Summary from the Improvement Plan - Batch 2
ETHI TIMAU ROAD BATCH 2

Item		04-50-003	04-50-004	04-50-006	04-50-007	04-50-009	05-50-004	05-05-002	05-05-003
KM	Bush/Site Clearing M2					Grubbing	ETL	Drains m3	
	Light	Heavy	Total	200-450	>450	m^2	m^3	Soft	Hard
1	8,000	800	8,800	-	-	7,000	10	1,874	187
2	8,000	800	8,800	-	-	7,000	10	1,744	174
3	8,000	800	8,800	-	-	7,000	10	1,561	156
4	8,000	800	8,800	-	-	7,000	10	1,420	142
5	8,000	800	8,800	-	-	7,000	10	2,392	239
6	8,000	800	8,800	-	-	7,000	10	2,392	239
7	8,000	800	8,800	-	-	7,000	10	2,392	239
8	8,000	800	8,800	-	-	7,000	10	2,392	239
9	8,000	800	8,800	-	-	7,000	10	2,392	239
10	8,000	800	8,800	-	-	7,000	10	2,392	239
11	8,000	800	8,800	-	-	7,000	10	2,392	239
12	8,000	800	8,800	-	-	7,000	10	2,392	239
13	8,000	800	8,800	-	-	7,000	10	2,392	239
Total	**104,000**	**10,400**	**114,400**	**-**	**-**	**91,000**	**130**	**28,131**	**2,813**

Item		08-60-025					08-80-001	08-60-019 & 08-60-020			08-50-005	08-50-006	08-70-009		10-60-001
KM	CULVERTS(M)				Type (No)			T1 No	T2 No	T4 No	MITRE	C/ W	S/ C		Gravel (150mm)
	1200	900	600	Total	CD	AC	AD				No	m	L No	R No	m3
1		-	5	5	-	1	-	-	-	2	-	-	-	-	1,200
2		20	-	20	3	-	-	3	3	-	-	-	-	-	1,200
3		7	21	28	3	1	-	3	3	2	-	-	-	-	1,200
4		15	-	15	2	-	-	2	2	-	-	-	-	-	1,200
5		15	-	15	2	-	-	2	2	-	-	-	-	-	1,200
6	13	-	-	13	2	-	-	2	2	-	-	-	-	-	1,200
7		7	-	7	1	-	-	1	1	-	-	-	-	-	1,200
8		14	-	14	2	-	-	2	2	-	-	-	-	-	1,200
9		6	4	10	1	1	-	1	1	2	-	-	-	-	1,200
10		-	-	-	-	-	-	-	-	-	-	-	-	-	1,200
11		-	8	8	-	1	-	-	-	2	-	-	-	-	1,200
12		-	-	-	-	-	-	-	-	-	-	-	-	-	1,200
13		-	-	-	-	-	-	-	-	-	-	-	-	-	1,200
				-											
Total		**83**	**38**	**134**	**16**	**4**	**-**	**16**	**16**	**8**	**-**	**-**	**-**	**-**	**15,600**

Road Improvement Plan Road No. County Meru From: 0+000 To: 1+000 Page: 1

Chain-age			(kilometres)						0+100					0+200					0+300					0+400				
			(metres)																									
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																									
Gravel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																									
Improved Subgrade	Total		Thickness (cm,comp.)																									
	0		Source (quarry No.)																									
Longitudinal gradient (in %)									4.40					2.20					3.08					4.14				
Mitre drains	Total		Number left =									TIMAU SUB-COUNTY HOSPITAL			KENYA FOREST SERVICE													
			Number right =																									
Catch water	Total		Length of drain left =																									
			Length of drain right =																									
Culverts	N/Ex		Chainage (m) = New / Existing line												0+240Ex													
	CD	0	= Cross drainage																									
	AC	1	= Access culvert/drift												AC													
	AD	0	= Left/right												R													
	Length (m)	-	Ø 450 mm																									
		5	Ø 600mm												5.3													
		-	Ø 900 mm																									
	Ramp		Earth fill (m3)																									
			Haunch Type												IV													
Head-walls	T4=	T3=	Inlet (Material/Type)												1													
	T2= 1	T1= 1	Outlet (Material/Type)												1													
Additional Instruction as per Reference																												

Chain-age			(kilometres)	0+500					0+600					0+700					0+800					0+900					1+000
			(metres)																										
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																										
Gravel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																										
Improved Subgrade	Total		Thickness (cm,comp.)																										
	0		Source (quarry No.)																										
Longitudinal gradient (in %)				3.81					2.94					2.90					1.55					1.33					-1.88
Mitre drains	Total		Number left =																										
			Number right =																										
Catch water	Total		Length of drain left =																										
			Length of drain right =																										
Culverts	N/Ex		Chainage (m) = New / Existing line																										
	CD	0	= Cross drainage																										
	AC	1	= Access culvert/drift																										
	AD	0	= Left/right																										
	Length (m)	-	Ø 450 mm																										
		5	Ø 600mm																										
		-	Ø 900 mm																										
	Ramp		Earth fill (m3)																										
			Haunch Type																										
Head-walls	T4=	T3=	Inlet (Material/Type)																										
	T2= 1	T1= 1	Outlet (Material/Type)																										
Additional Instruction as per Reference																													

Quantity Asssessment	**Road No.**		**County**	**Meru**	**From:**	**0+000**	**To:**	**1+000**	**Page:**	**1**

