Monthly Estimate

Concrete.

22

Barnett

August 1921 Concrete Estimate #19 – Final Topogs.

contour	End Area	Total End Area
1412	00	00
1415	10	10
1420	22	22
1425	120	120
1428	619	619
1430	1311	1311
~~	~~	~~
14275	171	171
1430	343	343
~~	~~	~~
14274	00	00
1428	20	20
1430	335	335
1435	1889	1889
~~ ~~	~~	~~
1430	1654	1654
1435	2690	2690
~~	~~	~~
1435	4579	4579
1440	6757	6757
1445	9580	9580
1450	11939	11939
1455	13714	13714

(sheet-1)

Mean Area	×	Difference in Elevation	Sq-feet	Cubic Yards
5	× 3	=	15.0	0.6
16	× 5	=	80.0	3.0
71	× 5	=	355.0	13.2
369.5	× 3	=	1108.5	41.1
965	× 2	=	1930.0	71.5
~~	~~	~~	~~	~~
257	× 2.5	=	642.5	23.8
~~	~~		~~	
10	× 0.6	=	6.0	0.2
1775	× 2	=	355.0	13.2
1112	× 5	=	5560.0	205.9
~~			~~	
2172	× 5	=	10860.0	402.2
5668	× 5	=	28340.0	1049.7
8168.5	× 5	=	40842.5	1512.7
10759.5	× 5	=	53797.5	1992.5
12826.5	× 5	=	64132.5	2375.8
				7705.4

Final Topog.

Contour		End Area		Total End Area
1455		956		956
1459.6		1174		1174
1455		12763		12763
1460		15762		15762
Sheet 3 Contour	West of Contr Joint	East of Contr Joint 325–500	5400 East.	
1460	3270	3726		6996
1465	3490	4342		7832
1470	3520	4742		8262
1475	3574	5398		8972
1480	3896	5948		9844
1485	4148	6347		10497
1485	638	908		1546
1489.3	~~678~~	~~976~~		1603
1485	Deduct Lift from Total			8951
1490	3774	5642	667	10083
1495	3980	5915	1117	11012
1495		1091		1091
1489.3		1157		1157
1495	3980	5244	1465	10269
1500	4108	5415	2725	12248
1505	4600	5594	4128	14322

Curtain Wall — whole area = 1603

mean Area x	Difference in Elevation	Sq ft	Cubic Yards
	Carried Forward	7705.4	
1065 x 4.6 =	4899.0		181.4
14018 x 5 =	70090.0		2595.9
Total Sheet 1		10482.7	
		Sheet 3	
7414 x 5 =	37070.0		1373.0
8047 x 5 =	40235.0		1490.2
8617 x 5 =	43085.0		1595.8
9408 x 5 =	47065.0		1742.2
10170 x 5	50850.0		1883.3
1574.5 x 4.3 =	6770.4		250.8
9517 x 5 =	47585.0		1762.4
10547.5 x 5 =	52737.0		1953.2
1124 x 4.3 =	4833.2		179.0
11258.5 x 5 =	56292.5		2084.9
13285 x 5 =	66425.0		2460.2
			6775.0

August — Curtain Wall —

Contour	West of Contr Joint	3+25 4+85	4+85 East	Total End Area
1505			971	971
1505.5			1055	1055
1505		574		574
1509.3		574		574
1505			25	25
1507			55	55
1505	4203	4600	3525	12328
1510	4612	4580	4230	13422
— Sheet 4 —				
1510	111			111
1515.2	111			111
1510	90			90
1516	90			90
1510	3910	4580	4232	12722
1515	4045	4464	4182	12691
1515	4045	4214	4182	12441
1520	4375	4140	4180	12695
1525	4700	4066	4170	12936
1530	5000	3970	4210	13180
1530			496	496
1531.5			496	496
1530	747			747
1531.9	747			747
1530	604			604
1534.4	704			704

— Curtain Wall —

2

Sheet 3

Mean Area X	Diff in Elev.	Sq ft	Cubic Yards.
1013 X 0.5 =		506.5	18.8
574 X 4.3 =		2468.2	91.4
40 X 2 =		80.0	3.0
12875 X 5 =		64375.0	2384.3
Total Sheet #3			19272.5

Sheet 4

111 X 5.2 =		577.2	21.4
90 X 6 =		540	20.0
12706.5 X 5 =		63532.5	2353.1
12568 X 5 =		62840.0	2327.4
12815.5 X 5 =		64077.5	2373.2
13058 X 5 =		65290	2418.2
496 X 1.5 =		744.0	27.5
747 X 1.9 =		1419.3	52.6
654 X 4.4 =		2877.6	106.5 } out Sept.

Sheet 4 — Curtain Wall —

	West of Contr Joint	325 To 485	485 East	Total End Area
1530			1392	1392
1531.8			1392	1392
1530			625	625
1532			732	732
1530	3650	2798	1272	7720
1535	3740	2700	1246	7686
1535	338			338
1538	360			360

Sheet 5

1535	3256	2700	1246	7202
1540	3200	2660	1202	7062
1545	3136	2530	1180	6846
1545	1224	1720		2944
1550	1216	1662		2878
1550	1216			1216
1554.3	1202			1202
1550		1662		1662
1555		1610		1610

— Curtain Wall —

Sheet 4 3

Mean Area	×	Diff in Elev.	Sq feet	Cubic yds.
1392	×	18	= 25056	92.8
678	×	2	= 1357.0	50.3
7703	×	5	= 38515.0	1426.5
349	×	3	= 1047.0	38.8 output
			(ok)	11308.3

Sheet 5

7132	×	5	= 35660.0	1320.7
6954	×	5	= 34770.0	1287.8
2911	×	5	= 14555.0	539.1
1209	×	4.3	= 5198.7	192.5
1636	×	5	= 8180.0	303.0
			(ok)	3643.1

— Below Curtain Wall —

Sheet 2 Contour	West of Contr Joint	East of Cont Joint	Total End Area	7525 489 7036	Total End Area
			Sub-R.C. 489		
1460	4363	3162			7036
1465	4956	4412			9368
1470	5456	4868			10324
1475	5828	5270			11098
1475	5174	5270			10444
1480	5298	5896			11194
1480		724			724
1482		760			760
1480	5298	5172			10470
1485	5450	5718			11168
1485	4746	5718			10468
1490	5026	5926			10952
14893	654	954			1608
1490	668	954			1622
Sheet 6					
1490	5694	6872			12566
1495	5944	7016			12960
1495	5226	7016			12242
1500	5526	7390			12916
14993	468	690			1158
1500	468	690			1158
1500	5998	8062	6808 2130 8938 264 8674		14060
1505	6244	8674			14918

— Below Curtain Wall —

Sheet 2

8202 X 5 =	41010	1519.0
9846 X 5 =	49230	1823.3
10711 X 5 =	53555	1983.5
10819 X 5 =	54095	2003.5
742 X 2 =	1484.0	55.0
10819 X 5 =	54095.0	2003.3
10708 X 5 =	53540.0	1983.0
1615 X 0.7	1130.5	41.9
Total Sheet 2		11412.7

Sheet 6

12763 X 5 =	63815	2363.5
12579 X 5 =	62895	2329.4
1158 X 0.7 =	810.7	30.0
14489 X 5 =	72445	2683.2
Total Sheet 6 —		7406.1

Below Curtain Wall

sheet 7

Contour	west of Contr Joint	East of Contr Joint	
1505	5448	7222	12670
1510	5550	7222	12772
1509.3		584	584
1510		584	584
1510	6148	7790	13938
1515	6330	7790	14120
1515	5630	7000	12630
1520	5718	7000	12718
1525	5834	7000	12834
1525	4934		4934
1530	4946		4946

— Summary —

Sheet			
#1 — Final Topog	—	1412 — 1460	10482.7
#3	Curtain Wall	1460 — 1510	19272.5
#4	Curtain Wall	1510 — 1535	11308.3
#5	Curtain Wall	1535 — 1550	3643.1
#2	Below Curtain Wall	1460 — 1490	11412.7
#6	Below Curtain Wall	1490 — 1505	7406.1
#7	Below Curtain Wall	1505 to { 1525 East / 1530 West	10596.7
	Total 5 Sheets =		74122.1

Below Curtain Wall.

