

N.R.H-513-F

FED. RD. DIST. NO.	STATE	PROJECT NO.	YEAR
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. N^o.
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. Chapman*
Date *6-2-33* 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. D. Chapman*
Date *7-19-33* Chief Engineer, 1st Asst. Director

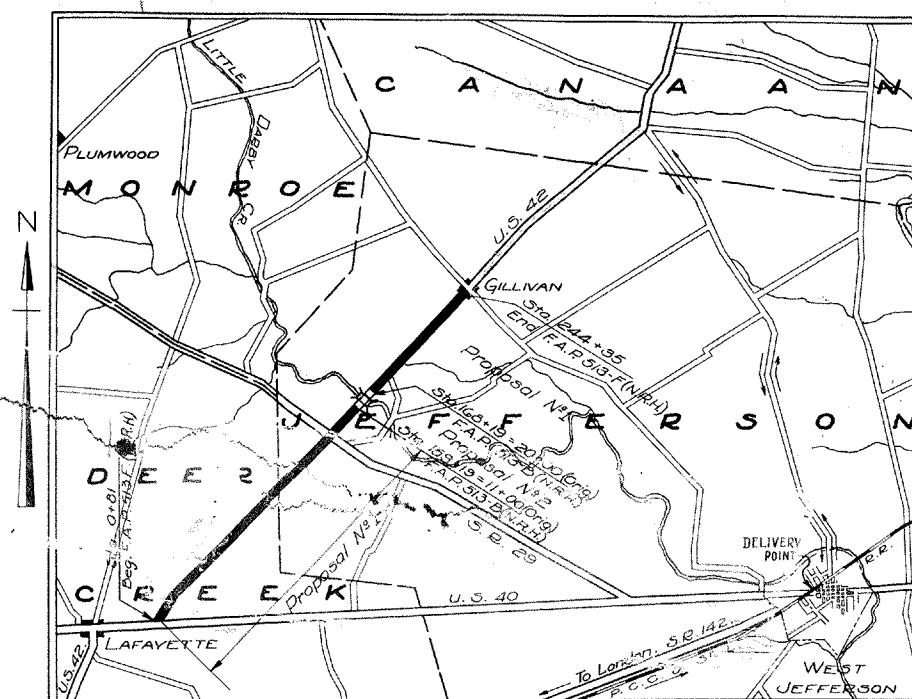
Approved: *W. J. Well*
Date *7-19-33* Director, Of Highways

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

~ CONVENTIONAL SIGNS ~
STATE LINE
COUNTY LINE
TOWNSHIP LINE
CITY LINE
CITY VILLAGE LINE
FENCE
MEDGE
TELEPHONE OR TELEGRAPH
STEAM RAILROAD
ELECTRIC LINE
GUARD RAIL
DRAIN PIPE - NEW
DRAIN PIPE - OLD

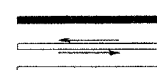


LOCATION PLAN

Scale Of Miles.



PORTION TO BE IMPROVED
DETOURS SHOWN THUS
IMPROVED ROADS



PROPOSAL N^o 1

PROPOSAL N^o 1

INDEX BY SHEETS

SCALES		INDEX OF SHEETS		P.
PLAN	1"=100'	TITLE PAGE		1
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PROFILE HORIZONTAL	1"=100'	PLANS & PROFILE		3-10
CROSS SECTIONS	1"=5'	CROSS SECTIONS		11-23
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		SUMMARY SHEET		28

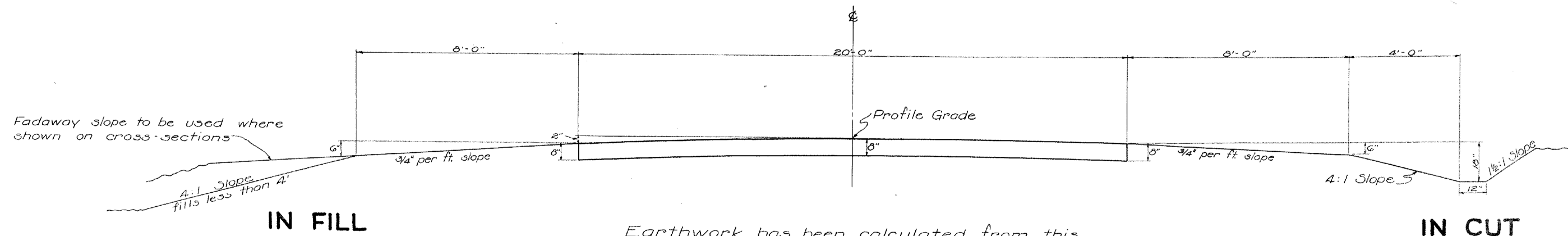
SUPPLEMENTAL PRINTS OF STRUCTURAL STANDARDS
DRAWINGS N^o T-70-J, 300, 305, BC-A, SC-A, AS-31,
I-15, & Div. 6 Drainage Std.

CHECKING RECORD		
OFFICE	BY	DATE
RESIDENT		
DIVISION	ELL	6-7-33
CENTRAL CONST.		
CENTRAL-BRIDGES		
BUR. OF PUBLIC ROADS		

TYPICAL SECTION

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

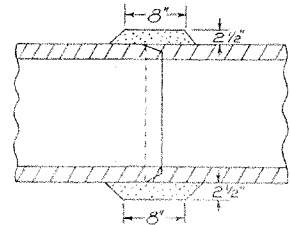
MADISON COUNTY
S.H. 241. SEC. B(Pt)-C.



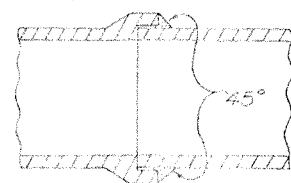
Earthwork has been calculated from this theoretical typical grading section.

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

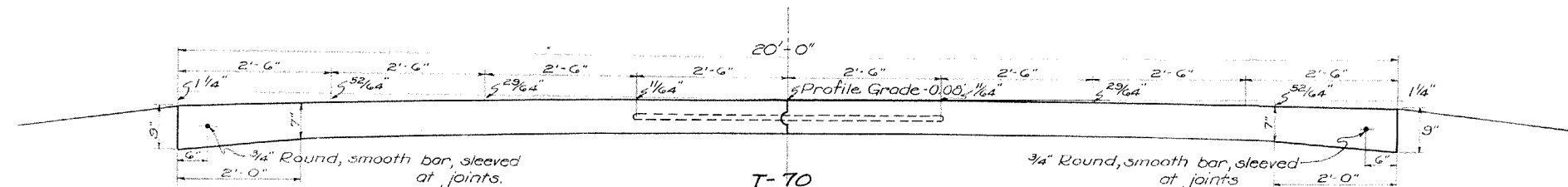
MODIFIED JOINT



BELL & SPIGOT JOINT

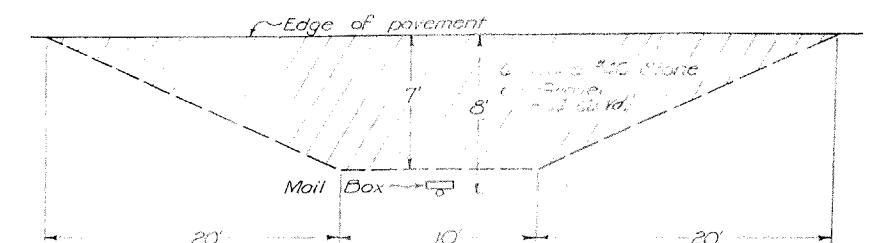


Concrete pipe used as an alternate for V.S.P. enclosed & cem. jts. shall be cemented as shown in the accompanying detail.



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.

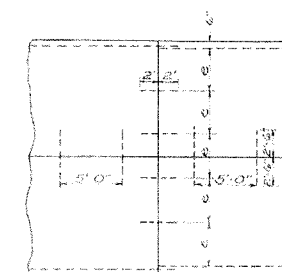
TYPICAL MAIL BOX APPROACH



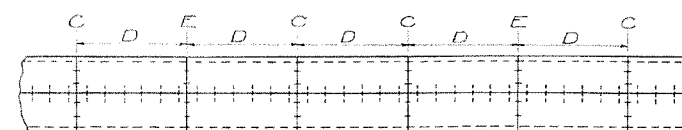
Note: Grade line has been laid, cross sections plotted and yardage calculated for a theoretical typical section for a 20 ft. pavement having a uniform 8" depth and a 2" crown as shown above.

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 $(0.0625 + 0.0164 = 0.0789)$ or 0.08 ft.



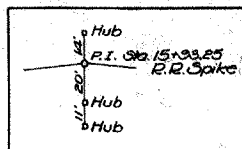
DETAIL OF
TRANSVERSE JT.



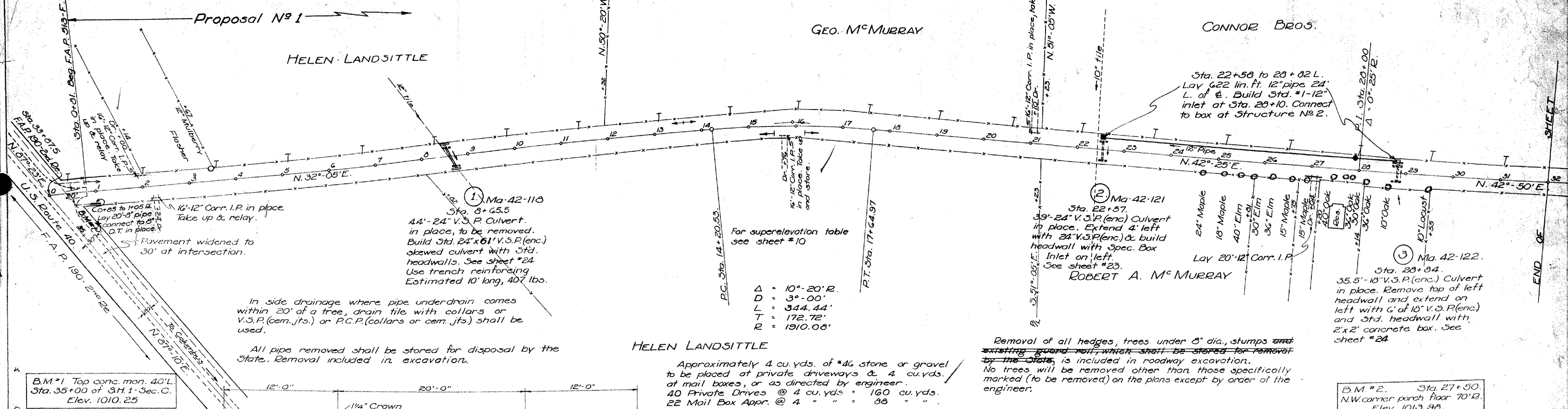
C - Contraction joint.
E - Expansion joint (Sept. 15 to May 15).
D - 25' for gravel aggregate.
D - 30' for stone or slag aggregate.

APPROVED

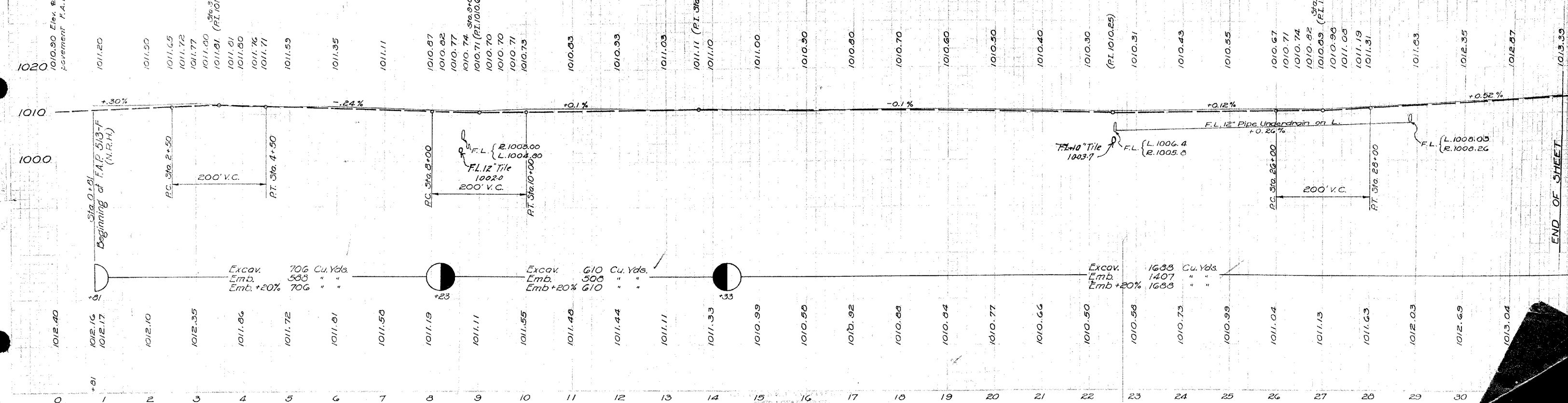
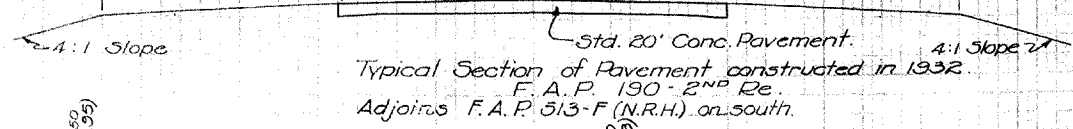
If deemed necessary by the Engineer the contractor shall, without compensation, dig down and inspect the tiles crossing the road. Any replacements necessary will be paid for at the unit price bid for the size pipe used.



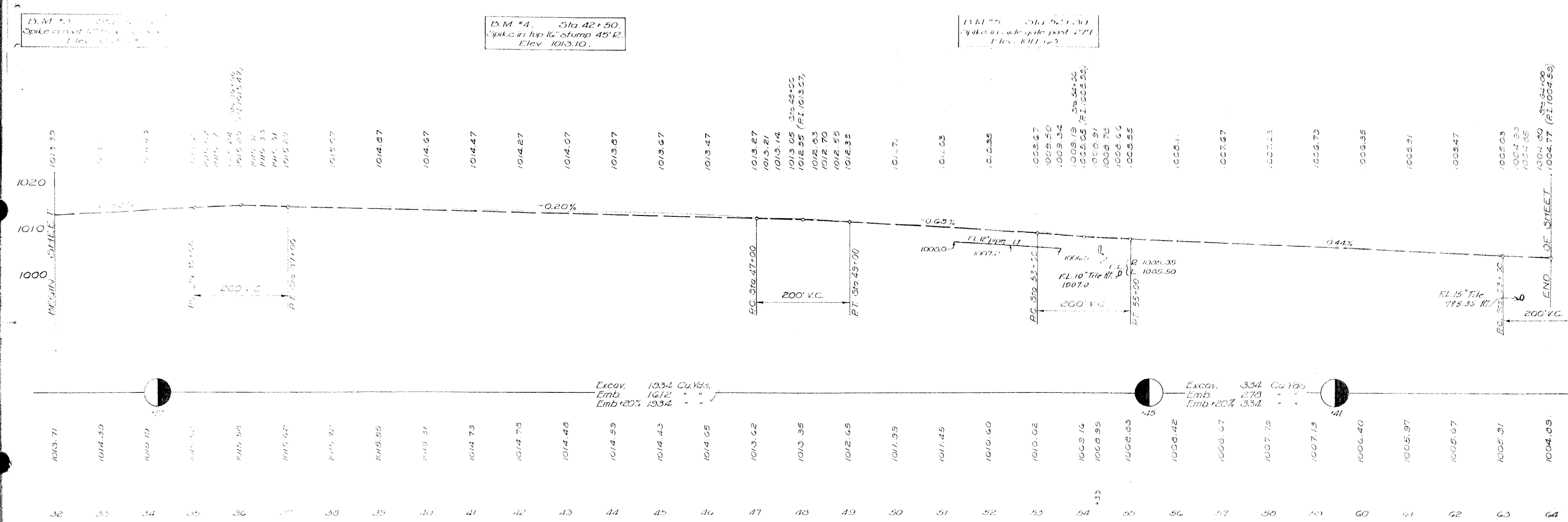
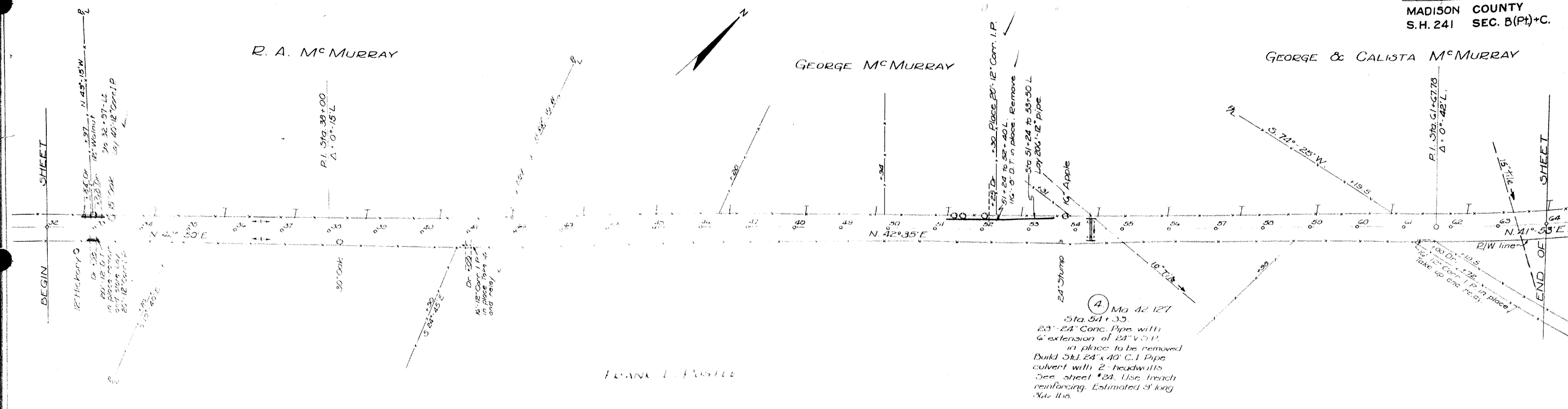
Note: In drainage structures where V.S.P. (enc.) for R.C.P. (Sec. MG.6b) with collars or cemented joints may be used as an alternate.



