1656

DIXON

ENGINEER'S

FIELD BOOK

No. 4035

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be 30.6+(20—16)÷2 or 2 ft. added to 30.6 =32.6. For slopes of 1 on 1½ see inside of back cover.

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MICROFILMED
1964

270
540

29 2/3
516

27 1/3
550

130
27
33
66

207

1656

CITY ENGINEER'S OFFICE

ENGINEERING DEPARTMENT,
CITY OF SAN DIEGO,
CALIFORNIA.

This Field Book is manufactured of a High Grade 50% Rag Paper having a WATER RESISTING SURFACE, and is sewed with Bing Special Enamel Waterproof thread.

Made in U. S. A.

Alignment	Sta.	
		2 - 21
At 1	12+75.21 =	22 - 24
2	17+32.6	24 - 27
3	21+39.57	27 - 29
4	21+92.57	29 - 31
5	24+75.8	31 - 34
6	28+13.53	35 - 37
7	31+22.12	37 - 39
8	34+50	39 - 40
9		41 - 43
10	40+30.86	43 - 46
11	43+24.22	46 - 48
12	47+00	48 - 51
13	52+98.52	51 - 58
16		58 - 61
17		61 - 64
18	67+40	64 -
19		65 - 66
18		67 - 72
20		72 - 74
21		74 - 78
22		78 - 79

Walker
Osborne
Hazard
6-1-43

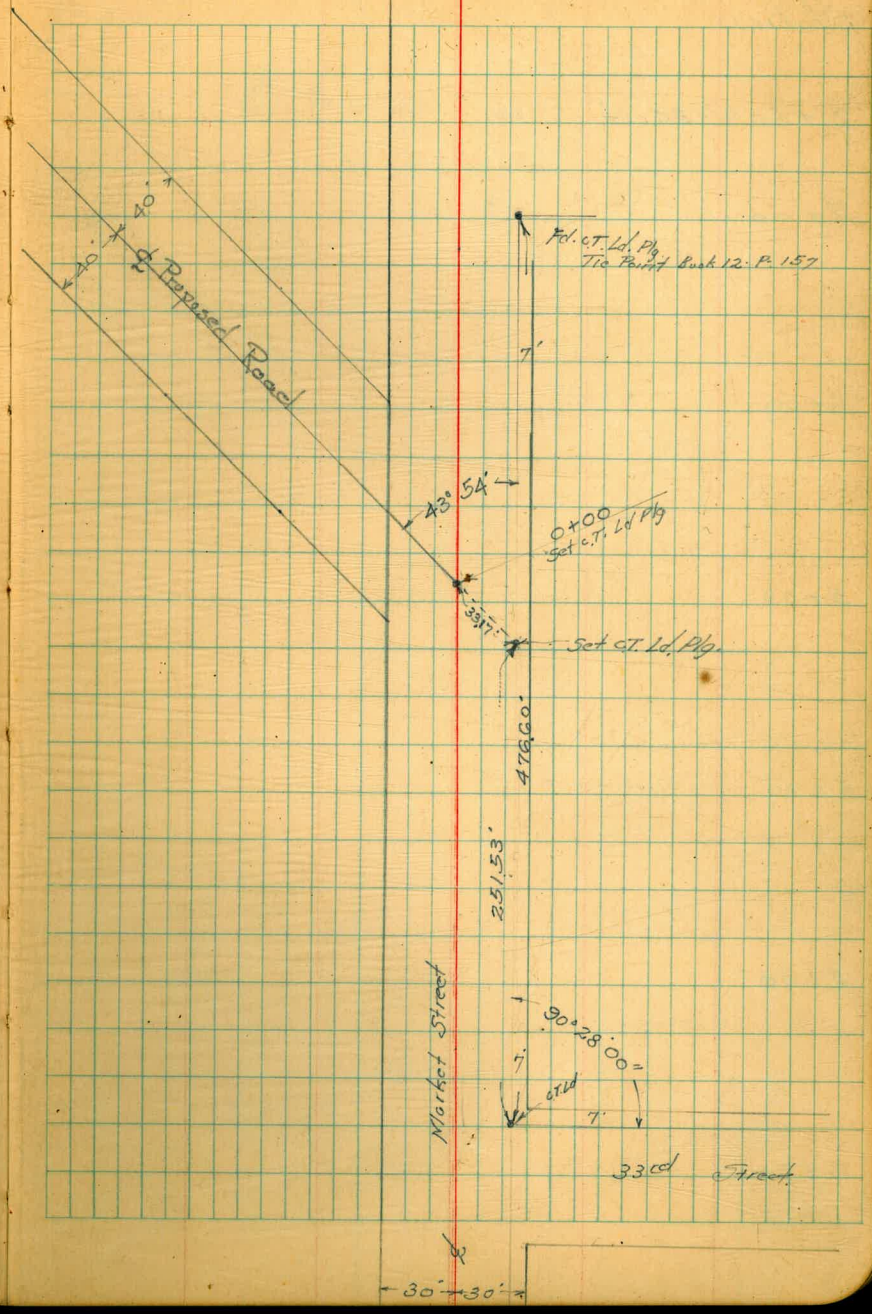
~ "ALIGNMENT" ~
Proposed Highway
WABASH CANYON
From Market Street to 40th

Station

1+00

0+00 = Set C.T. Ld in Concrete Paving

Indexed
C.S.K.



Wabash Canyon Road

Station

7+60.07 = B.C. Lt.

7+00

6+00

5+00

4+00

3+00

2+00

℄ R = 640'
Δ = 46°09'45"
T = 272.72
L = 515.64

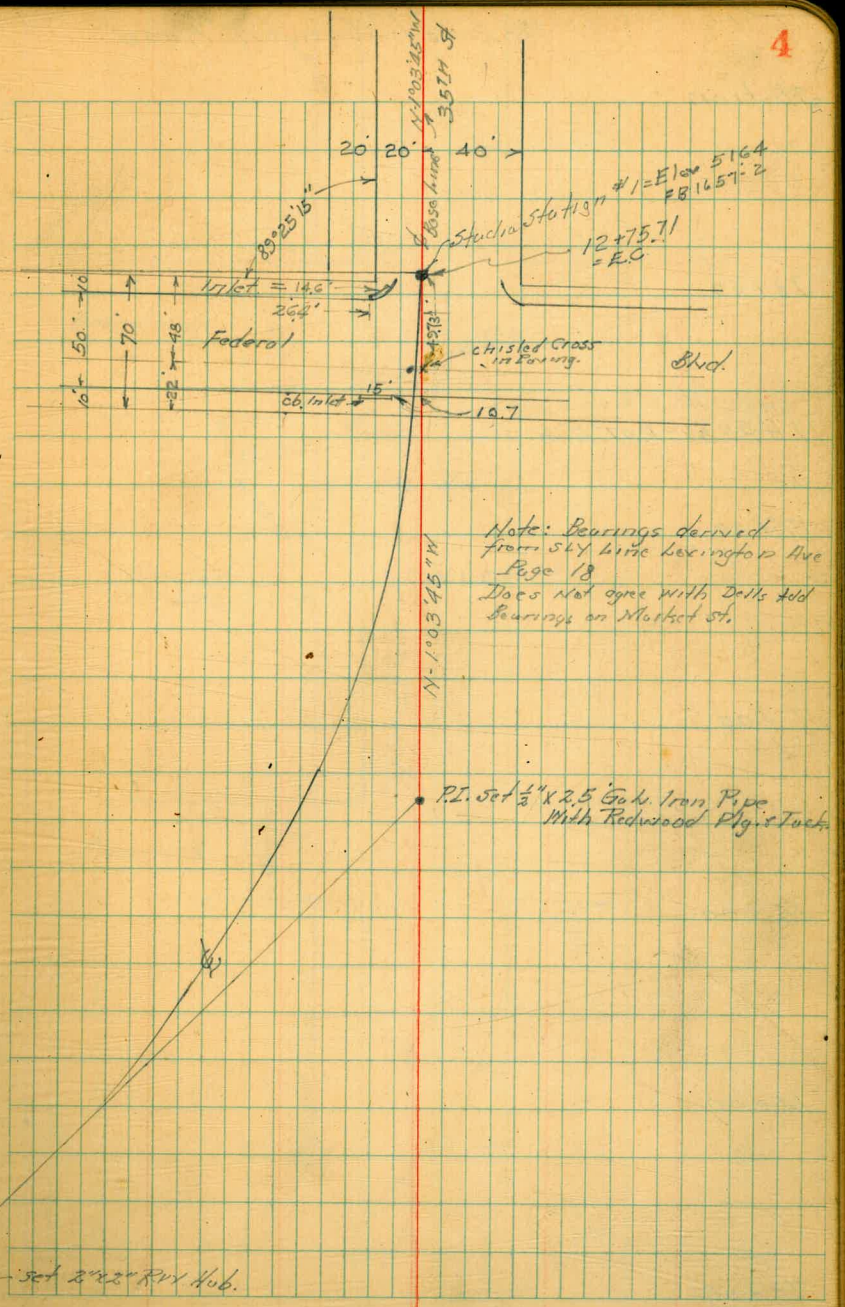
B.C. Lt.
7+60.07 40' 40'

Wabash Canyon Road

Station Note. It was decided To Topog. this Canyon from Federal Bld. To both
So Will use the ℄ Stations as Base Line for Studia Survey
For Elevations of Control Points See FB 1657

Station	Bearing
12+75.71 = E.C.	23°04.86' Set Redwood Hub. = ⊡ 1 Elev. 51.64
+50	21°55.6'
12+00	19°41.28'
+50	17°27'
11+00	15°12.72'
+50	12°58.44'
10+00	10°44.36'
+50	8°30.08'
9+00	6°15.80'
+50	4°01.52'
8+00	1°47.24'
7+60.07 = B.C. Lt.	

Δ = 46°09'45"
℄ R = 640'
℄ S.T. = 272.72
L = 515.64



Wabash Canyon Road

Station

18+00

17+32.60 = P.O.T. Hub.

17+00

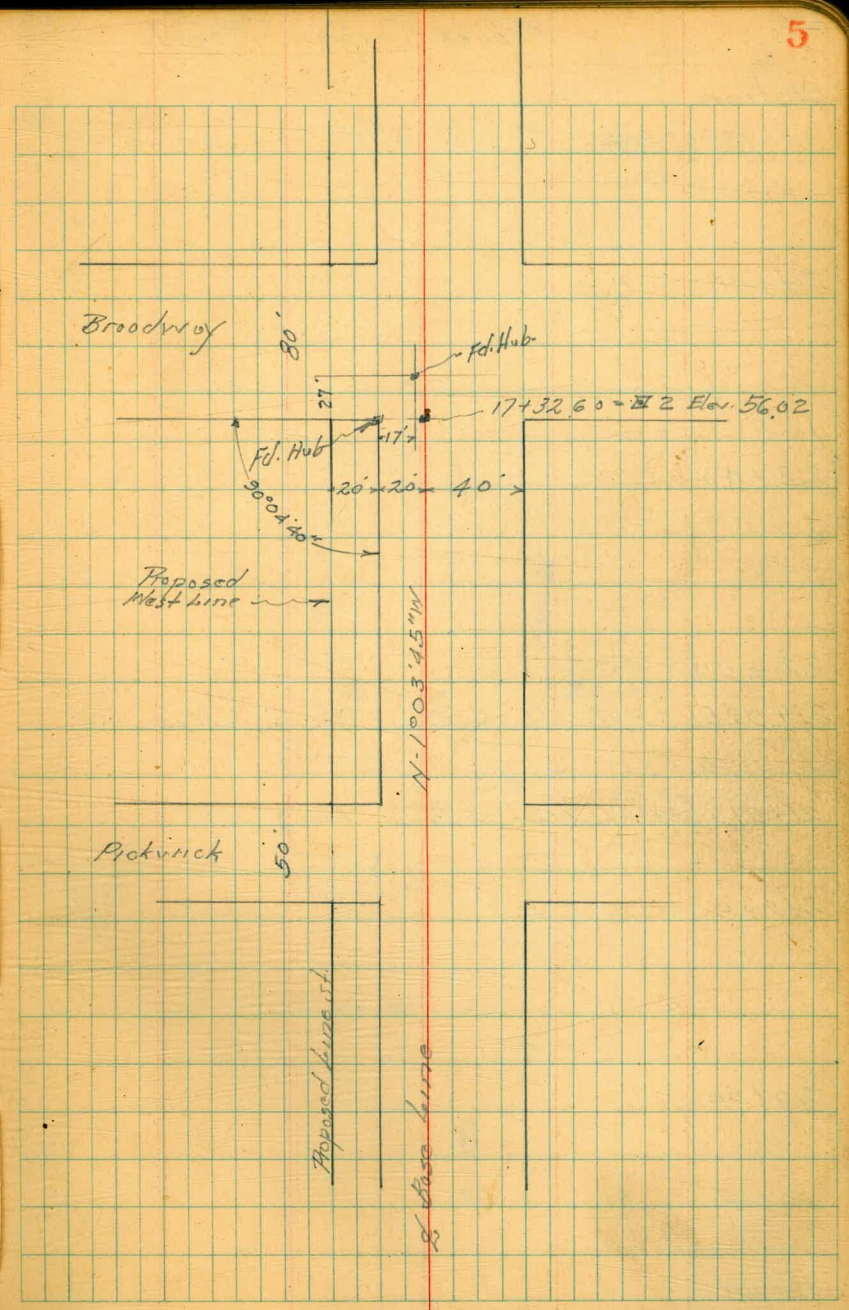
N-1°03'45"W

16+00

15+00

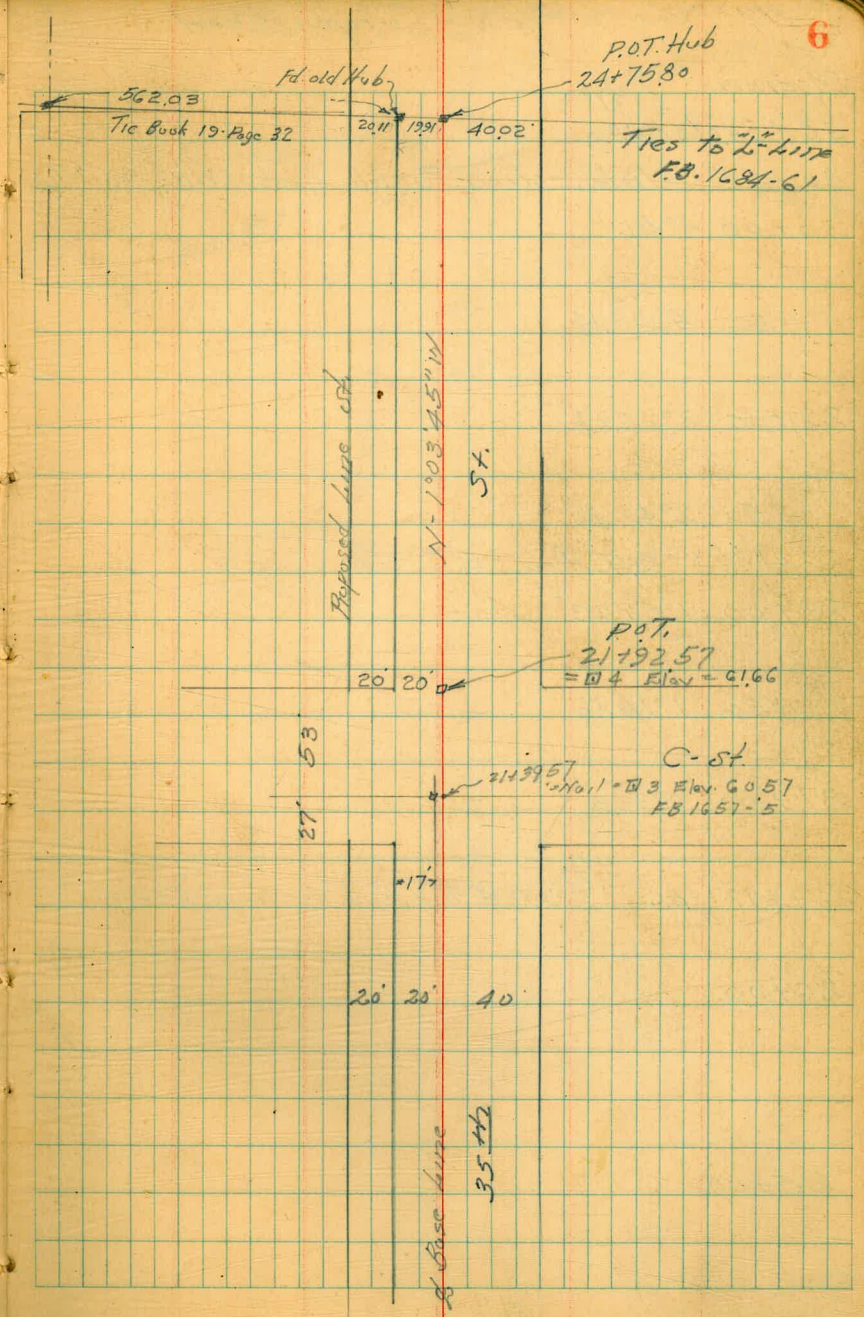
14+00

13+00



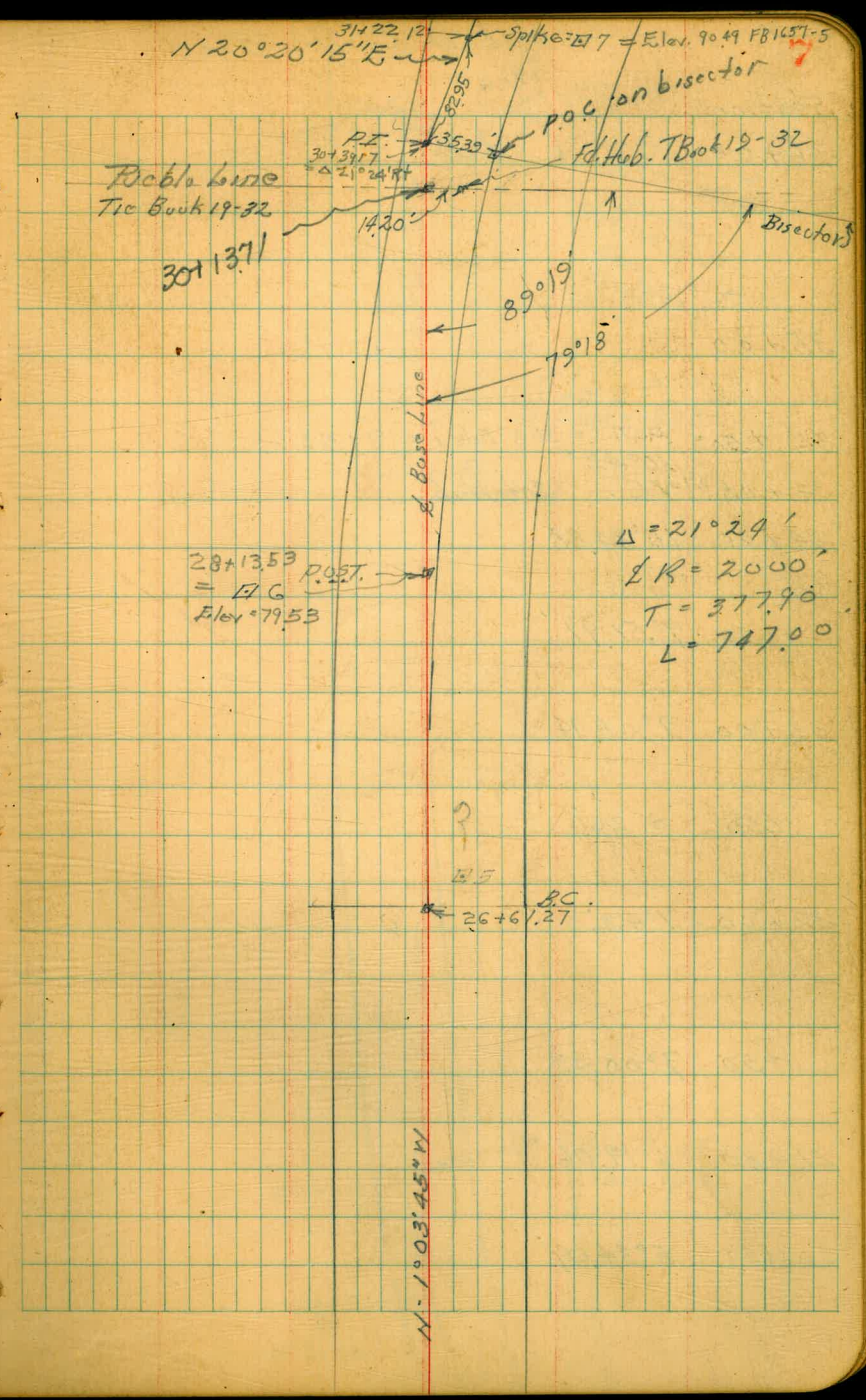
Wabash Canyon Road

Station					
24+75.80	= P.O.T.				
24+00					
23+00					
		1385 56			
22+00					
21+92.57	= P.O.T. NL - C-St	2"x2" R.W. Hub			Elev = 61.66 = ⊡4
21+39.57	= P.O.T. Nail	= ⊡ 3	Elev = 60.57		
21+00					
20+00					
19+00					



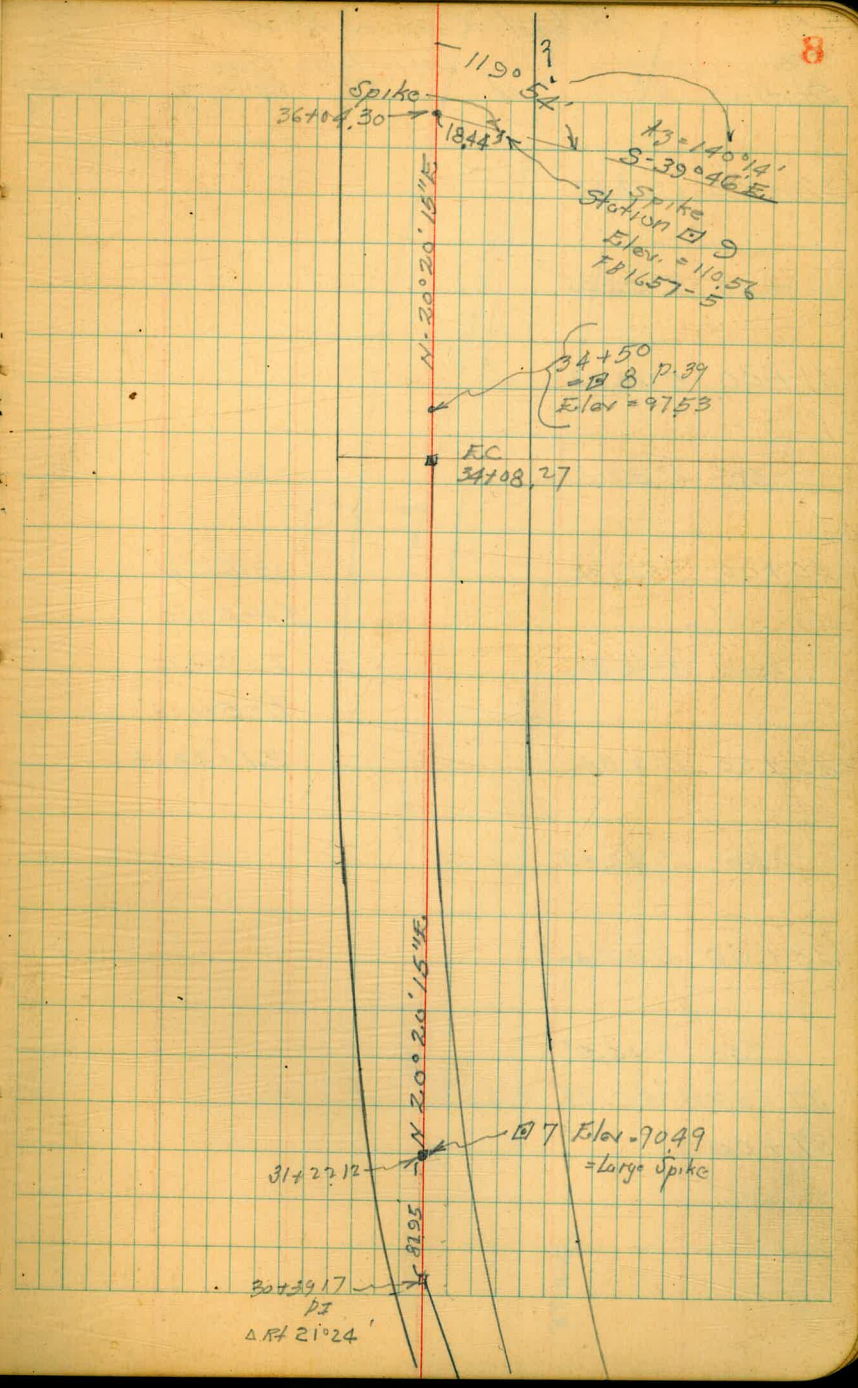
Wabash Canyon Road

Station	
30+34.77 = P.O.C.	5°21'
30+13.71 = Intersection Pueblo Line With Semi-Tan	
30+00	4°51.1'
+50	4°08.14
29+00	3°25.17'
+50	2°42.2'
28+13.53 = P.O.T. Hub. = ⊡ G Elev = 79.53	
28+00	1°59.23'
+50	1°16.26'
27+00	0°33.3'
26+61.27 = B.C. = P.O.T. of Base Line for Topog. Survey.	
26+00	
25+00	



Wabash Canyon Road

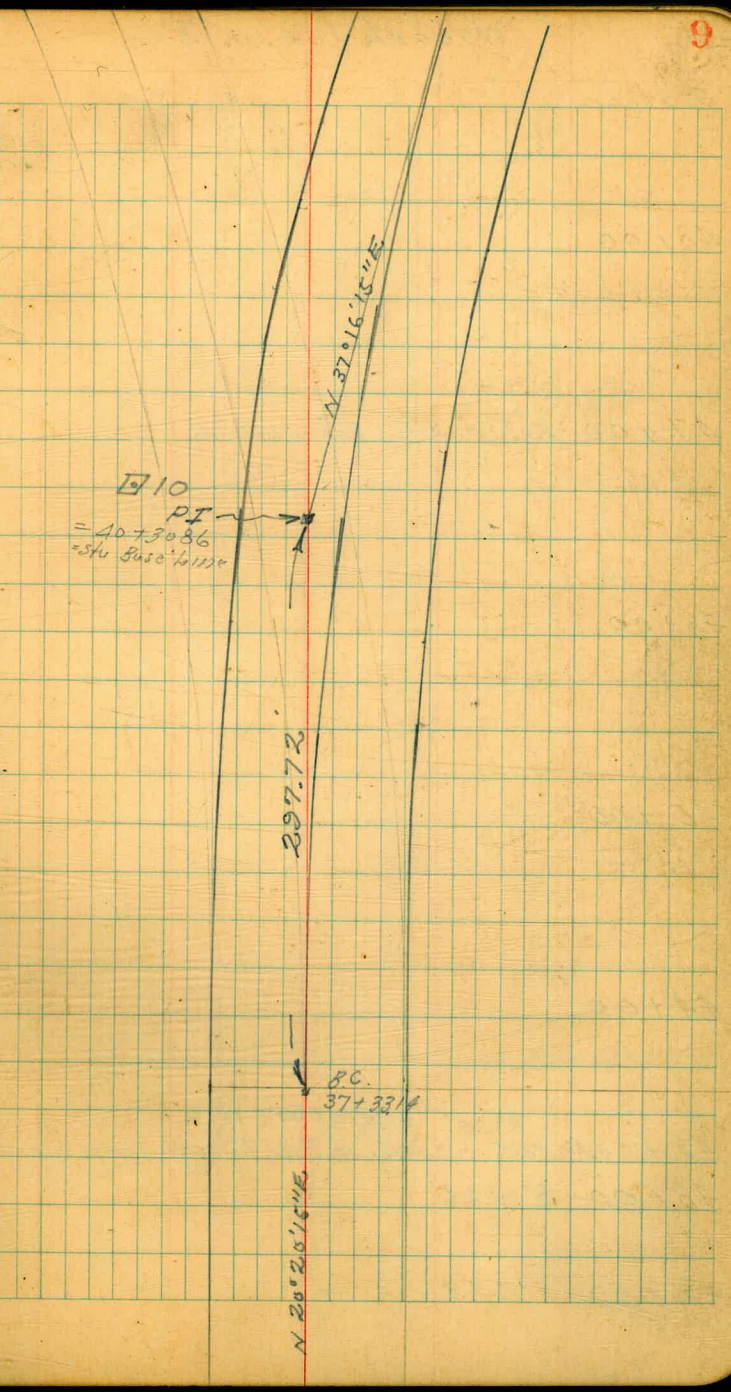
Station	
36+00	
35+00	
34 +50 =	P.O.T. = ⊡8 Elev = 97.53
	10°42'
34+08.27	= E.C. Set Hub
34+00	10°34.88
+50	9°51.91'
33+00	9°08.94
+50	8°26'
32+00	7°43.0
+50	7°00.03
31+00	6°17.06
30+50	5°34.09'



