W2
47

CROSS SECTION BOOK

395

W47

From Bluffs table April 17 19

Discharge Table
Barrett Waste Box:- 6' wide

Depth in Feet.	U.S. Gallons 24 Hours.	Cubic Feet per Second.
	Estimate U.S. Geo. Survey May '09	
0.1	452,420	0.7
0.2	1,292,630	2.0
0.3	2,197,471	3.4
0.4	3,231,575	5.0
0.5	4,394,942	6.8
0.6	5,558,309	8.6
0.7	6,850,939	10.6
0.8	8,143,569	12.6
0.9	9,565,462	14.8
1.0	11,116,618	17.2
1.1	12,667,774	19.6
1.2	14,348,193	22.2
1.3	16,157,875	25.0
1.4	18,096,820	28.
1.5	20,035,765	31.0
1.6	21,974,710	34.0
1.7	23,913,655	37.0
1.8	25,852,600	40.
1.9	28,437,860	44.
2.0	31,023,120	48.
2.1	33,608,380	52.
2.2	36,193,640	56.
2.3	40,071,530	62.
2.4	44,595,735	69.
2.5	50,412,726	78.
2.56	54,290,628	84.

Concrete Weir 61' wide
Q = 2.4 qB$^{3/2}$

x Weir.

MICROFILMED JAN 0 1985

Min 16" x 8"

Otay leak 51.

1913.

Construction Notes.

Last Record

Dulzura Conduit.

M.M. O'Shaughnessy

Chief Engineer.

1 Aug. 1907.

Alignment Corn

Job 55 Dulzura Conduit
Job 56 Barrett Dam
Job 57 Conduit Extension from Dulzura
Job 58 Contract, Dulzura Conduit
Job 59 Contractor's Force Acct.; Dulzura Conduit
Job 60 Morena Dam
Job 60A Miscellaneous Buildings, Morena
Job 60B Camp Buildings, Morena, Boarding House, Bunk House, Commissary & Store Buildings
Job 60E Explosives
Job 60F Rock Fill
Job 60C Concrete Work
Job 60-O Outlet
Job 72 Slabbing
Job 94 Barrett Fences
Job 95 Trail.

5209 294

			31	2.300.000	
				2.404 000	
22	1400.000		32		4
			33	2607 000	
25	1745 000		35	2714 000	45 3813 200
26	1835 000		36	2817 000	
27	1926 000		38	3024.000	
28	2016 000		39	3128 000	
29	2104 000				

TTONWOOD STREAM.

Box Gauge- Old 72-09.

epth in feet. Disch. Gal. per 24hrs.

		×646 35	
0.1	0.7	452 420	516 800
0.2	2.0	1 292 630	1 421 200
0.3	3.5	2 262 102	2 648 600
0.4	5.0	3 231 575	4 069 800
0.5	6.7	4 330 310	5 684 800
0.6	8.6	5 558 309	7 493 600
0.7	10.6	6 850 939	9 431 600
0.8	12.7	8 208 200	11 040 140
0.9	15.0	9 694 420	13 759 800
1.0	17.4	11 193 681	16 150 000
1.1	19.8	12 797 037	18 604 800
1.2	22.3	14 412 824	21 253 400
1.3	25.5	16 481 032	23 902 000
1.4	28.0	18 096 820	26 744 400
1.5	31.0	20 035 765	29 586 600
1.6	34.0	21 974 710	32 300 000
1.7	37.0	23 913 655	35 530 000
1.8	40.3	26 046 464	38 760 000
1.9	43.4	28 050 071	42 119 200
2.0	47.6	30 764 594	45 543 000
2.1	51.7	33 44 485	49 096 000
2.2	56.4	36 452 166	52 649 000
2.3	61.5	39 748 370	56 202 000
2.4	69.0	44 595 735	60 401 000

Concrete weir 61' wide. 0 = 2.4 Box Weir.

Stayleak 51.

1913

Construction Notes:

Last Record

Dulzura Conduit.

M.M. O'Shaughnessy

Chief Engineer.

17 Aug. 1907.

Abbreviations Copy

Job 55 Dulzura Conduit
Job 56 Barrett Dam
Job 57 Conduit Extension from Dulzura
Job 58 Contract, Dulzura Conduit
Job 59 Contractor's Force Acct.; Dulzura Conduit
Job 60 Morena Dam
Job 60A Miscellaneous Buildings, Morena
Job 60B Camp Buildings, Morena, Boarding House, Bunk House, Commissary & Store Buildings
Job 60E Explosives
Job 60F Rock Fill
Job 60C Concrete Work
Job 60-0 Outlet
Job 72 Slabbing
Job 94 Barrett Fences
Job 95 Trail.

			31	2 300 000	
22	1 400 000		32	2 404 000	
			33	2507 000	
25	1745 000		35	2714 000	45 3813 200
26	1835 000		36	2 819 000	
27	1926 000		38	3024 000	
28	2016 000		39	3128 000	
29	2 094 000				

INDEX.

Galvelson 40

INDEX.

OLD

NEW

Otay Upper =

Dec 30-1911 -

9'-9" from Top of Dam to Surface of Water =

(1)

LOWER OTAY. Reservoir

Feet.	Acres.	Million Gallons.
60	239	1 402
70	276	2 245
80	303	3 191
90	452	4 424
100	567	6 088
105	630	7 074
110	691	8 146
115	752	9 322
120	803	10 589
124	869	11 679

FEET.	Acres.	Million Gallons.
	MORENA RESERVOIR	
50	46	149
60	73	351
70	111	660
80	152	1 080
90	225	1 690
100	304	2 551
110	438	3 736
120	624	5 473
130	850	7 854
140	1137	11 194
150	1370	15 226

TRAIL MILEAGE: AUGUST 31

Goodbody's to Large Bolder N.4	4600 Feet	Wagon
Over Tunnel 4.	4878 "	horse
Junction to S.4	800 "	"
S.4 to Well	300 "	"
North "Y" Goodbody's	250 "	"
Around #3.	3750 "	"
#3 to Wagon Road	6550	Wagon
Cottonwood to Tunnel #1	3785	horse
Around Tunnel #1	3100	horse
" " #1 to Louis	4743	horse
" Louis trail	2162	—
	34,918	
Johnson's Camp	1850	

Johnson's work. 299+67 336+30

Page 16	298.5		
17	403.5		
18	526.0		
19	661 -		
20	499.5		
21	509.0		
22	347.0		
23	278.		
24	383		
25	207.5		
26	308.		
27	145.5	4566.5	282+40 - 287+50
28	135.		
29	45	180.	4746.5 Cubic yards.

176+45 - 204+50

O'BYRNES WORK.

1	199.3	
2	299.4	
3	551.9	
4	334.6	
5	391.2	
6	632.6	
7	457.0	
8	324.4	
9	426.0	
10	325.0	3941.4

McGUIRES. WORK 255+38 264.

12	216.		
13	509		
14	195		
15	147	1067.	5008.4

9.754.9 Cubic yards.

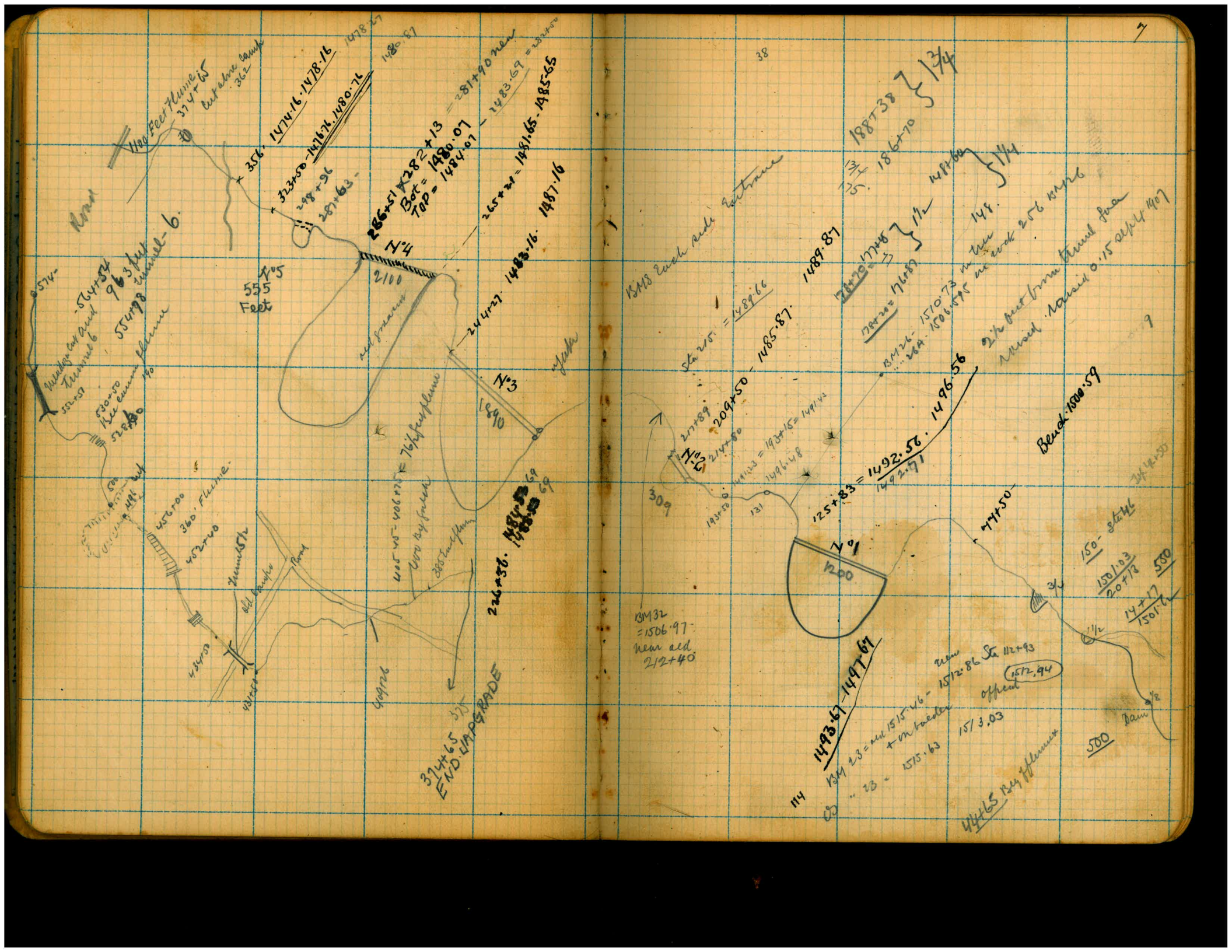
On Bench Grade.

1907. September

	10	20	30	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
North # 1	5	41	68										3	3	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4
South # 1	8	19	29					3	4	4			3	5	5	4	5	5	5	6	5	5	5	4	4	4	4	4	4	4	4	4	4
Ditch # 1. 2				23	23	23	23	24	24				24	5	19	18	21	—	20	21	22	22	18	20	—	26	33	31	28	28	28	—	29	
North # 3	16	41	82			3	3	3	3				3	2	3	6	3	5	5	5	5	5	4½	5	5	5	5	5	5	5	5	5	
South # 3	15	32	40				4	4	3	3			3	3	6	6	5	5	5	5	5	5	5	5	4	4	5	5	7	7	7	7	7
North # 4				4	4	4	4	4	4				4	4	3	3	4	—	3	3	3	3	3	3	3	3	5	5	5	5	5	5	5
South # 4	18	50	69					3	3				3	6	6	6	6	3	5	5	6	3½	4	4	4	4	4	4	4	5	5	5	5
	62	183	288																														
Ditch 5 6				21	21	26	26	27	26				26	30	28	30	30	—	34	34	36	36	36	36	—	30	30	30	32	29	31	—	31	
				51	51	55	63	68					69	69	58	45	78	79	23	82	83	86	84½	80½	82	24	80	90	88	89	87	89	30	90

Men on 6 Yds Rain

	585	32	809	5.8
	101	3	943	3.9
	711	34	84½	4.9


Hay Feet Flume
374+65
Entrance Gate
362
1474.16
1478.16
1478.27
1480.87
+ 356.
+ 323+50
1476.76
1480.76
248+96
281+63
286+51
282+13
Bot = 1480.07
TOP = 1484.07
= 281+90 new
1483.69
= 282+70
265+21 = 1491.65
1485.65
1487.16
Road
554+54
963 feet
Tunnel 6
554+98
Tunnel 6
Gauging Station
Tunnel 6
530+50
Ice Cement Flume
528+80
190
555
Feet
No 4
2100
No 5
244+27
1483.16
No 3
1490
Flume
Old Ground
Old Ground
405+25 = 761 feet Flume
Old Ground
380 Feet Flume
456+00
360. Flume.
452+40
Tunnel 5
Old Trestle
Road
434+50
431+20
226+56
1485.5
1488.69
1488.69
Old Ground
515
314+65
END UPGRADE
38
1887+38
1866+70
Sta 215. = 1489.66
1489.87
178+20 = 176.89
177+48
148+60
148.
BM 26 - 1510.73
26A - 1508.48
2½ feet from Tunnel face
Natural 0.15 elev 1497
Beach 1500.59
209+50 - 1485.87.
214+80
217+89
No 2
193+15 = 1491.42
1496.48
131
125+83 = 1492.56. 1496.56
1492.91
309
No 1
1200
BM 32
= 1506.97
new old
212+40
1493.67 - 1497.67
114
BM 23 = old 1515.46 - new 1512.86 Sta 112+93
+ 2.8 to Coffer
1512.94
Offset
1513.03
1515.63
Dam
500
150 - Sta 46
150 1.03
20+13
14+17
150 1.67
500
44+65 BM Flume

Approximate estimate of flume lumber.

Dam to Dalgren.

