



TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2024/08/0003/73199/RFP

DESCRIPTION OF THE WORKS: REPLACEMENT AND CONSTRUCTION OF THE NEW BULK ELECTRICAL INFRASTRUCTURE AT STURROCK DRY DOCK FOR THE PORT OF CAPE TOWN FOR A PERIOD OF TWO (2) YEARS

PART 2: PRICING DATA

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C2.1	Pricing instructions: Option B	4
C2.2	The <i>bill of quantities</i>	68
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C2.1 Pricing instructions: Option B

1. The conditions of contract

1.1. How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Engineering and Construction Contract, June 2005 (ECC3) Option B states:

Identified and defined terms	11	(21) The Bill of Quantities is the <i>bill of quantities</i> as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration.
	11.2	(22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.
		(28) The Price for Work Done to Date is the total of - the quantity of the work which the <i>Contractor</i> has completed for each item in the Bill of Quantities multiplied by the rate and - a proportion of each lump sum which is the proportion of the work covered by the item which the <i>Contractor</i> has completed.
		Completed work is work without Defects which would either delay or be covered by immediately following work.
		(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

This confirms that Option B is a re-measurement contract and the bill comprises only items measured using quantities and rates or stated as lump sums. Value related items are not used. Time related items are items measured using rates where the rate is a unit of time.

1.2. Function of the Bill of Quantities

Clause 55.1 in Option B states, "Information in the Bill of Quantities is not Works Information or Site Information". This confirms that instructions to do work or how it is to be done are not included in the Bill, but in the Works Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Works in accordance with the Works Information". Hence the *Contractor* does **not** Provide the Works in accordance with the Bill of Quantities. The Bill of Quantities is only a pricing document.

1.3. Guidance before pricing and measuring

Employers preparing tenders or contract documents, and tendering contractors are advised to consult the sections dealing with the bill of quantities in the NEC3 Engineering and Construction Contract (June 2005) Guidance Notes before preparing the *bill of quantities* or before entering rates and lump sums into the *bill*.

Historically bill of quantities-based contracts in South Africa have been influenced by the different approaches of the civil engineering and building sectors of the industry through their respective discipline based standard forms of contract and methods of measurement. This is particularly apparent in the approach to the Preliminary and General bill. On the other hand, because ECC3 caters for a number of disciplines in the same contract, including electrical works, a different approach not currently found in local methods of measurement to the Preliminary & General bill items may have been used.

The NEC approach to the P & G bill assumes use will be made of method related charges for Equipment applied to Providing the Works based on durations shown in the Accepted Programme, fixed charges for the use of Equipment that is required throughout the construction phase, time related charges for people working in a supervisory capacity for the period required, and lump sum charges for other facilities or

services not directly related to performing work items typically included in other parts of the bill.

2. Measurement and payment

2.1. Symbols

The units of measurement described in the Bill of Quantities are metric units abbreviated as follows:

Abbreviation	Unit
%	percent
h	hour
ha	hectare
kg	kilogram
kl	kilolitre
km	kilometre
km-pass	kilometre-pass
kPa	kilopascal
kW	kilowatt
l	litre
m	metre
mm	millimetre
m ²	square metre
m ² -pass	square metre pass
m ³	cubic metre
m ³ -km	cubic metre-kilometre
MN	meganewton
MN.m	meganewton-metre
MPa	megapascal
No.	number
Prov sum ¹	provisional sum
PC-sum	prime cost sum
R/only	Rate only
sum	Lump sum
t	ton (1000kg)
W/day	Work day

2.2. General assumptions

- 2.2.1. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made in the quantities for waste.

¹ Provisional Sums should not be used unless absolutely unavoidable. Rather include specifications and associated bill items for the most likely scope of work, and then change later using the compensation event procedure if necessary. This is because tenderers cannot programme effectively for unknown scopes of work



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- 2.2.2. The Prices and rates stated for each item in the Bill of Quantities shall be treated as being fully inclusive of all work, risks, liabilities, obligations, overheads, profit and everything necessary as incurred or required by the *Contractor* in carrying out or providing that item.
- 2.2.3. Clause 63.13 in Option B provides that these rates and Prices may be used as a basis for assessment of compensation events instead of Defined Cost.
- 2.2.4. Where this contract requires detailed drawings, designs or other information to be provided, and no rates or prices are included in the *bill* specifically for such matters, then the *Contractor* is deemed to have allowed for all costs associated with such requirements within the tendered rates and Prices in the Bill of Quantities.
- 2.2.5. An item against which no Price is entered will be treated as covered by other Prices or rates in the *bill of quantities*. If a number of items are grouped together for pricing purposes, this will be treated as a single lump sum.
- 2.2.6. The quantities contained in the Bill of Quantities may not be final and do not necessarily represent the actual amount of work to be done. The quantities of work assessed and certified for payment by the *Project Manager* at each assessment date will be used for determining payments due and not the quantities given in the Bill of Quantities.
- 2.2.7. The short descriptions of the items of payment given in the *bill of quantities* are only for the purposes of identifying the items. More detail regarding the extent of the work entailed under each item is provided in the Works Information.



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C2.2 Bill of Quantities

Item	Description	Unit	Quantity	Unit Rate	Total Amount
1	SECTION NO. 1: PRELIMINARIES AND GENERAL BILL NO.1: PRELIMINARIES AND GENERAL PREAMBLES The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill General Carting away of excavated material Descriptions of carting away excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stockpiles situated on the building site Tenderers are referred to the SANS Payment reference documents for the full intent and meaning of each clause thereof, which are herein after referred to by clause number and heading only TEMPORARY BARRIERS, SCREENS, ETC Temporary barriers, screens, etc. including removal and reuse: Welded galvanized mesh fencing 100x 100, 1.8m high including minimum 70% green shade cloth comprising of 2m bitumen gum-poles imbedded 200mm deep including all required concrete footings. Pole spacing to be 3m c/c including stays, straining wire and all required fixings complete. Note: The pricing of fencing will be deemed to include the removal refixing at position to be identified by the Architect after initial use.				
	1.1				
	Total carried forward				



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	Total brought forward				
	FIXED CHARGE ITEMS				
1.2	Contractual requirements	Sum	1		
1.3	Port Permits and Site Access, Hot works permits and any other required permits for the works	Sum	1		
1.4	Establishment of Facilities on the Site	Sum	1		
1.5	Supply and install electrical connection on site camp	Sum	1		
1.6	Supply and install a water connection to site camp	Sum	1		
1.7	Removal of site establishment.	Sum	1		
1.8	Rehabilitation of site	Sum	1		
1.9	Compilation and provision to the Employer of all as-built documentation and any other associated contract documentation, including but not limited to hard copy as built drawings, operations and maintenance where applicable	Sum	1		
1.10	Contractors should have provisions for revising any existing designs deemed necessary during the construction process. It allows for adjustments, modifications, or complete redesigns to ensure compliance with project requirements, building codes, and client preferences, to also accommodate unforeseen changes or improvements that may arise during construction	Sum	1		
1.11	Conduct necessary site investigation for construction inclusive but not limited to under services detection.	Sum	1		
1.12	Allowance for identifying the cable routing for supplying pumps and the main cables that supply the proposed substation and detailed Design for Cabling and Trenching	Sum	1		
1.13	Procurement of cabling and installation	Sum	1		
1.14	Allowance for calculations of protection settings (protection study); integration of new substation into existing electrical infrastructure; perform and ensure proper grading and coordination; install and testing of the protection and complete with other associated systems	Sum	1		
1.15	Allowance for detailed design, supply and installation of transformer oil spillage/oil containment system	Sum	1		
	Total carried forward				



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	Total brought forward				
	TIME RELATED ITEMS				
1.16	Company and head office overhead costs for duration of construction.	monthly	24		
1.17	On site staff	monthly	24		
1.18	Supervision for the duration of the project.	monthly	24		
1.19	Accommodation for site employees	monthly	24		
1.20	Plant and Machinery hire	monthly	24		
1.21	Lockable site office for the use of Employer's staff (minimum size 3m x 5m) including the following services: Daily cleaning, 230V AC power, telecommunication facilities, office furniture (minimum 4 x workstations), printing, copying and computer facilities, IT infrastructure, document - binding, storing and laminating facilities. Item includes the provision of a local based Document Controller administrative on site	monthly	24		
1.22	Ablution and latrine facilities	monthly	24		
1.23	Provision of water and electricity	monthly	24		
1.24	Tools and Equipment	monthly	24		
1.25	On site security to protect the contractor's assets	monthly	24		
1.26	Cost for compliance to Health and Safety regulation	monthly	24		
1.27	Cost for compliance with Environmental Management Plan	monthly	24		
1.28	Cost for compliance with Quality Management Plan	monthly	24		
BILL TOTAL CARRIED TO FINAL SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
	SECTION 2: SITE CLEARANCE (SANS 1200 C)				
	BILL NO.2: EXTERNAL WORKS				
2	DISMANTLE AND DEMOLISH STRUCTURES				
	Inclusive of all haulage and dumping trees:				
2.1	Demolish and remove structures, reinforced and unreinforced concrete and brickwork, including bollards, benches, planters, dustbins, etc.	Sum	1		
2.2	Cart materials and debris to unspecified sites and dump (provisional)	km	1		
	REMOVE AND DISPOSE PAVEMENTS				
2.3	Demolish existing pavements and discard materials to an approved dumping site to be located by the Contractor, including all haulage and dumping fees: (PSC 8.2.11)				
	a) Remove and dispose existing paving (various types for walkways and driveways) along Works area	m ²	46		
	b) Remove and dispose of unreinforced concrete along works area (channels, edge beams, edging around fixtures, etc.)	m ²	152		
	c) Remove and dispose of existing asphalt paved surfaces up to 80mm thick (average) along Works area (from roadway for new pavement works and excavations for new drainage and sleeves)	m ²	57		
	d) Remove and dispose of kerbs etc. (all types precast and cast-insitu) deemed to be in poor condition	m	42		
	e) Excavate carefully, lift, recover and reinstate water pipes. (Excavation and backfilling measured elsewhere). (8.2.7 PSL)	m	38		
	Total carried forward				

	Total brought forward				
3	EXCAVATION (8.3.2)				
3.1	Remove topsoil to nominal depth 150mm, stockpile, and maintain. (8.3.2.2) Excavate in all materials and place within free haul distance for: (8.3.2(a))	m ²	1080		
3.2	Levelling site	m ³	56		
	Total carried forward				

	Total brought forward				
4	TREATMENT OF ROAD-BED				
4.1	Road-bed preparation and compaction of in-situ G8 material compacted to 90% Mod. AASHTO maximum density. (8.3.3(a))				
	a) For roadways etc.	m ³	141		
	EARTHWORKS				
	Cut to fill (8.3.4)				
4.2	Compact to 90 % mod. AASHTO maximum density	m ³	56		
	Borrow to fill (8.3.4)				
4.	Selected layer compacted to 93% mod. AASHTO maximum density. G7 material commercially sourced by the Contractor. (8.3.5)	m ³	141		
	Extra-over for excavating and breaking down material in: (8.3.6)				
4.5	Hard excavation	m ³	37		
	Cut to spoil from (8.3.7)				
4.6	Soft excavation	m ³	74		
4.7	Removal of oversize material (8.3.8)	m ³	34		
	SUNDRIES (SANS 1200 DM)				
4.8	Extra-over for temporary stockpiling of G7 material. (8.3.11)	m ³	38		
	OVERHAUL (8.3.12)				
4.9	Extra-over for hauling material in excess of the haul of 1,0 km	km	108		
	Total carried forward				



