WHITE TANKS STRUCTURES # 3 & 4

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

396-11-13-21

September 21, 1953

To: Julian J. Turner, State Conservationist
From: Lucien A. Hill, Area Conservationist, Area #4

Subj: Water Conservation, (Small Watershed Protection)
Districts, Agua Fria - White Tanks - Structures 3 and 4

The following target dates for completing various phases of the work to be done in connection with White Tanks Structures 3 and 4, were decided upon through consultation with the people available to do the job:

1. Determine creditable work of Caterpillar Tractor Company. — Oct. 5, 1953

2. Determine creditable work done by Beardsley Irrigation District. — Oct. 10, 1953

3. Determine estimated cost of Structures needed. — Oct. 17, 1953

4. Determine value of land for easements and rights of ways. — Oct. 17, 1953

5. Call meeting of SCD officials to present cost of project. — Week of Oct. 19, 1953 - date to be set later.

6. (a) Nov. & Dec. will be used by District officials in working out details of financing to meet cost sharing of government money.

   (b) Bill Anderson, Gordon Corbin and Regional people where needed, will concentrate on winding up specifications and other details needed for advertising.

   (c) This same period will be used to complete work plan and consult with Bureau of Land Mgmt. officials on any watershed treatment contemplated. — Nov. & Dec. 1953

7. Jan. & Feb. to be used for advertising, calling for bids, and awarding contracts for construction. — Jan. & Feb. 1954

8. March 1, 1953 - construction to begin and continue through June 30. Construction should be completed by June 30th in order to avoid hazzard of July rains which could materially affect the cost of the project. — Mar. - June 1954.

The fore part of the schedule may be optimistic, but we will have to shoot for these dates if the June 30th construction deadline is to be met.

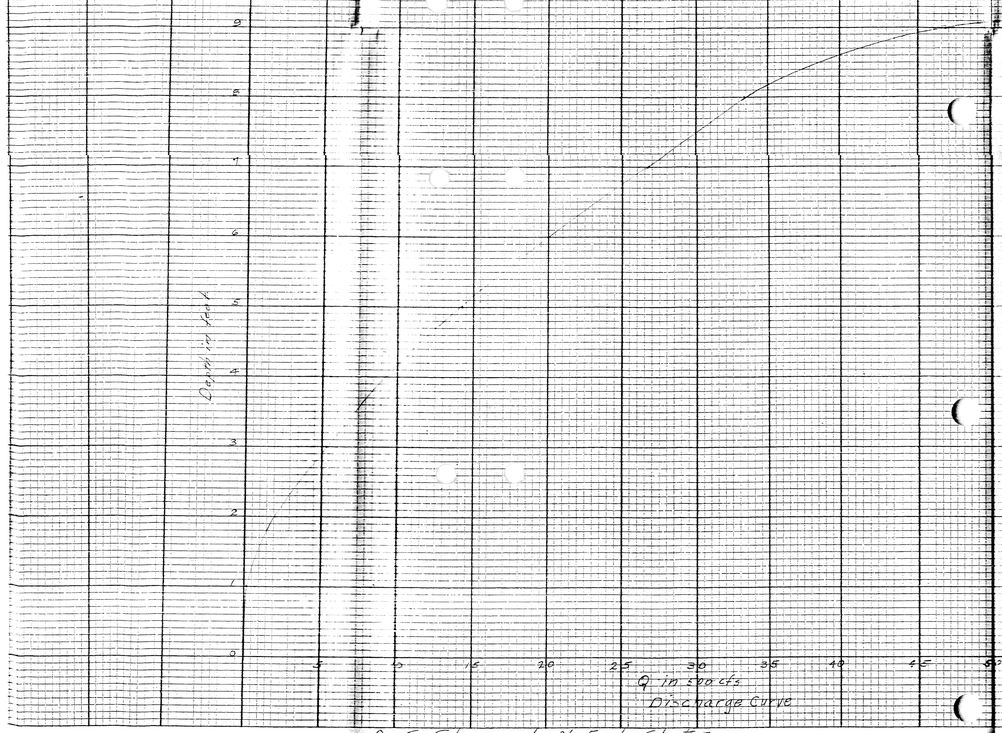
B. Anderson; G. Corbin; N. Lane; R. McDaniel;
R. Decker; J. Ramesberger; M. Compton, H. Mollenhoff.

LAH.

n = 3
S = 0.0005

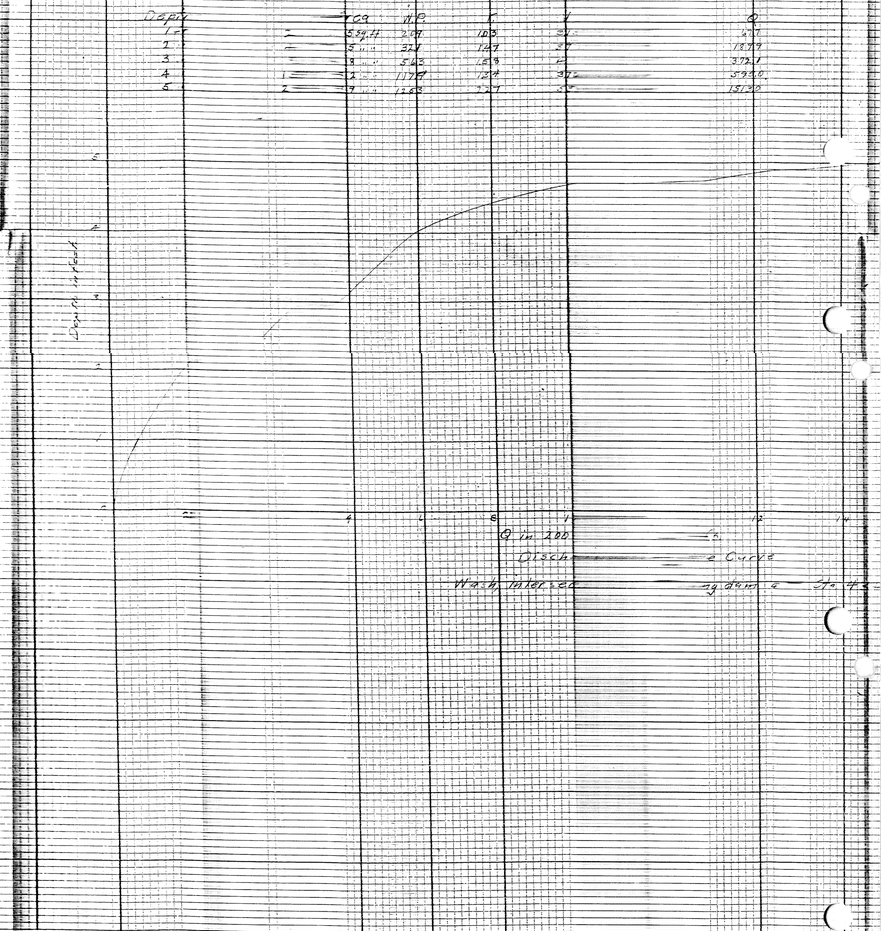
X-Sec of Channel
Scale = Hor 1" = 5'
Ver 1" = 2'

Depth	Area	P	R	V	Q
1 ft	10.6 sq ft	2.1 ft	0.33	1.93 cfs	15.7 cfs
2 "	49.8 "	7.5 "	1.12	4.14 "	200.5 "
3 "	94.4 "	7.5 "	1.26	5.36 "	505.0 "
4 "	143.2 "	7.1 "	2.05	5.83 "	834.7 "
5 "	196.1 "	7.4 "	2.41	6.31 "	1238.0 "
6 "	253.8 "	7.8 "	2.71	7.05 "	1813.0 "
7 "	317.7 "	8.0 "	2.97	8.50 "	2475.0 "
8 "	389.9 "	8.3 "	3.11	9.79 "	3340.0 "
9 "	477.2 "	8.6 "	3.96	10.48 "	4675.0 "

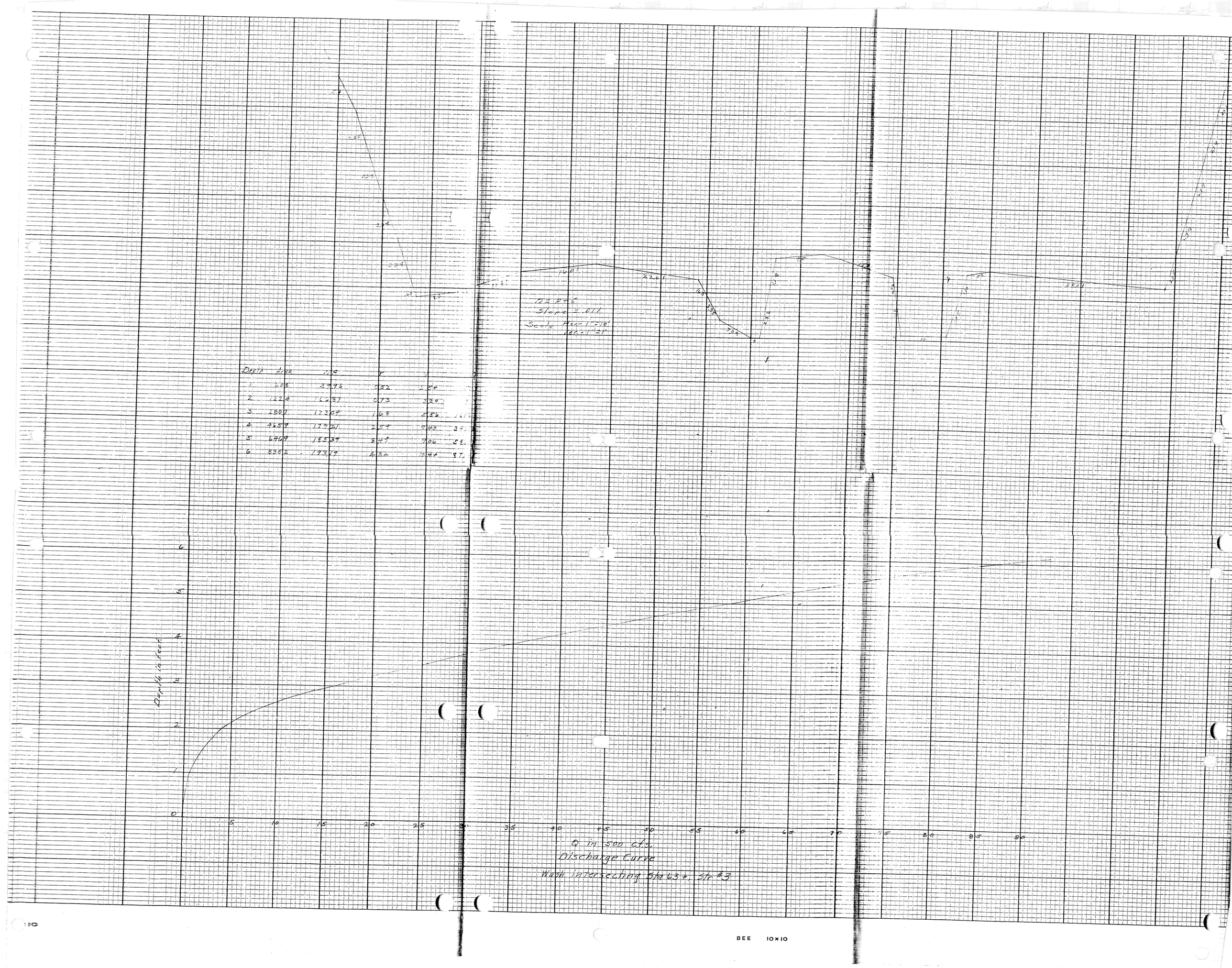


n = .045
Slope = .006
Scale = Hor 1" =
Ver 1" =

Depth		Area	P	R	V	Q
1 ft	2	5 sq ft	2.9	1.03	3.5	67.7
2 "	2	5 "	3.21	1.47	3.7	137.9
3 "	2	8 "	5.63	1.58	4	372.1
4 "	1	2 "	11.74	1.84	3.76	595.0
5 "	2	9 "	12.53	2.27	5.5	1513.0



N. S. Channel, N. End Str #3

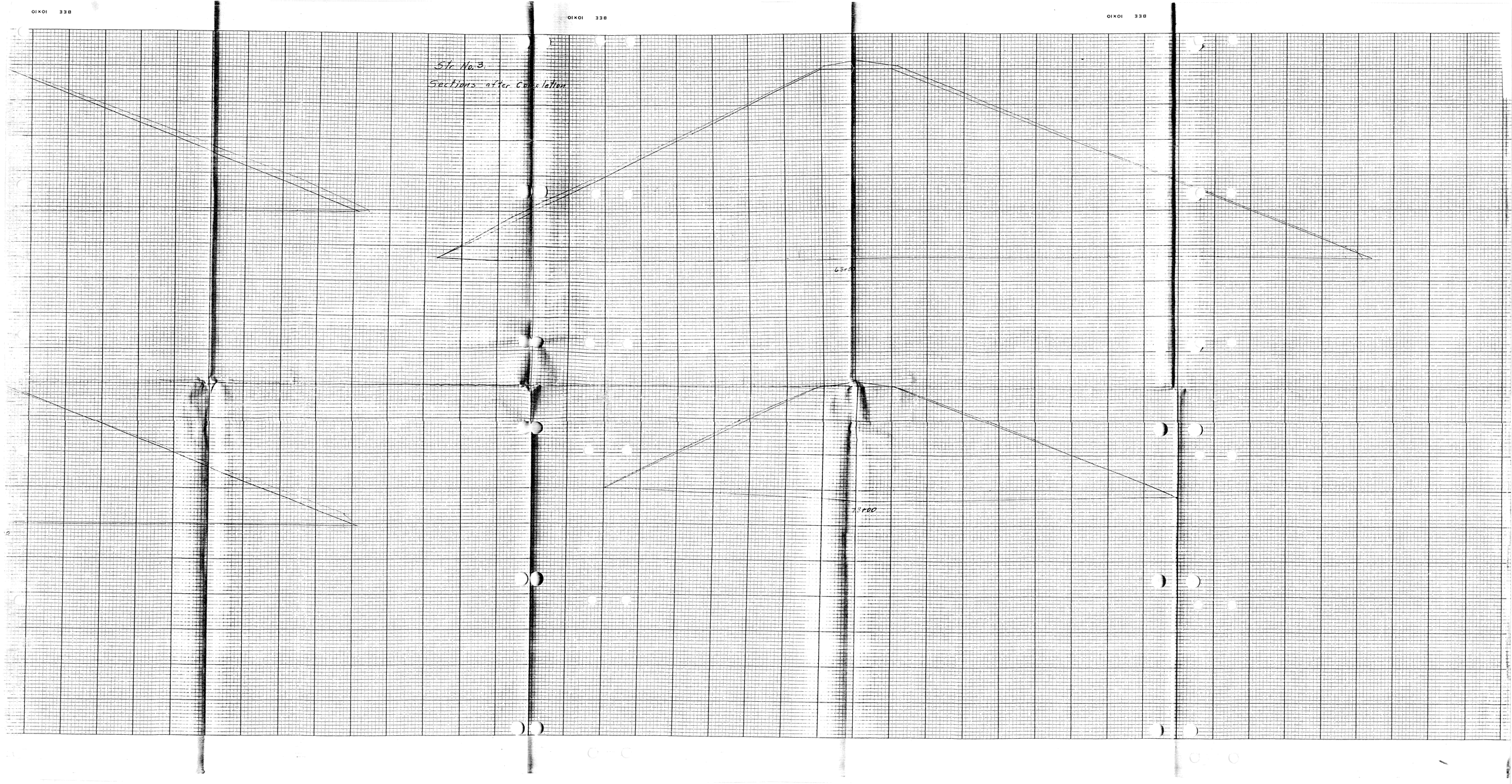


Depth	Area	n/A	r	V	
1	208	39.96	0.52	2.54	
2	1224	166.81	0.73	3.20	
3	2807	173.04	1.63	5.56	16.1
4	4659	179.21	2.59	7.43	34
5	6469	185.39	3.49	9.06	58
6	8352	193.19	4.32	10.44	87

BEE 10×10

Str. No. 3.

Sections after Completion



White Tank - Str #4

X-Sec of completed dam.

Sta. 14+00

Sta. 31+00

Sta. 45+00

Sta. 61+00

Original

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

746,398 c.y.

(State - County Code - Farm Serial No.)

Name of Ranch or Farm Caterpillar Location [illegible] Tanks Sec. N.E. Cor 13 T. 2 N R. 3W

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
N. End 0+00	0	0	0	0	0	0	0	0	0	0
1+00	32	56	44	9.0	5.0	4.5	198	198	95	18,810
3+25	36	57	46.5	2.9	5.9	4.3	1999.5	397.95	72.5	28,851
5+00	49	89	69	4.4	7.5	5.95	410.55	610.5	92.5	56,366
8+00	51	91	71	7.3	12.5	9.9	702.9	1113.45	150	167,018
10+00	35	69	52	6.1	4.1	5.1	351.9	1054.8	100	105,494
W. End 11+20	0	0	0	0	0	0		351.9	60	21,114

Computed by Date Total Vol. 397,642 Cu. Ft.

Checked by Date Total Vol. 14,505 Cu. Yds.

1953 ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(2)
(State : County Code : Farm Serial No.)

Name of Ranch or Farm Caterpillar Location Mountain Sec. 18 T. 2N R. 2E

STATION	TOP WIDTH	BOTTOM WIDTH	AVG. CR WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0	0	0	0	0	0	0	0
7+70	43	136	89.5	12.6	12.6	12.6	1127.7	1127.7	385	434164
11+20	62	119	90	10.5	11.6	11.05	9945	21072.7	175	3687957
14+60	0	0	0	0	0	0	0	9945	170	1690650

Computed by Date Total Vol. 5812671 Cu. Ft.

Checked by Date Total Vol. 215284 Cu. Yds.

COMPUTATION SHEET
Earthen Fills

ACP -- Arizona
(Year)

(5)
(State : County Code : Farm Serial No.)

Name of Ranch or Farm Caterpillar Location SW¼ NW¼ Sec. 19-19 T. 2 N R. 2 W

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	62	89	75.5	7.1	8.3	6.20	468.1			
5+70	62	142	102.0	18.0	20.7	19.35	1973.7	2441.8	285	695,913
12+00	59	194	126.5	30.0	33.3	31.65	4003.73	5977.43	315	1,882,890
23+00	74	140	107.0	12.0	18.3	15.15	1621.05	5624.78	550	3,093,629
27+85	128	209	168.0	11.0	11.6	11.3	1899.4	3519.45	242.5	953,467
31+20	0	0	0	0	0	0	0	1899.4	167.5	317982

Computed by Date Total Vol. 6 943 971 Cu. Ft.

Checked by Date Total Vol. 253,477 Cu. Yds.

COMPUTATION SHEET
Earthen Fills

ACP -- Arizona
(Year)

(4)
(State & County Code : Farm Serial No.)

Name of Ranch or Farm Caterpillar Location SE ¼ Sec. 19 T. 2N R. 2W

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0	0	-0	0	0			
3+00	53	99	76	5.9	5.8	5.8	440.8	440.8	150	66,120
7+80	57	135	96	11.6	11.6	11.6	1113.6	1554.4	240	373,056
11+90	56	148	102	11.0	14.7	12.85	1310.7	2424.3	205	496,482
13+50	107	225	166	16.4	16.5	16.65	2763.9	4074.6	80	325,968
17+00	106	151	128.5	8.0	8.9	8.45	1085.82	3849.72	175	673,701
25+50	0	0	0	0	0	0	0	1085.82	425	461,474

Computed by Date Total Vol. 2 3 7 6 5 6 1 Cu. Ft.

Checked by Date Total Vol. 8 8 7 7 0 Cu. Yds.

COMPUTATION SHEET
Earthen Fills

ACP -- Arizona
(Year)

(5)
(State & County Code & Farm Serial No.)

Name of Ranch or Farm Caterpillar Location Sec. 19 & 18 T. 2N R. 2W

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	½ LENGTH of SECTION	VOLUME (CU. FT.)
0+00	41	91	66	8.0	9.3	8.65	570.9			
9+00	41	107	74	9.8	10.0	9.9	732.6	1303.5	450	586,575
15+00	41	99	65	4.8	5.2	5.0	325.0	1057.6	300	317,280
26+00	38	59	48.5	4.6	5.4	5.0	242.5	567.5	550	312,125
36+00	37	57	47	4.0	4.7	4.35	204.45	446.95	500	223,475
46+00	34	54	44	4.4	4.9	4.65	204.60	409.05	500	204,525
56+00	40	59	49.5	3.6	4.1	3.85	190.57	395.17	500	197,685
64+00	40	51	45.5	1.7	2.8	2.25	102.38	292.95	400	117,180
75+00	0	0	0	0	0	0		102.38	550	56,309
115+00=200	[illegible]	[illegible]								

Computed by Date Total Vol. 2015144 Cu. Ft.

Checked by Date Total Vol. 74,635 Cu. Yds.

[illegible] SE Cor 19, N between S.19&.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

6
(State - County Code - Farm Serial No.)

Name of Ranch or Farm Caterpillar Location Test Area Sec. 7 T. 2N R. 2W

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	DEPTH OF CUT	DEPTH OF FILL	AVERAGE DEPTH	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0	0	0	0	0			
7+00	35	42	38.5	1.1	1.9	1.5	57.75	57.75	350	20,213
14+00	36	81	58.5	8.2	9.4	8.8	514.80	572.55	350	200,392
21+00	35	185	70	17.0	18.4	17.7	1239.0	1753.80	350	613,830
27+00	44	72	58	12.0	13.3	12.65	733.70	1972.7	300	591,810
35+00	43	65	54	3.0	4.0	3.5	189.0	922.7	400	369,080
46+70	0	0	0	0	0	0	0	189.0	585	110,565

Computed by Date Total Vol. 1905,990 Cu. Ft.

Checked by Date Total Vol. 70,592 Cu. Yds.

ACP -- Arizona

(Year)

COMPUTATION SHEET
Earthen Fills

(7)

(State - County Code - Farm Serial No.)

Name of Ranch or Farm Caterpillar Location Test Area Sec. 30 T. 2 N R. 2 W

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT	HEIGHT	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	4.1	91	66	8.0	9.3	8.65	570.9			
10+00	34	44	39	1.5	2.7	2.10	81.9	652.8	500	326,400
15+00	32	46	39	2.0	3.0	2.50	97.5	179.4	250	44,850
21+00	0	0	0	0	0	0	0	97.5	300	29,250
30+00	30	38	34	0.7	1.1	0.9	30.6	30.6	450	13,770
35+00	30	40	35	1.9	3.0	2.45	85.75	116.35	250	29,088
40+00	36	48	42	0.9	1.7	1.3	54.6	140.35	250	35,087
50+90	0	0	0	0	0	0	0	54.6	540	14,724
52+90	0	0	0	0	0	0	0			
59+00	47	55	51	0	3.7	1.85				
65+00	0	0	0	0	0	0				
69+00	51	54	52.5	0	0.9	0.45				
75+00	0	0	0	0	0	0				

Computed by Date Total Vol. [illegible] Cu. Ft.

Checked by Date Total Vol. [illegible] Cu. Yds.

Beg W. 30. S. between 30 & 29

COMPUTATION SHEET
Earthen Fills

ACP -- Arizona
(Year)

(7)
(State & County Code & Farm Serial No.)

Name of Ranch or Farm Caterpillar Location Test Area Sec. 30-31 T. 2 N R. 2 W

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	½ LENGTH of SECTION	VOLUME (CU. FT.)
79+00	0	0	0	0	0	0				
85+00	38	50	44	2.3	2.5	2.4				
94+00	37	51	44	0.8	1.2	1.0				
103+00	40	48	44	2.7	2.7	2.7	118.8			
114+00	45	55	50	4.0	5.0	4.5	225	343.8	550	
122+50	45	54	49.5	3.6	4.4	4.0				
131+60	45	55	50	2.7	3.1	2.9				

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

3429
3429
3781 00
189090

COMPUTATION SHEET
Earthen Fills

ACP -- Arizona
(Year)

8
(State & County Code & Farm Serial No.)

Name of Ranch or Farm Caterpillar Location Test Area Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	46	60	53	4.0	4.2	4.1	217.3			
								534.8	500	
10+00	48	79	63.5	4.8	5.2	5.0	317.5			267,400
								742.93	450	
19+00	40	79	59.5	6.6	7.7	7.15	425.43			334,318
								853.23	550	
30+00	43	81	62	6.4	7.4	6.9	427.8			469,277
								1052.8	540	
40+80	40	85	62.5	8.5	9.9	9.2	575.0			541,512

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

Sec. 19, E. between 20 & 29

COMPUTATION SHEET
Earthen Fills

ACP -- Arisona
(Year)

(9)
(State : County Code : Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	14	40	27	6.5	7.3	6.9	186.3			
2+40	15	65	40	12	13	12.5	500.0	686.3	120	82,356
4+80	17	69	43	10	11	10.5	451.5	951.5	120	114,180
7+50	14	36	25	3.9	4.6	4.25	106.25	557.75	135	75,296

Computed by | Date | Total Vol. 271,832 Cu. Ft.

Checked by | Date | Total Vol. 10,067 Cu. Yds.

COMPUTATION SHEET
Earthen Fills

ACP -- Arizona
(Year)

(10)
(State : County Code : Farm Serial No.)

Name of Ranch or Farm Location Sec. 19 T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0	0	0	0	0			
1+00	98	120	109	5.0	5.0	5.0	545.0	545.0	5.0	27,250
5+20	100	151	125.5	9.2	10.9	10.05	1261.28	1806.28	210	379,318
12+00	98	190	144	15.4	17.4	16.4	2361.6	3622.88	340	1231,779
22+00	0	0	0	0	0	0	0	2361.6	500	1,180,800

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(11)
(State + County Code + Farm Serial No.)

Name of Ranch or Farm | Location | Sec. 19 | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	50	100	75	12.0	12.2	12.1	907.5			
2+30	52	101	76.5	11.1	11.1	11.1	849.15	1756.65	11.5	202,015
5+30	51	101	56	10.0	10.0	10.0	560.0	1409.15	150	211,372

Computed by | Date | Total Vol. [illegible] Cu. Ft.

Checked by | Date | Total Vol. 15,311 Cu. Yds.

ACP -- Arizona (Year)

COMPUTATION SHEET
Earthen Fills

(1)

(State + County Code + Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0			0	0	0		
1+90	10	32.5	21.25			4.5	95.63	9563	9.5	9,085
3+35	10	31.5	20.75			4.3	94.22	18785	92.5	13,402
5+00	10	39.75	24.87			5.95	147.98	22720	82.5	19,569
8+00	10	49.5	29.75			9.9	294.53	44251	150	66,376
10+00	10	25.5	17.75			5.1	91.53	38570	100	38,505
11+25	0	0	0			0	0	9153	62.5	5,431

Computed by | Date | Total Vol. [illegible] Cu. Ft.

Checked by | Date | Total Vol. [illegible] Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(2)
(State & County Code : Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0			0			0	
7+70	10	43	36.5			12.6	7391	7391	355	177,062
11+20	10	55.5	37.75			11.05	4171.4	8171.4	175	153,482
14+60	0	0	0			0		7171.4	170	70914

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. | Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(3)

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	½ LENGTH of SECTION	VOLUME (CU. FT.)
0+00	10	31	20.5			6.20	127.1			
5+70	10	96.75	53.4			19.35	1033.3	1160.4	285	330,714
12+00	10	158.2	84.1			31.65	2661.8	3695.1	315	1163956
23+00	10	75.7	42.85			15.15	649.2	3311.0	550	1,821,050
27+83	10	56.5	33.25			11.3	375.7	1024.9	242.5	248,538
31+20	10	0	0			0	0	375.7	167.5	62,930

Computed by | Date | Total Vol. 3,6[illegible],1[illegible] Cu. Ft.

Checked by | Date | Total Vol. 134,340 Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(4)
(State - County Code - Farm Serial No.)

Name of Ranch or Farm _____ Location _____ Sec. _____ T. _____ R. _____

STATION	TOP WIDTH	BOTTOM WIDTH	AVG. CUT WIDTH	WEIGHT UP	WEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0			0		0		
3+00	10	29	19.5			5.8	113.1	113.1	154	14,965
7+00	10	56	34.0			11.6	394.4	507.5	240	121,800
11+90	10	63	37.5			12.5	477.4	871.9	295	128,719
13+50	10	83.2	46.6			16.6	775.9	1253.3	80	100,264
17+00	10	40.3	24.5			9.45	221.0	994.9	175	174,457
21+50	0	0	0			0	0	221.0	425	93,925

Computed by _____ Date _____ Total Vol. _____ Cu. Ft.

Checked by _____ Date _____ Total Vol. _____ Cu. Yds.

[illegible] -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

5

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	10	43.3	26.65			9.65	230.5			
9+00	10	49.5	29.75			9.9	294.5	525.0	450	236,250
15+00	10	25	17.5			5.0	87.5	382.0	500	114,600
26+00	10	25	17.5			5.0	87.5	175.0	550	96,250
36+00	10	21.8	15.9			4.25	69.2	156.7	500	78,350
46+00	10	23.9	16.9			4.65	78.6	147.8	500	73,900
56+00	10	19.2	14.6			3.95	56.2	134.8	500	67,400
64+00	10	11.3	10.15			2.25	22.0	77.0	450	31,600
75+00	0	0	0			0	0	22.9	550	12,540

Computed by | Date | Total Vol. 710,990 Cu. Ft.

Checked by | Date | Total Vol. 26329 Cu. Yds.

COMPUTATION SHEET
Earthen Fills

ACP -- Arizona
(Year)

(6)
(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	½ LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0			0	0			
7+00	10	7.5	8.25			1.5	12.44	12.44	350	4,354
14+00	10	44.0	27.0			8.8	237.60	250.04	350	87,514
21+00	10	[illegible]	49.2			17.7	870.84	1108.44	350	387,954
27+00	10	63.4	36.7			12.65	464.26	1335.10	300	400,530
35+00	10	17.5	13.75			3.5	48.12	512.38	400	204,592
46+70	0	0	0			0		48.12	585	28,150

Computed by | Date | Total Vol. [illegible] Cu. Ft.

