

KIKUYU TOWN JUNCTION E Slip Road

2.4. 90

## COMPUTATION OF SUBGRADE VOLUMES

KIKUYU JUNCTION A Slip Road

STATION	DISTANCE	SUBGRADE AREAS			SUBGRADE		DISTRIBUTION OF SUBGRADE				
		CARRIAGEWAY WIDTH (m)	SHOULDER SECTION		SECTION (m2)	AVERAGE (m2)	VOLUME (m3)	COMPACTION SUBGRADE IN FILL AREA (m3)	COMPACTION SUBGRADE IN CUT AREA (m3)	ON HARD ROCK (m3)	
			LEFT SIDE (m2)	RIGHT SIDE (m2)							
(28 + 244.064)											
0 + 083.958		4.50	0.75	0.23	2.32						
0 + 100.000	16.04	4.00	0.75	0.70	2.65	2.49	39.89	39.89			
0 + 120.000	20.00	4.00	0.75	0.70	2.65	2.65	53.02	53.02			
0 + 140.000	20.00	4.00	0.75	0.70	2.65	2.65	53.02	53.02			
0 + 160.000	20.00	4.00	0.75	0.70	2.65	2.65	53.02	53.02			
0 + 180.000	20.00	4.00	0.75	0.70	2.65	2.65	53.02	53.02			
0 + 200.000	20.00	4.00	0.85	0.70	2.76	2.70	54.09	54.09			
0 + 220.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 240.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 260.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 280.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 300.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 320.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 340.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 360.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 365.819	5.82	4.00	0.85	0.70	2.76	2.76	16.05	16.05			
0 + 380.000	14.18	4.00	0.85	0.70	2.76	2.76	39.11	39.11			
0 + 400.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 420.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 432.486	12.49	4.00	0.85	0.70	2.76	2.76	34.44	6.81	27.63		
0 + 440.000	7.51	4.00	0.85	0.70	2.76	2.76	20.72	20.72			
0 + 460.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 480.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	46.63	8.53		
0 + 500.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 520.000	20.00	4.00	0.85	0.70	2.76	2.76	55.16	55.16			
0 + 524.703	4.70	4.00	0.85	0.70	2.76	2.76	12.97	1.23	11.74		
0 + 540.000	15.30	3.75	0.85	0.70	2.68	2.72	41.62	14.46	27.17		
(0 + 550.147)											
5 + 960.000	10.15	4.50	0.85	0.23	2.43	2.56	25.94	9.01	16.93		
5 + 980.000	20.00	3.50	0.85		1.90	2.17	43.33	15.05	28.28		
6 + 000.000	20.00	3.50	0.85		1.90	1.90	38.08	13.23	24.85		
6 + 020.000	20.00	3.50	0.85		1.90	1.90	38.08	13.23	24.85		
6 + 040.000	20.00	3.50	0.85		1.90	1.90	38.08	13.23	24.85		

COMPUTATION OF SUBGRADE VOLUMES

KIKUYU JUNCTION A Slip Road

STATION	DISTANCE	SUBGRADE AREAS			SECTION (m2)	SUBGRADE		DISTRIBUTION OF SUBGRADE		
		CARRIAGEWAY WIDTH (m)	SHOULDER SECTION LEFT SIDE (m2)	RIGHT SIDE (m2)		AVERAGE (m2)	VOLUME (m3)	COMPACTION SUBGRADE IN FILL AREA (m3)	COMPACTION SUBGRADE IN CUT AREA (m3)	ON HARD ROCK (m3)
6 + 060.000	20.00	3.50	0.85		1.90	1.90	38.08	13.23	24.85	
6 + 080.000	20.00	3.50	0.85		1.90	1.90	38.08	13.23	24.85	
6 + 100.000	20.00	3.50	0.85		1.90	1.90	38.08	13.23	24.85	
6 + 120.000	20.00	0.00	0.85		0.85	1.38	27.58	9.58	18.00	
Total							1568.54	619.21	949.33	0.00

KIKUYU JUNCTION B Slip Road

2.4. 93

COMPUTATION OF SUBGRADE VOLUMES  
KIKUYU JUNCTION C Slip Road

[illegible]

KIKUYU JUNCTION C Slip Road (Acceleration, Deceleration lane)

2.4. 95

## COMPUTATION OF SUBGRADE VOLUMES

### SERVICE ROAD

#### CH. 26 + 460 BOXCULVERT APPROACH

LENGTH : 50m

WIDTH 6m

PAVEMENT TYPE-C

SHOULDER TYPE-20 100m

#### SUBGRADE IN CUT AREA

Vol. =  $6\text{m} \times 0.3\text{m} \times 50\text{m} + 0.639\text{m}^2 \times 100 = 153.9\text{m}^3$





## 2.5 Topsoil

SCHEDULE OF TOPSOIL VOLUMES

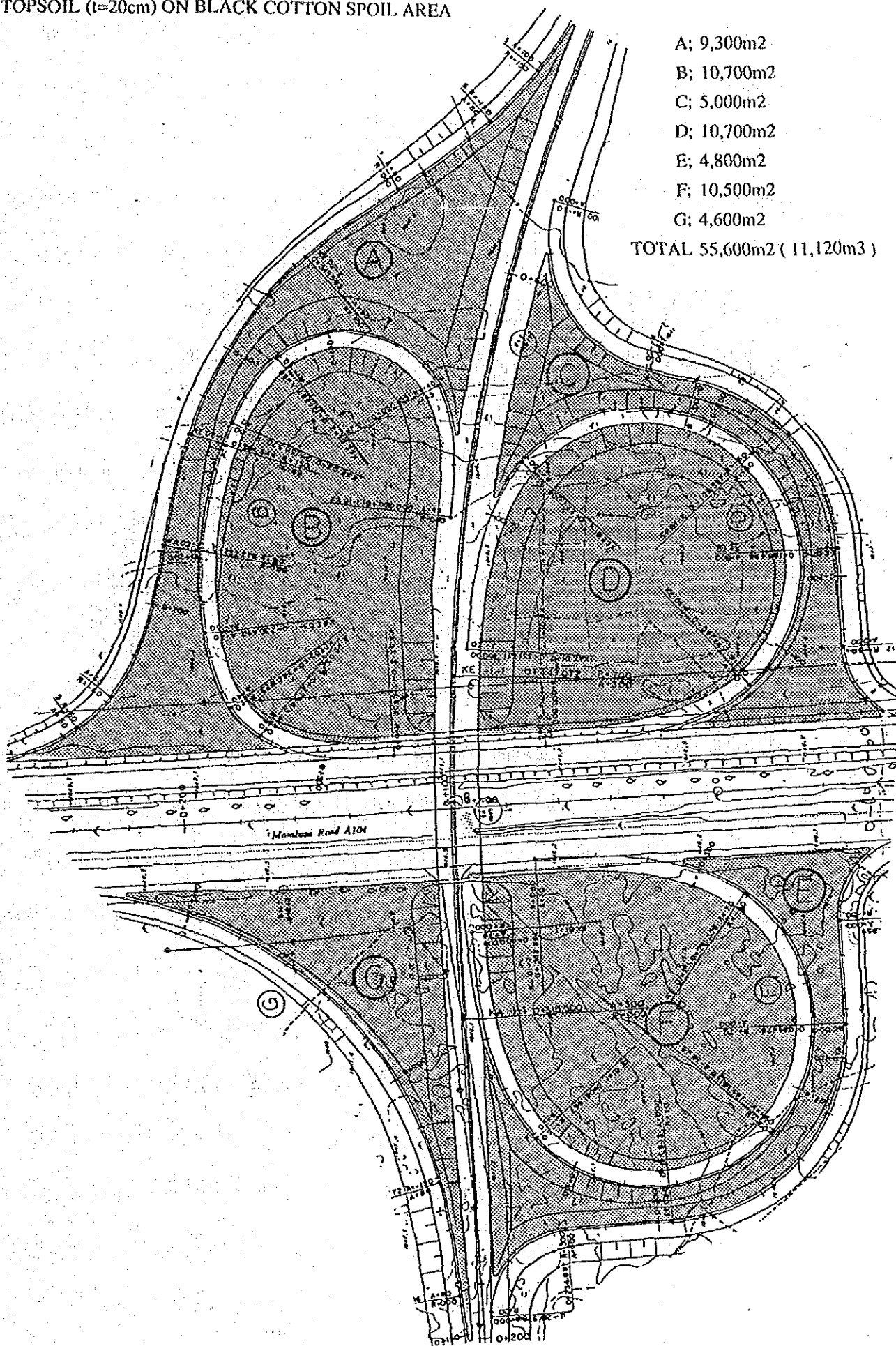
LOCATION	75mm THICKNESS OF TOPSOIL (m2)	200mm THICKNESS OF TOPSOIL (m2)	OTHERS (m3)
MAIN ROAD	272,433.0		
MONBASA ROAD JUNCTION			
A SLIP ROAD	1,728.8		
B SLIP ROAD			
C SLIP ROAD	1,779.3		
D SLIP ROAD			
E SLIP ROAD	1,812.5		
F SLIP ROAD			
G SLIP ROAD	1,441.5		
U TURN ROAD	1,210.5		
UHURU MONUMENT JUNCTION			
A SLIP ROAD	1,362.9		
B SLIP ROAD	1,689.0		
C SLIP ROAD	2,863.3		
D SLIP ROAD	2,033.2		
APPROACH ROAD	1,146.0		
NGONG ROAD JUNCTION			
A SLIP ROAD	5,401.8		
B SLIP ROAD	3,674.3		
APPROACH ROAD	992.4		
DAGORETTI FOREST JUNCTION			
A SLIP ROAD	3,123.6		
B SLIP ROAD	4,209.3		
APPROACH ROAD	433.9		
THOGOTO JUNCTION			
A SLIP ROAD	530.5		
B SLIP ROAD	3,986.2		
APPROACH ROAD	460.4		
SUBTOTAL	312,312.4	0.0	0.0

SCHEDULE OF TOPSOIL VOLUMES

LOCATION	75mm THICKNESS OF TOPSOIL (m2)	200mm THICKNESS OF TOPSOIL (m2)	OTHERS (m3)
KIKUYU TOWN JUNCTION			
A SLIP ROAD	8,373.5		
B SLIP ROAD	445.3		
C SLIP ROAD	2,499.1		
D SLIP ROAD	3,300.4		
E SLIP ROAD	0.0		
KIKUYU JUNCTION			
A SLIP ROAD	2,763.2		
B SLIP ROAD	267.0		
C SLIP ROAD	854.1		
TOPSOIL FOR BLACK COTTON SOIL SPOIL AREA AROUND MOMBASA ROAD JUNCTION ( t=20cm )		55,600.0	
TOPSOIL FOR RUBBISH AREA ( t=60cm ) ( CH.8+850 ~ CH.9+030 )			1,524.0
TOPSOIL FOR SIDEBORROW SECTION ( CH.9+800 ~ CH.10+260 )			11,040.0
TOPSOIL FOR BLACK COTTON SOIL SPOIL AREA BESIDE THE ROAD (t=20cm)		13,500.0	
TOPSOIL FOR CENT. RESERVE , ISLAND			2,820.4
RAILWAY EMBANKMENT	3,362.8		
DRAINAGE POND	1,527.4		
SUBTOTAL	23,392.8	69,100.0	15,384.4
TOTAL	335,705.2	69,100.0	15,384.4

TOPSOIL (t=20cm) ON BLACK COTTON SPOIL AREA

A; 9,300m<sup>2</sup>  
 B; 10,700m<sup>2</sup>  
 C; 5,000m<sup>2</sup>  
 D; 10,700m<sup>2</sup>  
 E; 4,800m<sup>2</sup>  
 F; 10,500m<sup>2</sup>  
 G; 4,600m<sup>2</sup>  
 TOTAL 55,600m<sup>2</sup> ( 11,120m<sup>3</sup> )



