

**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 1

1200A

1200 GENERAL REQUIREMENTS AND PROVISIONS

| Item No. | Payment | Description | Unit | Quantity | Rate | Amount |
|-----------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------|----------------|-----------------------|
| A | SANS 1200 | | | | | |
| | PS.A 8.5 | SUMS STATED PROVISIONALLY BY ENGINEER | | | | |
| A.1.1 | 8.5 b1 | 1) Provision for Community Liaison Officer (CLO) | Provisional / Month | 18 | R 5 000,00 | R 90 000,00 |
| A.1.2 | PSA12.5 | 2) Specialist professional services geotechnical agricultural & subsurface drainage engineer & ECSA mentorship. Approval by KZNDARD required of consultant to be appointed. | Provisional / Month | 18 | R 39 500,00 | R 711 000,00 |
| A.1.3 | 8.5 b1 | 3) Entrepreneurial skills Training and Venue | Provisional / Month | 18 | R 1 000,00 | R 18 000,00 |
| A.1.4 | PSA12.5 | 4) Geotechnical and Filtration tests requirements | Provisional / Month | 18 | R 3 000,00 | R 54 000,00 |
| A.1.5 | PSA12.5 | 5) Surveys (Stakeouts, Quality Control & Verification) | Provisional / Month | 18 | R 7 500,00 | R 135 000,00 |
| A.1.6 | PSA12.5 | 6) Re-establishment of damaged agricultural crops or crop losses within farms. | Provisional / Hectare | 59 | R 20 000,00 | R 1 180 000,00 |
| A,1,7 | PSA12.5 | 7) Typical remedial works scope required to existing concrete drainage canal | | | | |
| A.1.8 | 8.5 a) | 1. Add missing concrete panels within existing canal. 2. General- grout around sub-soil drain inlets into canal 3. Add incomplete drainage pipe junctions to the canal. 4. Remove soil & debris deposits in the existing canal. 5. Installation of emergency access ladders within existing canal 6. Repair / replace cracked & damaged canal panels. 7. Backfill behind concrete panels of canal. | Provisional sum | 1000 | R 1 250,00 | R 1 250 000,00 |
| A.1.9 | 8.5 b1 | 8) Construction contingencies 5% of estimated contract value | Provisional sum | 1 | R 1 550 000,00 | R 1 550 000,00 |
| A. 1.10 | 8.5 b2 | Contractors handling costs, overheads, charges and profit and all other charges in respect of sub items | % | | | |
| TOTAL CARRIED FORWARD TO SUMMARY | | | | | | R 4 988 000,00 |

**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 2

1200A

1200 GENERAL REQUIREMENTS AND PROVISIONS

| Item No. | Payment | Description | Unit | Quantity | Rate | Amount |
|----------|------------------------------|-------------------------------------------------------------------------------------------------|--------|----------|------|--------|
| | SANS 1200 A | PRELIMINARY & GENERAL | | | | |
| B | 8,3 | FIXED-CHARGE ITEMS | | | | |
| B.1.1 | 8.3.1 | Contractual requirements (eg. Insurances, UIF etc) | Months | 18 | | |
| B.1.2 | 8.3.2 | Establish facilities on site (eg. Fencing, Electricity, Water, Plant ...) | Sum | 1 | | |
| | 8.3.2.1 | Facilities for Engineer (SANS 1200 AB) | | | | |
| B.1.3 | 8.3.2.1 (c) | Supply and install Two Name boards | Sum | 1 | | |
| B.1.4 | 8.3.2.2 | Facilities for contractor | | | | |
| B.1.5 | 8.3.2.2 (a) | Office and storage sheds | Sum | 1 | | |
| B.1.6 | 8.3.2.2 (b) | Workshops | Sum | 1 | | |
| B.1.7 | 8.3.2.2 (c) | Laboratories | Sum | 1 | | |
| B.1.8 | 8.3.2.2 (d) | Living Accommodation - Site Security | Sum | 1 | | |
| B.1.9 | 8.3.2.2 (e) | Ablution and latrine facilities | Sum | 1 | | |
| B.1.10 | 8.3.2.2 (f) | Tools and equipment | Sum | 1 | | |
| B.1.11 | 8.3.2.2 (g) | Water supplies, electricity and communications | Sum | 1 | | |
| B.1.12 | 8.3.3 | Other fixed-charge obligations | Sum | 1 | | |
| B.1.13 | 8.3.4 | Remove Engineer's and contractor's site establishment on completion of contract | Sum | 1 | | |
| B.1.14 | 8.3.5 | Provision for OSH&S requirements such as but not limited to : HIV awareness and safety training | Sum | 1 | | |
| B.1.15 | 8.3.6 | Provision for Environmental management plan requirements | Sum | 1 | | |
| | TOTAL CARRIED FORWARD | | | | | |
| | TOTAL BROUGHT FORWARD | | | | | |