Checked by | Date | Total Vol. [illegible] Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(7)
(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	10	43.2	26.6			8.65	230.1			
10+00	10	10.5	10.25			2.10	21.5	251.6	500	125,800
15+00	10	12.5	11.25			2.50	28.1	49.6	250	12,400
21+00	0	0	0			0	0	28.1	300	9,430
30+00	10	4.5	7.25			1.7	6.5	6.5	450	2,840
38+00	10	12.2	11.1			2.45	27.2	33.7	250	8,425
40+00	10	6.5	9.25			1.3	2.7	29.9	200	5,980
50+80	0		0			0	0	2.7	540	729

Computed by | Date | Total Vol. 172,168 Cu. Ft.

Checked by | Date | Total Vol. 6,414 Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(8)
(State - County Code - Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	10	20.5	15.25			4.1	62.5			
10+00	10	25.0	17.5			5.0	87.5	150.0	500	75,000
19+00	10	35.8	22.9			7.15	163.7	251.2	450	113,040
30+00	10	34.5	22.25			6.9	153.5	317.2	550	174,460
40+90	10	41.7	25.85			9.2	259.9	413.4	540	223,236

Computed by | Date | Total Vol. 585,736 Cu. Ft.

Checked by | Date | Total Vol. 21,694 Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

(9)
(State - County Code - Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	10	34.5	22.25			6.7	153.5			
2+40	10	62.5	36.25			10.5	473.1	626.6	120	72,792
4+80	10	52.5	31.25			10.5	329.1	781.2	120	93,744
7+50	10	21.2	15.6			4.25	66.3	395.4	135	53,244

Computed by | Date | Total Vol. [illegible] Cu. Ft.

Checked by | Date | Total Vol. [illegible] Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

10
(State - County Code - Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0	0			0	0			
1+00	10	25	37.5			5.0	187.5	187.5	50	9,375
5+20	10	51.2	30.6			10.05	307.5	495.0	210	103,950
12+00	10	92.0	46.0			16.4	754.4	1061.9	540	241,046
22+00	0	0	0			0	0	754.4	500	377,200

Computed by | Date | Total Vol. 931,571 Cu. Ft.

Checked by | Date | Total Vol. 31,540 Cu. Yds.

ACP -- Arizona
(Year)

COMPUTATION SHEET
Earthen Fills

10
(State - County Code - Farm Serial No.)

Name of Ranch or Farm _____ Location _____ Sec. _____ T. _____ R. _____

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
0+00	10	60.5	35.25			12.1	426.5			
2+00	10	55.5	32.75			11.1	363.5	790	115	90,850
5+30	10	50.0	30.0			10.0	300.0	663.5	150	99,525

Computed by _____ Date _____ Total Vol. 190,375 Cu. Ft.

Checked by _____ Date _____ Total Vol. 7,051 Cu. Yds.

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

1629
1731
1458

PROJECT _____ LOCATION #3 INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 22+00 Date 5-24-54	Test Location or Station 15+00 Date 5-24-54	Test Location or Station 7+50 Date 5-25-54	Test Location or Station _____ Date 5-26-54
1) Total Weight Soil (Wet)	2.143 1216	2.820 1280	3.211 1458	2.351 1067
2) Percent Moisture in Soil	10.0	5.5	11.0	10.0
3) Dry Weight of Soil (1) / [1 + (2)/100]	2.493	2.672	2.892	2.138
4) Initial Weight of Sand & Apparatus	5651	5562	6781	6623
5) Final Weight of Sand & Apparatus	3262	3271	4369	4116
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.948 885	1.733 787	1.999 908	1.548 703
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.0240	.02134	.02464	.01907
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	114.4	132.1	120.3	123.3
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	104.0	125.3	117.4	112.1
12) Borrow Material Lab.Identification				4+ sta 12-30
13) Compacted Density (from std.curve)	120.5	124.5	123.5	120.5
14) Optimum Moisture (from std.curve)				
15) % Standard Compaction (11)/(13) x100	86.3	100.6	95.2	93.0
	1' under	10" under	O.C.	

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT A.P.I. LOCATION Phoenix INSPECTOR Schmidt

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 30+50 Date 5-20-54	Test Location or Station 29+50 Date 5-21-54	Test Location or Station 27+00 Date 5-21-54	Test Location or Station 04+50 Date 5-22-54
1) Total Weight Soil (Wet)	1.790 813	2.252 * 1023	2.347 # 1065	2.395 # 1088
2) Percent Moisture in Soil	11.0	9.0	7.5	7.0
3) Dry Weight of Soil (1) / 1 + (2)/100	1.612	2.020 *	2.183 #	2.239 #
4) Initial Weight of Sand & Apparatus	5756	5894	5843	5714
5) Final Weight of Sand & Apparatus	3931	3749	3695	3505
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.147 521	1.413 641	1.417 # 644	1.547 # 703
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.01412	.01742	.01746	.01906
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	126.7	129.3	134.3	125.5
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	114.1	115.9	125.1	117.4
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	120.5	120.5	120.5	120.5
14) Optimum Moisture (from std.curve)	11.0	11.0		
15) % Standard Compaction (11)/(13) x100	94.6 RWS	96.2	103.8 RWS	97.4 CASE 1 FILL

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 27+00 Date 5-18-54	Test Location or Station 20+00 Date 5-18-54	Test Location or Station 22+00 Date 5-19-54	Test Location or Station 23+12 Date 5-19-54
1) Total Weight Soil (Wet)	2.330 1058	1.868 848	2.870 1303	2.337 1061
2) Percent Moisture in Soil	8.5	14.5	7.5	11.0
3) Dry Weight of Soil $\frac{(1)}{1 + \frac{(2)}{100}}$	2148	1631	2670	2105
4) Initial Weight of Sand & Apparatus	5987	5846	6057	5994
5) Final Weight of Sand & Apparatus	4462	3771	3645	3824
6) Wt. of Sand to fill funnel & plate	1523	1523	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.589 722	1.215 552	2.000 908	1.466 666
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.15	81.15	81.18	81.18
9) Volume of Hole(Cu.ft.) $\frac{(7)}{(8)}$	.01958	.01498	.02463	.01806
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	119.4	124.7	116.5	129.3
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	109.7	108.9	108.4	116.5
12) Borrow Material Lab.Identification	Sta 25+00		rt sta 12-30	rt sta 12-30
13) Compacted Density (from std.curve)	124.5	123.5	120.5	120.5
14) Optimum Moisture (from std.curve)	10.5		11.0	11.0
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	88.3	88.2	89.9	96.1

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT U.P. 1 LOCATION Phoenix INSPECTOR MARTIN

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 20+00 Date 5-15-54	Test Location or Station 36+00 Date 5-17-54	Test Location or Station 22+00 Date 5-18-54	Test Location or Station 18+00 Date 5-19-54
1) Total Weight Soil (Wet)	2.410# / 1094	2.225# / 1001	2.464 / 1118	2359 / 1071
2) Percent Moisture in Soil	7.5	11.5	12.5	14.0
3) Dry Weight of Soil (1) / 1 + (2)/100	2.240#	1995#	2,190	2.070
4) Initial Weight of Sand & Apparatus	6292	6200	6120	6033
5) Final Weight of Sand & Apparatus	4046	4040.	3821	3175
6) Wt. of Sand to fill funnel & plate	1523	1523	1523	1523
7) Net Wt. Sand Used in Hole (4-5-6)	1.523 / 923	1.403 / 637	1.108 / 776	1.618 / 735
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.15	81.15	81.15	81.15
9) Volume of Hole(Cu.ft.) (7)/(8)	.01962	.01728	.02105	.01995
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	122.8	128.7	117.1	118.2
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	114.3	115.4	104.1	103.7
12) Borrow Material Lab.Identification	Sta 30+00	Sta 30+00	Sta 22+00	Sta 18+00
13) Compacted Density (from std.curve)	123.5	123.5	124.5	124.5
14) Optimum Moisture (from std.curve)	9.5	9.5	10.5	
15) % Standard Compaction (11)/(13) x100	92.5	93.4	83.6	83.3

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT 1 LOCATION Alameda INSPECTOR Special

Average Thickness of Layers: Before Rolling _____ After Rolling /

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 27+10 Date 5-13-54	Test Location or Station 20+00 Date 5-14-54	Test Location or Station 20+00 Date 5-14-54	Test Location or Station 27+00 Date 5-15-54
1) Total Weight Soil (Wet)	1962# / 891	2481 / 1126	2158# / 979	2671# / 1208
2) Percent Moisture in Soil	7.0	11.0	9.0	6.0
3) Dry Weight of Soil (1) / 1 + (2)/100	1.834	2.234	1.978	2.520#
4) Initial Weight of Sand & Apparatus	6803	6624	6498	6405
5) Final Weight of Sand & Apparatus	4693	4385	4357	4088
6) Wt. of Sand to fill funnel & plate	1523	1523	1523	1523
7) Net Wt. Sand Used in Hole (4-5-6)	1.293# / 587	1.576 / 716	1,361 / 618	1349 / 794
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.15	81.15	81.15	81.15
9) Volume of Hole(Cu.ft.) (7)/(8)	.01593	.01944	.01674	.02156
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	123.2	127.6	128.8	123.9
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	115.1	115.1	118.2	116.9
12) Borrow Material Lab.Identification	25+00	25+00	25+00	25+00
13) Compacted Density (from std.curve)	124.5	124.5	124.5	124.5
14) Optimum Moisture (from std.curve)	10.5	10.5		
15) % Standard Compaction (11)/(13) x100	92.6	92.6	95% RW	93.9%

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.P. 1 LOCATION PHOENIX INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 36+00 Date 5-10-54	Test Location or Station 44+80 Date 5-11-54	Test Location or Station 38+00 Date 5-11-54	Test Location or Station 40 Date 5-12-54
1) Total Weight Soil (Wet)	2,414# 1096	2,412# 1095	2559# 1162	1,932# 878
2) Percent Moisture in Soil	6.0	13.5	13.0	8.5
3) Dry Weight of Soil (1) / 1 + (2)/100	2,275#	2,130#	2,263	1,782
4) Initial Weight of Sand & Apparatus	5112	7140	7014	6960
5) Final Weight of Sand & Apparatus	2785	4882	4837	4788
6) Wt. of Sand to fill funnel & plate	1585	1523	1523	1523
7) Net Wt. Sand Used in Hole (4-5-6)	1,633# 742	1618 735	1440# 654	1,430 649
8) Density of Standard Sand (Lbs/Cu.Ft.)	83.7	81.15	81.15	81.15
9) Volume of Hole(Cu.ft.) (7)/(8)	.01953	.01985	.01766	.01785
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	123.6	121.5	144.7	108.3
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	116.4	107.0	128.1	99.8
12) Borrow Material Lab.Identification	30+00	25+00	25+00	
13) Compacted Density (from std.curve)	123.5	124.5	124.5	117.0
14) Optimum Moisture (from std.curve)				
15) % Standard Compaction (11)/(13) x100	94.3	86	102.8	85.4

SPECIAL TEST ON SANDY MATERIAL

4" UNDER.

6" UNDER

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Phoenix INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station _____ Date 5-6-54	Test Location or Station 18100 Date 5-7-54	Test Location or Station 18100 Date 5-8-54	Test Location or Station 15+20 Date 5-8-54
1) Total Weight Soil (Wet)	1.944 882	1.678 771	2.334 1060	2.256 1024
2) Percent Moisture in Soil	9.0	13.0	13.0	9.5
3) Dry Weight of Soil (1) / 1 + (2)/100	1.825	1.502	2.068	2.060
4) Initial Weight of Sand & Apparatus	6520	6372	6160	5232
5) Final Weight of Sand & Apparatus	4941	4300	3816	2841
6) Wt. of Sand to fill funnel & plate	1585	1585	1585	1585
7) Net Wt. Sand Used in Hole (4-5-6)	1579	1.073 +87	1.672 759	1.774 806
8) Density of Standard Sand (Lbs/Cu.Ft.)	83.7	83.7	83.1	83.7
9) Volume of Hole(Cu.ft.) (7)/(8)	.01300	.01282	.01996	.02120
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	149.5	132.1	117	120.7
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	140.4	117.1	103.5	110.3
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	122.0	122.0	109.5	117
14) Optimum Moisture (from std.curve)	Natural ground in borrow			
15) % Standard Compaction (11)/(13) x100	102.7	96.0	94.5 Tuk.	94.3 Tuk.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 42+00 Date 5-4-54	Test Location or Station 40+00 Date 5-4-54	Test Location or Station 43+00 Date 5-5-54	Test Location or Station 41+00 Date 5-5-54
1) Total Weight Soil (Wet)	2.298 lbs 1043	2.046 lbs 929	2.463 1118	2.446 1110
2) Percent Moisture in Soil	11.5	10.0	12.0	12.0
3) Dry Weight of Soil (1) / [(2)/100]	2.060 lbs	1860	2.20	2.182
4) Initial Weight of Sand & Apparatus	5718	5652	5534	5414
5) Final Weight of Sand & Apparatus	3476	3440	3239	3132
6) Wt. of Sand to fill funnel & plate	1585	1585	1585	1585
7) Net Wt. Sand Used in Hole (4-5-6)	1446 lbs 657	1,381 lbs 627	1,563 710	1,535 697
8) Density of Standard Sand (Lbs/Cu.Ft.)	83.7	83.7	83.7	83.7
9) Volume of Hole(Cu.ft.) (7)/(8)	.01729	.016 50	.01866	.01834
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	132.9	124.0	132.0	133.4
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	119.2	112.7	117.8	119.1
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	122.0	122.0	122	122
14) Optimum Moisture (from std.curve)		10.0		
15) % Standard Compaction (11)/(13) x100	97.7 Hwh.	92.4 & C.	96.6 Hwh.	97.6

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

ROJECT _____ LOCATION _____ INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 24+50 Date 6-11-54	Test Location or Station 65+25 Date 6-12-54	Test Location or Station 26+00 Date 6-12-54	Test Locat Station 31+50 Date 6-14-54
1) Total Weight Soil (Wet)	2.182 991	2.672 1214	2.173 987	2.023 920
2) Percent Moisture in Soil	8.5	11.0	11.0	9.5
3) Dry Weight of Soil $1 \div \frac{(2)}{100}$	2.011	2.409	1.958	1.848
4) Initial Weight of Sand & Apparatus	6718	6659	6582	6445
5) Final Weight of Sand & Apparatus	4626	4347	4463	4349
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.295 588	1.778 808	1.354 615	1.303 592
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) $\frac{(7)}{(8)}$	.01595	.02192	.01669	.01606
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	136.8	121.9	130.2	126.0
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	126.1	109.8	117.3	115.0
12) Borrow Material Lab.Identification	Gr. Sta 18	West Spillway		
13) Compacted Density (from std.curve)	123.5	111.5	123.5	123.5
14) Optimum Moisture (from std.curve)	11	13.5	11.0	
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	102.1	98.5	95.0	93.2

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 63+80 Date 5-1-54	Test Location or Station 63+00 Date 5-1-54	Test Location or Station 26+00 Date 5-3-54	Test Location or Station 46+00 Date 5-3-54
1) Total Weight Soil (Wet)	3.548 1610	2.584 1173	2.198 979	2.490 1130
2) Percent Moisture in Soil	9.0	13.5	14.0	13.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	3.253	2.277	1.927	2.193
4) Initial Weight of Sand & Apparatus	6117	6012	5928	5809
5) Final Weight of Sand & Apparatus	3475	3710	3748	3510
6) Wt. of Sand to fill funnel & plate	1585	1585	1585	1585
7) Net Wt. Sand Used in Hole (4-5-6)	2,329* 1057	1578 717	1,310# 595	1.572. 714
8) Density of Standard Sand (Lbs/Cu.Ft.)	83.7	83.7	83.7	83.7
9) Volume of Hole(cu.ft.) $\frac{(7)}{(8)}$	.02782	.01886	.01568	.01878
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	127.4	137.0	140.0	132.5
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	116.9	120.7	123.1	116.8
12) Borrow Material Lab. Identification	Rt sta 62	Rt. sta 62		Rt sta 62
13) Compacted Density (from std. curve)	122	122.0	123.5	122.0
14) Optimum Moisture (from std. curve)	11.5	11.5		
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	95.8	99	99.7	95.7

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 43+00 Date 4-30-54	Test Location or Station 45+50 Date 4-30-54	Test Location or Station 63+80 Date 4-30-54	Test Location or Station 60+35 Date 5-1-54
1) Total Weight Soil (Wet)	2.245 # 1018	2.613 # 1186	3.250 # 1464	2.619 # 1189
2) Percent Moisture in Soil	5.5	8.0	10.5	10.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.125	2.420	2.918 #	2.380 #
4) Initial Weight of Sand & Apparatus	6758	6595	6394	6202
5) Final Weight of Sand & Apparatus	4482	4265	3811	3793
6) Wt. of Sand to fill funnel & plate	1585	1585	1585	1585
7) Net Wt. Sand Used in Hole (4-5-6)	1.522 # 691	1.640 # 745	2.198 # 998	1.814 # 824
8) Density of Standard Sand (Lbs/Cu.Ft.)	83.7	83.7	83.7	83.7
9) Volume of Hole(cu.ft.) $\frac{(7)}{(8)}$	.01818	.01960	.02655	.02168
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	123.7	133.4	122.4	120.7
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	117.0	123.5	109.8	109.8
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	122.0	122.0	122.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	96.0	101.2	90.04	90.04

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR _____

verage Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 55+90 Date 4-29-54	Test Location or Station 42+00 Date 4-29-54	Test Location or Station 40+00 Date 4-29-54	Test Location Station 44+00 Date 4-29-54
1) Total Weight Soil (Wet)	1.438 653	1.962 891	1.977# 898	1.917# 871
2) Percent Moisture in Soil	9.5	7.5	7.0	10.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	1.313	1.825	1.848	1.734
4) Initial Weight of Sand & Apparatus	5711	7226	7012	6893
5) Final Weight of Sand & Apparatus	3691	4988	4807	4808
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1585
7) Net Wt. Sand Used in Hole (4-5-6)	0.956 434	1.436# 652	1.363# 619	1.102 500
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	83.7
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	0.1137	.01709	.01622	.01315
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	126.4	114.8	121.9	145.7
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	115.4	106.8	113.9	131.8
12) Borrow Material Lab. Identification	48 to 58	48 to 58		48-58
13) Compacted Density (from std. curve)	122.0	122.0	122.0	122.0
) Optimum Moisture (from std. curve)	10.0	10.0		10.0
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	94.7	Facing 87.6	93.5	108.2

7226
6574
652

G.C. G.C. G.C. RWS

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT U.P.1 LOCATION PHOENIX INSPECTOR MARTIN

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 54+00 Date 4-28-54	Test Location or Station 54+00 Date 4-28-54	Test Location or Station 63+80 Date 4-28-54	Test Location or Station 56+80 Date 4-28-54
1) Total Weight Soil (Wet)	2.308 1047	2.710 # 1230	2.910 # 1321	2.377 # 1079
2) Percent Moisture in Soil	12.0	10.0	7.0	9.0
3) Dry Weight of Soil (1) / 1 + (2)/100	2.058	2.463 #	2.72	2.180 #
4) Initial Weight of Sand & Apparatus	6221	6096	5967	5796
5) Final Weight of Sand & Apparatus	3928	3625	3545	3487
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1.556 707	1.949 # 885	1841 # 836	1.591 # 723
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole(cu.ft.) (7)/(8)	.01854	.02320	.02191	.01895
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	124.5	116.8	132.7	125.4
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	111.1	106.2	124.1	115.1
12) Borrow Material Lab. Identification	STA. 62+00	Sta 62+00	Sta 62+00	Sta 62+00
13) Compacted Density (from std. curve)	122.0	122	122.	122
14) Optimum Moisture (from std. curve)	11.5	11.5	11.5	11.5
15) % Standard Compaction (11)/(13) x100	91.1	87.1 Hwh.	101.7 Hwh.	94.4 Hwh.
	6" BELOW SUR.	4" UNDER.	BACKFILL 6" below TOP OF 24" CMP.	4" UNDER

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT CU.P. 1 LOCATION PHOENIX INSPECTOR MARTIN

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 26+00 Date [illegible]-54	Test Location or Station 20+00 Date 4-26-54	Test Location or Station 10+00 Date 4-27-54	Test Locatio Station 60+75 Date 4-27-54
1) Total Weight Soil (Wet)	[illegible]# ✓ 11[illegible] gm	2,497# ✓ 1133 gm	2,610# ✓ 1185 gm	2,289 1039
2) Percent Moisture in Soil	10.5 ✓	9.0 ✓	8.0 ✓	12.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$ #	2,3[illegible]8# ✓	2,290# ✓	2,418	2,034
4) Initial Weight of Sand & Apparatus gm.	6504	6444	6320	6277
5) Final Weight of Sand & Apparatus gm	41[illegible]	4168	3952	4039
6) Wt. of Sand to fill funnel & plate gm	15[illegible]	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1,728# 785	1,519# 690	1,722# 782	1,435# 652
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.02058 ✓	.01808 ✓	.02050 ✓	.01709
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	12[illegible].6 ✓	138.0 ✓	127.3 ✓	133.9
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	113.7 ✓	126.6 ✓	117.9	119.0
12) Borrow Material Lab. Identification	Pit wt. sta. [illegible]	Pit wt sta 25+00	Pit wt sta. 25+00	Pit wt sta 62+00
13) Compacted Density (from std. curve)	124.5	124.5	124.5	122.0
14) Optimum Moisture (from std. curve)	10.5	10.5	10.5	11.5
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	91.4 ✓ HWM	101.6 ✓ HWM	94.8 ✓ HWM	97.6 HWM

SURFACE 4" UNDER

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION PHOENIX INSPECTOR MARTIN

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date 1-24-54	Test Location or Station 10+00 Date 1-24-54	Test Location or Station [illegible] Date 1-24-54	Test Location or Station 15+00 Date 1-26-54
1) Total Weight Soil (Wet)	2301 # / 1045	2.748 # / 1247	2.252 # / 1023	2.568 # / 1166
2) Percent Moisture in Soil	11.0	6.0	12.5	5.5
3) Dry Weight of Soil (1) / 1 + (2)/100	2.073	2.591	2.002	2.433
4) Initial Weight of Sand & Apparatus	[illegible]	6778	6700	6620
5) Final Weight of Sand & Apparatus	4562	4394	4461	4210
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1.553 # / 708	1.757 # / 798	1.438 # / 653	1.815 # / 824
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole (cu.ft.) (7) / (8)	.01855	.02097	.01112	.02161
10) Bulk Density Wet (lbs/cu.ft) (1) / (9)	124.1	131.3	131.6	118.7
11) Bulk Density Dry (lbs/cu.ft) (3) / (9)	111.7	123.9	117.0	112.6
12) Borrow Material Lab. Identification			Pit Ht. 54a 25+00	
13) Compacted Density (from std. curve)	123.5	123.5	124.5	124.5
14) Optimum Moisture (from std. curve)	9.5	9.5	10.5	
15) % Standard Compaction (11) / (13) x100	90.5 Hwy	100.3 Hwy	94.0 Hwy	90.5 Hwy

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT U.P.I LOCATION Phoenix INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 36+60 Date 4-21-54	Test Location or Station 39+60 Date 4-21-54	Test Location or Station 42+00 Date 4-23-54	Test Locatio Station 24+00 Date 4-21-54
1) Total Weight Soil (Wet)	2.289 1079	2.589 # 1175	3,050 # 1385	2.479 # 1125
2) Percent Moisture in Soil	7.0	9.5	6.0	7.0
3) Dry Weight of Soil (1) / 1 + (2)/100	2.139	2.363	2.877	2.316 #
4) Initial Weight of Sand & Apparatus	6400	5379	6955	6926
5) Final Weight of Sand & Apparatus	3179	3076	4439	4516
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1508 685	1.579 # 717	2.050 # 930	1.682 # 764
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole(cu.ft.) (7)/(8)	.01795	.01880	.02441	.02002
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	127.5	137.6	124.8	123.6
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	119.1	125.7	117.8	115.6
12) Borrow Material Lab. Identification	Rt Rt Sta 30+00	Rt Lt Sta 30+00	Rt Lt. Sta 30+00	Rt Rt. Sta 30+00
13) Compacted Density (from std. curve)	123.5	123.5	123.5	123.5
14) Optimum Moisture (from std. curve)	9.5	9.5	9.5	9.5
15) % Standard Compaction (11)/(13) x100	96.4 Hwm.	101.8 Hwm.	95.4	93.6 Hwm.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR SCHWAB

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 32+00 Date 4-20-54	Test Location or Station 32+00 Date 4-20-54	Test Location or Station 39+50 Date 4-20-54	Test Location or Station 33+00 Date 4-21-54
1) Total Weight Soil (Wet)	2.650# 1203	2.822 1281	1.856# 843	2.346 1063
2) Percent Moisture in Soil	6.0	7.0	8.0	7.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.50#	2.637	1.727	2.192
4) Initial Weight of Sand & Apparatus	5661	5606	5575	5523
5) Final Weight of Sand & Apparatus	3284	3175	3455	3268
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1.742# 791	1861 845	1.176 534	1.473# 669
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.02073	.02215	.01399	.01756
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	127.8	127.5	132.6	133.4
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	120.5	119.2	123.5	124.8
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	123.5	123.5	123.5	123.5
14) Optimum Moisture (from std. curve)			TAKEN 18" BELOW SURFACE	
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	97.6 Hwm	96.5 Hwm	100.0 RWS	101.2 RWS

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.P. 2 LOCATION Block 8 INSPECTOR MARTIN

Average Thickness of Layers: Before Rolling 4 After Rolling 3

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 44+50 Date 4-19-54	Test Location or Station 44+50 Date 4-19-54	Test Location or Station 32+00 Date 4-12-54	Test Locatio Station 38+00 Date 4-20-54
1) Total Weight Soil (Wet)	2.681# 1217	2.854# 1296	2.723# 1236	2.191 995
2) Percent Moisture in Soil	5.0	5.5	6.5	6.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2553	2705	2558	2058
4) Initial Weight of Sand & Apparatus	6454	6379	6330	6259
5) Final Weight of Sand & Apparatus	3944	3894	3953	3958
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	2.035# 924	1980 879	1.742# 791	1.615# 715
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole(cu.ft.) $\frac{(7)}{(8)}$	.02422	.02357	.02093	.01875
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	110.1	121.2	121.3	116.9
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	105.4	114.8	123.4	109.6
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	122.0	122.0	122
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	86.5 Hwh.	94.1 Hwh	101.1 Hwh.	96 90.0
	2" UNDER	8" UNDER.	8" UNDER	Surface

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Phoenix INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type [illegible] Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 53+20 Date 4-16-54	Test Location or Station 63+80 Date 4-16-54	Test Location or Station 14+60 Date 4-16-54	Test Location or Station 45+00 Date 4-16-54
1) Total Weight Soil (Wet)	2403 1071	2910 1321	2889 1311	2,578 1169
2) Percent Moisture in Soil	7.0	6.5	6.5	9.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.246	2.732	2.712	2,351
4) Initial Weight of Sand & Apparatus	6897	6784	6711	6634
5) Final Weight of Sand & Apparatus	4266	4418	4194	4218
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1.640 744	1725 782	2.05 931	1,857 830
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.0132	.02052	.0244	.02176
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	123.1	141.7	118.4	118.2
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	115.0	133.1	111.1	108.1
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	122.0	122.0	122.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	94.3	109.2%	91.05%	88.6%

Outlet trench 4' Below Surface

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W. P. 1 LOCATION Phoenix INSPECTOR Schwab

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 52450 Date 4-14-54	Test Location or Station 58100 Date 4-15-54	Test Location or Station 48400 Date 4-14-54	Test Locatio Station 54405 Date 4-15-54
1) Total Weight Soil (Wet)	2.264# 1029	2.415# 1095	2.561# 1163	2.379# 1080
2) Percent Moisture in Soil	10.2	10.5	7.0	6.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.056	2.185	2.395	2.245
4) Initial Weight of Sand & Apparatus	5612	5480	5408	7088
5) Final Weight of Sand & Apparatus	3375	3156	3076	4825
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1.433# 651	1.624# 738	1.642 746	1.492 677
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	[illegible]	.01936	.01955	.01777
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	132.7	124.7	131.0	133.9
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	120.4	112.8	122.5	126.4
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	122.0	122.0	122.0
14) Optimum Moisture (from std. curve)		FACING MATERIAL		Facing
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	98.6 RWS	92.6	100.4 [illegible]	103.5 [illegible]

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.P. 1 LOCATION Phoenix INSPECTOR Martin

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer 2 Average Speed of Roller _____

Roller Make and Type Letourneau Sheepsfoot Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 32+00 Date 4-10-54	Test Location or Station 38+00 Date 4-12-54	Test Location or Station 37+35 Date 4-12-54	Test Locatio Station 58+00 Date 4-13-54
1) Total Weight Soil (Wet)	3246# 1473	2,665# 1210	2,910# 1321	3.094# 1404
2) Percent Moisture in Soil	7.5	9.5	8.5	6.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	3.04	2.431#	1.681	2.918
4) Initial Weight of Sand & Apparatus	6149	6003	5865	5737
5) Final Weight of Sand & Apparatus	3652	3585	3444	3194
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	2.007# 911	1.832# 832	1.839 835	2.18 957
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.02389	.02179	.02189	.02508
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	135.9	122.4	132.9	123.4
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	126.4	111.6	122.6	116.4
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	122.0	122.0	118.0
14) Optimum Moisture (from std. curve)	11.5	No Rolling 1 TRIP WITH EMPTY-21		
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	103.6 HWD	91.6 Rows	100.5 HWD M	98.8 HWD M

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT WP 1 LOCATION Phoenix INSPECTOR MARTIN

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer 2 Average Speed of Roller

