LAMPIRAN

LAMPIRAN I

HASIL PERHITUNGAN CARA MANUAL

L1.1 Perhitungan Alinyemen Horizontal

Perhitungan panjang tangen berdasarkan koordinat sebagai berikut:

Tabel 1.1. Data Koordinat Lengkung Horizontal

Titik	Koordinat	
	X	Y
Titik Awal	8977,6017	3518,0129
PI1	9121,2694	3502,9787
PI2	9602,0390	3353,7970
PI3	9886,1670	3293,5360
PI4	10478,293	3059,951
Titik Akhir	11104.0071	2879.2426

Panjang STA Awal - PI_1 (d1)

$$= \sqrt{(9121{,}2694 - 8977{,}6017)^2 + (3502{,}9787 - 3518{,}0129)^2}$$

= 144,452 m

Panjang $PI_1 - PI_2$ (d2)

$$= \sqrt{(9602{,}0390 - 9121{,}2694)^2 + (3353{,}7970 - 3502{,}9787)^2}$$

= 503,383 m

Panjang $PI_2 - PI_3$ (d3)

$$= \sqrt{(9886{,}1670 - 9602{,}0390)^2 + (3293{,}5360 - 3353{,}7970)^2}$$

= 290,448 m

Panjang $PI_3 - PI_4$ (d4)

$$= \sqrt{(10478{,}293 - 9886{,}1670)^2 + (3059{,}951 - 3293{,}5360)^2}$$

= 636,5337 m

Panjang PI_4 – STA akhir (d5)

$$= \sqrt{(11104{,}0071 - 10478{,}293)^2 + (2879{,}2426 - 3059{,}951)^2}$$

= 651,2861 m

Perhitungan sudut azimuth dan sudut delta (Δ)

1. Sudut azimuth:

α_1 $= \tan^{-1} \dfrac{(9121{,}2694 - 8977{,}6017)}{(3502{,}9787 - 3518{,}0129)} = 84{,}026^\circ$

= 90 + 84,026º = 174,026º

α_2 $= \tan^{-1} \dfrac{(9602{,}0390 - 9121{,}2694)}{(3353{,}797 - 3502{,}9787)} = 72{,}761^\circ$

= 90 + 72,761º = 162,761º

α_3 $= \tan^{-1} \dfrac{(9886{,}1670 - 9602{,}0390)}{(3293{,}536 - 3353{,}797)} = 78{,}025^o$

= 90 + 78,025º = 168,025º

α_4 $= \tan^{-1} \dfrac{(10478{,}293 - 9886{,}1670)}{(3059{,}951 - 3293{,}536)} = 68{,}4715^\circ$

= 90 + 68,471º = 158,4715º

α_5 $= \tan^{-1} \dfrac{(11104{,}0071 - 10478{,}293)}{(2879{,}2426 - 3059{,}951)} = 73{,}891^\circ$

= 90 + 75,166º = 163,8911º

2. Sudut delta (Δ)

Δ_1 = α_2 - α_1 = 162,761º - 174,026º = 11,265º

Δ_2 = α_3 – α_2 = 168,025º - 162,761º = 5,264º

Δ_3 = α_4 – α_3 = 158,4715º - 168,025º = 9,5535º

Δ_4 = α_5 – α_4 = 163,8911º - 158,4715º = 5,4196º

Lengkung horizontal pada titik PI_1 direncanakan bentuk lengkung *Circle*

Dari Tabel 2.2 tentang panjang lengkung peralihan minimum dan superelevasi yang dibutuhkan (e maksimum 10% metode Bina Marga 1997) diperoleh:

Ls' = 50 m

e = 0,029

Untuk R = 716 m

Perhitungan data lengkung *Circle*:

Tc = R x tg (½ Δ)

= 716 x tg ½ 11,265º

= 70,614m

$$Lc = \frac{(\Delta \times 2\pi \cdot R)}{(360)}$$

$$= \frac{(11{,}265 \times 2\pi \cdot 716)}{(360)}$$

= 140,774 m

Ec = Tc x tg (¼ x Δ)

= 70,614x tg ¼ 11,265º

= 3,474 m

Lengkung horizontal pada titik PI_2 direncanakan bentuk lengkung *Circle*

Dari Tabel 2.2 tentang panjang lengkung peralihan minimum dan superelevasi yang dibutuhkan (e maksimum 10% metode Bina Marga 1997) diperoleh:

Ls' = 50 m

e = 0,02

Untuk R = 1200 m

Perhitungan data lengkung *Circle*:

Tc = R x tg (½ Δ)

= 1200 x tg ½ 5,264º

= 55,163 m

$$Lc = \frac{(\Delta \times 2\pi \cdot R)}{(360)}$$

$$= \frac{(5{,}264 \times 2\pi \cdot 1200)}{(360)}$$

= 110,249 m

Ec = Tc x tg (¼ x Δ)

= 55,163 x tg ¼ 5,264º

= 1,267 m

Lengkung horizontal pada titik PI_3 direncanakan bentuk lengkung *Circle*

Dari Tabel 2.2 tentang panjang lengkung peralihan minimum dan superelevasi yang dibutuhkan (e maksimum 10% metode Bina Marga 1997) diperoleh:

Ls' = 50 m

e = 0,02

Untuk R = 1200 m

Perhitungan data lengkung *Circle*:

Tc = R x tg (½ Δ)

= 1200 x tg ½ 9,5535º

= 100,2764 m

$$Lc = \frac{(\Delta \times 2\pi \cdot R)}{(360)}$$

$$= \frac{(9{,}5535 \times 2\pi \cdot 1200)}{(360)}$$

= 200,088 m

Ec = Tc x tg (¼ x Δ)

