

W
372

MINERS
MINING
TRANSIT BOOK
No. 422

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from center line to roadway for Cross-Sectioning
Roadway 16 feet wide Slopes 1 on 1.
For Single Track Embankment.

MICROFILMED
APR 14 1965

II	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.

Copyright, 1914, by Eugene Dietzgen Co.

372

Pages	Index
1 & 9	Upstream Toe Wall - Form Points Sta 2+60 to 3+70
2	Upstream Toe Wall - Final Profile ³⁺²⁷ to 3+73
3	Upstream Toe Wall - Cut stakes 0+20 to 0+40
4	Upstream Toe Wall - Form Points 0+50 to 1+00
5	Diversion Tunnel Entrance - Slope Stakes
6	Drains 2 & 3 - Neat Line Stakes
7-8	Upstream Toe Wall - Final Profile 3+73 to 4+16
10	Upstream Toe Wall - Form Points 1+20 to 2+20
12-13	Core Wall Trench - Profile of Top
14	Downstream Toe Wall - N ₄ Line Stakes 0+00 to 1+00
15	Drain #1 - Neat Line Stakes
16	Upstream Toe Wall - Form Points 3+80 to 4+10
17	Upstream Toe Wall - Cut Stakes Replaced
18	Dnstrm Toe Wall - Neat Line Cuts 0+03 to 0-12
19	Drain #2 - Final Profile
20	Drain #1 - Final Profile
22	Dnstrm Toe Wall - Final Profile 0-11 to 0-14
24	Dnstrm Wall 3+00 to 4+10 Neat Line Stakes
25	Drain #3 - Final Profile
26	Upstream Toe Wall - Final Profile 0+25 to 0+34
27	Dnstrm Toe Wall - Final Profile 3+00 to ^{4+02.4} 3+87.5
28	Dnstrm Toe Wall - Final Profile 0-60 to 0-11
30-31	Upstrm Toe Wall - Final Profile 4+16 to 4+85
32	Profile of concrete poured at Dnstr. Toe Wall for Monthly Est.
33	Dnstrm Toe Wall - Form points 0+30 to 0+60
34	Outlet of Div. Tunnel - Profile

Index - Continued

35-36	Core Wall Trench - Profile of Top N3470 to N. 3770
38-	Downstr. Toe Wall - New Stakes Set, end,
39-	Upstrm Toe Wall - Profile of start of batter
41-42	Downstream Toe Wall - Profile of start of batter
43	Core Wall Excavation - Profile for Sept. Estimate
44	Profile of Core Wall N3320 to N3460
45	Finish Rock Grades - El. 575 Core Wall Slope Stakes - N3900 to N3938
46	Settlement - Normal Sec. for calc. 1 1/2% add'l. heights
47	Puddle Core - Widths per Elev ⁿ .
48-49	Finish Rock Grades - E 4516.92 to E 4651.92
50	Wells - Upstream N. side
51-52	Finish Rock Grades - E 5343.2 to E 5415.67
53-56	Sections across Dam - Elev. 600 Upstr. to Elev. 600 Dnstr.
57	Finish Rock Grades - E 5374±
58-59	" " " - E 4601 ⁹² to E 4686 ⁹²
60	Monuments Set in Downstream Rock Emb.
61-70	B.M.'s on E 4650± - Levels & Check-levels
71	Recheck of B.M.'s on Dam
74-76	Well Casings - Elev ⁿ of tops.

Upstream Toe Wall
Form Points.

Aug. 12. 1932

	Reading	Elev.	Grade	Grade for Cut, Neotlune	Upstr.	Downstr.
B.M.	0.58	542.62	542.04			
2+60	Ups. 4.95 Dns. 5.19	37.67 37.43	540.0	537.0	2-4" F 2 ³⁰ out 1467	2-6 ⁷ / ₈ F 2 ⁵² out 29
2+70	Ups. 4.92 Dns. 5.03	37.70 37.59	540.0	537.0	2-3 ⁵ / ₈ F 2 ³⁰ 1467	2-4 ⁷ / ₈ F 2 ⁴¹ 29
2+80	Ups. 5.26 Dns. 5.28	37.36 37.34	540.0	537.0	2-7 ⁵ / ₈ F 2 ⁶⁴ 1467	2-8" F 2 ⁶⁶ 29
2+90	Ups. 4.76 Dns. 5.29	37.66 37.33	540.0	537.0	2-4 ¹ / ₈ F 2 ⁵⁴ 1467	2-8" F 2 ⁶⁷ 29
3+00	Ups. 5.19 Dns. 5.52	37.43 37.10	540.0	537.0	2-6 ⁷ / ₈ F 2 ⁵⁷ 1467	2-10 ³ / ₄ F 2 ⁷⁰ 29
3+10	Up. 5.18 Dn. 5.86	37.44 36.76	540.0	537.0	2-6 ³ / ₄ F 2 ⁵⁶ 1467	3-2 ⁷ / ₈ F 3 ²⁴ 29
3+20	Up. 5.85 Dn. 6.05	36.77 36.57	540.0	537.0	3-2 ³ / ₄ F 3 ²³ 1467	3-5 ¹ / ₈ F 3 ⁴³ 29

Continued on Page 9

Profile Upstr. Toe Wall
For Laying Grade for Next line

			Grade
B.M.	11.93	553.97	542.04
T.P.			2.38 551.59
	7.98	559.57	

0+40 548.0

0+30 561 552.0

↑
Step

0+30 561 555.0

0+25 560.1 555.0

↑
Step

0+25 560.1 560.0

0+20 560.0

↑
Step

0+20 567.0

Grade for
Calc. N.H. line

Aug 13-1932

Converse
Elliot
Simpson
Soper
Tammes

3

Upstr

Grade	Calc. N.H. line	Grade	Calc. N.H. line	Grade	Calc. N.H. line
548.0	552.0	C. 6°	out 2°	C. 6°	out 967
561 552.0	555.0	C. 12°	out 2°	C. 9°	out 867
561 555.0	"	Step		Step	out 867
560.1 555.0	"	C. 41°	2°	C. 6°	out 867
560.1 555.0	560.0	C. 51°	2°	C. 16°	out 7°
560.1 560.0	"	Step		Step	out 7°
560.0	565.0	C. 21°	2°	C. 11°	out 7°
560.0	565.0	C. 8°	2°	C.	out 533
567.0	565.0	Step		Step	out 533
		C. 12°	2°	C.	out 533

Upstream Toe Wall
Form Points

		Rod	Elev	Grade
B.M.	1.60	553.19	551.59	
		up 5.27	47.92	
0+50		Dn 4.24	48.75	552.0
		up 5.27	47.92	
3° Step		Dn 4.24	48.75	549.0
0+50				
		up 5.12	48.07	
0+60		Dn 5.80	47.39	549.0
		up 5.85	47.34	
0+70		Dn 5.84	47.35	549.0
		up 4.94	48.25	
0+80		Dn 6.34	46.85	549.0
		up 6.32	46.87	
0+90		Dn 6.56	46.63	549.0
		up 7.29	45.90	
1+00		Dn 7.52	45.67	547.0
B.M.		11.15	542.04	542.04

Grade
for Calc. Not. Pipe Upstream

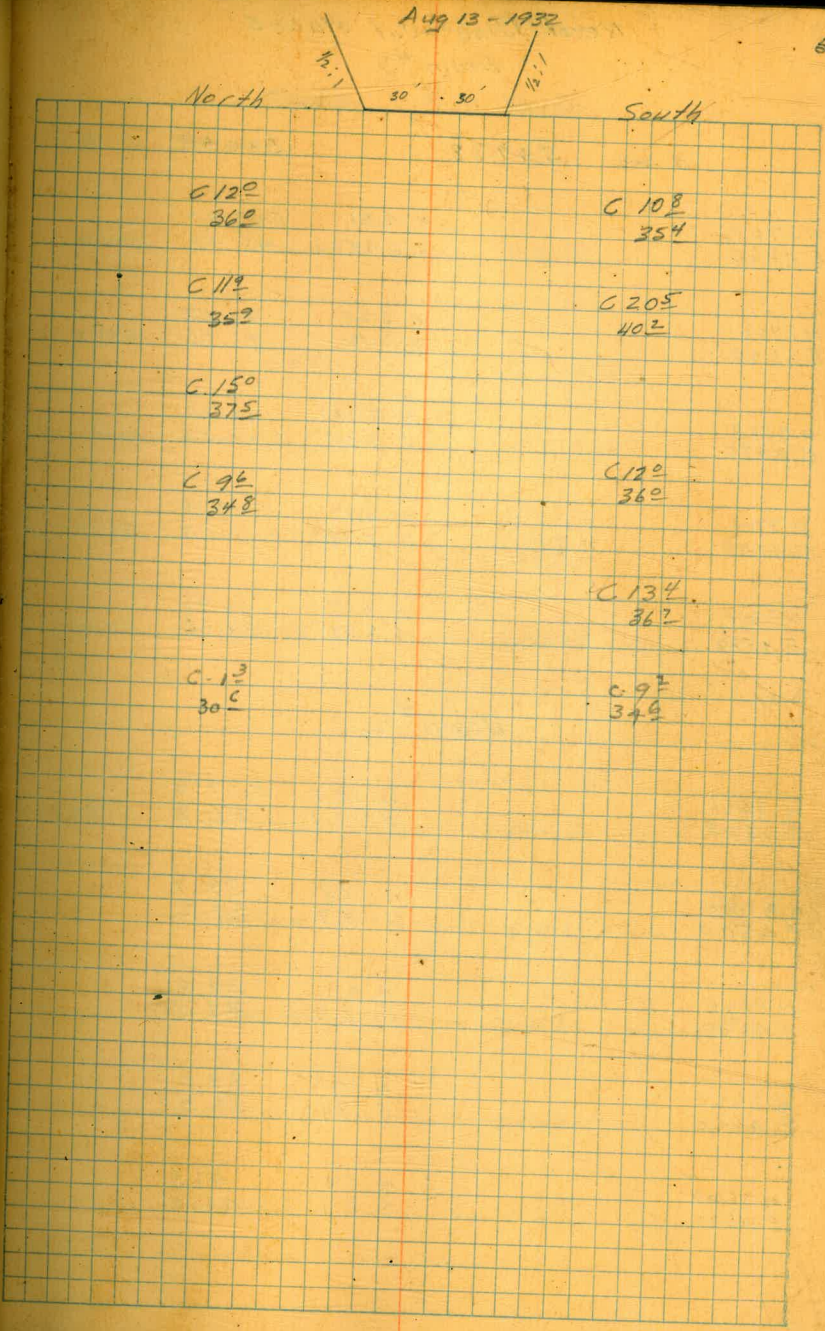
				Downstream
		4-1"		3-0 ⁵ / ₈ "
552.0	F	4 ⁰⁸ / ₁₆ out 967		3 ⁰⁵ / ₈ out 20
		Step		Step
552.0	F	1 ¹⁵ / ₁₆ out 967		0 ⁰⁵ / ₈ out 20
		0-11 ¹ / ₈ "		1-7 ¹ / ₄ "
551.07	F	0 ²² / ₁₆ out 928		1 ⁶¹ / ₁₆ out 20
		1-7 ⁷ / ₈ "		1-7 ⁷ / ₈ "
550.13	F	1 ⁶⁶ / ₁₆ out 1028		1 ⁶⁵ / ₁₆ out 20
		0-9"		2-1 ³ / ₄ "
549.20	F	0 ⁷⁵ / ₁₆ out 1060		2 ¹⁵ / ₁₆ out 20
		2-1 ⁵ / ₈ "		2-4 ³ / ₈ "
548.26	F	2 ¹³ / ₁₆ out 1091		2 ³² / ₁₆ out 20
		3-1 ¹ / ₄ "		3-4"
47.33	F	3 ¹⁰ / ₁₆ out 1122		3 ³³ / ₁₆ out 20

Check

Entrance Portal Cuts.

Aug 13 - 1932

		Grade Rod	Grade
B.M.	6.38	579.24	572.86
0+50		16.2	563.0
1+00		"	
1+50		"	
2+00		"	
2+25		"	
T.P.	5.68	572.19	566.51
2+50		"	
2+80	Grade on 4		



Final Profile Upstream Toe Wall
For Computation of Quantities

B.M.	3.71	545.75		542.04
4+16			0.8	45.0'
4+16			0.0	45.8'
4+16			6.4	539.4' <i>to</i>
			+3.5	551.3' Upstream
			+9.8	55.6' Downstr.
4+10			7.7	38.1' <i>to</i>
			+4.2	50.0' Upstream
			+9.8	55.6' Downstream
4+05			9.7	36.1' <i>to</i>
			+3.3	49.1' Upstream
			+7.9	53.7' Downstr.
4+00			10.1	35.7' <i>to</i>
4+00			+2.8	48.6' Upstream
			+7.7	53.5' Downstr.
3+87			11.4	34.4' <i>to</i>
			+0.9	46.7' Upstream
			+4.1	49.9' Downstream
3+85			12.5	33.3' <i>to</i>
			+0.3	46.1' Upstream
			+3.0	48.8' Downstr.
3+78			12.8	33.0' <i>to</i>
			0.8	45.0' upstream
			+0.6	46.4' Downstr.

Continued Next Page

Aug 15-1932

Converse

Elliott

Simpson

Soper

Rammell

7

Bottom	Width	Elev.	Top Elev.	Elev. Where
			Up.	Down.
Top of Corp. Aug 17 - on Rt. or Downstr Side				
" " " " Lt. " Upstr. "				
	11.57	539.4	551.3	555.6
				548.8 545.8
	12.67	538.1	550.0	555.6
				548.8 545.3
	13.67	536.1	549.1	553.7
				548.8 544.9
	14.67	535.7	548.6	553.5
		535.7	548.6	553.5
				549.0 544.4
	15.19	534.4	546.7	549.9
				543.0
	15.27	533.3	546.1	548.8
				542.7
	15.55	533.0	545.0	546.4
				542.0

545.75

3+76	15.1	530.7	↓
3+76	1.0	44.8	Downstream
3+76	1.7	44.1	Upstream

3+73 step in Bottom			
3+73	14.5	31.3	↓

3+73	5.5	40.3	
------	-----	------	--

3+73	4.3	41.5	
------	-----	------	--

3+70			
------	--	--	--

3+60			
↑			
step in Bottom Excavated			

3+60			
↓			

3+50			
------	--	--	--

3+40			
------	--	--	--

3+30			
------	--	--	--

3+27			
------	--	--	--

Bottom		Top Elev.		Elev. where Bottom starts
Width	Elev.	Up.	Down	

15.23	530.7	544.1	544.8	541.8
-------	-------	-------	-------	-------

15.75	531.3	540.3	541.8	541.5
-------	-------	-------	-------	-------

	531.3	540.3	541.8	540.0
--	-------	-------	-------	-------

Top of Conc. Aug 17. on Rth. of Downstream,

" " " " Lth. of Upstream.

15.87	531.2	539.9	541.5	540.0
-------	-------	-------	-------	-------

16.27	532.3	538.9	539.2	540.0
-------	-------	-------	-------	-------

16.27	529.9	538.9	539.2	540.0
-------	-------	-------	-------	-------

16.67	529.9	538.8	539.2	540.0
-------	-------	-------	-------	-------

16.67	529.9	538.6	538.3	540.0
-------	-------	-------	-------	-------

16.67	529.6	538.3	538.3	540.0
-------	-------	-------	-------	-------

16.67	529.7	538.3	538.2	540.0
-------	-------	-------	-------	-------

Continued from Page 1
Upstream Toe Wall - Form Points

Aug. 15 - 1932

9

B.M. 0.79 542.83 542.04

3+30 Up 5.67 37.16
Dn 26. 38.57 540.0 537.0

3+40 Up 5.00 37.83
Dn 5.15 37.68 540.0 537.0

3+50 Up 4.69 38.14
Dn 5.14 37.69 540.0 537.0

3+60 Up 4.72 38.11
Dn 5.01 37.82 540.0 538.2

3+70 Up 3.38 39.15
Dn 4.65 38.18 540.0 539.4

Upstream Downstr.

