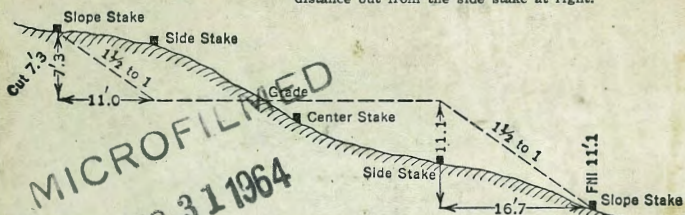


2023

ST.P.

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

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



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

KEUFFEL & ESSER CO., N. Y.

Reconstruction + Enlargement of
SEWER TREATMENT PLANT

Book No. 3,

1949

City of San Diego, Calif.



The paper in this book No. F373A

is made of 50% high grade rag stock

with a WATER RESISTING surface sizing.

11,403-5. km, m, yk. km.

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2-14-49

C 5 m
B 199
Sherrin
Bunch

Grades on 3" C/W

CL # 1 to connect to

4" and 6" LINES 1999-62

B.M. 4.30 13.56 926

0-734 = R.P. +
Rim CL #1

0+00 + 5.50
8.06
4.23
3.83

+30 5.50
8.06
3.28
4.78

+60 5.50
8.06
2.45
5.61

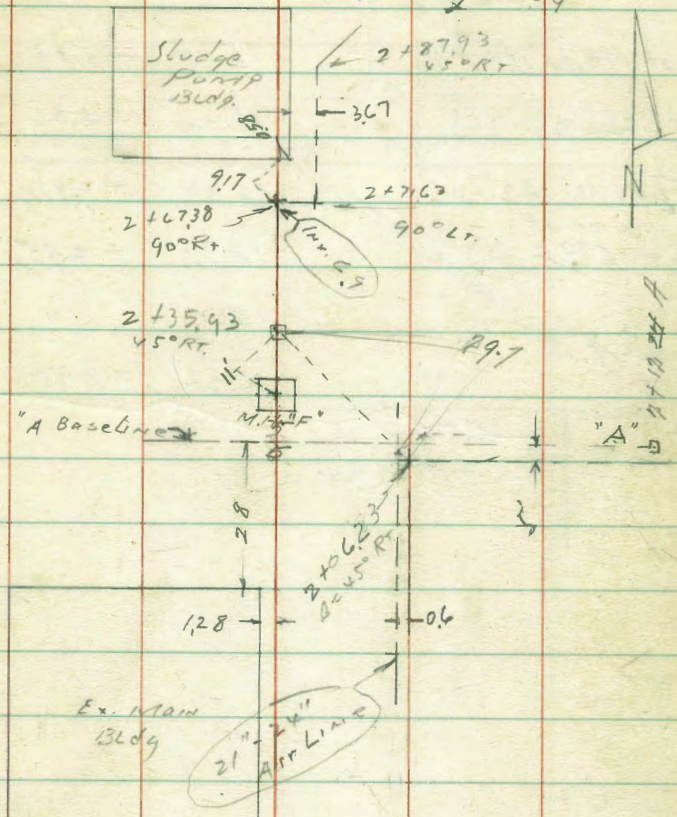
+90 5.50
8.06
2.66
5.40

+120 Present end Staking 5.50
8.06
3.79
4.27

8" C.I. drain Cont'd. from P₂
 Supernatant Line
 see sheet 28

See 2045-36
 M.H.F.
 size & location
 dependent
 on
 location ③

M.H.F. Location change
 See - 4

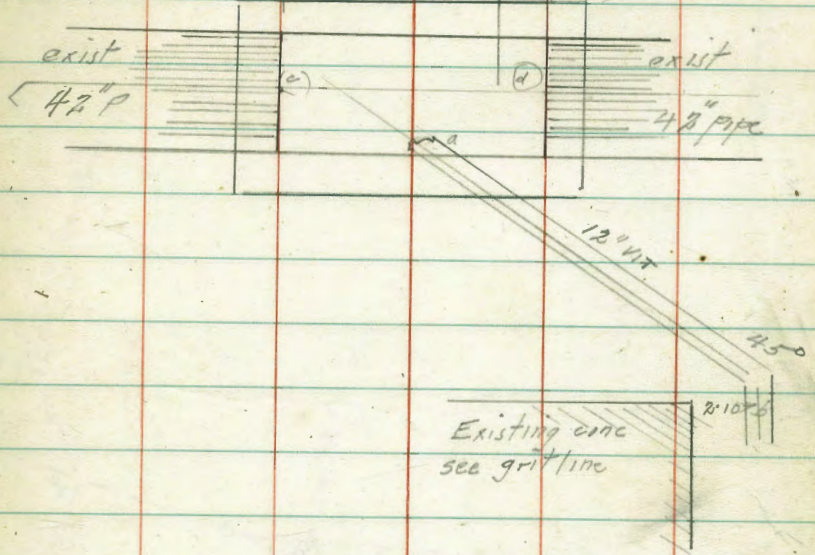


A B 2+10.24 A

see P 3

M H F sewer notent 4
 6.07 broken out
 end of pipe 345.80 A

+	H I	-	
412	13.38		926 BM
a at M.H. on 12" top	15.17	- 1.79	(2.59)
at b top of 12"	16.74	- 3.36	(4.44)
Flow line 42" (c)	16.30	- 2.92	
Same at 3+15.80 A (d)	16.33	- 2.95	
invert at (a)	15.17 1.09	- 2.88	



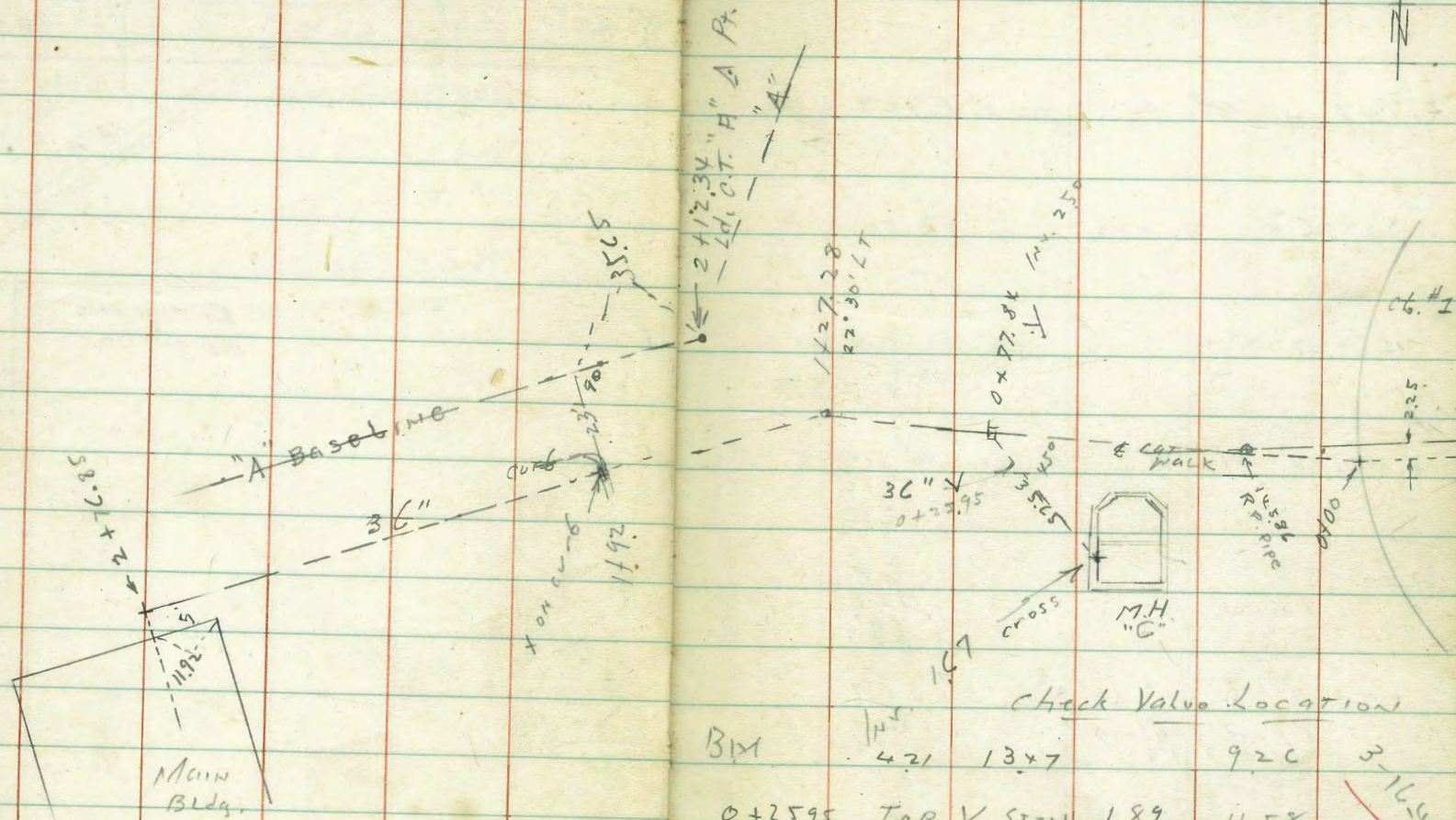
Existing conc
 see grit line

Layout of 36" C.I.P.
Raw Sewage Line, (L#1) to Main Bldg.

2-17-49

4944

5



Check Valve Location

Blk	421	13x7	920	3-16-49
	0+2595	Top V. Stem	189	11.58
	"	Inv.	1113	234

P. 38 for check
45 laid 3-18-49

276 27-
127 29
129 27

Grades 36" C.P.
Cl. #1 to MAIN Bldg.
550 (1476)

BM

926
Inv.

0400

+ 9.08

~~550~~

2 + 22.60 $\sqrt{22\frac{1}{2}}$

+ 1.67

0407

$\sqrt{22\frac{1}{2}}$

9.08

2 + 33.87 $\sqrt{22\frac{1}{2}}$

- 3.00

+ 22.76

$\sqrt{22\frac{1}{2}}$

2.50

+ 50.28

2.50
12.20
5.82
6.44

2 + 76.85 = 90° Lt.

- 3.00

0477.84

"Y" 45°

2.50
12.20
4.12
6.44

2 + 81.85 Main Bldg

1402.56

2.08
12.68
4.87
6.44

0400 W.H.C.

Inv.

+ 1.67

1427.28

A ~ 2° 30' Lt

+ 1.67

(END STAKING)
3-3-x4

13.09
4.55
6.44

13.69

6.30

6.79

0417.83

2.08

12.68

4.45

8.23

0435.66 = "Y"

12.50

0477.84

12.26

4.62

7.64

8" Gas Line

2-18-49

8

BM

Main Bldg. to Digestors

302 (1302)

10.00

0+00

Inv.

15.00

8.02

8.90

0+19.83 $A \sim 2 \frac{1}{2} \text{ Lt}$

F 0.88

5.00

8.02

7.00

0+35.52 $A \sim 2 \frac{1}{2} \text{ Lt}$

C 1.02

5.48

7.54

6.74

0+60

C 0.80

6.23

6.79

4.55

0+84.78 Proc. end

C 2.20

7.00

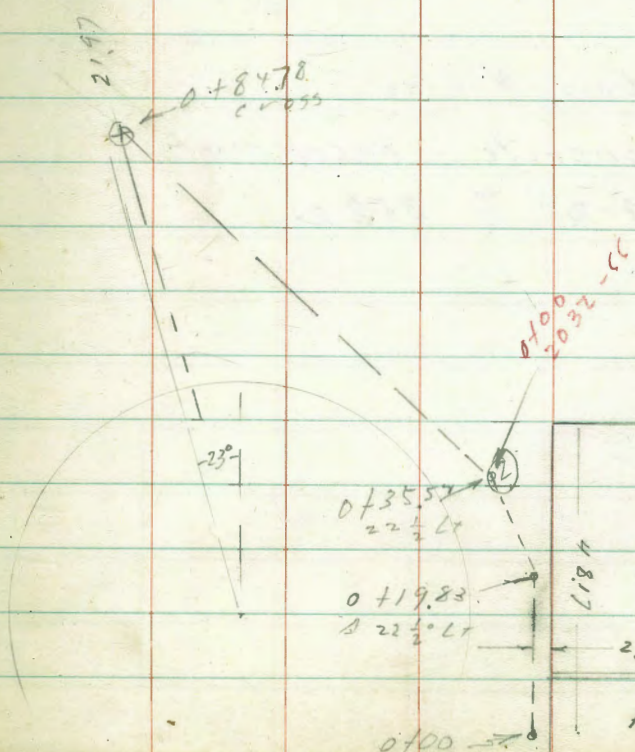
6.04

4.70

C 1.32

LITC
WATER

+ curb



1.87

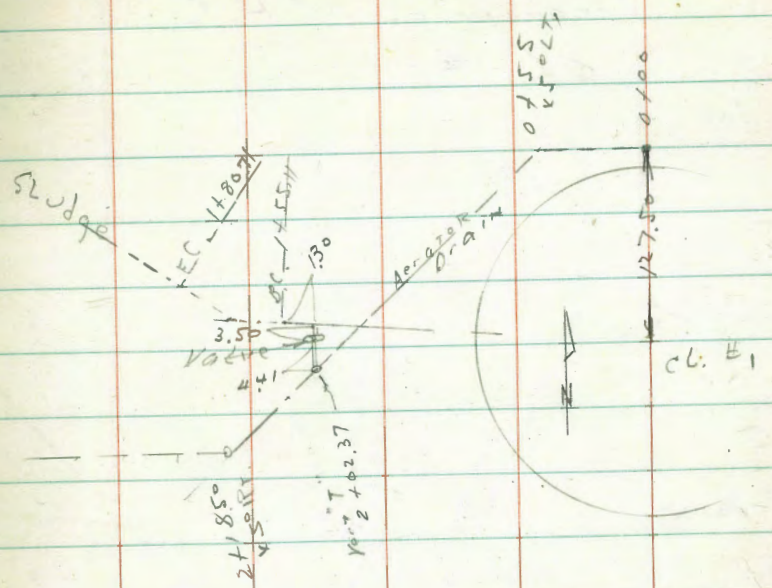
2.67

Add.

EX. MAIN

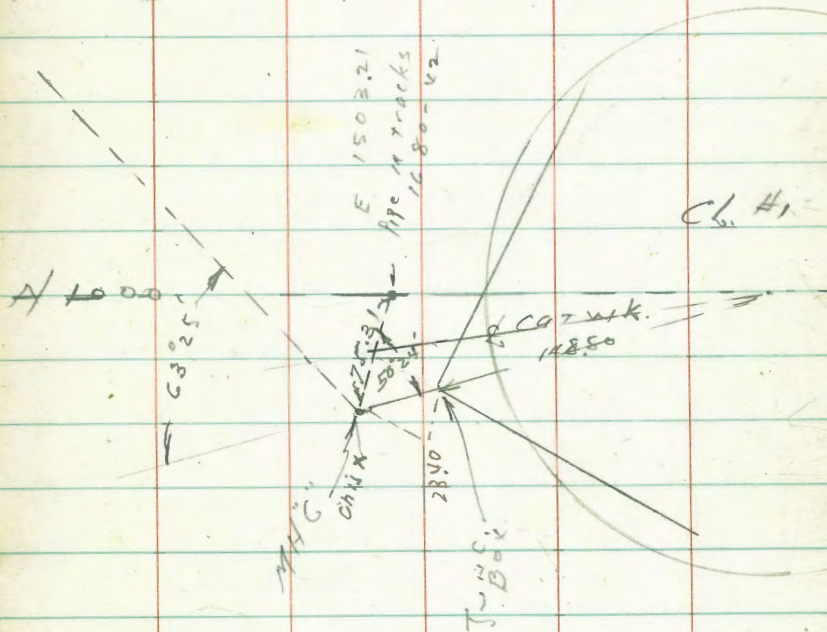
Location of Conn. of
N. outlet drain, Cl. H,
to Sludge Line

Aerator drain N Line
concrete encasement
229.2 to 252.2



LOCATION OF "M.H.C."
CL #1

✓ 10



1080 65



Elevation of Floor under Dryer

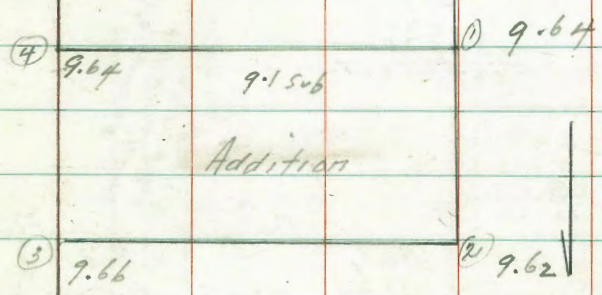
	+	HI	-	
BM	4.43	13.69		9.26 BM
	2.45	13.33	2.81	10.88 PT.
	-0.15	00.68	12.50	00.83
			0.53	+ 0.15

24/2/49

Begg
Sherman
Burch

12

Present
Sludge Pump Bldg



Set grade stakes at door way of
Administration Bldg

10.00 BM
6.80
16.80 HI

(1) & (2)
Pd. 12.3
4.5

14.71 HI.

(3)
11
5.90

(1) 5.07
9.64

2.35
14.45 TP
16.71

(2) 5.09
9.62

(4)
12.20
3.9'

