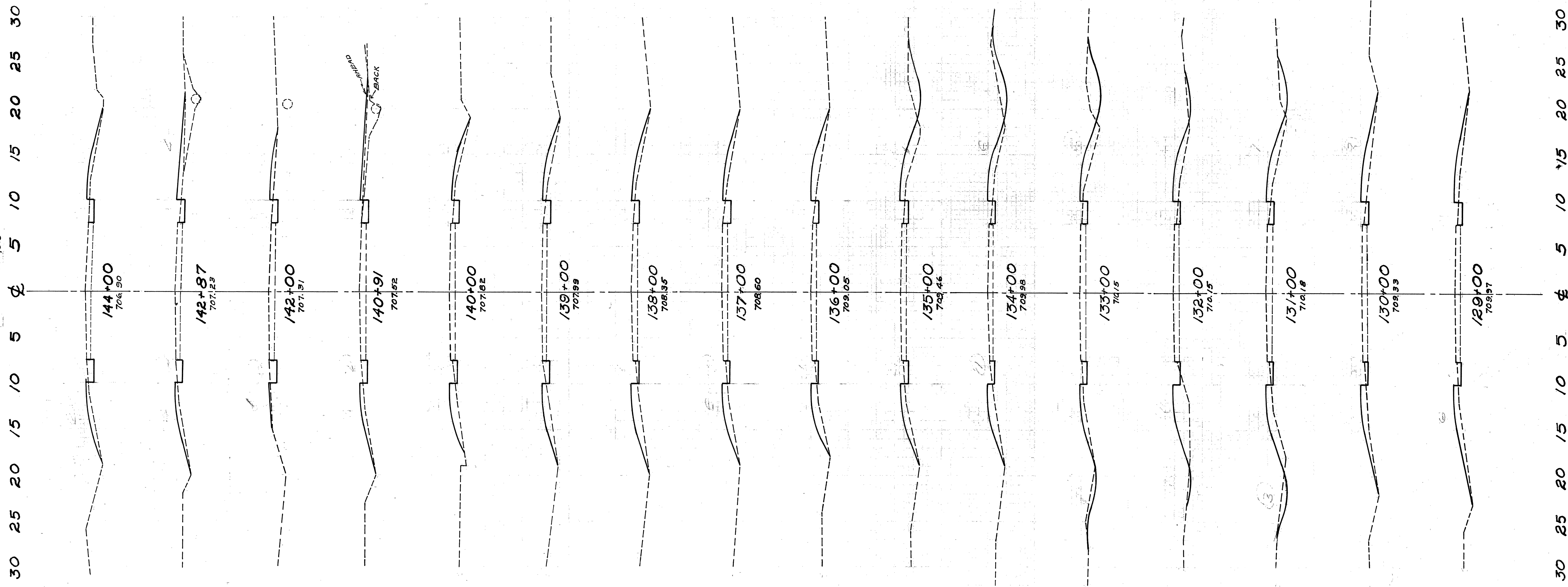
End Area	Cu. Yds.	Cut	Fill
3	8	12	34
3	8	11	19
4	4	1	2
4	9	4	5
3	10	12	42
3	10	11	37
3	11	11	39
3	11	11	39
3	12	11	41
9	12	22	44
7	12	30	44
13	10	37	41
5	17	33	50
10	15	28	59
2	15	22	56
3	11	9	48
3	10	11	39

Excavation 106 Cu.Yds.
 Embankment 286 Cu.Yds.
 Embankment + 20% 343 Cu.Yds.

Excavation 216 Cu.Yds.
 Embankment 450 Cu.Yds.
 Embankment + 20% 540 Cu.Yds.

