

K0636: KAREEBERG HIGH MAST LIGHTING

Bill 1	Preliminary & General Items	Unit	Qty	Rate	Total Amount
1.1	<u>FIXED ITEMS</u>				
1.1.1	<u>Site Camp, Stores and Offices</u> <u>Facilities for the Contractor</u> Total cost of a construction camp complete with secure storage facilities, site office with toilet and hand wash basin, air conditioner, table and chairs and administrative offices. Office should allow for meeting space.				
a)	Supply	Sum	1	R.....	R.....
b)	Removal on completion of contract	Sum	1	R.....	R.....
1.1.2	<u>Construction Machinery & Equipment</u> Total cost of all construction machinery required during the project.				
a)	Supply to site.	Sum	1	R.....	R.....
b)	Allow for required permits for all construction vehicles.	Sum	1	R.....	R.....
c)	Removal on completion of contract.	Sum	1	R.....	R.....
1.1.3	<u>Name Board</u>				
a)	Supply & installation of name board as per detail dwg.	No	1	R.....	R.....
b)	Removal of name boards at final hand over.	No	1	R.....	R.....
1.1.4	<u>Clearing of Site</u>				
a)	Allow for clearing of site (for all seven masts)	Sum	1	R.....	R.....
1.1.5	<u>Occupational Health and Safety</u> (Refer to the OHS act & Construction regulations for detailed requirements and made all provision under this heading)				
a)	Total cost to comply with all statutory requirements & laws.	Sum	1	R.....	R.....
b)	Allow for co-operation & liaison where necessary.	Sum	1	R.....	R.....
1.1.6	<u>Allowance for Damage and Repairs to Existing Services</u>				
a)	This sum will only be approved for spending by the engineer on proof of accidental damage.	Sum	1	R.....	R 20 000.00
1.1.7	<u>Performance Guarantee</u>				
a)	Allow for the fixed costs of the performance guarantee in accordance with the Conditions of Contract.	Sum	1	R.....	R.....
1.1.8	<u>Climatic Conditions</u>				
a)	Allow for expenses which might occur due to rain or other climatic conditions. (Tenderers to consult the Weather Bureau on average climatic conditions at the site.)	Sum	1	R.....	R.....
1.1.9	<u>Land Surveyor Pegs</u>				
a)	Allow for the re-installation of pegs during survey phase and throughout the project where necessary by a professional land surveyor.	No	12	R.....	R.....
Subtotal carried over					R.....

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	Subtotal brought over				R.....
1.1.10	<u>Eskom Connections</u> Allow to pay the connection fees (including material supplied by Eskom) required by Eskom for single phase connections to existing low voltage overhead infrastructure	No	0	R.....	N/A
1.2	<u>TIME RELATED ITEMS (Tenderer to fill in contract period in months under Qty)</u> Note 1: Complete as applicable and mark zero those not applicable Note 2: Insurance & Guarantee fees will be paid based on Proof of Payment or insurer's confirmation letter monthly.				
1.2.1	<u>Site Camp, Stores, Accommodation & Senior Personnel</u>				
a)	Cost for the site camp & offices during contract period.	Months	.....	R.....	R.....
b)	Accommodation of staff during contract period.	Months	.....	R.....	R.....
c)	Costs for contract manager during contract period.	Months	.....	R.....	R.....
d)	Costs for contract foreman during contract period.	Months	.....	R.....	R.....
e)	Costs for contract administration personnel during contract period.	Months	.....	R.....	R.....
1.2.2	<u>Construction Machinery & Equipment</u>				
a)	Total cost of construction machinery and maintenance of all construction machinery required during the project.	Months	.....	R.....	R.....
1.2.3	<u>Co-operation & Liaison</u>				
a)	Allow for co-operation & liaison with client, other contractors and engineer	Months	.....	R.....	R.....
1.2.4	<u>Security</u>				
a)	Total cost for storing, guarding and protection of all material & equipment during the contract period.	Months	.....	R.....	R.....
1.2.5	<u>Insurance of the Works</u>				
a)	Total cost of Insurance of the Works in accordance with the Conditions of Contract. See note 2	Months	.....	R.....	R.....
1.2.6	<u>Performance Guarantee</u>				
a)	Allow for the time related costs of the performance guarantee in accordance with the Conditions of Contract. See note 2	Months	.....	R.....	R.....
1.2.7	<u>Health & Safety</u> (Refer to the OHS act & Construction regulations for detailed requirements and made all provision under this heading)				
a)	Allow for all Health & Safety requirements as per the statutory requirements and laws. Detailed breakdown may be requested.	Months	.....	R.....	R.....
b)	Health & Safety Personnel & equipment	Months	.....	R.....	R.....
1.2.8	<u>Program</u>				
a)	Allow for weekly updating of program & progress as per the engineer's format.	Weeks	R.....	R.....
Subtotal carried over					R.....

