

W 935

TABLE XIII—CORRECTIONS FOR TANGENTS AND EXTERNALS

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table VIII) by the degree of curve, in order to obtain the true tangents, or externals. Intermediate values may be obtained by interpolation.

FOR TANGENTS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.03	.06	.09	.13	.16	.19	.22	.25	.28	.31	.34	.38	.42	.46
15°	.04	.10	.14	.19	.24	.29	.34	.39	.45	.51	.53	.58	.63	.68
20°	.06	.13	.19	.26	.32	.39	.45	.51	.58	.65	.72	.79	.84	.90
25°	.08	.16	.24	.33	.40	.49	.58	.67	.75	.83	.90	.99	1.06	1.14
30°	.10	.19	.29	.39	.49	.59	.69	.79	.89	.99	1.09	1.20	1.29	1.39
35°	.11	.22	.34	.47	.58	.69	.79	.81	.92	1.04	1.29	1.42	1.54	1.66
40°	.13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94
45°	.15	.30	.44	.60	.76	.91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21
50°	.17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.48
55°	.19	.38	.57	.76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77
60°	.21	.42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07
65°	.23	.46	.69	.93	1.16	1.40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39
70°	.25	.51	.76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72
75°	.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09
80°	.30	.61	.91	1.22	1.53	1.84	2.15	2.46	2.78	3.10	3.44	3.78	4.12	4.46
85°	.33	.66	1.00	1.33	1.68	2.02	2.36	2.70	3.05	3.40	3.77	4.14	4.55	4.89
90°	.36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32
95°	.39	.79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.40	4.98	5.38	5.83
100°	.43	.86	1.30	1.74	2.18	2.62	3.03	3.50	3.95	4.40	4.88	5.37	5.85	6.34
110°	.51	1.03	1.56	2.08	2.61	3.14	3.67	4.21	4.76	5.31	5.86	6.43	7.01	7.60
120°	.62	1.25	1.93	2.52	3.16	3.81	4.45	5.11	5.77	6.44	7.12	7.80	8.50	9.22

FOR EXTERNALS ADD

Central Angle	DEGREE OF CURVE													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020
15°	.003	.007	.010	.014	.018	.023	.027	.029	.032	.035	.039	.043	.047	.051
20°	.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083
25°	.009	.018	.027	.036	.046	.056	.065	.074	.083	.093	.106	.120	.127	.135
30°	.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188
35°	.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264
40°	.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341
45°	.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445
50°	.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550
55°	.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700
60°	.056	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851
65°	.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.711	.845	.922	1.01
70°	.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17
75°	.095	.182	.286	.383	.480	.578	.678	.777	.877	.977	1.07	1.18	1.29	1.39
80°	.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62
85°	.128	.259	.391	.524	.657	.790	.926	1.06	1.20	1.34	1.47	1.62	1.76	1.91
90°	.149	.299	.450	.603	.756	.910	1.07	1.22	1.38	1.54	1.70	1.87	2.03	2.20
95°	.174	.350	.522	.706	.885	1.06	1.25	1.43	1.62	1.80	1.99	2.18	2.38	2.58
100°	.200	.401	.604	.809	1.01	1.22	1.43	1.64	1.85	2.06	2.28	2.50	2.73	2.96
110°	.268	.536	.806	1.08	1.35	1.63	1.91	2.20	2.48	2.76	3.05	3.35	3.66	3.96
120°	.360	.721	1.08	1.45	1.82	2.19	2.57	2.95	3.33	3.72	4.11	4.50	4.91	5.32

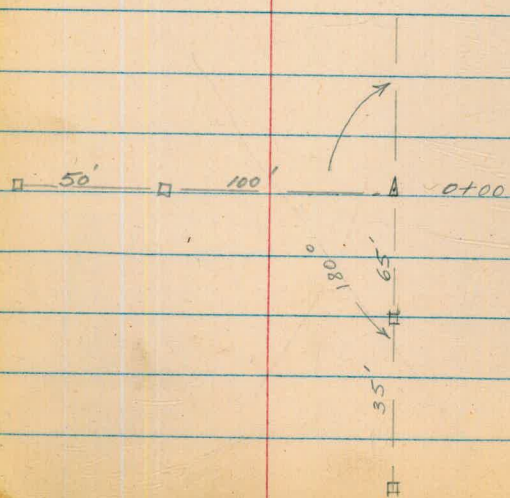
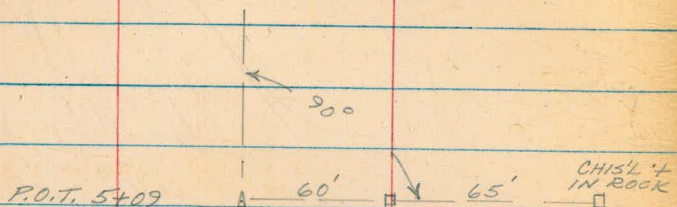
INDEX

MURRAY 229 P.L. REFERENCE POINTS 1-4 ✓  
Alice

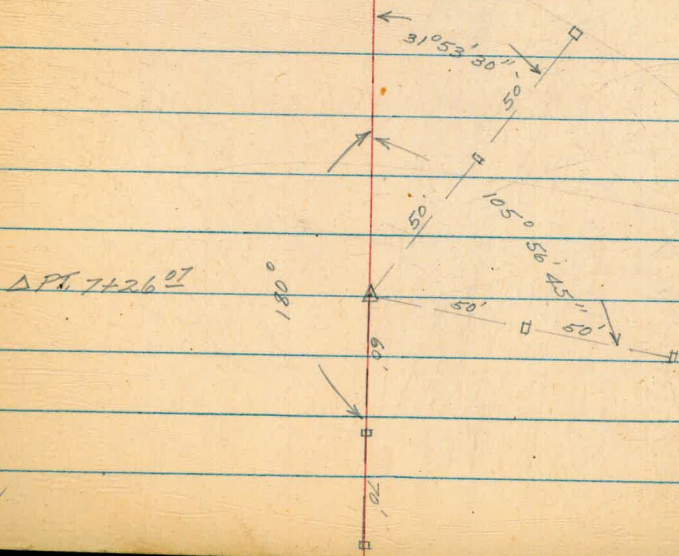
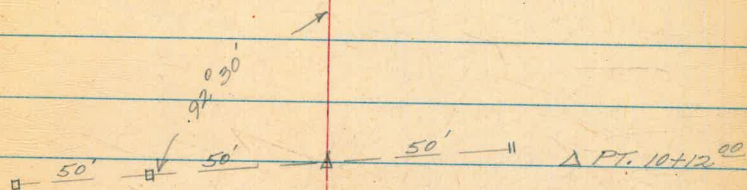
GRADES FOR RAISING 1<sup>ST</sup> MURRAY PIPELINE ✓  
{ STA. 40+94 TO 45+05<sup>43</sup>  
{ STA. 48+23<sup>58</sup> TO 52+53<sup>25</sup>  
65-66  
Alice

REFERENCE POINTS  
2<sup>ND</sup> MURRAY PIPELINE

NOTE: ALL ANGLES SHOWN ARE  
IN RELATION TO FORWARD  
TANGENT

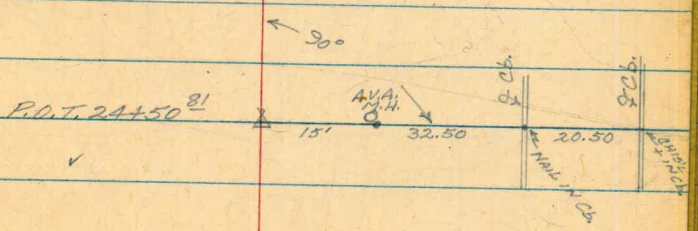
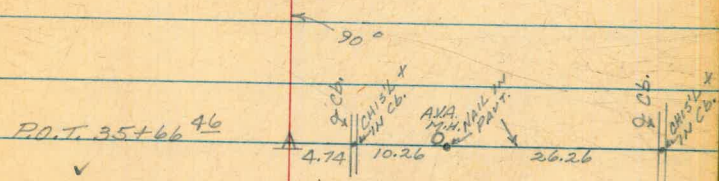
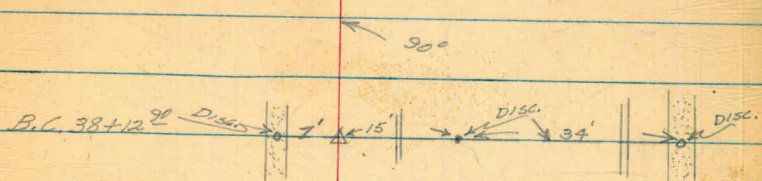
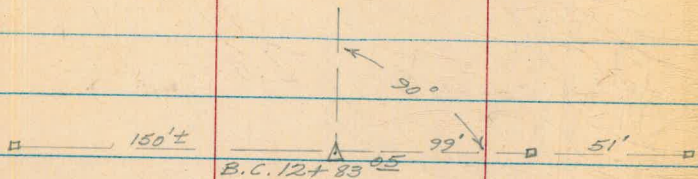
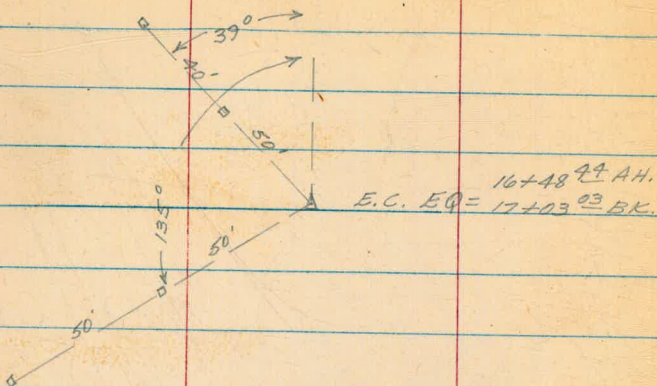


4/27/56  
SHOREY  
KEMP  
SMITH

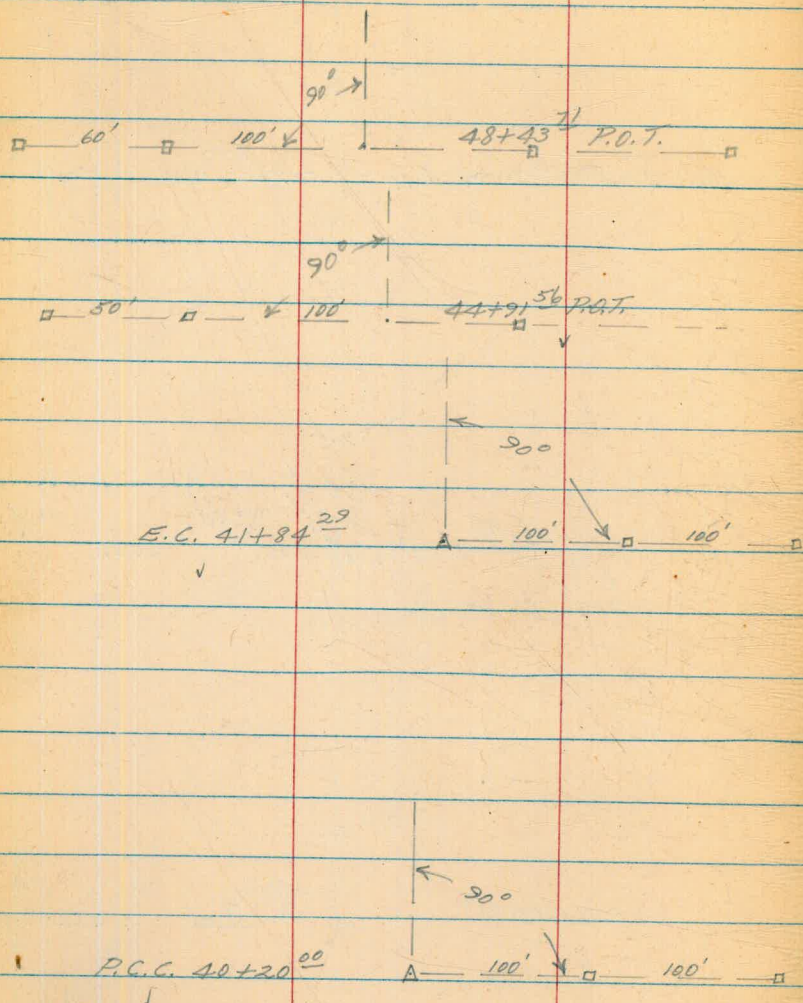


REF. POINTS  
2<sup>ND</sup> MURRAY PIPELINE

4/27/56  
SHOREY  
KEMP  
SMITH



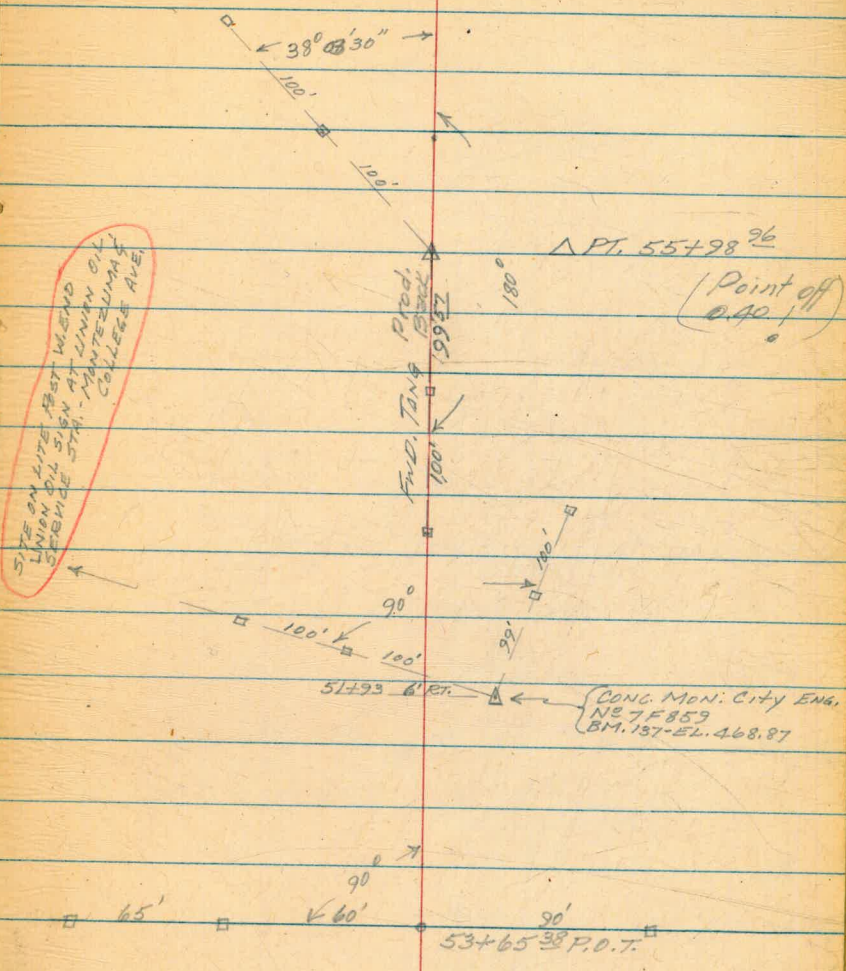
REF. POINTS  
2<sup>ND</sup> MURRAY PIPELINE

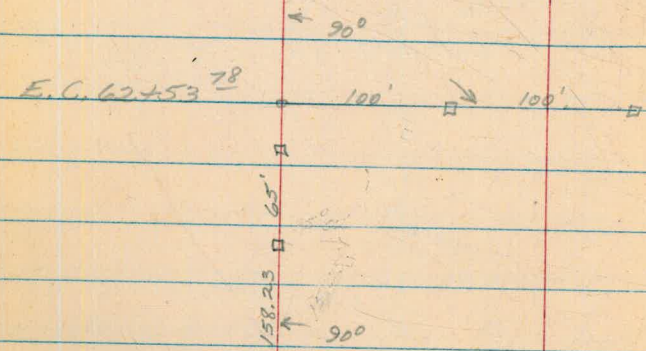


5/1/56  
SHOREY  
KEMP  
SMITH

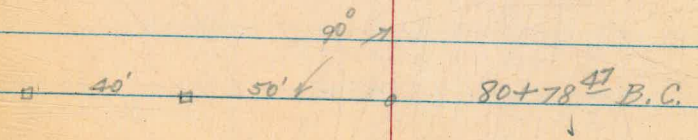
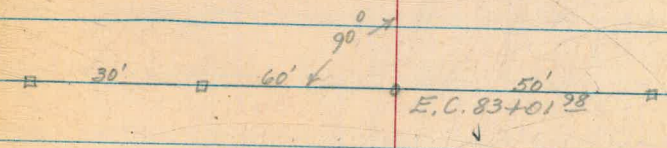
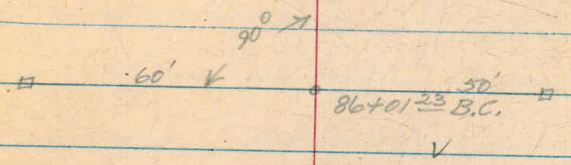
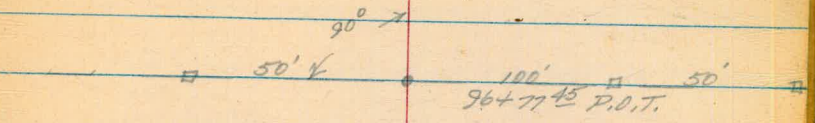
3

SITE ON LITE BEST WEND  
LIVING OIL SIGN AT LIVING OIL  
SERVICE STA. - M. ANTELLMAN  
COLLEGE AVE.