Sta. 131+00
 Sta. 130+00
 Sta. 129+00
 Sta. 128+00

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Sta. 129+00 to Sta 144+00

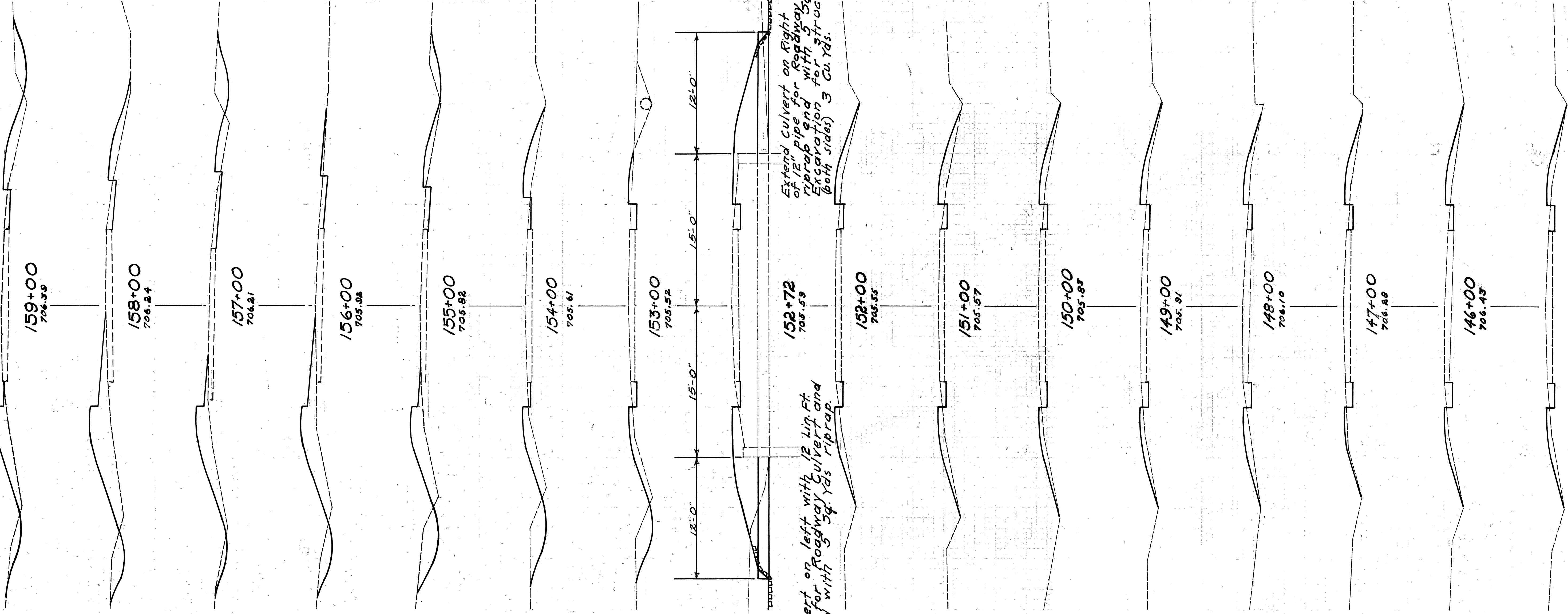
30 25 20 15 10 5 0 5 10 15 20 25 30

End Area
Cut/Fill

End Area	Cu. Yds.	Cut	Fill
11	18		
9	31		
11	19		
8	20		
16	17		
11	15		
11	8		
21	46		
3	11		
3	12		
3	9		
3	9		
3	10		
3	7		
3	8		
4	9		
3	8		
11	31		
11	28		
11	13		
11	13		
11	13		
11	31		
11	35		
11	31		
11	28		
11	13		
11	13		
11	13		
11	31		

Excavation 363 Cu. Yds.
Embankment 669 Cu. Yds.
Embankment +20% 803 Cu. Yds.

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Extend Culvert on Right with 12 Lin. Ft. of 12" pipe for Roadway Culvert and Riprap end with 5 Sq. Yds. Riprap Ex. Excavation for structures (Unclassified) (both sides) 3 Cu. Yds.

