

## **SECTION 3: EXTERNAL WORK**

**Volume 2 of 3: Part C (page 179-223)**

**NEWCASTLE: REPAIR AND RENOVATIONS TO  
DECENTRALISED TRAINING FACILITY FOR SAPS**

Item No	Quantity	Rate	Amount
<b><u>SECTION NO. 3</u></b>			
<b><u>BILL NUMBER 1</u></b>			
<b><u>SITE WORKS AND PAVING (PROVISIONAL)</u></b>			
<b><u>GENERAL EARTH WORKS (PROVISIONAL)</u></b>			
JBCC Work Group No 104.			
<b><u>SUPPLEMENTARY PREAMBLES</u></b>			
For Preambles see "PW371 - Specification of Materials and Methods to be used"			
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<b><u>DEMOLITIONS</u></b>			
<b><u>Demolishing and removing</u></b>			
1	Remove petrol pump on and including concrete base complete with disconnection of all piping to underground petrol pump (this items must be done according to Health and Safety specifications)	No	2
2	Excavate for, locate and remove petrol tanks under concrete paving slab (concrete slab hacked up elsewhere) in ground exceeding 2,5m and not exceeding 5m deep and filling up with G7 Filling in 150 layers compacted to 95 % Mod AASHTO density (This items must be done according to Health and Safety specifications)	No	2
3	Demolish single storey outbuilding adjacent to conference facility with mono pitched thatch roof approximately 11 x 5 x 3m high on plan comprising concrete surface bed, rubble external and internal walls, roof trusses and beams, thatch roof covering, etc. complete	No	1
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4	Demolish canopy at service buildings, overall approximately 1 500 x 3 000mm high on plan comprising of steel columns & timber roof beams with metal roof covering, flashings, etc. complete	No	1	
5	Demolish existing carport with mono pitched roof 11 x 7 x 4.5m high on plan comprising concrete slab panels, gum pole columns & roof structure, mesh dividers, corrugated side walling, roof trusses, corrugated roof covering, etc. complete	No	1	
6	Demolish existing corrugated shack store 3 x 3 x 2.5m high on plan comprising gum pole columns & roof structure, corrugated side walling, corrugated roof covering, etc. complete	No	1	
<b><u>SITE CLEARANCE</u></b>				
<b><u>Site clearance</u></b>				
7	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200 mm girth, bush, etc.	m2	63,938	
<b><u>REMOVAL OF TREES, ETC.</u></b>				
8	Cut down, grub up roots and remove tree stump, with circumference of trunk exceeding 200mm and not exceeding 500mm, including all necessary filling and ramming	No	21	
9	Cut down, grub up roots and remove tree stump, with circumference of trunk exceeding 500mm and not exceeding 1 000mm, including all necessary filling and ramming	No	17	
10	Cut down, grub up roots and remove tree stump, with circumference of trunk exceeding 1 000mm and not exceeding 1 500mm, including all necessary filling and ramming	No	17	
<b><u>BULK EXCAVATION, FILLING, ETC.</u></b>				
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<b><u>Open face excavation in earth over sloping site:</u></b>				
11	In bulk excavations to reduce levels and cut and form platforms, including setting aside for later re-use or removal.	m3	189	
<b><u>PAVING, ROAD WORKS, ETC</u></b>				
<b><u>DEMOLITIONS, ETC</u></b>				
<b><u>Demolish and remove</u></b>				
12	Cut through, break up and remove 40mm thick tarmac and wearing course in existing access road	m2	10,659	
13	Remove concrete kerbing including haunching, concrete footing, etc. to edges of existing road	m	1,838	
14	Carefully take out and remove existing precast concrete kerbs, footings, etc. clean, prepare and store in a safe place for re-use at an later stage in same position	m	381	
<b><u>Break up and remove mass concrete</u></b>				
15	Concrete slabs and foundations	m3	76	
<b><u>PREPARATORY WORK TO EXISTING PRECAST CONCRETE SURFACES</u></b>				
<b><u>Preparation to existing horizontal surfaces</u></b>				
16	Clean existing concrete paving slabs, etc. using a water pressure cleaning system and steel brushes and remove all dirt and loose particles (provisional)	m2	150	
<b><u>STORM WATER DRAINAGE</u></b>				
<b><u>DEMOLITIONS, ETC</u></b>				
<b><u>Excavate for and break up and remove</u></b>				
17	Excavate for, locate and remove 300mm diameter uPVC storm water pipe in ground not exceeding 1m deep, and fill and ram	m	300	
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18	Take up and remove existing manhole cover or inlet grating and frame and hand over to client, demolished and remove manhole not exceeding 1m deep, including brickwork, concrete slab, etc., and fill and ram	No	12
<b><u>PREPARATORY WORK TO EXISTING STORM WATER PIPES</u></b>			
<b><u>Preparation to existing concrete storm water pipes</u></b>			
19	Unblock existing fullbore on roof and reinstate to working order	No	42
20	Unblock existing 300mm diameter storm water pipe	m	45
21	Clean existing manhole, etc	No	4

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**WATER SUPPLY, ETC**

**DEMOLITIONS, ETC**

**Excavate for and break up and remove**

22	Excavate for, locate and remove Steel or uPVC water pipe not exceeding 100mm diameter in ground not exceeding 1m deep, and fill and ram	m	244		
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**FLAGPOLES, ETC**