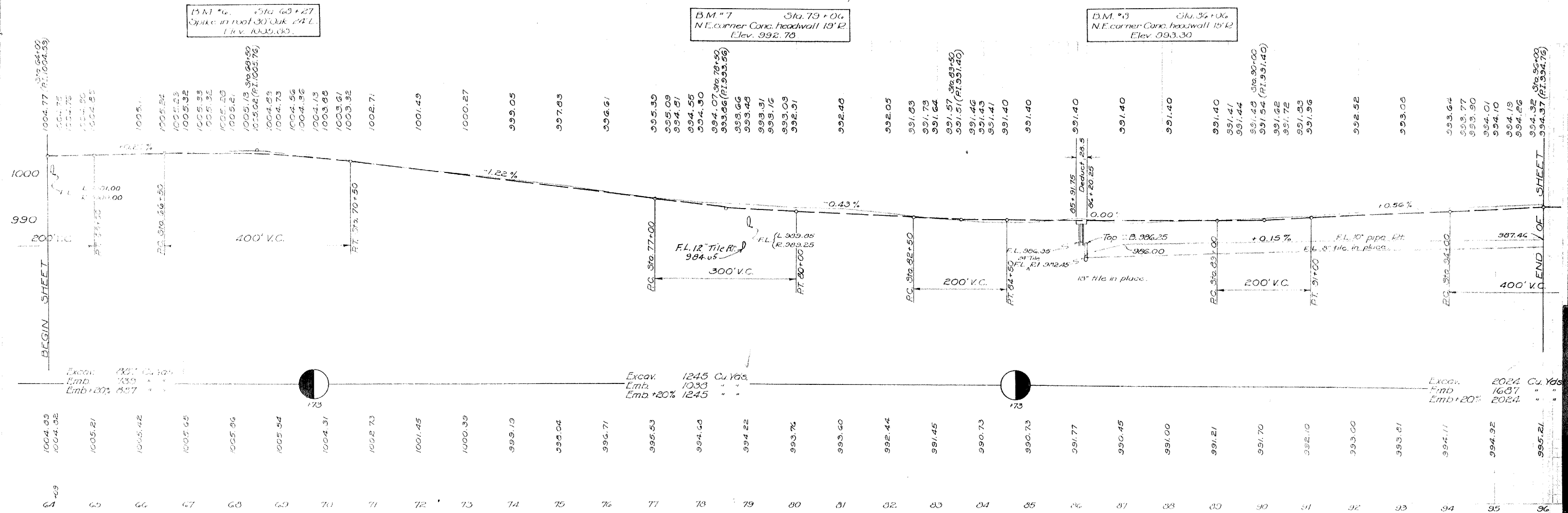
Approximately 4 cu. yds. of #4 stone or gravel to be placed at private driveways & 4 cu. yds. at mail boxes, or as directed by engineer.
40 Private Drives @ 4 cu. yds. = 160 cu. yds.
22 Mail Box Appr. @ 4 " " = 88 " "



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



ESTATE OF MELVINA MARK

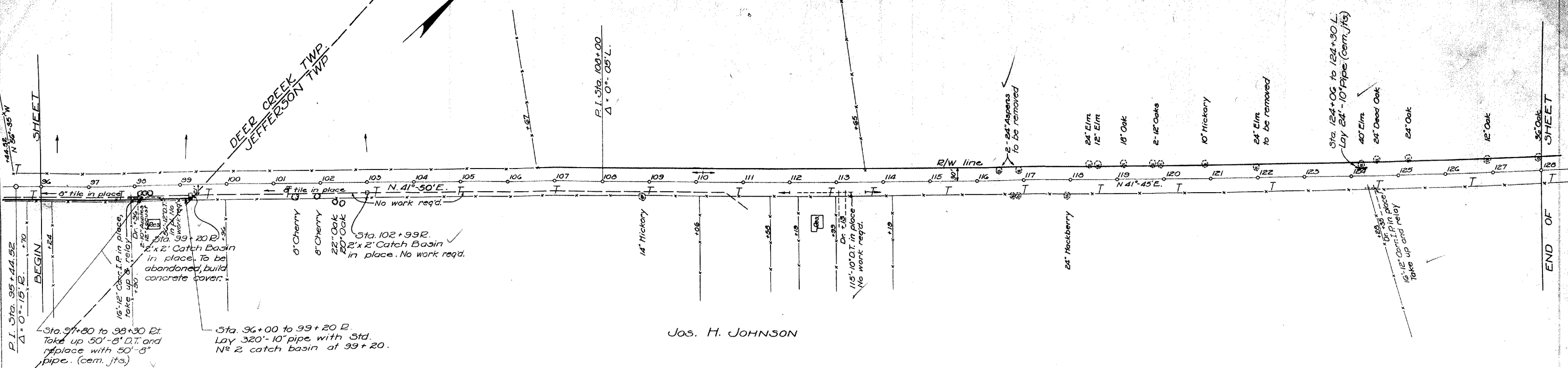


MADISON COUNTY
S.H. 241 SEC. B(PT)+C

ESTATE OF MELVINA MARK

JOS. H. JOHNSON

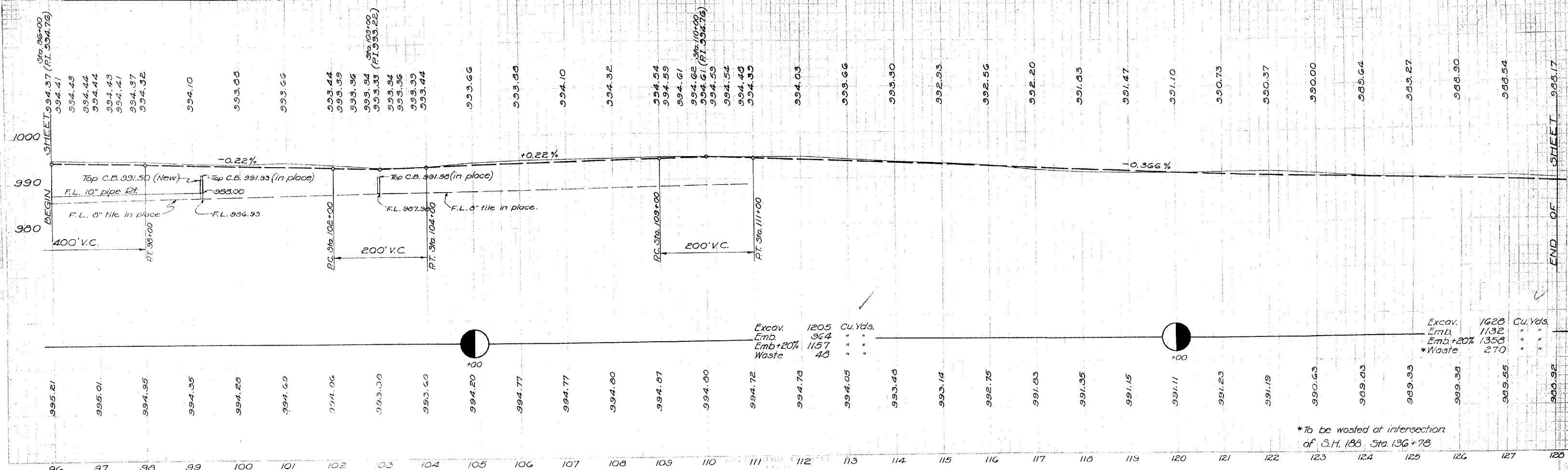
DEER CREEK TWP.
JEFFERSON TWP.



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

B.M. *10 Sta. 108+90.
Spike in root 14" Hickory 31' R.
Elev. 993.40

B.M. *11 Sta. 124+17
Spike in root 40" Elm 23' L.
Elev. 989.99



Excav.	1205	Cu. Yds.
Emb.	364	" "
Emb.+20%	1157	" "
Waste	43	" "

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

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

F.A.P. 513-BNRH
Proposal #2

ELIZABETH HARBAGE (DOWER) & RIDDLE SIDNER

— PROPOSAL №

Sta. 155+90 to 159+19 Lt.
Lay 326"-8" pipe with Spec.
#1 Inlets at Sta. 155+90
and at Sta. 158+90

Sta. 159+02 to 159+19 Rt.
Build 17' type D Guard Rail.

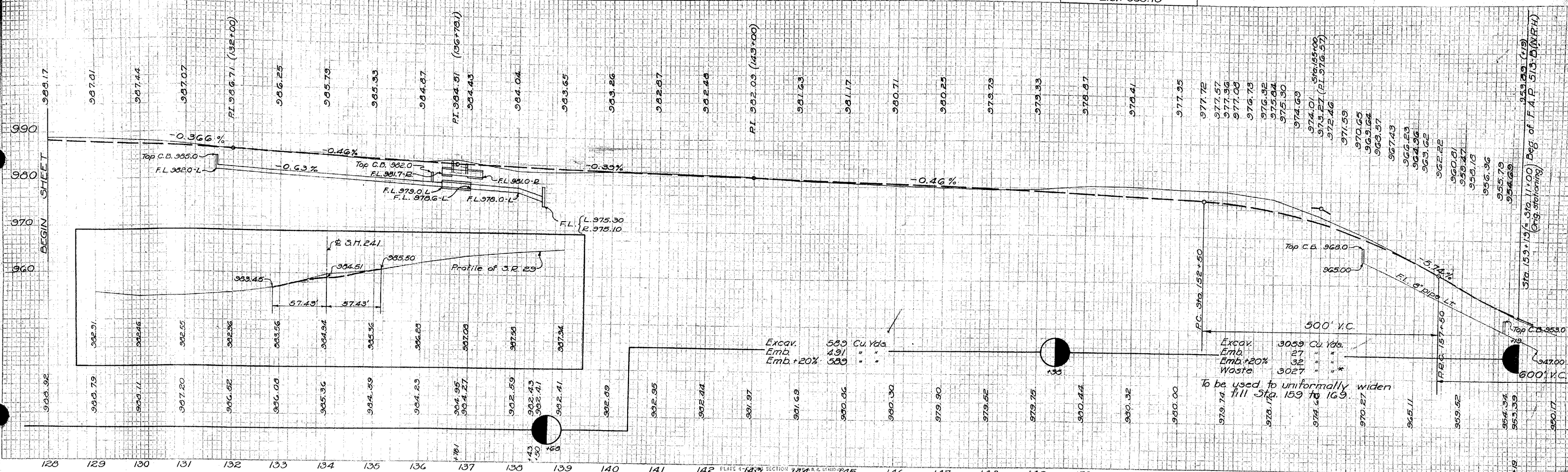
WILLIAM & KATHERINE GRASSLE

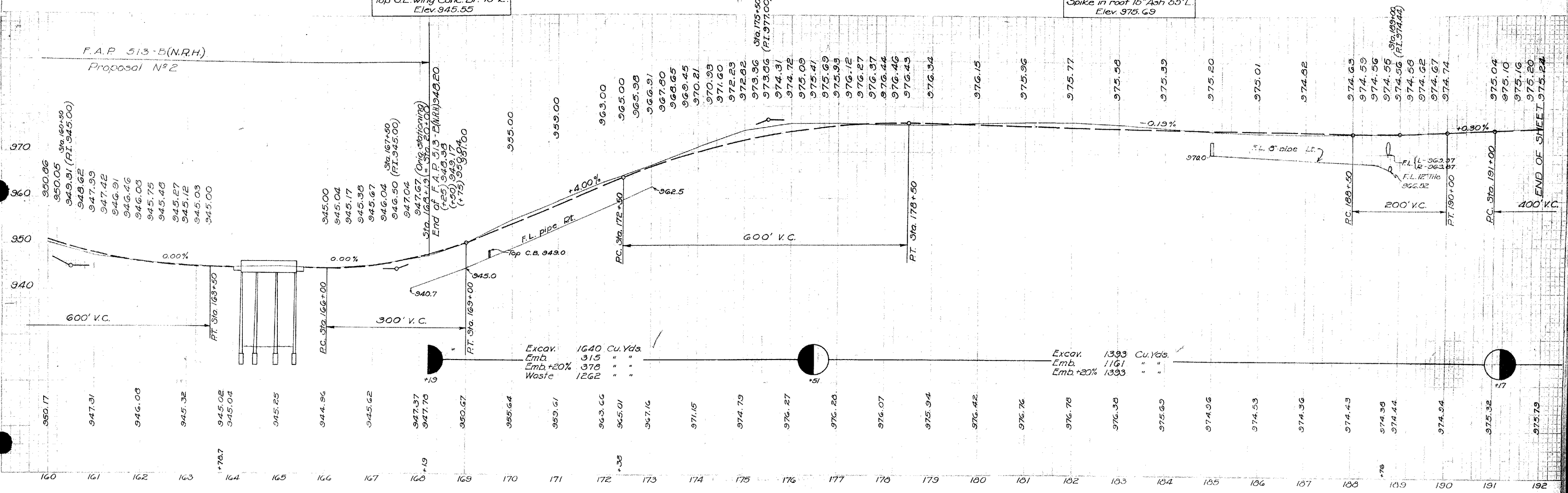
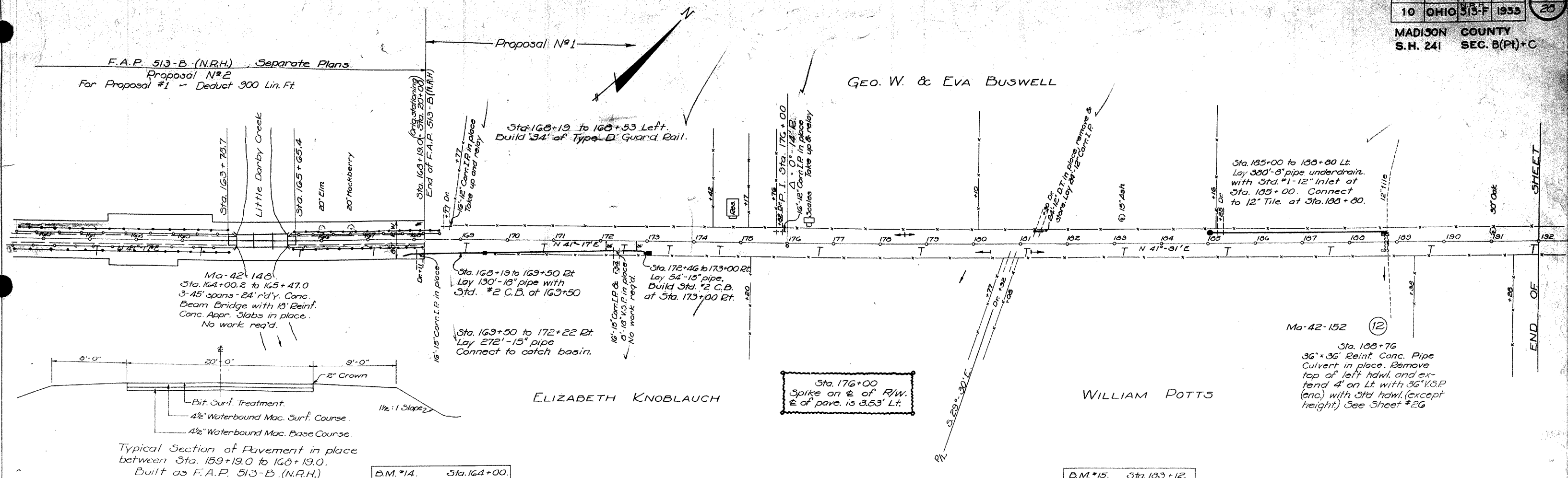
Jos. H. JOHNSON

Sta. 100+21 to 100+93 Rt.
Build 72 in. ft. of Type D-2 Guard Rail

B.M. *12 Sta. 137+30
N.E. corner Gas Pump Island 30'
Elev. 98.344

B.M. #13 Sta. 149+30
Spike in root 18" Ash 30'
Elev. 980.10





GEORGE W. & EVA BUSWELL

JOHN LYONS

HANNAH ALICE CALHOUN

ALVAH & ALICE CALHOUN

WILLIAM POTTS

WILLIAM & DELLA POTTS

(13) Ma-42-154

(14) Ma-42-155

(15) Ma-42-158

Sta. 198+25
Build Std 12"x50' V.S.P. (enc)
culvert with headwall & Spec box
on rt. end. See Sheet #26
Use trench reinforcing
Estimated 8' long, 325 lbs.

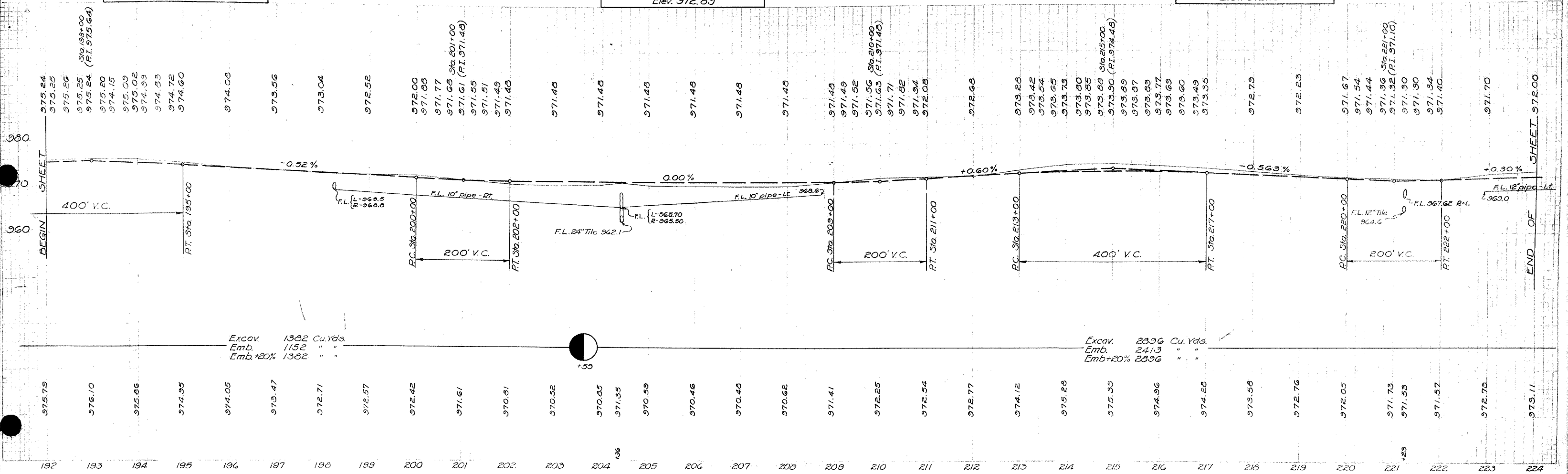
Sta. 204+36
3'x5'x30' Conc. Arch culvert
in place. Remove tops of h/w/s.
Extend 4'-Lt. & 10'-Rt. with spec. 3'x
4' Box Cul. Ext. See Sheet #27

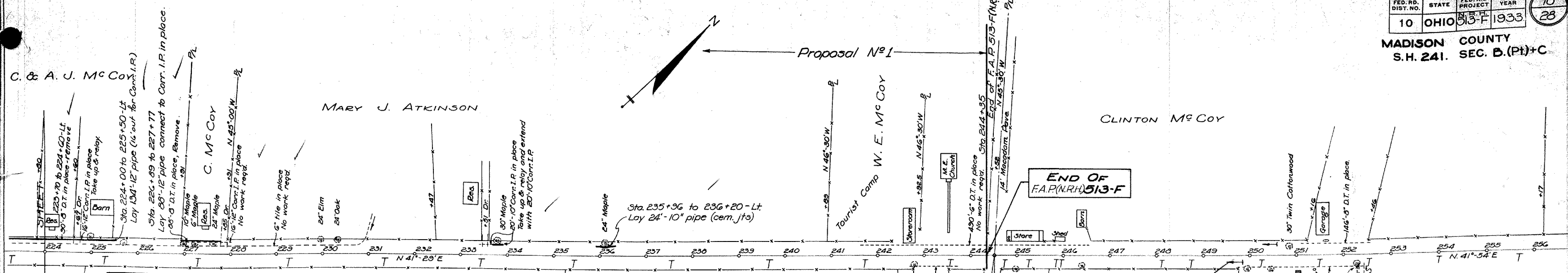
Sta. 221+22.5
24"x40' Solid C.I.P. culvert
in place. No work required.

