

KEUFFEL & ESSER CO.

DRAWING MATERIALS

AND

SURVEYING INSTRUMENTS.

NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

Tables for Excavations and Embankments.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.

FOR SINGLE TRACK EXCAVATION.

"Copyright, 1895, by Keuffel & Esser Co."

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	0
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2	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	2
3	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	3
4	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	4
5	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	5
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7	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	7
8	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	8
9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	9
10	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	10
11	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	11
12	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	12
13	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	13
14	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	14
15	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	15
16	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	16
17	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	17
18	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	18
19	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	19
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21	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	21
22	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	22
23	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	23
24	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	24
25	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	25
26	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	26
27	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	27
28	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	28
29	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	29
30	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	30
31	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	31
32	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	32
33	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	33
34	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	34
35	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	35
36	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

ENGINEERING DEPARTMENT
CITY OF SAN DIEGO,
CALIFORNIA.

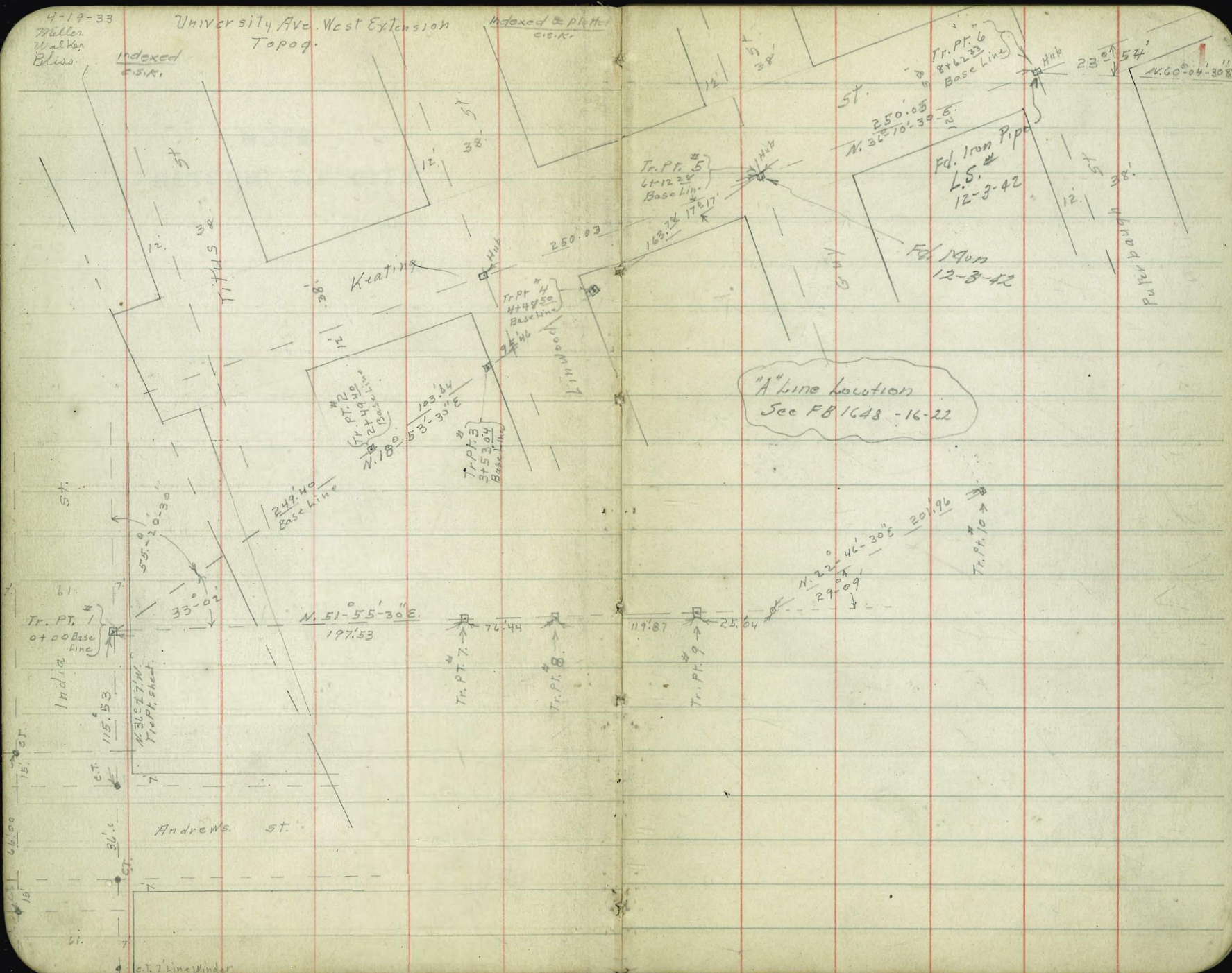
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RETURN TO CITY

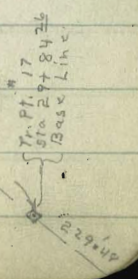
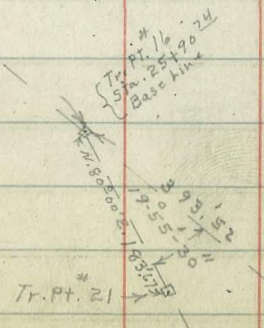
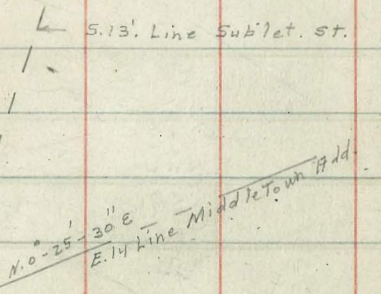
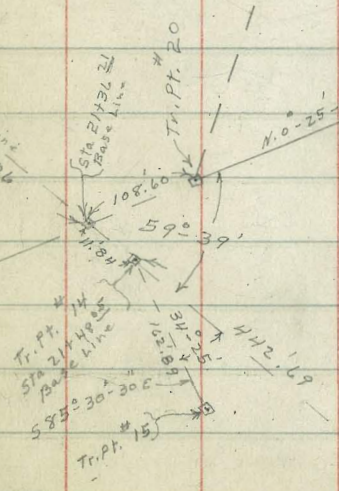
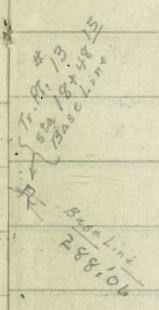
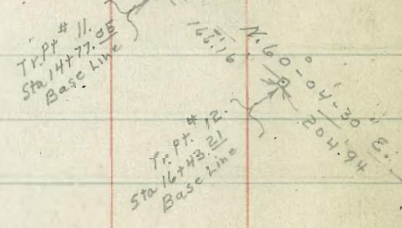
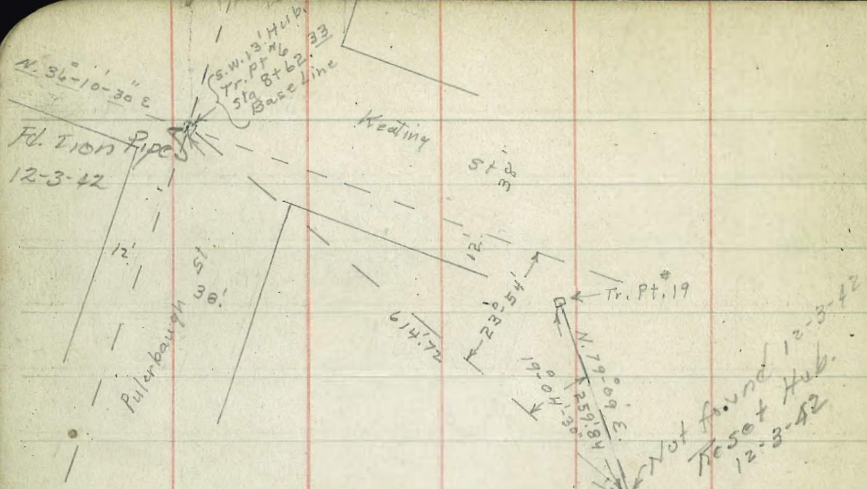
4-19-33
Miller
Walker
Bliss

University Ave. West Extension
Topog.

Indexed & plotted
C.S.K.

Indexed
C.S.K.





N. 60° 44' 30" E
398.52

Tr. Pt. #17
Sta 29+84.26
Base Line
D.O.

25.04
Base Line
229.48
29° 35'

Tr. Pt. #18
Sta 32+19.24
Base Line
N. 45° 00'
29.18
20.87
S. 67° 51' 30"

Tr. Pt. #23

Base Line N 89° 39' 30" E.
99.0

Tr. Pt. #22

89° 58'

Tr. Pt. #24
Sta 21+43.85
Base Line
D.O.

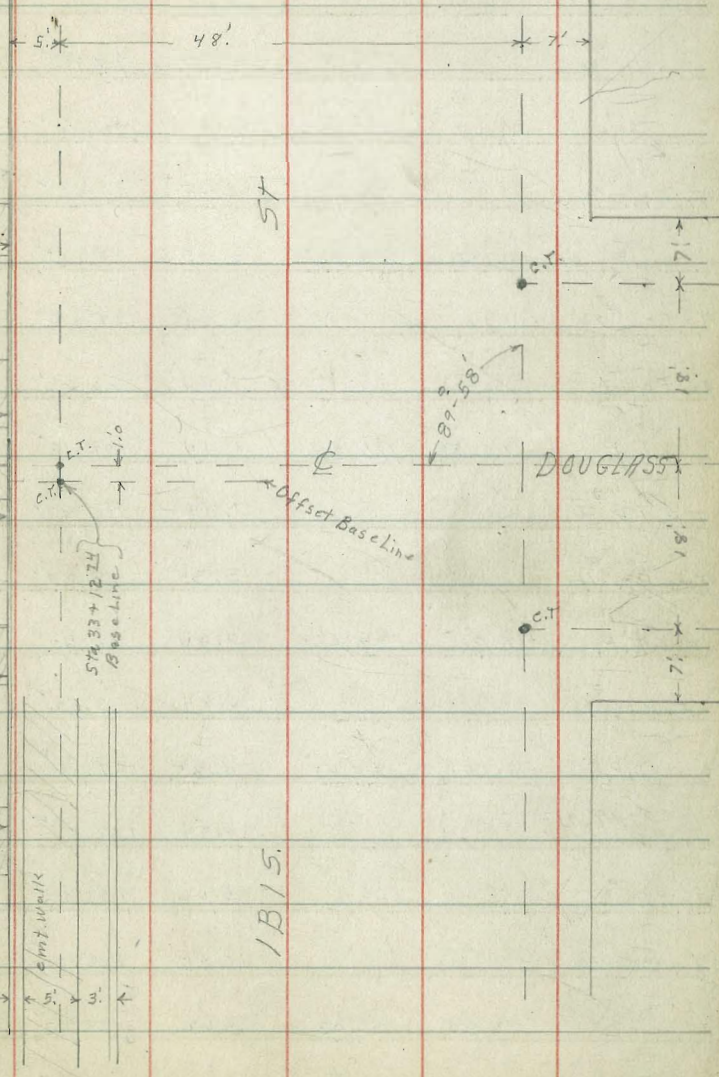
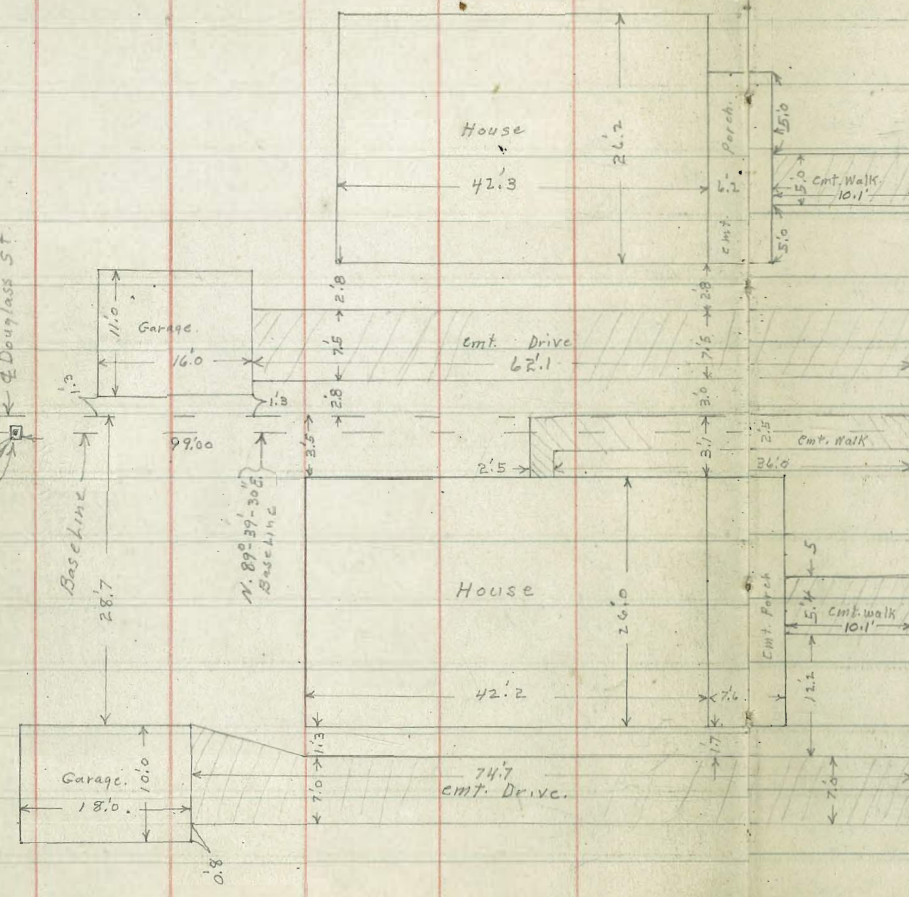
C.T.
C.T.
1.6
D. DOUGLASS

5'

5'

N 06740-09 N
Tr. Pt. # 18
Sto 31413 24
Base Line

Douglas St



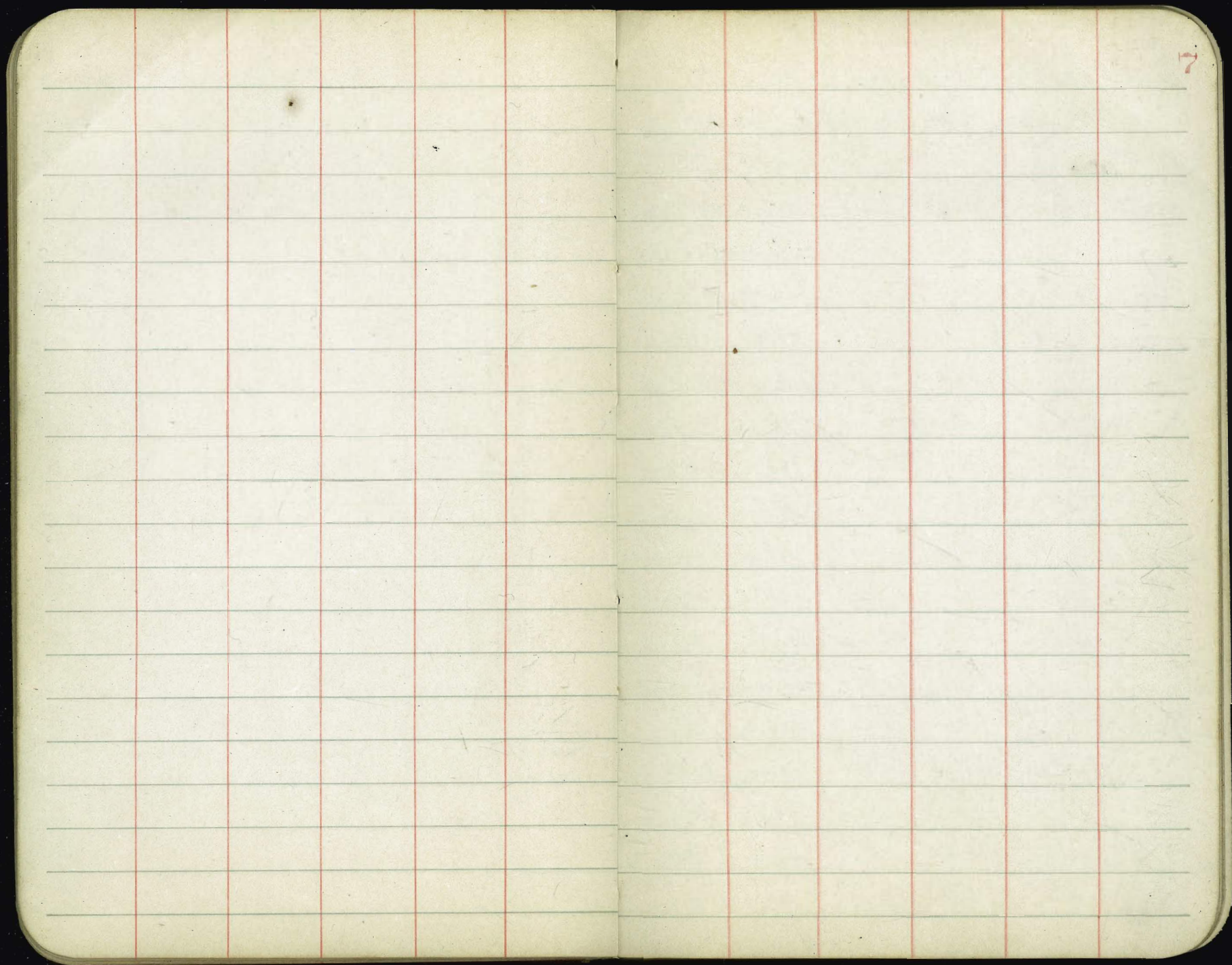
B.M. B.P.	11.99	76.94 [✓]		64.95 [✓]	S.E. Kellner + Andrews.	Tr. Pt. #19	Not on Base line	3.95	133.48 [✓]	
T.P.	12.33	88.43 [✓]	0.84	76.10 [✓]		T.P.	13.15	168.79 [✓]	1.79	155.64 [✓]
B.M. B.P.			10.44	77.99 [✓]	Cracked. N.W. India - Andrews.	Tr. Pt. #11		4.03	164.76 [✓]	
Tr. Pt. #1			9.45	78.98 [✓]	Hub. on C. T. line India	T.P.	10.87	179.03 [✓]	0.63	168.16 [✓]
T.P.	11.07	97.31 [✓]	2.19	86.24 [✓]		Tr. Pt. #12		7.57	171.46 [✓]	
Tr. Pt. #7			12.65	84.66 [✓]		Tr. Pt. #13				
T.P.	12.30	107.56 [✓]	2.05	95.26 [✓]		T.P.	11.61	178.30 [✓]	12.34	166.69 [✓]
Tr. Pt. #8			10.28	97.28 [✓]		T.P.	11.72	188.75 [✓]	1.27	177.03 [✓]
Tr. Pt. #2			1.44	106.12 [✓]		T.P.	5.94	193.58 [✓]	1.11	187.64 [✓]
T.P.	10.52	116.64	1.44	106.12 [✓]		Tr. Pt. #15		2.94	190.64 [✓]	
Tr. Pt. #3			7.47	109.17 [✓]		Tr. Pt. #16		8.99	184.59 [✓]	
Tr. Pt. #4			3.35	113.29 [✓]		T.P.	11.66	204.41 [✓]	0.83	192.75 [✓]
T.P.	10.96	127.36 [✓]	0.24	116.40 [✓]		T.P.	12.77	216.77 [✓]	0.41	204.00 [✓]
Tr. Pt. #9			3.84	123.52 [✓]		T.P.	12.57	228.66 [✓]	0.68	216.09 [✓]
T.P.	11.84	138.85 [✓]	0.35	127.01 [✓]		Tr. Pt. #17		8.11	220.55 [✓]	
Tr. Pt. #5			6.74	132.11 [✓]	S.W. 13' Hub Keating + Guy	T.P.	12.55	241.15 [✓]	0.06	224.60 [✓]
Tr. Pt. #6			5.62	133.23 [✓]	S.W. 13' Hub Heating + Patxkaugh	T.P.	12.24	253.03 [✓]	0.38	240.77 [✓]
Tr. Pt. #10			10.75	128.10 [✓]		T.P.	12.61	264.49 [✓]	1.13	251.88 [✓]
T.P.	12.80	146.03 [✓]	5.62	133.23 [✓]	Tr. Pt. #6	Tr. Pt. #18		11.94	252.55 [✓]	
T.P.	12.08	157.43 [✓]	0.68	145.35 [✓]		T.P.	5.09	266.96 [✓]	2.62	261.87 [✓]
						B.M. B.P.		5.03	261.93 = 262.00 + Douglass	

S.E. 1/bis

B.M. Levels

6

Tr. Pt. #13	4.95	171.64		166.69	
T.P.	10.13	181.31	0.46	171.18	
T.P.	12.95	193.55	0.71	180.10	
T.P.	11.96	203.39	2.12	191.43	
Tr. Pt. #20	4.97	201.03	7.33	196.06	e. Line Middle + 5.13 Line Sublet. St.
Tr. Pt. #15			10.39	190.44	
Tr. Pt. #17	0.90	221.45		220.55	
Tr. Pt. #21			11.23	210.22	
Tr. Pt. #18	12.35	264.90		252.55	
Tr. Pt. #22			5.27	259.63	
Tr. Pt. #14	11.07	263.62		252.55	
Tr. Pt. #23			5.13	258.49	
B.M. B.P.	4.79	266.72		261.93	S.E. 1613 Douglass.
Tr. Pt. #24			5.35	261.37	



7

Univ. Ave. West. Extension.
Topography.