**Taking out and remove**

23	9m Flagpole including excavation and 1000 x 1000 x 1000mm concrete base	No	2		
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**The following in a 8.5m high Standard Government type Aluminium Flagpole as "Aluweld" or other approved and erected on 600 x 600 x 800mm deep Class C concrete base, including excavations, carting away, etc.**

24	"Aluweld" Aluminium Flagpole or other approved comprising 76mm and 50mm od aluminium tubing tapered by way of an aluminium cone casting, welded and complete with spherical top cap, two pulleys, two cleats, two halyards (ropes) and swivel type base.	No	2		
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**LANDSCAPING AND GARDENING**

**Sprinkler system**

25	Complete sprinkler system for area in front of the main building including all sprinkler heads, piping, stoptaps, etc.	m2	1,785		
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**Water feature & pond in front of main building**

26	Allow the Provisional Sum of R125 000,00 (One Hundred and Twenty Five Thousand Rand) for specialist for the waterproofing and repairs to the existing water pond			Item	125,000.00
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27	Allow for profit and attendance			Item	
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	<b><u>Artificial Grass</u></b>			
28	A combination of 30mm straight monofilament anti-UV yarn and a 30mm curled anti-UV yarn; with a latex and fibre glass reinforced backing Three tone colour: Fresh green, dark green and yellow Used for gardens; displays: patios and multifunctional. 2m and 4m roll width	m2	400	
	<b><u>Over site and around buildings</u></b>			
29	Approved garden soil from a suitable site or stock piles carted on, spread and levelled	m3	255	
30	Plant Kikuyu (Pennisetum Clandistinum) or other approved grass runners in rows not exceeding 150mm apart to ensure effective growth, firmly anchored in the soil with the lowest point at a depth of not less than 75mm. Care shall be taken not to alter the final levels of the area during planting and no ridges shall be left. Planted areas shall be cleaned and debris and stones removed	m2	1,555	
	<b><u>Maintenance</u></b>			
31	Allow for maintaining grassing for a period of 3months, including watering, weeding, cutting, replacing dead plants, etc.		Item	
	<b><u>METALWORK</u></b>			
	<b><u>WASHING LINES</u></b>			
	<b><u>Hot dipped galvanized washing line</u></b>			
32	Washing line formed of two posts 4 500mm apart, each post of 50mm diameter galvanized mild steel post 2 575mm high projecting 1 800mm high above ground with angle stay post 2 100mm long projecting 1 300mm above ground, flattened, bend and bolted to post including excavation and 300 x 300 x 600mm concrete bases to posts with 1 000mm long 50mm horizontal tubular steel bar welded to top of each post with three holes through, with three 3,15mm plastic coated galvanized wires 4 500mm long fixed to each tubular steel bar with 12mm diameter straining bolts	No	6	
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	<b><u>BILL NUMBER 2</u></b>			
	<b><u>ROADS, PAVED AREAS, ETC. (PROVISIONAL)</u></b>			
	NOTE: For Preambles for All Trades see pages SP53 to SP58.			
	SUPPLEMENTARY PREAMBLES			
	Items, materials or methods to be used specified by trade names or catalogue numbers are only an indication of the quality required. Items, materials or other approved may be used with prior approval from the architect.			
	<b><u>EXCAVATIONS, ETC.</u></b>			
	<b><u>Excavations not exceeding 2m deep</u></b>			
1	Reduced levels under pavings, etc.	m3	4,800	
2	Reduced levels under pavings, etc. in courtyards	m3	76	
3	Remove compacted levels under existing access road	m3	2,037	
4	Remove compacted levels under existing paving	m3	3,848	
	<b><u>Extra over excavation in earth for</u></b>			
5	Intermediate excavation	m3	160	
6	Hard rock excavation	m3	40	
7	Class A boulder excavation	m3	60	
8	Class B boulder excavation	m3	20	
	<b><u>Extra over trench and hole excavations in earth for excavation in</u></b>			
9	Brickwork	m3	10	
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10	Un reinforced concrete	m3	15		
	<b><u>Extra over all excavations for carting away</u></b>				
11	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	7,499		
	<b><u>Keeping excavations free of water</u></b>				
12	Keeping excavations free of water by pumping and bailing			Item	
	<b><u>Compaction of surfaces</u></b>				
13	Compaction of ground surface under pavings, roads, etc. including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod. AASHTO density and 100% Mod. AASHTO for sand	m2	12,368		
	<b><u>FILLING, ETC.</u></b>				
	<b><u>Imported filling supplied by the Contractor under pavings, access road, etc.</u></b>				
14	150mm Thick Grade G2 Material and compacted to 98% Mod AASHTO	m3	1,506		
15	150mm Thick Grade G5 Material and compacted to 95% Mod AASHTO, The G5 should be the form of a sugar dolerite, decomposed granite or decomposed sandstone	m3	2,459		
16	150mm Thick Grade G7 imported sandy gravel sub base course, spread levelled and rolled and compacted to 93% Mod. AASHTO density in roadways	m3	978		
17	150mm Thick Grade C4 cemented (3% cement) natural gravel or Grade G5 Iscor slag sub base course, spread levelled and rolled and compacted to 98% Mod. AASHTO density in roadways and UCS between 0,75 and 1,5 MPa at 98% Mod. AASHTO density	m3	2,567		
	<b><u>Asphalt layer on filling</u></b>				
18	30mm Thick continuous graded asphalt (AC) compacted to 92% Marshall Maximum Theoretical density	m3	139		