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. 972.83

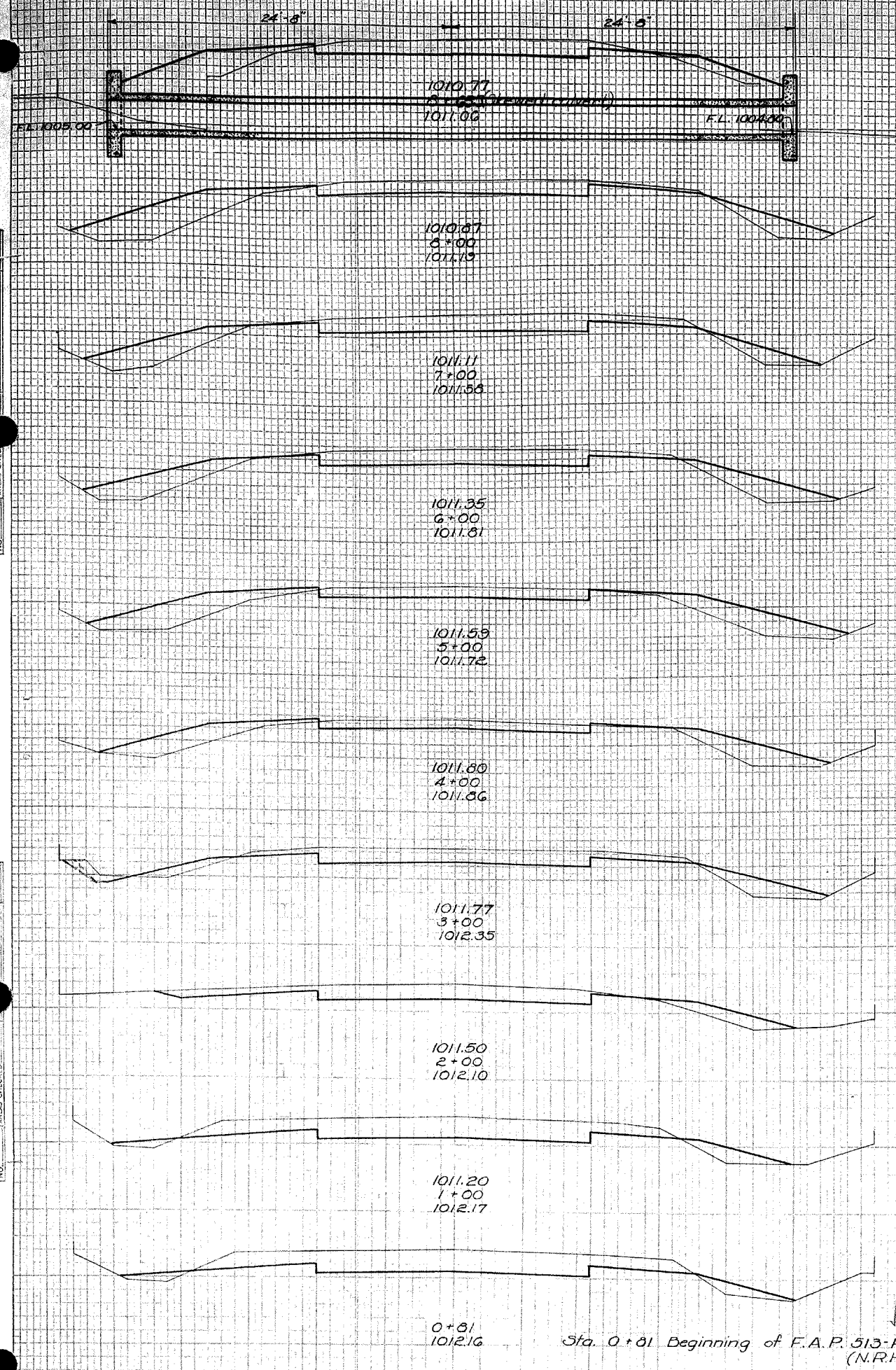
B.M. #18 Sta. 217+39
Spike in root 24' Maple 28' L.
Elev. 972.10





SUPERELEVATION TABLE							
P.C. Sta. 14+20.53. P.T. Sta. 17+64.97. D = 3° Rt.							
Left Edge			Center		Right Edge		
Add to Right Edge	Edge Grade	Width	Station	Grade Elev.	Width	Edge Grade	Subtract from 6
0.00	1010.86	10.00'	13+20.53	1011.05	10.00'	1010.69	0.17
0.02	1010.91		13+25	1011.06		1010.69	
0.04	1011.05		13+50	1011.08		1010.91	
0.06	1011.19		13+75	1011.10		1010.95	
0.08	1011.31		14+00	1011.10		1010.99	
0.10	1011.39		14+20.53	1011.08		1010.91	
0.12	1011.40		14+25	1011.07		1010.90	
0.14	1011.50		14+50	1011.05		1010.88	
0.16	1011.58		14+70.53	1011.03		1010.84	
0.18	1011.57		14+75	1011.02		1010.85	
0.20	1011.55		15+00	1011.00		1010.85	
0.22	1011.52		15+25	1010.97		1010.80	
0.24	1011.50		15+50	1010.95		1010.78	
0.26	1011.47		15+75	1010.92		1010.75	
0.28	1011.45		16+00	1010.90		1010.73	
0.30	1011.42		16+25	1010.87		1010.70	
0.32	1011.40		16+50	1010.85		1010.68	
0.34	1011.37		16+75	1010.82		1010.65	
0.36	1011.35		17+00	1010.80		1010.63	
0.38	1011.34		17+14.97	1010.79		1010.62	
0.40	1011.27		17+25	1010.77		1010.60	
0.42	1011.15		17+50	1010.75		1010.58	
0.44	1011.05		17+64.97	1010.74		1010.57	
0.46	1010.98		17+75	1010.72		1010.55	
0.48	1010.94		18+00	1010.70		1010.53	
0.50	1010.89		18+25	1010.67		1010.50	
0.52	1010.85		18+50	1010.65		1010.48	
0.54	1010.80		18+75	1010.64		1010.47	
0.56	1010.77		19+00	1010.64			

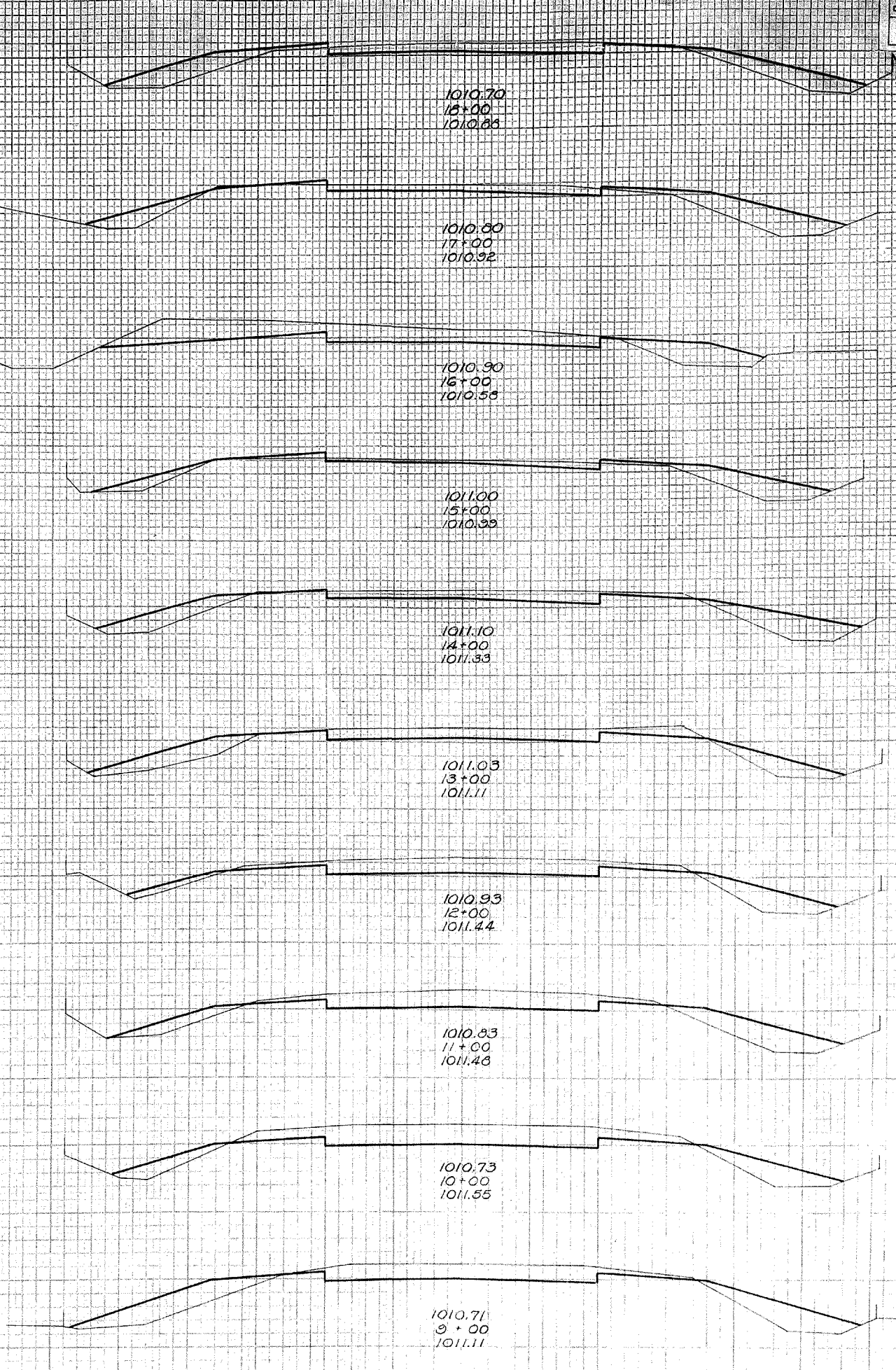
MADISON COUNTY
S.H. 241 SEC. 8 (P) & C



End Area	Cu. Yds.
Cut	Fill
23	42
34	58
54	98
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



706 Cu. Yds.
706
500
706
Excav
Emb
Emb + 20%



End Area	Cu. Yds.
Cut	Fill
14	27
46	98
11	26
98	72
42	13
89	63
6	21
28	56
33	88
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

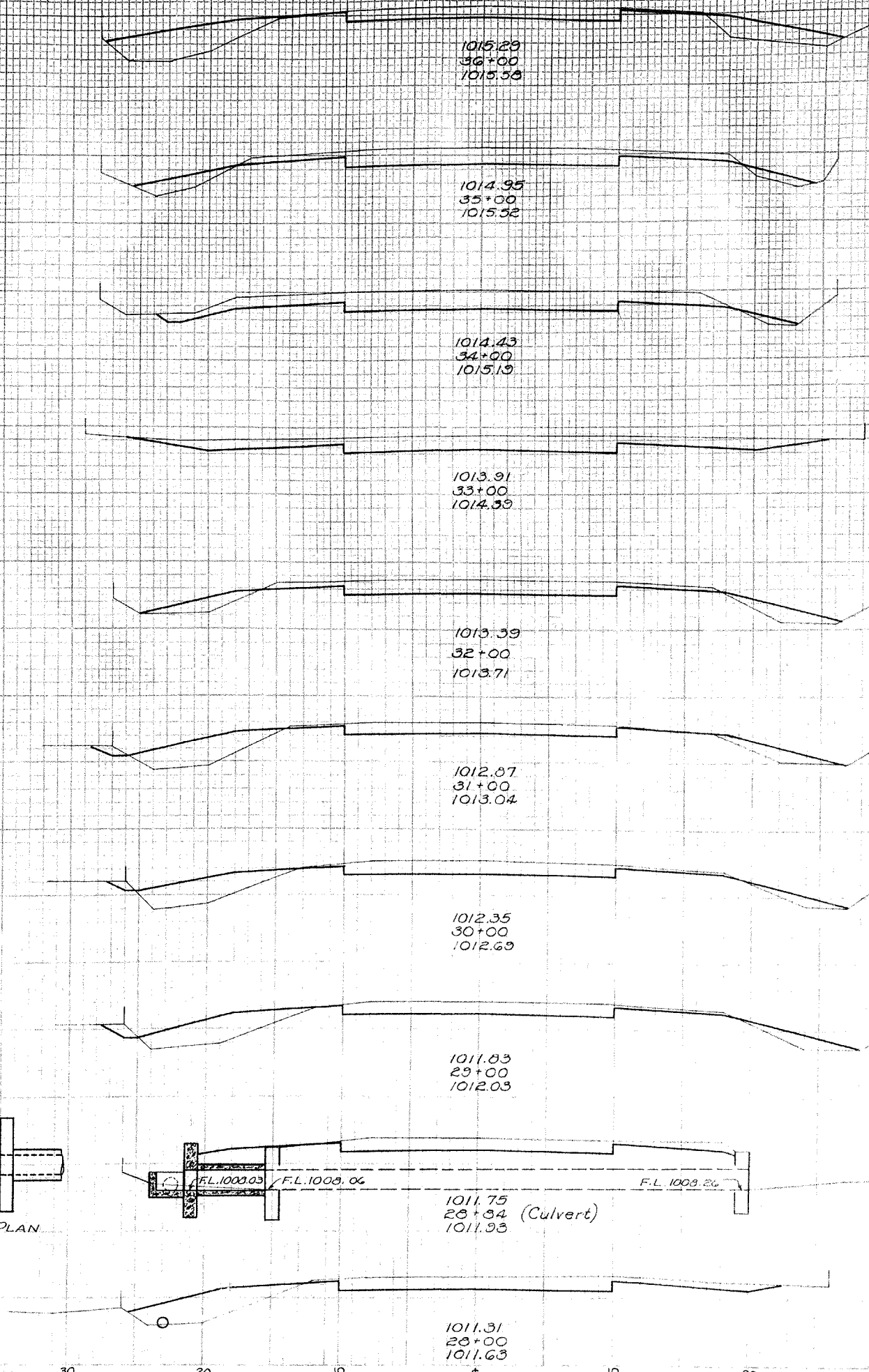
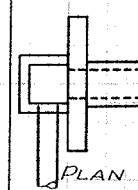
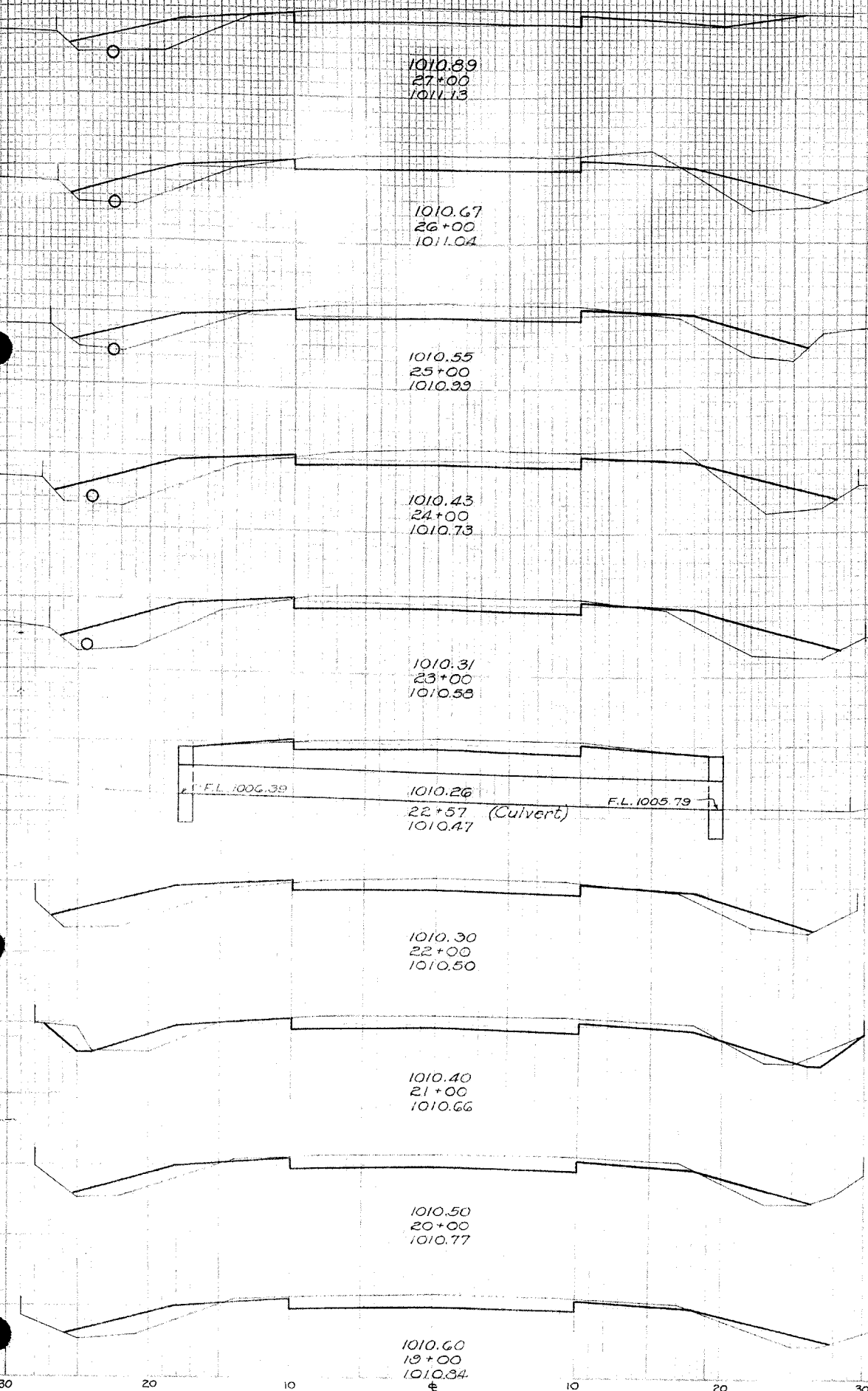
610 Cu. Yds.
610
500
610
Excav
Emb
Emb + 20%

