environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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 the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

The Koeberg Insulator Pollution Testing Station (KIPTS) will entail the following:

- The existing KIPTS was used during the past 30 years and is still in operation. However, due to changes in environmental factors (movement of sand dunes) operation at this site cannot continue. This project therefore entails the decommissioning of the existing testing station and the construction of a new KIPTS in a similar environmental pollution potential environment ideal for testing, but without the same risks as at the existing KIPTS.
- It will be constructed on land of approximately 13 250m^2 (1.325 hectares).
- Associated infrastructure entails an access road with a maximum length of 1.6km, an 11kV power line as well as sewerage and water supply pipelines, all with a maximum length of 250m (these lengths are measures from the new KIPTS to the security fence of the Koeberg Power Station).
- The temporary laydown areas and construction site camp will be approximately 1 500m^2.

Approval of corridor for future position of the access road

- It is not possible at this stage to determine the exact position of the access road because it can only be determined much later on once security issues have been cleared and the position of the future 400kV substation has been determined (note that the 400kV substation does not form part of this project proposal). Important to note is that the Koeberg Nuclear Power Station is a Key Point as determined by the National Key Points Act 102 of 1980 and security is exceptionally strict.
- It is therefore proposed that a corridor be approved by the Department of Environmental Affairs in which the access road can be located once all factors as mentioned have been confirmed. A map of this corridor is provided under Appendix A: Final Layout Plan.

The project site is situated on land belonging to the Koeberg Nuclear Power Station (KNPS), to the north of the West Coast town of Melkbosstrand within the jurisdiction of the City of Cape Town Metropolitan Municipality, Western Cape.

b) Provide a detailed description of the listed activities associated with the project as applied for

The Environmental Impact Assessment Regulations which came into effect in December 2014 and amended in April 2017 applies.

Listing Notice 1 of the NEMA EIA Regulations, 2014 (as amended)	
GN 983, Dec 2014, Number 17 Development— (i) in the sea; (ii) in an estuary; (iii) within the littoral active zone; (iv) in front of a development setback; or (v) if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater; in respect of— a) fixed or floating jetties and slipways; b) tidal pools; c) embankments; d) rock revetments or stabilising structures including stabilising walls; or e) infrastructure or structures with a development footprint of 50 square metres or more — but excluding— (aa) the development of infrastructure and structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) the development of temporary infrastructure or structures where such structures will be removed within 6 weeks of the commencement of development and where coral or indigenous vegetation will not be cleared; or (dd) where such development occurs within an urban area.	The new KIPTS will be constructed within 100m from the high-water mark of the sea. The development will be more than 50m^2.
Activity 19A The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from— (i) the seashore; (ii) the littoral active zone, an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater; or (iii) the sea; — but excluding where such infilling, depositing , dredging, excavation, removal or moving— (f) will occur behind a development setback; (g) is for maintenance purposes undertaken in accordance with a maintenance management plan; (h) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (i) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	Foundations for the new KIPTS will be excavated within 100m from the high-water mark of the sea. Excavation will exceed 5m^3.

GN 983, Dec 2014, Number 24 The development of a road— (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road— a) which is identified and included in activity 27 in Listing Notice 2 of 2014; b) where the entire road falls within an urban area; or c) which is 1 kilometre or shorter.	An access road with a maximum length of 1.6km and with an approximate width of 10m will be constructed.
GN 983, Dec 2014, Number 27 The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	Indigenous vegetation of more than 1 hectare will be cleared for the new KIPTS and access roads.
April 2017, Activity 31 The decommissioning of existing facilities, structures or infrastructure for— (i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014; (ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014; (iii) … (iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or (v) any activity regardless the time the activity was commenced with, where such activity: (a) is similarly listed to an activity in (i) or (ii) above; and (b) is still in operation or development is still in progress; excluding where— (aa) activity 22 of this notice applies; or (bb) the decommissioning is covered by part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies.	The existing KIPTS will be decommissioned.

Listing Notice 3 of the NEMA EIA Regulations, 2014 (as amended)	
GN 985, Dec 2014, Number 4 The development of a road wider than 4 metres with a reserve less than 13,5 metres i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. Areas outside urban areas; (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	An access road with an approximate width of 10m will be constructed in areas that contain indigenous vegetation.
GN 985, Dec 2014, Number 12 The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. i. Western Cape (i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (ii) Within critical biodiversity areas identified in bioregional plans; (iii) Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; (iv) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or (v) On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	An area of more than 300m^2 of indigenous vegetation will be cleared. The study area is situated on land which has been identified as Endangered – also refer to the *Threatened Ecosystem* map as attached under Appendix A. The natural vegetation in most of the study area is Cape Flats Dune Strandveld which is classified as being Endangered.
GN 985, Dec 2014, Number 18 The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. All areas outside urban areas: (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	Sections of the existing access roads will be widened by more than 4m into areas that contain indigenous vegetation.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.
The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (Preferred Alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Approximate centre of site	33^0 40' 18.03" S	18^0 25' 45.39" E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Approximate centre of site	33^0 40'55.30" S	18^0 26' 00.56" E
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative 1

• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

Alternative 2

• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

Alternative 3

• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.
In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

BACKGROUND TO THE PROJECT

Koeberg Insulator Pollution Test Station (KIPTS) is a naturally polluted outdoor insulator test station with 11, 22, 33, 66, 132 and 400 kV insulator test bays. KIPTS was established in the early 1990's to determine the suitability of composite insulator products for use on the Eskom networks. It is necessary as the laboratory tests do not adequately predict the performance of composite products over years of service in the field and in varying environments, wear and tear, corrosivity of infrastructure, etc. The design of the insulator product as well as the material is continuously changing and this necessitates the continuing testing of these products. The use of KIPTS over the past 30 years has led to a more reliable insulator product being designed and purchased resulting in a more reliable network. The station is well established and is integral to the acceptance philosophy employed within Eskom for the selection, purchasing and use of all insulator products within the power network.

KIPTS being located in such a severe (mainly natural) pollution environment, has made it an ideal facility for other Eskom projects that require accelerated results, such as the pole top fire- and conductor corrosion research.

Environmental changes and the promulgation of new environmental legislation have resulted that KIPTS cannot continue to be operated safely or expanded cost effectively within the requirements of SANAS 17025 in its current location. Thus KIPTS needs to be relocated to a similar natural environment close to its existing location. The environment needs to be as close as possible to the existing site to ensure a 12 month evaluation of products will adequately represent performance over the life of the product. A less severe environment will result in longer test durations being required.

Due to environmental changes KIPTS is now located in the middle of a mobile dune field, inside Koeberg's cadastral boundary and therefore is regularly covered in sand. In order to prevent the facility from being buried, sand has been cleared adjacent to and inside the testing station since it was built until it was stopped in 2011 due to the concern that it contravened EIA Regulations.

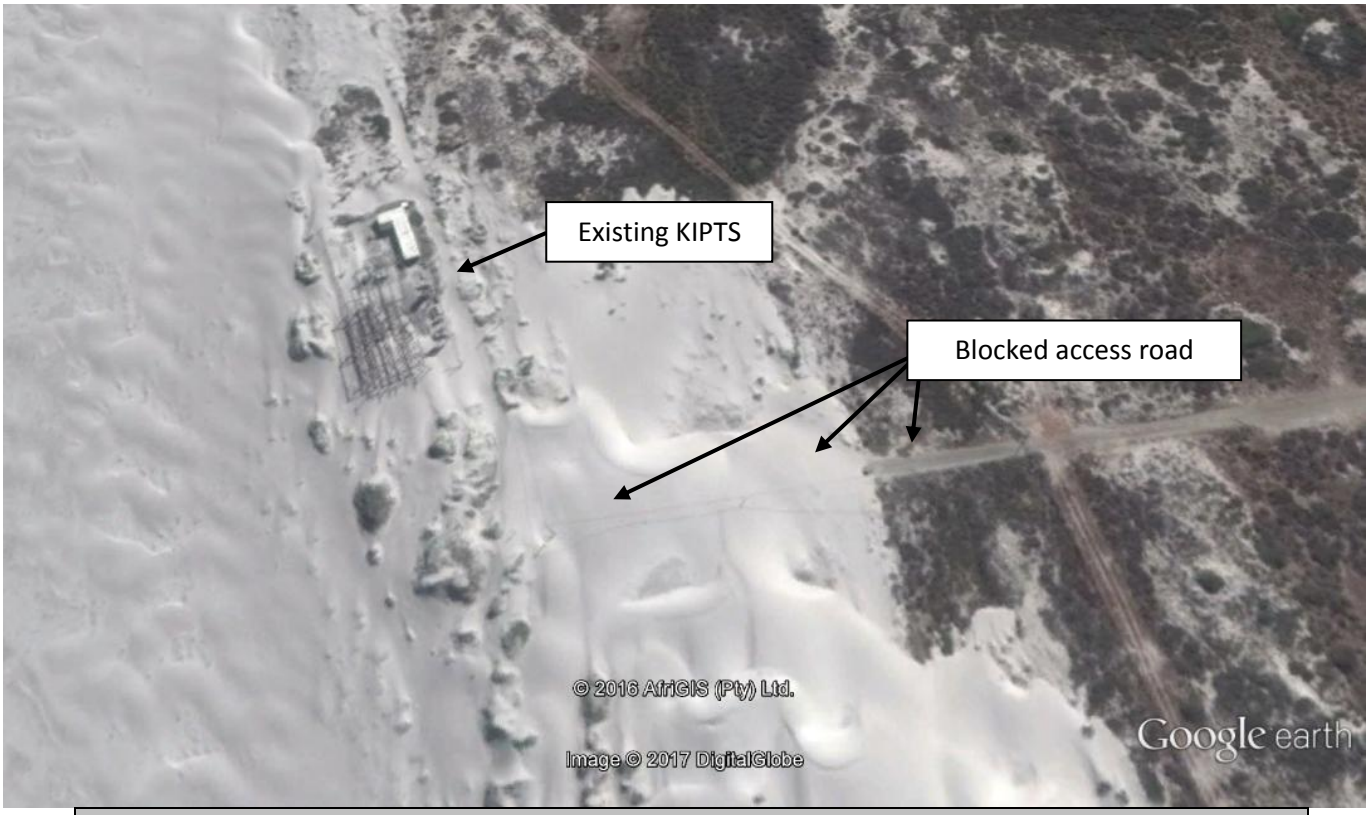
Prior to 2011, less than 5m^3 of sand was being removed by a shovel and wheelbarrow once a month. In 2014 the access road and the southern part of KIPTS was engulfed with sand within 2 weeks due to high winds and large sand storms during this period. Emergency sand clearance measures were put in place that eventually cleared an estimated 1600m3 of sand from the site. The emergency cleanup was a once-off allowance by the Department of Environmental Affairs (DEA) thus it cannot be repeated.

Regular cleaning of the site has been done since the emergency cleanup was completed, but during December 2014 high winds once again caused the site and access road to be engulfed by the moving dune system. This moving dune system also effects the safe overhead line clearance which serves as power source to KIPTS.

From an environmental and financial perspective it cannot be justified to do emergency cleanup often, thus it is proposed to relocate the existing Koeberg Insulator Polution Test Station and build it to be SANAS 17025 compliant.

Relocating and expanding KIPTS will ensure the continuation of accelerated insulator testing in a naturally polluted environment. This will provide an adequate filter to prevent the use of substandard insulator products in the Eskom network. Research work done at KIPTS will continue to contribute to the knowledge of insulator pollution performance within RT&D, Cigre and IEC. This, combined with pollution measurements, will assist with the optimal selection and dimensioning of insulators for use in various environments. And so, KIPTS will continue to play an essential role in the research and development for many local and international insulator manufacturers.

It is therefore necessary to establish a new natural polluted insulator test facility in a similar environment to that of the current KIPTS. A suitable new site must be identified which is representative of the current insulator test station pollution and environmental conditions.



SITE DESCRIPTION

The sites are located on land belonging to the Koeberg Nuclear Power Station, which is also the only development within the area. The sites are within the flat, low-lying area directly behind the foredunes. Urban development and the Sout River are more than 2.5km to the south. The two site alternatives are both undeveloped.

The natural vegetation in most of the study area is Cape Flats Dune Strandveld (Endangered), with Cape Seashore Vegetation (Least Threatened) on the coastal dunes at the existing KIPTS site.

Also refer to the Photo Report as attached under Appendix B.

Please note that all photographs used in this report were approved by the Officer: Security Business Intelligence: Security Group: Security Division: Koeberg Nuclear Power Station.

The existing KIPTS site

The Preferred Site Alternative 1

Site Alternative 2

SELECTING ALTERNATIVES

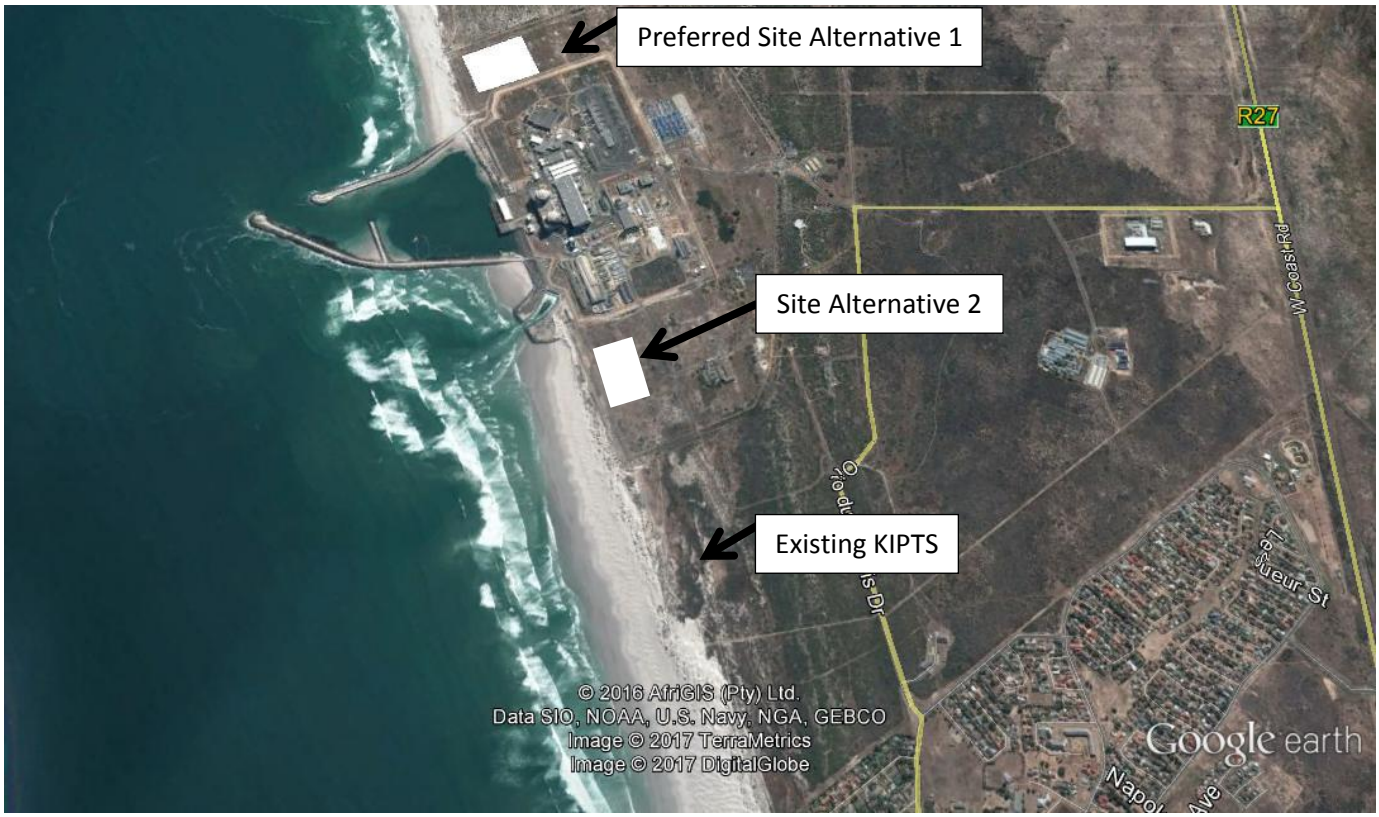
It is necessary to establish a new natural polluted insulator test facility in a similar environment to that of the current KIPTS. It must be representative of the current insulator test station pollution and environmental conditions.

The following alternatives are discussed below:

- Site alternatives
- Access road alternatives
- 11kV power line route alternatives

SELECTING AN ALTERNATIVE SITE: TECHNICAL REASONS

It was necessary to measure the pollution levels at the two proposed sites. A *Directional Dust Deposit Gauges* was used to determine which site closely correlates to the pollution levels found at KIPTS.



Site Alternative 1: The Preferred Site

The pollution levels at Site Alternative 1 were in the same order class as that of the existing testing station. This is therefore definitely the preferred site for the new KIPTS.

Site Alternative 2
The pollution levels at Site 2 were much lower than that at Site 1 as well as much lower than that of the existing site. Should KIPTS be constructed at this site the test results will not be comparable with the data and information obtained during the past 30 years.

The successful evaluation of the natural ageing and pollution performance of insulator products will not be able to continue at this site.

SELECTING AN ALTERNATIVE SITE: PUBLIC PARTICIPATION

Various organs of state commented on the Draft BAR and some minor changes were made to the BAR and EMP. *However, no objections to the proposed project or the alternatives selected were received during the public participation process.*

SELECTING AN ALTERNATIVE SITE: SPECIALIST STUDIES

Specialist studies were undertaken to determine the suitability of the two sites from each specialists' point of view. These studies concluded as follows:

Freshwater Assessment
The potential impact on aquatic habitat would best be mitigated by ensuring that the various elements of the proposed activity avoid these aquatic habitats through the selection of the alternatives that are located away from any aquatic feature. Site Alternative 1 is likely to have the least potential impact on the aquatic features in the area as there are no aquatic features identified within or close to this site.

The general risk of the proposed activities degrading the aquatic ecosystems in the area is considered to be low. The water use activities associated with the proposed relocation of the Koeberg Insulator Pollution Test Station are such that they can be authorised in terms of the General Authorisations for Section 21(c) and (i) water uses.

The existing KIPTS site is located near the dune slack wetlands. The No-Go Alternative would imply that the existing site would require continuous maintenance which poses a greater risk of impacting on these wetland areas than the new Site Alternative 1.

The proposed relocation of the KIPTS is supported.

Ecological Assessment

- The natural vegetation in most of the study area is Cape Flats Dune Strandveld (Endangered), with Cape Seashore Vegetation (Least Threatened) on the coastal dunes at the existing KIPTS site.
- Both proposed KIPTS sites have been heavily disturbed and support low diversity vegetation, with no plant Species of Conservation Concern. Alternative 1 is marginally more sensitive from a botanical perspective (Low – Medium sensitivity) than Alternative 2 (Low sensitivity) but neither presents any significant constraints to the proposed development.
- The marginally preferred new KIPTS site from an ecological perspective is Alternative 2, and development of this area is likely to have Very Low negative botanical and faunal impacts, whereas development of Alternative 1 is likely to have Low negative botanical and faunal impacts.

Dune Morphology

The proposed preferred and alternative sites for the new KIPTS are entirely within the area that was formerly mobile dunes. At both sites, development can take place safely without any impacts on the now-stabilized dunes. Both sites are equally suitable from the dunes perspective.

Heritage Impact

No impacts on significant heritage resources are anticipated from any of proposed project activities and no further heritage studies are required. There is no preference from a heritage point of view for any of the two alternative sites.

CONCLUSION ON SELECTING AN ALTERNATIVE SITE

In order for the new KIPTS to operate at the same level of effectiveness as the existing KIPTS the new site has to have the same levels of pollution as the existing KIPTS. After thorough testing it was determined that Site Alternative 1 has similar pollution levels and this is therefore the Preferred Site.

To date, no objection to the development was received during the public participation process.

