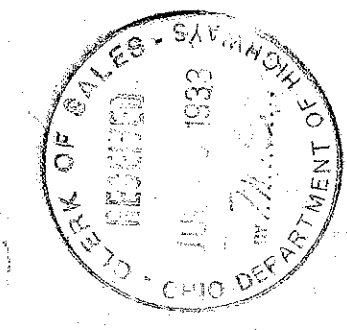


N.R.H.-513-F

FED. RD. DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	1/28
10	OHIO	513-F	1933	

MADISON COUNTY
S.H. 241 SEC. B(Pt.) & C

PROPOSAL #1



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DELAWARE ~ LONDON RD.
S.H. 241. SEC. B(Pt.) + C PET. No.
MADISON COUNTY

BUREAU OF CONSTRUCTION
NET LENGTH OF PROJECT 23,454 LIN. FT.

The Standard Specifications of the STATE OF OHIO Department of Highways, together with the Supplemental Specifications for National Recovery Highway Projects in force on date of contract will govern this improvement.
I, hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as shown on the plans and estimates, and certify that the right-of-way, 60 ft. wide is available for the construction, maintenance and repair of the above highway.

Approved: _____
Date _____ Resident District Deputy Director

Approved: H. D. Schoonover
Date 6-12-33 Resident Division Deputy Director

Approved: Elmer Hilty
Date 7/19/33 Deputy Director Bureau of Construction

Approved: _____
Date _____ Deputy Director Bureau of Maintenance

Approved: _____
Date _____ Deputy Director Bureau of Bridges

Approved: H. P. Chapman
Date 7-19-33 Chief Engineer, 1st Asst. Director

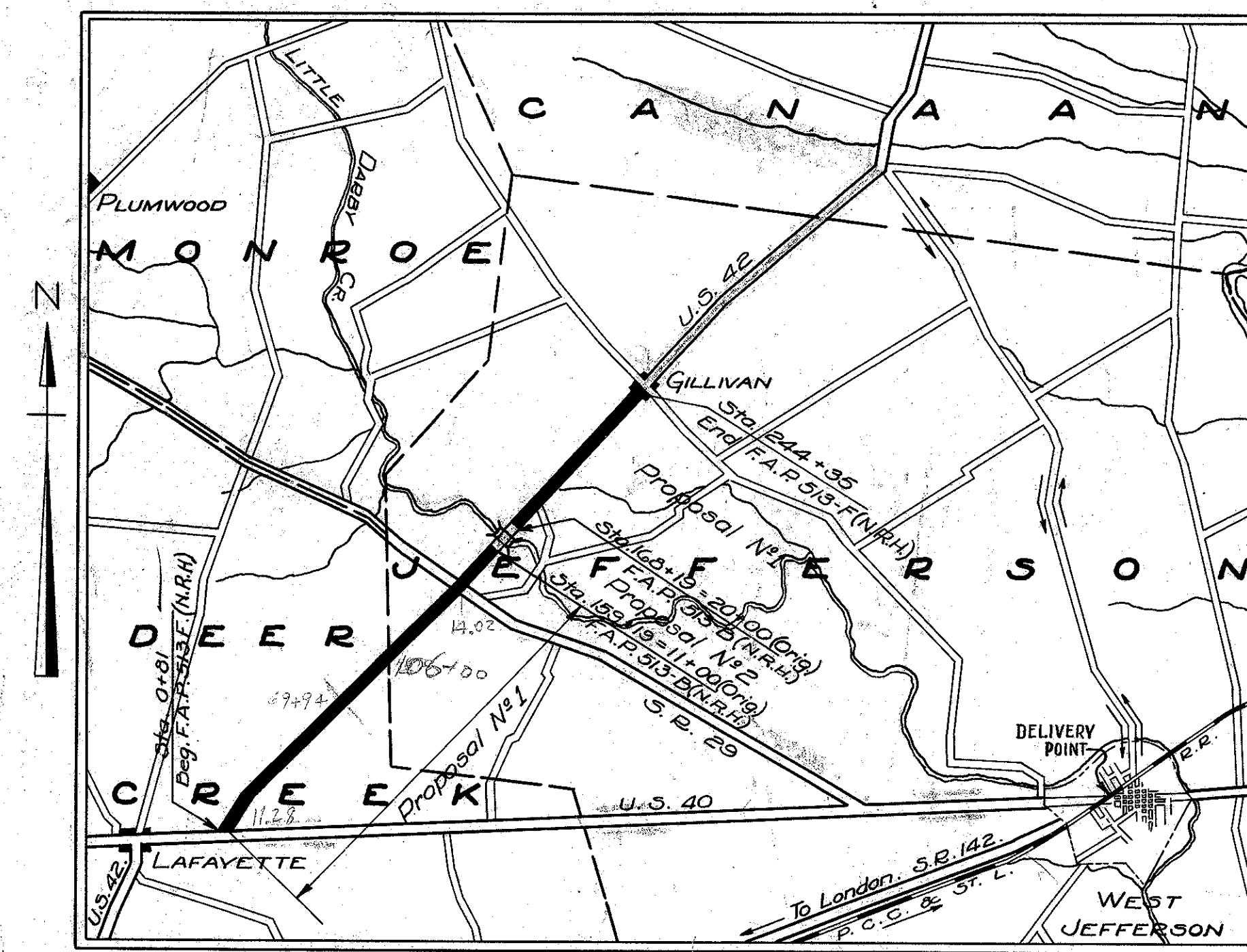
Approved: Old Verrill
Date 7-19-33 Director of Highways

Recommended for Approval: _____
Date _____ District Engineer Bureau of Public Roads

Recommended for Approval: _____
Date _____ Chief Engineer Bureau of Public Roads

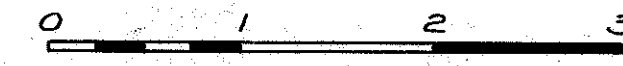
Approved: _____
Date _____ Chief of Bureau

O.K. for 20 ft Cove Point
Grady & Strs 6/11/33

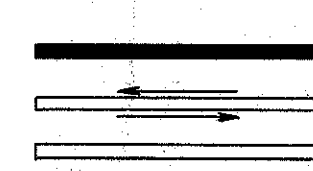


LOCATION PLAN

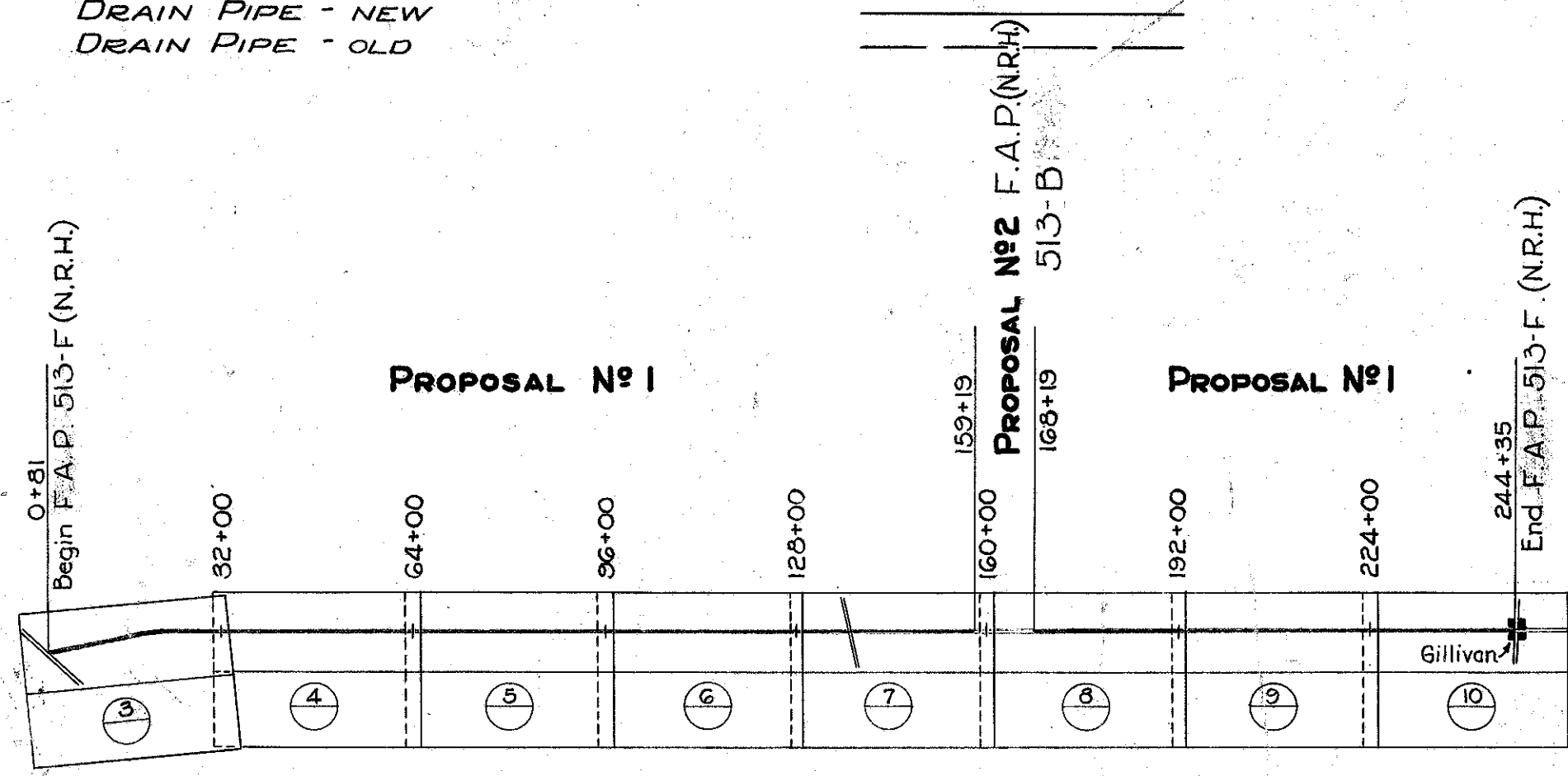
Scale of Miles.



PORTION TO BE IMPROVED
DETOURS SHOWN THUS
IMPROVED ROADS



- ~ CONVENTIONAL SIGNS ~
- STATE LINE
 - COUNTY LINE
 - TOWNSHIP LINE
 - SECTION LINE
 - PROPERTY LINE NOT FENCED
 - CENTER LINE
 - CITY OR VILLAGE LINE
 - FENCE
 - HEDGE
 - TELEPHONE OR TELEGRAPH
 - STEAM RAILROAD
 - ELECTRIC LINE
 - GUARD RAIL
 - DRAIN PIPE - NEW
 - DRAIN PIPE - OLD



INDEX BY SHEETS

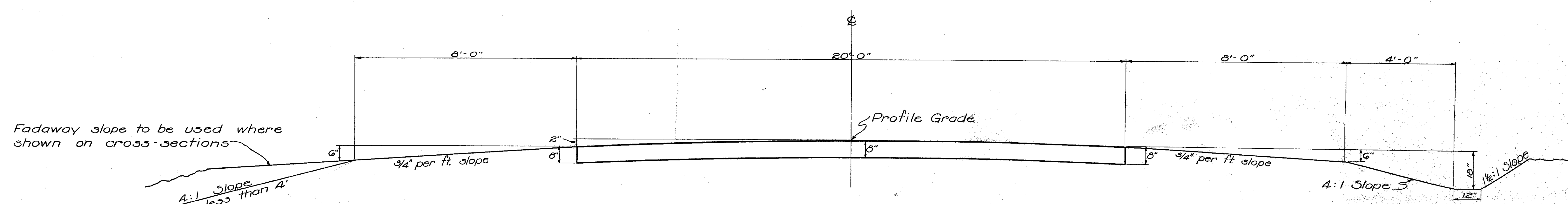
PLAN	1" = 100'	TITLE PAGE	P. 1
PROFILE VERTICAL	1" = 10'	TYPICAL CROSS SECTION	2
PROFILE HORIZONTAL	1" = 100'	PLANS & PROFILE	3-10
CROSS SECTIONS	1" = 5'	CROSS SECTIONS	11-23
		STRUCTURAL PLANS	24-27
		SUMMARY SHEET	28

SUPPLEMENTAL PRINTS OF STRUCTURAL STANDARDS DRAWINGS No T-70-J, 300, 305, BC-A, SC-A, AS-31, I-15, & Div. 6 Drainage Std.



CHECKING RECORD		
OFFICE	BY	DATE
RESIDENT DIVISION	ELL	6-7-33
CENTRAL CONST.	KEW	6-16-33
CENTRAL-BRIDGES		
BUR. OF PUBLIC ROADS	S.E.B.	6-19-33

TYPICAL SECTION



IN FILL

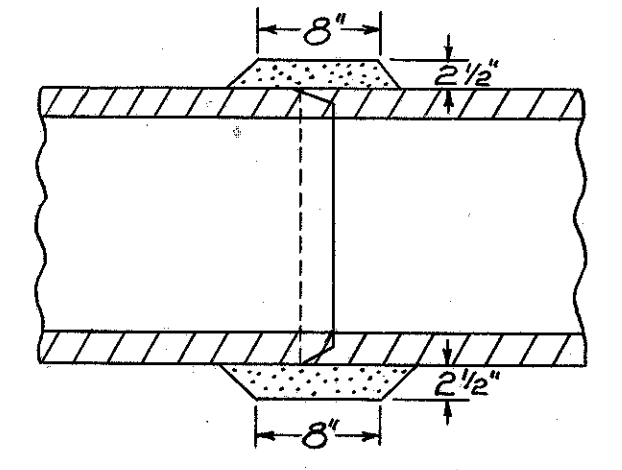
IN CUT

Earthwork has been calculated from this theoretical typical grading section.

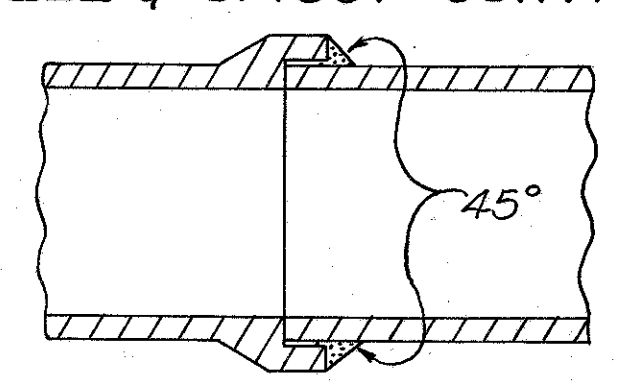
To Be Used Between Sta. 0+81 & 159+19 ✓
and between Sta. 168+19 & 244+35

Faraway slope to be used where shown on cross-sections

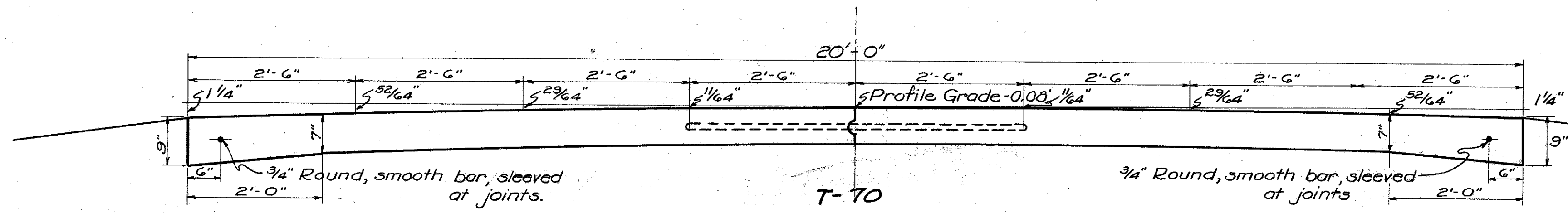
MODIFIED JOINT



BELL & SPIGOT JOINT



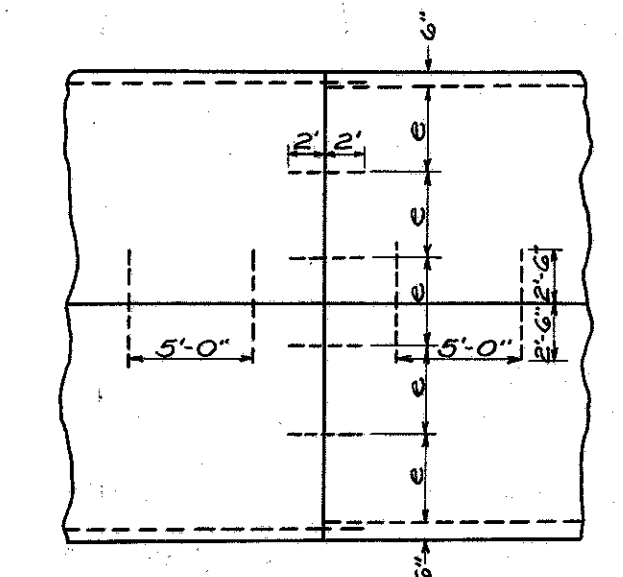
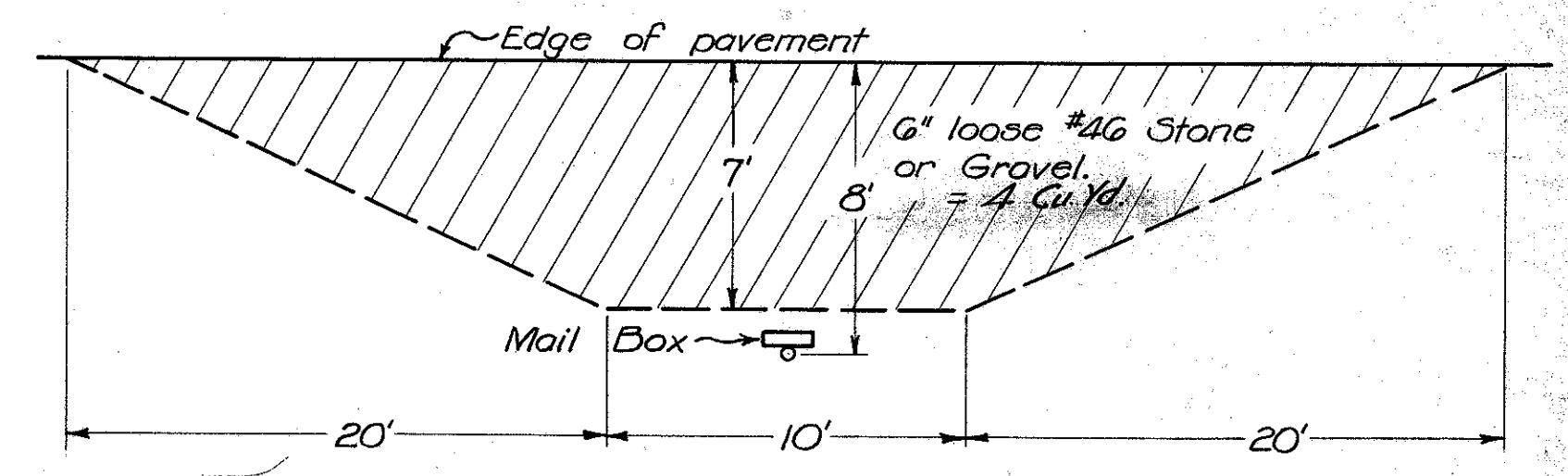
Concrete pipe used as an alternate for V.S.P. encased & cern. jts. shall be cemented as shown in the accompanying sketch.



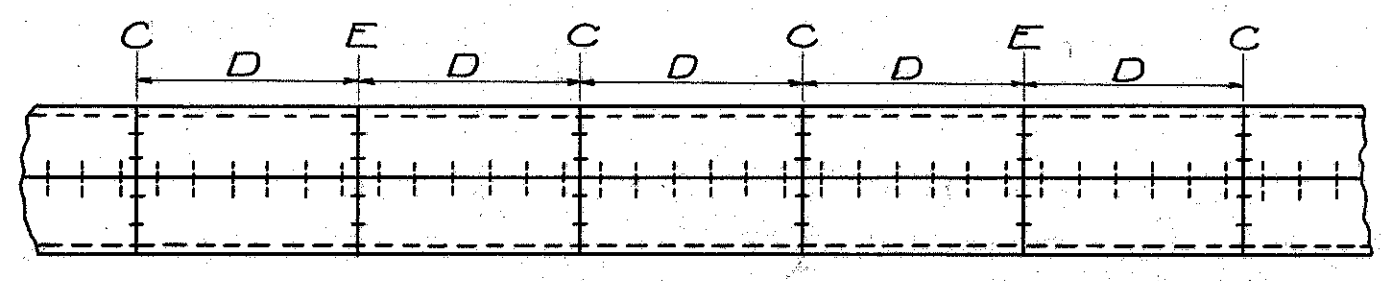
T-70
TYPICAL SECTION
For
CONCRETE PAVEMENT

Including:- Center Joint, dowels and edge bars as per Std. Dr. T-70-J and including transverse expansion and contraction jts. as per Standard Drawing T-70-J as per specifications
Berm and Ditch section to be same as shown on theoretical typical grading section.
Limestone Sand conforming to specifications may be used.

TYPICAL MAIL BOX APPROACH



DETAIL OF TRANSVERSE JT.



DETAIL SHOWING CENTER JOINT & FREQUENCY OF TRANSVERSE JOINTS.

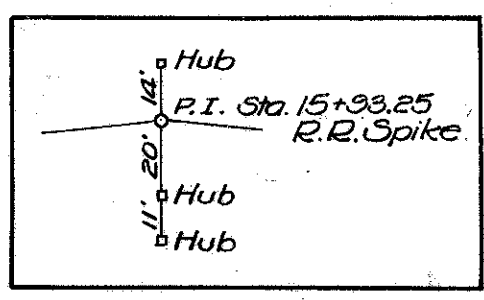
- C = Contraction joint.
- E = Expansion joint (Sept. 15 to May 15).
- D = 25' for gravel aggregate.
- D = 30' for stone or slag aggregate.

Note: Grade line has been laid, cross sections plotted and yardage calculated for a theoretical typical section for a 20 ft. pavement having a uniform 2" depth and a 2" crown as shown above.
For the typical concrete pavement to be used as shown having a 1/4" crown the grade of the edge of the pavement shall be lowered 0.0164' for equal yardage, the elevation of the ditch remaining the same.
The center line grade shall be lowered by the amount of the difference in crown between the theoretical and the concrete typical section plus the difference in the edge grades or a total of (0.0025 + 0.0164 = 0.0189) or 0.02 ft.

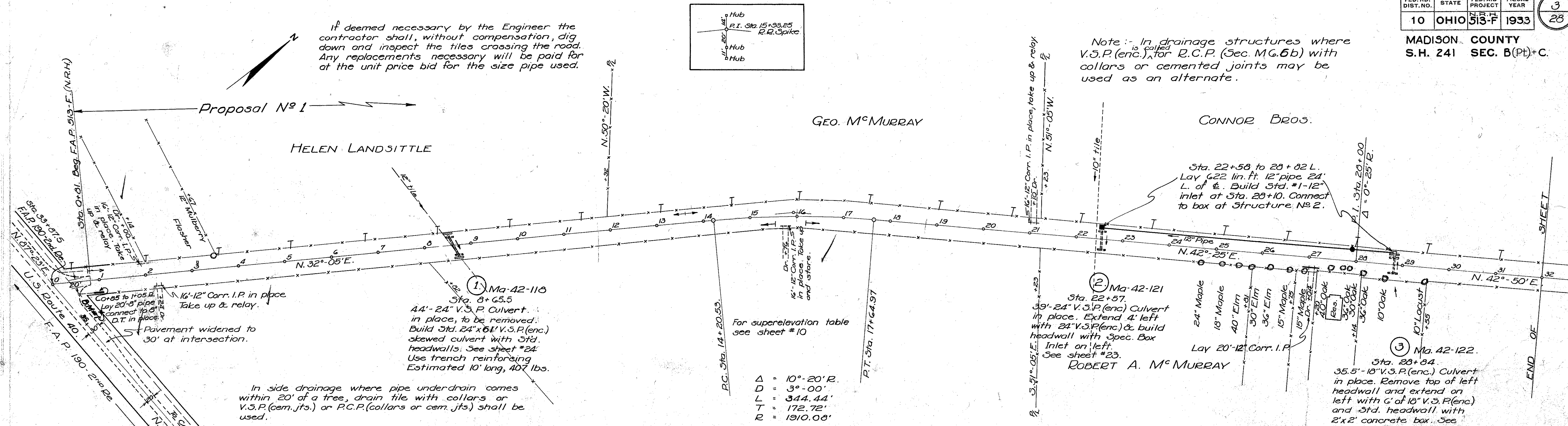
0.10 7/26/33
A.S.A.

APPROVED

If deemed necessary by the Engineer the contractor shall, without compensation, dig down and inspect the tiles crossing the road. Any replacements necessary will be paid for at the unit price bid for the size pipe used.



Note: In drainage structures where V.S.P. (enc.) for R.C.P. (Sec. M.G.6b) with collars or cemented joints may be used as an alternate.



In side drainage where pipe underdrain comes within 20' of a tree, drain tile with collars or V.S.P. (cem. jts.) or R.C.P. (collars or cem. jts.) shall be used.

All pipe removed shall be stored for disposal by the State. Removal included in excavation.

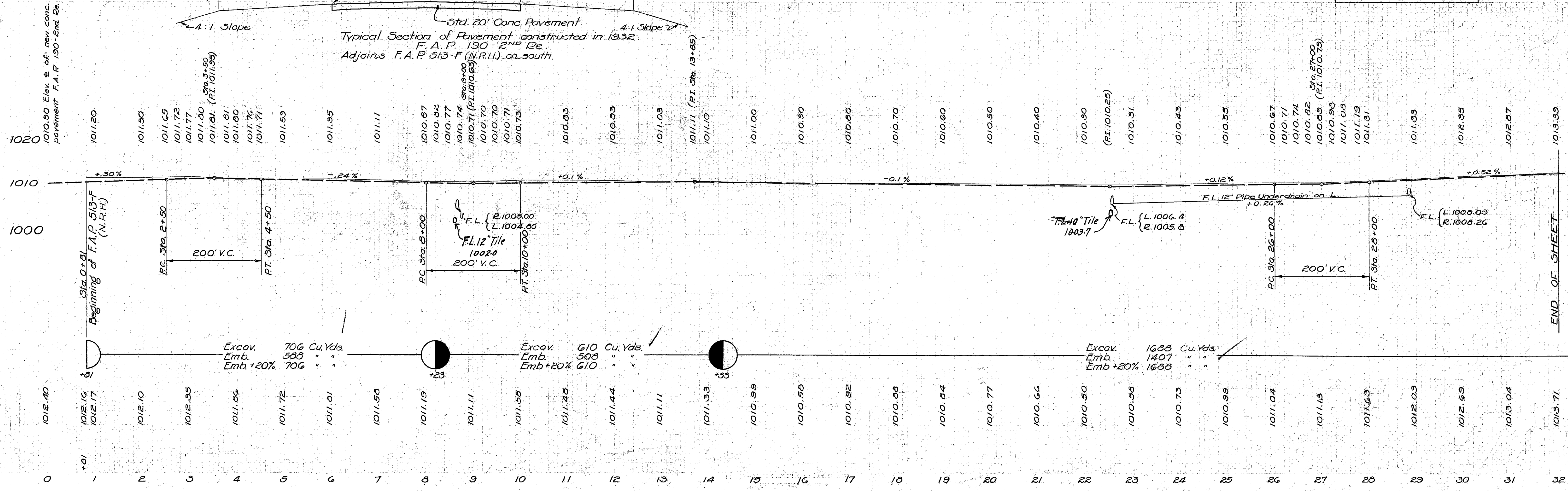
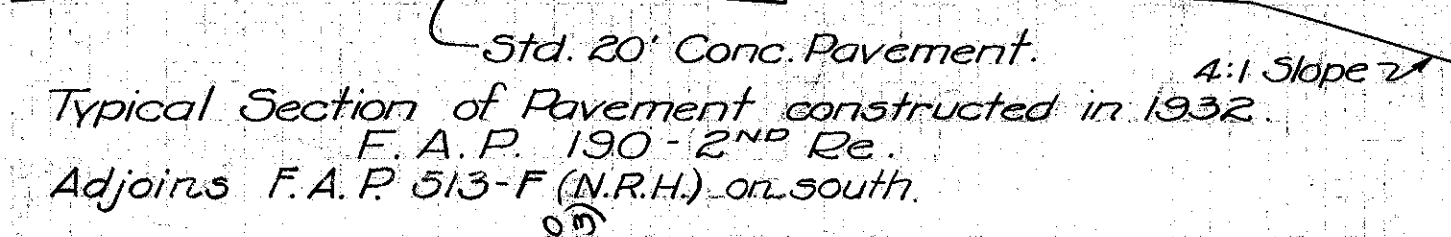
HELEN LANDSITTLE

Approximately 4 cu. yds. of #4 stone or gravel to be placed at private driveways & 4 cu. yds. at mail boxes, or as directed by engineer.
40 Private Drives @ 4 cu. yds. = 160 cu. yds.
22 Mail Box Appr. @ 4 " " = 88 " "

Removal of all hedges, trees under 8" dia., stumps and existing guard rail, which shall be stored for removal by the State, is included in roadway excavation. No trees will be removed other than those specifically marked (to be removed) on the plans except by order of the engineer.

