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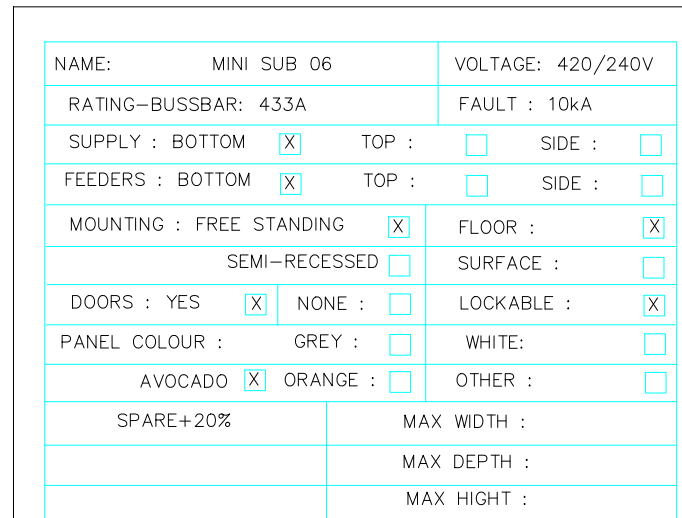
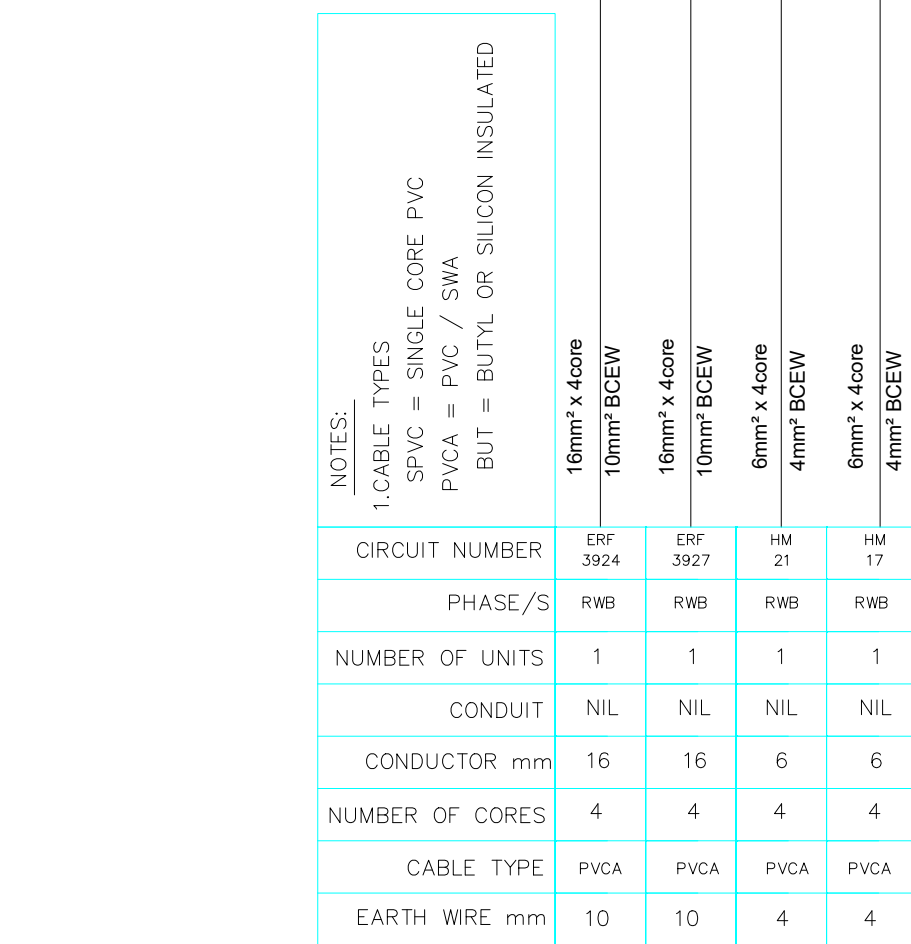