Chainage:	**0+000**	**0+200**	**0+400**	**0+600**	**0+800**	**1+000**

Measurements for Clearing: Free Clearance Width for Calculating areas

		Aver. (m)	1 to 4 readings*)																										Aver. (m)	1 to 4 readings*)				
	Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m
	Grass Cutting						m						m						m						m						m
	Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m
0	**Tree and Stump Removal**	0					m	0					m	0					m	0					m	0					m

*) Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill: Height of Cut for calculating volumes

Height of cut < 0.25m	6					cm	8					cm	14					cm	19					cm	19					cm

For Reshaping: Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	9						24						28						17					cm	17					cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1,400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal	0	No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m	0	m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	443	m3 (insitu)	281	m3 (insitu)	238	m3 (insitu)	356	m3 (insitu)	356	1,674
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **1+000** **To:** **2+000** **Page:** **2**

Chain-age			(kilometres)					1+100					1+200					1+300					1+400					1+500
			(metres)																									
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																									
Gravel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																									
Improved Subgrade	Total		Thickness (cm,comp.)																									
	0		Source (quarry No.)																									
			Longitudinal gradient (in %)					1.77					4.79					5.09					4.57					4.07
Mitre drains	Total		Number left =																									
			Number right =																									
Catch water	Total		Length of drain left =																									
			Length of drain right =																									
Culverts	N/Ex		Chainage (m) = New / Existing line		1+060Ex																							
	CD	3	= Cross drainage		CD																							
	AC		= Access culvert/drift																									
	AD		= Left/right																									
	Length (m)	0	Ø 450 mm																									
		0	Ø 600mm																									
		20	Ø 900 mm		7.4																							
	Ramp		Earth fill (m3)																									
			Haunch Type		IV																							
Head-walls	T4 = 6	T3=	Inlet (Material/Type)		1																							
	T2 = 1	T1= 1	Outlet (Material/Type)		1																							
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																									
			Spacing right (m) = =Total No. this sheet																									
Additional Instruction as per Reference																												

Chain-age			(kilometres)					1+600					1+700					1+800					1+900					2+000
			(metres)																									
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																									
Gravel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																									
Improved Subgrade	Total		Thickness (cm,comp.)																									
	0		Source (quarry No.)																									
			Longitudinal gradient (in %)					2.22					2.40					0.47					2.24					2.08
Mitre drains	Total		Number left =																									
			Number right =																									
Catch water	Total		Length of drain left =																									
			Length of drain right =																									
Culverts	N/Ex		Chainage (m) = New / Existing line												1+745Ex									1+930Ex				
	CD	3	= Cross drainage												CD									CD				
	AC		= Access culvert/drift																									
	AD		= Left/right																									
	Length (m)	0	Ø 450 mm																									
		0	Ø 600mm																									
		20	Ø 900 mm												6.5									6.1				
	Ramp		Earth fill (m3)																									
			Haunch Type												IV									IV				
Head-walls	T4 = 6	T3=	Inlet (Material/Type)												1									1				
	T2 = 1	T1= 1	Outlet (Material/Type)												1									1				
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																									
			Spacing right (m) = =Total No. this sheet																									
Additional Instruction as per Reference																												

Quantity Asssessment	**County**	**Meru**	**From:**	**1+000**	**To:**	**2+000**	**Page:**	**2**

Chainage:	**1+000**	**1+200**	**1+400**	**1+600**	**1+800**	**2+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

Aver. (m) 1 to 4 readings*)

	1+000						1+200						1+400						1+600						1+800					
Bush Clearing	8	8	8			m	8	8	8			m	8	8	8			m	8	8	8			m	8	8	8			m
Grass Cutting						m						m						m						m						m
Grubbing	7	7	7			m	7	7	7			m	7	7	7			m	7	7	7			m	7	7	7			m
0 **Tree and Stump Removal**	0					m	0					m	0					m	0					m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

	1+000		1+200		1+400		1+600		1+800	
Height of cut < 0.25m		cm	14	cm		cm	16	cm	18	cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

	1+000		1+200		1+400		1+600		1+800	
Existing Roads	13		36		10		20	cm	28	cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	400	m3 (insitu)	151	m3 (insitu)	432	m3 (insitu)	324	m3 (insitu)	238	1,544
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan | **County** | **Meru** | **From:** | **2+000** | **To:** | **3+000** | **Page:** | **3**

Chain-age			(kilometres) (metres)					2+100					2+200					2+300					2+400					2+500					2+600					2+700					2+800					2+900					3+000
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																																																			
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																																																			
Improved Subgrade	Total		Thickness (cm,comp.)	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	1800		Source (quarry No.)																																																		
			Longitudinal gradient (in %)					-0.84					-1.61					-1.28					-0.89					-4.41					-2.24					-0.26					-0.07					0.67					1.65
Mitre drains	Total		Number left =					CESS POINT LAKIPIA COUNTY																																													
			Number right =																																																		
Catch water	Total		Length of drain left =																																																		
			Length of drain right =																																																		
Culverts	N/Ex		Chainage (m) = New / Existing line																																	2+680Ex							2+810Ex	2+830Ex						2+945Ex			
	CD	3	= Cross drainage																																							CD	CD						CD			
	AC	1	= Access culvert/drift																															AC																	
	AD		= Left/right																															R																	
	Length (m)	0	Ø 450 mm																																																		
		21	Ø 600mm																															5.8								8.2						6.8			
		7	Ø 900 mm																																						7										
	Ramp		Earth fill (m3)																																																		
			Haunch Type																															IV							IV	IV						IV			
Head-walls	T4=2	T3=	Inlet (Material/Type)																															1							1	1						1			
	T2=	T1=	Outlet (Material/Type)																															1							1	1						1			