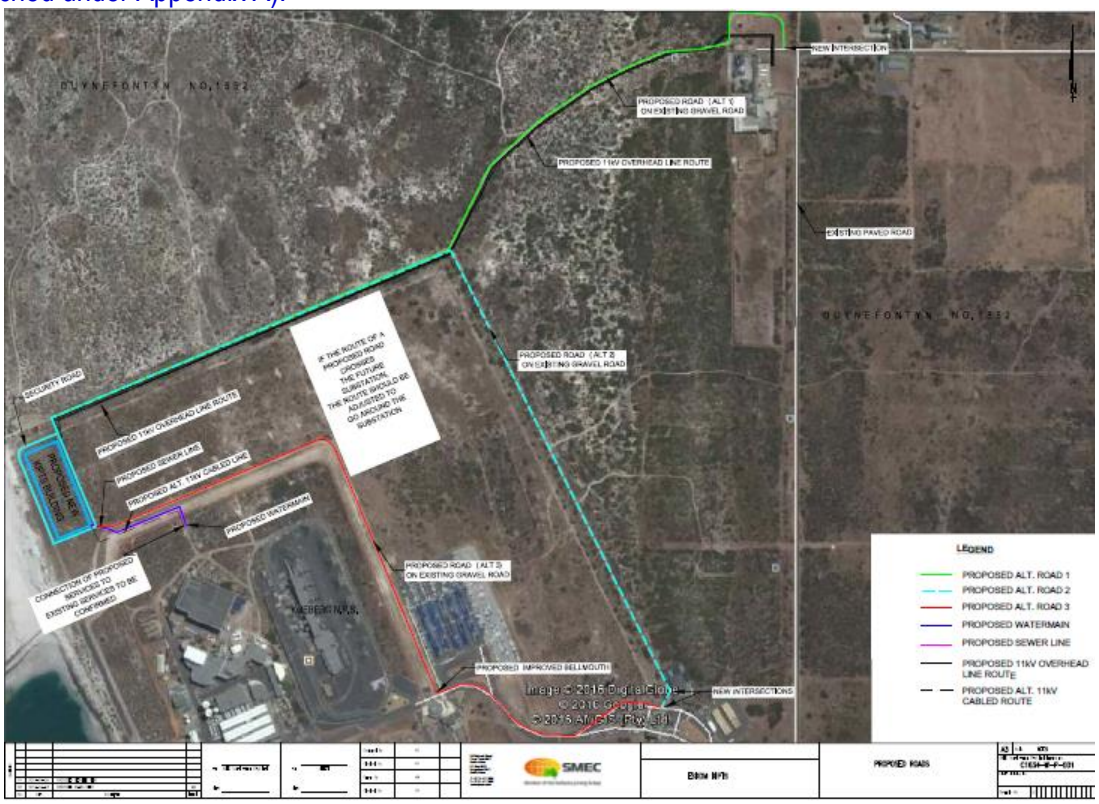
From a heritage and dune morphology point of view, there is no difference between the sites and development at either site is supported.

From a freshwater impact perspective, Site Alternative 1 is preferred since there are no water sources in close vicinity to this site.

From an ecological perspective, Site Alternative 2 is marginally preferred over Site 1, but development of Alternative 1 is likely to have *Low* negative botanical and faunal impacts and development at this site can therefore be supported.

SELECTING AN ALTERNATIVE ROUTE FOR THE ACCESS ROAD

Three access road alternatives were initially investigated (a clear and A3 size copy of this map is also attached under Appendix A):



However, after assessment of these road alternatives, the following factors impacted on the decision-making process:

Road Alternative 1 (green route)

- This was not the preferred road because it transverses the Koeberg Nature Reserve and sensitive areas within the Reserve. The vegetation in this section was identified in the Ecological Report as being of high sensitivity which would require significant mitigation.

Road Alternative 2 (blue route)

- This road was the preferred road for construction purposes.
- This road however runs outside of the ACP1 (Access Control Point 1) barrier. Another security access point would therefore have to be added if this road is used. This could be acceptable on a temporary basis but given the low usage of the additional entrance during operational periods it will be unnecessary to permanently man the entrance. In this case, every time someone wants to enter or leave the KIPTS it will require a security staff to travel to the gate and let the people in or out. This is not acceptable from a practical point of view since it will cause considerable delays when entering or exiting the area.

Road Alternative 3 (red route)

- This was the preferred road during the operational phase.
- However, security at Koeberg confirmed that it is definitely not preferable to use this road because it will trigger the security detection systems.

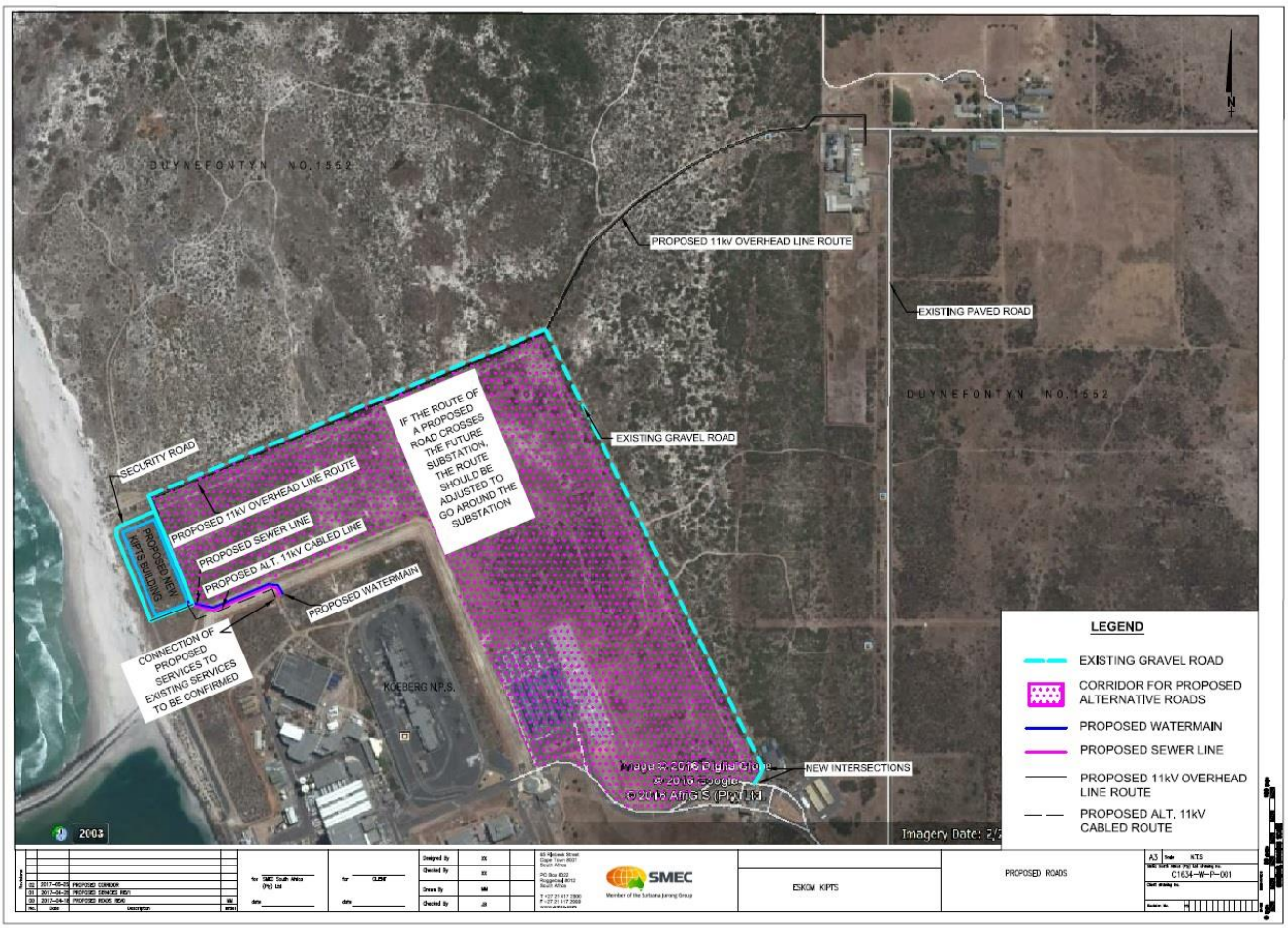
Future 400kV substation (the big white block in the map)

- The Environmental Authorisation for this 400kV substation was issued on 8 September 2016, DEA Ref: 14/12/16/3/3/2/508. The exact location of the substation is known but the exact layout is not known and there is still some discussion over the need to amend the EA to relocate it.
- Access roads will also be constructed for this 400kV substation and there is a possibility that these access roads can be used by the people visiting KIPTS. This will however only be determined once the layout of the substation has been finalised.

Approval of corridor for future position of the access road

Due to the above mentioned factors it is not possible at this stage to determine the exact position of the access road because it can only be determined much later on once security issues have been cleared and the position of the future 400kV substation has been determined (note that the 400kV substation does not form part of this project proposal). Important to note is that the Koeberg Nuclear Power Station is a Key Point as determined by the National Key Points Act 102 of 1980 and security is exceptionally strict.

It is therefore proposed that a corridor be approved by the Department of Environmental Affairs in which the access road can be located once all factors as mentioned have been confirmed. A map of this corridor is provided under Appendix A: Final Layout Plan.



The length of the existing gravel road (blue dotted line) on the outside border of the corridor (purple shaded area) is approximately 1.6km in length and the existing road (Road Alternative 3 as per the previous map) on the inside border of the corridor is approximately 1km in length. The width of the corridor within which the route for the road would ultimately be determined varies between ±400m and ±230m.

Specialist studies

- The dune morphologist, freshwater specialist as well as the heritage consultant confirmed that an access road anywhere within the corridor would be acceptable from their respective specialist fields.
- The ecologist confirmed that the corridor is deemed to be of *low* faunal sensitivity, with sections of *low* as well as *low-medium* botanical sensitivity (also refer to the Ecological Sensitivity Map as attached under Addendum A).
- The loss of the *Low* and *Low – Medium* sensitivity habitat within the corridor is likely to be of Very Low negative significance.

From the specialists' point of view, an access road anywhere within the corridor is supported.

It is therefore requested that DEA approves the corridor for future access as indicated in purple on the Final Layout Plan as shown above (also attached under Appendix A).

SELECTING AN ALTERNATIVE ROUTE FOR THE 11KV POWER LINE

Two possible route alternatives were investigated (refer to the map below):

- Alternative 1: This option is to connect directly to a connection point within the Koeberg facility. The short power line (approximately 300m) will be underground.
- Alternative 2: The route for the overhead power line is approximately 1.6km in length and starts at the entrance to the Koeberg Nature Reserve where an existing connection point is available. From here it will follow the existing road through the Nature Reserve up to the connection with the KIPTS.

Alternative 1 is by far the preferred option because it will be much shorter with obvious positive cost implications. It will also be constructed within an area that has been identified as having a Low and Low-Medium botanical sensitivity. Loss of vegetation within this area is considered as being of a Very Low negative significance.

Alternative 2 transverses the Nature Reserve in which areas of High botanical and faunal sensitivities were identified. This route is also much longer than Alternative 1. Alternative 2 is therefore not the preferred route option.

Please note that 11kV power lines do not fall within the ambit of the EIA Regulations but alternative options were assessed because it is one of the main project components for this project.

CONCLUSION ON SELECTING ALTERNATIVES

Site Alternatives

- In order for the new KIPTS to operate at the same level of effectiveness as the existing KIPTS the new site has to have the same levels of pollution as the existing KIPTS. After thorough testing it was determined that Site Alternative 1 has similar pollution levels and this is therefore the Preferred Site.
- To date, no objection to the development was received during the public participation process.
- From a heritage and dune morphology point of view, there is no difference between the site and development at either site is supported.
- From a freshwater impact perspective, Site Alternative 1 is preferred since there are no watercourses in close vicinity to this site.
- From an ecological perspective, Site Alternative 2 is marginally preferred over Site 1, but development of Alternative 1 is likely to have *Low* negative botanical and faunal impacts and development at this site can therefore be supported.

Access road route alternative

- It is not possible at this stage to determine the exact position of the access road - it will only be determined much later on once security issues have been cleared and the position of the future 400kV substation has been determined. Important to note is that the Koeberg Nuclear Power Plant is a Key Point as determined by the National Key Points Act 102 of 1980 and security is exceptionally strict.

- It is therefore propose that a corridor be approved by the Department of Environmental Affairs in which the access road will be located once all factors as mentioned have been confirmed. A map of this corridor is provided under Appendix A: Final Layout Plan.
- The length of the existing gravel road on the outer border of the corridor is approximately 1.6km in length and the existing road on the inside border of the corridor is approximately 1km in length. The width of the corridor varies between ±400m and ±230m.
- From the specialists' point of view, an access road anywhere within the corridor is supported.

It is therefore requested that DEA approves the corridor for future access as indicated in the Final Layout Plan as shown above (also attached under Appendix A).

11V power line route alternative

- Alternative 1 is the obvious and preferred option because it will be much shorter with obvious positive cost implications. It will also be constructed within an area that has been identified as having a Low and Low-Medium botanical sensitivity. Loss of vegetation within this area is considered as being of a Very Low negative significance.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)		
Alternative 2		
Alternative 3		

e) No-go alternative

The use of the existing KIPTS over the past 30 years has led to a more reliable insulator product being purchased resulting in a more reliable electrical network. However, due to environmental changes (movement of sand dunes) and the promulgation of new environmental legislation KIPTS cannot continue to be operated safely or expanded cost effectively within the requirements of SANAS 17025 in its current location. Thus KIPTS needs to be relocated to a similar natural environment close to its existing location.

Relocating and expanding KIPTS will ensure the continuation of accelerated insulator testing in a naturally polluted environment. This will provide an adequate filter to prevent the use of substandard insulator products in the Eskom network. This will assist with the optimal selection and dimensioning of insulators for use in various environments. And so, KIPTS can continue to play an essential role in the research and development for many local and international insulator manufacturers. None of these advantages will be realised should the no-go option be applied.

Failure to move the site will furthermore jeopardize the answers to the following reasearch questions posed by the Distribution Insulator Research program:

1. How can the in-service performance of polymeric insulators be predicted in the long term?
2. What is the life expectancy of polymeric insulators in naturally polluted environments?
3. What is the expected insulator product lifetime?
4. Should a maximum electric field stress level be specified for insulator designs? If so, how could it be confirmed for a product design?
5. What is the life expectancy of cyclo-aliphatic insulators when compared to equivalent porcelain insulators with particular reference to coastal environments, industrial environments and “clean” (rural) environments?
6. How can failures from the field be correlated to failures obtained at the test stations?
7. What manifestation constitutes the failure of a test insulator (are there new types of failures)?
8. What statistical techniques and other data (as example climate, effect of height and distance from coast) can be applied to extrapolate and predict pollution severity index levels?
9. How can we predict instantaneous pollution events?
10. Does the new hydrophobic cyclo-aliphatic material work and if so what will be the benefits to the Distribution business?
11. Find a coating that can be applied to field-aged cycloaliphatic in a workshop environment.
12. Find the criteria, which will enable an insulators remaining life and flashover performance to be predicted.
13. What is the effect on pollution performance as a result of orientation of the insulator (22 kV line post)?

The maintaining of the status quo, in other words the application of the no-go option, is definitely not recommended for this project.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	Size of the activity:
Site Alternative A1[1]	±13 250m² (1.325 hectares)
Site Alternative A2	±13 250m² (1.325 hectares)
Alternative A3 (if any)	m²

or, for linear activities:

Alternative:	Length of the activity
Alternative 1	Km
Alternative 2	Km
Alternative 3	Km

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

Alternative:	Size of the site/servitude:
Site Alternative 1	±13 250m² (1.325 hectares)
Site Alternative 2	±13 250m² (1.325 hectares)
Alternative 3	

4. SITE ACCESS

Does ready access to the site exist? Site access does exist but the position of the access road will be changed.	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:

Please refer to *Section A: Selecting Alternatives* above for a detail description of the access road alternatives.

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.

5. 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 kilometres, 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:

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- 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).

6. LAYOUT/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:
- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:
- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. 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 report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 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.

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES	NO	Please explain
The site is currently zoned for agriculture and Eskom is in the process of rezoning the site.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The Western Cape PSDF has a set of objectives which aims to guide development to be sustainable, thereby ensuring that development follows the principles of the 'triple bottom line', namely Ecological integrity (health of the Planet), Social equity (situation of the People) and Economic efficiency (attainment of Prosperity). It is a widely accepted fact that the provision of reliable electricity has a positive impact on the social life of people as well as the economy of the region to which the electricity is provided. This KIPTS project is for the testing, and subsequently improvement, of insulators that are being used as part of the electrical network. High quality insulators will assist in a more reliable electrical network. Fauna & flora-, aquatic-, heritage-, dune impact assessments were undertaken for this project. The preferred KIPTS site takes into account the findings and proposed mitigation measures of these studies, thereby ensuring the ecological integrity of the proposed development. This Eskom project is therefore in support of the 'triple bottom line' as advocated in the Western Cape PSDF.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
Not applicable			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	NO	Please explain
The **Integrated Development Plan 2012 – 2017** of the City of Cape Town states that the City's electricity supply area is divided between Eskom and the City of Cape Town, and both entities have			

electrification programmes.

The KIPTS programme is for the testing and improvement of insulators which ultimately impacts on the reliability of the electrical distribution network. The results of these tests will benefit both Eskom and the City of Cape Town, both being suppliers of electricity.

The City will continue to invest in infrastructure to ensure that Cape Town has the capacity to support development. As cities expand, their industries and people need to be supported by adequate services, from electricity, water and other amenities to additional services that aid modern development beyond the basics, such as a broadband network and public transport networks.

Investing in infrastructure, will encourage growth by ensuring the physical supporting capacity for people to build opportunities.

The IDP further states that a concerted focus to take care of the natural environment is required. It is important to ensure that future generations are able to enjoy a clean and safe environment, in which biodiversity is conserved and tourism and recreational opportunities are maximised.

This Eskom project supports the following chapters of the National Development Plan (NDP), and thereby supporting the City's NDP plans:

- NDP chapter 4: Economic infrastructure
- NDP chapter 5: Environmental sustainability and resilience

The project as proposed is also in line with the following National Government outcomes:

- Outcome 6 – An efficient, competitive and responsive economic infrastructure network
- Outcome 10 – Environmental assets and natural resources that are well protected and continually enhanced.

Cape Town Spatial Development Framework (CTSDF)

The CTSDF guides the spatial form and structure of Cape Town in the future. This long-term plan, extending over 20 years or more, will enable the City to manage new growth and change in Cape Town, to ensure a more sustainable and equitable city.

Natural assets

The natural features (such as the mountains, biodiversity and coastline) that make Cape Town a unique and desirable place to live, work and play should shape where and how the city develops.

One of the strategies and interventions that will assist in the implementation of the CTSDF is Strategy 1: Plan for Employment, and Improve Access To Economic Opportunities. It is stated that the interventions that will help achieve this include that the assets of Cape Town, such as its infrastructure (airports, road network, etc.) and the natural environment should be maintained.

The testing of insulators in order to ensure a more reliable electrical network as proposed in this project, combined with the protection of the environment is in support of this strategy.

(d) Approved Structure Plan of the Municipality	YES	NO	Please explain

A Structure Plan for the City of Cape Town is not available / does not exist.

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	NO	Please explain

Eight **District Plans** have been compiled for each of the planning districts of the City of Cape Town. The plans have been approved by the City of Cape Town as structure plans in terms of section 4(10) of the Land Use Planning Ordinance ('LUPO'). They include an integrated **Environmental Management Framework (EMF)** developed in terms of the National Environmental Management Act ('NEMA'). Their approval corresponds with the withdrawal of several outdated structure plans and planning policies.

The plans are informed by the city-wide Cape Town Spatial Development Framework and aim to:

- provide direction to the desired nature and form of development in the district;
- assist in providing a guide to land use and environmental decision-making processes;
- provide a spatial informant to strategic public and private investment initiatives;
- inform the development of priorities for more detailed local area planning.

The KIPTS substation falls within the cadastral boundaries of the Koeberg Nuclear Power Station and is also clearly demarcated as falling outside of the City's identified Critical Biodiversity Areas.

The development as proposed takes due cognisance of all mitigation measures proposed by the specialists appointed for this project and are, amongst other, included in the Environmental Management Plan. This will minimise impact on the natural environment to acceptable levels.