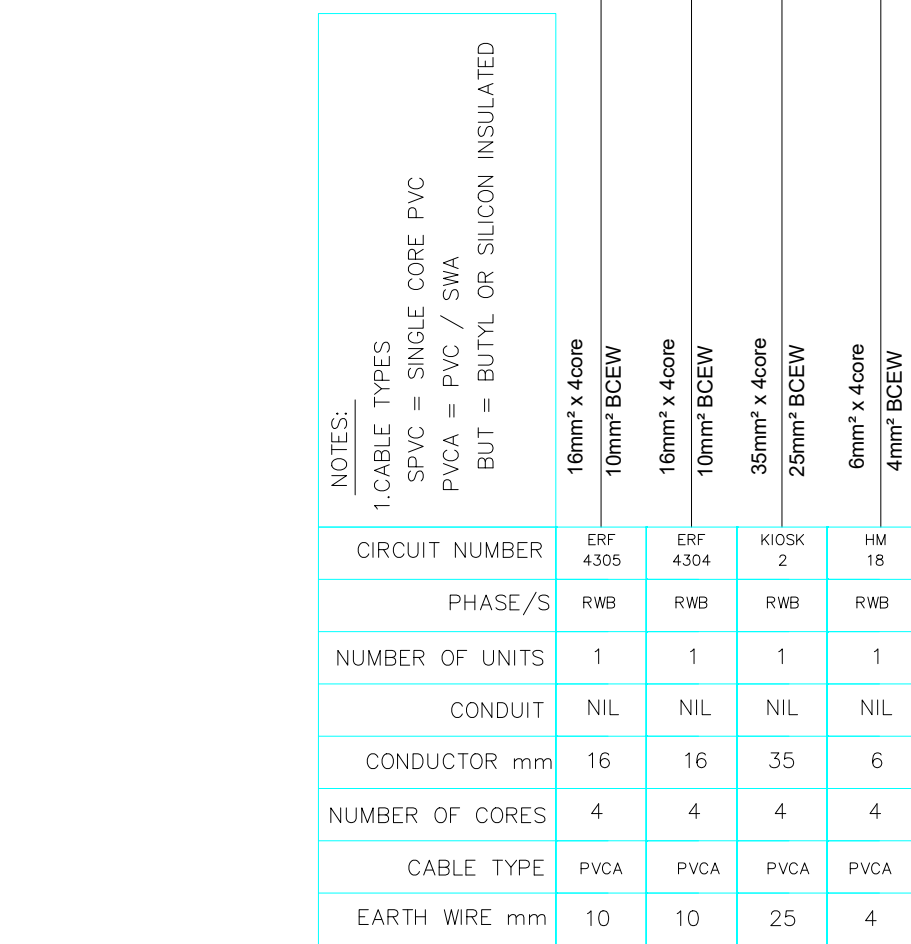
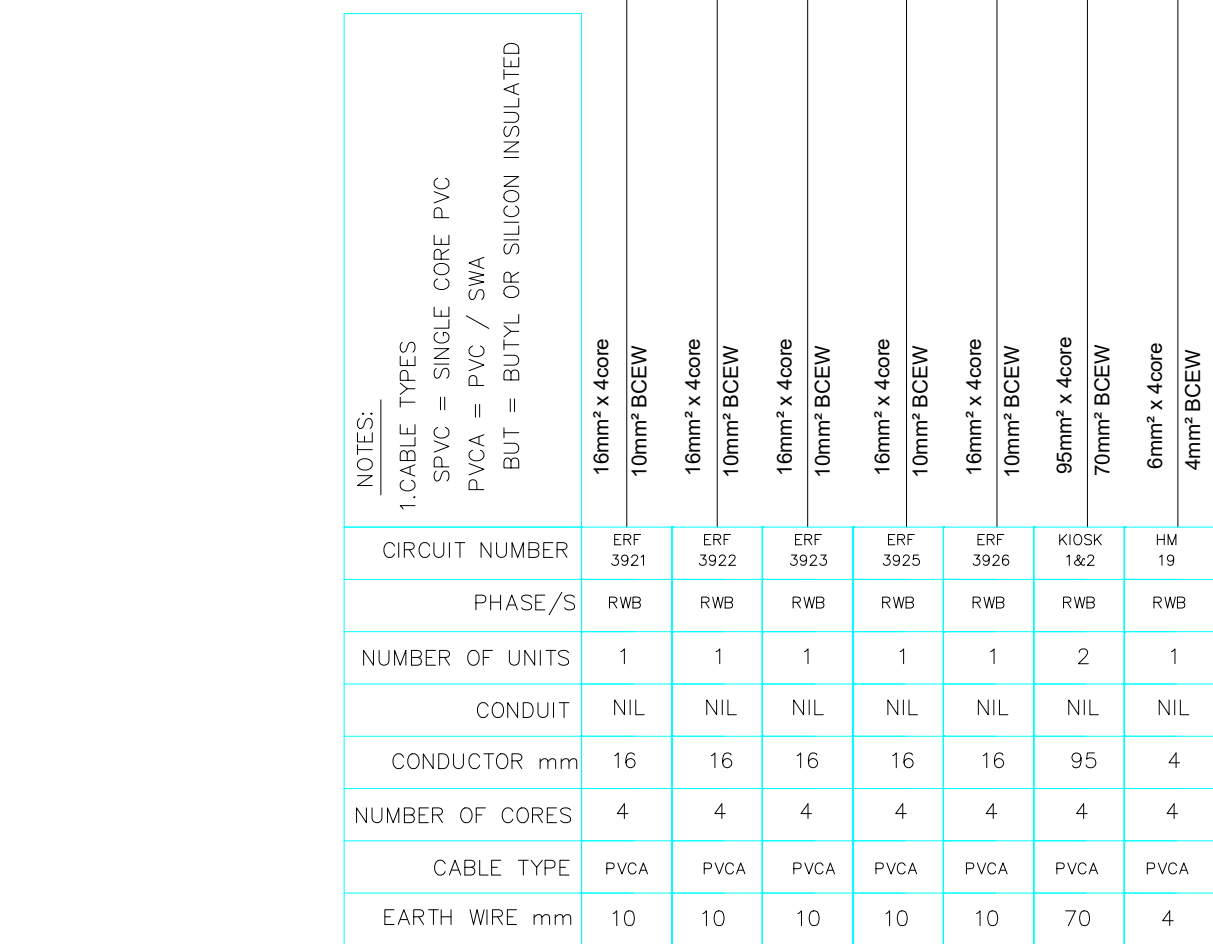
QUESTIONS AND ANSWERS – 1