= 100,2764x tg ¼ 9,5535º

= 4,182 m

Lengkung horizontal pada titik PI_4 direncanakan bentuk lengkung *Circle*

Dari Tabel 2.2 tentang panjang lengkung peralihan minimum dan superelevasi yang dibutuhkan (e maksimum 10% metode Bina Marga 1997) diperoleh:

Ls' = 50 m

e = 0,02

Untuk R = 1200 m

Perhitungan data lengkung *Circle*:

Tc = R x tg (½ Δ)

= 1200 x tg ½ 5,4196º

= 56,796 m

$$Lc = \frac{(\Delta \times 2\pi \cdot R)}{(360)}$$

$$= \frac{(5{,}4196 \times 2\pi \cdot 1200)}{(360)}$$

= 113,5078 m

Ec = Tc x tg (¼ x Δ)

= 56.796 x tg ¼ 5,4196º

= 1,3433 m

L1.2 Perhitungan Stasioning

Penomoran jalan (*stasioning*) lengkung horisontal diukur mulai dari STA 1+800

STA A = 1+800

STA PI_1 = STA A + d_1

= (1+800) + 144,452

= 1+944,452

STA TC_1 = STA PI_1 - Tc_i

= (1+944,452) – 70,614

= 1+873,838

STA CT_1 = STA. TC_1 + Lc_i

= (1+873,838)+ 140,774

= 2+014,612

STA PI_2 = STA CT_1 + (d_2 – Tc_{ii})

= (2+014,612) + (503,383 -55,163)

= 2+462,832

STA TC_2 = STA PI_2 - Tc_{ii}

= (2+462,832) - 55,163

= 2+407,669

STA CT_2 = STA. TC_2 + Lc_{ii}

= (2+407,669) + 110,249

= 2+517,918

STA PI_3 = STA CT_2 + (d_3-Tc_{iii})

= (2+517,918) + (290,448 -100,2764)

= 2+708,0896

STA TC_3 = STA PI_3 - Tc_{iii}

= (2+708,0896) - 100,2764

= 2+607,8132

STA CT_3 = STA. TC_3 + Lc_{iii}

= (2+607,8132) + 200,088

= 2+807,9012

STA PI_4 = STA CT_3 + (d_4-Tc_{iiii})

= (2+807,9012) + (636,5337-56,796)

= 3+387,6389

STA TC_4 = STA PI_4 - Tc_{iiii}

= (3+387,6389) – 56,796

= 3+330,8429

STA CT_4 = STA. TC_4 + Lc_{iiii}

= (3+330,8429) + 113,5078

= 3+444,3507

STA B = STA. CT_4 + d5 - Tc_{iiii}

= (3+444,3507) + (651,2861– 56,796)

= 4+027,473

L1.3 Perhitungan Alinyemen Vertikal

Dalam perencanaan geometrik di jalan Katapang-Bale Endah yang diukur mulai dari Sta. 1+800 s.d. Sta. 4+045 direncanakan 8 buah lengkung vertikal yang terdiri dari 4 lengkung vertikal cembung dan 4 lengkung vertikal cekung. Pada Perhitungan alinyemen vertikal diperlukan data stasioning dan elevasi lengkung vertikal. Tabel 4.6 menunjukkan data stasioning dan elevasi yang diperlukan pada perhitungan lengkung vertikal.

sehingga didapat kelandaian jalan sebagai berikut :

$$g_1 = \frac{\text{Elev.PPV}_1 - \text{Elev.A}}{\text{Sta.PPV}_1 - \text{Sta.A}} = \frac{639{,}687 - 639{,}687}{2390 - 1875} \text{x} 100\%$$

$= 0\%$

$$g_2 = \frac{\text{Elev.PPV}_2 - \text{Elev.PPV}_1}{\text{Sta.PPV}_2 - \text{Sta.PPV}_1} = \frac{639{,}026 - 639{,}687}{2726{,}814 - 2390} \text{x} 100\%$$

= -0,196%

$$g_3 = \frac{\text{Elev.PPV}_3 - \text{Elev.PPV}_2}{\text{Sta.PPV}_3 - \text{Sta.PPV}_2} = \frac{639{,}026 - 639{,}026}{2870 - 2726{,}814} \text{x} 100\%$$

= 0%

$$g_4 = \frac{\text{Elev.PPV}_4 - \text{Elev.PPV}_3}{\text{Sta.PPV}_4 - \text{Sta.PPV}_3} = \frac{638{,}853 - 639{,}026}{3000 - 2870} \text{x} 100\%$$

= -0,133%

$$g_5 = \frac{\text{Elev.PPV}_5 - \text{Elev.PPV}_4}{\text{Sta.PPV}_5 - \text{Sta.PPV}_4} = \frac{638{,}853 - 638{,}853}{3260 - 3000} \text{x} 100\%$$

= 0%

$$g_6 = \frac{\text{Elev.PPV}_6 - \text{Elev.PPV}_5}{\text{Sta.PPV}_6 - \text{Sta.PPV}_5} = \frac{638{,}749 - 638{,}853}{3380 - 3260} \text{x} 100\%$$

= -0,0867%

$$g_7 = \frac{\text{Elev.PPV}_7 - \text{Elev.PPV}_6}{\text{Sta.PPV}_7 - \text{Sta.PPV}_6} = \frac{638{,}749 - 638{,}749}{3590 - 3380} \text{x} 100\%$$