(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain

Unknown

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	NO	Please explain

The **Cape Town Spatial Development Framework** (CTSDF) is a long-term plan, extending over 20 years or more, which will enable the City to manage new growth and change in Cape Town.

One of the strategies and interventions that will assist in the implementation of the CTSDF is Strategy 1: Plan for Employment, and Improve Access To Economic Opportunities. It is stated that the interventions that will help achieve this include that the assets of Cape Town, such as its infrastructure (airports, road network, etc.) and the natural environment should be maintained.

The provision of reliable insulators to improve the electrical networ, combined with the protection of the environment is in support of this strategy.

4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES	NO	Please explain
The proposed KIPTS project will contribute to the provision of a more reliable electricity network and the economic as well as private sectors will ultimately benefit from this project.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
The minimal services required for the new KIPTS will link in with the existing services of the Koeberg Nuclear Power Station.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
This development will not impact on municipal infrastructure.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO	Please explain
This project does ultimately contribute on national level. Eskom is the national electricity utility which generates and distributes electricity to industrial, mining, commercial, agricultural and residential electricity consumers and re-distributors.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES	NO	Please explain
The preferred development site falls within the cadastral boundary of the Koeberg Nuclear Power Station and has similar pollution levels than the existing KIPTS site.			
9. Is the development the best practicable environmental option for this land/site?	YES	NO	Please explain
The preferred development site falls within the cadastral boundary of the Koeberg Nuclear Power Station and has similar pollution levels than the existing KIPTS site.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain

The benefits of a reliable electrical supply network combined with the fact that the specialist studies confirmed that negative impacts can be mitigated to acceptable levels confirms that the benefits of this project outweigh the minimal negative impacts thereof.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
The KIPTS is the only such testing station in the country and there are no plans to construct another.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO	Please explain
No person's rights would be negatively affected by the proposed activity. A thorough public participation programme was conducted and issues raised by interested & affected parties are satisfactorily addressed.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO	Please explain
The activity is irrelevant to the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO	Please explain
This project contributes to a more reliable electrical network and is therefore in support of "SIP 10: Electricity Transmission and Distribution for all - Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity."			
15. What will the benefits be to society in general and to the local communities?			Please explain
A reliable electrical distribution network has well-known economic and social benefits and positive impacts to which this project will ultimately contribute.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
The use of the existing KIPTS over the past 30 years has led to a more reliable insulator product being purchased resulting in a more reliable electrical network. However, due to environmental changes (movement of sand dunes) and the promulgation of new environmental legislation KIPTS cannot continue to be operated safely or expanded cost effectively within the requirements of SANAS 17025 in its current location. Thus KIPTS needs to be relocated to a similar natural environment close to its existing location. Relocating and expanding KIPTS will ensure the continuation of accelerated insulator testing in a naturally polluted environment. This will provide an adequate filter to prevent the use of substandard insulator products in the Eskom network. This will assist with the optimal selection and dimensioning of insulators for use in various environments. And so, KIPTS can continue to play an essential role in the research and development for many local and international insulator manufacturers. The following reasearch questions are being addressed by the Distribution Insulator Research			

program:

1. How can the in-service performance of polymeric insulators be predicted in the long term?
2. What is the life expectancy of polymeric insulators in naturally polluted environments?
3. What is the expected insulator product lifetime?
4. Should a maximum electric field stress level be specified for insulator designs? If so, how could it be confirmed for a product design?
5. What is the life expectancy of cyclo-aliphatic insulators when compared to equivalent porcelain insulators with particular reference to coastal environments, industrial environments and "clean" (rural) environments?
6. How can failures from the field be correlated to failures obtained at the test stations?
7. What manifestation constitutes the failure of a test insulator (are there new types of failures)?
8. What statistical techniques and other data (as example climate, effect of height and distance from coast) can be applied to extrapolate and predict pollution severity index levels?
9. How can we predict instantaneous pollution events?
10. Does the new hydrophobic cyclo-aliphatic material work and if so what will be the benefits to the Distribution business?
11. Find a coating that can be applied to field-aged cycloaliphatic in a workshop environment.
12. Find the criteria, which will enable an insulators remaining life and flashover performance to be predicted.
13. What is the effect on pollution performance as a result of orientation of the insulator (22 kV line post)?

The testing results obtain from KIPTS are also shared globally.

The need & desirability for this project can be seen as high.

17. How does the project fit into the National Development Plan for 2030?	Please explain

The **National Development Plan** aims to eliminate poverty and reduce inequality by 2030. South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society.

The Commission's **Diagnostic Report, June 2011** set out South Africa's achievements and shortcomings since 1994. It identified a failure to implement policies and an absence of broad partnerships as the main reasons for slow progress, and set out nine *primary challenges of which the following is relevant to this project*: "Infrastructure is poorly located, inadequate and under-maintained". Given the complexity of national development, the plan sets out six *interlinked priorities. Relevant to this project is bringing about faster economic growth*.

The **National Development Plan** makes a firm commitment to achieving a minimum standard of living. *Elements of a decent standard of living include the following relevant to this project* :

- A more efficient and competitive infrastructure.
- Infrastructure to facilitate economic activity that is conducive to growth and job creation.

An approach will be developed to *strengthen key services* such as commercial transport, energy, telecommunications and water, while ensuring their long-term affordability and sustainability.

Economic infrastructure: The proportion of people with access to the electricity grid should rise to at

least 90 percent by 2030, with non-grid options available for the rest.

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

Current procedures and/or organisational structures are not necessarily achieving integrated decision-making and/or co-operative governance and, as a result, there is a failure to properly achieve the objectives of IEM as set out in Section 23 of NEMA. EIA's however often focus on the immediate harm a project will cause rather than any benefits it might create in the long term to sustainable development.

The stated objectives of Section 23 are to ensure integrated decision-making and co-operative governance so that NEMA's principles and the general objectives for integrated environmental management of activities can be achieved. The goals are to

a) promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;
b) identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2;
c) ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;
d) ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;
e) ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and
f) identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.

For this project the following actions were taken to reach the general objectives of Integrated Environmental Management as set out in Section 23 of NEMA:

a) Applicable environmental, economic and social aspects have been assessed, thereby ensuring an integrated approach in order to balance the needs of all whom would be affected by this development.
b) Impacts have been described and assessed elsewhere in this report. Mitigation measures have been supplied in order to ensure that all identified impacts are mitigated to acceptable levels. Alternatives have been thoroughly assessed and the best possible solution represents this development proposal.
c) The development proposal has to be evaluated and approved by DEA and no construction may commence prior to the issuing of the Environmental Authorisation.
d) The procedures which were followed during the public participation programme were based on the NEMA EIA Regulations which came into effect on 14 December 2015.
e) DEA will take all information as represented in this report into consideration and may request further information should they feel that further studies/information is required before an informed decision can be made.

f) The mitigation measures as supplied in this report together with the measures as per the Environmental Management Programme are deemed to be the best way to manage anticipated impacts.

By providing electricity whilst not impacting negatively on the environment, the project would contribute to a sustainable environment.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

Chapter 2 of NEMA provides a number of principles that decision-makers have to consider when making decisions that may affect the environment, therefore, when a Competent Authority considers granting or refusing environmental authorisation based on an Environmental Impact Assessment, these principles must be taken into account.

The NEMA principles with which this application conforms are described as follows —

1. Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
2. Development must be socially, environmentally and economically sustainable.
3. Sustainable development requires the consideration of all relevant factors.

The social, economic and environmental impacts of activities, including disadvantages and benefits, were considered, assessed and evaluated, and informed decision-making by the authority is hereby made possible.

11. 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	Applicability to the project	Administering authority	Date
National Environmental Management Act (Act 107 of 1998), as amended	Environmental Authorisation is required	Department of Environmental Affairs	
National Heritage Resources Act (25 of 1999)	Comment was obtained	Heritage Western Cape	8 June 2017
National Water Act (Act 36 of 1998)	Comment is required. Application will be made for General Authorisation	Department of Water Affairs	
National Environmental Management: Protected Areas Act (NEM:PAA – Act 57 of 2003).	The project must comply with the *Management Plan for the Koeberg Nature Reserve*, which was compiled with in terms of NEM:PAA		
Section 7(1) and 15(1) of the National Forests Act of 1998 (Act 84 of 1998)	No protected trees will be removed	Department of Agriculture	

	Authorisation is not required		
Environment Conservation Act (Act 73 of 1989)	Authorisation is not required	Department of Environmental Affairs	
National Environmental Management: Biodiversity Act (Act 10 of 2004)	Authorisation is not required	Department of Environmental Affairs	
National Environmental Management: Biodiversity Act (Act 10 of 2004): Threatened & Protected Species Regulations	Authorisation is not required	Department of Environmental Affairs Department of Agriculture, Forestry & Fisheries for permit applications	
National Spatial Biodiversity Assessment (2004)	Authorisation is not required	Department of Environmental Affairs	
National Biodiversity Strategy Action Plan	Authorisation is not required	Department of Environmental Affairs	
Conservation of Agricultural Resources Act (43 of 1983)	Authorisation is not required	Department of Agriculture	
Endangered and Rare Species of Fauna and Flora (AN 1643 February 1984)	Authorisation is not required	Lists endangered species in terms of the Nature Conservation Ordinance, 1983 (Ordinance 12 of 1983)	

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

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?	Undetermined	

How will the construction solid waste be disposed of (describe)?

General construction waste (inclusive of the decommissioning of existing KIPTS)

- Unusable waste will be disposed of at registered waste disposal sites according to the applicable waste classification.
- Steel (ferrous and non-ferrous) and aluminium will be recovered and sold as scrap for recycling.
- Refuse bags will be supplied to construction personnel for dumping of household waste. Bins with lids will be provided at construction camps for household waste.

Where will the construction solid waste be disposed of (describe)?

- It will be transported off site by the contractor and returned to Eskom stores where scrap will be handed over to buyers. Any waste that cannot be recycled will be transported to appropriate registered waste disposal sites.
- General household waste generated by the construction team will be removed by the relevant contractor to a registered waste disposal site / municipal waste transfer station.

For all waste that is disposed of, Eskom shall obtain waste manifests and disposal certificates, which shall be recorded and reported to the ECO on a monthly basis.

Will the activity produce solid waste during its operational phase?	YES	NO
If YES, what estimated quantity will be produced per month? Minimal domestic waste will be generated by operational personnel	Unknown	

How will the solid waste be disposed of (describe)?

The solid waste will be disposed of in the normal waste stream of the Koeberg Nuclear Power Station: Handling of waste at the KNPS is contracted to Waste Tech and domestic waste generated during the operations at the KIPTS will be removed by Waste Tech.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

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 NEM:WA?	YES	NO

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

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. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

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^3
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

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:

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	NO
If YES, is it controlled by any legislation of any sphere of government?	YES	NO

If YES, the applicant must 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:

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	YES	NO

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

Soils
The Western Cape Department of Environmental Affairs & Development Planning: Directorate Waste Management commented as follows:

Any soil not considered suitable for the layer works (foundation layers) of the road may be classified as spoil. The disposal of spoil may trigger the waste management activity identified in Category A 3(9) of GN No. 921 of 29 November 2013, being "The disposal of inert waste to land in excess of 25 tons but not exceeding 25 000 tons, excluding the disposal of such waste for the purpose of levelling and building which has been authorised by or under other legislation".

It is hereby confirmed that this activity is not applicable to this project and a waste license is not required. The above statement is however included in the Environmental Management to ensure compliance in the unlikely event that that this activity may become applicable.

The Final BAR must indicate whether this activity is applicable and if a waste management licence is required from the licensing authority.

e) 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

Describe the noise in terms of type and level:

Limited noise will occur as a result of construction activities during the construction phase. Eskom shall provide all necessary equipment with standard silencers and maintain silencer units on vehicles where required. Equipment must always be in good working order to minimise unnecessary noise levels.

13. 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:

Undetermined, but will operate within existing licence stipulations

A water use authorisation (W5/720/A7/5/97/01 on 1 July 1997) for KNPS for ground water abstraction was issued for on-site boreholes.
Groundwater (available at the KNPS) which is non-potable must be used for any dust suppression required by the project.

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	YES	NO

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

Also refer to the Freshwater Impact Assessment as attached under Appendix D.

The General Authorisations for Section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA have recently been revised (Government Notice R509 of 2016) and is applicable to this project.

The proposed works within or adjacent to the wetland areas are likely to change the characteristics of the associated freshwater ecosystems and may therefore require authorization. Considering the scope of works proposed and its proximity to the aquatic ecosystems in the area, the risk of undertaking the proposed activity is however considered to be Low for the construction and operational phase, provided that the recommended mitigation measures are implemented.

The water use activities associated with the proposed relocation of the Koeberg Insulator Pollution Test Station are thus such that they can be authorised in terms of the General Authorisations for Section 21(c) and (i) water uses.

Proof of application submitted to DWS is included under Appendix J.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

All light fittings must be energy efficient.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Not applicable

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. 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.
   Section B Copy No. (e.g. A): [ ]
2. 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 and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Western Cape
District Municipality	City of Cape Town Metropolitan
Local Municipality	City of Cape Town Metropolitan
Ward Number(s)	32
Farm name and number	Farm 1552, Cape RD
Portion number	
SG Code	C01600000000155200000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture

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 or a consent use application required? YES | NO

1. GRADIENT OF THE SITE1

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

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

Alternative S3 (if any):

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

2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley		2.8 Dune	X
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	X
2.10 At sea					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

According to the Freshwater Assessment (attached under Appendix D) the following applies:

- The underlying geology of the area is dominated by Quaternary calcareous coastal dune sand of the Witzand Formation as well as Quaternary limestone and calcrete of the Langebaan Formation. The soils are dominated by grey regic sands.

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[E]	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	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.

An Ecological Assessment was undertaken by Nick Helme Botanical Surveys and is attached under Appendix D. Please refer to a summary thereof as provided in *Paragraph 9: Biodiversity* hereunder.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO	UNSURE
Non-Perennial River	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

A **Freshwater Assessment** was undertaken by BlueScience (Pty) Ltd and is attached under Appendix D. A summary thereof follows below.

FRESHWATER FEATURES

The site is located within the G21B quaternary catchment within the Berg Olifants Water Management Area. The primary river draining the catchment is the Sout River that is located approximately 5km south of the site. The National Freshwater Ecosystem Priority Areas (FEPA) initiative has not indicated any wetlands of conservation significance occurring on the site (Figure 8). The City of Cape Town's Biodiversity Network wetland mapping did however identify a number of natural or semi-natural depression wetlands in the vicinity of the site – particularly close to the existing KIPTS in the south.

A Google Earth image showing the City of Cape Town's Biodiversity Network wetland mapping in the vicinity of the site

Some wetland areas are located in the south-western extent of the study area, along the access road to the existing KIPTS site. These tend to be narrow depression that are orientated north-south between the dunes and are dominated by common reeds *Phragmites australis where* the depressions are more permanently inundated with groundwater in winter. Drier depression areas contain patches of the glasswort *Sarcocornia pillansii* and seagrass *Cladoraphis cyperoides.*

The *Phragmities* dominated wetland areas (indicated by the red ovals) near the existing KIPTS site

The drier dune slack depressions near the existing KIPTS

There are no significant aquatic ecosystems within the proposed new development area. The proposed alternative site for the KIPTS occurs within a wide depression that contains some hydrophilic plants that are associated with an increased precipitation as a result of settling of dew in the depression behind the frontal dune. These areas comprise largely of bare areas with a mix of Hottentots fig *Carpobrotus acinaciformis* and *C. edulis* together with grasses. This area does not have any significant wetland characteristic.

A small dune slack wetland also occurs along the existing gravel road to the north of the power station that has been identified as Alternative 1 for the access to the proposed KIPTS site.

WETLAND ASSESSMENT

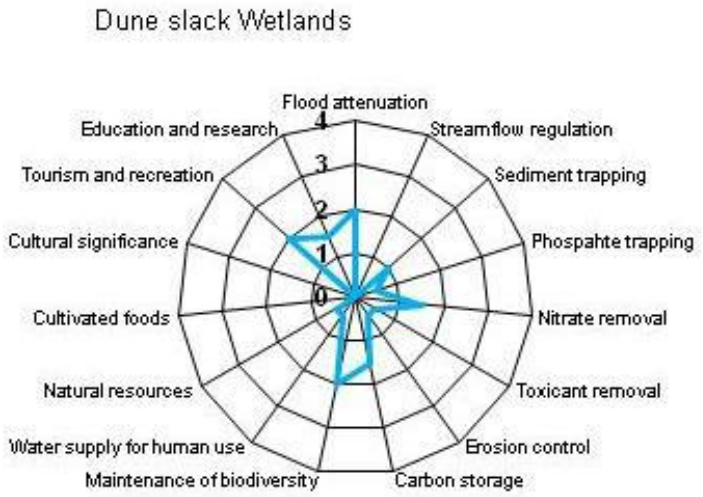
Classification of wetland areas within study area

Name	Dune slack wetland areas within the Koeberg Nature Reserve
System	Inland
Ecoregion	South Western Coastal Belt
Landscape setting	Coastal plain dune slack areas
Hydrogeomorphic Type	Depression
Longitudinal zonation	Not applicable
Drainage	Inundation by groundwater table in winter
Seasonality	Seasonal
Anthropogenic influence	Largely natural
Vegetation	Cape Flats Dune Strandveld
Substrate	Deep sands
Salinity	Brackish

WET-Health assessment of wetland areas in the study area

Components	Method used for assessment	Dune slack wetlands	
		PES% Score	Ecological Category
Hydrology PES	WET-Health Hydro Module	95 %	A
Geomorphology PES	WET-Health Geomorph Module	78 %	B/C
Water quality PES	Landuse-WQ Model	77 %	C
Vegetation PES	WET-Health Veg Module	77 %	C
Overall Wetland PES	WET-Health default weightings	85 %	B

Ecosystem services supplied by the wetlands



The dune slack wetland areas provide limited goods and services that are largely associated with habitat for biodiversity and tourism and recreation value.

Ecological importance and sensitivity (EIS)

Biotic Determinants	**Dune slack wetlands**
Rare and endangered biota	1.0
Unique biota	1.0
Intolerant biota	1.5
Species/taxon richness	1.0
Aquatic Habitat Determinants	
Diversity of aquatic habitat types or features	1.0
Refuge value of habitat type	1.5
Sensitivity of habitat to flow changes	2.0
Sensitivity of flow related water quality changes	2.0
Migration route/corridor for instream and riparian biota	0
National parks, wilderness areas, Nature Reserves, Natural Heritage sites, Natural areas, PNEs	3.5
EIS CATEGORY	**Moderate**

The dune slack wetland areas are in particular sensitive to flow and water quality changes and are considered to be of moderate ecological importance and sensitivity.

FRESHWATER CONSTRAINTS

The proposed development and associated infrastructure is not likely to result in loss of aquatic habitat on the site due to the fact that the proposed activities will occur outside of any wetland areas. The proposed infrastructure is located along existing roads. The dune slack wetland areas within the study area are mostly associated with the access road to the existing KIPTS site.

IMPACT ASSESSMENT

The largest potential impact of the proposed activities on the aquatic features in the area is some loss of wetland habitat as a result of increased disturbance adjacent to the wetland areas. Associated with the increased disturbance of aquatic habitat is the potential for increased growth of invasive plants such as Port Jackson willows *Acacia saligna* and rooikrans *A. cyclops*. Some flow and water quality impacts could potentially occur during the construction phase if the activities are located adjacent to any of the identified aquatic features. These impacts could however easily be mitigated and would be of a short term nature.

CONSTRUCTION PHASE IMPACTS

Nature of Impact
Construction activities would include the construction of the KIPTS, as well as an underground or overhead power line and links to the existing sewer and water mains. Activities during the construction phase of the project may result in a *very limited disturbance of the wetland habitats of the identified freshwater features within the study area*.

Significance of impacts without mitigation
A localized shorter term impact of a low intensity that is expected to have a very low overall significance in terms of its impact on the identified aquatic ecosystems in the area.

Proposed mitigation

- Construction activities should as far as possible be limited to within the already disturbed areas.
- The disturbed areas should be rehabilitated after construction is completed by revegetating these areas with suitable indigenous plants if necessary.
- Monitoring and control of invasive alien plants should be undertaken on an ongoing basis, especially within the disturbed areas.

