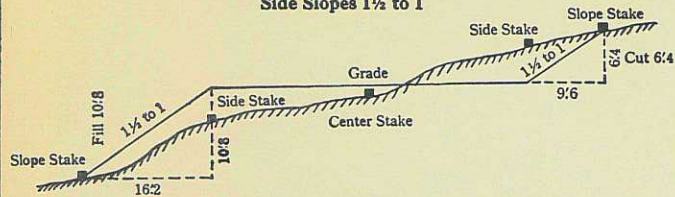


LOGAN - SMITHFIELD  
ROUTE CORRIDORS

LOGAN - SMITHFIELD  
ROUTE SURVEY

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



In the figure above: Opposite 6 under "Cut or Fill" and under .4 read 9:6 the distance from the side stake to the slope stake at right. Opposite 10 under "Cut or Fill" and under .8 read 16:2, the distance from the side stake to the slope stake at the left.

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	0.3	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

4 =  
 64° 43' 00"

Property of CACHE COUNTY

Address Rm 210 COUNTY COURT HOUSE

Phone \_\_\_\_\_

This Field Book contains special paper which is impregnated with resin to make it substantially stronger as well as water resistant. Your field notes will come out sharp and clear even when the page is wet.



STAT TO STAT	HORIZ Z	VERT Z	SLOPE DIST	HORIZ DIST
A <sub>2</sub> TO A <sub>3</sub>	180°	89°02'	650.76 <sup>.84</sup>	650.76
A <sub>1</sub> TO A <sub>2</sub>	180°	272°37'	2060.47	2058.32
A <sub>1</sub> TO A <sub>2</sub>				
A <sub>0</sub> TO A <sub>1</sub>	#	267.42	1174.54	1173.59

LOCATION

3

6 JULY 77 LOGAN SMITHFIELD EAST BENCH

SUNNY HOT

HUDSON NOTES

WARD \*

BOSTON O

START AT 16<sup>TH</sup> EAST, ON NORTH END BY  
LOGAN NORTH CANAL BRIDGE.

SEC LINE 11/12 TURN R IE

A<sub>3</sub> STA 38+82.67

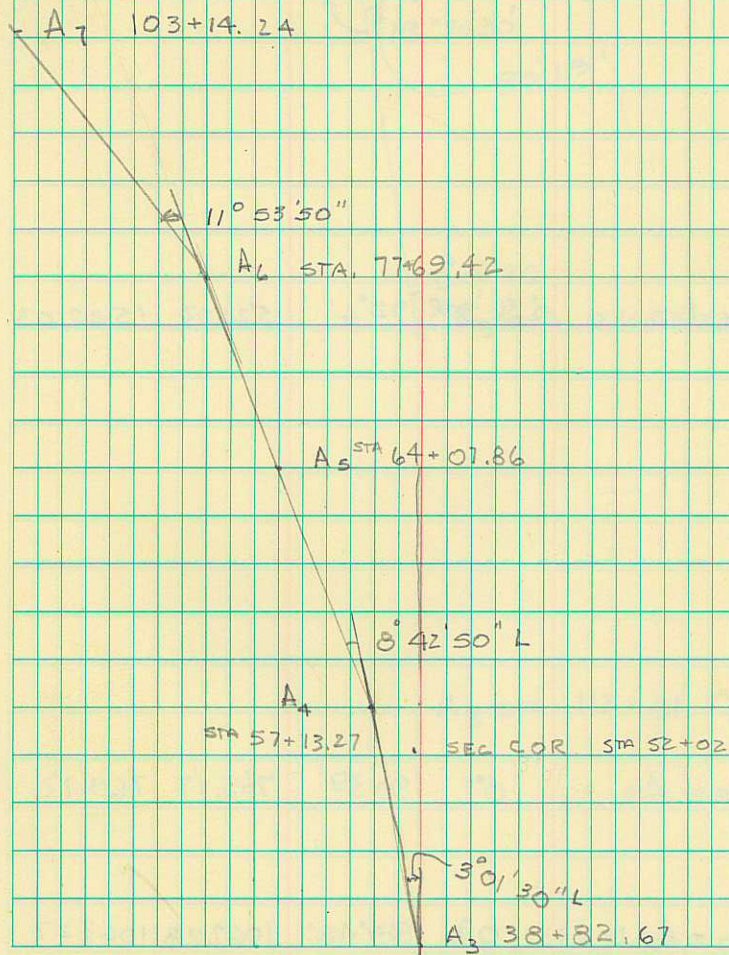
A<sub>2</sub> STA 32+31.91

---x---x---x---x--- APPROX LOCATION 1/4 COR

A<sub>1</sub> STA 11+73.59

A<sub>0</sub> PT A<sub>0</sub> IS ON NORTH END OF BRIDGE  
STA. 0+00

STA	TO STA	HORIZ ∠	VERT ∠	SLOPE DIST	HORIZ DIST
A <sub>6</sub>	TO A <sub>7</sub>	11° 53' 50"	92° 9'	<sup>5</sup> 2846.61	2544.82
A <sub>5</sub>	TO A <sub>6</sub>	0°	2' 30"	1361.56	1361.56
A <sub>4</sub>	TO A <sub>5</sub>	8° 42' 50" <sup>L</sup>	89° 9'	694.67	694.59
A <sub>3</sub>	TO SEC COR	0° 4' L	90° 48'	1320.16	1320.03
A <sub>3</sub>	TO A <sub>4</sub>	3° 01' 30" <sup>L</sup>	90° 45'	1830.76	1830.60