= 0%

$$g_8 = \frac{\text{Elev.PPV}_8 - \text{Elev.PPV}_7}{\text{Sta.PPV}_8 - \text{Sta.PPV}_7} = \frac{638{,}530 - 638{,}749}{3661{,}662 - 3590} \text{x} 100\%$$

= -0,306%

$$g_9 = \frac{\text{Elev.B} - \text{Elev.PPV}_8}{\text{Sta.B} - \text{Sta.PPV}_8} = \frac{638{,}577 - 638{,}530}{4025 - 3661{,}662} \text{x} 100\%$$

= 0,013%

$A_1 = |g_1 - g_2| = |0\% + 0{,}196\%| = 0{,}196\%$ (Cembung)

$A_2 = |g_2 - g_3| = |-0{,}196\% - 0\%| = -0{,}196\%$ (Cekung)

$A_3 = |g_3 - g_4| = |0\% + 0{,}133\%| = 0{,}133\%$ (Cembung)

$A_4 = |g_4 - g_5| = |-0{,}133\% - 0\%| = -0{,}133\%$ (Cekung)

$A_5 = |g_5 - g_6| = |0\% + 0{,}0867\%| = 0{,}0867\%$ (Cembung)

$A_6 = |g_6 - g_7| = |-0{,}0867\% - 0\%| = -0{,}0867\%$ (Cekung)

$A_7 = |g_7 - g_8| = |0\% + 0{,}306\%| = 0{,}306\%$ (Cembung)

$A_8 = |g_8 - g_9| = |-0{,}306\% - 0{,}013\%| = -0{,}319\%$ (Cekung)

Vr = 60 km/jam

t = 3 detik

fm = -0.00065 x Vr + 0.192

= 0.153

$$S = 0{,}278 \times Vr \times t + \frac{Vr^2}{254 \times fm}$$

$$= 0{,}278 \times 60 \times 3 + \frac{60^2}{254 \times 0.153}$$

= 142,675 m

1. Menghitung PPV_1 2+390 (cembung)

a). Jarak Pandang

$S < L$; $L = \frac{AxS^2}{960}$

$$= \frac{0{,}196 \times 142{,}675^2}{960} = 4{,}156 \text{ m}$$ (tidak memenuhi)

$S > L$; $L = 2S - \frac{960}{A}$

$$= 2 \times 142{,}675 - \frac{960}{0{,}196} = -4612{,}609 \text{ m}$$ (memenuhi)

b). Bentuk visual lengkung (Lama perjalanan 3 detik)

$$L = \frac{AxV^2}{380} = \frac{0,196x60^2}{380}$$

= 1,857 m

c). Kenyamanan

$$L = 0.278xVxt = 0.278x60x3$$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$$E_v = \frac{AxL}{800} = \frac{0,196x55}{800}$$

= 0,0134m

d) Ketinggian lengkung :

EL PPV_1 = Elevasi PPV_1- Ev

= 639,687 - 0,0134

= 639,674 m

STA PLV_1 = STA PPV_1 - 1/2 x L

= 2390 - 1/2 x 55

= 2362,5m

EL PLV_1 = Elevasi PPV_1 - (g_1 x (1/2 x L))

= 639,687- (0 % x (1/2 x 55))

= 639,687 m

STA PTV_1 = STA PPV_1 + 1/2 x L

= 2390 + 1/2 x 55

= 2417,5 m

EL PTV_1 = Elevasi PPV_1 +(g_2 x (1/2 x L))

= 639,687 + (-0,196% x (1/2 x 55))

= 639,633 m

2. Menghitung PPV_2 2+726,814 (cekung)

a). Jarak Pandang Akibat Penyinaran Lampu depan

$< L ;\ L = \frac{AxS^2}{120 + 3,50S}$

$$= \frac{0{,}196 \text{x} 142{,}675^2}{120 + 3{,}5(142{,}675)} = 6{,}442 \text{ m}$$

>L ; $L = 2.S - \frac{120 + 3{,}5S}{A}$

$$= 2.142{,}675 - \frac{120 + 3{,}5(142{,}675)}{0{,}196} = -2874{,}663 \text{ m}$$

b). Jarak Pandang dibawah bangunan

S < L ; $L = \frac{AxS^2}{3480}$

$$= \frac{0{,}196 \text{x} 142{,}675^2}{960} = 4{,}156 \text{ m}$$ (tidak memenuhi)

S > L ; $L = 2S - \frac{3480}{A}$

$= 2\text{x}142{,}675 - \frac{3480}{(0{,}196)}$ = -17469,752 m (memenuhi)

c). Bentuk visual lengkung (Lama perjalanan 3 detik)

$$L = \frac{AxV^2}{380} = \frac{0{,}196\text{x}60^2}{380}$$

= 1,857 m

d). Kenyamanan

$$L = 0.278\text{x}Vxt = 0.278\text{x}60\text{x}3$$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$$E_v = \frac{AxL}{800} = \frac{0{,}196\text{x}55}{800}$$

= 0,0135m

e) Ketinggian lengkung :

EL PPV_2 = Elevasi PPV_2- Ev

= 639,026 - 0,0135

= 639,0125m

STA PLV_2 = STA PPV_2 - 1/2 x L

= 2726,814 - 1/2 x 55

= 2699,314 m

EL PLV_2 = Elevasi PPV_2 - (g_2 x (1/2 x L))

= 639,026 - (-0,196% x (1/2 x 55))

= 639,0799 m

STA PTV_2 = STA PPV_2 + 1/2 x L

= 2726,814 + 1/2 x 55

= 2754,314m

EL PTV_2 = Elevasi PPV_2 +(g_3 x (1/2 x L))