Quantity Asssessment	**County**	**Meru**	**From:** 2+000	**To:** 3+000	**Page:** 3

Chainage:	**2+000**	**2+200**	**2+400**	**2+600**	**2+800**	**3+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

		####	1 to 4 readings*)																											Aver. (m)	1 to 4 readings*)				
	Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m
	Grass Cutting						m						m						m						m						m
	Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m
0	**Tree and Stump Removal**	0					m	0					m	0					m	0					m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

Height of cut < 0.25m	23	cm	21	cm	8	cm		cm	8	cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	30		21		3		29	cm	21	cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour		m3 (insitu)	313	m3 (insitu)	508	m3 (insitu)	227	m3 (insitu)	313	1,361
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **3+000** **To:** **4+000** **Page:** **4**

Chain- age			(kilometres) (metres)					3+100					3+200
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)										
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)										
Improved Subgrade	Total		Thickness (cm,comp.)										
	0		Source (quarry No.)										
			Longitudinal gradient (in %)					1.44					1.92
Mitre drains	Total		Number left =										
			Number right =										
Catch water	Total		Length of drain left =										
			Length of drain right =										
Culverts	N/Ex		Chainage (m) = New / Existing line										
	CD	2	= Cross drainage										
	AC		= Access culvert/drift										
	AD		= Left/right										
	Length (m)	0	Ø 450 mm										
		0	Ø 600mm										
		15	Ø 900 mm										
	Ramp		Earth fill (m3)										
			Haunch Type										
Head- walls	T4=6	T3=	Inlet (Material/Type)										
	T2=1	T1=1	Outlet (Material/Type)										
Scour Checks	SM		= Material this sheet/ Spacing left (m) =										
	0		Spacing right (m) = =Total No. this sheet										
			Additional Instruction as per Reference										

Chain- age			(kilometres) (metres)					3+300					3+400
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)										
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)										
Improved Subgrade	Total		Thickness (cm,comp.)										
	0		Source (quarry No.)										
			Longitudinal gradient (in %)					1.15					-0.32
Mitre drains	Total		Number left =										
			Number right =										
Catch water	Total		Length of drain left =										
			Length of drain right =										
Culverts	N/Ex		Chainage (m) = New / Existing line										
	CD	2	= Cross drainage										
	AC		= Access culvert/drift										
	AD		= Left/right										
	Length (m)	0	Ø 450 mm										
		0	Ø 600mm										
		15	Ø 900 mm										
	Ramp		Earth fill (m3)										
			Haunch Type										
Head- walls	T4=6	T3=	Inlet (Material/Type)										
	T2=1	T1=1	Outlet (Material/Type)										
Scour Checks	SM		= Material this sheet/ Spacing left (m) =										
	0		Spacing right (m) = =Total No. this sheet										
			Additional Instruction as per Reference										

Chain- age			(kilometres) (metres)					3+500					3+600
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)										
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)										
Improved Subgrade	Total		Thickness (cm,comp.)										
	0		Source (quarry No.)										
			Longitudinal gradient (in %)					-0.44					-0.44
Mitre drains	Total		Number left =										
			Number right =										
Catch water	Total		Length of drain left =										
			Length of drain right =										
Culverts	N/Ex		Chainage (m) = New / Existing line					3+520Ex					
	CD	2	= Cross drainage					CD					
	AC		= Access culvert/drift										
	AD		= Left/right										
	Length (m)	0	Ø 450 mm										
		0	Ø 600mm										
		15	Ø 900 mm					7.6					
	Ramp		Earth fill (m3)										
			Haunch Type					IV					
Head- walls	T4=6	T3=	Inlet (Material/Type)					1					
	T2=1	T1=1	Outlet (Material/Type)					1					
Scour Checks	SM		= Material this sheet/ Spacing left (m) =										
	0		Spacing right (m) = =Total No. this sheet										
			Additional Instruction as per Reference										

Chain- age			(kilometres) (metres)					3+700					3+800
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)										
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)										
Improved Subgrade	Total		Thickness (cm,comp.)										
	0		Source (quarry No.)										
			Longitudinal gradient (in %)					-0.50					-1.90
Mitre drains	Total		Number left =										
			Number right =										
Catch water	Total		Length of drain left =										
			Length of drain right =										
Culverts	N/Ex		Chainage (m) = New / Existing line									3+790Ex	
	CD	2	= Cross drainage									CD	
	AC		= Access culvert/drift										
	AD		= Left/right										
	Length (m)	0	Ø 450 mm										
		0	Ø 600mm										
		15	Ø 900 mm									7.7	
	Ramp		Earth fill (m3)										
			Haunch Type									IV	
Head- walls	T4=6	T3=	Inlet (Material/Type)									1	
	T2=1	T1=1	Outlet (Material/Type)									1	
Scour Checks	SM		= Material this sheet/ Spacing left (m) =										
	0		Spacing right (m) = =Total No. this sheet										
			Additional Instruction as per Reference										

Chain- age			(kilometres) (metres)					3+900					4+000
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)										
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)										
Improved Subgrade	Total		Thickness (cm,comp.)										
	0		Source (quarry No.)										
			Longitudinal gradient (in %)					0.26					0.26
Mitre drains	Total		Number left =										
			Number right =										
Catch water	Total		Length of drain left =										
			Length of drain right =										
Culverts	N/Ex		Chainage (m) = New / Existing line										
	CD	2	= Cross drainage										
	AC		= Access culvert/drift										
	AD		= Left/right										
	Length (m)	0	Ø 450 mm										
		0	Ø 600mm										
		15	Ø 900 mm										
	Ramp		Earth fill (m3)										
			Haunch Type										
Head- walls	T4=6	T3=	Inlet (Material/Type)										
	T2=1	T1=1	Outlet (Material/Type)										
Scour Checks	SM		= Material this sheet/ Spacing left (m) =										
	0		Spacing right (m) = =Total No. this sheet										
			Additional Instruction as per Reference										

