IF FOUND RETURN TO
ERWIN U. MOSER
P. O. BOX 454
LOGAN, UTAH

65938

Made in U.S.A.

1-3 Preston Ida

4-11 County Rd. NE of USAC

12 - LDS Church Farm: W. of Richmond

20

K+E

13 - Harvey Larsen - Newton

14 - Riverside Wells

15-18 (LDS Ward, Howell, Utah, Jerold & O.M. Munk)

19 - Wm B. Watkins

360B

20 - Clyde Noble - Amalga.

21 - { Consolidated Quik Co. of Smithfield.

FIELD BOOK

22 - Ruel E Lamborn

23-24 Garth A. James & Ethelyn O Greaves

25 LaVere King - Lewiston

26 Mt. States T & T - Richmond

27 Neiderhauser Lumber Co.

28 Ernest H. Keant - Smithfield

29 E. J. Miller & wf. Hyrum

30 Carl E. Nelson - River Heights

31 Beena Peterson Merrill

ERWIN U. MOSER
P. O. BOX 454
LOGAN, UTAH

FULL

CHECKED 7-9-69

KEUFFEL & ESSER CO.

ERWIN U. MOSER
P. O. BOX 454
LOGAN, UTAH

Page	Subject
1-3	Preston, Idaho
4-10	Co. Road NE of USAC by Gravel
11	Blk N of 6th N from M. to 2nd W.
12	L.D.S. Church Farm - Richmond
13	Harvey Larsen - Newton
14	Riverside Wells
15-18	Howell, Ut (L.D.S Ward, Jesald & O.M. Munk)
19	William B. Watkins
20	Clyde Noble - Amalga
21	Continental Oil Co - Smithfield
22	Ruel E. Lamborn
23-24	E.O. Greaves to Garth A. James
25	LaVere King - Lewiston
26	Mt. St. T & T. Richmond
27	Neidarhauser Lumber Co.

(over) →

K+E

Page	Subject.
28	Ernest H Kearl - Smithfield
29	E.J. Miller & wife - Hyrum
30	Carl E. Nelson - River Hts.
31	Beena P. Merrill
32	Wm I. Cooper 220 W & N. Logan

FULL

Sta	Sto	H.I.	Elev	F.S.	B.S.
B.M	3.88	103.88	100.		
~~Walk~~					
No 4	4.73		99.15		
walk	4.82		99.6		
curb	5.16		98.72		
& Rd,	4.14		99.74		
#5	4.65		99.23		
walk	4.88		99.00		
curb	4.97		98.91		
& Rd	4.15		99.73		
#6	4.00		99.88		
#14	4.22		99.68		
15	4.54		99.34		
16	5.17		98.71		
13	5.53		98.35		
#7	5.31		98.57		
8	5.36		98.52		

R.C. Hugie
L.V. Meyer
Ed Larson, Preston

10-2-54

1

Top center of M.H. in center of intersection

W. edge of road

Stat. Sta.

Stat. Sta.

	Rod	Hit.	Elev	FS	BS
10	4.51	103.88	9837		
top Foundation	3.80	~~100.08~~	100.08		
11	4.65	~~99.23~~	99.23		
top foundation	3.85	~~100.03~~	100.03		
3	5.61	~~98.27~~	98.27		
2	5.20	~~98.63~~	98.63		
1	5.24	~~98.64~~	98.64		
17	4.01	~~99.87~~	99.87		
Walk	4.81	~~99.07~~	9907	5	
T.P.		103.88 ~~to~~	98.53	5.35	4.71
12	4.68	103.24	98.56		
Walk	4.69		98.55		
	4.96		98.28		

PL at 1st & 9 Stat SW Cor.

S. edge 9 walk at E side of Alley at 1st South St.

Ground out side foundation at Sta No. 11.

10-9-54
Dick & Moser 3

County Rd passing Co. & City gravel pit

Sta	Rod	HI	Elev	F.S.	B.S.
B.M.	0.80	200.80	200'		
0+00					
℄ Rd	3.04		197.76		
0+50 S	3.63		197.17		
Ground	3.90		196.90		
℄ Rd.	4.10		196.70		
1+00 S	4.12		196.68		
G	4.47		196.33		
℄ Rd	4.83		195.97		
2+00 S	4.83		195.97		
Gr	5.12		195.68		
℄ Rd.	5.58		195.22		
3+00 S	4.69		196.11		
Gr	5.17		195.63		
℄ Rd	5.85		194.95		
4+00 S	4.61		196.19		
Gr	4.95		195.85		
℄ Rd	5.77		195.03		

Stake on Power pole at intersect.

} Top of Conc culvert

Sta	Rd	HI	Elev
5+00 S	2.84	200.80	197.96
Gr	3.02		197.78
℄ R.	4.00		196.80
6+00 S	3.27		197.53
Gr	3.56		197.24
℄ Rd	4.05		196.75
7+00 S	5.13		195.67
G	5.26		195.54
℄ Rd.	5.35		195.45
8+00 S	6.29		194.51
G	6.72		194.08
℄ Rd	6.50		194.30
9+00 S	6.44		194.36
G	6.76		194.04
℄ Rd	7.04		193.76
10+00 S	6.62		194.18
G	7.22		193.58
℄ Rd	7.59		193.21

at South gate post into College Orchard

at South gate Post entering Johnson Bay

Bay Curve

Sta	Rod	HI	Elev	F.S.	B.S.
		200.80			
11+00 S	8.21		192.59		
G	8.49		192.31		
℄ Rd	8.31		192.49		
			191.60		
12+00 S	9.20		191.60		
G	9.50		191.30		
℄ Rd	9.85		190.95		
13+00 S	9.88		190.92		
G	10.44		190.36		
℄ Rd	14.00		186.80		
		200.80			
T.P. 13+25 S	10.89	190.71	189.91	10.89	0.80
G	.85		189.86		
℄ Rd	5.88		184.83		
13+50 S	5.43		185.28		
G	5.79		184.92		
-	3.56		187.15		
℄ Rd	7.82		182.89		
14+00 S	11.19		179.52		
G	11.37		179.34		
℄ Rd	12.17		178.54		

Top of Concrete box - 5th cor

Sta	Rod	HI	Elev	− FS.	+ BS.
		190.71			
TP			175.71	15.00	1.40
		177.11			
14+50S	3.40		173.71		
G	3.40		173.71		
℄ Rd	4.08		173.03		
15+00S	8.30		168.81		
G	8.59		168.52		
℄	9.28		167.83		
15+50S	13.65		163.46		
G	13.90		162.21		
℄ Rd	15.00		162.11		
		177.11			
T.P.			162.11	15.00	1.29
		163.40			
16+00S	5.27		158.13		
G	5.64		157.76		
℄ Rd	6.45		156.95		
16+50S	11.44		151.96		
G	11.61		151.79		
℄ Rd	12.50		150.90		

TP ℄ Rd

℄ Rd

Sta.	Rod	HI	Elev	F.S. (−)	B.S. (+)
		163.40			
T.P.			148.64	14.76	0.38
		149.02			
17+00s	3.36		145.66		
6	3.64		145.38		
℄ Rd.	4.43		144.59		
17+50s	9.72		139.30		
6	10.06		138.96		
℄ Rd	11.09		137.93		
17+69	11.88		137.14		
	15.38		133.64		
	13.55		135.47		
℄ Rd	13.34		135.68		
	14.28		134.74		
	16.88		132.14		
		149.02			
T. P.			134.05	14.97	1.12
		135.17			
18+00	3.71		131.46		
℄ Rd	3.40		131.77		
18+50	7.93		127.24		
℄	8.50		126.67		
	6.36		128.81		

℄ Rd

E { SW Cor of Concrete Water Box E of Road
15" pipe invert going West
12" pipe invert coming from South

W { SE Cor Conc Water box on W side of Rd
invert of 15" pipe coming from East.

