

BILL OF MATERIALS & COST: BRITS - ATLANTA, RUSTENBURG - THABAZIMBI OFC

| | | | | | | | | | | |
|--------------------------|--|---------|---------|--|--|--|--|--|--|-------|
| 1a | Concrete Bridges etc – Suspension | 100 | Each | | | | | | | R0.00 |
| 1b | Concrete Bridges etc – Termination | 50 | Each | | | | | | | R0.00 |
| 2a | Universal Bracket AC Sections I-Beam Suspension | 3,104 | Each | | | | | | | R0.00 |
| 2b | Universal Bracket AC Sections I-Beam 1 M Ext Suspension | 60 | Each | | | | | | | R0.00 |
| 3 | Suspension Bracket for Steel Structures | 50 | Each | | | | | | | R0.00 |
| 4a | Universal Bracket AC Sections Rail Mast 500 mm ext Suspension | 0 | Each | | | | | | | R0.00 |
| 4b | Universal Bracket AC Sections rail Mast 1 M ext Suspension | 0 | Each | | | | | | | R0.00 |
| 5 | Universal Bracket AC Sections I-Beam Termination | 0 | Each | | | | | | | R0.00 |
| 6a | Universal Bracket Rail Mast Suspension | 0 | Each | | | | | | | R0.00 |
| 6b | Universal Bracket Rail Mast Termination | 0 | Each | | | | | | | R0.00 |
| 7 | Universal Bracket AC Sections I-Beam Joint fitting | 66 | Each | | | | | | | R0.00 |
| 8a | Universal Bracket Joint Fittings for I-Beam Suspension | 0 | Each | | | | | | | R0.00 |
| 8b | Universal Bracket Joint Fittings for Concrete Suspension | 0 | Each | | | | | | | R0.00 |
| 9a | Wooden Telephone pole 8m | 120 | Each | | | | | | | R0.00 |
| 9b | Complets stay wire and anchor for wooden pole with reflector board | 120 | Each | | | | | | | R0.00 |
| 10 | Concrete pole - 1 M ext Suspension bracket | 0 | Each | | | | | | | R0.00 |
| 11 | Concrete Pole - Suspension bracket | 0 | Each | | | | | | | R0.00 |
| 12 | Concrete Pole - Termination bracket | 0 | Each | | | | | | | R0.00 |
| 13 | Unistrut clamp – Rail | 0 | Each | | | | | | | R0.00 |
| 14 | Unistrut clamp – Universal Column | 100 | Each | | | | | | | R0.00 |
| 15 | 40 x 40 Unistrut with lid | 600 | Metre | | | | | | | R0.00 |
| 16 | 25mm black split betaflex | 600 | Metre | | | | | | | R0.00 |
| 17 | Nextube (install new pipes) for track crossings | 200 | Metre | | | | | | | R0.00 |
| 18 | Concrete cable markers | 0 | Each | | | | | | | R0.00 |
| 19 | Plastic U/G danger tape | 200 | Metre | | | | | | | R0.00 |
| 20 | Concrete protection blocks (pole bases) | 100 | Each | | | | | | | R0.00 |
| 21 | Supply and install Cable joints with L bracket (Tank) | 66 | Each | | | | | | | R0.00 |
| 22 | Stainless Steel straps for coil binding | 400 | Each | | | | | | | R0.00 |
| 23 | Dense tape seal | 200 | Metre | | | | | | | R0.00 |
| 24 | Heat shrinks 70mm dia | 120 | Metre | | | | | | | R0.00 |
| 25 | 32mm PVC Sub-Duct Category 8 | 2,000 | Metre | | | | | | | R0.00 |
| 26 | PLP Tangent supports aluminium bobbin | 3,000 | Each | | | | | | | R0.00 |
| 27 | Miscellaneous Installation Materials | 1 | Lot | | | | | | | R0.00 |
| 28a | 24 Fibre single mode cable (aerial) Brits-Beestekraal TFR Supply | 57,000 | Metre | | | | | | | R0.00 |
| 28b | 24 Fibre single mode cable (aerial) Rust-Thabaz TFR Supply | 137,000 | Metre | | | | | | | R0.00 |
| 29 | 19 Inch Termination Equipment Cabinets TFR Supply | 19 | Metre | | | | | | | R0.00 |
| 30 | Rod and Rope existing ducts | 100 | Metre | | | | | | | R0.00 |
| 31 | ODF 24 way fully populated E2000 | 22 | Each | | | | | | | R0.00 |
| 32 | PLP Dead ends | 1,000 | Each | | | | | | | R0.00 |
| 33 | Trenching (other than rail crossings) | 1000 | Metre | | | | | | | R0.00 |
| 34 | Break Tar / Concrete | 50 | Metre | | | | | | | R0.00 |
| 35 | Re-instate Tar / Concrete | 50 | Metre | | | | | | | R0.00 |
| 36 | Underground/overhead track crossings | 100 | Metre | | | | | | | R0.00 |
| 37 | Draw pits | 0 | Each | | | | | | | R0.00 |
| 38 | Detail survey and generation of as built documents | 194 | km | | | | | | | R0.00 |
| 39 | Site establish or move site | 3 | each | | | | | | | R0.00 |
| 40 | Project Supervision | 1 | Lot | | | | | | | R0.00 |
| 41 | Supply, Splice & test 24 -fibre OFC in joint (per splice) type Tank | 1,200 | Each | | | | | | | R0.00 |
| 42 | Supply, Splice & terminate pigtail 24 - Fiber (per splice) type Darcom | 480 | Each | | | | | | | R0.00 |
| 43 | Pre-testing of OFC cable drums - 24 Fiber | 50 | Drum | | | | | | | R0.00 |
| 44 | OTDR tests of entire section (per section) | 21 | Section | | | | | | | R0.00 |
| 45 | Road Control/Security | 1 | Lot | | | | | | | R0.00 |
| 55 | Branch and bush cutting | 5000 | Metre | | | | | | | R0.00 |
| 56 | Consumable materials | 1 | Lot | | | | | | | R0.00 |
| 57 | Flagmen (sufficient for protection at all work sites) | 1 | Lot | | | | | | | R0.00 |
| 58 | Security (on site and site store) | 1 | Lot | | | | | | | R0.00 |
| R0.00 R0.00 R0.00 | | | | | | | | | | |