Quantity Asssessment	**County**	**Meru**	**From:**	**3+000**	**To:**	**4+000**	**Page:**	**4**

Chainage:	**3+000**	**3+200**	**3+400**	**3+600**	**3+800**	**4+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

		####			1 to 4 readings*)																									Aver. (m)			1 to 4 readings*)			
	Bush Clearing	8	8		8			m	8	8		8			m	8	8		8			m	8	8		8			m	8	8		8			m
	Grass Cutting							m							m							m							m							m
	Grubbing	7	7		7			m	7	7		7			m	7	7		7			m	7	7		7			m	7	7		7			m
0	**Tree and Stump Removal**	0						m	0						m	0						m	0						m	0						m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

	Height of cut < 0.25m							cm	22						cm	7						cm	18						cm	8						cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

	Existing Roads	16							36							44							18						cm	23						cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)	9	m3 (insitu)	4	13
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	367.2	m3 (insitu)	151	m3 (insitu)	65	m3 (insitu)	346	m3 (insitu)	292	1,220
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **4+000** **To:** **5+000** **Page:** **5**

Chain-age			**(kilometres)**					4+100					4+200					4+300					4+400					4+500					4+600					4+700					4+800					4+900					5+000
			(metres)																																																		
Road form.			**Subgrade**	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			**Method: RES, ETL or Fill**	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																																																		
Gra- vel	Total		**Thickness (cm,comp.)**	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		**Source (quarry No.)**																																																		
Improved Subgrade	Total		**Thickness (cm,comp.)**																																								300	300	300	300	300	300	300	300	300	300	300
	360		**Source (quarry No.)**																																																		
			Longitudinal gradient (in %)					2.31					-1.10					1.17					1.13					1.29					0.22					0.04					-0.81					-2.94					-2.13
Mitre drains	Total		**Number left =**																																																		
			Number right =																																																		
Catch water	Total		**Length of drain left =**																																																	
			Length of drain right =																																																		
Culverts	N/Ex		**Chainage (m) = New / Existing line**											4+240Ex																																						4+240Ex	
	CD	2	**= Cross drainage**											CD																																						CD	
	AC		**= Access culvert/drift**																																																		
	AD	0	**= Left/right**																																																		
	Length (m)	0	**Ø 450 mm**																																																		
		0	**Ø 600mm**																																																		
		15	**Ø 900 mm**											7.4																																						7.7	
	Ramp		**Earth fill (m3)**																																																		
			Haunch Type											IV																																						IV	
Head- walls	T4=8	T3=	**Inlet (Material/Type)**											1																																						1	
	T2=1	T1=1	**Outlet (Material/Type)**											1																																						1	
Scour Checks	**SM**		**= Material this sheet/ Spacing left (m) =**																																																		
	0		**Spacing right (m) = =Total No. this sheet**																																																		
			Additional Instruction as per Reference																																																		

Quantity Asssessment	**County**	**Meru**	**From:**	**4+000**	**To:**	**5+000**	**Page:**	**5**

Chainage:	**4+000**	**4+200**	**4+400**	**4+600**	**4+800**	**5+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

	Aver. (m)	1 to 4 readings*)																												Aver. (m)	1 to 4 readings*)				
Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m
Grass Cutting						m						m						m						m						m
Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m
0 **Tree and Stump Removal**	0					m	0					m	0					m	0					m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

Height of cut < 0.25m	7					cm	9					cm						cm	1					cm	16					cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	12						10						7						10					cm	8					cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454	2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor **Name:** **Date:** **Signature:**

For the Employer **Name:** **Date:** **Signature:**

Road Improvement Plan **County** **Meru** **From:** **5+000** **To:** **6+000** **Page:** **6**

Chain-age		**(kilometres)** **(metres)**					5+100					5+200					5+300					5+400					5+500
Road form.		**Subgrade**	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
		Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping		**Method: RES, ETL or Fill**	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
		Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
		Volume of ETL or Fill (m3/m)																									
Gra-vel	Total	**Thickness (cm,comp.)**	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200	**Source (quarry No.)**																									
Improved Subgrade	Total	**Thickness (cm,comp.)**	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	1440	**Source (quarry No.)**																									
Longitudinal gradient (in %)							3.31					-0.97					-0.32					-0.37					1.11
Mitre drains	Total	**Number left =**																									
		Number right =																									
Catch water	Total	**Length of drain left =**																									
		Length of drain right =																									
Culverts	N/Ex	**Chainage (m) =** **New / Existing line**																									5+510N
	CD 2	**= Cross drainage**																									CD
	AC	**= Access culvert/drift**																									
	AD 0	**= Left/right**																									
	Length (m) 0	**Ø 450 mm**																									
	0	**Ø 600mm**																									
	0	**Ø 900 mm**																									
	13	**Ø 1200 mm**																									7
	Ramp	**Earth fill (m3)**																									
		Haunch Type																									IV
Head-walls	T4=8 T3=	**Inlet (Material/Type)**																									1
	T2=1 T1=1	**Outlet (Material/Type)**																									1
Scour Checks	**SM**	**= Material this sheet/ Spacing left (m) =**																									
	0	**Spacing right (m) = =Total No. this sheet**																									
Additional Instruction as per Reference																											