HIGHMAST LIGHTING AND BULK ELECTRICAL SERVICES, STRENGTHENING AND REFURBISHMENT OF ELECTRICAL INFRA STRUCTURE AT DIMBAZA INDUSTRIAL PARK

Item No.	Questions	Answers
1.	Please could you kindly send us the specifications, structure and foundation drawings for the highmast steel structures, mini substations etc Can you kindly confirm soil type for excavation purposes? Can you also advise the structure foundation type you would prefer us to quote for as there are two methods ie concrete foundations with a planted mono pole stub base or a concrete foundation with bolted mono pole base.	Highmast Installation. Refer to the Technical Specification part of the tender documentation. Item 4.7. 1 & 2 Technical Specifications for Mast designs. The Highmast design shall incorporate the concrete base details as specified by the mast manufacturers Structural Engineer. This must comply with the detailed specifications provided. Item 4:14:1 Excavations specifications. Item 4: 14; 2 Concrete bases Item 4: 14: 3 Holding down bolts. (See also Attachment)
2.	Can you kindly forward me the specification on the minisub for the above mentioned	Attached find the specifications for the Miniature Sub-stations. Connection to and from Miniature substations (See also Attachment)
3.	a) Scope of works, 4.31. Distribution Kiosks, must it be Eskom spec? b) Overheadline Hardware- Must it Eskom Spec, Eastern Cape Region? c) Wooden Pole- Must it be Gum Poles or Pine ?	BCMM Specifications Eskom Southern region Eskom Southern region- Pine



