

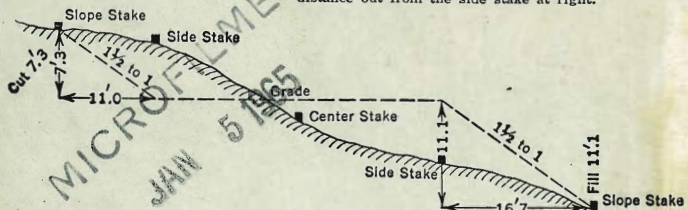
2283

WABASH SECT. B



**DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING**  
 Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	Distance out from Side or Shoulder Stake											Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9		
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0	
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1	
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2	
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3	
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4	
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5	
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6	
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7	
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8	
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9	
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10	
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11	
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12	
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13	
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14	
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15	
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16	
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17	
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18	
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19	
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20	
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21	
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22	
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23	
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24	
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25	
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26	
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27	
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28	
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29	
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30	
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31	
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32	
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33	
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34	
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35	
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36	
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37	
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38	
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39	
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40	

KEUFFEL & ESSER CO., N. Y.

INDEXED  
 Completely  
 DEC 8 1954

The paper in this book No. 373A  
 is made of 50% high grade rag stock  
 with a WATER RESISTING surface sizing.



Convent + HCurb Inlets

1

Station 5+75 Mabash (32rd St)  
 88"-18" RCP  
 Station Plan

March 1914  
 H. S. Brown  
 Barber  
 Chas. J. ...  
 Parks  
 Kelly

42  
 468  
 484  
 F.O. 16  
 TOP H  
 386  
 521  
 627

-1.60 FL  
 10.67  
 10.14  
 5.92  
 5.98  
 5' 10"

BM 8.24  
 0.30  
 8.54 A

Field 30" 2

Top → Type G  
 Clearout  
 3.64 -5.50 ± Bot Box  
 4.00 +8.57  
 4.88 8.70  
 ca. 3.8 Fall 3  
 9.50 5' Souths

-2.00 F.L. 18" to East  
 11.07  
 4.86  
 6.21 \* 10.54

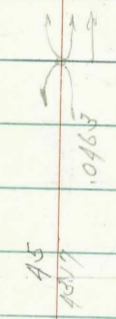
8.24  
 3.25  
 12.31 A For Clearout Top

14.07  
 4.86  
 9.21  
 1.5  
 1.00

-4.37  
 13.14  
 5.31  
 8.73

q Mabash 2

-3.68  
 12.75  
 5.07  
 7.71



-2.84  
 11.71  
 4.91  
 6.80

Top 3.88  
 5.10  
 4.76  
 6.42

-1.60 FL  
 10.67  
 10.14  
 5.91  
 10.11

TP	4.27	9.07	5.51	4.80
BM #3 0.56	1.87	10.11		8.24











Culvert + H Inlets

Sheet 35

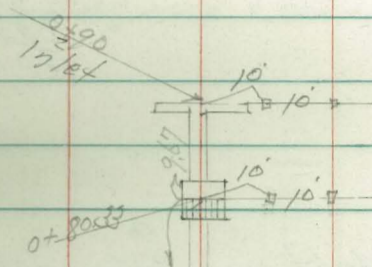
Dec. 17. 53

4

15+0

84 of 24" R.C.P.

H. S. (over)  
Garber  
Chipman  
F. H. K.  
Kellay



0+90 = Inlet

7.00

5.86  
3.00  
2.86  
10.5

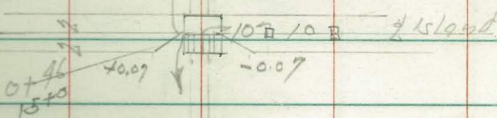
+80.33 = Cb line  
H Inlet

Top  
13.79  
-0.91  
4.28  
F 5.19  
10.5

6.80

6.08  
4.28  
1.80

1/2 Wabash



+63.16

6.65

6.33  
4.28  
2.05

+46 = Island

Top  
14.50  
-1.84  
4.02  
F 5.64  
10.5

6.50

6.38  
4.02  
2.36  
10.5

+22

6.10

6.78  
3.88  
2.90  
10.5

0+00 = Outlet

5.70

7.18  
5.57  
1.61  
10.5

0+0  
Outlet

BM

7.07

12.88

5.81

407 Corners  
104 R  
10+62.48



Culvert + 9" Inlet N. E. of National Arabash  
 26 + 82.50 Sheet 31

Sketch Page 6

#2 BM 6.77 SE BP  
 6.24  
 13.01

8' North of 1/2 Inlet      Cb      1.31      3.49  
 9.52      4.86      4.86      F1.14

8' South of 1/2 Inlet      Cb      1.31      3.49  
 9.59      4.86      3.19      F0.33

+5230 = WY Inside 9" Inlet      3.56      Cb      5.81  
    3.84      9.45      1.78  
    F0.28      1.41      C.S.T.  
         1.90      8.01  
         F0.47      3.84  
              4.17

+2665      2.00      7.86  
         4.48  
         8.38  
         10.11

0+0 = FH Inside  
 7" Clearout.

10.86

1.00 Page 7

Culvert + 4 Inlets  
 14 + 0 North of Equation

Sheet 32

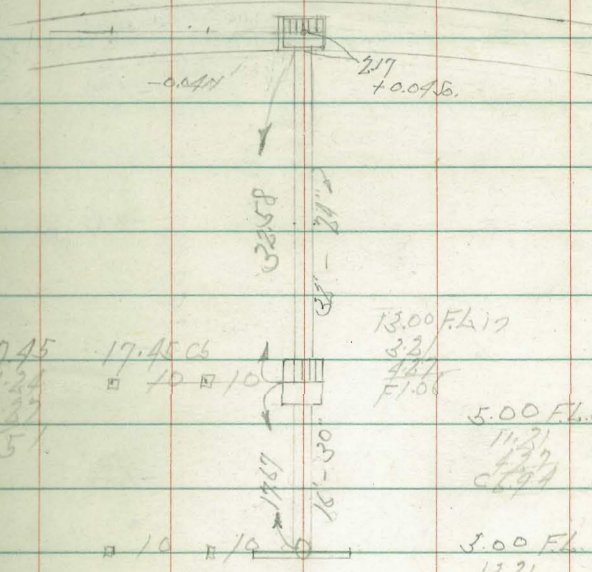
5

For Grade - 0.01 + 0.01 -

BM 4.86      8.21 of  
 5.45      11.21  
 10.31      37.50  
 2.17  
 7.84  
 8.37  
 16.21

438 Bot Gut  
 329 W Lane to Cb  
 19.30 Top Cb

438      15.00 FL  
 217 + 0.045



17.45      17.45 Cb      13.00 FL 17  
 -1.24      10      10      3.21  
 2.27      10      10      4.47  
 5.53      10      10      F1.00  
         5.00 FL out  
         11.21  
         12.97  
         C.T. 9.9

Page 12 for Ditch



Hobash Blvd. & National Ave.

Sheet 31

Aug 26, 53  
F.S. 1747  
Copper 6  
Clipboard  
Bricks

National Ave.  
36' RCP Hobash next to Pile Bridge

+25

-1.00

11.86  
5.15  
c 6.71  
10' 30" 2790

25+71  
G. Clear out  
7.3

210 2/10

+10

-1.20

12.06  
5.73  
c 6.33

228-30"

0+0

+75

-1.40

12.26  
5.80  
c 6.46

800

+50

-1.60

12.46  
5.87  
c 6.57

+25

-1.80

12.66  
6.07  
c 6.67

22+59.33 F.C. 9

22+43.40

0+0.8 = 1/4 Pipe

-1.94

12.80  
6.31  
c 6.49  
10' South

B.M.

4.56

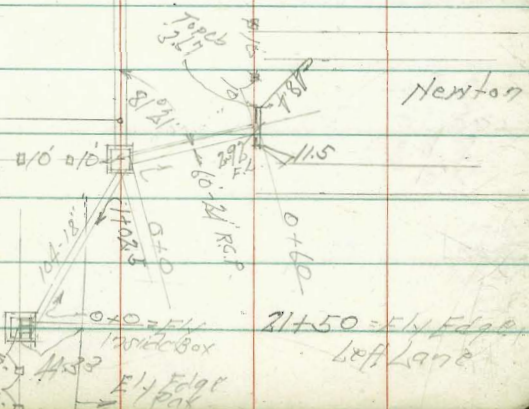
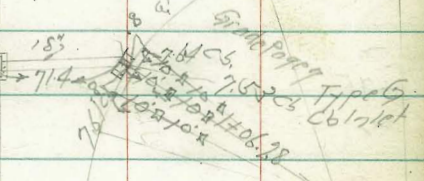
10.86

6.50

Canal Wall Front  
3365/1619

0+0

228-30"





36" Wabash Blvd. to Pike Bridge

18" South East Wabash National

7

+76	W/inside F Clearout	TOP 9.40 1.16 2.99 F3.55 F5.11	+1.00	9.86 4.79 C5.07 10' North
+50	#2 BM 6.77	1.21 2.90 F1.69 07 Top 80x	+0.80	10.06 5.00 C5.00 10' South
+25	11.35	1.21 1.34 F5.13 TOP pipe	+0.60	10.21 5.19 C5.09
3+0	#3 BM 6.77	1.21 1.34 F5.13 TOP pipe	+0.40	10.41 5.22 C5.24
+75			+0.20	10.66 5.28 C5.40
+50			0.00	10.86 5.28 C5.58
+25			-0.20	11.61 5.27 C5.69
2+0			-0.40	11.78 5.24 C5.82
+75			-0.60	11.46 5.20 C5.91
1+50			-0.80	11.66 5.22 C5.74 10' 50" 0.790

10.86

7' 18"  
Sketch Page 6

BM.