B.M. #1 Top conc. mon. 40' L. Sta. 35+00 of S.H. 1-2nd. Sec. C. Elev. 1010.25

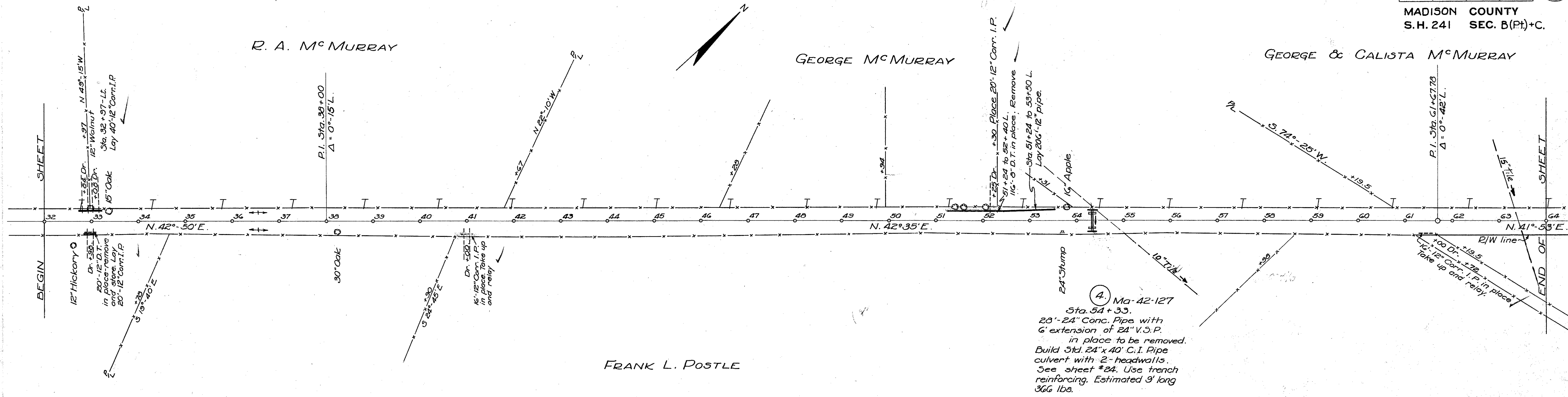
B.M. #2. Sta. 27+50. N.W. corner porch floor 70' D. Elev. 1013.98



Excav. 706 Cu. Yds.
Emb. 588 " "
Emb +20% 706 " "

Excav. 610 Cu. Yds.
Emb. 508 " "
Emb +20% 610 " "

Excav. 1688 Cu. Yds.
Emb. 1407 " "
Emb +20% 1688 " "

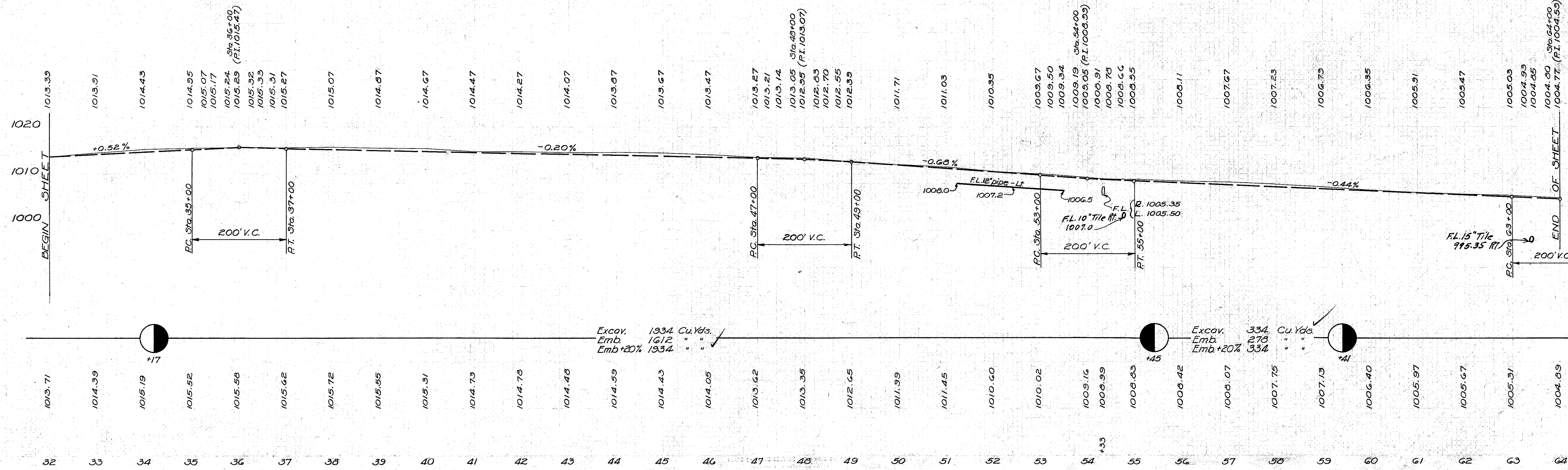


B.M. #3. Sta. 32+60.
Spike in root 12" Hickory 50' R.
Elev. 1013.68.

B.M. #4. Sta. 42+50.
Spike in top 16" stump 45' E.
Elev. 1013.10.

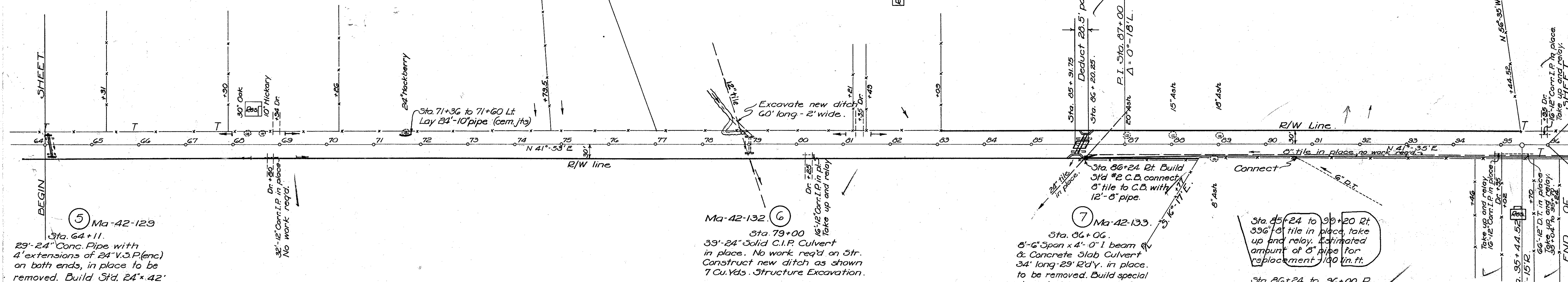
B.M. #5. Sta. 52+30.
Spike in side gate post 27' L.
Elev. 1011.63.

4. Ma-42-127
Sta. 54+33.
28'-24" Conc. Pipe with
6' extension of 24" V.S.P.
in place to be removed.
Build Std. 24"x40' C.I. Pipe
culvert with 2' headwalls.
See sheet #24. Use trench
reinforcing. Estimated 9' long
366 lbs.



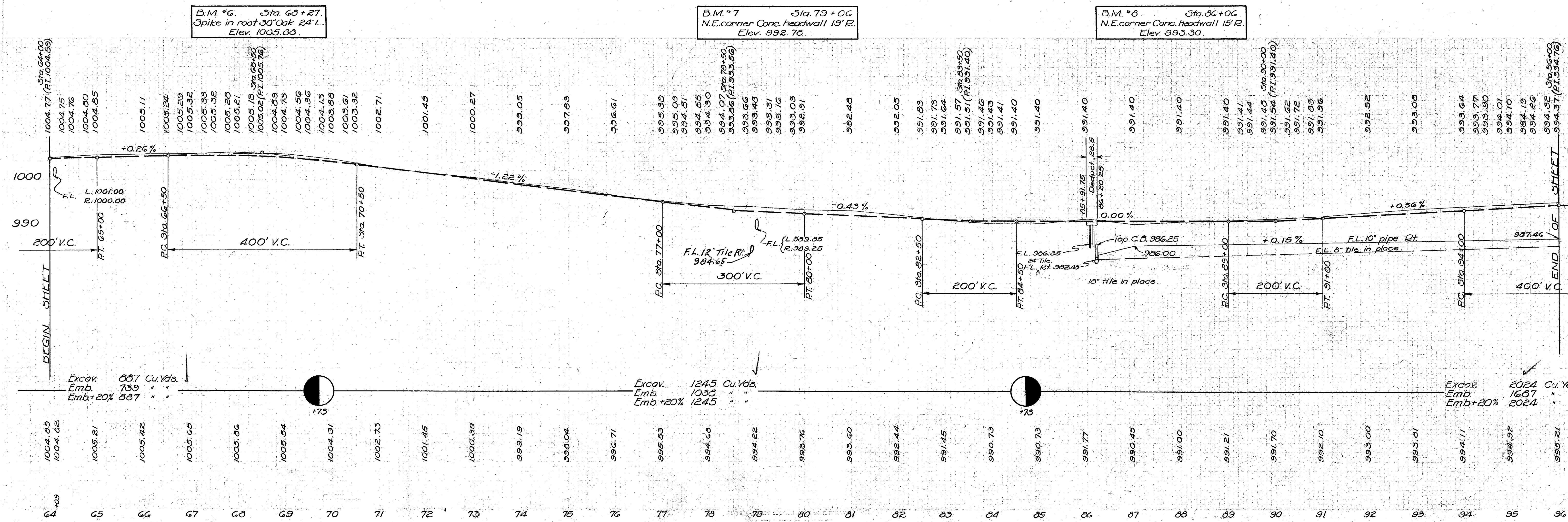
GEORGE & CALISTA McMURRAY

ESTATE OF MELVINA MARK

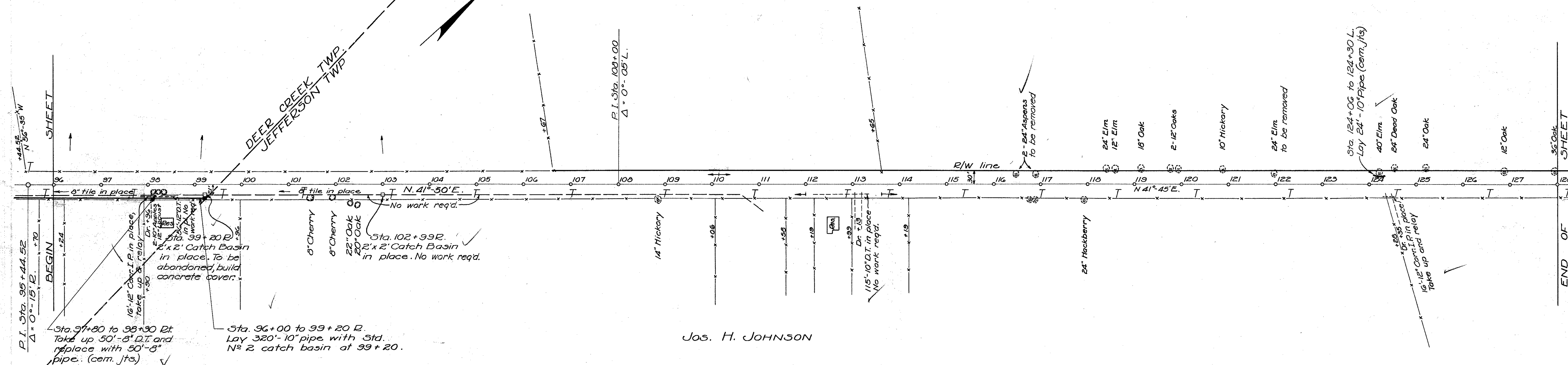


GEORGE & CALISTA McMURRAY

Jos. H. JOHNSON



ESTATE OF MELVINA MARK

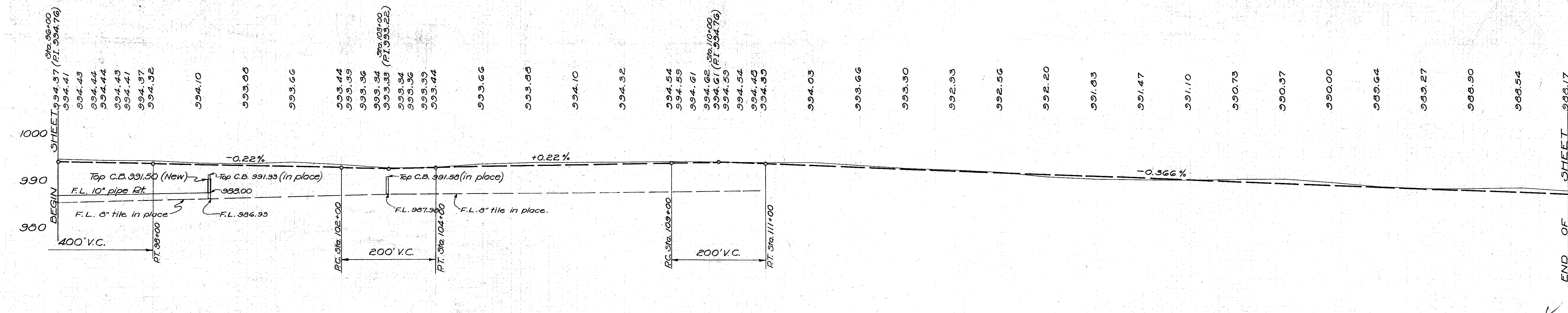


Jos. H. JOHNSON

B.M. #9. Sta. 97+91.
Conc. foundation for Cor. Post 30' R.
Elev. 994.78

B.M. #10. Sta. 103+90.
Spike in root 14" Hickory 31' R.
Elev. 993.48

B.M. #11. Sta. 124+17.
Spike in root 40" Elm 23' L.
Elev. 989.39



995.21	995.01	994.95	994.95	994.28	994.69	994.06	993.99	993.60	994.20	994.77	994.77	994.80	994.87	994.80	994.72	994.78	994.05	993.43	993.14	992.75	991.83	991.35	991.15	991.11	991.23	991.19	990.63	989.83	989.33	989.33	989.55	989.92
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	126	127	128

Excav. 1205 Cu. Yds.
Emb. 964 " "
Emb+20% 1157 " "
Waste 48 " "

Excav. 1628 Cu. Yds.
Emb. 1132 " "
Emb+20% 1358 " "
*Waste 270 " "

*To be wasted at intersection
of S.H. 188 Sta. 136+78

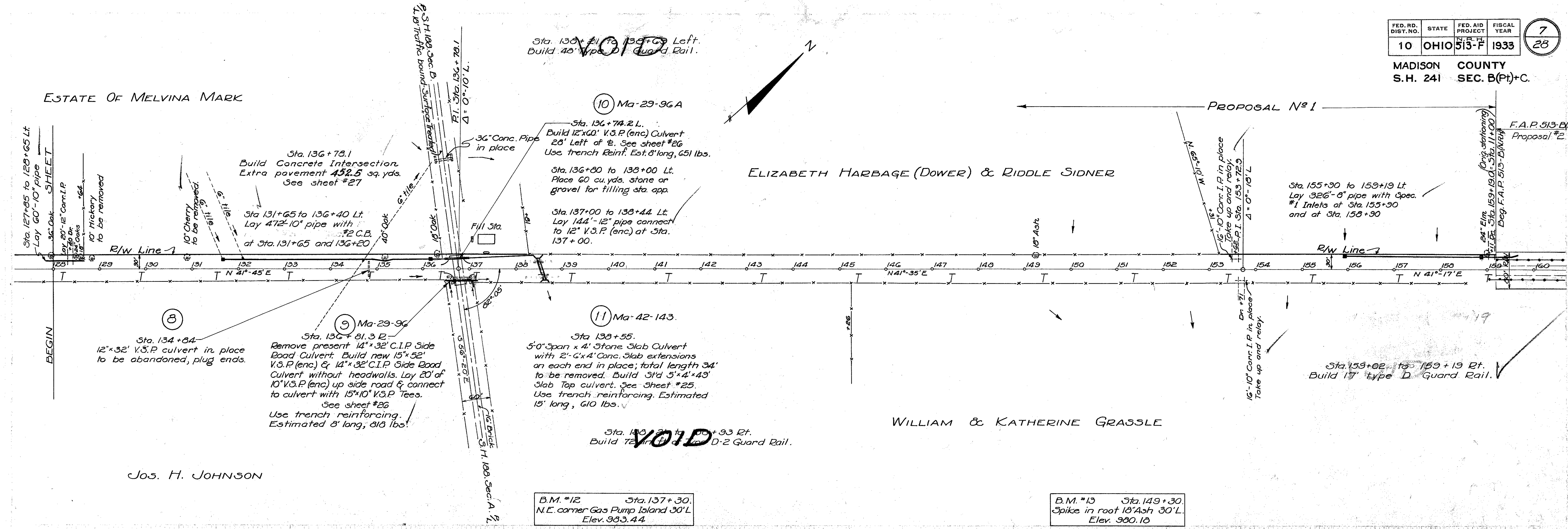
MADISON COUNTY
S. H. 241 SEC. B(Pt)+C.

ESTATE OF MELVINA MARK

ELIZABETH HARBAGE (DOWER) & RIDDLE SIDNER

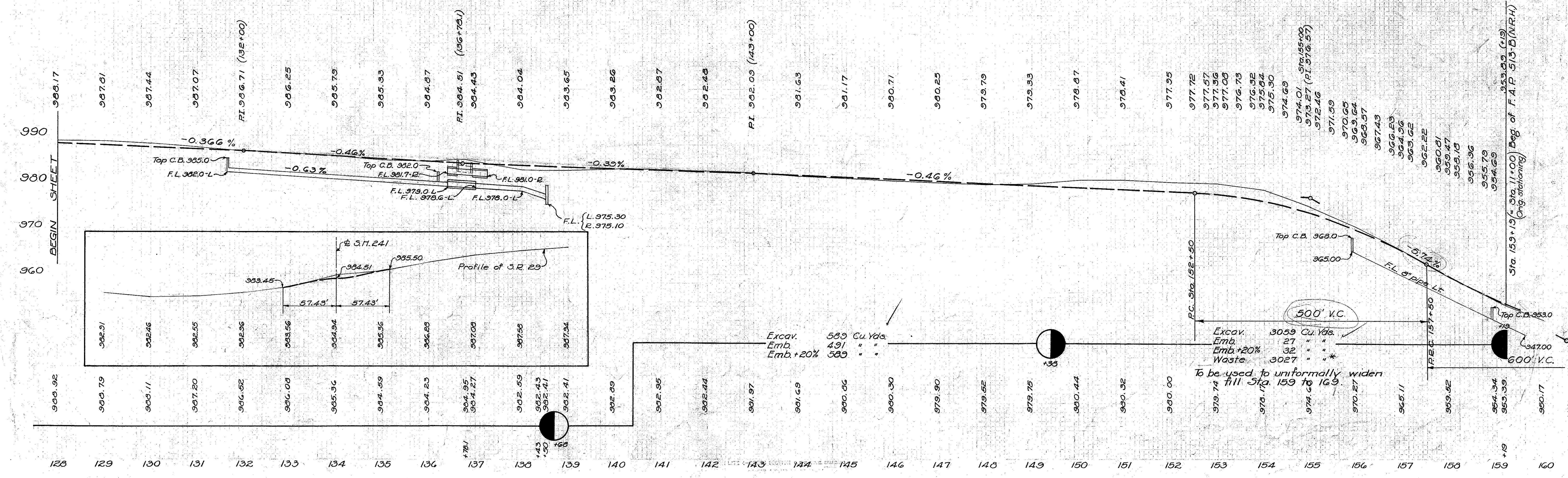
WILLIAM & KATHERINE GRASSLE

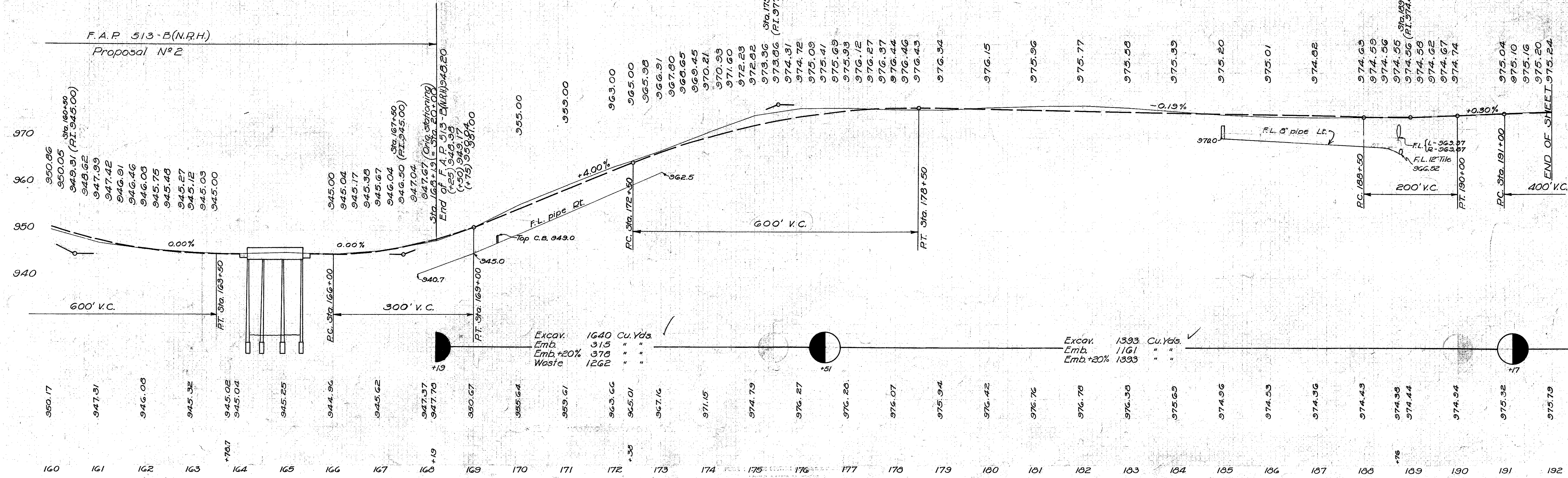
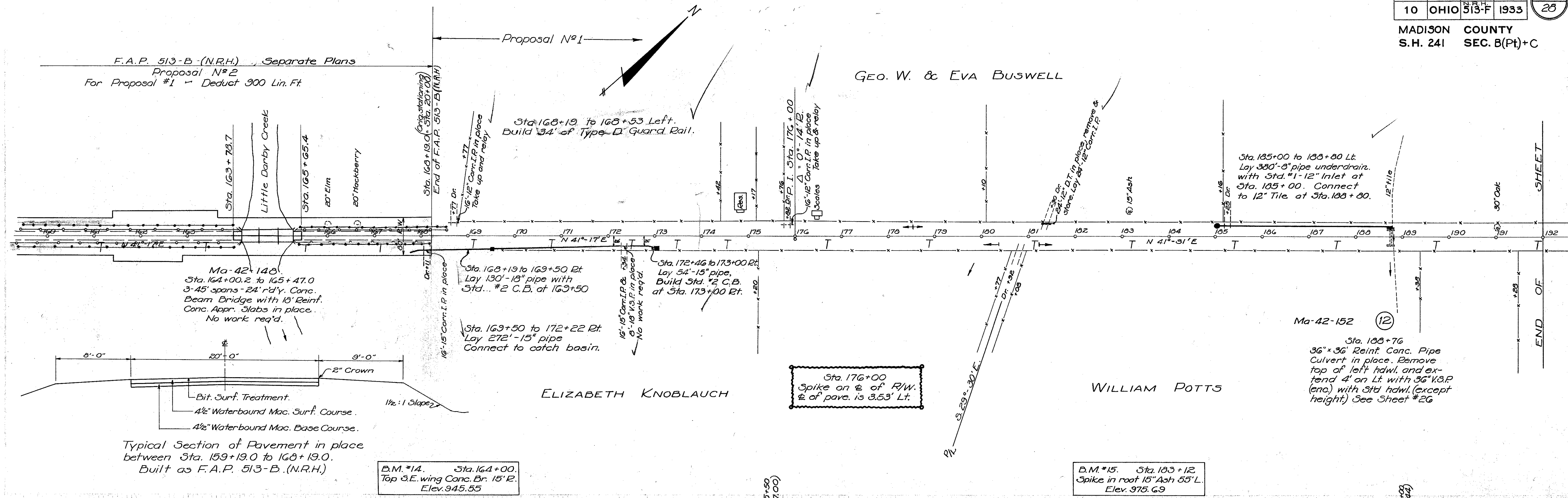
Jos. H. JOHNSON

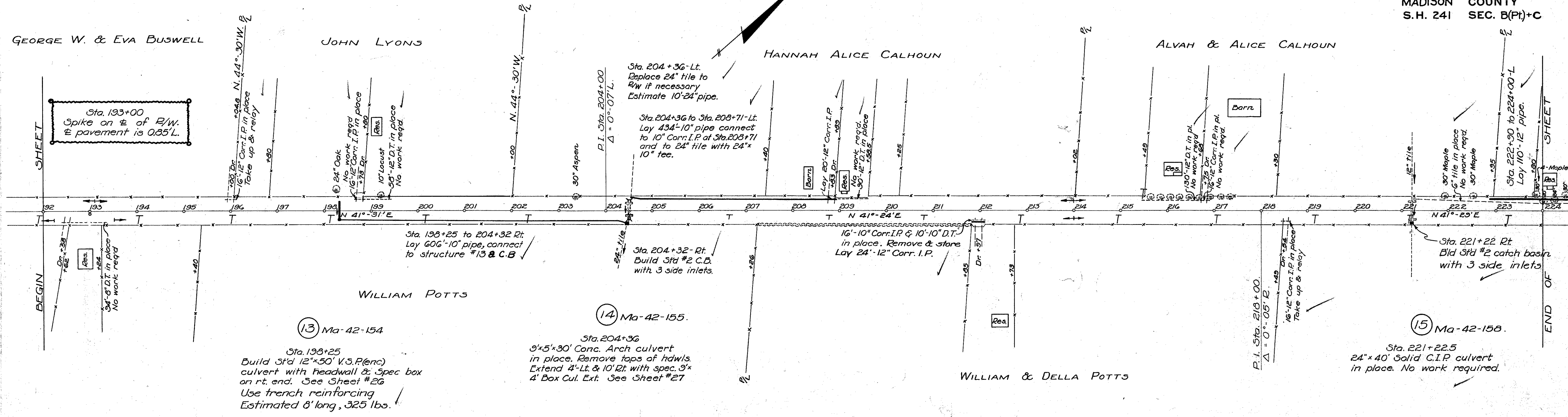


B.M. #12 Sta. 137+30.
N.E. corner Gas Pump Island 30' L
Elev. 983.44

B.M. #13 Sta. 149+30.
Spike in root 18' Ash 30' L
Elev. 980.18



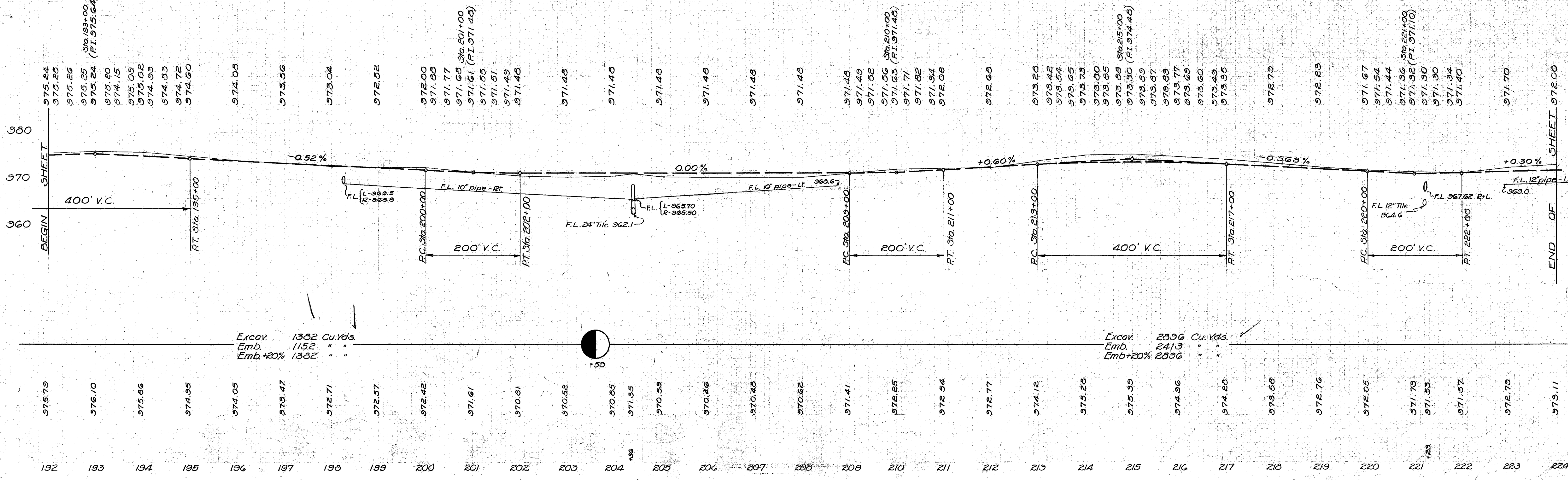


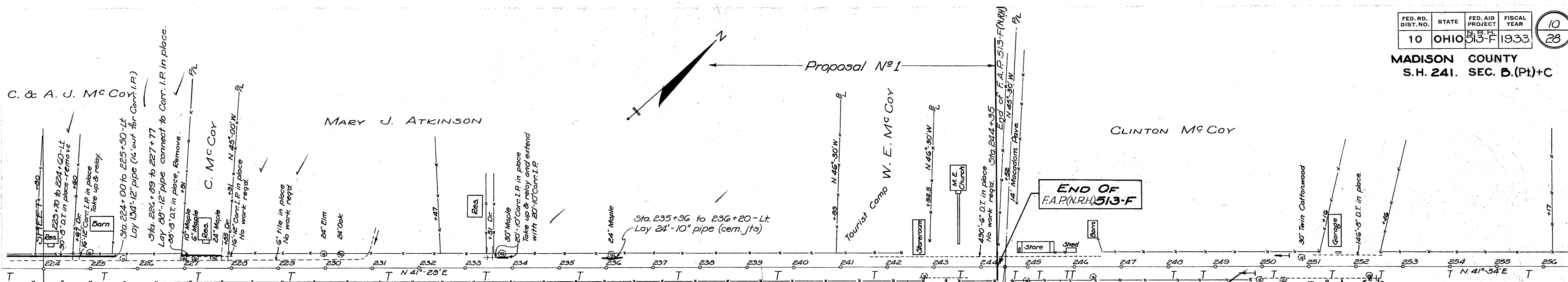


B.M. #16 Sta. 192+40
Conc. Fdn. for Pipe Gate Post 30'R.
Elev. 976.10

B.M. #17 Sta. 204+40
Top N.E. corner Conc. Hdwl. 14'R.
Elev. 972.89

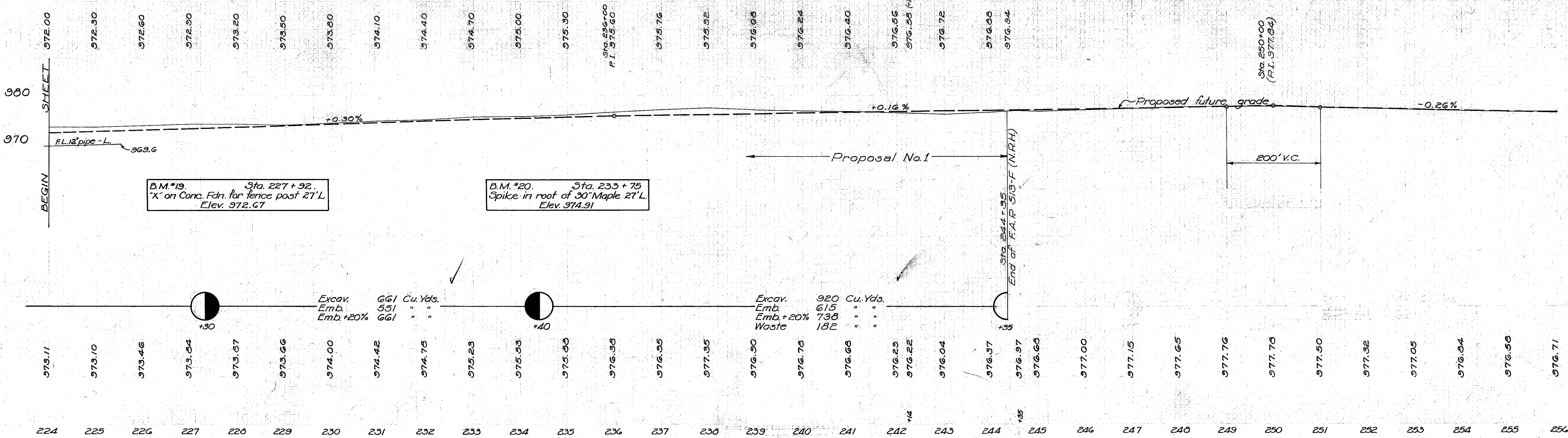
B.M. #18 Sta. 217+39
Spike in root 24' Maple 28'L.
Elev. 972.10



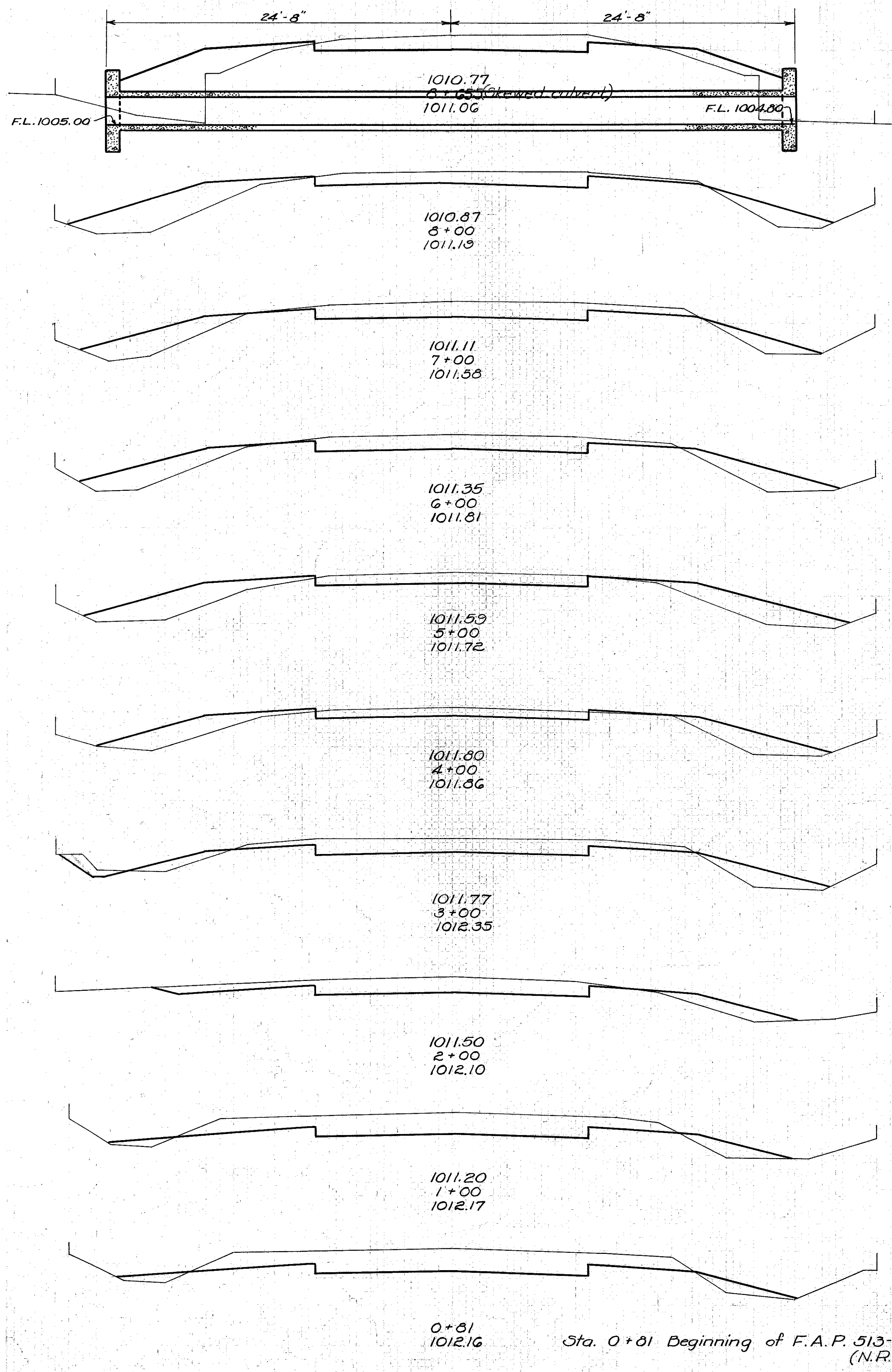


SUPERELEVATION TABLE
P.C. Sta. 14+20.53. P.T. Sta. 17+64.97. D=3° Rt.

