

← LETTER →
*John French Ditch - uncompleted
contract.*

SAM MCCOUN FILL

IRA DOOLEY ET AL ROAD

HAYS BRIDGE

R & C MC COUN DRAIN

SHIRLEY DRAIN

A. E. HAYNES ET AL DRAIN

SHIRLEY DITCH

CARRIER BRIDGE

JOHN FLYNN*FRANK ROUTH DITCH

JOHN G. MCCORD DRAIN - *Private*

COLLEGE HILL.

Perry Porter Bridge.
Jackson Highway Bridge.

1919

FRENCH DITCH (?)

3

B.M. 105. Top of concrete post
west side Road. 20.54

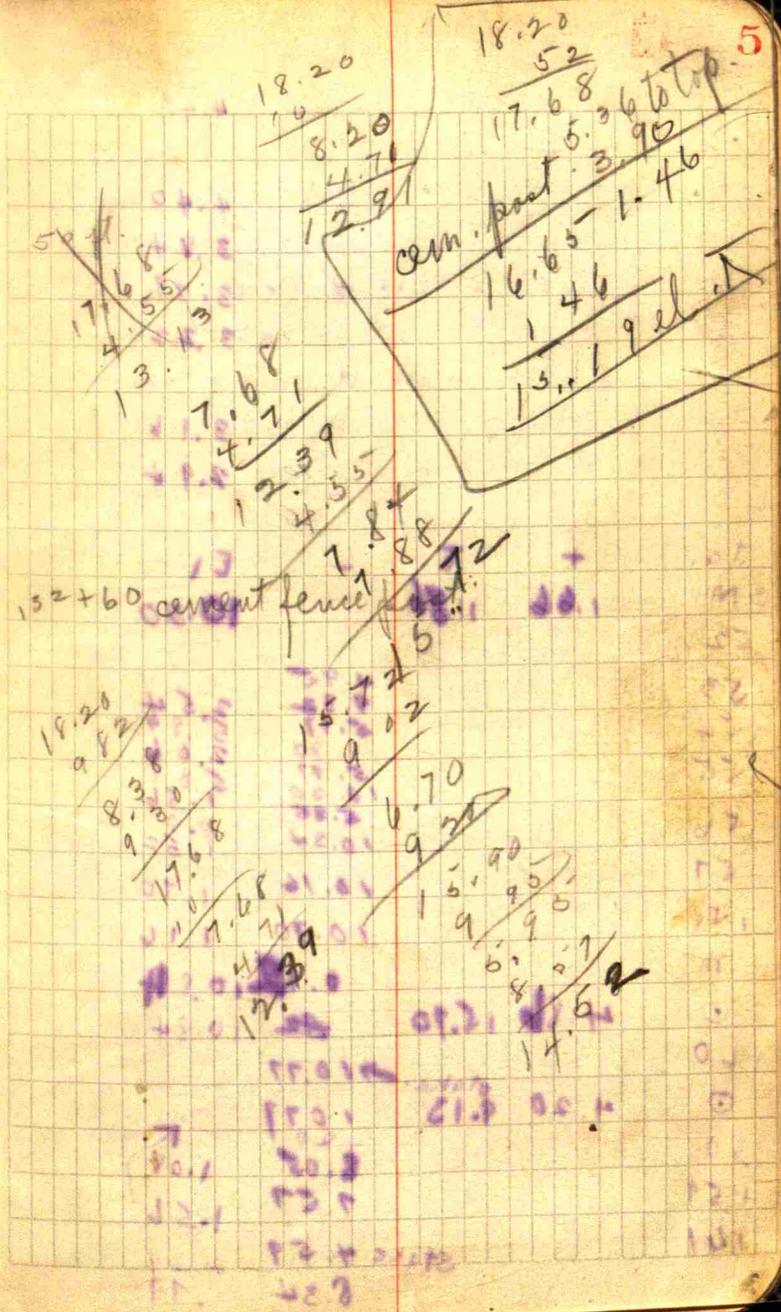
Station 127. Ditto. S. side Ditch. 17.62
 " " " " " " " " 16.65
 " " " " " " " " 11.52 N. Parapet Bridge
 " " " " " " " " 11.58 " " Interurban 10.20
 Bridge 10.84

20.19
~~5.03~~
 15.84
~~4.43~~
 20.27
~~5.02~~
 15.25
~~2.07~~
 13.18
~~4.87~~
 8.31
~~5.55~~
 2.76
~~4.02~~
 19.70
~~9.75~~
 9.95
~~8.05~~
 1.82