5

Sheet 7

12721 × 5 =	63605	2355.8
584 × 0.7 =	408.8	15.1
14029 × 5 =	70145	2598.0
12674 × 5 =	63370	2347.0
12776 × 5 =	63880	2366.0
4940 × 5 =	24700	914.8
		10596.7

— Summary —

Total Sheets		74122.1
Sections Top of Curtain Wall		955.6
Over hang		270.0
Sections for August	East #2 Joint 476.8 / west #1 = 5312 / East #1 = 15796	2587.6
Below 1465	Base of Dam. South C.W. East = / = west =	265.7
		94.7
		78295.7
Deduction-	Gallery Pipe + ect.	550.0
		77745.7
	77745.7	8701.2
Tuly Est	69044.5	83285
	8701.2	Diff → 372.7

concrete by Batches

Concrete Estimate #20
September 1921

See Pages 1-5 for Sheets - 1 to 7 inc.
Sheet # 8

Contour	West of Contr Joint	East of Contr Joint	Below Curtain Wall	Total End Area
1525	4934	6028		10962
1530	4946	6028		10974
1530	4946	7200		12146
1535	4946	7200		12146
1531.9	748			748
1535	748			748
1535	4800	6176		10976
1540	4800	6176		10976
1540	2698			2698
1545	2698			2698
1540	2128			2128
1545	2128			2128
1540	1990			1990
1545	1990			1990
1545	1644			1644
1550	1644			1644

Below Curtain Wall.

Mean Area x Diff in Elev.	Sq ft	Cubic Yards
10968 x 5' =	54840.0	2031.1
12146 x 5 =	60730.0	2249.3
748 x 3.1 =	2318.8	85.9
10976 x 5 =	54880.0	2032.6
2698 x 5 =	13490.0	499.5
2128 x 5 =	10640.0	394.1
1990 x 5 =	9950.0	368.6
1644 x 5 =	8220.0	304.4
		7965.5

Concrete Est. #20 Sept. 1924

Sheet #9 - 1505 - 1545 West of H93 ⊡ 7

		†	Total End Area			Cu yds
1505	8		8	32 × 5 =	160.0	5.9
1510	56		56			
1515	208		208	132 × 5 =	660.0	24.4
1520	378	12 (10)	390	299 × 5 =	1495.0	55.4
1525	594	116	720	555 × 5 =	2775.0	102.8
1530	1176	40	1216	968 × 5	4840.0	179.2
1535	1674	320	1994	1605 × 5 =	8025.0	297.2
1535	1894		1894	2409 × 5 =	12045.0	446.1
1540	2924		2924	3047 × 5	15235.0	564.3
1545	3170		3170			
1528	00		00	20 × 2 = 40		1.5
1530	90		40			
1523	00		00	5 × 3 = 15		0.6
1526	10		10			
						1677.4

Deduction from Curtain Wall

1505	8		8	32 × 5 =	160	5.9
1510	56		56			
1515	208		208	132 × 5 =	660	24.4
1520	378		378	293 × 5	1465	54.3
1525	594		594	486 × 5	2430	90.0
1530	802		802	698 × 5	3940	129.2
1530	198		198	270 × 5	1350	50.0
1535	342		342			106.5
† Area	1530	1534				38δ
† Area	1535	1538				499.1

Concrete Estimate-20 Sept-1921

Summary

sheet 1	Cont. 1412-1460	Final Totals	10482.7		10482.7
sheet 3	" 1460-1510	Curtain Wall	19272.5	34223.9 = C.W.	
Sheet 4	" 1510-1535	" "	11308.3	499.1 = Deduction C.W.	
sheet 5	" 1535-1555	" "	3643.1	33724.8	33724.8
Sheet 2	" 1460-1490- South of Curtain Wall		11412.7		11412.7
Sheet 6	" 1490-1505	" " " "	7406.1		7406.1
sheet 7	" 1505-1525	" " " "	9681.9		9681.9
Sheet 8	" 1525-1550	" " " "	7965.5		7965.5
Sheet 9	" 1505-1545	West 1+93.07	1677.4		1677.4
	Sections Top of Curtain Wall —				955.6
	Overhangs Blocks - 1-2-3-4-5-				309.0
	Sections above 1540 & and Sections West of 1+93.07				2437.4
	Section below 1465 - Base of Dam	S of C W E of Jnt			265.7
		" " " W " "			94.7
					86413.5
				Deductions	513.4
				Total Concrete to Oct-1"	85900.1

Deductions —

406-lin ft Gallery @ 26.28 =	10669.68	
outlet Gallery 101 lin ft @ 26.28	2654.28	
69 Lin ft 16" pipe. @ 1.67	115.23	
73 " " 16 " @ 2.07	151.11	
271 " " 12"x12" Air Vent	271.00	
	13861.30	513.4

Topog Sheet-1-

Concrete Estimate #25 February 1922 —
1412 — 1460 —
Final Topog-

Contour	End Area		
1412	00		
1415	10	5 × 3 = 15.0	0.6
1420	22	16 × 5 = 80.0	3.0
1425	120	71 × 5 = 355.0	13.2
1428	619	369.5 × 3 = 1108.5	41.1
1430	1311	965 × 2 = 1930.0	71,5
1427.5	171	257 × 2.5 = 642.5	23.8
1430	343		
1427.4	00		
1428.	20	10 × 0.6 = 6.0	0.2
1430	335	177.5 × 2 = 355.0	13.2
1435	1889	1112 × 5 = 5560.0	205.9
1430	1654		
1435	2690	2172 × 5 = 10860.0	402.2
1435	4579		
1440	6757	5668 × 5 = 28340.0	1049.7
1445	9580	8168.5 × 5 = 40482.5	1512.7
1450	11939	10759.5 × 5 = 53797.5	1992.5
1455	13714	12826.5 × 5 = 64132.5	2375.8
1455	956		
1459.6	1174	1065; 4.6 = 4899.0	181.4
1455	12763		
1460	~~15762~~ 15273	Deduct AC 14018 × 5 = 70090.0	2595.9
		489	
Sheet is Final		Total Sheet-1-	10482.7

Sheet 2
Topog

Concrete Estimate #25 Feb. 1922

1460 — 1495 — Final Topog —

Contour.					Total.	Cu. yds.	Deduct
1460	540		South of Cableway East of Joint	North of Cableway East of Joint	540	100.8	1465 — 489 × 2.3 = 20.8 cu yds.
1464.2	618	West Centre Joint	Centre Joint	Joint	618		
*1460		7768	2364	4544	14676	2950.8	
1465	South of Cableway West of Joint	8462 North of Cableway West of Joint	3526	5206	17194		
*1465	4200	4260	3526	5206	17194	3313.9	
*1470	4700	4286	3886	5724	18596	3587.6	
*1475	5074	4380	4268	6428	20150		
*1475	4406	4380	4268	6428	19482	3750.4	
*1480	4486	4660	4910	6966	21022		
1480	4486	4660	4186	6966	20298	3887.4	
1485	4622	4948	4812	7304	21686		
1485	3930	4948	4812	7304	20994	4044.1	
1490	4186	5252	5076	7500	22682		
1495	4380	5530	5206	8868	23984	4320.9	
	[Amt of C5D C45 − C5D]	1116 2334 1350		7513 1355 8868			
1477.5				2	2		
1480				36	36	1.8	
1480				46	46		
1485				382	382	39.6	
1490				668	668	97.2	
1488			00		00		
1490			30		30	1.1	
1495			452		452	44.6	

G-51

57-390

See page 11 —

Between 1460 + 1482 - Where II.S.F. is left out for Concrete Tower #2. (not Final)

#2

Sheet 2
Topog

Concrete Estimate #25 Feb-1922

1460 — 1495 - 1510
Continued

Final Topog.

