#10

FIELD BOOK

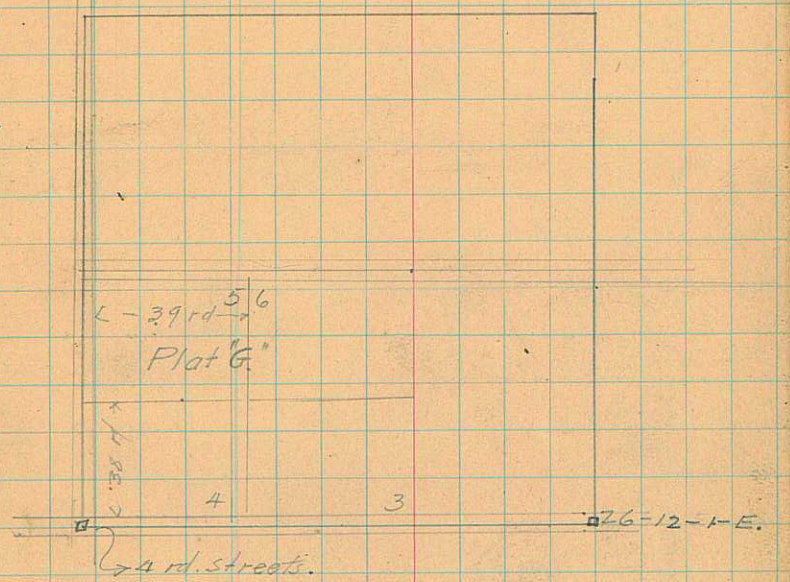
No. 400

Cache County.

No. 1.

Benson creek	bridge	16,49.
" Slough	"	16,49.
Logan Pmwdeuce	"	50
Hymm slough	"	Est 4
Spring Cr	"	" 13,52

Plat of Cache County Poor Farm.



0

5.32

10.30

15.47

20+53

30+76

40+84

41+47

First fence S of Field St W side of St

Second " " " " on E " "

Third " " " " " E

Fourth " " " " " E

Fifth " " " " " W

N side of St 12th St

S " " " " "

Survey of Drain South of Logan on E. side of Street.

Sta	+	HI	−	Elv	S.G.	Spot	L.	Cut	R	
B.M.				100.0						On hub W of telephone pole at head of Logan on E side of road.
	3.5	103.5								
0			5.0	98.5	96.0			2.5		Surface of water
1			6.0	97.5	95.8			1.7		
2			6.1	97.4	95.6			1.9		
3			5.3	98.2	95.4			2.8		
4			6.0	97.5	95.2			2.3		
5			7.1	96.4	95.0			1.4		
6			8.4	95.1	94.8			.3		
7			7.9	95.6	94.6			1.0		
8			8.8	94.7	94.4			.3		
9			8.8	94.7	94.2			.5		

20.5' long

Culvert to be 5×8 – 4' fill T = 8"

		#
Long rods 12" centers ½□" – Top	10 – ½"□	
Bot	10 – ½"□	
Side	5 ½"□	30 – ½"□ = 20' long. 510.
Side	5 ½"□	

Top & Bot. pcs ½□"	5" cuts	8'-10" long – 96.	720.0
Cor. pieces ½□"	10" "	7'-3" " – 96	696.0
Side Wall pcs ½□"	10" "	5'-10" " 50	248.0
Wing Walls Long " ½□"	8' "	16	109.0
" " Vert " ½□"	12" { 4'	— 12	41.0
	5'	— 8	34.0
	6'	8	41.0
Corner diag. ½□"	12" c.	2'3" " 84	160.0
			2479.0

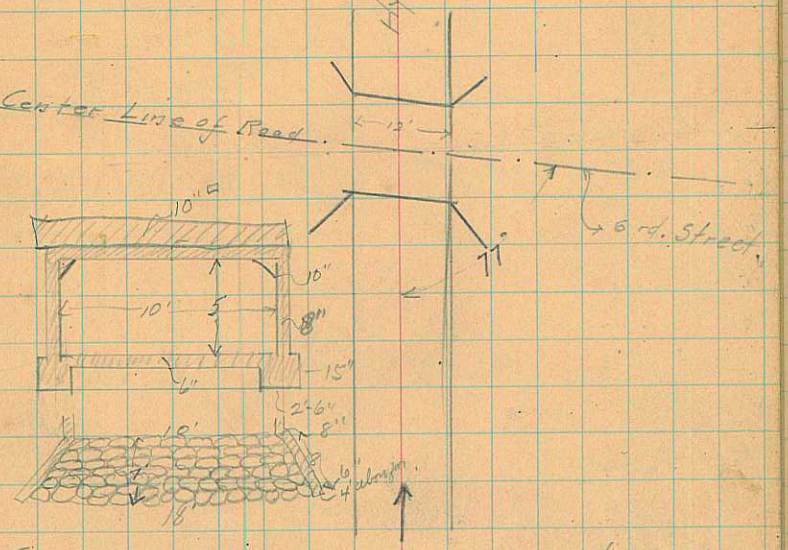
Note

It was found necessary to widen bridge 20 cts found for ample waterway and the width was made 10' on the square and the bridge was 25' long according to owner's own opposite page.

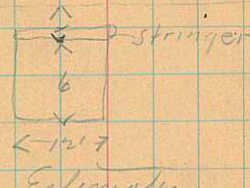
Estimate Footings 2(1.25×.25×20) = 12.5 cu ft.
Floor .83×20×.5 = 83 " "
Walls 2(.833×5×20) = 134 " "
Corp.'s 2(11.7×.833×.833) = 16 " "
Top 11.7×20×.833 = 195. " "
Wings 4(7.3+3.5/2 ×8) = 173. " "
Supports .83×.83×20 = 0.5
Buttresses 3(1.25×1×8.3) = 311
757.6 = 28 cu yds.
= 4.2 c.y

Riprapping 2(18+10/2 ×7)
Excav 20 c yds.

Hyrum Slough



Survey made May 11-09 on bridge over Hyrum Slough.



Estimate.

28 Cub. yds conc @ 4.20	=	117.60
Placing steel		18.00
Riprap 7½ cu yds @ 3.80		27.66
Brush 10 sq yds @ 25¢		12.50
		175.76
		10.
Removing old bridge		185.76
1200 ft steel @ 3¢		36.00
30 poles cut @ 2.1¢		6.60
		$28.36

Survey made for Canal. Mapping Cache County. Ditch on N. side of road Greenville – Spur from Canal to E edge Roberts lane

St.	+	H.I.	–	Elv	Grade
				100.0	
		0.5		100.5	
6+54				10.8	89.7	
6				2.2	98.3	
0				3.2	97.3	97.
1				2.3	98.2	96.
2				3.2	97.3	95.
3				5.0	95.5	94
4				8.1	92.4	92
5				9.4	91.1	91
6				8.9	91.6	90
6+54				10.8	89.7	89.7

97.3
89.7
7.6

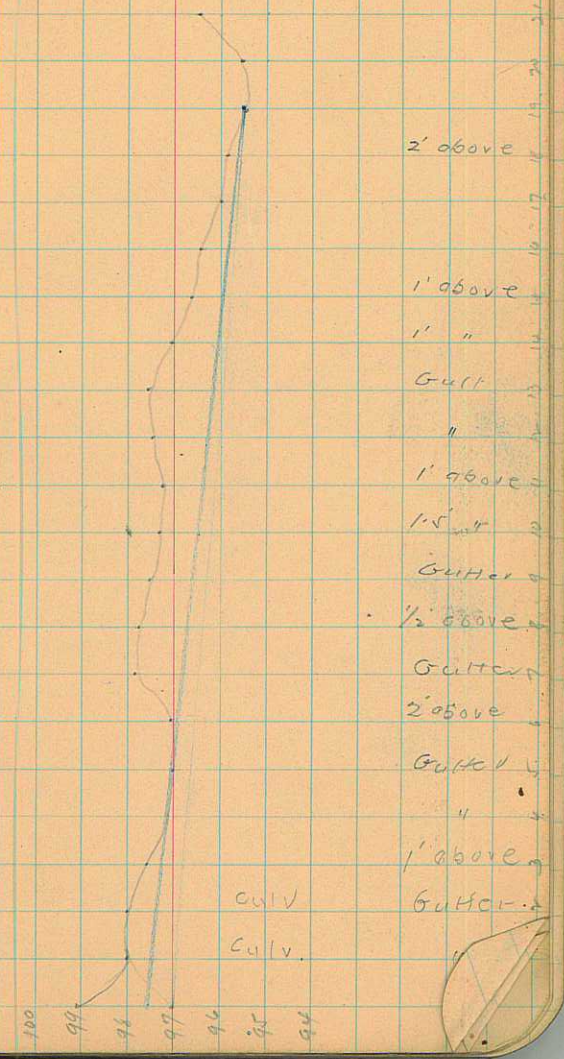
On mail S.W. St. water to bridge

Point in ditch water must empty.
Point in ditch, water must be raised to.

2.2
2.3
1.5
0.4
+.1
+ .6
0

Survey made March-02 on Beau. Road near Phillip Perrier.

Sta	+	HI	−	Elv.	Grade	
				100.0		On Hub 3rd tel pole E Phillip Perrier house.
	4.13	104.3 ✓				
0			5.1	99.2	97.5	1.7
58			4.5	99.8	97.05	2.3
1			6.4	97.9	97.4	.5
57			6.0	98.3	97.00	1.3
56			4.6	99.7	96.95	2.7
2			6.3	98.0	97.3	.7
3			6.7	97.6	97.2	.4
55			4.9	99.4	96.90	2.5
54			6.3	98.0	~~96.85~~	1.1
4			7.2	97.1	97.0	.1
5			7.4	96.9	96.9	0.0
53			5.9	98.4	96.80	1.6
52			5.9	98.4	96.75	1.6
6			7.2	97.1	96.8	.3
7			6.5	97.8	96.7	1.1
51			6.1	98.2	96.70	1.5
50			4.6	99.7	96.65	3.0
8			6.6	97.7	96.6	.1
9			6.8	97.5	96.5	1.0
49			5.6	98.7	96.60	1.1
48			6.4	97.9	96.55	1.3
10			6.9	97.4	96.4	1.0
11			6.9	97.4	96.3	1.1



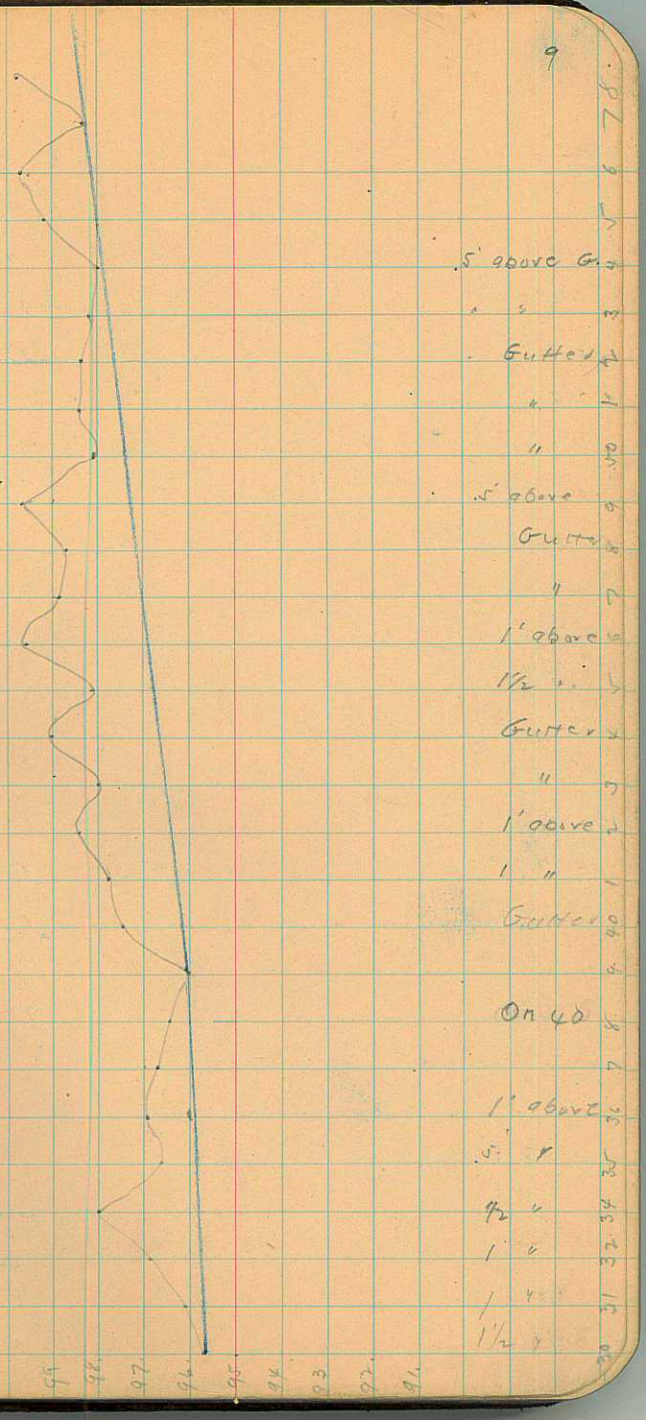
5. Side
2' above
1' above
1' "
Gutt
"
1' above
1.5' "
Gutter
½' above
Gutter
2' above
Gutter
4
1' above
Gutter
"

97.5
95.5
2.0

Sta	+	HI	−	Elv	G		
		104.3					
47			5.5	98.8	96.50	2.3	1½ above
T.P			5.2	99.1			on Sta. 47
	3.9	103.0					
46			3.6	99.6	96.45	3.1	1' above
17			5.4	99.6	96.2	1.4	Gutter
13			5.4	97.6	96.1	1.5	"
45			4.8	98.2	96.40	1.8	"
44			4.0	99.0	96.35	2.6	.5' above
14			5.9	97.1	96.0	1.1	Gutter
15			6.3	96.7	95.9	.8	"
43			5.0	98.0	96.30	1.7	"
42			4.6	98.4	96.25	2.1	1' above
16			6.5	96.5	95.8	.7	.5' "
17			7.0	96.0	95.7	.3	Gutter
41			5.2	97.8	96.20	1.6	1' above
40			5.5	97.5	96.15	1.3	.5' "
18			7.1	95.9	95.6	0.3	Gutter
19			7.5	95.5	95.5	.0	"
39			6.9	96.1	96.10	0.0	Culvert "
38			6.5	96.5	96.05	.4	"
20			7.4	95.6	95.4	.2	"
21			6.5	96.5	95.35	1.1	½ above
37			6.3	96.7	96.00	0.7	Gutter
TP			5.9	97.1			On 37

Sta	+	H I	−	Elv	G		
				97.1			
	6.2	103.3 ✓					
36			6.4	96.9	95.95	1.0	Gulley
22			7.7	95.6	95.30	.3	"
23			7.3	96.0	95.25	.7	½' above
35			6.7	96.6	95.90	0.7	Gully
34			5.3	98.0	95.85	2.1	"
24			7.9	95.4	95.20	0.2	"
25			7.0	96.3	95.15	1.1	"
(33)3 2			6.5	96.8	95.80	1.0	"
31			7.2	96.1	95.75	0.3	"
26			7.8	95.5	95.10	0.4	"
27			7.3	96.0	95.05	0.9	Culvert. ½' above
30 S	S		7.6	95.7	95.70	0.0 ⊗	" Gulley
29 S			7.5	95.8	95.61		"
28 N	N		7.6	95.7	95.0	0.7	"
29 N			7.6	96.3	94.95	1.3	"
28 S			6.8	96.5	95.60	0.9	"
27 S			7.0	96.3	95.55	0.7	"
30 N			6.4	96.9	94.90	2.0	"
TP			5.9	97.4			On 30 N.
	5.6	103.0 ✓					
31 N			6.3	96.7	94.85	1.8	½' above
26 S			6.7	96.3	95.50	.8	Gully
25 S			6.9	96.1	95.45	0.6	"