FLUME

0	48+15	4412		
52+90		24		
65+50		50		
66+10	66+40	30		
69+67		200		
84+90		50		
86+50	88	150		
92+49	94	150		
97+70		30		
125+83	223	600		
286	356	500		
370		580		
440	444	600		
471+20	474+90	40		
		4566 feet		7166

0 H	0		1500
0	11+50		1150
19+50	24+75		525
27+20	32+80		560
34+20	46+50		1220
86+85	87+65		60
92+50			70
97+57	97+84	5|12	27
128+50			72
146	T 1/4		180
166+67	167+17	302	50
306	306+30 T5		31
337+50	337+95		45
339+05	341+14		209
373+26	384+25		1100
398+65			50
406			75
452+38	456+05		367
464+18			47
472+50			78
482+20			31
528+62	530+15	2190	153
		7604	

Day 4500 feet

Sept-4. 1907

W.M. Dods.

Russ Lumber Co supplied order 15224 Sept 27.07 8

C H Wapin Center Sylvanor

174	1½ × 12 – 12	CLRRWSIS + 2E
374	" " 16	" "
40	2" × 14 – 12	" "
279	2" × 14 – 16	" "
511	4" × 4" – 4½	SIS. cut off both ends + sawed in bent

Contract Rate

$.13 per foot timber

$.15 per M bm BM hauling timber from Wapi road

$.1 timbering.

$0.75 for excavation in cut.

$12.50 per ton freight from Lakeview

other work labor +10%

Progress estimate.

1st	100	$7.80
2nd	100	8.15
3	100	8.50
4	100	8.85
5	100	9.20
6	100	9.55
7	100	9.90
8th	100	10.25
9th	100	10.60
10	100	10.95
11	100	11.30

Finding 15% on each Bench 40% Each

15% per cent

25% Reserved.

1907 October.	10	20	31	NUMBER OF MEN 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	MEN	CU YDS.	Yds. per MAN.
North 1.	89	102	114	4	4	4	4	4	8	4	4	4	4	6	6	S 6	6	6	6	6			S.	4	4	R. 4	3							4	97		
South 1.	33.5	39	47																	5		2	2	4	4	4	4	4	4	4	4	4	4	4	53		
Short 1/4 Ditch	—	—	10					Teams w/ Ditch											1 24	1 20	1 21				2 22		2		2	2	2	2	2 23	2		6 (17)		
North 2	—	7	45.5													2	1	2	3	3	2				4	4	4	4					4	2	4			
South 2	—	21	48.5															2																			
North 3	115	136	147.5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	2 3 4 4	2 3 4 4	2 3 3				5 5	3 5	3 5	3 5					3 5	2 4	4 5			
South 3	46	50	63												2		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
North 4	—	—	—															—	4	2	2			2	2	2	4						4	2				
South 4	86	113.5	120	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5						5	5	5			
South 5																																					
Ditch																																					

Sunday

Sunday

Sunday

Sunday

Nov 1907	10	20	30	Mm TH	1	2	3	4	5	6	7	8	9	10	11	12	13	14
½																		
½		9																
N1 114	121	141	161	47				4	–	4	4	4	4	4	4	5	5	5
S1 47	56	67	89	42				4		4	4	4	4	4	4	5	5	5
1¼		46		46				2		2	2	2	2	2	3	3	3	3
DITCH BENCH 1↔2								(2) 22		(2) 26	15		(1) 13		(2) 13	(2) 30	(2) 32	(2) 33
N2 455	49	107	149	104				2		2	3	2	2	2	2	2	2	4
S2 485	49	114	158	109				4		4	5	4	2	2	2	2	2	4
N3 1475	162	181	206	59				4		4	3	4	4	4	4	6	6	10
S3 63	88	121	151	88				6		6	4	4	6	6	4	4		
Bench 2-3																		
North 4	2	21	38	38				3		3	–	3	–	–	2	4	4	4
South 4 120	132	150	165	45				4		5		5	5	5	5	5	5	5
North 5				26														
South 5				5									5		2	2	2	2
Bench 4-5								12		16		6	24	–	2	–		
Ditch 4-5															13	14	18	19
Ditch 5-6																		

* Salpo Began Ditch NOV 11

November	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	122
	5	6	4	6	6	6	6	6	6	6	6	6	6	5	5	5	133
	4	2	1	FINISHED													31
	(3) 30	(3) 31	–	(3) 31	(3) 31	(3) 29	(3) 30	(3) 30	(3) 30	–	(2) 14	(3) 24	13	8	7	12	(42) 504
	4	4	2	4	4	4	4	4	4	4	4	4	5	5	5	5	89
	4	4	4	4	4	4	5	5	5	5	5	5	4	3	3	3	98
	7	–	6	6	6	6	6	6	6	6	6	6	6	6	6	6	140
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	96
													(3)	(3)	(3)	(3)	(12)
										18	8	16	23	24	28		117
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	0	0	107
	5	4	5	7	7	7	7	7	7	7	7	7	7	7	7	6	151
						2	2	2	2	3	3	3	3	3	3	3	29
				4	4	4	4	4	4	2	2	2	2	2	2	2	51
																	60
	20	22	–	12													121
				14	24	24	26	26	26	–	23	42	41	38	41	⊙	325

⊙ windy

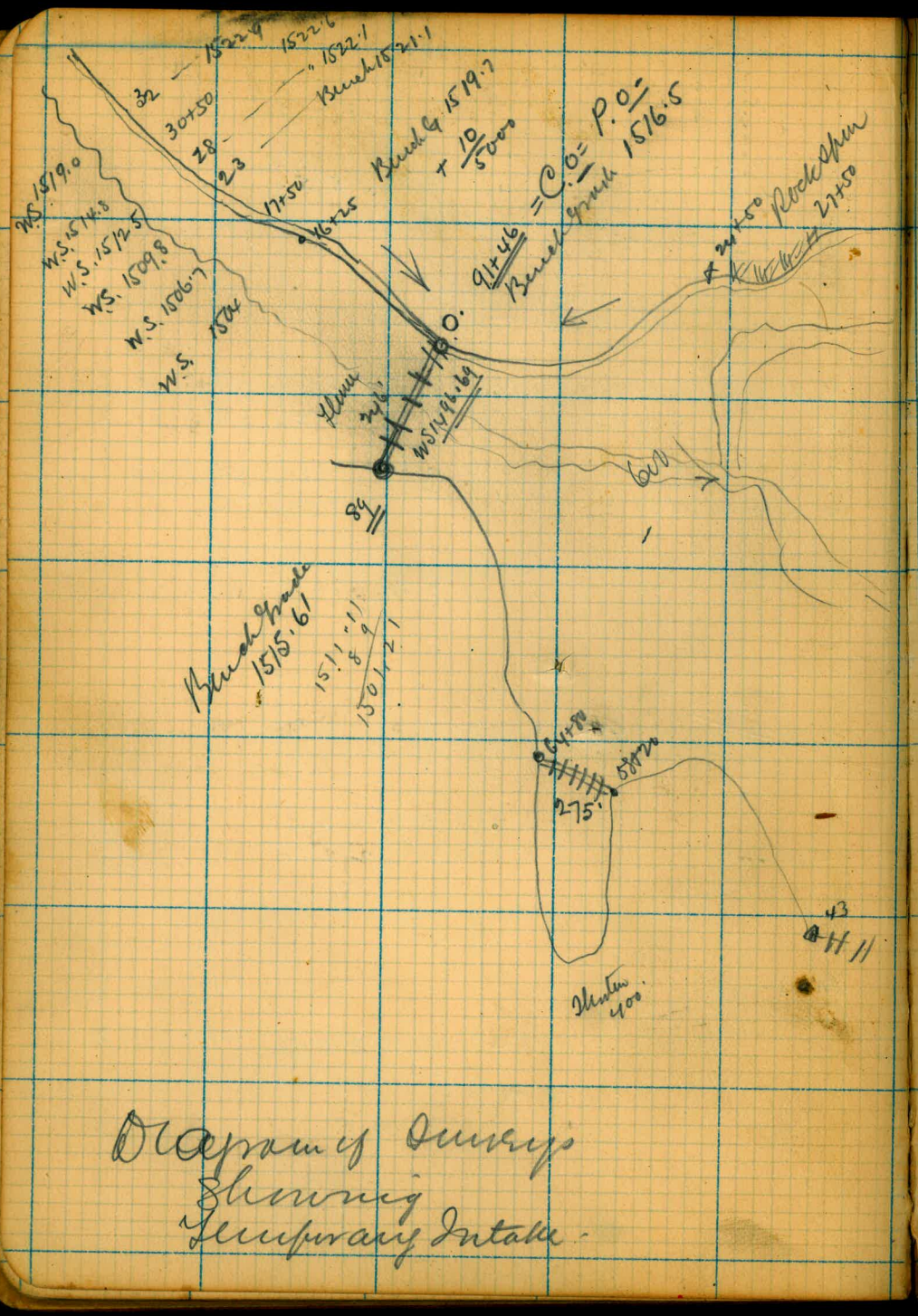
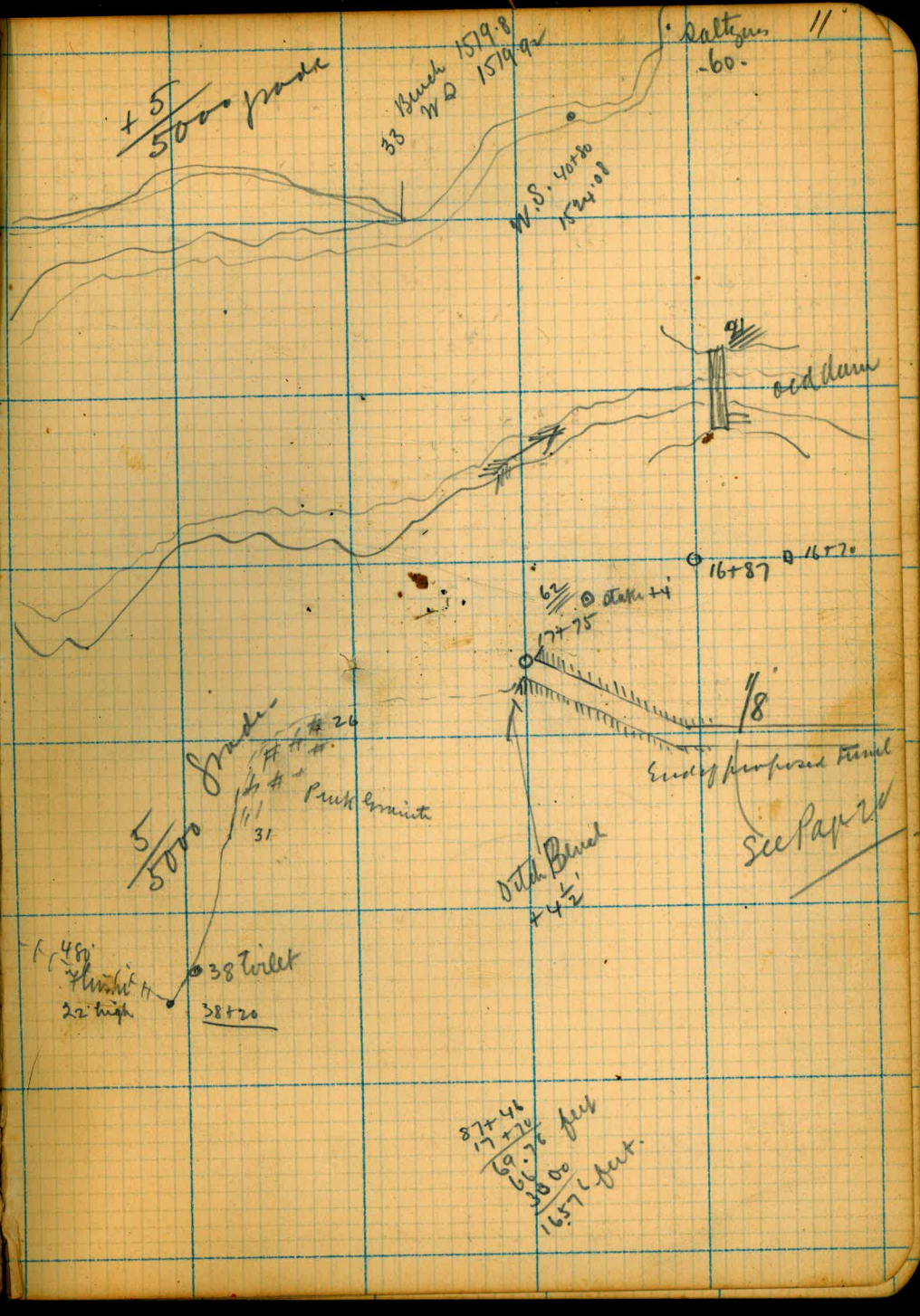


Diagram of Dumps
Showing
Temporary Intake.