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	Total brought forward				
	EXCAVATION (1200 D)				
5.1	Excavate all materials for trenches and backfill, compact, and dispose of surplus/unsuitable material within 100m from excavation (PSD)				
	a) For electrical ducts/culverts, including crossing streets. Exceeding 0,5 m but not exceeding 1,0 m. (8.3.3)	m ³	739		
	Extra-over for excavation items in (prov):				
5.2	Soft material (no intermediate material, all material not classified as hard will be considered as soft material)	m ³	74		
5.3	Hard rock material (using jack hammers only, no blasting allowed)	m ³	37		
	EXCAVATION ANCILLARIES				
	Make up deficiency in backfill material (Provisional)				
5.4	from other necessary excavations on site. (8.3.3.1(a))	m ³	52		
5.5	by importation from commercial or off-site sources selected by the Contractor. (8.3.3.1(c))	m ³	52		
5.6	Shore trenching. (8.3.4)	m	62		
5.7	Keeping excavations free of water from other subterrain	Sum	1		
	Control water inflow from excavations				
5.8	Provide equipment	Sum	1		
5.9	Operate and maintain	Days	12		
5.10	Remove equipment	Sum	1		
	Total carried forward				



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	Total brought forward				
	SUMS STATED PROVISIONALLY BY ENGINEER (1200 C)				
5.11	For work to be done by a nominated sub-contractor				
	a) Flat sawing, vertical core drilling and wire sawing inclusive of the provision of support/jacking of existing structures (8.5)	Sum	1		
	b) Overheads, charges and profit on item above	%	1		
5.12	BOX CULVERTS (PRECAST CONCRETE) Supply, bed and install (including heavy duty joint sealing between sections). (SANS 1200 LE)				
	a) complete with inverted precast slabs				
5.13	1.5m x 1.2m	m	32		
5.14	MANHOLES Construct complete with covers and frames. (8.2.8)				
	a) Type 1500mm diameter, Dwg No TNPA/2020-CE-006 5,0 m deep	No	2		
	ACCESSORIES. (8.2.10)				
5.15	Step Irons	No	17		
5.16	Supports at tunnel interface	No	2		
5.17	REINSTATE ROAD SURFACES COMPLETE WITH ALL COURSES. (SANS 1200 C)				
	a) Complete with all courses except surfacing, only where trenches are crossing existing surfaced roads, and no other layer works is required. 150mm G2 material with 3% Emulsion and 1% Cement. (8.3.6)	m ³	141		
	b) Bitumen premix 40mm thick	m ²	799		
5.18	OVERHAUL (provisional) where ordered	km	65		
	Total carried forward				

	Total brought forward				
	CONCRETE				
6.1	Strength concrete: 15 MPa/19mm 50mm minimum thickness	m ³	12		
	Strength concrete: 15 MPa/19mm				
6.2	Infill Surround	m ³	66		
	Strength concrete: 40 MPa/19mm with rapid-hardening cement				
6.3	Deck Slab	m ³	41		
6.4	Stormwater channels	m ³	16		
	FORMWORK				
	Smooth vertical plane to:				
6.5	Sides	m ²	101		
6.6	Vertical narrow widths up to 300 mm wide.	m	16		
	Box out holes/form voids				
	Small, circular up to 0,35 m diam.: depths over and up to				
6.7	1,0 m -1,5 m	No	2		
	REINFORCEMENT				
	High-tensile welded mesh reinforcement				
6.8	Type reference 245 in standard sheets	m ²	288		
	UNFORMED SURFACE FINISHES				
6.9	Power-floated finish	m ²	171		
	JOINTS (8.5)				
	Two-part gey polysulphide sealing compound including backing cord, bond beaker, primer etc.				
6.10	3 x 40mm saw cut joints in deck slab	m	54		
	Total carried forward				



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	Total brought forward				
6.11	10mm softboard with closed cell expanded polyethelene or bitumen Expansion/Construction joints in deck slab SEWERS (SANS 1200) CLEAR SITE	m	46		
6.12	Dismantle and remove pipelines (not encased in concrete) SUNDRIES (1200 LD)	m	22		
6.13	Permanent plug stoppers	No	10		
6.14	Raising or lowering of existing manholes	No	9		
	SUB(BASE) (SANS 1200ME) SUB(BASE) Construct gravel subbase with G5 material from commercial sources including all haulage and temporary stockpiling of materials (where required)				
6.15	200mm compacted to 95% mod. AASHTO to roadways	m ³	175		
	BASE (SANS 1200 MFL) Construct crushed stone base with G2 material (3% emulsion and 1% cement) from commercial source including all haulage and temporary stockpiling of materials (where required)				
6.16	150mm compacted to 98% mod. AASHTO to roadways	m ³	141		
	ASPHALT BASE AND SURFACING (SANS 1200 MH) PRIME COAT Prime coat using:				
6.17	MC 30 cut back bitumen	Litres	574		
	Total carried forward				

	Total brought forward				
	TACK COAT				
	Spray surface using emulsion				
6.18	30% stable grade emulsion	Litres	574		
	ASPHALT BASE				
	Continuously graded asphalt base				
6.19	Course asphalt, using 80/100 penetration grade bitumen	Tons	3		
	ASPHALT SURFACING				
	Continuously graded surfacing				
6.20	Medium asphalt, using 80/100 penetration grade bitumen	Tons	3		
	SECTION: ANCILLARY ROADWORKS (SANS 1200MM)				
	PERMANENT TRAFFIC SIGNS				
	Sign faces with painted or galvanized (as stated) background. Symbols, characters, legend, and borders in engineering grade retroreflective material with signboards constructed from. (8.3.1) traffic sign				
6.21	a) Chroma deck SABS approved (1.4 mm thick), of area over 2 m2	m ²	6		
6.22	Sign Supports (PSMM 8.3.3)				
	a) Steel tubing D shape 76mm OD with 2mm wall thickness galvanized.	m	18		
	b) Excavation for sign supports and backfilling with in-situ material	m ³	2		
	Total carried forward				



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	Total brought forward				
6.23	ROAD MARKINGS Two-part Cold plastic paint (1.2mm thick), reflective using glass beads a) White lines (broken or unbroken) (width 100 mm) b) Yellow lines (broken or unbroken) (width 150 mm) c) White characters and symbols d) Yellow characters and symbols e) Setting out and pre-marking of lines (excluding traffic island markings, characters, and symbols) f) Removal of existing road markings by sandblasting. (PSMM 8.6) g) Extra-over for item a) for backfill using 15Mpa concrete.	m m m ² m ² m m ² m ³	1150 100 120 60 1750 220 16		
6.24	STREET FURNITURE Provide and install complete as per Dwg. No. TNPA/2020- CE-001 a) High Impact Bollards:150mm dia. galvanized steel bollard, length 1500 mm filled in with concrete, complete with 500mm x 500mm x 550mm deep concrete foundation b) Removable Bollards:150mm dia. flat top stain steel bollard, length 1200 mm, complete with 500mm x 500mm x 550mm deep concrete foundation	No No	16 62		
BILL-TOTAL CARRIED TO FINAL SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
7	SECTION 7: EARTHWORKS BILL NO.7: EARTHWORKS PREAMBLES The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill SUPPLEMENTARY PREAMBLES View site Before submitting his tender, the contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the Contract Sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained General 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 stockpiles situated on the building site				

7.1	Demolition of existing brick structures				
	Completely breakdown and remove existing brick structures size (4.5 x 15m). Including the demolition of substructure components and dispose to a site identified by the contractor. All safe environmental protocols to be adhered to.	No	1		
7.2	Demolition of existing brick structures				
	Completely breakdown and remove existing brick structures size (3.5 x 3.5m). Including the demolition of substructure components and dispose to a site identified by the employer. All safe environmental protocols to be adhered to.	No	1		
7.3	SITE CLEARANCE ETC				
	Site clearance				
7.4	Digging up and removing rubbish, debris, vegetation, hedges, shrubs, bush, etc. and trees not exceeding 200mm girth	m ²	1080		
	EXCAVATION				
7.5	Excavation on earth not exceeding 2m deep				
	Trenches	m ³	439		
7.6	Extra over bulk excavations in earth for excavation in				
	Hard rock	m ³	152		
7.7	Extra over all excavations for carting away				
	Total carried forward				



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	Total brought forward				
7.6	Surplus material from excavations and/or stockpiles on site, to a dumping site to be located by the contractor	m ³	222		
	Risk of collapse of excavations				
7.7	Sides of trench and hole excavations exceeding 1,5m deep	m ²	860		
7.8	Keeping excavations free of water				
7.9	Keeping excavations free of all water other than subterranean water	No	34		
	FILLING ETC OTHER THAN BULK				
	Earth filling obtained from the excavations and/or prescribed stockpiles on site, compacted to 95% Mod AASHTO density.				
7.10	Under floors, steps, paving, etc.	m ³	24		
7.11	Backfilling to trenches, holes, etc.	m ³	277		
	Hardcore filling comprising of G5 compacted in 150mm layers to 95% Mod AASHTO				
7.12	Under floors etc. (in accordance with SANS 1200 ME; 8.3.3)	m ³	171		
	Prescribed density tests on filling				
7.13	Modified AASHTO Density test	No	16		
	Soil Poisoning				
7.14	Approved brand of anti-termite soil poison applied by a Registered Pest Control company and guaranteed against termite infestation for ten years:	m ²	1080		
7.15	To bottoms and sides of trenches etc.	m ²	916		
	BILL- TOTAL CARRIED TO SUMMARY				

Item	Description	Unit	Quantity	Unit Rate	Total Amount
8	SECTION 8: CONCRETE BILL NO.8: CONCRETE, FORMWORK AND REINFORCEMENT PREAMBLES The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill SUPPLEMENTARY PREAMBLES Cost of tests The costs of making, storing and testing of concrete test cubes as required under clause 7 'Tests' of SANS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the Engineer. The testing shall be undertaken by an independent firm or institution nominated by the Contractor with the approval of the Engineer (Test cubes are measured separately) Formwork Descriptions of formwork shall be deemed to include use and waste only (except were described as left in or permanent), for fitting together in the required forms, wedging, plumbing, and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use				

	Formwork to sides of bases, pile caps, ground beams, etc., have been measured provisionally and will only be paid for where it is specifically prescribed by the Project Manager for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in Earthworks				
8.1	15MPa/19mm concrete (SANS 1200 G)				
8.1.1	Surface blinding under surface beds	m³	3		
8.1.2	Surface blinding under footings and bases	m³	12		
8.2	REINFORCED CONCRETE CAST ON/IN FORMWORK				
	40MPa/19mm concrete (SANS 1200 G)				
8.2.1	Strip footings	m³	112		
8.2.2	Ramps	m³	22		
8.2.3	Slabs and beams	m³	134		
8.2.4	Walls	m³	15		
8.2.5	Concrete infills	m³	22		
Total carried forward					

	Total brought forward				
8.3	REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES 40MP/19mm concrete (SANS 1200 G)				
8.3.1	Surface beds	m ³	59		
8.3.2	Square Columns	m ³	17		
8.4	TEST CUBES				
8.4.1	Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional) (Set of 6)	No	32		
8.5	CONCRETE SUNDRIES				
	Finishing top surfaces of concrete smooth with a power float				
8.5.1	Surface beds, slabs, etc.	m ²	758		
	Total carried forward				