Sta	+	HI	−	EIN	Gr		
		103.0 ✓					
32 N			6.1	96.9	94.80	2.1	.5' above Gr.
33 N			6.4	96.6	94.75	1.8	" "
24 S			7.2	95.8	95.40	0.4	Gutter
23 S			6.6	96.4	95.35	0.9	"
34 N			7.4	95.6	94.70	0.9	"
35 N			6.3	97.0	94.65	2.3	.5' above
22 S			6.9	96.1	95.30	0.8	Gutter
21 S			6.2	96.8	95.25	1.5	"
36 N			6.1	96.9	94.60	2.3	1' above
37 N			5.3	97.7	94.55	3.1	1½ "
20 S			5.6	97.4	95.20	2.2	Gutter
19 S			5.5	97.5	95.15	2.3	"
38 N			5.9	97.1	94.50	2.6	1' above
39 N			5.8	97.2	94.45	2.7	1 "
18 S			5.7	97.3	95.10	2.2	Gutter
17 S			4.9	98.1	95.05	3.0	
T.D			5.0	98.0			On 40
	5.5	103.5 ✓					
40 N			5.4	98.1	94.40	3.7	1' above
41 N			5.6	97.9	94.35	3.5	.5 "
16 S			5.9	97.6	95.00	2.6	½ "
15 S			5.8	97.7	94.95	2.7	1 "
42 N			5.8	97.7	94.30	3.4	1 "
43 N			5.1	98.4	94.25	4.1	1½ "



Stg	+	HI	−	EN	G			
		103.5 ✓						
14 S			5.7	97.8	94.90	2.9		1' above
13 S			5.9	97.6	94.85	2.7		1½ "
44 N			6.0	97.5	94.20	3.3		1' "
45 N			6.7	96.8	94.15	2.6		½ "
12 S			6.6	96.9	94.80	2.1		½ "
11 S.			7.5	96.0	94.75	1.2		Guess
46 N			7.2	96.3	94.10	2.2		½' above
47 N			7.6	95.9	94.05	1.8		Guess
10 S			7.5	96.0	94.70	1.3		"
9 S			6.8	96.7	94.65	2.0		"
48 N			7.5	96.0	94.0	2.0 ✓		"
49 N			7.8	95.7	93.95	1.7 ✓		"
8 S			6.5	97.0				"
7 S			5.8	97.7				"
50 (49 N)			7.8	95.7	93.90	1.8 ✓		"
50 N			8.1	95.4	93.85	1.5 ✓		"
6 S			4.9	98.6				"
5 S			5.2	98.3				"
51 N			8.1	95.4	93.80	1.6		"
52 N			8.0	95.5	93.75	1.7 ✓		"
TP			6.0	97.5 ✓				On ✓
	3.6	101.1 ✓						
4 S			4.	97.1				
3 S			5.1	96.0				

Sta	+	HI	—	Elv	C	Cut	
		101.1	~~6~~				
(53) (~~53~~ 52) ℄			6.1	95.0	93.70	1.3	Gutter
53 ℄			6.7	94.4	93.65	.7	℄
2 S			5.7	95.4			=
1.5			6.0	95.1			=
54 ℄			7.6	93.5	93.60		Gutter
55 ℄			8.8	92.3	93.55		℄
OS			6.2	94.9			=
TP			5.6	95.5			OSM. OS

99.2
92 3/9
6.

Survey made May 19-09 for Cache Co. Olif Cronquist on Drain on Benson Cut off Road

Sta	+	HI	−	Elv	G
				100.0	
0	5.70	105.70	5.70		
1			4.00	101.7	98.6
2			5.4	100.3	98.5
3			6.3	99.4	95.4
4+50			4.9	100.8	
4			6.3	99.4	98.8
5			6.4	99 3	98 32
6			5.9	99.8	98.1
7			6.4	99 .3	98 D
8			6.5	99 .2	97.9
9			5.9.	99.8	97.8
10			6.8	98 .9	97.9

2 .1	
1 .8	
1 .0	
2 .4	
1 .1	
1 .1	
1 .7	
1 .3	
1 .3	
2 .0	
1 .R	

6.70 = rod upper end
1.3
4.40 = Grade-

6.80
5.7
1.1

0 44.0 upper end

100.
13
.87 97.7
97.8
.1

1000

45.0
10 7 0
1 3 0
2 .

Survey made May 18-05 on Spring Cr for County road.

Steel Material for Culvert

Length 20.5 Fill 4' T=10" H=12' W=4' but sidewalls to be ordered as if W=5.

Long rods ½" □ 12" C { Top 13 / Bot 13 / Side 5 / " 5 } 36 - 20' long.

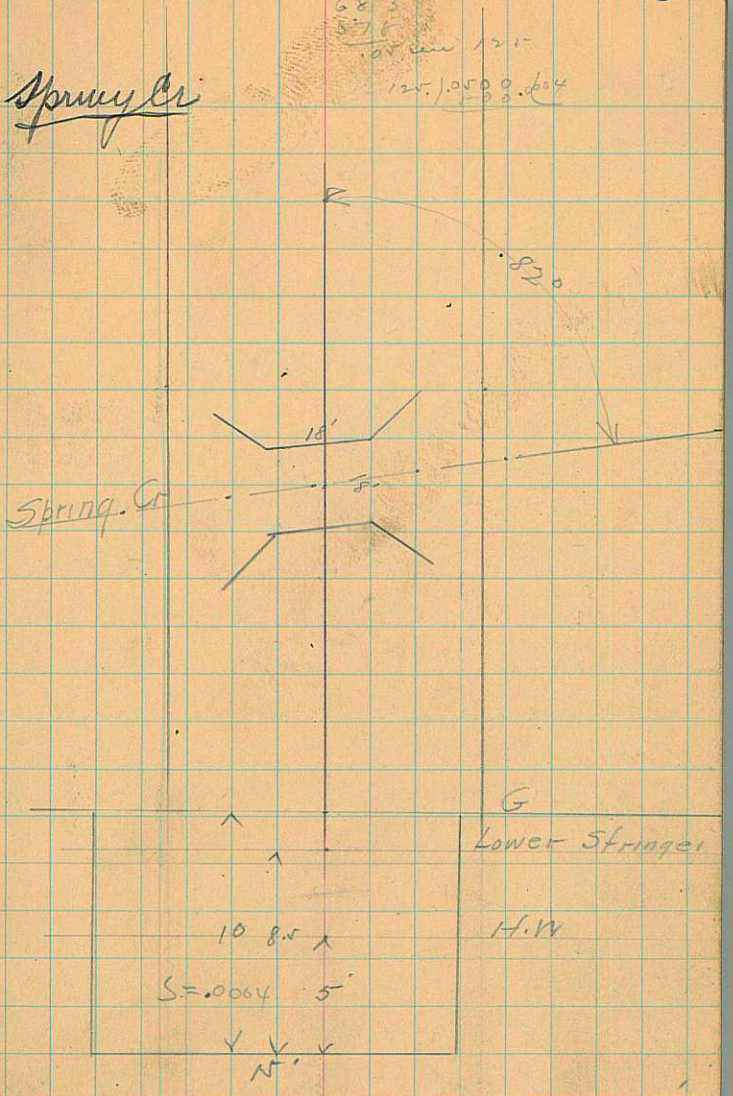
Top + Bot pein ⅝" □ 6" C	82 - 13'2" long	50
Outside conn ⅝" □ 12" C	84 - 9'4" "	
Side Wall pein ½" □ 12" C	42 - 6'2" "	✓
Wing Wall Long ½'	16 8' N	
" " Trans ½" 12" C	12 - 4' "	
	8 - 5' "	
	8 - 6' "	
Conn dia ½" 12" C	84 - 3'-1"	

Material for Spring Cr

Length = 24' - fill = 4' T=10½ H=6' W=12

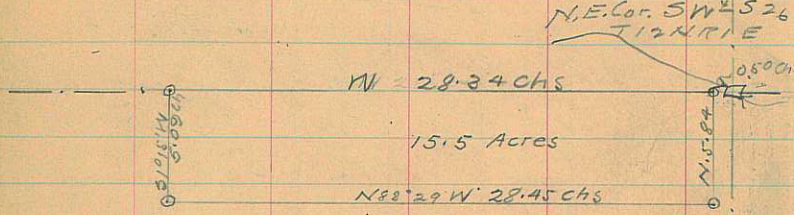
Long rods ½" □ 12" C	36 - 23½' long.	16
Top + bot pein ⅝" □ 5½" C	106 - 13'4" "	90
~~Outside conn ⅝" □ 11" C~~	~~108 - 10' "~~	
Side Wall pein ½" □ 11" C	54 - 7'2" "	✓

Wing Wall and all pein same as in Bear Creek



For estimate see forward pages. 52

Survey made June 7 and 8 on portion of County Poor Farm secured by Cache County from Logan City.



Deed Discription.

Beginning at a point 0.50 chs W of N.E. Cor of S.W. Qr. Sec. 26 T. 12 N. R 1 E. S.L.M. and running thence W on ¼ Sec Line 28.34 chs. to E line Blk 12 College View addln. thence S 0°15' W 5.09 chs along E line of sd Blk. 12; thence S 88°29' E 28.45 chs; thence N. 5.84 chs to place of beg. and cont 15.5 acres.

Discription of Land Deeded by Cache County to Logan City.

Lots 8 and 9 Blk 1.
" 1 to 8 inc. and 13 to 20 inc. Blk 2.
" 1 " 7 " " 11 " 20 " " 3.
" 1 " 17 " " 4.
" 1 " 10 " " 17 " 20 " " 5.
" 1 " 7 " " 15 " 20 " " 9.
" 1 " 6 " " " 10.

All in College View Addition to Logan City, Utah.

Cache County reserves ½ instin. following for Gravel purposes.

Lots 11 to 14 inc Blk. 9. } College View to L. City.
" 7 " 10 inc " 10 }

is about 2.0 Acres.

Acreage from Cache Co to Logan City as follows. 65 full lots each cont ¼ Acre each and 20 fracl lots cont 6/10 of ¼ acre each or 15 Acres.

Each lot contains ¼ acre
∴ ¼ of 65 = 16.25 Acres
.15 × 20 = 3.00 "
19.25 " of which Cache County owns ½ interest.

Inspection made of Sardine Creek near Paradise. June 6-09.

Specifications for Culvert.

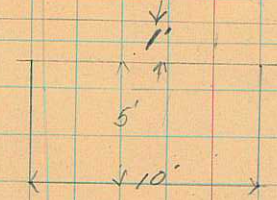
Length = 18.4"
Width = 8.0'
Depth = 5.0'
Fill = 1.0'

Spacing for long = 12", T = 8"

In long reinf in ~~4~~ horiz was same size as side reinforcing bar as follows one in top, (bar) side) one in center and 2 in the base there for vertical bars space them 1' apart and one more same size as side reinf.

Longitudinal rods ⌀ for top + 10 for bottom + 10 for sides

Top + bottom reinf ½" rods 6" apart 8'10" span
Corner reinforcing ½" " 12" " 4'3" "
Side walls " ½" 12" " 5'10" "
Long walls long ½" 74 - 8' long
" " Horz ½" 12" span
Corner long ½" 12" "



Course of channel to be moved about 10' to East.

				#
Wrought Longitudinal = ~~28~~ 30	½"	18' long		459.0
" Top + Bot.	74 ½"	8'10" long		555.0
" Outside	76 ½"	4'3"	"	471.0
" Side walls	38 ½"	5'10	"	188.5
" Long. Horiz	16 ½"	8'	"	108.8
" Horiz "	12 ½"	4'	"	40.8
	8 ½"	5'	"	34.0
	8 ½"	6'	"	40.8
	76 ½"	2'3"	"	145.2
				1010.5
				1043.

Called Cronquist up June 16-09
Said there were two culverts to go in
on Benson N. Cutoff.

Benson Canal W=12' H=3' F=0

" Slough W=8 H=4 F=4

For drawing see in files

Estimate Benson Slough

Footing & body of bridge	3(2×1×20) =	80.0
" Wings	4(2+1/2 × 6.5) =	39.0
Side Walls	2(4×.75×20)	120.0
Top	9.5×20×.75 =	142.5
Side to Wings	4(3+1.3/2 × 6.5)	57.2
Floor	6.75×.25×20	33.8
Parapet walls	2(.75×1×9.5)	14.4
Baffle walls	3(1×.75×6.75)	15.2
Braces	2(1.6×.6/2 × 2.0)	7.2
Floor to Wings	2((13.5+6.75/2) × 6.75×.25)	34.2
	20.1 C.Y. =	543.5 C.F.

Excavation, body culvert 9.5×2.5×20 = 475

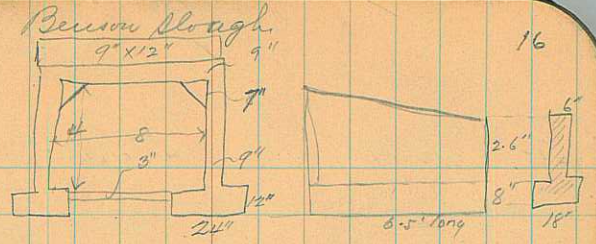
" Wings 2((9.5+16.5/2) × 6 × 2.5) 390

Footings & baffle walls 80+39+15 134

37 C.Y. = 999 C.F.

Estimate

Conc 20.1 C.Y. conc @ $6.63	$132.00
Cutting in steel 1200# @ 3/4¢	8.00
39 C.Y. Excav. @ 35¢	12.95
Amt of Bids contract =	$152.95
1200# steel @ 3¢	36.00
16½ bbls cement @ 2.16	35.10
Cost to Cache Co =	$224.05



Steel cwt 1165#

For drawing see drawings also on file also
place on preceding pages.

Estimate Benson Culvert

Footing body bridge	2(2×1×24) =	96.0
Slop (Short wings	2(2+1/2 × 5.5) =	16.5
" Long "	2(2+1/2 × 8) =	24.0
Main walls	2(.92×4.5×24)	198.7
Walls to wings	2((4.25+1.9/2) × 5.5)	31.9
" long "	2((4.2+2/2) × 8.)	48.0
Parapet walls	2(.75×1×16.9)	25.2
Top	16.92×.92×24	376.8
Baffle wall	3(14.92×.75×1)	33.6
	31.5 C.Y. =	850.7

Estimate

Conc 31.5 C. yds @ 6.63	208.84
Excav 35 C.Y. @ 35¢	12.25
Steel 2000# steel @ 3/4¢	15.00
Bids Contract. =	$234.41
Cement 24 bbls Cem. @ 2.16	52.38
2000# steel @ 3	60.00
Cost to Cache Co =	$346.79

Survey made June 28-09 on Benson N. cutoff Road. T. H.H. Eng.

Sta	Dist	Az	Angle Sup	Total Course	
106+65					
105+74	2214.5	296-09	63°51	359-60	Sine 1987.73 S63°51'E Cos 975.93
99					
97+14					Δ = 25-39 D = 20 E. = 7.2 T. = 65
97+10.8					
93+26					
93+21.5					
88					
77					
66+92.5					
62+57.6	4316.4	270°21	89°39	359°60	Sine 4315.96 S89°39'E Cos 26.33
57+90					
57					
56+76					
53+37					
53+04					
52+87					
52+48					
41+96					
33+54.5					
33+48					
24					
6					
0	6257.6'	309°00'	51°00	Sine 4862.78 S51°E Cos 3937.9	

Wire fence

(Flowing Well 20' L. of Sta 105+6)

Reeces mont Culvert.

(Culvert) drain N and S. 2' wide and 1' deep.

Edge of Slough

Turning PT see. chain

Pt in Culvert.