℄ Rd

Spike in E line and anchor

Spike in E line

center of City Gravel Pit Entrance
E 40' from hub line

Sta	Rod	HI	Elev	F.S. B.S.	B.S.
		135.17			
19+00s	10.75		124.42		
G	11.05		124.12		
℄ Rd	11.84		123.33		
19+50s	13.30		121.87		
G	13.55		121.62		
℄ Rd	14.84		120.33		
		135.17			
			120.33	14.84	1.13
		121.46			
20+50s	3.45		118.01		
℄ Road	6.19		115.27		
21+00s	6.40		115.06		
G	6.73		114.73		
℄ Rd	8.14		113.32		
21+50s	8.93		112.53		
G	9.30		112.16		
℄ Rd	10.65		110.81		
22+00s	11.91		109.55		
G	12.18		109.28		
℄ Rd	13.51		107.95		

℄ of Sroad leading to Nielson Gravel pit

Sta	Rod	HI	Elev	FS.	BS
		121.46			
22+29S	14.05		107.41		
℄	14.26		107.20		
~~22+~~ ℄ Rd	15.60		105.86		
	16.35		105.11		
22+39	14.97		106.49		

12.15
3.45
15.60

12.90
3.45
16.35

℄ Rd coming N-S & E-W
~~℄ N entrance Nelson Gravel pit~~
W mouth of E-W road ℄

℄ N entrance - Nelson Gravel pit.

Oct 17 N side of 6th N from main to 2nd West St.

3+33 ± Fence line North

5 00' ± Fence line North

600' to E prop line 1st W on S

8+07 ± Fence N (may not be shown)

10+03 ± " "

10+70 ± " "

11+79 ℄ canal

13+08 Post in SW cor block N

US F & G.

Vernon J. Robinson
Laketown Ut.

63731
Tr. Ut

10-22-54 | 12

LDS. Church Farm
Richmond Ut.
Benson Stake

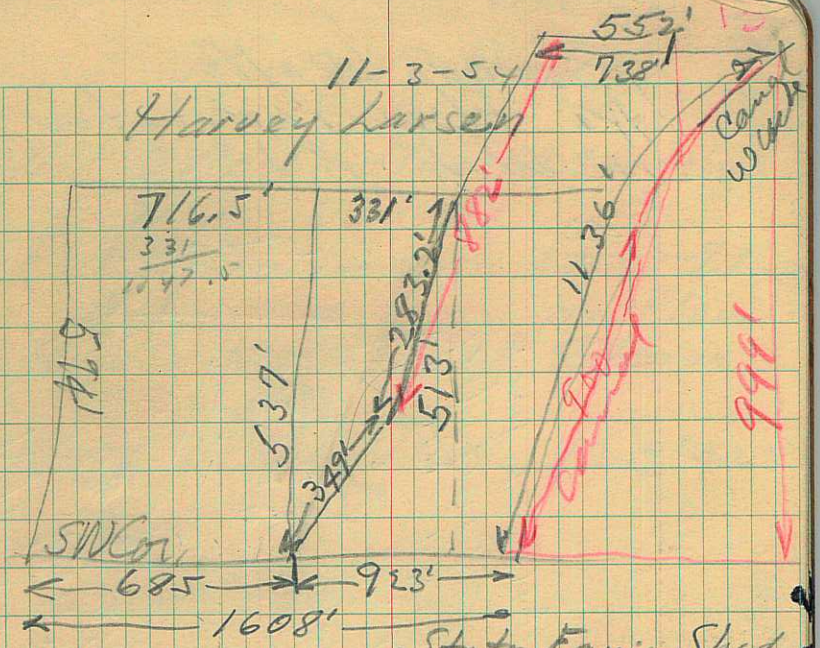
567' N. to 1st Turn 10"
0+00 Turn
3+46' NEly to ℄ of Lane
8+94' to E end of E-W drain
0+00 E end of E-W drain
1+00 N to Reservoir
0+00 E. end of E-W drain
2+26 S to fence
4+00 S to end of S. drain
Above is drain near barns.

67' = branch South
30' = T at E end (15' N and 15' S)
0+00 = E end of E-W drain
0+40 = dist. to 30' branch N.
1+58 (MH) Pt when 67' branch Takes off
0+00 pt of MH.
3+30 pt where 60' " Comes from So
4+56 pt at junction with River

591 36 660 66 594

11-3-54

Harvey Larsen



State Equip Shed
065 J12 Cache Jctn

685
9.23
1608'
440
2248

716.5
331
1047.5

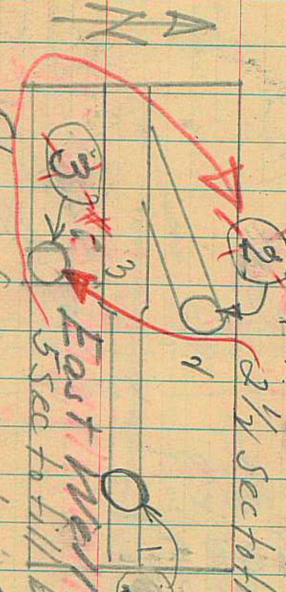
738
553
185

F2253 DAISY E. & NORMAN F. LARSEN
[illegible]
UTAH

THE E½ OF NW¼ OF SEC 21 T 13N R 1W
& ALL THAT PT OF THE W½ OF NE¼
LYING WEST OF WEST CACHE CANAL RT
OF WY CONT 135.35 ACRES

Subject to Existing
Rt-of-way

Riverside Wells.
No flow indicated in Well # 1



Measured Sept 10 1956
by cutting 5" pipe
Emptying 5 gal bucket
Well # 200' East
2½ sec to fill bucket = 0.2859 C.F.S.
Well at East end Box
1 10 sec to fill bucket
= 0.07149 C.F.S.
East Well
5.5 sec to fill bucket = 0.142 C.F.S.
Flow of Wells by volume. Measured by bucket 11" dia and 13" high = 0.7149 cu ft.
Note = The N & S Well measurements were reversed.
No 3 Well flowed the heaviest

11-6-54 14

Riverside Wells

All 3 Wells flow 14.35' high

#2 is Middle well
East Well alone no ~~flow~~ 7.9' + 2.7

#1 is ~~West~~ [illegible] No Flow
Middle Well Flows ~~[illegible]~~

East #3
~~West~~ Well flows, 12.9' + 2.7
~~[illegible]~~
East of all Flows

14.79

Red color locates position of well.