2-10¹/₈ 1-5¹/₈
F. 284 out 1462 F. 143 out 20

2-2¹/₈ 2-3⁷/₈
F. 227 out 1467 F. 232 out 20

1-10¹/₈ 2-3⁵/₈
F. 186 out 1462 F. 231 out 20

1-10⁵/₈ 2-2¹/₈
F. 189 out 1422 F. 228 out 20

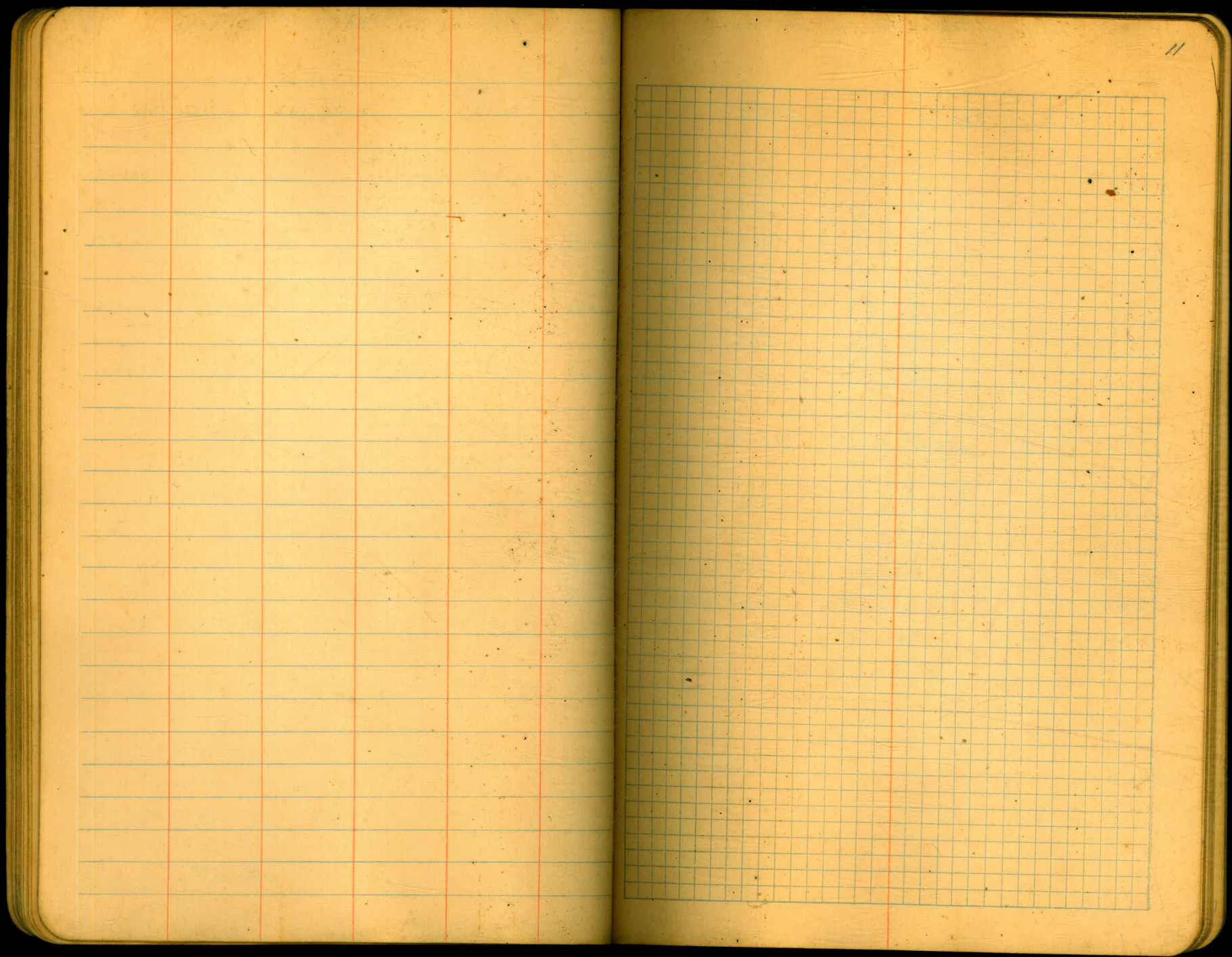
0-6⁵/₈ 1-9¹/₈
F. 055 out 1387 F. 182 out 20

B.M.			Elev.	Elev Top Form
	6.16	548.20	542.04	
2+20		5.14	43.06	548.11
2+10		4.97	43.23	48.11
2+00		4.91	43.29	48.11
1+90		4.94	43.26	48.11
1+80		4.90	43.30	48.11
1+70		5.26	42.94	48.11
↑ Step				
↓ 1+70		2.18	46.22	48.11
1+60		2.07	46.13	48.11
1+50		2.09	46.11	48.11
1+40		2.11	46.09	48.11
1+30		2.14	46.06	48.11
1+20		2.24	45.76	48.11

Downstream
on Form

Upstream

F 5 ¹⁰	out 12 ⁵⁵
F 5 ¹⁶	out 12 ⁵⁹
F 5 ¹⁴	out 12 ⁵⁷
F 5 ⁰⁹	out 12 ⁵⁸
F 5 ¹⁰	out 12 ⁵⁷
	out 12 ⁵⁹
	↑ Step
F 2 ¹³	↓ out 11 ⁶⁷
	out 11 ⁶²
F	F 2 ⁰⁷ out 11 ⁶³
F	F 2 ⁰⁷ out 11 ⁶⁴
F	F 2 ⁰⁷ out 11 ⁶⁵
F	F 2 ³⁷ out 11 ⁵⁸



Profile of Top of Puddle Core Trench

Aug. 16, 1932

12

61
20
27

	5.16	544.55	539.39
N 3480		up. str. 6.4	38.2
		dn. str. 7.0	37.6
N 3510		up. str. 6.5	38.1
		dn. str. 9.0	35.6
N 3540		up. str. 7.1	37.5
		dn. str. 9.2	35.4
N 3570		up. str. 5.8	38.8
		dn. str. 9.0	35.6
N 3600		up. str. 5.1	39.5
		dn. str. 5.8	38.8
N 3630		up. str. 5.3	39.3
		dn. str. 4.6	40.0
N 3660		up. str. 4.4	40.2
		dn. str. 2.6	42.0

T.P. 10.99 555.15 0.39 544.16

N 3690		up. str. 13.3	41.9
		dn. str. 8.6	46.6
N 3720		up. str. 6.7	48.5
		dn. str. 4.9	50.3
N 3750		up. str. 5.5	49.7
		dn. str. 2.6	52.6
N 3780		up. str. + 1.9	57.1
N 3775		dn. str. + 4.7	59.9

North end Trench

" " "

Final Profile of Trench at North end of
upstream Toe wall, for final quantities

B.M.	13.02	555.06	542.04
0+40	8.6	546.5	
	Top upstr. 0.1	555.0	
	" Dn. str. 0.9	554.2	
	7.15	547.91 - check	

0+50

↑

step in batter

↓
0+50

Aug. 16, 1932

13

Bottom		Top Elev		Elev.
Width	Elev.	up.	Dn	Start Batter
	546.5	555.0	554.2	558.0
on stake	547.92			558.0
				553.0

NEAT LINE STAKES FOR TRENCH
AT NORTH END OF DOWNSTREAM
TOE WALL

				Grade
B.M.	3.69	548.13		544.44
	7.11	551.60	3.64	544.49
B.M.	11.52	555.96		544.44
0+00			up 12.5 Dn 4.2	43.5 51.8 540.0
+25			up 12.0 Dn 5.9	44.0 50.1 539.0
+50			up 10.0 Dn 7.8	46.0 48.2 538.0
+75			up 12.2 Dn 12°	43.8 44.0 537.0
1+00			up Dn	536.0

August 16, 1932
Cuts → Aug 17, 1932

14

Grades For
Calc Neat
Line Widths

0175 = 538.7

0100 = 541.7

	Upstr		Dnstr
548.0	C 35 out 2°	C 118	out 11° ⁰⁰
546.25	C 50 out 2°	C 112	" 11° ⁵⁸
544.50	C 80	C 102	" 12° ¹⁷
542.75	C 68 out 2°	C 70	" 12° ⁷⁵
541.0			" 13° ³³

Neat line cut stakes
Drain #1

Aug. 16, 1932

15

				Grade Sub. grade
	3.61	548.05	544.44	
N 3560		N. 10.13	537.92	
E 4540		S. 9.89	38.16	537.0
N 3560		N. 9.89	38.16	
E 4580		S. 10.10	37.95	
N 3560		N. 10.14	37.91	
E 4620		S. 9.82	38.23	
N 3560		N. 9.34	38.71	
E 4660		S. 9.34	38.71	

South	±	North
c-1 ¹⁶		c-0 ⁹²
c-0 ⁹⁵		c-1 ¹⁶
c-1 ²³		c-0 ⁹¹
c-1 ⁷¹		c-1 ⁷¹

Upstream Toe Wall
Form Points

			Grade
B.M.	4.69	546.73	542.04
		up 4.59	42.14
3+80		Dn 5.96	40.77 545.0
		up 3.26	43.47
3+90		Dn 4.92	41.81 545.0
		up 2.28	44.45
4+00		Dn 3.34	43.39 545.0
		up	
4+10		Dn 1.78	44.75 545.0

Aug 17 - 1932

16

Upstr.

Dnstr

2-10¹/₄
F. 2⁸⁶ out 12⁹⁵

4-2³/₄
F. 4²³ out 2⁰

1-6⁷/₈
F. 1⁵³ out 12⁵¹

3-2¹/₂
F. 3¹⁷ out 2⁰

1-6⁵/₈
F. 0⁵⁹ out 12³⁸

1-7¹/₂
F. 1⁶¹ out 2⁰

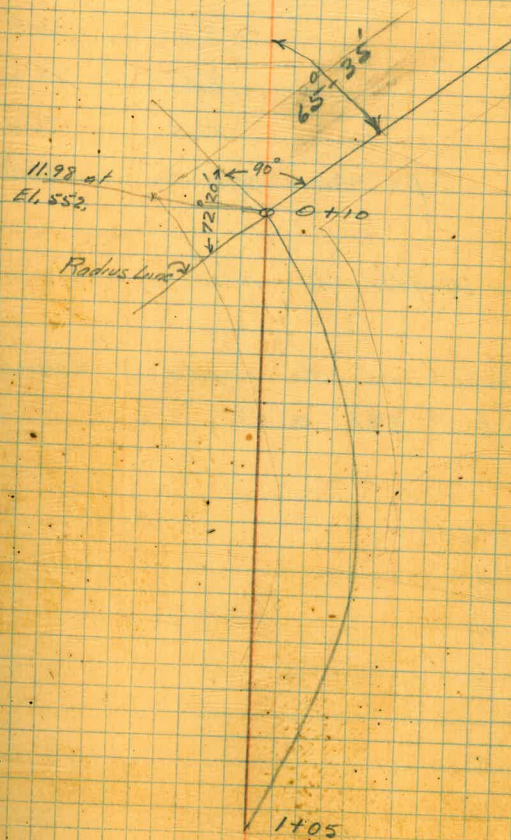
0-0⁵/₈
F. 0⁰⁵ out 2⁰

Downstream Toe Wall
Near Line Stakes

Aug 17-1932 89-60 42.8 18
89-17.2
89-17.2
178-34.4

B.M.	8.36	552.80	544.44
0+03		up. 5.3 7.2	47.5 51.6
0-12		up. 0.0	52.8
			540.0

	upstr.		Dnstr.
548.0	C. 7 ⁵	out 2 ²	C. 11 ⁶ out 11 ²
548.0	C. 12 ⁸	out 2 ²	out 11 ²



Final Profile Drain #2
N 3620

Aug 17 - 1932

19

B.M.	2.68	547.12	544.44
E 4660		8.1	39.0
E 4640		8.1	39.0
4620		8.2	38.9
4600		8.3	38.8
580		8.2	38.9
560		8.4	38.7
540		8.2	38.9
534		8.5	38.6
531		10.5	36.6
517 ^E		10.5	36.6

Average Width 10' - 10 1/2"

These sections to replace finals
in Book # 391 p. 47

Top of Conc. E. edge toe Wall

B.M.	4.47	548.91	544.44
4670		4.0	44.9
4660		11.8	37.1
4650		11.8	37.1
4640		11.8	37.1
4630		11.8	37.1
4620		11.9	37.0
4610		12.0	36.9
4600		12.0	36.9
4590		12.0	36.9
4580		12.0	36.9
4570		11.9	37.0
4560		12.0	36.9
4550		12.2	36.7
4540		11.9	37.0
4530		12.1	36.8
4520		12.8	36.1
4511		13.0	35.9
4512			

These sections to replace finals in
Book # 391 page 23

E. end of Drain

W. End of Drain

Upstream To Wall
Form Points

B.M. 7.96 550.00 542.04

4+00 4.81 45.19

3+90 4.96 46.04

3+80 4.98 45.02

3+70 5.04 44.96

3+60 5.00 45.0

3+50 5.03 44.97

B.M. 10.52 552.56 542.04

2+40 4.45 48.11

2+30 4.41

Aug 19-1932

21

50 = 12.

Upstream

444 = 10.96

out 11³⁴

out 11³²

out 11³³

out 12⁰¹

out 12⁰⁰

out 12⁰¹

out 10⁹⁶

out 10⁹⁵

Dnstim. Tee Wall
Final Profile for Comp. of Quantities

B.M.	5.82	550.26	544.44
0-11		10.3	40.0
		up 1.6	48.7
0+00		10.2	40.1
		up 2.5	47.7
		Dn + 1.8	52.1
Angle Point 0+10		10.3	40.0
		up 2.7	47.6
		Dn + 0.9	51.2
0+25		11.0	39.3
0+30 Step in Batter		up 3.6	46.7
		Dn 0.2	50.1
0+50		12.4	37.9
0+60 Step in Batter		up 4.2	46.1
		Dn 2.0	48.3
0+75		13.3	37.0
0+90 Step in Batter		up 5.9	44.4
		Dn 5.7	44.6
1+00		13.8	36.5
		up 8.7	41.6
		Dn 8.2	42.1

Aug 20-1932

22

Bottom Width	Bottom Elev.	Top Elev.		Elev. Start of Batter
		Up.	Dn	
Cont'd. from Book 340. Page 69.				
13 ⁰⁰	540.0	548.7	575.0	552.0
13 ⁰⁰	540.1	547.7	552.1	552.0
	540.0	547.6	551.2	552.0
13 ⁵⁸	539.3	546.7	550.1	552.0
				0+30 552.0
				0+30 549.0
14 ¹⁷	537.9	546.1	548.3	549.0
				0+60 549.0
				0+60 546.0
14 ⁷⁵	537.0	544.4	544.6	546.0
				0+90 546.0
				0+90 543.0
15 ³³	536.5	541.6	542.1	543.0

B.M.			Sub-grade	
B.M.	3.32	547.76	544.44	
E 4660		5.76	542.0	541.0
E 4620		5.76	542.0	541.0
E 4580		5.76	542.0	541.0
E 4540		5.76	542.0	541.0

Stake on
#

C. 10

C. 10

C. 10

C. 10

Downstr. Toe Wall
Neat Line Cuts

B.M.	0.78	545.22	544.44	Grade
3+00				530.0
		up 8.0	37.2	37.2
3+25		Dn 8.1	37.1	530.5
		up 4.3	40.9	
3+50		Dn 6.0	39.2	531.0
		up 3.5	41.7	
3+75		Dn 3.2	42.0	531.5
4+00				532.0
		up 1.5	43.7	
4+02 ¹⁴		Dn 2.5	42.7	532.04

Aug. 25, 1932 - Replacing Neat Line Stakes

B.M.	0.00	548.61	548.61	
3+25		up 11.0	537.6	
		Dn 13.8	534.8	530.5
		up 8.9	539.7	
+50		Dn 12.1	536.5	531.0
		up 7.1	541.5	
+75		Dn 10.3	538.3	531.5
		up 4.5	544.1	
4+02 ¹⁴		Dn 5.6	543.0	532.0

Aug 20 - 1932

24

Grade for
Cuts N.H. Line

	Upstr.	Downstr.
535.0	C. out 2°	C. out 15 ³³
536.75	C. 6 ² out 2°	C. 6 ² out 14 ⁷⁴
538.50	C. 9 ² out 2°	C. 8 ² out 14 ¹⁶
540.25	C. 10 ² out 2°	C. 10 ² out 13 ⁵⁸
542.0	C. out 2°	C. out 13 ⁰⁰
542.14	C. 11 ² out 2°	C. 10 ² out 12 ⁹⁵
	C. 7 ¹	C. 4 ³ out 14 ⁷⁴
	C. 8 ¹	C. 5 ⁵ " 14 ¹⁶
	C. 10 ²	C. 6 ³ " 13 ⁵⁸
	C. 12 ¹	C. 11 ² out 12 ⁹⁵

Downstr. Toe Wall
Neat Line Cuts

B.M.	0.78	545.22	544.44	Grade
3+00				530.0
		up 8.0	37.2	37.2
3+25		Dn 8.1	37.1	530.5
		up 4.3	40.9	
3+50		Dn 6.0	39.2	531.0
		up 3.5	41.7	
3+75		Dn 3.2	42.0	531.5
4+00				532.0
		up 1.5	43.7	
4+02 ¹⁴		Dn 2.5	42.7	532.04

Aug. 25, 1932 - Replacing Neat Line Stakes

B.M.	0.00	548.61	548.61	
3+25		up. 11.0	537.6	
		Dn. 13.8	534.8	530.5
		up. 8.9	539.7	
+50		Dn. 12.1	536.5	531.0
		up. 7.1	541.5	
+75		Dn. 10.3	539.3	531.5
		up 4.5	544.1	
4+02 ¹⁴		Dn. 5.6	543.0	532.0

Aug 20 - 1932

24

Grade for
Coke Mt. Line

	upstr.	Downstream
535.0	C. out 2°	C. out 15 ³³
536.75	C. 6 ² out 2°	C. 6 ⁶ out 14 ⁷⁴
538.50	C. 9 ² out 2°	C. 8 ² out 14 ¹⁶
540.25	C. 10 ² out 2°	C. 10 ⁵ out 13 ⁵⁸
542.0	C. out 2°	C. out 13 ⁰⁰
542.14	C. 11 ² out 2°	C. 10 ² out 12 ⁹⁵
	C. 7 ¹	C. 4 ³ out 14 ⁷⁴
	C. 8 ⁷	C. 5 ⁵ " 14 ¹⁶
	C. 10 ²	C. 6 ⁸ " 13 ⁵⁸
	C. 12 ¹	C. 11 ⁰ out 12 ⁹⁵

Drain #3 - Final Profile
N 3700

Aug 20 - 1932

25

B.M.	3.47	547.91	544.44
E 4660		7.0	540.9
650		7.2	40.7
640		7.2	40.7
630		7.0	40.9
620		7.0	40.9
610		7.0	40.9
600		6.9	41.0
590		6.9	41.0
580		6.9	41.0
570		7.0	40.9
560		6.9	41.0
550		7.1	40.8
540		7.1	40.8
530		7.5	40.4
520		8.6	39.3
511		8.4	39.5

These sections to replace or supplement
finals in Book # 392 page 9

Edge of Toe Wall.