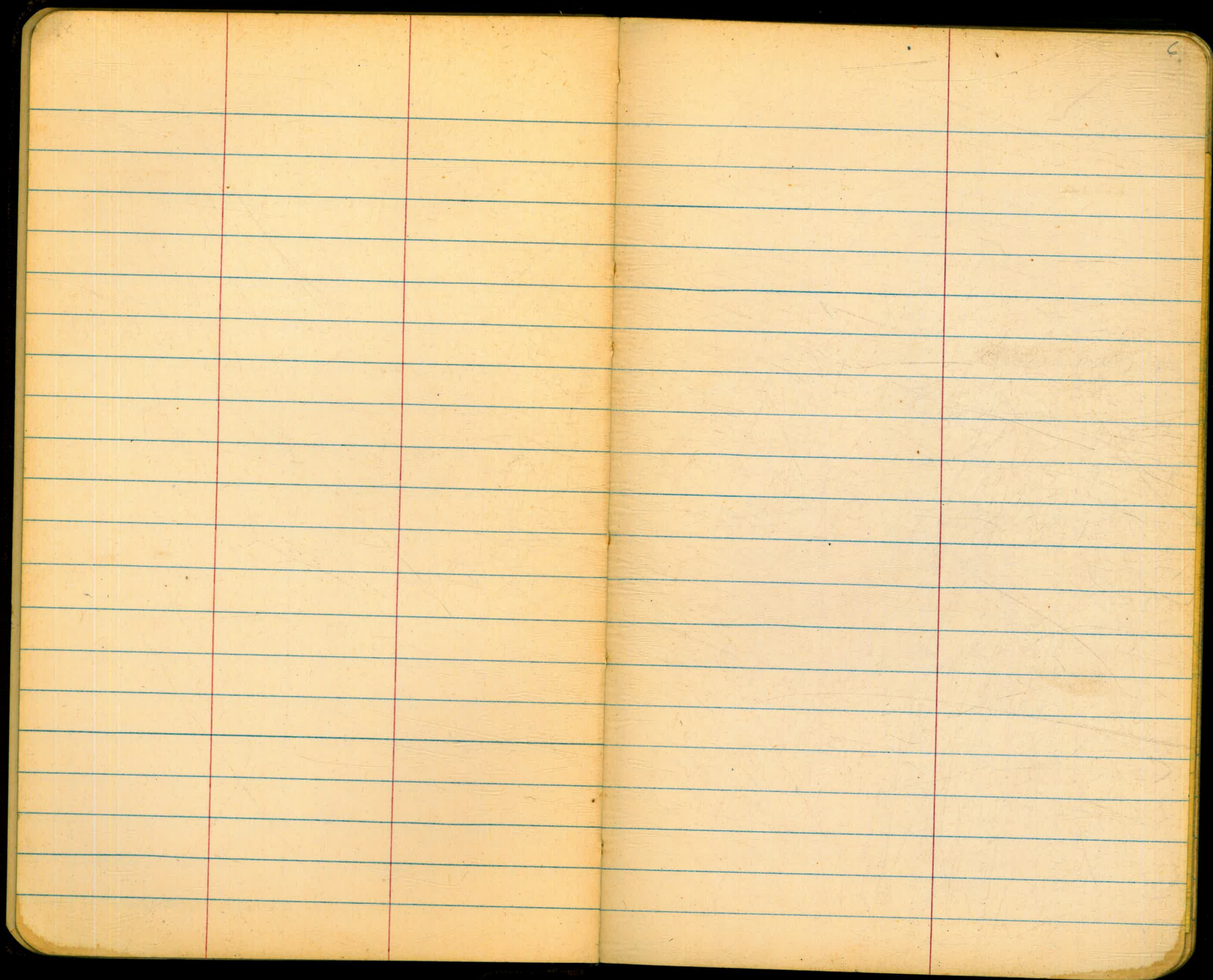




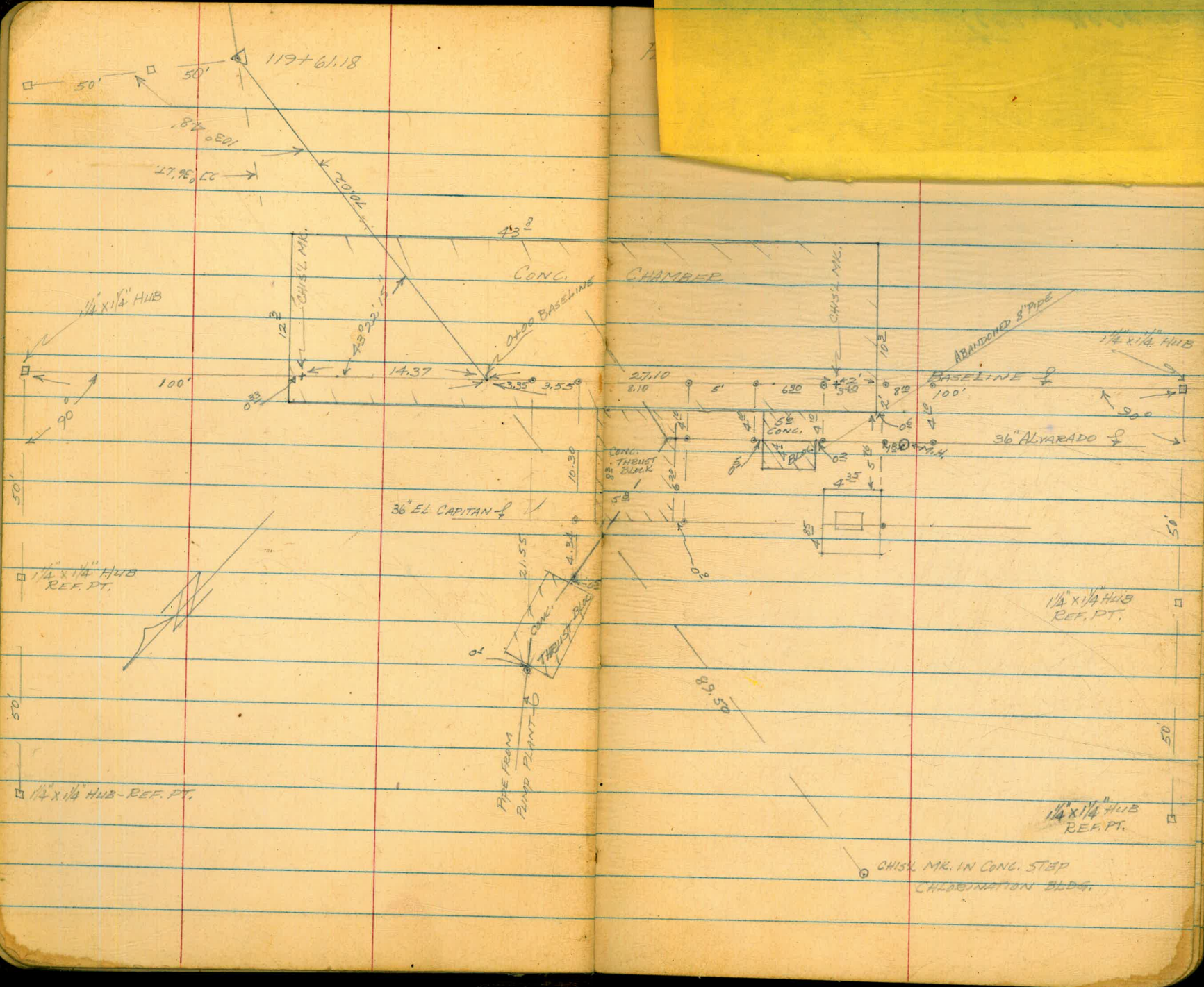
B.C. 61+40 27 AH. =  
 B.C. 61+37 32 BK



90° ↗  
□ 75' ↘ □  
75'  
99+30' F.O.T. □







819+6.18  
 50'  
 50'  
 103° 48'  
 27° 36' LT  
 70.02'

75.10  
 CONG. CHAMBER  
 0+00 BASELINE

1/4" x 1/2" HUB  
 100'  
 90'  
 12'  
 CHISEL MK.  
 14.37  
 3.55° 3.55°  
 27.10  
 8.10  
 5'  
 630  
 5.30  
 825  
 100'  
 BASELINE ♀  
 ABANDONED 8" PIPE  
 1/4" x 1/4" HUB  
 90°  
 36" ALVARADO ♀

36" EL CAPITAN ♀

CONG. THURST BLOCK

1/4" x 1/4" HUB REF. PT.

21.55  
 4.34  
 CONG. THURST BLOCK  
 PIPE FROM PUMP PLANT

1/4" x 1/4" HUB REF. PT.

89.50

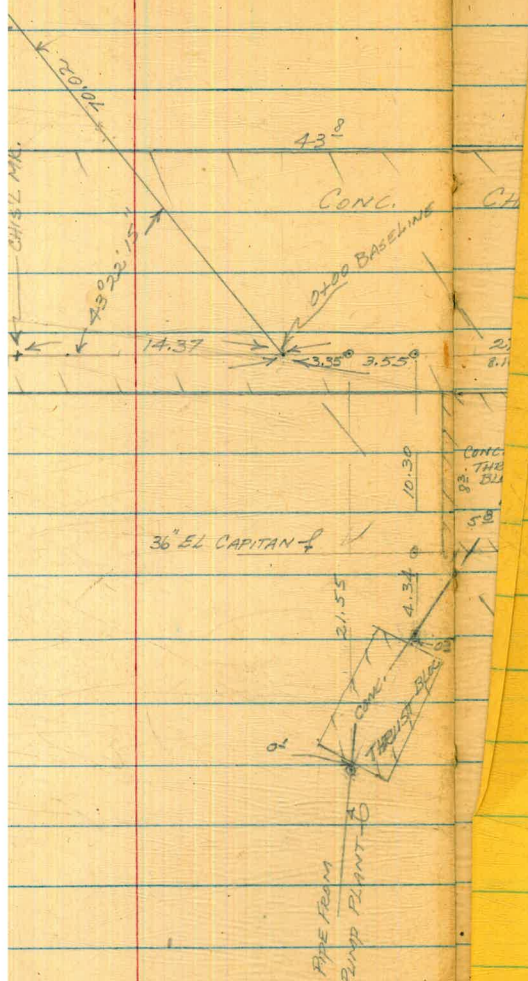
1/4" x 1/4" HUB - REF. PT.

1/4" x 1/4" HUB REF. PT.

CHISEL MK. IN CONG. STEP  
 CHLORINATION BLDG.

6/18

SHOREY  
KEMP  
VARON FAKIS  
SMITH



Information received from Bob Shorey  
by phone 7/12/56 1:45 PM

All measurements and angles from  
base line.

Access Manhole

28.1' from Sta 0+00 on base line  
and 4.1' right.

Southeast Corner of Pumping Plant  
 $47^\circ 03'$  left and dist. 35.7'  
Southwest Corner of Pumping Plant  
 $85^\circ 09'$  left and dist 26.2'

Width of building 22.1'

ELEV. & DETAIL AT ALVARADO  
PUMP PLANT LOCATION  
(CONT'D)  
0+00 - SEE PAGE 7

BM # 2A	1.27	113.42		112.15
CK. BM		1.40	112.02	
0+03 <sup>35</sup>	21 <sup>55</sup> RT.		6.19	107.23
0+06 <sup>90</sup>	14 <sup>69</sup> RT.		7.18	106.24
0+06 <sup>90</sup>	10 <sup>30</sup> RT.		8.28	105.14
0+15	10 <sup>30</sup> RT.		8.60	104.82
0+15	4 <sup>10</sup> RT.		9.31	104.11
0+20	4 <sup>10</sup> RT.		9.53	103.89
0+26 <sup>30</sup>	4 <sup>10</sup> RT.		9.85	103.57
0+25	7 <sup>8</sup> RT.		5.77	107.65
CK. BM.	0.48	108.82	5.08	108.34 = 108.47
0+29 <sup>70</sup>	10 <sup>30</sup> RT.		4.71	104.11
0+34 <sup>40</sup>	4 <sup>10</sup> RT.		6.07	102.75
CK. BM.	3.85	108.82	3.85	104.97 = 105.09
TP	8.53	107.32	10.83	98.79
CK. BM.			3.58	103.74 = 103.76

7/11/56  
SHOREY  
KEMP  
VARONFAXIS

(8)

B.P. IN CONC. CHAMBER APPROX. 65' RT. 0+00  
CHISEL MK' IN CONC. CHAMBER 40' RT. 0+00  
TOP OF PIPE FROM PUMP PLANT  
" " " " " "  
TOP 36" I.D. EL CAPITAN  
" " " " "  
" " " ALVARADO  
" " " "  
" " " "  
S.E. COR. OF CONC. BOX  
CHISEL MK'D 0+29 10<sup>30</sup> RT.  
TOP 36" I.D. EL CAPITAN  
" " " ALVARADO  
CITY BM # 25 MK'D 105.09 0+97 25' BT.  
BM # 26 B.P. IN A.V.A. CHAMBER APPROX. 500' W

Red. 7/12/56 H6

1042  
 -1252  
 TBM +5.23  
 TBM

2<sup>ND</sup> MURRAY PIPELINE

(25) RT. STR'S & GRD.

13.03 470.11      457.08  
 443.99

7/30/56  
 SHOPEY  
 KEMP  
 SMITH  
 NAIL IN P. POLE

Top of Bill. Split. 7192. TROJAN PIPELINE F.S. 200-15

0+25 <sup>50</sup>			0.20	469.31	455.52	C13 <sup>79</sup>
0+50			7.74	462.37	449.40	C12 <sup>92</sup>
0+68			11.84	458.27	444.50	C13 <sup>77</sup>
TP	0.79	<u>457.78</u>	13.12	456.99		
1+00 TP	1.22	<u>445.66</u>	13.34	444.44	433.30	C11 <sup>14</sup>
TP	0.14	<u>433.33</u>	12.77	432.89		
1+50 TP	0.16	<u>420.60</u>	12.89	420.44	412.20	C8 <sup>24</sup>
TP	0.60	<u>408.23</u>	12.95	407.65	385.75	
2+00 TP	0.80	<u>396.04</u>	13.01	395.24	385.60	C8 <sup>35</sup> C7 <sup>6</sup>
TP	0.60	<u>384.21</u>	2.69	383.35		
			12.49	383.55		C10 <sup>55</sup>
			9.34	374.87	364.32	
2+45 <sup>49</sup>			10.58	373.63	363.00	C10 <sup>63</sup>
2+57 <sup>81</sup>					363.00	✓
2+62 <sup>19</sup>					364.01	✓
2+83 <sup>22</sup>			0.93	383.28	374.04	C9 <sup>24</sup>
2+91 <sup>29</sup> TP	12.82	<u>397.00</u>	0.03	384.18		
			7.95	<del>389.95</del>	377.33	C12 <sup>72</sup> 11 <sup>72</sup>
75 TP	13.13	<u>409.40</u>	0.73	396.27		
3+20			9.84	399.56	389.48	C10 <sup>08</sup>
3+28 <sup>06</sup>			7.51	401.89	391.95	C9 <sup>24</sup>
3+43 <sup>39</sup>			2.16	407.24	396.85	C10 <sup>39</sup>
3+50 <sup>23</sup> TP	12.33	<u>421.42</u>	0.31	409.09	399.22	C9 <sup>87</sup>
3+81 <sup>79</sup>			1.58	419.84	406.45	C13 <sup>39</sup>
TP	12.60	<u>434.00</u>	0.02	421.40		
3+89 <sup>61</sup>			12.38	421.62	408.15	C13 <sup>47</sup>

Debris  
Pole

↓ V-18

2<sup>ND</sup> MURRAY PIPELINE(25) STRS & GRD.  
(CONT'D)

434.00

7/31/56  
SHOREY  
KEMP  
SMITH

10

4+00			10.89	423.11	409.77	C <sub>13</sub> <sup>34</sup>	
4+50	TP 11.06	443.81	1.25	432.75		C <sub>15</sub> <sup>33</sup>	
4+84 <sup>20</sup>			6.14	437.67	422.91	C <sub>14</sub> <sup>73</sup>	
4+92 <sup>12</sup>	TP 0.72	443.15	1.38	442.43		C <sub>14</sub> <sup>05</sup>	60' R.P. HUB 5+09
4+99 <sup>78</sup>			5.08	438.07	424.02	C <sub>13</sub> <sup>86</sup>	
5+07 <sup>55</sup>			4.29	438.86	424.50	C <sub>14</sub> <sup>36</sup>	
5+15 <sup>55</sup>			3.92	439.23	424.45	C <sub>14</sub> <sup>78</sup>	
5+23 <sup>17</sup>			3.80	439.35	423.78	C <sub>15</sub> <sup>57</sup>	
5+50			8.85	424.30	420.61	C <sub>13</sub> <sup>69</sup>	
6+00	TP 2.66	434.29	11.52	431.63		C <sub>14</sub> <sup>60</sup>	
6+50 <sup>17</sup>			4.79	429.30	414.70	C <sub>18</sub> <sup>82</sup>	
7+00			6.68	427.61	408.79	C <sub>18</sub> <sup>75</sup>	
7+13 <sup>83</sup>			10.09	424.20	405.45	C <sub>17</sub> <sup>65</sup>	
7+21 <sup>80</sup>	TP 0.86	422.56	12.12	422.17	404.52	C <sub>17</sub> <sup>71</sup>	
7+26 <sup>07</sup>	Δ PT.		12.59	421.70	403.99	C <sub>16</sub> <sup>56</sup>	
7+50			2.30	420.26	403.70	C <sub>13</sub> <sup>92</sup>	
7+93 <sup>54</sup>	TP 4.94	414.41	7.81	414.75	400.83	C <sub>11</sub> <sup>29</sup>	
8+04	CK. TBM		13.09	409.47		C <sub>10</sub> <sup>3</sup>	Top 6" ELBOW B.O. (F.B. 900-19)
8+08			7.40	407.01	395.72		
			8.29	406.12 = 406.12			
			8.78	405.63	395.30		
			8.94	405.47	395.30	C <sub>10</sub> <sup>2</sup>	

↓ LB

2<sup>nd</sup> MURRAY P.L.  
(25) STK. 5 & GROS.

44.41

7/31/56  
SHOREY  
KEMP  
SMITH

11

8+08 <sup>98</sup>		8.84	405.57	395.50	C10 <sup>1</sup> .
8+50		2.41	412.00	403.96	C8 <sup>0</sup> .
TP 11.16	<u>425.53</u>	0.04	414.37		
9+00		1.26	424.27	414.28	C10 <sup>0</sup> .
TP 12.77	<u>438.10</u>	0.20	425.33		
9+50		3.24	434.86	424.60	C10 <sup>3</sup> .
26 TP 11.94	<u>449.92</u>	0.12	437.98		
9+97		7.45	442.47	431.22	C11 <sup>3</sup> .
10+12 Δ PT. 5° BT.		5.11	444.81	433.72	C11 <sup>1</sup> .
TP 12.92	<u>451.60</u>	11.24	438.68		
10+13 <sup>03</sup>				433.89	2x2 HUB (50) R.P. LT.
10+28 Δ PT. 5° 41' BT.					
10+44 <sup>47</sup>				439.31	
10+59 <sup>87</sup>				441.57	
10+66 <sup>93</sup> Δ PT. 5° 41' LT.				442.41	
TP 12.44	<u>463.94</u>	0.10	451.50		
10+82 <sup>93</sup> BK. ⇒		7.54	456.40	444.31	C12 <sup>1</sup> .
10+85 AH. } E.P. Δ PT. 5° LT.					
11+25 <sup>32</sup>		4.30	459.64	449.09	C10 <sup>5</sup> .
11+41 <sup>23</sup>		3.74	460.20	450.76	C9 <sup>4</sup> .
11+50		3.52	460.42	451.20	C9 <sup>3</sup> .
11+96		1.58	462.36	453.50	C8 <sup>9</sup> .
12+25		0.94	463.00	454.90	C8 <sup>1</sup> .
12+50 H 10.42	<u>474.21</u>	0.15	463.79	455.57	C8 <sup>2</sup> .
12+83 <sup>05</sup> B.C.		2.91	464.30	456.45	C7 <sup>8</sup> .

↓

2<sup>nd</sup> MURRAY P.L.  
 (15) STR. 5 & GR. 5

474.21

13+00			8.89	465.32	456.90	C <sub>8</sub> <sup>4</sup>	
13+50			6.61	467.60	458.2	C <sub>9</sub> <sup>4</sup>	
13+88			5.99	468.22	459.20	C <sub>9</sub> <sup>0</sup>	
14+00			5.01	469.20	459.20	C <sub>10</sub> <sup>0</sup>	
14+50			4.35	469.86	459.20	C <sub>10</sub> <sup>2</sup>	
14+61 <sup>04</sup>			4.36	469.85	459.20	C <sub>10</sub> <sup>2</sup>	
14+77 <sup>06</sup>			4.31	469.70	459.20	C <sub>10</sub> <sup>2</sup>	
14+93 <sup>08</sup>			4.91	469.30	459.20	C <sub>10</sub> <sup>1</sup>	
15+00					459.20		
15+09 <sup>10</sup>			5.18	469.03	458.99	C <sub>10</sub> <sup>0</sup>	✓
+50			5.98	468.23	458.06	C <sub>10</sub> <sup>1</sup>	✓
TP 0.94	467.44		7.61	466.60			
16			1.63	465.81	456.53	C <sub>9</sub> <sup>3</sup>	✓
+50			3.74	464.70	453.74	C <sub>11</sub> <sup>0</sup>	
+85 <sup>02</sup>			5.34	462.10	451.78	C <sub>10</sub> <sup>3</sup>	
16+48 <sup>14</sup> AH.							
17+03 <sup>03</sup> SK. 5 E.C.			5.91	461.53	450.78	C <sub>10</sub> <sup>2</sup>	✓
16+50			5.98	461.46	450.69	C <sub>10</sub> <sup>8</sup>	
17	TP 0.92	459.95	8.41	459.03	447.90	C <sub>11</sub> <sup>1</sup>	
+10 <sup>33</sup>			1.62	458.33	447.32	C <sub>11</sub> <sup>0</sup>	
+26 <sup>32</sup>			3.95	456.60	446.47	C <sub>10</sub> <sup>1</sup>	
+42 <sup>23</sup>					446.15		

(CONT'D Pg. 2A)

2<sup>ND</sup> MURRAY P.L.  
 (15) STR. 3 & GRD. 3

Aug. 3 1956  
 SHOREY  
 KEMP  
 SMITH

13

TBM	7.88	447.86	439.98		
		0.59	447.27		
55+98 <sup>76</sup> ΔPT. 38° 03' 30" RT	0.48	447.38	439.5	C7 <sup>2</sup>	
56+15 <sup>18</sup> BK	1.35	446.51	438.5	C8 <sup>0</sup>	
56+12 <sup>11</sup> AH.					
56+50	3.17	444.69	436.1	C8 <sup>6</sup>	
57+00	5.50	442.36	432.9	C9 <sup>5</sup>	
57+15	6.02	441.84	432.0	C9 <sup>8</sup>	
57+50	6.75	441.11	431.9	C9 <sup>3</sup>	
58+00	7.16	440.70	431.8	C8 <sup>9</sup>	
58+50	6.83	441.03	431.8	C9 <sup>2</sup>	
59+00	5.83	442.03	431.7	C10 <sup>3</sup>	
59+50	4.72	443.14	431.6	C11 <sup>5</sup>	
60+00	5.15	442.71	431.6	C11 <sup>1</sup>	
60+50	6.26	441.60	431.5	C10 <sup>1</sup>	
61+00	7.61	440.25	431.4	C8 <sup>2</sup>	
B.C. 61+37 <sup>32</sup> BK	8.45	439.41	430.3	C9 <sup>1</sup>	
61+40 <sup>97</sup> AH.					
61+50 CK. TBM. 0.51	440.49	7.88	439.98	C9 <sup>3</sup>	
		1.16	439.33		
62+00	2.49	438.00	429.0	C9 <sup>0</sup>	
62+50	3.99	436.50	427.0	C9 <sup>5</sup>	

↓

July COR GAS VAL. CHAMBER (pg. 33 BK 900.)



