

## 2.3 CONCLUSION

Alternative routes have been investigated for the project. From a heritage viewpoint there is no preferred alternative route. From a bird impact perspective, Route Alternative 2 will have the least impact, but **all four alignments** (Route Alternatives 1, 2, 3 and 4) are suitable options, should the proposed mitigation be implemented. From a purely ecological viewpoint, Route Alternative 4 is slightly preferred. The final decision between Route 3 or 4 should be made on the accumulative weight of other parameters such as feedback from public participation, land tenure issues, construction costs, etc.

**Currently, Alternative 4 is preferred** from the viewpoint of impact on the landowners and their activities.

The **affected properties** for the **proposed Alternative 4** is on the farms Bulge Rivier 198 KQ portion 2, 6, Mokolo Rivier Private Nature Reserve 660 KQ portion 0, Hermanusdoorns 650 KQ portion 0, Hermanusdoorns 204 KQ portion 5, Welgevonden 186 KQ portion 0 en 1, Groenfontein 207 KQ portion 5, Keerom 208 KQ portion 0, Hanover 181 KQ portion 0, 3, Goudfontein 171 KQ portion 0, 1, 2, Welgevonden 180 KQ portion 0, Schuinskloof 175 KQ portion 1, 2, 3, Rietbokhoek 4 KR portion 1, 2, Rem, Zeekgat 5 KR portion 1, Rem, Steenbokfontein 9 KR portion Rem, 3, 4, Dwarsfontein 51 KR Rem, Dwarsfontein 51 KR (To be consolidated to Jacobshoogte T149848/07) portion 0, Brakfontein 16 KR portion Rem in the Lephalale Local Municipality in the Limpopo Province.

**Paragraphs 3 – 13 below should be completed for each alternative.**

*The areas where the alternatives for the proposed line are located do not contain any specific features that will make them critically different from the surrounding areas and from one another. The contents of Paragraph 3-13 below would therefore be the same for Alternative 1, 2 and 3.*

## 3. ACTIVITY POSITION

*Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.*

*List alternative sites, if applicable.*

Alternative: N/A	Longitude (E):		Latitude (S):	
Alternative S1 <sup>2</sup> (preferred or only site alternative)	°	'	°	'
Alternative S2 (if any)	°	'	°	'

**In the case of linear activities:**

Alternative: Refer to tables below	Longitude (E):		Latitude (S):	
Alternative S4 (Preferred alternative 4)				
• Starting point of the activity	27°	40.326' E	24°	6.744' S
• Middle/Additional point of the activity	27°	53.781' E	24°	6.208' S
• End point of the activity	28°	9.633' E	24°	3.742' S

*For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route for each alternative alignment.*

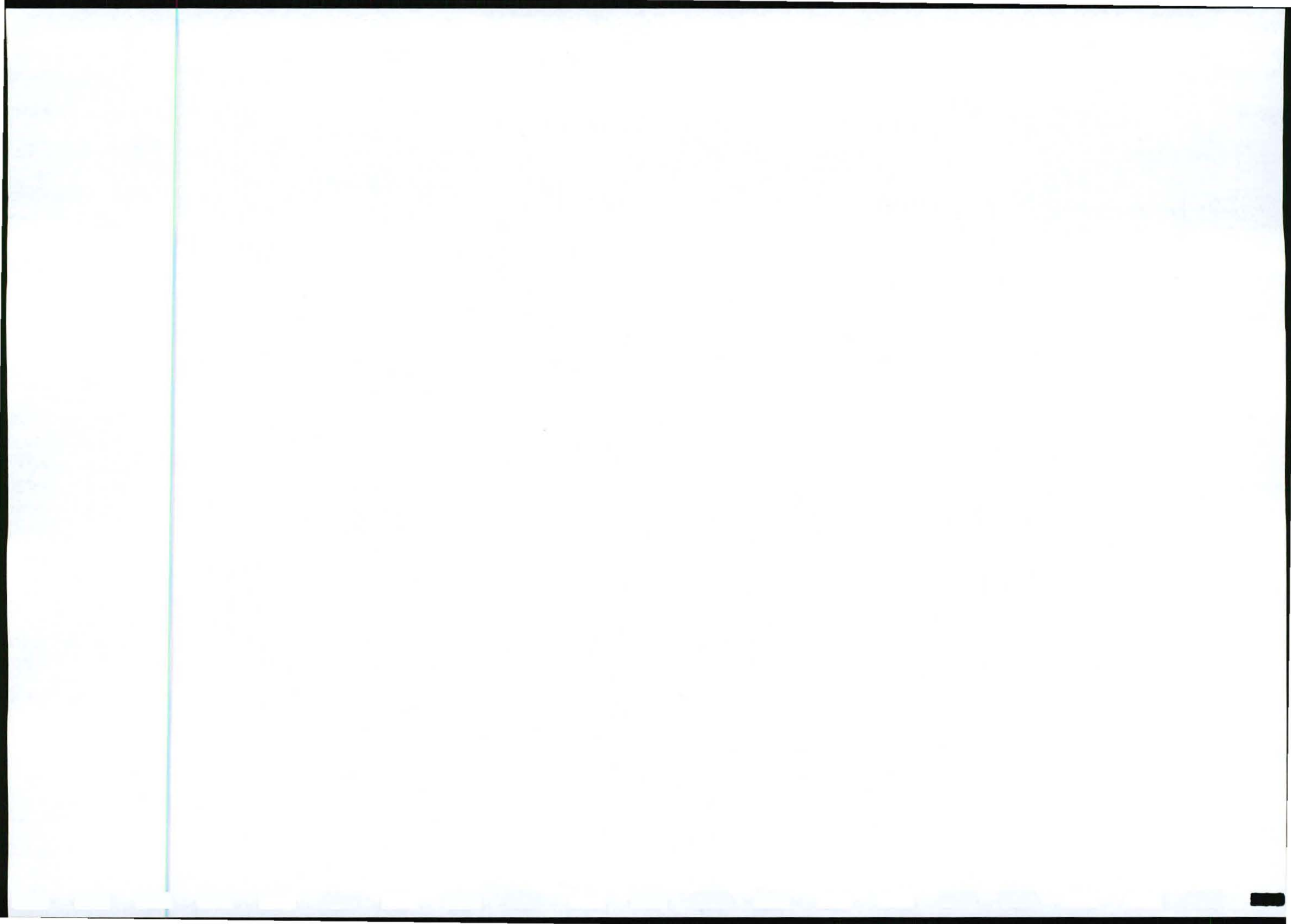
**Bulge rivier substation:**

Longitude (Degrees Decimal Minutes)	Latitude (Degrees Decimal Minutes)
27° 40.237' E	24° 6.806' S

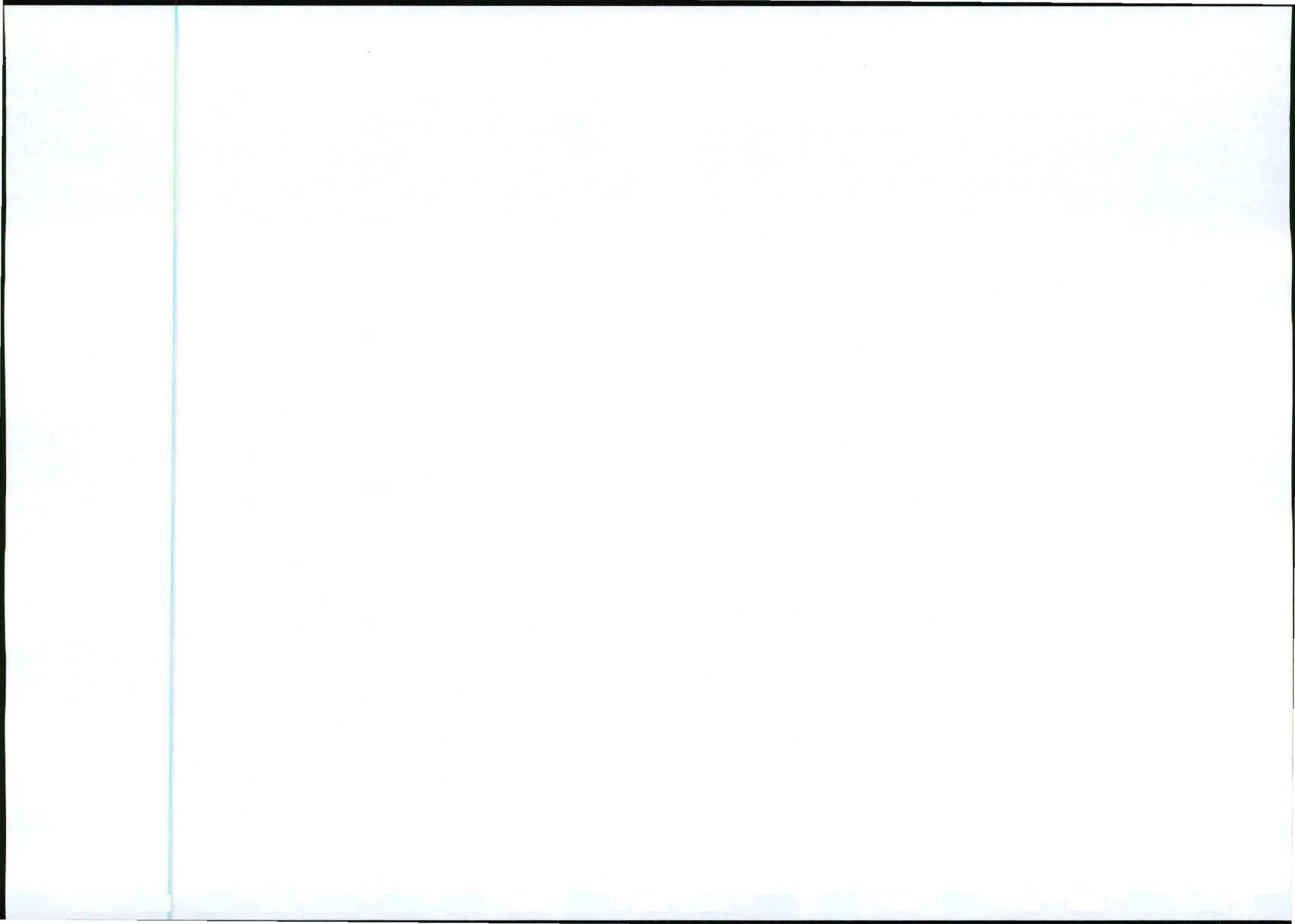
**Proposed Alternative 4 Route (65.4km):**

250m intervals	Longitude (Degrees Decimal Minutes)	Latitude (Degrees Decimal Minutes)
1	27° 40.326' E	24° 6.744' S
2	27° 40.472' E	24° 6.731' S
3	27° 40.619' E	24° 6.717' S
4	27° 40.766' E	24° 6.703' S
5	27° 40.913' E	24° 6.690' S

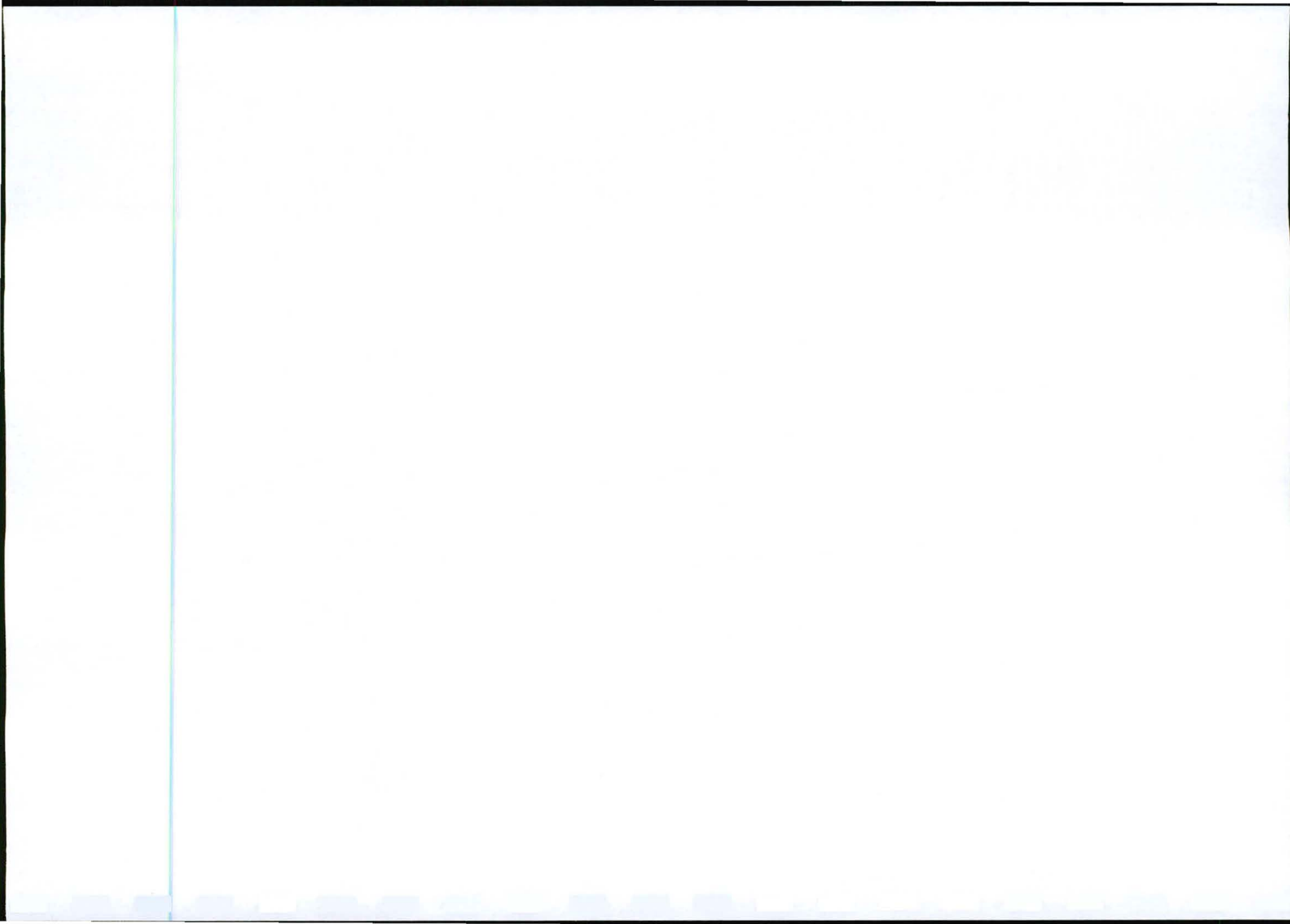
<sup>2</sup> "Alternative S.." refer to site alternatives.



6	27° 41.060' E	24° 6.676' S
7	27° 41.206' E	24° 6.662' S
8	27° 41.353' E	24° 6.649' S
9	27° 41.500' E	24° 6.635' S
10	27° 41.646' E	24° 6.621' S
11	27° 41.793' E	24° 6.607' S
12	27° 41.899' E	24° 6.702' S
13	27° 42.004' E	24° 6.797' S
14	27° 41.986' E	24° 6.918' S
15	27° 41.937' E	24° 7.045' S
16	27° 41.888' E	24° 7.173' S
17	27° 41.838' E	24° 7.300' S
18	27° 41.977' E	24° 7.335' S
19	27° 42.120' E	24° 7.367' S
20	27° 42.263' E	24° 7.399' S
21	27° 42.407' E	24° 7.431' S
22	27° 42.550' E	24° 7.463' S
23	27° 42.614' E	24° 7.362' S
24	27° 42.718' E	24° 7.345' S
25	27° 42.857' E	24° 7.391' S
26	27° 42.919' E	24° 7.298' S
27	27° 42.961' E	24° 7.168' S
28	27° 43.003' E	24° 7.038' S
29	27° 43.070' E	24° 6.953' S
30	27° 43.209' E	24° 6.998' S
31	27° 43.348' E	24° 7.043' S
32	27° 43.487' E	24° 7.088' S
33	27° 43.626' E	24° 7.133' S
34	27° 43.765' E	24° 7.178' S
35	27° 43.904' E	24° 7.223' S
36	27° 44.044' E	24° 7.268' S
37	27° 44.183' E	24° 7.313' S
38	27° 44.322' E	24° 7.358' S
39	27° 44.461' E	24° 7.403' S
40	27° 44.600' E	24° 7.448' S
41	27° 44.739' E	24° 7.493' S
42	27° 44.879' E	24° 7.538' S
43	27° 45.018' E	24° 7.583' S
44	27° 45.157' E	24° 7.628' S
45	27° 45.296' E	24° 7.673' S
46	27° 45.435' E	24° 7.718' S
47	27° 45.468' E	24° 7.790' S
48	27° 45.375' E	24° 7.895' S
49	27° 45.281' E	24° 8.000' S
50	27° 45.188' E	24° 8.105' S
51	27° 45.094' E	24° 8.210' S
52	27° 45.001' E	24° 8.314' S
53	27° 45.009' E	24° 8.398' S
54	27° 45.144' E	24° 8.454' S
55	27° 45.278' E	24° 8.510' S
56	27° 45.412' E	24° 8.566' S
57	27° 45.546' E	24° 8.622' S
58	27° 45.681' E	24° 8.679' S
59	27° 45.815' E	24° 8.735' S
60	27° 45.949' E	24° 8.791' S
61	27° 46.083' E	24° 8.847' S
62	27° 46.217' E	24° 8.904' S
63	27° 46.355' E	24° 8.949' S
64	27° 46.461' E	24° 8.915' S
65	27° 46.514' E	24° 8.788' S
66	27° 46.567' E	24° 8.662' S
67	27° 46.620' E	24° 8.536' S
68	27° 46.673' E	24° 8.409' S

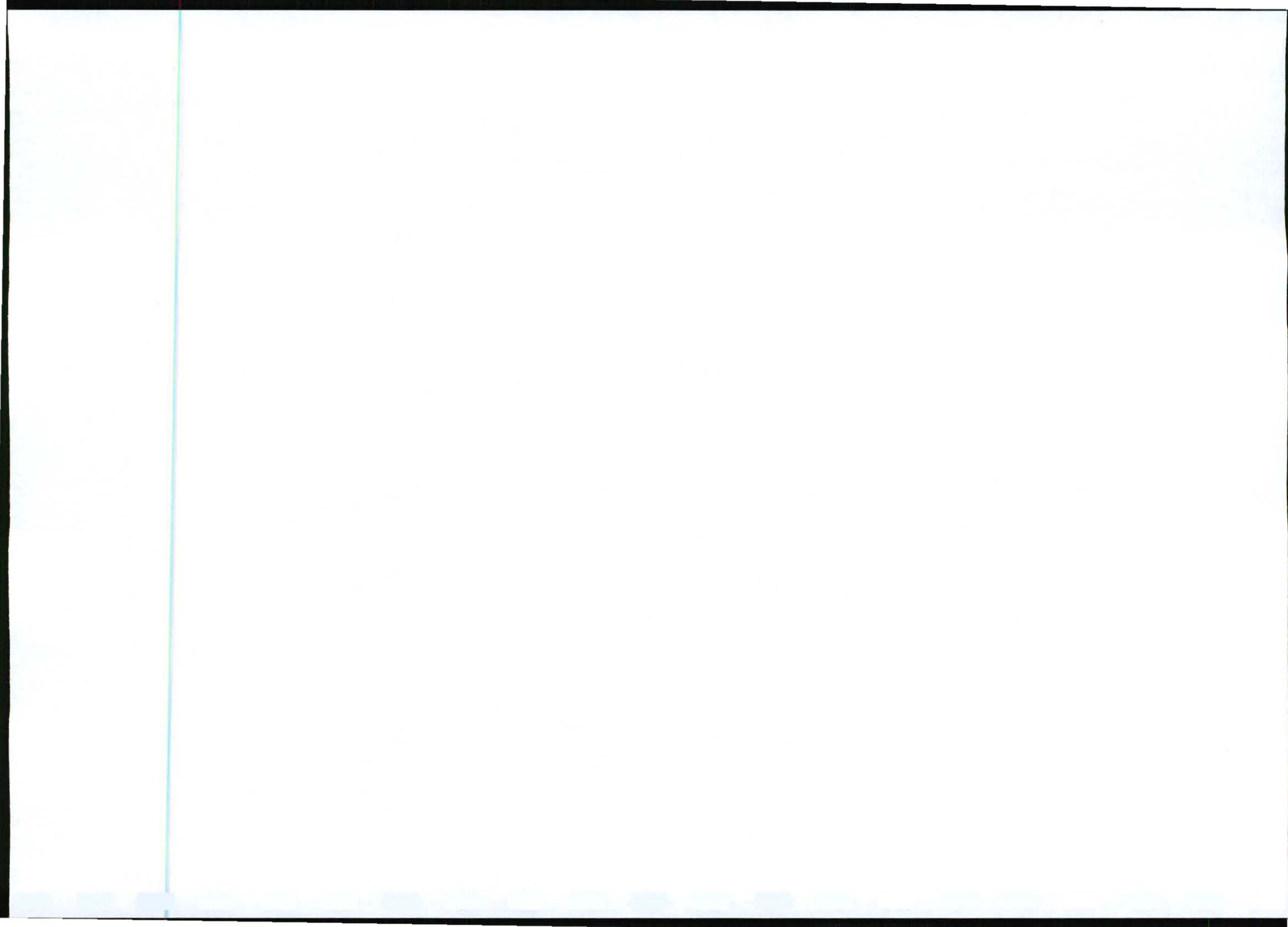


69	27° 46.747' E	24° 8.293' S
70	27° 46.829' E	24° 8.180' S
71	27° 46.911' E	24° 8.068' S
72	27° 46.993' E	24° 7.955' S
73	27° 47.075' E	24° 7.843' S
74	27° 47.157' E	24° 7.730' S
75	27° 47.230' E	24° 7.613' S
76	27° 47.269' E	24° 7.482' S
77	27° 47.303' E	24° 7.351' S
78	27° 47.345' E	24° 7.223' S
79	27° 47.452' E	24° 7.129' S
80	27° 47.558' E	24° 7.036' S
81	27° 47.664' E	24° 6.942' S
82	27° 47.771' E	24° 6.848' S
83	27° 47.910' E	24° 6.816' S
84	27° 48.057' E	24° 6.822' S
85	27° 48.204' E	24° 6.828' S
86	27° 48.352' E	24° 6.835' S
87	27° 48.499' E	24° 6.841' S
88	27° 48.646' E	24° 6.847' S
89	27° 48.794' E	24° 6.852' S
90	27° 48.937' E	24° 6.880' S
91	27° 49.067' E	24° 6.944' S
92	27° 49.196' E	24° 7.009' S
93	27° 49.325' E	24° 7.075' S
94	27° 49.455' E	24° 7.140' S
95	27° 49.584' E	24° 7.205' S
96	27° 49.716' E	24° 7.264' S
97	27° 49.851' E	24° 7.319' S
98	27° 49.986' E	24° 7.374' S
99	27° 50.121' E	24° 7.430' S
100	27° 50.251' E	24° 7.493' S
101	27° 50.377' E	24° 7.564' S
102	27° 50.515' E	24° 7.519' S
103	27° 50.654' E	24° 7.474' S
104	27° 50.794' E	24° 7.429' S
105	27° 50.932' E	24° 7.383' S
106	27° 51.026' E	24° 7.443' S
107	27° 51.093' E	24° 7.564' S
108	27° 51.160' E	24° 7.684' S
109	27° 51.241' E	24° 7.728' S
110	27° 51.346' E	24° 7.633' S
111	27° 51.451' E	24° 7.538' S
112	27° 51.556' E	24° 7.443' S
113	27° 51.660' E	24° 7.348' S
114	27° 51.765' E	24° 7.252' S
115	27° 51.870' E	24° 7.157' S
116	27° 51.975' E	24° 7.062' S
117	27° 52.080' E	24° 6.967' S
118	27° 52.185' E	24° 6.872' S
119	27° 52.290' E	24° 6.776' S
120	27° 52.404' E	24° 6.695' S
121	27° 52.542' E	24° 6.646' S
122	27° 52.680' E	24° 6.598' S
123	27° 52.818' E	24° 6.549' S
124	27° 52.955' E	24° 6.500' S
125	27° 53.093' E	24° 6.451' S
126	27° 53.230' E	24° 6.403' S
127	27° 53.368' E	24° 6.354' S
128	27° 53.506' E	24° 6.305' S
129	27° 53.643' E	24° 6.257' S
130	27° 53.781' E	24° 6.208' S
131	27° 53.919' E	24° 6.159' S



132	27° 54.056' E	24° 6.111' S
133	27° 54.194' E	24° 6.062' S
134	27° 54.332' E	24° 6.016' S
135	27° 54.474' E	24° 6.050' S
136	27° 54.617' E	24° 6.085' S
137	27° 54.760' E	24° 6.119' S
138	27° 54.903' E	24° 6.153' S
139	27° 55.045' E	24° 6.188' S
140	27° 55.188' E	24° 6.222' S
141	27° 55.331' E	24° 6.256' S
142	27° 55.445' E	24° 6.213' S
143	27° 55.535' E	24° 6.106' S
144	27° 55.626' E	24° 5.999' S
145	27° 55.717' E	24° 5.893' S
146	27° 55.837' E	24° 5.849' S
147	27° 55.929' E	24° 5.745' S
148	27° 56.018' E	24° 5.637' S
149	27° 56.107' E	24° 5.529' S
150	27° 56.196' E	24° 5.421' S
151	27° 56.285' E	24° 5.313' S
152	27° 56.374' E	24° 5.205' S
153	27° 56.463' E	24° 5.097' S
154	27° 56.552' E	24° 4.989' S
155	27° 56.641' E	24° 4.881' S
156	27° 56.730' E	24° 4.773' S
157	27° 56.795' E	24° 4.654' S
158	27° 56.837' E	24° 4.524' S
159	27° 56.878' E	24° 4.394' S
160	27° 56.920' E	24° 4.264' S
161	27° 56.961' E	24° 4.135' S
162	27° 57.003' E	24° 4.005' S
163	27° 57.044' E	24° 3.875' S
164	27° 57.086' E	24° 3.745' S
165	27° 57.128' E	24° 3.615' S
166	27° 57.169' E	24° 3.485' S
167	27° 57.211' E	24° 3.355' S
168	27° 57.252' E	24° 3.225' S
169	27° 57.294' E	24° 3.096' S
170	27° 57.441' E	24° 3.108' S
171	27° 57.588' E	24° 3.121' S
172	27° 57.735' E	24° 3.134' S
173	27° 57.881' E	24° 3.147' S
174	27° 58.028' E	24° 3.159' S
175	27° 58.175' E	24° 3.172' S
176	27° 58.322' E	24° 3.185' S
177	27° 58.468' E	24° 3.201' S
178	27° 58.610' E	24° 3.237' S
179	27° 58.753' E	24° 3.215' S
180	27° 58.861' E	24° 3.139' S
181	27° 58.933' E	24° 3.021' S
182	27° 59.006' E	24° 2.904' S
183	27° 59.079' E	24° 2.786' S
184	27° 59.152' E	24° 2.668' S
185	27° 59.266' E	24° 2.628' S
186	27° 59.413' E	24° 2.646' S
187	27° 59.559' E	24° 2.663' S
188	27° 59.705' E	24° 2.681' S
189	27° 59.851' E	24° 2.699' S
190	27° 59.996' E	24° 2.693' S
191	28° 0.139' E	24° 2.661' S
192	28° 0.282' E	24° 2.629' S
193	28° 0.426' E	24° 2.596' S
194	28° 0.569' E	24° 2.564' S





195	28° 0.712' E	24° 2.532' S
196	28° 0.855' E	24° 2.500' S
197	28° 0.999' E	24° 2.468' S
198	28° 1.142' E	24° 2.435' S
199	28° 1.285' E	24° 2.403' S
200	28° 1.428' E	24° 2.371' S
201	28° 1.572' E	24° 2.339' S
202	28° 1.715' E	24° 2.307' S
203	28° 1.858' E	24° 2.275' S
204	28° 2.001' E	24° 2.242' S
205	28° 2.144' E	24° 2.210' S
206	28° 2.288' E	24° 2.178' S
207	28° 2.431' E	24° 2.146' S
208	28° 2.574' E	24° 2.119' S
209	28° 2.716' E	24° 2.156' S
210	28° 2.857' E	24° 2.193' S
211	28° 2.999' E	24° 2.231' S
212	28° 3.141' E	24° 2.268' S
213	28° 3.282' E	24° 2.305' S
214	28° 3.424' E	24° 2.343' S
215	28° 3.566' E	24° 2.380' S
216	28° 3.702' E	24° 2.428' S
217	28° 3.819' E	24° 2.510' S
218	28° 3.937' E	24° 2.591' S
219	28° 4.054' E	24° 2.673' S
220	28° 4.172' E	24° 2.756' S
221	28° 4.289' E	24° 2.837' S
222	28° 4.403' E	24° 2.923' S
223	28° 4.507' E	24° 3.019' S
224	28° 4.611' E	24° 3.115' S
225	28° 4.717' E	24° 3.206' S
226	28° 4.864' E	24° 3.201' S
227	28° 5.012' E	24° 3.196' S
228	28° 5.159' E	24° 3.191' S
229	28° 5.306' E	24° 3.186' S
230	28° 5.451' E	24° 3.166' S
231	28° 5.593' E	24° 3.157' S
232	28° 5.736' E	24° 3.190' S
233	28° 5.872' E	24° 3.168' S
234	28° 6.011' E	24° 3.197' S
235	28° 6.152' E	24° 3.237' S
236	28° 6.285' E	24° 3.286' S
237	28° 6.372' E	24° 3.385' S
238	28° 6.509' E	24° 3.435' S
239	28° 6.632' E	24° 3.505' S
240	28° 6.734' E	24° 3.602' S
241	28° 6.837' E	24° 3.699' S
242	28° 6.939' E	24° 3.797' S
243	28° 7.066' E	24° 3.742' S
244	28° 7.195' E	24° 3.676' S
245	28° 7.324' E	24° 3.611' S
246	28° 7.452' E	24° 3.544' S
247	28° 7.581' E	24° 3.479' S
248	28° 7.710' E	24° 3.413' S
249	28° 7.839' E	24° 3.347' S
250	28° 7.970' E	24° 3.309' S
251	28° 8.110' E	24° 3.353' S
252	28° 8.249' E	24° 3.397' S
253	28° 8.389' E	24° 3.441' S
254	28° 8.528' E	24° 3.485' S
255	28° 8.668' E	24° 3.529' S
256	28° 8.808' E	24° 3.572' S
257	28° 8.947' E	24° 3.616' S



258	28° 9.087' E	24° 3.660' S
259	28° 9.230' E	24° 3.688' S
260	28° 9.376' E	24° 3.707' S
261	28° 9.522' E	24° 3.727' S

**Dorset substation:**

Longitude (Degrees Decimal Minutes)	Latitude (Degrees Decimal Minutes)
28° 9.633' E	24° 3.742' S

**4. PHYSICAL SIZE OF THE ACTIVITY**

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative: N/A	Size of the activity:
Alternative A1 <sup>3</sup> (preferred activity alternative)	m <sup>2</sup>
Alternative A2 (if any)	m <sup>2</sup>
Alternative A3 (if any)	m <sup>2</sup>

or, for linear activities:

Alternative:	Length of the activity:
Alternative A1	60.7km
Alternative A2	64.7km
Alternative A3	63.4 km
Alternative A4 (preferred activity alternative)	65.4km

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	Size of the site/servitude:
Alternative A1	31m x 60 700m = 1 881 700m <sup>2</sup>
Alternative A2	31m x 64 700m = 2 005 700m <sup>2</sup>
Alternative A3	31m x 63 400m = 1 965 400m <sup>2</sup>
Alternative A4 (preferred activity alternative)	31m x 65 4 00m = 2 027 400m <sup>2</sup>

**5. SITE ACCESS**

Does ready access to the site exist?	YES	NO
If NO, what is the distance over which a new access road will be built	m	
Describe the type of access road planned:		

No new access to the site is planned. During construction all vehicle movement must be along existing roads adjacent to the fences of the applicable properties. A temporary construction road could be cleared, should it be necessary, underneath the line to enable the construction activities. Should a temporary construction road be unavoidable, then an area of 8m will be cleared of major trees and bushes, 4m on either side of the proposed alignment of the lines.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

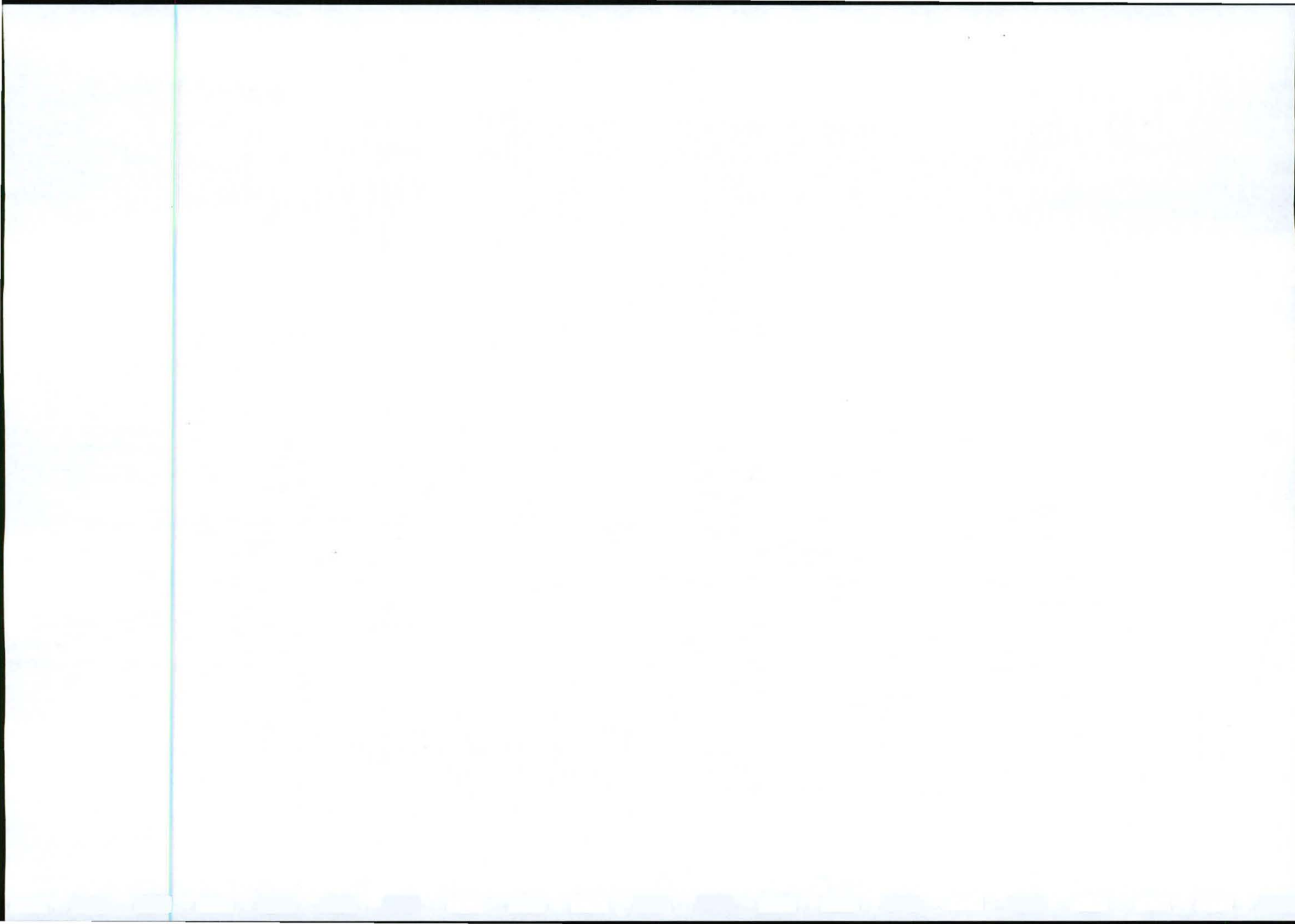
**6. SITE OR ROUTE PLAN**

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 meters of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 meters;
- 6.7 walls and fencing including details of the height and construction material;

<sup>3</sup> "Alternative A..." refer to activity, process, technology or other alternatives.



- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 meters of the site or sites including (but not limited thereto):
- rivers;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.10 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.11 the positions from where photographs of the site were taken.

## 7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

## 8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

## 9. ACTIVITY MOTIVATION

### 9(a) Socio-economic value of the activity

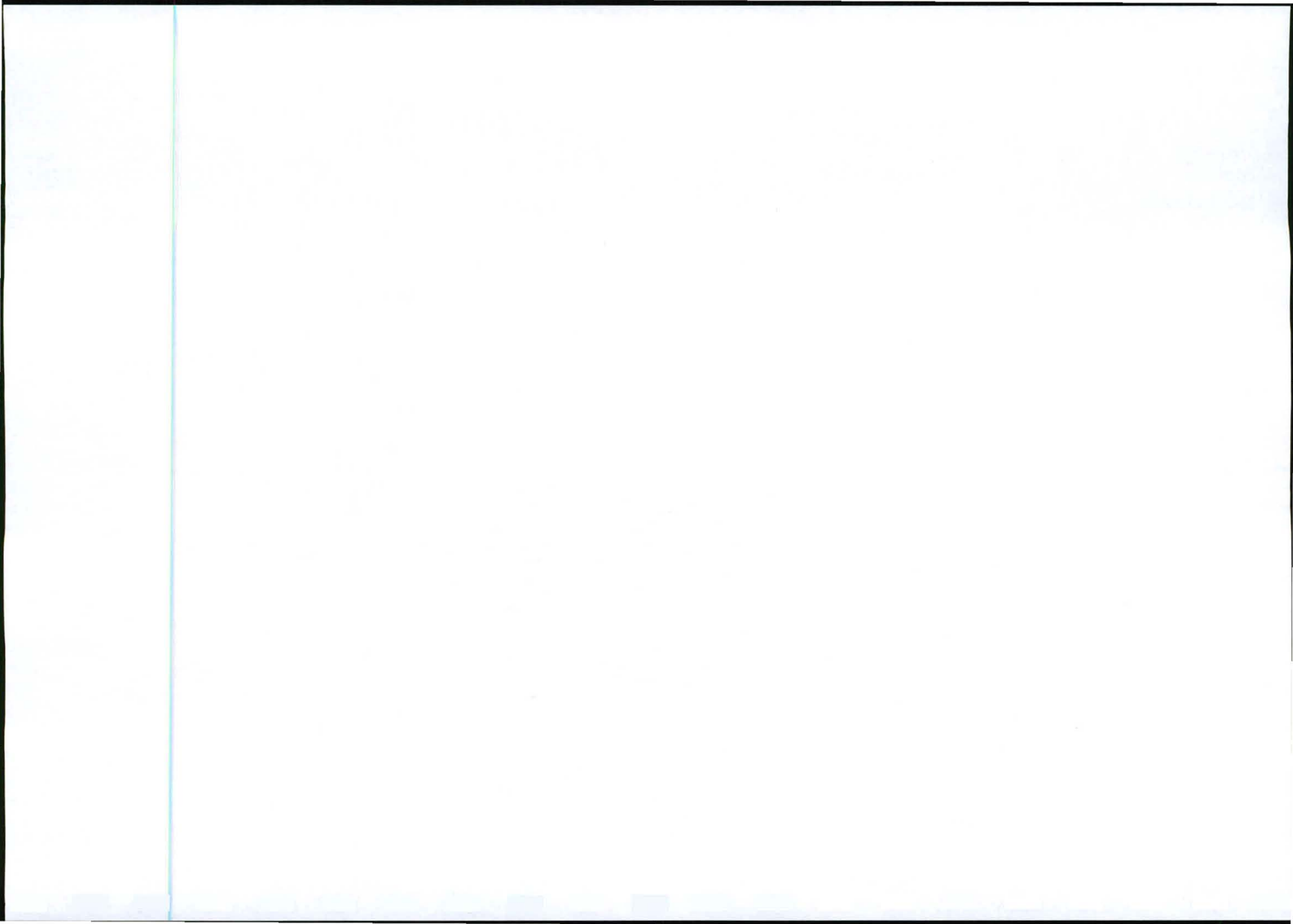
What is the expected capital value of the activity on completion?	unknown
What is the expected yearly income that will be generated by or as a result of the activity?	R 0
Will the activity contribute to service infrastructure?	YES NO
Is the activity a public amenity?	YES NO
How many new employment opportunities will be created in the development phase of the activity?	unknown
What is the expected value of the employment opportunities during the development phase?	unknown
What percentage of this will accrue to previously disadvantaged individuals?	unknown
How many permanent new employment opportunities will be created during the operational phase of the activity?	0
What is the expected current value of the employment opportunities during the first 10 years?	R0
What percentage of this will accrue to previously disadvantaged individuals?	0%

### 9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

<b>NEED:</b>		
1.	Was the relevant provincial planning department involved in the application?	YES NO
2.	Does the proposed land use fall within the relevant provincial planning framework?	YES NO
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation: There will be no change in the land use of the property. Eskom will register a servitude that provides Eskom with the rights to construct and maintain a power line.	