6.05 6.28

2 Conc Wall  
3365 National  
6.50

8' 11" of 2 Box R150'

Curb  
7.64 4.19  
3.75  
C0.94

8' 50" of 2 Box

Curb  
7.61 4.27  
3.98  
C0.77

+ W/inside  
5" Box

4.80 Curb  
3.85  
C0.95 7.53 4.50  
3.85  
C0.78

+50

3.65 8.65  
4.25

+25

2.58 9.75  
4.13  
C3.62  
10' X

040 2 W/inside  
Clearout 6'

TOP  
8.84  
3.40  
4.42  
F3.93  
10' X  
12.53

1.50 10.80  
7.52  
C3.91  
6' W



22143.40 to 26 + 82.50

30" RCP

1.86

6.01  
1.62  
1.39  
1.57  
10.57  
10.57

+50

1.86

+25 = #2 Exist

1.88

1.94

5.23  
1.59  
1.54  
c/2.7

+75

TP

5.58

12.33

1.12

1.05

6.75

SEPA  
National

22+0

7.64  
4.89  
c/2.7

2.02

5.85  
2.29  
c/2.8

+50

+25

1.14

6.73  
1.57  
c/5.76 = FC

+75

7.56  
4.87  
c/2.69

2.10

5.77  
1.32  
c/2.75

26+0

.004  
1.26

6.66  
2.37  
c/4.14 = FC  
SEPA  
National

+50

7.49  
4.91  
c/2.7

2.17

5.20  
1.57  
c/1.78

+71 = G Cleanout  
10.4K#3  
8.84  
3.49  
7.42  
F3.93

1.50

6.37  
3.02  
c/3.35  
10.1

+25

7.41  
4.62  
c/2.79

2.25

5.62  
3.07  
c/2.55

+50

1.77  
2.52  
F0.75  
Top

1.56

6.31  
3.64  
c/2.67

23+0

7.33  
4.54  
c/2.79

2.33

5.54  
6.25  
F0.71

+25

1.63

6.34  
3.86  
c/2.48

+75

7.25  
4.52  
c/2.7

2.41

5.46  
2.08  
F0.62  
10.8

25+0

.0051  
1.70

6.17  
4.61  
c/1.96

22+43.40 = 1/2 Slnk

1.47 Top  
4.24  
F0.908.19  
-0.52  
5.72  
7.87

7.16

2.50

5.37  
5.76  
F0.39  
10.51V

BM #2

2.89

9.66 F6.88

6.77

8P S/C 4  
10.51V  
3.72

74+75

1.78

6.09  
4.21  
c/1.88  
10.51V

BM

30

7.87

4.81

7.87

Aug 25.53  
H. J. 5507  
Garber

Restalro  
Oct 23-53

8

-18250 = 1/2 F Cleanout

0.100



Culvert Mabash & Newton

Sketch Page 6

Re stat.  
Oct 23 57

0+60 = inlet of pipe	6.66 4.76 c 1.90	3.00	4.87 4.95 c 0.08
+40	6.82 4.21 c 2.61	2.84	5.01 5.16 F 0.63
+20	6.99 4.76 c 2.23	2.67	5.20 5.97 F 0.77 10NW
0+00 = Fly landing 22x42x10 J Drop		2.50	
+02.50 = Fly landing 86x		2.50	
+75	9.66 4.80 4.86 BM	2.70	5.17 5.07 c 0.08
+50	6.77 4.64 c 2.13	2.89	4.98 5.35 F 0.37
+25	6.59 4.47 c 2.12	3.07	4.89 5.36 F 0.46
0+00 = inlet Opp 21450	3.23 top 4.87 4.12 1.46 5.58 Fall 10 Sauts	3.25	4.62 5.58 F 0.96 10S

+2966x  
7.87 Bk Ford page 8

Culvert

R  
C

Sheet 50

3270

30'

9

Staked by  
others



0.0



Culvert

37+50

Sta. Taken From Yellow Sheet

Nov. 4. 53

BM 1419

516  
19.35

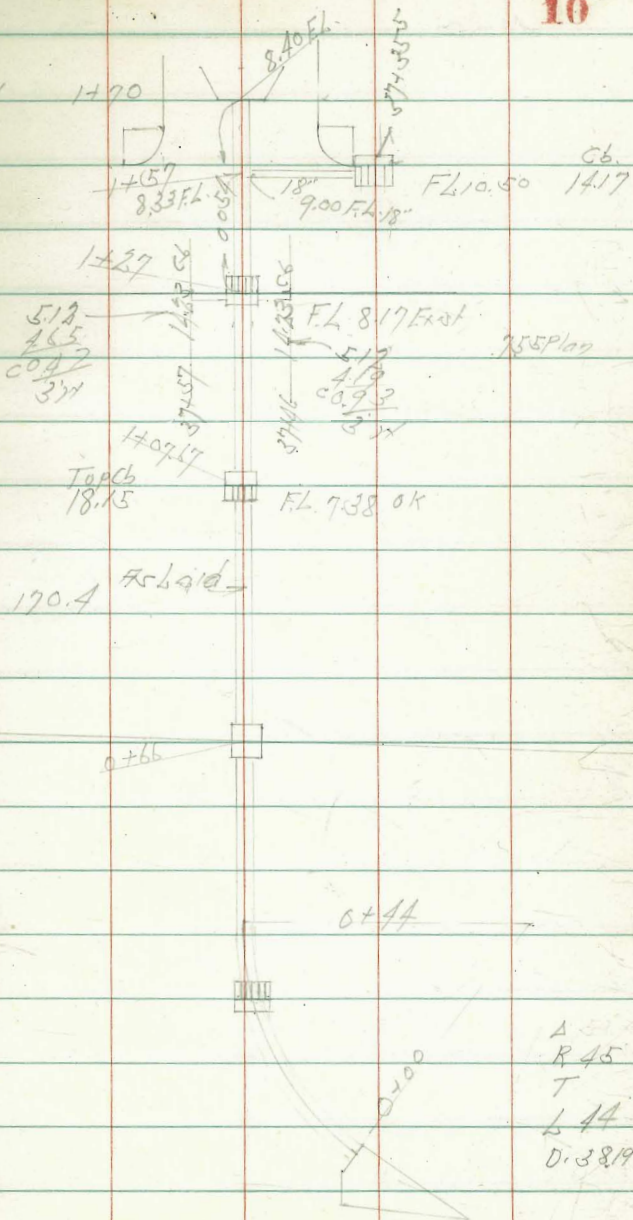
BRH inlet  
RT 37+50

Sheet 29

Staked by  
Garber

48" R.C.P.

10



A  
R 45  
T  
L 44  
D. 38.97



Culvert

13750

Sheet 28  
Staked Garber

11



102





Culvert  
48x50

130' of 30" RCP

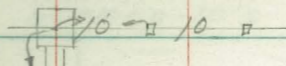
Sheet 28

12

Aug 4-55  
F. J. Sisson  
Cato  
Parks  
Kelley

51.0	51.0
50.0	57.0
23.33	72.0
125.33	139.0

TOP  
24.15  
0.17  
23.98  
F 2.06

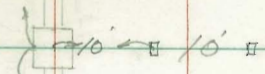


19.00 F.L.  
5.12  
3.83  
C 3.09

5.50

18.00 F.L.  
6.62  
3.68  
C 2.94

9.74  
TOP  
25.25  
0.63  
24.62  
F 4.88



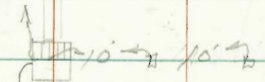
17.00 F.L.  
7.62  
4.25  
C 3.37

5.50

14.50 F.L.  
10.16  
3.88  
C 4.82

TOP ch.  
24.82  
-0.20  
24.62  
F 9.49

24.15 Grate  
0.17  
9.28  
F 8.82



12.00 F.L.  
12.19  
9.29  
C 3.32

5.50

11.06  
9.14  
9.00 F.L. C 7.92  
10' South

Outlet  
24.82  
0.47  
15.33 Stub H/1/2 lot  
14.73  
2005X

311. 7.58 24.62 1704 SE RP Ocean View Gregory

20.0 Rtd of Channel



Culvert

5370

120' of 36" RCP

Aug 4 53

F. S. Sigron.  
Cota  
for Mr  
Keller

Sheet 27

13

40	40
38.0	10.0
72.5	76.0
115.5	120.0

Grote  
27.22  
-2.18  
27.9  
F 47.2

22.50 FL  
2.54  
2.27  
C0.27

22.00 FL  
3.04  
2.94  
C0.36

20.50 FL  
4.54  
4.08  
C0.78

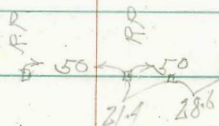
19.00 FL  
6.04  
4.37  
C1.67

16.52  
8.52  
4.97  
C3.81

14.14  
1.09  
9.47  
C1.75

12.00  
1.304  
1.202  
C1.02  
10.5

Channel

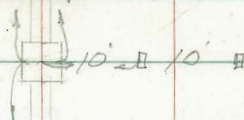
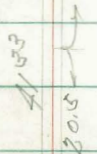
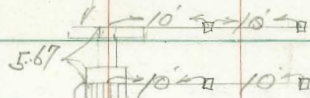


Top  
+74.64 = 28.08  
-3.04  
+73.14 30' inside 4.37  
F 7.41

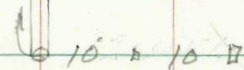
+47.5

+22.5

0 + 0



0.983  
74.64



BM

0.85

25.04

24.19

6753 R.P.  
5875371 R.  
2285.4

End Pipe =  
220 R.P. of 2  
Channel



Culvert

57433

Sheet 26

30' - 152'

Shew

Sept 2-53

H. S. Swan  
Garbat  
Chipman  
Katie  
Keller

14

check

2.66

29.34

on stub  
0-1505 EOC  
39.21  
2285-13

27.00

+5580 - 17' let 30' RSP

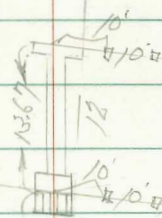
27.00

5.00  
1.56  
CO. 1.4  
10.50

Top Cb  
36.89  
0.83 11/16  
Grate

N 88° 50' E

McDoster Ave



26.80

1 + 40.30 1/4" inside  
H inlet

Cb -1.89  
3.33  
8.22  
10.50

26.80

5.30  
3.33  
5.27  
1.87  
10.50

1 + 16.45

26.40

5.64  
C 1.82

+896 = 1/4" inside  
Box

Top -4.93  
5.10  
36.93 + 10.50  
-4.93 10'

26.00

6.00  
5.10  
CO. 2.00  
10.50

Top 36.93  
57 + 23  
0 + 91.10

10' x 10"

26.00

TP 7.83

32.00

0.51

24.17

5.31  
2.10  
C 1.2

+672

24.27

+448

16.75

7.93  
5.47  
2.46

1.20x

+224

12.12

12.56  
2.90  
C 5.66

0+0 = outlet

7.50

17.18  
10.50  
CO. 6.68

0+0

10' x 10"

7.50

TP 0.51

24.68

12.30

24.17

97.5 Stus  
37.450

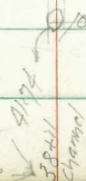
BM

0.82

36.47

55.65

Stake line



5.11 Chan



Culvert

Sheet 26

Aug 12-53  
 W. Dixon Change  
 Goto  
 Park  
 Kelley

60+50

200'-30"

For Check on Top Stake  
 3+05 F.O.S. to Imperial

2+0 = 17 ft

25.76

+75

+50

+25

1+0 =

+75

+50

+25

0+0 = outlet

TP

BM

0.25 - 28.6

28.58 - 28.6

25.20 23.78

4.5  
 1.6  
 0.0  
 23.92 23.63

5.2  
 6.7  
 -0.7  
 22.66 22.10

21.78 20.58

8.3  
 2.7  
 0.6  
 20.10 19.06

18.82 17.53

10.8  
 6.4  
 0.4  
 17.55 16.00

16.28 14.48

15.00 13.00

29.53 12.55 23.27

35.82 25.85

Pipe 27 ft  
 17 1/2" F.O.C.  
 to Imperial

2400

Pipe 27 ft  
 17 1/2" F.O.C.  
 to Imperial

BM 35.65

1.01  
 36.66  
 12.77  
 23.89  
 4.51  
 28.10x

FL 25.29

10' x 10'

Habash

10+50  
 of 197.50  
 culvert

0+00

10' x 10'  
 FL 15.00  
 13.00

19.8 ft Channel







+66.50

+60

22.00

7.52  
1.88  
6.63

Culvert 63+50

260' of 72"

Sketch Page 16

17

2+20

21.70

18.89  
2.69  
6.2

+80

BM 24.67  
Stub 1+00  
22.20  
287.11  
17.77  
29.0  
24.67

20.89

10.23  
7.33  
6.587

+40

19.08

14.54  
4.16  
2.25

1+0 ↑

0+23.50 ↓

BM

14.14  
1.24  
12.90  
17.77  
6.96

17.77

12.82  
5.92  
6.9

+60 E.C.