Notes

- 1 Tenders must complete this sheet and submit with tenders. Do not change columns B, C, D and E

Intermediate Substation and Relay Room terminations

| | | | |
|-------------------|----|-------------|--------------|
| Brits Comms | 24 | Termination | Terminate 24 |
| Werkmetlus TSS | 24 | Spur Cable | 12 in-12 out |
| Ontgin Sub | 24 | Spur Cable | 12 in-12 out |
| Beestekraal Comms | 24 | Termination | Terminate 24 |
| | | | |
| Rustenburg Comms | 24 | Termination | Terminate 24 |
| Burgereg Sub | 24 | Spur Cable | 12 in-12 out |
| Kgalistad HBD | 24 | Spur Cable | 12 in-12 out |
| Boshoek TSS | 24 | Spur Cable | 12 in-12 out |
| Paul HBD | 24 | Spur Cable | 12 in-12 out |
| Paul Sub | 24 | Spur Cable | 12 in-12 out |
| Hystekrand Sub | 24 | Spur Cable | 12 in-12 out |
| Authersview Sub | 24 | Spur Cable | 12 in-12 out |
| Notham TSS | 24 | Spur Cable | 12 in-12 out |
| Northam Comms | 24 | Termination | Terminate 24 |
| | | | |
| Northam Comms | 24 | Termination | Terminate 24 |
| Notham HBD | 24 | Spur Cable | 12 in-12 out |
| Tussenin Sub | 24 | Spur Cable | 12 in-12 out |
| Ferrogate Sub | 24 | Spur Cable | 12 in-12 out |
| Thabazimbi Sub | 24 | Spur Cable | 12 in-12 out |
| Thabazimbi Comms | 24 | Termination | Terminate 24 |

BILL OF MATERIALS & COST: BRITS - ATLANTA, RUSTENBURG - THABAZIMBI OFC

| | | | |
|----|--|-------|-------|
| 1a | Concrete Bridges etc -- Suspension | 100 | Each |
| 1b | Concrete Bridges etc -- Termination | 50 | Each |
| 2a | Universal Bracket AC Sections I-Beam Suspension | 3,104 | Each |
| 2b | Universal Bracket AC Sections I-Beam 1 M Ext Suspension | 60 | Each |
| 3 | Suspension Bracket for Steel Structures | 50 | Each |
| 4a | Universal Bracket AC Sections Rail Mast 500 mm ext Suspension | 0 | Each |
| 4b | Universal Bracket AC Sections rail Mast, 1 M ext Suspension | 0 | Each |
| 5 | Universal Bracket AC Sections I-Beam Termination | 0 | Each |
| 6a | Universal Bracket Rail Mast Suspension | 0 | Each |
| 6b | Universal Bracket Rail Mast Termination | 0 | Each |
| 7 | Universal Bracket AC Sections I-Beam Joint fitting | 66 | Each |
| 8a | Universal Bracket Joint Fittings for I-Beam Suspension | 0 | Each |
| 8b | Universal Bracket Joint Fittings for Concrete Suspension | 0 | Each |
| 9a | Wooden Telephone pole 9m | 120 | Each |
| 9b | Complete stay wire and anchor for wooden pole with reflector board | 120 | Each |
| 10 | Concrete pole - 1 M ext Suspension bracket | 0 | Each |
| 11 | Concrete Pole - Suspension bracket | 0 | Each |
| 12 | Concrete Pole - Termination bracket | 0 | Each |
| 13 | Unistrut clamp -- Rail | 0 | Each |
| 14 | Unistrut clamp -- Universal Column | 100 | Each |
| 15 | 40 x 40 Unistrut with lid | 600 | Metre |
| 16 | 25mm black split betaflex | 600 | Metre |
| 17 | Nextube (install new pipes) for track crossings | 200 | Metre |
| 18 | Concrete cable markers | 0 | Each |
| 19 | Plastic UHG danger tape | 200 | Metre |
| 20 | Concrete protection blocks (pole bases) | 100 | Each |
| 21 | Supply and Install Cable joints with L bracket (Tank) | 66 | Each |
| 22 | Stainless Steel straps for coil binding | 400 | Each |
| 23 | Denso tape seal | 200 | Metre |
| 24 | Heat shrinks 70mm dia | 120 | Metre |