Contour	South of Cableway E of Centre Joint	Total	Carried Forward
1490	54	54 ✓	
1495	522	522 ✓	
* 1480	728	728 ✓	
1482	740	740 ✓	
1508	00	00 ✓	
1510	116	116 ✓	

Total on Sheet #2

* Not Final

	Cu. Yds
Forward	25132.2
	53.3
	54.4
	93
	26252.2
	20.8 Deduct for 1465
	26231.4

Sheet 3
Topog

Concrete Estimate #25 - Feb. 1922 -

1495 — 1550 —

Final Topog —

	West of Cath Joint S of Cableway	N. of Cableway	East of Cont'r Joint (To Same) S- of Cableway	Not Cableway	East of 50 Line
1495	3660	5542	5224	7752	1116
1500	3850	6342	5615	7880	4104
Deduct C.D.-56 R.C. 1505	4030	6828	6300	264 / 137 → 8068 / 401 / 7667	6354
1505	3228	6828	5390	8068	6354
Deduct (1505) —	264 / 137	401 x 22 / 2 =	162 cuyds		50 E to 56-250
add depression Contour (62-360)			→ + 116 / 8100		
1510	3400	6850	5390	8216	4480
1515	3682	6910	5390	7900	4805
1515	2830	6910	4264	7900	4496
1520	3102	7016	4264	7810	4470
1525	3444	7132	4264	7730	4426
R.C. D.16 1520	12	62 x 5 = 310		11.5 cuyds	
1525	112				
Add R.C. D.16 R.C.	+ 2535 / 2647				
1525		7132	3198	7730	4015
1530	3074	7290	3198	7626	3960
R.C. D.18- 1535	3244	7608	3198	7550	3906
1535	2058	312 / 7608 / 7920	2098	7550	3482
1540	2280	8675	2098	7454	3440
R.C. D.-18- 1530	40	40 + 312 / 2 x 5 =	+32.6 cuyds		
1535	312				
	10	73 x 3 = 219 = 8.1 cuyds			
J90 R.C. 1535	136				
0 1540	372	2279 x 5 = 11395 = 422 cuyds			
		1+93 D.W. Pt.			
RC-0+90	372 / 2280	6635	2040	2098	7454	3440
1540	2602				
Form 0+93 1545	3022	6534	2204	2098	7370	3395

* not Final

12

		Total End Area	Cuyds
+452 } R.L. +522 } Add depression Contours 58 x 25 / 2 = 2.7		24268	2.7
		27791	4820.3
		31179	5460.2
		29868	
56 - 62	62 to R.C.		5735.3
3717	20	32073	
4315	255 / 65 / 255	33332	6056.0
4288	65 / 656	31008	
4410	86	31814	5816.9
4495	845 / 110	32446	5950.0
			11.5
3930	840 / 110	29602	
3870	1092 / 178	30288	5545.4
3856	1805	31167	5690.3
3405	1652	28165	
3340	2080	29367	5327.0
			32.6
			8.1
			42.4
3340	2080	29689	
3307	2460	30390	5562.9
			56061.6

See next Page.

Topog
Sheet-3-

Concrete Estimate #25 Feb. 1922

* not Final

Contour	Final West of Contr. Joint S. of Cableway	Final West of Contr. Joint N. of Cableway	Topog East of Contr. Joint S. of Cableway	Topog East of Contr. Joint N. of Cableway	50-56
Form 0+93					
1545	* 1810.	6383 2204	1106	7180	2975
1550	* 2200	6315 2262	1100	7094	2932

56-62	62 To R.C.			
2855	2067	26	574	
2830	2145	26	878	
				4 949.3
				61 010.9
		Deduct		16.3
Total Sheet #3				60 994.6

(sheet 1)
Block

Block 6+55 To Rock Contact above -1550-

1550	496		105.2
1555	690		
1555	460		193.5
1560	550		113.1
1565	671	Deduct 28 cu yds	
1565	455		100.4
1570	630		146.3
1575	950		
1575	733		150.3
1580	890		179.7
1585	1050		213.7
1590 5	1048		

90° 5 26 85.3 27 25 90 5

Sheet 1 continued

1550	2345		
1555	2332		433.1
1555	1962		
1560	1938		361.1
1565	1905		355.8
1565	1570		
1570	1570		290.7
1575	1570		290.7
1575	1291		
1580	1291		267.8
1580 6	1291		28.7
Total Sheet #1 =			3130.1

Block Sheet 2

Concrete Est. #25 Feb-1922

Blocks above 1550

5+48 To 6+05

1550	2715		500.0
1555	2685		
1555	2255		415.3
1560	2230		410.2
1565	2200		
1565	1815		336.1
1570	1815		336.1
1575	1815		
1575	1485		275.0
1580	1485	Block-5+42 To 6+05	
1580	1540		34.2
1580	1540		

Block 4+86 to 5+48

1550	2965		544.9
1555	2920		
1555	2500		459.1
1560	2458		449.8
1565	2400		
1565	2032		374.7
1570	2015		371.7
1575	2002		
1575	914	5+14.2 To 5+48	168.0
1580	900		
			4675.3

Block Sheet 2 continued

Concrete Est. #25 - Feb-1922

Blocks above 1550

5+14.2 To 5+42.7

		5+14.2 To 5+42.7	4675.3
1580	846		155.5
1585	834		1560
1590.4	726		
		Total Sheet 2 →	498.68

Block Sheet 3

Block 4+36-4+86

1550	2416		445.8
1555	2398		
1555	2040		375.9
1560	2020		372.2
1565	2000		
1565	1653		306.1
1570	1653		306.1
1575	1653		

Block 3+82 - 4+36

1550	2585		476.5
1555	2562		
1555	2183		402.1
1560	2160		396.8
1565	2125		
1565	1767		326.3
1570	1767		326.3
1575	1767		
		Total Sheet 3 →	3734.1

Block
sheet 4.