Sta. 2

105 B.M.	+	T	-	20.54 EL.
105.	.35	20.89		20.54
106			4.21	11.89
107			9.00	11.64
108			9.25	9.25
109			5.96	11.43
110			9.46	10.94
111			9.95	10.69
112			10.20	15.94
113			4.95	10.22
114	4.43	20.27	10.67	5.05
115			5.05	9.82
116			18.45	10.25
117			10.25	10.03
118			7.02	15.37
119			10.47	9.80
120			5.07	9.39
121			10.88	9.52
122			10.75	9.32
123			10.95	5.07
124	4.60	19.87	5.07	9.45
125			19.87	9.45
126			10.42	9.02
127			10.42	10.85
128			10.59	5.85
129	5.68	19.70	5.85	11.05
130			5.70	8.65
131			11.06	8.64
132			11.06	8.70
133			11.20	8.50
134			11.45	9.25
135	8.25	18.20	9.75	

Sta	T	Σ	T	E	M
124		18.20	9.92	8.28	
125			10.10	8.10	
126			10.45	7.75	
0	8.32	17.68	9.82		
127			10.20	7.48	
128			10.42	7.26	
129			10.35	7.33	
130			10.70	6.98	
131			10.58	7.10	
0	4.71	12.39	10.00		
132			5.40	6.99	
133			5.60	6.79	
134	7.88	15.72	4.55		
135			8.87	6.85	
136			9.50	6.22	
137			9.45	6.27	
0	9.20	15.90	9.02		
138			10.15	5.75	
139			10.15	5.75	
140			10.25	5.65	
0	8.57	14.52	9.95		
141			9.25	5.27	
142			9.50	6.02	
143			9.75	4.77	
144			9.95	4.57	



	+	+	-	
6				
145		14.52	10.03	4.49
(145)	7.52	12.79	9.25	
146			8.39	4.40
147			8.95	3.84
148			9.02	3.77
149			9.57	3.22
150	7.64	11.78	8.65	
151			8.62	3.16
B.M.			8.84	2.94
Sta.			1.30	10.48
B.M.	+	+	-	E1
152	1.66	11.86		10.20
153			4.95	6.81
154			9.32	2.54
155			5.97	5.84
156			9.80	2.66
157			5.97	5.89
158			10.30	1.56
B.M.			5.85	6.01
159			10.34	1.52
160			10.16	1.70
161			10.70	1.16
B.M.			6.92	10.84
162	4.86	15.70	8.2	10.84
163			10.77	
164	4.20	stake. →	10.77	
165		9.13	10.77	
166			4.20	
167			8.05	1.08
168			7.57	1.56
169		stake	4.59	
170			8.34	.79

14.52
 9.25
 5.27
 1.30
 12.79
 8.65
 2.94
 10.48
 11.78
 10.20
 6.81
 2.54
 5.84
 2.66
 5.89
 1.56
 6.01
 1.52
 1.70
 1.16
 10.84
 10.84
 1.08
 1.56
 $.79$

BM 152 = 10.44
 T.W.G's Profile = 10.20
 $.28 \times 12 = 3.36 \approx 3 \frac{1}{3}$

9.35 152 + 20
 B.M. sta 158 = 2

15.70
 10.77
 4.93
 4.20
 9.13

8

162
163
164
165
166
167

T

2.43

 $\bar{\Delta}$
913

711

-	E1
4.66	4.47
8.51	
7.66	.62
4.45	4.68
	.26
6.98	.13
3.08	
7.27	-.16
3.85	
7.18	-.07
7.56	-.39

B.M. 125 = 10.47

T.M. Profile = 10.50

B.M. 125 = 10.47

9

Fill at Sam McCoun

B.M. Sta.	17	18	19	20	21	22
0 + 83	110.13	15.	109.98			
1	110.13	1.08	109.05			
2	110.13	5.45	104.68			
3	0.00	106.17	0.00	100.17		
4 C		Elev. Cen. 94.65	5.52	Elev. West. W. 92.45	7.72	
4 + 50		93.67	6.50	88.97	11.20	
4 + 75		91.99	8.18	87.57	12.60	
5 on bridge		93.37	6.80	87.47	12.70	
5 + 50		92.87	7.30			
6 -		93.55	6.62			
⊙	110.13			100 BM		
7		98.03	12.10			
7 + 50		99.88	10.25			
8 -		103.33	6.80			
8 + 50		106.43	3.70			
9.00		109.28	.85			

⊙ 4.08

12.70

13.31

Arch.

