

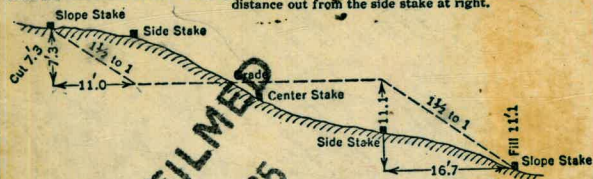
W

632

**DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING**

Roadway of any Width. Side Slopes 1 1/2 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	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.0	0.2	0.4	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.9	2.0	2.2	1
2	2.0	2.1	2.2	2.3	2.4	2.6	2.7	2.9	3.0	3.2	2
3	3.0	3.1	3.2	3.3	3.4	3.6	3.7	3.9	4.0	4.2	3
4	4.0	4.1	4.2	4.3	4.4	4.6	4.7	4.9	5.0	5.2	4
5	5.0	5.1	5.2	5.3	5.4	5.6	5.7	5.9	6.0	6.2	5
6	6.0	6.1	6.2	6.3	6.4	6.6	6.7	6.9	7.0	7.2	6
7	7.0	7.1	7.2	7.3	7.4	7.6	7.7	7.9	8.0	8.2	7
8	8.0	8.1	8.2	8.3	8.4	8.6	8.7	8.9	9.0	9.2	8
9	9.0	9.1	9.2	9.3	9.4	9.6	9.7	9.9	10.0	10.2	9
10	10.0	10.1	10.2	10.3	10.4	10.6	10.7	10.9	11.0	11.2	10
11	11.0	11.1	11.2	11.3	11.4	11.6	11.7	11.9	12.0	12.2	11
12	12.0	12.1	12.2	12.3	12.4	12.6	12.7	12.9	13.0	13.2	12
13	13.0	13.1	13.2	13.3	13.4	13.6	13.7	13.9	14.0	14.2	13
14	14.0	14.1	14.2	14.3	14.4	14.6	14.7	14.9	15.0	15.2	14
15	15.0	15.1	15.2	15.3	15.4	15.6	15.7	15.9	16.0	16.2	15
16	16.0	16.1	16.2	16.3	16.4	16.6	16.7	16.9	17.0	17.2	16
17	17.0	17.1	17.2	17.3	17.4	17.6	17.7	17.9	18.0	18.2	17
18	18.0	18.1	18.2	18.3	18.4	18.6	18.7	18.9	19.0	19.2	18
19	19.0	19.1	19.2	19.3	19.4	19.6	19.7	19.9	20.0	20.2	19
20	20.0	20.1	20.2	20.3	20.4	20.6	20.7	20.9	21.0	21.2	20
21	21.0	21.1	21.2	21.3	21.4	21.6	21.7	21.9	22.0	22.2	21
22	22.0	22.1	22.2	22.3	22.4	22.6	22.7	22.9	23.0	23.2	22
23	23.0	23.1	23.2	23.3	23.4	23.6	23.7	23.9	24.0	24.2	23
24	24.0	24.1	24.2	24.3	24.4	24.6	24.7	24.9	25.0	25.2	24
25	25.0	25.1	25.2	25.3	25.4	25.6	25.7	25.9	26.0	26.2	25
26	26.0	26.1	26.2	26.3	26.4	26.6	26.7	26.9	27.0	27.2	26
27	27.0	27.1	27.2	27.3	27.4	27.6	27.7	27.9	28.0	28.2	27
28	28.0	28.1	28.2	28.3	28.4	28.6	28.7	28.9	29.0	29.2	28
29	29.0	29.1	29.2	29.3	29.4	29.6	29.7	29.9	30.0	30.2	29
30	30.0	30.1	30.2	30.3	30.4	30.6	30.7	30.9	31.0	31.2	30
31	31.0	31.1	31.2	31.3	31.4	31.6	31.7	31.9	32.0	32.2	31
32	32.0	32.1	32.2	32.3	32.4	32.6	32.7	32.9	33.0	33.2	32
33	33.0	33.1	33.2	33.3	33.4	33.6	33.7	33.9	34.0	34.2	33
34	34.0	34.1	34.2	34.3	34.4	34.6	34.7	34.9	35.0	35.2	34
35	35.0	35.1	35.2	35.3	35.4	35.6	35.7	35.9	36.0	36.2	35
36	36.0	36.1	36.2	36.3	36.4	36.6	36.7	36.9	37.0	37.2	36
37	37.0	37.1	37.2	37.3	37.4	37.6	37.7	37.9	38.0	38.2	37
38	38.0	38.1	38.2	38.3	38.4	38.6	38.7	38.9	39.0	39.2	38
39	39.0	39.1	39.2	39.3	39.4	39.6	39.7	39.9	40.0	40.2	39
40	40.0	40.1	40.2	40.3	40.4	40.6	40.7	40.9	41.0	41.2	40

KEUFFEL & ESSER CO., N. Y.

652

611.46  
 481  
 59.909  
 607  
 613.32

The paper in this book No. 370A  
 is made of 50% high grade rag stock  
 with a WATER RESISTING surface sizing.

11.083-5. k, m, ye. kM.

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CHECK FORMS Blk # 10

Rogers

May 25-42

1

10.51 494.12

483.61

9.10

485.02

Grade Strip Top of Pour

8.07

8.12

486.00

Point on Curve 128.37 S. Axis Gr-486<sup>c</sup>

8.12

486.00

" " " " " "

8.12

486.00

" " " 128.37 " "

7.67<sup>50</sup>

8.11

486.01

" " " " " "

CHECK FORMS Blk # 6

Rogers  
May 25-62 2

	1048	485.74		475.76	
			<del>0.72</del>	<del>485.02</del>	<del>Grade Strip</del>
6+20			0.68	485.06	Grade Strip 1399 N. Axis
5+91			0.72	485.02	" " 14.01 N. "
5+78			5.39	580.34	F 20.71 Top of Filled Form Gr = 501.05
5+77.6					Breaking 1/2 Round Drain
			0.70	485.04	Elev. For Top of Key 11° S. Axis 12' below invert

BM 10.53 485.79 1048 475.76 = 475.76

TBM 0.12 485.87 0.04 475.75 Marked Rock Blk #6

BM 10.61 475.26 = 475.26

5  
22  
9  
0.76  
0.75  
0.21  
0.34  
517.6  
127.6

ELEV FOR FORMS BIK #2

Rogers

May 26-90 3

BM	1025	629.83	619.58			
4+20		4.97	624.86	F 5.14	to Elev 630°	1° N Axis
"		4.86	624.97	F 5.03	to " "	18.92 S "
3+96		4.89	624.94	F 5.06	to " "	1° N "
"		5.02	624.81	F 5.19	" "	18.92 N "
3+81		4.58	625.25	F 4.75	to " "	1° N "
BM	1025		619.58	=	619.58	



ELEV FOR FORMS Blk #5

BM, 4.94	535.91		530.97		
5+31		5.64	530.27	F 6.78	to Top of Filled 880 N. Gr-537.05
5+46		5.79	530.12	F 4.88	to Top of Pour Elev. 535 9° N Axis
5+70		5.94	529.97	F 5.03	to " " " " " "
"		5.98	529.93	F 5.07	to " " " " " 89.15 S "
5+86		5.96	529.95	F 5.05	to " " " " " 89.15 S "
TBM, 0.57	536.03	0.45	535.46		
5+41		5.67	530.36	F 6.23	to invert 11° S Axis Gr-536.59
"		5.64	530.39	F 11.01	to Top of Gallery Pipe 7.70 S Gr-541.40
BM		5.06	530.97	=	530.97

ELEV FOR FORMS Blk # 7

Rogers  
May 26-42 5

0.41 475.67

475.26

6+39.60

4.94

470.73

F 8.22 to Top of Gallery Pipe

Gr 478.95

6+30.30

4.92

470.75

F 9.59 to invert 11° S. of Axis Gr = 480.34

6+42.93

3.79

471.88

Elev on Gallery Form

Gr = 471.92

6+21  
186  
6396

CHECK FORMS Blk # 8

9.11 484.37

475.26

6+68.5

+1.62 485.99

Top of Curve Form

128.37 S. AXIS

6+83.33

+1.61 485.98

" " " "