Black color locate position of Valves in ~~Box~~

$Q = CA\sqrt{2gh}$ Q = CFS
C = Coef. of discharge
A = sq ft. Area of orifice in pipe
h = head on ℄ of pipe
g = Value of gravity = 32

Howell
School Board
1147.2' W & 90.2' S
from NE Cor of Sec 8
12 N R 5 W

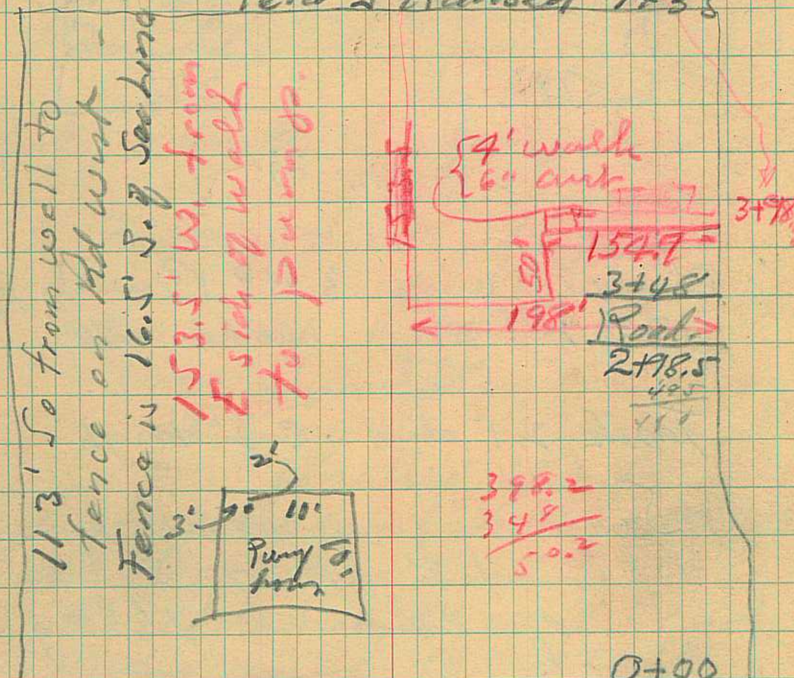
Old Application No =
= 20881
New Application No =
26553
.10 C.F.S.

Howell
School & Church E. line
is 298.5' E from E side
of Rd running South
Road is 49.5' wide

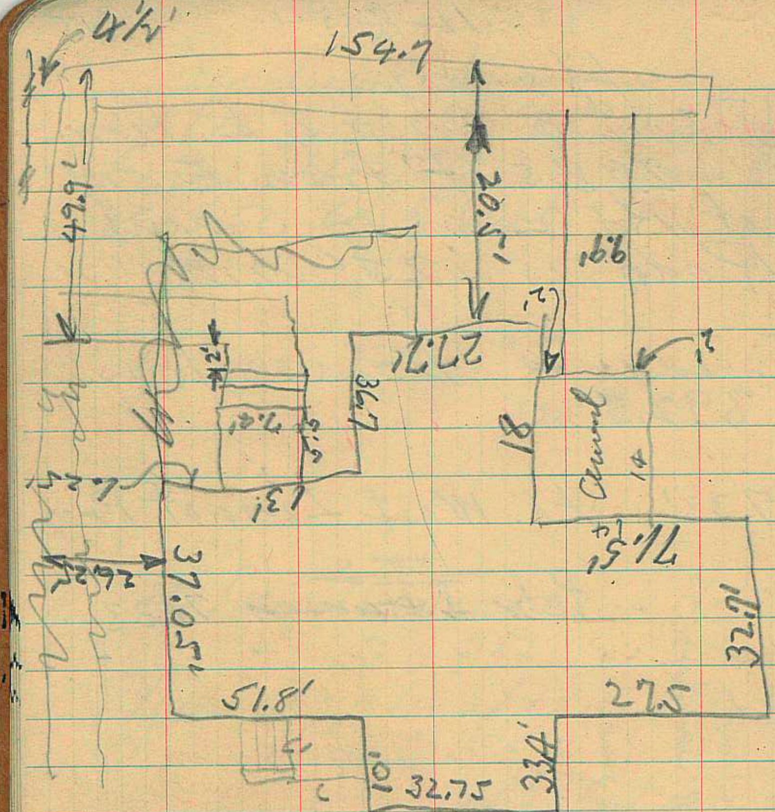
E. edge of N-S walk is
392.5 W

733' to West Line of Prop

Peter J Hansen 7+33



~~Peter J Hansen~~ Ralph Deacon



church pump 3 HP Berkely pump
1750 RPM. Model 2-84

Tank 2.1' dia 5.2' high

South face of Well House
is 1.8' N of S. line
of church Bldg.

11-8-54 16

Jerald O Munk 1924

Well was drilled for John E Anderson

1109' South from NW Cor Sec 31
16' west

4" casing 180' deep
2" pipe inside 4"
Wind mill power
drilled by Jos. Carlson

Reservoir 16'x16'x7'
outside wall is 10" thick

50' - 1" pipe to basement
with Elec pump

200' - 3/4" line to barn & corr.

Approx flow 15 g.p.m.

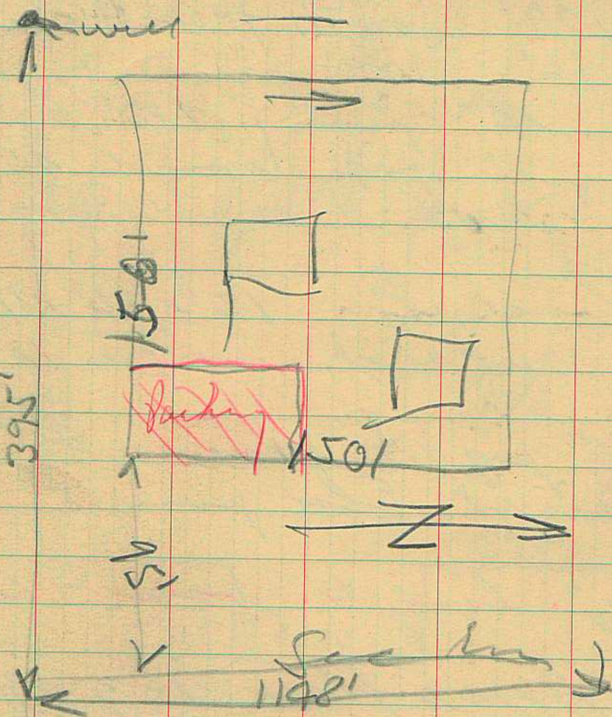
2 cows 1 horse
3000 Turkeys
2 pigs
drilled 1924

Lot surround house 100'x100'
15' N of Reservoir
Reservoir W is 3' E of well
{pump with 7" stroke
{wind mill

11-8-54

O.M. Munk

1148' South & 395' West



Reservoir is 9' W. of well
is 16.5 x 16.5' x 6' deep inside
8" wall

Lot by

3000 Turkeys

150'-3/4" pipe to coops.

Pump supplied by
Myers & Bros Co
Ashland Ohio

1 13/16" cylinder with 8" ~~str~~ stroke

1½ H.P. Elec motor

4" casing with 2"
pipe with pump rod
inside, cylinder inside
2" pipe is 1 11/16"

185' deep 1914 drilled
Drilled by Jos Carlson
340'-1" pipe to both houses
173' to house 1" pipe

