

| Section         | Description                                                                                                                                                                                 | Unit           | Qty    | Rate (R)  | Amount (R) |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|-----------|------------|
| <b>B15.03</b>   | <b>SECTION 1500<br/>ACCOMMODATION OF TRAFFIC</b>                                                                                                                                            |                |        |           |            |
|                 | <b>Temporary traffic-control facilities as requested by the Engineer</b>                                                                                                                    |                |        |           |            |
|                 | (a) Flagmen                                                                                                                                                                                 | man-day        | 3,000  |           |            |
|                 | (b) Portable stop and go sign                                                                                                                                                               | No             | 8      |           |            |
|                 | (e) Road signs, R- and TR-series, (900mm)                                                                                                                                                   | No.            | 12     |           |            |
|                 | (f) Road signs, TW-series, (900mm)                                                                                                                                                          | No.            | 20     |           |            |
|                 | (g) Road signs, STW-, DTG-, TGS- AND TG-series (excluding delineators and barricades)                                                                                                       | m <sup>2</sup> | 40     |           |            |
|                 | (h) Delineators (TW 401/402, 200mm x 800mm, including stands and bases)                                                                                                                     |                |        |           |            |
|                 | (i) Single                                                                                                                                                                                  | No.            | 50     |           |            |
|                 | (j) Traffic cones, TD4 (450mm)                                                                                                                                                              | No.            | 25     |           |            |
|                 | (n) Road signs, TIN- series (900mm)                                                                                                                                                         | No             | 20     |           |            |
|                 | (o) Other traffic measures ordered by the Engineer                                                                                                                                          |                |        |           |            |
|                 | (i) Provision for other traffic control measures                                                                                                                                            | Prov Sum       | 1      | 20,000.00 | 20,000.00  |
|                 | (ii) Handling costs and profit in respect of sub item B15.03 (o) (i) above                                                                                                                  | %              | 20,000 |           |            |
|                 | (p) Heavy Duty Reboundable delineators                                                                                                                                                      | No.            | 20     |           |            |
| <b>B15.10</b>   | <b>Accommodating traffic where the road is constructed in half-widths</b>                                                                                                                   |                |        |           |            |
|                 | (a) Day-time short-term stop-go traffic accommodation to allow for half-width milling, crack & seat, kerb, sidewalk and resurfacing works                                                   | km             | 12.8   |           |            |
|                 | (b) Day-time short-term stop-go traffic accommodation to allow for half-width installation of service ducts at each intersection                                                            | No             | 6      |           |            |
|                 | (c) Day-time short-term stop-go traffic accommodation to allow for half-width construction of traffic control facilities; raised intersections, raised pedestrian crossings and speed humps | No             | 17     |           |            |
| Carried Forward |                                                                                                                                                                                             |                |        |           |            |

| Section         | Description                                                                                                                                                                                                                  | Unit | Qty | Rate<br>(R) | Amount<br>(R) |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|-------------|---------------|
|                 | <b>SECTION 2200<br/>PREFABRICATED CULVERTS</b>                                                                                                                                                                               |      |     |             |               |
| <b>B22.01</b>   | <b>Excavation:</b>                                                                                                                                                                                                           |      |     |             |               |
|                 | (a) Excavating soft material situated within the following depth ranges below the surface level:<br>(i) 0m up to 1,5m                                                                                                        | m³   | 300 |             |               |
|                 | (b) Extra over subitem 22.01(a) for excavation in hard material irrespective of depth                                                                                                                                        | m³   | 300 |             |               |
|                 | (c) Extra over subitem 22.01(a) for excavation by hand                                                                                                                                                                       | m³   | 300 |             |               |
|                 | (d) Extra-over subitem 22.01(a) for excavation<br>(i) Through concrete                                                                                                                                                       | m³   | 5   |             |               |
|                 | (ii) Through asphalt                                                                                                                                                                                                         | m³   | 5   |             |               |
| <b>22.02</b>    | <b>Backfilling:</b>                                                                                                                                                                                                          |      |     |             |               |
|                 | (a) Using the excavated material                                                                                                                                                                                             | m³   | 300 |             |               |
|                 | (b) Using imported selected material                                                                                                                                                                                         | m³   | 100 |             |               |
|                 | (c) Extra over subitems 22.02(a) and (b) for stiff soil cement backfilling with (3% OPC)                                                                                                                                     | m³   | 230 |             |               |
|                 | (d) Extra over subitems 22.02(a) and (b) for wet soil cement backfilling with (5% OPC)                                                                                                                                       | m³   | 70  |             |               |
| <b>B22.17</b>   | <b>Manholes, catchpits, precast inlets and outlet structures complete:</b>                                                                                                                                                   |      |     |             |               |
|                 | (b) Precast kerb inlet catchpit constructed complete with inlet and frame of specified type as per detail drawing with benching, brickwork and the like as per std. detail drawing SW3.2C, for depths:<br><br>(i) 0m to 1.5m | No   | 6   |             |               |
| Carried Forward |                                                                                                                                                                                                                              |      |     |             |               |