	Total brought forward				
	ROUGH AND SMOOTH FORMWORK (DEGREE OF ACCURACY III)				
9	Smooth formwork to sides				
9.1	Slabs	m ²	43		
9.2	Ramps	m ²	11		
9.3	Square Columns	m ²	32		
	Smooth formwork to sides and soffits				
9.4	Slabs propped up exceeding 1.5m and not exceeding 3.5m high	m ²	435		
9.5	Beams	m ²	123		
9.6	MOVEMENT JOINTS ETC				
	Expansion joints with bitumen impregnated softboard between vertical and brick surfaces.				
9.6.1	10mm soft board or similar at surface bed wall joints.	m	177		
	Saw cut joints and contrition joints				
9.6.2	3 x 40mm saw cut joints in top of concrete	m	67		
9.7	REINFORCEMENT (CPAP WORK GROUP NO. 114)				
	High tensile steel reinforcement to structural concrete work				
9.7.1	Various Diameter bars. (All in accordance with engineers' details)	Tons	27		
	Fabric reinforcement				
9.7.2	Type 245 fabric reinforcement in concrete surface beds etc.	m ²	519		
BILL- TOTAL CARRIED TO SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
10	SECTION 10: MASONRY BILL NO.10: MASONRY PREAMBLES For preambles see "Model Preambles for trades (2008 Edition)" and applicable Supplementary Preambles as specified in the Trades. The said Model and Supplementary Preambles apply to all work described in this document. Tenderers are therefore referred to these documents for the full meaning and intention of all descriptions and no claims of any kind whatsoever will be entertained in this regard. SUPPLEMENTARY PREAMBLES BRICKWORK Sizes in descriptions Sizes in descriptions Where sizes in descriptions are given in brick units, 'one brick' shall represent the length and 'half brick' the width of a brick Bagged and sealed walls Face bricks Bricks shall be ordered timeously to obtain uniformity in size and colour. BRICKWORK BRICKWORK IN FOUNDATIONS (PROVISIONAL) (LIC) Brickwork of NFX bricks (14 MPa nominal compressive strength) in class II mortar				
10.1	One brick wall BRICKWORK IN SUPERSTRUCTURE (LIC) Brickwork of NFP bricks in class II mortar	m ²	394		
	Total carried forward				

	Total brought forward				
10.2	280mm cavity walls with wall ties.	m ²	5735		
10.3	Half brick walls in beamfilling	m ²	50		
	BRICKWORK SUNDRIES				
	Sundries				
	Bagging 1:3 cement and sand mixture (LIC)				
10.4	On brick walls, piers, etc.	m ²	5799		
	2,5mm Brickwork reinforcement				
10.5	150mm Wide reinforcement built in horizontally	m	3590		
	Prestressed fabricated concrete lintels including necessary temporary supports				
10.6	110 X 75mm Lintels in lengths not exceeding 3m	m	54		
	Turning pieces to lintels etc.				
10.7	110mm Wide turning pieces	m	54		
	Air bricks etc.				
10.8	229 x 152mm Clay vermin proof air brick	No	24		
	FACE BRICKWORK				
	280 mm FBS face bricks pointed with recessed horizontal and vertical joints				
10.9	Extra over hollow brickwork for face brickwork with wire ties	m ²	441		
	Total carried forward				

	Total brought forward				
	Preparation of concrete floor beds, slabs, etc. for paving. Concrete surfaces shall be hacked (preferably by mechanical means) until all laitance, dirt, oil, etc. is dislodged and swept clean of all loose matter. Surfaces shall then be wetted and kept damp for at least six hours before slushing with 1:2 cement/sand and while still wet, paving, etc. shall be laid on a 1:4 cement mortar bed not exceeding 25mm thick and jointed and pointed with hollowed joints. Sand shall be clean, sharp river sand Paving of 500 x 500 x 50mm thick precast concrete paving blocks with butt joints on 20mm thick river sand bed with sand-and-cement mixture swept into joints and hosed down, including preparation of ground or filling				
10.10	Paving in stretcher bond to falls	m ²	527		
BILL TOTAL CARRIED TO FINAL SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
11	BILL NO.11: WATERPROOFING PREAMBLES The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill DAMPPROOFING OF WALLS AND FLOORS One layer 375-micron embossed polyethylene dampproof course (SANS 952-1985 type B)				
11.1	In walls One layer 250-micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape	m ²	65		
11.2	Under surface beds SEALING STRIPS, JOINT SEALANTS, ETC Two-part grey polysulphide sealing compound including backing cord, bond breaker, primer, etc.	m ²	323		
11.3	6 x 10mm in saw cut joints in floors WATERPROOFING TO ROOFS, BASEMENTS, ETC	m	52		
11.4	One-layer Derbigum CG3 and one-layer Derbigum CG4H (Horticultural) waterproofing membrane, with 100mm side laps with 150mm end laps, sealed to be primed surfaces by 'torch-fusion' followed by 150-micron polythene sheeting loose laid with 50mm laps sealed with pressure sensitive tape, to receive drainage layer of Delta MS20 to horizontal surfaces, to receive soil and plants (elsewhere specified). Waterproofing to be installed by an approved Derbigum Contractor.	m ²	435		
	BILL TOTAL CARRIED TO FINAL SUMMARY				

Item	Description	Unit	Quantity	Unit Rate	Total Amount
12	SECTION 12: CARPENTRY AND JOINERY				
	BILL NO.12: CARPENTRY AND JOINERY				
	PREAMBLES The contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill TIMBER DOORS, WINDOWS, ETC Solid hardwood 2-hour fire rated door with purpose made solid hardwood door frame Fire doors are generally available in Class A (1 hour fire rating) and Class B (2-hour fire rating)				
12.1	Door for opening 920mm x 2100 mm high fixed to brickwork.	No	6		
	BILL TOTAL CARRIED TO SUMMARY				



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Item	Description	Unit	Quantity	Unit Rate	Total Amount
13	SECTION 13: IRONMONGERY BILL NO.13: IRON MONGERY PREAMBLES The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill HINGES, BOLTS, ETC. Dorma' or equally approved 13.1 100 x 75mm ball bearing stainless steel butt hinges. CATCHES, CABIN HOOKS, ETC. LOCKS Dorma' or equally approved 13.2 50mm brass padlock. 13.3 5 lever mortice locksets with strike plate included. HANDLES Dorma' or equally approved 13.4 19mm diameter x 64 x 130mm straight tubular pull handle DOOR CLOSERS Dorma' or equally approved 13.5 TS 83 Heavy-duty overhead door closer with PA bracket. LETTERS, NAMEPLATES, ETC. Dorma' or equally approved 13.6 Perspex plate with engraved and painted letters or numerals	No	30		
		No	16		
		No	10		
		No	7		
		No	4		
		No	18		
	Total carried forward				



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	Total brought forward				
13.7	SUNDRIES Dorma' or equally approved 38mm Diameter rubber door stops.	No	6		
BILL TOTAL CARRIED TO FINAL SUMMARY					

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Item	Description	Unit	Quantity	Unit Rate	Total Amount
14	SECTION 14: METAL WORK				
	BILL NO.15: METAL WORK				
	SUPPLEMENTARY PREAMBLES				
	The Contractor is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill.				
14.1	ALUMINIUM WINDOWS, DOORS, ETC. (CPAP WORK GROUP NO. 140)				
	Purpose made aluminium horizontal-slatted door, complete with subframes, ironmongery, etc. and fixing to brickwork or concrete				
14.1	Door size 933 x 2100mm high	No	4		
14.2	STEEL ROLLER SHUTTERS ETC				
	High aluminium roller shutters with dust-free tracks				
14.2	Chain operated slatted roller shutter for 3680 x 2975 mm high opening fixed to brickwork complete.	No	8		
BILL-TOTAL CARRIEED TO FINAL SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
15	SECTION 15: PLASTERING				
	BILL NO.15: PLASTERING				
	SUPPLEMENTARY PREAMBLES				
	The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill				
15.1	SCREEDS				
	20mm Thick on floors and landings	m ²	323		
	INTERNAL PLASTER				
	Cement plaster steel trowelled, on brickwork				
15.2	On walls	m ²	858		
15.3	On narrow widths not exceeding 300mm wide	m ²	8		
15.4	Cement plaster steel trowelled, on concrete				
	On ceilings	m ²	322		
BILL-TOTAL CARRIED TO FINAL SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
	SECTION 16: PLUMBING AND DRAINAGE				
16	BILL NO.16: PLUMBING AND DRAINAGE				
	SUPPLEMENTARY PREAMBLES				
	The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill				
	RAINWATER DISPOSAL				
	0,6mm Seamless aluminum gutters and rainwater pipes				
16.1	100mm x 75mm rainwater downpipes	m	22		
16.2	Extra over for full-bore outlet for 100mm pipe	No	6		
16.3	Extra over rainwater pipe for bend	No	12		
16.4	Extra over rainwater pipe for shoe	No	6		
16.5	Extra over rainwater pipe for eaves or plinth offset	No	6		
16.6	Extra over rainwater pipe for swan-neck	No	12		
	Total carried forward				



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	Total brought forward				
	FIRE APPLIANCES ETC				
	Hose reels, etc.				
16.7	4.5kg dry chemical powder fire extinguisher	No	8		
16.8	100mm diameter fire hydrant	No	2		
16.9	100mm diameter non-return valve	No	2		
16.10	100mm diameter isolation valve	No	2		
	Fire hydrant pedestals				
16.11	Unreinforced concrete hydrant pedestal 900mm high, cast around vertical pipe with bottom 300mm below ground, 300 x 300mm square at base and tapering to 200 x 200mm overall octagonal shaped top, including excavation, formwork and two coats of paint to exposed surfaces	No	2		
	Testing				
16.12	Testing fire water pipe system	Item	1		
	STORMWATER DRAINAGE (CPAP WORK GROUP NO. 146)				
	Cast iron gratings, covers, etc.				
16.13	2400 x 1200mm mentis grating and frame	No	40		
	Budgetary Allowance:				
	Provisional Sums:				
16.14	Removal of the existing sewer	Sum	1		
BILL TOTAL CARRIED TO FINAL SUMMARY					