Extend Culvert on Left with 12 Lin. Ft. of 12" pipe for Roadway Culvert and Riprap end with 5 Sq. Yds. Riprap

Sta 147+00
Sta 146+00
Sta 145+00
Sta 144+00

30 25 20 15 10 5 0 5 10 15 20 25 30

Sta. 145+00 to Sta. 159+00

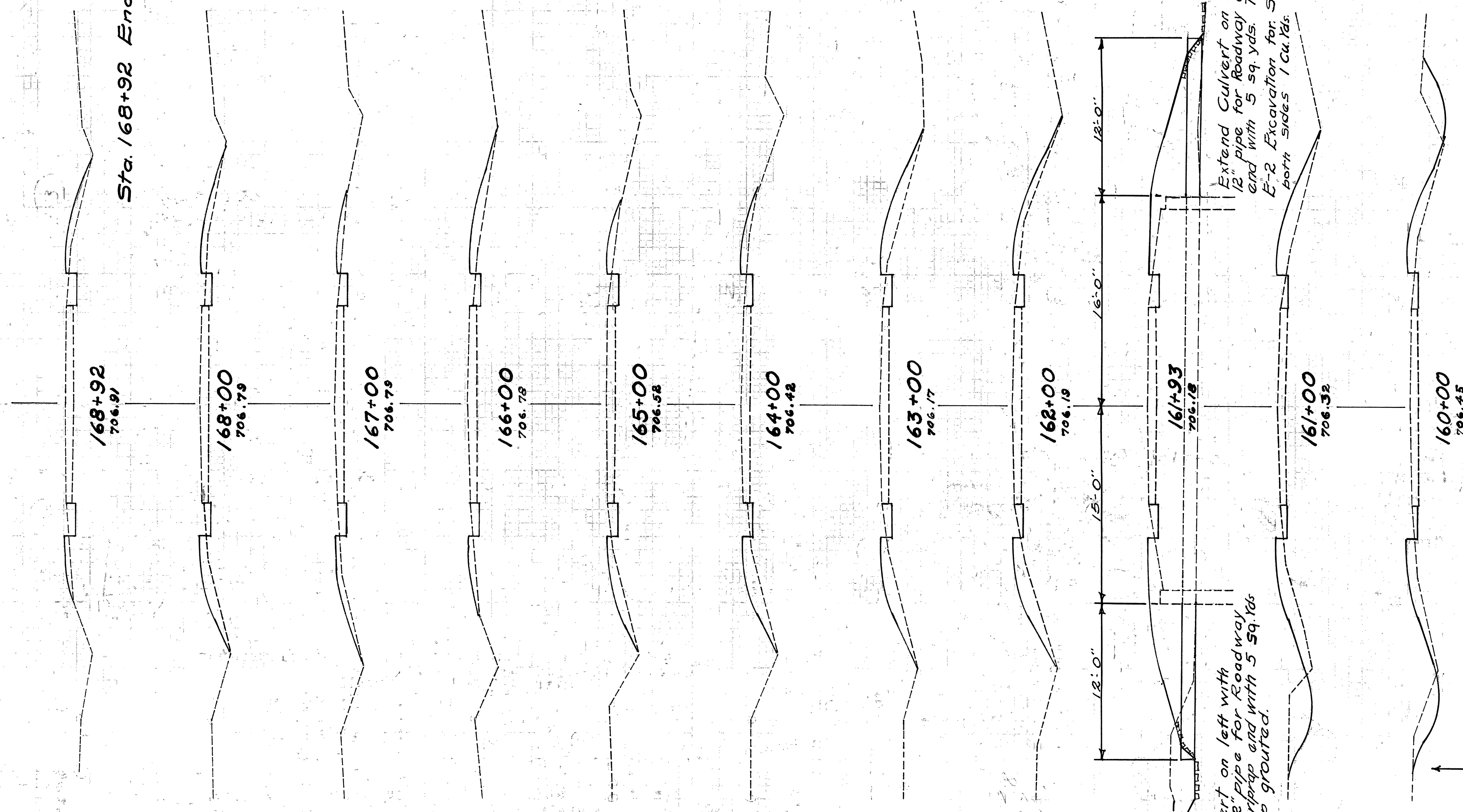
30 25 20 15 10 5 5 10 15 20 25 30

End Area	Cu. Yds	Cut/Fill	Cu. Yds	Cut/Fill
1	0		5	5
4	5		12	28
3	11		13	33
4	7		13	28
3	8		13	31
4	9		13	37
3	11		11	48
3	15		11	54
3	14		2	9
15	56		47	127
12	18		50	56
15	12		48	56
11	18			

Sta. 169+44

Excavation 190 Cu. Yds
 Embankment 456 Cu. Yds
 Embankment +20% 547 Cu. Yds

Sta. 168+92 End Project



Extend Culvert on left with 12" pipe for Roadway Culvert and Riprap and with 5 Sq. Yds Type A Riprap grouted.

Extend Culvert on Right with 12" pipe for Roadway Culvert and Riprap and with 5 sq. yds. Type A riprap grouted E-2 Excavation for Structures unclassified both sides 1 Cu. Yds.

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Sta. 160+00 to Sta. 168+92

SUPERELEVATION TABLES

D=5°-30'
P.C.=5+24.31, P.T.=7+94.01

Station	Add to Lt. Edge	Widening
2+743	0.00	0.00
+75	0.00	0.01
3+00	0.03	0.23
+25	0.11	0.44
+50	0.24	0.66
+75	0.42	0.87
4+00	0.66	1.07
+25	0.94	1.28
+50	1.23	1.50
+75	1.46	1.71
5+00	1.64	1.92
+25	1.77	2.13
+50	1.85	2.35
+74.31	1.87	2.55
6+00	1.87	2.55
+25	1.87	2.55
+50	1.87	2.55
+75	1.87	2.55