4.	I'd like to ask if there is any other applicable and/or additional drawings for the Kiosk and Miniature Substations?	Single Line Diagrams are attached DIM-HM-D09 DIM-HM-D10
5	What Lux levels are required for this particular project as we don't see it specified on the Tender Documents.	Refer to Luminaires Specifications: Floodlight Luminaires: Item 4.1 Item 4:12:1 Item 4: 12.2



MINIATURE SUBSTATION 06	
CCT NO	DESCRIPTION
ERF 3921	ERF 3921
ERF 3922	ERF 3922
ERF 3923	ERF 3923
ERF 3925	ERF 3925
ERF 3926	ERF 3926
KIOSK 1&2	KIOSK 1 & 2
HM 19	HIGH MAST 19

NAME: KIOSK 1		VOLTAGE: 420/240V	
RATING-BUSSBAR: 225A		FAULT: 6KA	
SUPPLY: BOTTOM	☒	TOP:	☐ SIDE: ☐
FEEDERS: BOTTOM	☒	TOP:	☐ SIDE: ☐
MOUNTING: FREE STANDING		☐	FLOOR: ☒
SEMI-RECESSED		☐	SURFACE: ☐
DOORS: YES	☒	NONE:	☐ LOCKABLE: ☒
PANEL COLOUR:	GREY: ☐	WHITE:	☐
AVOCADO ☒		ORANGE:	CONCRETE PLINTH: ☒
SPARE+20%		MAX. WIDTH:	
		MAX. DEPTH:	
		MAX. HEIGHT:	

KIOSK 1	
CCT NO	DESCRIPTION
ERF 4305	ERF 4305
ERF 4304	ERF 4304
KIOSK 2	KIOSK 2
HM 18	HIGH MAST 18

NAME: KIOSK 2		VOLTAGE: 420/240V	
RATING-BUSSBAR: 120A		FAULT: 3kA	
SUPPLY : BOTTOM	☒	TOP :	☐ SIDE : ☐
FEEDERS : BOTTOM	☒	TOP :	☐ SIDE : ☐
MOUNTING : FREE STANDING		☐	FLOOR : ☒
SEMI-RECESSED ☐		SURFACE : ☐	
DOORS : YES	☒	NONE :	☐ LOCKABLE : ☒
PANEL COLOUR :	GREY : ☐	WHITE : ☐	
AVOCADO ☒		CONCRETE PLINTH : ☒	
SPARE+20%		MAX WIDTH :	
		MAX DEPTH :	
		MAX HEIGHT :	

KIOSK 2	
CCT NO	DESCRIPTION
ERF 4305	ERF 3924
ERF 4304	ERF 3927
HM 21	HIGH MAST 21
HM 17	HIGH MAST 17

LEGEND

CIRCUIT BREAKER

SINGLE PHASE

TWO PHASE

THREE PHASE

— ESSENTIAL

Note:
All dimensions to be checked on site prior to any work taken in by hand
Positions of plant and equipment not clearly shown on drawings,
to be confirmed by Engineer prior to work taken by hand.

DRAWINGS

THE DRAWINGS ISSUED WITH THE SUPPLEMENTARY TECHNICAL SPECIFICATION ARE SCHEMATIC AND DO NOT NECESSARILY PURPORT TO SHOW THE EXACT POSITION, SIZE OR DETAILS OF TENDER OF EQUIPMENT.

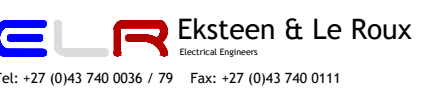
REVISIONS			
REV.	DESCRIPTION	DRAWN	DATE
01	TENDER	SK	03-2021



Consultant name: _____



Consultant name:



Drawing description:

LV SCHEMATICS OF MINIATURE SUBSTATIONS AND KIOSKS

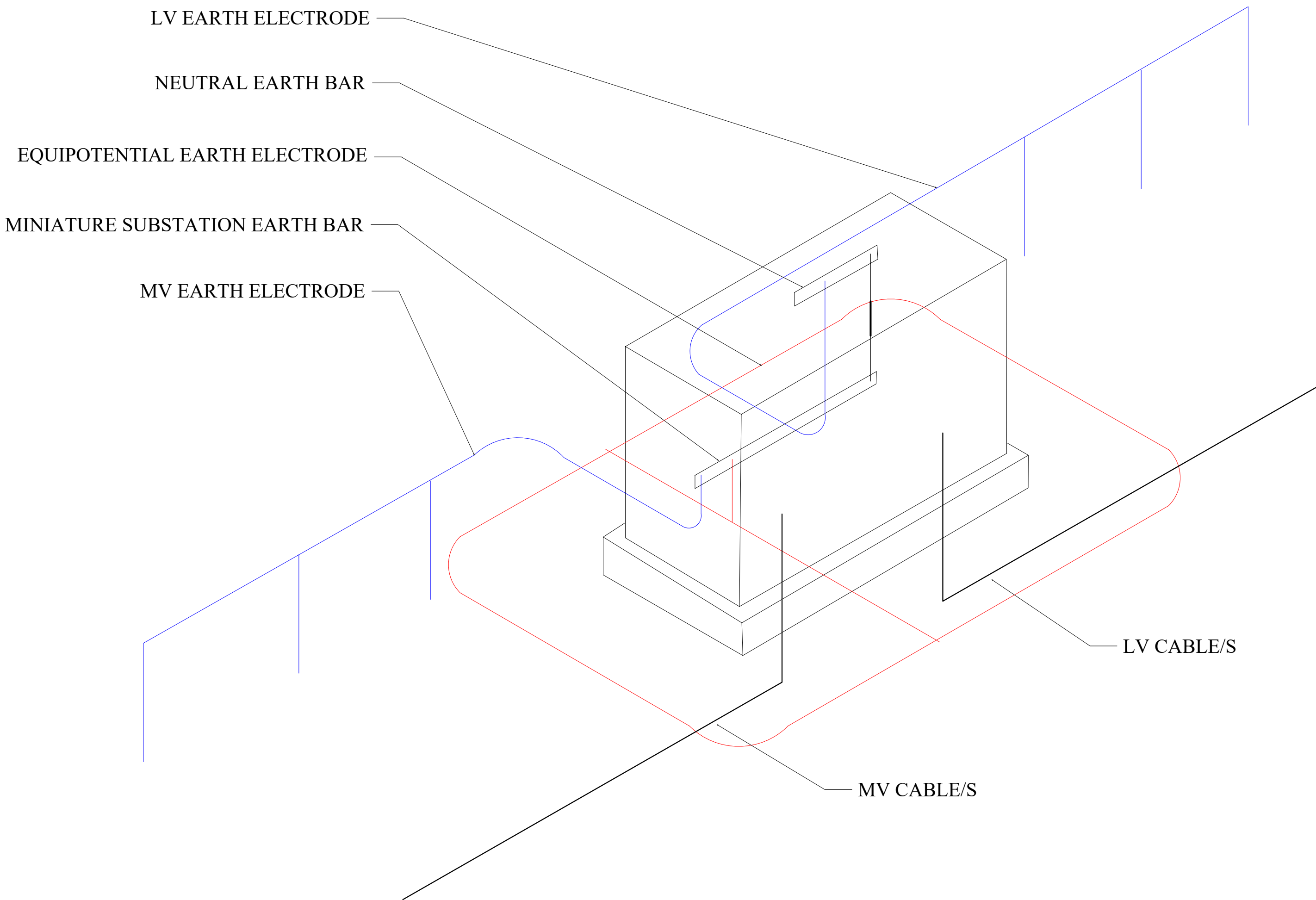
Drawn by: SK	Date: 14-11-2019
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Scale:	NTS	Checked by:	F. ERASMUS
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Consultant Drawing number: DIM-HM-D-09	Revision: 01
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MINIATURE SUBSTATIONS EARTHING



Project Title: DIMBAZA INDUSTRIAL DEVELOPMENT ZONE

Note:
All dimensions to be checked on site prior to any work taken in by hand
Positions of plant and equipment not clearly shown on drawings, to be confirmed by Engineer prior to work taken by hand.

