

EXISTING SLOPE @ SR2 TIE IN:

EB:

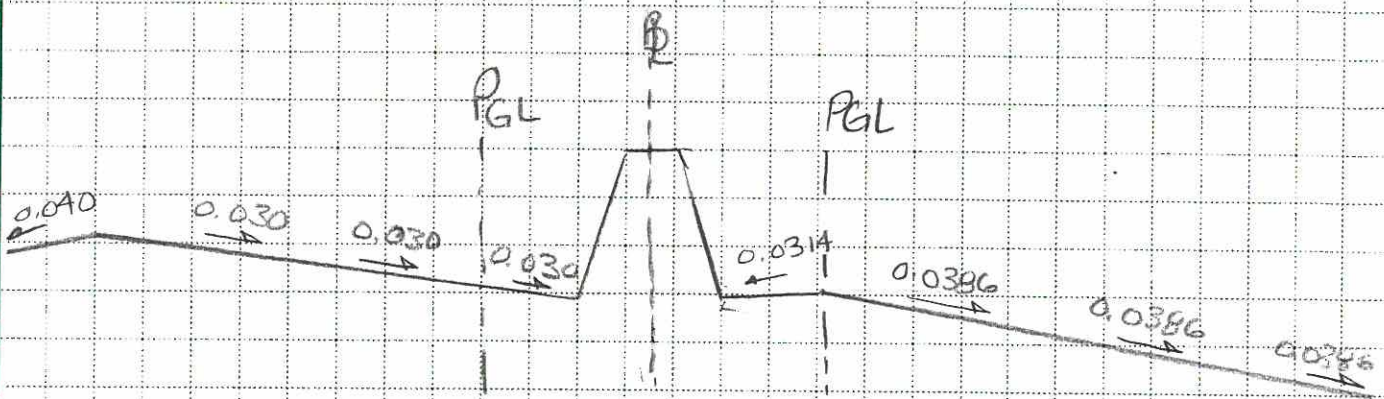
$$583.60 - 581.80 = 1.86'$$

$$1.86' / 48.18 = 0.0386 \rightarrow 3.86\%$$

WB:

$$583.64 - 585.10 = -1.46'$$

$$-1.46' / 48.41 = -0.030 \rightarrow -3.0\%$$



BURGESS & NIPLE COMPUTATION SHEET

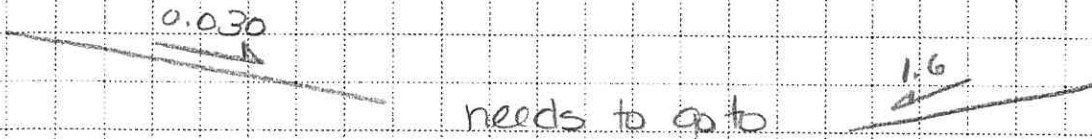
JOB NO. 40566 JOB NAME CC64 SHEET 1 OF 3 SHEETS
SUBJECT Subelevation - SR2 PREPARED BY ALR DATE 1-11-2010
SCALE _____ CHECKED BY DCL DATE 02-02-2010

$$PT = 62 + 25.99$$

$$PC = 69 + 01.30$$

$$L = 675.31$$

at PT → WB



what is the distance necessary to transition to NC?

$$G = 213$$

$$W \times N = 48'$$

$$e_d = 0.046$$

$$b_w = 1.0$$

$$L_r = (213)(48)(0.046) = 470.3'$$

what is the distance necessary to transition to 5.6%?

$$G = 213$$

$$W \times N = 48'$$

$$e_d = 0.072$$

$$b_w = 1.0$$

$$L_r = (213)(48)(0.072) = 736.12$$

$$70\% (213)(48)(0.056) = 400.78'$$

won't fit.

transition from 3.0% to 2.0% to 5.6%?

$$G = 213$$

$$W \times N = 48$$

$$e_d = 0.01$$

$$b_w = 1$$

$$L_r = (213)(48)(0.01) = 102.2$$

→ this will work.

$$G = 213$$

$$W \times N = 48$$

$$e_d = 0.036$$

$$b_w = 1$$

$$L_r = (213)(48)(0.036) = 368.06$$

$$[(0.7(0.056)) - 0.02](48)(213) = 196.13$$

BURGESS & NIPLE COMPUTATION SHEET

JOB NO. 40566 JOB NAME CCG4 SHEET 2 OF 3 SHEETS
SUBJECT Superlevation - SR2 PREPARED BY ALR DATE 1-11-2010
SCALE _____ CHECKED BY DCL DATE 02-02-2010

@ 62+00 0.03

@ 63+02.20 0.02

@ 67+70.9440 (from spreadsheet)

time @ 2%: $(6770.94 - 6302.20) \text{ ft} \times \frac{1 \text{ s}}{37.5 \text{ ft (25 mph design)}} = 12.50 \text{ s} \checkmark$

@ PT → EB

0.0386

needs to go to

0.016

What is the distance necessary to transition to NC?

$G = 2.3$

$L_r = (2.3)(48)(0.0226) = 231.1'$

$W \times n = 48'$

$e_d = 0.0226$

$b_w = 1.0$

What is the distance necessary to transition to 5.6%?

See super elevation spreadsheet

@ 62+00.00 0.0386

@ 64+32.00 0.016

@ 66+86.596 0.016 (from spreadsheet)

time at NC: $(6686.596 - 6432) \text{ ft} \times \frac{1 \text{ s}}{37.5 \text{ ft (25 mph design)}} = 6.79 \text{ s} \checkmark$

BURGESS & NIPLE COMPUTATION SHEET

JOB NO. 40566 JOB NAME CC64 SHEET 3 OF 3 SHEETS
SUBJECT super elevation - SR2 PREPARED BY ALR DATE 1-11-2010
SCALE _____ CHECKED BY DLL DATE 02-03-2010

SR2 WB Curve 3

Rotate from 0.016 to 0.056

$$G = 213$$

$$W = 16$$

$$bw = 1.0$$

$$ed = (0.056 - 0.016) = 0.04$$

$$Lr = (0.04)(16)(1.0)(213) = 136.32' \quad L = (1/3)(0.056)(16)(213)$$
$$L = 63.62'$$

STA 85+03.47 → NC
STA 86+39.79 → 0.056

$$\begin{array}{r} PC = 85+76.17 \\ + \quad 63.62 \\ \hline 86+39.79 \end{array}$$

WB STATIONING:

85+06.25 - NC
86+42.09 - 0.056

BURGESS & NIPLE COMPUTATION SHEET

JOB NO. 409160 JOB NAME Cleveland Inverbelt CCG4 SHEET 1 OF 1 SHEETS
SUBJECT Superelevation - SR2 PREPARED BY AIR DATE 1-26-2010
SCALE _____ CHECKED BY NCL DATE 02-03-2010