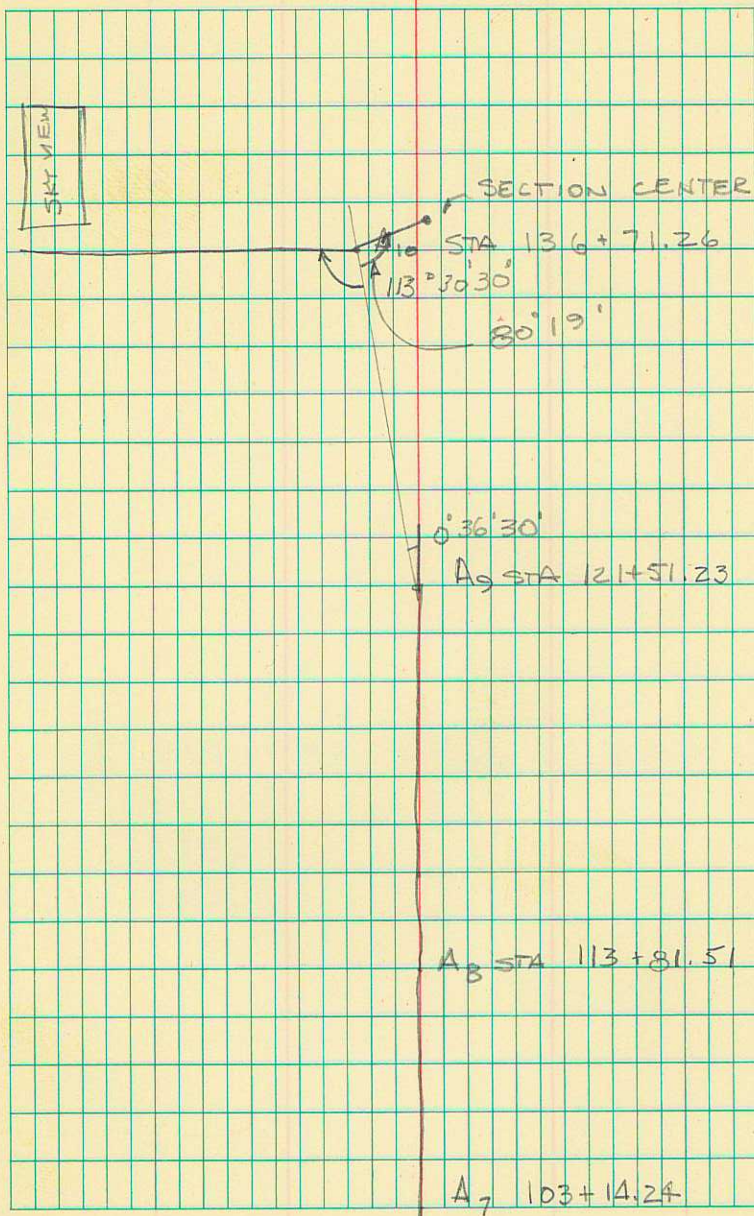
STA TO STA	HORIZ X VERT	VERT X HORIZ	SLOPE DIST.	HORIZ DIST
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A <sub>9</sub> TO A <sub>10</sub>	0° 36' 30"	92° 4'	1521.02	1520.03
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A <sub>8</sub> TO A <sub>9</sub>	0°	90° 39'	769.77	769.72
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A <sub>7</sub> TO A <sub>8</sub>	0°	89° 48'	1067.28	1067.27
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5



STA TO STA	$\Delta$ HORIZ	$\Delta$ VERT	SLOPE DIST	HORIZ DIST
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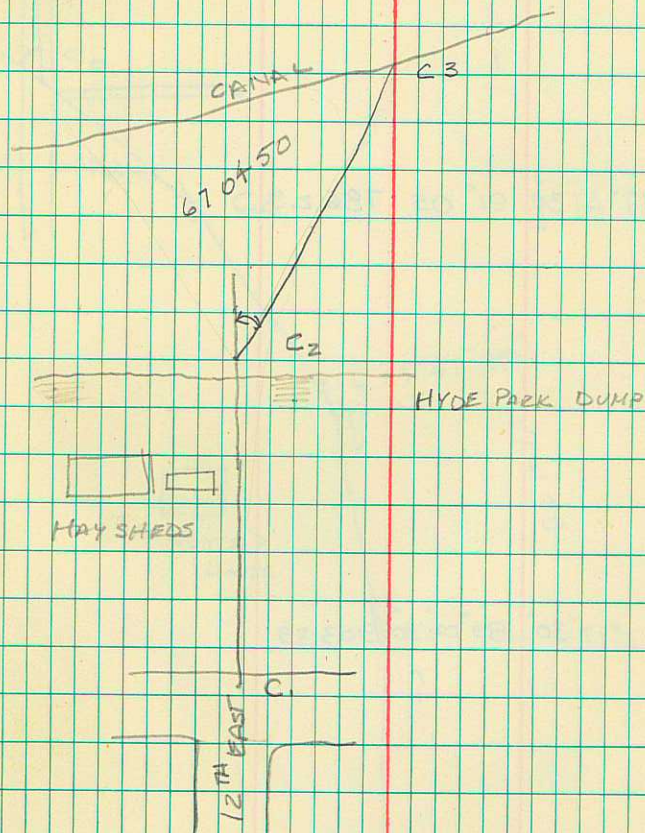
C2 TO C3	67			
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C1 TO C2		266°45'	1874.58	
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6 July 77

