DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1.

For Single Track Embankment.

H	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						14.6	14.7	14.8	14.9	6
7	15.0	15.1					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		17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1				18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3		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)÷2 or 2 ft. added to 30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.

376

M. D. Elliott
Bureau of Water Dev.
City of San Diego

E 4720 Elev + North
E 8250 "

D.G.

Index

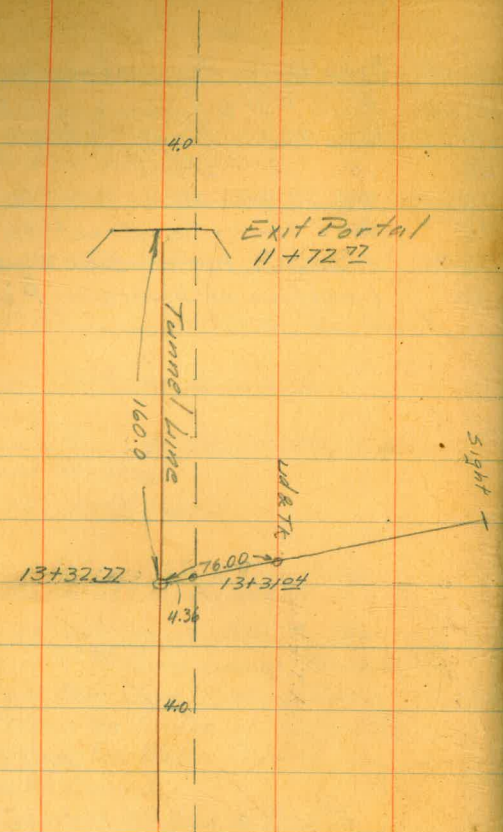
DIST

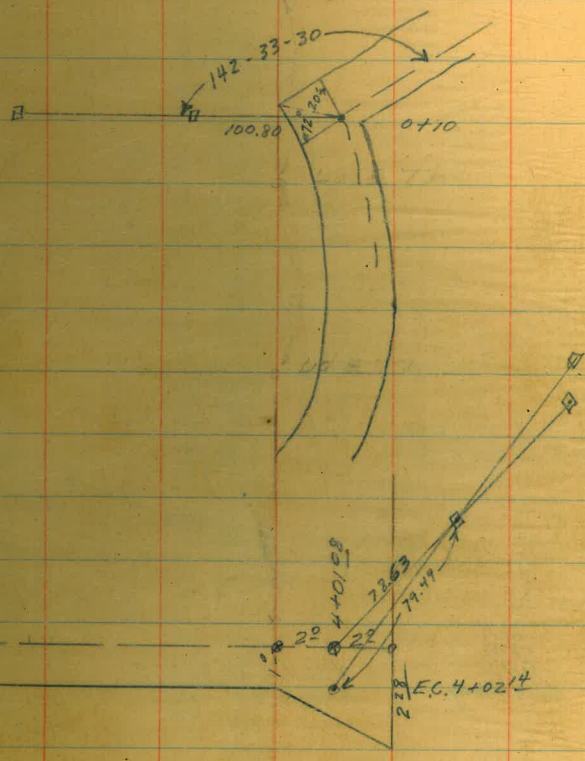
H

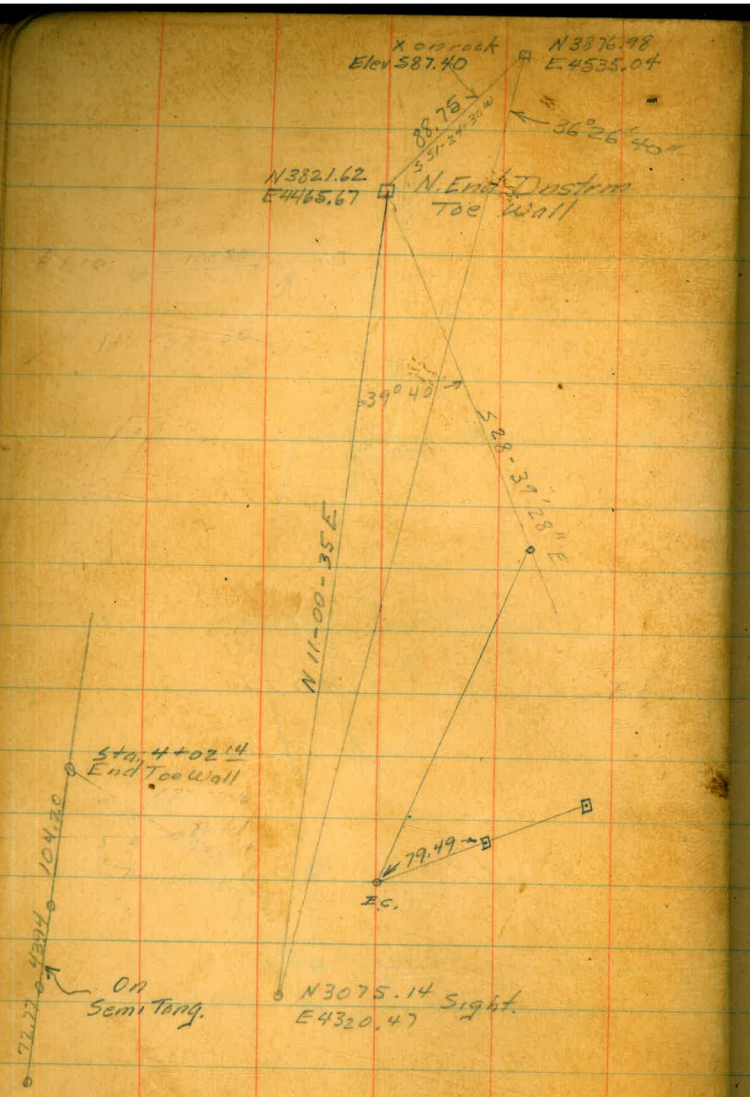
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

to b
of ro
exam
30.6

11+72.77
1+60
13+32.77







DIST

H
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to h
of r
exa
30.6

Deflections for Dustrm Toe Wall on ℄.

		Curve Data on ℄
0 - 25	1° 46.9'	
0+00	0° 0'	
0+10	0 - 42.8	R = 402.0
0+20	1 - 25.5'	T = 219.70
0+25	1° 46.9'	C = 385.68
0+30	2+08.3	E = 56.12
0+40	2° - 51.0'	M = 49.25
0+50	3° - 33.8'	Length = 402.14
0+60	4 - 16.6	Defl. 1 Arc. = 4.276'
0+70	4° 59.3'	Chords
0+75	5 - 20.7'	25.09
0+80	5 - 42.1	
0+90	6 - 24.8'	49.97
1+00	7° 07.6'	
1+10	7 - 50.4	74.89
1+20	8° 33.1'	
1+25	8 - 54.5'	99.74
1+30	9 - 15.9	
1+40	9° 58.6'	
1+50	10° 41.4'	
1+60	11 - 24.2	
1+70	12° 06.9'	
1+75	12° 28.3'	
1+80	12 - 49.7	
1+90	13° 32.4'	
2+00	14° 15.2'	
2+10	14 - 58.0	
2+20	15° 40.7'	
2+25	16° 02.1'	
2+30	16 - 23.5	
2+40	17° 06.2'	
2+50	17° 49.0'	
2+60	18 - 31.8	
2+70	19° 14.5'	
2+75	19° 35.9'	4 - 16 - 36
2+80	19 - 57.3	23 - 39 - 28
2+90	20° 40.0'	32 - 56 - 04
3+00	21° 22.8'	32 - 56
3+10	22° 05.6'	6 - 54
3+20	22° 48.3'	
3+25	23° 09.7'	
3+30	23 - 31.1	
3+40	24° 13.8'	
3+50	24° 56.6'	
3+60	25 - 39.4	
3+70	26° 22.1'	
3+75	26 - 43.5'	
3+80	27° 04.9'	
3+90	27° 47.6'	
4+00	28° 30.4'	
4+02.14	28° 39' 28"	
4+57.14	32° 34' 40"	

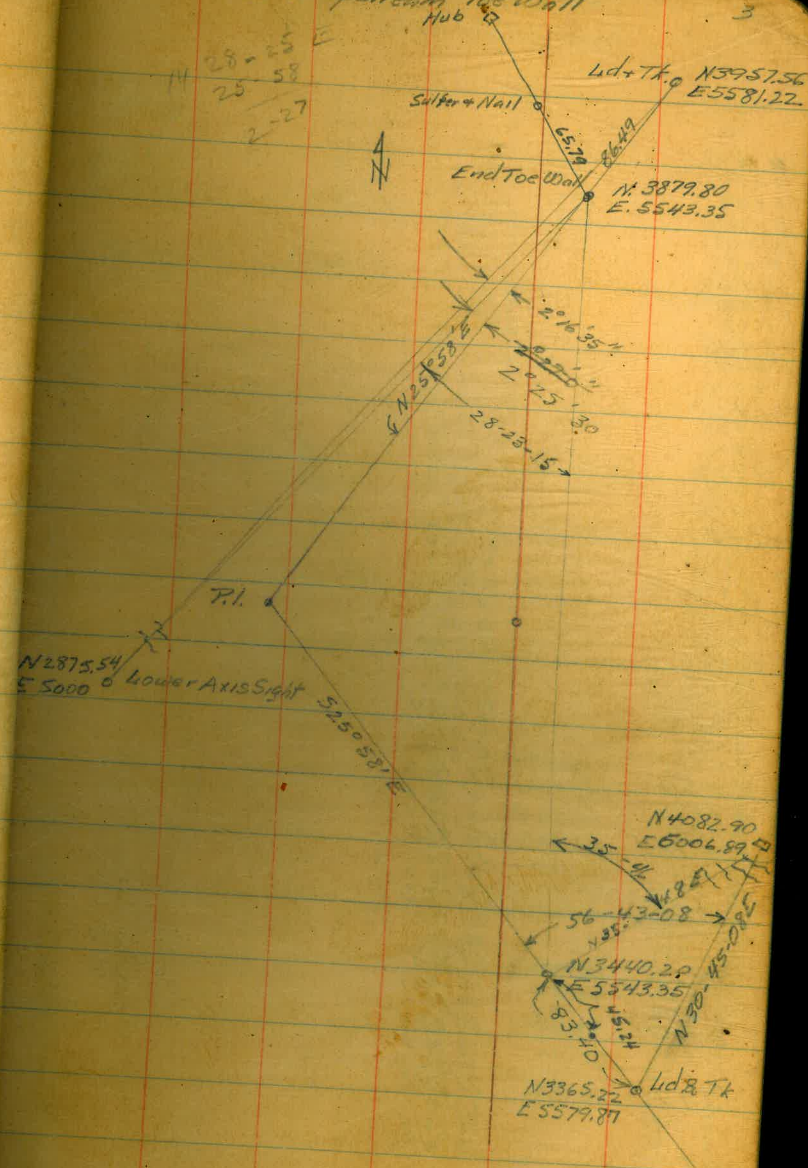
Reference Points & Sights

Lead & Tk.		N3113.08 E6150.50
Lead & Tk.		N3211.89 E5962.46
Sight	Inter. of Tunnel Line	N3660 E6615.38
Sight on	Upper Axis	N5316.26 E5000
"	" "	N2226.65 E5000