2<sup>ND</sup> MURRAY PIPELINE (CONT'D)

⑮ STRES &amp; GRD.

8/3/56

SHOREY  
KEMP  
SMITH

14

440.49

62+53 <sup>78</sup> EL		4.14	436.35	426.9	C9 <sup>5</sup> ✓
63+00		5.80	434.69	424.9	C9 <sup>8</sup> ✓
63+50		7.94	432.55	422.8	C9 <sup>8</sup> ✓
64+00		10.05	430.44	420.7	C9 <sup>3</sup> ✓
64+50		11.64	428.85	418.7	C10 <sup>2</sup> ✓
TP	2.16	430.04	12.61	427.88	
65+00		2.95	427.09	416.6	C10 <sup>5</sup> ✓
65+38		4.34	425.70	415.0	C10 <sup>7</sup> ✓
65+50		4.64	425.40	415.0	C10 <sup>4</sup> ✓
66+00		5.93	424.11	414.9	C9 <sup>3</sup> ✓
66+50		5.47	424.57	414.8	C9 <sup>8</sup> ✓
67+00		4.76	425.28	414.7	C10 <sup>6</sup> ✓
67+50		5.30	424.74	414.6	C10 <sup>1</sup> ✓
68+00		5.74	424.30	414.5	C9 <sup>8</sup> ✓
68+50		6.07	423.97	414.4	C9 <sup>6</sup> ✓
68+95		5.92	424.12	414.3	C9 <sup>8</sup> ✓
69+00		6.64	423.40	413.8	C9 <sup>6</sup> ✓
69+50		8.70	421.34	412.7	C8 <sup>6</sup> *
CK. TBM	0.74	425.41	5.38	424.66 = 424.67	50. RIM CONC. M.H. 4" ANA (F.B. 900-3A)

## 2ND MURRAY PIPELINE

(15) STKS  
(CONT'D)425.41

70+00			5.92	419.49	409.1	C10 <sup>4</sup> ✓
70+50			9.59	415.82	405.6	C10 <sup>3</sup> ✓
TP	0.53	<u>413.74</u>	12.20	413.21		
71+00			3.00	410.74	402.0	C8 <sup>2</sup> ✓
71+50			7.64	406.10	397.0	C9 <sup>1</sup> ✓
72+00			12.40	401.34	392.0	C9 <sup>3</sup> ✓
TP	0.00	<u>400.77</u>	12.97	400.77		
72+50			4.18	396.59	387.0	C9 <sup>6</sup> ✓
73+75			4.85	395.92	384.5	C11 <sup>4</sup> ✓
73+00			4.90	395.87	384.4	C11 <sup>4</sup> ✓
73+50			4.81	395.96	384.2	C11 <sup>8</sup> ✓
74+00			5.59	395.18	384.0	C11 <sup>3</sup> ✓
74+50			6.80	393.97	381.8	C12 <sup>2</sup> ✓
74+75			8.37	392.40	380.7	C11 <sup>3</sup> ✓
75+00 TP	0.57	<u>391.52</u>	9.82	390.95	378.6	C12 <sup>4</sup> ✓
75+50			3.92	387.60	374.5	C13 <sup>1</sup> ✓
76+00			8.36	383.16	370.3	C12 <sup>2</sup> ✓
TP	0.10	<u>378.98</u>	12.64	378.88		
76+50			1.80	377.18	362.3	C14 <sup>2</sup> ✓
77+00 TP	4.16	<u>374.28</u>	8.86	370.12	358.0	C12 <sup>1</sup> ✓
CK. TBM	12.25	<u>377.12</u>	9.44	364.84	364.87	
(15) LT.			7.42	369.70	358.0	C11 <sup>2</sup> ✓
77+25			6.81	370.31	358.0	C12 <sup>3</sup> ✓
77+50			4.24	372.88	360.2	C12 <sup>2</sup> ✓

8/8/56  
SHOBEY  
KEMP  
PAULSON  
SMITH

15

TOP 6" DISCHARGE B.O. (F.B. 900-35)

2<sup>ND</sup> MURRAY PIPELINE  
 (15) STK'S (CONT'D)

8/13/56  
 SHOREY  
 KEMP  
 SMITH

16

		377.12				
TP	12.11	<u>388.90</u>	0.33	376.79		
78+00			11.60	377.30	364.7	C12 <sup>6</sup> ✓
78+50			7.50	381.40	369.2	C12 <sup>3</sup> ✓
79+00			4.84	384.06	371.9	C12 <sup>3</sup> ✓
79+50			3.18	385.72	374.5	C11 <sup>2</sup> ✓
80+00			1.26	387.64	377.2	C10 <sup>4</sup> ✓
TP	4.93	<u>393.82</u>	0.01	388.89		
80+50			3.97	389.85	379.9	C10 <sup>0</sup> ✓
80+78	<sup>17</sup> B.C.		1.44	392.38	381.4	C11 <sup>0</sup> ✓
81+00			2.58	391.24	381.4	C9 <sup>8</sup> ✓
81+50			3.39	390.43	381.4	C9 <sup>0</sup> ✓
82+00			6.73	387.09	377.36	C9 <sup>2</sup> ✓
82+50			10.32	383.50	373.32	C10 <sup>3</sup> ✓
82+75			11.64	382.18	371.30	C10 <sup>9</sup> ✓
83+00			11.77	382.05	371.30	C10 <sup>8</sup> ✓
83+01	<sup>28</sup> F.C.		12.00	381.82	371.30	C10 <sup>5</sup> ✓
CK. TEM	5.96	<u>393.59</u>	6.22	387.60 = 387.63		
83+50			9.76	383.83	373.4	C10 <sup>4</sup> ✓
84+00			6.29	387.30	377.9	C9 <sup>4</sup> ✓
84+50			2.70	390.89	381.1	C9 <sup>8</sup> ✓
84+75	<sup>18</sup> 7.57	<u>400.23</u>	0.93	392.66	382.7	C10 <sup>0</sup> ✓ +

So. RIM. A.V.A. M.H. (F.B. 200-36)

(CONT'D)

(13) LT

400.23

8/22/56  
SHOREY  
KEMP  
SMITH

17

85+00			6.59	393.64	382.7	C10 <sup>2</sup> ✓
85+50			5.53	394.70	382.8	C11 <sup>2</sup> ✓
86+00	OMIT					
86+01 <sup>23</sup>	B.C.		5.11	395.12	383.9	C12 <sup>2</sup> ✓
86+50			3.47	396.76	385.4	C11 <sup>4</sup> ✓
87+00			1.96	398.27	387.9	C10 <sup>4</sup> ✓
TP	11.78	<u>411.88</u>	0.13	400.10		
87+50			11.78	400.10	391.1	C9 <sup>2</sup> ✓
88+00			8.54	403.34	394.4	C8 <sup>2</sup> ✓
88+50			5.08	406.80	397.6	C9 <sup>3</sup> ✓
89+00			2.83	409.05	399.7	C9 <sup>4</sup> ✓
89+50			2.18	409.70	400.7	C9 <sup>2</sup> ✓
90+00			1.45	410.43	401.6	C8 <sup>8</sup> ✓
90+50			1.26	410.62	401.6	C9 <sup>2</sup> ✓
91+00 <sup>07</sup>	E.C.	(13) LT	2.58	409.30	400.0	C9 <sup>3</sup> ✓
(K.T.B.M)	1.39	412.57	0.72	411.16	= 411.18	
91+00 <sup>07</sup>	E.C.	(15) RT	2.85	409.72	400.0	C9 <sup>3</sup> ✓
91+50			5.03	407.54	398.4	C9 <sup>4</sup> ✓
92+00			5.81	406.76	396.8	C11 <sup>2</sup> ✓
92+50			6.57	406.00	395.2	C10 <sup>8</sup> ✓ *

SORIM AVA M.H. (F.B. 900-38)

CONT'D

BET.

412.578/23/56  
SHOREY  
KEMP  
SMITH

16580

18

93+00			2.44	404.13	393.6	C10 <sup>5</sup> ✓	
93+30			9.28	403.29	392.7	C10 <sup>6</sup> ✓	
93+50			9.80	402.77	392.4	C10 <sup>4</sup> ✓	
94+00 TP	6.01	<u>408.10</u>	10.48	402.09	391.5	C10 <sup>6</sup> ✓	
94+50			5.70	402.40	391.4	C11 <sup>2</sup> ✓	
95+00			5.16	402.94	391.3	C11 <sup>6</sup> ✓	
95+50			4.82	403.28	391.2	C12 <sup>1</sup> ✓	
96+00			4.86	403.24	391.1	C12 <sup>1</sup> ✓	
96+50			4.63	403.47	391.0	C12 <sup>5</sup> ✓	
97+00			4.18	403.92	391.0	C12 <sup>2</sup> ✓	
97+50			5.87	402.23	390.9	C11 <sup>3</sup> ✓	
98+00			9.48	398.62	387.4	C11 <sup>2</sup> ✓	
OK TBM	1.24	<u>404.71</u>	4.63	403.47	403.47		So. RIM AYA M.H. @ 96+50 15' BT. (P.B. 900-38)
98+38			8.95	395.76	384.7	C11 <sup>1</sup> ✓	
98+84			12.52	392.19	380.1	C12 <sup>1</sup> ✓	403.47 (38)
TP	0.08	<u>392.28</u>	12.51	392.20			
99+00			1.88	390.40	378.0	C12 <sup>4</sup> ✓	
99+50			8.55	383.73	371.6	C12 <sup>1</sup> ✓	
TP	0.22	<u>380.22</u>	12.28	380.00			
100+00			2.90	377.32	365.2	C12 <sup>1</sup> ✓	
100+40			8.27	371.95	360.1	C11 <sup>2</sup> ✓	
100+50			9.62	370.60	358.5	C12 <sup>1</sup> ✓	*

(CONT'D PG. 19.)

(CONT'D)

B.B.T.

8/30/56  
SHOREY  
KEMP  
SMITH

19.

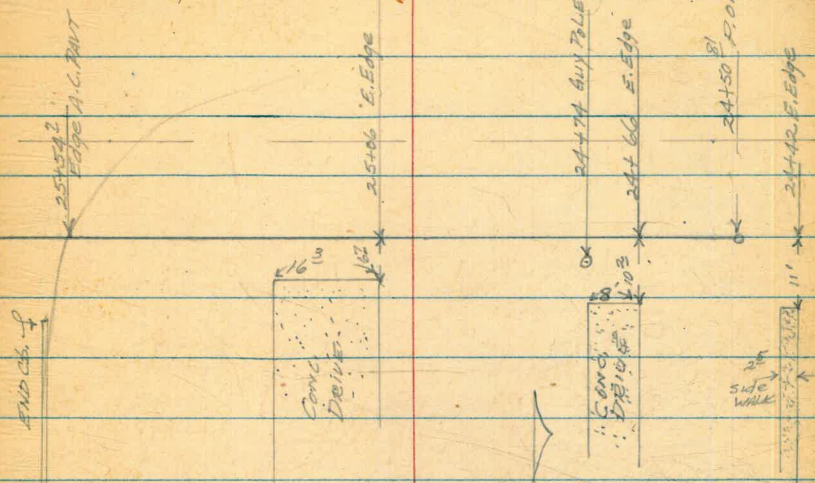
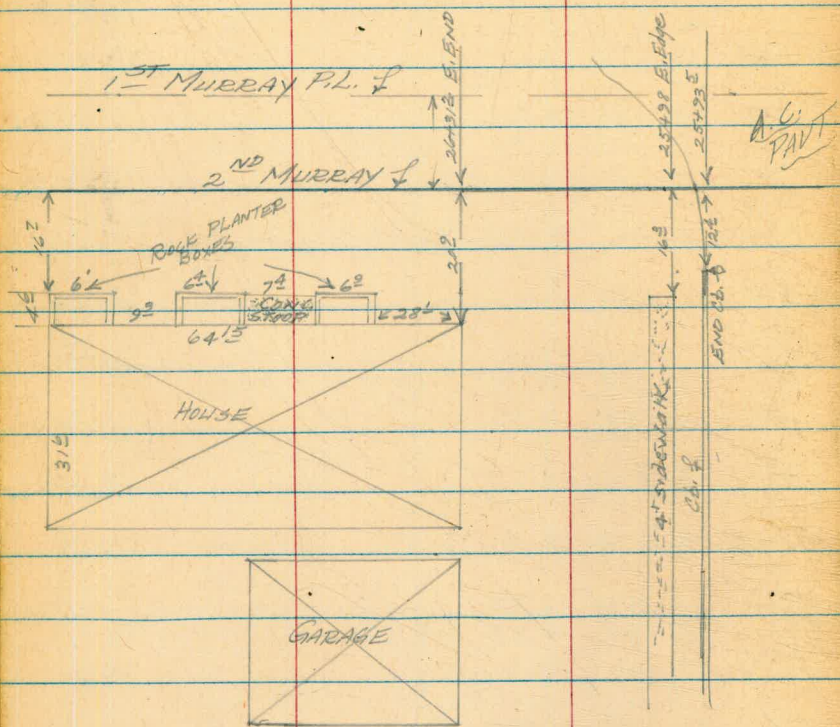
		<u>380.22</u>				
TP	0.06	<u>367.98</u>	12.30	367.92		C13 <sup>0</sup> ✓
101+00			4.78	363.20	350.2	
TP	0.07	<u>355.03</u>	13.02	354.96		C11 <sup>6</sup> ✓
101+50			1.43	353.60	342.0	
102+00			9.54	345.49	334.3	C11 <sup>2</sup> ✓
TP	0.21	<u>342.19</u>	13.05	341.98		C10 <sup>2</sup> ✓
+50			5.44	336.75	326.60	
103-TP	0.20	<u>329.40</u>	12.99	329.20	318.9	C10 <sup>3</sup> ✓
+50			7.20	322.20	311.2	C11 <sup>0</sup> ✓
+75			10.29	319.11	307.3	C11 <sup>8</sup> ✓
TP	0.10	<u>316.76</u>	12.74	316.66		C11 <sup>4</sup> ✓
104-			0.86	315.90	304.5	
+50			7.36	309.40	299.0	C10 <sup>4</sup> ✓
+92			11.96	304.80	294.3	C10 <sup>5</sup> ✓
105-			12.65	304.11	293.9	C10 <sup>2</sup> ✓
TP	0.28	<u>303.88</u>	13.16	303.60		C9 <sup>8</sup> ✓
+50			2.82	301.06	291.3	
106-			5.68	298.20	288.6	C9 <sup>6</sup> ✓
+50			8.41	295.47	285.9	C9 <sup>6</sup> ✓
107-			10.72	293.16	283.3	C9 <sup>2</sup> ✓
+23			11.28	292.60	282.0	C10 <sup>6</sup> ✓
+50 TP	0.10	<u>291.15</u>	12.83	291.05	280.1	C11 <sup>0</sup> ✓
108-			3.28	287.87	277.0	C10 <sup>2</sup> ✓
+16			4.43	286.72	276.0	C10 <sup>2</sup> ✓ *

(Cont'd on pg. 22.)

↓

DETAIL & ELEV'S BETWEEN  
STA'S. 24+42 TO 24+00 2<sup>ND</sup> MURRAY P.L.

8/23/56  
SHOREY  
KEMP  
SMITH



ELEV'S TOP FOUNDATION OF HOUSE

TBM	5.36	459.36	454.00
Top FOUNDATION HOUSE N.E. COR.	6.07	453.29	
"	"	" N.W. COR.	6.07 453.29
"	"	" S.E. "	6.07 453.29
"	"	" S.W. "	6.08 453.28
CK. BM	5.36	454.00 = 454.00	

L.L.T. AVA M.H. 24+52 15' RT. (E.B. 900-22)

⑬ STRKS & GRD

BM	11.86	124.01		112.15		
TP	1.13	124.63	0.51	123.50		
118+52			15.50	109.13	97.0	C12 <sup>1</sup>
118+50			16.50	108.13	97.0	C11 <sup>1</sup>
118			16.62	108.01	97.0	C11 <sup>2</sup>
117+50			14.30	110.33	100.7	C9 <sup>6</sup>
117+25			10.40	114.23	102.5	C11 <sup>2</sup>
117+06 <sup>80</sup> E.C.			3.90	120.73	109.2	C11 <sup>5</sup>
117 TP	12.15	136.17	0.61	124.02	111.7	C12 <sup>3</sup>
116+75 TP	13.11	149.23	0.05	136.12	120.9	C15 <sup>3</sup>
116+52			7.86	141.37	129.0	C12 <sup>4</sup>
116+25 TP	12.31	160.67	0.87	148.36	135.4	C13 <sup>2</sup>
116+00			7.30	153.37	141.4	C12 <sup>2</sup>
115+95			6.23	154.44	142.6	C11 <sup>8</sup>
115+75			3.05	157.62	147.0	C10 <sup>6</sup>
TP	13.17	172.89	0.95	159.72		
115+51 <sup>82</sup> B.C.			11.10	161.79	152.1	C9 <sup>7</sup>
TP	13.06	185.36	0.59	172.30		
115+00			12.15	173.21	163.5	C9 <sup>3</sup>
114+52			3.01	182.35	174.0	C8 <sup>4</sup>
TP	12.66	197.93	0.09	185.27		
114+2.5			10.20	187.73	179.1	C8 <sup>6</sup>
114+00			4.77	193.16	183.8	C9 <sup>4</sup>
TP	12.34	209.26	1.01	196.92		
113+50			5.56	203.70	193.2	C10 <sup>5</sup>

8/29/56  
SHOREY  
SMITH  
PAULSON

B.P. IN CONC CHAMB. @ PUMP PLANT

1.25 109.38 108.13

12.98 96.49 F0<sup>3</sup>  
13.54 95.84 F0<sup>3</sup>



8/29/56  
SHOREY  
SMITH  
PAULSON.