6+98.16

+1.62 485.99

" " " "

7+13

+1.63 486.00

" " " "

Rogers

May 26-1942

6

ELEV FOR FORMS BIK # 10

Rogers  
May 27-1952 7

BM, 6.57	490.18	483.61		
8+06	5.17	485.01	F 499	to Top of Pool 135 N. Axis
"	5.12	485.06	F 494	to " " " 124.175. "
7+95.75	4.75	485.43	F 457	" " " " 124.175. "
+71.75	4.85	485.23	F 467	" " " " 124.175. "
7+61.5	5.05	485.13	F 487	" " " " " " "
	5.14	485.04	F 496	" " " " " 135 N. "
	6.57	483.61		

8+07  
7+60.3  
23.25  
+ 83.75  
12  
90.75  
22

	0.96	590.00		589.04		
4+70			0.0	590.00	Grade Strip	3 <sup>5</sup> / Axis
4+31			+2.15	597.15	Top of Fillet	2.80 / " Gr=597.13
			+0.44	590.44	" " DS. Bulkhead	47.05 S. Axis. Dii=47.35
			+0.47	590.47	" " " "	47.02 S. " " =47.00
4+53.88			+1.39	591.39	Point on Gallery Invert	Gr=591.39

ELEV FOR FORMS Blk # 6

Rogers  
May 27-42 9

	4.91	490.66		485.75	
6+20			559	485.07	F 493 to Elev 495° 135° N. Axis
			584	484.82	F 518 to " " 135° N. "
5+78			578	484.88	F 16.17 to Top of Fillet 1290 N. Gr. = 501.05
			565	485.01	F 499 to Top of Pour 495° 123.35 S. Axis
6+20			561	485.05	F 495 to " " " "
"			565	485.01	F 2.20 to invert 11° S. Axis Gr. 487.21
	4.90	490.65	4.91	485.75	
6+11			531	485.31	F 7.87 to invert 11° S. " Gr. 493.21
TBM7		4.90		485.75	= 485.75

87.21

$$\begin{array}{r} 486.54 \\ .67 \\ \hline 487.21 \end{array}$$

$$\begin{array}{r} 86.54 \\ 6.67 \\ \hline 93.21 \end{array}$$

ELEV. FOR FORMS BIK # 8

Logans  
May 28-42 10

BM, 6.73	490.34		483.61		
6+68.5		5.33	485.01	F 499 to Top of Pour El. 490°	13.50 N. Axis
		5.20	485.14	F 486 to Pt. on Curve El. 490°	124.17 S. "
6+83.3		4.99	485.35	F 465 to " " " "	" "
+98.2		5.25	485.09	F 491 to " " " "	" "
<del>+98.2</del>				F to " " " "	" "
7+13		5.37	484.97	F 503 to " " " "	" "
"		5.35	484.99	F 501 to Top of Pour El 490°	13.50 N. Axis
BM, 6.73	490.34		483.61	= 483.61	

CHECK FORMS Blk # 4

Rogers  
May 28-42 11

BM. 040	563.83	563.43	
4781	5.07	568.90	Top of Filled Form 562 N. Axis Gr- 568.93
5421	3.84	559.99	Grade strip 65 N. Axis
	3.49	560.34	
	3.42	560.41	
540385	3.15	560.68	Point on invert 11° S. Axis Gr- 560.69



CHECK FORMS Blk # 5

May 28-42 12

473 535.70 530.97

5+31 +1.34 537.04 Top of Fillet Form 879 N. Axis Gr=537.05

5+70 0.70 535.00 Grade Strip 898 N. "

5+3885 +2.35 538.05 Pointon invert 11° S. Axis Gr=538.03

5+70 0.56 535.14 " " DS. Bulthead 89,005. Dist=89.04

0.43 535.27 " " " " 88.97 S. " = 88.94

Length of Upper Gallery Pipe Sta 5+61 = 6.05

89.10  
21  
88.94

CHECK FORMS Blk # 2

Royers  
May 29-42 13

12.98 632.56

619.58

B.M.

6.63 625.93

6.63 625.93

(Points for Door Bolts each side of Gallery)  
1/2" from Recess

Length of Gallery Pipe = 4.62

2.07 630.49

B.M.

~~13.01 632.59~~ 12.98

619.58

B.M. 10.16 631.59

621.43

~~1.05 630.54~~

~~1.02 630.57~~

1.59 630.00

Pt on Form 1891 S. Axis 1892

B.M.

10.16

621.43

1899  
43  
1892  
21  
18.51

4.62

30.53

CHECK FORMS Blk #7

BM 0.51 425.77 475.26

643503 1.43 477.20

BM, 0.51 425.77

Rogers

May 29-92 14

Point on invert No 5 Axis Gr = 477.19

BM

ELEV. FOR FORMS Bk #1

Rogers  
June 1-1942 15

	863	660.05		651.42				
3+22			495	655.10	F 3.90 to Top of Dam	El. 659°	1° 5' Axis	
"			501	655.04	F 3.96 to "	"	13° 5' "	
3+46			499	655.06	F 3.94 to "	"	1° 5' "	
"			507	654.98	F 4.02 to "	"	13° 5' "	
3+70			509	654.96	F 4.04 to "	"	1° 5' "	
"			510	654.95	F 4.05 to "	"	13° 5' "	

ELEY FOR FORMS

Blk # 4

June 1-42

16

Rogers

B.M.	232	565.75		563.43	
4+81			5.11	560.64	F 8.29 to Top of Fillet 5.61 N. Axis Gr = 568.93
4+91			5.61	560.14	F 4.86 to " of Pour El. 565° 6° N. Axis
"			5.97	559.78	F 10.15 to Invert 11° S. Axis Gr = 569.93
5+21			5.68	560.07	F 4.93 to Top of Pour 6° N. Axis
"			5.80	559.95	F 5.05 to Top of Pour 66.35 S. Axis
5+11			5.63	560.12	F 7.95 to Top of Gallery Pipe 7.70 S. Axis Gr = <del>563.75</del> 568.07
4+91			5.88	559.87	F 5.13 to Top of Pour 66.35 S. Axis
B.M.	232			563.43	= 563.43

ELEV FOR FORMS BIK # 5

BM,	0.78	540.51		539.78	
5+71			545	535.06	F 4.90 to Top of Pour 8 <sup>5</sup> N Axis
"			559	534.92	F 5.08 " " " 85 <sup>35</sup> S. "
5+41			535	535.16	F 6.25 to Top of Gal. Pipe 7.70 W. "Gr=541.41
5+46			543	535.08	F 4.92 to Top of Pour 8 <sup>5</sup> N Axis
5+46			568	534.83	F 5.17 to " " 85 <sup>35</sup> S. "
5+38.83			2.47	538.04	F 0.0 to Invert Form 11 <sup>2</sup> S. "Gr=538.04
5+31			534	535.17	F 4.83 to Top of Pour 85 <sup>35</sup> S. Axis
BM,		506		535.45 = 535.46	

CHECK FORMS Bk # 10

18

982 493.43

483.61

343

490.00

D.S. Bulkhead 124.17 S. Axis

982

483.61

26.55  
10.96  
5.61

Bm, 463 490.38

485.75 Gr

6+20

0.38

490.00

Grade Strip

73<sup>52</sup> N. Axis

"

0.38

490.00

"

"

D5. Bulkhead

5+78

+10.35

500.73

Top of Fillet

Gr=501.05

6+14.05

+0.80

491.18

Point on Invert 11° S. Axis

Gr=496.18

Bm,

463

485.75

= 485.75

$$\begin{array}{r} 6067 \\ 305 \\ \hline 5735 \\ 200010 \\ \hline 2033435 \end{array}$$

$$\begin{array}{r} 8652 \\ 667 \\ \hline 9321 \\ 203 \\ \hline 4118 \end{array}$$



