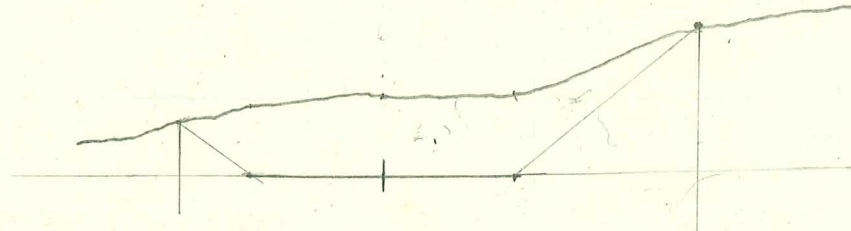


EXAMPLE EARTH WORK PROBLEM

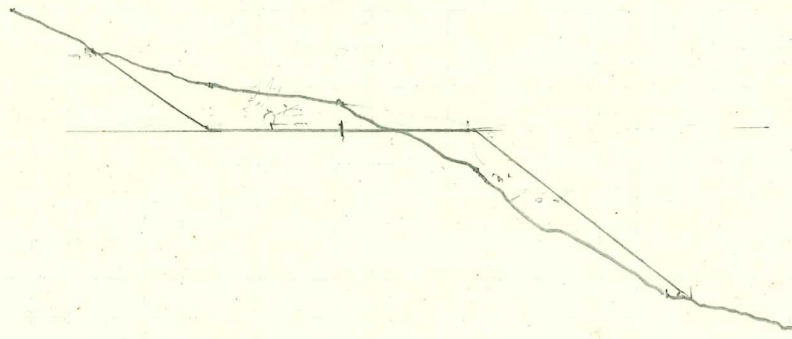
STA
 5+65⁰
 14' RW
 SS 1E:1

$\frac{C2^9}{10^9}$	$\frac{C3^9}{7}$	$\frac{C4^2}{0}$	$\frac{C4^3}{7}$	$\frac{C7^6}{16^8}$
---------------------	------------------	------------------	------------------	---------------------



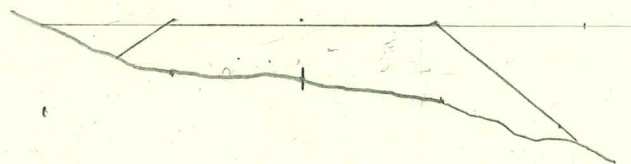
7+00⁰

$\frac{C4^4}{13^2}$	$\frac{C2^1}{7}$	$\frac{C1^2}{0}$	$\frac{F1^9}{7}$	$\frac{F8^9}{18^2}$
---------------------	------------------	------------------	------------------	---------------------



8+63⁰

$\frac{F1^2}{10^1}$	$\frac{F2^2}{7}$	$\frac{F3^1}{0}$	$\frac{F3^8}{7}$	$\frac{F5^9}{15^0}$
---------------------	------------------	------------------	------------------	---------------------



5+65

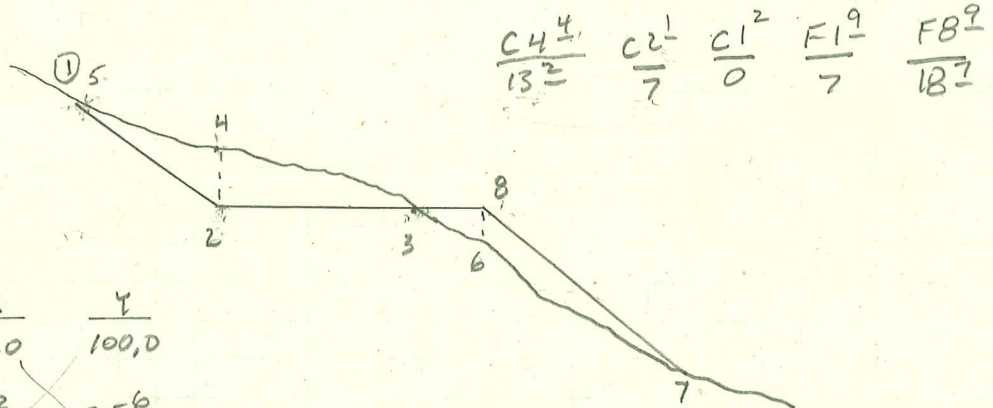
$$AREA = \frac{cb + f_1 d_1 + f_2 d_2}{2}$$