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Item	Description	Unit	Quantity	Unit Rate	Total Amount
	SECTION 17: ELECTRICAL WORK				
	BILL NO.17: ELECTRICAL WORK				
17	ELECTRICAL WORK				
	PREAMBLES				
	The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill				
	Proposed new Sturrock Dry Dock Substation Equipment				
17.1	Verify the current designs, design, Supply, Delivery of 12kV, 1250A, IAC B FALR 31.5 kA 1s VCB incomer panels switchboard, comprising of protection relays, Current and voltage transformers as per Drawings No: TNPA/2020-000-E-EL-0002 Sheet 001, TNPA/2020-000-E-SLD-0002 Sheet 001 and TNPA/2020-000-E-MSCH-0007 Sheet 001-6, Datasheet no: TNPA/2020-000-E-DS-0002 and Specification No: TNPA/2020-000-E-SPC-0002.	Sum	1		
17.2	Installation of specified item above.	Sum	1		
17.3	Verify the current designs, design, Supply, Delivery of 12kV, 1250A, IAC B FALR 31.5 kA 1s, Bus-Section Panel, comprising of Current and voltage transformers as per Drawings No: TNPA/2020-000-E-EL-0002 Sheet 001, TNPA/2020-000-E-SLD-0002 Sheet 001 and TNPA/2020-000-E-MSCH-0006 Sheet 001-6, Datasheet no: TNPA/2020-000-E-DS-0002 and Specification No: TNPA/2020-000-E-SPC-0002.	Sum	1		
17.4	Installation of specified item above.	Sum	1		
17.5	Verify the current designs, design, Supply, Delivery of 12kV, 630A, IAC B FALR 31.5 kA 1s, Feeder Panel, comprising of Current and voltage transformers as per Drawings No: TNPA/2020-000-E-EL-0002 Sheet 001, TNPA/2020-000-E-SLD-0002 Sheet 001 and TNPA/2020-000-E-MSCH-0004, 5 & 8, Datasheet no: TNPA/2020-000-E-DS-0002 and Specification No: TNPA/2020-000-E-SPC-0002.	Sum	1		
17.6	Installation of specified item above.	Sum	1		
17.7	Verify the current designs, design, Supply, Delivery of 12kV, 630A, IAC B FALR 31.5 kA 1s, Feeder Panel, comprising of Current and voltage transformers as per Drawings No: TNPA/2020-000-E-EL-0002 Sheet 001, TNPA/2020-000-E-SLD-0002 Sheet 001 and TNPA/2020-000-E-MSCH-0004, 5 & 8, Datasheet no: TNPA/2020-000-E-DS-0002 and Specification No: TNPA/2020-000-E-SPC-0002.	Sum	1		
17.8	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.9	Verify the current designs, design, Supply, Delivery of 110VDC, 8-hour Ah rate of 22Ah, Battery Tripping Unit (BTU) as Datasheet No: TNPA/2020-000-E-DS-0006	Sum	1		
17.10	Installation of specified item above.	Sum	1		
17.11	Verify the current designs, design, Supply, Delivery of 7.2kV, 1250A, IAC B FALR 31.5 kA 1s, Incomer Panel as per specification and Drawings No: TNPA/2020-000-E-EL-0002, TNPA/2020-000-E-SLD-0002 Sheet 001 and TNPA/2020-000-E-MSCH-0002 Sheet 001-6, Datasheet no: TNPA/2020-000-E-DS-0001 and Specification No: TNPA/2020-000-E-SPC-0003	Sum	1		
17.12	Installation of specified item above.	Sum	1		
17.13	Verify the current designs, design, Supply, Delivery of 7.2kV, 1250A, IAC B FALR 31.5 kA 1s, Bus-section as per specification and Drawings No: TNPA/2020-000-E-EL-0002, TNPA/2020-000-E-SLD-0002 Sheet 001 and TNPA/2020-000-E-MSCH-0001 Sheet 001, Datasheet no: TNPA/2020-000-E-DS-0001 and Specification No: TNPA/2020-000-E-SPC-0003	Sum	1		
17.14	Installation of specified item above.	Sum	1		
17.15	Verify the current designs, design, Supply, Delivery of 7.2kV, 630A, IAC B FALR 31.5 kA 1s, 3.3kV Motor Feeder Panel as per specification and Drawings No: TNPA/2020-000-E-EL-0002, TNPA/2020-000-E-SLD-0002 Sheet 001 and TNPA/2020-000-E-MSCH-0003 Sheet 001-5, Datasheet no: TNPA/2020-000-E-DS-0001 and Specification No: TNPA/2020-000-E-SPC-0003	Sum	1		
17.16	Installation of specified item above.	Sum	1		
17.17	Verify the current designs, design, Supply, Delivery of 7.2kV, 630A, IAC B FALR 31.5 kA 1s, Spare Feeder Panel, as per specification and Drawings No: TNPA/2020-000-E-EL-0002, TNPA/2020-000-E-SLD-0002 and TNPA/2020-000-E-MSCH-0002 Sheet 001-6, Datasheet no: TNPA/2020-000-E-DS-0001 and Specification No: TNPA/2020-000-E-SPC-0003	Sum	1		
17.18	Installation of specified item above.	Sum	1		
	Sturrock Dry Dock Substation 5MVA, 11kV/3.3kV transformer				
17.19	Verify the current designs, design, Supply, Delivery of 5MVA 11.75kV/3.3kV, ONAN Indoor type, 3 phase 50Hz transformers including all cable termination boxes, testing and commissioning etc., as per datasheet No: TNPA/2020-000-E-DS-0004 and Specification No: TNPA/2020-000-E-SPC-0002	Sum	1		
17.20	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
	Sturrock Dry Dock Substation 3MVA, 11kV/400V transformer				
17.21	Verify the current design, design, Supply, Delivery of 3MVA 11.75kV/400V, ONAN Indoor type, 3 phase 50Hz transformers including all cable termination boxes, testing and commissioning etc., as per datasheet No: TNPA/2020-000-E-DS-0004 and Specification No: TNPA/2020-000-E-SPC-0002	Sum	1		
17.22	Installation of specified item above.	Sum	1		
	Low Voltage Distribution Board				
17.23	Verify the current design, design, Supply, Delivery of 400V panels comprising of all switchgear/circuit breakers and associated equipment as per specification No: TNPA/2020-000-E-SPC-0001, Datasheet No: TNPA/2020-000-E-DS-0005 and Drawings No: TNPA/2020-000-E-EL-0001, TNPA/2020-000-E-SLD-0001 Sheet 001 and TNPA/2020-000-E-LSCH-0001 -23 Sheet 001	Sum	1		
17.24	Installation of specified item above.	Sum	1		
17.25	Verify the current design, design, Supply, Delivery of Graving Dock LT Board comprising of all switchgear/circuit breakers and associated equipment as per Drawings No: TNPA/2020-000-E-GDB-0001 Sheet 001-2	Sum	1		
17.26	Installation of specified item above.	Sum	1		
17.27	Verify the current design, design, Supply, Delivery of Pumphouse LV Board comprising of all switchgear/circuit breakers and associated equipment as per Drawings No: TNPA/2020-000-E-PDB-0001 Sheet 001-2	Sum	1		
17.28	Installation of specified item above.	Sum	1		
17.29	Verify the current design, design, Supply, Delivery of New Sturrock Dry Dock DB comprising of all switchgear/circuit breakers and associated equipment as per Drawing No: TNPA/2020-000-E-LSP-0001 Sheet 001-5	Sum	1		
17.30	Installation of specified item above.	Sum	1		
	Medium Voltage cable				
17.31	Verify the current design, design, Supply, Delivery of 240mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded ,galvanized steel wire armored and PVC sheathed from 11.75kV Switchgear Busbar to 5MVA,11,75/3,3kV Transformer as per drawing no: TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002 and Electrical Cable Schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.32	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.33	Verify the current design, design, Supply, Delivery of 95mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded ,galvanized steel wire armored and PVC sheeted from 11.75kV Switchgear Busbar to 3MVA, 11,75/3,3kV Transformers as per drawing no: TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002 and Electrical Cable Schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.34	Installation of specified item above.	Sum	1		
17.35	Verify the current design, design, Supply, Delivery of 630mm ² single core , 12.7/15kV XLPE insulated, copper tape screened, PVC bedded ,galvanized steel wire armored and PVC sheeted from 5MVA, 11,75/3,3kV Transformers (3,3kV side) to 3.3kV Switchgear as per drawing no: TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002 and Electrical Cable Schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.36	Installation of specified item above.	Sum	1		
17.37	Verify the current design, design, Supply, Delivery of 95mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded ,galvanized steel wire armored and PVC sheeted from 11.75kV Switchgear Busbar to MISPLON 200kVA, 11,75kV/400V MINISUB as per drawing no: TNPA/2020-000-E-CR-0002 and TNPA/2020-000-E-SLD-0002 and Electrical Cable Schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.38	Installation of specified item above.	Sum	1		
17.39	Verify the current design, design, Supply, Delivery of 95mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded ,galvanized steel wire armored and PVC sheeted from 3.3kV Switchgear Busbar to 1.4MW, 3.3kV, 0.9pf Motors as per drawing no: TNPA/2020-000-E-CR-0002 Sheet 001 and TNPA/2020-000-E-SLD-0002 and Electrical Cable Schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.40	Installation of specified item above.	Sum	1		
	Medium Voltage Cable termination				
17.41	Supply and delivery of EN50181 termination kits for 240mm ² , 3 core 12.7/15KV XLPE insulated, copper tape screened, and PVC sheathed at the proposed new Sturrock Dry Dock 11.75kV panel as per drawing number TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002.	Sum	1		
17.42	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.43	Supply and delivery of EN50181 termination kits for 150mm ² , 3 core 12.7/15KV XLPE insulated, copper tape screened, and PVC sheathed at the proposed new Sturrock Dry Dock 11.75kV panel as per drawing number TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002.	Sum	1		
17.44	Installation of specified item above.	Sum	1		
17.45	Supply and delivery of EN50181 termination kits for 95mm ² , 3 core 12.7/15KV XLPE insulated, copper tape screened, and PVC sheathed at the proposed new Sturrock Dry Dock 11.75kV panel as per drawing number TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002.	Sum	1		
17.46	Installation of specified item above.	Sum	1		
17.47	Supply and delivery of EN50181 termination kits for 630mm ² , single core 12.7/15KV XLPE insulated, copper tape screened, and PVC sheathed at the proposed new Sturrock Dry Dock 11.75kV panel as per drawing number TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002.	Sum	1		
17.48	Installation of specified item above.	Sum	1		
	Medium Voltage Cable Joints				
17.49	Supply and Delivery for cable joining at the Graving Dock Substation for 150mm ² PILC from Harbor Main Substation and 150mm ² XLPE ,3 core cables from proposed new Sturrock Dry Dock Substation in compliance to SANS 1332 as per drawing No: TNPA/2020-000-E-CR-0002 Sheet 001.	Sum	1		
17.50	Installation of specified item above. Joints to be conducted by a certified medium voltage cable joiner.	Sum	1		
17.51	Supply and Delivery for cable joining at the Graving Dock Substation for 150mm ² PILC from Unity Substation and 150mm ² XLPE ,3 core cables from proposed new Sturrock Dry Dock Substation in compliance to SANS 1332 as per drawing No: TNPA/2020-000-E-CR-0002 Sheet 001.	Sum	1		
17.52	Installation of specified item above. Joints to be conducted by a certified medium voltage cable joiner.	Sum	1		
17.53	Supply and Delivery for cable joining at the Graving Dock Substation for 95mm ² PILC from MISPLON 200kVA, 11,75kV/400V as per drawing No: TNPA/2020-000-E-CR-0002 Sheet 001.	Sum	1		
17.54	Installation of specified item above. Joints to be conducted by a certified medium voltage cable joiner.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.55	Verify the current design, design, Supply, Delivery of 150mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded, galvanized steel wire armored, and PVC sheathed from Harbor Main Substation to proposed new Sturrock Dry Dock substation as per drawing no. TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002 and Electrical Cable Schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.56	Installation of specified item above. Joints to be conducted by a certified medium voltage cable joiner.	Sum	1		
17.57	Supply and Delivery of copper tape screened, PVC bedded, galvanized steel wire armored, and PVC sheathed from Unity Substation to proposed new Sturrock Dry Dock substation as per drawing no: TNPA/2020-000-E-CR-0003 Sheet 001-3 and TNPA/2020-000-E-SLD-0002 and Electrical Cable Schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.58	Installation of specified item above. Joints to be conducted by a certified medium voltage cable joiner.	Sum	1		
	Cable Clamps				
17.59	Supply and Delivery of cable Clamps 316 stainless steel for 240mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded, galvanized steel wire armored and PVC sheet equal or similar approved to o-line.	Sum	1		
17.60	Installation of specified item above.	Sum	1		
17.61	Supply and delivery of cable Clamps 316 stainless steel for 150mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded, galvanized steel wire armored and PVC sheet equal or similar approved to o-line	Sum	1		
17.62	Installation of specified item above.	Sum	1		
17.63	Supply and delivery of cable Clamps 316 stainless steel for 95mm ² , 3 core, 12.7/15kV XLPE insulated, copper tape screened, PVC bedded, galvanized steel wire armored and PVC sheet equal or similar approved to o-line	Sum	1		
17.64	Installation of specified item above.	Sum	1		
17.65	Supply and delivery of cable Clamps 316 stainless steel for 630mm ² , single core 12.7/15KV XLPE insulated, copper tape screened, and PVC sheathed equal or similar approved to o-line	Sum	1		
17.66	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
	Low Voltage Cable				
17.67	Verify the current design, design, Supply, Delivery of new 630mm ² , single core armoured PVC insulated PVC sheathed 600/1000v cable from 3MVA, 11,75/0.4kV Transformer 1(400V side) to 400V MCC Busbar as per drawing no. TNPA/2020-000-E-CR-0001 Sheet 003 Sheet 001-3, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.68	Installation of specified item above.	Sum	1		
17.69	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to PUMPHOUSE FEEDER 1 to LV Board as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 Sheet 001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.70	Installation of specified item above.	Sum	1		
17.71	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to PUMPHOUSE FEEDER 2 to LV Board as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.72	Installation of specified item above.	Sum	1		
17.73	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to 20 Ton CAPSTAN STARBOARD SIDE 1-2-3 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.74	Installation of specified item above.	Sum	1		
17.75	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to 20 Ton CAPSTAN STARBOARD SIDE 4 - 5- & 7Ton CAPSTAN STARBOARD SIDE 1-2 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.76	Installation of specified item above.	Sum	1		
17.77	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000v cable 400V MCC Busbar to 20 Ton CAPSTAN PORT SIDE 6-7 & 7Ton CAPSTAN PORT SIDE 1-2 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.78	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.79	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to 20 Ton CAPSTAN PORT SIDE 8-9-10 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.80	Installation of specified item above.	Sum	1		
17.81	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to PLINTHBOX STARBOARD SIDE 1-2-3 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.82	Installation of specified item above.	Sum	1		
17.83	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to PLINTHBOX STARBOARD SIDE 4-5 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.84	Installation of specified item above.	Sum	1		
17.85	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to PLINTHBOX PORT SIDE 6-7 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.86	Installation of specified item above.	Sum	1		
17.87	Verify the current design, design, Supply, Delivery of new 300mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to PLINTHBOX PORT SIDE 8-9-10 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.88	Installation of specified item above.	Sum	1		
17.89	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to HAULAGE CHAMBER 1 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.90	Installation of specified item above.	Sum	1		
17.91	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to HAULAGE CHAMBER 2 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
	Total carried forward				