| Item No | Description | Quantity | Unit |
|---------|---|----------|---------|
| 25 | 32mm PVC Sub-Duct Category 6 | 2,000 | Metre |
| 26 | PLP Tangent supports aluminium bobbin | 3,000 | Each |
| 27 | Miscellaneous Installation Materials | 1 | Lot |
| 28a | 24 Fibre single mode cable (aerial) Brits-Beestekraal TFR Supply | 57,000 | Metre |
| 28b | 24 Fibre single mode cable (aerial) Rust-Thabaz TFR Supply | 137,000 | Metre |
| 29 | 19 Inch Termination Equipment Cabinets TFR Supply | 19 | Metre |
| 30 | Rod and Rope existing ducts | 100 | Metre |
| 31 | ODF 24 way fully populated E2000 | 22 | Each |
| 32 | PLP Dead ends | 1,000 | Each |
| 33 | Trenching (other than rail crossings) | 1000 | Metre |
| 34 | Break Tar / Concrete | 50 | Metre |
| 35 | Re-instate Tar / Concrete | 50 | Metre |
| 36 | Underground/overhead track crossings | 100 | Metre |
| 37 | Draw pits | 0 | Each |
| 38 | Detail survey and generation of as built documents | 194 | km |
| 39 | Site establish or move site | 3 | each |
| 40 | Project Supervision | 1 | Lot |
| 41 | Supply, Splice & test 24-fibre OFC in joint (per splice) type Tank | 1,200 | Each |
| 42 | Supply, Splice & terminate pigtail 24 - Fiber (per splice) type Dantcom | 480 | Each |
| 43 | Pre-testing of OFC cable drums - 24 Fiber | 50 | Drum |
| 44 | OTDR tests of entire section (per section) | 21 | Section |
| 45 | Road Control/Security | 1 | Lot |
| 55 | Branch and bush cutting | 5000 | Metre |
| 56 | Consumable materials | 1 | Lot |
| 57 | Flagmen (sufficient for protection at all worksites) | 1 | Lot |
| 58 | Security (on site and site store) | 1 | Lot |

PRELIMINARY COPY ONLY

Notes

1 Tenderers must complete this sheet and submit with tenders. Do not change columns B, C, D and E

Bill of Quantities for installation of OFC: KIMBERLEY - HOTAZEL

| | | | | | | | | |
|----|---------------------------------------|--------|-------|--|--|--------------|--------------|---------------|
| 1 | Concrete Bridge - Suspension bracket | 50 | Each | | | R0.00 | R0.00 | R0.00 |
| 2 | Concrete Bridge - Termination bracket | 20 | Each | | | R0.00 | R0.00 | R0.00 |
| 3 | Steel structure - Universal Bracket | 300 | Each | | | R0.00 | R0.00 | R0.00 |
| 4 | Building entry - Brick wall bracket | 16 | Each | | | R0.00 | R0.00 | R0.00 |
| 5 | Boom Plate | 4 | Each | | | R0.00 | R0.00 | R0.00 |
| 6 | P.L.P Tangent support | 4480 | Each | | | R0.00 | R0.00 | R0.00 |
| 7 | PLP Dead End | 1200 | Each | | | R0.00 | R0.00 | R0.00 |
| 8 | Wooden pole 9m | 200 | Each | | | R0.00 | R0.00 | R0.00 |
| 9 | Wooden pole - Suspension bracket | 150 | Each | | | R0.00 | R0.00 | R0.00 |
| 10 | Wooden pole - Termination bracket | 25 | Each | | | R0.00 | R0.00 | R0.00 |
| 11 | Wooden pole - Joint bracket | 25 | Each | | | R0.00 | R0.00 | R0.00 |
| 12 | Unistrut clamp | 300 | Each | | | R0.00 | R0.00 | R0.00 |
| 13 | 40 x 40 unistrut (5m lenth) | 100 | Each | | | R0.00 | R0.00 | R0.00 |
| 14 | Concrete protection blocks (masts) | 100 | Each | | | R0.00 | R0.00 | R0.00 |
| 15 | Stainless Steel Coil Binders | 240 | Each | | | R0.00 | R0.00 | R0.00 |
| 16 | Denso tape seal | 300 | Metre | | | R0.00 | R0.00 | R0.00 |
| 17 | 32mm dia HDPE sub duct | 1500 | Metre | | | R0.00 | R0.00 | R0.00 |
| 18 | 25mm black split Betaflex | 150 | Metre | | | R0.00 | R0.00 | R0.00 |
| 19 | Boom crossing | 2 | Each | | | R0.00 | R0.00 | R0.00 |
| 20 | U/G Rail crossings | 75 | Each | | | R0.00 | R0.00 | R0.00 |
| 21 | 110mm Kabelflex X 6m | 75 | Each | | | R0.00 | R0.00 | R0.00 |
| 22 | Trenching (Other than rail crossing) | 300 | Metre | | | R0.00 | R0.00 | R0.00 |
| 23 | 24 Fibre single mode cable stringing | 290000 | Metre | | | R0.00 | R0.00 | R0.00 |
| 24 | Joint closure (48 fibre) - TIS | 80 | Each | | | R0.00 | R0.00 | R0.00 |
| 25 | Detail Survey And As Laid Route Plans | 290 | Km | | | R0.00 | R0.00 | R0.00 |
| 26 | Site establishment | 3 | Each | | | R0.00 | R0.00 | R0.00 |
| 27 | Suspension AC | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 28 | Termination AC | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 29 | 1m AC | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 30 | Joint AC | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 31 | Suspension AC Rail Left | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 32 | Termination AC Rail Left | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 33 | 1m AC Rail Left | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 34 | Joint AC Rail Left | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 35 | Suspension AC Rail Right | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 36 | Termination AC Rail Right | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 37 | 1m AC Rail Right | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 38 | Joint AC Rail Right | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 39 | Suspension Bracket DC | 4480 | Each | | | R0.00 | R0.00 | R0.00 |
| 40 | Termination Bracket DC | 600 | Each | | | R0.00 | R0.00 | R0.00 |
| 41 | 1m extension bracket DC | 300 | Each | | | R0.00 | R0.00 | R0.00 |
| 42 | Joint Bracket DC | 80 | Each | | | R0.00 | R0.00 | R0.00 |
| 43 | Manufacture Special Bracket DC | 20 | Each | | | R0.00 | R0.00 | R0.00 |
| 44 | Ducting PVC 40 x 40 | 80 | Each | | | R0.00 | R0.00 | R0.00 |
| 45 | ODF drawer type (24f) TIS | 14 | Each | | | R0.00 | R0.00 | R0.00 |
| 46 | Bulkhead connectors Quick Fix | 336 | Each | | | R0.00 | R0.00 | R0.00 |
| 47 | Splice protectors | 1920 | Each | | | R0.00 | R0.00 | R0.00 |
| 48 | Pigtails | 336 | Each | | | R0.00 | R0.00 | R0.00 |
| 49 | Cabinet 16U | 0 | Each | | | R0.00 | R0.00 | R0.00 |
| 50 | Cabinet 47U | 8 | Each | | | R0.00 | R0.00 | R0.00 |
| 51 | Drum Testing (48 Fibre) | 80 | Each | | | R0.00 | R0.00 | R0.00 |
| 52 | OTDR tests of entire section | 14 | sect. | | | R0.00 | R0.00 | R0.00 |
| 53 | Splice 24 fibre OFC in joint closure | 1920 | Each | | | R0.00 | R0.00 | R0.00 |
| 54 | Splice 24 fibre OFC in ODF | 336 | Each | | | R0.00 | R0.00 | R0.00 |
| 55 | Branch and bush cutting | 1000 | meter | | | R0.00 | R0.00 | R0.00 |
| 56 | Other consumable materials | 1 | Lot | | | R0.00 | R0.00 | R0.00 |
| | | | | | | R0.00 | R0.00 | R 0.00 |

