

Levee, 5

French Ditch Union

Mane's Catfish Drain Eel River

Spoo T/ey Gravel Pile Eel River

Wells arch Center

Wells Drain " "

Hicks Drain Middle

Beards Road to Liberty

Wernaday's Drain

French Ditch - Levels

for Last Construction.

Sta	+ π	Stake	Ditch	Stake Elev	Ditch Elev
B.M.		2.42		22.87	
64		3.18	8.60	22.19	16.69
65		3.94	8.46	21.35	16.83
66		3.95	8.65	21.34	16.64
67		4.48	8.85	20.81	16.44
68		5.55	9.07	19.74	16.22
69		5.76	9.27	19.53	16.02
70	25.29 26.54	6.44	9.40	18.85	15.89
71		7.30	10.42	18.99	15.87
72		7.58	10.67	18.71	15.62
73		6.20	10.85	20.09	15.44
74		5.56	10.77	20.73	15.52
75		4.27	10.92	22.02	15.37
76		4.87	11.18	21.42	15.11
77		4.62	11.00	21.67	15.29
78		4.98	11.29	21.31	15.02
79	26.29 27.54	5.30	11.40	20.99	14.89
80		4.17	9.90	20.55	14.82
81		3.97	10.12	20.85	14.60
82		5.15	10.25	19.59	14.47
83		5.95	10.38	18.77	14.34
84		4.98	10.40	19.14	14.32
85		5.21	10.60	19.51	14.12
86	24.72 25.11	5.78	10.56	18.92	14.18

Turning Points

5

B.M. 22.74 Garrison. 22.87 My ok on B.M.

-730
0+630

77+40 - line Ethel Herzog & M.E. & AB Dale

0-4.17

80+75 - Amanda Crisler & Emma Gruber

Elm - not out.

86+40 - Lambert Arm.

Sta.	+ K	Stake	Ditch	Stake	Ditch
		-	-	Elev	Elev
87		4.90	10.45	19.40	13.85
88		3.96	10.76	20.34	13.54
B.M.					
89		4.93	10.78	19.37	13.52
90	24.30 25.56	4.98	10.80	18.83	13.50
91		4.10	9.86	19.01	13.25
92		3.96	10.20	19.35	12.91
93		4.22	10.37	18.89	12.74
94		4.68	10.50	18.43	12.61
95		4.54	10.45	18.57	12.66
96		5.90	10.40	17.21	12.71
97	23.11 24.36	5.70	9.70	18.01	12.61
98		4.30	9.55	17.41	12.16
99		3.78	9.52	17.93	12.19
100		4.18	9.75	17.53	11.96
101		4.75	9.67	16.96	12.04
102		4.38	9.81	17.33	11.91
103		5.40	9.86	16.31	11.85
104		5.21	9.65	16.50	12.06
B.M.	117.21.71				
105	21.40	5.24	9.76	16.47	11.95
106	21.40	4.60	9.40	16.80	12.60
107		6.55	9.70	14.85	11.98
108		5.05	10.35	16.35	11.05

LETTER

25.56
5.72
20.33
5.64

#90 .48 post

5.38
20.02
24.98

Turning Points

Oakstump not out.

88+40 Emma Gruver + 00 Shookley
23.83 ↓

23.11
4.28
18.83 El. 90.
5.38
17.45
4.23
13.22
3.73
9.49 B.M. ok

Osh out.

05.10 19.26
5.11

Burr Oak + Locusts not out
not out Stump to be removed

104+00 Road.
Elev. 20.54 - B.M.
B.M. 20.54 + 8.6
21.40

22.96
3.70
19.26

100
100
8.5
8.5
1.2

2.42
2.25
1.17

Sta	+ x	stake	Ditch	stake Elev.	Ditch Elev.
109	21.40	5.76	10.52	15.64	10.88
110		5.50	10.85	16.90	10.55
111		5.07	10.80	16.33	10.60
112		7.35	11.04	14.05	10.36
113		6.15	11.00	15.25	10.40
114	19.50	4.85	9.25	14.65	10.25
115		4.18	9.32	15.40	10.18
116		4.60	10.27	14.90	9.23
117		4.20	10.28	15.30	9.22
118		4.32	10.32	15.18	9.18
119		5.05	10.45	14.45	9.05
120		4.60	10.82	14.90	8.68
121		4.62	10.88	14.88	8.64
122	18.50	4.55	11.10	14.95	8.40
123		4.92	10.25	13.58	8.25
124		5.62	10.50	12.88	8.00
125		4.54	10.70	13.96	7.80
126		4.48	10.82	14.02	7.68
127		5.67	11.05	12.83	7.45
B.M.		.85		12.00	17.65
128	15.73	5.25	8.50	10.18	6.93
129	15.40	3.53	8.80	11.88	6.63
130		3.90	9.05	11.53	6.38
131		3.65	9.45	11.78	5.98

Points

gsh.

111-113 - Ditch straightened.

+4.25
0-6.15

hickory

+3.55
-4.55

122+60 line - Geo. Isley + John Dale

rock -

still in

4 honey locusts

still in

17.62

+2.78
-6.84

18.50
12.50
12.20
15.40

21.40
6.15
15.25
4.25

9

Sta.	+ T	Stake	Ditch	Stake Elev	Ditch Elev
132	15.43	4.61	9.22	10.82	6.21
133		5.43	9.53	9.98	5.88
134		5.50	9.31	10.43	6.11
B.M.					
135		5.85	9.90	9.58	5.53
136		5.22		10.21	
137		4.98	10.15	10.63	5.46
138		5.41	9.95	10.21	5.66
139		6.25	10.15	9.36	5.46
140		5.78	10.10	9.83	5.51
141	15.01	5.65	10.56	9.96	5.05
142		3.44	8.36	9.56	4.64
143		3.65	8.40	9.35	4.60
144		3.73	8.60	9.27	4.40
145		4.95	8.51	8.05	4.49
146		4.46	8.65	8.54	4.35
147		4.82	9.55	8.18	3.45
148		5.17	9.86	7.83	3.14
149		5.00	9.52	8.00	3.48
150		5.80	9.70	7.28	3.30
151		6.65	9.96	6.35	3.04
152	13.00	6.05	10.33	6.95	2.67
B.M.	11.16	4.38	8.90		
153		4.38	8.90	4.78	2.26

4.73 15.43 15.43
 3.95 16.81 1.48
 7.5 4.73
 16.18 ✓

133-135 - Ditch straightened.

16.65 - 16.66 My ch instrument

3.65
 4.70 ft

elev. ground at post
 = 15.61 - 3.65 = 11.96
 + 4.70

Box elder

13.00
 3.44
 9.56
 6.03
 15.61

ash - 146 + 30 - John Dale + Sarah Young

ash

Sarah Young + E.P. Hendricks

10.20 - 152 + 20 - State Road

0 + 2.80
 0 + 9.96

Sta.	+ X	Stake	Ditch -	Stake Elev	Ditch Elev
154	11.16	4.50	8.87	6.66	2.29
155		4.69	9.38	6.47	1.78
156		-5.30	10.00	5.86	1.16
157		5.05	9.50	6.11	1.26
158	15.35	9.18	14.20	6.17	1.15
B.M.					
159		6.98	14.22	8.37	1.13
160	9.45	10.18 4.28	8.18	5.17	1.27
161		3.90	8.77	5.55	.68
162		4.75	8.68	4.70	.77
163		5.63	8.93	3.82	.52
164		5.03	9.20	4.42	.25
165		4.95	9.55	4.50	-.17
166		5.62	9.12	3.83	.33
167		5.82	9.85	3.63	-.40

①

15.35		
10.18		
5.17		
4.28		
9.45		
① 15.35		
4.45		
11.16		
2.55		
10.90		
10.84		
① 10.90		
4.28		
lynn		
2 ash-box elder		

Geo Davis Bridge Between Center & Union.