(3) 5.05
9.66

(4) 5.07

12.40
3.71

5.6
9.1

Location of Temporary Pumping Plant
with respect to Base Line

45.70 @ 32°

34805
457
593235
424025
339220
38755885

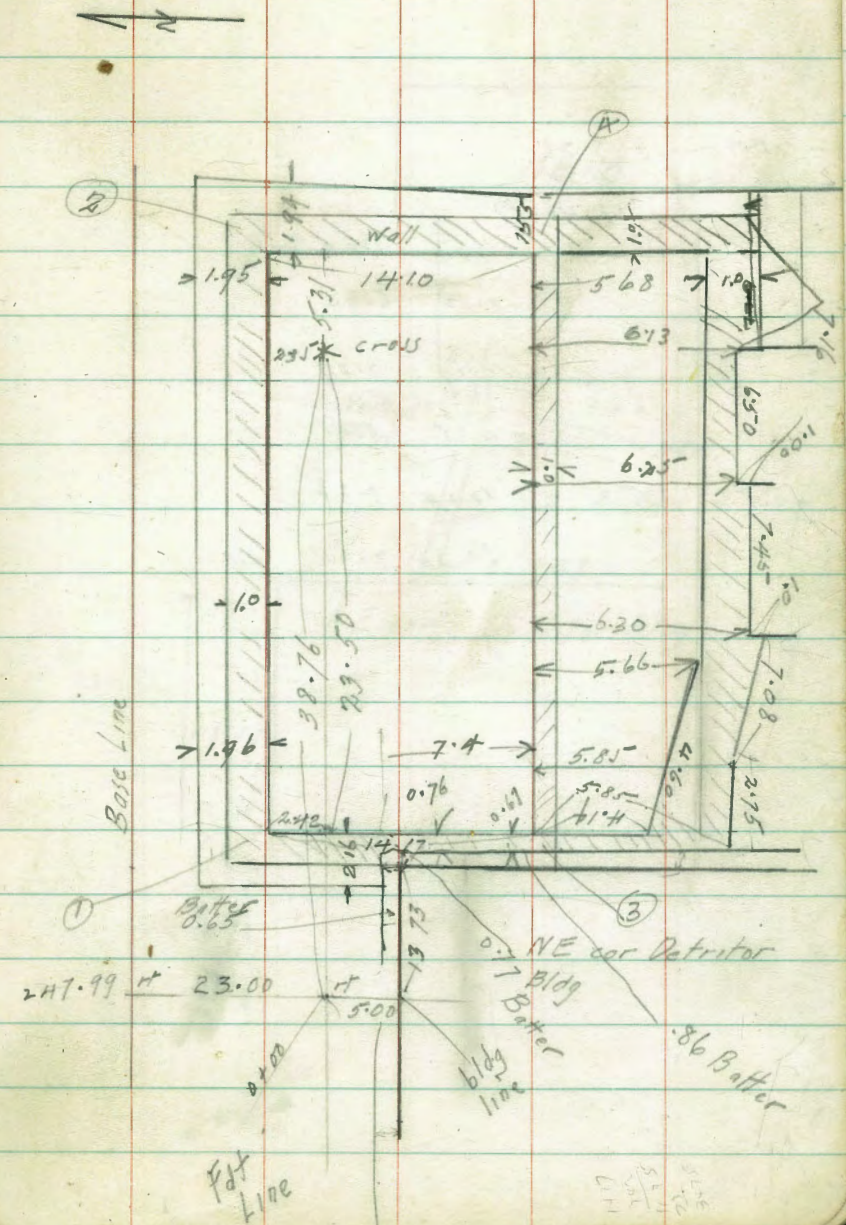
Note: Corners for layout
Wall were set with
Wall offset these shots

BM	HI	Top of wall	Floor E1
	9.26		
	3.00		
	12.26		
	- Rod		
①	11.77	0.49	11.54
②	11.60	0.66	11.53
③	11.60	0.66	11.53
④	11.64	0.62	11.52

38.76	14.17
23.50	7.40
15.26	6.77
7.6	2.42
16.08	4.30
	5.00
	.65

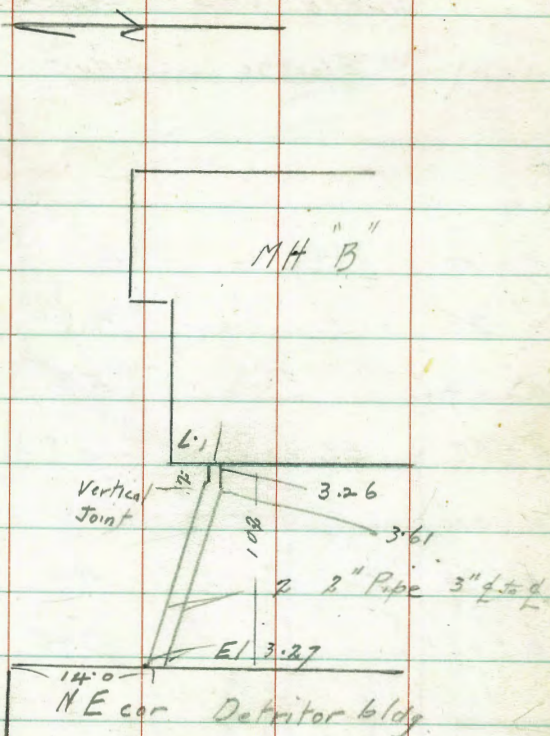
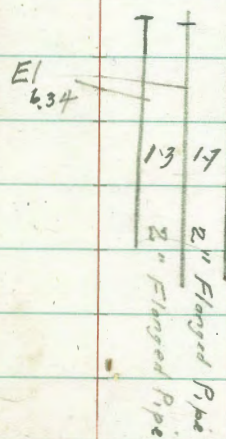
5.10
1.03
6.13

5.21
1.04
6.25



Location of Pipe exposed by
Excavation for Pump.

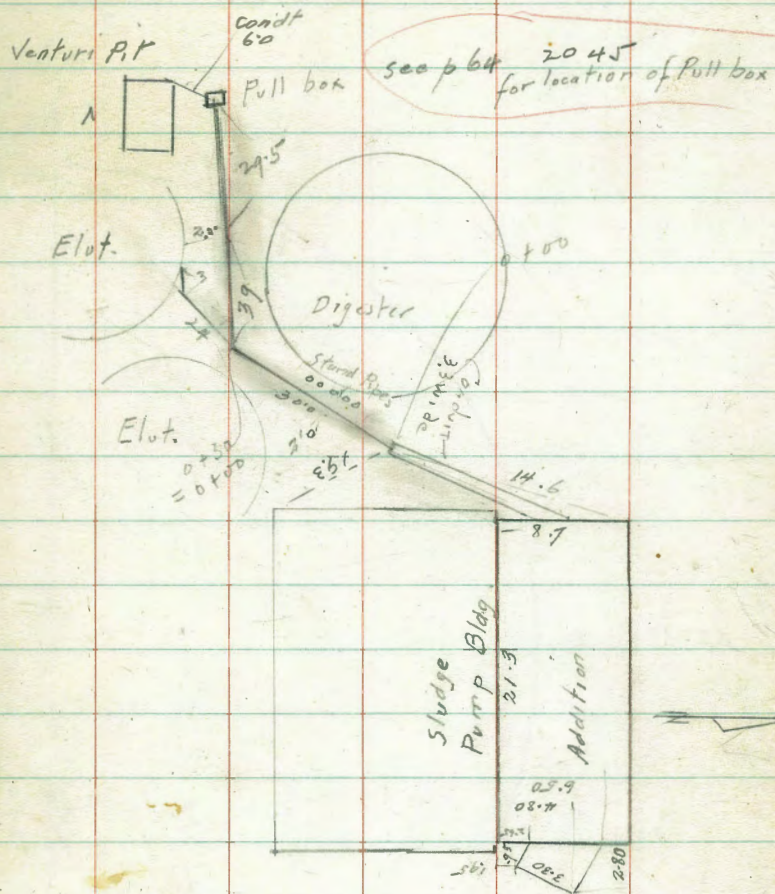
BM			
	9 26		
	4 20		
	13 46	M	
			Top of Pipe
	7-12		6.34
	10-19		3.27
	9 85		3.61
	10 24		3.22
	10 20		3.26
			Wall



Sludge Pump Location of

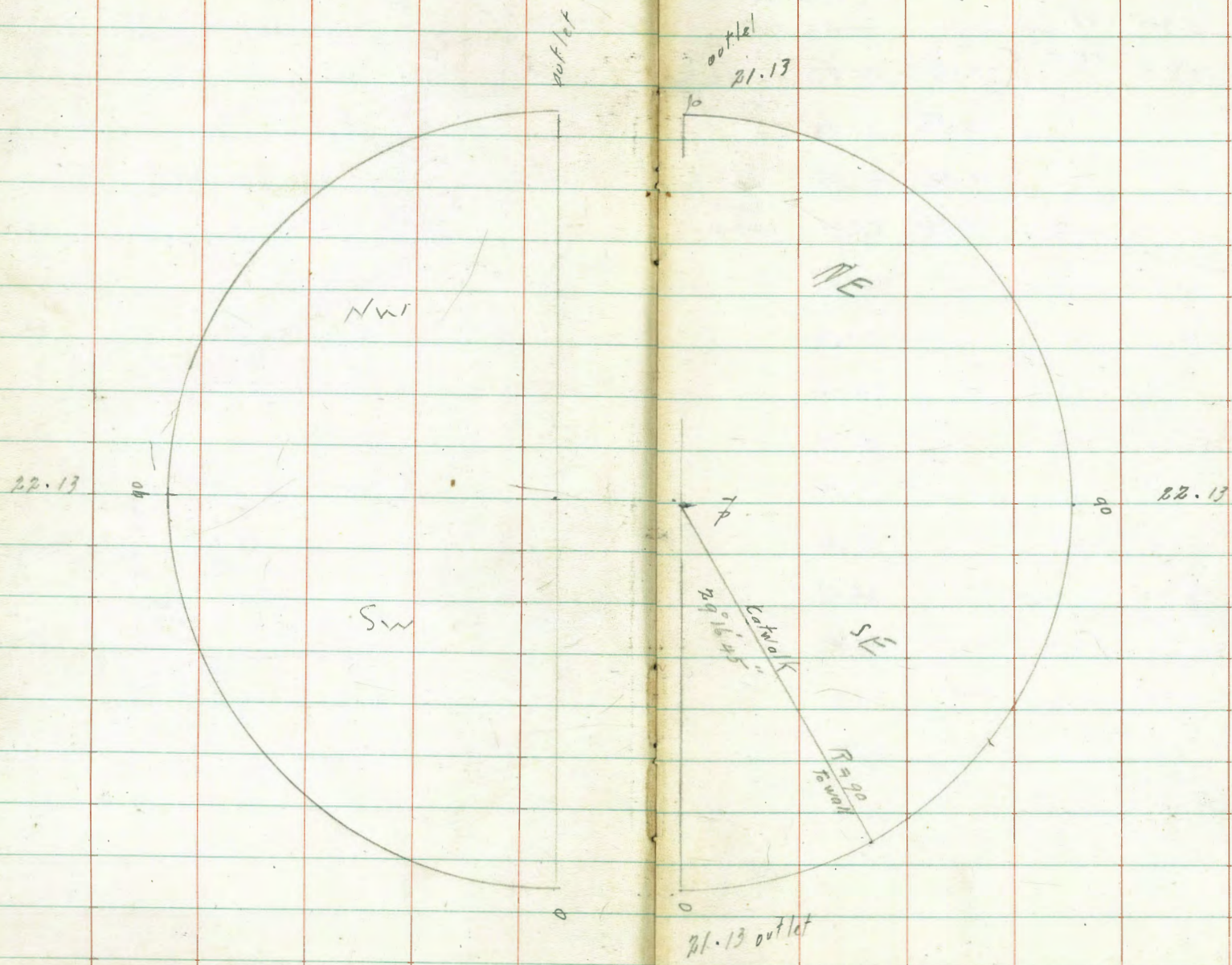
Electric Conduit

		11.10 BM	
		1.79	
		12.89 HI	
		4.50	
		8.39	
		3.27	
		11.76 HI	
		top conduit	
0+00		4.1	
0+30	= Junction	4.8	"
0+54		5.3	"
0+57	Elutriation Tank 5.3		"
= 0+00			"
0+39		4.9	"
0+68		3.05	"



Ch. # 2

Effluent Trough



Grades Effluent Trough should

Grades	Effluent	Trough	should	Notes	BM	Value	Value	Value	Value
5.20	31.69	Should read	26.49	26.49 BM					
		read	7.97	23.72	Hanks BM	4.77	(31.25)	26.48	1999-66
0+			10.56	21.13					
09°			10.46	21.23	NW				
18°	10.32		10.36	21.37					
27°				21.43		set 10.02		10.02	21.23
36				21.53		read 9.90	.02	9.92	21.33
45				21.63		9.82	.00	9.82	21.43
54				21.73		9.72	.00	9.72	21.53
63				21.83		9.65	.03	9.62	21.63
72				21.93		9.56	.04	9.52	21.73
81				22.03		9.46	.04	9.42	21.83
90				22.13		9.35	.03	9.32	21.93
						9.26	.04	9.22	22.03
						9.19	.07	9.12	22.13

(Flow)

erris

set

read

23.73 Hanks

NW

SW

.04#
22.4

Effluent trough

		14 31 25 HI	26 48 499 31 47		
0	SE	$\frac{3147}{7034}$	10 12	21 13	NE
9°		10 24	10 02	21 23	
18°		10 14	9 92	21 33	10 10
		10 04	9 82	21 43	10 02
		9 94	9 72	21 53	9 92
		9 84	9 62	21 63	9 81
		9 74	9 52	21 73	9 75
7	9 68	9 64	9 42	21 83	9 65
8	9 55	9 54	9 32	21 93	9 56
x 9	9 50	9 44	9 22	22 03	x 9 51
x	9 41	9 34	9 12	22 13	

Check Baffle

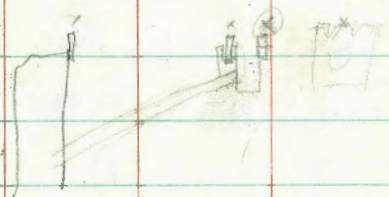
3147-41

No East of catwalk

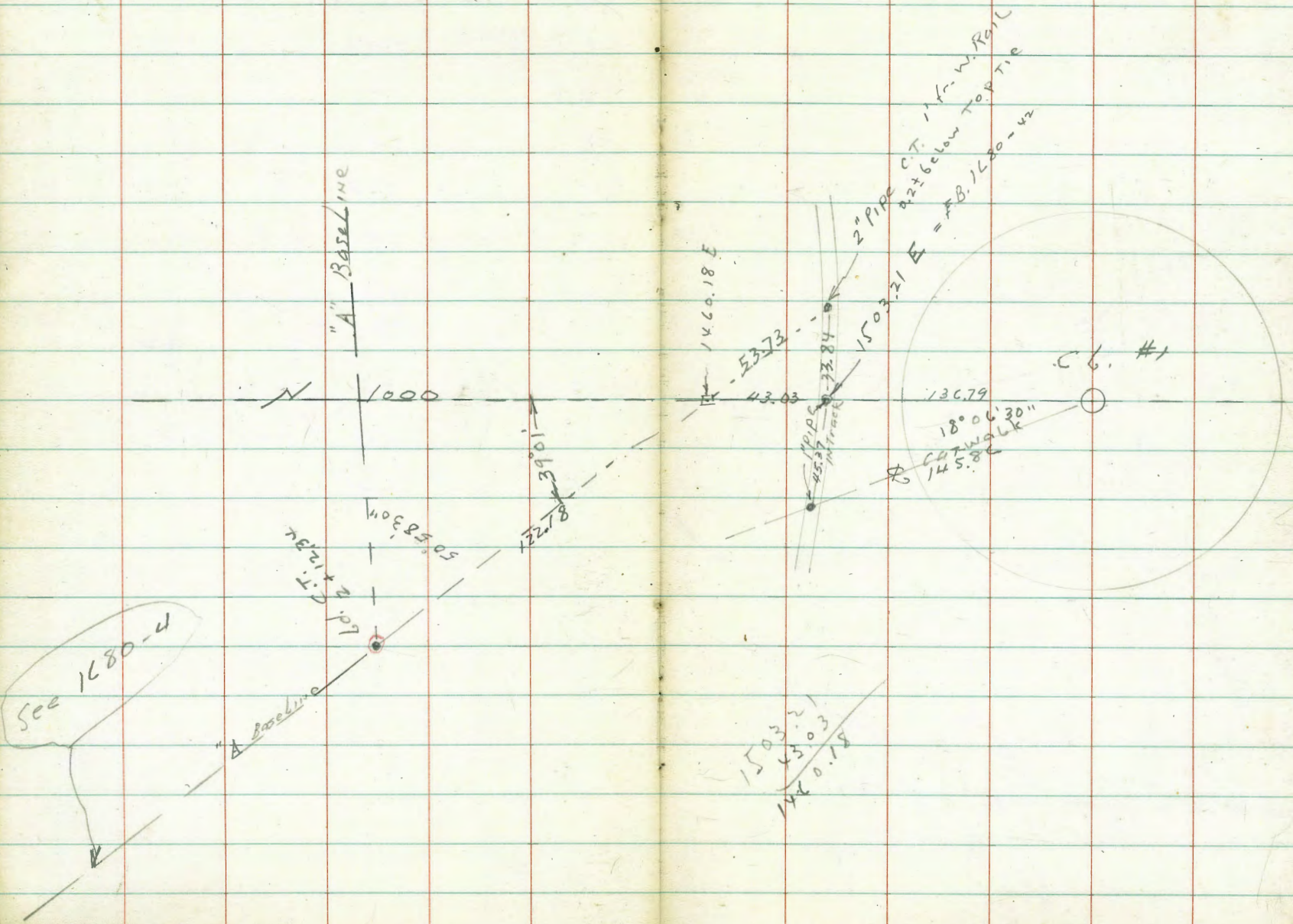
No West of catwalk

No	read	fig		
10	7.41	7.42	24.05	24.06
11	7.41			24.06
12	7.42		✓	24.05
13	7.42		✓	24.05
14	7.43		✓	24.04

6	7.42	24.05
7	7.41	24.06
8	7.41	24.06
9	7.42	24.05
10	7.41	24.06
11	7.42	24.05
12	7.41	24.06
13	7.41	24.06
14	7.49	probably not set
15	7.49	✓