Chain-age		**(kilometres)** **(metres)**					5+600					5+700					5+800					5+900					6+000
Road form.		**Subgrade**	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
		Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping		**Method: RES, ETL or Fill**	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
		Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
		Volume of ETL or Fill (m3/m)																									
Gra-vel	Total	**Thickness (cm,comp.)**	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200	**Source (quarry No.)**																									
Improved Subgrade	Total	**Thickness (cm,comp.)**	300	300	300	300	300	300	300	300	300	300	300	300	300	300											
	1440	**Source (quarry No.)**																									
Longitudinal gradient (in %)							2.87					6.89					3.53					2.01					-0.75
Mitre drains	Total	**Number left =**																									
		Number right =																									
Catch water	Total	**Length of drain left =**																									
		Length of drain right =																									
Culverts	N/Ex	**Chainage (m) =** **New / Existing line**	5+510N																								
	CD 2	**= Cross drainage**	CD																								
	AC	**= Access culvert/drift**																									
	AD 0	**= Left/right**																									
	Length (m) 0	**Ø 450 mm**																									
	0	**Ø 600mm**																									
	0	**Ø 900 mm**																									
	13	**Ø 1200 mm**	6																								
	Ramp	**Earth fill (m3)**																									
		Haunch Type	IV																								
Head-walls	T4=8 T3=	**Inlet (Material/Type)**	1																								
	T2=1 T1=1	**Outlet (Material/Type)**	1																								
Scour Checks	**SM**	**= Material this sheet/ Spacing left (m) =**																									
	0	**Spacing right (m) = =Total No. this sheet**																									
Additional Instruction as per Reference																											

Quantity Asssessment	**County**	**Meru**	**From:**	**5+000**	**To:**	**6+000**	**Page:**	**6**

Chainage:	**5+000**	**5+200**	**5+400**	**5+600**	**5+800**	**6+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

		Aver. (m)	1 to 4 readings*)																														Aver. (m)	1 to 4 readings*)					
	Bush Clearing	8	8		8			m	8	8		8		m	8	8		8			m	8	8		8			m	8	8		8		m
	Grass Cutting							m						m							m							m						m
	Grubbing	7	7		7			m	7	7		7		m	7	7		7			m	7	7		7			m	7	7		7		m
0	**Tree and Stump Removal**	0						m	0					m	0						m	0						m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

	5+000		5+200		5+400		5+600		5+800	
Height of cut < 0.25m	7	cm	9	cm		cm	1	cm	16	cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

	5+000		5+200		5+400		5+600		5+800	
Existing Roads	12		10		7		10	cm	8	cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454	2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor **Name:** **Date:** **Signature:**

For the Employer **Name:** **Date:** **Signature:**

Road Improvement Plan County Meru From: 6+000 To: 7+000 Page: 7

Chain-age			(kilometres)					6+100					6+200					6+300					6+400					6+500
			(metres)																									
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																									
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																									
Improved Subgrade	Total		Thickness (cm,comp.)										300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	
	540		Source (quarry No.)																									
Longitudinal gradient (in %)								-5.00					-4.46					-2.97					1.86					4.88
Mitre drains	Total		Number left =																									
			Number right =																									
Catch water	Total		Length of drain left =																									
			Length of drain right =																									
Culverts	N/Ex		Chainage (m) = New / Existing line																6+340Ex									
	CD	1	= Cross drainage																CD									
	AC		= Access culvert/drift																									
	AD	0	= Left/right																									
	Length (m)	0	Ø 450 mm																									
		0	Ø 600mm																									
		7	Ø 900 mm																6.5									
	Ramp		Earth fill (m3)																									
			Haunch Type																IV									
Head-walls	T4=8	T3=	Inlet (Material/Type)																1									
	T2=1	T1=1	Outlet (Material/Type)																1									
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																									
	0		Spacing right (m) = =Total No. this sheet																									
Additional Instruction as per Reference																												

Chain-age			(kilometres)					6+600					6+700					6+800					6+900					7+000
			(metres)																									
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																									
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																									
Improved Subgrade	Total		Thickness (cm,comp.)																									
	540		Source (quarry No.)																									
Longitudinal gradient (in %)								4.58					3.38					-2.41					-4.51					-3.41
Mitre drains	Total		Number left =																									
			Number right =																									
Catch water	Total		Length of drain left =																									
			Length of drain right =																									
Culverts	N/Ex		Chainage (m) = New / Existing line																									
	CD	1	= Cross drainage																									
	AC		= Access culvert/drift																									
	AD	0	= Left/right																									
	Length (m)	0	Ø 450 mm																									
		0	Ø 600mm																									
		7	Ø 900 mm																									
	Ramp		Earth fill (m3)																									
			Haunch Type																									
Head-walls	T4=8	T3=	Inlet (Material/Type)																									
	T2=1	T1=1	Outlet (Material/Type)																									
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																									
	0		Spacing right (m) = =Total No. this sheet																									
Additional Instruction as per Reference																												

Quantity Asssessment	**County**	**Meru**	**From:**	**6+000**	**To:**	**7+000**	**Page:**	**7**

Chainage:	**6+000**	**6+200**	**6+400**	**6+600**	**6+800**	**7+000**

Measurements for Clearing: Free Clearance Width for Calculating areas

	Aver. (m)	1 to 4 readings*)					Aver. (m)	1 to 4 readings*)					Aver. (m)	1 to 4 readings*)					Aver. (m)	1 to 4 readings*)					Aver. (m)	1 to 4 readings*)				
Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m
Grass Cutting						m						m						m						m						m
Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m
0 Tree and Stump Removal	0					m	0					m	0					m	0					m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill: Height of Cut for calculating volumes