MADISON COUNTY
S.H. 241 SEC. 8 (P) & G

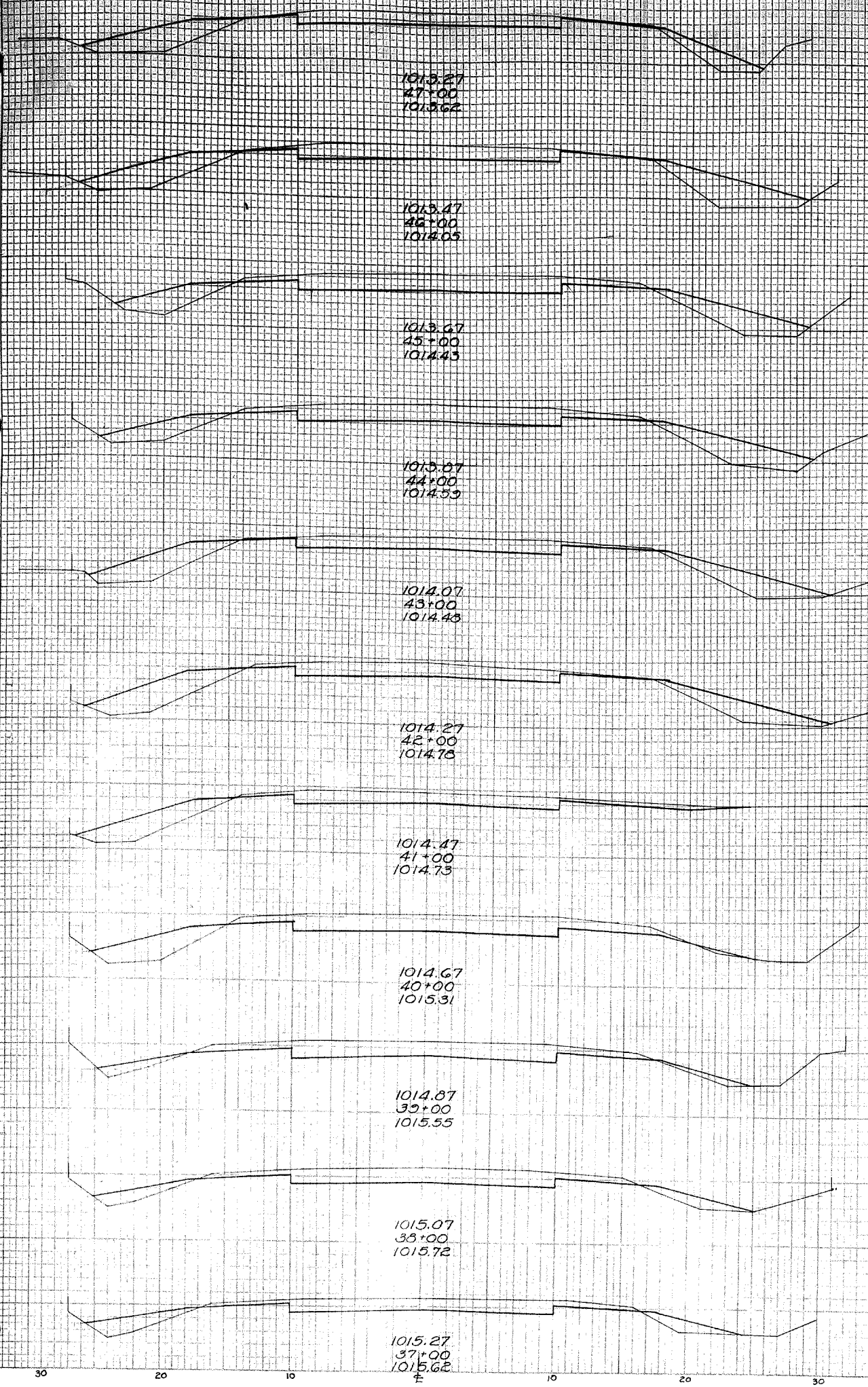
End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
30	15		
	94	78	
21	27		
	74	94	
19	24		
	80	107	
24	34		
	81	130	
20	36		
	69	113	
17	25		
	81	61	
27	8		
	89	41	
21	14		
	72	54	
18	15		
	59	78	

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
17	25		
	87	65	
30	10		
	104	10	
	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

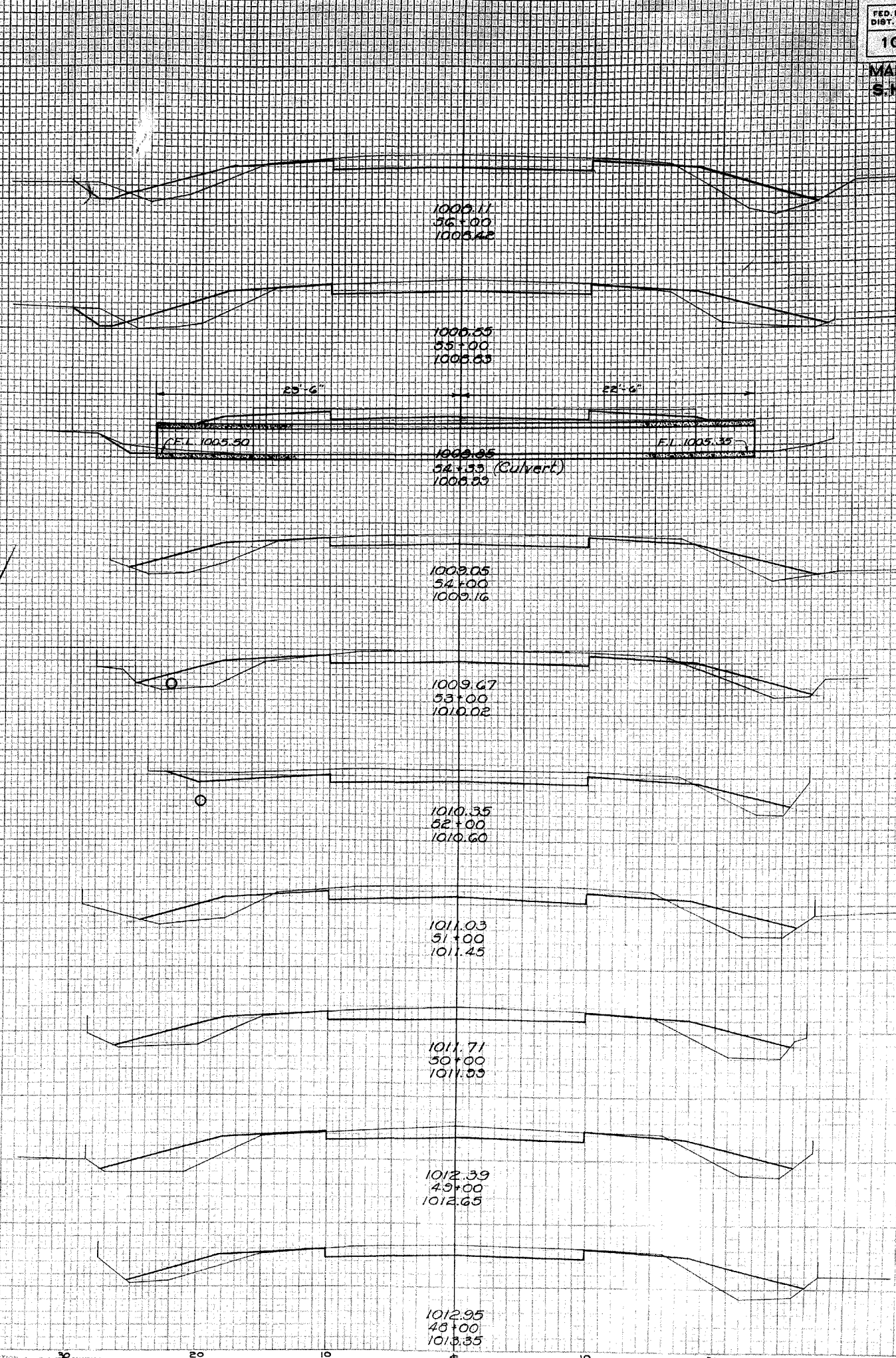


MADISON COUNTY
S.H. 241 SEG. 5(P) 4.6



End Area	Cu. Yds.
Cut	Fill
15	27
76	115
23	35
104	109
33	24
122	65
33	22
104	91
23	27
07	05
24	19
93	63
26	15
109	54
33	14
122	39
33	7
117	35
30	12
106	46
27	13
81	70

1934 Cu. Yds.
16.12
1934
Excav
Emb.
Emb. + 20%



End Area	Cu. Yds.
Cut	Fill
20	25
37	33
27	107
30	40
16	30
47	62
22	30
26	30
20	21
76	00
21	22
87	50
26	5
91	52
23	23
74	96
17	29
65	106
18	28
63	96
16	24
63	34

MADISON COUNTY
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End Area	Cu. Yds.
Cut	Fill

End Area	Cu. Yds.
Cut	Fill

20 10

1004.05
63+00
1005.21

60 94

24

26

F.L. 1001.0

F.L. 1000.0

64+11 (Culvert)
1004.62

16 39

6 15

997.63
75+00
998.04

20 0

80 37

1004.77
64+00
1004.69

13 34

59 122

999.05
74+00
999.12

20 12

47 46

1005.03
63+00
1005.31

19 32

67 94

1000.27
73+00
1000.39

16 13

54 44

1005.47
62+00
1005.67

17 19

54 104

1001.49
72+00
1001.45

13 11

43 41

1005.91
61+00
1005.97

12 37

43 130

1003.83
70+00
1004.31

10 11

69 24

1006.35
60+00
1006.40

11 33

34 63
57 106
23 43

1004.73
69+00
1005.54

27 2

45 2
165 4
120 2

1006.79
59+00
1007.13

20 24

93 63

1005.21
68+00
1005.86

62 0

157

1007.23
58+00
1007.75

30 10

100 43

1005.32
67+00
1005.65

39 0

109 17

1007.67
57+00
1008.07

24 13

81 70

1005.11
66+00
1005.42

20 9

74 41

20 13

74 57

Excav. Emb. Emb. + 20%
- 887 Cu. Yds.
- 739
- 887
- 334 Cu. Yds.
- 278
- 334
- 334 Cu. Yds.
- 278
- 334

MADISON COUNTY
S.H. 241 SEC. 8 (P.A.) 9

End Area	Cu. Yds.
Cut	Fill

20	25	115	80
34	10	117	81
29	26	80	104
14	30	69	109
23	29	65	133
12	43	26	163
2	56	4	237
0	72	33	252
10	64	33	244

End Area	Cu. Yds.
Cut	Fill

0	60	0	63
0	235	0	172
0	59	19	174
10	35	70	91
20	14	152	39
54	7	174	26
40	7	137	94
34	44	115	113
20	17	85	52
10	11	63	44
16	13	72	39

Excav. 1245
Emb. 1030
Emb. + 20% 1245



Cu. Yds.

Excav. 1245
Emb. 1030
Emb. + 20% 1245

F.L. 286.35

993.64
94+00
994.11

993.08
93+00
993.61

992.52
92+00
993.00

991.96
91+00
992.10

991.54
90+00
991.70

991.40
89+00
991.21

991.40
88+00
991.00

991.40
87+00
990.45

991.40
86+13 Skewed Culvert
991.66

991.40
86+00
991.77

F.L. 286.35

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

993.48
79+00 (Culvert)
994.22

994.30
78+00
994.63

995.39
77+00
995.53

996.61
76+00
996.71

MADISON COUNTY
S.H. 241 SEC. 3 (P1) & G

End Area Cu Yds.
Cut Fill Cut Fill

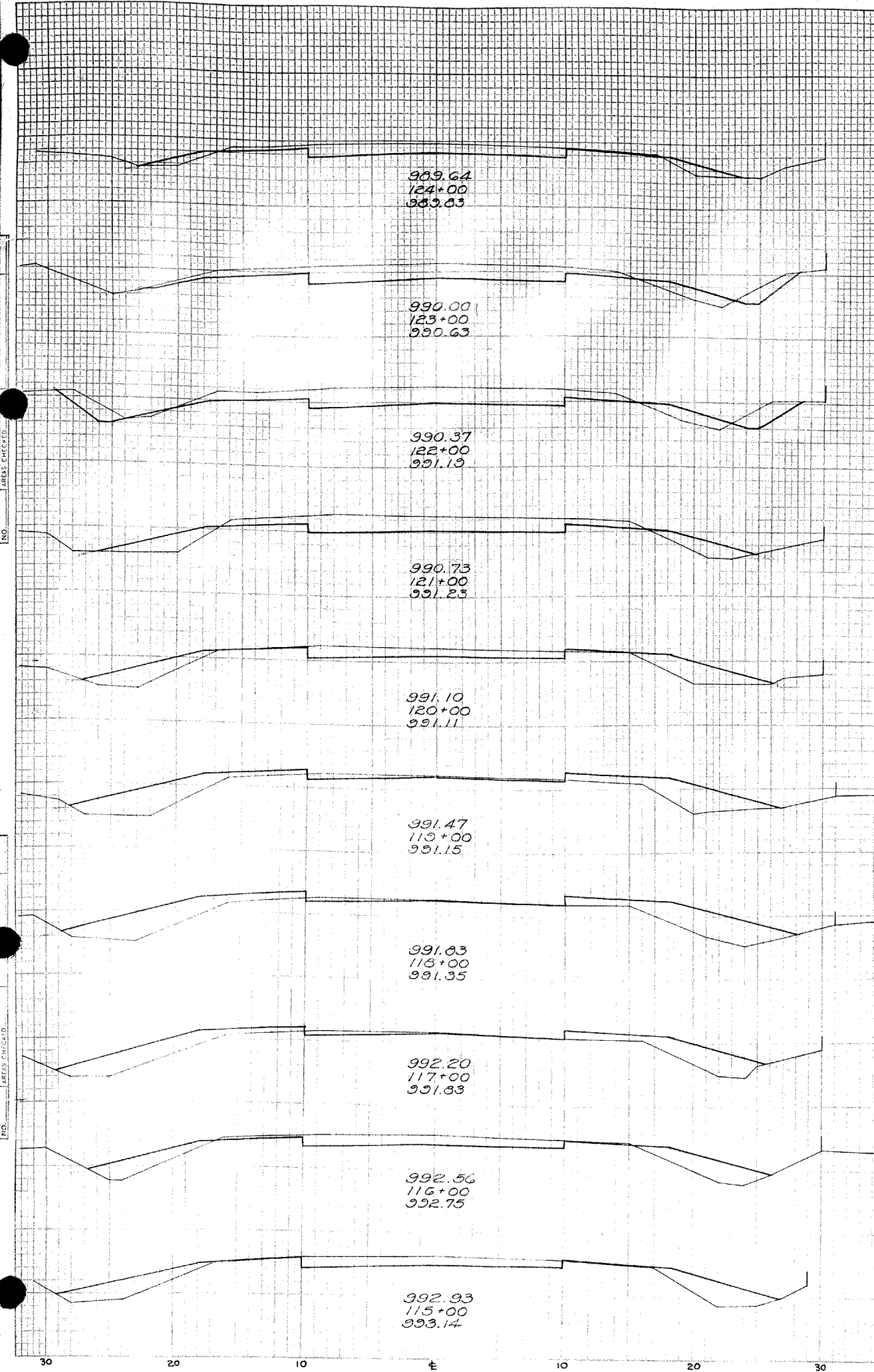
End Area Cu Yds.
Cut Fill Cut Fill

16	6		
	61	20	
17	5		
	95	9	
33	0		
	185	0	
67	0		
	170	11	
29	6		
	89	39	
19	15		
	120	30	
50	1		
	159	9	
36	4		
	153	7	
50	0		
	183	9	
49	5		
	143	56	

16	22		
	85	46	
30	3		
	140	6	
50	0		
	133	19	
22	10		
	67	57	
14	21		
	59	70	
13	17		
	89	37	
30	3		
	109	13	
29	4		
	139	7	
46	0		
	159	0	
40	0		
	104	11	

2024 Cu Yds.
Excav 1607
Emb. + 20% 2024

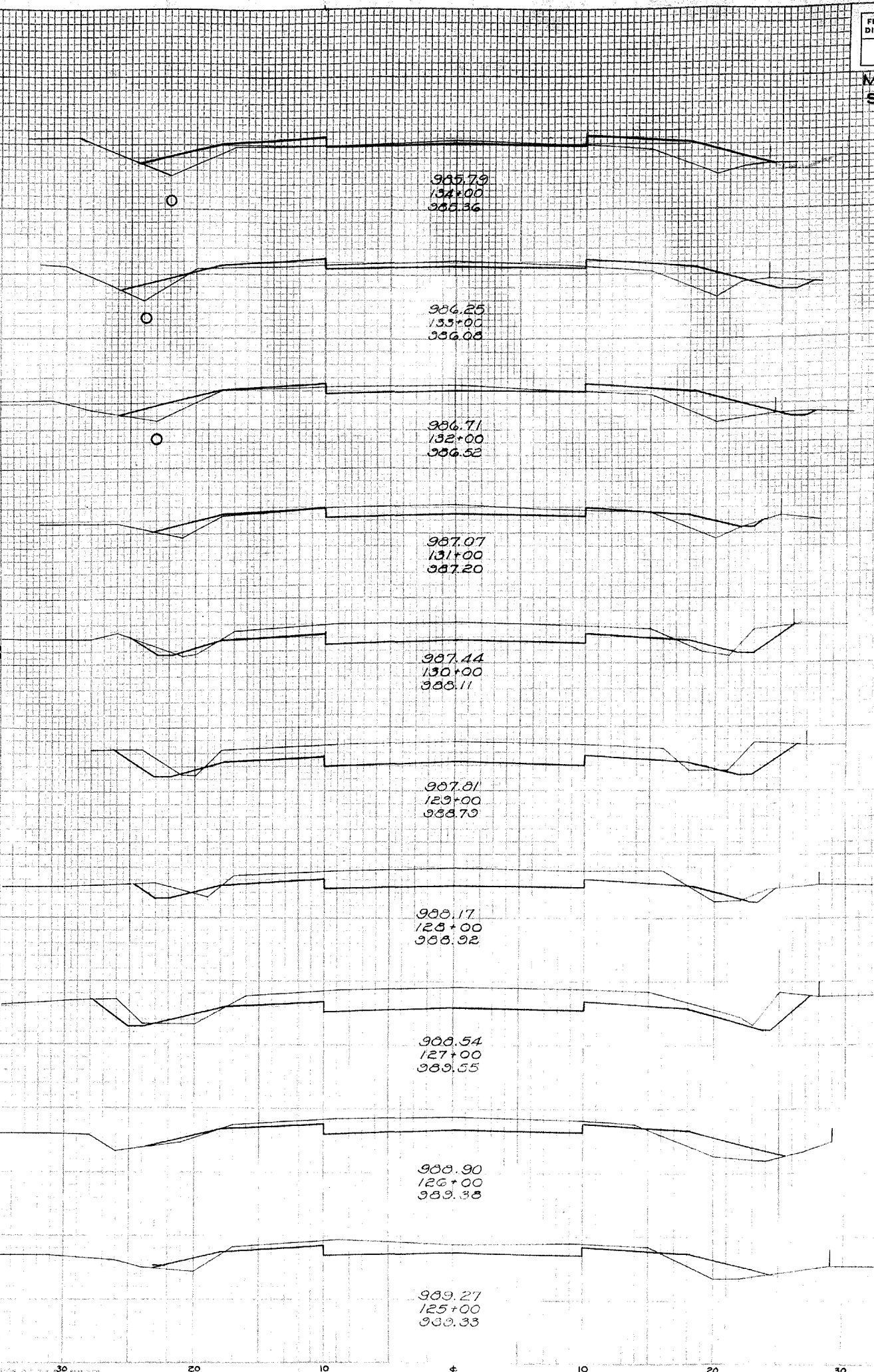
MADISON COUNTY
S.H. 241 SEE 5(P) & 6



End Area	Cu. Yds.	End Area	Cu. Yds.
Cut	Fill	Cut	Fill
01	30		
20	6		
102	20		
35	5		
139	19		
40	5		
135	37		
33	15		
65	67		
13	21		
35	113		
6	40		
19	159		
4	46		
15	156		
4	38		
35	111		
15	22		
56	85		
15	24		
57	85		