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19	DITTO for 40mm Thick continuous graded heavy duty asphalt	m3	241
	<b><u>30 Mpa/19mm Concrete poured around reinforcement:</u></b>		
20	Surface beds cast in panels to falls	m3	101
	<b><u>REINFORCEMENT</u></b>		
	<b><u>Fabric reinforcement</u></b>		
21	Type 395 fabric reinforcement in brick walls to strong rooms	m2	1,010
	<b><u>CONCRETE SUNDRIES</u></b>		
	<b><u>Finishing surfaces of concrete smooth with a wood float</u></b>		
22	Finish top surfaces of concrete ramp to an evenly ribbed non slip surface	m2	505
	<b><u>Coarse river sand filling supplied by the Contractor</u></b>		
23	Under paving	m3	293
	<b><u>Compaction of surfaces</u></b>		
24	Compaction of ground surface under paving, etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary, stabilising with 4% cement by mass and compacting to 95% Mod AASHTO density	m2	11,708
	<b><u>Prescribed density tests on filling</u></b>		
25	"Modified AASHTO Density" test	No	100
	<b><u>WEED KILLER</u></b>		
	<b><u>Approved weed killer in strict accordance with manufacturers instructions</u></b>		
26	Under paving, etc	m2	6,707

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**PRECAST CONCRETE PAVING BLOCKS**

Paving is to be laid in accordance with SABS 1200MJ, SABS 1058 and the Concrete Masonry Association's specifications

**Approved standard grey double zig-zag interlocking paving blocks on and including 25mm thick layer of river sand**

27	60mm Paving to parking areas, walkways, etc to falls	m2	466
28	80mm Paving to parking areas, walkways, etc to falls	m2	16,395

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**PRECAST KERBS**

**Precast concrete finished smooth on exposed surfaces including bedding, cutting and pointing**

29	Figure 6 vertical (barrier) kerb with 300 x 75mm 15 Mpa unreinforced concrete footing, 1000 x 100mm triangular concrete haunching at back of each joint and 200mm concrete infill in front with cement grouted joints, including excavation, backfilling, compaction, etc.	m	2,735
30	Ditto, circular on plan to a radius exceeding 4 000mm, formed of straight kerbing in short lengths	m	613
31	Mountable kerb as figure 8 with 500 x 15mm 15 Mpa Un reinforced concrete footing, 200mm wide 15 Mpa concrete haunching at back of each joint with cement grouted joints, including excavation, backfilling, compaction, etc.	m	40

**ROAD MARKING**

32	900mm High white or Yellow lettering, numerals or symbols with an approved road marking paint	m <sup>2</sup>	33
33	100mm Wide white lines (unbroken) with an approved road marking paint	m	645
34	300mm Wide white lines (broken) with an approved road marking paint	m	40
35	300mm Wide white lines (unbroken) with an approved road marking paint	m	15

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**RETRO REFLECTIVE ROAD SIGNS, ETC.**

Road signs and road markings shall conform to the requirements given in the South African Road Traffic Manual and relevant SABS specifications.

The rate tendered for road signs shall cover the cost of supplying and erecting the completed signboard supports, face, frame and fixing brackets and shall include the cost for providing retro-reflective backgrounds, symbols, characters, legends and borders of the type specified in the South African Road Traffic Manual. The tendered rate shall include for excavations, backfilling and concreting of sign supports.

36	900mm Diameter regulation "STOP" sign (R1) in accordance with S.A.B.S. standard fitted and fixed on creosoted pole, 4 500mm high bedded in 450 x 450 x 600mm deep concrete footing, included all necessary excavation, etc.	No	8
37	900mm Diameter regulation "DISABLED PARKING SYMBOL" sign (R323) in accordance with S.A.B.S. standard fitted and fixed on creosoted pole, 4 500mm high bedded in 450 x 450 x 600mm deep concrete footing, included all necessary excavation, etc.	No	1
38	900mm Diameter regulation "40KM/HR" sign (R201) in accordance with S.A.B.S. standard fitted and fixed on creosoted pole, 4 500mm high bedded in 450 x 450 x 600mm deep concrete footing, included all necessary excavation, etc.	No	3

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<b><u>BILL NUMBER 3</u></b>			
<b><u>WATER SUPPLY AND FIRE SERVICES (PROVISIONAL)</u></b>			
JBCC Work Group No. 148			
<b><u>WATER SUPPLIES</u></b>			
<b><u>Note:</u></b>			
Rates for piping, etc., have to include all adaptors, flanges, etc.			
<b><u>General</u></b>			
Where ever possible, abridged descriptions have been used for those items in this Bill which appear under the main trade headings in previous/subsequent Bills. The full descriptions of these items in the Preambles, as referred to above, to the various trade bills are to, and do apply equally to this Section.			
<b><u>Reference</u></b>			
Special reference is made to SABS 1200 specifications for civil works.			
Special reference is made to Specifications and details of Department of Public Works Drainage Detail (December 1998).			
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**Protection of existing services**

The contractor must make allowance against the relevant items for the following:

- (a) Necessary care to be taken when excavating near existing services in or across the path of excavations.
- (b) Protection and maintaining such service in operation by means of temporary support or shoring as necessary.
- (c) Delays and disruption of the progress of the work due to the existence of the service.
- (d) Repairs necessitated by damage caused by the Contractor.

**SABS specifications references**

Where reference is made to SABS 1200 specifications (all sections) it will be deemed to exclude clause 8 "Measurements and Payment".