<b>DESIRABILITY:</b>		
1.	Does the proposed land use / development fit the surrounding area?	YES NO
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	YES NO
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES NO
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:	



	Eskom will only register a servitude on the relevant properties and the land use will not change.		
5.	Will the proposed land use / development impact on the sense of place?	YES	NO
6.	Will the proposed land use / development set a precedent?	YES	NO
7.	Will any person's rights be affected by the proposed land use / development?	YES	NO
8.	Will the proposed land use / development compromise the "urban edge"?	YES	NO
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation. The current land use of the surrounding areas is formal nature reserves, private game ranches as well as agricultural. The construction of a line might impact visually on the areas and impact on the sense of place. Route Alternative 3 and Alternative 4 were proposed, partly because they impact less on the entrances to properties and the activities of landowners.		

<b>BENEFITS:</b>			
1.	Will the land use / development have any benefits for society in general?	YES	NO
2.	Explain: This proposed project is part of planned infrastructure to supply the Eskom Distribution grid with power. Should this application not be approved then the supply will be unreliable and in future this can result in major disturbances and disruptions of power supply to different areas at different times.		
3.	Will the land use / development have any benefits for the local communities where it will be located?	YES	NO
4.	Explain: The project is designed to ensure firm supply to the broader area. Should this not be achievable then future supply will be unreliable and this can result in major power disturbances. The local communities will be adversely affected.		

## 10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:
The following legislation is applicable to the proposed project:
<b>Legislation</b>
National Environmental Management Act (Act No 107 of 1998) – NEMA EIA Regulations of 2010
Limpopo Environmental Management Act (7 of 2003), published 30 April 2004, Provincial Gazette No.997
National Heritage Resources Act, 1999 (Act No 25 of 1999)
All provisions of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993)
All provisions of the National Water Act, 1998 (Act No 36 of 1998)
National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004)
Minerals and Petroleum Resources Development Act, 2002 (Act No 28 of 2002) administered by Department of Minerals and Energy
National Forests Act (Act No 84 of 1998)
Protected species – provincial ordinances
Conservation of Agricultural Resources Act (Act No 43 of 1983)
National Veld and Forest Fire Act (Act No 101 of 1998)
National Environment Management Waste Act, 2008 (Act No 59 of 2008)
Soil Conservation Act, 1969 (Act No 76 of 1969)





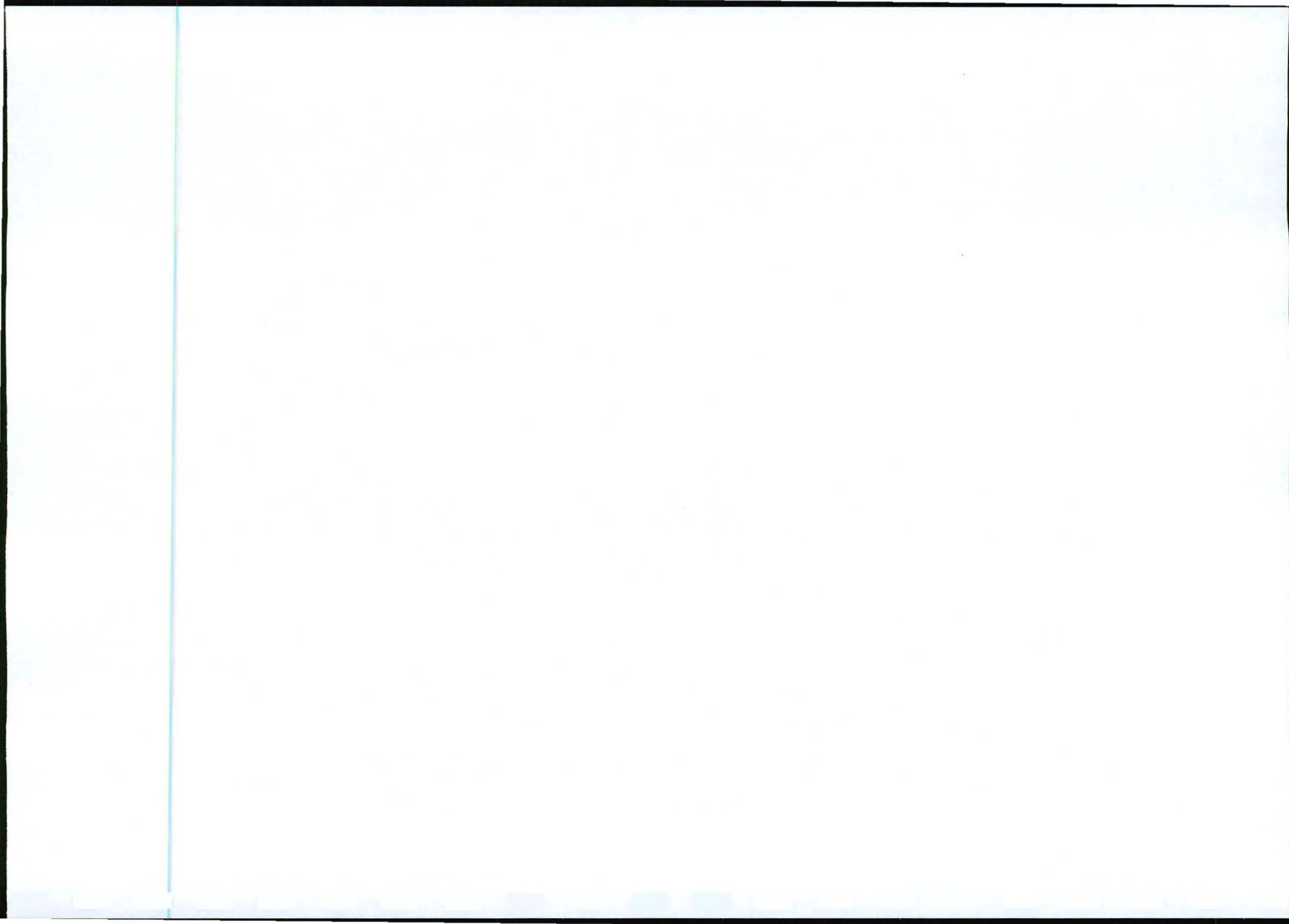
## 11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

### 11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES	NO
If yes, what estimated quantity will be produced per month?	2,5m <sup>3</sup>	
How will the construction solid waste be disposed of (describe)?		
Unusable waste, steel and aluminium will be sold to scrap dealers for recycling.		
Where will the construction solid waste be disposed of (describe)?		
<p>The solid waste will be transported off site by the contractor and returned to Eskom Stores where the scrap will be handed over to buyers (scrap dealers). Mostly the waste is steel that is <b>recycled</b> and taken to the Eskom stores. Other waste is normally used cement bags and this is disposed of in the construction hole for the pylon. The bags will be mixed into the cement and used to fill the excavated hole of the pylon. Any <b>other waste that cannot be recycled</b> (this is minimal) will be transported to an appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). The disposal of any construction waste will be the responsibility of the developer and should be done at least twice a week. A letter of agreement between the developer and the Permit Holder of the waste disposal site shall be provided to the DWA.</p> <p>These measures are included as requirements in the EMPr under the headings "Appointment of Contractors" and "Waste Management". Also refer to the other mitigation measures under the same headings.</p>		
Will the activity produce solid waste during its operational phase?	YES	NO
If yes, what estimated quantity will be produced per month?	0m <sup>3</sup>	
How will the solid waste be disposed of (describe)?		
N/A		
Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?		
N/A		
If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		
Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	YES	NO
If yes, inform the competent authority and request a change to an application for scoping and EIA.		
Is the activity that is being applied for a solid waste handling or treatment facility?	YES	NO
If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		

### 11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	NO
If yes, what estimated quantity will be produced per month?	m <sup>3</sup>	
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO
If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		
Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES	NO
<p>According to the applicant and their contractors, accommodation for the construction workers is mostly rented in the nearest town. Sewage disposal will therefore be through the Municipality's main sewer line. Should <i>accommodation in a construction camp be unavoidable</i>, then the measures as stipulated in the EMPr must be adhered to.</p> <p>Included as requirement in the EMPr, under heading "<i>Waste Management</i>" is the following: The disposal of chemical toilets should be at a registered or licensed sewage disposal facility. Proof of agreement between the applicant and the sewage disposal facility for such disposal, confirming that there will be enough capacity to accommodate additional waste, should be submitted to the Department of Water Affairs.</p>		
If yes, provide the particulars of the facility:		
Facility name:		
Contact person:		



Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:			

### 11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	NO
If yes, is it controlled by any legislation of any sphere of government?	YES	NO
If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		
If no, describe the emissions in terms of type and concentration:		
No significant emissions are released. Studies undertaken on behalf of Eskom confirmed that calculations of electric and magnetic field levels created by overhead power lines, where the public may be exposed, are well within the ICNIRP guidelines. Note that ICNIRP refers to Non-ionising Radiation Protection which receives world-wide support and is endorsed by the Department of Health in South Africa.		

### 11(d) Generation of noise

Will the activity generate noise?	YES	NO
If yes, is it controlled by any legislation of any sphere of government?	YES	NO
If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		
If no, describe the noise in terms of type and level:		
Generation of noise is expected to occur during the construction phase, but it will be a low level of noise and will occur for a limited time only. Measures, as included in the EMPr, will be implemented to avoid or minimise generation of noise during construction.		

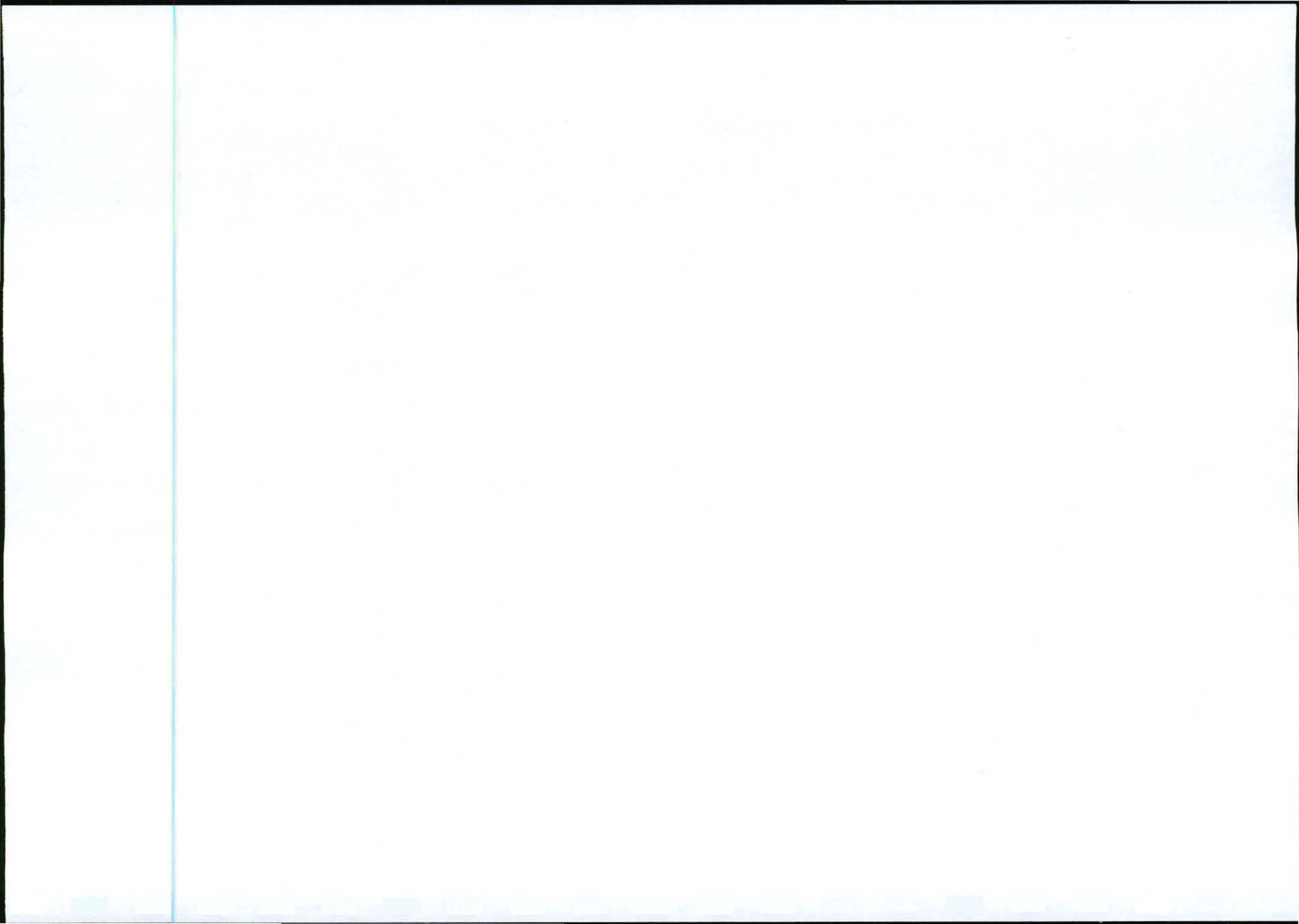
## 12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

municipal	water board	groundwater	river, stream, dam or lake	other	the activity will not use water	
If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: litres						
Does the activity require a water use permit from the Department of Water Affairs?					YES	NO
If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.						

*Relevant to this project:*

- The water used to supply the site with potable water is sourced/purchased from farmers in the area with pre-existing rights. The contractor should deliver the water to the site in an applicable water tanker. These requirements are included in the EMPr under the headings "Construction site" and "Ground and Surface Water".
- The water used during construction is minimal. The cement and ground are compacted in layers around the pylons using a small amount of water. This water is sourced/purchased from farmers in the area with pre-existing rights.
- According to the applicant and their contractors, dust suppression is not required due to the following reasons:
  - The servitude areas receive minimal bush clearance. Indigenous vegetation which does not interfere with the safe operation of the power line is left undisturbed. Further to the above, vegetation is not ploughed, but mowed and therefore no areas are left without vegetation cover.
  - In terms of access roads, existing roads are used and the impact to these roads is insignificant. The reason is that construction material is minimal (a pylon - planted approximately 330m apart, cement - to plant the pylon, and cable - for the overhead wires). Therefore a small number, of construction vehicles deliver the material to the site. Speed of above 30km/hour will not be exceeded. A limited/ insignificant amount of dust is therefore emitted in the atmosphere. In other words, there will be no significant construction, ground-clearing, leveling or

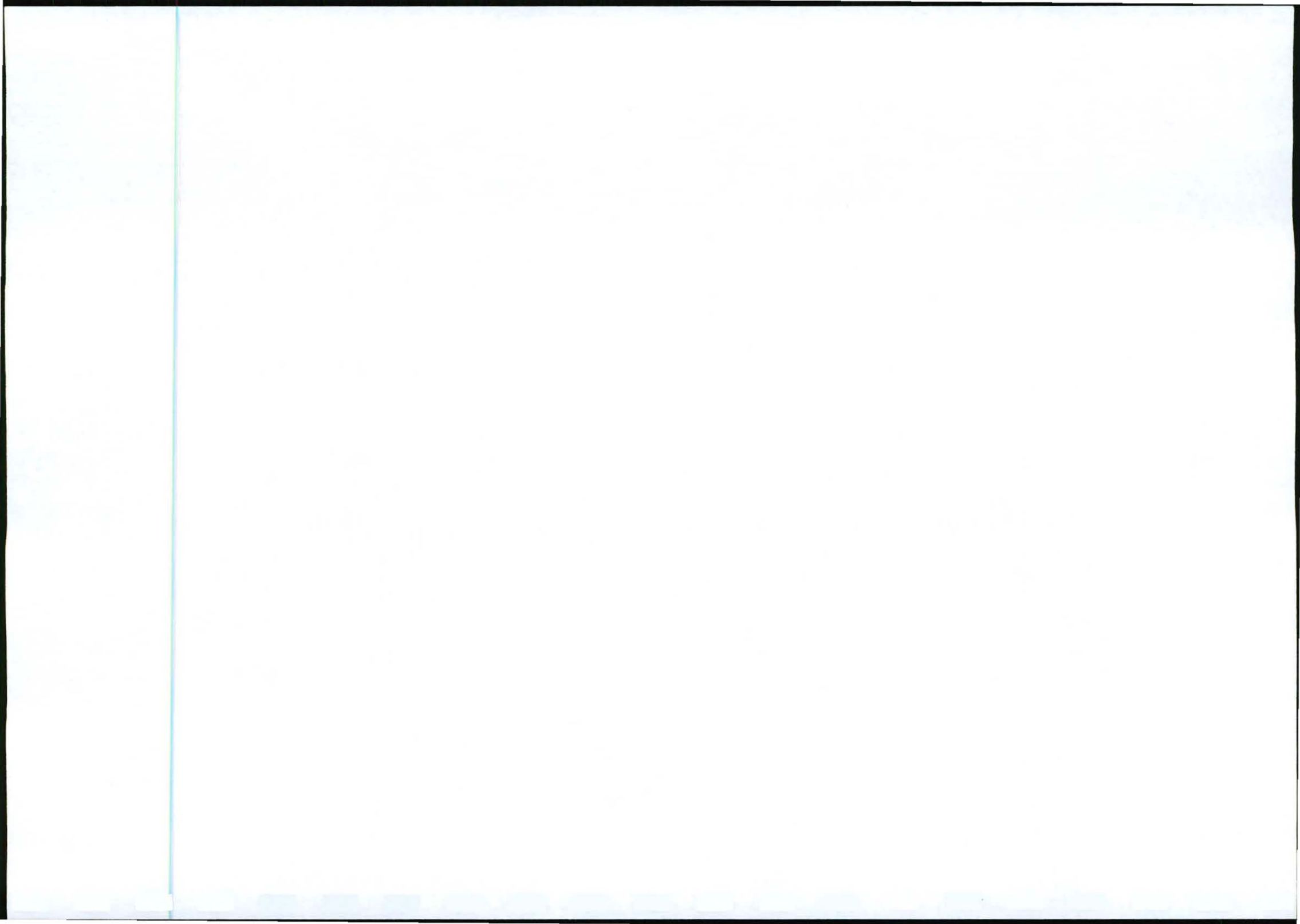


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grading of soils, moving or compacting of soils which are often associated with other forms of construction, but not with erecting of powerlines.

**13. ENERGY EFFICIENCY**

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:
N/a
Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:
N/a



## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

### Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.
- Paragraphs 1 - 6 below must be completed for each alternative.

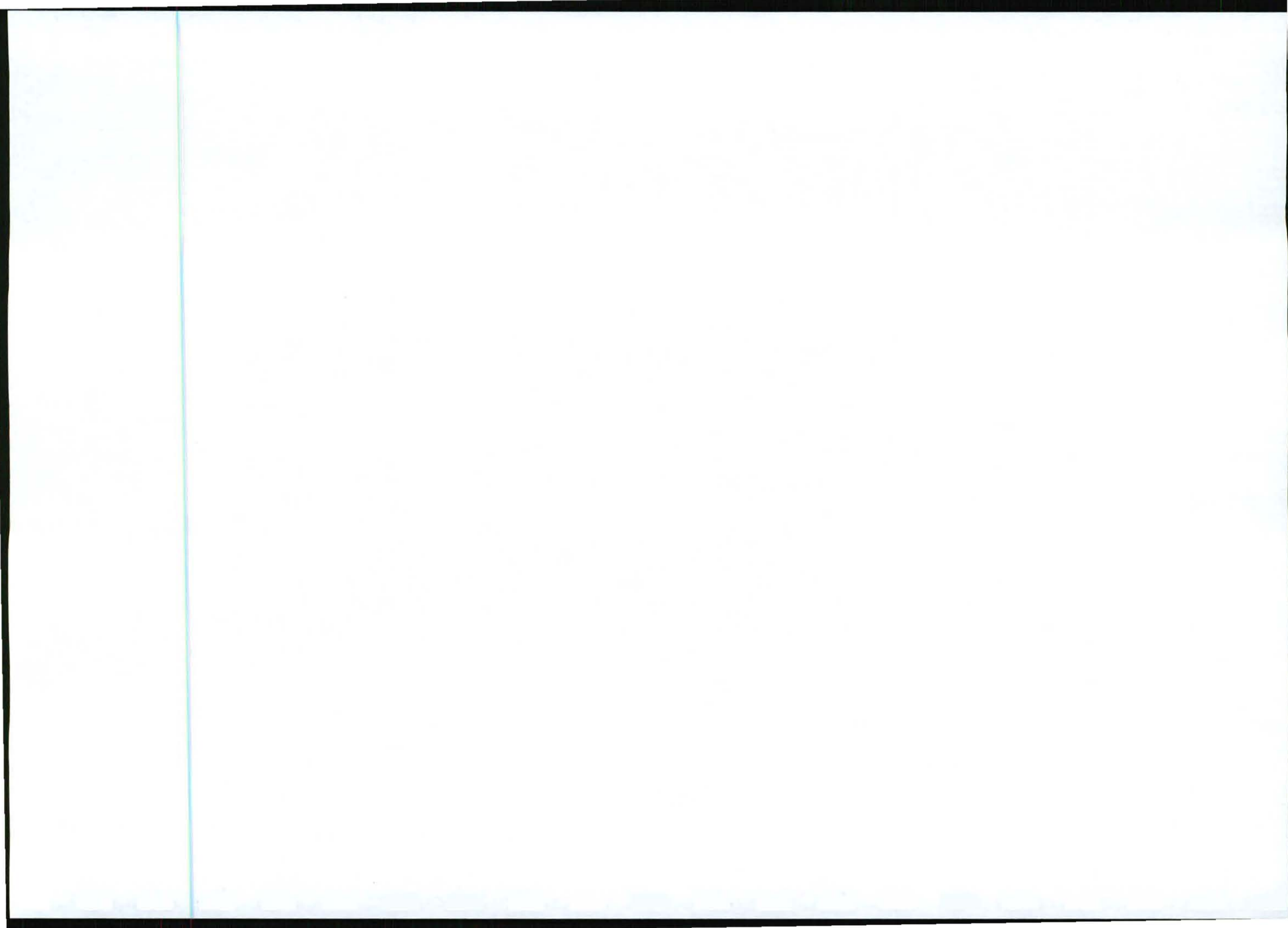
3. Has a specialist been consulted to assist with the completion of this section?	YES	NO
If YES, please complete the form entitled "Details of specialist and declaration of interest"		
for each specialist thus appointed: <b>Attached to the application form</b>		
All specialist reports must be contained in Appendix D.		

Property description/ physical address:	The <b>affected properties</b> for Route Alternative 4 are the farms Bulge Rivier 198 KQ portion 2, 6, Mokolo Rivier Private Nature Reserve 660 KQ portion 0, Hermanusdoorns 650 KQ portion 0, Hermanusdoorns 204 KQ portion 5, Welgevonden 186 KQ portion 0 en 1, Groenfontein 207 KQ portion 5, Keerom 208 KQ portion 0, Hanover 181 KQ portion 0, 3, Goudfontein 171 KQ portion 0, 1, 2, Welgevonden 180 KQ portion 0, Schuinskloof 175 KQ portion 1, 2, 3, Rietbokhoek 4 KR portion 1, 2, Rem, Zeekgat 5 KR portion 1, Rem, Steenbokfontein 9 KR portion Rem, 3, 4, Dwarsfontein 51 KR Rem, Dwarsfontein 51 KR (To be consolidated to Jacobshoogte T149848/07) portion 0, Brakfontein 16 KR portion Rem in the Lephalale Local Municipality in the Limpopo Province.	
	(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.	
	In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.	
Current land-use zoning:	Agricultural	
	In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.	
Is a change of land-use application required?	YES	NO
Is a consent use application required?	YES	NO
Must a building plan be submitted to the local authority?	YES	NO
Locality map:	An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometers, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following: <ul style="list-style-type: none"> <li>an indication of the project site position as well as the positions of the alternative sites, if any;</li> <li>road access from all major roads in the area;</li> <li>road names or numbers of all major roads as well as the roads that provide access to the site(s);</li> <li>all roads within a 1km radius of the site or alternative sites; and</li> <li>a north arrow;</li> <li>a legend; and</li> <li>locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection)</li> </ul>	

Section C Copy No. (e.g. A):	<b>Alternative 1, Alternative 2, Alternative 3 and Alternative 4</b>
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Note: The area where the Alternative 1 route is located does not contain any specific features that will make the site critically more different than the Alternative 2, Alternative 3 or Alternative 4 sites. Paragraphs 1 - 6 below are therefore exactly the same for all alternatives.





## 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

### Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### Alternative S2:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### Alternative S3:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### Alternative S4:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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## 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

- 2.1 Ridgeline
- 2.2 Plateau
- 2.3 Side slope of hill/mountain
- 2.4 Closed valley
- 2.5 Open valley
- 2.6 Plain
- 2.7 Undulating plain
- 2.8 Dune
- 2.9 Seafront

## 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		Alternative S2:		Alternative S3:		Alternative S4:	
Shallow water table (less than 1.5m deep)	YES	NO	YES	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO	YES	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO	YES	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO	YES	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO	YES	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO	YES	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO	YES	NO	YES	NO	YES	NO
An area sensitive to erosion	YES	NO	YES	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

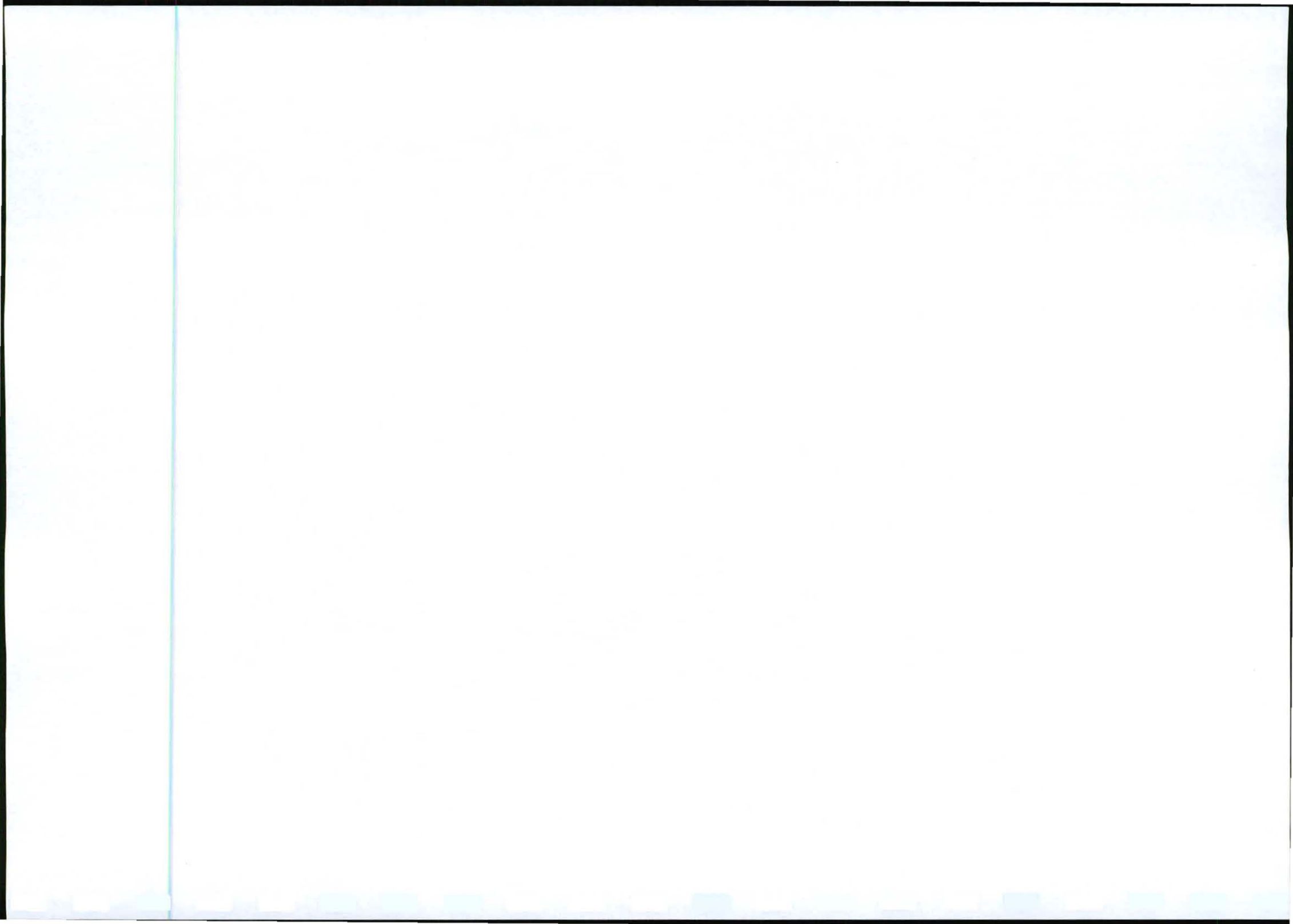
## 4. GROUNDCOVER

Indicate the types of groundcover present on the site:

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.



**5. LAND USE CHARACTER OF SURROUNDING AREA**

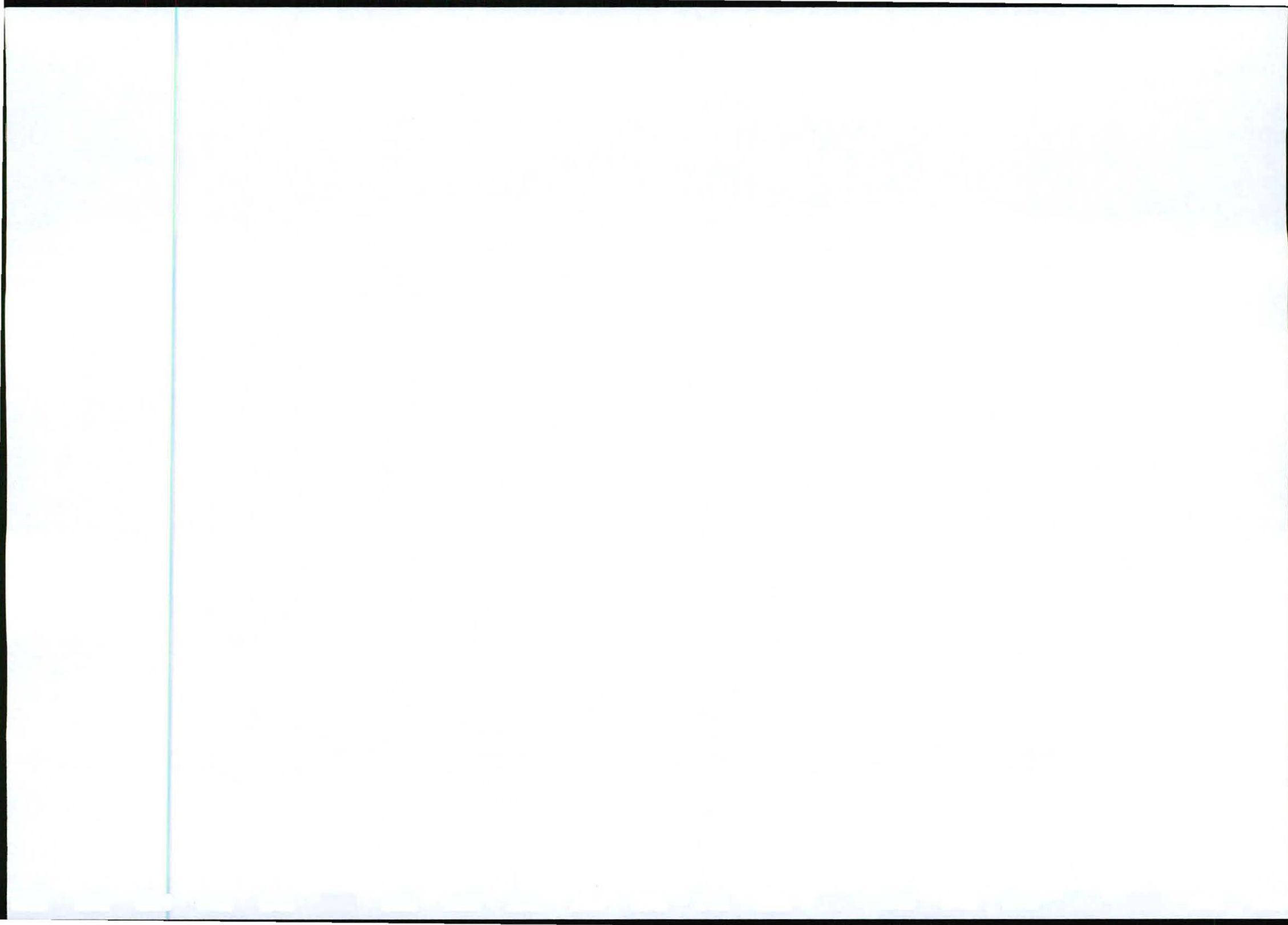
Indicate land uses and/or prominent features that does currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

- 5.1 Natural area
- 5.2 Low density residential
- 5.3 Medium density residential
- 5.4 High density residential
- 5.5 Informal residential<sup>A</sup>
- 5.6 Retail commercial & warehousing
- 5.7 Light industrial
- 5.8 Medium industrial<sup>AN</sup>
- 5.9 Heavy industrial<sup>AN</sup>
- 5.10 Power station
- 5.11 Office/consulting room
- 5.12 Military or police base/station/compound
- 5.13 Spoil heap or slimes dam<sup>A</sup>
- 5.14 Quarry, sand or borrow pit
- 5.15 Dam or reservoir
- 5.16 Hospital/medical centre
- 5.17 School
- 5.18 Tertiary education facility
- 5.19 Church
- 5.20 Old age home
- 5.21 Sewage treatment plant<sup>A</sup>
- 5.22 Train station or shunting yard<sup>N</sup>
- 5.23 Railway line<sup>N</sup>
- 5.24 Major road (4 lanes or more)<sup>N</sup>
- 5.25 Airport<sup>N</sup>
- 5.26 Harbour
- 5.27 Sport facilities
- 5.28 Golf course
- 5.29 Polo fields
- 5.30 Filling station<sup>H</sup>
- 5.31 Landfill or waste treatment site
- 5.32 Plantation
- 5.33 Agriculture
- 5.34 River, stream or wetland
- 5.35 Nature conservation area
- 5.36 Mountain, koppie or ridge
- 5.37 Museum
- 5.38 Historical building
- 5.39 Protected Area
- 5.40 Graveyard
- 5.41 Archaeological site
- 5.42 Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?  
**N/A**

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity?  
 If YES, specify and explain: **N/A**  
 If YES, specify:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.



If YES, specify and explain:

A small filling station is in the nearby vicinity of the proposed power line corridors. However, there will be no impact (or interference) between the two whatsoever. The same applies to a small school in the nearby vicinity.

If YES, specify:

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## 6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?

YES	NO
Uncertain	

If YES, explain:

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist: Refer to the Heritage Impact Assessment in Appendix D2. Summary below.

Will any building or structure older than 60 years be affected in any way?

YES	NO
YES	NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

### The main findings of the Heritage Impact Assessment are summarised as follows:-

The Phase I Heritage Impact Assessment for the Eskom Project revealed none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) for the Eskom Project Area. Therefore, from a heritage point of view, Alternative 1, Alternative 2, Alternative 3 and Alternative 4 are suitable for the construction of the proposed line.

### The following measures are proposed to mitigate/manage any possible impact of the project on heritage resources:

If any heritage resources of significance are exposed during the Eskom Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.



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## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

### 2. CONTENT OF ADVERTISEMENTS AND NOTICES

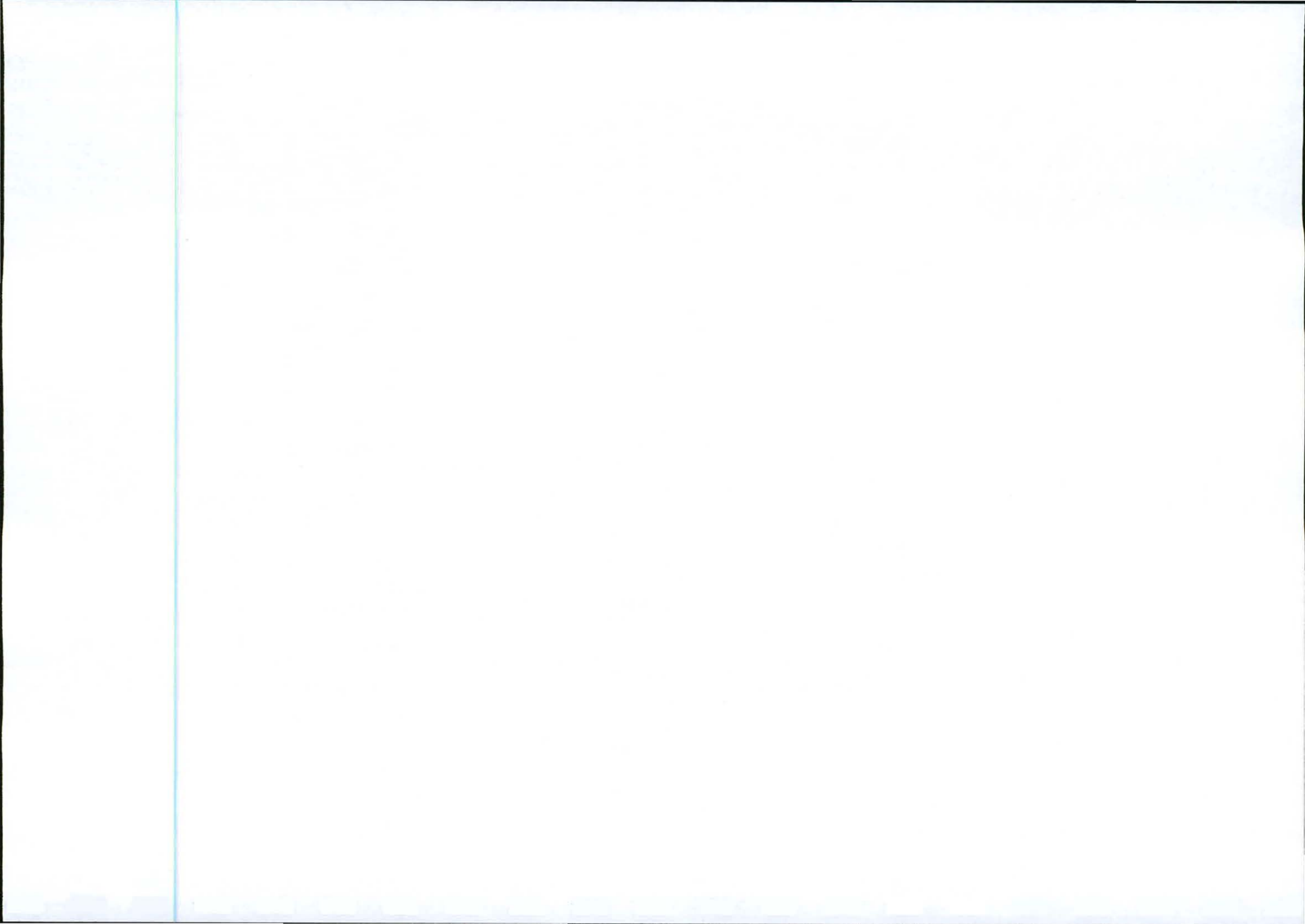
A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
  - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
  - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
  - (iii) the nature and location of the activity to which the application relates;
  - (iv) where further information on the application or activity can be obtained; and
  - (v) the manner in which and the person to whom representations in respect of the application may be made.