7

LOCATION C LOGAN - SMITHFIELD  
FROM  $\&$  12<sup>TH</sup> E



STA → STA	HORIZ Δ	VERTICAL Δ	SLOPE D	HORIZ D.
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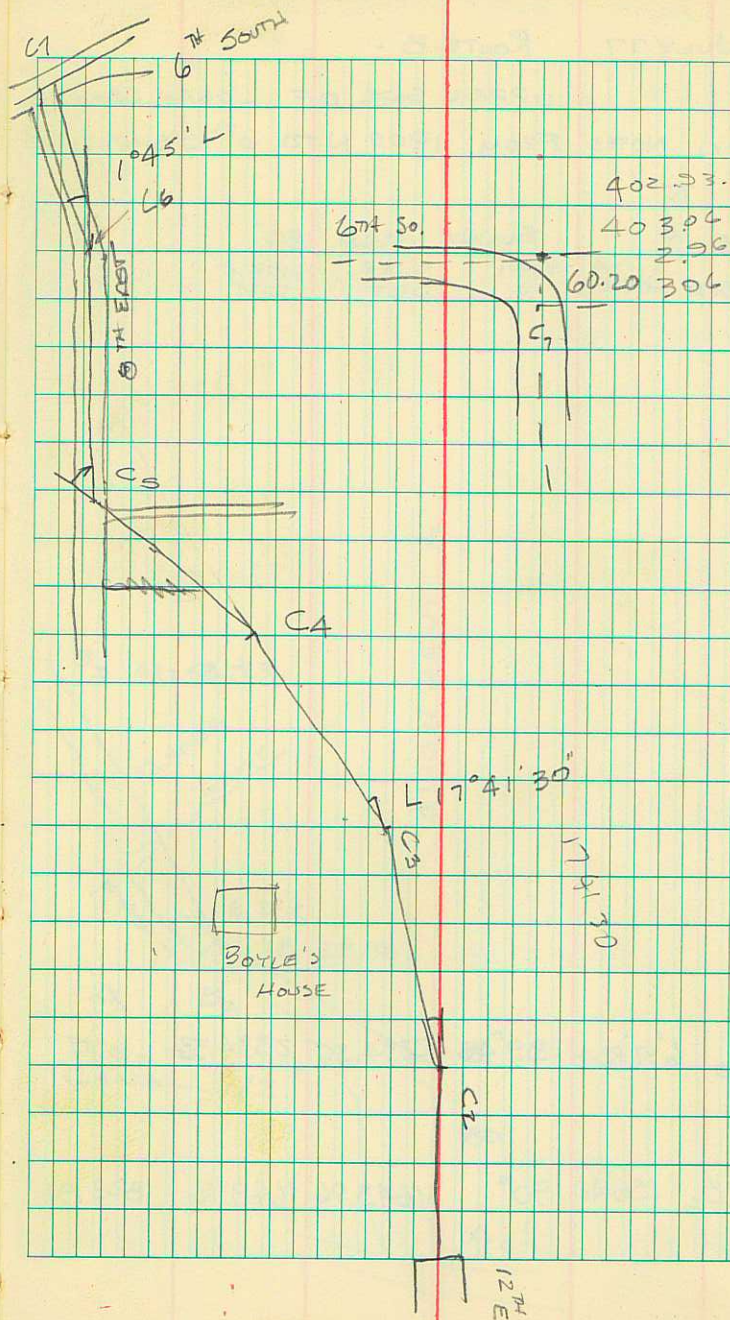
C <sub>6</sub> -C <sub>7</sub>	1°45' L	88°29'	403.00	
--------------------------------	---------	--------	--------	--

C <sub>5</sub> -C <sub>6</sub>	18°12'30" R	89°32'	1665.44	
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C <sub>4</sub> -C <sub>5</sub>	0°26' L	92°36'30"	3166.18	
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C <sub>3</sub> -E <sub>4</sub>	17°41'30" L	91°05'	786.29	
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C <sub>2</sub> TO C <sub>3</sub>	1°17'30"	89°02'30"	903.39	
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14 JULY 77

ROUTE B -

UPPER SIDE OF LOGAN CANAL

HUDSON NOTES FROM 1900 N TO 6<sup>TH</sup> S SMITHFIELD.