| Section                                | Description                                                                                                                                                                                                                                                                                                                                                                                    | Unit           | Qty | Rate (R) | Amount (R) |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|----------|------------|
| Brought Forward                        |                                                                                                                                                                                                                                                                                                                                                                                                |                |     |          |            |
| <b>22.21</b>                           | <b>Accessories</b>                                                                                                                                                                                                                                                                                                                                                                             |                |     |          |            |
|                                        | (a) Manhole covers including frames                                                                                                                                                                                                                                                                                                                                                            |                |     |          |            |
|                                        | (i) Supply and install of rectangular catchpit manhole covers (600 X 450 Rectangular Manhole Cover and frame manufactured to SANS 50124 EN124 CLASS B125)                                                                                                                                                                                                                                      | No             | 20  |          |            |
|                                        | (ii) Supply and install round manhole cover and frame according to std. detail drawing SW2.4A                                                                                                                                                                                                                                                                                                  | No             | 5   |          |            |
|                                        | (d) Supply and install catchpit grids                                                                                                                                                                                                                                                                                                                                                          | No             | 5   |          |            |
| <b>B22.23</b>                          | <b>Service Ducts</b>                                                                                                                                                                                                                                                                                                                                                                           |                |     |          |            |
|                                        | (a) Ordinary pipes                                                                                                                                                                                                                                                                                                                                                                             |                |     |          |            |
|                                        | (i) Supply, lay and encase in wet soil cement (5% OPC) and backfill with stiff soil cement (3% OPC) 2no 110mm and 3no 160mm diameter uPVC heavy duty ducts to be SABS 791 or equivalent approved as per Standard Detail Detail GE6.1 and GE6.2 (except for omitting concrete encasement) D-Type for 5no ducts, complete with end caps and draw wire (rate per metre along trench for 5no ducts | m              | 200 |          |            |
| <b>22.24</b>                           | <b>Duct marker blocks</b>                                                                                                                                                                                                                                                                                                                                                                      |                |     |          |            |
|                                        | (a) Precast kerb with the word DUCT on it                                                                                                                                                                                                                                                                                                                                                      | No             | 48  |          |            |
| <b>22.26</b>                           | <b>Hand excavations to determine the positions of existing services</b>                                                                                                                                                                                                                                                                                                                        | m <sup>3</sup> | 100 |          |            |
| <b>B22.29</b>                          | <b>Protecting, lowering and raising of existing manholes, survey markers, valve covers etc. prior to milling and their later reinstatement to the revised final road level including all materials, layerworks and the like</b>                                                                                                                                                                |                |     |          |            |
|                                        | (a) Manhole cover                                                                                                                                                                                                                                                                                                                                                                              | No             | 10  |          |            |
|                                        | (b) Valve box                                                                                                                                                                                                                                                                                                                                                                                  | No             | 10  |          |            |
|                                        | (c) Survey marker                                                                                                                                                                                                                                                                                                                                                                              | No             | 5   |          |            |
| <b>B22.30</b>                          | <b>Cleaning of existing stormwater lines:</b>                                                                                                                                                                                                                                                                                                                                                  |                |     |          |            |
|                                        | a) Cleaning by hand:                                                                                                                                                                                                                                                                                                                                                                           |                |     |          |            |
|                                        | i) Catchpits and manholes                                                                                                                                                                                                                                                                                                                                                                      | m <sup>3</sup> | 20  |          |            |
|                                        | b) Jet cleaning:                                                                                                                                                                                                                                                                                                                                                                               |                |     |          |            |
|                                        | i) 300mm diameter - 450mm diameter                                                                                                                                                                                                                                                                                                                                                             | m              | 100 |          |            |
|                                        | ii) 450mm diameter - 600mm diameter                                                                                                                                                                                                                                                                                                                                                            | m              | 40  |          |            |
|                                        | iii) Catchpits and manholes                                                                                                                                                                                                                                                                                                                                                                    | m <sup>3</sup> | 20  |          |            |
| <b>B22.31</b>                          | <b>Demolition and removal off site, within a freehaul distance of 5km, of existing damaged stormwater infrastructure</b>                                                                                                                                                                                                                                                                       |                |     |          |            |
|                                        | (a) Catchpit complete (0-1.5m deep)                                                                                                                                                                                                                                                                                                                                                            | no             | 6   |          |            |
|                                        | (b) Rectangular catchpit manhole cover and frame                                                                                                                                                                                                                                                                                                                                               | no             | 20  |          |            |
|                                        | (c) Round manhole cover and frame                                                                                                                                                                                                                                                                                                                                                              | no             | 5   |          |            |
|                                        | (d) Catchpit grids and frames                                                                                                                                                                                                                                                                                                                                                                  | no             | 5   |          |            |
| Carried forward to Summary of Schedule |                                                                                                                                                                                                                                                                                                                                                                                                |                |     |          | Total      |