The potential impact on aquatic habitat would best be mitigated by ensuring that the various elements of the proposed activity avoid these aquatic habitats through the selection of the alternatives that are located away from any aquatic feature.

With regards to the various alternatives under consideration:

- *Alternative sites*: The preferred KIPTS site is likely to have the least potential impact on the aquatic features in the area as there are no aquatic features identified within this site.
- *Alternative power lines*: Alternative 1 entails only a short section of underground line close to the water and sewer lines. There are no freshwater features within this area thus this alternative would not have a potential impact on any aquatic ecosystems. Alternative 2 will be located along Alternative 2 Access Road that would also have little to no potential aquatic ecosystem impacts.

Significance of impacts after mitigation

A localized, short-term impact is unlikely to occur during the construction phase if the above mitigation measures are implemented and in particular the project activities are located away from any aquatic features within the study area.

OPERATIONAL PHASE IMPACTS

Nature of Impact

An impact of very limited to no significance is expected on *the aquatic habitat of the identified freshwater features* after the construction phase.

Proposed mitigation

- Disturbed areas that have been rehabilitated post construction should be monitored and managed to ensure that they do not become invaded with alien plants.
- Operation maintenance activities associated with the new KIPTS should only take place via the designated access or maintenance routes.

Significance of impacts after mitigation

A localized, long-term impact that is expected to be insignificant.

DECOMMISSIONING OF EXISTING KIPTS

Nature of Impact

Activities that would be associated with the dismantling of the existing KIPTS will include the following:

- Removal and transport of the existing structure; and
- Rehabilitation of the site.

Activities during the decommissioning phase for the KIPTS could result in some aquatic *habitat disturbance* along the access route.

Significance of impacts without mitigation

A longer term impact of a very low significance in terms of its impact on the identified aquatic ecosystems in the area is expected due to the fact that the structure and access road are already in place and are to be decommissioned.

Proposed mitigation

- The existing access route should be followed as far as possible and the extent of any new disturbed areas should be limited.
- The disturbed areas should be rehabilitated after construction is completed by revegetating these areas with suitable indigenous plants if necessary.
- Monitoring and control of invasive alien plants should be undertaken on an ongoing basis, especially within the disturbed areas for a period of at least 2 years. An experienced botanist or horticulturalist should assist with this rehabilitation process.

Significance of impacts after mitigation

A localized, short-term impact will occur during the decommission phase; however, the overall significance of the impact on the aquatic ecosystems is expected to be low positive.

RISK ASSESSMENT

A preliminary risk assessment has been undertaken to inform the water use authorisation process and is included in this report. Considering the scope of works proposed and its proximity to the aquatic ecosystems in the area, the risk of undertaking the proposed activity is considered to be *Low* for the construction and operational phase, provided that the recommended mitigation measures are implemented.

Phases	Activity	Impact	Significance	Risk Rating
Construction	Construction works associated with the new KIPTS and associated infrastructure	Disturbance of wetland habitat	44	L
Decommission	Decommission of existing KIPTS		38.5	L
Operation	Operational activities associated with the KIPTS	Potential for invasion by alien plants	30	L

CONCLUSION

Aquatic features within the area of the proposed project activities comprise the following:

- Some dune slack wetland areas are located in the south-western extent of the study area, along the access road to the existing KIPTS site; and
- There are no significant aquatic ecosystems within the proposed KIPTS site.

The dune slack wetlands are considered to be largely natural and of a moderate ecological importance and sensitivity. In terms of biodiversity conservation mapping, only the dune slack wetlands near the existing KIPTS are mapped in the City wetland mapping. There is no FEPA mapping within the area.

The existing KIPTS is located within a dune area that is largely surrounded by natural vegetation and dune slack wetlands. The new KIPTS will be located adjacent to the power plant where the area is more disturbed and transformed. Thus once construction, decommissioning and rehabilitation activities associated with the proposed project are complete, a low positive impact can be expected over the longer term.

The risk of the proposed activities degrading the aquatic ecosystems in the area is considered to be low. The water use activities associated with the proposed relocation of the Koeberg Insulator Pollution Test Station are thus such that they can be authorised in terms of the General Authorisations for Section 21(c) and (i) water uses.

Considering that the No-Go Alternative would imply that the existing site that is located near the dune slack wetlands in the site would need to continue to be maintained and operated, posing a greater risk of impacting on these wetland areas than the new proposed site, the proposed relocation of the KIPTS is supported.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that 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:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	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? Specify and explain:

Not applicable

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

Not applicable

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

Not applicable

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO
Core area of a protected area?	YES	NO
Buffer area of a protected area?	YES	NO
Planned expansion area of an existing protected area?	YES	NO
Existing offset area associated with a previous Environmental Authorisation?	YES	NO
Buffer area of the SKA?	YES	NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. 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 paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	NO
	Uncertain	

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

A **Notification of Intent to Develop** was compiled by ACO Associates and is attached under Appendix D. A summary thereof follows below.

Archaeology

Construction of the Nuclear power station began in 1976, and Unit 1 was synchronized to the grid on 4 April 1984. Unit 2 followed on 25 July 1985. While originally sited 30km north of Cape Town to be outside the metropolitan area, rapid urban expansion means that urban areas are now found relatively close to the plant.

Prior to construction, the site was covered by shifting and partially vegetated dunes.

A number of other research and CRM projects have been undertaken in the Koeberg NPS site and some of the more directly relevant are summarised below:

- Of particular relevance to the KIPTS alternative 1 site is the report by Orton and Avery 2015 who undertook a study of the proposed parking area immediately to the east of the power station. As part of the assessment, they excavated a number of test holes to check the thickness of the

dumped construction debris and soil resulting from construction of the plant in the 1970's. They noted the following: "Because the natural ground surface was completely obscured by dumped material and the potentially highly significant Langebaan Formation underlies the site at unknown depth, a program of test excavations was carried out. Due to the great depth of the dumped material spread across the study area it has been determined that no significant impacts to heritage resources will occur. A key observation is that in none of the test holes was the highly sensitive Langebaan Formation reached. Also, the apparent very low density of fossil material within the dumped sand substantially reduces the perceived academic value of this material. Although monitoring and recovery of any isolated bones would be desirable in spite of the fact that they are no longer in primary context, this can be done by project staff and the ECO. It is likely that very few bones would be seen in these deposits when bulk earthworks are underway, no matter how experienced the eye".

- In the initial assessment for the proposed Weskusfleur Substation, Avery 2014 noted: "During construction of the Koeberg Nuclear Power Station, which reached Malmesbury Group bedrock at - material from the excavations for the reactors was dumped between the fore dunes and access track just north of the security fence (Jan se Gat). Fragments of fossilized bone and bones of seabirds can be found when the surface is eroded. This area coincides with (Weskusfleur) Substation Alternative 1 and overlies the original surface on which Middle Pleistocene fossils were, and may still be, encountered during any construction.
- Kaplan (2015), also assessed the more recent heritage resources of the Weskusfleur Substation Alternative 1 and noted: "(the site) located directly north of the permiter fence surrounding the Koeberg Nuclear Power Station. The proposed development site was levelled in the 1980s prior to construction of the power station, and the proposed footprint area (a powerline servitude) north of the reactor buildings is sparsely vegetated, and covered in kweek grass, weeds, and succulent ground cover. In the past, the surface of the site included low dunes of the Witzand Formation, and deflated exposures of calcrete and yellow sand deposits of the Springfontyn Formation. During the course of the preparation of the reactor site, excavated material was dumped over this area.
- Hart (2008) undertook an assessment of a Pebble Bed Modular Reactor site on the south eastern side of the existing KNPS. He observed that: "Although Holocene archaeological sites are known to be fairly prolific on the west coast, the ground surface of the proposed PBMR site is highly disturbed and of low heritage potential". There was concern that the deep excavations for the modular reactor would intersect fossil bearing deposits such as thosementoned by Orton and Avery.
- Hart (2015) aslo undertook an assessment of two alternate sites for the Transient Interim Storage Facility also located on the periphery of the existing NPS. Hart's study has revealed that: "the general area is potentially rich in buried archaeological and palaeontological resources, which range from Pleistocene archaeology and palaeontology to ancient Pliocene and Miocene palaeontology of the deeper sediments. Both site alternatives and haul road for the proposed activity, are situated in areas which were heavily transformed when the KNPS was built in the 1970's. This means that the relatively shallow excavations for this facility are unlikely to result in any negative impacts to either in situ archaeological or palaeontological material. None of the other activities associated with the proposed activity (such as formalisation of the haul road) are likely to result in negative impacts to heritage, either due to the shallow depth of impact or the fact that much of the land involved has been subject to prior disturbance."

Conclusion on Archaeology

The surface of both alternative KIPTS sites is considerably disturbed and anything found on surface and at some depth below is disturbed. No impact is anticipated on significant archaeological heritage resources.

Palaeontology
The surface of both alternative sites is considerably disturbed and anything found on surface and at some depth below is disturbed. The disturbed nature of the surface was demonstrated by test excavations undertaken by Orton and Avery to the east of the Nuclear plant. Test holes were dug to about 2m near the southern alternative. There was nothing to note in them. It may be that the main Pleistocene occurrences become less prevalent to the south of the security perimeter, and an isolated faunal occurrence in the Pleistocene sediments within the area then being excavated for the reactors.

Conclusion on Palaeontology
No impact on significant palaeontological resources are anticipated

CONCLUSION
The NID was submitted to Heritage Western Cape and they commented as follows:

- They stated that there is no reason to believe that the KIPTS will impact on any heritage resources and no further action is required.
- However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities, all works must be stopped immediately and HWC must be notified without delay.

Will any building or structure older than 60 years be affected in any way?	YES	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

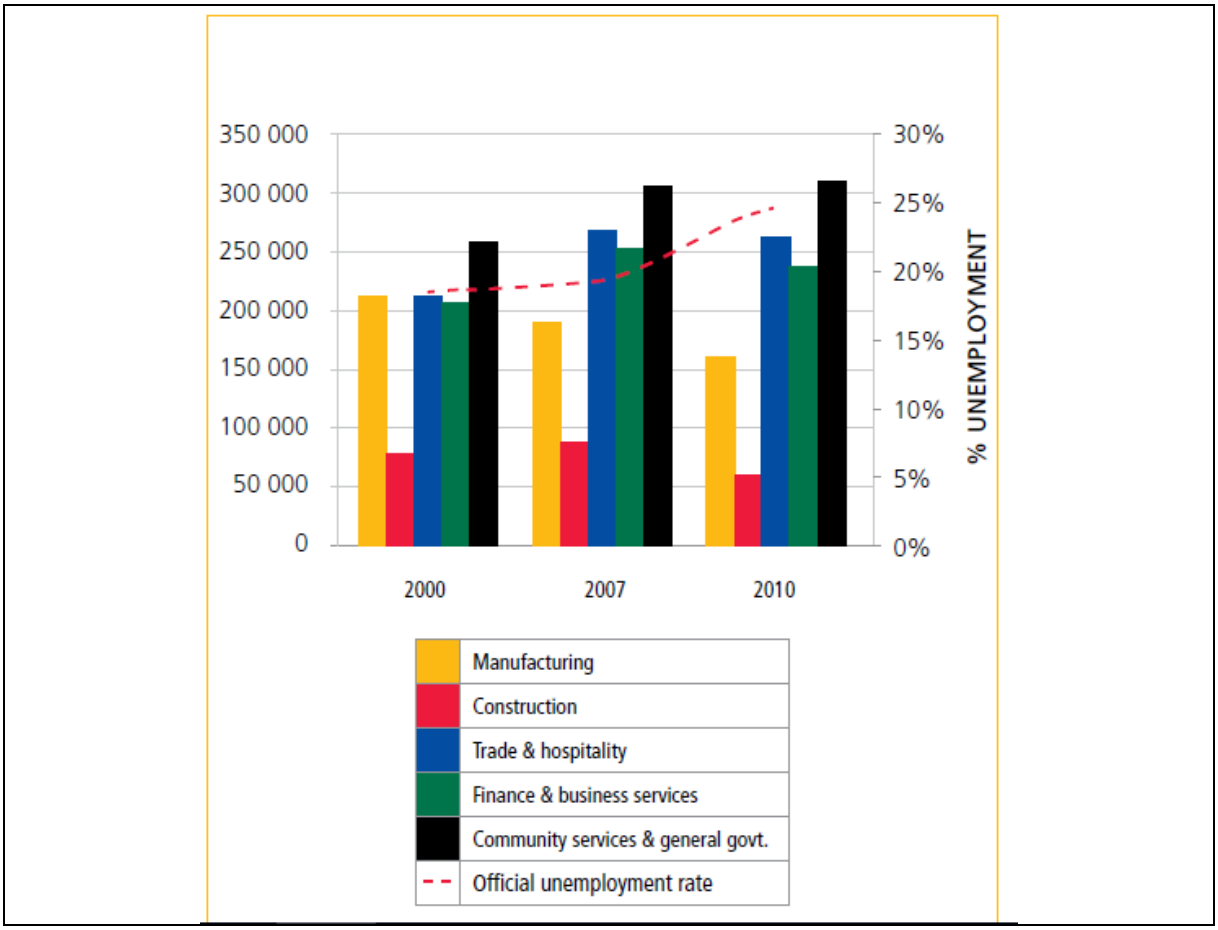
Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

The following information was obtained from the **City of Cape Town's Spatial Development Framework, 2012** the **City of Cape Town's Integrated Development Plan, 2012 – 2017** and the **Regional Development Profile, City of Cape Town, 2013**

Level of unemployment:

Cape Town is still a developing city; it is therefore also required to manage high levels of poverty and unemployment, and service and infrastructure backlogs, while recognising the interdependencies between ecological and economic sustainability, and emphasising the importance of natural assets in providing a range of ecosystem services.

Unemployment and the mismatch between available and needed skills remain the key economic challenges in the city.



Economic profile of local municipality:

The most dominant contribution to growth came from the financial & business services sector and – to a lesser extent – the retail, wholesale, catering & accommodation sector (incorporating the growth of inward tourism). The metro economy is therefore strongly services oriented and this sector's growth has also been above average (4.4 per cent per annum); however, being substantially larger and with industries more mature, the growth was lower compared to the leading non-metro district services sectors such as Eden and the Cape Winelands. Furthermore, the subpar growth of the region's manufacturing sector (2.3 per cent per annum, 2000 - 2011) also dampened overall growth.

While the region took a serious hit from the 2008 - 2009 recession, with real GDPR growth contracting by 1.1 per cent in 2009, the sustained (marginal) growth of the services sector and counter-cyclical growth in the region's agricultural sector softened the impact, which was quite severe in the manufacturing sector contracting by 3 per cent in 2009. Of the 58 000 net jobs lost in the Metro's manufacturing sector over the period 2000 - 2011, no less than 42 per cent occurred during 2008 - 2009 and the net job losses continued during the first two calendar years of the economic recovery. Job losses were not only limited to the manufacturing sector – big job losses occurred in the construction sector and a range of services industries, notably in business services.

In brief, it is known that in 2011, Cape Town had a population of approximately a million households, and in terms of household economic profile the following appliesL

- 47% were earning R0 to R3 200 per month;
- 4% were earning R3 201 to R6 400 per month;
- 13% were earning R6 401 to R13 000 per month;
- 12% were earning R13 001 to R26 000 per month; and
- 14% were earning R26 001 and more per month.

Level of education:

Education and training improves access to employment opportunities and helps to sustain and accelerate overall development. It expands the range of options available from which a person can choose to create opportunities for a fulfilling life. Through indirect positive effects on health and life expectancy, the level of education of a population also influences its welfare.

Compared with other Western Cape district averages, the City of Cape Town ranked highest with a literacy rate of 90.5 per cent. The City was followed by the Eden district at a rate of 82.6 per cent.

An increase can be seen in the number of people with higher education in the City of Cape Town, which increased by 78.1 per cent from 230 946 in 2001 to 411 401 in 2011. There is also a marked increase in the number of people with some secondary education and Grade 12 or Standard 10 between 2001 and 2011. The number of people with some secondary schooling has increased by 67.4 per cent between 2001 and 2011 while those with Grade 12 have increased by 65.9 per cent. The number of people in the City of Cape Town with no schooling has increased by only 3.9 per cent between 2001 and 2011. On average, there was an increase in education levels amongst the people living in the City of Cape Town between 2001 and 2011

b) 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?	Unknown	
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 and construction phase of the activity/ies?	*Minimal during construction	
What is the expected value of the employment opportunities during the development and construction 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?	Unknown	
What is the expected current value of the employment opportunities during the first 10 years?	Unknown	
What percentage of this will accrue to previously disadvantaged individuals?	Unknown	

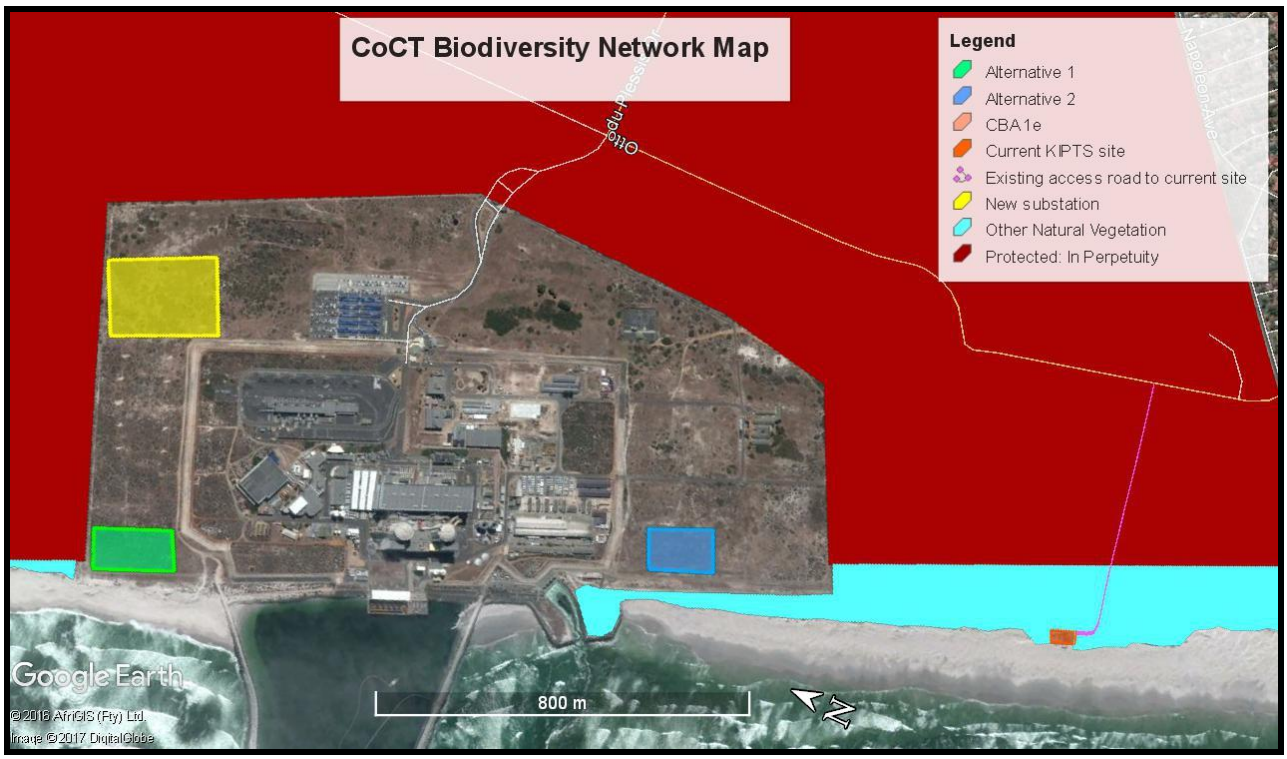
9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

