

RE-GRAVELLING OF EXISTING GRAVEL ROADS AND THE PREPARATION OF GRAVEL ROADS TO BE UPGRADED TO BLACK TOP IN THE NORTH REGION OF ETHEKWINI MUNICIPALITY FOR 36 MONTHS

BILL OF QUANTITIES

SECTION 1 Preliminary and general

PART AA PRELIMINARIES

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	PS.AB.12	Contractor's fixed Obligation	sum	1		
2	PS. AB.8	Contractors superintendence including transport and communication	months	36		
3	PS.AB.9	Provision for C.L.O. as per engineers instruction (Proof of hours worked to be attached to monthly claim)	PC Sum	800000	1.00	800,000.00
4	PS.AB.10	Accommodate traffic as per the Southern African Development Community Roads Traffic Manual Volume 2 and in accordance with RTI at all times. This item also includes for the provision of all signs, traffic cones, delineators and flagmen as required for	months	36		

TOTAL CARRIED TO SECTION 1 SUMMARY: Preliminary and general

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PART AH OCCUPATIONAL HEALTH and SAFETY

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	AH.14.1	Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations. Included in this item is the supply of all personal protective equipment (PPE) required to perform on works i.e. Uniform, safety shoes, safe	sum	1		
2	AH.14.2	Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations, including compliance with PPE (ensuring that all personnel are properly clad and equipped to perform on works at all times for the duration	months	36		
3	AH.14.3	Submission of Health and Safety file (to be approved by clients health and safety officer before works hand over)	sum	1		

TOTAL CARRIED TO SECTION 1 SUMMARY: Preliminary and general

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SECTION 2 Clearing and grubbing

PART B SITE CLEARANCE

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	B.8.2	General clearance and grubbing	m2	175000		
2	B.8.4	Removal and grubbing of large trees and stumps	no.	10		
3	B.8.5	Removal of existing fences	m	100		
4	B.8.9	Removal of brickwork	m3	110		
5	B.8.10	Removal of unreinforced concrete	m3	100		
6	B.8.11	Removal of reinforced concrete	m3	30		
7	PS.B.8.15.5	Removal of existing asphalt surfacing	m3	20		
8	PS.F.8.10	Re-instate fencing	m	150		

TOTAL CARRIED TO SECTION 2 SUMMARY: Clearing and grubbing

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SECTION 3 Drains and sub-soil drainage

PART AB GENERAL SPECIFICATIONS

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	PS. AB.13	Repairs up to 16mm Ø HDPE water pipes including supply of all materials	no.	100		
2	PS. AB.13	Repairs from 17 to 28mm Ø HDPE water pipes including supply of all materials	no.	50		
3	PS. AB.13	Repairs to 50mm Ø HDPE water pipes including supply of all materials	no.	50		
4	PS. AB.14	Lowering up to 16mm Ø HDPE water pipes to a depth of 800mm including supply of all materials	m	100		
5	PS. AB.14	Lowering of 17 to 28mm Ø HDPE water pipes to a depth of 800mm including supply of all materials	m	100		
6	PS. AB.14	Lowering of 50mm Ø HDPE water pipes to a depth of 800mm including supply of all materials	m	100		

TOTAL CARRIED TO SECTION 3 SUMMARY: Drains and sub-soil drainage

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PART DC EARTHWORKS FOR CONCRETE LINED CANALS

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	DC.8.2	Excavating soft material situated within 0-1.5m depth: (a) to stockpile	m3	200		
2	DC.8.2	Excavating soft material situated within 0-1.5m depth: (b) to spoil	m3	850		
3	DC.8.2	Extra over item (a) and (b) above for excavating in hard material	m3	240		
4	DC.8.3	Backfilling and compacting: (a) Using excavated material (from stockpile)	m3	200		
5	DC.8.3	Backfilling and compacting: (b) Using imported material (including haulage)	m3	250		
6	PS.GM.4	Supply and construct subsoil drain as per Drawing No.:38575, including test flushing and excavation in all materials, complete.	m	400		
7	PS.C.8.4	Cast insitu concrete lining (20 Mpa / 19mm) v-drains (Class 2 surface finish to cast insitu concrete v-drains)	m3	100		
8	C.8.2	Steel reinforcement (Welded steel mesh Ref 193)	m2	800		
9	C.8.3	Formwork to cast insitu concrete lining for open drains (class 2 surface finish) to side with formwork on the internal and external faces (each side measured)	m2	200		

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Part Continued PART DC EARTHWORKS FOR CONCRETE LINED CANALS

Item	Clause	Description	Unit	Quantity	Rate	Amount
10	PS.C.8.5	Expansion joints for concrete lined open v-drains	m	1200		