= 639,026 + (0% x (1/2 x 55))

= 639,026 m

3. Menghitung PPV_3 2+870 (cembung)

a). Jarak Pandang

S < L ; $L = \frac{AxS^2}{960}$

$= \frac{0,133x142,675^2}{960} = 2,820\ m$ (tidak memenuhi)

S > L ; $L = 2S - \frac{960}{A}$

$= 2x142,675 - \frac{960}{0,133}$ = -6932,695 m (memenuhi)

b). Bentuk visual lengkung (Lama perjalanan 3 detik)

$L = \frac{AxV^2}{380} = \frac{0,133x60^2}{380}$

= 1,26 m

c). Kenyamanan

$L = 0.278xVxt = 0.278x60x3$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$E_v = \frac{AxL}{800} = \frac{0,133x55}{800}$

= 0,00914m

d) Ketinggian lengkung:

EL PPV_3 = Elevasi PPV_3- Ev

= 639,026 - 0,00914

= 639,0169 m

STA PLV_3 = STA PPV_3 - 1/2 x L

= 2870 - 1/2 x 55

= 2842,5 m

EL PLV_3 = Elevasi PPV_3 - (g_3 x (1/2 x L))

= 639,026 - (0 % x (1/2 x 55))

= 639,026 m

STA PTV_3 = STA PPV_3 + 1/2 x L

= 2870 + 1/2 x 55

= 2897,5 m

EL PTV_3 = Elevasi PPV_1 +(g_4 x (1/2 x L))

= 639,026 + (-0,133% x (1/2 x 55))

= 639,062 m

4. Menghitung PPV_4 3+000 (cekung)

a). Jarak Pandang Akibat Penyinaran Lampu depan

$< L ;\ L = \dfrac{AxS^2}{120 + 3{,}50S}$

$= \dfrac{0{,}133x142{,}675^2}{120 + 3{,}5(142{,}675)} = 4{,}371\,\text{m}$

$>L ;\ L = 2.S - \dfrac{120 + 3{,}5S}{A}$

$= 2.142{,}675 - \dfrac{120 + 3{,}5(142{,}675)}{0{,}133} = -4371{,}511\,\text{m}$

b). Jarak Pandang Bebas Dibawah Bangunan

$S < L ;\ L = \dfrac{AxS^2}{3480}$

$$= \frac{0{,}133 \text{x} 142{,}675^2}{960} = 2{,}82 \text{ m}$$ (tidak memenuhi)

S > L ; $L = 2S - \frac{3480}{A}$

$$= 2\text{x}142{,}675 - \frac{3480}{(0{,}133)} = -25880{,}063 \text{ m}$$ (memenuhi)

c). Bentuk visual lengkung (Lama perjalanan 3 detik)

$$L = \frac{AxV^2}{380} = \frac{0{,}133\text{x}60^2}{380}$$

= 1,26 m

d). Kenyamanan

$$L = 0.278\text{x}Vxt = 0.278\text{x}60\text{x}3$$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$$E_v = \frac{AxL}{800} = \frac{0{,}133\text{x}55}{800}$$

= 0,00914 m

e) Ketinggian lengkung :

EL PPV_4 = Elevasi PPV_4- Ev

= 638,853 - 0,00914

= 638,848 m

STA PLV_4 = STA PPV_4 - 1/2 x L

= 3000 - 1/2 x 55

= 2972,5 m

EL PLV_4 = Elevasi PPV_4 -(g_4 x (1/2 x L))

= 638,853 - (-0,133% x (1/2 x 55))

= 638,889m

STA PTV_4 = STA PPV_4 + 1/2 x L

= 3000 + 1/2 x 55

= 3027,5 m

EL PTV_4 = Elevasi PPV_4 +(g_5 x (1/2 x L))

= 638,853+ (-0,343% x (1/2 x 55))

= 638,759 m

5. Menghitung PPV_5 3+260 (cembung)

a). Jarak Pandang

S < L ; $L = \frac{AxS^2}{960}$

$= \frac{0,0867x142,675^2}{960} = 1,838\ m$ (tidak memenuhi)

S > L ; $L = 2S - \frac{960}{A}$

$= 2x142,675 - \frac{960}{0,0867}$ = -10787,314 m (memenuhi)

b). Bentuk visual lengkung (Lama perjalanan 3 detik)

$L = \frac{AxV^2}{380} = \frac{0,0867x60^2}{380}$

= 0,821 m

c). Kenyamanan

$L = 0.278xVxt = 0.278x60x3$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$E_v = \frac{AxL}{800} = \frac{0,0867x55}{800}$

= 0,00596m

d) Ketinggian lengkung :

EL PPV_5 = Elevasi PPV_5- Ev

= 638,853 - 0,00596

= 638,847 m

STA PLV_5 = STA PPV_5 - 1/2 x L

= 3260 - 1/2 x 55

= 3232,5 m

EL PLV_5 = Elevasi PPV_5 - (g_5 x (1/2 x L))

= 638,853 - (0 % x (1/2 x 55))

= 638,853 m

STA PTV_5 = STA PPV_5 + 1/2 x L

= 3260 + 1/2 x 55

= 3287,5 m

EL PTV_5 = Elevasi PPV_5 +(g_6 x (1/2 x L))

= 638,853 + (-0,0867% x (1/2 x 55))