Roller Make and Type [illegible] Roller Diameter Roller Width

Roller Wt. per Ft. of Width No. of Feet on Ground Total No. of Feet

	Test Location or Station 61+50 Date [illegible]	Test Location or Station 58+00 Date 4-9-54	Test Location or Station [illegible] Date 4-9-54	Test Location Station 36+00 Date 4-10-54
1) Total Weight Soil (Wet)	2.396 1087	2.578 1170	2.589 1175	2.72 1235
2) Percent Moisture in Soil	8.0	7.0	9.0	5.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.196	2.41	2.372	2.591
4) Initial Weight of Sand & Apparatus	6597	6477	6345	6256
5) Final Weight of Sand & Apparatus	4202	3959	3983	3828
6) Wt. of Sand to fill funnel & plate	1586	1586	1586	1586
7) Net Wt. Sand Used in Hole (4-5-6)	1.562 709	2.052 932	1.700 776	1.787 812
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.0	84.0	84.0	84.0
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.0859	.02443	.02024	.02120
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	128.8	105.5	127.2	127.3
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	118.1	98.6	116.6	121.2
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	118.0	118.0	118.0	118.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	100.0 (RWS)	83.6 Hwh	98.9 Hwh	97.4 Hwh

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 78+00 Date 4-7-54	Test Location or Station 52+00 Date 4-7-54	Test Location or Station 53+45 Date 4-8-54	Test Location or Station 47+00 Date 4-8-54
1) Total Weight Soil (Wet)	2,335 1950	2.082# 946	2342 # 1064	2,3[illegible] 1076
2) Percent Moisture in Soil	5.0	11.5	6.5	6.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2,224	1.869	2,200	2,2[illegible]
4) Initial Weight of Sand & Apparatus	5383	5300	5834	5[illegible]11
5) Final Weight of Sand & Apparatus	3252	3126	3540	3500
6) Wt. of Sand to fill funnel & plate	1535	1535	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	596	1.406 # 639.	1.759 # 767.	1535 704
8) Density of Standard Sand (Lbs/Cu.Ft.)	79.8	79.8	79.8	79.9
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.01644	.01763	.02167	.01934
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	[illegible]	118.2	111.4	1[illegible].8
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	135.1	106	101.6	116.8
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	118.0	118.0	117.5	122.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	114.6	89.8	89.4 &C	95.7 &C

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Phoenix INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer 1 Average Speed of Roller

Roller Make and Type [illegible] Roller Diameter Roller Width 8'

Roller Wt. per Ft. of Width No. of Feet on Ground Total No. of Feet

	Test Location or Station 49+00 Date 1-5-54	Test Location or Station [illegible] Date [illegible]	Test Location or Station 45+75 Date 1-6-54	Test Locatio Station 55+00 Date 1-7-54
1) Total Weight Soil (Wet)	2.74 [illegible]	2.512# [illegible]	2.513# 1141	2.173 987
2) Percent Moisture in Soil	9.0	5.5	7.0	9.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.512	2.76	2.35	1.995
4) Initial Weight of Sand & Apparatus	5694	5634	5548	5472
5) Final Weight of Sand & Apparatus	3368	3224	3297	3368
6) Wt. of Sand to fill funnel & plate	1535	1535	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	1.742# 791	1.927# 875	1.576# 716	1.253 569
8) Density of Standard Sand (Lbs/Cu.Ft.)	79.8	79.8	79.8	79.8
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.02182	.02415	.01975	.01572
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	125.6	120.6	127.[illegible]	138.3
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	115.2	114.4	119.0	126.8
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	109	109	109	109
14) Optimum Moisture (from std. curve)	15.5	15.5	15.5	
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	105.6 Hwm.	104.9 Hwm.	109.2 Hwm.	116.4

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.C. 1 LOCATION Phoenix INSPECTOR MARTIN

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer 2 Average Speed of Roller

Roller Make and Type [illegible] Roller Diameter Roller Width

Roller Wt. per Ft. of Width No. of Feet on Ground Total No. of Feet

	Test Location or Station 8+75 Date 4-3-54	Test Location or Station 56+00 Date 4-3-54	Test Location or Station 53+35 Date 4-3-54	Test Location or Station 48+60 Date 4-3-54
1) Total Weight Soil (Wet)	2.07# 1403	2.768 1256	2.581# 1172	1.986# 902
2) Percent Moisture in Soil	6.0	6.0	9.0	8.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	[illegible]	[illegible]	[illegible]	1.837
4) Initial Weight of Sand & Apparatus	[illegible]	6015	[illegible]	5874
5) Final Weight of Sand & Apparatus	[illegible]	3674	3644	3756
6) Wt. of Sand to fill funnel & plate	1535	1535	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	2.243# 1019	1.775# 806	1.702# 773	1.284 983
8) Density of Standard Sand (Lbs/Cu.Ft.)	79.8	79.8	79.8	79.8
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.0251	.02223	.02132	.0168
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	110.0	124.4	121.0	118.3
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	103.75	117.4	111.0	109.3
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	118.	118.	118.0	109.3
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	87.9 Hwy.	99.5 Hwy.	94.1 Hwy.	100.0

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Phoenix INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling 8 After Rolling [illegible]

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type [illegible] Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date [illegible]	Test Location or Station [illegible] Date [illegible]	Test Location or Station [illegible] Date [illegible]	Test Locatio Station [illegible] Date [illegible]
1) Total Weight Soil (Wet)	2.0352# 924	[illegible] 1315	3.29# 1404	2.54 1153
2) Percent Moisture in Soil	6.0	6.0	4.5	7.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	1.902	[illegible]	3.1[illegible]	2.361
4) Initial Weight of Sand & Apparatus	[illegible]	6506	6327	6175
5) Final Weight of Sand & Apparatus	3160	4[illegible]	3786	3887
6) Wt. of Sand to fill funnel & plate	1535	[illegible]	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	1.252# 568	[illegible] 920	2.2175# 1006	1.653# 753
8) Density of Standard Sand (Lbs/Cu.Ft.)	79.8	79.8	79.8	79.8
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.01570	.02556	.02[illegible]	.0[illegible]
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	129.6	113.3	118.6	122.3
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	121.1	107.0	113.4	113.6
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	118.0	118.0	118.0	118.
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	102.7	90.7 Hwdn.	96.2 Hwdn.	96.4 Hwdn.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION [illegible] INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type [illegible] Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date [illegible]	Test Location or Station 20+00 Date [illegible]	Test Location or Station 60+00 Date [illegible]	Test Location or Station [illegible] Date [illegible]
1) Total Weight Soil (Wet)	[illegible]	2181# 1263	1.955 885	[illegible] 811
2) Percent Moisture in Soil	[illegible]	5.0	5.0	7.0
3) Dry Weight of Soil (1)/(1 + (2)/100)	[illegible]	[illegible]	1.862	1.670
4) Initial Weight of Sand & Apparatus	[illegible]	[illegible]	5530	5461
5) Final Weight of Sand & Apparatus	[illegible]	[illegible]	3451	3330
6) Wt. of Sand to fill funnel & plate	[illegible]	1535	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	[illegible]	1.612 768	1.198# 544	[illegible] 596
8) Density of Standard Sand (Lbs/Cu.Ft.)	[illegible]	79.8	79.8	79.8
9) Volume of Hole(cu.ft.) (7)/(8)	[illegible]	[illegible]	.0149	.0166
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	[illegible]	131.2	130.8	107.2
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	[illegible]	125	116.8	96.0
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	118.0	118	118.0	109.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction (11)/(13) x100	[illegible]	105.9	99.0	87.9

A.C.

3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.P.1 LOCATION PHOENIX INSPECTOR CORBIN

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type SHEEPSFOOT Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 54+00 Date 3-22-54	Test Location or Station 68+00 Date 3-30-54	Test Location or Station 10+00 Date 3-31-54	Test Locatio Station 10+00 Date 4-1-54
1) Total Weight Soil (Wet)	2.489# 1130	2.565# 1164	3.932# 1785	3.10# 1407
2) Percent Moisture in Soil	7.5	5.5	6.5	5.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.317	2.432	3.69#	2.953#
4) Initial Weight of Sand & Apparatus	6[illegible] gm	6333 g.	6155 gm	6003
5) Final Weight of Sand & Apparatus	4302	4096	3512	3511
6) Wt. of Sand to fill funnel & plate	3.383# 1535	1535	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	1.437# 675	1.546# 702	2.441# 1108	2.107# 957
8) Density of Standard Sand (Lbs/Cu.Ft.)	79.8	79.8	79.8	79.8
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.01864	.01938	.0306	.0264
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	133.5	132.2	128.5	117.4
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	124.3	125.4	120.6	111.8
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	118.0	118	118
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	101.9 KC	106.3	102.2 HWM	94.85 HWM

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR Schwab

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date [illegible]	Test Location or Station 45+00 Date 3-27-54	Test Location or Station 62+00 Date 3-29-54	Test Location or Station 62+00 Date 3-29-54
1) Total Weight Soil (Wet)	2.545 1157	1.926 875	2.642 1199	2.376 1079
2) Percent Moisture in Soil	9.0	10.0	10.0	4.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.361	1.751	2.401	2.284
4) Initial Weight of Sand & Apparatus	[illegible]	5448	5286	5140
5) Final Weight of Sand & Apparatus	3436	3361	3039	2962
6) Wt. of Sand to fill funnel & plate	1535	1535	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	1.472 668	1.216 552	1.573 712	1.416# 643
8) Density of Standard Sand (Lbs/Cu.Ft.)	79.8	79.8	79.9	79.8
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.01844	.01523	.01924	.01774
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	137.8	126.4	137.3	133.9
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	128.1	115.1	124.8	128.8
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	122.0	122.0 ~~119.0~~	122.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	104.8	94.4	102.3 ~~104.8~~	105.6 &c.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Phoenix INSPECTOR Corbin

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date	Test Location or Station _____ Date	Test Location or Station 334-10 Date [illegible]	Test Location or Station [illegible] Date 3-25-54
1) Total Weight Soil (Wet)	[illegible]	2.62# 1185	3.1[illegible] 1424	3.475# 1577
2) Percent Moisture in Soil	[illegible]	[illegible]	7.5	6.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	[illegible]	2.438	2.[illegible]	3.28
4) Initial Weight of Sand & Apparatus	5[illegible]	4855	5992	5818
5) Final Weight of Sand & Apparatus	[illegible]	2485	3579	3365
6) Wt. of Sand to fill funnel & plate	[illegible]	[illegible]	1535	1535
7) Net Wt. Sand Used in Hole (4-5-6)	1.178 [illegible]	1.111# 777	1.73# 878	2.02# 718
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.05	84.05	79.8	79.8
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.0235	.02037	.02[illegible]	.02562
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	131.5	128.6	130.5	135.5
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	121.7	119.7	121.3	127.9
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.0	122.0	122.0	122.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	99.8	98.2	99.6	104.8

3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Phoenix INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer 6 Average Speed of Roller [illegible]

Roller Make and Type [illegible] Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date 3-20-54	Test Location or Station 57+70 Date 3-20-54	Test Location or Station 67+00 Date [illegible]	Test Locatio Station 74+60 Date [illegible]
1) Total Weight Soil (Wet)	[illegible]	3.610# 1639	[illegible]	2.849# 1293
2) Percent Moisture in Soil	7.0	10.0	8.0	7.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	[illegible]	3.282 ✓	[illegible]	2.690
4) Initial Weight of Sand & Apparatus	5982	5812	6061	5858
5) Final Weight of Sand & Apparatus	3306	3081	[illegible]	3346
6) Wt. of Sand to fill funnel & plate	1593	1593	1593	1593
7) Net Wt. Sand Used in Hole (4-5-6)	2.283# 1083	2.503# 1138 ✓	2.301# 1049	1.979# 899
8) Density of Standard Sand (Lbs/Cu.Ft.)	[illegible]	84.05	84.05	84.05
9) Volume of Hole(cu.ft.) $\frac{(7)}{(8)}$	.01331	.02984 ✓	.02534	.02353
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	126.9	120.5	116.2	120.9
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	118.6	110.0	107.6	112.5
12) Borrow Material Lab. Identification	1			
13) Compacted Density (from std. curve)	[illegible]	122.0	[illegible]	118
14) Optimum Moisture (from std. curve)	11.5	11.5		
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	97.3 kc.	90.2 Hwh	91.2	95.4 Hwh.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION [illegible] INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling 8 After Rolling 6

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date [illegible]	Test Location or Station [illegible] Date [illegible]	Test Location or Station [illegible] Date [illegible]	Test Locatio Station 60+40 Date 3-20-54
1) Total Weight Soil (Wet)	2.621# 1[illegible]	2.[illegible] [illegible]	2.375# 1078	3.858# 1751
2) Percent Moisture in Soil	[illegible]	2.[illegible] 5.[illegible]	10.5	7.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	[illegible]	[illegible]	2.1[illegible]#	3.605
4) Initial Weight of Sand & Apparatus	5823	5604	6305	6156
5) Final Weight of Sand & Apparatus	[illegible]	[illegible]	4019	3444
6) Wt. of Sand to fill funnel & plate	1593	1593	1593	1593
7) Net Wt. Sand Used in Hole (4-5-6)	1.752 796	[illegible] 78[illegible]	1.5[illegible] 693	2.466# 1119
8) Density of Standard Sand (Lbs/Cu.Ft.)	84.05	84.05	84.05	84.05
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.02084	[illegible]	.01812	.02934
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	125.7	[illegible]	131.0	131.4
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	114.8	107.2	118.5	122.8
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	122.5	109.0	109.0	122.5
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	93.8 Hwy	98.5 A.C.	108.7	100.3 Hwy

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Rock INSPECTOR Schmidt

Average Thickness of Layers: Before Rolling 8" After Rolling 6"

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type Sheepsfoot Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date 3-13-54	Test Location or Station 51+00 Date 3-[illegible]-54	Test Location or Station 53+00 Date 3-16-54	Test Location or Station 48 Date 3-16-54
1) Total Weight Soil (Wet)	2.584 / 1174	2.771# 1258	2.169# 986	2.862# 1299
2) Percent Moisture in Soil	9.0	10.0	6.0	5.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.360	2.520	2.038	2.725
4) Initial Weight of Sand & Apparatus	5661	6691	6484	5990
5) Final Weight of Sand & Apparatus	3287	4434	4244	3442
6) Wt. of Sand to fill funnel & plate	1597	1523	1523	1593
7) Net Wt. Sand Used in Hole (4-5-6)	1711 / 777	1.616# 734	1.519# 717	2.102# 955
8) Density of Standard Sand (Lbs/Cu.Ft.)	86.5	81.2	81.2	84.05
9) Volume of Hole(cu.ft.) $\frac{(7)}{(8)}$	.01977	.0199	.01944	.02502
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	130.7	139.2	111.0	114.3
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	119.4	126.6	104.8	108.9
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	118	118	109.5	109.5
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	101.2 L.C.	107.3 Hwy	95.8 Hwy	99.5 Hwy.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.P.I. LOCATION Phoenix INSPECTOR Martin

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station Date 3-12-54	Test Location or Station 66+50 Date 3-12-54	Test Location or Station 63+00 Date 3-13-54	Test Locatio Station 57+00 Date 3-15-54
1) Total Weight Soil (Wet)	3.40# 1587	2.482 1122	2.95# 1339	3.21 1457
2) Percent Moisture in Soil	10.	10.5	10.0	3.5
3) Dry Weight of Soil (1) / 1 + (2)/100	3.495 / 1.10 = 3.18#	2,215	2.95 / 1.10 = 2.68#	3.1
4) Initial Weight of Sand & Apparatus	5246	6045	5825	5621
5) Final Weight of Sand & Apparatus	3520	3712	3356	2968
6) Wt. of Sand to fill funnel & plate	1597	1597	1597	1591
7) Net Wt. Sand Used in Hole (4-5-6)	2.485# 1129	1.628 736	1.918 872	2.325 1056
8) Density of Standard Sand (Lbs/Cu.Ft.)	86.5	86.5	86.5	86.5
9) Volume of Hole (cu.ft.) (7)/(8)	.02875	.01882	.02218	.02689
10) Bulk Density Wet (lbs/cu.ft) (1)/(9)	120.0	131.9	132.8	119.1
11) Bulk Density Dry (lbs/cu.ft) (3)/(9)	110.6	119.5	120.8	115.8
12) Borrow Material Lab. Identification	SPW	SPW	SPW	SPW
13) Compacted Density (from std. curve)	118.0	125.	118.0	118.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction (11)/(13) x100	93.8	95.6	102.4	97.8

Hain Hain

3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT WP 1 LOCATION Phoenix INSPECTOR Manley

Average Thickness of Layers: Before Rolling 8" After Rolling 6"

No. of Roller Trips per Layer 6 Average Speed of Roller 3 MPH.

Roller Make and Type S.W. Parg Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 64+00 Date 4-10-54	Test Location or Station 73+00 Date 4-10-54	Test Location or Station 67+00 Date 4-10-54	Test Locatio Station Date 3-11-54
1) Total Weight Soil (Wet)	2.60# 1173	2.68 1215	3.12# 1418	2.461# 1175
2) Percent Moisture in Soil	7.0	5.5	10.0	7.0
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	$\frac{2.60}{1.07} = 2.43^{\#}$	$\frac{2.68}{1.055} = 2.54^{\#}$	$\frac{3.12}{1.10} = 2.81^{\#}$	2.300
4) Initial Weight of Sand & Apparatus	5151	5470	6025	5737
5) Final Weight of Sand & Apparatus	3305	3001	3570	3412
6) Wt. of Sand to fill funnel & plate	1597	1597	1597	1597
7) Net Wt. Sand Used in Hole (4-5-6)	1.67# 849	1.93# 872	1.89# 858	1.605 728
8) Density of Standard Sand (Lbs/Cu.Ft.)	86.5	86.5	86.5	86.5
9) Volume of Hole(cu.ft.) $\frac{(7)}{(8)}$	0.0216	0.0223	.02185	.01855
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	120.5	120.3	142.8	132.7
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	112.5	114.0	128.6	124.0
12) Borrow Material Lab. Identification	S...			
13) Compacted Density (from std. curve)	118	118	118	118.0
14) Optimum Moisture (from std. curve)	10	10		
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	95.3	96.7	109.0	105.1

1327
142
1175

J.C.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION Phoenix INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station [illegible] Date [illegible]	Test Location or Station 13+50 Date 3-6-54	Test Location or Station 69+50 Date 3-6-54	Test Locatio Station [illegible] Date [illegible]
1) Total Weight Soil (Wet)	[illegible]	2.87# [illegible]	2.92# [illegible]	2.6[illegible]# [illegible]
2) Percent Moisture in Soil	[illegible]	7.5	5	6.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	[illegible]	[illegible]	[illegible]	2.52
4) Initial Weight of Sand & Apparatus	6000 g	6000 g	6000 g	6000 g
5) Final Weight of Sand & Apparatus	[illegible]	3525	3453	3600 g
6) Wt. of Sand to fill funnel & plate	[illegible]	[illegible]	[illegible]	1603 g
7) Net Wt. Sand Used in Hole (4-5-6)	[illegible]	1.92# 872	2.07# 950 g	1.76# [illegible]
8) Density of Standard Sand (Lbs/Cu.Ft.)	[illegible]	[illegible]	86.76	86.76
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	[illegible]	.02215	.0241	[illegible]
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	[illegible]	129.6	121.5	[illegible]
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	[illegible]	120.6	115.8	124.0
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	[illegible]	125.0	122.5	[illegible]
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	[illegible] GC	96.4 GC	94.7 G.C.	[illegible] G.C.

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION [illegible] INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer 6 Average Speed of Roller _____

Roller Make and Type [illegible] Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station 72+00 Date 4-8-54	Test Location or Station 74+00 Date 4-8-54	Test Location or Station 71+30 Date 4-9-54	Test Locatio Station 68+25 Date 4-9-54
1) Total Weight Soil (Wet)	2.428# 1107	2.678# 1214	2.565# 1166 g	3.02# 1371
2) Percent Moisture in Soil	2.5	6.5	4.5	6.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	2.376	2.52	2.455#	2.835
4) Initial Weight of Sand & Apparatus	6138	5285 g.	5264	6077
5) Final Weight of Sand & Apparatus	3746	2776	2860	3491
6) Wt. of Sand to fill funnel & plate	1597	1597	1597	1597
7) Net Wt. Sand Used in Hole (4-5-6)	1.773# 795	2.01# 912	1.800# 807 g	2.18# 989
8) Density of Standard Sand (Lbs/Cu.Ft.)	86.5	86.5	86.5	86.5
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.0205	.0232	.0208	.0252
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	118.8	115.5	123.4	119.8
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	115.8	108.5	118.0	112.5
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)	118.5	113	120.0	118.0
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	97.7 HWM	96.1 HWM	95.9 G.C.	95.4

#7

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION _____ INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Feet _____

	Test Location or Station Date	Test Location or Station Date 3-4-54	Test Location or Station Date 3-4-54	Test Locatio Station Date 3-4-54
1) Total Weight Soil (Wet)				
2) Percent Moisture in Soil				
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$				
4) Initial Weight of Sand & Apparatus				5600
5) Final Weight of Sand & Apparatus				
6) Wt. of Sand to fill funnel & plate				
7) Net Wt. Sand Used in Hole (4-5-6)				
8) Density of Standard Sand (Lbs/Cu.Ft.)				
9) Volume of Hole(cu.ft.) $\frac{(7)}{(8)}$				
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$				
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$				
12) Borrow Material Lab. Identification				
13) Compacted Density (from std. curve)				
14) Optimum Moisture (from std. curve)				
15) % Standard Compaction $\frac{(11)}{(13)}$ x100	%	%	%	%

#3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION [illegible] INSPECTOR [illegible]

Average Thickness of Layers: Before Rolling 8" After Rolling [illegible]

No. of Roller Trips per Layer [illegible] Average Speed of Roller [illegible]

Roller Make and Type [illegible] Roller Diameter [illegible] Roller Width [illegible]

Roller Wt. per Ft. of Width [illegible] No. of Feet on Ground [illegible] Total No. of Feet [illegible]

	Test Location or Station [illegible] Date [illegible]	Test Location or Station [illegible] Date 4-5-54	Test Location or Station [illegible] Date 4-5-54	Test Location or Station [illegible] Date 4-5-54
1) Total Weight Soil (Wet)	[illegible]	2345 12919	3012 1332	[illegible]
2) Percent Moisture in Soil	[illegible]	9	9	11.5
3) Dry Weight of Soil $\frac{(1)}{1+\frac{(2)}{100}}$	[illegible]	2.61	2.77	[illegible]
4) Initial Weight of Sand & Apparatus	[illegible]	6000	6000	[illegible]
5) Final Weight of Sand & Apparatus	[illegible]	3388	3492	[illegible]
6) Wt. of Sand to fill funnel & plate	1603	1603	1603	[illegible]
7) Net Wt. Sand Used in Hole (4-5-6)	[illegible]	2.22# 1009	[illegible]	2.05 930
8) Density of Standard Sand (Lbs/Cu.Ft.)	[illegible]	96.76	96.76	96.76
9) Volume of Hole (cu.ft.) $\frac{(7)}{(8)}$	.0209	.0256	.0229	.0239
10) Bulk Density Wet (lbs/cu.ft) $\frac{(1)}{(9)}$	[illegible]	107.4	138.0	116.4
11) Bulk Density Dry (lbs/cu.ft) $\frac{(3)}{(9)}$	[illegible]	102.0	125.5	104.4
12) Borrow Material Lab. Identification		[illegible]	9 7 [illegible]	
13) Compacted Density (from std. curve)	[illegible]	113.0	124.5	113.0
14) Optimum Moisture (from std. curve)		13		
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	G.C.	90% G.C.	101% G.C.	91.5 G.C.

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION Str #4 INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 61+75 Date 6-26-54	Test Location or Station 58+10 Date 6-28-54	Test Location or Station 54+25 Date 6-28-54	Test Location or Station 50 Date 6-29-54
1) Total Weight Soil (Wet)	2322 / 1055	2.658 / 1206.	2.541 / 1154	2.381 / 1082
2) Percent Moisture in Soil	13.	10.0	11.0	11.5
3) Dry Weight of Soil (1) / 1 + (2)/100	2.057	2.415	2.290	2.136
4) Initial Weight of Sand & Apparatus	5737	5659	5574	5522
5) Final Weight of Sand & Apparatus	3481	3343	3273	3285
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.656 / 752	1.787 / 812	1.755 / 797	1.614 / 733
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.02040	.02202	.02162	.01989
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	113.9	120.6	117.50	119.6
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	100.8	109.5	105.9	107.4
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	123.5	119.5	119.5	119.5
14) Optimum Moisture (from std.curve)				
15) % Standard Compaction (11)/(13) x100	81.6	91.6	88.6	89.8

Test Rolled 2 Times

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.P. 1 LOCATION STR. #4 INSPECTOR SCHWAB

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. ___

	Test Location or Station 53+00 Date 6-24-54	Test Location or Station 51+50 Date 6-25-54	Test Location or Station 51+80 Date 6-26-54	Test Location or Station 50+00 Date 6-26-54
1) Total Weight Soil (Wet)	2,425# 1100	2.030 927	2.354 1068	2.250 1021
2) Percent Moisture in Soil	9.5	12.2	8.5	11.5
3) Dry Weight of Soil (1) / 1 + (2)/100	2.212#	1.813	2.170	2.018
4) Initial Weight of Sand & Apparatus	5978	5900	5827	5767
5) Final Weight of Sand & Apparatus	5215 3711	5193 3789	3639	3586
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.673# 760	1,346 607	1,506 684	1,491 677
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.02063	.01659	.01855	.01857
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	117.4	123.2	126.8	122.5
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	107.3	109.3	116.9	109.9
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	119.5	119.5	123.5	119.5
14) Optimum Moisture (from std.curve)				
15) % Standard Compaction (11)/(13) x100	89.9 RWS	91.6 RWS	94.7	92.0

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.T. LOCATION St. # 4 INSPECTOR

Average Thickness of Layers: Before Rolling After Rolling

No. of Roller Trips per Layer Average Speed of Roller

Roller Make and Type Roller Diameter Roller Width

Roller Wt. per Ft. of Width No. of Feet on Ground Total No. of Ft.

	Test Location or Station 56+50 Date 6-23-54	Test Location or Station 36+50 Date 6-23-54	Test Location or Station 37+50 Date 6-23-54	Test Location or Station 49+00 Date 6-24-54
1) Total Weight Soil (Wet)	2.442# 1108	2.135# 969	2.432# 1105	2,300# 1044
2) Percent Moisture in Soil	14.0	15.0	13.0	6.5
3) Dry Weight of Soil (1) / 1 + (2)/100	2.139#	1.857#	2.153	2.160#
4) Initial Weight of Sand & Apparatus	6485	6286	6160	6119
5) Final Weight of Sand & Apparatus	4230	5146 4142	3930	3942
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.653 751	1.409 640	1.598# 726	1.482# 673
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.02036	.01738	.01970	.01826
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	120.2	122.8	123.5	125.9
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	105.0	106.8	109.4	118.2
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	111.5	119.5	119.5	123.5
14) Optimum Moisture (from std.curve)				
15) % Standard Compaction (11)/(13) x100	99.4 RWS	89.6 RWS	91.5	95.7

R.C.

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION Str #4 INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 43+50 Date 6-19-54	Test Location or Station 46+00 Date 6-19-54	Test Location or Station 46+00 Date 6-21-54	Test Locat. Station 40+00 Date 6-22-54
1) Total Weight Soil (Wet)	2.623# 1192	2.517 1143	2.693# 1223	2.717 1233
2) Percent Moisture in Soil	6.0	7.5	7.0	7.5
3) Dry Weight of Soil (1) / 1 + (2)/100	2.475	2.340	2.518	2.525
4) Initial Weight of Sand & Apparatus	5364	5163	5071	6579
5) Final Weight of Sand & Apparatus	3095	2931	2781	4328
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	81.18	81.18	1.730 786	1.645 747
8) Density of Standard Sand (Lbs/Cu.Ft.)	1.685# 765	1.604# 728	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.02076	.01975	.02130	.02028
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	126.5	127.4	126.4	134.0
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	119.4	118.5	118.2	124.6
12) Borrow Material Lab.Identification	Sta 45	Sta 45	STA-45	Sta-45
13) Compacted Density (from std.curve)	123.5	123.5	123.5	123.5
14) Optimum Moisture (from std.curve)	11.5	11.5	11.5	11.5
15) % Standard Compaction (11)/(13) x100	96.6	96.0	95.8	101.0

[illegible] [illegible] [illegible]

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BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT W.O. 1 LOCATION Str #4 INSPECTOR

Average Thickness of Layers: Before Rolling After Rolling

No. of Roller Trips per Layer Average Speed of Roller

Roller Make and Type Roller Diameter Roller Width

Roller Wt. per Ft. of Width No. of Feet on Ground Total No. of Ft.