WARD T

BOSTON

SUNNY WARM 80°

STA TO STA HORIZ

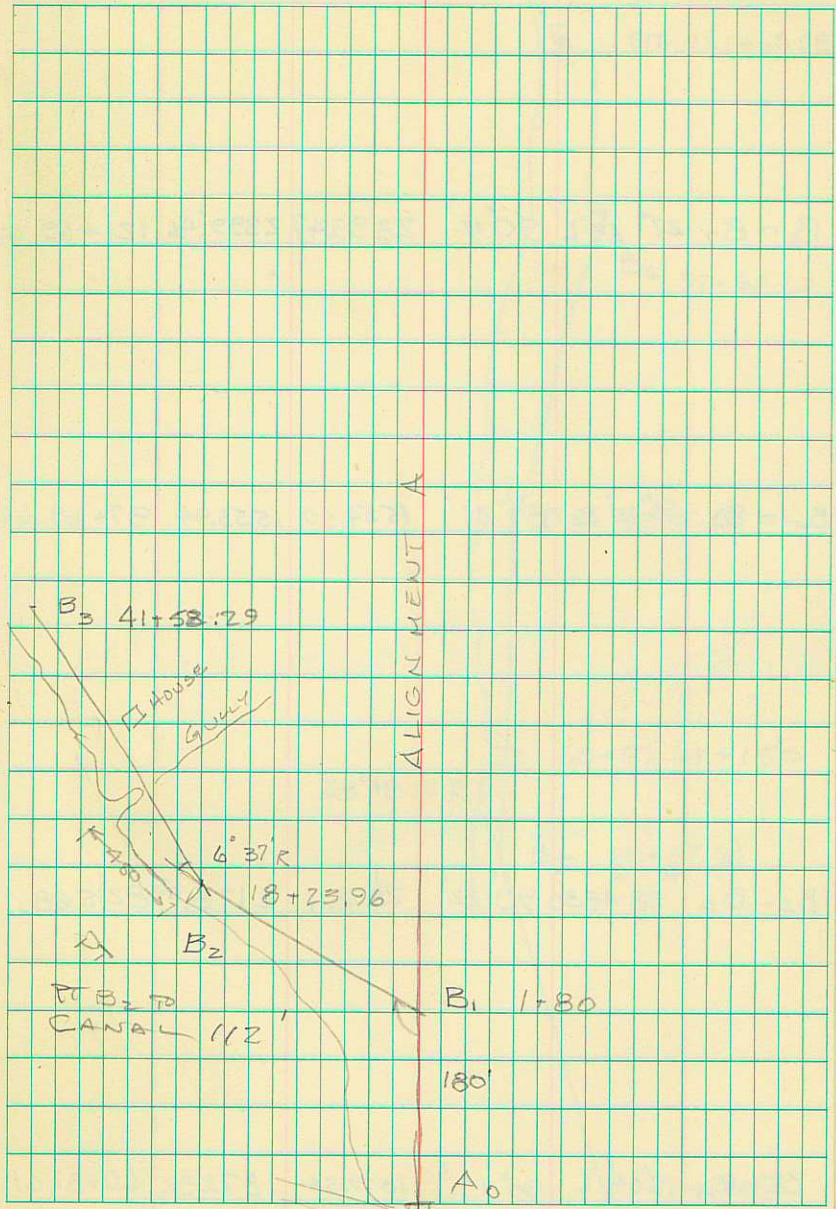
VERT

SLOPE  
DIST

HORIZ  
DIST

B<sub>2</sub> TO B<sub>3</sub> 6°37' R 89°46' 2334.35 2334.33

B<sub>1</sub> TO B<sub>2</sub> 156°42' 90° 1643.96 1643.96 1823.96



ALIGNMENT A

B<sub>3</sub> 41+58.29

House

Gully

6°37' R

18+23.96

B<sub>2</sub>

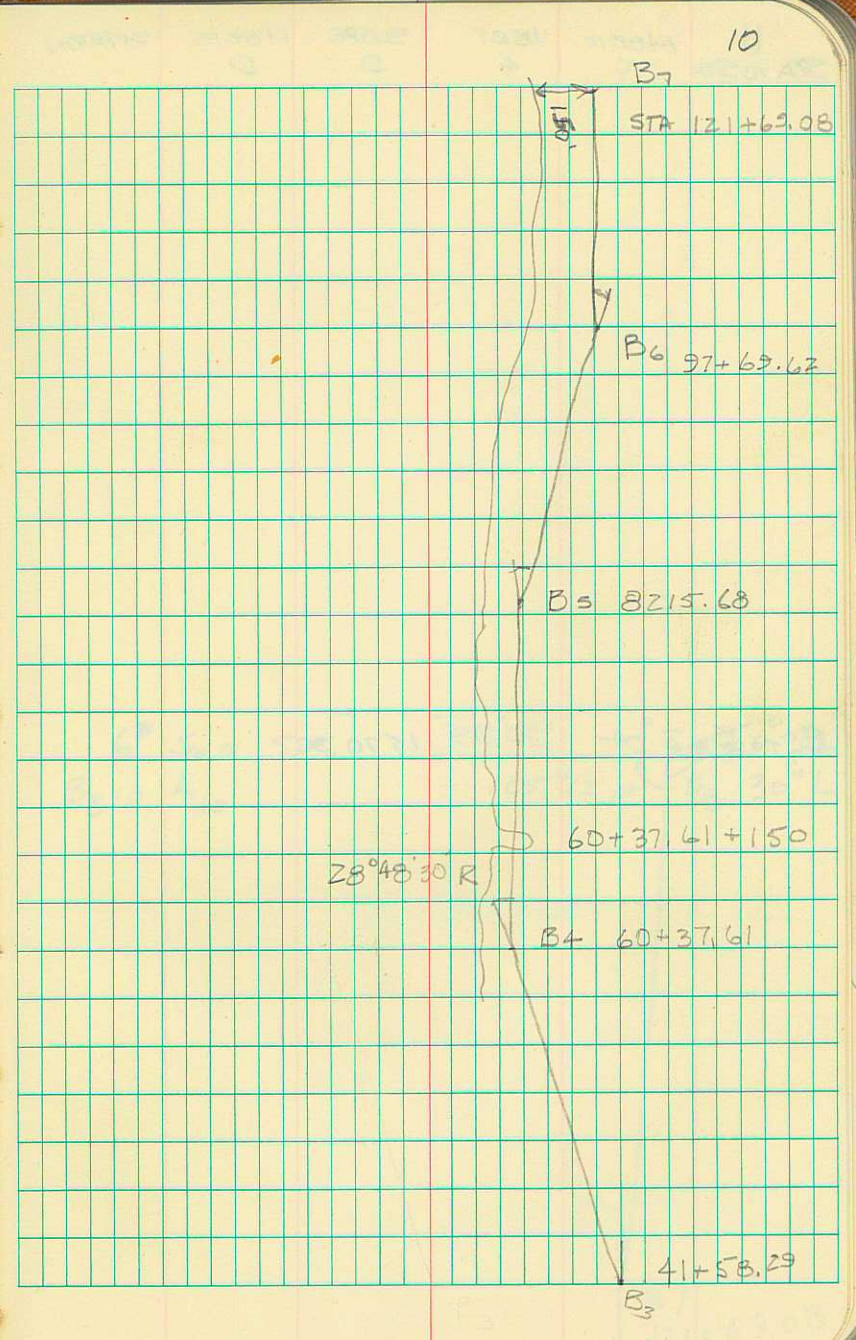
CANAL 112'

B<sub>1</sub> 1+80

180'

A<sub>0</sub>

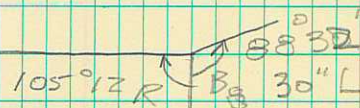
STA TO STA	HOC# X	VERT X	SLOPE D	HORIZ D	STATION			
B <sub>6</sub> to B <sub>7</sub>	27	43	L	90° 12'	2399.47	2399.46	121+69.08	
B <sub>5</sub> to B <sub>6</sub>	8	12	R	89° 31'	1554.00	1553.94	97+69.62	
B <sub>4</sub> - B <sub>5</sub>	28	48	R	30	90° 22'	2878.11	2178.01	8215.68
B <sub>3</sub> to B <sub>4</sub>	9	04	L	90° 17'	1879.34	1879.32	60+37.61	