Locust post at end plank fence
E side road.top South hill in front S.
McCouns mail box.Naodens stake. pt begin-
tangent on which bridge
is set.
$$\begin{array}{r}
 100.17 \\
 4.08 \\
 \hline
 96.09 \\
 13.30 \\
 \hline
 109.39
 \end{array}$$

$$\begin{array}{r}
 110.13 \\
 7.4 \\
 \hline
 102.73
 \end{array}$$

Ira Dooley et al Road.

Sta	+	Λ	-	E1-
B.M.	3.27	103.27		100
0			1.44	101.83
1+50			1.84	101.43
2			2.85	100.42
2+50			3.52	99.75
2+70			8.15	95.12
⊙	58	95.70	8.15	
2+80			5.50	90.20
2+90			8.48	87.22
3			10.55	85.15
⊙	7.12	92.27		
3+10			9.67	82.60
3+20			11.34	80.93
3+30			11.89	80.38
3+40			11.45	80.82
3+50			8.33	83.94
3+60			5.80	86.47
3+70			2.67	89.60
⊙	12.145	101.745		
3+80			9.00	92.745
3+90			6.33	95.415
4-			5.32	96.425
4+50			3.10	99.645

Marion Tp. Geo. Joseph - Trustee.

30" oak West of station 1.

14

Sta	+	x	-	Elev
		101.745		
4+90			1.20	100.545
5			6.48	95.265
5+10			12.50	89.245
0	.155	89.400		
5+20			6.25	83.15
5+30			11.62	77.78
0	0.00	77.78		
5+40			5.14	72.64
5+50			8.96	68.82
6.			10.36	67.42
6+50			12.15	65.63
Arch at crown			4.92	72.86
7+40			12.32	65.46
8.00			11.90	65.88
8+50			9.90	67.88
9.00			9.30	68.48
9+50			8.52	69.26
10.			7.35	70.43
10+50			5.90	71.88
11			3.80	73.98
11+30			.85	76.93
B.M.			2.40	75.38
B.M.				103.00

100.42

3.45

103.87

3.80

103.02

3.85

3.15

Road elev. top hill 101.83

Elev. of fill over crown 73.86

6 27.97

4.66

W. end bridge

N handrail arch

36" oak stump - so' N. sta. 4
nail in W, top stump

16

Hays Bridge

Sta	+	Δ	-	EI.
B.M	3.47	103.47	9.40	100.07
Bed-		9.47	2.40	94.07
Road-	40N		5.42	98.05
"	132N		0.00	100.05

Crews - Franklin

Box culvert -
6' span - 4' Bed to road
way - 34 roadway

Borders -

16" tile thru NE Wing -
16' wing || to rdwy -
18' rdwy - 14' span -
7'-9" rise - Bed. to pres. rdwy
SW + NW wings - out 4' back 4'