Readings taken from Tr. Pt. 1.

Azimuths. To Rt. or clockwise. from North.

78.98

Tr. Pt. #

78.98

Hyd.

station	Azimuth	stadia	Vert. Δ.	Hor. Dist.	Diff. Elev.	Elev.	
1	302° 43'	36.0	+1° 07'	36.0	+0.7	79.7	✓
2 S.W. cor House #1	337° 23'	44.0	+3° 10'	43.9	2.4	81.4	✓
3 S.E. cor House 1	1° 33'	55.0	+2° 55'	54.9	2.8	81.8	✓
4	17° 44'	115.0	+1° 18'	115.0	2.6	81.6	✓
5 N.W. cor House 2	29° 09'	135.0	+0° 46'	135.0	1.8	80.8	✓
6 S.W. cor House 2	37° 25'	135.0	+0° 10'	135.0	+0.4	79.4	✓
7 Wash.	38° 55'	135.0	-0° 52'	135.0	-2.0	77.0	✓
8 N.W. cor House 3	41° 15'	137.0	+0° 40'	137.0	+1.6	80.6	✓
9 S.W. cor House 3	48° 31'	141.0	+1° 40'	140.0	4.1	83.1	✓
10 S.W. cor House 4	58° 50'	151.0	+2° 00'	150.8	5.3	84.3	✓
11 N.W. cor House 4	53° 45'	145.0	+1° 45'	144.9	4.4	83.4	✓
12	64° 50'	160.0	+2° 24'	159.7	6.7	85.7	✓
13	67° 20'	161.0	+4° 35'	159.0	12.8	91.8	✓
14	74° 02'	181.0	+5° 45'	178.2	18.0	97.0	✓
15	79° 51'	197.0	+6° 26'	194.6	22.0	101.0	✓
16	97° 02'	159.0	+5° 56'	157.3	+16.4	95.4	✓

Readings from Tr Pt. #1

9

Tr Pt #	Station	Azimuth	Stadia	Vert. A.	Hor. Dist.	Diff. Elev.	Elev.
					El. 78.98	Hub	
17		88°-44'	133.0	+52°-25'	131.8	+12.5	91.5 ✓
18		72°-39'	137.0	+4°-16'	136.3	10.2	89.2 ✓
19		75°-39'	103.0	+3°-40'	102.6	6.6	85.6 ✓
20		58°-16'	87.0	+3°-26'	86.7	5.2	84.2 ✓
21		49°-54'	81.0	+1°-03'	81.0	1.5	80.5 ✓
22	Wash.	38°-24'	75.0	+1°-19'	75.0	1.7	80.7 ✓
23		51°-52'	55.0	+1°-42'	55.0	1.6	80.6 ✓
24		61°-36'	57.0	+3°-34'	56.8	3.5	82.5 ✓
25		91°-24'	87.0	+3°-27'	86.7	5.2	84.2 ✓
26		113°-26'	119.0	+2°-48'	118.7	5.8	84.8 ✓
27		117°-25'	129.0	+3°-50'	128.4	8.6	87.6 ✓
28		141°-13'	115.0	+0°-51'	115.0	1.7	80.7 ✓
29		140°-00'	69.0	+1°-33'	69.0	1.9	80.9 ✓
30		132°-00'	35.0	+3°-27'	34.9	2.1	81.1 ✓
31		128°-53'	17.0	+1°-05'	17.0	0.3	79.3 ✓
32		326°-14'	9.0	+7°-30'	8.8	0.12	79.1 ✓
33		52°-01'	31.0	+3°-04'	30.9	1.7	80.7 ✓
34		86°-23'	37.0	+4°-39'	36.8	+3.0	82.0 ✓

Readings from Tr. Pt. #7
clock wise from North.

#	Station	Azimuth	stadia	Vert. A.	Hor. Dist.	Diff. Elev.	Elev.
	Tr. Pt. 7				Fl. 84.66	Hub.	
1	S. E. Cor. House #2	276°-25'	62.0	-4°-43'	61.6	-5.1	79.6 ✓
2	Wash.	280°-25'	56.0	-6°-46'	55.3	-6.6	78.1 ✓
3	N. E. Cor. House #3	278°-47'	49.0	-2°-17'	48.9	-1.6	83.1 ✓
4	S. E. Cor. House #3	266°-28'	33.0	-3°-07'	32.9	-1.8	82.9 ✓
5	N. E. Cor. House #4	248°-09'	21.0	-1°-21'	21.0	-0.5	84.2 ✓
6	S. E. Cor. House #4	199°-00'	19.0	-1°-28'	19.0	-0.5	84.2 ✓
7		161°-14'	25.0	-0°-42'	25.0	-0.3	84.4 ✓
8		71°-45'	33.0	+3°-40'	32.9	+2.1	86.8 ✓
9	S. W. Cor. Garage #5	47°-30'	17.0	+2°-15'	17.0	+0.7	85.4 ✓
10	N. W. Cor. Garage #5	3°-03'	23.0	+2°-11'	23.0	0.9	85.6 ✓
11		1°-48'	39.0	+0°-49'	39.0	0.6	85.3 ✓
12		341°-35'	53.0	+1°-02'	53.0	1.0	85.7 ✓
13		302°-10'	42.0	+0°-32'	42.0	+0.4	85.1 ✓
14	Wash.	304°-00'	53.0	-5°-30'	52.5	-5.1	79.6 ✓
15		297°-56'	61.0	-2°-44'	60.9	-2.9	81.8 ✓
16	S. W. Cor. House #6	317°-15'	69.0	-2°-00'	68.9	-2.4	82.3 ✓
17	S. W. Cor. Wing #4 House #6	306°-27'	77.0	-00°-30'	77.0	-0.7	84.0 ✓
18	S. E. Cor. House #6	330°-45'	77.0	-2°-10'	76.9	-2.9	81.8 ✓

Readings from Tr. Pt. #7
clockwise from North

Tr. Pt. #	station	Azimuth	stadia	Vert. Δ	Hor. Dist	Diff. Elev	Elev
					El 84.44	Hub.	
19.	Wash	335-54	43.0	-4-07	62.7	-4.5	80.2 ✓
20	Eucalyptus Tree	285-25	47.0	-2-15	66.9	-2.6	82.1 ✓
21	CYPRESS Tree	308-27	65.0	-2-10	64.9	-2.5	82.2 ✓
22	Eucalyptus Tree	128-00	31.0	+6-50	30.6	+3.7	88.9 ✓
23		160-54	29.0	+5-36	28.7	2.8	87.5 ✓
24		144-30	48.0	+10-00	46.6	8.2	92.9 ✓
25		110-13	41.0	+11-39	58.6	12.1	96.8 ✓
26		84-46	59.0	+13-21	56.0	13.2	97.9 ✓
27		66-53	67.0	+14-52	62.5	16.6	101.3 ✓
28		44-30	46.0	+14-00	43.2	10.8	95.5 ✓
29		48-36	43.0	+13-20	40.5	9.6	94.3 ✓
30	Elco Pole	68-50	39.0	+9-40	37.9	6.5	91.2 ✓
31	S.E. cor Garage #5	43-06	33.0	+3-05	32.9	1.8	86.5 ✓
32		118-00	20.0	+2-09	20.0	0.8	85.5 ✓
33		114-00	23.0	+6-25	22.7	+2.6	87.3 ✓
34		1-47	43.0	-2-41	42.9	-2.0	82.7 ✓
35		346-14	57.0	-4-05	56.7	-4.1	80.6 ✓

Readings from Tr. Pt. # 8
clockwise from North.

12

Tr. Pt. # 8		Elev. 97.29 Hub				
Station	Azimuth	Stadia	Vert. Δ	Hor. Dist	Diff. Elev.	Elev.
1 N.W. cor. House # 7	200°-19'	7.0	0°-00'	7.0	0.0	97.3 ✓
2	267°-52'	20.0	-4°-10'	19.9	-1.4	95.9 ✓
3	1°-08'	20.0	+2°-00'	20.0	+0.7	98.0 ✓
4	22°-36'	43.0	+2°-08'	43.0	1.6	98.9 ✓
5	24°-20'	57.0	+1°-00'	57.0	1.0	98.3 ✓
6	43°-13'	59.0	+3°-26'	58.8	3.5	100.8 ✓
7 Elec. Pole.	50°-00'	70.0	+6°-57'	69.0	8.4	105.7 ✓
8 Eucalyptus Tree.	59°-30'	68.0	+8°-40'	61.6	9.4	106.7 ✓
9	62°-00'	28.0	+14°-09'	26.4	6.6	103.9 ✓
10 N.E. Cor. Porch. House # 7	43°-13'	17.0	+11°-00'	16.4	3.2	100.5 ✓
11	34°-18'	9.0	+20°-05'	7.9	2.9	100.2 ✓
12	9°-05'	8.0	+3°-00'	8.0	0.4	97.7 ✓
13	25°-35'	21.0	+2°-32'	21.0	+0.9	98.2 ✓
14	26°-12'	63.0	-3°-26'	62.8	-3.8	93.5 ✓
15	19°-06'	59.0	-4°-40'	58.6	-4.8	92.5 ✓
16	11°-00'	63.0	-4°-55'	62.6	-5.4	91.9 ✓
17 S.E. Cor. House # 8	14°-24'	46.0	-6°-15'	45.5	-5.0	92.5 ✓
18 S.W. Cor. House # 8	346°-39'	23.0	-13°-55'	21.6	-5.4	91.9 ✓

Readings from Tr. Pt. #8
clockwise from North

Tr. Pt. #8

EI 97.28 Hub

Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev.	Elev.
19	275°-41'	24.0	-19°-10'	21.6	-6.3	91.0 ✓
20	241°-40'	40.0	-13°-00'	38.0	-8.8	88.5 ✓
21 Pepper Tree	255°-00'			51.0	✓	
22 " "	261°-30'			28.0	✓	
23 Apricot Tree	289°-00'			33.0	✓	
24 " "	298°-47'			39.0	✓	
25 Acacia Tree	292°-06'			57.0	✓	
26	293°-30'	45.0	-15°-57'	41.6	-11.9	85.4 ✓
N.W. Cor 27 House #8	326°-30'	48.0	-12°-17'	45.6	-9.9	87.4 ✓
28	326°-30'	53.0	-14°-55'	49.0	-13.2	84.1 ✓
29						
30						
31						
32						
33						
34						

Readings from T.P. #9
clockwise from North

El. 123.52 Huk

Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev.	Elev.
Tr. Pt. #9						
N.E. Cor. 1 House	262°42'	115.0	-19°00'	102.4	-35.4	88.1 ✓
2 ? Tree	269°07'	102.0	-22°11'	86.0	-35.0	88.5 ✓
3 Acacia Tree	271°41'	97.0	-22°02'	83.4	-33.6	89.9 ✓
4	275°06'	109.0	-22°45'	92.8	-39.0	84.5 ✓
5 Wash	299°07'	113.0	-21°46'	99.0	-39.1	84.4 ✓
6	299°16'	109.0	-22°05'	93.0	-38.0	85.5 ✓
7	296°04'	93.0	-26°46'	79.0	-37.5	86.0 ✓
8	306°00'	111.0	-20°30'	97.5	-36.4	87.1 ✓
9	309°56'	95.0	-24°35'	78.6	-35.8	87.7 ✓
10	322°40'	107.0	-20°01'	94.6	-34.4	89.1 ✓
11	316°39'	135.0	-15°26'	124.6	-34.7	89.8 ✓
S.E. Cor. 12 House	316°49'	159.0	-11°43'	153.0	-31.6	91.9 ✓
13 Wash	316°11'	161.0	-13°30'	152.3	-36.6	86.9 ✓
14	315°14'	150.0	-13°30'	142.0	-34.1	89.4 ✓
15	325°52'	119.0	-16°51'	109.0	-33.2	90.3 ✓
16	343°37'	120.0	-10°24'	116.0	-21.4	102.1 ✓
17 Acacia	342°20'	87.0	-12°20'	84.0	-18.2	105.3 ✓
18 Eucalyptus	329°44'	87.0	-19°12'	82.0	-28.6	94.9 ✓

Readings from Tr. Pt. #9
clockwise from North.

15

Tr. Pt. 9

f/123, 52 Hub.

Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev.	Elev.
19. Eucalyptus	324° 30'	79.0	-21° 55'	68.0	-27.4	96.1 ✓
20 "	314° 12'	69.0	-24° 40'	57.0	-25.3	98.2 ✓
21 "	302° 30'	68.0	-25° 33'	55.4	-26.5	97.0 ✓
22 -	303° 10'	48.6	-26° 21'	38.5	-19.1	104.4 ✓
23	335° 00'	61.0	-20° 20'	53.6	-19.9	103.6 ✓
24	275° 37'	63.0	-26° 12'	50.6	-24.9	98.6 ✓
25	275° 37'	45.0	-28° 21'	34.7	-18.8	104.7 ✓
26						

Readings from Tr. Pt. #10.
clockwise from North

Tr. Pt. #10

El. 128.10 Hub.

Station	Azimuth	stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
1	240° 10'	145'	-9° 55'	140.8	-24.6	103.5 ✓
2	249° 12'	160'	-12° 20'	153.0	-33.4	94.7 ✓
3	251° 04'	171'	-12° 28'	163.0	-35.7	92.4 ✓
4	243° 18'	191'	-11° 15'	184.0	-36.6	91.5 ✓
5 Bottom ditch	251° 00'	189'	-11° 55'	181.0	-38.3	89.8 ✓
6 Palm	253° 34'	205.0	-10° 22'	199.0	-36.2	91.9 ✓
7	252° 06'	225.0	-9° 31'	219.5	-34.8	93.3 ✓
8 Pine	258° 11'	183.0	-11° 03'	176.0	-34.4	93.7 ✓
9	265° 44'	205.0	-8° 34'	200.5	-30.2	97.9 ✓
10 S.W. Cor House #10	269° 02'	215.0	-7° 36'	211.3	-28.2	99.9 ✓
11 S.E. Cor House #10	274° 23'	199.0	-7° 45'	195.4	-26.6	101.5 ✓
12	274° 30'	200.0	-6° 06'	197.8	-21.1	107.0 ✓
13 S.W. Cor House #11	279° 51'	187.0	-7° 06'	184.3	-22.9	105.2 ✓
14	279° 51'	188.0	-6° 16'	185.9	-20.4	107.7 ✓
15 S.E. Cor House #11	291° 43'	173.0	-7° 45'	170.0	-23.2	104.9 ✓
16 W. End Base cobbler wall	293° 41'	181.0	-7° 00'	178.3	-21.9	106.2 ✓
17 S. End. Base cobbler wall	300° 15'	177.0	-7° 19'	174.3	-22.4	105.7 ✓
18 E. End. Top cobbler wall	300° 15'	178.0	-5° 01'	176.6	-15.9	112.2 ✓

T.P. 10		Readings from Tr. Pt. 10 clockwise from North.					El. 128.10 Hub
Station	Azimuth	Stadia	Vert. \angle	Hor. Dist.	Diff. Elev.	Elev.	
W. End Top	0° 1'						
19. Cobble wall	293-41	182.0	-4° 41'	180.8	-14.9	113.2 ✓	
N. E. Cor.	0° 1'						
20 House	292-24	191.0	-4° 20'	189.9	-14.4	113.7 ✓	
E. End Top	0° 1'						
21. Cobble wall	299-77	159.0	-9° 31'	154.6	-26.0	102.1 ✓	
S. End Base	0° 1'						
22 Cobble wall	299-17	159.0	-10° 56'	153.0	-29.7	98.4 ✓	
23	300-40	160.0	-16° 18'	155.0	-28.2	98.9 ✓	
Top.	0° 1'						
24 Cobble wall	289-26	165.0	-9° 11'	160.8	-26.0	102.1 ✓	
Base	0° 1'						
25 Cobble wall	289-26	164.0	-10° 54'	158.0	-30.6	97.5 ✓	
W. End Top	0° 1'						
26 Cobble wall	274-41	177.0	-9° 05'	172.0	-27.5	100.6 ✓	
W. End Base	0° 1'						
27 Cobble wall	274-41	177.0	-10° 10'	171.6	-30.7	97.4 ✓	
28	274-08	179.0	-9° 48'	173.9	-30.0	98.1 ✓	
29	270-00	186.0	-9° 35'	181.0	-30.6	97.5 ✓	
30	265-19	185.0	-12° 21'	157.8	-34.5	93.6 ✓	
31 Wash	261-52	151.0	-14° 22'	142.0	-36.2	91.9 ✓	
32	277-39	155.0	-12° 45'	146.8	-33.4	94.7 ✓	
33 Wash.	273-41	149.0	-14° 28'	140.0	-36.1	92.0 ✓	
34	273-41	143.0	-14° 28'	134.2	-34.6	93.5 ✓	
35	286-04	150.0	-13° 04'	142.4	-32.7	95.4 ✓	
36 Wash	285-19	148.0	-14° 22'	138.5	-35.5	92.6 ✓	