## Annex C 22.1 - Steel products and components

### Local Content Declaration - Summary Schedule

|      |                           |                                                                                               |  |    |                                                |     |  |
|------|---------------------------|-----------------------------------------------------------------------------------------------|--|----|------------------------------------------------|-----|--|
| (C1) | Tender No.                | 254Q/2021/22                                                                                  |  |    | Note: VAT to be excluded from all calculations |     |  |
| (C2) | Tender description:       | REHABILITATION AND UPGRADE OF CLASS 4 AND 5 ROADS AND RELATED WORKS IN BONTEHEUWEL AND UITSIG |  |    |                                                |     |  |
| (C3) | Designated product(s)     | Steel products and components for construction                                                |  |    |                                                |     |  |
| (C4) | Tender Authority:         | City of Cape Town                                                                             |  |    |                                                |     |  |
| (C5) | Tendering Entity name:    |                                                                                               |  |    |                                                |     |  |
| (C6) | Tender Exchange Rate:     | Pula                                                                                          |  | EU |                                                | GBP |  |
| (C7) | Specified local content % | 100%                                                                                          |  |    |                                                |     |  |

|                  |                                                                                                                                                                                                                                                                            | Calculation of local content    |                         |                                               |                |             |                            | Tender summary                    |                    |                                 |                        |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------|-----------------------------------------------|----------------|-------------|----------------------------|-----------------------------------|--------------------|---------------------------------|------------------------|
| Tender item no's | List of items                                                                                                                                                                                                                                                              | Tender price per UoM (excl VAT) | Exempted imported value | Tender value net of exempted imported content | Imported value | Local value | Local content % (per item) | Anticipated Annual Tender Qty (m) | Total tender value | Total exempted imported content | Total Imported content |
| (C8)             | (C9)                                                                                                                                                                                                                                                                       | (C10)                           | (C11)                   | (C12)                                         | (C13)          | (C14)       | (C15)                      | (C16)                             | (C17)              | (C18)                           | (C19)                  |
| B22.17           | (b) Precast kerb inlet catchpit constructed complete with inlet and frame of specified type as per detail drawing with benching, brickwork and the like as per std. detail drawing SW3.2C, for depths:<br><br>(i) 0 to 1.5m<br><br>Steel componentry of item B22.17 (b)(i) |                                 |                         |                                               |                |             |                            | 6 No                              |                    |                                 |                        |