Height of cut < 0.25m	7		cm	9		cm			cm	1		cm	16		cm

For Reshaping: Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	12			10			7			10		cm	8		cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454	2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **7+000** **To:** **8+000** **Page:** **8**

Chain-age			(kilometres)					7+100					7+200					7+300					7+400					7+500					7+600					7+700					7+800					7+900					8+000
			(metres)																																																		
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																																																		
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																																																		
Improved Subgrade	Total		Thickness (cm,comp.)	300	300	300	300	300	300	300	300	300																																							
	360		Source (quarry No.)																																																		
Longitudinal gradient (in %)								-0.67					0.97					1.41					2.07					0.80					-4.18					-3.65					1.20					-4.83					-6.91
Mitre drains	Total		Number left =																																																	
			Number right =																																																		
Catch water	Total		Length of drain left =																																																	
			Length of drain right =																																																	
Culverts	N/Ex		Chainage (m) = New / Existing line						7+140Ex																													7+720Ex															
	CD	2	= Cross drainage						CD																													CD															
	AC		= Access culvert/drift																																																	
	AD	0	= Left/right																																																	
	Length (m)	0	Ø 450 mm																																																	
		0	Ø 600mm																																																	
		14	Ø 900 mm						6.6																													6.9															
	Ramp		Earth fill (m3)																																																	
			Haunch Type						IV																													IV															
Head-walls	T4=8	T3=	Inlet (Material/Type)						1																													1															
	T2=1	T1=1	Outlet (Material/Type)						1																													1															
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																																																	
	0		Spacing right (m) = =Total No. this sheet																																																	
Additional Instruction as per Reference																																																			

Quantity Asssessment	**County**	**Meru**	**From:**	**7+000**	**To:**	**8+000**	**Page:**	**8**

Chainage:	**7+000**	**7+200**	**7+400**	**7+600**	**7+800**	**8+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

Aver. (m) 1 to 4 readings*)

		Aver. (m)	1 to 4 readings*)																											
	Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8	m
	Grass Cutting						m						m						m						m					m
	Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7	m
0	**Tree and Stump Removal**	0					m	0					m	0					m	0					m	0				m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

Height of cut < 0.25m	7	cm	9	cm		cm	1	cm	16	cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	12		10		7		10	cm	8	cm

Quantities

											Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600		8,000
Grass Cutting		m2		m2		m2		m2			0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400		7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0		0
											0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454		2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **8+000** **To:** **9+000** **Page:** **9**

Chain-age			(kilometres) (metres)					8+100					8+200					8+300					8+400					8+500
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																									
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																									
Improved Subgrade	Total		Thickness (cm,comp.)										300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	1200		Source (quarry No.)																									
Longitudinal gradient (in %)								-4.79					-4.33					-2.98					-4.54					-3.06
Mitre drains	Total		Number left =																									
			Number right =																									
Catch water	Total		Length of drain left =																									
			Length of drain right =																									
Culverts	N/Ex		Chainage (m) = New / Existing line																							8+480Ex		
	CD	1	= Cross drainage																									
	AC	1	= Access culvert/drift																							AC		
	AD	0	= Left/right																							R		
	Length (m)	0	Ø 450 mm																									
		4	Ø 600mm																							4.3		
		6	Ø 900 mm																									
	Ramp		Earth fill (m3)																									
			Haunch Type																							IV		
Head-walls	T4=8	T3=	Inlet (Material/Type)																							1		
	T2=1	T1=1	Outlet (Material/Type)																							1		
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																									
	0		Spacing right (m) = =Total No. this sheet																									
Additional Instruction as per Reference																												

Chain-age			(kilometres) (metres)					8+600					8+700					8+800					8+900					9+000
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																									
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																									
Improved Subgrade	Total		Thickness (cm,comp.)	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	1200		Source (quarry No.)																									
Longitudinal gradient (in %)								2.91					-0.14					2.62					3.81					-1.03
Mitre drains	Total		Number left =																									
			Number right =																									
Catch water	Total		Length of drain left =																									
			Length of drain right =																									
Culverts	N/Ex		Chainage (m) = New / Existing line			8+568Ex																						
	CD	1	= Cross drainage			CD																						
	AC	1	= Access culvert/drift																									
	AD	0	= Left/right																									
	Length (m)	0	Ø 450 mm																									
		4	Ø 600mm																									
		6	Ø 900 mm			6																						
	Ramp		Earth fill (m3)																									
			Haunch Type			IV																						
Head-walls	T4=8	T3=	Inlet (Material/Type)			1																						
	T2=1	T1=1	Outlet (Material/Type)			1																						
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																									
	0		Spacing right (m) = =Total No. this sheet																									
Additional Instruction as per Reference																												

Quantity Asssessment	**County**	**Tharaka Nithi**	**From:**	**8+000**	**To:**	**9+000**	**Page:**	**9**

Chainage:	**8+000**	**8+200**	**8+400**	**8+600**	**8+800**	**9+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

		Aver. (m)	1 to 4 readings*)																												
	Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m
	Grass Cutting						m						m						m						m						m
	Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m
0	**Tree and Stump Removal**	0					m	0					m	0					m	0					m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

Height of cut < 0.25m	7	cm	9	cm		cm	1	cm	16	cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	12		10		7		10	cm	8	cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454	2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **9+000** **To:** **10+000** **Page:** **10**