Readings from Tr. Pt. 10
clock wise from North

Tr. Pt. 10				El. 128.10	Hub.		
Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev.	Elev.	
37	285° 26'	145.0	-13° 46'	136.8	-33.5	94.6	✓
38	298° 49'	146.0	-12° 28'	139.0	-31.9	96.2	✓
39 Wash.	299° 03'	143.0	-14° 14'	135.0	-34.2	93.9	✓
40	299° 20'	139.0	-13° 40'	131.0	-32.0	96.1	✓
41	309° 10'	137.0	-13° 38'	129.4	-31.7	96.4	✓
42 Wash.	309° 10'	143.0	-14° 07'	134.8	-33.6	94.5	✓
43 Eucalyptus Tree	308° 11'	147.0	-12° 13'	140.6	-30.5	97.6	✓
44 "	308° 11'	157.0	-10° 56'	151.2	-29.3	98.8	✓
45 "	308° 11'	163.0	-9° 30'	158.2	-26.5	101.6	✓
46 "	308° 11'	171.0	-8° 37'	166.4	-25.4	102.7	✓
47	313° 25'	146.0	-10° 10'	155.0	-27.7	100.4	✓
48	326° 04'	150.0	-10° 33'	145.0	-27.0	101.1	✓
49	318° 12'	130.0	-14° 05'	122.5	-30.6	97.5	✓
50 Wash.	318° 12'	123.0	-15° 56'	114.0	-32.5	95.6	✓
51	318° 12'	117.0	-15° 26'	109.4	-30.3	97.8	✓
52	316° 00'	100.0	-18° 32'	90.0	-30.1	98.0	✓
53	307° 19'	102.0	-15° 36'	94.5	-26.4	101.7	✓
54	283° 21'	100.0	-16° 25'	92.1	-27.1	101.0	✓

Readings from Tr. Pt. 10
Clockwise from North

Tr. Pt. 10	Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
					El 128.10	Hub	
55		262°57'	115.0	-15°00'	107.4	-28.8	99.3 ✓
56		247°45'	97.0	-12°36'	93.0	-20.7	107.4 ✓
57		278°50'	70.0	-17°54'	62.6	-20.5	107.6 ✓
58		310°39'	87.0	-15°35'	80.5	-22.5	105.6 ✓
59		306°52'	36.0	-17°03'	33.4	-10.02	118.1 ✓
60		238°14'	43.0	-12°39'	40.8	-9.2	118.9 ✓
61		231°16'	91.0	-7°40'	89.4	-12.0	116.1 ✓
62		231°16'	130.0	-6°20'	128.4	-14.3	113.8 ✓
63		13°20'	85.0	-1°52'	84.9	-2.8	125.3 ✓
64		20°55'	160.0	+0°15'	160	+0.7	128.8 ✓
65		23°29'	218.0	+0°12'	218	+0.8	128.9 ✓
66		22°31'	253.0	+0°33'	253	+2.4	130.5 ✓
67		22°36'	291.0	+1°00'	290.9	+5.1	133.2 ✓
68		19°47'	293.0	+0°33'	293	+2.8	130.9 ✓
69		17°49'	251.0	-0°24'	251	-1.8	126.3 ✓
70		10°36'	307.0	-2°55'	306.3	-15.7	112.4 ✓
71		3°55'	265.0	-4°25'	263.5	-20.35	107.7 ✓
72		5°00'	223.0	-6°00'	220.6	-23.1	105.0 ✓

Readings from Tr. Pt. #10
clockwise from North

Tr. Pt. #10	Station	Azimuth	Stadia	Vert. L	Hor. Dist	Hub Diff. Elev.	Elev.
	73	9°-36'	217.0	-3°-56'	216.0	-14.9	113.2 ✓
	74	9°-20'	203.0	-3°-34'	202.3	-12.6	115.5 ✓
	75	7°-11'	207.0	-4°-47'	205.6	-17.2	110.9 ✓
	76	4°-00'	195.0	-5°-06'	193.5	-17.3	110.8 ✓
	77	356°-51'	147.0	-7°-30'	144.5	-19.1	109.0 ✓
	78	7°-15'	133.0	-5°-39'	132.8	-13.0	115.1 ✓
	79	356°-05'	119.0	-7°-19'	117.1	-15.0	113.1 ✓
	80	342°-50'	143.0	-10°-35'	138.5	-25.8	102.3 ✓
	81	330°-43'	91.0	-16°-25'	83.5	-24.6	103.5 ✓
	82	325°-00'	109.0	-16°-19'	100.8	-29.4	98.7 ✓
	83	332°-04'	153.0	-10°-50'	148.0	-28.3	99.8 ✓
	84 Wash.	332°-00'	163.0	-11°-11'	156.8	-31.0	97.1 ✓
	85	331°-41'	167.0	-9°-20'	162.7	-26.7	101.4 ✓
	86	346°-50'	197.0	-7°-29'	193.8	-25.5	102.6 ✓
	87 Wash.	347°-45'	195.0	-8°-46'	190.6	-29.4	98.7 ✓
	88	344°-40'	189.0	-7°-58'	185.5	-26.0	102.1 ✓
	87	357°-35'	193.0	-6°-45'	190.4	-22.5	105.6 ✓
	90 Wash.	356°-50'	203.0	-8°-02'	199.4	-28.3	99.8 ✓

Readings from Tr. Pt. 10 clockwise from North						
Tr. Pt. 10				El. 128.10	Hub.	
Station	Azimuth	Stadia	Vert. \angle	Hor. Dist.	Diff. Elev.	Elev.
91.	356 ⁰ 27	205 ⁰ .0	-7 ⁰ 16	201.8	-27.7	100.4 ✓
92	359 ⁰ 56	211 ⁰ .0	-6 ⁰ 52	208	-25.1	103.0 ✓
93	358 ⁰ 22	249 ⁰ .0	-5 ⁰ 12	247	-22.5	105.6 ✓
94 Wash.	357 ⁰ 30	249 ⁰ .0	-5 ⁰ 56	246.4	-25.6	102.5 ✓
95	356 ⁰ 07	247 ⁰ .0	-5 ⁰ 16	245	-22.2	105.9 ✓
96	359 ⁰ 05	287 ⁰ .0	-4 ⁰ 10	285.5	-20.9	107.2 ✓
97 Wash	359 ⁰ 45	285 ⁰ .0	-4 ⁰ 56	283.0	-24.4	103.7 ✓
98	0 ⁰ 40	280 ⁰ .0	-4 ⁰ 08	278.6	-20.1	108.0 ✓
99	8 ⁰ 20	291 ⁰ .0	-3 ⁰ 19	290.1	-16.8	111.3 ✓
100 Wash.	7 ⁰ 26	301 ⁰ .0	-4 ⁰ 12	299.4	-22.1	106.0 ✓
101	6 ⁰ 26	305 ⁰ .0	-3 ⁰ 31	303.9	-18.8	109.3 ✓
102	7 ⁰ 04	311 ⁰ .0	-3 ⁰ 24	310.0	-18.5	109.6 ✓
103 Wash	7 ⁰ 55	311 ⁰ .0	-3 ⁰ 54	309.6	-21.1	107.0 ✓
104	10 ⁰ 00	311 ⁰ .0	-3 ⁰ 05	310.2	-16.8	111.3 ✓
105	2 ⁰ 13	347 ⁰ .0	-2 ⁰ 09	346.6	-13.0	115.1 ✓
106	0 ⁰ 34	324 ⁰ .0	-2 ⁰ 55	323.2	-16.6	111.5 ✓
107	357 ⁰ 10	303 ⁰ .0	-3 ⁰ 25	302.0	-18.1	110.0 ✓
108	353 ⁰ 40	269 ⁰ .0	-4 ⁰ 31	267.3	-21.1	107.0 ✓

Readings from Tr. Pt. 10
clockwise from North

Tr. Pt. 10	Station	Azimuth	Stadia	Vert. L	Hor. Dist	Hub, Diff. Elev.	Elev.
					El. 128.10	Hub,	
	109	354-49	242.0	-5-10	240.1	-21.7	106.4 ✓
	110	348-14	215.0	-6-38	212.2	-24.4	103.7 ✓
	111	338-45	195.0	-7-22	191.8	-24.8	103.3 ✓
	112	324-44	171.0	-7-50	167.8	-23.8	104.3 ✓
	113	315-45	189.0	-5-25	187.4	-17.8	110.3 ✓
	114	318-32	202.0	-3-16	201.4	-11.6	116.5 ✓
	115	329-39	205.0	-2-55	204.5	-10.4	117.7 ✓
	116	334-20	215.0	-2-40	214.5	-10.0	118.1 ✓
	117	337-19	231.0	-1-48	230.8	-7.3	120.8 ✓
	118	338-37	219.0	-4-19	217.8	-16.4	111.7 ✓
	119	341-51	234.0	-2-19	233.7	-9.5	118.6 ✓
	120	346-39	260.0	-1-39	259.8	-7.5	120.6 ✓
	121	349-05	279.0	-1-24	278.8	-6.9	121.2 ✓
	122	350-31	297.0	-0-56	296.9	-4.9	123.2 ✓
	123	351-28	295.0	-2-08	294.6	-11.1	117.0 ✓
	124	352-54	309.0	-0-58	308.9	-5.2	122.9 ✓
	125	353-38	332.0	-0-32	333.0	-3.2	124.9 ✓
	126	357-47	351.0	-0-43	351.0	-4.4	123.7 ✓
	127	359-24	355.0	-0-48	355.0	-5.0	123.1 ✓

Readings from Tr. Pt. #2
 clockwise from North

Tr. Pt. #	station	Azimuth	stadia	Vert. \angle	Hor. Dist	El. 106.12 Hub. Diff. Elev.	Elev.
1		189 ⁰ -47	63.0	-13 ⁰ -34	59.5	-14.4	91.7 ✓
2		188 ⁰ -24	63.0	-15 ⁰ -57	58.2	-16.6	89.5 ✓
3		197 ⁰ -07	91.0	-9 ⁰ -34	88.5	-14.9	91.2 ✓
4		196 ⁰ -17	93.0	-11 ⁰ -26	89.5	-18.2	87.9 ✓
5		202 ⁰ -01	127.0	-9 ⁰ -19	123.7	-20.3	85.8 ✓
6		198 ⁰ -24	129.0	-10 ⁰ -37	124.8	-23.7	82.4 ✓
7		195 ⁰ -00	126.0	-10 ⁰ -39	121.8	-22.9	83.2 ✓
8		193 ⁰ -05	127.0	-11 ⁰ -17	122.2	-24.3	81.8 ✓
9		191 ⁰ -10	97.0	-11 ⁰ -06	93.2	-18.2	87.9 ✓
10		187 ⁰ -47	100.0	-12 ⁰ -35	95.3	-21.3	84.8 ✓
11	N.W. Cor Wing House 6	179 ⁰ -09	65.0	-16 ⁰ -17	60.3	-17.4	88.7 ✓
12		179 ⁰ -25	79.0	-15 ⁰ -20	76.4	-20.2	85.9 ✓
13		187 ⁰ -39	187.0	-10 ⁰ -00	181.5	-32.0	74.1 ✓
14	inlet F.L. 36" Cent. Pipe	190 ⁰ -03	207.0	-9 ⁰ -10	201.8	-32.5	73.6 ✓
15	Pine Tree	192 ⁰ -58	197.0	-7 ⁰ -29	193.8	-26.0	80.1 ✓
16	N.E. Cor House #1	209 ⁰ -53	191.0	-7 ⁰ -11	188.0	-23.7	82.4 ✓
17		189 ⁰ -05	43.0	-17 ⁰ -01	39.3	-12.0	94.1 ✓
18	N.W. Cor Garage #2	183 ⁰ -31	47.0	-21 ⁰ -26	40.6	-16.0	90.1 ✓

Readings from Tr. Pt. 2
clockwise from North.

24

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev.	Elev.
2					El. 106.12	Hub	
19	N.E. Cor Garage 12	168°06'	33.0	-30°24'	24.5	-14.4	91.7 ✓
20	S.E. Cor Garage 12	170°28'	30.0	-27°48'	23.5	-12.4	93.7 ✓
21	N.E. Cor House #6	155°33'	38.0	-28°17'	29.5	-15.8	90.3 ✓
22		155°29'	47.0	-25°46'	38.0	-18.4	87.7 ✓
23	Eucalyptus	147°53'	53.0	-25°26'	43.2	-20.6	85.5 ✓
24	"	144°53'	59.0	-24°00'	49.3	-21.9	84.2 ✓
25	"	141°51'	65.0	-22°52'	53.2	-23.3	82.8 ✓
26		133°06'	53.0	-29°35'	40.2	-22.8	83.3 ✓
27		117°53'	79.0	-18°56'	70.5	-24.3	81.8 ✓
28	Wash.	116°41'	84.0	-18°17'	75.8	-25.0	81.1 ✓
29	Wash.	100°11'	90.0	-16°26'	82.8	-24.4	81.7 ✓
30		100°35'	96.0	-15°00'	89.6	-24.0	82.1 ✓
31		100°18'	86.0	-16°54'	78.5	-23.8	82.3 ✓
32	Acacia	88°45'	95.0	-14°12'	89.4	-22.5	83.6 ✓
33	Eucalyptus	83°41'	110.0	-13°15'	102.2	-24.5	81.6 ✓
34	Wash.	75°15'	122.0	-11°26'	117.0	-23.8	82.3 ✓
35	Cypress.	75°00'	120.0	-10°10'	116.1	-20.8	85.3 ✓
36		92°51'	133.0	-9°55'	129.0	-22.5	83.6 ✓

Readings from Tr. Pt. #2
clockwise from North

25

Tr. Pt. #	Station	Azimuth	stadia	Vert. L	Hor. Dist.	Hub Diff. Elev.	Elev.
					El. 106.12		
37		76°-00'	87.0	-14°-00'	81.8	-20.4	85.7 ✓
38		83°-00'	65.0	-20°-00'	57.4	-20.8	85.3 ✓
39		75°-30'	33.0	-18°-22'	29.7	-9.7	96.4 ✓
40		34°-35'	31.0	-4°-04'	30.9	-2.2	103.9 ✓
41		28°-39'	55.0	-2°-00'	54.9	-1.9	104.2 ✓
	N.W. Cor						
42	House #13	20°-31'	60.0	+1°-09'	60.0	+1.2	107.3 ✓

Readings from Tr. Pt. #3
Clockwise from North.

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
					St. 109.17	Hub	
1	N.E. cor. House #13	189°-30'	31.0	-3°-55'	30.9	-2.1	107.1 ✓
2	SE. cor. House #13	161°-30'	49.0	-10°-39'	47.3	-8.8	100.4 ✓
3		160°-46'	65.0	-11°-02'	62.5	-12.2	97.0 ✓
4		140°-17'	81.0	-15°-10'	75.5	-20.4	88.8 ✓
5	Pepper Tree	118°-15'	83.0	-13°-55'	78.2	-19.4	89.8 ✓
6	" "	125°-04'	87.0	-13°-45'	82.0	-20.2	89.0 ✓
7		102°-30'	95.0	-13°-04'	90.0	-20.8	88.4 ✓
8	Wash.	102°-12'	88.0	-15°-10'	82.0	-22.2	87.0 ✓
9		101°-55'	78.0	-14°-26'	73.2	-18.8	90.4 ✓
10	Wash.	121°-00'	120.0	-13°-14'	114.0	-26.6	82.6 ✓
11		121°-15'	125.0	-12°-04'	120.0	-25.6	83.6 ✓
12		120°-50'	113.0	-12°-21'	107.8	-23.6	85.6 ✓
13		111°-08'	87.0	-13°-15'	82.2	-19.4	89.8 ✓
14	Wash. S.W. cor.	109°-05'	93.0	-14°-40'	87.0	-22.7	86.5 ✓
15	House #9	89°-46'	73.0	-10°-18'	70.6	-12.8	96.4 ✓
16		112°-23'	51.0	-14°-60'	48.0	-12.0	97.2 ✓
17	N.W. cor. House #9	78°-19'	35.0	-9°-22'	53.6	-8.8	100.4 ✓
18		110°-47'	33.0	-11°-14'	31.7	-6.2	103.0 ✓

Readings from Tr. Pt. #3
clockwise from North.

Tr. Pt. #3				El. 109.17	Hub		
Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev	Elev.	
19 cypress	71°-10'	43.0	-8°-03'	42.2	-6.0	103.2	✓
20	51°-11'	37.0	-4°-23'	36.8	-2.8	106.4	✓
21	9°-41'	36.0	+4°-12'	35.8	-2.6	106.6	✓

Readings from Tr. Pt. #4
clockwise from N.

Tr. Pt. #4				El. 113.29	Hub.		
Station	Azimuth	stadia	Vert. L	Hor. Dist.	Diff. Elev.	Elev.	
1	211°-05'	13.0	-0°-14'	13.0	-0.05	113.2	✓
2	154°-45'	23.0	-11°-04'	22.1	-4.3	109.0	✓
3	133°-36'	43.0	-12°-21'	41.0	-8.9	103.4	✓
4	147°-27'	57.0	-11°-05'	55.0	-10.3	103.0	✓
5 N.E. Cor House #9	143°-32'	69.0	-11°-19'	66.2	-13.4	99.9	✓
6	124°-41'	57.0	-17°-00'	52.1	-15.9	97.4	✓
7	87°-25'	53.0	-15°-25'	49.2	-13.6	99.7	✓
8	78°-20'	31.0	-10°-17'	30.1	-5.6	107.7	✓
9 N.W. Cor House #10	54°-21'	47.0	-3°-58'	46.8	-3.3	110.0	✓
10	36°-33'	40.0	-7°-18'	40.0	-0.9	112.4	✓
11	12°-30'	40.0	+4°-02'	39.8	+2.8	116.1	✓

Readings from Tr. Pt. #5.
clockwise from North

Tr. Pt #5.

El. 132.11 #46.

Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev	Elev.
1	202°-45'	75.0	-7°-55'	73.6	-10.2	121.9 ✓
2	185°-55'	89.0	-10°-06'	86.3	-15.2	116.9 ✓
3 Eucalyptus	178°-20'	99.0	-11-19	95.2	-19.2	112.9 ✓
4 N.W. Cor House #11	170°-14'	95.0	-12°-07'	90.8	-19.4	112.6 ✓
5	155°-40'	63.0	-13°-42'	59.5	-14.5	117.6 ✓
6	189°-17'	35.0	-9°-28'	34.1	-5.7	126.4 ✓
7	124°-18'	37.0	-16°-56'	33.7	-10.2	121.9 ✓
8	127°-15'	55.0	-15°-55'	50.8	-14.6	117.5 ✓
9	127°-15'	69.0	-17°-04'	63.0	-19.4	112.7 ✓
10	62°-34'	48.0	-8°-27'	44.1	-6.5	126.6 ✓
11	48°-44'	99.0	-3°-16'	98.7	-5.7	126.4 ✓
12	43°-38'	137.0	-1°-16'	136.9	-3.0	129.1 ✓
13						
14						
15						
16						
17						
18						

Readings from Tr. Pt. #6
clockwise from North.

Tr. Pt. #6

El. 133.23 446

Station	Azimuth	Stadia	Vert. \angle	Hor. Dist	Diff. Elev	Elev.
1	205°51'	98.0	-1°45'	97.9	-3.0	130.2 ✓
2	207°00'	59.0	-0°39'	59.0	-0.7	132.5 ✓
3	204°47'	26.0	+0°45'	26.0	+0.3	133.5 ✓
4	33°17'	29.0	+2°49'	28.9	+1.4	134.6 ✓
5	29°51'	79.0	+2°09'	78.9	+3.0	136.2 ✓
6	32°17'	125.0	+2°32'	124.8	+5.5	138.7 ✓
7	41°17'	117.0	-0°39'	117.0	-1.3	131.9 ✓
8	50°10'	119.0	-3°39'	118.6	-7.6	125.6 ✓
9	54°21'	97.0	-4°40'	96.4	-7.9	125.3 ✓
10	69°45'	112.0	-9°51'	108.4	-18.9	114.3 ✓
11	55°46'	130.0	-6°16'	128.5	-14.1	119.1 ✓
12	46°28'	127.0	-3°55'	126.4	-8.6	124.6 ✓
13	37°02'	139.0	-0°43'	139.0	-2.0 To get elev. -1.7 -3.7	129.5 ✓
14	38°52'	155.0	-1°04'	155.0	-2.0 -4.9	128.3 ✓
15	30°33'	147.0	+2°08'	146.8	+5.5	138.7 ✓
16	33°10'	171.0	+2°06'	170.8	+6.3	139.5 ✓
17	36°38'	177.0	+3°05'	176.5	+9.5	142.7 ✓
18	42°58'	165.0	-0°23'	165.0	-1.1	132.1 ✓

Readings from Tr. Pt. #6
clockwise from North.