ELEV FOR FORMS Bk # 14

Rogers  
JUNE 2-1942 20

BM, 0.35 511.87 511.52

T.P. 5.34 506.33 10.88 500.99

9+50 11.41 494.92 D.S. intersection 119.61 S. Axis

9+55 1.33 505.00 D.S. " 111.95 S. "

~~3.20 503.13~~

T.P. 8.60 509.59 5.34 500.99

9+50 13.02 496.57 F 8.63 to <sup>Bottom</sup> of Filled 16.55 S. Axis GR = 505.20

" 8.28 501.31 F 3.89 to " " " " " "

T.P. 2.24 507.27 4.56 505.03

~~GR = 515.65~~

11.72 495.55 F 20.10 to Top of Filled 10.94 N. GR = 515.65

9.12 498.15 = 498.19

3.20

CHECK FORMS Blk #9

Rogers  
June 2-02 21

485°

B.M. 9.76 484.99

475.23

4.01 480.98 Point on Curve 137.92 S. Axis

4.13 480.86 " " " 138.14 S. "

5.61 479.38 Top of Bucket Drain Lt. L = 6.50

5.59 479.40 " " " Rt. L = 6.50

4.10 480.89

4.15 480.84 w/5

3.71 481.28 F 2.93 to steel template 138.175, Gr = 484.21

4.47 480.52 F 3.08 " " " 137.905, Gr = 483.60

B.M.

9.76

475.23 = 475.23

ELEV. FOR FORMS Blk #10

Rogers  
June 3-42 22

Station	Offset	BM	Elev	Notes
			495	
BM	11.69	495.30	483.61	
		4.69	490.61	El. for beginning Curve of Roadway
TP	4.58	495.22	490.64	
8+06		5.24	<del>489.98</del> 489.98	F 502 to Top of Pavr El. 495 13° N. Axis
"		5.32	489.90	F 510 to Pt. on Curve 120.68 S. " El 495°
7+95.75		5.11	490.11	F 489 to " " " " S. " "
"		5.22	490.00	F 500 to Top of Pavr El. 495° 13° N. "
7+71.25		5.10	495.12	F 488 to Pt. on Curve El 495° 120.68 S. "
"		5.11	490.11	F 4.89 to Top of Pavr El. 495° 13° N. Axis
7+61.50		5.12	490.10	F 4.90 to Pt. on Curve 120.68 S. Axis El. 495°
"		5.25	489.97	F 503 to Top of Pavr El. 495° 13° N. Axis
BM	11.61		483.61	= 483.61

206  
10.25

468

8.25  
10.25

CHECK FORMS Blk # 8

Rogers

June 3-1902 23

BM 718 490.79 483.61

0.79 490.00 D.S. Bulkhead 124.17 S. Axis

0.79 490.00 U.S. .. 13.50 S. Axis

BM 718 483.61

ELEV FOR FORMS Blk #3

Rogers  
June 4-42 24

BM	0.53	597.01		596.48	
	4.88	595.09	6.80	590.21	
4+70			5.08	590.03	F 4.97 to Top of Pour El. 495° 3° N Axis
"			5.15	589.94	F 5.06 to " " " 43.55 S "
4+41			5.04	590.05	F 4.95 to Top of Pour El. 495° 3° N Axis
4+26.30			4.71	590.38	F 9.62 to " of Fillet 2.50 x Axis Gr=600.00
4+41			5.17	589.92	F 5.08 to " of Pour El. 495° 43.55 S "
"			5.17	589.92	
4+53.98			3.73	591.36	Point on Invert 11° S Axis Gr=591.33
T.P.	4.08	594.29	4.88	590.21	
	11.07	597.23	8.13	586.16	
BM <sub>1</sub>			0.73	596.50	= 596.48
TP	5.04	595.25		590.21	As Above
			5.32	589.93	F 10.05 to invert 11° S Axis Gr=599.98
			5.30	589.95	F 8.17 to Gal. Pipe Top 7.70 S Axis Gr=598.12
			5.04	590.21	

## ELEV FOR FORMS B16# 10

Rogers  
June 4-42

25

T.P.	5.20	495.32	490.12		491.00
746.50			5.22	490.10	F 1.34 to End of Curve 123° S. Gr = 491.44
"			5.23	490.09	F 4.91 to Top of Pour 120.30 S. Axis
7471.25			5.20	490.12	F 1.32 to End of Curve 123° S. Gr = 491.44
"			5.16	490.16	F 4.84 to Top of Pour 120.30 S. Axis
7495.25			5.27	490.05	F 1.39 to End of Curve 123° S. Gr = 491.44
"			5.08	490.24	F 4.76 to Top of Pour 120.30
8406			5.32	490.00	F 1.44 to End of Curve 123° S. Gr = 491.44
"			5.33	489.99	F 5.01 to Top of Pour 120.30 S.

51.9

5.01

## CHECK FORMS Blk # 4

Rogers  
June 9-12 26565<sup>c</sup>

BM	2.09	565.52		563.43		
	5.74	566.08	518	560.34		
5+20			1.11	564.97	Top of Grade Strip	6° N. Axis
"			0.95	565.13	Grade strip	66.23 S. Axis D=66.25
4+96.98			0.12	565.96	Point on Invert	11° S. Axis Gr=565.90
4+91			2.84	568.92	Top of Fillet Form	5.59 N. Gr=568.93
"			1.11	564.97	Top of Grade Strip	6° N. Axis
			0.70	565.38	Grade Strip	65.99 S. Axis D=65.96

Length of Gallery Pipe = 7.95

TP	5.29	565.69	568	560.40	
BM			2.26	563.43	= 563.43

1°

6596

$$\begin{array}{r} 66.25 \\ - 29 \\ \hline 65.96 \end{array}$$

ELEV FOR FORMS BIK #7

Repos  
June 5-40 27

B.M.	6.06	481.29		475.23	
T.P.	5.03	480.52	5.80	475.49	
6+44.25			5.09	475.43	F 5.57 to Pt on Curve 137.83 S Axis Gr = 481.00
6+32.62			5.14	475.38	F 5.62 to " " " " " "
6+21			0.52	480.00	F 1.00 to " " " " " "
6+55.88			5.31	475.21	F 5.79 " " " " " "
			0.50	480.02	Elevs. for Spillway lip. D.S. Bulkhead
6+67.5					Length of upper C.I. Pipe = 4.04
6+58.2					" " " " " " = 4.12
6+30.30			5.39	475.13	F 10 <sup>02</sup> to Top of Drain Pipe 770 S Axis Gr = 485.15
6+23			5.34	475.18	F 10 <sup>02</sup> to Invert 11° S Axis Gr = 485.20
	5.95	481.42	5.05	475.07	
			6.19	475.23	



Elev. FOR FORMS Bk # 8

Rogers  
JUNE 5-42 28

495.2

	11.70	495.31		483.61			
	5.04	495.19	5.16	490.15			
6+68 <sup>5</sup>			5.18	490.01	F 4.99	to Elev 495°	13° Axis
6+91 <sup>25</sup>			5.13	490.06	F 4.94	to " "	" "
7+13			5.11	490.08	F 4.97	to " "	" "
"			5.03	490.16	F 4.84	to " "	120.30 S. "
"			5.15	490.04	F 1.40	to end of Curve	123° S. " Gr = 491.44
6+91 <sup>25</sup>			5.10	490.09	F 1.35	to " "	" " Gr = 491.44
"			5.09	490.10	F 4.90	to elev 495°	120.30 S. Axis
6+68 <sup>5</sup>			5.01	490.18	F 4.82	to " "	" "
"			5.16	490.03	F 1.41	to end of Curve	123° S. " Gr = 491.44