### 3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity





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can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

#### 4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

#### 5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

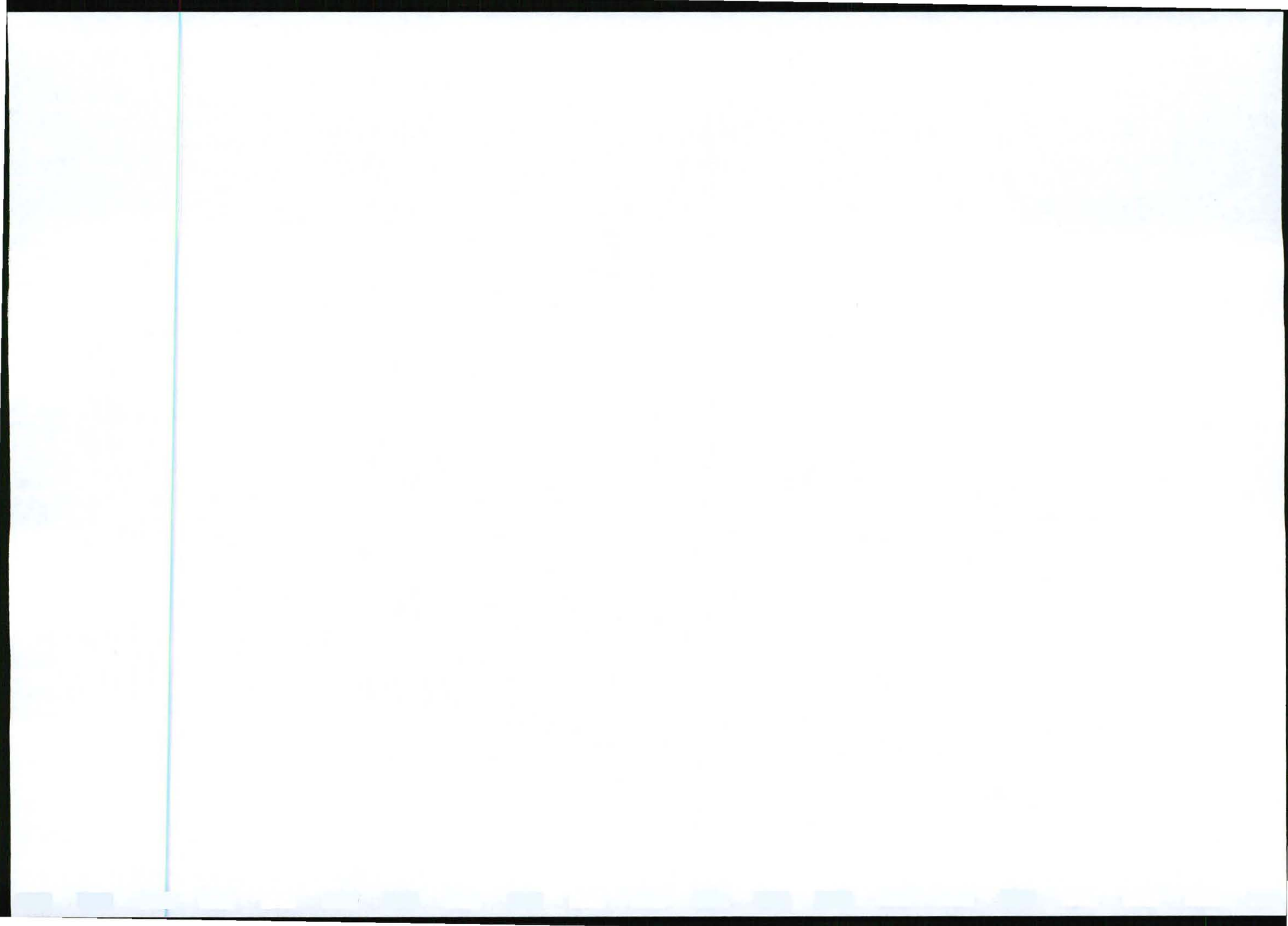
#### 6. AUTHORITY PARTICIPATION

**Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.**

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input.

##### List of authorities informed:

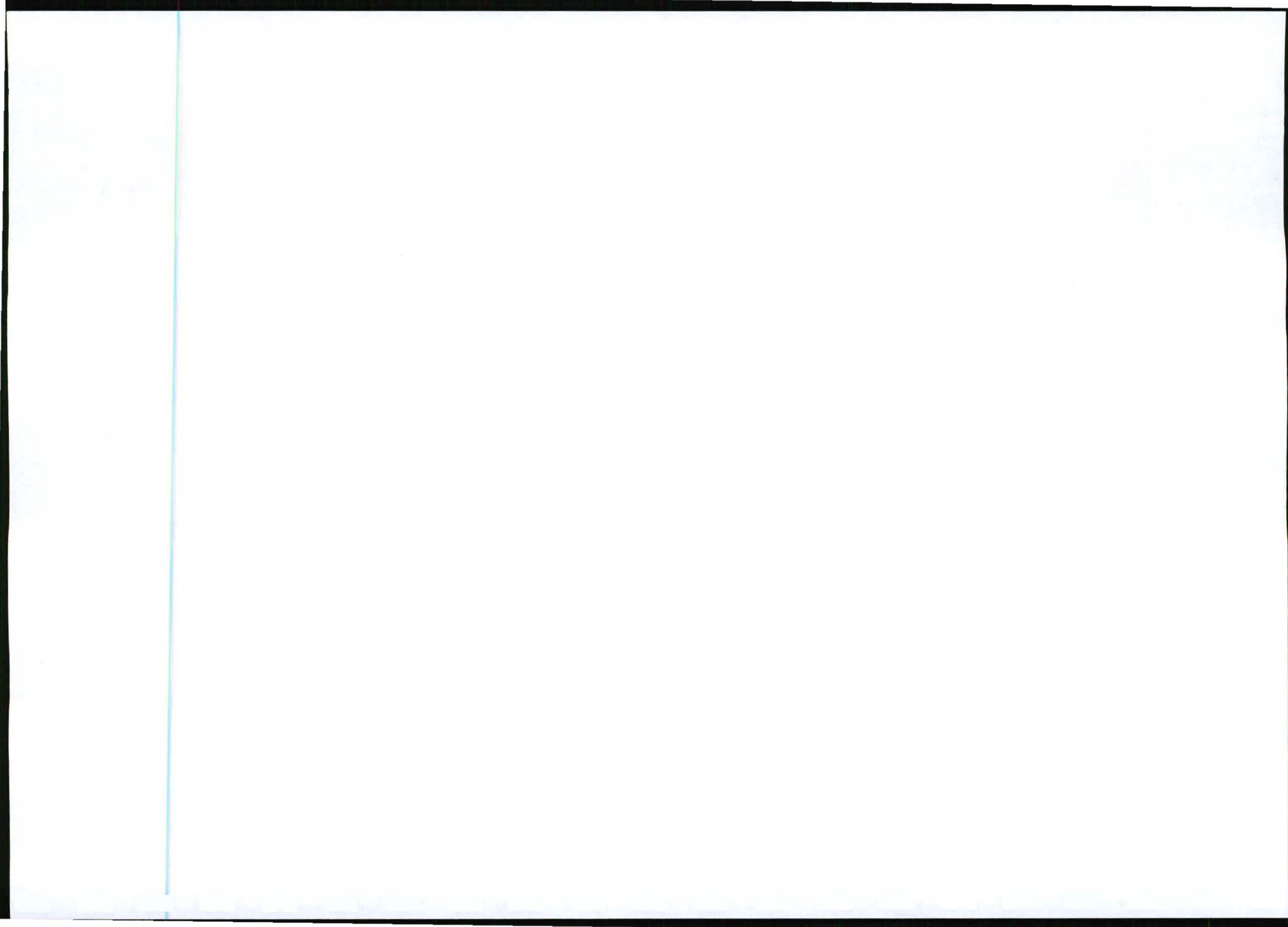
- Department of Water Affairs: Water Resources & Water Quality Management
- South African Heritage Resources Agency
- Limpopo Department of Economic Development, Environment and Tourism: Environmental Impact Management
- Department of Agriculture, Forestry and Fisheries: Land Use and Soil Management
- Department of Minerals and Energy
- SA National Road Agency Ltd.: Northern Region
- Road Agency Limpopo
- Department of Roads and Transport
- Department of Rural Development and Land Reform: Land Claims Commissioner
- Department of Rural Development and Land Reform: State Land Administration
- Transvaal Landou Unie SA Noord
- Distriks Landbou Unie Vaalwater
- Distriks Landbou Unie Thabazimbi
- Distriks Landbou Unie Ellisras
- Agri Limpopo
- Agri Lephalale
- Waterberg Biosphere Reserve
- Waterberg Nature Conservancy
- Mokolo River Nature Reserve
- Waterberg District Municipality
- Lephalale Local Municipality
- Eskom Transmission
- Eskom Distribution Northern Region
- Landowners



- The Public Participation Programme (PPP) started in November 2010 and continued until April 2012. It included the identification of key stakeholders, the distribution of information letters with a request for comment, as well as advertising of the project in the local press and on site.
- Meetings were conducted with Farmers' associations, namely the Transvaal Farmers' Union as well as Agri Limpopo. The landowners are represented by both these associations.
- In addition, notification of an information meeting on 22 February 2011 was sent to all IAPs. The purpose of the meeting was to furnish the landowners and other interested parties with information regarding the extent of the project, the proposed alternatives, the process of negotiations for servitudes, and the extent of the Environmental Impact Assessment Process. Project posters with information and maps of the routes were presented at the meeting. Written comment was requested at the meeting.
- Several one-on-one meetings were conducted with affected landowners to address their specific requirements. This resulted in changes to the alignment of the final power line route.
- A draft Basic Assessment Report was compiled with the main aim to identify issues, potential impacts and potential alternatives associated with this project. It included a description of the status quo of all relevant environmental components as well as the proceedings of the PPP and communication with registered Interested & Affected Parties (IAPs).
- The draft Basic Assessment Report (this document) was distributed on 29 May 2012 to the following stakeholders for their comment :
  - Department of Water Affairs: Water Resources & Water Quality Management
  - South African Heritage Resources Agency
  - Limpopo Department of Economic Development, Environment and Tourism: Environmental Impact Management
  - Department of Agriculture, Forestry and Fisheries: Land Use and Soil Management
  - Department of Minerals and Energy
  - SA National Road Agency Agency Ltd.: Northern Region
  - Road Agency Limpopo
  - Department of Roads and Transport
  - Department of Rural Development and Land Reform: Land Claims Commissioner
  - Department of Rural Development and Land Reform: State Land Administration
  - Transvaal Landou Unie SA Noord
  - Distriks Landbou Unie Vaalwater
  - Distriks Landbou Unie Thabazimbi
  - Distriks Landbou Unie Ellisras
  - Agri Limpopo
  - Waterberg Biosphere Reserve
  - Waterberg Nature Conservancy
  - Mokolo River Nature Reserve
  - Waterberg District Municipality
  - Lephalale Local Municipality
  - Eskom Transmission
  - Eskom Distribution Northern Region
  - Landowners
- The **due date for comment on the draft Basic Assessment Report is 3 July 2012** .
- Subsequently, a **final Basic Assessment Report (BAR)** will be compiled and submitted to DEA by August 2012. This report will include all concerns raised to the draft BAR and responses thereto. The Consultants (EAPs) will ensure that all concerns raised are addressed in appropriate detail in the final Basic Assessment Report.

List of authorities from whom comments have been received:

Limpopo Department of Economic Development, Environment and Tourism: Environmental Impact Management  
 Eskom Transmission: Land Management  
 Department of Roads and Transport: Environment  
 Department of Rural Development and Land Reform: Land Claims Commissioner Limpopo  
 Department of Agriculture, Forestry and Fisheries: Land Use and Soil Management



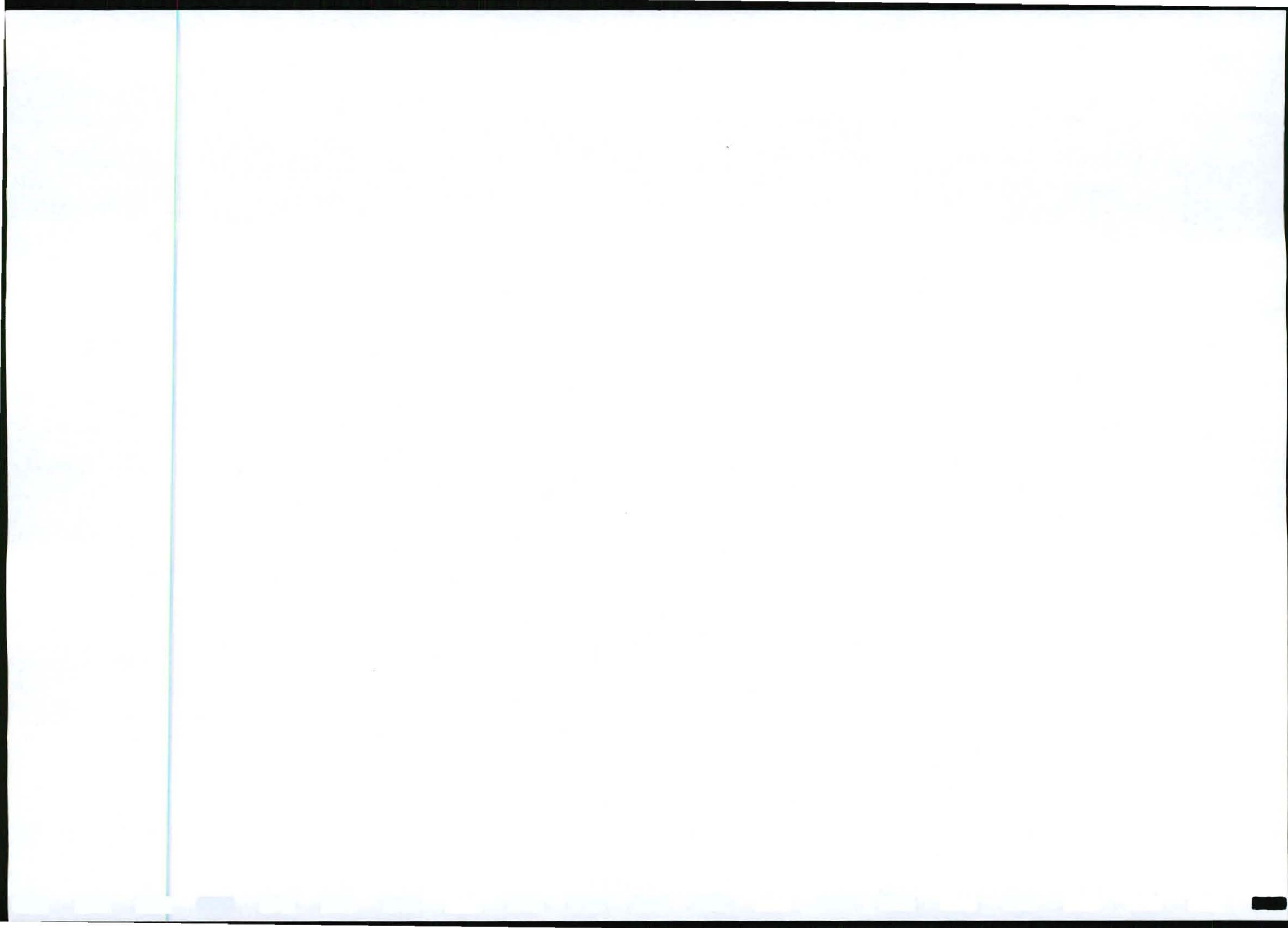
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## 7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable.

Has any comment been received from stakeholders?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):		
<b>Refer to Section D1 and Appendix E for relevant information.</b>		



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## SECTION D: IMPACT ASSESSMENT

*The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.*

### 1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

*List the main issues raised by interested and affected parties.*

*Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report as an Appendix):*

### COMMENTS RECEIVED BY INTERESTED AND AFFECTED PARTIES DURING THE ADVERTISING FOR THE BASIC ASSESSMENT REPORT

The Public Participation Programme allowed for informed and responsible decision-making by all interested and affected parties. Refer to Appendix E6: Comments and Responses Report and Appendices E7 – E8 for copies of written comment.

#### 1.1 Comments received in the notification phase

This section of the report synthesises the issues and concerns identified by interested and affected parties and various stakeholders during the public participation process and can be summarised as follows:

##### 1.1.1 The following IAPs registered:

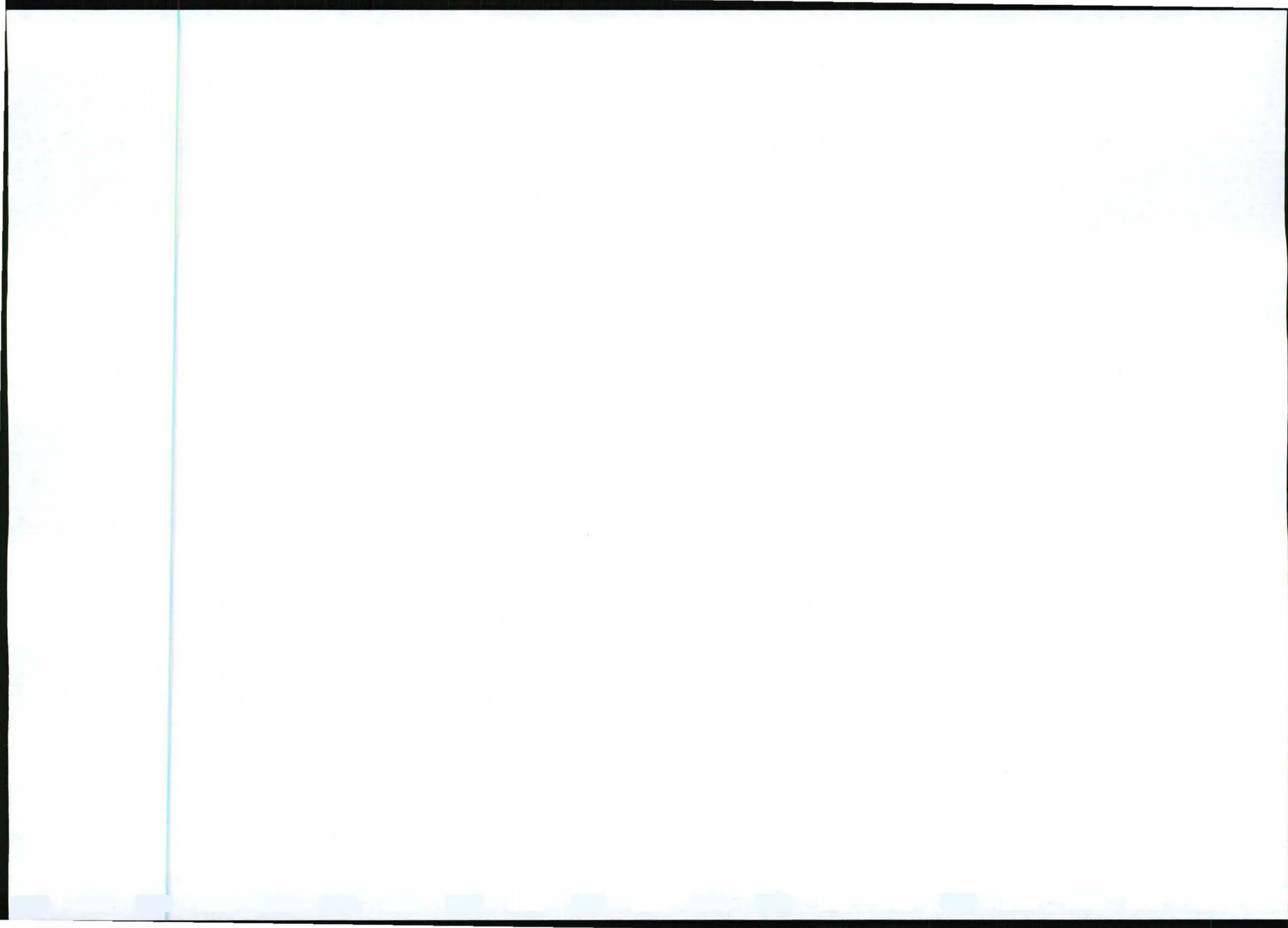
- The Fold, SA Children's Home, Micky Prince, Bergsig 196KQ Re
- Hermanusdoorns Shareblock Ltd, John Hill
- Leopard Leap Lodge, Jan and Maya Oosterhoff, Donkerhoek 615LQ
- Witfontein Game Farm (Pty) Ltd, Berthold von Sethe, Witfontein 154KQ
- Waterberg Nature Conservancy, Richard Wadley
- Ruimtevreug Boerdery Edms Bpk, KP Van der Walt en AC Greyling, Steenbokfontein 9KR Portions 1,3
- Limpopo Department of Economic Development, Environment and Tourism: Waterberg District, Environmental Impact Management
- Mogolriver Game Farm (Pty) Ltd/ Mokolo River Nature Reserve, Adam Gunn
- Ama Amanzi Game Lodge (Pty) Ltd, Michiel & Issabella Van Baalen-Kerklaan, Goudfontein KQ171 Re
- LD Schmutz, Hanover 181KQ
- Elana Greyling
- Daan Erasmus, Manamane 201KQ
- Hermanusdoorns Shareblock Ltd, Andre Vosloo
- Hermanusdoorns Shareblock Ltd, Renske Hofmeyr
- Chris Allanson, Hermanusdoorns 204KQ Portions 4,5,
- Hermanusdoorns Shareblock Ltd, Marisa Bellini, Jennifer Rupert
- Hermanusdoorns Shareblock Ltd, AS du Plessis
- Hermanusdoorns Shareblock Ltd, Louisa Gericke
- Hermanusdoorns Shareblock Ltd, Stewart Stephen
- Hermanusdoorns Shareblock Ltd, Mariette & Gabriel Stoltz
- Hermanusdoorns Shareblock Ltd, PA Groenewald
- Agri Lephalele/ Agri Limpopo
- SATLU; TLU Vaalwater

##### 1.1.2 Verbal Comment received

###### Meeting with Transvaal Farmers' Union (TLU, Vaalwater)

Eskom Northern Region, Polokwane Office, and the environmental consultants, requested an opportunity to speak at a monthly meeting of the Transvaal Farmers' Union, Vaalwater on 25 January 2011. The purpose of this being to communicate the different Eskom projects planned within the macro area between Vaalwater and Ellisras. This meeting formed part of the community consultation processes. Documents in Afrikaans (their preferred language for





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communication), containing a concise project description together with colour copies of the proposed routes had been distributed to all the attendees.

Comments:

- The attendees requested progress with regards to their request that Eskom hire the relevant servitude widths from the landowners instead of purchasing the servitudes rights.

*Responses:*

*Eskom explained that meetings had been held in this regard with Eskom's top management and it was concluded that payment would continue to take place in accordance with the current expropriation and servitude legislation. There is however significant effort from Eskom to establish effective communication channels with the landowners and provide an overall improved service. Mr Xander Neethling from Eskom undertook to obtain an official response from Eskom in this regard.*

- The attendees stressed that the Waterberg Biosphere must be included in the community consultation Programmes.
- It was confirmed that the Nylstroom-Vaalwater Road would in future be managed by SANRAL. Mr Nothnagel from their Polokwane office is the correct person to liaise with.
- The farmers requested that all notifications of the projects are placed in their local newspapers as follows: Mogol Pos for the Bulge Rivier Projects and the Warmbad Pos for the Nylstroom-Vaalwater Project.

- *Responses:*

*Eskom emphasised that the proposed projects would ensure a strengthening of the power supply of the entire macro area. The whole purpose of these projects is to enable Eskom to provide a reliable service to the relevant communities and farms within the macro area.*

*Advantages to customers in the macro area:*

- *Upgrade the current supply from Radial feed to Ring feed, Currently Radial feed from Warmbad Substation. Ring feed will create an alternative supply from Matimba Power station. All substations in the project will form part of an integrated ring supply network.*
- *Place the High Voltage (132kV) sources closer to the customers (Bulge and Dorset substations) and shorten the Medium Voltage (22kV) networks to improve the quality of supply.*

### **Meeting with Agri Limpopo**

Eskom Northern Region, Polokwane Office, and the negotiator had the opportunity to meet with Agri Limpopo and an affected landowner on 20 April 2011. The purpose of this being to communicate the different Eskom projects planned within the macro area between Vaalwater and Ellisras. The main issues discussed were the manner of negotiations and compensation for servitude areas.

*Response:*

*The process of negotiations can commence as soon as the Environmental Impact Assessment recommend the preferred alternative i.e. route, site etc. for the project. After identification of the preferred alternative, a land valuator will be appointed to value the property(ies). The distance/length of the line affecting each property is measured to calculate the area affected by the line. A process of negotiations will follow between landowner(s) and Eskom appointed negotiators. After agreement has been reached, Eskom and the landowner will sign the documents. The valuations will be tabled before an Eskom tender committee for approval. Eskom pays the consideration as determined by the professional evaluator on a before and after basis. Servitude rights for a servitude in general terms will be obtained by means of an "Option to Acquire a Servitude". Interest will be paid according to the laid down principle by the National Treasury Act.*

*Eskom Distribution has a compensation model that allows for a once-off compensation for the servitude which will be paid upon registration of the servitude. A servitude will be registered which provides Eskom with the rights to construct and maintain a power line on the applicable property. The applicable land is therefore not purchased. All normal activity on the farm/land can continue as usual. For the sake of safety the landowner should not construct any structures in the servitude area underneath the power line. Eskom has the right to enter the servitude 24 hours per day to maintain the line in so much as following the laid down farm access protocol..*

*Power for rural supply cannot be supplied directly from an 132kV line. There is however indirect benefit in the construction of the line for the community, in that the supply would be strengthened with a feed to the substations that feed the rural lines. Eskom strives to follow the shortest route from point A to B due to the fact that the line costs*



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approximately R1 600 000 per kilometer to construct. Objections from landowners/users and site-specific problems will be considered in the finalisation of any route/site.

The option document (referred to above) is a binding document that will reflect all the requirements of the landowner, for example: the negotiated compensation for the servitude; specific access arrangements to his property etc. Negotiations between the landowner and the negotiator will address site-specific requirements such as the positions of the pylons, on the property in question. These agreements/requirements will be noted on a site plan, as part of the option document. Construction may only commence once the environmental authorisation has been issued and the option document has been signed by the affected landowner.

### **1.1.3 Comments received at the information meeting**

An information meeting was conducted on 22 February 2011 at Biltong go back, a venue on the R33 nearby the project site. The purpose of the meeting was to furnish the landowners and other interested parties with information regarding the extent of the project, the proposed alternatives, the process of negotiations for servitudes, and the extent of the Environmental Impact Assessment Process. Project posters with information and maps of the routes were presented at the meeting. Written comment was requested at the meeting. (Refer to Appendix E5 for the form that was provided at the meeting, for this purpose). The information meeting was conducted in the format of an open day with an invitation for attendance between 10h00 to 14h00 on 22 February 2011.

#### **Comment can be summarised as follows:**

(Refer to Appendix E8 for the comment that was provided at the meeting)

#### **Welgevonden 186KQ Ptns 0,1; Groenfontein 207KQ Ptn 3. Mr SP van der Merwe**

Mr van der Merwe confirms some site-specific issues that should be accommodated in the placement of any power line on his property i.e. existing irrigation, flight paths of light aeroplanes, protected trees etc. He is not in support of the route and proposed an alignment on the opposite side of the road.

#### **Response:**

The EIA team had meetings with the landowner and a sensitive placement of the line to the southern side of the road is under discussion. Alternative 4 is supported by the landowner.

#### **Hanover 181KQ; Welgevonden KQ180. Mr WH Ernst**

#### **Comment:**

He confirmed the site specific issues i.e the dwelling on farm Hanover and dams adjacent to the road; a koppie etc. He proposed a route in the same alignment as the current proposed Alt 4.

#### **Response:**

The EIA team had discussions with the landowner and the sensitive placement of the line is discussed with them. Alternative 4 is supported by the landowner.

#### **Michiel Van Baalen, Ama Amanzi Game Lodge (Pty) Ltd, Goudfontein 171KQ RE**

#### **Comment:**

Landowner protested to alternative 1, as the line will be along the entire left side (from N to S) of their farm and therefore has negative impact on their businesses and the value of the farm. The line will make a big part of their farm useless, since the farm is narrow and they are developing the farm into a game lodge. They market mainly to overseas tourists. They prefer option (alternative) 2 along the R33 national road as this option will have the least impact on their business.

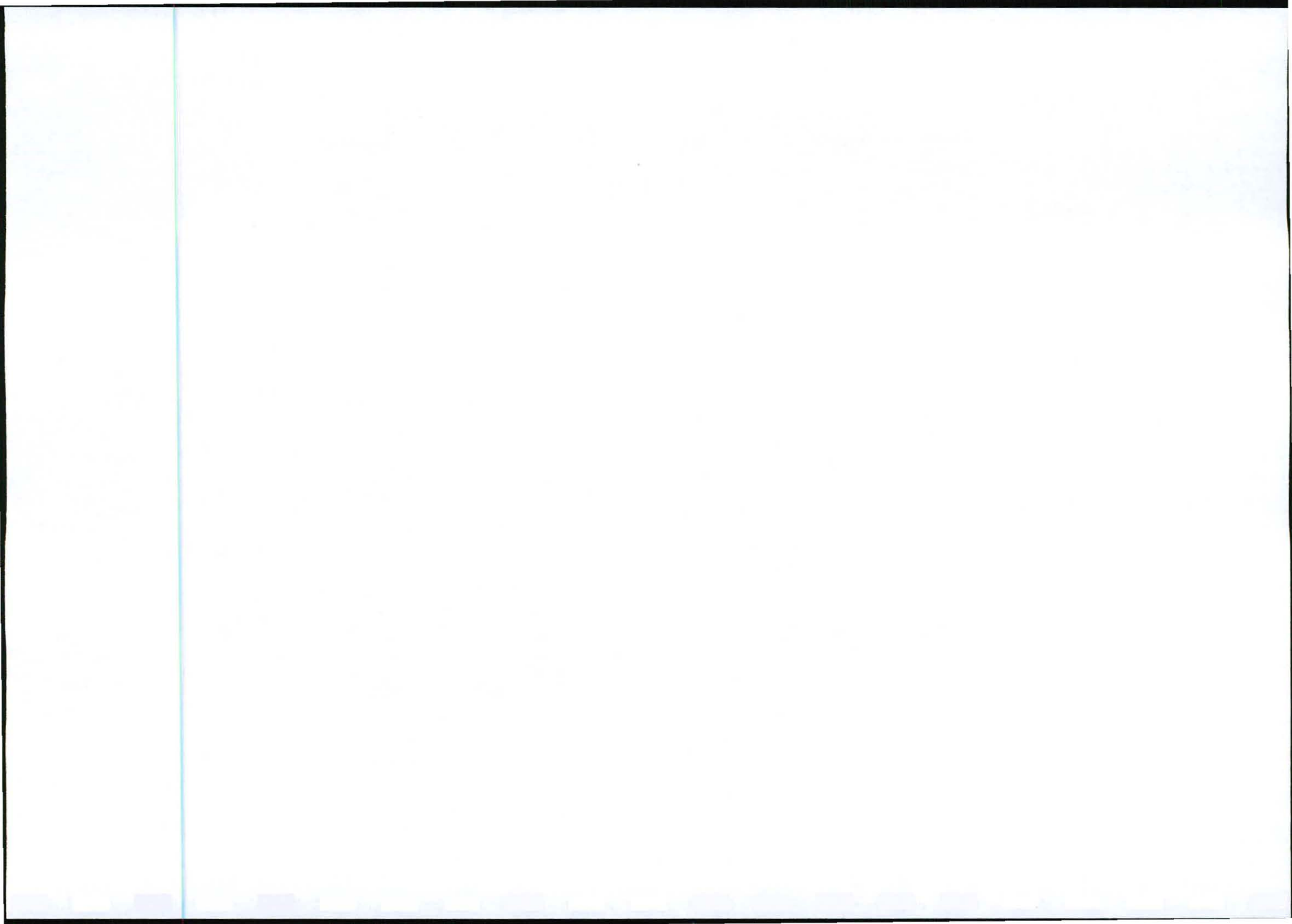
#### **Response:**

Alternative 2 (along the R33) will impact significantly on other landowners due to the required distance of powerlines from national roads. Alternative 1 has less impact to this regard. The EIA team investigated Alternatives 3 and 4 subsequent to the open day and several discussions with affected landowners.

#### **KP Van der Walt & AC Greyling, Ruimtevreug Boerdery Edms Bpk, Steenbokfontein 9KR Portions 1,3**

#### **Comment:**

The landowner prefers the power line to the north of the road. He actually prefers not to accommodate any line. Will discuss with other directors.



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*Response:*

*The alignment is altered to run on the northern side of the road over portion 3. The specific circumstances will be discussed with the landowner(s) on site and a sensitive and accommodating placement will be finalised with them.*

**The Fold, SA Children's Home, Harry and Peggy Parham, Bergsig 196KQ Re**

Comment:

Any construction would be detrimental to the playing fields at the home.

*Response:*

*The proposed Route Alternative 4 from Bulge Rivier substation towards Hermanusdoorns is aligned to the northern side of the R517 tar road and will not impact on this landowner.*

**Waterberg Nature Conservancy; Vaalwater Community Forum, Richard Wadley**

Comment:

He is pleased by the constructive approach adopted by affected landowners and the reciprocal attitude of Eskom representatives with regards to the proposed line. The most contentious section is between points C-D. Even the proposed alternative route, via point G, presents some difficulties, because of the proximity of boreholes and windmills along the Hermanusdoorns road between C-G. A landowner proposed an alternative route: from point D, the line would run west along the northern boundary of farms 171, and then south-west down the common boundary of 171 and 181 until joining the preferred route at the Hermanusdoorns road.

The direct C-D route will adversely affect several landowners and should not be pursued. The alternative, C-G-D is possibly viable depending how serious is the impact on boreholes (if at all) between C-G.

The third proposal along 171/181 appears promising, but not all of those affected landowners were present at the open day.

*Response:*

*The above comment in addition to the comment from affected landowners resulted in the design of Route alternatives 3 and 4. Subsequently Route Alternative 4 is proposed as the route with least impact, and in specific to landowners.*

**Malmanie Game Farm, Mr K Heiling, Malmanierivierdrift 199KQ**

Comment:

Landowner comments that the line should follow the boundary along the farm fence and not along the road.

*Response:*

*This property is not affected by the proposed Route Alternative 4.*

**PC Oosthuizen, Bergsig 196KQ Ptn 3**

Comment:

The line should run on the boundary of the farm and not on the tar road in front of La Rive Hotel.

*Response:*

*The proposed Route Alternative 4 is not adjacent to the R517 but follows an alignment further to the north, from Bulge Rivier sub running east to the Hermanusdoorns dirt road. This property is not directly affected by the proposed Route Alternative 4.*

**JH Vermeulen, Rietbokhoek 4KR Ptn 2**

Comment:

During construction all vegetation cleared (branches etc) should be removed; No fences to be cut; no unauthorised access to farm unless arranged; no new gates; access allowed between 8h00 and 16h00; new line to follow same corridor as existing line; no fires allowed on farm during construction; all waste to be removed after construction.