Tr. Pt. #6	Station	Azimuth	stadia	Vert. Z	Hor. Dist.	H461 Diff. Elev.	Elev.
					21, 133.23		
19		48°00'	156.0	-2°45'	155.7	-7.5	125.7 ✓
20		56°07'	151.0	-5°48'	149.5	-15.2	118.0 ✓
21		48°26'	145.0	-4°15'	144.2	-10.7	122.5 ✓
22		58°43'	189.0	-4°56'	187.7	-16.2	117.0 ✓
23		56°03'	258.0	-3°04'	257.3	-13.8	119.4 ✓
24		55°33'	315.0	-1°39'	314.8	-9.1	124.1 ✓
25		56°15'	363.0	-1°21'	362.8	-8.5	124.7 ✓
26		53°28'	365.0	-0°20'	365.0	-2.1	131.1 ✓
27		51°31'	340.0	+0°05'	340.0	+0.5	133.7 ✓
28		48°26'	323.0	+0°25'	323.0	+2.3	135.5 ✓
29		50°20'	289.0	-0°17'	289.0	-1.5	131.7 ✓
30		50°01'	263.0	-0°44'	263.0	-3.4	129.8 ✓
31		50°01'	231.0	-1°37'	230.8	-6.5	126.7 ✓
32		47°22'	202.0	-1°26'	201.9	-5.0	128.2 ✓
33		37°41'	197.0	+3°46'	196.2	+12.9	146.1 ✓
34		38°34'	211.0	+3°07'	210.4	+11.4	144.6 ✓
35		42°36'	225.0	+1°46'	224.8	+6.9	140.1 ✓
36		39°42'	227.0	+3°35'	226.2	+14.1	147.3 ✓

Readings from Tr. Pt. #6
clockwise from North

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L.	Hor. Dist	Hub Diff. Elev.	Elev.
					Elev. 133.23	Hub	
37		40°-40'	257.0	+2°-53'	256.4	+13.0	146.2 ✓
38		42°-48'	287.0	+3°-03'	286.2	+15.2	148.4 ✓
39		42°-46'	315.0	+3°-06'	314.1	+17.0	150.2 ✓
40		42°-15'	343.0	+3°-04'	342.1	$\begin{matrix} -2.0 \\ \text{for Elev} \\ +15.3 \\ +16.5 \end{matrix}$	149.5 ✓
41		44°-22'	353.0	+2°-50'	352.1	+17.4	150.6 ✓
42		44°-26'	337.0	+2°-06'	336.6	$\begin{matrix} -2.0 \\ +12.4 \\ +10.4 \end{matrix}$	143.6 ✓
43		46°-28'	329.0	+1°-21'	328.8	$\begin{matrix} -2.0 \\ +7.7 \\ +5.7 \end{matrix}$	138.9 ✓
44		45°-17'	365.0	+3°-15'	363.9	+20.7	153.9 ✓
45		46°-44'	375.0	+3°-09'	374.0	+20.6	153.8 ✓
46		46°-47'	391.0	+3°-12'	389.8	+21.7	154.9 ✓
47		48°-56'	361.0	+2°-00'	360.6	+12.6	145.8 ✓
48		49°-32'	387.0	+1°-41'	386.7	+11.4	144.6 ✓
49	N. Bank	57°-44'	369.0	-1°-31'	368.7	-9.7	123.5 ✓
50	Wash.	58°-33'	369.0	-2°-09'	368.5	-13.8	119.4 ✓
51	S. Bank	59°-30'	375.0	-1°-34'	374.7	-10.3	122.9 ✓
52		64°-13'	347.0	-1°-41'	346.7	-10.2	123.0 ✓
53	S. Bank	65°-00'	331.0	-1°-49'	330.7	-10.5	122.7 ✓
54	Wash	63°-04'	347.0	-2°-43'	346.3	-16.4	116.8 ✓

Readings from Tr. Pt. #6
clockwise from North.

32

Tr. Pt. #6	Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Hgt. Diff. Elev.	Elev.	
	55	N. Bank	62°-30'	347.0	-2°-05'	346.6	-12.6	120.6 ✓
	56	N. Bank	62°-59'	363.0	-2°-21'	362.4	-14.8	118.4 ✓
	57	Wash	63°-18'	330.0	-2°-21'	329.5	$\frac{-4.0}{-13.6}$ -17.6	115.6 ✓
	58	S. Bank	60°-47'	283.0	-3°-00'	282.2	-14.8	118.4 ✓
	59	Wash	59°-50'	283.0	-3°-47'	281.9	-18.6	114.6 ✓
	60	N. Bank	58°-27'	280.0	-2°-54'	279.3	-14.2	119.0 ✓
	61	" "	58°-49'	235.0	-3°-47'	234.0	-15.5	117.7 ✓
	62	Wash.	60°-18'	235.0	-4°-52'	233.3	-19.9	113.3 ✓
	63	S. Bank	61°-23'	235.0	-4°-07'	233.9	-16.8	114.4 ✓
	64	" "	72°-03'	185.0	-4°-50'	183.7	-15.5	117.7 ✓
	65	Wash	70°-04'	183.0	-6°-54'	180.5	-21.8	111.4 ✓
	66	N. Bank	66°-30'	181.0	-6°-00'	179.0	-18.8	114.4 ✓
	67	" "	64°-33'	159.0	-6°-45'	156.8	-18.6	114.6 ✓
	68	Wash.	67°-24'	159.0	-8°-29'	155.6	-23.3	109.9 ✓
	69	S. Bank	70°-21'	157.0	-7°-22'	154.5	-19.8	113.4 ✓
	70	" "	78°-24'	127.0	-9°-44'	123.5	-21.2	112.0 ✓
	71	Wash.	76°-46'	123.0	-11°-45'	118.6	-24.5	108.7 ✓
	72	N. Bank	74°-04'	119.0	-9°-53'	115.5	-20.1	113.1 ✓

Readings from Tr. Pt. #6
clockwise from North.

33

Tr. Pt. #6	Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Hub Diff. Elev.	Elev.
	73 Wash.	153° 57'	145.0	-12° 09'	138.8	-29.8	103.4 ✓
	74 S. Bank	153° 43'	159.0	-10° 57'	153.6	-29.8	103.4 ✓
	75	150° 27'	161.0	-10° 15'	156.9	-28.3	104.9 ✓
	76	154° 28'	251.0	-2° 03'	250.7	-9.0	124.2 ✓
	77	151° 49'	265.0	-0° 27'	265.0	-2.1	131.1 ✓
	78	97° 48'	147.0	-6° 47'	145.0	-17.2	116.0 ✓
	79	86° 30'	150.0	-6° 54'	147.9	-17.9	115.3 ✓
	80	65° 09'	231.0	-3° 50'	230	-15.4	117.8 ✓
	81	68° 09'	287.0	-2° 26'	286.5	-12.2	121.0 ✓
	82	66° 15'	333.0	-0° 31'	333.0	-3.0	130.2 ✓
	83	69° 20'	337.0	+1° 25'	336.8	+8.9	141.6 ✓
	84	73° 34'	287.0	+1° 30'	286.8	+7.5	140.7 ✓
	85	76° 41'	243.0	+1° 20'	242.9	+5.6	138.8 ✓
	86	83° 04'	209.0	+0° 58'	209.0	+3.0	136.2 ✓
	87	89° 12'	199.0	+0° 58'	199.0	+2.9	136.1 ✓
	88	95° 13'	205.0	+1° 06'	204.9	+3.9	137.1 ✓
	89	103° 00'	221.0	+0° 20'	221.0	+1.3	134.5 ✓
	90	106° 53'	221.0	+0° 18'	221.0	+1.2	134.4 ✓

Readings from Tr. Pt. #6
clockwise from North.

Tr. Pt. #6	Elev. 133.23 Hub					
Station	Azimuth	Stadia	Vert. L	Hor. Dist	Diff. Elev.	Elev.
91	108°02'	199.0	0-00	199.0	0.0	133.2 ✓
92	102°20'	183.0	-3°00'	182.5	-9.6	123.6 ✓
93	104°00'	163.0	-3°45'	162.3	-10.6	122.6 ✓
94	91°16'	167.0	-3°28'	166.4	-10.1	123.1 ✓
95	74°57'	207.0	-1°38'	206.9	-5.9	127.3 ✓
96	69°55'	261.0	-0°30'	261.0	-2.3	130.9 ✓
97	61°03'	387.0	-1°17'	386.8	-8.7	124.5 ✓
98	59°08'	435.0	-0°39'	435.0	-4.9	128.3 ✓
99	58°40'	467.0	-0°32'	467.0	-4.3	128.9 ✓
100	59°34'	467.0	+0°05'	467.0	+0.7	133.9 ✓
101	61°49'	420.0	+0°02'	420.0	+0.2	133.4 ✓
102	63°51'	403.0	-0°05'	403.0	-0.6	132.6 ✓
103	66°33'	375.0	+0°09'	375.0	+1.0	134.2 ✓
104	69°49'	367.0	+1°20'	366.8	+8.5	141.7 ✓
105	68°34'	391.0	+1°30'	390.7	+10.2	143.4 ✓
106	67°00'	421.0	+1°33'	420.7	+11.4	144.6 ✓
107	64°09'	452.0	+2°03'	451.5	+16.2	149.4 ✓
108						

Readings from Tr. Pt. # 6
clockwise from North.

35

Tr. Pt. # 6.	Station	Azimuth	Stadia	Vert. L	Hor. Dist	Hub. Diff Elev.	Elev.
					El. 133.23		
109		118°-43'	262.0	+4°-03'	260.7	+18.5	151.7 ✓
110		130°-47'	263.0	+3°-34'	262.0	+16.3	149.5 ✓
111		142°-54'	277.0	+2°-30'	276.5	12.1	145.3 ✓
112		152°-04'	291.0	+1°-57'	290.7	9.9	143.1 ✓
113		156°-09'	304.0	+2°-15'	303.6	12.0	145.2 ✓
114		165°-05'	359.0	+1°-52'	358.6	11.7	144.9 ✓
115		170°-06'	407.0	+1°-55'	406.6	13.6	146.8 ✓
116		173°-29'	437.0	+1°-21'	436.8	+10.3	143.5 ✓
117		177°-07'	420.0	0°-00'	420.0	0.0	133.2 ✓
118		174°-28'	389.0	-0°-09'	389.0	-1.0	132.2 ✓
119		108°-47'	299.0	+4°-25'	297.3	+23.0	156.2 ✓
120		102°-26'	277.0	+5°-21'	274.6	25.7	158.9 ✓
121		90°-56'	251.0	+6°-01'	248.3	26.2	159.4 ✓
122		85°-36'	259.0	+5°-54'	256.3	26.5	159.7 ✓
123		77°-19'	347.0	+5°-09'	344.4	31.0	164.2 ✓
124		78°-34'	393.0	+5°-31'	389.4	37.6	170.8 ✓
125		75°-41'	387.0	+4°-33'	384.6	31.1	164.3 ✓
126		79°-18'	357.0	+6°-08'	353.1	37.9	171.1 ✓

Readings from Tr. Pt. #6
clockwise from North.

Tr. Pt. #	El. 133.23 Hub					
station	Azimuth	Stadia	Vert. L	Hor Dist	Diff Elev.	Elev
127	89°-24'	285.0	+7°-16'	280.6	+35.8	169.0 ✓
128	98°-21'	311.0	+7°-23'	305.9	39.6	172.8 ✓
129	104°-32'	337.0	+7°-03'	332.0	40.9	174.1 ✓
130	110°-12'	353.0	+6°-36'	349.5	40.3	173.5 ✓

Readings from Tr. Pt. #19. Not on Baseline
clockwise from North.

Tr. Pt. #	El. 153.48 Hub.					
station	Azimuth	Stadia	Vert. L	Hor Dist	Diff Elev.	Elev
1	140°-26'	205.0	+5°-44'	203.0	+20.4	173.9 ✓
2	129°-18'	227.0	+5°-44'	224.8	22.6	176.1 ✓
3	130°-39'	255.0	+7°-25'	250.8	32.6	186.1 ✓
4	142°-21'	243.0	+7°-47'	238.7	32.6	186.1 ✓
5	151°-42'	247.0	+7°-17'	243.2	31.1	184.6 ✓
6	164°-15'	267.0	+7°-20'	262.7	33.8	187.3 ✓
7	166°-50'	285.0	+6°-43'	281.2	33.1	186.6 ✓
8	174°-21'	220.0	+6°-04'	217.6	23.1	176.6 ✓

R-readings from Tr. Pt. #19
clockwise from North

153.48

37

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Hub. Diff. Elev.	Elev.
						El. 153.48	
	9	119° 05'	207.0	+6-25	204.5	+23.0	176.5 ✓
	10	111° 56'	213.0	+6-24	210.4	23.6	177.1 ✓
	11	103° 54'	255.0	+6-04	252.2	26.8	180.3 ✓
	12	100° 35'	279.0	+5-44	276.3	27.8	181.3 ✓
	13	96° 44'	276.0	+5-40	273.3	27.1	180.6 ✓
	14	92° 05'	267.0	+6-00	264.1	27.8	181.3 ✓
	15	87° 01'	277.0	+5-55	274.2	28.4	181.9 ✓
	16	83° 53'	297.0	+5-51	294.9	30.0	183.5 ✓
	17	88° 50'	319.0	+7-52	313.1	43.3	196.8 ✓
	18	94° 12'	320.0	+7-30	314.5	41.4	194.88 ✓
	19	97° 48'	317.0	+7-41	311.4	40.0	193.48 ✓
	20	103° 00'	319.0	+7-27	313.8	41.0	194.48 ✓
	21	106° 09'	287.0	+7-55	281.7	39.1	192.58 ✓
	22	119° 01'	250.0	+8-53	244.1	38.1	191.58 ✓
	23	125° 32'	271.0	+8-39	265.1	40.3	193.78 ✓
	24	131° 06'	281.0	+8-43	274.6	42.0	195.48 ✓
	25	107° 19'	181.0	+2-32	180.7	8.0	161.48 ✓
	26	100° 30'	207.0	+2-38	206.6	9.5	162.98 ✓

Readings from Tr. Pt # 19
clockwise from North

153.48

38

Tr. Pt. # 19	El. 153.48 Hub					
Station	Azimuth	Stadia	Vert L	Hor Dist	Diff Elev.	Elev.
27	98° 00'	223.0	+2° 21'	222.6	+9.2	164.68 ✓
28	92° 10'	227.0	+2° 41'	226.5	+10.6	164.08 ✓
29	83° 35'	239.0	+2° 31'	238.5	+10.5	163.98 ✓
30	73° 39'	220.0	-2° 38'	219.6	-10.2	143.48 ✓
31	81° 22'	195.0	-3° 23'	194.3	-11.5	141.98 ✓
32	90° 40'	177.0	-3° 46'	176.3	-11.6	141.88 ✓
33	85° 47'	167.0	-5° 24'	165.6	-15.6	137.88 ✓
34	97° 00'	151.0	-5° 16'	149.8	-13.8	139.68 ✓
35	91° 29'	137.0	-10° 18'	133.0	-24.1	129.38 ✓
36	82° 49'	159.0	-7° 40'	156.2	-21.0	132.48 ✓
37	75° 27'	187.0	-5° 48'	185.2	-18.8	134.68 ✓
38	68° 56'	235.0	-3° 34'	234.1	-14.6	138.88 ✓
39	65° 49'	233.0	-4° 33'	231.6	-18.4	135.08 ✓
40	67° 00'	205.0	-6° 12'	202.6	-22.0	131.48 ✓
41 S. Bank	101° 00'	109.0	-14° 07'	102.7	-25.7	127.78 ✓
42 Wash.	99° 09'	107.0	-18° 11'	96.8	-31.6	121.88 ✓
43 N. Bank	96° 07'	103.0	-16° 48'	94.5	-28.5	124.98 ✓
44 N. "	72° 28'	157.0	-9° 22'	152.9	-25.2	128.28 ✓

Readings from Tr. Pt. #19,
Clockwise from North

Tr. Pt. #19	Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev	Elev
					El. 153.48	Hub	
44	Wash	75°-00'	167.0	-10°-10'	162.0	-29.0	124.48 ✓
45	S. Bank	76°-36'	167.0	-7°-21'	164.3	-21.2	132.28 ✓
46	S. "	64°-55'	187.0	-7°-39'	183.8	-24.7	128.78 ✓
47	Wash.	63°-39'	182.0	-8°-24'	179.4	-26.4	127.08 ✓
48	N. Bank	60°-48'	181.0	-7°-00'	178.3	-21.9	131.58 ✓
49	N. "	61°-15'	229.0	-5°-34'	226.9	-22.1	131.38 ✓
50	Wash.	62°-36'	229.0	-6°-21'	226.2	-25.2	128.28 ✓
51	S. Bank	63°-35'	227.0	-5°-40'	224.8	-22.3	131.18 ✓
52		69°-38'	143.0	-9°-26'	139.3	-23.1	130.38 ✓
53		80°-20'	111.0	-13°-04'	105.5	-24.5	128.98 ✓
54		109°-30'	67.0	-25°-32'	54.5	-26.0	127.48 ✓
55		95°-02'	49.0	-25°-30'	39.9	-19.6	135.88 ✓
56							
57							
58							
59							
60							
61							

Readings from Tr. Pt # 11.
Clock wise from North.

40

Tr. Pt. # 11.	St. 164.76		Hub			
Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev	Elev
1	262°-54'	217.0	-6°-51'	214.0	-25.7	139.06 ✓
2	269°-01'	200.0	-5°-53'	197.9	-20.4	144.36 ✓
3	275°-33'	175.0	-5°-51'	173.2	-17.7	147.06 ✓
4	283°-47'	157.0	-6°-07'	155.3	-16.6	148.16 ✓
5	285°-45'	185.0	-0°-38'	185.0	-2.0	162.76 ✓
6	272°-19'	237.0	-0°-39'	237.0	-2.7	162.06 ✓
7	263°-42'	259.0	-0°-56'	258.9	-4.2	160.56 ✓
8	263°-37'	281.0	-0°-16'	281.0	-1.3	163.46 ✓
9	295°-41'	187.0	+0°-52'	187.0	+2.8	167.56 ✓
10	309°-52'	189.0	+1°-25'	188.9	+4.7	169.46 ✓
11	315°-09'	191.0	+1°-57'	190.8	+6.5	171.26 ✓
12	327°-57'	185.0	+2°-09'	184.8	+6.9	171.66 ✓
13	331°-51'	197.0	+2°-03'	196.8	+7.0	171.76 ✓
14	336°-52'	251.0	+2°-26'	250.6	+10.6	175.36 ✓
15	341°-00'	300.0	+1°-35'	299.8	+8.3	173.06 ✓
16	344°-56'	307.0	-0°-24'	307.0	-2.1	162.66 ✓
17	343°-52'	253.0	-1°-55'	252.7	-8.4	156.36 ✓
18	346°-55'	253.0	-1°-54'	252.7	-8.3	156.46 ✓

Readings from T.S. PT #11
clockwise from North.