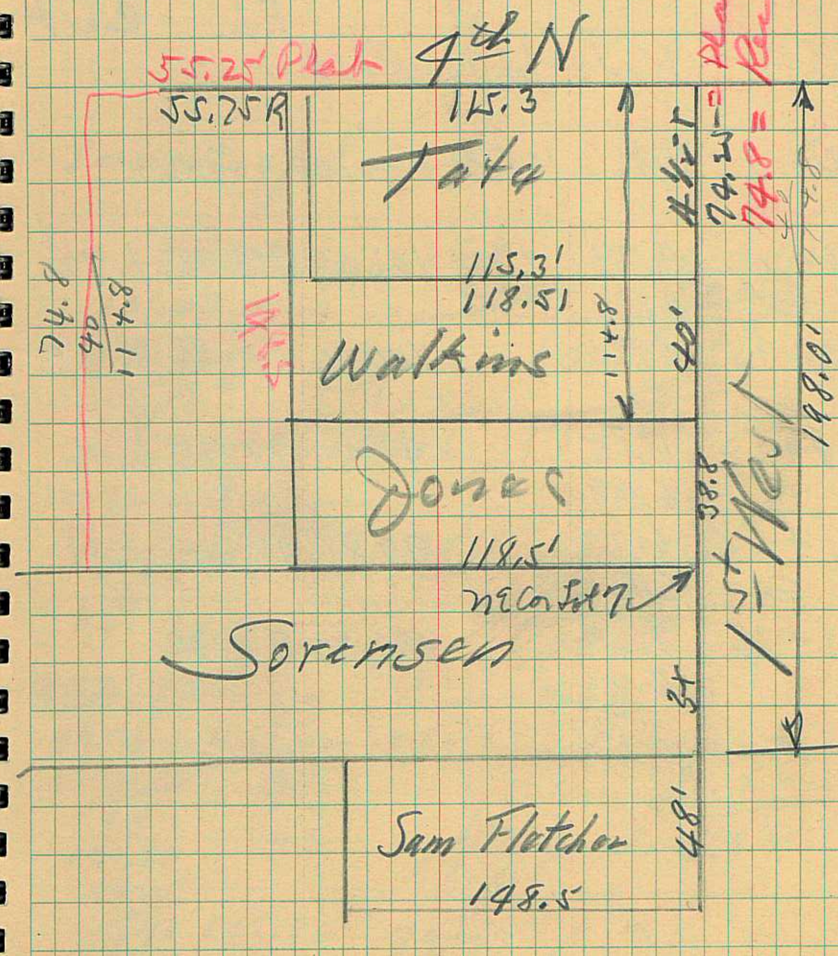
167' beyond 1st house to
second house
Both houses supplied
by pressure pumps
power = ½ HP
Flow 15 g.p.m.

Jerald O Mumford
B/3 2069
Beg at NW Cor of Sec 31
Twp 12 N R 5 W of SLB&M
th running S 6°12' E
5695'; th N 88°11' E 2577';
th N 1°54' W 5497'; th
N 88°19' W 2979' to beg.

Peter J. Hansen
Washington Ward church prop
Lot 2 & 3
Beg 239.8' N & 1880.45' W
of SE Cor of Sec. 5 W 148.5' - S
330'; E 148.5' N 330' to beg
above prop is adjacent
W to church prop.
Page 67 of plats.
" 70

11-9-54

Wm B. Watkins



Page 129 of plats

~~Rod H~~

Sta	Rod	HI	Elev	F.L.	Cut
0+00	5.86	105.86	100.00	100.00	
0+25	4.39		101.47	99.73 / 99.75	1.74 / 1.72
G	4.7				
0+75	4.9		100.96	98.88 / 99.25	2.08 / 1.71
G	5.2				
1+20	6.15		99.71	98.13 / 98.75	1.58 / 0.96
G	6.48				
1+55	6.0		99.86	97.68 / 98.45	2.18 / 1.41
G	6.6				
1+65	9.54		96.32	98.35	
	5.86				
	3.68				
	2				

Noble - Amalga

Invert of 8" pipe 100.

105.86
4.39

100
1.65
98.35

101.47
99.75
1.72

100.
1.55
98.45

105.86
.25
105.61

105.86
9.54
96.32

.02 2
1.65 / 3.68
3.30
.380
3.30
.500

100.96
99.25
1.71

100

99.27

100
1.25
98.75

99.71
98.75
.96

105.86
4.39
1.47

96

1.65
1.68

101.47
99.75
1.72

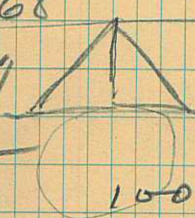
100.96
99.25
1.71

105.86
6.15
9.71

99.71
98.75
96

99.86
1.55
98.31

98.55
96.32
2.03



100.
1.65
98.35

Continental Oil Co.
Prop. at Smithfield, Utah,
Recorded in Book 95, Page 359
Warranty Deed

Part of Lot 2, Blk 22, Plat "A" Smithfield City Survey described as follows:

Beg. at the SW Cor. of said Blk. 22, & running th. E 100'; th. N. 8 rods to the N. Line of said Lot 2; th. W. 100'; th. So. 8 rods to the place of beg; situate in the NW¼ of Sec. 27, T. 13N. R 1E of the SLB&M.

E. R. Miles, Inc to Continental Oil Co.

Filed for Record 12-15-54 @ 1132 AM
Page 39 of 13N. R 1E of SLB&M.

1-13-55 1-hour

C

LOGAN, UTAH

BEG AT THE SW COR OF LOT 3 BLK 100
PLAT A LOGAN CITY SVY: E 9 RDS N 4.5
RDS W 9 RDS S 4.5 RDS TO BEG IN SE¼
SEC 27 T 12N R 1E

UTAH CONCRETE PIPE CO.

74.7 N
74.6

N 154' from S E Cor of 8th
149.8 S line
148.8 W end

D1180 REUEL E. & ALICE T. LAMBORN
247 EAST 3RD NORTH
LOGAN, UTAH

BEG AT THE SW COR OF LOT 3 BLK 100
PLAT A LOGAN CITY SVY: E 9 RDS N 4.5
RDS W 9 RDS S 4.5 RDS TO BEG IN SE¼
SEC 27 T 12N R 1E