SUBTOTAL R 0.00

ADDITIONAL COST

Unit Rates

| | | | | | | |
|---|------------------------------------|--|------|--|--|--------|
| 1 | Flagmen (3 flagmen per day)* | | days | | | R 0.00 |
| 2 | Security (on site and site store)* | | days | | | R 0.00 |

* = To be completed by Tenderer

SUBTOTAL R 0.00

Bill of Quantities for installation of OFC: KIMBERLEY - HOTAZEL

| Item No | Description | Unit | Quantity | Rate | Amount |
|---------|---------------------------------------|-------|----------|------|--------|
| 1 | Concrete Bridge - Suspension bracket | Each | 50 | | |
| 2 | Concrete Bridge - Termination bracket | Each | 20 | | |
| 3 | Steel structure - Universal Bracket | Each | 300 | | |
| 4 | Building entry - Brick wall bracket | Each | 16 | | |
| 5 | Boom Plate | Each | 4 | | |
| 6 | P.L.P Tangent support | Each | 490 | | |
| 7 | PLP Dead End | Each | 120 | | |
| 8 | Wooden pole firm | Each | 200 | | |
| 9 | Wooden pole - Suspension bracket | Each | 150 | | |
| 10 | Wooden pole - Termination bracket | Each | 25 | | |
| 11 | Wooden pole - Joint bracket | Each | 25 | | |
| 12 | Unistrut clamp | Each | 300 | | |
| 13 | 40 x 40 unistrut (5m length) | Each | 100 | | |
| 14 | Concrete protection blocks (masts) | Each | 100 | | |
| 15 | Stainless Steel Coil Binders | Each | 240 | | |
| 16 | Denso tape seal | Metre | 300 | | |
| 17 | 32mm dia HDPE sub duct | Metre | 1500 | | |
| 18 | 25mm black split Betaflex | Metre | 150 | | |
| 19 | Boom crossing | Each | 2 | | |
| 20 | UNG Rail crossings | Each | 75 | | |
| 21 | 110mm Kabelflex X 6m | Each | 75 | | |
| 22 | Trenching (Other than rail crossing) | Metre | 300 | | |
| 23 | 24 Fibre single mode cable stringing | Metre | 290000 | | |
| 24 | Joint closure (48 fibre) - TIS | Each | 80 | | |
| 25 | Detail Survey And As Laid Route Plans | Km | 290 | | |
| 26 | Site establishment | Each | 3 | | |
| 27 | Suspension AC | Each | 0 | | |
| 28 | Termination AC | Each | 0 | | |
| 29 | 1m AC | Each | 0 | | |
| 30 | Joint AC | Each | 0 | | |
| 31 | Suspension AC Rail Left | Each | 0 | | |
| 32 | Termination AC Rail Left | Each | 0 | | |
| 33 | 1m AC Rail Left | Each | 0 | | |
| 34 | Joint AC Rail Left | Each | 0 | | |

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|----|--------------------------------------|------|-------|--|--|--|--|
| 35 | Suspension AC Rail Right | 0 | Each | | | | |
| 36 | Termination AC Rail Right | 0 | Each | | | | |
| 37 | 1m AC Rail Right | 0 | Each | | | | |
| 38 | Joint AC Rail Right | 0 | Each | | | | |
| 39 | Suspension Bracket DC | 4480 | Each | | | | |
| 40 | Termination Bracket DC | 600 | Each | | | | |
| 41 | 1m extension bracket DC | 300 | Each | | | | |
| 42 | Joint Bracket DC | 80 | Each | | | | |
| 43 | Manufacture Special Bracket DC | 20 | Each | | | | |
| 44 | Ducting PVC 40 x 40 | 80 | Each | | | | |
| 45 | ODF drawer type (24f) TIS | 14 | Each | | | | |
| 46 | Bulkhead connectors Quick Fix | 336 | Each | | | | |
| 47 | Splice protectors | 1920 | Each | | | | |
| 48 | Pigtails | 336 | Each | | | | |
| 49 | Cabinet 16U | 0 | Each | | | | |
| 50 | Cabinet 47U | 8 | Each | | | | |
| 51 | Drum Testing (48 Fibre) | 80 | Each | | | | |
| 52 | OTDR tests of entire section | 14 | sect. | | | | |
| 53 | Splice 24 fibre OFC in joint closure | 1920 | Each | | | | |
| 54 | Splice 24 fibre OFC in ODF | 336 | Each | | | | |
| 55 | Branch and bush cutting | 1000 | meter | | | | |
| 56 | Other consumable materials | 1 | Lot | | | | |