21

TP	12.80	202.26				
		221.93	0.13	209.13		
113+15			11.22	210.71	197.8	910 <sup>2</sup>
113+00			8.32	213.61	202.2	911 <sup>4</sup>
112+70			3.35	218.58	207.0	911 <sup>6</sup>
112+62 <sup>16</sup> E.C.			1.43	220.50	208.0	912 <sup>5</sup>
TP	4.88	225.53	1.28	220.65		
TBM			3.56	221.97		

SET TBM 2X2 HUB 112+62<sup>16</sup> E.C. 35 RT.

101+00

101+50

102+00

102+50

103+00

103+50

103+75

104+00

104+50

104+92

105+00

105+50

106+00

106+50

107+00

107+23

107+50

108+00

291.15

108+16

4.43 286.72 276.0

C10<sup>2</sup> ✓

108+43

<sup>21</sup> ΔPT. = 1'29" LT. (CONT'D) (Pg. 23) 7.88 283.27 272.2

C10<sup>2</sup> ✓ \*

OMIT THESE STAKS ON Pgs. 19

(CONT'D)  
(15) STR'S8/31/56  
SHREY  
KEMP  
SMITH291.15

108+50		8.36	282.79	272.7	C10 <sup>1</sup> ✓	
108+71		10.09	281.06	270.6	C10 <sup>5</sup> ✓	
109+00 TP	0.15	<u>278.42</u>	12.88	278.27	265.4	C12 <sup>2</sup> ✓
109+30		4.98	273.44	260.0	C13 <sup>4</sup> ✓	
109+50		8.65	269.77	256.3	C13 <sup>5</sup> ✓	
TP	0.32	<u>266.20</u>	12.54	265.88		C13 <sup>2</sup> ✓
110+00		5.25	260.95	247.3		C13 <sup>2</sup> ✓
110+18		8.36	257.84	244.2		C13 <sup>6</sup> ✓
110+50 TP	0.14	<u>253.36</u>	12.98	253.22	239.2	C14 <sup>1</sup> ✓
110+86 <sup>B</sup>	B.C.	5.80	247.56	233.5		C14 <sup>1</sup> ✓
111+00		7.42	245.94	231.5		C14 <sup>4</sup> ✓
TP	0.15	<u>240.38</u>	13.13	240.23		
111+50		2.08	238.30	223.7		C14 <sup>6</sup> ✓
111+75		6.36	234.02	219.8		C14 <sup>2</sup> ✓
112+00		10.10	230.28	216.0		C14 <sup>3</sup> ✓
TP	0.10	<u>227.43</u>	13.05	227.33		
112+50		4.76	222.67	207.6		C13 <sup>1</sup> ✓
112+62 <sup>16</sup>	E.C.	6.98	220.45	208.0		C12 <sup>5</sup> ✓ *
CK. TBM		5.50	221.93 = 221.97			2x2 HUB R.P. 35' RT. 112+62 <sup>16</sup> E.C. (SEE Pg. 21)

220.50  
(221.97)

(15) STK'S & GRD

459.95

9/18/56

SHOREY  
KEMP  
SMITH

(24)

17+90 <sup>22</sup>		4.57	455.38	445.19	C10 <sup>2</sup>
18+38 <sup>21</sup>		6.09	453.86	444.23	C9 <sup>2</sup> ✓
+86 <sup>20</sup>		6.56	453.39	443.27	C10 <sup>1</sup>
19+34 <sup>19</sup>		6.86	453.09	442.31	C10 <sup>8</sup>
+82 <sup>18</sup> TP 4.75	456.93	7.77	452.18	441.35	C9 <sup>7</sup>
	<del>455.82</del>	8.88	451.09		
+98 <sup>18</sup>		5.08	450.74	441.05	C9 <sup>6</sup>
20+14 <sup>18</sup>		5.92	449.90	441.05	C8 <sup>8</sup>
+50		6.57	449.25	441.20	C8 <sup>1</sup> (GRD SHOT - HUB GONE)
21 ~ TP	5.04	457.50	452.46	441.94	C8 <sup>8</sup> ✓
+50			442.68		(DESTROYED)
22 ~		4.70	452.80	443.42	C9 <sup>4</sup>
+50		3.89	453.61	444.16	C9 <sup>4</sup>
23 ~		3.34	454.16	444.90	C9 <sup>3</sup>
+50		2.90	454.60	445.64	C9 <sup>0</sup>
+76		2.32	455.18	446.00	C9 <sup>2</sup>
24 ~		2.01	455.49	446.00	C9 <sup>5</sup>
+50 TP 2.19	458.00	1.69	455.81	446.00	C9 <sup>8</sup>
+62 <sup>19</sup>		2.28	455.72	446.00	C9 <sup>7</sup>
+78 <sup>18</sup>		2.26	455.74	445.99	C9 <sup>7</sup>

(CONT'D FROM Pg. 12)

✓

9/18/56

25

(15) STKIS 6' GRD.  
(CONT'D)  
458.00

25		2.22	455.78	445.75	C10 <sup>0</sup>	
+50		3.77	454.23	445.19	C9 <sup>0</sup>	
+87		4.40	453.60	444.80	C9 <sup>8</sup>	
26		4.28	453.72	444.49	C9 <sup>3</sup>	
+50		5.00	453.00	443.30	C9 <sup>3</sup>	
+75	(15) LT.	5.47	452.53	442.70	C9 <sup>8</sup>	
+75	(15) RT	3.00	455.00	442.70	C12 <sup>3</sup>	
27		3.08	454.92	441.85	C13 <sup>0</sup>	
+50		5.12	452.88	440.05	C12 <sup>8</sup>	
+66	<sup>10</sup>	5.78	452.22	439.60	C12 <sup>6</sup>	
+75		6.10	451.90	439.30	C12 <sup>6</sup>	
+81	<sup>25</sup>	6.75	451.25	438.62	C12 <sup>7</sup>	
+97	<sup>72</sup>	8.03	449.97	437.08	C12 <sup>9</sup>	
28+13	<sup>64</sup>	9.54	448.46	435.51	C13 <sup>0</sup>	
+29	<sup>59</sup>	11.02	446.98	434.17	C12 <sup>8</sup>	
+45	<sup>39</sup>	12.28	445.72	433.37	C12 <sup>3</sup>	
+50	TP 13.02	458.32	12.70	445.30	433.14	C12 <sup>3</sup>
CR. TBM		4.34	453.98	=454.00		

(CONT P. 31)

LET 24+52.15' RT.

(493.09)  
↓

9/7/56  
SHOREY  
SMITH

(25) STK'S & G.I.D.  
(CONT'D)

PLUG IN AVA M.H. 46+30 25' RT.

TEM	3.56	472.03		468.47	
TP	0.37	459.46	12.94	459.09	
41+84	29		10.79	448.67	434.5
42			9.39	450.07	437.0
+38			5.56	453.90	443.0
+50			4.53	454.93	444.1
43	TP 10.89	469.50	0.85	458.61	448.1
+30			8.95	460.55	450.4
+50			7.52	461.98	451.5
44			4.80	464.70	454.0
+12			4.48	465.02	454.6
+50			3.89	465.61	455.8
45			2.72	466.78	457.2
+50			1.22	468.28	458.7
46			1.50	468.00	460.1
CK. B.M.	4.96	473.43	1.03	468.47 = 468.47	
+50			4.56	468.87	460.1
47			4.33	469.10	460.1
+50			5.56	467.87	460.1
48+00			4.85	468.58	460.1
+20			4.48	468.95	460.1
+50 TP	4.35	473.67	4.11	469.32	459.9

C14<sup>2</sup>  
C13<sup>1</sup>  
C10<sup>2</sup>  
C10<sup>8</sup>  
C10<sup>5</sup>  
C10<sup>3</sup>  
C10<sup>5</sup>  
C10<sup>7</sup>  
C10<sup>4</sup>  
C9<sup>8</sup>  
C9<sup>6</sup>  
C9<sup>6</sup>  
C7<sup>2</sup>  
C9<sup>8</sup>  
C9<sup>2</sup>  
C8<sup>5</sup>  
C8<sup>2</sup>  
C9<sup>4</sup>

467.85

(2.5) STR'S & GRD  
(CONT'D)

473.67

49 ~

5.82 467.85 459.4

C8<sup>5</sup> ✓

+50

6.58 467.09 458.9

C8<sup>2</sup> ✓

50 ~

7.00 466.67 458.5

C8<sup>2</sup> ✓

+50

6.82 466.85 458.0

C8<sup>2</sup> ✓

51 ~ TP 3.67

469.54

7.80 465.87 457.5

C8<sup>4</sup> ✓

+50

4.54 465.00 457.0

C8<sup>0</sup> ✓

52 ~

5.37 464.17 456.5

C7<sup>2</sup> ✓

+50

5.72 463.82 456.0

C7<sup>8</sup> ✓

CK. BM

0.42 469.12 = 469.13

PK. NAIL IN FILE 52+50 45' RT.

53 ~

6.23 463.31 455.6

C7<sup>2</sup> ✓

+37

7.32 462.22 455.2

C7<sup>0</sup> ✓

+50

7.82 461.72 454.6

C7<sup>6</sup> ✓

54 ~

8.76 460.78 452.0

C8<sup>8</sup> ✓

+50 TP 1.68

460.04

11.18 458.36 448.8

C9<sup>6</sup> ✓

55 ~

5.86 454.18 445.7

C8<sup>5</sup> ✓

+50

9.04 451.00 442.5

C8<sup>5</sup> ✓

55+98<sup>96</sup> APT.

12.26 447.78 439.5

C8<sup>3</sup> ✓ x

CK.

12.59 447.45 = 447.38

(13) STA. 55+98<sup>96</sup> (SEE PG. 13)

2nd MURRAY P.L  
 1/2 offset grade in  
 bottom of ditch

9/25/56  
 Beatty  
 Perry  
 Smith  
 O'Brien

28

TBM	710	413.22	406.12	6" Elbow B.O. (19.10)
HP on P.L.	13.26	414.45	12.03 401.19	
7+21.80			9.46 400.99 404.99 403.99	(57) C/O Bottom pipe
7+13.82			8.93 405.52 405.52 402.52	(48) C/O " "
7+00			8.00 406.45 406.45 405.45	(525) C/O " "
6+50.17 H)	11.54	425.01	4.16 409.79 409.79 0.98 413.27 408.79	(525) C/O " "
6+00			9.30 415.71 415.71 414.71	(47) C/O " "
5+50			3.40 421.61 421.61 420.61	(48) C/O " "
HP 5+23.12	1.07	425.85	0.23 424.78 424.78 423.78	(50) C/O " "
5+15.55			0.40 425.45 425.45 424.45	(51) C/O " "
5+07.55			0.35 425.50 425.50 424.50	(50) C/O " "
4+99.78			0.35 425.50 425.50 424.50	(48) C/O " "
HP 4+92.12	0.04	425.09	0.80 425.05 425.04 424.04	(53) C/O " "
4+84.20			1.15 423.94 423.94 422.94	(52) C/O " "
4+50			6.50 418.59 418.59 12.75 412.34 417.59	(50) C/O " "
HP 4+00	3.71	416.05	5.28 410.77 410.77 409.77	(48) C/O " "
3+89.61			6.90 409.15 409.15 408.15	(52) C/O " "
3+81.79			8.62 407.43 407.43 12.89 403.16 406.45	(44) C/O " "
TP 3+50.93	0.62	403.78	3.56 400.22 400.22 399.22	(61) C/O " "



2<sup>ND</sup> MURRAY P.L.  
(CONT.)

403.78

KEMP  
SMITH  
O'BRIEN

9/26/56

29

3+43 <sup>29</sup>		5.93	397.85	397.85	(58)	C10	BOTTOM PIPE	
				<del>397.85</del>				
3+28 <sup>06</sup>		10.83	392.95	392.95	(56)	C10	" "	
				<del>391.95</del>				
3+20 <sup>75</sup>		13.30	390.48	390.48	(47)	C10	" "	
		4.34	399.44	<del>389.48</del>				
7.11	406.55	4.64	401.91 = 401.89		(25)	3+28 <sup>06</sup>		

P 13.01 414.20 401.19 on P.L. 4' x 6' & pipe

7+29 <sup>00</sup>		10.07	404.13	404.13	(58)	C10	BOTTOM PIPE	404.96
				<del>403.13</del>				0.77
7+50		12.37	401.83	401.83	(53)	C10	" "	405.73
IP		12.48	401.72	<del>400.83</del>				9.06
7+92 <sup>54</sup> ✓	6.94	408.66	11.94	396.72	(44)	C10	" "	396.67
IP			6.58	402.08				
8+04 <sup>53</sup>	11.46	413.54		396.30				
				<del>395.30</del>				
8+08 <sup>00</sup>				396.30				
				<del>395.30</del>				
8+50 ✓		8.58	404.96	404.96	(5)	C10	" "	
IP		0.14	413.40	<del>403.96</del>				
9+00 ✓	11.20	424.60	9.32	415.28	(43)	C10	" "	
IP			1.58	423.02				
9+50 ✓	10.50	433.52	7.72	425.60	(39)	C10	" "	
				<del>424.60</del>				
9+97 <sup>26</sup> ✓		1.30	432.22	432.22	(47)	C10	" "	
IP	12.54	443.89	2.17	431.35				
10+12 <sup>00</sup> X PT 5' X 8'			-7.75	436.14				
IP				<del>431.35</del>				
10+13 <sup>03</sup>	10.51	446.65	11.76	434.89	(57)	C10	" "	
				<del>434.89</del>				
10+28 <sup>61</sup> X PT		9.13	437.52	437.52	(55)	C10	" "	
				<del>437.52</del>				
10+44 <sup>17</sup>		6.28	440.37	440.37	(52)	C10	" "	

2<sup>ND</sup>

MURRAY P.L.

(CONT.)

446.65

30

10+59.87

4.08 442.57 442.57

(64) C10

BOTTOM PIPE

10+66.93 5041' LT

10+75.76

2.19 444.46 444.46

(63) C10

"

"

10+82.92 BK = 10+85 AH

10+93.62

6.32

452.89

0.08 446.57 446.57

(43) C10

"

"

11+25.32

450.09

11+38 V.P.I.

3.45 449.44 450.60

F16

11+41.23

451.76

0.21 446.44

TP

5.06 451.50

10.45 442.44 = 442.47

(25) 9+97.26

⑮ STKS EGRD  
CONT'D FROM P. 25

KEMP  
SMITH  
O'BRIEN

9/28/56

31

BM	5.42	459.42	454.00	AVA	LET 24+52 15' RT.	
TP			8.54	450.88		
	0.22	451.10				
TD						
29+00			11.64	439.46	430.60	C 8 2
	0.84	440.30				29+75 426.80
29+50			3.10	437.20	428.07	C 9 1
30+00			4.20	436.10	425.98	C 10 1
30+50			5.33	435.17	424.32	C 10 2
30+69.26			5.68	434.62	423.69	C 10 2
30+85.25			6.22	434.08	424.14	C 10 2
31+01.22			6.32	433.98	425.13	C 8 2
31+50			5.97	434.33	428.18	C 6 1
31+81.06			4.50	435.80	430.13	C 5 1
31+97.04			3.10	437.20	431.03	C 6 2
TPM						
32+12.87 (RT)			0.65	439.65	431.26	C 8 4
TP	9.84	449.49	0.25	449.24	454.00	LET AVA 29+52
32+50 (RT)	9.91	459.15	5.08	454.07	431.81	C 1 4 2
32+12.87 (LT)	8.28	447.93 W	1.85	446.08	431.26	C 7 6
33+00			2.61	445.32	432.56	C 1 2 6
32+50 (LT)			2.75	445.18	431.81	C 1 3 4
33+56.85			3.18	444.75	433.40	C 1 1 4
33+72.83			3.29	444.64	434.18	C 10 4
TP			2.84	445.09		
33+88.79	12.20	457.29	12.04	445.25	435.31	C 9 2
34+00			11.00	446.29	436.07	C 10 2
34+50			7.64	449.65	439.60	C 10 1

439.65 TP  
+ 9.84  
449.49 W  
- 0.25  
449.24 TP  
+ 9.91  
459.15 W  
- 5.08  
454.07 TP

439.65  
8.28  
447.93

✓

(15) STKS & GRD  
(CONT)

457.29

35+00

4.85 452.44 442.33 C10<sup>2</sup>

35+32.53

3.67 453.60 444.10 C9<sup>5</sup>

35+48.37

3.58 453.71 444.40 C9<sup>3</sup>

35+64.37

3.45 453.91 444.40 C9<sup>4</sup>

36+00

<sup>452.74</sup>  
4.55 453.74 444.00 C9<sup>7</sup> C8<sup>7</sup>

36+44.37

<sup>452.72</sup>  
4.57 453.72 443.29 C9<sup>4</sup> C9<sup>4</sup>

36+60.27

<sup>452.83</sup>  
4.46 453.83 442.68 C11<sup>1</sup> C10<sup>2</sup>

36+76.25

4.80 452.49 441.89 C10<sup>6</sup>

37+00

<sup>451.83</sup>  
5.46 452.83 440.67 C11<sup>1</sup> C11<sup>2</sup>

37+50

7.88 449.41 438.15 C11<sup>2</sup>

38+04.09

(LT)  
506.33 452.33

10.02 447.27 435.42 C11<sup>2</sup>

38+04.09

(RT)

5.20 447.13 435.42 C11<sup>2</sup>

+12<sup>90</sup> B.C.

5.56 446.77 434.77 C12<sup>0</sup>

38+52.07

SEE P. 33 6.84 445.49 433.00 C12<sup>5</sup>

38+68.12

6.75 445.58 432.38 C13<sup>2</sup>

39+00

6.58 445.75 431.75 C14<sup>0</sup> ✓ Mark'd wrong

39+16.17

7.09 445.24 431.43 C13<sup>8</sup>

39+32.19

7.41 444.92 431.13 C13<sup>8</sup>

39+50

7.39 444.94 430.81 C14<sup>1</sup>

4.42 449.57

7.38 444.95

Cont'd on 129 34

Emorted 10/8/58

2nd Murray P.L  
 CK grades & of  
 excavated ditch

10/2/56  
 Deatty  
 SMITH

33

IP	0.56	402.45	401.89	(25) C994	3428 <sup>06</sup>
		2.82	399.63 = 399.8	(25) C1008	3420 <sup>75</sup>
IP	0.62	389.80	13.27	389.18	
IP	2.46	379.53	12.73	377.07	3640 C104 C130 2462 <sup>19</sup>
2+20 <sup>51</sup> (25)		3.40	376.13	364.32	C1180
2+40 <sup>57</sup> & (pin)		6.86	372.67	364.32	C84
2+00		6.86	372.67	385.75	F1308
Set IP		0.78	378.75		on Rock 2442 (30)
	7.41	380.08	372.67		IRON PIN
		1.31	378.77		SET STAKE ON & WITH EL.
T.B.M.	351	450.78	447.27	(15) 38+04 <sup>09</sup>	RT
38+12 <sup>20</sup> BC (15) LT		3.84	446.94	434.77	C12 <sup>1</sup>
38+52 <sup>07</sup> (15) LT		6.29	444.49	433.00	C11 <sup>5</sup>
38+68 <sup>12</sup> (15) LT		6.25	444.53	432.39	C12 <sup>1</sup>
39+00 (15) LT		6.19	444.59	431.75	C12 <sup>3</sup>
CK. BM		5.02	445.76 = 445.75	(15) 39+00	RT.

STKS & GEDS  
CONT FR. P. 32.

449.37

40+00 6.04 443.33 429.91 C134

T.B.M.

40+20 96 PCC 6.43 442.74 429.50 C134

5.43 449.37

TP 13.29 461.15 0.51 447.86

TP 0.54 460.61

8.68 469.29

CK BM 0.84 468.47 = 468.45

PLUG IN AYA M.H. 46+30 25' ET

9.11 452.05

142.94

40+44.35 8.71 443.34 429.10 C142

10/4/56

40+60.44 8.43 443.62 429.00 C146

40+76.51 8.16 443.89 429.00 C149

41+00 8.48 443.57 429.00 C146

41+24.62 8.05 444.0 429.00 C150

41+40.61 7.53 444.52 432.25 C143

41+72.59 5.38 446.67 432.81 C139

41+84.29 EC (15) 4.15 447.90 434.53 C134

" (25) 3.31 448.70 ' C143

41+88.46 (25) 2.87 449.23 435.10 C145

42+00 25 1.95 450.10 437.0 C131

TP 7.53 458.48 1.10 450.95

CK (25) 42+38 4.57 453.91 = 453.91 (pg. 26.)