Grades in Kummelo. ©

	Nov 9.	Dec 14 - Observations resumed.			
North 1	R. 116' R. 115	186' in trench.	G 1.1.08	300 in cut Roof +6 33/100	
South 1	–	110½ stakes in Grade	G+L. 1.1.08	400 Cut in roof +6 7/10	June 14
	L 50'				
North 2	R 65 R 63.9	6" too low			
S 2	66.5 R. 66.5 R.				
N 3	150 R 150 R	221' Tunnel 3" [illegible] +1' narrow	2.1.08 G 27.1		
S. 3	△ 7'-4" above grade	Track +18" Stake 1½ appreciable	2.1.08 G 27.1	June 25: cut Roof 400 +6 54/100; Cut in Roof 600 +9 16	
N. 4.		61' Coffee mark 1484.41 Grade 1481.72	L. 17.108 G+L 27.1.12		
S 4	122.5 R 126.6 L	Cut in roof 143 in +7.0½"	G 2.1.08 G. 28.1	Cut in roof off 501 +6 53; U.S. off 600 +8.73	
N 5		½' in Grade	L+G 2.1.08	G 28.1	
S 5		32' in grade	L+G 2.1.08	G 28.1	
N 6			G+		
S. 6			G+L June 24		
⅛ N S			G 18.108 G 18.1.08		
1½		off Office Near Portal' Modder.			
½ N S			G 18.1.08 G 18.1.08		
¾ N S.		[illegible] Levelling arrived			

Taylor 1682 +18
1630
-576

12

Cement Testing: made October 1908

Slab	Cement	Cottonwood Sand	Pine Creek Sand	Decomposed Granite
1 5"x12"	1	3		
2 5"x12	1	5		
3	1			3
4	1			5
5 10"+30	1	4		
6	1		4	
7	1	1		2
8	1			2
9	1	2		
10				
11				
12				

Cement received -

Sept 27 - 1907		3500
June 12 - 1908		1000
July 22 - 1908		1000
Sept 22	1908	750
Nov 9	1908	300
Nov 16	1908	250
Dec 11	1908	125
Dec 29	1908	100
Jan 4	1909	250
		7275

Dec 1907

	1	10	20	31	1	2	3	4	5	6	7	8	9	10	11	12	13
Tunnel 2	309	Complete			8	8	FINISHED					S					
H1	161	178	197	215	4	4	6	6	5	4	4	4	4	4	4	4	4
S.1.	89	105	118	129	4	4	5	5	4	5	5	5	5	5	3	3	3
1¼.	46	Complete															
Bench 1-2										14	14	—	14	14	12	19	19
Ditch 1-2																	
1½ N.			15	23							—	—	—	—	2	2	2
1½ S.																	
1¾ N.															2	2	2
1¾ S.				16													
BENCH 2-3					0	7	8	20	20	14	14	—	14	14	10	9	9
							1T			1T	1T		1T	1T			
DITCH 2 3																	
N 3	206	218	232	246	6	6	6	5	6	5	5	5	5	5	5	6	5
S 3	151	177	200	242			2	0	4	4	4	4	4	4	4	4	4
N 4	38	57	74	112	0	0	2	2	4	6	6	6	6	6	6	6	6
S. 4	165	170	189	206	2	2	5	5	5	5	5	5	5	5	4	4	4
N 5	26	56	86	121	3	3	2	2	3	3	3	3	3	3	2	2	2
S. 5	5	23	41	68	2	2	3	3	2	2	2	2	2	2	3	3	5
Ditch Jobs - 5T 6 Bench					43	38	35	31	30	25	55	53	53	56	50	50	46
South 6 openers																	
North 6 " "																	
Yeghanovsky 4%																	
½ N		38															3
½ S		29															
¼ N		0															
¼ S		11															

561 Teams
1122 horses
3630 men

	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1		
Tunnel 2																			16		14
H1	4	4	4	4	4	4	4	4	4	4	4	—	4	4	4	4	4	4	125	11.00	
S.1.	3	4	4	6	6	6	6	6	6	6	6	—	6	6	6	6	6	6	155	8.45	54 / 40 } 1200
Bench 1-2	19	—	15	11	12	11	9	26	—	22 1T	28 1T	27 1T	27 1T	13	—				326	3T	
Ditch 1-2														14	27	—	31	35	107.		
1½ N.	2	—	2	2	2	2	2	2	—	2	2	2	2	2	2	—	2	0	34	8½	58
1½ S.																					
1¾ N.	2	—	2	2	2	2	2	2	—	2	2	2	2	2	2	—	2	2	36	4 6	
1¾ S.																					
BENCH 2-3	9	—	8 1T	9															165 - 6 Teams		
DITCH 2 3																					
N 3	5	5	5	5	5	5	5	5	5	3	5	5	5	5	5	5	5	5	136	10	
S 3	4	4	4	6	4	6	6	6	6	6	6	6	6	6	6	6	6	6	124	380	1900
N 4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	166	685 4	
S. 4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	143	570	2100
N 5	2	2	2	5	5	5	5	5	4	4	4	4	4	5	5	5	5	5	108	6 28	
S. 5	5	5	5	5	3	3	3	3	3	2	2	2	2	2	3	3	3	3	89	7	555
Ditch Jobs - 5T 6 Bench	55	—	39	45	47	48	43	46	—	7	2	7	7	28	9	—	—		962		
South 6 openers										45	43	38	32	14	31	—	42	0	245		
North 6 " "	16 14	—	17 15	17 15	18 16	20 20	—	—	—	— 13	1 13	1 14	1 14	1 14	1 14	—	—	—	269 Teams		
Yeghanovsky 4%	11	—	6	6	7	11	22	22	11	9	11	11	11	11	11	—	16	16	303		
½ N			6	6	6	6	17	17	—	15	16	16	16	16	16		16	16	228		
½ S																			205 Teams		
¼ N	3	—	7	7															78 Teams		
¼ S																			62 men		

December Day Work

	S	1	2	3	4	5	6	7	S	8	9	10	11	12	13	14	S	15	16	17	18	19	20	S	21	22	23	24	25	26	27	28	29	30	31	Total Hours 15
HOB DITCH		4	19	24	24	20	20	3		–	18	18	18	21	21	22			19	20	20	22	21		21	–	21	20	18	21	22	22	–	23	31	555
Johnson Bench 4/8 to 1			18	17	14	23	24	6		–	25	20	19																							
Bench 1/8 to Intake MEN TEAMS												5	5	25	24	25	X	21	22	24	17	21	23	X	22	24	25	18	17	16	–	14	15			166 363
WAGONS 6 Mile		1	1	1	1	1	1	1		–	1	1	1	1	1	1	X	1	1	1	1	1	1	X	1	1	1	1	1	1	1	X	1	1		26
2 "			1	1	1	1	1	1		–	1	1	1	1	1	1	X	1	1	1	1	1	1	X	1	1	1	1	1	1	1	X	1	1		25
Foremen			2	2	2	2	2	1			2	2	2	2	2	2																				
Blacksmiths			1	2	2	2	2	2		–	2	2	2	2	2	2																				
Carpenters			2	1	2	2	2	2		–	1	Cutting Br.			USH–																					

FEET MADE 1 5 10 15 20 25 31 — JAN 13

Tunnels

No 1/2 N	38	46								2	4	5	5	5	6	5	–	3	3	3	3		3	3	X	3	3	3	3	3	X	3	3	3	5	5	5	X	5	5	101
No 1/2 S	29	38.5								–	2	3	3	3	3	3	–	3	3	–	3		3	3	X	3	3	3	5	5	5	X	5	5	5	5	5	X	5	5	96
No 1/8 N	—	12							31.7"	–	2	2	2	2	2	2	–	2	2	2	2		2	2														
No 1/8 S	11	26.5							47 7/10"	–	2	2	2	2	2	2	–	2	2	2	2		2	2	X	2	2	2	2	2	2	X	2	4	4	4	4	X	4	4	66
																												2		2	2	X	1	1	1	2	2	2	X	2	2	19

3/4 S.

MEN HOURS	3	54	54	58	63	64	28	S	60	59	66	62	61	62	S
	30	540	560	580	615	640	281		588	585	425	606	600	620	

	July.	3 170.20
	Aug.	7 959.85
	Sept.	10 454.33
	Oct & Nov.	9 168.99
	Dec	13049.41
		43802.78

30 768.39

5. 621.57 Mich

24 754.72 " "

Cont. FINANCIAL ESTIMATES. Cont. Outside: Contract Earnings 16

1907		Yards	Tunnels	Contract Yardage	Hauling	Total	Bal	Payment	Short Tunnels Contract @ 11.50	other	Total	Certificate No.
No 1	Oct 10	6998.7	# 2246.40	$5249.02		7495.42	18738.5	5621.57				
No 2	Nov 10	7443.7	# 3862.22	10.831.80	1500.75	16.194.77	4048.69	6524.51	104 — # 1196	143.50	133950	2A
No 3	Dec 10	4913.5	# 6419.18	16.766.92	3912.25	27 098.32	5169.79	9782.45	251 2886.50	145.31	3031.81	3A
1908												
No 4	Jany 10	11501.5	# 9200.65	25.395.05	7.717.37	42 313.07	8.277.60	12.104.94	219 2518.50	338.17	2856.67	4A
		33 857.4						34.033.47			7227.98	
								10 253.87			1978.80	
No 5.	Feb 10	11 138.2	11941.10	33.747.07	9.381.25	55069.42	10782.08	4428734	161 1851.50	127.30	9206.78	5A
		44996.11									# 1745.05	
		15219 —						11 894.78	117 1345.50		10.951 83	
No 6	March 10	60 2151	14765.15	45161.32	10061.30	69987.77	13805.65	56182.12	152 1951.50	399.55		6A
No 7	April 10	67 937.7	17 721.70	50 953.28	12566.55	81 241.53	15879.96	9179.45	187 2150.50	585.04	# 2735.54	7A
								65361.57			13.687.37	
No 8	MAY 10	75 009.3	21 842.95	56 256.98	15 546.07	93 646.00	17.950.75	10333.68			2948.60	
								75695.25	73½ 845.25	2103.35	16635.97	8A
No 9.	JUNE 10	79 082.3	26 354.20	59 311.72	16 379	102 044.92	18 922.68	7426.99			684 54	
								83122.24	33 379.50	305.04	17320 51	9A
No 10.	July 10	79 229.7	31 112.10	59 422.27	17.460.72	107 995.09	19220.25	5652.10	388			
								88774.34	134			
No 11.	Aug 10	79 229.7	35.640.80	59 422.27	18.934.05	113 997.12	19589.08	94.408.04	29.36 337.64		337.64	
								7836.31			17.658 15	11A
No 12	Sept 10	79 229.7	41.360.15	59.422.27	21 756.66	122 539.08	20.294.73	102244.35	37. 425.50	10.32	435 82	
No 13	Oct 10	80 415.8	47 685.30	60 311.85	24 343.14	132 340.29	21 163.75	8932.19			18093 97	12A
					947.4515			111.176.54	18 207.	37.32	18328 29	13A
No 14	Nov 4	80 649.13	54.398.05	60.486.85	26 909.85	141 794.75	21849.17	8769.04			805 52	
								130108.58				
No 15	Dec 10	80 707.46	56.149.25	60.530.595	28.891.175	145 571.02	22355.44	119945.38	46 # 5½ 529	276.52	19 143 81	14A
								3270.			-29.41	
No 16	" 15	83 699.46	79.781.09	63.724.60	28 891.175	172 396.775	34.181.195	123.215.58			368 24	
								34181.195			19.512.05	15A
								157396.775				
								15000.				
								142396.775				

Specialadmin

Jan 1911.09
172.396.77
19.188.73
217.962.45
9.622.77
419.120.72
30
389.120.72

1275.86 1467.39

43792.84
42313.07
86105.87

Fm • 15.000

JANUARY 1908. Sheet No

		1	10	20	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NORTH #1	(31)	215	215	235	246	3	4	4	4	4	4	4	4	4	4	4	4	4		
SOUTH #1	(31)	129	140	148	160	5	6	6	6	6	6	6	6	6	6	6	6	6		
N 1/2	(8)	23		26	31															
N 1 3/4	(29)	7	16	26	86	R	2	2	R	R	2	2	2	2	2	2	2	2		
Bench 1-2																		5		
Ditch 1-2						35	35	40	34	—	35	39	41	40	37	41	0	34		
Bench 3-4									3		3	5	5	4	4					
N 3	(48)	241	258	277	294	5	5	6	5	5	5	5	5	5	5	5	5	5		
D 3	(94)	242	280	310	336	6	6	6	6	3	3	3	6	6	6	6	6	6		
flume 2 1/2						1	1	1								2				
N 4	(68)	112	138	163	180	6	6	6	6	3	6	6	6	6	4	4	6	6		
D. 4	(53)	206	220	245	259	5	5	5	5	5	5	5	5	4	4	4	4	4		
N 5	(82)	121	141	170	203	5	5	3	3	3	3	3	3	3	3	3	2	3		
D 5	(42)	68	83	99	110	3	3	2	2	2	2	2	2	4	4	4	4	4		
Ditch Bench 5-6 ditch						0	0	33	0	0	17	17	17	16	6	5				
						—	—	—	12	0	12	12	17	18	28	26				
346								15 (167)												
North 6																				
South 6	963																			

FINAL ADJUSTM

I

—

1st setting in of

November, 1907.)

Station: 226+36
244+27
281+90
300
385

Total - -

409+65

14285 feet less 1

f

400 cu yds of ext

Slide near 552+50

Bolders near Sta.
Total allowance fo

2992 cu y

Special allowance
of wide
on Augu
Mountai
282-337

Allowance on 200 f
flumes

17 Feb
Rem
794

1270

1661

17 Feb

FINAL ADJUSTMENT WITH CAPTAIN MILLS AND MR. SHERER

DECEMBER 15th, 1908.

1st setting in of grade stakes 0.9 feet (per arrangement 23dof November, 1907.)

Station:	226+36 - 217+89	= 847 feet	
	244+27 - 265+21	= 1500 "	
	281+90 - 287+63	= 573 "	
	300 - 374+65	= 6865 "	
	385 - 409+65	= 2465 "	
Total - -		12250' x 8' high x 0.9	1633 cu yards
	409+65 - 552+50		
14285 feet less 1700		12.585 x 4' high x 0.9	839 cu yards

for flumes and tunnels.

400 cu yds of extra cut431+50 - 435 slide	400 cu yards
Slide near 552+50 North End Tunnel 6	60 cu "
Bolders near Sta. 254 between 3 and 4	60 " "
Total allowance for all extra yards	2992 " "
2992 cu yards @ 75 ¢	$ 2244.00
Special allowance for 3600 feet long extra cost of widening Bench from 9 to 10 feet on August work of Southern California Mountain Water Company Stations 176-205 282-337.	800.00
Allowance on 200 feet of rock cuts substituted for flumes	150.00
	$ 3194.00

JANUARY 1908. Sheet No

		1	10	20	31	1	2	3	4	5	6	7	8	9	10	11
NORTH #1	(31)	218	215	235	246	3	4	4	4	4	4	4	4	4	4	4
SOUTH #1	(31)	129	140	148	160	5	6	6	6	6	6	6	6	6	6	6
N 1½	(8)	23		26	31											
N 1¾	(29)	7	16	26	36	2	2	2	2	2	2	2	2	2	2	2
Bench 1-2																
Ditch 1-2						35	35	40	34	—	35	39	41	40	37	4
Bench 3-4									3		3	5	5	4	4	
N 3	(48)	246	258	277	294	5	5	6	5	5	5	5	5	5	5	
D 3	(94)	312	280	310	336	6	6	6	6	3	3	3	6	6	6	
Tunnel 2½						1	1	1								
N 4	(68)	112	138	163	180	6	6	6	6	3	6	6	6	6	4	
D. 4	(53)	206	220	245	259	5	5	5	5	5	5	5	5	4	4	
N 5	(82)	121	141	170	203	5	5	3	3	3	3	3	3	3	3	
D 5	(42)	68	83	99	110	3	3	2	2	2	2	2	2	4	4	
Ditch Bench 5-6						0	0	33	0	0	17	17	17	16	6	
Ditch						—	—	—	12	0	12	12	17	18	28	
346								15 (167)								
North 6																
North 6 963																

17 Feb Rem 794

1270

1661

Day work Tunnels

January.