SUBTOTAL

| | | | |
|---------------------------------|------------------------------------|------|--|
| Unit Rates | | | |
| 1 | Flagmen (3 flagmen per day)* | days | |
| 2 | Security (on site and site store)* | days | |
| * = To be completed by Tenderer | | | |

SUBTOTAL

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BILL OF QUANTITY & COST - DURBAN - RICHARDS BAY FIBRE CABLE

| | | | | | | | | | |
|----|---|-------|-------|--|--|--|--|--|--|
| 1a | Concrete Bridges etc -- Suspension | 300 | Each | | | | | | |
| 1b | Concrete Bridges etc -- Termination | 120 | Each | | | | | | |
| 2a | Universal Bracket AC Sections I-Beam Suspension | 1,400 | Each | | | | | | |
| 2b | Universal Bracket AC Sections I-Beam 1 M Ext Suspension | 60 | Each | | | | | | |
| 3 | Suspension Bracket for Steel Structures | 0 | Each | | | | | | |
| 4a | Universal Bracket AC Sections Rail Mast 500 mm ext Suspension | 0 | Each | | | | | | |
| 4b | Universal Bracket AC Sections rail Mast 1 M ext Suspension | 0 | Each | | | | | | |
| 5 | Universal Bracket AC Sections I-Beam Termination | 0 | Each | | | | | | |
| 6a | Universal Bracket Rail Mast Suspension | 990 | Each | | | | | | |
| 6b | Universal Bracket Rail Mast Termination | 30 | Each | | | | | | |
| 7 | Universal Bracket AC Sections I-Beam Suspension | 0 | Each | | | | | | |
| 8a | Universal Bracket Joint Fittings for I-Beam Suspension | 36 | Each | | | | | | |
| 8b | Universal Bracket Joint Fittings for Concrete Suspension | 30 | Each | | | | | | |
| 9a | Concrete Telephone pole (separate) | 0 | Each | | | | | | |
| 9b | Complete stay wire and anchor for concrete pole (separate) | 0 | Each | | | | | | |
| 10 | Concrete pole - 1 M ext Suspension bracket | 180 | Each | | | | | | |
| 11 | Concrete Pole - Suspension bracket | 1,680 | Each | | | | | | |
| 12 | Concrete Pole - Termination bracket | 154 | Each | | | | | | |
| 13 | Unistrut clamp -- Rail | 490 | Each | | | | | | |
| 14 | Unistrut clamp -- Universal Column | 100 | Each | | | | | | |
| 15 | 40 x 40 Unistrut with lid | 590 | Metre | | | | | | |
| 16 | 25mm black split belaflex | 590 | Metre | | | | | | |
| 17 | Nextube (install new pipes) for track crossings | 200 | Metre | | | | | | |
| 18 | Concrete cable markers | 80 | Each | | | | | | |
| 19 | Plastic UVG danger tape | 2,700 | Metre | | | | | | |
| 20 | Concrete protection blocks (meets) | 772 | Each | | | | | | |
| 21 | Supply and Install Cable joints with L bracket (Tank) | 66 | Each | | | | | | |
| 22 | Stainless Steel straps for coil binding | 400 | Each | | | | | | |
| 23 | Denso tape seal | 500 | Metre | | | | | | |
| 24 | Heat shrink 70mm dia | 132 | Metre | | | | | | |
| 25 | 32mm PVC Sub-Duct Category 6 | 4,900 | Metre | | | | | | |
| 26 | PLP Tangent supports | 3,000 | Each | | | | | | |

BILL OF QUANTITY & COST: DURBAN - RICHARDS BAY FIBRE CABLE

| Item No | Description | Quantity | Unit | Lot |
|---------|---|----------|-------|-----|
| 27 | Miscellaneous installation Materials | 1 | Lot | |
| 28a | 24 Fibre single mode cable (aerial) TFR Supply | 184,000 | Metre | |
| 28b | 48 Fibre single mode cable (aerial) TFR Supply | 16,000 | Metre | |
| 29 | 24 Fibre single mode cable underground(Duct) TFR Supply | 0 | Metre | |
| 30 | Rod and Rope existing ducts | 0 | Metre | |
| 31a | ODF 24 way fully populated E2000 | 10 | Each | |
| 31b | ODF 48 way fully populated E2000 | 2 | Each | |
| 32 | PLP Dead ends | 1,000 | Each | |
| 33 | Trenching (other than rail crossings) | 2700 | Metre | |
| 34 | Break Tar / Concrete | 20 | Metre | |
| 35 | Re-install Tar / Concrete | 20 | Metre | |
| 36 | Underground road crossings | 20 | Metre | |
| 37 | Draw pits | 0 | Each | |
| 38 | Detail survey and generation of as built documents | 220 | km | |
| 39 | Site Establishment | 3 | each | |
| 40 | Project Supervision | 1 | Lot | |
| 41 | Supply, Splice & test 24 -fibre OFC in joint (per splice) type Tank | 1,512 | Each | |
| 41b | Supply, Splice & test 48 -fibre OFC in joint (per splice) type Tank | 240 | Each | |
| 42 | Supply, Splice & terminate pigtail 24 - Fiber (per splice) type Dardcom | 120 | Each | |
| 42b | Supply, Splice & terminate pigtail 48 - Fiber (per splice) type Dardcom | 96 | Each | |
| 43 | Pre-testing of OFC cable drums - 24 Fiber | 51 | Drum | |
| 43b | Pre-testing of OFC cable drums - 48 Fiber | 4 | Drum | |
| 44 | OTDR tests of entire section | 1 | Lot | |
| 45 | Road Control/Security | 1 | Lot | |
| 55 | Branch and bush cutting | 10000 | Metre | |
| 56 | Consumable materials | 1 | Lot | |
| 57 | Flagmen (sufficient for protection at all worksites) | 1 | Lot | |
| 58 | Security (on site and site store) | 1 | Lot | |