N 40-21-53 E 117.80

61-46
25-58
35-48

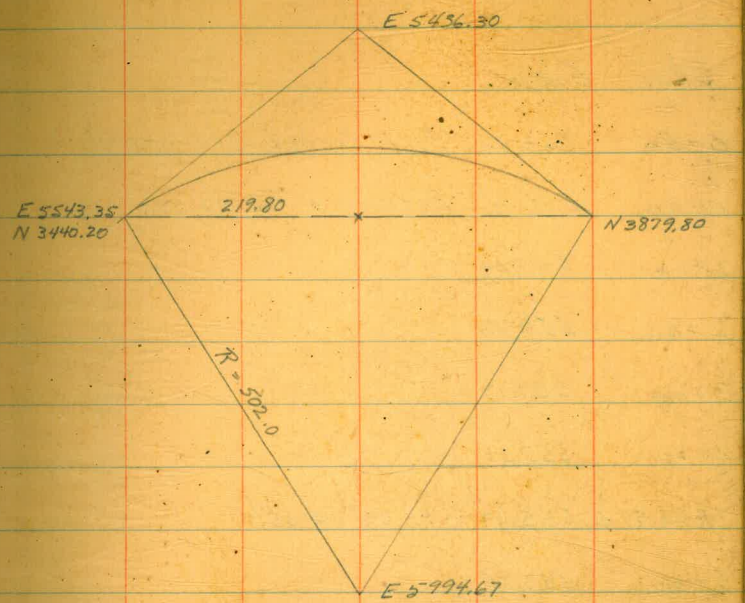
Ties to Upstream Toe Wall



Deflections for ℄ Curve
Upstream Toe Wall

		4+10	23-23.8
		4+20	23-58.1
0+00	0-0	4+25	24°15.2'
0+10	0-34.2	4+30	24-32.3
0+20	1°-08.5'	4+40	25°06.6'
0+25	1°25.6'	4+50	25°40.8'
0+30	1-42.7		
0+40	2-17.0		
0+50	2°51.2'	4+55.02	25°58'
0+60	3-25.4		
0+70	3-59.7		
0+75	4°16.8'		
0+80	4-33.9		
0+90	5-08.2		
1+00	5°42.4'		
1+10	6-16.7		
1+20	6-50.9		
1+25	7°08.0'		
1+30	7-25.1		
1+40	7-59.4		
1+50	8°33.6'		
1+60	9-07.8		
1+70	9-42.1		
1+75	9°59.2'		
1+80	10-16.3		
1+90	10-50.6		
2+00	11°24.8'		
2+10	11-59.0		
2+20	12-33.3		
2+25	12°50.4'		
2+30	13-07.5		
2+40	13-41.8		
2+50	14°16.0'		
2+60	14-50.2		
2+70	15-24.4		
2+75	15°41.6'		
2+80	15-58.7		
2+90	16-32.9		
3+00	17°07.2'		
3+10	17-41.4		
3+20	18-15.6		
3+25	18°32.8'		
3+30	18-49.9		
3+40	19-24.1		
3+50	19°58.4'		
3+60	20-32.6		
3+70	21-06.9		
3+75	21°24.0'		
3+80	21-41.1		
3+90	22-15.4		
4+00	22°49.6'		

Curve Data



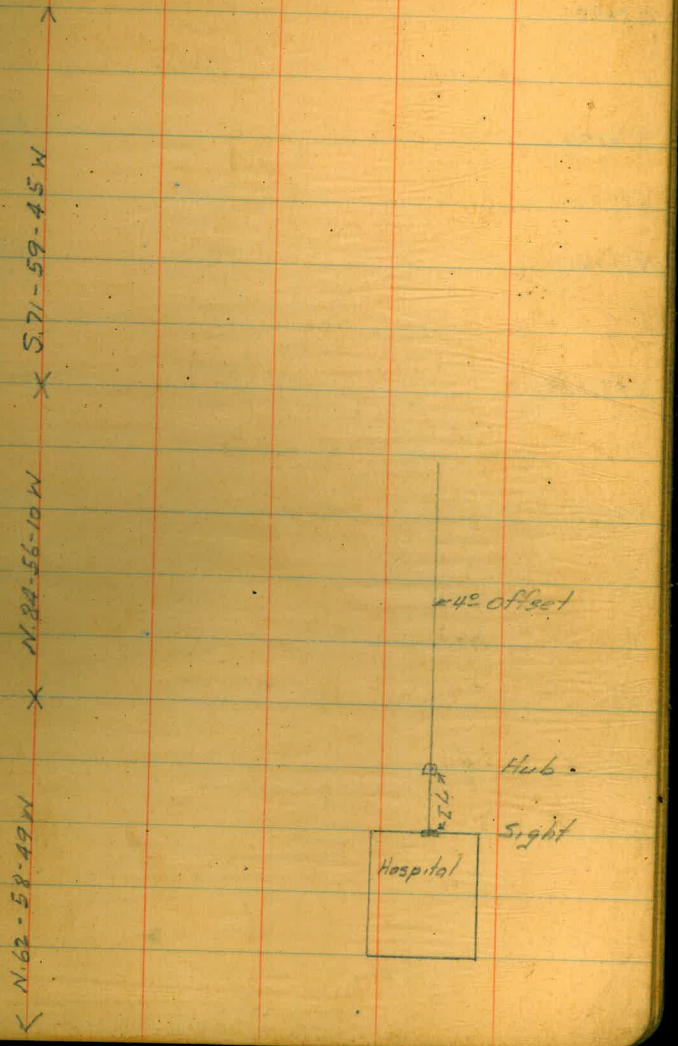
N 3660

Δ = 51°56'
½Δ = 25°58'
T = 244.48
M = 50.68
E = 56.37
C = 439.60
Lengths = 455.02
Defl.1' = 3.424'

Chords
25.00
49.98
74.93
99.83

Tunnel Stations and Grade

Sta.	Grade.	
0-50	563.00	End Portal Structure.
0+00	562.16	Entrance Portal
1+00	560.49	
2+00	558.83	
3+00	557.17	
4+00	555.51	
+20.59 Δ	555.17	R. 23°04'05"
5+00	553.85	
6+00	552.19	
7+00	550.53	
8+00	548.87	
8+17.15 Δ	548.59	R. 21-57-21
9+00	547.21	
10+00	545.55	
11+00	543.89	
11+77.77	542.67	Exit Portal
12+12.77	542.00	End Portal Structure.



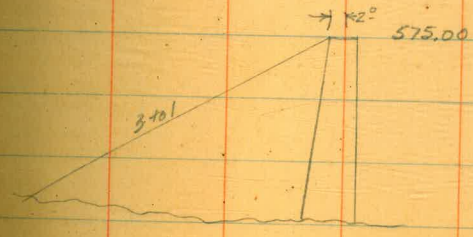
Slope Stakes July 1 - 1932
Core Wall Excavation

				Grade	West	East
B.M.	106	563.8	562.74			
N3660				530.0	C 22.8 84.2	C 28.8 143.2
N3700				530.0	C 22.8 84.2	C 25.4 138.1
N3740				538.0	C 25.7 88.5	C 15.4 123.1
N3780				547.5		C 6.5 109.2
N3820				559.5		C 0.3 100.45

Dnstrm. Wall Toe of Rock Fill
July 2 - 1932

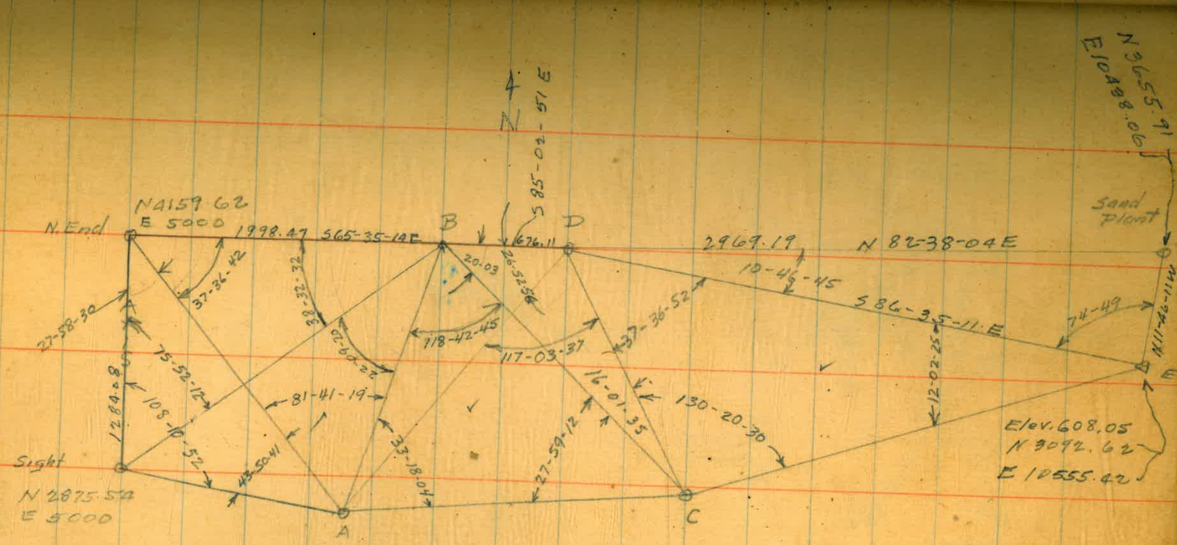
Grade of Top of Wall = 575

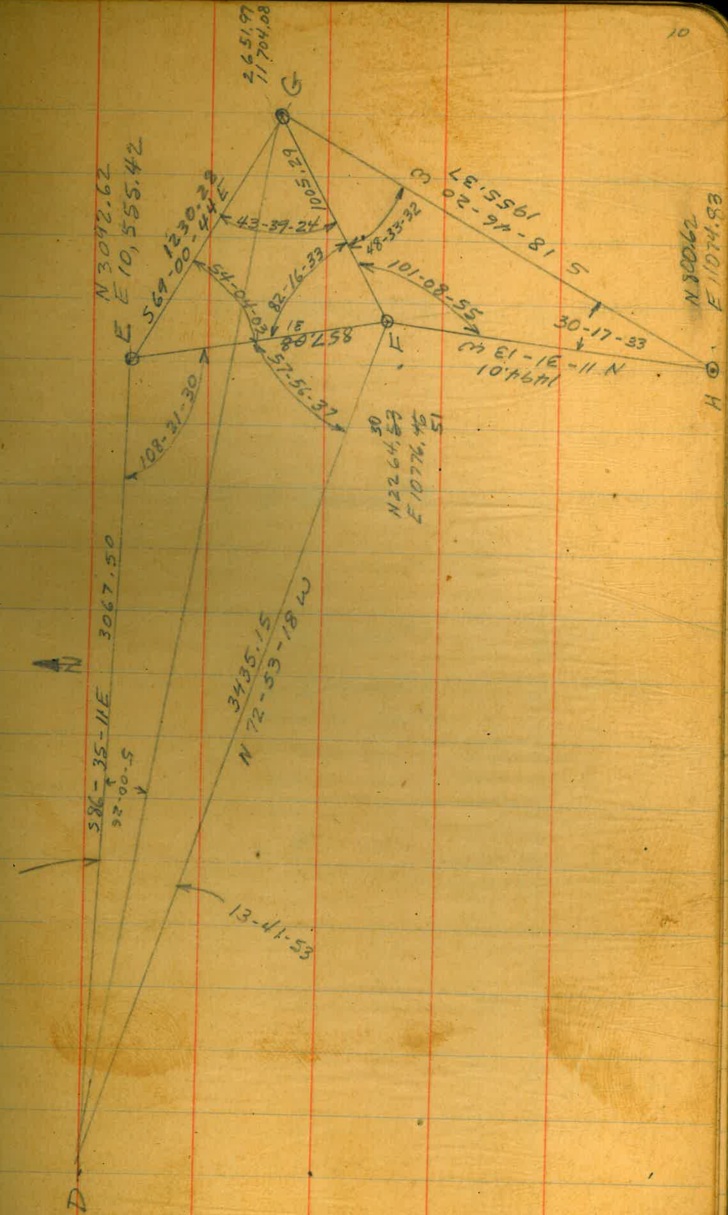
B.M.	2.53	554.53		552.0		
0+00			10.0	544.5	Fill 30.5	out 93.5 Slope 3:1
0+50			12.8	541.7	Fill 33.3	out 101.9. Slope 3:1
1+00			12.8	541.7	Fill 33.3	out 101.9 "
1+50			13.0	541.5	F 33.5	out 102.5 "
2+00			13.0	541.5	F 33.5	out 102.5 "
+50			13.1	541.4	F 33.6	out 102.8 "
3+00			13.1	541.4	F 33.6	out 102.8 "
+25			12.0	542.5	F 32.5	out 99.5 "