	1 9	10	13	17		31
1/8 N	30½		34.7	34.5	(4.47)	42
(5507)						
1/8 S.	44		47.10	51.5	(6.37)	62
1/2 N	80	100		112.5	(4.10)	129
(572)						
1/2 S	74	110		122.	(5.84)	148
3/4 N	(85) 6	15		21	(2.35)	36
				261.5		

12 52.4 ft

no 1: 1200

1¼	58	1200
1½	74	1900
1¾	145	2100
2	309	963
3	1900	6163
3½	40	
4	2100	
5	556	
5½	90	
6	963	
	4444	
	1247	
	9694	

6163 @ 13.00 = 80 119

1284 @ 11.50 = 14 760

94879

February

	1 5	10	20	29
	42 47	49	62.10	72
	62 65.5	70	78	85
	129 134.5	140	145.7	160.8
	148 158	169	190	214.6
	36	59	84.8	4 Tunnels

March

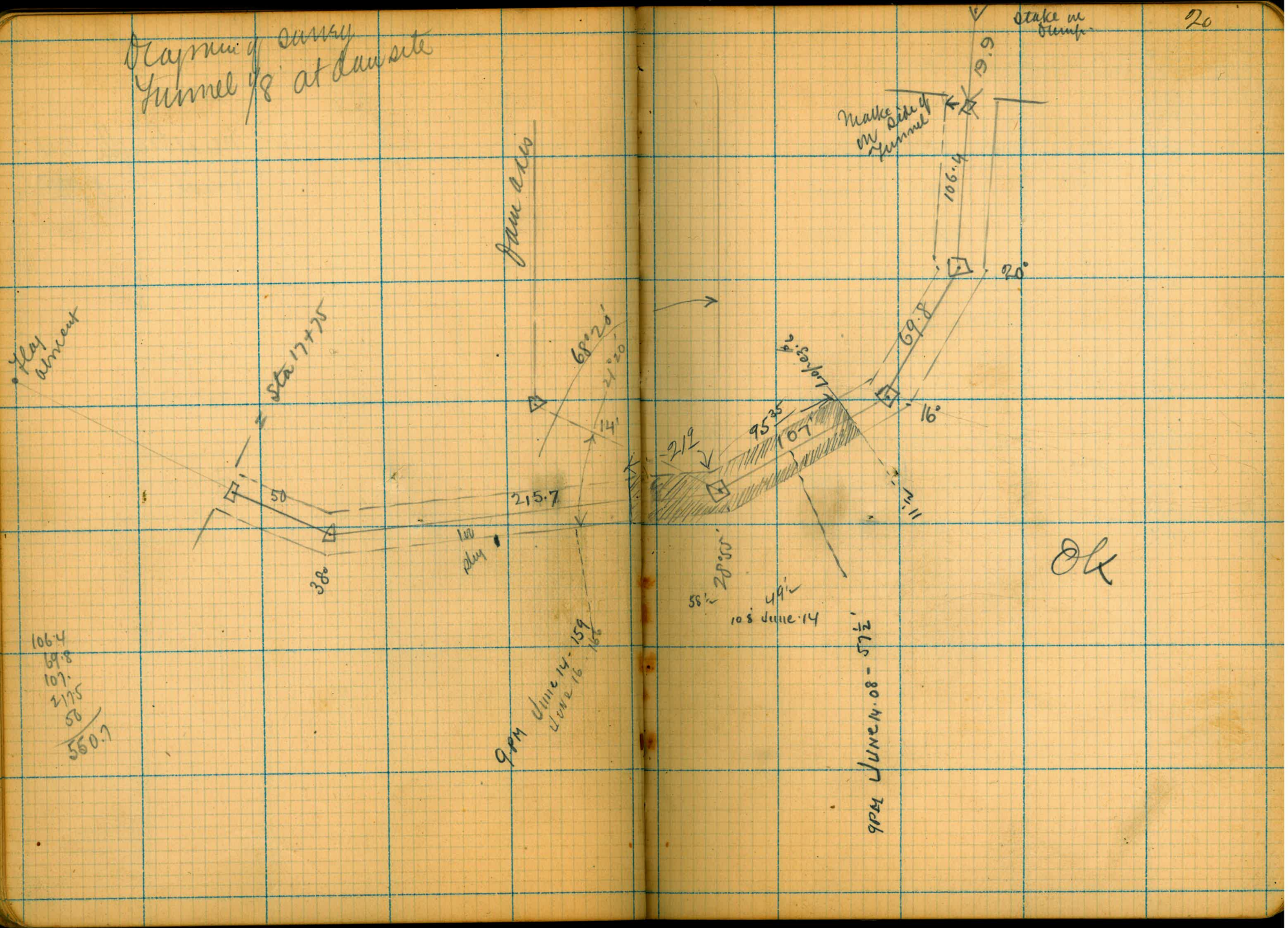
Feet made	1	10	20	31		20	30
30	42	80		94	21	115	
23.	85	91		114	29	134	
32	161	171		187	21	200	
67	215	237		262	47	304	

April

February	1	10	20	31	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	
North 1	246	255	261	268											4																			
South 1	160	176	193	209											4																			
N 1½ (16)	31	37	39	47											2																			
N 1¾ (13)	36	42	44	49											2																			
Bench 1-2																																		
Ditch 1-2															34																			
Bench 3-4																																		
N 3	294	309	325	338											5																			
S 3	336	372	397	415											6																			
3½																																		
N 4	180	200	224	242											6																			
S 4	259	283	307	329											6																			
N 5 (18)	203	227	255	276 287											5																			
S 5 (20)	110	127	127	130											4																			
Bench 5-6 Ditch 5-6															10																			
346															32½ 27½																			
North 6																																		
South 6															120																			

Final Weight 84
Final : 42.36/100

Diagram of tunnel
Tunnel #8 at dam site



March

	1	10	20	31	
1 North	268	275		292	
1 South	209	230		272	
77 1½N	47	50		66	19
175 1¾N	49	56		77	28
3N	338	353		389	51
3S	416	445		485	69
4N	242	263		301	59
4S	329	361		401	72
5N 552½	271	290			
5S	130	159			
N6					
S6					

CEMENT TO BARRETT DAM.

	Barrels
September 27, 1907	3500
June 12, 1908	1000
July 22, 1908	1000
September 22, 1908	750
November 9, 1908	300
November 16, 1908	250
December 11, 1908	125
December 29, 1908	100
January 4, 1909	250
T o t a l	7275

April 1 10 20 30 Remaining May 1- 10 20 31

1400 1 NORTH 29½ 301 307 315 23 (521) 315 & 323 340 25 (408)
1.S 272 310 336 364 92 364 ~~21~~ 388 442 78
1½N 66 84
1¾N 77 81 88.5 101½
5- 15 57

1800 3N 389 407 424 432 43 (941) 432 & 441 461 29 (826)
3.S 485 510 512 527 42 527 ~~24~~ 553 613 86

2000 4N 301 25 336 21 357 13 370 69 (1719) 370 25 395 460½ 40½
4.S 401 442 471 511 110 511 34 545 ~~501~~ 503½ (1025)
5N

980 N6 10 28 51 51 (813) 51 41 92 122 74 (781)
S.6 15 28 39 39 39 ~~9~~ 485 59 18
55
5 N S

3/16 Cable
1/4 Turntable

JUNE 10 15 20 30 JULY 1 11 21 31 Aug 11 20 22

+6.33 N 308 350 356½ 360 371 (31) 383 399 406 (35) 412 418 428 444 - 38'
400 +6.70 466 478 489 502 (60) 514 527 533 (31) 539 543 557 577 - 44'
327 261 215 179

cut +6.59 400 472 480½ 487 499 (38) 511 523 529 (30) 533 537 547 559 — 30
633 646 673 704 (91) 725 773 794 (90) 815 830 865 922 — 128
697 577 488 419

492 514½ 528 571 (111) 592 641 666 (95) 667 704 739 788 - 122
637 656 675 713 (99) 731 766 789 (74) 804 811 828 861 - 74
496 607 493 411

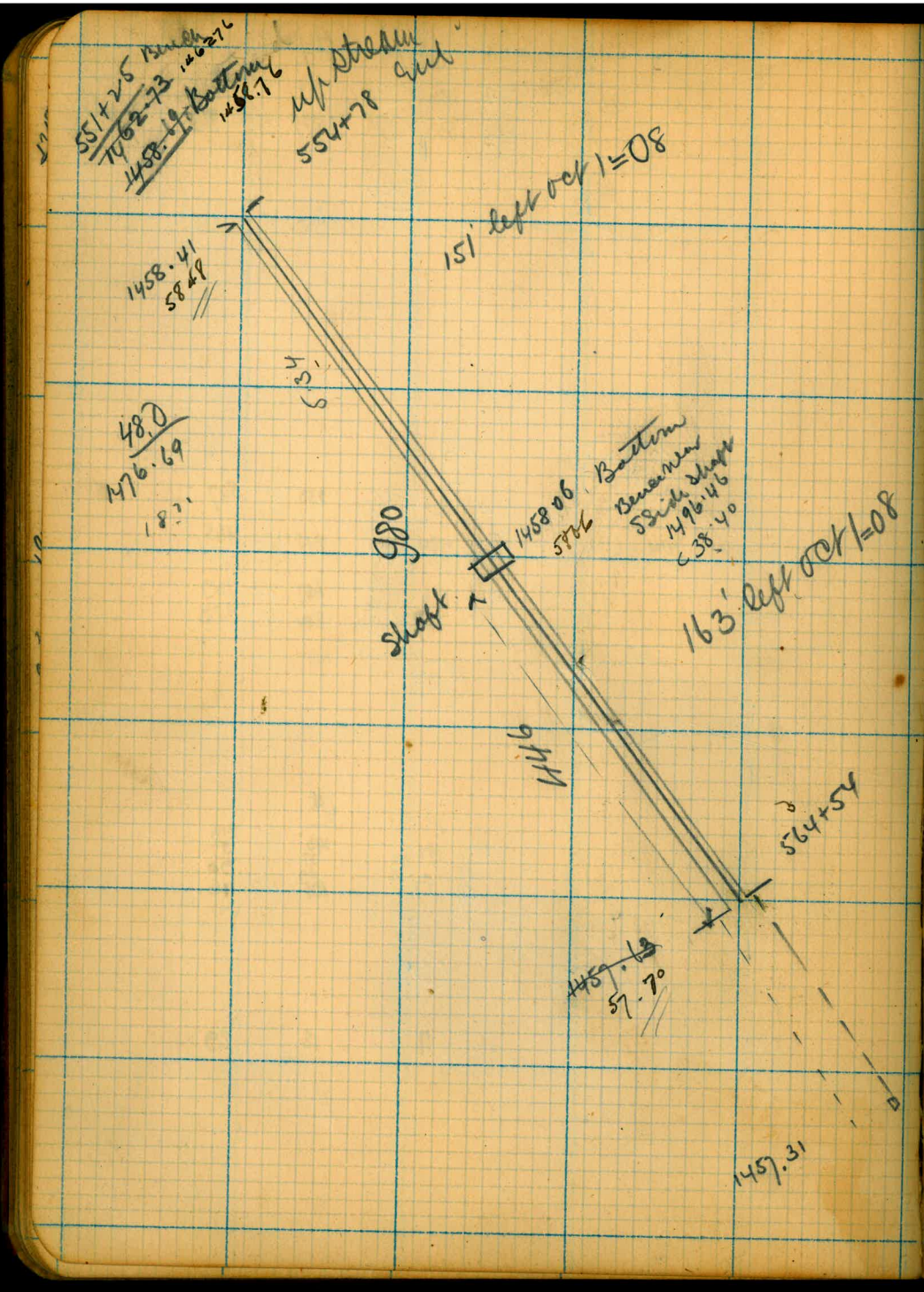
4/10 6 133.5 61 154 69 163 (41) 6 15 74 (19) (81) 181 16 29 82 308 190 35 91 357 192 32 62 97 383 588 6th 193 37 69 101 202 45 75 107 218 37 90 116 ~~181~~ 499 242 71 97 125 535 50 39 5 28 15
705 445

11 18 25 29 · 48'

N 110
0 151.1

N 155
A 105

41 left



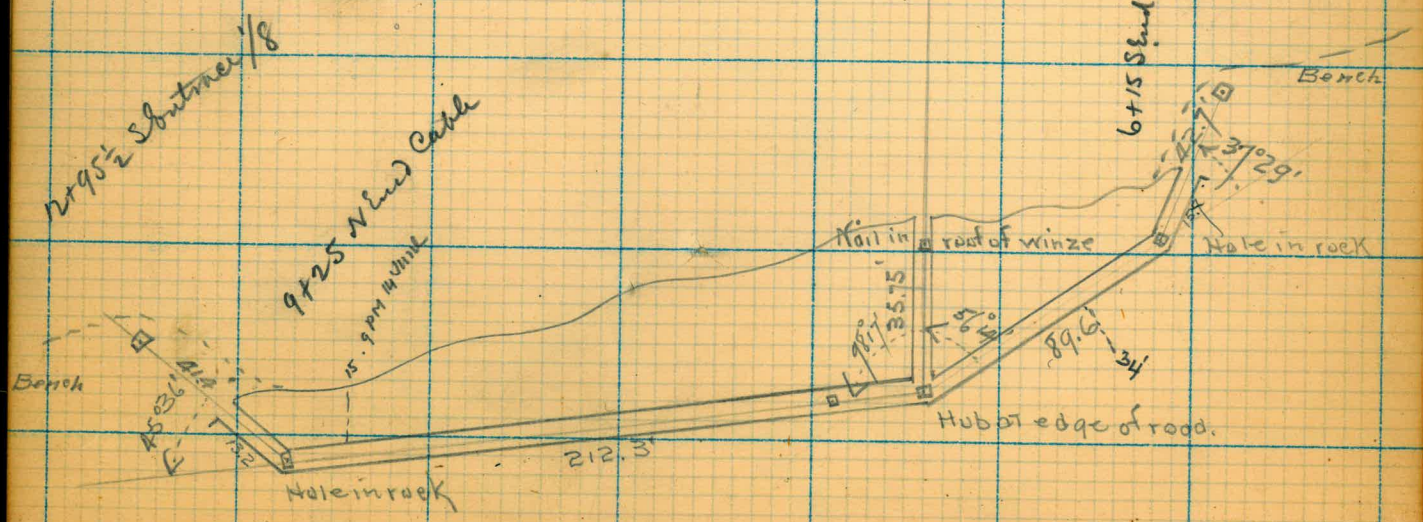
568+50 but .33 too high)

3/16 (Cable) Tunnel
5-30-'08.