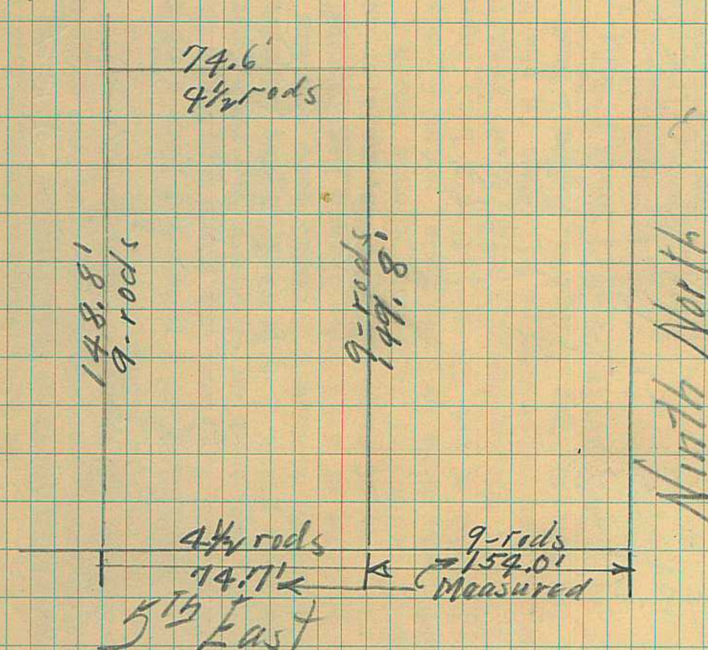
Beg 9-r N of SW Cor
Page 83-7
12N R 1E

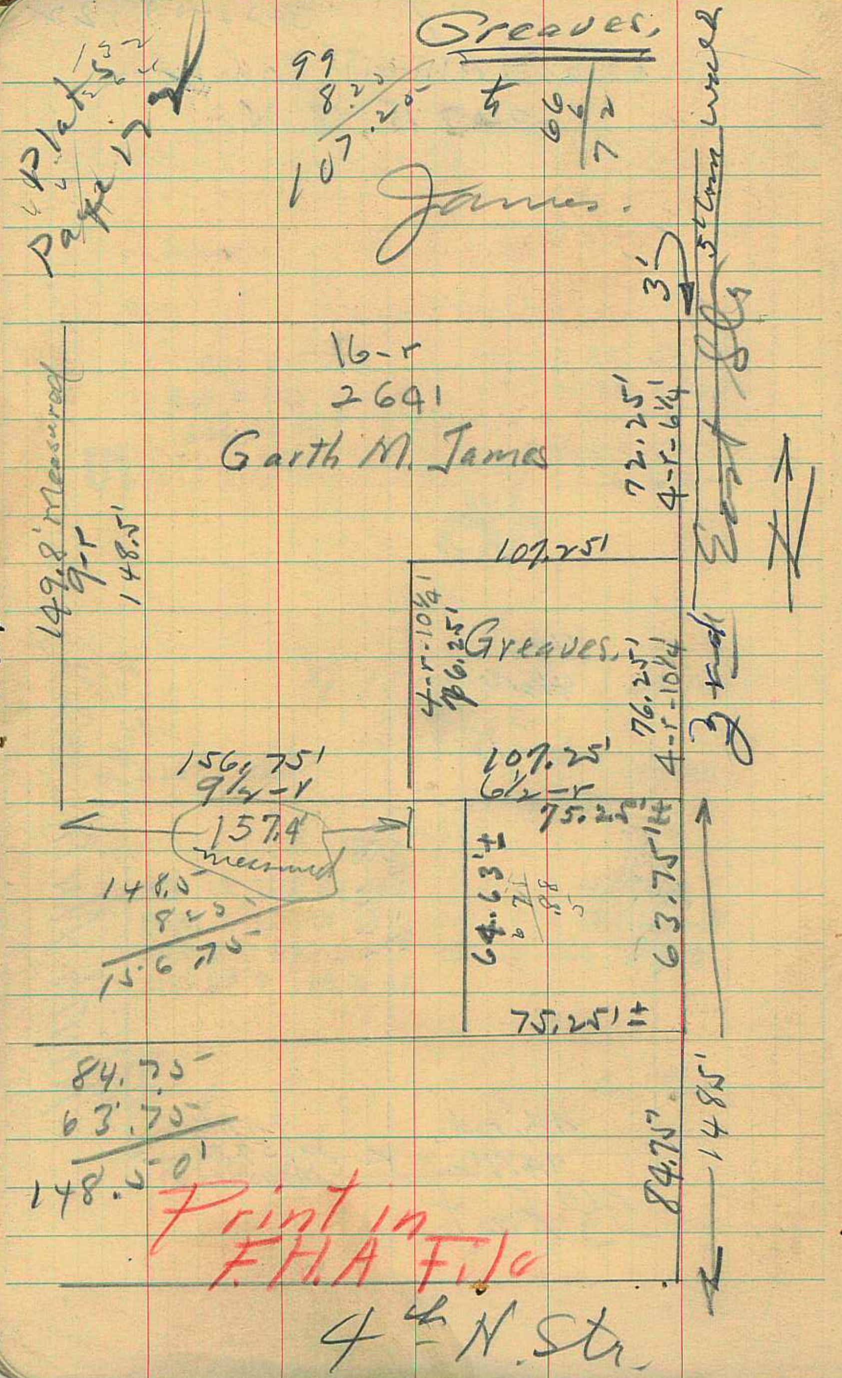
3-21-55 22

Reuel E. & Alice T. Lamborn
247 E 3 N.

D1180 REUEL E. & ALICE T. LAMBORN
247 EAST 3RD NORTH
LOGAN, UTAH

BEG AT THE SW COR OF LOT 3 BLK 100
PLAT A LOGAN CITY SVY: E 9 RDS N 4.5
RDS W 9 RDS S 4.5 RDS TO BEG IN SE¼
SEC 27 T 12N R 1E





First Security Bank.
Ethelyn O. Greaves to
Garth A. James & Wife Norma M.
Filed in Book 95 of Deeds Page 427
at 11:52 AM. 1-12-55
Book of Plats page 172
of 12 N. R 1 E. of SLB&M.
1-27-55 E.U.M. & R.C.H.

Dear Mr. Moser:

We give below a description of the property purchased from Ethelyn O.Greaves by Garth A.James, and would ask that you make a survey of the same: & wife Norma M.

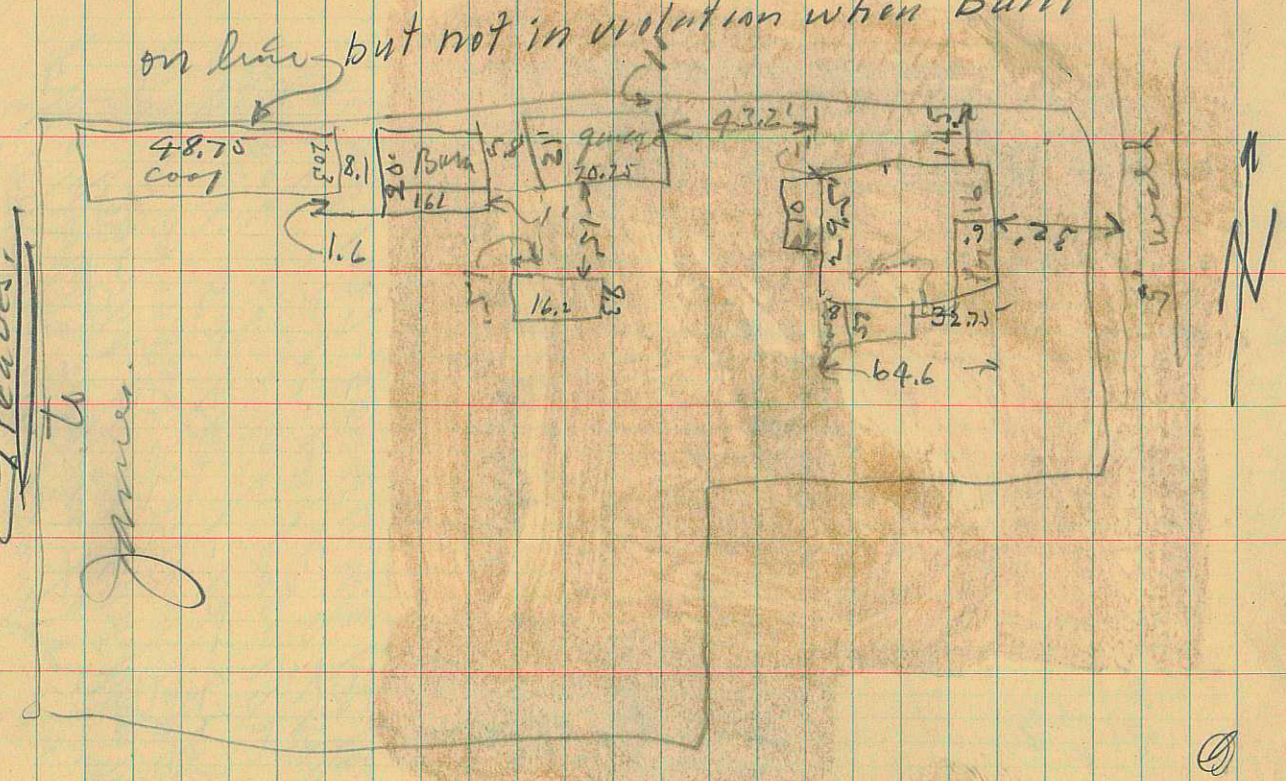
Beginning at a point 6.5 rods W of the SE Cor. of Lot 8, Block 17, Plat "C" Logan City Survey, and running thence W 9.5 rods, more or less to a point 2 rods East of the SW Corner of said Lot 8; thence N 9 rods, more or less to the North line of said Lot; thence East along the North line of said Lot 16 rods, more or less to the NE Corner of said Lot; thence South 4 rods 6.25 feet, more or less to a point 4 rods 10.25 feet North of the SE Cor of said Lot; thence West 6.5 rods; thence South 4 rods 10.25 feet to beg. and further described as situated in the NW¼ of Section 34, Twp 12 North, Range 1 East of the Salt Lake Meridian.