Chain-age			**(kilometres)**					9+100					9+200					9+300					9+400					9+500					9+600					9+700					9+800					9+900					10+000
			(metres)																																																		
Road form.			**Subgrade**	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			**Method: RES, ETL or Fill**	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																																																		
Gra- vel	Total		**Thickness (cm,comp.)**	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		**Source (quarry No.)**																																																	
Improved Subgrade	Total		**Thickness (cm,comp.)**	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
	1800		**Source (quarry No.)**																																																	
			Longitudinal gradient (in %)					-2.85					-4.03					-4.87					-4.71					-3.37					-2.90					-2.69					-1.66					-1.62					-1.41
Mitre drains	Total		**Number left =**																																																	
			Number right =																																																		
Catch water	Total		**Length of drain left =**																																																	
			Length of drain right =																																																		
Culverts	N/Ex		**Chainage (m) = New / Existing line**																																																	
	CD		**= Cross drainage**																																																		
	AC		**= Access culvert/drift**																																																		
	AD	0	**= Left/right**																																																		
	Length (m)	0	**Ø 450 mm**																																																		
		0	**Ø 600mm**																																																		
		0	**Ø 900 mm**																																																		
	Ramp		**Earth fill (m3)**																																																		
			Haunch Type																																																		
Head-walls	T4=8	T3=	**Inlet (Material/Type)**																																																	
	T2=1	T1=1	**Outlet (Material/Type)**																																																	
Scour Checks	**SM**		**= Material this sheet/ Spacing left (m) =**																																																	
	0		**Spacing right (m) = =Total No. this sheet**																																																	
			Additional Instruction as per Reference																																																	

Quantity Asssessment	**County**	**Meru**	**From:**	**9+000**	**To:**	**10+000**	**Page:**	**10**

Chainage:	**9+000**	**9+200**	**9+400**	**9+600**	**9+800**	**10+000**

Measurements for Clearing: **Free Clearance Width for Calculating areas**

	Aver. (m)	1 to 4 readings*)					Aver. (m)						Aver. (m)						Aver. (m)						Aver. (m)	1 to 4 readings*)				
Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m
Grass Cutting						m						m						m						m						m
Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m
0 **Tree and Stump Removal**	0					m	0					m	0					m	0					m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill: **Height of Cut for calculating volumes**

Height of cut < 0.25m	7					cm	9					cm						cm	1					cm	16					cm

For Reshaping: **Difference in Level between Exist. Camber and Side Drain for calculating volumes**

Existing Roads	12						10						7						10					cm	8					cm

Quantities

											Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600		8,000
Grass Cutting		m2		m2		m2		m2			0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400		7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0		0
											0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454		2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)			0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **10+000** **To:** **11+000** **Page:** **11**

Chain-age			(kilometres)					10+100					10+200					10+300					10+400					10+500					10+600					10+700					10+800					10+900					11+000
			(metres)																																																		
Road form.			Subgrade	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			Method: RES, ETL or Fill	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																																																			
Gra- vel	Total		Thickness (cm,comp.)	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		Source (quarry No.)																																																			
Improved Subgrade	Total		Thickness (cm,comp.)	300	300	300	300	300	300	300	300	300	300	300	300	300	300																																				
	540		Source (quarry No.)																																																			
			Longitudinal gradient (in %)					-1.33					-1.42					-2.47					-1.82					-2.22																										
Mitre drains	Total		Number left =																							BODABODA SHED			ETHI TOWN	ACK ETHI CHURC	ETHI C.I.T.C POLYTECHNIC																						
			Number right =																																																		
Catch water	Total		Length of drain left =																																																		
			Length of drain right =																																																		
Culverts	N/Ex		Chainage (m) = New / Existing line																									10+520Ex																									
	CD		= Cross drainage																																																		
	AC	1	= Access culvert/drift																									AC																									
	AD	0	= Left/right																									L																									
	Length (m)	0	Ø 450 mm																																																		
		8	Ø 600mm																									7.6																									
		0	Ø 900 mm																																																		
	Ramp		Earth fill (m3)																																																		
			Haunch Type																									IV																									
Head-walls	T4=8	T3=	Inlet (Material/Type)																									1																									
	T2=1	T1=1	Outlet (Material/Type)																									1																									
Scour Checks	SM		= Material this sheet/ Spacing left (m) =																																																		
	0		Spacing right (m) = =Total No. this sheet																																																		
			Additional Instruction as per Reference																																																		

Quantity Asssessment	**County**	**Meru**	**From:**	**10+000**	**To:**	**11+000**	**Page:**	**11**

Chainage:	**10+000**	**10+200**	**10+400**	**10+600**	**10+800**	**11+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

1 to 4 readings*)

Aver. (m)

1 to 4 readings*)

	Bush Clearing	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m	8	8		8		m
	Grass Cutting						m						m						m						m						m
	Grubbing	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m	7	7		7		m
0	**Tree and Stump Removal**	0					m	0					m	0					m	0					m	0					m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

Height of cut < 0.25m	7					cm	9					cm						cm	1					cm	16					cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	12						10						7						10					cm	8					cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454	2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **11+000** **To:** **12+000** **Page:** **12**