6-21

6-7

6' clear rise

3.30

17

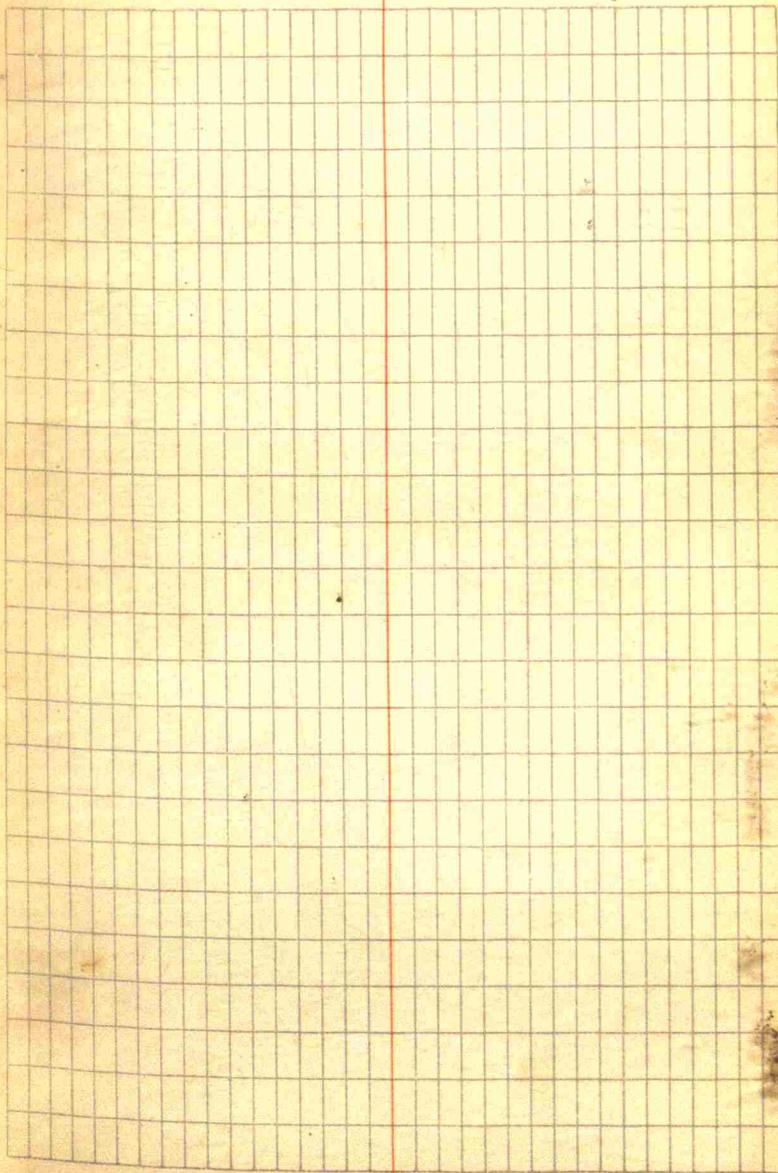
Top
B.N. White rock on Bank
NE Ford
6' clear water way
20 span - 18' rdwy -
no skew - 4' wings

18

6

Perry Porter -
16' arch - 50' rdwy -
7' cleg

19



R. + C. McCourt Drain
 31 + π - Eleva-
 B.M. Stake Ground Stake

1.15 101.15

100

Sta.				
0		6.14	9.12	95.01
1		4.54	4.64	96.61
2		4.64	4.85	96.51
3		3.80	3.98	97.35
4		3.05	3.30	98.0
5		2.50	2.70	98.65
6		2.31	2.52	98.84
7	6.42	2.31		
8		6.26	6.51	99.00
9		5.09	5.31	100.17
10		4.92	5.13	100.34
11		5.76	5.87	99.50
12		5.36	5.51	99.90
13		5.60	5.78	99.66
14		5.00	5.28	100.26
		3.42	3.60	101.84

9.62 bottom of our let
 top

Ground.

B.M. second post from corner of
 rail line on E side proposed ditch

Ground Stake	Stake	
91.53	3.48	
96.51	4.98	
96.30	4.77	
97.17	5.64	
97.85	6.32	
98.45	6.92	
98.63	7.10	
98.75	7.22	
99.95	8.42	
100.13	8.60	
99.39	7.86	
99.75	8.22	
99.48	7.95	
99.99	8.45	
101.66	10.13	

101.15
 9.62
 91.53

101.53
 8.42

101.15
 10.526
 6.32
 79.06

98.84
 6.42
 105.26

101.66
 91.53
 10.13

lateral here - 99.06

99.06 7.53

10+50 lateral

6.20

Shirley Drain

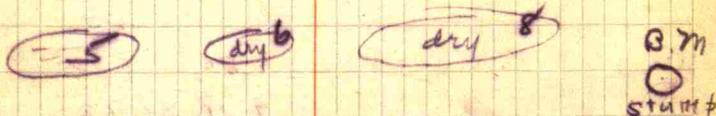
33

B.M. OAK STUMP - 100.

Sta.	+	-	Elev.
	.04		100.04
	1.83		101.83
0		11.80	88.24
1		3.51	96.63
2		4.82	95.22
3		5.05	94.99
4		7.10	92.94
5		7.78	92.26
6	4.35		90.40
			103.99
6		9.95	94.04
7		8.66	95.33
8		9.75	94.24

100.04
 40
 99.64
 4.35
 103.99

37



4 is W END. 5 deepest pt.