Upstream Toc Wall.
Final Profile

B.M.	8.01	559.60	551.59
0+34		8.7	50.9
Dnstr		1.6	58.0
Upstr		+1.8	61.4
0+30		7.1	52.5
0+30		4.5	55.1
Dnstr.		+2.7	62.3
Upstr.		+6.4	66.0
0+25		2.5	57.1
Dnstr.		+12.2	72.3
Upstr.		+12.2	72.5
0+25		+0.2	59.8
<u>Aug. 25, 1932</u>			
B.M.	11.86	563.45	551.59
0+20		± 3.2	560.2
	Top Bank upstr.	+13.3	76.7
	" " dnstr.	+12.3	75.7
0+20		± 3.5	67.0

Width	Bottom	Top Elev.		Elev. start Batter
	Elev	Up.	Dn.	
11.07	550.9	561.4	558.0	558.0
10.67	552.5	566.0	562.3	558.0
10.67	555.1	566.0	562.3	563.0
9.00	557.1	572.5	572.3	563.0
9.00	559.8	572.5	572.3	563.0
8.00 7.33	560.2	576.7	575.7	563.0
6.67	562.0	576.7	575.7	567.0

Downstream Toe Wall
Final Profile

B.M.	2.44	544.83	542.39	
3+00 1/2		14.4	30.4	✓ ^{277 17/14/32}
Upstrm.		9.1	35.7	✓
Downstrm		8.7	36.1	✓
3+25 1/2		14.4	30.4	✓
upstrm		7.2	37.6	✓
Dnstrm		7.8	37.0	✓
3+50 1/2		14.1	30.7	✓
Upstrm.		4.2	40.5	✓
Dnstrm.		4.3	40.5	✓
3+75 1/2		13.5	31.3	✓
Upstrm.		2.9	41.9	✓
Dnstrm.		2.7	42.1	✓
3+87 1/2		13.1	31.7	✓
Upstrm		1.5	43.3	✓
Dnstrm		2.5	42.3	✓

Sept 23-1932

4+02 1/4

Aug 30-1932

27

Width	Bottom Elev	Top Elev		Elev. Start Batter
		Up.	Dn	
17.33	530.4	535.7	536.1	536.3
16.74	530.4	537.6	537.0	537.0
16.16	530.7	540.5	540.5	537.6
15.58	531.3	541.9	542.1	
15.29	531.7	543.3	542.3	
18.33	532.0	"	"	540.0
18.33	532.0		542.6	540.0

Downstream, Toe Wall
Final Profile

B.M.	0.56	561.97	561.41
0-11			
0-11			
upstr		2.9	559.1
0-20			
upstr		+ 3.5	565.5
Downstr.		+ 0.5	562.5
Sept 23-1932			
0-20			
B.M.	8.01	579.53	571.52
Sept 28-1932			
0-30			
B.M.	8.99	570.98	561.99
0-30			
0-40			
		up +1.4	572.4
		DN 0.6	570.4
0-50			
		up +3.6	574.6
		DN +2.0	573.0
0-60			
		up +5.0	576.0
		DN	

28

Wide Bottom	Bottom	Top Elev.		Batter
		Upstr	Downstr.	
13 ⁰⁰	540.0	548.7	552.1	552.9
10 ⁰⁰	548.0	559.1	558.6	562.0
10 ⁰⁰	548.0	565.5	562.5	562.0
10 ⁰⁰	560.0	"	"	566.5
8 ⁰⁰	560.0	569.0	568.3	566.5
4 ⁰⁰	565.0	569.0	568.3	Neat Wall
4 ⁰	565.0	572.4	570.4	"
4 ⁰	565.0	574.6	573.0	"
4 ²	565.0	576.0	576.0	"

Final Profile Upstream Toe Wall

Aug. 25, 1932

30

B.M.	12.31	554.35		542.04
T.P.	11.24	563.97	1.62	552.73
4+16		±	16.8	547.7
"		See Page 7		
"				
4+30		±	14.1	549.9
"		Top Bank upstr.	6.4	557.5
"		" " Dnstr.	5.0	559.0
4+50		±	7.4	556.6
"		Top Bank upstr.	2.4	561.6
"		" " Dnstr.	+ 2.6	566.6
4+55		±	6.0	558.0
"		Top Bank upstr.	0.6	563.4
"		" " Dnstr.	+ 5.0	569.0
4+70			+ 0.8	564.8
"		Top Bank upstr.	+ 7.8	571.8
"		" " Dnstr.	+ 10.8	574.8
4+75			+ 2.7	566.7
"		Top Bank upstr.	+ 9.5	572.5
"		" " Dnstr.	+ 13.2	577.2

Bottom		Top Elev.		Elev. Start Bottom
Width	Elev.	up.	dn.	
1157	547.2	551.3	555.6	558.1
10 ⁰⁰	549.9	557.5	559.0	558.0
	549.9	557.5	559.0	562.5
8 ¹⁷	556.6	561.6	566.6	562.5
7 ¹⁵	558.0	563.4	569.0	
6 ²⁹	564.8	571.8	574.8	
4 ⁰⁰ & 6 ⁵⁷	566.7	572.5	577.2	

Note: From 4+75 to 4+85 is 4" neat line trench

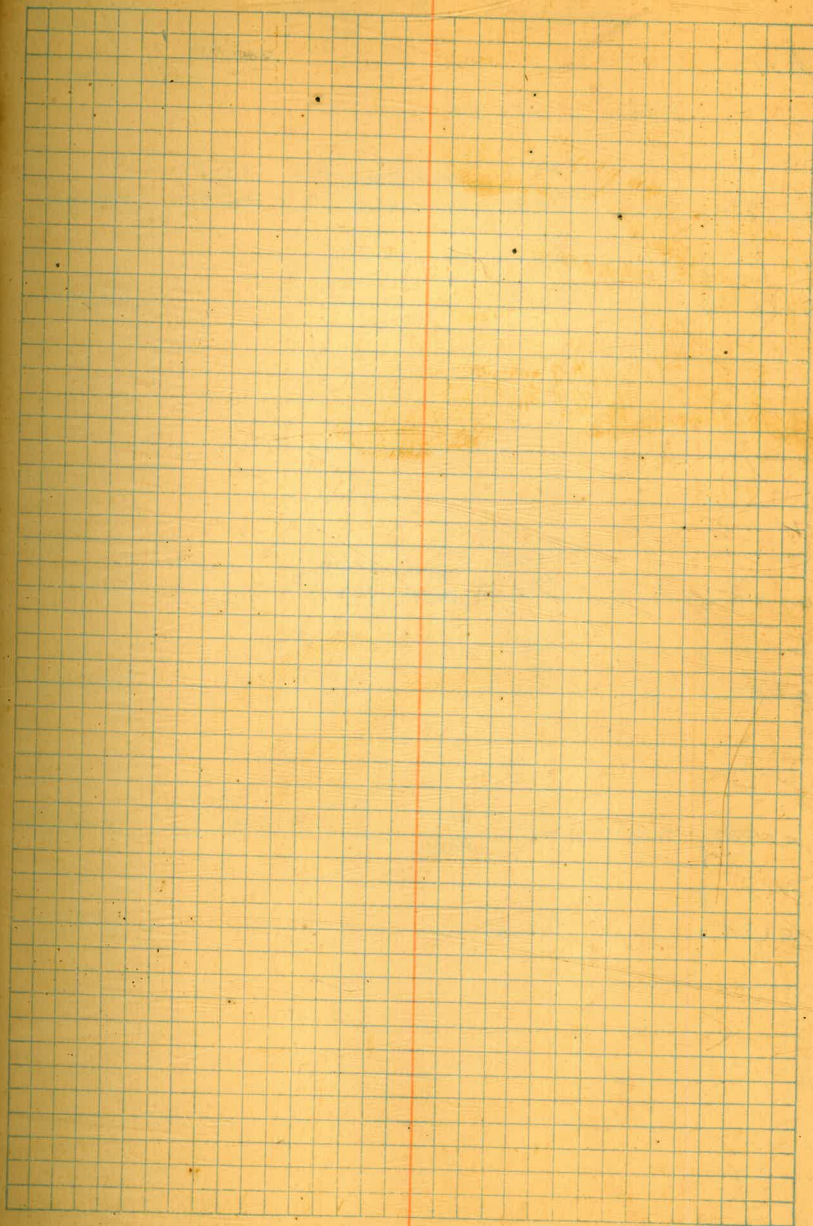
cont. on next page

Profile of Concrete poured at
Downstream Toe wall, for
Monthly estimate.

B.M.	2.03	552.01	549.98
0-11		3.8	48.2
0+10		3.6	48.4
+25		4.9	47.1
+50		8.5	43.5
+75		10.1	41.9
+100		11.6	40.4

Aug. 25, 1932

32



Downstream Toe Wall, stakes for
Steps at N. end

B.M.			Grades for steps	
	3.86	553.84		549.98
0+60		upstr. 8.43 Dnstr. 8.18	45.41 45.66	549.0
0+60				546.0
0+90		upstr. 13.49 Dnstr. 11.21	40.35 42.63	546.0
0+90				543.0
0+30		upstr. 6.64 Dnstr. 4.19	47.20 49.65	552.0
0+30				549.0

Aug. 25, 1932

33

Grades for C&G. near lines see page 17	upstream out 25	to	Downstream
	3 7/16"		3 1/4"
543.80	F. 3.59		F. 3.34 out 12 1/2
543.80	0 7/16"		0 4"
	F. 0.59		F. 0.39 " "
	5 3/4"		5 3/8"
541.70	F. 5.65		F. 3.37 out 13 1/2
542.70	2 7/8"		0 4 3/8"
	F. 2.65		F. 0.37 " "
545.90	F. 4.80		F. 2.35 out 11 7/8
545.90	F. 1.80		0-0.65 " "

Profile of Portal excavation
at exit Portal.

B.M.	9.98	552.73	542.75
12+12 ^z			12.2
+50			8.9
+60			7.3
+77			10.4
13+00			10.5
+12			10.0
+22			7.4
+45			7.0
	12.54	563.91	1.36 551.37
+54			9.4
14+00			8.9
15+10			13.1
			0.26 563.65 =

Aug. 25, 1932

34

End of Portal structure

= Bottom of Natural River Bed.

check on B.M. El. 563.65,

Profile of R. Puddle Core Trench
Beginning of 6 foot neat line trench

E5000	2.50	541.89	539.39
N3560		13.4	28.5 ✓
3570		13.2	28.7 ✓
3580		13.2	28.7 ✓
3590		13.3	28.6 ✓
3600		13.1	28.8 ✓
610		12.9	29.0 ✓
620		13.0	28.9 ✓
630		12.8	29.1 ✓
640		12.6	29.3 ✓
650		12.2	29.7 ✓
660		11.3	30.6 ✓
670		10.9	31.0 ✓
680		10.1	31.8 ✓
690		9.2	32.7 ✓
700		8.1	33.8 ✓
710		7.1	34.8 ✓
720		6.4	35.5 ✓
730		5.9	36.0 ✓
740		5.3	36.6 ✓
750		4.3	37.6 ✓
760		2.7	39.2 ✓
770		1.2	40.7 ✓

Continued Next Page

Elliott - T
Simpson - notes
Soper - ♀
Remmen - tape

Aug. 27, 1932

35

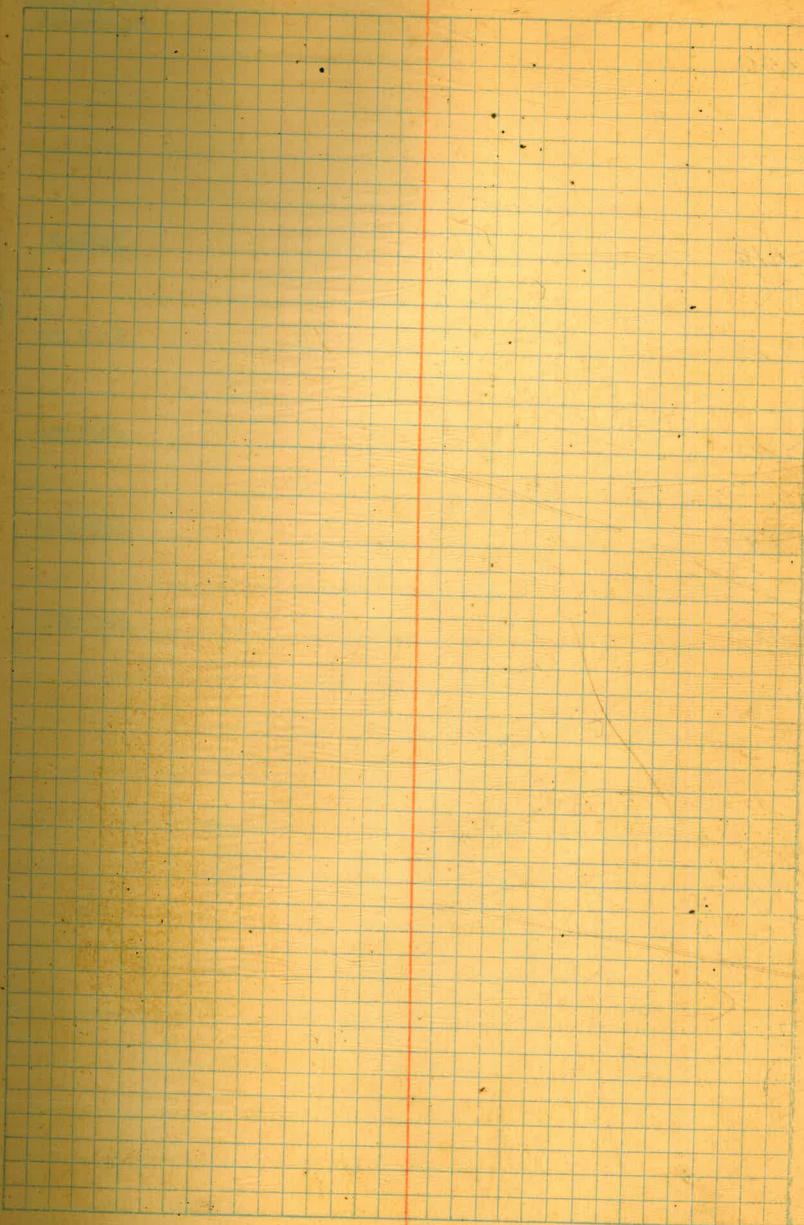
Profile of $\frac{1}{2}$ Puddle Core Trench

Aug 31-1932

36

B.M.	1.37	540 .76	539.39
E 5000			
N 3470		12.5	28.3
480		12.9	27.7
490		12.7	28.1
3500		12.8	28.0
510		12.7	28.1
520		12.8	28.0
530		12.2	28.6
540		11.9	28.9
550		12.0	28.8

Continued on Page 44



4+00

Grade Top
of form.