Station	Azimuth	Stadia	Vert L	Hor. Dist.	Diff. Elev	Elev
19	348°-04'	211.0	-3°-41'	210.1	-13.5	151.26 ✓
20	343°-24'	203.0	-3°-45'	202.2	-13.3	151.46 ✓
21	343°-03'	165.0	-6°-39'	162.9	-19.0	145.76 ✓
22	350°-55'	167.0	-6°-32'	164.9	-18.9	145.86 ✓
23	341°-00'	127.0	-11°-32'	122.4	-24.8	139.96 ✓
24	324°-30'	121.0	-12°-36'	115.6	-25.7	139.06 ✓
25	308°-36'	123.0	-12°-45'	117.2	-26.5	138.26 ✓
26	310°-24'	145.0	-7°-15'	142.7	-18.2	146.56 ✓
27	296°-07'	143.0	-8°-34'	139.9	-21.8	142.96 ✓
28 N. Bank	346°-33'	97.0	-19°-10'	86.4	-30.1	134.66 ✓
29 Wash	349°-26'	97.0	-22°-26'	82.8	-34.2	130.56 ✓
30 S. Bank	351°-11'	89.0	-21°-41'	76.8	-30.5	134.26 ✓
31 S. "	8°-00'	111.0	-16°-54'	101.7	-30.7	134.06 ✓
32 Wash	7°-00'	117.0	-17°-28'	106.5	-33.5	131.26 ✓
33 N. Bank	5°-39'	119.0	-15°-22'	110.8	-30.5	134.26 ✓
34 N. "	25°-36'	165.0	-10°-03'	160.5	-28.2	136.56 ✓
35 Wash	27°-14'	163.0	-11°-15'	157.0	-31.3	133.46 ✓
36 S. Bank	28°-37'	159.0	-10°-27'	154.0	-28.5	136.26 ✓

Readings from Tr. Pt. #11
clockwise from North

Tr Pt #	Station	Azimuth	Slope	Vert. L	Hor Dist.	Hub D. Ht Elev	Elev.
					21. 164.76	Hub	
37		19°-39'	177.0	-6°-45'	174.6	-20.7	144.06 ✓
38		2°-17'	153.0	-7°-39'	150.4	-20.1	144.66 ✓
39		2°-08'	171.0	-3°-58'	170.2	-11.8	152.96 ✓
40		354°-50'	195.0	-2°-12'	194.7	-7.4	157.36 ✓
41		351°-19'	235.0	-0°-39'	235.0	-2.7	162.06 ✓
42		348°-59'	277.0	+0°-42'	277.0	+3.4	168.16 ✓
43		351°-53'	307.0	+2°-54'	306.3	+15.5	180.26 ✓
44		354°-00'	277.0	+3°-12'	276.2	+15.5	180.26 ✓
45		357°-36'	241.0	+3°-24'	240.2	+14.2	178.96 ✓
46		4°-56'	215.0	+2°-39'	214.6	+9.9	174.66 ✓
47		10°-39'	225.0	+2°-40'	224.5	+10.5	175.26 ✓
48		14°-53'	207.0	-1°-10'	206.9	-4.2	160.56 ✓
49		34°-50'	163.0	-8°-30'	159.5	-24.5	140.26 ✓
50		24°-28'	125.0	-11°-10'	120.0	-23.6	141.16 ✓
51		356°-40'	82.0	-21°-01'	71.4	-27.4	137.36 ✓
52		335°-35'	69.0	-24°-02'	57.5	-25.6	139.16 ✓
53		344°-51'	49.0	-23°-02'	41.5	-17.4	147.16 ✓
54		19°-52'	57.0	-15°-48'	52.8	-15.0	149.76 ✓

Readings from Tr. Pt. #11
clockwise from North

Tr. Pt. #	Station	Azimuth	stadia	Vert. L	Hor Dist.	Hub Diff Elev	Elev.
					El. 164.76	Hub	
55		36°-52'	101.0	-6°-55'	99.6	-12.0	152.76 ✓
56		44°-32'	144.0	-4°-03'	143.3	-10.1	154.66 ✓
57		57°-33'	139.0	+2°-26'	138.8	+5.8	170.56 ✓
58		58°-11'	75.0	+3°-23'	74.8	+4.4	169.16 ✓
59		66°-00'	37.0	+4°-13'	36.8	+2.7	167.46 ✓
60		87°-37'	77.0	+16°-04'	71.1	+20.5	185.26 ✓
61		75°-58'	117.0	+10°-47'	112.8	+21.5	186.26 ✓
62		74°-58'	149.0	+9°-43'	144.8	+24.8	189.56 ✓
63		89°-39'	139.0	+14°-50'	130.5	+34.5	199.26 ✓
64		101°-10'	119.0	+19°-12'	106.7	+37.0	201.76 ✓
65		112°-09'	100.0	+21°-25'	86.8	+34.0	198.76 ✓
66		90°-00'	95.0	+15°-00'	88.6	+23.7	188.46 ✓
67							
68							
69							
70							
71							
72							

Readings from Tr. Pt. #12
clockwise from No. 18

44

Tr. Pt. #	Station	Azimuth	Stadia	Vert. \angle	Hor. Dist.	Hub Diff. Elev.	Elev.
5-1	N. Bank	347-35	103.0	-18-07	93.2	-30.5	140.96 ✓
5-2	Wash	347-58	102.0	-22-27	87.2	-37.0	134.46 ✓
5-3	S. Bank	347-58	95.0	-22-10	81.6	-33.2	138.26 ✓
5-4	"	1-21	89.0	-22-34	76.0	-31.5	139.96 ✓
5-5	Wash	2-31	95.	-23-10	80.3	-34.2	137.26 ✓
6-6	N. Bank	4-53	96'	-21-21	83.4	-32.6	138.86 ✓
6-7	"	32-02	91.	-21-21	79.0	-30.8	140.66 ✓
6-8	Wash	32-17	83.	-21-34	70.7	$\begin{matrix} -4.0 \\ \text{for Elev.} \\ -29.4 \\ \hline -33.4 \end{matrix}$	138.06 ✓
6-9	S. Bank	32-17	77.	-22-13	66.0	-27.0	144.46 ✓
6-10	"	45-04	91.	-17-26	82.8	-26.0	145.46 ✓
6-11	Wash	39-33	97.	-21-16	84.3	-32.7	138.76 ✓
6-12	N. Bank	36-50	97.	-19-30	86.2	-30.4	140.86 ✓
6-13	"	38-53	155.	-10-28	150.0	-27.7	143.76 ✓
6-14	Wash	40-40	157.	-11-26	150.8	-30.5	140.96 ✓
6-15	S. Bank	42-22	157.	-10-07	152.0	-27.1	144.36 ✓
7-16	"	36-20	183.	-8-38	179.1	-27.1	144.36 ✓
7-17	Wash	35-07	181.	-9-28	176.3	-29.4	142.06 ✓
7-18	N. Bank	34-00	175.	-8-13	171.5	-24.8	146.66 ✓

Readings from Tr. Pt. #12
Clock Wise from North.

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L.	Hor. Dist	El. 171.46 Hub Diff. Elev	Elev.
12	N. Bank	34 ⁰ -05	202'	-7 ⁰ -03'	199.0	-24.5	146.96 ✓
20	Wash	35 ⁰ -24	199'	-8 ⁰ -07'	195.1	-27.8	143.66 ✓
21	S. Bank	37 ⁰ -14	200'	-7 ⁰ -26	196.7	-25.7	145.76 ✓
22	" "	48 ⁰ -15	215'	-6 ⁰ -09	212.7	-22.9	148.56 ✓
23	Wash.	47 ⁰ -21	223'	-6 ⁰ -10	220.5	^{-3.0} For Elev. -23.8 -26.8	144.66 ✓
24	N. Bank	47 ⁰ -10	225'	-6 ⁰ -13'	222.4	-24.2	147.26 ✓
25		29 ⁰ -23	145'	-9 ⁰ -37	141.1	-23.9	147.56 ✓
26		20 ⁰ -24	117.0	-12 ⁰ -46	112.0	-25.2	146.26 ✓
27		8 ⁰ -34	109.	-16 ⁰ -14	100.8	-29.4	142.06 ✓
28		348 ⁰ -14	109'	-15 ⁰ -56	101.0	-28.9	142.56 ✓
29		329 ⁰ -17	117'	-12 ⁰ -35	111.4	-24.8	146.66 ✓
30		329 ⁰ -59	141'	-6 ⁰ -08	139.5	-15.0	156.46 ✓
31		352 ⁰ -04	135'	-5 ⁰ -30	133.8	-17.9	158.56 ✓
32		8 ⁰ -10	125'	-9 ⁰ -05	121.9	-19.5	157.96 ✓
33		15 ⁰ -20	141'	-4 ⁰ -58	140.0	-12.2	159.26 ✓
34		21 ⁰ -30	163'	-4 ⁰ -21	162.1	-12.2	159.26 ✓
35		18 ⁰ -56	173'	-2 ⁰ -42	172.6	-8.1	163.36 ✓
36		11 ⁰ -54	177'	+0 ⁰ -36	177.0	+1.9	173.36 ✓

Readings from Tr. Pt. 12
clock wise from North.

46

Tr. Pt. 12			El. 171.46	H4b.		
Station	Azimuth	stadia	Vert. L.	Hor. Dist.	Diff Elev	Elev
37	8-46	163'	+0-25	163.0	+1.2	172.66 ✓
38	2-29	159'	+0-34	159.0	+1.6	173.06 ✓
39	345-25	163'	+1-09	163.0	+3.2	174.66 ✓
40	338-54	165'	+1-06	164.9	+3.2	174.66 ✓
41	329-55	167'	+0-28	167.0	+1.3	172.76 ✓
42	324-21	199'	+4-09	198.0	+14.4	185.86 ✓
43	321-25	219'	+3-56	218.0	+15.0	186.46 ✓
44	339-41	199'	+5-08	197.5	+17.8	189.26 ✓
45	353-37	200'	+5-15	198.4	+18.2	189.66 ✓
46	0-10	209'	+4-55	207.5	+18.0	189.46 ✓
47	1-55	199'	+3-54	198.1	+13.5	184.96 ✓
48	4-54	223'	+4-04	220.9	+15.8	187.26 ✓
49	8-39	200'	+2-38	199.6	+9.2	180.66 ✓
50	40-46	181'	-8-26	177.4	-26.2	145.26 ✓
51	49-45	180'	-4-47	178.8	-15.0	156.46 ✓
52	50-10	155'	-5-58	153.4	-16.0	155.46 ✓
53	54-05	111'	-9-51	107.8	-18.7	152.76 ✓
54	58-29	111'	-9-29	108.1	-18.0	153.46 ✓

Readings from Tr. Pt. # 12
clockwise from North

Tr. Pt. # 12	Station	Azimuth	Stadia	Vert. L.	Hor. Dist	Diff. Elev.	Elev
						Hub	
						El. 171.46	
						Diff. Elev.	
						-2.0	
						+14.7	
						-16.7	
55	58° 21'	87.0	-9° 53'	84.5		154.76 ✓	
56	51° 16'	89.	-12° 48'	84.5	-19.2	152.26 ✓	
57	39° 12'	63'	-18° 35'	56.7	-19.0	152.46 ✓	
58	13° 43'	57'	-21° 56'	49.0	-19.7	151.76 ✓	
59	340° 24'	58'	-23° 58'	48.5	-21.6	149.86 ✓	
60	315° 36'	43'	-23° 08'	36.3	-15.5	155.96 ✓	
61	13° 00'	35'	-24° 50'	28.8	-13.4	158.06 ✓	
62	57° 15'	47'	-14° 04'	44.0	-11.0	160.46 ✓	
63	67° 25'	75'	-4° 34'	74.5	-5.9	165.56 ✓	
64	79° 30'	91'	+1° 28'	91.0	+2.3	173.76 ✓	
65	82° 32'	63'	+0° 46'	63.0	+0.8	172.26 ✓	
66	95° 23'	35'	+1° 27'	35.0	+0.9	172.36 ✓	
67	232° 07'	19'	+7° 05'	18.7	+2.3	173.76 ✓	
68	177° 32'	34'	+21° 05'	29.6	+11.4	182.86 ✓	
69	134° 30'	55'	+15° 16'	50.6	+14.0	185.46 ✓	
70	109° 59'	69'	+13° 39'	65.2	+15.8	187.26 ✓	
71	96° 38'	97'	+10° 06'	95.0	+13.0	184.46 ✓	
72	93° 43'	131.	+8° 09'	128.5	+18.4	189.86 ✓	

Readings from Tr. Pt. #12
clockwise from North.

Tr. Pt. #12			El. 171.46	Hub		
Station	Azimuth	Stadia	Vert. L	Hor. Dist	Diff Elev	Elev
73	102° 04'	151'	+11° 04'	145.5	+28.5	199.95 ✓
74	108° 55'	129'	+13° 50'	122.5	+30.1	201.56 ✓
75	120° 35'	101'	+16° 13'	93.5	+27.2	198.66 ✓
76	117° 29'	91'	+14° 31'	85.3	+22.0	193.46 ✓
77	130° 46'	81'	+15° 08'	75.5	+20.4	191.86 ✓
78	136° 22'	93'	+18° 10'	84.0	+27.5	198.96 ✓
79	154° 43'	95'	+17° 54'	86.0	+27.8	199.26 ✓
80	166° 07'	83'	+19° 30'	73.8	+26.1	197.56 ✓
81	151° 00'	78'	+16° 27'	71.6	+21.1	192.56 ✓
82	94° 00'	163'	+9° 10'	158.9	+25.6	197.06 ✓
83	96° 24'	177'	+10° 35'	171.0	+32.0	203.46 ✓
84	90° 04'	187.0	+10° 00'	182.0	+32.1	203.56 ✓
85	85° 51'	227'	+8° 05'	222.6	+31.5	202.96 ✓
86	82° 00'	243'	+6° 25'	240.1	+27.0	198.46 ✓
87	82° 13'	200'	+6° 54'	197.2	+23.9	195.36 ✓
88	87° 02'	170'	+8° 16'	166.6	+24.2	195.66 ✓
89	89° 54'	139'	+7° 33'	136.6	+18.2	189.66 ✓
90	80° 33'	163'	+6° 11'	161.2	+17.5	188.96 ✓

Readings from Tr. Pt. #12
clockwise from North.

171.46

49

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L	Hor. Dist	Diff Elev.	Elev.
					El 171.46	Hub	
91		75°-28'	191'	+5°-19'	189.5	+ 17.6	189.06 ✓
92		68°-43'	195'	+2°-21'	194.7	+ 8.0	179.46 ✓
93		71°-03'	155'	+2°-49'	154.7	+ 7.6	179.06 ✓
94		75°-15'	135'	+1°-59'	134.9	+ 4.7	176.16 ✓
95		79°-54'	115'	+2°-09'	114.9	+ 4.3	175.76 ✓
96		72°-06'	111'	0.00	111	$\begin{matrix} -2.3 \\ \text{for Elev.} \\ +0.0 \\ -2.3 \end{matrix}$	169.16 ✓
97		67°-00'	140'	-0°-20'	140.0	- 0.8	176.66 ✓
98		62°-25'	187'	+0°-41'	187.0	+ 2.2	173.66 ✓
99		55°-06'	177'	-3°-00'	176.5	- 9.3	162.16 ✓
100		56°-38'	149'	-4°-23'	148.1	- 11.3	160.16 ✓
101		61°-15'	121'	-6°-11'	119.6	- 12.9	158.56 ✓
102		16°-55'	257'	-1°-54'	256.7	- 8.5	162.96 ✓
103		14°-56'	283'	+0°-09'	283.0	$\begin{matrix} -5.0 \\ \text{for Elev.} \\ +0.7 \\ -4.3 \end{matrix}$	167.16 ✓
104		13°-24'	284'	+0°-26'	284.0	$\begin{matrix} -6.0 \\ \text{for Elev.} \\ +2.1 \\ -3.9 \end{matrix}$	167.56 ✓
105		12°-50'	321'	+0°-28'	321.0	+ 2.6	174.06 ✓
106		12°-25'	337'	+1°-03'	336.9	+ 6.2	177.66 ✓
107		10°-19'	331'	+2°-40'	330.3	+ 15.4	186.86 ✓
108		8°-02'	331'	+3°-50'	329.5	+ 22.1	193.56 ✓

Readings from Tr. Pt. # 12
 Clockwise from North.

Tr. Pt. 12			St. 171.46	Hub.		
Station	Azimuth	Stadia	Vert. L	Hor. Dist.	D. Pt Elev	Elev
109	9°-37'	227'	+1°-37'	226.8	+6.4	177.86 ✓
110	10°-24'	281'	+1°-26'	280.8	+7.0	178.46 ✓
111	10°-40'	307'	+1°-09'	306.9	+6.2	177.66 ✓
112	13°-19'	337'	+1°-39'	336.8	+9.7	181.16 ✓
113	16°-16'	331'	+1°-56'	330.7	+11.2	182.66 ✓
114	16°-33'	317'	+2°-10'	316.5	+12.0	183.46 ✓
115	21°-06'	277'	+1°-57'	276.7	+9.4	180.46 ✓
116	25°-21'	261'	+1°-30'	260.8	+6.8	178.26 ✓
117	25°-40'	295'	+3°-58'	293.7	+20.4	191.86 ✓
118	22°-11'	300'	+3°-59'	298.7	+20.8	192.26 ✓
119	18°-52'	339'	+4°-08'	337.3	+24.0	195.46 ✓
120	16°-53'	367'	+4°-28'	364.9	+28.5	199.96 ✓
121	26°-23'	327'	+4°-52'	324.7	+27.7	199.16 ✓
122						
123						
124						
125						
126						

Readings from Tr. Pt. #13.
clockwise from North

51

Tr. Pt. #13

El 166.29 Hub.

Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
1	316°-10'	163'	-2°-26'	162.7	-6.9	159.79 ✓
2	318°-23'	151'	-2°-43'	150.7	-7.2	159.49 ✓
3	310°-00'	139'	-4°-14'	138.3	-10.2	156.49 ✓
4	318°-52'	127'	-4°-41'	126.2	-10.2	156.49 ✓
5	315°-26'	107'	-8°-29'	104.7	-15.6	151.09 ✓
6	333°-13'	95'	-9°-18'	92.6	-15.2	151.49 ✓
7	0°-57'	87'	-6°-49'	85.8	-10.3	156.39 ✓
8	19°-30'	85'	-7°-18'	83.7	-10.7	155.99 ✓
9	36°-47'	103'	-6°-06'	101.9	-10.9	155.79 ✓
10	54°-04'	131'	-3°-54'	130.4	-8.9	157.79 ✓
11	56°-24'	163'	-2°-49'	162.7	-8.0	158.69 ✓
12	49°-12'	157'	-0°-16'	157.0	-0.7	165.99 ✓
13	46°-20'	143'	-0°-40'	143.0	-1.7	164.99 ✓
14	41°-52'	155'	+2°-38'	154.7	+7.1	173.79 ✓
15	29°-49'	131'	+3°-09'	130.6	+7.2	173.89 ✓
16	16°-53'	115'	+3°-17'	114.6	+6.6	173.29 ✓
17	358°-55'	115'	+2°-34'	114.8	+5.1	171.79 ✓
18	352°-44'	113'	+0°-06'	113.0	+0.2	166.89 ✓

Readings from Tr. Pt. #13
clockwise from North

Tr. Pt. #13

El. 166.69 Hub.