7+00	1.87	2.55
+25	1.87	2.55
+44.01	1.87	2.55
+50	1.87	2.50
+75	1.83	2.29
8+00	1.74	2.07
+25	1.60	1.86
+50	1.40	1.65
+75	1.16	1.44
9+00	0.86	1.22
+25	0.59	1.01
+50	0.37	0.80
+75	0.20	0.59
10+00	0.08	0.37
+25	0.01	0.16
+44.01	0.00	0.00

D=8°-0'
P.C.=155+90.96, P.T.=157+92.42

Station	Add to Cr. Edge	Widening
153+40.96	0.00	0.00
+50	0.00	0.10
+75	0.05	0.36
154+00	0.15	0.63
+25	0.30	0.90
+50	0.51	1.16
+75	0.77	1.43
155+00	1.08	1.69
+25	1.36	1.96
+50	1.58	2.29
+75	1.74	2.49
156+00	1.86	2.76
+25	1.92	3.02
+40.96	1.93	3.20
+50	1.93	3.20
+75	1.93	3.20
+32.42	1.93	3.20
+50	1.92	3.01
+75	1.85	2.74
158+00	1.74	2.47
+25	1.56	2.21
+50	1.34	1.94
+75	1.06	1.67
159+00	0.75	1.41
+25	0.49	1.14
+50	0.29	0.88
+75	0.14	0.61
160+00	0.04	0.34
+25	0.00	0.08
+32.42	0.00	0.00

EARTHWORK

Station	From	To	Excavation Cu.Yds.	Embankment Cu.Yds.	Embankment +20% Cu.Yds.	Borrow
0+10	10+00	253	806	967		
10+00	20+00	121	336	403		
20+00	30+00	120	409	491		
30+00	40+00	116	340	408		
40+00	50+00	120	362	434		
50+00	60+00	124	341	409		
60+00	70+00	124	329	395		
70+00	80+00	147	456	547		
80+00	90+00	126	304	365		
90+00	100+00	130	271	325		
100+00	110+00	118	312	375		
110+00	120+00	150	546	655		
120+00	130+00	96	512	615		
130+00	140+00	216	450	540		
140+00	150+00	106	286	343		
150+00	160+00	363	669	803		
160+00	169+44	190	456	547		
Total		2620	7185	8622	6002	