	Test Location or Station 34+00 Date 6-17-54	Test Location or Station 46+50 Date 6-17-54	Test Location or Station 40+00 Date 6-18-54	Test Location or Station 46+40 Date 6-18-54
1) Total Weight Soil (Wet)	2.078 # 944	2.530 1149	2.032 923	2.158 979
2) Percent Moisture in Soil	12.0	12.0	13.5	7.0
3) Dry Weight of Soil (1) / 1 + (2)/100	1.855	2.258	1.790	2.018
4) Initial Weight of Sand & Apparatus	5737	5658	5524	5472
5) Final Weight of Sand & Apparatus	3639	3427	3394	3369
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.308 # 594	1.602 727	1.378 626	1.327 599
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.01612	.01975	.01699	.01628
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	128.8	128.2	119.6	132.3
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	115.1	114.3	105.5	123.8
12) Borrow Material Lab.Identification	Sta. 32+50		32+50	STA-45
13) Compacted Density (from std.curve)	119.5	119.5	119.5	123.5
14) Optimum Moisture (from std.curve)	12.5	TAKEN IN FIRST FOOT ABOVE BASE		11.5
15) % Standard Compaction (11)/(13) x100	96.4 O.M.C.	95.7 O.M.C.	88.3	100.3

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT _____ LOCATION Str # 4 INSPECTOR _____

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 27+50 Date 6-1-54	Test Location or Station 35+00 Date 6-16-54	Test Location or Station 62+00 Date 6-16-54	Test Location or Station 32+50 Date 6-16-54
1) Total Weight Soil (Wet)	2.463 ~ 1118 ~	2.572# 1167	2.495# 1132	2.362# 1073
2) Percent Moisture in Soil	11.0%	11.0%	12.0%	12.0%
3) Dry Weight of Soil (1) / (2)/100	2.220	2.318#	2.224#	2.110
4) Initial Weight of Sand & Apparatus	6330	6208	6095	5789
5) Final Weight of Sand & Apparatus	4078 ~	3916	3841	3641
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.647 ~ 748	1.733# 788	1.652# 750	1418 644
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.02080	.02135	.02034	.01747
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	121.4	120.5	122.6	135.2
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	109.4	108.5	109.4	120.7
12) Borrow Material Lab.Identification	OPP Sta 32+50	32+50	West Spillway	OPP Sta 32+50
13) Compacted Density (from std.curve)	119.5	119.5	111.5	119.5
14) Optimum Moisture (from std.curve)	12.5	12.5	13.5	12.5
15) % Standard Compaction (11)/(13) x100	91.5	90.8	98.2	101.0

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT [illegible] LOCATION Phoenix Str. #4 INSPECTOR Schuyler

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 20+00 Date 6-8-54	Test Location or Station 22+00 Date 6-9-54	Test Location or Station 25+75 Date 6-10-54	Test Location or Station 24+50 Date 6-10-54
1) Total Weight Soil (Wet)	2.428 # 1105 g	2.639 # 1198 g	1.978 # 899 g	2.487 1129
2) Percent Moisture in Soil	6.0	11.0	6.5	9.0
3) Dry Weight of Soil $1 \div \frac{(2)}{100}$	2.290	2.375	1.857 #	2.278 #
4) Initial Weight of Sand & Apparatus	5611	5530	5432	6834
5) Final Weight of Sand & Apparatus	3367	3293	3312	4620
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.630 # 740 g	1.616 # 733 g	1.356 # 616 g	1.563 # 710
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) $\frac{(7)}{(8)}$	.02009	.01990	.01671	.01925
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	120.8	132.3	118.4	129.2
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	114.0	119.4	111.1	118.3
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	123.5	123.5	111.5	123.5
14) Optimum Moisture (from std.curve)	11.0			
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	92.4 Rej.	96.6 Rej.	Basic 99.7 Rej.	95.8 Rej.

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD "

PROJECT W.P.I. LOCATION # 1 INSPECTOR D.A. MARTIN

Average Thickness of Layers: Before Rolling _____ After Rolling _____

No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 6+50 Date 6-4-54	Test Location or Station 9+00 Date 6-5-54	Test Location or Station 25+00 Date 6-7-54	Test Location or Station 19+00 Date 6-7-54
1) Total Weight Soil (Wet)	2.404 # 1092	2.630 1194	2.091 # 950	2920 1325
2) Percent Moisture in Soil	8.0	3.5	7.0	9.0
3) Dry Weight of Soil (1) / 1 + (2)/100	2,227	2.540	1.953 #	2.679
4) Initial Weight of Sand & Apparatus	6072	5892	5797	5691
5) Final Weight of Sand & Apparatus	3851	3509	3741	3289
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.579 # 717	1.936 879	1.216 # 552	1.978 898
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) (7)/(8)	.0145	.02386	.01497	.02438
10) Bulk Density Wet(lbs/cu.ft) (1)/(9)	123.6	110.3	139.6	119.7
11) Bulk Density Dry(lbs/cu.ft) (3)/(9)	114.5	106.5	130.3	109.8
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	111.5	111.5	123.5	111.5
14) Optimum Moisture (from std.curve)				
15) % Standard Compaction (11)/(13) x100	102.6	95	BASE-Compacted 105.6	98.5

BULK DENSITY DETERMINATION - SAND FUNNEL METHOD

PROJECT CAP LOCATION #4 INSPECTOR SC Howard

Average Thickness of Layers: Before Rolling _____ After Rolling _____

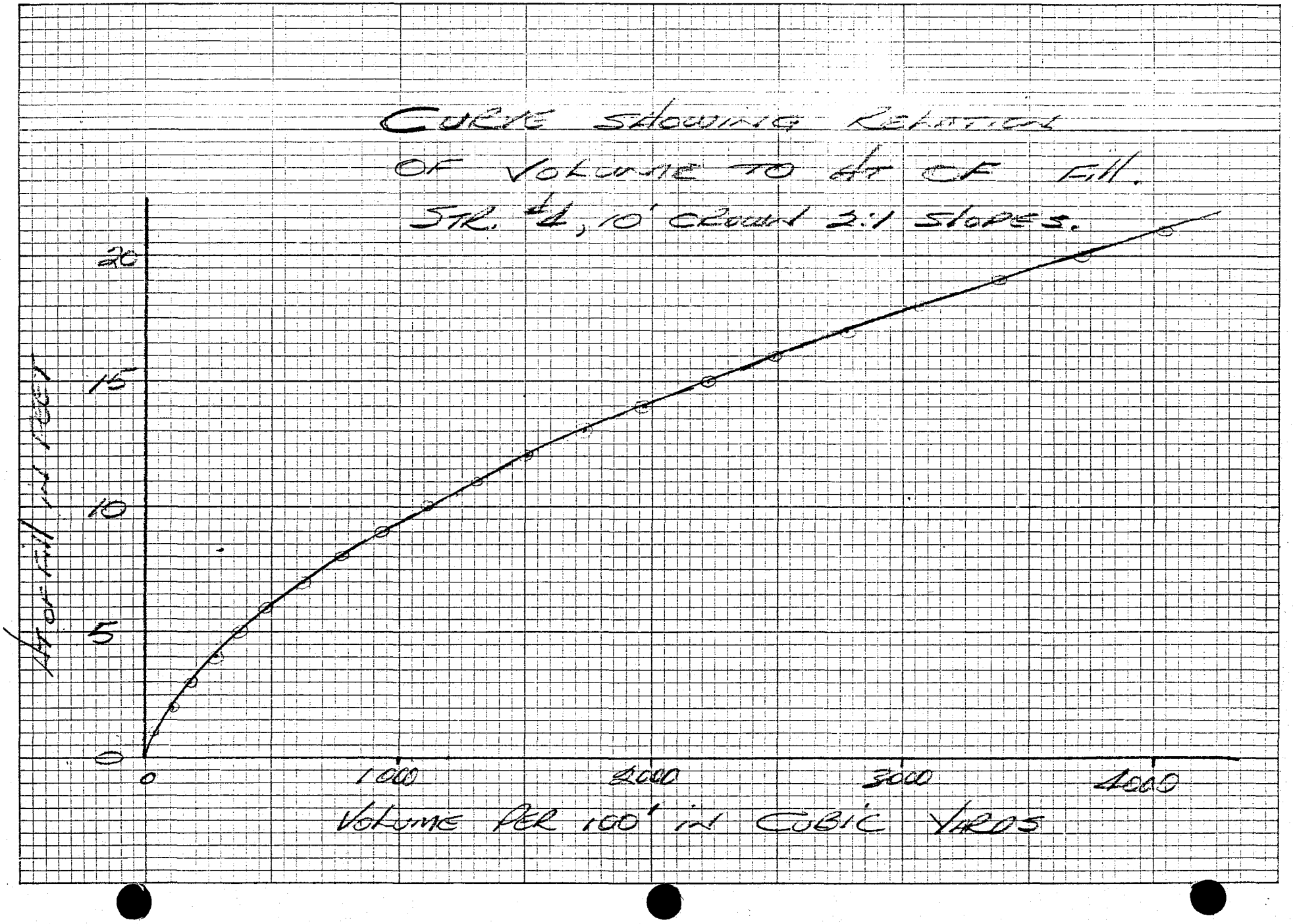
No. of Roller Trips per Layer _____ Average Speed of Roller _____

Roller Make and Type _____ Roller Diameter _____ Roller Width _____

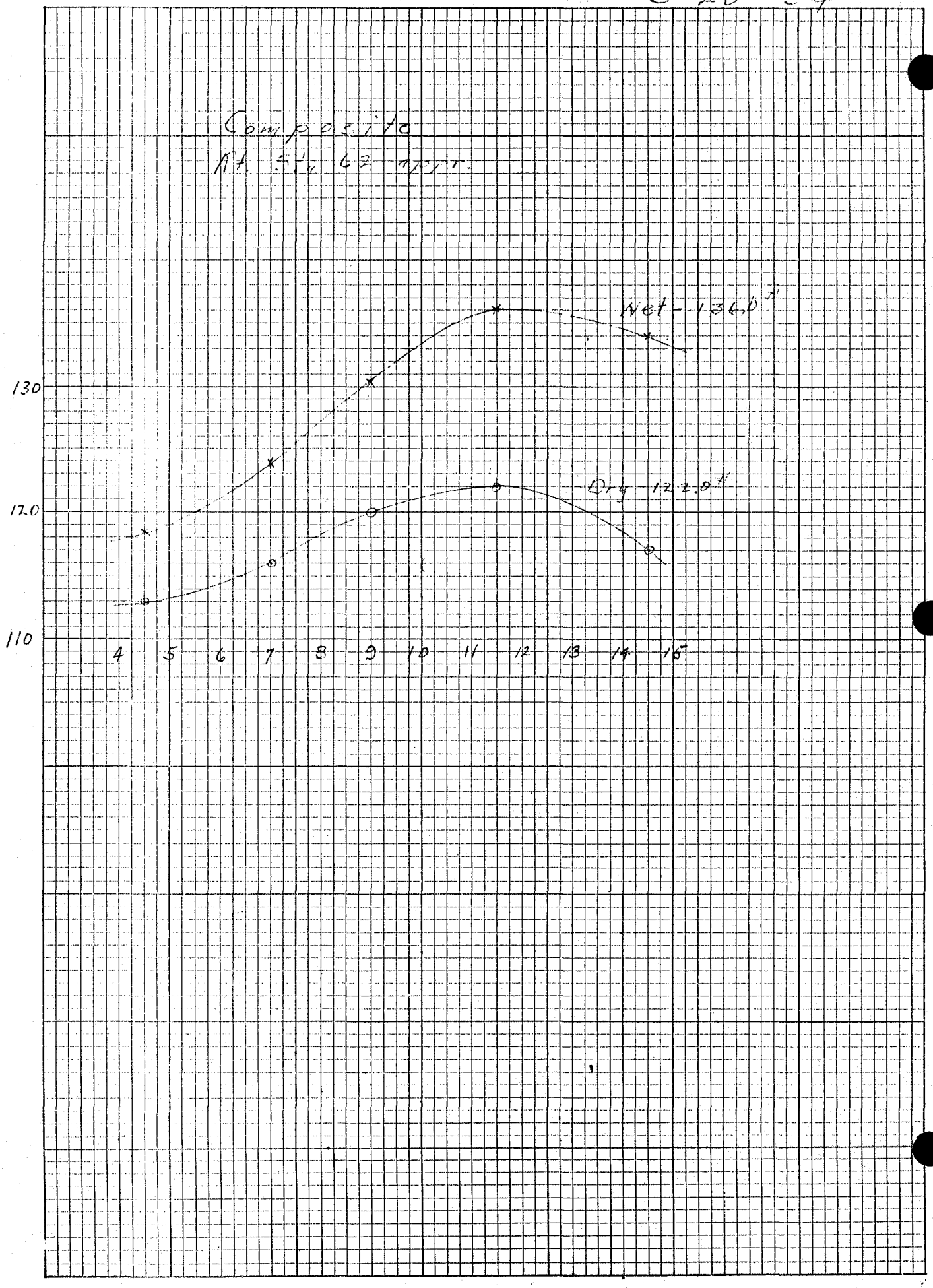
Roller Wt. per Ft. of Width _____ No. of Feet on Ground _____ Total No. of Ft. _____

	Test Location or Station 4+15 Date 5-28-54	Test Location or Station 8+50 Date 6-1-54	Test Location or Station 2+50 Date 6-2-54	Test Location or Station 13+00 Date 6-3-54
1) Total Weight Soil (Wet)	1.896 860	2.049 930#	2.172 987	2.112 959
2) Percent Moisture in Soil	9.5	10.0	10.0	8.5
3) Dry Weight of Soil $1 \div \frac{(2)}{100}$	1.731	1.863	1.975	1.948
4) Initial Weight of Sand & Apparatus	6584	6391	6326	6246
5) Final Weight of Sand & Apparatus	4394	4291	4207	4148
6) Wt. of Sand to fill funnel & plate	1504	1504	1504	1504
7) Net Wt. Sand Used in Hole (4-5-6)	1.511 686	1.312 596	1.354 615	1.308 594
8) Density of Standard Sand (Lbs/Cu.Ft.)	81.18	81.18	81.18	81.18
9) Volume of Hole(Cu.ft.) $\frac{(7)}{(8)}$	.01865	.01617	.01668	.01609
10) Bulk Density Wet(lbs/cu.ft) $\frac{(1)}{(9)}$	101.6	126.6	130.2	131.3
11) Bulk Density Dry(lbs/cu.ft) $\frac{(3)}{(9)}$	92.9	115.1	118.4	121.7
12) Borrow Material Lab.Identification				
13) Compacted Density (from std.curve)	111.5	111.5	111.5	123.5
14) Optimum Moisture (from std.curve)				
15) % Standard Compaction $\frac{(11)}{(13)} \times 100$	83.3	103.2 ✓	106.1	98.3 RWS

358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U. S. A.



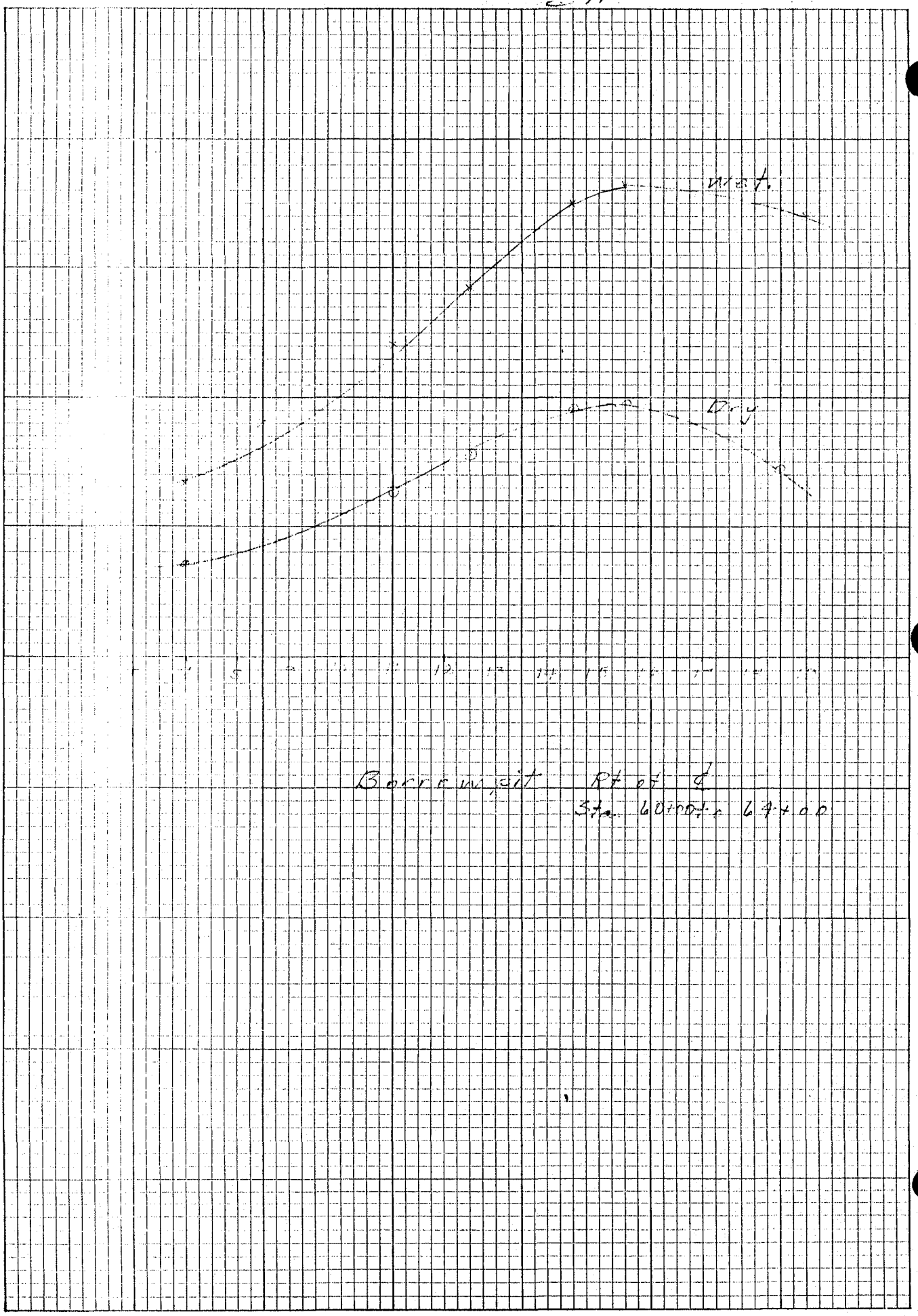
Tr #5 3-20-54



358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U.S.A.

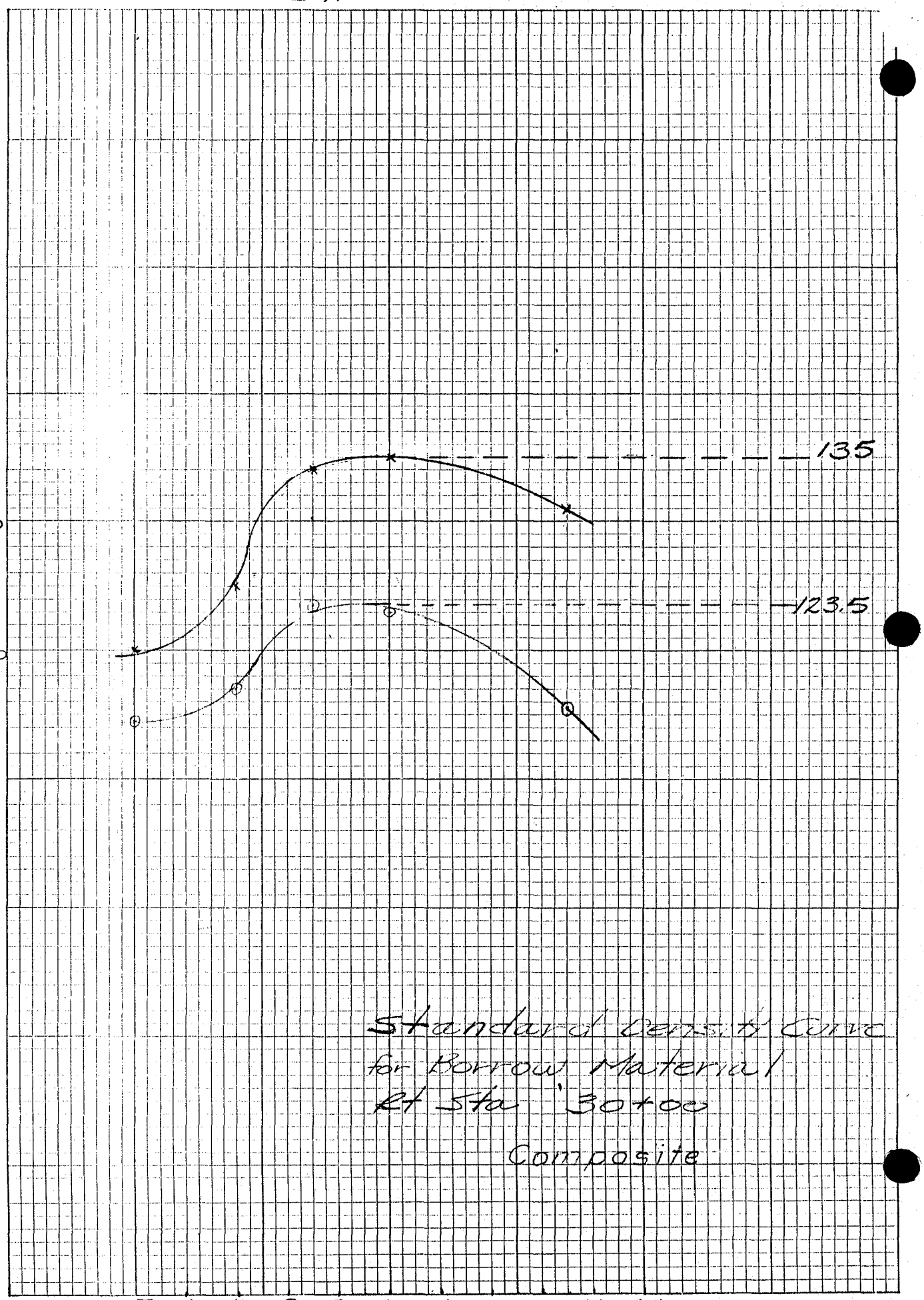
Sta. #3

(2)



358-5 KEUFFEL & ESSER CO. 10 X 10 to the inch. MADE IN U.S.A.

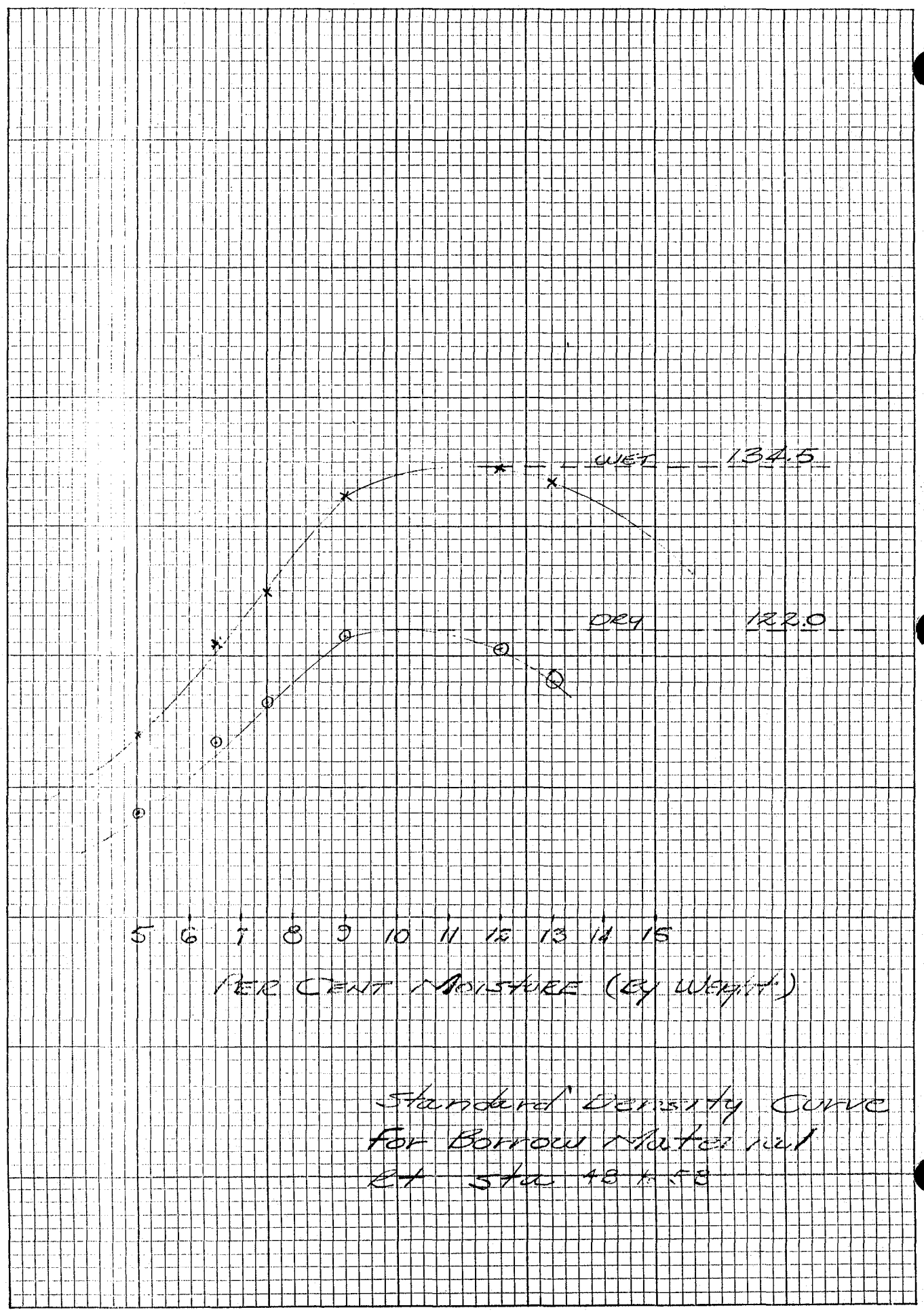
57, #3



Standard Density Curve
for Borrow Material
at Sta 30+00
Composite

358-S KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U. S. A.

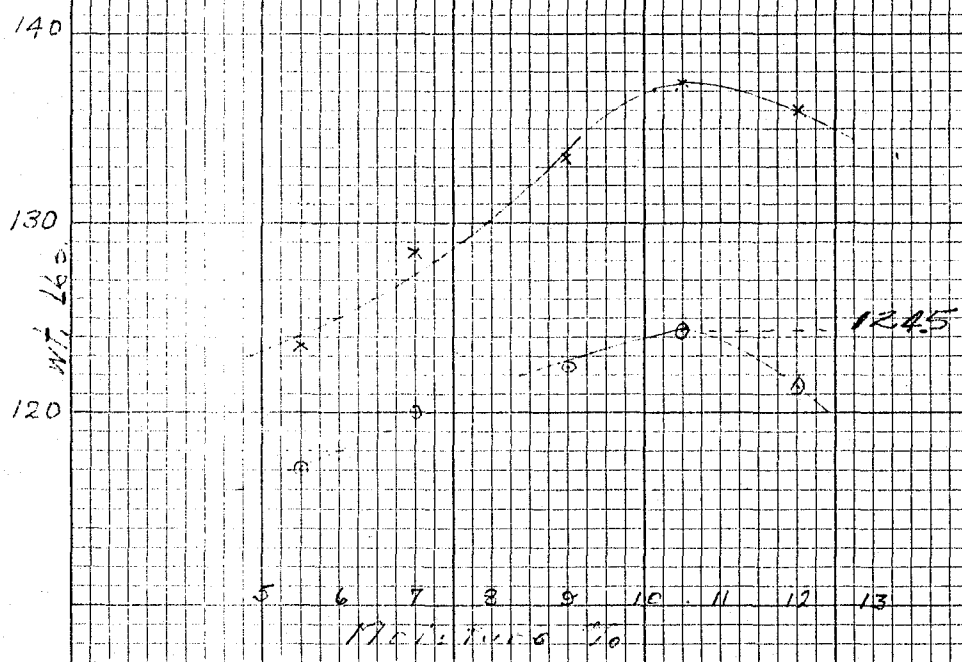
Str #3



Standard Density Curve
For Borrow Material
at Sta 48 + 50

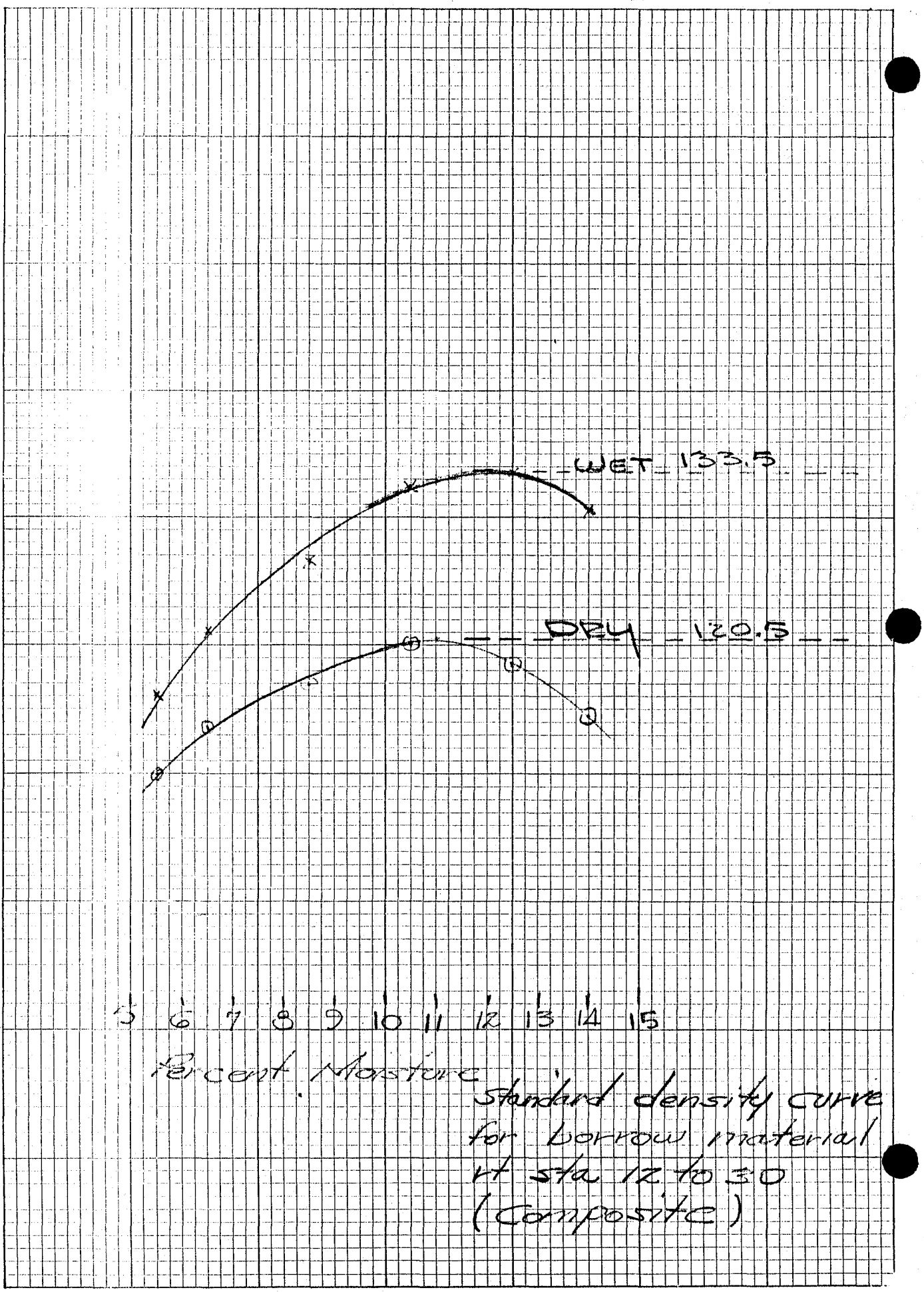
358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U. S. A.