From Radius  
96° 23' 08"

12.22  
2.92  
9.27

16.68  
16.46

14.52  
2.16  
6.77

16.62 Stub 15' W  
7.18  
2.14  
8.75  
23.29  
0.879  
24.16

+45

57° 17' 43"

12.78  
5.64  
7.14

16.13  
15.97

14.40  
2.67  
6.77

8.03  
6.70  
8.7

+30

38° 11' 49"

13.34  
6.66  
6.72

15.59  
15.48

15.16  
10.71  
4.45

8.52  
2.24  
9.24

+15

19° 05' 54"

13.27  
13.28  
3.67

15.04  
14.99

15.60  
12.73  
2.87

9.15  
9.82

ΣC = 1493

0+0 - B.C.

0° 00'

14.41  
9.59  
4.82

14.50

15.98  
10.21  
11.51

9.66  
6.25  
10.37

TP

10.19

30.59

10.13

20.40

BM

1.26

30.83

29.57



Calvert Across SD & E RR  
4+72 Rotary 24' x 30' RCP

Calvert & H Inlet Imperia Ave.  
Rotary 12' - 18' RCP 4+25

18

Sketch Page 16

Aug. 28-53  
H. S. Wilson  
Garber  
Chipman  
Parker

1+41.2 = Exit 24' RCP 25.60 298

June 14-54  
P.S. 5507

1+23.0 = 1/2 Drop Inlet 24"  
Top 35.25  
3.28  
29.98  
29.30  
C 0.55  
10' F 31.00  
7.53  
298  
29.55  
10' F

H2  
B.M. 9.12 41.63

B.P. W.H.M.  
of Ely 72 Cal.

1+055 30.19 out

+88 = 1/2 Drop Inlet 24"  
Top 34.18  
1.35  
8.00  
F 26.5  
10' F 29.38  
9.15  
8.00  
C 1.15

+75 29.25 9.28  
7.70  
C 1.58

+50 29.00 9.53  
7.42  
C 2.11

0+13.67 = Curb  
Curb Top 4.84  
36.99  
1.54  
7.36  
F 5.82  
10' S 31.00  
10.62  
4.12  
C 0.22  
7.53  
7.08  
C 0.27  
10' S

+25 28.75 9.78  
7.85  
C 1.93

0+0 = outlet of 18' RCP  
R.P. 10 + 10' N of outlet  
42.88  
1.37  
C 3.51  
10' N 30.75  
7.78  
7.33  
C 0.45  
10' S

0+0 = outlet 30"  
10.03  
7.61  
C 2.42  
10' F 28.50

B.M. 6.02 58.53 32.51 B.P. W.H.M. of Ely 72 Calvert 58.53



C. Vert. Gillette St. 4351554.

Sheet 28

Aug. 31. 1953  
H. S. J. S. M.

19

Double 48" RCP 48' Long

Sketch Page 16

+48 = inlet of  
2-48"

26.50  $\begin{matrix} 9.98 \\ 5.25 \\ \hline 28.7 \\ 15 \end{matrix}$  outlet

+24

26.25  $\begin{matrix} 9.53 \\ 5.87 \\ \hline 28.7 \\ 15 \end{matrix}$

0+0 = outlet of  
2-48"

26.00  $\begin{matrix} 9.58 \\ 5.14 \\ \hline 28.7 \\ 15 \end{matrix}$

BM

307

35.58

32.51

R.P. W. H. H.  
4.54 72"  
C. U. N.







S St + Chollar Creek Channel

32' - 18" R.C.P.

#2 June 17-54  
H.S. 5509

#2 BM 3478  
120  
35.781

#2  
7.98  
6.62  
7.32  
10.50

#2 8.48  
10.02  
F1.57

#2  
8.48  
7.74  
0.74  
10.5

#2  
7.98  
1.05  
6.93  
10.5

28.00  
22.00  
17.00  
9.58  
3.10  
6.48  
10.5

27.50  
28.50  
10.00  
14.90  
F1.72

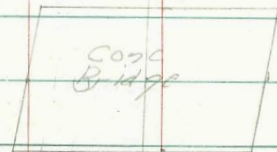
27.50  
28.50  
10.00  
10.87  
F0.87

28.00  
29.50  
9.58  
1.04  
0.54  
10.5

21.96

21.87

16+18 RCP



FOLTS

10/20/55

Top Dyke  
31.92  
Bottom  
19.92

Chollar Creek Channel

28.5  
29.9  
27.6  
23  
10.9  
22

BM

537

38.58

35.31

11/11/54  
H.S. 5509

Island Ave + Chollar Creek Channel

Nov 27-53  
H.S. 5509

24' of 24" R.C.P.

Changed See Page 31

Top Dyke

36.30  
31.0  
5.3  
2.7  
24.0  
32

30.30  
24.80  
+ 5.00  
3  
9.00

38.581  
2.12  
36.16  
1.59  
38.751

11/4  
31.0  
7.95  
6.63  
C/F 12  
10/11

11/4  
30.3  
8.15  
6.45  
C/F 10  
10/11

10/20/55

24 RCP

Island Ave

11/4 Bottom

Chollar Creek Channel



Culvert 5x87.50 G Line  
84-30" R.C.P.

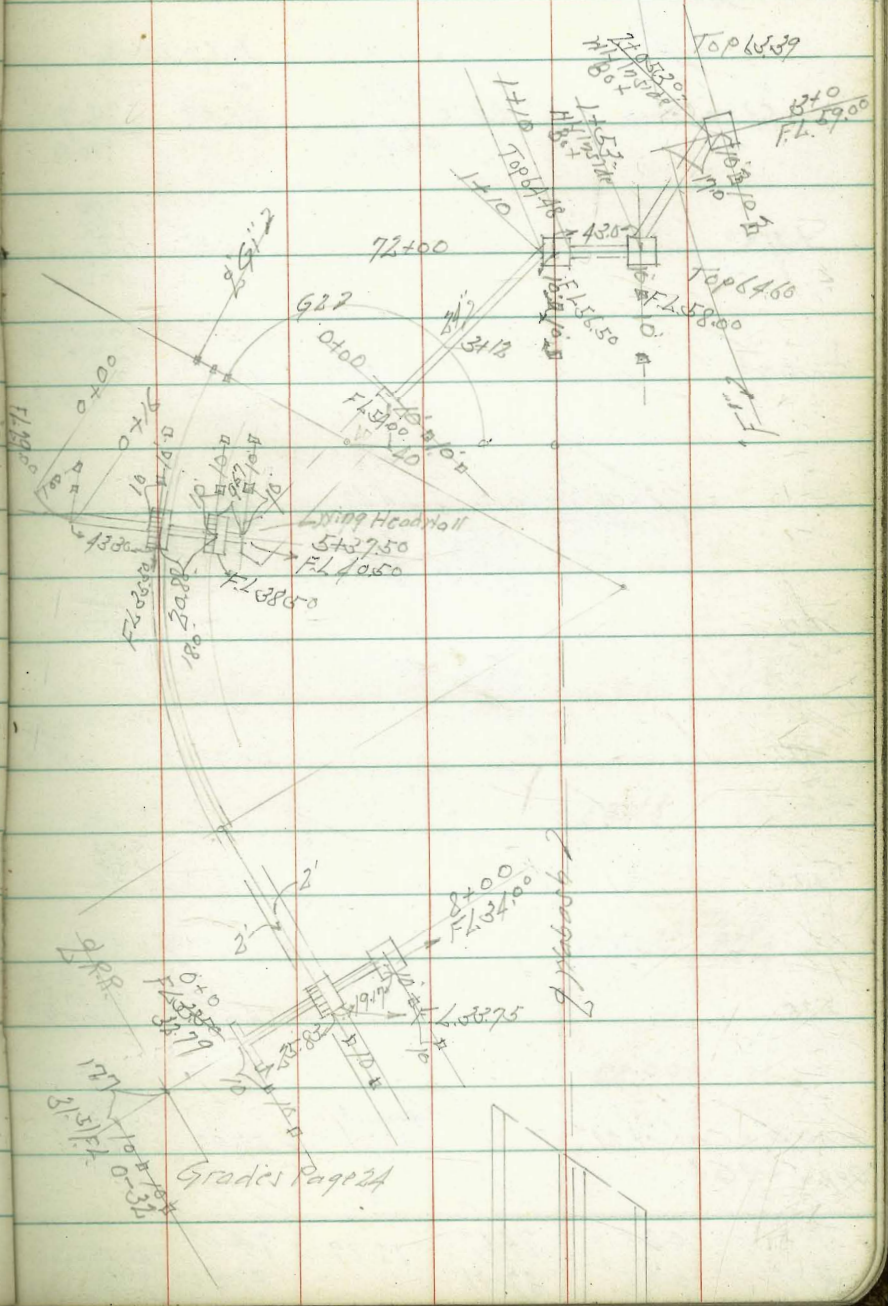
July 7-53

Sheet 21

52.3

22

		Florkline	
8' F of H/Outlet = 15' lot 84-30" R.C.P.	Calc'd Slope 43.90	405.50	566. 8.71 F 0.06 10'H
	-0.87		
H/Outlet F of B	Top -6.51 47.67 2.66 F 9.17 10'H	38.50	266. 2.66 0.00 A 40° 41.30 R 22.5 T 8.25 L 16.0 D 176.39 1566. 136 61.30
	BM 3662 1018 46.80x		
+57.80	Top #1 -8.34 49.50 4.85 F 12.70 10'H	35.50	800. 337 64.63 10'H
+36.65	Top #2 -2.70 46.80 1.93 F 10.67 10'H	33.16	
+16 F.C.		30.82	10.34 11.88 F 0.94 10'H
+08		29.91	11.25 11.20 C 0.06 10'H
0+0 R.C. Outlet		29.00	13.16 11.64 C 0.62 10'H
B.M. 4.54 41.16		36.62	NFBolt SDRR Bridge