|                  |                                                                                                                                                                                                                                                                           | Calculation of local content    |                         |                                               |                |             |                            | Tender summary                    |                    |                                 |                        |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------|-----------------------------------------------|----------------|-------------|----------------------------|-----------------------------------|--------------------|---------------------------------|------------------------|
| Tender item no's | List of items                                                                                                                                                                                                                                                             | Tender price per UoM (excl VAT) | Exempted imported value | Tender value net of exempted imported content | Imported value | Local value | Local content % (per item) | Anticipated Annual Tender Qty (m) | Total tender value | Total exempted imported content | Total Imported content |
| (C8)             | (C9)                                                                                                                                                                                                                                                                      | (C10)                           | (C11)                   | (C12)                                         | (C13)          | (C14)       | (C15)                      | (C16)                             | (C17)              | (C18)                           | (C19)                  |
| 22.21            | <b>Accessories</b><br>(a) Manhole covers including frames<br><br>(i) Supply and install of rectangular catchpit manhole covers (600 X 450 Rectangular Manhole Cover and frame manufactured to SANS 50124 EN124 CLASS B125)<br><br>Steel componentry of item 22.21 (a) (i) |                                 |                         |                                               |                |             |                            | 20 No                             |                    |                                 |                        |
| 22.21            | (ii) Supply and install round manhole cover and frame according to std. detail drawing SW2.4A<br><br>Steel componentry of item 22.21 (a) (ii)                                                                                                                             |                                 |                         |                                               |                |             |                            | 5 No                              |                    |                                 |                        |
| 22.21            | (d) Supply and install catchpit grids<br><br>Steel componentry of item 22.21 (d)                                                                                                                                                                                          |                                 |                         |                                               |                |             |                            | 5 No                              |                    |                                 |                        |

## C3.2 Engineering / Design

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| C3.2.1. DESIGN                             | 175      |
| C3.2.2. DRAWINGS ISSUED WITH THIS DOCUMENT | Vol. 4   |

### C3.2.1. DESIGN

The design responsibility shall be as follows:

|                                   |                                                                 |
|-----------------------------------|-----------------------------------------------------------------|
| All permanent work:               | Employer/Consulting Engineer                                    |
| Temporary work:                   | Contractor                                                      |
| Preparation of as-built drawings: | Consulting Engineer with input as requested from the Contractor |

### C3.2.2 DRAWINGS ISSUED WITH THIS DOCUMENT

The following drawings are applicable to the contract and are available on the following link and form part of the Contract Documents as **Volume 4**:

<https://www.dropbox.com/sh/nnlobj7c9s52scc/AADQGRHbTspillyxUa-KLTgjVa?dl=0>

| Drawing Number  | Roadworks Drawings                                        |
|-----------------|-----------------------------------------------------------|
| 312-00915-P-002 | BONTEHEUWEL LOCALITY PLAN                                 |
| 312-00915-P-003 | BONTEHEUWEL PHASING PLAN                                  |
| 312-00915-P-004 | UITSIG LOCALITY PLAN                                      |
| 312-00915-P-100 | BONTEHEUWEL PHASE A CRACK AND SEAT ROADS                  |
| 312-00915-P-101 | BONTEHEUWEL PHASE B CRACK AND SEAT ROADS                  |
| 312-00915-P-102 | BONTEHEUWEL PHASE A KERB, CHANNEL AND SIDEWALK WORKS      |
| 312-00915-P-103 | BONTEHEUWEL PHASE B KERB, CHANNEL AND SIDEWALK WORKS      |
| 312-00915-P-104 | UITSIG CRACK AND SEAT ROADS                               |
| 312-00915-P-105 | UITSIG (WARD 22) KERB, CHANNEL AND SIDEWALK WORKS         |
| 312-00915-P-106 | UITSIG (WARD 25) KERB, CHANNEL AND SIDEWALK WORKS         |
| 312-00915-P-107 | TYPICAL DETAIL ROAD CROSS SECTIONS                        |
| 312-00915-P-108 | PAVEMENT REPAIR ACTION – TYPES 1, 2, 3, 4 AND 5           |
| 312-00915-P-109 | RAISED INTERSECTION @ BLUEGUM & VUURPYL STREET            |
| 312-00915-P-110 | RAISED INTERSECTION @ KERSBOOM STREET AND KEUR STREET     |
| 312-00915-P-111 | INSTALLATION OF SERVICE DUCTS                             |
| 312-00915-P-112 | GENERAL SITE OFFICE LAYOUT                                |
| 312-00915-P-113 | STANDARD NAME BOARD FOR SINGLE CONTRACTOR CONTRACTS       |
| 312-00915-P-114 | TYPICAL DUCTING LAYOUT @ INTERSECTIONS                    |
| GE6.1           | SPECIFICATION FOR INSTALLATION OF DUCT SECTIONS SHEET 1   |
| GE6.2           | SPECIFICATION FOR INSTALLATION OF DUCT SECTIONS SHEET 2   |
| RD1.1           | BARRIER KERBS AND CHANNELS                                |
| RD1.2           | MOUNTABLE KERBS AND CHANNELS                              |
| RD1.3           | EDGINGS                                                   |
| RD1.4           | DOUBLE AND TRIPLE FLAT CHANNELS                           |
| RD2.1           | DROPPED KERB TYPES VEHICULAR TRAVERSAL                    |
| RD10            | SPEED HUMP                                                |
| RD11 SHEET 1    | RAISED PEDESTRIAN CROSSING                                |
| RD11 SHEET 2    | RAISED PEDESTRIAN CROSSING                                |
| RD12.1A         | RAISED INTERSECTION ASPHALT TABLE (FOR EXISTING ROADS)    |
| RD5.1           | CARRIAGEWAY CROSSING                                      |
| RD5.2           | CARRIAGEWAY CROSSING                                      |
| SW2.4A          | DUCTILE IRON MANHOLE COVER AND FRAME WITH CONCRETE INFILL |
| SW3.2C          | STORMWATER CATCHPIT TYPE B                                |

