1750

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1750

Gibbs INDEX

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B.M. – Levels for proposed New Riverside Airport

Sta.	+	H.I.	–	Elev.	B.M.
	0.73	416.51			415.78 ✓
			8.70	407.81	
			10.10	406.41	
T.P.	3.35	407.31	12.55	403.96	
T.P.	0.54	395.18	12.67	394.64	
			8.99	386.19	
T.P.	0.33	382.58	12.93	382.25	
T.P.	9.62	379.66	12.54	370.04	
			12.48	367.18	
			4.33	375.33	
T.P.	13.31	387.87	5.10	374.56	
T.P.	3.96	391.17	0.66	387.21	
T.P.	8.95	387.32	12.80	378.37	
B.M.	9.18	390.03	6.47	380.85	386.97
T.P.	10.73	399.85	0.91	389.12	
B.M.			8.06	391.79	398.04
T.P.	8.92	402.57	6.20	393.65	
T.P.	7.04	408.52	1.09	401.48	
			6.41	402.11	
T.P.	4.55	407.13	5.94	402.58	
T.P.	5.61	411.06	1.68	405.45	
T.P.	11.53	421.37	1.22	409.84	
B.M.			2.22	419.15	425.0
T.P.	1.73	417.92	5.18	416.19	

State B.M. # 25 = B.M. #1 – Steel axle in mound of rock 87' Lt. Sta. 225+17 Equ.
(Hub Sta. 6+01.82) Sta 0+00
(Hub Sta. 7+30.47) City Datum – 415.78 ✓
U.S.C.& G.S. – 421.95

(Hub Sta. 9+90.28)

(Hub Sta. 14+07.64)
(Hub Sta. 15+45.22)

(Hub Sta. 20+68.16)

State B.M. #3 chiseled square on No. Headwall of Culvert Sta. 16+23
State B.M. #4 1/2" iron pin in mound of rock 100' Lt. Sta. 25+89
Hub. Sta. (21' Rt. State Sta. 27+02.85)

(Mon. Sta. 50+93±)
(Hub Sta. 53+06.64)

USGS B.M. H 47
(Hub. Sta. 71+47.47)

Levels Cont'd from Page 1

Sta	+	H.I.	−	Elev	B.M.
		417.92			
T.P.	3.17	409.83	11.26	406.66	
			5.46	404.37	
T.P.	2.07	406.13	5.77	404.06	
T.P.	3.99	408.85	1.27	404.86	
			3.99	404.86	
T.P.	4.00	410.41	2.44	406.41	
TP	10.77	417.49	3.69	406.72	
			6.17	411.32	
TP	6.75	419.78	4.46	413.03	
T.P.	1.96	421.34	0.40	419.38	
TP	0.73	416.46	5.61	415.73	
TP	6.83	420.61	2.68	413.78	
TP	5.39	419.38	6.62	413.99	
			4.67	414.71	
TP	0.97	416.49	3.86	415.52	
TP	4.19	415.43	5.25	411.24	
T.P.	1.88	414.69	2.62	412.81	
TP.	2.94	413.47	4.16	410.53	
TP	4.24	413.24	4.47	409.00	
T.P.	4.30	411.19	6.35	406.89	
TP.	7.40	412.90	5.69	405.50	
T.P.	4.47	410.38	6.99	405.91	
	5.85	410.38	5.85	404.53	

(Hub Sta 77+00)
Nail in power pole # 4433944
Nail in power pole # 443343-H.
(Hub Sta. 92+99.64)
Nail in power pole # 443346
(Hub Sta 98+86.86 ± Rt)
(Hub Sta 104+76.62 Rt)
Nail in Tel. pole # 4502 on Palm St.
Nail in Tel. Pole # 4507 " " "
" " " " # 4511 " " "

Mon. NE Cor Lot 17 West side of Palm St
Nail in Tel. Pole # 4526 on Palm St.
" " " " # 4530 " " "
" " " " # 4534 " " "
Top of Conc marker between poles #4538 & 4539

Mom S.E Cor Lot 24 West side Palm St.

Iron pipe NW Cor. Lot 40 (Sta 338+88.06)

Levels Cont'd. from page 2

	+	H.I	−	Elev.	B.M.
		410.38			
	4.12	407.07	7.43	402.95	
			5.40	401.67	
TP	3.82	399.87	11.02	396.05	
TP	7.02	405.62	1.27	398.60	
			9.56	396.06	
TP	0.35	393.33	12.64	392.98	
TP	0.43	381.63	12.13	381.20	
TP	0.21	369.28	12.56	369.07	
TP	0.62	357.15	12.75	356.53	
TP	1.08	346.05	12.18	344.97	
			11.81	334.24	
TP	10.90	352.02	4.93	341.12	
TP	11.81	363.10	0.73	351.29	
TP	12.50	374.90	0.70	362.40	
TP	12.68	386.78	0.80	374.10	
			4.11	382.67	
TP	9.27	395.39	0.66	386.12	
			6.01	389.38	
TP	10.71	405.29	0.81	394.58	
TP	12.82	417.49	0.62	404.67	
B.M.			1.71	415.78	415.78

(Hub Sta. 348+62.74)
Nail in 12" fence post 40' Rt. Sta. 352+50
Rock 5' Lt. Sta. 359+90
(Hub Sta. 364+73.41)

(Hub Sta. 371+35.70)

(Hub Sta. 374+65.54)
(Mon Sta. 375+37.98)
(Mon Sta. 377+67.96 = 0+00)

State BM #1 See page 1 this book

Walker
Becker
Grear
2-5-47

Bench Marks
Topog. Control Points
Sketch P-5

	10.23	402.67		391.79
T.P.	4.16	405.57	1.56	401.11
			3.77	401.80
T.P.	6.11	407.63	4.05	401.52
T.P.	5.01	409.54	3.10	404.53
T.P.	4.81	406.67	7.68	401.86
T.P.	6.54	410.42	2.79	403.88
T.P.	3.04	411.50	1.96	408.46
T.P.	7.68	416.03	3.15	408.35
Check B.M.			1.31	414.72
				414.71
				0.01
	2.63	410.98		408.35
T.P.	5.04	409.51	6.51	404.47
T.P.	3.13	412.12	0.53	408.98
T.P.	7.14	412.79	6.47	405.65
			4.90	407.89
T.P.	4.08	407.87	9.00	403.79
	4.00	411.23	0.64	407.23
T.P.	6.03	414.93	2.33	408.90
			5.54	409.39
Chk. Hail Pole			2.03	412.90
				412.81
				4.09

Use Elev Page 6

Cont. P. 6

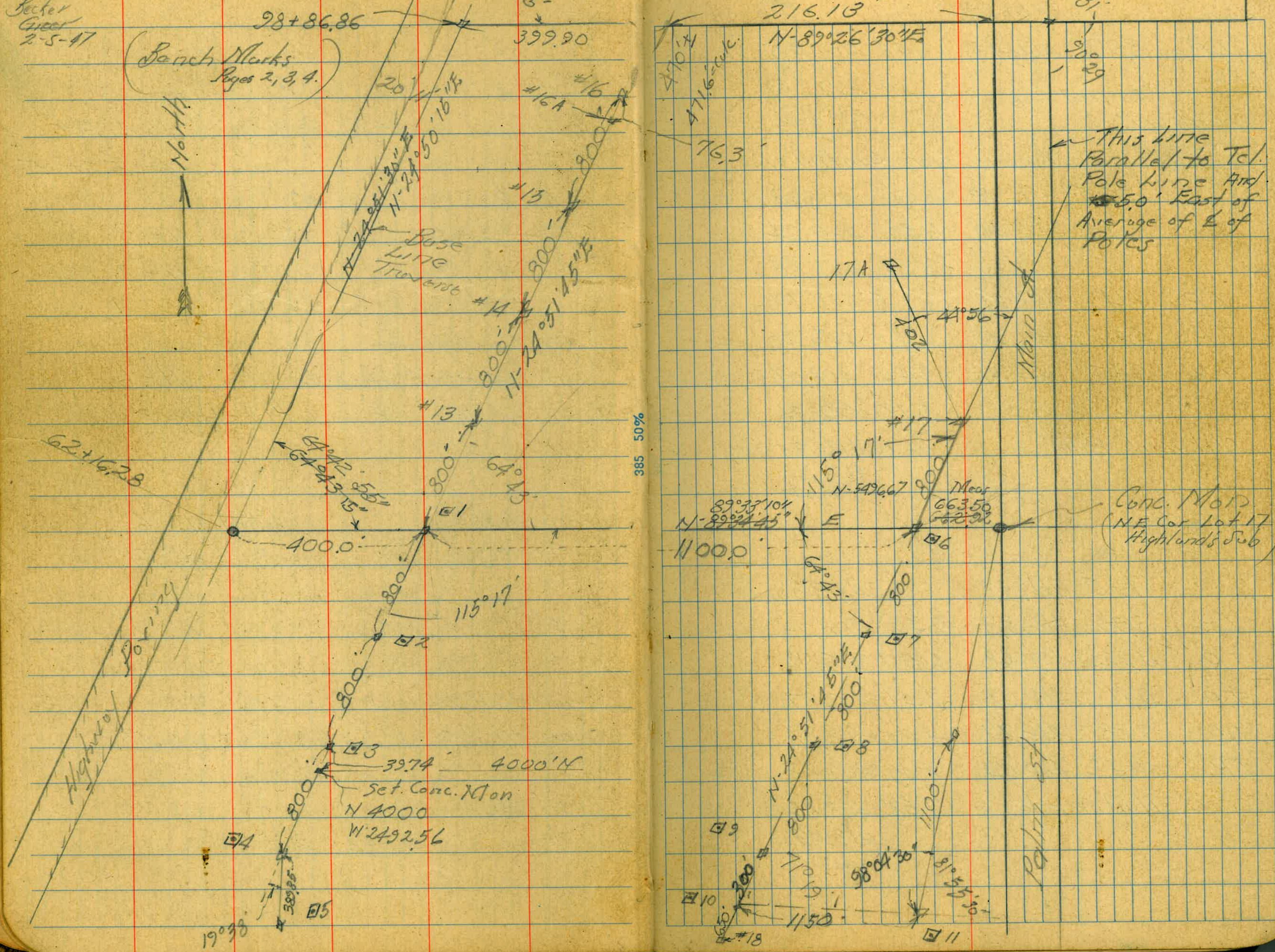
State B.M. 44 1/2" Iron Pin Page 1
Redwood Hub Topog Control No 4 P.5
" " " " No 5 - P-5
on Rock
Redwood " " " No 3
" " " " No 2
" " " " No 1
on Top Splinter
on Redwood Hub " No 6
on Conc. Mon N.E. Cor Lot 17 - Page 2

on Hub Control No. 6
" " " No. 7
" " " No. 8
" " " No. 9
" " " No 10
on Rock
on Hub " No. 11
" Hub " No 12
Pole No 4534 P-2

Walker
Hendricks
Becker
Greer
2-5-47

Control Points
Linda Vista Airport

(Bench Marks Pages 2, 3, 4.)



385 50%

B.M.s Cont. from P-4

		414.93		
T.P.	3.97	412.42	6.48	408.45
			3.37	409.05
	Control Hub			408.98
Chk.	No 8			0.07
	Return Levels from Control No 8			
	3.05	412.03		408.98
T.P.	6.78	412.42	6.39	405.64
			4.54	407.88
T.P.	4.14	407.91	8.65	403.77
T.P.	4.27	411.47	0.71	407.20
T.P.	6.45	414.46	3.46	408.01
			5.10	409.36
Chk Nail	Pole		1.61	412.85
				412.81
				0.04
	7.45	411.33		403.88
T.P.	3.39	412.33	2.39	408.94
T.P.	3.92	409.68	6.57	405.76
T.P.	9.41	411.68	7.41	402.27
T.P.	7.88	414.71	4.85	406.83
T.P.	11.42	420.64	5.49	409.22
Check	Nail in Pole		7.58	413.06
				413.03
				0.03

on Hub Control No. 8
" " " No 9
" " " No 10
on Rock
on Hub " No 11
on Rock
on Hub " No 12
Pole #4534 on Main St.

B.M. on Hub Control No 1
on Hub Control No 13
on " " No 14
" " " No 15
" " " No 16
on Pole #4502 Page 2

Walker
Backer
2-14-47

BM's Control Points
Cont. from P. 4
Sketch P-5

	2.48	416.83		408.35
			5.19	411.64
	5.27	409.74		404.47
T.P.	5.15	414.54	0.35	409.39
			3.07	411.47
	9.90	414.37		404.47
			5.15	409.22
Chk.	Elev. #430 P-2		3.07	411.30
				411.24
				0.06
	8.07	417.29		409.22
			5.26	412.03
2-28-47				
	4.51	408.39		403.88
			3.32	405.07
2-28-47				
	4.02	410.91		406.89
T.P.	1.04	403.70	8.25	402.66
TP	2.88	400.18	6.40	397.30
T.P.	10.25	408.63	1.80	398.38
T.P.	5.81	408.63	5.81	402.82

Cont. P-10

BM on Hub Control No 6 Page 4
" " " " No 17

BM " " " No 7
" " " " No 7-A

on Hub Control No. 7-A.

BM on Hub #16
BM " " Control No 16-A

BM " " " No 1 Page 4
BM on Conc. Mon 62+16.28 Sketch P-5

BM on Conc. Mon SE Cor. Lot 24 Page 2
BM " Hub Control #19
BM " " " #20

BM " " " " #21

2-27-47 chief Backer ch.
Wilkes Hendricks T. Johnson ch.

LINDA AIRPORT

Mean Va "A" T = 1°04'37.5"

62+16.28

Elev. "A" = 405.07
5.73
A = 410.80

Vert diff "A" T = 127.50 = Above Hz.
El. T = 538.30

N-24°50'15"E

2163.50'

55°24'55"

Parking

115°16'45"

2209.67 Calc.

Vista

N-24°49'55"W

10°30'35"

6781.90 Calc.

Calc. 15°53'52"

Calc. 38°04'

7631.42 Calc.

Calc. 47°42'30"

Mean Elev 538.23

108.25 South
3901.7 West

108.54 South
3819.40 West

Chesterton Water Tank

VISTA
- Triang. to Chesterton Water Tank

N-89°33'10"E

"B"

59°10'

89°37'55"

N-0°04'25"W 1176.05' Meas.

Palm St.

Base Line Elm St. (for coordinates)

36°44'55"

30°55'35"

18°22'17"

"C"

North

Meas 1877.05'

N-0°04'25"W

Traverse Line

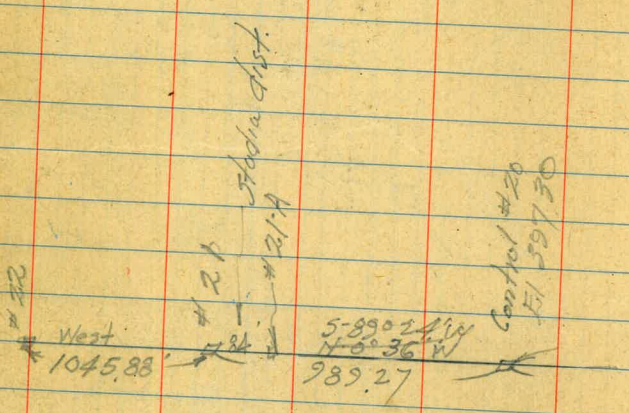
Mean Va "B" T = 0°53'30"
El. "B" = 414.71
4.58
T = 419.29
Vert. diff "B" T = 118.77
Elev T = 539.06

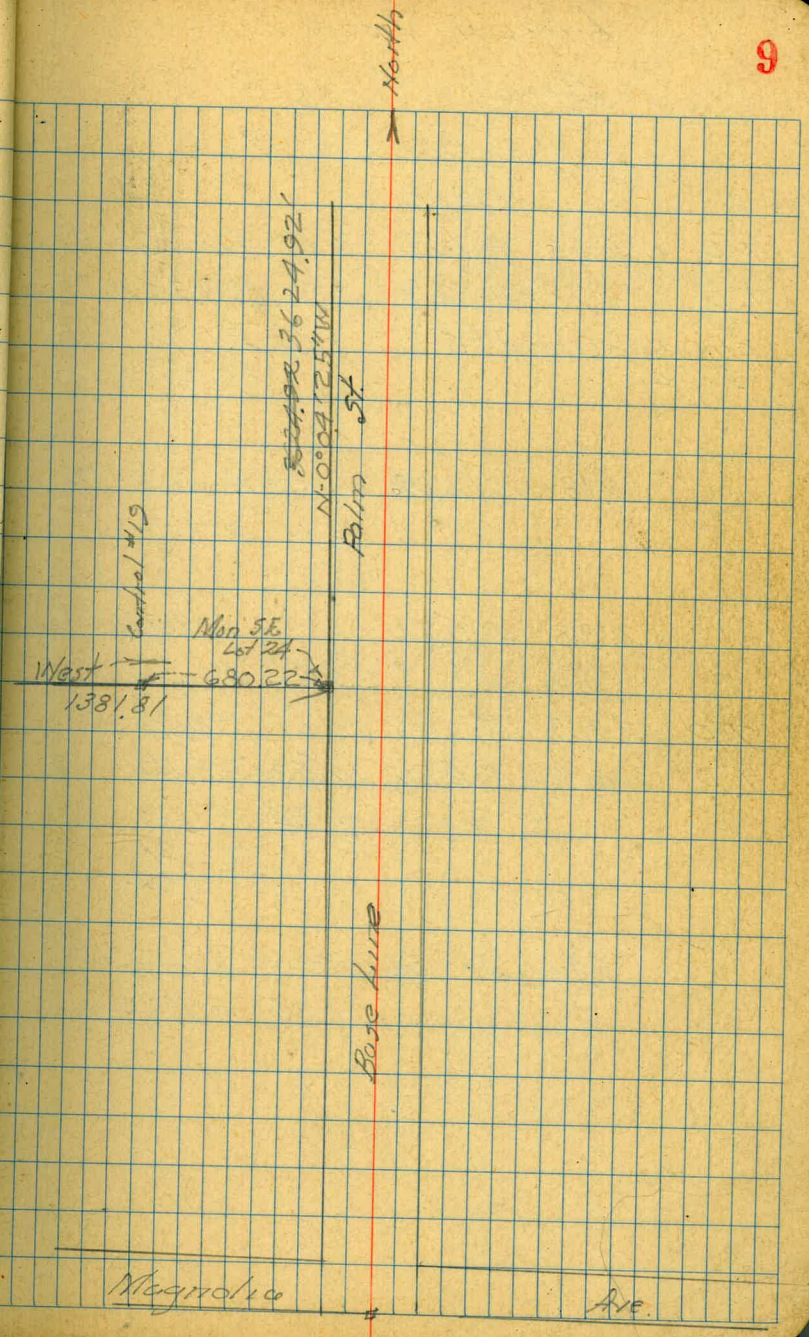
Above Hz

Mean Va "C" T = 1°29'15"
Elev. "C" = 406.89
5.05
T = 411.94
126.41
Elev T = 538.35

000 North & South
000 East & West
See p. 11 for origin of Coordinates

Topog. Controls
LINDA VISTA AIRPORT.