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	Total brought forward				
17.92	Installation of specified item above.	Sum	1		
17.93	Verify the current design, design, Supply, Delivery of new 150mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to SERVEST FEEDER as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.94	Installation of specified item above.	Sum	1		
17.95	Verify the current design, design, Supply, Delivery of new 95mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to GRAVING DOCK LV BOARD as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.96	Installation of specified item above.	Sum	1		
17.97	Verify the current design, design, Supply, Delivery of new 95mm ² , 3 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to PUMPHOUSE LV BOARD as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.98	Installation of specified item above.	Sum	1		
17.99	Verify the current design, design, Supply, Delivery of new 25mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to NEW SDD SUBSTATION SUB DB as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.100	Installation of specified item above.	Sum	1		
17.101	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to CRANES SUPPLY STARBOARD SIDE 1-2-3 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.102	Installation of specified item above.	Sum	1		
17.103	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to CRANES SUPPLY STARBOARD SIDE 4-5-6 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.104	installation of specified item above.	Sum	1		
17.105	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to CRANES SUPPLY PORT SIDE 7-8-9 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
	Total carried forward				



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	Total brought forward				
17.106	Installation of specified item above.	Sum	1		
17.107	Verify the current design, design, Supply, Delivery of new 240mm ² , 4 core armoured PVC insulated PVC sheathed 600/1000V cable 400V MCC Busbar to CRANES SUPPLY PORT SIDE 10-11-12 as per drawing no: TNPA/2020-000-E-CR-0001, TNPA/2020-000-E-SLD-0001 and electrical cable schedule No: TNPA/2020-000-E-CS-0001	Sum	1		
17.108	Installation of specified item above.	Sum	1		
	Cable Support System				
17.109	Verify the current design, design, Supply, Delivery of heavy duty cable ladder system heavy duty, 1000mm hot-dip galvanised Steel to SANS 121 ISO 1461 including fittings and accessories(4 way piece, 90° internal bend, staggered cantilever, 90° external bend and Tee piece etc.) equal or similar approved to o-line as per drawing No: TNPA/2020-000-E-CR-0001 and TNPA/2020-000-E-CR-0002 as well as any other racking over and above. the typical design deemed necessary by the cable support system designer.	Sum	1		
17.110	Installation of specified item above.	Sum	1		
17.111	Verify the current design, design, Supply, Delivery of heavy duty cable ladder system heavy duty, 300mm hot-dip galvanised Steel to SANS 121 ISO 1461 including fittings and accessories(4 way piece, 90° internal bend, staggered cantilever, 90° external bend and Tee piece etc.) equal or similar approved to o-line as per drawing No: TNPA/2020-000-E-CR-0001 and TNPA/2020-000-E-CR-0002 as well as any other racking over and above. the typical design deemed necessary by the cable support system designer.	Sum	1		
17.112	Installation of specified item above.	Sum	1		
17.113	Verify the current design, design, Supply, Delivery of heavy duty cable ladder system heavy duty, 200mm hot-dip galvanised Steel to SANS 121 ISO 1461 including fittings and accessories(4 way piece, 90° internal bend, staggered cantilever, 90° external bend and Tee piece etc.) equal or similar approved to o-line as per drawing No: TNPA/2020-000-E-CR-0001 and TNPA/2020-000-E-CR-0002 as well as any other racking over and above. the typical design deemed necessary by the cable support system designer.	Sum	1		
17.114	Installation of specified item above.	Sum	1		
	Scada Ancillary Works				
17.115	Inter-wiring of relays for Scada communication within switchboards	Sum	1		
	Networking Equipment				
17.116	Supply and delivery of Managed ethernet switches 6 Port for Control Room as per drawing No: TNPA/2020-000-E-STM-0001	Sum	1		
	Total carried forward				



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	Total brought forward				
17.117	Installation of specified item above.	Sum	1		
17.118	Supply and delivery of Managed ethernet switches 6 Port for MV board as per drawing No: TNPA/2020-000-E-STM-0001	Sum	1		
17.119	Installation of specified item above.	Sum	1		
17.120	Supply and delivery of Managed ethernet switches 24 Port, LV board as per drawing No: TNPA/2020-000-E-STM-0001	Sum	1		
17.121	Installation of specified item above.	Sum	1		
17.122	Supply and delivery of Fibre optic Equipment as per system design. Includes patch panels, splice trays, pigtails and all ancillary components (excl FO cabling) as per drawing No: TNPA/2020-000-E-STM-0001	Sum	1		
17.123	Installation of specified item above.	Sum	1		
17.124	Network Testing.	Sum	1		
	Industrial Network Cables				
17.125	Supply and delivery of Cat 6E STP Ethernet Cable as per drawing No: TNPA/2020-000-E-STM-0001	Sum	1		
17.126	Installation of specified item above.	Sum	1		
17.127	Supply and delivery of Armoured Multimode Fibre Optic cable 8-core as per drawing No: TNPA/2020-000-E-STM-0001	Sum	1		
17.128	Installation of specified item above.	Sum	1		
	Cable Marking and Labelling				
17.129	Labelling of Cables	Sum	1		
	Energy Meters				
17.130	Energy Meters.	Sum	1		
17.131	Communication modules for Energy Meters.	Sum	1		
17.132	Installation of specified items above.	Sum	1		
	SCADA System				
17.133	Supply and delivery of SCADA Software, Historian and Remote View SCADA Licenses.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.134	SCADA Development	Sum	1		
17.135	Computer Workstation complete with all accessories for Control room (SCADA PC)	Sum	1		
17.136	Supply and delivery Industrial Touch Panel PC	Sum	1		
17.137	Supply and delivery of 12U, 19" rack cabinet for all network and computer equipment	Sum	1		
17.138	SCADA computer UPS	Sum	1		
17.139	Supply and delivery of DIN Power Supply 24V, 120W	Sum	1		
17.140	Supply and delivery of other network accessories necessary for a complete SCADA system	Sum	1		
17.141	Supply and delivery of Control Room Workstation furniture	Sum	1		
	Telemetry				
17.142	Supply and delivery of Data Radio, Antenna Kit, Industrial RTU and Industrial Cellular Gateway as per datasheet No: TNPA/2020-000-E-DS-0009 and drawing No: TNPA/2020-E-SMT-0001	Sum	1		
17.143	Installation of specified item above.	Sum	1		
	Earthing and Lightning protection				
17.144	Supply, delivery and Installation of earthing and lightning protection by specialist including compliance certificate according to the drawing No: TNPA/2020-000-E-ELPS-0001	Sum	1		
17.145	UPS 1500VA, 230V	Sum	1		
	SUBSTATION ELECTRICAL LIGHTING AND POWER				
	Lighting				
17.146	Verify the current design, design, Supply, Delivery y of BEKA Bulkhead 36W LED or Equivalent, complete with necessary accessories as per Drawing No: TNPA/2020-000-E-LSP-0001 and datasheet No: TNPA/2020-000-E-DS-0007	Sum	1		
17.147	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.148	Verify the current design, design, Supply, Delivery of BEKA Vapourline 4ft 46W Surface Mounted or Equivalent complete with necessary accessories as per Drawing No: TNPA/2020-000-E-LSP-0001 and datasheet No: TNPA/2020-000-E-DS-0007	Sum	1		
17.149	Installation of specified item above.	Sum	1		
17.150	Verify the current design, design, Supply, Delivery of BEKA Vapourline 4ft 46W Surface Mounted or Equivalent (emergency fitting) complete with necessary accessories as per Drawing No: TNPA/2020-000-E-LSP-0001 and datasheet No: TNPA/2020-000-E-DS-0007	Sum	1		
17.151	Installation of specified item above.	Sum	1		
17.152	Verify the current design, design, Supply, Delivery of BEKA Vapourline 4ft 46W Flameproof Exd Surface Mounted or Equivalent complete with necessary accessories as per Drawing No: TNPA/2020-000-E-LSP-0001 and datasheet No: TNPA/2020-000-E-DS-0007	Sum	1		
17.153	Installation of specified item above.	Sum	1		
17.154	Verify the current design, design, Supply, Delivery of BEKA Vapourline 4ft 46W Flameproof Exd Surface Mounted or Equivalent (emergency fitting) complete with necessary accessories as per Drawing No: TNPA/2020-000-E-LSP-0001 and datasheet No: TNPA/2020-000-E-DS-0007	Sum	1		
17.155	Installation of specified item above.	Sum	1		
	Power				
17.156	Verify the current design, design, Supply, Delivery of 16A double socket outlet as per Drawing No: TNPA/2020-000-E-LSP-0001	Sum	1		
17.157	Installation of specified item above.	Sum	1		
	Switch Disconnecter				
17.158	Equal or similar approved to Legrand 30A 3 phase weatherproof isolator	Sum	1		
17.159	Installation of specified item above.	Sum	1		
	Switches				
17.160	Verify the current design, design, Supply, Delivery of 16A two-way single lever light switch as per Drawing No: TNPA/2020-000-E-LSP-0001	Sum	1		
17.161	Installation of specified item above.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.162	Verify the current design, design, Supply, Delivery of 16A intermediate lever light switch as per Drawing No: TNPA/2020-000-E-LSP-0001	Sum	1		
17.163	Installation of specified item above.	Sum	1		
17.164	Verify the current design, design, Supply, Delivery of 16A weatherproof lever light switch as per Drawing No: TNPA/2020-000-E-LSP-0001	Sum	1		
17.165	Installation of specified item above.	Sum	1		
17.166	Verify the current design, design, Supply, Delivery of Day/night switch as per Drawing No: TNPA/2020-000-E-LSP-0001	Sum	1		
17.167	Installation of specified item above.	Sum	1		
	Wiring				
17.168	Verify the current design, design, Supply, Delivery of Low Voltage 2.5 mm² stranded house wiring for internal wiring - Twin and Earth PVC insulated wire as per Drawing No: TNPA/2020-000-E-LSP-0001	Sum	1		
17.169	Installation of specified item above.	Sum	1		
	PVC products, sleeves and conduit accessories				
17.170	Supply and delivery of 20mm PVC conduit	Sum	1		
17.171	Installation of specified items above.	Sum	1		
17.172	Supply and delivery of 20mm Diameter PVC conduit boxes, couplers, adapters, tees and other accessories	Sum	1		
17.173	Installation of specified item above.	Sum	1		
	Dismantling and Disposal				
17.174	Allow for all the costs and expenses in connection with the dismantling and dispose of existing Kiosk complete in Berrio Kiosk	Sum	1		
17.175	Excavate and set excavated material aside for re-use as filling for cable or sleeve trench not exceeding 1m deep for Berrio Kiosk cables into the new Sturrock Dry Dock Substation	Sum	1		
	Miscellaneous Substation Items/Equipment				
17.176	Tool Rack (Wall mounted) External remote racking device (Rating (kV): 15 and Control Voltage: 220V AC)	Sum	1		
17.177	Wooden Substation Desk.	Sum	1		
	Total carried forward				