TOTAL CARRIED TO SECTION 3 SUMMARY: Drains and sub-soil drainage R

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SECTION 4 Stormwater Structures

PART AB GENERAL SPECIFICATIONS

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	PS.PH.10	Clearing and Grubbing at inlets and outlets of stormwater structures	no.	200		
2	PS.PH.11	Removal of silt and sand by excavation at inlet and outlet structures when required	m3	250		
3	PS.PH.12	Unblocking and cleaning of existing stormwater pipe crossings	m	500		
4	DD.8.2	EXCAVATION FOR STORMWATER PIPE CROSSINGS: (a) to stockpile	m3	200		
5	DD.8.2	EXCAVATION FOR STORMWATER PIPE CROSSINGS: (b) to spoil	m3	300		
6	PS.PH.8.10	CONSTRUCT TYPE 'A' HEADWALL TO NEW/EXISTING PIPES: 600mm diameter pipes	no.	20		
7	PS.PH.8.10	CONSTRUCT TYPE 'A' HEADWALL TO NEW/EXISTING PIPES: 900mm diameter pipes	no.	15		
8	PH.8.3	CONSTRUCT TYPE 'S1' INLET STRUCTURES TO EXISTING/NEW PIPE CROSSINGS (0 UP TO 1.5M DEPTH), INCLUDING COVER, LID AND SUPPORT BEAMS (AS PER DRAWING NO. 38572) 900 mm diameter 100D	no.	25		
9	PH.8.3	CONSTRUCT TYPE 'S1' INLET STRUCTURES TO EXISTING/NEW PIPE CROSSINGS (0 UP TO 1.5M DEPTH), INCLUDING COVER, LID AND SUPPORT BEAMS (AS PER DRAWING NO. 38572) 600mm diameter 100D	no.	15		
10	PG.8.2	SUPPLY AND LAY NEW STORMWATER PIPES: (b) 600 mm diameter 100D	m	250		
11	PG.8.2	SUPPLY AND LAY NEW STORMWATER PIPES: (d) 900 mm diameter 100D	m	130		
12	DD.8.2	(EXCAVATION FOR STORMWATER PIPE CROSSINGS) (c) extra over for hard material	m3	60		
13	DB.8.9	Class C bedding	m3	300		
14	DD.8.3	Backfilling for stormwater pipes (from stockpile)	m3	150		
15	DD.8.3	Selected fill for stormwater pipes (from borrow)	m3	300		
16	PG.8.2	Stream diversion / Management	no.	5		

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Part Continued PART AB GENERAL SPECIFICATIONS

Item	Clause	Description	Unit	Quantity	Rate	Amount
17	PG.8.2	General clearing and grubbing within servitude	m2	440		
18	PG.8.2	Removal of disused pipes, 600 to 1200mm diameter and store on site for re-use	m	80		
19	DD.8.3	Grade 30/26 concrete in base slabs, in fills and wing walls	m3	100		
20	DD.8.3	High tensile steel	t	2.5		
21	DB.8.9	Class 1 shuttering to base slabs, walls, and edge of slabs	m2	150		
22	DB.8.11	Class 4 concrete upper surface finish (steel float)	m2	100		
23	PG.8.7	Portal and Rectangular Culverts without prefabricated floor slabs (SANS 986): 1200 x 1200mm	no.	8		
24	PG.8.7	Portal and Rectangular Culverts without prefabricated floor slabs (SANS 986): 1500 x 1500mm	no.	16		
25	PG.8.7	Portal and Rectangular Culverts without prefabricated floor slabs (SANS 986): 2400 x 2400mm	no.	16		
26	C8.3	Class 1 shuttering of slot on surface of base for culvert legs	m2	80		
27	DD8.2	Excavated material for culvert to stockpile	m3	300		
28	DD8.3	Backfill and compact using material from borrow (93% Mod ASSHTO)	m3	550		
29	PS.C.8.5	Expansion joints for mass concrete	m	50		
30	PS.C.8.6	Construction joints	m	70		
31	PS.C.8.7	Cast 15/19 blinding layer (up to 50mm thick)	m2	250		