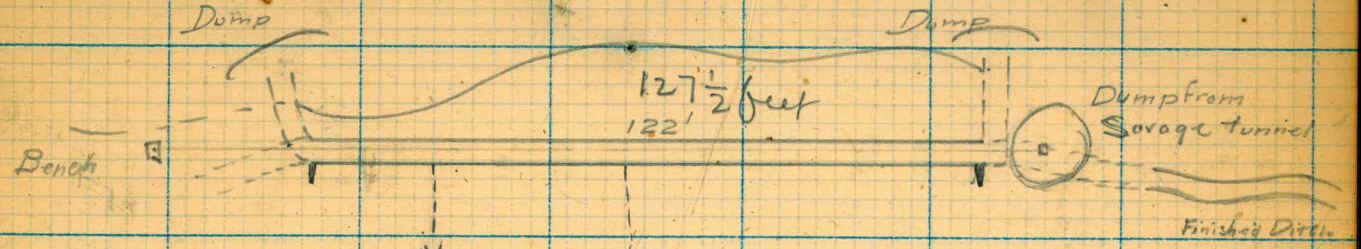
13.2
212.3
89.6
15.7
L. 330.8

Cable Jmn
Tunnel 14
N 19 28 E
S 46 49 W

Range Point
Nail in track-stringer



1/4 (Turn-table) Tunnel
Straight



D4

1908	Sept 1	10	15	20	30	Oct 1	Dec 1.
1	N 444	453	461	46'	490	535 (45)	535
204	S 577	589	599	47'	624	669 (45)	669
		(140)			(86)		
		2.6					
3	N 559	586	570	29	588	629 (41)	638 (9)
1896	S 922	961	983	145	1067	1225 (158)	1258 (33)
		(347)			(345)		
		4.8					
4	N 788	827	844	12½	914	1011 (97)	1011
2061	S 861	883	901	92	953	1050 (97)	1050
		(315)			(193)		
		6.4					
	2 242	253	261		283	47 330	
	71	82	89		110	40 150	
6 980	Sharp 97	104	106		125	31 156	
976	S 125	138	138		158	44 202	444 (86)
	535		(386)		676 (304)	838	976
		3.93					
5½	48	66'					

Contracts Tunnel Progress

Tunnel 3½ Official 46'

	"A" Dulzura	"B" Sherer Capital	"C" Camp 2 Cottonwood	D ½ Tunnel	E Barn	
1907 OCTOBER		61				61
NOVEMBER	165	364	100			629
DECEMBER	608½	12½	239		140	1000
1908						
JANUARY	237		33		137	407
FEBRUARY	29				17	46
MARCH	13	39	30		165	247
APRIL	78			212	531	821
MAY			46		4	50
JUNE			45	78	16	139
	1130½	476½	493	290	1010	3400 ∴
JULY			36	360		396
AUG		8	295	480		783 ∵
SEP						
OCT						
NOV						
DEC						

∴ 15 to Sherer & Co. - Sold 15 B130 to Sherer & Co. from 476½ in "B"
∵ 2 to Jamul.
÷ 30 Barrels transferred from D. to E.
TOTAL USED FROM TUNNEL ⅛ N TO INTAKES 1040 Barrels

Gradening Felt - 2# to Sq yard 37/8 C/pc 46 7/16"
Quiet 36" wide 50 Sq ft Bale 56 yards

	Station		Rate per day	Feet	Bbls cement	Feet per Bbl	Cost per foot	Cost per foot
Sept 19-26	134+25	139+39	85⅔	514	64	8	0.37½	
Sept 26-Oct 3	134+39	144+78		540		7.8	0.32	
Oct 3-10	147+14	150+90		376				
Oct 10-17								

Oratio

Water

	From	To	Per day	Total ft	Bbls cement	Feet per Bbl	Cost per foot
5-19-26		42+64	55½	233		5½	$0.96
5 26-Oct 3	40+80 59+89	42+64 61+25	53½	320	66	5	$0.68
Oct 3-10	59+89	64+47	74	443	70	6.3	$0.48
Oct 10-17							
Oct 19 24							
Oct 24-31	85+05	92+96	69⅓	416	54	7.2	

Byrne - Clem

Cost per foot

27

69.8+63.9

Oct 14-'24

J. P. Douglas

147 14 Slab 56

W D MacLean.

	Station		Pr/day	Feet	BBC.	Feet/B	Cubic Cost
Sept 14-26	349+53	354+55	83⅓	502	64	7	$0.75
" 28 Oct 3	354+55	362+25	95.2	571	83	6.9	$0.39
Oct 5-10	358+85	362+25	66.6	340	49	6.9	$0.90
Oct 12-17							
Oct 19-24							
Oct 26-31	366+65	404+75	57⅓	344	54	6.4	

58 Swedish

R W Taylor Cor

	Sta	Sta	Pr/day	Feet	BBC	Feet/B	Cubic Cost
Sept 28 Oct 3	58+78	56+60		218	29	4.5	0.44 c
Oct 5-10	57+00	56+60	93⅓	560	77	7.2	0.384
12-17							
19-24							
26-31	85+15	95+00	65⅓	452	62½	7.2	

Stevens 105+14

Oct 19-24

26-31 307+80 313— 520 51

VAN KIRK 136 men

Lower Otay Leak. Discharge thru 12" Wkn July 4 1894 1000000 daily

Date	Gauge	
1907 Sept 30.	103-7½"	2" 1/4" ada
Oct 13	103-2¼"	2¼"
Oct 31	102-9½"	2¼"
1908		
Nuevo		1⅞" (OS)
April 10	100-6"	2¼"
April 20	100	1 3/4"
May 1	100	
Sept 1	93-9"	
Sept 19	92-10"	2¼"
OS 24 1908		
Oct 3	92-1"	
" 17	91-6"	
" 24	91.	
" 31	90'-10"	
Nov 7	90-6"	
" 14	90-2"	
1909 " 21	89-10"	
Jany 10	89.	1¾" Dec 17 OS, 11 Sprinkles days 87
Jany 13 -	89.	
Feb 8am.	92'-4½"	
11 am 8 a.m.	93-3"	
17 " "	95-4"	
24 " "	97 10"	
March 3. 1PM	89-4"	1¾" OS
March 29	104'-4"	
31	104' 9"	
April 4	105'-6"	1¾"
" 9	106'-4"	
" 15	107'-2"	
" 21	108'-1"	
" 24	108'-5"	
May 2	109'	1¾"
" 9	109'-2¼"	Gaining ½" a day -
" 15	109'-3⅜"	
" 23	109'-4 1/16"	
" 31	*109'-5 3/4"	
June 6	109'-3½"	
" 12 June 1'-1"	*109'-1¾"	
July 1	*108'-4¾"	
July 31 July 1'-3½"	*107'-1¼"	
Aug 28 Aug 1'-5¾"	105'-9"	1⅜"
Sept 1	105'-5¼"	
Oct 1 Sept 1'-6½"	104'-1"	Oct 10 1⅜" 16 1¾" OS Nuevo 1⅞"
Oct 31	102'-10½"	
Dec 1	102'-2"	1¾"
Dec 5	102'-0¾"	
" 26	104'-4¼"	2¼"

5'-4¾"

} 1910 Mr. B. Sept Upper Otay raised 5:4" - 2" more to be as high as last year.

June 16-1910 WS 27/8 ES 3" 117'-7"

Continued 35

January. Sulzma Condition Tunnel

1		2.3	19 900 000	
2		2.2	18 500 000	
3	Shaft up for floors	3.6	34 800 000	
4		3.6	34,800 000	
5		3.3	31 600 000	
6		2.8	25,900 000	
7		2.6	23 800 000	
8		2 AM. 6PM. out 16 hours.	10 000 000	
9	Fallen	3.2	30 720 000	
10		3.1 3.5	33 600 000	
11	4 230 000	3.0	28 300 000	1.7 2.8 3
12	3 430 000	3.0	28 300 000	2.9
13	6 900 000	2.8	25 900 000	
14	30 720 000	3.3	31 600 000	
15	18 500 000	2.9	27 000 000	
16	15 000 000	2.8	25 900 000	
17	11 900 000	2.9	27 000 000	
18	9 320 000	3.1	29 500 000	1.5
19	7 700 000	3.2	30 720 000	2.1
20	16 900 000	3.0	28 300 000	
21	5 930 000	3.0	28 300 000	
22	3 AM. 22nd out	2.7	24 900 000	
23		2.85	26 500 000	
24	out 3 days 21 hours	3.25	31 300 000	
25	12 PM Midnight	3.3	31 600 000	2.4
26	11 900 000	3.2	30 720 000	
27	11 080 000	3.2	30 720 000	2.1
28	17 300 000	3.0	28 300 000	2.0
29	15 000 000			
30	18 580 000			
31	19 900 000			
	214 210 000		778 480 000	
	778 480 000			
	818 660 000			
April	934 220 000		1,811 350 000	
May	520 260 000		2,745 570 000	
June	202 710 000		3,265 830 000	
	410 650 000		3,668 540 000	
			3,879 190 000	

148

Shipped 1.47 *

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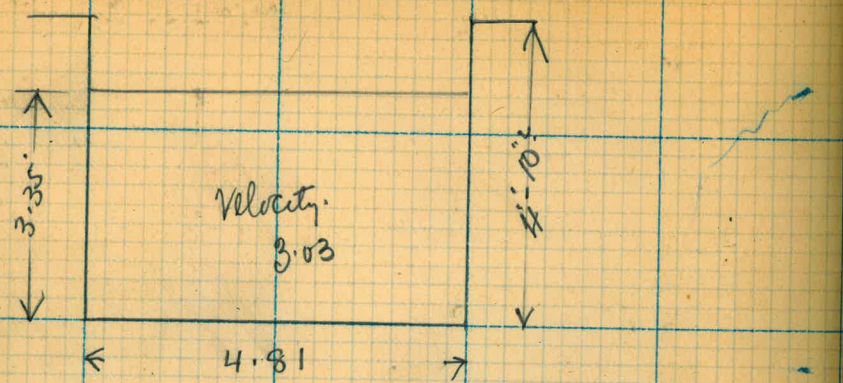
Rec

646.315 gage

Barrett Road Xing

Feb 19 09



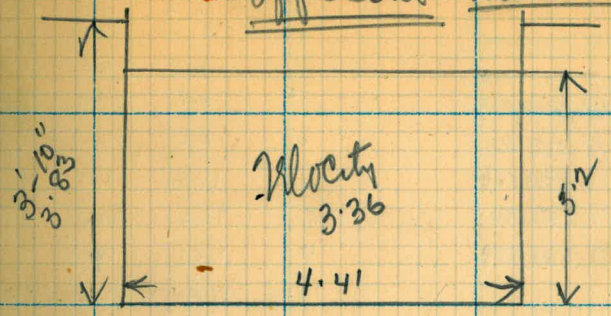
Depth	Area	Velocity	c.f.	Gallons
Flume -				
4.41 mile 7.23				
r = .407 0.3	1.32	1.40	1.84	1.188
0.4	1.76	1.66	2.92	1.880
0.5	2.20	1.92	4.22	2.72
0.6	2.65	2.02	5.31	3.43
0.7	3.09	2.12	6.52	4.23
0.8	3.53	2.22	7.82	5.05
0.9	3.97	2.32	9.20	5.93
r = 0.689 1.0	4.41	2.43	10.66	6.90
1.1	4.85	2.96	11.92	7.70
1.2	5.29	2.49	13.20	8.52
1.3	5.73	2.52	14.42	9.32
1.4	6.17	2.55	15.77	10.20
r = 0.892 1.5	6.61	2.58	17.17	11.08
1.6	7.05	2.63	18.47	11.90
1.7	7.49	2.68	20.01	12.90
1.8	7.93	2.73	21.60	13.90
1.9	8.37	2.78	23.30	15.00
r = 1.049 2.0	8.82	2.82	24.90	16.03

S = 0.0 00 757

31

Camp Crossing
official measuring point.