Linda Vista Airport

Bench Marks

Cont. from P. 7

40863

T.P.	5.06	407.82	5.87	402.76
T.P.	4.93	403.23	9.52	398.30
(chk. Hub Control #5 Page 4)			1.50	401.73
				401.80
				0.07
	2.18	412.00		402.87
			4.5	407.5
	2.38	405.20		402.82
			1.34	400.36
T.P.	2.25	396.23	11.22	393.98
T.P.	6.32	392.03	10.52	385.71
			4.84	387.19
				387.21
				0.02
	5.86	408.52	~~10.66~~	402.66
			0.85	407.67

BM Nail — NW. Cor Lot 17 New Riverside L.S. #1295

BM on Control Hub № 21 Page 7

BM " " " № 21

BM " Conc. SW Cor Lot 17 New Riverside L.S. #1295

BM on Hub Control № 22

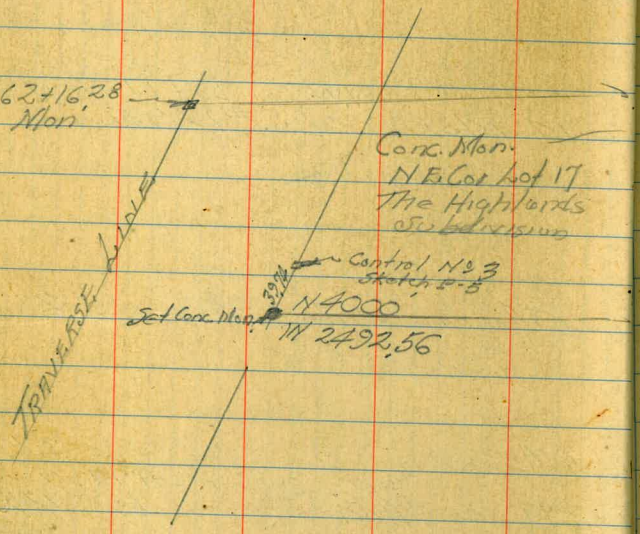
chk " Hub 20+68.16 Page 1

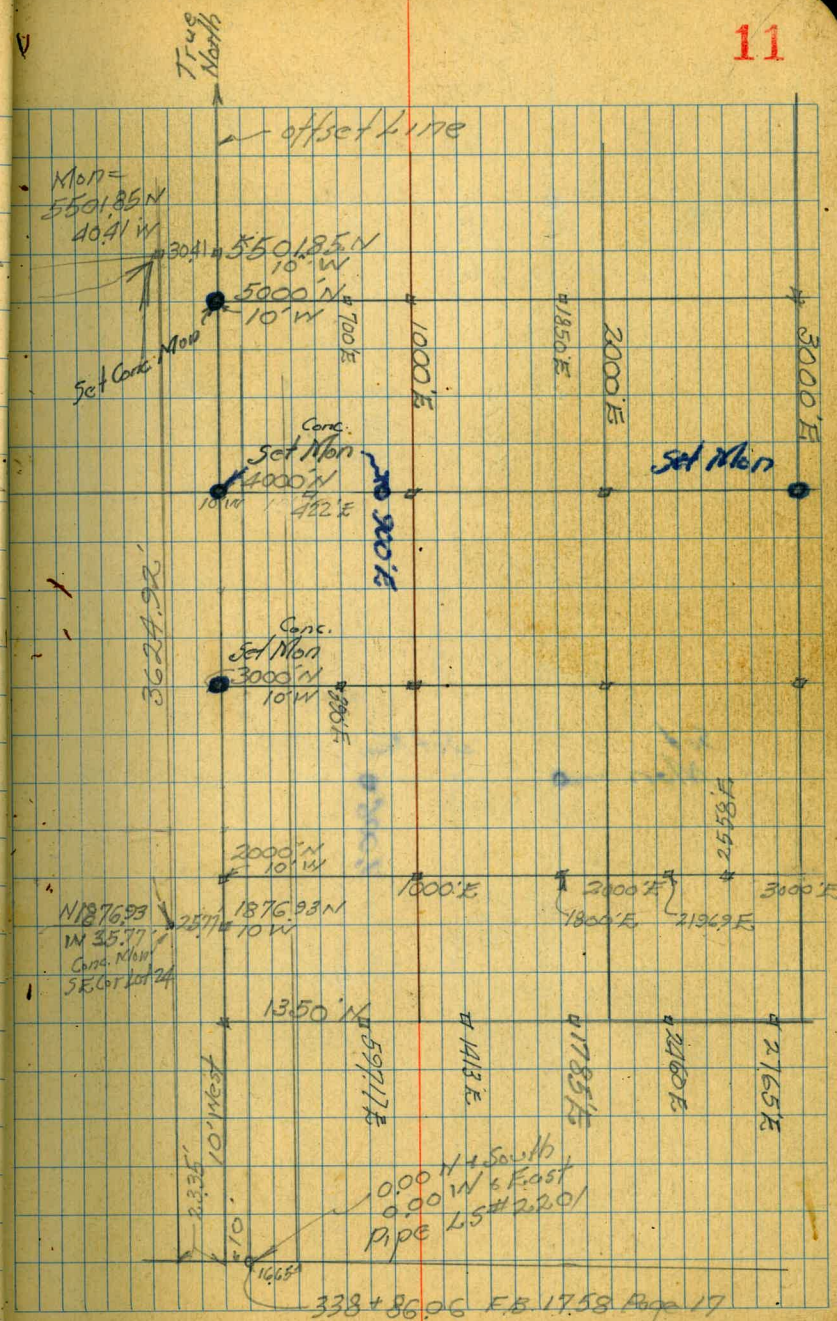
BM on Control # 19

" " " Paving Stake 19A

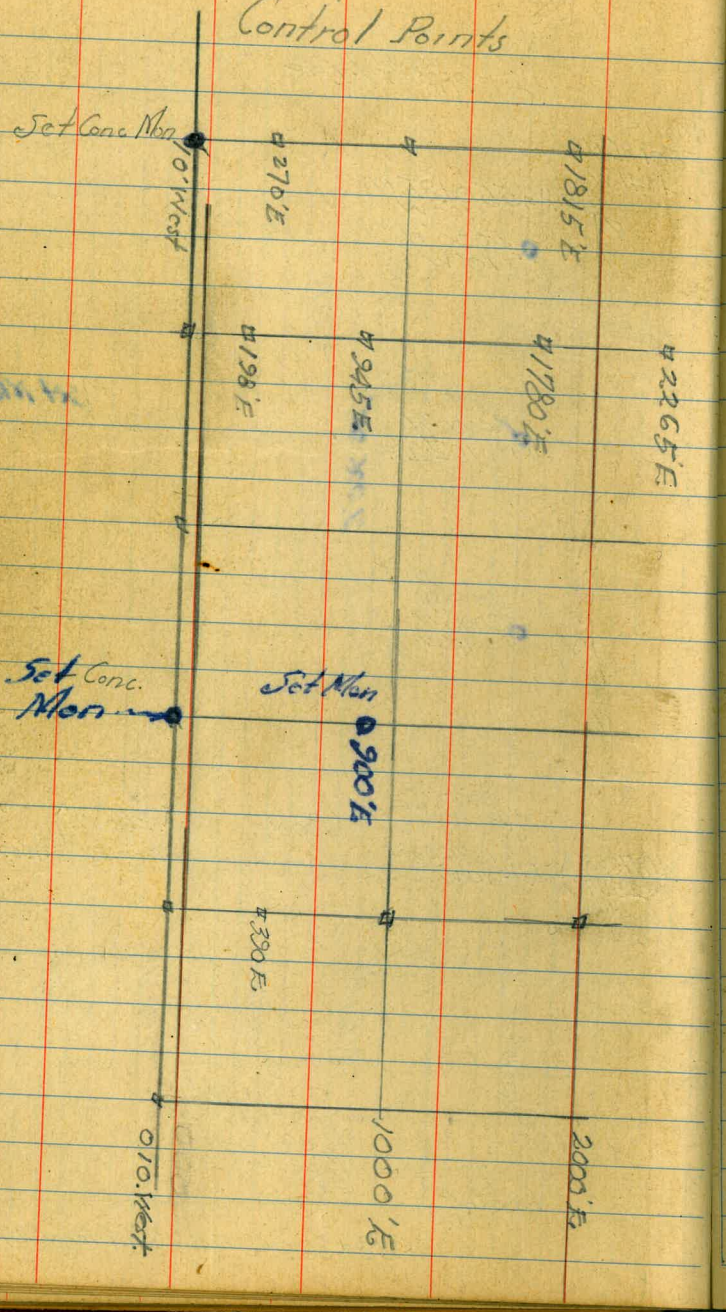
Gibbs Municipal Airport
Coordinates for Topography Control Points

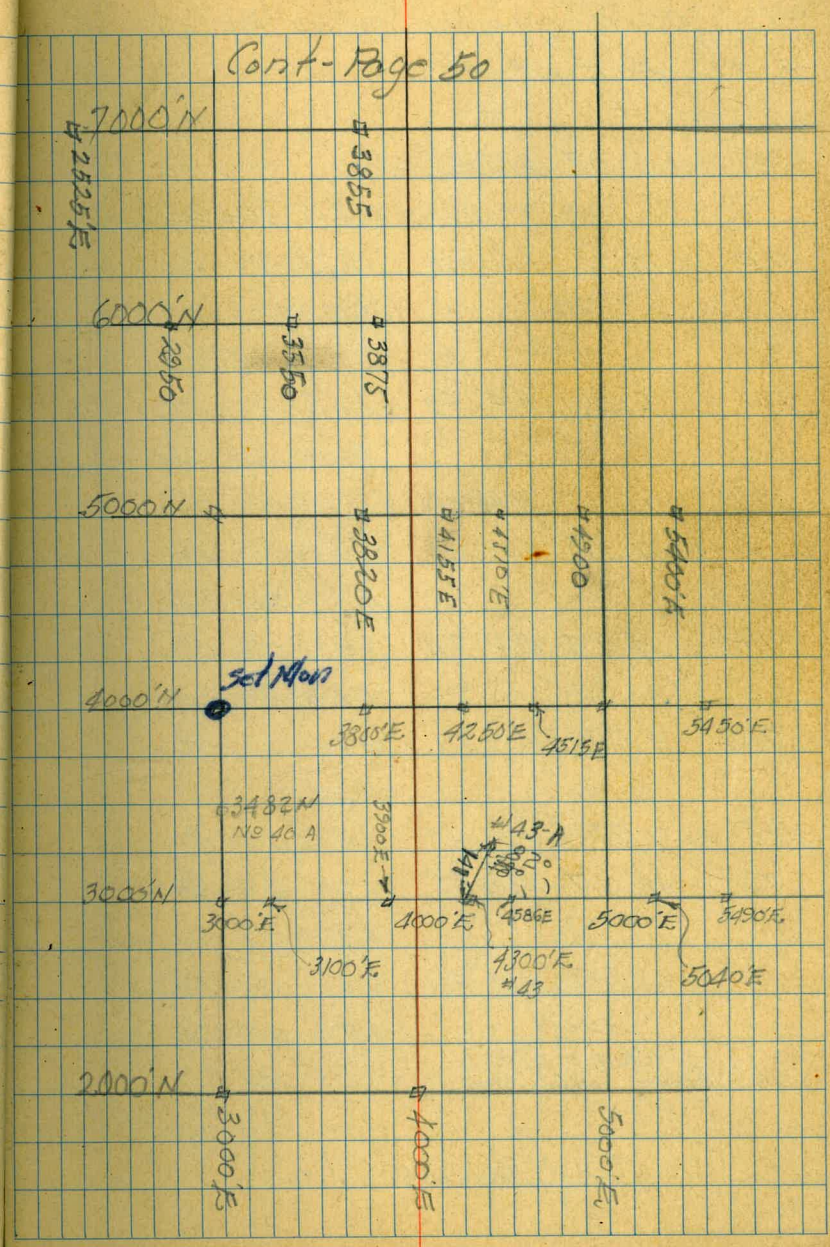
■ = 2" x 2" Hubs





Gibbs Airport
Control Points





Walker Gibbs Airport
Hendricks Bench Marks
Becker on Topography Control Points
Johnson
3-13-47 East of Palm St.

	+	T	−	Elev.
	5.77	412.66		406.89
			8.22	404.44
T.P.	8.92	416.32	5.26	407.40
			3.01	413.31
			2.52	413.80
T.P.	5.62	414.59	7.35	408.97
			6.44	408.15
T.P.	1.60	404.06	12.13	402.46
	11.37	410.05	5.38	398.68
			5.71	404.34
T.P.	4.65	411.24	3.46	406.59
			0.98	410.26
T.P.	3.57	409.87	4.24	406.30
			5.24	403.93
T.P.	7.72	408.12	9.47	400.40
T.P.	10.77	416.22	1.97	406.15
			4.21	412.01
T.P.	3.65	414.30	6.27	410.65
			6.78	407.52
Chk. Above	Starting BM on Conc. Mon		7.38	406.92
				406.89
				0.03

Cont. Page 14

Conc. West side Palm St
S.W. Mon. St. Col. Lot 24 New Riverside P-2

on Hub	1350 N 10 W	= Control #23
on Rock	1350 N	
on Hub	597.17 E.	" #24
on Hub	1350 N 1013 E.	" #25
on Rock	1350 N	
on Hub	1785 E.	" #26
on Rock	1350 N	
on Hub	2460 E.	" #27
" "	1350 N 2765 E.	" #28
on Hub	2000 N 3000 E.	" #29
" "	2000 N 2558 E.	" #30
" "	2000 N 2196.9 E.	" #31
" "	2000 N 1800 E.	" #32
on Rock	2000 N	
on Hub	1000 E.	" #33
" Splinter	2000 N 470 E.	" #34
" Hub	2000 N 10 W	" #35

Bench Marks
Cont. from P. 13

	+	−	Elev.
	7.38 414.27		406.89
T.P.	7.41 414.35	7.33	406.94
T.P.	6.59 414.03	6.91	407.44
T.P.	5.23 418.17	1.09	412.94
T.P.	1.93 418.20	1.90	416.27
	~~1.93 418.20~~		~~416.27~~
T.P.	6.60 415.70	9.10	409.10
T.P.		3.38	412.32
T.P.	7.75 420.07	4.70	415.37
	8.73 424.10	6.89	417.21
T.P.	7.81 438.44	3.47	430.63
		3.10	425.34
T.P.	4.70 424.74	8.40	420.04
		8.81	415.93
T.P.	6.50 430.70	0.54	424.20
		5.16	425.54
T.P.	3.60 439.93	4.37	436.33
		3.41	436.52
T.P.	13.26 431.65	11.54	418.39
T.P.	7.98 435.93	3.70	427.95
		2.92	433.01
T.P.	1.50 433.30	4.10	431.83
		6.87	426.43
T.P.	2.07 438.76	6.61	426.69

CONT'D. Pge. 15.

Cont. on P. 16

B.M. Conc. Mon SE Cor Lot 24 P. 2

on Hub	3000 N 10 W	Control	No 36
" "	3000 N 390 E.	"	No 37
" "	3000 N 1000 E	"	No 38

Cont. P. 16

ON ROCK			
ON HUB	3000 N. 2000 E	CONTROL	No 39
ON HUB	3000 N 3000 E	CONTROL	No 40
ON HUB	3000 N 3100 E	CONTROL	No 41
ON Hub	3000 N 3900 E	CONTROL	No 42
ON HUB	3000 N 4300 E	CONTROL	No 43
ON Hub	3000 N 4586 E	CONTROL	No 44 Void
ON Hub	3000 N 5040 E	CONTROL	No 45
ON ROCK			
ON Hub	3000 N 5490 E	CONTROL	No 46
ON ROCK			
ON Hub	4000 N 5450 E	CONTROL	No 47
ON Hub	4000 N E	CONTROL	No 48
ON Hub	4000 N 4515 E	CONTROL	No 49
ON Hub	4000 N 4250 E	CONTROL	No 50
ON Hub	4000 N 3800 E	CONTROL	No 51
ON Hub	4000 N 3000 E	CONTROL	No 52
ON ROCK			

This Portion

BENCH MARKS CONT. FROM PAGE 14

This Portion

	+	Vols	−	Elev.
T.P.	4.31	435.85	4.22	431.54
T.P.	2.54	426.11	2.38	423.57
T.P.	2.54	426.11	5.68	420.43
	2.25	432.68		413.03
				412.81
Pole 4534			9.65	0.22

ON HUB	4000 N. 3000 E.	CONTROL	N° 53
ON HUB	4000 N. 900 E.	CONTROL	N° 54
ON HUB	4000 N. 430 E.	CONTROL	N° 55

Cont. from P-14

	5.58	421.85		416.27
T.P.	4.65	414.30	12.20	409.65
T.P.	8.33	417.58	5.05	409.25
T.P.	5.28	417.58	5.28	412.30
T.P.	4.86	421.47	0.97	416.61
			6.08	415.39
T.P.	5.71	424.92	2.26	419.21
				421.73 P-47
			3.12	421.80
T.P.	0.24	417.18	7.98	416.94
T.P.	8.24	421.48	3.94	413.24
				419.17 = Conc. Mon
			2.63	418.85
T.P.	2.08	417.76	5.80	415.68
			4.97	412.79
				412.81
				.02
			6.13	411.66

B.M.s Cont. P-23

B.M. Control Hub No 38 Page 14

on Rock

" "

on Hub Control No 39 3000'N 2000'E

on Rock

on Hub " No 40 3000'N 3000'E

→ on Con Mon " " No 52 4000'N 3000'E

" " " No 53 4000'N 2000'E

on Rock

on Hub " No 54 4000'N 900'E

" " " No 55 4000'N 420'E

Ck B.M. Pole #4534

on Hub 4000'N 10'W

Stadia Readings
Gibbs Airport

Readings from Control No 37 —

Elev. 41294. HI = 5.15

Azimuth from True North Clockwise

Station	Stadia	Azimuth	Vert ∠	Horiz.	Diff Elev.	True Elev.
	390	270°	0° R 10.4			407.7
	280	289°40'	0° 9.6			408.5
	353	284°50'	0° 9.9			408.2
	323	305°50'	0° 9.5			408.6
	393	299°40'	0° 10.0			408.1
	385	319°	0° 9.6			408.5
	~~445~~ 444	~~311°~~ 41	0° 9.5			408.9
	456	327°45'	0° 8.6			409.5
	517	320°30	0° 7.8			410.3
	540	333°45	6.7			411.4
	590	326°30	8.1			410.0
	633	338°35'	7.3			410.8
	675	331°0	8.0			410.1
	720	341°45'	7.3			410.8
	753	334°45'	7.7			410.4
	693	349°50'	5.9			412.2
	687	357°0'	5.7			412.4
	604	348°15	6.9			411.2
	583	356°0	5.7			412.4
	513	345°50'	6.2			411.9
	483	365°20	5.1			413.0