2nd MURRAY P.L.  
 Ref. 2 grade in bottom of  
 excavated ditch

10/5/56

35

9P	9.55	456.12	446.57	(43)	10+9362	pg 30
10P	10.50	465.44	448	454.94		
11+96		12.75	452.69	453.50	F08	
12+25		10.65	454.79	454.90	F04	
12+8385 B.C		9.38	456.06	456.45	F04	
13+00		8.99	456.45	456.90	F05	
13+50		7.44	458.00	458.2	F02	
13+88		6.70	458.74	459.2	F05	
14P	335	461.80	6.95	458.49	459.2	F07
14+50		3.18	458.66	459.2	F05	
14+61 <sup>04</sup>		3.10	458.74	459.2	F05	
14+77 <sup>06</sup>		3.11	458.73	459.2	F05	
14+93 <sup>88</sup>		3.21	458.63	459.2	F06	
15+00		3.05	458.79	459.2	F04	
15+09 <sup>10</sup>		3.44	458.40	458.99	F06	
15+50		4.07	457.77	458.06	F03	15+89 <sup>18</sup> 457.2
16+00		6.62	455.22	456.53	F13	
16+50		9.36	452.48	453.74	F13	
16+85 <sup>02</sup>		11.02	450.82	451.78	F10	
17+03 <sup>03</sup> BK EC		11.84	450.00	450.78	F08	✓
	12.06	462.06	0.59	461.49	= 461.53	= (15) EC pg. 12.

2nd Murray P.L.  
 & Excavated ditch

9/6/50 Saturday am  
 Beatty  
 Smith

36

IP on rock	0.33	379.08		378.75		1st 33
IP	4.32	372.56	10.86	368.22		
2+40 <sup>51</sup>			8.60	363.94	364.32	F04
2+45 <sup>49</sup>			9.15	363.39	363.00	C04
2+57 <sup>81</sup>			8.25	364.79	363.00	C12
2+62 <sup>19</sup>			7.94	364.6	364.01	C06
2+83 <sup>99</sup>			1.38	371.16	374.05	F29
IP	11.93	384.47	0.00	372.54		
2+91 <sup>29</sup>			9.86	372.81	377.33	F25
2+00			1.43	383.24	385.72	F25
ck IP			5.74	378.73 = 378.75		orig. IP
IP	1.36	372.70	13.13	371.34		
2+40 <sup>51</sup>			7.38	365.32	365.32	C10 (53)
2+62 <sup>19</sup>			7.69	365.01	365.01	C10 (53)
IP	8.59	379.92	1.37	371.33		
ck IP	12.35	391.10	1.20	378.78 = 378.75		
IP on Rock 837		394.56	4.91	386.19		
ck (25) 2+00			1.20	393.36 = 393.35		

↓



2nd MURRAY P.L.  
Ref & grade in bottom of  
EXCAVATED DITCH

OCT. 8 1956 - Monday.

Kemp  
Smith  
O'Brien

37

T.B.M.								
17+03 <sup>03</sup> BK.	5.92	455.92	450.00					448.34
16+48 <sup>42</sup> AH.								4.10
17+00			7.96	447.96	447.90			453.05
								97.97
17+10 <sup>33</sup>			8.43	447.49	447.32			5.32
17+26 <sup>32</sup>			8.45	447.47	446.27			
17+42 <sup>33</sup>					446.15			
17+90 <sup>22</sup>			11.60	444.32	445.19			
18+38 <sup>21</sup>			13.11	442.81	442.23			441.77
TP.			13.23	442.69				3.78
18+86 <sup>21</sup>	7.18	449.87	7.37	442.50	443.27			445.55
				442.81				10/19/56
19+34 <sup>19</sup>			7.06	441.81	442.31			
19+82 <sup>18</sup>					441.35			2.24 443.31 C1 <sup>0</sup>
19+98 <sup>18</sup>					441.05			3.20 442.35 C1 <sup>0</sup>
20+14 <sup>18</sup>					441.05			3.50 442.05 C1 <sup>0</sup>
20+50				441.96				
			7.91	440.96	441.2			3.35 442.20 C1 <sup>0</sup>
				441.77				
21+00			8.10	440.77	441.91			
				441.66				
21+50			8.21	440.66	442.68			
				442.40				
22+00			7.47	441.40	443.22			
				443.82				
22+50			6.05	442.82	444.16			
TP				444.06				
23+00			5.81	443.06	444.90			
	9.60	452.66						
		453.66						

10/8/56

38

453.66  
~~452.66~~

				444.18	445.47	F1 <sup>3</sup>	
23+50		9.48	<del>443.18</del>	<del>445.62</del>	<del>445.62</del>	F2 <sup>3</sup>	
			445.48			F0 <sup>5</sup>	
23+76		8.18	<del>444.48</del>	446.0		F1 <sup>5</sup>	
			445.51			F0 <sup>5</sup>	
23+95		8.15	<del>444.51</del>	"		F1 <sup>5</sup>	
			446.32			C0 <sup>3</sup>	
24+24		7.34	<del>445.32</del>	"		F0 <sup>7</sup>	
24+50							
24+62 <sup>19</sup>				446.0			
			445.71			F0 <sup>3</sup>	
24+78 <sup>19</sup>		7.25	<del>444.71</del>	445.99		F1 <sup>3</sup>	
			445.75			F0 <sup>2</sup>	
25+00		7.21	<del>444.75</del>	445.75		F1 <sup>2</sup>	
			449.46				
P	9.48	458.94	<del>457.94</del>	4.20	<del>448.16</del>		
CK BM	1.11	455.34	4.69	454.25	453.25 = 454.23	(15) 25+50 P.25	
25+50				445.19			10/10/56
25+87				444.80			
26+00				444.49			
+50		12.13	443.21	443.30		F0 <sup>1</sup>	
+75				442.70			
P 27+00	1.46	443.74	13.06	442.28	441.85	C0 <sup>4</sup>	
+50			3.86	439.88	440.15	F0 <sup>3</sup>	
+66 <sup>10</sup>			5.00	438.74	439.60	F0 <sup>9</sup>	
+75			4.86	438.88	439.04	F0 <sup>2</sup>	
+81 <sup>95</sup>			5.99	437.75	438.62	F0 <sup>9</sup>	

Cont'd pg. 41

OCT. 8 1956

39

TBM	3.04	381.79		378.75	
2+08 (see below)			<del>0.33</del>	<del>381.46</del>	<del>381.45</del>
					WRONG! 412 Bottom of pipe
2+8399			7.99	373.80	374.04
					F024
P	3.80	372.87	12.72	369.07	
2+62'9			9.33	363.54	364.01
					F047
2+5781			9.85	363.02	363.00
					Grd.
2+4549			9.86	363.01	363.00
					Grd
2+4051			8.40	364.47	364.32
					C015
P	11.03	381.73	2.17	370.70	
ck TBM.			3.01	378.72 =	378.75
					10/9/56
P	6.90	385.65		378.75	
2+08			4.19	381.46	381.55
					F01 to bottom of pipe
2+00			2.56	383.09	385.75
					F26 to bottom
			6.90	378.75	

OCT. 9 1956

Beatty  
Kemp  
Smith  
O'Brien

40

BM	12.83	469.91		457.08		spike in power pole #A-72599 FB 900-48
①	2.71	472.47	0.15	469.76		
0+00 (15) RT			1.21	471.26	460.51	c 10 75
0+04.79 (16.8) RT split			0.98	471.49	459.67	c 11 8
0+09.00 BK } (15.46) RT split			2.91	469.56	457.56	c 12 0
0+21.83 BK }						
0+09.00 BK } (25.37) RT			1.90	470.57	457.56	c 13 0
0+21.83 AH }						
0+25.5 (25) RT			3.15	469.32	455.52	c 13 8 (c 13 79) ✓
0+50° (25) RT			10.09	462.38	449.17	c 13 2 (c 12 97) ✓
①	3.11	464.13	11.45	461.02		
CK BM			7.05	457.08	= 457.08	

2nd Murray P.L  
Ref & Grd-bottoms of ditch

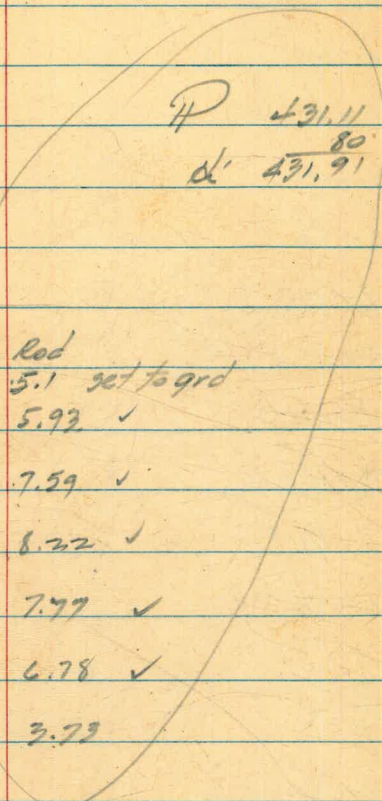
10/10/56

41

Cont'd from pg 38

443.74

27+97.72			7.93	435.81	437.08	F13
28+13.64			8.95	434.79	435.51	F02
+29.59			9.80	433.94	434.17	F02
+45.39			11.48	432.26	433.37	F11
+50			11.60	432.14	433.12	F10
29+00	1.12	431.94	12.92	430.82		F09
29+50			2.17	429.77	430.64	F09
29+50			4.82	427.12	428.05	F09
29+75			5.56	426.28	426.8	F03
30+00			5.46	426.48	425.98	C05
30+50			7.63	424.31	424.32	C00
30+69.26			8.52	423.42	423.69	F03
30+85.25			8.09	423.85	424.14	F03
31+01.22			7.55	424.39	425.13	F02
31+50			4.16	427.78	428.18	F04
31+81.06			2.35	429.59	430.13	F05
31+97.04			1.97	429.97	431.03	F11
32+12.87			1.43	430.51	431.26	F02
32+50	11.23	442.34	0.83	431.11	431.81	F02
33+00			10.74	422.10	432.56	F05
33+56.85	8.36	450.04	0.66	441.68	444.75	
33+63 VP1	1.10	445.85	3.32	444.72	433.45	
33+72.83					433.50	
					434.18	



P 431.11  
80  
431.91

Rod  
5.1 set to grid  
5.93 ✓  
7.59 ✓  
8.22 ✓  
7.77 ✓  
6.78 ✓  
3.73

431.11  
5.67  
436.78

(15) 33+56.85  
435.4  
4.7  
440.1  
4.5  
5.6

33+5 437.25  
3.53  
2.72  
91  
C08

(CONT'D)

10/31/56  
SHORE  
KEMP  
SMITH  
O'BRIEN

12

445.85

33+88.79

435.31

450.31  
439.42  
10.89

34+00

10.49 435.42

436.07 F0 7

450.31  
442.15  
8.16

34+50

6.98 438.87

439.60 F0 7

35+00

4.22 441.63

442.33 F0 7

35+32.53

2.45 443.40

444.10 F0 7

35+48.37

2.11 443.74

444.40 F0 7

35+64.37

1.99 443.86

444.40 F0 7

36+00

2.55 443.30

444.00 F0 7

36+44.37

3.14 442.71

443.29 F0 6

36+60.27

3.77 442.08

442.68 F0 6

36+76.25

4.75 441.10

441.87 F0 8

P  
37+00

9.18 449.60

5.43 440.42

440.67 F0 3

CK P  
P

2.49 449.76  
1.02 444.24

3.30 446.30 = 446.29  
5.84 447.27  
443.92

(15) 34+00  
(13) 38+04.09

(SEE PG. 32.)

37+50

2.79 442.15

438.15 C4<sup>o</sup>

38+04.09

5.52 439.42

435.42 C4<sup>o</sup>

38+12<sup>00</sup> B.C.

9.76 434.98

434.98 C0<sup>o</sup>

38+52<sup>07</sup>

7.94 437.00

433.00 C4<sup>o</sup>

38+62 VPI

8.44 436.50

432.50 C4<sup>o</sup>

39+00<sup>12</sup>

9.19 435.75

431.75 C4<sup>o</sup>

P

5.99 450.31

0.62 444.32

P

2.60 447.78

5.13 445.18

39+16<sup>17</sup>

12.35 435.43

431.43 C4<sup>o</sup>

2<sup>ND</sup> MURRAY PIPELINE  
& GRADE

10/31/56  
SHOREY  
KEMP  
SMITH  
O'BRIEN

43

447.78

39+32<sup>19</sup> 12.65 435.13 431.13 C4<sup>0</sup>

39+64<sup>23</sup> 13.23 434.55 430.55 C4<sup>0</sup>

39+96<sup>27</sup> 13.81 433.97 429.97 C4<sup>0</sup>

40+20<sup>00</sup> P.G.C. 14.24 433.54 429.54 C4<sup>0</sup>

4.88 442.90 = 442.94

(B) 40+20 (SEE PG. 34)

(S) 41+72.57 (SEE PG. 34)

TP 2.30 448.97 12.81 436.16 432.00

40+50<sup>51</sup> V.P.I. 6.77 442.93 9.93 433.00 429.00 C4<sup>0</sup>

40+76 9.93 433.00 429.00 C4<sup>0</sup>

41+00<sup>56</sup> 9.93 433.00 429.00 C4<sup>0</sup>

41+25 V.P.I. 9.93 433.00 429.00 C4<sup>0</sup>

41+40<sup>61</sup> 8.68 434.25 430.25 C4<sup>0</sup>

41+72<sup>59 TP</sup> 12.81 448.97 6.77 436.16 432.81

41+75 V.P.I. 11.97 437.00 433.00 C4<sup>0</sup>

41+84<sup>29</sup> E.C. 10.50 438.47 434.47 C4<sup>0</sup>

41+88<sup>46</sup> 9.83 439.14 435.14 C4<sup>0</sup>

42+38 V.P.I. 1.97 447.00 443.00 C4<sup>0</sup>

42+51<sup>57</sup> 13.26 449.42 12.81 436.16 432.00 F0<sup>74</sup>

42+83<sup>47</sup> 3.27 446.15 446.67 F0<sup>52</sup>

43+15<sup>37</sup> TP 8.53 457.04 0.91 448.51 449.23 F0<sup>72</sup>

43+30 V.P.I. 7.94 449.10 450.40 F1<sup>30</sup>

43+50 6.20 450.84 451.42 F1<sup>58</sup>

43+95<sup>13</sup> 3.81 453.23 453.74 F0<sup>51</sup>

(CHANGE LAYING DIRECTION)

2<sup>ND</sup> MURRAY PIPELINE  
(CONT'D)

457.04

44+04 <sup>91</sup>

3.35 453.69 454.21

F0 <sup>52</sup>

CK,

13.05 443.99 = 444.00

(B) 41+24 <sup>62</sup>

CK,

13.44 443.60 = 443.62

(B) 40+60 <sup>44</sup>

11/1/56

SHOREY  
KEMP  
SMITH

44



2<sup>ND</sup> MURRAY PIPELINE  
Q. 600.

BM	10.61	<u>122.76</u>		112.15
TP	6.05	<u>115.72</u>	13.09	109.67
117+25 VPI			12.58	103.14
				102.50
117+06 <sup>80</sup> E.C.			6.02	109.70
TP	12.19	<u>127.85</u>	0.06	115.66
116+78 <sup>26</sup>			2.95	119.90
				119.49
116+63 <sup>39</sup>			4.15	123.70
				124.86
116+52 VPI	12.62	<u>139.69</u>	0.78	127.07
				129.00
116+48 <sup>49</sup>			11.62	128.07
				129.83
116+40 <sup>21</sup>			9.49	130.20
				131.64
116+25 <sup>50</sup>			5.42	134.27
				135.32
116+10 <sup>09</sup> TP	13.14	<u>151.46</u>	1.37	138.32
				138.99
116+00 VPI			10.51	140.95
				141.40
115+95 VPI			9.30 (ERROR) <del>8.36</del>	142.10
				143.10
				142.60
115+79 <sup>22</sup>			5.83	145.63
				146.06
TP	13.28	<u>164.41</u>	0.33	151.13
115+51 <sup>82</sup> B.C.			12.01	152.40
				152.08
115+32 <sup>21</sup>			8.08	156.33
				156.27
TP	13.14	<u>177.34</u>	0.21	164.20
114+93 <sup>65</sup>			12.64	164.70
				164.85
114+54 <sup>58</sup>			3.97	173.37
				173.43
114+52 VPI			3.60	173.74
				174.00
114+38 <sup>13.04</sup> TP	13.35	<u>189.77</u>	0.92	176.42
				176.46

11/5/56

SHOBEY  
KEMP  
SMITH  
O'BRIEN

B.P. IN CONC. CHAMB. @ PUMP PLANT

45

~~C0 64~~

~~14~~

C0<sup>59</sup>

C0<sup>43</sup>

F1<sup>16</sup>

F1<sup>93</sup>

F1<sup>76</sup>

F1<sup>44</sup>

F1<sup>15</sup>

F0<sup>67</sup>

F0<sup>45</sup>

C0<sup>50</sup>

F0<sup>50</sup>

F0<sup>43</sup>

C0<sup>32</sup>

C0<sup>0</sup>

F0<sup>15</sup>

F0<sup>06</sup>

F0<sup>26</sup>

C0<sup>0</sup>

2 ND MURRAY PIPELINE  
 Q. GRD. (CONT'D)

11/5/56  
 SHOEY  
 KEMP  
 SMITH  
 O'BRIEN

46

189.77

114+25 VPI		4.11	178.66	179.10	F <sub>0</sub> <sup>44</sup>	
114+00		6.40	183.37	183.80	F <sub>0</sub> <sup>43</sup>	
TP	13.23	202.54	0.46	189.31		
113+50		9.38	193.16	193.20	C <sub>0</sub> <sup>0</sup>	
113+28	<sup>89</sup>	5.54	197.00	197.18	F <sub>0</sub> <sup>20</sup>	
113+15 VPI		3.01	199.53	199.80	F <sub>0</sub> <sup>27</sup>	
TP	13.24	215.61	0.17	202.37		
112+97	<sup>47</sup>	12.69	202.92	202.60	C <sub>0</sub> <sup>32</sup>	
112+81	<sup>67</sup>	10.13	205.48	205.13	C <sub>0</sub> <sup>35</sup>	
112+70 VPI		8.81	206.80	207.00	F <sub>0</sub> <sup>20</sup>	
112+65	<sup>86</sup>	8.23	207.38	207.53	F <sub>0</sub> <sup>15</sup>	
112+62	<sup>16</sup> F.C.	7.61	208.00	208.01	C <sub>0</sub> <sup>0</sup>	
112+50	<sup>09</sup>	6.41	209.20	209.56	F <sub>0</sub> <sup>36</sup>	
112+18	<sup>31</sup>	2.34	213.27	213.65	F <sub>0</sub> <sup>38</sup>	
112+02	<sup>42</sup> TP 13.14	228.40	0.35	215.26	215.68	F <sub>0</sub> <sup>42</sup>
112+00 VPI		12.50	215.90	216.00	F <sub>0</sub> <sup>10</sup>	
111+86	<sup>57</sup>	10.89	217.57	218.04	F <sub>0</sub> <sup>53</sup>	
111+75 VPI		9.05	218.35	219.80	F <sub>1</sub> <sup>45</sup>	
111+54	<sup>87</sup>	6.02	222.38	222.93	F <sub>0</sub> <sup>55</sup>	
111+23	<sup>19</sup> TP 13.09	240.47	1.02	227.38	227.85	F <sub>0</sub> <sup>47</sup>
110+86	<sup>78</sup> B.C.	7.00	233.47	233.51	F <sub>0</sub> <sup>04</sup>	