52

Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
19	339°13'	115'	-1°24'	114.9	-2.8	163.89 ✓
20	329°13'	133'	+0°29'	133.0	+1.1	167.79 ✓
21	336°40'	129'	+4°16'	138.3	+10.3	176.99 ✓
22	348°29'	133'	+4°53'	132.1	+11.3	177.99 ✓
23	1°13'	133'	+5°59'	131.7	+13.8	180.49 ✓
24	20°51'	145'	+7°17'	142.7	+18.2	184.89 ✓
25	35°44'	169'	+5°23'	167.5	+15.8	182.49 ✓
26	38°18'	183'	+5°11'	181.5	+16.4	183.09 ✓
27	26°01'	193'	+8°53'	188.5	+29.4	196.09 ✓
28	16°45'	179'	+9°58'	173.7	+30.5	197.19 ✓
29	4°57'	179'	+9°54'	173.7	+30.3	196.99 ✓
30	356°58'	182'	+10°02'	176.8	+31.2	197.89 ✓
31 N. Bank	60°30'	173'	-3°48'	172.3	-11.4	155.29 ✓
32 Wash	62°05'	175'	-4°43'	173.8	-14.3	152.39 ✓
33 S. Bank	63°19'	175'	-3°53'	174.2	-11.8	154.89 ✓
34 " "	67°13'	153'	-4°04'	152.3	-10.8	155.89 ✓
35 Wash	65°30'	151'	-5°48'	149.5	-15.2	151.49 ✓
36 N. Bank	63°55'	149'	-4°36'	148.1	-11.9	154.79 ✓

Readings from Tr. Pt. #13
clockwise from North.

53

Tr. Pt. #13

El. 166.69 Hub

Station	Azimuth	stadia	Vert. L	Hor. Dist	Diff. Elev	Elev.
37 N. Bank	63°-14'	97'	-8°-13'	95.0	-13.7	152.99 ✓
38 Wash.	65°-49'	95'	-7°-51'	93.2	-5.0 For Elev 12.9 -17.9	148.79 ✓
39 S. Bank	67°-25'	93'	-7°-52'	91.3	-3.0 For Elev 12.2 -15.2	151.09 ✓
40 " "	40°-25'	81'	-11°-55'	77.5	-16.4	150.29 ✓
41 Wash	39°-15'	87'	-13°-00'	82.5	-19.1	147.59 ✓
42 N. Bank	38°-36'	89'	-10°-34'	86.0	-16.0	150.69 ✓
43 N. "	8°-04'	61'	-17°-38'	55.4	-1.0 For Elev 17.7 -18.7	147.99 ✓
44 Wash	8°-20'	55'	-17°-47'	49.8	-4.0 For Elev 16.9 -20.9	145.79 ✓
45 S. Bank	10°-54'	49'	-16°-30'	45.0	-4.8 For Elev 12.4 -17.4	149.29 ✓
46	39°-24'	71'	-13°-20'	67.2	-15.9	150.79 ✓
47	58°-04'	109'	-6°-54'	107.4	-13.0	153.69 ✓
48	71°-17'	100'	-6°-24'	98.8	-11.1	155.59 ✓
49	61°-00'	71'	-7°-00'	70.0	-8.6	158.09 ✓
50	39°-27'	41'	-13°-40'	39.7	-9.9	157.29 ✓
51	344°-36'	29'	-19°-10'	25.7	-9.0	157.69 ✓
52	301°-08'	35'	-13°-03'	33.2	-7.7	158.99 ✓
53	294°-41'	11'	-11°-02'	10.6	-2.1	164.59 ✓
54	78°-26'	33'	-2°-51'	32.9	-1.6	165.09 ✓

Readings from Tr. Pt. #13
clockwise from North

51

Tr. Pt. #13

El 166.69

Hub

Station	Azimuth	Stadia	Vert. L	Hor. Dist.	Diff. Elev.	Elev.
55	77° 55'	79'	-0° 45'	79.0	-1.0	165.69 ✓
56	80° 26'	107'	-1° 23'	106.9	-2.6	164.09 ✓
57	82° 30'	131'	+0° 08'	131.0	+0.3	166.99 ✓
58	94° 14'	133'	+5° 28'	131.9	+12.7	179.39 ✓
59	100° 30'	75'	+9° 37'	73.0	+12.4	178.09 ✓
60	119° 57'	49'	+14° 39'	45.8	+12.0	178.69 ✓
61	151° 33'	39'	+21° 20'	33.8	+13.2	179.89 ✓
62	146° 42'	71'	+20° 28'	62.3	+23.3	189.99 ✓
63	117° 49'	95'	+15° 04'	88.6	+23.8	190.49 ✓
64	107° 35'	120'	+11° 56'	114.8	+24.3	190.99 ✓
65	106° 00'	145'	+10° 16'	140.5	+25.5	192.19 ✓
66	118° 58'	163'	+14° 54'	152.5	+40.5	207.19 ✓
67	131° 48'	137'	+17° 14'	125.0	+37.7	204.39 ✓
68	295° 36'	76'	-16° 56'	69.5	-21.2	145.49 ✓
69	311° 02'	69'	-17° 06'	63.2	-19.4	147.29 ✓
70						
71						
72						

Readings from Tr. Pt. # 20.
clockwise from North

55

Tr. Pt. # 20	Station	Azimuth	Stadia	Vert. \angle	Hor. Dist.	Diff. Elev	Elev.
					81 196.06	Ht.	
1	S. Bank	207°03'	171'	-13°55'	161.0	-39.8	156.26 ✓
2	Wash.	207°27'	167'	-13°42'	158.0	-42.5	153.56 ✓
3	N. Bank	208°01'	160'	-13°48'	151.0	-39.2	156.86 ✓
4	N. Bank	192°00'	144'	-15°53'	133.0	-37.8	158.26 ✓
5	Wash.	191°17'	149'	-16°41'	137.0	-41.0	155.06 ✓
6	S. Bank	190°26'	151'	-15°05'	141.0	-38.0	158.06 ✓
7	" "	175°55'	123'	-18°06'	111.0	-36.4	159.66 ✓
8	Wash.	176°09'	122'	-19°46'	108.0	-39.8	156.26 ✓
9	N. Bank	176°10'	115'	-19°03'	103.0	-35.5	160.56 ✓
10	" "	154°08'	117'	-19°00'	104.8	-36.0	160.06 ✓
11	Wash.	154°09'	123'	-19°25'	109.0	-38.5	157.56 ✓
12	S. Bank	154°11'	124'	-16°52'	113.8	-34.5	160.56 ✓
13		155°11'	131'	-12°43'	125.0	-28.4	167.66 ✓
14		172°59'	139'	-12°41'	132.5	-29.8	166.26 ✓
15		174°24'	131'	-15°47'	121.8	-34.4	161.66 ✓
16		191°45'	155'	-14°00'	146.0	-36.4	159.66 ✓
17		199°13'	173'	-12°39'	165.0	-37.0	159.06 ✓
18		204°53'	193'	-12°02'	184.5	-39.2	156.86 ✓

Readings from Tr. Pt. #20
clockwise from North

Tr. Pt. #20

El 196.06 Hub

33

Station	Azimuth	Stadia	Vert. L.	Hor. Dist	Diff. Elev	Elev.
19	202°56'	203'	-9°36'	197.6	-33.5	162.56 ✓
20	208°20'	233'	-9°15'	227.2	-37.0	159.06 ✓
21	205°11'	235'	-8°40'	229.7	-35.0	161.06 ✓
22	207°55'	245'	-8°44'	239.4	-36.8	159.26 ✓
23 ditch	207°55'	251'	-9°41'	244.0	-41.7	154.36 ✓
24	208°18'	255'	-8°27'	249.6	-37.1	158.96 ✓
25	212°35'	263'	-9°02'	256.6	-40.8	155.26 ✓
26 ditch	212°15'	260'	-10°05'	252.0	-45.0	151.06 ✓
27	212°38'	255'	-9°33'	248.1	-41.7	154.36 ✓
28	205°39'	271'	-5°28'	268.7	-25.7	170.36 ✓
29	203°02'	263'	-5°54'	260.3	-26.9	169.16 ✓
30 ditch	202°15'	260'	-7°25'	255.8	-33.3	162.76 ✓
31	201°39'	257'	-6°14'	254.1	-27.7	168.36 ✓
32	200°04'	235'	-5°55'	232.6	-24.1	171.96 ✓
33	193°51'	203'	-6°09'	200.8	-21.6	174.46 ✓
34	182°43'	167'	-6°31'	164.9	-18.9	177.16 ✓
35	167°42'	153'	-6°47'	151.0	-18.0	178.06 ✓
36	153°44'	155'	-5°50'	153.4	-15.7	180.36 ✓

Readings from Tr. Pt. #20
clockwise from North

57

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L.	Hor. Dist	Diff. Elev	Elev.
					El. 196.06	Hub	
37		155°06'	176'	-2°12'	175.7	-6.8	189.26 ✓
38		171°57'	185'	-1°13'	184.9	-3.9	192.16 ✓
39		180°10'	191'	-1°54'	190.8	-6.3	189.76 ✓
40		185°55'	209'	-2°08'	208.7	-7.8	188.26 ✓
41		191°14'	229'	-2°45'	228.5	-11.0	185.06 ✓
42		192°48'	270'	-2°03'	269.7	-9.7	186.36 ✓
43		189°51'	291'	+0°01'	291.0	+0.1	196.16 ✓
44		186°04'	259'	+0°24'	259.0	+1.8	197.86 ✓
45		183°00'	229'	+0°35'	229.0	+2.3	198.36 ✓
46		172°39'	213'	+1°16'	212.9	+4.6	200.66 ✓
47		159°30'	207'	+1°29'	206.9	+5.3	201.36 ✓
48		146°14'	207'	+2°01'	206.8	+7.3	203.36 ✓
49		148°33'	237'	+4°10'	235.8	+17.2	213.26 ✓
50		162°00'	239'	+4°16'	237.7	+17.7	213.76 ✓
51		175°54'	247'	+3°17'	246.3	+14.1	210.16 ✓
52		180°25'	265'	+3°00'	264.3	+13.9	209.96 ✓
53		183°14'	311'	+2°31'	310.4	+13.6	209.66 ✓
54		184°45'	320'	+2°34'	319.4	+14.3	210.36 ✓

Readings from Tr. Pt. #20
clockwise from North.

58

Tr. Pt. #	Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
					El. 176.06	Hub	
55		185°-03'	320'	+1°-46'	317.7	-4.6 For Elev. +9.9 +5.9	201.96 ✓
56		187°-05'	329'	+1°-46'	328.7	+10.2	206.26 ✓
57		188°-23'	325'	+2°-16'	324.5	+12.8	208.86 ✓
58		192°-34'	329'	+2°-17'	328.5	+13.2	209.26 ✓
59		191°-28'	307'	+1°-03'	306.9	+5.6	201.7 ✓
60		196°-30'	325'	+0°-45'	325.0	+4.4	200.5 ✓
61		196°-45'	300'	-0°-54'	299.9	-4.7	191.4 ✓
62	Ditch	198°-30'	317'	-0°-54'	316.9	-5.0	191.1 ✓
63	"	199°-39'	317'	-0°-11'	317.0	-1.0	195.1 ✓
64		200°-49'	285'	-2°-52'	284.3	-14.2	181.9 ✓
65		202°-10'	275'	-4°-26'	273.4	-21.2	174.9 ✓
66		200°-50'	275'	-5°-40'	272.3	-27.0	169.1 ✓
67		199°-00'	267'	-5°-50'	264.3	-27.0	169.1 ✓
68		194°-47'	285'	-3°-38'	283.9	-6.0 For Elev. -18.0 -24.0 -2.0	172.1 ✓
69		195°-54'	295'	-4°-16'	293.4	For Elev. -22.0 -24.0 -1.6	172.1 ✓
70		193°-17'	299'	-3°-11'	298.1	For Elev. -16.7 -22.7 -6.0	173.4 ✓
71		191°-50'	300'	-1°-21'	299.8	For Elev. -7.1 -13.1	183.0 ✓
72		218°-03'	189'	-10°-01'	183.2	-32.3	163.8 ✓

Readings from Tr. Pt. #20
clockwise from North.

59

Tr. Pt. #20		El. 196.06	Hub.			
Station	Azimuth	Sadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
73	214 ⁰ -05 ¹	149 ¹	-12 ⁰ -09 ¹	142.8	-30.7	165.4 ✓
74	206 ⁰ -41 ¹	117 ¹	-14 ⁰ -11 ¹	110.5	-27.8	168.3 ✓
75	203 ⁰ -38 ¹	86 ¹	-16 ⁰ -54 ¹	78.5	-24.0	172.1 ✓
76	196 ⁰ -03 ¹	53 ¹	-25 ⁰ -52 ¹	43.0	-20.8	175.3 ✓
77	173 ⁰ -00 ¹	60 ¹	-20 ⁰ -09 ¹	53.0	-19.4	176.7 ✓
78	142 ⁰ -37 ¹	69 ¹	-17 ⁰ -16 ¹	63.5	-19.7	176.4 ✓
79	121 ⁰ -30 ¹	29 ¹	-7 ⁰ -01 ¹	28.6	-3.5	192.6 ✓
80	219 ⁰ -14 ¹	10 ¹	-20 ⁰ -31 ¹	8.8	-3.3	192.8 ✓
81	297 ⁰ -17 ¹	47 ¹	-1 ⁰ -22 ¹	47.0	-1.1	195.0 ✓
82	289 ⁰ -08 ¹	55 ¹	-1 ⁰ -50 ¹	54.9	-1.8	194.3 ✓
83	249 ⁰ -56 ¹	57 ¹	-2 ⁰ -51 ¹	56.9	-2.8	193.3 ✓
84	230 ⁰ -20 ¹	55 ¹	-12 ⁰ -40 ¹	52.3	-11.8	184.3 ✓
85	232 ⁰ -47 ¹	79 ¹	-8 ⁰ -22 ¹	77.3	-11.4	184.7 ✓
86	247 ⁰ -45 ¹	79 ¹	-0 ⁰ -11 ¹	79.0	-0.2	195.9 ✓
87	242 ⁰ -10 ¹	129 ¹	-0 ⁰ -14 ¹	129.0	-0.5	195.6 ✓
88	232 ⁰ -39 ¹	133 ¹	-4 ⁰ -47 ¹	132.1	-11.1	185.0 ✓
89	242 ⁰ -26 ¹	157 ¹	+0 ⁰ -06 ¹	157.0	+0.3	196.4 ✓
90	254 ⁰ -20 ¹	145 ¹	+5 ⁰ -11 ¹	143.8	+13.1	209.2 ✓

Readings from Tr. Pt. #20
clockwise from North

60

Tr. Pt. #20		El. 196.06	Hub.			
Station.	Azimuth	Stadia	Vert. L.	Hor. Dist	Diff Elev	Elev
91	268°-53'	107'	+9°-41'	103.9	+17.8	213.9 ✓
92	264°-46'	91'	+5°-34'	90.2	8.8	204.9 ✓
93	279°-51'	83'	+7°-39'	81.6	11.0	207.1 ✓
94	285°-12'	106'	+11°-39'	101.5	21.0	217.1 ✓
95	305°-17'	103'	+11°-35'	99.0	20.3	216.4 ✓
96	307°-57'	79'	+7°-31'	77.7	10.2	206.3 ✓
97	295°-20'	61'	+1°-26'	61.0	1.5	197.6 ✓
98	322°-55'	101'	+13°-05'	96.0	22.2	218.3 ✓
99	325°-10'	71'	+14°-16'	66.6	17.0	213.1 ✓
100	313°-34'	57.0	+8°-46'	55.7	8.6	204.7 ✓
101	318°-46'	30'	+14°-25'	28.1	7.2	203.3 ✓
102	North. 0-00	17'	+25°-10'	14.0	6.5	202.6 ✓
103	62°-43'	35'	+10°-11'	33.9	6.1	202.2 ✓
104	9°-24'	67'	+15°-56'	61.8	17.8	213.9 ✓
105	337°-42'	59'	+15°-55'	54.5	15.6	211.7 ✓
106	337°-30'	47'	+14°-05'	44.2	11.1	207.2 ✓
107	344°-00'	87'	+19°-11'	72.5	27.0	223.1 ✓
108	333°-51'	97'	+17°-22'	88.5	27.5	223.6 ✓
109	6°-33'	95'	+17°-40'	86.3	27.5	223.6 ✓

Readings from Tr. Pt. #15.
Clockwise from North.

61

Tr. Pt. #15.

El 190.64 Hub

Station	Azimuth	Stadia	Vert. L.	Hor. Dist	Diff. Elev	Elev.
1	196°-30'	99'	+17°-51'	89.8	+28.9	219.4 ✓
2	167°-50'	87'	+21°-58'	74.7	30.2	220.8 ✓
3	149°-12'	91'	+20°-02'	80.4	29.2	219.8 ✓
4	137°-21'	97'	+17°-01'	88.6	27.1	217.7 ✓
5	119°-25'	103'	+16°-06'	95.3	27.5	218.1 ✓
6	97°-36'	105'	+16°-08'	97.0	28.1	218.7 ✓
7	87°-20'	110'	+15°-23'	102.2	28.2	218.8 ✓
8	79°-05'	141'	+12°-04'	135.0	28.8	219.4 ✓
9	78°-09'	160'	+10°-33'	154.6	28.8	219.4 ✓
10	73°-15'	153'	+8°-40'	149.6	22.8	213.4 ✓
11	69°-41'	173'	+8°-10'	169.6	24.3	214.9 ✓
12	73°-25'	189'	+10°-16'	183.0	33.2	223.8 ✓
13	66°-35'	217'	+8°-28'	212.5	31.6	222.2 ✓
14	60°-45'	209'	+5°-42'	207.0	20.6	211.2 ✓
15	56°-08'	205'	+5°-10'	203.3	18.4	209.0 ✓
16	65°-21'	163'	+7°-11'	160.5	20.3	210.9 ✓
17	65°-05'	133'	+7°-06'	131.1	16.3	206.9 ✓
18	64°-48'	99'	+9°-00'	96.6	15.3	205.9 ✓

Readings from Tr. Pt. # 15
clockwise from North.

82

Tr. Pt. # 15			El. 190.64	Hub.		
station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
19	74°-21'	75'	+10°-10'	72.6	+ 13.0	203.6 ✓
20	100°-35'	65'	+11°-17'	62.5	+ 12.5	203.1 ✓
21	122°-33'	61'	+11°-35'	58.4	+ 12.0	202.6 ✓
22	151°-47'	33'	+20°-29'	29.0	+ 10.8	201.4 ✓
23	203°-16'	43'	+19°-00'	38.5	+ 13.2	203.8 ✓
24	223°-15'	75'	+9°-34'	73.0	+ 12.3	202.9 ✓
25	246°-43'	71'	-0°-42'	71.0	- 0.9	189.7 ✓
26	255°-19'	31'	-1°-02'	31.0	- 0.6	190.0 ✓
27	89°-00'	35'	+0°-26'	35.0	+ 0.9	191.5 ✓
28	61°-05'	49'	+0°-26'	49.0	+ 1.2	191.8 ✓
29	46°-53'	89'	+1°-41'	88.9	+ 2.6	193.2 ✓
30	49°-45'	149'	+0°-49'	149.0	+ 2.1	192.7 ✓
31	46°-38'	173'	+0°-45'	173.0	+ 2.3	192.9 ✓
32	47°-02'	215'	+1°-08'	214.9	+ 4.3	194.9 ✓
33	38°-53'	241'	-1°-55'	240.8	- 8.1	182.5 ✓
34	35°-41'	243'	-2°-33'	242.5	- 10.8	179.8 ✓
35	36°-00'	193'	-2°-53'	192.5	- 9.7	180.9 ✓
36	35°-12'	171'	-3°-39'	170.4	- 10.9	179.7 ✓

Readings from Tr. Pt. # 15
clockwise from North.