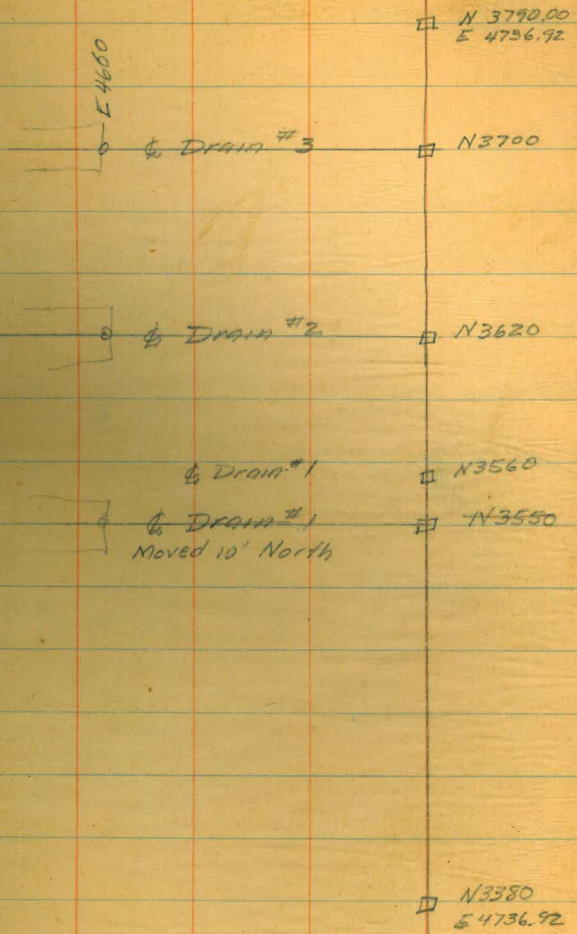


Profile Dnstr. Toe Wall
July 2 – 1932

B.M.	2.53	554.53		552.0
0+00			+4.0	558.5
0+18			3.8	550.7
+50			5.9	48.6
1+00			10.7	43.8
+50			15.4	39.1
2+00			16.2	38.3
+50			16.1	38.4
3+00			16.2	38.3
+05			15.7	38.8 = South end of Excavation
			2.53	552.00 = B.M.


N3655.91
E10498.06
Sand Plant
N11-97-11W
E
N4159.62
E 5000
N. End
1998.47
S65-35-14E
B
676.11
D
2969.19
N 82-38-04E
S 85-02-51 E
N
10-46-45
S 86-35-11-E
74-49
37-36-42
38-32-32
20-03
26-52-56
27-58-30
75-52-12
22-09-20
118-42-45
117-03-37
37-36-52
12-02-25
1284.8
108-10-52
81-41-19
16-01-35
130-20-30
Elev. 608.05
N 3092.62
E 10555.42
Sight
N 2875.52
E 5000
43-50-41
33-18-04
27-59-12
A
C


2651.97
11704.08
G
N 3042.62
E 10,555.42
E
1230.23
S 69-00-44 E
43-39-24
1005.29
48-33-32
1955.37
S 18-46-20 E
54-04-03
82-16-33
101-08-55
N 800.62
E 11074.83
30-17-33
857.88
F
N 81-31-13 W
1044.01
H
57-56-37
108-21-30
N 2264.53
E 10776.51
N
3067.50
S 86-35-11 E
97-00-5
3435.15
N 72-53-18 W
13-41-53
D


N 3790.00
E 4736.92
E 4660
℄ Drain #3
N3700
℄ Drain #2
N3620
℄ Drain #1
N3560
℄ Drain #1
Moved 10' North
N3550
N3380
E 4736.92

Stripping Slope Stakes
July 15 - 1932

				Grade		
B.M.	9.91	561.91		552.00		
N3730			1.7	560.0	546.0	C.M.P. 1½ to 1 East from E 4730.92
N3670			5.1			C 10 / 16
N3640			10.5			C 5 / 8
N3610			10.4			C 5 / 8
N3580			9.6			C 6 / 9
N3550			9.8			C 6 / 9
N3520			6.1			C 9 / 14

Profile of Drains July 20 - 1932

Drain #3 - N3700

B.M.	0.96	552.96		552.00
	4.53	547.81	9.68	543.28
			13.5	34.3
			8.8	539.0
E 4525			8.6	
E 4535			5.5	
E 4540			5.2	
E 4580			5.8	
E 4620			6.2	
E 4658			5.8	
E 4560			5.2	
E 4567			0.0	

Bottom of toe trench

Average elev. of toe wall excavation

End of drain

Drain #2 - N3620

			14.1	
			10.4	
E 4540			8.7	
E 4580			8.0	

Bottom of toe trench

Ave. elev. of toe wall excavation

Drain #2 - Cont.

547.81

E 4620			8.2		
E 4657			8.3		
E 4660			6.6		End of drain
E 4666			2.5		

Drain #1 - Profile on N 3560

			12.1		Ave. elev. of toe wall excavation
			14.2		Bottom of toe trench
E 4540			10.2		
E 4560			10.2		
E 4620			10.1		
E 4650			9.8		
E 4660			2.6		End of drain
E 4662			2.1		
T.P.	7.20	552.99	2.02	545.79	
B.M.			1.00	551.99	552.00

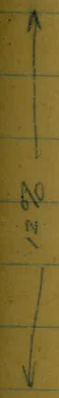
Dnstr toe wall

B.M.	8.05	560.05		552.00
0+25			10.2	549.8

	Profile for Nt. line	Bottom Trench
1+00	541.0	536.0
0+75	544.0	539.0
0+50	547.0	542.0
0+25	550.0	545.0
0+00	558.0	553

Top of D.G.

	Dnstr Neat Line Stake	Upstr. Neat Line Stake
	C. out 13.3	C. out 2°
	C 5 4	12.3	C. 5 1 out 2°
	C 6 1	11.3	C. 5 7 out 2°
	C 6 9	10.3	C. 4 7 out 2°
	C 2 7	7.7	C 6 3 out 2°



Dec. Granite

T. P.	8.14	550.23		442.09
N 3680 E 4720			5.5	544.7
N 3510 E 5250				547.6
B.M. N 3755 E 5250	0.14	555.36		55522
			8.9	546.5
T. P.			5.60	549.76
	9.23	558.99		
			5.2	

555.2 3510
7.6 55
547.6 3755

Top of Decomposed Granite

" " "

" " "

Top of D.G. N. Side of Site.

N.I 559.0 Transit At N3790 E5140	Dist	Rod or Vert. L.	Hor. L from So.	Elev.
#1	277	-11.6	Lt. 82-33	547.4
#2	201	10.9	Lt. 80-09	547.1
#3	116	12.5	Lt. 73-36	546.5
#4	22	9.7	Lt. 15-42	549.3
#5	123	12.2	Rt. 47-40	546.8
#6	206	10.4	Rt. 63-05	548.6

X Section of Upstr. Toe Wall
Sta. 3+50

B.M.	2,15	544.19	542.04

R.H.

33.2		32.8		36.3		38.7		39.1		40.3		42.5		44.2
10°	11'		7°		5°		5'		3°		3°		0°	
	1°		2°		3°		10°		15°		18°		24°	

L.H.

32.3		32.2		35.1		35.6		38.8		38.7		39.3		44.2
11°		12°		9'		8°		5°		5°		4°		0°
4°		11°		12°		14°		15°		25°		31°		26°

Top of Dec. Granite So. Side
Aug 8-1932

	Dist.	Rod	Hor. L from No.	Elev.
X at N3510 E5140				
H.I 553.5				
#1	17	5.5	Lt. 151-33	548.0
#2	58'	6.4	Rt. 93-41	547.1
#3	106'	6.0	Rt. 87-35	547.5
#4	158'	3.6	Rt. 89-02	549.9
#5	265'	1.6	Rt. 89-14	551.9

Upstream Toe Wall

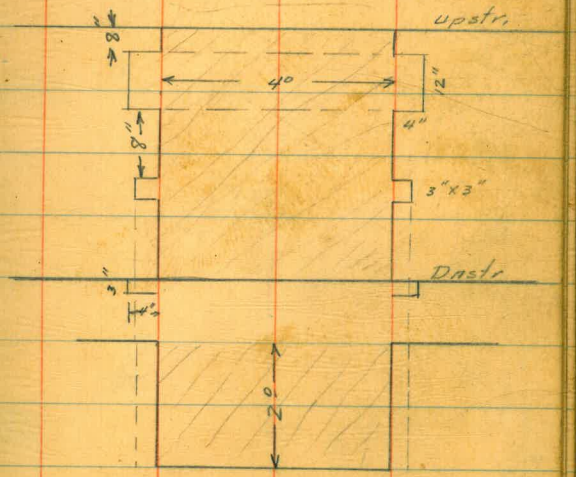
A	B	C	D	E	F
4+85	4+00	3+20	2+40	1+60	0+80
4+00	3+20	2+40	1+60	0+80	0+00

Downstream

4+02.14	3+60	2+90	2+00	1+10	0+30
3+60	2+90	2+00	1+10	0+30	0-60

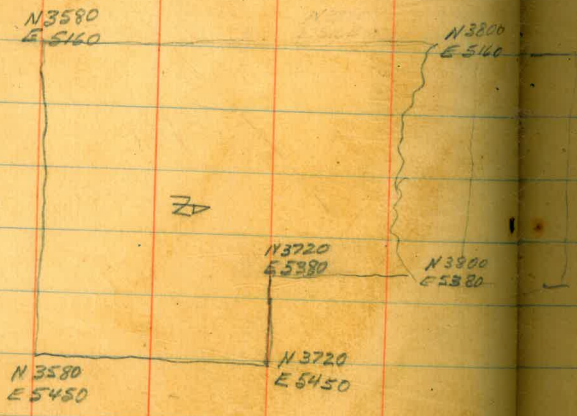
Wiers in Upstream Wall

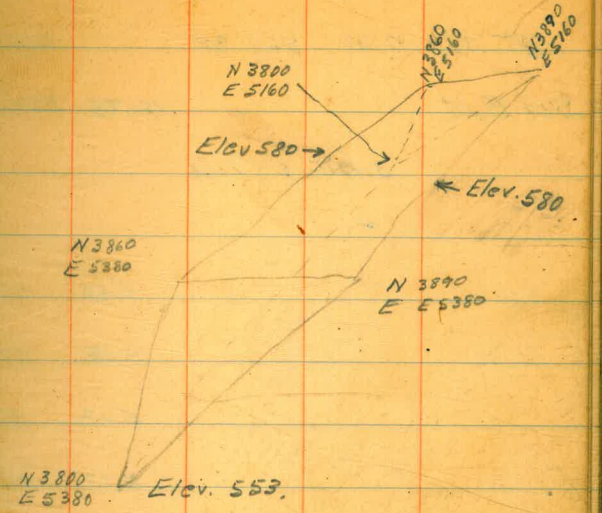
Sta. ℄
0+92 ✓
1+89 ✓
2+86 ✓
3+82 ✓



Aug 25-1932

Exit Portal Cut Excavated To Grade from Portal to Sta. 13+40 balance same as previous estimates.