Left Edge	Center		Right Edge		Deduct from #	
	Edge Grade	Width	Station	Grade Elev.		
0.00	1010.89	10.00'	13+20.53	1011.05	1010.89	0.17
0.02	1010.91		13+25	1011.06	1010.89	
0.14	1011.05		13+25	1011.09	1010.91	
0.26	1011.19		13+25	1011.10	1010.93	
0.38	1011.31		14+00	1011.10	1010.93	
0.48	1011.39		14+20.53	1011.08	1010.91	
0.50	1011.40		14+25	1011.07	1010.90	
0.62	1011.50		14+50	1011.05	1010.88	
0.72	1011.55		14+70.53	1011.03	1010.86	
	1011.57		14+75	1011.02	1010.85	
	1011.55		15+00	1011.00	1010.83	
	1011.52		15+25	1010.97	1010.80	
	1011.50		15+50	1010.95	1010.78	
	1011.47		15+75	1010.92	1010.75	
	1011.45		16+00	1010.90	1010.73	
	1011.42		16+25	1010.87	1010.70	
	1011.40		16+50	1010.85	1010.68	
	1011.37		16+75	1010.82	1010.65	
	1011.35		17+00	1010.80	1010.63	
0.72	1011.34		17+14.97	1010.79	1010.62	
0.67	1011.27		17+25	1010.77	1010.60	
0.55	1011.13		17+50	1010.75	1010.58	
0.48	1011.05		17+64.97	1010.74	1010.57	
0.43	1010.98		17+75	1010.72	1010.55	
0.31	1010.84		18+00	1010.70	1010.53	
0.19	1010.69		18+25	1010.67	1010.50	
0.07	1010.55		18+50	1010.65	1010.48	
0.00	1010.47	10.00'	18+64.97	1010.64	1010.47	0.17

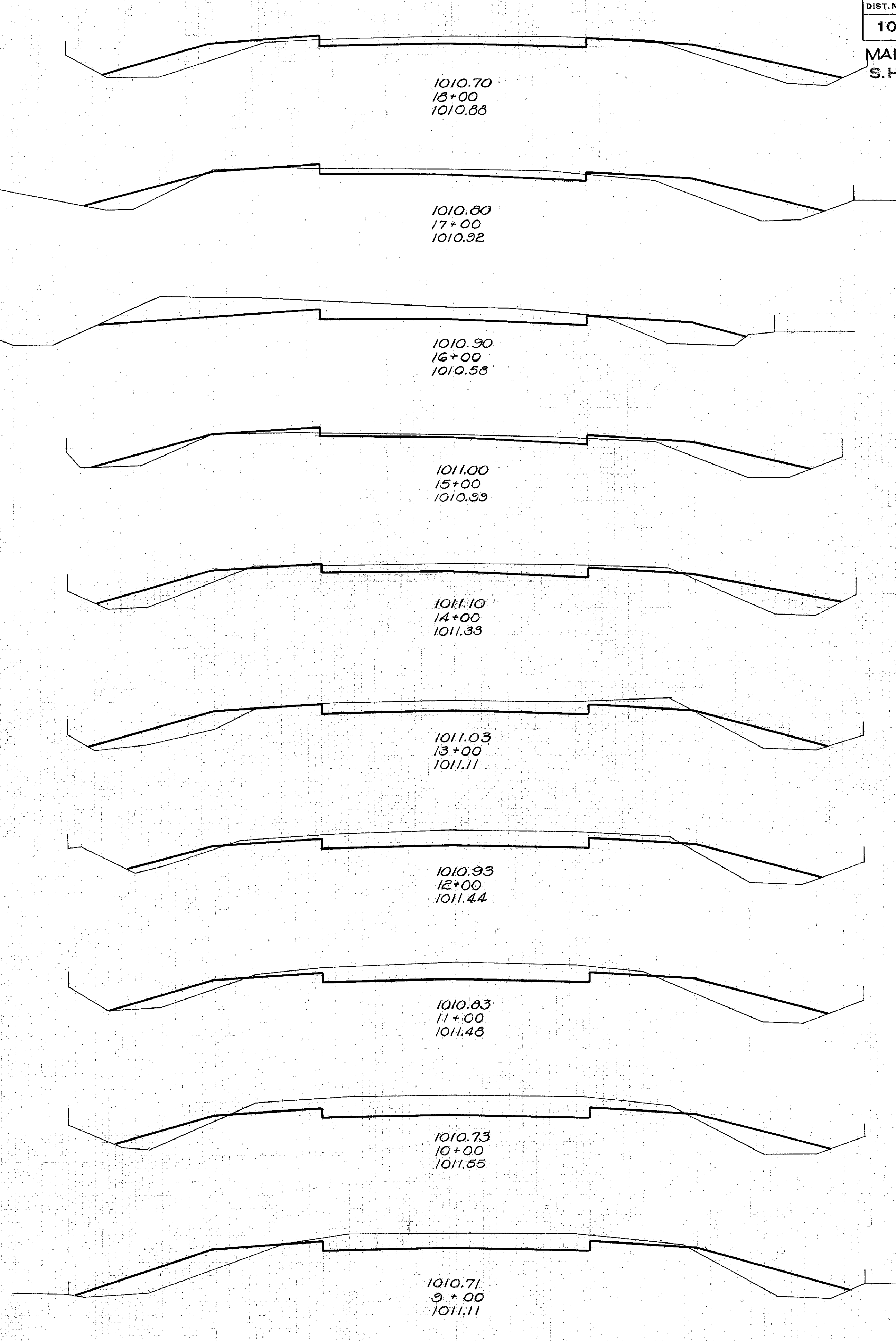


MADISON COUNTY
S.H. 241 SEC. B(Pt) & C



Station	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
23	42		34	59
			54	93
21	33		20	34
			91	102
28	22			
			98	91
25	27			
			74	113
15	34			
			54	111
14	26			
			80	72
29	13			
			113	37
32	7			
			143	24
45	6			
			33	4
50	5			

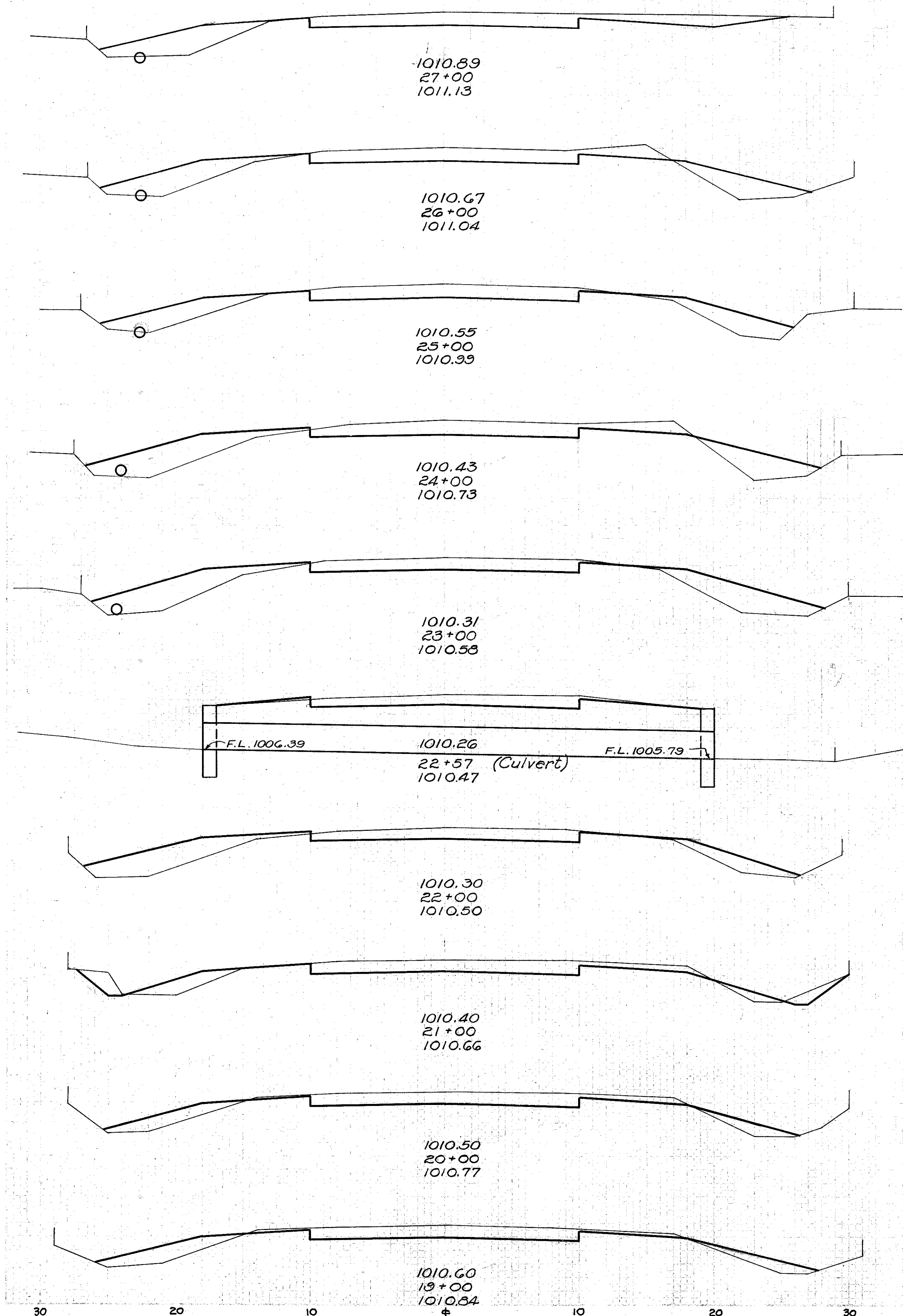
Excav. Emb. + 20%
706 Cu. Yds.
508 " "
706 " "



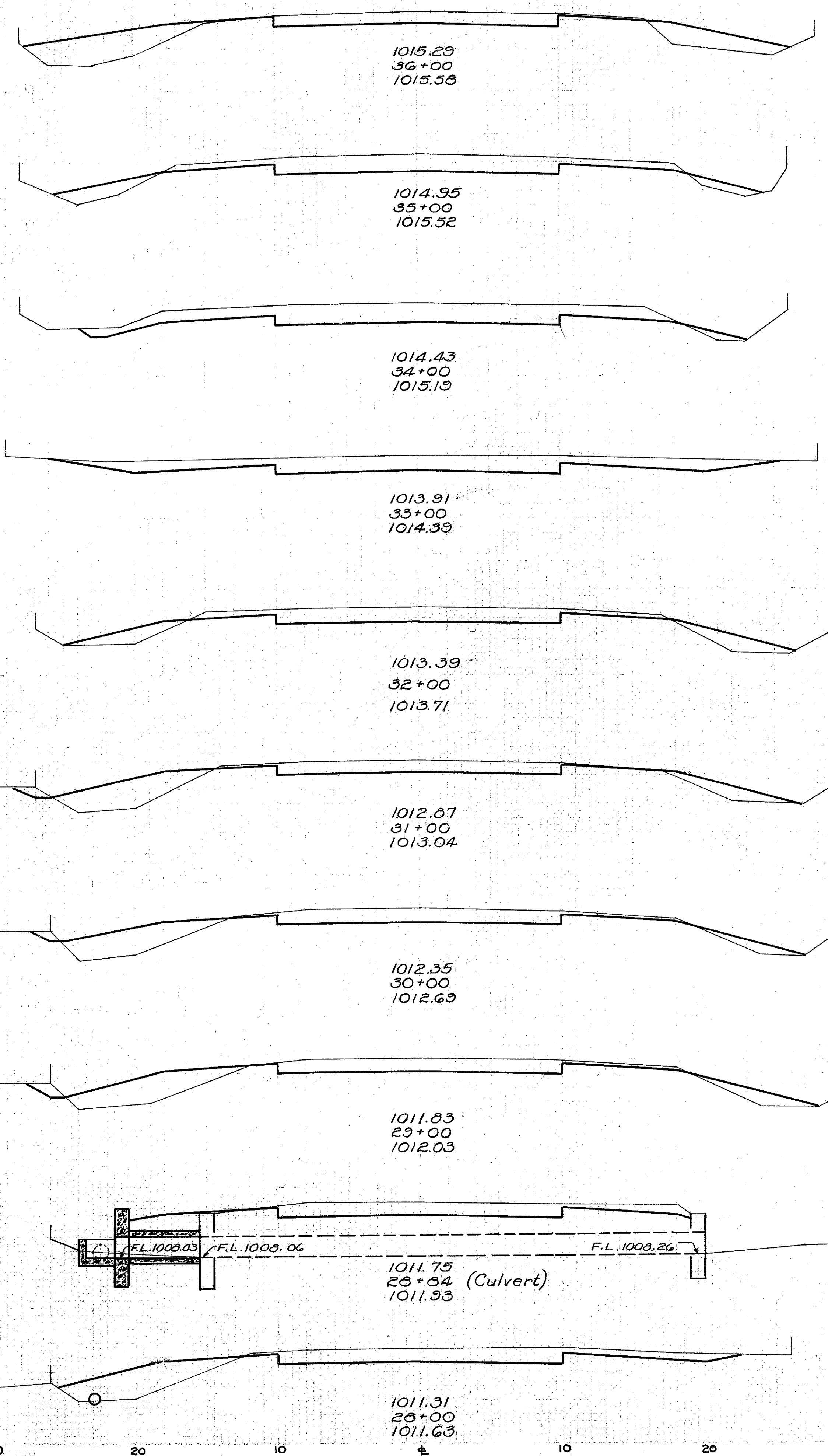
Station	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
14	27			
			46	98
11	26			
			98	72
42	13			
			89	63
6	21			
			22	56
			33	83
			11	27
12	24			
			67	85
24	22			
			100	67
30	14			
			109	61
29	19			
			130	70
41	19			
			128	94
28	32			
			31	45

Excav. Emb. + 20%
610 Cu. Yds.
508 " "
610 " "

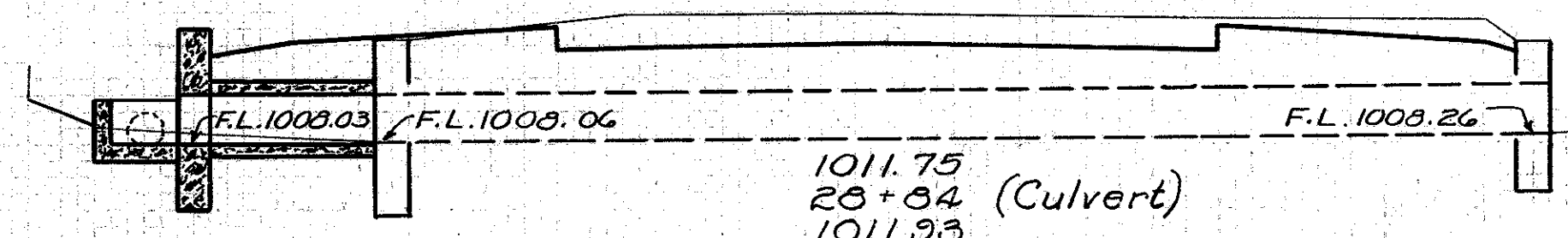
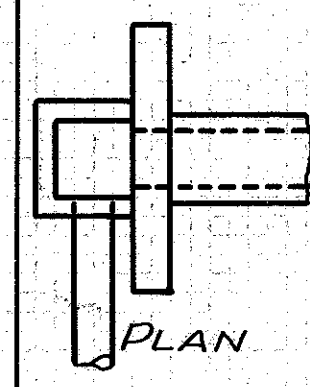
MADISON COUNTY
S.H. 241 SEC. B(Ph)&C



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
30	15		
		34	78
21	27		
		74	94
19	24		
		80	107
24	34		
		81	130
20	36		
		69	113
17	25		
		81	61
27	8		
		89	41
21	14		
		72	54
18	15		
		59	78

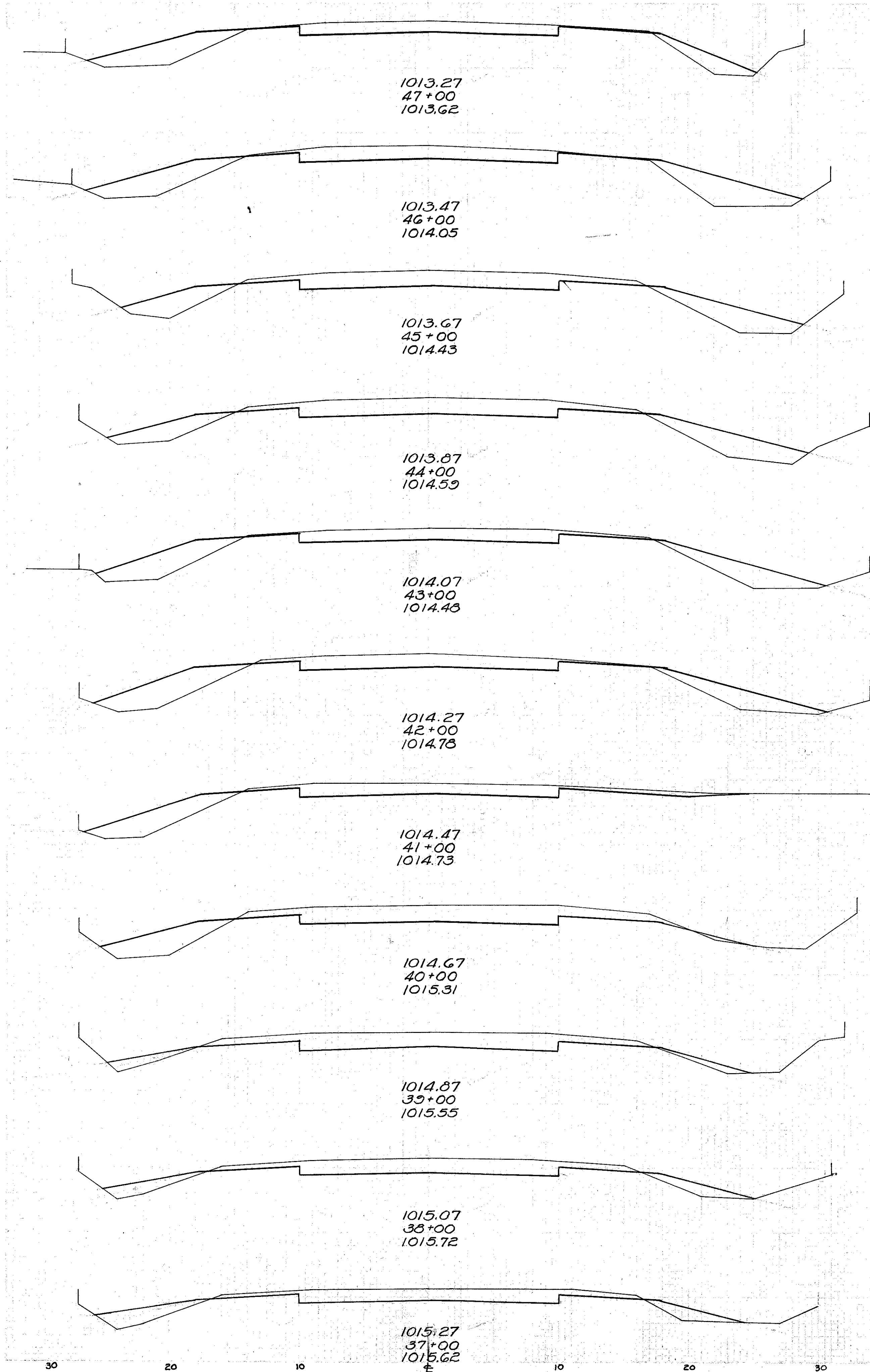


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
17	25		
		87	65
30	10		
		104	18
		126	22
		22	4
38	2		
		159	4
48	0		
		135	24
25	13		
		74	63
15	21		
		69	74
22	19		
		80	74
21	21		
		12	11
21	17		
		76	51
28	16		
		107	57



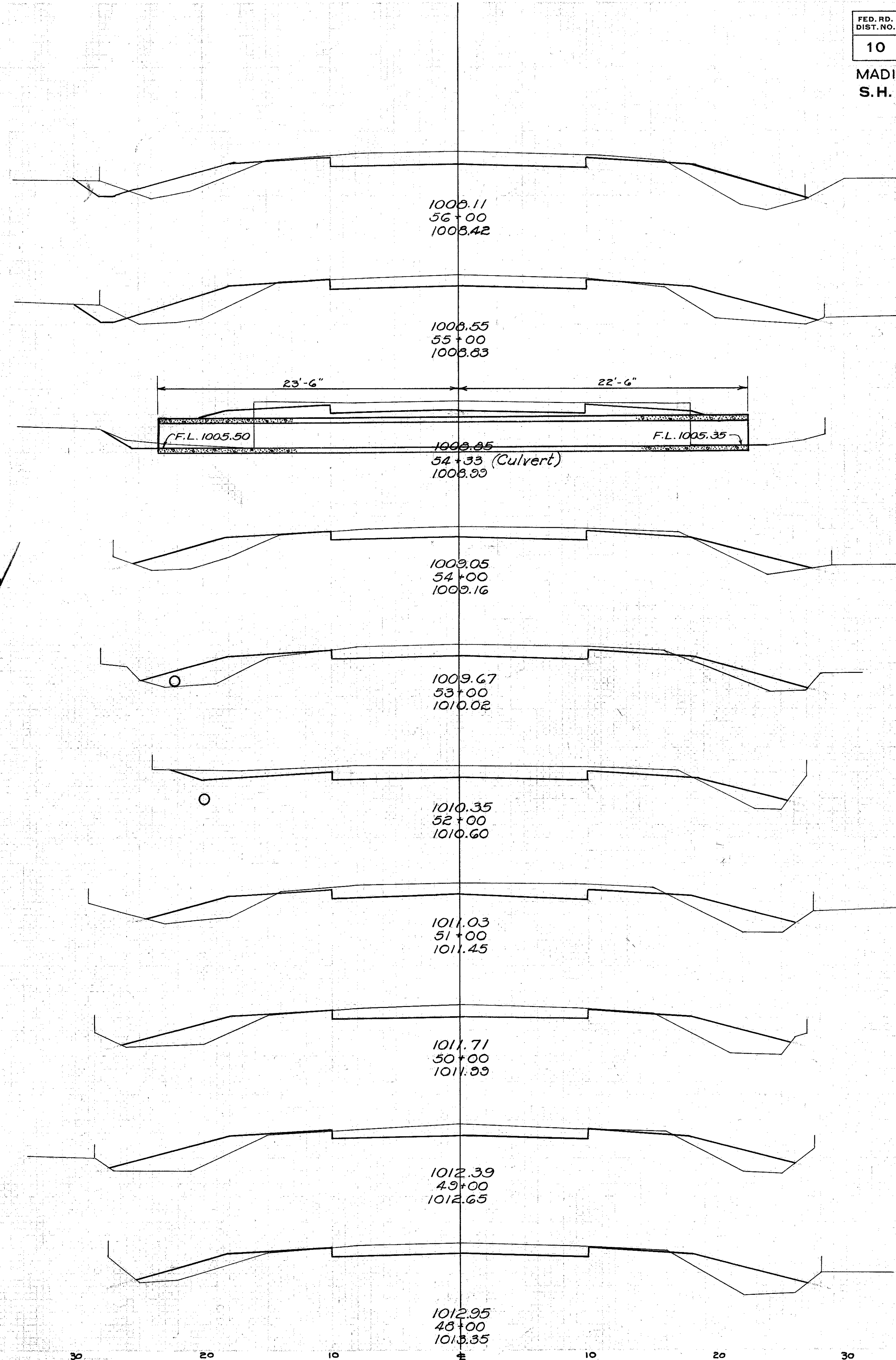
Excav. - 1688 Cu. Yds.
Emb. - 1407 " "
Emb. + 20% - 1688 " "

MADISON COUNTY
S.H. 241 SEC. B(Pt.) & C



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
18	27		
		76	115
23	35		
		104	109
33	24		
		122	85
33	22		
		104	91
23	27		
		87	85
24	19		
		93	63
26	15		
		109	54
33	14		
		122	39
33	7		
		117	35
30	12		
		106	46
27	13		
		81	70

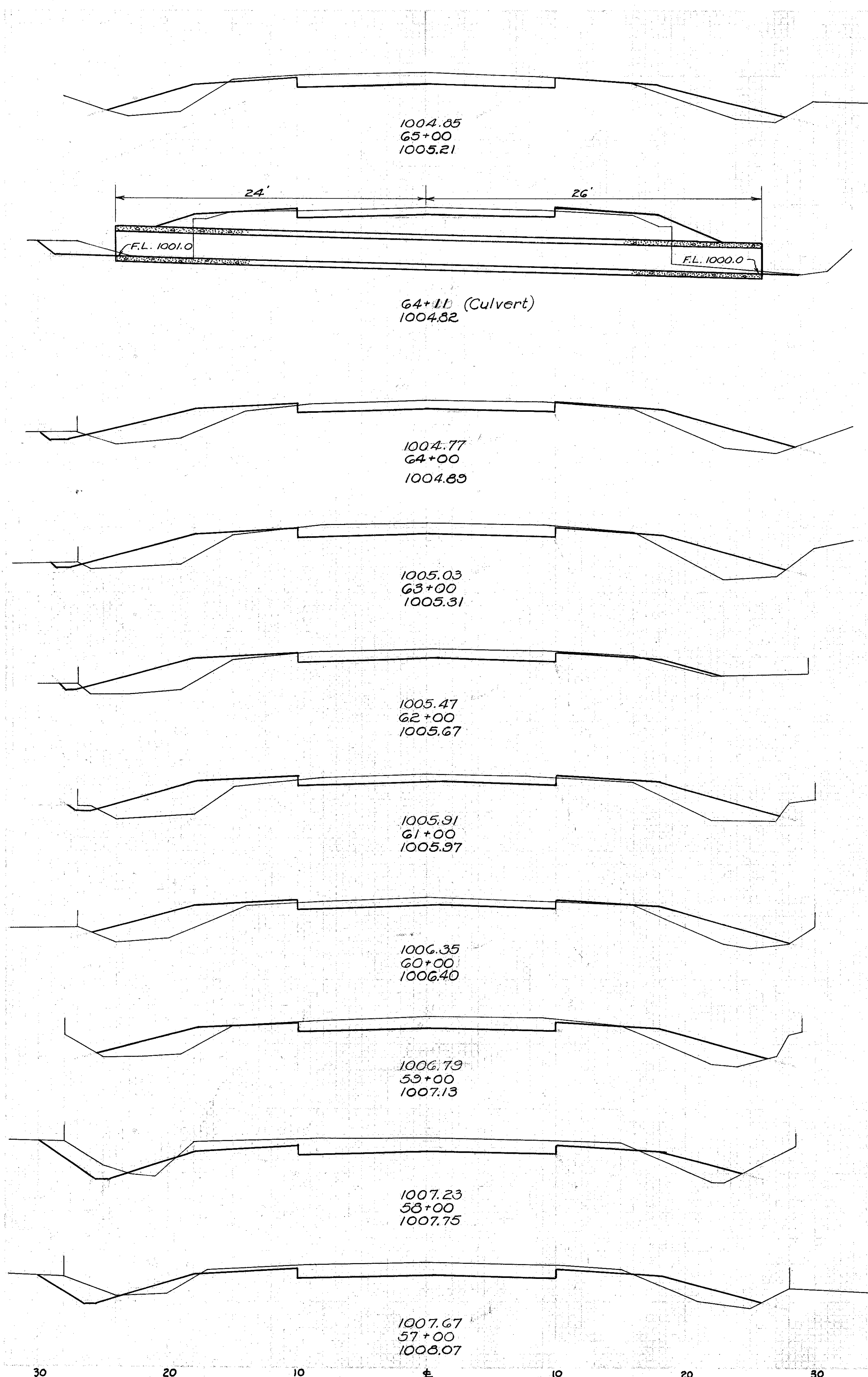
Excav. 1934
Emb. + 20%
Cu. Yds. 1612
" " " 1934