Str #3



Standard Compaction Curve
Borrow area Rt. Sta 25 approximately

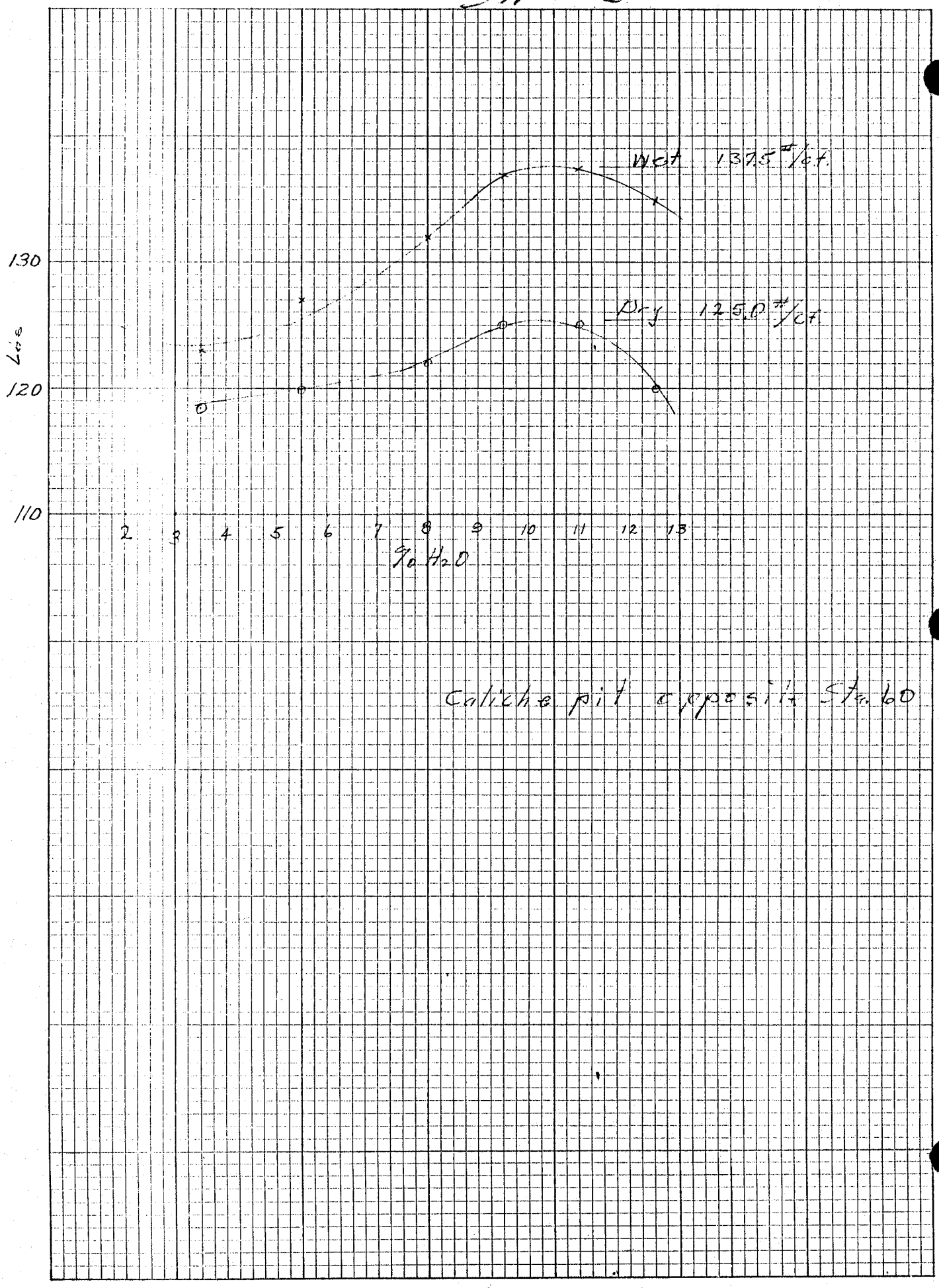
358-5 KEUFFEL & ESSER CO.
10 X 10 to the inch.
MADE IN U.S.A.



Standard density curve
for borrow material
at sta 12 to 30
(composite)

358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U. S. A.

Sta. #3



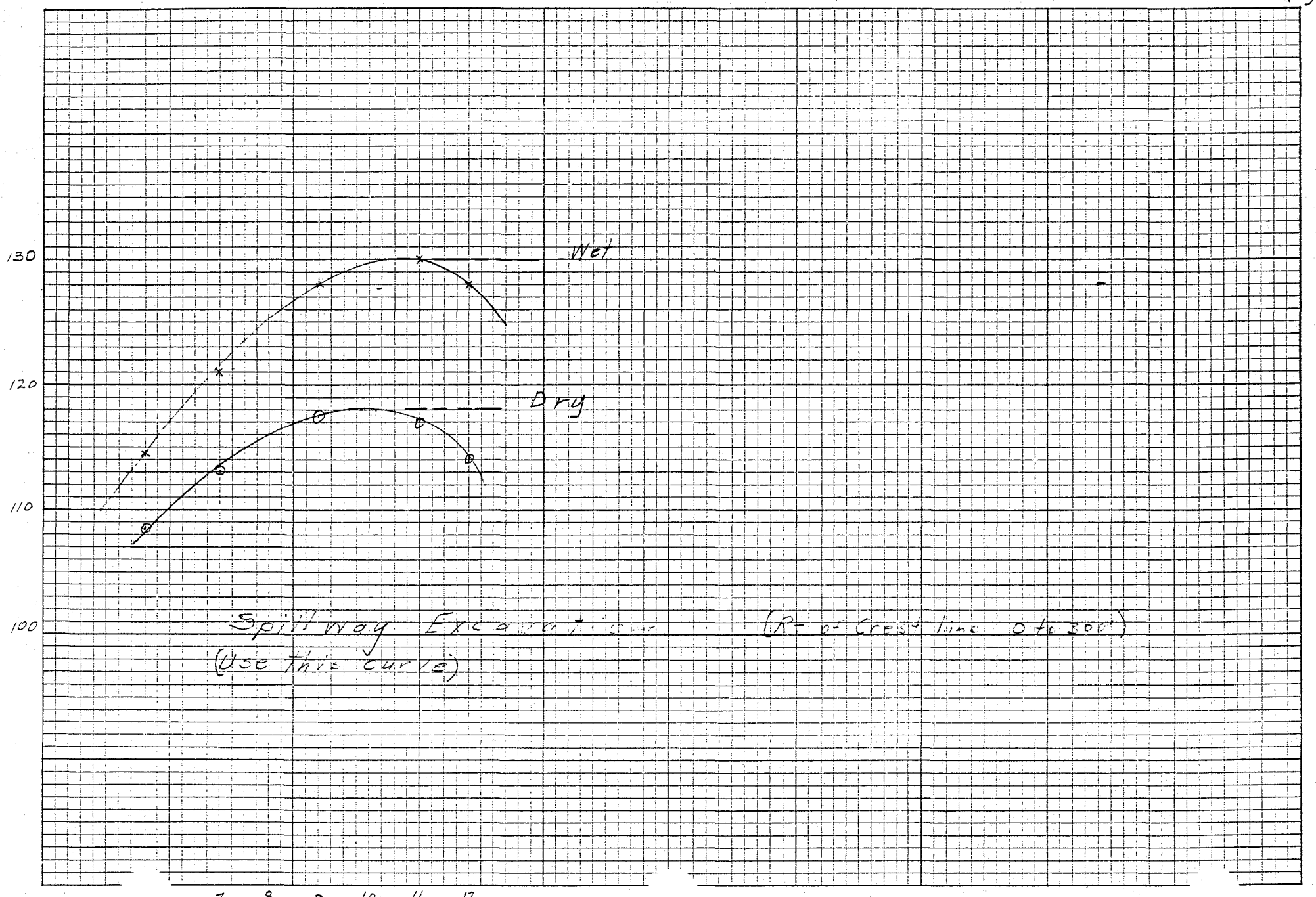
Caliche pit exposure Sta. 60

358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U.S.A.

358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U. S. A.

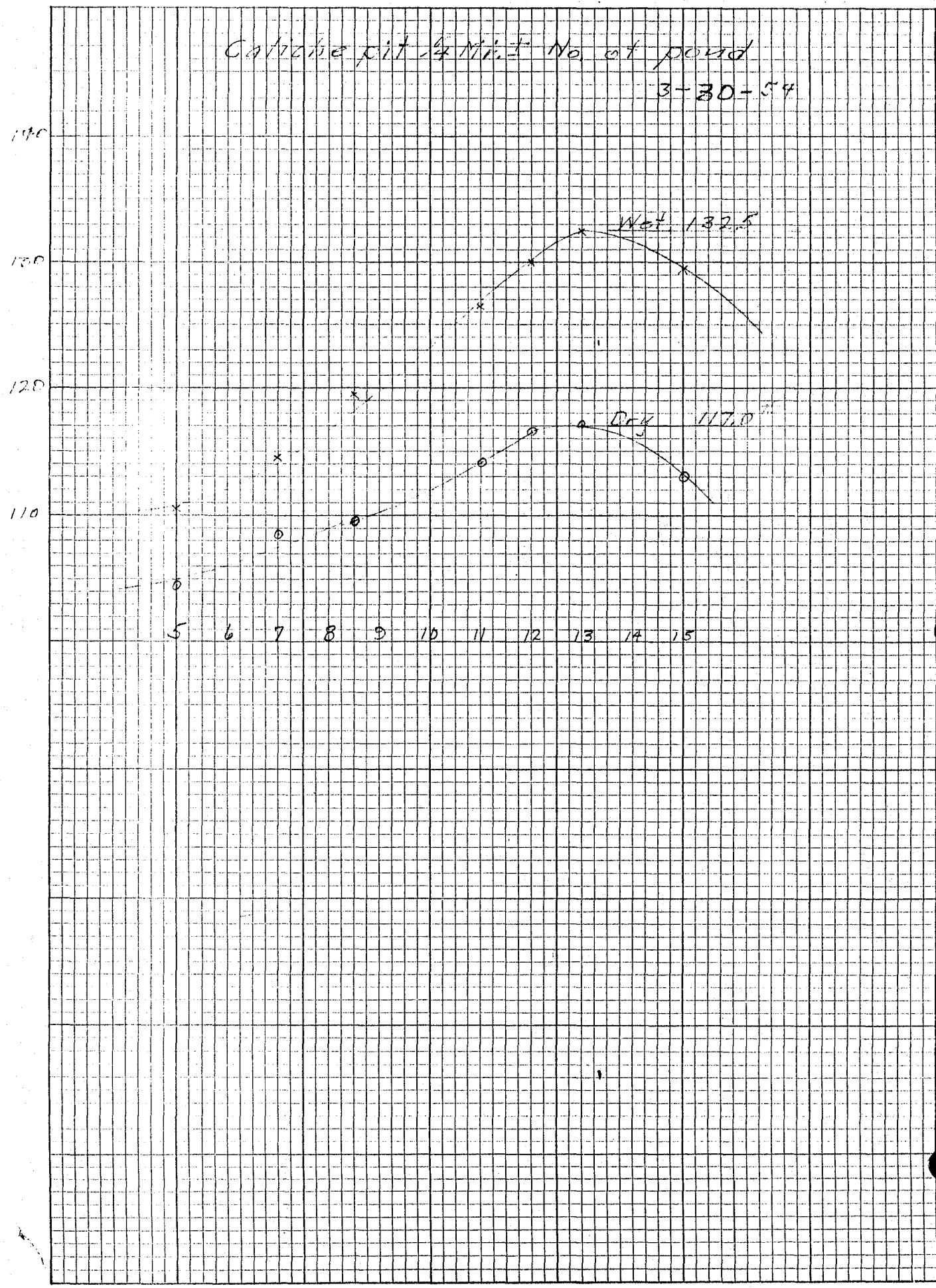
Str #3

(1)

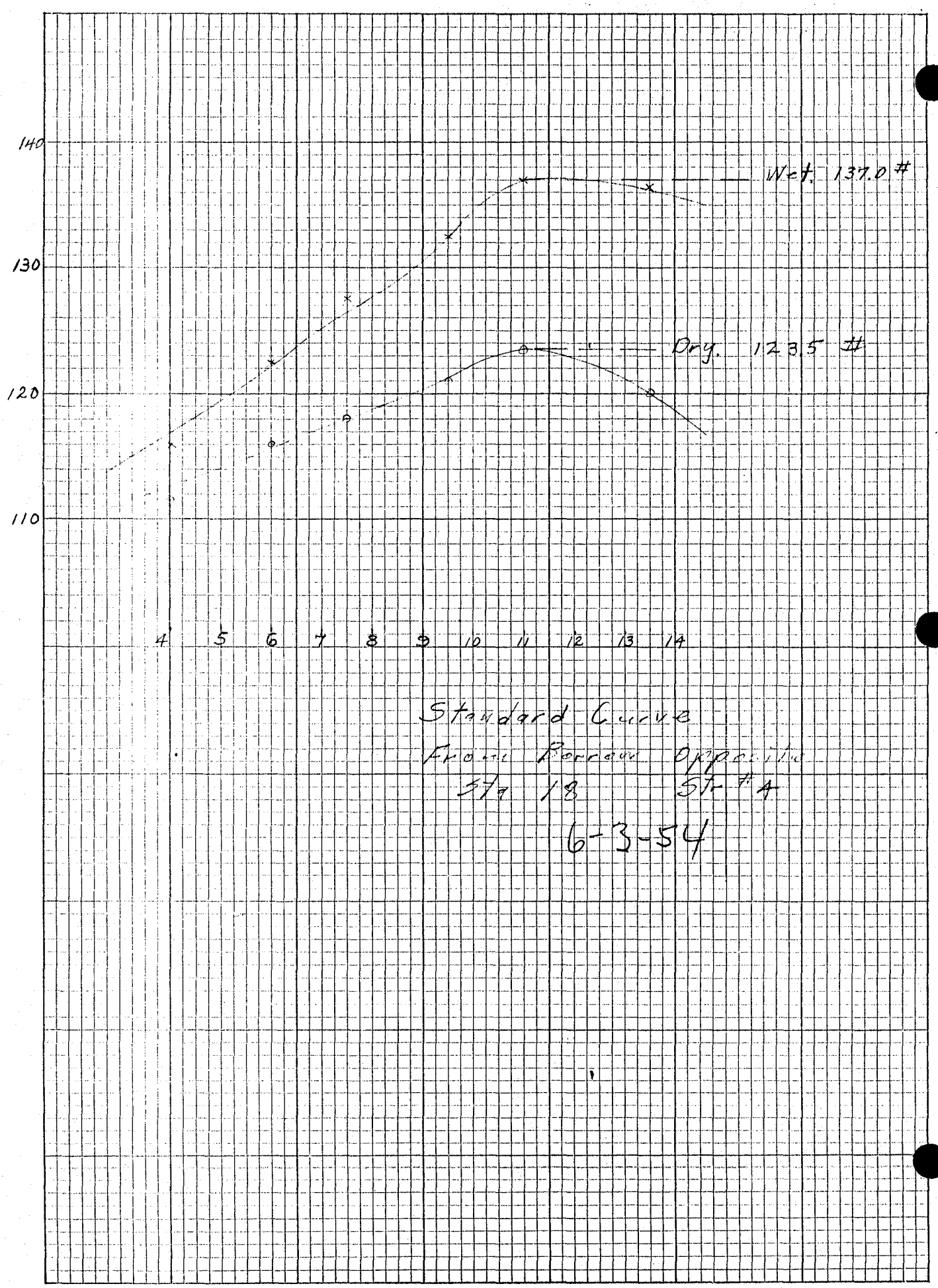


Spillway Excavation Curve (R of Crest line 0 to 300')
(Use this curve)

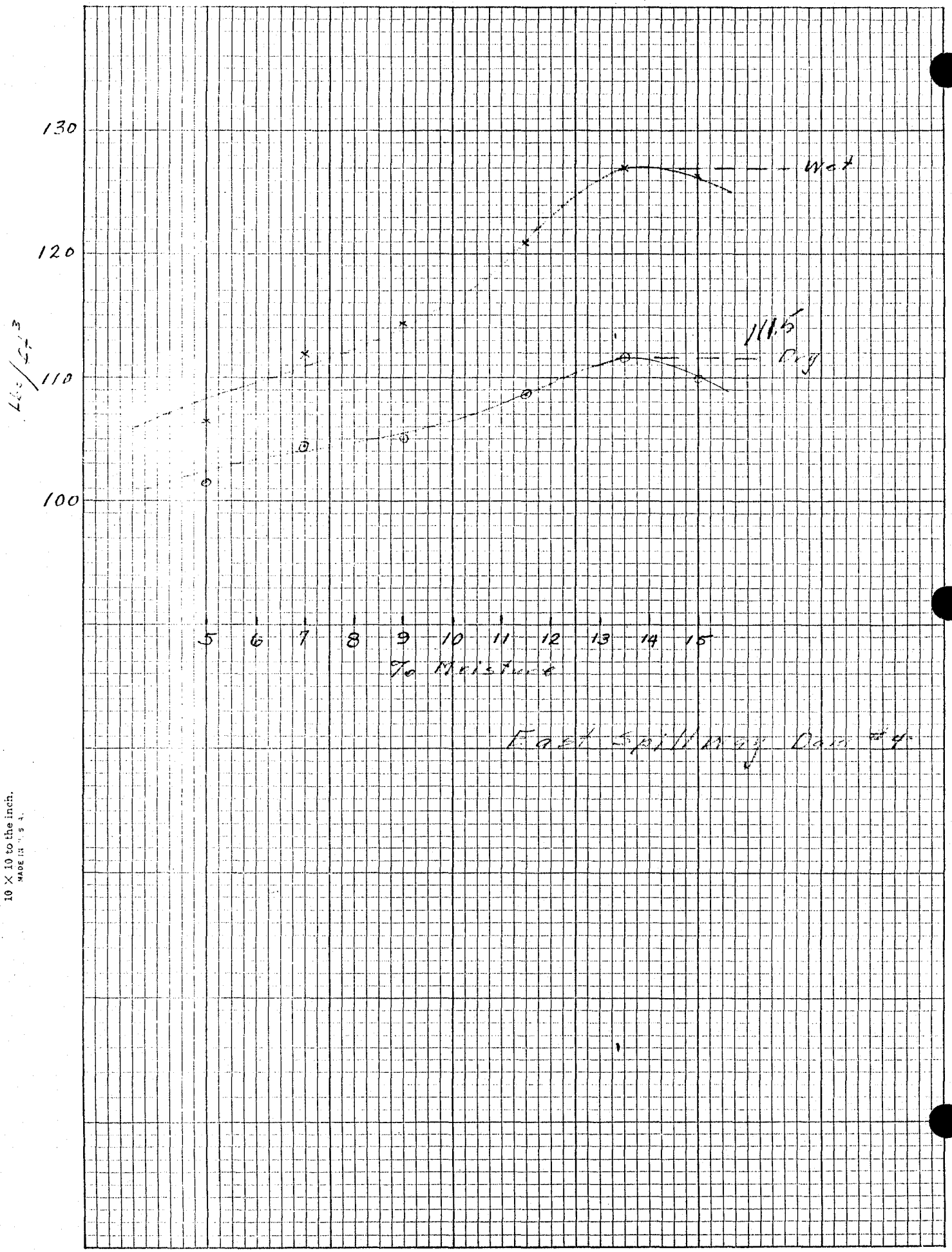
Str #3



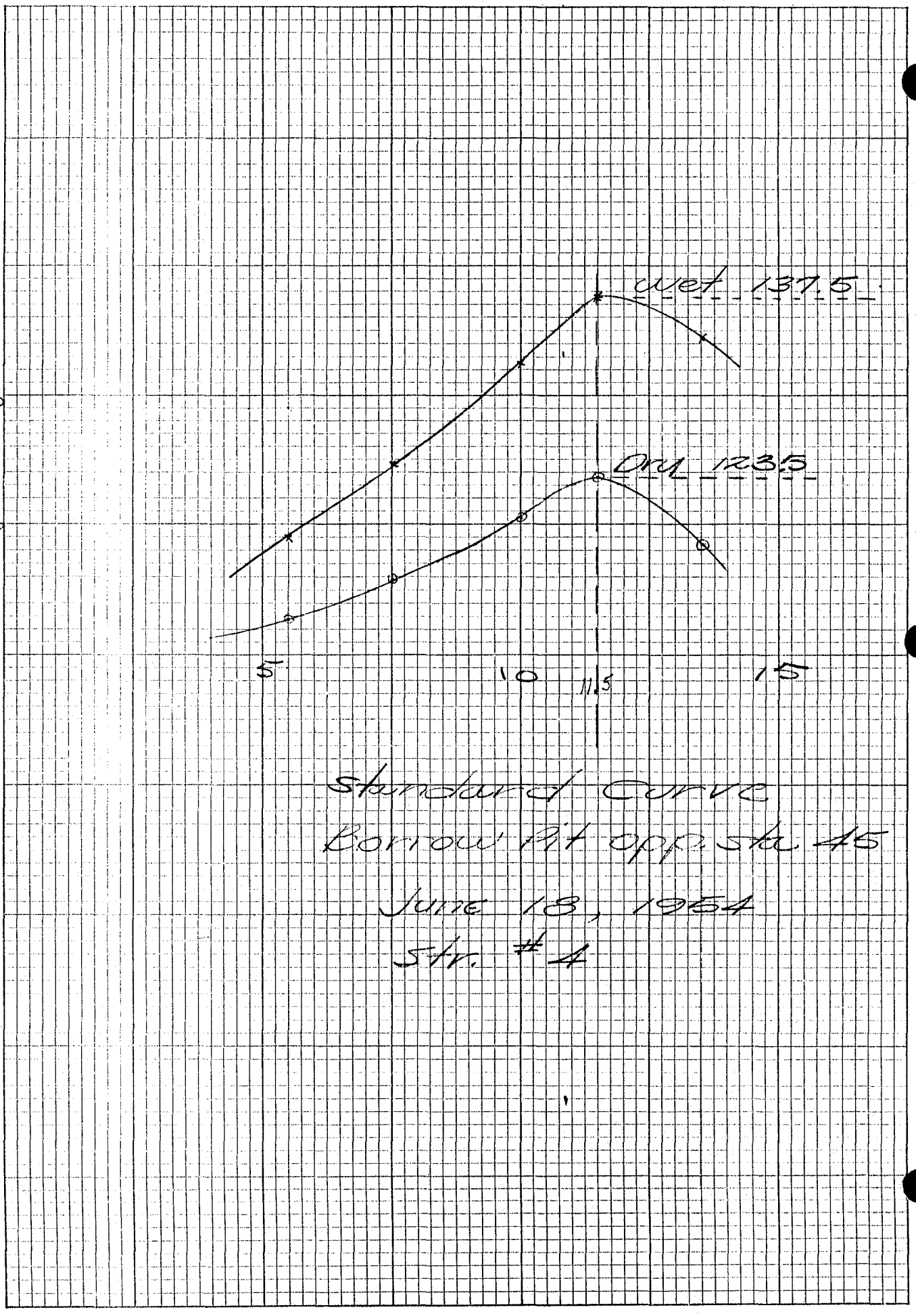
358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U.S.A.



358.5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U. S. A.

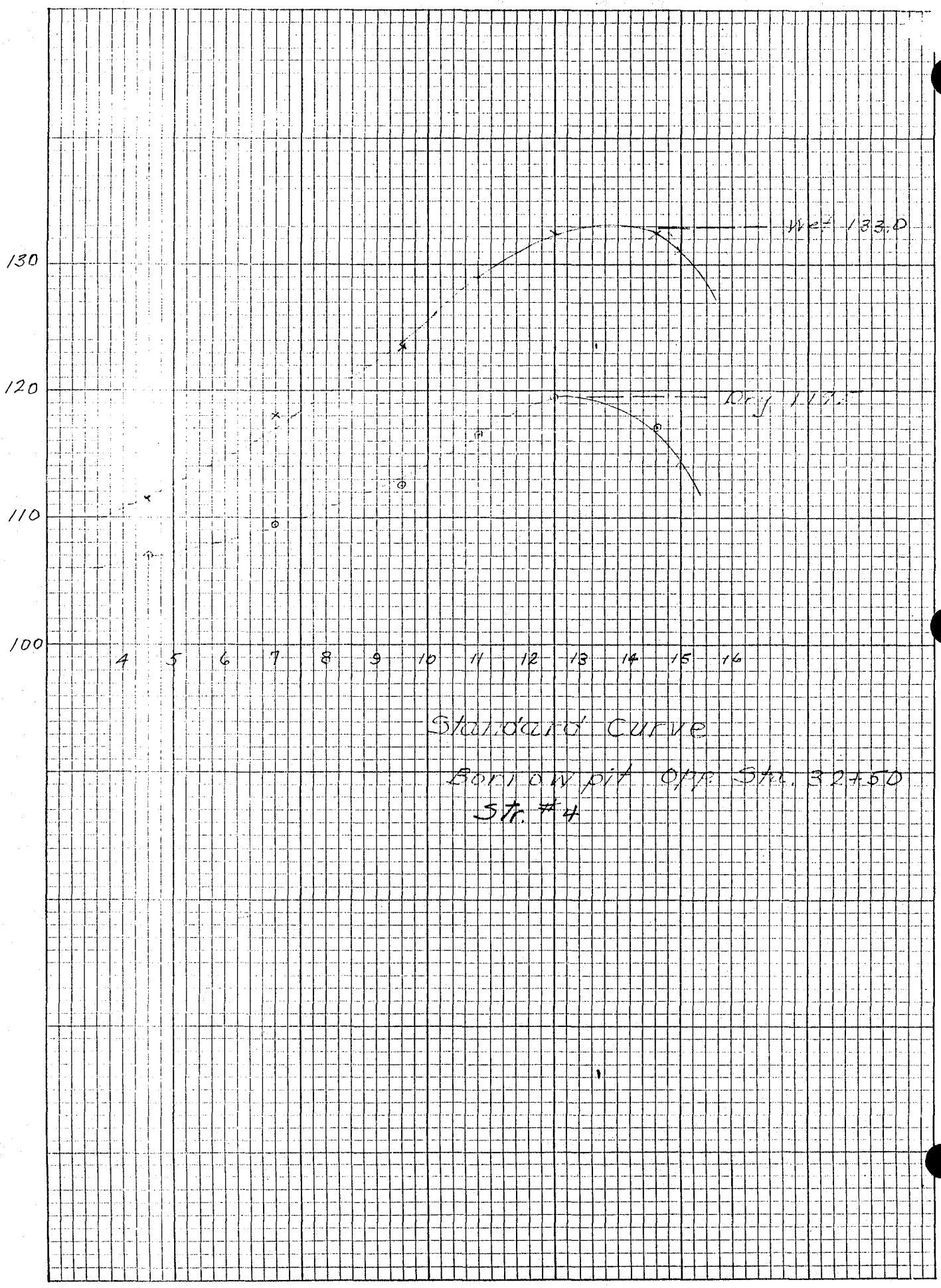


358-S. KEUFFEL & ESSER CO.
10 X 10 to the inch.
MADE IN U.S.A.



Standard Curve
Borrow Pit opp. Sta. 45
June 18, 1954
Str. #4

358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U.S.A.



358-5 KEUFFEL & ESSER CO.
10 × 10 to the inch.
MADE IN U.S.A.

Dam #5
Quantities

Sta	Vol. Total	Vol. Facing	Vol. less Facing
57+00			
	8112.0	2118.0	5994.0
58+00			
	2459.7	692.0	1767.7
+35			
	3964.9	1230.0	2734.9
59+00			
	3027.0	940.0	2087.0
+50			
	1779.1	516.0	1263.1
1			
	1618.0	455.0	1163.0
60+00			
	7027.8	2175.0	4852.8
61+00			
	6741.9	2154.0	4587.9
62+00			
	7193.9	2154.0	5039.9
63+00			
	3073.1	814.0	2259.1
+40			
	1638.1	407.0	1231.1
1			
	1840.7	429.0	1411.7
+88			
	864.7	232.0	632.7

Sta.	Vol. Total	Vol. Facing	Vol. less Facing
64+00			
	665.5	193.0	472.5
1+10			
	3831.8	872.0	2959.8
+67			
	1230.0	353.0	877.0
+87			
	783.2	232.0	551.2
65+00			
	453.5	200.0	252.5
+11			
	195.8	73.0	122.8
+15			
	241.9	73.0	168.9
+19			
	373.7	110.0	263.7
+25			
	1170.0	324.0	746.0
+43			
	1235.8	342.0	893.8
+62			
	2441.2	681.0	1760.2
66+00			
	6215.7	1942.0	4273.7
67+00			
	5662.2	1748.0	3914.2

Dam # 5
Quantities

(2)

Sta.	Vol. Total	Vol. Facing	Vol. less Facing	Sta.	Vol. Total	Vol Facing	Vol. less Facing
68+00				76+00			
	1771.1	574.0	1197.1		664.0	422.0	
68+35				76+67			
	1523.0	482.0	1041.0				
+67							
	1504.0	479.0	1025.0				
69+00							
	1913.5	696.0	1217.5				
+50							
	1645.9	661.0	984.9				
7[illegible]							
	1435.5	600.0	835.5				
+45							
	1998.8	741.0	1257.8				
71+00							
	3410.4	1300.0	2110.4				
72+00							
	2990.2	1180.0	1810.2				
73+00							
[illegible]	2519.3	1073.0	1446.3				
74+00							
	2100.7	1004.0	1096.7				
7[illegible]							
	1628.7	863.0	765.7				
[illegible]							

66009.
57+00

Quantities, 900' to 1200' curve.