Sta	+	π	-	Elev
B.M.	.35	100.35		100
RdW E			4.85	
Top old bridge			5.36	
RdW N			4.78	
Bed stream			10.90	
Width 14'	Flat top & 14 way. 32'			

Perry Porter ✓

Newville - 30 steel ✓

Carrier -

Arnold -

Cummings -

Johnson (Brown)

Maloney -

Davis abut.

Mackay Hoys -

Pinhook #1. Borders -

Bed-to

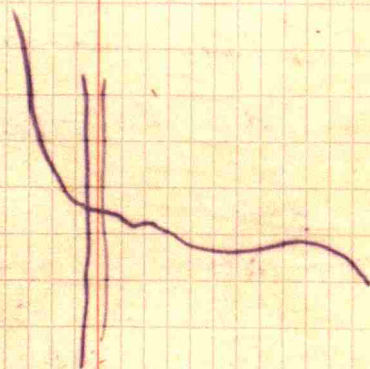
pres. floor 7.75

road level - pres. span - 13' with

road, 30° skew - carries water

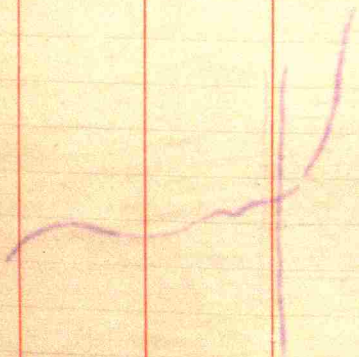
O.K. - gravel at Pecksburg -

B.M. is braced corner post - S.S. corner
20° left skew - left wheel
bits - last



24.

Pinhook to -
bed to road way - 4' - 6' box
18' - wide -



25

← LETTER →

26

Phillips Bridge - Brown Tp.

Sta.	+ X	-	EI
B.M.	1.27	101.27	100
Floor	1	1.615	99.66
Bed		10.45	98.82
Road N		3.45	97.82
" S.		3.48	91.79

8'-10" bed to pres floor, crown 4"
 fill - 8" - 7'-6" waterway

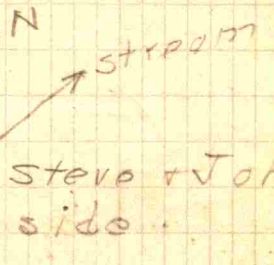
Maloney Bridge - on Garner Rd

Sta.	+ X	-	EI.
B.M.	3.06	103.06	100
Bed.		9.075	93.985
pres. floor		4.50	98.51
S - 25'		3.65	99.41
N - 75'		4.57	98.49

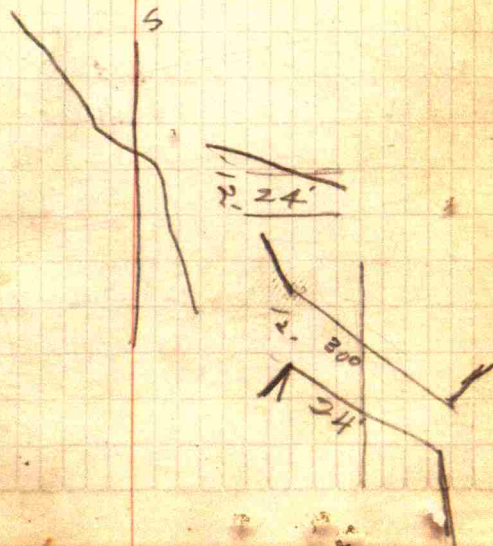
8.26.100

B.M. Top brace post - NE

Pres. length - 28'
 width 16
 30' arch - 20' roadway
 road width - 37'
 12" tile - SW wing
 No skew



Nail inside hickory - SE.



173

South Road 8%

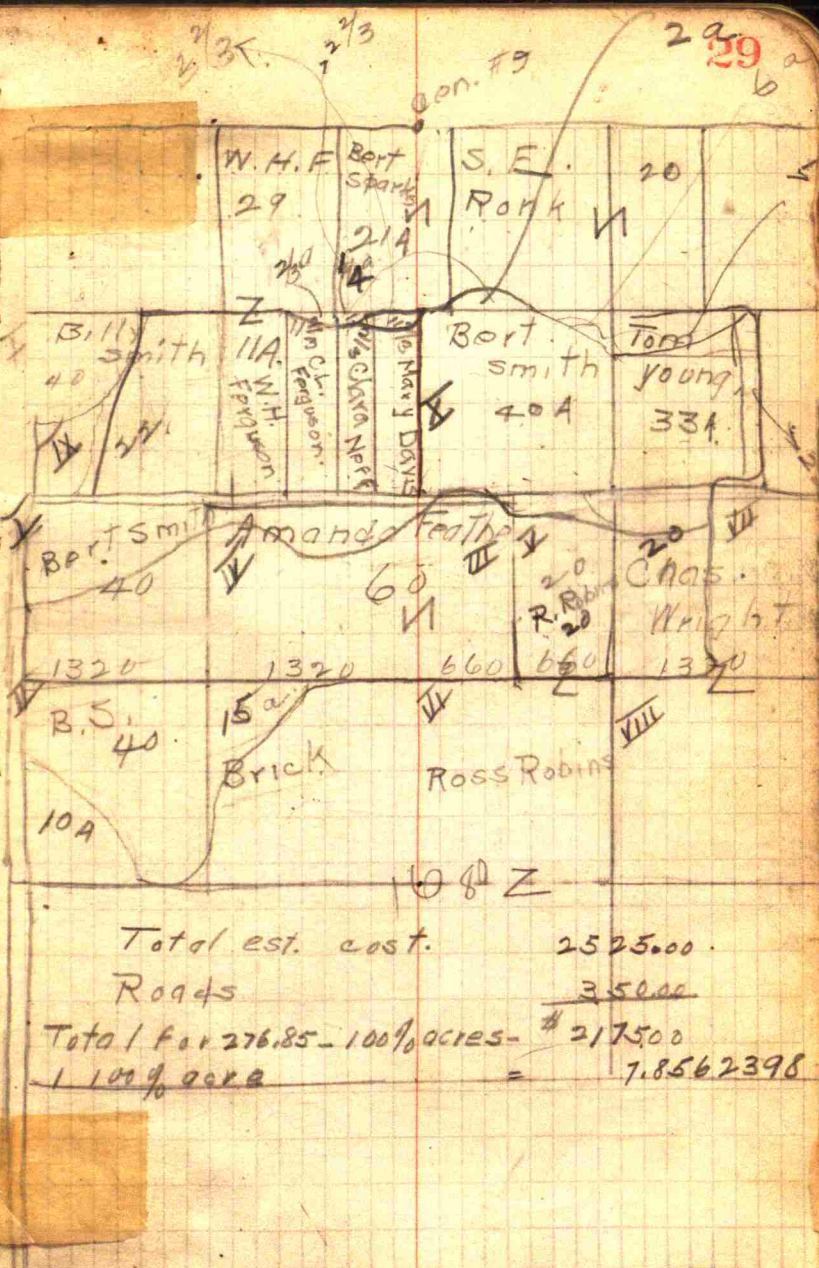
Bert Smith	549.94	70	100	70
Brick	12.6715	65		9.25
Amanda Feathers	471.3160	100		60
Ross Robins	125.7020	180		16
Chas. Wright	157.1920	100		20
				<hr/>
				185
				<hr/>
				175.25