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	Subtotal brought over				R.....
1.2.9	<u>Extension of time costs</u> In the event of extension of time granted with cost, the total cost for time related items claimed will be : a) a) Per calendar day b) b) Per Week c) c) Per Month	Day Week Month		R..... R..... R.....	Rate Only Rate Only Rate Only
1.2.10	<u>Any items not measured but deemed necessary (Specify Below)</u> a) _____ b) _____	_____ _____	_____ _____	R..... R.....	R..... R.....
Total Preliminary & General carried forward to Summary					R.....

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Bill 2	High Mast Lighting	Unit	Qty	Supply	Install	Total
2.1	<u>Surveying and Setting Out (By a professional land surveyor as prescribed in the specification in more detail)</u>					
a)	Mast position & LV routes	No	4	R.....	R.....	R.....
2.2	<u>High Masts</u> as specified- Detail Spec Item 27 <i>Note: Rate to include electrical DB</i>					
a)	40m galvanised mast	No	2	R.....	R.....	R.....
b)	30m galvanised mast	No	0	R.....	R.....	R.....
2.3	<u>Foundation</u> <u>Foundation complete with the following items - (state % of total cost of (a) for each of the components as listed in (i) - (vii)):</u> i) excavation % of cost ii) reinforcing % of cost iii) bolt cage % of cost iv) concrete % of cost v) test cubes % of cost vi) back fill % of cost vii) removal of excessive rock (Allow for bulking factor) % of cost Further note that excavation composition should be taken as listed below - Adjusted composition(if required) will determine final compensation at the prorata difference in rates provided at Trench Excavation. Changes to the foundation due to site conditions will be calculated at the same excavation rates and based on the drawing from the supplier. Overbreak, etc. to be included in rates and shall not be compensated. Composition allowance to be priced: Pickable soil 10% Soft rock 10% Hard rock 80% <i>Contractor to provide cubic meters based on his supplier's foundation detail for a 40m mast.</i> (i) Excavation based on above for ONE mast cubm (ii) Excavation in Hard Rock (100%) for ONE mast (Ground bearing details to be advised) cubm a) Complete 40m Mast Foundation, inclusive of all mentioned under heading above and at (Note excavation based on rates in (i) above to be included here) No 2					
				<i>The following rate should already be included in cost at item (a) & (b) below.</i>		
				R.....	R.....	N/A
				R.....	R.....	N/A
				R.....	R.....	R.....
Subtotal carried over						R.....

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	Subtotal brought over					R.....
b)	Complete 30m Mast Foundation, inclusive of all mentioned under heading above and at (Note excavation based on rates in (i) above to be included here)	No	0	R.....	R.....	R.....
	Excavation in Hard Rock (100%) for ONE mast Contractor to provide cubic meters based on his suppliers foundation detail.	cubm	13.6	R.....	R.....	N/A
c)	Complete new Mast Foundation (Exist to be relocated) EC to familiarise himself with exist. mast length and manufacturer and quote on the correct supplier's new foundation detail.	No	2	R.....	R.....	R.....
	State the following:					
	Supplier name:					
	Mast type & length:					
d)	DCP Test in excavated foundation <i>Note: Should this result impact tendered design, consult Supplier for alternative design and inform Engineer immediately.</i>	No	4	R.....	R.....	R.....
e)	25 MPa concrete	cubm	1	R.....	R.....	Rate Only
f)	Steel reinforcement	kg	1	R.....	R.....	Rate Only
g)	G5 Material (compacted for foundations)	cubm	1	R.....	R.....	Rate Only
2.4	<u>Light Emitting Diodes (LED) luminaires complete with aiming indication, control gear & terminations</u>					
a)	Beka OMNIstar-maxi-QE 453W LED on 40m Masts <i>Use 5188 Optics</i>	No	12	R.....	R.....	R.....
b)	Beka LED Flood-Maxi-QE 276W LED on 30m Masts <i>Use 5121 Optics (Replacement fittings for existing masts)</i>	No	18	R.....	R.....	R.....
2.5	<u>Mobile Crane for Erection</u>					
a)	Allowance for appropriate mobile crane	Sum.	1	R.....	R.....	R.....
2.6	<u>Service Equipment</u>					
a)	Electric Tool	No	1	R.....	R.....	R.....
b)	5m Test lead	No	1	R.....	R.....	R.....
c)	4 Pin Vandal proof key	No	3	R.....	R.....	R.....
2.7	<u>PVC/PVC/SWA/PVC/1000V/600V Cu Cables (Confirm cable necessary on site before ordering)</u>					
a)	10mm ² x 4core Cu cable	m	273	R.....	R.....	Rate Only
b)	16mm ² x 3core Cu cable	m	273	R.....	R.....	R.....
c)	Terminations (10-70mm ²)	No	8	R.....	R.....	R.....
Subtotal carried over						R.....