STRUCTURES

Ref. Sheet No.	Pipe for Roadway Culverts Lin. Ft.	Corr. Metal Arch. 72"x44" Sq. Yds.	Riprap Grouted Type "A" for Structures Removed & Disposed	Excavation Structures Lump	Removal of Portions of Existing Masonry Cu. Yds.
1-C	9		12		
2-C	14		62		Lump 6
3-C	17	27		12	3
4-C	19	24		10	3
5-C	20	24		10	1
Total	48	27	27	62	44

PAVEMENT REMOVAL

Sheet No.	Pavement Removed & Disposed Sq. Yd.
5	33

SIDE APPROACHES

Sheet No.	I-17 Aggregate for Drives	Pipe for Drives 12"	T-35 For Drives	I-19 Insulation	B-35 1st Base Course	B-35 2nd Base Course	Pipe for Sealing Existing Edge
3	10	4	1	5	0.5	0.5	25
4	10	8					
5	11	6					
6	6	2	2				
7	5	4					
8	2	2	24	1	10	1	21
Total	44	26	24	4	15	1.5	21

PAVEMENT COMPUTATIONS

Begin Project Sta. 0+00
End Project Sta. 168+92
Net Length = Gross Length = 16892 Lin. Ft. or 3.199 Miles

Item I-19, 1/4" Insulation Course = 16892 x 5 = 9384 Sq. Yds.

Additions - From Summary Side Approaches = 15 Sq. Yds.
Pavement replacement Sta. 76+90 = 33.5 Sq. Yds.
Extra width pavement (5°-30' Curve) Sta. 2+74.31 to Sta. 10+44.01 = 132 Sq. Yds.
Extra width pavement (8°-0' Curve) Sta. 153+40.96 to Sta. 160+32.42 = 138 Sq. Yds.
Total = 9702 Sq. Yds.

Deductions - 1-P Rt. Sta. 0+00 to Sta. 0+10 = 10 Lin. Ft.
Lt. Sta. 0+00 to Sta. 0+10 = 10 Lin. Ft.
2-P Rt. Sta. 111+43 to Sta. 111+73 = 30 Lin. Ft.
Lt. Sta. 111+51 to Sta. 111+81 = 30 Lin. Ft.
Drive Rt. Sta. 115+97 to Sta. 116+22 = 25 Lin. Ft.
Lt. Sta. 115+96 to Sta. 116+21 = 25 Lin. Ft.
Total = 130 Lin. Ft.

Average width 2.5 Lin. Ft. 130 x 2.5 = 325 Sq. Yds.
Total Net Insulation Course = 9702 - 36 = 9666 Sq. Yds.

Item B-35, 3" Asphaltic Concrete First Base Course
From above (Insulation Course) 9666 x 25 = 805.5 Cu. Yds.
Superelevation (5°-30' Curve) Estimated = 25.0 Cu. Yds.
Superelevation (8°-0' Curve) Estimated = 43.3 Cu. Yds.
Summary (Side Approaches) Total = 1.5 Cu. Yds.
Total = 875.3 Cu. Yds.

Item B-35, 3" Asphaltic Concrete Second Base Course
From above (Insulation Course) 9666 x 25 = 805.5 Cu. Yds.
Superelevation (5°-30' Curve) Estimated = 48.7 Cu. Yds.
Superelevation (8°-0' Curve) Estimated = 68.0 Cu. Yds.
Summary (Side Approaches) Total = 1.5 Cu. Yds.
Total = 923.7 Cu. Yds.