STA TO STA	HORIZ X	VERT Y	SLOPE D	HORIZ D	STATION
------------	------------	-----------	------------	------------	---------

B <sub>1</sub> to B <sub>2</sub>	Z <sup>0</sup> A'	90°39'	1570.50		
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6<sup>th</sup> SURV S.F.  
B<sub>8</sub> 1.5 A<sub>10</sub>

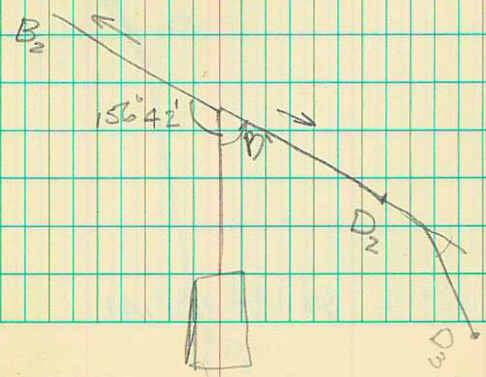


B<sub>7</sub>  
121+69.08

STA TO STA	HORIZ X	VERT Y	SLOPE D	HORIZ D	STATION
------------	------------	-----------	------------	------------	---------

D <sub>2</sub> to D <sub>3</sub>	14° 13' R	90° 05'	1410.76		
----------------------------------	-----------	---------	---------	--	--

B <sub>1</sub> to D <sub>2</sub>	37° 28' L	89° 04'	370.92		
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180  
152  
26