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BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 2

1200A

1200 GENERAL REQUIREMENTS AND PROVISIONS

| | Payment | Description | Unit | Quantity | | |
|------------------------------|----------------|-------------------------------------------------------------------------------------------------|-------|----------|--|--|
| B.2 | 8,4 | TIME-RELATED ITEMS | | | | |
| B.2.1 | 8.4.1 | Contractual requirements | Month | 18 | | |
| | 8.4.2.2 | Facilities for contractor | | | | |
| B.2.2 | 8.4.2.2 (a) | Office and storage sheds | Month | 18 | | |
| B.2.3 | 8.4.2.2 (b) | Workshops | Month | 18 | | |
| B.2.4 | 8.4.2.2 (c) | Laboratories | Month | 18 | | |
| B.2.5 | 8.4.2.2 (d) | Living Accommodation | Month | 18 | | |
| B.2.6 | 8.4.2.2 (e) | Ablution and latrine facilities | Month | 18 | | |
| B.2.7 | 8.4.2.2 (f) | Tools and equipment | Month | 18 | | |
| B.2.8 | 8.4.2.2 (g) | Water supplies, electricity and communications | Month | 18 | | |
| B.2.9 | 8.4.2.2 (h) | Dealing with water | Month | 18 | | |
| B.2.10 | 8.4.2.2 (i) | Access for contractor and affected parties | Month | 18 | | |
| B.2.11 | 8.4.3 | Supervision for duration of construction or contract | Month | 18 | | |
| B.2.12 | 8.4.4 | Provision for OSH&S requirements such as but not limited to : HIV awareness and safety training | Month | 18 | | |
| B.2.13 | 8.4.5 | Provision for Environmental management plan requirements | Month | 18 | | |
| TOTAL CARRIED FORWARD | | | | | | |

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SCHEDULE 2

1200A

1200 GENERAL REQUIREMENTS AND PROVISIONS

| TOTAL BROUGHT FORWARD | | | | |
|-----------------------------------------|-----------------|-----------------------------------------|------|----------|
| | Payment | Description | Unit | Quantity |
| B.3 | PS A 8.6 | DAYWORKS | | |
| B.3.1 | | Unskilled Labour | Day | 20 |
| B.3.2 | | Semi-skilled Labour | Day | 20 |
| B.3.3 | | Skilled Labour | Day | 20 |
| B.3.4 | | Foreman | Day | 20 |
| B.3.5 | | 6 ton Tipper truck with operator | Hour | 200 |
| B.3.6 | | 10 ton Tipper truck with operator | Hour | 200 |
| B.3.7 | | 0.5 cubic metre excavator with operator | Hour | 200 |
| B.3.8 | | 5 000 litres water tanker with operator | Hour | 200 |
| TOTAL CARRIED FORWARD TO SUMMARY | | | | |

**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 3

1200C

**SANS
1200C**

SITE CLEARING CIVIL WORKS

BLOCK 6A - MAKATHINI

| Item No. | Payment | Description | Unit | Quantity | Rate | Amount |
|----------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|------|--------|
| | 8.2.1 | SITE CLEARANCE | | | | |
| C.1.1 | 8.2.1 (a) | Clear and grub area within existing canal reserve | ha | 12,75 | | |
| C.1.2 | 8.2.1 (b) | Clear and grub subsoil drainage route (10,0m wide) | m | 29 500 | | |
| C.1.3 | 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | No. | 10 | | |
| C.1.4 | 8.2.3 | Trees over 1.0 m and up to and including 2,0 m | No | 30 | | |
| C.1.5 | 8.2.9 | Transport debris and shrubs of materials cleared on the site to a dumping site identified by the Engineer (incl. hauling up to 5km) | m ³ .km | 60 | | |
| | TOTAL CARRIED FORWARD | | | | | |