The latest map (dated July 2016) of the City of Cape Town's Biodiversity Network indicates that the core of the Koeberg facility is excluded from the Biodiversity Network, and is thus not mapped as a Critical Biodiversity Area. The surrounding area (Koeberg Nature Reserve) is mapped as Protected in Perpetuity, and the coastal dune area where the existing KIPTS is located is indicated as Other Natural Vegetation (also refer to Appendix A for a copy of this map)



b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural		Please refer to the **Ecological Assessment** summarised below under Section B, Paragraph 9(d) (the full report is attached in Appendix B).
Near Natural (includes areas with low to moderate level of alien invasive plants)		
Degraded (includes areas heavily invaded by alien plants)		
Transformed (includes cultivation, dams, urban, plantation, roads, etc)		

c) Complete the table to indicate:

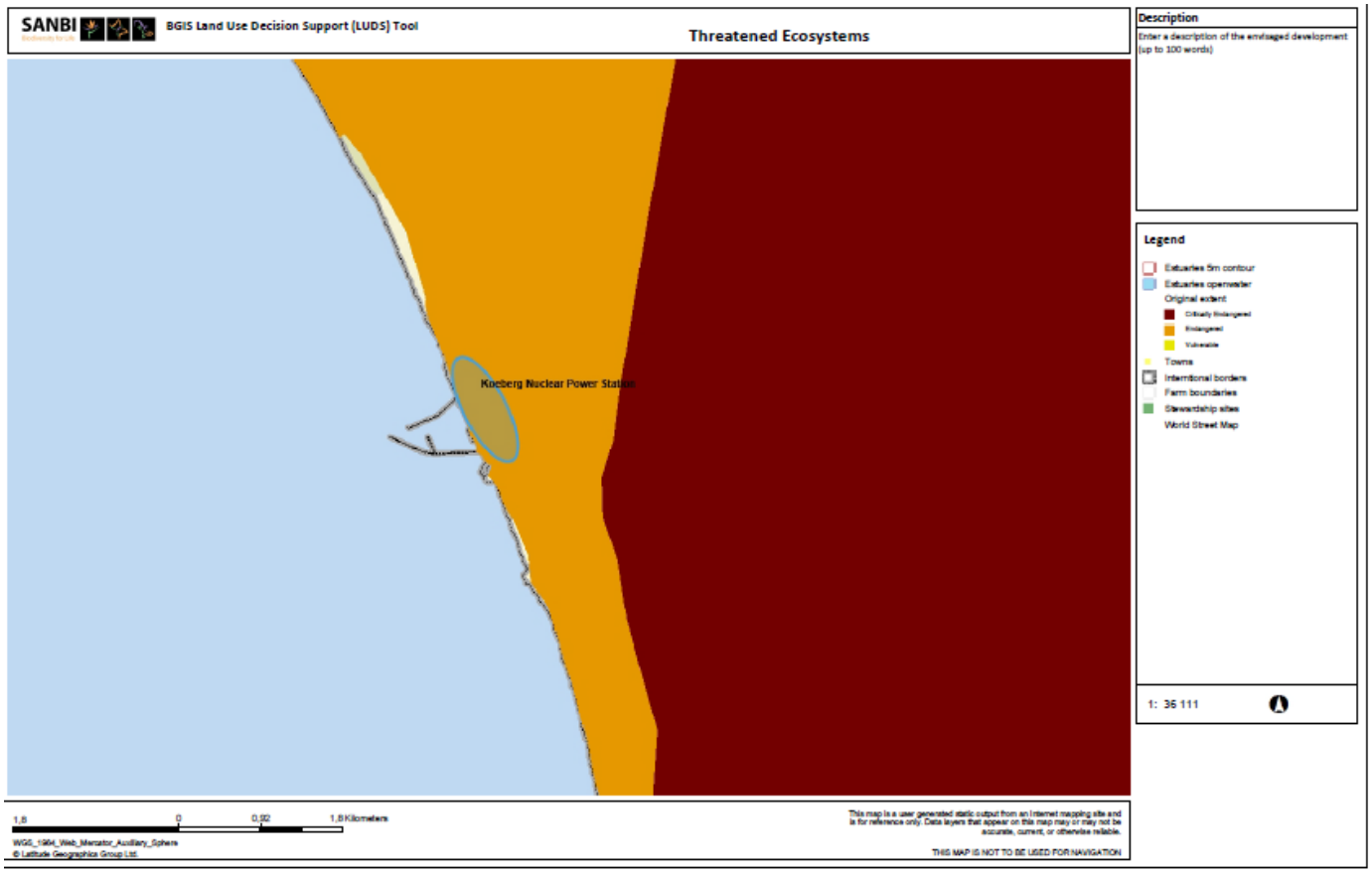
(i) the type of vegetation, including its ecosystem status, present on the site; and
(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	YES	NO	UNSURE	YES	NO	YES	NO

Please note (also refer to the Freshwater Assessment as summarised above):
Aquatic features within the area of the proposed project activities comprise the following:

- Some dune slack wetland areas are located in the south-western extent of the study area, along the access road to the existing KIPTS site; and
- There are no significant aquatic ecosystems within the new proposed KIPTS site.

The following *Threatened Ecosystem* map was obtained from the SANBI website and is attached under Appendix A:



d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

An **Ecological Assessment** was undertaken by Nick Helme Botanical Surveys and is attached under Appendix D. A summary thereof follows below.

FLORA

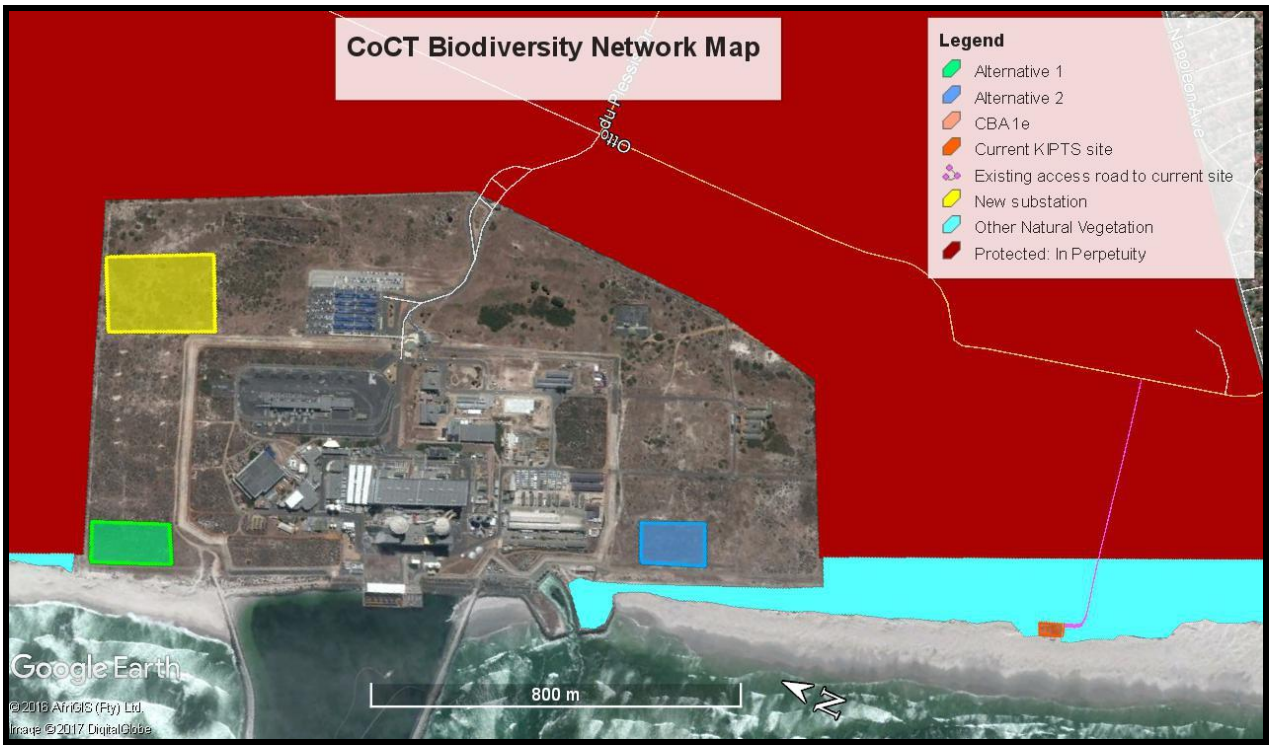
Regional context of the vegetation

The study area is considered to be part of the West Strandveld bioregion (Mucina & Rutherford 2006), and is part of the Fynbos biome, located within what is now known as the Core Region of the Greater Cape Floristic Region.

The West Strandveld bioregion is characterised by relatively high winter rainfall, low altitude and poor, sandy soils, with large urban areas and high levels of alien invasive vegetation. Due to this combination of factors the loss of natural vegetation in this bioregion has been severe (>60% of original extent lost within the region), and the bioregion has a fairly high number of threatened plant species. The lowland regions of the Cape metropole (stretching from Atlantis southeast to near Somerset West), generally known as the Cape Flats, are under enormous pressure, and the area has been described as a "conservation mega-disaster", in terms of the number of severely threatened plants (some already extinct) and habitats within the area.

Critical Biodiversity Areas (CBAs)

The City of Cape Town regularly updates and revises its Biodiversity Network as sites are lost and new information becomes available, and the latest map (dated July 2016) indicates that core of the Koeberg facility is excluded from the Biodiversity Network, and is thus not mapped as a Critical Biodiversity Area. The surrounding area (Koeberg Nature Reserve) is mapped as Protected in Perpetuity, and the coastal dune area is indicated as Other Natural Vegetation.



Extract of the City of Cape Town Biodiversity Network mapping (2016), with study areas overlaid.

Ecological Threat Status

According to the SA Vegetation Map the original natural vegetation in the entire study area is Cape Flats Dune Strandveld (Mucina & Rutherford 2012). This unit is regarded as *Endangered* on a national and regional basis. Less than 60% of its total original extent remains intact, less than 5% is conserved, and the national conservation target is 24% (Mucina & Rutherford 2006). The unit is not known to support a large number of plant Species of Conservation Concern.

It is however suggested that the vegetation within the existing KIPTS site is in fact better categorised as Cape Seashore Vegetation, as is typical of primary dunes along this part of the coast. This is a widespread unit along the coast from Lamberts Bay to Mossel Bay, and is regarded as *Least Threatened* on a national basis, with more than 95% of its original total extent still intact. The changeover to Cape Flats Dune Strandveld occurs about 100m east of the current KIPTS site. This is likely to have been a recent change associated with the recent sand mobility in the area, and Cape Flats Dune Strandveld would have extended west to the KIPTS access road until about 2012, judging by satellite imagery. The recent sand mobility may have been stimulated or triggered by the "emergency" clearing of sand around the site and along the road during the period 2011 – 2014.

FLORA: ASSESSING ALTERNATIVES

SITE ALTERNATIVES

Both new alternative sites are flat, presumably as a result of earthmoving machinery activity during the construction of Koeberg Nuclear Power Station. All (or at least 90%) of vegetation on site today is thus probably secondary, and has re-established since Koeberg power station construction. The two alternative sites are fairly similar in terms of the total amount of natural vegetation on each site (about 40% cover on Alternative 1 and 25% on Alternative 2). Alien invasive annual grasses dominate Alternative 2 (<50% cover), whereas indigenous vegetation probably makes up slightly over half the total cover in Alternative 1.

There is no significant woody alien invasive vegetation on either of the site alternatives, but numerous alien herbs, grasses and annuals are present, as a result of the previous soil disturbance.

Site Alternative 1

Indigenous plant species diversity and abundance on this site is low, being about 20% of what would be expected in a pristine example of this habitat. This is likely to be a result of the previous disturbance of the site, but indigenous plant cover is about 55%, as a result of the presence of many large plants of the weedy but indigenous *Osteospermum moniliferum*.

No plant Species of Conservation Concern (SCC) were observed on site, and none are likely to occur, given the previous disturbance and the habitat concerned.

Botanical sensitivity on the site is deemed to be Low – Medium

Site Alternative 2

Indigenous plant species diversity and abundance on this site is low, and slightly lower than for Alternative 1, being about 15% of what would be expected in a pristine example of this habitat. This is likely to be a result of the previous disturbance of the site, and indigenous plant cover is only about 25%, with the area dominated by annual, alien grasses.

No plant Species of Conservation Concern (SCC) were observed on site, and none are likely to occur, given the previous disturbance and the habitat concerned.

Botanical sensitivity on the site is deemed to be Low.

Selecting a site alternative

- Site Alternative 2 (Low sensitivity) is marginally preferred over site Alternative 1 (Low – Medium sensitivity vegetation).
- The loss of the Low and Low – Medium sensitivity habitat in the study area is likely to be of **Very Low negative** significance.

ACCESS ROAD CORRIDOR

The broad corridor to be approved by DEA in which the access road will be constructed is deemed to be mostly of *Low* botanical sensitivity, with a few areas of *Low – Medium* sensitivity. The loss of the *Low* and *Low – Medium* sensitivity habitat in the study area is likely to be of Very Low negative significance.

The area is identified as being of *low* faunal sensitivity.

The outside boundary of the road corridor borders areas which were identified as High botanical *and* faunal sensitive areas and that Species of Conservation Concern may occur here. Should the access road therefore be constructed in close proximity of these areas, a walk-down by an ecologist needs to be undertaken in order to ensure the protection of these plants.

PIPELINES AND POWER LINE
The proposed 11kV overhead line follows road Alternative 1 and would thus presumably impact on the same vegetation, at least where new pole positions are needed.

The proposed sewer and water main connections, plus a cabled 11kV line to site Alternative 1 cross a previously disturbed area of mostly Low – Medium botanical sensitivity, with essentially the same species as for site Alternative 1.

FAUNA

SITE ALTERNATIVES
No fauna was seen on either of the two site alternatives, but abundant evidence (burrows) of Cape Gerbil (*Tatera afra*) was seen on both sites. The gerbils are common in disturbed, sandy soils, and are often preyed on by Molesnakes (*Pseudaspis cana*) and Cape Cobra (*Naja nivea*), which are presumably also present occasionally. No frogs are likely to be resident in either of the sites, although it should be noted that Rose's Rain Frog (*Breviceps rosei*) is likely to be present in the undisturbed dune areas nearby, as this species does not require open water bodies. Angulate Tortoises (*Chersina angulata*) are likely to be present in low numbers, but are not likely to be resident on the sites due to the low plant cover available.

No threatened reptiles or frogs are likely to be resident within either of the study areas, due to the disturbed nature of the sites.

Various small mammals, in addition to the gerbils noted, are likely to frequent both sites, although none would be restricted to these areas. Steenbok (*Raphicerus campestris*) and possibly Cape Grysbok (*Raphicerus melanotis*) and Cape Hare (*Lepus capensis*) may graze the sites on occasion, and Small Grey Mongooose (*Herpestes pulverulentus*) and Caracal *(Felis caracal*) may pass through. The relative absence of bulbs and succulents means that porcupines (*Hystrix africaeaustralis*) are likely to be rare in the alternatives sites. No threatened mammals are likely to be resident within either of the study areas.

No threatened butterfly species are likely to occur within the two site alternatives, due to the degraded nature of the vegetation, and butterfly diversity is low in these areas.

No threatened bird species are likely to occur regularly within the two site alternatives, due to the habitat concerned and the degraded nature of the vegetation, and bird diversity is low in these areas.

The faunal sensitivity of both site alternatives is deemed to be Low.

ROAD ACCESS ALTERNATIVES

The broad corridor to be approved by DEA in which the access road will be constructed is deemed to be mostly of *Low* faunal sensitivity. The loss of the *Low* sensitivity faunal habitat in the study area is likely to be of Very Low negative significance.

The outside boundary of the road corridor borders areas which were identified as High botanical *and* faunal sensitive areas and that Species of Conservation Concern may occur here. Should the access road therefore be constructed in close proximity of these areas, a walk-down by an ecologist needs to be undertaken in order to ensure the protection of these plants.

PIPELINES AND POWER LINE

The proposed 11kV powerline along road Alternative 1 is not likely to be a major issue as it will not disrupt connectivity, and 11kV lines are usually low and large enough not be a major collision issue for birds. However, it should be noted that the Black Harrier (*Circus maurus*) has been seen in this area, and the species is Redlisted as Endangered. This species has a High Collision Risk rating.

The proposed sewer and water main connections, plus a cabled 11kV line to site Alternative 1 cross a previously disturbed area of mostly Low faunal sensitivity, with essentially the same potential species as for site Alternative 1. The trenches that are required for this infrastructure will be a temporary entrapment hazard for many small animals (frogs, reptiles and certain insects) and these thus need to be completed and closed up as fast as possible to minimise this hazard. No threatened faunal species are likely to be impacted by this infrastructure.

FAUNA & FLORA AT THE EXISTING KIPTS

FLORA

The facility is essentially now within a mobile dune field, and the vegetation in the immediate vicinity is thus best categorised as Cape Seashore Vegetation. Hummock dunes are present, sparsely vegetated with *Didelta carnosa, Cladoraphis cyperoides, Arctotheca populifolia, Tetragonia decumbens* and *Thinopyrum distichum* (sea wheat). Vegetation cover is about 10-20%. The vegetation in the vicinity is of Low botanical sensitivity, as all the species are highly opportunistic and able to respond to changing sand conditions.

Where the existing access road crosses natural vegetation that has not yet been inundated by the dunes the vegetation is of High sensitivity, and is best categorised as Cape Flats Dune Strandveld. The low point of the road, just east of the Reserve fence, crosses an area with a shallow water table, and which supports wetland vegetation typified by species such as *Sarcocornia meyeriana, Orphium frutescens, Phragmites australis* (reeds), *Nidorella foetida, Limonium scabrum, Sporobolus virginicus*, *Thesium frisea, Scirpus nodosa* and *Senecio halimifolius* (tabakbos). The sensitive wetland vegetation extends about 600m to the north of the road, just inland of the primary dunes. As the road climbs to the east, the soils become well drained and typical Dune Strandveld vegetation predominates. At least two plant SCC were observed along the access road, being *Thesium frisea* (Data Deficient) and *Lessertia tomentosa* (Near Threatened). The former is very local along the road in the seasonally damp sands, and the latter is scattered amongst the well-drained dunes. No other plant SCC is likely to occur within ten metres of the road.

FAUNA

The terrestrial fauna in the vicinity of the facility is likely to be fairly limited, but surface tracks of golden moles – probably the Cape Golden Mole (*Chrysochlorys asiatica*)- were seen throughout the dunes fringing the facility. This burrowing species is common and widespread in sandy soils and coastal dunes in the Western Cape. Various coastal birds (gulls, terns, cormorants, sandpipers, etc.) can be expected to pass by, although very few would be resident within that particular area. At least one pair of African Black Oystercatcher probably breeds on occasion within 200m of the facility (near the base of the dunes), and although this species was previously Redlisted as Near Threatened it has now been downlisted to Least Concern, due to a 37% population increase in the last thirty years.