ST	STA TO STA	HORIZ X	VERT Y	SLOPE D	HORIZ D
----	------------	------------	-----------	------------	------------

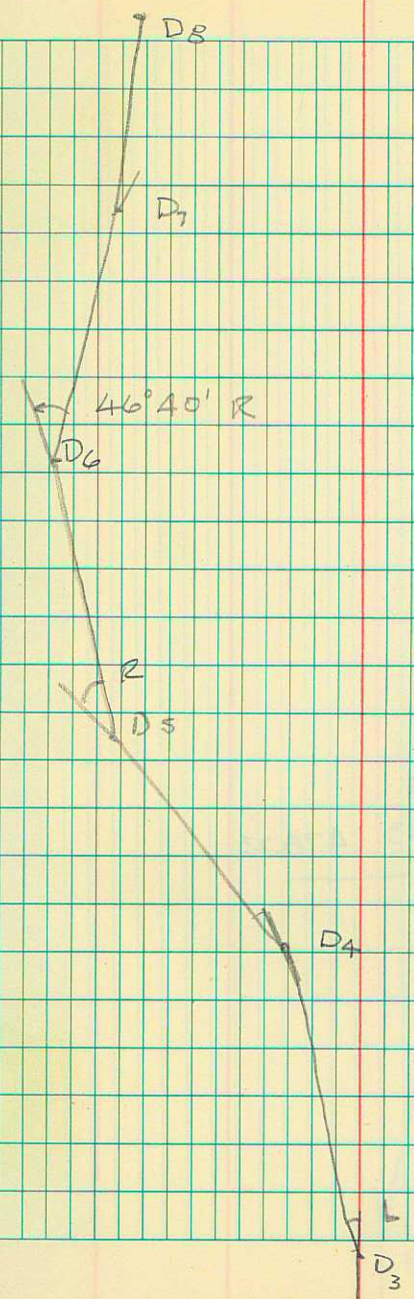
	$D_7$ TO $D_8$	$3^{\circ}07' L$	$88^{\circ}48'$	528.72	
--	----------------	------------------	-----------------	--------	--

	$D_6$ $D_7$	$46^{\circ}40' R$	$90^{\circ}28'$	1385.34	
--	-------------	-------------------	-----------------	---------	--

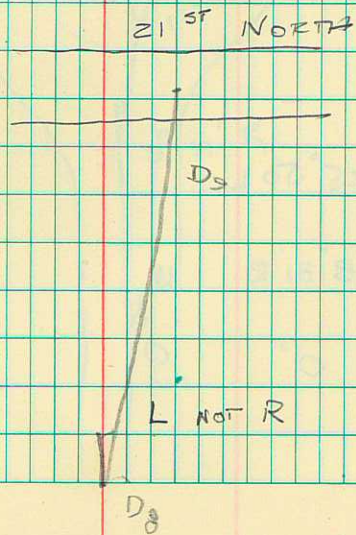
	$D_5$ $D_6$	$20^{\circ}30' R$	$89^{\circ}51'$	1380.3	
--	-------------	-------------------	-----------------	--------	--

	$D_4$ TO $D_5$	$3^{\circ}58' L$	$89^{\circ}37'$	1285.96	
--	----------------	------------------	-----------------	---------	--

	$D_3$ TO $D_4$	$2^{\circ}29' L$	$90^{\circ}19'$	1017.41	
--	----------------	------------------	-----------------	---------	--



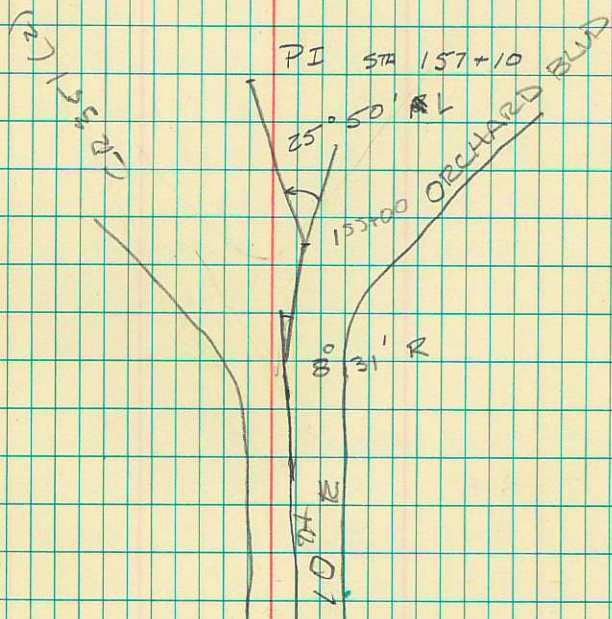
$D_8 \rightarrow D_9$   $5^\circ 02' L$   $90^\circ 33'$  478.23