Computed Feb 22 1908



Depth	Area	Velocity	C. Fest	Gallons
2.1	9.26	2.89	26.76	17.30
2.2	9.70	2.96	28.70	18.50
2.3	10.14	3.03	30.72	19.90
2.4	10.58	3.10	32.80	21.20
r = 1.17 2.5	11.02	3.18	35.00	22.60
2.6	11.46	3.21	36.90	23.80
2.7	11.90	3.24	38.70	24.90
2.8	12.34	3.27	40.05	25.90
2.9	12.78	3.29	42.00	27.00
r = 1.271 3.0	13.23	3.31	43.9	28.30
3.1	13.67	3.33	45.6	29.5
r = 1.305 3.2	14.11	3.36	47.41	30.72 C=106
3.3	14.55	3.37	49.0	31.60 x
3.4	14.99	3.38	50.8	32.80
3.5	15.43	3.39	52.2	33.60 x
3.6	15.87	3.40	54.0	34.80
3.7	16.31	3.41	55.6	35.90
r = 1.39 3.8	16.75	3.42	57.28	37.00 C 107
3.9	17.19			

May '09

1	1.7	0.4	12,900,000
2	2.5	0.4	22,600,000
3	2.5	0.4	22,600,000
4	2.4	0.4	21,200,000
5	2.4	0.4	21,200,000
6	2.3	0.3	19,900,000
7	2.8	0.3	18,500,000
8	2.3		19,900,000
9	2.2	0.35	18,500,000
10	2.1	0.4	17,300,000
11	2.1	0.4	17,300,000
12	2.1	0.4	17,300,000
13	2.2	0.35	18,500,000
14	2.3	0.35	19,900,000
15	2.2	0.35	18,500,000
16	2.1	0.35	17,300,000
17	2.0	0.3	16,030,000
18	2.0	0.3	16,030,000
19	2.0	0.3	16,030,000
20	1.9	0.3	15,000,000
21	1.9	0.3	15,000,000
22	2.0	0.3	16,030,000
23	2.0	0.3	16,030,000
24	2.0	0.3	16,030,000
25	1.9	0.3	15,000,000
26	1.8	0.30	13,000,000
27	1.7	0.3	12,900,000
28	1.7	0.3	12,900,000
29	1.7	0.3	12,900,000
30	1.7	0.3	12,900,000
31	1.5	0.3	11,080,000

Total 520,260,000

June

1	1.4	0.3	10,200,000
2	1.2	0.3	8,520,000
3	1.2	0.3	8,520,000
4	1.2	0.3	8,520,000
5	1.1	0.3	7,700,000
6	1.1	0.3	7,700,000
7	1.2	0.3	8,520,000
8	1.2	0.3	8,520,000
9	1.3	0.25	9,320,000
10	1.2	0.25	8,520,000
11	1.2	0.25	8,520,000
12	1.1	0.3	7,700,000
13	1.1	0.25	7,700,000
14	1.0	0.25	6,900,000
15	1.0	0.25	6,900,000
16	1.0	0.25	6,900,000
17	1.0	0.25	6,900,000
18	0.9	0.25	5,930,000
19	1.1	0.25	7,700,000
20	1.1	0.25	7,700,000
21	1.1	0.25	7,700,000
22	0.9	0.25	5,930,000
23	0.9	0.25	5,930,000
24	0.8	0.25	5,050,000
25	0.7	0.25	4,230,000
26	0.7	0.25	4,230,000
27	0.6	0.25	3,430,000
28	0.5	0.25	2,720,000
29	0.4	0.15	1,880,000
30	0.5	0.5	2,720,000

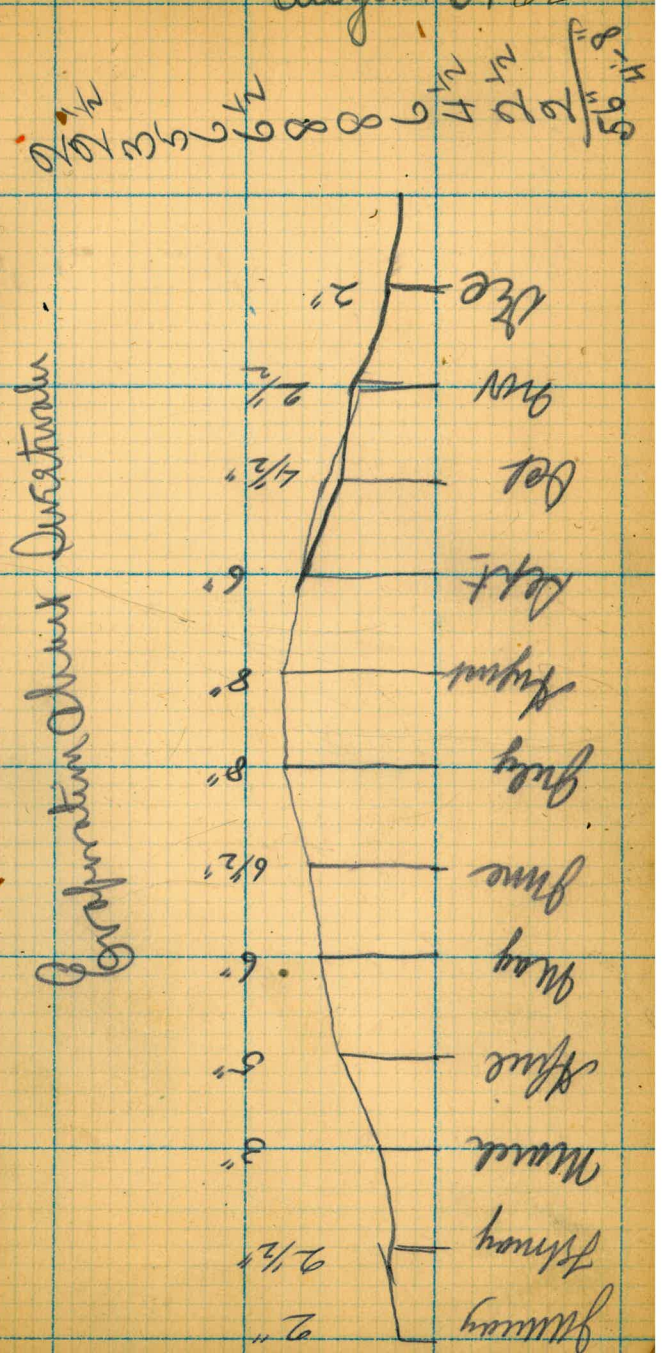
202,710,000

July-09

1.	—	0.25
2.	—	0.2
3.	—	0.17
4.	—	0.25
5.	—	0.25
6.	—	0.15
7.	—	0.25
8.		0.15
9.		0.15
10		0.15
11		0.15
12		0.15
13		0.15
14		0.15
15		0.1
16		0.1
17		0.07
18		0.05
19		0.07
20		0.0
21		0.0
22		0.0
23		0.0
24		0.6
25		0.4
26		0.3
27		0.17
28		0.17

Quantum Overrun

August 09



For the Year 1909.

	Barrett Waste.	Dulzura Conduit.	Ac Ft.	Cottonwood Run-off.
Jan.	1,946,494,926	214,210,000	6650.	2,160,704,926
Feb.	1,215,309,030	778,480,000	6102.	1,993,789,030
Mar.	949,358,801	818,660,000	5430.	1,768,018,801
Apr.	672,420,073	934,220,000	4940.	1,606,640,073
May.	67,087,497	520,260,000	1800.	587,347,497
June.	41,041,002	202,710,000		243,751,002
July.	22,963,755			22,963,755
Aug.	60,816,716			60,816,716
Sept.	44,978,677			44,978,677
Oct.	34,707,109			34,707,109
Nov.	180,903,568			180,903,568
Dec.	299,091,971	410,650,000		709,741,971
	5,535,173,125	3,879,190,000		9,414,363,125

BARRETT WASTE FOR 1909 5,535,173,125 Gallons.
DULZURA CONDUIT 1909 3,879,190,000 Gallons.
COTTONWOOD RUN-OFF 1909 9,414,363,125 Gallons.

For the Year 1910.

	Barrett Waste.	Dulzura Conduit.		Cottonwood Run-off.
Jan.	1,971,496,511	879,290,000	8670.	2,850,786,511
Feb.	120,731,637	719,490,000		840,221,637
Mar.	213,542,475	567,030,000		780,572,475
Apr.	188,465,447	413,320,000		601,785,447
May.	30,182,901	166,665,000		196,847,901
June.				
July.				
Aug.				
Sept.				
Oct.				
Nov.				
Dec.				
	2,524,418,971	2,745,795,000		5,270,213,971

Delivery into Otay Reservoir from Dulzura Conduit:-

1909	3,879,190,000
1910	2,745,795,000
Total,-	6,624,985,000 to date.

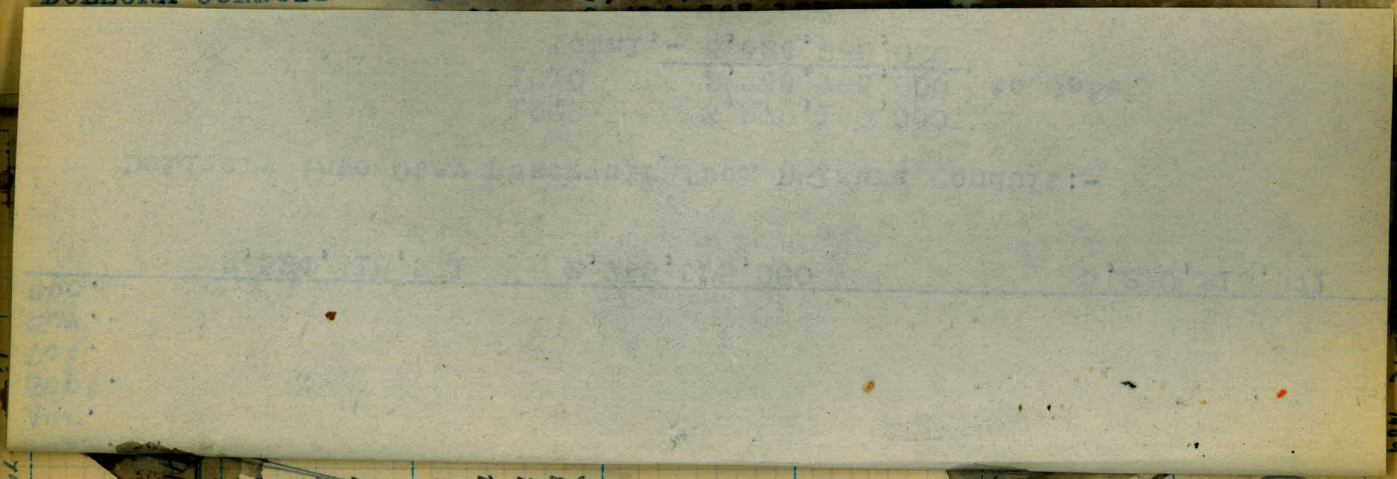
DECEMBER 1909

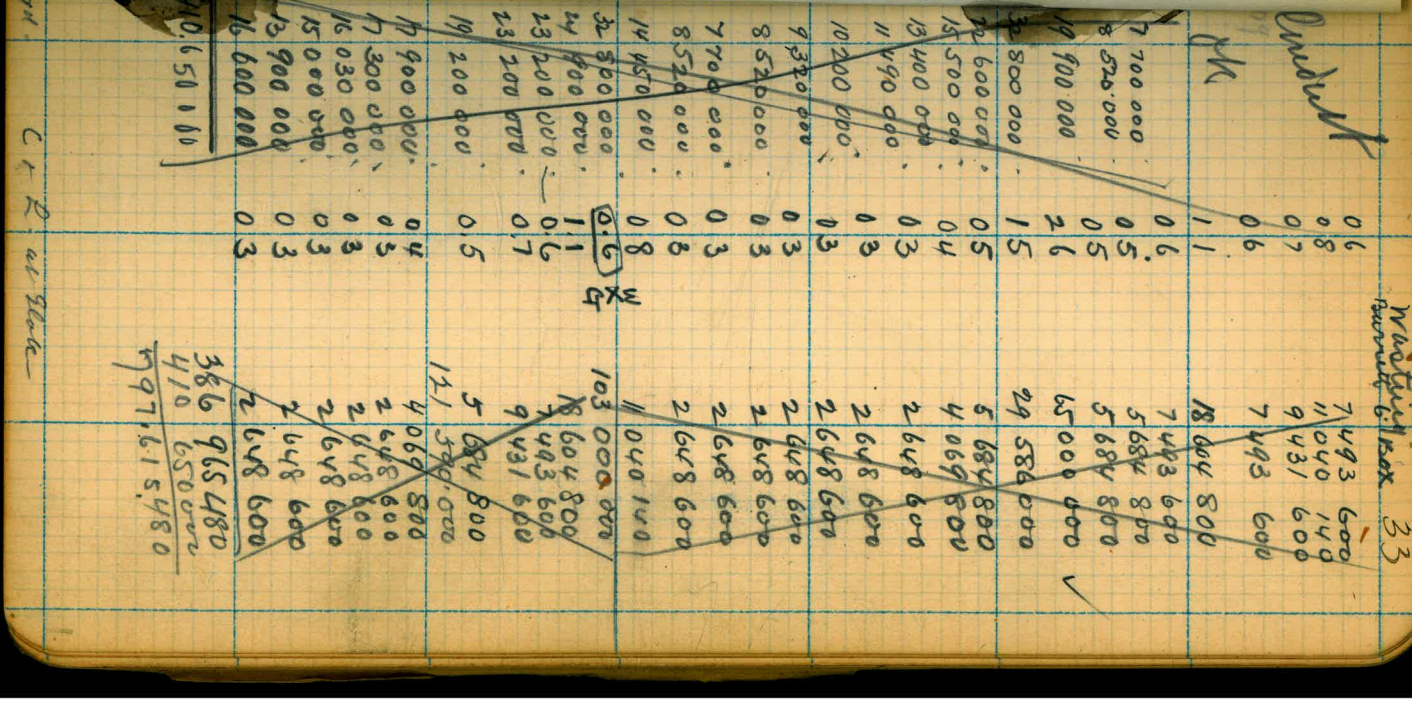
33

For the Year 1909.

	Barrett Waste.	Dulzura Conduit.	Cottonwood Run-off. Ac Ft.
Jan.	1,946,494,926	214,210,000	6650. — 2,160,704,926
Feb.	1,215,309,030	778,480,000	6102. 1,993,789,030
Mar.	949,358,801	818,660,000	5430. 1,768,018,801
Apr.	672,420,073	934,220,000	4940. 1,606,640,073
May.	67,087,497	520,260,000	1800. 587,347,497
June.	41,041,002	202,710,000	243,751,002
July.	22,963,755		22,963,755
Aug.	60,816,716		60,816,716
Sept.	44,978,677		44,978,677
Oct.	34,707,109		34,707,109
Nov.	180,903,568		180,903,568
Dec.	299,091,971	410,650,000	709,741,971
	5,535,173,125	3,879,190,000	9,414,363,125

BARRETT WASTE FOR 1909 5,535,173,125 Gallons.
DULZURA CONDUIT 1909 3,879,190,000 Gallons.