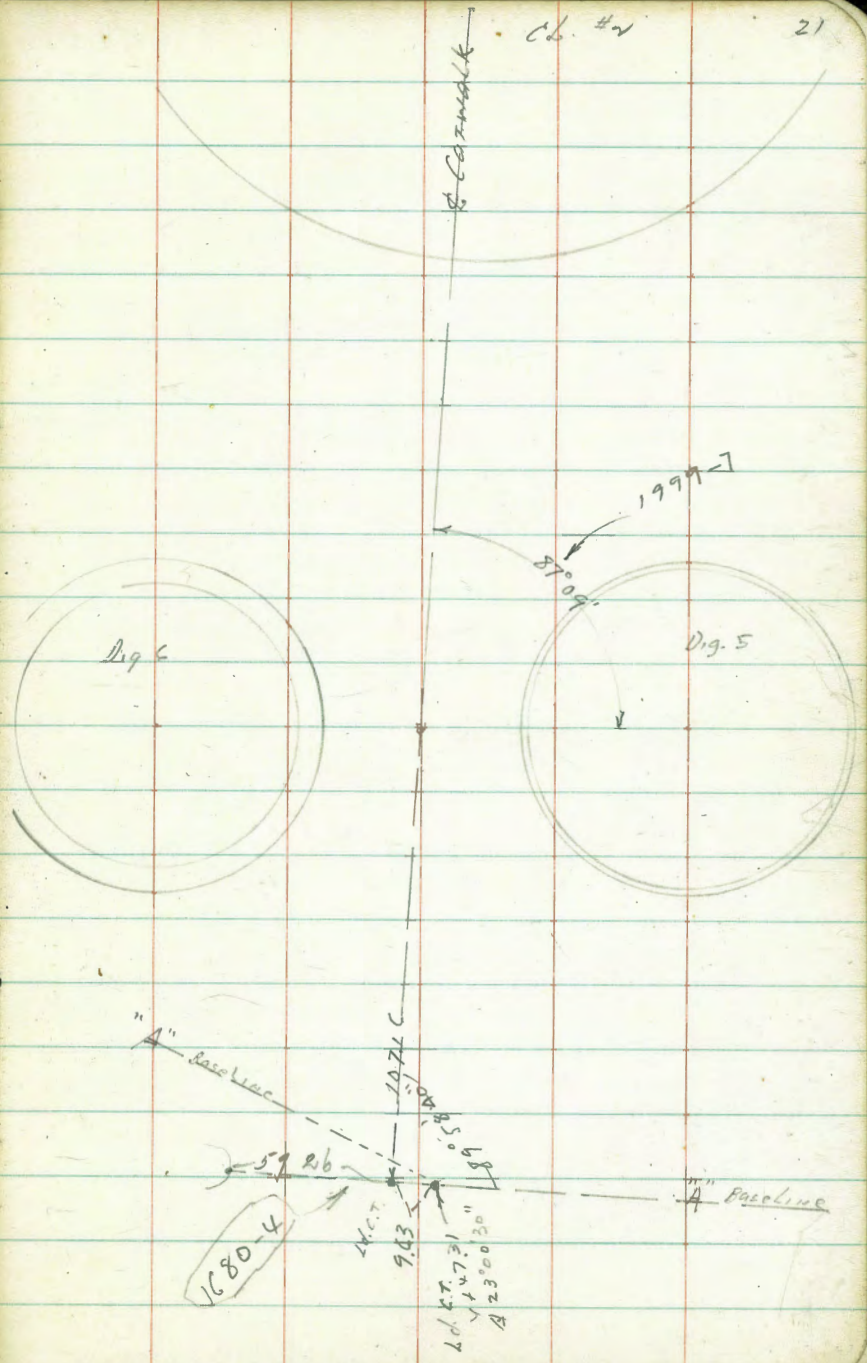
Reference Ties, Main Baseline to "A" Baseline



Ref. PTS. for Lines, Betw. dig. 5 & 6

cb. 4v

21



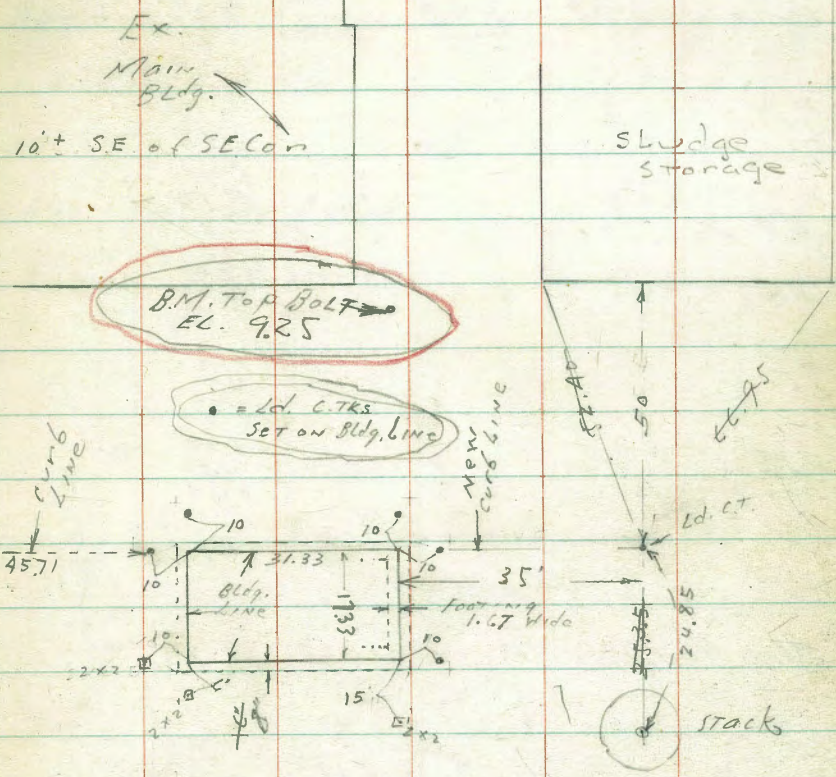
3-3-49
Main Bldg to Stack

BM	483	1409	926
J.P. SET BM	441	13.66	484
			9.25 Top Bolt
NE COR. PAVING		509	857
NW " "		564	802

FOOTING Sub-grade	+6.63	NE
	7.03	
	5.06	
	C 1.97	Ed. CT. at gate
" " "	+6.63	NW
	7.03	
	5.75	
	C 1.28	
" " "	+6.63	SW
	7.03	
	5.51	
	C 1.52	
" " "	7.03	SE
	5.06	
	C 1.97	

~~Void~~

OIL Storage Bldg



FOOTING Sub-gr.	+6.63
Passage Way Slab " "	+7.20
	8.30
	+8.87

To 9.47 CLY

Oil Storage Bldg. 3.8-49.

B.M. 378 (13.03)

9.25
9.25

24

P. 23

and Conduit

B.M.

#1

Bolt

3.78

13.03

9.25

3.78
13.03

0+00 = W.L.

Oil Storage Bldg.

5.73

+7.30

Cond. sub. grade

Footing sub

6.63

6.40
6.40

N.W.

C 1.30

0+38.50 Brk

6.87

6.54 C 1.62

7.37

5.66 C 0.96

8.37

4.66 TOP curb

4.92 FO. 2.6

5.04

7.92 C 3.07

4.92

N.E.

C 1.99

0+42.00 9 Box 1/2" x 5/8"

0+42.00 Sub. gr. Box

S.E.

6.40

4.41
1.98

S.W.

C 1.63

6.40
4.77
1.63

Storm drain box

11.28

1.75

1100.39
42.04
27.26

0+76.79
+ on S. Rail

5.80

Add. to MAIN Bldg.

Conc. par. in front of new pull box

5.33

7.70

1.6

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

exist 10' let pipe

1 1/2" pipe from N. 1 1/2" pipe

8.37

4.66

7.27

5.74

0+00 set for grade

19.03

7.30

5.73

1.6

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

0+42.00

0+32.05

12.00

34.75

76.79

23.60

100.39

CONC. LINE

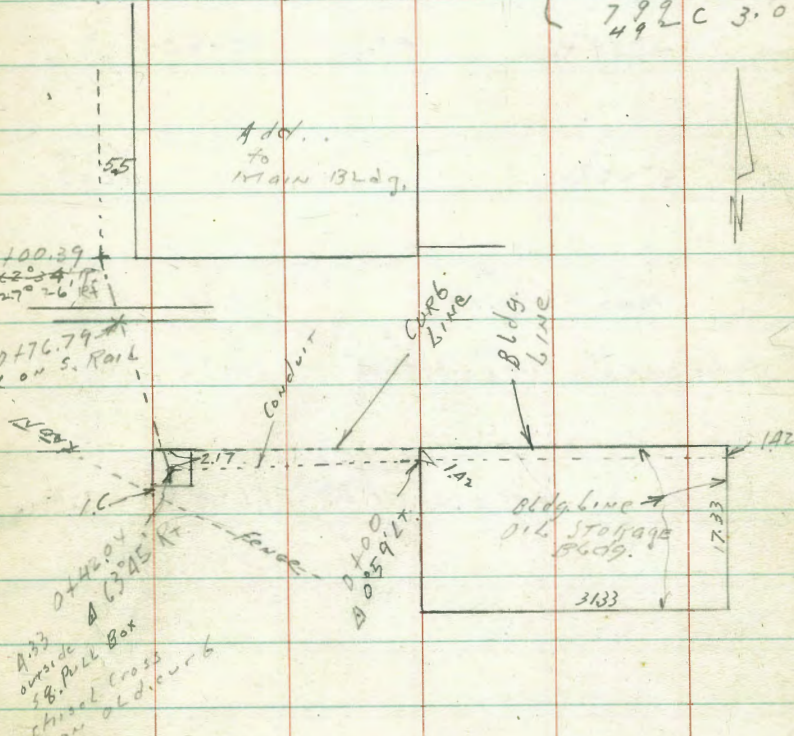
Bldg. LINE

Oil Storage Bldg.

3133

142

17.33



Check Openings CL #1 3-3-49

B.M.	5.73		9.26	5.81
Set. B.M.	4.42	H1	14.36	5.05
67' R.P.				9.94

$\pi = \phi H1$ 0°00' on Cornwall

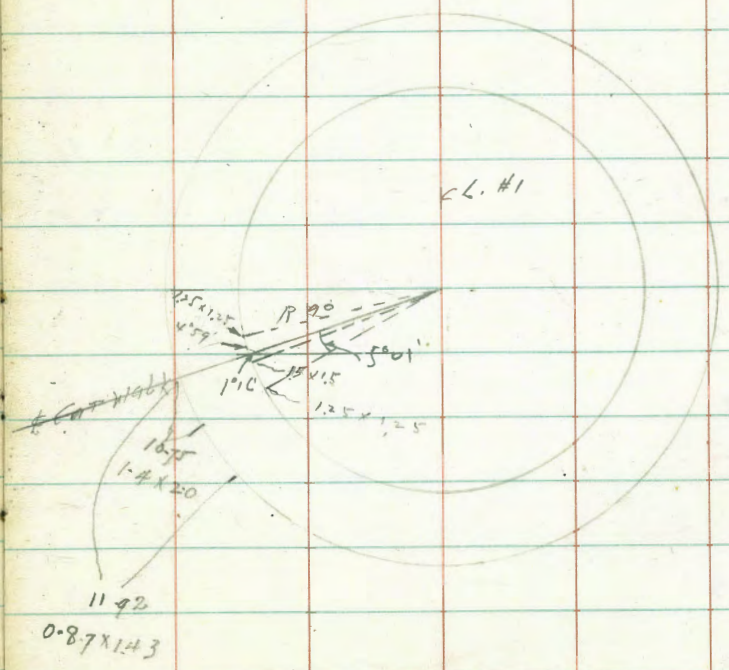
R 90'	1°16' L	+5.81	20.17	1.5 x 1.5
"	5°01' L	+8.23	22.59	1.25 x 1.25
"	4°59' R	+8.26	22.62	" "

R 95.5 2°25' L VERT. 1.6 x 85

4.42	H1	17.68	9.26	B.M.
------	----	-------	------	------

See sketch (1.4 x 2.0) \pm Elev 16.33

(0.87 x 1.4) \pm Elev 11.88



Check Batteries Ch #2	R 90'	Used Brown's Rod QUARTERS	3-4-49	26
W. of Catwalk				
B.M.P. 17 2.93 (26.66)	2373	Hank's BM	1 + 395	2.58
0100 = Catwalk			1 + 69	2.63
0405.9	2.58 ✓	MKT. to PLAN	+ 557	2.63
+ 73.8	2.57	01 H	+ 620	2.63
+ 217	2.58		+ 71	2.64
+ 295	✓		+ 789	2.60
+ 37.9	✓		+ 867	2.58 2408 ✓
+ 452	✓		1 + 945	2.61
+ 53	✓		2 + 033	2.58 LAST
+ 609	✓			
+ 688	2.60	02 L		
+ 767	2.56	02 H		
+ 86	✓			
+ 924	✓			
1 + 00.3	✓			
+ 081	✓			
+ 16	✓			
+ 238	2.57	01 H		
+ 317	✓			

From here on NOT PLACED

check 8" dig. drain
sketch p. 4

28

B. 1.1 5.68 (14.94) 9.26

0.71

0.100

14.61 0.33

0.50
0.17 Low

0.115

14.07 0.87

0.05 H

0.135 4.1 45° LT

13.33 1.61

0.11 H

0.172 x

end 3-4-49

12.60 4.34

2.39
0.05 L

Check 10" Wash Line at Ch. #2

as laid 3-7-49

B.M. 407 (1407) 10.00

4777.49 22°45' Rt. Not laid

4783.3 Beg. 8" Pipe 8.35 5.72 TOP

5+06.10 Tree 8.10 5.91 "

5+16.35 Δ 8.24 "

5+34.41 Δ 2°16' Rt 8.14 "

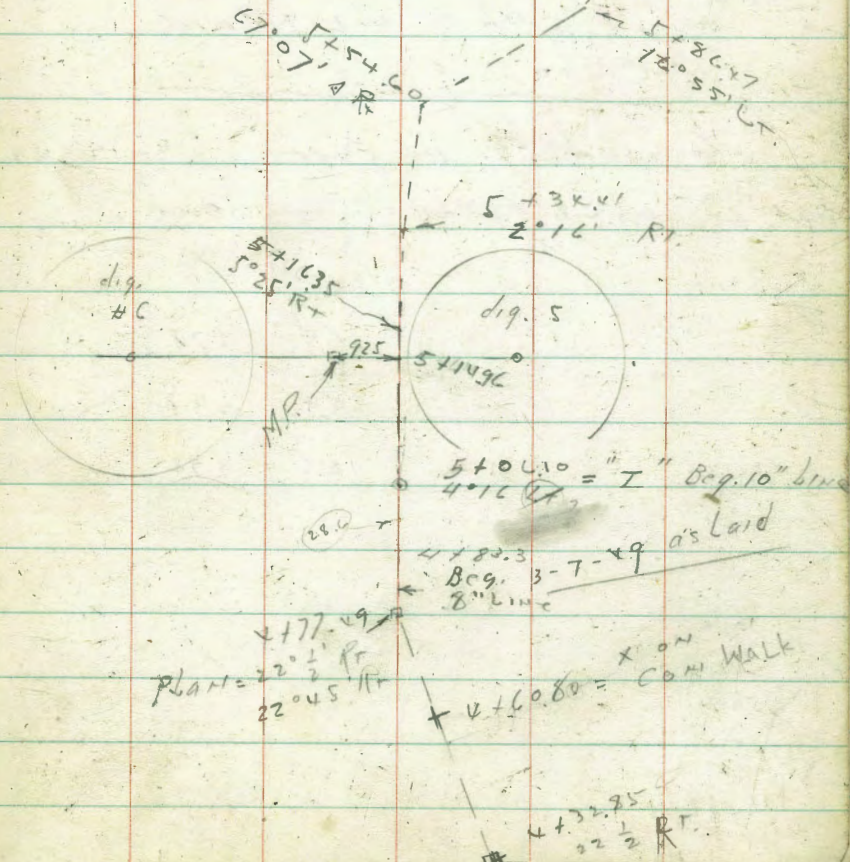
5+54.6 Δ 67°07' Rt 7.93 6.74 S2

5+80.47 Δ 16°55' Lt 6.09 8.00 "

from 1999-40

29

Line Back filled. See other check



3-9-49

ENGINE FOOTING IN
New BLDG.

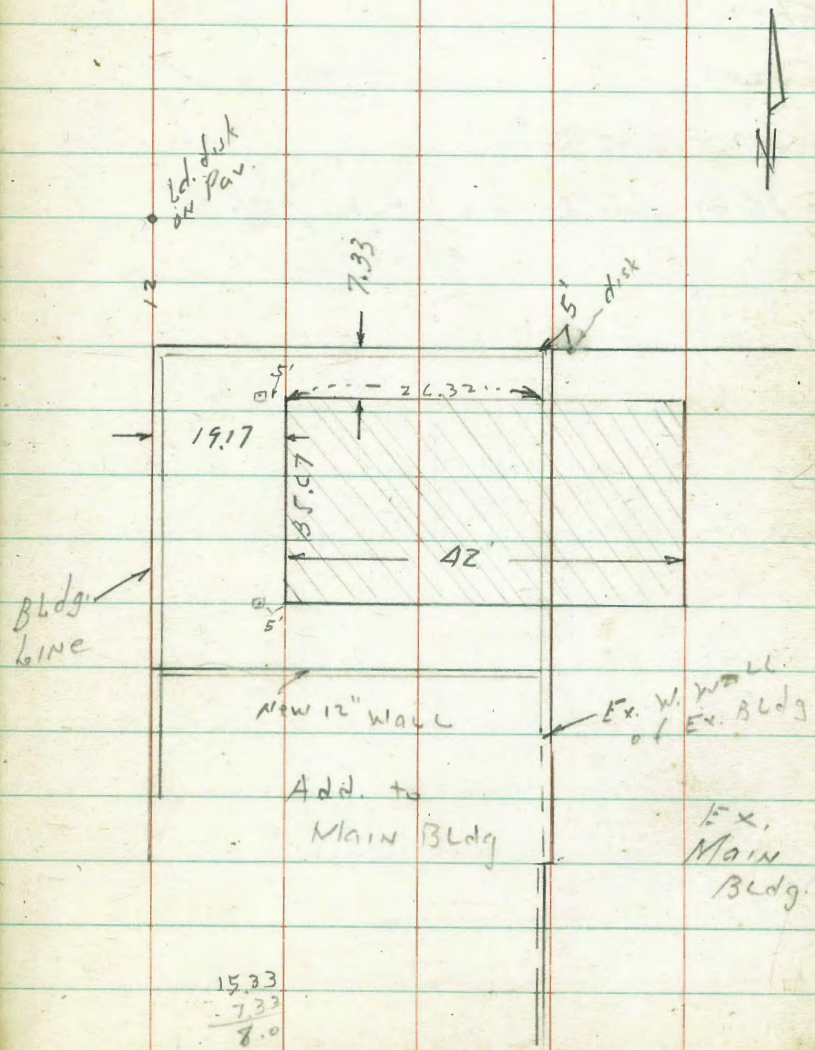
BM. dig #5 3.16 (1316) 10.00

FOOTING - Sub. grade NW COR 13.50 $\frac{9.00}{5.28}$
C 2.38

SW 9.00
9.00 SL. AT MAIN 7.97
3.00 C 1.49
C 6.00
9.00 NW AT NW MAIN
3.00
C 6.00

Ground Fl. in Excav. 4-12-49

BM. dig #5	3.28	13.28	10.00
SW		10.1	3.18
		10.5	2.78
		10.9	2.38
NW		10.5	2.78



3-9-49

Grades on ELU. Line "A" Full Length INV. 600

Sketch - F.B. 1999. 600

BM. ^{dig.} 3.6 13.6 10.00

0+00 INV 7.16
6.00 $\frac{7.16}{\text{Grade}}$

0+24.1 $\frac{7.16}{1.94}$ 6.00

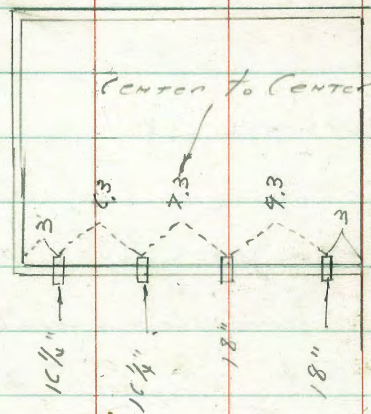
0+48.2 $\Delta 45^\circ R$ 6.00 $\frac{7.16}{2.13}$

0+63 end staking 3-9-49 $\frac{7.16}{1.26}$ 6.00

32

LOCATIONS OF OPENINGS
THRU SLY WALL OF TEMP. ROAD PLANT
Sketch P 13

BM	597	1523	926
T.P.	3.17	<u>12.78</u>	564 9.61
Top Ex. CON. WALL	N.W. COR.	11.76	+ 1.00
"	" NE "	11.74	+ 1.04
"	" SE "	11.75	+ 1.03
"	" SW "	11.78	+ 1.00
Top Ely opening		21.52	- 8.74



3-16-49

Elev. Top Pour, Sludge Pump Bldg

(23.37)

34

BM ^{d.g.} 5 13.37 23.37 10.00

N.W. COR 3.76 19.61

S.W. " 3.82 19.55

S.E. " 3.85 19.54

N.E. " 3.69 19.68

Middle West 3.81 19.56

" " High Cor 3.74 19.63

" EAST 3.85 19.52

" " High Cor 3.67 19.70

S. Row of dr. sumps 3.88 19.49

Beg. West to East 3.87 19.50

3.87 19.50

3.87 19.50

N. Row of drains 3.87 19.50

3.87 19.50

3.87 19.50

3.88 19.49

3-17-49.