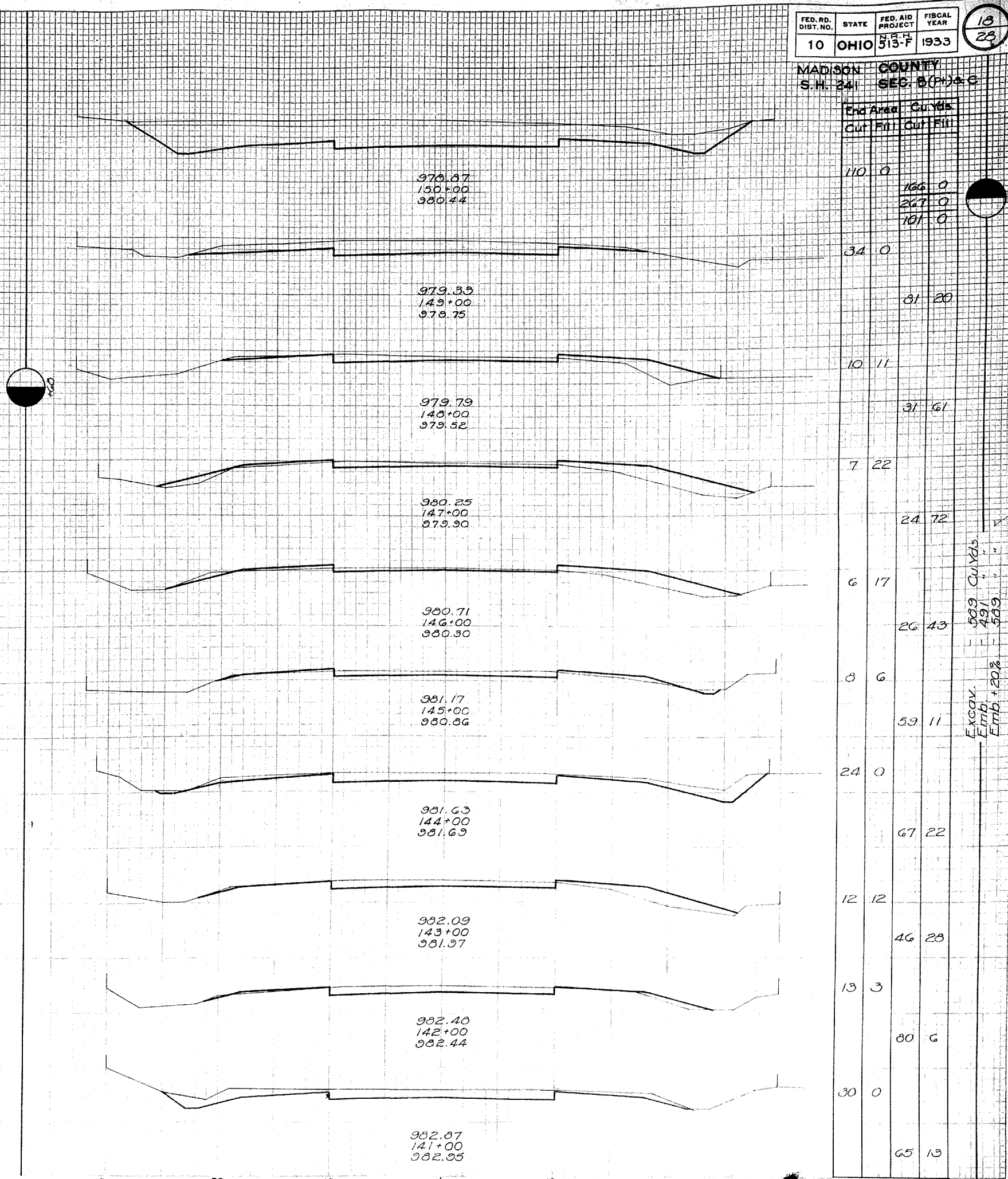
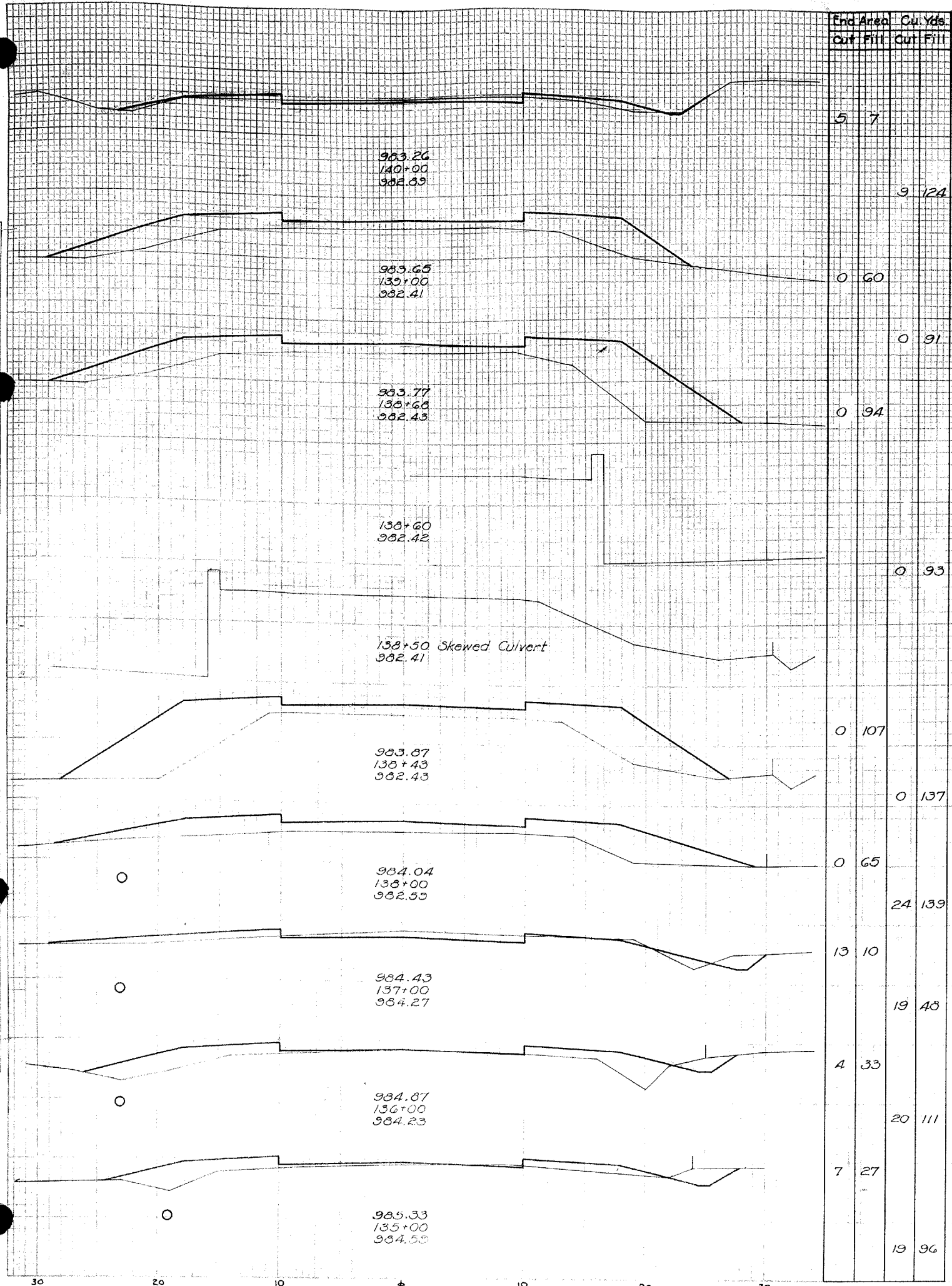
Excav
Emb.
Emb. + 20%
Waste



End Area	Cu. Yds.	End Area	Cu. Yds.
Cut	Fill	Cut	Fill
3	25		
	26	81	
11	19		
	37	76	
9	22		
	44	59	
15	10		
	107	24	
43	3		
	189	9	
59	2		
	189	9	
43	3		
	174	11	
51	3		
	144	24	
27	10		
	94	37	
24	10		

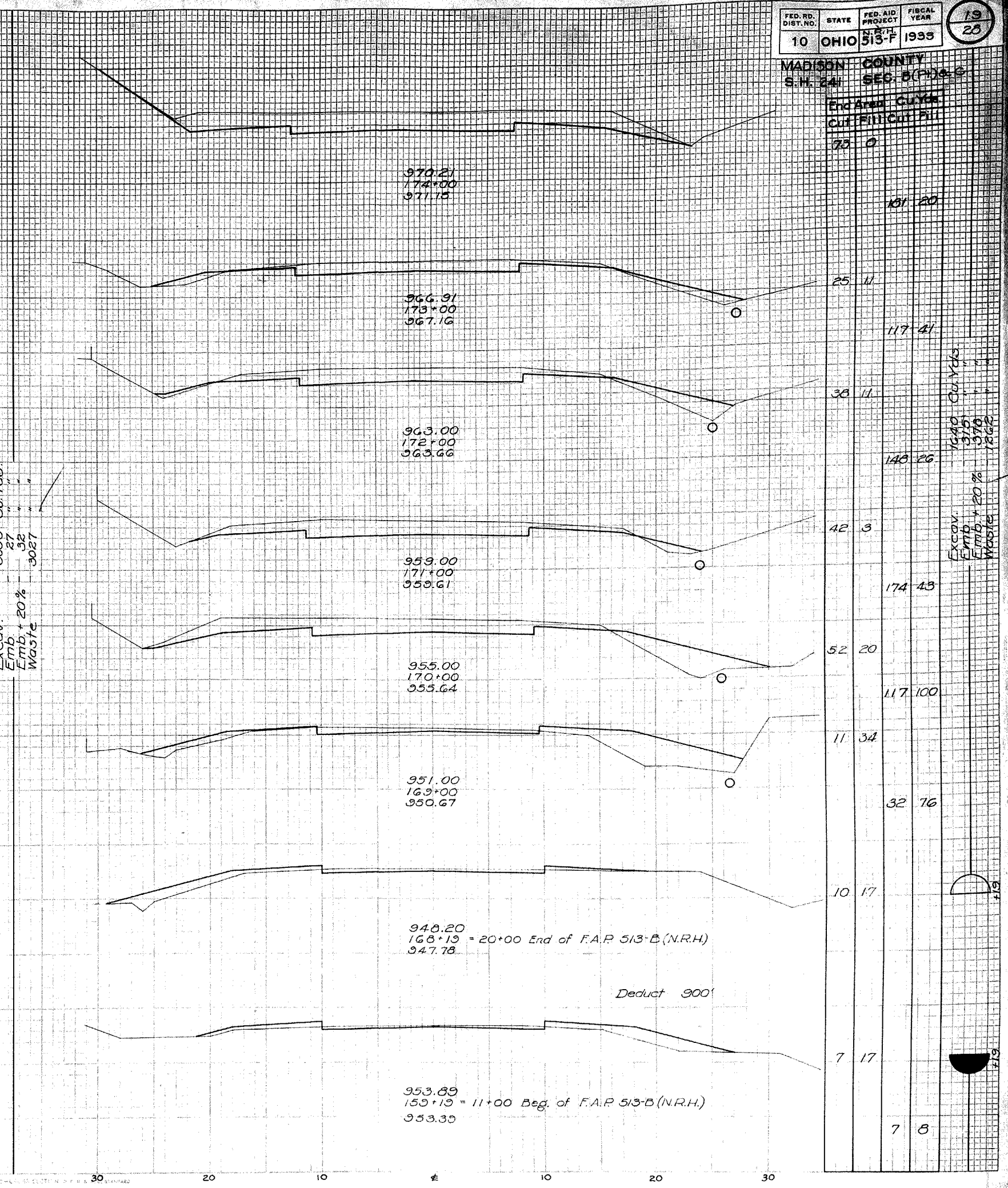
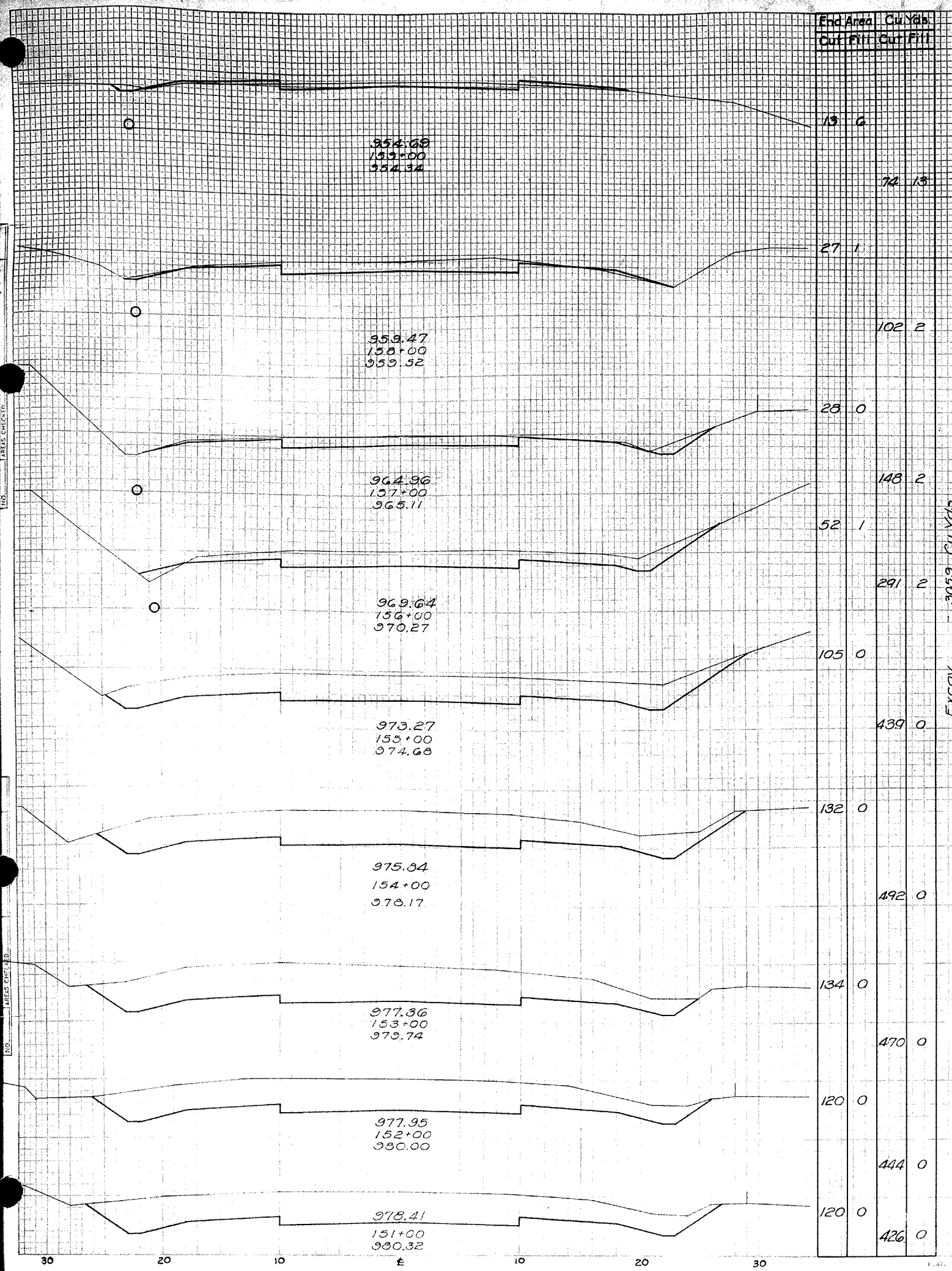
Excav
Emb.
Emb. + 20%
Waste