=3000 N
=390 E

385 50%

Readings Cont from P. 17

Elev. 412.94 HI 6.15

Stadia	Azimuth	V∆ Rod	Horiz.	Diff El.	True Elev.
420	342°00'	6.4			411.7
397	354°0	4.8			413.3
330	335°45'	8.1			410.0
310	351°15'	7.0			411.1
247	326°30'	8.2			409.9
257	345°0'	7.0			411.1
177	309°30'	7.7			410.4
123	336°35'	6.9			411.2
98	75°20	5.4			412.7
153	40°0	5.2			412.9
230	26°45'	4.3			413.8
316	20°15'	3.2			414.9
410	16°30	4.5			413.6
500	13°45'	4.8			413.3
595	12°0	5.4			412.7
685	11°0	5.2			412.9
780	10°0	5.1			413.0
830	15°30	3.0			411.51
735	17°30	4.4			413.7
643	19°30	4.8			413.3
555	22°15	4.6			413.5
465	25°45	4.1			414.0
330	31°15	4.1			414.0
297	40°0	3.5			414.6
225	55°30	5.2			412.9

Readings Contd from Page 18

Elev. 412.94 HI 5.15

Stadia	Azimuth	V A and Rod	Horiz	Diff Elev	True Elev
190	80° 0	5.7			
290	84° 15	6.2			
317	68° 45	4.7			
366	54° 45	3.8			
435	44° 45	3.0			
510	37° 45	2.4			
612	31° 45	1.6			
695	28° 0	3.3			
740	34° 15	- 0.3			
660	39° 30	+ 0.5			
584	46° 0	0.8			
527	53° 15	1.5			
425	61° 30	3.1			
430	71° 15	4.7			
407	84° 0	5.0			

Readings From Control No 38 3000 N 1000 E

Elev. 416.27 H.I. 5.2

187	296° 45	7.3			
247	318.45	5.7			
330	330° 0	4.0			
420	337° 15	3.1			
520	341° 45	3.1			
617	345° 15	2.7			
730	348° 30	3.1			
825	348° 30	2.8			

True Elev

412.4
411.9
413.4
414.8
415.1
415.7
416.5
414.8
417.8
418.6
417.3
416.6
415.0
413.4
413.1

414.2
415.8
417.5
418.4
418.4
418.8
418.4
418.7

READINGS FROM CONTROL 38
Elev 416.27 HI 5.2

Stadia	Azimuth	Vas Rod	Horiz.	Diff Elev	True Elev
814	355° 15	2.6			
715	355° 0	2.6			
612	354° 30	2.7			
505	353° 40	2.4			
403	352° 40	3.1			
297	350° 40	4.1			
197	346° 30	4.1			
106	331° 30	5.0			
111	23° 15	5.0			
205	11° 0	5.0			
307	8° 45	6.1			
407	6° 40	5.2			
508	6° 15	7.3			
605	6° 10	8.9			
700	6° 10	10.6			
714	14° 23	11.0			
613	15° 45	10.7			
507	17° 45	9.3			
408	20° 50	10.4			
314	27° 10	12.4			
237	36° 50	12.3			
158	59° 0	11.6			
247	71° 20	15.3			
306	54° 30	14.4			
382	42° 30	14.7			

True Elev

418.9
418.9
418.8
419.1
418.4
417.4
417.4
416.5
416.5
416.5
415.4
416.3
414.3
412.6
410.9
410.5
410.8
412.2
412.1
409.1
409.2
409.9
406.2
407.1
406.8

READINGS FROM CONTROL 38

Elev. 416.27 H.I. 5.2

Stadia	Azimuth	Vs x Rod	Horiz.	Diff. Elev.	True Elev.
470	34° 50	14.1			
558	29° 30	14.8			
667	25° 20	15.5			
765	22° 50	15.0			
807	29° 30	14.3			
712	33° 0	15.3			
623	37° 45	15.5			
573	42° 0	-1°07		-11.4	
520	46° 40	-1°04		-9.7	
472	53° 45	-1°33		-12.6	
421	64° 15	-1°39		-12.2	
443	64° 40	-1°31		-11.7	
406	74° 20	-1°41		-11.9	
385	74° 15	-1°38		-11.0	
443	74° 30	15.3			
477	73° 40	12.6			
525	63° 10	13.5			
577	54° 45	15.0			
643	47° 30	15.3			
717	42° 06	14.7			
800	37° 45	12.6			
865	43° 05	12.0			
785	47° 36	12.7			
727	53° 15	13.4			
670	60° 10	12.7			

True Elev.
407.4
406.7
406.0
406.5
407.2
406.2
406.0
404.9
406.7
403.7
404.1
404.6
404.4
403.3
406.2
408.9
408.0
406.3
406.2
406.8
408.9
409.5
408.8
408.1
408.8

Reading from control # 38

Elev. 416.27 HI. 5.2

Stadia	Azimuth	Vert Rod	Horiz.	Diff. Eleva.	~~Take~~ Eleva.
617	67° 30	11.5			
593	76° 15	11.7			
575	85° 45	11.6			
1000		9.1			

True El

410.6
409.8
409.9
412.4

B.M.s Cont. from P. 16

	2.57	418.09		415.52
T.P	8.51	421.03	5.57	412.52
			2.93	418.10
T.P	3.54	422.96	1.61	419.42
T.P	3.15	422.14	3.97	418.99
T.P	5.14	419.64	7.64	414.50
T.P	4.69	420.72	3.61	416.03
T.P	2.47	428.85	1.34	417.38
T.P	3.21	430.08	1.98	426.87
T.P	4.56	424.08	10.56	419.52
T.P.	2.12	426.03	7.17	416.91
T.P	5.40	425.26	6.17	419.86
T.P	6.36	422.80	8.82	416.44
T.P	6.05	423.87	4.98	417.82
T.P	5.11	423.77	5.21	418.66
T.P.	3.93	424.09	3.61	420.16
T.P	2.74	422.74	4.09	420.00
T.P	4.05	420.64	6.15	416.59
T.P	2.26	420.14	2.76	417.88
NE Cor 207 17 Chk BM Mon P 2			5.45	414.69
				414.71
				0.02

Cont. P- 24

B.M. Pole No. 1 Pole # 4526 Page 2

on Rock			
B.M.	Control	No 56	5000' N 700 E Hub.
on Rock			
B.M.	"	No 57	5000 N 1000 E "
Rock			
B.M.	"	No 58	5000' N 1850 E
Rock			
B.M.	"	No 59	5000 N 3000' ± E
Rock			
Rock			
"			
"			
on Hub	"	No 60	6000 N 2265' E
" "	"	No 61	6000 N 1780 E
Rock			
on Hub	"	No 62	6000 N 945 E
on Rock			
on Hub		No 63	6000 N 198 E

B.M.s Cont. from P-23

	5.64	423.46		417.82
T.P	7.70	425.69	5.47	417.99
T.P	5.46	426.86	4.29	421.40
T.P	4.31	427.07	4.10	422.76
T.P	5.21	427.98	4.30	422.77
T.P	5.21	428.59	3.69	423.38
T.P	0.68	424.97	4.30	424.29
			4.90	420.07
T.P	4.32	419.95	9.34	415.63
chk B.M. P/c #4511			4.31	415.64
				415.73
				5.09

B.M. on Hub Control			6000 N 7265 E P-23
on Rock			
" Hub	"	N° 64	7000 N 2525 E
on Rock			
on Rock			
on Hub		N° 65	7000 N 1815 E
on Rock.			
on Hub		N° 66	7000 N 1000 E
" Hub		N° 67	7000 N 270 E
B.M. Page 2			

Walker
Becker
Johnson
4-1-47

Gibbs Airport = Municipal Airport
Supplementary Stadia Notes for Topography Sheets

Azimuth from True North Clockwise
Readings from 6000'N 198'E Control No 63
Elev. 417.88 HI = 5.0

Station	Stadia	Azimuth	V Δ	Level Rod	Horiz
	600'	151°0		9.0	
	572	159° 0'		9.1	
	500	144°40'		9.0	
	460	153°15'		9.1	
	412	133°45		8.7	
	360'	145°25		8.5	
	344'	126°15		8.7	
	284	131°35		8.3	
	303'	103°25'		7.8	
	225	105°20		7.6	
	295	87°40'		7.2	
	225	78°20		6.4	
	335	63°15		6.6	
	225	55°0		6.5	
	407'	47°0		6.9	
	354	37°40		7.0	
	493	36°15		7.4	
	497	28°05		7.8	
	587'	30°05		7.7	
	555	22°20		8.4	
	704'	24° 0'		7.0	

HI 422.9

Elev. Diff	True Elev
	413.9
	413.8
	413.9
	413.8
	414.2
	414.4
	414.7
	414.6
	415.1
	415.3
	415.7
	416.5
	416.3
	416.4
	416.0
	415.9
	415.5
	415.1
	415.2
	414.5
	415.5

Readings from 6000'N 198'E

Elev = 417.88 HI = 5.6

Station	Stadia	Azimuth VA	Level Rod	Diff Elev	True Elev
	667	15°35	9.0		413.9
	650	9°07	9.4		413.5
	657	1°15	9.4		413.5
	514	10°55	7.8		415.1
	533	1°25	9.0		413.9
	403	13°30	6.6		416.3
	395	2°35	7.6		415.3
	296	19°0	6.2		416.7
	280	3°54	5.9		417.0
	167	33°20	5.8		417.1
	148	7°45	5.2		417.7
	93	79°10'	6.0		416.9
	20	113°20'	6.1		416.8
	123	173°0	8.0		414.9
	143	139°10	7.6		415.3
	230	176°40	7.7		415.2
	238	158°15	7.1		415.8
	340	178°30	8.0		414.9
	342	165°40	8.0		414.9
	447	180°0	7.3		415.6
	440	168°15	8.4		414.5
	554	180°15	6.2		416.7
	553	171°0	8.3		414.6
	563	188°20	4.5		418.4

Readings from 6000 'N 198 'E

Elev 417.88 HI 5.0

Station	Stadia	Azimuth	VA	Rod	Diff	True Elev
	563	196°20		C.3		416.6
	496	189°		6.8		416.1
	473	200°35		7.8		415.1
	374	192°		8.7		414.2
	390	204°10		9.2		413.7
	280	194°		8.6		414.3
	307	210°40		9.4		413.5
	150	222°25'		8.5		414.4
	197	228°40		9.1		413.8
	74	215°0		6.3		416.6
	143	254°30		7.9		415.0
	150	269°30		9.1		413.8
	47	331°45		5.2		417.7
	197	285°15'		8.3		414.6
	156	295°0'		6.3		416.6
	110	341°0		4.6		418.3
	183	314°40		5.8		417.1
	212	350°15		6.1		416.8
	267	330°45		4.8		418.1
	340	354°35		7.1		415.8
	280	340°45		6.2		417.7
	478	356°55		8.6		414.3
	515	346°15		7.7		415.2
	587	356°30		9.5		413.4

(422.9)

Readings from 6000 N 198 E

Elev 417.88 HI = 5.0

Station	Stadia	Azimuth	VA	Rod	Diff Elev
	625	348°0'		84	
7000 N 270 E	1000	4°07'		71	

Readings from 7000 N 270 E p 24

Elev 415.64 HI = 5.0

Station	Stadia	Az.	VA	Horiz.	Diff Elev
	318	201°30	8.3		
	320'	216°15	8.5		
	220'	209°30'	7.6		
	287'	227°25'	7.0		
	137'	227°40	6.8		
	220'	249°30	6.5		
	93'	271°	5.9		
	207'	277°45	5.7		
	120	312°45	4.8		
	234'	300°40	4.8		
	220	332°35	2.7		
	303'	336°	3.5		
	280'	343°15'	1.0		
	377	327°25'	3.9		
	337	343°15'	2.9		
	475	333°50'	2.7		
	437'	343°25'	+0°11'	437	+1.4
	570'	337°55'	+0°26'	570	+4.3
	533'	343°25'	+0°25'	533	+3.9

True Elev	
414.5	
415.8	on Hub
True Elev	
412.3	
412.1	
413.0	
413.6	✓
413.8	✓
414.1	✓
414.7	✓
414.9	✓
415.8	✓
415.8	✓
417.9	✓
417.1	✓
419.6	✓
416.7	✓
417.7	✓
417.9	✓
417.0	✓
419.9	✓
419.5	✓

READINGS FROM 7000 N 270 E

Elev. 416.64 HI = 5.0

Station	Stadia	Az.	V Δ	Horiz.	Diff Elev	True Elev
	C47	339°05'	+0°40'	647	+7.5	423.1 ✓
	630'	347°50'	+0°43'		+7.8	423.4 ✓
	620'	353°40'	+0°31'		+5.6	421.2 ✓
	640	0°45'	+0°50' 10.0		+4.3	419.9 ✓
	545	1°25'	+0°58' 12.0		+2.2	417.8 ✓
	~~520~~	~~353°0'~~	~~10.0~~			
	~~454~~	~~2°10~~	~~10.0~~			
	418'	352°30'	+ 1° 10.0		+2.2	417.8 ✓
	450	2°35'	+0°59' 10.0		+2.7	418.3 ✓
	526	352°50'	+0°45' 11.0		+0.9	416.5 ✓
	345	4°35	+0°58'		+5.8	421.4 ✓
	347	352°35'	+0°57' 8.0		+2.8	418.4 ✓
	297'	6°30'	+1°28'		+7.7	423.3 ✓
	290	351°55'	+1°24'		+7.0	422.6 ✓
	247	12°05'	+1°15'		+5.4	421.0 ✓
	233	352°0	0.4			420.2 ✓
	137	351°	3.0			417.6 ✓
	143'	19°50'	2.8			417.8 ✓
	33	350°40'	5.5			415.1 ✓
	59'	81°40'	4.9			415.7 ✓ ✓
	87	177°50'	6.5			414.1 ✓ ✓
	106'	139°30'	6.4			414.2 ✓ ✓
	187'	178°0'	7.3			413.3 ✓
	187	156°15'	6.9			413.7 ✓

Readings From 7000'N 270'E

Elev. 415.64 HI = 5.0

Station	Stadia	Az.	VA	Horiz.	Diff. Elev
	285	176°45'	74		
	298'	163°25	71		
	411	177°30	6.4		
	419	168°20	6.6		
	485	178°15	6.2		
	503	170°30	6.5		
	543'	159°40	5.9		
	587	150°15'	4.2		
	444'	154°25'	6.1		
	487'	144°25	4.2		
	348	146°0	6.2		
	387	136°50	4.3		
	273	132°40	5.6		
	307	124°25	4.5		
	203	109°15'	5.6		
	243'	100°15'	5.2		
	197	78°45	4.6		
	240	76°0	4.4		
	237	53°25'	2.3		
	287	53°25'	2.3		
	263	40°07'	0.7		
	333	40°03'	+1°10'		+ 6.8
	319'	28°45'	+1°40'		+ 9.3
	390'	33°30'	+1°17'		+ 8.5
	426		+1°31' 11.0		+ 5.3

(420.6)

True Elev.	
413.2	✓
413.5	✓
414.2	✓
414.0	✓
414.6	✓
414.1	✓
414.7	✓
416.4	✓
414.5	✓
416.4	✓
414.4	✓
416.3	✓
415.0	✓
416.1	✓
415.0	✓ ✓
415.4	✓ ✓
416.0	✓ ✓
416.2	✓
418.3	✓
418.3	✓
419.9	✓
422.4	✓
424.9	✓
424.1	✓
420.9	

Reading from 7000'N 27°E

El. 415.64 HI=5.0

Station	Stadia	Hz.	V.A.	Horiz.	Diff. Elev.	True Elev.
	447	28°20	+1°03' 6.0		+7.2	422.8 ✓
	487	15°08'	+1°04' 10.0		+4.0	419.6 ✓
	514	24°15'	+1°05' 10.0		+4.7	420.3 ✓
	577	13°15'	+1°06' 13.0		+3.0	418.6 ✓

7000 N 1000 E

READINGS FROM

El. 420.07 HI=5.2

885	316°33'	4.8	425.3
665	317°0	5.3	420.5 ✓
830	321°04	4.6	420.0 ✓
665	322°53	5.0	420.7 ✓
708	334°20	9.0	420.3 ✓
583	318°25'	4.3	416.8 ✓
625	331°15'	7.5	421.0 ✓
515	311°47	4.9	417.8 ✓
527	327°20	7.7	420.9 ✓
454	303°25'	5.9	417.6 ✓
435	321°25'	7.7	419.4 ✓
407	293°25	6.7	417.6 ✓
355	310°10'	7.2	418.6 ✓
367	280°40	6.6	418.1 ✓
297	294°	6.7	418.7 ✓
350	267°07	6.3	418.6 ✓
270	276°10	7.0	419.0 ✓
353	252°40'	7.0	418.3 ✓
283	249°10	6.4	418.3 ✓
			418.9 ✓

Readings from 7000 'N
El. = 4200T 1000 'E
HE = 5.2

Station	Stadia	Az.	V.A.	Horiz.	Diff. Elev.	True Elev.
	290	237°45'	7.3			418.0
	325	233°50'	7.6			417.7
	457	225°40	8.2			417.1
	403	218°50	7.0			418.3
	530	217°25'	8.7			416.6
	485	210°0	8.1			417.2
	610	211°10	8.3			417.0
	585	204°20	8.0			417.3
	553	195°20	6.6			418.7
	525	186°40	6.2			419.1
	460	198°25	7.1			418.2
	415	188°0	6.5			418.8
	357	209°15	6.0			419.3
	317	189°35	6.7			418.6
	260	212°05	7.0			418.3
	217	193°30	6.0			419.3
	173	230°45	6.7			418.6
	105	203°0	6.1			419.2
	128	285°0	6.6			418.7
	38	288°30	5.8			419.5
	175	320°30	6.8			418.5
	117	350°0	6.5			418.8
	250	336°0	7.7			417.6
	230	355°20	8.0			417.3
	353	344°25'	9.1			416.2

Reading from 7000'N 1000'E

Elev 4207 HI 5.2

Station	Stadia	Az.	Rod or V∠	Horiz.	Diff. Elev.
	342	357°50	9.4		
	445	348°55	9.8		
	463	357°30	10.1		
	565	351°55	11.8		
	550	357°33'	10.1		
	667	352°50	11.6		
	654	358°05'	10.8		
	760	354°00	12.2		
	743	358°47	10.3		
	747	7°0'	9.4		
	763	13°52'	9.6		
	640	7°40	8.0		
	673	14°55	6.8		
	550	8°25	8.3		
	570	17°12'	7.3		
	453	9°35	8.5		
	453	20°42'	7.8		
	355	11°05'	8.1		
	358	25°20'	7.4		
	235	14°45'	7.8		
	260	35°35'	7.3		
	137	23°0	6.2		
	175	53°40'	5.9		
	50	67°0	4.8		
	133	88°20'	4.4		

385 50%

425?

