Nortje & Associates

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Reference No.: EN 308/01/03

Date: 14 July 2011

ECO Assessments
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Attention: Mr. M Custers

re: Electrical Supply – Salfin Ext. 1,2 & 4-13and Helderwyk Ext. 3 & 7-10 proposed developments

We were appointed as consulting electrical engineers by the developers, for the following proposed developments :

Salfin Ext. 1,2 & 4-13
Helderwyk Ext. 8, 9 & 10

The proposed Salfin Ext. 3, Helderwyk Ext. 3 & 7 and Dalpark Ext. 18 developments are adjacent to these developments and require a total capacity of ±40 MVA. Some of the proposed developments were not approved due to lack of capacity.

All the Salfin developments fall in the Boksburg SDC area of supply and all the Helderwyk developments and Dalpark Ext. 18 fall in the Brakpan SDC area of supply. As all of these proposed developments are adjacent to each other and are located on the border of Boksburg SDC and Brakpan SDC, a more holistic approach was called for to possibly find a total solution. Therefore a meeting was called on the 26 August 2010 involving all developers and their appointed Consultants.

The outcome of this meeting was that the developers will have to work together in a joint venture or consortium to establish a new supply point with sufficient capacity to provide in all the development requirements in a 3-4km radius. We were then tasked to prepare a report with load forecasts and possible solutions for consideration.

LOAD FORECAST

	SALFIN EXT. 1,2 & 4-13	SALFIN EXT. 3	HELDER WYK EXT. 8,9&10	HELDER WYK EXT. 3 & 7	DALPARK EXT. 18	TOTAL LOAD	ACCUM-ULATED LOAD
DATE	LOAD kVA	LOAD kVA	LOAD kVA	LOAD kVA	LOAD kVA	kVA	kVA
FEB '12	300		750	500	1,075	2,625	2,625
AUG '12	300		750	1,000	0	2,050	4,675
FEB '13	300	300	750	500	1,070	2,920	7,595
AUG '13	300	300	750	1,500	350	3,200	10,795
FEB '14	300	450	900	1,000	520	3,170	13,965
AUG '14	600	450	900	1,000	280	3,230	17,195
FEB '15	600	450	900	500	710	3,160	20,355
AUG '15	600	450	900	900	1,150	4,000	24,355
FEB '16	600		900		1,050	2,550	26,905
AUG '16	600		900		1,905	3,405	30,310
FEB '17	600		1,200			1,800	32,110
AUG '17	600		1,200			1,800	33,910
FEB '18	600		1,200			1,800	35,710
AUG '18			1,200			1,200	36,910
FEB '19			1,200			1,200	38,110
AUG '19			1,200			1,200	39,310
FEB '20			1,200			1,200	40,510
TOTAL LOAD kVA	6,300	2,400	16,800	6,900	8,110	40,510	40,510

The above is as per information received from various consultants.

Taking all of this into consideration, with the needs and load forecasts of all the proposed developments, we proposed the following solution to the various developers and the supply authority which is Ekurhuleni Metropolitan Municipality (EMM).

PROPOSAL

STAGE 1

Install 2 X 120 mm², PILC, Cu cables from Fortmann substation to new 11kV switching station at Salfin Ext. 7. This switching station will be designed and positioned as such that it will become part of the, to be build 88/11kV substation. These cables will provide a safe capacity of 5.6 MVA or an unsecured capacity of 11.2 MVA to the switching station. A third 120 mm², PILC, Cu cable can be installed at a later stage from Fortmann substation to actually provide 11.2 MVA safe capacity. This will provide in the load requirements up to February 2014. These cables will have to be installed and the switching station built by February 2012.

STAGE 2

Build new 88kV line from Eskom Brenner distribution station to a new 88/11kV substation. Proposed position of this substation is indicated on attached drawing. This substation will provide for 3 X 40 MVA, 88/11kV transformers to provide in the estimate load as well as other future developments. Initially only two need to be installed with the third added when the load growth requires it. Some load could actually be diverted from Van Eck substation to alleviate the loading at Van Eck substation, which is loaded beyond the safe capacity of 90 MVA.

The 2 or 3 X 120 mm², PILC, Cu cables from Fortmann substation to new 88/11kV substation can then be used either as an interconnector between the two 88/11kV substations, giving EMM the flexibility and even motivation to request diversity on the maximum demand of the two 88/11kV substations from Eskom. Alternatively, these cables can provide bulk supply to other future developments to the west of the new 88/11kV substation along the cable route, fed from either of the two 88/11kV substations.

OUTCOME

At a meeting held between the various developers, EMM and Eskom, it was confirmed that this solution is acceptable to both EMM and Eskom. Eskom has confirmed that sufficient capacity is available at Brenner distribution station. EMM has already requested a cost estimate from Eskom for the supply point at Brenner distribution station. Time lines will have to be defined with implementation dates to ensure that none of the stages are held up and the demand then exceeds the available capacity.

In summary, we can confirm that electrical capacity for the proposed developments can be made available, subject to EMM conditions and requirements.

Should you have any queries or require further information, please do not hesitate to contact the undersigned on 082-468-2730

Yours sincerely,

F C C NORTJE (Pr Eng)

Cc P van der Meer
L Nafte
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