B.M.	0.88	567.35		566.47
Set B.M.			12.73	554.62
	3.04	557.66		
			0.22	57.44
			0.13	57.53
			0.17	57.49
			0.17	57.49

= 7.84

B.M.	0.76	597.45		596.69
			12.73½	584.71½
	1.04½	585.76		
T.P.			12.94	572.82
	0.06	572,88		
T.P. "A"			5.65	567.23
	5.75	572.98		
			0.16	572.82
	12.69½	58 5.51½		
			0.80	584.71½
	12.73	597.44½		
B.M.			0.76	596,68½ 59669
B.M.	6.67	545.59		538.92
			4.79	40 .80

Aug 26 - 1932

B.M.	0.83½	564.48½		563.65
			12.61	551.87½
	2.54½	554.42		
			10.97	543.45
	4.19½	547.64½		
Set B.M.			6.77½	540.87
Upstr. Wall	Aug 27			
B.M.	2.71	557.33		554.62
			+ 22	557.55
T.P	9.78	562.77	4.34	552.99
			0.30	562.47
Set B.M.		3.93		558.84
	3.81	562.65		
0+80 to 0+50			4.76	557.89
				+ 4.71
				562.60
			4.46	558.19
				4.70
0+50 - 0+30				562.89

3 | 4.71 / 1.57

70.48

24

57.33
+ 22
75.00
57.55

3 | 17.45
5.82
2
7.82

75.00
62.47

3 | 12.53
4.18
2
6.18

Div. Tunnel Sta. 12+12.77

= 7.82 Sect C

75.00
62.60

3 | 12.40
4.13
2
6.13

= 6.18 Sect D.

75.00
62.89

3 | 2.11
HPS
6.07

= 6.13 Sect F

= 6.03

Dnstr. Wall
Aug 27-1932

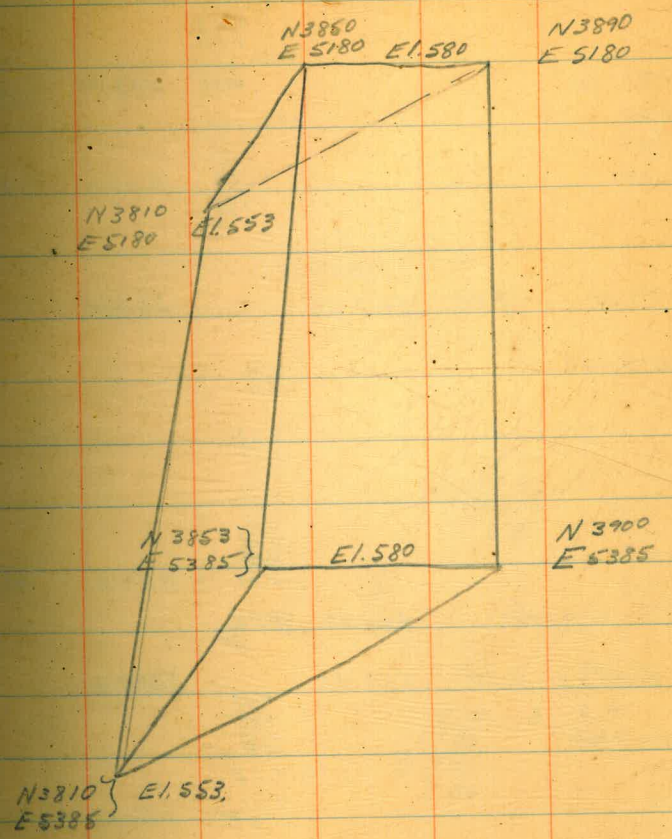
B.M.	2.13	547.90		545.77
			5.01	
			5.05	
			5.03	
			5.01	
			4.93	
			4.88	
			5.00	
			- 4.7	
			0.30	
2+00 to 1+40				547.60

575
47.60
3 | 27.40
9.13

= 11.13 Sec 1 D.

Rock

Aug 27-1932



Aug 29

Dnstream

B.M.	3.54	553.52		549.98
			4.57 4.56 4.56 4.56	
0+30 to			4.56	548.96
0+60			0+30 4.72	= 10.68
0+60			1.54 1.58 1.61 1.58	
0-10			1.35	552.0 = 9.67

Upstrm

B.M.	8.80	567.64		558.84
0+80 to 1+60			5.13 5.06 5.09 5.10 5.09 5.12 5.14 5.13 5.12 4.70	
			-0.42	= 567.12 = 4.59

Upstr. Aug 30 - 1932

B.M.	7.79	562.41		554.62
			4.81 4.68 4.76 4.81	
4+00-3+20			Ave 4.78 -4.70. -.08	562.33 = 6.22
T.P.	5.69	567.19	0.91	561.50
			4.51 4.58 4.55 4.58 4.56	
1+60 - 2+40			-4.70 +0.14	= 567.33 = 4.56

33
47
.86

75.00
48.96
3|26.04
8.68

4|2.22
.56

75.00
67.22
3|7.78
2.59

75.00
67.33
3|7.67
2.56

75.00
62.33
3|12.67
4.22

Aug 31-1932

Dnstrm

B.M.	5.13	555.11		549.98
1+10 to 2+00			2.63 2.43 2.57 2.60	
			2.60	552.51

Upstr.

B.M.	8.47	563.09		554.62
4+00			0.71 = +4.0	67.09
3+90			0.70 = +4.0	67.09
3+80			0.65 + 4.06	67.15
3+70			0.60 + 4.11	67.20
3+60			0.55 + 4.16	67.25
3+50			0.50 + 4.21	67.30
3+40			0.55 + 4.16	67.25
3+30			0.67 + 4.04	67.13
3+20			0.75 + 3.96	67.05

Sept 1-1932

B.M.	0.50	566.97		566.47
			0.42	566.55
3+10			4.41	= 6.15
3+00			4.34	= 6.12
2+90			4.31	= 6.11
2+80			4.21	= 6.14
2+70			4.31	= 6.11
2+60			4.30	= 6.11
2+50			4.32	= 6.12
2+40			4.27	= 6.10
T.P.	5.75	572.30	0.42	566.55
2+40			4.85	=
			4.88	
			4.87	
			4.87	
			4.89	
			4.88	
1+60			4.83	
			4.87 − 4.71	= 0.16

2.95
1.57
4.52

= 9.50

= 4.64
= 4.64
4.62
4.60
4.59
4.57
4.59
4.63
4.63

4.30 = 6.11

67.00 = 4.67

7.48
4.70
2.98

75.00
52.51
3 | 22.49
7.60

75
67
3 | 8
2.67

66.97
4.30
75
62.67

3 | 12.33
4.11
2
6.11

572.30
16
575.00
572.14
3 | 2.86
0.95
2
2.95

= 2.95

Upstr. Sept 1

B.M.	9.40	568.24		558.84	
Set B.N.			0.25	567.99	
0+80			0.86	67.38	4.54
			0.75	67.49	4.50
			0.62	67.62	4.46
			0.75	67.49	4.50
0+30			0.52	67.72	4.43
			0.18	68.06	4.31
B.M.	7.30	561.92		554.62	
4+00			9.12	52.80 = 9.40	= 7.82
+10			9.10	52.82 = 9.41	= 7.84
4+16			9.02	52.90 = 9.43	= 7.86
T.F.			8.97	552.95	

Dnstr.

B.M.	3.75	553.73		549.98	
0+60			5.94		
			5.99		
			6.00		
			6.00		
			5.98		
1+10			5.92		
			6.00		
			4.70		
			1.30 =	552.43	= 9.52

567.50 = 4.50

52.80 = 9.40

75.90
52.43
3)22.57
7.52

Dnstr. Septz

B.M.	11.84	561.82		549.98	
0+30			5.10 = 0.39	61.43	= 6.52
0+20			5.01 = 0.30	61.52	= 6.49
0+10			4.90 = 0.19	61.63	= 6.45
Corner			4.85 0.16	61.66	= 6.44 = 7.98
0+00			4.76 0.05	61.77	= 6.41
0−07			4.79 0.08	61.74	= 6.42
1+10			4.62	57.20	7.93
+20			4.55	57.27	7.91
+30			4.48	57.34	7.89
+40			4.49	57.33	7.89
+50			4.59	57.23	7.92
+60			4.65	57.17	7.94
+70			4.65	57.17	7.94
+80			4.70	57.12	7.94
+90			4.75	57.07	7.97
2+00			4.72	57.10	7.96
B.M.	0.85	549.46		548.61	
Set B.M.			4.44	545.02	
	1.53	546.55			
2+40			9.52	537.03	
+50			9.52	537.03	= 14.68 } Start Batter
+60			7.58	536.97	= 14.68
+67			8.45	538.10	= 14.80
2+40			3.81		} 12.75
2+67			3.81		

61.40 = 6.53

75.00
57.20
3|17.80
5.93
2
7.93 = 557.20

75.00
57.10
3|17.90
5.97
2.00
7.97

546.55
3.81
575.00
542.74
3|32.26
10.75

Rock Slopes Sept 3

47 - 20
53 - 0
37 - 30
47 - 15
54 - 30
44 - 30

Upstrm Wall - Sept 6

B.M.	5.24	571.71		566.47		
4+00			4.66 = +0.15	71.86	= 3.05	
3+90			4.51 = +0.20	71.91	3.03	
+80			4.44 = +0.27	71.98	3.01	
+70			4.40 = +0.30	72.01	3.00	
+60			4.34 = +0.37	72.08	2.97	
+50			4.35 = +0.36	72.07	2.98	
+40			4.35 = +0.36	72.07	2.98	
+30			4.45 = +0.26	71.97	3.01	
3+20			4.55 = +0.16	71.87	3.04	
T.P.	3.44	564.31	10.84	560.87		
4+00			6.69	57.62	= 7.79	-.157 = 6.22
+10			6.59	57.72	7.76	-.157 = 6.19
+20			6.62	57.69	7.76	-.157 = 6.20
+30			6.51	57.80	7.73	-.157 = 6.16
B.M.	5.10	571.57		566.47		
			4.15	567.42		
	4.17	571.59				
0+80			4.25 = +0.46	72.05	= 2.98	
0+90			4.25 = +0.46	72.05	2.98	
1+00			4.20 = +0.51	72.10	2.97	
1+10			4.28 = +0.43	72.02	2.99	
1+20			4.32 = +0.39	71.98	3.01	
1+30			4.36 = +0.35	71.94	3.02	
1+40			4.34 = +0.37	71.96	3.01	
1+50			4.31 = +0.40	71.99	3.00	
1+60			4.24 = +0.47	72.06	2.98	

72.0 - 3.00

75
57
3 | 1.8
6

75.00
72.00
3 | 3
1
2
3

75.00
57.80
3 | 17.20
5.73
2
2.73

Upstr Sept 6 & 7

T.P.	9.37	576.79		567.42	
1 +60			4.58 = + 0.13	76.92	= 1.36
+70			4.48 = +0.23	77.02	= 1.32
+80			4.56 = +0.15	76.94	= 1.35
+90			4.54 = +0.17	76.96	= 1.34
2 +00			4.53 = +0.18	76.97	= 1.34
+10			4.58 = +0.13	76.92	= 1.86
+20			4.60 = +0.11	76.90	= 1.36
+30			4.57 = +0.14	76.93	= 1.35
+40			4.62 = +0.09	76.88	= 1.37

Sept 7

B.M.	5.62	572.09		566.47	
3+20			9.77 = 5.06	67.03	4.66
3+10			9.63 = 4.92	67.17	4.61
3+00			9.58 = 4.87	67.22	4.60
2+90			9.58 = 4.87	67.22	4.60
2+80			9.51 = 4.80	67.29	4.57
2+70			9.56 = 4.85	67.24	4.59
2+60			9.55 = 4.84	67.25	4.59
2+50			9.53 = 4.82	67.27	4.58
2+40			9.37 = 4.66	67.43	4.53

B.M.	7.46	575.45		567.99	
0+80			3.28	72.17	2.94
0+70			3.33	72.12	2.76
0+60			3.32	72.13	2.96
0+50			3.26	72.19	2.94
0+40			3.02	72.43	2.86
0+30			2.74	72.71	2.76
0+20					2.76
B.M.	10.46	576.93		566.47	
			3.93 =	573.0 =	2° Fill

Sect D

75.00
71.21
3.69

77
75
3 ⌊ 2.00
0.67
577.00 = 1.33

75
72.23
3 ⌊ 2.77
2.92
1.57
1.35

Sect C

75
67
3 ⌊ 8
2.67
2
6700 = 4.67

75.00
68.11
3 ⌊ 6.89
2.30

Sept 7 - 1932.

