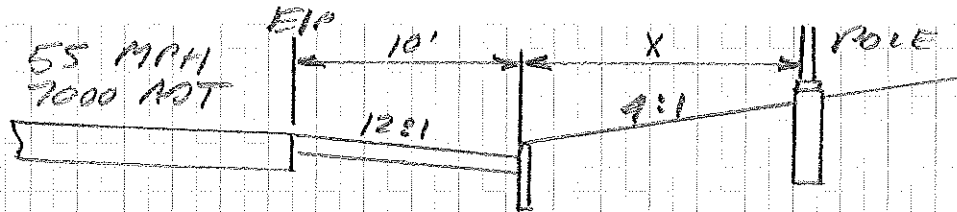




Title <i>TRANSPORTATION 2</i> <i>CLEAR ZONE GRADING</i>		Sheet No. <i>11</i> of <i>11</i>
By <i>NK</i>	<i>5122107</i> Chk.	Job No. <i>C106-3520</i>

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How Far Should A Pole Be Set To
Be Placed Outside The Clear Zone?

- STEP 1 ~ BACKSLOPE CONDITION

6:1 → 9:1 $CZ = 21'$ (ROOT 600=1)

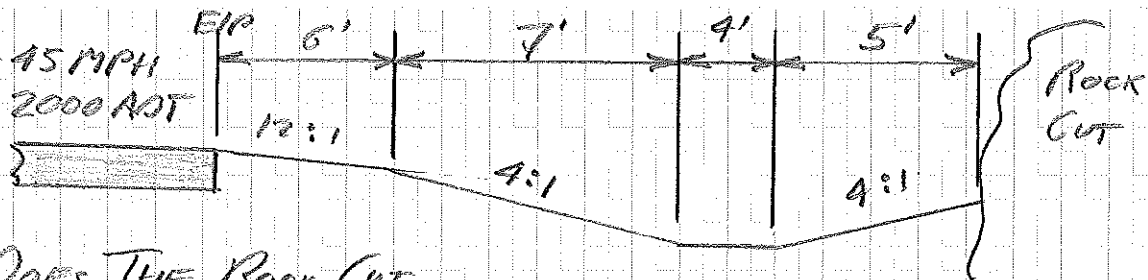
- STEP 2 ~ DETERMINING DISTANCE

$21' - 10' = \underline{\underline{11'}}$ ~ Place Pole @ 11' Min
From Face / Curve.



Title TRANSPORTATION 2 CLEAR ZONE GRADING		Sheet No. 1 of 1
By MK	5/22/07	Chk. / / Job No. CNE-3520

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Does THE Rock Cut Fall OUTSIDE THE CLEAR ZONE?

- STEP 1 ~ Find COMPOSITE SLOPE

$$\begin{array}{l}
 10:1 \sim 6' \\
 4:1 \sim 7' \\
 10:1 \sim 2'
 \end{array}
 \left. \vphantom{\begin{array}{l} 10:1 \\ 4:1 \\ 10:1 \end{array}} \right\} \frac{6 + 7 + 2}{(6 \cdot \frac{1}{10}) + (7 \cdot \frac{1}{4}) + 2(\frac{1}{10})} = \frac{15}{2.55} = 5.88:1$$

FORESLOPE: 6:1 - 9:1 C2 = 23'

15' PROVIDED IN FORESLOPE INSUFFICIENT

- STEP 2 ~ Is DITCH TRAVERSABLE?

From 307-11 ~ 9:1, 9' Bottom, 9:1 YES

- STEP 3 ~ BACK SLOPE IS RECOVERABLE

$$\text{TOTAL PROVIDED} = 6' + 7' + 4' + 5' = 22' < 23'$$

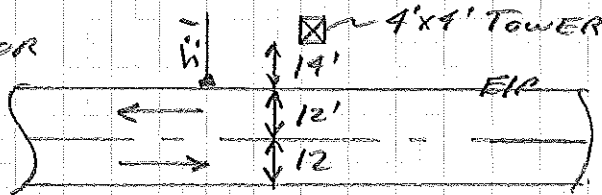
* PROTECTION FOR ROCK CUT MAY BE ADVISABLE.



Title TRANSPORTATION 2 GUARDRAIL DESIGN		Sheet No. 1 of
By NK	512808	Chk. 1 1
		Job No. CNE-522

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RURAL COLLECTOR
4500 NOT
55 MPH



DESIGN
GUARDRAIL
FOR ADJACENT
& OPPOSING TRAFFIC

STEP 1 - DETERMINE NEED

ODOT - 600-1 → C2 = 27' FOR 6:1 TO 4:1

ADJACENT TRAFFIC

FACE = 19' } PROTECT
BACK = 18' } TO 18' = L_H

OPPOSING TRAFFIC

FACE = 19' + 12' = 26' } PROTECT
BACK = 26' + 4' = 30' } TO 27' = L_H

STEP 2 - CALCULATE LENGTH OF NEED ADJACENT TRAFFIC

L_R = 320' (602-1) L_H = 18' L₂ = 8' (301-3)

L₁ = 0 b/a = 0
NO FLARE. NOT 10:1

$$X = \frac{18 + 0(0) - 8}{0 + \frac{18}{320}} = 177.78'$$

STEP 3 - CALCULATE L.O.N. - OPPOSING TRAFFIC

L_R = 320' L_H = 27' L₂ = 20' L₁ & b/a = 0

$$X = \frac{27 + 0(0) - 20}{0 + \frac{27}{320}} = 82.96'$$

STEP 4 - DETERMINE RAIL LENGTH

RAIL REQ'D FOR LON = 177.78' + 9' + 82.96' = 269.74'

PANELS REQ'D = $\frac{269.74'}{12.5'} = 21.2$ PANELS

USE 22 PANELS
X 12.5'

275' TOTAL