Chain-age			**(kilometres)**				11+100					11+200					11+300					11+400					11+500					11+600					11+700					11+800					11+900					12+000
			(metres)																																																	
Road form.			**Subgrade**	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			**Method: RES, ETL or Fill**	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																																																	
Gra- vel	Total		**Thickness (cm,comp.)**	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		**Source (quarry No.)**																																																	
Improved Subgrade	Total		**Thickness (cm,comp.)**																																																	
	0		**Source (quarry No.)**																																																	
Longitudinal gradient (in %)																																																				
Mitre drains	Total		**Number left =**																																																	
			Number right =																																																	
Catch water	Total		**Length of drain left =**																																																	
			Length of drain right =																																																	
Culverts	N/Ex		**Chainage (m) = New / Existing line**																																																	
	CD		**= Cross drainage**																																																	
	AC		**= Access culvert/drift**																																																	
	AD	0	**= Left/right**																																																	
	Length (m)	0	**Ø 450 mm**																																																	
		0	**Ø 600mm**																																																	
		0	**Ø 900 mm**																																																	
	Ramp		**Earth fill (m3)**																																																	
			Haunch Type																																																	
Head-walls	T4=8	T3=	**Inlet (Material/Type)**																																																	
	T2=1	T1=1	**Outlet (Material/Type)**																																																	
Scour Checks	**SM**		**= Material this sheet/ Spacing left (m) =**																																																	
	0		**Spacing right (m) = =Total No. this sheet**																																																	
Additional Instruction as per Reference																																																				

Quantity Asssessment	**County**	**Meru**	**From:**	**11+000**	**To:**	**12+000**	**Page:**	**12**	

Chainage:	**11+000**	**11+200**	**11+400**	**11+600**	**11+800**	**12+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

			1 to 4 readings*)																											Aver. (m)	1 to 4 readings*)					
	Bush Clearing	8	8		8			m	8	8		8			m	8	8		8			m	8	8		8			m	8	8		8			m
	Grass Cutting							m							m							m							m							m
	Grubbing	7	7		7			m	7	7		7			m	7	7		7			m	7	7		7			m	7	7		7			m
0	**Tree and Stump Removal**	0						m	0						m	0						m	0						m	0						m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

Height of cut < 0.25m	7						cm	9						cm							cm	1						cm	16						cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	12							10							7							10						cm	8						cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454	2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor	**Name:**	**Date:**	**Signature:**
For the Employer	**Name:**	**Date:**	**Signature:**

Road Improvement Plan **County** **Meru** **From:** **12+000** **To:** **13+000** **Page:** **13**

Chain-age			**(kilometres)**					12+100					12+200					12+300					12+400					12+500					12+600					12+700					12+800					12+900					13+000
			(metres)																																																
Road form.			**Subgrade**	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
			Cross section	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Earthworks / Reshaping			**Method: RES, ETL or Fill**	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL	FILL
			Choice of reshaping: L, T or E	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			Volume of ETL or Fill (m3/m)																																																
Gra- vel	Total		**Thickness (cm,comp.)**	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	1200		**Source (quarry No.)**																																																
Improved Subgrade	Total		**Thickness (cm,comp.)**																																																
	#####		**Source (quarry No.)**																																																
			Longitudinal gradient (in %)																																																
Mitre drains	Total		**Number left = 4**																																																
			Number right = 0																																																
Catch water	Total		**Length of drain left = 30**																																																
			Length of drain right =0																																																
Culverts	N/Ex		**Chainage (m) = New / Existing line**																																																
	CD		**= Cross drainage**																																																
	AC		**= Access culvert/drift**																																																
	AD	0	**= Left/right**																																																
	Length (m)	0	**Ø 450 mm**																																																
		0	**Ø 600mm**																																																
		0	**Ø 900 mm**																																																
	Ramp		**Earth fill (m3)**																																																
			Haunch Type																																																
Head-walls	T4=8	T3=	**Inlet (Material/Type)**																																																
	T2=1	T1=1	**Outlet (Material/Type)**																																																
Scour Checks	**SM**		**= Material this sheet/ Spacing left (m) =**																																																
	0		**Spacing right (m) = =Total No. this sheet**																																																
			Additional Instruction as per Reference																																																

Quantity Asssessment	**County**	**Meru**	**From:**	**11+000**	**To:**	**12+000**	**Page:**	**13**		

Chainage: 12+000	**12+200**	**12+400**	**12+600**	**12+800**	**13+000**

Measurements for Clearing:

Free Clearance Width for Calculating areas

1 to 4 readings*) Aver. (m) 1 to 4 readings*)

	Bush Clearing	8	8		8			m	8	8		8			m	8	8		8			m	8	8		8			m	8	8		8			m
	Grass Cutting							m							m							m							m							m
	Grubbing	7	7		7			m	7	7		7			m	7	7		7			m	7	7		7			m	7	7		7			m
0	**Tree and Stump Removal**	0						m	0						m	0						m	0						m	0						m

Note: The user is free to select the number of reading required according to the site conditions. (min. 1 max. 4 for each section).

Estimated measurements for small cut to fill:

Height of Cut for calculating volumes

Height of cut < 0.25m	7						cm	9						cm							cm	1						cm	16						cm

For Reshaping:

Difference in Level between Exist. Camber and Side Drain for calculating volumes

Existing Roads	12							10							7							10						cm	8						cm

Quantities

										Total this page
Bush Clearing	1600	m2	1,600	m2	1,600	m2	1,600	m2	1,600	8,000
Grass Cutting		m2		m2		m2		m2		0
Grubbing	1400	m2	1,400	m2	1,400	m2	1,400	m2	1,400	7,000
Tree and Stump Removal		No.	0	No.	0	No.	0	No.	0	0
										0
Height of cut < 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Height of cut > 0.25m		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Embankment		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Drains full re-construction		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
Reshaping by Labour	410	m3 (insitu)	432	m3 (insitu)	464	m3 (insitu)	432	m3 (insitu)	454	2,192
By Towed Grader / Labour		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0
By Equipment Based Meth.		m3 (insitu)		m3 (insitu)		m3 (insitu)		m3 (insitu)		0

Quantities verfied and accepted by the Contractor **Name:** **Date:** **Signature:**

For the Employer **Name:** **Date:** **Signature:**