**B1211 TRAFFIC OVER COMPLETED PAVEMENT LAYERS**

*Add the following:*

It is a specific requirement of this contract that traffic will have to be accommodated on completed pavement layers on certain road sections during peak hours and overnight. The final decision regarding the timing of opening of the completed pavement layers to traffic shall rest with the Engineer. Repair work required to the completed pavement layers shall be included in the rates for accommodation of traffic and no additional payment will be made for work required to repair damage.

Completed asphalt surfacing shall not be opened to traffic until the asphalt has sufficiently cooled. The Contractor shall not allow construction equipment or public traffic, which is likely to cause damage, over the completed asphalt surfacing.

**B1217 PROTECTION OF THE WORKS AND REQUIREMENTS TO BE MET BEFORE CONSTRUCTION OF NEW WORK ON TOP OF COMPLETED WORK IS COMMENCED**

*Add the following:*

- (h) Prior to the start of any excavation in the existing pavements on any part of the works, the Contractor shall submit to the Engineer for approval a method statement for the execution of that part of the work. The Contractor is responsible for the protection of the underlying pavement layers and the drying out and/or keeping dry of such excavations. The Contractor's program shall make provision for the speedy backfilling of the excavations and the drainage thereof if inundation cannot be prevented.

The Contractor shall at his own cost be responsible for the repair of pavement layers, which have been damaged due to his own works or his neglect to submit his planning to the Engineer for approval or to adhere to approved precautionary measures.

- (i) Concrete elements adjoining the road, which is designated for resurfacing, shall be covered with protective material prior to any spraying operations to prevent the concrete from being stained with bituminous binder. The protection of concrete elements shall be to the Engineer's satisfaction and no additional payment will be applicable for taking the specified protection measures.

**B1219 WATER**

*Add the following:*

The Contractor shall make the necessary arrangements and connections for the provision of water required by him for the execution of the works.

The use of potable (drinking) municipal water from a metered connection or metered standpipe for construction works is allowed. The use of non-potable water from an alternative source is however preferred where possible. The Contractor must make adequate provision in his tender for all negotiations and procurement of water for construction activities and all related costs will be deemed to be included in his tendered rates.

**B1224 THE HANDING-OVER OF THE ROAD RESERVE**

*Add the following:*

Upon being given access to the site the Contractor shall immediately assume responsibility for the road reserve within the limits of this contract as set out in the specifications.

Prior to the commencement of work the Contractor and the Engineer shall together carry out a joint inspection of the road section. During such an inspection, notes shall be made of all damaged fences, guardrails, signs and any other notable problems or features that exist at the time of gaining access or hand-over. The following matters should be agreed at the time of handing-over:

## **SECTION 1500: ACCOMMODATION OF TRAFFIC**

### **B15.02 (a) Safety**

*The following shall be added to Clause 1502(a) of the Specifications:*

All construction workers shall wear high visibility safety clothing when working alongside public traffic. The safety jackets shall be of an approved Level 2 type, bright/fluorescent orange, red-orange or yellow in colour with retro-reflective strips as indicated in Chapter 13 of Volume 2 of the South African Road Traffic Signs Manual (SARTSM).

#### **(i) Traffic safety officer**

*Add the following to sub-subclause (iii):*

The traffic safety officer shall patrol and inspect the reference and location of each temporary traffic-control facility on the whole site of works twice each day, to record all irregularities discovered and the remedial action taken, and to sign off as correct for submission to the Engineer on the date / reference / location record sheets. The traffic safety officer shall keep a duplicate book for this specific purpose. The traffic safety officer shall submit to the Engineer by 10h00 each morning, a record of all matters pertinent to site safety and traffic accommodation throughout the site of works the previous day. He shall also record the daily labour returns of flagmen, stop/go and traffic signal control staff employed.