North of Road

Billy Smith	138.7972	80		12.60
Wm. H. Ferguson	69.1311	80		8.80
C. L. Ferguson	69.1311	80		8.80
Clara Neff	50.808	80		6.40
Mary Ed Davis	56.569	80		7.20
S. E. Ronk	12.572	80		1.60
Bert Smith	238.8338	80		30.40
Tom Young	163.4126	80		20.80
				<hr/>
				101.60
				<hr/>
				177.25
				<hr/>
				276.85

Boone Co. F.G.R. 1600'

Hendricks Co. 200'



Total est. cost.	2525.00
Roads	350.00
Total for 276.85 - 100% acres -	\$ 2175.00
1 100% acres	= 7.8562398

30

Amanda Feathers D

100.18

Sta.	+	-	E
E.M.	.18	100.18	100.00
and south		7.18	90.38
" North		7.18	8.95
top of hump			5.77
			7.60
"	3.25	94.25	9.18
Feathers pond			8.30
W. ditch			9.00
To N Road			8.00
			8.10
	7.65	93.05	7.95
			12.30
Logan Ferguson	3.35	87.90	9.40
			9.45
			9.45
			9.75
	3.00	89.37	1.53
	5.07	85.89	8.55
M			9.52
top tile E road			14.53
" 15r W. road			70.02

$$\begin{array}{r} 98.57 \\ 98.0 \\ \hline 100.37 \end{array}$$

E.M. top concrete corner post
road at upper terminus.

31

Diagram showing a vertical line with points 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20. Circled numbers 5, 6, 10, 19 are present. A vertical line is labeled 'road' on the right side. A horizontal line is labeled 'B.M.' above it. A horizontal line is labeled 'outlet tile from Ferguson's South road' below it. A horizontal line is labeled 'in front Wm. Smith's' below it. A horizontal line is labeled 'open ditch at lower terminus' below it. A horizontal line is labeled 'B.M. is W header culvert' below it. A horizontal line is labeled 'old ditch - Chas. Stevenson Ditch' below it.

Feathers Drain

Sta	+	HT	-	El.	Thickness of Ditch
B.M.	6.528	7.34		80.82	1.38
0	top of tile		75.06	74.50	
1			8.40	78.94	74.67
2			7.35	79.99	74.83
3			8.46	78.88	75.00
4			7.98	79.36	75.16
5			8.00	79.34	75.33
6			7.40	79.94	75.50
7			7.62	79.72	75.67
⊗	7.40	81.24	7.50	79.84	
8			7.30	79.94	75.83
9			7.32	79.92	76.00
409+25			7.65	79.59	76.07
A1			7.28	79.96	76.38
A2		⊗!	7.95	79.29	76.69
A3			8.20	79.04	77.00
A4			7.80	79.44	77.31
A5			7.15	80.09	77.62
A6			7.40	79.84	77.93
Bottom tile from Smith			9.00	78.24	
A6+70 road center			3.92	83.32	
A7			6.00	81.24	78.24
B.M. top sewer S. side road E. of ditch.			5.62	81.62	

Sta 0+00 to 5, N 41° E.

5-6. N 45° E 6-9. N 54° E

B.M. West header

Sta. 9+56 - End of 15" tile -

joint for 10" arm -

9+56 to 25 - 14" tile

25 to 35 - 12" tile

At sta 34+75 - couple 8" to

Sta. 9 to 23. N 85° E.

12" tile -

Sta 35 - 43 10"

" 43 - 51 - inclusive

8" tile - of which last

275'

Sta. 48 to 51 inclusive

S 45° E.

Arm at 9+25 - 40 to A7 inc

Sta. 23 - +40. elm stump - grubbing

" " to 32 N 70° 30' E

Sta 32 - E on N side rd.

run ditch in old ditch -

removing 8" tile now there

to be used from sta 4 to

come from 32 to 34+75

Sta	+	X	-	E	I	
10		87.24	7.52	79.72	76.27	
11			7.12	80.12	76.55	
12			6.47	80.77	76.83	
13			5.07	82.17	77.11	
Pond	Soll	12	8.10	79.14		
14			5.65	81.59	77.39	
15			5.34	81.90	77.66	
B.M			.52	86.72		
16			5.28	81.96	77.94	
17			4.68	82.66	78.22	
18			5.32	81.92	78.50	
19			4.70	82.64	78.77	
20			4.05	83.19	79.05	
21	⊙	10.80	93.89	4.15	83.09	79.33
22			11.35	87.54	79.60	
23			10.62	83.27	79.87	
24			10.38	83.51	80.16	
B.M			7.90	85.99		
25			9.65	84.24	80.44	
26			9.42	84.47	80.71	
27			8.72	85.17	80.99	
28			9.20	84.69	81.27	
29			7.15	86.74	81.55	
30			8.14	85.77	81.83	
⊙			7.85	86.04		
			7.53	93.51		

B.M is top of cedar fence post -
 just ^{10'} N ~~10'~~ line of tile - stake to
 line between Bert Smith and
 Amanda Feathers.

23 + 50 E. line Amanda Feathers
 "40"
 26 oak stump south her 24 -

Elev.
T/L

Sta	+	x	-	Elev
31		93.57	7.48	86.09
32			5.90	87.67
33			7.48	86.09
34			7.25	86.32
34+75			10.42	83.15
35			7.05	86.52
36			6.95	86.62
37			5.80	87.77
38			5.50	88.07
39			5.65	87.92
40			4.85	88.72
41			4.10	89.47
42			2.82	90.75
43	7.70	98.92	2.35	91.22
44			6.95	91.97
45			6.12	92.80
46			4.78	94.14
47			4.78	94.14
48			5.96	92.96
48+50 road			4.00	94.92
49			6.05	92.97
50			6.80	92.12
51			8.35	90.57

Tile to be
- down 1.57'

31 + 50 N. line Feathers "26"
crosses road -
in side ditch
→ bottom 8" arm S-60°E

crosses road.

Upper terminus.

- 2 - $\frac{5}{16} \times 2'' \times 13'-9''$ ✓ bar small
 2 - $13'-9''$ $\frac{5}{8} \times \frac{3}{4}''$ ✓
 1 - $\frac{5}{16} \times 2'' \times 16'-6''$ ✓
 1 - $16'-6''$
 2 - $1\frac{1}{4}'' T \times 12'$ ✓ could have
 2 - $\frac{1}{8}'' \times 9'' \times 12'$ baseboard
 2 - $1\frac{1}{4}'' T \times 5'$
 2 - $\frac{1}{8}'' \times 9'' \times 5'$

- 1 - $4''-I \times 16'$ ✓
 9 - $5''-I \times 8'$ ✓ 1 left
 2 - $6''-I \times 14'$ ✓
 2 - $2\frac{1}{2} \times 2\frac{1}{2} L \times 14'$ ✓
 2 x $4'' \times 4'' L \times 16'$ ✓
 1 x $3'' \times 3'' L \times 16'$ ✓
 4 x $6'' Js \times 14'$ ✓
 1 x $3 \times 3 L \times 14'$ ✓

- 6 - $5'' I \times 14'$
 13 - $5'' I \times 7'-9''$
 6 $1\frac{1}{2} L \times 14'$
 7 $1\frac{1}{2} L \times 7'$

$$\begin{array}{r} 2'-9'' \\ \underline{\quad 5''} \\ 13'-9'' \\ \underline{\quad 16' \quad 6''} \end{array}$$