Concrete Estimate #25 - Feb. 1922
Blocks above 1550
Block 3+27 to 3+82

1550	2585	
1555	2562	476.5
1555	2195	
1560	2165	403.7
1565	2125	397.2
1565	1775	
1570	1775	328.7
1575	1775	328.7

Block 2+73+3+27

1550	2590	
1555	2560	476.8
1555	2174	
1560	2155	400.9
1565	2125	396.3
1565	1767	
1570	1767	327.2
1575	1767	327.2

Total Sheet 4 → 3863.2

Blocks
sheet 5

Concrete Est #25 Feb. 1922 15
Blocks above 1550
Block - 1+93 to 2+73

1550	4080	
1555	4046	752.4
1555	3414	
1560	3370	628.1
1565	3326	620.0
1565	2726	
1570	2726	504.8
1575	2726	504.8

Block - 0+93 to 1+93

1550	3792	
1555	4122	732.8
1555	3100	
1560	3250	588.0
1565	3932	665.0
1565	3230	
1570	3348	609.1
1575	3266	617.4
1575	2644	
1580	2646	489.8
1585	2644	489.8

Total Sheet 5 → 7197.0

See next page for
Total to Date

Cross section sheet

Concrete Estimate #25 - Feb 1922
Summary

Final Topog	1412 to 1460	sheet 1	10482.7
" "	1460 to 1495	" 2	26231.4
" "	1495 to 1550	" 3	60994.6
Blocks above 1550			
sheet 1	6+05 to Rock Contact		3130.1
sheet 2	4+86 to 6+05		4986.8
sheet 3	3+82 to 4+86		3734.1
" 4	2+73 to 3+82		3863.2
" 5	0+93 to 2+73		7197.0
	Overhang		316.0
			120935.9
Deduct for Gallery, Pipe Air Vents etc			744.3
			120191.6
add Skip Count Feb 28			216.0
			120407.6
add Sections above Blocks			1138.0
			121545.6

122683 Bryson —
121545
1138 diff -

4/2/22

-March- 1922-

Concrete Estimate. #26

Final Topogs sheets 1 + 2 + 3 - Same as Feb. Estimate #25

-Sheet 4-

Contour	0+93 - 1+93	1+93 - 3+27	3+27 - 5+00	5+00 - 6+20	6+20 - Rock Contact	Total End Area	Cubic Yards
1550	3792	6686	8194	5762	2145	26579	
							4941.7
1555	4122	6604	8096	5692	2277	26791	
1555	3100	5578	6906	4826	1844	22254	
							4121.3
1560	3250	5526	6836	4738	1906	22256	
							4169.8
1565	3932	5446	6724	4666	2010	22778	
1565	3230	4482	5634	3876	1552	18774	
							3501.7
1570	3348	4482	5634	3848	1732	19044	
							3548.3
1575	3266	4482	5634	3830	2056	19278	
1575	2644	3532	4452	3160	1654	15442	
							2871.0
1580	2646	3532	4452	3146	1788	15564	
							2897.4
1585	2644	3532	4452	3128	1972	15728	
							2743.7
1590	2366	3016	3830	2820	1872	13904	
							2422.6
1595	2136	2552	3254	2530	1788	12260	
	1+328 - 1+93		3+27 - 5+20				
1595	1144	2552	3628			7324	
							764.2
1598	1000	2242	3190	5+20 - 6+06		6432	
1595				1866		1866	
							316.1
1599.8				1690		1690	
1595					1376	1376	
							242.8
1600					1246	1246	
							181.5
1604±					1144	1144	
							32722.1

See Page 18 —

4/2/22 March 1922
Concrete Estimate #26
Sheet 4 Continued

1732 - 0193

1595		708
1600		786
1605		844
1609 2		1030
1595	986	
1600.4	996	

Total Sheet 4 → 33355.3

- Deductions - See X Section Sheet -
- Below 1598 -

Spillway #1 = 18.75 × 8.1 × 4.9 = 744.18
Block #1 18.4 × 15.65 × 1.4 = 403.14
Spillway #2 18.65 × 8.0 × 4.1 = 611.72
Block #2 17.55 × 13.3 × 1.3 = 303.43
Spillway #3 18.95 × 8.2 × 4.9 = 761.42

27) 2845.50 (105.4
27
145
135
105

Deduction for Cribbing - 5+60
9.2 × 8.9 × 7.5 = 614.10 (22.8
5-4
74
5-4
201

Deduction - 6+06 - 6+70 3
00 + 44 / 2 = 22 × 2.1 = 46.2
44 + 44 / 2 = 44 × 10 = 44.0
90.2
ave width
90.2 × 18.93 = 1707.48 (63.2

Total End Area - 32722.1

708	138.3
786	150.9
844	145.8
1030	
986	198.2
996	

Spillways & Blocks 105.4
Cribbing 5+60 22.8
Block 6+06 - 6+70 3 63.2
Pipe Gallery 751.0 — Use - Apart
Total Deduction — 941.5

See page 19 for Summary

4/2/22

March 1922
Concrete Estimate #26-

— Summary —

Sheet #1 - Contour - 1412 to 1460 -		10482.7
Sheet #2	" - 1460 to 1495	26231.4
Sheet #3	" 1495 to 1550	60994.6
Sheet #4	" 1550 to 1598	33355.3
	1599^{3} - 1604^{1} - 1609^{2} - $1600^{\pm}$	
	Over hang	316.0
	Sections above 1598	165.8
		131545.8
	Deductions ⟶	941.5
	Total for March Est —	130604.3

Note add - Yardage above 1460-
Seepage 67 for Yardage
— Piers + Roadway —

Note - 1 pc of rails D.S. Lift.
number of Rail 1482

April 2 1912 March Est.
Building Metal in Dam

April Est.	12	180.3
Rails U. S. Lifts	13	914.0
Copper. Sept to Feb 1st		570.0
Rail Internal Reinforcing To Feb 1st		3617.0
Scrap Iron " " 3+27 - 4+36		250.0
Rails. " " 12 pc 30# @ 6' 6+05 - 6+55		720.0
4' " " 4 " 40# @ 6' 5+48 - 6+05		320.0
4' " " 2" pipe 5+45 - 6+05		50.0
		31621.3
Copper during March		240.0
3-30# rails 14' - sta 2+20		420.0
Total Metal to April 1st		32281.3

1575 Lift Rails - 7 = 30# - U.S. Fed 93 - West.

May 5/92
Bud Fisher

Concrete Estimate #27

Sheet 1-2 - Same as March Est.
Sheet 3 - Same as March to 1540
Sheet 4 -

	0+93-RC	0+93-1+93	1+93-3+27	Not Cat Levy 3+27-5+0	Cat Levy 3+27-5+0	50-56	56-62	62-RC	End Area	Total Cu Yds
1540	332	3113	7832	2098	7454	3440	3370	2080	29689	5569.7
1545	368	3714	7752	2098	7370	3395	3307	2460	30467	
1545	368	3386	637	1100	7180 (50-62)	2975	2855	2067	26665	4975.3
1550	488	3792	6686	8194	5764	62-RC 2145			27069	5057.2
1555	758	4122	6604	8096	5692	2277			27549	
1555	446	3100	5578	6906	4826	1844			22700	4219.0
1560	610	3250	5526	6836	4735	1906			22866	4317.8
1565	980	3940	5496	6724	4666	2010			23766	
1565	36+00 / 2 = 18 x 1 = 18 = 0.7									
1566										
1565	46+00 / 2 * 23 x 4 = 92 = 33 / 4.0 = deduction					Deduct 4.0				
1569										
1565	760	3230	4482	5634	3876	1552			19534	3666.8
1570	1024	3348	4482	5634	3848	1732			20068	3773.5
1575	1418	3266	4482	5634	3830	2056			20686	
1575	1110	2644	3532	4452	3160	1654			16552	3106.6
1580	1436	2646	3532	4452	3146	1788			17000	3185.4
1585	1674	2644	3532	4452	3128	1972			17402	3055.8
1590	1696	2366	3016	3830	2820	1872			15600	2748.5
1595	1824	2136	2552	3254	2530	1788			14084	

- continued -

- See page 22 -

	1+32 – RC	52 – 62	62 – RC	Total End Area	Cuyds
	(1+32 – 3+27)	(3+27 – 5+20)			
1595	3696	3628		7324	
1596	3540	3476		7036	266.0
1595	2668	2150	1788	6606	1224.4
1600	2896	1958	1764	6618	1187.2
1605	2672	1788	1744	6204	1092.0
1610	2096	1676	1848	5590	1030.8
1615	2070	1548	1924	5542	407.0
1617	2074	1504	1868	5446	
					78883.0
					40
					48879.0 cuyds