= 638,829 m

6. Menghitung PPV_6 3+380 (cekung)

a). Jarak Pandang Akibat Penyinaran Lampu depan

< L ; $L = \frac{AxS^2}{120 + 3,50S}$

$= \frac{0,0867x142,675^2}{120 + 3,5(142,675)} = 2,849\,\text{m}$

>L ; $L = 2.S - \frac{120 + 3,5S}{A}$

$= 2.142,675 - \frac{120 + 3,5(142,675)}{0,0867} = -6858,393\,\text{m}$

b). Jarak Pandang Bebas Dibawah Bangunan

S < L ; $L = \frac{AxS^2}{3480}$

$= \frac{0,0867x142,675^2}{960} = 1,838\,\text{m}$ (tidak memenuhi)

S > L ; $L = 2S - \frac{3480}{A}$

$= 2x142,675 - \frac{3480}{(0,0867)}$ = -39853,058m (memenuhi)

c). Bentuk visual lengkung (Lama perjalanan 3 detik)

$$L = \frac{AxV^2}{380} = \frac{0{,}0867x60^2}{380}$$

= 0,821m

d). Kenyamanan

$$L = 0.278xVxt = 0.278x60x3$$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$$E_v = \frac{AxL}{800} = \frac{0{,}0867x55}{800}$$

= 0,00596 m

e) Ketinggian lengkung :

EL PPV_6 = Elevasi PPV_6- Ev

= 638,749 - 0,00596

= 638,743 m

STA PLV_6 = STA PPV_6 - 1/2 x L

= 3380 - 1/2 x 55

= 3352,5 m

EL PLV_6 = Elevasi PPV_6 - (g_6 x (1/2 x L))

= 638,749 - (-0,0867% x (1/2 x 55))

= 638,773 m

STA PTV_6 = STA PPV_2 + 1/2 x L

= 3380+ 1/2 x 55

= 3407,5 m

EL PTV_6 = Elevasi PPV_6 +(g_7 x (1/2 x L))

= 638,749 + (0% x (1/2 x 55))

= 638,749 m

7. Menghitung PPV_7 3+590 (cembung)

a). Jarak Pandang

S < L ; $L = \frac{AxS^2}{960}$

$= \frac{0,306\ x142,675^2}{960} = 6,488\ m$ (tidak memenuhi)

S > L ; $L = 2S - \frac{960}{A}$

$= 2x142,675 - \frac{960}{0,306}$ = -2851,905 m (memenuhi)

b). Bentuk visual lengkung (Lama perjalanan 3 detik)

$L = \frac{AxV^2}{380} = \frac{0,306x60^2}{380}$

= 2,899 m

c). Kenyamanan

$L = 0.278xVxt = 0.278x60x3$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$E_v = \frac{AxL}{800} = \frac{0,306x55}{800}$

= 0,021 m

d) Ketinggian lengkung:

EL PPV_7 = Elevasi PPV_7- Ev

= 638,749 - 0,021

= 638,728 m

STA PLV_7 = STA PPV_7 - 1/2 x L

= 3590 - 1/2 x 55

= 3562,5 m

EL PLV_7 = Elevasi PPV_7 - (g_7 x (1/2 x L))

= 638,749 - (0 % x (1/2 x 55))

= 638,749 m

STA PTV_7 = STA PPV_7 + 1/2 x L

= 3590 + 1/2 x 55

= 3617,5 m

EL PTV_7 = Elevasi PPV_7 +(g_8 x (1/2 x L))

= 638,749 + (-0,306% x (1/2 x 55))

= 638,665 m

8. Menghitung PPV_8 3+661,662 (cekung)

a). Jarak Pandang Akibat Penyinaran Lampu depan

< L ; $L = \frac{AxS^2}{120 + 3,50S}$

$= \frac{0,319\,x142,675^2}{120 + 3,5(142,675)} = 10,484\,m$

>L ; $L = 2.S - \frac{120 + 3,5S}{A}$

$= 2.142,675 - \frac{120 + 3,5(142,675)}{0,319} = -1656,225\,m$

b). Jarak Pandang Bebas Dibawah Bangunan

S < L ; $L = \frac{AxS^2}{3480}$

$= \frac{0,319x142,675^2}{960} = 6,76\,m$ (tidak memenuhi)

S > L ; $L = 2S - \frac{3480}{A}$

$= 2x142,675 - \frac{3480}{(0,319)}$ = -10623,741m (memenuhi)

c). Bentuk visual lengkung (Lama perjalanan 3 detik)

$L = \frac{AxV^2}{380} = \frac{0,319x60^2}{380}$

= 3,022 m

d). Kenyamanan

$$L = 0.278xVxt = 0.278x60x3$$

= 50,040 m ~ 51 m

Jadi L yang dipakai 55 m

$$E_v = \frac{AxL}{800} = \frac{0,319x55}{800}$$

= 0,0219 m

e) Ketinggian lengkung :

EL PPV_8 = Elevasi PPV_8- Ev

= 638,530 - 0,0219

= 638,508 m

STA PLV_8 = STA PPV_8 - 1/2 x L

= 3661,662 - 1/2 x 55

= 3634,162 m

EL PLV_8 = Elevasi PPV_8 -(g_8 x (1/2 x L))

= 638,530 - (-0,306% x (1/2 x 55))