Grade for
Neatline

4+10

4+15

556.0

552.0

4+20

556.0

553.67

4+30

556.0

557.0

4+30

560.0

557.0

4+40

560.0

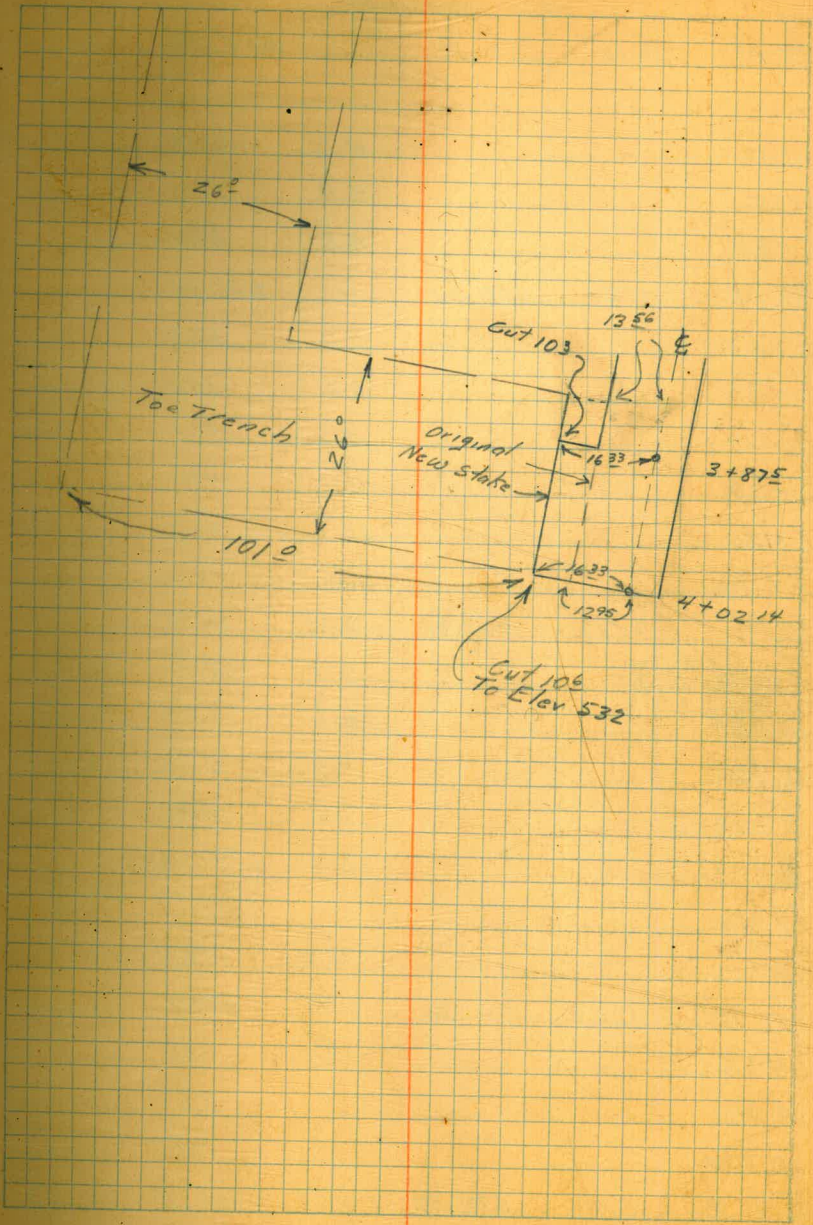
560.0

New Neat Line
So. End Down Str. Wall

B.M.

Sept 8 - 1932

38



Upstream Toe Wall
Profile of Concrete at Start of Batter

B.M.	9.16	568.00		558.84
0+30			4.5	63.2
0+30			9.9	58.1
0+50			9.9	58.1
B.M.	0.37	559.21		558.84
0+50			6.2	53.0
0+80			6.2	53.0
0+80			10.1	49.1
1+20			10.1	49.1
1+20			13.1	46.1
1+70			13.1	46.1
T.P.	3.73	549.89	13.05	46.16
1+70			6.8	43.1
2+20			6.8	43.1
2+20			9.9	40.0
3+73			9.9	40.0
3+73			8.5	41.4
4+00			as shown	544.56
4+00			0.9	49.0
T.P.	12.28	561.28	0.89	549.0
4+16			12.3	49.0
4+16			3.6	57.7
4+30			3.6	57.7
T.P.	12.49	572.80	0.97	560.31

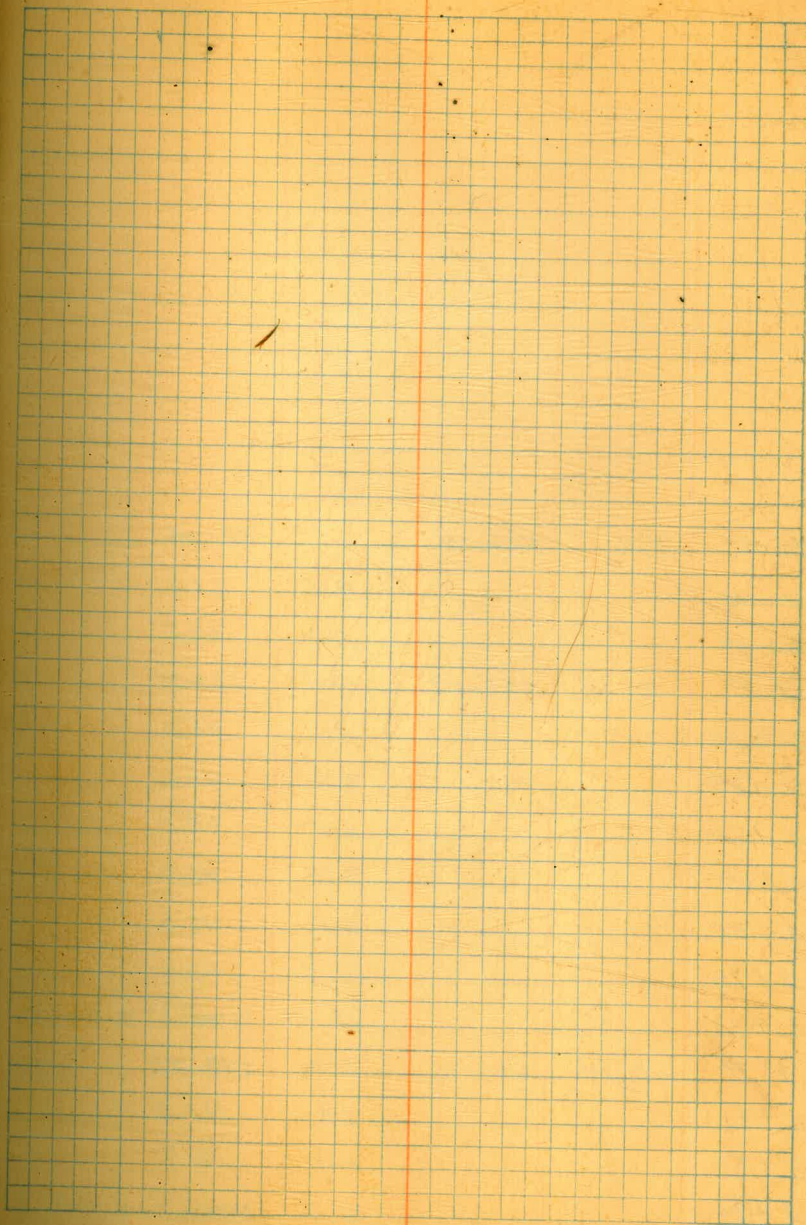
Sept 17-1932
Elliott
Simpson
Soper
Kammert

39

572.80

4+30	10.1	562.7
4+50	10.1	62.7
4+50	5.3	67.5
4+65	5.3	67.5
4+65	0.6	72.2
4+75	0.6	72.2

40



Downstream Toe Wall
Profile Start of Batter

B.M.	4.16	566.15		561.99
0-10			4.4	61.8
0-10			13.7	52.5
T.P.	2.14	555.48	12.81	553.34
0+30			3.7	51.8
0+30			6.5	49.0
0+60			6.5	49.0
0+60			9.5	46.0
0+90			9.5	46.0
0+90			12.5	43.0
1+21			12.5	43.0
T.P.	0.24	543.76	11.96	543.52
1+21			1.9	41.9
1+32			1.9	41.9
1+32			0.7	43.1

N. Side of Drain

S. Side of Drain

543.76

1+40	0.7	543.1
1+40	3.7	40.1
2+40	3.7	40.1
2+40	6.7	37.1
2+66	6.7	37.1
2+66	5.5	38.3
2+77	5.5	38.3
2+77		
↑		
As shown on profile		
↓		
3+50		
3+50	1.8	42.0

N. Side of Drain

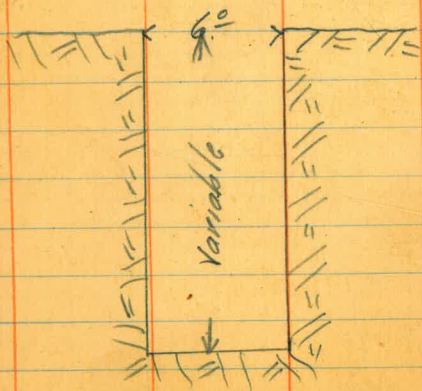
S. Side of Drain

Core Wall
 Sept 26 - 1932
 Profile for Sept Estimate

	Bottom Trench 9/26/32	Orig. Elev
3465	528.4	528.4
3470	505.0	528.3
3500	504.3	528.0
3530	504.0	528.6
3560	504.7	528.5
3590	506.0	528.6
3620	507.0	528.9
3650	507.4	529.7
3670	513.0	531.0
3700	516.5	532.8
3730	522.0	536.0
3760	531.3	529.2
3770	540.7	540.7

Depth.	End Area.	Av.	Cu ft.
0.0	0.0		
23.3	139.8	69.9	349.5
23.7	142.2	141.0	4230.0
24.6	147.6	144.9	4347.0
23.8	142.8	145.2	4356.0
22.6	135.6	139.2	4176.0
21.9	131.4	133.5	4005.0
22.3	133.8	132.6	3978.0
18.0	108.0	120.9	2418.0
17.3	103.8	105.9	3177.0
14.0	84.0	93.9	2817.0
7.9	47.4	65.7	1971.0
0.0	00	23.7	237.0

$36.061.5 = 13351.6 \text{ cu. yd.}$



Continued from Page 36
 Profile of Core Wall
 Before Excavating

Sept 29-1932

44

B.M.	565	545.04		539.39	
E5000			14.7	530.3	✓ 2770
N 3466					
3450			6.8	38.2	✓
T.P.	12.23	556.57	0.70	544.34	✓
3440			10.5	46.1	✓
3430			9.4	47.2	✓
3420			8.5	48.1	✓
3410			5.7	50.9	✓
3400			3.5	53.1	✓
3390			2.3	54.3	✓
T.P.	11.18	567.02	0.73	555.84	✓
3380			7.3	59.7	✓
T.P.	12.72	579.06	0.68	566.34	✓
3370			8.8	70.3	✓
3360			8.8	70.3	✓
3350			5.2	73.9	✓
T.P.	12.95	591.57	0.44	578.62	✓
3340			5.0	86.6	✓
3330			4.9	86.7	✓
3325			4.0	87.6	✓
3320			+ 2.6	94.7	✓
T.P.	12.36	603.67	0.26	591.31	✓
T.P.	12.78	616.20	0.25	603.42	✓
B.M.			5.77	610.43	Record 610.47