33

True Elev.	
415.9	✓
415.5	✓
415.2	✓
413.5	✓
415.2	✓
413.7	✓
414.5	✓
413.1	✓
415.0	✓
415.9	✓
415.7	✓
417.3	✓
418.6	✓
417.0	✓
418.0	✓
416.8	✓
417.5	✓
417.2	✓
417.9	✓
417.5	✓
418.0	✓
419.1	✓
419.4	✓
420.5	✓
420.9	✓

Reading from 7000 N
1000 E
El. 420.07
HI = 5.2

Station	Stadia	Az.	Rod or VA	Horiz.	Diff. Elev
	100'	146°0	5.3		
	170	125°10	4.5		
	200	163°15	5.0		
	215'	141°0	3.1		
	297	168°25	5.3		
	315	153°0	4.1		
	395'	170°20	5.1		
	415	157°55	5.3		
	490	172°45	6.0		
	507	161°15	4.6		
	550	152°20	4.3		
	612	144°0	2.8.		
	465	145°28'	4.1		
	520	137°20	3.5		
	373'	135°35	4.4		
	437	126°40	3.7		
	310	118°10	1.8		
	380	112°45	1.8		
	285	102°10	2.6		
	363'	99°35'	1.6		
	297	81°0	3.3		
	370	87°25	2.5		
	343'	63°05'	5.7		
	380	75°20	4.4		
	407	51°12'	6.9		

(4253)

True Elev.	
420.0	✓
420.8	✓
420.3	✓
422.2	✓
420.0	✓
421.2	✓
420.2	✓
420.0	✓
419.3	✓
420.7	✓
421.0	✓
422.5	✓
421.2	✓
421.8	✓
420.9	✓
421.6	✓
423.5	✓
423.5	✓
422.7	✓
423.7	✓
422.0	✓
422.8	✓
419.6	✓
420.9	✓
418.4	✓

Reading from 70000'N 1000'E HI=5.2

El.=420.07

Station	Stadia	Az.	Rodor V Δ	Horiz.	Diff Elev
	415	62°10	5.3		
	485	42°06	7.1		
	497	51°26	6.5		
	573	35°45'	7.3		
	580	43°30	6.1		
	660	32°00	6.0		
	673	38°37'	5.8		
	753	29°15'	6.2		
	777	35°45'	6.1		
	835	42°10	6.1		
	887	45°20	8.0		
	757	46°30	5.3		
	815	49°40	6.2		
	665	52°25'	5.3		
	737	55°03'	5.1		
	595	58°05'	5.4		
	665'	62°35'	4.1		
	537	66°15'	4.6		
	610	70°23	3.3		
	497	77°10'	3.6		
	580	80°30'	2.4		
	473	91°20'	2.4		
	553'	92°45'	2.0		
	480	105°05'	1.8		
	570	102°10'	2.0		

4253

True Elev
420.0
418.2
418.8
418.0
419.2
419.3
419.5
419.1
419.2
419.2
417.3
420.3
419.1
420.0
420.2
419.9
421.2
420.7
422.0
421.7
422.9
422.9
423.3
423.5
423.8

Reading from 7000 N 1000 E

Elev 420.07 HI = 5.2

Station	Stadia	Az.	VA	Horiz.	Diff Elev
	513	116°04'	3.0		
	597	112°0	2.8		
	573	127°30	2.8		
	643'	120°15'	2.9		
	633'	135°33'	2.0		
	700	128°30'	+0°18'		+3.7
	710	141°05'	3.1		
	765	135°40	+0°06'		+1.3
	860	131°15	+0°06'		+1.5
	935'	127°20'	4.8		
	797'	124°35'	+0°10'		+2.3
	895	122°35	3.1		
	755	118°0	2.0		
	863'	117°45'	2.8		
	727	110°40	+0°15'		+3.2
	833	111°50'	+0°08'		+1.9
	705	102°20'	+0°19'		+3.9
	812'	104°25	+0°13'		+3.0
7000N 1815E	815		2.0		

Reading from 7000 N 1815 E

El = 423.38 HI = 5.1

	107	188°35'	5.0	
	112'	246°30'	6.6	
	22'	221°0	6.3	
	108	299°0	7.7	

4253

True Elev

422.3 ✓
422.5 ✓
422.5 ✓
422.4 ✓
423.3 ✓
423.8 ✓
422.2 ✓
421.4 —
421.6 —
420.5 —
422.4 —
422.2 —
423.8 ✓
422.5 ✓
423.2 ✓
422.0 ✓
424.0 ✓
423.1 ✓
423.3 — on Hub = 423.38 P.24 Control #68

(428.5)

423.5 ✓
421.9 ✓
422.2 ✓
420.8 ✓

Reading from 7000N 1815E
Elev. 42338 HI = 5.1

Station	Stadia	Az.	VA	Horiz	Diff. Elev.
	93	352°40	7.6		
	30	"	7.6		
	173	333°10	8.0		
	207	0°15'	9.1		
	260	343°35'	9.4		
	300	3°10	9.8		
	358	350°0	10.6		
	407	3°40'	10.5		
	478	353°40	11.2		
	517	4°55	11.1		
	595'	356°05	11.9		
	625	5°30'	11.8		
	707	357°45	12.6		
	725	5°45'	12.3		
	815	359°0	12.3		
	840	6°12	13.3		
	933	359°58'	13.4		
	945	6°15	13.6		
	950	12°23'	12.5		
	970	17°40'	12.2		
	840	14°10'	13.9		
	860	19°10	13.1		
	720	16°10	12.6		
	735'	22°0	12.6		
	607	18°10'	11.5		

385 50 Sheets

(428.5)

True Elev.
420.9
420.9
420.5
419.4
419.1
418.7
417.9
418.0
417.3
417.4
416.6
416.7
415.9
416.2
416.2
415.2
415.1
414.9
416.0
416.3
414.6
415.4
415.9
415.0
417.0

Reading from 7000'N 1815'E CP#65

Elev = 423.38 HI = 5.1

Station	Stadia	Az	VA	Horiz	Diff Elev
	610	23°45	10.8		
	476'	21°10	11.1		
	483	28°45'	10.4		
	360	23°25	9.2		
	375'	35°20	10.4		
	247	31°20	9.2		
	280	45°0	9.5		
	153	48°15	8.0		
	200	59°50	8.2		
	82	92°0	5.5		
	150	79°30	7.3		
	133	92°45	5.1		
	193	138°00'	5.0		
	210	121°55'	5.7		
	237	154°25'	5.8		
	285	142°00'	6.3		
	326	162°20'	6.9		
	365	152°40	7.6		
	415	167°20	6.8		
	450	158°50	7.7		
	510	170°20'	6.4		
	525	163°35'	6.6		
	565	155°00'	7.5		
	613	148°07'	7.6		
	487	151°00'	8.3		

J285

38

True Elev	
417.7	✓
417.6	✓
418.1	✓
419.3	✓
418.1	✓
419.3	✓
419.0	✓
420.5	✓
420.3	✓
423.0	✓
421.2	✓
423.4	✓
423.5	✓
422.8	✓
422.7	✓
422.2	✓
421.6	✓
420.9	✓
421.7	✓
420.8	✓
422.1	
421.9	✓
420.7	✓
420.9	✓
420.2	✓

Reading from 7000 N 1815 E CP #65

Elev.: 423.38 H.I.: 5.1

Stadia	Hor. ∠	V.A.	Hor. Dist.	Diff. Elev.
528	141°05'	8.4		
397	143°45'	7.6		
457	143°20'	8.1		
334	143°20'	7.2		
400	122°15'	8.1		
277	119°45'	6.7		
367	108°15'	7.7		
253	97°00'	7.0		
357	92°50'	7.3		
265	78°00'	7.7		
375	75°15'	7.7		
312	58°00'	9.0		
423	61°20'	7.5		
364	45°25'	9.6		
482	51°15'	8.5		
450	34°45'	10.3		
557	43°45'	9.2		
537	30°10'	10.6		
657	36°55'	9.8		
630	25°15'	11.2		
747	32°20'	11.5		
717	22°15'	12.2		
837	29°15'	11.5		
840	19°35'	12.8		

H.I.
428.5

True Elev.	
420.1	✓
420.9	✓
420.4	✓
421.3	✓
420.4	✓
421.8	✓
420.8	✓
421.5	✓
421.2	✓
420.8	✓
420.8	✓
419.5	✓
421.0	✓
418.9	✓
420.0	✓
418.2	✓
419.3	✓
417.9	✓
418.7	✓
417.3	✓
417.0	✓
416.3	✓
417.0	✓
415.7	✓

(428.5)

Reading from 7000 N 1815 E CP#65

Elev. 423.38 H.I. 5.1

Stadia	Hor. ∠	V.A.	Hor Dist	Diff Elev
870	28°20'	13 6		
930	17°15'	12.4		
900	27°25	11.8		
1000	25°15'	10.8		
1025	28°35'	12.0		
1090	33°55'	13.3		
1025	29°35'	13.4		
1080	34°50'	10.5		
1000 ~~995~~	31°15'	10.6		
980	37°15'	11.3		
923	33°10'	11.1		
860	41°08'	11.1		
890	33°30'	12.8		
770	45°00'	10.8		
780	37°15'	11.0		
687	50°32'	9.6		
700	40°50'	10.2		
620	56°25'	8.5		
615	46°50'	8.3		
563	66°20'	9.1		
537	54°30'	8.0		
523	77°55'	8.3		
480	63°40	8.2		
508	88°30'	7.7		
434	77°10'	6.8		

H.I.
428.5

True Elev

414.9 ✓
~~414.1~~ 416.1 ✓
416.7 ✓
417.7 ✓
416.5 ✓
415.2 ✓
415.1 ✓
418.0 ✓
417.9 ✓
417.2 ✓
417.4 ✓
417.4 ✓
415.7 ✓
417.7 ✓
417.5 ✓
418.9 ✓
418.5 ✓
420.0 ✓
420.2 ✓
419.4 ✓
420.5 ✓
420.2 ✓
420.3 ✓
420.8 ✓
421.7 ✓

Reading from 7000 N 1815 E CP#65
Elev. 423.38
H.I. 5.1

Stadia	Hor ∠	V.A.	Hor. Dist.	Diff. Elev.
510	109°00'	6.8		
417	91°20	6.8		
527	109°50'	7.8		
427	107°15'	7.8		
550	118°20	8.5		
463	120°20'	8.5		
582	127°20	9.7		
525	131°50	9.1		
640	135°05'	9.6		
593	140°15	9.1		

Reading from 7000 N 2525 E CP#64
Elev. 421.40 H.I.=5.1

497	198°50'	8.3		
485	185°30'	8.3		
393	202°20'	6.6		
388	186°15'	6.7		
296	207°15'	5.2		
284	188°20'	6.4		
195	217°50'	5.7		
167	193°40	6.4		
107	251°00'	6.1		
87	217°40'	6.3		
117	315°00'	6.2		
78	341°20'	6.4		

H.I.
428.5
True Elev.

421.7	✓	✓
421.7	✓	✓
420.7		✓
420.7		✓
420.0		✓
420.0		✓
418.8		✓
419.4		✓
418.9		✓
419.4		✓

4.1=426.5

418.2		✓
418.2		✓
419.9		✓
419.8		✓
421.3		✓
420.1		✓
420.8		✓
420.1		✓
420.4		✓
420.2		✓
420.3		✓
420.1		✓

Reading from 7000N - 2525E

Elev. 421.40 H.I. = 5.1

Stadia	Hor ∠	VA	Hor Dist	Diff Elev
195	337° 00'	6.8		
183	326° 15'	6.9		
314	348° 45'	7.8		
304	359° 05'	6.3		
437	354° 05'	8.3		
423	01° 50'	7.2		
557	356° 35'	8.7		
533	02° 40'	8.2		
653	358° 15'	9.0		
640	03° 25'	8.7		
737	359° 00'	8.8		
750	04° 00'	8.6		
830	359° 30'	9.0		
835	04° 25'	9.5		
910	00° 20'	7.6		
937	04° 35'	8.9		
958	00° 45'	11.5		
957	05° 20'	10.4		
980	05° 25'	8.4		
960	09° 45'	6.5		
990	15° 15'	6.5		
970	12° 20'	9.9		
967	16° 15'	9.9		
870	12° 50'	9.1		
943	18° 05'	6.9		

H.I 426.5

True Elev.

419.7 ✓
419.6 ✓
418.7 ✓
420.2 ✓
418.2 ✓
419.3 ✓
417.8 ✓
418.3 ✓
417.5 ✓
417.8 ✓
417.7 ✓
417.9 ✓
417.5 ✓
417.0 ✓
418.9 ✓
417.6 ✓
415.0 ✓
416.1 ✓
418.1 ✓
420.0 ✓
420.0 ✓
416.6 ✓
416.6 ✓
417.4 ✓
419.6 ✓

Reading from 7000 N - 2525 E CP#64
Elev. 421.40 H.I. = 5.1

Stadia	Hor. ∠	V.A	Hor. Dist.	Diff. Elev.
735	13°50'	8.5		
~~843~~ 835	19°05'	9.0		
625	14°55'	8.8		
745	20°55'	8.4		
523	16°10'	8.4		
640	23°15'	9.2		
387	18°00'	6.0		
537	25°40'	8.5		
258	22°10'	6.1		
440	29°30'	7.8		
127	36°20'	6.0		
335	36°45'	6.6		
47	93°00	6.2		
237	49°40'	5.8		
167	73°40	4.3		
155	114°50	4.9		
123	164°15'	6.0		
204	144°35'	6.5		
237	176°40'	6.7		
287	157°35'	6.7		
355	179°20'	6.7		
383	166°15'	6.4		
465	181°50'	7.9		
487	171°40'	6.9		
525	158°00	6.3		

H.I. 426.5

True Elev.
418.0
417.5
417.7
418.1
418.1
417.3
420.5
418.0
420.4
418.7
420.5
419.9
420.3
420.7
422.2
421.6
420.5
420.0
419.8
419.8
419.8
420.1
418.6
419.6
420.2

Reading from 7000 N-2525E CP #64
Elev. 421.40 H.I. 5.1

Stadia	Hor ∠	V.A	Hor. Dist	Diff Elev
573	148°50'	6.5		
433	152°35'	6.4		
480	143°05	6.3		
340	141°50' ~~142~~	6.3		
407	134°10'	5.7		
212	121°45'	4.7		
343	118°45	5.3		
235	101°55'	3.6		
320	100°50	4.0		
253	77°40'	5.5		
330	80°45'	6.1		
317	56°00'	6.2		
375	64°30'	6.7		
397	59°50'	5.4		
420	57°00'	8.1		
407	43°05'	7.7		
487	49°20'	8.2		
510	35°00'	8.0		
563	43°20'	8.0		
597	30°45'	8.5		
643	38°05'	8.6		
697	27°40'	8.3		
730	34°05'	8.3		
810	24°45'	8.4		
820	30°40'	8.6		

41 426.5

True Elev.

420.0
420.1
420.2
420.2
420.8
421.8
421.2
422.9
422.5
421.0
420.4
420.3
419.8
421.1
418.4
418.8
418.3
418.5
418.5
418.0
417.9
418.2
418.2
418.1
417.9

Reading from 7000 N ~ 2525 E
Elev. 42140 H.I. = 5.1

Stadia	Hor. ∠	V. A	Hor Dist	Diff Elev
910	22°48'	8.3		
915	28°45'	7.8		
990	21°20	8.7		
1000	26°25'	7.4		
1055	32°38'	5.2		
1110	36°38'	1.3		
915	35°52'	6.7		
1055	37°58'	4.2		
815	39°00'	8.1		
960	41°10'	5.8		
687	44°50'	7.2		
865	44°30'	6.4		
557	52°07'	7.6		
775	49°40'	7.3		
493	58°25'	7.2		
700	54°20'	7.3		
625	61°50'	6.5		
543	70°15'	7.3		
387	74°40'	6.5		
483	78°35'	7.5		
356	89°15'	5.8		
448	90°05'	7.0		
350	92°48'	4.4		
447	95°35'	4.7		
343	103°15'	4.2		

H.I
426.5

True Elev.

418.2 ✓
418.7
417.8
419.1
421.3
425.2
419.8
422.3
418.4
420.7
419.3
420.1
418.9
419.2
419.3
419.2
420.0
419.2 ✓
420.0 ✓
419.0 ✓
420.7 ✓ ✓
419.5 ✓ ✓
422.1 ✓ ✓
421.8 ✓ ✓
422.1 ✓

Reading from 7000 N – 2525 E
Elev. 421.40 H.I. = 5'

Stadia	Hor ∠	V.A	Hor Dist.	Diff Elev
453	107°40'	3.9		
374	123°10'	5.0		
472	120°30'	4.7		
440	136°35'	6.0		
515	130°55'	5.2		
517	144°45'	6.2		
553	136°45'	5.7		
567	137°35'	7.5		
587	138°45'	5.5		
605	150°45'	5.9		

H.I.
426.5

True Elev.