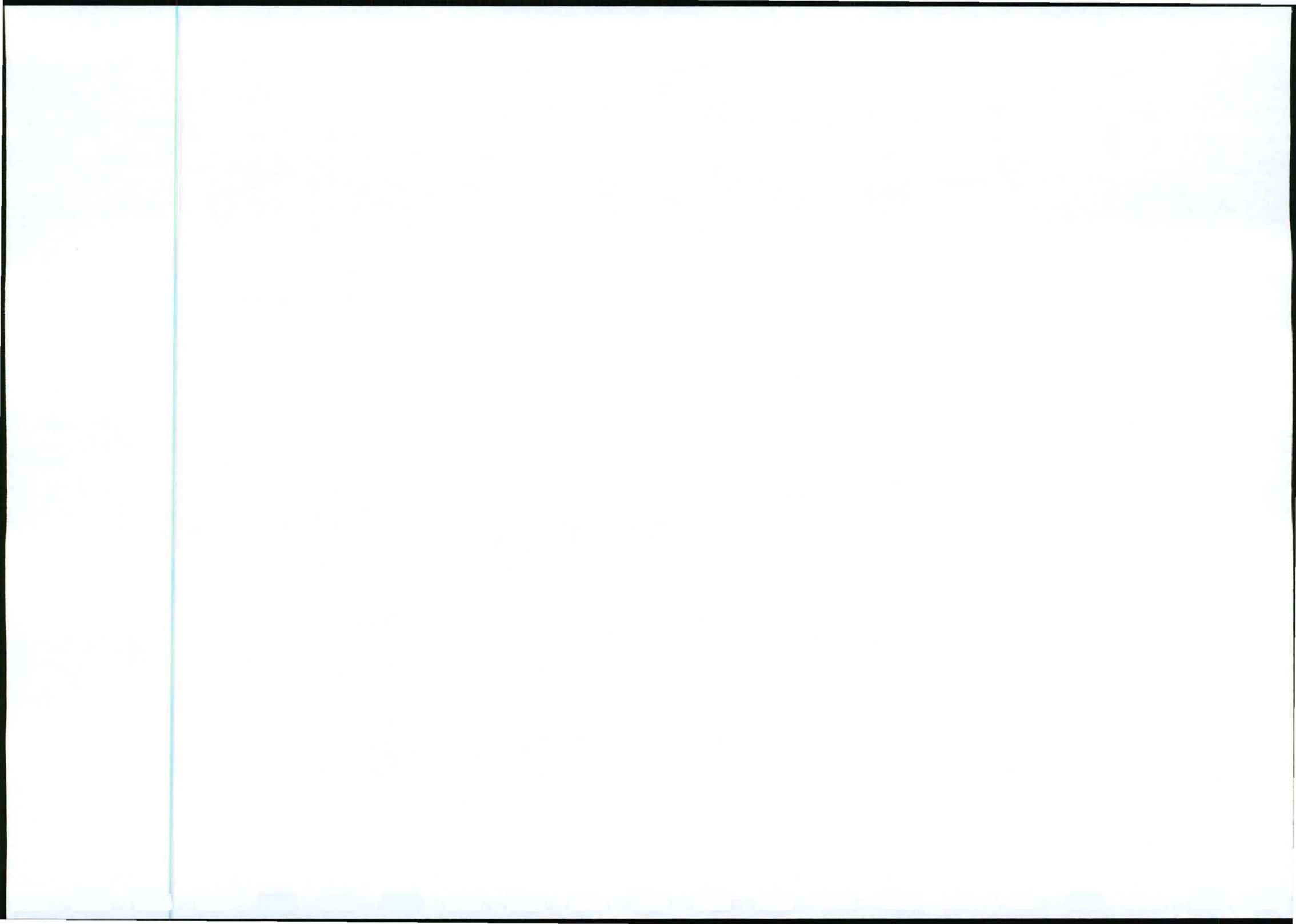
*Response:*

*Mitigation measures in line with the above are stipulated in the EMPr. Discussions between the landowner and the negotiator will address site-specific requirements such as the above. These agreements/requirements will be noted, as part of the option document.*

**Wally Meadon, Grootwater 176KQ**

Comment: None

*Response: Landowner not affected by the proposed Route Alternative 4.*



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**JJ van Heerden, Grootwater 176KQ Ptn 2; Kafferfontein 180KQ; Welgevonden 180KQ**

Comment:

This is rented property that will be impacted on by the Route Alternative 2. The main activity is hunting and the power line will adversely affect this property.

Response:

*Subsequent to the open day Route Alternative 3 and 4 were proposed of which Route Alternative 4 is the preferred option. This property is not affected.*

**CL Pienaar, Kafferfontein 180KQ Ptn 1 and 2**

Comment:

Borehole etc. to be adversely affected. Route alternative 2 preferred.

Response:

*Subsequent to the open day, Route Alternative 3 and 4 were proposed of which Route Alternative 4 is the preferred option. This landowner is not affected by the proposed route.*

**JJ Nel, Grootwater 176KQ**

Comment:

Line should not impact on boreholes; any damage to areas cleared should be repaired and revegetated.

Response:

*Mitigation measures as the above are stipulated in the EMPr. Subsequent to the open day, Route Alternatives 3 and 4 were proposed of which Route Alternative 4 is the preferred option. This landowner is not affected.*

**Stoffel Snyman/ Leon Jacobs, Jacobshoogte (Consolidated from Brakfontein 15KR ptns 3,4 and Dwarsfontein10KR ptns 1)**

Comment:

It is recommended that the new power line be constructed adjacent to an existing line to the south of the dirt road between Dorset substation and Visgat.

Response:

*Route Alternative 4 is proposed to follow the above recommended alignment.*

**GJP Buys, Visgat 64KR**

It is recommended that the new power line be constructed adjacent to an existing line on the dirt road from Dorset substation towards Visgat.

Response:

*Route Alternative 4 is proposed to follow the above recommended alignment.*

**1.1.4 Written Comment received**

(Refer to Appendix E7 for copies of the comment)

**Man and Maya Oosterhoff: Leopard Leap Lodge, Donkerhoek 615LQ**

Comment:

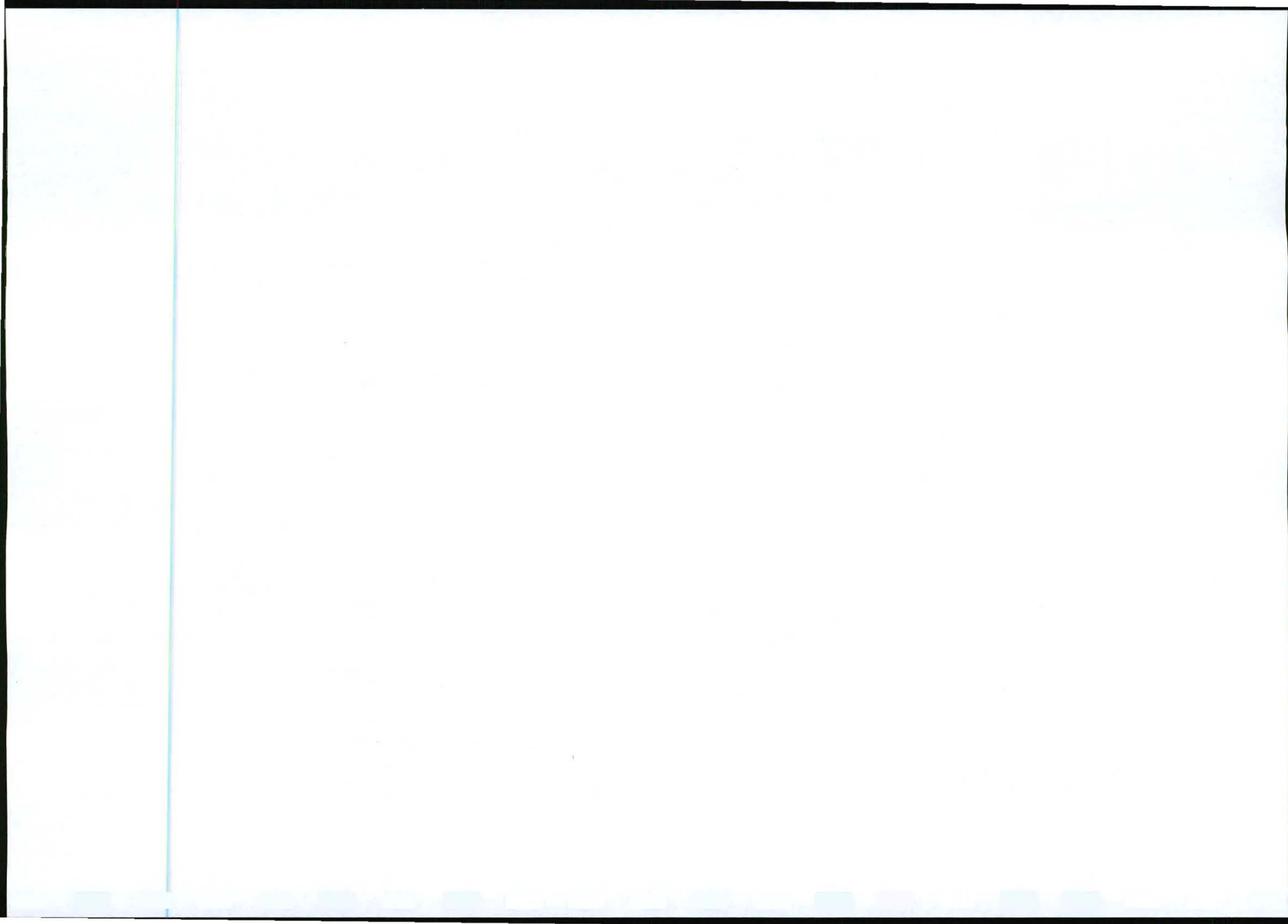
The necessity of the project is not disputed, but they urge Eskom to implement the project with the lowest possible impact on the still unspoiled and pristine Waterberg Area along existing roads and/or other existing infrastructure.

Also to take an upgrade of the existing lines into consideration to avoid new construction works that will affect the bushveld.

Response:

*The existing infrastructure could not be upgraded to provide the needed supply. The design of the Route Alternatives took all environmental aspects into account. Refer to the specialist reports done on the status of the fauna and flora, the impact on birds as well as the status of heritage.*





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### **Waterberg Nature Conservancy**

Comment:

The Waterberg Nature Conservancy is a voluntary organisation of (mainly) landowners in the Waterberg who share an interest in conservation issues. It is not a geographic entity, although its 65 members (including Welgevonden and Lapalala) own a total of over 160 000 ha on the Waterberg Plateau and employ about a thousand people.

Response:

*The EAP took note that the project might affect members of the Waterberg Nature Conservancy. The Conservancy is included as stakeholder in the public participation process.*

### **Eskom Transmission: Land Management**

Comment:

Eskom Transmission informs that an Eskom Transmission (Tx) vacant servitude is affected by the proposed project. Eskom Tx will raise no objection to the proposed EIA provided that Eskom Tx's rights and services are acknowledged and respected at all times. Before any construction work commences in the vicinity of Eskom Tx's services, a formal application must be submitted to Eskom Tx.

Response:

*Noted. Comment forwarded to Eskom Distribution for their implementation.*

### **Department of Roads and Transport: Environment**

Comment:

The Department requested to be notified of public meetings. Should any road under their jurisdiction be crossed then the Roads Agency Limpopo (RAL) should be contacted to establish their requirements.

Response:

*The department is on the Register of IAPs and as such notified of all actions regarding public participation. In addition RAL has been notified of the project. The National Road P198/1 (R33), and the Provincial Roads P84/1 (R517); and other roads D1882; D1005; and D1162 are affected by the proposed route servitudes.*

*It is expected that Eskom Land and Rights will apply for exemption from some of the requirements. The specific requirements from RAL should be obtained.*

### **Limpopo Department of Economic Development, Environment and Tourism: Environmental Impact Management**

Comment:

The Provincial Department acknowledges receipt of a copy of the application that is submitted to DEA (Dept of Environmental Affairs). Comments will be provided after the submission of the draft Basic Assessment Report.

Response:

*Noted.*

### **Adam Gunn: Mogolriver Game Farm (Pty) Ltd/ Mokolo River Nature Reserve**

Comment:

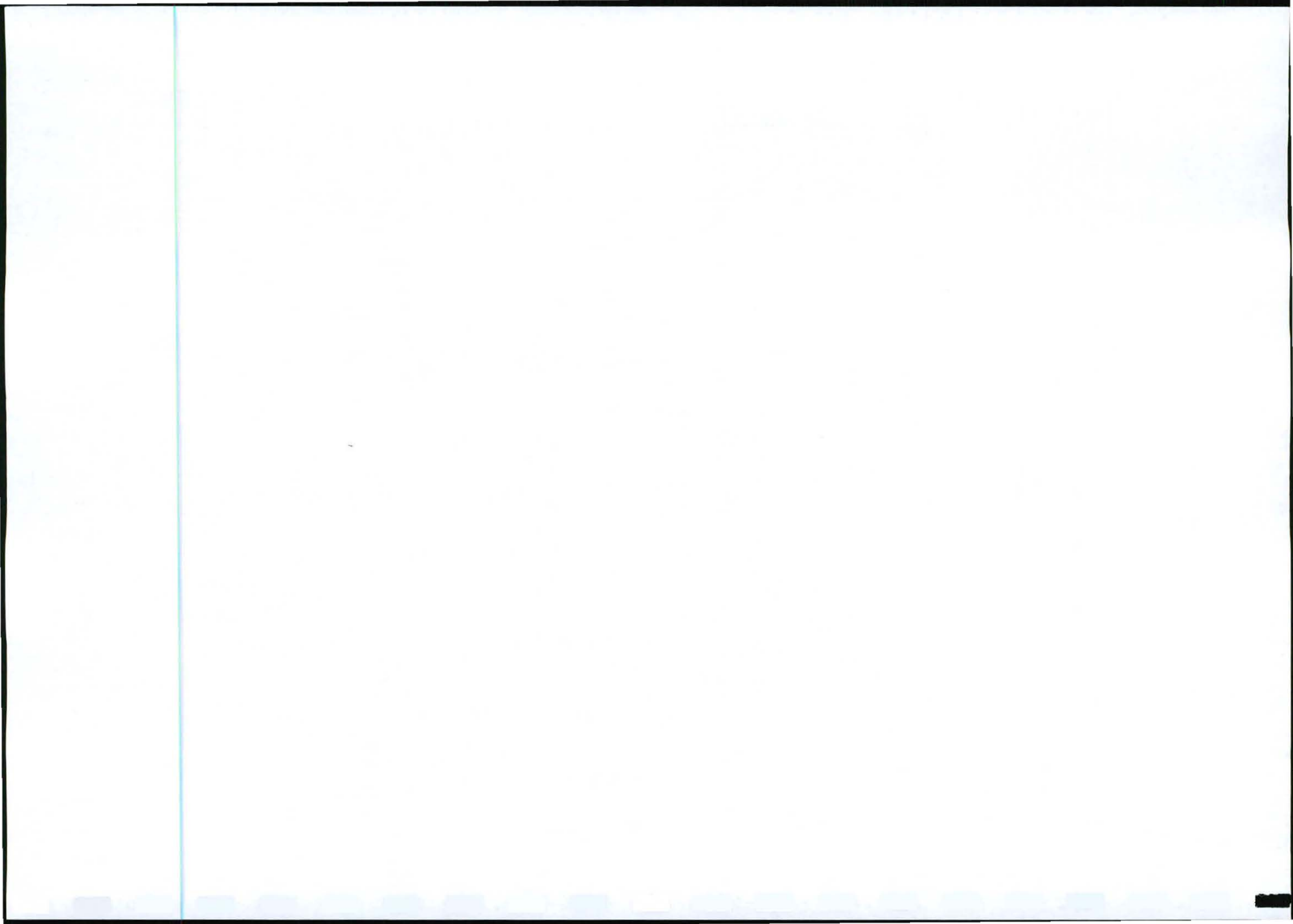
Mr Gunn requests more information and maps for the proposed projects. According to him the logical route of least environmental impact is along existing infrastructure (roads and electricity lines) and away from sensitive areas and ecosystems such as rivers.

Response:

*Maps were provided to Mr Gunn. Route Alternatives 1 and 2 were proposed to run mostly along roads. Upon further investigation these routes impacted significantly on landowners for certain sections of the routes. Subsequently, Route Alternatives 3 and 4 were proposed as a result of discussions with landowners in the project area. It was recommended to run the line mostly on the chosen roads, but to deviate along farm borders for a few sections of the route.*

Subsequent comment:

Mr Gunn confirmed that the "preferred alternative" (options 3 and 4) should not go through Mokolo River Nature Reserve (that is adjacent to the Bulge rivier substation site to the northern side of the R517). Mokolo River Nature Reserve is a sensitive area and one which is in the final stages of being declared as a NEMPA protected area. In addition, options 1 and 2 follow the principle of placing the lines along the route of least environmental impact ie: next to the road and following existing infrastructure. Options 1 and 2 must therefore be the best options from an



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environmental perspective.

*Response: The team responsible for this EIA had a meeting with the directors of Mokolo River Nature Reserve on site and agreed on a more sensitive alignment for the power line. This is reflected in the alignment of Route Alternative 4 traversing on the borders of the Mokolo River Nature Reserve. They confirmed their requirements with the negotiator for the project.*

**Michiel & Issabella Van Baalen- Kerklaan, Ama Amanzi Game Lodge (Pty) Ltd, Goudfontein 171KQ RE**

Comment:

The owners officially protested against the line as proposed by Route Alternative 1.

*Response:*

*Noted.*

**KP Van der Walt & AC Greyling, Ruimtevreug Boerdery Edms Bpk, Steenbokfontein 9KR Portions 1,3**

Comment:

Requested information on the servitude width and the compensation.

*Response:*

*Eskom Distribution compensates for a servitude of 31m wide. The servitude will be registered which provides Eskom with the rights to construct and maintain a power line on the applicable property. The applicable land is therefore not purchased. All normal activity on the farm/land can continue as usual. The power line will be approximately 19 m above ground level and is therefore "giraffe-friendly". Pylons will be placed approximately 18m from the road reserve- this will be confirmed during the negotiations with landowners.*

Subsequent comment:

The landowner objected to the placement of the power line on his property (portion 3) to the southern side of the road (near Visgat). He prefers the power line to the north of the road adjacent to the existing power line and road.

*Response:*

*The alignment is altered to run on the northern side of the road over portion 3. The specific circumstances will be discussed with the landowner on site and a sensitive and accommodating placement will be finalised with him.*

**LD Schmutz, Hannover 181KQ**

Comment:

Mr Schmutz farms with game and indicates that any future activities for eg the moving of fences should be planned not to result in a loss of game. He requests clarity regarding the portions of Hannover that are affected by the proposed route.

*Response:*

*The requirements of landowners (as above) should be stipulated in the option document that will be signed upon successful negotiations with the affected landowners. All comment/requirements received during the EIA will be submitted to the negotiator for the project.*

*Both sides of the Hermanusdoorns – Witfontein road (a corridor) are being investigated for the proposed power line from Bulge sub to Dorset sub. At the time of the compilation of the draft BAR, Alternative 4 is submitted as the final proposed route and is to the southern side of the road.*

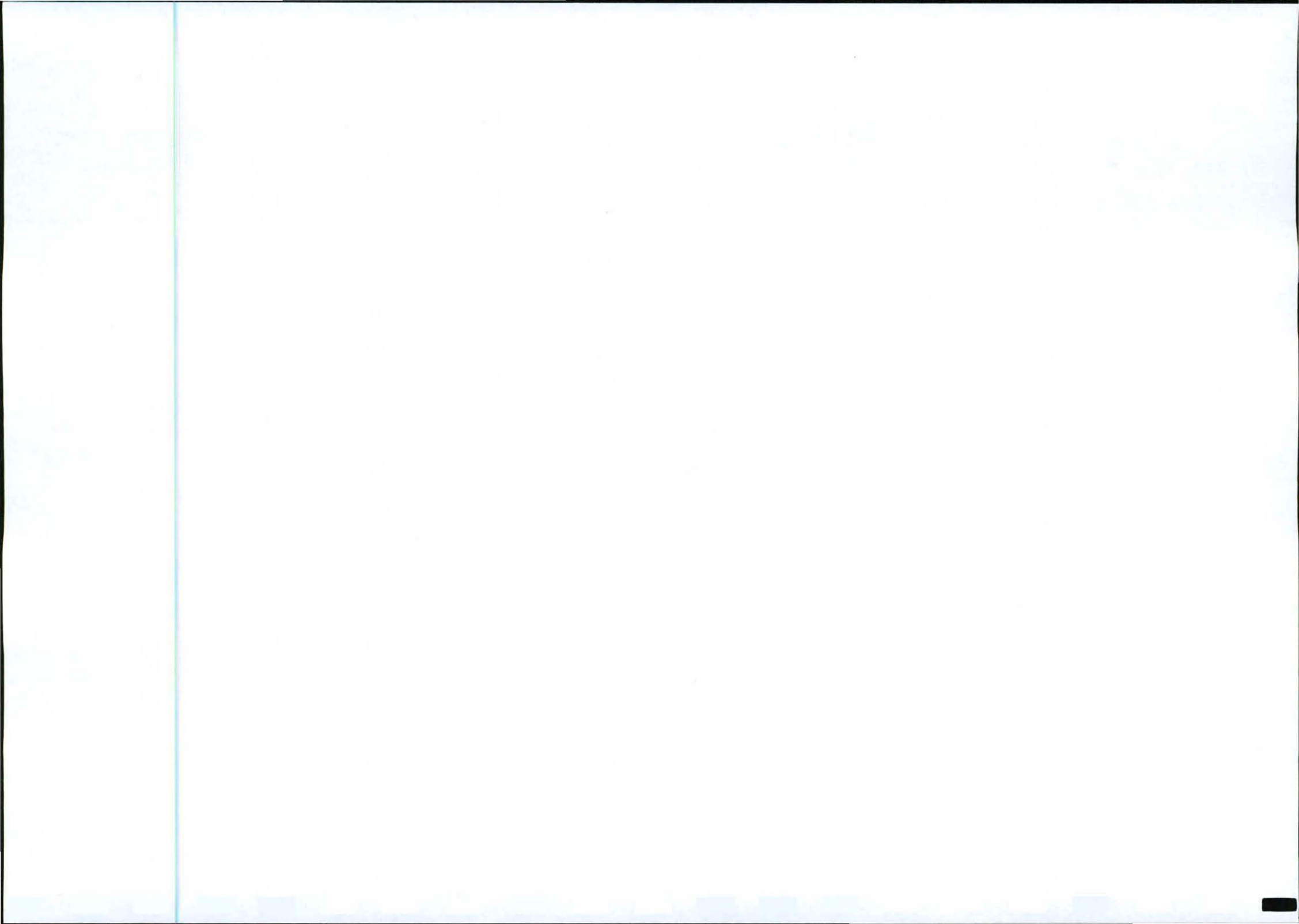
**Elana Greyling**

Comment:

1. When has the Bulge rivier sub been built? Who did the public participation?
2. Please confirm the alternative routes.
3. What is the attitude of the applicant to the fact that the project is within a protected area?
4. Is this project in any way connected to the solar project that is planned in this area?
5. Where were the notifications posted?

*Reply:*

1. *The construction of the Bulge rivier substation has been authorised by the Department of Environmental Affairs, but has not been constructed yet. The details thereto can be obtained from the Department or from Eskom Distribution Northern Region (the applicant).*
2. *At the time of the above comment, two alternatives were proposed and investigated. In line with feedback from landowners and IAPs, another 2 alternatives were investigated.*



3. *The construction of the project is needed to strengthen the electricity network in the broader area. Outages in the network occur due to the fact that feeders exceed the maximum length. It is therefore of cardinal importance to split some of the rural lines to prevent outages. A need has been identified to strengthen several reticulation feeders between Vaalwater and Ellisras. The applicant is aware of the fact that the proposed project is within the Waterberg Biosphere Reserve. The EIA investigated the Eskom power line project taking the zonation of the Waterberg Biosphere Reserve into consideration. The route alternatives were designed to limit impact to the Waterberg Biosphere Reserve. The majority of the proposed project falls in Transition Zone 2 where infrastructure could be allowed. In fact, as mentioned, to limit impact to the WBR, approximately 50% of the proposed power line route runs on the border of the Transitional Zone of the Waterberg Biosphere Reserve.*
4. *This EIA project is not directly connected to the solar project. Independent power producers are in contact with Eskom to supply the grid.*
5. *On 2 December 2010 the onsite-notice were placed at several locations in the project area. A notification was placed in the newspaper on 10 November 2010. Letters of notification were posted, emailed and faxed on 5 November 2010. Invitations to the public information day were submitted on 10 February 2011 to all the IAPs and landowners. On 26 June 2011 a letter (with maps of the routes) was submitted to all affected landowners to confirm the routes with them and request comment thereto. In addition to the above mentioned, one-on-one discussions are being conducted with landowners to establish their requirements.*

**Daan Erasmus, Councillor (ANC) Lephalale Municipality**

Comment:

Mr. Erasmus is the owner of Manamane 201 KQ and objects that a servitude, that is in existence for 40 years, is not being used for the new power line. He is of the opinion that these landowners had 40 years to plan their activities around this servitude and now a new servitude is being proposed. This new servitude will be detrimental to landowners.

Response:

*According to information received from the applicant, the "servitude" that is being referred to has not been authorised. Organised Agriculture has objected to this route. The mentioned servitude is from Warmbaths to Ellisras and is not feasible for this current EIA project that investigates a connection between Bulge rivier sub and Dorset sub.*

**Department of Rural Development and Land Reform: Land Claims Commissioner Limpopo**

Comment:

The Department responded that there is a restitution land claim lodged on the properties of Bulge rivier 198KQ Ptns 2,16; Bergsig 202KQ Ptn 4; Hermanusdoorns 600KQ Ptns 1; Hermanusdoorns 205KQ Ptn 0; Hermanusdoorns 204KQ Ptn 5 and no information is available on the other affected properties.

Response:

*Noted.*

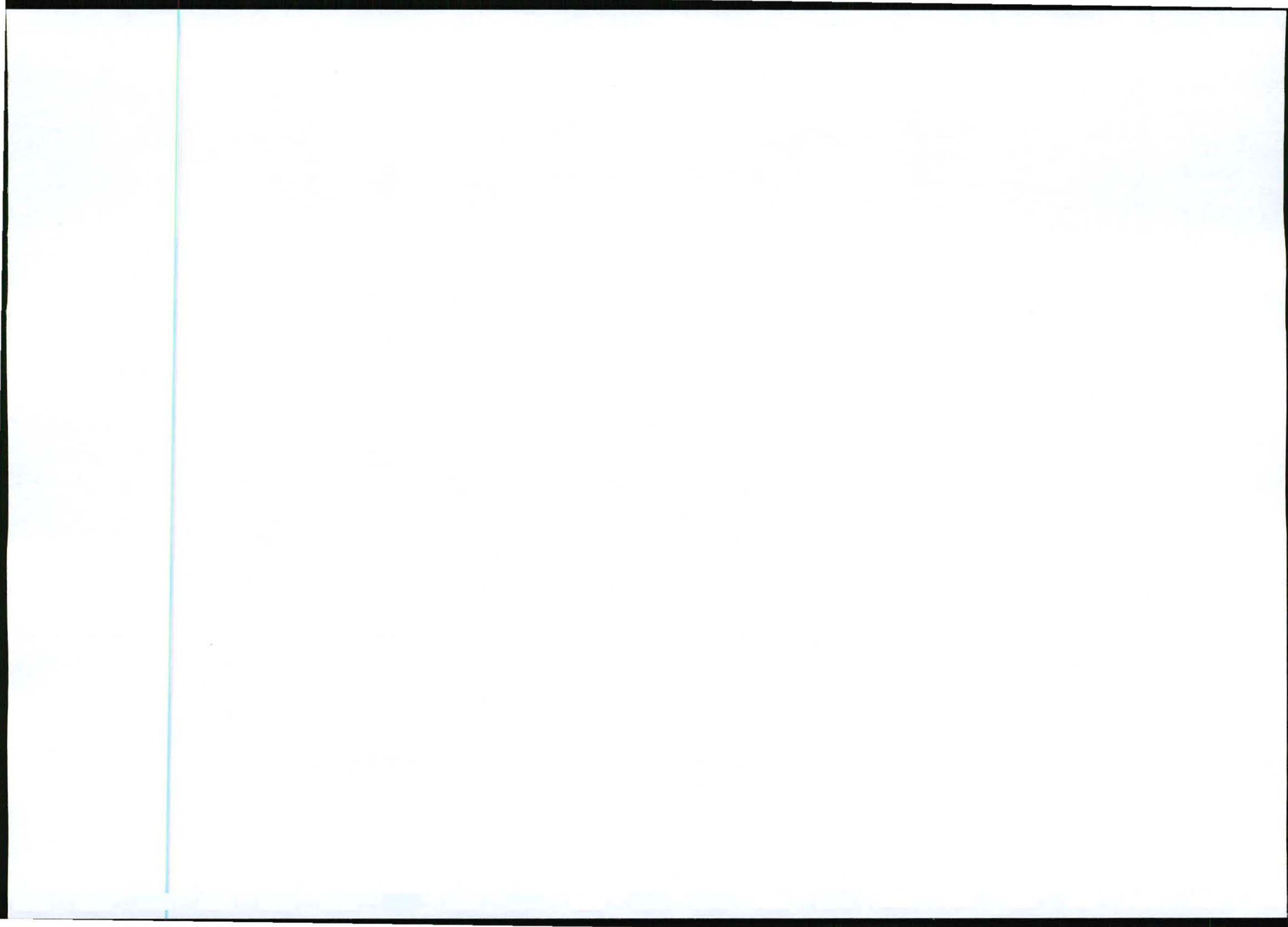
*Eskom will need to obtain a servitude of 31 meters wide to construct the power line. The power line will be constructed on the centre line of the servitude. Servitude rights for a servitude in general terms will be obtained by means of an "Option to Acquire a Servitude". This implicates that a servitude will be registered which provides Eskom with the rights to construct a power line and maintain the line over the applicable property. Compensation is paid to the land owner for the servitude rights and payment for the servitude will be made upon registration of the servitude. The property in question (servitude) will therefore not be purchased and the registered owner will receive compensation for the use of the servitude. A thorough public participation process and negotiations with affected land owners are in process.*

**Chris Allanson, Hermanusdoorns 204KQ Portions 4&5**

Comment:

Concerns

1. Aesthetically, the line will be extremely ugly
2. Destruction of protected indigenous trees i.e. Tamboti
3. Question the need for +- 18m pylons rather than say 10 high
4. Question the safety of wild game with the 7 or 8 stay wires required for each pylon
5. Question why the proposed line will cross to the East side of the Witfontein road at Hermanusdoorns and then cross back West at Grootwater. Favouritism to certain landowners?



- 
6. The gravel road will deteriorate during the construction period
  7. Concern over possible veld fires started by construction gangs – cooking & smoking

#### Recommendations

1. Reduce the height of the intended pylons
2. Protected trees should be “topped” rather than destroyed
3. Where passing through game areas the entire line should be fenced off and that portion of land should be purchased by Eskom
4. Maintain the position to the West side of the Witfontein road rather than crossing the road twice
5. The gravel road must be properly maintained during the construction period and handed over in a good condition on completion
6. Ban on-site cooking and smoking during the construction period

#### Response:

1. *It is proposed to use a single steel pole to substantially limit the visual impact of the line. The design of the power line has to adhere to strict safety measures. The pylons for a power line are between 18 to 30 meters high, depending on the terrain and existing land use. The flatter the terrain, the shorter the pylons to be used. The conductor attachment height on a pole is 13m (for 20m intermediate poles) and more for longer poles, depending on the pole length. Ground clearances will adhere to OSH-Requirements of 6.3m and 7.5m. The line will have to be approximately 19 m above ground level to be “giraffe-friendly”. Where the site is relatively flat, single pylons without stays will be used, except for where the power line has to change direction. Stays will not be used except at turns in the route. Should stays be needed then the stays will be at a 45° angle to the pylon and planted 21meters from the pylon into the ground.*
2. *Mitigation measures to limit impact to natural habitat and in specific protected habitat is included in the EMPr and discussed in the section on the expected impacts of the project. The procedures for vegetation clearance and maintenance within servitudes, as prescribed by Eskom, must be implemented. Selective bush clearing must take place, i.e. indigenous vegetation, which does not interfere with the safe operation of the structure, should be left undisturbed. In addition, various species of indigenous trees and bush are protected by law in terms of the National Forests Act No 84 of 1998, which stipulates that it is necessary to obtain a permit from the relevant provincial office of the Department of Agriculture, Forestry and Fisheries in order to cut them.*
3. *Game farms, nature reserves, and other reserves managed by the state brings about new challenges to Eskom Holdings such as restriction of access, safety of Eskom staff and of the game, and the interaction of game and electrical infrastructure. Mitigation measures to limit impact to game farms etc are proposed in the EMPr and in this report. Any specific requirements regarding access, should be negotiated with Eskom.*
4. *Eskom relies on the goodwill of landowners and interested and affected parties to obtain servitudes for power lines. Hence, landowners are consulted during the construction of new power lines. Ultimately, the final decision between the Route alternatives should be made on the accumulative weight of all parameters such as feedback from public participation, land tenure issues, construction costs, ecological sensitivity etc.*
5. *Mitigation measures to limit erosion are included in this report and in the EMPr. Landowners should in addition identify their specific requirements to be included in the option document that stipulates their conditions for agreement to the servitude.*
6. *Fire protection standards are included in the EMPr.*

#### **Michiel & Issabella Van Baalen- Kerklaan, Ama Amanzi Game Lodge (PTY) LTD, Goudfontein KQ171 Re**

##### **Comment:**

They strongly protest, to alternative 1 (and 3), as the line will be along the entire left side (from N to S) of their farm and therefore have an extreme negative impact on their businesses and the value of the farm. The line will make a big part of their farm useless, since the farm is narrow and they are developing the farm into a game lodge. They market mainly to international tourists and they do not expect power lines in the bush.

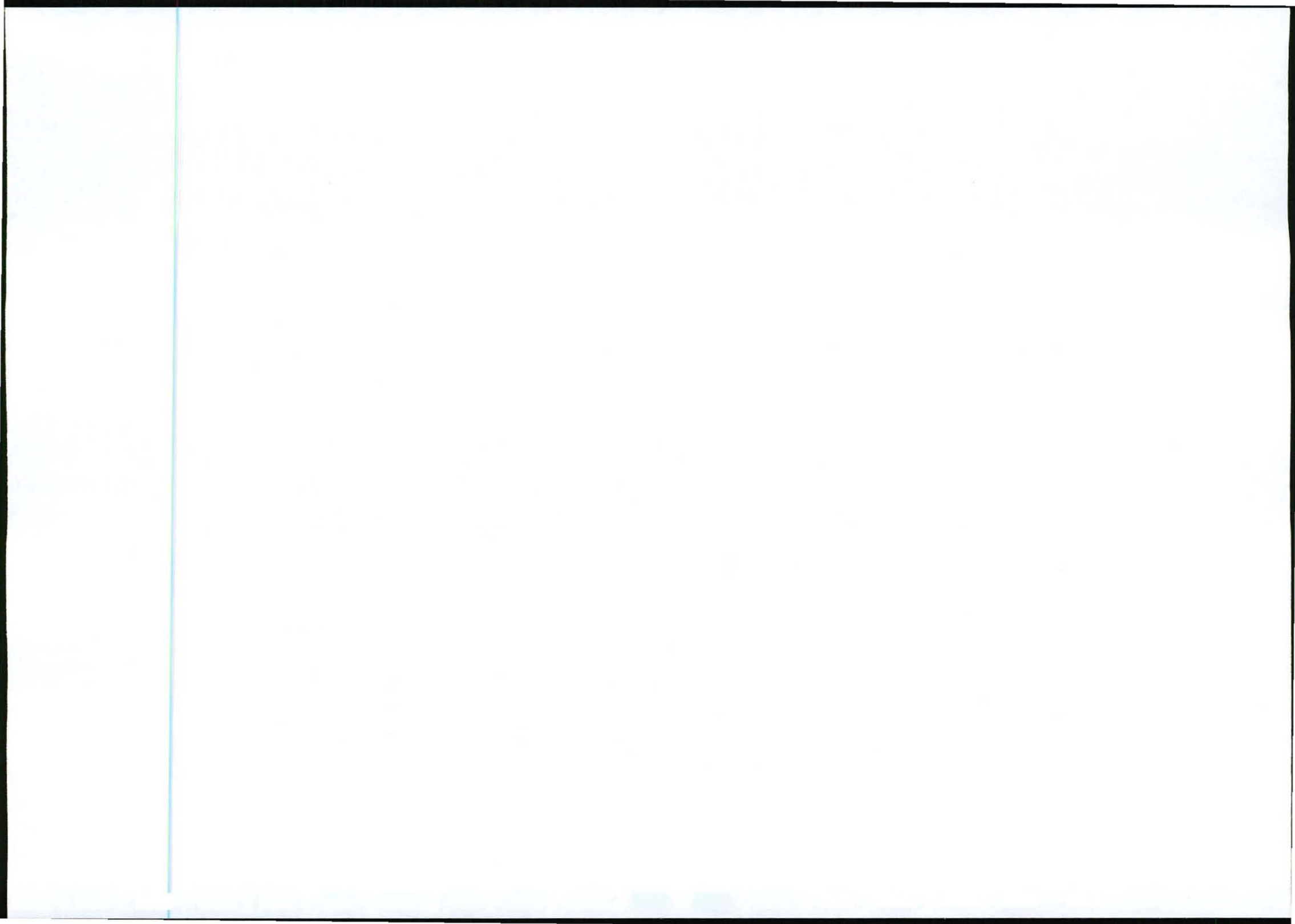
Furthermore it will impact their other business, as they grow cucumbers and green peppers which they comment will grow significantly less underneath the power line. They are worried about the health risks, since it is proven in studies all over the world, that it is very unhealthy to live underneath a power line.

As the line will have a big negative influence on the revenue of the lodge and vegetables, it will also have an impact on employability in the area as they will not be able to employ more people.

##### **Questions:**

1. Which type of pole will be used?





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2. How high is the voltage of the lines?
  3. How far is the magnetic field extending?
  4. Is there an alternative route to the 2 existing ones possible?
  5. When is the final route determined?
  6. Is the landowner compensated for the land which is used and how much?
  7. What are the known health risks of living and farming in proximity to a power line?