Rubber, Durulab Metals
 Carp. Ramco

also full of
 Century Fires & Tubes

40

Shackley Gravel Pile

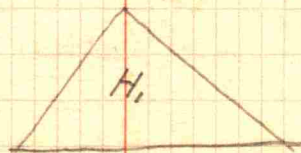
Sta	+	x	-	EI-
	11.085			0.00
	<u>1.96</u>	13.045		
0	10.28		2.21	10.835
		21.115		
4			4.67	16.445
3			4.00	17.115
2			4.10	17.015
1			3.82	17.795
			2.44	18.675
0			2.88	18.235

Slant	L.S.	S.S.
0-1	49.00	31.40
1-2	42.00	31.00
2-3	39.00	29.00
3-4	39.	29.00
4-5	43.00	27.60
W. end.		30.
E end.		33.80

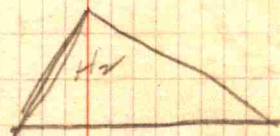


12.20
12.15
12.40
12.60
49.35

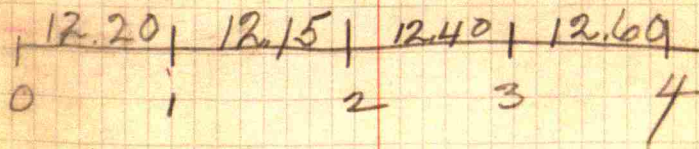
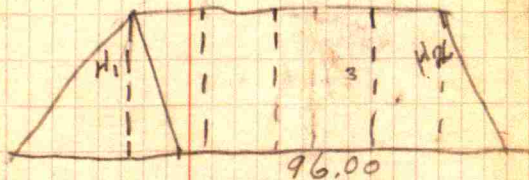
+ 1.96
11.045
13.045



East end
94.00 2-74-



W. end 50.75



48

Sugar Grove Bridge

F.S. H.I. B.S. Elev

100.00

99.89

99.95

99.83

100.10

20.64

check

B.M.

100.00

2.64

102.64

2.79

99.85

12.00

90.64

4.90 95.54

83.83

11.66

83.88

82.36

82.36

2.87 102.87

7.75

95.12

17.6 ↓

49

99.89

82.36

17.56

Top post N.E. of bridge

Roadway at E. end.

" " " W "

Center bridge floor W. Span

E. end W. Span.

Bottom stream

Bottom stream

High water mark

50

Picket arch

Sta	Elev
B.M	100.00
+015	97.90
1+40	87.00
1+50	90.31
1+95	93.35
2+00	93.34
0+60	87.65
0+50	90.75
0+90	92.40
0+00	92.40

92.20

4.53

97.65

92.46

545

E. End S wing

Hub guard at center M side

40' N from center of bridge along roadway

50' " " " " " " " "

75' " " " " " " " "

100' " " " " " " " "

40' E " " " " " " " "

50' " " " " " " " "

75' " " " " " " " "

100' " " " " " " " "

1' " " " " " " " "

width of grade between 0+60 and
1+40 is 16'-0" other is
20'. slope 1:1 1/2

Cummins - Bridge 25-30 Arch
 Hughes Bridge 40' Arch
 Mack Smith Bridge 10' flat
 Elmer Harnaday Bridge 10' "
 Friendswood Bridge - reWood
 Shields - ~~Liberty~~ ^{Franklin} Co. line 16' flat
 Hodson Bridge Clay -
 Mud Creek Bridge 50' arch
 Kiser Bridge - Franklin
 Buzby Bridge Hazelwood 10'
 Fritsche Bridge - abutments
 Geo. Davis Bridge -

adv. Co. Home Boiler
 sec. hand.

Regen contract with Graham
 for 550.00

1800.00 1800.00

out
 Washington. 800.00
 800.00
 1400.00 - 1500.00
 1200.00
 60' arch - 16' road 3200.00
 3300.00
 6' Box - 1 500.00
 flat top - 18 800.00
 300.00
 16' arch 1000.00
 15200.00

13

Oakley Drain

Sta	+ X	-	El.
mouth open ditch			95.95
13.11			100
0			97.60
1			99.02
2			99.80
3			100.63
4 ^o			99.34
5			100.28
6			102.05
7			102.80
8			103.28
9			103.45
10			104.44
11			104.70
12 ^o			105.30
13			105.90
14			106.05
15			107.30
16			107.85
17			108.90
18			109.10
18			109.50
19			109.85
20			110.00

Wash stamp s. sta 0 - 15"

21	110.30
22	111.10
23	110.90
24	111.25
25	111.85
26	112.95
27	112.70
28	113.18
29	112.70
30	113.88
	115.87 111.89
	115.30 111.32
	115.54 111.60
0	117.18
31	117.74
0 32	117.14
33	119.38
34	119.64
	118.40
35	119.34
36	120.26
0 37	121.78
38	123.26
39	123.56
40	124.07
41	124.82
0 42	126.14

#30 Fence line N & S road
 open ditch
 Bottom of ^{tile} ditch E side road
 " " " " 50' E
 " " " " E

Bottom of ditch at 34

43
44
0
45
46
47
0
48
49
50
0
51
0
52
52+63

Elev

127.22
127.89
128.74
128.62
129.00
129.74
130.21
130.41
132.14
133.53
133.53
134.05
134.48
134.58
135.75
134.20

100% bene. acres
100% acres
Per 100% acre =
414.264487

59

N. Williams - 100% 18 18 256.76 ✓
C. Oakley 100% 33 33 470.73 ✓
J.G. Walton 100% 15 15 213.97 ✓
Geo. Hickman 100% 45 45 641.90 ✓
Jacob Lockhart 75% 6 4.50 64.19 ✓
Moses Sutherland 75% 6 4.50 64.19 ✓
Whit crack 100% 36 36 513.52 ✓
C.R. Plunkett 75% 3 2.25 32.10 ✓
Alva Plunkett 80% 5 4.00 57.06 ✓
167

Tile - 3200' - 14" @ 250 = 800.00
2100' - 10" @ 120 = 252.00
Hauling - 6x14 red @ 150 1000 1052.00

14" 40 loads - 60.00
10" 13 " - 30.00
Digging - Laying - covering @ 18" per 100' 954.00 - Header 125.00
Court Costs - 231.00 Total - \$2500.00

make connections - & furnish some

Hole washed at end of ditch.

on 450' - outlet.

Alva Plunkett - 15% 15 25 32.09 ✓
Geo. Hickman 15% 15 25 32.09 ✓
Willis Williams 15% 10 150 21.40 ✓
168.25 = 2400.00
Eel River Tp. road 100% 24.00 24.00 = 14.264487
168.25

Hicks Drain

	El.	
Outlet	0.00	
S. rail pole 780-	8.85	
Up Cornfield	3.90	
clover-	5.70	
" 2	8.40	
" 3	7.35	
W. straw	8.82	
S. Orchard	8.75	
Garden hump road.	11.82	
B.M.	8.90	
	9.10	

Preliminary

End S.Walk at NW. cor.

62

Hicks Drain -
Pittsboro, Ind. ditch Grad.