Clay Slough 4' wide

Foot of Emb

S Bank

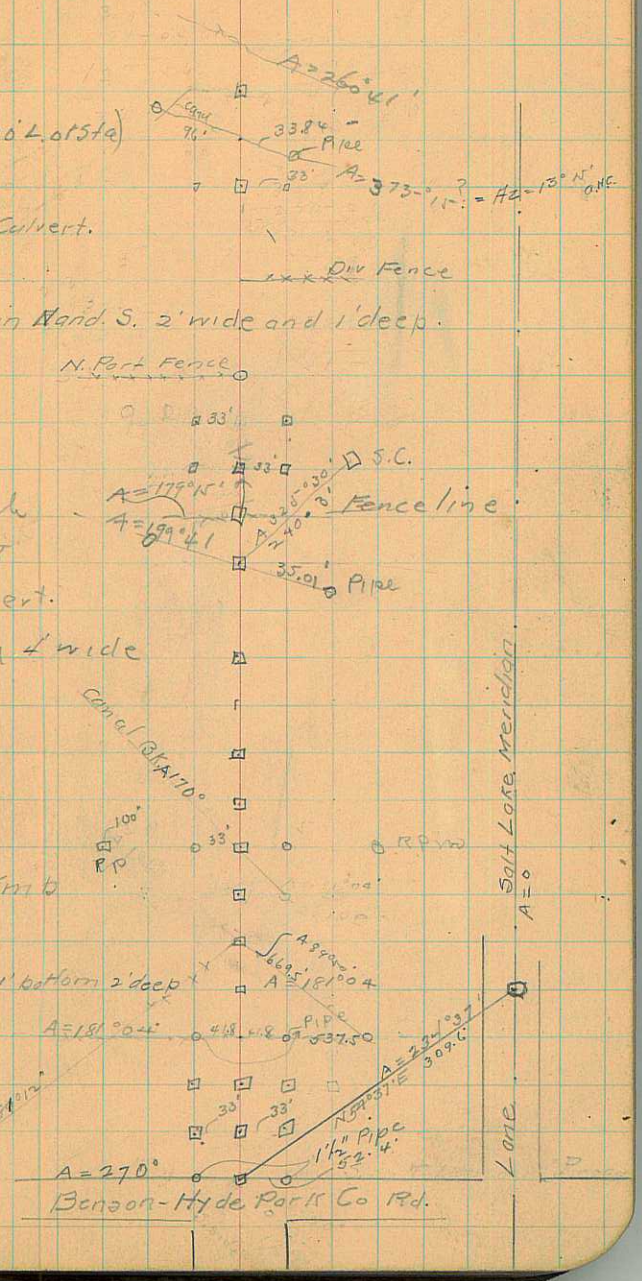
Center of Cv

Canal Bank

Foot of Canal Emb

Small canal 4' bottom 2' deep

Div Fence

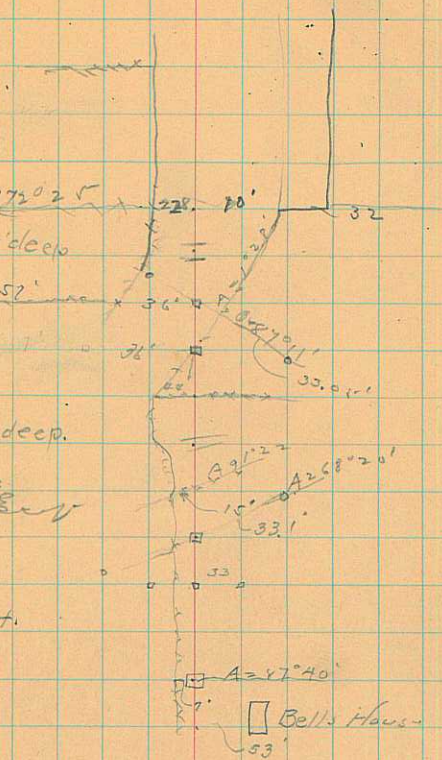


Continued June 29. -08

Sta	Dist	Az.	Angle Comp	Total	Course	Remarks
178+23.2						Fence
178+18						Spring ~~2x2~~ 2x2
177+30						Spring 2x2
174+94.5						Ditch 2x1
168+33						A = 172° 25'
168+28.8	1996.7	00° 45'	359° 15'	sin 25.95	S 0° 45' W	Ditch 3' deep 1.5' deep
168+21		~~00°~~		Cos. 1996.10		A = 270° 52'
165						
161+43						Ditch 3' = 6 2' deep.
161+37				sin 80.36	S 36° 30' E	Fence Line
161+0	728.8	53° 40'	6° 20'	Cos 724.30		canal runs E & W
160						
158+27						
157+44						Ditch - Culvert.
157						
155.						
150						
140						
135+25	525.4.5	3°	357°	sin 134.64	South	
130				Cos 2572.89		
127+88.5	737.	316°	44°	360	sin 502.87 S 44° E	
120.70					Cos 530.15	
118+58						
110						

D = 60°
Δ = 47°
T = 41.5
E = 8.6

Δ = 20°
D = 10°
T = 101.
E = 8.4



190+15

+40 3939.8' 271°46' 88°14' 3-9-60 S88°14'E

188+25

~~188+23.5 3939.8 271°48' 3~~

186+14

181+57

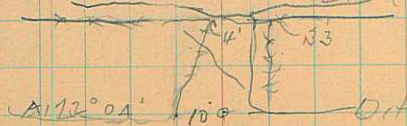
Center of R/W track

Center E and W. Rd.

Ditch 2 x 2

Field Rd

3 x 2 Ditch



July 13-09 Levels taken on Bens. N cutoff road.

Sta	+	HI	−	Elv		
				100.0		
	7.6	107.6				
			6.8	100.8	102.0	
			7.5	100.1	102.8	
0			7.3	100.3	102.5	
1			6.0	101.6	102.9	
2			6.6	101 0	102.0	
3			6.5	101.1	102.2	
4			6.2	101.4	102.4	
5			5.9	101 :7		
5+75			4.9	102.7	102.6	
6			6.6	101.0	102.3	
7			5.5	102.1	102.1	
8			7.0	100.6	101.8	
9			6.8	100.8	101.5	
10			7.2	100 4	101.6	
11			6.5	101.1		
	5.4	106.5				
12			6.1	100.4	102	
13			5.7	100.8	102	
14			4.7	101.8	102	
15			6.6	99.9	102	
16			6.0	100 5	102	
17			5.5	101.0	102	
18			5.0	101.5	102	

On West pipe

Center of road 50' N. of 0		
2.2	12.4	
2.2	12.4	
1.3	10.6	
2.0	12.0	
2.0	12.0	
2.0	12.0	
		Dry Ditch 2' wide
0.9	9.8	
2.2	12.4	
1.0	9.6	
2.1	12.2	
1.7	11.4	
1.7	11.4	
		On Sta 11
1.8	11.6	
1.5	11.0	
0.7	9.4	
2.7	13.4	Swail begins
2.7	12.4	
1.8	11.6	
1.5	11.0	

Sta	+	HI	−	Elv			
		106.5					
19			3.8	102.7	103.5	0.5	9.0
20			5.7	100.8	103.5	2.4	12.8 Swail
21			5.5	101.0	103.5	2.4	13.8
22			6.1	100.4	103.5	3.0	14.0
23			3.2	103.3		0.3	9.
			2.8	103.7			On 23
	✓	4.2		107.9			
24			4.0	103.9		0.5 cut	9.0
25			5.7	102.2		1.6	11.2 Swail
26			6.0	101.9		2.0	12.0
27			6.2	101.7		2.4	12.8
28			6.2	101.7		2.5	13.0
29			6.5	101.4		2.8	13.6
30			5.3	102.6		1.9	11.8
31			4.7	103.2		1.3	10.6 Bot. of Ditch 8' wide 2' deep
	+20		5.2	102.7			
32			4.6	103.3		1.3	10.6
33			4.6	103.3		1.4	10.8
	+48		3.7	104.2			Bank of canal
	+54		5.5	102.4			Bot of ditch
34			4.8	103.1		1.7	11.4
			4.2	103.7			On 34
	✓	4.4		108.1			
35			5.3	102.8	103.5	1.9	11.8

Sta	+	HI	−	Elv				
		108.1						
36			5.0	103.1		1.6	11.2	
37			4.7	103.4		1.2	10.4	
38			5.3	102.8		1.6	11.2	
39			6.0	102.1		2.1	12.2	
40			4.8	103.3		1.0	10.0	Knoll
41			6.5	101.6		2.4	12.8	
42			6.7	101.4		2.5	13.0	Fence corner
43			5.1	103.0		1.0	10.0	Knoll
44			6.5	101.6		1.2	10.4	On 44
			5.9	102.2				
		107.4	5.2					
45			5.6	101.8		2.0	12.0	
46			5.8	101.6		2.0	12.0	
47			6.3	101.1		2.2	11.8	Swale
48			5.2	102.2		1.2	10.4	
49			5.7	101.7		1.5	11.0	
50			4.7	102.7		0.5	9.0	Knoll
51			5.5	101.9		1.3	10.6	
52			6.3	101.1		2.2	12.2	
	+48		6.1	101.3				
	+68		3.6	103.8				Canal Bank
	+87		6.7	100.7				" Bk Hole
	53+04		3.5	103.9				" Bank
			3.5	103.9	105.0	1.1	10.4	On From this point on I move onto 18' on

Sta	+	Sht	−	El				
				103.9				
	1.7	105.6						
53+37			5.6	100.0				
54			5.0	100.6				
55			5.5	100.1	102.9	2.8	15.6	
56			5.5	100.1	103.0	2.9	15.8	
56+66			5.3	100.3				
56+70			7.9	97.7				
57			6.0	99.6	103.1	3.5	16.0	
			5.8	100.1	103.2	3.1	15.2	
58			5.7	99.9	103.8	3.4	15.8	
59			5.3	100.3	103.5	3.2	15.4	
60			5.4	100.2	103.6	3.4	15.8	
61			5.1	100.5	103.7	3.2	15.4	
62			4.7	100.9	103.8	2.9	14.8	
+75			4.4	101.2				
			4.0	101.6				
63			4.0	101.6	104.0	2.4	13.8	
			3.4	102.2				
	4.7	106.9						
64			5.5	101.4	104.1	2.7	14.4	
65			5.0	101.9	104.2	2.3	13.6	
66			4.9	102.0	104.4	2.4	13.8	
66+92			5.4	101.5	104.5	3.0	15.0	
67			6.0	100.9	104.6	3.7	16.4	

6.90 = bolt & B. Sl.
4.42 bucket
4.38 56+66 prism
1.70

56+94 is C of culv
Bank of Big Stough
Bo Horn " " "
On 57
Herr Pipe
On Sta 63
through bogus

100.3 23
4.38
104.68 = HI
1.2
103 48

104.68
4.48
100.43

Sta	+	Ht	−	Elev	Gr.	Fill	Dist out From center.	
		106.9						
67+50			6.6	100.3				Bottom of Slough, flowing S.
68			6.2	100.7	104.8	4.1	17.2	
69			5.2	101.7	104.9	3.2	15.4	
70			5.3	101.6	105.0	3.4	15.8	
71			5.0	101.9	105.1	3.2	15.4	
72			4.6	102.3	105.3	3.0	15.0	Slough ends. {wet / Dry
73			4.3	102.6	105.4	2.8	14.6	
74			3.0	103.9	105.8	1.9	12.8	
75			2.2	104.5	106.2	1.7	12.4	
76			1.9	105.0	106.6	1.6	12.2	
			1.3	105.6				On 76
	✓	6.0	111.6					
77			6.1	105.5	107.0	1.5	12.0	
78			6.0	105.6	107.4	1.8	12.6	
79			5.8	105.8	107.7	1.9	12.8	
80			5.7	105.9	108.0	2.1	13.2	{~~Slough~~ ~~Dry~~ / ~~wet~~
81			5.5	106.1	108.3	2.2	13.4	
82			5.0	106.6	108.6	2.0	13.0	Slough begins {~~Dry~~ / ~~wet~~ / wet
83			5.8	105.8	108.9	3.1	13.2	
84			4.7	106.9	109.2	2.3	13.6	
84+30			5.0	106.6				Small Slough ends and
85			6.4	105.4	109.5	4.1	17.2	Riffone begin
85+80			4.7	106.9				Slough ends
86			4.1	107.5	109.8	2.3	13.6	

Sta	+	HI	—	El	Grade	Fill	Dist from Center	
		111.6						
87			4.1	107.5	110.1	2.6	14.2	
88			3.7	107.9	110.4	2.5	14.0	Slough Begin
+4			3.9	107.9				Middle of Slough } way N
89			3.6	108.2	110.7	2.5	14.2	End of Slough }
90			3.1	108.5	111.0	2.5	14.2	
			2.4	109.2				On 90
	✓	5.8	115.0					
91			6.4	108.6	111.3	2.7	14.4	
92			5.8	109.2	111.6	2.4	13.8	
93			5.7	109.3	111.9	2.6	14.2	
+22			5.3	109.7				Base of ditch, way S
+26			6.1	108.9				
94			6.3	108.7	112.2	3.5	16.0	
95			5.8	109.2	112.5	3.3	15.6	
96			5.5	109.5	112.8	3.3	15.6	{ Wet Sept 15-09 - Wet Bog
97			5.2	109.8	113.1	3.3	15.6	~~Dry~~ Dry
97+11			5.2	109.8				Access Div. Point
98			3.8	111.2	113.4	2.2	13.4	
99			3.4	111.6	113.7	2.1	13.2	
100			3.2	111.8	114.0	2.2	13.4	
+85			3.8	111.2				Slough Begins
101			4.3	110.7	114.3	3.6	16.2	Middle of Slough
+10			3.6	101.4				Slough ends
102			2.9	112.3	114.6	2.3	13.6	

Sta	+	HI	−	Elev	Grade	Fill	Dist from center.	
				112.3				
	7.3	119.6						
103			7.0	112.6	114.9	2.3	13.6	
104			6.7	112.9	115.2	2.3	13.6	
105			6.5	113.1	115.5	2.4	13.8	
+14			6.0	113.6				
			5.7	113.9				West Pipe at or near
106			5.8	113.8	115.8	2.0	13.0	Stack Y0.0
W.S			6.3	113.3				W.S in Cana
107			5.7	113.9	116.1	2.2	13.4	
108			5.4	114.2	116.4	2.2	13.4	
109			4.7	114.9	116.7	1.8	12.6	
110			4.6	115.0	117.0	2.0	13.0	
111			3.9	115.7	117.3	1.6	12.2	
112			3.7	115.9	117.6	1.7	12.4	
113			3.6	116.0	117.9	1.9	12.8	
			3.0	116.6				On 113
	5.2	121.8						
114			5.5	116.3	117.9	1.6	12.2	
114+50			5.1	116.7				Knoll
115			6.2	115.6	117.9	2.3	13.6	
116			6.0	115.8	117.9	2.1	13.2	
117			5.8	116.0	117.9	1.9	12.8	
118			5.2	116.6	118.2	1.6	12.2	
119			5.3	116.5	118.6	2.1	13.2	

Sta	+	HI	—	Elev	Grade	Fill	Dist. out from Center.	
		121.8						
120			4.9	116.9	119.01	2.1	13.2	
121			4.1	117.7	119.4	1.7	12.4	
122			4.0	117.8	119.7	1.9	12.8	
123			3.5	118.3	120.1	1.8	12.6	
124			3.1	118.7	120.5	1.8	12.6	On 124
			2.5	119.3				
	7.4	126.7						
125			8.1	118.6	120.9	2.3	13.6	
126			7.5	119.2	121.2	2.0	13.0	
127			7.8	118.9	121.6	2.7	14.4	
127+88.5			6.9	119.8				
			6.8	119.9				West Pipe
128			6.9	119.8	122.6.5	2.2	13.4	
129			7.0	119.7	122.4	2.7	14.4	
130			6.3	120.4	122.7	2.3	13.6	
131			6.0	120.7	123.1	2.4	13.8	
132			5.4	121.3	123.5	2.2	13.4	
133			5.1	121.6	123.9	2.3	13.6	
134			3.6	123.1	124.2	1.1	11.2	
135			3.5	123.2	124.6	1.4	11.8	
	+25.5		3.3	123.4				
			3.4	123.3				Shear Pipe
136			4.0	122.7	124.6	1.9	12.8	
			3.4	123.3				On 136

Sta	+	HI	−	Elev	Gr.	Fill	Dist out from Center.	
				123.3				
	5.9	129.2						
137			6.3	122.9	124.6	1.7	12.4	
138			6.2	123.0	124.6	1.6	12.2	
			9.7	119.5				W.S Benson Canal
139			6.5	122.7	124.6	1.9	12.8	
140			5.6	123.6	124.9	1.3	11.6	Known
141			6.0	123.2	125.1	1.9	12.8	
142			5.8	123.4	125.3	1.9	12.8	
143			5.6	123.8	125.6	1.8	12.6	
144			5.3	123.9	125.8	1.9	12.8	
145			5.3	123.9	126.0	2.1	13.2	
146			4.8	124.4	126.2	1.8	12.6	
147			4.7	124.5	126.5	2.0	13.0	
148			4.4	124.8	126.7	1.9	12.8	
149			4.4	124.8	126.9	2.1	13.2	
150			3.8	125.4	127.2	1.8	12.6	
			3.1	126.1				0.150
	✓ 7.0	133.1						
			8.8	124.3				W.S. Benson Canal
151			7.8	125.3	127.4	2.1	13.2	
152			7.7	125.4	127.6	2.2	13.4	
153			7.4	125.7	127.9	2.2	13.4	
154			7.1	126.0	128.1	2.1	13.2	
155			6.2	126.5	128.3	1.4	11.8	