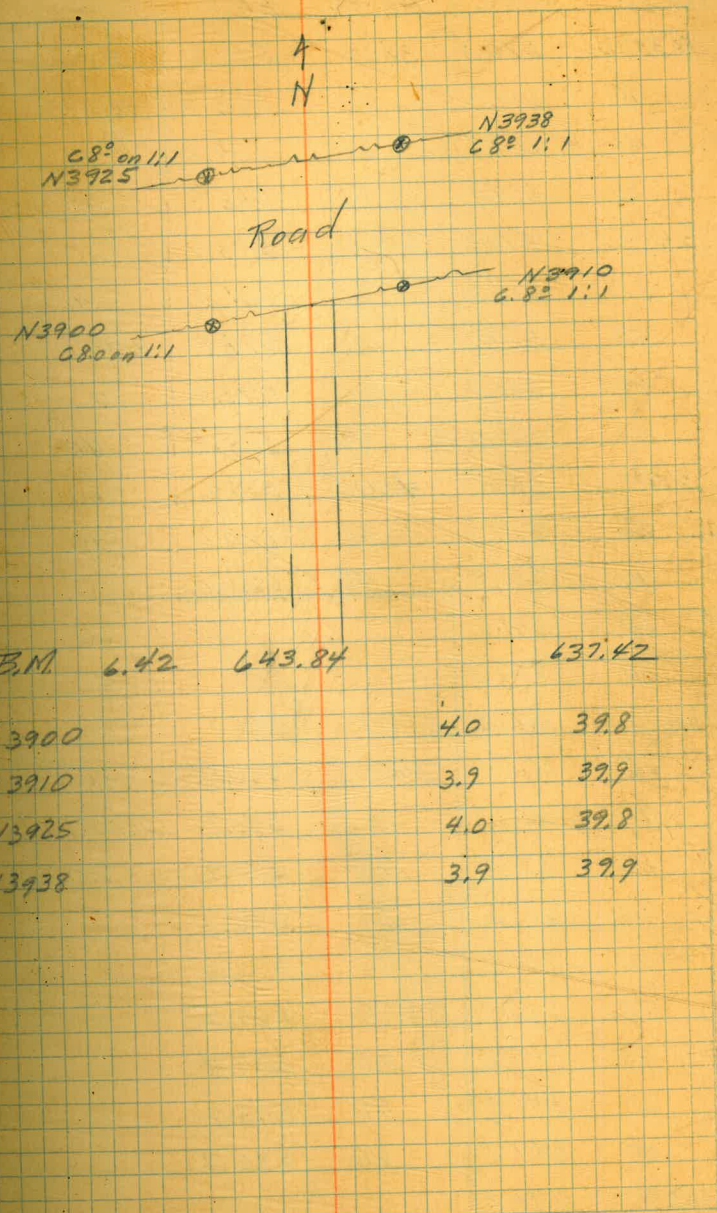
Huban Axis

Finish Rock Grades Eley 575
E 4516.92

Mar 22 - 1933

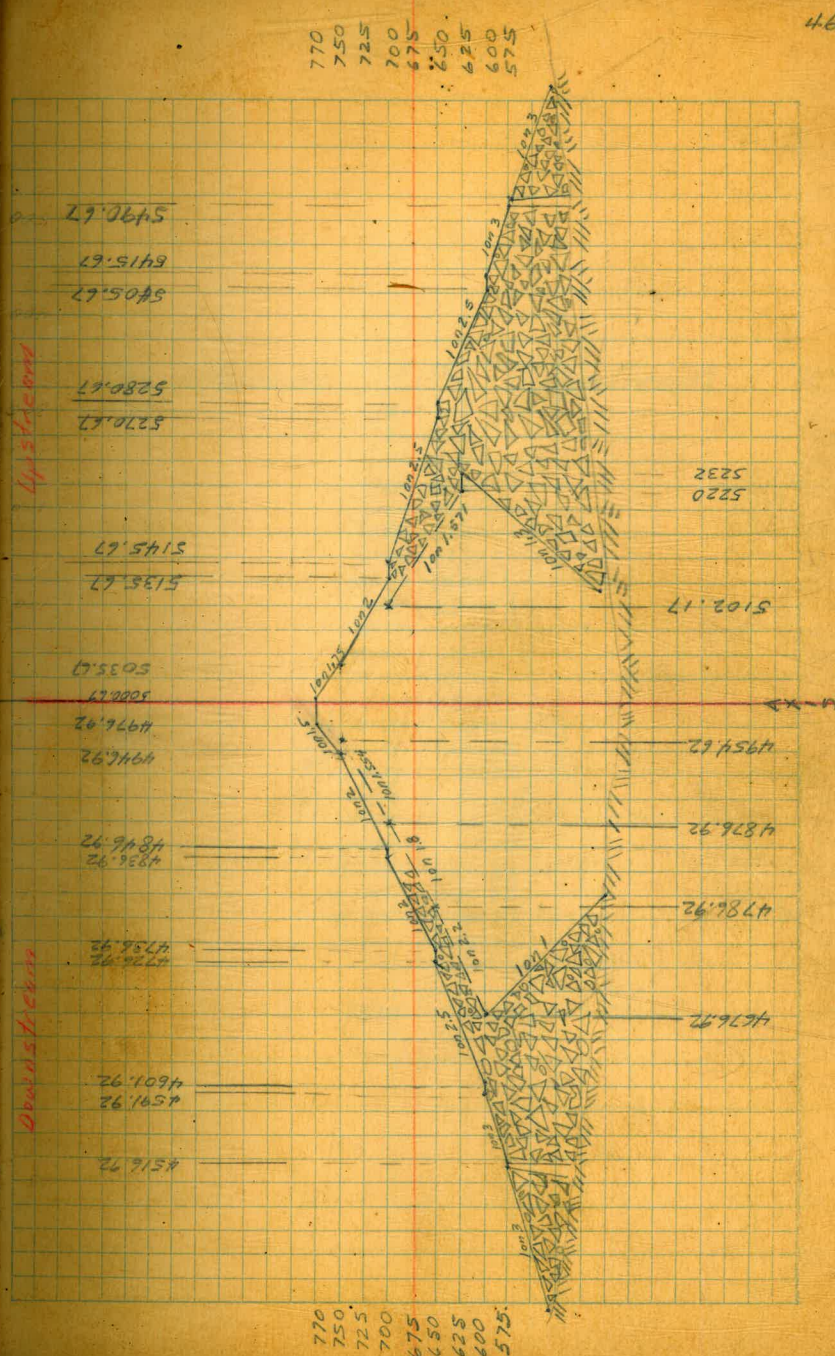
B.M.	3.66	578.71	575.05
N3860			
E 4519.9		2.7	576.0
3840		3.71	575.0
3820		3.71	575.0
3800		3.60	575.11
3780		3.52	575.19
3760		3.36	575.35
3740		3.32	575.39
3720		3.23	575.48
B.M.	6.48	594.48	588.00
N3860			
E 4550		8.45	586.0
N3870			
E 4570		1.8	592.7
T.P.	12.70	605.13	2.05
N3880			
E 4583.8		8.1	597.0
E 4591.92			
3860		5.04	600.09
3820		4.75	600.38
3780		4.57	600.56

Slope Slakes on Core Wall 45
Mar 25 - 1933



Normal Sections for Calc. 1/2% Additional
Heights for Settlement.

Upstream		Downstream			
North	Elev.	North	Elev.		
N3320	620.4	3820	551.8	3580	543.0
40	614.7	40	553.9	3600	542.8
60	607.1	60	559.6	20	538.8
80	604.9	80	565.8	40	542.9
3400	590.8	3900	578.2	60	543.2
20	584.5	20	581.0	80	543.0
40	569.7	40	594.6	3700	541.0
60	561.9	60	597.4	20	543.2
80	564.0	80	608.6	40	549.1
3500	550.2	4000	619.2	60	551.7
20	549.8	20	620.0	80	562.4
40	551.5	40	626.0	3800	567.5
60	551.2			20	575.1
80	549.8			40	583.7
3600	549.2	3380	596.1	60	594.0
20	547.9	3400	590.5	80	601.8
40	546.8	20	583.8	3900	611.2
60	546.5	40	580.9	20	614.4
80	547.0	60	576.5		
3700	547.7	80	572.6		
20	547.1	3500	564.5		
40	547.2	20	554.4		
60	549.0	40	543.2		
80	549.8	60	536.9		
3800	549.5				



Finish Rock Grades

Mar 24 - 1933

E 4591.92

B.M.	11.66	599.66		588.00
	5.65	602.82	2.49	597.17
N3640			1.97	600.85
3680			1.97	600.85
3720			1.97	600.85
3760			2.10	600.72
3800			2.33	600.49
3840			2.58	600.24
Check			10.1	592.7

Mar 27 - 1933 on E 4516.92

B.M.	4.67	579.73		575.06
N3680			4.25	575.48
3640			4.25	575.48
Drain #3 E. edge 11 out			3.90	
Drain #2 E. edge 7.5 out			1.75	
3600			4.25	575.48
3560			4.16	575.57
Drain #1 E. edge out 1.4			3.70	
3520			4.42	575.31
3480			4.69	575.04
3440			4.73	575.0
B.M.	12.17	587.23		575.06
N3430			7.8	79.4
E 4529.9			6.7	80.5
N3420			2.1	85.1
E 4533.4				
N3400				
E 4547.2				

634

48

587.23

T.P.	12.86	599.23	0.86	586.37
T.P.	7.27	604.91	1.59	597.64

E 4591.92

3400			4.27	600.14
3440			4.62	600.29
3480			4.50	600.41
3520			4.23	600.68
3560			3.96	600.95
3600			4.05	600.86
3640			4.05	600.86
3680	Check on Work of Mar 24		4.0	600.85

Reset on E 4591.92
April 1 - 1933

B.M.	10.40	585.46		575.06
	11.93	597.05	0.34	585.12
	9.58	605.29	1.34	595.71
N3640			4.43	600.86
3600			4.44	600.85
3720			4.44	600.85
3760			4.57	600.72
3520			4.61	600.68
3480			4.88	600.41
3440			5.00	600.29
3400			5.15	600.14
3360			5.29	600.00

E 4601.92

April 11 - 1933

E 4651.92

B.M.	3.16	620.20	617.04
O.G.		0.20	620.0
3440		+0.29	620.59
3480		+0.51	620.71

April 13 - 1933

B.M.	1.28	619.10	617.82
E 4642 ⁴		2.9	616.2
4631 ²		7.4	611.7

E 4651.92

N3340		+0.90	620.0
3380		+1.26	620.36
3420		+1.44	620.54
3440		+1.49	620.59
3480		+1.61	620.71

April 15

E 4591.92

B.M.	7.25	602.96	595.71
3580		2.10	600.86
E 4601.92 also			
N 3560		2.02	600.94
E 4601.9 also			
N 3640		2.11	600.85
B.M.	7.90	603.61	595.71
N 3700		2.72	600.89
N 3740		2.84	600.77
N 3780		3.05	600.56

WELLS
Upstr. No. Side
May 15-1933

B.M.	7.2	584.2		578.00
ES4778			4.9	579.3
ES4736			3.5	80.7
B.M.		E 5343.17 El. 625+		658.52
	0.02	658.54		
T.P.			12.14	646.40
	0.49	646.89		
T.P.			12.53	634.86
	0.92	635.28		
3480			9.36	625.92
3520			9.15	626.13 Not set
3560			9.17	626.11
3680			9.14	626.14
3720			9.11	626.17
3760			9.14	626.14 Not set
3800			9.14	626.15
3840			9.21	626.07
on dkt. 3980			10.28	625.0
T.P.	0.63	626.04	9.87	625.41
Well #5			7.35	618.69
#4			8.65	617.39
#3			8.65	617.39
#6			5.27	620.77
B.M.	0.46	637.88		637.42
#2			10.10	627.78

B.M.	5.39	642.81		637.42
			12.43	630.58
Well #7	2.93	633.31	8.88	624.43
Ground			11.4	621.7
B.M.	4.63	642.05		637.42
Well #1			9.04	633.01

Finish Rock Grades on outside
of Berm E 5415.67

B.M.	4.14	611.52	607.38
N 3840		10.83	600.69
3800		-10.76	600.76
3760		10.76	600.76
3720		10.73	600.79
3680		10.72	600.80
3640		10.72	600.80
3600		10.76	600.76
3560		10.79	600.73
3520		10.77	600.75
3480		10.98	600.59

May 18 - 1933
Elliott
Simpson
501287

B.M.	3.90	613.90	610.00
N 3920			
E 5395		9.6	604.3
N 3930			
E 5391		8.0	605.9
N 3940			
E 5387		6.4	607.5
N 3950			
E 5383		5.2	608.7
N 3960			
E 5377		2.4	611.5
N 3920			
E 5360.7		+ 4.66	618.56
N 3880			
5405.7		13.40	600.50

E 5343.2 Elev. 625 +

51

B.M.	2.25	628.73	626.48
N 3960			3.35 626.39
N 3720			3.07 625.66
N 3700			3.03 625.70
E 5374.4 Elev. 612.5 +			
B.M.	11.73 1/2	616.98 1/2	605.15
	5.06 1/2	620.07 1/2	1.87 1/2 615.01
Set B.M.	1.36	620.08	1.35 1/2 618.72
3500			6.64 613.44
3540			6.66 613.42
3580			6.64 613.44
3620			6.61 613.42

E 5343.2 - 625 May 22 - 1933

B.M.	10.94	629.66	618.72
	2.29	635.68	1.27 628.39
N 3600			9.54 626.14
E 5374.4 - 612.5			
B.M.	1.38	620.10	618.72
3500			6.66 613.44
3580			6.66 613.44
3620			6.63 613.47
B.M.	11.87	638.28	626.41
	9.55	644.83	3.00 635.28

May 24 - 1933

E 53432 Elev 625.1

B.M.	11.23	629.95	618.72
		1.52	628.43
	7.75	636.38	
3380		11.08	625.30
3480		10.47	625.91
3560		10.27	626.11
3680		10.21	626.17
3720		10.21	626.17
3800		10.25	626.13
3890		10.57	625.81

May, 25, 1933

E 5374 E - Elev. 612.5+

B.M.	1.00	619.72	618.72
N 3890		6.52	613.20
3840		6.34	613.38
3800		6.28	613.44
3680		6.24	613.48
3640		6.24	613.48

Sections across Dam from Elev. 600
on upstream Rock emb. to Elev. 600 on
Down str. Rock emb.

B.M. 11.29 630.01 618.72

N3500

54052			600.8
5368		13.5	16.5
5345		9.8	20.2
5298		+2.3	32.3
T.P.	1.77	625.85	5.93 624.08
5286		0.6	25.7
5230		1.4	24.4
5180		4.5	21.3
5092		9.4	16.4
5087 = W.S.		10.4	615.4

B.M. 1.17 638.60 637.43

4915 = W.S.		23.2	15.4
4840		17.2	21.4
4800		12.7	25.9
4785		4.1	34.5
4740		5.4	33.2
4685		8.1	30.5
B.M.	4.14	621.50	617.36

May 26, 1933

Simpson
saper

N3500

621.50

4664	5.4	16.1
4648	3.4	18.1
4601 ⁹		600.7

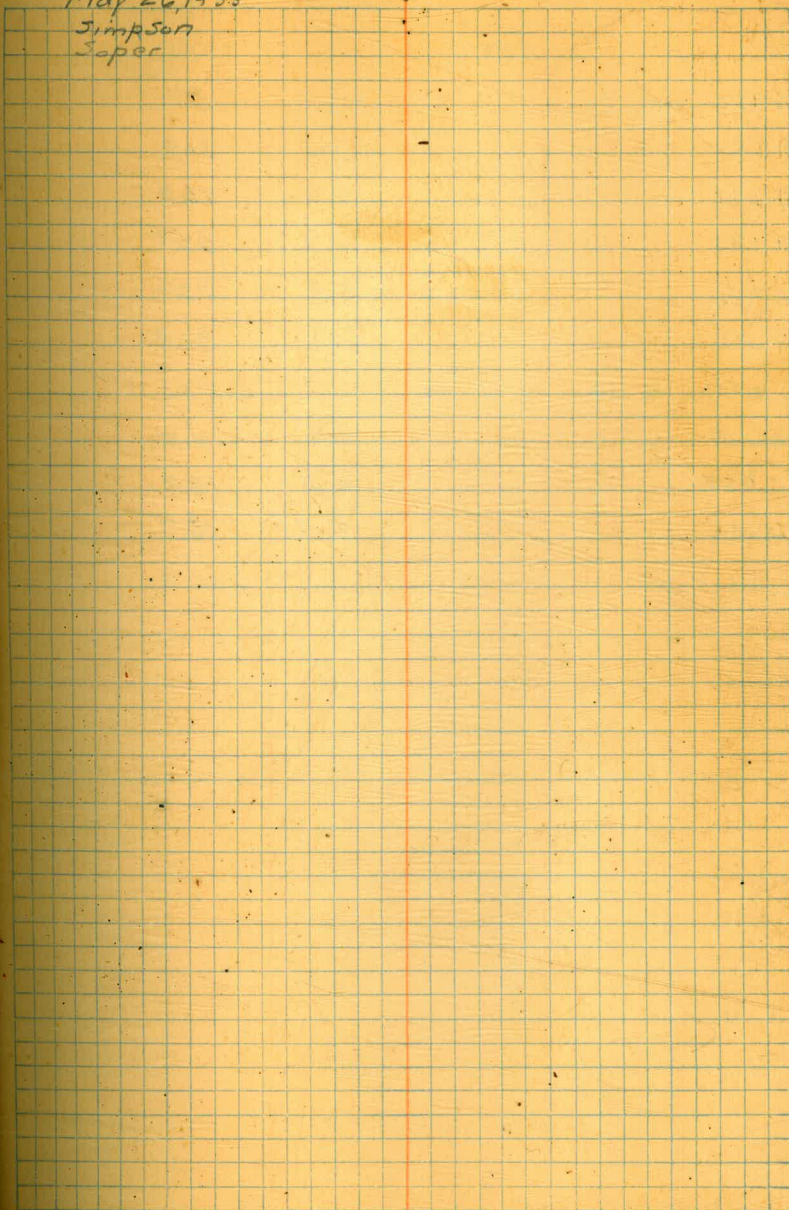
T.P.	1.77	625.85	624.08
------	------	--------	--------

N3620

5405 ⁷		600.8
5358	4.9	20.9
5337	1.8	24.0
5330	2.9	22.9
5285	3.1	22.7
5280	1.8	24.0
5223	2.0	23.8
5213	5.6	20.2
5180	7.1	18.7
5095 = W.S	10.4	15.4

B.M.	1.17	638.60	637.43
------	------	--------	--------

May 26, 1933

Jimpson
Soper

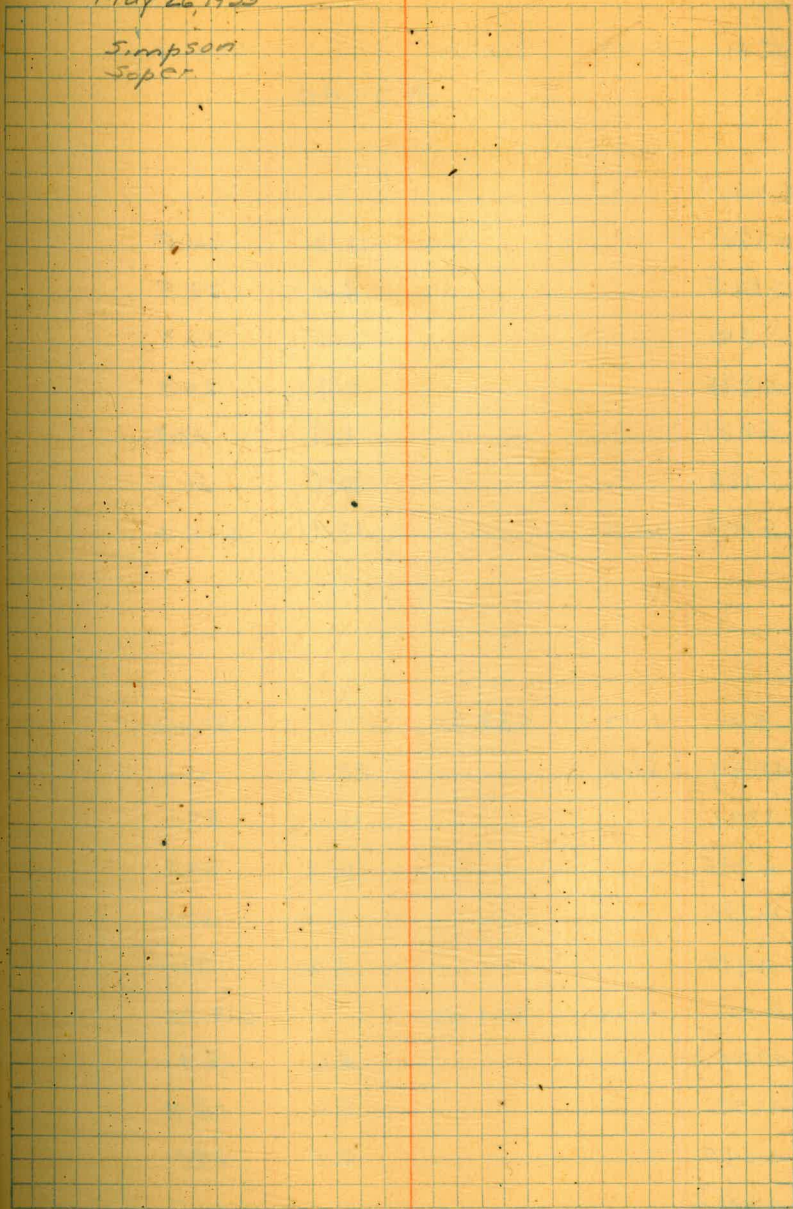
N 3620

638.60

4932	-W.S.		23.2	15.4
4840			17.6	21.0
4791			12.3	26.3
4780			4.7	33.9
4740			4.9	33.7
4690			6.7	31.9
B.M.	4.14	621.50		617.36
4665			7.2	14.3
4655			6.5	15.0
4646			3.5	18.0
4601 ⁹				600.8

May 26, 1933

Simpson
Soper



May 26, 1933

T.P.	1.77	625.85	624.08
------	------	--------	--------

N3740

54057			
5374		11.3	14.5
5325		3.0	22.8
5310		1.5	24.3
5275		0.9	24.9
5221		1.9	23.9
5180		5.6	20.2
5109 = W.S.		10.4	615.4

B.M.	1.17	638.60	637.43
4944 = W.S.		23.2	15.4
4840		16.0	22.6
4795		10.8	27.8
4785		5.2	33.4
4722		6.2	32.4
B.M.	4.14	621.50	617.36
4700		5.6	15.9
4652		5.6	15.9
4645		2.5	19.0
4601 ⁹			600.7

Finish Rock Grades.