Yours truly,

[signature]

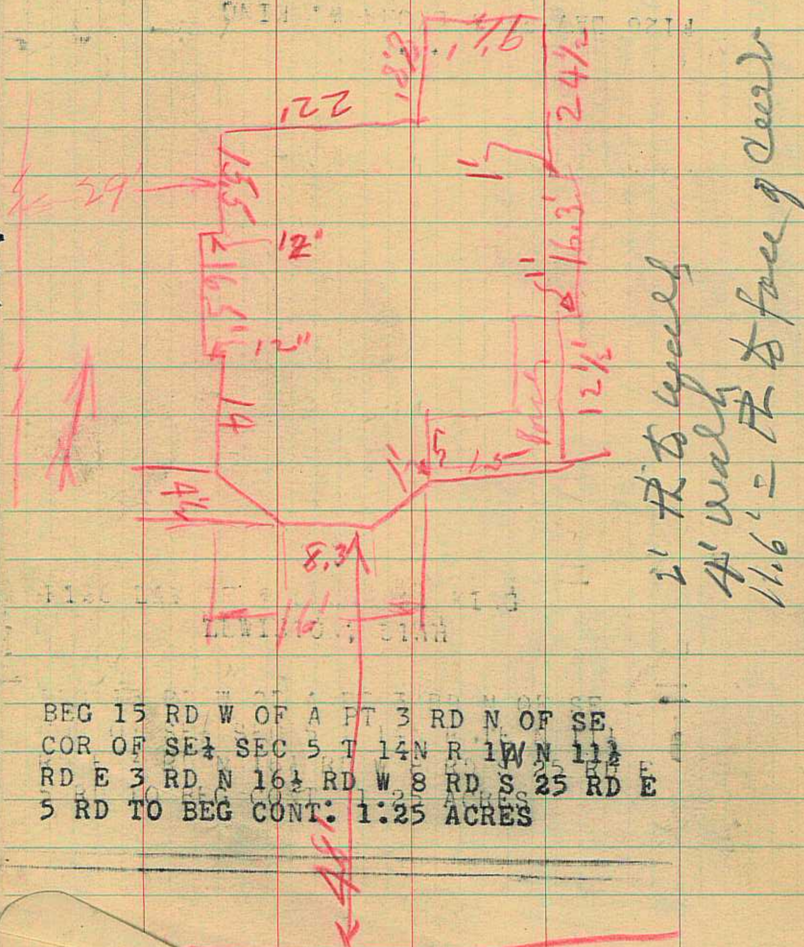
Secretary to
Vice President

on line but not in violation when built

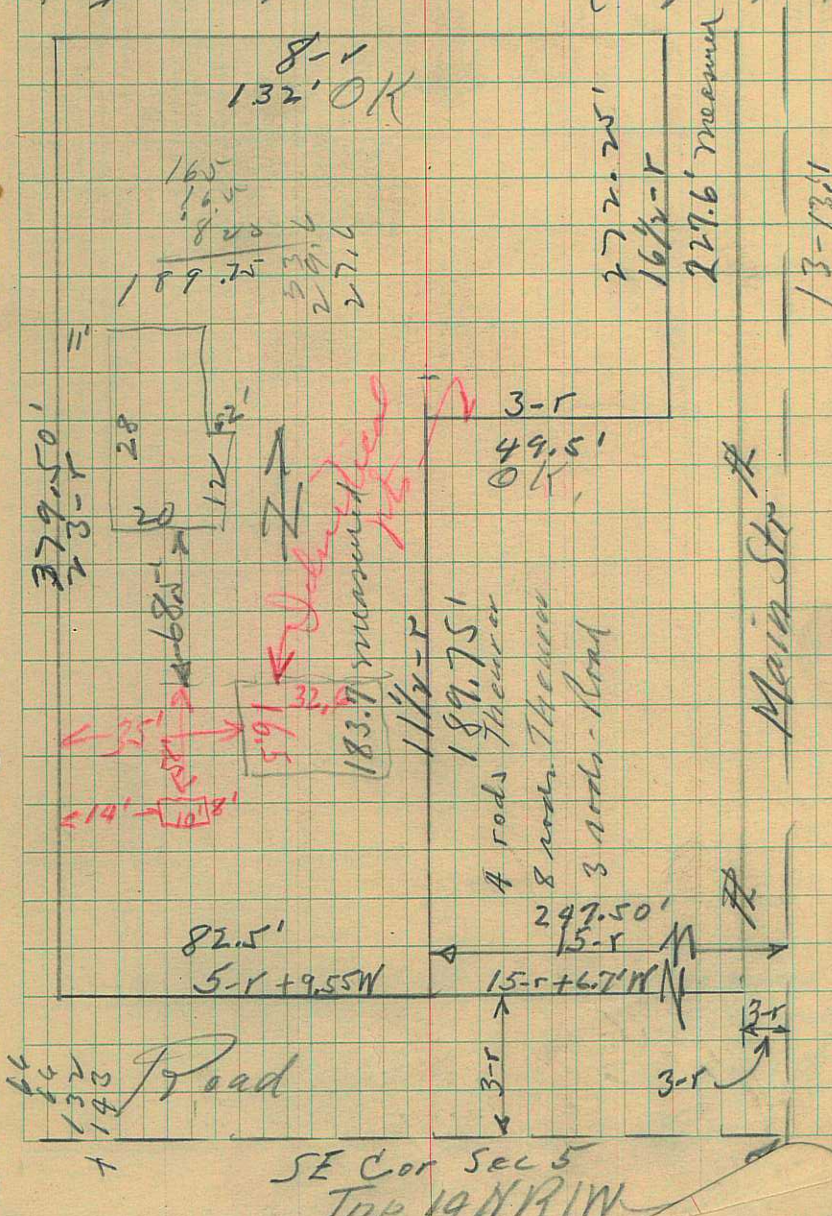


BEG 15 RD W OF A PT 3 RD N OF SE COR OF SE¼ SEC 5 T 14N R 1W N 11½ RD E 3 RD N 16½ RD W 8 RD S 25 RD E 5 RD TO BEG CONT. 1.25 ACRES

BEG 15 RD W OF A PT 3 RD N OF SE COR OF SE¼ SEC 5 T 14N R 1W N 11½ RD E 3 RD N 16½ RD W 8 RD S 25 RD E 5 RD TO BEG CONT. 1.25 ACRES