to be wasted at intersection of S.H. 241 & 701



Excav. 589 Cu Yds.
Emb. 491
Emb. 20%

End Area	Cu Yds.
Cut	Fill
73	0



Excav. Emb. + 20% Waste

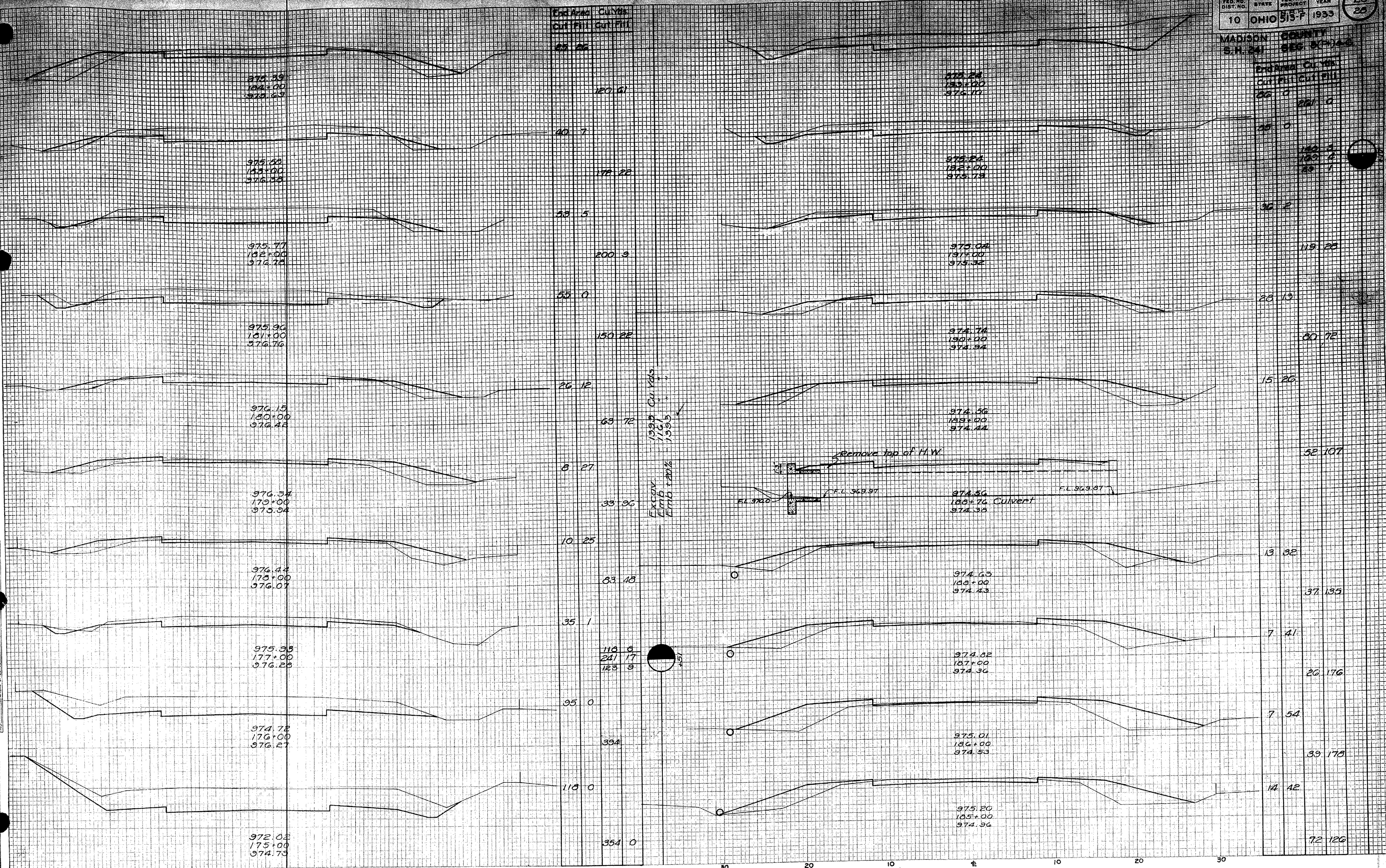
Excav. Emb. + 20% Waste

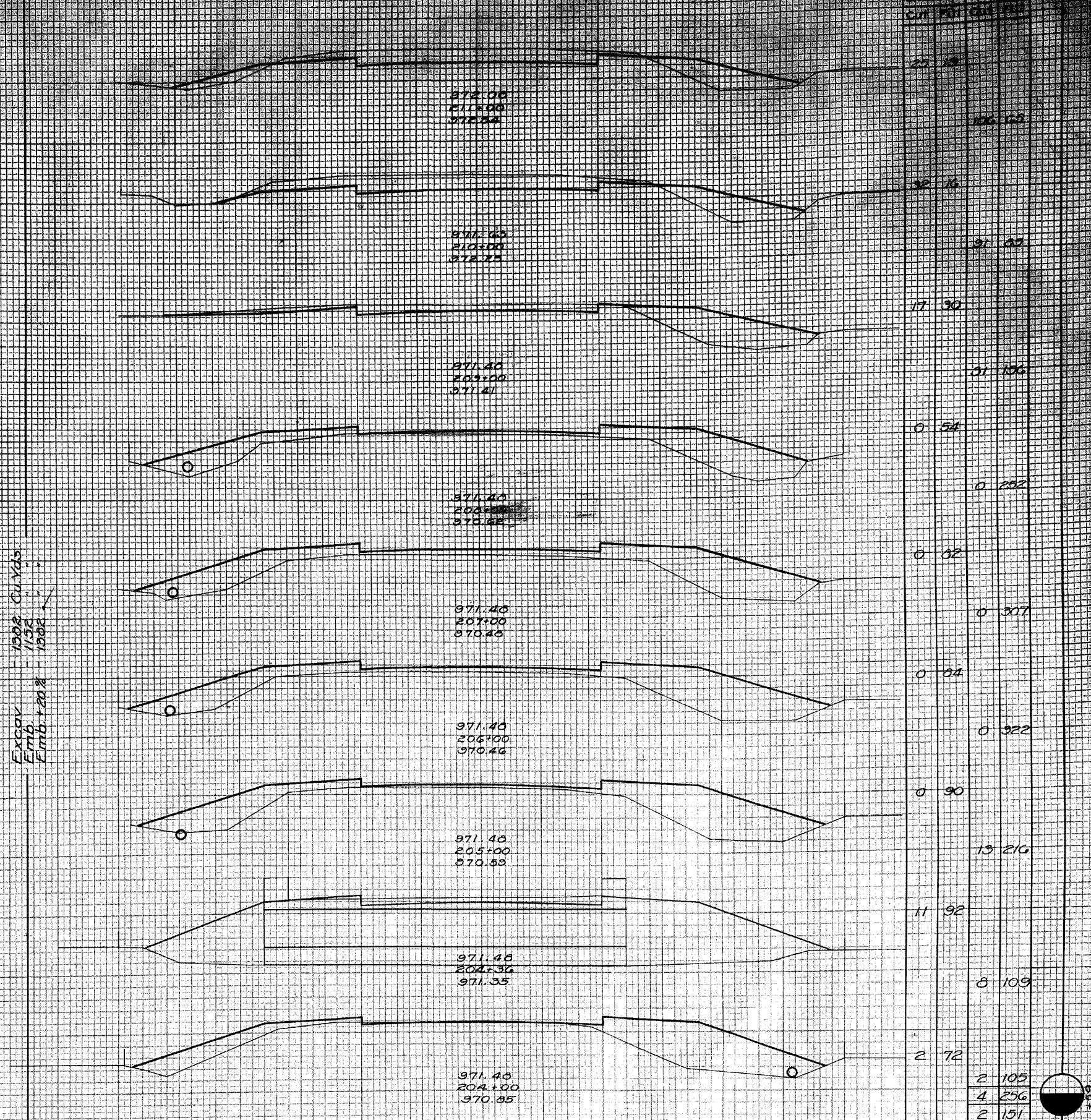
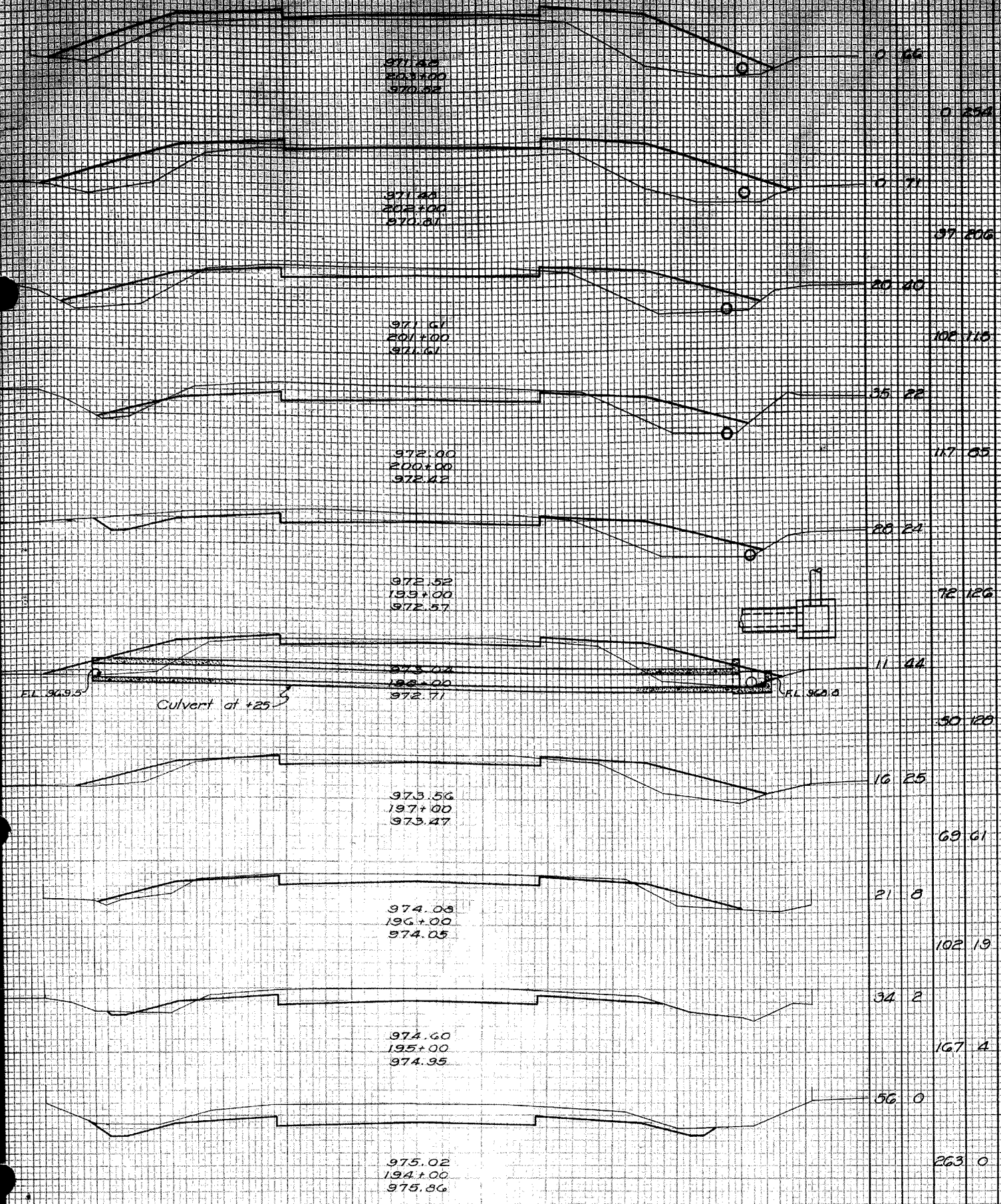
948.20
168+13 = 20+00 End of F.A.P. 513-B (N.R.H.)
947.78

Deduct 900'

953.89
159+13 = 11+00 Beg. of F.A.P. 513-B (N.R.H.)
953.39

MADISON COUNTY
S.H. 241 SEC. 8-14-43





Excav
Emb
Emb + 20%

End Area Cu Yds.	
Cut	Fill

End Area Cu Yds.	
Cut	Fill

26	34
33	109
24	25
36	102
29	30
131	69
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

16	27
65	106
17	30
34	72
34	9
36	30
137	45
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

Excav. 2096
Emb. 2413
Emb. + 20% 2896

971.32
221+00
971.75

971.67
220+00
972.05

972.23
219+00
972.76

972.79
218+00
973.58

973.35
217+00
974.28

973.77
216+00
974.96

973.90
215+00
975.39

973.73
214+00
975.28

973.23
213+00
974.12

972.68
212+00
972.77

973.80
230+00
974.00

973.50
229+00
973.66

973.20
228+00
973.87

972.80
227+00
973.84

972.60
226+00
973.46

972.30
225+00
973.10

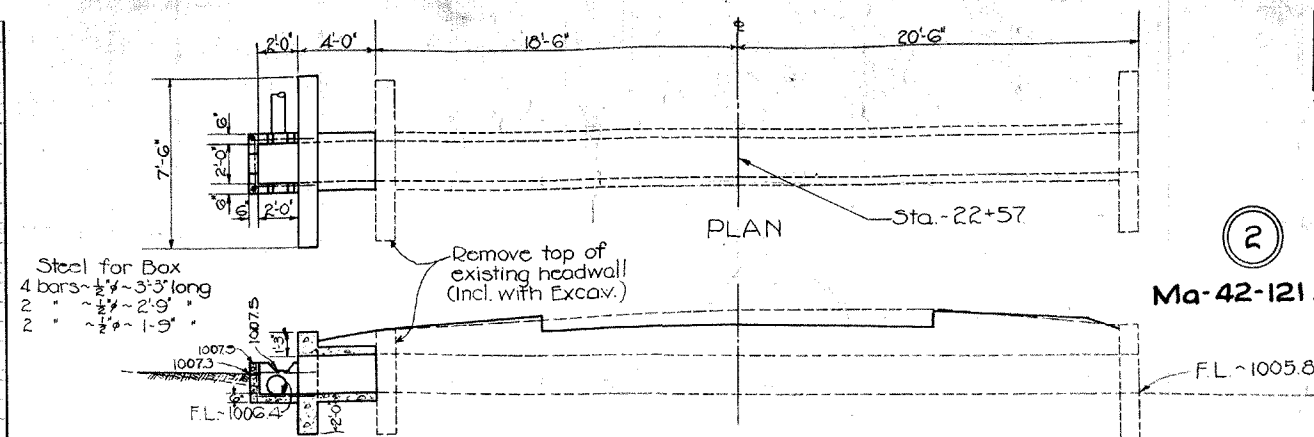
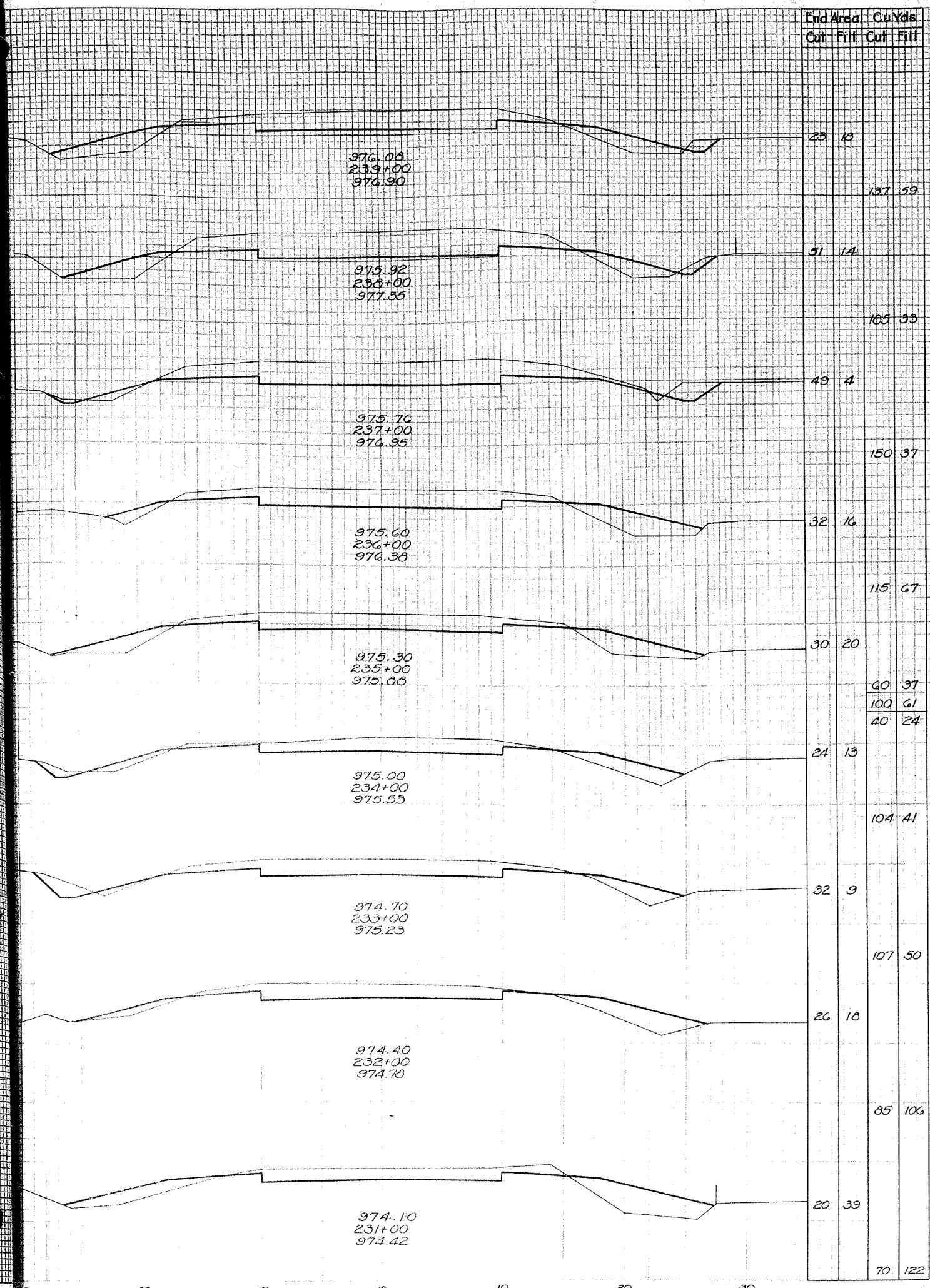
972.00
224+00
973.11

971.70
223+00
972.79

971.40
222+00
971.57

23
28

End Area	Cu Yds
Cut	Fill



Steel for Box
4 bars ~ $\frac{1}{2}$ " ϕ ~ 3'-3" long
2 " ~ $\frac{1}{2}$ " ϕ ~ 2'-9" "
2 " ~ $\frac{1}{2}$ " ϕ ~ 1'-9" "

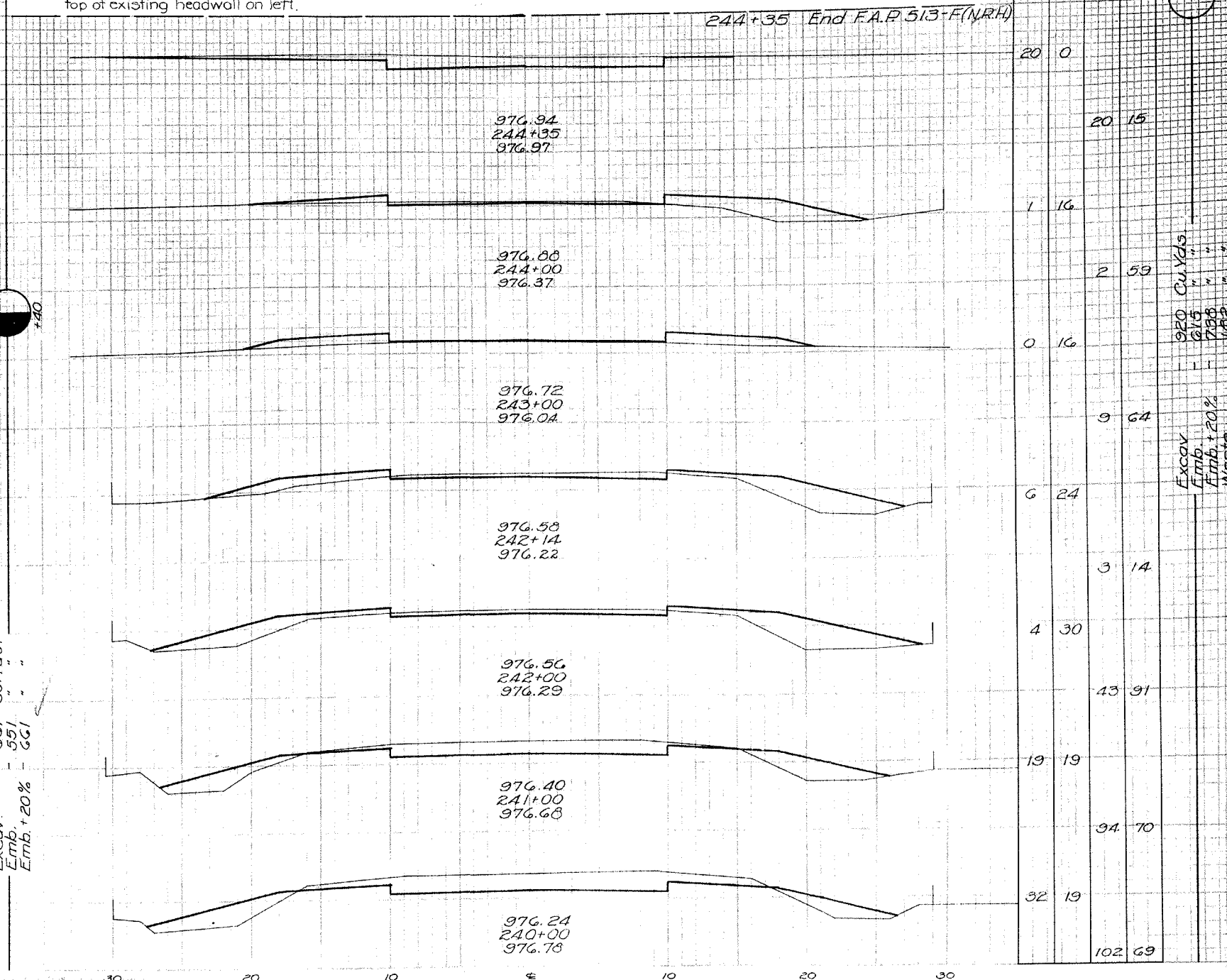
Remove top of
existing headwall
(Incl. with Excav.)