Culvert

7210

Sketch Page 22

Oct. 28. 53  
H. S. Olson  
Garber  
C. J. P. mon  
Porter  
Holley

23

14"

July 10-53

8M 87.50  
87.50  
22  
12.14  
74.90  
6.14  
75.04

8P Top Conc.  
Wall  
29' 8" 18' 50" F-1"

+53 = I Drop

Top 10.44  
64.60 7.96  
c 2.54  
10.50

58.00  
17.04  
7.96  
c 9.14  
10.50

+31.50

57.25  
17.79  
18.25  
c 7.54  
10.50

Forward

13.50

71.17  
c 7.50  
12' 50" ht.  
71.16  
2285-28

+10 = 72+00

Top 18.17  
64.48  
10.56 10.10  
7.28 6.26  
c 3.68 3.79

56.50  
18.54  
18.54 9.07  
c 11.97

140

56.27  
18.40  
c 10.93

2+05.30 = I Drop  
11/4 inside

Top 11.65  
63.39 11.10  
c 6.55  
10.50

59.00

16.07  
14.10  
c 4.97  
10.50

+75

55.70  
18.97  
9.46  
c 9.15

+87.86

58.66

16.38  
10.74  
c 5.64

+50

55.14  
19.53  
9.83  
c 9.70

+70.43

58.63

16.71  
9.39  
c 7.32

+25

54.57  
20.10  
10.20  
c 9.90

17.43

58.00

0+00 = Outlet 24"  
Opp 2+126'

Ground 58.7  
54.00  
20.67  
16.19  
c 4.54  
10.50

1+53 = 11/4 inside  
I Drop

T.P. 0.25 74.67 12.89 74.42  
B.M. 0.01 87.01 87.00

8P Top Conc.  
Wall  
29' 8" 18' 50" F-1"



Culvert

8+0' G"

18" - 40.0

Sketch Page 22

Aug. 18. 53

H. Sisson  
Garber  
Chipman  
Porter  
Kelley

24

April 5. 54  
H. Sisson  
Garber  
Chipman  
Porter  
Kelley

52'-18" Under R.R.

0+15.0 = 1/2 Drop to inlet	TOP 38.16 5.99 6.25 F0.82	34.00	9.95 6.41 C3.54
-------------------------------	---------------------------------------	-------	-----------------------

0+0 (old outlet)	32.79	9.70 6.41 C3.29
------------------	-------	-----------------------

0+25.83 = Cb Line H. inlet	Carb Top 38.68 5.92 6.25 F0.98	33.75	10.20 6.25 C3.95
-------------------------------	--	-------	------------------------

0-16	32.15	10.31 6.25 C4.08 10.50
------	-------	---------------------------------

0+0 = outlet	32.79 32.50	32.79	10.45 5.87 C4.58 32.79 C5.29
--------------	----------------	-------	--

0-32 = outlet	31.51	10.98 7.11 C3.87 10.50
---------------	-------	---------------------------------

545 Ground  
H. Bottom  
TIC

BM	7.33	12.95
----	------	-------

36.62	H. Bolt S. DM RR Bolt 90
-------	--------------------------------

BM	3.77	12.49	38.72	247 H. in la 8+0 G"
----	------	-------	-------	------------------------



Culvert Martin Ave + Access Road Extra

			7.71	8.44
+96.16	Stylaside Box	Top 4.18 14.83 c.o. 11.30	7.71 5.56 c 4.18	8.44 4.28 c 4.16
+93.89	EG	10° 33' ✓ 1.96 4.28 00.63 c 3.08	7.72 11.28 c 3.10	8.46 5.26
+69.31		7° 02' ✓ 7.98 4.80 c 3.18	11.03	8.71 5.78 c 3.17
+44.79		3° 31' ✓ 8.23 5.22 c 3.09	10.78	8.96 5.76 c 3.20 7' stub
+202.18	CRT	0° 00' C 9' R 20.68	10.53	9.21 5.64 c 3.57 7' x 0.65
1+0			10.33	9.41 5.54 c 3.87
+75			10.08	9.66 5.86 c 3.80
+50			9.83	9.91 5.98 c 3.93
+25			9.58	10.16 6.08 c 4.07 7' stub
0+0			9.33	10.33 6.18 c 4.17
BM	5.55	19.74	14.19	8.91 5.74 c 3.17

Jan. 15. 54  
H. Sisson  
Garber  
Chipman  
Parks  
Kelley

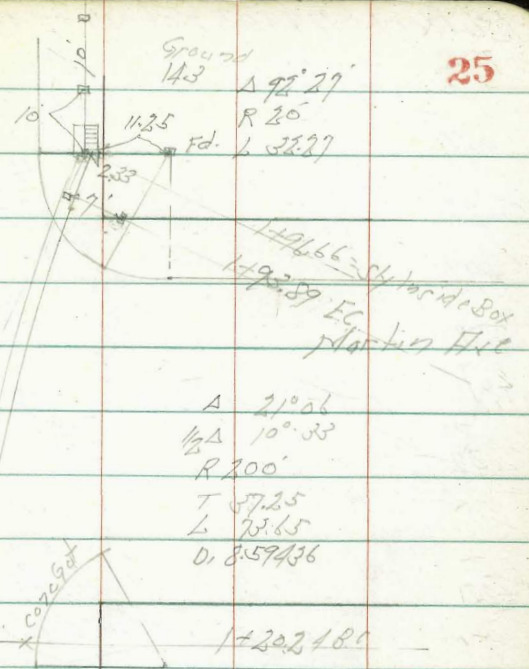
200' - 18" RCP

76

Wabash Blvd.

Access Road

First 18" RCP?  
Page 10



Ground  
143  
Δ 92° 29'  
R 20'  
Fd. 1.3227

A 21° 06'  
1/2 Δ 10° 33'  
R 200'  
T 57.25  
L 73.65  
D 8.59436

1+202.18

1+20.24  
10.53  
3.67  
14.20  
4.81  
19.01

0+00  
HN inside 48"  
8.04 F.L.



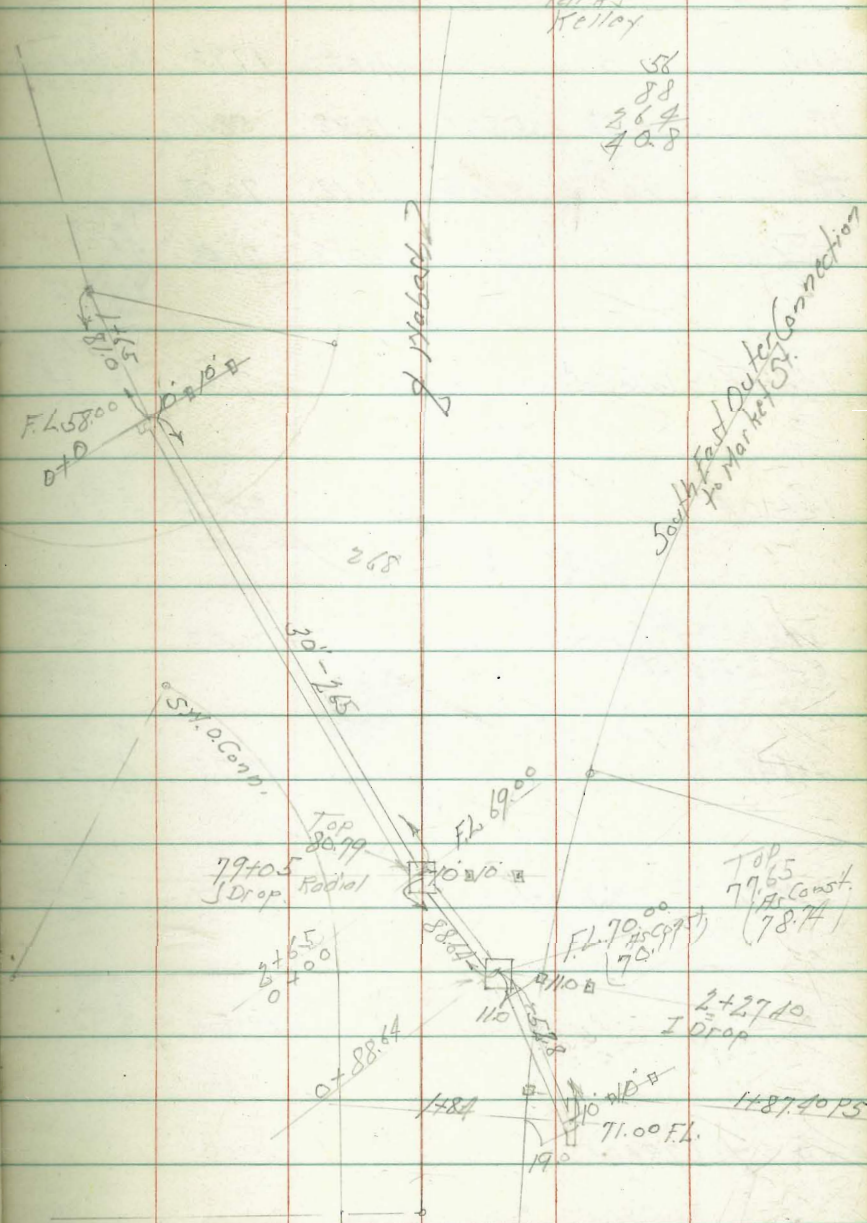
Station	Notes	Top	FL	Other
Culvert 79+05	Wabats to 1+65 SW 1/2	80.79	69.00	13.14 5.83 C7.37
+65	30" 1/2 Inlet	7.25 5.83	68.50	13.81 8.93 C7.77
+47		14.88 8.41	67.26	
2+22		15.92 8.81	66.22	
+97		16.97 10.01	65.17	
+72		8.17 4.19	63.09	
TP	11.96 82.11	1.08	70.18	
+47		7.13 1.08	64.13	
1+22		8.17 4.19	63.09	
+97	BM 80.78 228 83.76	SFD S Drop 12/10 79+05	62.05	9.21 4.26 C5.65
+72		10.41	61.00	10.26 4.52 C5.77
+47			59.96	11.30 4.98 C6.22
+22			58.92	12.34 5.16 C7.18
0+00 = Outlet			58.00	13.96 10.89 3.27 C2.10 of 4 Pipe
BM	10.00	71.26	61.26	Sta 6 NW of Outlet of Pipe