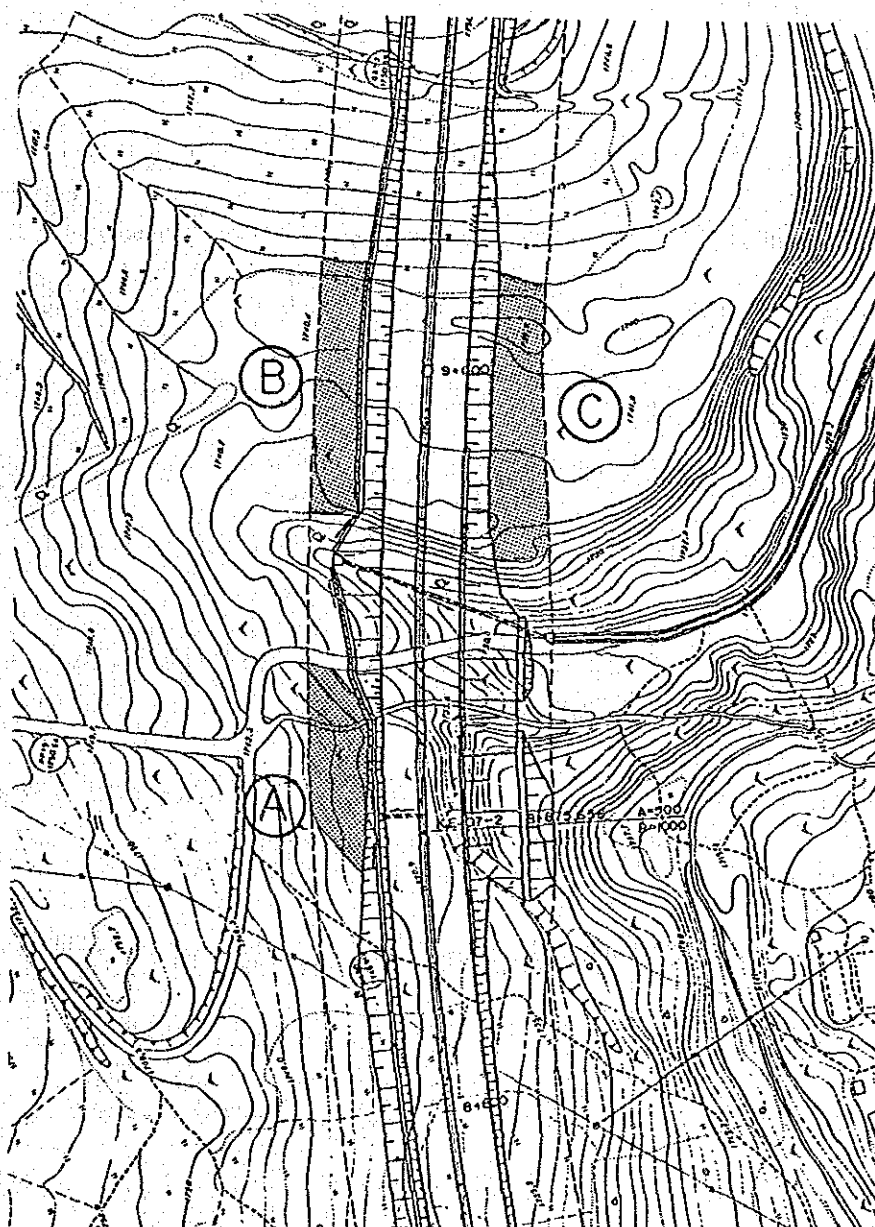
TOPSOIL (t=60cm) ON RUBBISH

A; 780m<sup>2</sup>

B; 800m<sup>2</sup>

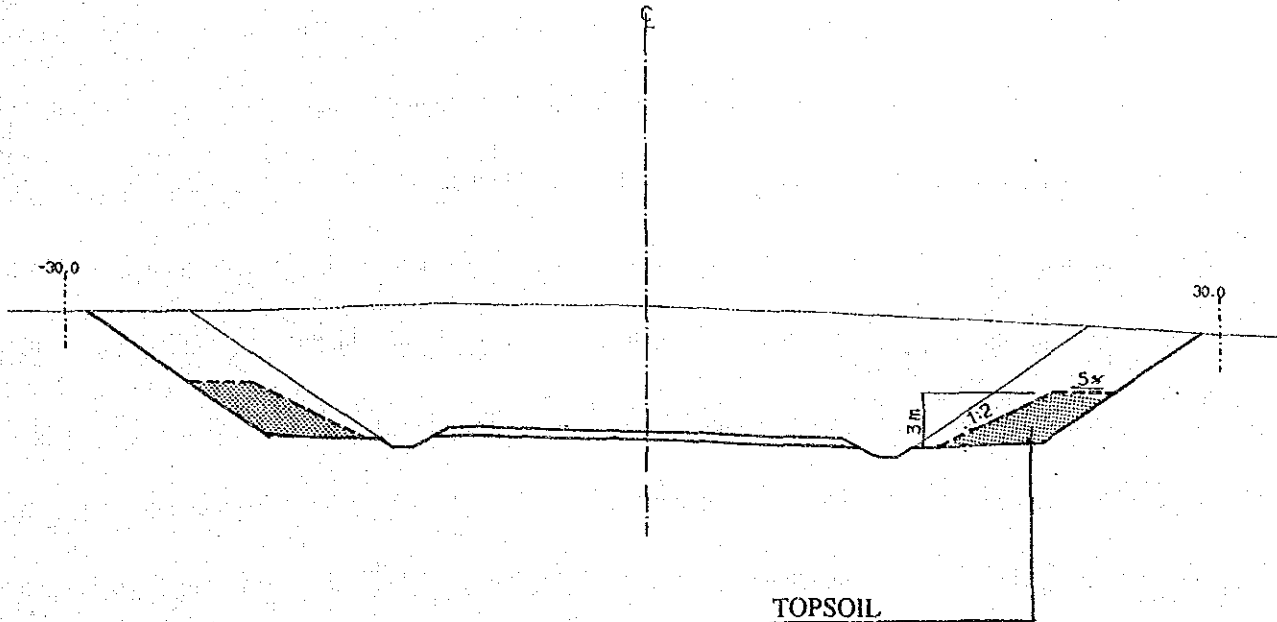
C; 960m<sup>2</sup>

TOTAL 2,540m<sup>2</sup> ( 1,524m<sup>3</sup> )



# TOPSOIL FOR SIDEBORROW SECTIONS

STA. 10+40  
 Pt=1787.713  
 Gt=1794.33



## STANDARD CROSS SECTION

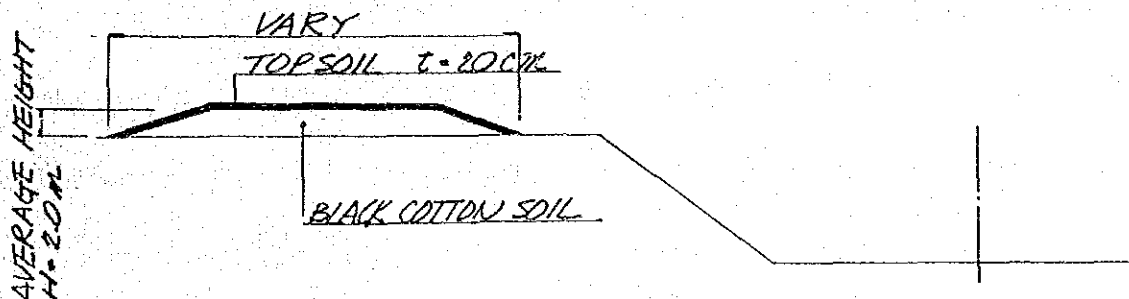
Scale : 1/400

SIDEBORROW SECTION ; CH.9+800 ~ CH.10+260  
 Length : 460m

## TOPSOIL VOLUME

$$(3.0 + 5.0) \text{m} \times 1/2 \times 3.0 \text{m} \times 2 \times 460 \text{m} = 11,040 \text{m}^3$$

# TOPSOIL FOR SPOIL BANK OF BLACK COTTON SOIL BESIDE THE ROAD



## STANDARD CROSS SECTION

## TOPSOIL VOLUME

$$27,000 \text{m}^3 \times 1/2 \text{m} = 13,500 \text{m}^2 \quad (2,700 \text{m}^3)$$



## 2.6 Grassing



SCHEDULE OF GRASSING AREA

LOCATION	UNIT	GRASSING		
		FOR EMBANKMENT	FOR CUTTING	TOTAL
MAIN ROAD	m2	272,433.0	267,660.8	540,093.8
MOMBASA ROAD JUNCTION				
A SLIP ROAD	m2	1,728.8	266.0	1,994.8
B SLIP ROAD	m2	0.0	0.0	0.0
C SLIP ROAD	m2	1,779.3	1,466.3	3,245.6
D SLIP ROAD	m2	0.0	0.0	0.0
E SLIP ROAD	m2	1,812.5	1,155.2	2,967.7
F SLIP ROAD	m2	0.0	0.0	0.0
G SLIP ROAD	m2	1,441.5	1,892.3	3,333.8
U TURN ROAD	m2	1,210.5	0.0	1,210.5
UHURU MONUMENT JUNCTION				
A SLIP ROAD	m2	1,362.9	1,919.2	3,282.1
B SLIP ROAD	m2	1,689.0	692.7	2,381.7
C SLIP ROAD	m2	2,863.3	273.3	3,136.6
D SLIP ROAD	m2	2,033.2	450.0	2,483.2
APPROACH ROAD	m2	1,146.0	1,620.0	2,766.0
NGONG ROAD JUNCTION				
A SLIP ROAD	m2	5,401.8		5,401.8
B SLIP ROAD	m2	3,674.3	1,703.6	5,377.9
APPROACH ROAD	m2	992.4	4,038.0	5,030.4
DAGORETTI FOREST JUNCTION				
A SLIP ROAD	m2	3,123.6	597.3	3,720.9
B SLIP ROAD	m2	4,209.3	528.5	4,737.8
APPROACH ROAD	m2	433.9	1,913.1	2,347.0
THOGOTO JUNCTION				
A SLIP ROAD	m2	530.5	6,096.5	6,627.0
B SLIP ROAD	m2	3,986.2	1,721.0	5,707.2
APPROACH ROAD	m2	460.4	3,121.9	3,582.3
KIKUYU TOWN JUNCTION				
A SLIP ROAD	m2	8,373.5	9,071.5	17,445.0
B SLIP ROAD	m2	445.3		445.3
C SLIP ROAD	m2	2,499.1		2,499.1
D SLIP ROAD	m2	3,300.4	4,384.9	7,685.3
E SLIP ROAD	m2	0.0	0.0	0.0
KIKUYU JUNCTION				
A SLIP ROAD	m2	2,763.2	3,483.5	6,246.7
B SLIP ROAD	m2	267.0	478.0	745.0
C SLIP ROAD	m2	854.1	1,474.5	2,328.6
SUBTOTAL		330,815.0	316,008.1	646,823.1

# SCHEDULE OF GRASSING AREA

LOCATION	UNIT	GRASSING		
		FOR EMBANKMENT	FOR CUTTING	TOTAL
SPOIL AREA OF BLACK COTTON SOIL	m2	55,600.0		55,600.0
AT MOMBASA ROAD JUNCTION				
NATIONAL PARK BOUNDARY DEKI	m2	46,633.6		46,633.6
RAILWAY EMBANKMENT	m2	3,362.8		3,362.8
RUBBISH AREA (CH.8+800 ~ CH.9+30)	m2	2,540.0		2,540.0
SIDE BORROW SECTION (CH.9+800 ~ 10+260)	m2	3,000.0		3,000.0
SPOIL AREA OF BLACK COTTON SOIL	m2	13,500.0		13,500.0
DRAINAGE POND (CH.24+380)	m2	1,527.4		1,527.4
SUBTOTAL		126,163.8	0.0	126,163.8
TOTAL		456,978.8	316,008.1	772,986.9