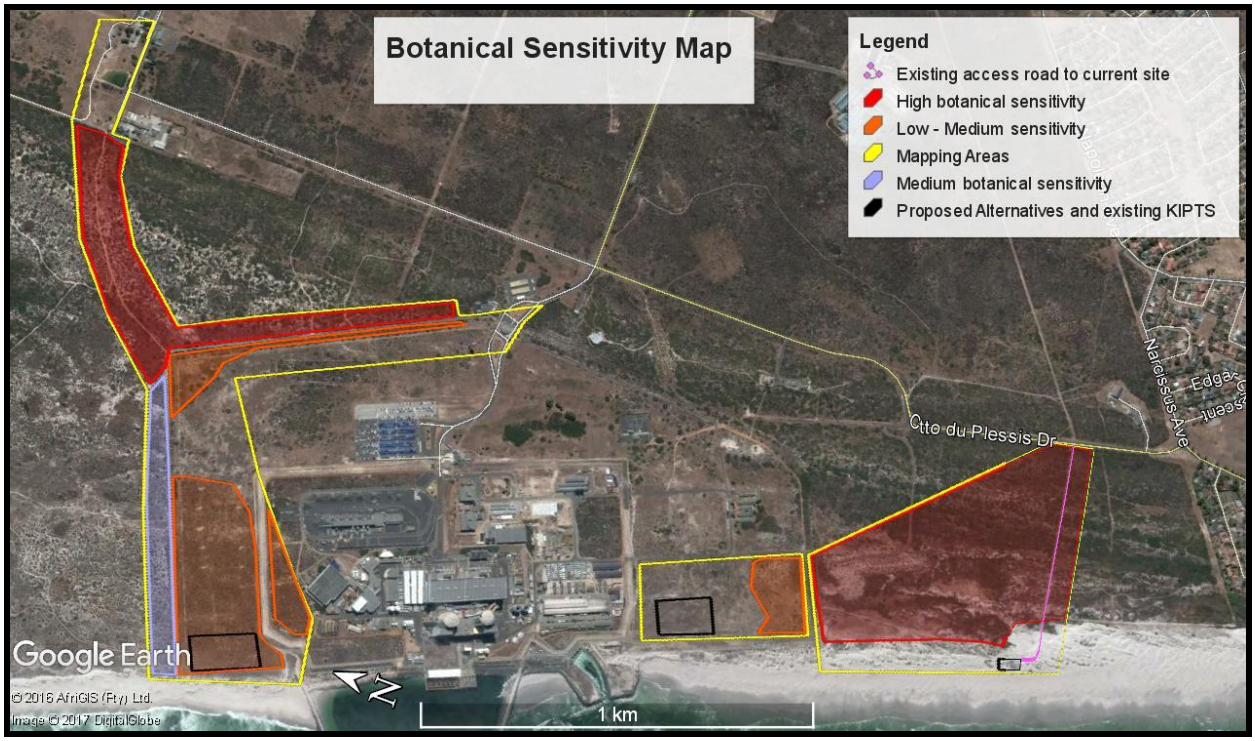
Fauna within the Cape Flats Dune Strandveld along the access road is likely to be representative of the wider Koeberg Nature reserve, and the primary species of concern during decommissioning would be the Angulate Tortoise (*Chersina angulata*), as they run the risk of being run over on the access road.

Faunal sensitivity is likely to be High within the Cape Flats Dune Strandveld, and Low within the Cape Seashore Vegetation around the facility itself.

SENSITIVITY MAPS

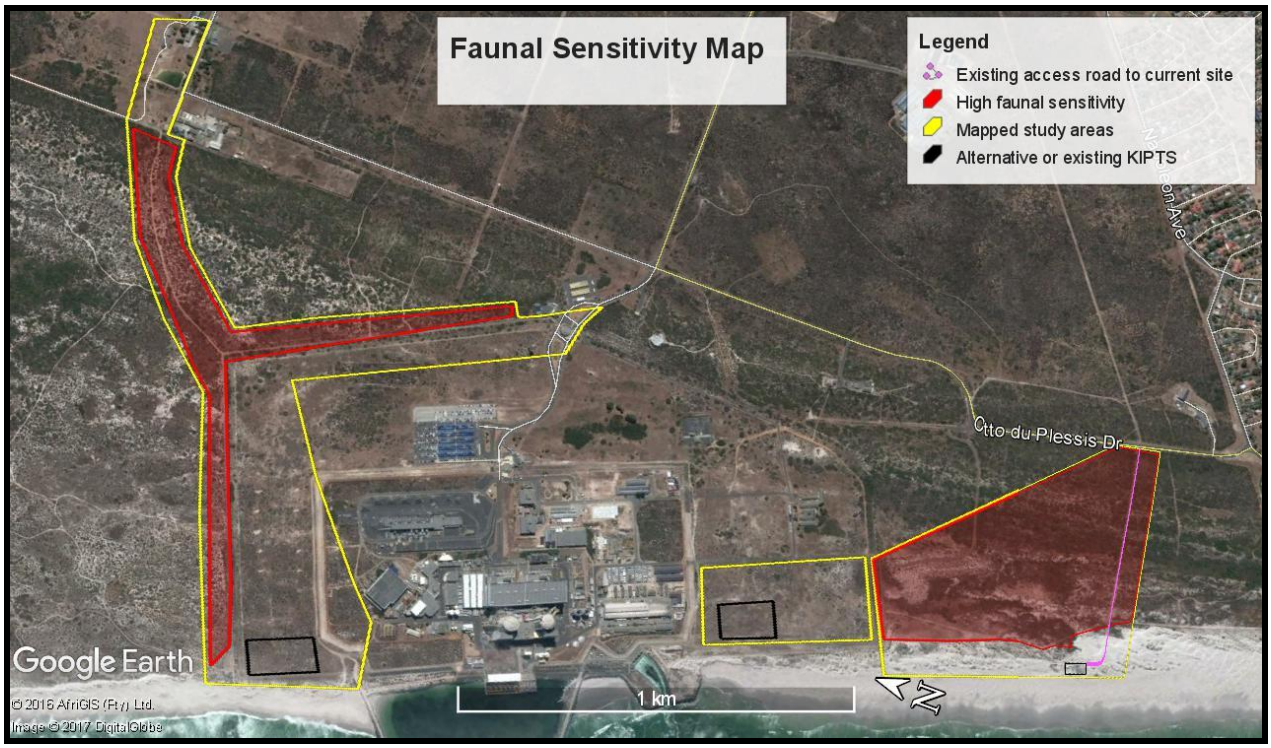
The maps below are also attached under Appendix A.

BOTANICAL SENSITIVITY MAP



Botanical sensitivity map for the mapped areas (yellow outlines).
The unshaded areas within the mapped study areas are of Low botanical sensitivity.

FAUNAL SENSITIVITY MAP



Faunal sensitivity map for the mapped areas (yellow outlines).
The unshaded areas within the mapped study areas are of Low faunal sensitivity.

IMPACT ASSESSMENT

CONSTRUCTION PHASE IMPACTS

BOTANICAL IMPACTS

Most habitat loss (new KIPTS, access roads) is deemed to be permanent (>15 years), with some long term (5-15yrs) loss and degradation in areas that will be cleared for the access roads and in areas where underground cabling and piping will be installed.

Site Alternative 2 (Low sensitivity) is marginally preferred over site Alternative 1 (Low – Medium sensitivity vegetation).

The loss of the Low and Low – Medium sensitivity habitat in the study area is likely to be of Very Low negative significance, with the duration being permanent and the magnitude very low. The underlying vegetation type is Endangered Cape Flats Dune Strandveld, and this loss of habitat cannot be easily mitigated. The conservation of good examples of this habitat within the adjacent Koeberg Nature Reserve can be considered an existing offset for the loss.

The loss of about 0.1ha of Medium sensitivity vegetation in the study area is likely to be of Low – Medium negative significance, with the duration being permanent and the magnitude low – medium. The underlying vegetation type is Endangered Cape Flats Dune Strandveld.

The loss of up to 0.1ha of High sensitivity vegetation in the study area is likely to be of Medium negative significance prior to mitigation, with the duration being permanent and the magnitude low – medium. The underlying vegetation type is Endangered Cape Flats Dune Strandveld.

FAUNAL IMPACTS

The only significant negative impact on fauna expected at the construction phase at the two site alternatives is the risk of entrapment of small animals in the excavations, and neither site is preferred in this regard. The required mitigation is for the ECO to undertake daily inspection of any excavations during the foundation development stage.

Construction phase faunal impacts for the roads are likely to be related mainly to road mortality of small animals such as tortoises, due to increased heavy vehicle traffic during this time. This is difficult to mitigate, and impact significance before and after mitigation is likely to be Low – Medium negative.

Construction phase faunal impacts for the associated infrastructure is related mainly to the risk of falling into open trenches and excavations. This can only be mitigated by regular checking of these excavations and removal of any entrapped animals, plus closing these holes up as soon as possible. Overall impact is likely to be Medium negative before mitigation, and Low – Medium negative after mitigation.

OPERATIONAL PHASE IMPACTS

BOTANICAL IMPACTS

The primary operational phase botanical impacts are likely to be the spread of alien invasive vegetation associated with the soil disturbance caused by construction, plus reductions in the current levels of ecological connectivity across the albeit degraded KIPTS sites.

The impact of both these is assessed as Low negative, for both KIPTS sites. Loss of ecological connectivity cannot be easily mitigated, but is in any event not likely to be significant, as both sites are essentially adjacent to existing infrastructure, and will not be very large. The proliferation of alien invasive vegetation can be relatively easily mitigated, by means of ongoing alien invasive vegetation management in the area. The significance of the impact would be Low negative after mitigation, for both sites, as mitigation is deemed unlikely in the case of the primary invasive species in this area, which are ubiquitous annual grasses and herbs.

The new road, powerline and pipe infrastructure is not likely to have any significant operational phase botanical impacts, and is not further assessed.

FAUNAL IMPACTS

The new KIPTS facility is not likely to have any significant faunal impact at the operational phase, at either of the alternative sites.

DECOMMISSIONING PHASE BOTANICAL & FAUNAL IMPACTS

The botanical and faunal impact of decommissioning and removal of the existing KIPTS infrastructure should be minimal, provided that the existing access road is used, and that the foundations are left in situ. The site is likely to be reclaimed by sand as soon as the surface infrastructure is removed and the Cape Seashore Vegetation already in the area is likely to rapidly colonise the available habitat, and within two years nobody would know that a facility was once there.

The removal of the current KIPTS facility will have a minor positive ecological impact over time, notably in that no further road maintenance will be required in the highly mobile sandy area around the facility, and the ultimately reduced road traffic on the rather long road to this isolated facility will lead to a small reduction on road mortality for small faunal species. Overall botanical and faunal impacts should thus be Low positive.

The use of the existing access road will require temporarily clearing away the extensive (2-3m deep in places) loose sand that has swamped this area, but that should have no significant botanical or faunal impact. No additional access roads should be considered, as any new roads will have High negative faunal and botanical impacts, as the entire area east of the site is of High botanical and faunal sensitivity, and this is thus the primary mitigation recommendation.

POSITIVE IMPACTS

The removal of the current KIPTS facility will have a minor positive ecological impact over time, notably in that no further road maintenance will be required in the highly mobile sandy area around the facility, the ultimately reduced road traffic on the rather long road to this isolated facility will lead to a small reduction on road mortality for small faunal species, and the ecological connectivity should be slightly improved by the absence of above ground infrastructure.

MITIGATION

The following mitigation is deemed feasible and reasonable, and is thus factored into the assessments, and should be considered mandatory:

- The outside boundary of the road corridor borders areas which were identified as High botanical *and* faunal sensitive areas and Species of Conservation Concern may occur here. Should the access road therefore be constructed in close proximity of these areas, a walk-down by an ecologist needs to be undertaken in order to ensure the protection of these plants.

- No new access road should be authorised for the decommissioning of the existing KIPTS site; the existing road should be cleared of sand and used for all decommissioning work and all vehicles must stay on the road.

- The existing KIPTS foundations should be left *in situ*, as removing them will cause unnecessary ecological disturbance, and they will soon be covered by sand
- Basic alien invasive vegetation management should be undertaken in the disturbed areas around the new development footprints for the first two years after construction
- The trenches that are required for the underground powerline and pipelines will be a temporary entrapment hazard for many small animals (frogs, reptiles and certain insects) and these thus need to be completed and closed up as fast as possible to minimise this hazard.
- An ECO must be appointed to oversee construction and decommissioning, and should be responsible (either by doing it him/her self or appointing a qualified person) for ensuring that all open excavations are checked twice daily for any animals that fall into these excavations, and should then remove them to a safe place for release.
- Excavations will be cordoned off with secure orange construction mesh. However, no member of the public will have access to this site hence foundations or remnants thereof will not be a public threat.

CONCLUSIONS AND RECOMMENDATIONS

- The natural vegetation in most of the study area is Cape Flats Dune Strandveld (Endangered), with Cape Seashore Vegetation (Least Threatened) on the coastal dunes at the existing KIPTS site.
- Both proposed KIPTS sites have been heavily disturbed and support low diversity vegetation, with no plant Species of Conservation Concern. Alternative 1 is marginally more sensitive from a botanical perspective (Low – Medium sensitivity) than Alternative 2 (Low sensitivity) but neither presents any significant constraints to the proposed development.
- The marginally preferred new KIPTS site from an ecological perspective is Alternative 2, and development of this area is likely to have Very Low negative botanical and faunal impacts, whereas development of Alternative 1 is likely to have Low negative botanical and faunal impacts.
- The outside boundary of the road corridor borders areas which were identified as High botanical *and* faunal sensitive areas and Species of Conservation Concern may occur here. Should the access road therefore be constructed in close proximity of these areas, a walk-down by an ecologist needs to be undertaken in order to ensure the protection of these plants.

The proposed development, at either of the proposed alternative sites could hence be authorised without significant negative botanical and faunal impacts.

A **Dune Geomorphology Specialist Report** was undertaken by Illenberger & Associates and is attached under Appendix D. A summary thereof follows below.

This study covers

- Dune geomorphology
- Dune stability - from a mobility point of view as well as suitability for development
- Mitigation measures for removing the existing Koeberg Insulator Pollution Test Station

The Dunes at Koeberg

The area is characterised by a high dune mobility, because rainfall is low, resulting in low vegetation vigour, while wind energy is high. The natural state of the dunes was mobile, unvegetated dunes that were blown northward by the dry summer winds, as can be seen in the 1938 and 1960 aerial photographs. The dominant dune type was the transverse dune (transverse to the summer southerly winds); the winter north-westerlies would modify the shape somewhat to create a more complex shape.

The beach acted as the feeder zone for the dunefield that stretches inland for 10's of km (*corridor dunefields*). The dunes around Koeberg were artificially stabilised during the 1970's. Koeberg Nuclear Power Station was then built on the stabilized dunes. Once the dunes were stabilized, they remained in a fixed, vegetated state with little or no human intervention. Re-activation would take place on a time scale of 10's of years, starting from the shoreline where the beach acts as a source of mobile dune sand that will transgress landward (if no mitigation is taken to limit or prevent this). Reactivation of the dunes is currently taking place in a zone with an average width of 75m from the high-water mark along the shore of Van Riebeeckstrand and Duynefontein suburbs.

Further north, towards the existing KIPTS, the belt of mobile dunes increases to 100m width, and the dunes are higher. This agglomeration of dunes represents a pulse of sand that was generated when dunes started mobilizing in the area north of Duynefontein suburb about 2005, and then was blown northward, reaching the access road to the existing KIPTS about 2014 and is now inundating the existing KIPTS.

Dune Stability and Suitability for Development

The proposed preferred and alternative sites for the new KIPTS are entirely within the area that was formerly mobile dunes. At both sites, development can take place safely without any impacts on the now-stabilized dunes. Both sites are equally suitable from the dunes perspective.

When vegetation is cleared from an area for development, it must be re-vegetated as soon as the development is completed, so that the dune sands do not become re-mobilized.

Removing existing Koeberg Insulator Pollution Test Station

As described above, a pulse of sand is currently inundating the existing KIPTS and its access road. Moving the sand out of the way while the KIPTS structures are being removed will have a negligible impact on the dynamics of the moving dunes.

Sand should be cleared off the access road by shifting it northward, the direction in which the dominant wind would move it. Alternately sand could be moved seaward, which would represent a delay in its natural wind-blown movement, but would have no consequences within the natural high variability in the wind regime.

Clearing of the access roads have obvious advantages such as vehicles will not have to drive through potentially wetland areas and over dunes.

It is preferable to work during the calm season, i.e. autumn, so that wind-blown sand will be less of a nuisance.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Cape Times	
Date published	16 March 2017	
Site notice position	**Latitude**	**Longitude**
At the entrance to Koeberg Power Station, just off the R27 provincial road	33^0 40' 37.09" S	18^0 27' 15.97"E
At the main entrance security gate to the Koeberg Power Station	33^0 40' 31.47" S	18^0 26' 22.37"E
Date placed	25 April 2017	

Include proof of the placement of the relevant advertisements and notices in **Appendix E1**.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

ACTIONS UNDERTAKEN DURING THE PUBLIC PARTICIPATION PROCESS

1st Phase Notification

- ***Notification to Government Departments, Municipalities and other IAPs***
  A General I&AP List was compiled and includes municipalities, government departments, other applicable organisations and adjacent landowners. Background Information Documents (BIDs) were emailed to everyone on this list during March 2017 and onwards. A 30-day commenting period applied.

- ***Onsite notification***
  Two English and Afrikaans onsite notices were placed at two entrances to the Koeberg Nuclear Power Station. The notifications were A3 in size and laminated.

- ***Newspaper Advertisement***
  A newspaper advertisement was placed in the Cape Times, a provincial newspaper on 25 April 2017.

- ***Stakeholder meeting***
  An onsite meeting was held between Eskom, SMEC Consulting Engineers, Landscape Dynamics and the South Africa National Space Agency on 25 April 2017. Refer to *Paragraph 3: Issues raised by interested and affected parties* below for more detail in this regard.

Distribution of Draft Basic Assessment Report

The Draft BAR was distributed as follows (a 30-day commenting period applied):

- ❖ Hard copies were delivered to the
  - National Department of Environmental Affairs: Environmental Authorisation
  - National Department of Environmental Affairs: Biodiversity Section
  - The City of Cape Town
  - Western Cape Department of Environmental Affairs & Development Planning
  - Department of Environmental Affairs: Oceans & Coasts
  - Cape Nature Scientific Services
  - Western Cape Department of Water Affairs & Sanitation
- All registered Interested and Affected Parties received an electronic copy of the Draft BAR via email or notification of its availability via post.

Distribution of Final Basic Assessment Report

- The Final BAR (this document) includes comment received on the Draft BAR.
- All IAPs received an electronic copy of the Final BAR to ensure that their comment was addressed satisfactorily. A 30-day commenting period applied.
- The Final BAR will be submitted to DEA for approval / refusal of the project at the end of the 30-day commenting period.
- IAPs will be informed of the DEA's decision and their right to appeal.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Please refer to Appendix E for the contact details of below mentioned IAPs

ADJACENT LANDOWNERS

The Landowner: The Remaining Extent of Farm 33 Kleine Springfontein, Cape RD and Portion 20 of the Farm 1063 Kleine Zoute Rivier, Cape RD and Farm 1552, Cape RD: Eskom Group Capital Department – Eskom Properties, Regional Land Portfolio Managers: For attention: Ms Stolp and/or Ms Tinkie Holl.
The Landowner : Portion 17 of the Farm 1063 Kleine Zoute Rivier, Cape RD : Jocrisko Belange (Pty) Ltd : Care of Mr Daniel Petrus Roux
Melkbosstrand Ratepayers Association (on behalf of the Duinefontein residents): The Chairperson, For attention: Ms Smokie la Grange
The Landowner: Portion 16 of the Farm 1063 Kleine Zoute Rivier,- Cape RD, Kleine Zoute Plaas: Care of: Andrea Giovanni Agostini & Fiorisa Graziella Agostini & Pieter Rubert and Johne de Coning
The Landowner : Portion 1 of the Farm 1063 Kleine Zoute Rivier, Cape RD : Ms Annemarie Michele Bantjes and Mr Jacobus Wouter Bantjes
The Landowner : Portion 6 of Farm 32 Brakke Fontein, Cape RD: Aeronastic Prop (Pty) Ltd; Care of: Mr Peter Alexander Dale & Mr Joe Mc Donald

KOEBERG NUCLEAR POWER STATION

Koeberg Power Station - Bulk Stores: Nuclear Environmental Manager: Nuclear Support: Generation: Deon Jeannes
Koeberg Insulator Pollution Test Station (KIPTS): Eskom Distribution Solutions: Mr David (Lucky) Mvayo
Koeberg Nuclear Power Station: Officer: Security Business Intelligence: Security Group: Security Division: Mr Martin Krause
Mr Vic Vickory
Eskom Research, Testing and Development, Engineer, Mr Richardo Davey
Mr John Adams
Koeberg Nuclear Power Station: Officer, Environmental Management, Ms Jurina Le Roux (also on behalf of the Koeberg Nature Reserve)
Koeberg Nuclear Power Station: Manager, Environmental & Land Management, Mr Gert Greeff
Stakeholder Management: Lewis Phidza

Include proof that the key stakeholder received written notification of the proposed activities as **Appendix E2**. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

3.1 Comment received during the Initial Advertising Period: April 2017

Summary of main issues raised by I&APs and Response from EAP
Melkbosstrand Ratepayers Association: The Chairperson; Mrs Smokie La Grange • The Melkbosstrand Ratepayers Association has no objection to the proposed KIPTS project. *Response from Landscape Dynamics* • Comment noted
Cape Nature: Manager Scientific Services: Mr Rhett Smart • Both site alternatives are located within the Koeberg Nature Reserve, which is a formally declared nature reserve in terms of the National Environmental Management: Protected Areas Act (NEM:PAA). Any developments within the nature reserve must comply with the approved protected area management plan (PAMP).