Month	Barrett Wash	Conduit	Run-off
	1910		
January	1 971 496 511	879 290 000	2 850 786 511
February	120 731 637	719 490 000	840 221 637
March	213 542 475	567 030 000	780 572 475
April	188 465 447	413 320 000	601 785 447
May	30 182 901	166 665 000	196 847 901
	2 524 419 971	2 745 795 000	5 270 213 971
	1911		
January	61 894 291	96 703 659	158 597 950
February	90 202 664	560 483 288	650 685 902
March	~~46 014 785~~	472 242 428	~~518 257 213~~
April	22 730 845	187 638 135	210 369 030
May	19 512 234		19 512 234
		1 317 067 460	
			1 557 422 329

Okay Leak – 1910
Authority

January 1	104'-10½	3½"
9	111'-1½	2⅞
12	111' 9"	3¼"
Feb 1	114'-9½	3¼
17	115'-11¾	3⅛
March 9	117 4¾	3¼ acid Box &
30	118'-8"	2.5/8 new " } Box changed to 16"
April 16	119'-6¼"	2 5/8" 2¾"
May 1	119-4½	2¾
June 3	118'-4"	2⅞"
July 3	117	3"

July 3	117			"	25/8"
July 25		3"	Rex	Harrington	25/8"
Aug 1	115'-8"				
Aug 25	114'-6½"	2⅞"	Rex		
Aug 31	114'-3¼"	3"			
Sept 1	114'-2½"				

1911	August 30	107'-6½"		2⅞"	Harrig.		
	Sept 2	107'-4½		3"	"		
	Sept 6	106'-9½"		3 1/16"	Shaughnessy	3/8" W.	3" Q.
	Oct 4	102	3"	3 3/32" 3/16			
	Oct 31	102'-0½"					

1911

May 20. 04 G.R. Gabrielsen 1. 84.068 tons 1197.97

Nobles Gold mine	Matakawhau	Buckman Shamrock
0.58	2.12	0.18
3.40	1.27	2.07
0.90	0.39	1.91
4.88	3.78	4.16

Floods Auckland — Rivals 41½ — Cattle 61

Flume out of Commission from 3 a.m. Jany 22 to midnight 26. Jan.

	Rainfall Barrett	Rainfall Nuttall
21	0.29	0.46
22	2.14	3.91
23	1.50	1.61
24	3.93	5.98
25		

Jany 26 — Hall 1.67 = of 3283 = 212.080.000 400 000 000

1910.

Noble
Nine

Aug 9 · 0·28
" 24. 0·05

Consolidated Water Co Notes May 19: 1908

Lake Helena Reservoir : Full 801 acres ac

Contour	Acres	Cubic ft	Gallons
150	226	399 578 033	
125	182.7		
100	144		
75	103.7	228259 500	
50	70.	60.984.000	
Av Dep 20'		688 821 533	5.152.385.000

Waste Station (not included) Cost 100.- to 500 000

at present 16" depth in flume 2400 makes 100 feet x 1½" new main wasting

Waste Wells 6 - 10 - 15 " Dr. wells 20 deep timber lined

about 6 - 6" wells in bottom of big wells. 40 - deep

2 Sims pumps -

$6 per annum per inch annual receipt.

Last year receipt $26.500
expenses 25.000
Net $1.500

Evaporation

Main flume -
40 x 52.800
2.112.000 6 months
12.672.000 ¼ foot deep
Cubic feet 50.688.000 x 7.5
354 816 000
25 344 000
380.160.000 million gallons

June 17- Went down about 2 PM +
measured new 16" gauge - found
Entrance throttled with weeds =
pulled out some - W.D. 2 7/8"
E Dd 3"

		Cuyamaca	La Mesa	Yuma
June 21	1911	24'-5 7/8"	60	370.675.000
July 25	1911	19'-3 1/2" 670.000.000		
Aug 11	1911	18'-0 1/2" 299.500.000	54'-3 1/2"	262.000.000
July 6	1912	22'-1 3/4"	60'-6 3/8"	

Passage of Moreno Water to Stay Dam.
March - April 1913.

Gauge Moreno Lake.

Date	Hr	gauge	Date	Hr	gauge	Date	Hr	gauge
Mar 27	2:30 PM	88.71	apr 3	6 am	83.70	12	6 am	76.31
28	6:30 AM	88.23		7:30 am	83.57		6:30 PM	75.80
	10:30 AM	88.10		12:30 am	83.51	13	6 am	75.34
	12:30 PM	88.03		5:30 PM	83.40		5 PM	74.88
	5:00 PM	87.90	4	6 am	83.00	14	7:30 am	74.26
29	6:30 AM	87.40		9:30 am	82.92		5 PM	73.97
	9:00 AM	87.38		1:30 PM	82.80	15	10 AM	73.50
	12:30 PM	87.28		6 PM	82.68		5:30 PM	73.22
	2:30 PM	87.23	5	6 am	82.27		7:30 am	72.62
	5:00 PM	87.15		10 AM	82.13	16	5 PM	72.25
30	6:00 AM	86.95		2:30 PM	82.01		7 am	71.63
	10:00 AM	86.66		5:30 PM	81.90	17	4 PM	71.27
	1:30 PM	86.63	6	6 am	81.50		7 am	70.85
	5:00 PM	86.51		10 AM	81.38	18	5 PM	70.57
31	6:00 AM	86.05		12:30 PM	81.30		7 am	70.15
	12:30 PM	85.81		5:30 PM	81.15	19	5 PM	69.90
	3:30 PM	85.70	7	6 am	80.70		7:30 am	69.46
	5:30 PM	85.65		10 AM	80.59	20	5 PM	69.19
apr 1	6:00 AM	85.17		12 NN	80.50		6 am	68.70
	10:30 AM	85.00		2 PM	80.45	21	5 PM	68.48
	12:30 am	84.95		5:30 PM	80.32		6 am.	68.03
	3 PM	84.87	8	6 am	79.90	22	5:00 PM	67.65
	5:30 PM	84.80		9:30 am	79.79	23	6:00 am	67.23
2	6 am	84.41		12 NN	79.70		5:30 PM	66.92
	9 am	84.30		3 PM	79.60	24	6:00 AM	66.48
	12:30 PM	84.23		5:30 PM	79.53		5:00 PM	66.00
	2:30 PM	84.15	9	6 am	79.08	25	6:00 AM	66.45
	5:30 PM	84.08		10 AM	78.74		5:00 PM	65.03
				6 PM	78.61	26	6:00 AM	64.52
			10	6 am	78.15		5:00 PM	64.15
				5 PM	77.61			
			11	6 am	77.15			
				5 PM.	76.80			

See pages 60, 61, 62, 63, 64, 65, 66, 67, 68

Apr 27	6:00 PM	63.58
	5:00 PM	63.10
28	6:00 am	62.59
29	6:00 am	61.58
	6:00 pm	61.08
30	6:00 am	60.55
	5:00 pm	60.05
May 1	6:00 am	59.49
	5:00 pm	59.03
2	6:00 am	58.45
	12:30 pm	58.12
3	11:30 am	58.15
	5:00 pm	57.95
4	6:00 am	57.32
	5:00 pm	56.80
5	6:00 am	56.10
6	5:00 am	54.90
7	6:00 am	54.93
8		
9	6:00 am	55.20

Norman North to Otter Dam Contr.

Weir at Pine Creek Dam.

Morning Work for Stage Data Continued

Flume 6 = Barrett Xing

Date	gauge a.m.	gauge p.m.	mean	gallons
1	3.65	3.6	3.625	
2	3.55	3.6	3.575	
3	3.65	3.55	3.60	
4	3.65	3.6	3.625	
5	3.65	3.6	3.625	
6	3.65	3.55	3.60	
7	3.7	3.55	3.625	
8	3.65	3.55	3.60	
9	3.65	3.3	3.475	
10	3.65	3.5	3.575	
11	3.6	3.5	3.55	
12	3.6	3.5	3.55	
13	3.6	3.5	3.55	
14	3.7	3.0	3.35	
15	3.0	3.3	3.15	
16	3.5	3.5	3.5	
17	3.5	3.5	3.5	
18	2.95	2.9	2.925	
19	2.95	2.9	2.925	
20	2.95	2.9	2.925	
21	2.9	2.9	2.9	
22				
23				
24				
25				
26				
27				
28				
29				
30				

Moore Work to Otay Dam Continued

Barrett Wash

Date	Gauge am	Gauge pm	mean	gallons
1	0.65	0.55	0.60	
2	0.5	0.475	0.4875	
3	0.35	0.375	0.3625	
4	0.25	0.225	0.2375	
5	0.225	0.225	0.225	
6	0.225	0.2	0.2125	
7	0.225	0.225	0.225	
8	0.225	0.2	0.2125	
9	0.225	0.2	0.2125	
10	0.225	0.2	0.2125	
11	0.225	0.225	0.225	
12	0.225	0.225	0.225	
13	0.25	0.225	0.2375	
14	0.25	0.25	0.25	
15	0.25	0.25	0.25	
16	0.25	0.25	0.25	
17	0.25	0.225	0.2125	
18	0.25	0.225	0.2375	
19	0.225	0.225	0.225	
20	0.225	0.225	0.225	
21	0.2	0.2	0.2	
22				
23				
24				
25				
26				
27				
28				
29				
30				

Morena Weir to Otay Dam Continued

Morena Weir

Date	Time	Valve	Head on Weir	Hrs
Mar 27	2:30 PM	#2	1.76	Opened
28				42½
29	9:00 AM		1.51	Lowered
				25
30	10:00 AM		1.82	Raised
				50½
31				
Apr 1	12:30 PM		1.66	Lowered
2	9:00 AM		1.51	Lowered
				210½
3				
4	7:00 AM			46
5				
6				
7				
8				243
				289
9				
10				
11				
12				
13				
14	10 AM		1.14	
15	10 AM		1.45	24
16				
17				
18				
19				141
20				Total 592½
21	7 AM			—
22				
23				
24				
25				

Readings indicate changes made in Head on Weirs
Head on Weir between readings constant and same as preceding reading.

Previous Regulated flows of water over Morena Weir according to following marks

#1 = 1.76 #2 = 1.51 #3 = 1.82 #4 = 1.66

#5 = (1.14) ? #6 = (1.45) ?

Carried over 592½

Morena Weir (Cont)

Date	Time	Valve	Head on Weir	Hrs
Apr. 26			1.45	
27				
28				
29				269½
30				410½
May 1				
2	12:30 PM	Closed Valve #2		
3	11:30 AM	Opened valve #2	1.45	— 23
4				
5				
6	5:00 PM	Closed Valve #2		65½
				Total 927½

Morning Walk to Clay Dam Continued

Thursday = Calusa Xing

Morena Water Tr Flag Data Continued

End #6 / Deitz Station #1

Date	Hr	gauge	gals	Date	Hr	gauge	gals

Storm Water to Stay Dam Continued

Survey Branch / Lilly Station #3

Date	Hr	Gauge	Hrs	mm
Mar 29	12 45 pm	0.50	4.5	0.50
	5 35 pm	0.50	16.0	0.60
30	9 30 a.m	0.70	7.5	0.80
	5 10 pm	0.90	14.0	0.99
31	7 10 am	1.08	5.6	1.12
	12 30 pm	1.16	5.5	1.17
	6 00 pm	1.18	13.0	1.22
Apr 1	7 am	1.26	5.5	1.26
	12 30 pm	1.26	5.5	1.24
	6 pm	1.22	14.0	1.26
2	8 am	1.30	4.0	1.26
	12 m	1.22	7.0	1.25
	6 45 pm	1.28	11.5	1.27
3	6 15 am	1.26	6.5	1.27
	12 45 pm	1.28		
	5 10 pm	1.28		
	6 30 am	1.28	41.5	1.28
4	12 m *	1.28		
	4 p.m.	1.28		
	5 30 pm	1.29		
	6 30 am	1.28		
5	12 00 pm	1.30	5.5	1.29
	5 30 pm	1.30		
	6 30 am	1.30	23.5	1.30
6	12 15 pm	1.30		
	5 pm	1.31	5.5	1.305
			14.0	1.315
7	7 am	1.32	5.0	1.32
	12 m	1.32	5.0	1.315
	5 pm	1.31		

Date	Hr	Gauge	Hrs	mm
8	7 am	1.32	14.0	1.315
	12 30 pm	1.32	5.5	1.32
	5 pm	1.31	4.5	1.315
9	7 am	1.32	14.0	1.315
	12 30 pm	1.34	5.5	1.33
	5 15 pm	1.33	4.5	1.335
10	7 15 am	1.32	14.0	1.325
	12 30 pm	1.32	5.0	1.32
	5 30 pm	1.30	5.5	1.31
11	7 am	1.31	13.5	1.305
	12 30 pm	1.30	5.5	1.305
	5 30 pm	1.30		
12	6 30 am	1.30		
	12 30 pm	1.30	53.0	1.30
	5 30 pm	1.30		
13	7 am	1.30		
	5 30 pm	1.30		
14	7 am	1.34	17.5	1.32
	12 30 pm	1.34	11.0	1.34
	6 pm	1.34		
15 *	6 30 am	1.15	12.5	1.245
	10 30 a.m.	1.16	4.0	1.125
	5 30 pm	1.08	7.0	1.09
16	6 30 am	1.22	13.0	1.14
	12 m	1.26	5.5	1.24
	5 30 pm	1.26	18.5	1.26
17	6 30 am	1.26	5.5	1.265
	12 m	1.27	5.0	1.265
	5 pm	1.26	13.5	1.265
18	6 30 pm	1.27	5.5	1.275
	12 m	1.16	5.5	1.12
	5 30 pm	1.08		

Cont.