Item B-35, Asphaltic Concrete Levelling Course (Variable Thickness)
From Typical Section Sta. 0+10 to Sta. 168+92 = 16882 Lin. Ft.
20' width 16882 x 20 = 33764 Sq. Yds.

Additions - Extra width pavement from above (5°-30' Curve) = 132 Sq. Yds.
Extra width pavement from above (8°-0' Curve) = 138 Sq. Yds.
Total = 37786 Sq. Yds.
Estimated 100 Cu. Yds. per Mile 100 x 3.199 = 319.9 Cu. Yds.
Total = 1107.1 Cu. Yds.
Use 1107.0 Cu. Yds.

Item T-35 1/4" Asphaltic Concrete Surface Course
From above (Levelling Course) = 37786 x 1042 = 39386 Sq. Yds.

Additions - From Summary Side Approaches = 4.0 Cu. Yds.
Total = 1316.4 Cu. Yds. Use 1317 Cu. Yds.

Item E-10 Sealing (only) existing edge
From Sta. 0+00 to Sta. 168+92 = 16892 x 2 = 33784 Lin. Ft.
Additions - From Summary Side Approaches = 84 Lin. Ft.
Total = 33868 Lin. Ft.
Deductions - From above (Insulation Course) = 130 Lin. Ft.
From Sta. 76+80 to Sta. 77+00 = 20 x 2 = 40 Lin. Ft.
Total = 170 Lin. Ft.
Total sealing (only) of existing edge 33868 - 170 = 33698 Lin. Ft.

Item E-305 Seeding and Protecting Roadway Areas
Average width from Cross Sections = 20 Lin. Ft.
From Sta. 0+10 to Sta. 168+92 = 16882 Lin. Ft.
16882 x 20 = 33764 Sq. Yds.

Item E-4 Borrow (Screenings) (Estimated) = 60 Cu. Yds.

GENERAL SUMMARY

Item	Description	Quantity	Unit
Roadway			
E-1	Roadway Excavation (Unclassified)	2620	Cu. Yds.
E-4	Borrow	6002	Cu. Yds.
E-8	Removal and Disposal of Existing 6"x8"x6" Reinf. Conc. Pavement	33	Sq. Yds.
E-10	Sealing (only) of Existing Pavement Edge	33698	Lin. Ft.
E-11	Water	6	M. Gal.
E-12	12" Pipe Removed and Stored	21	Lin. Ft.
E-305	Seeding and Protecting Roadway Areas	37516	Sq. Yds.
I-1	12" Pipe for Driveways	24	Lin. Ft.
I-17	Traffic Bound Side Approaches, (60% No. 34, 40% No. 7)	70	Cu. Yds.
I-3	24" Pipe for Roadway Drainage Outlets	6	Lin. Ft.
I-10	Riprap, Type "A" (Grouted)	44	Sq. Yds.
Pavement			
E-4	Borrow (Screenings)	60	Cu. Yds.
I-19	1/4" Insulation Course	9666	Sq. Yds.
B-35	Asphaltic Concrete Base Course	1799	Cu. Yds.
B-35	Asphaltic Concrete Leveling Course	1107	Cu. Yds.
T-35	Asphaltic Concrete Surface Course, Type "A"	1317	Cu. Yds.
Structures (20' Span and Under)			
E-2	Excavation for Structures (Unclassified)	7	Cu. Yds.
S-24	Removal of 1 Existing Structure	Lump	Lump
S-27	12" Pipe for Roadway Culvert	48	Lin. Ft.
S-27	24" Pipe for Roadway Culvert	27	Lin. Ft.
S-27	30" Pipe for Roadway Culvert	27	Lin. Ft.
S-27	72"x44" Corr. Metal Arch. Culvert with Integral Base, Paved Bituminous Coated or paved invert, Supplemental Specification No. 164	62	Lin. Ft.
S-22	Removal of Portions of existing masonry	0.4	Cu. Yd.

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