6 is dry pond
 7 - 80' E of 6 -

Rainwater outlet

F. E. Haynes et al Drain

B. 733

+ K - E1

0 -	6.25	106.25	100	11.95	94.30
1			6.00	100.25	
2	.95	98.00	9.20		
3			9.18	89.82	
4	.90	87.25	11.65		
5			8.40		
6	4.16	82.41	9.00		
7			3.54	78.87	
8			10.28	72.13	

106.25
9.20
97.05
9.20

98.00
11.65
86.35
86.90

10.39
8
3

B.M. North parapet bridge at
SOURCE #0. on top of tile

0
C.W. Sheets Barn gate.

87.25
9.00
78.25
4.16
82.41

28.20
17.12
21.17

#3. B.M. South parapet bridge
at outlet. 78.87

100
78.87
21.13

	+	Haymes T Stake	Drain EI	Ground EL
B.M.	1.89	101.89	100	
O.		101.89	6.27	95.62 ✓ 8.85
167			6.36	95.53 ✓ 8.77
106			6.87	95.02 ✓ 8.74
105			8.50	93.39 ✓ 9.10
104			7.57	94.32 ✓ 9.60
⊙	4.12	98.44	7.57	
103			3.82	94.62 ✓ 6.82
102			4.31	94.13 ✓ 7.65
101			4.25	94.19 ✓ 7.85
100			5.10	93.34 ✓ 7.91
B.M.			2.52	95.92

93.04
90.53
2.51

101.89
7.57
94.32
4.12
98.44

B.M. is NE stump of 3 oak stumps
placed in triangular position.

44

BM	+	A	Stake	El	Ground	El
	1.55	101.55		100.		
0			5.95	95.60	8.42	93.13
1.			5.50	96.05	8.99	92.57
2			6.51	95.04	9.02	92.53
3.			5.44	96.11	8.47	93.08
4.			4.87	96.68	7.99	93.56
5.			4.65	96.90	7.21	94.34
6.			3.92	97.64	6.80	94.75
7	5.28	102.83	4.00			
7	5.28		4.00	98.83	7.69	95.14
8.			4.77	98.06	7.42	95.41
9.			4.10	98.73	7.08	95.75
9+150					6.95	95.88
10			4.67	98.16	4.74	98.09
10	5.80	104.71	3.72	99.11		
11	5.70		5.60	99.11	8.00	96.71
12			5.05	99.66	7.85	96.86
13			4.62	100.09	7.71	97.00
14			4.05	100.66	7.46	97.25
14+10					7.89	96.82
15			3.06	101.65	6.69	98.02
16			3.11	101.60	6.26	98.45
17	6.55	108.25	3.11			
17		108.25	5.94	102.31	9.30	98.95
18			5.25	103.00	8.45	99.80

101.55

4

97.55

5.28

102.83

3.72

99.11

5.60

104.71

#3 Mouth 6" tile (T") 7.76 = 93.79

8 + 90 - 5" tile - 7.42 = 95.41

9 + 150 - corner of J.F. Stephenson 3 tile

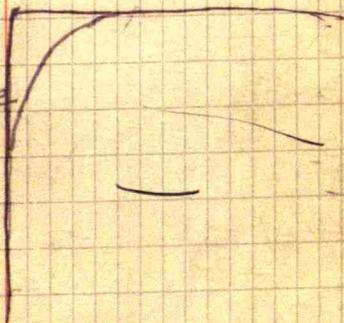
1 - 6" - 1 - 10" - 7.60' (cornfield)

ditch again

11 - leave old open drain on edge

the curve S 45° W

14 + 10 - 8" tile



	+	π	Stake	Elev	Ground.
38		122.81	8.28	114.53	
38+40			11.63	111.18	
39			11.45	111.36	
39+10			7.60	115.21	
40			7.57	115.24	
41			6.20	116.61	
42			5.55	117.26	
42+70			5.90	116.91	
42+76			8.25	114.56	8.28
42+76 ⁻			1.65	121.16	

37+10 - wire fence E+W

40+25 - wire fence E+W

10" tile

B.M. North parapet bridge 121.16

17' header

1	4.56
93	.13
21	43

Sta 50
B.M.