CHECK FORMS B/K # 10

JUNE 5-42 30

B.M. 11.66 495.27

483.61

0.77 494.50

Point on Tangent curve 9<sup>50</sup> Rt & Lt Roadway

495.0

11.78 495.39

483.61

5778	512	490.27	F10.78	to Top of Fillet	12.35N.	Gr=501.05
5791	537	490.02	F4.98	to Elev. 495.0	12.95 N Axis	
"	536	490.03	F4.97	to " "	119.55 S. "	
6720	527	490.12	F4.88	to " "	12.95 N/ "	
"	544	489.95	F5.05	to " "	119.55 S. "	
6701	477	490.62	F9.25	to invert	11.95 S. Axis	Gr=499.87
6711	483	490.56	F7.46	to Top of Gal Pipe	7.25 S. Axis	Gr=498.02

CHECK FORMS

Blk # 1

Rogers  
June 6-48 32

10.26 661.68

651.42

2.68

659.00

Top of Dam Grade Strip

Hole # 1-12.5

1.75

Top of Pipe

" # 1-32.5

0.98

" "

CHECK FORMS Blk # 7

June 6 42 <sup>Rogers</sup> 33

BM 9.54 484.77 475.23

3.69 479.34 9/12 475.65

+1.66 481.00 Point on Curve 137.83 S Axis Gr = 481.00

+1.64 480.98 " " " " " "

10.24 479.58 " " " " Gr = 479.60

+0.26 479.60 " " " " " "

+3.29 482.63

T.P. +0.68 480.02 = 480.02

ELEV FOR FORMS Blk # 2

JUNE 8-42

34

635

BM1	0.61	650.16		649.55		
T.P.	2.41	639.52	13.05	637.11		
4+20			9.56	629.96	F 5.04 to Top of Pour	Axis 9" offset
"			9.37	630.15	F 4.85 to " "	16.54 S. Axis
3+96			9.44	630.08	F 4.92 " " "	Axis 9" offset
"			9.29	630.23	F 4.77 " " "	16.54 S. Axis
T.P.	10.66	649.75	0.43	639.09		
BM1		0.20		649.55	= 649.55	

ELEV. FOR FORMS BIK#11

07  
857

Elev 4650

547 467.31

461.84

84525

7.26 460.05 F 4.95 to Elev 4650 150.9 S. Axis

"

7.25 460.06 F 4.94 to Elev 4650 96.08 S. Axis

"

7.26 460.05 F 4.95 to Elev 4650 51.08 S. Axis

—

7.20 460.11 F 4.89 to " " " S "

3M,

547

461.84 = 461.84

5482  
0  
99.82

150.9  
1.82  
51.08

5108  
45  
96.08

CHECK FORMS Blk # 8

Rogers

June 8-42

36

B.M. 12.14 495.75

483.61

0.73

495.02

Point on Form 120.20 S. Axis Gr. 995°

0.77

494.98

" " " 120.30 S. " Gr. "

0.77

494.98

" " " " " " "

0.75

495.00

Grade Strip 13° x 1 Axis

B.M.

12.14

483.61

- 483.61

8/25



ELEV FOR FORMS BIK # 5

Rogers  
June 8-42 37

Elev 545°

BM	5.54	545.36		539.82			
5431			5.14	540.22	F 7.85	to Top of Gral. Pipe	770 S. Axis Gr. 548.07
"			5.16	540.20	F 4.80	to Elev 545°	8° N. Axis
5446			5.26	540.10	F 4.90	to " "	" "
"			5.23	540.13	F 4.87	to " "	81.55 S. Axis
5470			5.30	540.06	F 4.94	to Elev 545°	8° N. "
"			5.28	540.08	F 4.92	to " "	81.55 S. "
			2.02	543.33		Point on invert	11° S. Axis Gr. 543.31
TR		554		545.82			

CHECK FORMS.

5.79 545.61 539.82

CHECK FORMS Blk # 3

Rogers  
June 8-42 38

5.09 595.30 590.21

4+70 0.18 595.14

" 0.28 595.02

I.P. 4.96 495.17 509 590.21

4+46.09 +1.40 596.57

+0.30 595.47

+4.84 600.01

Grade Strip 43.46 S. Axis D=43.47

Point on Gallery Gr=596.59

Grade Strip 43.20 S. Axis D=43.20

Top of Fillet 2.53 N. Axis D=2.50  
Gr=600.00

CHECK FORMS Blk # 6

Rogers  
June 9 42 39.

12.76 496.37

483.61

5+78

+4.64 501.01

Top of Fille

Gr-501.05

6+20

1.37 495.00

Grade Strip

"

1.38 494.99

" " 119.55 S. Axis

—

1.40 494.97

" " " "

6+06<sup>15</sup>

Point on Gallery 11° S. Axis

21  
1090  
610

CHECK FORMS Bk # 2

Rogers  
June 9-48 40

TP 5.07 635.03

629.96

4+20

0.3

635.00

Grade strip

16.54 S. Axis

"

0.3

635.00

"

0.75 N. Axis

## Elev. of Grout Holes

Regers  
June 9-42

41

I.P.	507	635.03		629.96	
Hole #	2-31		2.09	633.96	Top of 2½" pipe
Hole #	2-12 <sup>5</sup>		1.29	633.74	" " " "
I.P.		480		630.23	= 630.23
B.M.	1139	662.81		651.42	
Hole #	1-37 <sup>5</sup>		2.87	659.91	Top of Grout Pipe 2½"
" #	1-12 <sup>5</sup>		2.17	660.64 <del>659.64</del>	" " " "
B.M.		1139		651.42	= 651.42
B.M.	564	545.96		539.82	
Hole #	5-12 <sup>5</sup>		2.74	542.72	Top of 2½" Grout Pipe
" #	5-37 <sup>5</sup>		3.14	542.32	" " " "
B.M.		564		539.82	= 539.82
	496	500.64		495.68	
Hole #	6-12 <sup>5</sup>		3.56	497.1	

Elev for Forms Blk #10

Rogers  
June 10-42 4207  
96.50  
60.50

6.28 500.22

493.94

8+06

5.21 495.06 F499 to Elev 500<sup>00</sup> 116.50 S. Axis

"

5.16 495.06 F499 to " " 12.50 N. "

7+90<sup>25</sup>5.24 494.98 F502 to Elev 500<sup>00</sup> 116.50 S. Axis

"

5.25 499.97 F503 to " " 12.50 N. "

7+72<sup>25</sup>

5.33 494.89 F511 to " " 116.50 S. "

"

5.14 495.08 F492 to " " 12.50 N. "

7+61<sup>5</sup>

5.20 495.02 F498 to " " 116.50 S. "

"

5.09 495.13 F487 to " " 12.5 N. "

0.68 499.54 Top of Roadway form (less sheeting) Axis Gr=499.50

2.15 498.07

0.71 499.51 Top of Roadway (less sheeting) 12.54 N. Axis

1.32 498.90

1.99 498.23 = 498.19

72.25

ELEV FOR FORMS B/L # 8

43

El. 500<sup>0</sup>

6,60 500.54

493.94

6+68<sup>5</sup>

547

495.07

F 493 to Elev. 500<sup>0</sup>

116<sup>5</sup> S. Axis

"

556

494.98

F 5.02

to " "

12<sup>5</sup> N. "

+91<sup>25</sup>

542

495.12

F 488

to " "

116<sup>5</sup> S. "

"

543

495.11

F 489

" " "

12<sup>5</sup> N. "

7+13

540

495.14

F 486

to " "

116<sup>5</sup> S. "

"

544

495.10

F 490

to " "

12<sup>5</sup> S. "

CHECK FORMS Blk # 9

44

B.M. 9.51 484.74

475.23

7+14

+1.28

486.02

Point on Curve

128.37 S. Axis

Gr = 486.00

7+37<sup>25</sup>

+1.24

485.98

" " "

128.41 S. "

Gr = 485.98

7+60<sup>50</sup>

+1.23

485.97

" " "

128.44 S. "

Gr = 486.02

B.M.