Sta	+	HI	−	Elev	Gr.	Fill	Dist from C.	
		133.1						
156			6.6	126.5	128.6	2.1	13.2	
157			5.6	127.5	128.9	1.4	11.8	
158			5.1	128 0	129.1	1.0	11.0	
+29			5.9	127.2				14" Culv. Bottom of Ditch
			4.6	128.5				Bank
159			5.0	128.1	129.1	1.0	11.0	
160			5.6	127.5	129.1	1.6	12.2	
161			5.6	127.5	129.1	1.6	12.2	
+43			7.5	125.6				15" culvert Bottom of ditch
+47			5.2	127.9				Bank of canal
			5.3	127.8				Iron Pipe in Bank
	✓ 6.36	134.1						S.E. corner of fence
24.5			7.5	126.6				N.S. Benson Cons
162			6.5	127.6	129.1	2.5	14.0	
163			8.3	125 8	129.1	3.3	15.6	
164			8.8	125 3	129.6	4.3	17.6	14" Culv. Slough - Bottom
165			6.3	129.8	130,1	2.3	13.6	
166			5.6	128.5	130.6	2.1	13.2	
167			4.6	129.5	131.1	1.6	12.2	
168			4.0	130.1	131.6	1.5	12.0	
+33			4.7	129.4				14" Culv. Bottom of Ditch
+18			3.7	130.4				Bank
169			4.3	129.8	131.6	1.8	12.6	
170			4.5	129.6	131.6	2.0	13.0	

Sta	+	H.I.	—	Elev	Or.	Fill	Dist out from center	
		134.1						
171			4.5	129.6	131.6	2.0	13.0	
172			4.5	129.6	131.6	2.0	13.0	
			4.6	129.5				On 172
	✓ 5.9	135.4						
			6.2	129.2				Pipe West one at Sta 168
173			5.5	129.9	131.6	1.7	13.4	
174			5.6	129.8	131.6	1.8	12.6	
+98			5.9	129.5	~~131.6~~	~~2.1~~	~~13.2~~	12" Culv { Bottom of ditch
175			5.2	130.2	131.8	1.6	12.2	Bank " "
176			4.7	130.7	132.0	1.3	11.6	
177			5.1	130 3	132.2	1.9	12.8	
+			6.8	128.6				18" Culv { Bottom of Ditch
			5.7	129.7				Bank of "
178			4.8	130.6	132.4	1.8	12.6	
+18			5.5	129.9				} 14" Culv { Bottom of Ditch
+23			4.5	130.9				Bank "
179			4.6	130.8	132.6	1.8	12.6	
180			4.4	131.0	132.8	1.8	12.6	
181			3.6	131.8	133.0	1.2	11.4	
			3.2	132.2				On 181
	5.7	137.9						
182			6.7	131.2	133.2	2.0	13.0	
183			6.4	131.5	133.4	1.9	10 8	
184			6.0	131.9	133.6	1.7	12.4	

Sta	+	H.I.	−	Elev	Grade	Fill.	Distance out From cent.
		137.9					
185			5.2	132.7	133.8	1.1	11
186			4.9	133.0	134.0	1.0	11
			6.0	131.9			
			4.0	133.9			
187			5.7	132.2	134.2	2.0'	13
188			6.5	131.4	134.4	3.0'	15'
188+23.5			6.0	131.9			
			6.8	131.1			
~~188~~			~~6.1~~				
			5.0	132.9			
188+75			2.7	135.2			
			5.9	132.0			
189+65			0				
				132.9			
188+39	7.9	140.8	8.9	131.9	135.0	3.1	1
189+63			8.6	132.2	135.4	3.2	17.4
189+8			8.1	132.7	136.0	3.3	
190			3.4	137.4	137.6	0.2	
+15			3.2	137.6		0.0	
188+15			8.8			3.1	
189+00					136.8		

Bottom of Culv. } F 0.7'
Bank " " } 15"

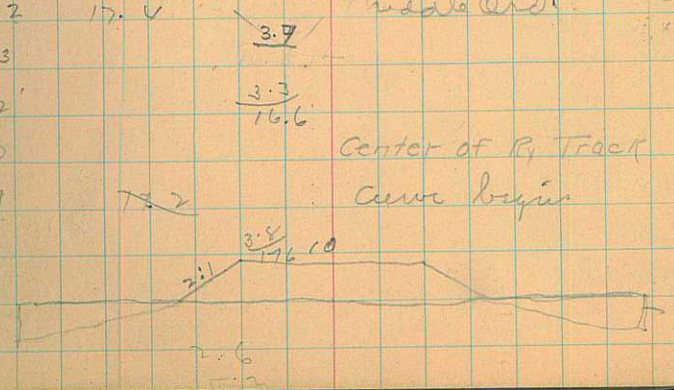
Bank of Culv.
Bottom " "

West Tube at Greenville
Obsv.
(14" culvert)

Culvert.
Bottom of Culvert
West rail.
West tube

Culvert ends
Middle Road

Center of Ry Track
Curve begins



Inspection made July 31 on N Twin Bridge on Grenville for data relating to new bridge.

Conc. Estimate

Bopple walls.	3(1×1×7) =	21.0
Footings	2(28×1.×1.5) =	84.0
Walls	2(28×3.5×.58) =	113.7
Haunches	22×.5×.5 =	5.5
Top	(22×.58×8.16)	104.1
Corner Walls.	2(8.5×.91×.66)	10.2
		338.5

12.5 yds.

allow as extra 5

13. Cy.

Steel

Footings, same as E. bridge 112'

Bopple Walls 6 pcs 8' lng 48

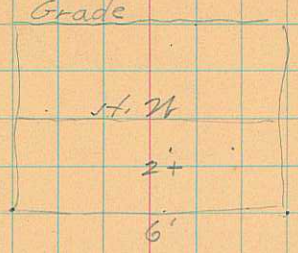
Side walls. same as Exc Br 247

Top { 45 pcs 8' lng / 3 " 28 } 444

851 1½" sq 723#

Estimate.

13 C.Y Conc	@ 4.22	54.86
723# steel	@ 1¼¢	9.04
Excav 50 Cy	@ .50	10.00
		73.90



Bridge to be new type. No bottom necessary

Bridge in fair condition.

Parapet walls 8" deep 8.5' long 11" wide 22' long 7' wide 3'6" high 18"

Footings 3 brgs 4 nec.

3 wings 6" offset

Inspection made July 31-09. on East Town bridge over N.H. Branch.

Estimate.

Concrete

Bafflewalls	3 (1 × 1 × 9) =	27.0 C.Y.
Footings	2 (28 × 1 × 2) =	116.0 C.Y.
Walls	2 {(2+6) × 3.5 × .66) =	179.4 C.Y.
Haunches	2 × .58 × .58 =	7.3 C.Y.
Top	22 × 10.32 × .66 =	149.8 C.Y.
Cooper Walls	2 (10.5 × 1 × .75)	15.7
		445.7

445. 16.4 C.Y.

Steel

Footings 4 pieces 28' long = 112'

Bafflewalls 6 " 10 " = 60

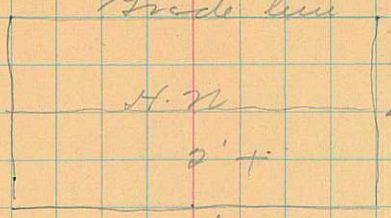
Side Walls { per 30 pcs 4.5' " } = 247
{ long 4 " 28. " }

Top { acp 45 pcs 10' long } 534
{ long 3 " 28 " }

534 / 9 53 1/3 = 810 #

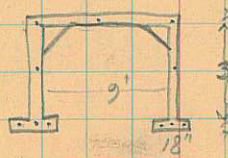
Estimate.

16.4 C.Y. Conc @ $4.20	68.88
810 # steel @ .0125	10.13
20 C.Y. Earth @ 50¢	10 00
	$ 89.01



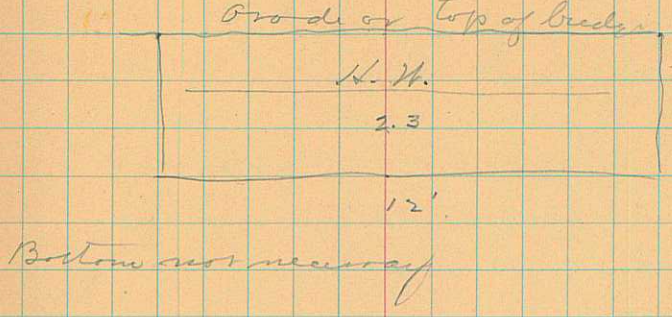
Bottom good no scouring. Breast on south side in bad condition.

Went over April 25-10 and found our bridge seems to be 20' long over all and 9' wide south end 3' high and 12" of Earth Covering. As per drawing.



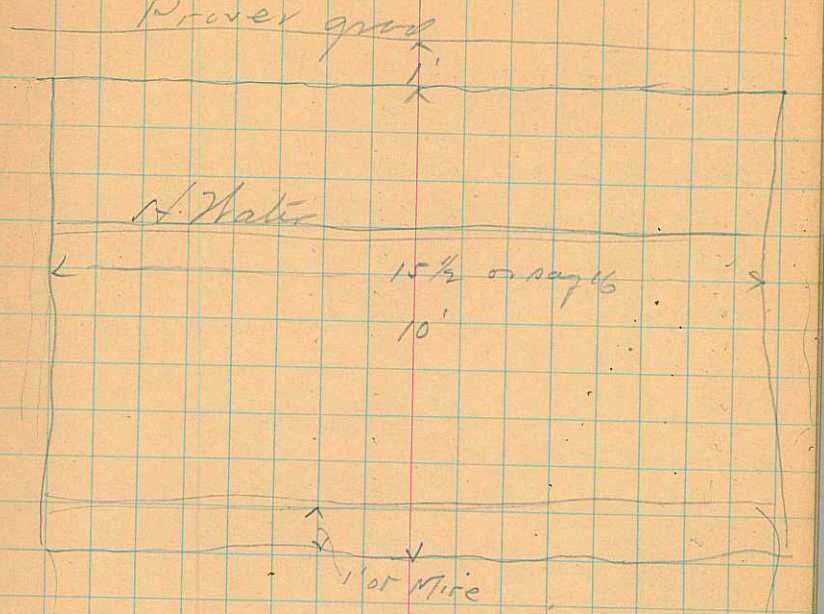
Parapet walls 12" wide 9' clear + 10' C to C long 9' span 7" high

Inspection made July 31-09 on Bridge at Burnside over Benson Creek, just S.E. of the Hobbs place. Bridge in good condition

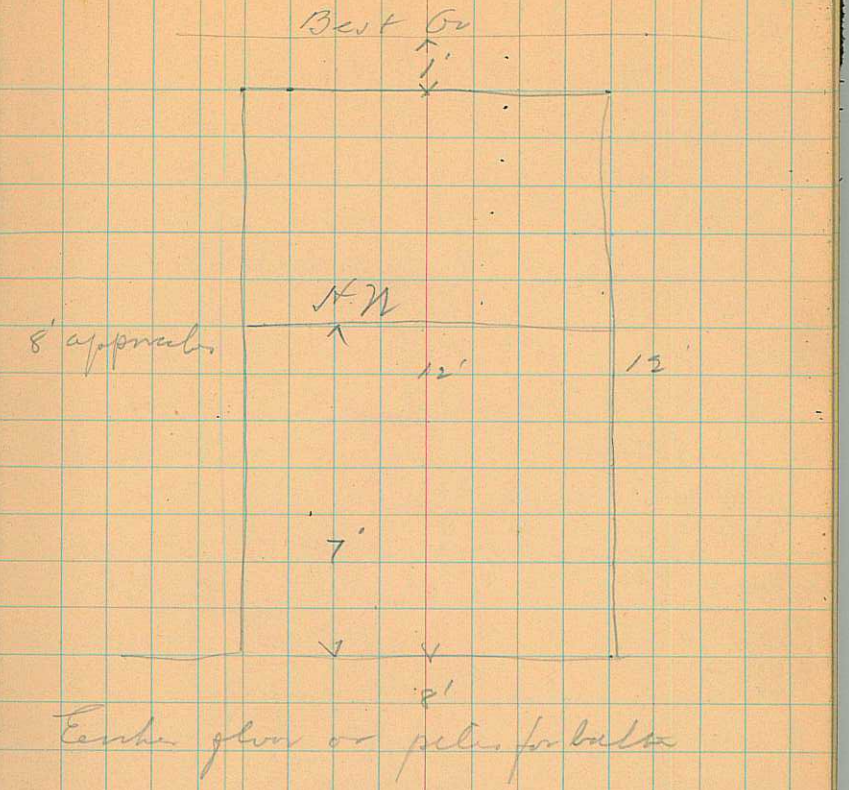


Bottom not necessary

Inspection of Clay-Slough Bridge
July 31-09. So far as holding up
floor & strings in good shape
bus wings and bridge
abutments are in bad
shape



Inspection made July 31 of Toombs slough bridge near Smithfield bridge. Bridge in bad shape should be rebuilt



Timber piles or piles for bents

List of bridges to be constructed in Ashe County under advertisement & bonds Aug 18-09 & terminating Sept 4th and bids to be opened Sept 7-09.

Central District.

2 Twin Bridges Grassville - F. T. Hpw.
2 Benson Canal & Sprucepen Logan Bruce
1 Newton Slough Dewton Logan
1 Toonich Slough Smithfield - Benson
Repairing 2 Bridges bridges
1 Brooks bridge.

South District.

2 Bridges Agnew-College Conn.

N. District

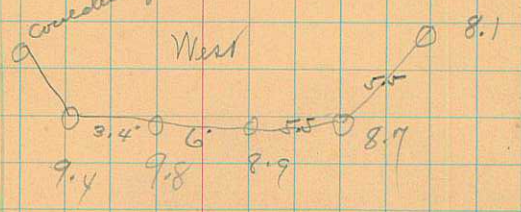
2 Bridges on Hugh Cr.

Measurements taken Aug 26 2 og on Cub River bridge Wg Richm

Sta	+	H I	−	E l v 100.00	
	1.45	101.45			
0 = 15			0.20	101.25	
10.=25			2.60	98.85	
21=36			9.10	92.35	
23=38			10.10	91.35	
26=41			11.70	89.75	
31 46			12.30	89.15	
41 56			11.70	89.75	
51 66			10.10	91.35	
61 76			10.20	91.25	
71 86			1.70	99.75	
				90.55	
	9.02	99.57			
			1.42	98.15	BM
			11.3	88.3	Trunk E end
			11.0	88.6	" W "
			11.6	88.0	Bottom Riv
				98.15	BM
	1.913	100.06			
			13.06	87.00	Bottom of Ford
			7.56	92.50	Morning Sun
JB.			1.91	98.15	
	7.20	10 5.35			
			3.94	101.41	N. Water
			1.85	103.50	

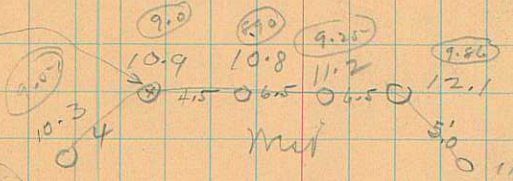
B.M. on Willow slump at NE. Cor of Bridge.

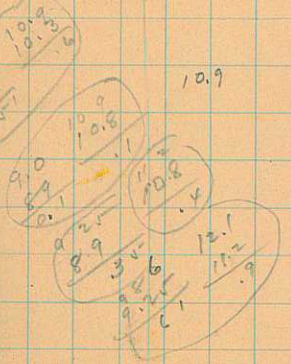
West Edge R. or Bank H.W.