- It is anticipated that the project proposal will be more detailed in the Draft Basic Assessment Report (BAR), which should include site layout plans. CapeNature supports the proposed specialist studies which include dune geomorphology, ecological (fauna and flora) and aquatic.

They will comment in further detail on the Draft BAR once more detailed information is available.

Response from Landscape Dynamics

- *The two site alternatives fall within the Buffer Zone of the Reserve which is a category within Developed Zone – Facilities. Mitigation measures provided would ensure the protection of the environment as per the approved management plan.*

Western Cape Government Road Network Management: Mr Alvin L Cope

- As there will clearly be no added traffic issues caused by this (effective) relocation of an existing test station, there is no necessity for this Branch to be involved and the names of Ms Jacqui Gooch and Ms Sharonette Webb-Olivier of this Branch may be removed from you list of I&APs for this project.

Response from Landscape Dynamics

- *They were removed from the IAP register as requested*

City of Cape Town: Environmental Management Department: Regional Manager: Environmental and Heritage Management: Ms Pat Titmuss

- This office will provide collated City comment on the initial proposal within the required timeframe.
- A hard copy and a cd copy of the Basic Assessment documentation to be submitted to her offices.
- Correspondence should not be sent to the City Manager, as all co-ordination of City comment is done through her office.

Response from Landscape Dynamics

- *A hard and electronic copy of this report was couriered to her office.*
- *The City Manager was deleted from the IAP register.*

The Landowner: Portion 16 of the Farm 1063 Kleine Zoute Rivier, Cape RD: Mr Andrea Gionanni Agostini and Ms Fiorisa Graziella Agostini

- Ms Agostini acknowledged receipt of the Background Information Document. No further comment was received.

Response from Landscape Dynamics

- *Comment noted*

City of Cape Town: Environmental Management Department: Senior Environmental Practitioner: Environmental & Heritage Management: Mr Morné Theron

- Be advised that the Environmental & Heritage Management Branch: Environmental Resource Management Department (EMD) is the duly delegated city Branch to co-ordinate City of Cape Town technical comment on EIA within the City's jurisdiction.
- As the Koeberg Nuclear Power Station is located within the Northern Region all future EIA documentation pertaining to this EIA must be submitted to Ms Pat Titmuss. As such that office must be reflected on you database as the entry- and exit point at the City of Cape Town.

- Kindly reflect the subject erf number (Cape Farm 1552, Duynefontein) on all future EIA documentation for ease of reference.
- Given the content of the BID no further comment is warranted at this stage.
- Kindly provide a copy of the draft Basic Assessment Report (BAR), once available, to this office in the format of 1 x hard copy and 1 x electronic copy (CD or Flashdisk).

Response from Landscape Dynamics
- *Comment noted*
- *A hard and electronic copy of this report was couriered to the office of Ms Titmuss*
- *M Morne Theron was deleted from the IAP register*

Mr J A Norman: 25 Edward Crescent Duynefontein, Melkbosstrand
- He requested to be registered as an IAP for this project.

Response from Landscape Dynamics
- *Mr Norman is now included in the IAP register.*

WC Department of Development Planning & Environmental Affairs: Ms Andrea Thomas
- The correct contacts at the DEADP are: Directorate: Development Management (Region 1) Taryn Dreyer and Maboee Nthejane

Response from Landscape Dynamics
- *The IAP register was amended to reflect the above.*

WC Department of Agriculture: Assistant Director of Communication: Ms Giselle Terblanche
- The BID was forwarded to the Director: Sustainable Resource Management, Mr Andre Roux.

Response from Landscape Dynamics
- *The IAP register was amended to include Mr Roux.*
- *No further comment was received.*

Heritage Wester Cape: Andrew September

They stated that there is no reason to believe that the KIPTS will impact on any heritage resources and no further action is required.

However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities, all works must be stopped immediately and HWC must be notified without delay.

Response from Landscape Dynamics
- *Comment noted*
- *This stipulation is included in the EMP*

Stakeholder meeting: Eskom, SMEC Consulting Engineers, Landscape Dynamics and the SA National Space Agency (SANSA)

At present, SANSA has a very sensitive magnetotelluric (MT) instrument for the measurement of Space Weather impacts on the Eskom Power grid. SANSA and Eskom-Koeberg have a signed hosting agreement in which Eskom agreed to host the SANSA magnetometer instrument. It seems as if the proposed position of the new KIPTS may impact on these measurements and that valuable data may be lost. The future accuracy of the instrument may also be jeopardised by the proposed KIPTS.

SANSA therefore requested an onsite meeting so that all of their requirements vs the impact that the proposed new KIPTS may have on their equipment and data could be discussed.

"*Notes on the meeting*" is attached under Appendix E.

The meeting concluded as follows:

SANSA equipment

- Due to the proposed position of the 400kV substation it will be necessary to move the SANSA equipment away from the influence sphere of the KIPTS *as well as* from the proposed 400kV substation.
- The ideal position for the SANSA MT station will be determined *after details of the plans for the construction* of the KIPTS are available, The preferred site for the MT station which will be on the land between the KIPTS and 400kV substation, in close proximity of the existing MT site.
- SANSA will remove the electronics and cables of their MT equipment before construction of KIPTS commences in order to minimize the risk of damage to the equipment. Construction is planned to commence no later than 14 months from now. Eskom will notify SANSA at least a month before construction is likely to start.

Agreement

It was agreed that Eskom will budget for R100 000 to cover the additional cost incurred by the KIPTS construction company for the following:

1. Dismantling of the existing MT equipment enclosures;
2. Building new enclosures of the same type as the existing ones at a suitable position within the land parcel near the existing site as agreed by Eskom and SANSA (SANSA will provide detailed plans so that the existing fibreglass lids will fit on the new enclosures);
3. Digging of four trenches of 50m long, 0.5m deep and 300m wide for laying the conduits for the MT station cables from the central enclosure to each of the four electric field electrodes.
4. Supplying all materials for the fixed infrastructure for the new MT stations, excluding the LEMI magnetometer, data logger and other removable components of the MT station.
5. Providing 250 V power from the KIPTS site to the central enclosure for powering the MT equipment. .

Above-mentioned agreement will be included in the Environmental Management Plan which will form as a binding agreement between Eskom and SANSA.

3.1 Comment received on the Draft BAR

COMMENT RECEIVED ON THE DRAFT BAR
Distributed for a 30-day commenting period (28 July 2017 – 3 August 2017)

Department of Environmental Affairs: Directorate: Biodiversity Conservation: Mr. Seoka Lekota
It was stated that request for comments should be send to them via registered mail and addressed to Directorate: Biodiversity Conservation and not to Mr Lekota directly since this might cause a delay in responding to comments. It should be further noted that request for Biodiversity comments send via email would not be considered until an official registered mail with a hard copy or CD is received by the Directorate.

Response from Landscape Dynamics

- *The IAP register was amended accordingly.*
- *A hard and electronic copy of the Draft BAR was sent via courier to DEAs offices, marked for attention Mr Lekota, on 29 June 2017.*
- *It is expected that comment from the Directorate will be received within the stipulated time frame.*
- *No further comment from this Directorate was received.*

Koeberg Power Station Bulk Store: Nuclear Environmental Manager: Nuclear Support: Generation: Mr Deon Jeannes
In general they agree with the selection of the preferred site and the impact assessment and mitigation measures, with the following minor comments on the content of the BAR and EMP:

1) Page 6: The co-ordinates of Alternative 1 and 2 are the same which is incorrect.
2) Page 11: Alternative 2 shown in the figure is different location from the figure on pages 37, 50 and 52. Perhaps the white block should be located closer to the ocean?
3) Page 14: The document states that the 400kV substation EIA is not finalised. This is incorrect. The EA was approval dated 8 September 2016, DEA Ref: 14/12/16/3/3/2/508. The exact location is known but the exact layout is not known and there is still some discussion over the need to amend the EA to relocate it.
4) Page 18: There should not be a "4" after the last question.
5) Page 20: The question has not been answered if site access exists.
6) Page 29: The car park falls within the Koeberg nature reserve. As such the project activities will need to be consistent with the management plan as approved by the MEC. We recommend that NEMPAA is added to the list and a comment is inserted that the project will need to comply with the approved management plan requirements.

7) Page 31: The construction activities may generate dust. Surely the answer to the question on emissions to atmosphere should be YES.
8) Page 32: Noise has been ticked as a NO, but the impact assessment on Page 74 states that there is an impact. YES should be selected.
9) Page 32: Only municipal water is selected. We would recommend that ground water is also selected and ground water (available at KNPS) which is non-potable is used for any dust suppression required by the project. Also the EMP should be updated to include the use of ground water for dust suppression. A water use authorisation (W5/720/A7/5/97/01 on 1 July 1997) for KNPS for ground water abstraction was issued, for on-site boreholes.
10) Page 32: Energy efficiency. I would recommend that all light fittings are energy efficient.
11) Page 64: Farm 34 is mentioned. This no longer exists. Farm 1375 and Farm 34 were consolidated to form Farm 1552.The Eskom person responsible for the Eskom land is the Power Station Manager: Velaphi Ntuli.
12) EMP page 22: The requirement for accommodation for security staff should be removed. Accommodation within the nature reserve is not allowed.
13) EMP: Mitigation for dust management should be added. If water is used for dust management this should be non-potable water which is available at the power station but supply might be limited due to the drought.
14) EMP: Eskom should be notified of any incidents including fires.
15) EMP: Fires: CPFPA should be notified of any fires (tel: 021 689-7438).
16) EMP page 20: Litter should not be stockpiled. No open trenches should be allowed (adequate barricading is required).
17) EMP page 20: toilet facilities tend to be blown over and should be secured.
18) EMP: Page 21: typo “tenches”. Trenches should also be covered to reduce the hazard. Also a hazard to large game (not just small animals).
19) EMP: Page 21 regards movement of sand dune: Sand should not be moved onto vegetation or pose a risk to the wetlands.
20) EMP: Page 24: Waste Management: Bin lids shall be animal proof.
21) EMP page 25: Sewage: Portable ablution facilities shall be secured to avoid being blown over.
22) EMP page 25: Vegetation clearance: Vegetation shall be mulched by the Eskom conservation department before clearance.
23) EMP: Page 25: Protection of fauna: Adherence to on-site speed limits.

Response from Landscape Dynamics

1) Page 6:
   The coordinates were amended to reflect the correct position of the two sites.

2) Page 11:
   The map on Page 11 was amended to reflect the correct position of Site 2.

3) Page 14:
   The BAR was amended as requested.

4) Page 18:
   The '4' was deleted.

5) Page 20:
   Site access does exist but the position of the access road will be changed.

6) Page 29:
   This was added to the legal requirements as well as the EMP

7) Page 31:
   The question reads as follows: Will the activity release emissions into the atmosphere ***other that exhaust emissions and dust*** *associated with construction phase activities? The answer to this question is NO*

8) Page 32:
   The BAR was amended to correctly reflect the generation of noise during the construction phase of the project.

9) Page 32:
   The BAR and the EMP were amended as requested.

10) Page 32:
   This stipulation is now included.

11) Page 64:
   The BAR was amended to reflect the correct farm numbers (note that it was correctly stated in the Application Form as well as Section B, paragraph 1 of the BAR).

12) EMP page 22:
   The EMP was amended accordingly.

13) EMP:
This stipulation was added to the EMP.

14) EMP:
This is stipulated under Incident Reporting *on page 12 of the EMP*

15) EMP:
The EMP was amended accordingly.

16) EMP page 20:
The EMP was amended accordingly.

17) EMP page 20:
The EMP was amended accordingly.

18) EMP: Page 21:
The EMP was amended accordingly.

19) EMP: Page 21:
The EMP was amended accordingly.

20) EMP: Page 24:
The EMP was amended accordingly.

21) EMP page 25:
The EMP was amended accordingly.

22) EMP page 25:
The EMP was amended accordingly.

23) EMP: Page 25:
The EMP was amended accordingly.

Cape Nature: Manager Scientific Services: Mr Rhett Smart

1. A brief summary of the project and specialist studies were given.

2. The project is located within the Koeberg Nature Reserve, which is proclaimed in terms of National Environmental Management: Protected Areas Act (NEM:PAA – Act 57 of 2003). A protected area management plan (PAMP) has been compiled in terms of NEM:PAA (termed the Management Plan for the Koeberg Nature Reserve), with which each development proposal within the nature reserve must be compliant. Within the PAMP, the proposed development is located within the Buffer Zone of the nuclear power station, which is within the access restricted area. The Buffer Zone is a category

within Developed Zone - Facilities for which the objectives are the operation, maintenance and development of facilities to support the operation of the nuclear power station.

3. The existing facility is located outside of the access restricted area and is included within the Developed Zone - Facilities as an isolated node. Following the decommissioning of the facility, the PAMP should be amended so as to change the existing node of Developed Zone – facilities and change this to Conservation Zone. This would be supported by CapeNature as it will result in an increase in the conserved area.

4. In conclusion, CapeNature supports the decommissioning of the existing facility and does not object to either of the two location alternatives for relocation of the facility. Alternative 3 is the preferred alternative access route to the preferred location for the facility and CapeNature would not support the selection of Alternative 1 for the access route.

5. On a more general note, not related to this specific application but related to the objective of this project, CapeNature is not aware of any testing facilities related to the operation of powerlines and thresholds related to fire. Management interventions related to fire are one of the most significant impacts on biodiversity related to electricity infrastructure in the Western Cape (and elsewhere) and further investigation of these impacts would be supported.

Response from Landscape Dynamics

1. *Noted*
2. *The EMP was amended to include this information*
3. *The EMP was amended to include this stipulation*
4. *Access Road Alternative 1 has been scrapped as an alternative and the access road will be constructed within the corridor as explained in Section 1 of the BAR.*
5. *This request was forwarded to Eskom for their consideration.*

City of Cape Town: Environmental Management Department: Senior Environmental Practitioner: Environmental & Heritage Management: Mr Morné Theron

Environmental Management Department (Environmental & Heritage Management and Coastal Management Branches.

Draft BAR

1. The communication / authorisation of the once-off emergency clean-up activity allowed by DEA should be included in the Final BAR.
2. The table on page 29 should be updated to reflect the date on which comment from HWC was received.
3. The word 'partial' should be removed from the sentence on page 41.

4. The Environmental & Heritage Management Branch of the City of Cape Town falls within the Environmental (Resource) Management Department: page 70 should be amended.
5. The prescription of the short term impact under "Community" on page 74 should be omitted since it is a prejudiced perceived increase in risk as no evidence exists to support this statement.
6. The order of the maps in Appendix A should correspond with the Appendix A contents page.
7. The preferred location appears to be adjacent to the proposed Hardened Water Reservoir, the Weskusfleur substation, the Koeberg-Dassenberg 132kV power line as well as the Transient Interim Fuel Storage Facility. A map should be compiled to reflect the position of the hardened water reservoir in relation to the proposed KIPTS site.

Impact Assessment

8. The general harm of fauna is to be included as an additional impact under Fauna & Flora.
9. Community Impact: See 1.5 above.
10. Air quality & Noise: these headings have been incorrectly interchanged and should be amended accordingly.

EMPr

11. Proof of appointment of an independent ECO must be submitted to the CoCT: Environmental & Heritage Branch: Northern Region prior to the commencement of construction.
    - 11.1 The ECO is to conduct environmental induction with all staff handling, using or working on site.
    - 11.2 The number of site visits to be amended to once every two weeks
    - 11.3 The ECO is to submit monthly environmental audit reports to the Regional Manager: Environmental & Heritage Management Branch: Northern Region.
    - 11.4 The ECO has a mandate to issue contractors with penalties for repeated non-compliance with the EMP.
12. No go areas are to be clearly demarcated.
13. Fauna (general mitigation)
    - 13.1 No temporary stockpiles areas are allowed for litter. Waste is to be adequately stored in weather and scavenger-proof gins and is to be removed regularly and not only on completion of construction.
    - 13.2 No animals may be harmed or removed from site. If an animal is encountered on site that does not vacate the area by itself, or may be harmful to site staff, the conservation staff at Eskom is to be contacted to remove said animal.

14. Construction site camp (page 22)

    14.1 The site camp is to have a demarcated eating area

    14.2 A minimum of one toilet is to be provided on site for every 15 contract personnel in the case of chemical toilets and 1 for every 30 staff in the case of flush toilets.

    14.3 The following working hours are suggested: 7h00 to 17h00 Mondays to Saturdays and no work to take place on public holidays and Sundays.

15. Construction work is to stop immediately on the discovery of any cultural and heritage resources.

16. Dust mitigation must be included and no potable water may be used as a dust mitigation measure.

General

17. The following should be included as part of the decommissioning

    17.1 All infrastructure at the existing KIPTS site must be removed including any concrete platforms and associated foundations.

    17.2 The site should be rehabilitated with appropriate locally indigenous vegetation.

City of Cape Town: Utility Service, Water & Sanitation (Bulkwater Branch)

No infrastructure under the control of the CoCT's Bulk Water Branch exists in the immediate vicinity of the proposed development shown in the application.

Response from Landscape Dynamics

1. *Emergency sand clearance measures were put in place that eventually cleared an estimated 1600 m^3 of sand from the site. The emergency clean-up was a once-off allowance by the Department of Environmental Affairs and it cannot be repeated. Eskom confirmed that they don't have a copy of the application or decision that was taken by the DEA regarding the moving of sand, which took place in 2013 / 2014.*
2. *The BAR was amended accordingly.*
3. *The BAR was amended accordingly.*
4. *The BAR and IAP Register was amended accordingly.*
5. *This impact was deleted.*
6. *The BAR was amended accordingly.*
7. *A table and map were added under Addendum J, indicating existing and in progress EA processes as well as the position of the future infrastructure in relation to the proposed KIPTS site. Please note that KIPTS site is adequately positioned to avoid all other existing and planned infrastructure.*

8. The Impact Assessment was amended accordingly.

9. This impact was deleted.

10. The Impact Assessment was amended accordingly.

11. The EMP was amended accordingly.

11.1 The EMP was amended accordingly.

11.2 It is recommended in the EMP that the Environmental Site Representative be permanently on site during construction and that the ECO visit the site once a month to ensure compliance. This is deemed to be adequate to ensure that all stipulations as per the EMP are met.

11.3 The EMP was amended accordingly.

11.4 The EMP was amended accordingly.

12. The EMP was amended accordingly.

13. General mitigation

13.1 The EMP was amended accordingly.
13.2 The EMP was amended accordingly.

14. Construction site

14.1 The EMP was amended accordingly.

14.2 The EMP was amended accordingly.

14.3 The EMP was amended accordingly.

15. The EMP was amended accordingly.

16. The EMP was amended accordingly.

17. General

17.1 The EMP was amended accordingly.

17.2 It is stated in the Ecological Assessment that the existing KIPTS foundations should be left in situ, as removing them will cause unnecessary ecological disturbance, and they will soon be covered by sand.

It is therefore not recommended that the concrete platforms and associated foundations be removed as requested by the City of Cape Town.

WC Department of Development Planning & Environmental Affairs: Directorate Development Facilitation: Ms Adri La Meyer

1. Comment from various directorates were given

2. Directorate: Development Management (Region 1):

2.1. The footprint of the proposed Koeberg Insulator Pollution Testing Station ("KIPTS"), including the footprint of the associated infrastructure, must be confirmed and included in the Final BAR.

2.2. Page 4 of the Draft BAR indicates that the new access road will be wider than 4m and 8m. The correct width of the access road must be confirmed in the Final BAR to be submitted to the competent authority.

2.3. Clarity must be provided whether Activity 24 of Listing Notice 1 of the Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) or Activity 4 of Listing Notice 3 of the EIA Regulations, 2014 (as amended) is applicable to the proposed developed once the width of the proposed road has been confirmed.

2.4. Please note that listed activities 19A and 31 of Listing Notice 1 of the EIA Regulations, 2014 (as amended) are incorrectly referenced in the Draft BAR.