9.51

475.23

= 475.23

128.37  
67.36  
56.81



ELEV FOR FORMS B/k # 11

2096-  
June 10-42 25

465<sup>2</sup>

BM, 702 ~~468.86~~  
~~467.80~~

461.80

8+17

8.76

~~460.10~~  
~~459.10~~

11.30

F 12.30 to Top of Filler 15.36 N. Axis G = 471.40

+27

8.71

~~460.15~~  
~~459.15~~

16.25

F 17.25 to " " 14.86 N. " G = 476.40

+37

8.44

~~460.02~~  
~~459.42~~

9.18

F 10.18 to Bottom " 20.695 " G = 469.60

+47

4.63

~~464.23~~  
~~463.23~~

7.17

F 8.17 to " " 20.515 " G = 471.40

+53<sup>5</sup>

1.12

~~467.74~~  
~~466.74~~

4.83

F 5.83 to " " 20.395 " G = 472.57

BM

702

~~461.80~~  
~~461.84~~

= 461.84

CHECK To Points

5.89 467.73

461.84

June 11-42

7.64

460.09

7.60

460.13

## ELEV FOR FORMS BIK# 6

June 11 - 42 46

500'

B.M.	12.23	515.10		502.87	
B.M.	12.61	517.51	0.20	514.90	- 514.88
B.M.			0.22	517.29	= 517.25
B.M.	0.74	503.61		502.87	
I.P.	7.93	503.61	7.93	495.68	Marked Rock
B.M.			0.74	502.87	- 502.87
I.P.	4.96	500.64		495.68	Marked Rock as above
5791			4.92	495.72	F 10.82 to Invert 11° S. Axis Gr = 506.50
6+20			5.64	500.00	F 5.00 to Elev 500° 12.5° N. Axis
"			5.62	495.02	F 4.98 to Elev 500° 115.75° S. Axis
5791			5.48	495.16	F 4.84 to " " 12.5° N. "
"			5.40	495.24	F 4.76 to " " 115.75° S. "
5778			5.28	495.36	F 5.69 to Top of T 116' 12.40 N. Gr = 501.05
			4.23	496.42	Point on Invert 11° S. Axis Gr = 496.50
I.P.		4.96		495.68	= 495.68

ELEV FOR FORMS Blk #2

Rogers

June 11-42 47

640°

1046 639.79

629.33

3+96

4.29 635.00 F 5.00 to Elev 640° Axis (offset 0.50S)

"

Corrected

~~4.63~~ 635.06 F 4.84 to Elev 640° 14.64 S Axis

4+20

"

~~4.81~~ 634.98 F 5.02 to " " " "

"

4.91 634.88 F 5.12 to " " Axis (offset 0.50)

1046

629.33

Corrected Forms

June 12-42

B.M. 10.61 639.94

629.33

4+20

4.97 634.97 ~~4.96~~ 634.98 F ~~5.12~~<sup>5.18</sup> to Elev 640° 14.69 S Axis

3+96

4.76 635.18 F 4.97 to " " 14.69 S "

3+77

4.60 635.34 F 4.81 to " " " " ?

B.M.

1061

629.33 = 629.33

CHECK  
~~FILE~~ FOR FORMS BIK # 11

219 469.03 461.80

8+17 +2.37 471.40

8+22 +0.61 469.60

BM 219 461.80 = 461.80

ELEV FOR FORMS Blk #7

Revised  
June 12-42 49

B.M.	1025	485.48	475.23	
6+23		5.35	480.13	F 5.87 to Pt on Curve 128.375 Axis Gr=486.00
"		5.48	480.00	F 5.02 to Top of Guide Wall 151.95 Gr=485.00
6+67.5		+0.54	486.02	Point on Curve Top of Pav 128.375 " Gr=486.00
		5.50	479.98	F 5.17 to Top of Gal Pipe 770.5 Axis Gr=485.15
B.M.	1025		475.23	= 475.23

Elev for Guide walls

1151	486.79	475.23	
167	485.07		Pt for Grade Strip 151.90 S. Axis <sup>485.07</sup> Gr=485.07
214	484.60		" " " " 146.895 " " 484.60
+320	489.94		" " " " 131.46 " " " = 489.94
1284	588.07	575.23	B.M. June 19-1942
347	484.60		Pt for Grade Strip 151.90 S. Axis Gr=484.60

ELEV FOR FORMS Bk # 9

50

B.M. 660 490.21

483.61

± Bk

500

485.21

F 4.79 to pt. on curve 124.17 Gr = 490°

B.M.

660

483.61

= 483.61

CHECK FORMS

725 490.86

483.61

June 20-1942

ELEV FOR FORMS Bk # 9

June 23-1942

116 495.10

493.92

CHECK FORMS Blk # 8

243 500.62

498.19

0.65 494.97 G1 = 500.00

5.58 495.04 F 4.96 = F 4.93

243

498.19

ELEV. FOR FORMS Blk # 8

B.M. 289 505.76

502.87

6+68.5

5.72 500.04 F 4.96 to Elev 505.2 12° N. Axis

"

5.79 499.97 F 5.03 to " " <sup>112.70</sup>  
~~111.75~~ S. Axis

7+14

5.70 500.06 F 4.96 to " " 12° N. "

"

5.80 499.96 F 5.04 to " " 112.70 S. "

6+90.25

5.61 500.15 F 4.85 to " " 12° N. "

"

5.85 499.91 F 5.09 to " " 112.70 S. "

289

502.87

67.5  
46.5  
72.0

ELEV FOR FORMS. BIK #11

Rogers  
June 12-48 52

470°

822 470.06

461.81

8+17	5.13	464.93	F 6.47 to Top of Fillet	15.36 N.H.A. Gr=471.40
+27	5.03	465.03	F 11.37 to "	12.86 N. " Gr=476.40
+37	4.96	465.10	F 16.30 to "	14.36 N. " Gr=481.40
+47	4.89	465.17	F 18.03 " "	14.18 N. " Gr=483.20
-	4.99	465.07	F 4.93 to Elev 470°	150° S. "
8+52°	5.07	464.99	F 5.01 to "	" S. "
"	5.01	465.05	F 4.95 to "	102.08 S. "

B.M 840 47024

461.84

8+16.3	5.17	465.07	F 1.21	466.28 - E GALLERY
8+35.02	5.25	464.99	F 1.48	to 466.47 - E Gallery - 11° South
8+47.02	5.22	465.02	F 9.45	to 474.47
8+16.3	5.21	465.03	F 5.53	to 470.56 - Top of C.I. Pipe
8+25.6	5.24	465.00	F 5.65	to 470.65
8+34.9	5.18	465.06	F 6.22	to 471.28
8+44.2	5.22	465.02	F 12.46	to 477.48
Check	4.03	466.21	Inv Elev. of 8+07	≈ 466.19

7065  
400  
6665



ELEV. FOR FORMS Bk #3

600

371 600.19

596.08

4+70

513

595.06

F 4.90 to Elev 600° 2.50 N Axis

533

594.86

F 5.14 to " " 39.75 "

4+46

518

595.01

F 4.99 to " 600° 2.50 N "

"

526

594.93

F 5.07 to " " 39.75 "

+41

526

594.93

F 9.87 to CI Pipe 7.20 S. Axis Gr: 604.80

4+36

516

595.03

F 8.28 to Invert 11° S. Axis Gr: 603.31  
Gr: 606.05

B.M.