DRAWINGS:
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REVISIONS			
REV.	DESCRIPTION	DRAWN	DATE
01	TENDER	SK	03-2021



Drawing description:

MINIATURE SUBSTATIONS EARTHING

Drawn by:	SK	Date:	14-11-2019
Scale:	NTS	Checked by:	F. ERASMUS
Consultant Drawing number:	DIM-HM-D-10	Revision:	01
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FEEDER CABLES TO HIGH MAST LIGHTS - 35mm² PVC SWA & 25mm² BCEW							position	MV
MINIATURE SUBSTATION	15000 W HIGH MAST LIGHT	FEEDER CABLE	35	25	VOLT DROP (V)	VOLT DROP (%)	ERF	TYPE OF RMU
			mm² PVC SWA - (m)	mm² BCEW - (m)				
M/S-1	HM-22	M/S - HM	160	160	3.66	0.88%	2947	3way
	HM-24	M/S - HM	205	205	4.69	1.13%		
TO M/S INSTALLED UNDER PHASE 1	HM-14	M/S - HM	310	310	7.10	1.71%	omitted	omitted
	HM-15	M/S - HM	270	270	6.18	1.49%		
TO M/S INSTALLED UNDER PHASE 1	HM-16	M/S - HM	160	160	3.66	0.88%		
	HM-9	M/S - HM	120	120	2.75	0.66%		
	HM-8	M/S - HM	200	200	4.58	1.10%		
M/S-4	HM-6	M/S - HM	350	350	8.01	1.93%	3979	3way
	HM-10	M/S - HM	200	200	4.58	1.10%		
M/S-5	HM-11	M/S - HM	14	14	0.32	0.08%	3967	4way
	HM-12	M/S - HM	324	324	7.42	1.79%		
M/S-6	HM-19	M/S - HM	90	90	2.06	0.50%	4304	4way
	HM-18	M/S - HM	165	165	3.78	0.91%		
	HM-17	HM-18 to HM-17	437	437	10.00	2.41%		
	HM-21	HM-17 to HM-21	702	702	16.07	3.87%		
M/S-7	HM-25	M/S - HM	90	90	2.06	0.50%	perimeter	3way
	HM-26	HM-25 to HM-26	305	305	6.98	1.68%		
	HM-27	HM-26 to HM-27	595	595	13.62	3.28%		
	HM-28	HM-27 to HM-28	895	895	20.49	4.94%		
	HM-20	M/S - HM	190	190	4.35	1.05%		
M/S-8	HM-1	M/S - HM	40	40	0.92	0.22%	4016	3way
	HM-7	M/S - HM	310	310	7.10	1.71%		
M/S-2	HM-3	M/S - HM	370	370	8.47	2.04%	3968	4way
	HM-5	M/S - HM	200	200	4.58	1.10%		
	HM-4	M/S - HM	110	110	2.52	0.61%		
BARKOR S/S	HM-23	S/S - HM	45	45	1.03	0.25%		
MINERWA S/S	HM-3	S/S - HM	60	60	1.37	0.33%		
KAYO SHOES M/S	HM-13	M/S - HM	150	150	3.43	0.83%	2986	existing

MS - Highmast to be read in-conjunction with the site layout drawing

MV CONNECTIONS TO MINIATURE SUBSTATIONS								
M/S	95mm² PILC m	70mm² BCEW m	TERMINATION KIT	JOINT KIT	MV TRENCH EARTH	LV TRENCH EARTH	EQUIPOTENTIAL EARTH	POSITION
1	10	10	2	1	1	1	1	REPLACE OLD MV EQUIP
2	10	10	2	1	1	1	1	REPLACE OLD MV EQUIP
3	0	0	2	0	1	1	1	REPLACE OLD MV EQUIP
4	40	40	4	0	1	1	1	REPLACE OLD MV EQUIP
5	0	5	4	2	1	1	1	REPLACE OLD MV EQUIP
6	40	40	4	0	1	1	1	NEW N/O POINT ON OHL
7	20	20	2	0	1	1	1	NEW N/O POINT ON OHL
8	10	10	2	2	1	1	1	REPLACE OLD MV EQUIP
9	50	50	4	0	1	1	1	NEW N/O POINT ON OHL
TOTAL	180	185	26	6	9	9	9	