N. Edge Bank E. 37 46'

Top of Bank 34 36 38'





101.25
10.90
90.55

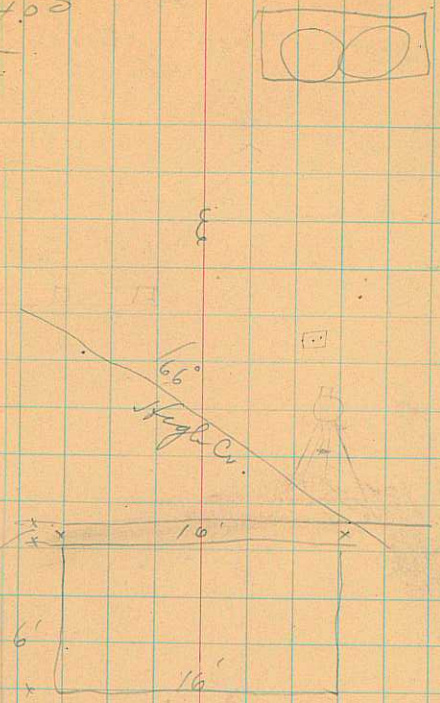
9.82
9.26
.61

11.2
.9

Survey made Sept 2 09. on High Creek Bridge 2 miles from Mill.

Steel 16 pieces ½" □ 4½' long 72'

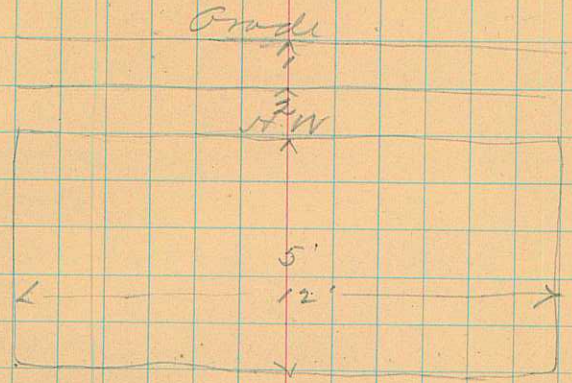
2.00
4.00
16
64



Span 12' high 5.5' between walls 10" floor 12"
2 ramps 6'-10"-17' long
4' high and rail 6"
length 20' 30.7 yds or 31 yds

Floor 20 × 13.7 × 1 =		274
Footing 2(34 × 2 × 1)	✓	136
Bottom 2(1 × 1 × 12)	✓	24
Sides 2(.833 × 5.5 × 20)	✓	184
Ends 4(7 × 5.3 × .7)	✓	114
Shorter 2(1 × 1 × 20)	✓	40
Spandrels 2(1 × 1 × 13.7)		28
Rails 2(13.7 × 2.5 × .5)		17

Survey made Sept 2-4. on
High Creek at Trenches Apex



Inspection made Sept 15 – 16 on North Burro Canyon

Sta	+	HS	–	Elev.	
				100.00	
	6.9	106.9			
15			5.7	101.2	
16			6.1	100.8	
17			5.1	101.8	
18			4.7	102.2	
19			4.5	102.4	
20			4.8	102.1	
			5.1	101.8	
	6.9	108.7			
21			6.5	102.2	
22			5.9	102.8	
23			5.7	103.0	
24			5.3	103.4	
25			5.2	103.5	
26			4.7	104.0	
27			5.0	103.7	
28			5.2	103.5	
29			5.0	103.7	
30			4.1	104.6	
			4.2	104.5	
				119.9	B.M
	6.0	125.9			
125			6.7	119.2	
126			6.0	119.9	

B.M. on W pipe Sta 0

Road ~~Canal~~ construction began at Sta 15

Road partially completed from Sta 15 to Sta 30. Road completed from Sta 30 to ~~Sta~~ 56 +50, ~~A~~

~~Red~~

On West Pipe New Sta 28

Wet ground from Sta 56+50 to Sta 72
Dry from Sta 72 to Sta 82. Wet from Sta 82 to Sta 96. Construction began at Sta 125 & continues parallel to Sta 155

Continued

Sta	+	HI	−	Elev
		125.9		~~119.9~~
127			6.0	119.9
128			5.5	120.4
129			5.0	120.9
130			4.3	121.6
131			3.6	122.3
132			3.6	122.3
133			2.6	123.3
134			1.5	124.4
135			1.7	124.2
			2.7	123.2
	6.2	129.4		
136			5.4	124.0
137			5.6	123.8
138			5.7	123.7
139			5.6	123.8
140			4.9	124.5
141			4.8	124.6
142			4.8	124.6
143			4.4	125.0
144			4.3	125.1
145			4.1	125.3
146			3.7	125.7
147			3.4	126.0
			4.0	125.4
	6.4	131.8		

Continued

Sta	+	NS	−	EW
		131.8		
148			5.7	126.1
149			5.7	126.1
150			5.0	126.8
151			4.9	126.9
152			4.9	126.9
153			4.6	127.2
154			4.6	127.2
155			3.6	128.2

Carol completed from here on

Calculating yardage on Hek. Burns Cutoff road

Sta	Cut	E.A.	C.Ft.	M.E.	Dist	C.Ft
-1	1.2	23.0		33	100	3300
0	2.2	44.0			100	4400
1	2.2	44.0		34	100	3400
2	1.3	25.0		33	100	3300
3	2.0	40.0		42	200	4800
5	2.2	44.0		32	100	3200
6	1.0	19.0		33	100	3300
7	2.3	47.0		33	100	3300
8	1.0	19.0		32	100	3200
9	2.2	44.0		41	300	12300
12	1.9	38.0		26	200	5200
14	0.8	15.0		35	100	3500
15	2.7	56.0		33	① 1970	13200
19	0.5	9.0		29	100	2900
20	2.4	49.0		56	200	11200
22	3.0	63.0		32	200	6400
24	0.0	0.0		15	100	1500
25	1.5	29.0		35	100	3500
26	2.0	40.0		49	300	14700
29	2.8	58.0		42	200	8400
31	1.4	27.0		27	② 2488	5400
33	1.4	27.0		30	100	3000
34	1.7	34.0		30	300	9000
37	1.3	25.0		34	200	6800
39	2.2	44.0		37	100	3700

Continued Rep No 29, 1.C.H.

St	Cut	E. Ar.	M E	Dist	Area
40	1.0	19.0	35	200	7000
42	2.5	51.0	34	100	3400
43	0.9	17.0	30	100	3000
44	2.2	44.0	45	300	13500
47	2.3	47.0	35	100	3500
48	1.2	23.0	27	100	2700
49	1.6	32.0	22	100	2200
50	0.6	11.0	30	200	6000
52	2.4	49.0	35	100	3500
53	1.1	21.0	33	100	3300
54	2.2	44.0	55	200	11000
56	3.1	66.0	70	③ 3003	28000
60	3.5	75.0	63	300	18900
63	2.5	51.0	52	400	20800
67	2.6	53.0	76	50	3800
67+50	4.4	99.0	85	150	12750
69	3.3	71.0	69	200	13800
71	3.2	68.0	70	200	14000
73	3.4	73.0	55	④ 4150	16500
76	1.9	38.0	40	400	16000
80	2.1	42.0	41	200	8200
82	2.0	40.0	52	⑤ 1507	5200
83	3.0	63.0	56	100	5600
84	2.4	49.0	70	100	7000
85	4.1	91.0	62	100	6200

Continued

Sta	Cut	E.A	M.E.A	Dist	Area
86	2.2	44.0	47	400	18800
90	2.5	51.0	51	300	15300
93	2.5	51.0	63	100	6300
94	3.5	75.0	73	300	21900
97	3.3	71.0		(6) 3196	5700
98	2.2	44.0	57		
100	2.2	44.0	44	200	8800
101	3.5	51.0	47	100	4700
102	2.3	47.0	49	200	9800
105	2.4	49.0	48	300	14400
106	2.0	40.0	45	100	4500
111	1.6	32.0	36	500	18000
114-0	1.2	23.0	27	350	9450
115	2.1	42.0	32	50	1600
118	1.7	34.0	38	300	11400
121	2.5	51.0	42	300	12600
122	1.9	38.0	44	100	4400
124	1.8	36.0	37	200	7400
125	2.3	47.0	42	100	4200
126	2.1	42.0	44	(7) 4323	4400
127	2.7	56.0	48	100	4800
128	2.1	42.0	49	100	4900
130	2.4	49.0	46	200	9200
133	2.2	44.0	46	300	13800
134	1.0	19.0	32	100	3200
			21	100	2100

Concluded

Sta	Cut	E.A.	M.E.A.	Dist.	Area
135-	1.2	23.0	30	100	3000
136	1.9	38.0	37	300	11100
139	1.8	36.0	30	100	3000
140	1.2	23.0	30	100	3000
141	1.9	38.0	38	300	11400
144	1.9	38.0	40	100	4000
145	2.1	42.0	43	400	17200
149	2.2	44.0	40	100	4000
150	1.8	36.0	42	300	12600
153	2.3	47.0	40	200	8000
155	1.6	32.0	37	100	3700
156	2.1	42.0		(8) 4285	
158	1.0	19.0	30	200	6000
160	1.6	32.0	25	200	5000
162	1.5-	29.0	30	200	6000
164	4.3	96.0	67	200	13400
168	1.5-	29.0	62	400	24800
174	1.8	36.0	37	600	22200
176	1.4	27.0	32	200	6400
177	1.9	38.0	33	100	3300
180	1.8	36.0	37	300	11100
181	1.2	23.0	60	100	6000
182	2.0	40.0	32	100	3200
186	1.0	19.0	29	400	11600
188	3.0	63.0	41	(9) 5004	8200
190	0.0	0.	32	(10) 24934	4200

Calculation of measures
on Lot N Beaucedezna
Sept 11-07 - T.o.t.c.

Sta	Cut	E.A.	M.E.A	Dist	C.F.
14	0.8	15			2100
15	1.4	27	21		3250
16	1.9	38	32.5		
17	1.3	25	31.5		3150
18	0.8	15	20		2000
19	0.5	09	12		1200
20	1.1	21	15		1500
21	1.2	23	22		2200
22	0.7	13	18		1800
23	0.3	6	9.5		950
24	0.0	0	3		300
25	0.3	6	3		300
26	0.0	00	3		300
27	0.4	8	4		400
28	0.6	11	9.5		950
29	0.6	11	11		1100
30	0.0	00	5.5		550
					3 | 22050
					3 | 7350
					3 | 2450
					817

(11)

Continued

46

Sta,	Cut	E.A.	M.E.A	Dist	Cut
124	1.9	38			
125	1.7	34	36		3600
126	1.3	25	29.5		2950
127	1.7	34	29.5		2950
128	1.5	29	31.5		3150
129	1.4	27	28		2800
130	1.0	19	23		2300
131	1.6	32	25.5		2550
132	1.0	19	25.5		2550
133	0.4	8	13.5		1350
134	0.0	0	4		400
135	0.4	8	4		400
136	0.5	9	8.5		850
137	0.7	13	11		1100
138	0.9	17	15		1500
139	0.8	15	16		1600
140	0.4	8	11.5		1150
141	0.5	9	8.5		850
142	0.8	15	12		1200
143	0.5	9	12		1200
144	0.7	13	11		1100
145	0.7	13	13		1300
146	0.6	11	12		1200
					38050

Concluded

147	0.5	9	10	1000
148	0.6	11	10	1000
149	0.9	17	14	1400
150	0.4	8	12.5	1250
151	0.6	11	9.5	950
152	0.7	13	12	1200
153	0.7	13	13	1300
154	1.0	19	16	1600
155	0.0	0	9.5	950

10650
3800
3)48700
3)16233
5411
1803

(12)

Conclusion Sep. 15-09 T.HH.

Total Length N. Benson Cutoff Road 3.6 mi.
Cubic yds of excav = dry 22588 C.y.
" " " " = Wet 7346 " "
Total No. of Yds. to excav = 29934
Cons begun on N. end exv = 4674 C.Y.
Cons. to complete that now st = 817 " "
Expendit to date = $665.00
Cost per Cubic Yard = 14¼¢ –
Cons begun on S. end exv = 7486 C. Yds.
Cons To complete that now st = 1803 " "
Expenditure to date = $1100
Cost per Cubic Yard. = 14¾ per C.y.
Excav to complete job = dry 10428 C.y
" " " " = Wt. 7346 " "
Total " to complete job = 17,774

(4)

Sept 29-09

Elevation taken on Benson & Clay slough bridges

Sta	+	HI	−	Elev
53+60				101.60
	3.09	104.69		
			6.90	97.79
			4.42	100.27
			6.50	98.19
			7.00	97.69
			1.20	103.49
			Benson cancel	
53+04				103.90
	4.52	108.42		
			7.42	99.00
			4.80	103.62
			5.80	102.62
			5.15	103.27

For

West of Pipe

8.21
6.90
1.31

Bottom slough

100.27
97.79
2.48

Hub

Bottom slough 100 ups stream
" " 100 down "

Grade at Sta 56+40

S Bank

103.60
99.00
3.60

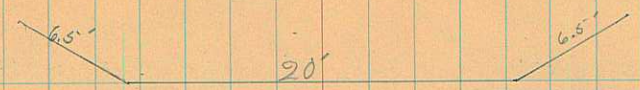
Bottom of B. Board

N Bank

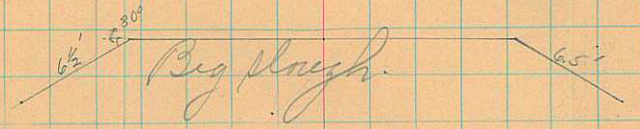
103.27
99.
4.27

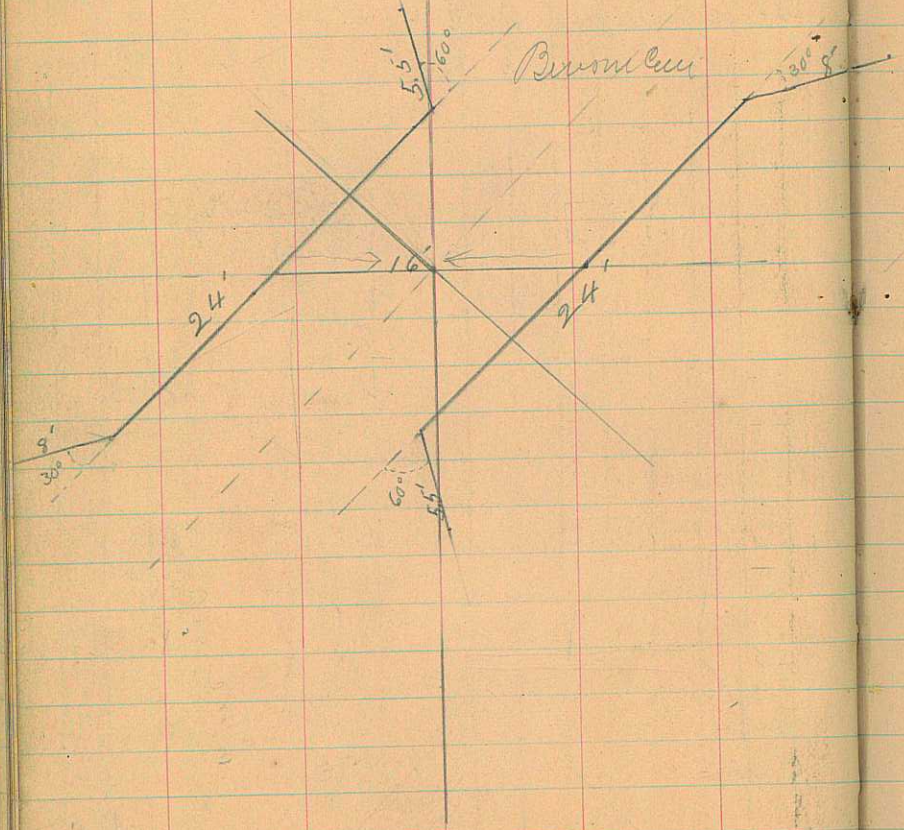
H Water

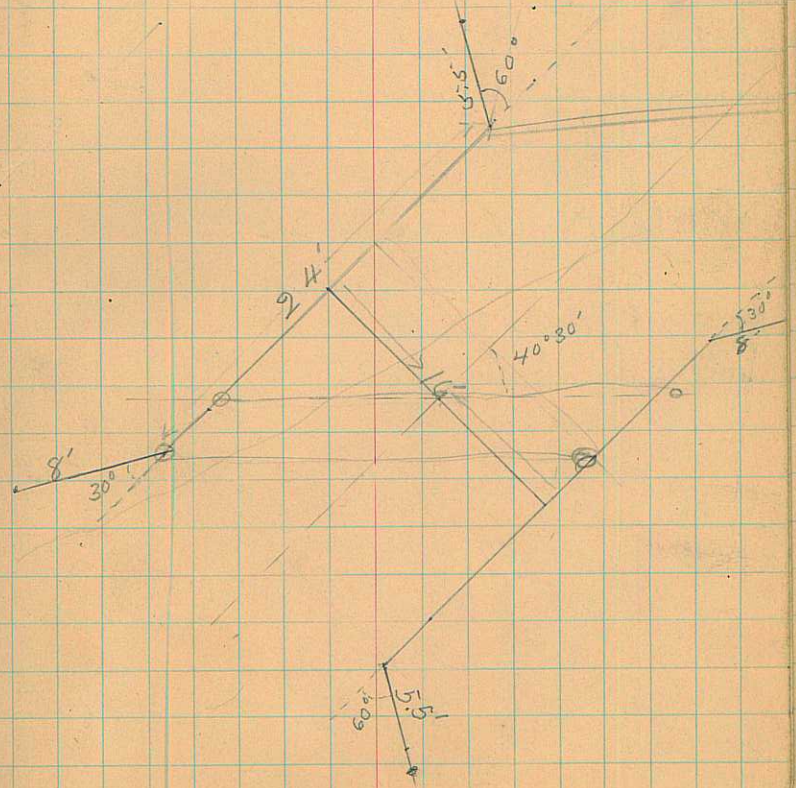
Hub


6.5'
20'
6.5'

@ 1165# steel.