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
20	25		
		37	59
		67	107
		30	48
16	33		
		47	82
22	33		
		26	33
20	21		
		76	80
21	22		
		87	50
26	5		
		91	52
23	23		
		74	96
17	29		
		65	106
18	28		
		63	96
16	24		
		63	94



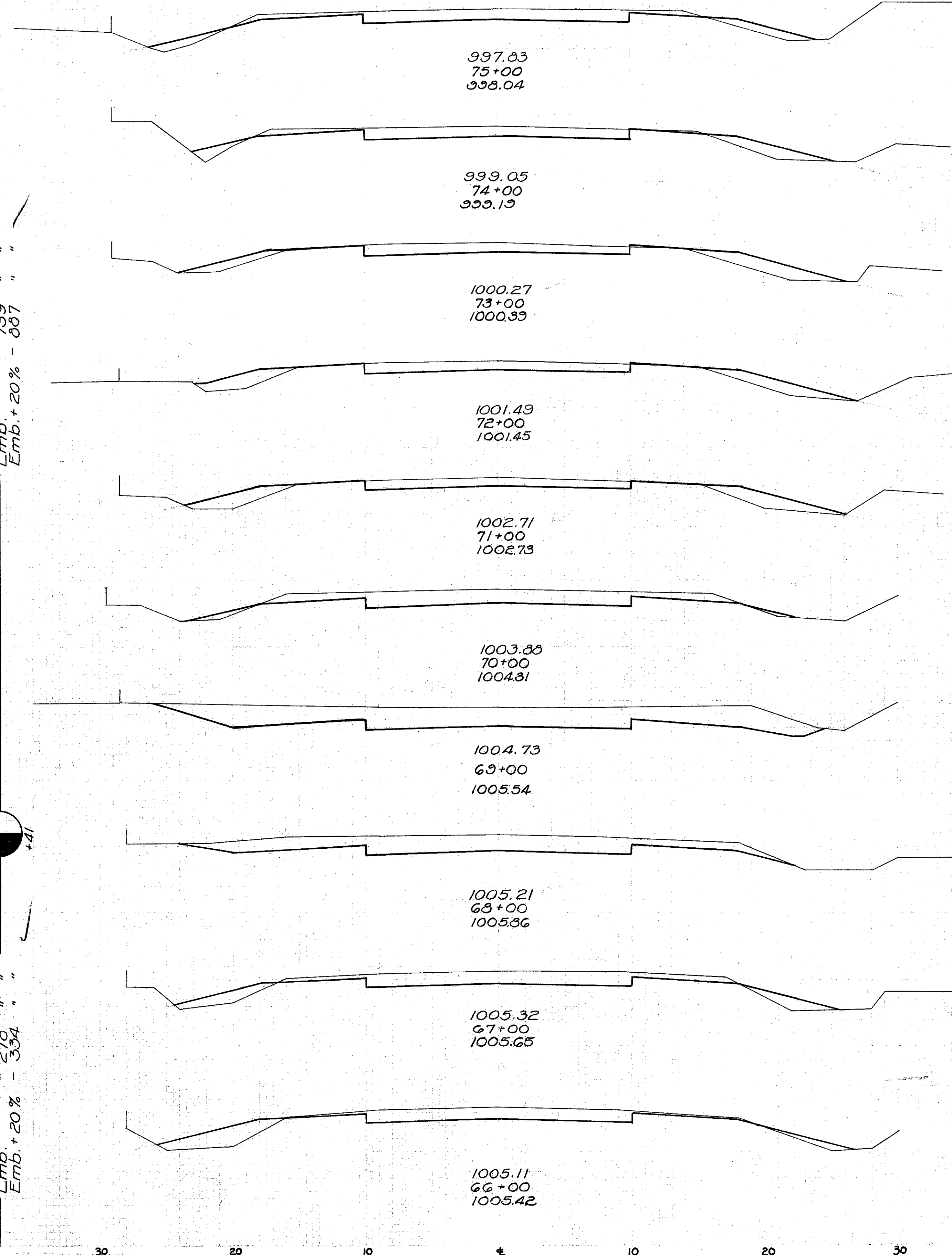
MADISON COUNTY
S.H. 241 SEC. B(Pt) & C



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
20	18		
		60	34
16	39		
		6	15
13	34		
		59	122
19	32		
		67	94
17	19		
		54	104
12	37		
		43	130
11	33		
		34	63
		57	106
		23	43
20	24		
		93	63
30	10		
		100	43
24	13		
		81	70

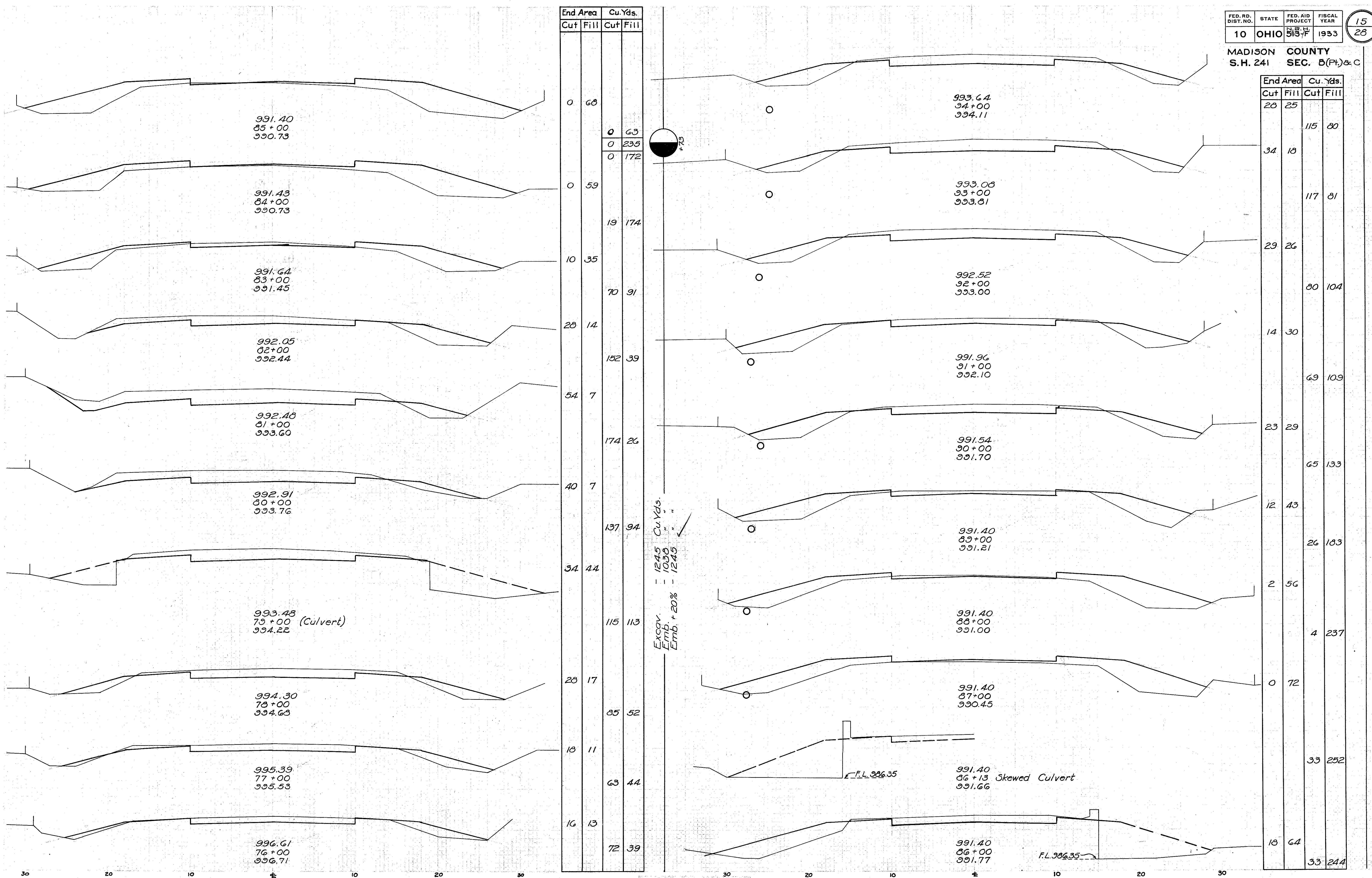
Excav. - 887 Cu.Yds.
Emb. - 739 " "
Emb. + 20% - 887 " "

Excav. - 334 Cu.Yds.
Emb. - 278 " "
Emb. + 20% - 334 " "



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
23	8		
		80	37
20	12		
		67	46
16	13		
		54	44
13	11		
		43	41
10	11		
		69	24
27	2		
		45	2
		165	4
		120	2
62	0		
		167	
39	0		
		109	17
20	9		
		74	41
20	13		
		74	57

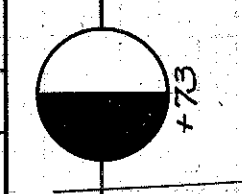
MADISON COUNTY
S.H. 241 SEC. 5 (Pt.) & C



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	68		
0	63		
0	235		
0	172		
0	59		
	19	174	
10	35		
	70	91	
28	14		
	152	39	
54	7		
	174	26	
40	7		
	137	94	
34	44		
	115	113	
28	17		
	85	52	
18	11		
	63	44	
16	13		
	72	39	

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
28	25		
	115	80	
34	18		
	117	81	
29	26		
	80	104	
14	30		
	69	109	
23	29		
	65	133	
12	43		
	26	183	
2	56		
	4	237	
0	72		
	33	252	
18	64		
	33	244	

Excav. - 1245 Cu. Yds.
Emb. - 1038 " "
Emb. + 20% - 1245 " "



F.L. 986.35

F.L. 986.35

993.48
79+00 (Culvert)
994.22

991.40
86+13 Skewed Culvert
991.66

991.40
86+00
991.77

991.40
89+00
991.21

991.40
88+00
991.00

991.40
87+00
990.45

991.96
91+00
992.10

991.54
90+00
991.70

992.52
92+00
993.00

993.08
93+00
993.81

993.64
94+00
994.11

991.40
85+00
990.73

991.43
84+00
990.73

991.64
83+00
991.45

992.05
82+00
992.44

992.48
81+00
993.60

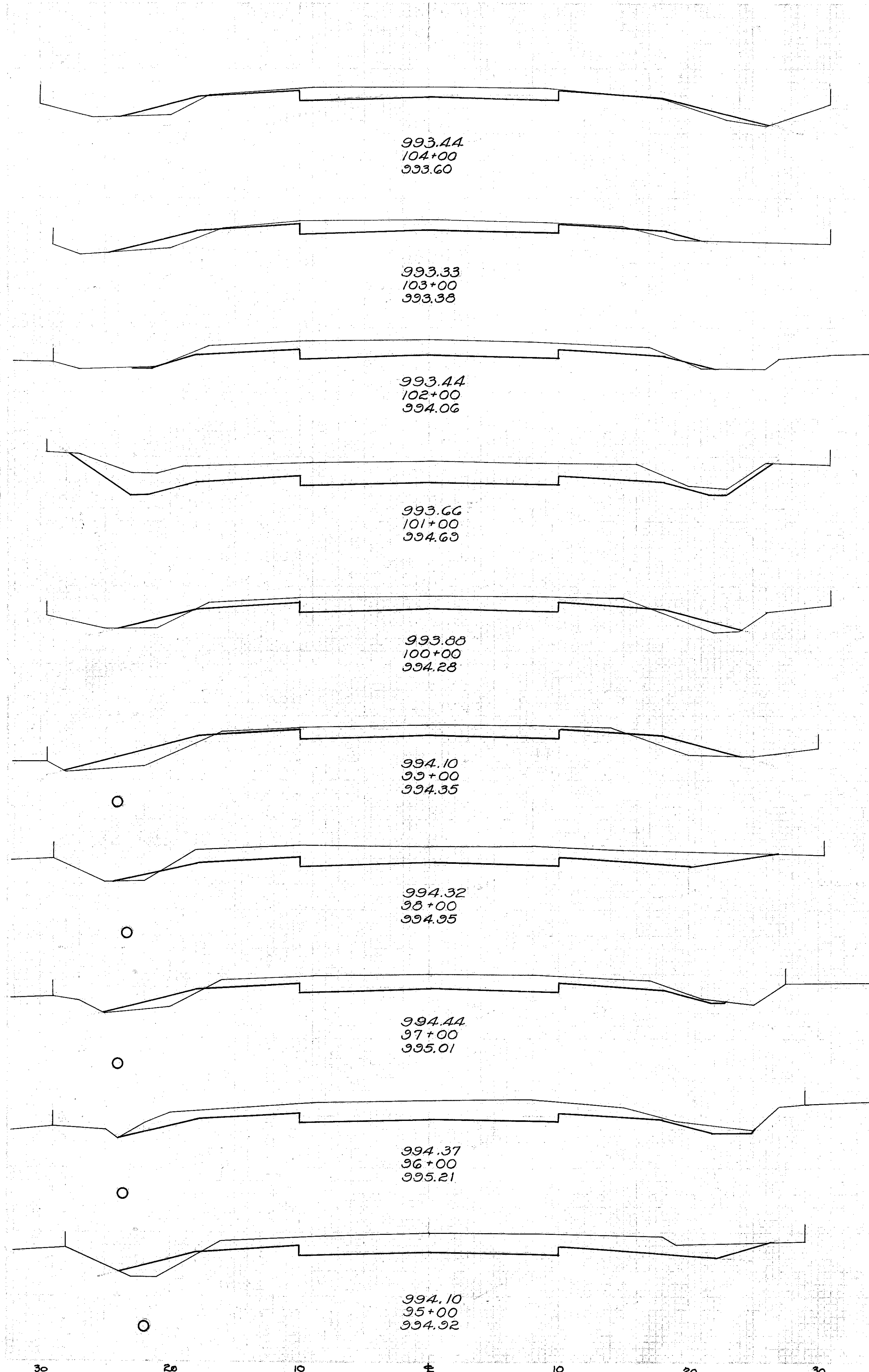
992.91
80+00
993.76

994.30
78+00
994.68

995.39
77+00
995.53

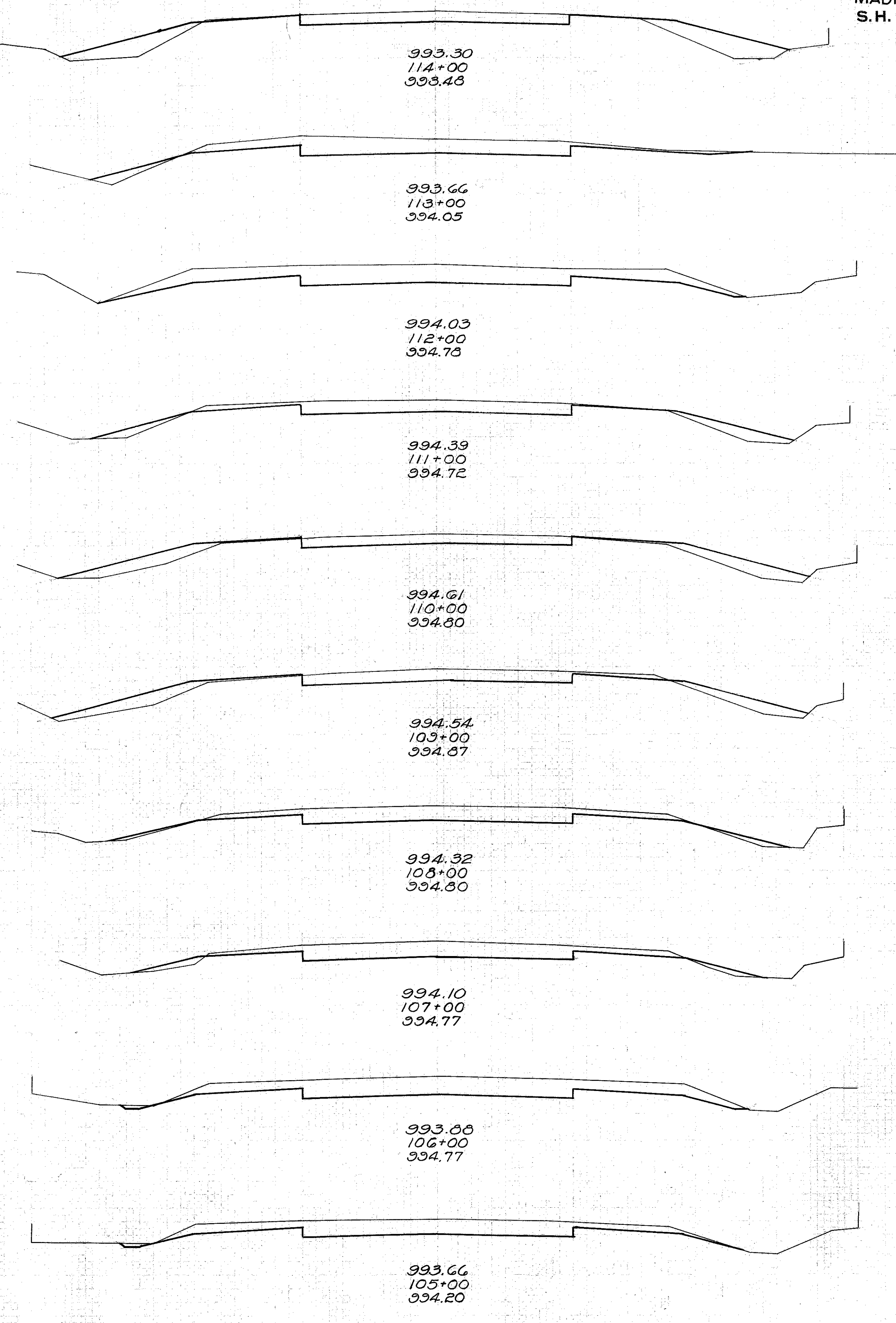
996.61
76+00
996.71

MADISON COUNTY
S.H. 241 SEC. B(Pt.) & C



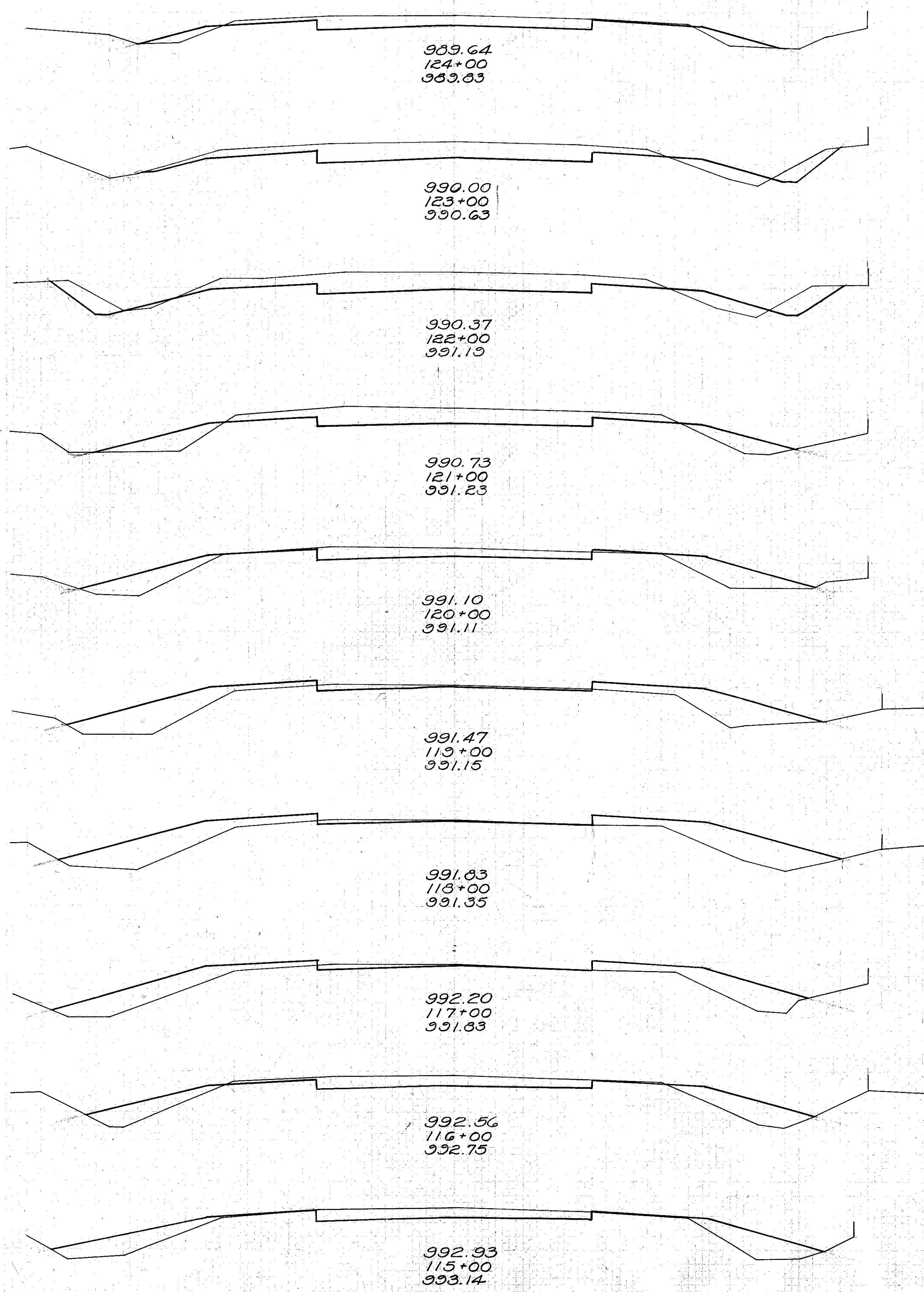
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
16	6	61	20
17	5	93	9
33	0	185	0
67	0	178	11
29	6	89	39
19	15	128	30
50	1	159	9
36	4	159	7
50	0	183	9
49	5	143	56

Excav. - 2024
Emb. +20% - 1607
" " " " - 2024

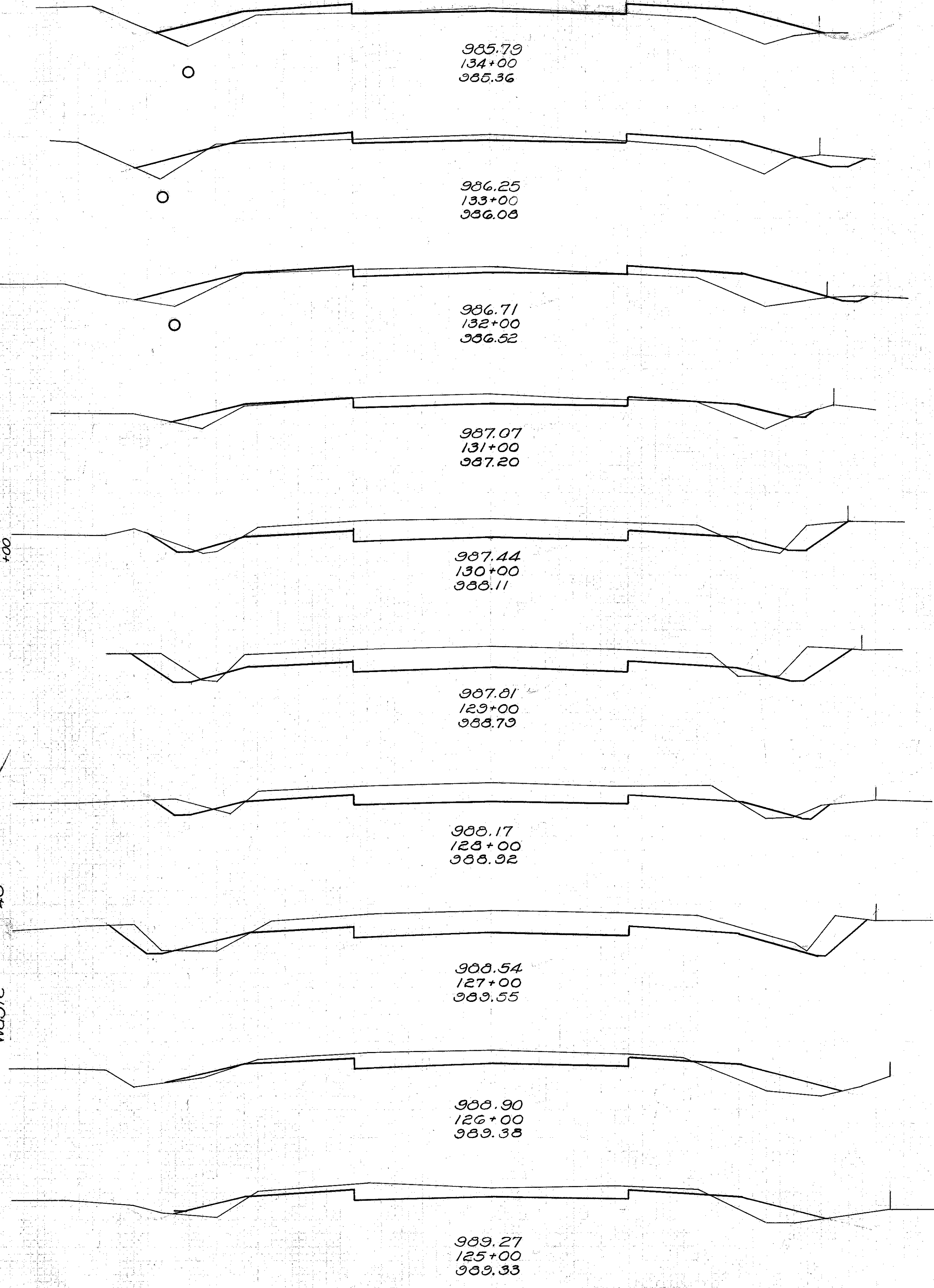
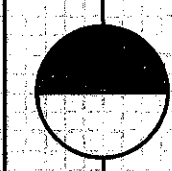


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
16	22	85	46
30	3	148	6
50	0	133	19
22	10	67	57
14	21	59	70
18	17	89	37
30	3	109	13
29	4	139	7
46	0	159	0
40	0	104	11

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S.H. 241 SEC. B (Pt) & C



Sta.	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
124+00			81	30
123+00	20	6		
122+00			102	20
121+00	35	5		
120+00			139	19
119+00	40	5		
118+00			135	37
117+00	33	15		
116+00			85	67
115+00	13	21		
114+00			35	113
113+00	6	40		
112+00			19	159
111+00	4	46		
110+00			15	156
109+00	4	38		
108+00			35	111
107+00	15	22		
106+00			56	85
105+00	15	24		
104+00			57	85



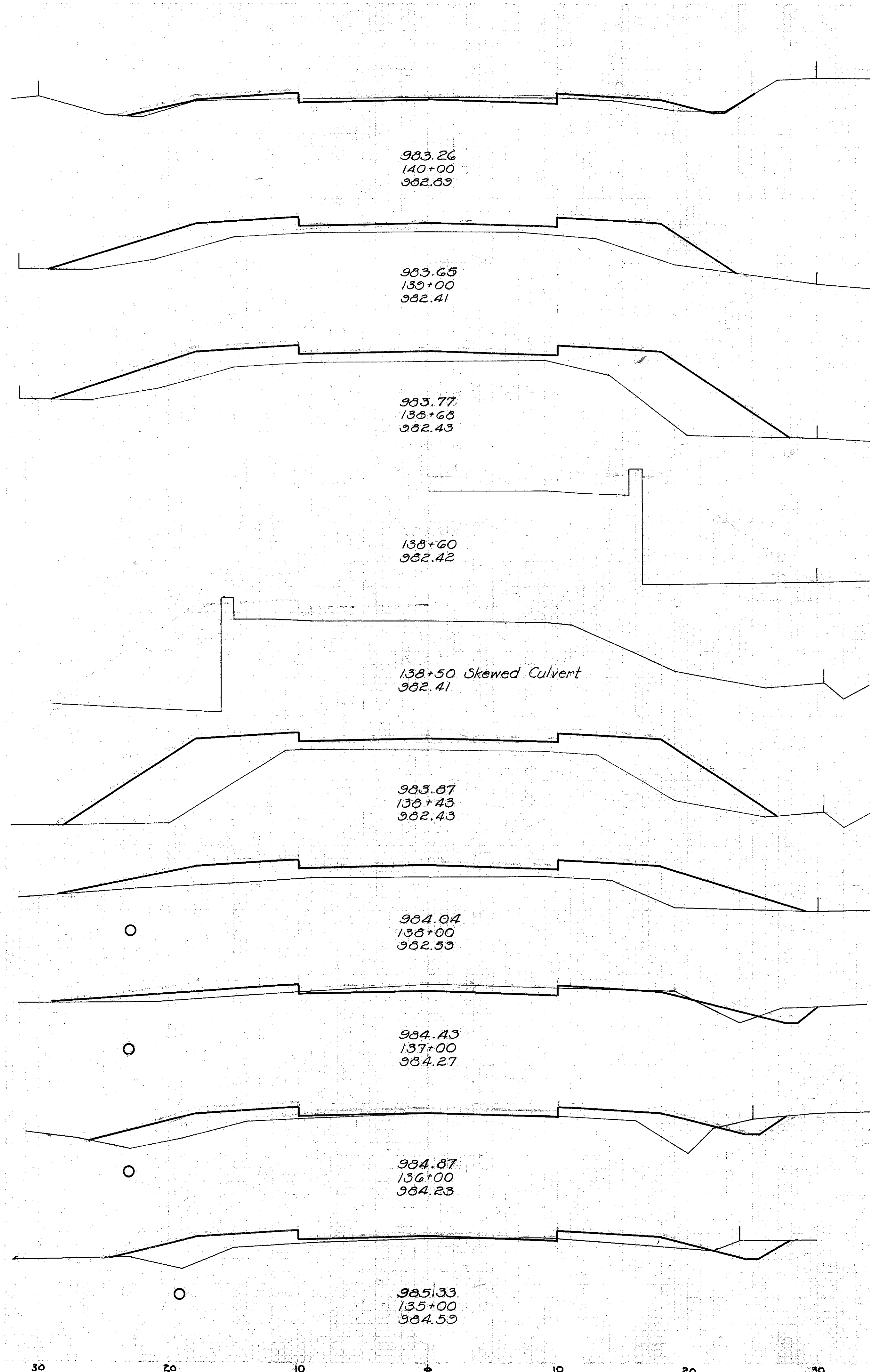
Sta.	End Area		Cu. Yds.	
	Cut	Fill	Cut	Fill
134+00	3	25		
133+00			26	81
132+00	11	19		
131+00			37	76
130+00	9	22		
129+00			44	59
128+00	15	10		
127+00			107	24
126+00	43	3		
125+00			189	9
124+00	59	2		
123+00			189	9
122+00	43	3		
121+00			174	11
120+00	51	3		
119+00			144	24
118+00	27	10		
117+00			94	37
116+00	24	10		