370

2<sup>ND</sup> MURRAY PIPELINE  
 & GRD (CONT'D)

11/5/56  
 SHOREY  
 KEMP  
 SMITH  
 O'BRIEN

125

47

TP		240.47				
CK.	18.48	248.82	0.13	240.34	247.56	
110+75	67		1.22	247.60	247.56	
	2A	125	13.57	235.24	235.23	
110+28	2A		6.76	242.05	242.05	FO 55
	10.2A					
110+18	VP1		5.05	243.76	244.20	FO 44
	5.58					
110+12	42		4.02	244.79	245.20	FO 41
TP	90	11.57	2.83	245.98		
109+80	90		7.50	250.05	250.86	FO 81
	31.52					
109+49	38 TP	11.21	1.73	255.82	256.52	FO 70
109+30	VP1		7.68	259.35	260.00	FO 65

13 STK. 110+86<sup>28</sup> B.C. (SEE PG. 33)  
 19 STK 110+86<sup>28</sup>

TP	8.29	111.43		103.14		2 HUB 117+25
117+39	30		10.88	100.55	101.45	FO 90
117+55	28		13.06	98.37	100.28	FI 91
			8.29	103.14	103.14	

11-7-56  
 KEMP  
 SMITH  
 O'BRIEN

BP IN CONC. CHANNEL @ PUMP PLANT

	10.47	122.62		112.15		
TP	0.27	109.94	12.95	109.67		
117+25			7.91	102.03	102.50	FO 47
117+31.32			8.27	101.67	102.02	FO 36
117+39.30			8.51	101.43	101.45	FO 02
117+55.30			9.71	100.23	100.28	FO 05

2ND MURRAY CONT.  
 & GRD

109.94

117+71.30 10.73 99.21 99.11 CO<sup>10</sup>

117+06.80 BL TP 0.78 109.16 109.11 CO<sup>05</sup>

11.48 120.64 0.94 119.70 119.47 CO<sup>23</sup>

TP 7.99 112.65 TOP HEADWALL DRAIN INLET R. SIDE WARING RD

9.95 122.60 CK RM 10.45 112.15 = 112.15 RP IN CONC. CHAMB @ PUMP PLANT

CONT. FROM P. 47

267.03

109+03 TP 10.29 276.41 2.95 2.85 264.18 264.85 FO<sup>67</sup>  
 108+71 2.74 276.41 2.95 0.91 (266.12) → 273.46  
 2.74 276.28 6.32 267.82 270.60 FO<sup>73</sup> (15) 109+30

108+55.03 4.27 271.93 272.18 FO<sup>25</sup>

108+23.22 1.40 274.80 275.29 FO<sup>49</sup>

108+16 V.P.I. 0.82 275.38 276.00 FO<sup>62</sup>

108+07.27 TP 11.48 287.46 0.22 275.98 276.56 FO<sup>58</sup>

107+59.27 8.24 279.22 279.66 FO<sup>44</sup>

107+23 V.P.I. 6.16 281.30 282.00 FO<sup>70</sup>

CK TP 1.07 290.34 4.15 283.31 = 283.27 (15) 108+43.21 & PT.  
 107+11.47 7.68 282.66 282.61 CO<sup>95</sup>

1.106+63.47 4.84 285.50 285.17 CO<sup>33</sup>

1.106+15.47 TP 12.24 300.22 2.36 287.98 287.72 CO<sup>26</sup>

1.105+67.47 18.22 290.00 290.38 FO<sup>38</sup>

1.105+19.47 7.72 292.50 292.83 FO<sup>33</sup>

2ND MURRAY PIPELINE  
 & BRO. (CONT.)

11/13/56  
 SHOREY  
 KEMP  
 SMITH

49

105+19.47		<u>300.22</u>				
TP						
105+03.77	12.52	<u>306.12</u>	6.62	293.60	293.67	FO <sup>07</sup>
104+92	VPI		12.03	274.09	294.30	FO <sup>21</sup>
104+87.75			11.64	274.48	294.77	FO <sup>29</sup>
TP						
104+39.75	11.87	<u>311.20</u>	6.79	299.33	300.10	FO <sup>27</sup>
103+91.75			6.01	305.19	305.43	FO <sup>24</sup>
103+76.43			3.80	307.40	307.14	CO <sup>26</sup>
TP						
103+60.61	12.72	<u>322.03</u>	1.89	309.31	309.52	FO <sup>21</sup>
103+28.99			<del>4.63</del> 7.63	314.40	314.40	CO <sup>0</sup>
102+97.37			3.02	319.01	319.28	FO <sup>27</sup>
TP	12.88	<u>334.53</u>	0.38	321.65		
102+65.75			10.90	323.63	324.16	FO <sup>53</sup>
102+34.13			5.83	328.70	329.04	FO <sup>34</sup>
TP						
102+02.51	12.82	<u>346.39</u>	0.96	333.57	333.92	FO <sup>35</sup>
101+70.89			7.90	338.49	338.80	FO <sup>31</sup>
101+50.00	VPI		4.49	341.90	342.00	FO <sup>10</sup>
101+32.19			2.49	343.90	343.78	CO <sup>12</sup>
TP	13.23	<u>359.55</u>	0.07	346.32		
100+91.82			8.49	351.06	351.57	FO <sup>51</sup>
TP						
100+44.45	13.13	<u>372.16</u>	0.52	359.03	359.37	FO <sup>34</sup>
100+40	VPI		12.56	359.60	360.10	FO <sup>50</sup>

2<sup>ND</sup> MURRAY PIPELINE  
& GRD.

372.16

100+28.70

11.04 361.12 361.55

FO<sup>43</sup>

100+00

7.36 364.80 365.23

FO<sup>43</sup>

99+50 TP 9.88

381.21 0.83 371.33 371.64

FO<sup>31</sup>

99+00

3.31 377.90 378.05

FO<sup>15</sup>

98+84 VPI

1.46 379.75 380.10

FO<sup>35</sup>

CK.

10.48 370.73 = 370.60

(15) HUB 100+50 Pg. 19

TP 0.11  
TP 1.19

112.76  
103.32 10.63 112.65  
102.13

TOP HEADWALL STORM DRAIN RT. SIDE WARDING CO.  
SEE Pg. 18

117+87<sup>23</sup>

5.77 97.55 97.93

FO<sup>38</sup>

118+00 VPI  
12.77

6.14 97.18 97.00

CO<sup>18</sup>

118+03<sup>20</sup>

5.98 97.34 97.00

CO<sup>34</sup>

118+39

6.99 96.33 97.00

FO<sup>67</sup>

118+51<sup>20</sup>

97.00

TP 10.74

112.87 1.19 102.13

CK, TP

0.22 112.65 = 112.65

2<sup>ND</sup> MURRAY PIPELINE  
 L. GRD. (CONT'D)

11/14/36

SHOBEY  
 KEMP  
 SMITH

G. HUB 98+84 (Pg. 50)

51

TP	12.48	392.23	379.75 370.73		
98+38 VPI			7.80 384.43 384.70	F0 <sup>27</sup>	
98+06 <sup>40</sup>			5.51 386.72 386.93	F0 <sup>28</sup> ?	
97+58 <sup>52</sup>			2.08 390.15 390.30	F0 <sup>15</sup>	
97+50 VPI			1.73 390.50 390.90	F0 <sup>40</sup>	
97+42 <sup>66</sup>			1.39 390.84 390.91	F0 <sup>07</sup>	
TP	12.65	404.09	0.79 391.44		
97+00			9.91 394.98 390.98	F4 <sup>00</sup>	PLUG
96+50			12.93 391.16 391.07	C0 <sup>09</sup>	
CK. TBM	0.43	403.90	0.46 403.63 = 403.47		S. RIM AYA M.H. 96+50 (M.B. 900-38)
96+00			12.76 391.14 391.16	F0 <sup>02</sup>	
95+50			12.57 391.33 391.25	C0 <sup>08</sup>	
95+00			12.70 391.20 391.34	F0 <sup>14</sup>	
94+50			13.01 390.89 391.43	F0 <sup>54</sup>	
94+06 <sup>82</sup>			12.19 391.71 391.49	C0 <sup>22</sup>	
94+00 VPI TP	8.78	400.42	12.26 391.64 391.50	C0 <sup>14</sup>	
93+50			8.05 392.37 392.36	C0 <sup>02</sup>	
93+30 VPI			7.98 392.44 392.70	F0 <sup>26</sup>	
93+00			7.29 393.13 393.65	F0 <sup>53</sup>	
92+50			5.93 394.49 395.24	F0 <sup>75</sup>	
92+00			3.89 395.53 396.83	F0 <sup>30</sup>	
91+50			2.62 397.80 398.42	F0 <sup>62</sup>	

39516

9.22

H.I. 404.38

374.38

10.40

2ND MURRAY PIPELINE  
 Q BED (CONT'D)

11/14/56  
 SHOREY  
 KEMP  
 SMITH

52

400.42

91+00			0.72	399.70	400.01	F0 <sup>31</sup>
TP	12.21	403.93	8.70	391.72		
OCTBM	1.98	405.45	0.47	403.46	=403.47	
TP	2.45	403.36	4.54	400.21		
90+50 VPI			2.45	400.91	401.60	F0 <sup>70</sup>
94+00 VPI			2.06	401.30	401.60	F0 <sup>30</sup>
89+50			3.36	400.00	400.65	F0 <sup>65</sup>
89+00 VPI			4.84	398.52	399.70	F1 <sup>18</sup>
88+50 VPI			6.13	397.23	397.60	F0 <sup>37</sup>
88+00			9.10	394.26	394.37	F0 <sup>11</sup>
87+50 TP	0.26	390.84	12.78	390.58	391.14	F0 <sup>56</sup>
87+00 VPI			3.74	387.10	387.90	F0 <sup>80</sup>
86+50			6.34	384.50	385.87	F1 <sup>37</sup>
86+01 <sup>23</sup> B.C. VPI			8.18	382.66	383.90	F1 <sup>24</sup>
85+50			8.36	382.48	383.42	F0 <sup>94</sup>
85+00			8.44	382.40	382.94	F0 <sup>54</sup>
84+75 VPI			8.77	382.07	382.70	F0 <sup>63</sup>
84+50 TP	0.55	381.08	10.31	380.53	381.10	F0 <sup>57</sup>
84+00 VPI			3.95	378.13	377.90	C0 <sup>23</sup>
83+50 VPI			8.25	372.83	373.40	F0 <sup>57</sup>
83+01 <sup>98</sup> E.C. VPI			9.91	371.17	371.30	F0 <sup>13</sup>
82+75 VPI			9.06	372.02	371.30	C0 <sup>72</sup>

83+01<sup>28</sup> EC



2<sup>ND</sup> MURRAY PIPELINE  
 LGRD (CONT'D)

11/16/56  
 SHOREY  
 KEMP  
 SMITH  
 FAULSON

53

381.08

82+50		8.06	373.02	373.32	FO <sup>30</sup>	
82+00 TP	8.44	385.98	3.54	377.54	377.36	CO <sup>18</sup>
81+50 VPI		5.04	380.94	381.40	FO <sup>46</sup>	
81+00		4.96	381.02	381.40	FO <sup>38</sup>	
80+78 <sup>41</sup> B.C. & VPI		5.33	380.65	381.40	FO <sup>75</sup>	
TP	8.80	394.27	0.51	385.47		
CK.TBM	0.17	393.80	6.60	387.67 = 387.63		
TP	0.58	381.83	12.55	381.25		
80+50		2.61	379.22	379.88	FO <sup>66</sup>	
80+00		5.60	376.23	377.21	FI <sup>02</sup>	
79+50		8.76	373.07	374.54	FI <sup>47</sup>	
79+00 TP	2.43	373.98	10.28	371.55	371.87	FO <sup>32</sup>
78+50 VPI		5.72	368.26	369.20	FO <sup>94</sup>	
78+00		9.75	364.23	364.72	FO <sup>49</sup>	
TP	4.41	374.53	3.86	370.12		
CK.TBM	5.45	370.32	9.63	364.90 = 364.87		
77+50	4.28	369.15	10.01	357.14	360.24	FI <sup>10</sup> PLUG
77+25 VPI		11.62	357.53	358.00	FO <sup>47</sup> PLUG	
77+00 VPI		11.70	357.45	358.00	FO <sup>55</sup> PLUG	
76+96 <sup>52</sup>		11.38	357.77	358.33	FO <sup>59</sup> PLUG	
76+50 VPI		6.99	362.16	362.30	FO <sup>14</sup>	
TP	6.49	370.32	5.32	363.83		
76+00			368.63	367.56	CI <sup>07</sup>	
TP	12.64	382.95	0.01	370.31		
75+50		9.35	373.60	372.82	CO <sup>78</sup>	
75+00		4.95	378.00	378.08	FO <sup>08</sup>	
74+89 <sup>51</sup>		4.35	378.60	379.21	FO <sup>61</sup>	
74+75 VPI		3.10	379.95	380.70	FO <sup>65</sup>	

SO. RIM AVA M.H. (SEE Pg. 16)

TOP B.O. APPROX 77+50 15' RT.

(CONT'D) PG. 55

2<sup>ND</sup> MURRAY PIPELINE

11/16/56  
SHOREY  
KEMP  
SMITH  
PAULSON

BM	1.17	113.32	112.15	
119+61 <sup>18</sup> P.I.	(3)LT.	4.54	108.78	100.21
119+95 VPI		5.92	107.40	101.22
120+11 <sup>27</sup> 36" CROSS	(3)LT	6.26	107.06	102.10
	(3)RT	5.45	107.87	
120+27 <sup>75</sup> P.I.	(3)LT.	6.96	106.36	100.86
120+39 <sup>88</sup> "A" P.I.			102.34	
CK. BM	1.17	112.15	= 112.15	

B.P. IN CONC. CHAMBER ALVARADO PUMP HOUSE

51  
C8  
B  
C6  
96  
C4  
27  
C5  
50  
C5

BM	0.13	112.28	112.15	
119+61 <sup>18</sup> P.I.		8.07	104.21	100.21
119+95 VPI		7.06	105.22	101.22

2<sup>D</sup> GRADE

C4<sup>0</sup>  
C4<sup>0</sup>

BM	1.72	113.87	112.15	
120+11 <sup>97</sup> 36" CROSS	28' RT.	1.82	112.05	102.05
	33' RT.)	1.90	111.97	102.05
120+27 <sup>75</sup> P.I.	34' LT.)	7.79	106.08	100.81
	62' LT.)	8.60	105.27	100.81
120+51 <sup>24</sup> 36" Y	7' LT.	2.80	111.07	100.62
	18' LT.)	2.69	111.18	100.62
120+39 <sup>88</sup> P.I.	9 <sup>35</sup> LT.)	2.70	111.17	102.14
	18 <sup>5</sup> LT.)	2.50	111.31	102.14
	1.72	112.15	= 112.15	

B.P. IN CONC. CHAMBER

C10<sup>00</sup>  
C9<sup>92</sup>  
C5<sup>27</sup>  
C4<sup>46</sup>  
C10<sup>45</sup>  
C10<sup>56</sup>  
C9<sup>03</sup>  
C9<sup>17</sup>

2ND MURRAY PIPELINE  
EGRD

11/20/56  
SHOREY  
KEMP  
SMITH

55

		382.95				F081	
74+73 <sup>52</sup>			2.98	379.97	380.78		
74+50			1.56	381.39	381.80	F041	
74+09 <sup>88</sup>	TP 12.79	395.11	0.63	382.32	383.58	C003	
74+00 VPI			11.50	383.61	384.00	F023	
73+73 <sup>89</sup>			11.34	383.77	384.00	F036	
73+50			11.44	383.67	384.03	F015	
			11.66	383.45	384.20	F0	
					384.40		
73+00					384.40		PIPE DIRT
72+81 <sup>92</sup>			11.22	383.89	384.48	F052	
72+75 VPI			10.82	384.29	384.50	F021	19.49
72+66 <sup>02</sup>			9.94	385.17	385.43	F026	13.06
72+50			8.45	386.66	387.00	F034	6.43
					392.00	C003	5.76
72+00			3.08	392.03	392.00		
	TP 13.15	407.90	0.36	394.75			
71+50			10.95	396.95	397.00	F005	
71+06 <sup>83</sup>			6.65	401.25	401.35	F010	
71+00 VPI			5.97	401.93	402.00	F007	
					402.67	C013	
70+90 <sup>88</sup>			5.10	402.80	402.67		
					405.59	C045	
70+50			1.86	406.04	405.59		
	TP 11.04	418.37	0.57	407.33			
70+00			8.97	409.40	409.16	C024	
	TP 8.69	421.75	5.31	413.06			
CK.			2.17	419.58	= 419.49		
TP.	5.76	418.82		413.06			
69+63 <sup>21</sup>			7.33	411.49	411.78	F029	
69+50 VPI			6.30	412.52	412.70	F018	
					412.77	C005	
69+17 <sup>24</sup>			6.00	412.82	412.77		
					413.78	C002	
69+00			5.02	413.80	413.78		
					414.13	F008	
68+83 <sup>42</sup>			4.77	414.05	414.13		
					414.30	F028	
68+75 VPI			4.80	414.02	414.30		
					414.32	F026	
68+67 <sup>42</sup>			4.76	414.06	414.32		

(CONT'D PG. 57)

ROCK LT. SIDE TRENCH 70+00  
→ 15 70+00  
11/26/56

GRADE FOR ACCESS M.H.  
CHAMBER - 235' ELY. OF PROP. B.C.  
65' E. OF REGIS ST.

TP 11.04 467.18 456.14

TP 10.13 471.66 5.76 461.42 = 461.53

Top ACCESS M.H. 6.86 464.80 469.53

CK. TP 10.13 461.53 = 461.53

B.O. Assy. 5' ELY. E. LINE ASHLAND ST.

TP 5.17 455.57 450.40

Top 6" B.O. ELBOW 6.88 448.69 451.50

5.17 450.40 = 450.40

GRADE FOR ACCESS M.H. CHAMBER  
70' ELY. OF E. LINE OF MEREDITH ST.

TP 4.57 460.31 455.74

Top ACCESS M.H. 8.86 451.45 455.25

4.51 455.80 = 455.78

GRADE FOR ACCESS M.H. CHAMBER  
40' E. OF E. LINE RAYMAR AVE.

TP 5.19 458.90 453.70

Top ACCESS M.H. 9.16 449.74 453.82

5.19 453.71 = 453.71

GRADE FOR 30" S.O. 209' ELY OF PROP.  
B.C. 65' E. OF REGIS ST

TP 6.80 471.60 464.80

7.45 464.15 469.30

CK. TP 6.80 464.80

11/21/56  
SHOREY  
KEMP  
SMITH

56

Top CURB E. SIDE REGIS ST.

(15) STA. 16+48<sup>14</sup> E.C. (F.B. 935-12)

F4<sup>13</sup> TO FINISH GRADE PAVT.

Top S.E. COR. ASHLAND & DEL CERRO

F2<sup>81</sup> TO FINISH GRADE PAVT.

(15) HUB 24+78<sup>19</sup> Pg. 24

F3<sup>80</sup> TO FINISH GRADE PAVT.