Sta. 9 to 10	Sta 11 to 12
4.4	9.5
4.6	3.4
9.1	5.3
11.0	12.1
15.1	11.6
16.0	18.9
4.4	19.2
6.2	18.2
8.6	23.6
9.8	23.8
.62	28.6
12.8	37.7
7.6	18.3
4.3	81.6
7.5	25.1
6.4	
1.1	
135.1	334.7

50,037 c.y. 174,774 c.y.

50037

174815 c.y.

Excavation, Spillway #3 dam
E.O.D. to 900' Radius Curve
(To be moved by Contractor)

Grid Line	Cut in ft.	
-1+00 —	0.0	
0+00 —	0.4	4000
1+00 —	1.9	19000
2+00 —	4.0	40000
3+00 —	17.8	178,000
4+00 —	25.8	258000
5+00 —	28.2	282000
6+00 —	45.2	452000
7+00 —	34.9	349000
8+00 —	42.3	423000
00 —	16.7	167000

$\frac{2,172.000}{27} = 80,500$ cu. yd.

Structure # 4

Item	Estimated Cost	Incurring 20% Engt Contg	Local Participation Contributed	Local Participation To be Contributed	Contract Items
Clearing.	531-	531-		531-	
Stripping.	4278-	4278-		4278-	
Embankment.	74998-	74998-			74,998-
Concrete.	2600-	2600-		2,600-	
Gunite.	350-	350-		350-	
C.M.P.	2264-	2264-		2264-	
Gates.	889-	889-		889-	
Labor on Str.	800-	800-		800-	
Work done by Cnt.	25,311-	25,311-	25,311-		
R.o.W.	33,750			33,750-	
Eng. exp. (Beardsley)			3,403		
Engt. Contg. 20%	22,404-				
Totals	168,175-	112,021	28,714	45,464	74,998
				28,714	
				74,178	

½ Est. Cost. = $84,087-

Local Participation = 74,187

9,900

Structures #3 & 4

Estimated Cost	$ 510,160-
Local Participation	216,863-
Contract Items	216,041-
½ Est. Cost.	255,080-
Less L.F.	216,863-
Balance due	$ 38,217-

Structure #3

Dam	316,464 Cu. yd. Fill
Dike	16,645 " " "
Spillway	263,190 " " Cut

Structure #4

Dam	161,180 cu. yd. Fill
Dike	3,110 " " Fill
Spillway (East)	5,280 " " Cut
" " (West)	18,126 " " "

Beardsley contributions

Clearing,	#3 site		$945.00
Concrete	"		4,875.00
Gunite	"		3,150.00
C.M.P.	"		5,595.00
Gates	"		2,058.00
Labor	"		1,500.00
Excavation	"		34,766.00 ~~26,075.00~~ * 44.00
Water	"	18,155,450 gal. @ 25¢ M	4,500.00
			57,389
Concrete	#4 site		2,600.00
Gunite	"		350.00
C.M.P.	"		2,264.00
Gates	"		889.00
Labor	"		800.00
Water	"	8,514,500 gal @ .25 M	2,130.00
			9,033
		66.422	64,494.00
Earthwork	, C.P.G.	322,469 c.y. @ 20¢	
		20	
		64,493.8	
			130,916

ACP -- Arizona
(Year)

Earthen Fills

(State + County Code + Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.) Yd
0+00							57.0			
0+15							119.7	176.7	15	49.1
0+29							198.0	317.7	14	82.4
0+65							178.4	376.4	36	250.9
0+71							162.9	341.3	6	37.9
0+87							131.2	294.1	16	87.1
1+00							195.3	326.5	13	78.6
+20							111.6	306.9	20	113.7
2+00							58.8	170.4	80	332.4
+82							98.1	156.9	82	238.3
3+00							101.4	199.5	18	66.5
4+00							136.0	237.4	100	439.6
5+00							184.6	320.6	100	593.7

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 2370.2 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
6+00							143.5	428.1	100	792.8
7+00							317.8	561.3	100	1039.4
+32							185.7	505.5	32	298.4
+50							166.0	351.7	18	117.2
+54							282.0	445.0	4	33.2
+58							148.6	430.6	4	31.9
+76							188.2	336.8	18	112.3
+78							314.6	502.8	2	18.6
8+00							327.7	642.3	22	261.7
9+00							362.7	690.4	100	1278.5
10+00							430.5	793.2	100	1463.9
11+00							519.0	949.5	100	1758.3
12+00							602.1	1121.1	100	2076.1

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 92573 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State : County Code : Farm Serial No.)

Name of Ranch or Farm White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
13+00							712.0	1314.1	100	2433.5
14+00							816.3	1528.3	100	2830.2
15+00							940.8	1757.1	100	3253.9
16+00							1096.2	2037.0	100	3772.2
17+00							1085.5	2181.7	100	4040.2
18+00							1026.5	2112.1	100	3911.3
19+00							1154.4	2180.9	100	4038.7
20+00							1218.9	2373.3	100	4395.0
21+00							1201.6	2420.5	100	4482.4
22+00							1187.1	2388.7	100	4423.5
23+00							1191.3	2375.4	100	4404.4
24+00							1165.5	2356.5	100	4364.4
25+00							1325.5	2491.0	100	4613.0

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 50.962.5 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code : Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	DEPTH DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
26+00							1356.1	2681.6	100	49659
27+00							1459.5	2815.6	100	5214.1
+64							1538.9	2998.4	64	3553.7
28+00							1671.4	3210.4	36	2140.3
29+00							1478.4	3149.8	100	5833.0
30+00							1405.9	2885.3	100	5341.3
31+00							1270.6	2676.5	100	4956.5
32+00							1413.4	2684.0	100	4970.4
33+00							1390.4	2803.8	100	5192.2
34+00							1229.0	2619.4	100	4850.7
35+00							1254.4	2484.4	100	4600.7
36+00							1331.9	2587.3	100	4791.3
37+00							1257.9	2589.8	100	4795.9

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 61206.0 ✓ Cu. Yds.

(5)

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code : Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
38+00							1278.5	2536.4	100	4697.0
39+00							1125.0	2403.5	100	4450.9
40+00							1229.7	2354.7	100	4360.6
41+00							1427.4	2657.1	100	4920.6
42+00							1570.7	2998.1	100	5552.0
43+00							1749.1	3319.8	100	6147.8
+50							1894.2	3643.3	50	3373.4
44+00							1748.9	3643.1	50	3373.2
45+00							1680.3	3429.2	100	6350.4
46+00							1706.6	3386.9	100	6272.0
46+20							1686.1	3392.7	20	1256.6
+30							1768.6	3454.7	10	639.8
+80							1797.6	3556.2	50	3292.8

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 54637.1 Cu. Yds.

ACP -- Arizona (Year)

Earthen Fills

(State + County Code + Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
47+00							1686.8	5474.4	20	12868
+08							1585.7	3272.5	8	4848
+28							1478.2	3065.9	20	11348
+48							1525.1	3003.3	20	11123
+90							1573.0	3098.1	42	24096
48+00							1377.2	2950.2	10	5463
+50							1187.6	2564.8	50	23748
49+00							1274.8	2462.4	50	22800
+50							1422.4	2697.2	50	24974
50+00							1549.1	2770.5	50	25653
51+00							1500.3	2848.4	100	52748
52+00							1530.7	3081.0	100	57056
53+00							1946.8	3527.5	100	65324

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 34,200.3 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code : Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
54+00							2110.6	4057.4	100	7513.7
+83							1968.4	4079.0	83	6269.6
55+00							1811.9	3780.3	17	1190.1
+33							1604.5	3416.4	33	2087.8
56+00							1941.1	3545.6	67	4399.2
+25							2191.6	4132.7	25	1913.3
57+00							2203.5	4395.1	75	6104.3
58+00							2171.5	4375.0	100	8101.9
+35							1618.0	3789.5	35	2456.7
59+00							1675.9	3293.9	65	3964.9
+50							1593.3	3269.2	50	3027.0
+77							1964.9	3558.2	27	1779.1
60+00							1834.0	3795.9	23	1613.1

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 50,425.2 Cu. Yds.

ACP -- Arizona (Year)

Earthen Fills

(State & County Code & Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT OF	HEIGHT BOTTOM	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
61+00							1911.0	3745.0	100	6935.2
62+00							1879.6	3790.6	100	7019.6
63+00							2005.1	3884.7	100	7193.9
+40							2143.6	4148.7	40	3073.1
+60							2124.9	4268.5	20	1580.9
+88							2238.6	4363.5	28	2262.6
64+00							2057.9	4296.5	12	954.8
+10							1945.5	4003.4	10	741.4
+67							1684.6	3630.1	57	3931.8
+87							1624.6	3309.2	20	1225.6
65+00							1605.2	3229.8	13	777.5
+11							1558.2	3163.4	11	643.8
+15							1564.7	3122.9	4	251.3

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 56 471.5 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State - County Code - Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
65+19							1687.8	3245.7	4	240.4
+25							1576.8	3264.3	6	362.7
+43							1615.6	3192.4	18	1064.1
+62							1678.2	3293.8	19	1158.9
66+00							1790.9	3469.1	38	2441.2
67+00							1565.6	3356.5	100	6215.7
68+00							1492.2	3057.8	100	5662.6
+35							1240.4	2732.6	35	1771.1
+67							1214.2	2454.6	32	1454.6
69+00							1131.1	2345.3	33	1433.2
+50							935.5	2066.6	50	1913.5
70+00							841.0	1776.5	50	1644.9
+45							1001.6	1842.6	45	1435.5

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 26798.4 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
71+00							960.9	1962.5	55	1998.8
72+00							880.7	1841.6	100	3410,4
73+00							734.0	1614.7	100	2990,2
74+00							626.4	1360.4	100	2519.3
75+00							508.0	1134.4	100	2100,7
76+00							371.5	879.5	100	1628.7
76+67							163.7	535.2	67	664.0

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 153121 Cu. Yds.

Grand Total 341,725.4

Structure #3

Item	Estimated Cost	Incurring 20% Eng. & cont.	Local Participation Contributed	Local Participation To be contributed	Contr. Items
Clearing	945-	945-	945-		
Stripping	7625-	7625-		7625-	
Keyway Exc.	525-	525-		525-	
Embankment	147,674-	147,674-			141,016- *
Concrete	4875-	4875-		4875-	
Gunite	3150-	3150-		3150-	
C.M.P.	5595-	5595-		5595-	
Gates	2058-	2058-		2058-	
Labor on Str.	1500-	1500-		1500-	
Diversion Channel	27300-	27300	27,300-		
Spillway Exc. (Cat.)	34,766-	34,766-		34,766-	
Work done by Cat	39,183-	39,183-	39,183-		
R.o.W.	11,750		11,750		
Eng. Exp. (Beardsley)			3,404		
Engr. & Contingencies	55,039-				
Totals	341,985-	~~275,196~~	82,582	60,094	141,016
				82,582	
				142,676	

1/2 Est. Cost = 170,993

Local Participation = 142,676

28,317

* 16,645 c.y. dike to be made by Cat. from Spillway Exc.

Fencing.

It is desirable to fence the dam and Caterpillar works Areas to prevent damage by livestock. An estimated 20 miles of fence will be needed at a cost of $23.10 per mile for materials, labor to construct $420 per mi. Total for 20 mi

= 20 ($423.20 + $420) = $16,862

Unit prices of materials (O.S. Stapley)

Wire, barbed	$8.10	spool
Steel posts, 6½'	84.06	per C.
Anchor post	4.95	ea.
Corner posts	7.00	ea.
Stays	7.85	C.

Construction costs, $420 Mi. (est)

An estimated 56,000 acres will be made unavailable for grazing by construction of fences.

At ¢ acre this would amount to

Anderson
Hill
Area

WHITE TANKS SCHEDULE -- WEEK 5/31 to 6/5 - 1954

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	TOTAL
MARTIN	Holiday	6:00 2:30 (8)	9:00 5:30 (8)	6:00 2:30 (8)	9:00 5:30 (8)	6:00 6:30 (12)	44
SCHWAB	Holiday	9:00 5:30 (8)	6:00 2:30 (8)	9:00 5:30 (8)	6:00 2:30 (8)	Off	40
CORBIN	Holiday	8:00 4:30 (8)	8:00 4:30 (8)	8:00 4:30 (8)	8:00 4:30 (8)	Off	40

Anderson
Hill
Corbin
Area 4

WHITE TANKS SCHEDULE _ Week 4/12 - 4/16 - 1954

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	HOURS
MATIN	9:00 (8) 5:30	6:00 -(8) 2:30	9:00 (8) 5:30	OFF	6:00 (8) 2:30	6:00 (12) 6:30	44
SCWAB	6:00 (8) 2:30	9:00 (8) 5:30	6:00 (8) 2:30	6:00 (8) 2:30	9:00 (8) 5:30	OFF	40
CABIN	8:00 -(8) 4:30	8:00 (8) 4:30	8:00 (8) 4:30	8:00 (8) 4:30	8:00 (8) 4:30	OFF	40

This schedule will obtain for remainder of job.

Area of base of Str. #3

(1)

			sq ft.
00-0+15	$\frac{19.8+30.8}{2} \times 15 =$	$48.6 \times 7.5 =$	364.5 ✓
0+15-0+29	$\frac{30.8+34.8}{2} \times 14 =$	$65.6 \times 7 =$	459.2 ✓
0+29+0+65	$\frac{34.8+38.7}{2} \times 36 =$	$73.7 \times 18 =$	1326.6 ✓
0+65-0+71	$\frac{38.9+40.5}{2} \times 6 =$	$79.4 \times 3 =$	238.2 ✓
0+71-0+87	$\frac{40.5+39.9}{2} \times 22 =$	$80.4 \times 11 =$	884.4 ✓
0+87-1+00	$\frac{39.9+40.6}{2} \times 13 =$	$80.5 \times 6.5 =$	523.3 ✓
1+00-1+20	$\frac{40.6+23.4}{2} \times 20 =$	$64 \times 10 =$	640.0 ✓
1+20-2+00	$\frac{23.4+25.0}{2} \times 80 =$	$48.4 \times 40 =$	1936.0 ✓
2			
2+00-2+82	$\frac{25.0+31.0}{2} \times 82 =$	$56.0 \times 41 =$	2296.0 ✓
2+82-3+00	$\frac{31.0+31.4}{2} \times 18 =$	$62.4 \times 9 =$	561.6 ✓
3+00-4+00	$\frac{31.4+36.4}{2} \times 100 =$	$67.8 \times 50 =$	3390.0 ✓
4+00-5+00	$\frac{36.4+41.8}{2} \times 100 =$	$78.2 \times 50 =$	3910.0 ✓
5+00-6+00	$\frac{41.8+47.6}{2} \times 100 =$	$89.4 \times 50 =$	4470.0 ✓
			20,999.8 ✓

			Sq. ft
7+00 - 7+32	$\frac{47.6 + 42.3}{2} \times 32$	$= 89.9 \times 16 =$	1438.4 ✓
7+32 - 7+50	$\frac{42.3 + 40.3}{2} \times 18$	$= 82.6 \times 9 =$	743.4 ✓
7+50 - 7+54	$\frac{40.3 + 51.6}{2} \times 4$	$= 91.9 \times 2 =$	183.8 ✓
7+54 - 7+58	$\frac{51.6 + 37.8}{2} \times 4$	$= 89.4 \times 2 =$	178.8 ✓
7+58 - 7+76	$\frac{37.8 + 42.6}{2} \times 18$	$= 80.4 \times 9 =$	723.6 ✓
7+76 + 7+78	$\frac{42.6 - 54.4}{2} \times 2$	$= 97 \times 1 =$	97.0 ✓
7+78 - 8+00	$\frac{54.4 + 54.9}{2} \times 22$	$= 109.3 \times 11 =$	1202.3 ✓
8+00 - 9+00	$\frac{54.9 + 58.1}{2} \times 100$	$= 113. \times 50 =$	5650.0 ✓
9+00 - 10+00	$\frac{58.1 + 63.2}{2} \times 100$	$= 121.3 \times 50 =$	6065.0 ✓
10+00 - 11+00	$\frac{63.2 + 72.0}{2} \times 100$	$= 135.2 \times 50 =$	6760.0 ✓
11+00 - 12+00	$\frac{72.0 + 74.5}{2} \times 100$	$= 146.5 \times 50 =$	7325.0 ✓
12+00 - 13+00	$\frac{74.5 + 80.7}{2} \times 100$	$= 155.2 \times 50 =$	7760.0 ✓
13+00 - 14+00	$\frac{80.7 + 86.6}{2} \times 100$	$= 167.3 \times 50 =$	8365.0
			46,492.3 ✓

		sq.ft.
14+00 - 15+00	$\frac{86.6 + 93.1}{2} \times 100 = 179.7 \times 50 =$	8985.0 ✓
15+00 - 16+08	$\frac{93.1 + 99.3}{2} \times 100 = 192.4 \times 50 =$	9620.0 ✓
16+00 - 17+00	$\frac{99.3 + 99.1}{2} \times 100 = 198.4 \times 50 =$	9920.0 ✓
17+00 - 18+00	$\frac{99.1 + 96.1}{2} \times 100 = 195.2 \times 50 =$	9760.0 ✓
18+00 - 19+00	$\frac{96.1 + 102.3}{2} \times 100 = 198.4 \times 50 =$	9920.0 ✓
	Sellement of base 4-1-54	
19+00 - 20+00	$\frac{103.2 + 104.4}{2} \times 100 = 207.6 \times 50 =$	10380.0 ✓
20+00 - 21+00	$\frac{104.4 + 104.8}{2} \times 100 = 209.2 \times 50 =$	10460.0 ✓
21+00 - 22+00	$\frac{104.8 + 104.7}{2} \times 100 = 209.5 \times 50 =$	10475.0 ✓
22+00 - 23+00	$\frac{104.7 + 104.5}{2} \times 100 = 209.2 \times 50 =$	10460.0 ✓
23+00 - 24+00	$\frac{104.5 + 100.7}{2} \times 100 = 205.2 \times 50 =$	10260.0 ✓
24+00 - 25+00	$\frac{100.7 + 110.5}{2} \times 100 = 211.2 \times 50 =$	10560.0 ✓
25+00 - 26+00	$\frac{110.5 + 110.3}{2} \times 100 = 220.8 \times 50 =$	11040.0 ✓
26+00 - 27+00	$\frac{110.3 + 115.5}{2} \times 100 = 225.8 \times 50 =$	11290.0 ✓
		133,130.0 ✓

=sq. ft.

27+00 - 27+64 — $\frac{115.5 + 118.2}{2} \times 64 = 233.7 \times 32 =$ 7478.4

27+64 - 28+00 — $\frac{118.2 + 121.4}{2} \times 36 = 239.6 \times 18 =$ 4312.8

28+00 - 29+00 — $\frac{121.4 + 116.9}{2} \times 100 = 238.3 \times 50 =$ 11915.0

29+00 - 30+00 — $\frac{116.9 + 110.9}{2} \times 100 = 227.8 \times 50 =$ 11390.0

30+00 - 31+00 — $\frac{110.9 + 106.8}{2} \times 100 = 217.7 \times 50 =$ 10885.0

31+00 - 32+00 — $\frac{106.8 + 113.9}{2} \times 100 = 220.7 \times 50 =$ 11035.0

32+00 - 33+00 — $\frac{113.9 + 112.5}{2} \times 100 = 226.4 \times 50 =$ 11320.0

33+00 - 34+00 — $\frac{112.5 + 105.4}{2} \times 100 = 217.9 \times 50 =$ 10895.0

34+00 - 35+00 — $\frac{105.4 + 107.6}{2} \times 100 = 213.0 \times 50 =$ 10650.0

35+00 - 36+00 — $\frac{107.6 + 110.3}{2} \times 100 = 217.9 \times 50 =$ 10895.0

36+00 - 37+00 — $\frac{110.3 + 107.0}{2} \times 100 = 217.3 \times 50 =$ 10865.0

37+00 - 38+00 — $\frac{107.0 + 109.3}{2} \times 100 = 216.3 \times 50 =$ 10815.0

38+00 - 39+00 — $\frac{109.3 + 101.9}{2} \times 100 = 211.2 \times 50 =$ 10560.0

133,016.2

			Sq. Ft.
39+00 - 40+00	$\frac{101.9 + 106.5}{2}$	x 100 = 209.2 x 50 =	10460.0 ✓
40+00 - 41+00	$\frac{106.3 + 115.3}{2}$	x 100 = 221.6 x 50 =	11080.0 ✓
41+00 - 42+00	$\frac{115.3 + 119.6}{2}$	x 100 = 234.9 x 50 =	11745.0 ✓
42+00 - 43+00	$\frac{119.6 + 127.3}{2}$	x 100 = 246.9 x 50 =	12345.0 ✓
43+00 - 43+50	$\frac{127.3 + 131.0}{2}$	x 100 = 258.3 x 50 =	12915.0 ✓
43+50 - 44+00	$\frac{131.0 + 126.1}{2}$	x 100 = 257.1 x 50 =	12855.0 ✓
44+00 - 45+00	$\frac{126.1 + 124.2}{2}$	x 100 = 250.3 x 50 =	12515.0 ✓
45+00 - 46+00	$\frac{124.2 + 124.1}{2}$	x 100 = 248.3 x 50 =	12415.0 ✓
46+00 - 46+20	$\frac{124.1 + 124.1}{2}$	x 20 = 248.3 x 10 =	2483.0
46+20 - 46+30	$\frac{124.1 + 127.1}{2}$	x 10 = 251.2 x 5 =	1256.0 ✓
46+30 - 46+80	$\frac{127.1 + 126.8}{2}$	x 50 = 253.9 x 25 =	6347.5 ✓
46+80 - 47+00	$\frac{126.8 + 125.9}{2}$	x 20 = 252.7 x 10 =	2527.0 ✓
47+00 - 47+0.8	$\frac{125.9 + 125.5}{2}$	x 8 = 251.4 x 4 =	1005.6 ✓
			109,949.1

			sq. ft.
47+08 - 47+28	$\frac{125.5 + 121.6}{2}$ x 20	= 247.1 x 10 =	2471.0 ✓
47+28 - 47+48	$\frac{121.6 + 112.5}{2}$ x 20	= 234.1 x 10 =	2431.0 ✓
47+48 - 47+90	$\frac{112.5 + 116.8}{2}$ x 42	= 229.3 x 21 =	4815.3 ✓
47+90 - 48+00	$\frac{116.8 + 110.6}{2}$ x 10	= 227.4 x 5 =	1137.0 ✓
48+00 - 48+50	$\frac{110.6 + 106.9}{2}$ x 50	= 217.5 x 25 =	5437.5 ✓
48+50 - 49+00	$\frac{106.9 + 109.7}{2}$ x 50	= 216.6 x 25 =	5415.0 ✓
49+00 - 49+50	$\frac{109.7 + 113.8}{2}$ 50	= 223.5 x 25 =	5587.5 ✓
49+50 - 50+00	$\frac{113.8 + 111.5}{2}$ x 50	= 225.3 x 25 =	5632.5 ✓
50+00 - 51+00	$\frac{111.5 + 117.4}{2}$ x 100	= 228.9 x 50 =	11445.0 ✓
51+00 - 52+00	$\frac{117.4 + 118.8}{2}$ x 100	= 236.2 x 50 =	11810.0 ✓
52+00 - 53+00	$\frac{118.8 + 132.1}{2}$ x 100	= 250.9 x 50 =	12545.0 ✓
53+00 - 54+00	$\frac{132.1 + 138.4}{2}$ x 100	= 270.5 x 50 =	13525.0 ✓
54+00 - 54+83	$\frac{138.4 + 132.8}{2}$ x 83	= 271.2 x 41.5 =	11254.8 ✓
			93,506.6 ✓

			sq. ft.
54+83 - 55+00	$\frac{132.8+128.6}{2}$ x 17 =	261.4 x 8.5 =	2221.9 ✓
55+00 - 55+33	$\frac{128.6+120.0}{2}$ x 33 =	248.6 x 16.5 =	4101.9 ✓
55+33 - 56+00	$\frac{120.0+130.8}{2}$ x 67 =	250.8 x 33.5 =	8401.8 ✓
56+00 - 56+25	$\frac{130.8+140.2}{2}$ x 25 =	271.0 x 12.5 =	3387.5 ✓
56+25 - 57+00	$\frac{140.2+141.7}{2}$ x 75 =	281.9 x 37.5 =	10571.2 ✓
57+00 - 58+00	$\frac{141.7+140.8}{2}$ x 100 =	282.5 x 50 =	14125.0 ✓
58+00 - 58+35	$\frac{140.8+125.9}{2}$ x 35 =	264.7 x 17.5 =	4667.3 ✓
58+35 - 59+00	$\frac{125.9+129.4}{2}$ x 65 =	255.3 x 32.5	8297.2 ✓
59+00 - 59+50	$\frac{129.4+123.5}{2}$ x 50 =	252.9 x 25 =	6322.5 ✓
59+50 - 59+77	$\frac{123.5+132.9}{2}$ x 27 =	256.1 x 13.5 =	3457.4 ✓
59+77 - 60+00	$\frac{132.6+122.9}{2}$ x 23 =	255.5 x 11.5 =	2938.2 ✓
60+00 - 61+00	$\frac{122.9+132.3}{2}$ x 100 =	255.2 x 50 =	12760.0 ✓
61+00 - 62+00	$\frac{132.3+130.4}{2}$ x 100 =	262.7 x 50 =	13135.0 ✓
			94,386.9 ✓✓

			sq.ft.
62+00-63+00 -	$\frac{130.4 + 132.0}{2} \times 100$	= 262.4 x 50 =	13120.0 ✓
63+00-63+40 -	$\frac{132.0 + 138.0}{2} \times 40$	= 270.0 x 20 =	5400.0 ✓
63+40-63+60 -	$\frac{138.0 + 141.5}{2} \times 20$	= 279.5 x 10 =	2795.0 ✓
63+60-63+88 -	$\frac{141.5 + 129.0}{2} \times 28$	= 270.5 x 14 =	3787.0 ✓
63+88-64+00 -	$\frac{129.0 + 130.5}{2} \times 12$	= 259.5 x 6 =	1557.0 ✓
64+00-64+10 -	$\frac{130.5 + 129.6}{2} \times 10$	= 260.1 x 5 =	1300.5 ✓
64+10-64+67 -	$\frac{129.6 + 120.5}{2} \times 57$	= 250.1 x 28.5 =	7127.9 ✓ ~~4277.9~~
64+67-64+87 -	$\frac{120.5 + 126.6}{2} \times 20$	= 247.1 x 10 =	2471.0 ✓
64+87-65+00 -	$\frac{126.6 + 123.2}{2} \times 13$	= 249.8 x 6.5 =	1623.7 ✓
65+00-65+11 -	$\frac{123.2 + 121.0}{2} \times 11$	= 243.2 x 5.5 =	1337.6 ✓
65+11-65+15 -	$\frac{121.0 + 124.0}{2} \times 4$	= 245.0 x 2 =	490.0 ✓
65+15-65+19 -	$\frac{124.0 + 122.1}{2} \times 4$	= 246.1 x 2 =	492.2 ✓
65+19-65+25 -	$\frac{122.1 + 124.9}{2} \times 6$	= 247.0 x 3 =	741.0 ✓
			42,242.9 ✓
			[illegible]

			sq. ft.
65+25 - 65+43	$\frac{124.9 + 122.3}{2} \times 18$	$247.2 \times 9 =$	2224.8 ✓
65+43 - 65+62	$\frac{122.3 + 123.7}{2} \times 19 =$	$246.0 \times 9.5 =$	2337.0 ✓
65+62 - 66+00	$\frac{123.7 + 119.6}{2} \times 38 =$	$243.1 \times 19 =$	4618.9 ✓
66+00 - 67+00	$\frac{119.6 + 114.7}{2} \times 100 =$	$234.3 \times 50 =$	11715.0 ✓
67+00 - 68+00	$\frac{114.7 + 117.0}{2} \times 100 =$	231.7×50	11585.0 ✓
68+00 - 68+35	$\frac{117.0 + 105.1}{2} \times 35 =$	$222.1 \times 17.5 =$	3886.7 ✓
68+35 - 68+67	$\frac{105.1 + 99.5}{2} \times 32 =$	$204.6 \times 16 =$	3273.6 ✓
68+67 - 69+00	$\frac{99.5 + 99.9}{2} \times 33 =$	$199.4 \times 16.5 =$	3290.1 ✓
69+00 - 69+50	$\frac{99.9 + 93.4}{2} \times 50 =$	$193.3 \times 25 =$	4832.5 ✓
69+50 - 70+00	$\frac{93.4 + 90.7}{2} \times 50 =$	$184.1 \times 25 =$	4602.5 ✓
70+00 - 70+45	$\frac{90.7 + 94.3}{4} \times 45 =$	$185.0 \times 22.5 =$	4162.5 ✓
70+45 - 71+00	$\frac{94.3 + 93.3}{2} \times 55 =$	$187.6 \times 27.5 =$	5159.0 ✓
71+00 - 72+00	$\frac{93.3 + 88.9}{2} \times 100$	$182.2 \times 50 =$	9110.0 ✓
			70,797.6 ✓

			sq. ft.
72+00 - 73+00	$\frac{88.9 + 79.6}{2}$ x 100	= 168.5 x 50 =	8425.0 ✓
73+00 - 74+00	$\frac{79.6 + 77.2}{2}$ x 100	= 156.8 x 50 =	7840.0 ✓
74+00 - 75+00	$\frac{77.2 + 69.5}{2}$ x 100	= 146.7 x 50 =	7335.0 ✓
75+00 - 76+00	$\frac{69.5 + 59.8}{2}$ x 100	= 129.3 x 50 =	6465.0 ✓
76+00 - 76+67	$\frac{59.8 + 43.0}{2}$ x 67	= 102.8 x 33.5 =	3443.8 ✓
			33,508.8 ✓

Grand Total 778 030.2 sq. ft.