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		LENGTH	GRASSING (FILLING)		LENGTH	GRASSING (CUT)		TOTAL
			AVERAGE	AREA		AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 0.000		6.80						
0 + 20.000	20.000	7.10	6.95	139.00		0.00	0.00	139.00
0 + 40.000	20.000	8.40	7.75	155.00		0.00	0.00	155.00
0 + 60.000	20.000	9.70	9.05	181.00		0.00	0.00	181.00
0 + 80.000	20.000	12.70	11.20	224.00		0.00	0.00	224.00
0 + 100.000	20.000	15.30	14.00	280.00		0.00	0.00	280.00
0 + 120.000	20.000	15.80	15.55	311.00		0.00	0.00	311.00
0 + 140.000	20.000	20.10	17.95	359.00		0.00	0.00	359.00
0 + 160.000	20.000	22.00	21.05	421.00		0.00	0.00	421.00
0 + 180.000	20.000	22.30	22.15	443.00		0.00	0.00	443.00
0 + 200.000	20.000	24.90	23.60	472.00		0.00	0.00	472.00
0 + 201.588	1.588		12.45	19.77		0.00	0.00	19.77
0 + 201.588	0.000		0.00	0.00		0.00	0.00	0.00
0 + 220.000	18.412		0.00	0.00		0.00	0.00	0.00
0 + 224.687	4.687		0.00	0.00		0.00	0.00	0.00
0 + 224.687	0.000		0.00	0.00		0.00	0.00	0.00
0 + 240.000	15.313		0.00	0.00		0.00	0.00	0.00
0 + 260.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 280.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 300.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 307.565	7.565		0.00	0.00		0.00	0.00	0.00
0 + 307.565	0.000		0.00	0.00		0.00	0.00	0.00
0 + 318.500	10.935		0.00	0.00		0.00	0.00	0.00
0 + 320.000	1.500		0.00	0.00		0.00	0.00	0.00
0 + 340.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 360.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 368.800	8.800		0.00	0.00		0.00	0.00	0.00
0 + 380.000	11.200		0.00	0.00		0.00	0.00	0.00
0 + 400.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 420.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 426.400	6.400		0.00	0.00		0.00	0.00	0.00
0 + 440.000	13.600		0.00	0.00		0.00	0.00	0.00
0 + 447.072	7.072		0.00	0.00		0.00	0.00	0.00
0 + 460.000	12.928		0.00	0.00		0.00	0.00	0.00
0 + 480.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 500.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 516.072	16.072		0.00	0.00		0.00	0.00	0.00
0 + 516.072	0.000		0.00	0.00		0.00	0.00	0.00
0 + 520.000	3.928		0.00	0.00		0.00	0.00	0.00
0 + 537.587	17.587		0.00	0.00		0.00	0.00	0.00
0 + 537.587	0.000		0.00	0.00		0.00	0.00	0.00
0 + 540.000	2.413		0.00	0.00		0.00	0.00	0.00
0 + 560.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 580.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 600.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 611.720	11.720		0.00	0.00		0.00	0.00	0.00
0 + 611.720	0.000		0.00	0.00		0.00	0.00	0.00
0 + 620.000	8.280		0.00	0.00		0.00	0.00	0.00
0 + 640.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 660.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 680.000	20.000		0.00	0.00		0.00	0.00	0.00
0 + 692.078	12.078		0.00	0.00		0.00	0.00	0.00
0 + 692.078	0.000		0.00	0.00		0.00	0.00	0.00
0 + 700.000	7.922	17.20	8.60	68.13		0.00	0.00	68.13
0 + 720.000	20.000	10.00	13.60	272.00		0.00	0.00	272.00
0 + 740.000	20.000	16.90	13.45	269.00		0.00	0.00	269.00
0 + 760.000	20.000	14.80	15.85	317.00		0.00	0.00	317.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		LENGTH	GRASSING (FILLING)		GRASSING (CUT)			TOTAL
			AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
0 + 780.000	20.000	15.20	15.00	300.00		0.00	0.00	300.00
0 + 800.000	20.000	13.00	14.10	282.00		0.00	0.00	282.00
0 + 820.000	20.000	11.80	12.40	248.00		0.00	0.00	248.00
0 + 840.000	20.000	7.50	9.65	193.00		0.00	0.00	193.00
0 + 860.000	20.000	10.20	8.85	177.00		0.00	0.00	177.00
0 + 880.000	20.000	14.30	12.25	245.00		0.00	0.00	245.00
0 + 900.000	20.000	11.60	12.95	259.00		0.00	0.00	259.00
0 + 920.000	20.000	12.90	12.25	245.00		0.00	0.00	245.00
0 + 940.000	20.000	14.40	13.65	273.00		0.00	0.00	273.00
0 + 944.627	4.627	12.90	13.65	63.16		0.00	0.00	63.16
0 + 960.000	15.373	16.60	14.75	226.75		0.00	0.00	226.75
0 + 980.000	20.000	16.80	16.70	334.00		0.00	0.00	334.00
1 + 0.000	20.000	17.90	17.35	347.00		0.00	0.00	347.00
1 + 20.000	20.000	16.40	17.15	343.00		0.00	0.00	343.00
1 + 40.000	20.000	15.40	15.90	318.00		0.00	0.00	318.00
1 + 60.000	20.000	14.20	14.80	296.00		0.00	0.00	296.00
1 + 73.199	13.199	14.90	14.55	192.05		0.00	0.00	192.05
1 + 80.000	6.801	14.50	14.70	99.97		0.00	0.00	99.97
1 + 100.000	20.000	13.90	14.20	284.00		0.00	0.00	284.00
1 + 120.000	20.000	13.10	13.50	270.00		0.00	0.00	270.00
1 + 140.000	20.000	14.60	13.85	277.00		0.00	0.00	277.00
1 + 160.000	20.000	15.00	14.80	296.00		0.00	0.00	296.00
1 + 180.000	20.000	13.20	14.10	282.00		0.00	0.00	282.00
1 + 200.000	20.000	12.90	13.05	261.00		0.00	0.00	261.00
1 + 220.000	20.000	12.00	12.45	249.00		0.00	0.00	249.00
1 + 240.000	20.000	12.60	12.30	246.00		0.00	0.00	246.00
1 + 260.000	20.000	14.00	13.30	266.00		0.00	0.00	266.00
1 + 280.000	20.000	14.70	14.35	287.00		0.00	0.00	287.00
1 + 300.000	20.000	13.50	14.10	282.00		0.00	0.00	282.00
1 + 320.000	20.000	15.30	14.40	288.00		0.00	0.00	288.00
1 + 340.000	20.000	12.60	13.95	279.00		0.00	0.00	279.00
1 + 360.000	20.000	13.60	13.10	262.00		0.00	0.00	262.00
1 + 380.000	20.000	13.90	13.75	275.00		0.00	0.00	275.00
1 + 400.000	20.000	16.60	15.25	305.00		0.00	0.00	305.00
1 + 420.000	20.000	14.60	15.60	312.00		0.00	0.00	312.00
1 + 440.000	20.000	14.80	14.70	294.00		0.00	0.00	294.00
1 + 460.000	20.000	17.40	16.10	322.00		0.00	0.00	322.00
1 + 480.000	20.000	17.00	17.20	344.00		0.00	0.00	344.00
1 + 500.000	20.000	18.40	17.70	354.00		0.00	0.00	354.00
1 + 520.000	20.000	17.10	17.75	355.00		0.00	0.00	355.00
1 + 525.443	5.443	15.80	16.45	89.54		0.00	0.00	89.54
1 + 540.000	14.557	16.20	16.00	232.91		0.00	0.00	232.91
1 + 560.000	20.000	14.70	15.45	309.00		0.00	0.00	309.00
1 + 580.000	20.000	15.10	14.90	298.00		0.00	0.00	298.00
1 + 600.000	20.000	15.80	15.45	309.00		0.00	0.00	309.00
1 + 620.000	20.000	12.50	14.15	283.00		0.00	0.00	283.00
1 + 640.000	20.000	14.00	13.25	265.00		0.00	0.00	265.00
1 + 660.000	20.000	13.60	13.80	276.00		0.00	0.00	276.00
1 + 680.000	20.000	13.00	13.30	266.00		0.00	0.00	266.00
1 + 700.000	20.000	14.10	13.55	271.00		0.00	0.00	271.00
1 + 720.000	20.000	12.20	13.15	263.00		0.00	0.00	263.00
1 + 740.000	20.000	12.10	12.15	243.00		0.00	0.00	243.00
1 + 760.000	20.000	12.80	12.45	249.00		0.00	0.00	249.00
1 + 780.000	20.000	12.90	12.85	257.00		0.00	0.00	257.00
1 + 800.000	20.000	12.80	12.85	257.00		0.00	0.00	257.00
1 + 820.000	20.000	14.10	13.45	269.00		0.00	0.00	269.00
1 + 840.000	20.000	14.30	14.20	284.00		0.00	0.00	284.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
1 + 860.000	20.000	16.60	15.45	309.00		0.00	0.00	309.00
1 + 880.000	20.000	16.10	16.35	327.00		0.00	0.00	327.00
1 + 900.000	20.000	16.00	16.05	321.00		0.00	0.00	321.00
1 + 920.000	20.000	15.10	15.55	311.00		0.00	0.00	311.00
1 + 940.000	20.000	13.90	14.50	290.00		0.00	0.00	290.00
1 + 960.000	20.000	19.30	16.60	332.00		0.00	0.00	332.00
1 + 970.243	10.243	18.20	18.75	192.06		0.00	0.00	192.06
1 + 980.000	9.757	12.00	15.10	147.33		0.00	0.00	147.33
2 + 0.000	20.000	11.60	11.80	236.00		0.00	0.00	236.00
2 + 20.000	20.000	12.00	11.80	236.00		0.00	0.00	236.00
2 + 40.000	20.000	12.20	12.10	242.00		0.00	0.00	242.00
2 + 60.000	20.000	13.50	12.85	257.00		0.00	0.00	257.00
2 + 80.000	20.000	14.30	13.90	278.00		0.00	0.00	278.00
2 + 100.000	20.000	13.30	13.80	276.00		0.00	0.00	276.00
2 + 120.000	20.000	14.70	14.00	280.00		0.00	0.00	280.00
2 + 140.000	20.000	12.40	13.55	271.00		0.00	0.00	271.00
2 + 160.000	20.000	12.60	12.50	250.00		0.00	0.00	250.00
2 + 180.000	20.000	12.20	12.40	248.00		0.00	0.00	248.00
2 + 200.000	20.000	11.90	12.05	241.00		0.00	0.00	241.00
2 + 220.000	20.000	13.20	12.55	251.00		0.00	0.00	251.00
2 + 240.000	20.000	12.30	12.75	255.00		0.00	0.00	255.00
2 + 260.000	20.000	11.90	12.10	242.00		0.00	0.00	242.00
2 + 280.000	20.000	12.00	11.95	239.00		0.00	0.00	239.00
2 + 300.000	20.000	13.20	12.60	252.00		0.00	0.00	252.00
2 + 320.000	20.000	13.20	13.20	264.00		0.00	0.00	264.00
2 + 340.000	20.000	11.80	12.50	250.00		0.00	0.00	250.00
2 + 360.000	20.000	11.90	11.85	237.00		0.00	0.00	237.00
2 + 380.000	20.000	11.00	11.45	229.00		0.00	0.00	229.00
2 + 400.000	20.000	11.60	11.30	226.00		0.00	0.00	226.00
2 + 420.000	20.000	12.10	11.85	237.00		0.00	0.00	237.00
2 + 440.000	20.000	11.60	11.85	237.00		0.00	0.00	237.00
2 + 460.000	20.000	13.30	12.45	249.00		0.00	0.00	249.00
2 + 480.000	20.000	13.60	13.45	269.00		0.00	0.00	269.00
2 + 500.000	20.000	13.00	13.30	266.00		0.00	0.00	266.00
2 + 520.000	20.000	12.80	12.90	258.00		0.00	0.00	258.00
2 + 540.000	20.000	11.00	11.90	238.00		0.00	0.00	238.00
2 + 560.000	20.000	15.30	13.15	263.00		0.00	0.00	263.00
2 + 580.000	20.000	13.10	14.20	284.00		0.00	0.00	284.00
2 + 600.000	20.000	14.40	13.75	275.00		0.00	0.00	275.00
2 + 620.000	20.000	12.80	13.60	272.00		0.00	0.00	272.00
2 + 640.000	20.000	13.80	13.30	266.00		0.00	0.00	266.00
2 + 660.000	20.000	13.20	13.50	270.00		0.00	0.00	270.00
2 + 680.000	20.000	13.60	13.40	268.00		0.00	0.00	268.00
2 + 700.000	20.000	13.90	13.75	275.00		0.00	0.00	275.00
2 + 720.000	20.000	12.60	13.25	265.00		0.00	0.00	265.00
2 + 727.000	7.000	13.00	12.80	89.60		0.00	0.00	89.60
2 + 740.000	13.000	13.90	13.45	174.85		0.00	0.00	174.85
2 + 760.000	20.000	13.10	13.50	270.00		0.00	0.00	270.00
2 + 780.000	20.000	12.40	12.75	255.00		0.00	0.00	255.00
2 + 800.000	20.000	12.50	12.45	249.00		0.00	0.00	249.00
2 + 820.000	20.000	13.30	12.90	258.00		0.00	0.00	258.00
2 + 840.000	20.000	12.40	12.85	257.00		0.00	0.00	257.00
2 + 860.000	20.000	12.60	12.50	250.00		0.00	0.00	250.00
2 + 880.000	20.000	12.20	12.40	248.00		0.00	0.00	248.00
2 + 900.000	20.000	12.10	12.15	243.00		0.00	0.00	243.00
2 + 920.000	20.000	12.10	12.10	242.00		0.00	0.00	242.00
2 + 940.000	20.000	12.40	12.25	245.00		0.00	0.00	245.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
2 + 960.000	20.000	13.40	12.90	258.00		0.00	0.00	258.00
2 + 980.000	20.000	12.30	12.85	257.00		0.00	0.00	257.00
3 + 0.000	20.000	12.00	12.15	243.00		0.00	0.00	243.00
3 + 20.000	20.000	11.90	11.95	239.00		0.00	0.00	239.00
3 + 40.000	20.000	12.10	12.00	240.00		0.00	0.00	240.00
3 + 60.000	20.000	13.20	12.65	253.00		0.00	0.00	253.00
3 + 80.000	20.000	12.60	12.90	258.00		0.00	0.00	258.00
3 + 100.000	20.000	12.50	12.55	251.00		0.00	0.00	251.00
3 + 120.000	20.000	12.30	12.40	248.00		0.00	0.00	248.00
3 + 140.000	20.000	92.60	52.45	1,049.00		0.00	0.00	1049.00
3 + 160.000	20.000	11.80	52.20	1,044.00		0.00	0.00	1044.00
3 + 180.000	20.000	12.10	11.95	239.00		0.00	0.00	239.00
3 + 200.000	20.000	12.30	12.20	244.00		0.00	0.00	244.00
3 + 220.000	20.000	12.00	12.15	243.00		0.00	0.00	243.00
3 + 240.000	20.000	12.00	12.00	240.00		0.00	0.00	240.00
3 + 260.000	20.000	12.20	12.10	242.00		0.00	0.00	242.00
3 + 280.000	20.000	12.20	12.20	244.00		0.00	0.00	244.00
3 + 300.000	20.000	12.50	12.35	247.00		0.00	0.00	247.00
3 + 320.000	20.000	11.80	12.15	243.00		0.00	0.00	243.00
3 + 340.000	20.000	12.00	11.90	238.00		0.00	0.00	238.00
3 + 360.000	20.000	12.80	12.40	248.00		0.00	0.00	248.00
3 + 380.000	20.000	12.40	12.60	252.00		0.00	0.00	252.00
3 + 400.000	20.000	11.90	12.15	243.00		0.00	0.00	243.00
3 + 420.000	20.000	12.40	12.15	243.00		0.00	0.00	243.00
3 + 440.000	20.000	12.40	12.40	248.00		0.00	0.00	248.00
3 + 460.000	20.000	12.60	12.50	250.00		0.00	0.00	250.00
3 + 480.000	20.000	11.00	11.80	236.00		0.00	0.00	236.00
3 + 500.000	20.000	11.60	11.30	226.00		0.00	0.00	226.00
3 + 509.294	9.294	11.00	11.30	105.02		0.00	0.00	105.02
3 + 520.000	10.706	11.60	11.30	120.98		0.00	0.00	120.98
3 + 540.000	20.000	12.20	11.90	238.00		0.00	0.00	238.00
3 + 560.000	20.000	11.50	11.85	237.00		0.00	0.00	237.00
3 + 580.000	20.000	12.40	11.95	239.00		0.00	0.00	239.00
3 + 600.000	20.000	11.90	12.15	243.00		0.00	0.00	243.00
3 + 620.000	20.000	11.20	11.55	231.00		0.00	0.00	231.00
3 + 640.000	20.000	11.10	11.15	223.00		0.00	0.00	223.00
3 + 660.000	20.000	12.20	11.65	233.00		0.00	0.00	233.00
3 + 680.000	20.000	14.10	13.15	263.00		0.00	0.00	263.00
3 + 700.000	20.000	12.60	13.35	267.00		0.00	0.00	267.00
3 + 720.000	20.000	13.60	13.10	262.00		0.00	0.00	262.00
3 + 740.000	20.000	12.50	13.05	261.00		0.00	0.00	261.00
3 + 760.000	20.000	13.30	12.90	258.00		0.00	0.00	258.00
3 + 780.000	20.000	13.60	13.45	269.00		0.00	0.00	269.00
3 + 800.000	20.000	13.70	13.65	273.00		0.00	0.00	273.00
3 + 820.000	20.000	15.00	14.35	287.00		0.00	0.00	287.00
3 + 840.000	20.000	14.30	14.65	293.00		0.00	0.00	293.00
3 + 860.000	20.000	13.40	13.85	277.00		0.00	0.00	277.00
3 + 880.000	20.000	14.00	13.70	274.00		0.00	0.00	274.00
3 + 900.000	20.000	13.70	13.85	277.00		0.00	0.00	277.00
3 + 920.000	20.000	14.00	13.85	277.00		0.00	0.00	277.00
3 + 940.000	20.000	14.00	14.00	280.00		0.00	0.00	280.00
3 + 960.000	20.000	14.60	14.30	286.00		0.00	0.00	286.00
3 + 980.000	20.000	14.90	14.75	295.00		0.00	0.00	295.00
4 + 0.000	20.000	15.70	15.30	306.00		0.00	0.00	306.00
4 + 20.000	20.000	15.00	15.35	307.00		0.00	0.00	307.00
4 + 40.000	20.000	16.10	15.55	311.00		0.00	0.00	311.00
4 + 60.000	20.000	17.20	16.65	333.00		0.00	0.00	333.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		LENGTH	GRASSING (FILLING)		LENGTH	GRASSING (CUT)		
			AVERAGE	AREA		AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
4 + 80.000	20.000	15.10	16.15	323.00		0.00	0.00	323.00
4 + 100.000	20.000	14.80	14.95	299.00		0.00	0.00	299.00
4 + 120.000	20.000	15.70	15.25	305.00		0.00	0.00	305.00
4 + 140.000	20.000	14.70	15.20	304.00		0.00	0.00	304.00
4 + 160.000	20.000	14.00	14.35	287.00		0.00	0.00	287.00
4 + 180.000	20.000	15.40	14.70	294.00		0.00	0.00	294.00
4 + 200.000	20.000	15.90	15.65	313.00		0.00	0.00	313.00
4 + 220.000	20.000	14.80	15.35	307.00		0.00	0.00	307.00
4 + 240.000	20.000	14.10	14.45	289.00		0.00	0.00	289.00
4 + 260.000	20.000	14.20	14.15	283.00		0.00	0.00	283.00
4 + 280.000	20.000	14.60	14.40	288.00		0.00	0.00	288.00
4 + 300.000	20.000	12.70	13.65	273.00		0.00	0.00	273.00
4 + 320.000	20.000	13.60	13.15	263.00		0.00	0.00	263.00
4 + 340.000	20.000	13.60	13.60	272.00		0.00	0.00	272.00
4 + 360.000	20.000	12.20	12.90	258.00		0.00	0.00	258.00
4 + 380.000	20.000	13.00	12.60	252.00		0.00	0.00	252.00
4 + 400.000	20.000	12.80	12.90	258.00		0.00	0.00	258.00
4 + 420.000	20.000	11.60	12.20	244.00		0.00	0.00	244.00
4 + 440.000	20.000	12.40	12.00	240.00		0.00	0.00	240.00
4 + 460.000	20.000	17.60	15.00	300.00		0.00	0.00	300.00
4 + 480.000	20.000	16.30	16.95	339.00		0.00	0.00	339.00
4 + 500.000	20.000	12.40	14.35	287.00		0.00	0.00	287.00
4 + 520.000	20.000	14.10	13.25	265.00		0.00	0.00	265.00
4 + 535.215	15.215	13.00	13.55	206.16		0.00	0.00	206.16
4 + 540.000	4.785	13.20	13.10	62.68		0.00	0.00	62.68
4 + 560.000	20.000	14.90	14.05	281.00		0.00	0.00	281.00
4 + 580.000	20.000	16.10	15.50	310.00		0.00	0.00	310.00
4 + 600.000	20.000	11.70	13.90	278.00		0.00	0.00	278.00
4 + 620.000	20.000	15.30	13.50	270.00		0.00	0.00	270.00
4 + 640.000	20.000	15.80	15.55	311.00		0.00	0.00	311.00
4 + 660.000	20.000	17.30	16.55	331.00		0.00	0.00	331.00
4 + 680.000	20.000	16.60	16.95	339.00		0.00	0.00	339.00
4 + 700.000	20.000	17.10	16.85	337.00		0.00	0.00	337.00
4 + 720.000	20.000	14.90	16.00	320.00		0.00	0.00	320.00
4 + 740.000	20.000	11.60	13.25	265.00		0.00	0.00	265.00
4 + 760.000	20.000	12.80	12.20	244.00		0.00	0.00	244.00
4 + 780.000	20.000	11.90	12.35	247.00		0.00	0.00	247.00
4 + 800.000	20.000	12.50	12.20	244.00		0.00	0.00	244.00
4 + 820.000	20.000	11.60	12.05	241.00		0.00	0.00	241.00
4 + 840.000	20.000	12.10	11.85	237.00		0.00	0.00	237.00
4 + 860.000	20.000	12.80	12.45	249.00		0.00	0.00	249.00
4 + 880.000	20.000	12.60	12.70	254.00		0.00	0.00	254.00
4 + 900.000	20.000	11.90	12.25	245.00		0.00	0.00	245.00
4 + 910.382	10.382	12.50	12.20	126.66		0.00	0.00	126.66
4 + 920.000	9.618	12.50	12.50	120.23		0.00	0.00	120.23
4 + 940.000	20.000	12.80	12.65	253.00		0.00	0.00	253.00
4 + 960.000	20.000	12.60	12.70	254.00		0.00	0.00	254.00
4 + 980.000	20.000	13.20	12.90	258.00		0.00	0.00	258.00
5 + 0.000	20.000	11.40	12.30	246.00		0.00	0.00	246.00
5 + 20.000	20.000	14.20	12.80	256.00		0.00	0.00	256.00
5 + 40.000	20.000	14.70	14.45	289.00		0.00	0.00	289.00
5 + 60.000	20.000	13.90	14.30	286.00		0.00	0.00	286.00
5 + 80.000	20.000	13.30	13.60	272.00		0.00	0.00	272.00
5 + 91.257	11.257	12.90	13.10	147.47		0.00	0.00	147.47
5 + 100.000	8.743	13.80	13.35	116.72		0.00	0.00	116.72
5 + 120.000	20.000	13.20	13.50	270.00		0.00	0.00	270.00
5 + 140.000	20.000	15.80	14.50	290.00		0.00	0.00	290.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
5 + 160.000	20.000	12.10	13.95	279.00		0.00	0.00	279.00
5 + 180.000	20.000	12.20	12.15	243.00		0.00	0.00	243.00
5 + 200.000	20.000	15.50	13.85	277.00		0.00	0.00	277.00
5 + 220.000	20.000	13.80	14.65	293.00		0.00	0.00	293.00
5 + 240.000	20.000	14.50	14.15	283.00		0.00	0.00	283.00
5 + 260.000	20.000	16.00	15.25	305.00		0.00	0.00	305.00
5 + 280.000	20.000	21.40	18.70	374.00		0.00	0.00	374.00
5 + 291.000	11.000	18.70	20.05	220.55		0.00	0.00	220.55
5 + 300.000	9.000	17.10	17.90	161.10		0.00	0.00	161.10
5 + 320.000	20.000	17.30	17.20	344.00		0.00	0.00	344.00
5 + 340.000	20.000	16.70	17.00	340.00		0.00	0.00	340.00
5 + 360.000	20.000	14.30	15.50	310.00		0.00	0.00	310.00
5 + 380.000	20.000	12.70	13.50	270.00		0.00	0.00	270.00
5 + 400.000	20.000	13.00	12.85	257.00		0.00	0.00	257.00
5 + 420.000	20.000	13.40	13.20	264.00		0.00	0.00	264.00
5 + 440.000	20.000	13.60	13.50	270.00		0.00	0.00	270.00
5 + 460.000	20.000	13.10	13.35	267.00		0.00	0.00	267.00
5 + 480.000	20.000	11.30	12.20	244.00		0.00	0.00	244.00
5 + 500.000	20.000	13.50	12.40	248.00		0.00	0.00	248.00
5 + 520.000	20.000	13.70	13.60	272.00		0.00	0.00	272.00
5 + 540.000	20.000	18.30	16.00	320.00		0.00	0.00	320.00
5 + 560.000	20.000	20.60	19.45	389.00		0.00	0.00	389.00
5 + 580.000	20.000	20.70	20.65	413.00		0.00	0.00	413.00
5 + 600.000	20.000	22.90	21.80	436.00		0.00	0.00	436.00
5 + 617.777	17.777	22.60	22.75	404.43		0.00	0.00	404.43
5 + 620.000	2.223	21.50	22.05	49.02		0.00	0.00	49.02
5 + 640.000	20.000	21.60	21.55	431.00		0.00	0.00	431.00
5 + 660.000	20.000	21.90	21.75	435.00		0.00	0.00	435.00
5 + 680.000	20.000	22.10	22.00	440.00		0.00	0.00	440.00
5 + 700.000	20.000	22.10	22.10	442.00		0.00	0.00	442.00
5 + 720.000	20.000	15.60	18.85	377.00		0.00	0.00	377.00
5 + 740.000	20.000	21.90	18.75	375.00		0.00	0.00	375.00
5 + 760.000	20.000	11.90	16.90	338.00		0.00	0.00	338.00
5 + 780.000	20.000	13.90	12.90	258.00		0.00	0.00	258.00
5 + 800.000	20.000	15.60	14.75	295.00		0.00	0.00	295.00
5 + 817.000	17.000	15.60	15.60	265.20		0.00	0.00	265.20
5 + 820.000	3.000	15.70	15.65	46.95		0.00	0.00	46.95
5 + 840.000	20.000	17.70	16.70	334.00		0.00	0.00	334.00
5 + 860.000	20.000	17.20	17.45	349.00		0.00	0.00	349.00
5 + 880.000	20.000	16.90	17.05	341.00		0.00	0.00	341.00
5 + 900.000	20.000	16.20	16.55	331.00		0.00	0.00	331.00
5 + 920.000	20.000	16.80	16.50	330.00		0.00	0.00	330.00
5 + 940.000	20.000	17.10	16.95	339.00		0.00	0.00	339.00
5 + 960.000	20.000	16.10	16.60	332.00		0.00	0.00	332.00
5 + 980.000	20.000	12.20	14.15	283.00		0.00	0.00	283.00
6 + 0.000	20.000	16.60	14.40	288.00		0.00	0.00	288.00
6 + 1.864	1.864	11.10	13.85	25.82		0.00	0.00	25.82
6 + 20.000	18.136	15.60	13.35	242.12		0.00	0.00	242.12
6 + 40.000	20.000	15.00	15.30	306.00		0.00	0.00	306.00
6 + 60.000	20.000	12.20	13.60	272.00		0.00	0.00	272.00
6 + 80.000	20.000	12.90	12.55	251.00		0.00	0.00	251.00
6 + 100.000	20.000	13.40	13.15	263.00		0.00	0.00	263.00
6 + 120.000	20.000	12.30	12.85	257.00		0.00	0.00	257.00
6 + 140.000	20.000	13.40	12.85	257.00		0.00	0.00	257.00
6 + 160.000	20.000	6.90	10.15	203.00		0.00	0.00	203.00
6 + 180.000	20.000	5.20	6.05	121.00		0.00	0.00	121.00
6 + 200.000	20.000	9.40	7.30	146.00	5.70	2.85	57.00	203.00



COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION							
		LENGTH	GRASSING (FILLING)			GRASSING (CUT)			TOTAL
			AVERAGE	AREA	LENGTH	AVERAGE	AREA		
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)	
6 + 220.000	20.000	16.00	12.70	254.00	1.70	3.70	74.00	328.00	
6 + 240.000	20.000	15.80	15.90	318.00	2.60	2.15	43.00	361.00	
6 + 260.000	20.000	17.00	16.40	328.00	1.00	1.80	36.00	364.00	
6 + 280.000	20.000	19.70	18.35	367.00	1.80	1.40	28.00	395.00	
6 + 300.000	20.000	11.40	15.55	311.00	1.50	1.65	33.00	344.00	
6 + 320.000	20.000	10.90	11.15	223.00	1.80	1.65	33.00	256.00	
6 + 340.000	20.000	9.60	10.25	205.00	1.70	1.75	35.00	240.00	
6 + 360.000	20.000	9.80	9.70	194.00	1.60	1.65	33.00	227.00	
6 + 379.176	19.176	11.00	10.40	199.43	1.40	1.50	28.76	228.19	
6 + 380.000	0.824	11.30	11.15	9.19	1.40	1.40	1.15	10.34	
6 + 400.000	20.000	12.70	12.00	240.00	1.50	1.45	29.00	269.00	
6 + 420.000	20.000	13.20	12.95	259.00	1.90	1.70	34.00	293.00	
6 + 429.957	9.957	0.00	6.60	65.72	0.00	0.95	9.46	75.18	
6 + 429.957	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6 + 440.000	10.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6 + 460.000	20.000	2.30	1.15	23.00	0.00	0.00	0.00	23.00	
6 + 462.691	2.691	2.00	2.15	5.79	0.00	0.00	0.00	5.79	
6 + 462.691	0.000	2.00	2.00	0.00	0.00	0.00	0.00	0.00	
6 + 480.000	17.309	2.80	2.40	41.54	0.00	0.00	0.00	41.54	
6 + 500.000	20.000	3.20	3.00	60.00	0.00	0.00	0.00	60.00	
6 + 520.000	20.000	6.40	4.80	96.00	0.00	0.00	0.00	96.00	
6 + 540.000	20.000	8.70	7.55	151.00	0.00	0.00	0.00	151.00	
6 + 560.000	20.000	12.00	10.35	207.00	0.00	0.00	0.00	207.00	
6 + 580.000	20.000	13.90	12.95	259.00	0.00	0.00	0.00	259.00	
6 + 600.000	20.000	18.30	16.10	322.00	0.00	0.00	0.00	322.00	
6 + 620.000	20.000	22.70	20.50	410.00	0.00	0.00	0.00	410.00	
6 + 640.000	20.000	25.20	23.95	479.00	0.00	0.00	0.00	479.00	
6 + 660.000	20.000	27.20	26.20	524.00	1.00	0.50	10.00	534.00	
6 + 675.890	15.890	0.00	13.60	216.10	0.00	0.50	7.94	224.05	
6 + 680.000	4.110	11.20	5.60	23.02	0.00	0.00	0.00	23.02	
6 + 700.000	20.000	0.00	5.60	112.00	0.00	0.00	0.00	112.00	
6 + 714.490	14.490	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6 + 720.000	5.510	27.50	13.75	75.76	0.00	0.00	0.00	75.76	
6 + 740.000	20.000	27.70	27.60	552.00	0.00	0.00	0.00	552.00	
6 + 760.000	20.000	26.40	27.05	541.00	0.00	0.00	0.00	541.00	
6 + 780.000	20.000	24.60	25.50	510.00	0.00	0.00	0.00	510.00	
6 + 800.000	20.000	21.70	23.15	463.00	0.00	0.00	0.00	463.00	
6 + 820.000	20.000	18.70	20.20	404.00	0.00	0.00	0.00	404.00	
6 + 840.000	20.000	15.10	16.90	338.00	0.00	0.00	0.00	338.00	
6 + 860.000	20.000	12.50	13.80	276.00	0.00	0.00	0.00	276.00	
6 + 880.000	20.000	9.00	10.75	215.00	0.00	0.00	0.00	215.00	
6 + 900.000	20.000	5.70	7.35	147.00	0.00	0.00	0.00	147.00	
6 + 920.000	20.000	2.50	4.10	82.00	0.00	0.00	0.00	82.00	
6 + 940.000	20.000	3.50	3.00	60.00	0.00	0.00	0.00	60.00	
6 + 960.000	20.000	3.60	3.55	71.00	0.00	0.00	0.00	71.00	
6 + 980.000	20.000	22.80	13.20	264.00	0.00	0.00	0.00	264.00	
7 + 0.000	20.000	20.60	21.70	434.00	0.00	0.00	0.00	434.00	
7 + 20.000	20.000	22.30	21.45	429.00	4.60	2.30	46.00	475.00	
7 + 28.438	8.438	21.20	21.75	183.53	4.20	4.40	37.13	220.65	
7 + 40.000	11.562	19.30	20.25	234.13	4.40	4.30	49.72	283.85	
7 + 60.000	20.000	17.90	18.60	372.00	3.90	4.15	83.00	455.00	
7 + 80.000	20.000	14.50	16.20	324.00	4.00	3.95	79.00	403.00	
7 + 100.000	20.000	13.80	14.15	283.00	4.50	4.25	85.00	368.00	
7 + 120.000	20.000	10.90	12.35	247.00	4.20	4.35	87.00	334.00	
7 + 140.000	20.000	9.40	10.15	203.00	4.70	4.45	89.00	292.00	
7 + 160.000	20.000	9.30	9.35	187.00	4.50	4.60	92.00	279.00	
7 + 180.000	20.000	6.10	7.70	154.00	9.30	6.90	138.00	292.00	