Response:

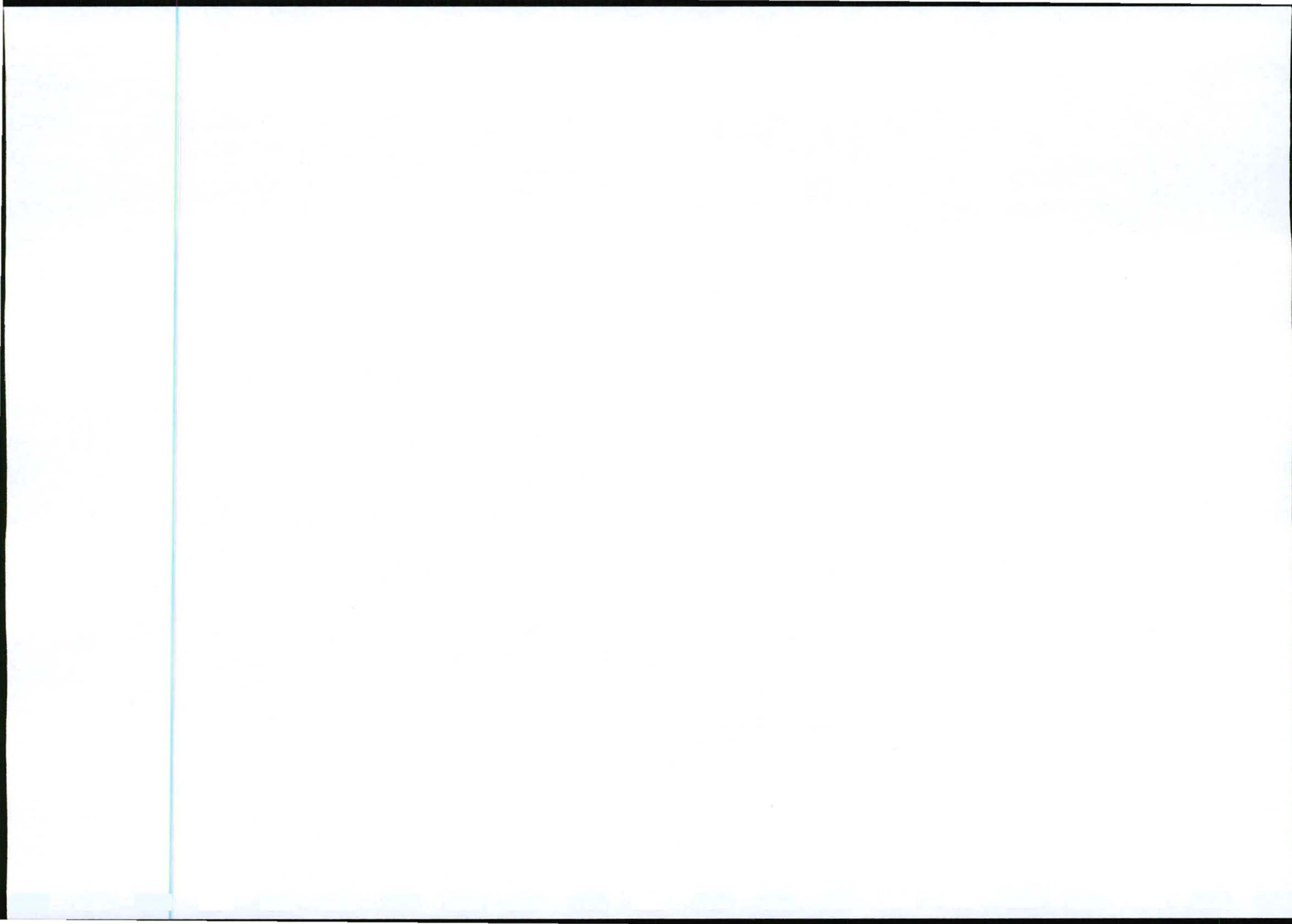
1. *A monopole steel structure*
2. *The line is a 132kV power line*
3. *Response to 3 and 7:*
  - *There has been several debates about the biological effects of exposure to electric and magnetic fields (EMF) and their possible detrimental effects on human and animal health. However, after more than 20 years of research, it has not been conclusively demonstrated that any such detrimental effects exist.*
  - *It is widely agreed by responsible experts that research should continue and in 1990 a National EMF forum, linked to the International EMF Research Coordinators Group, was established, with Eskom as a member. Activities in South Africa, particularly exposure guidelines, are now monitored by a Working Group of the South African Forum for Radiation Protection.*
  - *Electric fields of the intensity encountered close to transmission power lines, cannot damage crops. Studies on the effects of EMF on farm animals have also concluded that they have no influence on the reproduction, meat, milk and egg production or the development of their offspring.*
  - *Some of the epidemiological studies in children with leukemia have suggested that there may be an association between some types of cancer in children living close to transmission power lines. Further, it has not so far been possible to prove conclusively that magnetic fields can cause cancer or promote cancer growth.*
  - *In 1998, a working group of experts gathered by the EMF RAPID Program met to review the research that has been done on the possible health risks associated with EMF. This group reviewed all of the studies that have been done on the subject, and then voted on whether they believed that exposure to EMF might be a health risk. A majority of the scientists on this working group voted that the epidemiology studies of childhood leukemia provide enough evidence to classify EMF as a "possible human carcinogen". Other products also classified as possible carcinogens by the same group, are coffee and saccharin.*
  - *In the Northern Cape Eskom has constructed nests for vultures above the 400kV structures and clear of the dangerous hardware. The vultures took up their new nests and managed to breed successfully with no biophysical harm to their hatchlings. The nests are approximately 1 metres from the hardware of the transmission power lines.*
  - *The above studies indicate that transmission lines with high voltages will not impact negatively on human or animal health. In summary, there is no evidence that distribution power lines with voltages of 132kV and lower will impact negatively on human or animal health. For this project, lines of 132kV will be constructed. A distribution power line will never be closer than 15,5 metres from the nearest structure. In addition, according to current knowledge, no harmful effects will result from living next to mini-substations/substations.*
4. *Two additional routes have been investigated. The final proposed route is alternative 4 that will impact on the northern border of Goudfontein KQ171 Re.*
5. *The final route is recommended in this draft BA report, but will ultimately be decided and authorised after submission of the final BAR to Dept of Environmental Affairs.*
6. *Refer to 1.2 Meeting with Agri Limpopo for response.*

Subsequent Comment:

They prefer option (alternative) 2 along the R33 national road as this option will have the least impact on their business. Thereafter, alternative 4 is the next preferred option that will have minor impact to their business.

Response:

*Alternative 2 (along the R33) will impact significantly on other landowners due to the required distance of powerlines from national roads. Alternatives 1,3 and 4 have less impact to this regard. Of these options, Alternative 4 has the least impact on this landowner and will impact for a short section on the northern border of his property. Eskom relies on the goodwill of landowners and interested and affected parties to obtain servitudes for powerlines. The landowners in the corridor of Alternative 4 have provided their conditional support for this route. None of the other alternatives received the same support and therefore it is the proposed option.*



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## Hermanusdoorns Shareblock Ltd, John Hill

### Comment:

Hemanusdoorns Shareblock Limited (Reg 91/06901/06), lodged an objection to the proposed Route Alternatives 1 and 2. They are the landowners of the farms Hermanusdoorns 650KQ RE ptn; Mana Mane 201KQ RE ptn 4; La Rive 592KQ. The shareblock consists of 100 shareholders with approximately 80 individual dwellings belonging to the individual shareholders built on the land.

The business of the company is the operation and maintenance of a game farm for the leisure of the shareholders.

The board wishes to object on the following preliminary grounds:

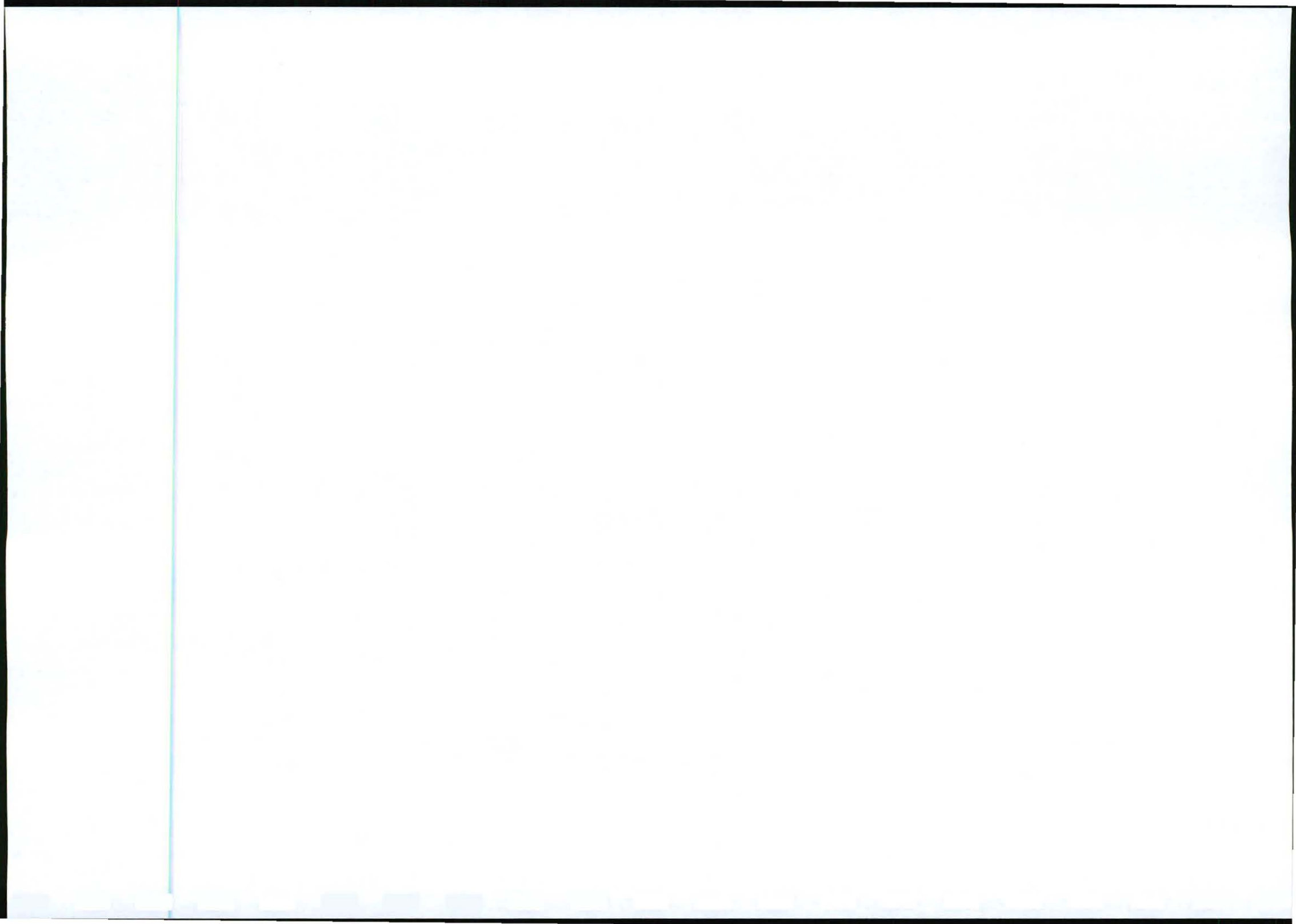
- Existing structures in the alignment
- Vegetation clearance in the servitude area will detract from the sense of place and destroy the wilderness experience and lead to a devaluation of current investments.
- Part of the Eskom veld-management practices include burning to control bush encroachment which might result in soot on the lines leading to supply interruptions.
- They utilize helicopters to assist in game capture exercises, the smooth operation of which would be hampered by a power line running through the area.
- Maintenance activities by Eskom on the servitude would increase the risk of poaching as well as security, further compounded by Broadband Infracore sharing the same servitude.
- The farm is a game farm and is thus part of a Sensitive Environmental Area within the Waterberg Biosphere Reserve with a concern that the clearing of vegetation below the power lines could cause damage to the vegetation or soil or lead to the introduction of alien invasive species together with negatively affecting the visual aesthetics and sense of place of the area.
- There are a number of Protected Trees listed under the National Forests Act 1998, ( Act No 84 of 1998 ) that occur directly in the area that the servitude and bush clearance area are currently planned viz *Sclerocarya birrea subsp. caffra* (Marula) and *Combretum imberbe* (Leadwood).
- In addition over 200 bird species have been recorded on the farm including pylon sensitive birds and vulnerable red data birds including some "Near Threatened" species, as well as "vulnerable" species.
- The South side of the R 517 contains a number of individual landowners (other than Hermanusdoorns Shareblock Limited ) who have dwellings potentially within the servitude area which would have to be demolished – Bulge Rivier Police Station, The Fold Childrens Home, farmhouse belonging to a citrus farmer etc. There are far fewer such dwellings on the Northern side of the R517, and there would then be no need for the powerline to cross the R517 twice as the location of the substation is in any case on the Northern side of the R517.

### Response:

*Hemanusdoorns Shareblock is at this point in time not affected by the proposed route, Alternative 4. Their comments are however noted.*

*With reference to comments on vegetation clearance and the impact thereof:*

- *Eskom Distribution does not make use of the practice to burn fire breaks, since this is not a legal requirement. Rather, it relies on the maintenance of vegetation in accordance to its Vegetation Management Standard to reduce the risk of fires starting from Eskom infrastructure.*
- *Eskom Distribution Division does not remove the grass below power lines since this does not pose a safety risk and will create the potential for erosion, causing environmental degradation and hence legal liability. It will furthermore be an economically unsustainable exercise for Eskom given the amount of power lines throughout South Africa.*
- *It is suggested that any existing servitude roads as well as existing roads must be used during construction and maintenance of the power lines.*
- *The procedures for vegetation clearance and maintenance within overhead power line servitudes and on Eskom owned land, updated September 2009 must be implemented. These procedures includes i.e. the following:*
  - *Where clearing for an access road is essential, the maximum width to be cleared is 8m.*
  - *Clearing for pylon positions must be the minimum required for the specific tower, not more than a 5m radius around the structure position.*
  - *Indigenous vegetation, which does not interfere with the safe operation of the power line, should be left undisturbed.*
- *In addition refer to the mitigation measures stipulated in this document to limit the impact of alien vegetation, visual impact; impact to natural habitat etc.*



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**Hermanusdoorns Shareblock Ltd**

**Marisa Bellini and Jennifer Rupert, Willie Kriel, AS du Plessis, Renske Hofmeyr, Wynand Mulder, Louisa Gericke, Steward and Jennifer Stephen, Mariette and Gabriel Stoltz, PA Groenewald, SJ Stols**

Comment: The above owners supplied comment in line with those received from the board of Hermanusdoorns Shareblock Ltd.

*Response: Hermanusdoorns Shareblock is not affected at this point in time by the proposed route, namely Alternative 4. Their comments are however noted.*

**Department of Agriculture, Forestry and Fisheries: Directorate Land Use and Soil Management**

Comment:

1. The proposed power line should follow the existing route as much as possible in order for farmers not to lose more of their land to non agricultural use.
2. Mitigation measures should be in place to control the anticipated soil erosion due to the proposed activities.
3. Control management plan for weeds and invader plants should be in place.
4. Sensitive areas such as wetlands should be observed and protected.

*Response:*

1. *The routes are designed to follow the corridors of existing impact. Route Alternative 1 and 2 were proposed directly adjacent to the roads. Route Alternatives 3 and 4 follow the same corridor of impact, with adjustments to accommodate the impact to activities (also agricultural activities) of landowners. Route Alternative 4 was proposed to run for certain sections directly along farm borders. This route will have no impact on agricultural activities and is preferred by the landowners.*
2. *Mitigation measures are proposed and stipulated in Section D:2 and Appendix F (the EMP).*
3. *Mitigation measures are proposed and stipulated in Section D:2 and Appendix F (the EMP).*
4. *Mitigation measures to protect sensitive areas are proposed and stipulated in Section D:2 and Appendix F (the EMP).*

**Malmanie Game Farm, Mr K Heiling**

Comment:

The owner objects to the proposed route crossing their property. They are to the southern side of the Vaalwater road (R517).

*Response:*

*The route (alternatives 3 and 4) are proposed to the northern side of the Vaalwater road and will not impact on this landowner. The EAP confirmed this with the landowner.*

**Dwarsfontein 51KR; Brakfontein 16KR**

The landowner is satisfied with the Route Alternative 4 on the southern side of the Visgat-Dorset road where it impacts on his property. They request to be further consulted with regards to the planning of the line.

*Response: Negotiations between the landowner and the negotiator will address site-specific requirements such as the positions of the pylons, on the property in question. Compensation for the use of the servitude will also be addressed. Alternative 4 is supported.*

**Ka'Ingo Private Game Reserve, Mr Nick Callichy**

**Welgevonden 186KQ Ptn 4**

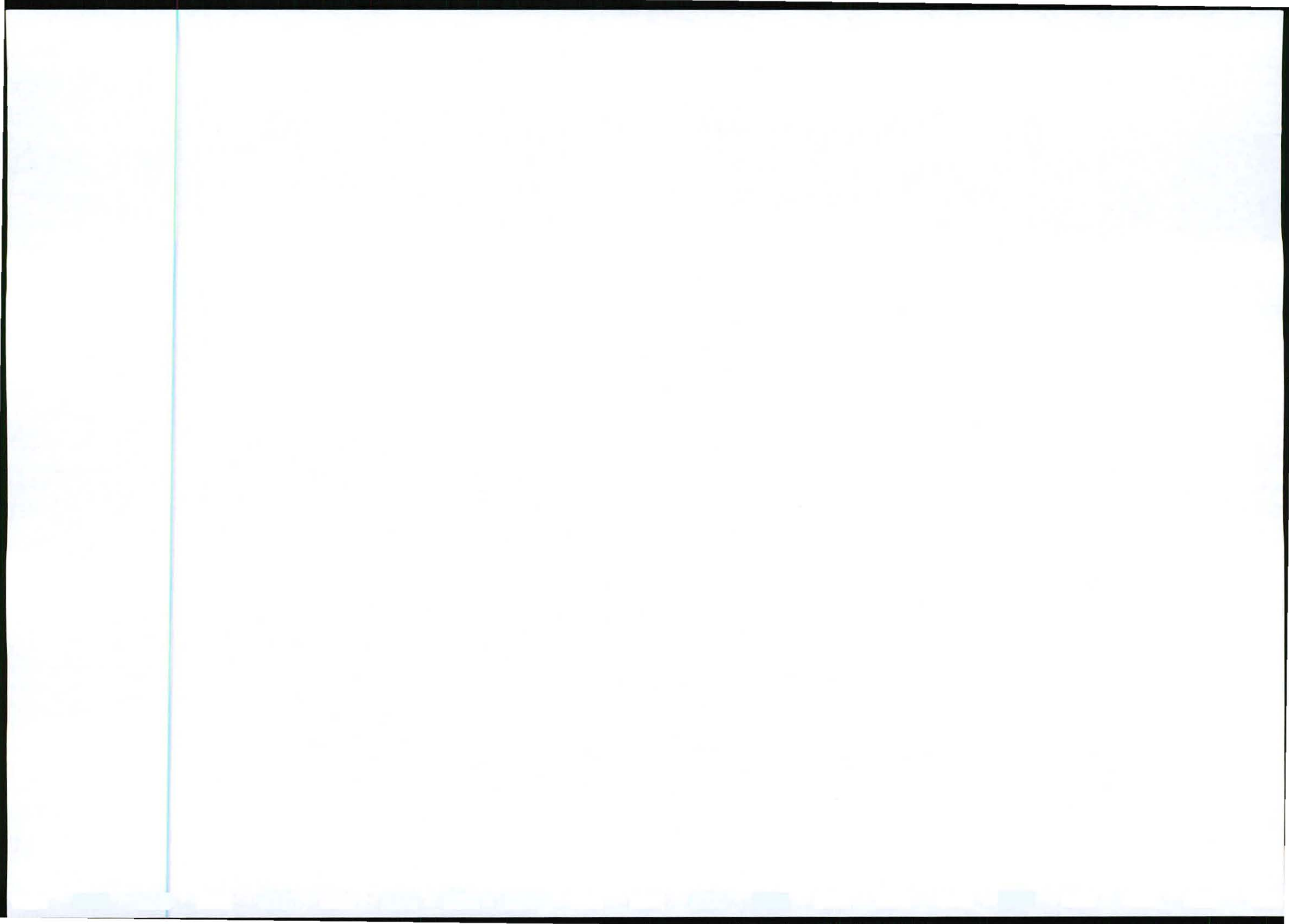
Comment:

They object to the power line route to run on the southern border of their property.

The proposed route inside the southern fence of Ka'Ingo's property will disturb a very sensitive area on Ka'Ingo's property and severely impact on the property owner's main and sole source of income. As such the proposed route goes against the general feedback that have already been received from the affected landowners.

The project will impact on:

- The main gate to the reserve and the lodge.
- Ka'Ingo's main business activity being game farming and tourism is entirely dependent on its guests being able to enjoy access to the natural fauna and flora in its undisturbed and natural form. Construction and maintenance of the power line will destroy the natural fauna and flora on the property.



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- Ka'Ingo is in process to be declared an official private nature reserve.
  - The adjacent neighbour owns property on both sides of the road and has in the past already indicated his willingness to accommodate the route on either side of the road.

*Response:*

*The ongoing public participation programme requested comments from all affected landowners. The feedback in general is that powerline routes should not traverse properties/ sensitive areas, but keep to disturbed corridors. The dirt road between Hermanusdoorns and Witrivier was identified as such.*

*The EIA team entered into discussions with the affected property owners for the total route and reached a situation at this point in time where 99% of the proposed route had been finalised. Mr van der Merwe (west of Ka'Ingo) is willing to accommodate the route on his property and similarly, Mr van Zyl (east of Ka'Ingo) is willing to accommodate the route. Subsequent to the above comment from Ka'Ingo the route was proposed to the southern side of the dirt road.*

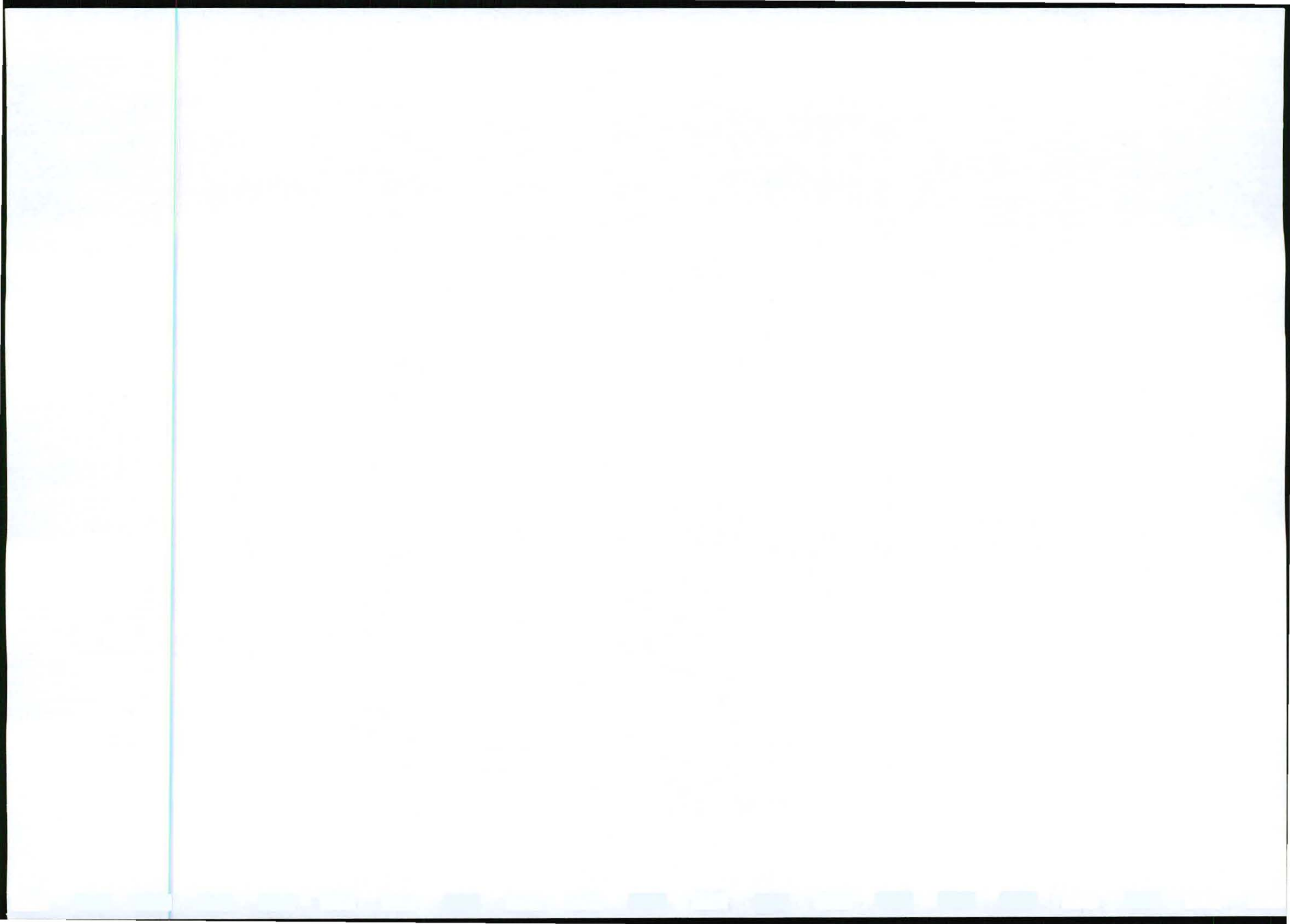
### **3 CONCLUSION OF PUBLIC PARTICIPATION PROGRAMME FOR THE DRAFT BASIC ASSESSMENT REPORT**

The Environmental Impact Assessment included a first phase Public Participation Process. The project was advertised with onsite notices, newspaper notices and notification letters to facilitate informed decision. In addition an information meeting was conducted to furnish the landowners and other interested parties with information regarding the extent of the project. The consultants endeavoured to facilitate a transparent and accommodating Public Participation Process.

A draft Basic Assessment Report - this document - was compiled with the main aim to identify issues, potential impacts and potential alternatives associated with this project. It includes proceedings of the PPP and communication with registered Interested & Affected Parties (IAPs). Notification of the availability thereof was sent to all IAPs on 29 May 2012 with the due date for comment on 10 July 2012.

Subsequently, a final Basic Assessment Report (BAR) will be compiled and forwarded to DEA by August 2012. This report will include all concerns raised to the draft BAR and responses thereto. The Consultants (EAP) will ensure that any concerns raised are addressed in appropriate detail in the subsequent final Basic Assessment Report.





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## 2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

### 2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

The potential impacts that are likely to occur as a result of the planning and design phase are described below. In addition the mitigation measures that may eliminate or reduce the potential impacts are provided:

#### **Impact on natural habitat**

This impact is associated with the potential for disruption of sensitive floral habitats and fauna populations. The planning regarding the route of the power line should take into account the ecological sensitivity of the site.

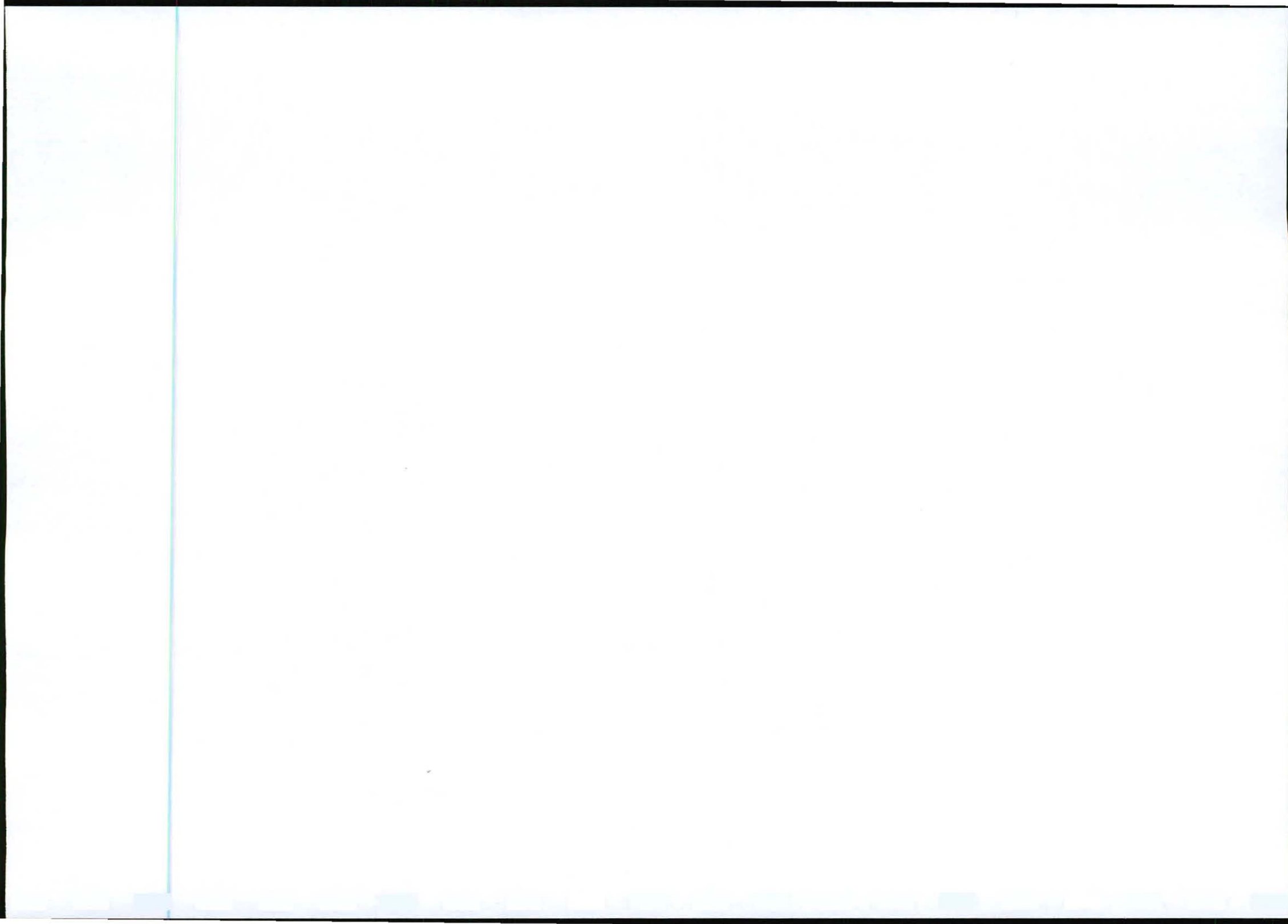
Relevant to the project is the following:

- The vegetation is fairly uniform and therefore for the greater part the vegetation of the study area is seen as moderately sensitive.
- Red data species and protected species found in the area include Camel thorn (*Acacia erioloba*), Leadwood (*Combretum imberbe*) and Marula (*Sclerocarya birrea* subsp. *caffra*).
- There are a few camel thorn (*Acacia erioloba*) trees growing just east of the Mokolo River on both sides of the sand road (D1882). Camel thorns are protected trees and this small grove should be viewed as a "No-Go" zone and totally avoided.
- No threatened or protected mammal, butterfly or amphibian species were observed in the study area, although some are most likely present. These include African rock python (*Python natalensis*), Giant bullfrog (*Pyxicephalus adspersus*), Honey badger (*Mellivora capensis*), Pangonlin (*Manis temmincki*) and Southern African hedgehog (*Atelerix frontalis*).
- There are a few areas of rockiness along the power line corridors, but these should not be confused with rocky outcrops (koppies) or rocky ridges. Notwithstanding, these rocky areas, although not highly sensitive, should still be viewed as sensitive and approached with care.
- Rivers and wetlands, along with their associated vegetation should all be viewed as sensitive. Two main rivers or streams fall within and/or cross the power line corridors. Namely, the Mokolo River and Poer se Loop. The proper implementation and management of mitigating measures are crucial. A number of drainage lines move across the power line corridors and also need to be avoided. No wetlands were found to be present in the study area.
- Floristic and faunal sensitivity calculations were done. A large percentage of the vegetation in the study area can be viewed as pristine. The vegetation is fairly uniform with no small ecosystems or islands of uniqueness being present.
- Floristic sensitivity calculations were as follows: Regional vegetation – medium (Go-Slow zone); Rivers – medium/high (Go-But zones); Rocky areas – medium/high (Go-But zone); Camel thorns – high (No-Go zone).
- Faunal sensitivity calculations were as follows: Regional vegetation – medium (Go-Slow zone); Rivers – medium/high (Go-But zones); Rocky areas – medium/high (Go-But zones); Camel thorns – medium (Go-Slow zone).
- The ecological sensitivity of the study area is determined by combining the sensitivity analyses of both the floral and faunal components with the following outcomes: Regional vegetation – medium (Go-Slow zone); Rivers – medium / high (Go-But zones); Rocky areas - medium/high (Go-But zone); and the area of Camel thorns – high (No-Go zone).
- A number of mitigating actions were recommended and the proper implementation and management of these will ensure that impacts are reduced and are kept to acceptable levels.

#### **Mitigation for impact on natural habitat**

Proper planning will limit the impact of the power lines on the natural habitat and therefore the following is proposed:

- Site specific measures in terms of ecology as identified by the ecologist, Johannes Maree (Tel 082 564 1211) must be included in the contract with the Contractor and implemented by the Contractor during the construction phase.



- The Mokolo River and Poer se Loop are seen as being sensitive. Pylons should not be placed closer than 30m from the edge of river banks or 10m from the edge of drainage lines.
- An ongoing management programme to mechanically control alien plant species that invade the disturbed soils around the newly erected pylons is recommended.
- The power line corridor should be inspected every year (before and after the summer rain season) for soil erosion and if found, to rehabilitate; to not use chemicals in the control of weeds; and to remove all left over construction materials, rubble etc. upon completion of the project.
- A small grove of Camel Thorns on both sides of the D1882 sand road in the vicinity of the Mokolo River should be viewed as a 'No-Go' zone. The route should be planned to avoid the groves. GPS coordinates taken from the road: S24°06.822'; E27°48.301'. Should there be impact on any of the camel thorns, then a permit is needed.
- In general only one application requesting one permit per power line corridor is necessary. All the protected trees, in this corridor, 2m and above, should be indicated on a map.
- The rocky regions should be viewed as sensitive although not as "No-Go" zones. It is recommended to use wide spacing of pylons in the rocky areas to limit the physical footprint on the actual ground.
- Assessment of impacts on the various distinctive ecological units in the study area (before and after) mitigating and management measures were deemed to be as follows: Regional vegetation – medium (before), low (after); Rivers – medium, bordering on high (before), low (after); Rocky areas – medium, bordering on high (before), low (after). No rating matrix is given for the small area of camel thorns or the Mokolo River simply because there are no possible mitigating measures to reduce the negative impact and the area must be seen as a "No-Go" zone.
- Having taken all aspects of the investigation into account the following line variant is recommended - **Alternative Route 4 (A-B<sub>1</sub>-C<sub>2</sub>-C<sub>1</sub>-D-H-F)**. However, between map points (C<sub>1</sub> – D) both sections of Alternative Routes 4 & 3 are equally ecologically acceptable and either may be used across this section. Refer to map in specialist report on the ecological environment.

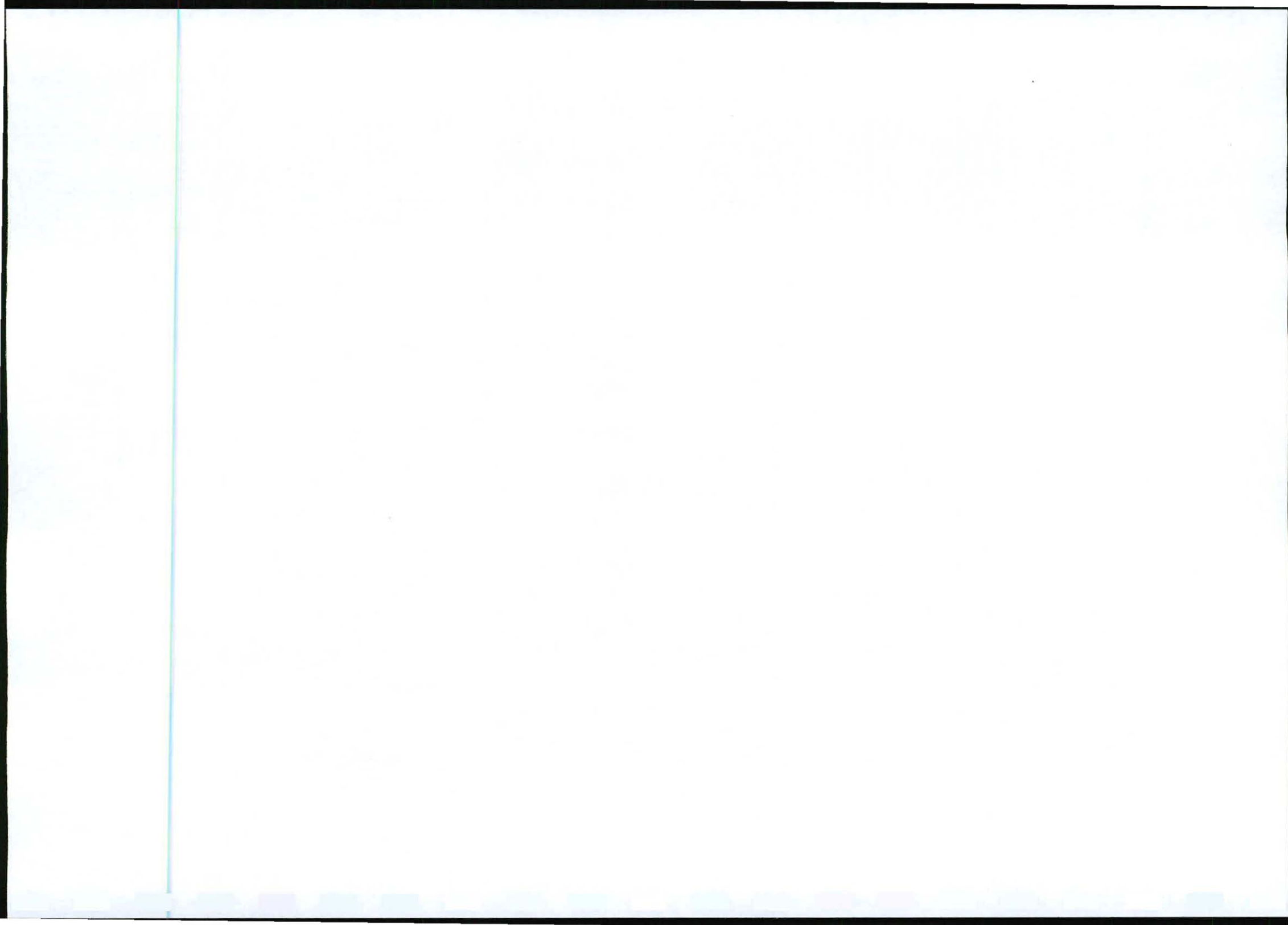
#### **Social Impact**

- The construction of new power lines could potentially impact on landowners if not planned and designed to accommodate the needs of the landowners.
- In addition, the possibility exists that a project might impact also upon residents who are not landowners. Land users or lands rights holders could farm on the portion of land affected by the proposed line or rent a house and not own it. The compensation for the servitude is always paid to the landowner and not to the land user.
- Any possible impact on landowners as well as land users should be identified and accommodated before construction of the route.
- The development on State land allocated to a tribe requires the consent of the Minister of the Department of Rural Development and Land Reform as nominal landowner of the land. In terms of the Interim Protection of Informal Land Rights Holders, 1996 (Act 31 of 1996), the Land Rights Holders must be consulted, must participate in the decision making process, and consent to the development in the form of a tribal resolution.

#### **Mitigation for Social Impact**

The route of power lines should be designed to accommodate the needs of landowners and landusers.

- The design for the power line route and the placement of structures should be accommodating to existing structures in the alignment of the route.
- Routes with evident visual disturbance caused by existing power lines or roads are in general more acceptable than traversing through pristine area.
- For the above reasons the Route alternatives 1 and 2 had been proposed adjacent to existing disturbance (e.g. from the Bulge Rivier sub along the existing provincial R517 road; then along the D1182 sand road; along the R33; along D1005; and D1162 sand roads). This route was not supported by some landowners partly due to the impact thereof on their activities and entrances.
- Subsequently Route Alternatives 3 and 4 were proposed to, for some sections of the route, follow an alignment away from the roads.
- During the course of the EIA, all affected landowners were identified and consulted with regarding the proposed project.
- Alternative 4 is proposed as the route with the least impact to landowners considering that it is mostly all along roads with its existing impact. The route deviates for small sections from the roads, due to landowner preferences.



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These deviations limit impact to their activities. All landowners indicated their agreement to the route or their willingness to enter into further negotiations.

- The properties in question (servitudes) will not be purchased and the registered owner will receive compensation for the use of the servitude. Further negotiations are taking place to confirm the details for the acquisition of the servitude and compensation therefore.
- A negotiator has been appointed by the applicant to consult with land owners/land rights holders. Further negotiations are taking place to confirm the details for the acquisition of the servitudes and compensation thereof. The negotiator will confirm the specific requests/requirements with each landowner. These will be stipulated in the final document, an option document. The option document is a binding document that reflects all the requirements of the landowner, for example: the exact positions of the pylons on the property; the negotiated compensation for the servitude; specific access arrangements to the property etc.