**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 4

1200D

| 1200 D SITE CLEARANCE | | | | | BLOCK 6A - MAKATHINI | |
|-----------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------|--------------------------------|----------|----------------------|--------|
| Item No. | Payment | Description | Unit | Quantity | Rate | Amount |
| D.1 | SANS 1200 D | EARTHWORKS | | | | |
| | | EXCAVATION | | | | |
| | 8.3.2 | Restricted excavation: | | | | |
| D.1.1 | 8.3.2 (a) | 1) Excavate for restricted manhole foundations or structures in all materials, and use for backfill or dispose | No. | 360 | | |
| D.1.2 | 8.3.5 (b) | Extra excavation in all materials to provide working space around structure | m ² | 3 240 | | |
| D.1.3 | 8.3.7 (a) | 1) Intermediate excavation | m ³ | 33402 | | |
| D.1.4 | 8.3.7 (b) | 2) Hard rock excavation | m ³ | 150 | | |
| D.1.5 | 8.3.7 (c) | 3) Hand excavation and backfill where ordered by the Engineer | m ³ | 50 | | |
| D.1.6 | 8.3.7 (d) | Soilcrete backfill where directed by the Engineer | m ³ | 100 | | |
| D.1.7 | 8.3.6 (b) | Overhaul (provisional) | | | | |
| D.1.8 | 8.3.6 (b) | Limited overhaul | m ³ | 2 500 | | |
| D.1.9 | 8.3.6 (c) | Long overhaul | m ³ / _{km} | 6 250 | | |
| D.1.10 | 8.3.10 | Top soiling | m ³ | 13000 | | |
| D.1.11 | | Extra over for temporary stock piling | m ³ | 2 500 | | |
| D.1.12 | | Extra over items for disposing of spoil material on a site provided by the contractor | m ³ | 7 500 | | |
| TOTAL CARRIED FORWARD TO SUMMARY | | | | | | |

**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 5

1200DB

| 1200 DB | | SUBSOIL DRAINAGE PIPELINES | | | BLOCK 6A - MAKATHINI | |
|------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|----------------------|--------|
| | Payment | Short Description | Unit | Qty | Rate | Amount |
| E.1 | SANS 1200DB | PIPE TRENCHES | | | | |
| | PSDB 8.3.2 | Trench Excavations for restricted working width | | | | |
| | 8.3.2 (a) | Excavation in all materials for trenches, backfill, compact and dispose of surplus materials within 0.5 km for 200mm dia & smaller PE pipes and trench widths of 600 mm (min) and trench depths of : | | | | |
| E.1.1 | | Exceeding 0,0m up to 1,5m | m | 50 | | |
| E.1.2 | | Exceeding 1,5m up to 2,0m | m | 29 300 | | |
| E.1.3 | | Exceeding 2,0m up to 2,5m | m | 300 | | |
| | 8.3.2(b) | Extra-over item DB 8.3.2(a) for: | | | | |
| E.1.4 | | Intermediate Material | m ³ | 6 500 | | |
| E.1.5 | | Hard rock excavation | m ³ | 500 | | |
| | 8.3.3 | Excavation Ancillaries | | | | |
| | 8.3.3.1 | Make up deficiency in backfill materials | | | | |
| E.1.6 | | a) from other necessary excavations on site | m ³ | 500 | | |
| E.1.7 | | b) by importation from designated borrow pits | m ³ | 500 | | |
| TOTAL CARRIED FORWARD | | | | | | |



**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 5

1200DB

1200 DB SUBSOIL DRAINAGE PIPELINES

BLOCK 6A - MAKATHINI

| TOTAL BROUGHT FORWARD | | | | |
|------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------|
| Payment | Description | Unit | Quantity | |
| E.2 | 8.3.4 | Particular Items | | |
| E.2.1 | 8.3.4(a) | Shore trench | m | 10 000 |
| E.2.2 | 8.3.4(b) | Control of ground water | Day | 150 |
| | 8.3.6 | Finishing | | |
| | 8.3.6.1 | Reinstate road surfaces complete with all courses | | |
| E.2.3 | | Gravel roads | m ² | 3000 |
| | SANS 1200LB | BEDDING | | |
| | 8.2.1 | Provision of bedding from trench excavation | | |
| | 8.2.1 | Available from trench excavations within 0,5 km | | |
| E.2.4 | | a) From commercial sources: Selected granular material Graded Riversand or Crushed Stone 6,7 - 13mm | m ³ | 1 770 |
| E.2.5 | | b) Selected fill material | m ³ | 2 000 |
| | 8.2.5 | Overhaul of material for bedding, cradle and selected fill blanket | | |
| E.2.6 | | a) Selected granular material | m ³ .km | 1 770 |
| E.2.7 | | b) Selected fill material | m ³ .km | 2 000 |
| E.2.8 | 8.2.8 | Controlled levelling & compaction of trench bottom | m ² | 10 325 |
| | SANS 1200LE | PE DRAINAGE PIPES | | |
| | 8.2.15 | Supply, lay join bed perforated subsoil PE drainage pipes, 100 Kpa, hoop stiffness heavy duty to SABS 1601-1994 for the following: | | |
| E.2.9 | | 110mm internal dia, perforated pipes | m | 26 600 |
| TOTAL CARRIED FORWARD | | | | |