Wabash Canyon Road

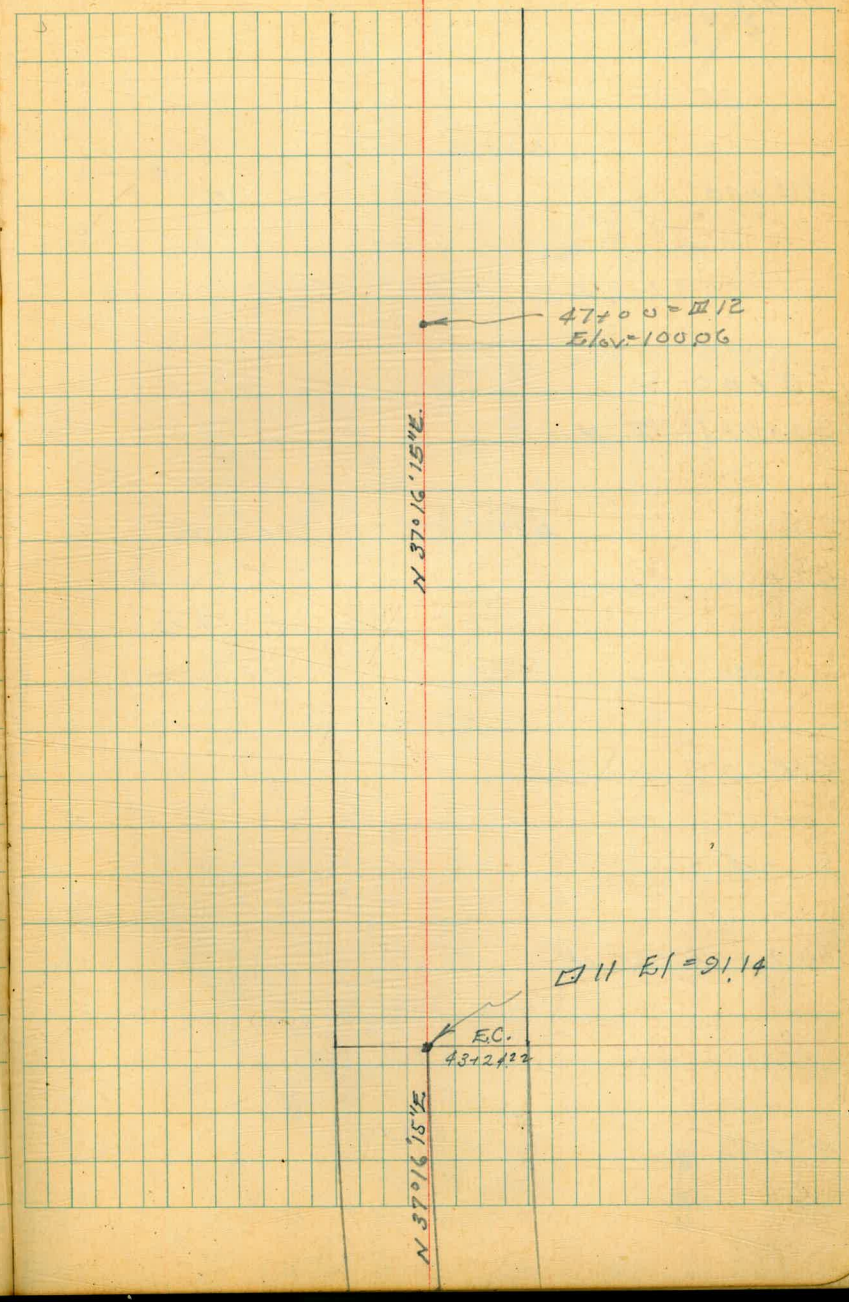
Station	Align	Deflection Lt.	Deflection Rt	True Bearing	Mag. Bearing
42+00	6°41.32'				
+50	5°58.35'				
41+00	5°15.38'				
+50	4°32.31'				
40+00	3°49.34			Δ=16°56'	
				℄R=2000'	
+50	3°06.37'			T=297.72	
				L=591.08'	
39+00	2°23.4'			Ext=22.04	
+50	1°40.43				
38+00	0°57.46'				
+50	0°14.5'				
37+33.14=B.C. Rt					
37+00					

324.87



Wabash Canyon Road

Station		
48+00		
47+00	= P.O.T. = ☐12 Elev. 100.06	
46+00		
45+00		
44+00		
43+24.22 = E.C.	8°28'	= ☐11 Elev = 91.14 = P.O.T. of Base Line for Topog. Survey.
43+00	8°07.26'	
42+50	7°24.3'	



Wabash Canyon Road

Station

+55

N 20°20'15"E.

54+00

+50 = P.O.T. Spike = ☐ 14

53+00

52+98.52 = P.I. Δ 16°56'

+50

N37°16'15"E.

52+00

+50

51+00

+50

50+00.80 = B.C. Δ

49+00

676.58

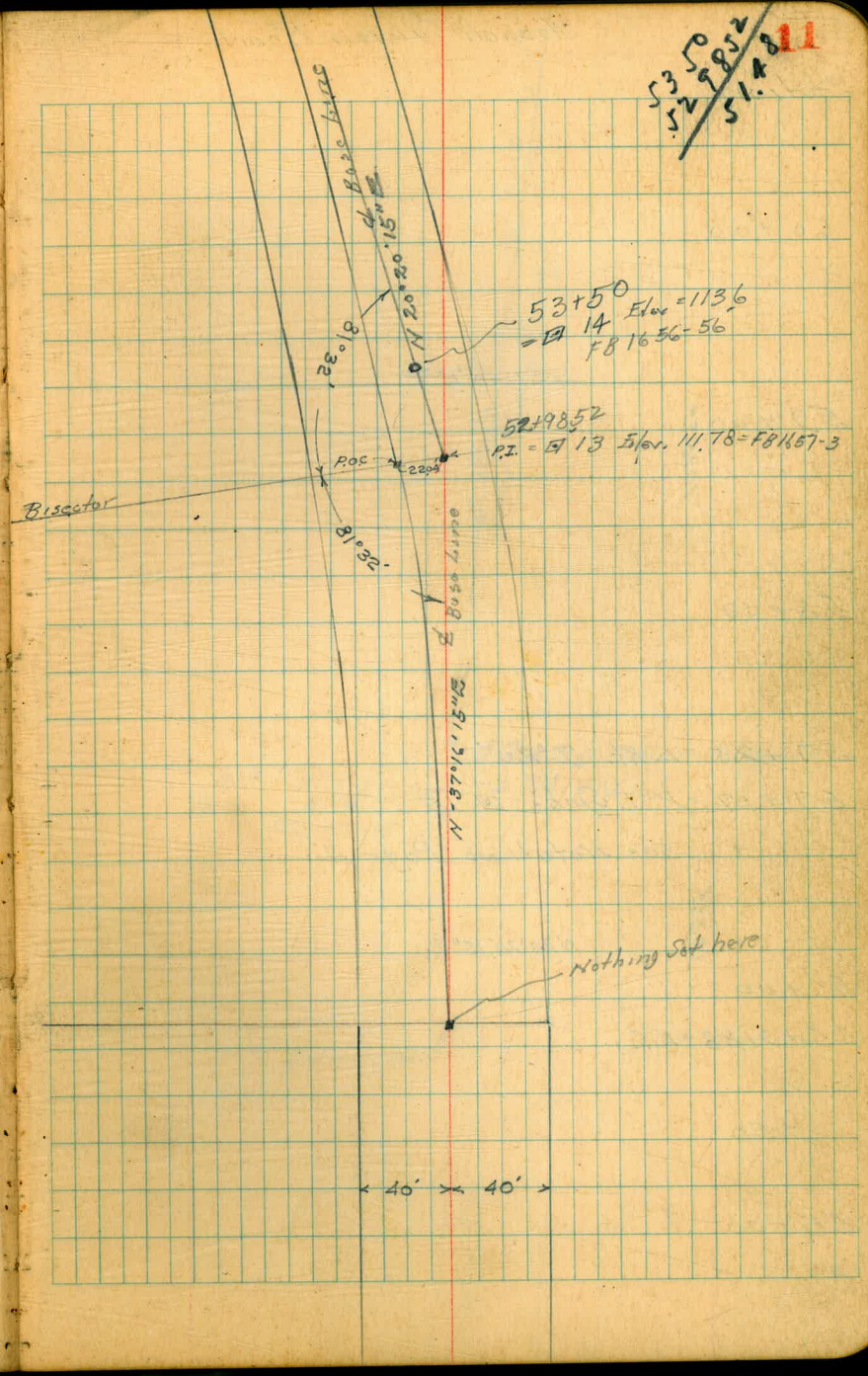
Δ = 16°56'

L.R. = 2000'

T = 297.72'

L = 591.08

Ed = 22.04



Wabash Canyon Road

Station

60 + 00

N27°40'15"E

59 + 00

1015.00

58 + 00

57 + 25 = Δ Rt. 7°20'

57 + 17 = P.O.T. Spike ⊡ 15

See Notation Page 4

1331.2

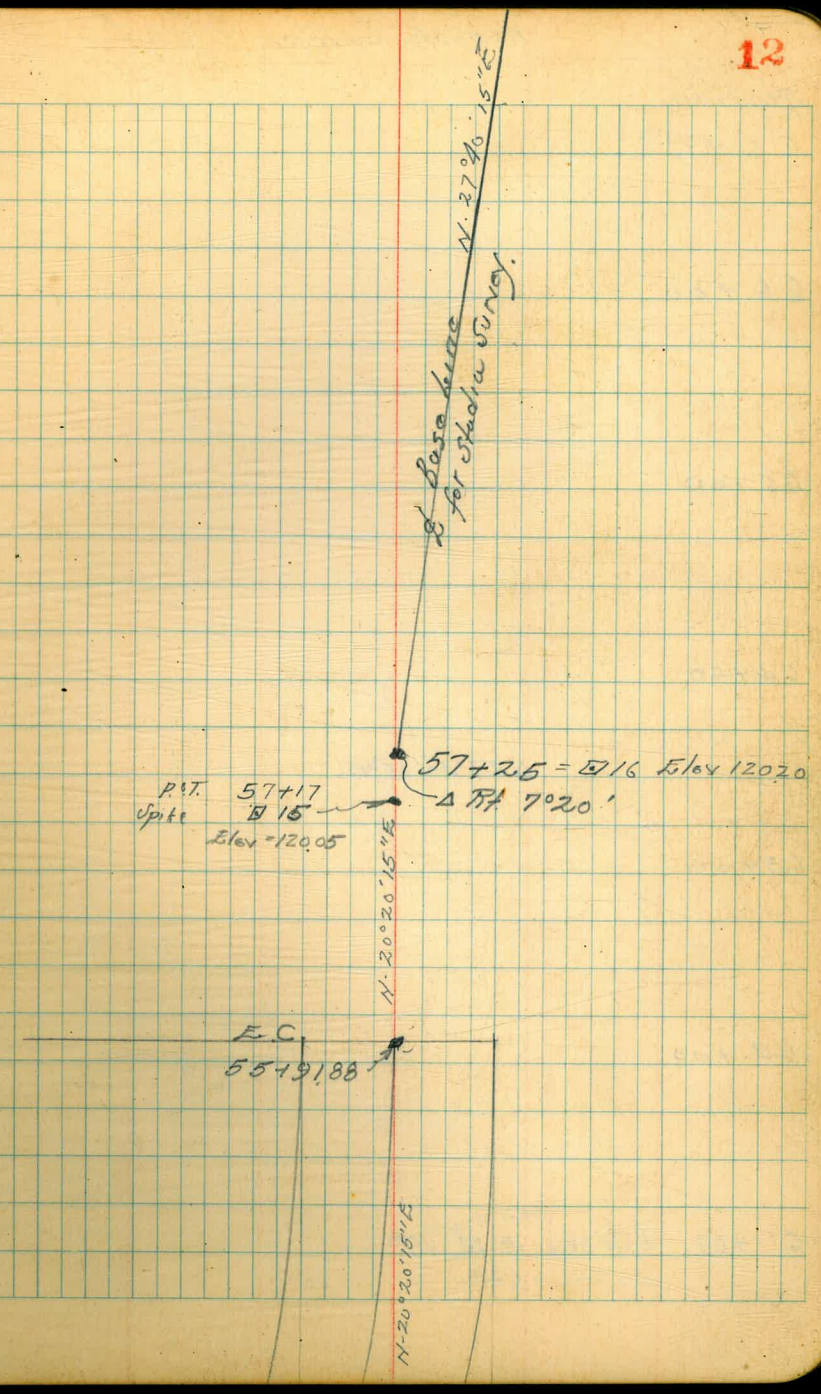
N20°20'15"E.

56 + 00

55 + 91.88 = E.C.

+50

55 + 00



Wabash Canyon Road

Station

66+75

66+00

65+00

64+00

N 27°40' 15" E.

63+00

62+00

61+00 = P.O.T. Stub = ⊡ 17

Base Line N-27°40' 15" E

61+00 = P.O.T.
Stadia Sta. # 17
Elev. = 117.02

Wobosh Canyon Road

Station

72+00

N19°32'E

71+70 = Δ Rt. 17°09'45"

71+00

N12°22'15"E

70+00

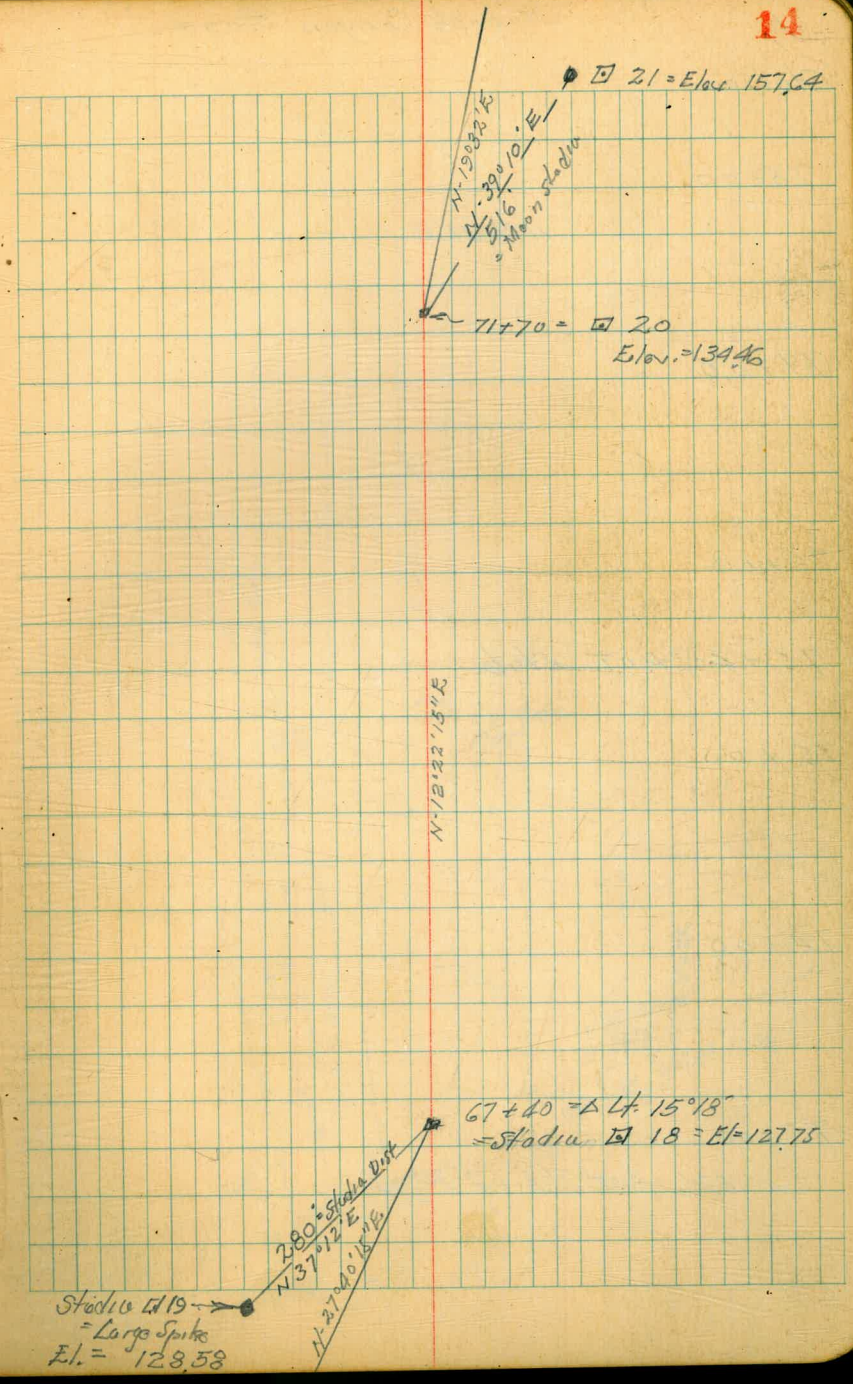
430'

69+00

68+00

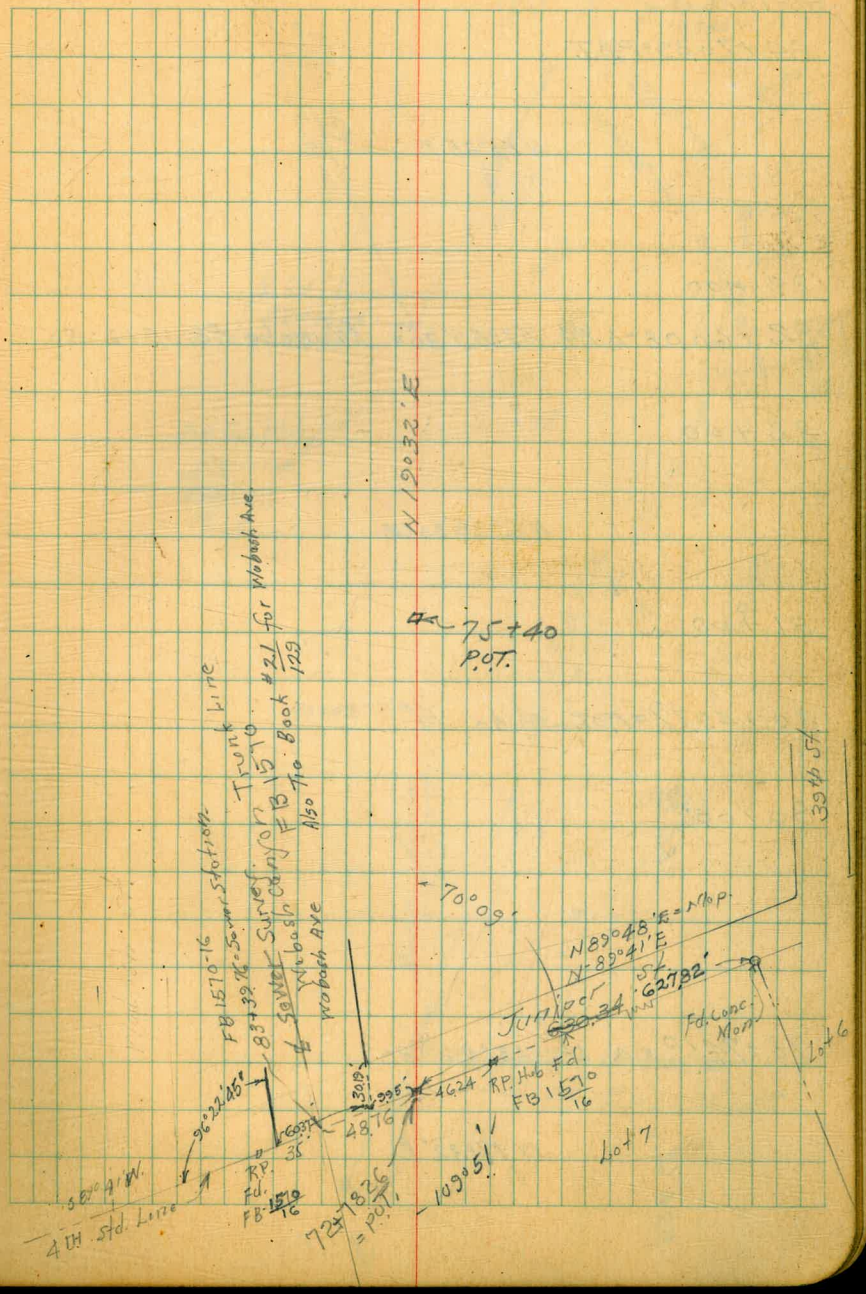
67+40 = Δ Lt 15°18' Set Hub.

67+00 N27°40'15"E.



Wabash Canyon Road

Station		
78+00		
		N19°32'E.
77+00		
76+00		
75+40 = P.O.T. Stub.		
75+00		
74+00	37000	
73+00		
72+78.26 = P.O.T. Hub · Int. 4th Std. Parallel		



Wabash Canyon Road

Station

84+70.39=P.O.T.

N34°25'E

83+00

82+60.08=Δ Rt. 27°59'30" Fd. Stake FB: 1512-50

82+00

N6°25'30"E

81+00

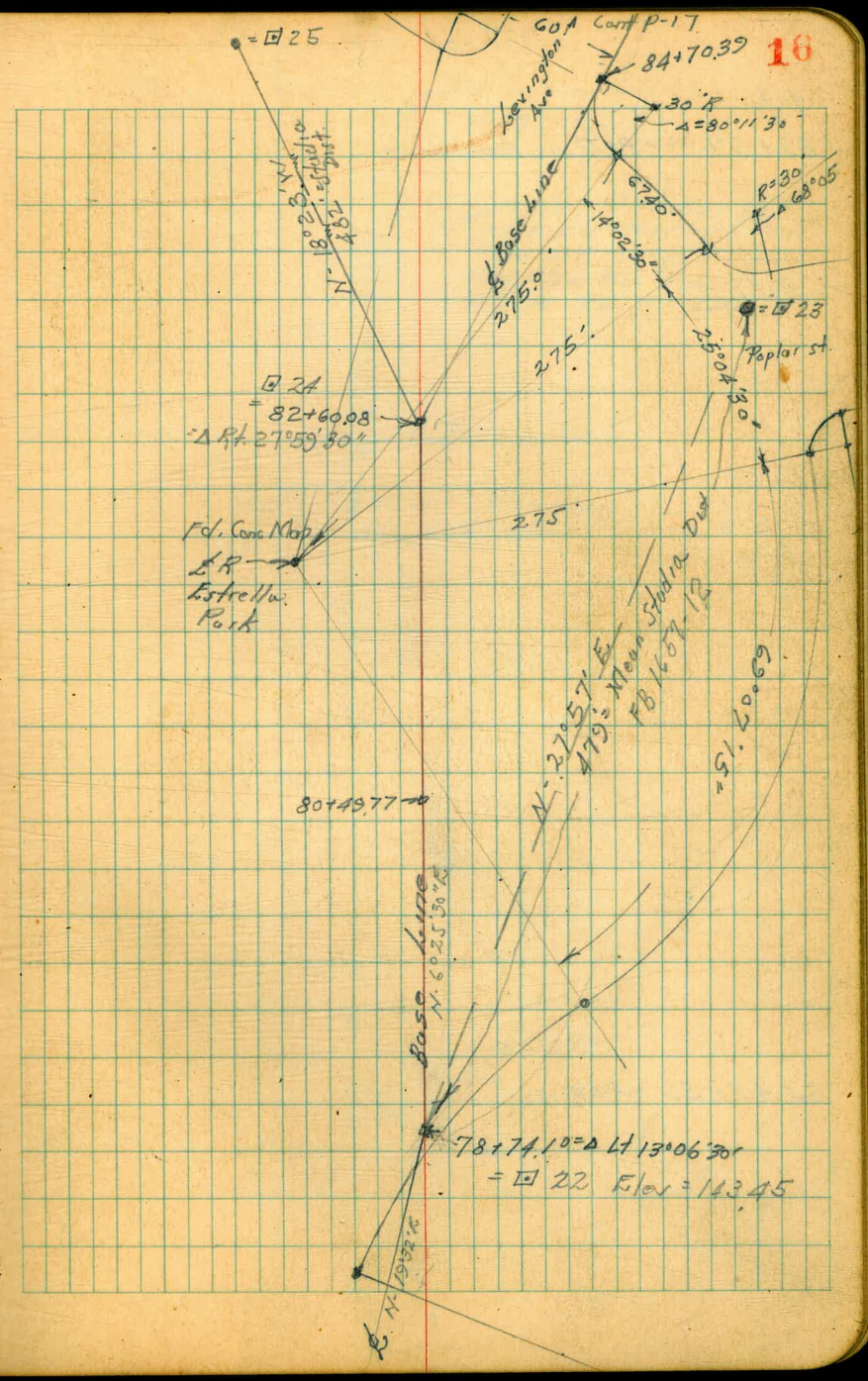
80+49.77=P.O.T. Stake Fd.