## **2.2 IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE**

The potential impacts that are likely to occur as a result of the construction phase are described below. In addition the mitigation measures that may eliminate or reduce the potential impacts are provided:

### **Risk of Surface and Groundwater Pollution**

- Hazardous materials and construction equipment will be stored at the campsite and used on site. The pollution of groundwater may result from spillages that may occur. In addition, the campsite may accommodate construction workers, in which case solid and liquid effluents will be produced, including sewage and domestic solid waste.
- Therefore diesel, oil and lubricant spills are the main concern in respect of water pollution during construction together with organic pollution caused by inadequately managed facilities at site camps and at the work sites. The above may result in a change in groundwater quality with the associated negative impact on humans and the natural habitat.
- A management plan must be in place to rehabilitate any such spills. Part of the management strategy must further include the proper storage and removal of any by-products and building rubble.
- Relevant to this project is the following:
- Two main rivers or streams fall within and/or cross the power line corridors. Namely, the Mokolo River and Poer se Loop. The proper implementation and management of mitigating measures are crucial.
- There are a few seasonal drainage routes that run across and through the servitudes. During the summer rainy season these are intermittently active. Due to the sandiness and drainage properties of the soils in the area, as well as the lack of high rainfall, there are no permanent or semi-permanent wetlands.
- The drainage routes (or lines) are not seen as being of any threat to the power line, but they should be kept in mind during construction and care should be taken to avoid them. Concrete foot supports should not be placed directly in or on the banks of these drainage furrows. Neither drainage nor erosion are seen to be significant threats as long as the proper mitigating measures are implemented. There were no signs of erosion along the investigated routes.

### **Mitigation of Surface and Groundwater Pollution**

#### **Construction camp**

- Encourage the construction contractor to employ local people as far as is reasonably practical and encourage the contractor to transport them daily to and from site. This will reduce solid and liquid waste production and water demand at the site camps.
- All construction activities and movement of people and machinery to remain within the designated power line corridor.
- Proper water facilities need to be installed and maintained for construction workers. No water from out of the rivers may be used for drinking, washing or cooking purposes.
- In all cases, abstraction of water for construction purposes will require a permit from the Department of Water Affairs unless pre-existing rights are purchased from farmers. For this project, water tanks will be provided at the construction site.
- Mixing of cement, concrete, paints, solvents, sealants and adhesive must be done in specified areas on concrete aprons or on protected plastic linings to contain spillage or overflows onto soil to avoid contamination of



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underground water. The use of pre-mixed cement is recommended. No concrete to be allowed to be mixed in the veld.

#### Diesel, hydraulic fluid and lubricants

- Minimize on-site storage of petroleum products;
- Build adequate structures (berms and containment structures) to contain any oil spills which might emanate from transformers;
- Bund storage tanks to 120% of capacity;
- Ensure proper maintenance procedures in place for vehicles and equipment.
- Servicing of vehicles to be in designated areas with appropriate spill management procedures in place;
- Ensure measures to contain spills readily available on site (spill kits).

#### Site camp domestic waste (kitchens, showers)

- Deposit solid waste in containers and dispose regularly at the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). Proof thereof to be kept by contractor.
- A copy of the service agreement, to verify the disposal sites that will be accepting the waste, should be submitted to the Dept of Water Affairs.
- Dispose of liquid waste (grey water) with sewerage.

#### Site camp sewage

- Minimize on-site accommodation.
- Only proper, certified portable chemical toilets to be used in campsites.
- Only certified, portable chemical ablution facilities to be used and these to be positioned only within the 31m power line servitudes.
- Only certified waste disposal companies to be used to regularly clean and empty portable toilets.
- Under no circumstances may any human waste (sewage) be discarded in the open veld. Not even buried.
- No ablution facilities allowed to be placed within 200m of the banks of any of the rivers or seasonal streams.
- No ablution facilities allowed to be within 200m of any drainage lines (even during times when they are dry)

#### Site camp inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc)

- Ensure compliance with stringent daily clean up requirements on site.
- Any waste that cannot be recycled will be transported to the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008).

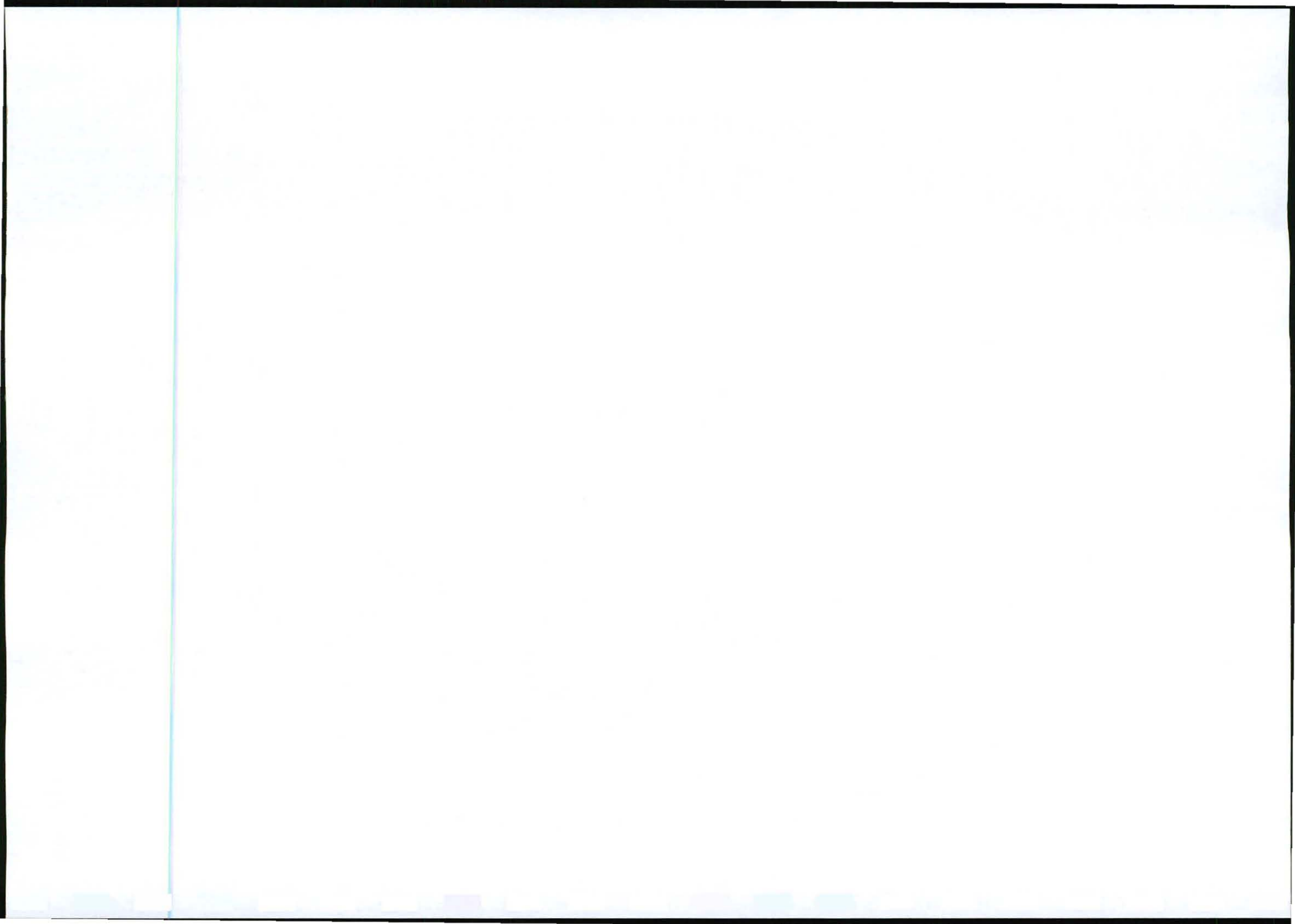
#### Rivers and drainage lines

- Rivers and drainage lines are always seen as sensitive and should be avoided at all cost. In this instance two major water courses (Mokolo River and Poer se Loop) along with a few seasonal streams and drainage lines cross the corridors for the power lines. These need to be completely avoided and no pylons may be placed directly within any one of these water courses.
- No temporary or other construction facilities to be erected or stored within 200m of the banks of the Mokolo River or the Poer se Loop stream.
- Positioning of any pylons need to be a minimum of 30m from the edge of the river banks or outside of the 1 in 100 year floodline.
- Positioning of the foundation slabs for the pylons must be a minimum of 10m away from the edge of all drainage lines.
- Under no circumstances may a pylon be placed directly in the bed of a river or drainage line.
- During and after construction, storm water control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. so that export of soil into the watercourse is avoided.

#### Impact of erosion

- Unnecessary clearing of vegetation can result in exposed soil prone to erosive conditions.
- Insufficient soil coverage after placing of topsoil, where large surface areas are applicable, could also cause erosion.
- To cause the loss of soil by erosion is an offence under the Soil Conservation Act (Act No 76 of 1969.)

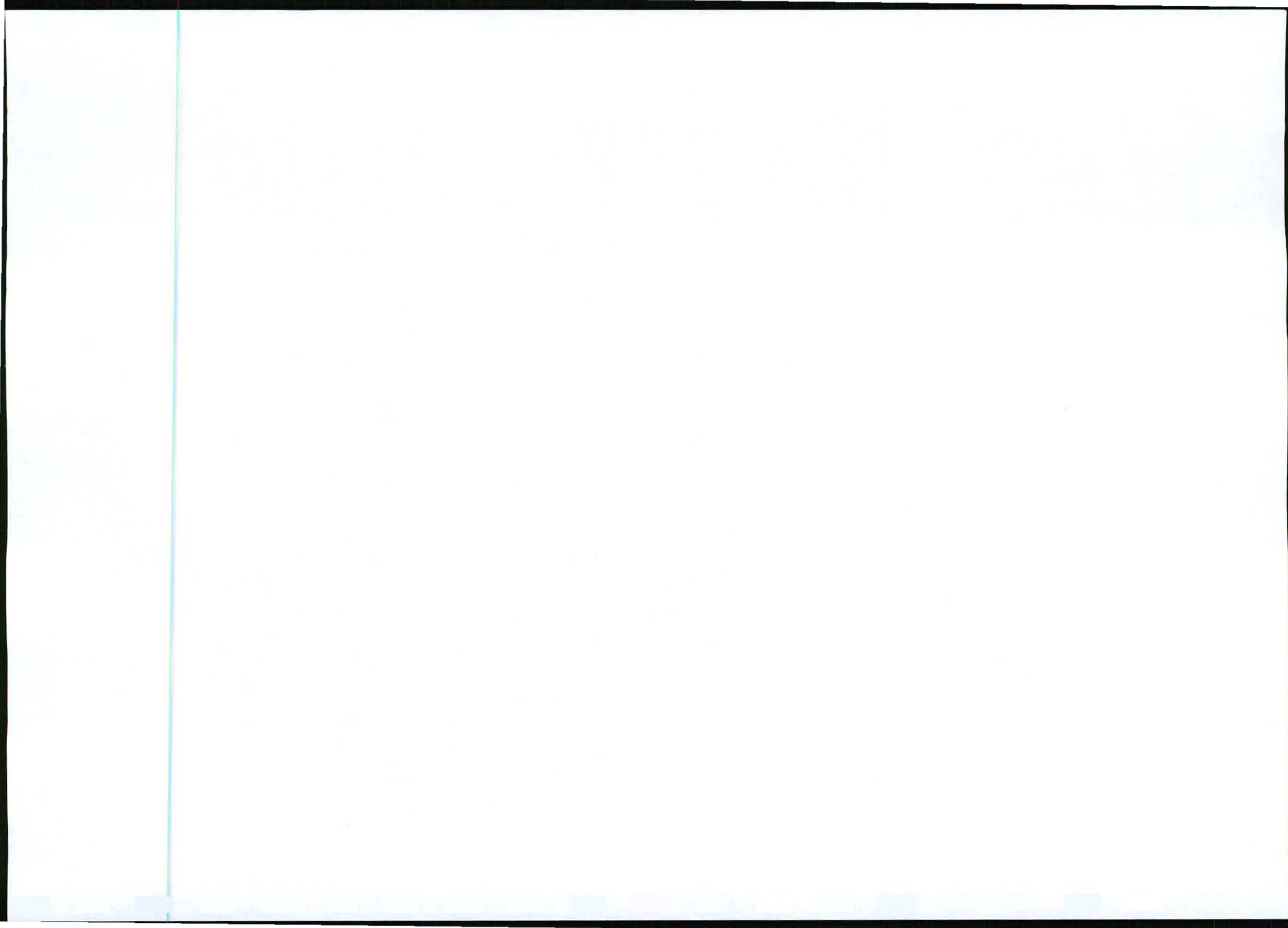




- The management of surface water runoff during construction is important to prevent soil erosion on the site. If construction takes place during the rainy season, sufficient storm water management will be required to manage water runoff.
- In summary, excavation of foundations for pylons, movement of vehicles and people and the run-off from cleared areas can cause erosion.

#### **Mitigation of Impact of erosion**

- The proposed alternative routes for the power line are dominated by relatively flat to low undulating plains of mixed bushveld. The general gradient along the corridors is low (typically 1-2%), with steeper gradients (3-4%) sometimes been encountered, such as in the vicinity of the Mokolo River.
- Neither drainage nor erosion are seen to be significant threats as long as the proper mitigating measures are implemented. There were no signs of erosion along the investigated routes.
- Construction activities should be well managed to prevent erosion and the following is relevant:
- Two major water courses (Mokolo River and Poer se Loop) along with a few seasonal streams and drainage lines cross the corridors for the power lines. These need to be completely avoided and no pylons may be placed directly within any one of these water courses. Mitigation measures as previously indicated are relevant:
  - No temporary or other construction facilities to be erected or stored within 200m of the banks of the Mokolo River or the Poer se Loop stream.
  - Positioning of any pylons need to be a minimum of 30m from the edge of the river banks or outside of the 1 in 100 year floodline.
  - Positioning of the foundation slabs for the pylons must be a minimum of 10m away from the edge of all drainage lines.
  - Under no circumstances may a pylon be placed directly in the bed of a river or drainage line.
  - Construction must be limited to drier periods.
- Due to the physical nature of the power lines, their impact will be minimal over the medium to long term. Tree and shrub growth directly below the lines will be cleared and kept permanently so. Clearing of this 8m wide strip has a massive impact on the flora directly within this corridor. However, due to the good condition of the veld and the low negative impacts in the immediate vicinity, the impact on the larger scale is minimal with regards to species destruction.
- Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided.
- No trees or existing grass strata outside of the power line corridor should be removed to lower any kinetic energy of potential run-off.
- Indigenous vegetation, which does not interfere with the safe operation of the substation/ power line, should be left undisturbed.
- Only a few areas of rockiness have been identified along the proposed servitude routes. These areas are considered moderately sensitive and should be approached with caution.
- These areas are not seen as "No-Go" areas, but care should still be taken to avoid any unnecessary disturbance of veld or soil. Removal of trees, shrubs and other vegetation should be kept strictly to within the 8m corridor under the power lines.
- Only a single, basic vehicle track to be constructed as an access road under pylons moving through the rocky area.
- Access roads need to be kept to an absolute minimum.
- No trees to be cut down or roads to be created to access the power line corridor from the public road by vehicle. Or to create shortcuts into this region. Any vehicles needing to access the power line running through the rocky area will need to do so from out of the less sensitive plains along the corridor itself.
- No temporary storage facilities, toilets, dwellings, etc. of any kind to take place within this rocky area. Not even within the demarcated power line corridor.
- The longest possible distance between pylons should be used in an effort to limit the footprint size on the rocky area.
- The power line must run as straight as possible through and over rocky areas. This in an effort to limit sharp turns that literally create a larger physical footprint on the ground.
- Great care and thought must be taken into the actual positioning and construction of the foundation slabs. The soils are sandy and this area has the steepest gradient of the study site. There is therefore a real danger of soil erosion and resulting veld degradation in this area.



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- The ground around all foundation slabs for the pylons need to be inspected before and after the summer rainy season for erosion. Any erosion found needs to be fixed and preventative measures put in place to prevent a reoccurrence of the situation.
  - Pro-active measures must be implemented to curb erosion and to rehabilitate eroded areas. All areas susceptible to erosion must be installed with temporary and permanent diversion channels and berms to prevent concentration of surface water and scouring of slopes and banks, thereby countering soil erosion.
  - Specifications (as identified in the Environmental Management Programme) for topsoil storage and replacement, to ensure sufficient soil coverage as soon as possible after construction activities, must be implemented.
  - All cleared areas must be ripped and rehabilitated after construction. The top 200mm layer of topsoil must be removed and stockpiled in heaps not higher than 2m and replaced on the construction areas once the activities have been completed. The affected areas should be replanted with a grass mixture indigenous to the area.

### **Solid Waste**

- It is expected that a certain amount of construction waste will be generated during construction.
- Expected waste could be unused steel, conductor cables, cement or concrete and general waste around the construction site (plastic, tins and paper), which may degrade the environment if not disposed in the correct manner.
- Solid waste might remain on site after the completion of construction. This can cause pollution to the environment and be detrimental to animals.

### **Mitigation of Solid waste**

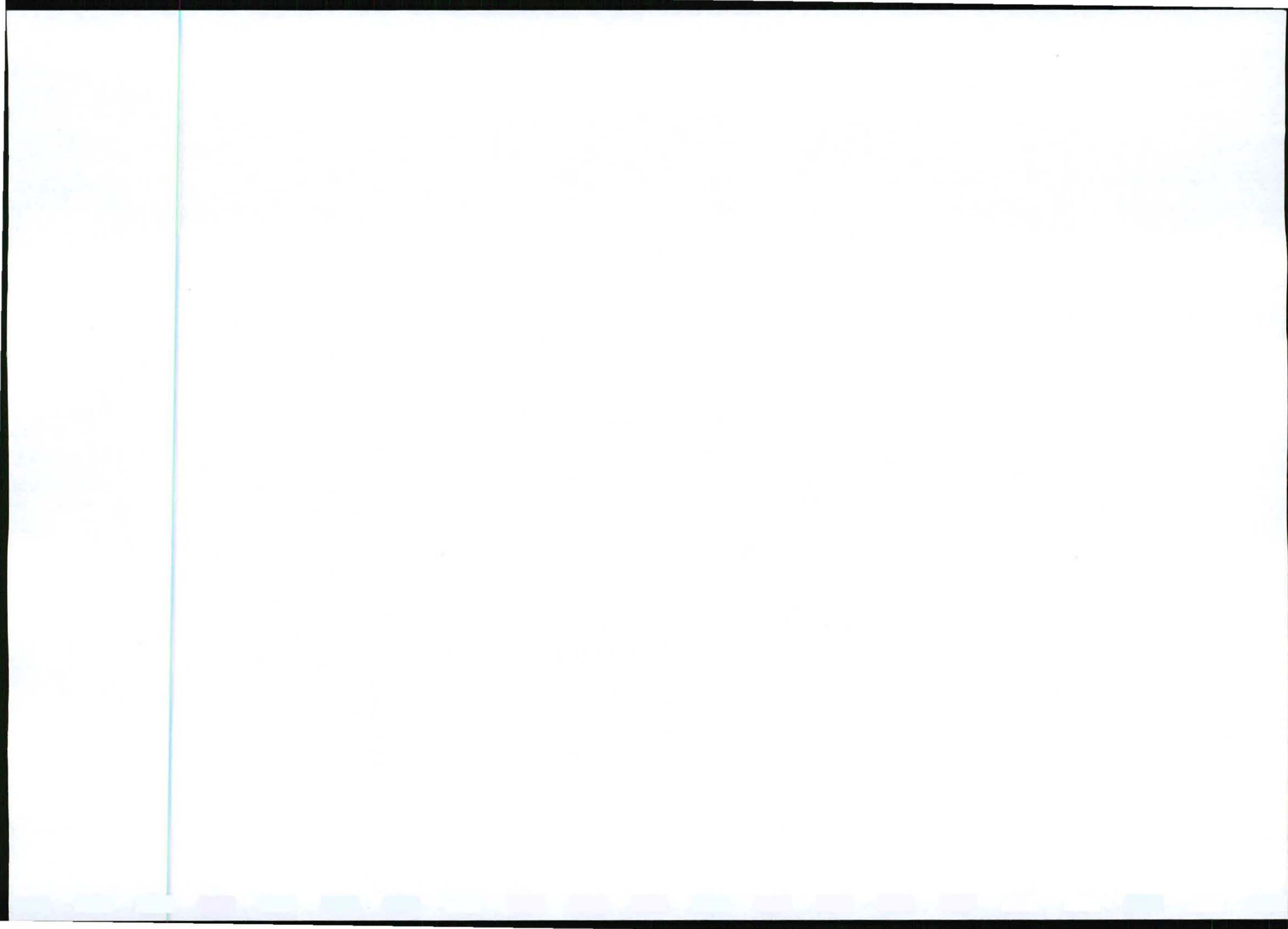
- The construction teams should ensure that all waste is removed from the site and that they recycle the items that can be used again. Unusable waste steel and aluminium will be sold to scrap dealers for recycling at the Eskom stores.
- Any waste that cannot be recycled will be transported to the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). A copy of the service agreement, to verify the disposal sites that will be accepting the waste, should be submitted to the Dept of Water Affairs.
- Proper and adequate containers (rubbish bins) to be put in campsites for the temporary disposal of food waste and general litter generated by construction workers. These containers need to close securely to avoid items (eg. paper and plastic) been blown into the veld, or been pushed over and rummaged through by wild animals such as monkeys. Proper waster management is essential.
- Containers for food and general waste to be removed weekly to avoid bins overflowing their capacity.
- Under no circumstances may any sewage, waste food or general litter be dumped in the veld.
- Stockpiling of construction material should be such that pollution of water resources is prevented and that the materials will be retained in a storm event.
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc. are sufficiently and adequately rehabilitated to the landowner's satisfaction.

### **Impact of labourers**

An uncontrolled influx of labourers with associated squatter and increased crime problems create pressure on the natural environment (placement of snares, removal of trees for firewood, careless waste disposal, etc.). This could be severe resulting in permanent damage to the environment if not mitigated properly.

### **Mitigation of impact of labourers**

- Mitigation measures to counter impact on the natural environment and limit potential for crime include specifications in terms of control of construction workers (i.e. provision of toilet and cooking facilities, provision of either accommodation facilities or transport facilities, implementation of Environmental Educational Programmes, etc.). Accommodation for labourers must either be limited to guarding personnel on the construction site (with labourers transported to and from existing neighbouring towns) or a separate fenced and controlled area where proper accommodation and relevant facilities are provided.



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- Prepare a comprehensive Environmental Management Programme (EMPr) for the control of environmental impacts at the site camps.
  - The EMPr is to include specific provision for the management of the following:
    - Site location
    - Solid waste
    - Liquid effluent (sewage)
    - Storm water
    - Litter
    - Nuisance (Noise)
    - Hazardous substances
    - Social pathologies (prostitution, drunkenness, theft)
    - HIV/Aids prevention.
  - Develop an HIV/Aids workplace policy.
  - Ensure that the contractors develop a comprehensive site camp management plan. This should apply even in the case of the limited accommodation camps recommended above.
  - Plan campsites an appropriate distance from any facility where it can cause a nuisance.
  - Camp site, storage facilities and other necessary temporary structures to be erected within the immediate area demarcated for the Bulge River substation and the Dorset substation. With the possibility of another one (maximum two) temporary sites within the power line corridors due to the distance between the substations.

#### **Impact on Safety and Security**

A range of safety and security issues could result from the construction of the project. These could be i.e. a threat to the safety of children or individuals in the area; mortality to stock and other farm animals close to the site; an increase in crime, including stock theft and poaching.

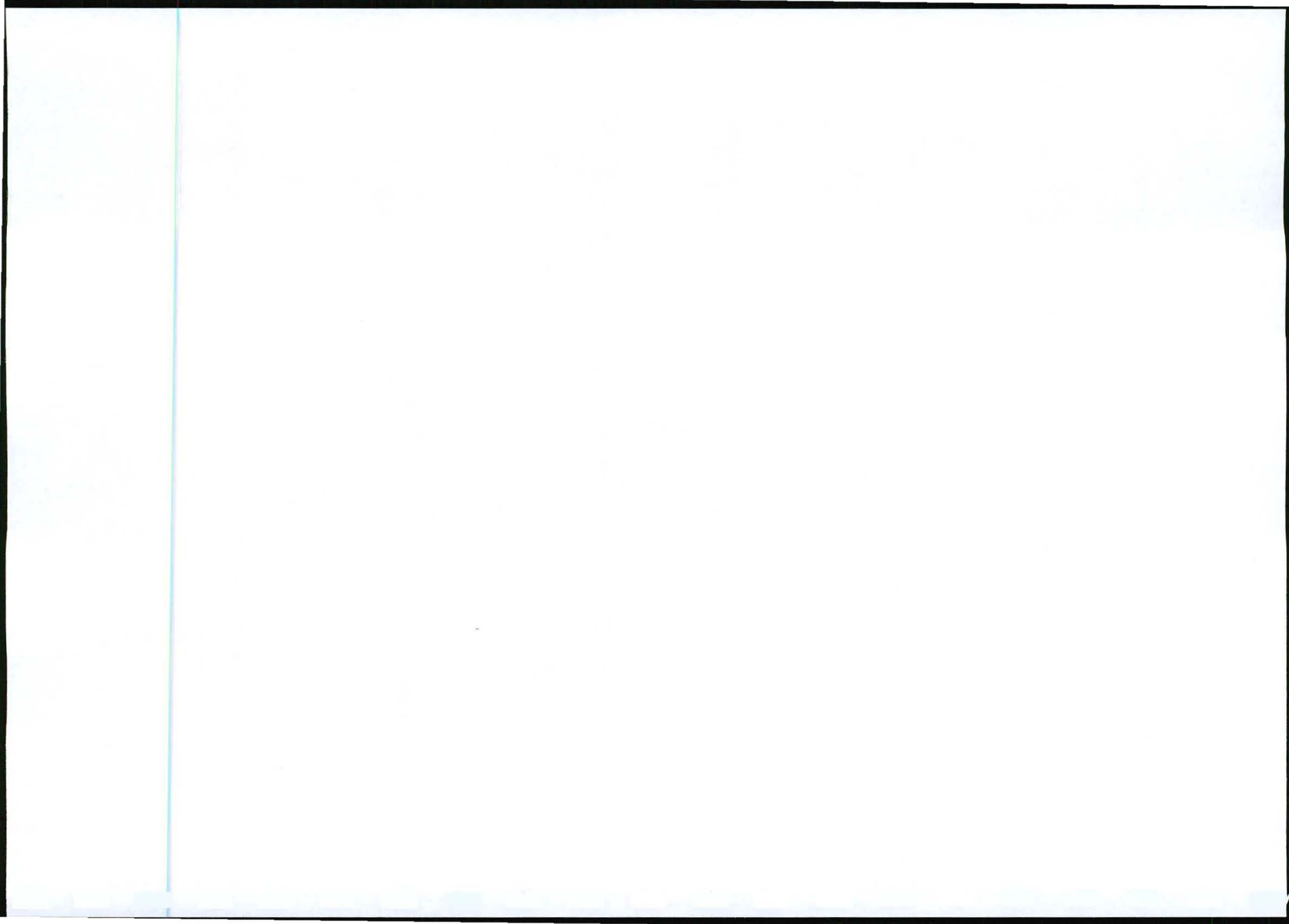
In terms of safety, it should be noted that the project involves the excavation of land for the structures of the power lines. The excavated area for the pylons could be approximately 3 meters deep by 1,5 meters wide. Excavations and open trenches can act as a trap for children (and also snakes, small mammals and lizards). Blasting could also create a safety risk in terms of flying objects and damage to properties.

The negative impact of noise and dust, generally associated with construction activities, are temporary, occurring mostly during the construction phase.

#### **Mitigation of Impact on Safety and Security**

##### Safety mitigation measures

- During construction, the Contractor should, put up a temporary fence around the campsite and work areas.
- All construction activities should take place within fenced or otherwise demarcated areas.
- All excavated areas for pylons must be fenced and barrier tape must be placed around them to prevent humans and animals from falling into them.
- The contractors must appoint their own guards to safeguard their materials.
- Construction workers should wear clearly identifiable clothing that allows landowners to easily identify contract workers on site.
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc. are sufficiently and adequately rehabilitated to the landowners' satisfaction.
- Should blasting be deemed necessary, it may only be undertaken by specialists in the field and should be limited to localised areas. All relevant legislation must be adhered to.
- All adjacent landowners have to be informed of the blasting programme prior to any blasting taking place. Contractors must liaise personally with adjacent landowners. All communication in this regard must be documented.
- A Fire Management Plan has to be identified during the pre-construction phase and must be implemented throughout the construction and operational phases of the project.
- No open fires to be allowed in the power line corridors or adjacent areas.
- No open fires to be allowed outside of the Bulge River and Dorset substations sites.



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- Cooking or fires must be kept to within the demarcated area of the substation. Special care needs to be taken for the prevention of run away veld fires into the adjacent area. This could have disastrous consequences as the area is well wooded and accommodates numerous game farms with wild animals. Not to mention the close proximity of human settlements and agricultural lands.
  - In the campsite a designated area for camp fires and cooking needs to be made. Should open fires be used then an area of at least 2m by 2m needs to be cleared of any flammable materials such as grass. This is also necessary with the use of portable gas or paraffin burners typically used for cooking.
  - No fires to be left unattended or allowed to burn through the night.
  - Fire fighting equipment must be readily available on site during welding and cutting operations.
  - Branches and other debris resulting from pruning processes should not be left below conductors or in areas where it will pose a risk to infrastructure.
  - No fires may be made for the burning of vegetation and waste.
  - Fires shall not be made for the purpose of chasing or disturbing indigenous fauna.
  - Construction workers should be barred from collecting firewood or any medicinal and protected plant species.
  - No firearms should be allowed at the construction sites.

Noise mitigation measures:

- Construction hours will be restricted to specific periods which exclude Sundays and public holidays.
- All construction workers will be allowed only for specified day light hours and will be transported from the site by the contractors.

Dust mitigation measures:

- Sweeping of construction sites and clearing of building rubble and debris must take place regularly.
- According to the applicant and their contractors, dust suppression is not required due to the following reasons:
  - The servitude areas receive minimal bush clearance. Indigenous vegetation which does not interfere with the safe operation of the power line is left undisturbed. Further to the above, vegetation is not ploughed, but mowed and therefore no areas are left without vegetation cover.
  - In terms of access roads, existing roads are used and the impact to these roads is insignificant. The reason is that construction material is minimal (a pylon - planted approximately 330m apart, cement - to plant the pylon, and cable - for the overhead wires). Therefore a small number, of construction vehicles deliver the material to the site. Speed of above 30km/hour will not be exceeded. A limited/ insignificant amount of dust is therefore emitted in the atmosphere. In other words, there will be no significant construction, ground-clearing, leveling or grading of soils, moving or compacting of soils which are often associated with other forms of construction, but not with erecting of powerlines.

**Impact on natural habitat**

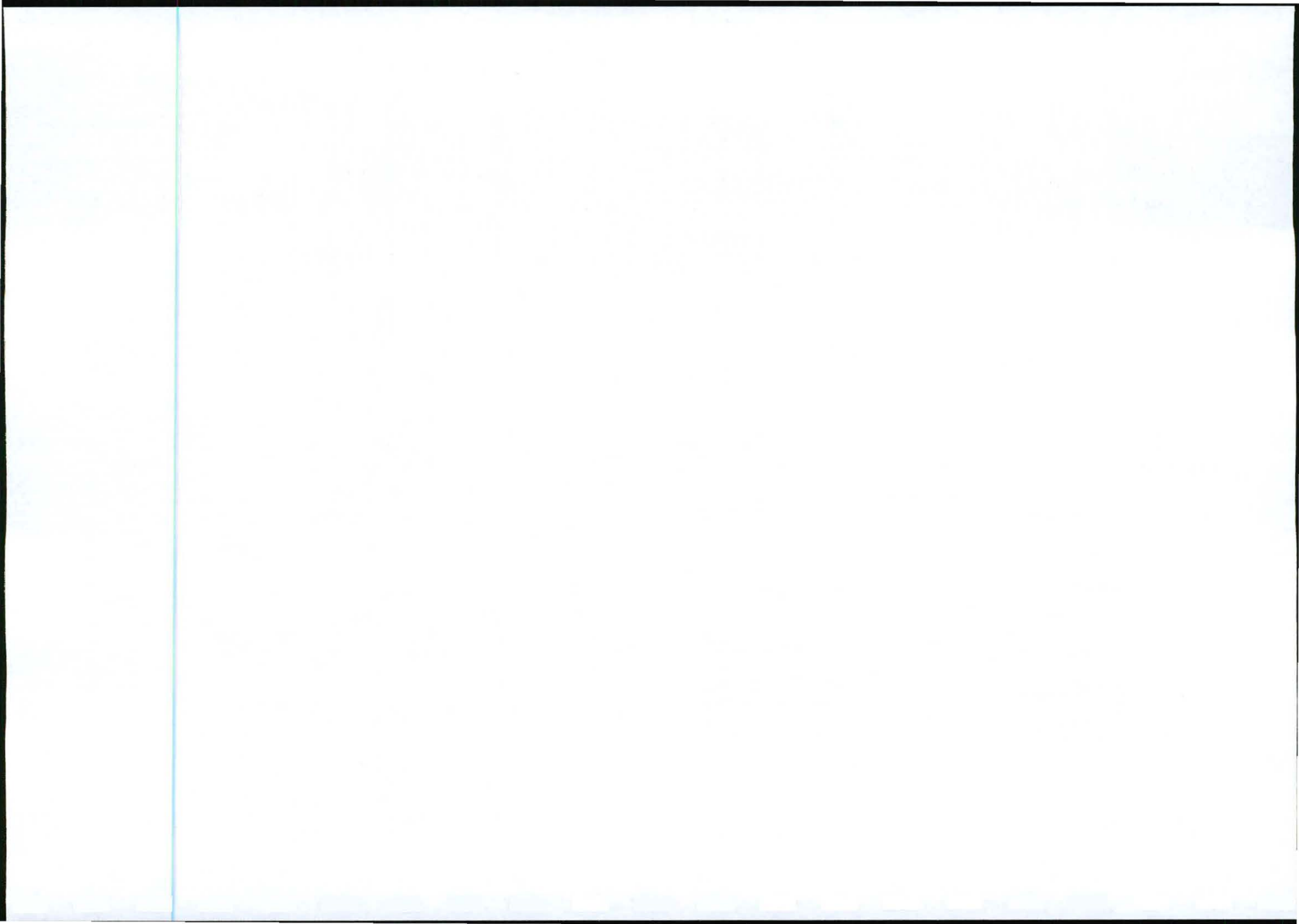
The construction of the power line will have impact on the natural environment. This impact is associated with disturbance to and/or destruction of the flora component.

- During construction the project could cause a significant impact where insensitive clearing for construction and access purposes, etc. is required. Insensitive clearing can cause the destruction of habitat. Not only does vegetation removal represent a loss of seed and organic matter, but it is also a loss of protection to plants and small animals. Insensitive vegetation clearance can also cause erosion.
- Pressure on the natural environment will occur as a result of an influx of labourers into the area that could involve the collection of firewood and medicinal plants, as well as uncontrolled veld fires.
- Various species of indigenous trees and bush on private land are protected by law in terms of the National Forests Act No. 84 of 1998, which stipulates that it is necessary to obtain a permit from the Forestry Branch of the Department of Agriculture, Forestry and Fisheries in order to cut, trim or remove them.

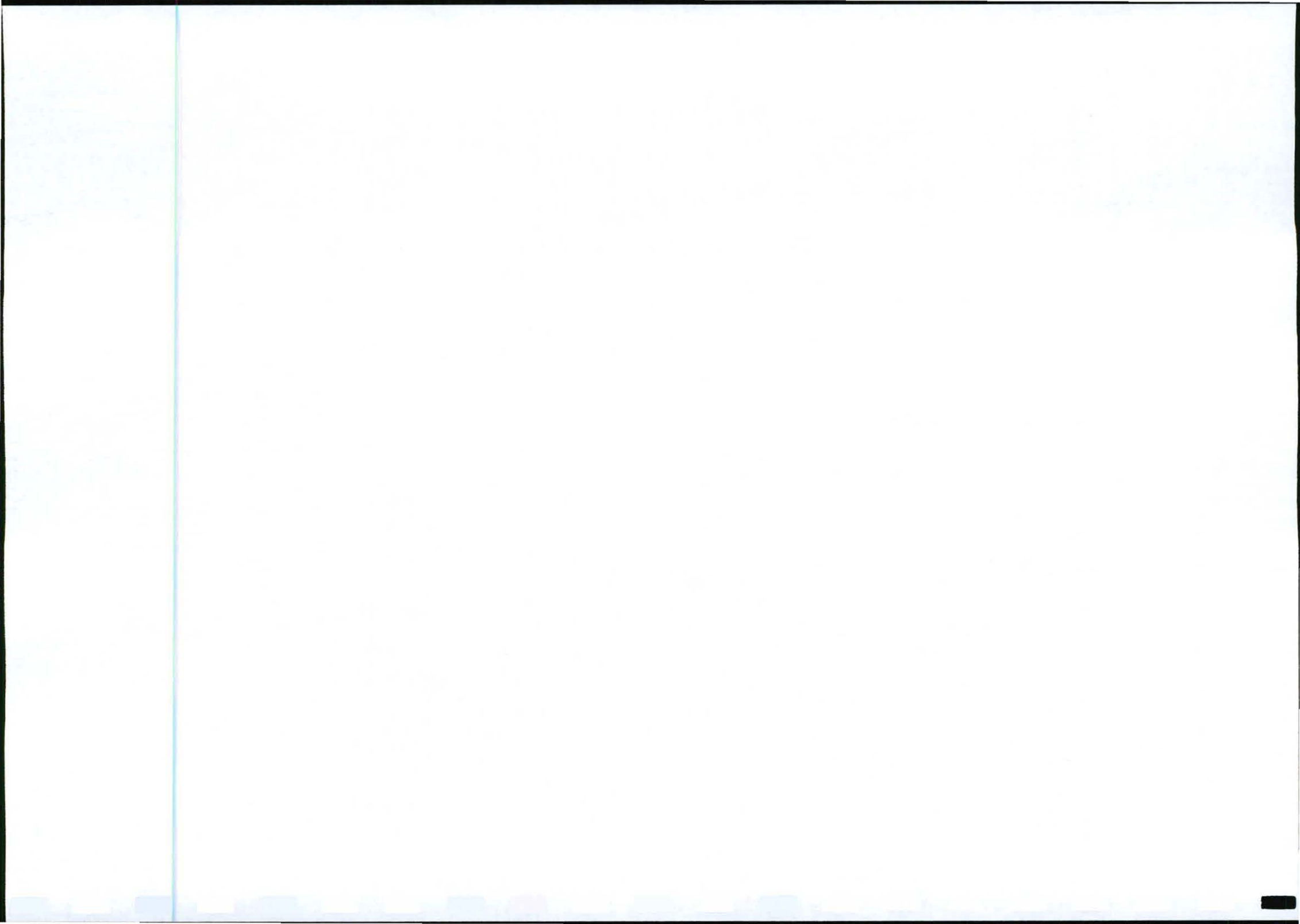
**Mitigation of impact on natural habitat**

- The proposed project requires the construction of a 132kV line. The total servitude width is 31 meters.
- Site-specific measures for the specific properties as identified by the ecologist, must be implemented by the Contractor during the construction phase and by Eskom and the maintenance teams during the operational phase. Refer to mitigation measures provided in the Planning phase.
- During the construction phase, camp site, storage facilities and other necessary temporary structures to be erected within the immediate area demarcated for the Bulge River substation and the Dorset substation. With the





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- possibility of another one (maximum two) temporary sites within the power line corridors due to the distance between the substations.
- No material or machinery to be stored or placed in the open veld outside the designated area of the power line corridors.
  - No camp sites or other temporary structures to be erected outside the designated areas of the power line corridors.
  - No concrete to be allowed to be mixed in the veld.
  - All construction activities and movement of people and machinery to remain within the designated power line corridor.
  - Temporary access roads for vehicles carrying equipment, materials, etc. into the power line corridors need to be kept to an absolute minimum. None of these access roads may cross through sensitive areas.
  - Work corridor to be limited to 20 metres along the route of the servitudes.
  - Ensure that no trees or existing grass strata outside of the servitude corridor be removed to lower any kinetic energy of potential run-off, that disturbed surface areas in the construction phase be restored and lastly that no open trenches or mounds of soils created during construction be left.
  - The procedures for vegetation clearance and maintenance within servitudes and on Eskom owned land as prescribed by Eskom must be implemented. Selective bush clearing must take place, i.e. indigenous vegetation, which does not interfere with the safe operation of the structure, should be left undisturbed.
  - Where clearing of access for construction is essential, the maximum width to be cleared is 8m, 4m on either side of the alignment for the power line. Clearing for tower positions must be the minimum required for the specific tower.
  - A small grove of Camel Thorns on both sides of the D1882 sand road in the vicinity of the Mokolo River should be viewed as a 'No-Go' zone. The route should be planned to avoid the groves. GPS coordinates taken from the road: S24°06.822'; E27°48.301'. Should there be impact on any of the camel thorns, then a permit is needed.
  - A few rocky areas have been identified along the proposed servitude routes. These areas are considered moderately sensitive and should be approached with caution.
  - The area is not seen as a "No-Go" area, but care should still be taken to avoid any unnecessary disturbance of veld or soil. Removal of trees, shrubs and other vegetation should be kept strictly to within the 8m corridor under the power lines.
  - Only a single, basic vehicle track to be constructed as an access road under pylons moving through the rocky area.
  - Access roads need to be kept to an absolute minimum.
  - No trees to be cut down or roads to be created to access the power line corridor from the public road by vehicle. Or to create shortcuts into this region. Any vehicles needing to access the power lines running through the rocky area will need to do so from out of the less sensitive plains along the corridor itself.
  - No temporary storage facilities, toilets, dwellings, etc. of any kind to take place within this rocky area. Not even within the demarcated power line corridor.
  - The longest possible distance between pylons should be used in an effort to limit the footprint size on the rocky area.
  - The power line must run as straight as possible through and over rocky areas. This in an effort to limit sharp turns that literally create a larger physical footprint on the ground.
  - Great care and thought must be taken into the actual positioning and construction of the foundation slabs. The soils are sandy and this area has the steepest gradient of the study site. There is therefore a real danger of soil erosion and resulting veld degradation in this area.
  - The sandy nature of the soils in the area makes it susceptible to soil erosion by water once disturbed, especially in steeper areas. The ground around all foundation slabs for the pylons need to be inspected before and after the summer rainy season for erosion. Any erosion found needs to be fixed and preventative measures put in place to prevent a reoccurrence of the situation.
  - Disturbance of the soils must be kept to an absolute minimum to limit the potential introduction of alien plants. This area is pristine with little to no alien infestation. Alien plants generally get a foothold in an area where the soils have been disturbed.
  - All exotic plants must be removed during construction and cleared areas must be rehabilitated. Areas where exotic plants are cleared should be rehabilitated and re-planted with approved indigenous species.