$$= \frac{4^2(14) + 3^2(10^2) + 4^2(16^2)}{2} = 86^8 \text{ FT}^2$$

7+00

AREA BY COORDINATES

A) SET LOCAL COORDINATE TO NOT BE NEGATIVE = 100.0, 100.0



PT	X	Y
1	100.0	100.0
2	106.2	95.6
3	116.5	95.6
4	106.2	97.2
5	100.0	100.0

AREA = 17.3 FT²

XY YX

3	116.5	95.6
4	120.2	93.2
7	131.9	86.2
8	120.2	95.6
3	116.5	95.6

AREA = 14.6 FT²

8+63

$$\frac{3^2(14) + 2^2(10^2) + 3^2(15^2)}{2} = 127^2 \text{ FT}^2$$

VOLUMES (AEA)

THROUGH CUT

$$\frac{86^8 + 17^3}{2} \times \frac{135}{27} = \underline{260 \text{ CU. YDS}}$$

RUNOUT FILL

$$\frac{A_s}{A_s + A_c} = \frac{RO}{D = 140}$$

$$\frac{14^6}{14^6 + 86^8} = \frac{RO}{135} = 19.44'$$

$$\text{VOL} = \frac{\text{END AREA (RO)}}{3 \times 27}$$

STA 6+80⁶

$$\frac{14^6 (19.4)}{3 \times 27} = \underline{3.5 \text{ CU YDS}}$$

THROUGH FILL

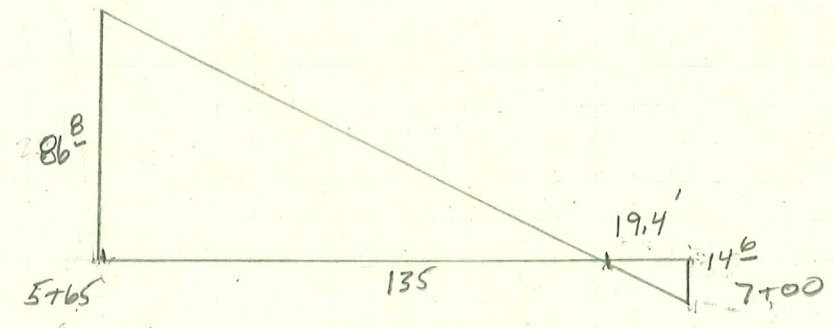
$$\frac{127^7 + 14^6}{2} \times \frac{163^{\text{HD}}}{27} = \underline{429^5 \text{ CU. YDS}}$$

RUNOUT CUT

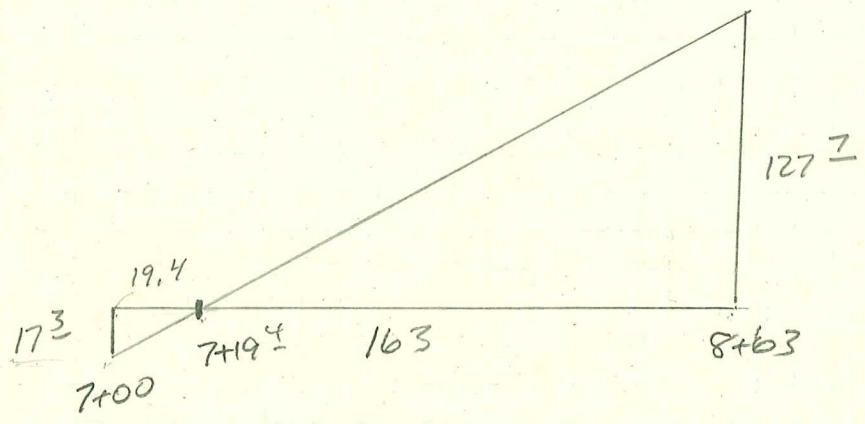
$$\frac{17^3}{17^3 + 127^7} \times \underline{19.44'}$$

$$\text{VOL} \quad \frac{17.3 (19.4)}{3 \times 27} \quad \underline{4.1 \text{ CU YDS}}$$

STA
5+65 → 7+00



7+00 → 8+63



STATION	EA CUT	EA FILL	VOL C	VOL F
5+65	86.8	0	260.0	3.5
7+00	146	17.3	4.1	429.5
8+63	0	127.7		
			<hr/> 264.1	<hr/> 433.0
			- 168.9	405.3