Date	Hr	Gauge	Hrs	mm
Apr 19	6 30 am	1.05	13.0	1.065
	12 m	1.04	5.5	1.045
	5 15 pm	1.04	5.5	1.04
20	6 25 am	1.03	13.0	1.035
	5 30 pm	1.02	11.0	1.025
			12.5	1.01
21	6 15 am	1.00	12.0	0.995
	6 30 pm	.99		
			12.0	0.99
22	6 15 am	.99	6.0	0.995
	12 25 pm	1.00	5.5	1.00
	5 30 pm	1.00	12.5	0.995
23	6 am	.99	6.0	0.985
	12 m	.98	5.5	0.98
	5 25 pm	.98	13.0	0.97
24	6 30 am	.96	5.5	0.965
	12 m	.97	5.5	0.975
	5 30 pm	.98	12.0	0.97
25	5 25 am	.96	12.0	0.97
	5 30 pm	.98	12.0	0.995
26	5 25 am	.93	8.0	0.995
	12 pm	.98	4.0	0.98
	5 30 pm	.98	13.5	0.97
27	7 00 am	.96	10.5	0.96
	5 30 pm	.96	13.0	0.93
28	6 30 am	.90	11.0	0.92
	5 30 pm	.94		

* Readings by R. Wuerte

Date	Hr	Gauge	Hrs	mm
	5 am	.90	11.5	0.92
29	12 m	.93	7.0	0.915
	5 30 pm	.94	5.5	0.935
	6 00 am	.90	12.5	0.92
30	12 30 pm	.91	6.5	0.905
	5 30 pm	.92	5.0	0.915
May 1	6 15 am	.90	13.0	0.91
	12 30 pm	.91	6.0	0.905
	5 25 pm	.92	5.0	0.915
2	6 30 am	.98	13.0	0.95
	12 30 pm	.94	6.0	0.96
	5 30 pm	.92	5.0	0.93
	6 00 am	.86	12.5	0.89
3	12 m	.65	6.0	0.755
	5 15 pm	.65	5.5	0.665
	7 00 am	.48	13.5	0.565
4	12 m	.68	5.0	0.58
	5 pm	.82	5.0	0.75
	6 am	.85	13.0	0.835
5	12 m	.68	6.0	0.765
	6 pm	.87	6.0	0.775
	6 am	.84	12.0	0.855
6	12 m	.84	6.0	0.84
	5 pm	.86	5.0	0.85
	6 30 am	.50	13.5	0.685
7	12 m	.40	5.5	0.445
	5 30 pm	.37	5.5	0.385
	6 am	.34		
8	12 m	.30		
	5 30 pm	.28		
9	6 am	.27		
10	6 am	.16		

Morena Weir to Stay Dam Continued

Lower Stay Dam

Date	Water level	Date	
March 29	96' 9½"	April 17	98 7⅞
30	96' 10"	18	98 9½
31	96' 10½"	19	98 10⅛
April 1	96' 11¼"	20	98. 11
2	96' 11"	21	98 11½
3	96' 12⅜"	22	99
4	96' 13⅝"	23	
5	96' 15½"	24	
6	96' 14"	25	
7	96' 18"	26	
8	97' 0⅛"	27	
9	97' 10⅞"	28	
10	98	29	
11	98	30	
12	98 2¼		
13	98 3¾		
14	98 4⅞		
15	98 6¼		
16	98 7		

DULZURA CONDUIT.
Preliminary
Table of Discharge at Campo Crossing.
(Size of Flume, 4.41 x 3.83.)

Depth in feet.	Dischg. in Gal. Per 24 hours.
0.3	1,188,000
0.4	1,880,000
0.5	2,720,000
0.6	3,430,000
0.7	4,230,000
0.8	5,050,000
0.9	5,930,000
1.0	6,900,000
1.1	7,700,000
1.2	8,520,000
1.3	9,320,000
1.4	10,200,000
1.5	11,080,000
1.6	11,900,000
1.7	12,900,000
1.8	13,900,000
1.9	15,000,000
2.0	16,030,000
2.1	17,300,000
2.2	18,500,000
2.3	19,900,000
2.4	21,200,000
2.5	

Morena Intake to Stay Dam Continued

Lower Stay Dam

Date	Water level		Date	Water level	
Mar 29	96' 9½"		Apr 17	98	7⅞
30	96' 10"		18	98	9½
31	96' 10½"		19	98	10⅛
Apr 1	96' 11¼		20	98.	11
2	97' 1"		21	98	11½
3	97' 2⅜"		22	99	
4	97' 3⅝"		23		
5	97' 5½"		24		
6	97' 7⅛"		25		
7	97' 8¾"		26		
8	97' 10⅜"		27		
9	97' 10⅞"		28		
10	98		29		
11	98		30		
12	98 2¼				
13	98 3¼				
14	98 4⅞				
15	98 6¼				
16	98 7				

DULZURA CONDUIT.
Preliminary
Table of Discharge at Campo Crossing.
(Size of Flume, 4.41 x 3.83.)

Depth in feet.	Dischg. in Gal. Per 24 hours.
0.3	1,188,000
0.4	1,880,000
0.5	2,720,000
0.6	3,430,000
0.7	4,230,000
0.8	5,050,000
0.9	5,930,000
1.0	6,900,000
1.1	7,700,000
1.2	8,520,000
1.3	9,320,000
1.4	10,200,000
1.5	11,080,000
1.6	11,900,000
1.7	12,900,000
1.8	13,900,000
1.9	15,000,000
2.0	16,030,000
2.1	17,300,000
2.2	18,500,000
2.3	19,900,000
2.4	21,200,000
2.5	22,600,000
2.6	23,800,000
2.7	24,900,000
2.8	25,900,000
2.9	27,000,000
3.0	28,300,000
3.1	29,500,000
3.2	30,720,000
3.3	31,600,000
3.4	32,800,000
3.5	33,600,000
3.6	34,800,000
3.7	35,900,000
3.8	37,000,000
3.9	

Morena Water to Otay Dam Cont.

Miscellaneous Notes

Gretz Sta No 1 apr. 4-1913 - at 12 30 pm 1.41
Gretz Sta No 2 apr. 4-1913 - at 3 p.m 1.29
Gretz Sta No 3 apr. 4-1913 - at 4 p.m. 1.28
Gretz Sta No 1 apr. 14-1913 - at 1 p.m. 1.35
Gretz Sta No 2 apr 15-1913 - at 7 a.m 1.09
Gretz Sta No 3 apr. 15-1913 - at 10 30 am 1.10

Harvey Ranch Irrigating Flume apr. 4-13 - 3½ in deep 8 in wide and velocity 20 ft in 11 seconds, or 1.818 ft per second.

Independent.
Mr. Jones Rec'd
Bro'ds Compliments
Bulletin Am.
Advertiser "
Examiner- "
Boyd Dana. News
Boyd. Atlanta.
East E. Ill Monthly.
Hill & Brooks "
W. Molony.
Chronicle.
Exp. Record
Exp. Cent. Chr.
B.A. Etcheverry. "
Mr Dyp. Berkeley Cal "

DULZURA CONDUIT

Discharge for Six Foot Weirs.

Head Feet.	Gallons per 24 Hrs.
.1	504,125
.2	1,279,703
.3	2,249,176
.4	3,412,543
.5	4,769,804
.6	6,282,181
.7	7,910,895
.8	9,694,720
.9	11,633,670
1.0	13,676,025
.1	15,860,570
.2	18,148,525
.3	20,591,595
.4	23,228,561
.5	25,904,305
.6	28,696,386
.7	31,566,024
.8	34,629,557
.9	37,809,427
2.0	41,028,076
.1	44,401,840
.2	47,853,162
.3	51,343,263
.4	55,066,038
.5	58,827,591
.6	62,666,702
.7	66,622,150
.8	70,693,934
.9	74,804,498
3.0	79,070,177

Length of Pine Creek Dam 41½ feet

" " Lucerne Weir Barnet 61

- Gates

155 Screen at ury - 208

210 Jamaica Barn 236

220 Coleraine Grove 259

226 Divide 276

236 Bonito Stone 301

237 Bonito Bridge 305

250 RR track 330

301 Mt. City Limit 345

306 Mid Section 376

316 452

New Weir 16 x 8

TABLE OF CONTENTS
CONTOURS 0-124

Contour	Area in Sq Ft	Area, Acres	Contents in gallons between levels	Total Contents, gallons	Acre Feet
0	0	0 0			
10	104 160	2.40	3 906 000	3 906 000	11.99
15	233 120	5.35	6 324 000	10 230 000	31.39
20	505 920	11.61	13 857 000	24 087 000	73.92
30	1 750 880	40.19	84 630 000	108 717 000	333 64
40	4 186 720	90.16	222 735 000	331 452 000	1017.19
50	6 973 760	160.09	418 593 000	750 045 000	2 301.87
60	10 430 880	239.46	652 674 000	1 402 719 000	4 304.79
70	12 035 440	276.29	842 487 000	2 245 206 000	6 890.30
80	13 198 560	303.00	946 275 000	3 191 481 000	9 794.32
90	19 673 840	451.65	1 232 715 000	4 424 196 000	13 577.70
100	25 288 000	550.53	1 681 572 816	6 105 768 816	18 737.97
105	27 451 200	630.19	986 223 040	7 091 991 856	21 764.59
110	30 092 800	690.84	1 072 099 424	8 164 091 290	25 054.75
115	32 771 200	752.32	1 175 556 800	9 339 648 080	28 662.41
120	34 996 400	803.45	1 267 291 520	10 606 939 600	32 551.60
124	37 862 400	869.20	1 089 937 568	11 696 937 168	35 896.69

NOTE:- Outlet Tunnel is at the 50 Ft. contour; Available capacity is taken from the 50 Ft contour to the water level

Computations below the 100 Ft. contours by H.E. Green C.E.

HOURS IN DECIMALS OF DAY.

---o---

Hours	Days	Hours	Days	Hours	Days
.5	.021	9.0	.375	17.5	.729
1.0	.042	9.5	.396	18.0	.750
1.5	.063	10.0	.417	18.5	.771
2.0	.083	10.5	.438	19.0	.792
2.5	.104	11.0	.458	19.5	.813
3.0	.125	11.5	.479	20.0	.833
3.5	.146	12.0	.500	20.5	.854
4.0	.167	12.5	.522	21.0	.875
4.5	.189	13.0	.542	21.5	.896
5.0	.208	13.5	.563	22.0	.917
5.5	.229	14.0	.583	22.5	.938
6.0	.250	14.5	.604	23.0	.958
6.5	.271	15.0	.625	23.5	.979
7.0	.292	15.5	.646	24.0	1.000
7.5	.313	16.0	.667		
8.0	.333	16.5	.688		
8.5	.354	17.0	.708		

TABLE OF CONTENTS.

MORENA RESERVOIR.

CONTOURS.	AREA.	CU. FEET.	GALLONS.	ACRE FEET.
10	.68	191664	1,437,480	4.4
20	4.38	573538	4,301,535	13.1
30	11.24	4491036	33,682,770	103.1
40	21.65	10863862	81,478,965	249.4
50	36.42	24277632	182,037,240	557.2
60	72.54	46854586	351,409,395	1075.6
70	111.16	88121880	660,914,100	2023.0
80	152.31	144064334	1,080,482,505	3307.3
90	225.05	225401220	1,690,509,150	5174.5
100	303.94	341021074	2,557,658,055	7828.8
110	437.62	498149256	3,736,119,420	11435.9
120	623.57	725815222	5,443,989,165	16655.4
130	850.08	1047292752	7,854,695,640	24042.3
140	1137.26	1479264202	11,094,481,515	33959.2
150	1370.65	2030263356	15,226,975,170	46608.4

Table of Discharge for Quadrant Weir.
Formula: $Q = 2.54x\sqrt{\text{Head in feet}^5}$

Gage Hgts.	Gallons 24 Hrs.	
.10	5170	.50 - 290,243
.11	6463	
.12	7755	.51 - 304,936
.13	9693	
.14	11631	.52 - 320,088
.15	13569	
.16	15832	
.17	18096	
.18	21973	
.19	25850	
.20	29727	
.21	33604	
.22	37481	
.23	42005	
.24	46529	
.25	51053	
.26	57522	
.27	63985	
.28	70448	
.29	76911	
.30	83374	
.31	90300	
.32	97226	
.33	104152	
.34	112554	
.35	120596	
.36	129358	
.37	137760	
.38	146808	
.39	155856	
.40	164904	
.41	173952	
.42	183000	4 3/4" - mean 81.1
.43	196479	
.44	209405	
.45	222977	
.46	236549	
.47	250121	
.48	263693	
.49	277265	22.59

4/4

Discharge Table
White Gauge Barrett - 61'
O = 2.4 Box Gauge

Depth in Feet.	U. S. Gallons 24 Hours.	Cubic feet per second
0.1 266	5,100,000	7.9
0.2 276	12,900,000	20.
0.3	22,800,000	35.3
0.4	34,700,000	53.7
0.5	48,400,000	75.
0.6	64,000,000	99.
0.7	80,000,000	124.
0.8	98,000,000	152.
0.9	117,000,000	182.
1.0	139,000,000	215.
1.1	162,000,000	250.
1.2	184,000,000	285.
1.3	208,000,000	323.
1.4	236,000,000	365.
1.5	264,000,000	408.
1.6	291,346,000	451.
1.7	320,000,000	496
1.8	350,000,000	543.
1.9	382,432,000	592.
2.0	415,000,000	644.
2.1	450,000,000	696.
2.2	483,000,000	752.

Add 44.595.735 for 6' Box discharge

	Lumes	
1/8	551	
3/16	331	
1/4	122	
1/2	580	
	60	
	85	
		1729
1	1200	
1 1/4	56	
1 1/2	77	
1 3/4	175	
# 2	309	
# 3	1890	
3 1/2	40	
# 4	2060	
5	555	
5 1/2	75	
# 6	980	
		7489

DULZURA CONDUIT

Discharge for 8 Foot Weirs.

Head Ft.	Gallons Per 24 Hours.
.1	672,167
.2	1,706,278
.3	2,998,901
.4	4,550,057
.5	6,359,738
.6	8,376,241
.7	10,547,860
.8	12,926,293
.9	15,511,560
1.0	18,234,700
.1	21,147,427
.2	24,198,033
.3	27,455,460
.4	30,971,414
.5	34,539,073
.6	38,261,848
.7	42,088,032
.8	46,172,742
.9	50,412,569
2.0	54,704,104
.1	59,202,453
.2	63,804,216
.3	68,457,684
.4	73,421,384
.5	78,436,788
.6	83,555,602
.7	88,829,533
.8	94,258,578
.9	99,739,330
3.0	105,426,902

Bureau of Mines Lonnie Creek

January

December 14 chain 9 9 450

10 Black 31 250

5 Judson 28 1400

8 No 1 34 1700

34 2 84 4 5 x 5

69 Four 86

27 Cuts 21

38 · 261.848

16

1.65 42.088.032

1.7 1803 49.880

60 170