**Nature of ground**

The tenderer must acquaint himself with the material to be excavated in and are requested to study the Geotechnical Survey Report attached to Part C4: Site Information of the procurement document

**Carting away of excavated material**

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or alternatively, from stock piles situated on the building site.

**Prescribed tests**

All prescribed tests are to be executed by an approved, accredited laboratory

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**Concrete pipes**

Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings

**Polypropylene pipes**

Polypropylene pipes 42 mm diameter and under shall be seamless copper coloured class 16 pipes jointed with brass compression fittings as designed for use with copper pipes as stated.

Pipes shall be firmly fixed to walls etc. with coloured nylon snap in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions.

All pipe diameters are to match sizes as utilised for copper pipes.

**Polyethylene pipes**

Polyethylene pipes 75 mm diameter and under up to 42 mm shall be seamless copper coloured class 16 Type IV HDPE pipes jointed with polymer compression fittings.

Pipes shall be firmly fixed to walls etc. with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions.

All pipe diameters are to match sizes as utilised for copper pipes.

**C.O.D. Fibre Cement Pressure Pipes**

Pipes shall be jointed with "Triplex" couplings. A lubricant (soft soap) is to be used in connecting the couplings to the pipe or fittings. The couplings are to be unsupported on the bedding when pipes are layed.

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**uPVC pipes and fittings**

Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings.

Soil, waste and vent pipes and fittings shall be solvent weld jointed.

**Copper pipes**

Pipes shall be hard drawn and half-hard pipes of the class stated. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), Class 2 (half-hard) and Class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall be "Cobra Watertech" type. Capillary solder fittings shall comply with ISO 2016. Only compression fittings shall be used in walls or in ground.

**Reducing fittings**

Where fittings have reducing ends or branches they are described as "reducing". In case of pipes with diameters not exceeding 60 mm only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In case of pipes with diameters exceeding 60 mm all sizes are given and no claim for extra bushes, reducers, etc., will be entertained.

**Exposed concrete surfaces**

Exposed surfaces of concrete stormwater channels, cover slabs, inspection eye marker slabs, gully tops, cleaning eye tops, catchpits, inspection chambers, etc. shall be finished smooth with plaster.

**Excavations**

No claim for rock excavation will be entertained unless the contractor has timeously notified the Quantity Surveyor/Engineer thereof prior to backfilling.

"Soft rock" and "hard rock" shall be as defined in "Earthworks".

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**Saddles**

Saddles to be the Magnum uPVC type with stainless steel bolts and screw pieces complete with Talbot lockable clamp and compression external screw-thread adaptor.

**uPVC pressure pipes and fittings**

Pipes for water supply shall be of the class stated.

Pipes of 40 mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings

Pipes of 50 mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all outer fittings shall be cast iron, all with similar push-in type joints

**Exposed concrete surfaces**

Exposed surfaces of concrete stormwater channels, cover slabs, inspection eye marker slabs, gulley tops, cleaning eye tops, catchpits, inspection chambers, etc. shall be finished smooth with plaster

**Excavations**

No claim for rock excavation will be entertained unless the contractor has timeously notified the quantity surveyor thereof prior to backfilling

"Soft rock" and "hard rock" shall be as defined in "Earthworks"

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**Laying, backfilling, bedding, etc. of pipes**

Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturer's instructions.

Where no manufacturer's instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 each of the following:

SABS 1200 L: Medium-pressure pipelines

LD: Sewers

LE: Stormwater drainage

Pipe trenches etc. shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200

DB: Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1., 5.1 to 5.3 and 7 of SABS 1200

LB: Bedding (Pipes)

Unless otherwise described bedding of rigid pipes shall be class B bedding

**Steel pipes, fittings and specials**

**Pipes of Nominal Bore up to 150 mm:**

Substitute "screwed" in L3.4.2 with "flanged".

**Pipes of Nominal Bore over 150 mm:**

Add the following:

"All mild steel pipes must be manufactured from Grade B steel with minimum plate thickness of 6,0 mm except where specified otherwise."

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**Corrosion protection**

**Cast Iron Pipes and Fittings:**

Substitute L3.9.1 with the following:

"All internal surfaces shall be grit blasted to SA 2½ standard and then coated with Copon EP 2300 epoxy paint to a minimum thickness of 350 micron."

**Joints, Bolts, Nuts and Washers:**

Substitute L3.9.5 with the following:

"All joints, bolts, nuts and washers shall be cadmium-plated or stainless steel."

**Rates**

Rates for pipe items are to be all inclusive prices and rates (except where allowed for elsewhere) are for the completed work as described in the respective items and shall include all labour, pipes, **bedding and filling complete in layers not exceeding 300 mm (unless otherwise specified) and compacted** all sundry work, equipment cost, guards, lighting, profit and maintenance.

Under paved areas and buildings the sand bedding and filling must be stabilised with 4 % cement.

Rates for inspection chambers, etc., are to be all inclusive prices and rates (except where allowed for elsewhere) for the completed work as described in the respective items and shall include all labour, pipes, concrete-floors and slabs, brickwork, plastering, compacting, all sundry work, equipment cost, guards, lighting, profit and maintenance.

The Contractor is referred to Drawing no's 208640VSO/15 to 17 annexed to these Bill of Quantities.

**Pipe work, fittings, etc.**

All underground steel pipes and fittings, after installation, shall be protected against corrosion according to PSL 1.2

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**Maintenance period**

The maintenance period for the following work shall be 12 calendar months.