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
7 + 200.000	20.000	6.30	6.20	124.00	9.40	9.35	187.00	311.00
7 + 220.000	20.000	6.50	6.40	128.00	9.60	9.50	190.00	318.00
7 + 240.000	20.000	6.50	6.50	130.00	8.80	9.20	184.00	314.00
7 + 260.000	20.000	6.50	6.50	130.00	9.00	8.90	178.00	308.00
7 + 280.000	20.000	7.20	6.85	137.00	9.10	9.05	181.00	318.00
7 + 300.000	20.000	9.10	8.15	163.00	3.90	6.50	130.00	293.00
7 + 320.000	20.000	6.80	7.95	159.00	7.90	5.90	118.00	277.00
7 + 340.000	20.000	4.30	5.55	111.00	7.50	7.70	154.00	265.00
7 + 360.000	20.000	6.90	5.60	112.00	1.30	4.40	88.00	200.00
7 + 380.000	20.000	8.80	7.85	157.00	1.30	1.30	26.00	183.00
7 + 400.000	20.000	9.40	9.10	182.00	1.30	1.30	26.00	208.00
7 + 420.000	20.000	9.00	9.20	184.00	2.00	1.65	33.00	217.00
7 + 440.000	20.000	8.50	8.75	175.00	1.60	1.80	36.00	211.00
7 + 450.000	10.000	8.70	8.60	86.00	1.10	1.35	13.50	99.50
7 + 460.000	10.000	8.20	8.45	84.50	0.90	1.00	10.00	94.50
7 + 480.000	20.000	7.40	7.80	156.00	1.10	1.00	20.00	176.00
7 + 500.000	20.000	5.40	6.40	128.00	1.40	1.25	25.00	153.00
7 + 520.000	20.000	5.10	5.25	105.00	1.20	1.30	26.00	131.00
7 + 540.000	20.000	5.10	5.10	102.00	1.40	1.30	26.00	128.00
7 + 560.000	20.000	3.70	4.40	88.00	4.30	2.85	57.00	145.00
7 + 580.000	20.000	4.80	4.25	85.00	1.90	3.10	62.00	147.00
7 + 600.000	20.000	2.20	3.50	70.00	6.50	4.20	84.00	154.00
7 + 600.107	0.107	2.70	2.45	0.26	5.50	6.00	0.64	0.90
7 + 620.000	19.893	4.70	3.70	73.60	1.20	3.35	66.64	140.25
7 + 640.000	20.000	5.10	4.90	98.00	1.00	1.10	22.00	120.00
7 + 660.000	20.000	6.80	5.95	119.00	1.20	1.10	22.00	141.00
7 + 680.000	20.000	7.90	7.35	147.00	1.60	1.40	28.00	175.00
7 + 700.000	20.000	10.90	9.40	188.00	3.00	2.30	46.00	234.00
7 + 720.000	20.000	8.60	9.75	195.00	2.50	2.75	55.00	250.00
7 + 740.000	20.000	8.10	8.35	167.00	2.20	2.35	47.00	214.00
7 + 760.000	20.000	5.20	6.65	133.00	6.20	4.20	84.00	217.00
7 + 780.000	20.000	4.20	4.70	94.00	3.60	4.90	98.00	192.00
7 + 800.000	20.000	3.30	3.75	75.00	6.60	5.10	102.00	177.00
7 + 820.000	20.000	3.20	3.25	65.00	6.40	6.50	130.00	195.00
7 + 840.000	20.000	2.00	2.60	52.00	9.70	8.05	161.00	213.00
7 + 860.000	20.000	2.00	2.00	40.00	14.70	12.20	244.00	284.00
7 + 880.000	20.000	2.00	2.00	40.00	15.10	14.90	298.00	338.00
7 + 900.000	20.000	2.00	2.00	40.00	15.60	15.35	307.00	347.00
7 + 920.000	20.000	2.00	2.00	40.00	17.10	16.35	327.00	367.00
7 + 940.000	20.000	2.00	2.00	40.00	15.90	16.50	330.00	370.00
7 + 960.000	20.000	2.00	2.00	40.00	16.00	15.95	319.00	359.00
7 + 980.000	20.000	2.00	2.00	40.00	17.30	16.65	333.00	373.00
8 + 0.000	20.000	2.00	2.00	40.00	17.80	17.55	351.00	391.00
8 + 20.000	20.000	2.00	2.00	40.00	19.40	18.60	372.00	412.00
8 + 40.000	20.000	2.00	2.00	40.00	16.00	17.70	354.00	394.00
8 + 60.000	20.000	2.00	2.00	40.00	22.10	19.05	381.00	421.00
8 + 80.000	20.000	2.00	2.00	40.00	20.20	21.15	423.00	463.00
8 + 100.000	20.000	2.00	2.00	40.00	19.80	20.00	400.00	440.00
8 + 120.000	20.000	2.00	2.00	40.00	17.60	18.70	374.00	414.00
8 + 140.000	20.000	2.10	2.05	41.00	11.70	14.65	293.00	334.00
8 + 153.505	13.505	2.10	2.10	28.36	10.60	11.15	150.58	178.94
8 + 160.000	6.495	2.80	2.45	15.91	10.10	10.35	67.22	83.14
8 + 180.000	20.000	8.30	5.55	111.00	9.90	10.00	200.00	311.00
8 + 200.000	20.000	14.90	11.60	232.00	3.60	6.75	135.00	367.00
8 + 220.000	20.000	12.80	13.85	277.00	3.80	3.70	74.00	351.00
8 + 240.000	20.000	13.20	13.00	260.00	2.80	3.30	66.00	326.00
8 + 260.000	20.000	16.80	15.00	300.00	3.20	3.00	60.00	360.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		LENGTH	GRASSING (FILLING)		LENGTH	GRASSING (CUT)		TOTAL
			AVERAGE	AREA		AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
8 + 280.000	20.000	21.50	19.15	383.00	2.60	2.90	58.00	441.00
8 + 300.000	20.000	19.40	20.45	409.00	2.00	2.30	46.00	455.00
8 + 303.505	3.505	18.60	19.00	66.59	2.10	2.05	7.19	73.78
8 + 320.000	16.495	17.00	17.80	293.61	2.20	2.15	35.46	329.08
8 + 340.000	20.000	15.60	16.30	326.00	1.80	2.00	40.00	366.00
8 + 358.544	18.544	10.70	13.15	243.85	7.30	4.55	84.38	328.23
8 + 360.000	1.456	10.50	10.60	15.43	7.90	7.60	11.07	26.50
8 + 380.000	20.000	8.30	9.40	188.00	10.00	8.95	179.00	367.00
8 + 400.000	20.000	4.80	6.55	131.00	12.00	11.00	220.00	351.00
8 + 420.000	20.000	2.00	3.40	68.00	18.50	15.25	305.00	373.00
8 + 440.000	20.000	3.70	2.85	57.00	11.20	14.85	297.00	354.00
8 + 460.000	20.000	8.80	6.25	125.00	11.10	11.15	223.00	348.00
8 + 480.000	20.000	20.10	14.45	289.00	10.20	10.65	213.00	502.00
8 + 500.000	20.000	7.20	13.65	273.00	9.00	9.60	192.00	465.00
8 + 520.000	20.000	4.00	5.60	112.00	7.20	8.10	162.00	274.00
8 + 540.000	20.000	2.10	3.05	61.00	8.90	8.05	161.00	222.00
8 + 560.000	20.000	2.00	2.05	41.00	13.30	11.10	222.00	263.00
8 + 580.000	20.000	2.00	2.00	40.00	17.10	15.20	304.00	344.00
8 + 600.000	20.000	2.00	2.00	40.00	21.20	19.15	383.00	423.00
8 + 608.544	8.544	2.00	2.00	17.09	20.70	20.95	179.00	196.08
8 + 620.000	11.456	2.00	2.00	22.91	21.70	21.20	242.87	265.78
8 + 640.000	20.000	2.00	2.00	40.00	22.90	22.30	446.00	486.00
8 + 660.000	20.000	2.00	2.00	40.00	23.60	23.25	465.00	505.00
8 + 680.000	20.000	2.00	2.00	40.00	26.90	25.25	505.00	545.00
8 + 700.000	20.000	2.00	2.00	40.00	28.00	27.45	549.00	589.00
8 + 720.000	20.000	2.00	2.00	40.00	12.70	20.35	407.00	447.00
8 + 740.000	20.000	2.00	2.00	40.00	19.10	15.90	318.00	358.00
8 + 760.000	20.000	2.10	2.05	41.00	13.00	16.05	321.00	362.00
8 + 780.000	20.000	2.10	2.10	42.00	12.20	12.60	252.00	294.00
8 + 800.000	20.000	2.00	2.05	41.00	17.10	14.65	293.00	334.00
8 + 820.000	20.000	2.10	2.05	41.00	12.00	14.55	291.00	332.00
8 + 840.000	20.000	2.00	2.05	41.00	12.90	12.45	249.00	290.00
8 + 860.000	20.000	6.20	4.10	82.00	7.90	10.40	208.00	290.00
8 + 875.638	15.638	28.00	17.10	267.41	1.60	4.75	74.28	341.69
8 + 880.000	4.362	30.50	29.25	127.59	3.10	2.35	10.25	137.84
8 + 900.000	20.000	23.50	27.00	540.00	3.60	3.35	67.00	607.00
8 + 920.000	20.000	28.90	26.20	524.00	2.00	2.80	56.00	580.00
8 + 940.000	20.000	24.20	26.55	531.00	2.90	2.45	49.00	580.00
8 + 960.000	20.000	14.40	19.30	386.00	1.30	2.10	42.00	428.00
8 + 980.000	20.000	14.20	14.30	286.00	1.00	1.15	23.00	309.00
9 + 0.000	20.000	15.60	14.90	298.00	2.00	1.50	30.00	328.00
9 + 20.000	20.000	17.60	16.60	332.00	1.00	1.50	30.00	362.00
9 + 40.000	20.000	11.90	14.75	295.00	1.00	1.00	20.00	315.00
9 + 60.000	20.000	3.20	7.55	151.00	21.20	11.10	222.00	373.00
9 + 80.000	20.000	2.00	2.60	52.00	13.30	17.25	345.00	397.00
9 + 100.000	20.000	2.00	2.00	40.00	18.00	15.65	313.00	353.00
9 + 120.000	20.000	2.00	2.00	40.00	38.90	28.45	569.00	609.00
9 + 125.638	5.638	2.00	2.00	11.28	38.10	38.50	217.06	228.34
9 + 140.000	14.362	2.00	2.00	28.72	42.40	40.25	578.07	606.79
9 + 160.000	20.000	2.00	2.00	40.00	23.90	33.15	663.00	703.00
9 + 180.000	20.000	2.00	2.00	40.00	17.60	20.75	415.00	455.00
9 + 200.000	20.000	5.80	3.90	78.00	14.90	16.25	325.00	403.00
9 + 220.000	20.000	8.80	7.30	146.00	12.60	13.75	275.00	421.00
9 + 240.000	20.000	10.70	9.75	195.00	11.00	11.80	236.00	431.00
9 + 260.000	20.000	11.90	11.30	226.00	8.60	9.80	196.00	422.00
9 + 275.638	15.638	9.70	10.80	168.89	8.10	8.35	130.58	299.47
9 + 280.000	4.362	9.60	9.65	42.09	7.60	7.85	34.24	76.33