371

596.48

= 596.48

998 606.46

596.48

4+3812

460

601.86

Rt. on invert from Gr: 601.90

+70

623

600.23

D.S. Bulkhead 39.59 S. Axis D: 39.59

ELEV FOR FORMS Bk 2

Rogers  
June 14-42 54

645°

BM	282	645.00	642.24	
3+77	487	640.19	F 4.83	to top of Curve 14.5° Axis $645.02$
3+96	499	640.07	F 4.95	to " " " " "
"	514	639.92	F <sup>5.10</sup> 5.08	to Elev 645° on Axis
4+20	502	640.04	F 4.98	to Top of Curve 14° 3' Axis $645.02$
"	510	639.96	F <sup>5.04</sup> 5.04	to El. 645° on Axis
BM	282	642.24	= 642.24	

CHECK FORMS BIK# 11

Rogers  
June 15-62 55

	11.36	473.20	461.84		
8+17	1.84	471.36	Top of Fillet	1536 N. "	Gr = 471.40
+27	+3.18	476.38	Top of Fillet	1487 N. Axis	Gr = 476.40
+37	+8.19	481.39	" "	1436 N. "	Gr = 481.40
+35.02	6.72	466.48	Point on Gallery invert		Gr = 466.47
+25.6	6.87	466.33	" " " "		Gr = 466.38
+16.3	6.96	466.24	" " " "		Gr = 466.28
+42.9	1.62	471.58	" " " "		Gr = 471.65
+42.02	8.19	465.01	R.P. for invert	E1 = 465.02	
8+53.5	8.50	464.70	Copper water stop		

$$\begin{array}{r} 97.20 \\ 716.5 \\ \hline 165.3 \end{array}$$

GRADES IN GALLERY LEVEL SECTION

Rogers

JUN 15 - 1942

56

BM, 2.04 477.27 475.23  
 TP 3.73 468.69 12.31 464.96  
 TP 6.32 470.23 4.28 464.41

7+34 2.70  
 7+29 2.65 468.08  
 7+14 2.49 468.24  
 6+90.25 2.25 468.08  
 6+62.5 2.00 468.73  
 6+53 1.87 468.86  
 7+45 2.65 468.08  
 7+60.5 2.50 468.23  
 7+83.25 2.27 468.46  
 8+07 2.08 468.65

Gr = 468.03

Gr = 468.29

Gr = 468.48

Gr = 468.73

468.86  
 Gr = 486

Gr = 468.08

Gr = 468.23

6 Gr = 468.46

70

TP, 3.16 468.27 5.62 465.11  
 11.96 476.99 3.24 465.03

Gr = 7+31.25

37.25

27.25

14

23

07.25

37.25

70.25

B.M., 1.78 475.21 = 475.23

24

## CHECK FORMS Bk #6

June 15-42 57

B.M.	491	500.59	495.68	
			486	495.73
579815			4.13	501.72 Point on Gallery 11° S Axis Gr = 501.77
B.17.	491		495.68	= 495.68

## ELEV. FOR FORMS Bk #6

June 18-1942

B.M.	286	505.73	502.87	
6+20			5.73	500.00 F 5.00 to Elev. 5.05° 12° N. Axis
-			5.71	500.02 F 4.98 to " 5.05° " "
6+20			5.79	499.94 F 5.06 to " " 111.955."
5791			5.79	499.94 F 5.06 to " " "
- 11			5.18	500.55 F 5.99 to Invert Gr = 506.54
79819			4.04	501.69 Point on Invert Form 11° S. Axis Gr = 506.75

475

3.26 478.49

475.23

8+17	8.32	470.17	F 4.83	to Elev 475°	15° N Axis	
8+27	8.60	469.89	F 6.51	to Top Filled	15.36 N. Axis	Gr = 476.40
137	8.34	470.15	F 11.25	to " "	14.36 N. "	Gr = 481.40
447	8.31	470.18	F 13.02	to " "	14.18 N. "	Gr = 483.20
+525	8.38	470.11	F 14.08	to Top	<sup>14.08</sup> 14.09 N. "	Gr = 484.19
"	8.45	470.02	F 4.96	to Elev 475°	150.95 Axis	
—	8.45	470.00	F 4.96	to " "	150.90.5 "	
8+52.5	<del>8.35</del> 8.57	<del>470.16</del> 469.92	<del>F 7.98</del> 8.20	to invert	11° S. Axis	Gr = 478.12
+44.2	8.35	470.14	F 7.86	to Top of Pipe		Gr = 477.40

## CHECK FORMS BIK #11

June 19-1942

501 48024

475.23

8+525	73.91	484.15		Top of Filled	14.07 N. Axis	Gr = 484.19
8+37	+1.15	481.39		" "	14.35 N. "	Gr = 481.40
8+50.67	337	476.89		Point on invert	11° S. "	Gr = 481.89
	501	475.23				

ELEV FOR FORMS Bk # 10

Rogers  
June 17-88 59

500°

BM, 2.85	505.72		502.87			
8+615		563	500.09	F 4.91	to Elev 500°	12° N. Axis
"		567	500.05	F 4.95	to " "	112.70 S. "
8+07		559	500.13	F 4.87	" " "	12° N. Axis
"		572	500.00	F 5.00	" " "	112.7 S. "
8+832		408	501.60	F 3.36		12° N. Axis
		413	501.59	F 3.41	to " "	112.7 S. "
	2.85		502.87			

CHECK FORMS

BM, 4.48	507.35		502.87
4.37	507.24	4.48	502.87

53

0724  
508  
0150

ELEV FOR FORMS Bk# 15

60

BM 1066 539.69

529.03

6.21 533.48 F 8.52 to Elev 540° 42.08 S. Axis

5.35 534.34 D.S. intersection 89.65 S. Axis

TP 339 534.42 10.66

529.03

8.82 525.60 F 11.43 to Elev  $\frac{537.93}{530.9}$  Top Fillet 8.80 N. Axis



## CHECK GALLERY FLOOR FORMS

61

	6.26 47067		46001	
6+53		1.83	468.84	Gr = 468.86
6+67 <sup>5</sup>		1.95 1.82	468.72 468	Gr = 468.73
790		2.21	468.46	Gr = 468.48
7+14		2.44	468.23	Gr = 468.24
129		2.59	468.08	Gr = 468.08
7+34 <sup>45</sup>		2.55	468.12	Gr = 468.11
7+63		2.41	468.26	Gr = 468.26
784		2.20	468.47	Gr = 468.46
8+02		2.11	468.56	Gr = 468.65

Elev for  
CHECK FORMS B16#4

Rogers  
June 19-42 62

	<del>1291</del> 488.10		471.23		
B.M.	11.56	570.12		558.56	
5+20			5.31	564.81	F 5.19 to Elev 570° 62.55 S. Axis
"			5.14	564.98	F 5.02 to " " 5.50 N. "
4+96			5.13	564.99	F 5.01 to Elev 570° 62.55 S. Axis
"			5.02	565.10	F 4.90 to " " 5.50 N. "
4+81			4.85	565.27	F 4.73 to " " 5.50 N. Axis
+86			4.58	565.54	F 7.72 to invert 11° S. " Gr=573.26
4+96.89			4.18	565.94	Point on " " 11° S " Gr=566.00
4+91			4.70	565.42	F 9.32 to Top C.I. Pipe Gr=574.74

CHECK FORMS B16#4

June 22-1942

12.65 571.21

558.52

0.66 570.55

0.85 570.36

Top of Ds. Bulkhead 62.20 S. Axis D= 62.28

71.21  
5/52

2.98  
72.27

ELEV FOR FORMS Blk # 7

Rogers  
June 19 - 1942 63

	0.82	503.69		502.87	
	0.86	492.34	12.21	491.48	
6+67E			247	489.87	Point on Concrete x dist. from Axis
-			6.89	485.45	F 4.42 to Elev. 489.87 x dist from Axis
4 Blk			6.75	485.59	F 4.28 to " " " " "
-			6.65	485.69	F 4.18 to " " " " "
2			6.73	485.61	F 4.26 to " " " " "
TP	11.11	496.88	6.57	485.77	
TP	12.03	504.04	4.87	492.01	
BM			1.17	502.87	= 502.87

CHECK FORMS

TP	1.13	493.13		492.00	
			3.26	489.87	Point on Curve set at 489.87

ELEV FOR FORMS Blk #8

510°

	7.74	510.61		502.87	
6+685			5.61	505.00	F 4.76 to Elev 510° 115° N. Axis
"			5.57	505.01	" " " " 108.90 S "
"			5.54	505.07	F 4.93 to " " " " " " " "
7+13			5.66	504.95	F 5.05 to " " 510° 115° N. "
"			5.66	504.95	F 5.05 to " " " " 108.90 S. "
← Blk.			5.93	505.18	F 4.82 to " " " " " " S "
T.P.	4.54	510.54	4.61	506.00	Rock on Block #8
B.M.			7.67	502.87	= 502.87