*Add the following:*

The Contractor shall provide the traffic safety officer with the necessary resources, inter alia a light delivery vehicle (LDV), a cellular telephone, warning signs and rotating amber flashing warning lights and at least two (2) personnel. The LDV shall be equipped with high visibility front and rear panels. The legend CONTRACTOR'S TRAFFIC CONTROL in visible fluorescent and/or retro-reflective materials of letter height of at least 175 mm shall be displayed prominently on front and rear sign panels on the LDV. The LDV shall be equipped with a rotating amber flashing warning light with a minimum intensity of 100W. The warning light shall be switched on at all times and the front and rear sign panels shall be displayed when the LDV is used on the site. The traffic safety officer, his vehicle, equipment and personnel shall be available 24 hours per day on all non-working days/hours.

During non-working days or periods, the Contractor's traffic safety officer will be required to patrol and ensure that all temporary traffic-control facilities are in place and functional. The accommodation of traffic team will be required to be on standby.

The provision for the traffic safety officer, his vehicle, equipment, the cost of his cellular telephone and personnel resources shall be deemed to be included in the rate tendered for Item B15.14.

*Add the following new subclauses to Clause 1502 of the Specifications:*

#### **(j) Traffic diversions**

*Add the following:*

Traffic accommodation shall be carried out in strict accordance with the requirements of the South African Road Traffic Signs Manual (SARTSM) – Volume 2 – Chapter 13 : Roadworks Signing (June 1999). The method of accommodating traffic shall be in accordance with the layouts of the traffic-control facilities for the traffic diversions on the respective roads as shown in the South African Road Traffic Signs Manual (SARTSM) - Volume 2 Chapter 13, on the drawings or as directed by the Engineer.

The Contractor shall submit a drawing showing details concerning each traffic diversion to the Engineer for approval at least 7 days prior to the scheduled commissioning of such diversions to allow him sufficient time to inform and obtain the approval of the traffic officials of the relevant authorities concerned for such diversions.

#### **(k) Parking of construction vehicles and plant**

Where there is no working space off the road, construction vehicles may be parked on the shoulder only during working hours in which case flagmen and traffic cones shall be utilised to warn public traffic of the hazard. During non-working hours all obstructions to traffic shall be removed from the road. The cost of such protective measures will be to the contractors account.

The parking of construction plant within the road reserve outside working hours will not be permitted.

| Item                                                                              | Unit |
|-----------------------------------------------------------------------------------|------|
| <b>B22.17 Manholes, catchpits, precast inlets and outlet structures complete:</b> |      |
| <i>Amend the pay item to read as follows:</i>                                     |      |

(b) Precast kerb inlet catchpit constructed complete with inlet and frame of specified type as per detail drawing with benching, brickwork and the like as per std. detail drawing SW3.2C, for depths: (depths indicated).....number (No)

*Add the following after the first paragraph:*

“including benching.”

## **B 22.23 Service ducts**

- (a) Ordinary pipes
- i) Supply, lay and encase in wet soil cement (5% OPC) and backfill with stiff soil cement (3% OPC) 2no 110mm and 3no 160mm diameter uPVC heavy duty ducts to SABS 791 or equal approved as per Standard Details GE6.1 and GE6.2 (except for omitting concrete encasement), D-Type for 5no ducts, complete with end caps and draw wire (rate per metre along trench for 5no ducts).....metre (m)

The unit of measurement shall be the linear metre of trench in which 5no ducts are installed and shall be measured only once. The tendered rate shall include full compensation for all labour, equipment, materials and all else necessary to install the 5no ducts. The wet and stiff soil cement encasement and backfill shall be paid under Backfilling item 22.02.

*Add the following new pay items:*

| Item                                                                                                                                                                                                                                   | Unit        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>B22.29 Protecting, lowering and raising of existing manholes, survey markers, valve covers etc. prior to milling and their later reinstatement to the revised final road level including all materials, layerworks and the like</b> |             |
| a) Manhole covers.....                                                                                                                                                                                                                 | number (No) |
| b) Valve boxes .....                                                                                                                                                                                                                   | number (No) |
| c) Survey markers.....                                                                                                                                                                                                                 | number (No) |
| d) Other.....                                                                                                                                                                                                                          | number (No) |

The unit of measurement shall be the number of manholes, valve boxes or survey markers etc. lowered in accordance with the specifications prior to milling/CIR and later reinstatement to the level and cross fall of the revised final road level prior to the placement of the final wearing course.