B.M.	2.66	547.68		545.02		
		42.				
3+50 dn.			10.08	37.60	out	
3+50 up.			8.11	39.57		
3+40			10.37	37.31	out	
				42.75		
3+30			10.62	37.06	out	
3+20			10.90	36.78	out	
3+10			11.16	36.52	Out	
3+00			11.34	36.34	Out	
B.M	1.37	546.39		545.02		
		42.75				
		3.64				

14.47 / 12.75 / 1.72 — F.11 4'4 3/4 to 542
F.11 2'5 1/2" to 542
F.11 5 7/4 dn
F.11 5'8" up.

14.56 / 12.75 / 1.81 — for Start Batter
for Elev 542.75

14.65 / 12.75 / 1.90 — F 5'8"
6'3 1/2"

14.74 / 12.75 / 1.99

14.83 / 12.75 / 2.08 — F.11 6'3"

14.89 / 12.75 / 2.14

46.39 / 42.75 / 3.64

8.82 / 3.64 / 5.18

9.30 / 3.64 / 5.66

9.91 / 3.64 / 6.27

10.35 / 3.64 / 6.71

Dnstr. Sept 8

B.M.	11.92	561.90		547.98	
0+30			9.41 = 4.70	57.20	= 7.92
+40			9.39 = 4.68		
+50			9.36 = 4.65		
+60			9.34 = 4.63		
+70			9.34 = 4.63		
+80			9.37 = 4.66		
+90			9.37 = 4.66		
1+00			9.39 = 4.68		
+10			9.37 = 4.66		

Upstr.

B.M.	9.08	577.07		567.99	
		573			
		4.07			
0+80 to 1+60					
B.M.	9.06	577.05		567.99	
	5.14	572.65	9.54	567.51	
2+40			5.20 = 0.49	72.16	2.95
+50			5.26 = 0.55	72.10	2.97
+60			5.31 = 0.60	72.05	2.98
+70			5.29 = 0.58	72.07	2.98
+80			5.23 = 0.52	72.13	2.96
+90			5.33 = 0.62	72.03	2.99
3+00			5.34 = 0.63	72.02	2.99
+10			5.36 = 0.65	72.00	3.00
+20			5.47 = 0.76	71.87	3.04

Sect C.

61.90
4.66
75.00
57.24

3 | 17.76
5.92

25
72

13
1
2
3

Upstr. Sept 9-1937

B.M.	1.12	567.59		566.47	
4+00			5.13 = 0.42	67.17	4.61
+10			5.03 = 0.32	67.27	4.58
+20			4.89 = 0.18	67.41	4.53
+30			4.86 = 0.15	67.44	4.52
+40			4.95 —	62.64	6.12 8 4.55
+50			5.08 —	62.51	6.16 4.59

Dnstrm Sept 9

B.M.	11.92	561.90		549.98	
1+10			4.59 = +0.12	62.02	6.32
1+20			4.52 = 0.19	62.09	6.30
1+30			4.46 = +0.25	62.15	6.28
1+40			4.51 +0.20	62.10	6.30
1+50			4.59 = +0.12	62.02	6.32
1+60			4.61 +0.10	62.00	6.33
1+70			4.60 = +0.11	62.01	6.33
1+80			4.60 = +0.11	62.01	6.33
1+90			4.64 = +0.07	61.97	6.34
2+00			4.64 = +0.07	61.97	6.34

Sept 12 Upstr.

B.M.	6.23	572.70		566.47	
4+00			0.62	72.08	2.97
+10			0.52	72.18	2.94
+20			0.35	72.35	2.88
+30			0.28	72.42	2.86
+40			0.23	72.47	2.84
+50			0.33	72.37	2.88
+65			5.47	67.23	4.59 8 3.02

75
67
18

85
67
318
2.67
2
67.0 = 4.67

75
62
313
62.0 = 6.33

3 | 4.7
1.5

75
62
3 | 13
4.33
2
4.33

75.00
67.23
2 | 7.77
2.6

72.00 = 3

Dnstrm Sept 12-1932

B.M.	2.56	547.58		545.02	
2+90			4.78 = +0.07	47.51	= 11.17
2+80			4.87 = +0.16	47.42	= 11.20
			3.04	44.54	12.15 & 11.1
2+70			4.83 = +0.12	47.46	11.18
2+60			4.83 = +0.12	47.46	11.18
2+50			4.81 = +0.10	47.48	11.18
2+40			4.81 = +0.10	47.48	11.18
2+30			4.83 +0.12	47.46	11.18
2+20			4.84 + 0.13	47.45	11.19
2+10			1.50 =	46.08	11.64 11.15
2+00			4.65 = +0.06	47.64	11.12

Downstr. Sept 13-1932

B.M.	11.93	561.91		549.98	
0+30			4.59 = +0.12	62.03	= 6.32
+40			4.59 = +0.12		
+50			4.57 +.14	62.05	= 6.31
+60			4.52		
+70			4.53		
+80			4.53 = +0.18	62.09	= 6.30
+90			4.57		
1+00			4.62 = +0.09	62.00	= 6.33
1+10			4.59 =		

75.00
46.08
3 | 28.92
9.64

75.00
44.54
3 | 30.46
10.15

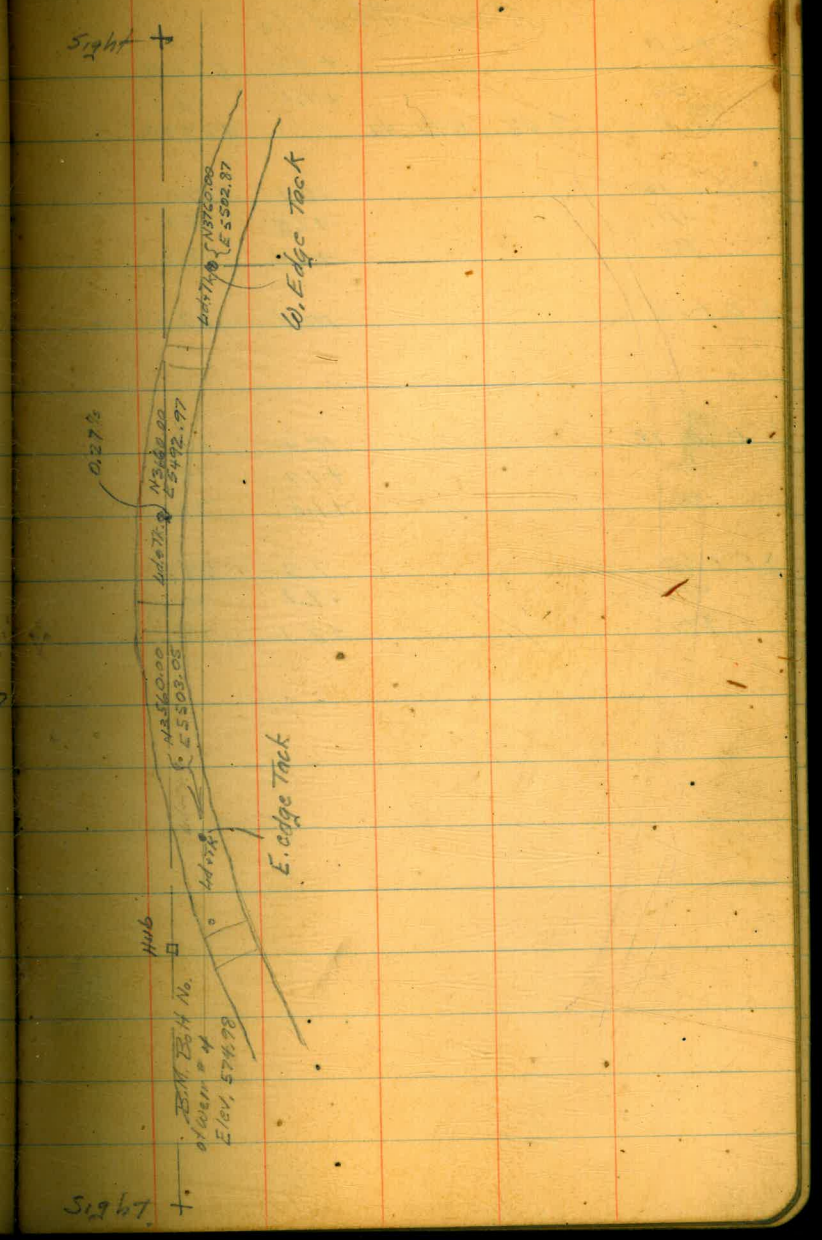
75.00
47.50
3 | 27.50
9.17
2
47.50 = 11.17

75.
62
3 | 13
4.33
2
562.00 = 6.33

Sept 28 - 1932

B.M.	5.36	580.34/33		574.98/574.97	
N.W. Top Cor Wier #2			5.35	574.99/98	.01
N.W. Top Cor Wier #3			5.37	574.97/96	.01
N.W. Top Cor Wier #4			5.39	574.96/94	.02
B.M.	2.39	577.36		574.97	
B.M.			10.91	566.45	566.47
	12.94	579.41			
N.W. Top Cor Wier #1 B.M.			4.43	574.98	

Points on Upstream Toe Wall (37)



Sept 15 – Upstr. Toe Wall
Final Profile

0+20				
up			+0.5	577.9
Dn			+1.1	78.5
B.M.	9.42	577.41		567.99
℄ 0+15				
up,			10.4	567.0
Dn.			+1.5	78.9
			+1.4	78.8
℄ 0+15			10.4	67.0
℄ 0+10				
up			10.4	67.0
Dn			+1.7	79.1
			+1.6	79.0
℄ 0+00				
up,			7.9	69.5
Dn.			+2.1	79.5
			+2.1	79.5

4' width at 0+15 No.

Dastrm. Sept 14

B.M.	2.32	547.34		545.02	
3+00			4.53 = +0.18	47.52	11
+10			4.58 = +0.13	47.47	11.18
+20			4.61 = +0.10	47.44	
+30			4.60 = +0.11	47.45	
+40			4.60 = +0.11	47.45	
+50			4.56 = +0.15	47.49	
+60			5.41	41.93	
+70			5.40	41.94	13.02
+80			5.40		
3+87			5.35		

Dastrm. Toe Wall Heat Wire Cuts.