2
Ma-42-121

CROSS SECTION

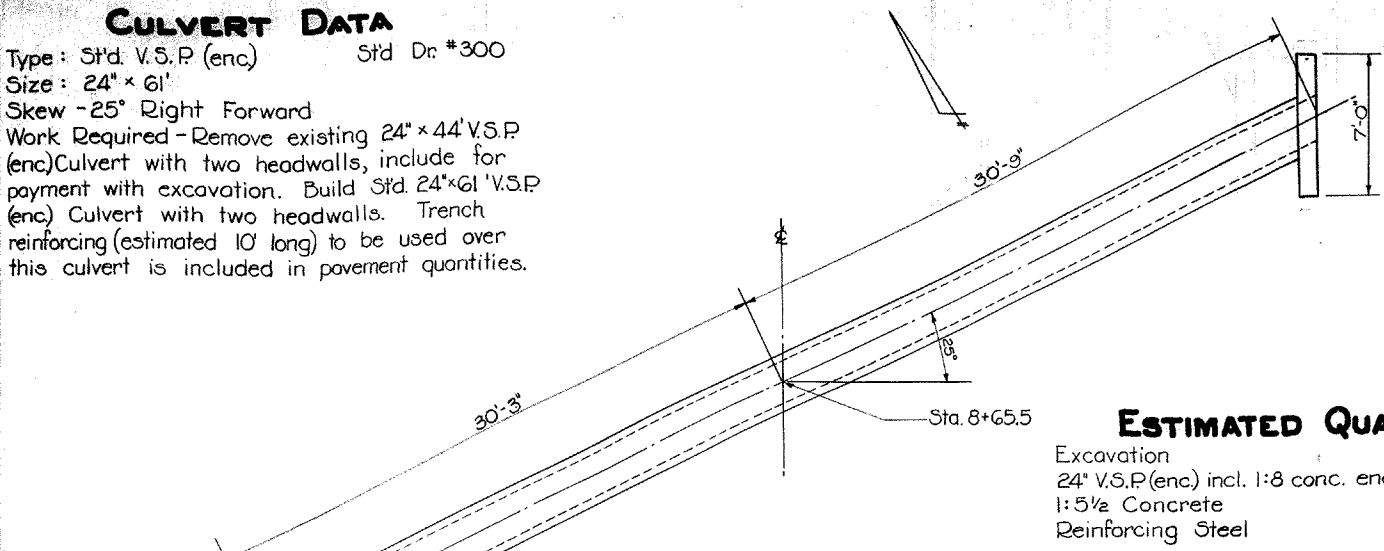
Culvert	Data
Type~ Std. V.S.P. (enc) Ext.	Std. Dr. N ^o 300
Size~ 24" x 4'-0" Left	
Work Required~ Extend present 24"x39" V.S.P. (enc)	
Culvert 4' left with 24" V.S.P. (enc). Build headwall and special box inlet on left & connect 12" pipe. Remove top of existing headwall on left.	

Estimated	Quantities
Excavation	4 Cu. Yds.
24" V.S.P. (enc.), incl. 1:8 conc. enc.	4 Lin Ft.
1-5½" Concrete	2.0 Cu. Yds.
Reinforcing Steel	80 Lbs.



CULVERT DATA

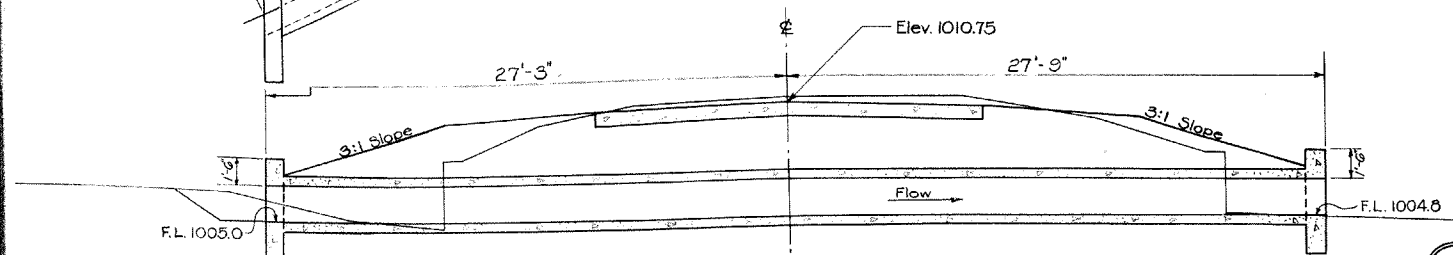
Type: Std. V.S.P (enc) Std. Dr. #300
Size: 24" x 61'
Skew -25° Right Forward
Work Required - Remove existing 24" x 44' V.S.P (enc) Culvert with two headwalls, include for payment with excavation. Build Std. 24" x 61' V.S.P (enc) Culvert with two headwalls. Trench reinforcing (estimated 10' long) to be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

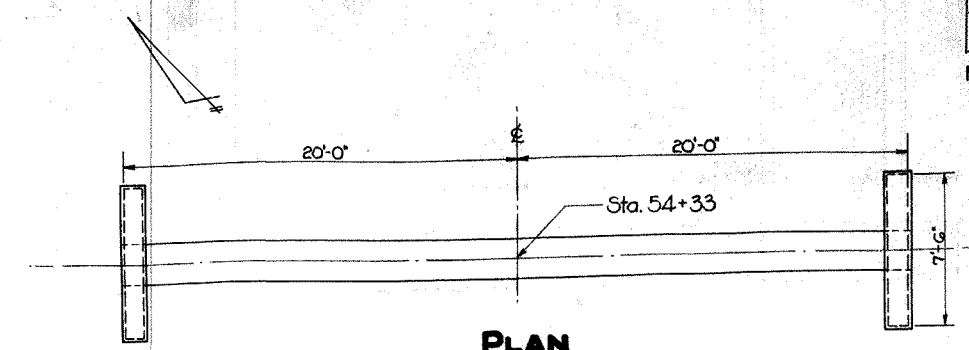
PLAN



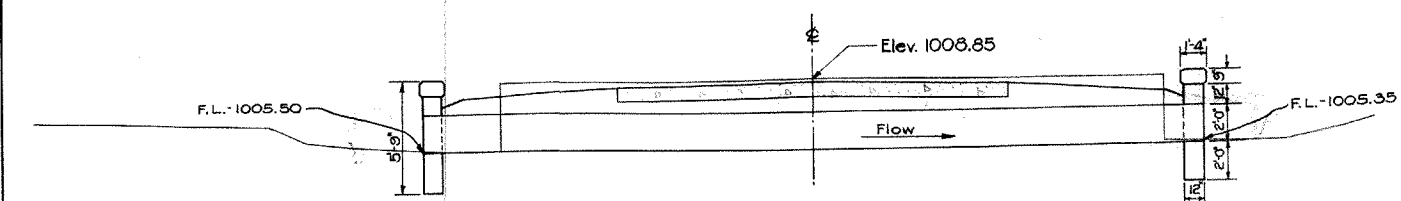
CROSS SECTION

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.

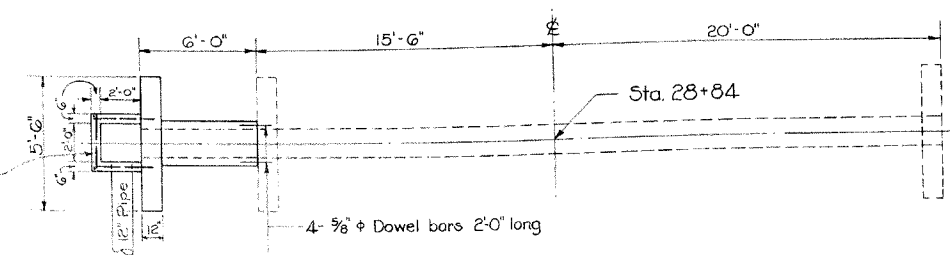
ESTIMATED QUANTITIES

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.

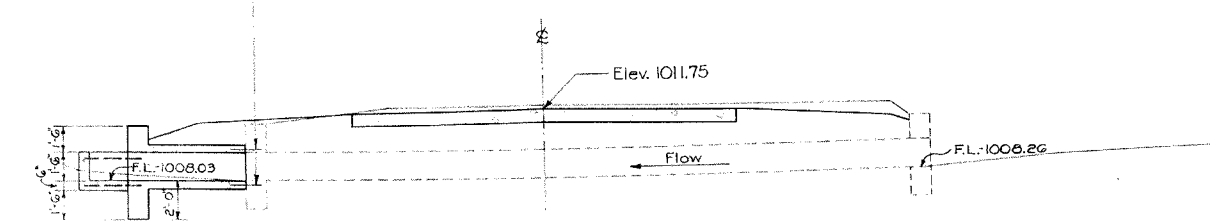
4

Ma-42-127. STA. 54+33

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



PLAN



CROSS SECTION

CULVERT DATA

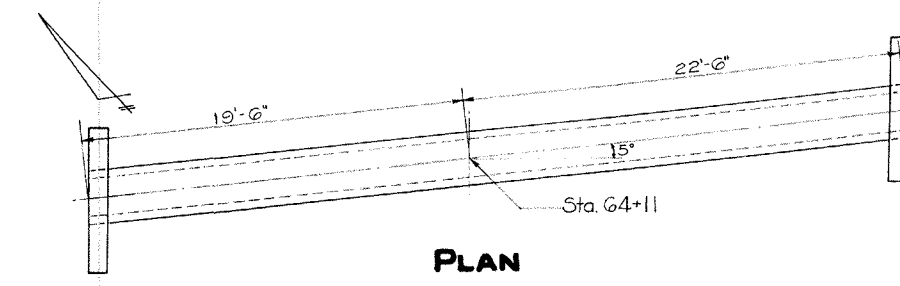
Type: Std. V.S.P (enc) Extension, Std. Dr. #300
Size: 18" x 6'-0" Extension
Work Required:- Extend existing 18" x 35.5' V.S.P (enc) Culvert with 6' of 18" V.S.P (enc) on left. Remove top of left hdwl., include for payment with Excavation. Build Std. Hdwl. & 2' x 2' Box inlet on left.

ESTIMATED QUANTITIES

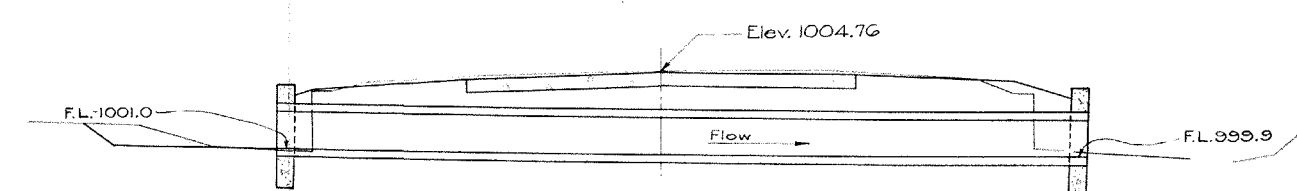
Excavation 8 Cu.Yds.
18" V.S.P (enc) incl. 1:8 conc. enc. 6 Lin. Ft.
1:5 1/2 Concrete 1.7 Cu.Yds.
Reinforcing Steel 73 Lbs.
Dowel Holes 4 Lin. Ft.

3

Ma-42-122. STA. 28+84



PLAN



CROSS SECTION

CULVERT DATA

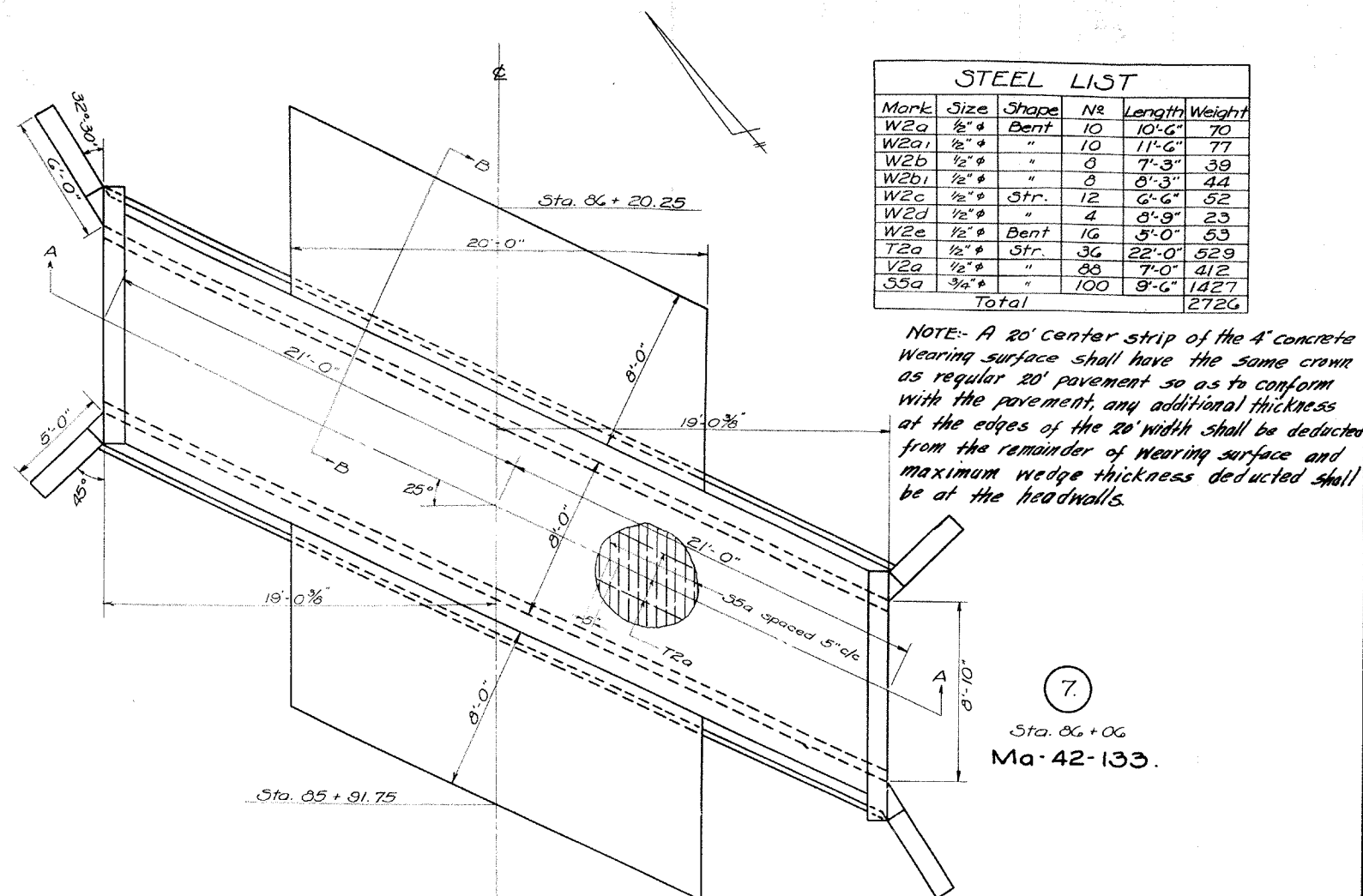
Type: Std. C.I.P. Culvert Std. Dr. #300
Size: 24" x 42'
Skew -5° Right Forward.
Work Required:- Remove 29' of 24" Conc. Pipe & 8' of 24" V.S.P (enc) with two headwalls, include for payment with Excav. Build Std. 24" x 42' C.I.P. Culvert with std. headwalls. Trench reinforcing (estimated 9' long) to be 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.
Reinforcing Steel 65 Lbs.

5

Ma-42-129. STA. 64+11



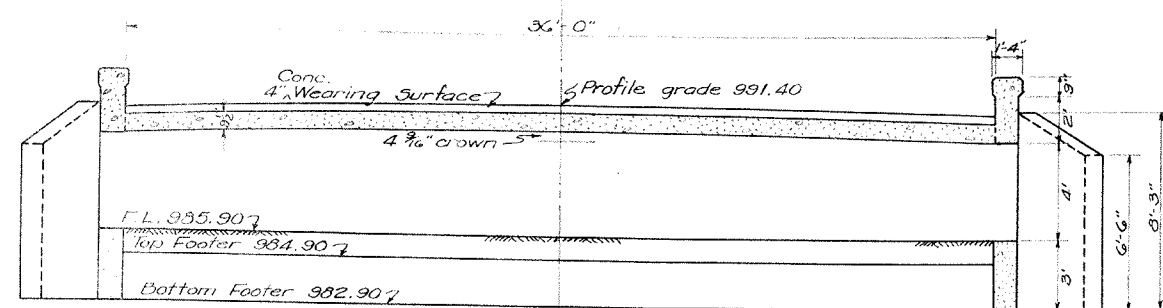
Mark	Size	Shape	Nº	Length	Weight
W2a	1/2"	Bent	10	10'-6"	70
W2a1	1/2"	"	10	11'-6"	77
W2b	1/2"	"	8	7'-3"	39
W2b1	1/2"	"	8	8'-3"	44
W2c	1/2"	Str.	12	6'-6"	52
W2d	1/2"	"	4	8'-9"	23
W2e	1/2"	Bent	16	5'-0"	53
T2a	1/2"	Str.	36	22'-0"	529
V2a	1/2"	"	88	7'-0"	412
55a	3/4"	"	100	9'-6"	1427
Total					2726

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.