6½'
30°
Big plough.
6.5'


Burrow
5.5'
60°
30°
8'
24'
16'
24'
8'
30°
60°
5.5'


5.5'
60°
24'
40°30'
30°
8'
8'
30°
60°
5.5'

Steel for Logan Providence Bridge. 1585#

Calculation for Concrete Providence bridge

Foundation Main part $23.3 \times 5 \times 1 =$ 116.5 C.Ft

" Wings $2\left(\frac{2.5+5}{2} \times 10.5 \times 1\right) =$ 80.0 "

Upper base M. part $23.3 \times \frac{3.5+1}{2} \times 1.5 =$ 80.4

" " Wings $2\left(10.5 \times \frac{2+.6}{2} \times 1\right) =$ 48.0

Main wall $23.3 \times 7.5 \times \frac{.66+1}{2}$ 145.0

Wings $2\left(10.5 \times \frac{2+7.5}{2} \times \frac{.83+.6}{2}\right)$ 71.6

3 | 541.5

3 | 180.5

3 | 60.2

Concrete in abutment. = 20.1 C.yds

Concrete in Piers $2(12.6 \times 3) + 2(23.3 \times 5) =$ 358.6 "

= 13.3 C.yds

Earth

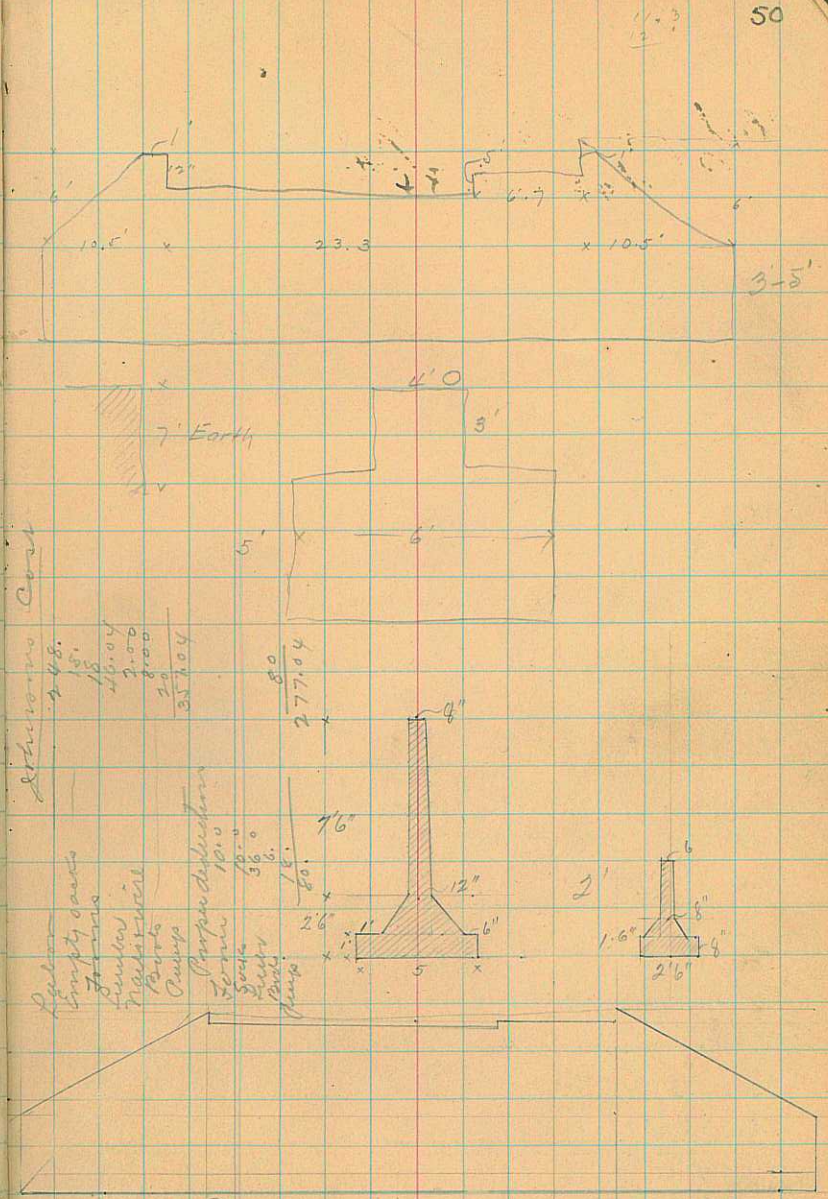
Abutment. $23.3 \times 11 \times 6 + 2\left(10.5 \times \frac{3.5+11}{2} \times 6\right)$ 74 C.yds

Piers same as concrete 13

Total amount of Earth. 87.

Estimate

33.3 c.y concrete @ 4.22	140.53
Placing 1585# steel @ 1½¢	19.81
Excav. 87 cu. yds Earth @ 50	43.50
	$203.84
Arches contract price 21.16 per extra	21.16
Point for abut. 225.00	51.96
1585 steel @ 3-28	64.80
30 bbl cement	$341.76



Comparison with solid wall

Solid wall top width 1' bottom 4' 32.5 C.y

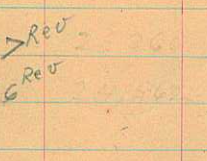
or 12.4 C.y more @ 6.38 = 79.75

Steel + putting in same 70.77

$9.00 or 8%

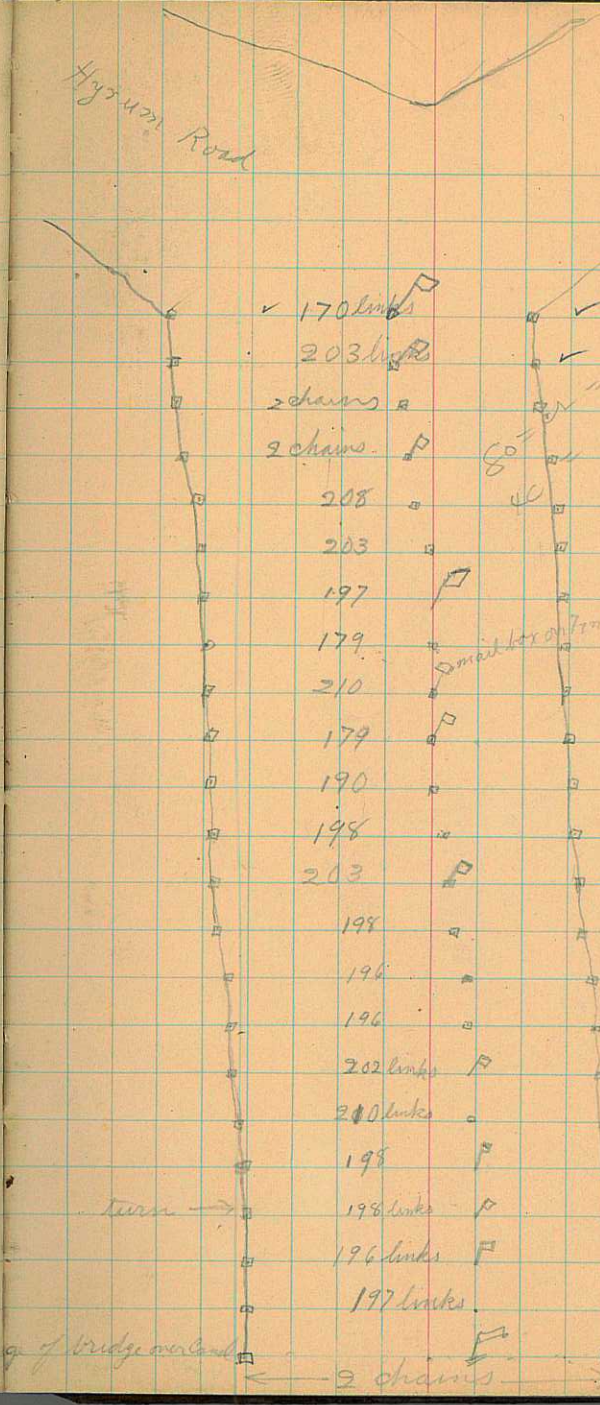
Survey made Dec 14-09 by J. Nelson on Logan-Valentine Co. ms

Sta	Dist	Angle
19+17	Rec	
18+66	Rec	
18		
17		
16		
15		
14		
13		
12		
11		
10		
9		
8		
7		
6		
5		
4+8.5		
4		
3		
2+5ch		
2		
Sta 1		
0		





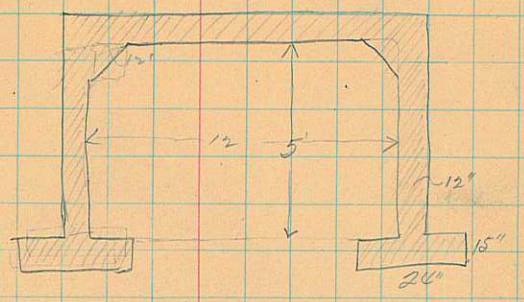
27 links west of center of W end of bridge over Canal on Logan Tuscan Farm.



Kilch Spring Cr. Culvert.

2140#

147 sacks



Length = 20'

Wing 8'

Estimate

Footings	2(1.25'×2'×20)	100.0 c.ft.
" Wings	4(2.5+1.5/2 ×8)	64.0 "
Sides	2(5×1×20)	200.0
Wing sides	4(5+2/2 ×8)	112.0
Top	14×20×1'	280.
Piers	1×1×20	20.
		776.0

28.8 Cu yds of 20' long and add 4.3 for 24'

34.0 (Hills Est)

23 bbl cement @ 6.63 — 275.47

×9 (Hills Est)

Yds Rock @ 50¢ — 210.45

Putting in 1200# steel @ 3/3# — 40.00

Extra for putting in arch under br. — 8.00

Hills contract. — 10.00

= $240.95

3½ bbl cement — 81.00

1200# steel @ 3¢ — 36

$357.75

Cost to Cache County.

Quantities for Schemes

Designing Curvilinear bridges.

Outside footings	wings $4\left(\frac{8.25+8.83}{2} \times 1 \times 1.25\right)$	42.7 C.Y.
Wing walls	$4\left(\frac{8.83+10}{2} \times \frac{18.75+19.75}{2} \times \frac{17+2}{2}\right)$	= 1088.5 "
Footing abutments	$2\left(\frac{16.25+15}{2} \times 1 \times 1.25\right)$	39.1 "
Abutments	$2\left(\frac{18.3+16.25}{2} \times \frac{17+16}{2} \times \frac{2+1}{2}\right)$	907.2
Floor	$37 \times .5 \times 16$	296.0
Outside beams & bottom of floor	$2\{35 \times 1.2 \times 2 + (.7 \times .7 \times 35)\}$	202.3
Inside beams & Bottom of floor	$2\left[35 \times 1.2 \times 2.5 + 2\{.7 \times .7 \times 35\}\right]$	278.6
Rails from bottom floor up	$2(37 \times 4.5 \times 1.2)$	399.6
Center beam	$3\left\{1.2 \times 2 \times \left(\frac{4.5+4.5+3.25}{3}\right)\right\}$	29.5
	121.6 cubic yards.	3283.5

Steel.

Inside beams $2(3 \times 39\,(1\tfrac{1}{2}^{\#}) \times 234$

Outside " lg $2 \times 40.5\,(1\tfrac{1}{2}^{\#})$ 81

" " shr $4 \times 39\,(1\tfrac{1}{4}^{\#})$ 156

Cross beam $3 \times 18\,(1\tfrac{1}{4}^{\#})$ $\frac{54}{525} \times 4.17^{\#} = 2189.3$

Shearpods. $18 \times 4 \times 6\,(\tfrac{1}{2}^{\#}) = 432 \times .17$ 72.4

Total steel = 2261.7 #

Fabric

Floor $(4 \times 18 \times 35)$ = 1120 □'

Footings

Footings Forward 1120 □'

Footings $2 \times 3 \times 38$ = 228 □'

Abutments $2 \times 17.5 \times 18.3$ 640 □'

Total Fabric = 1988 □'

Piles

✓ Piles in both footings 20

Excavation

✓ Excavation $2(40 \times 6 \times 10)$ 178 C. yds.

Lumber

✓ Outside wings $4(18 \times 10 \times 2) + 4(3 \times 18 \times 2)$ 1872 BM

✓ Inside " $4(18 \times 8 \times 2)$ 1152 " "

over side abut. $2(16 \times 18 \times 2)$ 1152 " "

✓ Inside " $2(20 \times 16 \times 2)$ 1280 " "

Under pinning (same as side) 1935 " "

Under flooring $(24 \times 35 \times 2)$ 1680 " "

✓ Railing $2\{(6+4) \times 37 \times 2\}$ 1480 " "

Total army lumber. 10555 " "

Lumber actually needed.

Lumber for 1 wing + abt. 2730 B.M.

Under pinning 1935 " "

Under flooring 1680 " "

½ railing 780 " "

Total rough 7125 B.M.

Estimate on Arch Type of bridge over Cub river.

Arch 66 × 2 × 17.3 =	2283.6
Wings. 4(15.5 + 11.5 / 2 × 11' × 2 + 1/2) + 11 × 1 × 1.5 =	957.0
Spandrel walls 4(59.4 + 29.3 + 20.3 + 12.83 + 7.9 + 5.3) =	539.3
Railing 2(2 × .66 × 44.0)	116.2
144.3 Cu. yds. =	3896

Steel 2397#

Lumber

Facing to inside each 53 × 18 × 2	1908	BM.
Ribs 7(2" × 12" × 44')	616	" "
Center posts 7(2 × 6" - 10 + 2" × 4" - 10') + 2(1 × 6' - 14')	211	" "
2 Boundary center posts 14(2 × 6 - 10 + 2 × 4 - 10) + 2(1 × 6 - 14)	422	" "
3 " " " 14(2 × 6 - 6 + 2 × 4 - 6) + 2(1 × 6 - 14)	336	" "
Long bracing 5(2 × 4 - 18 + 2 × 4 - 30 + 2 × 4 - 40)	350	" "
rough lumber for underpinning. =	3843	
Outside form Spandrel walls 4(2 × 5 × 23 + 2 × 66)	1448	BM.
Inside spandrel walls 4(2 × 5 × 23)	920	" "
Top covering 17.3 × 1 × 64	1107	" "
Railing 2{2(2 × 12 × 44) + 20(2 × 4 - 3)}	420	" "
rough lumber spandrel walls top & railing =	3895	
Wings 4{2(14 × 11 ×) + 2 × 12 × 1)}	1328	" "
Front wings 4(2 × 12 × 12)	96	" "
Beam forms 4(2(1 × 6 × 12	80	" "
	1504	

1328' Flooring + 176' rough.
Total 9242' BM.

Lumber actually needed

Underpinning (all) say	4000	'
Spandrel walls (all) "	2400	
Top covering (for 1/2) "	500	
Railing (for one) "	200	
Wings rough (1/2 railing) "	100	
	7200	
For rough say	7200	"
Flooring 1/2 say	700	"
all told	7900	BM.