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Part C3: Scope of Works

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PART C3
SERVICE INFORMATION
CONTENTS

| SECTION | DESCRIPTION |
|----------------|--|
| C3.1. | DESCRIPTION OF THE WORKS |
| C3.1.1. | EMPLOYERS OBJECTIVE |
| C3.1.2. | OVERVIEW OF THE WORKS |
| C3.1.3. | EXTENT OF THE WORKS |
| C3.1.4. | LOCATION OF THE WORKS |
| C3.1.5. | DURATION PERIOD |
| C3.2. | GENERAL MAINTENANCE ASPECTS |
| C3.2.1. | WORKS SPECIFICATIONS |
| C3.2.2. | PLANT AND MATERIAL |
| C3.2.3. | CONSTRUCTION EQUIPMENT |
| C3.2.4. | EXISTING SERVICES |
| C3.2.5. | SITE ESTABLISHMENT |
| C3.3. | MANAGEMENT OF THE WORKS |
| C3.3.1. | SITE MEETINGS |
| C3.3.2. | SITE BOOKS |
| C3.3.3. | PROGRAMME OF WORK |
| C3.3.4. | PERFORMANCE MONITORING AND EVALUATIONS / INSPECTIONS |
| C3.4. | ENVIRONMENTAL REQUIREMENTS |
| C3.4.1. | COMPLIANCE WITH STATUTES |
| C3.4.2. | DAMAGE TO FAUNA AND FLORA |
| C3.5. | PARTICULAR SPECIFICATIONS |
| C3.5.1. | DEFINITIONS |
| C3.5.2. | METHOD OF VEGETATION CONTROL |
| C3.5.3. | STANDARD OF WORKMANSHIP |
| C3.6. | GENERAL SPECIFICATIONS |
| C3.6.1. | GENERAL |
| C3.6.2. | HEALTH AND SAFETY |

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C3.1. DESCRIPTION OF THE WORKS

C3.1.1. EMPLOYERS OBJECTIVE

C3.1.1.1 TFR Telecom intends to expand its optical capacity by installing optical fibre cables in the sections Kimberley – Hotazel, Richards Bay – Durban and Brits – Atlanta – Thabazimbi in the Republic of South Africa. Therefore TFR is issuing this RFP (Request for Proposal) for the installation of Aerial Optical Cable on Electrification Traction Masts (OHTE), Aerial Optical Cable on pole routes and short Underground Duct Optical Cable Installations in the sections mentioned above.

C3.1.2. OVERVIEW OF THE WORKS

C3.1.2.1 Prospective tenderers must take note that separate contracts will be issued on each of the three sections mentioned. The Request for Tender documentation is split into three separate enquiries to facilitate this requirement.

C3.1.3. EXTENT OF THE WORKS

C3.1.3.1 The three Main Specifications and Bills of Quantities generally describe the scope of the works required.

C3.1.3.2 Tender proposals must be neatly separated into the three sections to facilitate the adjudication and award process.

C3.1.3.3 TFR will issue three individual contracts for the works envisaged at its own discretion after evaluation of the proposals received. Tenderers may tender for all or individual sections and this must be stated in the covering letter.

C3.1.3.4 Only Tenderers registered with the CIDB (Construction Industry Development Board) will be eligible for each RFT. A CIDB rating equivalent to each tender amount will be required. CIDB Certificates must be presented with tenders.

C3.1.3.5 Tenders will be adjudicated as per method 4 of the CIDB.

C3.1.3.6 Tenderers must scrutinise all tender documentation carefully to ensure that all requirements are met for proposals to be considered.

C3.1.3.7 Tenderer's attention is specifically drawn to the general and specific Safety, Competence and Compliance requirements of TFR and Transnet as covered by the documentation attached.

C3.1.4. LOCATION OF THE WORKS

The location of the works is as indicated follows:

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| SECTION 1 | DISTANCE | TYPE |
|---|---------------|---|
| KIMBERLEY – EMIL | 280 km | OHTE 3 kV DC and Pole Routes |
| MAMMATWANE (WITLOOP) - HOTAZEL | 10 km | OHTE 3 kV DC and Pole Routes |
| Total | 290 km | |
| | | |
| SECTION 2 | DISTANCE | TYPE |
| RICHARDS BAY (Nsezi) – MTUNZINI (24 fibre cable) | 38 km | OHTE 3 kV DC and short Pole Routes |
| MTUNZINI – STANGER (24 fibre cable) | 67 km | OHTE 3 kV DC and short Pole Routes |
| STANGER – DURBAN (48 f cable to be installed from Duffs Rd to Durban Station) | 75 km | OHTE 3 kV DC and short Pole Routes |
| Total | 180 km | |

| SECTION 3 | DISTANCE | TYPE |
|---|---------------|--|
| BRITS – ATLANTA (24 fibre OFC) | 57 km | OHTE 25 kV AC and short Pole Routes |
| RUSTENBURG – THABAZIMBI (24 Fibre OFC) | 137 km | OHTE 25 kV AC and short Pole Routes |
| Total | 194 km | |

C3.1.5. DURATION OF CONTRACT

Commencing on the date of notification of acceptance of tender:
 Section 1: Kimberley – Hotazel: 9 calendar months.
 Section 2: Richards Bay – Durban: 7 calendar months
 Section 3: Brits – Atlanta – Rustenburg - Thabazimbi: 7 calendar months

C3.2. GENERAL MAINTENANCE ASPECTS**C3.2.1. WORK SPECIFICATIONS**

C3.2.1.1. Main Specifications.