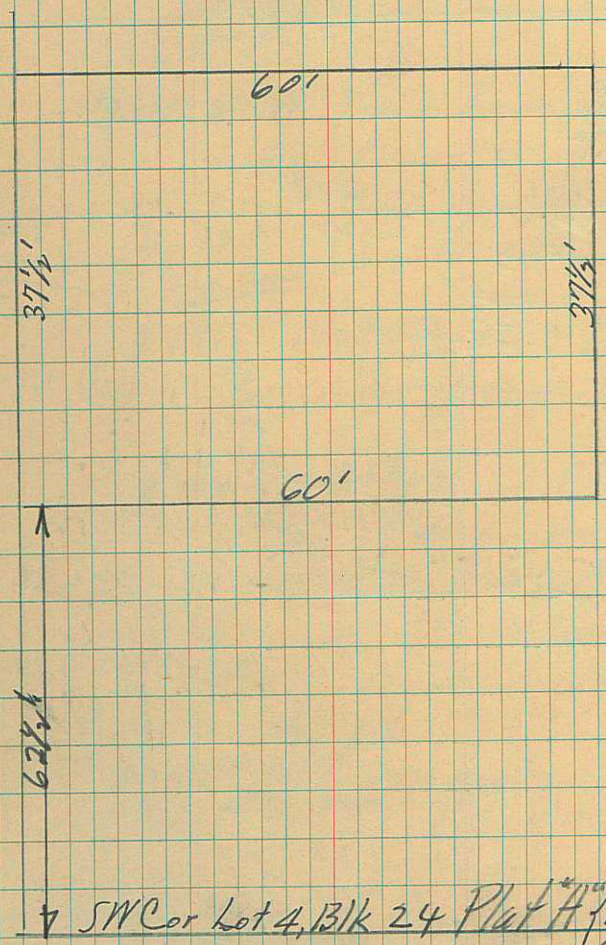


La Vere King 56286 25
Lewiston, Utah Sec 5
Page 613, 14N R1W (SE¼ SE¼ SE¼)



3-26-55 — 26

M.S.T.&T.Co. Richmond
Page 38 of 14 N R 1 E

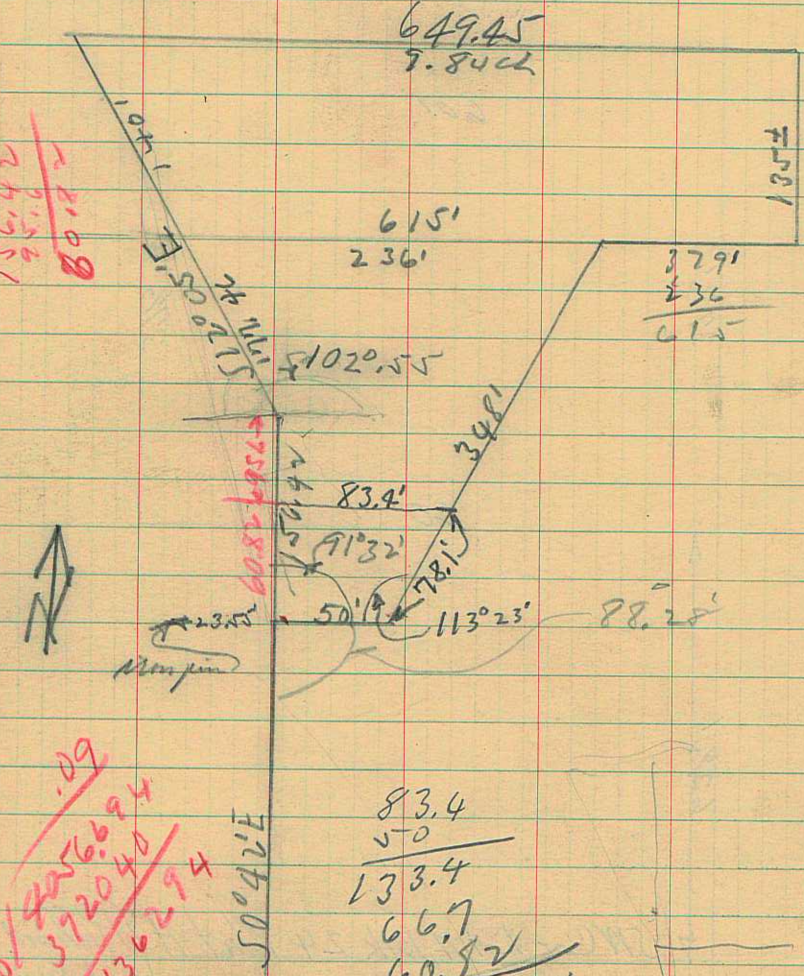


SW Cor Lot 4, Blk 24 Plat "A" Richland City Survey

SW¼ Sec 26 T.14 N R 1 E of S.L.B. & M.

179 60
102 55
77 05

615
236
379



83.4
50
133.4
66.7
60.82
4056.694
.9312 Ac

.09
4056.694
372040
136294
43560

√ Neiderhauser Lbr Co. 27

Page 50 – 11 N R 1 E

113.7' S. from Lath fence to p.
97' N to Lath fence
May 5 - 1955

92.4
4.6

305.8 N. from house post to fence E on S. side of Rt. of way

305.8
14
319.8' N to S. edge of conc. foundation

357.7' N. from S. side of Rt. of way to apparent N line of Rein prop.
Old stake is 14' S of this pt.

23.55' W to iron pin in Road
50.00' E " " " " field
156.42 N to " " "

177.46' N to S line of Lbr.

272' N to N side of bldg.

4-9-55

C 578 Ernest H. Kearl
Smithfield Utah
10 A.M. Apr. 9 Jon. 3-6066
Page 71 of 18 N R 1 E
C 578-817-1512

Guy rod 4' W
Power Pole 8' E and 15' N
from NE Cor of Lot 5
6r x 8-r

Green Ash 11° W of NE Cor.
and 11.5' N
and Tree 67° west of
1st Tree
Beg at the NE Cor of Lot 1, Blk 3, Plat "C" Smithfield City Survey, & running thence W. 6 rods; th S 8-r; thence E 6-r; Thence N 8-r to beg. Situated in NW¼ Sec 34 T 13 N R 1 E of S.L.B.&M.

SMITHFIELD, UTAH

ALL LOTS 1-2-3-4-5 BLK 3 PLAT C
SMITHFIELD CITY

Ernest Junior Miller
& Wife Norma 6r x 11 r
Block 12 Plat A Hyrum
Page 7-3 of 10 N R 1 E
Eugane Petersen - West side (west 7 r)
Homer Peterson - East side (East 4 r 6½)
A-808

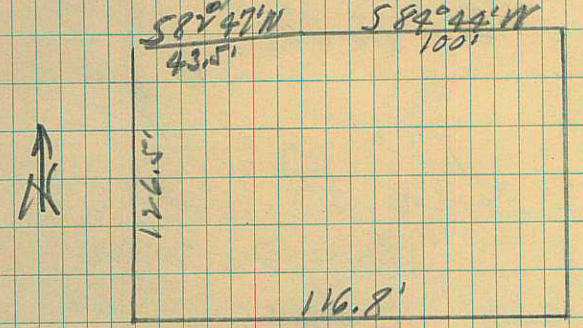
A936A ERNEST JUNIOR & NORMA MILLER
Paid
HYRUM, UTAH

BEG 7 RD E OF NW COR LOT 5 BLK 12
PLAT A HYRUM CITY SVY E 6 RD S 10
RD W 6 RD N 10 RD TO BEG IN SW¼ SEC
4 T 10N R 1E RESERVING UNTO GRANTOR
A R/W OVER S 1 RD OF ABOVE DESC.

The Miller house is
39" on the Eugene
Petersen Property.
The fence Eugene
Petersen built is
4' 2 1" West of his E. Line

Carl E Nelson ✓
River Heights
SW¼ NE¼ of Sec 3 T11N R1E
Part 23A of 11N R1E

B1080S



Get distance off East and to be occupied by River Heights Road.