422.6 ✓
421.5 ✓
421.8 ✓
420.5 ✓
421.3 ✓
420.3 ✓
420.8 ✓
419.0 ✓
421.0 ✓
420.6 ✓

Walker
Hendricks
Becker on
Johnson
4-11-47

Bench Marks - Gibbs Airport
Topog. Control Points

P-13	6.88	413.18		406.30
			2.90	410.28
T.P.	6.57	418.82	0.93	412.25
T.P.	5.36	418.02	6.16	412.66
			4.11	413.91
T.P.	6.91	420.06	4.87	413.15
			7.94	412.12
T.P.	1.65	409.82	11.89	408.17
T.P.	12.95	413.72	9.05	400.77
T.P.	7.20	420.04	0.88	412.84
T.P.	7.93	423.69	4.28	415.76
T.P.	1.06	422.39	2.36	421.33
T.P.	10.63	422.34	10.68	411.71
T.P.	10.54	430.65	2.23	420.11
			5.24	425.41
			3.37	427.28
T.P.	2.97	423.68	9.94	420.71
Chk Hub 3000N 3000E Page 16			8.27	415.41
				415.39
				0.02
		Conc. Mon →		421.73
	6.68	428.48		421.80 P-16
T.P.	7.83	428.67	7.64	420.84
T.P.	2.87	430.49	1.05	427.62

Cont P-48

BM on Hub Control Point #10 30	2000 N 2558 E
BM " " " " #29	3000 N 3000 E
on Rock	
"	
BM on Hub Control Point	2000 N 4000 E
BM " Boundary Line sta 273+36.29 FB 1758-15	2245.20 N 4199.56
BM on Nail " " " 268+76.50	
Rock	
on Rock " " 263+75 ±	
" "	
BM on Hub " " 260+77.95	2447.91 N 5457.9 E
BM " Control Point	3000 N 5490 E
BM " "	3000 N 5040 E
BM " " "	3000 N 4586 E
BM " " " Control #43	3000 N 4300 E
BM " " " " #43-A	
BM " " "	3000 N 3900 E
Hub Replaced by Mon	4000 N 3000 E
Rock	
on Hub	4000 N 3800 E

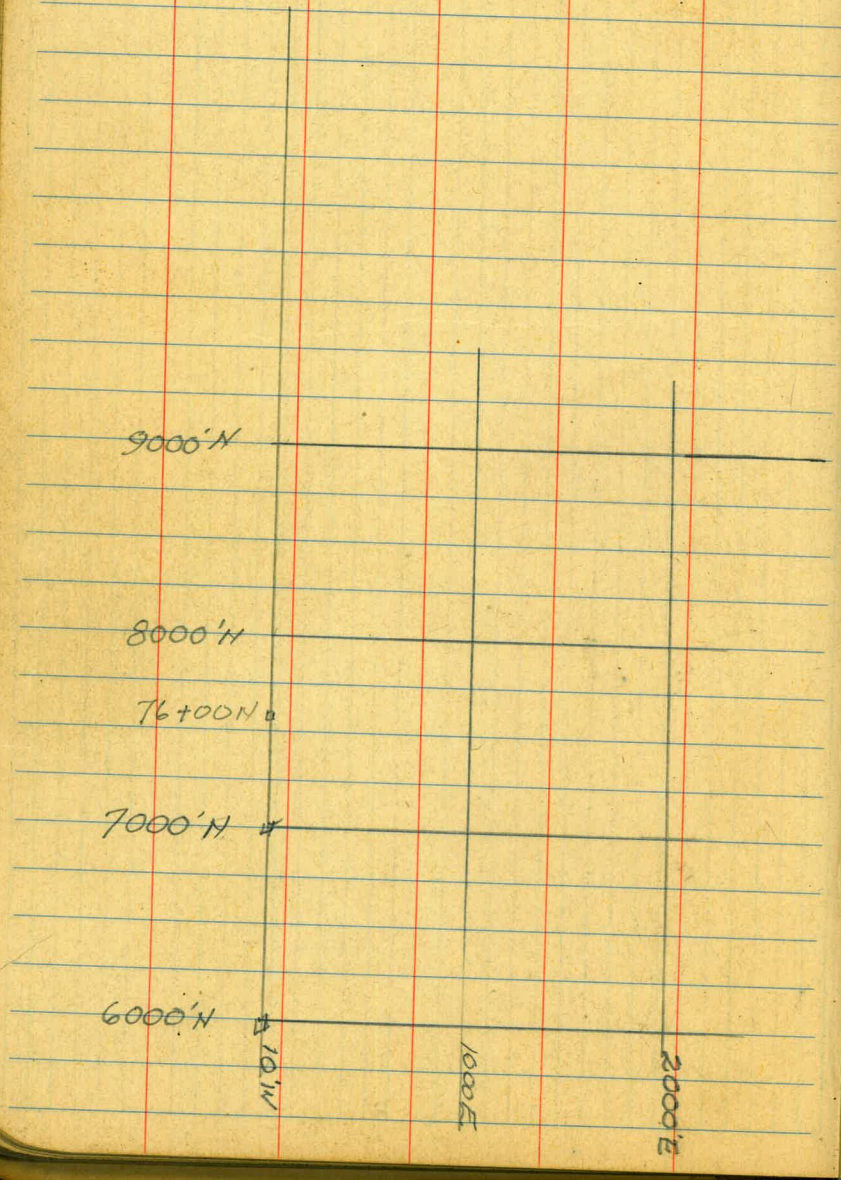
		↑ from P-47		
		430.49		
TP	2.13	430.91	1.71	428.78
TP	2.00	425.74	7.17	423.74
TP	2.17	423.36	11.55	414.19
TP	3.81	426.10	1.07	422.29
TP	10.88	427.87	2.11	416.99
TP	1.07	426.43	2.51	425.36
TP	8.00	422.52	11.91	414.52
TP	12.40	430.98	3.24	418.58
TP	5.15	434.58	1.55	429.43
TP	0.86	431.24	4.20	430.38
TP	2.33	428.53	12.04	419.20
chk. BM H.b			1.71	426.82
				426.87
				0.05

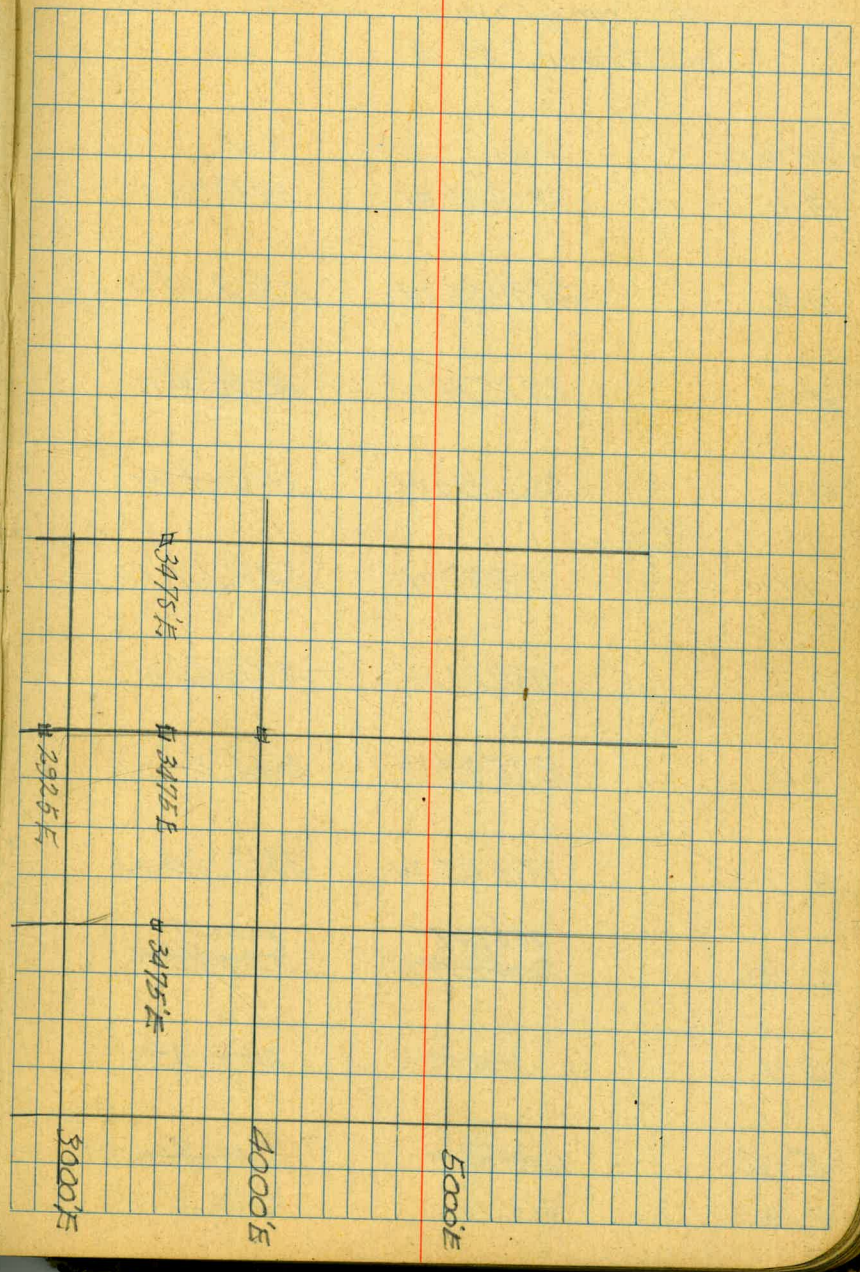
BM. on H.b	4000 N 4250 E
BM " "	4000 N 4515 E
BM " "	4000 N 5000 E
BM " "	4000 N 5450 E
Rock	
BM " "	5000 N 5400 E
BM " "	5000 N 4900 E
BM " "	5000 N 4510 E
BM " "	5000 N 4155 E
BM " "	5000 N 3820 E
Rock	
	5000 N 3000 E

~Gibbs Airport~

Control Points

Cont. from p. 12





Gibbs—Municipal Airport
Calc. Coordinates
of Topography Control Points
as shown pf 5

Station	Dep	Lat.
1	1803.84 W	5488.08 N
2	2139.86 W	4762.07 N
3	2475.88 W	4036.06 N
4	2811.90 W	3310.05 N
6	703.89 W	5496.67 N
7	1039.91 W	4770.66 N
8	1375.93 W	4044.65 N
9	1711.95 W	3318.64 N
10	1837.97 ~~2047.97~~ W	3046.39 ~~2304.63~~ N
11	~~9046~~ W	~~2181.37~~ N
12	~~6342.9~~	~~3188.09~~ N
18	2111.26	2456.51 N

Walker
Hendricks
4-21-47

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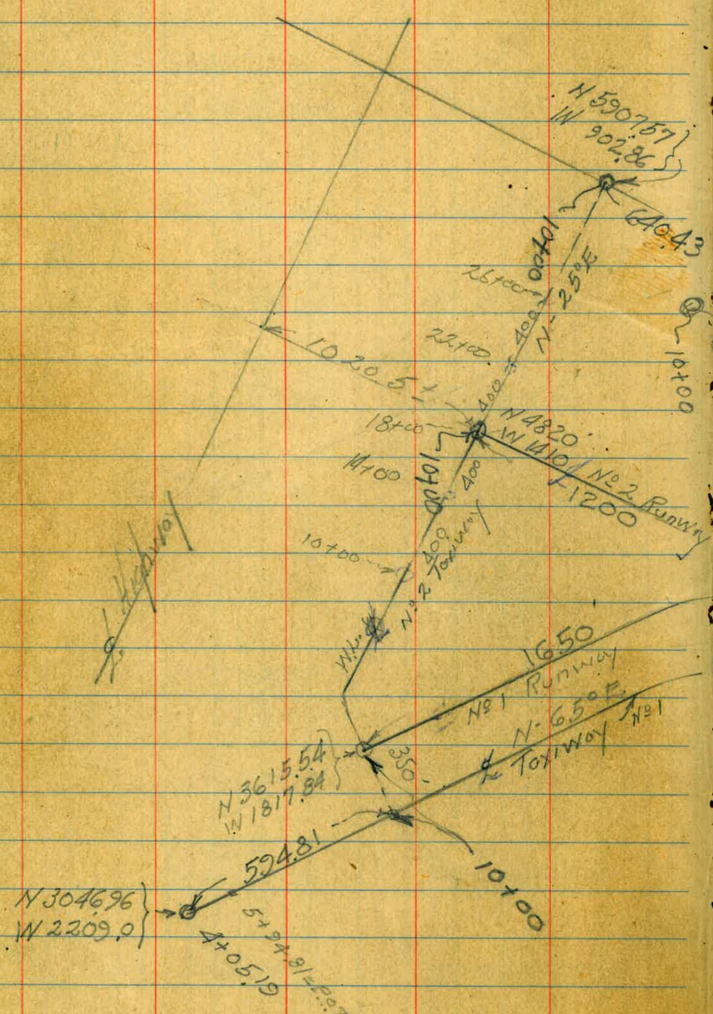
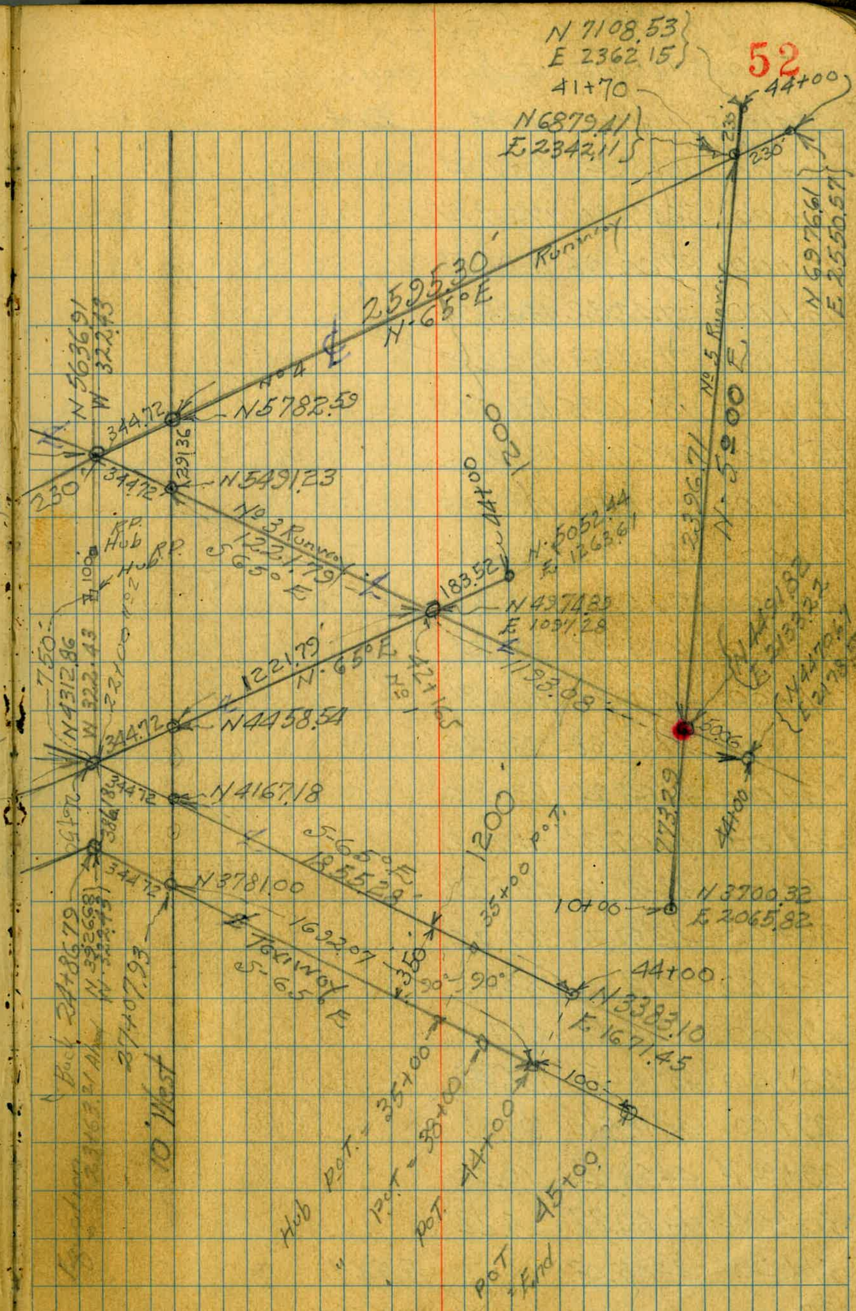
Walker
Hendricks
Becker
Johnson
4-29-47

Proposed Runways
Gibbs Airport (City)
Coordinates





(Sketch P-52) ℄ Stations -
- Coordinates - Runways No 1

℄ Stations Beg. Runway	North	West	East
= 10+00	3615.54	1817.84	
11+00	3657.80	1727.21	
12+00	3700.06	1636.58	
13+00	3742.32	1545.95	
14+00	3784.58	1455.32	
15+00	3826.85	1364.69	
16+00	3869.11	1274.06	
17+00	3911.37	1183.43	
18+00	3953.63	1092.80	
19+00	3995.89	1002.17	
20+00	4038.15	911.54	
21+00	4080.42	820.91	
22+00	4122.68	730.28	
23+00	4164.94	639.65	
24+00	4207.20	549.02	
25+00	4249.46	458.39	
26+00	4291.72	367.76	
26+50	4312.86	322.43	
27+00	4334.0	277.11	
28+00	4376.25	186.48	
29+00	4418.51	95.85	
29+94.74	4458.54	10.00	
30+00	4460.77	5.22	
31+00	4503.03		85.41
32+00	4545.29		176.04

Cont. on Rt Page

Runway No 1 - Coordinates of ℄ Stations Cont. from Lt. Page 53

℄ Stations	North	East	
33+00	4587.55	266.67	
34+00	4629.81	357.30	
35+00	4672.07	447.93	
36+00	4714.33	538.56	
37+00	4756.59	629.19	
38+00	4798.85	719.82	
39+00	4841.11	810.45	
40+00	4883.37	901.08	
41+00	4925.63	991.71	
42+165	4974.89	1097.28	Int No 3 ℄ Runway
44+00 - End	5052.44	1263.61	
45+00	5094.70	1354.24	
46+00	5136.96	1444.87	
47+00	5179.22	1535.50	

385 50%

Coördinates for ℄ Stations of Runway № 2

℄ Stations	North	West	East	
Beg. Runway				
= 10+00	4820.0	1410.0		
11+00	4777.74	1319.37		
12+00	4735.48	1228.74		
13+00	4693.22	1138.11		
14+00	4650.96	1047.48		
15+00	4608.70	956.85		
16+00	4566.44	866.22		
17+00	4524.18	775.59		
18+00	4481.92	684.96		
19+00	4439.66	594.33		
20+00	4397.40	503.70		
21+00	4355.16	413.07		
22+00	4312.90	322.44		= Int ℄ № 2 / Runway
23+00	4270.64	231.81		
24+00	4228.38	141.18		
25+00	4186.12	50.55		
25+44.72	4167.18	10.0		
26+00	4143.82		40.10	
27+00	4101.56		130.73	
28+00	4059.30		221.36	
29+00	4017.04		311.99	
30+00	3974.78		402.62	
31+00	3932.52		493.25	
32+00	3890.26		583.88	
33+00	3848.00		674.51	