**DEMOLITIONS**

**Demolish and remove**

- |   |   |    |   |
|---|---|----|---|
| 1 | Carefully disconnect, dismantle and remove existing water tanks on concrete roof approximately size 2 000 x 2 000 x 3 000mm high (Roof level is 13,5m above ground level) | No | 2 |
|---|---|----|---|

**WATER SUPPLY**

**Class 9 HDPE type IV polyethylene pipes**

- |   |  |   |     |
|---|--|---|-----|
| 2 | 50 mm Diameter pipe in ground including trenches, bedding, backfilling and compacting not exceeding 1 m deep | m | 198 |
| 3 | Ditto, exceeding 1m and not exceeding 2m deep  | m | 162 |
| 4 | 75 mm Diameter pipe in ground including trenches, bedding, backfilling and compacting not exceeding 1m deep  | m | 33  |
| 5 | Ditto, exceeding 1m and not exceeding 2m deep  | m | 6   |

**Extra on piping for**

- |   |               |    |    |
|---|---------------|----|----|
| 6 | 50mm Fittings | No | 48 |
| 7 | 75mm Fittings | No | 12 |

**uPVC Class 9 pressure piping with cast iron pressure fittings**

- |   |   |   |     |
|---|---|---|-----|
| 8 | 110mm pipe laid in trenches not exceeding 1m deep | m | 444 |
|---|---|---|-----|

**Extra of uPVC pressure pipe for cast iron pressure fittings**

- |    |                        |    |   |
|----|------------------------|----|---|
| 9  | 110mm x 90 degree bend | No | 8 |
| 10 | 110mm x 45 degree bend | No | 2 |

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11	110 x 50mm reducer	No	5
12	110 x 75mm Reducer	No	2
13	110 x 110 x 110mm tee	No	5
14	110 x 22mm Reducer	No	5
<b><u>uPVC Class 12 pressure piping with cast iron pressure fittings</u></b>			
15	110mm pipe laid in trenches not exceeding 1m deep	m	194
<b><u>Extra of uPVC pressure pipe for cast iron pressure fittings</u></b>			
16	110mm x 90 degree bend	No	4
17	110mm x 45 degree bend	No	2
<b><u>Water meters</u></b>			
18	50 mm "Meinecke WS" Watermeter complete	No	1
19	110 mm "Meinecke WS" Watermeter complete	No	1
<b><u>Extra over pipes for cast iron fittings with laying rubber ring joints</u></b>			
20	110 mm Cast iron gate valve (SABS 664)	No	19
21	110mm "Viking Johnston" cast iron to PVC collared coupling	No	19
<b><u>THE FOLLOWING IN STANDING WATER TAPS</u></b>			
<b><u>Galvanized steel pipes</u></b>			
22	20 mm Pipes fixed to steel	m	10
<b><u>Extra over Galvanized piping for fittings</u></b>			
23	20 mm Fittings	No	8

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<b><u>Sundries</u></b>				
24	Cobra Watertech No 207 1/2 + 3/4 hose bibtap PB with 1/2 and 3/4 BSP hose unions	No	5	
25	Y-Profile iron-post fastend to standing pipe with clamps and 200 x 200 concrete block including excavations, etc.	No	5	
<b><u>FOLLOWING IN EMERGENCY WATER TANK</u></b>				
<b><u>SITE CLEARANCE, REMOVAL OF TREES, ETC.</u></b>				
<b><u>EXCAVATIONS, ETC.</u></b>				
<b><u>Excavations not exceeding 2m deep</u></b>				
26	Bases	m3	6	
<b><u>Risk of collapse of excavations</u></b>				
27	Sides of excavations exceeding 1,50m deep	m2	7	
<b><u>FILLING, ETC.</u></b>				
<b><u>Earth filling obtained from the excavations and/or prescribed stock piles on site compacted to 95% Modified AASHTO density</u></b>				
28	Backfilling to trenches, holes, etc.	m3	6	
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**REINFORCED CONCRETE**

**30 Mpa/19mm Concrete poured around reinforcement:**

29	Concrete base and stub columns	m3	4
----	--------------------------------	----	---

**GENERAL FORMWORK**

**General formwork**

30	Edges, risers, ends and reveals exceeding 300mm high or wide	m2	4
----	--	----	---

**REINFORCEMENT (Provisional)**

**Mild steel reinforcement**

31	8mm to 16mm Diameter bars	t	0.11
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**High tensile steel reinforcement**

32	8mm to 25mm Diameter bars	t	0.17
----	---------------------------	---	------

**EMERGENCY WATER TANK**

33	Galvanised steel tank 100kl on 20m high galvanised steel stand (elsewhere measured) complete in accordance with CKS 114 including 90 mm diameter float valve series 7354 according to VOSA		Item
----	--	--	------

34	Supply, deliver to site and erect 20 m high galvanised steel tank stand for the abovementioned tank, complete with side ladder, structural columns, baseplates, horizontal stays, cross bracing, bolts, nuts, etc. all in strict accordance with the necessary safety acts		Item
----	--	--	------

35	80mm Diameter galvanised steel pipe (class medium) fixed to steel frame	m	40
----	---	---	----

36	Extra over galvanised steel pipe for 80mm galvanised fittings	No	27
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**TESTING, ETC.**

37 Allow for testing the whole of the emergency tank system and for any re-testing necessary after taking out and replacing any defective work to the satisfaction of the Representative

Item

**BOOSTER PUMP**

38 KSB ETANORM end suction pump c/w 15kW 380V 2 pole electric motor both mounted on a common base including coupling and coupling guard.