The tendered rate shall include full compensation for all labour, equipment, materials and all else necessary to excavate around and lower the manhole covers and valve boxes etc. to a depth of at least 100mm below the milling depth (including asphalt skirting) and to later reinstate the manholes and valve boxes to the revised final road levels as well as for referencing the manholes and valve boxes etc. Each manhole shall be measured only once for the entire lowering and raising process. The Contractor shall be paid 50% of the tendered rate per manhole when the manhole is lowered and the remaining 50% when the manhole is raised.

| Item | Unit |
|------|------|
|------|------|

## **B22.30 Cleaning of existing stormwater lines**

- (a) Cleaning by hand:
- (i) Catchpits and manholes.....cubic metre (m<sup>3</sup>)
- (b) Jet Cleaning:
- (i) 300mm diameter – 450mm diameter.....metre (m)
- (ii) 450mm diameter – 600mm diameter.....metre (m)
- (iii) Catchpits and manholes.....cubic metre (m<sup>3</sup>)

## **SECTION D2000 : CRACK AND SEATING OF EXISTING CONCRETE PANELS**

### **D2001 SCOPE**

This section covers all items involved in the treatment of the existing road surface using the crack and seat method.

### **D2002 INTERPRETATIONS**

#### **(a) Supporting specifications**

The following specifications shall, inter alia, form part of the contract document:

SANS 1200 DM  
SANS 1200 GA  
SANS 1200 ME  
SANS 1200 MF  
SANS 1200 DH

### **D2003 MATERIALS**

#### **(a) Herbicide**

Herbicide shall be Hyvar X 80% wet table powder mixed according to the supplier's requirements, or a similar non-selective herbicide. .

#### **(b) Joint sealant**

Expansion joints and cracks wider than 20mm shall be sealed with COLTO continuously graded, fine asphalt using 50/70 penetration grade bitumen.

#### **(c) SBR Latex modified mineral filled emulsion**

Cracks up to 20mm wide shall be sealed with SBR latex modified mineral filler emulsion.

#### **(d) Bitumen Rubber Asphalt**

Asphalt levelling layer that consists of a COLTO Continuously graded fine asphalt using A-R2 modified bitumen binder as specified in B4200.

#### **(e) Tack Coat**

Tack coat consisting of 30% stable grade emulsion applied as specified.

#### **(f) Composite paving fabric**

The Composite paving fabric shall consist of glass fibre woven roving grid stitched to a non-woven continuous filament polyester geotextile with 15mm X 15mm grid dimensions. The fabric should have a Tensile strength of at least 50 kN/m, a 3% elongation brake and the strength at 2% strain shall be 35kN/m x 35kN/m, or equivalent.

### **D2004 PLANT AND EQUIPMENT**

The requirements of the supporting specifications shall apply mutates mutandis. In addition the following equipment will be necessary:

#### **(a) Spraying equipment**

Special spraying equipment with 2mm nozzle openings, provided with reserve nozzles for spraying herbicide.

Engineer may require that further trial sections be done and tested before allowing the Contractor to continue with the permanent work.

The Contractor shall allow for marking the position of existing construction joints by saw cutting slots on the adjacent kerbs in the rates tendered for this item.

**(b) Expansion joint sealing and wide crack sealing ( $\geq 20 \text{ mm} \leq 220\text{mm}$ )**

The sealing of the expansion joints and wide cracks involves the following:

Clean the expansion joint or crack with compressed air of all debris, loose stones or loose concrete. The use of a pic or pneumatic breaker may be required to remove loose stones or loose concrete.

Mix the herbicide according to the supplier's requirements and spray the solution into the joint or crack by means of a rucksack- type of sprayer, and allow to dry for a minimum of two (2) hours.

If the time lapse between the application of the herbicide and the application of the sealant are too long, or the circumstances warrant the joints to be re-cleaned by compressed air, the cost of the joint cleaning shall be carried out by the contractor.