= 638,614 m

STA PTV_8 = STA PPV_8 + 1/2 x L

= 3661,662 + 1/2 x 55

= 3689,162 m

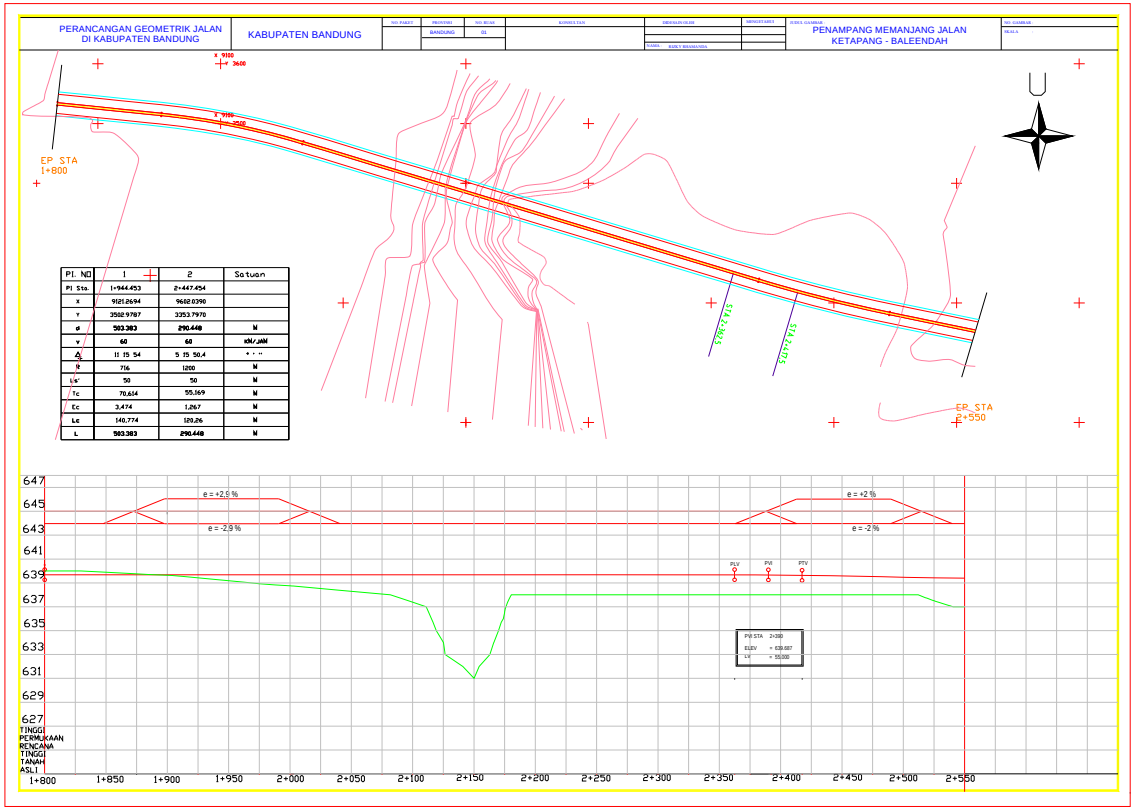
EL PTV_8 = Elevasi PPV_8 +(g_9 x (1/2 x L))

= 638,530 + (0,013% x (1/2 x 55))