May 27, 1933.

E 5374⁺ - Elev. 612⁵⁺

1.31 620.03 618.72

3480 6.80 613.23

3520 6.59 613.44

3640 6.55 613.48

3600 6.58 613.45

3660 6.54 613.49

3700 6.56 613.47

3720 6.56 613.47

3760 6.58 613.45

3800 6.59 613.44

3840 6.65 613.39

3880 6.83 613.20

3420 7.11 612.92

Finish Rock Grades, Downstream
Rock Emb.

E 4601⁹² - Elev. 600⁺

B.M. 2.98 606.24 / 603.26

3760 5.52 600.72

3800 5.75 600.49

3840 6.00 600.24

3865 6.16 600.08

E 4639⁹² - Elev. 615⁺

B.M. 0.02 622.24 622.22

3760 6.29 615.95

3800 6.53 615.71

3840 6.77 615.47

3865 6.15.00

3720 6.16 616.08

3680 6.16 616.08

E 4686⁹² - Elev. 634⁺

B.M. 1.49 636.01 634.52

3660 0.65 635.36

3620 0.58 635.43

3580 0.65 635.36

3540 0.65 635.36 ✓

3500 0.97 635.04 ✓

3460 1.15 634.86 ✓

June 5 1933

Simpson
Eger
Osborne
Kernan

Note: Rock emb. 1' to 1 1/2'
high at all these
points

E 4686⁹² - Elev. 634⁺

636.01

3420 1.26 634.75

3380 1.44 634.57

3340 1.61 634.40

June 7 1933

Top of Rock Points on North abutment,
upstream Rock Emb.

B.M. 9.61 636.02 626.41

N 3980 - 5343⁹² 11.0 625.0

N 4000 - 5341⁹² 10.3 625.7

N 4020 - 5332⁹² 6.9 629.1

T.P. 9.82 645.71 0.13 635.89

Downstream Rock Toe Points

B.M. 10.44 644.96 634.52

N 3230 - E 4692⁹² 7.4 635.6

N 3214 - E 4699⁹² 5.8 639.2

outside of Beron

Finish Rock Grades

June 7, 1933

Simpson
Soper
Rommen

B.M. 2.35 636.87 634.52

E 4676⁹² - Elev. 630⁺

3340	6.6	630.3
3380	4.4	630.5
3440	6.19	630.69
3460	6.07	630.80
3500	5.89	630.98
3540	5.57	631.30
3580	5.57	631.30
3620	5.50	631.37
3660	5.57	631.30
3700	5.53	631.34
3720	5.57	631.30
3760	5.70	631.17

June 8, 1933:

B.M. 2.00 636.52 634.52

3460 (Reset)	5.72	630.80
3800	5.58	630.94

E 4686⁹² - Elev. 634⁺

3840	1.77	634.75
3880	1.04	634.48

June 9, 1933

Simpson
Soper
Osborne

59

E 4676⁹² - Elev. 630⁺

B.M. 3.23 637.75 634.52

3500	6.77	630.98
3540	6.45	631.30
3580	6.45	631.30
3620	6.38	631.37
3660	6.45	631.30
3760	6.58	631.17

Elev. Simpson
Soper - Rommen60' W. of wall - Elev. 555⁺

B.M.	0.51	575.56		575.05
	0.07	563.11	12.52	563.04

60' W. of wall

8.11

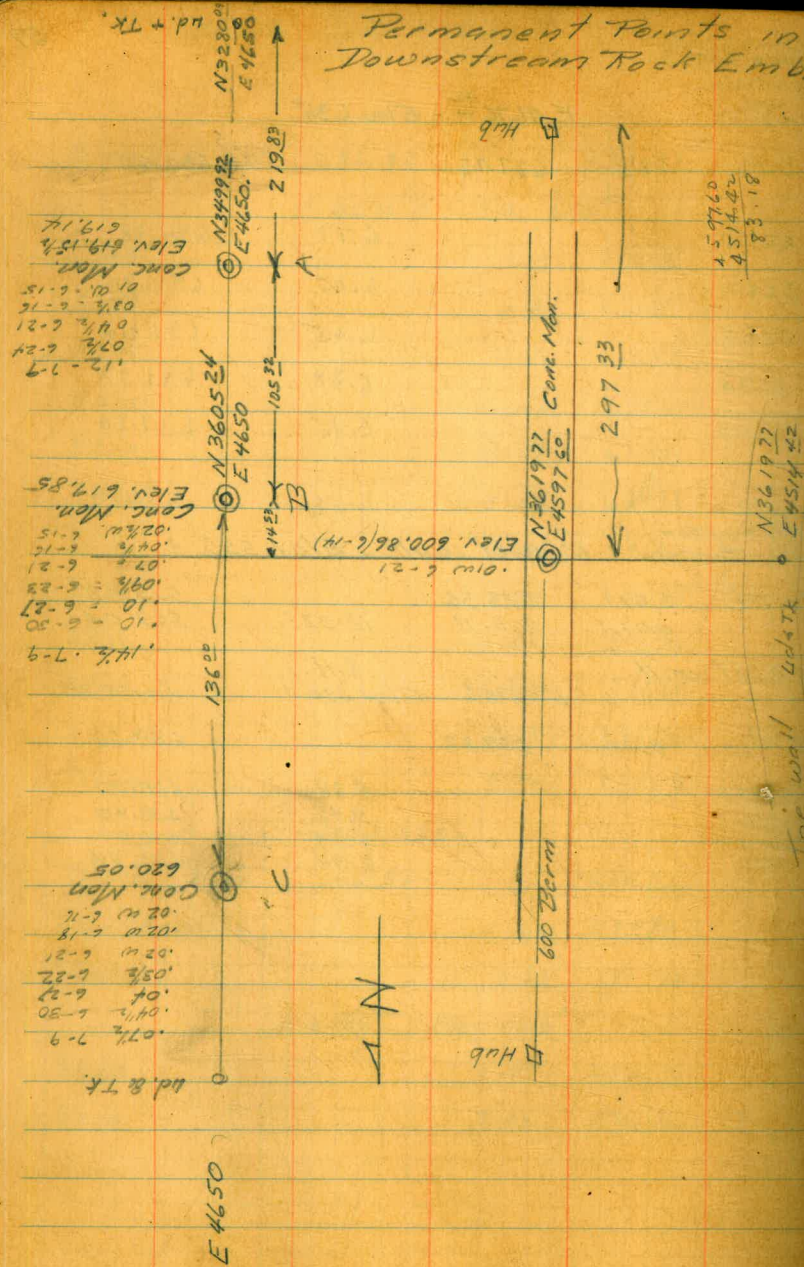
E 4676⁹² - Elev. 630⁺

JUNE 23

B.M. 0.22 639.88 639.66

N 39201	9.88	630.00
N 3880	7.48	630.40
N 3840 ⁺	9.19	630.69
N 3800	8.94	630.94

Permanent Points in
Downstream Rock Emb.



June 13

B.M. 618	623.54	617.36
N 344932 E 4650		4.38 1/2 619.15 1/2
N 360524 E 4650		3.68 619.86
B.M.		618 617.36

B.M. 569	605.35	599.66
N 361922 E 459750		4.49 600.86
B.M.		5.69 599.66

Levels over B.M.s on E 4650 +

June 14 - 1933

Elliott - Simpson - Soper - Tremmen

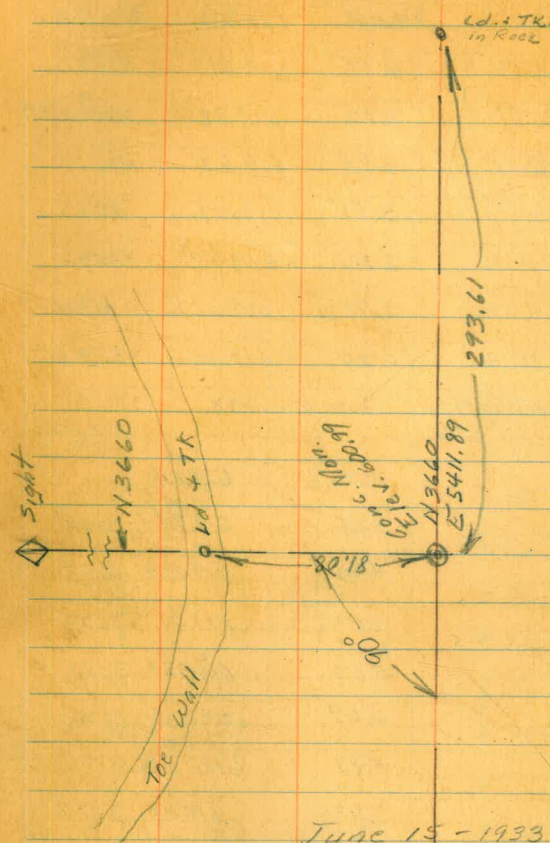
Number	B.M.	Level of #10	Elevation	North
	6.24	623.60	617.36	
#1		4.76	618.84	N 3337
#2		4.45 1/2	619.14 1/2	N 3347
#3		4.70	618.90	N 3356
#4		3.74 1/2	619.85 1/2	N 3363
#5		3.80	619.80	N 3373
#6		4.63	618.97	N 3383
#7		4.48	619.12	N 3393
#8		4.68	618.92	N 3407
#9		4.54	619.06	N 3419
#10		3.85	619.75	N 3427
#11		4.43	619.17	N 3437
#12		4.82	618.78	N 3445
#13		4.38	619.22	N 3456
#14		3.81	619.79	N 3466
#15		4.92 1/2	618.67 1/2	N 3475
#16		4.11	619.49	N 3484
A Conc. Monument		4.46	619.13 1/2 619.14	N 3499.92
#17		3.83	619.77	N 3511
#18		4.75	618.85	N 3521
#19		4.72	618.88	N 3533
#20		4.41 1/2	619.18 1/2	N 3544
#21		4.28 1/2	619.31 1/2	N 3556
#22		3.86 1/2	619.73 1/2	N 3567

Levels over B.M.s Continued

61

623.60			
#23	3.08	620.52	N 3577
#24	4.19	619.41	N 3591
# B Conc. Monument	3.75	619.85	N 3605 34
#25	3.93	619.67	N 3616
#26	3.81	619.79	3625
#27	3.73	619.87	3636
#28	3.92 1/2	619.67 1/2	3644
B.M.	6.24	617.36	617.36
B.M.	2.38 1/2	Level of 42 624.60 1/2	June 15 - 1933 622.22
#28	4.96 1/2	619.64	
#29	5.66	618.94 1/2	3654
#30	4.90	619.70 1/2	3663
#31	4.69 1/2	619.91	3673
#32	5.62	618.98 1/2	3686
#33	4.57	620.03 1/2	3696
#34	5.87	618.73 1/2	3706
#35	5.57 1/2	619.03	3717
#36	5.03	619.57 1/2	3729
#37	5.53	619.07 1/2	3737
G.			
#38	5.42	619.18 1/2	3747
#39	5.43	619.17 1/2	3755

Permanent Point in Upstream
Rock Embankment.



June 15 - 1933

B.M.	2.22	607.35	605.13
Monument		6.36	600.99
B.M.	2.22	605.13	

Ld. & TR.
in Rock.

624.60 1/2

#40	4.89	619.71 1/2	3764
#41	5.84	618.76 1/2	3775
#42	6.18	618.42 1/2	3783
#43	4.21	620.39 1/2	3793
#44	4.75	619.85 1/2	3805
#45	4.84 1/2	619.76	3814
#46	5.82 1/2	618.78	3823
#47	6.24	618.36 1/2	3832
#48	5.55	619.05 1/2	3845
#49	5.44	619.16 1/2	3853
B.M.	4.05 1/2	626.27	2.38 1/2
6" Conc. Mon. "C"		6.22	622.22
#37	7.19 1/2		620.05
			619.07 1/2
B.M.	3.75 1/2	Check over B.Ms	June 16
		625.97 1/2	622.22
#49		6.81	
#48		6.92	
#47		7.61	
#46		7.20	
#45		6.22	
#44		6.12 1/2	19.85
#41		7.22	618.75 1/2
#40		6.27	619.70
#39		6.81	619.16 1/2
#38		6.79 1/2	619.18
6" Conc. Mon.		5.92	620.05 1/2
#37		6.89 1/2	619.08
#36		6.40 1/2	619.57
#35		6.95 1/2	619.02
#34		7.25 1/2	618.72
#33		5.95	620.02 1/2
#32		7.01 1/2	618.96
#31		6.08	619.89 1/2
#30		6.28	619.69 1/2
#29		7.04	618.93 1/2

Grades in Tower June 15-1933

B.M. 571.00
 - (+13.19) 557.81
 + 4.19 562.00
 - 2.31 555.50

Check over B.M's June 19-1933

B.M.	4.13	626.35	622.22	Original Elevs. on June 15
# 30	6.70	19.65	619.70 1/2	
31	6.49 1/2	19.85 1/2	19.91	
32	7.42 1/2	18.92 1/2	18.98 1/2	
33	6.36	19.99	20.03 1/2	
34	7.66 1/2	18.68 1/2	18.73 1/2	
35	7.36 1/2	18.98 1/2	17.03	
36	6.81 1/2	19.53 1/2	19.57 1/2	
37	7.30	19.05	19.07 1/2	
conc. man. "C"	6.32 1/2	20.02 1/2	20.05	
38	7.20	19.15	19.13 1/2	
39	7.21	19.14	19.17 1/2	
40	6.67	19.68	19.71 1/2	
41	7.61 1/2	18.73 1/2	18.76 1/2	
42	7.93	18.92 ?	18.42	
43	5.96	20.39 ?	20.39	
44	6.52	19.83	19.85 1/2	
45	6.61	19.74	19.76	
46	7.59	18.76	18.78	
47	8.00	18.35	18.34 1/2	

626.35

#48 7.31 619.04 19.05 1/2
 49 7.19 1/2 19.15 1/2 19.16 1/2
 B.M. 4.13 622.22
 Check over B.M's #1-29 June 21-1933