Base of str. #3

#3

Base Area & Volume.

Total area 778,030 sq. ft.

Three [illegible] at three different locations [illegible] after compaction base [illegible] average settlement of 0.2 ft.

$\frac{778,030 \times .2}{27} = 5763$ cu. yds.

4-1-54 Est. 2453 cu yds

For 5-1-54 Est.

$\left(\frac{\text{Area [illegible] sta. } 7+78 \text{ to Sta. } 76+67 \times .2}{27}\right) - 2453$

$= \left(\frac{743665.4 \times .2}{27}\right) - 2453 = 5510 - 2453 = 3057$ c.y.

Area Soft.

[illegible] — [illegible] × 100 = 3590

[illegible] — [illegible] = 79.4 / .02 = 3970

2+00 - 3+00 — 41.4 + 46.0 / .02 = 87.4 / .02 = 4370

3+00 - 4+00 — 46.0 + 50.0 / .02 = 96.0 / .02 = 4800

[illegible] — 50.0 + 48.0 / .02 = 98 / .02 = 4900

[illegible] — 48.0 + 56.2 / .02 = 104.2 / .02 = 5210

6+00 - 7+00 — 56.2 + 59.0 / .02 = 115.2 / .02 = 5760

7+00 - 8+00 — 59.0 + 61.4 / .02 = 120.4 / .02 = 6020

8+00 - 9+00 — 61.4 + 65.0 / .02 = 126.4 / .02 = 6320

9+00 - 10+00 — 65.0 + 66.6 / .02 = 131.6 / .02 = 6580

PAGE TOTAL 51,520 ✓

Area of Base

Str. # 4 Area Sq. Ft.

(2)

Sta.				
10+00 - 11+00	$\frac{66.6 + 69.4}{.02}$	$\frac{136.0}{.02}$	=	6800
11+00 - 12+00	$\frac{69.4 + 73.2}{.02}$	$\frac{142.6}{.02}$	=	7130
12+00 - 13+00	$\frac{73.2 + 73.6}{.02}$	$\frac{146.8}{.02}$	=	7340
13+00 - 14+00	$\frac{73.6 + 72.4}{.02}$	$\frac{146.0}{.02}$	=	7300
14+00 - 15+00	$\frac{72.4 + 76.2}{.02}$	$\frac{148.6}{.02}$	=	7430
15+00 - 16+00	$\frac{76.2 + 78.6}{.02}$	$\frac{154.8}{.02}$	=	7740
16+00 - 17+00	$\frac{78.6 + 82.4}{.02}$	$\frac{161.0}{.02}$	=	8050
17+00 - 18+00	$\frac{82.4 + 85.8}{.02}$	$\frac{168.2}{.02}$	=	8410
18+00 - 19+00	$\frac{85.8 + 89.8}{.02}$	$\frac{175.6}{.02}$	=	8780

PAGE TOTAL 68,980

	Area of Base Sq. Ft.	Area Sq. Ft.
19+56 - 19+56	$\frac{121 + 97.2}{2} \times 56 = \frac{179.0}{2} \times 56 =$	5012
19+56 - 20+00	$\frac{112 + 128.2}{2} \times 44 = 126.9 \times 22 =$	3891.8
20+00 - 21+00	$\frac{120 + 85.4}{2} = \frac{121.1}{2} =$	8555
21+00 - 22+00	$\frac{85.4 + 84.2}{2} = \frac{169.4}{2} =$	8520
22+00 - 23+00	$\frac{84.2 + 85.4}{2} = \frac{169.4}{2} =$	8620
23+00 - 24+00	$\frac{85.4 + 92.2}{2} = \frac{177.6}{2} =$	8850
24+00 - 25+00	$\frac{92.2 + 71.0}{2} = \frac{153.2}{2} =$	7910
25+00 - 26+00	$\frac{71.0 + 84.9}{2} = \frac{179.2}{2} =$	8960
26+00 - 27+00	$\frac{84.9 + 83.4}{2} = \frac{168.3}{2} =$	8415

PAGE TOTAL 70,328.8 C.Y.

Area of Base

Sq. #4

				Area Sq. Ft.
[illegible]	[illegible] + [illegible] / [illegible]	= 172.4 / .02	=	8620
28400 - [illegible]	[illegible] 172.4 / [illegible]	= [illegible]	=	8770
[illegible]	[illegible] + [illegible] / [illegible]	= 175.2 / .02	=	8[illegible]
[illegible]	[illegible]	[illegible] / .02	=	8700
[illegible] - [illegible]	[illegible] + [illegible]	172.2 / .02	=	8610
[illegible]	[illegible] + [illegible]	[illegible] / .02	=	8430
[illegible]400 - 34400	[illegible]	= 163.0 / .02	=	8150
34400 - 35400	80.2 + [illegible] / .02	= 157.8 / .02	=	7840
35400 - 36400	[illegible] + 76.6 / .02	= 154.2 / .02	=	7710

PAGE TOTAL 75,880 ✓✓

Area of Bro[illegible]

[illegible] = 4

				Area SQ FT.
[illegible]	[illegible] + [illegible] / .02	= 154.4 / .02		7720
[illegible]	[illegible]	= 155.2 / .02	=	7760
38+00 - 39+00	[illegible] + [illegible]	= 159.2 / .02	=	7960
[illegible]	[illegible] / .02	= 160.8 / .02	=	8040
[illegible] + 41+00	[illegible] + [illegible] / .02	= 158.0 / .02	=	7900
41+00 - 42+00	[illegible] + 77.8 / .02	= 156.8 / .02	=	7840
42+00 - [illegible]	[illegible] + 77.6 / .02	= 155.4 / .02	=	7770
43+00 - 44+00	[illegible] + 79.0 / .02	= 156.6 / .02	=	7830
44+00 - 44+00	[illegible] + 78.2 / .02	= 157.2 / .02	=	7860

PAGE TOTAL 70,680 ✓ ✓

a.	Area of Base Str. # 4			Area SQ FT
45+00 - 46+00	$\frac{78.2 + 78.8}{.02}$	$\frac{157.0}{.02}$	=	7850
46+00 - 47+00	[illegible]	$\frac{153.0}{.02}$	=	7750
47+00 - 48+00	[illegible]	$\frac{151.6}{.02}$	=	7580
48+00 - 49+00	$\frac{75.4 + 74.0}{.02}$	$\frac{149.4}{.02}$	=	7470
49+00 - 50+00	$\frac{74.0 + 74.0}{.02}$	$\frac{148.0}{.02}$	=	7400
50+00 - 51+00	$\frac{[illegible] + 73.2}{.02}$	$\frac{147.2}{.02}$	=	7360
51+00 - 52+00	$\frac{75.2 + 72.6}{.02}$	$\frac{143.8}{.02}$	=	7190
52+00 - 53+00	$\frac{[illegible] + 70.2}{.02}$	$\frac{140.8}{.02}$	=	7040
53+00 - 54+00	$\frac{70.2 + 68.6}{.02}$	$\frac{138.8}{.02}$	=	6940

PAGE TOTAL 66,580 ✓ ✓

Area of Base

(2)

				Area Sq. Ft.
[illegible]	[illegible] + 68.2	= 136.8 / .02	=	6840
[illegible]	[illegible] + [illegible]	= 135.4 / .02	=	6770
56+00 [illegible]	[illegible] + 63.8 / .02	= 131.0 / .02	=	6550
[illegible]	[illegible] + 61.8 / .02	125.6 / .02	=	6280
[illegible]	[illegible] + 62.6	124.4 x 42		5224.8
58+84 – 59+00	62.6 + 62.6 / 2 x 16	125.2 x 8		1001.6
59+00 – 60+00	62.6 + 59.6 / .02	= 122.2 / .02	=	6110
60+00 – 61+00	59.6 + 56.0 / .02	= 115.6 / .02	=	5780
61+00 – 62+00	56.0 + 51.0 / .02	= 107.0 / .02	=	5350

PAGE TOTAL = 49,906.4 x

[illegible] Area

[illegible]	[illegible]		Area SQ Ft.
[illegible]	$\frac{51.0 + [illegible]}{[illegible]} = \frac{100.2}{02}$	=	5010
63+00 - 64+00	$\frac{49.2 + 46.2}{02} = \frac{93.4}{02}$	=	4770
64+00 - [illegible]	$\frac{46.2 + 44.0}{02} = \frac{90.2}{02}$	=	4510
65+00 - 66+00	$\frac{44.0 + 41.6}{02} = \frac{85.6}{02}$	=	4280
[illegible] - 67+00	$\frac{41.6 + 39.9}{02} = \frac{81.0}{02}$	=	4050
67+00 - 68+00	$\frac{39.4 + 36.8}{02} = \frac{76.2}{02}$	=	3810
68+00 - 68+39	$\frac{36.8 + 34.6}{2} \times 39 = \frac{71.4 \times 39}{2} = \frac{2784.6}{2}$	=	1392.3

PAGE TOTAL 27,822.3

GRAND TOTAL 481,747.5 ✓ SQ FT.

For .1' settlement, Vol. = 1,784 c.y.
.2' " , " = 3,568 "

Anderson District Area Station (Section)

Computations for

Item	No 3 Quan	Unit	Cost	No 4 Quan	Unit	Cost	Quan
Clearing - Ac	63.	15 00	945 00	36.	15 00	540.	
Stripping & Exc. - C.Y.	50831.	.15	7624 65	28815	0.15	4277 70	
Fill c.i.p. (less water) C.Y.	346464	* .388	134254.60	170290	* .388	65987 00	
Water M.gal	17323	.25	4331.	8515.	.25	2129 00	
Retaining Dyke C.Y	16645	.20	3329.00				
Concrete C.Y	28.	65.00	1820 00	9.	65 00	585 00	
Gunite S. ft	5220	.35	1827.00	1380	.35	483.00	
36" MP Lin ft.	321 1/2		5980.	189 1/2		2512.00	
Gates ea	3		2058.	2		889 00	
Labor			1500			800.00	
Spill exc c.y.	173832	.20	34766 40				
Diversion Channel exc.		.15	27300.00				
Fences already under Const on Proving Ground							
R/W & easements							
Engineering 12% of Contract							
							Job Total 50 %

Embankment Quantities include replacement of Stripping & Keyway ex
" " do not include 16645. cy dyke to be constructed by
" Costs based on 40¢ per C.Y. / C.I.F. less water

ion Requirements

	Government Share		Local Participation		Computations for Economic Justification
ost					Cost Totals
1485 00		—	1485 00		1485
11902 35		—	11902 35		11902.35
0 241 60	(Contract)	200241 60			200241 60
6460 00		—	6460 00		6460
3329 00		—	3329.00		3329
2405 00		—	2405.00		2405
2310 00		—	2310 00		2310
8492 00		—	8492 00		8492
2947 00		—	2947.00		2947
2300 00		—	2300.00		2300
4766 40		—	34766 40		34766 40
7300 00		—	27300.00		27300
2494.		—	2494.00		64494.00
500		—	45500		45500
1029 00		1402900	{(Preliminary) Inspection & layout} 6807 3193		35% of Contract 70084.56
					(Est. only) Instrumentation 5000.
1961 35	Govt Share	21429060	Total Participation required	6907.	Total Cost 48901691
1980 67	May @ 50%	21898067	@ 50%	78067	

Annual Cost

Maint @ 2% of Contract 4004.
3½ % of Total cost 17115.

Total Annual Cost : 21120.
** Annual Benefits 28600.

Cost / Benefit Ratio : 1:35 /

** Report from Near Lake

version. This item not included in contract unit quantities of 7000.
@ 50 gal/cy @ $.25/Mgal. Water not required on wtg. site 1664 cy.

Structure #3

Item	Est. Cost	Incurring 20% Eng.	Local Participation Contributed	Local Participation To be contributed	Contract Items
Clearing	945.00	945.00	945 —		
Stripping	7625.00	7625 —		7625 —	
Keyway Exc.	525.00	525 —		525 —	
Embankment	147,674 —	147,674 —			141,016 — *
Concrete	4875 —	4875 —		4875 —	
Gunite	3150 —	3150 —		3150 —	
C.M.P.	5595 —	5595 —		5595 —	
Gates	2058 —	2058 —		2058 —	
Labor on structures	1500 —	1500 —		1500 —	
Water	4559 —			4559 —	
Channel to #3	27300 —	27300 —	27300 —		
Spillway Exc (by Cat)	34766 —	34766 —		34766 —	
Structure #4					
Clearing	531 —	531 —		531 —	
Stripping	4278 —	4278 —		4278 —	
Embankment	74998 —	74998 —			74998 —
Concrete	2600 —	2600 —		2600 —	
Gunite	350 —	350 —		350 —	
C.M.P.	2264 —	2264 —		2264 —	
Gates	889 —	889 —		889 —	
Labor	800 —	800 —		800 —	
Water	2129 —			2129 —	
Work done by Cat.	64494 —	64494 —	64494 —		
Right of Way	45,500 —		45,500 —		
½ Eng. expense (Bondsley)			6,807 —		
Eng & Contingencies (20%) 387,232	77,446				
	516,851 —	387,232	145,046 —	78494 —	216,014 —

* Dyke @ 1664 J Cat [illegible] by Caterpillar

Facing

Str. #3.

Facing material, caliche & coarse gravel, required for both slopes of #3 dam amounts in volume to 107,482 cu. yd. The total estimated yardage is 346,464 cu. yd.
Percentage of total which facing = $\frac{107,482}{346,464} \times 100 = 31\%$

Facing material is available approximately ¼ mi., 1320 ft west of west end of dam. Average haul will be $\frac{1004.0 + 1320}{2} = 5680$ ft. ±

Core material for this structure will amount to 346,464 - 107,482 = 238,982 c.y. This material is available at the upstream toe of the dam for the entire length of the structure

Crest El. 1216 ft. Facing, Str #3

I-48

COMPUTATION SHEET
~~Earthen Fills~~

ACP -- Arizona
(Year)

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Ht. dam ~~TOP WIDTH~~	Ht. x 2.0 BOTTOM WIDTH	~~AVERAGE WIDTH~~	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END - 11 AREA	SUM OF END AREAS	½ LENGTH of SECTION	VOLUME (CU. FT.)
0+00	0	0								
+24	9.2	184.0					173	173	12	2076
+69	9.7	194.0					183	356	22.5	8010
+80	3.9	78.0					67	250	5.5	1375
1+00	9.2	184.0					173	240	10.0	2400
+22	3.7	74.0					63	236	11.0	2596
2+00	1.4	28.0					17	80	39.0	3120
+85	1.2	24.0					13	30	42.5	1275
3+00	3.7	74.0					63	76	7.5	570
4+00	5.2	104.0					93	156	50.0	7800
5+00	[illegible]	[illegible]					117	210	50.0	10500
6+00	[illegible]	[illegible]					135	252	[illegible]	12600
[illegible]	[illegible]	[illegible]					185	320		16000

Computed by G.M.C. Date 10-22-53 Total Vol. 68,322 Cu. Ft.

Checked by Date Total Vol. 2,530 Cu. Yds.

Facing, [illegible] #3

COMPUTATION SHEET

~~Earthen Fills~~

ACP -- Arizona

(Year)

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Ht. dam ~~TOP WIDTH~~	Ht. x 200 BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END - 11 AREA	SUM OF END AREAS	½ LENGTH of SECTION	VOLUME (CU. FT.)
7+50	6.7	134.0					123	308	25	7,700
7+55	8.1	162.0					151	274	2.5	685
7+60	5.4	108.0					97	248	2.5	620
7+82	8.1	162.0					151	248	11.0	2728
8+00	9.5	190.0					179	330	9.0	2,970
9+00	10.2	204.0					193	372	50	18,600
10+00	10.8	216.0					205	398	50	19,900
11+00	12.1	242.0					231	436	50	21,800
[illegible]	13.0	[illegible]					249	480	[illegible]	24,000
[illegible]	14.0	[illegible]					269	518	[illegible]	25,900
[illegible]	[illegible]	326.0					315	584	[illegible]	29,200
[illegible]	[illegible]	[illegible]					337	652	[illegible]	32,600
[illegible]							357	694		34,700

Computed by G. [illegible] C. Date 10-22-53 Total Vol. 221,403 Cu. Ft.

Checked by Date Total Vol. 8,200 Cu. Yds.

Facing, S. #3

COMPUTATION SHEET

~~Earthen Fills~~

ACP -- Arizona

(Year)

(State - County Code - Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END - 11 AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
17+00	19.0	376.0					365	722	50	36,100
18+00	19.2	384.0					373	738	50	36,900
19+00	20.1	402.0					391	764	50	38,200
20+00	20.6	412.0					401	792	50	39,600
21+00	20.5	410.0					399	800	50	40,000
22+00	20.4	408.0					397	796	50	39,800
23+00	20.6	412.0					401	798	50	39,900
24+00	21.0	420.0					409	810	50	40,500
25+00	21.5	429.0					419	828	50	41,400
26+00	22.4	448.0					437	856	50	42,800
27+00	23.0	458.0					447	884	50	44,200
28+00	24.0	478.0					469	916	50	45,800
29+00							451	920		46,000

Computed by G. M. C. Date 11-22-55 Total Vol. 531200 Cu. Ft.

Checked by Date Total Vol. 19674 Cu. Yds.

Facing

COMPUTATION SHEET
~~Earthen Fills~~

ACP -- Arizona
(Year)

(State - County Code - Farm Serial No.)

~~Name of Ranch or Farm~~ Str. #3 Location Sec. T. R.

STATION	~~TOP~~ WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END – 11 AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
30+00	22.6	452.0					441	892	50	44,600
31+00	21.2	426.0					415	856	50	42,800
32+00	22.9	459.0					447	862	50	43,100
33+00	23.6	472.0					441	888	50	44,400
34+00	21.0	421.0					409	850	50	42,500
35+00	21.1	423.0					411	820	50	41,000
36+00	21.5	431.0					415	826	50	41,300
37+00	21.3	427.0					413	828	50	41,400
38+00	21.2	425.0					405	818	50	40,900
39+00	19.7	394.0					385	790	50	39,500
40+00	21.3	427.0					427	842	50	40,600
41+00	22.1	443.0					443	870	50	43,500
41+50	23.4	469.0					469	912	50	45,600

Computed by J. V. C. Date 10-22-53 Total Vol. 551,200 Cu. Ft.

Checked by Date Total Vol. 20,415 Cu. Yds.

Facility

COMPUTATION SHEET

~~Earthen Fills~~

ACP -- Arizona

(Year)

(State - County Code - Farm Serial No.)

~~Name of Ranch or Farm~~ Str. #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END -// AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
43+00	25.5	50.0					489	958	50	47,900
43+50	26.5	52.0					509	998	25	24,950
44+00	24.7	48.2					483	992	25	24,800
45+00	24.7	47.6					483	966	50	48,300
46+00	25.1	50.8					491	974	50	48,700
46+50	25.5	51.4					499	990	25	24,750
47+00	23.3	46.8					455	954	25	23,850
48+00	23.1	45.8					451	906	50	45,300
49+00	20.4	41.2					399	850	50	42,500
50+00	21.8	44.0					427	826	50	41,300
51+00	22.9	45.9					447	874	50	43,700
51+50	25.5	51.3					497	944	50	47,200
52+00	26.2	52.8					515	1012	50	50,600

Computed by E. M. C. Date 10-23-53 Total Vol. 513,850 Cu. Ft.

Checked by Date Total Vol. 19,031 Cu. Yds.

Focusing.

ACP -- Arizona
(Year)

COMPUTATION SHEET
~~Earthen Fills~~

(State - County Code - Farm Serial No.)

~~Name of Ranch or Farm~~ Str. #3 Location Sec. T. R.

STATION	~~TOP~~ WIDTH	~~BOTTOM~~ WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END -// AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
54+50	27	546.0					555	1070	50	53,500
54+50	25.7	544.0					553	1108	25	27,700
55+00	25.3	506.0					495	1048	25	26,200
55+30	24.6	497.0					481	976	15	14,640
56+00	27.7	515.0					543	1024	35	35,840
57+00	29.9	576.0					565	1108	50	55,400
58+00	29.3	546.0					555	1120	50	56,000
59+00	24.7	490.0					479	1034	50	51,700
60+00	29.[illegible]	574.0					565	1044	50	52,200
61+00	27.1	502.0					531	1096	50	54,800
62+00	2[illegible]	[illegible]					521	1052	[illegible]	52600
63+00	25.[illegible]	[illegible]					501	1022	50	51,100
63+50	[illegible]	[illegible]					562	1074	[illegible]	42,960

Computed by [illegible] Date 10-22-52 Total Vol. 574640 Cu. Ft.

Checked by Date Total Vol. 21,283 Cu. Yds.

Facing.

COMPUTATION SHEET

~~Earthen Fills~~

(7) of 8

ACP -- Arizona

(Year)

(State - County Code - Farm Serial No.)

~~Name of Ranch or Farm~~ Str. #3 Location Sec. T. R.

STATION	~~TOP WIDTH~~	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
64+00	25.7	514.0					503	1066	10	10,660
65+00	23.8	460.0	-				449	952	50	47,600
65+17	25.7	514.0					503	952	8.5	8,092
65+34	22.9	456.0					445	948	8.5	8,058
65+50	24.9	[illegible]					487	932	8.0	7,456
66+00	26.7	534.0					523	1010	2.5	2,525
67+00	[illegible]	[illegible]					469	992	50	49,600
68+00	[illegible]	[illegible]					449	918	[illegible]	45,900
69+00	[illegible]	[illegible]					407	856	[illegible]	42,800
[illegible]	[illegible]	[illegible]					319	726	[illegible]	36,300
[illegible]	[illegible]	[illegible]					353	672	[illegible]	33,600
[illegible]	[illegible]	[illegible]					297	650	[illegible]	32,500
[illegible]	[illegible]	[illegible]					301	598	[illegible]	29,900

Computed by G.M.C. Date 10-22-53 Total Vol. 356,001 Cu. Ft.

Checked by Date Total Vol. 13,148 Cu. Yds.

Facing

COMPUTATION SHEET
~~Earthen Fills~~

(8) of 8

ACP -- Arizona
(Year)

(State - County Code - Farm Serial No.)

~~Name of Ranch or Farm~~ Str #3 Location Sec. T. R.

STATION	~~TOP~~ WIDTH	~~BOTTOM~~ WIDTH	~~DEPTH~~ WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END — AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
74+00	13.7	274.0					263	564	50	28,200
75+00	13.2	264.0					253	516	50	25,800
76+00	10.2	204.0					193	446	50	22,300
76+67	6.0	121.0					109	302	33.5	10,117

Computed by G.M.C. Date 10-22-53 Total Vol. 86417 Cu. Ft.

Checked by Date Total Vol. 3201 Cu. Yds.

107,482 cu. yd.

Maricopa County Municipal Water Conservation Dist. #1
Expenditures on White Tanks Flood Control Project
10/2/53

Year	Labor	Payroll Insurance	~~Materials~~ Engineering ~~Surveys~~	Equipment Operation	~~Engineering~~ Supervision	Attorney Fees	Total
1951-52	23254	18448	39654*	98518	14795	200000	$ 108772
1952-53	49409	2302	9230	3860	20000		120001
July + Aug 53	21958	773	75400	30000	25626		153757
Total	303121	21523	476184	167078	193581	200000	$ 136487

Land Purchased for R/W

Description	No of Acres	Cost
S½ NW¼ Sec 26 4N-2W	80	200000
N½ NW¼ Sec 26 4N-2W		
S½ NE¼ + SE¼ NW¼ + E½ SW¼ Sec 27 4N	186	280000
SE¼ Sec 27 4N-2W	160 00	320000
Portion of Sec 13-4N-2W	28815	865440
Part of Sec 24 4N-2W	} 56	112000
Part of Sec 26 4N-2W		
Part of SE¼ Sec 23 4-2	31	234500
+ Easement on 252 Ac		
E½ Sec 4 - 3N 2W	32216	4027000
NW¼ Sec 16 - 2N 2W	15047	1880875*
W½ Sec 9 - 2N 2W	320 00	1000000 } 5
Purchase of Grazing Lease on W½ Sec 4 - 2-2		75000 }
		$ 899485

100.00

10/2/53
HR.

LOCAL PARTICIPATION —

#3

CLEARING -	945.00
CONCRETE	4,875.00
GUNITE	3,150.00
C.M.P.	5,595.00
GATES	2,058.00
LABOR	1,500.00
STRIPPING	7,600.00
KEYWAY EX.	525.00
WATER - (18,155,450 Gal @ 25¢/M	4,500.00
SPILLWAY EXC (173,832 YDS @ 20¢)	34,766.00
	$65,514.00
CHANNEL TO #3 (182,000 YDS @ 15)	27,300.00
	$92,814

#4

CLEARING -	531.00
STRIPPING	4,300.00
CONCRETE	2,600.00
GUNITE	350.00
C.M.P.	2,264.00
GATES	889.00
LABOR	800.00
WATER 8,514,500 @ 25¢/M	2,130.00
	$13,864.00

TOTAL	$106,678
WORK DONE BY CAT ON WATERSHED - 322,469 YDS @ 20¢	64,494
½ PREV ENG -	6,807
R/W FOR 344	45,500
	$223,479

COST OF #3 -	$241,000.00	½ COST	$218,794.00
" " #4 -	104,000.00	LOCAL PART.	$223,479.00
	345,000.00		
CAT WORK PREV. DONE - 322,469 @ 20	64,494.00		
CHANNEL TO #3	27,300.00		
TOTAL COST PROJECT	$436,794.00		

R/W

outright

W ? Sec 9 T2N R2W

320 ac $10000.00

[illegible] in

W ? Sec. [illegible] $750.00

2N 2W

[illegible] ac from Mesicopa Ranches (Wm Lane)

Hyde in T3N 2W

500' wide R/W

R/W data

1:30 appointment with Raymond

Lucian:—

Hank was not available.

When and if you see him, remember that detail of approval to move dyke on the corner of airport near S.W. end of #4 dyke.

Ed

8.5
640
3400
5100
5440

Monday

R/W Plat - White Tank Job

Notes:

1. Probably balance of SW 4 Sec 9, Twp 2N R2W should also be covered.

2. Borrow areas may not be covered

3. Caterpillar lands not shown.

Suggest 10 yr. Easement and then apply for perm. Purchase

Ran Borrow

400 Ac
240 Ac
920 ac
1560 ac

7800

R/w - White Tanks

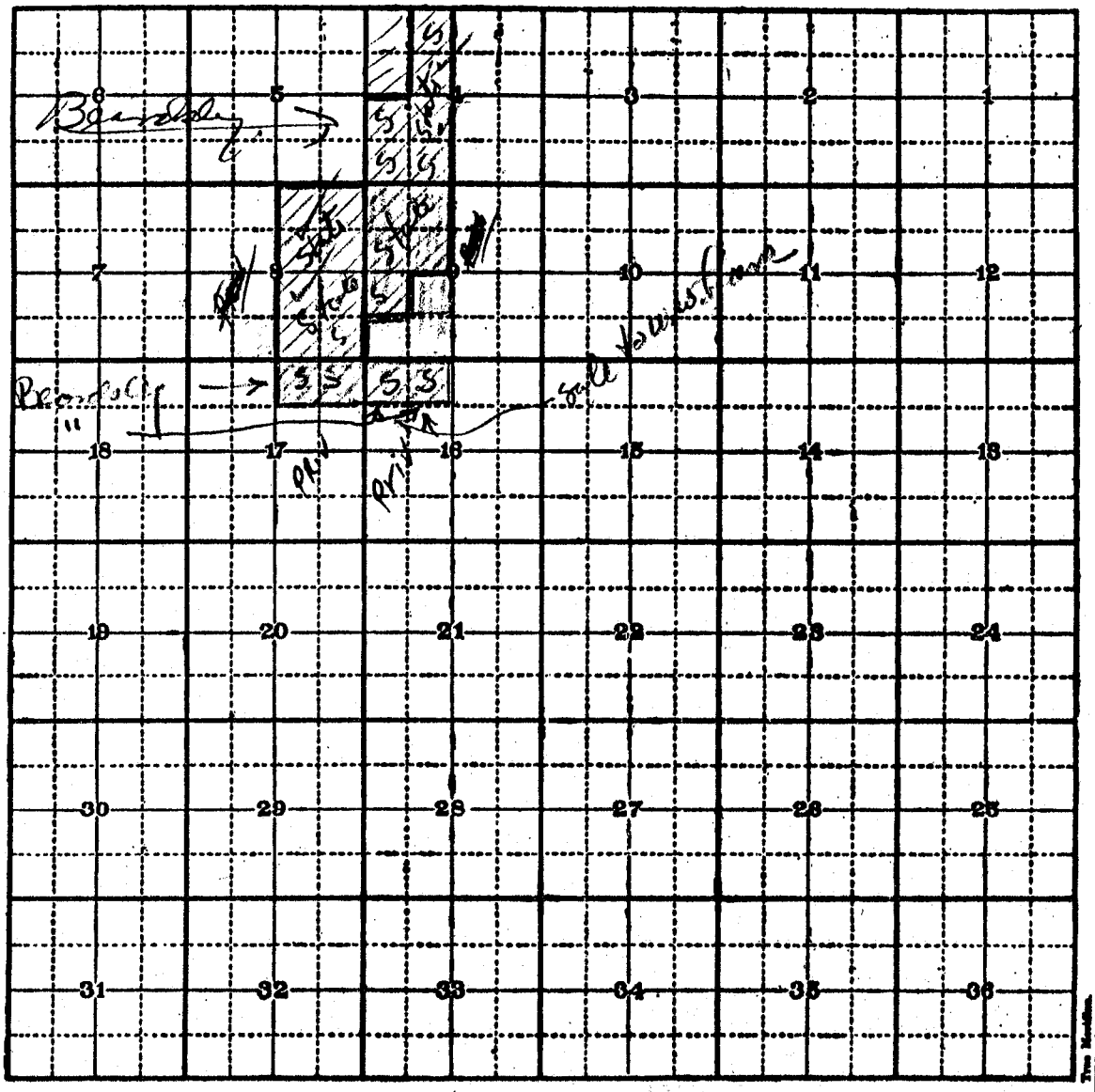
23 x 40 = 920 A.