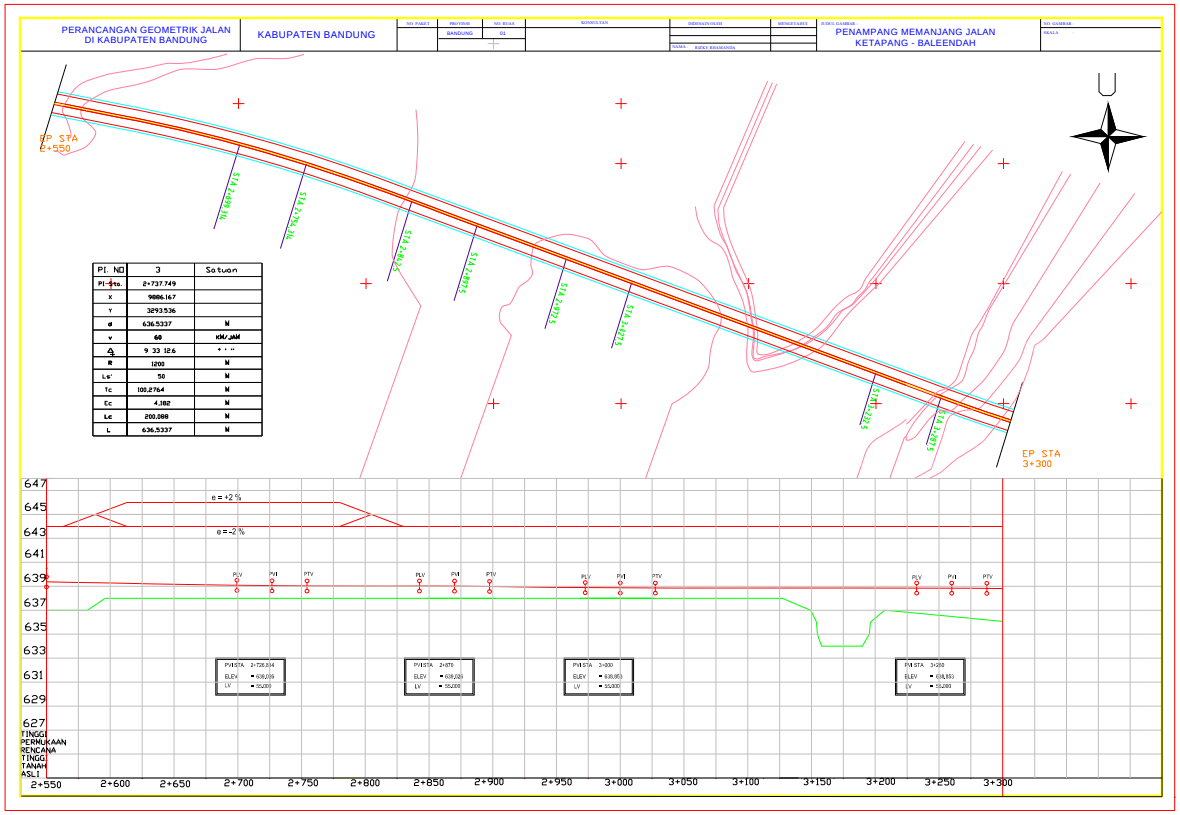
= 638,533 m

LAMPIRAN 2

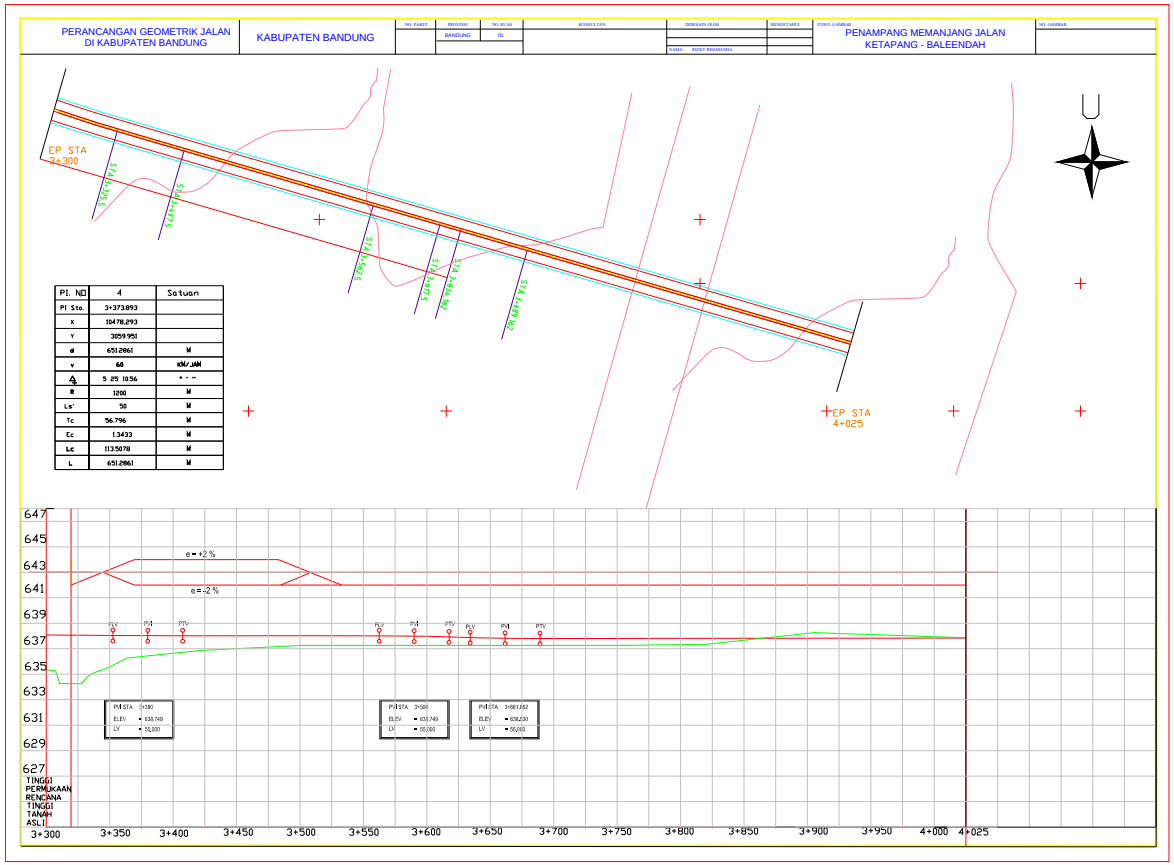
HASIL OUTPUT *SOFTWARE BENTLEY MX ROAD*



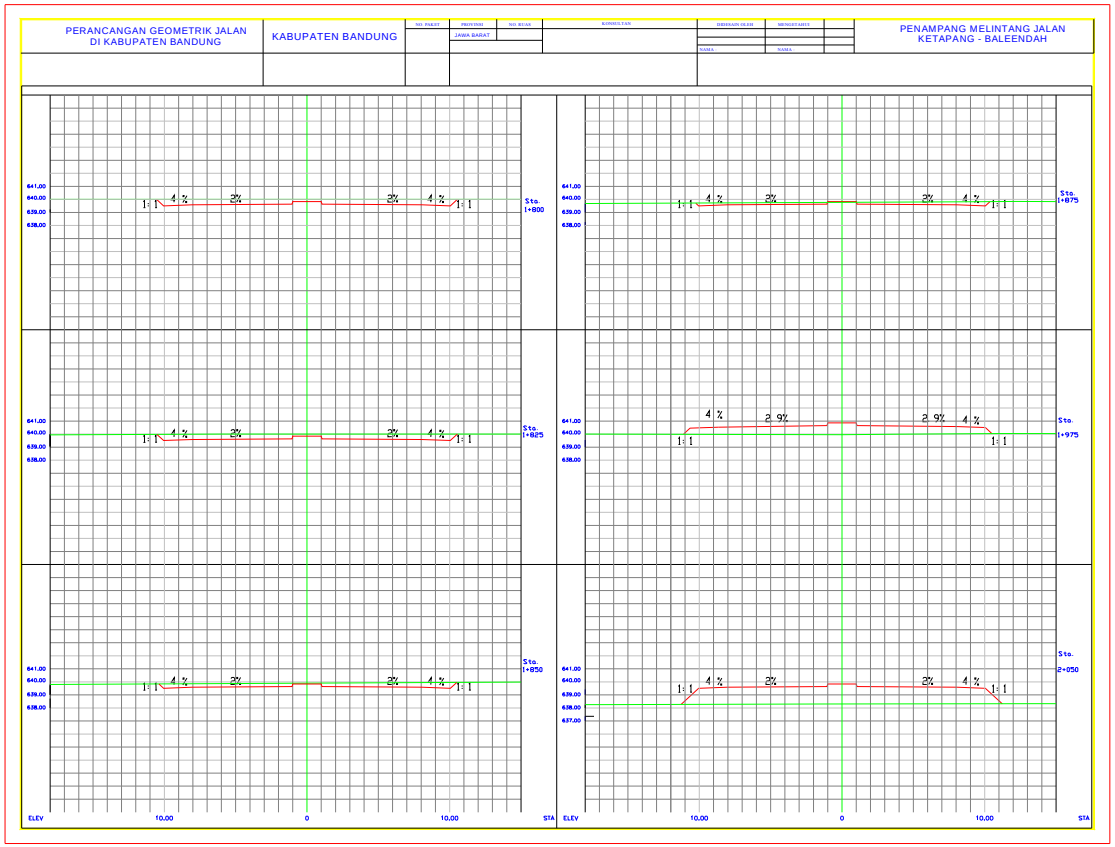
Gambar 2.1 Hasil Output Penampang Memanjang Jalan STA (1+800 – 2+550)



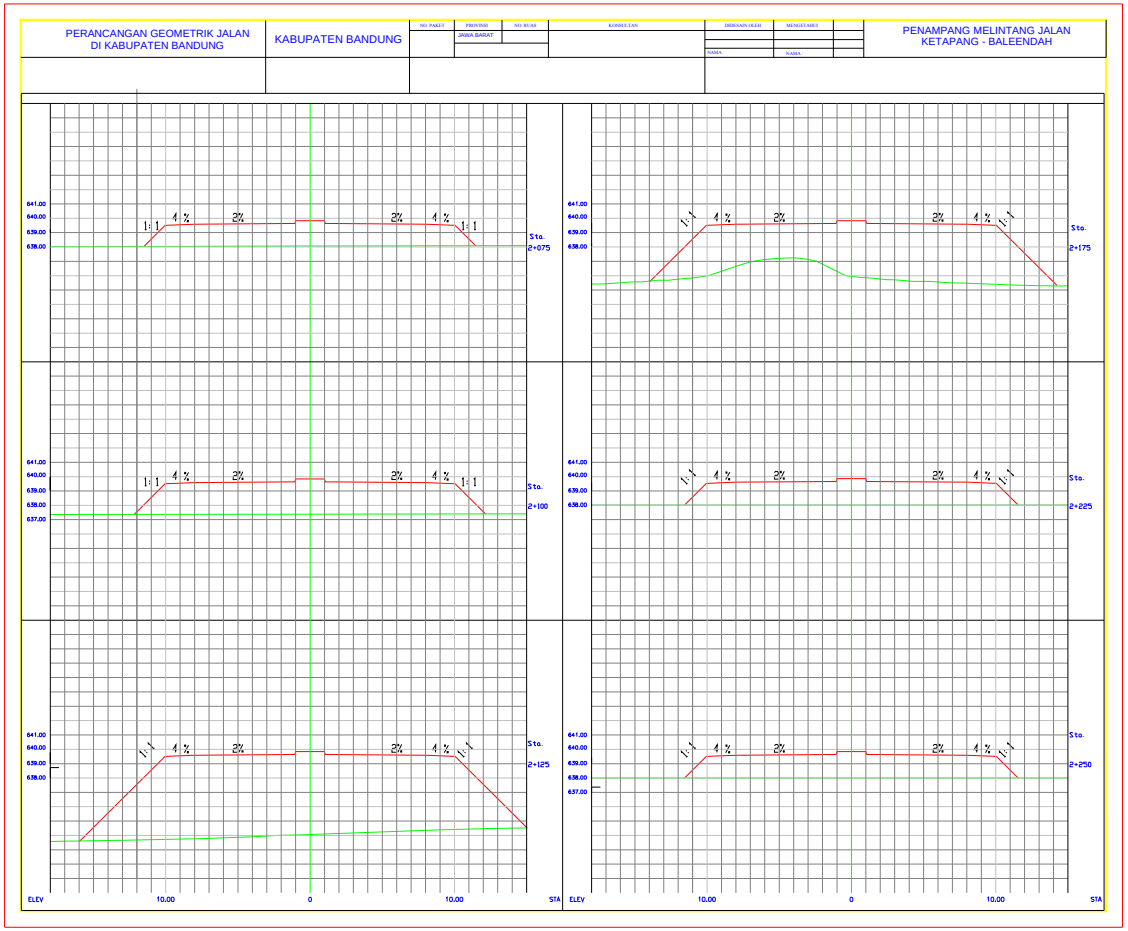
Gambar 2.2 Hasil Output Penampang Memanjang Jalan STA (2+550 – 3+300)



Gambar 2.3 Hasil Output Penampang Memanjang Jalan STA (3+300 – 4+025)



Gambar 2.4 Hasil Output Penampang Melintang Jalan STA (1+800 – 2+050)



Gambar 2.5 Hasil Output Penampang Melintang Jalan STA (2+075 – 2+250)