Snirley Ditch

+ - E1

	0.44	100.44		100
0			11.88	88.56
0+15			8.31	92.13
1			0.55	99.89
⊖	4.86		1.00	
0	4.05	103.94	0.55	
2			4.33	99.61
3			4.915	99.025
4			6.08	97.86
5			8.14	95.80
⊖	4.71	100.51	8.14	100.51
6			3.40	97.11
⊖	7.82	104.93	3.40	
7.			6.57	98.36
8.			4.80	100.13
9.			5.82	99.11
B.M.			3.88	101.65
10			4.90	100.03
11			3.20	101.73
⊖	3.20	104.93	3.20	
12			4.86	100.07
13.			5.44	99.49
13 S 40			7.34	91.59
14			5.38	99.55
⊖	4.44	103.99	5.38	103.99

51

B.M. Walnut stump 150 E. Sta 0.

$$\begin{array}{r} 99.89 \\ + 0.55 \\ \hline 100.44 \end{array}$$

#10 Teftofdt

B.M. 9 + 40 - 16" hickory stump 101.65

52

Sta	+	x	-	Elev
15		103.99		
15				4.24 99.25
16				5.45 98.54
17				6.45 97.54
B.M.				0.81 103.18

53

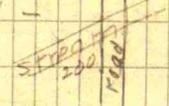
50' W. # 16, sycamore
 STAMP - 36" dia. 119.18

Carrier Bridge

sta	+	π	-	EI	
B.M	2.07	102.07		100	12.23
Bed			11.30	90.77	3.00
Floor pres. bridge			4.62	97.45	9.68
			6.68		
Bottom footings					0.00

Is. - □ post NE bridge site -

raise 6". ^{18'} 20' span. 16' roadway.
 clear rise 6.68 less slab =
 20° skew -



footing - 3'-0".

Sta.	+	π	-	-
B.M.	3.85	103.85		
0		9.55	10.35	94.30
1.		7.80	10.05	96.05
2		7.17	9.57	96.65
3		6.37	9.25	97.48
4.		6.68	9.10	97.17
5.		6.22	8.50	97.63
6.		5.12	8.72	98.73
7		7.48	8.10	96.37
⊙	5.83	104.93	4.75	99.10
8		5.83	9.35	99.10
9.		6.40	9.60	99.53
10.		5.08	9.40	99.81
11. 12		5.68	9.18	99.25
12. 13		5.70	9.00	99.23
13 14		6.50	8.73	98.13
14 15		6.77	8.80	98.16
15 16		7.03	8.75	97.90
16 17		6.50	8.60	98.13
18		5.30	8.26	99.63
19		6.10	8.90	98.93
20		6.50	7.90	98.73
21		5.85	7.75	99.25
22		4.52	7.28	100.05

John Flynn - Frank Routh
 Stake Ditch Elev. Stake

Elev. Stake			
96.85			
93.50	9275		
9380	9292		
9448	9308		
9460	9325		
9475	9342		
9535	9359		
9513	9375		
9575	9392		
9558	9409	97.53	
9533	9425	97.53	
9553	9442	97.53	
9575	9459		
9593	9476		
9620	9492	10269	
9613	9509	9351	
9618	9526	9283	
9633	9543	9220	
9665	9559	10"	
9673	9576		
9723	9593		
9718	9610		
9765	9626		
+52	9635		

et al Ditch

3.-6 fall 30

93.50
65
92.9

103.85
10
94.85
9

B.M. - east rail bridge 100.0

Clay - 65
Biggs 50
Flynn 40
Routh 10
165

Put down 18"
at upper ter
minus -

21

839 stake at 0+00
ditch " " "
-9.18 0
-9.84 75' below
10.97 - 150'

1/2 at sta 22 + 52 -
11 stake out
down 8" at 0+00.

Stop
62

+

X

Stake

Elev.
GradeElev.
StakeElev.
Ditch

2 header

1'-6" down 63

10' long

B.M.

10.00

2.60

4.80

6.53

6.56

3.60

4.60

6.44

7.93

Top ground NW corner bridge

5 end of ground

9.02

3' S from end of bridge

25' S

9.50

50' S

7.93

1.57

.52

N end of ground

25' N

9.50

50' N

6.56

2.94

1.42

8.03

75' N

Carrier

B.M.

10.00

4.45

7.75

7.74

7.75

3.26

7.80

7.35

7.21

N.W. corner bridge floor

Ground at W. end

5' W

25' W

50' W

Ground at E. end,

3' E

25' E

45' E

64

John G. McCord Drain

outlet.	100.00
stake on bank	104.03
250' NW	101.45
600' " "	102.20
⊙	102.19
900' " "	102.19
" " " stake	101.35
outlet old tile	101.50
	99.25
	101.96
	100.06

low paint pond

800' down ditch from 1st outlet

65

70

B.M.