Deduct 4° Cuyds

Total Sheet 4

Deductions April Est #27

Block 5+19 – 6+06

			Cuyds.
1609	932	906 x 6 = 5436 =	201.3
1615	880	871 x 2 = 1742 =	64.5
1617	862		
	add for cutting		30.0
			295.8

(Deductions)

Block 0+545 To 0+935 cuyds

1604.6	28	28 x 1.4 = 39.2	1.4
1606 2	28		
1606	370	370 x 26 = 962	35.6
1608 6	370		
1608 6	506	506 x 0.4 = 202.4	7.5
1609	506		
1609	640	516 x 6 =	114.7
1615	592	585 x 2 = 1180	44.1
1617	578		203.3
5+20	= 2 x 15 x 4 = 120 = 4.4 cuyds		4.4
1+32	17.4 x 2.5 x 7.5 = 326.3 =		12.1
			219.8

5/5/22

Summary - Concrete -

Sheet 1 -	Contours	1412 - 1460	10482.7
" 2	"	1460 - 1495	26231.4
3	"	1495 - 1540	50482.4
4		1540 - 1617	48879.0
Overhang			320.0
Overflow Section		Straight OG.	2024.0
Butt up Overflow	Section		11.3
			138430.8
Deductions			1266.6 ✓
Total plain Concrete =			137164.2

Deductions.

Blks 5719-606	295.8
" 0+545 - 0+935	219.8
Pipe Gallery cut	751.0
	1266.6

Reinforced Concrete.

Piers 1 to 9 - 25 below		1607 =	26.62
" 11 - 23	"	"	29.38
" 10	"	"	2.47
" 24.	"	"	2.20
			60.67
			2130
Reinforced Concrete -			82.0 cu yds ✓

Parapet Wall

6+48 — 7+50
6+25 — 7+01
23' — 49'

$$\frac{23}{49} \times 2 \times 4 = \frac{72}{1576} = \frac{21.3}{1576}$$

36
27
90

May 1922

Bub Fisher.

Final Concrete — Tonnels
Sheet 1 — Final Topog
Contour 1412 = 1460

1412	00		
		5 x 3 = 15	0 0.6
1415	10		
		16 x 5 = 80	3.0
1420	22		
		71 x 5 = 355.0	13.2
1425	120		
		369.5 x 3 = 1108.5	41.1
1428	619		
		965 x 2 = 1930	71.5
1430	1311		
1427.5	171		
		257 x 2.5 = 642.5	23.8
1430	343		
1427.4	00		
		10 * 06 = 6.0	0.2
1428	20		
		177.5 x 2 = 355.0	13.2
1430	335		
		111.2 x 5 = 5560.	205.9
1435	1889		
1430	1654		
		2172 x 5 = 10860.	402.2
1435	2690		
1435	4579		
		5668 x 5 = 28340	1049.1
1440	6757		
		8168.5 x 5 = 40482.5	1512.1
1445	9580		
		10759.5 x 5 = 53797.5	1992.5
1450	11939		
		12826.5 x 5 = 64132.5	2375.8
1455	13714		
1455	956		
		1065 x 4.6 = 4899.0	181.4
1459.6	1174		
1455	12762		
		14018 x 5 = 70090.0	2595.9
1460	15762 R.C. = 489		
1460	15273		

Total Sheet 1 = 10482.7

May 1922. Final Estimate Towards Sheet 2 Final Tobag
Bob Fisher
1460 - 1495 -

1460	540					
1464.7	618 West of Joint 1 south	West of Joint 1 N of Cableway	East of Joint 1 South of Cableway	East of Joint 1 N of Cableway	Total End Area	deduct $\frac{489}{2} \times 23 =$ 20.8
1460	7768		2364	4544	14676	
						29508
1465	8462		3526	5206	17194	
1465	4200	4266	3526	5206	17194	
						3523.3
1470	4700	4286	5036	5724	19746	
						3805.9
1475	5074	4380	5476	6428	21359	
1475	4406	4380	4902	6428	20116	
						3867.4
1480	4486	4660	5540	6966	21652	
						4141.1
1485	4622	4948	6198	7304	23072	
1485	3930	4948	5574	7304	21756	
						4124.1
1490	4186	5252	5846	7500	22784	
14775				2	2	
						1.8
1480				$\frac{36}{46}$	$\frac{36}{46}$	
						39.6
1485				382	382	
		7500+668				97.2
1490				668	668	
1490	4186	5252	5846	8168	23452	
				7500 + 1350		
1495	4380	5530	6060	8868	24838	
						4471.3
1488			00		00	
						1.1
1490			30		30	
						44.6
1495			452		450	
						27365.9

Continued on page 26 -

Final Estimate Course

sheet 2 - Final Topog.

1460 - 1495 Carried from 27365.9

		Total End area	
1490	54	54	53.3
1495	522	522	
1508	00	00	4.3
1510	116	116	
			27423.5
	Deduct 20.8		20.8
	Total Sheet 2 ⟶		27402.7

- Final Estimate - Concrete

Sheet 3 - Final Topog

Contours 1495 - 1540

Contour	West of Contr. Joint S of Calleway	West of Contr. Joint N of Calleway	East of Contr. Joint S of Calleway	East of Contr. Joint N of Calleway To 50	East of 50			Total End Area	Cubic Yds.
1495	3660	5542	5224	7752	1116	+452 +527	deduct	24268	4820.3
1500	3850	6342	5615	7880	4104	8068 / 401 / 7667	$\frac{401}{2} \times 22 = 163$	27791	2.7
Deduct RC & 50-56 - 1505	4030	6828	6300	7667	6354	56 - 62	62 - RC	31179	5460.2
1505	3228	6828	5390	8068	6354 / 50-56			29868	5735.3
1510	3400	6850	5390	8216	4480	3717	20	32073	6056.0
1515	3682	6910	5390	7900	4805	4325	320	33332	
1515	2830	6910	4264	7900	4496	4288	320	31008	5816.9
1520	3102	7016	4264	7810	4470	4410	742	31814	5950
1525	3444	7132	4264	7730	4426	4495	955	32446	
RC: 11.6 1520	12							12	11.5
1525	112	62 x 5 = 310 = 11.5						116	
1525	2647	7132	3198	7730	4015	3930	950	29602	5545.4
1530	3074	7290	3198	7626	3960	3870	1270	30288	5690.3
1535	3244	7608	3198	7550	3906	3856	1805	31167	
1535	2058	7920	2098	7550	3482	3405	1652	28165	5327.0
1540	2280	8675	2098	7454	3440	3340	2080	29367	
1530	40							40	32.6
1535	312							312	
1532	10							10	8.1
1535	136							136	42.4
1540	322							322	
							Deducts		61010.9 / 163
							Total Sheet 3 =		60994.6

— Final Estimate Cancelled —

Sheet 4 Final Contours - 1540 - 1617

Contours	0+93 - P.C.	0+93 - 1+93	1+93 - 3+27 N of Culvert	3+27 - 5+0 S of Culvert	3+27 - 5+0	5+0 - 5+6	5+6 - 6+2	6+2 - P.C.	Total End Area	
1540	332	3113	7832	2098	7454	3440	3340	2080	29689	
1545	368	3214	7752	2098	7370	3395	3307	2460	30464	5569.7
1545	368	3386	6734	1100	7180	2975	2855	2067	26665	
1550	488	3792	6686	8194	5764	2145			27069	4975.3
1555	758	4122	6604	8096	5692	2277			27549	5057.2
1555	446	3100	5578	6906	4826	1844			22700	
1560	610	3250	5526	6836	4738	1906			22866	4219.0
1565	980	3940	5446	6724	4666	2010			23766	4317.8
1565-1569	$\frac{4640}{2} \times 4 =$		92 -	33						
deduct 1565-1566	$\frac{3640}{2} \times 1 =$		18 =	$\frac{07}{40}$						
1565	760	3230	4482	5634	3876	1552			19534	
1570	1024	3348	4482	5634	3848	1732			20068	3666.8
1575	1418	3266	4482	5634	3830	2056			20686	3773.5
1575	1110	2644	3532	4452	3160	1654			16552	
1580	1436	2646	3532	4452	3146	1788			17000	3106.6
1585	1674	2644	3532	4452	3128	1972			17402	3185.4
1590	1696	2366	3016	3830	2820	1872			15600	3055.8
1595	1824	2136	2552	3254	2530	1788			14684	2748.5
			1+28 - 3+27	3+27 - 5+20						
overflow 1595			3696	3628					7324	
1596			3560	3476					7036	2660