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- Care must be taken to ensure alien vegetation is not spread as a result of vegetation management processes through the transport of seeds or other vegetative material from one site to another.
  - No chemical control to be used in the control of alien plants or indigenous plants.
  - Damage can result in habitat modification or erosion as a result of the proposed power line construction activities. This can be avoided in general, by not allowing any construction of any sort to take place within aquatic and riparian habitats encountered, as these habitats are viewed as sensitive.
  - Two major water courses (Mokolo River and Poer se Loop) along with a few seasonal streams and drainage lines cross the corridors for the power lines. These need to be completely avoided and no pylons may be placed directly within any one of these water courses.
  - No temporary or other construction facilities to be erected or stored within 200m of the banks of the Mokolo River or the Poer se Loop stream.
  - Positioning of any pylons need to be a minimum of 30m from the edge of the river banks or outside of the 1 in 100 year floodline.
  - Positioning of the foundation slabs for the pylons must be a minimum of 10m away from the edge of all drainage lines.
  - Under no circumstances may a pylon be placed directly in the bed of a river or drainage line.
  - No temporary abluent facilities to be placed within 200m of the banks of any of the rivers or seasonal streams.
  - No temporary abluent facilities to be placed within 200m of any drainage line, even if they are dry.

#### **Impact on Birds**

The possible impacts of the proposed construction of power lines and substations on birds are the following:

##### *Loss of breeding, foraging and roosting habitat through habitat transformation*

During the construction phase and maintenance of power lines and substations, some habitat destruction and alteration inevitably takes place. This happens with the construction of access roads, and the clearing of servitudes. These activities have an impact on birds breeding, foraging and roosting in or in close proximity of the site, through the modification of habitat.

#### **Mitigation of Impact on Birds**

Relevant to this study: (See full report in Appendix D3)

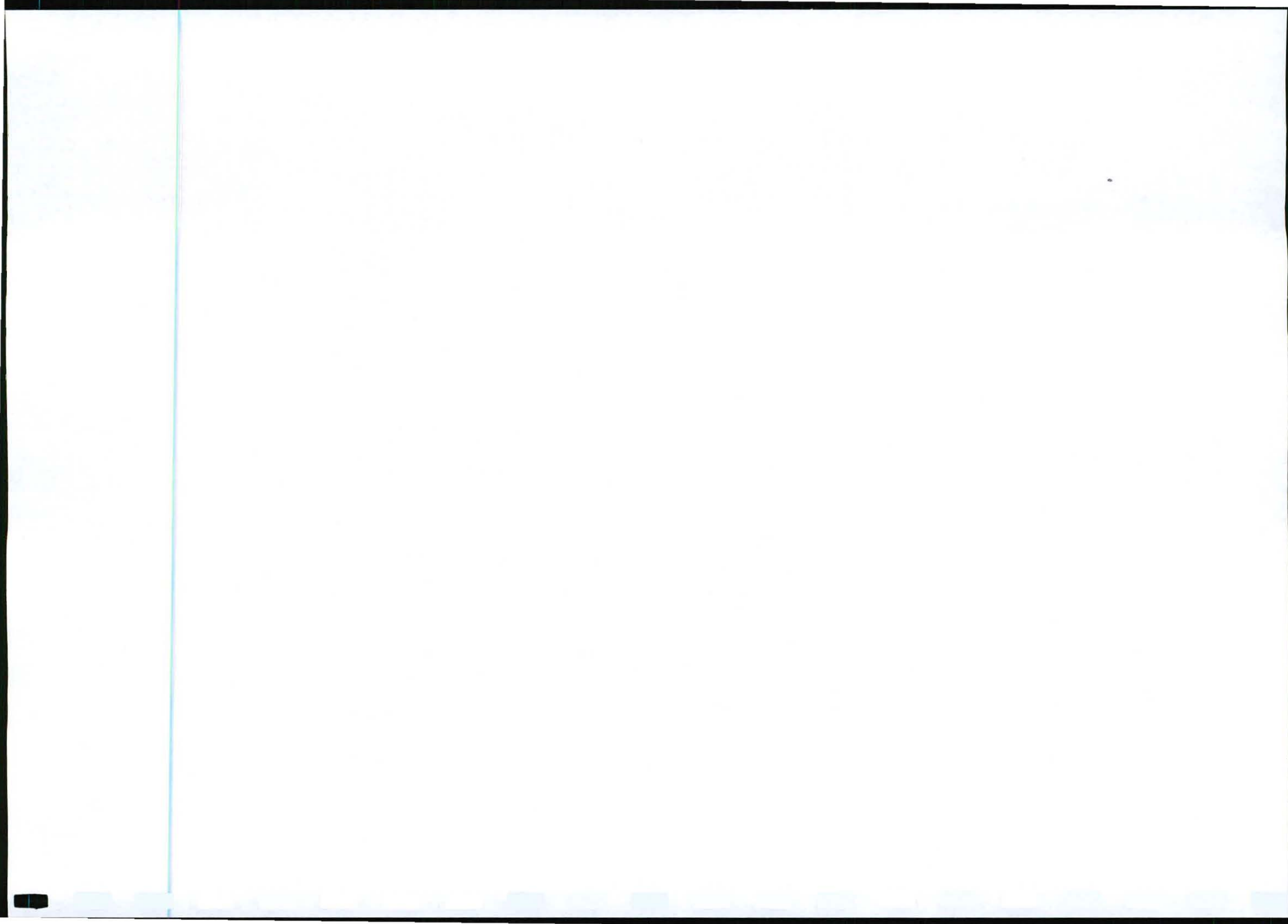
- The habitat surrounding the proposed power line comprises mostly undisturbed woodland, with limited existing impacts which consist mostly of a number of reticulation lines, fences and dirt roads. As a result it supports a number of power line sensitive species, particularly raptor species currently Red Data listed. The impact of the proposed line on the natural habitat (and therefore potentially on power line sensitive Red Data species) would be limited if it is placed next to existing linear impacts, particularly dirt roads, as is the case with alternative 1 and 2. Alternative 3 and 4 have a few sections where it deviates from existing dirt roads, which will have a bigger impact on the natural woodland vegetation. If alternative 2 is selected, the impact of the clearing of vegetation for the new line would be slightly less than if the line was partially constructed in undisturbed woodland, as would be the case with alternatives 3 and 4, and to a much lesser extent with alternative 1. The impact on smaller, non-Red Data species that are potentially breeding in the area that will be cleared for the new power line will be local in extent, in that it will not affect regional or national populations in any significant way.
- The proposed construction of the new power line should have a low habitat transformation impact from an avifaunal perspective, especially if alternative 2 is used. If alternative 1 is used, the impact would be medium-low, as it would involve more extensive clearing of undisturbed woodland. With alternative 3 and 4, the impact will be medium, as it would require more extensive clearing of woodland than the other.

#### **Impact on cultural heritage resources**

Construction can destroy heritage resources ('national estate') should it occur in or near the proposed project area.

#### **Mitigation of impact on cultural heritage resources**

No sites of Archeological significance were identified (see full Heritage Impact report in Appendix D2). If any heritage resources of significance are exposed during the implementation of this Eskom Project, the South African Heritage Resources Authority (SAHRA) should be notified immediately, all construction activities must be stopped and an



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archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

### **Visual impact**

The visual impact resulting from the construction of power lines can be substantial in a more rural environment. Should sensitive vegetation clearing as proposed in the mitigation measures be exercised then the visual impact of the power lines should not be significant.

### **Mitigation of visual impact**

The following is relevant to this project:

- Impact to the natural habitat as a result of the project is to be expected. Construction could cause a significant impact where clearing for construction and access purposes, etc. is required. Insensitive clearing can cause the destruction of habitat.
- It is suggested that any existing servitude roads as well as existing roads must be used during construction and maintenance of the power line.
- The procedures for vegetation clearance and maintenance within overhead power line servitudes and on Eskom owned land, updated September 2009 must be implemented. These procedures includes i.e. the following:
  - Where clearing for an access road is essential, the maximum width to be cleared is 8m.
  - Clearing for pylon positions must be the minimum required for the specific tower, not more than a 5m radius around the structure position.
  - Indigenous vegetation, which does not interfere with the safe operation of the power line, should be left undisturbed.

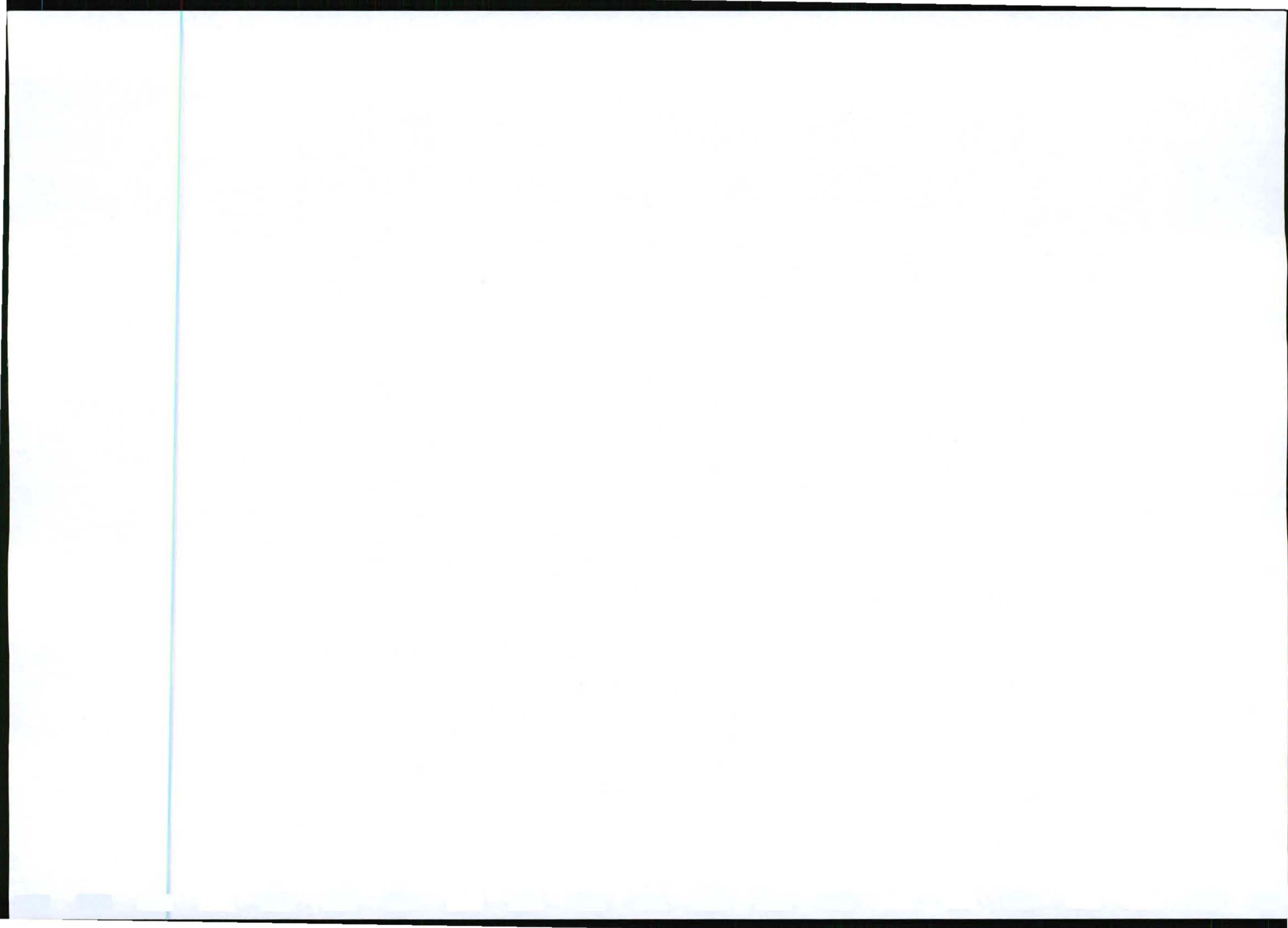
### **Loss of agricultural land**

The construction of power lines with the resulting clearance of servitudes can lead to a loss in agricultural land.

### **Mitigation of impact on Agriculture**

The proposed construction of the power line will not impact significantly on any agricultural activity. The following is relevant to this project:

- The land capabilities of the immediate surrounding areas within which the proposed servitudes fall are fairly limited. Most of the sandy soils are too shallow or nutrient-poor for high-yield crop production. Certain areas with heavier soils are suited for arable land. However, due to the dry winter periods irrigation would be necessary. The climate is generally favourable for year-round production of crops in open-field cultivation.
- The veld carrying capacity is relatively low although many sweet grasses are present. Cattle farming does occur in the area but suitably large areas for grazing are needed. The suitability for grazing land is there but needs to be carefully managed.
- The general land capability is highly suited to wilderness land. This is already a major form of land use in the region with numerous nature reserves, a biosphere reserve, private game farms and lodges. Including the Marakele National Park.
- Should the construction of the power line impact on any agricultural activities, this impact will only be for a limited period during construction. An access road of 8m wide could be cleared to construct the power line. After construction, normal agricultural activities could continue under the power line as usual.
- It is therefore submitted that the servitude area will not interfere with any agricultural activities. In addition, Eskom will not own the servitude but will purchase the rights to construct and maintain the line. A change in land use from agriculture to other land uses is not applicable.
- In addition, in terms of the Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970), Section 2(a) Eskom is a statutory body and therefore it is not subjected to the provisions of the Act.



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## 2.3 IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

The potential impacts that are likely to occur as a result of the operational phase are described below. In addition the mitigation measures that may eliminate or reduce the potential impacts are provided:

### **Impact on Birds**

Two common problems in Southern Africa are the electrocution of birds (and other animals) and birds colliding with power lines.

*Electrocutions:* Electrocution of birds happens when they lose their balance and they bridge the clearances.

*Collisions:* Collisions are when birds collide with the conductors or earth wires of overhead power lines.

### **Mitigation of impact on birds**

*Relevant to this study:*

#### **Collisions**

- The majority of species, listed in Table 2 of the Bird Impact Assessment Report in Appendix D3, are all vulnerable to collisions with power lines. In the case of water-associated birds such as the Black Stork, Yellow-billed Stork and African Marsh-Harrier the drainage lines, and specifically the pools in the larger rivers such as the Mokolo and Malmanies, which are in the study area, might potentially hold some attraction to these species. The new line will cross these drainage lines and might be a potential cause of collisions for these species and other, non-Red Data species such as certain species of ducks, waders and possibly Hamerkops *Scopus umbretta*. Species such as Kori Bustard and Secretarybird are known to be vulnerable to collisions with power lines, and the risk would be higher where the proposed alignments cross open habitat, especially old lands. The collision risk should therefore be regarded as medium-high along some sections of the proposed power line alignments.
- In summary, the power line poses a medium-high collision risk, mostly to water associated species, and those species attracted to open habitats, particularly old lands.
- The span that crosses drainage lines and old lands should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white (see Appendix B Sensitivity map in the Bird impact assessment, for the area to be marked with Bird Flight Diverters). Appendix C indicates the preferred Bird Flight Diverters to be used.

#### **Electrocution**

- A mono-pole steel pole will be used for the new 132kV line. Clearance between phases on the same side of the pole structure is normally around 2.2m for this type of design, and the clearance on strain structures is 1.8m. This clearance should be sufficient to prevent phase – phase electrocutions of birds on the towers. The length of the stand-off insulators is likely to be about 1.5 metres. This is relevant as birds such as vultures are able to touch both the conductor and the earthed pole simultaneously potentially resulting in a phase – earth electrocution. This is particularly likely when more than one bird sits on the same pole.
- Although not recorded in large numbers, it is likely that White-backed and Cape Vultures forage in the area. There are cattle and game in the area surrounding area, and should a carcass be available to the birds, they might attempt to roost on the poles. The risk of phase-earth electrocution is therefore evaluated to be medium. It should be mentioned that the pole design holds no inherent electrocution risk for other large non-gregarious species such as eagles, as they almost never perch together in large numbers next to each other.
- In summary, the line will pose a medium electrocution risk, in particular to vultures.
- The poles should be fitted with bird perches on top of the poles to draw birds, particularly vultures, away from the potentially risky insulators.

### **Visual impact**

Impact on the aesthetics of an area is related primarily to the visual impact of the proposed power line and secondary to the impact of habitat destruction.

Factors to consider regarding the visual impact are the following:

- The ability of the surrounding environment to absorb the visual impact of the power line.
- The structures to be used for the power line.





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### **Mitigation of Visual Impact**

It is not expected that significant additional visual impact will occur as a result of the power line due to the following:

- In general the recommendations from landowners are that the power line should not traverse any property, but rather run along the public or existing roads. The chosen route should be mostly along primary roads with wide verges or wide gravel roads. Routes with evident visual disturbance caused by existing power lines or roads are more acceptable than traversing through pristine area.
- In line with the above, Route Alternatives 1 and 2 were designed to run through more "disturbed" corridors, i.e. along the The National Road P198/1 (R33), and the Provincial Roads P84/1 (R517); D1882; D1005; and D1162.
- Route Alternative 3 and 4 were designed to follow the same corridor, but with slight deviations to accommodate site specific problems. These deviations were mostly due to impact on entrances to properties and agricultural activities.
- In addition, visual impact could generally be mitigated to some extent by constructing the line with monopole steel structures. Visuals of the structure are included in Appendices C2 and C3 of the BAR. From previous experience the steel poles are known to weather and with time blend into the environment.

### **Access to farms**

Eskom Holdings has a right to enter farms in order to maintain plant and obtain meter readings, therefore the manner of access to land, on which Eskom holds servitudes and electrical infrastructure, should be considered by Eskom as well as Landowners.

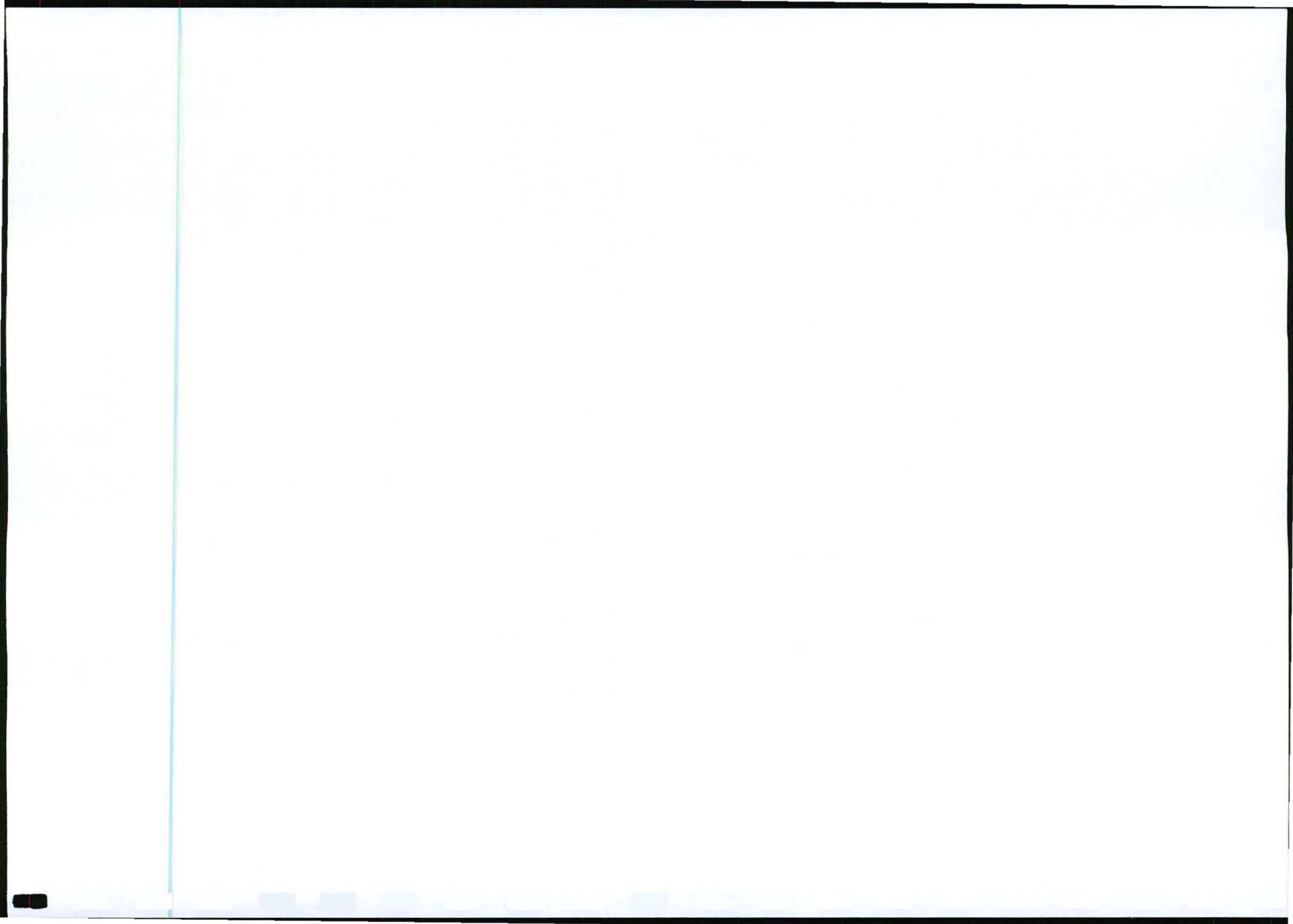
Security on farms is important to Landowners who need to ensure that the safety of their family, staff and property is catered for. Coupled to this is the escalating crime rate on farms.

### **Mitigation to establish a protocol for Access to farms**

Approaches to facilitate access to farms for all Eskom staff and contractors (performing work on behalf of Eskom) is stipulated in the Access to Farms (Distribution, Transmission and Generation) Standard 32-1173 of which a copy can be obtained from the local organised agriculture structures.

Protocol measures are i.e. as follows:

- All Eskom staff will carry identity cards containing their photographs, indicating that they are Eskom employees. Landowners may verify presence of Eskom staff telephonically at the Contact Centre, at 08600 37566.
- Eskom contractors will carry identity cards displaying their photographs, indicating that they are contractors. Letters containing contract appointment as well as whom at Eskom to contact will be given to each Contractor. In the case of unplanned activities, the contractor must be in possession of a work order number.
- Eskom vehicles will be clearly marked on the door. Vehicles operating after dark will be fitted with amber rotating lights.
- Vehicles of Eskom contractors must have a magnetic strip on the side containing the words "Eskom contractor", as well as an amber rotating light.
- No person may climb or crawl over or through fences without the owners' permission. No person may damage or remove a fence without the owners' permission.
- Gates should be left in the state the landowner intended. In order to assist with any possible claims, any visitor will keep a log of each gate that is used stating:
  - the position of the gate with reference to towers
  - the state in which it was found (open or closed)
  - the time
  - any other appropriate information (locks, etc.)
- Standard Eskom locks shall be used in all cases and in such a manner that it securely locks the gate. Where dual-use is made of the gate by Eskom Holdings and the land owner, the Eskom lock shall be locked into the chain-link, separate from the farmer's lock as to permit both parties to gain access without inconveniencing either party. No interference with land owners' locks will be tolerated. The cutting of land owners' locks except in extreme emergency will result in disciplinary action.
- Where helicopters are deployed, care should be taken in conjunction with the Line and Servitude Manager and the landowner not to cause any disturbance or harm to livestock such as ostriches or game. The use of helicopters on lines during line patrols does present it's challenges when all the property owners en route need to be informed before the inspection. Notice of such patrols should be communicated via District Agricultural offices a month before.



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- Any damage caused to any gate, fence, crop or grazing shall be reported to the Line and Servitude Manager or ECO who will then refer it to the appropriate Eskom Holdings Official for processing. Extreme care must be taken with fires and the use of fires will only be permitted with express approval of the landowner.
  - No fauna or flora will be collected or removed from any farm by any visitor without written permission of the Landowner, in which case cognizance will be taken of appropriate provincial legislation pertaining to fauna and flora. Under such cases Eskom Holdings ethical policies and guidelines will be strictly applied.
  - Any visitor will at all times refrain from littering and must remove any refuse when leaving.
  - Visitors shall as far as possible only use the servitude roads or the roads as determined by the environmental management plan and agreed to with the Land owner. Where this is not possible the landowner's permission shall be obtained for the use of any other roads. In all cases care shall be taken to not cause any damage in the process and driving through the veld must be avoided as far as possible.

#### Planned outages

- Eskom will notify customers at least 10 days in advance through the appropriate media – either in writing, electronically (SMS) or telephonically. The onus rests on the Customer to ensure that all their contact details are updated on the Eskom system. Should its best attempts to communicate fail, the work will proceed regardless.

#### Planned activities such as vegetation control, live-line work and line inspections.

- Eskom will notify customers at least 48 hours in advance through the appropriate media – either in writing, electronically or telephonically. Should its attempts to communicate fail, the work will proceed.

#### Unplanned/unscheduled visits

- Rapid power restoration without any delay is in the interest of both Eskom and the customer. This is dependent on free movement.
- All Eskom staff as well as representatives of Eskom contractors will carry identity cards containing their photographs to indicate whether they are Eskom employees or Eskom contractors. In addition, customers may request a work order number to be verified with the Contact Centre. Vehicles must be clearly marked.

### **Access to Nature / Game reserves**

The mushrooming of game farms in all parts of the country brings about new challenges to Eskom Holdings such as restriction of access, safety of Eskom staff and the interaction of game and electrical infrastructure. The same applies to nature reserves and other reserves managed by the state where wild animals occur. Wild animals pose a safety risk to Eskom staff e.g. lions, tigers, leopards, elephants, rhinoceroses, buffaloes, etc and animals that are at risk of electrocution if introduced or kept in camps where unmitigated Eskom assets exists e.g. giraffes, elephants, rhinoceros.

### **Mitigation for access to nature/game reserves**

- Access to any type of nature reserve requires specific permission, which should be arranged with the appropriate authority or landowners. Because these reserves have both dangerous as well as very expensive game, a designated guide should always accompany visitors. This will ensure the safety of the visitor as well as prevent any claims against Eskom Holdings in the case of death of expensive game.
- An effort should be made through the Regional task team to convince game farm owners and other influential stakeholders (Government & Game farming and Agricultural Union bodies) to buy into the following;
  - The numbering of gates.
  - The labelling of gates stating the following:
    - That it is a game farm
    - List of dangerous animals within enclosure
    - Contact details
  - That all entry and exit points comply with the Certificate of Adequate Enclosure Fencing Specifications.
  - Entrance areas are to be cleared to improve visibility.

#### Routine Field trips by maintenance staff

- Field Services staff must report all new game fences or game farming activities encountered on routine line patrol or fault repair activities to the Land Development section for mapping and to Customer Services Area Managers to engage the landowner for corrective action if Eskom was not informed or did not agree to such a change. This is seen as an *ad hoc* way of obtaining information of newly created game farms from normal business activities.



- In particular, helicopter line patrols over game farming areas must be preceded by reasonable notifications to affected landowners as they are usually a disturbance to tourists and hunters visiting game farms. There is a great need to inform game farm owners timeously of planned maintenance activities. All notifications and arrangements regarding access should preferably be confirmed in writing as per section 2.6.
- Game farmers are also not in favour of motorised equipment e.g. chain saws due to noise pollution affecting hunting and game viewing activities. It is thus advisable that prior notification be issued and that their usage be restricted to what is absolutely necessary. As this is a sensitive environment, it is advised that bush clearing be done accordingly in terms of the *Standard for Bush Clearance and Maintenance within Overhead Power line Servitudes (ESKASABG3)*. These requirements are identified in the EMPr.

#### Safety of Eskom personnel

- No Eskom employee must endanger his/her life or the life of another staff member by entering a property where there is a reasonable suspicion that dangerous animals such as lions, tigers, leopards, rhinoceroses, buffaloes, etc., are present. Eskom staff should seek to enter such properties accompanied by security staff from the game farm. It is also advised that Eskom staff working in and around game farms be trained on how to identify dangerous animals and how to behave to ensure the safety of his/her life as well as that of another Eskom employee. Whenever any Eskom employee receives knowledge of the introduction of dangerous animals in an area where Eskom infrastructure exists, such knowledge shall be conveyed to Land Development for mapping, investigation and/or measuring and to the Customer Services Area Manager to engage the land- or game farm owner.

#### Biodiversity impacts

- Awareness about the issues surrounding game farms might bring about requests to have some lines checked for clearances for giraffes and/or others mitigated to prevent elephants and/or rhinoceroses from being electrocuted. Such requests should be sent through to the Land Development section for screening, evaluation, investigation and/or measuring. The latter could also be performed by Field Services staff. If clearances are insufficient in the case of giraffes and/or measures are required to mitigate for elephants and/or rhinoceroses, the request should be forwarded to the Project Engineering section for an engineering solution to be taken in conjunction with the Environmental function.

#### Training

- It is necessary that Eskom staff working in and around game farms be trained on how to identify dangerous animals and how to behave to ensure the safety of his/her life as well as that of another Eskom employee. It is important to note that whilst it might be perfectly fine to run when confronted by a rhinoceros, running when faced by a lion is the most inappropriate behaviour. The wrong behaviour could be fatal and hence identification and behavioural training is necessary.
- Training should include but not be limited to the following:
  - Identification and training on the following dangerous animals; Bees, buffalo, cheetah, elephants, hippopotamus, hyena, leopard, lion, rhinoceros, scorpions, snakes, spider, tiger, wild dog, wildebeest.
  - Behaviour when confronted by dangerous animals
  - General behaviour in parks, game farms; etc.
  - Training Eskom staff on this guide.
  - Training manuals or other reference material to be developed as part of a training package.
  - Training on Eskom rights.
  - Training on the need of certain farms to spray Eskom vehicle tyres; etc for diseases upon entry into e.g. chicken farms.

#### **Impacts associated with fire breaks and servitude maintenance**

The servitude areas has to be maintained to ensure the safety of the Eskom hardware, but in particular the safety of the landowner and his property. Should the servitude not be maintained this can result in danger to the power line as well as damage to the property of the landowner.

#### **Mitigation of the impact associated with fire breaks and servitude maintenance**

- In the case of 33kV, 88kV and 132kV distribution power lines, Eskom obtains the rights to a servitude.
- A servitude is a real right which Eskom obtained in order to construct its infrastructure upon the affected property and it is registered in the Deeds Office against the title deed of the affected property. The effected owner normally



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gets compensated for this right according to market related values. The servitude stays effective even if a property is transferred to another owner.

- The National Veld and Forest Fire Act (Act 101 of 1998) places an obligation on the owner to ensure compliance and hence creation of fire-breaks amongst other. The Act defines owner as follows: "owner" has its common law meaning and includes— (a) a lessee or other person who controls the land in question in terms of a contract, testamentary document, law or order of a High Court;.
- The Eskom understanding is that Eskom needs to ensure compliance to the Act where it has purchased a property (hence being the owner) such as a substation. Eskom is not considered as the owner for rights obtained via a wayleave agreement or servitude. Hence, the requirements for creating firebreaks or joining Fire Protection Agencies are applicable as far as where Eskom has a substation and not for power lines. These opinions were reflected in the specifications – thus, the Vegetation Management Standard does not specify requirements for fire breaks.
- Fire Risk Management is dealt with under a procedure titled "Distribution Fire Risk Management", reference SCSASAAJ6. Grass fires are dealt with in this procedure stating that vegetation and equipment must be maintained. A specific procedure deals with fire risk management for substations where the chipped stone needs to be maintained to prevent vegetation growth.
- Eskom Distribution does not make use of the practice to burn fire breaks, since this is not a legal requirement. Rather, it relies on the maintenance of vegetation in accordance to its Vegetation Management Standard to reduce the risk of fires starting from Eskom infrastructure.
- Eskom Distribution Division does not remove the grass below power lines since this does not pose a safety risk and will create the potential for erosion, causing environmental degradation and hence legal liability. It will furthermore be an economically unsustainable exercise for Eskom given the amount of power lines throughout South Africa.

#### **Impact of project on Tourism**

The promotion of tourism is the key to socio-economic development in this region. But tourism is inseparable from a unique environment, with incomparable natural attributes and potential for nature conservation. The Waterberg Biosphere Reserve has therefore been launched. The significance is that this area with its game reserves and farms receives international exposure, thus attracting foreign revenue because of tourism, resulting in a number of opportunities for entrepreneurs and the potential for job creation. The tourism attractions in the broader area of the project are Marakele National Park, Welgevonden, Mokolo Dam, Kwalata and Lapalala Nature Reserves.

The impact of the project on tourism could be related to the visual impact of the proposed power line. It could be argued that the value of the environment lies in its remoteness and the wilderness feel. It is understood that the visibility of the power line could well impact negatively on the land values since visitors would not be able to escape the sights of human intervention. Should the power line be constructed, the value of the land/all the properties will be substantially decreased. This could culminate in a loss of income and loss of jobs for local labour, which will impact on the whole community.

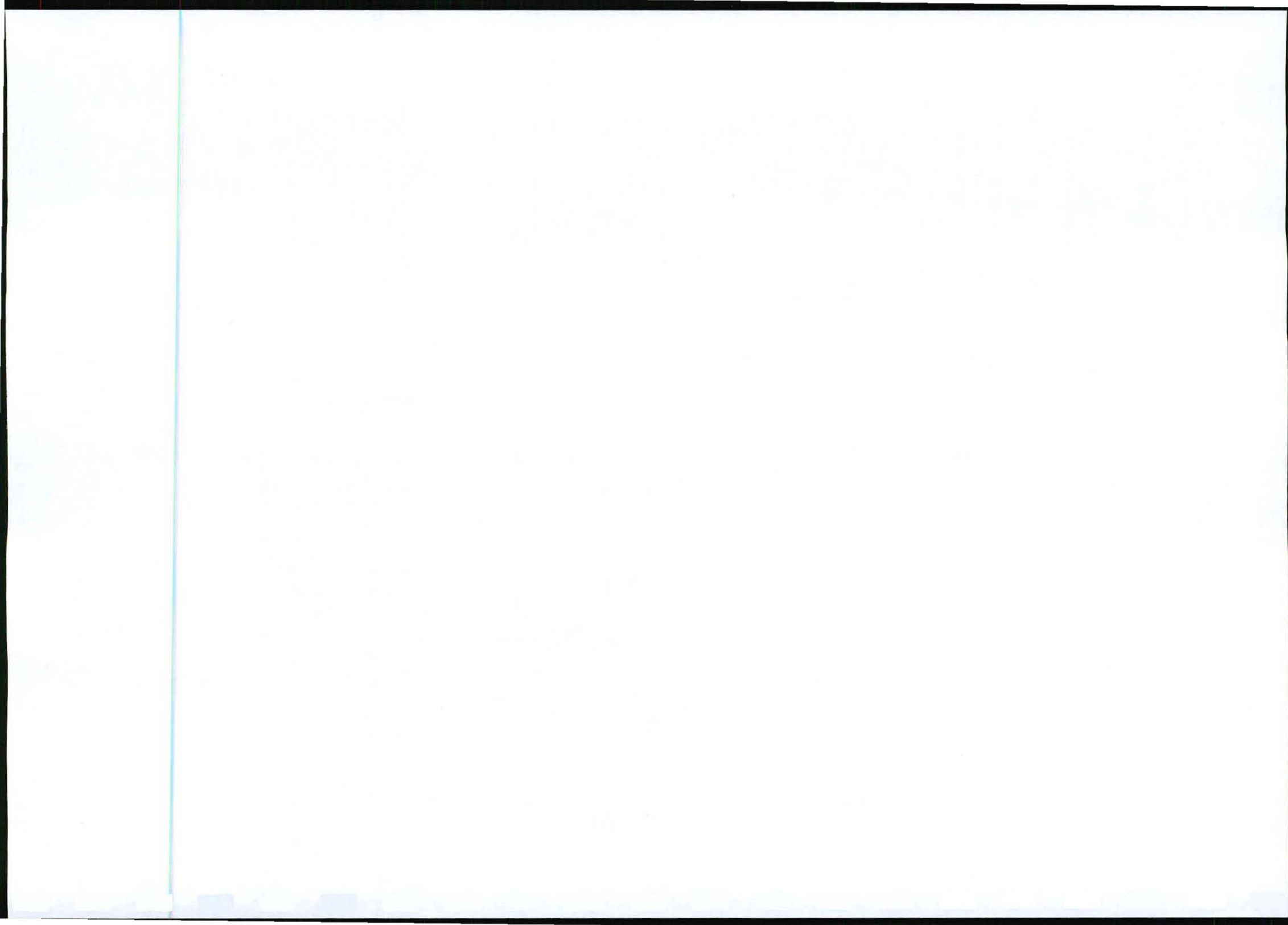
#### **Mitigation of impact on Tourism**

As indicated, the area is an emerging and fast growing tourism destination, with its large reserves and private game farms in the area. It is therefore of importance that the tourism industry should not be hampered by poor quality of supply and bad performance of the power supply network. Most complaints emanate from severe voltage dips and frequent supply interruptions caused by the poor condition of the current network. The proposed project would address the need for firm supply in the area and aid in the growth of the tourism industry. The project would therefore contribute positively towards tourism. Obviously, the sensitive placement of the route is of vital importance. The route is designed according to the preferences of landowners and key stakeholders. Landowners prefer routes with evident visual disturbance caused by existing power lines or roads above traversing through pristine area. This preference culminated in the investigation into the four options for the power line route.