Sheet 17-15

Aug. 14. 53

H. S. Simon  
Part  
Kelley

26



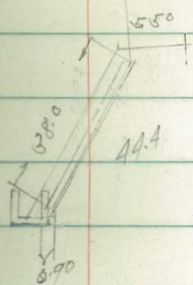


North East Outer Conn. to Market St.  
Down Drain + Inlet Sheet 14

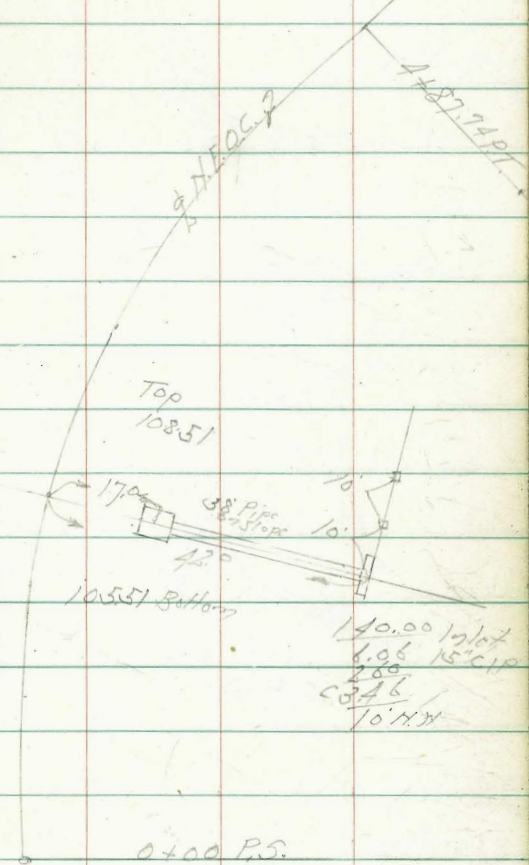
27

R.M.		1162	4773	Chas. H Market Charles Bridge (4774)
TP	0.58	58.75	12.88	58.17
TP	1.05	71.05	12.12	70.02
For Check		1068	71.46	07 PP 1.150 55.00 71.90 2284-12
1+41.44 = Inlet of Pipe			71.00	11.11 78° 68.87
1+150.4			70.50	11.64 5.03 66.56
+88.64 = 4" Inlet Opp 2+2770 SIOC		77.65	70.00	12.14 397 68.87 11.65
+66.48			69.75	12.59 2.52 69.87
+44.32			69.50	12.64 2.83 69.81
+22.16			69.25	12.89 2.71 68.74
0+0 = 7579+05			69.00	

82.14



2+04 =  
Down Drain  
Inlet



TP	1072	146.06	2.03	132.34
BM	1320	132.37		132.17

Pipe 99' R  
234.89 L











Grades 18" RCP S.E. 1/2 Across Market St.

To N.F. 16

Sketch Page 28

Sheet 16414

Feb 27 1954

H. Simon  
Chipman  
Partz  
Kelly

Feb 24 54

H. Simon **30**  
Gardner  
Chipman  
Partz  
Kelly

+78 = 1/2 let

84.00

13.86  
2.78  
c 10.08  
12.85

+66 = Top Cond

83.47

14.39  
14.93  
Feb 54 Top  
Cond.

14.67  
9.05  
c 5.62

+60

83.19

+35

82.05

1.58  
1.00  
c 4.81  
10.5

+10

80.91

16.94  
12.12  
c 4.82  
10.5

+85

79.78

18.08  
11.62  
c 6.46  
10.5

+60

78.64

19.22  
10.83  
c 8.22  
6.5

TP

10.32

97.86

1.05

87.54

0 = Sub  
10' South  
0.4350

+35 = NE Inside Box

Top

84.26

82.26

77.50

4.33

1.05

c 2.28  
70' South

11.09  
1.05  
c 10.04  
70' South

+32 = SW Inside  
I Drop 1/2 let

82.26

77.50

+16

77.13

11.41  
4.82  
c 6.59  
10.50

0+0 = Outlet

76.75

11.84  
4.96  
c 7.71  
70' South

BM

12.92

88.59

75.67

RP 11.6  
69' South  
13+20+13 P.P.C.  
Market







Chollar Creek Channel & S.D.H.F.R.R.  
 Culverts

June 30-54

H.S. Mason  
 Garber  
 Chipman  
 Parks

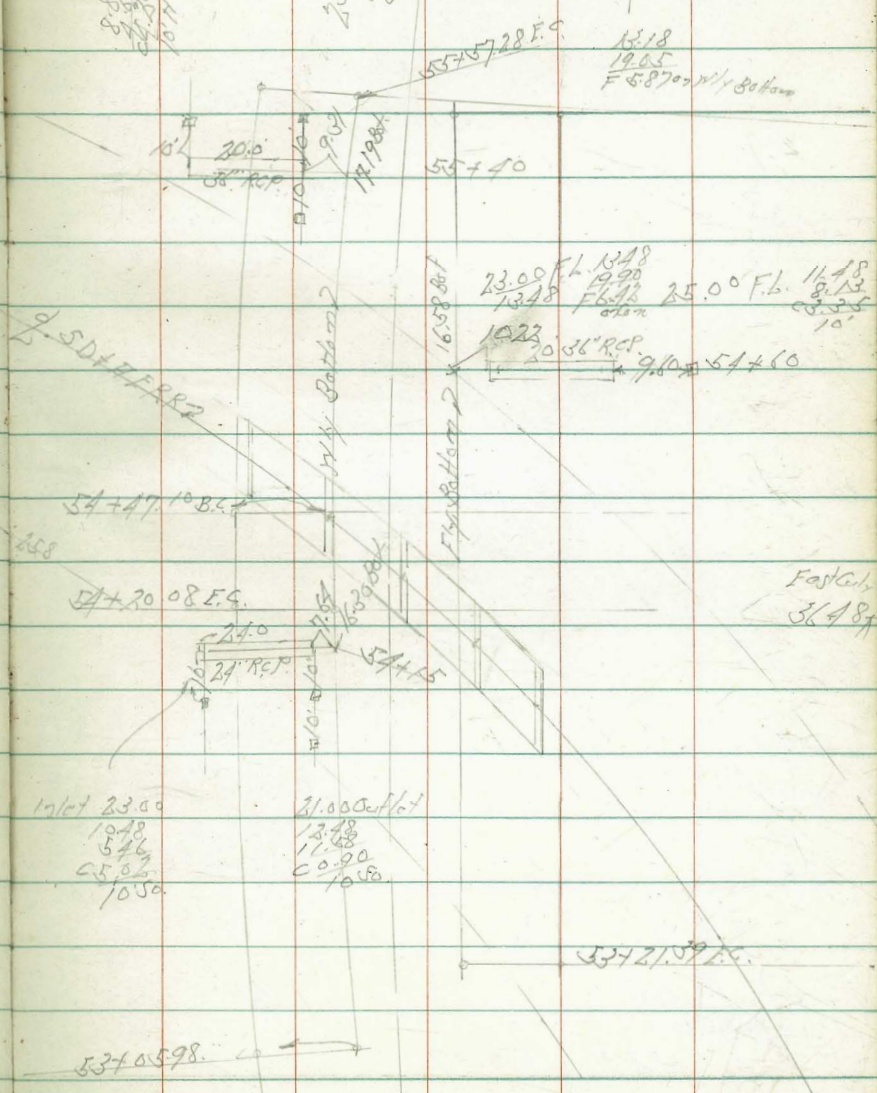
BM 1.40 36.18

34.78

2 NY Cor  
 1st Bridge  
 Pav.  
 29.45  
 51433'  
 Elev  
 2800

11.90  
 10.80  
 10.70  
 10.60  
 10.50  
 10.40  
 10.30  
 10.20  
 10.10  
 10.00  
 9.90  
 9.80  
 9.70  
 9.60  
 9.50  
 9.40  
 9.30  
 9.20  
 9.10  
 9.00  
 8.90  
 8.80  
 8.70  
 8.60  
 8.50  
 8.40  
 8.30  
 8.20  
 8.10  
 8.00  
 7.90  
 7.80  
 7.70  
 7.60  
 7.50  
 7.40  
 7.30  
 7.20  
 7.10  
 7.00  
 6.90  
 6.80  
 6.70  
 6.60  
 6.50  
 6.40  
 6.30  
 6.20  
 6.10  
 6.00  
 5.90  
 5.80  
 5.70  
 5.60  
 5.50  
 5.40  
 5.30  
 5.20  
 5.10  
 5.00  
 4.90  
 4.80  
 4.70  
 4.60  
 4.50  
 4.40  
 4.30  
 4.20  
 4.10  
 4.00  
 3.90  
 3.80  
 3.70  
 3.60  
 3.50  
 3.40  
 3.30  
 3.20  
 3.10  
 3.00  
 2.90  
 2.80  
 2.70  
 2.60  
 2.50  
 2.40  
 2.30  
 2.20  
 2.10  
 2.00  
 1.90  
 1.80  
 1.70  
 1.60  
 1.50  
 1.40  
 1.30  
 1.20  
 1.10  
 1.00  
 0.90  
 0.80  
 0.70  
 0.60  
 0.50  
 0.40  
 0.30  
 0.20  
 0.10  
 0.00

9330.49  
 33.837



TP BM 3.40 33.48

30.08

9330.49

5370.598







+88 = inlet 36"

57.00

8.85.  
2.26  
62.73  
10.11

+75

50.54

9.31.  
4.16  
3.75.

TP

521.

59.85

0.90

54.64

5.87.  
0.28  
64.97.

+50

19.67

10.329

2 +25

48.80

6.74.  
0.25  
65.79.

50.54



Rip Rap Federal Blvd. West of Hobart Blvd.