Cont. on Rt Page

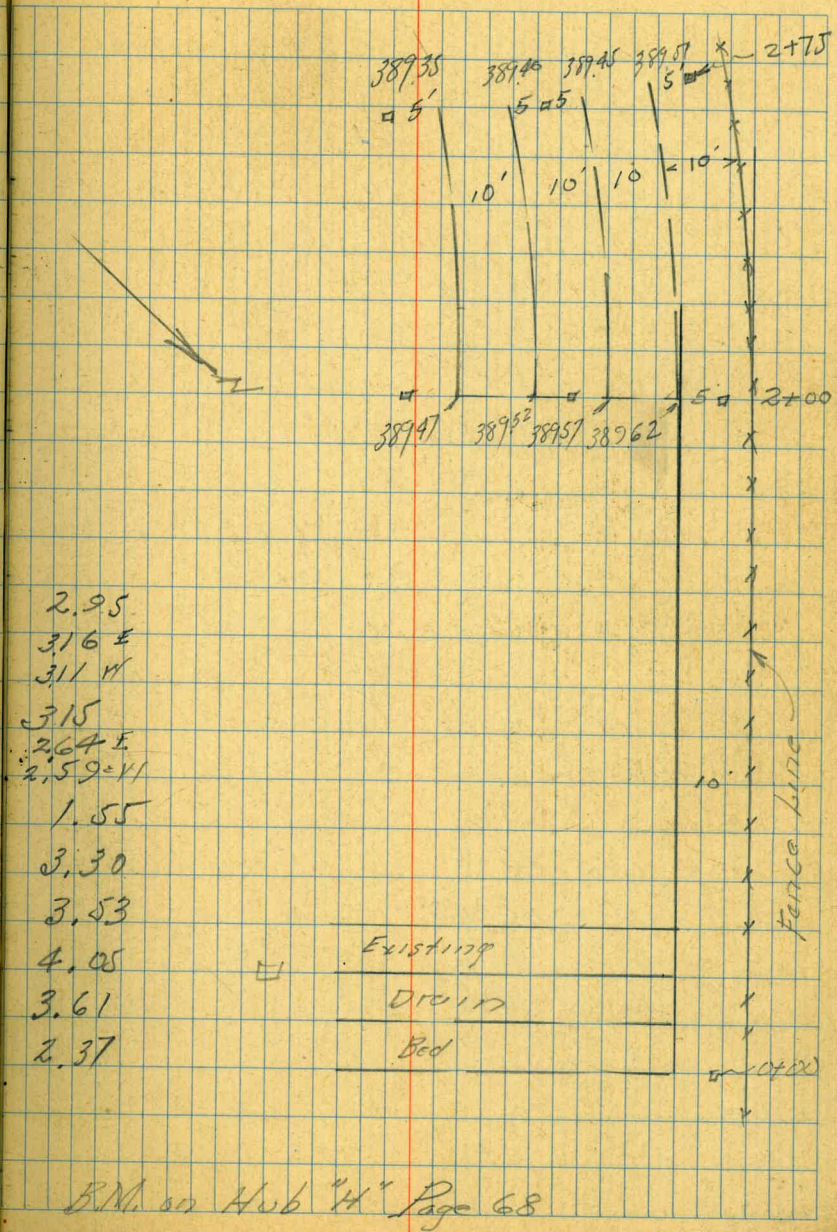
℄ Stations	North	East
34+00	3805.74	765.14
35+00	3763.48	855.77
36+00	3721.22	946.40
37+00	3678.96	1037.03
38+00	3636.70	1127.66
39+00	3594.44	1218.29
40+00	3552.18	1308.92
41+00	3509.92	1399.55
42+00	3467.66	1490.18
43+00	3425.40	1580.81
44+00	3383.16	1671.44

Walker
Hendricks
Becker
Johnson
10-28-47

Grades - Septic Tank Drains

Gibbs Airport

(2+00)	40' Lt.	9.98	392.42	389.47	2.95
(2+00)	20' Lt	9.72	392.68	389.52 389.57	3.16 E 3.11 W
(2+75)	40' Lt.	9.90	392.50	389.35	3.15
(2+75)	20' Lt.	10.36	392.04	389.40 389.45	2.64 E 2.59 W
2+75		11.35	391.05	389.50	1.55
2+00		9.48	392.92	389.62	3.30
1+50		7.65	394.75	391.22	3.53
1+00		5.53	396.87	392.82	4.05
0+50		4.37	398.03	394.42	3.61
0+00		4.01	398.39	396.02	2.37
		4.29	402.40	397.41	



BM. on Hub "H" Page 68

Walker
Hendricks
Becker
3-6-47

Gibbs Airport
No 1 Taxiway Elevations for Test Holes
Sketch P-52

	+	π	−	Elev.	
	2.16	410.04		407.88	BM Control No 1 P-6
Beg. Taxiway = 4+05.19	on Hub		2.84	407.20	⊙
5+94.81	" "		3.77	406.27	
8+00	" Stub		4.15	405.89	⊙
10+00	" "		4.36	405.68	
12+00	" "		5.07	404.97	⊙
14+00	on "		5.74	404.30	
TP	3.97	411.93	2.08	407.96	
16+00	on Hub		6.99	404.94	⊙
18+00	" "		6.00	405.93	
20+00	" "		4.68	407.25	⊙
TP	7.73	414.98	4.68	407.25	
22+00			6.89	408.09	
24+00		~~416.13~~	4.62	410.36	
24+86.79 } Equations					
23+63.21 } Δ Rt 50°			5.05	409.93	⊙
		416.13 ↑ corrected P-61			
24+00			6.15	408.98	
26+00			5.05	411.08	
28+00			5.43	410.70	⊙
TP 30+00	10.16	421.62	4.67	411.46	
32+00			7.20	414.42	⊙
34+00			7.93	414.19	
36+00			4.22	417.40	⊙

Cont. from Left Page.

π from Lt Page 421.62

60

~~TP~~ 38+00			3.88	417.74
TP	4.19	415.02	10.79	410.83
40+00			6.84	408.18 ⊙
42+00			10.03	404.99
44+00 = opposite 44+00 Rt 2			4.97	410.05 ⊙
45+00 = End of Taxiway			5.47	409.55

See P-62 for check on BM from Above H.I.

⊙ = Test Holes

Walker
Hendricks
Becker
5-6-47

No 1 Runway Elevations for Test Holes

Sketch P-52

Stations on ℄ Runway = Beg. Runway	2.16	410.04		407.88	B.M. control see 10-P-6
10+00	on Hub		4.72	405.32	○
12+00	" Stub		2.60	407.44	
14+00	" "		2.08	407.96	○
TP	3.97	411.93	2.08	407.96	
16+00	on Stub		4.22	407.71	
18+00	" "		4.82	407.11	○
20+00	" "		5.05	406.88	
TP	7.73	414.98	4.68	407.25	
~~21+86.79 Ahead~~ = 23+63.21 Ahead	~~℄ Rt~~ Equation	~~Rt 50°00'~~	~~5.05~~	~~409.93~~	
22+00	on Stub		7.30	407.68	○
24+00	" "		7.32	407.66	
26+00	" "		6.74	408.24	
26+50 = Int N° 2 Runway	P.O.T.	22+00 N°1	6.61	408.37	○
TP	3.59	410.09	8.48	406.50	
TP	9.72	416.22	3.59	406.50	20+00 P-62
Chk B.M. Pole #4534-P-2			3.32	412.90	
(BM Pole #4534)	1.85	414.66		412.81	4.09 Error
28+00			6.08	408.58	
30+00			5.15	409.51	
32+00 TP	5.73	415.89	4.50	410.16	
34+00			5.57	410.32	
36+00			3.87	412.02	
TP	12.28	425.01	3.16	412.73	

○ = Test Holes

Sta	+	H I	−	Elev.	
		425.01			
38+00			8.03	416.98	
40+00			4.63	420.38	
42+16.51 Int. #3 Runway			8.30	416.71	ck. See P. 65 416.71
			9.30	415.71	
		From below = 424.55			
39+00 ○			5.36	419.19	
43+00 ○			7.32	417.23	

Additional Elev.

				Elev. Stakes
32+00	7.03	417.19		410.16
○ 34+00			6.78	410.41
○ 35+00			6.33	410.86
40+00	4.17	424.55		420.38

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Becker
5-6-47

№ 2 Runway, Elevations for Test Holes

℄ Runway Stations				Elev. Holes	
		π P-61 414.98			
T.P.	3.59	410.09	8.48	406.50	
Beginning Runway = 10+00			7.22	402.87	⊙
12+00			6.71	403.38	
14+00			6.11	403.98	⊙
16+00			4.68	405.41	
18+00			4.29	405.80	⊙
T.P. 20+00	2.72	416.22	3.59	406.50	
chk. BM	Pole #4534 P-2		3.32	412.90	.009 Fro
	3.32	416.13 π corrected		412.81 BM	
22+00	Not an equation = 26+50 on № 1 P-61			408.37	⊙
24+00			5.86	410.27	
26+00			5.05	411.08	⊙
28+00			3.60	412.53	
30+00			2.67	413.46	⊙
T.P.	10.16	421.62	4.67	411.46	
32+00			6.80	414.82	
34+00			4.35	417.27	⊙
36+00			2.65	418.97	
T.P. 38+00	4.19	415.02	10.79	410.83	⊙
40+00			8.62	406.40	
42+00			7.29	407.73	
T.P. 44+00	10.17 End of Runway	419.29	5.90	409.12	
chk BM	4000 N 2000 E.	P-16	2.33	416.96	
				416.94 .02	

⊙ = Test Holes

62

Additional Elev. For Test Holes

42+00	4.59	412.32 π		407.73 BM
⊙ 43+00		3.64		408.68

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5-7-47

G166s Airport
Runway No 5
Elevations for Test Holes

	2.33	419.27		416.94	BM 4000N 2000E P-16
Beg. Runway =10+00			2.67	416.60	○
12+00			2.69	416.58	
14+00 T.P.	3.71	419.35	3.63	415.64	○
16+00			4.63	414.72	
17+73.29 = 13+49.94 on No 3			5.36	413.99	
20+00			3.76	415.59	
22+00			4.50	414.85	
24+00 T.P.	4.70	420.66	3.39	415.96	
26+00			5.02	415.64	
28+00			6.67	413.99	
30+00 T.P.	6.88	423.32	4.22	416.44	
32+00			6.77	416.55	
chk BM 6000N 2265E P-23			5.55	417.77	
	5.55	423.37		417.82 .05	
34+00			5.29	418.08	
36+00			5.53	417.84	
38+00 T.P.	7.03	426.56	3.84	419.53	
40+00			6.63	419.93	
41+70 = Int. No 4 Runway			5.39	421.17	
44+00			6.21	420.35	
for check					

○ = Test Holes

5-21-47

Additional elev. for Test Holes

17+73.29	7.05	421.04 *		413.99
18+00 ○			7.26	413.78
23+00 ○			4.64	416.40
T.P. 27+00 ○	7.11	423.48	4.67	416.37
31+00 ○			7.50	415.98
35+00 ○			4.73	418.75
T.P. 39+00 ○	7.82	426.55	4.75	418.73
43+00 ○			5.68	420.87
chk 44+00			6.25	420.30 420.35 .05

Walker
Hendricks
Becker
Johnson
5-7-47

Gibbs Airport
Runway No 4
Elevations for Test Holes

			426.56		
44+00			6.41	420.15	
41+70 = Int No 5			5.39	421.17	
40+00			6.32	420.24	⊙
38+00 T.P.	7.59	428.55	5.60	420.96	
36+00			6.41	422.14	⊙
34+00			5.61	422.94	
32+00			6.02	422.53	⊙
30+00 T.P.	2.34	425.39	5.50	423.05	
28+00			5.34	420.05	⊙
26+00			6.44	418.95	
24+00			5.78	419.61	⊙
22+00 T.P.	3.62	420.81	8.20	417.19	
20+00			5.25	415.56	⊙
18+00			6.14	414.67	
16+00			7.90	412.91	⊙
14+00 T.P.	4.42	415.98	9.25	411.56	
12+30 = Int No 3		No 3 = 16+40.43 Runway	3.71	412.27	
12+00			5.11	410.87	
10+00 = Beg. of Runway			7.75	408.23	
Check Control Hub No 6		Page 4	7.63	408.35	
				408.35	
				0.00	

⊙ = Test Holes

Walker
Hendricks
Becker
5-6-47

Gibbs Airport Runway No 3
Elev. for Test Holes

Stations					
		↑ from P-64 415.98			
Beg. of Runway = 10+00			5.80	410.18	
12+00			6.81	409.17	
14+00			7.13	408.85	
16+40.43 = Int. No 4 & Runway			3.71	412.27	
18+00 TP	10.41	422.27	4.12	411.86	
20+00			6.70	415.57	⊙
22+00			5.30	416.97	
24+00			8.94	413.33	⊙
26+60 TP	12.05	425.09	2.23	413.04	
28+00			7.60	417.49	⊙
30+00			4.62	420.47	
32+06.95 = Int. No 1 Runway			8.38	416.71	
TP 34+00	4.44	419.54	9.99	415.10	
36+00			6.00	413.54	
38+00			4.47	415.07	⊙
40+00			8.46	411.08	
42+00			4.99	414.55	
43+49.94 = Int. P-63 = 17+73.29 Runway No 5			5.53	414.01	413.99 (0.02 Error)
44+00 = End of Runway			3.85	415.69	

⊙ = Test Holes

5-21-47

65

Additional Elev. for Test Holes

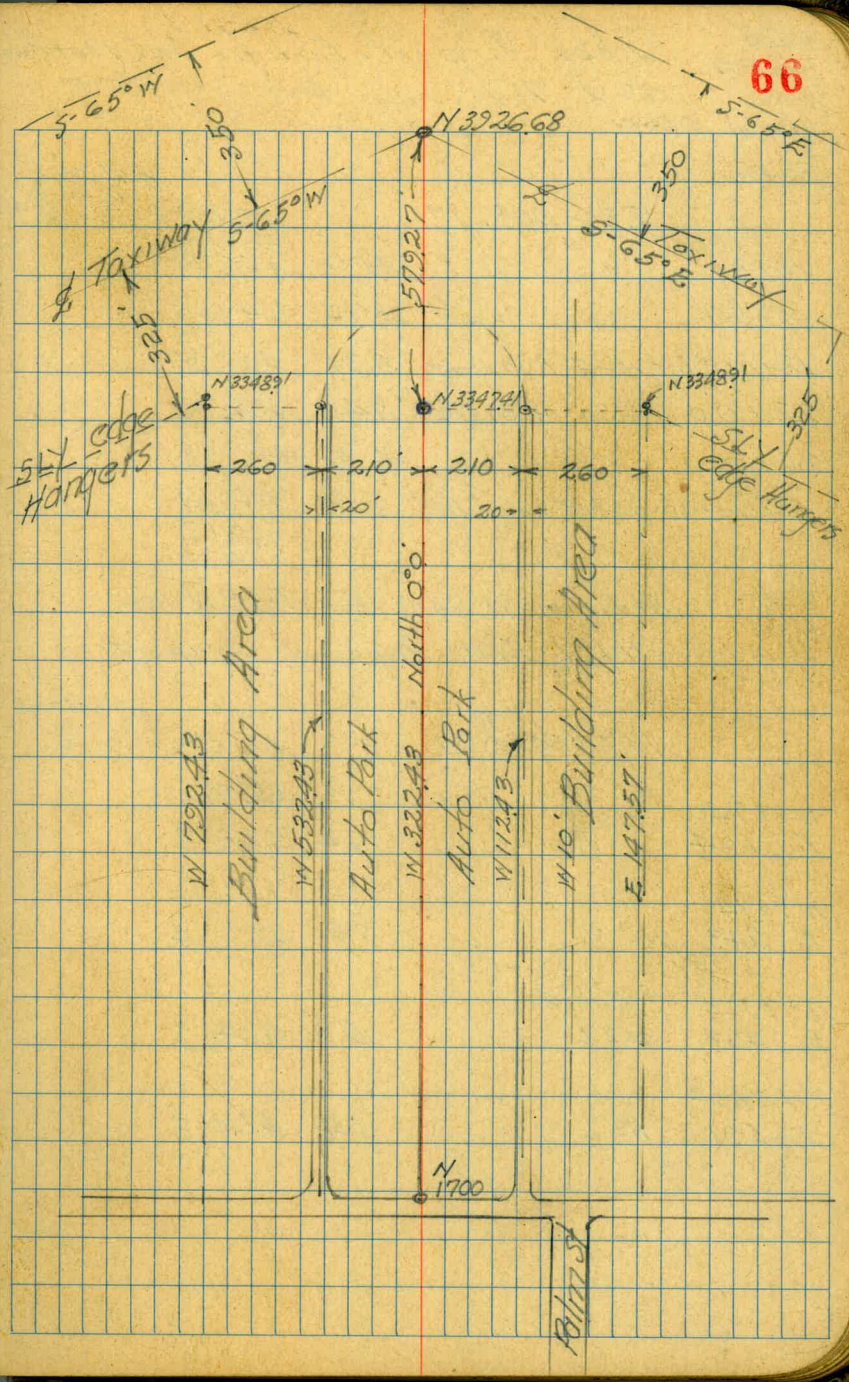
16+40.43	3.90	416.17	412.27 BM
11+00 ⊙	6.61	409.56	
16+00 ⊙	5.86	410.31	

Walker
Hendricks
Becker
Johnson
5-7-47

Gibbs Airport - Parking & Building Area

Elevations for Soil Test Holes = ⊙

BM Page 2	3.98	410.87	406.89	BM Mon S.E. Cor Lot 24
	17+00 N			
17.57 E = ℄ Bld Area		4.22	406.65	
322.43 W		5.05	405.82	
662.43 = ℄ Bld Area		8.25	402.62	
	2100 N			
662.43 W		9.45	401.42	
322.43 W		6.68	404.19	
27.57 E		1.94	408.93	
TP	2.41	411.28	2.00	408.87	No. 1 Tel Pole
	2500 N		⊙	
27.57 E			2.10	409.18	
322.43 W			5.09	406.19	
662.43 W			6.80	404.48	2"x2" Pine Hub
	2900 N		⊙	
662.43 W			3.78	407.50	
322.43 W			5.51	405.77	
27.57 E	T.P. 406	412.92	2.42	408.86	
	33474.1 North		⊙	
27.57 E			2.73	410.19	
322.43 W			5.85	407.07	
662.43 W			7.85	405.07	
Chk. Conc. Tel. Marker			2.41	410.51	
Page 2				410.53	
				+02	



Walker
Hendricks
Becker
Johnson 5-21-47

G1665 Airport. Elev. for Soil Test Holes
No 2 Taxiway Bearing = N-25°E

Station				
	5.30	408.17		402.87 BM Stake No 2 Runway 10+00
				El. Stakes
10+00			1.10	407.07
14+00			3.74	404.43
18+00 = Int No 2 Runway T.P.			5.30	402.87
22+00	8.30	413.06	3.41	404.76
26+00			6.14	406.92
Chk 10+00 No 3 Runway P&S			2.92	410.14
				410.18
				.004