No

2

39 Manufacturing of 1 x 15kW VSD controller for Duty and 15kW DOL controlled standby motor. The two 15kW motors will be controlled via analog reference signal transmitted from a pressure transmitter. The DOL [Standby] motor will engage once a TRIP signal is send from the Master VSD. Enclosure will be powder coated B26 Electrical Orange. 1 x 4kW Motor VSD Control Panel. The motor will be controlled via analogy reference from pressure transmitter. Enclosure will be powder coated B26 Electrical Orange.

- 2 x Pressure Transmitters
- 1 x Cooling Fan & filtered louvre.
- 2 x Main Isolators with door mounted handles.
- 3 x Bypass Contractors
- 2 x Manual/Auto selector switches
- 12 x Indication Lights

No

2

**INSULATION**

40 Thermaflex or similar approved pipe insulation to pipes and couplings

m

10

**TESTING**

41 Provide all necessary apparatus water, etc. for and test the whole of the plumbing installation as required to the satisfaction of the architect and the local authority, and replace any defective work free of charge and leave perfect

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**GENERAL**

42 Excavate for and locate 160mm PVC diameter municipal water supply, cut into and fit to form 110mm connection

Item

**ISOLATION VALVE & MANHOLE**

43 Allow the Provisional Sum of R 65 000,00 (Sixty Five Thousand Rand) for the supply and installation of Insulation Valve including Manhole & lockable cover as per Engineer's drawings

Item

65,000.00

44 Allow for profit

Item

45 Allow for general attendance on specialist executing the work

Item

**AIR VALVE & MANHOLE**

46 Allow the Provisional Sum of R 30 000,00 (Thirty Thousand Rand) for the supply and installation of the Air Valve including Manhole & lockable cover as per Engineer's drawings

Item

30,000.00

47 Allow for profit

Item

48 Allow for general attendance on specialist executing the work

Item

**PRESSURE REDUCING VALVE CHAMBER**

49 Allow the Provisional Sum of R 125 000,00 (One Hundred and Twenty Five Thousand Rand) for the supply and installation of Pressure Reducing Valve chamber as per Engineer's drawings

Item

125,000.00

50 Allow for profit

Item

51 Allow for general attendance on specialist executing the work

Item

**SOAKAWAY**

52 Allow the Provisional Sum of R 25 000,00 (Twenty Five Thousand Rand) for the erection of a 4m "Kaytech" Soak Away as per Engineer's drawings

Item

25,000.00

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- 53 Allow for profit
- 54 Allow for general attendance on specialist executing the work

Item

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	<b><u>SECTION NO. 3</u></b>			
	<b><u>BILL NUMBER 4</u></b>			
	<b><u>SOIL DRAINAGE (PROVISIONAL)</u></b>			
	<b><u>SUPPLEMENTARY PREAMBLES</u></b>			
	Items, materials or methods to be used specified by trade names or catalogue numbers are only an indication of the quality required. Items, materials or other approved may be used with prior approval from the architect			
	JBCC Work Group No. 146			
	<b><u>SOIL DRAINAGE</u></b>			
	<b><u>Existing Manhole</u></b>			
1	Break into existing manhole, build in pipe as necessary, bench out in connection to the existing soil drainage system with and including all excavations, material and labour to the approval of the Representative	Item		
	<b><u>Free Flow uPVC drain pipes</u></b>			
2	110mm Pipes laid vertically not exceeding 1m deep (no excavations)	m	50	
3	110mm Pipes laid in and including trenches and backfilling with selected material not exceeding 1m deep	m	32	
4	110mm Pipes laid in and including trenches and backfilling with selected material exceeding 1m and not exceeding 2m deep	m	108	
5	160mm Pipes laid in and including trenches and backfilling with selected material exceeding 1m and not exceeding 2m deep	m	516	
	<b><u>Extra over uPVC pipes for fittings</u></b>			
6	110mm Bend	No	26	
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7	110mm Access bend	No	21
8	110mm Junction	No	56
9	110mm Access junction	No	4
10	110mm Double access junction	No	8
11	160mm Bend	No	21
12	160mm Access bend	No	18
13	160mm Junction	No	10
14	160mm Access junction	No	15
	<b><u>Sundries</u></b>		
15	15MPa/19mm Mass concrete encasing around 110mm horizontal drain pipe including all necessary formwork	m	50
16	15MPa/19mm Mass concrete encasing around 110mm vertical or raking drain pipe to cleaning eye including all necessary formwork	m	30
17	15MPa/19mm Mass concrete encasing around 110mm vertical bend including all necessary formwork	No	12
18	15MPa/19mm Mass concrete in precast I.E. marker block set flush with the ground or paving	No	36
19	ABC cast iron straight or bent cleaning eye with removable cover jointed to 110mm uPVC pipe and set in and including 15MPa/19mm mass concrete surround with exposed surfaces trowelled smooth	No	16
20	ABC cast iron straight or bent cleaning eye with removable cover jointed to 160mm uPVC pipe and set in and including 15MPa/19mm mass concrete surround with exposed surfaces trowelled smooth	No	20
	<b><u>Sundries</u></b>		
21	Extra over excavations to trenches, holes, etc., for excavations in soft rock	m3	30