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Bill 2	High Mast Lighting	Unit	Qty	Supply	Install	Total
	Subtotal brought over					R.....
d)	Cable Joints	No	1	R.....	R.....	Rate Only
e)	Galvanised kick pipe 32mm dia x 4m long incl. 5 x 20mm HD stainless steel straps each	No	4	R.....	R.....	R.....
2.8	<u>Stranded Bare Cu Earth Wire</u>					
a)	6mm² BCEW installed with cable	m	273	R.....	R.....	Rate Only
b)	Terminations	No	8	R.....	R.....	Rate Only
c)	Joints	No	1	R.....	R.....	Rate Only
2.9	<u>Cable Trenches (Trench, backfill & compact)</u>					
	as per SANS 10198-8 (800 deep x 600 wide) - Refer to Detail LV Trench Detail					
	<u>Note: Rates to include barricading in accordance with Part 11 of the Construction Regulations</u>					
	<u>Note: Excavation composition will be remeasured on a section by section basis</u>					
a)	Pickable soil	Cubm	11	R.....	R.....	R.....
b)	Soft rock	Cubm	11	R.....	R.....	R.....
c)	Hard rock	Cubm	85	R.....	R.....	R.....
d)	Soft red soil bedding (500mm)	Cubm	66	R.....	R.....	R.....
e)	Install acceptable spoil from trench excavation and compact Note: Compaction to be done as per detail trench drawing	Cubm	40	R.....	R.....	R.....
f)	Danger tape	m	220	R.....	R.....	R.....
g)	Remove excessive rock (Allow for bulking factor) Note-dumping of excess material- allow for 20km(round trip) of carting (included in rates above)	cubm	66	R.....	R.....	R.....
	State km tariff used	km	1	R.....	R.....	N/A
h)	Cut & Repair tar (650 wide X 60mm thick)	m	8	R.....	R.....	R.....
i)	Cut & re-instate/replace paving (650 wide)	m	8	R.....	R.....	R.....
j)	Cut & Repair concrete (650 wide X 100mm thick)	m	8	R.....	R.....	Rate Only
k)	PVC Sleeves(Kabelflex) 110mm dia. (Road Crossings)	m	15	R.....	R.....	R.....
2.10	<u>Earthing</u>					
	<u>Value of Earth Resistance at mast to be below 5Ω</u>					
	BCEW Trenches for Earthing (Trench, backfill & compact) (700 deep x 600 wide) (If not suitable to lay down below mast foundation)	m	80	R.....	R.....	N/A
a)	Pickable Soil	cubm	4	R.....	R.....	R.....
b)	Soft Rock	cubm	4	R.....	R.....	R.....
Subtotal carried over						R.....

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Bill 2	High Mast Lighting	Unit	Qty	Supply	Install	Total
	Subtotal brought over					R.....
c)	Hard Rock	cubm	27	R.....	R.....	R.....
d)	Soft Red Soil Bedding (90%) <i>Note: Red Soil shall be compacted at layers of 150mm with water and mechanical compaction.</i>	cubm	32	R.....	R.....	R.....
e)	Danger Tape	m	80	R.....	R.....	R.....
f)	Remove excessive Rock (Allow for bulking factor)	cubm	31.5	R.....	R.....	R.....
g)	PVC Sleeves(Kabelflex) 50mm dia. (to mast footing x 2)	m	20	R.....	R.....	R.....
h)	PVC Sleeves(Kabelflex) 110mm dia.	m	15	R.....	R.....	R.....
i)	70mm ² Stranded Bare Cu Earth Wire	m	120	R.....	R.....	R.....
j)	Terminations	No	8	R.....	R.....	R.....
k)	1500mm SABS approved Earth Electrodes + Heavy duty Rod clamp (Rate to include drilling of 50mm ² hole and filling with earthing compound and cement after installation)	No	16	R.....	R.....	R.....
l)	20kg Earthing Compound	No	16	R.....	R.....	R.....
2.11	<u>Remove & Relocate Existing Masts</u>					
a)	Disconnect and make safe and removal of existing supply cables to masts	No	2	R.....	R.....	R.....
b)	Remove existing light fittings on each mas	Sum	2	R.....	R.....	R.....
c)	Remove existing masts and deliver to new position & Re-install	No	2	R.....	R.....	R.....
d)	Disconnect and make safe of existing supply cables to street lights & remove lights and return to municipal stores	No	10	R.....	R.....	R.....
2.12	<u>Statutory & Identification Labelling:</u>					
a)	The supply & installation of all statutory & prescribed identification labelling of all required equipment, panels, poles, cables & masts in the prescribed format including all legends and fixing as prescribed	Sum	1	R.....	R.....	R.....
2.13	<u>Electrical Commissioning & Testing:</u>					
a)	The testing of the complete installation and the handing in of the required test certificates as specified	Sum	1	R.....	R.....	R.....
Subtotal carried over						R.....