63

Tr. Pt. # 15

El. 190.64 Hub.

Station	Azimuth	Stadia	Vert L.	Hor Dist	Diff. Elev	Elev.
37	29°-52'	173'	-4°-44'	171.9	-14.2	176.4 ✓
38	34°-00'	147'	-4°-23'	146.2	-11.2	179.4 ✓
39	41°-46'	143'	-2°-37'	142.7	-6.5	184.1 ✓
40	34°-37'	117'	-4°-23'	116.3	-8.9	181.7 ✓
41	28°-54'	119'	-5°-14'	118.0	-10.9	179.7 ✓
42	23°-30'	75'	-11°-07'	72.3	-14.2	176.4 ✓
43	5°-34'	51'	-21°-54'	44.0	-17.6	173.0 ✓
44	317°-05'	45'	-20°-38'	39.4	-14.8	175.8 ✓
45	317°-55'	59'	-17°-19'	53.8	-16.8	173.8 ✓
46	281°-38'	79'	-13°-49'	74.7	-18.4	172.2 ✓
47	291°-00'	91'	-15°-34'	84.5	-23.5	167.1 ✓
48 S. Bank	311°-34'	91'	-18°-25'	82.0	-27.3	163.3 ✓
49 Wash.	312°-19'	99'	-18°-54'	88.6	-30.4	160.2 ✓
50 N. Bank	313°-39'	99'	-16°-43'	90.8	-27.3	163.3 ✓
51 " "	290°-30'	115'	-15°-09'	107.4	-29.1	161.5 ✓
52 Wash	289°-03'	113'	-16°-54'	103.5	-31.5	159.1 ✓
53 S. Bank	287°-24'	107'	-15°-34'	99.5	-27.6	163.0 ✓
54 N. Bank	333°-33'	87'	-18°-00'	78.7	-25.5	165.1 ✓

Readings from Tr. Pt. #15.
clock wise from North.

Tr. Pt. #15

El 190.64 Hub.

Station	Azimuth	stadia	Vert. L.	Hor. Dist.	Diff. Elev	Elev
55 Wash	332-23	85'	-17-30	77.4	-4.0 for elev -24.4 -28.4	162.2 ✓
56 S. Bank	329-05	81'	-19-45	71.8	-25.8	164.8 ✓
57 " "	346-10	63'	-23-00	53.3	-22.6	168.0 ✓
58 Wash	345-39	71'	-24-21	59.0	-26.6	164.0 ✓
59 N. Bank	345-52	75'	-21-09	65.2	-25.2	165.4 ✓
60 " "	0-14	85'	-17-10	77.5	-24.0	166.6 ✓
61 Wash	2-17	85'	-19-00	76.0	-26.2	164.4 ✓
62 S. Bank	6-00	83'	-17-22	75.6	-23.6	167.0 ✓
63 " "	15-18	121'	-10-00	123.0	-21.7	168.9 ✓
64 Wash	14-30	131'	-10-58	126.5	-24.5	166.1 ✓
65 N. Bank	13-20	132'	-9-50	128.2	-22.2	168.4 ✓
66	19-31	125'	-9-42	121.5	-20.8	169.8 ✓
67 N. Bank	24-18	183'	-6-03	181.0	-19.2	171.4 ✓
68 Wash	25-17	183'	-6-50	180.5	-21.6	169.0 ✓
69 S. Bank	26-37	181'	-6-11	178.9	-19.4	171.2 ✓
70 Wash	33-00	247'	-3-56	245.9	-16.9	173.7 ✓
71	28-24	255'	-3-02	254.3	-13.5	177.1 ✓
72	21-01	203'	-3-44	202.2	-13.2	177.4 ✓

Readings from Tr. Pt #15
clockwise from North.

Tr. Pt #15

El. 190.64 Hub

35

Station	Azimuth	Stadia	Vert L.	Hor. Dist	Diff Eley	Elev.
73	13°-50'	175'	-4°-15'	174.1	-12.9	177.7 ✓
74	5°-00'	157'	-5°-00'	155.8	-13.6	177.0 ✓
75	350°-58'	150'	-5°-14'	148.8	-13.6	177.0 ✓
76	349°-22'	111'	-10°-06'	107.7	-19.2	171.4 ✓
77	334°-30'	101'	-12°-27'	96.5	-21.3	169.3 ✓
78	316°-22'	107'	-12°-45'	102.0	-23.1	167.5 ✓
79	295°-04'	125'	-10°-17'	121.0	-22.0	168.6 ✓
80	309°-54'	165'	+0°-38'	165.0	+1.8	192.4 ✓
81	327°-24'	150'	+0°-51'	150.0	+2.2	192.8 ✓
82	333°-00'	155'	+0°-54'	155.0	+2.4	193.0 ✓
83	335°-58'	173'	+1°-33'	172.9	+4.7	195.3 ✓
84	332°-35'	211.0	+4°-19'	209.9	+15.9	206.5 ✓
85	323°-11'	199.0	+4°-25'	197.9	+15.3	205.9 ✓
86	324°-56'	229.0	+5°-46'	226.8	+22.9	213.5 ✓
87	326°-18'	257.0	+7°-11'	253.0	+31.9	222.5 ✓
88	330°-45'	249.0	+6°-52'	245.2	+31.9	222.5 ✓
89	334°-40'	307'	+6°-58'	302.7	+37.0	227.6 ✓
90	340°-25'	299'	+4°-24'	297.3	+22.9	213.5 ✓

Readings from Tr. Pt. #15
clockwise to North.

66

Tr. Pt. #15.

E) 190.64 Hub.

Station	Azimuth	Stadia	Vert L	Hor Dist.	Diff. Elev.	Elev
91	338°-49'	259'	+4°-23'	257.5	+19.7	210.3 ✓
92	335°-34'	261'	+5°-25'	258.8	+24.5	215.1 ✓
93	342°-36'	259'	+2°-53'	258.4	+13.0	203.6 ✓
94	339°-05'	229'	+3°-00'	228.4	+12.0	202.6 ✓
95	337°-30'	200'	+2°-18'	199.7	+8.0	198.6 ✓
96	346°-35'	203'	-2°-04'	202.8	-7.3	183.3 ✓
97	350°-00'	205'	-2°-09'	204.8	-7.7	182.9 ✓
98	348°-46'	237'	-0°-37'	237.0	-2.5	188.1 ✓
99	346°-06'	243'	-0°-24'	243.0	-1.7	188.9 ✓
100	347°-06'	283'	+0°-44'	283.0	+3.7	194.3 ✓
101	349°-00'	293'	+0°-54'	282.9	+4.5	195.1 ✓
102	347°-32'	311'	+1°-39'	310.8	+9.0	199.6 ✓
103	344°-02'	331'	+2°-41'	330.3	+15.5	206.1 ✓
104	341°-56'	363'	+3°-30'	361.7	+21.1	211.7 ✓
105	340°-36'	363'	+3°-58'	361.4	+22.1	212.7 ✓
106	337°-32'	367'	+5°-19'	364.0	+33.9	224.5 ✓
107	339°-58'	400'	+5°-07'	397.0	+35.53	226.2 ✓
108	341°-38'	413'	+4°-50'	410.1	+34.67	225.3 ✓

Readings from Tr. Pt # 15
clockwise " North.

190.64

Tr. Pt # 15

El 190.64

Hub.

67

Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff Elev	Elev		
109	344°-18'	379'	+4°-41'	376.5	+30.82	194.6	✓	✓
110	347°-01'	389'	+5°-39'	385.42	+38.12	198.76	✓	✓
111	356°-29'	359'	+5°-46'	355.5	+35.89	196.53	✓	✓
112	354°-55'	333'	+4°-21'	331.1	+25.19	185.83	✓	✓
113	350°-48'	305'	+3°-02'	304.2	+16.12	196.76	✓	✓
114	353°-24'	277'	+2°-33'	276.5 277.5	+12.31	202.95 193.00	✓	✓
115	358°-43'	257'	+2°-28'	256.6	+11.05	190.19	✓	✓
116	8°-17'	249'	+2°-39'	248.5	+11.5	194.12	✓	✓
117	8°-00'	295'	+4°-51'	292.90	+24.85	185.29	✓	✓
118	2°-41'	299'	+4°-46'	297.0	+24.76	185.40	✓	✓
119	0°-18'	315'	+4°-55'	312.80	+26.90	177.54	✓	✓
120	0°-39'	343'	+5°-39'	339.90	+33.61	174.75	✓	✓
121	4°-39'	335'	+5°-59'	331.50	+34.73	175.37	✓	✓
122	11°-36'	339'	+5°-58'	335.50	+35.05	175.69	✓	✓
123	7°-35'	219'	+0°-56'	219.0	+3.56	194.20	✓	✓
124	356°-47'	227'	+0°-35'	227.0	+2.31	194.95	✓	✓
125	1°-51'	155'	-5°-10'	153.7	-13.9	176.74	✓	✓
126	14°-48'	171'	-4°-40'	169.9	-13.87	176.77	✓	✓

Readings from Tr. Pt #15.
clockwise " North.

190.64
Hub

Tr. Pt #15.

El. 190.64

Station	Azimuth	Stadia	Vert L	Hor. Dist	Diff Elev	Elev
127	21°-41'	213'	-3°-07'	212.4	-11.56	179.08 ✓✓
128	25°-25'	245'	-2°-43'	244.5	-11.60	179.04 ✓✓
129	19°-21'	262'	+0°-45'	262.0	+3.43	194.07 ✓✓
130	12°-12'	221'	+0°-26'	221.0	+1.67	194.31 ✓✓

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134

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Readings from Tr. Pt. # 16
clockwise " North.

184.59

Hub

Tr. Pt. # 16

Elev 184.59

Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff Elev	Elev.
1 N. Bank	271°-05'	87'	-4°-38'	86.48	-7.35	177.14 ✓ ✓
2 Wash	269°-35'	83'	-7°-15'	81.67	-10.39	176.75 ✓ ✓
3 S. Bank	261°-18'	73'	-7°-30'	71.7	-9.44	175.31 ✓ ✓
4 S "	273°-10'	53'	-8°-14'	51.9	-7.51	177.80 ✓ ✓
5 Wash.	280°-34'	61'	-8°-54'	59.7	-9.32	175.47 ✓ ✓
6 N. Bank	287°-34'	65'	-7°-37'	63.9	-8.54	176.05 ✓ ✓
7 N. "	310°-30'	43'	-9°-40'	41.8	-7.11	177.48 ✓ ✓
8 Wash	304°-05'	39'	-11°-34'	37.4	-7.65	176.92 ✓ ✓
9 S. Bank	292°-23'	35'	-12°-00'	33.5	-7.11	177.48 ✓ ✓
10 S. "	346°-43'	11'	-27°-38'	8.65	-4.51	180.08 ✓ ✓
11 Wash	347°-05'	15'	-33°-30'	10.4	-6.9	177.69 ✓ ✓
12 N. Bank	348°-18'	27'	-14°-47'	25.3	-6.66	177.93 ✓ ✓
13 N. "	21°-06'	49'	-4°-48'	48.6	-2.08	180.51 ✓ ✓
14 Wash	31°-25'	47'	-6°-08'	46.5	-4.99	179.60 ✓ ✓
15 S. Bank.	48°-30'	45'	-5°-07'	44.6	-3.99	180.60 ✓ ✓
16 S. "	49°-22'	53'	-3°-28'	62.8	-3.8	180.79 ✓ ✓
17 Wash	44°-00'	67'	-3°-44'	66.7	-4.4	180.19 ✓ ✓
18 N. Bank	39°-34'	69'	-3°-21'	68.8	-4.0	180.59 ✓ ✓

Readings from Tr. Pt. #16
clock wise from North.

184.59

Tr. Pt #16

Elev 184.59

Hub.

70

Station	Azimuth	Stadia	Vert. L	Hor. Dist	Diff Elev	Elev		
19 N. Bank	52° 50'	107'	-1° 36'	106.9	-2.98	181.61	✓	✓
20 Wash.	55° 43'	107'	-1° 41'	106.9	-3.14	181.45	✓	✓
21 S. Bank	58° 23'	107'	-1° 26'	106.9	-2.68	181.91	✓	✓
22 S "	53° 36'	147'	-0° 38'	147.0	-1.62	182.97	✓	✓
23 Wash	52° 12'	149'	-1° 11'	148.9	-3.08	181.51	✓	✓
24 N. Bank	50° 58'	147'	-0° 33'	147.0	-1.41	183.18	✓	✓
25 N. Bank	55° 41'	177'	-0° 08'	177	-0.41	184.18	✓	✓
26 Wash	57° 09'	179'	-0° 39'	179	-2.03	182.56	✓	✓
27 S. Bank	58° 16'	178'	-0° 09'	178	-0.47	184.12	✓	✓
28 S "	57° 35'	207'	+0° 15'	207	+0.90	185.49	✓	✓
29 Wash	56° 46'	207'	-0° 24'	207	-1.45	183.14	✓	✓
30 N. Bank	55° 38'	205'	+0° 10'	205	+0.60	185.19	✓	✓
31	51° 31'	203'	+1° 35'	202.9	+5.60	190.19	✓	✓
32	47° 35'	159'	+1° 11'	158.9	+3.28	187.87	✓	✓
33	49° 28'	123'	+0° 36'	123.0	+1.29	185.88	✓	✓
34	32° 31'	83'	+0° 26'	83.0	+0.63	185.22	✓	✓
35	20° 05'	91'	+1° 04'	90.9	+1.7	186.29	✓	✓
36	13° 16'	77'	+1° 00'	76.9	+1.34	185.93	✓	✓

Readings from Tr. Pt # 16
clockwise " North.

184.59

Tr. Pt # 16

Elev. 184.59

Hub.

Station	Azimuth	Stadia	Vert L.	Hor. Dist	Diff. Elev	Elev
37	9°-52'	51'	-1°-33'	50.9	-1.57	183.22 ✓✓
38	331°-07'	47'	-2°-26'	46.9	-1.99	184.60 ✓✓
39	308°-38'	62'	-1°-51'	61.9	-2.0	184.59 ✓✓
40	292°-24'	76'	-2°-03'	75.9	-2.72	181.87 ✓✓
41	274°-00'	92'	-3°-07'	91.7	-4.99	179.60 ✓✓
42	280°-21'	108'	+1°-41'	107.9	+3.17	187.76 ✓✓
43	303°-15'	91'	+1°-53'	90.9	+2.99	187.58 ✓✓
44	301°-18'	94'	+4°-06'	93.5	+6.70	191.29 ✓✓
45	327°-28'	95'	+5°-53'	94.0	+9.69	194.28 ✓✓
46	346°-21'	85'	+5°-02'	84.3	+7.43	194.02 ✓✓
47	4°-09'	89'	+4°-08'	88.6	+6.4	190.99 ✓✓
48	9°-26'	113'	+3°-37'	112.6	+7.11	191.70 ✓✓
49 side Wash	10°-18'	133'	+3°-18'	132.6	+7.64	194.23 ✓✓
50	18°-12'	131'	+4°-33'	130.2	+10.36	194.95 ✓✓
51	30°-53'	131'	+3°-44'	130.5	+8.51	193.10 ✓✓
52	39°-38'	165'	+3°-44'	164.3	+10.72	195.31 ✓✓
53	44°-20'	193'	+3°-12'	192.4	+10.76	195.35 ✓✓
54	39°-58'	207'	+5°-13'	205.3	+18.74	203.33 ✓✓

Readings from TP #16
clockwise " North.

184.59

El 184.59

Hub

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TP #16

Station	Azimuth	Stadia	Vert. L.	Hor Dist	Diff Elev	Elev.
55	33°-00'	183'	+6°-13'	180.9	+19.70	204.29 ✓ ✓
56	22°-43'	165'	+7°-16'	162.4	+20.70	205.89 ✓ ✓
57	16°-36'	167'	+7°-35'	164.2	+21.84	206.43 ✓ ✓
58	10°-44'	183'	+7°-25'	180.1	+23.42	208.01 ✓ ✓
59	7°-16'	193'	+6°-26'	190.7	+21.48	206.07 ✓ ✓
60	1°-22'	195'	+7°-28'	191.8	+25.13	209.72 ✓ ✓
61	359°-06'	221'	+9°-08'	215.6	+34.67	219.26 ✓ ✓
62	3°-24'	227'	+8°-45'	221.9	+34.13	218.72 ✓ ✓
63	3°-43'	209'	+8°-35'	204.5	+30.84	215.43 ✓ ✓
64	9°-58'	209'	+7°-55'	205.2	+28.51	213.10 ✓ ✓
65	14°-22'	200'	+8°-40'	195.5	+29.79	214.38 ✓ ✓
66	19°-58'	199'	+8°-50'	194.4	+30.20	214.79 ✓ ✓
67	28°-35'	221'	+8°-14'	216.6	+31.32	215.91 ✓ ✓
68	28°-14'	247'	+8°-51'	241.2	+37.54	222.13 ✓ ✓
69	22°-23'	231'	+9°-35'	224.7	+37.92	222.51 ✓ ✓
70	18°-04'	233'	+9°-29'	226.9	+37.87	222.46 ✓ ✓
71	14°-24'	243'	+8°-54'	237.3	+37.14	221.73 ✓ ✓
72	11°-34'	259'	+9°-23'	252.3	+41.66	226.25 ✓ ✓

Readings from Tr. PT. #16
clockwise to North

184.59

Tr. PT. #16

Elev 184.59 / Hub.