1.26

101.26

E1
100.00E1
100.00

0

1

1/2

0

3

(6)
0.42

(2) 1.53

(3) 7.79

(4) 12.06

(5) 12.05

(2) 7.74

99.56

93.34

89.07

89.24

81.81

71

B.M. is NW cor curb just E of tel. pole

74

Jackson Highway Bridge & Fill

N 50° W (needle)

stakes driven 20' NE center line.

Sta. 0.	13.97	14.15	14.35	14.66	14.58	14.65	13.55	12.00	12.60		
1.	13.70	13.67	13.79	13.67	13.34	12.00	11.35	12.47	13.38		
2.	7.50	8.37	9.22	9.40	9.17	7.60	6.34	6.05	5.60	5.40	
0	8.57										
3.	4.80	7.30	8.15	8.15	7.75	5.70	5.55	5.21	4.95	4.77	4.68
4.435	5.80	8.15	8.20	8.25	7.14	4.60	5.15	5.80	5.20	6.10	5.30
5.	7.32	9.30	9.57	9.40	9.30	7.05	5.49	5.70	6.14	5.70	

5+40 Bridge - 11.67 - 20' rdwy

6	12.14	12.25	12.10	12.15	6.50	5.50	6.80	5.0	6.35	6.20
7.	6.65	7.35	8.15	8.44	8.25	8.00	7.20	6.35	7.10	
0	7.60	8.42								
8	8.40	8.65	8.70	9.05	9.00	9.50	7.55	7.95	6.10	
9	12.15	11.35	10.80	11.55	11.95	11.57	11.20	10.40	11.07	
10	14.57	14.30	14.33	14.30	14.24	14.47	13.29	13.67	13.67	
11	16.37	16.10	16.21	16.17	17.15	17.30	17.20	17.00	16.80	

Sta. 1+24 - 12.60 12.45 12.03 12.27 12.00 12.05 9.93 11.00 11.40

B.M. Rock NE Sta. 11 - 16.80

Sta -3 12.00

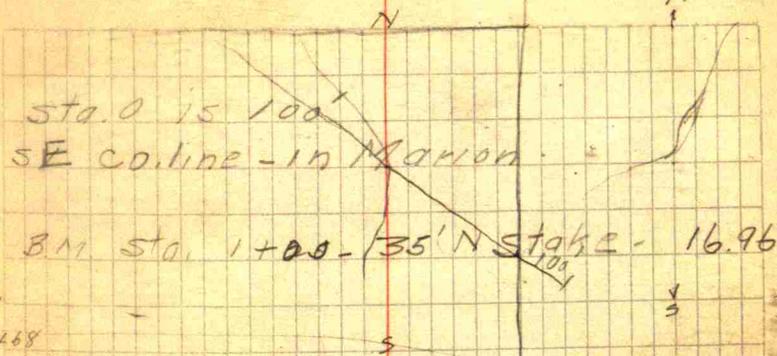
-2 12.80

-1 13.62

0 8.65

B.M. Nail in silver replor N. of SE abutment.
Ele 11'-8" (above bed of stream.)

75



Get-

Sta. 2.	45'	1+24 qt.
3	45'+50'	Mal Collins
4.	-5'+45'+50	gate-center
5.	45'	
6	-45'	
8.	-	