80+00 $\frac{98}{385}$

78+74.10=Δ Lt. 13°06'30"

N19°32'E

$\frac{10}{334}$



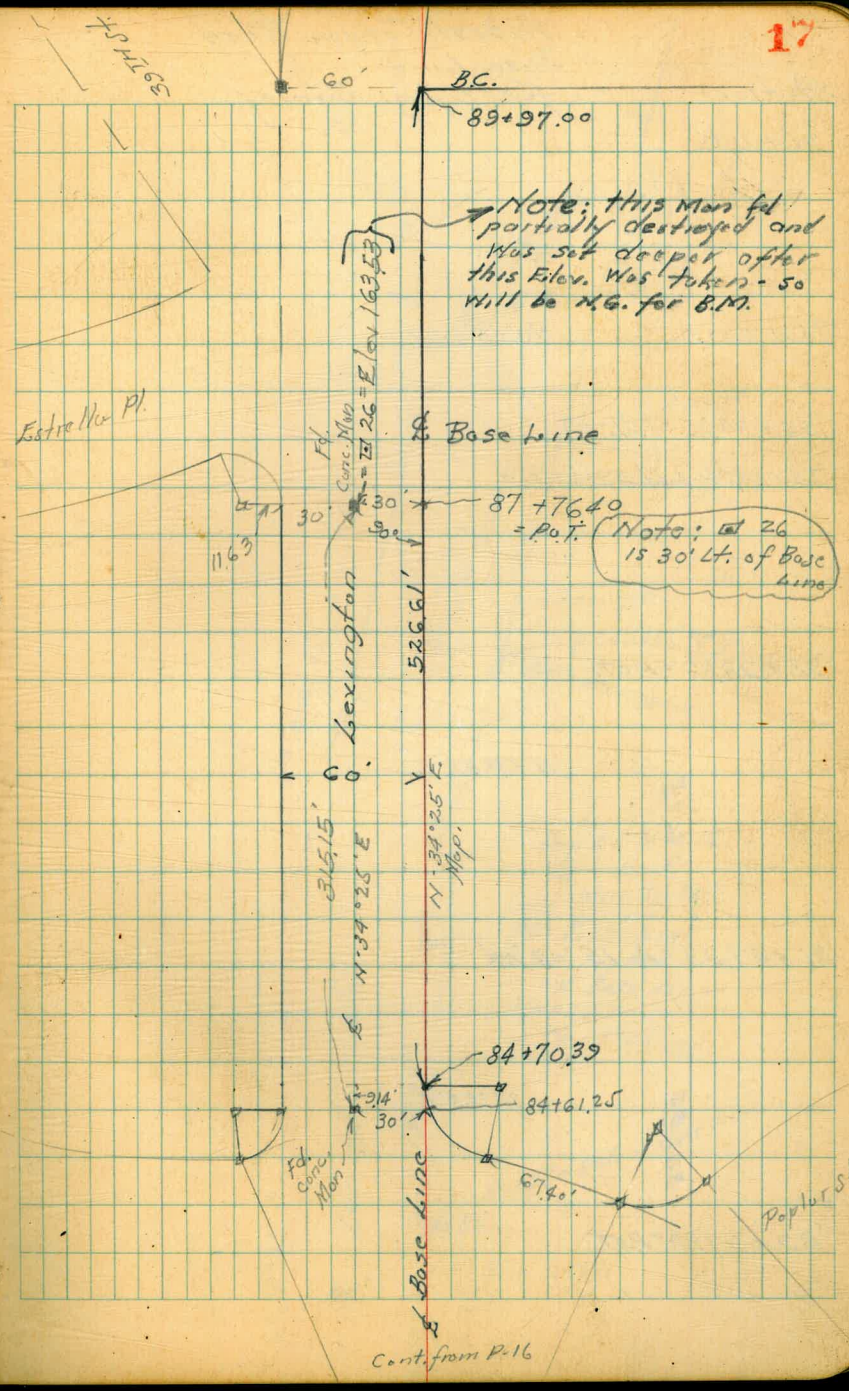
Wabash Canyon Road.

Station

89+97.00 = P.O.T. on Base line

N 34°25'E

84+70.39 = P.O.T.



Cont. from P. 16

Wabash Canyon Road
Base Line
for Topog. Survey.

Station

96+00

95+00 N0°05'30"W

94+84.95 = P.O.T.

94+13.95 = Δ Lt. 49°38'30"

92+98.86 = P.O.T.

N49°33'E.

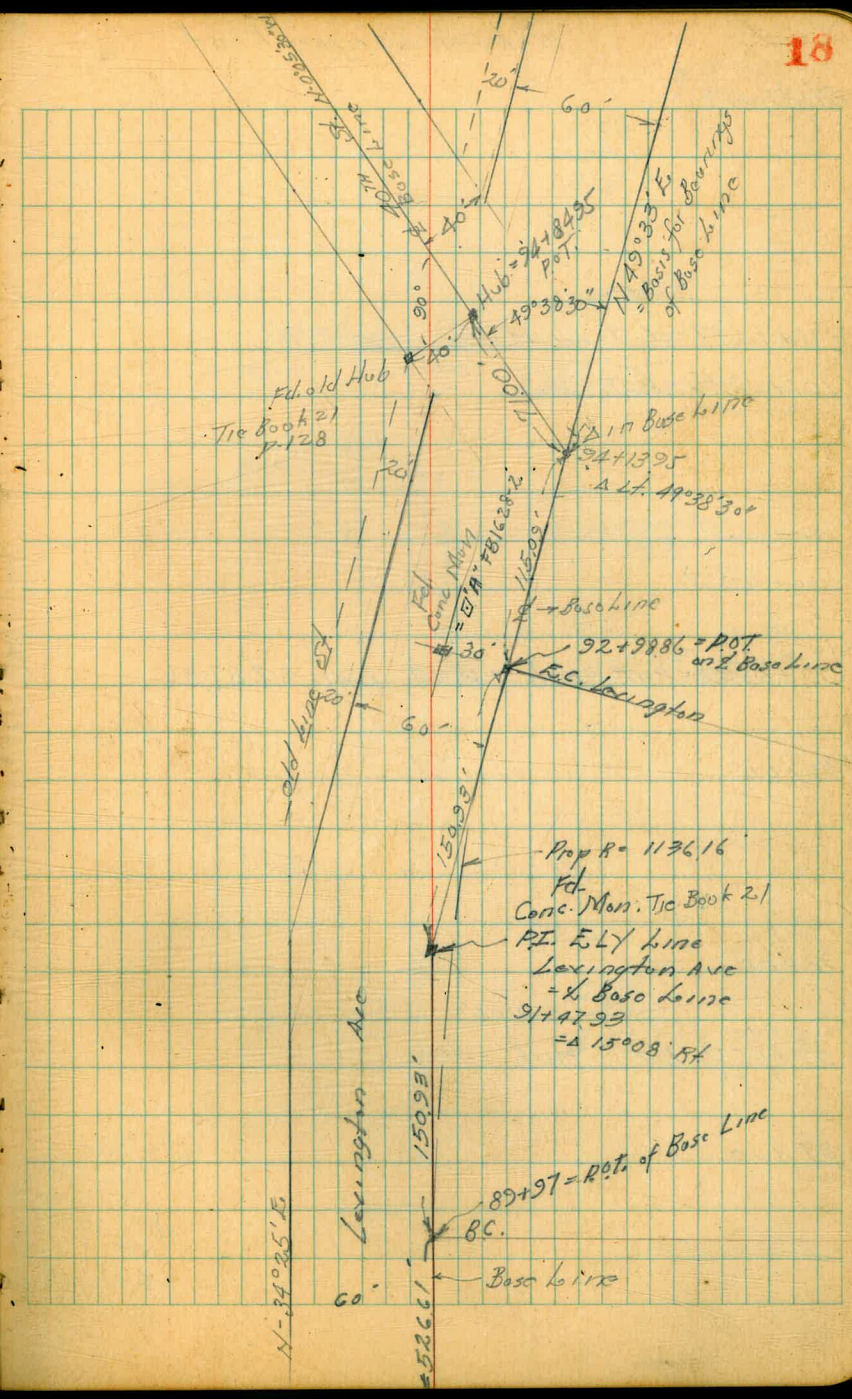
266.02

91+47.93 = Δ 15°08' Rt

N34°25'E

887.85

89+97.90 = P.O.T.



Wabash Canyon Road

Station

101+14.49 = N 7' Line Quince St.

101+02.69 = P.O.T. Hub.

100+00

99+59.39 = P.O.T. Hub. = ☐ 29 Elev. = 287.36

99+00

98+00

N-0°05'30"W

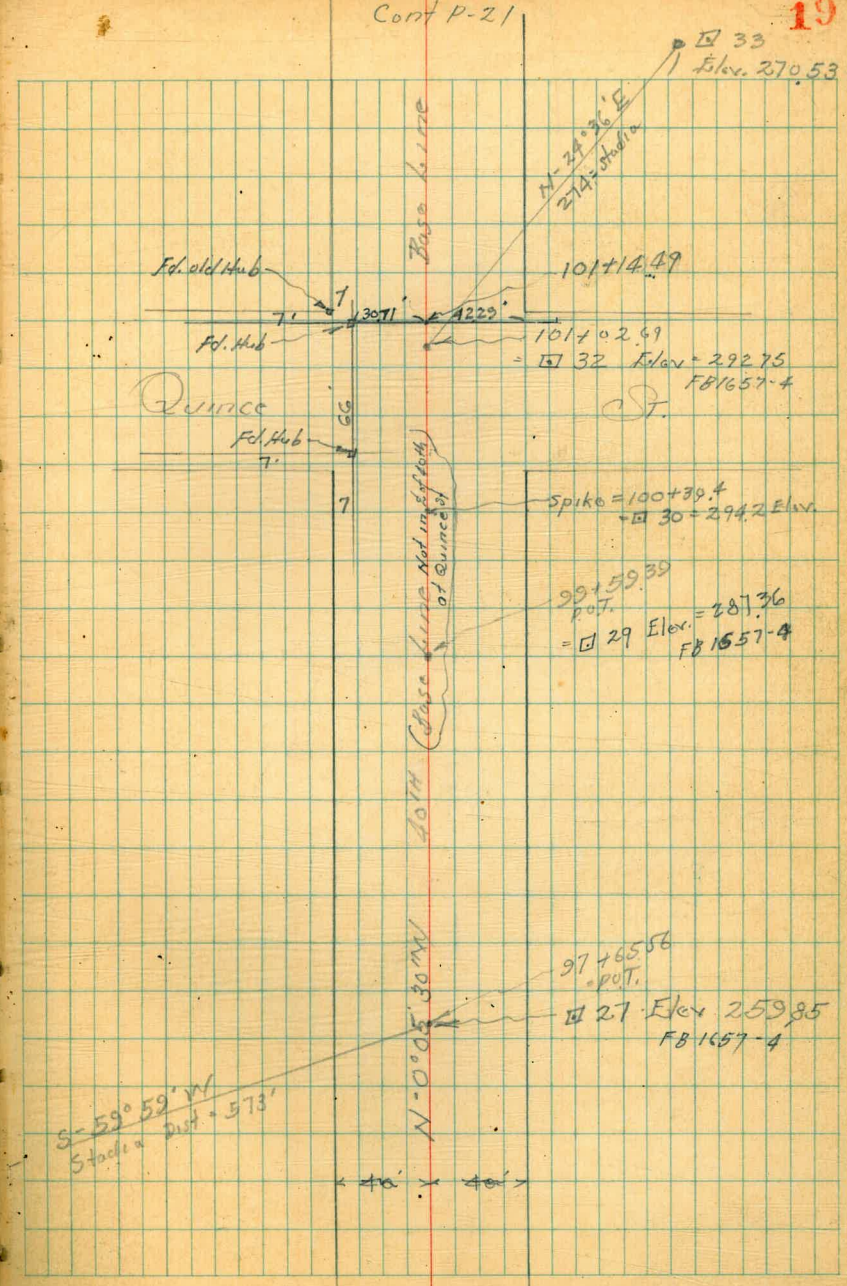
97+65.56 = P.O.T. Hub

97+00

Spike in old RR Bank

☐ 28

Elev 261.7



Wabash Canyon Road

Station

Wabash Canyon Road.

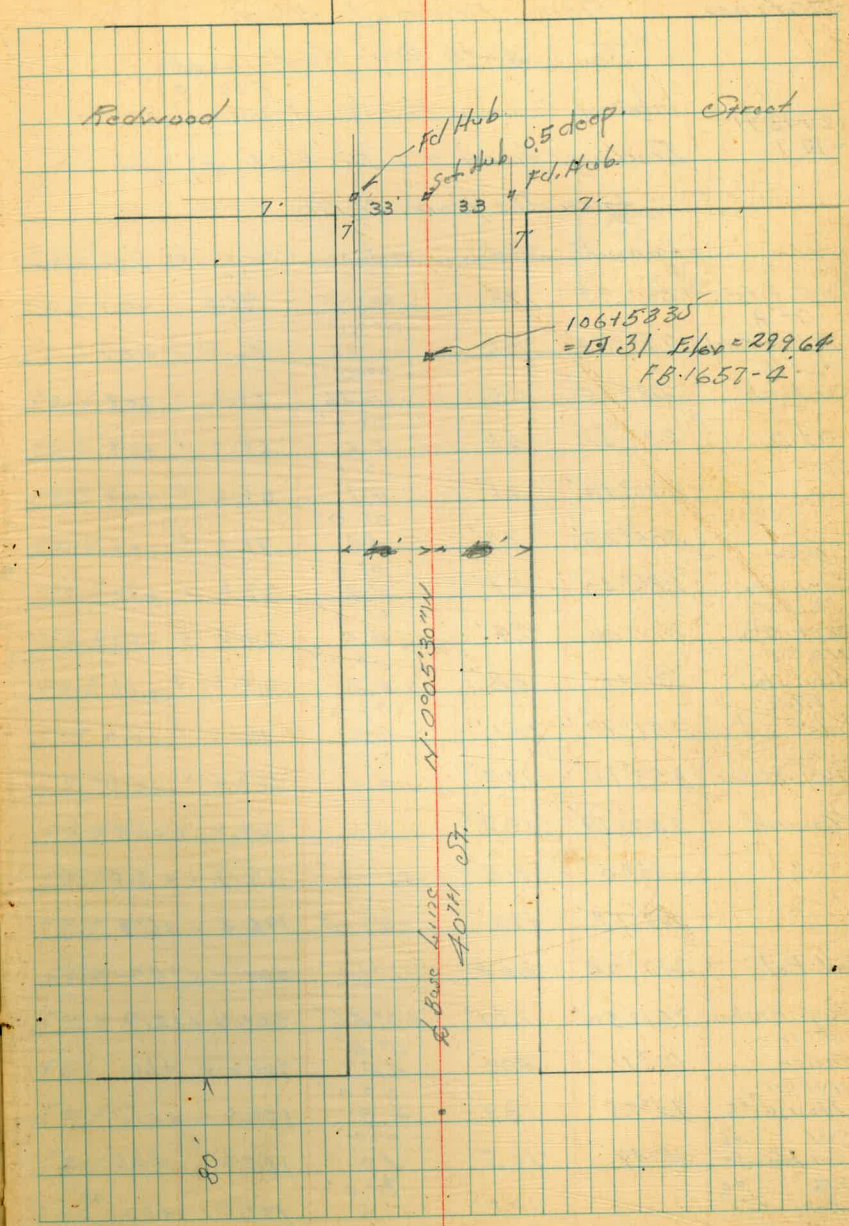
Station

107+27.35 = Int. South 7' line Redwood St.

106+53.35 = P.O.T.

N0°05'30"W

101+02.69 = P.O.T.



Cont P-19

Wabash Canyon Road
Stadia Topog.
From Federal Blvd.
To 40th And Redwood.

Station

F+C = 0

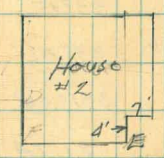
Internal Focusing Berger Transit Inst. Constant = 100'

12+75.71 = ⊡ 1

Readings from ⊡ 1 Elev. 51.64 H.I. = 54

~ Azimuths from North ~

	Azimuth	Stadia	Vert. ∆	Horiz. dist.	Diff. Elev	Elev. ✓
N Gut Fed'l at A	262.33	98	0° 0' on 5.5	98.0	-0.1	51.5
SW Cor Porch at B	278°52'	86	0° 0' on 4.6	86.0 ✓	+0.7	52.3
Cor Porch at D	282°15'	65	0° 0' on 4.6	65.0 ✓	+0.8	52.4
	287°52'	68	0° 0' 4.6	68.0 ✓	+0.8	52.4
	290°10'	61'	0° 0' 4.7	61.0 ✓	+0.7	52.3
	305°23'	71'	0° 0' 4.6	71.0 ✓	+0.8	52.4
SW Cor Serv. Sta.	286°40	37'	0° 0' 4.4	37.0 ✓	+1.0	52.6
SE. Cor Serv. Sta	295°40	24'	0° 0' 4.5	24.0 ✓	+0.9	52.8
NE Cor Serv. Sta.	331°18'	48'	0° 0' 4.8	48.0 ✓	+0.6	52.2
Elec. Pole	351°17'	101'	0° 0' 5.2	101.0 ✓	+0.2	51.8
Guy Anchor	353°16'	117'	0° 0' 4.8	117.0 ✓	+0.6	52.2
Ground	343°19'	108'	0° 0' 4.6	108.0 ✓	+0.8	52.4 ✓
"	333°0'	118'	+3°09'	117.7 ✓	+6.5	58.1 ✓
"	344°55'	198'	+2°01'	196.8 ✓	+6.9	58.5 ✓
Tel Pole	347°24	204'	+1°10'	204.0 ✓	+4.2	55.8 ✓
Guy Anchor	351°30'	201'	+0°46'	201.0 ✓	+2.7	54.3 ✓
NW Cor Fence	10°11'	200'	0° 0' 4.4	200.0 ✓	+1.0	52.6 ✓
NW Cor House #2	13°25	189'	0° 0' 4.3	189.0 ✓	+0.5	52.1 ✓
SW Cor House #2	15°49'	165'	0° 0' 4.3	165.0	+0.5	52.1
SE Cor " #2		181'	0° 0' 5.2	181.0	+0.2	51.8



Wabash Canyon Road.
Topog.

Station

Readings From ⊡ 1 Elev. 51.64 ✓ H.I. = 5.4

	Azimuth	Stadia	Vert Δ	Horiz. Dist.	Diff. Elev.	Elev.
√Apricot Tree 3"	33°12'	163'	0° 0' 5.6	163.0 ✓	-0.2	51.4 ✓
√ Apricot 3"	33°56'	181'	0° 0' 5.9	181.0 ✓	-0.5	51.1 ✓
	331°53'	98'	0° 0' 3.8	98.0 ✓	+1.6	52.3 ✓
SW. Cor √ Fence	21°24'	105'	0° 0' 5.0	105.0 ✓	+0.4	52.0 ✓
	42°34'	134'	0° 0' 5.7	134.0 ✓	-0.3	51.3 ✓
SE. Cor √ Fence	54°30'	171'	0° 6.8	171.0 ✓	-1.4	50.2 ✓
	70°58'	147'	0° 9.1	147.0 ✓	-3.7	47.9 ✓
	62°50'	107'	0° 7.3	107.0 ✓	-1.9	49.7 ✓
	39°34'	63'	0° 5.8	63.0 ✓	-0.4	51.2 ✓
	93°15'	37'	0° 4.8	37.0 ✓	+0.6	52.2 ✓
N Gat. Fed	105°30'	43	0° 5.6	43.0 ✓	-0.2	51.4 ✓
" " "	96°17'	102'	0° 4.9	102.0 ✓	+0.5	52.1 ✓
	85°20'	102'	0° 3.9	102.0 ✓	+1.5	53.1 ✓
	78°30'	104'	0° 7.6	104.0 ✓	-2.2	49.4 ✓
	93°55'	164'	0° 3.6	164.0 ✓	+1.8	53.4 ✓
	91°15'	164'	0° 3.3	164.0 ✓	+2.1	53.7 ✓
	87°55	155'	0° 10.0	155.0 ✓	-4.6	47.0 ✓
N.W. Cor Bridge	94°28'	185'	0° 3.2	185.0 ✓	+2.2	53.8 ✓
in channel	94°25'	186	0° 13.2	186.0 ✓	-7.8	43.8 ✓
SW. Cor Bridge	106°46'	194'	0° 3.2	194.0 ✓	+2.2	53.8 ✓
in channel	106°46'	195'	0° 14.6	195.0 ✓	-9.2	42.4 ✓
SE. Cor Bridge	101°02'	291'	0° 2.5	291.0 ✓	+2.9	54.5 ✓
in channel	101°02	290'	0° 15.0	290.0 ✓	-9.6	42.0 ✓

Wabash Canyon Road.

7

Station						
	Readings from ⊡ 1 Elev. 51.64 ✓ H.I. = 5.4'					
	Azimuth	Stadia	Vert ∆	Horiz.		
N.E. Cor Bridge	92°45'	285'	0° 2.9	285.0 ✓	+2.5	54.1 ✓
in channel	92°50'	284'	0° 15.0	284.0 ✓	-9.6	42.0 ✓
	77°0'	218'	0° 10.7	218.0 ✓	-5.0	46.6 ✓
W. Bank ch.	76°36'	278'	0° 9.4	278.0 ✓	-4.0	47.6 ✓
" edge "	77°0'	288'	0° 13.7	288.0 ✓	-8.0	43.3 ✓
E " "	76°39'	360'	0° 13.0	360.0 ✓	-8.6	43.0 ✓
E Bank "	57°26'	403'	0° 9.3	403.0 ✓	-3.7	47.9 ✓
E edge "	57°06'	390'	0° 10.7	390.0 ✓	-5.3	46.3
W " "	54°13'	335'	0° 11.3	335.0 ✓	-5.9	45.7 ✓
" Bank "	54°11'	333'	0° 8.8	333.0 ✓	-3.4	48.2 ✓
	51°02'	291'	0° 8.0	291.0 ✓	-2.6	49.0 ✓
	42°34'	225'	0° 7.1	225.0 ✓	-1.5	50.1 ✓
	12°25'	228'	0° 4.5	228.0 ✓	+0.9	52.5 ✓
	29°15'	280'	0° 5.4	280.0 ✓	0.0	51.6 ✓
	Readings From ⊡ 2 = 17432.6 H.I. = 5.5					
	⊡ 2 = Elev. = 56.02 ✓					
	Azimuth	Stadia	Vert ∆	Horiz. Dist.	Diff Elev	Elev
	200°22'	255'	0° 1.0	255.0 ✓	+4.4	60.4 ✓
	191°50'	238'	0° 6.4	238.0 ✓	-1.0	55.0 ✓
	181°05'	233'	0° 8.2	233.0 ✓	-2.8	53.2 ✓
W. Bank ch.	136°54'	265'	+0°06 on 11.5	265.0 ✓	-0.5 - 6.1	50.4 ✓
" edge "	133°10'	270	-1°25'	269.9 ✓	-6.7	49.3 ✓
E " "	124°20'	310	-1°24'	309.8 ✓	-7.6	48.4 ✓
" Bank "	122°45'	308	0° 10.6	308.0 ✓	-5.2	50.8 ✓

Wabash Canyon Road

Station Readings from ⊡ 2 Elev 56.02 HI = 5.5

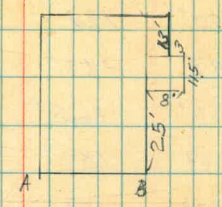
Station	Azimuth	Stadia	Vert ∠	Horiz. Dist.	Diff. Elev.	Elev.
E. Bank ch.	124°15'	240'	11.0°	240.0	-5.5	50.5 ✓
" Edge "	125°10'	234'	12.5°	234.0 ✓	-7.0	49.0 ✓
W " "	142°40'	185'	11.0°	185.0 ✓	-5.5	50.5 ✓
" Bank "	143°40'	183'	8.5°	183.0 ✓	-3.0	53.0 ✓
	159°32'	161'	8.9°	161.0 ✓	-3.4	52.6 ✓
	178°07'	151'	7.7°	151.0 ✓	-2.2	53.8 ✓
	205°01'	173'	5.6°	173.0 ✓	-0.1	55.9 ✓
	220°47'	116'	5.7°	116.0 ✓	-0.2	55.8 ✓
	208°15'	94'	6.4°	94.0 ✓	-0.9	55.1 ✓
	180°30'	78'	7.1°	78.0 ✓	-1.6	54.4 ✓
	153°20'	81'	7.5°	81.0 ✓	-2.0	54.0 ✓
W/ Bank ch.	127°15'	117	7.1°	117.0 ✓	-1.6	54.4 ✓
W edge ✓	124°55'	119	11.7°	119.0 ✓	-6.2	49.8 ✓
E " "	102°01'	184'	10.2°	184.0 ✓	-4.7	51.3 ✓
E. Bank "	99°13'	193	9.0°	193.0 ✓	-3.5	52.5 ✓
" " "	86°57'	170	8.6°	170.0 ✓	-3.1	52.9 ✓
" Edge "	85°24'	163'	10.0°	163.0 ✓	-4.5	51.5 ✓
W " "	86°27'	126'	10.0°	126.0 ✓	-4.5	51.5 ✓
" Bk "	84°47'	119	9.3°	119.0 ✓	-3.8	52.2 ✓
✓ Tel Pole	82°03'	109'	8.0°	109.0 ✓	-2.8	53.5 ✓
	80°09'	70'	6.6°	70.6 ✓	-1.1	54.9 ✓
	56°05	24'	5.2°	24.0 ✓	+0.3	56.3 ✓
	313°50'	16'	5.9°	16.0 ✓	-0.4	55.6 ✓
✓ Tel Pole	296°40'	29'	4.7°	29.0 ✓	+0.8	56.8 ✓

Wabash Canyon Road

Station

Readings From ⊡ 2 Elev 56.02 HI = 5.5

	Azimuth	Stadia	Vert. ∆	Horiz. Dist	Diff. Elev	Elev.
	278°35'	78'	0° 3.7	78.0 ✓	+1.8	57.8 ✓
	214°13'	50'	0° 4.8	50.0 ✓	+0.7	56.7 ✓
	242°30'	88'	0° 3.2	88.0 ✓	+2.3	58.3 ✓
✓SW Cor House	310°35'	119'	0° 3.9	119.0 ✓	+1.6	57.6 ✓
A	321°55'	124'	0° 3.9	124.0 ✓	+1.6	57.6 ✓
✓SE Cor House B	331°37'	111'	0° 4.1	111.0 ✓	+1.4	57.4 ✓
✓SE Cor Fence	344°45'	82'	0° 4.8	82.0 ✓	+0.7	56.7 ✓
✓NE " "	351°30'	143'	0° 4.3	143.0 ✓	+1.2	57.2 ✓
✓SE Cor Garage	350°22'	154'	0° 4.0	154.0 ✓	+1.5	57.5 ✓
✓SW " "	343°57'	159'	0° 4.0	159.0 ✓	+1.5	57.5 ✓
✓NE " "	351°23'	170'	0° 3.9	170.0 ✓	+1.6	57.6 ✓
✓SE Cor House 13x22'	352°20'	194	0° 3.8	194.0 ✓	+1.7	57.7 ✓
✓NE " "	352°56'	207'	0° 3.1	207.0 ✓	+2.4	58.4 ✓
	356°17'	79'	0° 4.9	79.0 ✓	+0.6	56.6 ✓
	26°06'	87'	0° 5.2	87.0 ✓	+0.3	56.3 ✓
W. Bank ch.	40°27'	102'	0° 4.9	102.0 ✓	+0.6	56.6 ✓
" edge "	43°09'	108'	0° 7.1	108.0 ✓	-1.4	54.4 ✓
in "	54°	146'	0° 7.5	146.0 ✓	-2.0	54.0 ✓
E. edge "	67°08	235'	0° 9.2	235.0 ✓	-3.7	52.3 ✓
" Bank "	66°47'	245'	0° 3.4	245.0 ✓	+2.1	58.1 ✓
" " "	50°06'	258'	0° 2.1	258.0 ✓	+3.4	59.4 ✓
" Edge "	49°30'	248'	0° 8.7	248.0	-3.3	52.7 ✓
in "	37°09	203'	0° 6.8	203.0 ✓	-1.3	54.7 ✓



Wabash Canyon Road.