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Station	Azimuth	Stadia	Vert L	Hor Dist	Diff Elev	Elev
73	15°-55'	271'	+10°-06'	264.87	+ 46.78	231.37 ✓ ✓
74	20°-34'	279'	+9°-53'	270.80	+ 47.18	231.77 ✓ ✓
75	26°-27'	285'	+8°-46'	278.50	+ 42.93	227.52 ✓ ✓
76	22°-05'	267'	+9°-25'	260.00	+ 43.09	227.68 ✓ ✓
77	19°-14'	247'	+7°-59'	249.8 ^{239.91}	+ 42.17	226.76 ✓ ✓
78	349°-34'	155'	+12°-46'	147.56	+ 33.40	217.99 ✓ ✓
79	344°-14'	157'	+13°-24'	148.68	+ 35.39	219.98 ✓ ✓
80	346°-04'	183'	+13°-24'	173.30	+ 41.26	225.85 ✓ ✓
81	337°-06'	179'	+14°-06'	168.52	+ 42.30	226.89 ✓ ✓
82	327°-36'	177'	+13°-43'	167.09	+ 40.77	225.36 ✓ ✓
83	319°-14'	175'	+13°-43'	165.20	+ 40.31	224.90 ✓ ✓
84	307°-40'	175'	+13°-18'	165.90	+ 39.18	223.77 ✓ ✓
85	309°-51'	195'	+14°-18'	183.30	+ 46.67	231.26 ✓ ✓
86	318°-33'	195'	+15°-17'	181.64	+ 49.53	234.12 ✓ ✓
87	326°-15'	203'	+15°-25'	190.5	+ 52.02	236.61 ✓ ✓
88	336°-11'	199'	+15°-08'	185.67	+ 50.15	234.74 ✓ ✓
89	344°-23'	213'	+13°-12'	201.92	+ 47.35	231.94 ✓ ✓
90	244°-00'	91'	-3°-03'	90.75	- 4.84	179.75 ✓ ✓

Readings from Trpt. #16
clockwise " North

184.59

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Trpt. #16

El 184.59 Hub

Station	Azimuth	Stadia	Vert. L	Hor. Dist	Diff Elev	Elev
91.	234°-00'	90'	-0°-35'	89.9	-0.9	183.69 ✓✓
92.	227°-47'	89'	+2°-31'	88.8	+3.9	188.49 ✓✓
93	219°-10'	69'	+3°-48'	18.7	+4.56	189.15 ✓✓
94.	209°-54'	29'	+6°-38'	28.6	+3.32	187.91 ✓✓
95	234°-10'	27'	+3°-36'	26.9	+1.69	186.28 ✓✓
96	273°-54'	31'	-5°-21'	30.7	-2.87	181.72 ✓✓
97	64°-53'	31'	+3°-36'	30.9	+1.94	186.53 ✓✓
98	92°-10'	31'	+10°-22'	29.99	+5.48	190.07 ✓✓
99	74°-13'	55'	+5°-28'	54.5	+5.22	189.81 ✓✓
100	62°-14'	55'	+2°-44'	54.9	+2.62	187.21 ✓✓
101	67°-03'	95'	+3°-53'	94.6	+6.22	191.01 ✓✓
102	74°-04'	95'	+6°-08'	93.96	+10.09	194.68 ✓✓
103	67°-37'	115'	+4°-10'	114.4	+8.33	192.92 ✓✓
104	67°-16'	147'	+3°-08'	146.6	+8.02	192.61 ✓✓
105	73°-48'	149'	+5°-46'	147.6	+14.9	199.49 ✓✓
106	77°-44'	117'	+7°-10'	115.2	+14.35	198.92 ✓✓
107	94°-45'	83'	+11°-26'	79.79	+16.12	200.71 ✓✓
108	82°-53'	61'	+10°-41'	58.91	+11.11	195.70 ✓✓

Readings from Tr. Pt #16
clockwise from North

184.59

Tr. Pt #16

El. 184.59

Hub.

Station	Azimuth	Stadia	Vert L.	Hor. Dist.	D. + Elev.	Elev.
109	120°-48'	43'	+19°-18'	38.37	+ 13.41	198.00 ✓ ✓
110	137°-05'	55'	+18°-45'	49.36	+ 16.74	201.33 ✓ ✓
111	169°-21'	55'	+15°-36'	51.07	+ 14.24	198.83 ✓ ✓
112	171°-47'	35'	+19°-54'	30.97	+ 11.20	195.79 ✓ ✓
113	188°-37'	51'	+13°-11'	48.36	+ 11.32	195.91 ✓ ✓
114	198°-56'	75'	+9°-41'	72.89	+ 12.44	197.03 ✓ ✓
115	213°-14'	101'	+6°-09'	99.9	+ 10.76	195.35 ✓ ✓
116	198°-35'	111'	+10°-33'	107.33	+ 19.98	204.57 ✓ ✓
117	190°-34'	121'	+12°-30'	115.31	+ 25.57	210.16 ✓ ✓
118	182°-00'	109'	+14°-33'	102.14	+ 26.50	211.09 ✓ ✓
119	190°-45'	91'	+13°-35'	86.04	+ 20.77	205.36 ✓ ✓
120	176°-39'	82'	+15°-22'	76.30	+ 20.95	205.54 ✓ ✓
121	168°-56'	95'	+17°-07'	86.88	+ 26.72	211.31 ✓ ✓
122	149°-47'	93'	+19°-30'	82.68	+ 29.26	213.85 ✓ ✓
123	145°-36'	75'	+21°-24'	65.10	+ 25.48	210.07 ✓ ✓
124	114°-32'	93'	+17°-26'	84.72	+ 26.58	211.17 ✓ ✓
125	114°-55'	105'	+16°-39'	96.50	+ 28.82	213.41 ✓ ✓
126	108°-16'	127'	+15°-36'	117.95	+ 32.89	217.48 ✓ ✓

Readings from Tr. Pt. # 16
clockwise from North

184.59

Tr. Pt. # 16

El 184.59 H46.

3

Station	Azimuth	Stadia	Vert. L	Hor. Dist	Diff Elev	Elev
127	98°-00'	141.0	+13°-50'	132.96	+ 32.74	217.33 ✓ ✓
128	98°-18'	111.	+13°-21'	105.12	+ 24.94	209.53 ✓ ✓
129	87°-15'	125.	+11°-23'	120.15	+ 24.19	208.78 ✓ ✓
130	84°-20'	145.	+10°-28'	140.36	+ 25.90	210.49 ✓ ✓
131	94°-15'	157.	+12°-46'	149.46	+ 33.83	218.22 ✓ ✓
132	99°-49'	167.	+14°-37'	156.55	+ 40.78	225.37 ✓ ✓
133	104°-15'	151.	+16°-07'	139.52	+ 40.27	224.86 ✓ ✓
134	115°-15'	141.	+17°-29'	128.45	+ 40.40	224.99 ✓ ✓
135	118°-23'	120.	+18°-38'	107.9	+ 36.33	220.92 ✓ ✓
136	123°-53'	133.	+18°-54'	119.17	+ 40.76	225.35 ✓ ✓
137	138°-28'	129.	+20°-49'	113.00	+ 42.85	227.44 ✓ ✓
138	155°-33'	129.	+21°-22'	111.94	+ 43.77	228.36 ✓ ✓
139	169°-15'	153.	+19°-00'	136.78	+ 47.10	231.69 ✓ ✓
140	175°-46'	163.	+17°-55'	147.68	+ 47.71	232.30 ✓ ✓
141	183°-24'	175.	+16°-02'	161.70	+ 46.45	231.04 ✓ ✓
142	184°-53'	155.	+14°-50'	144.82	+ 38.36	222.95 ✓ ✓
143	178°-15'	127.	+17°-01'	116.18	+ 35.51	220.10 ✓ ✓
144	174°-54'	133.	+17°-00'	121.56	+ 37.18	221.77 ✓ ✓

Readings from Tr. Pt. #16
clockwise from North

184.59

Tr. Pt. 16

El 184.59

Hub

77

Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	Elev.
145	133°-06'	145'	+20°-17'	127.74	+ 47.15	231.74 ✓✓
146	115°-20'	159'	+18°-12'	143.58	+ 47.17	231.76 ✓✓
147	107°-13'	172'	+17°-27'	156.69	+ 49.20	233.79 ✓✓
148	102°-00'	193'	+15°-34'	179.2	+ 49.89	234.48 ✓✓

Readings from Tr. Pt. #21
clockwise from North

Tr. Pt. 21

El 210.22

Hub

Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff. Elev.	(Incorrect H.I. Used) Elev.	Corr. Elev.
1 side wash	303°-12'	191'	-5°-17'	189.5	- 17.51	167.08 ✓	192.71 ✓
2 junction side wash	307°-38'	215'	-3°-24'	214.30	- 12.73	171.86 ✓	197.49 ✓
3 " "	308°-13'	235'	-1°-33'	234.8	- 6.35	178.74 ✓	203.87 ✓
4 " "	307°-58'	255'	+0°-17'	255.0	+ 1.26	185.85 ✓	211.48 ✓
5 " "	309°-39'	277'	+1°-20'	276.9	+ 6.44	191.03 ✓	216.66 ✓
6 " "	310°-22'	293'	+2°-15'	292.6	+ 11.49	196.08 ✓	221.71 ✓
7	307°-31'	295'	+3°-25'	294.0	+ 17.55	204.14 ✓	227.77 ✓
8	305°-19'	267'	+2°-17'	266.6	+ 10.63	195.77 ✓	220.85 ✓
9	302°-53'	237'	+0°-57'	237.0	+ 3.93	188.57 ✓	214.15 ✓

2-31/11

Readings from Tr. Pt. # 21
clockwise 1' North.

Tr. Pt. # 21	Station	Azimuth	Stadia	Vert. L.	Hor. Dist	Hub 210.22 Diff. Elev	Elev.
	10	299° 08'	213'	-1° 11'	212.9	- 4.40	105.82 ✓ ✓
	11	297° 38'	199'	-2° 58'	198.5	- 10.26	199.96 ✓ ✓
	12 N. Bank	4° 05'	125'	-10° 49'	120.72	- 23.04	187.18 ✓ ✓
	13 Wash	5° 39'	123'	-11° 56'	117.83	- 24.88	185.34 ✓ ✓
	14 S. Bank	6° 39'	121'	-11° 23'	116.30	- 23.41	186.81 ✓ ✓
	15 S. "	17° 10'	135'	-9° 30'	131.3	- 21.98	188.24 ✓ ✓
	16 Wash	16° 16'	137'	-10° 14'	132.75	- 23.95	186.27 ✓ ✓
	17 N. Bank	15° 34'	139'	-9° 26'	135.40	- 22.48	187.74 ✓ ✓
	18 " "	20° 43'	159'	-7° 48'	156.20	- 21.37	188.85 ✓ ✓
	19 Wash	21° 46'	159'	-8° 26'	154.7	- 23.06	187.16 ✓ ✓
	20 S. Bank	23° 18'	155'	-7° 15'	152.6	- 19.40	190.82 ✓ ✓
	21 S. "	25° 20'	191'	-5° 24'	189.4	- 17.89	192.33 ✓ ✓
	22 Wash	24° 09'	193'	-6° 07'	190.90	- 20.44	189.78 ✓ ✓
	23 N. Bank	22° 55'	195'	-5° 53'	193.0	- 19.88	190.34 ✓ ✓
	24 N. "	22° 15'	227'	-4° 18'	225.8	- 16.97	193.25 ✓ ✓
	25 Wash	23° 35'	227'	-4° 51'	225.4	- 19.13	191.09 ✓ ✓
	26 S. Bank	24° 50'	227'	-4° 41'	225.5	- 18.47	191.75 ✓ ✓
	27	28° 01'	217'	-3° 22'	216.30	- 12.72	197.50 ✓ ✓

Readings from Tr. Pt. #21
clockwise " North.

210.22

Hub

Tr. Pt #21

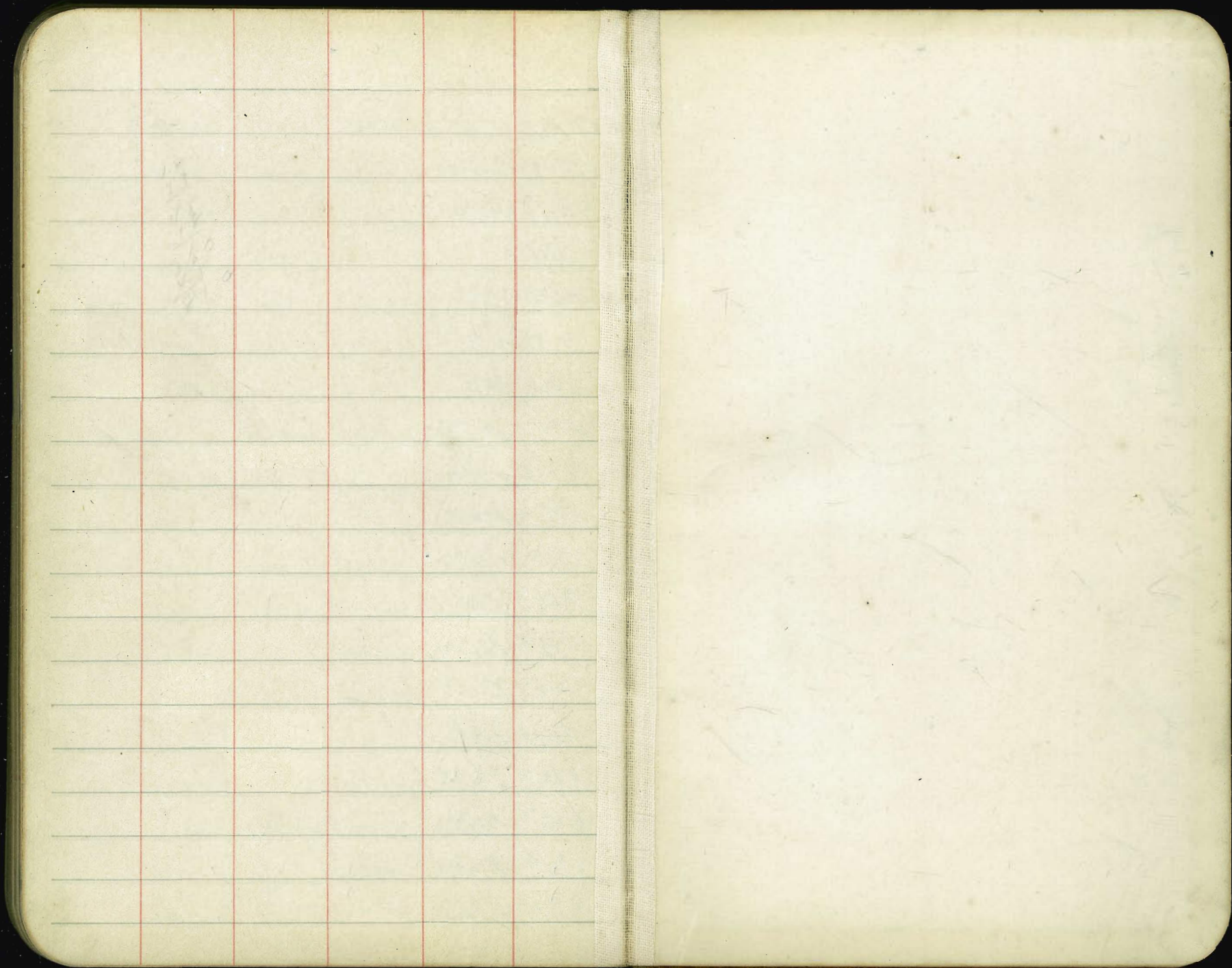
El. 210.22

79

Station	Azimuth	Stadia	Vert. L.	Hor. Dist.	Diff Elev.	Elev.
28	29°57'	215'	-3°00'	214.4	- 11.25	198.98 ✓✓
29	31°24'	215'	-2°08'	214.7	- 8.0	207.22 ✓✓
30	31°40'	179'	-3°19'	178.5	- 10.34	199.88 ✓✓
31	27°38'	177'	-4°44'	175.8	- 14.55	195.67 ✓✓
32	26°33'	163'	-5°37'	161.5	- 15.87	194.35 ✓✓
33	32°06'	155'	-4°05'	154.2	- 11.01	199.21 ✓✓
34	30°09'	125'	-6°00'	123.6	- 12.99	197.23 ✓✓
35	20°29'	131'	-7°51'	128.6	- 17.72	192.50 ✓✓
36	15°44'	119'	-8°59'	116.20	- 18.35	191.87 ✓✓
37	26°41'	105'	-7°54'	103.0	- 14.29	195.93 ✓✓
38	23°22'	80'	-11°28'	76.91	- 15.58	194.64 ✓✓
39	12°14'	111'	-9°55'	107.80	- 18.83	191.39 ✓✓
40	5°09'	91'	-14°08'	85.63	- 21.55	188.67 ✓✓
41	11°42'	75'	-14°30'	70.27	- 18.18	192.04 ✓✓
42	Junction side Wash 351°04'	87'	-19°04'	77.77	- 26.85	183.37 ✓✓
43	353°25'	75'	-17°49'	68.10	- 21.85	188.37 ✓✓
44	359°06'	55'	-19°00'	49.17	- 16.93	193.29 ✓✓
45	332°27'	63'	-18°48'	56.57	- 19.22	191.00 ✓✓

Continued - Book 1467

Plotted c.s.k. 5-18-33



1477
862
615

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

ROADWAY 14 FEET WIDE. SIDE SLOPES 1½ TO 1.

FOR SINGLE TRACK EMBANKMENT.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	7.0	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	0
1	8.5	8.7	8.8	9.0	9.1	9.3	9.4	9.6	9.7	9.9	1
2	10.0	10.2	10.3	10.5	10.6	10.8	10.9	11.1	11.2	11.4	2
3	11.5	11.7	11.8	12.0	12.1	12.3	12.4	12.6	12.7	12.9	3
4	13.0	13.2	13.3	13.5	13.6	13.8	13.9	14.1	14.2	14.4	4
5	14.5	14.7	14.8	15.0	15.1	15.3	15.4	15.6	15.7	15.9	5
6	16.0	16.2	16.3	16.5	16.6	16.8	16.9	17.1	17.2	17.4	6
7	17.5	17.7	17.8	18.0	18.1	18.3	18.4	18.6	18.7	18.9	7
8	19.0	19.2	19.3	19.5	19.6	19.8	19.9	20.1	20.2	20.4	8
9	20.5	20.7	20.8	21.0	21.1	21.3	21.4	21.6	21.7	21.9	9
10	22.0	22.2	22.3	22.5	22.6	22.8	22.9	23.1	23.2	23.4	10
11	23.5	23.7	23.8	24.0	24.1	24.3	24.4	24.6	24.7	24.9	11
12	25.0	25.2	25.3	25.5	25.6	25.8	25.9	26.1	26.2	26.4	12
13	26.5	26.7	26.8	27.0	27.1	27.3	27.4	27.6	27.7	27.9	13
14	28.0	28.2	28.3	28.5	28.6	28.8	28.9	29.1	29.2	29.4	14
15	29.5	29.7	29.8	30.0	30.1	30.3	30.4	30.6	30.7	30.9	15
16	31.0	31.2	31.3	31.5	31.6	31.8	31.9	32.1	32.2	32.4	16
17	32.5	32.7	32.8	33.0	33.1	33.3	33.4	33.6	33.7	33.9	17
18	34.0	34.2	34.3	34.5	34.6	34.8	34.9	35.1	35.2	35.4	18
19	35.5	35.7	35.8	36.0	36.1	36.3	36.4	36.6	36.7	36.9	19
20	37.0	37.2	37.3	37.5	37.6	37.8	37.9	38.1	38.2	38.4	20
21	38.5	38.7	38.8	39.0	39.1	39.3	39.4	39.6	39.7	39.9	21
22	40.0	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2	41.4	22
23	41.5	41.7	41.8	42.0	42.1	42.3	42.4	42.6	42.7	42.9	23
24	43.0	43.2	43.3	43.5	43.6	43.8	43.9	44.1	44.2	44.4	24
25	44.5	44.7	44.8	45.0	45.1	45.3	45.4	45.6	45.7	45.9	25
26	46.0	46.2	46.3	46.5	46.6	46.8	46.9	47.1	47.2	47.4	26
27	47.5	47.7	47.8	48.0	48.1	48.3	48.4	48.6	48.7	48.9	27
28	49.0	49.2	49.3	49.5	49.6	49.8	49.9	50.1	50.2	50.4	28
29	50.5	50.7	50.8	51.0	51.1	51.3	51.4	51.6	51.7	51.9	29
30	52.0	52.2	52.3	52.5	52.6	52.8	52.9	53.1	53.2	53.4	30
31	53.5	53.7	53.8	54.0	54.1	54.3	54.4	54.6	54.7	54.9	31
32	55.0	55.2	55.3	55.5	55.6	55.8	55.9	56.1	56.2	56.4	32
33	56.5	56.7	56.8	57.0	57.1	57.3	57.4	57.6	57.7	57.9	33
34	58.0	58.2	58.3	58.5	58.6	58.8	58.9	59.1	59.2	59.4	34
35	59.5	59.7	59.8	60.0	60.1	60.3	60.4	60.6	60.7	60.9	35
36	61.0	61.2	61.3	61.5	61.6	61.8	61.9	62.1	62.2	62.4	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

19° 11' 35"
38° 23' 10"
19° 11' 35"
57° 34' 45"
76° 46' 20"