Sheet 11 Location

Dec. 23-53

F.S. 350-35

Garber  
Chapman  
Parks  
Kelley

+40 46 56 86 10.5  
20 10 6.0 8 10

2740

138  
44  
92  
141

5th wing  
Mail 3-75  
2nd Floor  
44-43 18

42.00 Bot.  
Rip Rap

2+0 45 38 63 9.0  
20 6 6.0 10

Scale for Form 32

138  
240 45  
92  
141



+50 23 26 55 8.2  
20 10 0.0 10

1138  
450 11.2  
170

Scale for Form 32

140 138  
22  
171

42.0 Bottom 0+50

1+0 21 20 93 9.3  
20 10 0.0 10

150 138  
12  
178

5400 Top

Finish  
4.5

+50 3.0 36 80 10.3  
22 12 8.0 10 2.0

138  
2.21  
17.6  
17.4

42.00 Bottom Grade  
0+00

Existing Conc.  
Abutment

+25 40 45 47 11.1 10.9  
20 0.0 8 14 21

0+0 = NY Casc. Abut 7.9 9.3 9.6  
10.0 11.1 11.5  
BM 192 55.76 53.84  
Federal Blvd  
Chollar Bldg  
(old)



Culvert

90+0

36" RCP

Flaxline

Sheet 13

Dec. 8-55

H. J. Sisson  
Garber  
Chipman  
Clark  
Kelley

36

+ = 2' Drop

TOP 11.03  
74.60  
FO.13

70.00

15.63  
24.47

1 + 21.09 = F.C.O.  
4.012 side

TOP  
75.41  
1019  
1088  
FO.17

69.50

1613  
1088  
C5.25

38'  
58' Pipe

TP 11.15

85.63

3.20

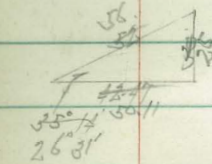
74.48

0.25/0.5  
0.78/0.17  
8.68  
3.20  
C5.18  
10.5

+ 85.47 = 1/2 Drop

TOP  
74.22  
3.26  
3.26  
CO.26  
10.5

69.00

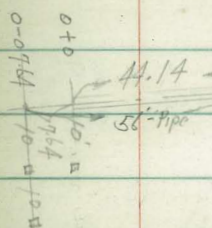


+ 64.81

5.70

68.50

9.18  
1.92  
0.25/0.5  
0.25/0.5  
0.25/0.5  
0.25/0.5  
22.87  
9.68  
5.26  
C4.46

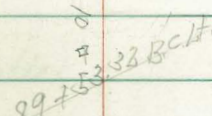


+ 12.47 = 1/2 Drop  
Inside Box Hinge

TOP PC  
73.10  
4.58  
5.22  
FO.14

68.00

9.68  
5.26  
C4.46

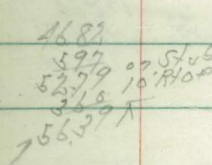


+ 21.23

0.50

57.43

24.68  
9.75  
0.25/0.5  
10.5  
C10.82



TP 11.78

77.68

0.50

65.90

28.40  
13.61  
C5.18  
10.5  
13.39  
9.75  
C4.18

0+0 = outlet 36"

46.82

13.61  
C5.18  
10.5

0-07.64 = outlet 36"

41.00

43.00

13.39  
9.75  
C4.18

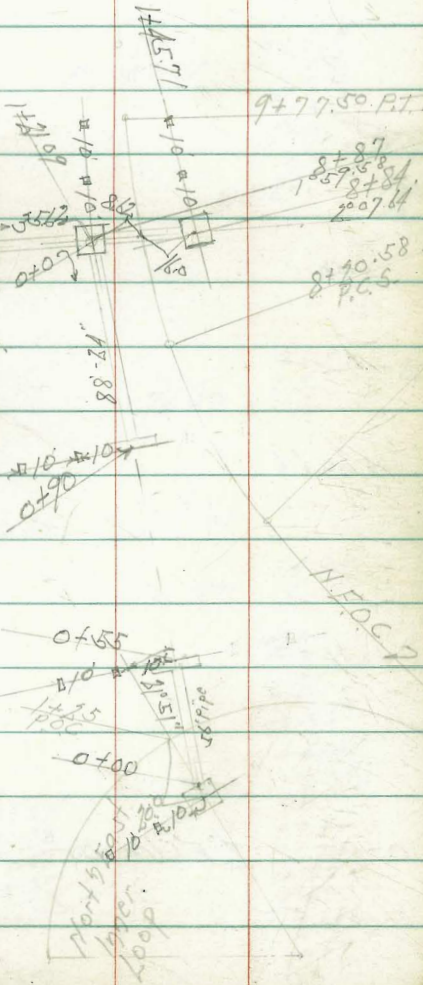
8M

12.56

66.40

53.84

N. J. P. B.  
Federal  
Chollos





Culvert 24" RCP Between Weber's  
& North East Outer Loop

Culvert 24" North East Inner Loop  
Sketch Page 36 1425

37

TP

+90

7500

1063  
677  
03.90

+60.66

7316

12.47  
8.17  
03.98

5790

+31.33

7153

1430  
984  
4.46  
10.11

0+0

= 2' F' Clear out

Top

75.44 19.50

85.63

+55 = outlet

76.00

9.63  
0.82  
9.01

TP

633

91.34 0.62

85.01

+27.5

76.50

14.84  
5.86  
09.98

(81.14)

Top

82.39

8.95 89.87  
5.62 82.39  
03.27 7.48 ✓

8.20  
F0.72 ✓

0+0 = 11.6' inside  
1 Drop in let

77.00

89.87  
76.50

13.37

4.44

C-8.93

14.34  
5.84  
08.70

89.87

77.00

12.87 ✓

8.20

C-4.67 ✓

85.01  
4.86  
H. 1.89.87

91.34  
15.77  
85.63  
11.15  
96.78  
11.98  
84.80

87.29  
2.29  
87.79

87.20  
7.09  
80.79

55.74

1.74

79.05

82.78

BM



Culvert

4+87.50 Southeast Outer Conn. to Federal Blvd

Sheet #10

Dec. 10-57

H. Sisson  
Scriber

38

30" - 136

Top  
6200

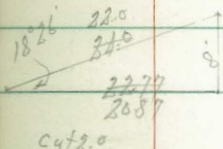
58.00 F.L.

Top

62.00  
1.02  
3.51  
c0.51

58.00 c

8.02  
2.51  
c1.51



1/10 5/10

3.87  
8.4'

Top  
5497

50.00 F.L.

TP 9.18 66.02 1.31 56.84

Top

54.97  
5.18  
1.31  
c1.87

50.00

8.15  
1.31  
c6.84

1+12 = NY Inside Rd

1/10 5/10

1+12

2.80

NY Edge Pavement

+84

49.00

9.15  
2.77  
c6.38

4+87.50  
SE Federal

+56

48.00

10.15  
2.15  
c7.50

9.15  
11.2'

+28

47.00

11.15  
2.91  
c8.24

0+00 = outlet

46.00

12.15  
17.40  
c0.75  
10' H.E.

1/10 1/10

16.00 F.L.

BM

4.31

58.15

53.84

NY & P  
Federal +  
Cholla Blvd  
(old)



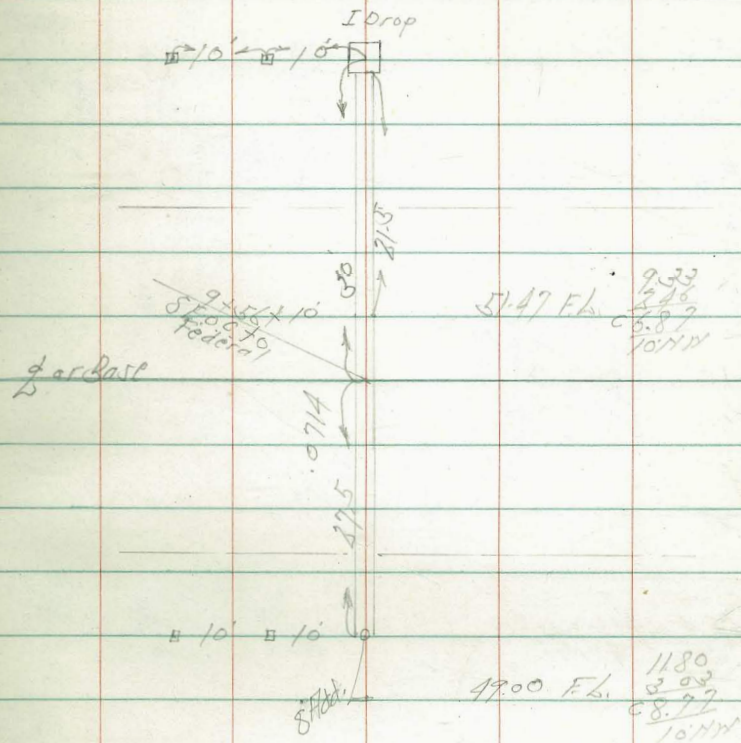
Convent

9+56 S.F.O.C to Federal Blvd

Nov. 3, 53  
1953  
Gorham  
California  
Reths  
Kelley  
39

36" - 56"  
2.96  
0.94  
28.00  
70P  
57.84

53.00 F.L.  
280  
0.96  
6.84  
10.111



BM 6.96 60.80

53.84  
N.W.B.P.  
Federal +  
Cholla Bridge  
(old)

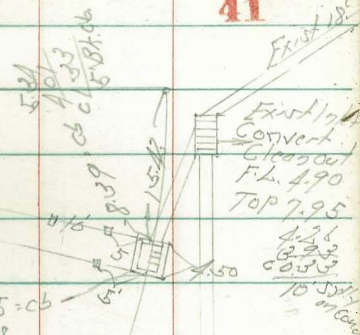






BM	5.49	1373	8.24	U.S.G.S Dir. of Harbors 53274
----	------	------	------	-------------------------------------

18'-18" R.C.P.