1st Check Corbels Dig. #4

14.63

35

18 Corbels eq. spaced

#17 Corbel

6.67 7.96 + 1/2"

B.M. BP

4.63 14.63 10.00

#18

6.65 + 1/4"

#1 Corbel Bottom side Ply Bd. Bot.

6.65 7.98 + 1/4"

2 6.67 7.96 + 1/4"

3 6.66 + 3/8"

4 6.67 7.96 + 1/2"

16-20° = 17.13

numbered, counter clock wise.

5 6.63 8.00 ✓

" 10° = 8.60

" 30° = 25.54

6 6.64 ✓

7 6.61 - 1/4"

8 6.61 - 1/4"

9 6.60 8.03 - 3/8"

10 6.63 8.00 ✓

11 6.63 ✓

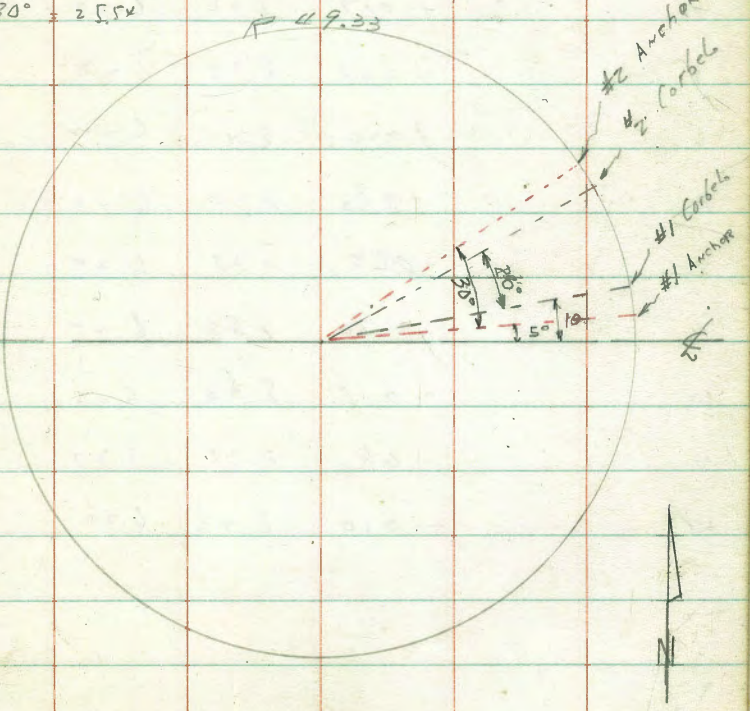
12 6.63 ✓

13 6.63 ✓

14 6.63 ✓

15 6.64 ✓

16 6.64 7.99 ✓



1st Check Anchors D. g. #4 Sketch P. 25

3-17-49. 12 Anchors eq. spaced

Elev. Anchors = ± 6.25

B.M. 463 (7463) 10.00

Counter
clockwise

Position

#1 Anchor	OK	8.43	6.20
2	OK	8.40	6.23
3	OK	8.40	6.23
4	+0.17	8.36	6.27
5	+0.37	8.35	6.28
6	+0.40	8.41	6.22
7	+0.63	8.40	6.23
8	-0.65	8.39	6.24
9	-0.30	8.38	6.25
10	-0.15	8.38	6.25
11	OK	8.36	6.27
12	-0.10	8.43	6.20

Foundation of W. Wall Main Bldg

North & East Section

10.	BM		
3-11	Rod		
13-11	HI.		
South end	9.5	Elev subgrade	3.6
Mid	9.5		3.6
North end	9.4		3.7

check Elev. 4 Cons. MH "B"

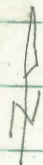
BM 464 1390 926

SE Con 4.97 893

NE " 5.88 902

NW " 4.93 897

SW " 4.85 905



"B"



check 36" C.I. Line - C1#1 ³⁹

as Laid 3-18-49

BM 566 1492 926

0+77.84 = 45° ^{Top Pipe} 936 + 2.48
_{3.05}
_{12.44}

+2.50
sketch
P 5

0+80.24 Top Pipe W of Bell 942 +2.42 +2.46

0+96.74 Top Pipe at Bell 955 +2.29 +2.19

1+122 Top Bell 952 +2.32 +1.93

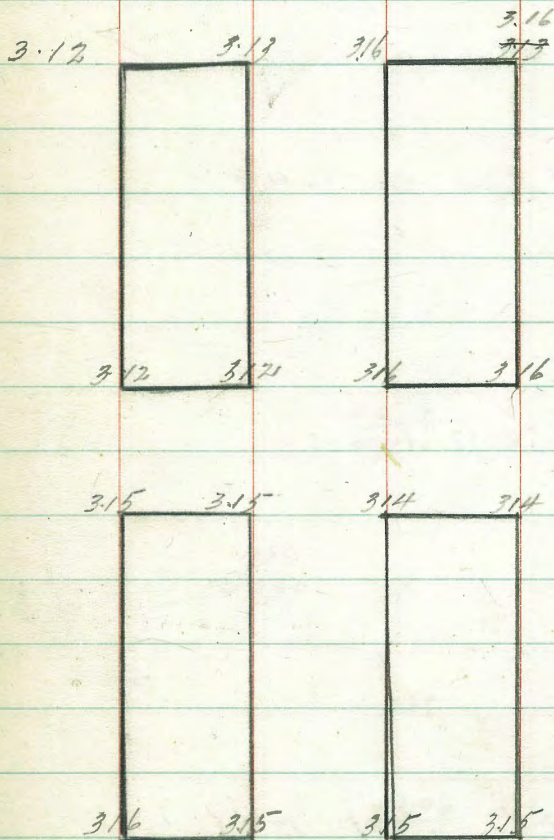
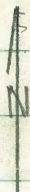
" Inv. Last Length Laid 12.83 +2.09 +1.93

1+272.8 Δ 22°30' 13.35 1.57 ← sub. gr.

? West Bell 22°30'

Sludge Pump Base

BM 10.
13 72
HI. 23 72



check 12" Outlet drain

Aerator

CL. #2

Sketch 1999-51

Moose

13-299

Sheehan

Sisson

3-23-49

2+84.81 X not set

2+80.90 end Pipe 3-23-49

2+67

2+54.80 = 4" x 12" Cross

2+44.27 A

2+32.4

2+20.50 = 8" x 12" Y Top 12" Y

B.M.

430

1430

10.00

d.g. 5

H.I.

Lt

TRUE

Rt

40

Rods top of Pipe

13.52

12.86

+2.66
12.14

11.19 = Top
Bell
3.04 to E
Vert. up 90°

Slight
Bend
here

11.56
→ 0.30

10.85

+4.06
10.24

(14.30)

H.I.

Check (Gr. slab) Oil Storage Bldg
2-23-49.

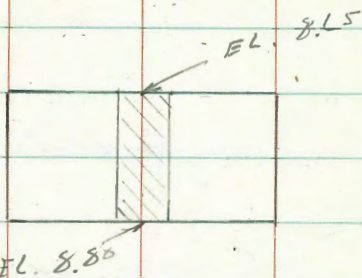
Sketch P 24

BM.
P. 23

3.93

(1318)

925



NL

453

865

SL

438

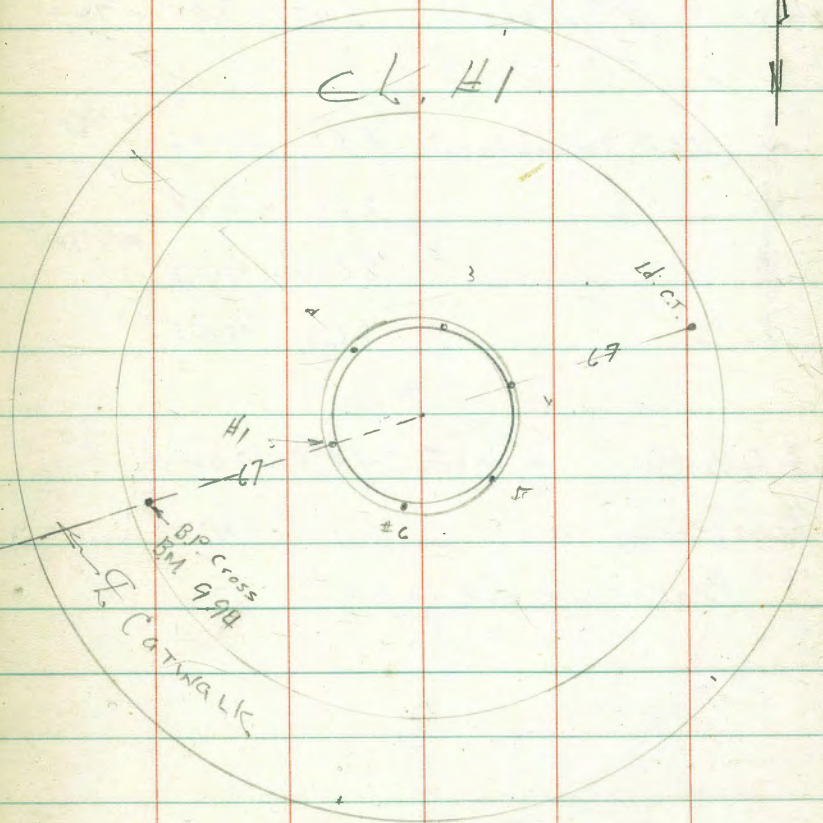
880

Check 6 Anchor Bolts Cl. #1
 AT 60° 3-29-49.

		20.00	99x
	1010	2003	993
#1	TOP BOLT	0.40	196x 1963
#2	"	0.40	
#3	"	0.40	
#4	"	0.39	
#5	"	0.40	
#6	"	0.40	

TOP FORM

1		0.74	1930 1929
2			
3			
4			
5			
6			



CR. check on Hank 0.008

Set 18 Anchor Bolts at 20°

Dig. #4

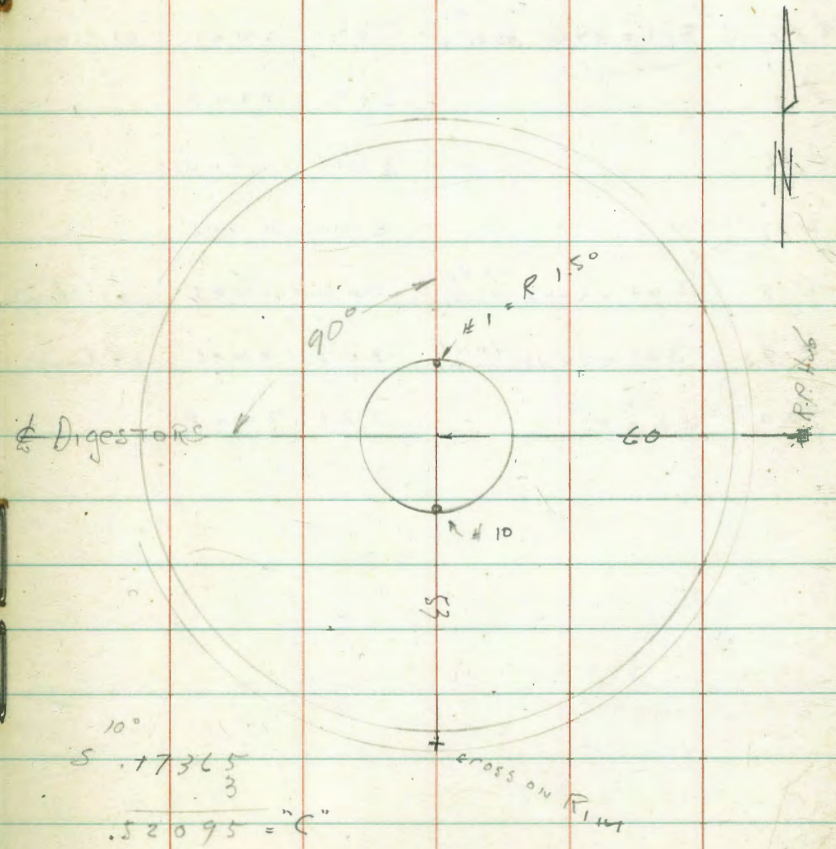
CTR checked 0.008

dig. #5
 B.M. 4.56 14.56 10.00
 T.P. 5.21 (-4.85) 24.62 -10.04
 check to Hank's B.M.
 SW Floor 2.75 - 7.30 - 7.29

Required Elev bolts -13.04
 template 13.46
 0.42
0.46

N TOP Template 8.61 -13.46 $\frac{4.26}{8.5}$
 E " " 8.63 -13.48
 S " " 8.62 -13.47 } ave 13.465
 W " " 8.60 -13.45

Set bolts ④ - 4.85 8.19 -13.04
 TEMP - 13.50
 Bolts check 0.02 ±



Check Baffles W. of Catwalk
CL #2

From P.27

BM	336 (2709)	2373	
#11		301	2408 2408
#12		301	2408
#13		301	2408
#14	301 = 2408 ^{inside} Baffle	302	2407 .01 Low
#15		301	2408
#16		301	2408
#17		301	2408
#18	301 = 2408 ^{inside} Baffle	300	2409 .01 High
#19	301 = 2408 ^{inside} Baffle	303	2406 .02 Low
#20	LAST	301	2408

3-30-49.

CL #4

44

Check Baffles E. of Catwalk
(2709)

#11	Recheck P.27	301	2408
#12		301	2408
#13		301	2408
#14	301 = 2408 ^{inside} Baffle	302	2407 .01 Low

C.L. #2 checked 4-1-49.

Hanks Marks on wall

Revolving Arms

Inside #2

BM. x.78 1.21 9.93

SLY 67'
RR. RP.

S W Ly 160 1311

N " 160 ✓

N E Ly 160 ✓

S " 160 ✓

4-5-49

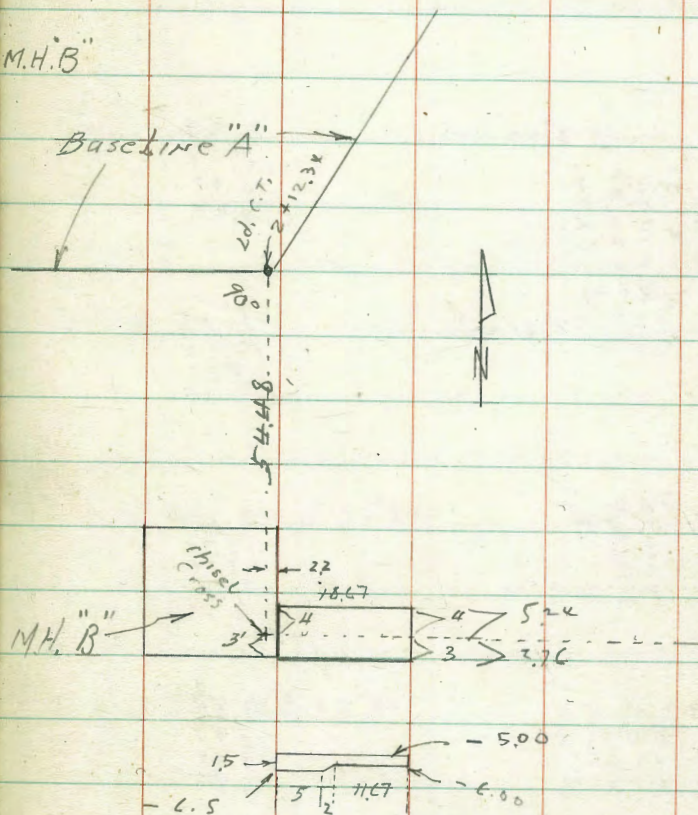
Recirculation
Venturi Tube, Con. Box.
See Sketch #7.