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	Total brought forward				
17.178	Substation Key Rack (wooden key rack to accommodate 10 keys with glass window).	sum	1		
17.179	General signage in substation (SANS 1186-1:2011 "Standard signs and general requirements".)	Item	1		
	Testing and Commissioning				
17.180	FAT and SAT Attendance by Independent Certified Protection Engineer.	Item	1		
17.181	Grading of protection relays by specialist protection engineer.	Item	1		
17.182	Commissioning of switchgear (11.75kV, 3.3kV and 400V MCC) by specialist commissioning engineer.	Item	1		
17.183	Issue of certificate for Lightning and Surge protection in according with SANS 162305-2	Item	1		
17.184	Allowance for VLF tests by a certified/qualified specialist.	Item	1		
BILL-TOTAL CARRIED TO FINAL SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
18	SECTION 18: FIRE PROTECTION BILL NO.18: MECHANICAL WORK SUPPLEMENTARY PREAMBLES The Contractor is Referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition) and to the Supplementary Preambles which are incorporated in this Bill FIRE SYMBOLS, SUPPRESSION AND DETECTION Supply, deliver and install the following fire protection system, complete with fire extinguishers, hose reel, and all related signage, brackets, supports and all necessary accessories, as per the manufacturer's recommendations. Fire symbols (SANS 1186) FIRE PROTECTION SANS 10139,50054-7, EN 54 Supply, install, test and commissioning <u>GAS FIRE SUPPRESSION AND DETECTION SYSTEM</u> FIRE SUPPRESSION AND DETECTION SYSTEM FOR SERVICE ROOM SMOKE DETECTOR: CEILING ROOMS SANS 10139, 50054-7, EN 54 Approved Smoke Detector White Polycarbonate, LED Emitting Red Light,17-28V DC, -20 to +60 degrees Celsius. SOUNDER: SANS 10139, E54-3 TYPE B Approved Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius.				
18.1	Approved Smoke Detector White Polycarbonate, LED Emitting Red Light,17-28V DC, -20 to +60 degrees Celsius.	No	3		
18.2	Approved Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius.	No	1		
	Total carried forward				



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	Total brought forward				
18.3	MANUAL CALL POINT SANS 50054-11 (TYPE A), EN 54 Approved Manual Call Point Flame Retardant Polycarbonate with MCP Hinged Protective Flap as extras, LED Emitting Red Light, 17-35V DC, -20 to +60 degrees Celsius	No	1		
18.4	FIRE CONTROL PANEL: SANS 10400 T; EN54 - 2, EN54 - 4, EN54 - 13 Approved 1-4 Loop Fire Control Panel, IP30 rated, with batteries as per SANS requirements and attached technical specifications.	No	1		
18.5	Approved 10kg Carbon Dioxide Fire Extinguisher including trolley and hose and horn, with fire cupboard as per SANS requirements and attached technical specifications.	No	1		
18.6	PH30 Fire Resistant Cable	m	72		
18.7	25mm Conduit	m	65		
	FIRE SUPPRESSION SYSTEM FOR 400 V MCC & CONTROL ROOM				
	FK-5-1-12 Fire Suppression System consisting of the following:				
18.8	Class A & C fires (MCC Room), 280.415943 m3, size 180 L, 121 kg (GC3)	No	2		
18.9	Ceiling Nozzle 180 Degrees.	No	1		
18.10	Trench Nozzle 180 Degrees	No	1		
18.11	Sets of warning signs	No.	3		
18.12	Steel Piping Schedule 40, as per manufacturer computer program required sizes	sum	1		
18.13	All accessories, items or fittings required for the correct operation of the plant, pipework or systems as per the standards and manufacturers' recommendations for the OEM chosen. This should include but not be limited to pipe supports, dirt traps, door caution plates, etc.	sum	1		
	Total carried forward				

	Total brought forward				
18.14	Support brackets, electrical actuator and all other components required for each cylinder as per manufacturers recommendations.	sum	2		
18.15	Approved Pressure Relief Vents, with wall liner, and fixed weather louvre, which shall comply with EWCL5 and BS EN1634-1, as per drawing locations	No	2		
	FIRE DETECTION SYSTEM FOR 400 V MCC & CONTROL ROOM				
	FK-5-1-12 Fire Detection System consisting of the following:				
	SMOKE DETECTOR: CEILING ROOMS SANS 10139, 50054-7, EN 54				
18.16	Approved Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	6		
	VOID SMOKE DTECTOR: TRENCH SANS 10139, 50054-7, EN 54				
18.17	Approved Void Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	3		
	MANUAL CALL POINT SANS 50054-11 (TYPE A), EN 54				
18.18	Approved Manual Call Point Flame Retardant Polycarbonate with MCP Hinged Protective Flap as extras, LED Emitting Red Light, 17-35V DC, -20 to +60 degrees Celsius.	No	1		
	SOUNDER: SANS 10139, E54-3 TYPE B				
18.19	Approved Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius.	No	1		
	Total carried forward				



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	Total brought forward				
	EXTINGUISHER CONTROL/ RELEASE PANEL:				
	SANS 10400 T, EN54-2, EN12094-1				
18.20	Approved Extinguisher Control/ Release Panel, with Batteries as per extras, Volume 120dB(A)LED Emitting Red Light, 230 V	No	1		
	EXTINGUISHER STATUS UNIT:				
	SANS 10400 T, EN54-2, EN54-4, EN54-13				
18.21	Approved Extinguisher Status Unit with Batteries as per as extras, extinguishing status unit type, model, 21 to 30 V DC	No	4		
	STROBE LIGHT:				
	SANS 10139, EN54-23 W VAD				
18.22	Approved Visual Alarm Device (Strobe Light) with Deckhead mounting box, open area VAD CAT. W model, 17 to 28 DC	No	2		
18.23	PH30 Fire Resistant Cable	m	72		
18.24	25mm Conduit	m	65		
	MV SWITCHGEAR ROOM				
	FK-5-1-12 Fire Suppression System consisting of the following:				
18.25	Class A & C fires (MV Room), 248.893245 m3, size 150 L, 107 kg (GC2)	No	4		
18.26	Ceiling Nozzle 180 Degrees.	No	2		
18.27	Trench Nozzle 180 Degrees	No	2		
18.28	Sets of warning signs	No	3		
18.29	Steel Piping Schedule 40, as per manufacturer computer program required sizes	sum	1		
18.30	All accessories, items or fittings required for the correct operation of the plant, pipework or systems as per the standards and manufacturers' recommendations for the OEM chosen. This should include but not be limited to pipe supports, dirt traps, door caution plates, etc.	sum	1		
	Total carried forward				



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	Total brought forward				
18.31	Support brackets, electrical actuator and all other components required for each cylinder as per manufacturer's recommendations.	sum	4		
18.32	Approved Pressure Relief Vents, with wall liner, and fixed weather louvre, which shall comply with EWCL5 and BS EN1634-1, as per drawing locations	No	2		
	MV SWITCHGEAR ROOM				
	FK-5-1-12 Fire Detection System consisting of the following:				
	SMOKE DETECTOR: CEILING ROOMS				
18.33	Approved Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	6		
	VOID SMOKE DETECTOR: TRENCH				
	SANS 10139, 50054-7, EN 54				
18.34	Approved Void Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	7		
	MANUAL CALL POINT				
	SANS 50054-11 (TYPE A), EN 54				
18.35	Approved Manual Call Point Flame Retardant Polycarbonate with MCP Hinged Protective Flap as extras, LED Emitting Red Light, 17-35V DC, -20 to +60 degrees Celsius.	No	1		
	SOUNDER:				
	SANS 10139, E54-3 TYPE B				
18.36	Approved Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius.	No	1		
	EXTINGUISHER CONTROL/ RELEASE PANEL:				
	SANS 10400 T, EN54-2, EN12094-1				
18.37	Approved Extinguisher Control/ Release Panel, K11031M2 with Batteries as per as extras, Volume 120dB(A)LED Emitting Red Light, 230 V	No	1		
	Total carried forward				

	Total brought forward				
	EXTINGUISHER STATUS UNIT: SANS 10400 T, EN54-2, EN54-4, EN54-13				
18.38	Approved Extinguisher Status Unit with Batteries as per as extras, extinguishing status unit type, 21 to 30 V DC	No	3		
	STROBE LIGHT: SANS 10139, EN54-23 W VAD				
18.39	Approved Visual Alarm Device (Strobe Light) with Deckhead mounting box, open area VAD CAT. W model, 17 to 28 DC	No	2		
18.40	PH30 Fire Resistant Cable	m	72		
18.41	25mm Conduit	m	65		
	TRANSFORMER ROOM 1				
	FK-5-1-12 Fire Suppression System consisting of the following:				
18.42	Class A & C fires (Transformer Room 1), 248.893245 m3, size 180 L, 82 kg (GC1)	No	2		
18.43	Ceiling Nozzle 180 Degrees.	No	1		
18.44	Trench Nozzle 180 Degrees	No	1		
18.45	Sets of warning signs	No	3		
18.46	Steel Piping Schedule 40, as per manufacturer computer program required sizes	sum	1		
18.47	All accessories, items or fittings required for the correct operation of the plant, pipework or systems as per the standards and manufacturers' recommendations for the OEM chosen. This should include but not be limited to pipe supports, dirt traps, door caution plates, etc.	sum	1		
18.48	Support brackets, electrical actuator and all other components required for each cylinder as per manufacturer's recommendations.	sum	2		
18.49	Approved Pressure Relief Vents, with wall liner, and fixed weather louvre, which shall comply with EWCL5 and BS EN1634-1, as per drawing locations	No	1		
	Total carried forward				