LV-TRENCH EARTH 30m
MV-TRENCH EARTH 30m
EQUIPOTENTIAL EARTH 15.5m

70mm² BARE COPPER EARTH WIRE + 3x1.2m EARTH SPIKES
70mm² BARE COPPER EARTH WIRE + 3x1.2m EARTH SPIKES
16mm² BARE COPPER EARTH WIRE

M/S	REPLACING
1	OLSTAM
2	LION PADLOCK
3	THREADS
4	BEN COX SCHOOL
5	SWIMLINE
6	NEW N/O
7	NEW N/O
8	DYNASTY
9	NEW N/O

REDACTED PHASE 1 OMMISIONS

MV CONNECTIONS TO MINIATURE SUBSTATIONS								
M/S	95mm ² PILC m	70mm ² BCEW m	TERMINATION KIT	JOINT KIT	MV TRENCH EARTH	LV TRENCH EARTH	EQUIPOTENTIAL EARTH	POSITION
1	10	10	2	1	1	1	1	REPLACE OLD MV EQUIP
2	10	10	2	1	1	1	1	REPLACE OLD MV EQUIP
3	0	0	2	0	1	1	1	REPLACE OLD MV EQUIP
4	40	40	4	0	1	1	1	REPLACE OLD MV EQUIP
5	0	5	4	2	1	1	1	REPLACE OLD MV EQUIP
6	40	40	4	0	1	1	1	NEW N/O POINT ON OHL
7	20	20	2	0	1	1	1	NEW N/O POINT ON OHL
8	10	10	2	2	1	1	1	REPLACE OLD MV EQUIP
9	50	50	4	0	1	1	1	NEW N/O POINT ON OHL
10	0	0	2	2	1	1	1	NEW M/S FOR ECO IND PARK
11	40	40	4	0	1	1	1	NEW M/S FOR ECO IND PARK
12	40	40	4	0	1	1	1	NEW M/S FOR ECO IND PARK
13	10	10	2	1	1	1	1	NEW M/S FOR LIGHT INDUSTRIES
14	20	20	2	1	1	1	1	NEW M/S FOR LIGHT INDUSTRIES
15	10	10	2	2	1	1	1	NEW M/S FOR LIGHT INDUSTRIES
TOTAL	300	305	42	12	15	15	15	

LV-TRENCH EARTH 30m
MV-TRENCH EARTH 30m
EQUIPOTENTIAL EARTH 15.5m

70mm² BARE COPPER EARTH WIRE + 3x1.2m EARTH SPIKES
70mm² BARE COPPER EARTH WIRE + 3x1.2m EARTH SPIKES
16mm² BARE COPPER EARTH WIRE

M/S	REPLACING
1	OLSTAM
2	LION PADLOCK
3	THREADS
4	BEN COX SCHOOL
5	SWIMLINE
6	NEW N/O
7	NEW N/O
8	DYNASTY
9	NEW N/O

 PHASE 1 OMMISIONS

ITEM	DESCRIPTION	REQUIREMENTS
SECTION 1: OUTDOOR SECONDARY SWITCHING STATIONS BCMM SPECIFICATIONS		
1.1	GENERAL Erf Size Finished ground surface Physical protection: Fence : Side and rear : Front Security lighting Voltage	6m x 4m Chipped stone Palisade / Vibracrete Palisade / Vibracrete NONE 11 kV
1.2	SWITCHGEAR Indoor / Outdoor Voltage Fault level Busbar rating Metal clad Colour Extensible / non-extensible Material Terminations Products in use throughout the electrical network	Outdoor 12 kV 20 kA 630 A NO AVOCADO Extensible 3CR12 Dry SCHNEIDER ABB ACTOM EATON
1.3	INCOMING SUPPLY OR RING Cable / Overhead line Cable or Overhead line construction Applicable SANS Specifications Conductors Size (mm²)	Cable PILC-STA Screened SANS 97 Table 19 Copper 95 - 185
1.4	FEEDERS Cable / Overhead line Cable or Overhead line construction Applicable SANS Specifications Conductors Size (mm²)	Cable PILCSTA SANS 97 Table 19 Copper 25; 95
1.5	EARTHING Earth mat Trench / electrode earth	NO YES: 2 x 30m of 70mm² bare copper conductor