| DOCUMENT NO. | DESCRIPTION | LOCATION |
|-------------------------------|---|-------------------------|
| BBF 0885 May 2011 | Main Specification: Kimberley - Hotazel | Document Control Centre |
| BBF 1595 Sept 2011 | Main Specification: Richards Bay - Durban | Document Control Centre |
| BBF 1646 Sept 2011 | Main Specification: Brits – Atlanta - Thabazimbi | Document Control Centre |

C3.2.1.2. Generic Specifications:

The following Generic Specifications will be applicable to this contract:

| | | |
|------------------|---|-------------------------|
| SPC-00029 | Trenching, laying and hauling in of communication cables | Document Control Centre |
| SPC-00033 | Specification for Optical Fibre Testing Equipment | Document Control Centre |
| SPC-00568 | Specification for Optical Fibre Fusion Splicer | Document Control Centre |
| SPC-00571 | Single Mode Optical Fibres (for information only) | Document Control Centre |
| SPC-00573 | OFC make-up (for information only) | Document Control Centre |
| SPC-00575 | Specification for the Erection of Self-Supporting Optical Fibre Cable on traction Masts | Document Control Centre |
| SPC-01203 | Specification for Optical Fibre Accessories | Document Control Centre |
| SPC-00588 | Specification for OFC Ducts | Document Control Centre |
| SPC-00587 | Specification for Horizontal directional Drilling | Document Control Centre |
| SPC-01242 | Specification for Wooden Poles | Document Control Centre |
| SPC-01279 | Specification for Erection of Wooden Pole Routes | Document Control Centre |

C3.2.1.3. Standard Test Procedures:

| | | |
|------------------|--|-------------------------|
| PRC-00107 | Standard Test Procedure : Pre-Test quality of Optic Fibre Cable on Drums | Document Control Centre |
| PRC-00106 | Standard Test procedure : Post-Installation Tests of Optic Fibre Cable | Document Control Centre |

C3.2.1.4. Safe work Procedures:

| | | |
|-------------------------------|---|-------------------------|
| PRC-00112 | Written Safe Work Procedure for the erection of self supporting Optical Fibre on AC OHTE (including all associated documents) | Document Control Centre |
| SOP-0H00 (Provisional) | Safe Work Procedure for working in confined spaces | Document Control Centre |

- E4E (August 2006): Safety arrangements and procedural compliance with the Occupational Health and Safety Act, Act 85 of 1993 and regulations.
- E7/1 (May 2011); Specifications for works on, over, under or adjacent to railway lines and near high voltage equipment.

C3.2.2. PLANT AND MATERIAL

C3.2.2.1. Any materials provided to the Contractor at the beginning of the contract shall be returned to Transnet Freight Rail in the same condition, normal wear and tear accepted. Any loss or damage shall be made good by the Contractor, or the value thereof will be deducted from moneys falling due to him/her.

C3.2.2.2. The Contractor shall provide written certification of receipt of "free issue" materials.

C3.2.3. CONSTRUCTION EQUIPMENT

All equipment necessary to execute the works shall be supplied by the contractor.

C3.2.4. EXISTING SERVICES

C3.2.4.1. Reinstatement of services and property damaged during execution of the work.

C3.2.4.2. Any damages caused by the Contractor to Transnet property and services shall be rectified by the Contractor at his own cost and to the full satisfaction of the Project Manager or Site Supervisor.

C3.2.5. SITE ESTABLISHMENT

C3.2.5.1. SERVICES AND FACILITIES PROVIDED BY THE EMPLOYER:

C3.2.5.1.1. The Contractor shall supply a site camp and facilities to the satisfaction of the Project Manager or Site Supervisor.

C3.2.5.1.2. The site camp shall be of sufficient size to safely house all materials "free issued" and the Contractor's own materials and temporary accommodation.

C3.2.5.1.3. Road vehicle accessibility via service roads to the work site is not always possible.

C3.2.5.1.4. Inspections of the areas of completed work by motor trolley may be arranged with the Service Manager's Deputy, but will have to coincide with normal track inspections carried out by the inspection /technical staff of the Depot. The Project

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Manager's Deputy shall be given timeous notice (4 calendar weeks) of the Contractor's intention to inspect.

C3.2.5.2. TO BE PROVIDED BY THE CONTRACTOR

- C3.2.5.2.1. In addition to all labour materials, plant, equipment and incidentals needed to complete the work, the Contractor shall provide all accommodation and toilet facilities for his/her employees.
- C3.2.5.2.2. The Contractor shall provide at his/her own cost any security measures he/she may deem necessary for safe and effective execution of the work within the contract area.
- C3.2.5.2.3. The personnel of the contractor shall at all times, while on Transnet Freight Rail property, wear the required PPE (Personal Protective Equipment).
- C3.2.5.2.4. A Site Safety File stipulating effective safety procedures to be followed by all personnel on any Transnet Freight Rail work site shall be compiled by the Contractor and implemented before any work commences. The procedure shall be updated whenever the need arises and any changes shall be communicated to all employees on a work site before work proceeds.

C3.3. MANAGEMENT OF THE WORKS

C3.3.1. SITE MEETINGS

The Contractor shall attend progress meetings when required. These meetings will be held under the chairmanship of the Project Manager. These meetings will be conducted to monitor progress and discuss contractual issues when required. A register will be kept of attendance and a minute of the proceedings will be recorded and distributed afterwards. When sub-contractors are required to attend, the Contractor shall ensure their attendance.

C3.3.2. SITE BOOKS

C3.3.2.1. A Site Instruction Book, A4 size, with triplicate pages shall be provided by TFR. The format for written communication on site shall be the Site Instruction Book. The site instruction shall have numbered sheet for receiving and recording instructions by the Employer's representative and shall be clearly marked "Site Instruction Book".