Excav
Emb.
Emb. + 20%
Waste

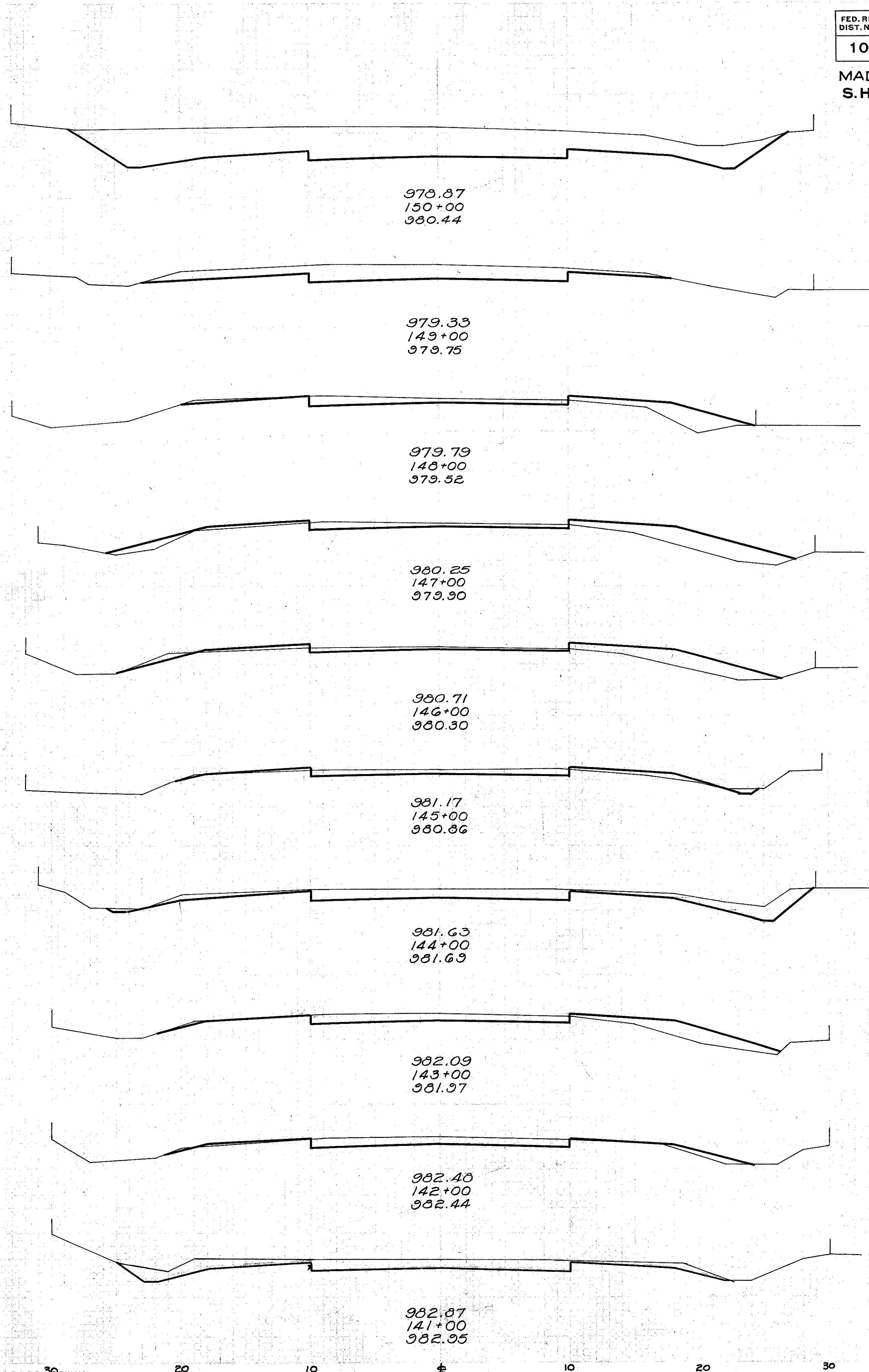
1205 Cu. Yds.
364
1157
48

1620 Cu. Yds.
1132
1258
270
to be wasted at intersection Sta. 136+78.1

MADISON COUNTY
S.H. 241 SEC. B(PT)&C



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
5	7		
		9	124
0	60		
		0	91
0	94		
		0	93
0	107		
		0	137
0	65		
		24	139
13	10		
		19	40
4	33		
		20	111
7	27		
		19	96



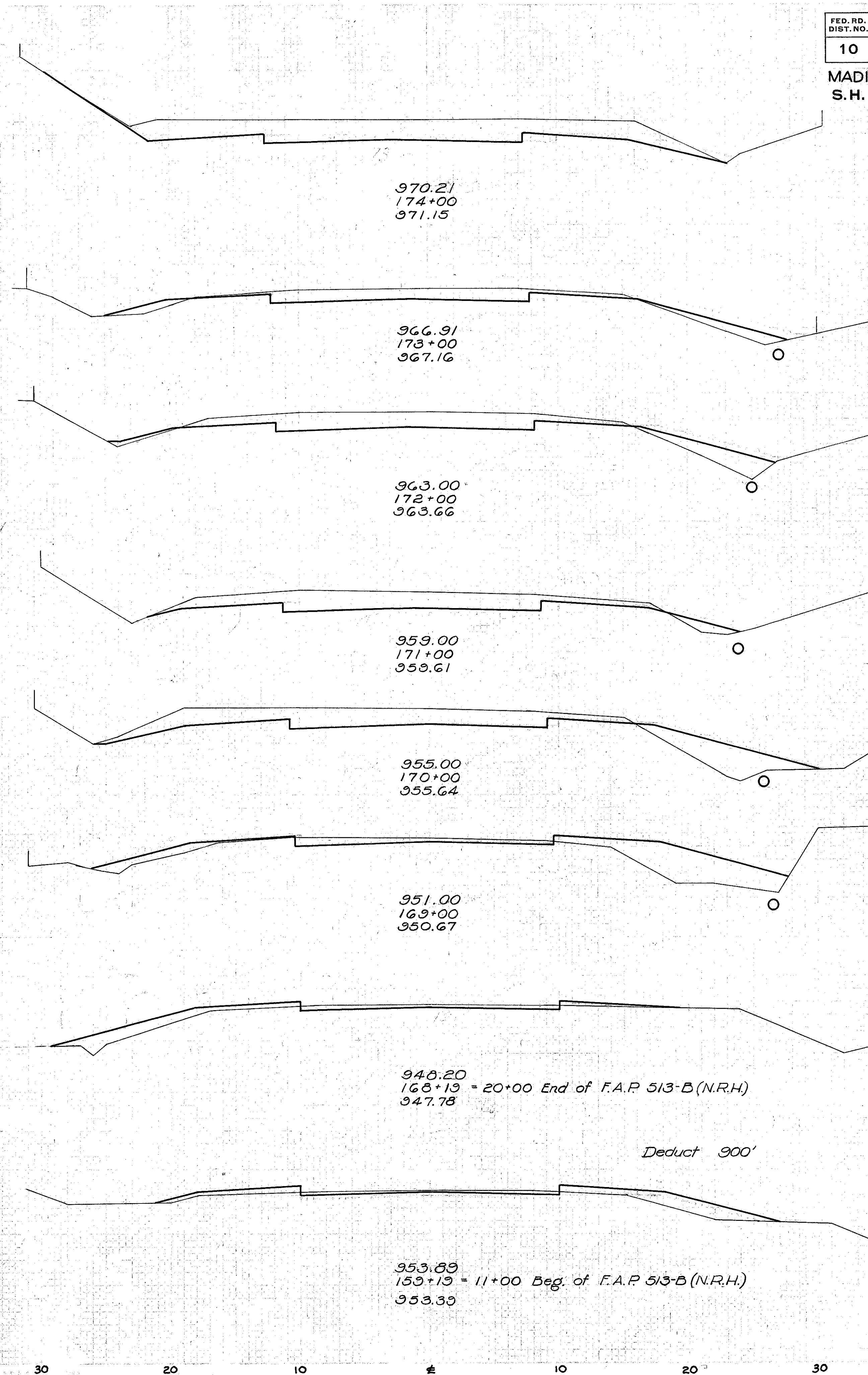
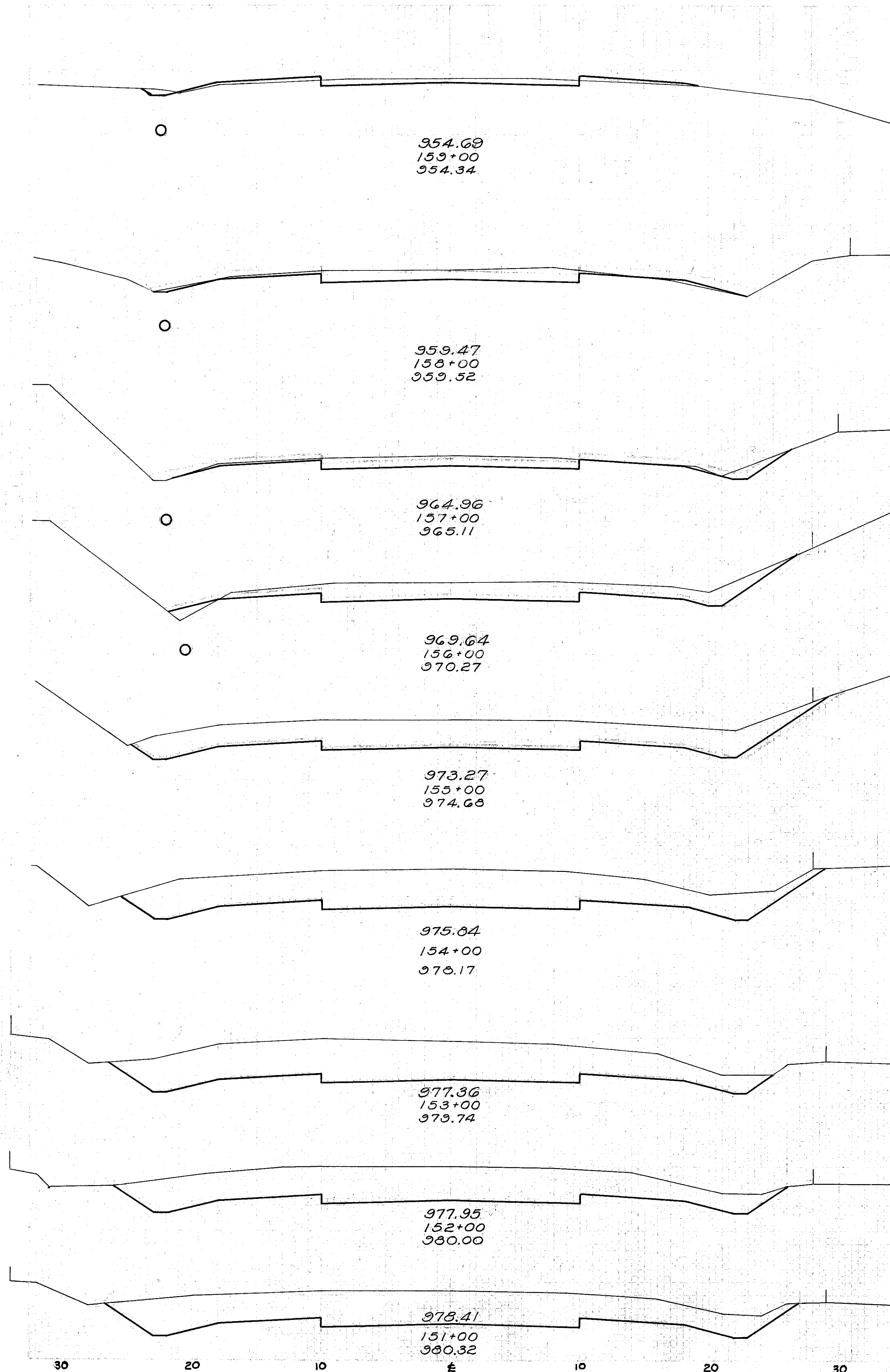
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
110	0		
		166	0
		267	0
		101	0
34	0		
		81	20
10	11		
		31	61
7	22		
		24	72
6	17		
		26	43
8	6		
		59	11
24	0		
		67	22
12	12		
		46	28
13	3		
		80	6
30	0		
		65	13

Excav. - 589 Cu. Yds.
Emb. - 491 " "
Emb. + 20% - 589

MADISON COUNTY
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End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
13	6		
		74	13
27	1		
		102	2
28	0		
		148	2
52	1		
		291	2
105	0		
		439	0
132	0		
		492	0
134	0		
		470	0
120	0		
		444	0
120	0		
		426	0

Excav. 3059
Emb. + 20% 27
Waste 32
3027



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
73	0		
		181	20
25	11		
		117	41
38	11		
		148	26
42	3		
		174	43
52	20		
		117	100
11	34		
		32	76
10	17		
7	17		
		7	8

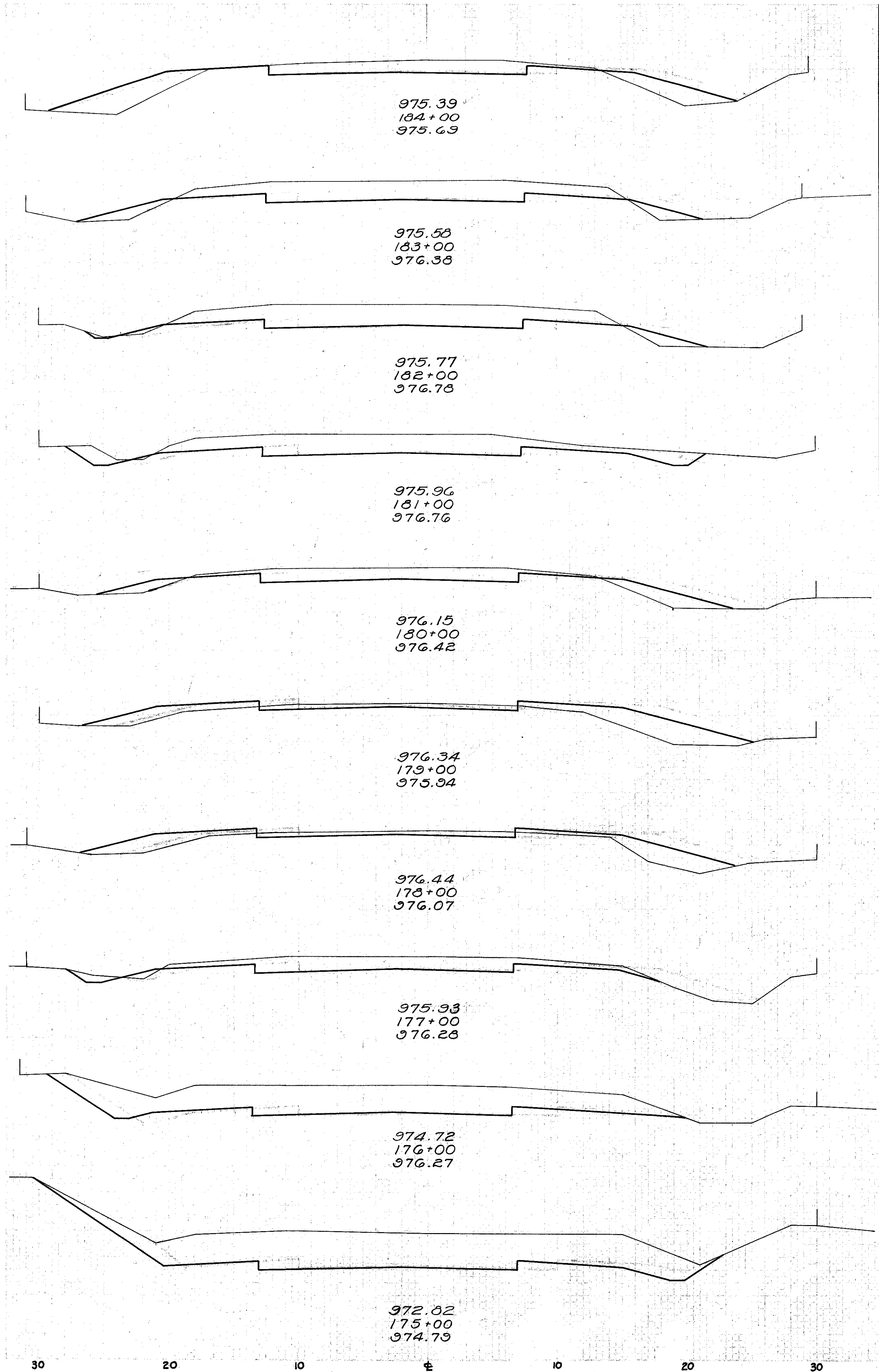
Excav. 1640
Emb. + 20% 315
Waste 378
1262

940.20
168+13 = 20+00 End of F.A.P. 513-B (N.R.H.)
947.78

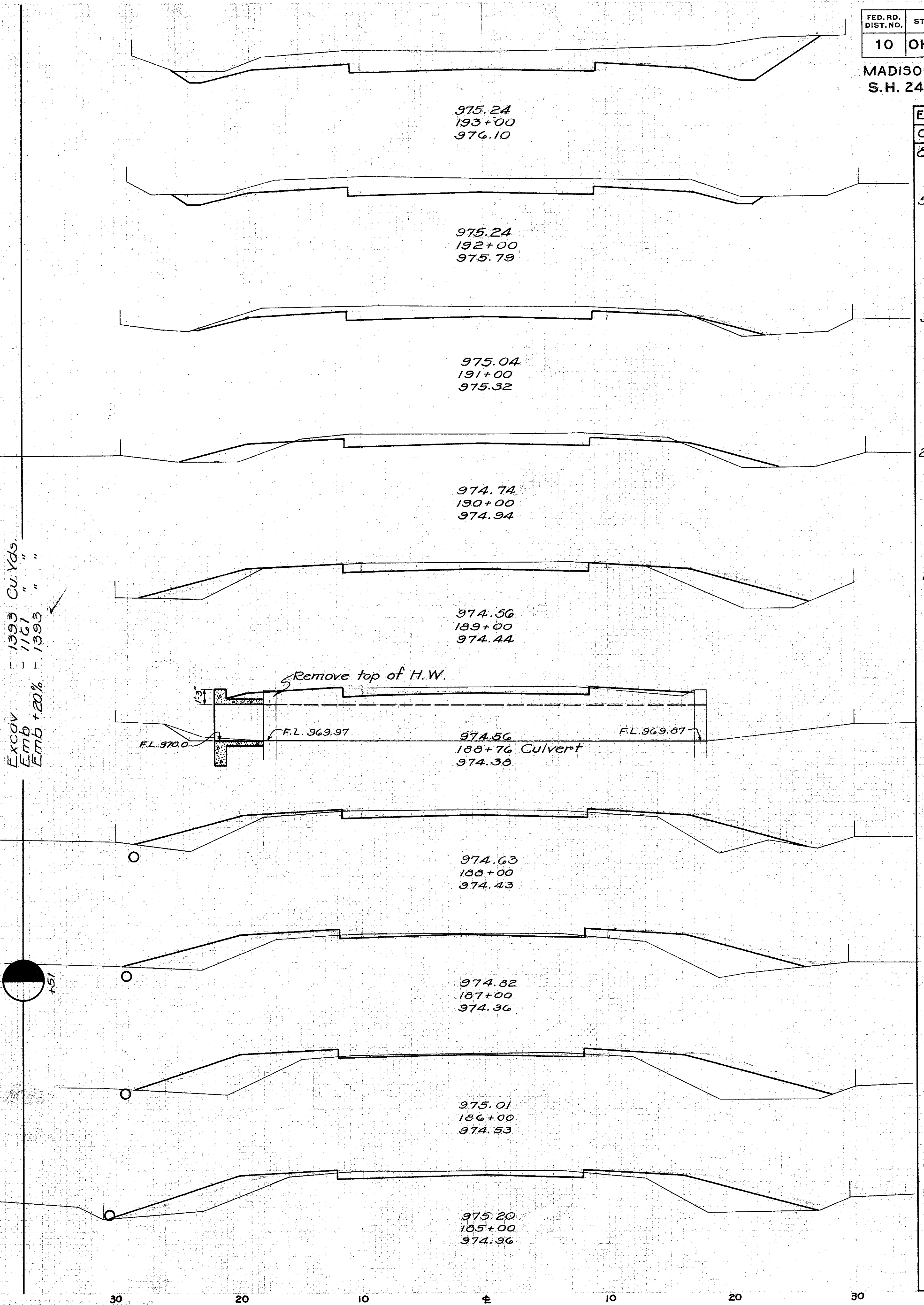
Deduct 900'

953.88
159+13 = 11+00 Beg. of F.A.P. 513-B (N.R.H.)
953.39

MADISON COUNTY
S.H. 241 SEC. B(PT)&C

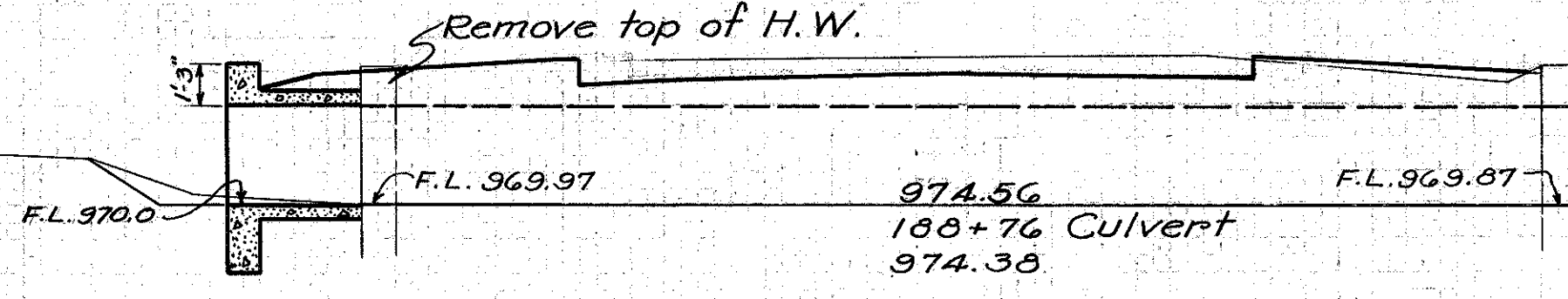


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
25	26		
		120	61
40	7		
		172	22
53	5		
		200	9
55	0		
		150	22
26	12		
		63	72
8	27		
		33	96
10	25		
		83	48
35	1		
		118	8
		241	17
		123	9
95	0		
		394	
118	0		
		354	0

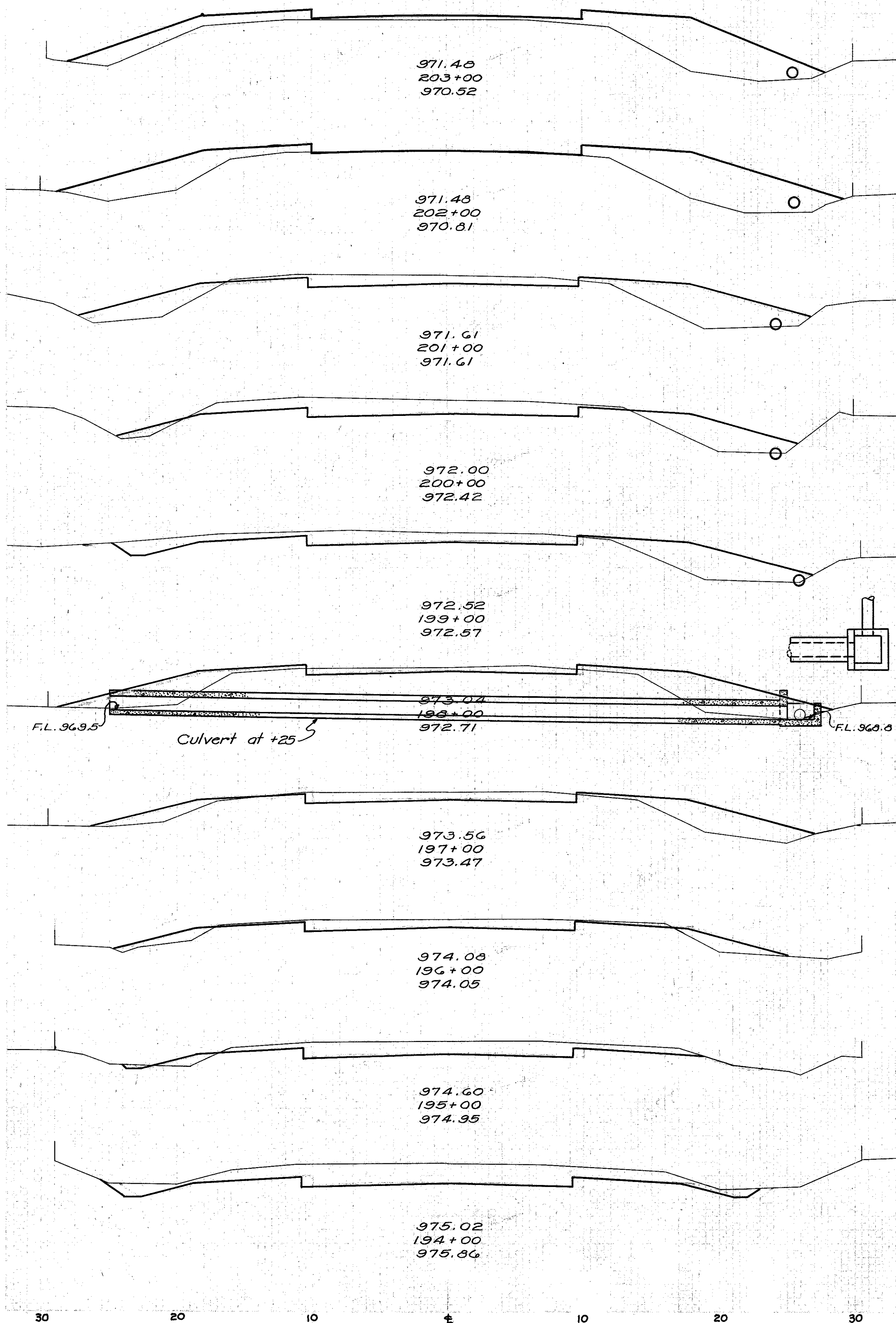


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
86	0		
		261	0
55	0		
		140	3
		169	4
		29	1
36	2		
		119	28
28	13		
		80	72
15	26		
		52	107
13	32		
		37	135
7	41		
		26	176
7	54		
		39	178
14	42		
		72	126

Excav. - 1393 Cu. Yds.
Emb + 20% - 1161 " " "
Emb + 20% - 1393 " " "