	Grade	Grade for Calc. Ht. Line	Dastr. Stake	Upstr. Stake
0-20	543.0	557.0	C. 30² out 8°	C. 31° out 2°
Step				
0-20	558.0	"	C. 15² out 8°	C. 16° out 2°
0-10	548.0 ~~543.0~~	557.0	C. ~~15²~~ 10⁶ out 8°	C. ~~14°~~ 9.5 out 2°

75.0
47.5
3 | 27.5
9.17
2
11.17

25.00
41.94
3 | 133.06
11.02
2
13.02
1.57
11.45

Dnstr. Sept 15 - 1932

B.M.	7.63	552.65		545.02	
2+00			4.98 = 0.27	52.38	9.54
+10			4.98 = 0.27	"	
+20			5.06 = 0.35	52.30	9.57
+30			5.13 = 0.42	52.23	9.59
+40			5.05 = 0.34	52.31	9.57
+50			5.06 =	52.30	9.57
+60			5.08 = 0.37	52.27	9.58
+70			5.06	52.30	9.57
+80			5.07	52.29	9.57
2+90			5.02 = 0.31	52.34	9.56

Dnstr. Sept 16 - 1932

B.M.	5.76	567.17		561.41	
0+30			5.05 = 0.34	66.83	4.72
+40			5.07 = 0.36	66.81	4.73
+50			5.05 = 0.34	66.83	4.72
+60			4.93 = 0.22	66.95	4.68
+70			4.97 = 0.26	66.91	4.69
+80			4.96 = 0.25	66.92	4.69
+90			5.03 = 0.32	66.85	4.71
1+00			5.06 = 0.35	66.82	4.72
+10			5.03 = 0.32	66.85	4.71

4.71

75.00
52.30
3 | 22.7
7.57

75.00
66.80
3 | 8.2
2.73
2
66.8 = 4.73

Dastr. Sept 17-1932

B.M.	6.67	568.08		561.41	
1+10			5.94 = 1.23	66.85	4.72
+20			5.88 = 1.14	66.94	4.69
+30			5.81 = 1.10	66.98	4.68
+40			5.80 = 1.09	66.99	4.67
+50			5.94 = 1.23	66.85	4.72
+60			6.02 = 1.31	66.77	4.75
+70			6.02 = 1.31	66.77	4.75
+80			6.04 = 1.33	66.75	4.75
+90			6.04 = 1.33	66.75	4.75
2+00			6.11 = 1.40	66.68	4.78
B.M.	8.66	557.27		548.61	
2+90			4.87 = 0.16	57.11	= 7.96
+80			4.95 = 0.24	57.03	= 7.99
+70			4.87 = 0.16	57.11	= 7.96
+60			4.91 = 0.20	57.07	= 7.98
+50			4.83 = 0.12	57.15	= 7.95
+40			4.85 = 0.14	57.13	= 7.96
+30			4.91 = 0.20	57.07	= 7.98
+20			4.83 = 0.12	57.15	= 7.95
+10			4.78 = 0.07	57.20	= 7.93
2+00			4.91 = 0.20	57.07	= 7.98
B.M.	12.95	561.56		548.61	
Set B.M.			1.56	560.00	
T.P.	0.95	549.80	12.71	548.85	
B.M.			0.49	549.31	549.32

Sect D.

Sect C.

$$67.00 = 4.67$$

$$57.00 = 8.00$$

Dnstr. Sept 19-

B.M.	12.42	562.40	549.98	
T.P.			0.41	561.99
	10.07	572.06		
Set B.M.			0.54	571.52
0+30			5.12 = 0.41	71.65 = 3.12
+40			5.15 = 0.44	71.62 3.13
+50			5.07 = 0.36	71.70 3.10
+60			5.04 = 0.33	71.73 3.11
+70			5.07 = 0.36	71.70 3.10
+80			5.08 = 0.37	71.69 3.10
+90			5.12 = 0.41	71.65 3.12
1+00			5.10 = 0.39	71.67 3.11
+10			5.08 = 0.37	71.69 3.10
B.M.	1.14	550.46	549.32	
3+60				
3+87			2.76	547.70 = 11.10
B.M.	7.95	557.27	549.32	
3+60			4.86 = 0.15	57.12 7.96
+50			4.87 = 0.16	57.11 7.97
+40			4.92 = 0.21	57.06 7.98
+30			4.85 = 0.14	57.13 7.96
+20			4.82 = 0.11	57.16 7.95
+10			4.85 = 0.14	57.13 7.96
+00			4.81 = 0.10	57.17 7.95
2+90			4.84 = 0.13	57.14 7.96

Sect. E

75.0
71.7
3 | 3.3
1.10
2
71.7 = 3.10

Sect B.

75.0
57.1
3 | 17.9
5.97
2
57.1 = 7.97

575.0
547.7
3 | 27.3
9.10
2
547.70 = 11.10

Sept 19 - 1932

Toe of rock from upstr. wall

B.M.	1.35	567.82		566.47	
0+50			4.1	75 63.7 11.3/3 33.7 +2	= 35.7
1+00			10.7	75.0 57.1 17.9/3 53.1 +2	= 55.7
1+50			15.5	75.0 52.3 22.7/3 68.1 +2	= 70.1
B.M.	2.57	569.04		566.47	
2+50			16.2	75.0 52.8 22.2/3 66.6 +2	= 68.6
3+50			12.5	75.0 56.5 18.5/3 55.5	= 57.5
4+00			8.4	75.0 60.6 14.4/3 43.2 +2	= 45.2
4+50			4.8	75. 64.2 10.8/3 32.4 +2	= 34.4

Dnstr. Sept 20-1932

B.M.	11.78	E71,78		560.00		
1+10			4.80 = 0.09	71.69	3.11	
+20			4.68 = +0.03	71.81	3.07	
+30			4.71 = 0.0	71.78	3.08	
+40			4.71 = 0.0	71.78	3.08	
+50			4.82 = 0.11	71.67	3.11	
+60			4.91 = 0.20	71.58	3.14	
+70			4.94 = 0.23	71.55	3.15	
+80			4.84 = 0.13	71.65	3.12	
+90			4.85 = 0.14	71.64	3.12	
2+00			4.94 = 0.23	71.55	3.15	

75.00
71.80
3 | 3.2
1.07
2
71.80 = 3.07

Sect. D.

25
71.55
3 | 3.45
1.15

B.M.	4.16	566.15		561.99		
0+20			4.61 = +0.10	66.25	4.91	
0+20			4.59 = +0.12	66.27	4.91	
0+10			4.50 +0.21	66.36	4.88	
Corner			4.42 = +0.29	66.44	4.85	= 6.01 for Cor.
0+00			4.25 = +.46	66.61	4.79	
0-10			4.27 = +.44	66.59	4.80	
0-10			4.36 = +0.35	66.50	4.83	E 6.40
0-20			4.41 = +0.30	66.45	4.85	E 6.42

75.00
66.50
3 | 8.50
2.83
2
66.50 = 4.83

Neat Line Dnstr. abt 11
Sept 21 - 1932

					Grade
B.M.	0.73	588.13		587.40	
		up	12.7	575.4	
0 - 30		Dn	13.8	574.3	560.0
		up	12.6	575.5	
0 - 25		Dn	14.4	573.7	560.0
B.M.	5.0	567.0		562.0	
		up.	4.9	562.1	
0 - 20		Dn	3.8	563.2	560.
B.M.	2.10	562.10		560.00	
2 + 00					
+10			4.78. 0.07	62.03	6.32
+20			4.78 = 0.07	62.08	6.32
+30			4.82 = 0.11	61.99	6.33
+40			4.82 = 0.11	61.99	6.33
+50			4.79 = 0.08	62.02	6.32
+60			4.89 = 0.18	61.92	6.36
+70			4.85 = 0.14	61.96	6.34
+80			4.84 = 0.13	61.97	6.34
2 + 90			4.80 = 0.09	62.01	6.33

Neat Line

	Dnstr.	Upstr.
563.0	C. 14.3 out 6°	C. 15.4 out 2°
560	C 13.2 out 7°	C 15.5 out 2°
	C 3.2 out 8°	C. 2.1 out 2°

75,00
62.00
3) 13,00
4,33
2
62.00 = 6,33 Sect C.

Dnstr. Sept 22 - 1932

B.M.	12.65	561.97		549.32	
2+90			+0.6	62.03	6.32
3+00.			+0.14	62.11	6.29
+10			+0.20	62.17	6.27
+20			+0.15	62.12	6.29
+30			+0.13	62.10	6.30
+40			+0.17	62.14	6.28
+50			4.80 = +0.09	61.88	6.37
+60			4.77 = 0.06	61.91	6.36

Sept 23

B.M.	1.49	550.81		549.32	
4+02.14			10.66	540.15	= 13.62 & 11.11
			3.14	47.67	
3+87.5			10.59	540.22	= 13.60 & 11.11

Final Profile
Dnstrm Wall

B.M.	8.01	579.53		571.52	
		up	10.5	69.0	
0-30		Dn	11.2	68.3	

Sect B.

75
62
3 | 13
4.33
2
62.0 = 6.33

75.00
47.67
3 | 27.33
9.11
2
11.11

42.00 = 13.67

Sept 23 - 1932

B.M.	6.76	566.76		560.00		
2+10						
+20			4.56 = +0.15	66.91	4.69	
+30			4.61 = +0.10	66.86	4.71	
+40			4.55 = +0.16	66.92	4.69	
+50			4.62 = +0.09	66.85	4.71	Sect C.
+60			4.67	66.80	4.73	
+70			4.62 = +0.04	66.80	4.73	
+80			4.66 = +0.05	66.81	4.73	
2+90			4.74 = 0.03	66.73	4.75	
3+00			4.83 = +0.08	66.84	4.72	
+10			4.84 = +0.07	66.83	4.72	
+20			4.66 = +0.05	66.81	4.73	Sect B.
+30			4.69 = +0.02	66.78	4.74	
+40			4.69 = +0.02	66.78	4.74	
+50			4.78 = 0.07	66.69	4.77	
3+60			4.73 = 0.02	66.74	4.75	

Sept 24 - 1932

B.M.	3.07	552.39		549.32	
3+60			4.69 = +0.02	52.41	9.53
+70			4.82 = 0.11	52.28	9.58
+80			4.68 = +0.03	52.42	9.58
+90			4.64 = +0.07	52.46	9.52
+95			4.75 = 0.04	52.35	9.55
4+02.4			4.74 = 0.03	52.36	9.55

75.0
66.8
318.2
66.80 = 2.73
2
4.73

75.00
52.42
3 | 22.58
7.53
52.42 = 9.53

Sept 26

B.M.	11.69	571.69		560.00	
2+00			4.92 = 0.21	71.48	3.17
+10			4.71 = 0.0	71.69	3.10
+20			4.68 = +0.03	71.72	3.09
+30			4.74 = 0.03	71.66	3.11
+40			4.66 = +0.05	71.74	3.09
+50			4.75 = 0.04	71.65	3.12
+60			4.83 = 0.12	71.57	3.14
+70			4.82 = 0.11	71.58	3.14
+80			4.87 = 0.16	71.53	3.16
2+90			4.86 = 0.15	71.54	3.15

Sect C

71.70 = 3.10

3 | 3.8
1.1
2

75.00
71.70

Sept 27 - 1932

B.M.	7.72	557.04		549.32	
4+01			4.56 = +0.15	57.19	7.93
3+95			4.56 = +0.15	57.19	7.93
3+90			4.55 = +0.16	57.20	7.93
3+80			4.57 = +0.14	57.18	7.91
3+70			4.63 = +0.08	57.12	7.91