C3.3.2.2. A Daily Diary Book with triplicate pages shall be provided by the Contractor and be available on site at all times. The number of staff and plant on site for every day shall be recorded. The hours of actual work and the accurate amount of work measured per item as in the Price List completed for each day shall also be recorded and signed off by both Transnet Freight Rail (TFR) and the Contractor at the end of each day. This site diary shall also serve as a daily record of all relevant information concerning herbicide application and site conditions prevailing on site and as required in terms of section 16 of Act 36 of 1947.

C3.3.2.3. Only persons authorised in writing by the Project Manager or Contractor may make entries in the site books.

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C3.3.3. PROGRAMME OF WORK

C3.3.3.1. The Contractor shall undertake the planning and programming of the entire project and shall submit to the Project Manager and Deputy full particulars thereof within 4 weeks from the date of notification by Transnet Freight Rail of the acceptance of his/her tender.

C3.3.3.2. In addition to the programme provided the Contractor shall submit daily working programmes to the Deputy in advance of the next working week, indicating the specific areas where the Contractor will be working each day of the week. This information will be communicated with the CTC personnel for safety purposes. Failure by the Contractor to submit a daily programme and/or deviating from it without notifying the Deputy, preventing him/her from monitoring the Contractor's programme, may result in payment for such work being withheld.

C3.3.4. PERFORMANCE MONITORING AND EVALUATION / INSPECTIONS

C3.3.4.1. The Contractor shall at all times be responsible for supervision of the work and for follow-up inspections to monitor the successful control achieved over areas of completed work. He/she shall immediately take appropriate remedial action in areas where the specified standards of control are not achieved.

C3.3.4.2. The Project Manager's Deputy shall at any time during the application periods carry out inspections of the Contractor's progress, performance methods and site safety procedures.

C3.4. ENVIRONMENTAL REQUIREMENTS

C3.4.1. DAMAGE TO FAUNA AND FLORA

C3.4.1.1. The Contractor shall ensure that his/her employees at all times exercise care and consideration for the fauna and flora within and adjacent to the areas of work.

C3.4.1.2. The Contractor shall not use any chemicals of an explosive, inflammable, highly volatile or corrosive nature, which may damage crops vegetation or property or be hazardous to humans or animals. The Contractor shall assume full responsibility for the efficiency and safety of whatever chemicals are used.

C3.4.1.3. Dumping or polluting of any kind will not be permitted. This stipulation is also applicable to the washing out of tanks and equipment containing harmful chemicals and pollutants.

The Contractor shall institute and maintain procedures for the safe disposal of all materials and residual materials originating from the execution of the works.

Containers and residual material shall not be disposed of on Transnet Freight Rail property or as part of Transnet Freight Rail refuse.

C3.4.1.4. The Contractor shall take particular note of environmentally sensitive areas and shall plan and execute his/her work with the utmost care and responsibility.

C3.5. PARTICULAR SPECIFICATIONS

C3.5.1. DEFINITIONS

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C3.5.1.1. Project Manager's Deputy. Any person appointed by the Employer to deputise for him / her in supervising and managing the contract.

C3.6. GENERAL SPECIFICATIONS

C3.6.1. GENERAL

C3.6.1.1.E4E (August 2006) – Safety Arrangements and Procedural Compliance with the Occupational Health and Safety Act.

C3.6.1.2.Specification E7/1 (May 2011): Specification for works on, over, under or adjacent to railway lines and near high voltage

C3.6.2. HEALTH AND SAFETY

C3.6.2.1.The Contractor shall at all time comply with safety rules, regulations and legislation, as well as Transnet Freight Rail (TFR) Safety Guidelines for Infrastructure (Latest Edition).

C3.6.2.2.The Contractor shall at all times comply with the Basic Conditions of Employment Act as well as all other relevant labour legislation. The Contractor must conduct his own formal risk assessment to identify all risks. The Contractor is to clearly indicate in his tender submission the processes and procedures he intends implementing to mitigate the total of all these risks: e.g.

- Working on, over and adjacent to railway lines
- Proximity of live OHTE
- Installations under wet or windy conditions
- Executing work on one line while a normal train service is running on adjacent line/s
- Sanitation and refuse disposal as a threat to the environment.

C3.6.2.3.The Contractor shall be responsible to ensure the use of only technically competent trained staff on all different types of work.

C3.6.2.4.The Contractor shall ensure that all workers are appropriately equipped and wearing Personal Protective Equipment (PPE) and that Safety Talks are conducted and noted in the Site Diary before the start of every shift.

C3.6.2.5.The Contractor shall be responsible to ensure that site staff is always competently trained with regards to Electrical Awareness Training.

C3.6.2.6.Non-compliance with safety requirements will result in an immediate suspension of work without payment.

C3.6.2.7.Where training is required by the Contractor and Transnet Freight Rail (TFR) is committed to provide training, the Contractor shall qualify his tender as to what and how many staff, training will be required for. After award of the contract, the Contractor shall then arrange with the appropriate Transnet Freight Rail (TFR) representative, through the Service Manager's Deputy, for this training / testing.

The following training shall be arranged for the following Contractors staff:

| Course | Objective | Duration & trainer | Grade to attend |
|------------------------|---------------------------------|---|--|
| A) Awareness | To inform all Contractors staff | Two hour on-the-job lecture and training. | • All workers and staff working on the |

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| | | | |
|--------------|--|--|----------|
| (Electrical) | working on the line on electrified sections and the dangerous proximity of high voltage OHTE | Accredited Electrical trainer / Depot's Electrical Supervisor | contract |
| | | | |

- The electrical awareness training must be arranged for beforehand on-the-job.
- The electrical educational and competency training may be arranged for at either a depot's lecture room's (Transnet Freight Rail (TFR) property), or at a venue of the Contractors choice (Contractors cost).

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