C to PI 25° 50' L

B to C 8° 31' R

A to B 0°



STADIA LEVELS

LEVELS ON LOGAN S.R. ROAD ALT. A

21 JULY 77

WARM, SUNNY

HUDSON NOTES

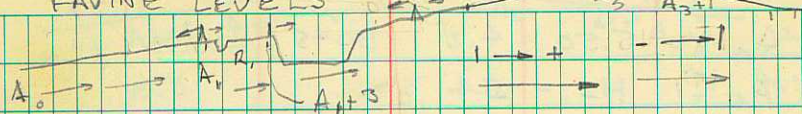
WARD T

BOSHE  $\phi$

STA	VERT DIST	ROD INTERCEPT	VERT $\alpha$	HORIZ DIST	ELEV ASSUMED
A <sub>0</sub> <sup>SETUP ON A<sub>0</sub> HI = 5.5</sup>	47.20	11.8	92°18'	1178.1	4810.0
A <sub>1</sub> + 1 <sup>(+)</sup>	19.86	7.85	88°33'	783.50	4871.56
A <sub>1</sub> SETUP	HI = 5.5				4851.70
+ SET UP	HI = 5.5			15.0	4858.25
+				25	4869.04
A <sub>1</sub> + 2 <sup>(+)</sup>	34.46	10.4	88°06'	1039.86	4906.02
A <sub>1</sub> + 2 <sup>(-)</sup>	51.73	9.8	93°23'	977.59	4906.02
A <sub>1</sub> + 3 <sup>(-)</sup>	68.52	9.2	94°17'	915.87	4889.73
A <sub>1</sub> + 4	36.16	4.8	94°20'	478.26	4922.09
A <sub>2</sub>	SETUP ON A <sub>2</sub> HI 5.4				
A <sub>3</sub> +	10.80	6.4	89°02'	640.82	
(-)	5.97	3.8	89°06'	380.90	
A <sub>3</sub> + 1	HI = 5.5 SET UP				
A <sub>3</sub> + 2 <sup>(+)</sup>	16.32	10.2	90°55'	1020.74	
(-)	4.89	8.4	90°20'	840.97	
A <sub>3</sub> + 3 <sup>(-)</sup>	13.48	7.6	91°01'	760.88	758.76
A <sub>3</sub> + 4	13.44	6.6	91°10'	660.73	
A <sub>3</sub> + 5	13.97	6.2	91°13"	620.68	

STA A<sub>1</sub>+1, 2, 3, 4 ETC ARE NOT 100 STATIONS BUT ARE TOP BEAKS BEYOND EACH TRAVERSE STATION

HAND LEVEL



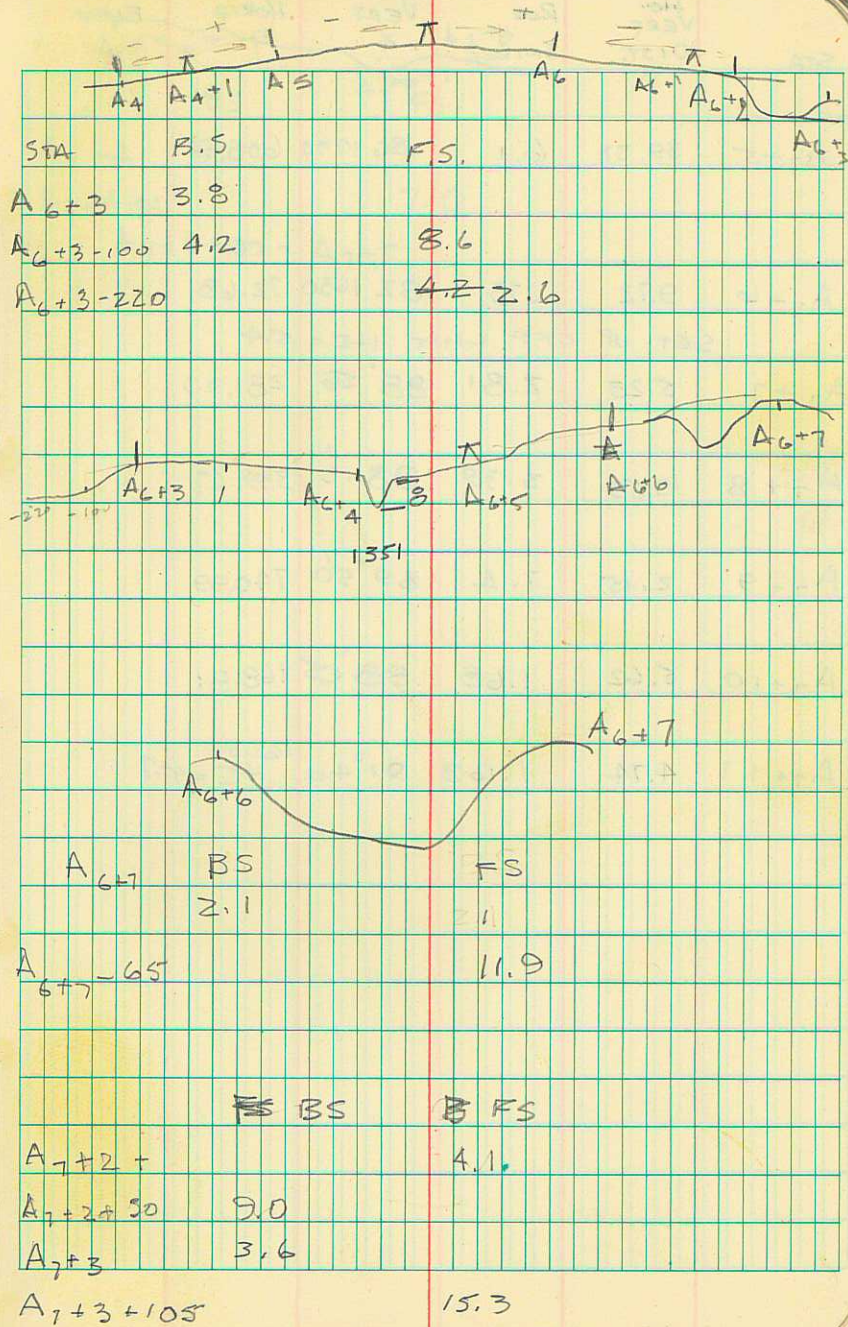
STA	B.S	HI	F.S
A <sub>1</sub> +R <sub>1</sub>	5.65		
A <sub>1</sub> +R <sub>1</sub> +15			8.5
A <sub>1</sub> +R <sub>1</sub> +3540			3.8
	B.S		F.S
A <sub>1</sub> +3	3.3		
3+25			7.9
3+54	11.9		8.0
3+90			9.8
3+105	10.2		6.2
3+214			7.9
3+224	15.3		11.6
3+262			
3+262.5			14.4
3+293			5.3
3+314			3.9
A <sub>3</sub> +4	2.8		
4+25			12.2
4+50 IS A <sub>3</sub> +5			