B1080S CARL E. NELSON
[illegible]
[illegible]OGA [illegible]AH

BEG ON W LINE OF [illegible] RD W OF A
PT 100.8 RD S OF NE COR SEC 3 T 11N
R 1E W 116.8 FT N 112.5 FT TO S
LINE OF RIVER HEIGHTS RD N 82°47' E
ALG SD RD 43.5 FT N 85°44' E ALG SD

(109)
RD 83.5 FT TO PT N OF BEG S ALG W
LINE OF ST 126.5 FT M OR L TO BEG
CONT. .31 AC M OR L

66
10.5
49
39.5
165.0

170
765
93.5
398
540
490
5.0

Leo R Carver
64 N 2 W
Logan ut
1½ hr
7-3-63

Page 153 - 12NR1E 4-13-55

Beeno Peterson Merrill

BEG 4 RD 10½ FT S OF NW COR LOT 5
BLK 13 PLAT A LOGAN CITY SVY S 5 RD
6 FT E 8 RD 10½ FT N 10 RD W 6 FT
S 4 RD 10½ FT W 8 RD 4½ FT TO BEG
WT RT OF WY SE¼ SEC 33 T 12N R 1E

66 / 10.5 / 76.5
66 / 16.5 / 88.5

Paid

~~Send blue print of plat to Dr Merrill~~

Prop line is 49" So of 1st N. Str.

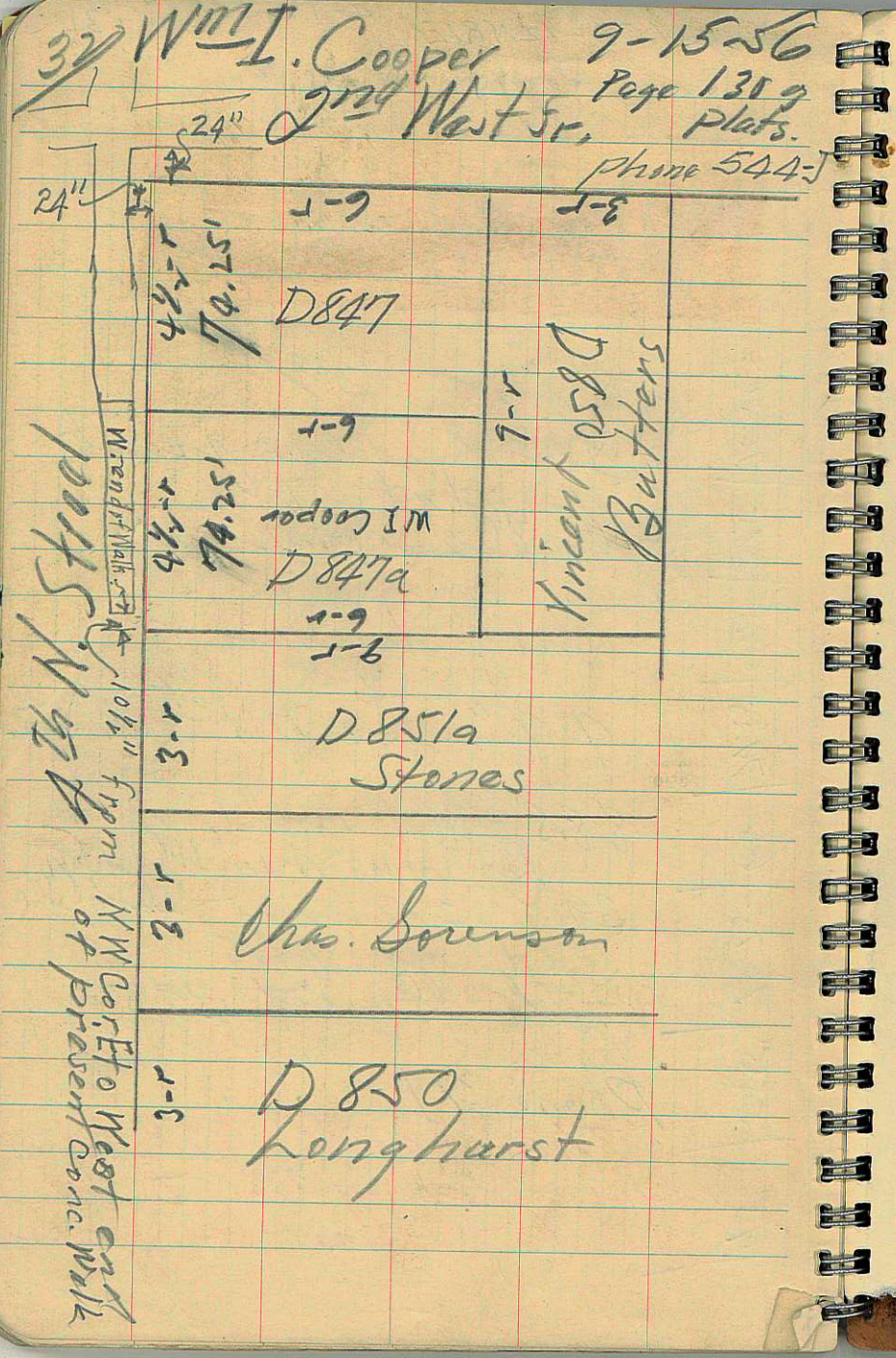
88.5' = total width of Dr W W Merrill prop
39.5' = Amount to be sold off 88.5
The South 39.5'

93' | 53.5' | 70.75' | 66 | 74.25 | 49.5' | 88.5 | 76.5'

39½ / 49

Phone 71

The South 39½' of above description to be sold to Mrs. Helgasen



CURVE FORMULAS

$T = R \tan \frac{1}{2} I$

$T = \frac{50 \tan \frac{1}{2} I}{\text{Sin. } \frac{1}{2} D}$

$\text{Sin. } \frac{1}{2} D = \frac{50}{R}$

$\text{Sin. } \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$

$R = T \cot. \frac{1}{2} I$

$R = \frac{50}{\text{Sin. } \frac{1}{2} D}$

$E = R \text{ ex. sec } \frac{1}{2} I$

$E = T \tan \frac{1}{4} I$

$\text{Chord def.} = \frac{\text{chord}^2}{R}$

$\text{No. chords} = \frac{I}{D}$

$\text{Tan. def.} = \frac{1}{2} \text{ chord def.}$

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft.) and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

GENERAL DATA

RIGHT ANGLE TRIANGLES. Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt. $10.10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. $25.25^2 \div 200 = 3.125$. $100 - 3.125 = 96.875 =$ Base.

Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

LEVELING. The correction for curvature and refraction, in feet and decimals of feet is equal to $0.574\,d^2$, where d is the distance in miles. The correction for curvature alone is closely, $\frac{2}{3}d^2$. The combined correction is negative.

PROBABLE ERROR. If d_1, d_2, d_3, etc. are the discrepancies of various results from the mean, and if Σd^2 = the sum of the squares of these differences and n = the number of observations, then the probable error of the mean = $\pm 0.6745 \sqrt{\frac{\Sigma d^2}{n\,(n-1)}}$

MINUTES IN DECIMALS OF A DEGREE

1′	.0167	11′	.1833	21′	.3500	31′	.5167	41′	.6833	51′	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

INCHES IN DECIMALS OF A FOOT

1-16	3-32	⅛	3-16	¼	5-16	⅜	½	⅝	¾	⅞
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729

1	2	3	4	5	6	7	8	9	10	11
0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167