57.2 = 7.93

3 | 17.8
5.93

75.0
57.2

Sept 28 - 1932

B.M.	11.78	571.78		560.00	
2+10					
3+00			4.78 = 0.07	71.71	3.10
+10			4.85 = 0.14	71.64	3.12
+20			4.84 = 0.13	71.65	3.12
+30			4.87 = 0.16	71.62	3.13
+40			4.84 = 0.13	71.65	3.12
+50			4.98 = 0.27	71.51	3.16
+60			4.93 = 0.22	71.56	3.15

Sect B

Sept 29-1932

B.M.	12.90	562.22	549.32		
4+01		4.88=0.17	62.05	6.31	Sect A
3+95		4.90=0.19	62.03	6.32	
3+90		4.89=0.18	62.04	6.32	
3+80		4.97=0.26	61.96	6.34	
3+70		4.97=0.26	61.96	6.34	
For Key		4.4=+0.6	62.8		

$$\begin{array}{r} 75 \\ 62 \\ \hline 3\overline{)13} \\ 4.33 \\ \hline 2 \end{array}$$

62.00 = 6.33

75.0
62.8
12.2
.015
610
122
.1830
1.03
1.21

Profile of Core Wall
Sept 29. 1932

B.M.	5.65	545.04 ✓		539.39	
N 3460			14.7	530.3	✓
3450			6.8	538.2	✓
T.P.	12.23	556.57 ✓	0.70	544.34	✓
stake			10.06	546.51	✓
3440			10.5	546.1	✓
3430			9.4	547.2	✓
3420			8.5	548.1	✓
3410			5.7	550.9	✓
stake			3.60	552.97	✓
3400			3.5	553.1	✓
3390			2.3	554.3	✓
T.P.	11.18	567.02 ✓	0.73	555.84	✓
stake			7.33	559.69	✓
3380			7.3	559.7	✓
T.P.	12.72	579.06 ✓	0.68	566.34	✓
3370			8.8	570.3	✓
3360			8.8	570.3	✓
3350			5.2	573.9	✓
T.P.	12.95	591.57 ✓	0.44	578.62	✓

5/31/32. 3rd Tr.

Profile of Core Wall - Cont.

591.57 ✓

Stake 3340			5.43	586.14 ✓	
			5.0	586.6 ✓	
3330			4.9	586.7 ✓	
3325			4.0	587.6 ✓	
3320			+2.6	594.2 ✓	
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	610.17 Hub on Ax 13.

Oct 1 - 1932

B.M.	4.77	576.29		571.52	} Sect F
			4.29	572.0	Fill 3% } Sect F
B.M.	8.71	580.23		571.52	
T.P.			5.23	575.00	Rd. Head Sta 1+90
	1.62	576.62	4.62	572.00	Fill 3% } Sect C.

Sept 3 - 1932

B.M.	7.16	567.16		560.00		
4+01			5.00 = 0.29			
3+95			5.03 = 0.32	66.87	4.71	
				66.84	4.72	
3+90			5.03 = 0.32	66.84	4.72	Sect A
3+80			5.12 = 0.41	66.75	4.75	
3+70			5.16 = 0.45	66.71	4.76	
For Key			4.2 = +0.8	68.0		

Sept 4 - 1932

B.M.	1.57	576.57		575.00		
			4.57	572.00	F.11 3/4	Sect "B"
B.M.	11.47	571.47		560.00		
4+01			4.66 = +0.05	71.52	3.16	
3+95			4.66 = +0.05	"	3.16	
+90			4.68 = +0.03	71.50	3.17	Sect "A"
+80			4.71 = 000	71.47	3.18	
+70			4.66 = +0.05	71.52	3.16	

75.00
66.84
318.16
2.72
2
6684 = 4.72

75
68
.015
7
.105
1.03
1.14

350
71.5
3 | 3.5
1.17
2
3.17

Profile of Core Wall
Oct 4 - 1932

Not Final -

N3465	528.0
N3470	505.0
N3480	504.3
3500	503.4
3520	503.0
3540	501.7
3560	501.8
3580	502.4
3600	503.9
3620	503.9
3640	504.3
3660	507.0
3680	509.0
3700	512.6
3720	516.5
3740	522.0
3760	530.4
3775	541.5

Sump N. 3535

.015
2
.03

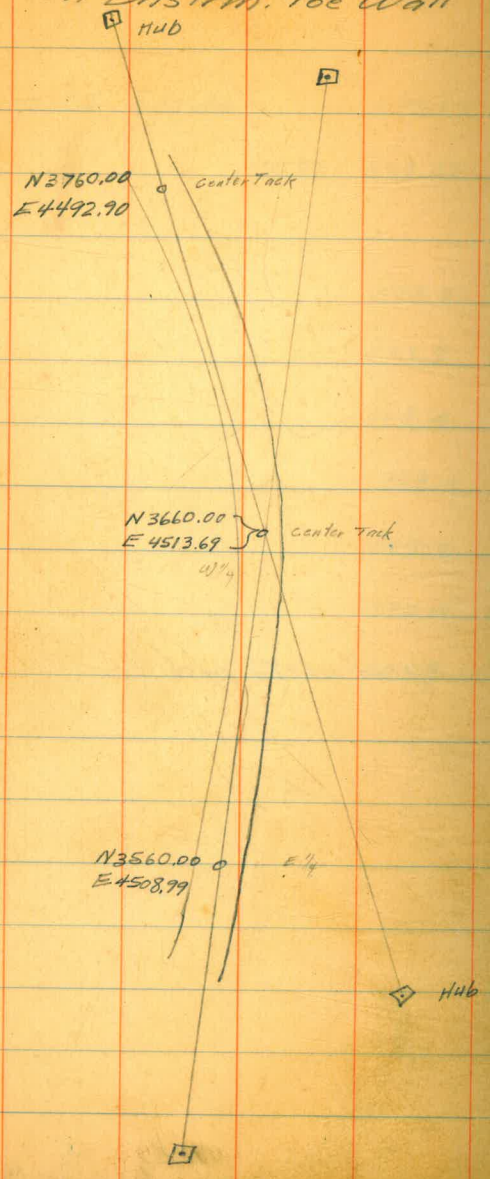
28.1

Profile of Core Trench
Oct 11 - 1932

B.M.	0.25	539.64		539.39
T.P			10.37	529.27
3680				503.0
3690				502.8
3710				508.4
3730				513.0
3750				517.2
3765				520.4
3770.				540.7

Top Trench at north end

Points and P.P.s
On Dnstrm. Toe Wall



522

Oct 18 1932
Elevs. of Concrete
Core Wall

3640	509.8
3615	510.1
3595	509.9
3575	510.8
3560	510.5
3535	510.3
3515	509.9
3495	509.8
N3480	509.9

Core Wall
Steel Points

B.M.	0.88	533.94		533.06	
3636			12.07		F O-1½
3628			12.10		F O-2"
3620			12.09		F O-1¾
3612			12.05		F O-1¼
3604			12.00		F O-¾
3596			11.98		F O-½
3588			11.94		Grade
3580			11.87		C. O-⅛
3572			11.86		C O-1"
N3564			11.88		C O-¾"
B.M.	0.77	533.83		533.06	
3556			11.78		C O-⅝"
48			11.75		C O-1"
40			11.75		C O-1"
32			11.84		Grade
24			11.78		C. O-⅝"
16			11.80		C O-¾
3508			11.78		C. O-⅝
3500			11.80		C O-¾
3492			11.82		Grade
3484			11.84		Grade

12.09
11.94
15

11.83

Core Wall Steel Points
Oct 21 - 1932

543.03

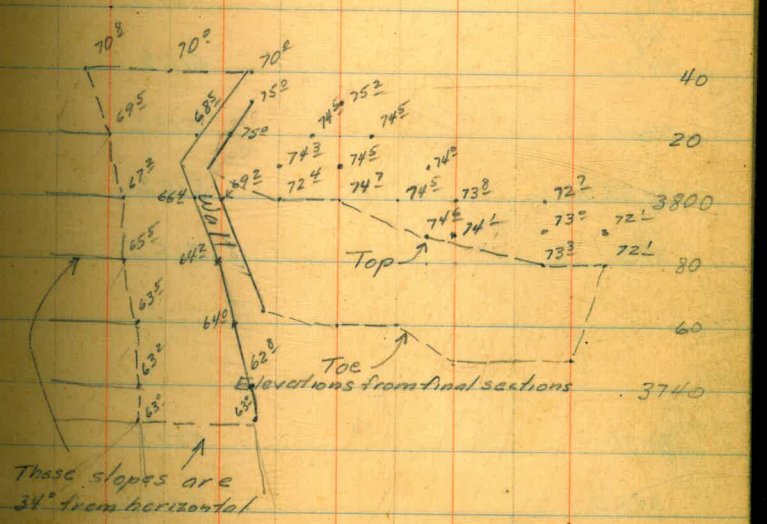
3756			11.06		532.0	F 0 - 0 3/8"
N 3748.			12.70		530.0	C 0 - 4"
3740			12.86		530.0	C 0 - 2"
3732			12.99		530.0	G 0 - 0 1/2"
T.P.	4.32	538.52	8.83	534.20		
3724			10.61		528.0	F 0 - 1 7/8"
3716			10.75		528.0	F 0 - 2 3/4"
3708			10.74		528.0	F 0 - 2 5/8"
B.M.			5.46	533.06		
3700					526.0	
3692					526.0	
3684					526.0	
3676					524.0	
3668					524.0	
3660					524.0	
3652					522.0	
3644					522.0	

Oct 31 - 1932
Rock Fill

B.M.	12.34	551.73		539.39
Set B.M.			0.42	551.31
	2.73	554.04		
Set B.M.			1.83	552.21
N3560 E5175			5.7	
N3580 E5170			5.3	
N3600 E5175			5.1	
N3620 E5175			4.9	

Rock Embankment

for Estimate n.



Final Profile of Core Wall
Nov. 1, 1932

N 3480	503.2
3470	503.4
↑ Vertical ↓	
3470	511.6
3460	513.4
3455	515.4
3450	515.4
3430	522.5
3420	524.4
3410	526.1
3400	527.3
3390	529.0
↑ Step ↓	
3390	532.0
3385	532.6

B.M.	11.44	618.82		607.38		
			0.73	618.09		
	10.37	628.46				
N 39885 E 5220						
			3.46	625.00	Toe of	Slope
T.P. N 39445 E 5210	1.87	617.63	12.70	615.76		
			2.6	615		"
N 3912 E 5200						
			12.6	605		"
B.M.	11.61	544.67		533.06		
			2.01	542.66		
	1.24	543.90				
			5.89		Grade	
3756			11.94	531.96	532.00	F 0.04
3764			11.88	532.02	532.00	C 0.02
3772			11.84	532.06	532.00	C 0.06
Sta 3776			7.90	536.00		
			7.90	536.00		
3784			3.90	540.00		
			3.90	540.00		
3792			12.10	546.00		
3800			+2.10	546.00		

Steel

					Grade	
B.M.	8.90	560.33		551.43		
3380			6.38	553.95	554.00	F 0.05
T.P.	12.96	572.55	0.74	559.59		
3372			11.51	561.04	561.00	C ½"
3364			8.63	563.92	564.00	F 1"
3356			8.53	564.02	564.00	C ¼"
3348			3.42	569.13	570.00	F 10½"

Rock Embankment.