B.M.	Elev.			
0	8.85			
1	3.30			
2	3.83			Cut
3	4.20			
4	4.85	8+33	-	↓
5	5.15	4.35	1.83	2.52
6	5.36	4.75	2.00	2.76
7	5.56	5.32	2.25	3.07
8	5.75	5.61	2.50	3.11
9	5.92	7.05	2.75	4.30
10	6.50	8.25	3.00	5.25
11	6.52	7.62	3.25	4.37
12	6.76	7.80	3.50	4.82
13	6.76	6.75	3.75	3.00
14	7.35	9.10	4.00	5.10
15	8.43	9.70	4.25	5.45
16	7.95	8.74	4.50	4.24
17	8.00	9.12	4.75	4.37
18	8.46	8.27	5.00	3.87
19	9.16			
20	8.49	5.25		3.24
	11.14	(7.07)	Jones	
	8.90	5.50		3.40
	8.91	5.75		3.16
	11.83	(7.58)	Skanks	
	9.43	6.20		3.23
	12.65	(8.30)	Wills floor	

11.83
4.21
7.15

12.65
5.35
7.3

63

S. Rail opposite area

9.43

4.71

15.14

3.87

3.07

19.27

17.07

E. T. V. at outlet 1.55

Bottom at new outlet -31

B.M. Rail - (S) at new outlet 9.10

(11.07) N. edge walk Wills-Armstrong line

(10.27) Joint in wall S. side at Schenck

At end of barn field

At fence N. side of road

Proc. 16 + 50 corn

Dug

6.56

S.E. basement window Jones

E. basement

Skanks

19x45

E. side basement W.E. Wills

19x45

20x40

21			9.65	6.25	3.40
22			9.91	6.50	3.41
23			10.28	6.75	3.53
			11.66		
24			10.40	7.00	3.40
0 25			10.75	7.50	3.25
			11.73	8.75	Hicks
26			11.27	8.00	3.27
27			12.11	8.50	3.61
28			13.12	9.00	4.12
29			13.82	10.00	3.82
30			14.80	11.00	3.80
31			16.40	12.00	4.40
31+36			16.95	12.36	4.59

H.I.

29			13.82		
	17.61	3.79			
28		4.49	13.12		
	3.59	16.66			
		3.22	13.44		
		1.26	15.40	10.90	
		2.99	13.67		
			2.85		
			1.81		
		2.95	13.71		

Fowler's cellar

11.73
2.95
8.78

355

2

10' W. Waters E line

W window Haynes

342

6.70

E. " Hicks 23x60

O.P.A. Mark Ellis 1st fl.

4.51

Middleton just E

13.67

3.70

9.97

28x20

28x00

Fowler's S.W. corner on sidewalk

W window

Robt. West E window

cellar

Base of ^EFlower pot pedestal in W yard

12.22
 12.30
 11.85
 12.00
 14.05

 12.92
 12.90
 13.650
 13.87
 13.39
 13.52
 -
 17.55
 17.10
 14.95

B.M. Ashby's front walk-
 " Lovell's " "
 Crawford's- bay window- E side house
~~water~~ lots - 2 (then 1 vacant-^{ward}
 green house ^{ward} back of Harnes-
 E back lot -
 vacant lot. L.L. Schenk
 little house low point in yard. ^{Schenk}
 B.M. side walk front w.h. red. ^{Leak}
 E bay window above house. ^{Joseph}
 little low white house E side ^{Arm}
 vacant lot- ^{Armstrong}
 chicken yard- still higher ^{Armstrong}
 center road- SE cor. chid. lot [↑]
 cor. house at rear ^{Armstrong}
 N " " at rear ^{Fowler}

68

Beadle Road Cot Drain

	Elev
	10.00
Bottom 8" file	1.95
+50	3.60
1	3.80
+50	4.20
2	3.90
+50	4.20
3.00	4.30
+50	4.30
4	5.00
+50	6.20
5	7.50
+50	8.45
6	9.10
+50	9.30
7	9.75
+50	9.75
8	9.75
+50	9.90
9	9.40
+50	9.10

69

8-27-18.

High point on N. east of cotton wood
tree just inside of road.
Frank Lane redman.

Newville

Sta.

Top tile	23.00	} SW
Sta A H60	24.90	
Bottom tile	21.76	} NW
A. ⁴⁸ main	24.20	
8	22.96	
7	21.80	
Sta 6 + 55	21.36	
6	21.53	
5	19.68	
4	16.35	
3	15.20	
2	13.95	
1	12.13	
0	10.00	

- 9.45. → in waterway

short + line to pond

Sta. 0	22.96
10	30.21
9	33.42
8	32.52
7	30.41
5	29.02
0	27.56

Scarp end 28.27

21.26

at Sta. 8.

Shortest lateral

Sta	Elg	
0	9.75	10.00
0 + 100 = Sta 1	8.70	9.25
" + 200 = Sta 2	7.80	8.35
" 300 = Sta 3	6.80	7.35
" 385 = Sta 4	6.45	7.00

Hicks Assessment

Name	Add.	Lot #	100	25
Leona A. Meyers	Orig. O.S.P.S.	4-B, 5	23,70	
Amelia M. Jordan	"	ME 2, 3, 4		1
Sam'l P. Jordan	"	2 TW 6		1
T. H. R. Irons Wife	"	B 4		1
Robt. West	"	4 B. 4		1
Mary E. Huddleston	" W 25 B 4 HC add 16 & 17			1
Morton Ellis	N.Y.C.	12, 13, 14, 15 18, 19, 20, 21		4
C.B. Hicks	"	11, 22		1
Wm H. Milam	"	23 & 24		
Ralph Wills	"	9, 10 + 50		4
Chas. Armstrong	PT. NE 1/4 - 26-18-1W .62			2
Delmer Holley	PT. NE 1/4 - 36-17-1W .63			2
Helen P				
Nancy Yeatch	Orig.	4 B 2		1
W.M. Dillon	B Borne Orig.	24 1-B3		1
R. E. Dillon	"	2-B3		1
Emily Montgomery	O.S.P.	28		1
John W. Fowler	Orig.	3-3		1
Lucinda E. King	O.S.P.	22		1
John G. McCord + W.	O.S.P. Orig.	21 4-3		1
Borah Jordan Est.	H+C	142		2
Lucy Thornbrough	O.S.P.	19, 20		2
Angeles Griffith	H+C	3		1
Fannie Williamson	"	4		1
			10	18

18956	15,5865	11,8475	No lots.	
1896	15,59	11,85		
80	70	50		
1		1	2	35.55
	1		2	38.10
	1		2	38.10
	1		2	38.10
	#		1	22.51
	2		3	58.69
	4		8	158.40
	1		2	38.10
	2		2	38.18
			4	90.04
			2	45.02
			2	45.02
			1	2370.
1			2	4266
			1	2370.
1			1	1896.
			1	2370.
1			1	1896.
1			2	4266.
			2	4740.
2			2	3792.
			1	2370.
			1	2370.
6	12	1	47	

74

Name	Add	Lot	BK	10	18	6	12	1	47	
Silas M Pearson	Osp	17, 18		23.78	22.51	18.96	16.59	11.65		20 @ 100 = 20
Eva & Marcia Peabworth	H+C	5	1	100	95	80	70	50	Total	19 @ 100 = 19.00
Franklin A Haynes	H+C Osp	6 9, 15, 16	1		37.92	2			1	18 @ 95 = 17.10
J.T. Waters	H+C Osp	7 11, 12, 13, 14	1		23.70	2	2		3	24 @ 80 = 19.20
S. E Tindert W.	H+C	8	1		61.62				5	20 @ 70 = 14.00
Russel Hale	Osp. S	1 + 2	2		94.80	2			1	5 @ 50 = 2.50
Edw. C Wilson	" "	11 + 12			23.70				2	7 @ 80
Lillian Schenck	Osp.	7 + 8	1		47.40	2	2		2	
Leander B Abby	" S	9, 10, 13, 16			37.94				3	Dugan -
Aubrey Jones	" "	5, 6	2		54.88	4			4	
Ray R Hodson	" "	8			75.84				2	23.695 100/70
John N Hodson	" "	7			47.40	1			1	22.51 95/70
Howe Stanley	" "	17, 18			18.96	1			1	18.956 80
Frank Lovell - W.	" "	14			18.96	2			2	15.5265 70
John T S. T. Croux Ford	" "	13			18.96	1			1	11.8475 50
Geo. Ward	" -	9 + 10			18.96		2		2	
Chas. Leak	" -	6			34.18		1		1	
Corb Joseph	"	5			6.59		1		1	
Milton Armstrong	"	PT. 2 9, 4			15.59			3	3	
Wm M Fowler	"	PT 9, 1			35.56			1	1	
Proctor			1		11.85					
					23.70					
					29.51	53.21				
Leah	78.65	Dugan	47.18	Mulan	5.90					
Mc Connaha	88.49									
				20	18	24	20	5	86	