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	Total brought forward				
	FK-5-1-12 Fire Detection System consisting of the following:				
	SMOKE DETECTOR: CEILING ROOMS SANS 10139, 50054-7, EN 54				
18.50	Apollo or similar Approved Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, - 20 to +60 degrees Celsius.	No	4		
	VOID SMOKE DETECTOR: TRENCH SANS 10139, 50054-7, EN 54				
18.51	Apollo or similar Approved Void Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, - 20 to +60 degrees Celsius.	No	3		
	MANUAL CALL POINT SANS 50054-11 (TYPE A), EN 54				
18.52	Apollo or similar Approved Manual Call Point-Flame Retardant Polycarbonate with MCP Hinged Protective Flap as extras, LED Emitting Red Light, 17-35V DC, - 20 to +60 degrees Celsius.	No	1		
	SOUNDER: SANS 10139, E54-3 TYPE B				
18.53	Nexus or other accepted Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10-60 V DC, -25 to +70 degrees Celsius.	No	1		
	EXTINGUISHER CONTROL/ RELEASE PANEL: SANS 10400 T, EN54-2, EN12094-1				
18.54	Sigma or similar Approved Extinguisher Control/ Release Panel, K11031M2 with Batteries as per as extras, Volume 120dB(A)LED Emitting Red Light, 230 V	No	1		
	EXTINGUISHER STATUS UNIT: SANS 10400 T, EN54-2, EN54-4, EN54-13				
18.55	Sigma or similar Approved Extinguisher Status Unit with Batteries as per as extras, extinguishing status unit type, 21 to 30 V DC	No	3		
	Total carried forward				



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	Total brought forward				
	STROBE LIGHT: SANS 10139, EN54-23 W VAD				
18.56	Nexus or similar Approved Visual Alarm Device (Strobe Light) with Deckhead mounting box, open area VAD CAT. W model, 17 to 28 DC	No	1		
18.57	PH30 Fire Resistant Cable	m	72		
18.58	25mm Conduit	m	65		
	TRANSFORMER ROOM 2				
	FK-5-1-12 Fire Suppression System consisting of the following:				
18.59	Class A & C fires (Transformer Room 2), 180.594468 m3, size 180 L, 82 kg (GC1)	No	2		
18.60	Ceiling Nozzle 180 Degrees.	No	1		
18.61	Trench Nozzle 180 Degrees	No	1		
18.62	Sets of warning signs	No	3		
18.63	Steel Piping Schedule 40, as per manufacturer computer program required sizes	sum	1		
18.64	All accessories, items or fittings required for the correct operation of the plant, pipework or systems as per the standards and manufacturers' recommendations for the OEM chosen. This should include but not be limited to pipe supports, dirt traps, door caution plates, etc.	sum	1		
18.65	Support brackets, electrical actuator and all other components required for each cylinder as per manufacturer's recommendations.	sum	2		
18.66	Approved Pressure Relief Vents, with wall liner, and fixed weather louvre, which shall comply with EWCL5 and BS EN1634-1, as per drawing locations	No	1		
	FK-5-1-12 Fire Detection System consisting of the following:				
	SMOKE DETECTOR: CEILING ROOMS SANS 10139, 50054-7, EN 54				
18.67	Approved Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	4		
	Total carried forward				

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	Total brought forward				
18.68	VOID SMOKE DETECTOR: TRENCH SANS 10139, 50054-7, EN 54 Approved Void Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	3		
18.69	MANUAL CALL POINT SANS 50054-11 (TYPE A), EN 54 Approved Manual Call Point Flame Retardant Polycarbonate with MCP Hinged Protective Flap as extras, LED Emitting Red Light, 17-35V DC, -20 to +60 degrees Celsius.	No	1		
18.70	SOUNDER: SANS 10139, E54-3 TYPE B Approved Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius.	No	1		
18.71	EXTINGUISHER CONTROL/ RELEASE PANEL: SANS 10400 T, EN54-2, EN12094-1 Approved Extinguisher Control/ Release Panel, K11031M2 with Batteries as per as extras, Volume 120dB(A)LED Emitting Red Light, 230 V	No	1		
18.72	EXTINGUISHER STATUS UNIT: SANS 10400 T, EN54-2, EN54-4, EN54-13 Approved Extinguisher Status Unit with Batteries as per as extras, extinguishing status unit type, 21 to 30 V DC	No	3		
18.73	STROBE LIGHT: SANS 10139, EN54-23 W VAD Approved Visual Alarm Device (Strobe Light) with Deckhead mounting box, open area VAD CAT. W model, 17 to 28 DC	No	1		
18.74	PH30 Fire Resistant Cable	m	72		
18.75	25mm Conduit	m	65		
Total carried forward					

	Total brought forward				
	TRANSFORMER ROOM 3				
	FK-5-1-12 Fire Suppression System consisting of the following:				
18.76	Class A & C fires (Transformer Room 3) 180.594468 m3, size 180 L, 82 kg (GC1) .	No	2		
18.77	Ceiling Nozzle 180 Degrees.	No	1		
18.78	Trench Nozzle 180 Degrees	No	1		
18.79	Sets of warning signs	sum	1		
18.80	Steel Piping Schedule 40, as per manufacturer computer program required sizes	sum	1		
18.81	All accessories, items or fittings required for the correct operation of the plant, pipework or systems as per the standards and manufacturers' recommendations for the OEM chosen. This should include but not be limited to pipe supports, dirt traps, door caution plates, etc.	sum	1		
18.82	Support brackets, electrical actuator and all other components required for each cylinder as per manufacturer's recommendations.	No	2		
18.83	Approved Pressure Relief Vents, with wall liner, and fixed weather louvre, which shall comply with EWCL5 and BS EN1634-1, as per drawing locations	No	1		
	FK-5-1-12 Fire Detection System consisting of the following:				
	SMOKE DETECTOR: CEILING ROOMS SANS 10139, 50054-7, EN 54				
18.84	Approved Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	4		
	VOID SMOKE DTECTOR: TRENCH SANS 10139, 50054-7, EN 54				
18.85	Approved Void Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	3		
	Total carried forward				



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	Total brought forward				
18.86	MANUAL CALL POINT SANS 50054-11 (TYPE A), EN 54 Approved Manual Call Point Flame Retardant Polycarbonate with MCP Hinged Protective Flap as extras, LED Emitting Red Light, 17-35V DC, -20 to +60 degrees Celsius.	No	1		
18.87	SOUNDER: SANS 10139, E54-3 TYPE B Approved Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius.	No	1		
18.88	EXTINGUISHER CONTROL/ RELEASE PANEL: SANS 10400 T, EN54-2, EN12094-1 Approved Extinguisher Control/ Release Panel, K11031M2 with Batteries as per as extras, Volume 120dB(A)LED Emitting Red Light, 230 V	No	1		
18.89	EXTINGUISHER STATUS UNIT: SANS 10400 T, EN54-2, EN54-4, EN54-13 Approved Extinguisher Status Unit with Batteries as per as extras, extinguishing status unit type, 21 to 30 V DC	No	3		
18.90	STROBE LIGHT: SANS 10139, EN54-23 W VAD Approved Visual Alarm Device (Strobe Light) with Deckhead mounting box, open area VAD CAT. W model, 17 to 28 DC	No	1		
18.91	PH30 Fire Resistant Cable	m	72		
18.92	25mm Conduit	m	65		
	TRANSFORMER ROOM 4				
	FK-5-1-12 Fire Suppression System consisting of the following:				
18.93	Class A & C fires (Transformer Room 4), 180.594468 m3, size 180 L, 82 kg	No	2		
18.94	Ceiling Nozzle 180 Degrees.	No	1		
18.95	Trench Nozzle 180 Degrees	No	1		
	Total carried forward				



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	Total brought forward				
18.96	Sets of warning signs	No	3		
18.97	Steel Piping Schedule 40, as per manufacturer computer program required sizes	sum	1		
18.98	All accessories, items or fittings required for the correct operation of the plant, pipework or systems as per the standards and manufacturers recommendations for the OEM chosen. This should include but not be limited to pipe supports, dirt traps, door caution plates, etc.	sum	1		
18.99	Support brackets, electrical actuator and all other components required for each cylinder as per manufacturer's recommendations.	No	2		
18.100	Approved Pressure Relief Vents, with wall liner, and fixed weather louvre, which shall comply with EWCL5 and BS EN1634-1, as per drawing locations	No	1		
	FK-5-1-12 Fire Detection System consisting of the following:				
	SMOKE DETECTOR: CEILING ROOMS SANS 10139, 50054-7, EN 54				
18.101	Approved Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	4		
	VOID SMOKE DETECTOR: TRENCH SANS 10139, 50054-7, EN 54				
18.102	Approved Void Smoke Detector White Polycarbonate, LED Emitting Red Light, 17-28V DC, -20 to +60 degrees Celsius.	No	3		
	MANUAL CALL POINT SANS 50054-11 (TYPE A), EN 54				
18.103	Approved Manual Call Point Flame Retardant Polycarbonate with MCP Hinged Protective Flap as extras, LED Emitting Red Light, 17-35V DC, -20 to +60 degrees Celsius.	No	1		
	SOUNDER: SANS 10139, E54-3 TYPE B				
18.104	Approved Internal Powered Sounder with sound base and power supply with strong light as extras, Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius.	No	1		
	Total carried forward				

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	Total brought forward				
18.105	EXTINGUISHER CONTROL/ RELEASE PANEL: SANS 10400 T, EN54-2, EN12094-1 Approved Extinguisher Control/ Release Panel, K11031M2 with Batteries as per as extras, Volume 120dB(A)LED Emitting Red Light, 230 V	No	1		
18.106	EXTINGUISHER STATUS UNIT: SANS 10400 T, EN54-2, EN54-4, EN54-13 Approved Extinguisher Status Unit with Batteries as per as extras, extinguishing status unit type, 21 to 30 V DC	No	3		
18.107	STROBE LIGHT: SANS 10139, EN54-23 W VAD Approved Visual Alarm Device (Strobe Light) with Deckhead mounting box, open area VAD CAT. W model, 17 to 28 DC	No	1		
18.108	PH30 Fire Resistant Cable	m	72		
18.109	25mm Conduit	m	65		
18.110	Approved Externally powered Sounder Schedule with sound base and power supply with strong light as extras, 120 sounder Volume 120dB(A)LED Emitting Red Light, 10- 60 V DC, -25 to +70 degrees Celsius, 1.8 kg weight	No	2		
	Sundry Items				
18.111	Installation Of Complete Fire Suppression and Detection System	sum	1		
18.112	Integration of fire detection system with HVAC system ensures HVAC system shuts down and fire dampers close when the fire alarm is triggered. (This shall include design, supply installation and testing of the integration system complete with all components, wires, conduit etc. necessary to ensure the system operates correctly.)	sum	1		
18.113	Provision for Fire Stop	sum	1		
18.114	Detailed Workshop Drawings, Computer models of gas suppression system on OEM software, hydraulic calculations and Equipment List	sum	1		
18.115	As Built Drawings (DWG and PDF)	sum	1		
	Total carried forward				