Walker
Becker
Johnson
7-9-47

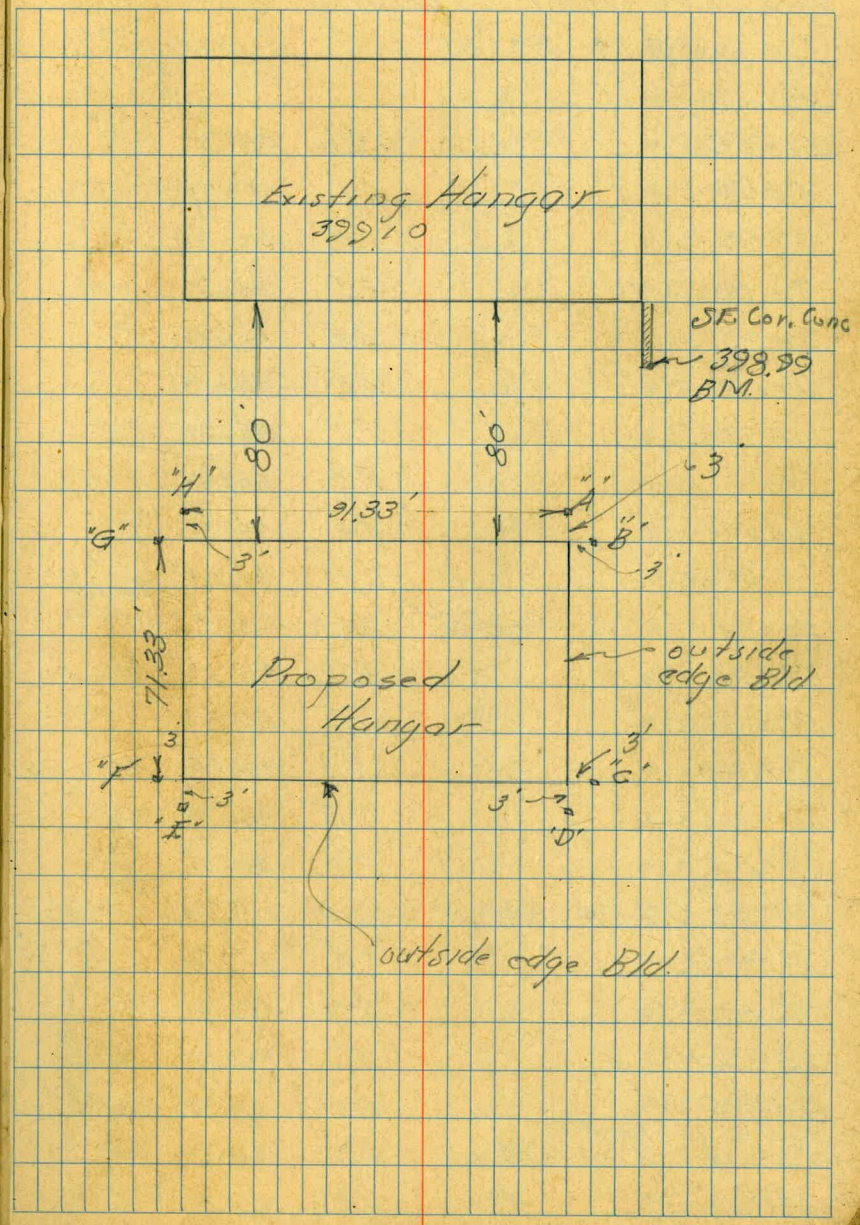
Additional Elev. For Test Holes
NLY End Proposed Airport

	14.57	430.20		415.63 BM P-24 7000N 270E
				Elev. Ground
N 7740 E 104	No 4		6.4	423.8
N 7374 E 243	No 3		7.8	422.4
N-7324 E 463	Marked No 1		5.3	424.9
N 7604 E 591	No 2		9.4	420.8

Walker
Becker
Johnson
Milton
8-7-47

Gibbs Airport
Levels For Hangar

					BM Pt on Hd W all.
	9.41	390.26		380.85	
TP	11.39	400.78	0.87	389.39	
				Elev.	
"A" on stake			0.82	399.96	
"B" " "			0.78	400.00	
"C" " "			2.38	398.40	
"D" " "			2.59	398.19	
"E" " "			4.82	395.96	
"F" " "			4.79	395.99	
"G" " "			3.44	397.34	
"H" " "			3.37	397.41	
TP	5.45	405.45	0.78	400.00	
			6.46	398.99	
Conc. Floor Existing Hangar			6.35	399.10	



Walker — Gibbs Airport —
Becker & Profile Levels on
Johnson
Melton 8-44? No 1 — Taxiway — Sketch P-52

	5.13	410.81 ✓		405.68	10+00 P-60
Station					
4+05.19			3.60	407.21	
5+00			4.1	406.71	
6+00			4.5	406.31	
7+00			4.1	406.71	
8+00			4.8	406.01	
9+00			4.8	406.01	
10+00			5.1	405.71	
11+00			5.3	405.51	
12+00			5.8	405.01	
13+00			6.3	404.51	
14+00 T.P.	6.12	410.45 ✓	6.48	404.33 ✓	on stub P-60
15+00			5.8	404.65	
16+00			5.5	404.95	
17+00			5.1	405.35	
18+00			4.5	405.95	
19+00 T.P.			3.7	406.75	
20+00	7.54	414.80 ✓	3.19	407.26 ✓	P-60
21+00			7.3	407.50	
22+00			6.7	408.10	
23+00			5.2	409.60	
24+00			4.5	410.30	
24+86.79 = 23+63.21	Equation 8 Δ 60° Rt.		4.8	410.00	
24+00			4.8	410.00	

385 50%

414.80 No 1 Taxiway

69

Station				
25+00			3.8	411.00
26+00			3.7	411.10
27+07.93 T.P.	7.21	418.00 ✓	4.01	410.79 ✓
28+00			7.2	410.80
29+00			7.2	410.80
30+00			6.5	411.50
+15			6.3	411.70
+34 Hammock			5.8	412.20
+50			6.3	411.70
31+00			5.6	412.40
+85			5.6	412.40
32+00			3.5	414.50
+10			3.3	414.70
+30			5.2	412.80
33+00			5.0	413.00
+45			3.9	414.10
+52			3.9	414.10
+72			4.4	413.60
34+00 T.P.	8.22	422.44 ✓	3.78	414.22 ✓
+11			8.0	414.44
+17			6.9	415.54
+32			8.1	414.34
35+00			7.0	415.44
+64			4.8	417.64
36+00			5.0	417.44

Cont. P-70

422.44 No 1 Taxiway
Cont. from P-69

Station				
36+16			4.9	417.54
36+32			3.7	418.74
36+52			4.8	417.64
37+00			4.8	417.64
37+72			4.8	417.64
37+80			4.0	418.44
38+00			4.6	417.84
38+38			5.3	417.14
38+77			7.0	415.44
39+00			9.7	412.74
+58			12.9	409.54
86			13.1	409.34
T.P.	3.95	414.21	12.18	410.26 ✓
40+00			5.90	408.31
+31			6.6	407.61
+50			5.9	408.31
+67			5.8	408.41
+79			7.4	406.81
41+00			7.8	406.41
+48			8.5	405.71
+68			8.0	406.21
+88			9.0	405.21
42+00			9.2	405.01
28			9.4	404.81
63			10.9	403.31

Cont. P. 70

419.21 No 1 Taxiway
Cont from P.68

70

Station				
42+90			8.9	405.31
43+00			7.9	406.31
+27			7.4	406.81
+48			5.3	408.91
44+00 T.P.	4.54	414.63 ✓	4.12	410.09 ✓
+16			5.4	409.23
+40			5.4	409.23
+46			4.9	409.73
+61			4.5	410.13
45+00			5.03	409.60 ✓
			P-60 →	409.55
			Error	.05

Walker
Becker
Johnson
Melton
8-15-47

Gibbs Airport – No 1 Runway
L Profile Levels

	8.01	413.33		405.32	10700 BM. on Hub P-61
10+00			7.8	405.53	
11+00			6.8	406.53	
12+00			5.9	407.43	
13+00			4.7	408.63	
14+00			5.3	408.03	
15+00			5.9	407.43	
16+00			5.6	407.73	
17+00 T.P.	4.23	412.03 ✓	5.53	407.80 ✓	
18+00			4.9	407.13	
19+00			5.4	406.63	
20+00			5.2	406.83	
21+00			4.7	407.33	
22+00 T.P.	5.03	412.69 ✓	4.37	407.66	
23+00			4.7	407.99	
24+00			5.1	407.59	
25+00			5.1	407.59	
26+00			4.5	408.19	
+50 = Intersection No 2			4.35	408.34	
27+00			4.4	408.29	
28+00 T.P.	7.61	416.20 ✓	4.10	408.59 ✓	
29+00			7.3	408.90	
+75			6.2	410.00	
+80			7.5	408.70	

416.20

30+00			6.7	409.50	
+10			6.9	409.30	
+15			6.6	409.60	
31+00			5.8	410.40	
+18			4.9	411.30	
32+00			6.0	410.20	
33+00			5.9	410.30	
34+00 T.P.	2.25	412.55 ✓	5.90	410.30	
35+00			8.7	410.85	
+90			8.1	411.45	
36+12			6.9	412.65	
+22			7.7	411.85	
37+00			6.9	412.65	
+31			6.3	413.25	
+52			5.2	414.35	
+85			4.3	415.25	
38+06			2.3	417.25	
+24			2.6	416.95	
+62			1.5	418.05	
+81			0.3	419.25	
T.P.	5.64	422.90 ✓	0.29	419.26 ✓	
39+50			5.2	419.70	
40+00			4.5	420.40	
+50			5.3	419.60	
41+00			6.4	418.50	

		424.90	No. 1 Runway Cont. from P-71	
41+50 chk		7.5	417.40	
42+16.5	Int. No. 3 Runway	8.23	416.67 ✓	416.71 = P. 61
+51		7.5	417.40	
43+00		7.8	417.10	
+85		8.5	416.40	
44+00		9.2	415.70	

8-15-47

Levels No 2 Runway

Sketch P-52 ✓

	5.55	408.42	402.87	BM 10+00 P-62
10+00		5.5	402.92	
11+00		5.1	403.32	
+40		4.8	403.62	
12+00		5.1	403.32	
13+00		4.7	403.72	
14+00		4.5	403.92	
15+00		4.0	404.42	
16+00 T.P.	5.45	410.80 ✓	405.35 ✓	
17+00		5.6	405.20	
18+00		5.0	405.80	
19+00		4.7	406.10	
20+00		4.4	406.40	
21+00 T.P.		2.9	407.90	
22+00	8.71	417.02 ✓	7.49 408.31 ✓	
23+00			8.1 408.92	

No 2 Runway

417.92

24+00			6.7	410.32
25+00			5.7	411.32
+26			5.5	411.52
+27			6.2	410.82
+52			5.5	411.52
+59			6.2	410.82
+63			5.6	411.42
26+00			5.9	411.12
+60			5.6	411.42
27+00			5.6	411.42
+77			5.0	411.02
+88 T.P.			4.3	412.72
28+00	8.14	420.70 ✓	4.16	412.56 ✓
+23			7.9	412.80
+45			7.1	413.60
+75			7.8	412.90
29+00			7.5	413.20
+18			6.6	414.10
+50			7.2	413.50
30+00			7.1	413.60
+72			6.4	414.30
31+00			6.6	414.10
+32			6.5	414.20
+60			4.5	416.20
+81			5.8	414.90
32+00			5.9	414.80

Cont. P-73

		420.70	No 2	Runway
32+25			5.3	415.40
+48			5.7	415.00
+71			4.8	415.90
+80			5.2	415.50
33+00			4.4	416.30
34+00 TP	5.17	422.47	3.40	417.30 ✓
+12			5.2	417.27
+42			3.5	418.97
+72			4.1	418.37
35+00			3.8	418.67
+26			3.5	418.97
+54			3.5	418.97
36+00			3.6	418.87
+40			4.7	417.77
+60			6.3	416.17
+77			8.1	414.37
37+00			9.1	413.37
+35			10.9	411.57
+67			11.6	410.87
38+00			11.6	410.87
+46			11.9	410.57
+60			11.1	411.37
+77 TP			11.5	410.97
39+00	3.91	413.67 ✓	12.71	409.76 ✓
+24			5.4	408.27
+46			6.4	407.27

	413.67	No 2	Runway
39+75	8.6		405.07
40+00	7.3		406.37
+25	6.2		407.47
+50	7.1		406.57
41+00	7.7		405.97
+20	6.9		406.77
+50	7.1		406.57
+90	7.0		406.67
42+00	6.0		407.67
+18	5.2		408.47
+40	6.4		407.27
+70	5.2		408.47
+84	5.5		408.17
43+00	5.1		408.57
+42	4.0		409.67
+70	3.9		409.77
+87	4.8		408.87
44+00	4.54	409.13 ✓	
		409.12 P-62	
		.01	

Walker
Becker
Johnson

Gibbs Airport
Levels Runway No 5

	4.32	420.92		416.60	10+00 P-63
10+00			4.32	416.60	
11+00			3.8	417.12	
+20			4.2	416.72	
+70			4.4	416.52	
+85			3.7	417.22	
12+00			4.4	416.52	
13+00			5.0	415.92	
+28			5.0	415.92	
+45			4.4	416.52	
+60			5.2	415.72	
14+00			5.27	415.65	
+53			5.3	415.62	
+65			4.4	416.52	
+78			4.4	416.52	
+86			5.2	415.72	
15+00			4.8	416.12	
+20 T.P			5.7	415.22	
16+00	6.10	420.81	6.21	414.71	
17+00			6.6	414.21	
+73.29			6.82	413.99	P-63
18+00			7.0	413.81	
19+00			6.6	414.21	
+27			5.3	415.51	

No 5 Runway
420.81

19+43			5.9	414.91
20+00			5.3	415.51
+12			4.9	415.91
+30			5.7	415.11
+65			5.8	415.01
+75			5.9	414.91
+78			5.7	415.11
21+00			6.3	414.51
+30			6.7	414.11
+50			5.2	415.61
+72			6.7	414.11
+88			6.7	414.11
22+00 T.P	6.12	420.97	5.96	414.85
+36			6.1	414.87
+53			5.1	415.87
+70			6.5	414.47
+85			5.2	415.77
23+00			5.7	415.27
+17			6.4	414.57
+37			6.1	414.87
+55			5.7	415.27
+70			6.1	414.87
+96			4.8	416.17
24+00			5.1	415.87
+17			6.7	414.27

No 5 Runway

420.97

24+50			7.2	413.77
25+00			6.1	414.87
+20			5.4	415.57
+42			5.6	415.37
+60			4.6	416.37
26+00			5.4	415.57
+15			5.8	415.17
+28			5.3	415.67
+63			5.8	415.17
+90			4.4	416.57
27+00			4.7	416.27
+12			5.7	415.27
+25			5.0	415.97
+65			5.8	415.17
28+00 T.P.	8.46	422.46	6.97	414.00
+23			6.3	416.16
+64			7.5	414.96
+86			5.8	416.66
29+00			6.5	415.96
+13			7.0	415.46
30+00			6.1	416.36
+49			6.8	415.66
+70			6.0	416.46
31+00			6.6	415.86
+15			6.3	416.16
+38			5.0	417.46

422.46 — No 5 Runway —

75

31+60			6.2	416.26
+76			5.8	416.66
32+00			6.0	416.46
+10			5.9	416.56
+30			4.6	417.86
+40			5.1	417.36
+73			5.2	417.26
+88			4.6	417.86
33+00			5.3	417.16
+19			5.2	417.26
+63			4.3	418.16
+80			4.8	417.66
34+00 T.P.	6.17	424.20	4.43	418.03
+39			5.5	418.70
+55			5.7	418.50
+80			5.0	419.20
35+00			5.5	418.70
+11			5.1	419.10
+27			5.9	418.30
36+00			6.3	417.90
+34			6.3	417.90
+61			5.6	418.60
37+00			6.1	418.10
+14			4.9	419.30
+20			4.9	419.30
+36			6.0	418.20

Cont. P. 76

		424.20	No 5- Runway	
37+56			5.5	418.70
+75			5.9	418.30
38+00			4.8	419.40
+14			4.8	419.40
+24			5.7	418.50
39+00			5.5	418.70
+47			5.3	418.90
40+00	T.P. 6.04	425.93	4.31	419.89
+14			5.4	420.53
+22			5.3	420.63
+31			5.8	420.13
+65			5.6	420.33
+78			4.9	421.03
41+00			5.4	420.53
+36			4.8	421.13
				421.17 = P-63
41+70	on Hub		4.81	421.12
42+00			4.0	421.93
+08			4.5	421.43
+41			4.8	421.13
+69			4.2	421.73
43+00			5.1	420.83
+20			5.1	420.83
+42			4.4	421.53
+61			5.2	420.73
+82			4.7	421.23
44+00	on Hub		5.63	420.30
				420.35 P-63

Walker
Becker

No 2 Taxiway
& Loop 15

				10+08 P-67
	5.08	412.15		407.07
Stations				
6+60			7.5	
7+00			7.4	
8+00			6.7	
9+00			4.9	
10+00	on Hub		5.08	
11+00			5.7	
12+00			7.1	
13+00			7.5	
14+00	T.P. 3.63	408.02	7.76	404.39
+37			4.2	
+52			4.1	
15+00			4.2	
16+00			4.8	
17+00			5.3	
18+00	℄ No 2 Runway on Hub		5.20	
19+00			3.9	
20+00			3.4	
21+00			3.4	
22+00	T.P. 7.22	411.95	3.29	404.73
23+00			6.8	
+90			6.2	

Cont. P-77

No 2 - Taxiway

Cont. from P- 76

411.23

24+25			4.7	
+60			5.6	
25+00			5.5	
+32			3.9	
+60			5.0	
TP 26+00	8.13 on Hub	415.02	5.06	406.89
27+00			7.1	
28+00			6.5	
+60			5.6	
29+00			5.9	
30+00			4.90	410.12
				410.18 - P-65
				0.06

No 3 Runway & Levels

77

BM 10700 P 65

	4.90	415.08	410.18
10+00	4.9		410.18
11+00	5.6		409.48
12+00	5.9		409.18
13+00	5.8		409.28
14+00	6.3		408.78
+60	5.9		409.18
+90	5.0		410.08
15+11	5.9		409.18
TP 16+00 on Hub	13.90	421.18	410.28
+13	10.3		410.88
+32	8.9		412.28
16+43.43 = Int. No 4	8.94		412.24 on Hub
+68	10.4		410.78
17+00	8.6		412.58
+19	9.8		411.38
18+00	9.4		411.78
+23	7.9		413.28
+45	8.5		412.68
+61	7.8		413.38
19+00	7.6		413.58
+31	7.1		414.08
+62	5.8		415.38
+67	6.9		414.28
+81 = ℄ Road Palmyra	5.9		415.28

Cont P-78

No 3 Runway

Cont. from P. 77

421.18

19+96			6.4	414.78
20+00			5.5	415.68
+09			4.7	416.48
+50			4.2	416.98
21+00			3.0	418.18
+29			2.6	418.58
22+00			4.2	416.98
+45			5.6	415.58
23+00			6.7	414.48
+14			6.3	414.88
+34			7.3	413.88
24+00 T.P.	10.13	423.43	7.88	415.30
+21			10.2	413.23
+38			9.4	414.03
+58			10.7	412.73
24+87			10.8	412.63
25+00			10.1	413.33
+50			10.8	412.63
+75			9.6	413.83
26+00			10.4	413.03
+21			10.0	413.43
+42			8.4	415.03
+65			9.3	414.13
27+00			8.4	415.03
+16			8.6	414.83

423.43

27+41	7.6	415.83
+65	6.9	416.53
+79	5.7	417.73
28+00	6.0	417.43
+25	5.2	418.23
+65	4.6	418.83
29+00	3.8	419.63
+50	2.9	420.53
+60	3.6	419.83
+86	2.8	420.63
30+00	3.0	420.43
+24	3.2	420.23
+46	4.0	419.43
31+00	5.0	418.43
+36	5.3	418.13
+50	4.6	418.83
+67	6.3	417.13
T.P. 32+06.95 2.87	49.53	6.77 416.66
+18	2.5	417.03
+27	1.6	417.93
+51	2.1	417.43
+68	3.4	416.13
33+00	3.6	415.93
+20	3.6	415.93
+33	3.3	416.23
+61	4.6	414.93

Cont. P. 79

		419.53	No 3 Runway cont. from p 78	
34+08			4.5	415.03
+34			4.4	415.13
+55			5.0	414.53
35+00			5.0	414.53
+49			5.6	413.93
+73			5.0	414.53
+85			5.9	413.63
36+00			6.0	413.53
+18			5.8	413.73
+31			5.1	414.43
+54			6.0	413.53
+78			5.5	414.03
37+00			5.6	413.93
+17			4.8	414.73
+76			5.5	414.03
38+00			4.5	415.03
+19			6.4	413.13
+73			6.8	412.73
+90			5.9	413.63
39+00			6.3	413.23
+16			7.2	412.33
+46			8.1	411.43
+65			6.3	413.63
40+00 T.P.	8.75	419.80	8.48	411.05

	419.80	No 3 Runway	79
40+26	6.7	413.10	
+46	7.2	412.60	
+74	6.1	413.70	
41+00	6.2	413.60	
+24	4.8	415.00	
+49	4.1	415.70	
+70	5.4	414.40	
42+00	5.3	414.50	
+19	5.1	414.70	
+44	5.5	414.30	
+62	4.7	415.10	
+74	4.6	415.20	
43+00	6.1	413.70	
43+09.4 Int Runway No 5	5.81	413.99 H.L.	
+69	5.7	414.10	
+86	3.7	416.10	
44+00 on H.L.	4.08	415.72 ✓	
		415.69	
		0.03	

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope 1½ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

TABLE No. 9.