75

20 @ 100 = 20

19 @ 100 = 19.00

18 @ 95 = 17.10

24 @ 80 = 19.20

20 @ 70 = 14.00

5 @ 50 = 2.50

7 @ 80

Dugan -

23.695 100/70

22.51 95/70

18.956 80

15.5265 70

11.8475 50

76

Dr Scamhorn wants in
last stake on bank. 15'
above side ditch.

manhead at 12 + 38. cor lot.
& end of walk

Sta	+	\bar{A}	-	E1	
BM	3.00	14.16	.	9.16	
B.M			4.63	9.53	
17			3.00	9.16	✓
16			4.68	9.48	✓
15			4.58	9.58	✓
14			4.70	10.06	✓
13			3.08	11.08	✓
12			4.96	9.20	✓
0	1.70	10.90	4.96	11.90	
11			2.29	8.61	✓
10			3.11	7.79	✓
9			4.50	6.40	
8			5.32	5.58	
7			5.17	5.73	
6			5.95	4.95	
5			7.95	2.95	
4+41			6.86	4.04	
B&D			11.18	2'	
			1.50		

77

End of walk

(4.10
6.25
4.65
6.50
4.10
5.76
5.14
7.25
4.80
6.10
stake.)

Level Drain

0 Tower Turn. main Drain

Sta Elev

0 5.90

1 9.60

2 7.50

3 8.30

4 8.80

5 is 4+90 9.20

arm to Pond Start 3+80

Sta Elev

0 8.70

1 10.30

2 10.90

3 12.00

4 8.20

5 8.30

6 10.60

at bottom of tile which is outlet

Point where arm joins main line.

VVV

Hicks Drain Arm

On N side of - Osborne Ave

Begins at Sta. 14 + 18.

B.M.

	+	π	-	E1	Plot
Sta. 14	7.15	17.21		10.06	
B.M.			10.31		
			6.90		
			9.59		9.59
A0			7.62	264	7.62
			10.30		10.01
A1			6.91	286	7.20
			11.32		
A B.M.			5.89		
			11.04		10.62
A2			6.17	347	6.59
			11.64		11.39
A3			5.57	424	5.82
			12.09		
B.M.			5.12		
			12.09		11.79
A4			5.12	464	5.42
			12.66		12.27
A5			4.55	512	4.81
			13.18		12.79
A6			4.03	564	4.42
			13.41		
B.M.			3.80		
			13.21		12.26
A7			4.00	511	4.45
			12.62		12.14
A8 ^o	8.38	21.00	4.59	120	7.60
			13.08		
B.M.			6.92		
			12.92		13.14
A9			7.87	220	7.86
			15.32		
A10	5.91	21.23	5.68		
			15.37		15.37
A10			5.86	420	5.76
			17.16		16.95
A11			4.81	518	4.81
			17.45		17.45
A12			3.78	628	3.78
			18.03		
B.M.			3.20		

end of walk at Ashby's(?)
W side st. W. Jones-

B.M. - cen. walk in front Ashby-1784

20' W. Frank Lovel front walk

B.M. cen. walk at F. Crawfords walk
W edge 1st st.

E side green house Geo. Ward. 24E
6+66-
20L

6' E W side st. E Pieroni's
in front Crawley's (swagg) 7+50
8+82 - Larkin Leaks front walk

Corp doseeb. 9+60
3' E W. Edge st. E McCord

Armstrongs garage at center

12.920

Restaking Part Hicks Drain

Sta.	+	X	-	EI.
B.M.		14.80	4.74	10.06
12+00			5.87	9.23
12+00 New Sta.			5.39	9.421
11+00			6.46	8.34
10+00			7.19	7.61
9+00			8.31	6.49
8+00			9.03	5.77
7+00			8.61	6.19
6+00			9.61	5.19
5+00			11.85	2.95
4+41			11.30	3.50
3+00			9.60	5.20

B.M. S.E. Wing of
lowest step of
Big 4-Bridge

4.74 4.57

10.06 Sta. 14 grade stake

	14.80	14.80
	8.31	5.57
	6.49	9.23
	14.80	14.80
	2.23	5.38
	5.77	9.42
	14.80	14.80
	8.61	6.46
	6.19	8.34
	14.80	14.80
	9.61	7.19
	5.19	7.61

Neavill

Sta. + HI	6th	Stake	E.I.G.	E.I.S.
0. ^{10.18} 5.90 16.08	11.27	10.18	4.81	5.90
1.	8.50	7.98	7.58	8.10
2	7.75	6.87	8.33	9.21
3	6.54	6.08	9.54	10.00
4	6.64	5.81	9.44	10.27
5	5.97	5.25	10.11	10.83
40			9.54	10.00
A1	5.60	4.88	10.48	11.20
A2	3.40	2.62	12.68	13.40
A3	1.10	0.39	14.98	15.69
0 +3.58 19.28		0.39		
A4	5.38	4.55	13.89	14.72
A5	5.52	4.75	13.75	14.52
A6	4.00	3.65	15.27	15.62

15.69
3.52
12.27

At Neavill-Farrow line.
Tile to be down 36" at fence
w. off stake at sta. 0. B.M. 5.90

OK in top end, enters here

Friendwood Bridge - Rewooded. Guilford Tp.

6 spans - 13'-2" 3 x 12 - 13'-7" + lap -

7 spaced at - 30" - by 8 at 2

14'-3" L T x 15'-4" skewed - floor

8" x 5" hub guard

2 x 10 rail - 69'-10" 4 - 13'-6" sections - 15'-10"

Trusses 4

4 - 12 x 8 - 16'

4 - 12 x 6 - 16'

12 - 4 x 6 - 15'-8"

Top -

4 - 10 x 12 - 26'-8"

~~4 - 9 - 3~~ x 12 2 - 3 x 12 - 26'-8"

4 - 7 x 12

Floor 78'-8"

$$14.25 \times 70.67 \times 2.5 = 2802.476$$

$$2 \times 70 \times .833 \times 2 = 233.24$$

$$2 \times 5 \times 30 \times 70 = 210.00$$

$$4 \times 1 \times .666 \times 16 = 46.00$$

$$4 \times 1 \times .5 \times 16 = 32.00$$

$$12 \times .5 \times .333 \times 15.666 = 31.33$$

$$4 \times 1 \times 26.666 \times 7 = 67.21$$

$$2 \times .25 \times 1 \times 26.666 = 13.33$$

$$7 \times 1 \times 3 \times 6 \times 15 = 1890.00$$

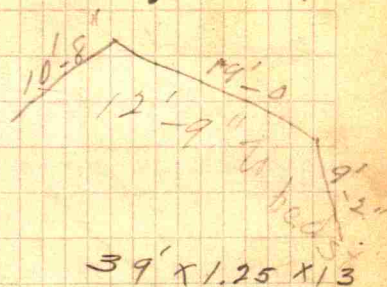
$$5319$$

Floor.

rail-

hub guard

stringers



44

end.