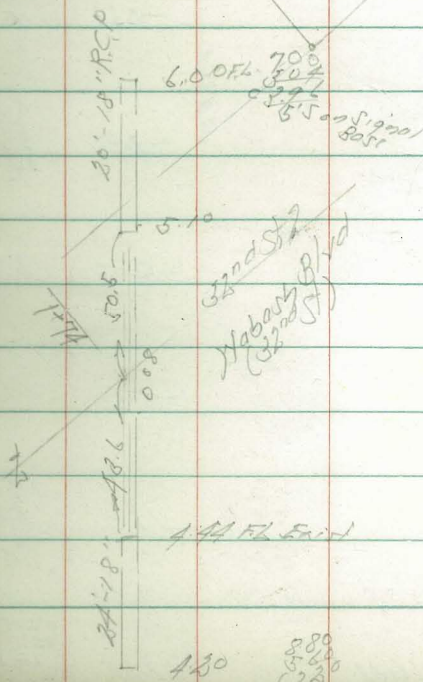


50.5 F.L. Hulet  
868  
401  
467  
5.51

8.35-cb  
538  
403  
584cb

BM	4.76	1300	8.24	U.S.G.S
----	------	------	------	---------

Top Cleared BM	3.97	12.21	8.24	U.S.G.S Dir. of Harbors & 32nd St.
-------------------	------	-------	------	--



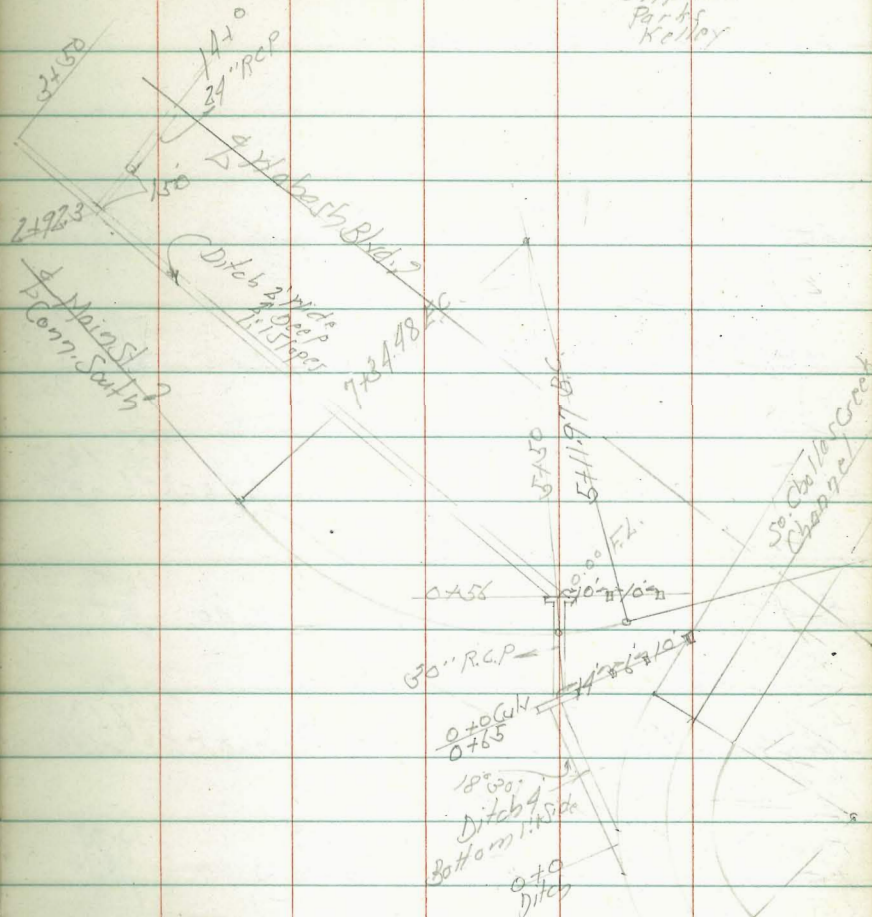
Fixed 18"  
Harbor Drive

1.30  
580  
530  
520



Culvert 30" R.C.P. #150 Ditch  
 Main St. Conn South & So. Chollar Creek Channel

Nov 2-53  
 H. Sisson  
 Gardner  
 Chipman  
 Parks  
 Kelley



+56 = 12' x 30" R.C.P.		0.00	11.88 7.08 24.80 70.51	
+38		-1.61	13.19 5.86 27.69	
+19	0.80 R.C.P.	-3.31	15.19 6.72 28.17 70.51	
0+0 = Outlet 30" R.C.P.	16.9 8.8 21.04 12.1	-5.00	16.9 6.0 21.04 72.9	
+32.5	17.4 7.2 21.04 12.4	-5.50	17.4 6.3 21.04 72.1	
0+0 = Ditch	17.9 7.5 21.04 12.1	-6.00	17.9 4.9 21.04 75.0	
TP	418	11.88	8.72	7.70
BM	217	16.42	14.25	Top of door Fence post 8' x 6' Chollar + Ranch Field



Grades Ditch Between Wabash Blvd  
+ Main St. Connection South

43

Sketch Page 42

3+50		4.00	$\begin{matrix} 7.43 \\ 36.5 \\ 37.5 \end{matrix}$
+92.3 - Opp 14+0 Wabash	FL 3.00	8.13	$\begin{matrix} 9.96 & 9.87 \\ 8.12 & 6.14 \\ 2.82 & 3.32 \\ 70.11 \end{matrix}$
+50		1.75	$\begin{matrix} 9.67 & 10.17 \\ 7.21 & 7.81 \\ 1.75 & 1.76 \end{matrix}$
2+0		1.40	$\begin{matrix} 10.12 & 10.00 \\ 7.12 & 7.72 \\ 3.00 & 2.28 \end{matrix}$
+50		1.05	$\begin{matrix} 10.37 \\ 8.77 & 10.17 \\ 3.60 & 1.40 \end{matrix}$
1+0		0.70	$\begin{matrix} 10.72 \\ 6.42 \\ 4.30 \end{matrix}$
+50		0.35	$\begin{matrix} 11.07 \\ 6.36 \\ 4.71 \end{matrix}$
0+0 - NE FL 30" RCP		0.00	$\begin{matrix} 11.42 \\ 11.55 \end{matrix}$
BM	6.62	11.42	$\begin{matrix} 4.80 \\ RP 1052 \\ 0+56 \\ 30" RCP P22 \end{matrix}$



South West Inner Loop Nabash Federal  
 #2 Carb 1/2 lot #100 36" RCP Sect. H

Sheet 41  
 64-36" RCP

Dec 21-58

H. J. Wilson

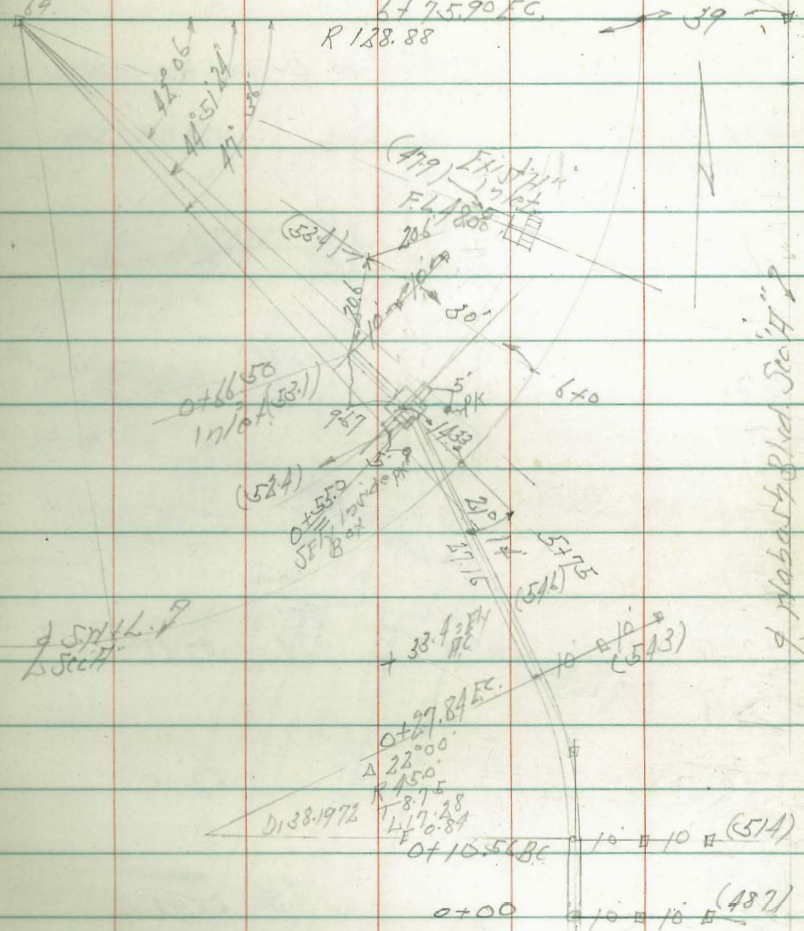
Gardner

W. P. Kelley

44

99-5275

BM	5.19	55.01	55.01	15.00 7.41 7.59 10 NE
+66.50 1/2 lot		45.50		
	TOP			
+55.0 = SFL 1/2 side Box	53.51 53.51 7.99 7.70 0.21 SFL	45.00	52.45 53.41 8.05 7.86 change 0.19 SFL	
+27.84 FC	16.19 16.15 9.59	44.73	15.76 9.53	
+19.20	16.41 26.0 28.81	44.64	15.86 28.6 28.6	
+10.56 = BC	16.63 9.54 9.11	43.87 44.58	15.94 9.54 9.11	
0+0 = outlet 36" RCP	16.90 11.79 6.11 10 NE	43.50 44.45	16.05 11.79 6.11 10 NE	
TP	5.29	60.50	280	55.21
BM	7.24	59.01		51.77
				NXRP Federal #3575 Report



Nabash Blvd. Sect. H



Triple 72" RCP Convent. Bet H.W.O.C.  
 And H.W.L. of Harbor Blvd Sect 47

String #1

Cross Section This Area Orig + Final 2297

1+14.15 = Pk1st			57.79	FL
1129				
+9786 FF	8° 20'	$\frac{849}{899}$	57.63	
+88	5' 11.71	$\frac{858}{908}$	57.54	
+80	2° 38.91	$\frac{866}{916}$	57.46	
837				
+71.68 = BC 1/4	0° 00'	$\frac{874}{924}$	57.37	
2368				
+48		$\frac{897}{947}$	57.15	
+24		$\frac{920}{970}$	56.92	
0+0 = Exit 72"			56.69	FL
TP	5.88	66.12	970	60.74
BM	3.81	69.94		66.13