B.M. TOP BOLT					
P-23	436	<u>1361</u>		9.25	
Set B.M.	0.70	0.70	1361	0.00	Mark E. side M.H.B.
Sub. gr.			6.70	-6.00	
			7.20	-6.50	$\frac{3.2}{0.40 - NW}$ 0.50 SW

Check FORMS 4-12-49

Above B.M.	6.82	6.82		0.00	
Top Form SE Con			11.82	-5.00	
" SW Con			11.95	-5.13	
" NW Con			11.98	-5.16	
" NE Con			11.95	-5.13	
" 11.5UMP			11.69	-4.87	
" 1x2 Box			12.04	-5.22	

S. FORM raised $\frac{3}{4}$ "



See 1999-45
Cuts 36" CIP

4-12-49
Influent Top
INV.

242101

104'00"

2.44 8.12
12.31
5.24
C 7.07

240858

line OK 8'42'44"

2.29 8.22
12.46
4.97
C 7.49

149015

0'21'22"

2.15 8.36
12.60
5.21
C 7.39

148371

Line OK
B.C.R.T.

2.00 - 8.81
12.75
5.20
C 7.55

3.42 } Flow 12.04
Top 8.92

146959

1.84 14.04
12.91
5.27
C 7.64

145547

Δ 45° R

R.P. 1999-45

1.67 ✓
12.08
5.30
C 7.78

BM BP
Dig. #5

475 (1475)

10.00

Main Bldg. to Ch. #2

Sketch
1999-45

47

247032

+ 9.08
5.67
1.90

245534 V.A 22°30'

+ 9.08
5.67
4.64
C 1.03

243986 V.A 22°30'

+ 2.67
12.08
4.50
C 7.58

243345 EC 1°25'30" 8.12

2.59 8.12
12.16
4.66
C 7.50

CUTS ON 2x" C.I.P.

INV.

0+57.80

0+35.71

0+13.60 Δ 22°30' LT.

0+00 90° ELL UP

0-03.78

2.67

2.67

+2.67

+23.35

AIR
Supply

1+63.33

13.60

1+49.73 BC RT

1+35

1+19 = Over 8" V.C.P.
INV. 1.4x

1+00

0+79.93 Δ 45° RT

BM BP
D. #5

Main Bldg. to Cl. #2

Δ 3°07'30" RT

R 1000

T 2720

L 5440

Sketch

1999-46

48.

2.67

11.62

5.06

C 6.56

2.67

11.62

4.69

C 6.93

2.67

11.62

OUT

2.67

11.62

6.16

C 5.46

2.67

11.62

OUT

2.67

11.62

5.9x

C 5.68

10.00

4.29 (14.29)

Cuts 2 1/2" C.I.P. Air Supply

Main Bldg. to Cl. Hdy

0700

1267

071360 22 1/2° LT.

2 + 3133 end pipe

+ 9.00
 5.29
 3.26
 C 2.03

2 + 1605 22 1/2° V. UP.

+ 2.67
 11.62
 4.00
 C 7.52

2 + 0413 E.C.

1300

2.67
 11.62
 4.19
 C 7.03

1 + 9053

1300

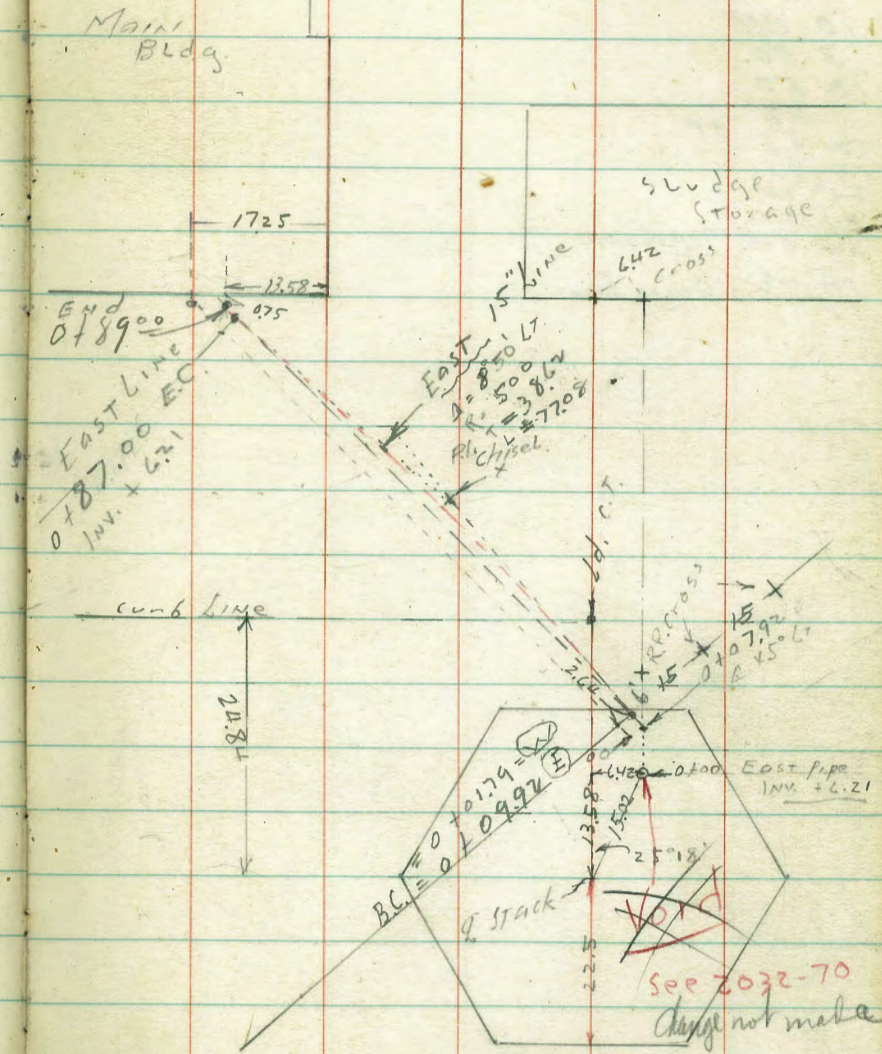
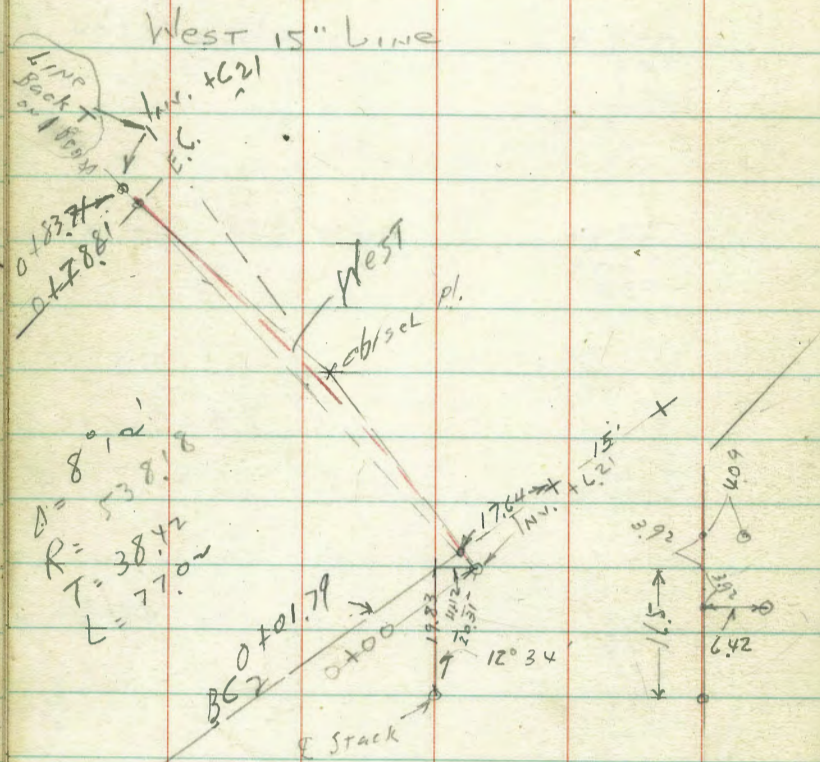
2.67
 11.62
 3.78
 C 7.04

1 + 7093

1429

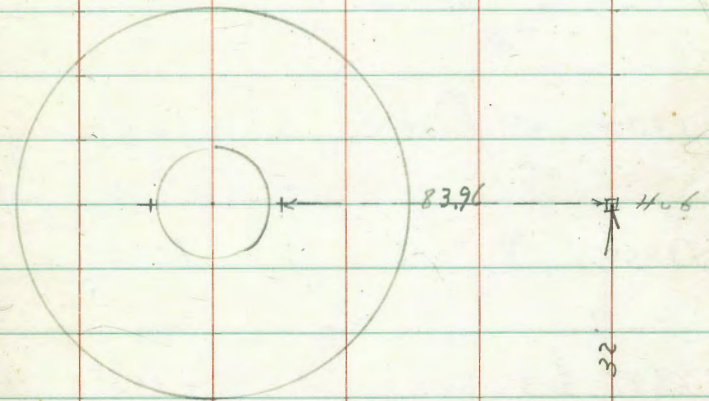
2.67
 11.62
 3.51
 C 8.11

Double 15" V.C.P. Lines
Stack to Main Bldg.



ELU TRIATOR TANK ~~1680-7~~

10 BM
 3.50
 13 50
~~97~~
 12 53 TP
 12 73
 25 26
 11.22
 14.04 Top of form.
 14 08 Design Elev



"A" Baseline X 87.60
 2+99.94
 87.60
 83.96
 3.64
 2+12.34
 L.H. C.T.
 FB. 1680-7

Dig. # 5

5-26-49.

52

8" Pipe #3 Pen 1999-11

0100

Gr. & Pipe
+6.83

104.38 inside wall

+6.83

108.92 top of Dig.

+6.83

0114.00 & Pipe Sup.

+6.83

0118.72 45° Bend

+6.83

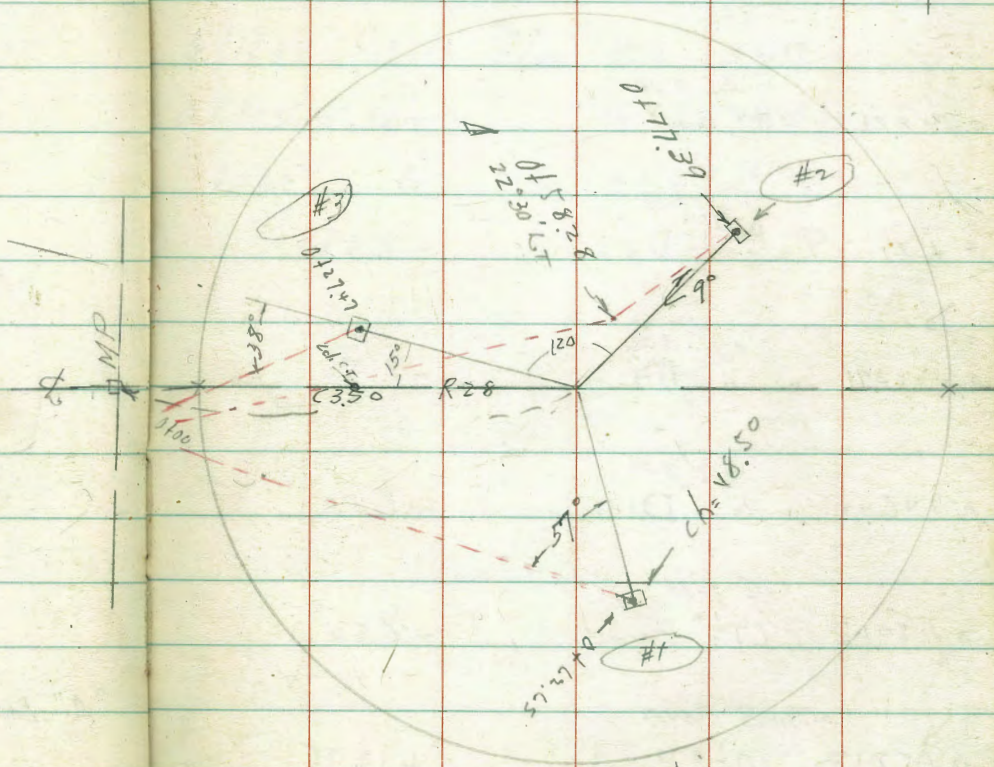
0124.64 45° Bend

+12.75

0127.47 & Tube

+12.75

#5 Dig



#1 - 2 - 3 Tied 5' each way on Radial

Dig. # 5
8" C.I.P. Pier #1 Sketch P. 52

1999-9

53

0+00 GR. & Pipe
 + C. 83

0+05.5 inside wall + C. 83

0+05.5 offset 3.30 Rt
 45° Bend + C. 83

0+18.83 off 3.00
 45° Bend ✓ - C. 50

0+21 off 3.00
 E Pier D3 ✓ - C. 50

0+33.91 off 3.00
 " " D2 ✓ - C. 50

0+46.40 off 3.00
 " " D1 ✓ - C. 50

0+50.5 off 3.00
 67½° Bend - C. 50

0+58.13 offset 3.00
 67½° Bend + 12.75

0+62.65 E Tube + 12.75

Check Pier #1 Laid AS 5-6-49

BM Rod HS BM
 4.24 14.24 1000

TP 3.00 - 2.03 19.27 - 5.03

0+18.83 45° B. Top Pipe D14 - 6.17

0+33.91 D. 2 ✓ 4.11 - 6.14

+ 6.4 D. 1 ✓ 4.10 - 6.13

Line of

6.17
 3.5
 - 6.53

Dig. # 5
8" C.I.P. # 2 Pier - stretch p.s.

1999-16

0100		GR. & Pipe + C. 83
010910	45° Bend	+ C. 83
012099	45° Bend	- 5.06
012433	45° Bend	- 8.40
012739	E Pier "D7"	- 8.40
013564	E "DC"	- 8.40
014839	E "D5"	- 8.40
015828	Δ 22° 30' 6"	- 8.40
016058	E Pier "D4"	- 8.40

offset 10' 2"

4' offset +

offset
4' Rt

5x

016402	67 1/2° Bend	- 8.40
017287	67 1/2° Bend	+ 12.75
017739	E Shaft Tube	+ 12.75
	41. - 2.03	check #2
012433	45° B. Top Pipe	4.10
+ 2739	D7 "	4.09
+ 3564	DC "	4.08
+ 4839	D5 "	4.08
+ 5828	Δ 22 1/2 "	4.09
+ 6058	D4 "	4.10

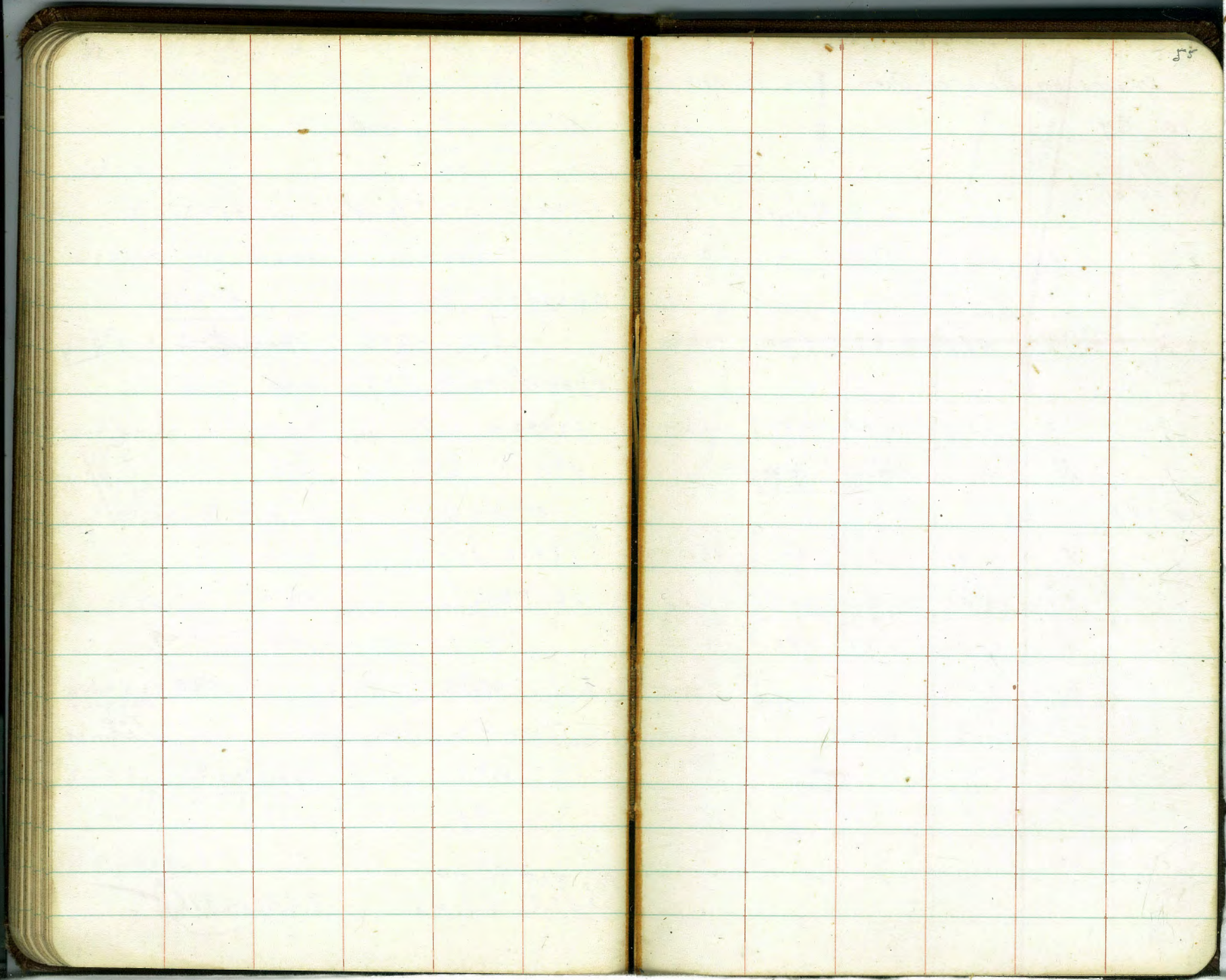
LINE
GOOD

Top FORMAS as of 5-6-49

B.M.	3.70 (13.70)	10.00	
Pier # 2	Swly	11.21	Present TOP FORM
" # 3	"	11.16	"
" # 1	"	11.16	"