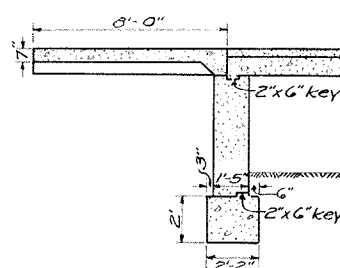
7.
Sta. 86+06
Ma-42-133.

Type - Special Slab Bridge.
Standard Drawings 5C-A & A3-31.
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' apr. slabs. Deduct 20.5' for pavement.

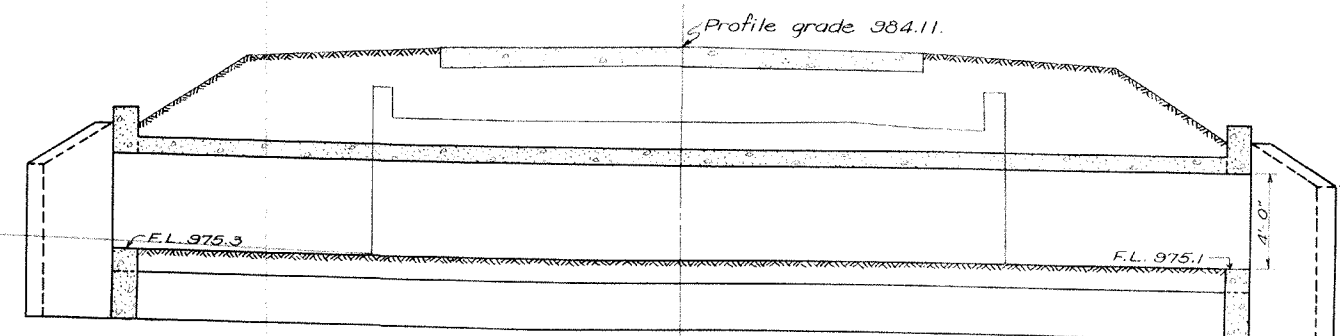
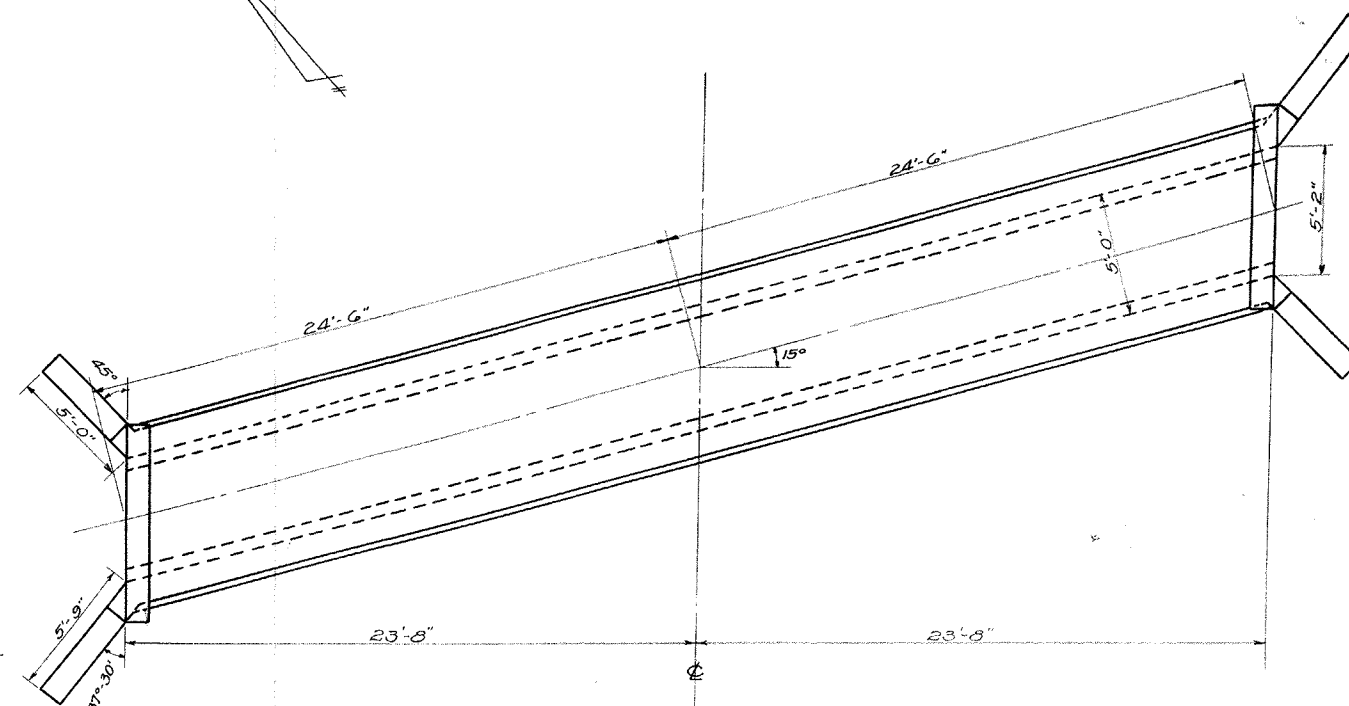
ESTIMATED QUANTITIES		
Excavation	95	Cu. Yds.
Concrete 1:1 1/2 (Footers)	11.3	" "
Concrete 1:5 1/2	36.6	" "
Rein. Steel	2726	Lbs.
7" Reinf. Conc. Apr. Slab	35.6	Sq. Yds.
4" Conc. Wear. Surface	43.5	" "



SECTION A-A



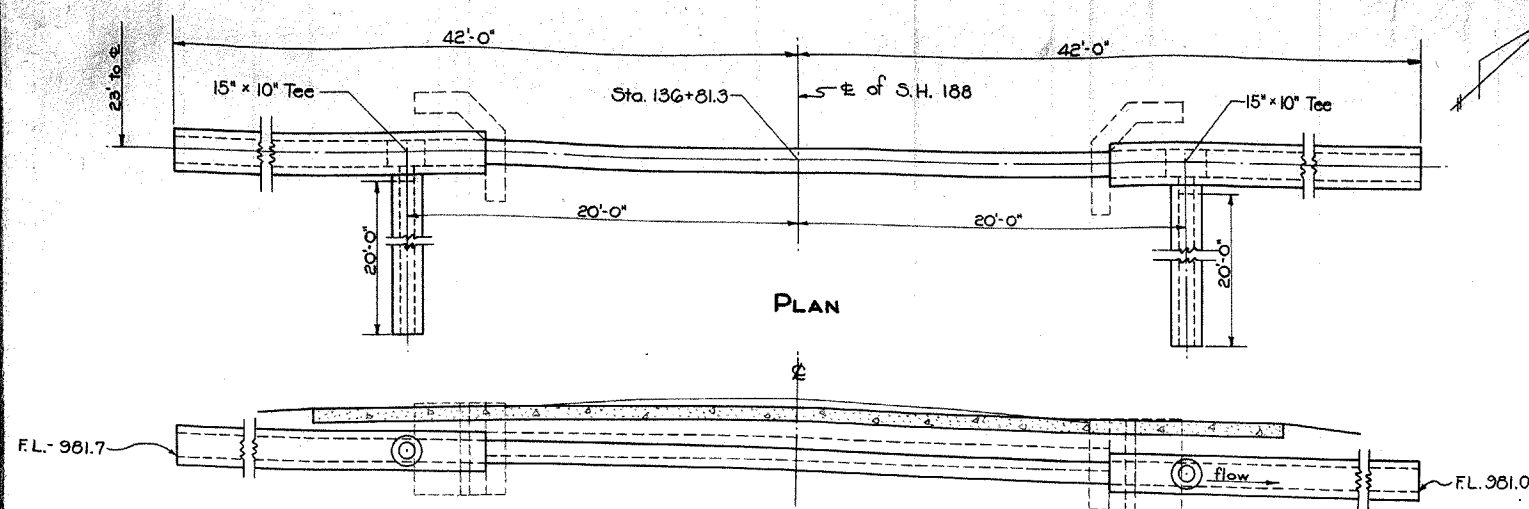
SECTION B-B



11.
Sta. 130+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	" "
Rein. Steel	2170	Lbs.



PLAN

ELEVATION

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.

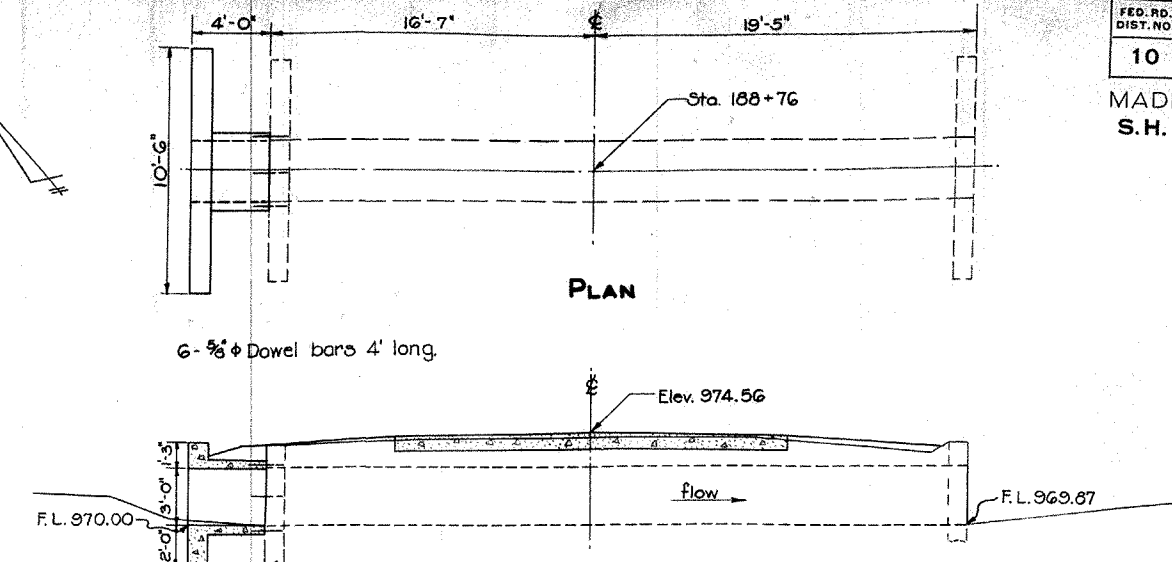
ESTIMATED QUANTITIES

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.

9

Ma-29-96

STA. 136+81.3-RT.



PLAN

CROSS SECTION

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

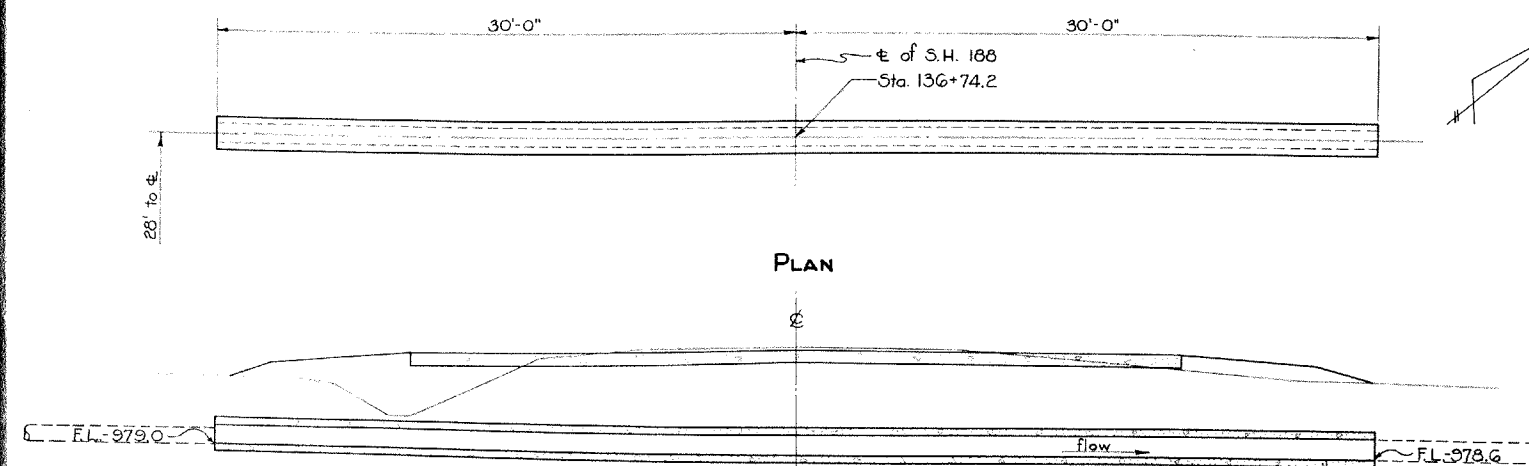
ESTIMATED QUANTITIES

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.

12

Ma-42-152

STA. 188+76



PLAN

CROSS SECTION

CULVERT DATA

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

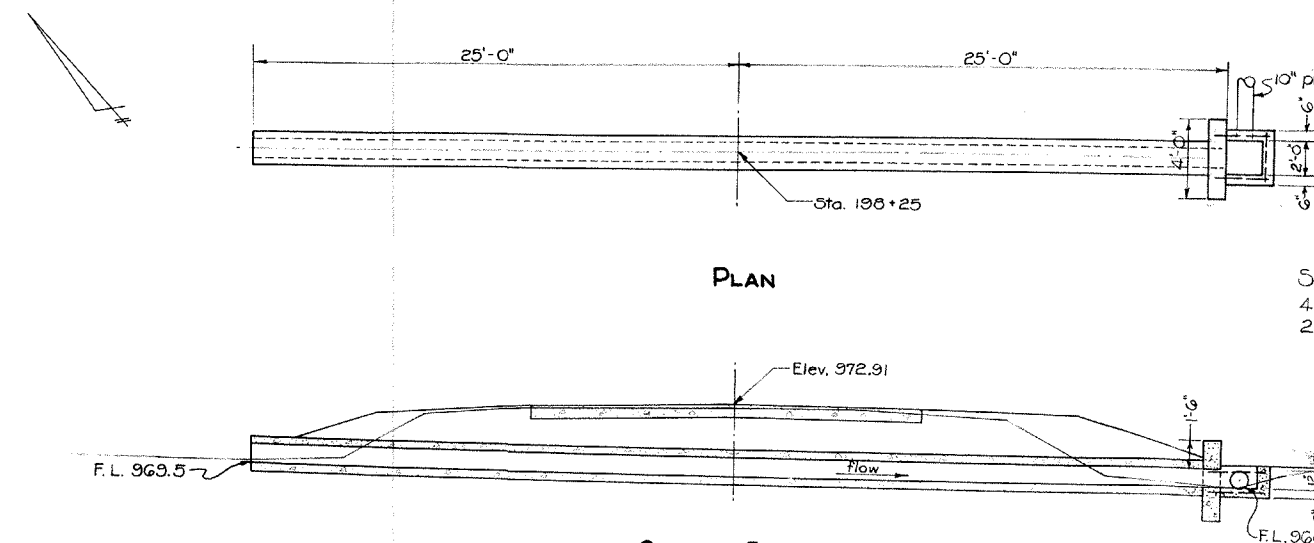
ESTIMATED QUANTITIES

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

10

Ma-29-96 A

STA. 136+74.2-LT.



PLAN

CROSS SECTION

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.

13

Ma-42-154

STA. 198+25

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



*Spaced @ 5" ctrs.



Sta. 204+36.

Mq-42-155

ESTIMATED QUANTITIES		
Excavation	30	Cu. Yds.
Concrete 1:5½	21.8	" "
Reinforcing Steel	2068	Lbs.
Dowel Holes	40	Lin. Ft.

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



EXTRA PAVE = 452.5 SQ. YDS

SUMMARY OF QUANTITIES

STRUCTURES UNDER 20' SPAN

No	Station	Type	Size	Length	Excav. Cu.Yds.	Concrete		Reinf. 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. Lin.Ft.	7"Reinf. Conc. Appr. Sl. Sq. Yds.	4" Conc. Wearing Surface Sq. Yds.
						1:5 1/2 Cu.Yds.	1:6 1/2 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													
2	22+57	Pipe Culv. Ext'n.	24"	4'-L.	14	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													
5	64+11	C.I.P. "	24"	42'	32	2.3		65										40			
6	79+00	" "			7			Channel Only										42			
7	86+06	Spec. Slab Bridge	8'-10"x4'	32' Bay	35	36.6	11.3	272G													
8	134+84	Pipe Culvert						No Work Required													
9	136+81.3-R	Side Rd. Pipe Culv.	14" C.I.P.	32'	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	2.8		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	35G	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	569	491	569	
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		24601	16678	20012	4769

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.
		9" 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				GG
95+04 to 95+70	R.												
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									
Totals		888	3240	1404	326	130	10		1	2	8	2	GG

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	
52+25	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-G.4) in place.	I-1
188	lin. ft. 12" " " (Sec M-G.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-G.8a) or R.C.P. (Sec M-G.9) or D.T. (Sec M-G.7) in place.	I-3
3240	lin. ft. 10" " " " " " "	I-3
1404	lin. ft. 12" " " " " " "	I-3
326	lin. ft. 15" " " " " " "	I-3
130	lin. ft. 18" " " " " " "	I-3
10	lin. ft. 24" " " " " " "	I-3
1	24"x10" Tee V.S.P. (Sec M-G.8a) or R.C.P. (Sec M-G.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 1/2	S-1
24.5	cu. yds. concrete 1:6 1/2 (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-G.8b) encased incl. 1:8 conc. or R.C.P. (Sec M-G.5b) with collars or cem. jts.	S-27
110	lin. ft. 12" " " " " " "	S-27
48	lin. ft. 15" " " " " " "	S-27
6	lin. ft. 18" " " " " " "	S-27
66	lin. ft. 24" " " " " " "	S-27
4	lin. ft. 36" " " " " " "	S-27
2	15"x10" Tees	I-5
32	lin. ft. 14" 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 x 20 =	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