Topog. etc.

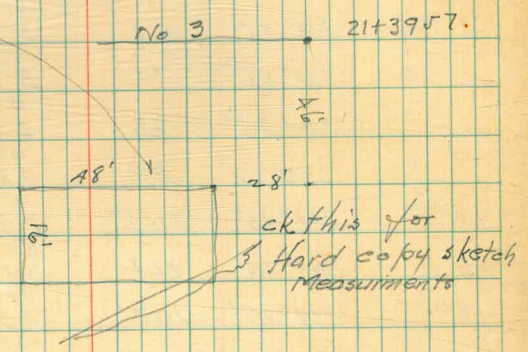
Station	Azimuth	Stadia	Vert Δ	Horiz Dist.	Diff. Elev.	Elev.
	Readings from ⊡ 2		Elev = 56.02	HI = 5.5		
W Bank ch.	33°50'	194'	0° 5.5	194.0 v	0.0	56.0 v
2 channels in ch.	25°47'	173'	0° 6.1	173.0 v	-0.6	55.4 v
W Bank "	24°03'	168'	0° 4.0	168.0 v	+1.5	57.5 v
	12°07'	157'	0° 4.1	157.0 v	+1.4	57.4 v
	358°37'	154	0° 4.5	154.0 v	+1.0	57.0 v
	358°42'	215'	0° 3.5	215.0 v	+2.0	58.0 v
	12°07	224'	0° 3.7	224.0 v	+1.8	57.8 v
W Bank ch.	17°30'	233'	0° 3.2	233.0 v	+2.3	58.3 v
" edge "	18°07'	241'	0° 5.4	241.0 v	+0.1	56.1 v
2 channels W Bank "	25°27'	243'	0° 4.9	243.0 v	+0.6	56.6 v
In "	26°14'	247'	0° 7.5	247.0 v	-2.0	54.0 v
E. edge "	41°0	304'	0° 5.7	304.0 v	-0.3	55.7
" Bank "	41°45	310'	+1°39'	309.8 v	+8.9	64.9 v
	45°20'	348'	+2°09'	347.6 v	+12.0	68.0 v
	52°45'	324'	+1°58'	323.7 v	+11.1	67.1 v
	60°50'	302'	+1°55'	301.7 v	+10.1	66.1 v
	74°20'	284'	+1°29'	283.8 v	+7.4	63.4 v
Tel Pole	86°0'	254'	0° 6.8	254.0 v	-0.6	55.4 v
21+39.57 = ⊡ #3	Readings from		⊡ #3 Elev 60.57	HI. 5.3		Elev. this station from FB 1657-5
	109°40'	327'	+4° 02'	325.4 v x	22.9	83.5 v
	116°35'	283'	+2° 12'	282.6 v	+10.9	71.5 v
E. bank	118°20	235'	+1° 39'	234.8	+6.8	67.4 v
" edge	120°05'	220'	0° 10.7	220.0 v	-5.4	55.2 v
W. "	143°20'	141'	0° 11.2	141.0 v	-5.9	54.7 v

Topog.

Wabash Canyon Road.

Readings from ⊡ 3 Elev = 60.57 HI 5.3

Station	Azimuth	Stadia	Vert. ∠	Horiz Dist	Diff. Elev	Elev
W. bank ch.	144°20'	138'	0° 8.6	138.0 ✓	-3.5	57.1 ✓
	156°	122'	0° 8.1	122.0 ✓	-2.8	57.8 ✓
	178°25'	110'	0° 6.9	110.0 ✓	-1.6	59.0 ✓
N.W. Cor Fence	184°50'	168'	0° 6.9	168.0 ✓	-1.6	59.0 ✓
✓ Elec. Pole	205°20'	208'	0° 6.0	208.0 ✓	-0.7	59.9 ✓
	206°30'	130'	0° 6.0	130.0 ✓	-0.7	59.9 ✓
S.E. Cor House	206°47'	71'	0° 6.0	71.0 ✓	-0.7	59.9 ✓
N.E. " "	206°28'	53'	0° 5.3	53.0 ✓	0.0	60.6 ✓ } House?
N.W. " "	237°54'	82'	0° 5.2	82.0 ✓	+0.1	60.7 ✓
16" Euc. Tree	251°25'	27'	0° 4.7	27.0 ✓	+0.6	61.2 ✓
Double " " 16"	267° 0'	32'	0° 4.2	32.0 ✓	+1.1	61.7 ✓
18" Stump	290° 0	49'	0° 4.0	49.0 ✓	+1.3	61.9 ✓
10" " "	296°35'	53'	0° 4.2	53.0 ✓	+1.1	61.7 ✓
10" "	284°10'	64'	0° 4.6	64.0 ✓	+0.7	61.3 ✓
12" "	315°05'	56'	0° 3.7	56.0 ✓	+1.6	62.2 ✓
10" "	310°30'	61'	0° 4.0	61.0 ✓	+1.3	61.9 ✓
10" "	314°10'	69'	0° 3.7	69.0 ✓	+1.6	62.2 ✓
8" "	310°55'	84'	0° 4.2	84.0 ✓	+1.1	61.7 ✓
16" Tree	291° 0'	87'	0° 4.0	87.0 ✓	+1.3	61.9 ✓
16" "	310°40'	100'	0° 3.8	100.0 ✓	+2.5	63.1 ✓
16" "	304°50'	127'	0° 2.8	127.0 ✓	+2.5	63.1 ✓
12" "	307° 0'	159'	0° 1.7	159.0 ✓	+4.1	64.7 ✓
5" "	276°50'	124'	0° 2.4	124.0 ✓	+2.9	63.5 ✓
4" "	276°50'	131'	0° 1.4	131.0 ✓	+3.7	64.3 ✓
6" "	274°	120'	0° 2.8	120.0 ✓	+2.5	63.1 ✓



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Wabash Canyon Road
Topog.

Station	Azimuth	Stadia	Vert ∆	Horiz. Dist.	Diff. Elev.	Elev
	Readings from ⊡ 3		Elev = 60.57		HI = 5.3	
18" Tree Stump	320°10	20'	0° 4.2	20.0 ✓	+1.1	61.7 ✓
16" " "	322°20'	30'	0° 4.3	30.0 ✓	+1.0	61.6 ✓
16" " "	338°0'	34'	0° 4.0	34.0 ✓	+1.3	61.9 ✓
18 " "	349°20'	59'	0° 4.0	59.0 ✓	+1.3	61.9 ✓
" " " "	335°55'	51'	0° 3.9	51.0 ✓	+1.4	62.0 ✓
Tree	335°55	61'	0° 3.7	61.0 ✓	+1.6	62.2 ✓
"	335°55'	71'	0° 3.7	71.0 ✓	+1.6	62.2 ✓
"	330°25'	66	0° 3.2	66.0 ✓	+2.1	62.7 ✓
"	330°35'	83'	0° 3.2	83.0 ✓	+2.1	62.7 ✓
18" "	319°45'	103'	0° 3.3	103.0	+2.0	62.6 ✓
16 "	345°20'	117	0° 3.1	117.0 ✓	+2.2	62.8 ✓
16" "	314°05'	103'	0° 3.3	103.0 ✓	+2.0	62.8 ✓
	317°40'	131'	0° 3.3	131.0 ✓	+2.0	62.8 ✓
21+92.57	Readings from ⊡ 4		Elev. 61.66		HI. = 5.6	
10" Tree Stump	306°35'	46'	0° 4.6	46.0 ✓	+1.0	62.7 ✓
2-16" Euc Trees	318°55'	67'	0° 4.0	67.0 ✓	+.06	62.3 ✓
6" Tree Stump	326°05'	79'	0° 4.2	79.0 ✓	+0.4	62.1 ✓
20" Tree	330°05'	75'	0° 4.1	75.0 ✓	+1.3	63.2 ✓
"	330°05	85'	0° 3.8	85.0 ✓	+1.8	63.5 ✓
	330°05'	115'	0° 4.0	115.0 ✓	+1.6	63.3 ✓
30" Euc Tree	334°30'	138'	0° 3.6	138.0 ✓	+2.0	63.7 ✓
	338°20'	142'	0° 3.3	142.0 ✓	+2.3	64.0 ✓
	351°40'	174'	2.6	174.0 ✓	+3.0	64.7 ✓

Wabash Canyon Road

Station	Azimuth	Stadia	Vert ∆	Horiz. Dist.	Diff. Elev	Elev.
	Readings from ⊡ 4 Elev. 61.66 HI=5.6					
	350°20'	193'	0° 2.7	193.0 ✓	+2.9	64.6 ✓
30" Tree	321°15'	116'	0° 3.7	116.0 ✓	+1.9	63.6 ✓
	147°40'	55	0° 6.1	55.0 ✓	-0.5	61.2 ✓
W Bank ch	143°20'	77'	0° 8.4	77.0 ✓	-2.8	58.9 ✓
" edge "	141°10'	80'	0° 10.0	80.0 ✓	-4.4	57.3 ✓
℄ "	124°05'	118'	0° 11.1	118.0 ✓	-5.5	56.2 ✓
in "	113°0'	180'	0° 8.8	180.0 ✓	-3.2	58.5 ✓
Toe Bluff	108°50'	214'	0° 9.7	214.0 ✓	-4.1	57.6 ✓
Top "	105°0'	222'	+2°39'	221.6 ✓	110.2	61.9 ✓
Top Ridge	102°45'	274'	+4°45	272.2 ✓	+ 22.9	84.6 ✓
	88°40'	290'	+4°55'	287.9 ✓	+24.8	86.5 ✓
	88°20'	242'	+2°53'	241.4 ✓	+ 12.2	83.9 ✓
Toe Slope	87°15'	203'	+1°34'	202.9 ✓	+5.5	67.2 ✓
Toe Slope	85°30'	187'	0° 5.3	187.0 ✓	+0.3	62.0 ✓
E Bank	79°05	122	0° 5.3	122.0 ✓	+0.3	62.0 ✓
E edge ch.	78°	114'	0° 7.6	114.0 ✓	-2.0	59.7 ✓
2 Main Flow ℄ "	75°25	84'	0° 9.6	84.0 ✓	-4.0	57.7 ✓
W edge "	352°20'	14'	0° 8.0	14.0 ✓	-2.4	59.3 ✓
" Bank "	337°20'	18'	0° 5.7	18.0 ✓	-0.1	61.6 ✓
W " "	328°20'	58'	0° 5.3	58.0 ✓	+0.3	62.0 ✓
" edge "	334°25'	57'	0° 8.1	57.0 ✓	-2.5	59.2 ✓
W Bank "	338°25'	108'	0° 4.3	108.0	+1.3	63.0
" edge "						

Topog. - Wobosh Canyon Road

Station	Azimuth	Stadia	Vert ∠	Horiz Dist.	Diff. Elev.	Elev.
	Readings from ⊡ 4		Elev 61.66	HI = 5.6		
W edge ch.	345°20′	104′	6°9	104.0 ✓	-1.3	60.4 ✓
" " "	347°40′	141′	3°8	141.0 ✓	+1.8	63.5 ✓
W edge "	350°55′	139′	0°7.3	139.0 ✓	-1.7	60.0 ✓
W Bank "	350°55′	186′	0°3.0	186.0 ✓	+2.6	64.3 ✓
" edge "	353°10′	186′	0°9.0	186.0 ✓	-3.4	58.3 ✓
" Bank "	355°25′	222′	0°2.6	222.0 ✓	+3.0	64.7 ✓
" edge "	358°40′	223′	0°8.1	223.0 ✓	-2.5	59.2 ✓
in ch.	19°40′	245′	0°5.7	245.0 ✓	-0.1	61.6 ✓
Ridge in ch.	10°50′	159′	0°5.9	159.0 ✓	-0.3	61.4 ✓
" " "	13°25′	107′	0°7.6	107.0 ✓	-2.0	59.7 ✓
" "	37°30′	120′	0°8.9	120.0 ✓	-3.3	58.4 ✓
L. Flow "	24°05′	175′	0°7.1	175.0 ✓	-1.5	60.2 ✓
E. edge "	25°50′	259′	0°6.8	259.0 ✓	-1.2	60.5 ✓
	39°55′	226′	0°3.8	226.0 ✓	+1.8	63.5 ✓
	45°10′	183′	0°4.2	183.0 ✓	+1.4	63.1 ✓
Toe slope	58°45′	225′	0°3.9	225.0	+1.7	63.4 ✓
24+75.80 ⊡5	Readings from ⊡ Sta. #5		Elev. 65.96	H.I. = 5.5		
" "	104°50′	246	0°9.5	246.0 ✓	-4.0	62.0 ✓ ✓
" "	97°25′	285′	0°8.8	285.0 ✓	-3.3	62.7 ✓ ✓
" "	87°10′	317	0°7.5	317.0 ✓	-2.0	64.0 ✓ ✓
" "	72°55′	318	7.7	318.0	-2.2	63.8 ✓ ✓
Top of bank	69°45′	330′	+1°06′	329.9	+6.3	72.3 ✓
" " "	81°30′	332′	+3°24′	330.9	+19.6	85.6 ✓
" " "	88°10	332′	+5°11′	329.3	+29.9	95.9 ✓

Topog: Wabash Canyon Roade

Station	Azimuth	Stadia	Vert Δ	Horiz Dist	Diff. Elev	Elev.
	Readings	From ⊡ 5	Elev 6596	HI 5.5		
Top of bank	95° 05'	316'	+5° 13'	313.4	+28.6	94.6 ✓
" " "	100° 35'	282'	+2° 23'	281.5	+11.7	77.7 ✓
" " "	105° 45'	255'	+0° 26'	255.0	+1.9	67.9 ✓
" " "	126° 0	253'	+0° 20'	253.0	+1.5	67.5 ✓
on ridge	124° 25'	290'	+3° 0'	289.2	+15.2	81.2 ✓
" "	115°	284'	+3° 12'	283.1	+15.9	81.9 ✓
" "	109° 40'	346'	+4° 28'	344.0	+26.9	92.9 ✓
Top of ridge	93° 35'	383'	+6° 38'	378.0	+44.0	110.0 ✓
on slope	78° 40'	383'	+5° 47'	379.3	+38.4	104.4 ✓
" "	67° 40'	408'	+5° 34'	404.2	+39.4	105.4 ✓
in ch.	73° 50'	302'	0° 6.3	302.0	-0.8	65.2 ✓ ✓
" "	87° 45	284'	0° 7.2	284.0	-1.7	64.3 ✓ ✓
" "	96° 05'	251'	0° 8.3	251.0	-2.8	63.2 ✓
" " on Bar	89° 0'	210'	0° 7.9	210.0	-2.4	63.6 ✓
" "	74° 55'	247'	0° 6.6	247.0	-1.1	64.9 ✓
✓ ℄ MH.	67° 44'	267	+0° 46	267.0	3.6	62.4 ✓ error 69.6
W edge ch	69° 50'	237'	0° 8.5	237.0	-3.0	63.0 ✓
" Bk "	69° 0'	238'	0° 6.1	238.0	-0.6	65.4 ✓
" edge "	76° 40	179'	0° 9.5	179.0	-4.0	62.0 ✓
" Bk "	76° 45'	177'	0° 7.7	177.0	-2.2	63.8 ✓ ✓
" edge "	95° 20'	103'	0° 9.8	103.0	-4.3	61.7 ✓
" Bk "	94° 15	103'	0° 8.2	103.0	-2.7	63.3 ✓
" edge "	142° 20'	52'	0° 11.7	52.0	-6.2	59.8 ✓
" Bk "	142° 20	48'	0° 9.7	48.0	-4.2	61.8 ✓

Topog - Wabash Canyon Road.

Station	Azimuth	Stadia	Vert ∠	Horiz. Dist.	Diff. Elev.
	Readings from ☑ 5		Elev = 65.96		H.I. 5.5
	142° 0'	23'	0° 5.8	23.0	-0.3
✓ ℄ MH	172° 50'	137'	0° 10.0	137.0	-4.8
18" Euc Tree	209° 40'	80'	0° 6.4	80.0	-0.9
24" " "	216° 0'	67'	0° 5.3	67.0	-0.8
" " "	206° 20'	51'	0° 5.9	51.0	-0.4
" " "	230° 20'	12'	0° 5.9	12.0	-0.4
30" " "	270° 20	8'	0° 0'	8.0	+5.5
20" " "	270° 20	16'	0° 0'	16.0	+5.5
18" " "	255° 0'	26'	0° 5.1	26.0	+0.4
12" Stump	293° 20'	21'	0° 4.2	21.0	+1.3
30" Euc Tree	270° 05	46'	0° 5.1	46.0	+0.4
12" " "	270° 0'	63'	0° 4.7	63.0	+0.8
14" " "	257° 20'	66'	0° 4.3	66.0	+1.2
" " "	259° 40'	80'	0° 3.1	80.0	+2.4
18" " "	242°	65'	0° 5.3	65.0	+0.2
26" " "	221°	70'	0° 5.6	70.0	-0.1
18" " "	218° 30'	88'	0° 6.0	88.0	-0.5
18" " "	210°	98'	0° 6.4	98.0	-0.9
24" Stump	159° 40	15'	0° 5.3	15.0	+0.2
" "	139°	20'	0° 5.2	20.0	+0.3
12" Euc Tree	126°	24'	0° 5.5	24.0	00
Bk. old ch.	78° 10'	46'	0° 5.8	46.0	-0.3
edge " "	85° 20'	57'	0° 8.4	57.0	-2.9
Bk " "	67° 20'	124'	0°	124.0	+5.5

Elev.

65.7 ✓
61.5 ✓
65.1 ✓
65.2 ✓
65.6 ✓
65.6 ✓
71.5 ✓ } ck for elev. from #5 elev.
71.5 ✓
66.4 ✓
67.3 ✓
66.4 ✓
66.8 ✓
67.2 ✓
68.4 ✓
66.2 ✓
65.9 ✓
65.5 ✓
65.1 ✓
66.2 ✓
66.3 ✓
66.0 ✓
65.7 ✓
63.1 ✓
71.5 ✓ ? — ck elev

Topog. Wubash Canyon Road

Station	Azimuth	Stadia	Vert Δ	Horiz Dist.	Diff. Elev.		Elev.
	Readings	from ⊡ 5	Elev. 65.96	HI 5.5			
W edge old ch.	72°30'	135'	0° 8.5	135.0	-3.0		63.0 ✓
W Bk. " "	60°10'	210'	+ 0°43' 6.5	210.0	-2.6	-1.0	62.4 ✓ error 67.6
" edge " "	59°0'	223'	+ 0°23' 7.5	223.0	+1.5	-2.0	65.5 ✓
" Bk " "	53°20'	281'	+ 0°39' 7.5	281.0	3.2	-2.0	67.2 ✓
	46°40	270'	+ 0°54' 7.5	270.0	+4.2		70.2 ✓
	35°40'	223'	+ 1°04	223.0	+4.1		70.1 ✓
	35°50'	98'	0° 3.7	98.0	+1.8		67.8 ✓
	349°20'	56'	0° 3.9	56.0	+1.6		67.6 ✓
	315°40'	71'	0° 3.8	71.0	+1.7		67.7 ✓
	296°30'	116'	+2°04'	116.0	+4.2		70.2 ✓
	317°30'	136'	+2°20'	135.8	+5.5		71.5 ✓
	331°40'	108'	0° 1.9	108.0	+3.6		69.6 ✓
	120'	102'	+2°05'	101.9	+3.7		69.7 ✓
	24°10'	230'	+1°39'	229.8	+6.6		72.6 ✓
	8°10'	209'	+2°27'	208.7	+8.9		74.9 ✓
	353°30'	185'	+2°50'	184.5	+9.1		75.1 ✓
	347°40'	191'	+3°04'	190.5	+10.2		76.2 ✓
	331°	213'	+3°09'	212.4	+11.7		77.7 ✓
	338°40'	257'	+3°23'	256.1	+15.2		81.2 ✓
	354°	240'	+2°55'	239.4	+12.2		78.2 ✓
	10°	253'	+2°10'	252.6	+9.5		75.5 ✓
✓ SW Cor Shed chicken	344°39'	265'	+3°21'	264.1	+15.5		81.5 ✓ ✓ Shed 18' Long on 35th St. side
✓ SE Cor. chicken shed	348°05'	258	+3°49'	257.0	17.2		83.2 ✓

Topog. Wabash Canyon

Station	Azimuth	Stadia	Vert Δ	Horiz Dist.	Diff. Elev	Elev.
28+13.53 ☐ 6	Readings from ☐ 6		Elev. 79.53	H.I. = 5.4		
S.E. Cor House	251°51'	71'	+3°18	70.8	+4.1	83.6 ✓
N.E. " "	276°05'	68	+4°35'	67.6	+5.4	84.9 ✓
	277°10'	130'	+3°09'	129.6	+7.1	86.6 ✓
	309°40'	113'	+3°24'	112.6	+6.7	86.2 ✓
	332°25'	126'	+1°41'	125.9	+3.7	83.2 ✓
	349°20'	191'	+2°	190.8	+6.7	86.2 ✓
	352°	283'	+5°29'	279.5	+26.9	106.4 ✓
	340°30'	247'	+7°12'	243.1	+30.7	110.2 ✓
	325°40'	203'	+8°30'	198.5	+29.7	109.2 ✓
	312°20'	170'	+10°39'	164.4	+30.9	110.4 ✓
	294°30'	168'	+11°03'	163.0	+28.9	108.4 ✓
	323°20'	78'	+3°20'	77.7	+4.5	84.0 ✓
	337°40'	63'	0° 4.7	63.0	-0.9	78.6 ✓
	24°50'	43'	0° 6.4	43.0	-1.0	78.5 ✓
	36°20'	90'	0° 8.8	90.0	-3.4	76.1 ✓
	75°45'	75'	0° 9.5	75.0	-4.1	75.4 ✓
	124°20'	84'	11.0	84.0	-5.6	73.9 ✓
W Bank old ch.	112°40'	181'	-2°41'	180.6	-8.5	71.0 ✓
E edge old ch.	112°	189'	-3°28'	188.4	-11.4	68.1 ✓
W Bank " "	91°50'	135'	0° 12.1	135.0	-6.7	72.8 ✓
W edge " "	91°	143'	-4°25'	142.1	-11.1	68.4 ✓
W. Bk. " "	65°20'	142'	0° 10.3	142.0	-4.9	74.6 ✓
W edge " "	67°20'	151'	-3°46'	150.4	-9.9	69.6 ✓
W Bk. " "	59°10'	193'	-1°28'	192.9	-4.9	74.6 ✓
W edge " "	61°40'	198'	-2°42'	197.6	-9.3	70.2 ✓

✓ 34' Long Rt. Δ to Base Line

Topog. Wabash Canyon

Station	Azimuth Readings	Stadia From El 6	Vert. Δ Elev	Horiz Dist. 7953	Diff. Elev HI 5.4		
W. Bank old ch.	57°30'	270'	-1°15'	269.9	-5.9		73.6 ✓
W edge " "	58°40'	271'	-1°52'	270.7	-8.8		70.7 ✓
Int. old + New West Bank ch.	52°	311'	-1°05'	310.9	-5.9		73.6 ✓
W. edge ch	53°	314'	-0°47' 9.4	314.0	-4.3	-3.5	71.7 ✓
	49°40'	243'	-1°10'	242.9	-4.9		74.6 ✓
	42°45'	174'	-1°20'	173.9	-4.1		75.4 ✓
	46°50'	139'	-2°03'	138.8	-5.0		74.5 ✓
	23°50'	146'	0° 8.4	146.0	-3.0		76.5 ✓
	358°45'	148'	0° 5.8	148.0	-0.4		79.1 ✓
	2°40'	198'	0° 5.2	198.0	+0.2		79.7 ✓
	11°10'	237'	0° 6.1	237.0	-0.7		78.8 ✓
	17°55'	297'	0° 6.0	297.0	-0.6		78.9 ✓
	29°20'	309'	0° 6.9	309.0	-1.5		78.0 ✓
W Bank ch.	35°50'	321'	0° 11.8	321.0	-5.9		73.6 ✓
W edge ch.	49°20'	347'	0° 12.6	347.0	-6.7		72.8 ✓
W Bank ch.	79°40'	246'	-2°16'	245.6	-9.7		69.8 ✓
" edge "	78°40'	274'	-2°15'	273.6	-10.8		68.7 ✓
" Bk "	92°30'	278'	-2°08'	275.7	-10.4		69.1 ✓
" edge "	92°45'	283'	-2°26'	282.5	-12.0		67.5 ✓
W Bank "	109°10'	270'	-2°31'	269.5	-11.8		67.7 ✓
" edge "	109°05	274'	-2°20' 8.4	273.5	-11.2	-3.0	65.3 ✓
✓ ℄ MH.	108°30'	277'	-1°58'	276.7	-9.5		70.0 ✓
W Bk ch.	124°25'	303	-1°57' 7.6	302.7	-10.3	-2.1	67.1 ✓
" edge "	124°25'	308'	-1°53' 10.5	307.7	-10.1	-5.1	64.3 ✓

Topog. Wabash Canyon.

Station	Azimuth	Radia	Vert Δ	Horiz. Dist.	Diff. Elev.	Elev.
	Readings from ⊡ 6 Elev.			79.53	HI = 54	
in ch.	123°28'	330'	-2°11	329.5	-12.6	66.9 ✓
	107°24'	298'	-2°37'	297.4	-13.5	66.0 ✓
	81°20	315'	-2°10'	314.5	-11.9	67.6 ✓
	63°25'	337'	-1°40'	336.7	-9.8	69.7 ✓
✓ ℄ MH	58°42'	385'	-0°37'	385.0	-4.1	75.4 ✓
E. edge ch.	64°16'	455'	-1°15	454.8	-9.9	69.6 ✓
" " "	73°13'	393'	-1°29'	392.8	-10.2	69.3 ✓
" " "	88°0'	325	-1°45 8.5	324.7	-9.9 -3.1	66.5 ✓
" " "	106°50'	320'	-2°10'	319.5	-12.1	67.4 ✓
" " "	119°33'	360'	-2°07'	359.6	-13.3	66.2 ✓
	108°30	395'	+3°31'	393.5	+24.2	103.7 ✓
	97°41'	325	-0°51'	324.9	+4.8	84.3 ✓ error 74.7
	97°07'	375'	+3°16'	373.9	+21.3	100.8 ✓
	81°41'	360'	-0°38'	360.0	-4.0	75.5 ✓
	88°03'	389'	+4°10'	386.9	+28.2	107.7 ✓
	74°14'	395	-0°37'	389.0	-4.2	75.3 ✓
	78°40'	432'	+3°42'	430.2	+27.7	107.2 ✓
	65°58'	463'	-0°15'	463.0	-2.0	77.8 ✓
31+22.12 = ⊡ 7 82.95 from PI^m North	Readings from ⊡ 7		Elev. = 90.49		HI. 5.0	
Toe slope	92°47'	417'	-1°55'	416.6	-13.9	76.6 ✓
	108°40	475	+3°14	473.6	+26.8	117.3 ✓
	92°30'	413	-2°32'	412.2	-18.2	72.3 ✓
	97°31	499'	+3°20'	497.3	+29.0	119.5 ✓
	70°46'	587'	-0°19'	587.0	-3.2	87.3 ✓

Topog. Wabash Canyon Road

Station	Azimuth	Stadia	Vert Δ	Horiz. Dist	Diff. Elev.	Elev
	Readings from ⊡ 7 Elev 90.49				HI = 5.0	
	64°	678'	-0°10'	678.0	-2.0	88.5 ✓
	86°47'	544'	+3°05'	542.3	+30.1	120.6 ✓
	57°52'	785'	+0°25'	785.0	+5.7	96.2 ✓
	50°55'	750'	-0°37'	749.9	-8.1	82.4 ✓
	54°33'	650'	-0°55'	649.9	-10.4	80.1 ✓
	59°22'	569'	-1°10'	568.8	-11.6	78.9 ✓
	78°36'	600'	+3°19'	598.2	+34.7	125.2 ✓
	63°16'	475'	-1°32'	474.7	-12.7	77.8 ✓
	74°45'	417'	-2°05'	416.5	-15.1	75.4 ✓
	83°08'	350'	-2°43'	349.2	16.6	73.9 ✓
	83°57'	305'	-3°12'	304.1	-17.00	73.5 ✓
	83°57'	302'	-3°37'	300.9	-19.0	71.5 ✓
	67°55'	730'	+3°17'	727.8	+41.7	132.2 ✓
E Bk. ch.	58°28'	340'	-2°20'	339.4	-13.8	76.7 ✓
E edge "	58°15	332	-2°10' 10.5	331.5	-12.5 -5.5	72.5 ✓
✓ ℄ M.H.	52°58'	384'	-1°23'	383.8	-8.3	81.2 ✓
	43°50'	475'	-1°30'	474.7	-12.4	78.1 ✓
℄ ch.	34°29'	340'	-1°50' 10.5	339.7	-10.9 -3.5	76.1 ✓
℄ "	61°02'	318'	-2°26' 8.5	317.5	-13.4 -3.5	73.6 ✓
" "	86°55'	289'	-3°47'	287.8	-19.0	71.5 ✓
	42°08'	597'	-0°51'	596.9	-8.7	81.8 ✓
NW ℄ Side ch	94°33	260'	-4°10'	258.6	-18.8	71.7 ✓
℄ N. Fork ch	55°	191'	-4°58'	189.7	-16.4	74.1 ✓
W Bank. " "	52°27'	183'	-4°03	182.0	-12.8	77.7 ✓

Topog. Wabash Canyon Road.