- 1 - 2 - 3 - 4 -

12 + 13

12' E 12' x 9' readings at this pt

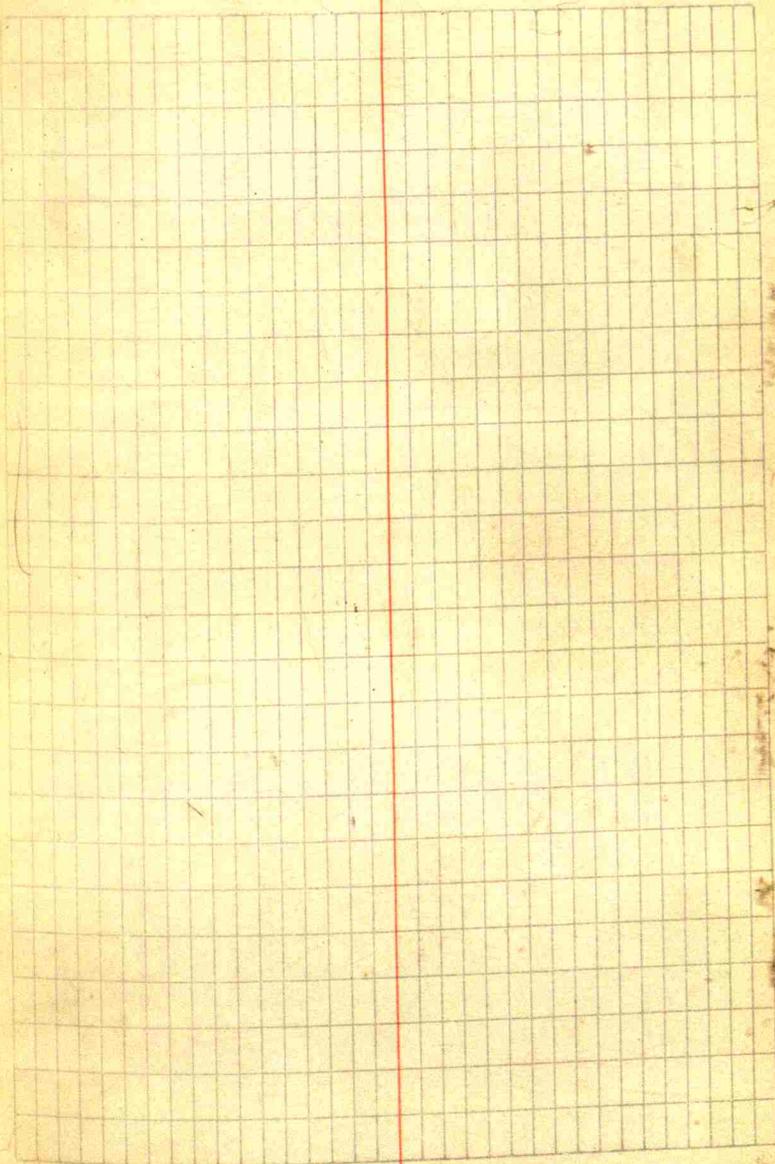
-3 - Endpost - red - gate on Vingt

76

	93.55	2.14
	2.88	
	5.63	
Stat 12	100.07	
Stat 5	15.80	
	99.45	
	99.50	
	99.20	
	99.30	
Stat 9	99.09	99.11
	99.20	
	99.90	Stat 10 = 100.03
		.13
Stat 11	101.75	101.73
	99.69	
Stat. 12 + 91	100.07	
Stat. 12	100.30	
11	99.47	
10	99.64	
9	99.73	
8	99.10	
7	98.10	
6	97.09	
Stat. 8	100.15	old survey

99.45
97.54
1.91

77



1381 - Meriodograph -
Lat. Danville 39° 46'

Height Sun - Refrac. =

Danville Lat = 39° 46'

Declina. Sun δ =

1901

Miriograph 8/12-18

H. Sun Refra. True Alt

33°-25' 37" 33°-22'

39°46'

3.9M

N 5° 15'

I Donville Lat.
 Declination Sun, 8/12-18 15° 8.9' + 6.1 since noon

On a corrected alt against 39°46' = A

b Dec. 15° 15' = B

A+B

Opp. A+B find True bear sun

81° 42'

578

KEITH'S RAILROAD CURVE TABLES.

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HOW TO USE KEITH'S TABLES.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle
 of Intersection or I. P. = 23° 20' to the R. at Station
 542+72.

Ext. in Tab. IV opposite 23° 20' = 120.87

120.87 ÷ 12 = 10.07. Say a 10° Curve.

Tan. in Tab. IV opp. 23° 20' = 1183.1

1183.1 ÷ 10 = 118.31.

Tab. V correction for A. 23° 20' for a 10° Cur. = 0.16
 118.31 + 0.16 = 118.47 = corrected Tangent.

(If corrected Ext. is required find in same way)

Ang. 23° 20' = 23.33° ÷ 10 = 2.3333 = L. C.

2° 19½' = def. for sta.	542	I. P. = sta.	542+72
4° 49½' = " " "	+50	Tan. =	118.47
7° 19½' = " " "	543	B. C. = sta.	541+53.53
9° 49½' = " " "	+50	L. C. =	2.33.33
11° 40' = " " "	543+	E. C. = Sta.	543+86.86

100 - 53.53 = 46.47 × 3' (def. for 1 ft. of 10° Cur.) = 139.41' =
 2° 19½'' = def. for sta. 542.

Def. for 50 ft. = 2° 30' for a 10° Curve.

Def. for 36.86 ft. = 1° 50½' for a 10° Curve.

(These tables are published in Field Books of
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