	Total brought forward				
18.116	Room integrity testing for gas suppression system (This shall include cost of retrofitting of doors and openings to meet the sealing requirements of the gas suppression system)	sum	1		
18.117	FAT and SAT of all fire Suppression equipment by Independent Certified Engineer/Provider.	sum	1		
18.118	FAT and SAT of all fire detection equipment by Independent Certified Engineer/Provider.	sum	1		
18.119	Detailed Commissioning plan	sum	1		
18.120	Commissioning of all fire suppression equipment.	sum	1		
18.121	Commissioning of all fire detection equipment.	sum	1		
BILL-TOTAL CARRIED TO FINAL SUMMARY					

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Item	Description	Unit	Quantity	Unit Rate	Total Amount
	SECTION19: HVAC				
19	BILL NO.19: MECHANICAL WORK				
	HVAC (HEATING, VENTILATION AND AIRCONDITIONING)				
	Supply, deliver and install, testing and commissioning the following Units as per specification:				
	SPLIT AIR-CONDITIONING:				
19.1	Wall mounted Split unit air- conditioner, Cooling Capacity 9.78 kW, Heating Capacity 8.5 kW, Power requirement of 3.99 kW at 1/220-240/50 with 67.1 kg mass, and unit size 1200x360x265 for the outdoor unit.	No	2		
19.2	Wall mounted Split unit air- conditioner, Cooling Capacity 9.78 kW, Heating Capacity 8.5 kW, Power requirement of 3.99 kW at 1/220-240/50 with 67.1 kg mass, and unit size 1200x360x265 for the outdoor unit.	No	2		
19.3	All accessories including but not limited to, copper refrigerant piping, refrigerant, valves, and terminations, electrical power supplies and breakers, as well as condensate PVC drainage pipes, to closest drainage point, and all other accessories required for fully functional systems	No	4		
	FRESH AIR FAN:				
19.4	Wall mounted, approve fresh combination Air Fan, 155 L/s air quantity with 1.4 kW and 1/220/50 power supply	No	1		
19.5	Wall mounted, approve fresh combination Air Fan, 155 L/s air quantity with 1.4 kW and 1/220/50 power supply	No	2		
	Total carried forward				



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	Total brought forward				
19.6	EXTRACTION AIR FAN: Approve Centrifugal vertical discharge Roof Extraction Air Fan c/w roof support adaptor, with 2000 L/s air quantity, 73.5 kg mass, with a power requirement of 2.547 kW at 3/400/50.	No	2		
19.7	Approve Centrifugal vertical discharge Roof Extraction Air Fan c/w roof support adaptor, with 2000 L/s air quantity, 73.5 kg mass, with a power requirement of 2.547 kW at 3/400/50.	No	2		
	WEATHER LOUVRE				
19.8	355x 355 mm Galvanized steel weather Louvre, with steel mesh	No	6		
19.9	1000 x 630 mm Galvanized steel weather Louvre, with steel mesh	No	2		
19.10	600 x 850 mm Galvanized steel weather Louvre, with steel mesh	No	2		
	GRILLES/ DIFFUSERS				
19.11	1150 X 500mm Exact Air Rectangular to connect directly to ducting	No	4		
	FIRE DAMPER				
19.12	355 x 355 mm approved Motorised blade fire damper, with activation mechanism, spring return actuator, an electro-thermal fuse 72 degrees C Auxiliary switches, supply and communication unit.	No	6		
19.13	500 x 450 mm approved Motorised blade fire damper, with activation mechanism, spring return actuator, an electro-thermal fuse 72 degrees C Auxiliary switches, supply and communication unit.	No	4		
19.14	1000 x 630 mm approved Motorised blade fire damper, with activation mechanism, spring return actuator, an electro-thermal fuse 72 degrees C Auxiliary switches, supply and communication unit.	No	2		
19.15	600 x 850 mm approved Motorised blade fire damper, with activation mechanism, spring return actuator, an electro-thermal fuse 72 degrees C Auxiliary switches, supply and communication unit.	No	2		
19.16	Duct Suspension kit with Fittings	No.	1		
	Total carried forward				

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	Total brought forward				
19.17	Labor/Installation	%	35		
	Testing and Commissioning				
19.18	Detailed Workshop Drawings and Equipment List	sum	1		
19.19	As Built Drawings (DWG and PDF)	sum	1		
19.20	FAT and SAT of all HVAC equipment by Independent Certified Engineer/Provider.	sum	1		
19.21	Commissioning of all HVAC equipment.	sum	1		
BILL-TOTAL CARRIED TO FINAL SUMMARY					

Item	Description	Unit	Quantity	Unit Rate	Total Amount
20	SECTION 20: PAINT WORK BILL NO.21: PAINTWORK For preambles see "Model Preambles for trades (2008 Edition)" and applicable Supplementary Preambles as specified in the Trades. The said Model and Supplementary Preambles apply to all work described in this document. Tenderers are therefore referred to these documents for the full meaning and intention of all descriptions and no claims of any kind whatsoever will be entertained in this regard. SUPPLEMENTARY PREAMBLES PAINTWORK ETC TO NEW WORK All work to be executed in strict accordance with the specifications of the paint manufacturer. Primers and first coats may be thinned in accordance with the paint specifications of the paint manufacturer to aid the absorption of the paint. All surfaces must be sound, clean and have a moisture content of less than 8% for walls generally and 3% for				

	slabs/screeds etc. Surfaces shall be thoroughly washed down and allowed to dry completely before any paint is applied. Blistered or peeling paint shall be completely removed and cracks shall be opened, filled with a suitable filler and finished smooth The contractor will be required to be compliant with regulations and quality standards outlined in the PW371 Construction works specifications, Second edition July 2013. PAINT SPECIFICATIONS Painting, etc. All painting shall be done in accordance with specifications unless otherwise described COLOURS Colours, etc. Unless otherwise described all paintwork shall be deemed to have a colour value in excess of 7 on the Munsell system in accordance with SANS 1091 ON INTERNAL FLOATED PLASTER SURFACES One coat alkali resistant primer and two coats PVA emulsion paint for interior use				
20.1	Walls ON SMOOTH CONCRETE SURFACES	m ²	866		
	Total carried forward				



	Total brought forward				
20.2	One coat alkali resistant primer and two coats PVA emulsion paint for interior use, including stopping blow holes Underside of slab ON WOOD SURFACES One coat primer and two coats premium quality polyurethane enamel paint	m ²	322		
20.3	Doors Three coats superior quality clear gloss varnish	m ²	132		
20.4	Doors	m ²	42		
BILL-TOTAL CARRIED TO FINAL SUMMARY					



TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2024/08/0003/73199/RFP

DESCRIPTION OF THE WORKS: REPLACEMENT AND CONSTRUCTION OF THE NEW BULK ELECTRICAL INFRASTRUCTURE AT STURROCK DRY DOCK FOR THE PORT OF CAPE TOWN FOR A PERIOD OF TWO (2) YEARS

Item	Description	Unit	Quantity	Unit rate	Total Amount
	BILL NO 21: PROVISIONAL SUMS				
	SECTION 21				
	CIVIL				
	The civil scope includes Design and Construction of the new Sturrock Dry Dock electrical Infrastructure which includes Building works, bulk earthworks & bulk services, stormwater services, pavement layer works, Trenching/excavations for cable route complete. Refer to scope of works	Prov sum	1	2,833,689	2,833,689
	Profit and Attendance	%			
	STRUCTURAL				
	The structural scope of work for Sturrock Dry Dock Electrical Infrastructure includes the review of current designs. Submit detailed designs to the level of construction. Supply, install, construct and commission of new Sturrock Dry Dock Electrical Infrastructure and associated structural works requirements for the electrical infrastructure, which include but not limited to Reinforced concrete beams and columns, Brick wall and foundations (pad and strip footings), Reinforced concrete bases, Surface bed, Concrete ramps, Trenching, Reinforced roof slabs, structural steel works, core drilling on new cable route and Complete.	Prov sum	1	1,000,000	1,000,000
	Profit and Attendance	%			
	Total carried forward				



TRANSNET NATIONAL PORTS AUTHORITY

TENDER NUMBER: TNPA/2024/08/0003/73199/RFP

DESCRIPTION OF THE WORKS: REPLACEMENT AND CONSTRUCTION OF THE NEW BULK ELECTRICAL INFRASTRUCTURE AT STURROCK DRY DOCK FOR THE PORT OF CAPE TOWN FOR A PERIOD OF TWO (2) YEARS

	Total brought forward				
	ELECTRICAL The Electrical Scope includes the Review of current design, submitting detailed designs to the level of construction, supply and installation of 11.75kV substation electrical equipment which includes MV switchgears. (11.75kV and 3.3Kv switchgears), Dry Type Transformers ,Motor Control Center, new Low Voltage (LV) distribution board (DB) , Medium Voltage (MV) cables, Low Voltage (LV) cables, Medium Voltage (MV) cables, Terminations, and Joints, Low Voltage (LV) cables, Terminations, and Joints, Lighting and Small Power including all the associated infrastructure for the Lighting and Small Power, Power Factor Correction (PFC) including all the associated infrastructure, backup power supply (generator),Earthing and Lightning protection for Substation, Decommissioning of the existing equipment at Sturrock Dry Dock and Graving Dock underground substations, including all the cabling within the tunnel and Testing and Commissioning and handover of the entire work and hand it over to the Employer, Complete Profit & Attendance	Prov sum	1	5,274,261	5,274,261
		%			
	C&I The C&I scope include the review of current designs, develop and submit detailed designs to the level of construction, supply, Installation, testing and commissioning of Electronic Communication equipment, cables, intelligent devices, local SCADA software and hardware (remote terminals unit, workstation, HMI.) and Integration of the new protection and SCADA of the new Substation to the existing Electrical network of the Port, Complete. Profit & Attendance	Prov sum	1	1,000,000	1,000,000
		%			
BILL-TOTAL CARRIED TO FINAL SUMMARY					

TRANSNET NATIONAL PORTS AUTHORITY
TENDER NUMBER: TNPA/2024/08/0003/73199/RFP
DESCRIPTION OF THE WORKS: REPLACEMENT AND CONSTRUCTION OF THE NEW BULK ELECTRICAL
INFRASTRUCTURE AT STURROCK DRY DOCK FOR THE PORT OF CAPE TOWN FOR A PERIOD OF TWO (2) YEARS

	FINAL SUMMARY	
	SECTION	AMOUNT
1	SECTION NO. 1: PRELIMINARIES AND GENERAL	R
2-6	SECTION 2,3,4,5,6: EXTERNAL WORKS	R
7	SECTION 7: EARTHWORKS	R
8-9	SECTION 8-9: CONCRETE	R
10	SECTION 10: MASONRY	R
11	SECTION 11: WATER PROOFING	R
12	SECTION 12: CARPENTRY AND JOINERY	R
13	SECTION 13: IRONMONGERY	R
14	SECTION 14: METAL WORK	R
15	SECTION 15: PLASTERING	R
16	SECTION 16: PLUMBING AND DRAINAGE	R
17	SECTION 17: ELECTRICAL WORK	R
18	SECTION 18: FIRE PROTECTION	R
19	SECTION 19: HVAC	R
20	SECTION 20: PAINT WORK	R
21	SECTION 21: PROVISIONAL SUMS	R
	TOTAL CARRIED TO FORM OF OFFER & ACCEPTANCE	R