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Bill 2	High Mast Lighting	Unit	Qty	Supply	Install	Total
	Subtotal brought over					R.....
2.14	<u>As Built Drawings:</u>					
a)	The submission of the "as built" drawings, duly marked in Red ink in legible hand writing, signed by the responsible person	Sum	1	R.....	R.....	R.....
2.15	<u>O&M Manual and training:</u>					
a)	The submission of the Comprehensive Operating & Maintenance manual in the prescribed format	Sum	1	R.....	R.....	R.....
b)	The training of client representatives on how to operate and maintain the system and equipment in-line with the manufacturer's guidelines	Sum	1	R.....	R.....	R.....
2.16	<u>Spares:</u>					
a)	Provide 3 sets of spares consisting of photocell, surge arrestor set and contactors set for 1 mast of the same specification as those used	No	3	R.....	R.....	R.....
Total High Mast carried forward to Summary						R.....

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Bill 3	400V Distribution	Unit	Qty	Supply Rate	Install Rate	Total
	<p><u>NOTE: THE COMPLETE INSTALLATION MUST COMPLY TO THE RELEVANT SABS SPECIFICATIONS.</u></p> <p>3.1 <u>Low voltage ABC assemblies:</u></p> <p>Supply, install and connect of low voltage ABC assemblies complete with all hardware including the attachment of all hardware to the poles.</p> <p>3.2 <u>Surveying and Setting Out (By a professional land surveyor as prescribed in the specification in more detail)</u></p> <p>a) LV Pole Holes No 2 R..... R..... R.....</p> <p>b) Stay Holes No 2 R..... R..... R.....</p> <p>c) Strut Holes No 1 R..... R..... Rate Only</p> <p>3.3 <u>Shared Medium/Low Voltage Structures: (Mink Conductor)</u></p> <p>Complete assembly and installation of structures as per DDT standards, all inclusive and incorporating additions or changes as per detail drawing, unless specifically noted otherwise.</p> <p>a) LV 3ø Bare Neutral ABC Strain (0-60° dev.) assembly- As DDT 1121 No 1 R..... R..... Rate Only</p> <p>b) LV 3ø Bare Neutral ABC Strain (60-90° dev.) assembly- As DDT 1122 No 1 R..... R..... Rate Only</p> <p>c) LV 3ø Bare Neutral ABC Terminal assembly- As DDT 1120 No 2 R..... R..... R.....</p> <p>d) LV 3ø Bare Neutral ABC Suspension assembly- As DDT 1100 No 1 R..... R..... Rate Only</p> <p>e) LV 3ø Bare Neutral ABC Intermediate T-off assembly- As DDT 1140 No 1 R..... R..... Rate Only</p> <p>f) LV 3ø Bare Neutral ABC Cross Intermediate assembly- As DDT 1141 No 1 R..... R..... Rate Only</p> <p>g) LV 3ø Bare Neutral ABC Strain T-off assembly- As DDT 1142 No 2 R..... R..... R.....</p> <p>h) LV 3ø Bare Neutral ABC Cross Intermediate Strain assembly- As DDT 1143 No 1 R..... R..... Rate Only</p> <p>i) LV 3ø Bare Neutral ABC Suspension assembly with pole top box- As DDT 0305 No 1 R..... R..... Rate Only</p> <p>j) LV 3ø Bare Neutral ABC Suspension assembly without pole top box - As DDT 0307 No 1 R..... R..... Rate Only</p> <p>k) LV 3ø Bare Neutral ABC mid-air connection between two ABC conductors No 1 R..... R..... Rate Only</p>					
Amount to be carried to the next page						R.....