TOTAL CARRIED TO SECTION 4 SUMMARY: Stormwater Structures

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SECTION 5 Bulk Earthworks

PART DA EARTHWORKS : BULK

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	DA.8.3	Excavate (insitu material) cut to fill, gravel material in compacted layer thickness of 150mm, to 93% of modified AASHTO density. inclusive of haulage	m3	300		
2	DA.8.3	Excavate insitu material to spoil including haulage	m3	200		
3	DA.8.4	Import selected fill, including haulage, gravel material in compacted layer thickness of 150mm, to 93% of modified AASHTO density.	m3	4000		
4	DA.8.3	Extra over for hard excavation for item 1 and 2 above	m3	200		
5	DA.8.6	Trimming of embankments and Finishing off cut and fill slopes, medians and interchange areas:(a) in cut slopes	m2	500		
6	DA.8.6	Trimming of embankments and Finishing off cut and fill slopes, medians and interchange areas:(b) in fill slopes	m2	350		
7	7100	Supply and lay 30/19 concrete in 2.5x2.5 panels as instructed by Engineer. Longitudinal joints to be dowelled with Y10(deformed bars), 500mm in length @ 750mm	m3	500		

TOTAL CARRIED TO SECTION 5 SUMMARY: Bulk Earthworks

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SECTION 6 Heavy re-gravelling

PART GM GRAVEL ROAD MAINTENANCE

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	PS.GM.5	Rip, shape, process and re-compact full width of existing road surface to 90% Mod AASHTO and the construction of earth side drains and mitre drains.	km	30		
2	PS.GM.10	Supply, place, process and compact 150mm selected gravel pavement layer (G7 quality) from an approved source to 93% Mod AASHTO, including haulage.	m3	55000		
3	PS.GM.10	Supply, place, process and compact 150mm gravel wearing course (G6 quality) from an approved source to 95% Mod AASHTO, including haulage	m3	13500		

TOTAL CARRIED TO SECTION 6 SUMMARY: Heavy re-gravelling

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SECTION 7 Pitching,stonework and protection against erosion
PART F PROTECTION WORKS

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	F.8.4	Supply and lay grouted stone pitching	m2	150		
2	F.8.6	Supply and lay PVC coated gabion boxes	m3	400		
3	F.8.6	Supply and lay PVC coated reno mattresses	m3	80		
4	PS.F.8.9	Supply and lay geofabric for item 3 and 4 (A4 or equivalent)	m2	2000		

TOTAL CARRIED TO SECTION 7 SUMMARY: Pitching,stonework and protection against erosion R

RE-GRAVELLING OF EXISTING GRAVEL ROADS AND THE PREPARATION OF GRAVEL ROADS TO BE UPGRADED TO BLACK TOP IN THE NORTH REGION OF ETHEKWINI MUNICIPALITY FOR 36 MONTHS

SECTION 8 Dayworks

PART GM GRAVEL ROAD MAINTENANCE

Item	Clause	Description	Unit	Quantity	Rate	Amount
1	PS.GM.11	Labour rate for work during normal working hours (a) Unskilled	hr	80		
2	PS.GM.11	Labour rate for work during normal working hours (b) Skilled	hr	30		
3	PS.GM.11	Labour rate for work during normal working hours (c) Ganger	hr	20		
4	PS.GM.11	Labour rate for work during normal working hours (d) Flagmen	hr	20		
5	PS.GM.11	Labour rate for work outside normal working hours including Saturday (a) Unskilled	hr	10		
6	PS.GM.11	Labour rate for work outside normal working hours including Saturday (b) Skilled	hr	10		
7	PS.GM.11	Labour rate for work outside normal working hours including Saturday (c) Ganger	hr	10		
8	PS.GM.11	Labour rate for work outside normal working hours including Saturday(d) Flagmen	hr	10		
9	PS.GM.11	Labour rate for work during Sundays and Public Holidays (a) Unskilled	hr	10		
10	PS.GM.11	Labour rate for work during Sundays and Public Holidays (b) Skilled	hr	10		
11	PS.GM.11	Labour rate for work during Sundays and Public Holidays (c) Ganger	hr	10		
12	PS.GM.11	Labour rate for work during Sundays and Public Holidays (d) Flagmen	hr	10		
13	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. i) 6m3	hr	10		
14	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. ii)10 m3	hr	20		
15	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. b) Loader (1,0 m3) bucket	hr	20		
16	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. c) Grader (CAT 140 G or similar)	hr	20		
17	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. d) 10 ton Vibratory roller (Smooth/pad foot)	hr	20		
18	PS.GM.11	Transport and Equipment - i.e Tipper Trucks.e) Watercart (10 000 l)	hr	20		
19	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. Walk-behind roller	hr	20		

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Part Continued PART GM GRAVEL ROAD MAINTENANCE

Item	Clause	Description	Unit	Quantity	Rate	Amount
20	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. Dozer (D6 of Similar)	hr	20		
21	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. Excavator (20 ton)	hr	20		
22	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. TLB	hr	20		
23	PS.GM.11	Transport and Equipment - i.e Tipper Trucks. Low bed Moves	hr	500		

TOTAL CARRIED TO SECTION 8 SUMMARY: Dayworks R