Station	Azimuth	Stadia	Vert ∆	Horiz Dist	Diff. Elev		Elev.	
	Readings	From ⊡ 7	Elev	90.49	HI 5.0			
N Fork in Ch.	37°25	285	-1°38 11.0	284.5	-8.1	-6.0	76.4 ✓	
	36°02'	282'	-1°14' 11.0	281.9	-5.7	-6.0	78.8 ✓	
	33°26'	218'	-2°23'	217.6	-9.1		81.4 ✓	
℄ NW Ch.	22°33'	205	-2°55 8.5	204.5	-10.4	-3.0	77.1 ✓	
on Bank	23°51'	190'	-3°37'	189.3	-11.6		78.9 ✓	
℄ NW Ch.	59°09'	138'	-6°55'	136.1	-16.5		74.0 ✓	10' wd ✓
on Bank	55°08	134'	-5°57'	132.6	-13.9		76.6 ✓	
℄ NW Ch.	84°32'	175'	-5°52'	173.2	-17.8		72.7 ✓	15' wide ✓
	85°28'	161'	-4°35'	160.0	-12.8		77.7 ✓	
	106°38'	35'	-14°31'	32.8	-8.5		82.0 ✓	
	286°02'	62'	+19°28' 7.0	55.2	+19.5	-2.0	108.0 ✓	
	288°52'	31'	+21°32'	26.9	+10.6		106.1 ✓	
	348°11'	92'	+11°19'	88.5	+17.7		108.2 ✓	
	23°28'	116'	-3°39'	115.6	-7.4		83.1 ✓	
34+50 = ⊡ 8	Readings	From ⊡ 8	Elev	97.53	HI 5.1			
	228°19'	123'	-4°20 10.1	122.3	-9.1	-5.0	83.4 ✓	
	239°49'	213'	+0°53'	213.0	+3.3		100.8 ✓	
	220°55'	169'	-5°42'	167.3	-16.7		80.8 ✓	
∆ in ℄ Creek	209°24'	170'	-6°14'	168.0	-18.4		79.4 ✓	
N Bank "	210°20'	160'	-6°07'	158.3	-17.0		80.5 ✓	
℄ "	266°28'	102'	-8°44'	99.7	-15.4		82.1 ✓	✓ 15' wide
N Bank	265°05	93'	-8°56	90.8	-14.3		83.2 ✓	
℄ Creek	284°15'	187'	-4°21'	185.9	-14.3		83.2 ✓	
N Bank	285°-	178	-3°46	177.3	-11.7		85.8 ✓	✓ 10' wide

Topog. Wabash Canyon Road

Station	Azimuth Readings	Stadia From	Vert. Δ ⊡ 8	Horiz. Dist Elev.=97.53	Diff. Elev HI=5.1		Elev.
℄ creek	318°15	236'	-1°05 12.1	235.9	-4.5	-7.0	86.0 ✓
E. Bank	318°43	220'	-0°56' 11.1	220.0	-3.6	-6.0	87.9 ✓
	303°55	240'	-2°02'	239.7	-8.5		89.0 ✓
	300°25'	275'	+1°10'	274.9	+5.6		103.1 ✓
	280°47'	196'	-1°34'	195.9	-5.4		92.1 ✓
	275°56'	245'	+2°45'	244.5	+11.7		109.2 ✓
	263°28'	151'	-3°10'	150.5	-8.3		89.2 ✓
	8°40	210	+9°26'	204.5	+34.0		131.8 ✓
	352°50'	195'	+7°54'	191.4	+26.6		124.1 ✓
	335°02'	181'	+4°35'	179.9	+14.4		111.9 ✓
	316°54'	112'	-2°31'	111.8	-4.9		92.6 ✓
	338°08'	66'	+7°21'	64.9	+8.4		105.9 ✓
	274°51'	47'	-11°10' 8.7	45.2	-9.0	-2.0	86.5 ✓
	182°51	66'	-7°51' 6.1	64.8	-8.9	-4.0	87.6 ✓
	101°10'	22'	-2°36'	22.0	-1.0		96.5 ✓
	164°45'	68'	-2°14' 2.1	62.9	-2.7		94.8 ✓
	305°0'	16'	+1°50'	16.0	+5.1		102.6 ✓
	30°45'	68'	+3°05'	67.8	+3.7		101.2 ✓
	9°06'	136'	+7°03'	134.0	+16.5		114.0 ✓
	27°11'	128'	+4°26'	127.3	+9.9		107.4 ✓
	20°24'	56'	+3°20'	55.8	+3.3		100.8 ✓
	335°48'	61'	+7°14'	60.1	+7.6		105.1 ✓
		915					

Topog. Wabash Canyon Road

Station	Azimuth	Stadia	Vert Δ	Horiz. Dist.	Diff Elev	Elev	
	Readings from ⊡9 · Elev 110.56 H.I. = 4.9						
	189° 20'	150'	-10° 35'	145.0	-27.1	83.5 ✓	
W. bank	182° 10'	147'	-12° 35'	130.1	-31.3	79.3 ✓	
± Stream	173° 20'	153'	-13° 12'	145.0	-34.0	76.6 ✓	60' Wide
	193° 15'	76'	-12° 21'	72.5	-15.9	94.7 ✓	
W. Bank "	167° 30	78	-23° 19'	57.0	-28.4	82.2 ✓	
	163° 53'	84'	-25° 07'	69.0	-32.3	78.3 ✓	
℄ Stream	154° 35'	89	-24° 42'	73.5	-33.8	76.8 ✓	
	0° 40'	185'	+8° 41'	180.8	+22.6	138.2 ✓	
	9° 12'	208'	+6° 11'	205.5	+22.3	132.9 ✓	
Toe Bluff	89° 35'	49'	-43° 23	25.9	-24.5	86.1 ✓	
	8° 12'	270'	+6° 10 11.9	266.9	+28.8 -7.0	132.4 ✓	
	16° 12'	270'	+2° 15' 10.9	269.6	+10.6 -6.0	115.2 ✓	
	92° 50'	65'	-38° 18'	40.0	-31.6	79.0 ✓	
℄ ch.	97° 04'	74'	-31° 48	53.5	-33.1	77.5 ✓	25' Wide.
	34° 21'	73'	-14° 54'	68.2	-18.1	92.5 ✓	
	20° 08'	222'	+0° 53' 10.9	222.0	+3.4 -6.0	108.0 ✓	
	51° 06'	85'	-21° 34'	73.6	-29.1	81.5 ✓	
℄ ch.	61° 16'	98'	-21° 20'	85.0	-33.2	77.4 ✓	" "
	23° 20'	168'	-1° 02' 8.9	167.9	-3.0 -4.0	103.6 ✓	
	35°	114	-8° 45' 5.9	111.4	-17.2 -1.0	92.4 ✓	
	39° 45'	124'	-10° 25' 8.9	120.1	-21.05 -4.0	85.5 ✓	
	15° 0'	136'	+2° 40'	135.7	+6.3	116.9 ✓	1657-2 BC 37+33.14 VA. 3°40 Ele. 119.21
℄ ch.	47° 40'	135'	-14° 40	126.4	-33.1	77.5	30' Wide

Topog. Wabash Canyon Road

Station	Azimuth	Stadia	Vert. Δ	Horiz. Dist.	Diff. Elev.	Elev.
	Readings	From Ext.	9 Elev. 11056		HI = 49	
	3°30'	73'	+2°40'	72.8	+34	114.0 ✓
E bk. ch.	56°25'	151'	-11°20'	145.1	-29.1	81.5 ✓
	1°44'	35'	-4°16	34.8	-2.6	108.0 ✓
	27°	9'	-7°06'	8.9	-1.1	109.5 ✓
E bk. ch.	69°	108'	-17°17'	97.5	-32.2	78.4 ✓
" " "	92°03'	85'	-21°55	73.2	-29.4	81.2 ✓
" " "	147°20'	98'	-20°31'	85.9	-32.1	78.5 ✓
	141°16'	158'	-12°03'	152.1	-32.3	78.3 ✓
	108°40'	141'	-12°43'	134.2	-30.3	80.3 ✓
	75°06'	169'	-10°18'	163.7	-29.7	80.9 ✓
	61°12'	494'	-2°27'	493.2	-21.1	89.5 ✓
	58°36'	223'	-7°31'	219.2	-28.9	81.7 ✓
	69°45'	455'	-2°40'	454.0	-21.2	89.4 ✓
	53°35'	315'	-5°10'	312.4	-28.3	82.3 ✓
	76°40'	424'	-3°22'	422.6	-24.9	85.7 ✓
	75°22'	510	-2°09'	509.4	-19.1	91.5 ✓
	45°08'	415'	-3°28'	413.6	-25.1	85.5 ✓
	57°37'	380'	-4°01'	378.2	-26.7	83.9 ✓
	71°54'	294'	-5°32'	291.3	-28.2	82.4 ✓
	67°09'	509'	-1°39'	508.7	-14.6	96.0 ✓
	65°20'	578'	-0°15'	578.0	-2.4	108.2 ✓
	68°31'	638'	+0°14'	638.0	-2.6	108.0 ✓
	93°06'	221'	-7°35'	217.3	-28.8	81.8 ✓
	121°	188'	-9°54'	187.5	-31.8	78.8 ✓

Station	Azimuth	Stadia	Vert. Δ	Horiz Dist.	Diff Elev	Elev		
	Readings from ⊡9 Elev. 110.56 HI=4.9							
	80°48'	640'	+1°47'	639.5	+19.9	130.5	✓	
	76°06'	627'	+0°55'	626.9	+10.0	120.6	✓	
	70°56'	580'	-0°09'	580.0	+1.5	112.1	✓	error 109.1
	90°22'	268'	-6°32'	264.5	-30.3	80.3	✓	
	85°55'	373'	-4°39'	370.7	-30.1	80.5	✓	
	79°47'	567'	-0°15'	567.0	-2.5	108.1	✓	
	68°42'	410'	-3°30'	408.5	-25.0	85.6	✓	
	83°17'	615'	+2°05'	614.3	+22.3	132.9	✓	
	90°21'	565'	+2°36'	563.9	+25.6	136.2	✓	
	90°55'	525'	+0°06'	525.0	+0.9	111.5	✓	
	85°21'	557'	+0°14'	557.0	+2.3	112.9	✓	
	98°24'	547'	+2°44'	545.8	+26.1	136.7	✓	
	79°57'	565'	-0°19'	565.0	-3.1	107.5		
	97°15'	497'	-0°32'	497.0	-4.6	106.0	✓	
on ℄ 6" Gas M.	101°44'	409'	-4°21'	408.7	-30.9	79.7	✓	North & South line ✓
" " " " "	116°16'	443'	-3°42'	441.2	-28.6	82.0	✓	" " " ✓
" " " "	121°01'	420'	-4°26	422.6	-32.8	77.8	✓	East & West " ✓
40+30.86 = P.I. = ⊡10	Readings from ⊡10 Elev = 115.15 HI = 4.9							
	222°23'	181'	+10°41' 12.0	174.9	+33.0 -7.1	141.1	✓	
	203°19'	155'	+3°38' 12.0	154.4	+9.8 -7.1	117.9	✓	
	234°58'	116'	+15°24'	107.9	+29.7	144.9	✓	
	200°09'	98'	+1°02'	98.0	+17.7	132.9	✓	
[illegible]	195°18'	155'	-2°09 12.0	154.8	-5.8 -7.1	102.3	✓	W.C.
	216°14'	31'	0° 9.3	31.0	-4.4	110.8	✓	

Platinum closed

Topog. Wabash Canyon Road

Station	Azimuth	Stadia	Vert Δ	Horiz Dist.	Diff Elev	Elev		
	Readings from B		10 Elev. = 115.15		HI = 4.9			
W Bank ch.	188°25'	158'	-10°20' 12.0	150.7	-33.0 -2.1	75.1	✓	
W edge "	182°20'	164'	-10°31' 11.0	156.2	-34.7 -6.1	74.4	✓	
	254°28'	114'	+17°42'	103.5	+32.0	147.2	✓	
E edge ch.	159°09'	195'	-10°28'	188.7	-34.8	80.4	✓	4' E = Top Bank 3' Higher.
	141°30'	274'	-6°28'	270.7	-30.7	84.5	✓	
	115°44	317'	-5°0'	314.6	-27.5	87.7	✓	
	115°43'	248'	-6°21'	245.0	-27.3	87.9	✓	
	118°08'	160'	-11°45'	153.5	-31.9	83.3	✓	
E edge ch.	119°20'	90'	-22°01'	77.4	-31.2	84.0	✓	3' E = Top Bank 2' Higher.
	115°52'	464'	-1°12'	463.8	-9.7	105.5	✓	
	115°30'	521'	-0°28'	521.0	-4.2	111.0	✓	
W edge ch.	166°18	99'	-18°01' 7.0	89.5	-29.1 -2.1	84.1	✓	1' W " " " 2' "
W edge "	150°59'	82'	-19°57' 12.0	77.6	-26.3 -2.1	81.8	✓	Int. small Wash from West.
	299°14'	122'	+24°51' 12.0	98.8	+47.8 -2.1	155.9		
	253°08'	26'	+12°05' 7.0	24.8	+5.3 -2.1	118.4	✓	
	187°42'	44'	-16°51' 7.0	40.4	-12.2 -2.1	100.9	✓	
W edge ch.	112°42'	61'	-33°36' 10.0	42.3	-28.1 -5.1	82.0	✓	2' W = Top Bank 4.5 Higher.
	119°34'	633'	+1°20'	632.7	+14.8	130.0	✓	
	114°12'	588'	+1°19'	587.8	+13.6	128.8	✓	
	182°51'	244'	-7°44'	239.6	-32.5	82.7	✓	✓ small
	95°44'	243	-6°33	239.9	-27.5	87.7	✓	
	111°40'	433'	+0°21'	433.0	+2.6	117.8	✓	
	95°35'	320'	-3°52'	318.6	-21.5	93.7	✓	
	108°45'	587	+1°35'	586.6	+16.2	131.4	✓	

Topog. Wabash Canyon

Station	Azimuth	Stadia	Vert. Δ	Horiz Dist.	Diff. Elev		Elev		
	Readings from Q10 Elev. 115.15				HI = 4.9				
	83°04'	350'	−3°00'	349.0	−18.3		96.9	✓	
E edge ch.	76°30'	95'	−19°05'	85.0	−29.4		85.8	✓	Top Bank 5W 3.4 Hi
	94°44'	627'	+1°35'	626.6	+17.3		132.5	✓	
	75°21'	283'	−5°03'	280.9	−24.8		90.4	✓	
W edge ch	64°01'	80'	−20°33' 12.0	70.6	−25.8	−71	82.3	✓	✓ " " 3W 7.0 Hi
	90°01'	525'	+0°09'	525.0	+1.4		116.6	✓	
Top E edge ch	65°40'	245'	−6°25'	242.0	−27.2		88.0	✓	
Bot. " "	64°25'	248	−7°03'	244.4	−30.2		85.0	✓	
W edge ch	42°21'	115	−12°25' 10.9	109.7	−24.2	−6.0	85.0	✓	Top Bank 5W 5.5 Hi
	64°28'	312	−4°09'	310.5	−22.5		92.7	✓	✓ SMH 8.1
	103°10'	495	−0°11'	495.0	−1.6		113.6	✓	
E Top Bank	61°40'	338	+1°41'	337.7	+9.9		125.1	✓ ?	
" Bot Bank	61°10'	341	−5°01'	338.4	−29.7		85.5	✓	
	110°56'	408	−0°56'	407.9	−6.7		108.5	✓	
Toe slope	31°01'	185	−4°20' 11.9	183.9	−13.9	−7.0	94.3	✓	
	93°52'	400	−0°50'	399.9	−5.8		109.4	✓	
	72°26'	397	−2°06'	396.5	−14.6		100.6	✓	
	37°54'	195	−7°41'	191.5	−25.8		89.4	✓	
	66°24'	431	−1°36'	430.7	−12.0		103.2	✓	
W edge ch	46°26'	189	−8°53'	184.5	−28.9		86.3	✓	✓ 3' W 2.0 Hi
	84°03'	425	−0°31'	425.0	−3.8		111.4	✓	
	193°20'	13'	−10°10'	12.6	−1.9		113.3	✓	
	308°30'	42	+25°35'	34.8	+15.9		131.1	✓	
	326°36'	64	+22°38'	54.6	+22.7		137.9	✓	

Topog. Wabash Canyon Road.

Station	Azimuth	Stadia	Vert. Δ	Horiz Dist.	Diff. Elev	Elev
	Readings from ⊡ 10 Elev. 115.15 HI=4.5					
Guy Pole	317°55'	122'	+25°01' 8.9	100.1	+47.1 -4.4	157.9 ✓
Elec. Pole	338°40'	138'	+21°33' 7.9	119.5	+47.1 -3.4	158.9 ✓
Dead Man	359°01'	134	+13°11' 5.9	127.0	+29.8 -1.4	143.6 ✓
	64°31'	405'	-2°32'	404.2	-17.9	97.3 ✓
W Bot ch	54°25'	306	-5.22	303.4	-28.5	86.7 ✓
	11°30'	90	+6°16' 8.9	89.0	+9.8 -4.4	120.6 ✓
	48°20'	311'	-4°50'	308.8	-26.1	89.1 ✓
	14°24'	49	+6°00' 8.9	48.5	+5.1 -4.4	115.9 ✓
Wedge ch	52°10'	380	-4°22'	377.8	-28.9	86.3 ✓
	352°42'	70	+17°08' 7.9	64.0	+19.7 -3.5	131.4 ✓
	67°02'	458	-0°33'	458.0	-4.4	110.8 ✓
	14°00'	134	+6°36' 12.9	132.3	+15.4 -8.4	122.2 ✓
	35°50'	232'	-6°54'	228.6	-27.6	87.6 ✓
	30°51'	230	-5°11'	228.7	-20.7	94.5 ✓
	3°40'	155	+11°09' 8.9	149.4	+29.4 -4.4	140.2 ✓
	86°40	680	+2°03'	679.2	+24.3	139.5 ✓
Power Line Xing	348°02'	180	+20°00' 15.0	158.9	+57.9 -10.5	162.6 ✓
	25°54'	227	-3°35'	226.2	-14.2	101.0 ✓
	80°12'	658	+1°12'	657.7	+13.8	129.0 ✓
	80°35'	551	+0°33'	551.0	+5.3	120.5 ✓
	37°20	263	-5°20'	260.8	-24.3	90.9 ✓
⊡ 11 =43+24.22	Readings from ⊡ 11. Elev. =91.14 HI=5.1					
	271°06'	229	+22.0	196.8	+79.5	170.6 ✓

2' W 3' Hi Top Gang

Topog. Wabash Canyon Road.

Station	Azimuth	Stadia	Vert. Δ	Horiz Dist	Diff Elev	Elev.	
K = Sommermeyer	Readings	from ⊡	11 Elev	91.14	HI = 5.1		
	265°17'	169'	+20°26'	148.6	+55.3	146.4 ✓	
	257°27'	124'	+25°13'	101.6	+47.8	138.9 ✓	
	304°41'	68'	+13°15'	64.5	+15.2	106.3 ✓	
	331°26'	26'	+8°09'	25.5	+3.6	94.7 ✓	
	298°07'	146'	+23°30'	122.8	+53.4	144.5 ✓	
	63°	47'	-0°20'	47.0	-2.7	88.4 ✓	
✓ on 2" Gas Main	313°10'	157'	+21°35'	136.0	+53.7	144.8 ✓	
West Bk. ch.	86°19'	131'	-0°39'	131.0	-1.5	89.6 ✓	✓ 1'E = W edge ch = 3' Lower
℄ "	90°20'	189'	-0°44'	189.0	-2.2	88.9 ✓	
E edge "	92°28'	281'	-0°12'	281.0	-1.0	90.1 ✓	
	96°14'	371'	+4°0'	369.0	+26.9	118.0 ✓	
	87°08'	264'	-0°10'	264.0	-0.8	90.3 ✓	
E edge "	86°30'	277'	-0°25'	277.0	-2.0	89.1 ✓	✓ Edge ch.
W Top Bk ch	75°10'	277'	+0°40' 8.1	277.0	+3.2 -3.0	91.3 ✓	2'S = 3' Lower
ELY edge ch.	86°25'	352'	+0°30' 10.1	352.0	+3.1 -5.0	89.2 ✓	
" Bk "	87°33'	360'	+1°16'	359.9	+7.9	99.0 ✓	
	90°0'	400'	+4°0'	397.9	+29.0	120.1 ✓	
	301°15'	184'	+24°45'	152.0	+70.0	161.1 ✓	
	301°46'	229'	+24°18'	190.7	+85.9	177.0 ✓	
	90°40'	496'	+4°26'	493.3	+38.2	129.3 ✓	✓
✓ Rjm ℄ MH	43°	137'	+3°43' 10.1	136.4	+8.8 -5.0	94.4 ✓ = 94.9	6" Gas Line 11' West - True Ground 1' Lower.
✓ on 2" Gas	10°10'	91'	+3°40'	90.6	+5.8	96.9 ✓	" Same Elev
	350°03'	123'	+7°50'	120.7	+16.6	107.7 ✓	
	338°52'	175'	+15°0'	163.3	+43.8	134.9 ✓	

Topog. Wabash Canyon Road.

Station ⊼ Som.	Azimuth	Stadia	Vert ∆	Horiz. Dist.	Diff. Elev.	Elev.	
	Readings From ⊡11 Elev 9114 HI=5.1 +8.94						
47+00 = ⊡12	37°16'15"	375'	+1°22	374.8	+8.92	100.06	✓
	95° 09'	620	+5°40'	614.0	+60.9	152.0	
	9°35'	264'	+5°0'	262.0	+22.9	114.0	✓
	325°23'	235'	+21°42'	202.9	+80.7	171.8	✓
	22°36'	174'	+2°42'	173.6	+8.2	99.3	✓
	3°12'	281'	+7°43'	276.0	+37.3	128.4	✓
	22°28'	277'	+2°48'	276.4	+13.5	104.6	✓
	84°59'	571'	+4°28'	567.6	+44.4	135.5	✓
Ground at Guy Pole Spik	346°52'	308'	+15°10'	287.0	+77.8	168.9	✓
47+00 = ⊡12	Readings from ⊡12 Elev. 100.06 HI=5.0					This checks T.P. on Rock by Nail at 47+00 FB 1657-3	
6" Gas M.	267°40'	85'	+3°06'	84.8	+4.6	104.7	✓ on Ground over main
	296°10'	292'	+17°30'	265.6	+83.7	183.8	✓
	297°48'	110'	+7°0'	108.4	+13.3	113.4	✓
	293°38'	189'	+12°45'	180.0	+40.7	140.8	✓
	118°11'	396'	+4°45'	393.4	+32.7	132.8	✓
℄ Elec Pole on Ground	105°56'	410'	+4°50'	407.1	+34.4	134.5	✓
	135°	31'	-5°46'	30.7	-3.1	97.0	✓
	327°05'	142'	+8°50'	138.6	+21.5	121.6	✓
	178°03'	128'	-2°37'	127.8	-5.9	94.4	✓
	321°30'	198'	+12°32'	187.9	+41.9	142.0	✓
	336°20'	50'	+7°26'	49.2	+6.4	106.5	✓
	221°32'	65'	-1°26'	65.0	-1.6	93.5	✓
	195°05	78'	-3°08'	77.7	-4.3	95.8	✓
W Bank ch.	142°37'	277'	-1°24'	276.9	-6.8	93.3	✓
W edge "	142°48'	284'	-1°08' 8.0	283.9	-5.6 -3.0	91.5	✓

Topog. Wabash Canyon Road.

Station	Azimuth	Stadia	Vert. ∆	Horiz Dist.	Diff. Elev		Elev.	
⊼ Som.	Reading	from ⊡12	Elev.	100,06	HI = 5.0			
E. edge ch.	140°05'	337'	-1° 22' 6.0	336.8	-8.0	-1.0	91.1	✓
E. Bank "	140°30'	347'	-0°05'	347.0	-0.5		99.4	✓
	131°57'	374'	+2° 03'	373.5	+13.4		113.5	✓
	124°35'	357'	+1° 33'	356.8	+9.6		109.7	✓
E. Bank ch.	123°33'	342'	+0°28'	342.0	+2.8		102.9	✓
E. edge "	122°0'	332'	-0°47' 7.0	332.0	-4.5	-2.0	93.6	✓
W " "	120°35'	286'	-0° 39' 10.0	286.0	-3.3	-5.0	91.8	✓
W Bank "	120°35'	283'	-1°01'	282.9	-5.0		95.1	✓
	120°46'	181'	-1°29'	180.9	-4.7		95.4	✓
	108°15'	102'	-2°34'	101.8	-4.6		95.5	✓
	80°	50'	-2°10'	49.9	-1.9		98.2	✓
	99°45'	241'	-0°45'	241.0	-3.2		96.9	✓
W Bk ch.	94°41'	314'	-0°18'	314.0	-1.6		98.5	✓
W edge "	94°41'	330	-0°30' 7.0	330.0	-2.9	-2.0	95.2	✓
E " "	93°16'	378'	-0°20' 9.0	378.0	-2.2	-4.0	93.9	✓
47+50	37°16'	50'	+2°41'	49.8	+2.3		102.4	✓
	354°48'	77'	+7°35'	75.7	+10.0		110.1	✓
	321°35'	252'	+15°0'	235.2	+63.0		163.1	✓
	331°21'	253'	+13°40'	240.9	+54.1		154.2	✓
	331°52'	195'	+10° 30'	188.5	+35.0		135.1	✓
	352°32'	161'	+7°52'	158.0	+21.8		121.9	✓
	344°38'	216'	+11° 12'	207.9	+41.2		141.3	✓
	341°32'	283'	+14°25'	265.6	+68.2		168.3	✓
within 2' Gas Main	15°40'	124	+5°48'	122.8	+12.6		112.7	✓

on Ground

Topog. Wabash Canyon Road.