CHECK FORMS

	8.27	511.14		502.87	
			.115	509.99	D.S. Bulkhead 108.96 S. Axis D=108.90
			.115	509.99	" " " " " " "
			.116	509.98	" " " " " " "

Note. Form set 0.06' S. to correct slope

4.71  
0.65  
5.00

ELEV FOR FORMS BIK #3

Rogers  
June 20-42 65

605'

12.09	608.57	596.48		
	8.29	600.28	F 4.52 to Top of C.I. Pipe	Gr = 604.80
4+46	8.43	600.14	F 4.86 to Elev 605	2.25 N. Axis
"	8.69	599.88	F 5.12 to " "	35.95 S. "
4+70	8.59	599.98	F 5.02 to " "	2.25 N. "
"	8.70	599.87	F 5.13 to " "	35.95 S. "

CHECK FORMS BIK #3

June 23-1902

B.M.	10.23	606.71	596.48	
	+0.46	607.17	Point on Gallery Form	11° S Axis Gr = 607.18
	1.52	605.19	DS Bulkhead	35.81 S Axis D = 35.80
	1.71	605.00	U.S. "	2.25 S. "
B.M.	10.23	596.48	= 596.48	

35.81  
35.80  
35.81

ELEV FOR FORMS Blk # 11

Rogers  
June 22-42 66

	5.98	481.21		475.23			
8437			5.64	475.57	F 5.83 to Top Fillet	14.36 N. Axis	Gr = 481.40
8452 <sup>S</sup>			5.85	475.36	F 8.83 to " "	14.08 N. Axis	Gr = 480.19
"			6.00	475.17	F 2.95 to Invert	11° S. Axis	Gr = 478.12
"			6.22	474.99	F 5.01 to Elev. 480	150.9 S. Axis	
—			6.15	475.06	F 4.84 <sup>94</sup> to " "	" "	" "
	5.95	481.18	5.98	475.23			
8453 <sup>S</sup>			0.22	480.96	Point on Conc Blk # 10	138.44 S. Axis	
—			5.94	475.24	F 5.72 to Elev. 480.96	138.44 S. Axis	
			6.01	475.17	F 5.79 to " "	" "	" "
			6.07	475.11	F 5.85 to " "	" "	" "

CHECK FORMS Blk # 11

June 23-1942

	3.97	487.58		483.61			
8452 <sup>S</sup>			3.39	484.19	Top of Fillet	14.08 N. Axis	Gr = 480.19
8437				481.40	" "	14.39 N. Axis	" = 481.40
			8.75	478.83	Invert	11° S. Axis	" = 478.79

## CHECK FORMS Bk#6

Repos  
June 22-1942 67

3.14 506.01

502.87

0.53 506.54

Point on Invert 10.975 Axis 506.54

## ELEV FOR FORMS Bk#6

June 20-1942

2.53 510.42

502.87

4.38 510.33 4.47

505.95

6+20

5.38

504.95

F 5.05 to Elev 510° 115 N. Axis

5+91

4.58

505.75

F 5.60 to Top of C.I. Pipe Gr: 511.35

+903

3.32

507.01

Point on Invert Gr: 507.01

6+20

5.37

504.96

F 5.00 to Elev 510° 108 N.S. Axis

5.34

504.99

F 5.01 to " " " "

4.99 510.94 4.38

505.95

5.91

505.03

F 4.97 to " " 115 N. "

B.M.

8.07

502.87

= 502.87

ELEV FOR FORMS

Bk# 11

485

Rogers

June 25-01 68

BM 192 485.53

483.61

8+52.5

5.48

480.05

F 4.95 to Elev 485° 14° N. Axis

130.25

5.16

480.37

F 4.63 to " " " "

14.E

5.27

~~481.24~~  
480.26

F 5.74 to " 486° 128.37 S.

21.E

5.37

~~481.16~~  
480.16

F 5.84 to " " " "

8+52.5

5.52

480.01

F 5.99 to " " " "

5.29

480.24

F 5.76 to " " " "

BM

192

483.61

= 483.61

CHECK - FORMS

BM

9.60 484.83

47.23

113

96

JUNE 27

Dickinson



## ELEV FOR FORMS Bk # 4

Rogers.  
June 25 - 1942 69

BM, 1241 570.97 558.56

897 575.99 - 400 566.97

105 574.89

5720 6.06 569.88 F 5.12 to Elev 575° 58.75 S. Axis

4486 5.95 569.99 F 5.01 to " " " "

IP 12.95 587.84 105 574.89

12.72 595.30 5.26 582.58

BM, 286 592.44 = 592.44

B.M. 070 575.59 574.89

5720 5.60 569.99 F 5.01 to Elev. 575° 5° N. Axis

4 5.49 570.10 F 4.90 to " " " "

4491 5.22 570.37 F 4.37 to Top of C.I. Pipe Gr = 574.74

4482.23 5.13 570.46 F 5.32 to Point on Invert 11° S. Gr = 575.78

BM, 070 574.89 = 574.89

ELEVS FOR FORMS - BLOCK #3

B.M	1.27	61037	609.10
470	5.34		605.03
470	5.38		604.99
4746	5.32		605.05
4746	5.41		604.96
4730 <sup>25</sup>	3.16		607.21
4731	4.72		605.65
T.P.		7.19	603.18
	3.28	60646	

B.M. 9.97 596.49

CHECK FORMS.

1.49	610.59	609.10
0.35	610.24	
0.34	610.25	

JUNE 26<sup>TH</sup>  
OUSTINSON 70

F4<sup>27</sup> To Elev. 610 - 2° North

F5<sup>01</sup> " " " - 32<sup>15</sup> South

F4<sup>95</sup> " " " 2° North

F5<sup>04</sup> " " " 32<sup>15</sup> South

End of Gallery Form - Grade = 607<sup>15</sup>

5.81 " " 611<sup>46</sup> = Top of Pipe

Record El. = 596.48

July 3-1962

Point on D.S. Bulkhead 31.95 S. Axis D = 31.97

" " " " 31.88 S. " "

## ELEV'S FOR FORMS-BLOCK #2

JUNE 26<sup>th</sup> 21

BM 0.87 650.42

649<sup>55</sup>

DICKINSON

4120

5.45

644.97 F=5<sup>03</sup> TO ELEV 650<sup>00</sup> On Axis

4120

5.44

644.98 F=5<sup>02</sup> " " " 13<sup>00</sup> south

3196

5.35

645.07 F=4<sup>93</sup> " " " On Axis

3196

5.48

644.94 F=5<sup>06</sup> " " " 13<sup>00</sup> South

BM

0.87 649<sup>55</sup>Check

## ELEV'S FOR FORMS - Block #6

JUNE 26<sup>th</sup>TP. 4<sup>26</sup> 510.21

505.95

5182.37

2.10

512.31 Gallery Inv. = 512.30

Elev.s For Forms in Block # 8

JUNE 27<sup>th</sup> 72

DICKINSON

B.M. 12.11	51498	502.87	
6+68 <sup>v</sup>	497	510.01	F=499 To Elev. 515 <sup>00</sup> - 11 <sup>00</sup> North
6+68 <sup>v</sup>	491	510.07	F=493 " " " - 105 <sup>10</sup> South
6+68 <sup>v</sup>	479	510.19	F=481 " " " E Block
6+90	496	510.08	F=492 " " " 105 <sup>10</sup> South
7+13	501	509.97	F=503 " " 515 <sup>00</sup> 11 <sup>00</sup> North
7+13	496	510.02	F=498 " " " 105 <sup>10</sup> South
7+13	4.68	510.30	F=470 " " " E Block
BM	12.11	502.87	

CHECK FORMS

BM	117	516.05	514.88
		059	515.46

ELEV FOR FORMS B/k #6

Rogers  
June 29-42 73

1277 515.64 502.87

6420 5.69 509.95 F 505 to Elev 515° 104.35 S. Axis

T.P. 1289 515.76 1277 502.87

6420 5.69 510.01 F 493 to " " 11° N. Axis

497 .97

573 510.03 F 497 to " " 11° N. "