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections.

Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

The distance from a point on the tangent to the curve is very nearly the square of the tangent lenth divided by twice the radius.

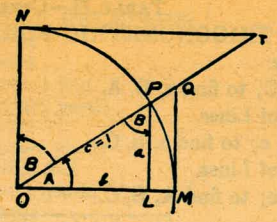


TABLE II

TRIGONOMETRIC FORMULÆ.

$\angle A = \angle MOP \qquad \angle B = \angle PON = \angle OPL$

$R = OB = c = 1$

$$\sin A = \frac{a}{c} = \frac{a}{1} = a = \cos B = LP$$

$$\cos A = \frac{b}{c} = \frac{b}{1} = b = \sin B = OL$$

$$\tan A = \frac{a}{b} = \frac{MQ}{OM} = \frac{MQ}{1} = MQ = \cot B = MQ$$

$$\cot A = \frac{NT}{ON} = \frac{NT}{1} = NT = \tan B = NT$$

$$\sec A = \frac{OQ}{OM} = \frac{OQ}{1} = OQ = \csc B = OQ$$

$$\csc A = \frac{OT}{ON} = \frac{OT}{1} = OT = \sec B = OT$$

$$\text{vers } A = \frac{LM}{OP} = LM = \text{covers } B \#$$

$$\text{covers } A = \frac{OP - LP}{OP} = OP - LP = \text{vers } B$$

$$\text{exsec } A = PQ = \text{coexsec } B$$

$$\text{coexsec } A = PT = \text{exsec } B$$

$$\sin \tfrac{1}{2} A = \sqrt{\frac{1 - \cos A}{2}} \qquad \cos \tfrac{1}{2} A = \sqrt{\frac{1 + \cos A}{2}}$$

$$\sin 2A = 2 \sin A \cos A \qquad \cos 2A = \cos^2 A - \sin^2 A$$

$$\text{Law of Lines} \quad \frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C}{C}$$

$$\text{Law of Cosines} \quad c^2 = a^2 + b^2 - 2ab \cos C$$

$$\text{Law of Tangents} \quad \frac{a+b}{a-b} = \frac{\tan \tfrac{1}{2}(A+B)}{\tan \tfrac{1}{2}(A-B)}$$

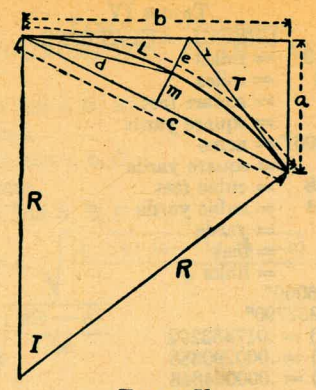


Table V

CURVE FORMULAE FOR SIMPLE CURVES

Compiled by J. Calvin Locke, C.E.

(1) $c = \sqrt{2Ra}$ (2) $c = \sqrt{a^2+b^2}$

(3) $c = \sqrt{2R\,(R-\sqrt{(R+b)\,(R-b)}} = \sqrt{2R(R-\sqrt{R^2-b^2})}$

(4) $c = 2\sqrt{m\,(2R-m)}$

(5) $c = 2R \sin \frac{1}{2} I$ (6) $c = 2T \cos \frac{1}{2} I$

(7) $e = R \operatorname{exsec} \frac{1}{2} I$

(8) $e = R \tan \frac{1}{2} I \tan \frac{1}{4} I$ (9) $e = T \tan \frac{1}{4} I$

(10) $b = \sqrt{a\,(2R-a)}$

(11) $b = \sqrt{\left(c+\frac{c^2}{2R}\right)\left(c-\frac{c^2}{2R}\right)} = \sqrt{c^2-\frac{c^4}{4R^2}}$

(12) $b = R \sin I$ (13) $b = a \cot \frac{1}{2} I$

(14) $R = \frac{a^2+b^2}{2a} = \frac{c^2}{2a}$ (15) $R = \frac{d^2}{2m} = \frac{c^2+4m^2}{8m}$

(16) $d = \sqrt{R\,(2R-\sqrt{(2R+c)\,(2R-c)}} = \sqrt{R(2R-\sqrt{4R^2-c^2})}$

(17) $d = \sqrt{2Rm}$ (18) $d = 2R \sin \frac{1}{4} I$ (19) $m = \frac{d^2}{2R}$

(20) $m = R \mp \sqrt{\left(R+\frac{c}{2}\right)\left(R-\frac{c}{2}\right)} = R \mp \sqrt{R^2-\frac{c^2}{4}}$

(21) $m = R \operatorname{vers} \frac{1}{2} I$ (22) $m = R \sin \frac{1}{2} I \tan \frac{1}{4} I$ (23) $m = \frac{1}{2} c \tan \frac{1}{4} I$

(24) $a = \frac{c^2}{2R}$ (25) $a = R - \sqrt{(R+b)\,(R-b)} = R - \sqrt{R^2-b^2}$

(26) $a = 2R (\sin^2 \frac{1}{2} I)^2$ (27) $a = R \operatorname{vers} I$ (28) $a = R \sin I \tan \frac{1}{2}$

(29) $a = b \tan \frac{1}{2} I$ (30) $a = T \sin I$ (31) $T = R \tan \frac{1}{2} I$

(32) $I = \frac{L}{R} \times 57.295780$ (33) $R = \frac{L}{I} \times 57.295780$

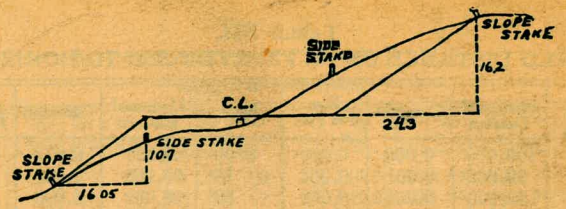
(34) $L = IR \times 0.01745329$ (35) $L = \frac{8d-c}{3}$

(36) Area Seg. $= \frac{I.R - R^2 \operatorname{Sin} I}{2} = \frac{LR - Rb}{2}$

Table VI

SINES, COSINES, TANGENTS, COTANGENTS

deg.	sin 0′	tan 0′	sin 10′	tan 10′	sin 20′	tan 20′	sin 30′	tan 30′	sin 40′	tan 40′	sin 50′	tan 50′	deg.
0	0000	0000	0029	0029	0058	0058	0087	0087	0116	0116	0145	0145	89
1	175	0175	0204	0204	0233	0233	0262	262	291	291	320	320	88
2	349	349	378	378	407	407	436	437	465	466	494	495	87
3	523	524	552	553	581	582	610	612	640	641	669	670	86
4	698	699	727	729	756	758	785	787	814	816	843	864	85
5	872	875	901	904	929	934	958	963	987	992	1016	1022	84
6	1045	1051	1074	1080	1103	1110	1132	1139	1161	1169	190	198	83
7	219	228	248	257	279	287	305	317	334	346	363	376	82
8	392	405	421	435	449	465	478	495	507	524	536	554	81
9	564	584	593	614	622	644	650	673	679	703	708	733	80
10	736	763	765	793	794	823	822	853	851	883	880	914	79
11	908	944	937	974	965	2004	994	2035	2022	2065	2051	2095	78
12	2079	2126	2108	2156	2136	186	2164	217	193	247	221	278	77
13	250	309	278	339	306	370	334	401	363	432	391	462	76
14	419	493	447	524	476	555	504	586	532	617	560	648	75
15	588	679	616	711	644	742	672	773	700	805	728	836	74
16	756	867	784	899	812	931	840	962	868	994	896	3026	73
17	924	3057	952	3089	939	3121	3007	3153	3035	3185	3062	217	72
18	3090	249	3118	281	3145	314	173	346	201	378	228	411	71
19	256	443	283	476	311	508	338	541	365	574	393	607	70
20	420	640	448	673	475	706	502	739	529	772	557	805	69
21	584	839	611	872	638	906	665	939	692	973	719	4006	68
22	746	4040	773	4074	800	4108	827	4142	854	4176	881	210	67
23	907	245	934	279	961	314	987	348	4014	383	4041	417	66
24	4067	452	4094	487	4120	522	4147	557	173	592	200	628	65
25	226	663	253	699	279	734	305	770	331	806	358	841	64
26	384	877	410	913	436	950	4462	986	488	5022	514	5059	63
27	540	5095	566	5132	592	5169	617	5206	643	243	669	280	62
28	695	317	720	354	746	392	772	430	797	467	823	505	61
29	848	543	874	581	899	619	924	658	950	696	975	735	60
30	5000	774	5025	5812	5050	851	5075	890	5100	930	5125	969	59
31	150	6009	175	6048	200	6088	225	6128	250	6168	275	6208	58
32	299	249	324	289	348	330	5373	371	398	412	422	453	57
33	446	494	471	536	495	577	519	619	544	661	568	703	56
34	592	745	616	787	640	830	664	873	688	916	712	959	55
35	736	7002	760	7046	783	7089	807	7133	831	7177	854	7221	54
36	878	265	901	310	925	355	948	400	972	445	995	490	53
37	6018	536	6041	581	6065	627	6088	673	6111	720	6134	766	52
38	157	813	180	860	202	907	225	954	248	8002	271	8050	51
39	293	8098	316	8146	338	8195	361	8243	383	292	406	342	50
40	428	391	450	441	472	491	494	541	517	591	539	642	49
41	561	693	583	744	604	796	626	847	648	899	670	952	48
42	691	9004	713	9057	734	9110	756	9163	777	9217	799	9271	47
43	820	325	841	380	862	435	884	490	905	545	926	601	46
44	947	657	967	713	988	770	7009	827	7030	884	7050	942	45
45	7071	1.0000	7092	1.0058	7112	1.0117	133	1.0176	153	1.0235	173	1.0295	44
deg.	60′ cos	60′ cot	50′ cos	50′ cot	40′ cos	40′ cot	30′ cos	30′ cot	20′ cos	20 cot	10′ cos	10′ cot	deg.

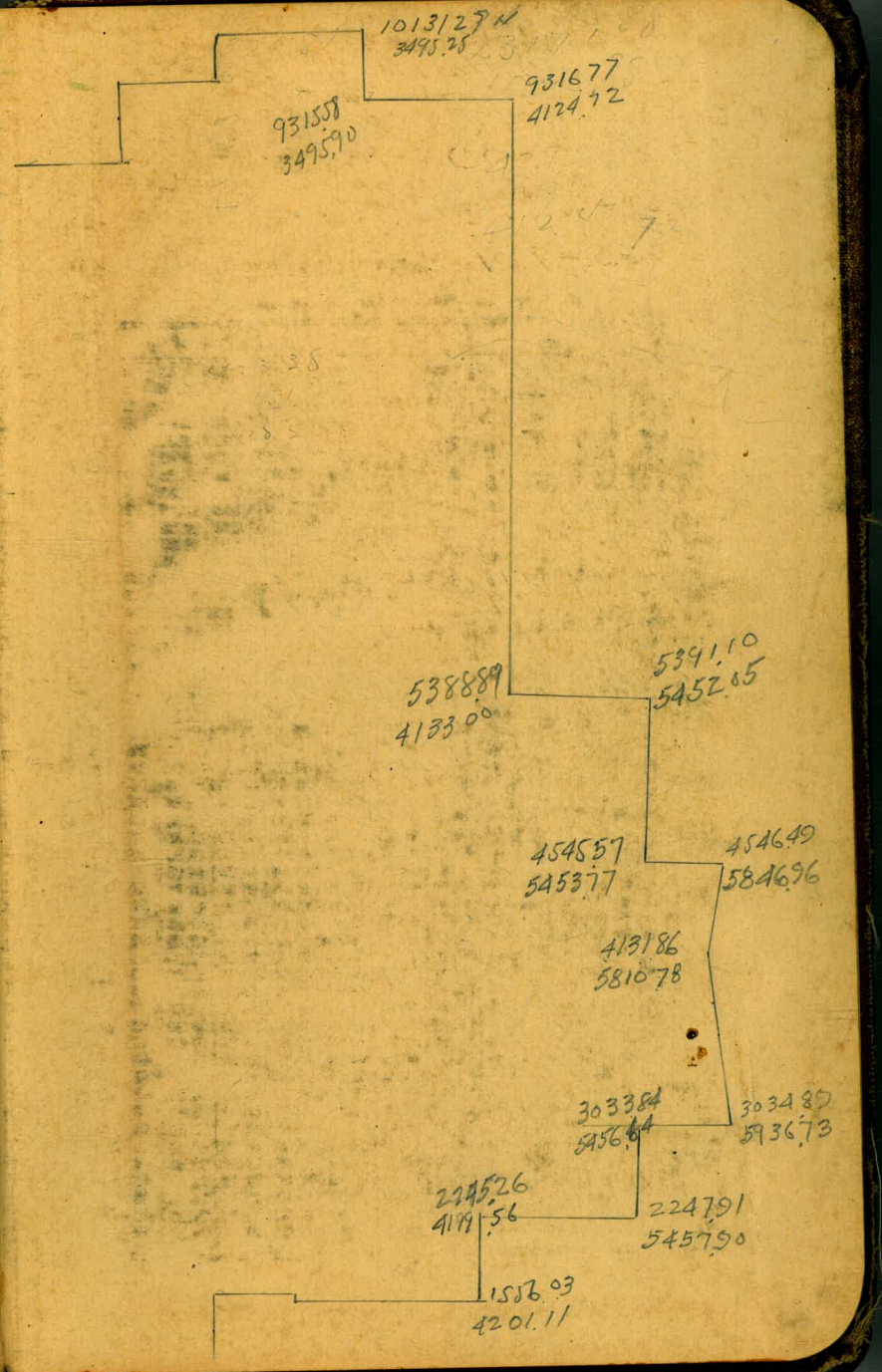


DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0 00	0 15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1 65	1 80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3 45	3.60	3 75	3.90	4.05	4.20	4 35	2
3	4.50	4 65	4.80	4.95	5.10	5 25	5 40	5.55	5.70	5.85	3
4	6.00	6 15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7 50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9 00	9 15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10 65	10.80	10.95	11.10	11.25	11.40	11.55	11 70	11.85	7
8	12.00	12 15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13 50	13.65	13 80	13 95	14.10	14.25	14.40	14 55	14.70	14.85	9
10	15.00	15 15	15 30	15 45	15.60	15.75	15.90	16.05	16.20	16 35	10
11	16 50	16 65	16 80	16.95	17 10	17.25	17.40	17.55	17.70	17.85	11
12	18 00	18.15	18.30	18 45	18.60	18 75	18.90	19.05	19.20	19.35	12
13	19 50	19 65	19.80	19.95	20.10	20.25	20 40	20.55	20.70	20.85	13
14	21.00	21 15	21.30	21.45	21 60	21.75	21.90	22 05	22 20	22 35	14
15	22 50	22 65	22 80	22 95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24 15	24 30	24 45	24.60	24.75	24 90	25 05	25.20	25.35	16
17	25.50	25 65	25.80	25 95	26.10	26 25	26 40	26.55	26.70	26.85	17
18	27.00	27 15	27.30	27 45	27.60	27.75	27.90	28.05	28 20	28.35	18
19	28 50	28 65	28 80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30 00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31 50	31 65	31.80	31.95	32 10	32 25	32.40	32.55	32 70	32 85	21
22	33 00	33 15	33 30	33 45	33.60	33 75	33.90	34.05	34.20	34.35	22
23	34 50	34 65	34.80	34.95	35.10	35 25	35 40	35.55	35.70	35 85	23
24	36.00	36 15	36.30	36 45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37 80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39 00	39 15	39.30	39 45	39 60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40 65	40 80	40.95	41.10	41.25	41 40	41.55	41.70	41.85	27
28	42 00	42 15	42.30	42.45	42.60	42 75	42.90	43.05	43.20	43.35	28
29	43 50	43 65	43.80	43 95	44.10	44 25	44 40	44.55	44.70	44 85	29
30	45 00	45 15	45.30	45 45	45.60	45.75	45.90	46.05	46 20	46.35	30
31	46.50	46.65	46.80	46 95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48 00	48.15	48.30	48 45	48.60	48 75	48.90	49.05	49 20	49.35	32
33	49.50	49 65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51 00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52 50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54 00	54.15	54.30	54 45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55 50	55 65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57 45	57.60	57.75	57.90	58.05	58.20	58 35	38
39	58 50	58.65	58 80	58.95	59.10	59 25	59.40	59 55	59.70	59.85	39
40	60 00	60.15	60 30	60 45	60 60	60.75	60 90	61.05	61 20	61.35	40
41	61.50	61 65	61 80	61 95	62 10	62 25	62.40	62 55	62 70	62.85	41
42	63 00	63.15	63 30	63 45	63 60	63 75	63 90	64 05	64 20	64.35	42
43	64.50	64 65	64 80	64.95	65.10	65 25	65 40	65.55	65.70	65.85	43
44	66 00	66 15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67 50	67 65	67 80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69 00	69 15	69 30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70 65	70 80	70 95	71.10	71.25	71.40	71.55	71.70	71.85	47
48	72.00	72 15	72.30	72.45	72.60	72.75	72.90	73 05	73.20	73 35	48
49	73 50	73 65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.



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U.S.C.&G.S. -9.01

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