Set B.M. Cd. C.T.
28' R. Dig. # 5

7.08 - 9.11



55

Drains on Aerator Drain Line 12" VCP

10 BM

4 39

14 39 HI

Design

1 11.50 2.89 3.00 .11 Low

2 5.57 8.82 9.20 .38 Low

3 10.96 3.43 3.50 .07 Low

Re check May 2 1949

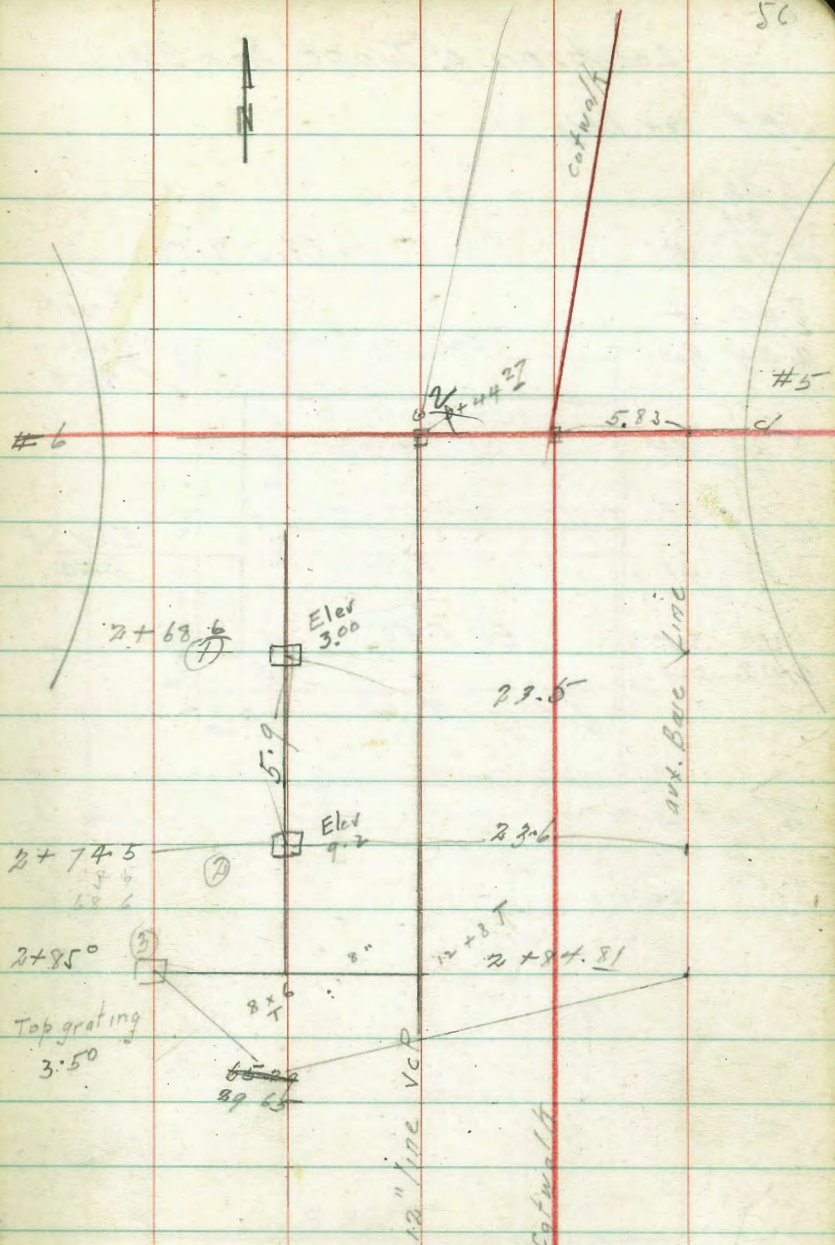
14.34 HI

3 10.90 3.44 3.50 .06 Low

2 5.50 8.84 9.20 .36 Low

1 11.46 2.88 3.00 .12 Low

2 9.20
5.14
5.14
2.02 set grade



Location of Tunnel Main Bldg

BH New Bldg

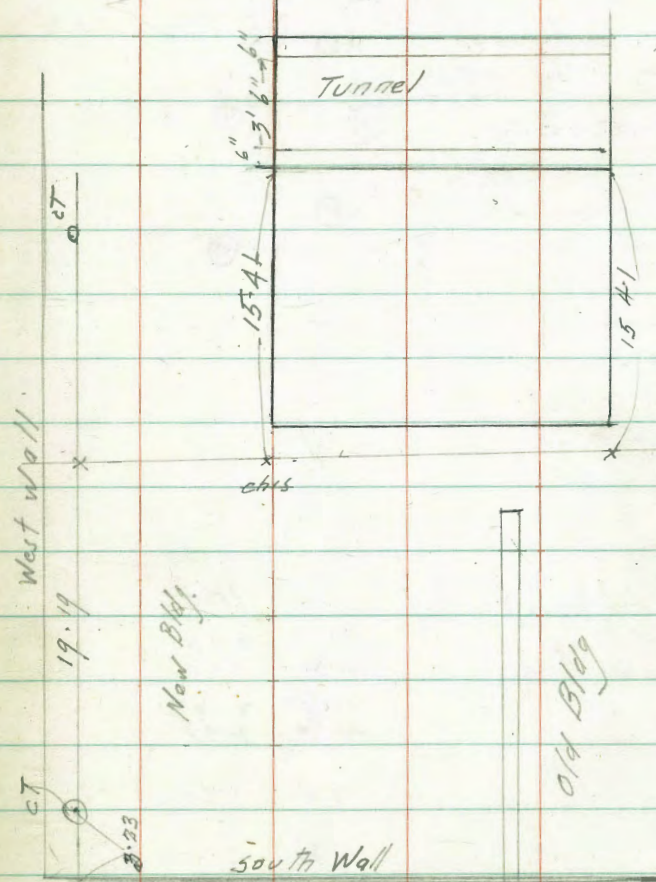
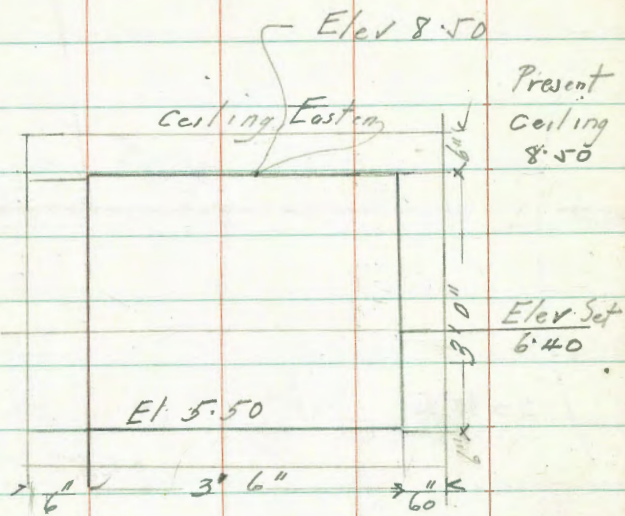
0.02
~~3.94~~
 3.96 HI

6.40 #
 2.44 Rod

3.96 HI
~~3.95~~
 .01 TP
 4.97
 4.98 HI

6.40 Set
 1.42 Rod

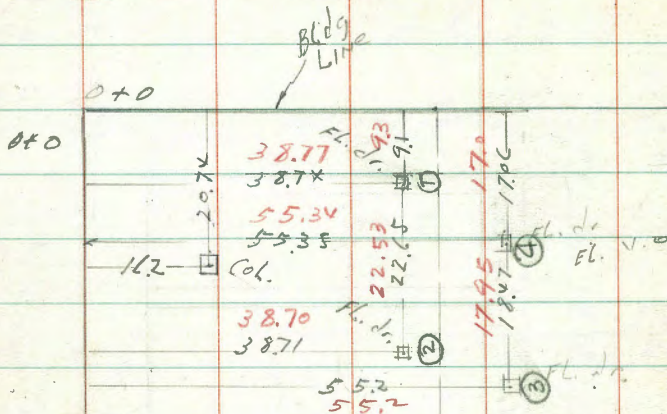
4.98 HI
~~3.52~~
 8.50 Ceiling



LOCATION of lines, etc.

5-2-49 IN New Bldg.

5-5-49 Recheck



(1338)

NE	Floor elev.	10.01
SE	"	9.96
SW	"	9.90
NW	"	9.90
CTR	"	9.90

Bldg.

LINE B.M. 3.38 (1338)

1 Floor drain

10.90 2.48
11.90 1.48

2 " "

10.90 2.48
11.90 1.48

3 " "

9.38 4.00

4 " "

9.38 4.00

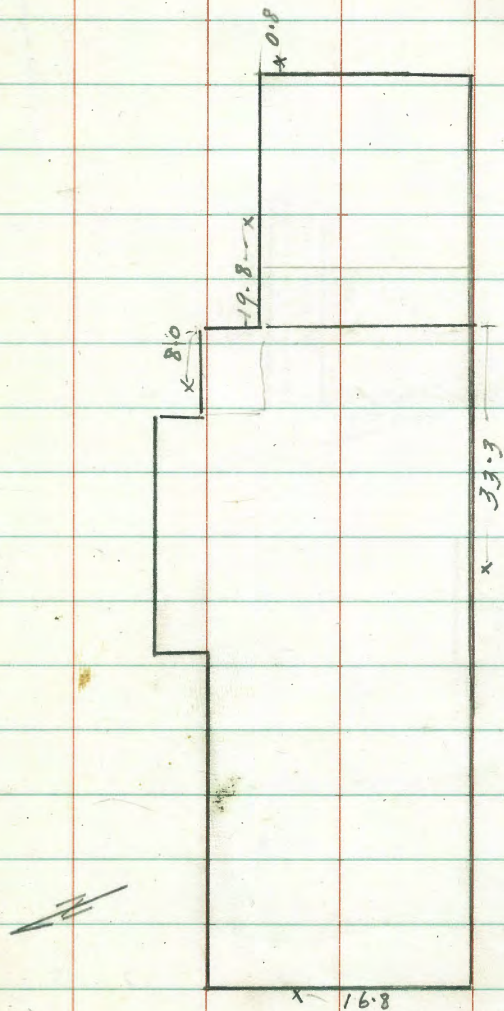
Location of Hose Bibbs

Administration Bldg

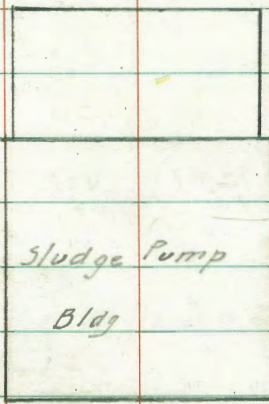
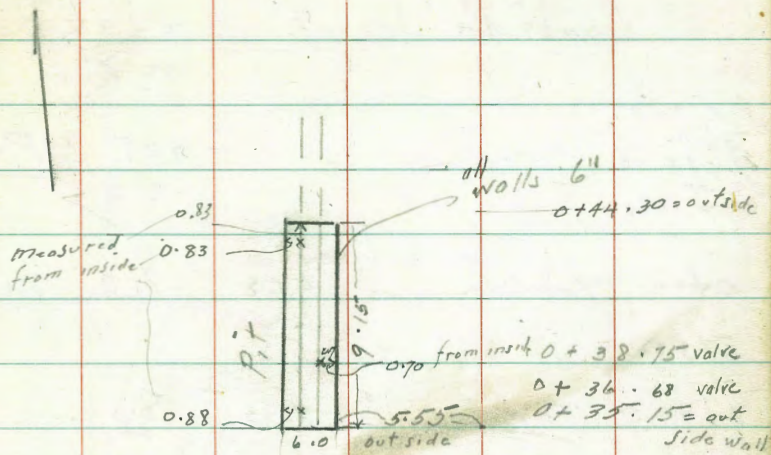
5-5-49

59

x not visible



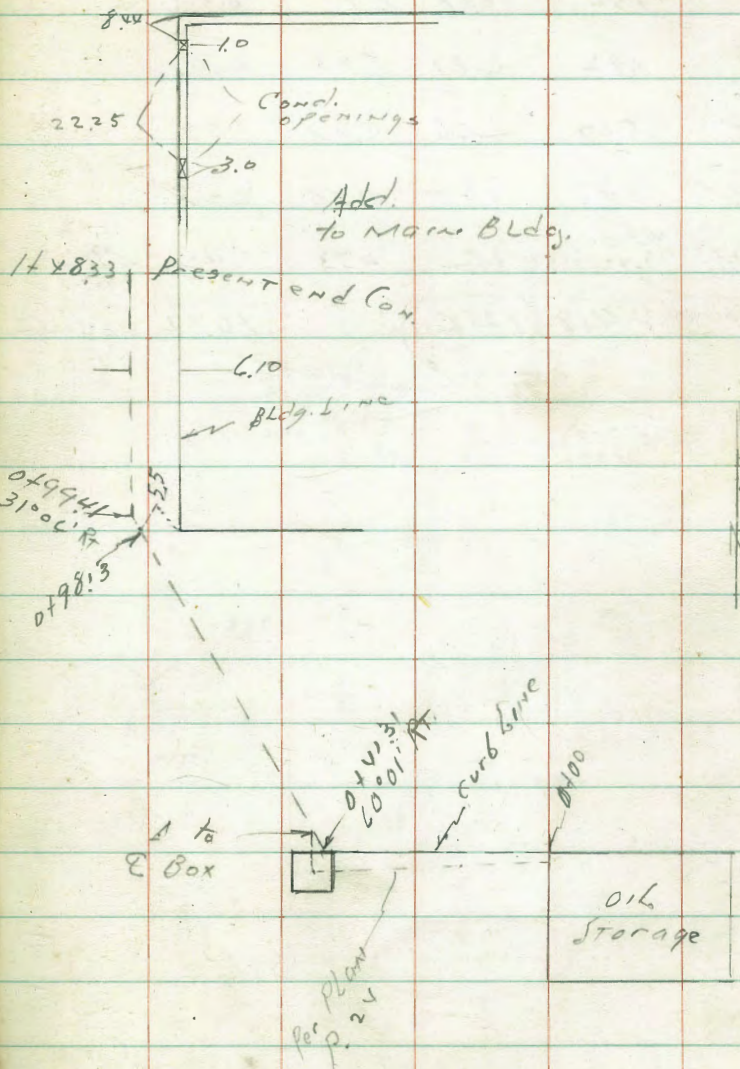
Valve Pit North of Sludge Pump House



Location of Elec. Cond.
 5x5 Elec. Box at Oil Storage Bldg.
 CONST. Ref. Sketch P. 23-24

5-5-49

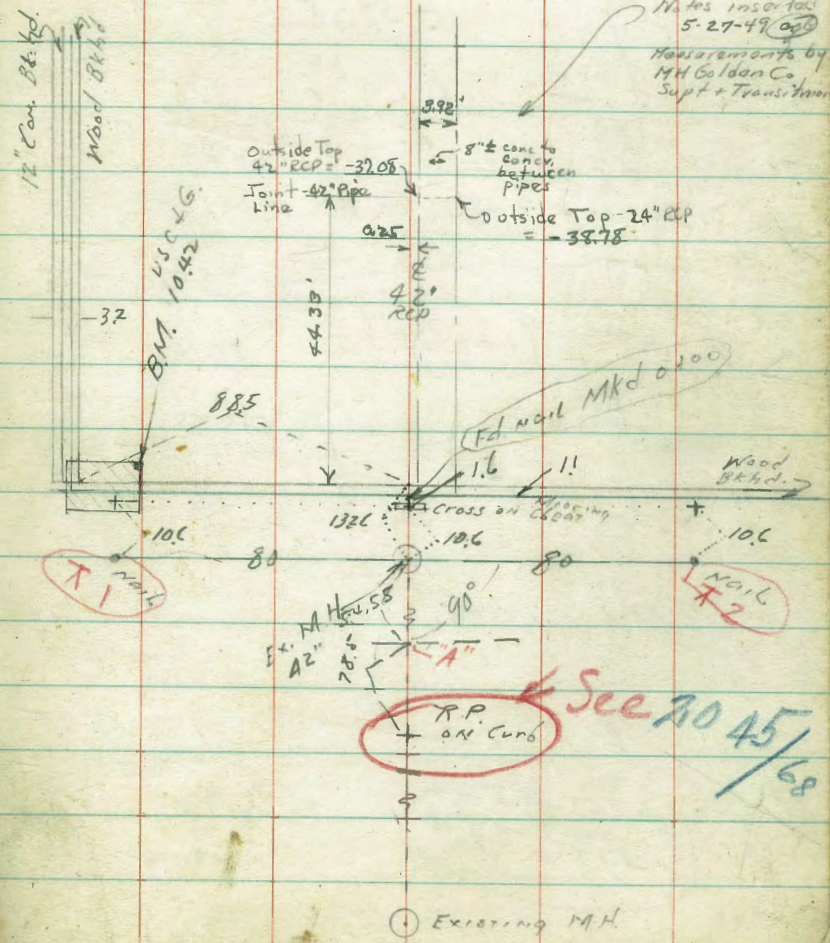
B.M. TOP BOLT 12' SE of SE Cor. Main Bldg	342 (12.67)	9.25	P. 23
0100 Top Cor.	4.68	8.0	
0135 " "	5.5		
0141.37 Top Box	4.33	8.3	
" Bot "	5.69		
0147 Top Cor.	5.9	6.8	
0171.3 " "	6.2		
T.P.	4.96 (12.87)	4.76	7.91
019941 A Top Cor.	6.4	6.3	
14483 Present End " "	5.6	7.0	



Per Plan
P. 24

Sewer Outfalls

B.M.					
P. 23	350	1275	925	CITY	D&T
T.P.	156	1028	393	8.82	
T.P.	192	6.87	5.43	4.95	
T.P.	507	6.66	5.28	1.59	
T.P.	3.87	5.95	4.58	2.08	
Fd. B.M.	Mkd.			1.42	
	10.42 VSC + G	4.53	1.42	9.01	
				10.43	
	Use this 418 (14.60)		10.42 VSCdG		



60± out (14.60)

Top Pipe Rod

π 2 12° 21' 11° 21' 52.1 37.5

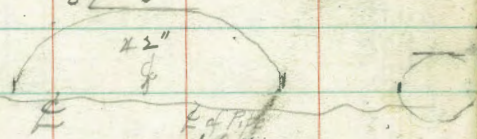
change signals

Transit on S West

602 - 0.95 6.15 10.7 9.2
3.5 11.2 10
1.5

- 32.5 7.4

Void



from Pier

42
49.3
14.6

E of Pipe
1.9 4.1

44 - 34.7 2.1 1.8

3.9

USC+G

B.M 420 (14.62)