T.P. 1268 515.55 1289 502.87

5481 5.25 510.30 F 7.72 to Top Gl. Pipe Gr = 518.02

CHECK FORMS

1285 515.72 502.87

ELEV FOR FORMS Blk# 7

Rogers  
June 30<sup>th</sup> July 2-42 74

109 503.96

50287

170.20

398

4.18

0.80 503.67

129.18 S. Axis

Gr = 498.02

505 498.02 Point on Guide Wall Cont. Joint

8.67 495.00 " " Curve ~~120.33~~ S. Axis

0.80

50287

ELEV. FOR FORMS

July 2-42

0.89 503.76

50287

6+67.5

3.76 500.00 on Conc. 116.50 S. Axis

L+E

8.70 495.06 F 494 to Elev 500<sup>e</sup> 116.50 S. Axis

L+B

8.83 494.93 F 5.07 to " " " "

R+E

8.73 495.03 F 4.97 to " " " "

6+23

2+25 8.70 495.06 F 4.94 to " " " "

CHECK FORMS

0.83 503.70

50287

503.70  
8.76  
494.94  
0.770  
8.64  
95.00

3.34

500.36 Point on D.S. FORM 116.27 S. Axis D = 116.23

ELEV FOR FORMS Blk # 11

Rogers  
June 29-02 25

B.M. 6.68 490.29

483.61

8+52W

520 485.09

F 4.91 to Elev 490° 124.17 S. Axis

-

498 485.31

F 4.69 to " " " "

± Blk

493 485.36

F 4.64 to " " " "

-

490 485.39

F 4.61 to " " " "

B.M. 6.92

490.53 6.68

483.61 = 483.61

8+52E

561 480.92

F 5.08 to Elev 490° 135W " G=490°

± Blk

553 490.00

F 5.00 to " " " "

CHECK FORMS

791 491.02

483.61

1.07

489.95

91.05  
1.07  
89.98

84.55  
5.08  
89.63

91.02  
1.09  
89.93

ELEV. FOR FORMS Blk # 10

	254	510.41		502.87			
8406			537	505.04	F 0.96	to Elev 510°	10890 S. Axis
"			545	504.96	F 5.04	to " "	115 N. "
4 Blk			518	505.23	F 4.77	to " "	10890 S. "
"			538	505.03	F 4.97	to " "	115 N. "
7468 <sup>s</sup>			536	505.05	F 4.95	to " "	10890 S. "
"			542	504.99	F 5.01	to " "	115 N. "



Gallery Pipe Lengths

77

Blk # 6	6+01	L = 5.1	(Upper)
" # 6	5+91	L = 5.4	(Lower)
" # 5	5+31	L = 7.8	"
" # 4	5+41	L = 6.4	"
" # 5	5+51	L = 6.1	(Upper)
" # 4	5+11	L = 8.0	(Lower)
" # 3	4+31	L = 5.9	"
" # 3	4+01	L = 4.9	"

Blk # 5	5+61	L = 6.05	(Upper)
" # 2	4+11	L = 4.62	"
" # 3	4+51	L = 8.10	(Lower)
" # 4	5+01	L = 7.95	"
" # 11	8+16.3 7.256 +3.99	L = 6.2 L = 5.5	"
" # 6	5+01	L = 7.15	"
" # 3	4+61	L = 5.66	(Upper)
" # 11	8+0.42	L = 7.2	(Lower)
"	8+3.79	L = 6.0	(Upper)
"	8+07-8+25.6 3 @ 4.20	= 12.6	"
" # 11	6+39.6	L = 5.1	"
" # 7	6+30.3	L = 5.2	"
? # 4	5+01 4+61	L = 6.1	(Upper)
" # 6	6+11	L = 6.1	(")
" # 3	4+51	L = 5.5	"
"	4+41	L = 4.5	(Lower)
" # 11	8+0.42	L = 5.4	Upper
" # 7	6+30.3	L = 5.6	"

1.87  
1.62  
1.20

137.87

128.36

9.47

65  
.18  
520  
65  
1.170

469.6  
.18  
471.2  
.18  
483.2

3.85

14.50

3.8

14.12

6.33

20.45

14.18

6.27

65

14.50

.44

14.06

6.33

20.39

14.18

6.27

14.36

6.33

20.69

471.2

65

472.05

725.7

11.80

84.37

14.50

1.32

14.18

83.2

1.17

83.85

1.17

84.02

Block # 11

8407 = 454.6

+37 = 469.6

S = 0.50

8453.5

472.57

S = 0.18

469.6  
.11.8  
481.40 = el. Top of fill D = 14.36

469.6 = " Bot. " D = 20.69

483.2 = el. Top of fill D = 19.18

471.2 = " Bot. " D = 20.51

484.37  
483.85 = el. Top of fill

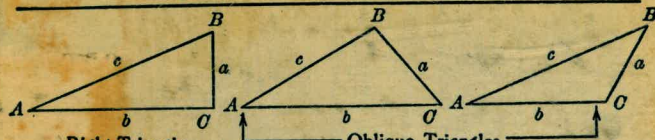
472.57 = el. Bot. " D = 20.39

486.00

80.26

8407 49053  
 46#21.00  
 3863  
 269.6  
 8237500  
 3863  
 50 26667  
 50 281.000  
 50 281.000  
 4544  
 330252  
 1137  
 330252  
 2274  
 758  
 40.038  
 240  
 38.63  
 .6667  
 37.63  
 27041  
 23178  
 23178  
 31978  
 17 3/4  
 512.29  
 25754621  
 51988  
 517100  
 3531137  
 758  
 78237  
 5123  
 25  
 34/45

TRIGONOMETRIC FORMULÆ



**Solution of Right Triangles**  
 For Angle A.  $\sin = \frac{a}{c}$ ,  $\cos = \frac{b}{c}$ ,  $\tan = \frac{a}{b}$ ,  $\cot = \frac{b}{a}$ ,  $\sec = \frac{c}{b}$ ,  $\operatorname{cosec} = \frac{c}{a}$   
 Given  $a, b$  Required  $A, B, c$   $\tan A = \frac{a}{b} = \cot B$ ,  $c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$   
 $a, c$  Required  $A, B, b$   $\sin A = \frac{a}{c} = \cos B$ ,  $b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$   
 $A, a$  Required  $B, b, c$   $B = 90^\circ - A$ ,  $b = a \cot A$ ,  $c = \frac{a}{\sin A}$   
 $A, b$  Required  $B, a, c$   $B = 90^\circ - A$ ,  $a = b \tan A$ ,  $c = \frac{b}{\cos A}$   
 $A, c$  Required  $B, a, b$   $B = 90^\circ - A$ ,  $a = c \sin A$ ,  $b = c \cos A$

**Solution of Oblique Triangles**  
 Given  $A, B, a$  Required  $b, c, C$   $b = \frac{a \sin B}{\sin A}$ ,  $C = 180^\circ - (A + B)$ ,  $c = \frac{a \sin C}{\sin A}$   
 $A, a, b$  Required  $B, c, C$   $\sin B = \frac{b \sin A}{a}$ ,  $C = 180^\circ - (A + B)$ ,  $c = \frac{a \sin C}{\sin A}$   
 $a, b, C$  Required  $A, B, c$   $A + B = 180^\circ - C$ ,  $\tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$   
 $c = \frac{a \sin C}{\sin A}$   
 $a, b, c$  Required  $A, B, C$   $s = \frac{a + b + c}{2}$ ,  $\sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$   
 $\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}$ ,  $C = 180^\circ - (A + B)$   
 $a, b, c$  Area  $s = \frac{a + b + c}{2}$ , area =  $\sqrt{s(s - a)(s - b)(s - c)}$   
 $A, b, c$  Area area =  $\frac{bc \sin A}{2}$   
 $A, B, C, a$  Area 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 =  $5^\circ 10'$ . 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.  $\operatorname{Cosec} 5^\circ 10' = .9959$ .  $1 - .9959 = .0041$ .  $319.4 \times .0041 = 1.31$ .  $319.4 - 1.31 = 318.09$  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.