ROAD

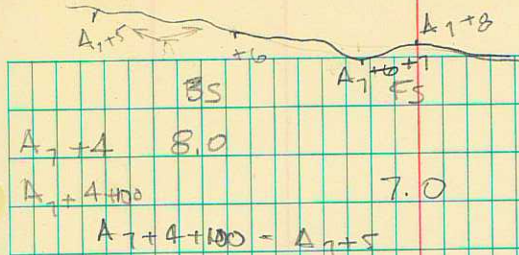


STA	VERT DISTANCE	ROD INTER.	VERT $\angle$	HORIZ D	ELEV
A <sub>4</sub>	5.50	4.2	90°45'	420.93	
A <sub>4</sub> <sup>(+)</sup>	HI = 5.4				
A <sub>5</sub> <sup>(+)</sup>	4.78	2.65	88°58'	265.91	
A <sub>5</sub> <sup>-</sup>	.73	5.0	90°05'	501.0	
A <sub>5</sub> +1	HI = 5.5		SET UP		
A <sub>5</sub> +2	4.63	6.5	87°35'30"	650.97	
A <sub>6</sub> <sup>+</sup>	1.25	8.6	90°05'	861.0	
A <sub>6</sub> <sup>-</sup>	27.84	8.4	88°06'	840.08	
A <sub>6</sub> +1	HI = 5.6		SET UP		
A <sub>6</sub> +2	14.96	3.8	92°15'30"	380.41	
		8.0	92°21'		
A <sub>6</sub> +3	32.78	7.8	92°17'30"	799.67	
<del>A<sub>6</sub>+4</del>	19.71	7.1	88°24'30"	710.45	
A <sub>6</sub> +4	3.96	2.03	88°53'	203.92	
A <sub>6</sub> +5	HI = 5.6		SET UP	605.96	
A <sub>6</sub> +6	4.93	6.05	90°28'	605.96	
A <sub>6</sub> +7 <sup>+</sup>	2.93	7.2	90°14'	720.99	
A <sub>6</sub> +7 <sup>-</sup>	4.0	4.3	89°28'	430.96	
A <sub>6</sub> +8	7.57	.66	96°38'	66.12	
A <sub>7</sub>	HI = 5.5		SET UP		
A <sub>7</sub> +1 <sup>+</sup>	7.20	1.53	92°42'	153.66	
A <sub>7</sub> +2	11.69	1.66	94°03'	166.17	
A <sub>7</sub> +3	9.82	3.1	91°49'	310.69	
A <sub>7</sub> +4	16.25	5.2	91°47'30"	520.49	

STA A<sub>6</sub> +1, +2, +3 ARE NOT 100' STATIONS BUT BREAKS IN GROUND TOPD. ELEV OF EACH PT SHOWN AT RT. COL.



STA	Ho. VERT DIST.	ROD INTERC	VERT X	HORIZ D	ELEV
A <sub>7+5</sub>	39.37	6.1	86° 17' 30"	608.45	
A <sub>7+6</sub>	9.72	5.73	82° 16' 30"	72.68	
SET UP OFF LINE HI = 5.4					
A <sub>7+7</sub>	5.23	2.81	88° 56'	281.90	
A <sub>7+8</sub>	10.59	3.39	88° 13'	339.67	
A <sub>7+9</sub>	2.15	7.4	89° 50'	740.99	
A <sub>7+10</sub>	5.62	1.68	88° 05'	168.81	
A <sub>7+11</sub>	4.74	1.63	91° 40'	162.86 HI = 5.7	



A<sub>7+4</sub> 8.0

A<sub>7+4+100</sub>

7.0

$$A_{7+4+100} - A_{7+5}$$

STADIA

R = INTERCEPT

$\alpha = \text{Vert } \angle$

$$V = 100R \left( \frac{1}{2} \sin 2\alpha \right)$$

$$H = 100R \cos^2 \alpha + 1$$