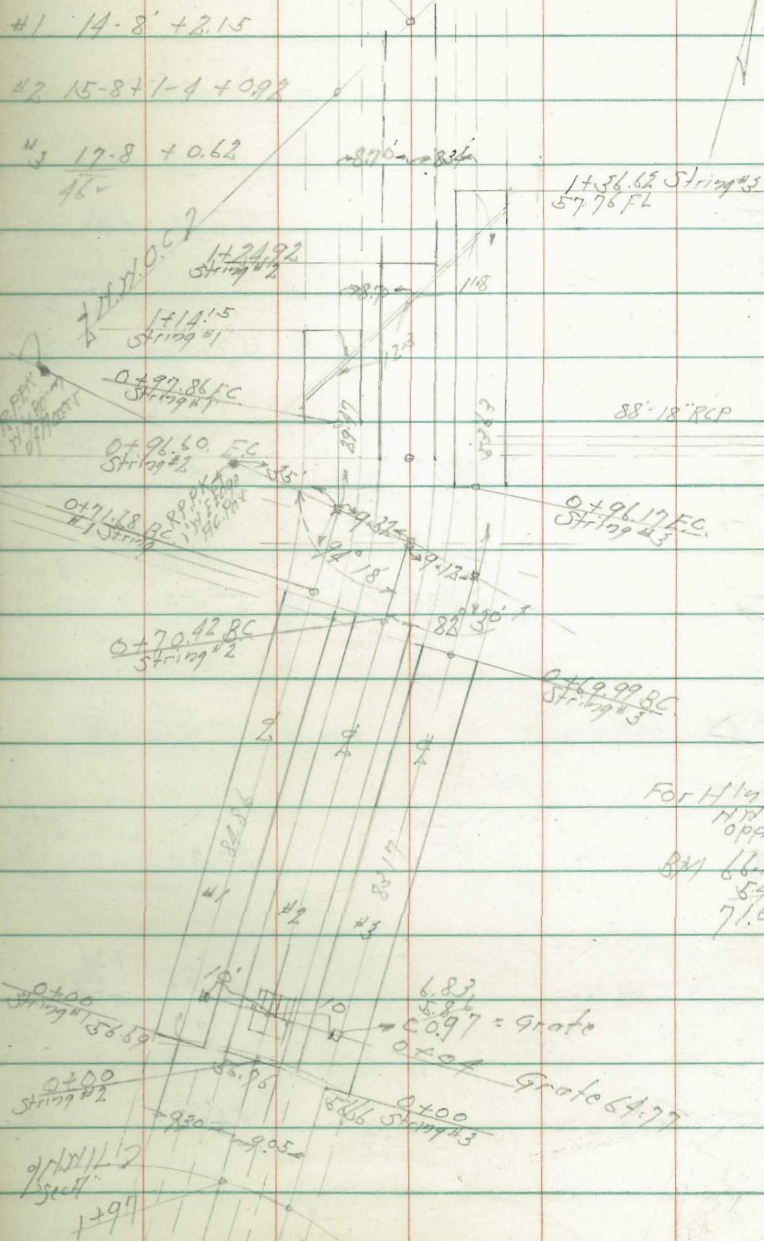
41° 40'  
 P90  
 T 13.18  
 L 2.218  
 D 119.096

H.W.B.P.  
 H.W. 3.75"  
 H.W. 18 W.O.C.  
 2070-10'

Sheet 43

Aug 18, 54  
 H.S. Simon  
 City Engineer  
 for the  
 Kelley

45





String #2

String #3

46

					+36.62 Exist		57.76	FlotLine
					16.62			
1+24.98 Exist			57.91 - FL		1+20		57.62	8.50 -50 7.00
					23.83			
+96.66 = FC	8° 20' ✓		57.65	8.47 50 8.97	+96.17 FC	8° 20'	57.43	8.68 50 7.99 ✓
					2.17			
+88	5° 35.78 ✓		57.57	8.55 50 9.05 ✓	+88	5° 43.8' ✓	57.36	8.76 50 9.26
+80	2° 02.98 ✓	5000	57.50	8.64 50 9.14	+80	3° 11' ✓	57.30	8.87 50 9.37
9.58					10.01			
+70.42 = BC	0° 00'		57.41	8.76 50 9.26 ✓	+69.99 BC	0° 00'	57.22	8.90 50 9.40 ✓
22.42								
+48			57.20	8.96 50 9.46 ✓	+48		57.04	9.08 50 9.58
+24			56.98	9.24 50 9.74 ✓	+24		56.85	9.27 50 9.77 ✓
0+0 = Exist 1.72"			56.76		0+0 =		56.66	

66.12 B.H. Ford

66.12 B.H. Ford 46







Yabarb Blvd. Sec A" NW. 1/4. At Federal Blvd Channel

Sept. 8. 54  
H. Sisson **48**

BM. 4.10 7023 16.13 NW BP  
HW 3-75  
11+04 NW

North West Corner  
Loop at Federal

Garber  
Chipman  
Parker  
Kelley

TP 1.80 59.07 1296 5727

Sept. 15. 54

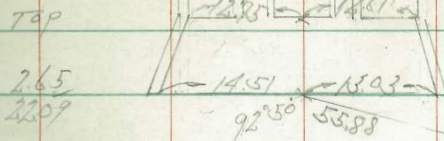
For Bottom Gr

BM 55.88 Lip

12.00 57.18 T

265 26.09

0+0 Top Bottom 3.19  
61.88 55.88



0+0.0 Sept. 27. 54

Top 8.00

BM 55.88

8.75

67.5 T

+25 61.22 55.22

3.01 1.96  
0.27  
1.55

1.96 3.01  
0.27  
1.55

Top 8.00

BM 55.88

8.75

67.5 T

+50 60.57 54.57

4.50  
5.05  
F0.55

3.96 2.61  
0.27  
0.75

2.61  
2.30  
0.31

Top 8.00

BM 55.88

8.75

67.5 T

+75 59.91 53.91

4.52 3.27  
2.76  
0.51

12.50 x 12.50

3.27 3.32  
0.27  
0.25

Top 8.00

BM 55.88

8.75

67.5 T

1+0 59.25 53.25

5.89  
5.89  
0.15

3.28 3.23  
3.07  
0.98

3.23 3.27  
0.27  
0.25

Top 8.00

BM 55.88

8.75

67.5 T

+25 58.59 52.59

0.27

5.94 4.59  
3.73  
0.86

4.59 3.31  
0.27  
0.18

Top 8.00

BM 55.88

8.75

67.5 T

+50 57.94 51.94

7.13  
7.48  
F0.35

1.59 5.24  
1.94  
0.30

5.24 4.27  
0.27  
0.47

Top 8.00

BM 55.88

8.75

67.5 T

+75 57.28 51.28

57.65

7.25 5.90  
5.18  
F0.28  
0.30

5.90 5.65  
5.65  
0.25

Top 8.00

BM 55.88

8.75

67.5 T

2+0 56.62 50.62

8.45  
7.81  
F1.16

7.91 6.56  
1.87  
F0.22  
1.55

6.56 5.90  
5.18  
0.25

Top 8.00

BM 55.88

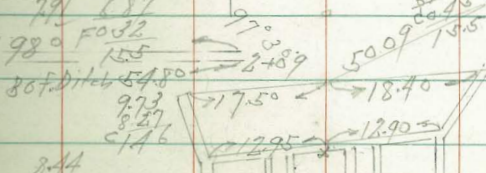
8.75

67.5 T

+20.25 56.09 50.09

8.98

8.44



Federal Blvd.







Habas 4 Blvd Sec H SW 1/4 Federal Blvd  
Channel

BM	323	55.73	52.50	BP NW Hwy 72 SW 1/4
0+0		Top 53.41	Bottom 47.41	
+25		53.16	47.16	
+50		52.92	46.92	
+75		52.67	46.67	
1+0		52.43	46.43	
+25		52.18	46.18	
+50		51.93	45.93	
+75		51.69	45.69	
2+0		51.44	45.44	
+25		51.20	45.20	
+36.62		51.08	45.08	

Federal Blvd  
TOP

BM 52.50  
43.31  
51.89  
37.13 32.43  
53.17 22.09  
59.80 10.16  
51.28  
8.81  
7.43  
1.28  
Bottom Ditch

1286 - 12.86  
(17.41)

Sept 15-54  
75.5505  
90.60  
Chippman  
Kelley  
7.09  
3.48  
22.09  
0+0

8.53 3.68  
7.73  
20.64  
1.55

8.81 3.92  
8.50  
20.57

5.19  
5.17  
9.06  
18.52  
12.50 - 12.50  
20.57

9.30 4.41  
8.42  
20.63

9.55 1.66  
9.77  
20.22

9.80 4.91  
10.28  
21.08

10.04 5.15  
11.17  
21.63  
18.41  
53.0 = 2800  
5.40

10.29 5.40  
10.53  
20.64  
1.55  
24.36  
5.76

10.53 5.64  
9.70  
21.38  
13.5

(4508)

7.33 4.20

South West 2  
Lower Loop











50









































































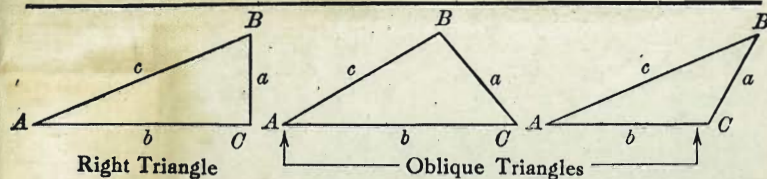








TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

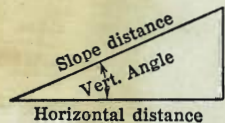
For Angle A.  $\sin = \frac{a}{c}$ ,  $\cos = \frac{b}{c}$ ,  $\tan = \frac{a}{b}$ ,  $\cot = \frac{b}{a}$ ,  $\sec = \frac{c}{b}$ ,  $\text{cosec} = \frac{c}{a}$

Given	Required	Formulas
$a, b$	$A, B, c$	$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$
$a, c$	$A, B, b$	$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$
$A, a$	$B, b, c$	$B = 90^\circ - A, b = a \cot A, c = \frac{a}{\sin A}$
$A, b$	$B, a, c$	$B = 90^\circ - A, a = b \tan A, c = \frac{b}{\cos A}$
$A, c$	$B, a, b$	$B = 90^\circ - A, a = c \sin A, b = c \cos A$

Solution of Oblique Triangles

Given	Required	Formulas
$A, B, a$	$b, c, C$	$b = \frac{a \sin B}{\sin A}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$
$A, a, b$	$B, c, C$	$\sin B = \frac{b \sin A}{a}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$
$a, b, C$	$A, B, c$	$A + B = 180^\circ - C, \tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$ $c = \frac{a \sin C}{\sin A}$
$a, b, c$	$A, B, C$	$s = \frac{a + b + c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$ $\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}, C = 180^\circ - (A + B)$
$a, b, c$	Area	$s = \frac{a + b + c}{2}, \text{area} = \sqrt{s(s - a)(s - b)(s - c)}$
$A, b, c$	Area	$\text{area} = \frac{bc \sin A}{2}$
$A, B, C, a$	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle =  $5^\circ 10'$ . From Table, Page IX.  $\cos 5^\circ 10' = .9959$ . Horizontal distance =  $319.4 \times .9959 = 318.09$  ft. Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained.  $\cos 5^\circ 10' = .9959$ .  $1 - .9959 = .0041$ .  $319.4 \times .0041 = 1.31$ .  $319.4 - 1.31 = 318.09$  ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft. slope distance = 302.6 ft. Horizontal distance =  $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$  ft.