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22	Ditto, but hard rock	m3	6
23	Imported sand in bedding and surround to pipework well compacted in layers, including any additional excavation, risk of collapse, etc.	m3	24
24	Keeping excavations free of water		Item
<b><u>GULLIES, ETC.</u></b>			
25	110 mm uPVC gully complete with and including 380 x 380 x 170mm precast concrete gully surround on 75mm Class C concrete base and fitted with 187mm diameter uPVC grating	No	19
26	110mm x 45° uPVC ABC cleaning eye, cover and rubber seal, with and including 450 x 450 x 75mm thick Class C concrete surround	No	16
27	160mm x 45° uPVC ABC cleaning eye, cover and rubber seal, with and including 450 x 450 x 75mm thick Class C concrete surround	No	20
<b><u>INSPECTION CHAMBERS, MANHOLES, ETC</u></b>			
<b><u>PRICES</u></b>			
The following must be allowed for in the rates for manholes:			
Excavations in pickable material, backfill and compaction to sides of manhole.			
20MPa Concrete in manhole base and benching.			
<b><u>Precast concrete circular manholes</u></b>			
28	Standard precast manhole, 1 060 mm internal diameter exceeding 1000 mm and not exceeding 1 250 mm deep internally complete with precast concrete rings, cover slab, double seal cast iron manhole cover and frame (SABS 558 Type 2A heavy duty in roads and Type 8A medium duty elsewhere), unreinforced concrete footing and benching in bottom, dished down to channels and finished smooth with plaster.	No	15

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<b><u>Manhole covers</u></b>				
29	600 x 600mm Cast iron single seal manhole cover and frame	No	34	
<b><u>CONNECTION</u></b>				
30	Cutting into side of existing inspection chamber not exceeding 2m deep for and including connection of 110mm uPVC pipe including making good afterwards and excavations, backfilling, compaction, etc.	No	2	
<b><u>TESTING</u></b>				
31	Allow for testing the complete drainage installation by visual and Air Pressure test to the satisfaction of the Engineer (All defective work to be replaced at the Contractors expense)		Item	
<b><u>1000 Litre Septic tank and French drain</u></b>				
32	Allow the Provisional Amount of R360 000.00 (Three Hundred and Sixty Thousand Rand) NET for Septic tanks and French drains complete		Item	360,000.00
33	Add for profit		Item	
34	Add for general attendance on subcontractor		Item	
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Item No		Quantity	Rate	Amount
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	<b><u>BILL NUMBER 5</u></b>			
	<b><u>STORM WATER DRAINAGE (PROVISIONAL)</u></b>			
	NOTE: For Preambles for All Trades see pages SP42 to SP50 and SUP5.			
	SUPPLEMENTARY PREAMBLES			
	Items, materials or methods to be used specified by trade names or catalogue numbers are only an indication of the quality required. Items, materials or other approved may be used with prior approval from the architect.			
	<b><u>STORM WATER CHANNELS</u></b>			
	<b><u>Unreinforced concrete 20 MPa in-situ storm water channels rendered smooth all round, including excavation, formwork, etc.</u></b>			
1	20 MPa Concrete open surface storm water channel 900mm wide and 175mm thick with Visage channel 600mm wide and 75mm deep extreme formed in same, finished smooth on exposed faces with angles slightly rounded, laid to falls in lengths not exceeding 2m, jointed in 3:1 cement mortar including excavations, necessary formwork and scarifying ground under to a depth of 150mm and compacting to a density of 93% of the Mod. AASHTO Maximum density	m	417	
2	Extra over 900mm wide storm water channel for 90 degree internal bend	No	26	
	<b><u>STORM WATER DRAINAGE</u></b>			
	<b><u>Class 50 D concrete pipes in Class B bedding</u></b>			
3	375mm Pipes laid in and including trenches not exceeding 1m deep	m	249	
4	375mm Pipes laid and including trenches exceeding 1m and not exceeding 2m deep	m	71	
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5	375mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep	m	36	
6	450mm Pipes laid in and including trenches not exceeding 1m deep	m	20	
7	450mm Pipes laid and including trenches exceeding 1m and not exceeding 2m deep	m	6	
8	450mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep	m	3	
9	600mm Pipes laid in and including trenches not exceeding 1m deep	m	57	
10	600mm Pipes laid and including trenches exceeding 1m and not exceeding 2m deep	m	16	
11	600mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep	m	8	
	<b><u>Precast concrete circular inspection chambers (covers elsewhere):</u></b>			
12	Inspection chamber 1000mm diameter and exceeding 1500mm and not exceeding 2000mm deep internally.	No	3	
	<b><u>The following in catchpits, manholes, etc. of 250mm thick 20Mpa/19mm concrete base, one brick walls in NFX hardburnt clay bricks rendered internally, 100mm thick concrete collar with 8mm mild steel rod and rebated along top side for frame and including 3:1 cement benching, excavations, part return and compact and carting away, etc. (gratings and covers elsewhere)</u></b>			
13	Catchpit 940 x 940mm and exceeding 750mm deep internally and not exceeding 1 000mm deep internally	No	1	
14	Catchpit 940 x 940mm and exceeding 1 000mm deep internally and not exceeding 1 250mm deep internally	No	10	
15	Catchpit 940 x 940mm and exceeding 2 250mm deep internally and not exceeding 2 500mm deep internally	No	1	
16	Catchpit 940 x 940mm and exceeding 2 500mm deep internally and not exceeding 2 750mm deep internally	No	1	
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17	Kerb inlet Catchpit 3600 x 1200mm and exceeding 1000mm and not exceeding 1250mm deep internally.	No	9
<b><u>Gratings, covers, etc:</u></b>			
18	40mm Thick precast manhole lid.	No	3
19	600 x 600 x 60kg Dished cast iron grating set in mortar	No	13
<b><u>Sundries:</u></b>			
20	Extra over excavation in earth for for pipe trenches, chambers, etc. for excavation in soft rock.	m3	70
21	Extra over excavation in earth for pipe trenches, chambers, etc. for excavation in hard rock.	m3	70
<b><u>FULLBORES</u></b>			
<b><u>"Fullbore" cast iron outlets</u></b>			
22	100mm Outlet (360°)	No	12
23	150mm Outlet (360°)	No	6
<b><u>STORMWATER CHUTES AND HEADWALLS</u></b>			
<b><u>The following to Stormwater chutes and headwalls</u></b>			
24	Excavate not exceeding 2m deep for stormwater chutes and headwalls	m3	7
25	Cart away surplus material to a suitable dumping site located by the Contractor	m3	7
26	Scarify natural or reduced ground level to depth of 300 mm, water and compact to a 93% density in accordance with the modified AASHTO test	m2	27
27	25 Mpa Reinforced concrete in chute and headwall base and sides	m3	5
28	Wood float finish to top of channel and headwall base	m2	25
29	Smooth formwork to sides of concrete chute and headwall	m2	6