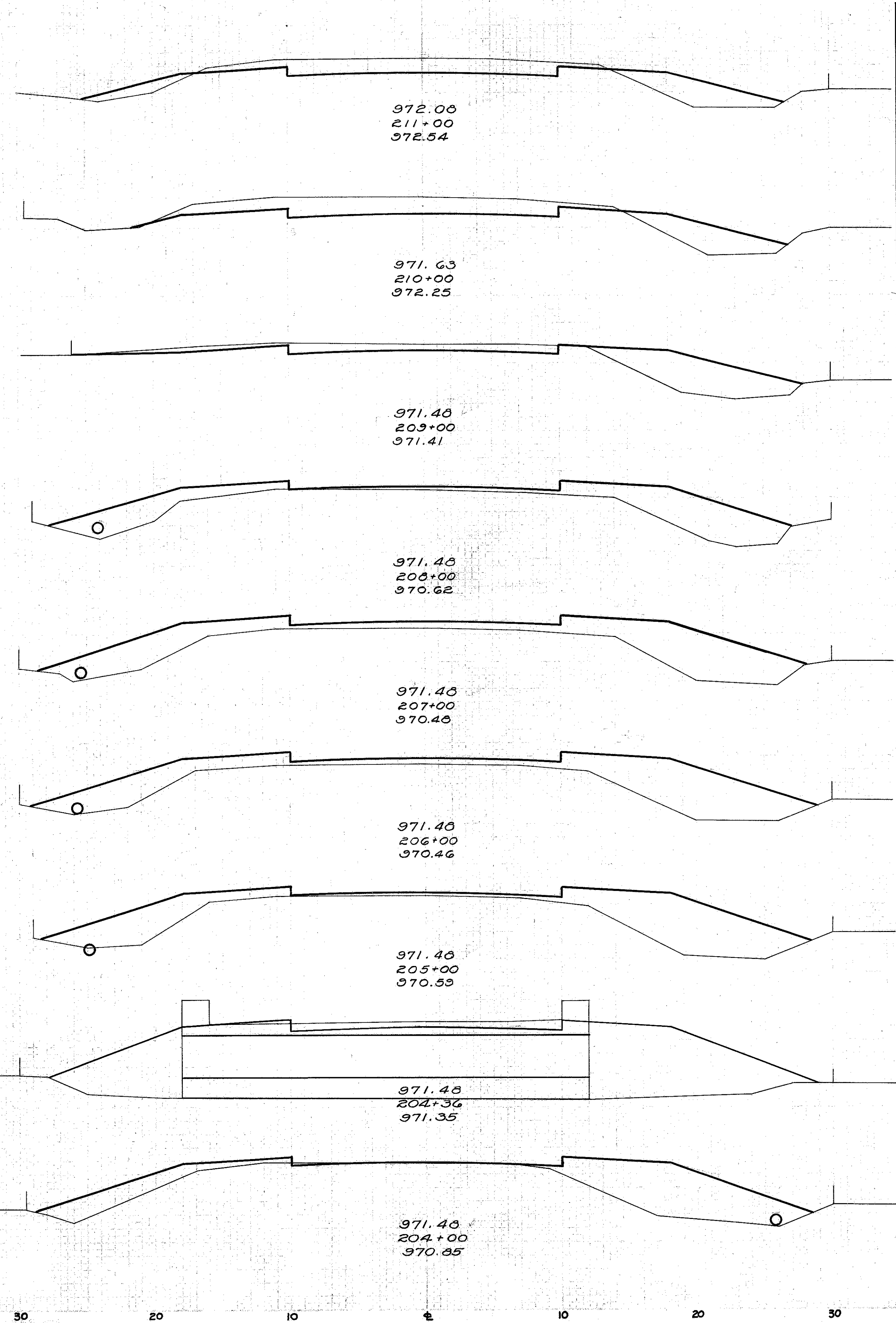


MADISON COUNTY
S.H. 241 SEC. B(Ph)&C



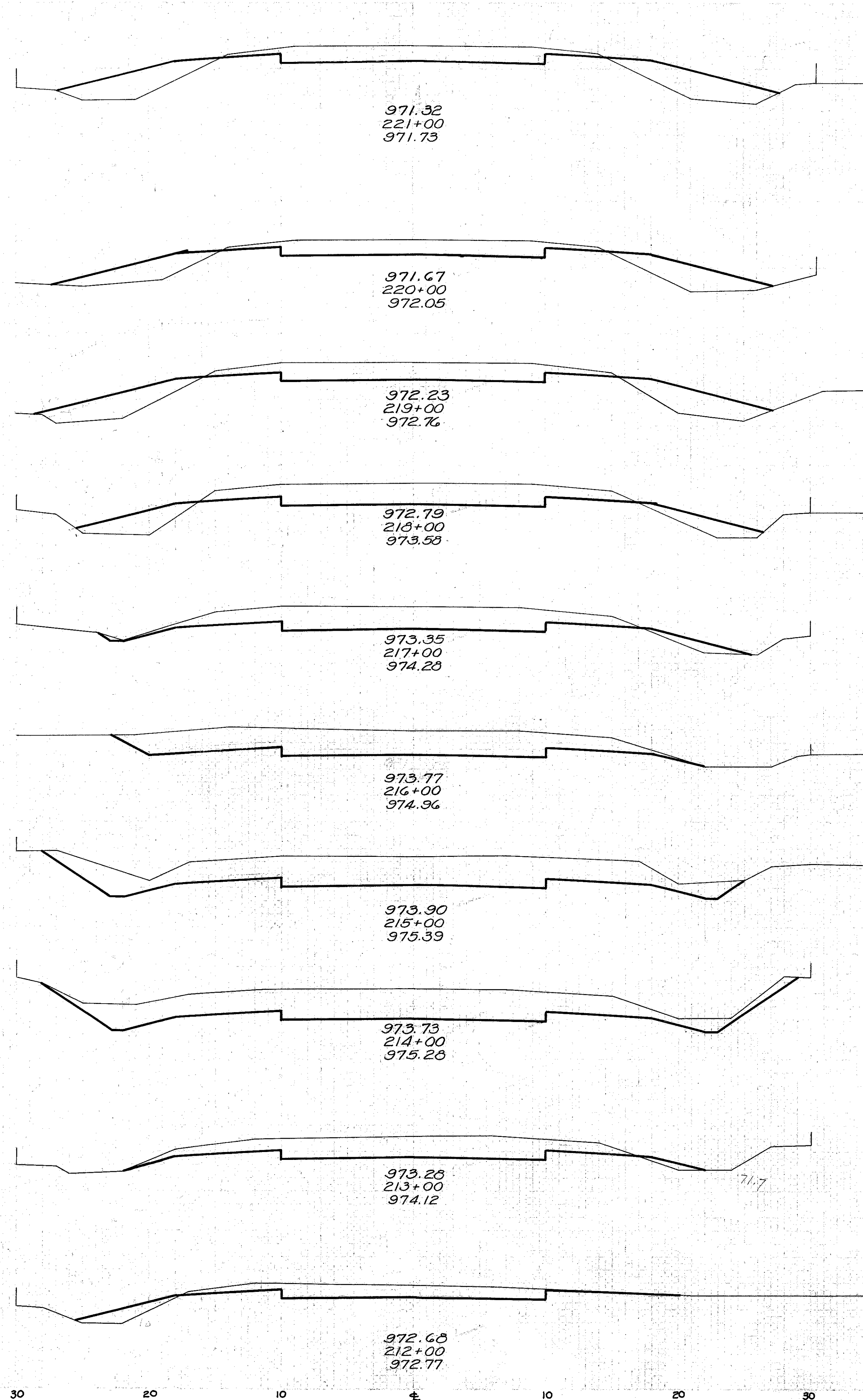
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
0	66	0	254
0	71	37	206
20	40	102	115
35	22	117	85
28	24	72	126
11	44	50	128
16	25	69	61
21	8	102	19
34	2	167	4
56	0	263	0

Excav. - 1382 Cu. Yds.
Emb. - 1152 " "
Emb. +20% - 1382 " "



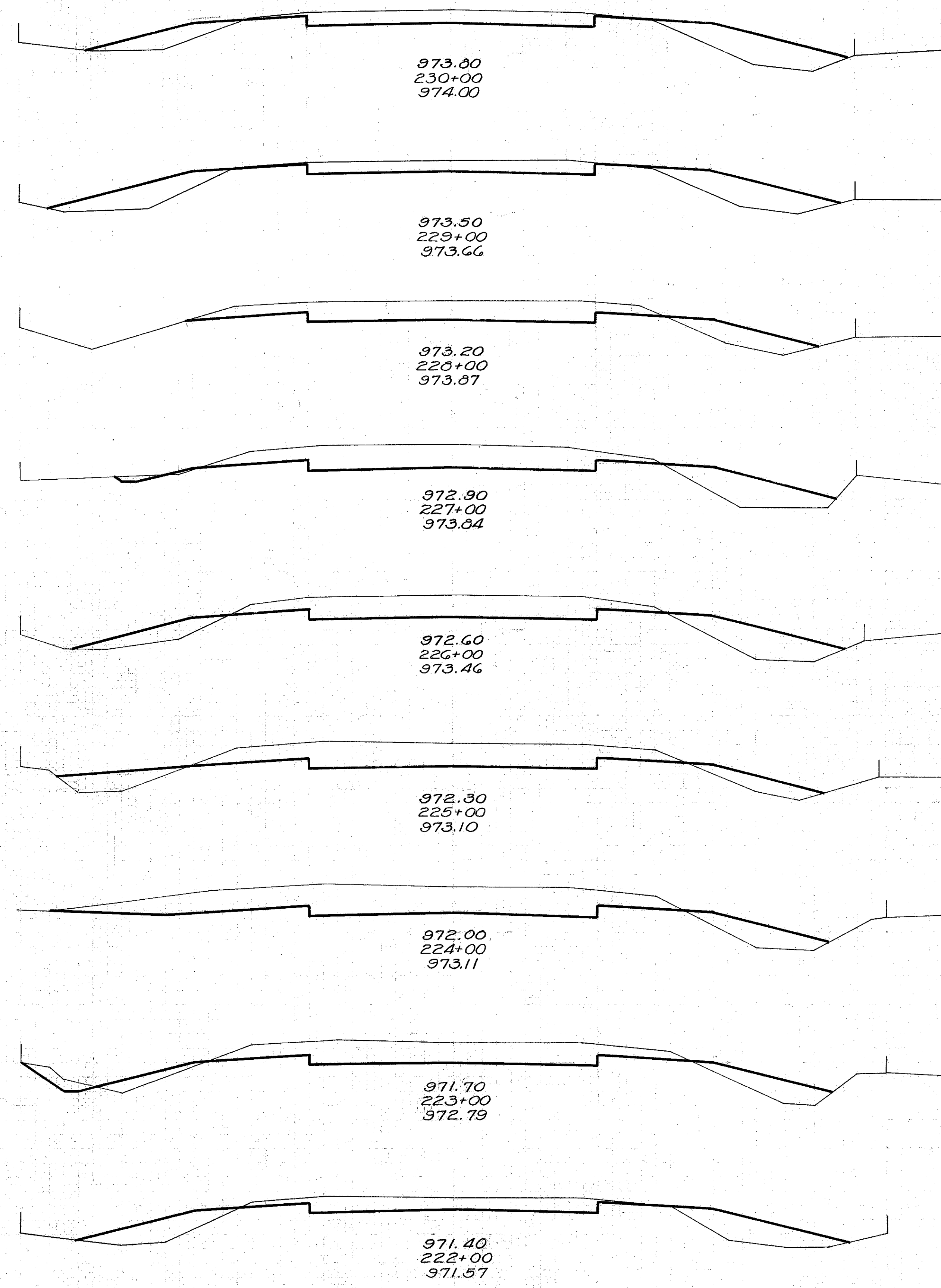
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
25	19	106	65
32	16	91	85
17	30	31	156
0	54	0	252
0	82	0	307
0	84	0	322
0	90	13	216
11	92	8	109
2	72	2	105
		4	256
		2	151

MADISON COUNTY
S.H. 241 SEC. B (Pt.) & C

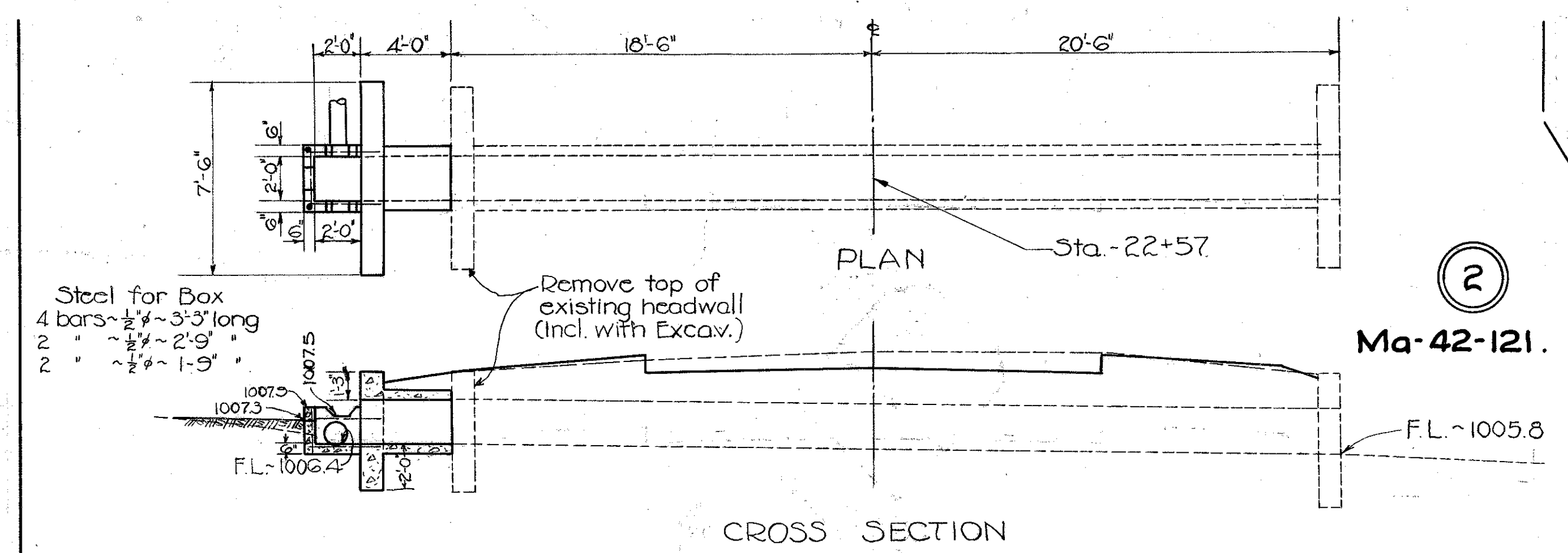
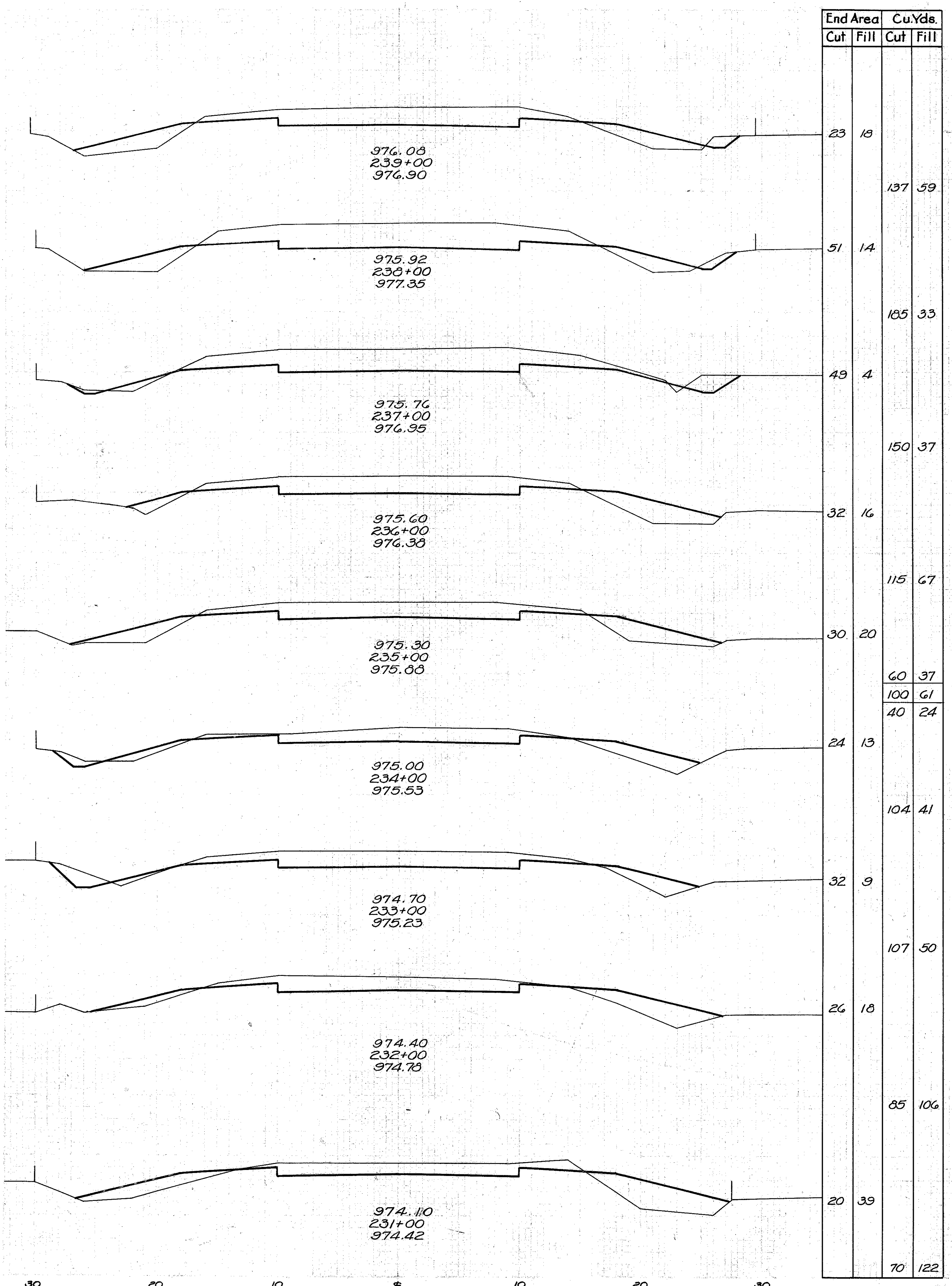


End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
26	34		
		93	109
24	25		
		98	102
29	30		
		131	89
42	18		
		163	41
46	4		
		207	7
66	0		
		289	0
90	0		
		323	0
87	0		
		239	4
42	2		
		119	11
22	4		
		87	43

Excav. - 2896 Cu. Yds.
Emb. - 2413 " " "
Emb. + 20% - 2896



End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
18	27		
		65	106
17	30		
		94	72
34	9		
		96	30
		137	43
		41	13
40	14		
		137	70
34	24		
		141	57
42	17		
		193	31
62	10		
		187	41
39	12		
		107	69
20	25		
		85	109

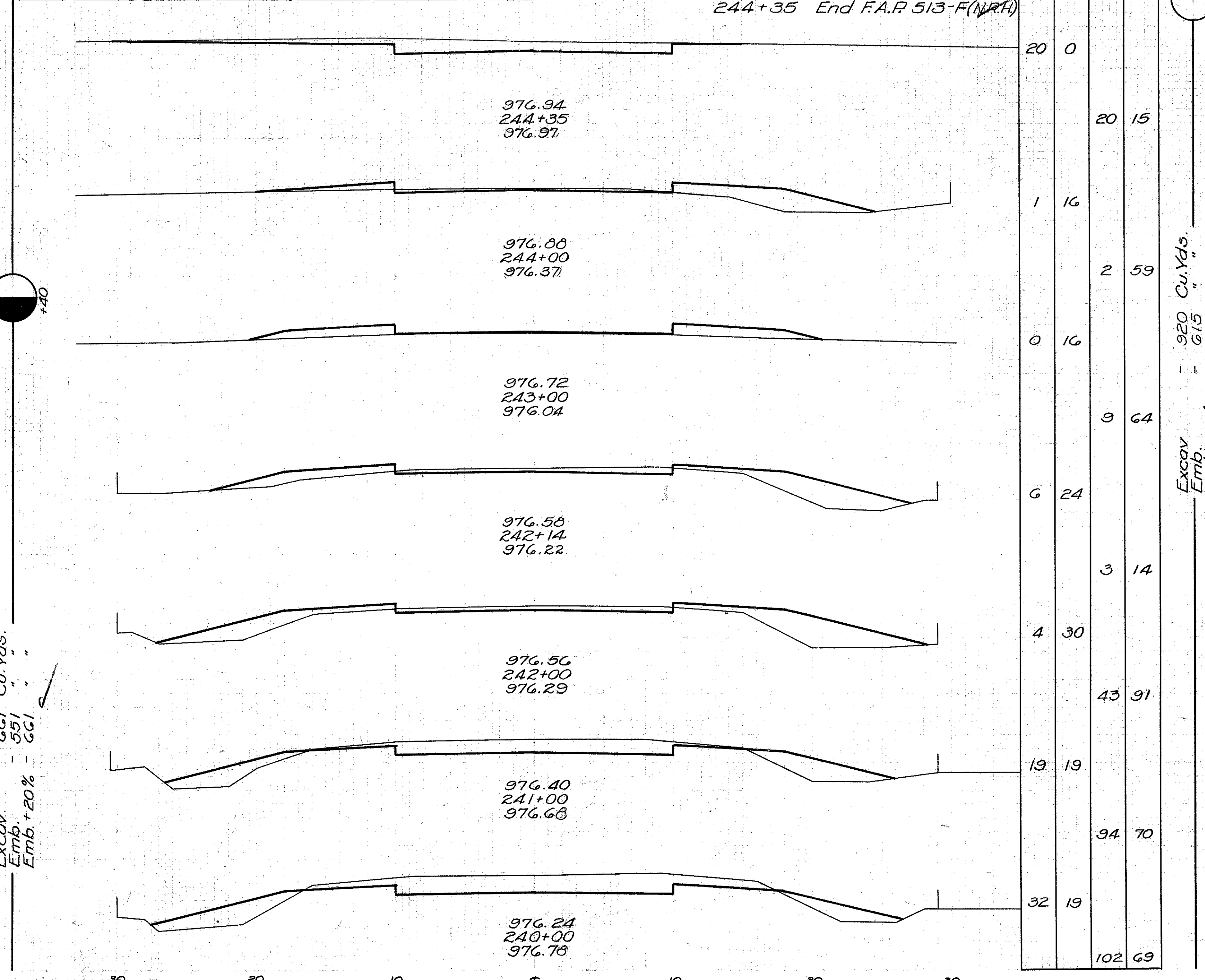


Culvert Data

Type - Std. V.S.P. (enc) Ext. - Std. Dr. N^o 300
 Size - 24" x 4" - 0" Left
 Work Required - Extend present 24" x 39' V.S.P. (enc)
 Culvert 4' left with 24" V.S.P. (enc). Build headwall and special box inlet on left & connect 12' pipe. Remove top of existing headwall on left.

Estimated Quantities

Excavation	4 Cu. Yds.
24" V.S.P. (enc), incl. 1:8 conc. enc.	4 Lin. Ft.
1-5 1/2 Concrete	2.0 Cu. Yds.
Reinforcing Steel	80 Lbs.

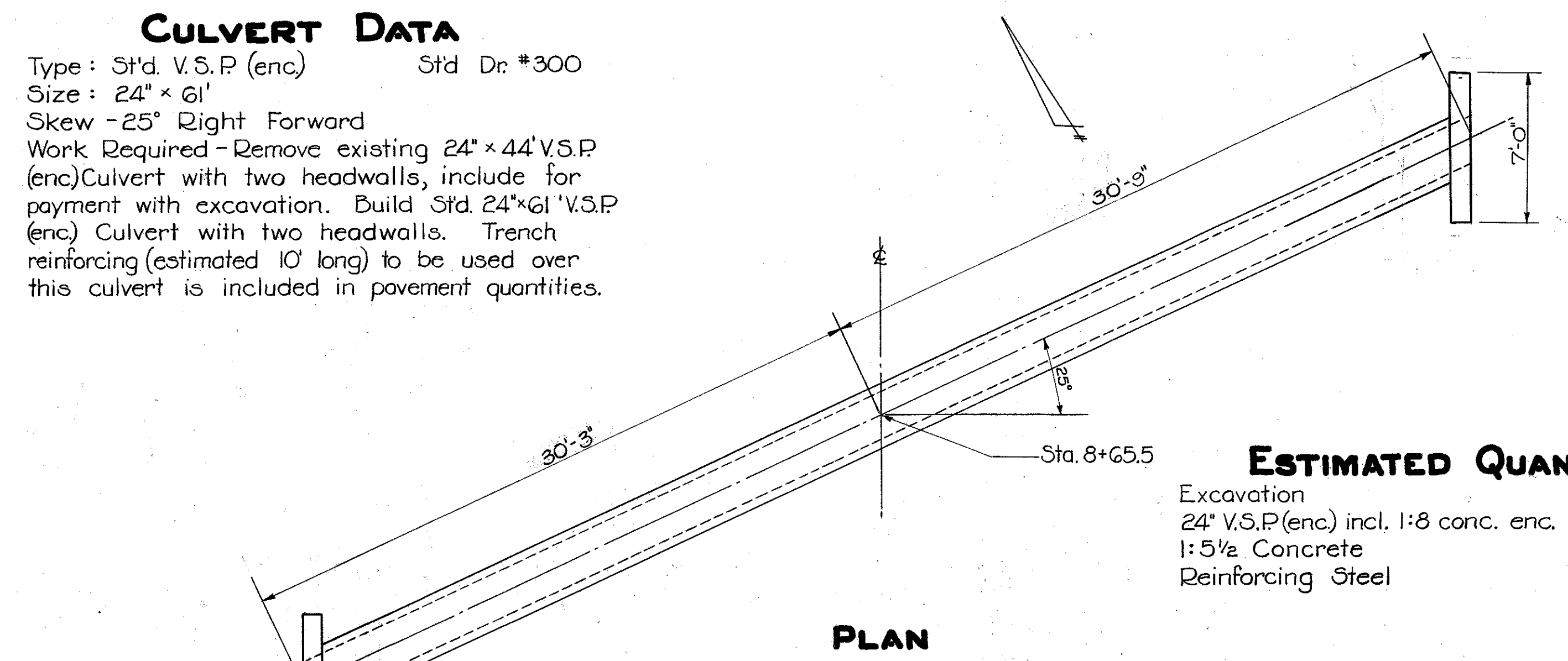


Excav. - 661 Cu. Yds.
 Emb. - 551 " "
 Emb. + 20% - 661 " "

Excav. - 920 Cu. Yds.
 Emb. - 615 " "
 Emb. + 20% - 738 " "
 Waste - 182 " "

CULVERT DATA

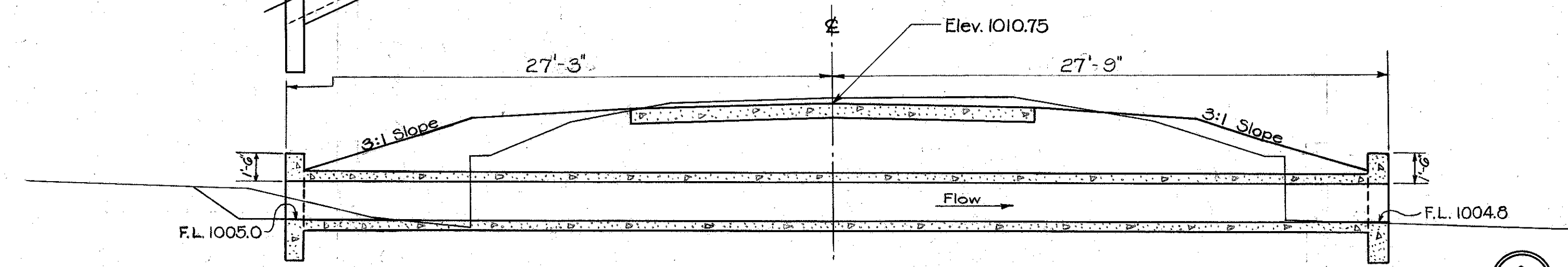
Type: Std. V.S.P (enc) Std. Dr. #300
 Size: 24" x 6'
 Skew -25° Right Forward
 Work Required - Remove existing 24" x 44' V.S.P (enc) Culvert with two headwalls, include for payment with excavation. Build Std 24" x 61' V.S.P (enc) Culvert with two headwalls. Trench reinforcing (estimated 10' long) to be used over this culvert is included in pavement quantities.



ESTIMATED QUANTITIES

Excavation	56 Cu.Yds.
24" V.S.P (enc) incl. 1:8 conc. enc.	62 Lin. Ft.
1:5 1/2 Concrete	2.8 Cu.Yds.
Reinforcing Steel	65 Lbs.

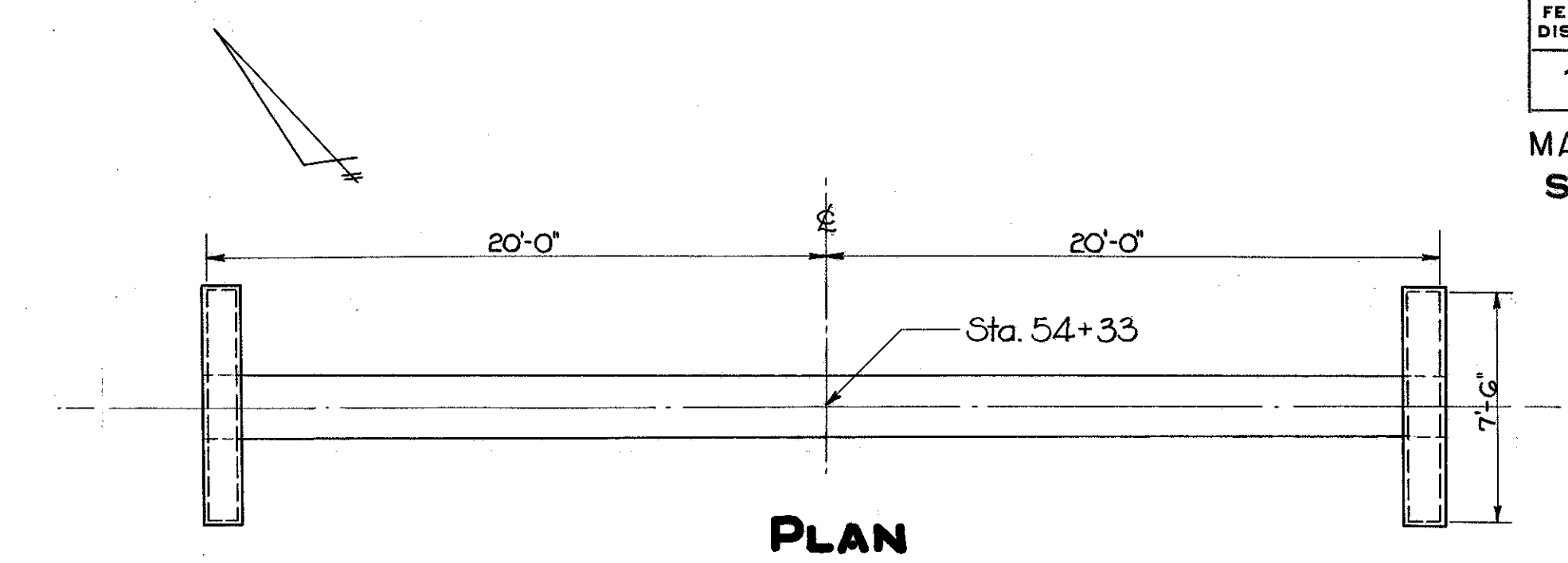
PLAN



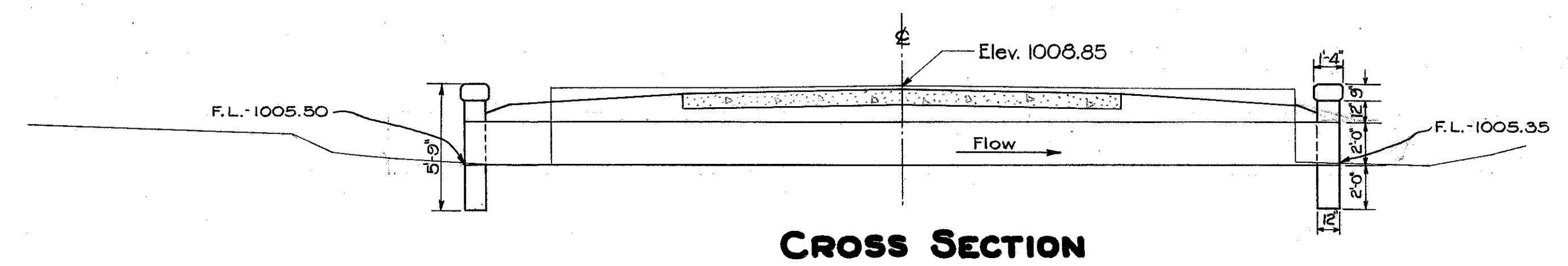
CROSS SECTION

Ma-42-118 **STA. 8+65.5**

1



PLAN



CROSS SECTION

CULVERT DATA

Type: Std. C.I.P Culvert Std. Dr. #300
 Size: 24" x 40'
 Work Required:- Remove 28' of 24" Conc. Pipe & 6' of 24" V.S.P (enc) with two headwalls, include for payment with Excavation. Build Std 24" x 40' C.I.P Culvert with headwalls. Trench reinforcing (estimated 9' long) to be used over this culvert is included in pavement quantities.