Sommermeyer ⊼ Reading From El 12 Elev. = 100.06 HI = 5.0

Station	Azimuth	Stadia	Vert. Δ	Horiz Dist	Diff. Elev.	Elev.	
	37°16'	111'	+3°17'	110.7	+6.3	106.4 ✓	
	348°12'	292'	+13°04'	277.3	+64.3	164.4 ✓	
	55°16'	110'	+2°58' 13.0	109.7	+5.7 -8.0	97.8 ✓	
℄ Rim NH	78°35'	145'	-0°22' 7.0	145.0	-0.9 -2.0	97.2 ✓	Ground Same Elev
	89°32'	179'	-1°0'	178.9	-3.1	97.0 ✓	
E. Bank ch.	92°40'	390'	+0°24'	390.0	+2.7	102.8 ✓	
Brow Hill	91°51'	493'	+4°28'	490.1	+38.3	138.4 ✓	
	93°06'	542'	+4°47'	538.4	+45.1	145.2 ✓	
	106°20'	490'	+5°0'	486.3	+42.5	142.6 ✓	
	127°15'	474'	+5°10'	470.1	+42.5	142.6 ✓	
	76°31'	225'	-0°37'	225.0	-2.4	97.7 ✓	
	75°24'	487'	-0°0'	487.0	00	100.1	
E. Bank ch.	74°45'	463'	0°0	463.0	00	100.1 ✓	
E. edge "	74°29'	462'	-0°17'	462.0	-2.3	97.8 ✓	
W " "	72°48'	347'	-0°15'	347.0	-1.5	98.6 ✓	
W Bk "	72°42'	332'	-0°16'	332.0	-1.5	98.6 ✓	
	64°10'	278'	-0°02'	278.0	-0.1	100.0 ✓	
	352°11'	341'	+12°02' 9.0	256.1	+56.7 -4.0	152.8 ✓	
	357°36'	287'	+8°52'	280.2	+43.7	143.8 ✓	
	352°51'	245'	+10°41'	236.5	+44.6	144.7 ✓	
	22°27'	143'	+4°56'	142.0	+12.2	112.3 ✓	
	6°25'	210'	+7°0'	206.9	+25.4	125.5 ✓	
	4°11'	350'	+11°16'	336.8	+67.1	167.2 ✓	
	23°56'	227'	+4°41' 6.0	225.5	+18.5 -5.0	113.6 ✓	
	10°27'	433'	+9°38'	421.2	+71.4	171.5 ✓	

Topog Wabash Canyon Road

Station	Azimuth	Stadia	Vert. Δ	Horiz. Dist.	Diff. Elev	Elev
	Readings	from ⊡12	Elev 100.06	HI 5.0		
	12°42'	272	+6°12'	268.9	+29.1	129.2 ✓
	17°11'	404'	+6°48' 6.0	398.5	+47.5 -1.0	146.6 ✓
	22°31'	372'	+4°58' 10.0	369.3	+32.0 -5.0	127.1 ✓
52+98.52 = ⊡13 = P.I.	Readings from ⊡13		Elev = 111.78	HI = 5.0		
49+50	217°16'	347'	-0°18'	347.0	-1.8	110.0 ✓
50+30	217°16'	268'	-0°16'	268.0	-1.2	110.6 ✓
	203°44'	265'	-1°18'	264.9	-6.0	105.8 ✓
	198°49'	273'	-1°36' 8.0	272.8	-7.6 -3.0	101.2 ✓
	187°24'	296'	-2°30'	295.4	-12.9	98.9 ✓
	180°20'	308'	-2°32'	307.4	-13.5	98.3 ✓
	166°55'	113'	-4°40'	112.3	-9.2	102.6 ✓
Brow Hill	155°15'	432'	+3°32'	430.4	+26.6	138.4 ✓
	150°45'	504'	+4°30'	500.9	+39.5	151.3 ✓
	167°55'	197'	-3°24'	196.3	-11.7	100.1 ✓
Top Bank Wedge ch	183°13'	206	-2°56'	205.5	-10.5	101.3 ✓
	190°14'	180'	-3°35'	179.3	-11.2	100.6 ✓
Toe Slope	203°18'	170'	-3°23' 6.0	169.4	-10.0 7.0	100.8 ✓
	215°35'	146	-1°16'	145.9	-3.2	108.6 ✓
	239°28'	158'	+3°05'	157.6	+8.5	120.3 ✓
	258°41'	188'	+6°51'	185.3	+21.3	133.1 ✓
	275°50'	256'	+14°02'	241.0	+60.2	172.0 ✓
E edge ch.	163°33'	322'	-2°19'	321.5	-13.0	98.8 ✓
" Bk "	163°13'	337'	-1°54'	336.7	-11.3	100.5 ✓

✓ 26' Rt Δ To Base Line = 4' Lower. = 106.0
✓ 44' " " " " 11' " " 99.0
✓ 85' " " " " 14.9 " " 98.1

1'E = W. edge ch
2.5' Lower

Topog. Wabash Canyon

Station	Azimuth	Stadia	Vert Δ	Horiz. Dist.	Diff. Elev.	Elev	
	Redings from ⊡ 13		Elev 111.78	H.I. = 5.0			
Toe slope	161°42	368	-1°36'	367.7	-10.2	101.6	?
Bk	158°34'	378'	-0°19'	378.0	-2.1	109.7 ✓	
	147°19'	353'	+1°23'	352.8	+8.5	120.3 ✓	
	142°23'	360'	+1°40'	359.7	+10.5	122.3 ✓	
	140°45'	325'	+1°52'	324.7	+10.6	122.4 ✓	
	145°46'	320'	-0°19'	320.0	-1.8	110.0 ✓	
E. Bank ch.	150°08'	274'	-2°04'	273.7	-9.9	101.9 ✓	+ 2'W = 3' Lower = E Edge Ch.
E Rim Mtl. Bk 2.5' Lower ch.	153°06'	197'	-2°05'	196.8	-7.1	104.7 ✓	+ 3' E = W edge ch. 3.5 below Rim Mtl.
	162°47'	121'	-4°26'	120.3	-9.3	102.5 ✓	—
	185°52'	75'	-5°26'	74.3	-7.1	104.7 ✓	
Top 6" Gas Main	241°53'	51'	-2°58'	50.9	-2.6	109.2 ✓	
	270°08'	80'	+5°59' 6.0	79.2	+8.3 -1.0	119.1 ✓	
	289°53'	226'	+16°57' 8.0	207.0	+63.0 -3.0	171.8 ✓	
	296°01'	153'	+15°20' 10.0	142.3	+39.0 -5.0	145.8 ✓	
	297°55'	112'	+15°23' 13.0	104.2	+28.7 -8.0	140.5 ✓	error 132.5
	137°50'	462'	+4°55'	458.7	+39.5	151.3 ✓	
	139°24'	382'	+4°05'	380.2	+27.1	138.9 ✓	
	144°38'	340'	+4°47'	337.7	+28.3	140.1	? can't use it
E Edge ch	129°41'	282	-1°26' 10.0	281.8	-7.0 -5.0	99.8 ✓	
" Bk "	129°41'	285	-1°03'	284.9	-5.2	106.6 ✓	
	128°45'	318'	+2°37'	317.4	+14.7	126.5 ✓	
	123°23'	332'	+2°0'	331.6	+11.6	123.4 ✓	
	120°50'	392'	+4°38'	389.5	+31.6	143.4 ✓	
E edge ch.	119°12'	318'	-1°37'	317.8	+9.0	120.8 ✓	error = 102.8

Topog. Wubush Canyon Road.

Station	Azimuth	Stadia	Vert. ∆	Horiz. Dist	Diff. Elev	Elev.
	Readings from	☑ 13	Elev. 111.78		HI = 5.0	
	217°	10'	0°		00	111.8 ✓
Soil Pit.	217°	12'	0° 8.0		-3.9	108.8 ✓
	231°50'	87'	0° 6.5		-1.5	110.3 ✓
	246°20'	48'	0° 6.2		-1.2	110.6 ✓
	326°42'	28'	0° 2.3		+2.7	109.1 ✓
Soil Pit.	254°10	20'	0° 8.0		-3.0	108.8 ✓
	268°12	20'	0° 4.5		+0.5	112.3 ✓
Dead man Pole Anchor	345°20	52'	+5°47'	51.5	+5.2	117.0 ✓
Elec. Pole	34°27	52'	+2°30'	51.9	+2.3	114.1 ✓
on Pipe	28°03'	77'	0° 5.8		-0.8	111.0 ✓ ✓ Angle Point 110 6" Gas Main H.P.
	10°22'	86	+2°55	85.8	+4.4	116.2 ✓
	345°35'	119'	+4°17'	118.4	+8.9	120.7 ✓
	358°20'	208'	+2°59'	207.5	+10.8	122.6 ✓
	12°50'	210'	+0°40	21.0	+2.4	114.2 ✓
	32°12'	223'	-1°0'	222.9	-3.9	107.9 ✓
	48°37'	265'	-0°19'	265.0	-1.5	110.3 ✓
	63°42'	164'	-1°40'	163.9	-4.8	107.0 ✓
	110°05'	97'	-4°0'	96.8	-6.8	105.0 ✓
	164°23'	125'	-4°22	124.3	-9.5	102.3 ?
	119°12'	148'	-2°47'	147.7	-7.2	104.6 ✓
	86°09'	190'	-1°32'	189.9	-5.1	106.7 ✓
W on Bk ch.	65°18'	266'	-0°42'	266.0	-3.3	108.5 ✓
"Wedge"	65°18'	272'	-1°10'	271.9	-5.5	106.3 ✓
☒.	67°52'	66'	-1°34'	66.0	1.8	110.0 ✓

Cont. P-56

Station	Azimuth	Stadia	Vert. Δ	Horiz. Dist.	Diff. Elev
Moore = π Walker = Rec.	Readings from ⊡13 Elev			111.78	HI 5.0
	56°27	64	-4°30'		
	51°43	62'	-0°24		
E edge ch.	73°20'	308'	-0°36'		
" Bk "	73°20	315'	-0°28'		
	74°40	114'	-2°20'		
	82°23'	104'	-2°31'		
	76°22'	105'	-3°40' 7.0		
W Bank ch.	108°15'	252'	-1°09'		
" edge "	108°15	273'	-1°04'		
W Bk "	127°35'	240'	-2°10'		
W edge "	127°45'	244'	-1°40' 9.0		
	54°22'	105'	-1°46'		
	51°53'	134'	-2°27'		
	51°53	137'	-2°11'		
	28°17'	139'	-1°02'		
	28°17'	142'	-0°0'		
	322°29'	85'	+7°0'		
	320°01'	161'	+8°05' 7.0		
	5°08'	164'	+2°58' 12.0		
	6°08'	188'	+2°57' 9.0		
	358°32'	196'	+4°24' 9.0		
	314°37'	220	+11°06' 16.0		
E edge ch.	110°40	347	-1°04'		
	313°36'	297'	+10°50' 14.0		

This Page Void.
See P-56

Elev

Station	Azimuth	Stadia	Vert Δ	Horiz Dist	Diff. Elev
Moore π W = Rec	Readings	from ⊡ 13	Elev	111.78	HI = 5.0
E. Bank ch.	109°50′	354′	−0°12′ 7.0		
	112°17′	370′	+1°30′ 8.0		
	123°08′	486′	+5°31′		
	110°02′	572′	+6°07′		
	92°41′	380′	−0°20′ 10.0		
	94°25′	387′	+0°29′		
?	111°02′	469′	+5°32′ 7.0		
	94°42′	415′	+1°33′		
?	105°44′	477′	+5°42′		
	80°35′	405′	−0°26′ 7.0		
	100°37′	538′	+6°32′		
	100°02′	582′	+7°35′ 10.6		
	79°52′	417′	+0°34′		
	80°52′	450′	+2°35′		
	96°56′	530′	+6°31		
	72°08′	412′	−0°59′		
	71°50′	418′	−0°28′		
	71°34′	437′	−0°21′		
	95°06′	557′	+6°46′		
	95°06′	460′			

This Page Void.
See New Shots P-56

Elev.

Cont. from Page 53

Station	Azimuth	Stadia	Vert ∆	Horiz Dist	Diff Elev		Elev
	Readings from ⊡ 13 Elev. 111.78				H.I. = 5.0		
	120°19'	479'	+5°21'	474.9	+44.5		156.3 ✓
	113°09'	423'	+5°04'	419.5	+37.2		149.0 ✓
	108°23'	470	+5°39' 7.0	465.7	+46.1	-2.0	155.9 ✓
	103°0'	478'	+5°55'	473.0	+49.0		160.8 ✓
	98°02'	545'	+6°40'	537.7	+62.8		174.6 ✓
	94°13'	535'	+6°33'	528.7	+60.6		172.4 ✓
E edge ch.	108°0'	350	-1°35	349.8	-9.7		102.1 ✓
" Bank "	106°18'	353'	-0°26' 6.0	353.0	-2.7	-1.0	108.1 ✓
	109°15'	369'	+1°08' 6.0	368.9	+73	-1.0	115.1 ✓
	110°19'	164'	-2°25'	163.7	-6.9		104.9 ✓
	107°18'	518'	+6°12'	512.0	+52.6		164.4 ✓
W Bank ch.	108°09'	267'	-1°29	266.9	-6.9		104.9 ✓
W edge "	107°38'	278'	-1°46' 6.0	277.8	-8.6	-1.0	102.2 ✓
53+50 ⊡ 14	20°20'18"	515	0°0' 3.2	515.0	+1.8		113.6 ✓
	312°25'	200	+11°09' 17.0	192.7	+38.0	-12.0	137.8 ✓
	317°23'	163	+8°49' 9.0	159.4	+24.6	-4.0	132.4 ✓
	320°05'	87	+7°0'	85.7	+10.5		122.3 ✓
	333°16'	135'	+9°10'	129.1	+21.2		133.0 ✓
	70°10'	172'	-1°26'	171.9	-4.3		107.5 ✓
	56°10'	144'	-0°21'	144.0	-0.9		110.9 ✓
	96°20'	595'	+7°11'	585.7	+73.8		185.6 ✓
	31°40'	343'	-0°19'	343.0	-1.9		109.9 ✓
	92°16'	570'	+6°52'	561.9	+67.7		179.5 ✓
W Bk ch.	58°53'	275'	-0°33	275'	-2.6		109.2 ✓
W edge "	59°07'	278	-0°33' 8.0	278	-2.7	-3.0	106.1 ✓

1657.7

6-22-43

Station	Azimuth	Stadia	V∆	Horiz Dist.	Diff Elev		Elev
Walker T	Readings	From ⊡ 13	Elev 1178		HI = 5.0		
o Rac.	76°57'	225'	-1°00'	224.9	-3.9		107.9 ✓
W Bk ch.	78°40'	327'	-0°53'	326.9	-5.0		106.8 ✓
W edge "	78°40'	332'	-0°56' 7.0	331.9	-5.4	-2.0	104.4 ✓
	87°13'	545'	+6°24'	538.4	+60.4		172.2 ✓
	90°03'	380	-0°07' 11.0	380.0	-0.8	-6.0	105.0 ✓
	84°56'	518'	+5°51'	512.7	+52.5		164.3 ✓
	91°56'	390'	+0°25'	390.0	+2.8		114.6 ✓
	87°35'	477'	+5°14'	473.0	+43.3		155.1 ✓
	92°45'	450'	+3°06'	448.8	+24.3		136.1 ✓
	91°23'	467'	+3°25'	465.3	+27.8		139.6 ✓
	79°35'	543'	+5°29'	538.2	+51.6		163.4 ✓
	95°51'	443'	+2°32'	442.2	+19.6		131.4 ✓
	85°09'	600'	+6°29'	592.7	+67.3		179.1 ✓
	99°09'	430'	+2°55'	428.9	+21.9		133.7 ✓
	74°56'	547'	+5°15'	542.5	+49.9		161.7 ✓
	78°25'	405'	-0°51'	404.9	-5.9		105.9 ✓
	69°25'	600'	+4°47'	596.0	+49.9		161.7 ✓
	77°30'	421'	+0°40'	420.9	+4.9		116.7 ✓
	78°35'	452'	+2°44'	4.51	+21.5		133.3 ✓
	74°36'	450'	+1°46'	449.6	+13.9		125.7 ✓
	78°55'	666	+6°20' 8.0	657.9	+73.0	-3.0	181.8 ✓
	69°20'	480'	+2°21'	479.2	+19.7		131.5 ✓
	69°10'	460'	+1°35'	459.7	+12.7		124.5 ✓
?	68°50'	440'	0°05'	440.0	+0.6		112.4 ✓

Station	Az	Stadia	V A				
	Readings From ⊡ 13 Elev 111.78 HI = 5.0						
E Bk ch.	69°05'	419'	-0°24'	419.0	-2.9	108.9	✓
" Edge "	68°44'	410'	-0°39'	410.0	-4.7	107.1	✓
	69°20'	610'	+5°10'	605.1	+54.7	166.5	✓
E edge "	57°45'	385'	-0°39'	385.0	-4.4	107.4	✓
" Bk "	57°44'	403'	-0°18'	403.0	-2.1	109.7	✓
	57°16'	455'	-0°15'	455.0	-2.4	109.4	✓
	63°0'	517'	+2°01'	516.4	+18.2	130.0	✓
	60°30'	556'	+1°58'	555.4	+19.1	130.9	✓
	59°20'	570'	+1°35'	569.6	+15.7	127.5	✓
	54°33'	577'	+1°37'	576.6	+16.3	128.1	✓
	49°31'	553	+1°0'	552.8	+9.7	121.5	✓
57+25 = ⊡ 16	Readings From ⊡ 16 Elev 120.20 HI = 5.1						
S. Rim MH.	105°56'	139'	-2°56'	138.7	-7.1	113.1	✓
	105°10'	500'	+5°10'	495.9	+44.8	165.0	✓
W Bk ch.	156°12'	216'	-2°33	215.6	-9.6	110.6	✓
" edge "	152°25'	219'	-3°29'	218.3	-13.3	106.9	✓
	146°40'	183'	-3°46'	182.3	-12.0	108.2	✓
W Bk "	114°30'	148'	-4°04'	147.3	-10.5	109.7	✓
W Edge "	113°53'	151'	-4°10' 7.1	150.2	-10.9	109.3	✓
W Bk "	72°04'	183'	-2°37'	182.7	-8.4	111.8	✓
" edge ch.	72°56'	188'	-3°09'	187.5	-10.3	109.9	✓
W Bk "	61°49'	288	-1°29'	287.8	-7.4	112.8	✓
" edge "	63°0'	293'	-1°45'	292.8	-8.9	111.3	✓
" Bk "	51°30'	373'	-0°50'	371.9	-5.4	114.8	✓
W edge "	52°05'	380'	-1°0'	379.9	-6.6	113.6	

108.7 Ground 4.4' Lower

✓ int. & chan. to N.W.

Readings from ⊡ 16 Elev = 120.20 HI = 5.1

Station	Azimuth	Stadia	Vert ∠	Horiz. D.	Diff. Elev	Elev.
	108°42'	474	+3°55' 13.0	471.9	+32.3 -7.9	144.6 ✓
	106°44'	607'	+4°50' 14.1	602.6	+51.0 -9.0	162.2 ✓
	48°16'	325'	-0°50'	324.7	-10.4	109.8 ✓
	52°51'	249'	-1°31'	248.5	-10.9	109.3 ✓
	60°09'	184'	-2°24'	183.7	-7.7	112.5 ✓
	81°45'	117'	-4°09'	116.4	-8.4	111.8 ✓
	111°31'	93'	-5°49'	92.1	-9.4	110.8 ✓
	101°36'	575'	+6°03'	568.7	+60.3	180.5 ✓
E edge ch.	101°53'	187'	-3°22'	186.4	-11.0	109.2 ✓
" Bk "	104°0'	191'	-2°41'	190.6	-9.0	111.2 ✓
	102°0'	253'	-1°43'	252.8	-9.5	112.7 ✓
	91°30'	570'	+5°44'	564.4	+56.7	176.9 ✓
E Edge ch.	78°0'	248'	-2°09'	247.7	-9.3	110.9
" Bk "	78°37'	253'	-1°31'	252.8	-6.7	113.5
" edge "	80°43'	283'	-1°21'	282.8	-6.7	113.5 ✓
" " "	71°16'	338'	-1°30	332.8	-8.8	111.4 ✓
" Bk "	71°33'	341'	-1°06'	340.9	-6.5	113.7 ✓
	71°33'	363	-0°53'	362.9	-5.3	114.9 ✓
	88°48'	530'	+5°17'	525.7	+48.6	168.8 ✓
E edge ch.	61°13'	419'	-0°42'	418.9	-5.1	115.1 ✓
	65°21'	483'	-0°23'	483.0	-3.3	116.9 ✓
	80°25'	583'	+4°35'	579.3	+46.4	166.6 ✓
	60°38'	527'	-0°31'	527.0	-4.8	115.4 ✓
	83°06'	653'	+5°41'	646.5	+64.3	184.5 ✓
E Bk ch.	54°42'	470	-0°23'	470.0	-3.1	117.1 ✓
" edge "	54°48'	463'	-0°54'	463.0	-7.3	112.9 ✓

Δ in chan.

Station	Azimuth	Stadia	V∆	Horiz. Dist.	Diff Elev		Elev	
	Readings From ⊡ 16 Elev 120.20				HI 5.1			
	76°07'	715'	+5°02'	709.6	+62.5		182.7	✓
	73°35'	667'	+4°20'	663.2	+50.3		170.8	✓
	85°06'	310'	+1°02'	309.9	+5.6		125.8	✓
	66°06'	723'	+3°33'	719.2	+44.7		164.9	✓
	74°45'	388'	+1°37' 6.1	387.7	+11.0	-1.0	136.2	✓
	71°40'	488'	+2°10' 8.1	487.3	+18.4	-2.0	136.6	✓ error 135.6 ✓
	72°01'	730'	+4°24'	725.8	+55.8		176.0	✓
	66°47'	527'	+1°40'	526.6	+15.3		135.5	✓
	67°15'	577'	+2°0'	576.3	+20.1		140.3	✓
	71°57'	535'	+2°12'	534.2	+20.5		140.7	✓
	78°40'	480'	+2°15'	479.3	+18.8		139.0	✓
	86°03'	442'	+2°24'	441.3	+18.5		138.7	✓
	95°44'	395'	+2°07'	394.5	+14.6		134.8	✓
	101°26'	385'	+2°22'	384.4	+15.9		136.1	✓
	92°35'	505'	+5°07'	501.2	+44.9		165.1	✓
6-22-43	80°24'	593'	+4°48'	588.0	+49.4		169.6	✓
	Readings From ⊡ 16 Elev. 120.20 HI = 5.0							
6-23-43	330°53'	256'	+2°26'	255.6	+10.4		131.1	✓
	330°54'	213'	+2°23'	212.7	+8.9		129.1	✓
	334°47'	182'	+2°20'	181.7	+7.4		127.6	✓
	4°36'	409'	+9°51'	397.0	+68.9		189.1	✓
	341°03'	132'	+3°30'	131.5	+8.0		128.2	✓
	357°28'	154'	+3°38'	153.4	+9.7		129.9	✓
	357°50'	301'	+10°58' 60	290.4	+55.8	-09	175.1	✓

6-23-93

Station	Azimuth	Stadia	V Δ	Horiz. Dist.	Diff Elev	Elev
	Readings from ⊡ 16 Elev. = 120.20 HI = 5.0					1
	351°03'	233'	+11°0'	224.5	+43.6	163.8 ✓
	347°57'	310'	+10°25' 11.0	300.0	+55.1	-6.0 169.3 ✓
✓	346°11'	189'	+8°02'	185.3	+26.2	146.4 ✓
℄ Rim Mtl Branch Line	325°07'	198'	+2°58'	197.5	+10.2	130.4 ✓
	13°03'	193'	+0°51'	193.0	+2.9	123.1 ✓
	63°55'	61'	-1°45'	60.9	-18.6	101.6 ✓
	71°51	66'	-1°41' 11.0	65.9	-19.4	-6.0 94.8 ✓
	15°0'	265'	+1°18'	264.9	+6.0	126.2 ✓
	40°0'	126'	+1°55' 12.0	125.9	+4.2	-6.0 118.4 ✓
℄ ✓ Power Pole	22°43'	263'	+0°24'	263.0	+1.8	122.0 ✓
	21°33'	335'	+0°40'	335.0	+3.9	124.1 ✓
✓ on Top Pipe 6" H.P. Gas	29°50'	207'	-0°16' 12.0	207.0	-1.0	-7.0 112.2 ✓
	24°10'	177'	-1°15'	176.9	-3.9	116.3 ✓
	29°52'	154'	-0°15' 12.0	154.0	-0.7	-7.0 112.5 ✓
C/+00 = ⊡ 17	27°40'	375'	-0°30'	375.0	-3.3	116.9 ✓
⊡ 13	200°20'	432'	-1°08'	431.9	-8.5	111.2
	Readings from ⊡ 17 Elev. 117.02 HI = 5.0					
	216°25'	106'	+1°02'	106.0	+1.9	118.9 ✓
	247°43'	135'	+10°45'	~~220.4~~ 130.3	+24.8	141.8 ✓
	203°30	97'	-0°51'	97.0	-14.4	112.6 ✓ ? -1.H = 115.6 ✓✓
	173°0'	101'	-0°56'	101.0	-1.6	115.4 ✓
	306°0'	113'	+19°51'	100.1	+36.1	153.1 ✓
	151°25'	129'	-0°46'	129.0	-1.7	115.3 ✓
	117°0'	97	-0°39'	97.0	-1.1	115.9 ✓

Ground - 1' Lower

✓ on Conc. Slab over Branch Sewer

error 117.4 ✓

check ⊡ 17 Elev. 117.02 OH

check ⊡ 13 Elev 111.78

6-23-43

Station	Azimuth Readings	Stadia from ☐ 17	Vert. ∆ Elev	Horiz. Dist 117.02	Diff. Elev HI = 5.0	Elev.
	122°30'	42'	0° 5.3	42.0	-0.3	116.7 ✓
	276°50'	25'	0° 1.7	25.0	+3.3	120.3 ✓
	271°30'	35'	+12°18'	33.5	+7.3	124.3 ✓
	313°54'	202'	+21°40'	174.4	+69.3	186.3 ✓
	280°11'	45'	+11°0'	43.3	+8.4	125.4 ✓
	318°50'	257'	+19°55'	227.4	+82.31	199.3 ✓
	344°40'	97'	+9°30' 8.0	94.4	+15.8	129.8 ✓
	1°53'	84'	+6°50'	82.8	+9.9	126.9 ✓
	8°10'	82'	0° 0 3.0	82.0	+2.0	119.0 ✓
chkd. 9-23-43	331°20'	270 ~~170~~	+18°55'	152.3	+52.1	169.1 ✓
r/ Bk ch.	31°	83'	0° 0	83.0	00	117.0 ✓
" edge "	33°10'	86'	0° 6.7	86.0	-1.7	115.3 ✓
	341°	293'	+18°20'	264.0	+87.5	204.5 ✓
W Bk "	69°	63'	0° 4.3	63.0	+0.7	116.3 ✓
" edge "	69°	65'	0° 7.0	65.0	-2.0	115.0 ✓
" " "	28°	143	0° 6.5	143.0	-1.5	115.5 ✓
" Bk "	26°23'	144'	0° 3.7	144.0	+1.3	118.3 ✓
	18°40'	198'	+0°26'	198.0	+1.5	118.5 ✓
	15°25'	151'	+3°17'	150.5	+8.6	125.6 ✓
	344°53'	235'	+15°08'	219.3	+59.2	176.2 ✓
	5°08'	201'	+5°18'	199.4	+18.5	135.5 ✓
chkd. 9-23-43	331°54'	186	+17°37' 11.0	169.3	+50.7	161.7 ✓
	9°51'	197	+3°44'	196.2	+12.8	129.8 ✓
Parser Pole	18°40'	227	+2°23'	226.6	+9.4	126.4 ✓

$\frac{179.2}{62.7}$ / 241.9

$\frac{6.1.32}{21.47}$ / $\frac{82.0}{117.0}$ / 199.8

Elev.