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30	Smooth formwork to edge of concrete not exceeding 300mm high	m	81
31	10mm Diameter high tensile bars in channel	t	0.17
32	25 Mpa Mass concrete in 250 x 250 x 200mm high dissipators in chute ends including all formwork necessary	No	3
33	1 150mm Long x 200mm wide x 300mm high concrete chute with 750mm long x 200mm wide x 100mm wide opening for water drainage under security fence	No	3

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	<b><u>SECTION NO. 3</u></b>			
	<b><u>BILL NUMBER 7</u></b>			
	<b><u>FENCING AND GATES (PROVISIONAL)</u></b>			
	Fencing prices are to include for site clearance and grading to even lines 1 m each side of fence line unless otherwise described, all necessary excavations in earth, risk of collapse and disposal of surplus excavated material			
	<b><u>SITE CLEARANCE</u></b>			
	<b><u>Site clearance</u></b>			
1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200 mm girth, bush, etc.	m2	3,510	
	<b><u>DEMOLITIONS</u></b>			
	-WORK GROUP 102-			
	<b><u>MAIN ENTRANCE</u></b>			
	<b><u>Demolishing and removing:</u></b>			
2	Take out and remove steel security main entrance sliding gate including sliding gear & tracks size 5 000 x 2 500mm high	No	1	
	<b><u>EXISTING FENCING AROUND BUILDING SITE</u></b>			
	<b><u>Removal of existing fencing</u></b>			
3	Break up and remove concrete fence post bases of varying sizes	m3	71	
4	Take down and remove existing wire mesh fencing 2 400mm high	m	1,771	
5	Taking down and removing double gate 3500mm x 2400mm high	No	6	
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**SECURITY FENCING**

NOTE: Flat wrap razor security wire to comply with CKS 592 specification. Flat wrap wire and clips to be Aluzink coated

NOTE: All excavations are measured as being in "earth" and/or filling compacted to 98% modified AASHTO density

NOTE: All galvanized work are measured as being 45 micron hot-dipped galvanized

**Concrete**

6	Base for end, corner or gate post, size 450 x 450 x 900mm including all excavations, 20 Mpa mass concrete base with chamfered top surface projecting 50mm above surrounding ground level including any necessary formwork, etc	No	33
7	Base for stay, size 450 x 760 x 600mm, including all excavations, 20 Mpa mass concrete base with chamfered top surface projecting 50mm above surrounding ground level including any necessary formwork, etc	No	357

**METALWORK**

-WORK GROUP 136-

**Powder coated steel security fencing as per COCHRANE PRODUCTS 358 HIGH SECURITY FENCING MESH. All details and specifications to be verified with manufacturer**

"ClearVu" or other approved

8	2400mm high "Cochrane ClearVu" fence with spikes on top or similar approved with and including foundations, posts, stays etc. as per manufacturers specifications	m	1,771
9	Single pedestrian gate 1 500 x 2 525m high formed of same as security fencing	No	6
10	2500 x 2400mm High "Cochrane ClearVu" or similar approved double gate complete and including gate ironmongery	No	2

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**NEWCASTLE: REPAIR AND RENOVATIONS TO  
DECENTRALISED TRAINING FACILITY FOR SAPS**

11 6000 x 2400mm High "Cochrane ClearVu" or similar approved sliding gate complete on and including gate rail, stopped end, guide rollers and gate motor.

No

2

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Section No. 3  
Bill No. 6  
Fencing (Provisional)  
**RUBIQUANT  
QUANTITY SURVEYORS**

**NEWCASTLE: REPAIR AND RENOVATIONS TO  
DECENTRALISED TRAINING FACILITY FOR SAPS**

Section No. 3

Bill No. 6

Fencing (Provisional)

**COLLECTION**

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Section No. 3

Bill No. 6

Fencing (Provisional)

**RUBIQUANT**

**QUANTITY SURVEYORS**

**SECTION SUMMARY - External Works (Provisional)**

**Bill  
No**

- 1 Site Works, Sport Fields, etc. (Provisional)
- 2 Roads, Paving, etc. (Provisional)
- 3 Water Supplies (Provisional)
- 4 Soil Drainage (Provisional)
- 5 Stormwater Drainage (Provisional)
- 6 Fencing (Provisional)

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**RUBIQUANT  
QUANTITY SURVEYORS**

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