Piles 26 (11 extra)

Excavation

2(42' × 8' × 12)	296.2	cy

Comparison on near Richmond

Bridge	Conc. cy.	Steel #	Fabric	R. Lumber
Schaub Design.	121.6	2262#	1120□'	10,555'B
Arch Type	144.3	2397#	—	7914
	22.7			

Schaub and Arch type for Cub run

Flooring	Piles	Excavation	Blasting	Lgth amount of Lumber Piling	Lgth amount of Lumber planks
—	20	178	9.00	7125	—
1328	31	298	35.00	7200	700

Revised Estimate,

Arch Concrete bridge 1567.78
23 cu. yds pile @ 5.72 131.56
Flooring 20.00
11 piles @ 5 55.00
Excav 120 cu y @ 42 50.40
Carpenter work 50.00
$1874.64
46.02
1920.66

160 Cu yds. $10.76.

220 Excav (220) 50¢

34# piles (31) 8.50

2600 lbs. @ 5-6

Survey made April 25 - 10 on
Hyrum Slough Dmp. DJH + RDJ

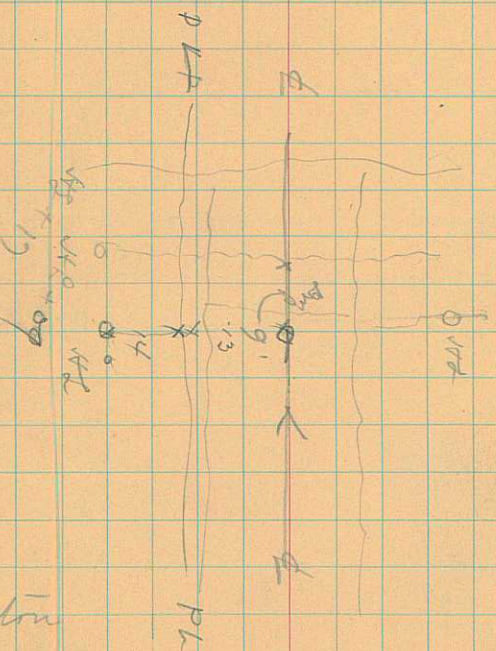
Sta	+	HI	−	Elv	
BM				100.00	
	7.664	102.664			
			9.915	92.749	.038' fall in 50'.
			9.953	92.711	
0			5.73	96.934	
1			6.1	96.564	
1.5			8.1	96.564	
4.3			9.95	92.714	
5.2			10.63	92.034	X sect
8.8			10.55	92.114	to determine
12.2			10.5	92.164	Flow
14			9.43	93.234	
14.6			7.40	95.264	
19			5.33	97.334	
			7.4	95.264	
			10.35	92.314	
			5.5	97.164	
			9.46	93.196	93.2
				100.	BM
	7.5	102.5			
0 NL			7.1	100.4	
7.5 NL			3.1	99.4	
1st Jt L.			5.1	97.4	
17 Jt L			5.2	97.3	
21 Jt L.			10.0	92.5	

Hub N. of Post 50' above C. - S. of C.

N. Y.
Bottom of ~~dam~~ or where sheeting ge-
Top of Bank at Structure
BM on Structure 8' above

Continued

Sta	+	VI	−	Elev
		102.5		
24.44			10.4	92.1
30.8 HP.			9.9	92.6
35 HP.			5.3	97.2
~~50~~ 51.2 HP			5.2	97.3
(HP + 09) 51.			5.2	97.3
" 41			5.4	97.1
" 37			10.3	92.2
" 31			16.3	86.2
" 23			17.6	84.9
" 14			4.9	97.8
" 0			2.0	100.5
(HP + 19) 0			2.0	100.5
" 17			4.9	97.6
" 18			17.3	85.2
32			21.3	81.2
" 41			17.3	85.2
" 47			5.3	97.2
" 51			5.0	97.5



21.3
17.6
3.7

21.3
10.4
10.9

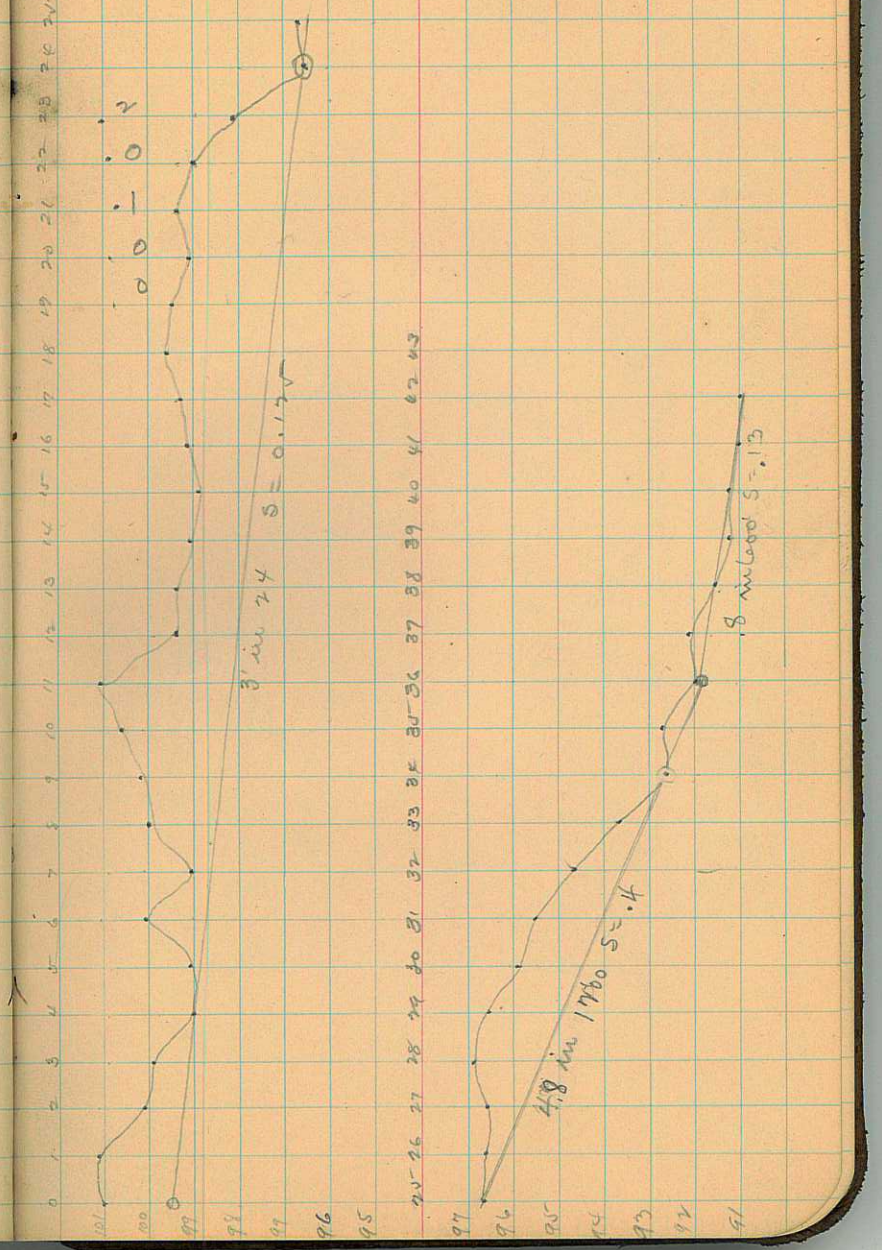
Levels run on Benson Road from Dowdles corner E

Sta	+	HI	−	Elv	
				100.0	
	5.2	105.2 ✓			SE Corner bur'g found John Rice
0			4.1	101.1	99.5	1.6
1			4.0	101.2	.4	1.8
2			5.1	100.1	.3	0.8
3			5.4	99.8	.1	0.7
4			6.2	99.0	.0	.0
~~5~~			6.2			
5			6.1 ✓	99.1	98.9	0.2
6			5.1 ✓	100.1	.8	1.3
7			6.1	99.1	.6	.5
8			5.3	99.9	.5	1.4
9			4.9	100.3	.4	1.9
10			4.6	100.6	.3	2.3
11			4.1	101.1	.1	3.0
12			5.8	99.4	98.0	1.4
13			5.8	99.4	97.9	1.5
TP.			5.1	100.1 ✓		OW 13
	4.6	104.7 ✓				
14			5.6	99.1	.8	1.3
15			5.8	98.9	.6	1.3
16			5.5	99.2	.5	1.7
17			5.4	99.3	.4	1.9
18			5.1	99.6	.3	2.3
19			5.2	99.5	.1	2.4

Stq	+	HI	−	Elv	
		104.7			
20			5.5	99.2	97.0
21			5.3	99.4	96.9
			4.6	100.1	
	3.7	103.3			
22			4.3	99.0	.8
23			5.2	98.1	.6
24			6.8	96.5	96.5
25			6.6	96.7	96.1
26			6.6	96.7	95.7
27			6.7	96.6	95 3
28			6.4	96.9	94.9
			5.9	97.4	
	4.0	101.4			
29			4.8	96.6	94 5
30			5.5	95.9	94.1
31			5.9	95.5	93.7
32			6.7	94.7	93.3
33			7.7	93.7	92.9
34			8.8	92.6	92.5
35			8.9	92.4	92.1
36			9.4	92.0	91.7
37			9.3	92.1	91.6
			8.5	92.9	
	5.0	97.9			

	2.2
	2.5
On 21	
	2.2
	1.5
In ditch	0.0
" "	.6
" "	1.0
" "	1.3
" "	2.0
On 28 "	"
"	"
"	" 2.1
"	" 1.8
"	" 1.8
"	" 1.4
"	" 0.8
.1	Slough
.6	"
.3	"
.5	" Street runs N
On 37	In ditch

Sta	+	HS 949	−	Elev	
38			6.3	91.6	91.6
39			6.6	91.3	.3
40			6.6	91.3	.3
41			6.9	91.0	.1
42			6.9	91.0	91.0



Jumps levels run to determine if waterwood runs from W side of road or runs from N side of alley

Sta	+ BS	−	Elev.
			100
0	9.3		109.3
		10.6	98.7
1		10.4	98.9
2		9.1	100.2
3		9.0	100.3
4		9.2	100.1
5		9.1	100.2
6		8.9	100.4
7		8.9	100.4
8		9.4	99.9
9		9.4	99.9
10		9.2	100.1
11		9.5	99.8
12		9.7	99.6
13		9.9	99.4
14		10.0	99.3
15		13.0	96.3

Middle road Mar 12-80

Top on 3 side by

Bottom of by

Drop out slough.

Grade established on north end Burson Camp May 12-10

Sta	+	H.I.	−	Elev.	Gr.	
~~St~~				100.0		Iron Pipe near 0.
	5.0	105.0				
0			5.0	100.0		
1			4.5	100.5		
2			3.5	101.5		
3			4.4	100 6		
4			4.0	101.0		
5			3.7	101 3		
6			2.3	102.7		
7			2.5	102 5	103.3	0.8
			2.0	103.0		on 7
	2.6	105.6	~~2.6~~		~~103.0~~ 103.0	~~On 8~~
8			3.4	102 2	~~102.4~~	.8
9			3.9	101 7	102.8	1.1
10			3.5	102.1	102.5	0.4
11			4.3	101 .3	102.2	0.9
12			5.0	100.6	102.3	1.7
13			4.9	100 7	102.4	1.7
14			3.8	101 8	102.5	0.7
15			4.1	101 .5	102.6	1.1
16			3.3	102 .3	102.7	0.4
17			3.0	102.6	102.8	0.2
18			2.7	102.9	102.9	0
~~19~~ 19			2.6	103.6	~~103.1~~	On 19
~~20~~	5.5	109.1			103.7	

Sta	+	BS	−	El		
		109.1				
19			6.0	103.1	103.1	0.
20			6.8	102.3	103.2	0.9
21			6.7	102.4	103.3	0.9
22			5.7	103.4	103.5	0.
23			5.5	103.6	103.6	
24			5.1	104.0	103.7	+ .3
25			5.7	103.4	103.8	− .4
26			5.1	104.0	104.0	
27			5.2	103.9	104.1	− .2
28			5.9	103.2	104.2	− 1.0
29			5.4	103.7	104.3	− 0.6
30			4.3	104.8	104.4	+ 0 .4
31			4.1	105.0	104.5	+ 0.5
32					104.6	

Elevations taken on Benson Creek Line of road May 13-10 TH.

Sta.	+	H.I.	−	Elev.
				100.00 B.M.
	4.7	104.7		
0			3.8	100.9
1			4.5	100.2
2			5.0	99.7
3			4.8	99.9
4			5.1	99.6
5			5.4	99.3
6			5.4	99.3
7			5.0	99.7
8			4.8	99.9
9			4.8	99.9
10			4.5	100.2
11			4.2	100
			4.0	Top of Concrete on culvert
12			4.7	100.0
13			4.8	99.9
			4.3	100.4
	4.3	104.7		
14			5.0	99.7
15			5.2	99.5
16			4.8	99.9
17			5.2	99.5
18			4.6	100.1 99.9
19			4.9	99.8

Sta.	+	HI	−	Elv
		104.7		
20			4.8	99.9
21			4.9	99.8
22			5.7	99.0
~~JP 23~~			5.2	99.5
~~24~~	3.4	102.9		
23			4.1	98.8
24			5.4	97.5
25			5.2	97.7
26			5.4	97.5
27			5.5	97.4
28			4.8	98.1
29			5.7	97.2
30			6.3	96.6
31			6.4	96.5
32			6.8	96.1
33			8.0	94.9
34			9.3	93.6
~~35~~	5.6	99.2		
35 ~~36~~			5.0	94.2
36			5.2	94.0
37			5.1	94.1
38			5.8	93.4
~~39~~			5.5	93.7
40			5.7	93.5
41			5.8	93.4

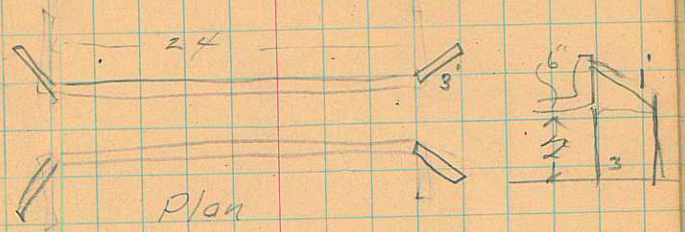
Boundary Pegs

Shed

Sta	+	HI	−	Elev
				100
	3.70	103.70		
			11.50	92.20
	1.15	93.35		
			3.87	89.48
			9.65	83.70
			3.72	89.63
				100.0
	3.54	103.54		
			6.08	97.46
			10.34	93.20
			6.54	97.00
			10.54	93.00
			9.85	93.69
	6.43	94.12		
			5.12	89.00
			4.48	89.64
			4.62	95.0
			10.70	83.42
			9.4	84.7
			8.4	5.7

Sta	+	HI	−	Elev
				100
	3.70	103.70		
			11.50	92.20
	1.15	93.35		
			3.87	89.48
			9.65	83.70
			3.72	89.63
				100.0
	3.54	103.54		
			6.08	97.46
			10.34	93.20
			6.54	97.00
			10.54	93.00
			9.85	93.69
	6.43	94.12		
			5.12	89.00
			9.48	84.64
			11.62	95.0
			10.70	83.42
			9.4	84.7
			8.4	5.7

June 10-1910 Made inspection
of Cow Lane culvert for Conquest



Plan

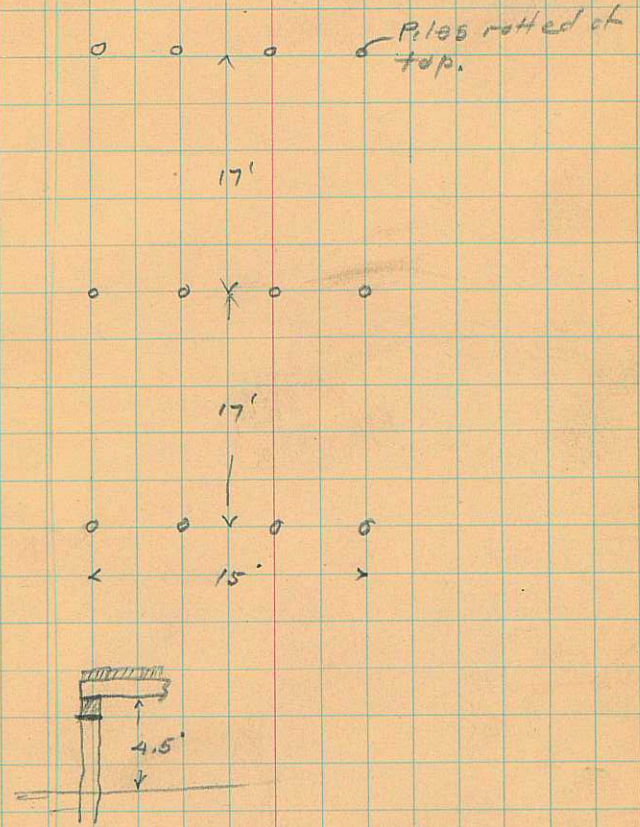


2(30×5×2) = 60 cu ft = Sides
24×4×.5 = 48 " " = Top
3(4×1×1) = 4 " " Bottle walls