ITEM	DESCRIPTION	REQUIREMENTS
SECTION 2: POLE-MOUNTED TRANSFORMERS		
2.1	GENERAL Type Colour Material Preferred ratings (kVA) Free breathing / sealed Vector group Voltage ratio (on load) Windings Losses Impedance Frequency	SABS 780 Avocado green 3CR12 100; 200; 315; Welded cover Dyn 11 11500 / 420 Double wound copper Low loss 4 - 5% 50 z
2.2	TAPPINGS Tapping range On-load / Off-load	± 2,5 % / ± 5 % Off-load
2.3	LADDER RESTS Required	NO
2.4	PREFERRED MANUFACTURER	POWERTECH TRANSFORMERS ACTOM

ITEM	DESCRIPTION	REQUIREMENTS
SECTION 3: MINIATURE SUBSTATIONS		
3.1	GENERAL Ratings (kVA) Overload capacity Enclosure Colour Manufacturer	315 20% once in 24 hours 3CR12 Avocado Green POWERTECH TRANSFORMERS ACTOM
3.2	MV COMPARTMENT Switchgear Cable fault indicator (outgoing MV cables) Cable termination	SCHNEIDER ABB ACTOM EATON YES Heat Shrink
3.3	TRANSFORMER Type Construction Winding material Sealed Tapping settings Vector group Voltage ratio	Low loss 4 % Double wound Copper YES $\pm 2,5 \% / \pm 5 \%$ Dyn 11 11 00 / 420
3.4	LV COMPARTMENT Bulk meter Feeder protection Voltmeter Ammeter Protetion Control Street-light feeder protection kWh meter required	YES Landis & Gyr (ZMD310) Circuit breakers L20B CB1 YES Landis & Gyr (ZMD310) 3 instantaneous and maximum demand HRC fuse 63 A Photocell Circuit breakers YES
3.5	POSITION OF MINIATURE SUBSTATION In road reserve In public open space	1000 mm from erf boundary 1000 mm from erf boundary
3.6	LOCKS Provided by	Contractor

ITEM	DESCRIPTION	REQUIREMENTS
SECTION 4: LV CABLES		
4.1	GENERAL Construction Conductors Standard sizes	PVC SWA PVC Copper 35; 50; 70; 95; 120; 150; 185;
4.2	INSTALLATION Laying depths: • Road reserves • Public open space • Erven Physical protection: • Road reserves • Public open space • Erven • Any cable less than 300mm below ground level Position in road reserves	750 mm 750 mm 750 mm Warning tape Warning tape Concrete cable slabs 1000 mm from erf boundary or 1000 mm from kerbs
4.3	SLEEVES 110 mm dia. PVC	YES
4.4	TERMINATION Cable support of terminations in kiosks and min-sub Hydraulic crimping tools for cables > 70mm ² Cu and 95mm ² aluminium	K-Clamps

ITEM	DESCRIPTION	REQUIREMENTS
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SECTION 5: EARTHING		
5.1	APPLICABLE STANDARDS	SABS 0142 - 1 NRS 016
5.2	SWITCHING STATION / SUBSTATIONS	
	Earth mat	YES
	Earth resistance	1 OHM (max.)
5.3	MV CABLES	
	Cable armour	YES
	Earth conductor	YES
5.4	MINIATURE SUBSTATIONS	
	Enclosure	YES
	MV switchgear	YES
	MV cable ends	YES
	Transformer tank	YES
	Transformer neutral	YES
	LV cable ends	YES
	Earth conductor size	60 m x 70mm ² copper
5.5	LV DISTRIBUTION CABLES	
	Cable ends	YES
	Earth busbar	FULL
	Neutral earthed	YES
	Earth resistance	10 hm (max.)
5.6	STREET-LIGHT CABLES	
	Cable armour	YES
	Earth conductor	10mm ² copper