Revise for New Station 270'

double ck

double ck OK CBW.

6-23-43

Station	Azimuth Readings	Stadia From ⊡	Vert Δ 17 Elev.	Horiz. Dist. 1170.2	Diff. Elev. HI=5.0	Elev.
	21°40'	230'	+1°03'	229.9	+4.2	121.2 ✓
	316°	133'	+18°55'	119.2	+40.8	157.8 ✓
	30°51'	232'	+0°55'	232.0	+3.7	120.7 ✓
W Bk. ch.	44°35'	255	+0°34'	255.0	+2.5	119.5 ✓
"edge"	45°53'	252'	0° 6.2	252.0	-1.2	115.8 ✓
& Kitt M.H.	47°11'	188'	0° 1.8	188.0	+3.2	120.2 ✓
E edge ch.	99°20'	203'	-1°01'	202.9	-3.6	113.4 ✓
" Bk "	98°32'	207'	-0°07'	207.0	-0.5	116.5 ✓
" Edge "	78°10'	200'	-0°26'	200.0	-1.5	115.5 ✓
" Bk "	78°10'	208'	-0°10'	208.0	-0.6	116.4 ✓
" " "	56°0'	267'	+0°31	267.0	+2.4	119.4 ✓
E edge "	55°0'	269'	+0°19'	269.0	+1.5	118.5 ✓
	50°23'	423'	+0°42'	422.9	+5.2 ✓	122.2 ✓
E Bk "	68°23'	357'	+0°39	357.0	+4.1	121.1 ✓
	38°50'	390'	+0°42'	389.9	+4.8 ✓	121.8 ✓
	32°05'	375'	+0°47'	374.9	+5.1	122.1 ✓
	23°0'	358'	+1°22' 9.0	358.0	8.5 +2.3 -4.0	115.3 = 121.5 ✓
	17°55'	356'	+3°17' 12.0	3549 119.6	2014 +6.9 -7.0	116.9 = 130.4 ✓
	69°55	455'	+1°18'	454.8	+10.3	122.3 ✓
	69°50'	417'	+0°53'	416.9	+6.4	123.4 ✓
	8°52'	360'	+7°15'	354.4	+45.1	162.1 ✓
	78°06'	420'	+1°18' 9.0	419.8	+9.5 -4.0	122.5 ✓
	92°13'	370	+1°02' 8.0	368.9	+7.3 -5.0	119.3 error +7.3 -3.0 121.3 ✓
	98°25	340	+0°34	340.0	+3.4	120.4 ✓

Ground 2' Lower

6-23-43

Station	Azimuth	Stadia	Vert ∆	Horiz Dist.	Diff. Elev.		Elev.	
	Readings	from ⊡ 17	Elev.	117.02	HI = 5.0			
	99°0'	314'	+0°03'	314.0	+03		117.3 ✓	
	99°0'	264'	+0°02'	264.0	+0.2		117.2 ✓	
	87°0'	287'	+0°05'	287.0	+0.4		117.4 ✓	
	78°20'	325'	+0°56' 8.0	324.9	+5.3	-3.0	119.3 ✓	
	73°40'	255'	+0°34'	255.0	+2.5		119.5 ✓	
	74°08	586'	+3°45' 17.0	583.6	+38.2	-12.0	143.2 ✓	
	110°40'	332'	+3°11'	331.0	+18.4		135.4	Duplicate
	107°10'	375'	+3°35'	373.6	+23.4		140.4	Duplicate
	97°09'	397'	+3°19'	395.8	+22.9		139.9 ✓	
	80°08'	537'	+4°40'	533.7	+43.6		160.6 ✓	
	99°27'	435'	+4°44'	432.1	+35.8		152.8 ✓	
	83°31'	593	+5°38' 10.0	587.5	+57.1	-5.0	169.1 ✓	
	90°20'	453'	+3°57'	451.0	+31.1		148.1 ✓	
	92°05'	504'	+5°37'	499.4	+49.1		166.1 ✓	
	85°44'	538'	+5°14'	528.7	+48.5		165.5 ✓	
✓	83°51'	507'	+4°17'	504.2	+37.8		154.8 ✓	
	78°05	509'	+4°02'	506.5	+36.3		153.7 ✓	
	75°41'	497'	+3°03'	495.5	+26.4		143.4 ✓	
	71°54'	480'	+1°47'	479.6	+15.0		132.0 ✓	
67+40 ⊡ 18	27°40'	640'	+0°57'	639.9	+10.6		=1°7.6 127.75 = F.B. 1657-3	
	Readings	from ⊡ 18	Elev	127.75	HI = 5.0			
⊡ 19	217°12'	280'	+0°10'	280	+08		128.58	on #60 Spike
	Readings	from ⊡ 19	Elev	128.58	HI = 5.1			
⊡ 18	37°12'	280'	0° 5.93	280	=0.83		127.75	

6-23-43

Station	Azimuth	Stadia	Vert. Δ	Horiz Dist.	Diff. Elev.	Elev.	
	Readings From ⊡ 19 Elev = 128.58				HI = 5.1		
E edge ch.	62°15'	473'	-0°32'	473.0	-4.4	124.2	✓
" Bk "	61°53'	477'	-0°11	477.0	-1.5	127.1	✓
	114°10'	575'	+3°29'	573.1	+34.9	163.5	✓
	116°05'	580'	+3°33' 15.0	587.8	+36.5 -9.9	155.2	✓
E Top Bk ch	69°18'	365'	-0°22	365.0	-2.3	126.3	✓
E edge "	69°20'	362'	-0°49'	362.0	-5.2	123.4	✓
" Bk "	79°25	385'	-0°09'	385.0	-1.0	127.6	✓
" Edge "	79°25'	380'	-0°05' 10.0	380.0	-0.6 -4.9	123.1	✓
	113°42'	540'	+2°47' 13.0	538.8	+26.2 -6.9	147.9	error +26.2 -7.9 146.9 ✓ Int. Too Slope Dble Canyon
E Bk ch.	92°51'	319'	-0°51'	318.8	-4.7	123.9	✓
E edge "	92°55'	310'	-1°09'	309.9	-6.2	122.4	✓
	111°55'	580'	+3°27' 12.0	578.0	+34.8 -6.9	156.5	✓
	111°0'	312'	-1°08'	311.9	-6.2	122.4	✓
	111°0'	309'	-1°46'	308.7	-9.50	119.1	✓
	109°15'	515'	+4°18'	512.3	+38.5	167.1	✓
	104°42'	513'	+5°0' 6.1	508.1	+44.5	173.1	error +44.5 -1.0 172.1 ✓
E Bk ch.	125°10'	311'	-0°55	310.9	-5.0	123.6	✓
E edge "	124°37'	315'	-1°24'	314.8	-7.7	120.9	✓ = Int. Branch Ch. To East.
	108°52'	415'	+3°55'	413.1	+28.3	156.9	✓
	102°42'	435'	+4°27'	432.5	+33.7	162.3	✓
	122°32'	318'	-0°41'	318.0	-3.8	124.8	✓
	118°0'	348'	0°0'	348.0	0.0	128.6	✓
	99°05'	473'	+4°44'	469.9	+38.9	167.5	✓
	110°45'	373'	+1°29'	372.8	+9.7	138.3	✓

6-23-43

Station	Azimuth.	Stadia	Vert. Δ	Horiz Dist.	Diff. Elev.		Elev	
	Readings	From □19	Elev = 128.58		HI = 5.1			
	111°46'	396'	+2°26'	395.3	+16.8		145.4	✓
	95°50'	578'	+5°22'	573.0	+53.8		182.4	✓
	108°20'	353'	+0°32'	353.0	+3.3		131.9	✓
	85°0'	625'	+5°39'	619.3	+61.2		189.8	✓
	99°10'	360'	+1°27' 11.0	359.8	+9.1	-5.9	131.8	✓
	100°40'	360'	+0°40' 6.0	360.0	+4.2	-0.9	131.9	
	84°0'	528'	+5°16' 9.0	523.7	+48.2		176.8 error	+48.2 -3.9 / 172.9 ✓
	92°30'	407'	+2°03'	406.5	+4.6		133.2	✓
	78°33'	547'	+4°35'	543.6	+43.6		172.2	✓
	86°03'	423'	+1°41'	422.6	+12.4		141.0	✓
	84°25'	400'	+1°25'	399.8	+9.9		138.5	✓ checked Ag.
	78°11'	597'	+4°55' 6.0	592.8	+51.0	-0.9	178.7	✓
	75°25'	688'	+5°14"	682.4	+62.5		191.1	✓
	70°57'	607'	+4°29'	603.5	+47.3		175.5	✓
	72°37'	570'	+3°39 10.0	562.9	+36.2	-4.9	159.9	✓ checked Ag. in Drawn
	67°55'	582'	+3°46'	579.6	+38.1		166.7	✓
	62°45'	572'	+3°01'	570.4	+30.1		158.7	✓
	57°34'	640'	+2°53'	638.4	+32.2		160.8	✓
	97°06'	429'	+3°15'	427.7	+24.3		152.9	✓
	68°30'	717'	+5°24'	710.8	+67.2		195.8	✓
	63°40'	767'	+5°03'	761.2	+67.3		195.9	✓
	91°27'	450'	+4°03'	447.8	+31.7		160.3	✓
	86°03'	501'	+4°42'	497.7	+40.9		169.5	✓
	79°20'	515'	+3°57'	512.7	+35.4		164.0	✓ 4.20 Pm 6-23-43 checked Ag.

6-24-43

Station.	Azimuth.	Stadia.	Vert. ∆.	Horiz. Dist.	Diff. Elev.	Elev.	
	Readings	From ⊡18	Elev. = 127.75		HI = 5.1		9 am 6-24-43
	225°50'	211'	+10°34'	211.0	+2.1	129.9	
	232°16'	246'	+5°09'	244.1	+22.0	149.8	
	219°46'	208'	-1°13'	208.0	-4.4	123.4	
	231°40'	156'	-1°03'	156.0	-2.9	124.9	
	234°14'	177'	+0°34'	177.0	+1.8	129.6	
Elec. Pole	240°18'	184'	+4°16'	183.0	+13.8	141.6	
	239°37'	280'	+10°16'	271.3	+49.1	176.9	
	245°44'	125'	-1°20'	124.9	+2.9	130.7	
	247°23'	311'	+14°39'	291.5	+76.1	203.9	
	251°43'	127	0°2.2	127.0	+2.9	130.7	
	260°35'	301'	+18°01'	272.3	+88.5	216.3	
	254°13'	143'	+3°0'	142.6	+7.5	135.3	Az. chk. 9.20 am
	269°35'	297'	+18°16'	268.2	+88.4	216.2	
	279°52'	304'	+19°39'	270.2	+96.3	224.1	
	289°53'	117'	+4°41'	116.7	+9.5	137.3	
	292°55	92'	0°1.5	92.0	+3.6	131.4	
	293°52'	90'	0°7.0	90.0	-1.9	125.9	
	295°36'	258'	+18°57'	231.2	+79.3	207.1	
	325°48'	102'	0°6.9	102.0	-1.8	126.0	
	324°24'	117'	+3°26'	116.6	+7.0	134.8	
	308°40'	302'	+16°11' 9.0	278.5	+80.8 -3.9	204.7	
	322°40'	144'	+4°52'	143.0	+12.2	140.0	
	317°06'	311'	+12°58' 8.0	295.7	+68.0 - 2.9	192.9	
	336°30'	174'	+4°17'	173.1	+13.0	140.8	Az. chk 9.35 am 6-24-43

6-24-43

Station	Azimuth Readings	Stadia From ⊡ 18	Vert. ∆ Elev = 127.75	Horiz Dist.	Diff. Elev HI = 5.1		Elev				
	339°20'	178'	+3°41'	177.3	+11.4		139.2	✓		✓	Mouth of Draw to NW.
	330°20'	201'	+5°25'	199.3	+18.9		146.7	✓		✓	in ∂ " " " "
	321°08'	175'	+7°42'	171.9	+23.2		151.0	✓			
	328°23'	420'	+10°55' 12.0	405.2	+78.1	-6.9	198.0	✓		✓	in ∂ of Draw to NW.
	306°45'	174'	+12°22'	166.0	+36.4		164.2		✓		
	288°00'	172'	+11°47'	164.9	+34.4		162.2		✓		
	337°0'	327'	+12°56	311.0	+71.8		199.1		✓		
	268°54'	181'	+11°08'	174.5	+34.3		162.1		✓		
	264°48'	167'	+7°53'	163.9	+22.7		150.5		✓		
	344°0'	415'	+12°42'	395.1	+89.0		216.8		✓		
	264°0'	153'	+6°20'	151.2	+16.2		144.5		✓		
	348°54'	477'	+10°36'	432.2	+80.8		206.6		✓		
	255°54'	187'	+10°0'	181.4	+32.0		159.5	✓			
	353°38'	447'	+7°28'	439.7	+57.6		185.4	✓			Az. chk. 10 am
	348°30'	374'	+9°10'	364.5	+58.9		186.7	✓			
	358°48'	130'	+1°06' 6.1	130.0	+2.5	-1.0	129.3	✓			
	358°11'	133'	+2°0'	132.8	+4.6		132.4	✓			
	341°05'	303'	+10°29'	293.2	+54.2		182.0	✓			
	334°05'	284'	+11°03'	273.7	+53.4		181.2	✓			
	317°16'	233'	+11°0'	224.5	+43.6		171.4	✓			
	328°02'	301'	+8°54' 7.1	293.9	+46.0	-2.0	171.8	✓	?		
	320°27'	271'	+11°0' 7.1	261.2	+50.8	-2.0	176.8	✓			
	332°42'	243'	+8°25'	238.0	+35.2		163.0	✓			Az. chk 10.10 am 6-24-43
	327°07'	231	11.0								

6-24-43

Station	Azimuth	Stadia	Vert. ∠	Horiz. Dist.	Diff. Elev	
	Readings from ⊡ 18 Elev. 127.75 HI = 5.1					
℄ Elec Pole	343°26'	200'	+3°29'	199.3	+12.1	
	352°15'	182'	+1°54'	181.8	+6.0	
	354°20'	243'	+2°0' 11.1	242.7	+8.5	-6.0
	353°40'	244'	+1°58'	243.7	+8.4	
	356°40'	278'	+1°35'	277.8	+7.7	
	359°0'	316'	+1°29'	315.8	+8.2	
	6°25'	320'	+0°48'	320.0	+4.6	
	20°50'	316'	+0°43'	316.0	+4.0	
	20°20'	204'	+0°34	204.0	+2.0	
	358°20'	204'	+1°39' 7.1	203.9	+5.9	-2.0
	356°40'	194	+1°20	193.9	+4.5	
	356°40'	143'	+1°54'	142.9	+4.8	
W Bk ch.	358°0'	128'	+1°07' 6.1	128.0	+2.5	-1.0
	26°05'	93'	0°	93.0	0	
W edge "	27°25'	92'	0° 7.0	92.0	-1.9	
" Bk "	53°55	38'	0° 7.9	38.0	-2.8	
" edge "	53°	37'	0° 5.9	37.0	-0.8	
W Bk "	120°20'	80'	0° 6.2	80.0	-1.1	
" edge "	120°0'	82'	0° 8.6	82.0	-3.5	
" Bk "	129°0'	185'	0° 6.7	185.0	-1.6	
" edge "	126°25'	189'	0° 9.8	189.0	-4.7	
" Bk "	141°40'	221'	0° 7.8	221.0	-2.7	
" edge "	141°30'	226'	0° 9.3	226.0	-3.2	
E Bk ch.	141°10'	287	0° 6.0	287.0	-0.9	
" edge "	141°10'	283	0° 12.8	288.0	-7.7	

Elev. 10.15 am 6-24-43

132.9 ✓
133.8 ✓
130.3 ✓
136.2 ✓
135.5 ✓ L Gas Co. N.H. Ground = 3' Lower
136.0 ✓
132.4 ✓
131.8 ✓
129.8 ✓
131.7 ✓
132.3 ✓
132.6 ✓ chk az. 10.40 am
129.3 Duplicate
127.5 ✓
125.9 ✓
125.0 ✓
127.0 ✓
126.7 ✓
124.3 ✓
126.2 ✓
123.1 ✓
125.1 ✓
124.6 error 123.6 ✓
126.9 ✓
120.1 ✓

6-24-43

Station	Azimuth	Stadia	Vert. ∠	Horiz. Dist.	Diff. Elev	Elev		
	Readings from ⊡ 18		Elev.	127.75	HI = 5.1			
W. Bk ch.	161°40'	263'	0° 9.2	263.0	-4.1	123.7 ✓		
" edge "	161°40'	265'	0° 12.7	265.0	-7.6	120.2 ✓		
" Bk "	180°25'	345'	0° 12.1	345.0	-7.0	120.8 ✓		
" edge "	180°10'	350'	0° 13.5	350.0	-8.4	119.4 ✓		
	189°20'	320'	0° 11.1	320.0	-6.0	121.8 ✓		
	202°20'	294'	0° 10.6	294.0	-5.5	122.3 ✓		
	205°20'	197'	0° 9.1	197.0	-4.0	123.8 ✓		
	186°40'	158'	0° 8.5	158.0	-3.4	124.4 ✓		
	161°50'	65'	0° 6.4	65.0	-1.3	126.5 ✓		
	270°	10'	0° 7.1	10.0	-2.0	125.8 ✓		chk Az. 11 am 6-24-43
E. Bk ch.	100°50'	228'	0° 5.8	228.0	-0.7	127.1 ✓		
Toe slope	102°20'	250'	0° 1.9	250.0	+3.2	131.0 ✓		
	93°20'	318'	+3°44' 6.1	316.7	+20.5 -1.0	147.3 ✓	✓	
	87°20'	292'	+2°40' 8.1	291.4	+13.6 -3.0	139.4 ✓	✓	
	77°10'	304'	+3°12' 7.1	303.1	+17.0 -2.0	142.8 ✓	✓	
	64°10'	340'	+2°50' 7.1	339.2	+16.8 -2.0	142.6 ✓	✓	
	55°30'	340'	+2°25' 9.1	339.4	+14.3 -4.0	138.1 ✓	✓	
	49°30	353'	+1°45'	352.7	+10.8	138.6 ✓	✓	
E. Bk ch.	48°05	320'	+0°34'	320.0	+3.2	131.0 ✓	✓	
" " "	53°25'	284'	0° 3.9	284.0	+1.2	129.0 ✓	✓	
E. edge "	53°10'	283'	0° 4.9	283.0	+0.2	128.0 ✓	✓	
E. Bk "	70°40'	233'	0° 4.6	233.0	+0.5	128.3 ✓	✓	
	69°35'	263'	+0°59' 9.1	264.9	+4.5 -4.0	128.3 ✓	✓	
E. edge ch.	41°0'	345'	0° 3.4	345.0	+1.7	129.5 ✓	✓	

Station	Azimuth	Stadia	Vert. Δ	Horiz. Dist.	Diff. Elev	Elev	
	Readings from ⊡ 18		Elev. 12775		HI = 5.1		
	41°10'	353'	+1°01' 7.1	352.9	+6.3 -2.0	132.1 ✓	✓
	44°05'	357'	+1°40' 7.1	356.7	+10.4 -2.0	136.2 ✓	✓ Chk. Az. 11.50 am. 6-24-43
✓ ℄ Rim MH	17°51	65'	+1°46'	65.0	+2.0	129.8 ✓	✓ Ground 14' Lower
	41°25'	480'	+2°45'	479.0	+23.0	150.8 ✓	✓
	58°20'	548'	+3°13'	546.3	+30.7	158.5 ✓	✓
	39°26'	395'	+1°51'	394.6	+12.8	140.6 ✓	✓
	48°27'	351'	+1°46' 6.1	350.7	+10.8 -1.0	137.6 ✓	✓
	67°23'	578'	+6°12'	571.3	+61.9	189.7 ✓	✓
	65°53'	362'	+3°36' 8.1	360.7	+22.8 -3.0	147.6 ✓	✓
	63°20'	326	+2°57' 9.1	325.2	+16.9 -4.0	140.7 ✓	✓
	59°46'	665'	+6°16'	657.3	+72.2	200.0 ✓	✓
	75°55'	343'	+4°48' 6.1	340.7	+28.6 -1.0	155.4 ✓	✓
	54°52'	760'	+5°52'	752.1	+77.3	205.0	
	49°38'	730'	+4°08'	726.4	+52.5	180.3	
	74°38'	518'	+6°50	510.6	+61.2	189.0 ✓	✓
	67°0'	540'	+5°45	534.7	+53.8	181.6 ✓	✓
✓	66°36'	548'	+5°37	542.9	+53.4	181.2 ✓	✓ ✓ ℄ Hd of Drow = E end.
℄ MH.	43°52'	747'	+3°14'	744.7	+42.1	169.9	
	64°20'	558'	+5°30'	552.9	+53.2	181.0 ✓	✓
	45°13'	687'	+3°02'	685.1	+36.3	164.1	
	49°0'	585'	+3°03'	583.4	+31.1	158.9	+
	62°36'	525'	+4°42' 6.1	521.5	+42.9 -1.0	169.7 ✓	✓
	60°07'	485'	+3°44' 7.1	483.0	+31.5 -2.0	157.3 ✓	✓
	53°0'	517'	+3°19'	515.4	+29.8	157.6 ✓	✓

Station	Azimuth	Stadia	Vert Δ	Horiz. Dist	Diff. Elev	Elev
	Readings From ⊡ 18			Elev = 127.75	HI = 5.1	
	57°08'	587'	+4°29'	583.7	+45.8	173.6 ✓
	51°38'	653'	+4°08'	649.8	+46.9	174.7 ✓
71+70						
⊡ 20	Readings from ⊡ 20			Elev. 134.46	HI = 5.0	
⊡ 18	192°22'	430	−0°48' 6.0	429.6	−6.0	−1.0
W Bk ch	163°34'	210'	−1°01'	209.9	−3.7	127.8 ✓
" edge "	162°44'	217'	0° 10.3	217.0	−5.3	130.7 ✓ ✓
" Bk "	158°15'	149'	0° 7.6	149.0	−2.6	129.2 ✓ ✓
" edge "	156°31'	150	0° 9.6	150.0	−4.6	131.9 ✓ ✓
" Bk "	173°0'	56'	0° 5.6	56.0	−0.6	129.9 ✓ ✓
" edge "	171°20'	56'	0° 9.6	56.0	−4.6	133.9 ✓ ✓
" Bk "	3°28'	30'	0°	30.0		134.5 ✓ ✓
" edge "	6°20'	30'	0° 7.9	30.0	+2.9	131.6 ✓ ✓
℄ NH	354°07'	111'	0° 3.2	111.0	+1.8	136.3 ✓ ✓ W edge ch. ch = 3' Lower
W Bk ch	351°56'	166	0° 2.1	166.0	+2.9	137.4 ✓
" edge "	353°23'	169'	0°	169.0		134.5 ✓
	337°0'	113'	0° 3.3	113.0	+1.7	136.2 ✓
	333°13'	117'	+3°40'	116.5	+7.5	142.0 ✓
℄ Elec Pole	331°28'	80'	+1°06'	80.0	+1.5	136.0 ✓ Toe Slope = 7' West Level chk az. 2.15 Pm
	239°16'	81'	0° 5.5	81.0	−0.5	134.0 ✓
	243°36'	89'	0° 1.2	89.0	+3.8	138.3 ✓
	188°53'	95'	0° 7.3	95.0	−2.3	132.2 ✓
	294°20'	223'	+24°20'	185.1	+83.7	218.2 ✓
	302°0'	145'	+18°06'	131.2	+42.8	177.3 ✓
	305°37'	249'	+22°34'	217.5	+87.3	221.8 ✓

No1 Hard Copy.