Deduct 4.0 cuyds

— Continued page 29 —

Final Estimate Concrete

Sheet 4 Final Topog - 1540 - 1617

Contour	1+32 - RC	5+20 - 62	62 - RC.	Total End Area	Cubic Yards
1595	2668	2150	1788	6606	
					1224.4
1600	2896	1958	1764	6618	
					1187.2
1605	2672	1788	1744	6204	
					1092.0
1610	2096	1646	1848	5590	
					1030.8
1615	2070	1548	1924	5542	
					4070
1617	2070	1504	1868	5446	
					48883.0
	Deduct 40				40
	Total Sheet 4				48879.0

Summary

Sheet 1	Final Topog 1412 - 1460	10482.7
Sheet 2	" " 1460 - 1495	27402.7
Sheet 3	" " 1495 - 1540	50482.3
Sheet 4	" " 1540 - 1617	48879.0
Overhang		320.0
Overflow Section Straight O.G.		2024.0
Built up Section for Gates		11.3
		139602.0
Deductions Pipe, Gallery + ect.		754.0
Final Plain Concrete =		138848.0

1684 Checked

-Reinforced Concrete-

Reinforcing Outlet Tower

Vertical Rails — Sheet 1

30# rails begin at an average elev 1501

On May 1st 1921 Tops of Rails stood at Following Elevations —

	Lineal ft
6 at El. 1570.0 - lenght from El 1521 - 69 lin.ft + 6' Lap	420.0
6 " " 1572.6 " " " " 71.6 " + 6' "	435.6
1 " " 1567.0 " " " " 66 " + 6' "	72.0
1 " " 1566.6 " " " " 65.6 " + 6' "	71.6
1 " " 1560.0 " " " " 59.0 + 3' "	62.0
6 " " 1558.0 " " " " 57.0 + 3' "	345.0
1 " " 1556.6 " " " " 55.6 + 3' "	58.6
1 " " 1555.6 " " " " 54.6 + 3' "	57.6
1 " " 1555.0 " " " " 54.0 + 3	57.0
add 2 extra 30' rails used	60.0
	1639.4

1639.4 @ 10# per ft = 16394#

Horizontal Hoops ½" bars

Elev of last hoop in place May 1st 1546.5

Elev. of First Hoop 1502.5

23 hoops in place to May 1st

23 - ½" bars @ 63'-4" = 1456.6 lin ft @ .85 per ft 1238#

Base of Outlet Tower.

4 - 30# Rail	8'-3" each = 33 lin ft.	@ 10# per ft 330#
4 - 30# "	14'-3" " 57 " "	@ 10# " " 570#
"	18'-4" " 110 " "	@ 10# " " 1100#

Reforcing Outlet Tower 46

Base of Tee - Bottom Outlet Tower

3 - 1/2" Hoops 12.57 each = 37.71 lin ft @ 85 per ft 32#

Hoops around Flap Valves

4 - 3/4"	Bars at 10'-3½" each = 41.17 Lin ft	79.5
4 - 3/4"	" at 11'-9" each = 47.00	@ 90.0
4 - 3/4"	" at 13'-2½" " = 52.82	@ 1.913# per ft 101.5
8 - 3/4	" at 1'-3" " = 10.0	19.0

Total Sheet 1 19954.0

Steel around Inlet Valve #3

Circumference of 4' Circle = 12.57

" " 5 " 15.71

" " 6' " 18.85

47.13 = lin ft ¾" bars in 1 set

2

94.26

94.26 Lin ft ¾" bars around inlet @ 1.91 per lin ft 180.0

Beam For Valve

Bolts in joining rails 10# 10.0

4 - 40' rail each 18.34 lb ft = 73.36 lin ft @ 13.33# per ft 975.7

2 ¾" bars = 20.84 " " = 41.68 " " " 1.91# per ft 79.6

4 ¾" " " 10.42 " " = 41.68 " " 1.91# " " 79.6

2 ¾" " " 9.67 " " = 19.34 " " 1.91# " " 36.9

14 - ½" bars each 2.08 lin ft = 624 lin ft @ 0.85 per ft 53

6 ½" bars each 3.17 " " = 951 " " @ 0.85 " " 8.1

U bar 1 - 13 lin ft ¾" @ 1.91# per lin ft 24.8

Total for Bracket 73# = Total for Beam 1235#

Continued sheet 2

Total Steel in Tunnel

vert. 150 bars - 3/4" @ 5-8 1/2" = 856.5 lin ft @ 1.913		1638.5#
Hor. Sides 12 " 1/2 " @ 80' each = 960.0 " " @ 0.85		816.0
" Roof 7 " 1/2" " 85' " = 595.0 " " @ 0.85		506.0
Arches Roof 38 " 3/4" @ 8'-4 1/2" each 318.25 " " @ 1.913		609.0
" " 38 " 3/4" @ 7'-2" " 272.46 " " @ 1.913		521.0
1/2" Bars over Outlet Tunnel - 1 bar @ 11-8" / 1 bar @ 11-0 / 1 bar @ 9-3" / 1 bar @ 8'-3 } 40.2 " @ 0.85 Per lin ft "		34.0
Used Extra 5 - 3/4" Bars @ 5'-8 1/2" each 28.5 lin ft @ 1.913		54.0
" " 6 - 1/2" Bars @ 30' each 180 " " @ 0.85		153.0
" " 15 - 1/2" " @ 3' each 45 " " @ 0.85		38.0
Total Sheet 1 + 2 —		25811.4#
Sheet 3 —		Sheet 3
2 - 30" Flap Valves @ 4090# each		8180.0
2 - 30" Standard Gate Valves @ 3000# each ✓		6000.0
1 - 30" Nipple 2'-2 1/2" Long @ 390# per lin ft		975.0
1 - 30" Nipple 2'-3 1/4" Long @ 390# " " "		885.6
1 - 30" T - 3 bells		3500.0
1 - 30" T - 2 bells		3600.0
1 - 30" Saucer Valve @ 5180#		5180.0
4 - lengths 30" Class C Pipe @ 400# per lin ft. Including 1 Bell		19200.0
2 Pcs 3/8" chain 145 ft each = 290 ft @ 1.7# per ft.		493.0
2 " 3/8" " 3 ft " 6 " @ 1.7 " "		10.0

Sheet 3 Continued

Sheet 3 Continued

Total number of Inside Steps + Guards below Elev. - 1548.51

36 Steps 3/4" round each 4 1/2 lin ft 162 ft @ 1.5 per ft	243.0
19 Guards 3/4 " " 8-2 1/2" " " 156 " @ 1.5 " "	234.0

Total number of Outside Steps + Guard below 1548.83

7 steps 3/4" round each 6 Lin ft - 42 lin ft @ 15# per ft	630
1 Guard 3/4" " " 8-2 1/2" long - 8.21 " " @ 15# per ft	123
7 1/2 lin ft 2" water pipe @ 3.61#	27.0
4 Bolts in Bracket 7/8" = 8 1/2 lin ft @ 2.1 # per ft	18.2
Small bolts in beam + Wall	5.0
Total Metal in Outlet Tower. 2	48626.1
1922 April Estimate —	24.31 Tons.