**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 5

1200DB

1200 DB SUBSOIL DRAINAGE PIPELINES

BLOCK 6A - MAKATHINI

| TOTAL BROUGHT FORWARD | | | | |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|--|
| Payment | Description | Unit | Quantity | |
| E.3.1 | 160mm internal dia, perforated pipes | m | 1 450 | |
| E.3.2 | 200mm internal dia, perforated pipes | m | 1 250 | |
| | 8.2.3 MANHOLES | | | |
| | Concrete Manholes | | | |
| | Supply and install 1,2m diameter pre-cast concrete manholes, complete with cover, frame and step irons, for the following depths. | | | |
| | 8.2.3.1 | | | |
| E.3.3 | a) Depth 0,0m up to 1,5m | No. | 10 | |
| E.3.2 | b) Depth 1,5m up to 2,0m | No. | 320 | |
| E.3.3 | c) Depth 2,0m up to 2,5m | No. | 30 | |
| | Connections | | | |
| | Supply, lay join and bed PE subsurface drainage pipes, SABS 1601 - 1994 sewer pipes of the following connections, sloping and vertical: | | | |
| E.3.4 | 110mm x 110mm Ø junction | No. | 100 | |
| E.3.5 | 160mm x 110mm Ø at junction | No. | 75 | |
| | PSG 8.6 FOUNDATIONS | | | |
| E.3.6 | 8.4.4 Unformed surface finishes | m ³ | 360 | |
| | 8.2.3 END CAPS | | | |
| E.3.7 | Supply all material and labour for the installation of the elbows to the 110mm diameter pipes and rodding-eyes complete within manhole junctions | No | 720 | |
| E.3.8 | PSLE 8.2.18 a) Permeable material to subsoil eg. Selected granular material Approved Graded Riversand Crushed Stone 6,7 - 13mm | m ³ | 8 850 | |
| CARRIED FORWARD TO SUMMARY | | | | |



**CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME
BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT**

SCHEDULE 6

1200 G

| 1200 G | | STRUCTURAL CONCRETE | | | BLOCK 6A - MAKATHINI | |
|-----------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|----------------------|--------|
| | Payment | Short Description | Unit | Qty | Rate | Amount |
| G.1. | SANS 1200G | STRUCTURAL CONCRETE | | | | |
| | 8,2 | FORMWORK | | | | |
| G1.1 | 8.2.2 | Smooth vertical formwork | m ² | 132 | | |
| | 8,3 | REINFORCEMENT | | | | |
| | 8.3.1 | Steel bars | | | | |
| G1.2 | a) | Mild steel | t | 0,4 | | |
| G.1.3 | b) | High tensile steel | t | 0,4 | | |
| G1.4 | 8.3.2 | High tensile welded mesh sheets REF. 617 - (sheet 2,4 x 6,0) | m ² | 504 | | |
| | 8,4 | CONCRETE | | | | |
| | 8.4.1 | Prescribed mix 1 : 3 : 6 concrete to fill cavities upon | | | | |
| G1.5 | | Instruction of Engineer | m ³ | 5 | | |
| G1.6. | 8.4.2 | Blinding layer in 50mm thick concrete class 15/19 | m ² | 87 | | |
| | 8.4.3 | Strength concrete | | | | |
| G1.7 | a) | Class 15/19 | m ³ | 38 | | |
| G1.8 | b) | Class 25/19 | m ³ | 19 | | |
| G1.9 | c) | Class 30/19 | m ³ | 54 | | |
| | 8.4.4 | Unformed surface finishes: | | | | |
| G1.10 | a) | Wood floated finish | m ² | 100 | | |
| | | MARK-UP RATES | | | | |
| G1.11 | | Percentage markup on rates listed on term contracts | % | | | |
| | | Percentage markup on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer | | | | |
| G1.12 | | Employer | % | | | |
| TOTAL CARRIED FORWARD | | | | | | |
| CARRIED FORWARD TO SUMMARY | | | | | | |

CONSTRUCTION OF SUBSURFACE DRAINAGE - MAKHATHINI IRRIGATION SCHEME BLOCK 6A - JOZINI - UMKHANYAKUDE DISTRICT

| SECTION | SUMMARY OF SCHEDULES | AMOUNT |
|-------------|-----------------------------------------------------|---------|
| 1. - 1200 | SUMS STATED PROVISIONALLY BY ENGINEER | |
| 2. - 1200A | 1200A. GENERAL REQUIREMENTS AND PROVISIONS | |
| 3. - 1200C | 1200C. SITE CLEARANCE | |
| 4. - 1200D | 1200D. EARTHWORKS | |
| 5. - 1200DB | 1200DB. AGRICULTURAL INFIELD SUBSOIL DRAINAGE LINES | |
| 6. - 1200G | 1200G. STRUCTURAL CONCRETE | |
| | SUB TOTAL 03 | |
| | | 15% VAT |
| | ESTIMATED CONTRACT VALUE | |

Sum stated provisionally :-

- 1) Community Liaison Officer
 - 2) Overheads, charges and profit : %
 - 3) The Contractor will pay the remuneration of the CLO & farmers agricultural practice re-instatement after construction
- A provisional sum has been provided for these expenditures