cen

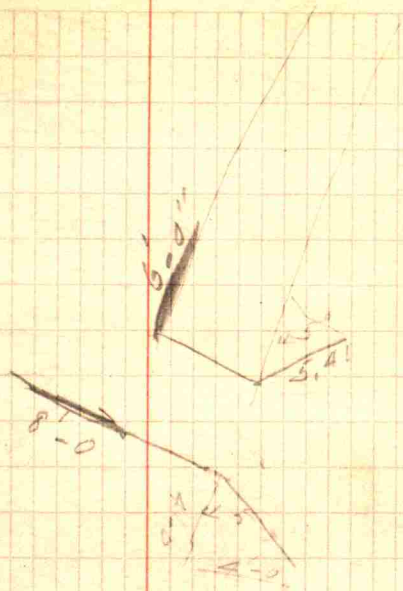
In center

end

23

Mach Smith.
 Drive 6' - top pres. floor
 span 8' -

5'-0"

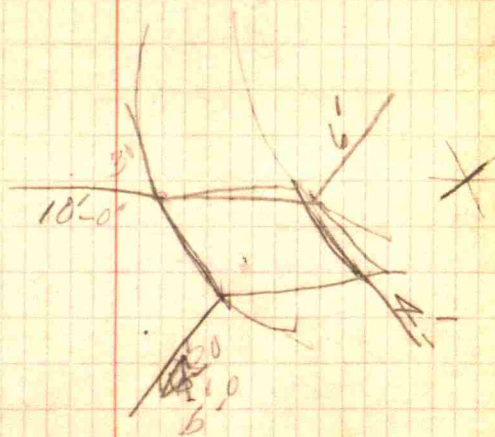
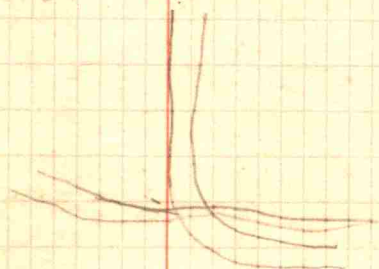


Hamaday -

8' to 10' Box flood

4'-6" rise

3'-4" clear rise



82

Elias P. Hornandy Drain
Preliminary

B.M. Top of NW Cor. Inc. Culvert 100'

	-	+	Fl.
Creek			3.91
✓			2.22
✓			4.36
✓			5.49
✓			5.60
✓			6.32
✓			6.75
			7.10
B.M. Stone			10.55
Creek			7.46
✓			8.15
B.M. NW Cor. Inc. Culvert EFW Rd.			14.80
Tracks			10.30
✓			13.10
✓			13.05
✓ Turn at Rail Fence			14.30
✓ Top of grade			14.66
✓			15.30
✓			15.40
✓			15.93
✓			17.40
✓			18.55
✓			18.20
✓			19.15

10

83

4.85
2.22

3.91

18" West of Culvert, Creek Bottom down Stream	
100'	
100' North	40'
200'	
300'	
360 ft West of Culvert at point Drain leaves Road outside fence	
370'	inside
450 ft	to Bend in Creek
520 ft	East end of Creek at Bend.
500 ft	From B.M. at previous Bend.
600 ft	to F.L. Invert Culvert Rd EFW
700 ft	
800 ft	Sta. 42 - Ann. 450 ft in Ag
1500	Get elevation fall on point
1800	18" tile every 3 to 5 stations.
2100	
2400	
2700	
3000	
3300	
3600	from turn.
3870	to East fence

Chas. P. Hornaday Drain

Creels	19.20
✓	18.50
	19.45
B.M.	23.60
Creels	19.73
✓	21.25
B.M.	24.76
B.M.	28.88

$$\begin{array}{r} 24.76 \\ 18.94 \\ \hline 5.82 \end{array}$$

3700 - from Tiers
40.80 40 Head of Tile drain
4200
4500
4650
Stone at post west of ditch
Top of post west of ditch

Based on preliminary 905.4100, bench, thereafter stake 0+00 is assumed to be 10.00

East Hornady Drain

Sta	Left	Center	Right	Bank So.	Bank N.
0+00	5.15	3.83	7.78		
0+00		-1.32	2.93		4.83
1+00	4.56	-.30			4.80
2+00	4.62	+0.25			5.31
3+00	5.20	.64			5.68
3+45		1.10			6.03
4+00	4.54	1.65			
4+55		1.95	5.18	4.45	
5+00	5.25	2.05	5.81	5.55	
6+00	5.50	2.61	6.14	5.40	
7+00	4.85	3.08	7.00	5.30	
7+45					
8+00	4.41	2.71	5.28	6.70	
9+00	4.66	2.95	7.15	7.20	
10+00	5.42	3.22	8.70	6.20	
10+75	7.68	3.18			10.60
11+00	9.57	2.90	8.95	9.18	20
12+00	6.13	3.82	8.38	8.70	20
13+00	6.35	4.06	8.58	9.90	25
14+00	6.33	4.48	9.31	8.65	25
15+00	6.58	4.95	10.10	10.50	30
15+50	9.45	5.11	10.92	10.80	30

On acct. of this reading all elevations raised 10' on profile, this one becoming 8.68 etc.

El. Fl. ~~...~~ 5.08

width of ditch 12'
10' - 2' from fence

where creek leaves Road ditch - 15' from N. to creek

Turn in creek 30° width 20'
creek 30° No. of grade stake width 20'
creek 20° No. width 20'
10' width 30'

Creek crosses ~~...~~ fence

width 20'
25'
25' ^{5' drain from Sta 14.00}

Road fence ^{5'} side El 7.30 - Road R. Roadway 30'
N. W. E. P. on E. M. 9.51 dis from Sta 20' 50'

5 No.
3
4
5

Band 80' left 15+60 - 1-8 1/4" rain from No. El. 5.40

Sta.	E. Ft.	Fr. Bot.	N. Bk	S. Bk	Diameter
16+00	8.25	7.27	10.60	9.30	20
16+30		7.00	9.36		
17+00	8.33	7.45	8.71	9.68	25
18+00	8.20	7.04	9.36	9.98	25
19+00	8.46	8.38	8.73	10.10	25
19+50		8.55	8.86	9.50	20
20+00	8.90	8.78	9.00	8.90	15
21+00	9.04	8.30	9.01	9.11	20
22+00	9.10	8.48	9.08	9.30	20
23+00	9.06	8.88			
24+00	9.45	8.93			
25+00	9.85	9.33			
26+00	9.27	9.00			
27+00	9.30	under water			
28+00	9.88	9.50			
29+00	10.16	9.65			
30+00	10.60	9.71			
31+00	9.67	9.65	✓		
32+00	9.10	-	✓		
33+00	9.60	under water	✓		
34+00	9.65		✓		
35+00	9.71		✓		
36+00	10.46		✓		
37+00	11.64		✓		
38+00	12.07				

	dist. fr. Sta.
	5
5.75" E-5" Dr. fr. N. Outlet 20' N. Top old drain 75	6
8.52" E. old drain.	
Turns 45° Right - 19+50 - 6" Drain fr. Eo & N. covered up	
20+00 old drain ^{10'} top 678	6
22+60 - 4" drain pipe Right & Left covered up	8
	12
4" W. & L. 770 Rail fence N. & S.	12
24+10 2" Pipe No. 7450-5" fr. Left	10
5" pipe 10	
	10
4" W. & L. to Sta 3	8
4" W. & L. to Sta 4	
5' to Sta 33+00 fr. E	
8' from Left 2" up	
36+85 Rail fence E & W Williams Sta No.	