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
9 + 300.000	20.000	10.50	10.05	201.00	7.80	7.70	154.00	355.00
9 + 320.000	20.000	13.20	11.85	237.00	7.70	7.75	155.00	392.00
9 + 340.000	20.000	10.60	11.90	238.00	9.40	8.55	171.00	409.00
9 + 360.000	20.000	11.30	10.95	219.00	8.70	9.05	181.00	400.00
9 + 380.000	20.000	14.80	13.05	261.00	6.90	7.80	156.00	417.00
9 + 400.000	20.000	19.80	17.30	346.00	1.90	4.40	88.00	434.00
9 + 420.000	20.000	21.10	20.45	409.00	1.50	1.70	34.00	443.00
9 + 440.000	20.000	22.80	21.95	439.00	3.60	2.55	51.00	490.00
9 + 460.000	20.000	23.60	23.20	464.00	3.00	3.30	66.00	530.00
9 + 480.000	20.000	21.20	22.40	448.00	2.60	2.80	56.00	504.00
9 + 500.000	20.000	21.40	21.30	426.00	2.30	2.45	49.00	475.00
9 + 520.000	20.000	22.10	21.75	435.00	1.60	1.95	39.00	474.00
9 + 540.000	20.000	21.70	21.90	438.00	2.10	1.85	37.00	475.00
9 + 560.000	20.000	20.70	21.20	424.00	2.40	2.25	45.00	469.00
9 + 580.000	20.000	18.60	19.65	393.00	2.30	2.35	47.00	440.00
9 + 600.000	20.000	16.90	17.75	355.00	2.10	2.20	44.00	399.00
9 + 620.000	20.000	6.30	11.60	232.00	2.30	2.20	44.00	276.00
9 + 640.000	20.000	15.10	10.70	214.00	2.20	2.25	45.00	259.00
9 + 660.000	20.000	12.90	14.00	280.00	2.40	2.30	46.00	326.00
9 + 680.000	20.000	12.50	12.70	254.00	2.60	2.50	50.00	304.00
9 + 700.000	20.000	11.30	11.90	238.00	2.60	2.60	52.00	290.00
9 + 720.000	20.000	10.30	10.80	216.00	5.20	3.90	78.00	294.00
9 + 740.000	20.000	9.40	9.85	197.00	5.50	5.35	107.00	304.00
9 + 760.000	20.000	8.70	9.05	181.00	5.40	5.45	109.00	290.00
9 + 780.000	20.000	9.00	8.85	177.00	6.20	5.80	116.00	293.00
9 + 783.604	3.604	10.70	9.85	35.50	11.20	8.70	31.35	66.85
9 + 800.000	16.396	7.90	9.30	152.48	11.30	11.25	184.46	336.94
9 + 820.000	20.000	5.20	6.55	131.00	12.80	12.05	241.00	372.00
9 + 840.000	20.000	2.00	3.60	72.00	16.70	14.75	295.00	367.00
9 + 860.000	20.000	2.00	2.00	40.00	19.20	17.95	359.00	399.00
9 + 880.000	20.000	2.00	2.00	40.00	21.20	20.20	404.00	444.00
9 + 900.000	20.000	2.00	2.00	40.00	22.70	21.95	439.00	479.00
9 + 920.000	20.000	2.00	2.00	40.00	25.20	23.95	479.00	519.00
9 + 940.000	20.000	2.00	2.00	40.00	28.40	26.80	536.00	576.00
9 + 960.000	20.000	2.00	2.00	40.00	30.90	29.65	593.00	633.00
9 + 980.000	20.000	2.00	2.00	40.00	31.90	31.40	628.00	668.00
10 + 0.000	20.000	2.00	2.00	40.00	31.50	31.70	634.00	674.00
10 + 20.000	20.000	2.00	2.00	40.00	30.60	31.05	621.00	661.00
10 + 40.000	20.000	2.00	2.00	40.00	29.20	29.90	598.00	638.00
10 + 60.000	20.000	2.00	2.00	40.00	27.40	28.30	566.00	606.00
10 + 80.000	20.000	2.00	2.00	40.00	25.30	26.35	527.00	567.00
10 + 83.604	3.604	2.00	2.00	7.21	24.70	25.00	90.10	97.31
10 + 100.000	16.396	2.00	2.00	32.79	23.30	24.00	393.50	426.30
10 + 120.000	20.000	2.00	2.00	40.00	21.90	22.60	452.00	492.00
10 + 140.000	20.000	2.00	2.00	40.00	20.50	21.20	424.00	464.00
10 + 160.000	20.000	2.00	2.00	40.00	19.20	19.85	397.00	437.00
10 + 180.000	20.000	2.00	2.00	40.00	18.20	18.70	374.00	414.00
10 + 200.000	20.000	2.00	2.00	40.00	16.70	17.45	349.00	389.00
10 + 220.000	20.000	2.00	2.00	40.00	15.70	16.20	324.00	364.00
10 + 240.000	20.000	2.00	2.00	40.00	15.20	15.45	309.00	349.00
10 + 260.000	20.000	2.00	2.00	40.00	14.60	14.90	298.00	338.00
10 + 280.000	20.000	2.00	2.00	40.00	14.40	14.50	290.00	330.00
10 + 300.000	20.000	2.00	2.00	40.00	14.50	14.45	289.00	329.00
10 + 320.000	20.000	2.00	2.00	40.00	15.00	14.75	295.00	335.00
10 + 340.000	20.000	2.00	2.00	40.00	15.50	15.25	305.00	345.00
10 + 360.000	20.000	2.00	2.00	40.00	16.30	15.90	318.00	358.00
10 + 380.000	20.000	2.00	2.00	40.00	16.60	16.45	329.00	369.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		LENGTH	GRASSING (FILLING)		LENGTH	GRASSING (CUT)		TOTAL
			AVERAGE	AREA		AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
10 + 400.000	20.000	2.00	2.00	40.00	17.30	16.95	339.00	379.00
10 + 415.887	15.887	2.00	2.00	31.77	18.40	17.85	283.58	315.36
10 + 420.000	4.113	2.00	2.00	8.23	18.60	18.50	76.09	84.32
10 + 440.000	20.000	2.00	2.00	40.00	19.50	19.05	381.00	421.00
10 + 460.000	20.000	2.00	2.00	40.00	19.60	19.55	391.00	431.00
10 + 480.000	20.000	2.00	2.00	40.00	19.70	19.65	393.00	433.00
10 + 500.000	20.000	2.00	2.00	40.00	19.00	19.35	387.00	427.00
10 + 520.000	20.000	2.00	2.00	40.00	18.40	18.70	374.00	414.00
10 + 540.000	20.000	2.00	2.00	40.00	16.80	17.60	352.00	392.00
10 + 560.000	20.000	2.00	2.00	40.00	15.10	15.95	319.00	359.00
10 + 565.887	5.887	2.00	2.00	11.77	14.80	14.95	88.01	99.78
10 + 580.000	14.113	2.00	2.00	28.23	14.10	14.45	203.93	232.16
10 + 600.000	20.000	2.00	2.00	40.00	15.80	14.95	299.00	339.00
10 + 620.000	20.000	2.00	2.00	40.00	13.20	14.50	290.00	330.00
10 + 640.000	20.000	2.00	2.00	40.00	13.70	13.45	269.00	309.00
10 + 660.000	20.000	2.00	2.00	40.00	14.30	14.00	280.00	320.00
10 + 680.000	20.000	2.00	2.00	40.00	14.90	14.60	292.00	332.00
10 + 700.000	20.000	2.00	2.00	40.00	16.60	15.75	315.00	355.00
10 + 715.887	15.887	2.00	2.00	31.77	15.40	16.00	254.19	285.97
10 + 720.000	4.113	2.00	2.00	8.23	18.50	16.95	69.72	77.94
10 + 740.000	20.000	2.00	2.00	40.00	20.70	19.60	392.00	432.00
10 + 760.000	20.000	2.00	2.00	40.00	23.30	22.00	440.00	480.00
10 + 780.000	20.000	2.00	2.00	40.00	25.40	24.35	487.00	527.00
10 + 800.000	20.000	2.00	2.00	40.00	28.10	26.75	535.00	575.00
10 + 820.000	20.000	2.00	2.00	40.00	29.20	28.65	573.00	613.00
10 + 840.000	20.000	2.00	2.00	40.00	33.00	31.10	622.00	662.00
10 + 860.000	20.000	2.00	2.00	40.00	31.60	32.30	646.00	686.00
10 + 880.000	20.000	2.00	2.00	40.00	28.10	29.85	597.00	637.00
10 + 900.000	20.000	2.00	2.00	40.00	25.10	26.60	532.00	572.00
10 + 920.000	20.000	2.00	2.00	40.00	22.40	23.75	475.00	515.00
10 + 940.000	20.000	2.00	2.00	40.00	20.00	21.20	424.00	464.00
10 + 960.000	20.000	2.00	2.00	40.00	16.30	18.15	363.00	403.00
10 + 963.121	3.121	2.00	2.00	6.24	16.20	16.25	50.72	56.96
10 + 980.000	16.879	2.00	2.00	33.76	13.50	14.85	250.65	284.41
11 + 0.000	20.000	2.00	2.00	40.00	13.20	13.35	267.00	307.00
11 + 20.000	20.000	2.00	2.00	40.00	13.20	13.20	264.00	304.00
11 + 40.000	20.000	2.00	2.00	40.00	13.50	13.35	267.00	307.00
11 + 60.000	20.000	2.00	2.00	40.00	14.40	13.95	279.00	319.00
11 + 80.000	20.000	2.00	2.00	40.00	13.80	14.10	282.00	322.00
11 + 100.000	20.000	2.00	2.00	40.00	16.40	15.10	302.00	342.00
11 + 113.121	13.121	2.00	2.00	26.24	13.40	14.90	195.50	221.74
11 + 120.000	6.879	2.00	2.00	13.76	13.10	13.25	91.15	104.90
11 + 140.000	20.000	2.00	2.00	40.00	13.00	13.05	261.00	301.00
11 + 160.000	20.000	2.00	2.00	40.00	14.40	13.70	274.00	314.00
11 + 180.000	20.000	8.60	5.30	106.00	6.50	10.45	209.00	315.00
11 + 200.000	20.000	10.60	9.60	192.00	7.20	6.85	137.00	329.00
11 + 220.000	20.000	12.20	11.40	228.00	4.40	5.80	116.00	344.00
11 + 240.000	20.000	14.00	13.10	262.00	2.20	3.30	66.00	328.00
11 + 260.000	20.000	11.90	12.95	259.00	5.00	3.60	72.00	331.00
11 + 263.121	3.121	11.50	11.70	36.52	5.80	5.40	16.85	53.37
11 + 280.000	16.879	2.00	6.75	113.93	18.40	12.10	204.24	318.17
11 + 300.000	20.000	2.00	2.00	40.00	18.30	18.35	367.00	407.00
11 + 320.000	20.000	2.00	2.00	40.00	16.00	17.15	343.00	383.00
11 + 340.000	20.000	2.00	2.00	40.00	13.80	14.90	298.00	338.00
11 + 360.000	20.000	2.00	2.00	40.00	16.30	15.05	301.00	341.00
11 + 380.000	20.000	2.00	2.00	40.00	16.30	16.30	326.00	366.00
11 + 400.000	20.000	2.00	2.00	40.00	16.80	16.55	331.00	371.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
11 + 420.000	20.000	2.00	2.00	40.00	20.20	18.50	370.00	410.00
11 + 422.939	2.939	2.00	2.00	5.88	20.60	20.40	59.96	65.83
11 + 440.000	17.061	2.00	2.00	34.12	20.60	20.60	351.46	385.58
11 + 460.000	20.000	2.00	2.00	40.00	19.70	20.15	403.00	443.00
11 + 480.000	20.000	2.00	2.00	40.00	19.60	19.65	393.00	433.00
11 + 500.000	20.000	2.00	2.00	40.00	15.70	17.65	353.00	393.00
11 + 520.000	20.000	2.00	2.00	40.00	18.00	16.85	337.00	377.00
11 + 540.000	20.000	2.00	2.00	40.00	17.20	17.60	352.00	392.00
11 + 560.000	20.000	2.00	2.00	40.00	15.80	16.50	330.00	370.00
11 + 572.939	12.939	2.00	2.00	25.88	15.80	15.80	204.44	230.31
11 + 580.000	7.061	2.00	2.00	14.12	16.07	15.94	112.52	126.64
11 + 600.000	20.000	2.00	2.00	40.00	14.80	15.44	308.70	348.70
11 + 620.000	20.000	2.00	2.00	40.00	14.50	14.65	293.00	333.00
11 + 640.000	20.000	2.00	2.00	40.00	14.60	14.55	291.00	331.00
11 + 660.000	20.000	2.00	2.00	40.00	14.30	14.45	289.00	329.00
11 + 680.000	20.000	2.00	2.00	40.00	14.50	14.40	288.00	328.00
11 + 700.000	20.000	2.00	2.00	40.00	15.20	14.85	297.00	337.00
11 + 720.000	20.000	2.00	2.00	40.00	16.00	15.60	312.00	352.00
11 + 740.000	20.000	2.00	2.00	40.00	16.00	16.00	320.00	360.00
11 + 760.000	20.000	2.00	2.00	40.00	15.50	15.75	315.00	355.00
11 + 780.000	20.000	2.00	2.00	40.00	13.90	14.70	294.00	334.00
11 + 800.000	20.000	2.00	2.00	40.00	13.70	13.80	276.00	316.00
11 + 820.000	20.000	2.00	2.00	40.00	11.20	12.45	249.00	289.00
11 + 840.000	20.000	2.00	2.00	40.00	11.00	11.10	222.00	262.00
11 + 860.000	20.000	2.00	2.00	40.00	10.10	10.55	211.00	251.00
11 + 880.000	20.000	2.00	2.00	40.00	9.40	9.75	195.00	235.00
11 + 900.000	20.000	3.20	2.60	52.00	6.20	7.80	156.00	208.00
11 + 920.000	20.000	3.20	3.20	64.00	5.50	5.85	117.00	181.00
11 + 940.000	20.000	4.30	3.75	75.00	2.50	4.00	80.00	155.00
11 + 960.000	20.000	4.70	4.50	90.00	2.10	2.30	46.00	136.00
11 + 980.000	20.000	5.30	5.00	100.00	2.10	2.10	42.00	142.00
12 + 0.000	20.000	5.80	5.55	111.00	2.10	2.10	42.00	153.00
12 + 20.000	20.000	4.80	5.30	106.00	2.20	2.15	43.00	149.00
12 + 40.000	20.000	4.50	4.65	93.00	2.50	2.35	47.00	140.00
12 + 60.000	20.000	2.90	3.70	74.00	5.40	3.95	79.00	153.00
12 + 80.000	20.000	2.00	2.45	49.00	9.60	7.50	150.00	199.00
12 + 100.000	20.000	2.00	2.00	40.00	11.80	10.70	214.00	254.00
12 + 120.000	20.000	2.00	2.00	40.00	13.50	12.65	253.00	293.00
12 + 140.000	20.000	2.00	2.00	40.00	14.40	13.95	279.00	319.00
12 + 160.000	20.000	2.00	2.00	40.00	15.50	14.95	299.00	339.00
12 + 180.000	20.000	2.00	2.00	40.00	14.80	15.15	303.00	343.00
12 + 200.000	20.000	2.00	2.00	40.00	14.50	14.65	293.00	333.00
12 + 220.000	20.000	2.00	2.00	40.00	14.60	14.55	291.00	331.00
12 + 240.000	20.000	2.00	2.00	40.00	14.10	14.35	287.00	327.00
12 + 260.000	20.000	2.00	2.00	40.00	13.10	13.60	272.00	312.00
12 + 280.000	20.000	2.00	2.00	40.00	13.10	13.10	262.00	302.00
12 + 300.000	20.000	2.00	2.00	40.00	10.90	12.00	240.00	280.00
12 + 320.000	20.000	3.50	2.75	55.00	7.70	9.30	186.00	241.00
12 + 340.000	20.000	2.00	2.75	55.00	12.60	10.15	203.00	258.00
12 + 360.000	20.000	2.00	2.00	40.00	10.60	11.60	232.00	272.00
12 + 380.000	20.000	2.00	2.00	40.00	11.60	11.10	222.00	262.00
12 + 400.000	20.000	2.00	2.00	40.00	17.40	14.50	290.00	330.00
12 + 420.000	20.000	2.00	2.00	40.00	13.90	15.65	313.00	353.00
12 + 440.000	20.000	2.00	2.00	40.00	9.30	11.60	232.00	272.00
12 + 460.000	20.000	3.40	2.70	54.00	5.50	7.40	148.00	202.00
12 + 480.000	20.000	3.50	3.45	69.00	7.10	6.30	126.00	195.00
12 + 500.000	20.000	4.60	4.05	81.00	3.40	5.25	105.00	186.00



COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		LENGTH	GRASSING (FILLING)		GRASSING (CUT)			TOTAL
			AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
12 + 520.000	20.000	4.80	4.70	94.00	3.10	3.25	65.00	159.00
12 + 540.000	20.000	5.00	4.90	98.00	2.60	2.85	57.00	155.00
12 + 555.218	15.218	5.50	5.25	79.89	4.10	3.35	50.98	130.87
12 + 560.000	4.782	5.10	5.30	25.34	2.70	3.40	16.26	41.60
12 + 580.000	20.000	3.70	4.40	88.00	6.10	4.40	88.00	176.00
12 + 600.000	20.000	3.70	3.70	74.00	5.20	5.65	113.00	187.00
12 + 620.000	20.000	3.20	3.45	69.00	6.00	5.60	112.00	181.00
12 + 640.000	20.000	3.30	3.25	65.00	6.10	6.05	121.00	186.00
12 + 660.000	20.000	3.70	3.50	70.00	7.00	6.55	131.00	201.00
12 + 680.000	20.000	4.20	3.95	79.00	7.40	7.20	144.00	223.00
12 + 700.000	20.000	2.00	3.10	62.00	11.70	9.55	191.00	253.00
12 + 705.272	5.272	2.00	2.00	10.54	11.30	11.50	60.63	71.17
12 + 720.000	14.728	2.00	2.00	29.46	12.60	11.95	176.00	205.46
12 + 740.000	20.000	2.00	2.00	40.00	12.70	12.65	253.00	293.00
12 + 760.000	20.000	2.00	2.00	40.00	11.70	12.20	244.00	284.00
12 + 780.000	20.000	2.00	2.00	40.00	14.10	12.90	258.00	298.00
12 + 800.000	20.000	2.00	2.00	40.00	12.70	13.40	268.00	308.00
12 + 820.000	20.000	5.80	3.90	78.00	8.10	10.40	208.00	286.00
12 + 840.000	20.000	2.90	4.35	87.00	9.30	8.70	174.00	261.00
12 + 860.000	20.000	7.10	5.00	100.00	3.10	6.20	124.00	224.00
12 + 880.000	20.000	8.90	8.00	160.00	3.70	3.40	68.00	228.00
12 + 896.298	16.298	11.60	10.25	167.05	2.20	2.95	48.08	215.13
12 + 900.000	3.702	11.00	11.30	41.83	1.40	1.80	6.66	48.50
12 + 920.000	20.000	12.60	11.80	236.00	1.40	1.40	28.00	264.00
12 + 940.000	20.000	12.80	12.70	254.00	2.10	1.75	35.00	289.00
12 + 960.000	20.000	12.70	12.75	255.00	2.30	2.20	44.00	299.00
12 + 980.000	20.000	13.10	12.90	258.00	1.40	1.85	37.00	295.00
13 + 0.000	20.000	10.20	11.65	233.00	1.20	1.30	26.00	259.00
13 + 20.000	20.000	7.50	8.85	177.00	1.30	1.25	25.00	202.00
13 + 40.000	20.000	4.80	6.15	123.00	2.00	1.65	33.00	156.00
13 + 46.298	6.298	4.40	4.60	28.97	2.60	2.30	14.49	43.46
13 + 60.000	13.702	3.20	3.80	52.07	6.00	4.30	58.92	110.99
13 + 80.000	20.000	2.00	2.60	52.00	12.30	9.15	183.00	235.00
13 + 100.000	20.000	2.00	2.00	40.00	12.00	12.15	243.00	283.00
13 + 120.000	20.000	2.00	2.00	40.00	11.70	11.85	237.00	277.00
13 + 140.000	20.000	2.00	2.00	40.00	12.10	11.90	238.00	278.00
13 + 160.000	20.000	2.00	2.00	40.00	12.10	12.10	242.00	282.00
13 + 180.000	20.000	2.00	2.00	40.00	12.70	12.40	248.00	288.00
13 + 200.000	20.000	6.10	4.05	81.00	8.30	10.50	210.00	291.00
13 + 220.000	20.000	6.10	6.10	122.00	7.30	7.80	156.00	278.00
13 + 240.000	20.000	7.00	6.55	131.00	8.00	7.65	153.00	284.00
13 + 260.000	20.000	8.40	7.70	154.00	4.50	6.25	125.00	279.00
13 + 280.000	20.000	8.80	8.60	172.00	4.00	4.25	85.00	257.00
13 + 300.000	20.000	9.50	9.15	183.00	5.00	4.50	90.00	273.00
13 + 320.000	20.000	9.90	9.70	194.00	5.00	5.00	100.00	294.00
13 + 340.000	20.000	11.30	10.60	212.00	5.40	5.20	104.00	316.00
13 + 360.000	20.000	12.50	11.90	238.00	6.20	5.80	116.00	354.00
13 + 380.000	20.000	13.40	12.95	259.00	6.50	6.35	127.00	386.00
13 + 400.000	20.000	14.90	14.15	283.00	5.90	6.20	124.00	407.00
13 + 420.000	20.000	12.00	13.45	269.00	7.00	6.45	129.00	398.00
13 + 440.000	20.000	9.40	10.70	214.00	6.60	6.80	136.00	350.00
13 + 460.000	20.000	2.00	5.70	114.00	13.50	10.05	201.00	315.00
13 + 480.000	20.000	2.00	2.00	40.00	11.70	12.60	252.00	292.00
13 + 484.164	4.164	2.00	2.00	8.33	11.60	11.65	48.51	56.84
13 + 500.000	15.836	2.00	2.00	31.67	8.90	10.25	162.32	193.99
13 + 520.000	20.000	2.00	2.00	40.00	9.40	9.15	183.00	223.00
13 + 540.000	20.000	2.00	2.00	40.00	9.70	9.55	191.00	231.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						TOTAL
		GRASSING (FILLING)			GRASSING (CUT)			
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
13 + 560.000	20.000	2.00	2.00	40.00	9.40	9.55	191.00	231.00
13 + 580.000	20.000	2.00	2.00	40.00	9.50	9.45	189.00	229.00
13 + 600.000	20.000	2.00	2.00	40.00	9.60	9.55	191.00	231.00
13 + 606.664	6.664	2.00	2.00	13.33	10.30	9.95	66.31	79.63
13 + 620.000	13.336	2.00	2.00	26.67	10.30	10.30	137.36	164.03
13 + 640.000	20.000	2.00	2.00	40.00	11.70	11.00	220.00	260.00
13 + 660.000	20.000	2.00	2.00	40.00	10.60	11.15	223.00	263.00
13 + 680.000	20.000	3.20	2.60	52.00	6.80	8.70	174.00	226.00
13 + 700.000	20.000	2.00	2.60	52.00	9.90	8.35	167.00	219.00
13 + 720.000	20.000	3.70	2.85	57.00	2.60	6.25	125.00	182.00
13 + 740.000	20.000	5.80	4.75	95.00	1.70	2.15	43.00	138.00
13 + 760.000	20.000	8.70	7.25	145.00	1.30	1.50	30.00	175.00
13 + 780.000	20.000	10.50	9.60	192.00	1.20	1.25	25.00	217.00
13 + 800.000	20.000	13.30	11.90	238.00	1.30	1.25	25.00	263.00
13 + 820.000	20.000	15.10	14.20	284.00	1.30	1.30	26.00	310.00
13 + 840.000	20.000	19.00	17.05	341.00	1.10	1.20	24.00	365.00
13 + 860.000	20.000	20.00	19.50	390.00	2.20	1.65	33.00	423.00
13 + 880.000	20.000	21.80	20.90	418.00	2.70	2.45	49.00	467.00
13 + 900.000	20.000	21.40	21.60	432.00	2.00	2.35	47.00	479.00
13 + 920.000	20.000	25.10	23.25	465.00	2.10	2.05	41.00	506.00
13 + 924.397	4.397	25.30	25.20	110.80	2.20	2.15	9.45	120.26
13 + 940.000	15.603	24.90	25.10	391.64	2.90	2.55	39.79	431.42
13 + 960.000	20.000	25.50	25.20	504.00	2.10	2.50	50.00	554.00
13 + 980.000	20.000	23.40	24.45	489.00	1.90	2.00	40.00	529.00
14 + 0.000	20.000	21.90	22.65	453.00	2.30	2.10	42.00	495.00
14 + 20.000	20.000	21.40	21.65	433.00	2.20	2.25	45.00	478.00
14 + 40.000	20.000	21.40	21.40	428.00	2.40	2.30	46.00	474.00
14 + 46.897	6.897	20.10	20.75	143.11	2.70	2.55	17.59	160.70
14 + 60.000	13.103	19.70	19.90	260.75	3.20	2.95	38.65	299.40
14 + 80.000	20.000	17.20	18.45	369.00	2.50	2.85	57.00	426.00
14 + 100.000	20.000	14.50	15.85	317.00	2.10	2.30	46.00	363.00
14 + 120.000	20.000	12.90	13.70	274.00	2.10	2.10	42.00	316.00
14 + 140.000	20.000	8.90	10.90	218.00	2.30	2.20	44.00	262.00
14 + 160.000	20.000	6.70	7.80	156.00	6.30	4.30	86.00	242.00
14 + 180.000	20.000	5.30	6.00	120.00	8.30	7.30	146.00	266.00
14 + 200.000	20.000	4.90	5.10	102.00	10.00	9.15	183.00	285.00
14 + 220.000	20.000	2.00	3.45	69.00	13.40	11.70	234.00	303.00
14 + 240.000	20.000	2.00	2.00	40.00	14.00	13.70	274.00	314.00
14 + 260.000	20.000	2.00	2.00	40.00	11.60	12.80	256.00	296.00
14 + 280.000	20.000	2.00	2.00	40.00	11.90	11.75	235.00	275.00
14 + 300.000	20.000	2.00	2.00	40.00	13.60	12.75	255.00	295.00
14 + 320.000	20.000	2.00	2.00	40.00	10.80	12.20	244.00	284.00
14 + 340.000	20.000	2.00	2.00	40.00	13.00	11.90	238.00	278.00
14 + 360.000	20.000	2.00	2.00	40.00	15.20	14.10	282.00	322.00
14 + 380.000	20.000	2.00	2.00	40.00	17.00	16.10	322.00	362.00
14 + 400.000	20.000	2.00	2.00	40.00	18.20	17.60	352.00	392.00
14 + 420.000	20.000	2.00	2.00	40.00	18.00	18.10	362.00	402.00
14 + 440.000	20.000	2.00	2.00	40.00	17.60	17.80	356.00	396.00
14 + 460.000	20.000	2.00	2.00	40.00	18.30	17.95	359.00	399.00
14 + 480.000	20.000	2.00	2.00	40.00	17.80	18.05	361.00	401.00
14 + 500.000	20.000	2.00	2.00	40.00	17.30	17.55	351.00	391.00
14 + 520.000	20.000	2.00	2.00	40.00	16.70	17.00	340.00	380.00
14 + 540.000	20.000	2.00	2.00	40.00	16.80	16.75	335.00	375.00
14 + 560.000	20.000	2.00	2.00	40.00	17.00	16.90	338.00	378.00
14 + 580.000	20.000	2.00	2.00	40.00	18.70	17.85	357.00	397.00
14 + 595.083	15.083	2.00	2.00	30.17	19.90	19.30	291.10	321.27
14 + 600.000	4.917	2.00	2.00	9.83	20.30	20.10	98.83	108.67



COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
14 + 620.000	20.000	2.00	2.00	40.00	22.20	21.25	425.00	465.00
14 + 640.000	20.000	2.00	2.00	40.00	26.10	24.15	483.00	523.00
14 + 660.000	20.000	2.00	2.00	40.00	27.80	26.95	539.00	579.00
14 + 680.000	20.000	2.00	2.00	40.00	30.20	29.00	580.00	620.00
14 + 700.000	20.000	2.00	2.00	40.00	32.00	31.10	622.00	662.00
14 + 720.000	20.000	2.00	2.00	40.00	32.40	32.20	644.00	684.00
14 + 740.000	20.000	2.00	2.00	40.00	34.40	33.40	668.00	708.00
14 + 745.083	5.083	2.00	2.00	10.17	33.20	33.80	171.81	181.97
14 + 760.000	14.917	2.00	2.00	29.83	30.90	32.05	478.09	507.92
14 + 780.000	20.000	2.00	2.00	40.00	27.80	29.35	587.00	627.00
14 + 800.000	20.000	2.00	2.00	40.00	24.50	26.15	523.00	563.00
14 + 820.000	20.000	2.00	2.00	40.00	20.60	22.55	451.00	491.00
14 + 840.000	20.000	2.00	2.00	40.00	15.80	18.20	364.00	404.00
14 + 860.000	20.000	2.00	2.00	40.00	8.00	11.90	238.00	278.00
14 + 865.086	5.086	6.00	4.00	20.34	3.00	5.50	27.97	48.32
14 + 880.000	14.914	12.10	9.05	134.97	0.80	1.90	28.34	163.31
14 + 900.000	20.000	18.30	15.20	304.00	0.90	0.85	17.00	321.00
14 + 920.000	20.000	22.00	20.15	403.00	1.00	0.95	19.00	422.00
14 + 940.000	20.000	24.50	23.25	465.00	0.90	0.95	19.00	484.00
14 + 960.000	20.000	23.00	23.75	475.00	2.30	1.60	32.00	507.00
14 + 980.000	20.000	19.00	21.00	420.00	2.40	2.35	47.00	467.00
15 + 0.000	20.000	11.80	15.40	308.00	2.00	2.20	44.00	352.00
15 + 15.086	15.086	5.20	8.50	128.23	5.30	3.65	55.06	183.29
15 + 20.000	4.914	2.00	3.60	17.69	12.20	8.75	43.00	60.69
15 + 40.000	20.000	2.00	2.00	40.00	18.60	15.40	308.00	348.00
15 + 60.000	20.000	2.00	2.00	40.00	25.00	21.80	436.00	476.00
15 + 80.000	20.000	2.00	2.00	40.00	28.20	26.60	532.00	572.00
15 + 100.000	20.000	2.00	2.00	40.00	28.90	28.55	571.00	611.00
15 + 120.000	20.000	2.00	2.00	40.00	29.40	29.15	583.00	623.00
15 + 140.000	20.000	2.00	2.00	40.00	26.30	27.85	557.00	597.00
15 + 160.000	20.000	2.00	2.00	40.00	24.00	25.15	503.00	543.00
15 + 165.086	5.086	2.00	2.00	10.17	23.80	23.90	121.56	131.73
15 + 180.000	14.914	2.00	2.00	29.83	22.40	23.10	344.51	374.34
15 + 200.000	20.000	2.00	2.00	40.00	18.10	20.25	405.00	445.00
15 + 220.000	20.000	2.00	2.00	40.00	16.90	17.50	350.00	390.00
15 + 240.000	20.000	2.00	2.00	40.00	17.20	17.05	341.00	381.00
15 + 260.000	20.000	2.00	2.00	40.00	19.40	18.30	366.00	406.00
15 + 280.000	20.000	2.00	2.00	40.00	19.90	19.65	393.00	433.00
15 + 300.000	20.000	2.00	2.00	40.00	20.50	20.20	404.00	444.00
15 + 320.000	20.000	2.00	2.00	40.00	24.10	22.30	446.00	486.00
15 + 340.000	20.000	2.00	2.00	40.00	24.80	24.45	489.00	529.00
15 + 360.000	20.000	2.00	2.00	40.00	25.40	25.10	502.00	542.00
15 + 372.375	12.375	2.00	2.00	24.75	25.70	25.55	316.18	340.93
15 + 380.000	7.625	2.00	2.00	15.25	26.00	25.85	197.11	212.36
15 + 400.000	20.000	2.00	2.00	40.00	25.90	25.95	519.00	559.00
15 + 420.000	20.000	2.00	2.00	40.00	24.40	25.15	503.00	543.00
15 + 440.000	20.000	2.00	2.00	40.00	23.00	23.70	474.00	514.00
15 + 460.000	20.000	2.00	2.00	40.00	22.60	22.80	456.00	496.00
15 + 480.000	20.000	2.00	2.00	40.00	22.20	22.40	448.00	488.00
15 + 484.875	4.875	2.00	2.00	9.75	22.40	22.30	108.71	118.46
15 + 500.000		2.00	2.00	0.00	0.00	11.20	0.00	0.00
15 + 520.000	20.000	2.00	2.00	40.00	23.20	11.60	232.00	272.00
15 + 540.000	20.000	2.00	2.00	40.00	24.40	23.80	476.00	516.00
15 + 560.000	20.000	2.00	2.00	40.00	26.00	25.20	504.00	544.00
15 + 580.000	20.000	2.00	2.00	40.00	19.30	22.65	453.00	493.00
15 + 600.000	20.000	2.00	2.00	40.00	18.80	19.05	381.00	421.00
15 + 620.000	20.000	2.00	2.00	40.00	12.80	15.80	316.00	356.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
15 + 440.000	20.000	5.00	3.50	70.00	8.50	10.65	213.00	283.00
15 + 460.000	20.000	7.10	6.05	121.00	0.00	4.25	85.00	206.00
15 + 480.000	20.000	19.70	13.40	268.00	1.60	0.80	16.00	284.00
15 + 500.000	20.000	31.00	25.35	507.00	1.60	1.60	32.00	539.00
15 + 520.000	20.000	30.10	30.55	611.00	0.00	0.80	16.00	627.00
15 + 540.000	20.000	33.90	32.00	640.00	1.60	0.80	16.00	656.00
15 + 560.000	20.000	33.20	33.55	671.00	8.10	4.85	97.00	768.00
15 + 580.000	20.000	40.70	36.95	739.00	5.70	6.90	138.00	877.00
15 + 600.000	20.000	28.60	34.65	693.00	10.10	7.90	158.00	851.00
15 + 620.000	20.000	25.40	27.00	540.00	3.30	6.70	134.00	674.00
15 + 640.000	20.000	22.40	23.90	478.00	3.00	3.15	63.00	541.00
15 + 660.000	20.000	10.70	16.55	331.00	9.00	6.00	120.00	451.00
15 + 680.000	20.000	4.30	7.50	150.00	13.50	11.25	225.00	375.00
15 + 700.000	20.000	2.00	3.15	63.00	21.30	17.40	348.00	411.00
15 + 720.000	20.000	2.00	2.00	40.00	23.70	22.50	450.00	490.00
15 + 740.000	20.000	2.00	2.00	40.00	27.80	25.75	515.00	555.00
15 + 760.000	20.000	2.00	2.00	40.00	35.00	31.40	628.00	668.00
15 + 780.000	20.000	2.00	2.00	40.00	37.30	36.15	723.00	763.00
15 + 800.000	20.000	2.00	2.00	40.00	39.70	38.50	770.00	810.00
15 + 820.000	20.000	2.00	2.00	40.00	42.60	41.15	823.00	863.00
15 + 840.000	20.000	2.00	2.00	40.00	40.70	41.65	833.00	873.00
15 + 860.000	20.000	2.00	2.00	40.00	37.20	38.95	779.00	819.00
15 + 880.000	20.000	2.00	2.00	40.00	38.50	37.85	757.00	797.00
15 + 900.000	20.000	2.00	2.00	40.00	30.50	34.50	690.00	730.00
15 + 920.000	20.000	2.00	2.00	40.00	36.00	33.25	665.00	705.00
15 + 940.000	20.000	2.00	2.00	40.00	34.60	35.30	706.00	746.00
15 + 960.000	20.000	2.00	2.00	40.00	33.90	34.25	685.00	725.00
15 + 980.000	20.000	2.00	2.00	40.00	33.40	33.65	673.00	713.00
16 + 0.000	20.000	2.00	2.00	40.00	32.60	33.00	660.00	700.00
16 + 20.000	20.000	2.00	2.00	40.00	31.70	32.15	643.00	683.00
16 + 40.000	20.000	2.00	2.00	40.00	31.00	31.35	627.00	667.00
16 + 60.000	20.000	2.00	2.00	40.00	31.20	31.10	622.00	662.00
16 + 80.000	20.000	2.00	2.00	40.00	31.30	31.25	625.00	665.00
16 + 100.000	20.000	2.00	2.00	40.00	31.20	31.25	625.00	665.00
16 + 120.000	20.000	2.00	2.00	40.00	31.30	31.25	625.00	665.00
16 + 140.000	20.000	2.00	2.00	40.00	30.80	31.05	621.00	661.00
16 + 160.000	20.000	2.00	2.00	40.00	31.00	30.90	618.00	658.00
16 + 180.000	20.000	2.00	2.00	40.00	30.50	30.75	615.00	655.00
16 + 200.000	20.000	2.00	2.00	40.00	30.70	30.60	612.00	652.00
16 + 220.000	20.000	2.00	2.00	40.00	29.20	29.95	599.00	639.00
16 + 240.000	20.000	2.00	2.00	40.00	26.20	27.70	554.00	594.00
16 + 260.000	20.000	2.00	2.00	40.00	25.40	25.80	516.00	556.00
16 + 280.000	20.000	2.00	2.00	40.00	24.40	24.90	498.00	538.00
16 + 300.000	20.000	2.00	2.00	40.00	22.70	23.55	471.00	511.00
16 + 320.000	20.000	2.00	2.00	40.00	20.90	21.80	436.00	476.00
16 + 340.000	20.000	2.00	2.00	40.00	18.80	19.85	397.00	437.00
16 + 360.000	20.000	2.00	2.00	40.00	18.90	18.85	377.00	417.00
16 + 380.000	20.000	2.00	2.00	40.00	16.30	17.60	352.00	392.00
16 + 400.000	20.000	2.00	2.00	40.00	17.40	16.85	337.00	377.00
16 + 420.000	20.000	2.00	2.00	40.00	15.10	16.25	325.00	365.00
16 + 440.000	20.000	2.00	2.00	40.00	13.90	14.50	290.00	330.00
16 + 456.704	16.704	2.00	2.00	33.41	13.20	13.55	226.34	259.75
16 + 460.000	3.296	2.00	2.00	6.59	13.20	13.20	43.51	50.10
16 + 480.000	20.000	2.00	2.00	40.00	12.80	13.00	260.00	300.00
16 + 500.000	20.000	2.00	2.00	40.00	13.00	12.90	258.00	298.00
16 + 520.000	20.000	2.00	2.00	40.00	14.20	13.60	272.00	312.00
16 + 540.000	20.000	2.00	2.00	40.00	15.70	14.95	299.00	339.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH	AVERAGE	AREA	LENGTH	AVERAGE	AREA	
	(m)	(m)	(m)	(m2)	(m)	(m)	(m2)	(m2)
16 + 560.000	20.000	2.00	2.00	40.00	14.90	15.30	306.00	346.00
16 + 580.000	20.000	2.00	2.00	40.00	14.90	14.90	298.00	338.00
16 + 600.000	20.000	2.00	2.00	40.00	14.60	14.75	295.00	335.00
16 + 620.000	20.000	2.00	2.00	40.00	12.80	13.70	274.00	314.00
16 + 640.000	20.000	2.00	2.00	40.00	11.80	12.30	246.00	286.00
16 + 660.000	20.000	2.00	2.00	40.00	10.90	11.35	227.00	267.00
16 + 680.000	20.000	4.30	3.15	63.00	6.70	8.80	176.00	239.00
16 + 700.000	20.000	5.50	4.90	98.00	3.80	5.25	105.00	203.00
16 + 720.000	20.000	5.50	5.50	110.00	3.20	3.50	70.00	180.00
16 + 723.371	3.371	5.20	5.35	18.03	2.90	3.05	10.28	28.32
16 + 740.000	16.629	5.40	5.30	88.13	2.90	2.90	48.22	136.36
16 + 760.000	20.000	2.50	3.95	79.00	6.80	4.85	97.00	176.00
16 + 780.000	20.000	2.00	2.25	45.00	9.90	8.35	167.00	212.00
16 + 800.000	20.000	2.70	2.35	47.00	7.00	8.45	169.00	216.00
16 + 820.000	20.000	5.40	4.05	81.00	3.40	5.20	104.00	185.00
16 + 840.000	20.000	5.90	5.65	113.00	3.10	3.25	65.00	178.00
16 + 860.000	20.000	7.00	6.45	129.00	2.90	3.00	60.00	189.00
16 + 880.000	20.000	7.50	7.25	145.00	2.80	2.85	57.00	202.00
16 + 900.000	20.000	8.70	8.10	162.00	2.70	2.75	55.00	217.00
16 + 920.000	20.000	9.80	9.25	185.00	2.90	2.80	56.00	241.00
16 + 940.000	20.000	10.90	10.35	207.00	2.80	2.85	57.00	264.00
16 + 960.000	20.000	12.30	11.60	232.00	3.30	3.05	61.00	293.00
16 + 980.000	20.000	12.30	12.30	246.00	2.90	3.10	62.00	308.00
17 + 0.000	20.000	9.10	10.70	214.00	2.20	2.55	51.00	265.00
17 + 1.586	1.586	8.90	9.00	14.27	2.30	2.25	3.57	17.84
17 + 20.000	18.414	2.50	5.70	104.96	5.90	4.10	75.50	180.46
17 + 40.000	20.000	2.00	2.25	45.00	14.30	10.10	202.00	247.00
17 + 60.000	20.000	2.00	2.00	40.00	17.80	16.05	321.00	361.00
17 + 80.000	20.000	2.00	2.00	40.00	22.80	20.30	406.00	446.00
17 + 100.000	20.000	2.00	2.00	40.00	29.10	25.95	519.00	559.00
17 + 120.000	20.000	2.00	2.00	40.00	28.60	28.85	577.00	617.00
17 + 140.000	20.000	2.00	2.00	40.00	28.00	28.30	566.00	606.00
17 + 160.000	20.000	2.00	2.00	40.00	27.90	27.95	559.00	599.00
17 + 180.000	20.000	2.00	2.00	40.00	26.60	27.25	545.00	585.00
17 + 200.000	20.000	2.00	2.00	40.00	24.20	25.40	508.00	548.00
17 + 220.000	20.000	2.00	2.00	40.00	23.20	23.70	474.00	514.00
17 + 240.000	20.000	2.00	2.00	40.00	17.30	20.25	405.00	445.00
17 + 260.000	20.000	2.00	2.00	40.00	12.80	15.05	301.00	341.00
17 + 280.000	20.000	3.80	2.90	58.00	6.40	9.60	192.00	250.00
17 + 300.000	20.000	9.40	6.60	132.00	2.30	4.35	87.00	219.00
17 + 320.000	20.000	12.70	11.05	221.00	1.40	1.85	37.00	258.00
17 + 340.000	20.000	14.20	13.45	269.00	1.50	1.45	29.00	298.00
17 + 341.462	1.462	14.00	14.10	20.61	1.60	1.55	2.27	22.88
17 + 360.000	18.538	12.90	13.45	249.34	7.50	4.55	84.35	333.68
17 + 380.000	20.000	7.90	10.40	208.00	12.80	10.15	203.00	411.00
17 + 400.000	20.000	16.00	11.95	239.00	3.80	8.30	166.00	405.00
17 + 420.000	20.000	15.50	15.75	315.00	5.00	4.40	88.00	403.00
17 + 440.000	20.000	20.40	17.95	359.00	2.50	3.75	75.00	434.00
17 + 460.000	20.000	17.60	19.00	380.00	3.10	2.80	56.00	436.00
17 + 480.000	20.000	15.40	16.50	330.00	2.90	3.00	60.00	390.00
17 + 500.000	20.000	12.30	13.85	277.00	2.80	2.85	57.00	334.00
17 + 520.000	20.000	10.20	11.25	225.00	6.00	4.40	88.00	313.00
17 + 540.000	20.000	12.10	11.15	223.00	6.10	6.05	121.00	344.00
17 + 560.000	20.000	10.10	11.10	222.00	6.90	6.50	130.00	352.00
17 + 580.000	20.000	7.70	8.90	178.00	8.20	7.55	151.00	329.00
17 + 600.000	20.000	4.50	6.10	122.00	9.10	8.65	173.00	295.00
17 + 620.000	20.000	3.20	3.85	77.00	10.50	9.80	196.00	273.00

COMPUTATION OF GRASSING AREA  
MAIN ROAD

STATION	DISTANCE (m)	SLOPE PROTECTION						
		GRASSING (FILLING)			GRASSING (CUT)			TOTAL
		LENGTH (m)	AVERAGE (m)	AREA (m <sup>2</sup> )	LENGTH (m)	AVERAGE (m)	AREA (m <sup>2</sup> )	
17 + 640.000	20.000	2.00	2.60	52.00	15.60	13.05	261.00	313.00
17 + 660.000	20.000	2.00	2.00	40.00	17.10	16.35	327.00	367.00
17 + 680.000	20.000	2.00	2.00	40.00	19.90	18.50	370.00	410.00
17 + 700.000	20.000	2.00	2.00	40.00	21.80	20.85	417.00	457.00
17 + 717.493	17.493	2.00	2.00	34.99	22.60	22.20	388.34	423.33
17 + 720.000	2.507	2.00	2.00	5.01	22.70	22.65	56.78	61.80
17 + 740.000	20.000	2.00	2.00	40.00	20.00	21.35	427.00	467.00
17 + 760.000	20.000	2.00	2.00	40.00	19.00	19.50	390.00	430.00
17 + 780.000	20.000	2.00	2.00	40.00	15.40	17.20	344.00	384.00
17 + 800.000	20.000	2.00	2.00	40.00	22.40	18.90	378.00	418.00
17 + 820.000	20.000	2.00	2.00	40.00	13.00	17.70	354.00	394.00
17 + 840.000	20.000	2.80	2.40	48.00	7.40	10.20	204.00	252.00
17 + 860.000	20.000	4.50	3.65	73.00	6.80	7.10	142.00	215.00
17 + 867.493	7.493	6.10	5.30	39.71	6.20	6.50	48.70	88.42
17 + 880.000	12.507	7.20	6.65	83.17	6.20	6.20	77.54	160.71
17 + 900.000	20.000	7.50	7.35	147.00	6.80	6.50	130.00	277.00
17 + 920.000	20.000	7.50	7.50	150.00	5.70	6.25	125.00	275.00
17 + 940.000	20.000	4.40	5.95	119.00	5.90	5.80	116.00	235.00
17 + 960.000	20.000	6.80	5.60	112.00	5.90	5.90	118.00	230.00
17 + 980.000	20.000	5.30	6.05	121.00	6.00	5.95	119.00	240.00
18 + 0.000	20.000	6.30	5.80	116.00	6.70	6.35	127.00	243.00
18 + 20.000	20.000	6.40	6.35	127.00	6.60	6.65	133.00	260.00
18 + 40.000	20.000	7.50	6.95	139.00	6.30	6.45	129.00	268.00
18 + 60.000	20.000	7.20	7.35	147.00	5.50	5.90	118.00	265.00
18 + 80.000	20.000	8.80	8.00	160.00	6.30	5.90	118.00	278.00
18 + 100.000	20.000	9.30	9.05	181.00	5.10	5.70	114.00	295.00
18 + 120.000	20.000	11.10	10.20	204.00	1.70	3.40	68.00	272.00
18 + 136.257	16.257	11.30	11.20	182.08	2.10	1.90	30.89	212.97
18 + 140.000	3.743	11.70	11.50	43.04	2.10	2.10	7.86	50.90
18 + 160.000	20.000	14.40	13.05	261.00	3.60	2.85	57.00	318.00
18 + 180.000	20.000	15.60	15.00	300.00	1.90	2.75	55.00	355.00
18 + 200.000	20.000	16.30	15.95	319.00	3.20	2.55	51.00	370.00
18 + 220.000	20.000	16.60	16.45	329.00	2.20	2.70	54.00	383.00
18 + 240.000	20.000	18.60	17.60	352.00	1.80	2.00	40.00	392.00
18 + 260.000	20.000	19.20	18.90	378.00	2.30	2.05	41.00	419.00
18 + 280.000	20.000	20.90	20.05	401.00	2.10	2.20	44.00	445.00
18 + 286.257	6.257	20.80	20.85	130.46	2.10	2.10	13.14	143.60
18 + 300.000	13.743	20.80	20.80	285.85	1.80	1.95	26.80	312.65
18 + 320.000	20.000	19.80	20.30	406.00	1.50	1.65	33.00	439.00
18 + 340.000	20.000	24.10	21.95	439.00	3.70	2.60	52.00	491.00
18 + 360.000	20.000	25.00	24.55	491.00	4.60	4.15	83.00	574.00
18 + 380.000	20.000	23.70	24.35	487.00	1.90	3.25	65.00	552.00
18 + 400.000	20.000	23.80	23.75	475.00	4.10	3.00	60.00	535.00
18 + 420.000	20.000	18.90	21.35	427.00	1.60	2.85	57.00	484.00
18 + 440.000	20.000	18.80	18.85	377.00	2.50	2.05	41.00	418.00
18 + 460.000	20.000	16.20	17.50	350.00	2.00	2.25	45.00	395.00
18 + 480.000	20.000	14.20	15.20	304.00	2.30	2.15	43.00	347.00
18 + 500.000	20.000	12.20	13.20	264.00	2.20	2.25	45.00	309.00
18 + 520.000	20.000	9.80	11.00	220.00	3.20	2.70	54.00	274.00
18 + 540.000	20.000	7.80	8.80	176.00	8.40	5.80	116.00	292.00
18 + 560.000	20.000	6.80	7.30	146.00	9.70	9.05	181.00	327.00
18 + 580.000	20.000	2.10	4.45	89.00	15.30	12.50	250.00	339.00
18 + 600.000	20.000	4.50	3.30	66.00	15.30	15.30	306.00	372.00
18 + 620.000	20.000	2.00	3.25	65.00	18.80	17.05	341.00	406.00
18 + 640.000	20.000	2.00	2.00	40.00	19.20	19.00	380.00	420.00
18 + 660.000	20.000	2.00	2.00	40.00	28.70	23.95	479.00	519.00
18 + 680.000	20.000	2.00	2.00	40.00	29.10	28.90	578.00	618.00