Reinforcing Steel Outlet Tower

May Estimate

Reinforcing Horizontal Hoops

2 - ½" bars @ 63'-4" = 126.67 lin ft @ .85 per ft	107.7#
	107.7

Note (25 Hoops now in place)

Ladderways

Inside { 3 additional Guards / 4 " steps } to April Est.

4 - steps ¾" round each 4½ lin ft = 18 lin ft @ 1.5 per ft	27 0
3 guards ¾" round " 8'-2½" " = 24.65 @ 1.5 "	36.98

Note (Total of Inside steps now 40
" " " " guards " 22)

Outside Ladderways

outside 3 additional guards
4 " steps

3 - guards ¾" round each 8-2½" = 24.65 lin ft @ 1.5	36.98
4 steps ¾" " " 6 24 " " @ 1.5	36 00
No additional - Vert. rails	136.96

April Est. Reinforcing	25811A#
May additional ½" Hoops	107.7
Total Reinforcing to June 1st	25919.1

April Est Metal placed in Outlet Tower	48626.0
May additional Insides Outside ladderways	13.7.0
	2/48763
Tons	24.38

Dec 19, 48

December Est # 23

Additional Metal to May 30

2 lengths 30" class "C" pipe @ 400# per lin ft inc bell	9600#
1 - 30" T 3 bells @ 3600#	3600#
1 Standard gate Valve @ 3000#	3000
1 Saucer Valve @ 5180#	5180
1 - 30" Nipple 2' lin ft @ 390 per lin ft	780.
Bolts on Brackets + Beams	23.2
	22183.2#

Ladderway

April 2 1922 Outlet Tower
April Est #27-

	Elev. April-30	Elev. March 31	Diff. in Elev.	Number	
Concrete	1613.4	1600.8	12.6		
Outside Step	1612.4	1604.4	8	8	
" guard	16128	1604.4	8.4	5	
Inside Step	1613.3	1605.1	8.2	8	
" guard	1612.4	1604.5	7.9	5	

Outside Step = 8 @ 6# = 48 lin ft 3/4" @ 1.5 = 72#
" guard 5 @ 8.21 = 41.05 " " @ 1.5 " = 62#
Inside Step 8 @ 4.5 = 36 lin ft 3/4" @ 1.5 = 54#
" guard 5 @ 8.21 = 41.05 " " @ 1.5 " = 62#
Building Metal — 250#

.125
2 / 250

March Est - 47.73 + 0.13 = 47.87 Tons-

Hor - Steel - 1/2"

5 X 64.33 = 514.64 lin ft @ .85 = 273.0#

Vert Steel 5/8" bottom

	El April 30		
24 P.C.	1623.4	1605	18.4
24 pc.	16204	1606	15.4

24 x 18.4 = 442 x 1.328 = 587#
24 x 15.4 = 370 x 1.328 = 491
1350#

March Est = 41324 + 1350 = 42674 # April Est.

Reinforcing Final -
— Outlet Tower —

Concrete Yardage
Overflow Section Above 1596
— Piers + Roadway —

Cu. Yds

Floor Roadway.	212.82	
Piers 1 to 9 Incl. +25	100.00	above El 1607
Piers 1 to 9 Incl. +25	26.62	below El. 1607
Piers 11 to 23 Incl.	114.10	above El 1607
Piers 11 to 23 Incl.	29.38	below El 1607
Pier 10	2.48	below El. 1607
Pier #10 = Average between Piers 11 to 23 + 1/2 of 9	9.30	above El. 1607
Pier #24	2.20	below El. 1607
Pier #24	8.66	above El. 1607
Total	505.55	Yardage - Piers + Roadway
Deductions	13.61	
	491.94	
add	11.25	for Gates for Built up section
	503.19	= add to Overflow -

Concrete Yardage
Overflow Section above 1596

Moments about axis

Area			
20.000	× 1 =	20.00	400.00
1.5708	× 1.1512 =	1.808	7.1017
121.00	× 8.1876 =	990.700	392.8983
142.578		1012.508	17.1017

Lenght of curve on center of Gravity

400 : 220 : 392.898 : X

$$\frac{220 \times 392.898}{400} = 216.094 = \text{Distance Curve}$$

147.20 = Right Tangent

20.00 = Left "

383.294 = Total Dist.

— — — — — — — —

$383.294 \times \underset{\text{Area}}{142.571} = 54646.609$ cu ft

2023.95 cu yds ←

503.19 Piers + act -

2527.17 - Total cu yds above 1596 - Piers Roadway + - Overflow Section —

400' - Radius — Sta 1+32.8 to 5+70 —

Building Metal into Concrete
Schedule I

Rails set in Concrete for ties in case Barrett dam is built 60' higher

Set during Sept 1921 - 18 - 5' lengths of 40# Rail = 1200.0 #

Note Sept. Rail not taken into account in Estimate #20

November Est #2

Lift	30#	40#
1555	15	32
1565	6	11
1575	1	10
	22	53
length of rails	5	5
	110 lin ft	265 lin ft
	10#	13.3
	1100 #	795
	3525 #	795
		265
Total =	3620 #	3524.5

7 Pc. Rails -- 0+93 - West -

April Est - add 7 rails - @ 5' =

7 X 5. 35 X 10# = 350 # 350

April Est - add 10 rails = 1482 Lift -

10 X 5' = 50 X 10" = 500# 500

4 - Pc. 3/4 10' long at

9 x 8 = 32 X 1.913 = 61.216 61

Copper during April 187.5

Total Metal for April 1098.5

March Est = 32813

Total Metal in Dam May 1st 33380.

Feb Est #25

Total Rails in D.S.F Dam —

0+93 - 1+32.8

Lift	30#	40#
1555	5	—
1565	2	3
1575	—	5

1+32.8 — 5+20

1555	12	34
1565	18	30
1575	16	34

5'+20+ Rock Contact

1555	1	20
1565	2	15
1575	8	13
Total.	64	154

To Jan 1st	22 - @ 5ft - 30#	1100	
	53 @ 5" - 40#	3532	
	17 @ 7" - 40#	1582	6215 #
To Feb 1st	25 @ 5" - 30#	1250	
	5 @ 5" - 40#	333.3	1583
To March 1st	17 @ 5" - 30#	850	
	79 @ 6" - 40#	5265	6116
D.S.F —	Total weight of Rails —		13914.0

Copper Used in Construction of Dam — 1600#

Copper on hand beginning of Construction 1600#

Est#	Date + Month		Monthly Total	Total to Date
6	July	— July 1920 —		
	26	11 1/4		
	29	11 1/4	22.5	22.5 ✓
(7)	Aug	August 1920		
	1	6 1/2		
	3	11 1/4		
	17	3 1/4	21.0	43.5 ✓
8	Sept	September 1920		
		No Copper Used.		
9	Oct	October 1920		
	8	6 1/2		
	9	6 1/2		
	11	6 1/2		
	16	6 1/2		
	17	6 1/2		
	19	6 1/2		
	21	11 1/4	63.0	106.5
10	Nov.	November 1920		
	3	13		146.0
	5	13	11557.0	2610
		steel bars 7		
		See Page 69 - weight of Pipe. =		11385.0 ✓
11	Dec.	December 1920		11663.5
	2	6 1/2		
	28	6 1/2	13.0	11676.5 ✓
12	Jan.	January 1921		
	1	6 1/2		
	4	6 1/2		
	7	6 1/2		
	9	6 1/2		
	13	6 1/2		
	16	6 1/2		
	17	6 1/2		
	22	6 1/2		
	24	6 1/2		
	26	6 1/2	71.5	11748
	30	6 1/2		