(19) 25+00

(13) HUB 35+48<sup>22</sup> Pg. 32

F4<sup>08</sup> TO CURB GRADE

F5<sup>15</sup> TO FINISH PAVT. GRADE

2 <sup>ND</sup> MURRAY PIPELINE  
& GRADE CONT'D

418.82

11/26/56  
SHOBBY  
KEMP  
SMITH

57

68+50		4.75	414.07	414.36	F0 <sup>29</sup>	
68+00		4.52	414.30	414.46	F0 <sup>16</sup>	
67+50		4.34	414.48	414.56	F0 <sup>08</sup>	
67+00		4.00	414.82	414.66	C0 <sup>16</sup>	
66+50		4.36	414.46	414.76	F0 <sup>30</sup>	
66+00		3.92	414.90	414.86	C0 <sup>04</sup>	
65+50 TP	11.01	426.70	3.13	415.69	414.96	C0 <sup>73</sup>
65+47 <sup>42</sup>			11.07	415.63	414.98	C0 <sup>65</sup>
65+38 VPI			11.21	415.49	415.00	C0 <sup>49</sup>
65+31 <sup>35</sup>			10.85	415.85	415.30	C0 <sup>55</sup>
65+00			10.01	416.69	416.60	C0 <sup>09</sup>
64+50			7.70	419.00	418.67	C0 <sup>23</sup>
64+00			5.70	421.00	420.74	C0 <sup>26</sup>
63+50			3.70	423.00	422.81	C0 <sup>19</sup>
63+00			1.70	425.00	424.88	C0 <sup>13</sup>
62+53 <sup>78</sup> E.C.	TP 8.27	434.47	0.50	426.20		C0 <sup>21</sup>
62+50			7.47	427.00	426.79	C0 <sup>11</sup>
62+00 VPI			5.05	429.42	429.00	C0 <sup>42</sup>
61+50			3.97	430.50	430.25	C0 <sup>25</sup>

2<sup>ND</sup> MURRAY PIPELINE  
& GRADE CONT'D  
434.47

11/26/56  
SHOREY  
KEMP  
SMITH

58

61+40 <sup>27</sup> AH } EQ. B.C.	3.87	430.60	430.47	CO <sup>13</sup>
61+37 <sup>33</sup> BK } TP 9.09	442.78	0.78	433.69	ON SPIKE
CK. TBM	2.71	440.07	= 439.98	TBM SELV. COR. GAS VAL. CHAMB
61+00 <sup>33</sup> VPI TP 3.44	5.61	433.60 <sup>x</sup>	431.40	CO <sup>03</sup>
60+97	5.67	431.43	431.40	FO <sup>03</sup>
60+50	5.44	431.60	431.46	CO <sup>14</sup>
60+00	5.33	431.71	431.54	CO <sup>17</sup>
59+50	5.04	432.00	431.62	CO <sup>38</sup>
59+00	5.40	431.64	431.70	FO <sup>06</sup>
58+50	5.18	431.82	431.78	CO <sup>04</sup>
58+00	5.50	431.54	431.86	FO <sup>32</sup>
57+50	5.06	431.98	431.95	CO <sup>03</sup>
57+15 VPI	4.82	432.22	432.00	CO <sup>22</sup>
57+13 <sup>37</sup>	4.62	432.42	432.13	CO <sup>29</sup>
57+00	4.04	433.00	432.97	CO <sup>03</sup>
56+50 TP 7.09	0.69	436.35	436.11	CO <sup>24</sup>
56+12 <sup>11</sup> AH. } EQ.	5.11	438.33	438.49	FO <sup>16</sup>
56+15 <sup>18</sup> BK } TP	4.50	438.94	437.45	FO <sup>57</sup>
55+98 <sup>96</sup> P.I. TP 11.54	0.24	443.20		NAIL IN SIDE OF TRENCH
55+50	13.29	441.45	442.58	FI <sup>13</sup>
55+00	10.08	444.66	445.72	FI <sup>06</sup>
54+50	5.81	448.93	448.86	CO <sup>07</sup>

2<sup>ND</sup> MURRAY PIPELINE  
& GRADE (CONT'D)

10/27/56  
SHOREY  
KEMP  
SMITH

57

454.74

54+03 <sup>90</sup>			3.39	451.35	451.75	F <sub>0</sub> <sup>20</sup>
54+00 VPI			3.10	451.64	452.00	F <sub>0</sub> <sup>36</sup>
53+87 <sup>92</sup>			2.42	452.32	452.61	F <sub>0</sub> <sup>29</sup>
53+39 <sup>98</sup>	TP 7.24	460.13	1.85	452.89		F <sub>0</sub> <sup>72</sup>
53+37 VPI			5.75	454.38	455.20	F <sub>0</sub> <sup>82</sup>
53+24 <sup>12</sup>			5.01	454.72	455.32	F <sub>0</sub> <sup>60</sup>
53+00			5.48	454.65	455.55	F <sub>0</sub> <sup>90</sup>
52+50			4.23	455.70	456.02	F <sub>0</sub> <sup>13</sup>
52+00			4.83	455.30	456.49	F <sub>1</sub> <sup>19</sup>
51+50			4.26	455.87	456.96	F <sub>1</sub> <sup>09</sup>
51+00			3.26	456.87	457.43	F <sub>0</sub> <sup>56</sup>
50+50			2.83	457.30	457.90	F <sub>0</sub> <sup>60</sup>
50+00			2.63	457.50	458.37	F <sub>0</sub> <sup>87</sup>
49+50 TP	5.96	463.75	2.34	457.79	458.84	F <sub>1</sub> <sup>25</sup>
49+00			5.15	458.60	459.31	F <sub>0</sub> <sup>71</sup>
48+50			4.30	459.45	459.78	F <sub>0</sub> <sup>33</sup>
48+28 <sup>14</sup>			4.55	459.20	460.02	F <sub>0</sub> <sup>82</sup>
48+20 VPI			4.42	459.33	460.10	F <sub>0</sub> <sup>77</sup>
48+12 <sup>14</sup>			4.40	459.35	460.10	F <sub>0</sub> <sup>75</sup>

2<sup>ND</sup> MURRAY PIPELINE  
E GRADE (CONT'D)

11/27/56  
SHOREY  
KEMP  
SMITH

60

463.75

48+00		3.81	459.94	460.10	F <sub>0</sub> <sup>16</sup>
47+50		5.00	458.75	460.10	F <sub>1</sub> <sup>35</sup>
47+00		4.48	459.27	460.10	F <sub>0</sub> <sup>83</sup>
46+50		4.43	459.32	460.10	F <sub>0</sub> <sup>78</sup>
	7P1.55	461.63	3.67	460.08	
46+00 VPI		2.96	458.67	460.10	F <sub>1</sub> <sup>43</sup>
45+88 <sup>23</sup>		3.07	458.56	459.76	F <sub>1</sub> <sup>20</sup>
45+50		2.77	458.86	458.63	C <sub>0</sub> <sup>23</sup>
45+00		6.34	455.29	457.17	F <sub>1</sub> <sup>88</sup>
44+50		5.08	456.55	455.71	C <sub>0</sub> <sup>84</sup>
44+12 VPI		7.69	453.94	454.60	F <sub>0</sub> <sup>66</sup>
44+04 <sup>41</sup>				454.21	
CK.		8.02	453.61 =	453.69	

L. HUB. STA. 44+04<sup>41</sup> (SEE PG. 44)



2<sup>ND</sup> MURRAY PIPELINE  
 @ GRADE (CONT'D)

12/3/56  
 SHOREY  
 KEMP  
 SMITH

TBM 5.31 462.39 457.08

NAIL IN P.P. (SEE PG. 2)

9.63 466.71

TBM  
 457.08

0+09<sup>00</sup> AH.  
 0+21<sup>58</sup> BK

5.45 456.94 457.56

F0<sup>62</sup>

PIPE #829  
 0+21<sup>58</sup>

455.87 456.20 F1<sup>00</sup>

0+25<sup>5</sup> VPI

7.47 454.92 455.52

F0<sup>60</sup>

0+44<sup>23</sup>

11.62 450.77 450.67

C0<sup>10</sup>

0+59<sup>73</sup> TP 0.70

450.09 13.00 449.39

5.42 444.67 446.65

F1<sup>28</sup>

0+67<sup>16</sup>

7.31 442.78 444.72

F1<sup>24</sup>

0+74<sup>74</sup>

9.59 440.50 442.15

F1<sup>65</sup>

0+89<sup>34</sup> TP 0.20

438.25 12.04 438.05

3.14 435.11 436.86

F1<sup>75</sup>

0+97<sup>23</sup>

+0.02 438.27 434.27

C4<sup>00</sup>

1+04<sup>58</sup>

8.17 430.08 431.37

F1<sup>29</sup>

1+41<sup>43</sup> TP 0.13

426.43 11.75 426.30

12.20 413.53 415.82

F2<sup>29</sup>

1+48<sup>52</sup>

3.70 410.33 412.83

F2<sup>50</sup>

1+55<sup>66</sup>

5.82 409.21 409.21

F1<sup>00</sup>

2+00 TP 0.06

400.95 13.14 400.89

15.62 385.33 385.75

F0<sup>42</sup>

2+73 VPI

363.00

CK

7.66 393.29 = 393.35

(@ 2+00 PG. 9 (SLIGHTLY DISTURBED))

ELEV. & GRD. B.O. Assy 40+62

TP

0.66

447.60

446.94

38+12.20 B.C. (5) LT (Pa)

11.22 436.38 443.4

F7<sup>e</sup>

CK. TP

0.66 446.94

ELEV. FOR METERING CHAMB.  
0+55 ± 2<sup>ND</sup> MURRAY PIPELINE

12/19/56

63

SHOREY  
KEMP  
SMITH

SPIKE IN POLE (SEE PG. 9)

TBM	9.07	466.15	457.08
TP	6.00	462.96	9.19 456.96
		13.06	449.90
		13.06	449.90
		13.16	449.80
		13.16	449.80
	0.46	462.50	Top ELEV.
	1.46	462.50	
	0.46	462.50	
	0.46	462.50	
TP	4.59	465.17	2.38 460.58
CK. TBM		8.09	457.08 = 457.08

FLOOR ELEV. S.W. COR.

" " S.E. COR.

" " N.E. COR.

" " N.W. COR.

NOTE: CHANGED  
FLOOR ELEV.  
FROM 452.00 TO  
449.90

CK. AVA CHAMBER ELEV.  
TOP 5" I. D. PIPE FOR M.H. CHAMB.  
235' E. OF REGIS ST.

12/19/56  
SHOREY  
KEMD  
SMITH

12.23	473.76	461.53
	4.46	469.30 469.15
	3.84	469.92
	4.52	469.24 469.25

(3) 16+48<sup>44</sup> E.C. (F.B. 995-12)  
CO<sup>15</sup> FINISH GRADE PAVT ON SO. EDGE  
(3) SPIKE FOR CB. MK'D CO<sup>37</sup> = 469.55  
CO<sup>0</sup> FINISH GRADE PAVT ON N. EDGE

CK. AVA CHAMBER ELEV.  
TOP 5" I. D. PIPE FOR M.H. CHAMB.  
70' E. OF E. LINE MEREDITH ST.

TP	4.73	460.47	455.74
CK. B.M.		6.39	454.08 = 454.10
		5.59	454.88 455.04
		5.45	455.02 455.10
NORTH		6.65	453.82 455.10
SOUTH		6.74	453.73 455.04
		4.99	455.48
			453.73 454.33

(3) HUB 24+78<sup>B</sup> (Pg 24)  
TOP CB. S.E. COR. MEREDITH & DEL. CERRO  
FO<sup>16</sup> TO FINISH PAVT GRADE<sup>30</sup> } TOP EXIST. PIPE  
FO<sup>08</sup> " " " " }  
F1<sup>28</sup> " " " " }  
F1<sup>31</sup> " " " " }  
CHRB GRADE

GRADES FOR RAISING 1<sup>ST</sup> MURRAY P/L  
 STA. 40+94<sup>+</sup> TO 45+05<sup>43</sup>  
 (15) STK'S & GRP.

3/28/57  
 SHOREY  
 KEMP  
 O'BRIEN

65

TBM 5.61 450.36 444.75

TP 5.08 443.74 11.70 438.66

40+94<sup>+</sup> 4.19 439.55 427.4 C12<sup>3</sup>

41+25 7.37 436.37 427.4 C9<sup>0</sup>

41+50 8.46 435.28 427.3 C8<sup>0</sup>

42+00 9.47 434.27 427.2 C7<sup>1</sup>

42+50 9.34 434.40 427.0 C7<sup>4</sup>

43+00 6.73 437.01 431.0 C6<sup>0</sup>

11.70 450.36 5.08 438.66

43+25 6.34 444.02 433.0 C11<sup>0</sup>

43+50 4.20 446.16 433.1 C13<sup>1</sup>

44+00 4.61 445.75 433.1 C13<sup>2</sup>

44+50 4.58 445.78 433.2 C12<sup>6</sup>

44+75 4.82 445.54 433.2 C12<sup>3</sup>

45+05<sup>43</sup> END 4.93 445.43 433.3 C12<sup>1</sup>

TP 6.08 443.74 12.70 437.66

TP 8.28 450.38 1.64 442.10

CK. 5.16 445.22 = 445.18

CK. TBM 5.63 444.75 = 444.75

(15) NAIL 33+56<sup>852</sup> 2<sup>ND</sup> MURRAY (Pg. 31)

(15) STK. LT. 32+50 2<sup>ND</sup> MURRAY P/L Pg. 31



GRADES FOR RAISING  
1<sup>ST</sup> MURRAY PIPELINE  
STA. 48+73<sup>58</sup> TO 52+53<sup>25</sup>  
(14) STK'S

3/29/57  
SHOREY  
KEMP  
O'BRIEN  
SMITH

66

TBM 4.84 451.61 446.77

(13) STK. 38+12<sup>30</sup> B.C. 2<sup>ND</sup> MURRAY (Pg. 32)

48+73 <sup>58</sup>	2.21	449.40	434.9	C14 <sup>5</sup>
49+00	3.26	448.35	434.4	C14 <sup>0</sup>
49+34 <sup>70</sup> B.C.	4.58	447.03	433.7	C13 <sup>3</sup>
49+50	5.13	446.48	433.4	C13 <sup>1</sup>
50+00	5.66	445.95	432.5	C13 <sup>5</sup>
50+28 <sup>47</sup> 18" STEEL CONN.	2.35	449.26	431.9	C17 <sup>4</sup>
50+50 TO PUMP HOUSE	7.29	444.32	431.5	C12 <sup>8</sup>
51+00	6.50	445.11	430.5	C14 <sup>6</sup>
51+50	7.71	443.90	429.5	C14 <sup>4</sup>
52+00	6.94	444.67	428.5	C16 <sup>2</sup>
52+10 6" B.O.	7.19	444.42	428.5	C15 <sup>2</sup>
52+17	8.84	442.77	428.5	C14 <sup>3</sup>
52+33	7.31	444.30	429.2	C15 <sup>1</sup>
52+53 <sup>25</sup>	6.83	444.78	431.8	C13 <sup>0</sup>
CK. TBM	4.84	446.77 = 446.77		

E. STK'S E GRD. FOR RAISING  
1<sup>ST</sup> MURRAY PIPELINE  
STA. 40+94<sup>±</sup> TO 45+05<sup>±</sup>

4/10/57  
SHOREY  
KEMP  
O'BRIEN

67

TP 1.42 440.97 439.55

(13) HUB 40+94<sup>±</sup> Pg. 65

40+94<sup>±</sup> 13.44 427.53 427.7 427.4

F0<sup>3</sup>

GRD. OF EXIST. JOINT @ 40+94<sup>±</sup>

41+25 14.17 426.80 427.4

F0<sup>6</sup>

TP 5.09 432.87 13.19 427.78

41+50 7.04 425.83 427.3

F1<sup>5</sup>

42+00 6.90 425.77 427.2

F1<sup>3</sup>

42+50 7.02 425.85 427.0

F1<sup>L</sup>

43+00 2.54 430.33 431.0

F0<sup>2</sup>

43+25 0.48 432.39 433.0

F0<sup>6</sup>

43+50 0.13 432.74 433.1

F0<sup>4</sup>

TP 4.70 437.45 0.12 432.75

44+00 5.27 432.18 433.1

F0<sup>2</sup>

CK. TP 3.17 434.28 = 434.27

(15) HUB 42+00 Pg. 65

TP 5.68 450.43 444.75

(15) NAIL 33+56<sup>82</sup> 2<sup>ND</sup> MURRAY (Pg. 31)

0.53 437.95 H 13.01 437.42

44+15<sup>66</sup> 4.39 433.56 432.85

C0<sup>7</sup>

44+50 4.18 433.77 432.84

C1<sup>0</sup>

44+95<sup>64</sup> 4.76 433.19 432.67

C0<sup>5</sup>

45+02<sup>92</sup> 5.74 432.21 433.97

F1<sup>8</sup>

END OF EXIST. PIPE

3.66 434.29 = 434.27

(15) HUB 42+00 Pg. 65

↓

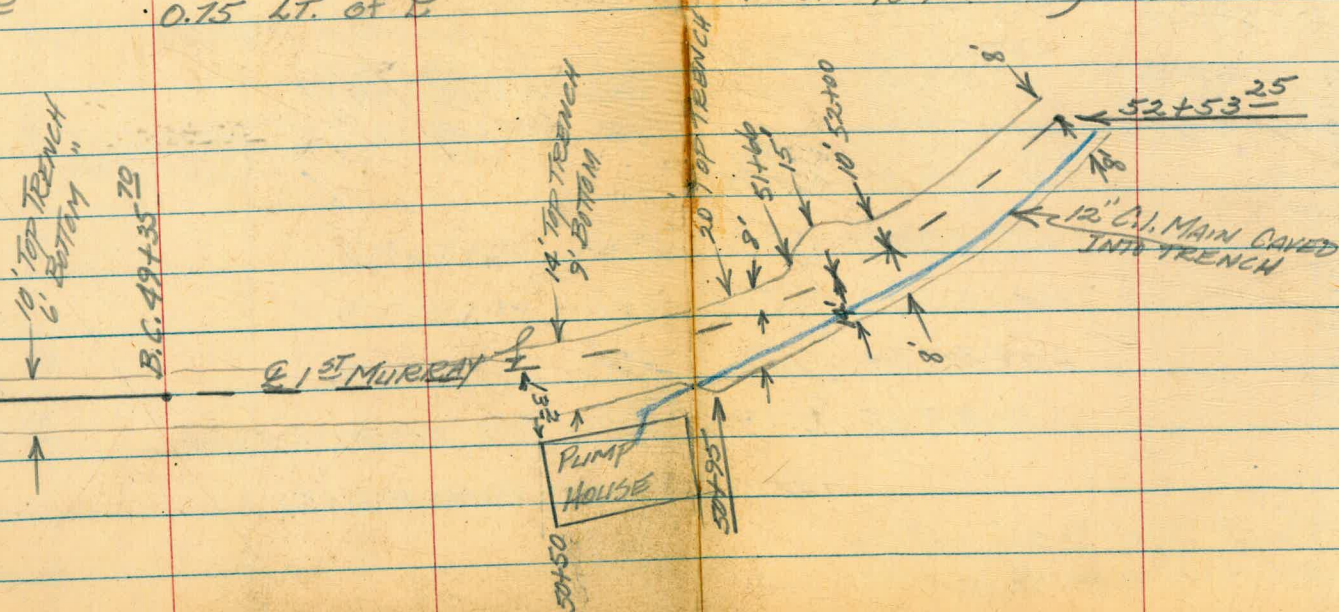
LOCATION OF EXIST. 1<sup>ST</sup> MURRAY  
 STA. 49+35<sup>70</sup> B.C. TO 52+53<sup>25</sup>

1/15/57  
 SHOREY  
 KEMP  
 SMITH  
 'BRIEN

49+35<sup>70</sup> B.C. ON E  
 49+50 ON E  
 50+00 ON E  
 50+50 ON E  
 51+00 ON E  
 51+50 ON E  
 52+00 ON E  
 52+50 0.75 LT. of E  
 52+53<sup>25</sup> 0.75 LT. of E

12" C.I. 6<sup>2</sup> RT.  
 12" C.I. 5<sup>5</sup> RT.  
 12" C.I. 6<sup>5</sup> RT.  
 12" C.I. 10' RT.  
 12" C.I. 10' RT.