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Bill 3	400V Distribution	Unit	Qty	Supply Rate	Install Rate	Total
	Subtotal carried over					R.....
3.4	<u>Low Voltage ABC Conductors:</u> Supply, erect, install and string low voltage conductors complete including the splicing, clamping, terminating, tensioning, and attachment to line hardware at all types of low voltage structures:					
a)	3x95mm ² + 54,6mm ² Bare neutral, three phase ABC conductor (Size TBC on site prior to ordering)	m	66	R.....	R.....	R.....
b)	3x70mm ² + 54,6mm ² Bare neutral, three phase ABC conductor	m	66	R.....	R.....	Rate Only
c)	3x50mm ² + 54,6mm ² Bare neutral, three phase ABC conductor	m	66	R.....	R.....	Rate Only
d)	3x35mm ² + 54,6mm ² Bare neutral, three phase ABC conductor	m	66	R.....	R.....	Rate Only
e)	2x25mm ² + 54,6mm ² Bare neutral, single phase ABC conductor	m	66	R.....	R.....	Rate Only
3.6	<u>Pole Holes</u>					
a)	9m Wood Pole, 1.5m deep	No	2	R.....	R.....	R.....
b)	7m Wood Pole, 1.2m deep	No	1	R.....	R.....	Rate Only
3.7	<u>Strut Holes</u>					
a)	9m Wood Pole, 0.5m deep	No	1	R.....	R.....	Rate Only
3.8	<u>Stay Holes</u>					
a)	Stay Holes	No	2	R.....	R.....	R.....
3.9	<u>Poles:</u> Handling, planting, labelling and backfilling, compaction of poles complete.					
a)	9m Wood pole handling and installation (160mm-179mm)	No	2	R.....	R.....	R.....
b)	7m Wood pole handling and installation (160mm-179mm)	No	1	R.....	R.....	Rate Only
c)	9m Wood strut pole handling and installation (160mm-179mm)	No	1	R.....	R.....	Rate Only
d)	Labelling of LV poles	No	2	R.....	R.....	R.....
3.10	<u>Low Voltage Stays/Struts:</u>					
a)	LV Strut Swivel, as DDT 342. pole measured elsewhere	No	1	R.....	R.....	Rate Only
b)	LV Stay, as DDT 0341	No	2	R.....	R.....	R.....
c)	LV Flying Stay, as DDT 0343	No	1	R.....	R.....	Rate Only
3.11	<u>LV Earthing of ABC Neutral</u> 'See Detail of LV Earthing for Guidance.					
a)	16mm ² Cu earth including SABS approved earth spike, galv. kick pipe, straps and termination to neutral. Rate to include heavy duty earth rod clamp.	No	2	R.....	R.....	R.....
Amount to be carried to the next page						R.....

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Bill 3	400V Distribution	Unit	Qty	Supply Rate	Install Rate	Total
	Subtotal carried over					R.....
3.12	<u>LV Pole Top Boxes (For Service Connection to Mast:</u> Complete assembling and installation of structures. Each box to be supplied with neutral bar, earth bar and 3 x colour coded 16mm ² x 2m long insulated conductors (minimum) for connection between the box and ABC (Phase, Neutral, Earth + the Service Taps (25-95 / 6-35). No of leads to increase according to number of breakers per box. All must be UV Protected Neutral and earth bar to be connected. CBi QF range of breakers only, kA ratings as per schedule.					
a)	Pole Top Box 1-4 Way complete with 1 x 50Amp SP C1, 3 kA MCB's	No	2	R.....	R.....	R.....
3.13	<u>LV Pole Top Boxes (For Connection of Old & New ABC lines together:</u> Each box to be supplied with neutral bar, earth bar and 2 sets of 5 x colour coded 25mm ² x 2m long insulated conductors (minimum) for connection between the box and ABC both sides, since this will be an in-line breaker to connect the old and new ABC lines. (Red, White, Blue, Black, BCEW + the Service Taps (25-95 / 6-35). All must be UV Protected Neutral and earth bar to be connected. CBi QF range of breakers only, kA ratings as per schedule.					
a)	Pole Top Box 1-4 Way complete with 1 x 50Amp TP C1, 3 kA MCB's	No	2	R.....	R.....	R.....
Total 400V Distribution carried forward to Summary						R.....

<u>K0636: KAREEBERG HIGH MAST LIGHTING</u> <u>COST ESTIMATE</u>	
SUMMARY OF PRICES	AMOUNTS
Bill 1: Preliminary & General Items	R.....
Bill 2: High Mast Lighting	R.....
Bill 3: 400V Distribution	R.....
Subtotal	R.....
Contingencies : 10%	R.....
Subtotal	R.....
Plus VAT 15 %	R.....
Total Tender Price carried to Form of Offer	R.....