B.M.	11.72	619.10		607.38
T.P.	12.88	630.97	1.01	618.09
			5.83	625.14
			6.0	625.0

Stieves B.M. Marks 628.00

N 3980
E 5343

Dec 15 - 1932

N3240 E5205.5	Rock & Roll Fill		Puddle & Roll.	
N3260 E5219	"	3260 4964.4	"	
N 3280 E 5213.8	"	3280 E 4962.5	"	3280 4747.3
N 3300 E 5208.4	"	3300 5055.0	"	3300 4727.3

Elevs. of Stripping - July 19-1932

B.M.	1.38	553.38		552.00	
out E. of drain #2 about 100'			8.8	544.6	
T.P.	4.85	556.34	1.89	551.49	
N. of core wall			8.7	547.6	
T.P.	11.69	567.75	0.28	556.06	
W. of Upstr. Toe wall			17.8	550.0	
B.M.			1.29	566.46	566.47

Elliott - Notes
Simpson - Level
Soper - Rod
Reinmen - Stakes

July 15 - 1932

B.M.	9.20	689.39		680.19
	10.54	699.46	0.47	688.92
	11.96	708.57	2.85	696.61
Set B.M	2.68	710.83	0.42	708.15
	10.03	710.55	10.31	700.52
	7.32	705.27	12.60	697.95
Set B.M.	2.99	704.48	3.78	701.49
	8.47	703.48	9.47	695.01
	3.33	704.82	1.99	701.49
Set B.M.	0.68	700.00	5.50	699.32
	0.73	687.72	13.01	686.99
	0.64	675.56	12.80	674.92
T.P.			12.93	662.63
	0.64			
			8.12	
	0.54			

Spike in stump 50' N and 4½' below inlet syphon

Point on rock about 100' E. of ⌀F

Point on rock in draw about 400' S. of syphon

End July 15 - 1932

Joints on Core Wall

3000 A
3080 B
3160 C
3240 D
3320 E
3400 F
3480 G
3560 H
3640 I
3720 J
3800 K
3880

Construction Joints
On Core Wall Oct 20-1932

3480
3512
3544
3576
3608
3640
3672
3704
3736
3768
3800

320

Entrance Portal

B.M.	1.48	598.17		596.69	
T.P.			13.01	585.16	
	3.08½	588.24½			
T.P.			11.54	576.70½	
	4.03	580.73½			
B.M			7.64	573.09½	Top of Pipe Sta. 0-50 (4' offset)
0-02.6			3.52½	577.21	Set Nail 4' above grade
0+08.9			3.72½	577.01	Set Nail 4' above grade
T.P.			2.71	578.02½	

B.M.	6.18	569.83		563.65	
T.P. "A"			12.85	556.98	
	1.75	558.73			
			6.73	552.0	
B.M.			5.10	553.63	
T.P.			1.86½	556.86½	
	7.07½	563.94			
B.M.			0.29	563.65	Record 563.65
T.P. "A"	2.55	559.53		556.98	
11+72.77			5.86	553.67	
11+65.6			1.74	557.79	
B.M.	5.64	559.27		553.63	
B.M.			5.11	554.16	
	5.04	559.20			
			4.93	554.27	

55367 11+65.6 13+31.04 77 13+31.04
60 11+36.6 11+72.77 1+65.47
554.27 29.0 1+58.27 11+65.57
.0166
29
1494
332
4814

.0166 11+72.77
72 11+65.57
332 7.2
1162 36.2
.11952 .0166
542.67 36.
542.79 996
16. 498
558.79 597.6

Iron Pipe at 13+31.04 (4' offset)

Grade at Portal
4' above grade (Set Nail on first Timber)

Set B.M. Top pipe at Portal

Slope Stakes From Radius

				Elev.	Grade
B.M.	1.07	600.94		599.87	
			12.82	588.12	
	0.80	588.92			
	0.67	576.89	12.70	576.22	
End of Wall			5.9	571.0	530.0
out 68.5			11.4	565.5	530.0
	3.73	567.69	12.93	563.96	
out 137.			4.7	563.0	530.0

Slope Stake

C 41.0
20.5

C 35.5
53.2

C 33.0
49.5

Location of Division Pipe

W. of Axis	E. of Axis	
N 3440 E 5000	N 3452 E 5060	
N 3440 E 4920	N 3493 E 5240	
N 3464 E 4820	N 3498 E 5460	
N 3513 E 4720	N 3499 E 5580	
N 3537 E 4640	N 3464 E 5800	
N 3531 E 4580	N 3412 E 5940	
N 3510 E 4520	N 3350 E 6080	
N 3507 E 4455	N 3318 E 6130	Entrance Elev. 560.8
N 3503 E 4405		
N 3516 E 4355		
N 3533 E 4305		
N 3541 E 4255		
N 3540 E 4205		
N 3528 E 4120		
N 3521 E 4085	Exit Elev. 550.0	

Conc. Mon N 3504.18 N 71-59-45E
E 6135.91

3700 - E 4880
3660 "
3620 "
3580 "
3540 "
3500 "
3460 "
3420 "
3400 "

4736.92
4580
156.92
119
37.92
4036.31

3820 - E 4360

N 3840 = 0.6

75.00
57.07
3 | 117.21
5.98
2
7.98

4+15 = 11.67
4+20 11.12
4+25 = 10.56
56

77
73.98
150.98

75.00
57.49
3 | 117.51
5.84

8.56
3
75.00
25.68

B.M. 566.47

549.33

Calculation of Earthwork.

Width	HEIGHT														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.02	.04	.06	.07	.09	.11	.13	.15	.17	.18	.20	.22	.24	.26	.28
2	.04	.07	.11	.15	.18	.22	.26	.30	.33	.37	.41	.44	.48	.52	.56
3	.06	.11	.17	.22	.28	.33	.39	.44	.50	.56	.61	.67	.72	.78	.83
4	.07	.15	.22	.30	.37	.44	.52	.59	.67	.74	.81	.89	.96	1.04	1.11
5	.09	.19	.28	.37	.46	.56	.65	.74	.83	.93	1.02	1.11	1.20	1.30	1.39
6	.11	.22	.33	.44	.56	.67	.78	.89	1.00	1.11	1.22	1.33	1.44	1.55	1.67
7	.13	.26	.39	.52	.65	.78	.91	1.04	1.16	1.30	1.42	1.55	1.68	1.81	1.94
8	.15	.30	.44	.59	.74	.89	1.04	1.19	1.33	1.48	1.63	1.78	1.92	2.08	2.22
9	.17	.33	.50	.67	.83	1.00	1.17	1.33	1.50	1.67	1.83	2.00	2.17	2.33	2.50
10	.18	.37	.56	.74	.93	1.11	1.30	1.48	1.67	1.85	2.04	2.22	2.41	2.59	2.78
11	.20	.41	.61	.82	1.02	1.22	1.43	1.63	1.83	2.04	2.24	2.44	2.65	2.85	3.06
12	.22	.44	.67	.89	1.11	1.33	1.56	1.78	2.00	2.22	2.44	2.67	2.89	3.11	3.33
13	.24	.48	.72	.96	1.20	1.44	1.68	1.92	2.16	2.41	2.65	2.89	3.13	3.37	3.61
14	.26	.52	.78	1.04	1.30	1.55	1.81	2.08	2.33	2.59	2.85	3.11	3.37	3.63	3.89
15	.28	.56	.83	1.11	1.39	1.67	1.94	2.22	2.50	2.78	3.06	3.33	3.61	3.89	4.17
16	.30	.59	.89	1.18	1.48	1.78	2.07	2.37	2.67	2.96	3.26	3.56	3.85	4.15	4.44
17	.31	.63	.94	1.26	1.57	1.89	2.20	2.52	2.83	3.15	3.46	3.78	4.09	4.41	4.72
18	.33	.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	3.67	4.00	4.33	4.67	5.00
19	.35	.70	1.06	1.41	1.76	2.11	2.46	2.82	3.17	3.52	3.87	4.22	4.57	4.92	5.28
20	.37	.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.07	4.44	4.81	5.18	5.56
21	.39	.78	1.17	1.55	1.94	2.33	2.72	3.11	3.50	3.89	4.28	4.67	5.06	5.44	5.83
22	.41	.81	1.22	1.63	2.04	2.44	2.85	3.26	3.67	4.07	4.48	4.89	5.30	5.70	6.11
23	.43	.85	1.28	1.70	2.13	2.56	2.98	3.41	3.83	4.26	4.68	5.11	5.54	5.96	6.39
24	.44	.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	4.89	5.33	5.78	6.22	6.67
25	.46	.92	1.39	1.85	2.31	2.78	3.24	3.70	4.17	4.63	5.09	5.56	6.02	6.48	6.94
26	.48	.96	1.44	1.92	2.41	2.89	3.37	3.85	4.33	4.82	5.30	5.78	6.26	6.74	7.24
27	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
28	.52	1.04	1.55	2.07	2.59	3.11	3.63	4.15	4.67	5.18	5.70	6.22	6.74	7.26	7.78
29	.54	1.07	1.61	2.15	2.68	3.22	3.76	4.30	4.83	5.37	5.91	6.44	6.98	7.52	8.06
30	.56	1.11	1.67	2.22	2.78	3.33	3.89	4.44	5.00	5.55	6.11	6.67	7.22	7.78	8.33
31	.57	1.15	1.72	2.30	2.87	3.44	4.02	4.59	5.17	5.74	6.32	6.89	7.46	8.04	8.61
32	.59	1.18	1.78	2.37	2.96	3.56	4.15	4.74	5.33	5.92	6.52	7.11	7.70	8.30	8.89
33	.61	1.22	1.83	2.44	3.05	3.67	4.28	4.89	5.50	6.11	6.72	7.33	7.94	8.55	9.17
34	.63	1.26	1.89	2.52	3.15	3.78	4.40	5.04	5.67	6.29	6.93	7.56	8.18	8.81	9.44
35	.65	1.30	1.94	2.59	3.24	3.89	4.53	5.18	5.83	6.48	7.13	7.78	8.42	9.08	9.72
36	.67	1.33	2.00	2.67	3.33	4.00	4.66	5.33	6.00	6.67	7.33	8.00	8.67	9.33	10.00
37	.68	1.37	2.06	2.74	3.42	4.11	4.79	5.48	6.17	6.85	7.54	8.22	8.91	9.59	10.28
38	.70	1.41	2.11	2.82	3.52	4.22	4.92	5.63	6.33	7.03	7.74	8.44	9.15	9.85	10.56
39	.72	1.44	2.17	2.89	3.61	4.33	5.05	5.78	6.50	7.22	7.95	8.67	9.39	10.11	10.83
40	.74	1.48	2.22	2.96	3.70	4.44	5.18	5.92	6.67	7.41	8.15	8.89	9.63	10.37	11.11

Table gives cu. yds. in 1 ft. of a triangle of given width and height. Corrections for tenths of width are one tenth the values found under each height considering the widths from 1 to 9 as tenths and similarly the corrections for tenths of height are one tenth the figures opposite width considering the heights from 1 to 9 as tenths. Thus if w =16.2 and h =5.3, cu. yds. =1.48+.028+.089 =1.597 cu. yds. or practically 160 cu. yds. per 100 ft. If w exceeds 40 ft., use one half and multiply result by 2, if both w and h are large use one half of each and multiply result by 4. Any cross-section may be divided into triangles by the following rule. To the triangle of the sum of the outside cuts (or fills) =h, and ½ the roadbed =w, add the triangles formed by taking the distance out to each break in turn (=w's) by the difference between the cuts (or fills) on each side of it (=h's) always subtracting the outer from the inner.

Distances from Center of Roadway for Cross-Sectioning.

Roadway 16 feet wide. Side Slopes 1 on 1½.

For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
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.

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