Station	Azimuth	Stadia	Vert. Δ	Horiz. Dist.	Diff. Elev	Elev.
	Readings from ⊡ 20 Elev = 134.46				HI = 5.0	
	310°49'	165'	+17°09' 6.0	150.9	+46.5	181.0 error +46.5 −1.0 180.0 ✓
	312°30'	270	+21°37'	233.7	+92.5	227.0 ✓
	317°32'	133'	+11°31'	127.7	+26.2	160.7 ✓
	317°35'	282'	+20°48'	246.9	+93.6	228.1 ✓
	327°10'	171'	+13°15'	162.1	+43.2	177.7 ✓
	320°03'	240'	+19°35'	213.2	+75.8	210.3 ✓
	339°40'	219'	+9°06'	213.6	+34.3	168.8 ✓
	325°50'	284'	+17°30' 9.0	258.3	+81.5 −4.0	212.0 ✓
ok ✓	341°40'	268'	+8°40' 7.0	261.9	+40.1 −2.0	172.6 ✓ (Shots Marked by Red checked see FB 1658-14)
Re checked ✓	333°21'	302'	+14°56' 9.0	282.2	+76.3 −4.0	206.8 ✓
ok ✓	342°13'	306'	+9°10' 12.0	298.3	+48.1 −7.0	175.6 ✓ chk Az. 245 Pm
ok ✓	343°18'	321'	+8°0'	314.8	+44.2	178.7 ✓
✓	345°40'	325' error	~~+13°20'~~ 14.0'	307.6	+72.9 −9.0	198.4 ✓ ? This V.A. one wrong. 172 See FB. 1658-14 = Ele 172.6 C.B.H.
ok	347°0'	380'	+6°48' 7.0	374.9	+44.7 −2.0	177.2 ✓
ok ✓	336°15'	360'	+13°09'	341.8	+79.8	214.3 ✓
W edge Ch.	356°33'	378'	+0°25	378.0	+2.8	137.3 ✓
" Bk "	355°35'	370'	+2°22' 13.0	369.4	+15.3 −8.0	147.8 — 134.5 +15.3 149.8 −8 141.8 ✓ chk Az. 305 Pm.
✓ ℄ MH Rim.	3°32'	385'	+0°43'	384.9	+4.8	139.3 ✓ ✓ Grd 1' Lower
	354°11'	280	+0°56' 10.0	279.9	+4.6	139.1 error +4.6 −5.0 134.1 ✓
	353°14	283'	+1°33' 7.0	282.8	+7.7 −2.0	140.2 ✓
E Bk ch.	4°37'	313	+0°35'	313.0	+3.2	137.7 ✓
" Edge "	4°02'	312'	0° 3.2	312.0	+1.8	136.3 ✓
" Bk "	9°41'	225	+0°23'	225.0	+15	136.0 ✓
" Edge "	8°54'	225	+0°10' 5.0	225.0	−00	134.5 ✓

Station	Azimuth	Stadia	Vert. ∠	Horiz. Dist.	Diff Elev			
	Readings from ⊡ 20			Elev. 134.46	HI = 5.1			
E Bk ch.	28°40'	146'	0° 4.3	146.0	+0.8		135.3 ✓	
" Edge "	26°35'	143	0° 5.4	143.0	-0.3		134.2 ✓	
" Bk "	49° 0'	56'	0° 6.0	56.0	-0.9		133.6 ✓	
" edge "	44° 0'	56'	0° 7.7	56.0	-2.6		131.9 ✓	△ in ch.
" " "	110°50	171'	0° 7.7	171.6	-2.6		131.9 ✓	△ " "
	109°21'	183'	+1°45'	182.8	+5.6		140.1 ✓	Chk Az 320 Rm.
	98°26'	173'	0° 6.6	173.0	-1.5		133.0 ✓	
	87°51'	195'	+2°50 12.0	194.5	+9.6	-6.9	137.2 ✓	
⊡ 21	39°10'	517'	+2°34'	516.0	+23.13		157.59	
	Mean D = 516'		Mean		Mean Diff Elev 23.18		157.54	
	Readings from ⊡ 21		Elev = 157.64. HI = 5.2					
⊡ 20	219°10'	515	-2°36	514.0	-23.34		134.30	
	199°55'	273'	-4°25'	265.5	-21.0		~~178.6~~ = 136.6 ✓	
	185°36'	249	0° 7.9	249.0	-2.8		154.8 ✓	
	197°36'	162'	-4°08 10.2	161.2	11.7	-5.1	164.2 ✓	
⊡ Gas M.H.	176°22'	280'	+1°01'	279.9	+5.0		162.6 ✓	Ground 3' Lower ✓
	146°57'	328'	+5°34'	325.0	+31.7		189.3 ✓	
Brow hill ✓	239°40	12'	0° 7.0	12.0	-1.9		155.0 ✓	
	135°16'	271'	+7°44'	266.2	+36.1		193.7 ✓	
Brow hill	353°30'	12	0° 6.0	12.0	-0.9		156.7 ✓	
" "	45°45'	64'	0° 3.8	64.0	+1.3		158.9 ✓	
Sorno Cor Lot 23	118°27'	234'	+10°26'	225.5	+41.7		199.3 ✓	
Sule Hill	44°24'	113'	+1°37'	112.9	+3.2		160.8 ✓	
	123°22'	137'	+6°49' 7.2	135.1	+16.2	-2.1	171.7 ✓	
	43°30'	163	+1°41'	162.8	+4.8		162.4 ✓	

Station	Azimuth	Stadia	Vert. Δ	Horiz. Dist.	Diff Elev		Elev.		
	Readings from ⊡ 21 Elev = 157.64 HI = 5.2								
	143°13'	188'	+5°38' 9.2	186.3	+18.4	-4.0	172.0	✓	
	158°05'	161'	+1°0'	161.0	+2.8		160.4	✓	
on 2" Water	170°20	60	6.1	60.0	-0.9		156.7	✓	
	38°12'	221	+2°50'	220.5'	+11.1'		168.7	✓	
	35°13'	242'	+2°07	241.7	+9.0		166.4	✓	✓ & Small Drain
	30°47'	265'	+2°01'	264.7	+9.3		166.9	✓	
	28°05'	292'	+1°50'	291.7	+9.3		166.9	✓	
	27°16'	340'	+2°38'	339.4	+15.6		173.2	✓	
	25°14'	382	+2°40'	381.2	+17.2		175.3	✓	
	25°23'	430'	+2°49' 9.0	429.1	+20.9	-3.8	174.7	✓	
	~~24°0~~	~~470~~	~~11.0~~						
	25°16'	470	+2°55 11.0	468.9	+23.9	-5.8	175.7	✓	chk Az. 330 Pm
chkd.	207°0'	106'	-5°41' 12.2	105.0	-10.4	-7.0	161.0	✓	—
	242°0'	66'	-11°22' 9.2	63.5	-12.7	-4.0	166.3	✓	—
chkd. 9-23-43	301°0'	56	-10°27' 12.2	54.2	-10.0	-7.0	160.6	✓	—
	14°44'	408'	-1°25'	407.8	-10.0		147.6	✓	
	13°37'	337'	-2°01'	336.6	-11.8		145.8	✓	
	17°54'	345'	-1°07'	344.9	-6.7		158.9	✓	
	20°20'	247'	-2°59'	246.4	-12.8		144.8	✓	
	233°25'	213'	-5°26'	211.2	-20.1		137.5	✓	chk Az. 435 Pm 6-24-43
	Readings From ⊡ 21 Elev = 157.64 H.I. = 5.1								6-25-43 - 9am
	11°50'	81	-7°54' 11.1	79.5	-11.0	-6.0	140.6	✓	
	20°30'	80	-5°43 11.1	79.2	-7.9	-6.0	143.7	✓	
Same Line as above on 2" Water	246°02'	154'	-7°21'	151.5	-19.6		138.0	✓	

Station	Azimuth	Stadia	Vert. ∠	Horiz Dist	Diff. Elev		Elev.	
	Readings	From ⊡ 21 = Elev. 157.64			HI = 5.1			
on P.O.T. Hub								
75+40	256°11'	208'	-5°04'	206.4	-18.3		139.3 ✓	
E Bk ch.	270°08	253'	-4°21	251.5	-19.1		138.5 ✓	E edge 2.5' Lower.
℄ Elec. Pole	273°16	238'	-4°24	236.7	-18.2		139.4 ✓	
E Bk ch.	280°44'	229'	-4°31'	227.6	-18.0		139.6 ✓	" " " "
	21°08'	156'	-3°21' 9.1	155.5	-9.1	-4.0	144.5 ✓	
	31°35'	148'	-1°00' 11.1	148.0	-2.6	-6.0	149.0 ✓	
	21°16'	204'	-3°27'	203.3	-12.1		145.5 ✓	
	26°53'	200'	-0°49' 11.1	200.0	-2.9	-6.0	148.7 ✓	
	12°28'	197'	-4°33'	195.8	-15.6		142.0 ✓	
	9°24'	305'	-2°19'	304.6	-12.3		145.3 ✓	
	355°44'	337'	-2°06'	336.6	-12.4		145.2 ✓	
℄ Elec. Pole	343°07'	375'	-1°42' 7.1	374.7	-11.1	-2.0	144.5 ✓	Also = E Bank ch. Edge ch = 3' Lower
E Bk ch.	311°05	234'	-4°05'	232.9	-16.6		141.0 ✓	Edge ch = 2' Lower ✓
78+41.10 = ⊡ 22	341°26'	281'	-2°53'	280.3	-14.1		143.5 ✓	Chk Az. 925 am
W Bk. ch.	313°0'	279'	-3°23'	278.1	-16.4		141.2 ✓	✓ edge = 1' Lower.
" " "	304°20'	267'	-3°29'	266.1	-16.2		141.4 ✓	✓ " " 2' "
" " "	280°47'	264'	-4°04'	262.7	-18.7		138.9 ✓	✓ " " 1' "
Toe slope	275°10'	363'	-3°03'	362.0	-19.3		138.3 ✓	
W Bk ch.	270°07'	290'	-3°46'	288.8	-19.0		138.6 ✓	✓ " " 1' "
Toe slope	284°16'	331'	-3°01'	330.1	-17.4		140.2 ✓	
	293°42'	313'	-2°56'	311.2	-16.0		141.6 ✓	
	301°40'	320'	-2°14'	319.5	-12.5		145.1 ✓	
	271°31'	372'	-0°47'	371.9	-5.1		152.5 ✓	
	277°14'	371'	-1°00'	370.9	-6.5		151.1 ✓	Chk Az. 10 am 6-25-43

Station	Azimuth Readings	Stadia From ⊡ 21	Vert. Δ Elev. 157.64	Horiz Dist.	Diff. Elev. HI-5.1	Elev.	
	282°24'	347'	-2°01'	346.6	-12.2	145.4	✓
	308°50'	361'	-1°08'	360.9	-7.1	150.5	✓
	289°40'	339'	-1°58'	338.7	-11.6	146.0	✓
	288°55'	363'	-1°15'	362.9	-7.9	149.7	✓
	299°28'	388'	-0°30'	388.0	-3.4	154.2	✓
	308°08'	370'	-0°57'	369.9	-6.1	151.5	✓
	305°37	420	+0°20 13.1	42.0?	-2.4 -8.0	147.2	✓ = Int. ℄ Mouth of Drow (West and N West)
Side Hill	273°10'	521'	+8°27'	510.1	+75.7	233.3	✓ ✓ in "
	314°0'	421'	-0°39'	421.0	-4.8	152.8	✓
	278°24'	490'	+7°41'	481.3	+64.9	222.5	✓
	284°40'	503'	+7°59'	493.7	+69.2	226.8	✓
	285°54'	550	+8°05' 9.1	539.3	+76.6 -4.0	230.2	✓
	315°36'	465'	+1°27'	464.7	+11.8	169.4	✓
	309°35'	475'	+2°30'	474.1	+20.7	178.3	✓
	306°15'	495'	+2°25'	494.2	+20.9	178.5	✓
	288°44'	594'	+7°06' 9.1	585.2	+72.9 -4.9	226.5	✓
	304°57'	540'	+2°41'	538.8	+25.3	182.9	✓
	305°25'	586'	+2°48' 10.1	584.7	+28.6 -5.0	181.2	✓
	293°45'	670'	+6°09'	662.7	+71.4	229.0	✓ chg Ag 10 35 am.
	298°41'	670	+4°45' 11.1	665.6	+55.3 -6.0	206.9	✓
	286°04'	410'	+2°13'	409.9	+15.9	173.5	✓
	280°57'	417'	+2°45'	416.1	+20.0	177.6	✓
	304°0'	660	+2°50' 20.7	658.4	+32.6 -15.6	174.6	✓ ℄ Drow N.W.
	270°	430'	+3°16'	428.7	+24.5	182.0	✓

Station	Azimuth Readings	Stadia From ⊡	Vert. ∠ 21 Elev	Horiz Dist. 157.64	Diff. Elev HI = 5.1	Elev.
	265°42'	430'	+3°47'	428.2	+28.3	185.9 ✓
	300°10'	540'	+2°16' 15.0	539.2	+21.3 -9.9	169.0 ✓
	256°57	442'	+3°48'	440.2	+29.2	~~186.8~~ ✓
	254°38'	443'	+2°59'	441.9	+23.0	~~184.6~~ ✓ ✓ chk Az. 11am 6-25-43
	294°25'	460'	+4°10'	457.6	+33.3	190.9 ✓
	293°40'	540'	+5°14' 18.0	535.6	+49.0 -12.9	193.2 ✓
	~~87°45'~~	~~106'~~				
	110°20'	185'	+9°46'	179.8	+30.9	188.5 ✓
	84°48'	190'	+10°29'	183.9	+34.0	191.6 ✓
	59°53'	222'	+7°42'	218.1	+29.5	187.1 ✓
	38°05'	417'	+5°59'	412.7	+43.2	200.8 ✓
	49°17'	258'	+6°24'	254.8	+28.6	186.2 ✓
	38°30'	327'	+5°08'	324.5	+29.3	186.9 ✓
	44°35'	352'	+7°15'	346.6	+44.1	201.3 ✓
	31°09'	388'	+3°56'	385.3	+26.6	184.2 ✓
	62°28'	290'	+10°18'	281.0	+51.0	208.6 ✓ chk Az. 1145 Rm 6-25-43
	Readings	From ⊡	22 = Elev.	143.45	H.I. =	
∠ on Rim MH.	256°41'	56'	0° 4.34	56.0	+0.8	144.3 ✓ ✓ Ground = 3' Lower
E Bk ch.	243°0'	28'	0° 5.4	28.0	-0.3	143.2 ✓ edge ch = Same Elev
E " "	351°53'	181'	+0°49'	181.0	+2.6	146.1 ✓ ✓ " " = 1' Lower
" " "	348°54'	251'	+1°06'	250.9	+4.8	148.3 ✓ ✓ " " = 3' "
" " "	341°14'	308'	+0°39'	308.0	+3.5	147.0 ✓ ✓ " " = 1' "
W " "	289°40'	85'	0° 4.5	85.0	+0.6	144.1 ✓ ✓ " " = 2' "
" " "	321°55'	123'	0° 4.9	123.0	+0.2	143.9 ✓ ✓ " " = 1.5' "

Station	Azimuth Readings	Stadia From ⊡ 22	Vert. Δ Elev = +2° 16'	Horiz Dist. 143.45	Diff. Elev HI = 5.0	Elev
						Elev. this station From F.B. 1657-3
℄ Mon.						150.2 ✓
℄ Estrella Pk	355°24'	322	11.0	321.5	+12.7 -6.0	
W Bk. ch.	328°15'	192	+0°37'	192.0	+2.1	145.6 ✓ ✓ Edge ch = 3' Lower
" " "	327°23'	248'	+0°41	248.0	+3.0	146.5 ✓ ✓ " " " " "
	357°45'	278'	+1°41'	277.8	+8.2	151.7 ✓
W Bk "	329°28'	281'	+2°20' 11.0	280.5	+11.4 -6.0	148.9 ✓
℄ Wash N.W.	336°33'	331'	+0°36'	331.0	+3.5	147.0 ✓
" " "	332°35'	410'	+1°27 12.0	409.8	+10.4 -7.0	146.9 ✓
E Bk ch.	342°55	356'	+1°40' 11.0	354.7	+10.3 -6.0	147.8 ✓ ✓ Edge ch 1' Lower
Toe Slope	330°10'	314'	+2°09' 13.0	313.6	+11.7 -8.0	142.2 ✓
" "	323°31'	243'	+0°57'	242.9	+4.0	147.5 ✓
	312°18'	223'	+2°05'	222.7	+8.1	151.6 ✓
Toe Slope	313°54'	207'	+0°26'	207.0	+1.6	145.1 ✓ chk Az. 150
" "	284°17'	192'	+1°22 7.0	191.9	+4.6 -2.0	146.1 ✓
	284°35'	201'	+2°02'	200.8	+7.1	150.6 ✓
	283°12'	216'	+2°55'	215.5	+11.0	154.5 ✓
	285°25'	363'	+11°15'	349.4	+69.5	213.0
	287°56'	343'	+12°07'	328.2	+70.4	213.9 ✓
	273°0'	230'	+2°51'	229.4	+11.4	154.9 ✓
	272°07'	184'	+1°45'	183.8	+5.6	149.1 ✓
	273°35'	171'	+0°17'	170.9	+3.8	147.3 ✓
	300°07'	358'	+12°38'	341.2	+76.4	219.9 ✓
	308°58'	371'	+11°52'	355.5	+74.7	218.2 ✓
	288°41'	263'	+7°50'	258.2	+35.5	179.0 chk. Az 205 Pm 6-25-43

Topog. Cont. in FB 1657 Page 10

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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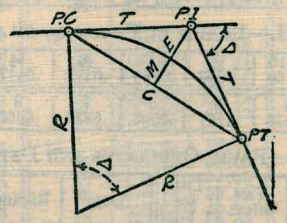


CURVE FORMULAS

Radius$=R=\frac{50}{\sin. D/2}$ (1) Degree of Curve$=D$ and $\sin. \frac{D}{2}=\frac{50}{R}$ (2)

Tangent$=T=R\tan\frac{\Delta}{2}$ (3) Length of Curve$=L=100\frac{\Delta}{D}$ (4)

Middle ordinate$=M=R(1-\cos. \frac{\Delta}{2})$ (5)$=R\text{vers}\,\frac{\Delta}{2}$ (6)

External$=E=T\tan\frac{\Delta}{4}$ (7)$=R\div\cos.\frac{\Delta}{2}-R$ (8)$=R\text{exsec}\frac{\Delta}{2}$ (9)

Long Chord$=C=2\,R\sin.\frac{\Delta}{2}$ (10) Δ=Central Angle

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.=Sta. 161+60.35 to find Sta. of P. C. and P. T. $\Delta=62°\ 10'$ $D=8°\ 20'$. From Table IV for 1° curve T=3454.1 and ÷8⅓=414.49 ft. From Table V correction=.36 or T=414.85 ft. P. C.=Sta. P.I.—T=157 +45.50. Also from (4) L=746.00 and P. T.=Sta. P. C.+L=164+91.50.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft.=7.27 ft. Distance=158—Sta. P. C.=54.50, hence offset=7.27 $(54.50\div100)^2$=2.16 ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2\div(2\times688.26)$=2.16 ft.

Deflections.—Deflection angle=½ D for 100 ft., ¼ D for 50 ft., etc. For c ft.=(in minutes) .3 x C x D° or=defl. for 1 ft. from Table III x C. For Sta. 158 of above curve=.3 x 54.5 x 8⅓=136.2′ or 2° 16.2′, or=2.50 x 54.5=136.2′ from Table III. For Sta. 159 deflection angle=2° 16.2′ +8° 20′ ÷2=6° 26.2′, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 115.37. For from Table IV for 1° curve E=960.6 for 8° 20′=960.6÷8⅓=115.27 and from Table V correction=.10 or E=115.37 ft. Or suppose $\Delta=32°$ and E is measured and found to be 42 ft. What is D? From Table IV E=230.9 and ÷42=5.5 or D=5° 30′.

Table VI.—Corrections for Sub-Chords and Long Chords.

FOR SUB-CHORDS ADD										Excess of arc per 100 ft.	LONG CHORDS				
D	10	20	30	40	50	60	70	80	90		D	200	300	400	500
4°	.00	.00	.01	.01	.01	.01	.01	.01	.00	.02	1	199.99	299.97	399.92	499.85
6	.00	.01	.01	.02	.02	.02	.02	.01	01	.05	2	199.97	299.88	399.70	499.39
8	.01	.02	.02	.03	.03	.03	.03	.02	.01	.08	3	199.93	299.73	399.32	498.63
10	.01	.02	.03	.04	.05	.05	.05	.04	.02	.13	4	199.88	299.51	398.78	497.57
12	.02	.04	.05	.06	.07	.07	.07	.05	.03	.18	5	199.81	299.24	398.10	496.20
14	.02	.05	.07	.08	.09	.10	.09	.07	.04	.25	6	199.73	298.90	397.26	494.53
16	.03	.06	.09	.11	.12	.12	.12	.09	.05	.33	7	199.63	298.51	396.28	492.57
18	.04	.08	.11	.14	.15	.16	.15	.12	.07	.41	8	199.51	298.05	395.14	490.31
20	.05	.10	.14	.17	.19	.20	.18	.15	.09	.51	9	199.38	297.54	393.86	487.75
22	.06	.12	.17	.21	.23	.24	.22	.18	.10	.62	10	199.24	296.96	392.42	484.90
24	.07	.14	.20	.25	.28	.28	.26	.21	.12	.74	12	198.90	295.63	389.12	478.34
26	.09	.17	.24	.29	.32	.33	.31	.25	.15	.86	14	198.51	294.06	385.22	470.65
28	.10	.19	.27	.34	.37	.38	.36	.29	.17	1.00	16	198.05	292.25	380.76	461.86
30	.11	.22	.31	.39	.43	.44	.41	.33	.19	1.15	18	197.54	290.21	375.74	452.02
32	.13	.25	.36	.44	.49	.50	.47	.38	.22	1.31	20	196.90	287.94	370.17	441.15
34	.15	.28	.40	.50	.55	.57	.53	.43	.25	1.48	22	196.32	285.44	364.06	429.30
36	.17	.32	.45	.56	.62	.64	.59	.48	.28	1.66	24	195.63	282.71	357.43	416.53
38	.18	.36	.51	.62	.70	.71	.66	.53	.31	1.86	26	194.87	279.76	350.30	402.89
40	.21	.40	.56	.69	.77	.79	.73	.59	.35	2.06	28	194.06	276.59	342.69	388.42
42	.23	.44	.62	.76	.85	.87	.81	.65	.38	2.28	30	193.18	273.20	334.61	373.20
44	.25	.48	.68	.84	.94	.96	.89	.72	.42	2.50	32	192.25	269.61	326.08	357.28
46	.27	.52	.75	.92	1.02	1.05	.98	.78	.46	2.74	34	191.26	265.81	317.12	340.73
48	.30	.57	.81	1.00	1.12	1.14	1.06	.86	.50	2.99	36	190.21	261.80	307.77	323.61
50	.32	.62	.89	1.09	1.21	1.24	1.15	.93	.55	3.24	38	189.10	257.60	298.03	305.99
52	.35	.67	.96	1.18	1.31	1.35	1.25	1.01	.59	3.52	40	187.94	253.21	287.94	287.94
54	.38	.73	1.04	1.28	1.42	1.46	1.35	1.09	.64	3.80	42	186.72	248.63	277.51	269.54
56	.41	.78	1.12	1.38	1.53	1.57	1.46	1.17	.69	4.09	44	185.44	243.87	266.78	250.85
58	.44	.84	1.20	1.48	1.65	1.69	1.57	1.20	.74	4.40	46	184.10	239.93	255.78	231.95
60	.47	.91	1.29	1.59	1.76	1.81	1.68	1.35	.80	4.72	48	182.71	233.83	244.51	212.92

Note.—When a chord of less than 100 ft. is used the corrections given in the above table should be added to the nominal length of chord to get the length which should be used in order that the 100 ft. points will check with those obtained by using the standard 100 ft. chord. Thus in locating a 14° curve by 25 ft. chords measure 25'.06 for each chord. Long chords are useful in passing obstacles.

Table VII.—Middle Ordinates for Rails in Feet.

Deg. of Curve	LENGTH OF RAILS							Deg. of Curve	LENGTH OF RAILS.						
	32	30	28	26	24	22	20		32	30	28	26	24	22	20
1°	.022	.020	.016	.013	.011	.009	.008	16°	.366	.313	.273	.236	.200	.170	.139
2	.045	.038	.034	.029	.025	.021	.017	17	.378	.333	.290	.252	.213	.180	.148
3	.067	.058	.051	.044	.037	.031	.026	18	.400	.351	.306	.265	.225	.190	.156
4	.089	.079	.069	.060	.050	.042	.035	19	.423	.371	.324	.280	.238	.201	.165
5	.112	.099	.086	.074	.063	.053	.044	20	.445	.392	.341	.296	.250	.212	.174
6	.134	.117	.102	.088	.076	.064	.052	21	.466	.410	.357	.309	.262	.222	.182
7	.156	.137	.120	.104	.088	.074	.061	22	.487	.430	.375	.325	.275	.233	.191
8	.179	.158	.137	.119	.100	.085	.070	23	.509	.450	.390	.338	.287	.243	.199
9	.201	.175	.153	.133	.112	.095	.078	24	.531	.469	.408	.354	.299	.253	.208
10	.223	.196	.171	.148	.125	.106	.087	25	.552	.486	.424	.367	.311	.263	.216
11	.245	.216	.188	.163	.139	.117	.096	26	.573	.506	.441	.382	.323	.274	.225
12	.268	.236	.206	.179	.151	.128	.105	27	.594	.524	.457	.396	.335	.284	.233
13	.290	.254	.222	.192	.163	.138	.113	28	.618	.545	.475	.411	.348	.294	.242
14	.312	.275	.239	.207	.175	.148	.122	29	.638	.564	.491	.424	.361	.303	.250
15	.334	.295	.257	.223	.188	.159	.131	30	.660	.583	.508	.438	.374	.313	.259

SLOPE REDUCTIONS.

When distances are measured on a slope they may be reduced to the equivalent horizontal distance by the following approximate rule:—subtract from the slope distance the square of the rise divided by twice the slope distance. Thus for a slope distance of 250.3 ft. and a rise of 15 ft. correction=$15^2 \div 2 \times 250.3$=.45 (by slide rule) or horizontal distance=250.3—.45=249.85. When vertical angle=V. A. is measured horizontal distance=slope distance—slope distance (1—Cos. V. A.). Thus for slope distance of 248.7 ft. and V. A. of 4° 20′ from Table VIII Cos=.99714 and correction=1—.99714=.00286 per foot or total of .286×2½ (near enough)=.57 and horizontal distance=248.7—.57=248.13 ft.

TRIGONOMETRICAL FORMULAS.

See fig. (a).

sin. $A=\frac{a}{c}$

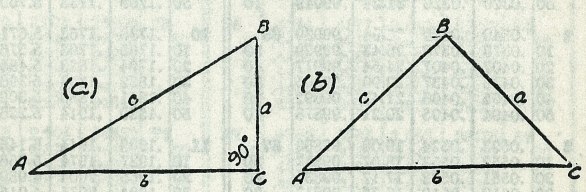
cos. $A=\frac{b}{c}$

tan. $A=\frac{a}{b}$

cot. $A=\frac{b}{a}$

sec. $A=\frac{c}{b}$

cosec. $A=\frac{c}{a}$



Formula for Solving Triangles.

Given	Sought.	Right triangles. See fig. (a).
a, c	$A, B\ b$	$\sin. A=\frac{a}{c}$, $\cos. B=\frac{a}{c}$, $b=\sqrt{(c+a)(c-a)}$.
a, b	A, B, c	$\tan. A=\frac{a}{b}$, $\cot. B=\frac{a}{b}$, $c=\sqrt{a^2+b^2}$.
A, a	B, b, c	$B=90°-A$, $b=a \cot. A$, $c=\frac{a}{\sin. A}$.
A, b	B, a, c	$B=90°-A$, $a=b \tan. A$, $c=\frac{b}{\cos. A}$.
A, c	B, a, b	$B=90°-A$, $a=c \sin. A$, $b=c \cos. A$
Given	**Sought.**	**Oblique triangles. See fig. (b).**
A, B, a	b	$b=\frac{a \sin. B}{\sin. A}$
A, a, b	B	$\sin. B=\frac{b \sin. A}{a}$
a, b, C	$A-B$	$\tan. \frac{1}{2}(A-B)=\frac{(a-b) \tan. \frac{1}{2}(A+B)}{a+b}$
a, b, c	A	If $s=\frac{1}{2}(a+b+c)$, $\sin. \frac{1}{2}A=\sqrt{\frac{(s-b)(s-c)}{bc}}$; $\cos. \frac{1}{2}A=\sqrt{\frac{s(s-a)}{bc}}$, $\tan. \frac{1}{2}A=\sqrt{\frac{(s-b)(s-c)}{s(s-a)}}$, $\sin. A=\frac{2\sqrt{(s-a)(s-b)(s-c)s}}{bc}$
A, B, C, a	area	$\text{area}=\frac{a^2 \sin. B \sin. C}{2 \sin. A}$.
A, b, c	area	$\text{area}=\frac{1}{2} b c \sin. A$
a, b, c	area	$s=\frac{1}{2}(a+b+c)$, $\text{area}=\sqrt{s(s-a)(s-b)(s-c)}$

27°40
120

29 2
580

21+39.28
52.89
21+92.17

52+98.5
51.5
53+50.0

43

N +
133 2°30

37+33.14
297.72
40130.86

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1½

For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9+(20—16)÷2 or 2 ft. added to 41.9 =43.9. For slopes of 1 on 1 see inside of front cover.

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