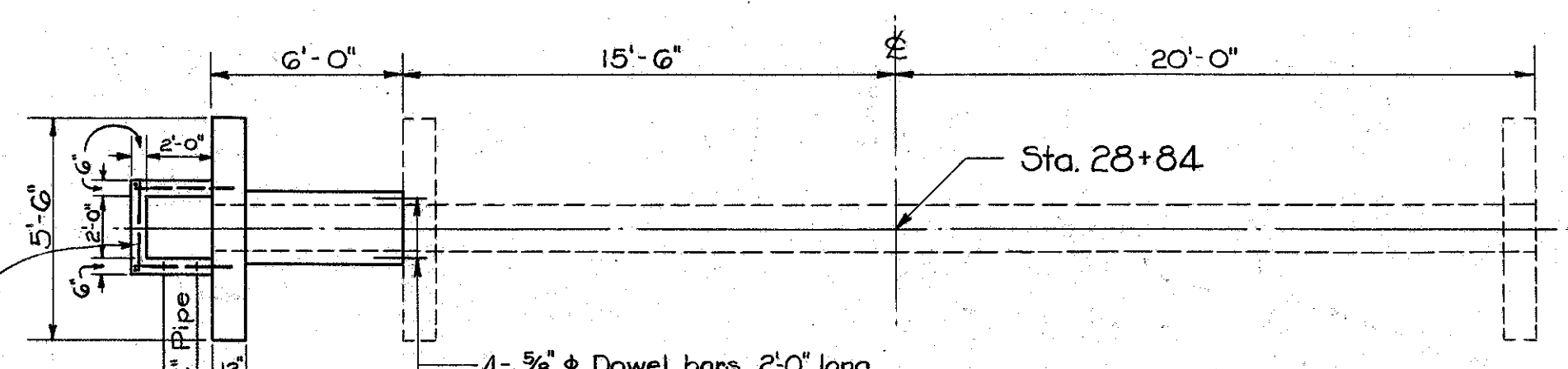
ESTIMATED QUANTITIES

Excavation	22 Cu.Yds.
Solid Cast Iron Pipe (24" Diameter)	40 Lin. Ft.
1:5 1/2 Concrete	3.1 Cu.Yds.
Reinforcing Steel	65 Lbs.

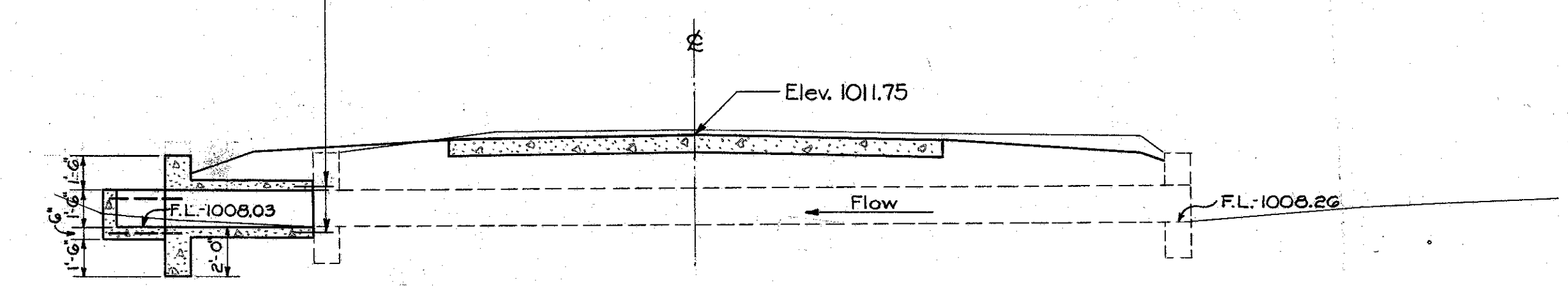
Ma-42-127. **STA. 54+33**

4

Steel List For Box
 4 bars 1/2" φ 3'-3" long
 2 " 1/2" φ 2'-9" "
 2 " 1/2" φ 1'-9" "



PLAN



CROSS SECTION

CULVERT DATA

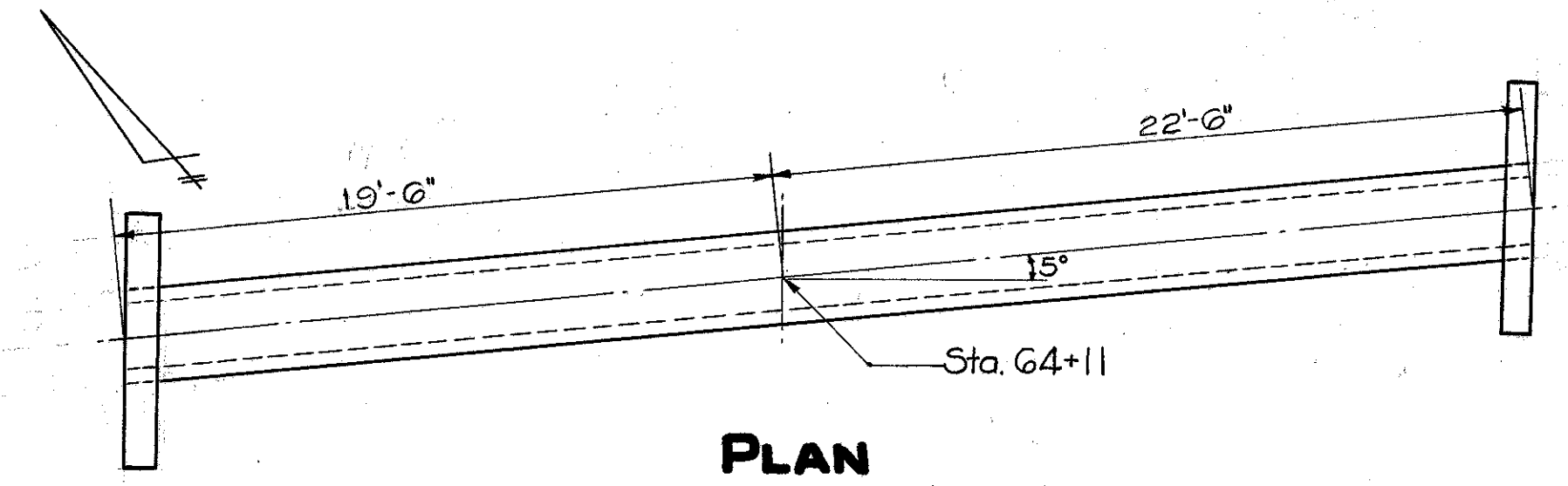
Type: Std. V.S.P (enc) Extension, Std. Dr. #300
 Size: 18" x 6'-0' Extension
 Work Required:- Extend existing 18" x 35.5' V.S.P (enc) Culvert with 6' of 18" V.S.P (enc) on left. Remove top of left hdwl, include for payment with Excavation. Build Std Hdwl. & 2' x 2' Box inlet on left.

ESTIMATED QUANTITIES

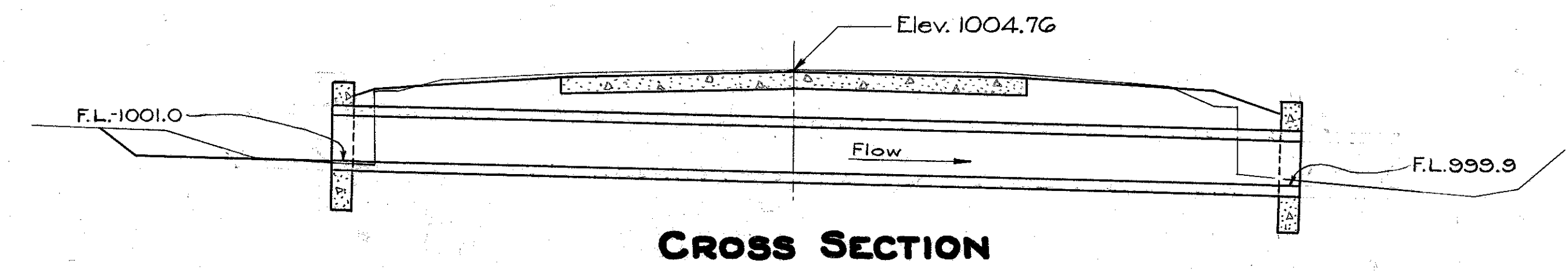
Excavation	8 Cu.Yds.
18" V.S.P (enc) incl. 1:8 conc. enc.	6 Lin. Ft.
1:5 1/2 Concrete	1.7 Cu.Yds.
Reinforcing Steel	73 Lbs.
Dowel Holes	4 Lin. Ft.

Ma-42-122. **STA. 28+84**

3



PLAN



CROSS SECTION

CULVERT DATA

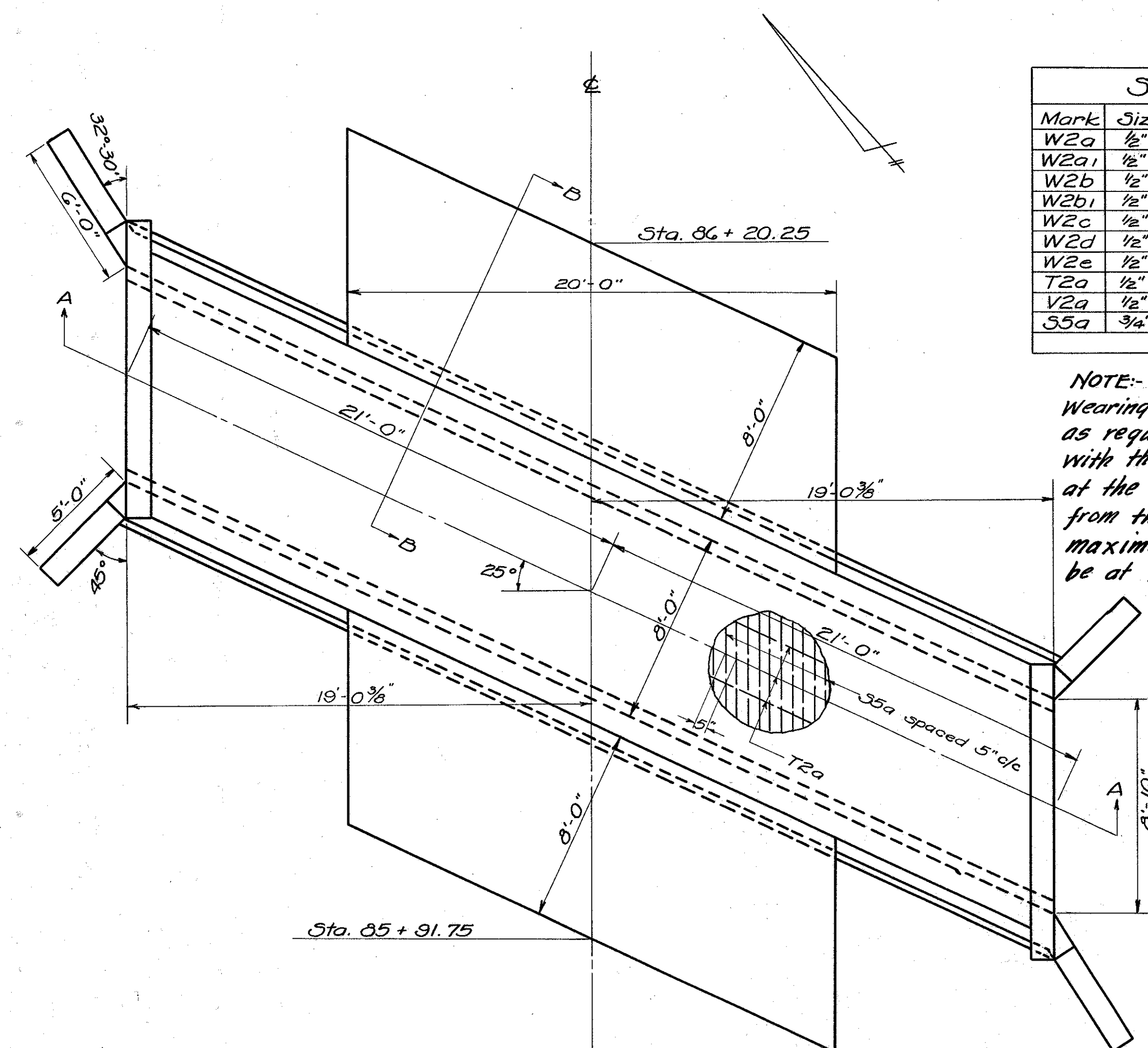
Type: Std. C.I.P Culvert Std. Dr. #300
 Size: 24" x 42'
 Skew -5° Right Forward.
 Work Required:- Remove 29' of 24" Conc. Pipe & 8' of 24" V.S.P (enc) with two headwalls, include for payment with Excav. Build Std 24" x 42' C.I.P Culvert with std. headwalls. Trench reinforcing (estimated 9' long) to be used over this culvert included in pavement quantities.

ESTIMATED QUANTITIES

Excavation	32 Cu.Yds.
24" Solid C.I.P	42 Lin. Ft.
1:5 1/2 Concrete	2.3 Cu.Yds.
Reinf. Steel	65 Lbs.

Ma-42-129. **STA. 64+11**

5



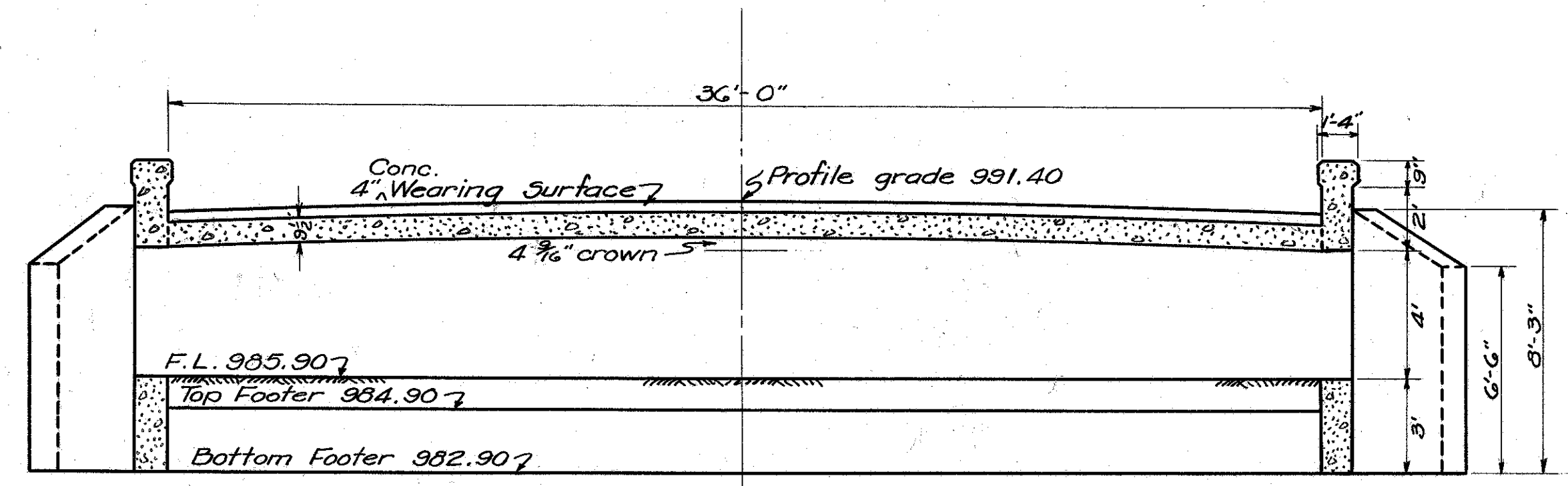
STEEL LIST					
Mark	Size	Shape	Nº	Length	Weight
W2a	1/2" #	Bent	10	10'-6"	70
W2a1	1/2" #	"	10	11'-6"	77
W2b	1/2" #	"	8	7'-3"	39
W2b1	1/2" #	"	8	8'-3"	44
W2c	1/2" #	Str.	12	6'-6"	52
W2d	1/2" #	"	4	8'-9"	23
W2e	1/2" #	Bent	16	5'-0"	53
T2a	1/2" #	Str.	36	22'-0"	529
V2a	1/2" #	"	88	7'-0"	412
S5a	3/4" #	"	100	9'-6"	1427
Total					2726

NOTE: A 20' center strip of the 4" concrete wearing surface shall have the same crown as regular 20' pavement so as to conform with the pavement, any additional thickness at the edges of the 20' width shall be deducted from the remainder of wearing surface and maximum wedge thickness deducted shall be at the headwalls.

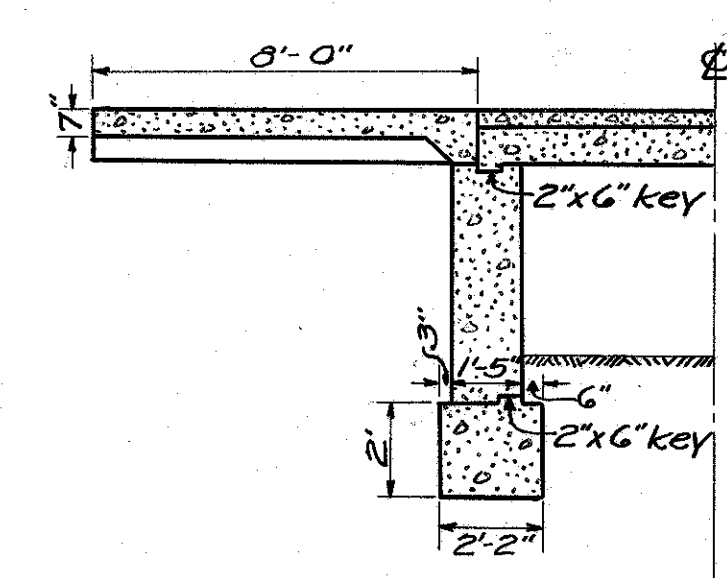
7.
Sta. 86 + 06
Ma-42-133.

Type - Special Slab Bridge.
Standard Drawings 5C-A & A5-31.
Size - 8'-10" x 4' x 42' - 36' clear roadway.
Work Req'd: - Remove present 8'-6" x 4' x 34' I-beam & conc. slab top culvert (incl. in excav.). Build special skewed slab bridge with 8' appr. slabs. Deduct 20.5' for pavement.

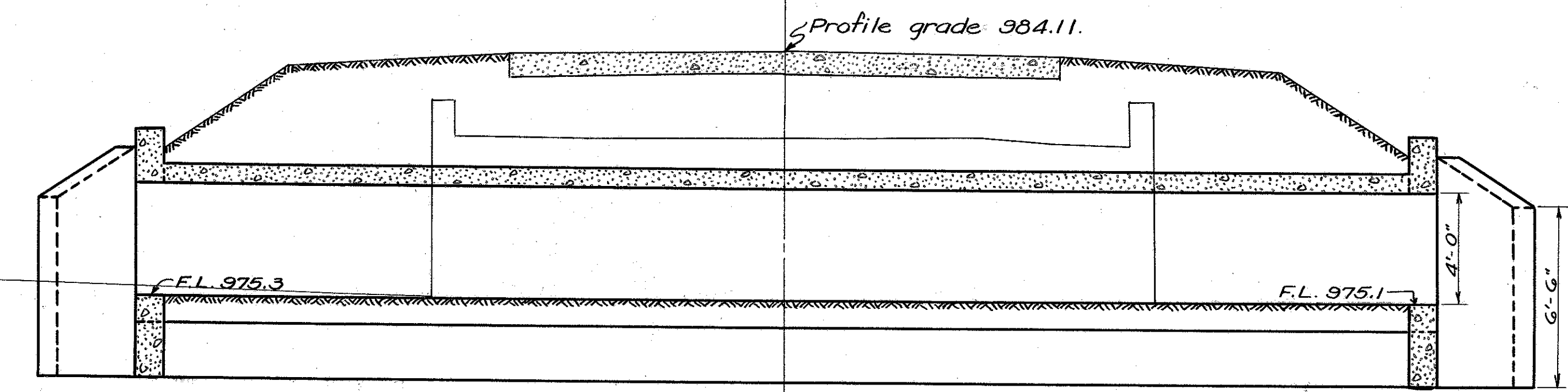
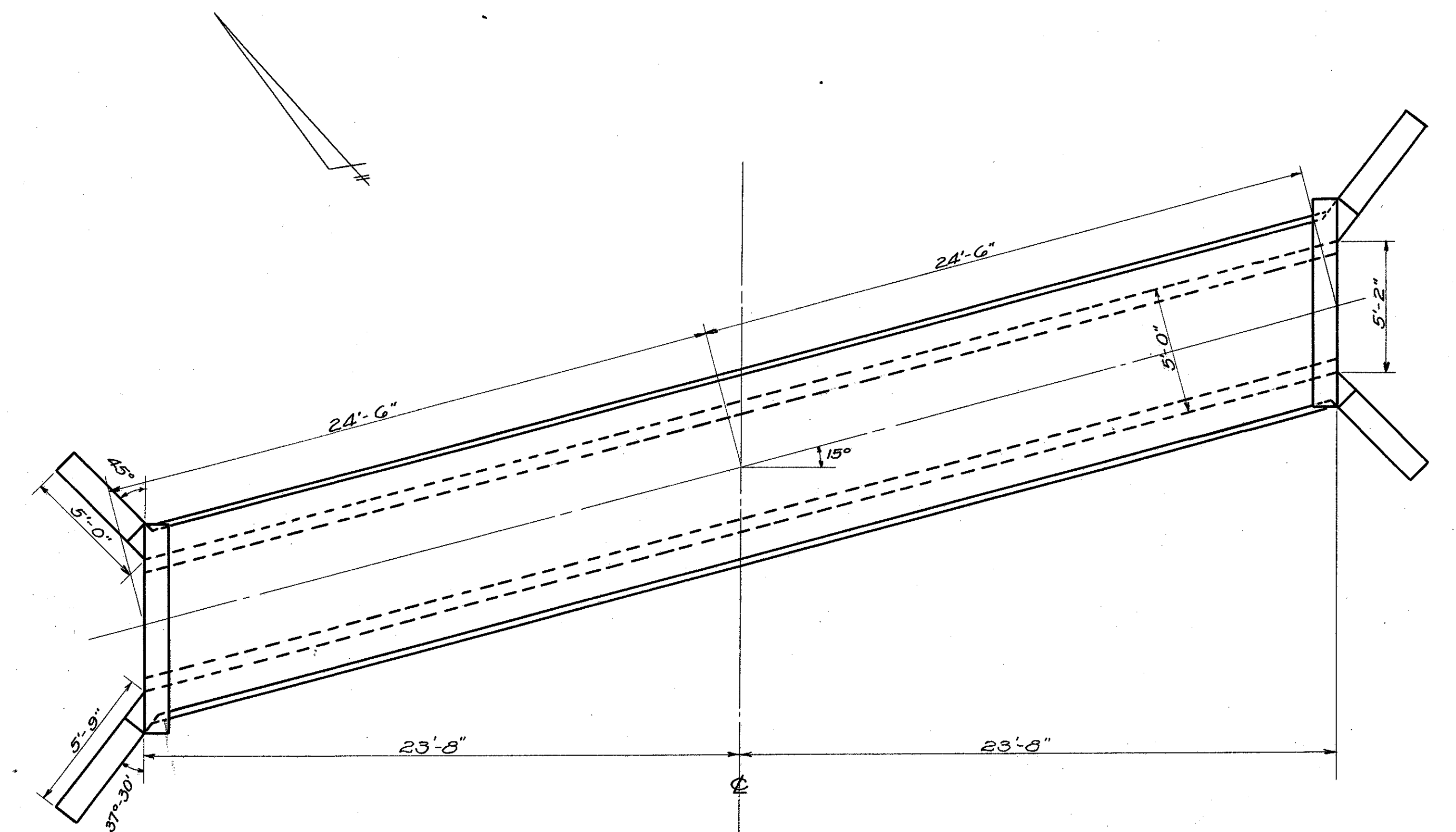
ESTIMATED QUANTITIES		
Excavation	95	Cu. Yds.
Concrete 1:1 1/2 (Footers)	11.3	" "
Concrete 1:5 1/2	36.6	" "
Rein. Steel	2726	Lbs.
7" Reinf. Conc. Appr. Slab	35.6	Sq. Yds.
4" Conc. Wear. Surface	43.5	" "



SECTION A-A



SECTION B-B

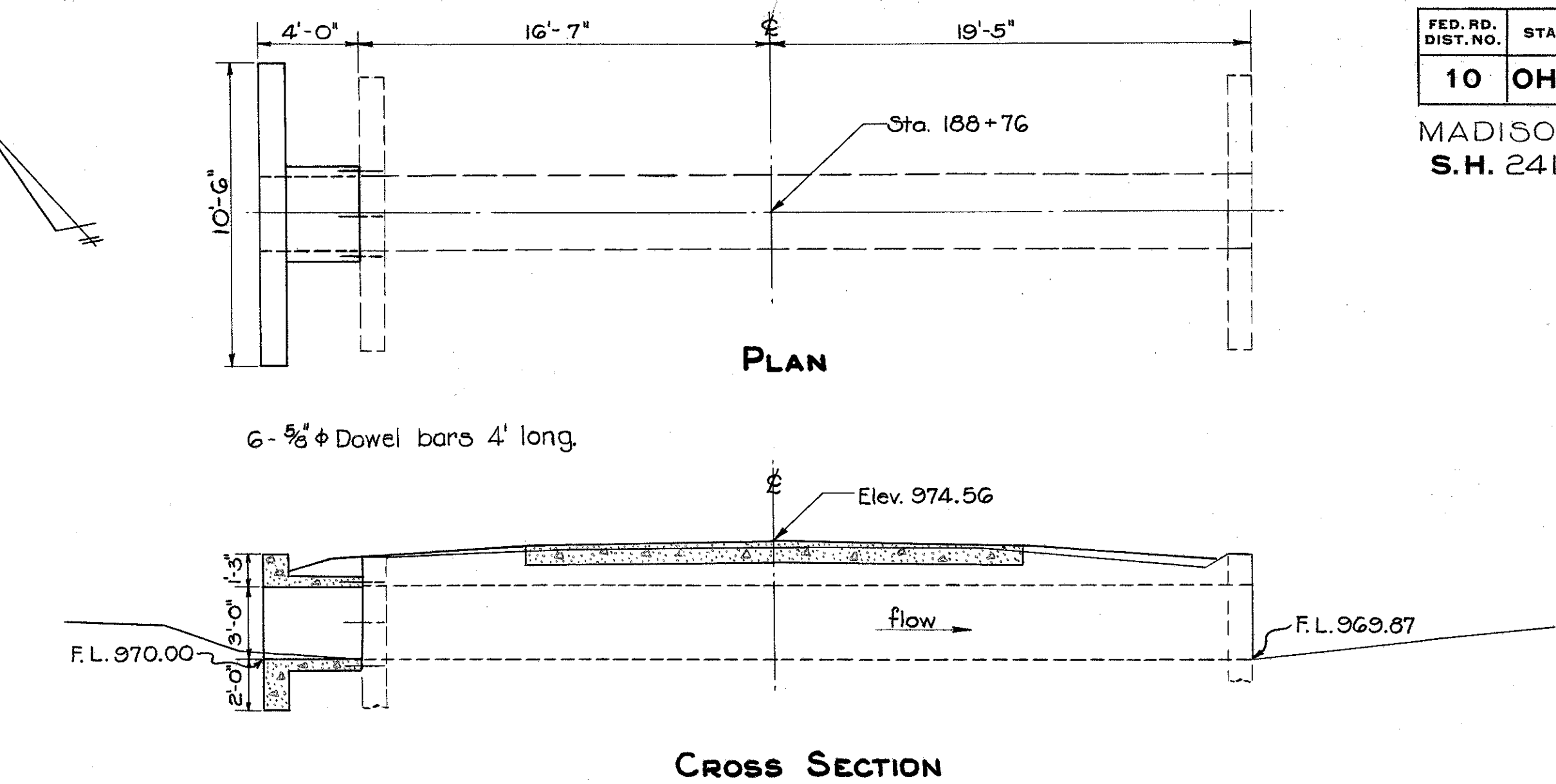
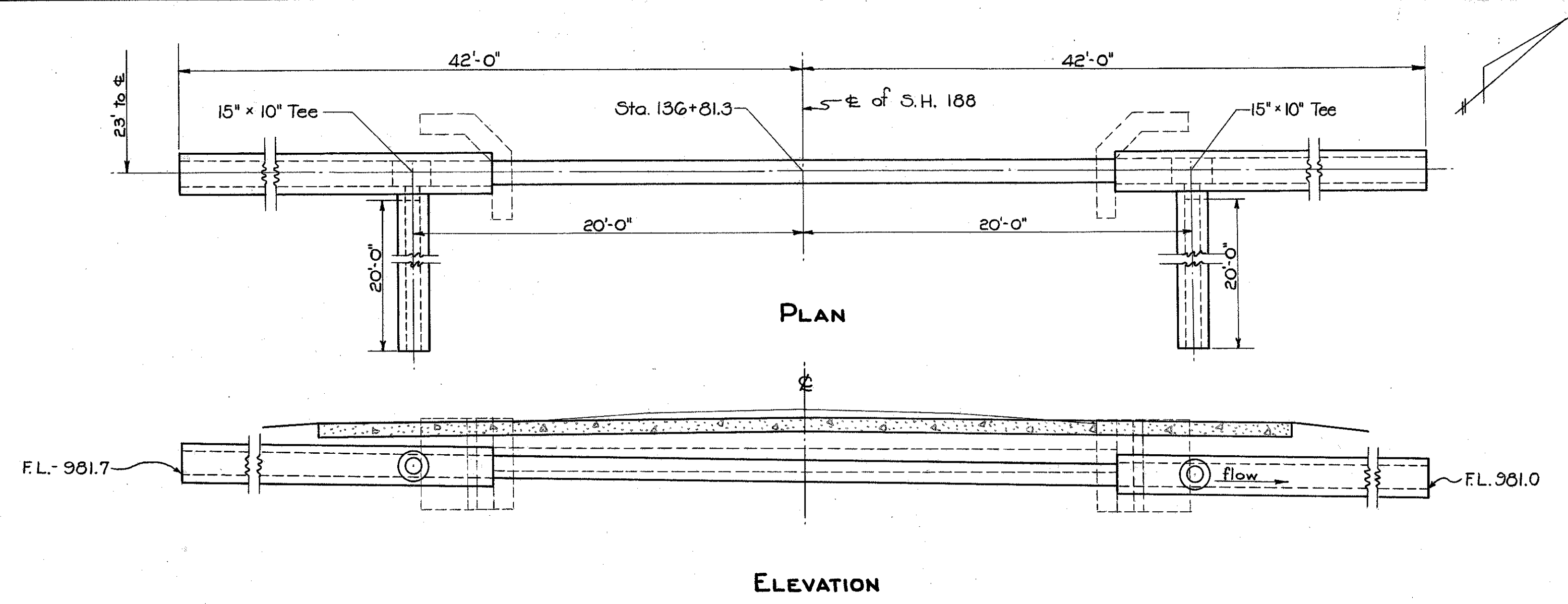


11.
Sta. 138 + 55.
Ma-42-143

CULVERT DATA
Type: Std. Slab Top Culvert
Std. Drawing 5C-A
Size: 5' x 4' x 49'

Work Req'd: Remove present 5'-0" x 4' x 34' stone & conc. slab top culvert. Build Std. skewed 5' x 4' x 49' slab top culvert. Trench reinforcing (estimated 15' long) to be used over this culvert included in pavement quantities. Removal of structure included for payment in roadway excavation.

ESTIMATED QUANTITIES		
Excavation	88	Cu. Yds.
Concrete 1:1 1/2 (Footers)	13.2	" "
Concrete 1:5 1/2	33.1	" "
Reinft. Steel	2178	Lbs.



CULVERT DATA
 Type: Std. V.S.P. (enc) & C.I.P. Side Road Culvert, Std. Dr. #300
 Size: 15" V.S.P. x 52" x 14" C.I.P. x 32"
 Work Required - Remove present 14" x 32" C.I.P. side rd. culvert with 2 hdwls. include for payment with Excavation. Build new Side Road Culvert without hdwls using the 32' of 14" C.I.P. & 28' of 15" V.S.P. (enc). Place 15" x 10" V.S.P. (enc) Tees as shown & lay 20' of 10" V.S.P. (enc) up each side of side rd. Trench reinforcing (estimated 8' long) to be used over this culvert included in pavement quantities.