Sta	Fr.	Tr B			
39+00	12.56				
40+00	12.76				
41+00	12.75				
42+00	12.45				
43+00	13.70				
44+00	14.05				
45+00	13.92		48+10 reference	Falkner	
46+00	14.35	13.95			
47+00	15.00	14.17			18
48+00	14.73	13.33			15
49+00	14.78	13.81			15
50+00	15.68	14.35			15
51+00	16.00	14.30			15
52+00	16.55	15.01	R. 18.75	L. 18.50	15
53+00	17.17	15.05	20.35		
54+00	16.95	15.40			

B.M. 18.94.
Top of stone

Drill to left. 4160 wire frame.
0+00 lateral "M"

Drill Turns left 40°

50+8-5" Drift from left E. 14.65

51+15 Turns Right 45°

52+40-5" Drift from left E. 15.39

24/11

3

3

2

2

3

2

2

100

Lateral "A" on Williams hand

Sta. 51.5 ft. Fr. B.

A0+00 12.45

A1+00 12.35

A2+00 12.46

A3+00 12.76

A4+00 11.85

103

Cost: Chas. P. Hornaday Ex Parte Drain.

Tile

350' - 30" @ 1450 = 507.50

1450' - 24" @ 725 = 1051.25

600' - 20" @ 525 = 315.00

2944' - 18" @ 420 = 1236.48

400' - 12" @ 155 = 62.00

Total \$3172.23

Header 8 1/4 yds. concrete @ 15.00 = 123.75

100# steel @ 4.00 4.00

127.75

Hauling tile - 30" - 10 per load - 17 loads @ 10.00 170.00

24" - 725 tile - 21 per load - 6 da. 36.00

20" - 300 pc. = 32 per load - 10 loads - 1 1/2 da. 9.00

18" 1472 pc. = 26 per " 41 loads - 10 da. 60.00

12" 200 pc. 98 " " 2 " 1 da. 6.00

10' 30" from sewer @ 3.72 = 37.20 700.00

Digging - Laying + Covering - 348 rods @ 6.12 2149.76

Time: John P. Moran - and J.W. Haynes -

1 da. qualifying - 2. viewing - 1 day on plans -

2 da. assessing -

J.P. 2 da. viewing - 1 da. plans - 1 da. assessing - 3 da. staking

Kirk + D.H. 2 da. staking - 2 da. levels - 1 1/2 da. plans

Tile	\$ 3172.23
Contract Estimate	6239.40
Header	127.75
sewer	37.20
Court Costs	700.00
Hauling	173.00
Estimate	\$6939.40
Extra Haul	12.00
Digging + Covering	2150.00
Incidentals	50.00
6939.40 Total	
575.00 Twp.	
6364.40 Land	
Profit @ 10%	5672.18
	5672.2
	6239.40

Township - N45 Road -

550.00

E-W "

25.00

For land \$6364.40 - 406.5 A. = \$15.65658 per A.

This flat rate assessment made contrary to my judgment, For acreage involved see report.

J.P. Johnson - S.H.L.

Add Levels - Hornaday

Sta.	53+44	A	π	El.	El.
53+44	9.05	35.50	6.91		26.45
0+00			6.91		28.59
3+00			4.30		31.20
4+00	4.88		4.52		30.98
8+00		35.86			26.73
		26.81	4.20		31.64
11+00	4.35		2.40		33.46
		37.81			27.41
11+50		28.76	5.11		32.63
			5.35		37.46
A	6.10	37.81	6.50		29.73
B		37.41	7.68		37.51
C		28.50	9.90		18.76

Distance of deepest pond from upper terminus of ditch - $400 + 365 + 600 = 1365$.

Assume tile laid 27" below ground level in pond i.e. at elev. of $27.51 - 2.25 = 25.26$

Allow 3" fall, in case wanted, from this pond to upper terminus, viz. sta. 53+44 of main = $40" = 3.33$
 $25.26 - 3.33 = 21.93$ necessary elevation of ditch flow line

Conclusion. Ditch can be

Drain To Faulkners Pond

Based on last grade stake Elev. ^{26.45}

20 W. of 53+44. Running N. along S. line Hornaday rd.

From 4+00 ran S 45 W to point in grove. 200' W. of fence.

At gate 365 N. W. of 0+00 (S. side) 400' N 10° W of gate
 150' N 58° W from last reading

raised 1'-6" and still give good drainage. Reason for raising: to avoid laying tile in quick sand.

Have so informed the Drainage Commissioner, Jas W. Haynes, this Nov. 11th 1920.

J. Johnson.

Time - 2 min. 2 hrs. 1 man
 1 hr. Miles 5. Total \$5.50

156

Ground S :-	10.00
Stake	10.42
Road	16.10
NW road.	11.43
	<u>2.50</u>
	8.93

opp. 1st

post E. 1st pole

16.16

8.43

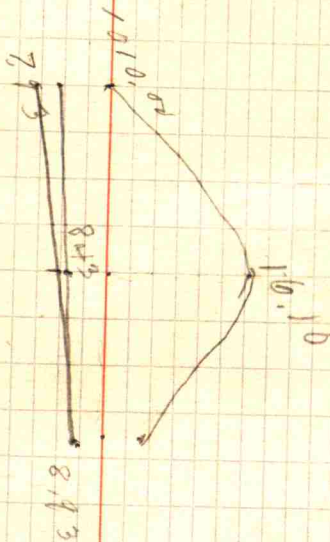
7.67

157

10.42

~~10.95~~

4.9



Marion Tp.

340x8x5

~~330x8x5~~

77

Stanley ✓

✓ Hodson ✓

✓ Cummings ✓

✓ Kiser ✓

✓ Mudcreek ✓

Cooper —

✓ Shields ✓

Plainfield —

Friendswood ✓

Fische —

Busby ✓

✓ Davis ✓

✓ Mach Smith ✓

✓ Hornaday ✓

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. = $23^{\circ} 20'$ to the R. at Station
542+72.

Ext. in Tab. IV opposite $23^{\circ} 20' = 120.87$
 $120.87 \div 12 = 10.07$. Say a 10° Curve.

Tan. in Tab. IV opp. $23^{\circ} 20' = 1183.1$
 $1183.1 \div 10 = 118.31$.

Tab. V correction for A. $23^{\circ} 20'$ for a 10° Cur. = 0.16
 $118.31 + 0.16 = 118.47 = \text{corrected Tangent}$.

(If corrected Ext. is required find in same way)
Ang. $23^{\circ} 20' = 23.33^{\circ} \div 10 = 2.3333 = \text{L. C.}$

$2^{\circ} 19\frac{1}{2}' = \text{def. for sta.}$	542	I. P. = sta.	542+72
$4^{\circ} 49\frac{1}{2}' = \text{ " " "}$	+50	Tan. =	1.18.47
$7^{\circ} 19\frac{1}{2}' = \text{ " " "}$	543	B. C. = sta.	541+53.53
$9^{\circ} 49\frac{1}{2}' = \text{ " " "}$	+50	L. C. =	2.33.33
$11^{\circ} 40' = \text{ " " "}$	543+	E. C. = Sta.	543+86.86
	86.86		

$100 - 53.53 = 46.47 \times 3' (\text{def. for 1 ft. of } 10^{\circ} \text{ Cur.}) = 139.41' =$
 $2^{\circ} 19\frac{1}{2}' = \text{def. for sta. } 542.$

Def. for 50 ft. = $2^{\circ} 30'$ for a 10° Curve.Def. for 36.86 ft. = $1^{\circ} 50\frac{1}{2}'$ for a 10° Curve.(These tables are published in Field Books of
KEUFFEL & ESSER CO., New York, N. Y.)