Backfill the joints or cracks with continuously graded fine asphalt surfacing (50/70) mix in layers not exceeding 100mm and compact with a hand tamper and/or plate compactor until backfill is level with the existing concrete surface. Apply a 400mm wide tack coat at  $1,7 \text{ l/m}^2$  across the joint and place a 400mm composite paving fabric on the tack coat. Install as per suppliers installation specification. Extra over payment will be applied for the application of the composite paving fabric. The composite paving fabric shall not be trafficked prior to the placement of the asphalt overlay. Hot asphalt from the hopper shall be used to blind the composite paving fabric just before the paving operation in order to protect it from being lifted by the paver wheels.

**(c) Crack sealing ( $< 20 \text{ mm}$ )**

Crack sealing will be required on all the cracks with widths ranging from 5 mm up to a maximum of 20 mm.

The crack sealing will involve the following:

- Clean the cracks with compressed air of all debris; loose stones and loose concrete to a depth between 5mm and 40mm.
- Mix the herbicide according to the supplier's requirements and spray the solution into the cracks by means of a rucksack type of sprayer, and allow to dry. A minimum of two (2) hours will be allowed for.
- If the time lapse between the application of the herbicide and the sealing of the cracks of the circumstances warrant the cracks to be re-cleaned by compressed air, it shall be carried out by the contractor at no additional costs.
- Fill the cracks with the specified sealant.
- The Contractor shall exercise due care not to overfill the adjacent surfaces with the emulsion.
- The Contractor shall note that the initial treatment as described above may be insufficient and that successive applications of modified emulsion may be required.
- The finished crack shall not at any point be lower than the adjacent concrete surface nor be higher than 3mm from the level determined by means of a 200 mm straight-edge across the crack.
- Bind the cracks with sand and crusher dust, prior to the opening to traffic.

- (i) Average joint and crack widths  $\geq 20\text{mm}$  but  $\leq 50\text{mm}$ .....metre (m)
- (ii) Average joint and crack widths  $> 50\text{mm}$  but  $\leq 100\text{mm}$ .....metre (m)
- (iii) Average joint and crack widths  $> 100\text{mm}$  but  $\leq 150\text{mm}$ .....metre (m)
- (iv) Average joint and crack widths  $> 150\text{mm}$  but  $\leq 220\text{mm}$ .....metre (m)

(b) Expansion joint sealing and wide crack sealing using COLTO continuously graded fine asphalt (50/70) surfacing mix

- (i) Average joint and crack widths  $\geq 20\text{mm}$  but  $\leq 50\text{mm}$ .....metre (m)
- (ii) Average joint and crack widths  $> 50\text{mm}$  but  $\leq 100\text{mm}$ .....metre (m)
- (iii) Average joint and crack widths  $> 100\text{mm}$  but  $\leq 150\text{mm}$ .....metre (m)
- (iv) Average joint and crack widths  $> 150\text{mm}$  but  $\leq 220\text{mm}$ .....metre (m)

(c) Crack sealing ( $<20\text{mm}$ ) .....metre (m)

The rates for (a) shall cover the cost of transport, equipment, labour and disposal of loose material to an approved spoil site and the requirements described in sub clause D2005 (b).

The rate for (b) shall cover the cost to clean, prepare and asphalt used to seal existing expansion joints or wide cracks according to the requirements described in sub clause D2005 (b).

The rate for (c) shall cover the cost to clean, prepare and seal existing expansion joints or wide cracks according to the requirements described in sub clause D2005 (c).

Item D20.04 allows for the application of a composite paving fabric over expansion joints and wide cracks.

Where the source of bitumen (the refinery) is located in the Western Cape Province, or where bitumen sourced from abroad is landed at a port in the Western Cape, the cost of transporting such bitumen within the boundaries of the Western Cape shall be included in the rates for bituminous products. The cost of transporting bitumen from beyond the borders of the Western Cape shall not be included in the rates for bituminous products but shall be dealt with as a variation in the price of bituminous products and may be claimed under the allowance for Special Materials. The proof of such transportation costs shall be provided by the Contractor to the Employer's Agent Representative.

#### **D20.04 Composite paving fabric**

- (a) Supply and lay 400mm wide composite paving fabric and tack coat over road joints or cracks on concrete roads .....metre (m)

The tendered rate per metre shall include full compensation for the cost of equipment, labour, materials and tack coat required to install the composite paving fabric to the joints.

#### **D20.05 Application of herbicide.....litre (ℓ)**

The rate shall include full compensation to provide and apply the approved herbicide according to the specifications of the supplier or manufacturer.

The measured quantity shall be the litre of herbicide mix applied."