#### **Impact of alien vegetation**

One of the impacts of concern is the introduction of alien plants and the use of chemical herbicides (weed-killers). This impact need to be monitored and managed on an ongoing basis.





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- The manner in which the right of way was obtained/registered is an important factor in determining the legal requirements for erosion and weed control.
  - The Conservation of Agricultural Resources Act (Act 43 of 1983) places a duty on the land user to control erosion and declared weeds and invader plants. Hence, the standard specifies weed control as a requirement for all power lines: The act defines land user as follows:
  - 'land user' means the owner of land, and includes-
    - any person who has a personal or real right in respect of any land in his capacity as fiduciary, fideicommissary, servitude holder, possessor, lessee or occupier, irrespective of whether he resides thereon;
    - any person who has the right to cut trees or wood on land or to remove trees, wood or other organic material from land.
  - A servitude is a real right which Eskom obtained in order to construct its infrastructure upon the affected property and it is registered in the Deeds Office against the title deed of the affected property. This places a duty on Eskom to control declared weeds and invader plants.

#### **Mitigation of alien vegetation**

- Alien vegetation in servitudes shall be managed in terms of Regulation GNR.1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983. In Terms of these regulations, Eskom shall "control" i.e. combat category 1, 2 and 3 plants to the extent necessary to prevent or to contain the occurrence, establishment, growth, multiplication, propagation, regeneration and spreading such plants within servitude areas or land owned by Eskom. Due to the nature of alien vegetation, a programme for alien vegetation control must be implemented. The implementation thereof is recommended as follows:
- Mechanical control of alien plants around disturbed areas to be implemented within two months of completion of construction. Thereafter every six months. These areas will be predominantly around the erected pylons where the soils were originally disturbed during the construction phase. Mechanical control to be of such a nature as to allow local grasses and other pioneer plants to colonise the previously disturbed areas, thereby keeping out alien invasives.
- No chemical control (herbicides) of alien plants to be used. These chemicals will have a detrimental effect on the surrounding vegetation and habitats.
- Vegetation under pylons and next to pylons to be mowed and not ploughed. This in an effort to avoid disturbing the ground which leaves it open to colonisation by alien weeds.
- Disturbance of the soils must be kept to an absolute minimum to limit the potential introduction of alien plants. This area is pristine with little to no alien infestation. Alien plants generally get a foothold in an area where the soils have been disturbed.

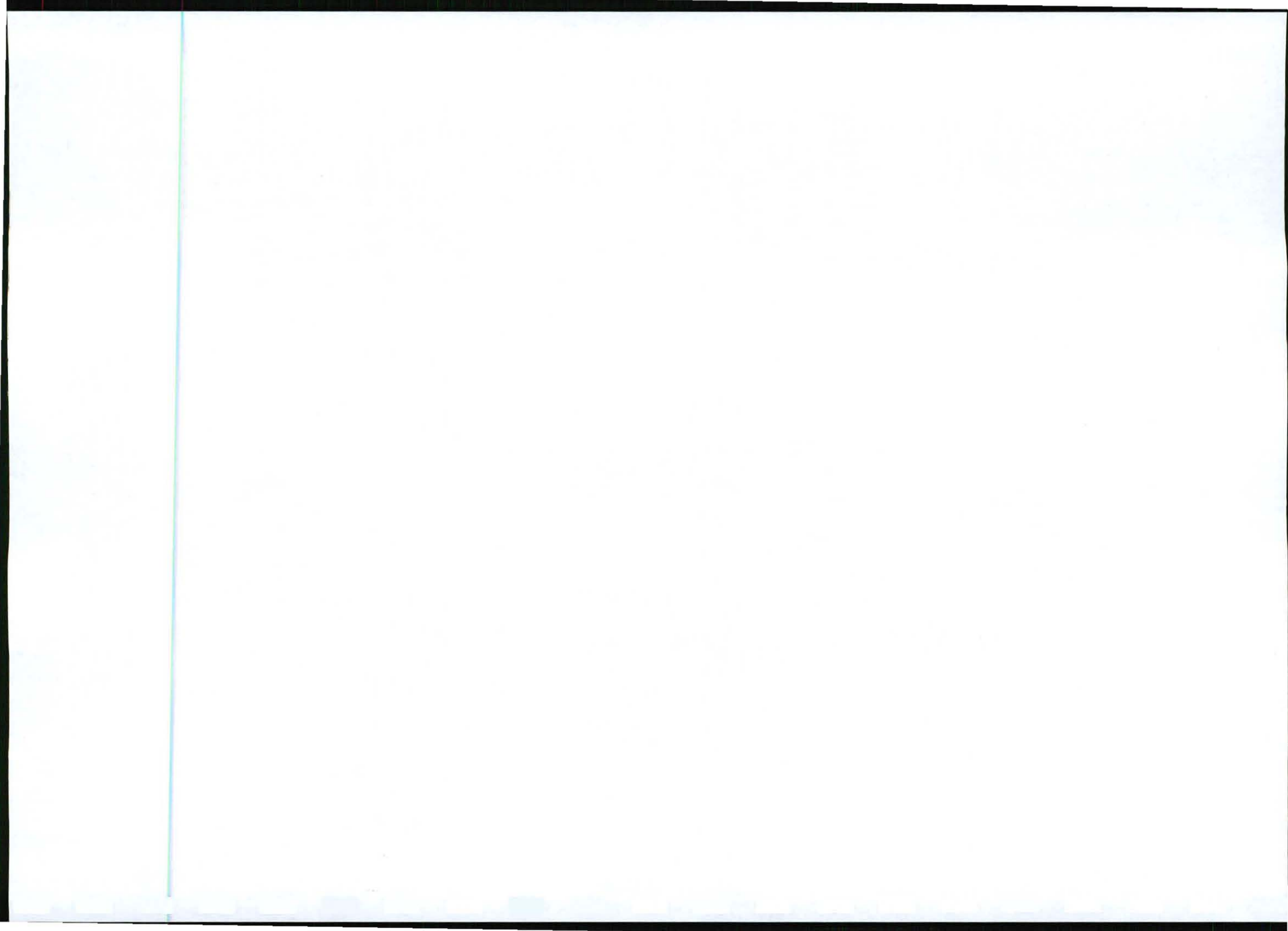
#### **Impact on Safety and Security**

##### *Fire Hazard:*

Poor maintenance, bird collision, electrical faults as well as pylons struck by lightning could result in veld fires that could result in destruction of habitat and property and even severe injury and/or death. It is important to note Eskom's responsibilities in terms of the National Veld and Forest Fire Act, Act No 101 of 1998. Reference is made to Section 3(1) of the National Veld and Forest Fire Act that clearly indicates that Owners may form an association for the purpose of predicting, preventing, managing and extinguishing veld fires. This implicates that it is voluntary to join a Fire Protection Agency and not mandatory according to the Act. As it is not mandatory to join a Fire Protection Agency, Eskom's maintenance staff working in the different areas is encouraged to join the Fire Protection Agencies if their workload and staff availability allows this. Section 12 (1) of the National Veld and Forest Act reads as follows: "Every owner on whose land a veldfire may start or from whose land it may spread must prepare and maintain a firebreak on his or her side of the boundary between his or her land and adjoining land." Servitudes are registered for all Eskom sub-transmission (33 to 132kV) power lines and a way leave agreement is obtained for the reticulation power lines (11 and 22 kV). According to a legal opinion obtained from the Corporate Legal Department, Eskom is not the landowner of power line servitudes or rights of way, but only where Eskom purchased the land for a substation and is in possession of a title deed.

##### *Risk of Electrocutation:*

There could be concern about the safety of people and animals in the environment of substations and power lines. To prevent the risk of electrocution no structures are allowed in the servitude areas of the power lines.



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### **Mitigation of Impact on Safety and Security**

#### *Fire Hazard:*

- The existing complaints structure must be revised by Eskom and be updated on a regular basis and communicated with all affected landowners to ensure effective response and service supply (especially in terms of reporting of obvious electrical faults).
- The applicable Emergency telephone numbers should always be available on site. Ms Nkateko Msimango of Environmental Management, Eskom Distribution Northern Region is the relevant contact person (Tel: 015 299 0012/ Cell: 072 018 5167).
- Annual fire management programmes will need to be implemented to manage the risk appropriately.
- Branches and other debris resulting from pruning processes should not be left below conductors or in areas where it will pose a risk to infrastructure.
- Debris shall not be burnt under any circumstances.
- Fires shall not be made for the purpose of chasing or disturbing indigenous fauna.
- Eskom encourages affected landowners and maintenance staff to participate in the Fire Protection Agency.

#### *Risk of Electrocution:*

- To prevent the risk of electrocution no structures are allowed in the 31 meters wide servitude area of the power lines.

#### *Safety of landowners/ land rights users:*

Security measures to safeguard the property and the landowner/ landuser are the following:

- Eskom needs to make an appointment with the affected landowner to maintain the line on his property.
- Only in case of an emergency, Eskom will have the right to enter the property at any hour.
- Communication between landowners and Eskom is of importance in case of emergency breakdowns.
- Security measures such as the usage of existing gates with Eskom locks are proposed.
- Eskom should compensate the landowner for any damage to the landowner's property.
- Security measures are provided in the Environmental Management Programme (EMPr) of the EIA Report.

In addition refer to the mitigation for impacts associated with fire breaks and servitude management and the protocol for access to farms.

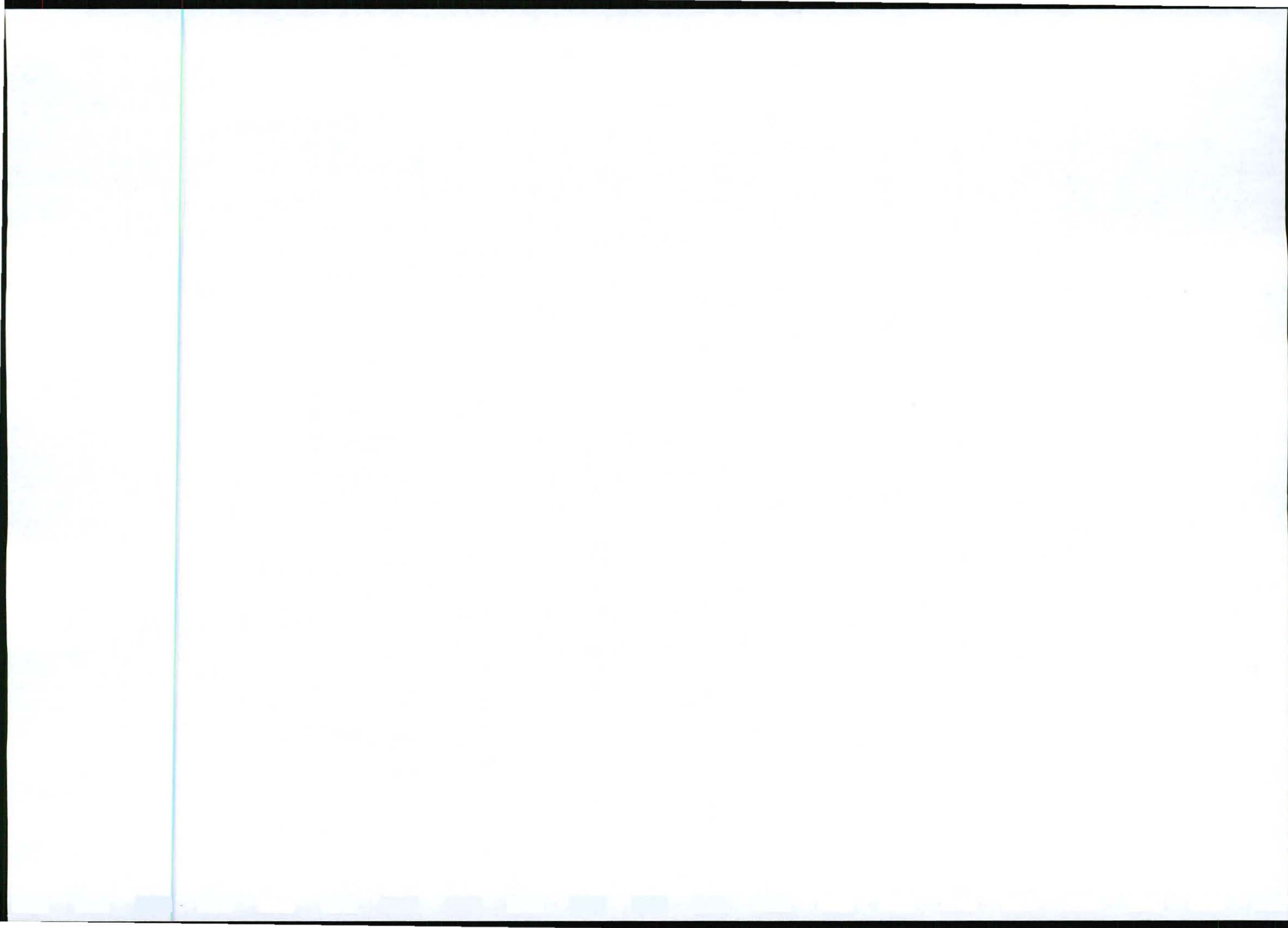
## **2.4 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE**

It is not envisaged that the power line will be decommissioned. This project is part of the future infrastructure to supply the Eskom Distribution network. Should this application not be approved, this can result in major disturbances in energy provision.

#### **Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:**

Should there be a need to decommission the power line then the following mitigation measures that may eliminate or reduce the potential impact are applicable:

- The power line will have to be physically removed which would entail the reversal of the construction process.
- The construction teams will ensure that all waste is removed from the sites and that they recycle the items that can be used again. Unusable waste steel and aluminium will be sold to scrap dealers for recycling at the Eskom stores.
- The disposal of materials will have to be at an appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). A copy of the service agreement, to verify the disposal sites that will be accepting the waste, should be submitted to the Dept of Water Affairs.
- The route of the power line will have to be rehabilitated.
- Once the decommissioning is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc. are sufficiently and adequately rehabilitated to the landowner's satisfaction.



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### 3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, the following environmental impact statement could sum up the impact that the proposed activity may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

#### 3.1 No-go alternative (compulsory)

- It is suggested that to maintain the status quo is not the best option for the macro environment.
- This proposed project is part of the infrastructure to supply the Eskom Distribution grid with power.
- Should this application not be approved then supply will be unreliable and in future this can result in major disruptions of power supply to different areas at different times.
- The No-go option will not solve the current demand for electricity.

#### The positive impacts of the proposed project on the environment are as follows:

- Long-term, regional benefits of reliable power supply and the resultant socio-economic benefits.
  - Included in this is the fact that any infrastructure development as a secondary impact will ultimately positively influence the development of the SMME- sector through electricity provision.
  - On the opposite pole the lack thereof will most certainly be to the detriment of SMMEs, especially in rural developing areas, where the lack of, as well as inconsistent, infrastructure could seriously lead to the detriment of economic development directly impacting on social well-being.
- Potential reduction in crime as a result of short-term job creation during construction (providing farm safety and security measures are implemented)
- Possible local growth in the economy of the surroundings towns and others in the sub-region, and for local businesses depending on where the construction camp is.
- Economic benefits for contractors and other suppliers of goods and services.
- The project as proposed will ensure significant capital investment that will contribute to the economical growth of the area.
- Private business opportunities could be stimulated.

The No-Go development alternative could therefore not be considered the responsible way to manage the site.

#### 3.2 Environmental impact statement

It is evident that the biggest impact of the project on the environment is expected to occur during the construction phase. It is expected that with the proposed mitigation of impacts and the implementation of the Environmental Management Plan, the expected negative impact could be mitigated to acceptable measures.

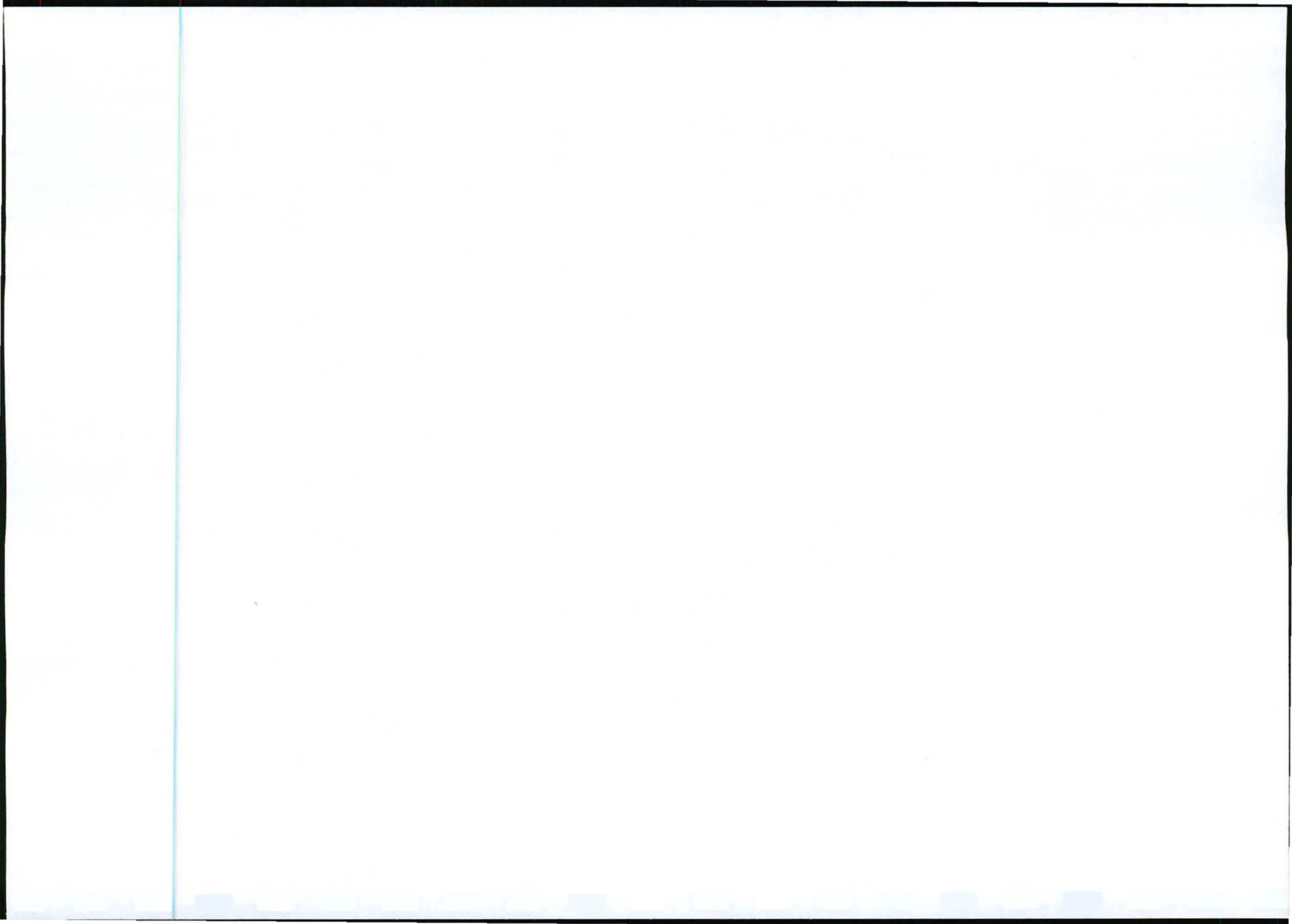
#### EVALUATION METHOD FOLLOWED

The nature and extent of expected negative impacts are described directly under the heading for each impact.

Below this description for each impact, a table has been designed to facilitate evaluation of the expected negative impact in terms of significance (intensity), duration, probability and significance after mitigation.

The numerical values used for "Impact Severity" (significance / intensity) relates to the potential severity of the proposed project on the specific environmental component without any mitigation and is being evaluated and rated on a scale from 0 to 4 where the following values apply :

- 0 = no impact
- 1 = low impact
- 2 = medium impact
- 3 = significant impact
- 4 = severe impact



The duration of the expected negative impact is supplied as either "temporary" - 0-3 years (generally during construction) or "permanent". The probability that the expected negative impact would occur if not mitigated is rated as "low", "medium" or "high". The negative impacts are also evaluated in terms of the effectiveness with which it could be mitigated: "Severity of Impact after Mitigation" is rated on a scale from 0 to 4, with a severe impact after mitigation receiving a rating of 4 (and can therefore influence the viability of the project) and no impact after mitigation receiving a rating of 0.

### Route Alternative 1

#### Evaluation of Impact and Evaluation of Mitigation Measures

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Risk of surface and ground water pollution	2	Permanent	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on cultural heritage resources	0	none	none	0

0

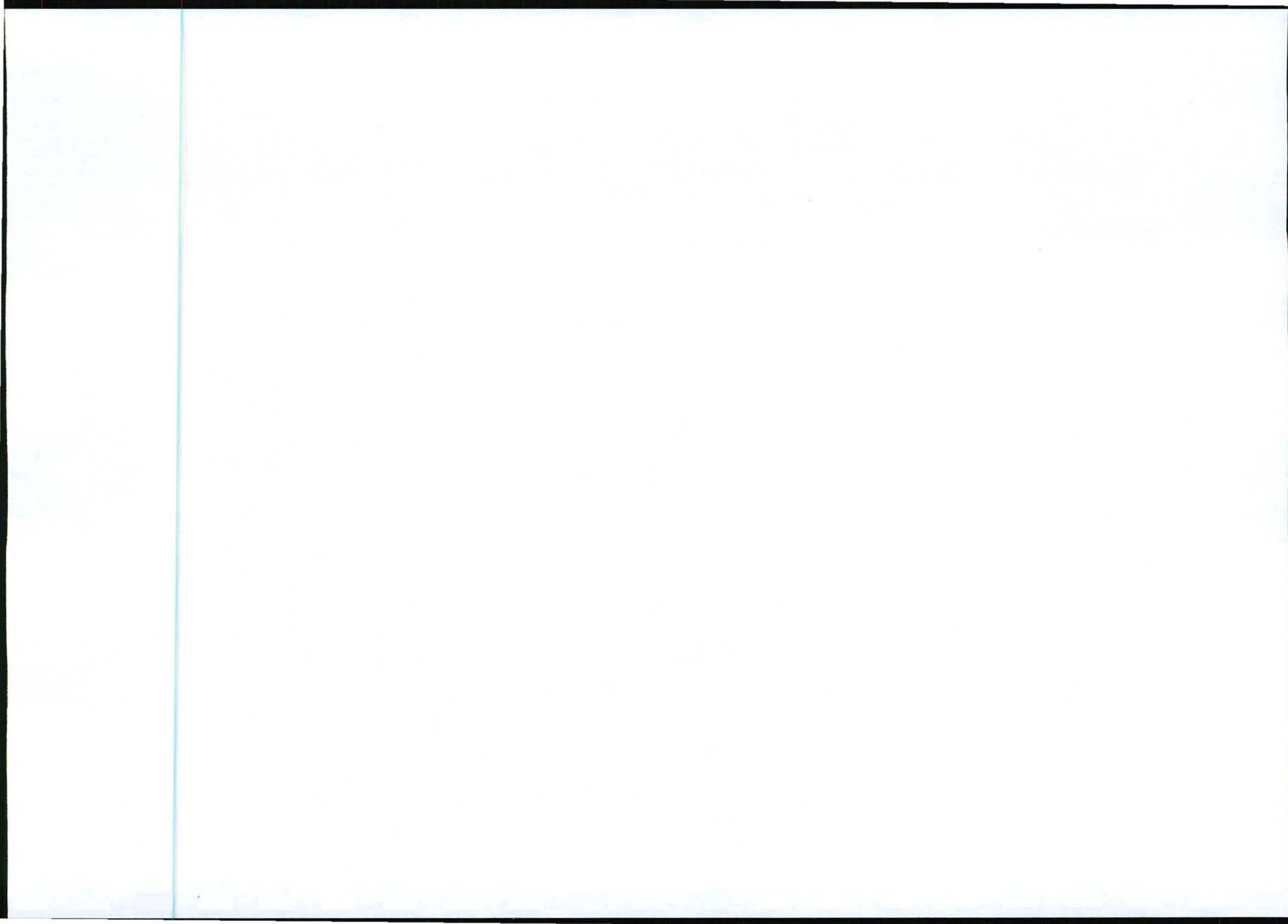
Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on natural habitat	3	Permanent	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Risk of Erosion	3	Permanent	High	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Visual impact (Change of character and atmosphere of the area)	3	Permanent	High	2

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impacts on safety and security	2	Temporary	High	1





Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact of labourers	2	Temporary	High	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on Birds	3	Permanent	Low	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Social Impact	4	Permanent	High	3

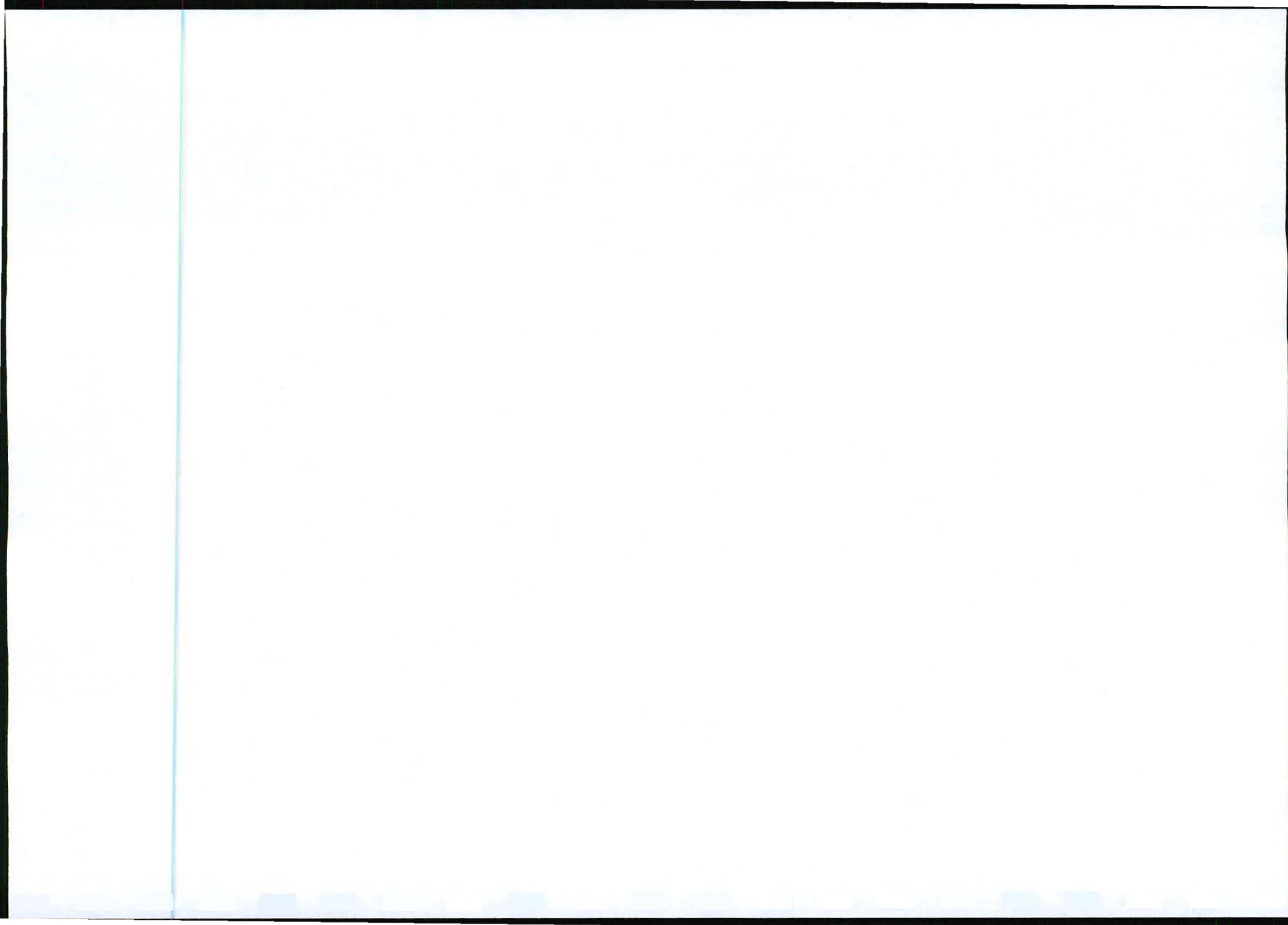
Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact of Solid Waste	3	Temporary	Medium	0

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Loss of agricultural land	2	Temporary	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact of alien vegetation	2	Permanent	High	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Access to properties	4	Permanent	High	2

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation



Impact Description	Impact	Impact	Impact	Mitigation
Impact on conservation areas/ game farms	4	Permanent	High	2

## Route Alternative 2

### Evaluation of Impact and Evaluation of Mitigation Measures

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Risk of surface and ground water pollution	2	Permanent	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on cultural heritage resources	0	none	none	0

0

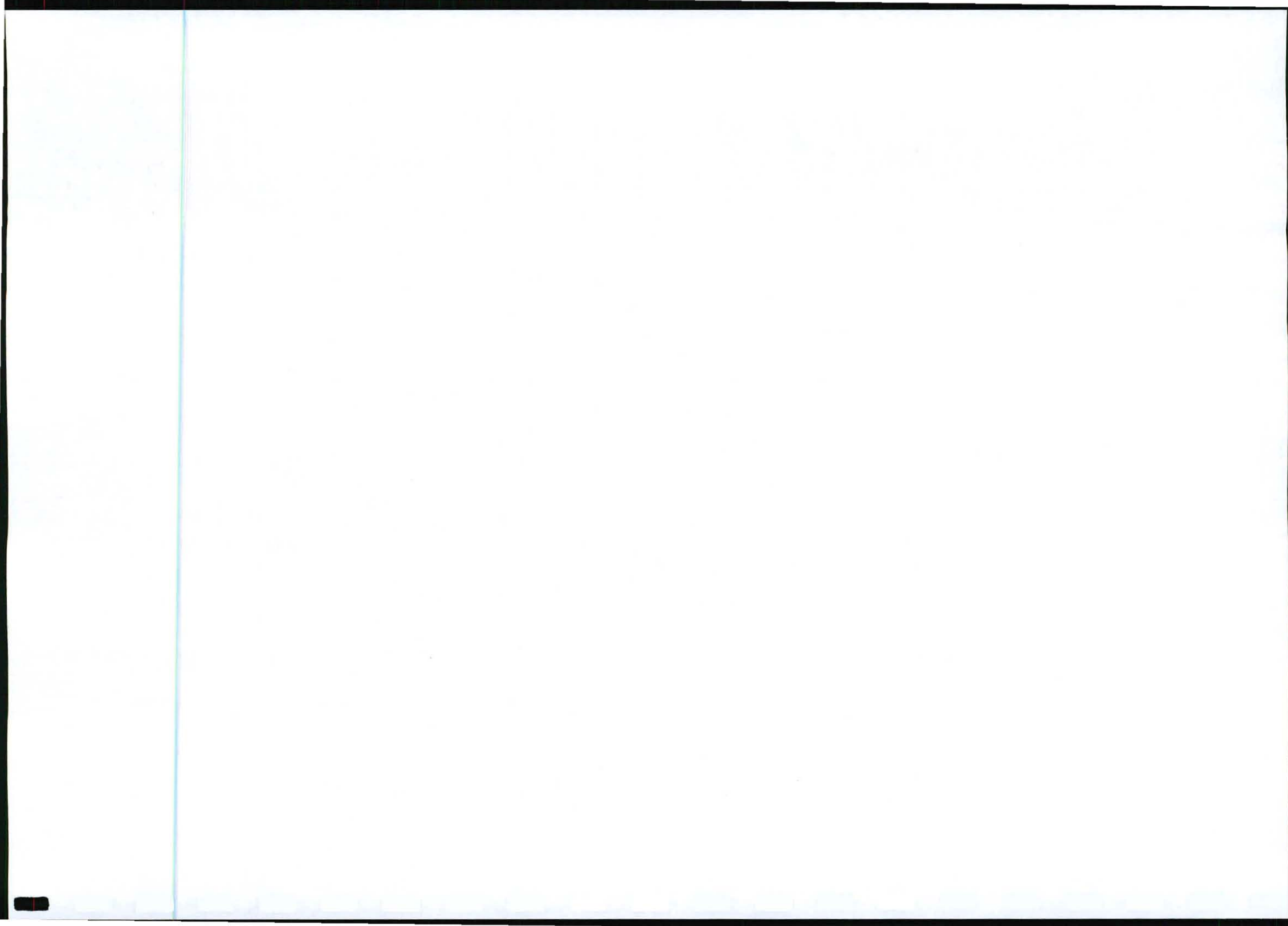
Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on natural habitat	3	Permanent	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Risk of Erosion	3	Permanent	High	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Visual impact (Change of character and atmosphere of the area)	3	Permanent	High	2

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impacts on safety and security	2	Temporary	High	1

Impact Description	Impact	Impact	Impact	Mitigation
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Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact of labourers	2	Temporary	High	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on Birds	2	Permanent	Low	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Social Impact	4	Permanent	High	2

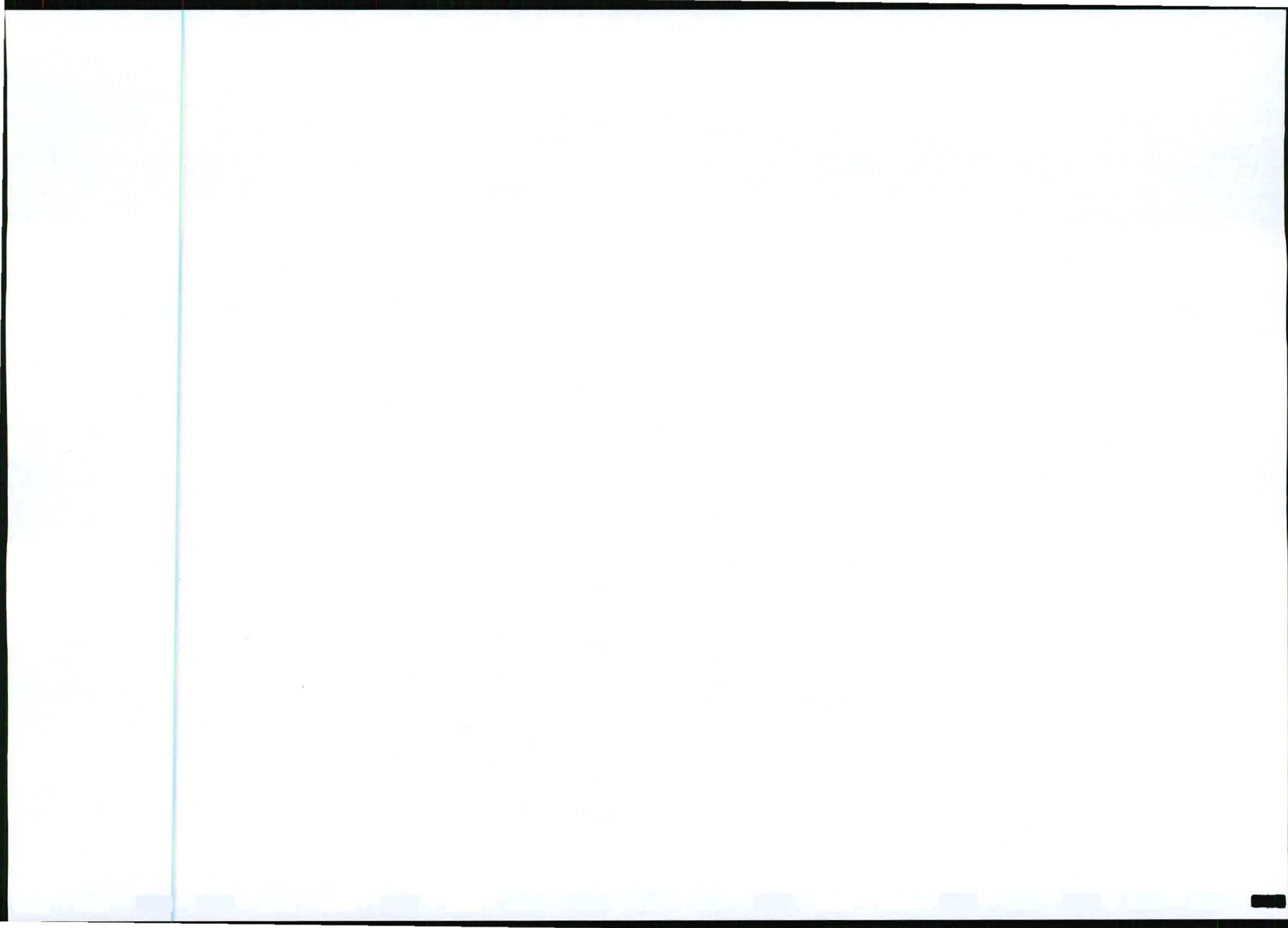
Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact of Solid Waste	3	Temporary	Medium	0

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Loss of agricultural land	2	Temporary	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact of alien vegetation	2	Permanent	High	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Access to properties	4	Permanent	High	2

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation



Impact Description	Impact	Impact	Impact	Mitigation
Impact on conservation areas/ game farms	4	Permanent	High	2

### Route Alternative 3

#### Evaluation of Impact and Evaluation of Mitigation Measures

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Risk of surface and ground water pollution	2	Permanent	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on cultural heritage resources	0	none	none	0

0

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impact on natural habitat	2	Permanent	Medium	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Risk of Erosion	3	Permanent	High	1

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Visual impact (Change of character and atmosphere of the area)	3	Permanent	High	2

Impact Description	Impact	Impact	Impact	Mitigation
	Impact Severity Degree	Duration	Probability	Severity of Impact After Mitigation
Impacts on safety and security	3	Temporary	High	1

Impact Description	Impact	Impact	Impact	Mitigation
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