1/4 - 1/6

sec 9 W2 Western Lands Inc

Form SCS-654

T. 2 N. R. 3 W. Ariz. Mer.



U. S. D. A., SOIL CONSERVATION SERVICE
TOWNSHIP PLAT

SCALE.—One inch = 1 mile

— Pat (county)

REQUEST FOR SOIL CONSERVATION SURVEY

District _____ Planner _____

Name of Owner or Operator _____

Location or Description - Photo No., Legal Description or road and distance directions (Write out legal description or block out on reverse).

Acres Irrigated _____ Total Acres _____

Date Needed - - (Not later than) _____

Information required - (Indicate work proposed - as leveling, drainage, contour cultivation, terracing, etc. Specific information here will help the surveyor to give you a usable map)

For Surveyor Only:

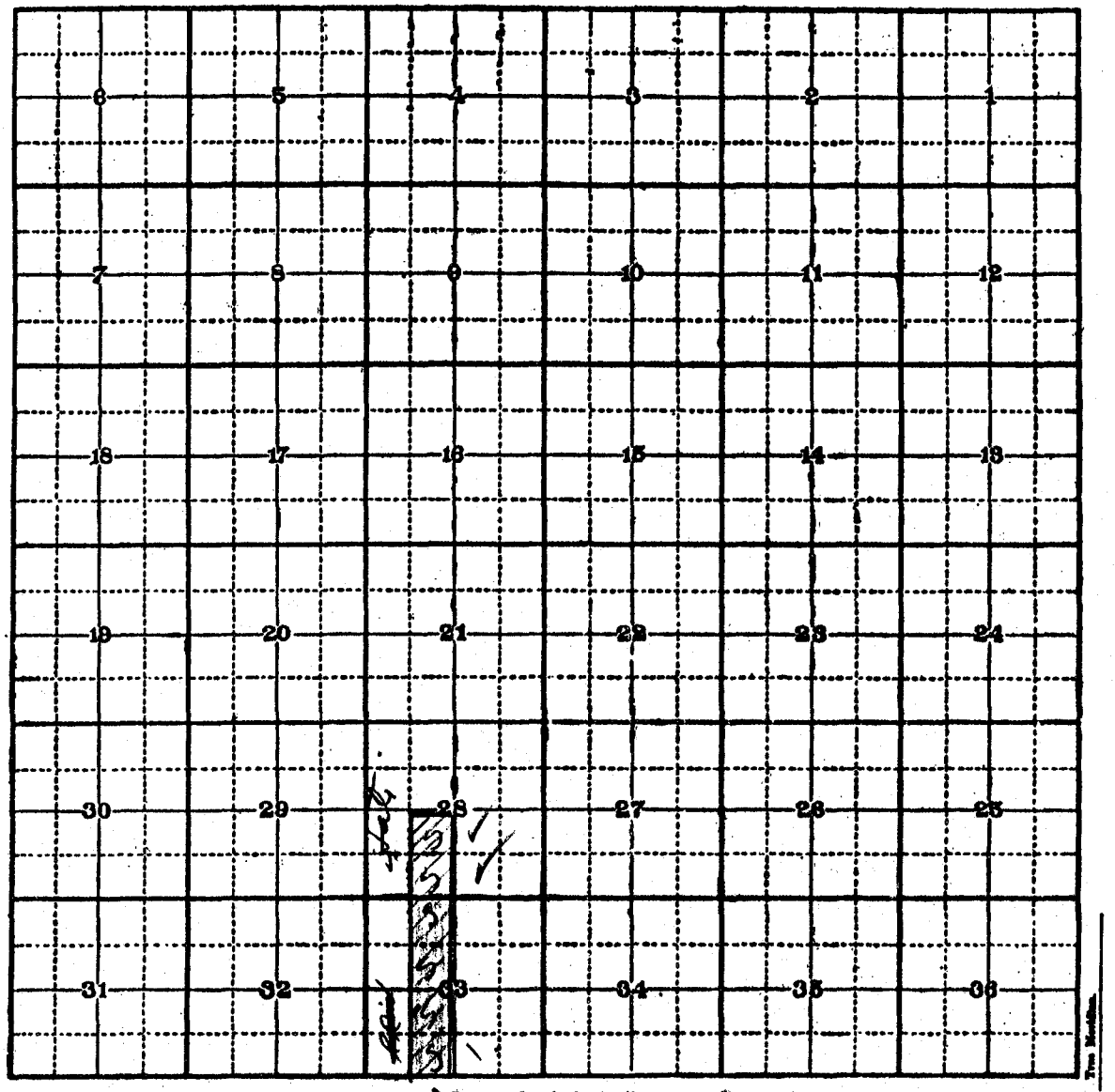
Request received _____ Survey Delivered _____
Date Date

R/W - White Pines

6 x 40 = 240 ft

Form SCS-654

T. 31N R. 2W Mich.



U. S. D. A., SOIL CONSERVATION SERVICE
TOWNSHIP PLAT

SCALE.—One inch=1 mile

Western Pondolac

Pat (County)

REQUEST FOR SOIL CONSERVATION SURVEY

District _____ Planner _____

Name of Owner or Operator _____

Location or Description - Photo No., Legal Description or road and distance directions (Write out legal description or block out on reverse).

Acres Irrigated _____ Total Acres _____

Date Needed - - (Not later than) _____

Information required - (Indicate work proposed - as leveling, drainage, contour cultivation, terracing, etc. Specific information here will help the surveyor to give you a usable map)

For Surveyor Only:

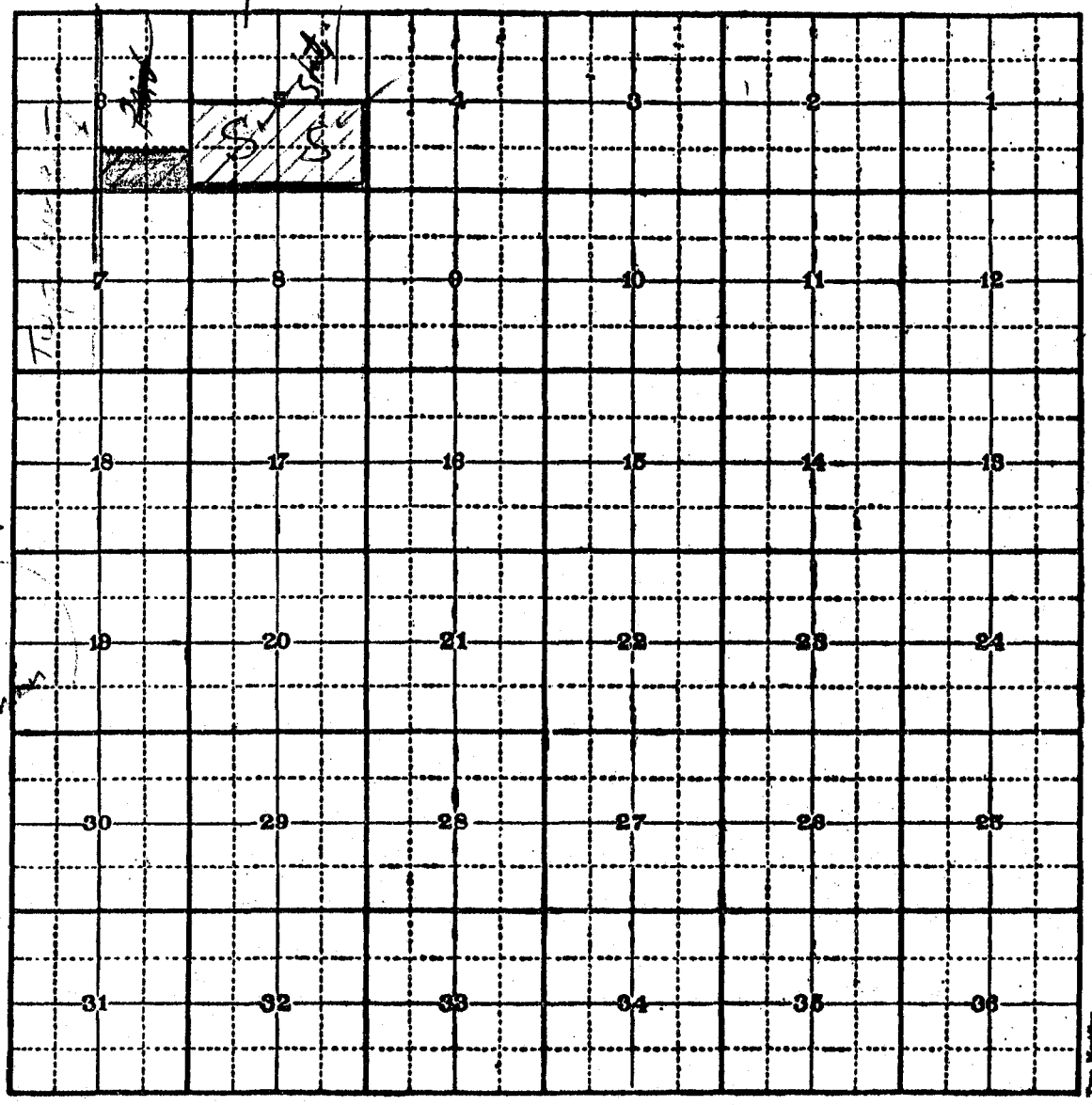
Request received _____ Survey Delivered _____
Date Date

R/W - White Tanks

10 x 40 = 400 Ac

Form SCS-654

T. 1N R. 2W Mer.



U. S. D. A., SOIL CONSERVATION SERVICE
TOWNSHIP PLAT

SCALE.—One inch = 1 mile

all sec 6
SPRR
Lieu
C21446
2/21/13
Pat
505299
12-30-15

1
Hebb
U.S.A
1952
From
Geo Zimmerman

(Note army R/W deeded also)

— Pat (County)
— USA (County)

REQUEST FOR SOIL CONSERVATION SURVEY

District _____ Planner _____

Name of Owner or Operator _____

Location or Description - Photo No., Legal Description or road and distance directions (Write out legal description or block out on reverse).

Acres Irrigated _____ Total Acres _____

Date Needed - - (Not later than) _____

Information required - (Indicate work proposed - as leveling, drainage, contour cultivation, terracing, etc. Specific information here will help the surveyor to give you a usable map)

For Surveyor Only:

Request received _____ Survey Delivered _____
Date Date

APRIL 1, 1954

To: W. E. Anderson, Government Representative

From: G. M. Corbin, Resident Engineer

Subj: Monthly Est. Report - W.T.P. Construction Contract No. Asc-1142

I submit herewith an estimate of the quantities in place on the White Tanks Project, Structure #3. This work has been done by J. A. Danens & Sons & Shelton & Betts, Contractors.

The quantities reported reflect the progress on the job to the close of business, March 31, 1954.

ITEM	ARTICLE or SERVICES	QUANTITY	UNIT	%
1.	Clearing & Stripping	-	job	0
2.	Excavation	-	cu. yds.	0
3.	Subgrade Preparation	-	job	0
	Earth Fill (Str. #3)	87,835	cu. yds.	23.42
5.	Sprinkling Emb. Mat. (#3)	87,835	cu. yds.	23.42
6.	Earth Fill (Str. #4)	-	cu. yds.	0
7.	Sprinkling Emb. Mat. (#4)	-	cu. yds.	0
8.	Rolling	87,835	cu. yds.	15.90

Gordon M. Corbin

MONTHLY ESTIMATE REPORT

ESTIMATE NO. 1

DATE OF ESTIMATE April 1954
PERIOD COVERED March 1954
CONTRACT DATE February 17, 1954

PROJECT White Tanks Structures 3 and 4 CONTRACT NO. Asc-1142

CONTRACTOR J. A. Danens & Son, Inc., and Shelton-Betts Company, Box 1044 Wickenburg, Arizona

ITEM NO.		QUANTITY COMPLETED THIS PERIOD	PREVIOUSLY REPORTED	TOTAL COMPLETED TO DATE	UNIT	CONTRACT UNIT PRICE	TOTAL THIS PERIOD	TOTAL TO DATE	PERCENT COMPLETED
1	Clearing & Stripping	-	-	-	Job	950.00	-	-	-
2	Excavation	-	-	-	Cu.Yds.	.30	-	-	-
3	Subgrade Preparation	-	-	-	Job	900.00	-	-	-
4	Earth Fill (Structure 3)	87,835	-	87,835	Cu.Yds.	.272	23,891.12	23,891.12	23.4
5	Sprinkling Embankment Materials (Structure 3)	87,835	-	87,835	Cu.Yds.	.02	1,756.70	1,756.70	23.4
6	Earth Fill (Structure 4)	-	-	-	Cu. Yds.	.212	-	-	-
7	Sprinkling Embankment Materials (Structure 4)	-	-	-	Cu. Yds.	.02	-	-	-
8	Rolling	87,836	*	87,836	Cu.Yds.	.02	1,756.70	1,756.70	16.9
					ESTIMATED TOTALS		27,404.52	27,404.52	16.8
					LESS 10%		2,740.45	2,740.45	
					Net VALUE		24,664.07	24,664.07	

These quantities are the estimate total work accomplished in accordance with contract revisions as determined by field measurements at the end of the period shown.

Gordon M. Conklin
RESIDENT ENGINEER

Cor

Monthly Estimate

1954 ~~ACP~~ -- Arizona
(Year)

Earthen Fills

Daneus - Shelton & Betts

April 1, 1954.
~~(State - County Code - Farm Serial No.)~~

~~Name of Ranch or Farm~~ White Tanks Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME ~~(Cu. Ft.)~~ c.y. (Σ end Area) 100/54
19+00	100.5	102.3	101.4			0.4	40.56			
								102.42	100	189.7
20+00	101.7	104.4	103.1			0.6	61.86			
								184.38	"	341.4
21+00	99.4	104.8	102.1			1.2	122.52			
								254.86	"	472.0
22+00	98.9	104.7	101.8			1.3	132.34			
								254.50	"	471.3
23+00	99.1	104.5	101.8			1.2	122.16			
								255.80	"	473.7
24+00	99.9	105.7	102.9			1.3	133.64			
								252.55	100	467.7
25+00	105.7	110.5	108.1			1.1	118.91			

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. 2,415.8 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Bottom ~~Top~~ WIDTH	Top ~~Bottom~~ WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. ~~FT.~~) C.Y.
26+00	110.3	105.5	107.9			1.1	118.69	237.60	100	440.0
								243.10	"	450.2
27+00	115.5	110.7	113.1			1.1	124.41			
								369.48	"	684.2
28+00	121.4	112.0	116.7			2.1	245.07			
								279.93	"	518.4
29+00	116.9	115.6	116.2			0.3	34.86			
								151.26	"	280.1
30+00	110.9	104.2	107.6			1.5	116.40			
								210.72	"	390.2
31+00	106.8	102.8	104.8			0.9	94.32			
								281.49	100	521.3
32+00	113.9	106.3	110.1			1.7	197.17			

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 3,284.4 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State - County Code - Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Bottom ~~Top~~ WIDTH	Top ~~Bottom~~ WIDTH	AVERAGE WIDTH	UNIT WEIGHT UP	UNIT WEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
33+00	112.5	105.8	109.2			1.5	163.80	350.97	100	649.9
								287.04	"	531.6
34+00	105.4	100.0	102.7			1.2	123.24			
								289.64	"	536.4
35+00	107.6	100.4	104.0			1.6	166.40			
								388.16	"	718.8
36+00	110.3	100.9	105.6			2.1	221.76			
								446.16	"	826.2
37+00	107.0	97.1	102.0			2.2	224.40			
								454.08	"	840.9
38+00	109.3	99.4	104.4			2.2	229.68			
								339.02	100	627.8
39+00	101.9	97.0	99.4			1.1	109.34			

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 4,731.6 | Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Bottom ~~WIDTH~~ WIDTH	Top ~~WIDTH~~ WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME ~~(Cu. Ft.)~~ Cu. yd.
40+00	106.3	104.5	105.4			0.4	42.16	151.50	100	280.6
								98.76	100	182.9
41+00	114.3	112.1	113.2			0.5	56.60			
								150.84	"	279.3
42+00	119.6	116.0	117.8			0.8	94.24			
								268.12	"	496.5
43+00	127.3	121.1	124.2			1.4	173.88			
								358.08	"	663.1
44+00	126.1	119.4	122.8			1.5	184.20			
								330.00	"	611.1
45+00	124.2	118.8	121.5			1.2	145.80			
								373.42	100	691.5
46+00	124.1	115.6	119.8			1.9	227.62			

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 3,205.0 | Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Bottom ~~DEPTH~~ WIDTH	Top ~~WIDTH~~ WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (~~Cu. Ft.~~) C.Y.
47+00	125.9	116.0	121.0			2.2	266.20	493.82	100	914.5
								498.52	100	923.2
48+00	110.6	100.7	105.6			2.2	232.32			
								349.72	"	647.6
49+00	119.7	115.2	117.4			1.0	117.40			
								172.60	"	319.6
50+00	111.5	109.3	110.4			0.5	55.20			
								113.35	"	209.9
51+00	117.4	115.2	116.3			0.5	58.15			
								163.27	"	302.4
52+00	118.8	114.8	116.8			0.9	105.12			
								516.63	100	956.7
53+00	132.1	117.3	124.7			3.3	411.51			

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 3,350.7 | Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Bottom ~~Base~~ WIDTH	Top ~~Depth~~ WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME ~~(Cu. Ft.)~~ C.Y.
54+00	138.4	116.8	127.6			4.8	612.48	1023.99	100	1896.3
								954.92	"	1768.4
55+00	128.6	116.0	122.3			2.8	342.44			
								961.76	"	1781.0
56+00	130.8	107.4	119.1			5.2	619.32			
								1598.92	"	2961.0
57+00	141.7	106.2	124.0			7.9	979.60			
								1968.64	"	3647.5
58+00	140.8	105.7	126.8			7.8	989.04			
								1274.70	"	2360.6
59+00	129.4	119.1	124.2			2.3	285.66			
								578.91	100	1072.1
60+00	122.9	111.7	117.3			2.5	293.25			

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 15,486.9 | Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State - County Code - Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	~~Bottom~~ Top ~~Top~~ WIDTH	~~Top~~ Bottom ~~Bottom~~ WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME ~~(Cu. Yd.)~~ C.Y.
61+00	132.3	124.2	128.2			1.8	230.76	524.01	100	970.4
								482.56	"	893.6
62+00	130.4	121.4	125.9			2.0	251.80			
								812.08	"	1503.9
63+00	132.0	111.5	121.8			4.6	560.28			
								1460.28	"	2704.2
64+00	130.5	94.5	112.5			8.0	900.00			
								1653.66	"	3062.3
65+00	113.2	77.7	95.4			7.9	753.66			
								2145.14	"	3972.5
66+00	119.6	42.2	80.9			17.2	1391.48			
								2796.73	"	5179.1
67+00	119.7	40.9	80.3			17.5	1405.25			

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 18,286.0 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	Bottom ~~Top~~ WIDTH	Top ~~BOTTOM~~ WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (~~Cu. Ft.~~) C.Y
68+00	117.0	32.5	74.8			18.8	1406.24	2811.49	100	5206.5
								2456.18	"	4548.5
69+00	99.9	23.0	61.4			17.1	1049.94			
								2004.66	"	3712.3
70+00	100.7	39.6	70.2			13.6	954.72			
								2031.52	"	3762.1
71+00	103.3	31.3	67.3			16.0	1076.80			
								1920.52	"	3556.5
72+00	88.9	17.8	53.4			15.8	843.72			
								1519.11	"	2813.2
73+00	79.6	16.2	47.9			14.1	675.39			
								1289.14	"	2387.3
74+00	77.2	21.0	49.1			12.5	613.75			

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 25,986.4 Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code & Farm Serial No.)

Name of Ranch or Farm | Location | Sec. | T. | R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								1104.25	100	2044.9 c.f.
75+00	20.5	69.5	45.0			10.9	490.50			
								822.3	100	1522.8
76+00	24.3	59.8	42.0			7.9	331.80			
								383.93	67	476.4
76+67	37.2	43.0	40.1			1.3	52.13			
					Key way			(Sta 63+)	476.9	
				"	"			(Sta 43+)	1607.6	
					Base Settlement				4959.7	
									80790.9	
									87,835	c.y.d.

Computed by | Date | Total Vol. | Cu. Ft.

Checked by | Date | Total Vol. 4044.1 | Cu. Yds.

and total 80,790.9

April Estimate

①

ACP -- Arizona
(Year)

Earthen Fills
Danen - Shelton & Betts

May 1, 1954
(State & County Code & Farm Serial No.)

~~Name of Ranch or Farm~~ White Tanks #3 Location Sec. T. R.

STATION	1 TOP WIDTH	2 BOTTOM WIDTH	3 SUM WIDTH	4 HEIGHT UP	5 HEIGHT DOWN	6 AVERAGE HEIGHT	7 END AREA	8 SUM OF END AREAS	9 LENGTH of SECTION	10 VOLUME (CU. FT.) (8x9/100)
8+00	43.7	54.9	98.6			2.6	256.4			
								564.5	100	522.7
9	44.4	58.1	102.7			3.0	308.1			
								722.3	"	668.8
10+00	46.0	63.2	109.2			3.8	414.2			
								877.8	"	812.8
11	50.0	72.0	122.0			3.8	463.6			
								1009.2	"	934.4
12	55.4	74.5	129.9			4.2	545.6			
								1131.5	100	1047.7
13+00	62.2	[illegible]	142.9			4.1	585.9			
										3956.4

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Ariaona
(Year)

Earthen Fills
Est.

5-1-54
(State & County Code & Farm Serial No.)

Name of Ranch or Farm WT F 3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								1231.9	100	1140.6 ✓
14+00	67.2	86.6	153.8		~~4~~	4 ✓	646.0			
								1515.9	"	1403.6 ✓
15+00	68.0	93.1	161.1			5.4	869.9			
								1963.7	"	1818.2 ✓
16	71.6	99.3	170.9			6.4	1093.8			
								1987.8	"	1840.6 ✓
17	76.2	99.1	175.3			5.1	894.0			
								1640.5	"	1519.0 ✓
18	77.5	96.1	173.6			4.3	746.5			
								1753.4	100	1623.5 ✓
19+00	77.5	152.3	179.8			5.6	1006.9			
										[illegible]

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona (Year)

Earthen Fills

EST.

5-1-54 (State - County Code - Farm Serial No.)

Name of Ranch or Farm WT #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT OF	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								2061.4	100	1908.7 ✓
20+00	80.6	10[illegible]	185.0			5.7	10545			
								1819.7	"	1684.9 ✓
21	86.5	10[illegible]	191.3			4.0	7652			
								1709.2	"	1581.9 ✓
22	80.2	[illegible]	184.9			5.1	9436			
								1687.9	"	1562.9 ✓
23	86.5	[illegible]	191.0			3.9	[illegible]			
								1687.9	"	1562.9
24	82.9	[illegible]	188.6			5.0	[illegible]			
								1658.2	"	1534.6
[illegible]	97.9	[illegible]	198.3			4.7	[illegible]			

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Ariaona
(Year)

Earthen Fills

5-1-54
(State & County Code & Farm Serial No.)

Est.

Name of Ranch or Farm W.T. #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
26+00	97.8	[illegible]	198.1			5.4	1069.7			
								2200.5	100	2037.5
27	90.1	115.5	205.6			5.5	1130.8			
								2446.0	"	2264.8
28	97.8	121.4	219.2			6.0	1315.2			
								1970.1	"	1824.2
29	101.4	[illegible]	218.3			3.0	654.9			
								1666.4	"	1543.0
30+00	91.4	[illegible]	202.3			5.0	1011.5			
								2647.4	"	2451.3
31+00	65.4	[illegible]	172.2			9.5	1635.9			
										[illegible]120.8

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona (Year)

Earthen Fills

E ≤ 7.

5-1-54

(State - County Code - Farm Serial No.)

Name of Ranch or Farm W.T. #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								36173	100	3349.4
52+00	64.6	[illegible]	178.5			11.1	19814			
								39954	"	3606.8
53	63.1	[illegible]	175.6			10.9	19140			
								33706	"	3120.9
54	68.0	[illegible]	173.4			8.4	14566			
								27402	"	2730.7
55+00	68.0	[illegible]	175.6			8.5	14926			
								31781	"	2943.5
[illegible]	[illegible]	[illegible]	177.0			9.5	16871.5			
								32190	[illegible]	2979.6
[illegible]	67.6	[illegible]	174.6			8.8	[illegible]			

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona
(Year)

[illegible]
Earthen Fills
Est.

5-1-54
(State & County Code & Farm Serial No.)

Name of Ranch or Farm W.T. #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								2947.5	100	2729.2
38+00	71.6	109.3	180.9			7.8	1411.0			
								2582.0	"	2390.7
39	70.3	101.9	172.2			6.8	1171.0			
								2611.1	"	2417.7
40+00	67.2	106.3	173.5			8.3	1440.1			
								3156.9	"	2922.1
41	70.3	[illegible]	184.6			9.3	[illegible]			
								3720.2		3444.6
[illegible]	71.2		190.8			10.5	[illegible]			
								[illegible]	[illegible]	[illegible]
[illegible]	72.1	[illegible]	199.5			11.7	[illegible]			
										[illegible]

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills
Est.

5-1-54
(State & County Code & Farm Serial No.)

Name of Ranch or Farm WT #3 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								4634.2	100	4290.9
44+00	73.9	126.1	200.0			11.5	2300.0			
								4221.4	"	3908.7
45+00	00.2	124.2	204.4			9.4	1921.4			
								3796.1	"	3514.9
46	84.2	124.1	208.3			9.0	1874.7			
								3923.4	"	3632.8
47	73.0	[illegible]	198.9			10.3	2049.7			
								4173.5	"	3864.4
48	55.4	[illegible]	166.0			12.8	2124.0			
								4524.6	100	4170.9
49+00	37.9	[illegible]	157.6			15.1	[illegible]			
										[illegible]

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

(State & County Code - Farm Serial No.)

Name of Ranch or Farm [illegible] Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								[illegible]		[illegible]
50+00	33.0	[illegible]	144.5			17.1	[illegible]			
								5184.0	"	49037
51	34.1	[illegible]	153.5			17.7	[illegible]			
								55543	"	51429
52	41.5	[illegible]	160.3			17.7	[illegible]			
								[illegible]	"	59911
53	34.1	[illegible]	168.2			21.6	[illegible]			
								[illegible]	"	75560
[illegible]	[illegible]	[illegible]	170.4			23.4	[illegible]			
								[illegible]	[illegible]	64067
[illegible]	29.5	[illegible]	158.0			21.7	[illegible]			
										[illegible]

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

9

ACP -- Arizona
(Year)

Earthen Fills
Est.

5-1-54
(State - County Code - Farm Serial No.)

Name of Ranch or Farm W.T. #2 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								7122.4	100	6504.8
56+00	29.8	130.8	160.6			23.0	3693.8			
								7842.6	"	7261.7
57	35.6	141.7	177.3			23.4	4149.9			
								8193.9	"	7586.9
58	37.4	140.8	178.2			22.7	[illegible]			
								7041.4	"	6519.8
59	42.8	129.4	172.2			17.4	2996.3			
								6264.3	"	5800.3
60+00	48.2	[illegible]	171.1			19.1	[illegible]			
								6541.3	100	6004.5
[illegible]	49.2	[illegible]	181.5			18.2	[illegible]			
										[illegible]

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills

E.A.

5-1-54
(State & County Code & Farm Serial No.)

Name of Ranch or Farm [illegible] #5 Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								6739.3	100	6240.1
62+00	39.7	[illegible]	170.1			20.2	3436.0			
								6728.1	"	6229.7
63	57.2	[illegible]	189.2			17.4	3292.1			
								5506.7	"	5098.8
64	93.2	[illegible]	223.7			9.9	2214.6			
								4567.9	"	3766.6
65+00	68.5	[illegible]	181.7			10.2	[illegible]			
								5843.9	"	5411.0
[illegible]	34.3	[illegible]	153.9			21.7	[illegible]			
								7[illegible]	100	6591.3
[illegible]	21.2	[illegible]	140.9			22.2	[illegible]			
										33337.5

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Arizona
(Year)

Earthen Fills
Est.

(State - County Code - Farm Serial No.)

Name of Ranch or Farm [illegible] Location Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								6100.6	100	5648.7
69+00	16.3	[illegible]	133.3			22.2	[illegible]			
								5272.0	"	4981.5
69	14.5	[illegible]	114.4			20.1	[illegible]			
								4093.5	"	3790.3
70+00	15.8	[illegible]	116.5			15.4	[illegible]			
								3879.2	"	3591.9
71	14.5	[illegible]	117.8			17.2	[illegible]			
								[illegible]	"	3556.7
72	13.2	[illegible]	102.1			17.2	[illegible]			
								[illegible]	[illegible]	[illegible]
[illegible]	14.5	[illegible]	94.1			15.5	[illegible]			
										[illegible]

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

ACP -- Ariaona
(Year)

Earthen Fills

5-1-54
(State & County Code & Farm Serial No.)

Name of Ranch or Farm

Location

Sec. T. R.

STATION	TOP WIDTH	BOTTOM WIDTH	AVERAGE WIDTH	HEIGHT UP	HEIGHT DOWN	AVERAGE HEIGHT	END AREA	SUM OF END AREAS	LENGTH of SECTION	VOLUME (CU. FT.)
								2688.0	100	24389
74+00	13.2	77.2	90.4			13.6	1229.4			
								2234.9	"	2069.4
75+00	13.6	69.5	83.1			12.1	1005.5			
								1721.4	100	1593.9
76	14.0	59.8	73.8			9.7	715.9			
								996.2	67	618.0
76+67	15.4	43.0	58.4			4.8	280.3			
										6770.2

Computed by Date Total Vol. Cu. Ft.

Checked by Date Total Vol. Cu. Yds.

Grand Total 248,027.5