10x2

EAST

West

28 -- 24
32 + 49.8
14.6
- 35.2

E of Pipe?
7.3 west

481

42"

08 West

14.6
- 33.3

8.6 E

44

53.9
14.6
- 39.3
4.7 W

0.8 2.4
West
edge of 42

2.6
W
53.5
14.6
- 37.9

46 W
49.6
14.6
- 35.0

May 9 63

(22)
10

Rod 51.2
14.6
- 36.6

36.6

Void

7.5

49.5
14.6
- 34.9
20.2

22.0

obstruction?
48
14.6
- 33.4

May 10

from Pier

50	(52.7 3.0W)	(52.2 2.0W)
	14.6	14.6
	-38.1	-37.6

Void

55	54.3	4.5 West estimate
	14.6	4.3 West
	-39.7	

7-27-49

Mooring
Shannon
Sisson

Levels on top of 2" and 42" Pipe
approx 4' out from

VSC46

BM	2.30 (12.72)	10.42	PC-2
----	--------------	-------	------

①	Top Pipe (42" Con.)	51.23 - 38.51	1st Try
②	" 2" C.I.	52.05 - 39.39	
①	" 42" (Con.)	51.25 - 38.53	2nd Try
②	" 2" C.I.	51.95 - 39.23	

Set BM on Pile	9.73 + 2.99	3.00
		0.01

3d Trial same date

BM	2.30	12.72	10.42
Top	24"	—	—
Inv	24"	54.83	-42.11
Inv.	42"	55.15	-42.43
STRAIGHT edge	54.86	-42.14	-42.19

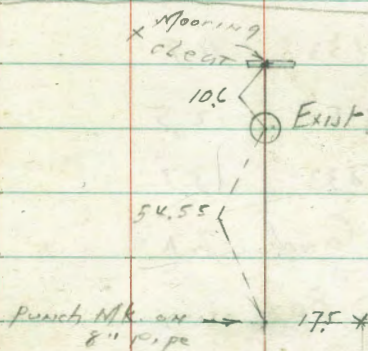
Series 00 + Fall
3d Trial Contd

64

12.72

Top 24"	51.98	-39.16
" 42"	51.48	-38.76

~~Contd on P. 22~~



cross on x 17.5 nail curb

d. 42" sewer

Location ⁶⁰⁰ 2" CI Pipe Dig. 6
AT Box 5

S-C-49

dig # 6

65

BM 425 (1425) 10.00

Top of riser 12.5 175

Sub. gr. R 5133 11.9

" " " R 55' 12.5

" " " 5833 13.7

Top Lan. Elect. Cond. 7.1

Sly Box

Sub. Sly side 12.0 R 5133

" " 12.4 R 55.3

" " 12.7 R 57.8

" Nly side 12.1 R 5133

" " 12.3 R 55.3

" " 13.5 R 57.8

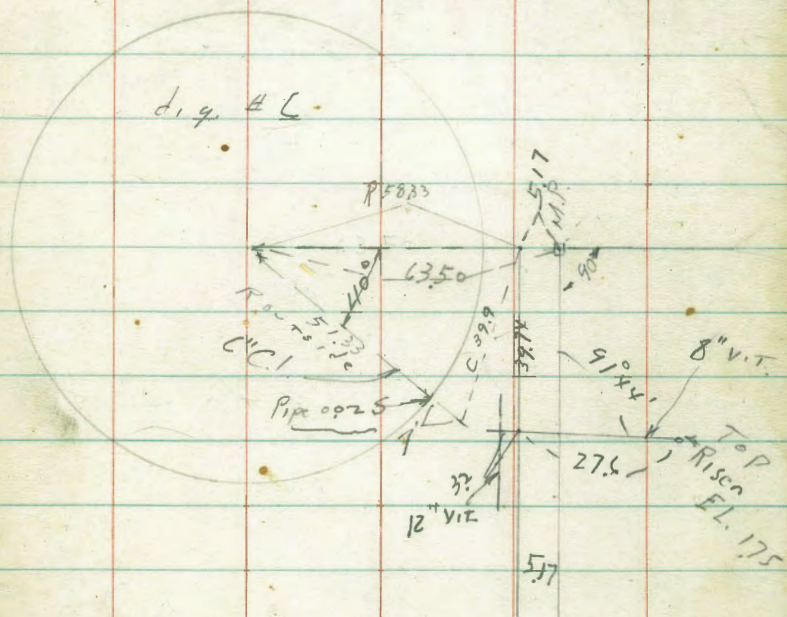
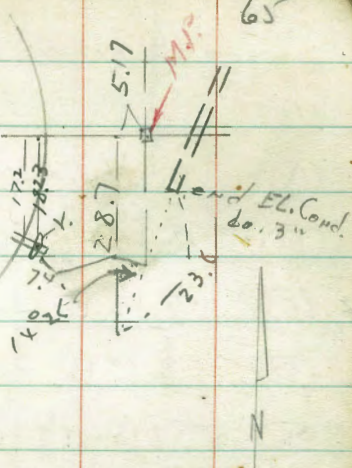
Nly Box

" Sly side 12.3 R 5133

" " SE Cor 12.6 R 54.8

" Nly side 12.0 R 5133

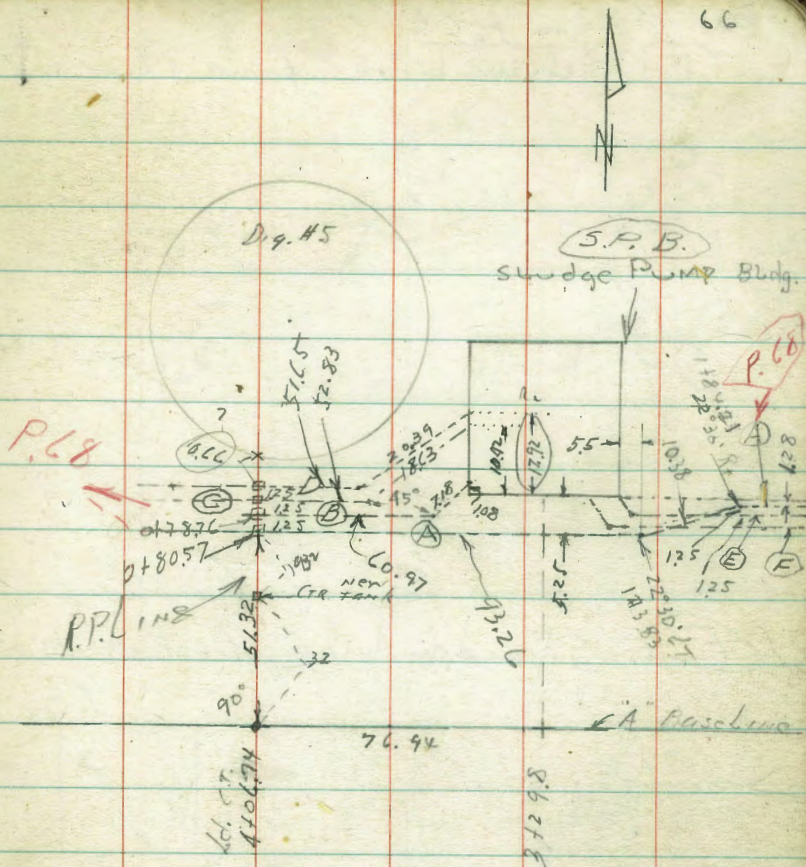
" NE Cor Box 12.0



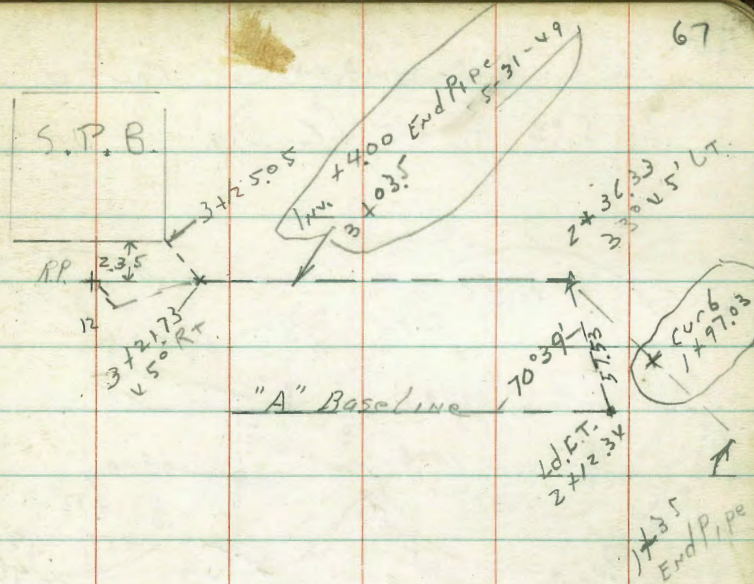
Location of 8" Lines

5-10-49

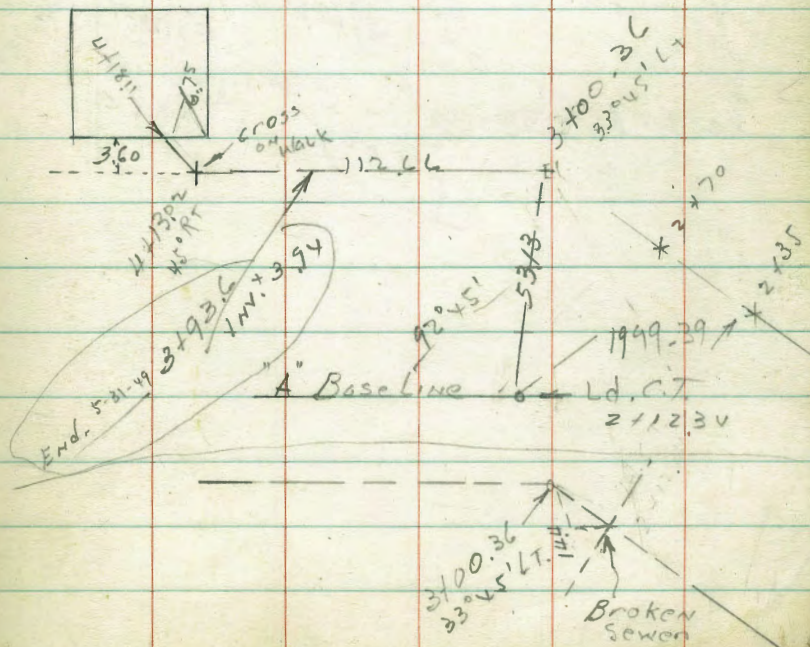
- (A) Dig #4 to Dig #6
- (B) S.P.B. to Dig #6
- (C) S.P.B. to Dig #5
- (D) S.P.B. to Dig Control Bldg.
- (E) SCUM, Clara #1 to S.P.B.
- (F) Sludge, Clara #1 to S.P.B.



From P.L.L
E Sewer Line from Chana, I.

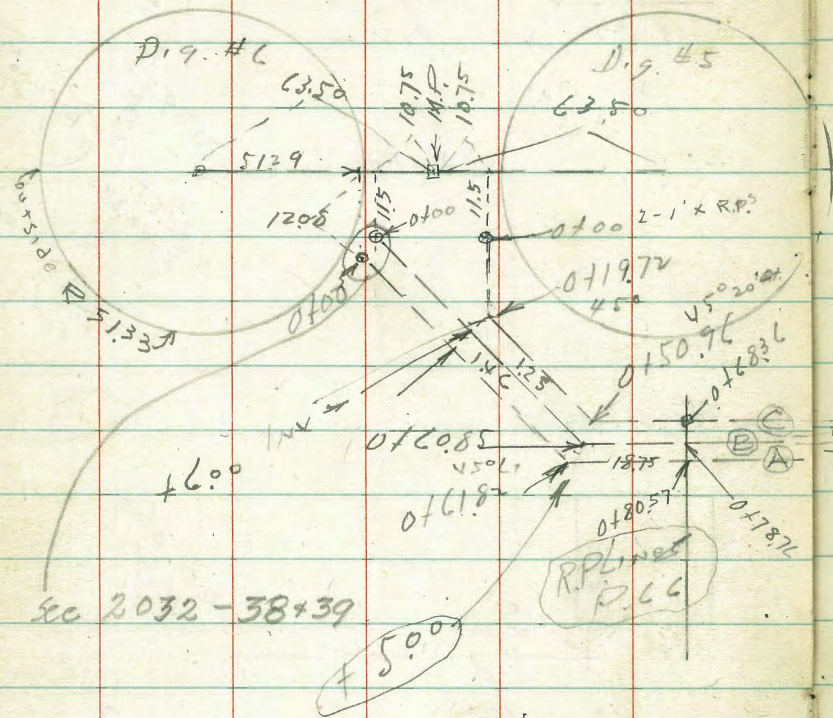


F Sludge Line, from CL #1 Ties 1999-38-39

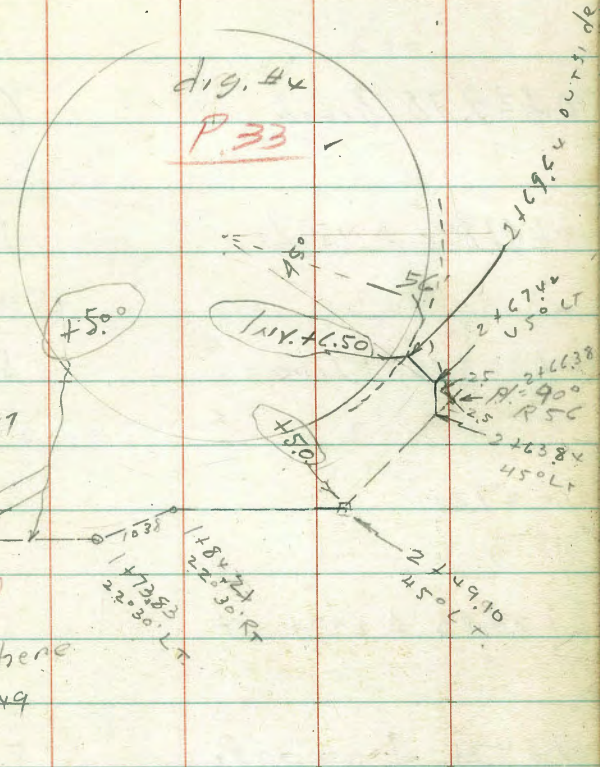


Sludge Lines "A" "B" "C" cont'd

S.P.B. to #5 & #6 Dig's



Sec 2032-52



5-13-49. "A" Line dig. #6 to dig. #4
Sketch P. 68

0700	6.00
0729.78 Break	6.00
0761.82 = Δ 45° LT	5.00
0780.57 = RPLINE	5.00
1727.20	5.00
1773.83 Δ 22°30' LT	5.00
1784.21 Δ 22°30' RT	5.00
2749.10 Δ 45° LT	5.00

"B"

69

0700	6.00
0729.12 Break	6.00
0760.85 Δ 45° LT	5.00
0778.76 = RPLINE	5.00

"C" line

70

0400

6.00

04197- A 45° Lt

6.00

0450.96 A 45° Lt

5.00

04836 = R.P. line

5.00

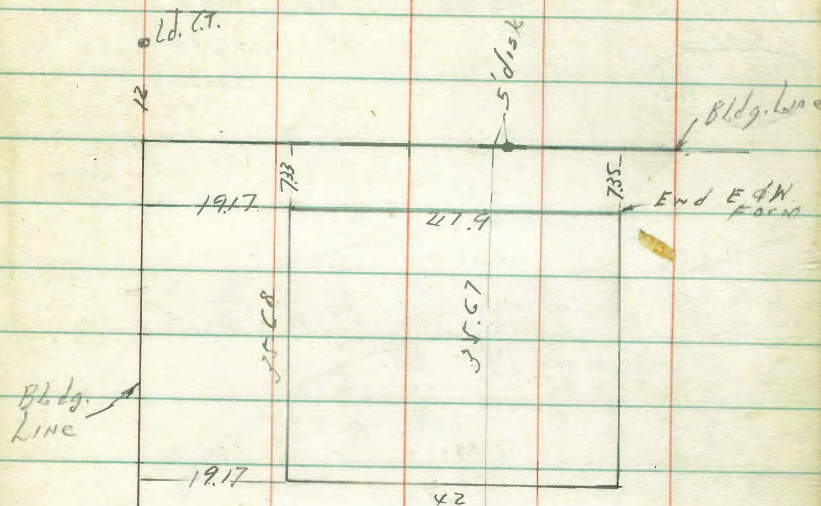
Check Floors + Cons

Engine, New Bldg.