3 | 1 1 2
3 | 3 7
3 | 1 2
4 cu yds concrete

This came to 4.7 yds & I called it 5 yds. Price bid covering slab was $9.10

Inspection of Upper B & T bridge near Millville

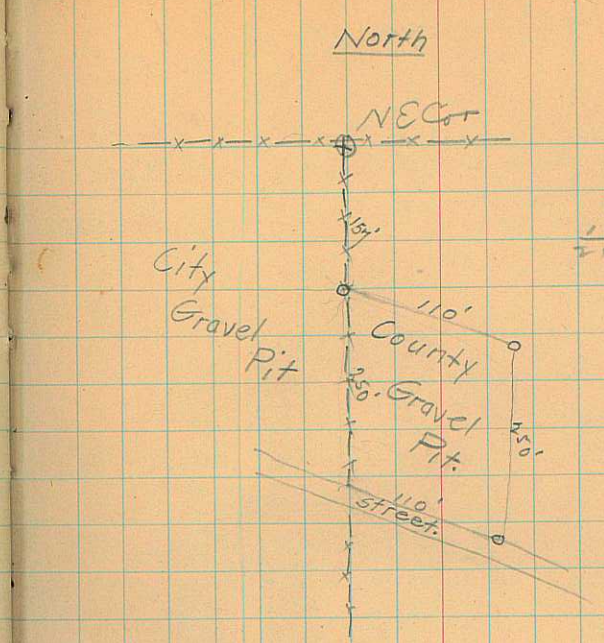


N.B. Use center piles and make bridge 20' wide and 4'6" span and 7' high to bottom of floor. Raise bridge 1' higher than it is now

Sketch of Gravel Pit Bought of Adolph Bear by Cache Co and staked out Sept 28-1910 by T. H Humphreys

Description as follows

Beginning at a pt. 14.50 chains W. and 157 ft S of the center of Sec. 11 Tp 11-N-R 1 E of S.L. Mer. and running thence S 250 ft to the N line of Street thence S E ly along sd. St 110 ft; thence N 250 ft; thence N 10° W 110 ft to beginning and containing 0.63 acres more or less.



165
165
825
690
165
27225

110
220
5500
220
27500
5622
242) 21818 (90
1936
2578

Allowance strip 2 rods wide on South

110
33
330
3300
363

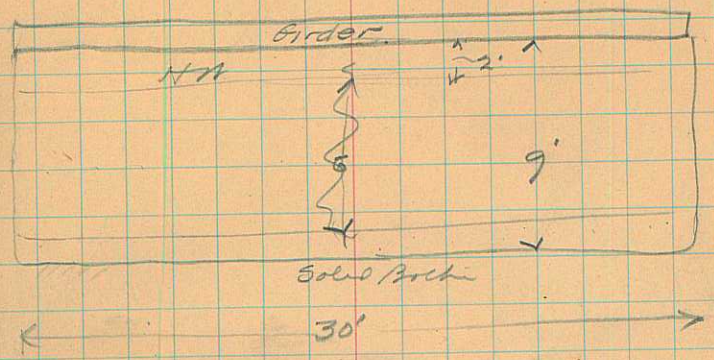
Allowance on West for gravel taken

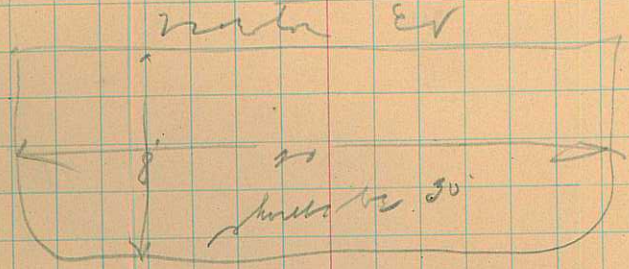
250
8
2000

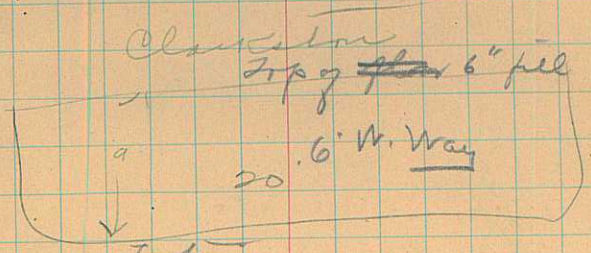
Total Allowances

2000
3630
5622

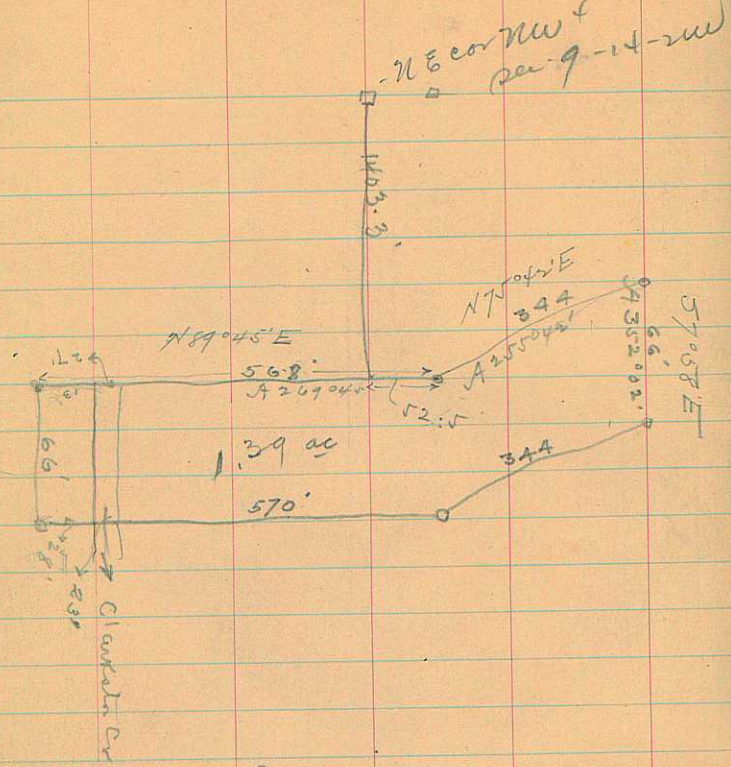
Clay Struck Apr 17-11 70







May 26-11



Des.

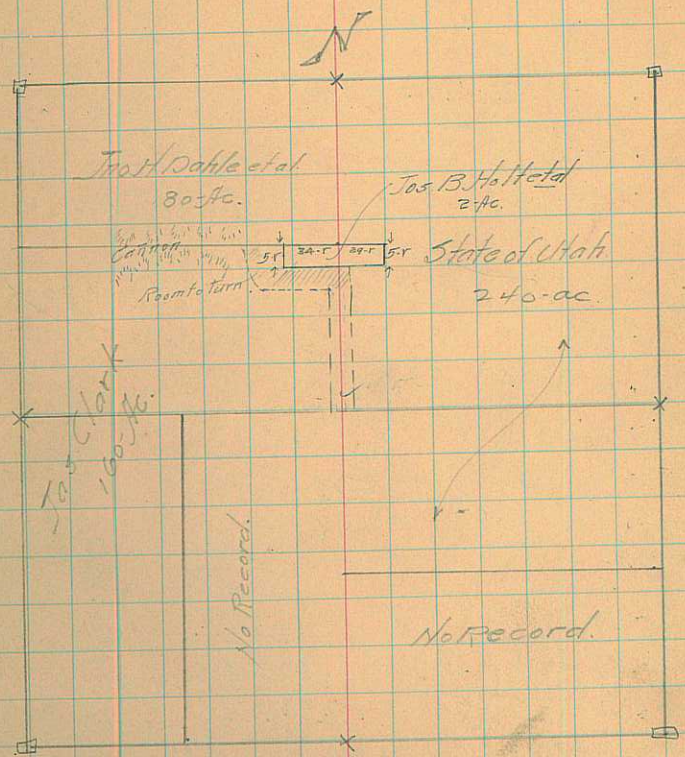
Beg at a pt which is N 89° 45' E 52.5 ft of a pt 1403.3 ft S of the N.E. cor. of the NW¼ of sec 9 T 14 S R 2 W of S.L. Mer. and running th. N 7° 04' E 344 ft th. S 7° 58' E 66 ft th. S 7° 04' W 344 ft th. S 89° 45' W 570 ft th. N 7° 58' W 66 ft th. N 89° 45' E 515.50 ft to beg and containing 1.39 acres more or less.

Jas. Clark

527

71

Sketch of Section 9-Tp 14 N R 2 W.



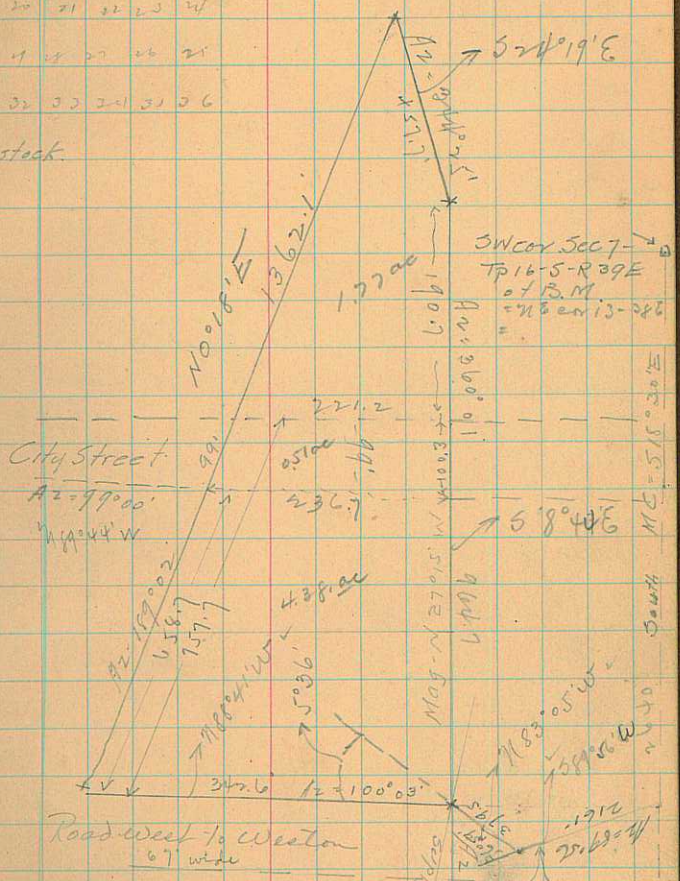
May 26 1911

Survey for Weston Mill. May 26 & 27-1911.

Sta.	+ S	H.I.	- S	Elev.	
				100	on top Concrete wall at penstock.
	3.5	103.5			
			5.2	98.3	
	5.3	103.6			
			4.8	98.8	
	7.1	105.9			
			5.5	100.4	2½' to on top of culvert
			8.0	97.9	on bottom

96°55' reading
89°56'
6°59'

96°55'
91°19' reading
5°36'



Trial description to Weston Mills Wisconsin

Survey - Land Center Grades on Benson N. Cutoff Co. Road from Sta 135 - to

May 31. 1912

Chambers - 1st
" Crockett. - Rod

Sta	+ S	H.I.	- S	Elev	G	Fill
				123.3		On Iron pipe W side road at sta 135 + 35.5
	439	127.69				
135			3.5	124.2	126	0.4
134			3.6	124.1	124.2	Grade
133			4.7	123.0	123.9	0.9
132			5.7	122.0	123.5	1.5
131			5.6	122.1	123.1	1.0
130			6.2	121.5	122.7	1.2
129			6.9	120.8	122.4	1.6
128			7.4	120.3	122.0	1.7 on Iron Pipe W side road Sta 127 + 88.5
T.P.			7.72	119.97		119.94
	437	124.34				
127			4.6	119.7	121.6	1.9
126			4.2	120.1	121.2	1.1
125			5.2	119.1	120.9	1.8
124			5.6	118.7	120.5	1.8
123			6.0	118.3	120.1	1.8
122			6.5	117.8	119.7	1.9
121			6.5	117.8	119.4	1.9
120			7.2	117.1	119.0	1.9
T.P.			6.54	117.80		
	393	124.73				
119			4.9	116.8	118.6	1.8
118			4.7	117.0	118.7	1.7
117			5.6	116.1	117.9	1.8

Cont

Sta	+ S	H.I.	- S	Elev	Gr	Fill
		121.73				
116			5.8	115.9	117.9	2.0
115			6.0	115.7	117.9	2.2
114			6.2	115.5	117.9	2.4
113			5.9	115.8	117.9	2.1
112			5.9	115.8	117.6	1.8
T.P.			5.45	116.28		
	3.71	119.99				
111			4.1	115.9	117.3	1.4
110			5.1	114.9	117.0	2.1
109			5.1	114.9	116.7	1.8
108			5.8	114.2	116.4	2.2
107			6.0	114.0	116.1	2.1
106			6.3	113.7	115.8	2.1
T.P.			6.15	113.84		
	4.98	118.82				
105			5.1	113.7	115.5	1.9
104			4.5	114.3	115.2	.9
103			5.0	113.8	114.9	1.1
102			5.7	113.1	114.6	1.5
101			5.9	112.9	114.3	1.4
100			5.5	113.3	114	.7
99			6.1	112.7	113.7	1.0
98			6.5	112.3	113.4	1.1
T.P.			6.03	112.79		

On Pipe Wade Road 105+74 at Comm
June 17-1912

Sta	+S	H.I.	-S	Elev.	Gr.	Fill
				112.79		
	2.98	115.77				
97			4.5	111.3	113.1	1.8
96			4.7	111.1	112.8	1.7
95			5.4	111.4	112.5	1.1
94			5.5	110.3	112.2	1.9
93			5.4	110.4	111.9	1.5
92			6.1	109.7	111.6	1.9
91			6.2	109.6	111.3	1.7
90			6.6	109.2	111.0	1.8
T.P.			6.24	109.53		
	3.12	112.65				
89			3.6	109.0	110.7	1.7
88			4.0	108.6	110.4	1.8
87			4.1	108.5	110.1	1.6
86			4.7	107.9	109.8	1.9
85			5.4	107.2	109.5	2.3
84			5.2	107.4	109.2	1.8
83			6.0	106.6	108.9	2.3
82			5.5	107.1	108.6	1.5
T.P.			5.06	107.59		
	2.96	110.55				
81			3.8	106.7	108.3	1.6
80			4.1	106.4	108.0	1.6
79			4.6	105.9	107.7	1.8

Transferred to Cache County Book No. 2, page 57.

212 bbls.

Cement 457.92
Ft. 128.90
2

212 bbls cement 2.16 457.92
Ft allowance 128.90
Cement exc ft. 329 02
848 Sacks 84.80

~~212 329.02~~
$2.16
457.16

198.53) 6052

103.54
97
6

6052 / 198.53
1815 6
16970
12 9 60
48.6

3.28
1.25
4.53

$50.00
315.#
630.

18 10

10

3

30
30
10
32 5
7 8 0
5 9 6 0
5 3 2 0.
1 0 6
35.
9
21

212 bbls.

Cement 457.92

Ft. 128.90

2

212 bbls cement 2.16 $457.92

Ft allowance 128.90

Cement exc ft. 329

848 Sacks 84.

212 / 329.02

$2.16

457.16

198.53 / 6052

103.54

97

54

6

6052 / 198.53

1856

16970

12120

48.460

Avg $50.00

315.

630.

18

10

10

Union

10

3

30

10

180

300

460

360

320

106

38.

9

21

212 pbls.

Cement 45

Ft. 12

Say 58

212 pbls cement

Ft allowance

Cement exc ft.

Sand

848

$2.16

198.

605