Copper Used — February 1921 —

Est#	Date + Month		Total Monthly	
13	Feb.			
	1	13		
	2	6 1/2		
	3	6 1/2		
	4	6 1/2		
	9	6 1/2		
	15	6 1/2		
	17	19 1/2		
	21	6 1/2		
	22	6 1/2		
	24	19 1/2		
	26	19 1/2		
	27	3 1/4		#
	28	13.0	133 1/4	11881 1/4
14	March	March 1921		
	1	7		
	3	14		
	5	7		
	10	7		
	11	14		
	13	7		
	15	7		
	17	14		
	18	18		
	19	7		
	20	7		
	21	14		
	22	14		
	23	7		
	24	7		
	26	14		
	27	3 1/2		
	28	18		
	30	18		
	31	14	218 1/2	12100 #

Building Metal in Dam

(Note - see Page - 68 - Nov - Est -)

Weight of Cast Iron Pipe placed in Dam -

United States Cast Iron + Foundry Co Cat - gives -

class B - 16" Pipe 125 # per lineal ft.

Date placed (Nov-18-1920)

Weight per ft lineal ft. 125 #

73

375

875

9125 #

Weight of elbow 590 #

2

1180 #

Weight of 16" Gate valve = 1080

Pipe Placed in Dam — Total weight = 11385 #

35' of Cement Pipe placed same date.

Steel bars over Opening -

35' - 1¼" @ 4.173 # per ft.

4.173

35

20865

12519

146.055

146 #

Total weight Pipe + bars. — 11531 #

Est	Date + Month	
15	April	9125
	3	
	5	
	6	
	12	
	14	
	16	
	18	
16		1180
17		
18		1080
19		
20	sept	
	30	
21	Oct.	
	10	
	15	
	19	
	21	
	24	
	26	
	29	

Copper Used in Construction

		Total Monthly	Total to Date
April	1921		
	28		
	7		
	14		
	7		
	7		
	10½		
	7		
		80½	12180¼
May	1921		
No copper Used			
June	1921		12180¼
No copper Used			
July	1921		12180¼
No copper Used.			
August	1921		12180¼
No copper Used			
September			
		13 #	12193
October.			
		10½	
		7	
		14½	
		7	
		7	
		7	
		7	
		60 #	12253

Est #	Date Month		#	Total Monthly	Total To Date.
					12 253 #
VV	Nov.	18	7		
		25	28		
		26	14		
		27	10 ½	59 ½ #	
	steel				
V3	Dec	3	10		
		6	20		
		19	20		
		21	7 ½		
				57 ½	
~~Z4~~	Jan	5	10		
		6	20		
		8	20		
		9	15		
		11	15		
		13	10		
		14	10		
		17	20		
		19	10		
		21	20		
		24	40		
		25	10		
		27	10		
			210 #	210 #	

Est	Month	Date.			Total Monthly
25	Feb.	5		25	
		7		10	
		8		20	
		11		10	
		12		5	
		13		15	
		14		10	
		16		15	
		19		10	
		21		10	
		23		10	
		25		10	
		27		10	
		28		10	
				170	170 #
		Date			
26	March	9	10		
		11	10	23	30
		13	20	24	5
		14	20	28	5
		15	30	30	5
		18	10	31	15
		19	30	Total	240 #
		20	20		
		21	20		
		22	10		

Est.	Date Month	Copper	
17-	April 2	25.0	Building Metal in Dam — Appd Est.
	5	5.0	
	6	5.0	
	7	10.0	
	8	5.0	
	11	5.0	
	12	5.0	
	13	42.5	
	14	12.5	
	16	5.0	
	18	4.0	
	20	17.0	
	21	7.5	
	25	13.0	
	26	13.0	
	27	13.0	—
Total April 30th		187.5 #	Final Est — Copper —

71

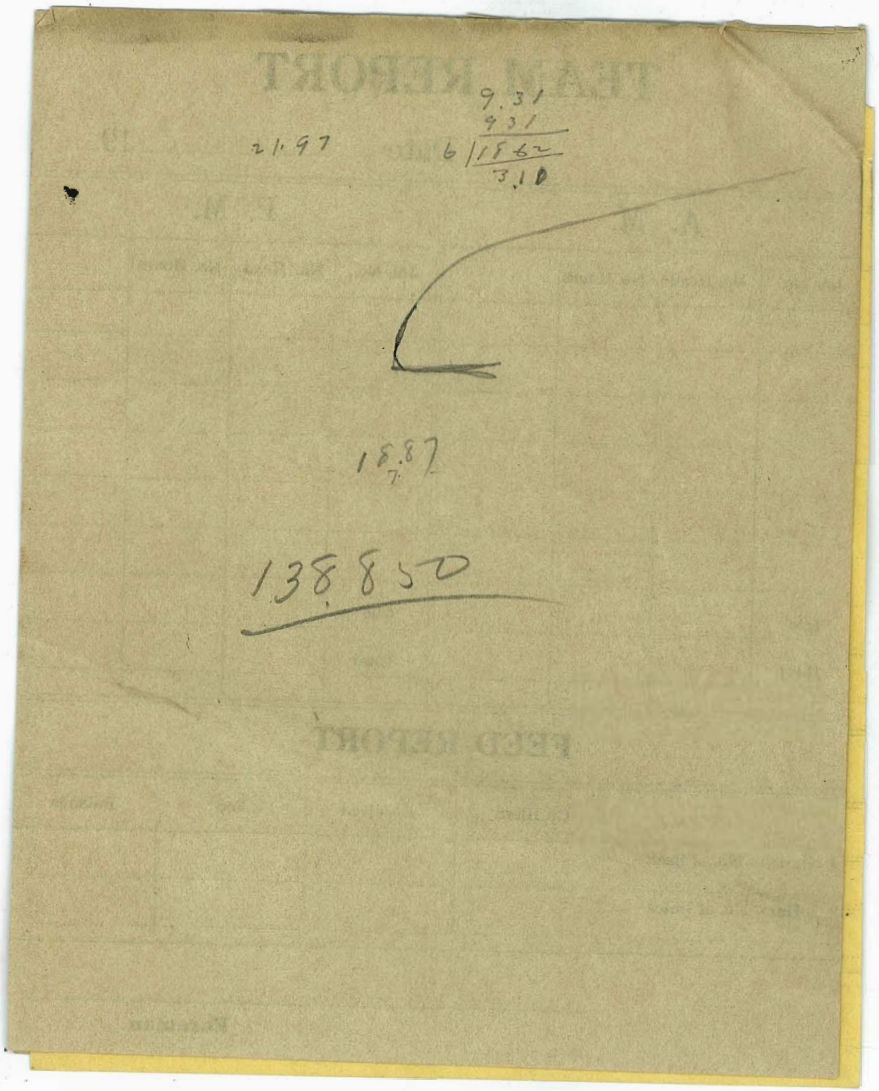
IMPROVED TABLES AND INFORMATION

26252.2
1120.0
2513 2.2

1245

14
2 5)35
25
10 0

8--


9.31
931
6/1862
3.10
21.97
1887
138850

Form No. 2

TEAM REPORT

Date 19

A. M.				P. M.			
Job No.	No. Head	No. Hours		Job No.	No. Head	No. Hours	
Idle				Idle			
Total				Total			

FEED REPORT

	On Hand	Received	Fed	Balance
Barley - No. of Sacks				
Hay - No. of Bales				

Foreman.

Hay - No. of Bales

Foreman.