BM.	2.83 (12.83)	10.00
NW Cor	5.33	+7.50
CTR N	5.32	
NE Cor	5.31	
NE Cor PIT. (NE)	5.32	
" " " W side	5.34	
SE PIT " "	5.33	
Sly " E "	5.33	
CTR S side	5.33	
SWI Cor	5.33	
" " PIT	5.33	
CTR W side	5.33	
" " " PIT v ± 5	5.33	
PIT NW Cor	5.33	
" v ± S of Cor.	5.33	

+7.50

71



Flev. Track

9.26 BM

13016 / 5/49

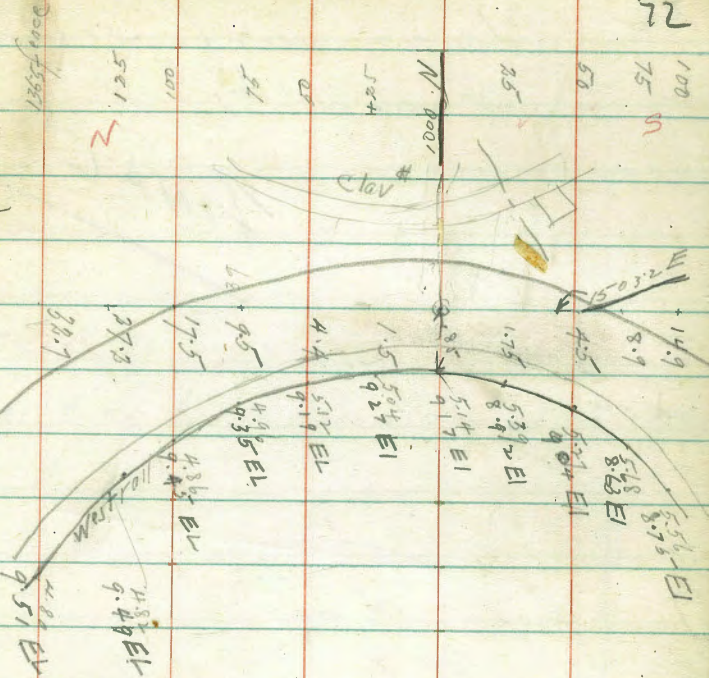
Moore
Begg
Sisson
Sherman

5.05
1431 11

5.91
5.86
5.91
3 17.68
5.89 are outside of box
8.42 EL

5.79
5.71
5.75
5.77
4 23.02
5.75 are $\frac{1}{2}$ box
8.56 EL

72



5-16-49
Location of stairs
Cham. #1

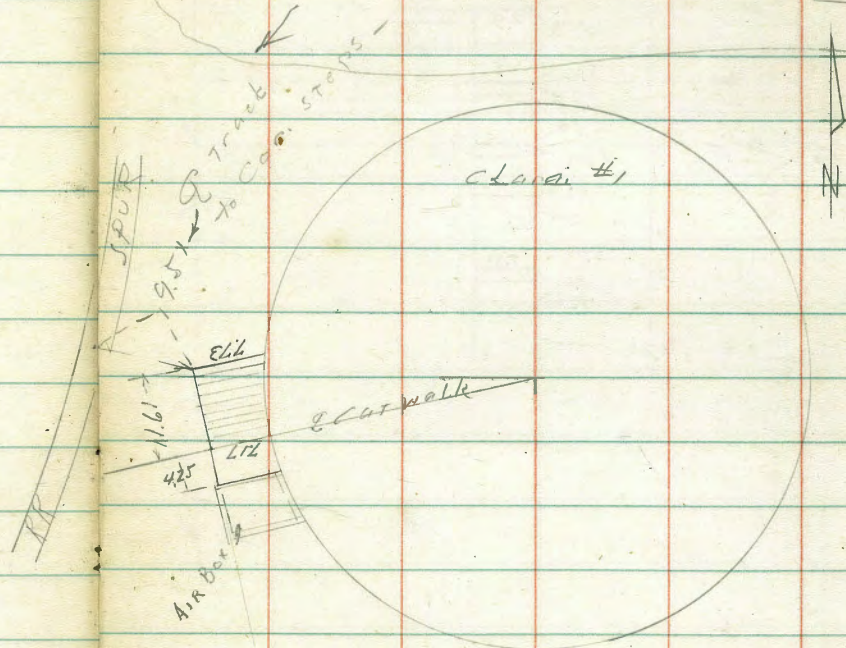
~~FINAL.~~

336
7.15
951

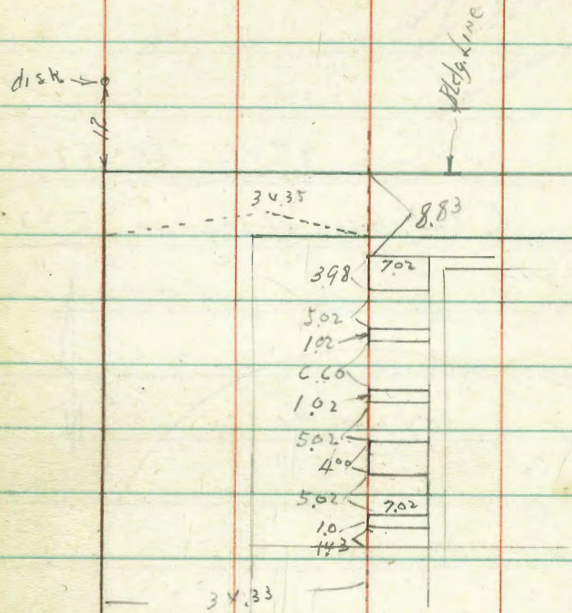
73

Track to Stair Wall 951 (5-27-49)

891 & Tr. to Cor. Base of Stairs 5-23-49



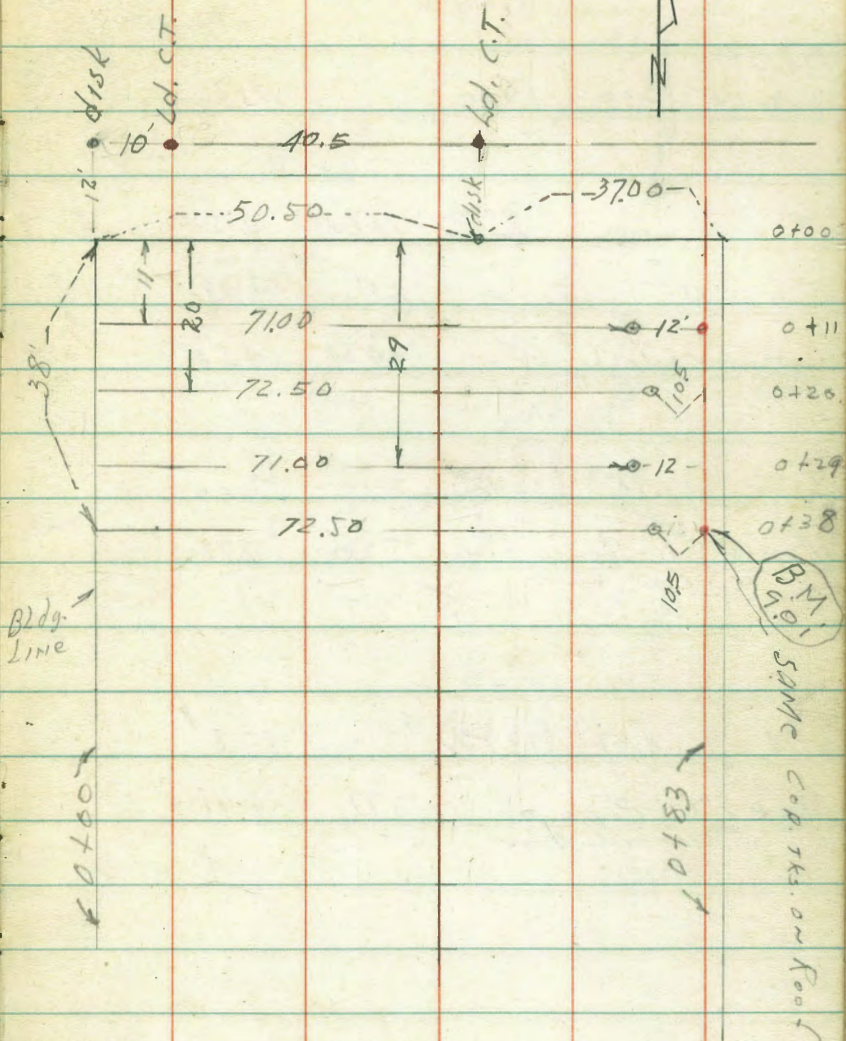
Main Bldg. Engine Base



Why
Bldg.
line

o = Ld. C.T.

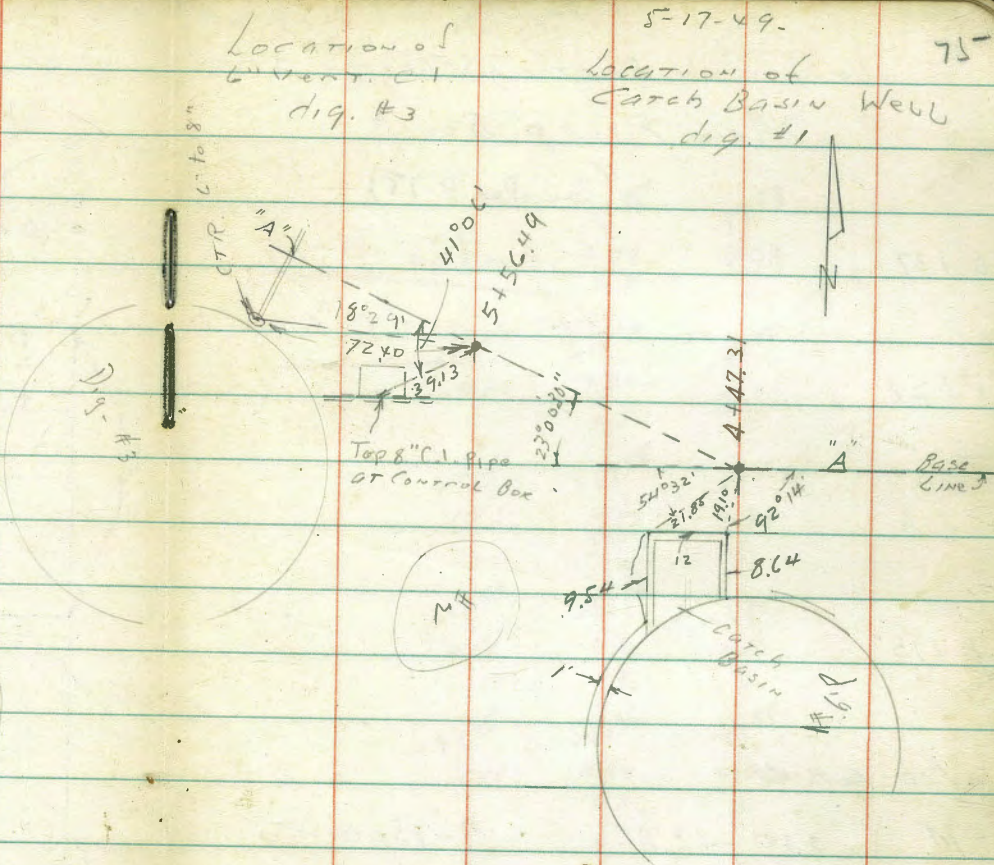
70



Bldg.
line

B.M. 105.91
SAME COR. TKS. ON FOOT

BM BP 1999-14	300 (1410)	11.10
Top E. wall, Catch Basin	4.60	9.50
" W. " "	2.11	11.99
Bot. Well "	10.57	3.53
T.P.	1.98 (13.98)	2.10 12.00
Top 8" C.I. Horiz. Line 2' N of C. Vert.	5.20	8.78
BM	4.97 (13.75)	8.78
Top 8" C.I. Pipe at Control Box	3.77	9.98



Levels on Existing Flood

Main Pump Room

(See also P-78)

0+37

See also P 79
for Pump inlets

0+28

0+19

0+10

0+00 North Wall

B.M. 0.14 -12.86

-13.00 ✓

Mark on S. Wall

B.M. 5.07 14.08

9.01 Eng. Rm

B.M. S. Wall of Pump Room 27.08 -13.00

B.M. 0.30 -12.70

Marks Set on E & W Walls 1.30 -14.00

0+25 Top Ex. Pipe

B.L. -9.95
2.91

P.T.

76

-17.86
5.00
-17.85
4.99
2.5
-17.79
4.93
5

-17.66
4.80
-17.76
4.90
2.5
-17.77
4.91
5

-17.51
4.85
-17.58
4.72
2.5
-17.69
4.83
5

-17.49
4.63
-17.56
4.70
2.5
-17.66
4.80
5

-17.35
4.49
-17.36
4.50
2.5
-17.38
4.52
5

Baseline
inside E. Wall

0+00

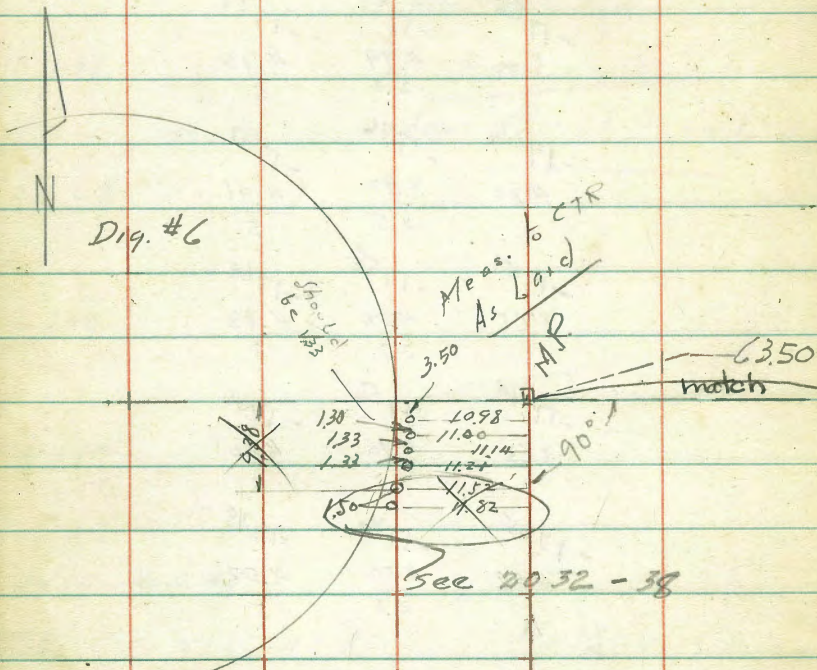
N. Wall



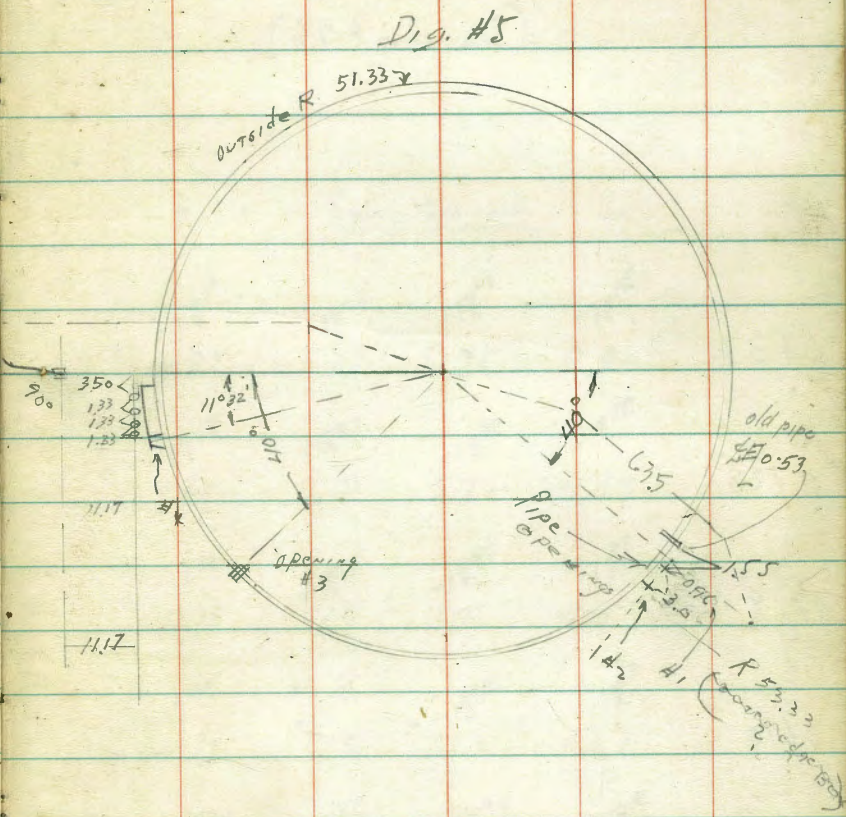
5-19-49.

LOCATION OF 6-8" VERT. C.I.
LINES, E side Dig. #6

77



B.M.	4.06	15.16	11.10
H1	opening	Top Form	7.78
H2	"	"	7.80
H3	"	"	7.88
H4	"	"	7.84
H5	Wide opening		7.13
"	"	"	7.15
			Top S. end
			N. end



5-19-49

(Wet Well)
Levels on Bot. of PIT SUMP

W. end Ex. Tunnel

Betw. Main Bldg + Detritor B.

(See also P-76)

Baseline
E. Wall

P.T.

78

0+37

↓ Sump this end

-18 ¹¹	-19 ⁰³	-19 ⁰¹	-18 ¹⁶
485	5.77	5.75	4.90

0+28

-18 ⁰⁸	-18 ⁹⁷	-18 ⁹⁹	-18 ¹⁵
482	5.71	5.72	4.89

0+19

-18 ⁰¹	-18 ⁹⁵	-18 ⁹⁷	-18 ¹⁷
475	5.69	5.71	4.91

0+10

-17 ⁹⁵	-19 ⁹¹	-18 ⁹³	-18 ¹³
472	5.65	5.67	4.87

0+00 = N. Wall, W. Wall

Tunnel

-17 ⁹²	-18 ⁸⁶	-18 ⁹⁰	-18 ¹¹
466	5.60	5.64	4.85
	4.6	7.	7.75

T.P. -0.38 (-13.26) 11.53 -13.64

B.M. -0.11 -2.11 -2.00

Mark on
S. Wall of Detritor Bldg.

North wall

Top Ply wood
PUMP INLETS, IN MAIN PUMP ROOM

Re L. 2032-75

BM 0.21 -1279 -13.00

#4 = Sdy 1.81 -1460

#3 1.86 -1465

#2 1.86 -1465

#1 = Ndy 1.93 -1472

6.
Date

Top 4" C.I. ELL 1.77 -1456

Top EL. inlets at E wall

BM 0.36 -1264 -13.00

#1 N 3.35 -1599

" S 3.35

#2 N 3.36

" S 3.35

#3 N 3.36

" S 3.35

#4 N 3.35

" S 3.35

Top 4" C.I. Pipe ^{at} EAST WALL 4.37 -1701

79

1999.64
1° 33' Rt

1.5 x 1.5 R 90 1° 16' Lt
125 x 125 " 4° 59' Rt
125 x 125 " 5° 01' Lt
65 x 85 R 95.5 2° 25' Lt

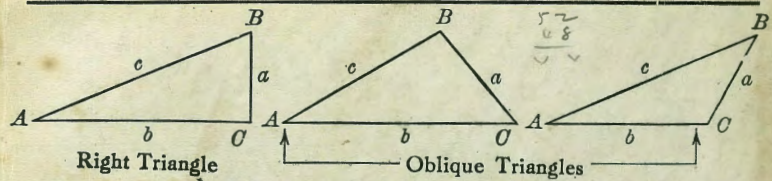


24.84
22.50
2.34

24.84
16.50
8.34

Detri dex - N.E. Cor.

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

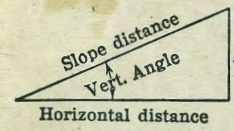
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\text{cosec} = \frac{c}{a}$

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

Solution of Oblique Triangles

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

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10'. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ ft.
Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle) With the same figures as in the preceding example, the following result is obtained. $\text{Cosine } 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ ft.
When the rise is known, the horizontal distance is approximately: -the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.