B.M.	11.40 1/2	628.76 1/2	Elev. Nov 617.36	Elev. on June 14
# 1	9.93	618.83 1/2	18.84	
# 2	9.62 1/2	619.14	18.14 1/2	
# 3	7.87 1/2	618.89	18.90	
# 4	8.92	619.84 1/2	19.85 1/2	
# 5	8.97 1/2	619.79	19.80	
# 6	9.81	618.95 1/2	19.97	
# 7	9.67	619.09 1/2	19.12	
# 8	9.88	618.88 1/2	19.92	
# 9	9.78	618.78 1/2	19.06	
# 10	9.12	619.64 1/2	19.75	
# 11	9.77	618.99 1/2	19.17	
# 12	10.20	618.56 1/2	19.78	
# 13	9.77 1/2	618.99	19.22	
# 14	9.20	619.56 1/2	19.79	
# 15	10.26 1/2	618.50	18.67 1/2	
# 16	9.41 1/2	619.35	19.49	
Conc. Man. "A"	7.75	619.01 1/2	19.14	
# 17	9.11 1/2	619.65	19.77	
# 18	10.03	618.72 1/2	18.85	
# 19	9.99 1/2	618.77	18.88	
# 20	9.68 1/2	619.08	19.18 1/2	
# 21	9.55 1/2	619.21	19.31 1/2	
# 22	9.13 1/2	619.63	19.73 1/2	
# 23	8.34 1/2	620.42	20.52	
# 24	9.45	619.31 1/2	19.41	
Conc. Man. "B"	9.01 1/2	619.75	19.85	
# 25	9.18 1/2	619.58	19.67	
# 26	9.07 1/2	619.69	19.79	
# 27	8.99 1/2	619.77	19.87	
# 28	9.18 1/2	619.58	19.67 1/2	
B.M.	4.13 1/2	626.35 1/2	622.22	
# 29	7.49	618.96 1/2	19.44 1/2	
# 30	6.72 1/2	619.63	19.70 1/2	
B.M.	5.56	605.22	599.66	
Conc. Man. on 600 berm	4.38	600.84	600.86	

Recheck of B.Ms

June 22 - 1933

B.M.	8.63½	630.85½	622.22
#30			11.23 19.62½
31			11.02 19.83½
32			11.95½ 18.90
33			10.88½ 19.97
34			12.19 18.66½
35			11.89 18.96½
36			11.33½ 19.52
37			11.82 19.03½
conc. Meas. "C"			10.85 20.00½
38			11.72½ 19.13
39			11.73½ 19.12
40			11.19 19.66½
41			12.13½ 12.08½ 18.72
42			12.44½ 18.41
43			10.48½ 20.37
44			11.03½ 19.82
45			11.12½ 19.73
46			12.10 18.75½
47			12.51 18.34½
48			11.81½ 19.04
# 49			11.70 19.15½

Recheck of B.Ms 18 to 28 June 23 - 1933

B.M.	12.58½	629.94½	617.36
#18			11.24 18.70½
19			11.21 18.73½
20			10.89½ 19.05
21			10.76½ 19.18
22			10.34½ 19.60
23			9.55½ 20.39
24			10.65½ 19.29
conc. Meas. "B"			10.21½ 19.73
25			10.39 19.55½
26			10.27½ 19.67
27			10.19½ 19.75
28			10.39 19.55½
B.M. #29	7.78½	630.00½	622.22 19.84½

Recheck of B.Ms #1 to #17 June 24 - 1933

B.M.	12.26½	629.62½	617.36
#1			10.79 18.83½
2			10.48½ 19.14
3			10.73½ 18.89
4			9.78 19.84½
5			9.84 19.78½
6			10.67 18.95½
7			10.53½ 19.09
8			10.75 18.87½
9			10.65½ 18.97
10			9.92½ 19.63
11			10.65½ 18.97
12			11.08½ 18.54
13			10.67 18.95½
14			10.09½ 19.53
15			11.17 18.45½
16			10.32 19.30
conc. Meas. "A"			10.66 18.96½
17			10.03 19.59½

Ellet - Notes
Simpson - A
Soper - Red

Recheck of B.Ms 30 to 49 June 26 - 1933

B.M.	S. 91	628 .13	622.22
30		8.55	19.58
31		8.33	19.80
32		7.26	18.87
33		8.19 1/2	19.73 1/2
34		9.49 1/2	18.63 1/2
35		9.19 1/2	18.73 1/2
36		8.64	19.49
37		9.12 1/2	19.00 1/2
Cont. Mon "C"		8.15	19.98
38		9.02 1/2	19.10 1/2
39		9.03 1/2	19.09 1/2
40		8.49 1/2	19.68 1/2
41		9.43 1/2	18.69 1/2
42		9.67	18.46
43		Out	
44		8.35	19.78
45		8.41	19.72
46		} Out	
47			
48			
49			

Recheck B.Ms 18 to 29 June 27

B.M.	12.16	629.52	617.36
18		10.86 1/2	18.66
19		10.88 1/2	18.69
20		10.52	19.00
21		10.39	19.13
22		9.97	19.55
23		9.18	20.34
24		10.28	19.24
Cont. Mon B.		9.84	19.68
25		10.01	19.51
26		9.90	19.62
27		9.81 1/2	19.70 1/2
28		10.01	19.51
29		10.69 1/2	18.82 1/2

Recheck B.Ms 1 to 17 June 28

B.M.	11.87 1/2	629.23 1/2	617.36
1		10.40 1/2	18.83
2		10.10	19.13 1/2
3		10.35	18.88 1/2
4		9.39 1/2	19.84
5		9.45 1/2	19.78
6		10.28 1/2	18.75
7		10.15 1/2	19.08
8		10.37	18.86 1/2
9		10.28	18.95 1/2
10		9.62	19.61 1/2
11		10.28 1/2	18.95
12		10.72	18.51 1/2
13		10.30 3/4	18.93
14		9.74	19.49 1/2
15		10.81 1/2	18.42
16		9.96 1/2	19.27
Cont. Mon "A"		10.31	18.92 1/2
17		9.68 1/2	19.55

Recheck B.Ms 28 to 49 June 29 - 1933

B.M.	5.72	627.74	622.22
#30		8.37	19.55
#31		8.17	19.77
#32		8.05	19.89
Cont. Mon "C"		8.00	19.94
#40		8.35	19.57
#44		8.19	19.75
#45		8.24	19.70

E 4726.92 - Elev 650 + JUNE 23

B.M.	11.30	650.96		639.66
3880			0.24	650.72
T.P.	3.68	652.69	1.95	649.01
3830			1.70	650.99
3800			1.45	651.24
3760			1.30	651.39
3720			1.18	651.51
3680			1.05	651.64

H.I. 652.9

JUNE 24

3640			1.3	651.6
3600			1.2	51.7
3560			1.4	51.5
3520			1.5	51.4
3880			2.4	50.5
3720			1.4	51.5

JUNE 27

B.M.	3.1	652.1		649.01
3830			1.4	650.7
3760			0.8	651.3
3720			0.6	651.5
3680			0.6	651.5
3640			0.5	651.6
3600			0.4	651.7
3560			0.6	651.5

652.1

JUNE 27

3520			0.7	651.4
3480			0.7	651.4
3440			0.9	651.2
3400			1.2	650.9
3360			1.5	650.6

JUNE 28-1933

B.M.	2.9	551.9		549.01
3760			0.6	651.3
3800			1.0	650.9

JULY 3-1933

B.M.	0.0	652.2		652.2
N3400			1.3	650.9
3360			1.6	650.6
3320			1.7	650.5
3280			2.0	650.2

JULY 5-1933

B.M.	0.0	652.3		652.3
3360			1.7	650.6
3320			1.8	650.5
3280			2.1	650.2
3240			2.3	650.0

Recheck B.M.s, #18 to 29

June 30, 1933			
B.M.	11.17	628.53	617.36
# 18		9.91	18.62
19		9.88	18.65
20		9.57	18.96
21		9.44	19.09
22		9.02	19.51
23		8.23	20.30
24		9.32	19.21
conc. mound "B"		8.89	19.64
25		9.06	19.47
26		8.95	19.58
27		8.88	19.65
28		9.06	19.47

Recheck B.M.s 1-17 July 1 - 1933

July 1 - 1933			
B.M.	12.81	630.17	617.36
1		11.34 1/2	18.82 1/2
2		11.04	19.13
3		11.29	18.88
4		10.33 1/2	19.83 1/2
5		10.39 1/2	19.77 1/2
6		11.23	18.94
7		11.09 1/2	19.07 1/2
8		11.31 1/2	18.85 1/2
9		11.22 1/2	18.94 1/2
10		10.56 1/2	19.60 1/2

630.17			
#11		11.23	618.94
12		11.67	18.50
13		11.26	18.91
14		10.69	19.48
15		11.77	18.40
16		10.92 1/2	19.24 1/2
Long. Mon "A"		11.27	618.90
17		10.64 1/2	19.52 1/2
Recheck B.M.s 28 to 49 July 3 - 1933			
B.M.	4.67	626.89	622.22
#30		7.37	19.52
#31		7.14	19.75
#33		7.02	19.87
Conc. Mon.		6.96	19.93
#40		7.31	19.58
#44		7.14	19.75
#45		7.19	19.70
Recheck B.M.s #18 to 29 July 5, 1933			
B.M.	11.47	628.83	617.36
# 18		10.23	18.60
19		10.21	18.62
20		9.90	18.93
21		9.77	19.06
22		9.36	19.47
23		8.56	20.27
24		9.66	19.17
Conc. mound "B"		9.23	19.60
25		9.40	19.43
26		9.29	19.54
27		9.22	19.61
# 28		9.39	19.44

July 3 - 1933

E 5280? - 650 +

B.M.	9.3	650.5	641.20
3240		0.5	650.0
3320		0.1	650.4
3380		+0.3	650.8
3440		+0.7	651.2

July 5 - 1933

B.M.	11.3	652.5	641.2
3440		1.3	651.2
3500		1.0	651.5
3540		1.0	651.5

Recheck of B.Ms 1 to 17 July 6-33

B.M.	12.20	629.56	617.36
1		10.73 1/2	18.82 1/2
2		10.42	19.14
3		10.68	18.88
4		9.72	19.84
5		9.78	19.78
6		10.61 1/2	18.94 1/2
7		10.48 1/2	19.07 1/2
8		10.70	18.86
9		10.64	18.92
10		9.96	19.60
11		10.62 1/2	18.93 1/2
12		11.06 1/2	18.49 1/2
13		10.66	18.90
14		10.09 1/2	19.46 1/2
15		11.18	18.38
16		10.83	19.23
Conc. Mon.		10.68 1/2	18.87 1/2
17		10.06	19.50

July 7 - 1933

E 5280? - 650 +

B.M.	10.8	652.0	641.2
3280		1.8	650.2
3300		1.6	650.4
20		1.5	650.5
40		1.4	650.6
3360		1.4	650.6
3440		0.8	651.2
3500		0.5	651.5

July 9 -
652.5

3520		1.0	651.5
3560		1.0	
3600		1.0	
3640		1.0	
3680		1.0	
3740		1.0	
3800		1.0	651.5
3860		1.1	651.4
3920	652.4	1.4	651.0

July 9 - 1933

ES3433 El. 625+

B.M.	10.22	628.9		618.72
3440			3.1	625.8
3460			2.9	626.0
3480			2.9	626.0
3500			2.7	626.2
3520			2.7	626.2
3540			2.7	626.2
3600			2.7	626.2

69

Recheck of B.M. on Downstr.
Rock Emb.

July 9 - 1933

	12.31	629.67	617.36
1			10.84
2			10.53
3			10.79
4			9.83
5			9.89
6			10.72
7			10.59
8			10.81
9			10.75 $\frac{1}{2}$
10			10.07
11			10.74
12			11.18
13			10.78
14			10.22
15			11.30
16			10.46
"A" Conc. Mon.			10.81
17			10.19
18			11.10
19			11.09
20			10.78
21			10.65
22			10.23

617.36

9.83

9.14

618.49

9.21

618.89

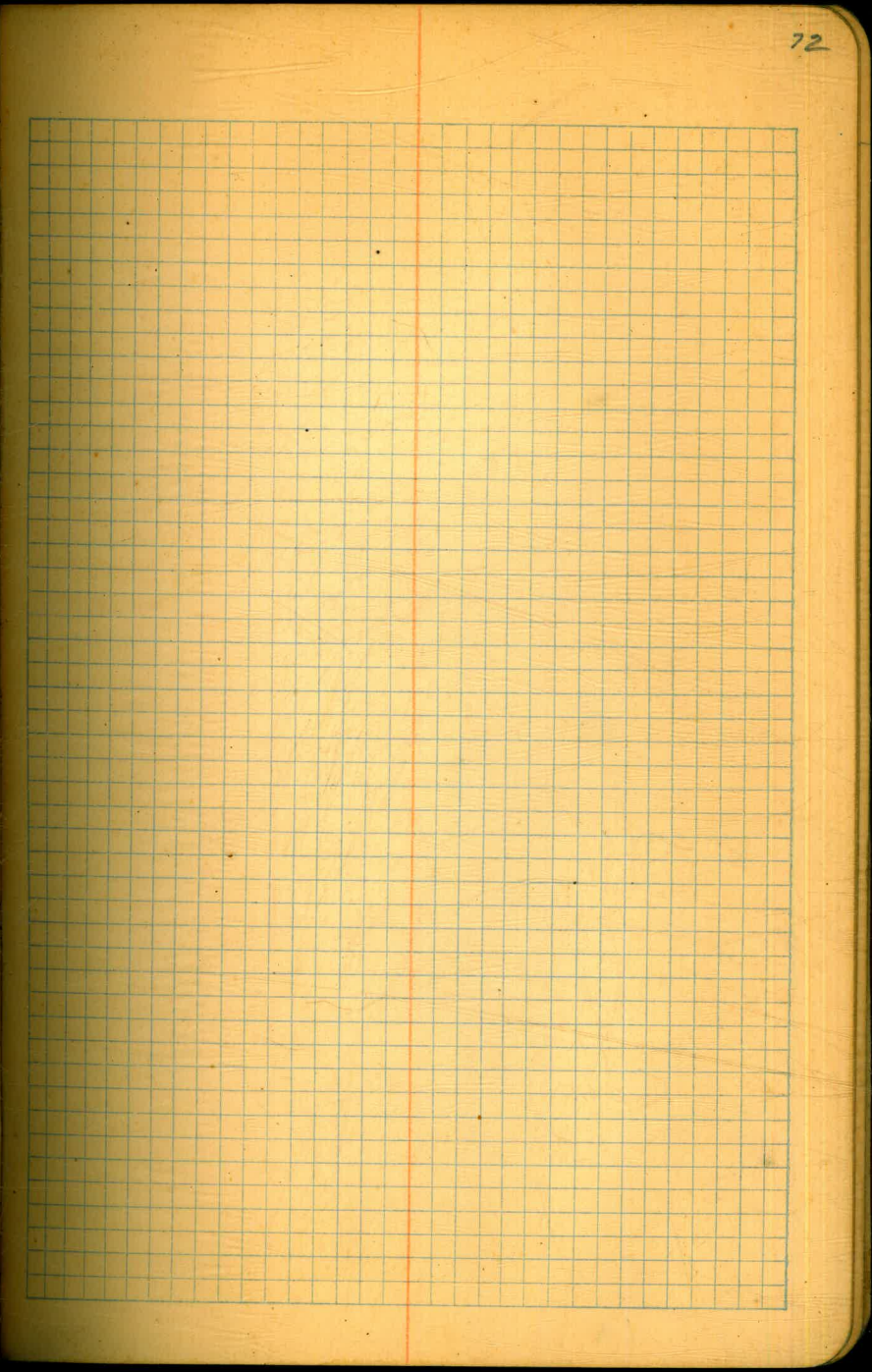
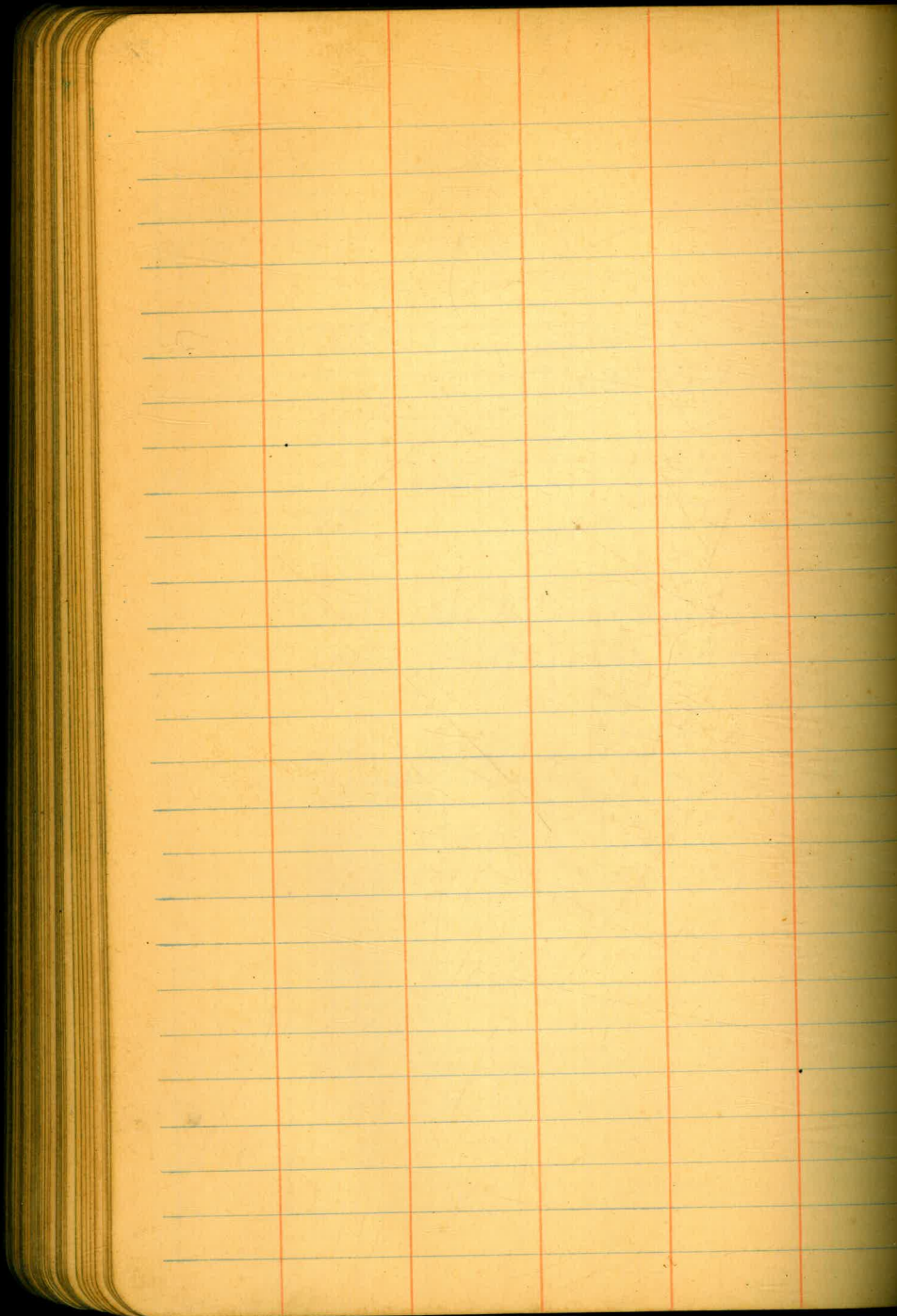
629.67