} 12" C.I. CAVED INTO TRENCH





2 STK'S & GRADE FOR  
RAISING 1<sup>ST</sup> MURRAY PIPELINE  
STA. 48+74 TO 52+58

TBM	1.01	445.33	444.32
T.P.	5.45	437.86	432.41
48+74		2.36	435.50 434.9
48+90		2.16	435.70 434.59
49+00		3.05	434.81 434.39
49+34 <sup>70</sup> B.C.		4.50	333.36 433.71
49+50		4.42	333.44 433.41
50+00		5.88	431.98 432.93
50+18 <sup>07</sup>		6.33	431.53 432.09
50+34 <sup>09</sup>		6.21	431.65 431.78
50+50		6.32	431.54 431.47
T.P.	11.06	445.15	3.77 434.09
51+00		0.83	444.32 430.49
TP	4.85	431.88	447.03
TP	3.71	444.49	11.10 440.78
	3.25	435.25	12.47 432.00
51+50		4.80	430.45 429.51
51+78		6.17	429.08 428.96
51+94 <sup>25</sup>		6.58	428.67 428.66
52+10 <sup>29</sup>		6.46	428.79 428.54
52+26 <sup>31</sup>		6.78	428.47 428.83
52+42 <sup>31</sup>		6.80	428.45 429.96
52+58			432.4
52+52 <sup>25</sup>		3.55	431.70
CK.		+0.46	435.71

4/25/57 11.06 - 083  
SHOREY  
KEMP  
O'BRIEN  
SMITH  
⑤ STK. 50+50 1<sup>ST</sup> MURRAY (Pg. 66)

C0<sup>6</sup>

C1<sup>1</sup>

C0<sup>4</sup>

F0<sup>3</sup>

C0<sup>0</sup>

F0<sup>4</sup>

F0<sup>6</sup>

F0<sup>1</sup>

C0<sup>1</sup>

C3<sup>6</sup>

7=444.32 ③ STK 50+50 1<sup>ST</sup> MURRAY P.L.

C0<sup>2</sup>

C0<sup>1</sup>

C0<sup>0</sup> GRD.

C0<sup>3</sup>

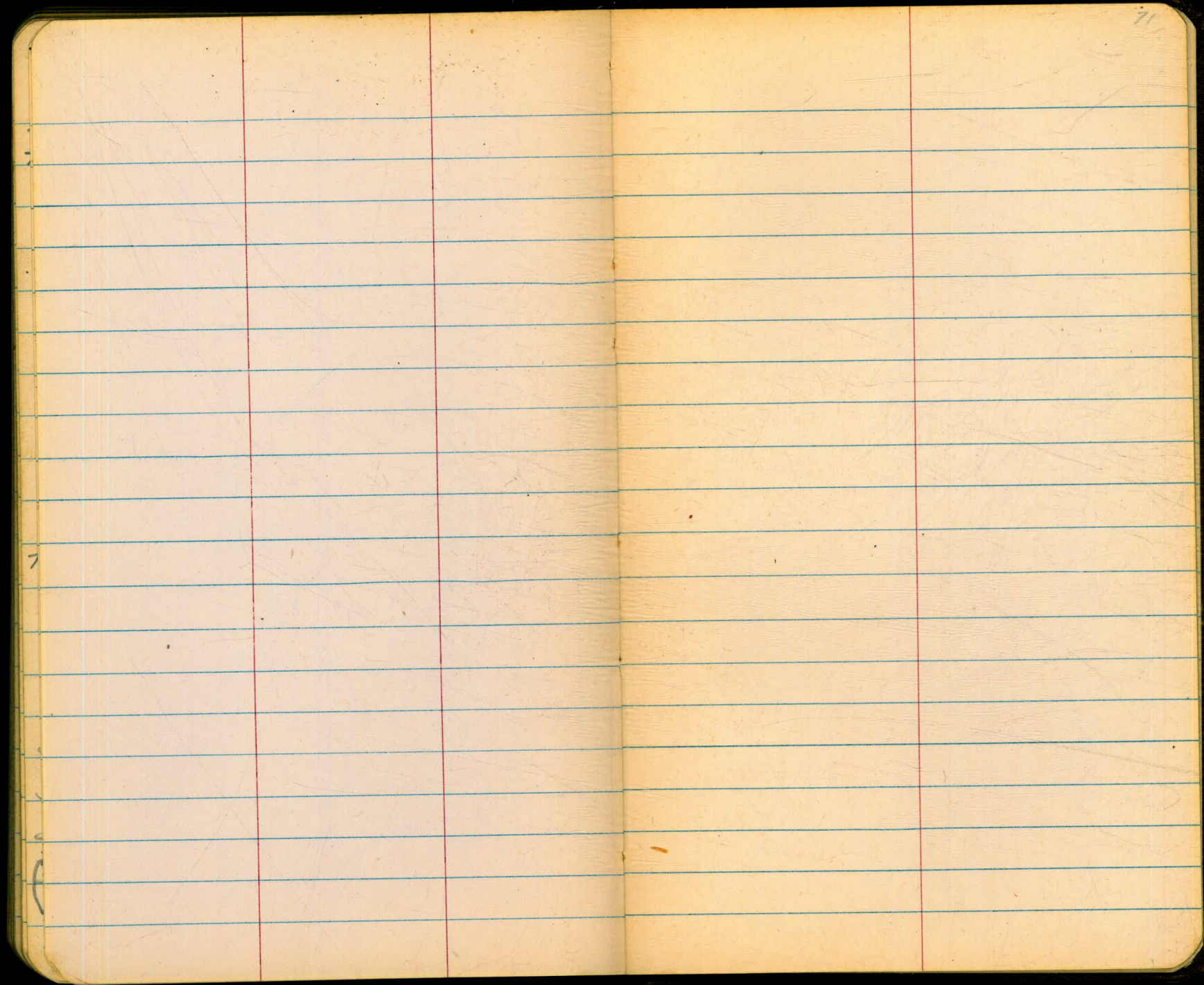
F0<sup>4</sup>

F1<sup>5</sup>

END OF EXIST. PIPE

OFFSET NAIL MK'D 4' CUT STA. 50+34<sup>09</sup>  
& ELEV. 431.78





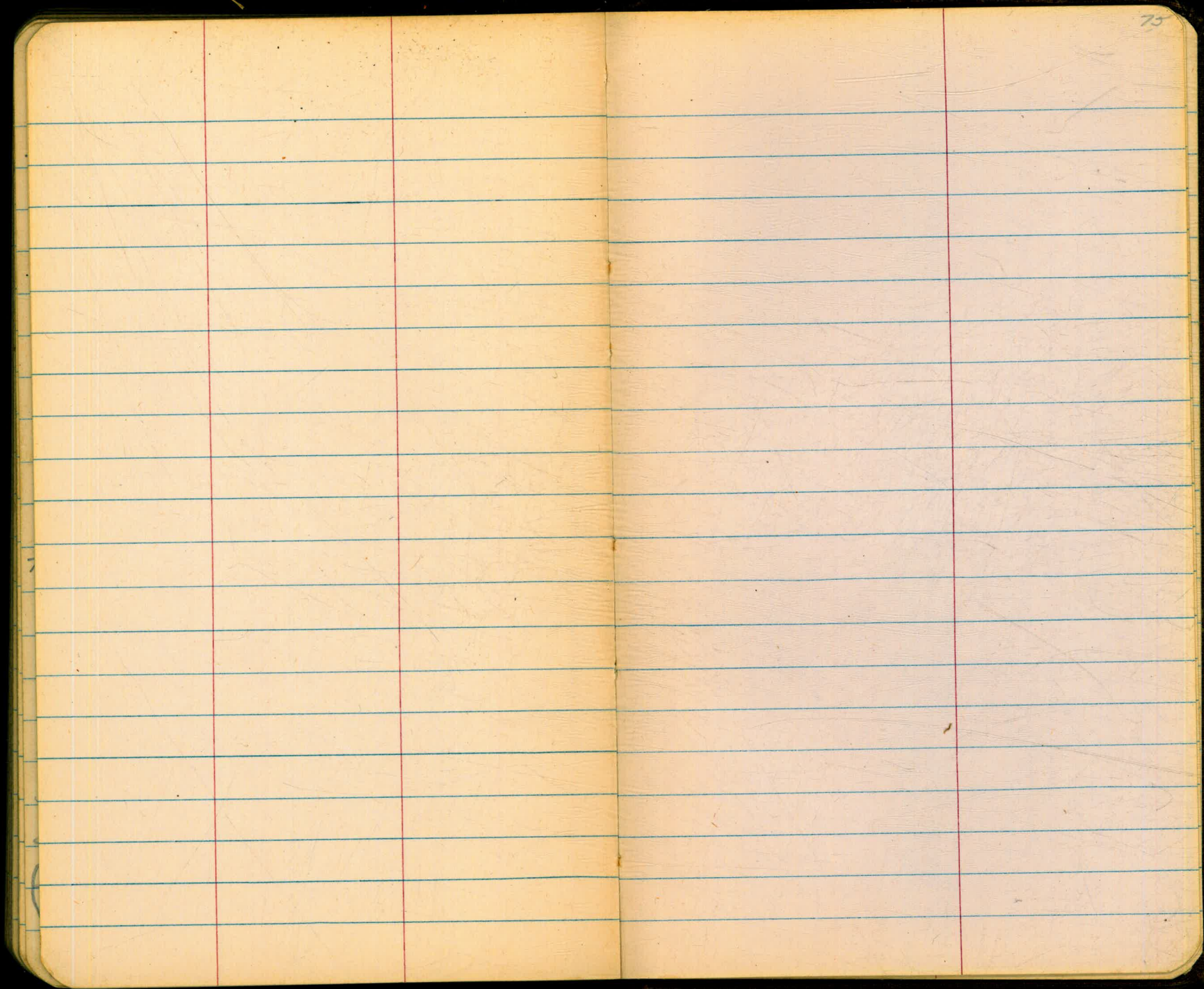
7

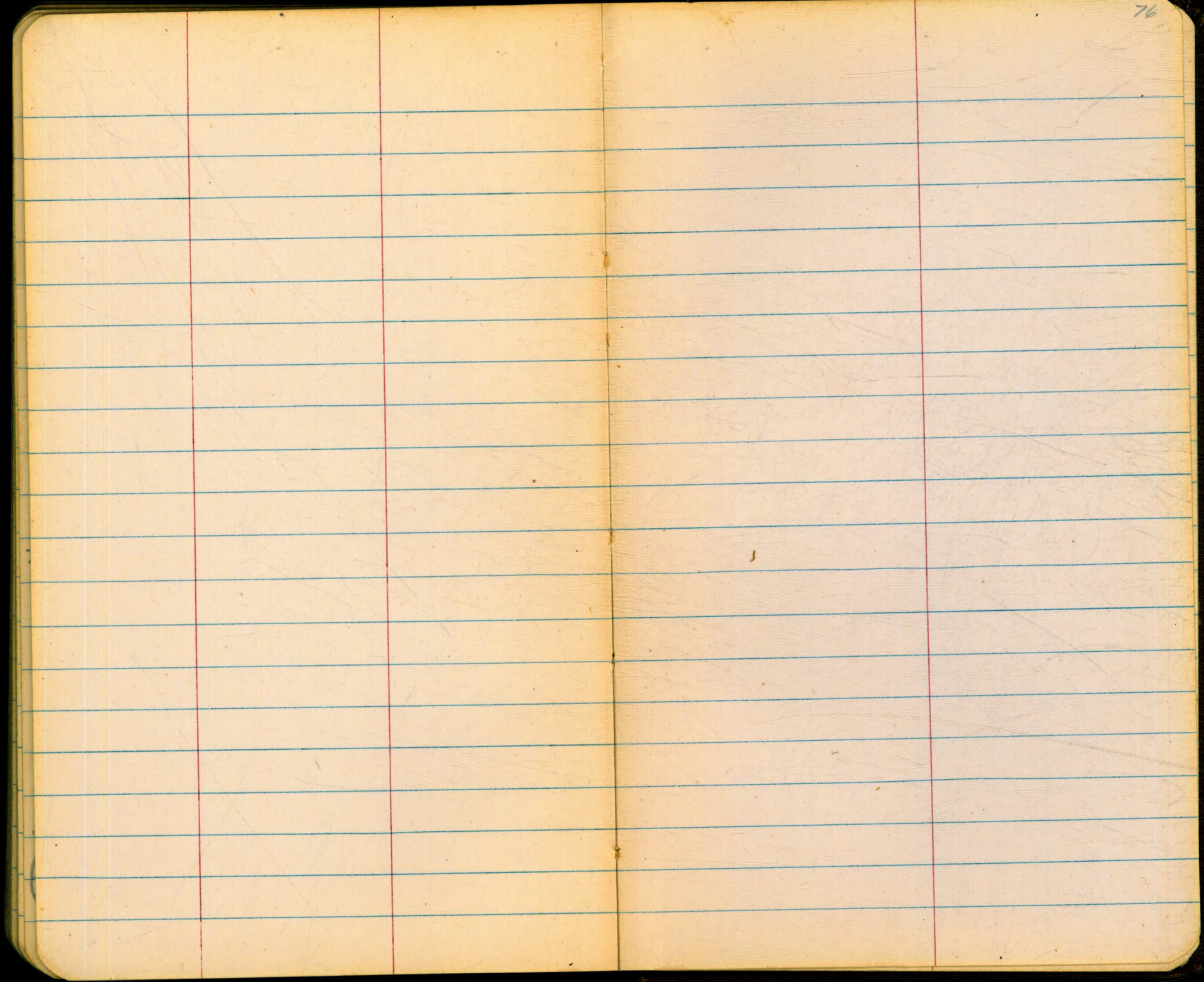
2

7

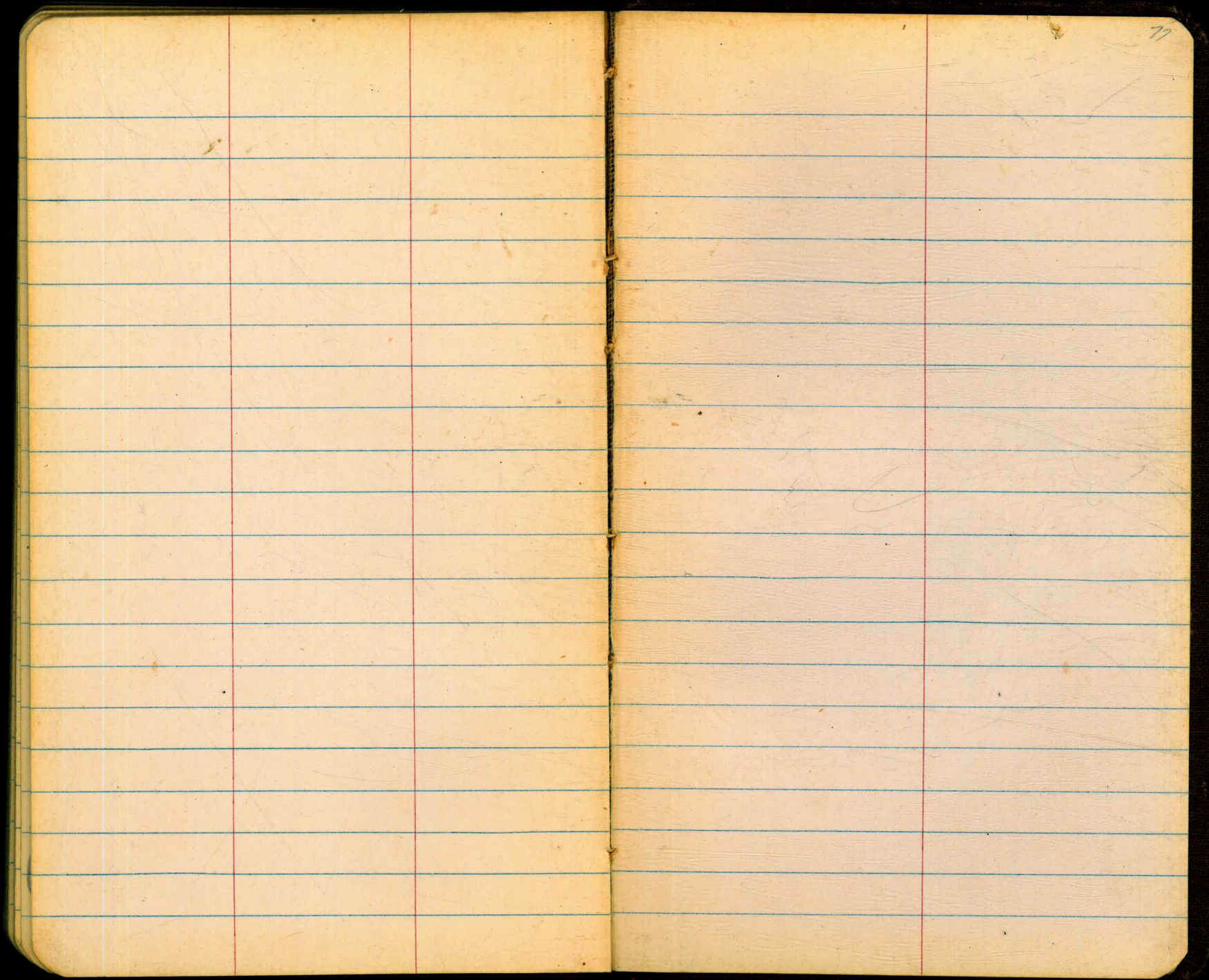
6

The image shows an open notebook with two facing pages. The pages are cream-colored and feature light blue horizontal ruling. Each page is divided into three vertical columns by two red margin lines. The notebook is bound in the center, and the pages appear slightly aged. There is no text or other markings on the pages.









77

120+11 <sup>97</sup> 36" ~~6000~~ <sup>CROSS</sup>

(22)

(37)

120+27<sup>25</sup>

(34)

(62)

120+5<sup>24</sup> 36" ~~Y~~

(74)

(12)

120+39<sup>88</sup> P.I.

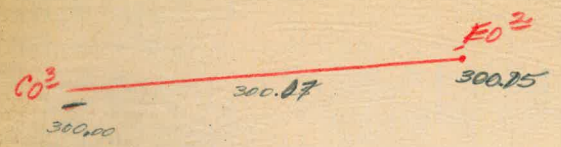
(935)

(183)

80  
35  
45

455.04

0.90  
.80  
.10



301.2  
300.45  
.75  
.50  
.25

.20  
.19  
.11

.90  
.45  
.45

300.0  
0.6  
299.4

1.60  
1.45  
0.15

300.1  
299.4  
.70

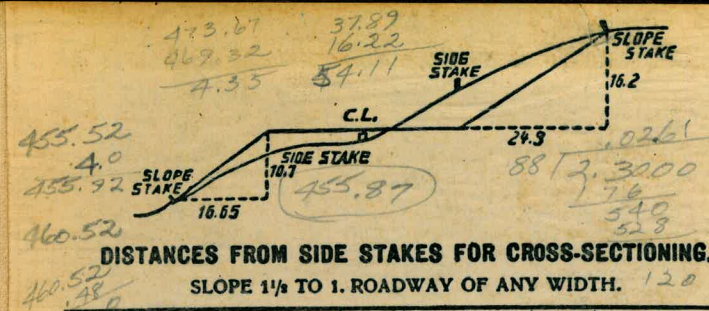
10.68

452.28  
453.10

456.61  
 449.29  
 SET BM.  
 38+86 CHIS'L + IN CB. 444.78

$31^{\circ}53'30'' \frac{1}{2} = 15^{\circ}56'45''$

97 04  
 31 81 86  
 15.98  
 32 12 77  
 31 97 69  
 15.83  
 445.99  
 444 71  
 1 28  
 74 89 51  
 70 49  
 50000  
 12 87  
 2 96  
 15 83  
 73+50 99 @ 5.541  
 81 @ 4.330  
 72 68.01 1.211  
 11863.14  
 94  
 117469.14



**DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.**  
 SLOPE 1 1/2 TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.20	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

THE NATIONAL BLANK BOOK COMPANY  
 HOLYOKE MASSACHUSETTS  
 NEW YORK CHICAGO BOSTON SAN FRANCISCO