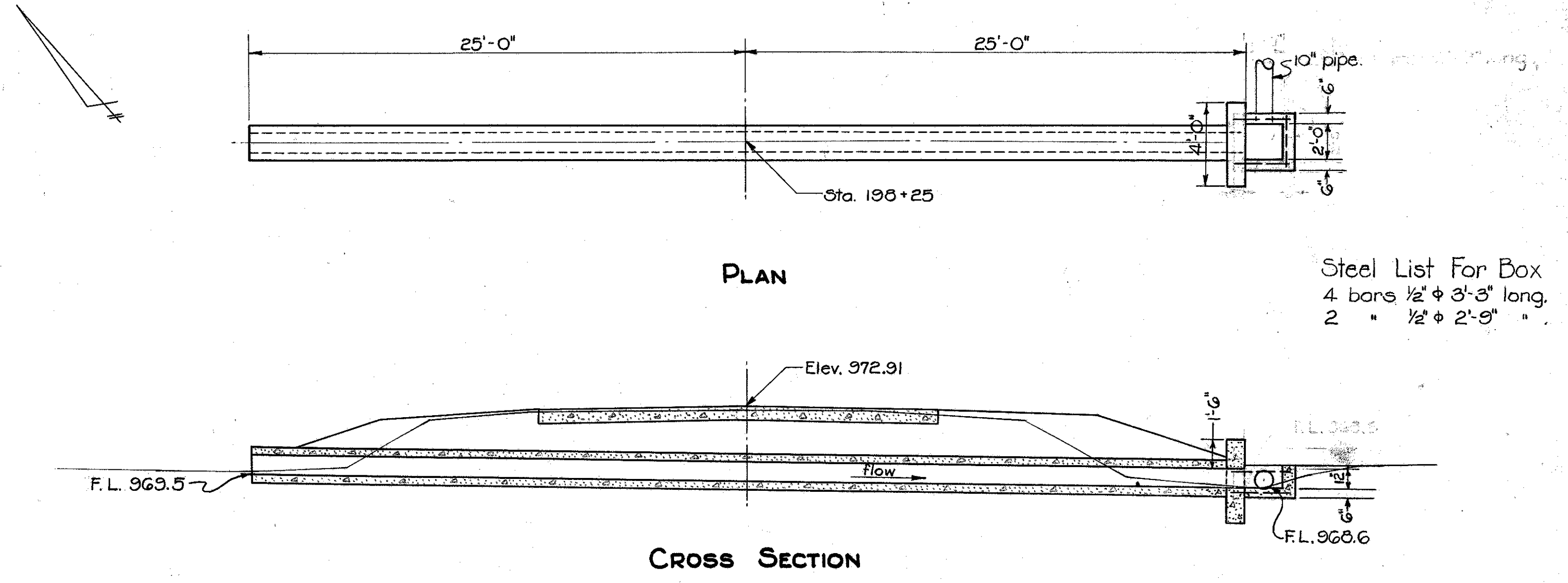
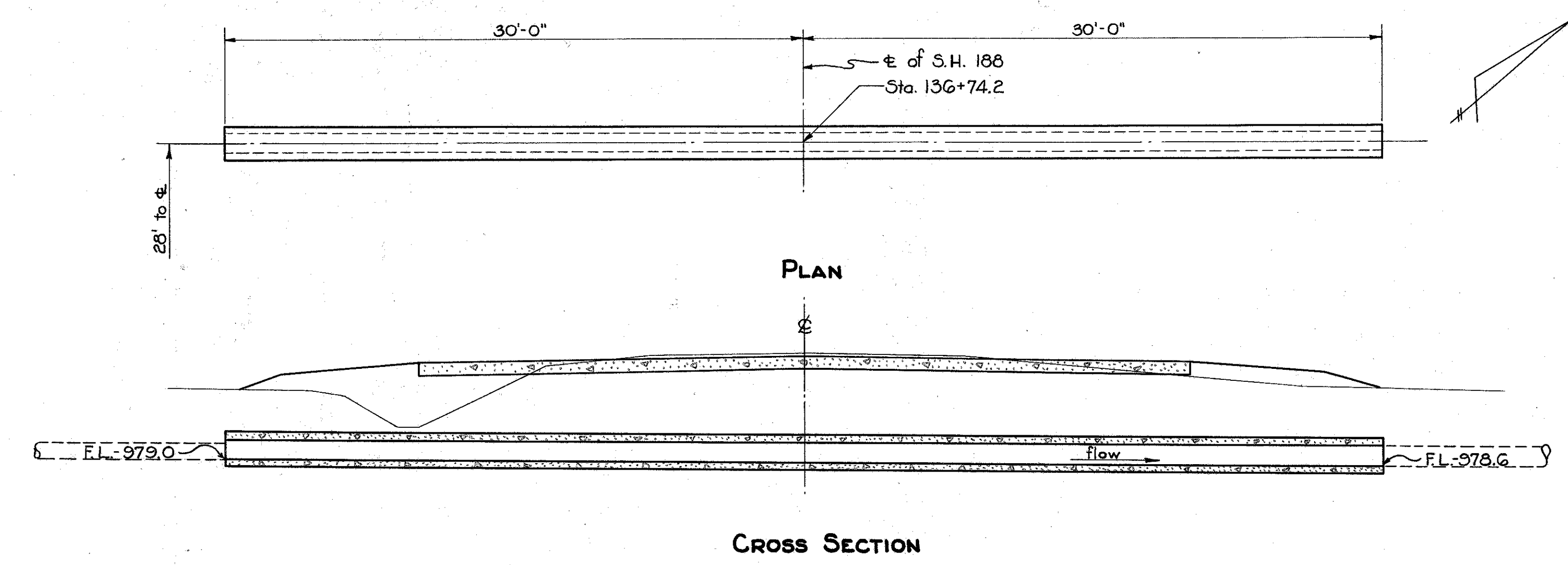
ESTIMATED QUANTITIES
 Excavation 42 Cu. Yds.
 15" V.S.P. (enc), incl. 1:8 conc. enc. 48 Lin. Ft.
 10" " " 40 " "
 15" x 10" V.S.P. (enc) Tee, incl. 1:8 conc. enc. 2 only
 14" C.I.P. relaid 32 Lin. Ft.

CULVERT DATA
 Type: Std. V.S.P. (enc) Culvert Ext. Std. Dr. #300
 Size: 36" x 4' Ext.
 Work Required: Remove top of existing headwall on left, include for payment with Excavation. Extend present structure on left with 4' of 36" V.S.P. (enc) and build headwall

ESTIMATED QUANTITIES
 Excavation 5 Cu. Yds.
 36" V.S.P. (enc) including 1:8 conc. enc. 4 Lin. Ft.
 1:5 1/2 Concrete 2.3 Cu. Yds.
 Reinforcing Steel 58 Lbs.
 Dowel Holes 6 Lin. Ft.

Ma-29-96 **9** STA. 136+81.3-RT.

Ma-42-152 **12** STA. 188+76



CULVERT DATA
 Type: Std. V.S.P. (enc) Side Road Culvert ~ Std. Dr. #300
 Size: 12" x 60"
 Work Required: Build Std. 12" V.S.P. (enc) Side Road Culvert without headwalls. Trench reinforcing (estimated 8' long) to be used over this culvert included in pavement quantities.

ESTIMATED QUANTITIES
 Excavation 43 Cu. Yds.
 12" V.S.P. (enc), including 1:8 Conc. enc. 60 Lin. Ft.

CULVERT DATA
 Type: Std. V.S.P. (enc) Culvert Std. Dr. #300 & CE-A
 Size: 12" x 50"
 Work Required: Build Std. 12" x 50" V.S.P. (enc) culvert without headwall on left & with 2' x 2' box inlet on right. Trench reinforcing (estimated 8' long) to be used over this culvert included in pavement quantities.

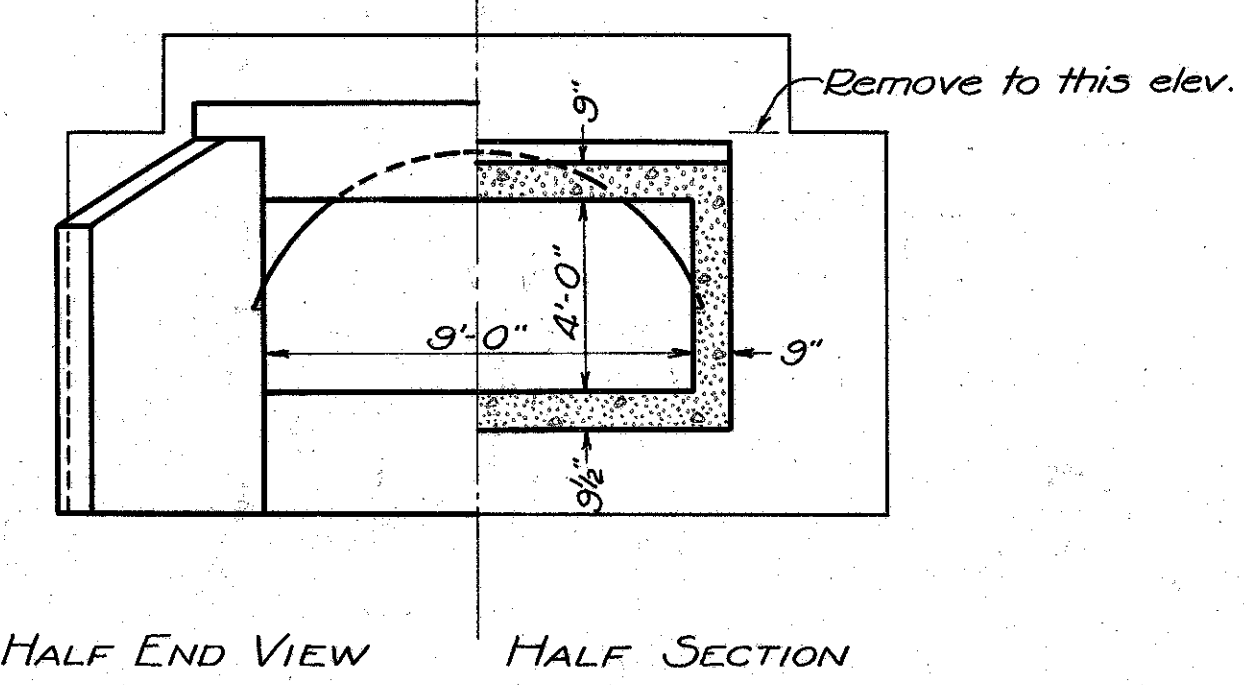
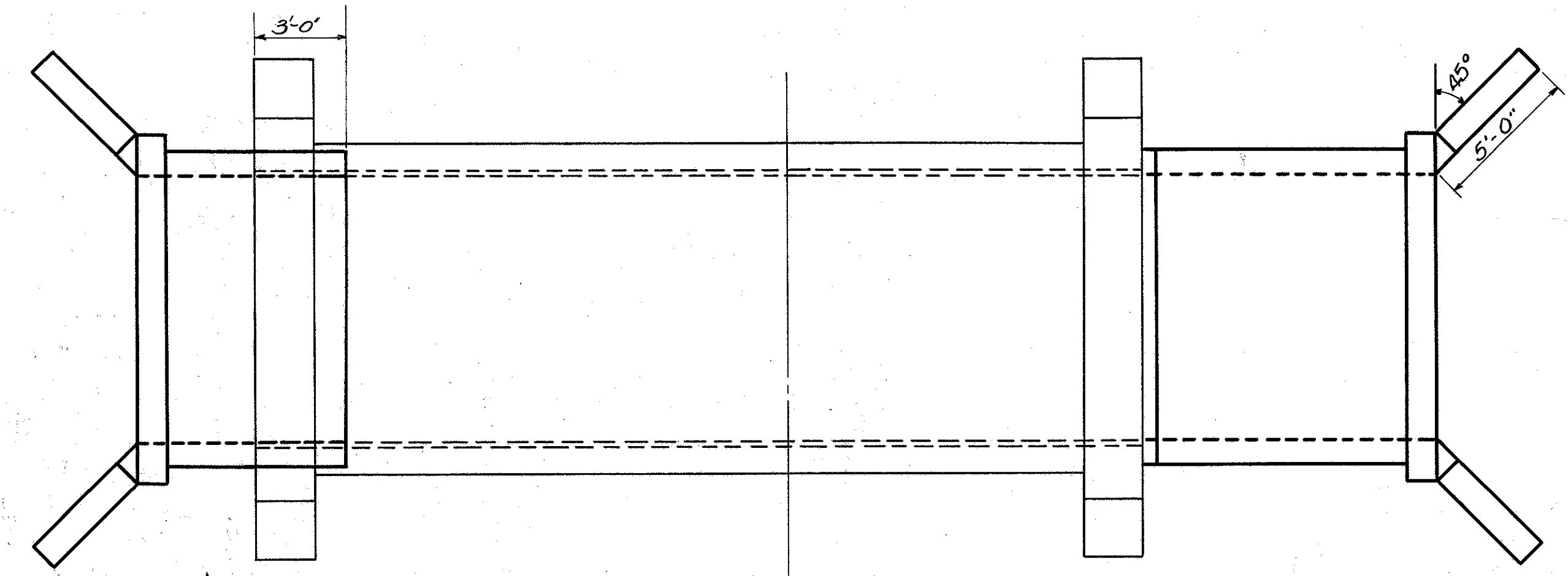
ESTIMATED QUANTITIES
 Excavation 21 Cu. Yds.
 12" V.S.P. (enc) including 1:8 conc. enc. 50 Lin. Ft.
 1:5 1/2 Concrete 1.1 Cu. Yds.
 Reinforcing Steel 52 Lbs.

Ma-29-96 A **10** STA. 136+74.2-LT.

Ma-42-154 **13** STA. 198+25

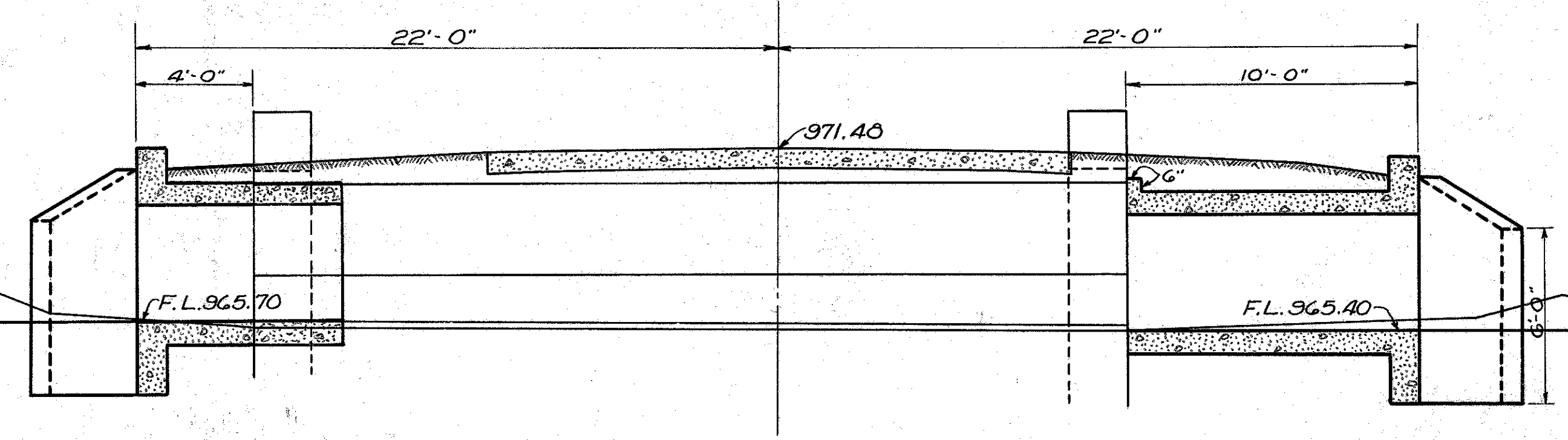
Steel List For Box
 4 bars 1/2" phi 3'-3" long.
 2 " 1/2" phi 2'-9" "

Note: The intersection shall be built so as to maintain traffic on Route 29 at all times.



STEEL LIST				
Mark	Shape	N ^o	Length	Weight
*35a	Straight	80	10'-3"	1232
T2a	"	26	8'-6"	113
T2a1	"	26	9'-6"	165
V2a	"	38	5'-3"	133
W2a	Bent	16	13'-3"	142
W2b	"	16	7'-3"	70
W2c	Straight	12	6'-0"	40
W2d	"	4	8'-0"	21
W2e	Bent	16	5'-0"	53
Dowels	Straight	40	2'-0"	83
Total				2068

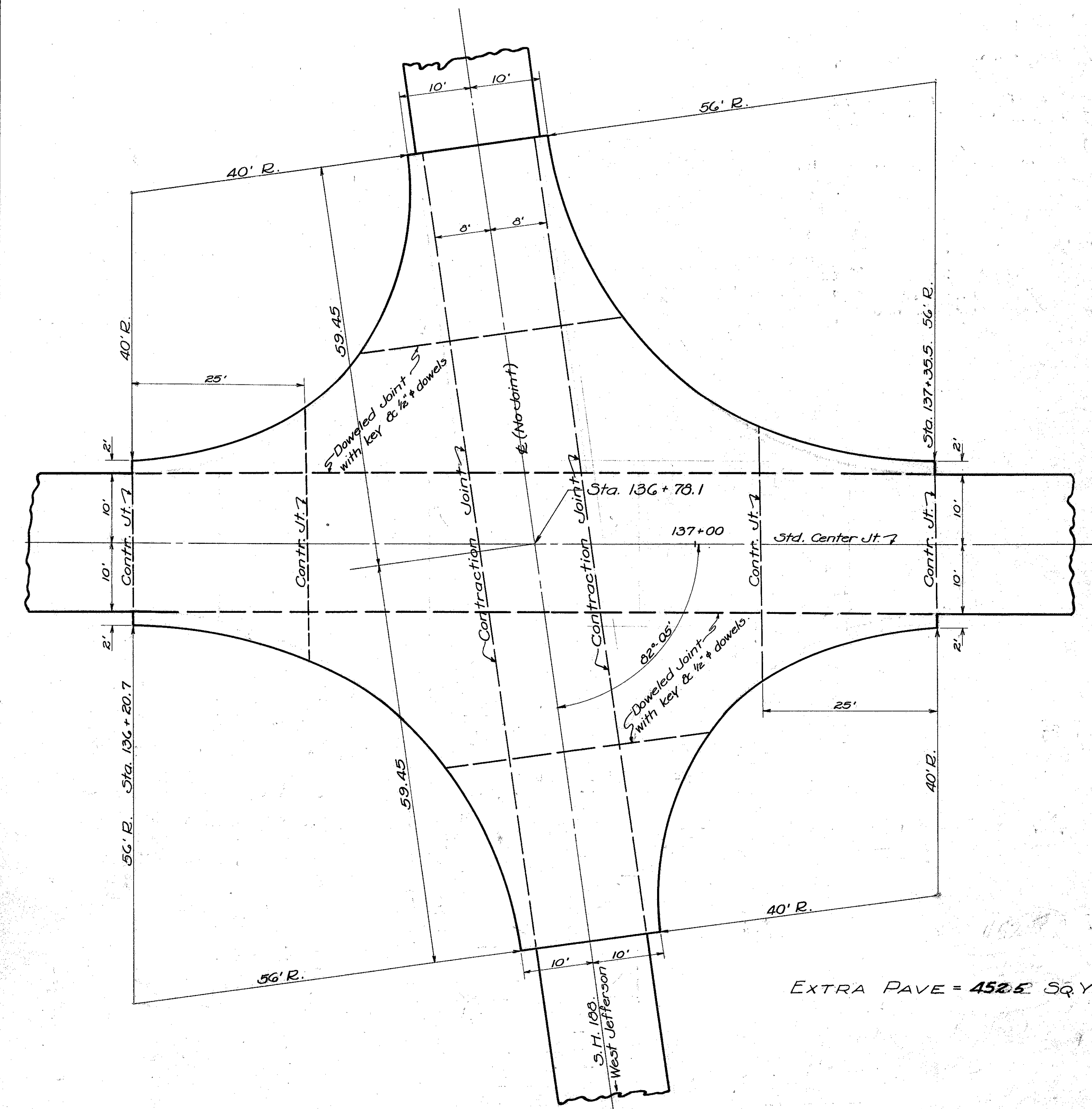
*Spaced @ 5" ctrs.



CULVERT DATA
 Type - Conc. Box Ext'n. - Std. Drawing BC-A
 Size - 9'x4'x7'L & 10'R.
 Work Req'd. - Remove tops of headwalls of present 9'x5'x30' conc. arch culvert. Extend 7' left and 10' right with 9'x4' conc. box. 16' trench reinforcing to be used in pavement above structure (included in pavement quantities). Remove 3' of existing culvert on left. (Include with Excav. for Payment.)

14.
 Sta. 204+36.
 Ma-42-155

ESTIMATED QUANTITIES
 Excavation 30 Cu. Yds.
 Concrete 1:5 1/2 218 " "
 Reinforcing Steel 2068 Lbs.
 Dowel Holes 40 Lin. Ft.



EXTRA PAVE = 452.5 SQ. YDS.

SUMMARY OF QUANTITIES

MADISON COUNTY
S. H. 241. SEC. B(Pt) & C.
PROPOSAL No 1.

STRUCTURES UNDER 20' SPAN

No	Station	Type	Size	Length	Excav. Cu.Yds.	Concrete		Reinft. Steel Lbs.	Dowel Holes Lin.Ft.	V.S.P.(enc.) including 1:8 concrete encasing or R.C.P. with collars or cemented joints.						14" C.I.P. Relaid Lin.Ft.	24" Solid C.I.P. Appr. Sl. Surface Lin.Ft.	7" Reinft. Conc. Wearing Sq.Yds.	4" Conc. Surface Sq.Yds.	
						1:5/2 Cu.Yds.	1:6/2 Footer Cu.Yds.			10" Lin.Ft.	12" Lin.Ft.	15" Lin.Ft.	18" Lin.Ft.	24" Lin.Ft.	36" Lin.Ft.					15"x10" Tee
1	8+65.5	Pipe Culvert	24"	61'	56	2.8		65							62					
2	22+57	Pipe Culv. Ext'n.	24"	4'-L.	4	2.0		80												
3	28+84	Pipe Culv. Ext'n.	18"	6'-L.	8	1.7		73	4			6								
4	54+33	Pipe Culvert	24"	40'	22	3.1		65								40				
5	64+11	C.I.P. "	24"	42'	32	2.3		65							42					
6	79+00	"	"	"	7															
7	86+06	Spec. Slab Bridge	8'-10"x4'	32' Bay	35	36.6	11.3	2726								35.6	43.5			
8	134+84	Pipe Culvert	"	"	No Work Required															
9	136+81.3R	Side Rd. Pipe Culv.	14" C.I.P.	33'	42					40		48			2	32				
10	136+74.2-L.	" " " "	12"	60'	43						60									
11	138+55	Slab Top Culvert	5'x4'	49'	88	33.1	13.2	2178												
12	188+76	Pipe Culv. Ext'n.	36"	4'-L.	5	2.3		58	6								4			
13	198+25	Pipe Culvert	12"	50'	21	1.1		52			50									
14	204+36	Spec. Box Culv. Ext'n.	9'x4'	4'-L, 10R	30	218		2068	40											
15	221+22.5	Pipe Culvert	"	"	No Work Required															
Totals					453	106.8	24.5	7430	50	40	110	48	6	66	4	2	32	82	35.6	43.5

EARTHWORKS

From Station	To Station	Excav. Cu.Yds.	Emb. Cu.Yds.	Emb. +20% Cu.Yds.	Waste Cu.Yds.
0+81	8+23	706	588	706	
8+23	14+33	610	508	610	
14+33	34+17	1688	1407	1688	
34+17	55+45	1934	1612	1934	
55+45	59+41	334	278	334	
59+41	69+73	887	739	887	
69+73	84+73	1245	1038	1245	
84+73	105+00	2024	1687	2024	
105+00	120+00	1205	964	1157	48
120+00	138+68	1628	1132	1358	270
138+68	149+38	589	491	589	
149+38	159+19	3059	27	32	3027
168+19	176+51	1640	315	378	1262
176+51	191+17	1393	1161	1393	
191+17	203+59	1382	1152	1382	
203+59	227+30	2896	2413	2896	
227+30	234+40	661	551	661	
234+40	244+35	920	615	738	182
Totals		24801	16678	20012	4789

TRENCH REINF. STEEL

Structure No	Station	Estimated Length Lin. Ft.	Weight Lbs.
1	8+65.5	10	407
4	54+33	9	366
5	64+11	9	366
9	136+81.3R	8	818
10	136+74.2L	8	651
11	138+55	15	610
13	198+25	8	325
Total Trench Reinf. Steel			3543

SIDE DRAINAGE

Station to Station	Side	Pipe Underdrain						Pipe Connections 24"x10" Tee No	Std. No 1 12" Inlet	Std. No 2 Catch Basin	Spec. No 1 Inlet	8" D. Tile Relaid Lin.Ft.	12" D. Tile Relaid Lin.Ft.
		8" Lin.Ft.	10" Lin.Ft.	12" Lin.Ft.	15" Lin.Ft.	18" Lin.Ft.	24" Lin.Ft.						
0+85 to 1+05	R.	20											
22+58 to 28+82	L.			622				1					
51+24 to 53+50	L.			206									
71+36 to 71+60	L.		24										
86+24 to 96+00	R.	12	976						1				
95+04 to 95+70	R.											66	
96+00 to 99+20	R.		320						1				
97+80 to 98+30	R.	50											
124+06 to 124+30	L.		24										
127+85 to 128+65	L.		60										
131+65 to 136+40	L.		472						2				
137+00 to 138+44	L.			144									
155+90 to 159+19	L.	326								2			
168+19 to 169+50	R.					130			1				
169+50 to 172+22	R.				272								
172+46 to 173+00	R.				54				1				
185+00 to 188+80	L.	380											
198+25 to 204+32	R.		606						1				
204+36	L.					10							
204+36 to 208+71	L.		434					1					
221+22	R.								1				
222+90 to 224+00	L.			110									
226+89 to 227+77	L.			88									
224+00 to 225+50	L.			134									
235+96 to 236+20	L.		24										
Additional pipe to be used if necessary where directed		100	300	100	326	130	10						
Totals		888	3240	1404	326	130	10	1	2	8	2		66

CORR. I. P. FOR DRIVES

Station	Side	New Pipe		Take up & Relay	
		10" Lin.Ft.	12" Lin.Ft.	10" Lin.Ft.	12" Lin.Ft.
2+00	L.				16
2+24	R.				16
21+10	L.				16
27+04	R.		20		
32+97	L.		40		
32+98	R.		20		
41+00	R.				16
61+00	R.				16
80+25	R.				16
94+95	R.				16
95+95	L.				16
97+96	R.				16
124+35	R.				16
128+40	L.		20		
153+62	L.				16
153+71	R.				16
168+77	L.				16
175+82	L.				16
181+30	L.		24		
196+00	L.				16
208+83	L.		20		
211+97	R.		24		
218+54	R.				16
224+67	L.				16
233+51	L.	20		20	
234+40	L.		20		
Totals		20	188	52	240

FINAL SUMMARY

Quantity	ROADWAY	Item
24,801	cu.yds. excavation, unclassified	E-1
23,440	lin.ft. finishing shoulders, slopes & ditches (both sides)	E-5
338	cu.yds. *46 stone or gravel	I-17
20	lin.ft. 10" Corr. I.P. (Sec M-6.4) in place	I-1
188	lin.ft. 12" " " (Sec M-6.4) " "	I-1
52	lin.ft. 10" " " taken up and relaid	I-6
240	lin.ft. 12" " " " " " "	I-6
51	" " Type D Guard Rail	I-15
888	lin.ft. 8" V.S.P. (Sec. M-6.8a) or P.C.P. (Sec. M-6.9) or D.T. (Sec. M-6.7) in place	I-3
3240	lin.ft. 10" do	I-3
1404	lin.ft. 12" do	I-3
326	lin.ft. 15" do	I-3
130	lin.ft. 18" do	I-3
10	lin.ft. 24" do	I-3
1	24"x10" Tee V.S.P. (Sec. M-6.8a) or P.C.P. (Sec. M-6.9) in place	I-5
PAVEMENT		
52,509.2	sq.yds. 9" 7'-9" concrete pavement	T-70
3,543	lbs. Trench reinforcing steel	I-7
STRUCTURES UNDER 20' SPAN		
453	cu.yds. excavation	E-2
106.8	cu.yds. concrete. 1:5/2	S-1
24.5	cu.yds. concrete. 1:6/2 (footers)	S-1
7430	lbs. reinforcing steel	S-4
50	lin.ft. dowel holes for 3/8" # bars	S-23
40	lin.ft. 10" V.S.P. (Sec. M-6.8b) encased incl. 1:8 conc. or R.C.P. (Sec. M-6.5b) with collars or cem. jts.	S-27
110	lin.ft. 12" do	S-27
48	lin.ft. 15" do	S-27
6	lin.ft. 18" do	S-27
66	lin.ft. 24" do	S-27
4	lin.ft. 36" do	S-27
2	15"x10" Tees do	I-5
32	lin.ft. 12" Cast iron pipe taken up and relaid	I-6
82	lin.ft. 24" Solid Cast Iron Pipe	S-27
43.5	sq.yds. 4" Conc. Wearing Surface	T-70
35.6	sq.yds. 7" Reinforced Conc. Approach Slabs	S-11

No 46 STONE OR GRAVEL

40 Private Drives	160 cu.yds.
22 Mail Box Approaches @ 4 cu.yds.	88 " "
Sta. 136+80 to 138+00 L.	60 " "
Sta. 242+00 to 244+00 L. & R.	30 " "
Total *46 Stone or gravel	338 " "

GUARD RAIL

Sta. 159+02 to Sta. 59+19 R	17 " "
Sta. 168+19 to " 168+53 L	34 " "
Total Guard Rail	51 " "

PAVEMENT CALCULATIONS

Beginning of F.A.P. 513-F	Sta. 0+81
End of F.A.P. 513-F	Sta. 244+35
Gross Length	24,354.0 lin. Ft.
Deduct F.A.P. 513-B Re. (Sta. 159+19 to 168+19)	900.0 " "
Net length of F.A.P. 513-F	23,454.0 " "
Deduct for Bridge (Sta. 85+91.75 to 86+20.25)	28.5 " "
Net length of Pavement	23,425.5 " "
9" 7'-9" Conc. Pavement $23,425.5 \times 2.0 =$	52,056.7 Sq.Yds.
Intersection Sta. 136+78.1	452.5 " "
Total Pavement	52,509.2 " "

TREES TO BE REMOVED

Station	Side	Size	No
116 to 117	L.	24"	2
122+00	L.	24"	1
128+85	L.	10"	1
130+85	L.	10"	1
Total			5