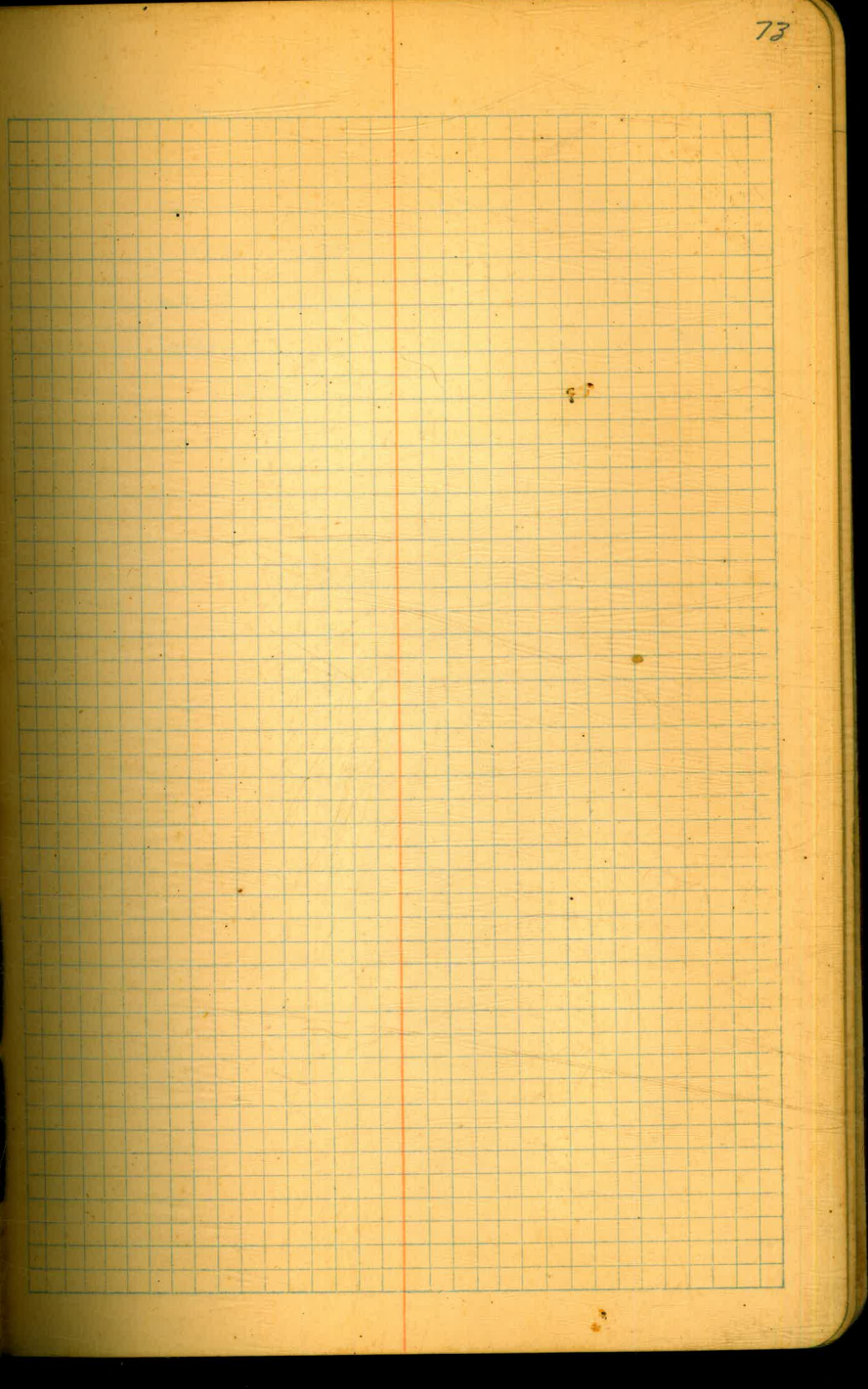
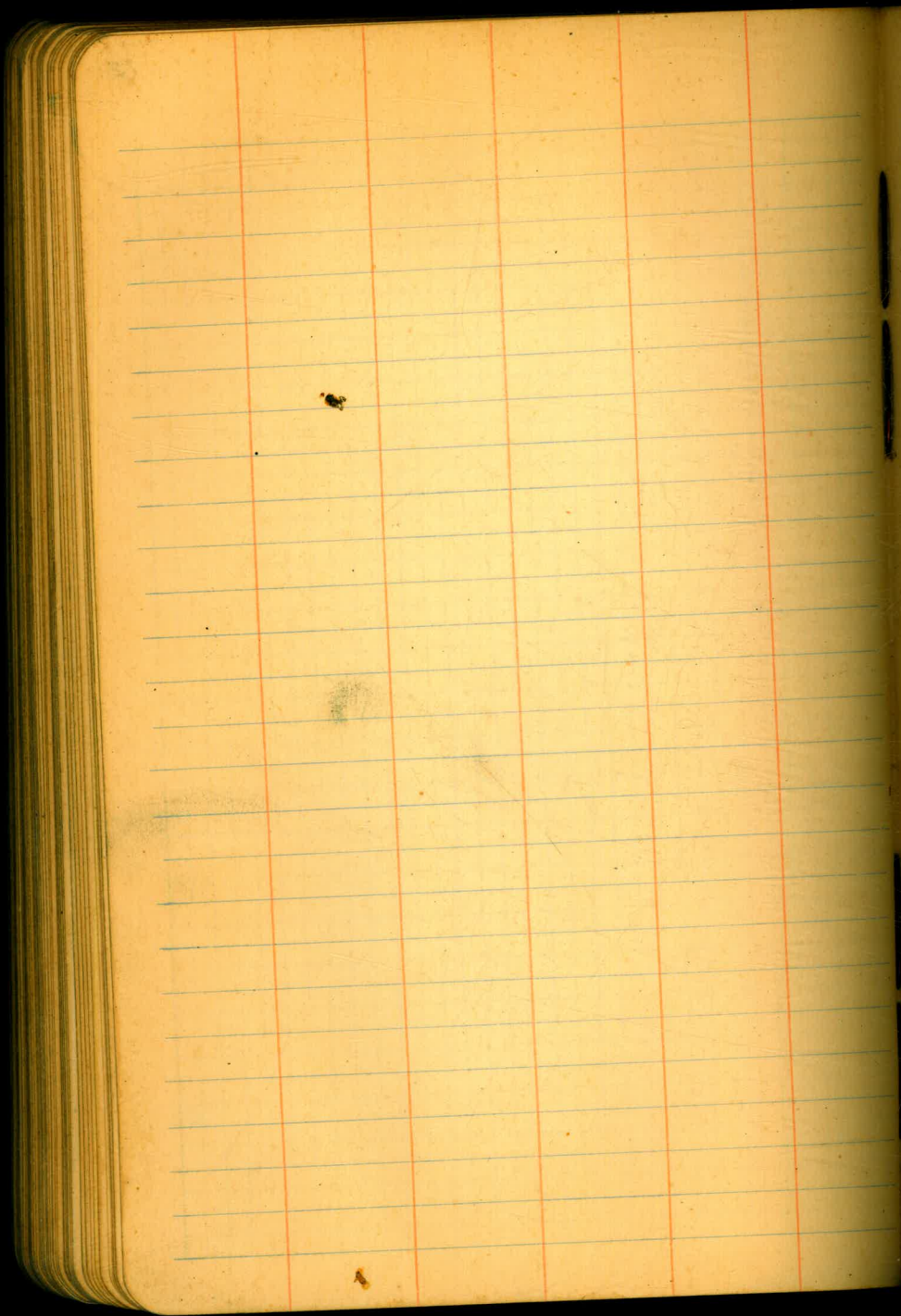
23			9.44
24			10.54
"B" Conc. Mon.			10.10
25			10.27
26			10.16
27			10.09
28			10.26
B.M.	6.09	628.31	
			622.22
30			8.83
			19.48
31			8.61
			19.70
33			8.49
			19.84
"C" Conc. Mon.			8.42
			19.89
40			8.76
			19.55
44			8.57
			19.74
45			8.63
			19.68

Movement West Shown on page 60

Recheck of B.Ms on Dam
July 21-1933

				Date and Original Elev.
B.M.	3.33	625.55	622.22	
Conc. Mon.	N3741 E4650		5.71	619.84 620.05 6-14-33
B.M.	8.23	625.59	617.36	
Conc. Mon.	N3605 E4650		6.08	619.51 619.85 6-14-33
Conc. Mon.	N3500 E4650		6.78	618.81 619.14 6-14-33
B.M.	5.56	605.22	599.66	
Conc. Mon.	N3620 E4598		4.46	600.76 600.86 6-14-33
B.M.	2.47	566.12	563.65	
	12.98	577.67	1.43	564.69
Bolt in No. end of Dnstr. Toe Wall			2.65	575.02 575.05 late 1932
Head + Tail in Dnstr. Toe Wall	4.66	577.68		
	N3620 E4514		4.68	574.99 575.02 late 1932
Bolt in So. end of Pastf. Toe Wall	4.92	579.91	4.88	575.03 575.06 late 1932
B.M.	2.99	608.12	605.13	
Conc. Mon.	N3660 E5412		7.18	600.94 600.91 6-15-33
T.P.	0.53	596.43	12.22	595.90
	1.87	585.17	13.13	583.30
N.W. Cor. Wier #2			10.22	575.95 574.97 9-28-32
hd + TR in opp wall	N3660 E5493		10.19	574.98 575.02





Well Casings July 8 - 1933

B.M.	0.0	647.5	647.5
#5		+2.6	650.1
#4		+0.5	648.0
B.M.			649.01

Well Casings June 28 - 1933

B.M.	0.0	637.2	637.2
# 6		+ 4.0	641.2
# 2		+ 1.0	638.2
# 5		+ 2.6	639.8

Well Casings June 29 - 1933

		639.5	
# 7		+ 5.5	645.0
		634.7	
# 3		+ 3.5	638.2

July 3, 1933

		637.0	
# 4		+ 0.7	637.7

Elevs. of Tops of Well casings
June 12, 1933

B.M. 1.37 638.79 637.42

1 +4.44 643.23

T.P. 0.49 626.54 12.74 626.05

3 +1.08 627.62

4 +1.15 627.69

B.M. 1.28 638.70 637.42

T.P. 1.32 627.20 12.82 625.88

7 +7.50 634.70

2 +0.58 627.78

6 +3.79 630.99

5 +2.27 629.47

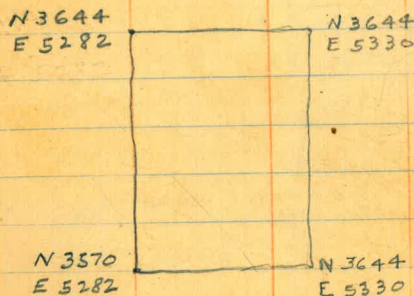
Well #1 June 16 - 1933

B.M. 12.37 649.79 637.42

well #1 +3.86 653.65

Downstream Wall
 1+40 to 2+40 Batter starts at 540.0

Washed portion of upstream Rock emb.
 May. 26, 1933.

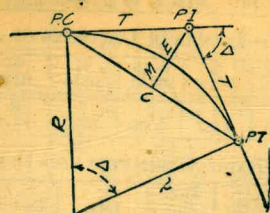


DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

Copyright, 1914, by Eugene Dietzgen Co., New York City

3/35

11.67



47.51

7.51 = 13.67

CURVE FORMULAS

Radius = $R = \frac{50}{\sin \frac{D}{2}}$ (1) Degree of Curve = D and $\sin \frac{D}{2} = \frac{50}{R}$ (2)

Tangent = $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve = $L = 100 \frac{\Delta}{D}$ (4)

Middle ordinate = $M = R(1 - \cos \frac{\Delta}{2})$ (5) = $R \text{vers} \frac{\Delta}{2}$ (6)

External = $E = T \tan \frac{\Delta}{4}$ (7) = $R \div \cos \frac{\Delta}{2} - R$ (8) = $R \text{exsec} \frac{\Delta}{2}$ (9)

Long Chord = $C = 2 R \sin \frac{\Delta}{2}$ (10) Δ = Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I. = Sta. 161 + 60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $\div 8\frac{1}{3} = 414.49$ ft. From Table V correction = .36 or $T = 414.85$ ft. P. C. = Sta. P. I. - $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T. = Sta. P. C. + $L = 164 + 91.50$.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance = 158 - Sta. P. C. = 54.50, hence offset = $7.27 (54.50 \div 100)^2 = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle = $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft. = (in minutes) $.3 \times C \times D^\circ$ or = defl. for $\frac{1}{4}$ ft. from Table III $\times C$. For Sta. 158 of above curve = $.3 \times 54.5 \times 8\frac{1}{3} = 136.2'$ or $2^\circ 16.2'$, or = $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle = $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{3} = 91.27$ and from Table V correction = .10 or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

BM 540.9

Gr. 542.9
532.0

10.9

1.3

9.6

645

58

392

25

645

1950

789

9790

4601.9

375

25

1875

750

9375

4601

469418

46998645

45

405

35

2025

810

10125

4601.92

4703.17

542.04
 9.05
 551.09
 48.12
 2.97

75
 48.12
 3 | 26.88
 8.96

75
 67
 575
 540.
 3 | 35
 2.67

6.56
 3
 75.00
 19.68
 55.32

542.04
 11.15
 553.19

3 | 35
 11.00
 75.0
 60.2

27.7
 23.4

542.04
 7.90
 549.94
 4.60

2+20 48.04
 +10 48.12
 2+100 48.07
 1+90 48.09
 +80 48.09
 +70 48.12

80 -46

Nt. Line
 3+00 = 535.
 4+00 542.0

530.
 532.0

8 | 360
 38.22
 4.22
 14
 75
 43

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1 1/2.
 For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	II
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20 - 16) ÷ 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.