2.5. The applicability of Activity 27 of Listing Notice 1 of the EIA Regulations, 2014 (as amended) must be confirmed. Please note that this activity is not applicable to the clearance of vegetation for linear activities.

2.6. It is noted that wetlands are located on the proposed site and that a General Authorisation ("GA") will be required from the Department of Water and Sanitation ("DWS"). The distance of the proposed development in relation to the wetlands was not specified in the Draft BAR. Please note that should the proposed development be located within 500m of a wetland, a Water Use Licence as opposed to a GA may be required from the DWS.

2.7. It is noted that the Department of Agriculture ("DoA") has been identified as a state Department having an interest in commenting on the application. However, page 64 of the Draft BAR does not indicate whether a copy of the Draft BAR was made available to the DoA for comment. Clarity must be provided in the Final BAR whether the DoA was consulted for comment on the application.

2.8. Please note that the co-ordinates of the site alternatives as indicated on page 6 of the Draft BAR are incorrect. (In this regard, also refer to section 3.7 below.)

2.9. The duly dated and originally signed declarations as completed by the applicant, the environmental assessment practitioner and the specialists that compiled the specialist reports, must be included in the Final BAR to be submitted to the competent authority.

2.10. Please note that the Final BAR to be submitted to the competent authority must include proof of notifying interested and affected parties of the background information document and the Draft BAR. The proof must include, inter alia, the following:

- If registered or regular mail was sent, a list of the recipients of registered or regular mail, as obtained from the service provider;
- If a facsimile was sent, a copy of the facsimile report;

- If an electronic mail was sent, a copy of the electronic mail sent and delivery reports; and
- If a "mail drop" was done, a signed register of "mail drops".

3. Directorate Waste Management

3.1. The disposal of waste generated during the construction and operation of the proposed KIPTS and the decommissioning of the existing KIPTS should be considered as a last resort after having considered the waste management hierarchy (avoidance, reuse and/or recycling of waste).

3.2. It is noted that construction waste will be disposed of at a licenced waste disposal facility. It is recommended that where possible, reuse alternatives for construction waste be considered and implemented.

3.3. The storage of hazardous and/or general waste (including builder's rubble) of more than 80m^3 and 100m^3 respectively, excluding the storage of waste in lagoons or the temporary storage of such waste, would require the applicant to comply with Government Notice ("GN") No. 926 of 29 November 2013: National Norms and Standards for the Storage of Waste. Should the storage of waste trigger the mentioned thresholds, then the applicant must also register the waste storage on the Department's Integrated Pollutant and Waste Information System (https://ipwis.pgwc.gov.za/ipwis3/public) with regular updates thereafter.

3.4. Any soil not considered suitable for the layer works (foundation layers) of the road may be classified as spoil. Please be advised that the disposal of spoil may trigger the waste management activity identified in Category A 3(9) of GN No. 921 of 29 November 2013, being "The disposal of inert waste to land in excess of 25 tons but not exceeding 25 000 tons, excluding the disposal of such waste for the purpose of levelling and building which has been authorised by or under other legislation". The Final BAR must indicate whether this activity is applicable and if a waste management licence is required from the licensing authority.

3.5. The waste management recommendations for general and construction waste indicated on page 14 of the Impact Assessment Report as well as the recommendations and mitigation measures indicated in the Environmental Management Programme are supported and must be implemented throughout the various phases of the proposed development

3.6. Page 30 of the Draft BAR indicates that solid waste will be disposed of in the normal waste stream of the Koeberg Nuclear Power Station. More clarity on this aspect is required.

3.7. As per section 2.8 above, the co-ordinates of the site alternatives must be updated in the Final BAR to reflect the correct co-ordinates.

4. Directorate: Air Quality Management

4.1. It is envisaged that dust and exhaust emissions will be generated during the decommissioning of the existing KIPTS and the construction of the new KIPTS, which could cause nuisance conditions. Dust

generated during the decommissioning of the existing KIPTS and the construction of the new KIPTS and associated infrastructure (e.g. powerline, security fence, roads, pipelines, etc.) must comply with the National Dust Control Regulations (GN No. R. 827 of 1 November 2013), promulgated in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). These regulations prohibit a person from conducting any activity in such a way to give rise to dust in such quantities and concentrations that the dust, or dust fall, may have a detrimental effect on the environment and human health.

4.2. All noise levels of machinery and work activities must be monitored and controlled on the site. Noise generated during the decommissioning of the existing and construction of the new KIPTS and associated infrastructure must comply with the Western Cape Noise Control Regulations (Provincial Notice 200/2013) of 20 June 2013.

4.3. Best practice measures must be employed to minimise any noise or dust impacts that may occur during the construction and decommissioning phases of the proposed development.

4.4. The applicant is reminded to comply with the "general duty of care" as per section 28 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) by ensuring that the proposed development does not cause significant pollution or degradation of the environment.

5. The Department supports the comments of CapeNature in their correspondence dated 27 July 2017 and does not object to either of the two site alternatives being authorised for the development of the new KIPTS. The Department furthermore supports CapeNature's comment that the access route alternative identified as Road Alternative 1 should not be considered for authorisation due to the very high sensitivity of the route.

Response from Landscape Dynamics

2.1 The footprint of the proposed development is stated under project description under Section 1

2.2 The BAR was amended accordingly

2.3 An access road with a maximum length of 1.6km and with an approximate width of 10m will be constructed. Activity 24 (LN 1) as well as Activity 4 (LN 3) are therefore applicable.

2.4 Ms Melanese Schipper stated it should be referenced as follows:-

Activity 19A

The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from—

(i) the seashore;

(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater; or

(iii) the sea; —

but excluding where such infilling, depositing , dredging, excavation, removal or moving—

(f) will occur behind a development setback;

(g) is for maintenance purposes undertaken in accordance with a maintenance management plan;
(h) falls within the ambit of activity 21 in this Notice, in which case that activity applies;
(i) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.

Activity 31
The decommissioning of existing facilities, structures or infrastructure for—
(i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;
(ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;
(iii) …
(iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or
(v) any activity regardless the time the activity was commenced with, where such activity:
(a) is similarly listed to an activity in (i) or (ii) above; and
(b) is still in operation or development is still in progress;
excluding where—
(aa) activity 22 of this notice applies; or
(bb) the decommissioning is covered by part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies.

2.5 Activity 27 is applicable because an area bigger than 1 hectares will be cleared for the new KIPTS site (1.325 hectares) – this is not a linear activity.

2.6 An application for a GA was submitted to DWS on 15 June 2017 and they will determine if a WULA is required instead, although it is not foreseen.

2.7 The BID as well as the Draft BAR was made available to the Department of Agriculture (proof included under Appendix E) for comment but none was received.

2.8 The BAR was amended accordingly.

2.9 The originals will be submitted to DEA with the Final BAR.

2.10 Proof of notification is all included under Appendix E.

3.1 The EMP was amended accordingly

3.2 The EMP was amended accordingly

3.3 The EMP was amended accordingly

3.4 The following sentence is included in the BAR (Section A, paragraphs 12): It is hereby confirmed that this activity is not applicable to this project and a waste license is not required. The above statement is however included in the Environmental Management to ensure compliance in the unlikely event that that this activity may become applicable.

3.5 Comment noted

3.6 Handling of waste at the KNPS is contracted to Waste Tech and domestic waste generated during the operations at the KIPTS will be removed by Waste Tech.

3.7 The BAR was amended accordingly

4.1 This stipulation is included in the EMP.

4.2 This stipulation is included in the EMP.

4.3 This stipulation is included in the EMP.

4.4 Mitigation measures as stipulated in this report and EMP would ensure that the proposed development does not cause significant pollution to the environment.

5. Comment noted.

Access Road Alternative 1 has been scrapped as an alternative and the access road will be constructed within the corridor as explained in Section 1 of the BAR.

Department of Environmental Affairs: Chief Director: Integrated Environmental Authorisations: Ms Anela Sotashe

1. *Public Participation Process*
   Comments received from organs of state on the Draft BAR must be included in the Final BAR.

2. *Details of the EAP and Expertise*
   The details of the EAP to be provided and not the Company Profile.

3. Comment from the following organisations should be obtained
   i. Cape Nature
   ii. iLifa leMveli leNtshona Koloni
   iii. The Biodiversity Directorate within DEA
4. *Alternatives*
   - Alternative site locations need to be assessed and a clear motivation as to why the preferred site is chosen must be provided.
   - Assessment of each route corridor alternative identified for the road must be provided and why the preferred corridor is chosen.

5. The total footprint and centre or four coordinates of the proposed site and route corridor alternative must be indicated and it must be mapped at an appropriate scale.

6. Environmental Sensitivity Maps must be provided and a map combining the final layout map superimposed on the sensitivity map must also be provided.

7. The EMPr must include all recommendations and mitigation measures recorded in the final BAR.

8. The Final BAR must comply with Appendix 1(3) of the EIA Regulations 2014, as amended.

9. *General*
   - Regulation 19(1)(a) of the EIA Regulations 2014 must be adhered to
   - Should there be significant changes or new information that has been added to the BAR or EMPr or information which was not contained in the reports or plans consulted on during the initial public participation process, Regulation 19(b) would be applicable and another public participation process of at least 30 days must be undertaken.
   - The application will lapse if any timeframes as per the EIA Regulations 2014 are not met.

Comment from Landscape Dynamics

1. *Comment received from organs of state on the Draft BAR is included under Appendix E of the Final BAR.*

2. *The CVs of both Susanna Nel and Annelize Grobler are at the back of the Company Profile and attached under Addendum H. Please note that the experience of the EAPs is directly related to all the projects undertaken by Landscape Dynamics as listed in the Company Profile.*

3. *Comment received from Cape Nature is attached under Appendix E and responded to above*
   The Biodiversity Directorate did acknowledge receipt of the Draft BAR but no comment was received.
   Comment from iLifa leMveli leNtshona Koloni was received and is attached under Appendix E. They don't have objection to the development since no heritage resources were found.

4. *The site alternatives are discussed in detail under Section A: "Selecting an Alternative', on page 10 – 13 of the BAR.*
   Please note that only one corridor for the access roads are proposed (discussed in detail on pages 13 – 16 in the BAR). Access Road Alternative 1 has been scrapped as an alternative and the access road will be constructed within the corridor as explained in the BAR.

5. *The total footprint and centre coordinates of the proposed site is provided under Section A, paragraph a). The location of the site and proposed corridor for the access road is mapped and attached under Appendix A.*

6. *The Environmental Sensitivity Maps as provided under Appendix A all show the proposed KIPTS layout in relation to the environmental sensitivities.*

7. All recommendation and mitigation in the Final BAR is included in the EMPr.

8. The Final BAR complies with Appendix 1(3) of the EIA Regulations 2014, as amended.

9. Regulation 19(1)(a) of the EIA Regulations 2014 are being adhered to.
The Final BAR is being distributed for a 30-day commenting period.
All timeframes as per the EIA Regulations 2014 are being adhered to.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR 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 the Final BAR as **Appendix E3**.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Please refer to Appendix E for the contact details of below mentioned IAPs

GOVERNMENT DEPARTMENTS

National Department of Environmental Affairs: Biodiversity Conservation: Deputy-Director: Mr Seoka Lekota
Department of Environmental Affairs & Development Planning: Directorate Land Management Region 1: For attention Maboee Nthejane & Taryn Dreyer
Department of Environmental Affairs: Oceans & Coasts: Deputy Director-General Oceans and Coasts: Dr Monde Mayekiso
Heritage Western Cape: Heritage Officer: For attention Mr Troy Smuts
Eskom Transmission, Megawatt Park: Corporate Specialist Environmental Manager: For attention Mr Dave Lucas
Cape Nature Scientific Services - Land Use Advice: For attention Mr Rhett Smart
Department of Water Affairs & Sanitation: The Chief Director - Western Cape Region: For attention Mr Rasheed Khan
Department of Agriculture Western Cape: Head of Department: Joyene Isaacs & Personal Assistant to

the Head of Department: Anele Speelman & Director: Sustainable Resource Management, Mr Andre Roux

MUNICIPALITIES

City of Cape Town: Regional Manager, Environmental & Heritage Management Northern Region, Environmental Management Department, For attention Ms Pat Titmuss (Your ref: Cape Farm 1552, Duynefontein)

Include proof that the Authorities and Organs of State received written notification of the proposed activities as Appendix E4.
In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation 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. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as **Appendix E5**.
Copies of any correspondence and minutes of any meetings held must be included in **Appendix E6**.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 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. 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

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Please note that a comprehensive Impact Assessment (with detailed mitigation measures) is supplied in Appendix F where the impacts are assessed in terms of the following criteria:

- Nature of the impact (what is being affected and how, is it positive or negative);
- Extent (site specific / local / regional / national / global);
- Duration (short / medium / long / permanent);
- Magnitude or intensity of the impact (would the impact be destructive or benign and rated as low / moderate / severe);
- Probability of impact occurring (unlikely / possible / probable / definite)

The mitigation measures as supplied in this Impact Assessment are also included in the Environmental Management Plan.

The **Significance Rating** of an impact is assessed before and after mitigation measures has been applied and refers to the following:

Significance of impact	Explanation of Significance
None	There is no impact at all
Low	Impact is negligible or is of a low order and is likely to have little real effect
Medium	Impact is real but not substantial
High	Impact is substantial
Very high	Impact is very high and can therefore influence the viability of the project

Please note that detail impact descriptions and mitigation measures are supplied in the Impact Assessment (Appendix F). All mitigation measures are also included in the Environmental Management Plan (Appendix G).

SITE ALTERNATIVE 1 (THE PREFERRED ALTERNATIVE)

Short impact description	Significance before mitigation	Significance after mitigation
Ecological Impact (Fauna & Flora): Construction of the new KIPTS *Flora* Most habitat (botanical) loss (new KIPTS, access roads) is deemed to be permanent (>15 years), with some long term (5-15yrs) loss and degradation in areas that will be cleared for the access roads and in areas where underground cabling and piping will be installed. The underlying vegetation type is Endangered Cape Flats Dune Strandveld, and this loss of habitat cannot be easily mitigated. The conservation of good examples of this habitat within the adjacent Koeberg Nature Reserve can be considered an existing offset for the loss. *Fauna* The only significant negative impact on fauna expected at the construction phase is the risk of entrapment of small animals in the excavations. Construction phase faunal impacts for the roads are likely to be related mainly to road mortality of small animals such as tortoises, due to increased heavy vehicle traffic during this time.	Medium-Low	Low to Very Low
Ecological Impact (Fauna & Flora): Decommissioning of the existing KIPTS The botanical and faunal impact of decommissioning and removal of the existing KIPTS infrastructure should be minimal, provided that the existing access road is used, and that the foundations are left in situ. The site is likely to be reclaimed by sand as soon as the surface infrastructure is removed and the Cape Seashore Vegetation already in the area is likely to rapidly colonise the available habitat, and within two years nobody would know that a facility was once there. The removal of the current KIPTS facility will have a minor positive ecological impact over time, notably in that no further road maintenance will be required in the highly mobile sandy area around the facility, and the ultimately reduced road traffic on the rather long road to this isolated facility will lead to a small reduction on road mortality for small faunal species. Overall botanical and faunal impacts should thus be Low positive.	Low	Low positive

Aquatic Ecosystems – Construction of the new KIPTS Construction activities would include the construction of the KIPTS, new access road as well as an underground or overhead power line and links to the existing sewer and water mains. Activities during the construction phase of the project may result in a *very limited disturbance of the wetland habitats of the identified freshwater features within the wider study area*. An impact of very limited to no significance is expected on *the aquatic habitat of the identified freshwater features* after the construction phase.	Low	Very Low
Aquatic Ecosystems: Decommissioning of the existing KIPTS Activities that would be associated with the dismantling and the removal or partial removal of the existing KIPTS will include the following: • Removal and transport of the existing structure; and • Rehabilitation of the site. Activities during the decommissioning phase for the KIPTS could result in some aquatic *habitat disturbance* along the access route where some wetlands are present.	Medium/Low	Low
Impact on the sand dunes *Dune Stability and Suitability for Development* The proposed preferred site for the new KIPTS is entirely within the area that was formerly mobile dunes. Development can take place safely without any impacts on the now-stabilized dunes. *Removing existing Koeberg Insulator Pollution Test Station* A pulse of sand is currently inundating the existing KIPTS and its access road. Moving the sand out of the way while the KIPTS structures are being removed will have a negligible impact on the dynamics of the moving dunes.	Low	Low to Very Low/None
Cultural / Heritage Impacts No sites of heritage resources have been identified or are likely to be found within the proposed development area.	Low	Low to very low
Impact on adjacent Koeberg Nature Reserve The Nature Reserve is directly adjacent to the development site and existing access roads. An uncontrolled work force could have a negative impact on this sensitive environment.	High / Medium	Low

Groundwater Potential for groundwater pollution always exists as a result of oil spills, etc. during the construction period.	Medium	Low
Soils / Erosion Vegetation will be cleared for the new KIPTS and access roads and new hard surfaces will be constructed. This may lead to an increase in surface water runoff which could lead to soil erosion.	Medium	Low
Air quality Dust created by construction vehicles could impact on air quality during the construction period.	Low	Very Low
Noise Labourers and machinery could result in noise pollution during the construction period.	Low	Very Low

SITE ALTERNATIVE 2		
Short impact description	**Significance before mitigation**	**Significance after mitigation**
Impacts as described above also apply to Site Alternative 2, with additional impacts as described below		
Technical considerations It was necessary to measure the pollution levels at both alternative sites. A *Directional Dust Deposit Gauges* was used to determine which site closely correlates to the pollution levels found at KIPTS. The pollution levels at Site 2 were much lower than that at Site 1 as well as much lower than that of the existing site. Should KIPTS be constructed at this site the test results will not be comparable with the data and information obtained during the past 30 years. The successful evaluation of the natural ageing and pollution performance of insulator products will not be able to continue at this site. Recommended mitigation is to use the Preferred Alternative Site 1	Very high	None

Aquatic features The potential impact on aquatic habitat would best be mitigated by ensuring that the various elements of the proposed activity avoid these aquatic habitats through the selection of the alternatives that are located away from any aquatic feature. Site Alternative 1 is likely to have the least potential impact on the aquatic features in the area as there are no aquatic features identified within this site. Recommended mitigation is to use the Preferred Alternative Site 1	Medium	Very Low

Alternative 3		
Short impact description	**Significance before mitigation**	**Significance after mitigation**

Conclusion of Impact Significant Rating
All identified impacts that this Eskom project could have on the environment can be easily and reasonably mitigated to acceptable levels. There are no negative impacts that could influence the feasibility and viability of this project.

The decommissioning of the existing KIPTS may have a low *positive* impact on the ecology over the long term.

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives 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.

Please note that a comprehensive Impact Assessment (with detailed mitigation measures) is supplied in Appendix F. The Impact Statement below is a summary of the conclusion of this Impact Assessment. *All mitigation measures are also included in the Environmental Management Plan (Appendix G).*

Alternative 1 (preferred alternative)

Site Alternatives

- In order for the new KIPTS to operate at the same level of effectiveness as the existing KIPTS the new site has to have the same levels of pollution as the existing KIPTS. After thorough testing it was determined that Site Alternative 1 has similar pollution levels and this is therefore the Preferred Site.
- To date, no objection to the development was received during the public participation process.
- From a heritage and dune morphology point of view, there is no difference between the site and development at either site is supported.
- From a freshwater impact perspective, Site Alternative 1 is preferred since there are no watercourses in close vicinity to this site.
- From an ecological perspective, Site Alternative 2 is marginally preferred over Site 1, but development of Alternative 1 is likely to have *Low* negative botanical and faunal impacts and development at this site can therefore be supported.

Access road corridor

- It is not possible at this stage to determine the exact position of the access road - it will only be determined much later on once security issues have been cleared and the position of the future 400kV substation has been determined. Important to note is that the Koeberg Nuclear Power Plant is a Key Point as determined by the National Key Points Act 102 of 1980 and security is exceptionally strict.
- It is therefore propose that a corridor be approved by the Department of Environmental Affairs in which the access road will be located once all factors as mentioned have been confirmed. A map of this corridor is provided under Appendix A: Final Layout Plan.
- The length of the existing gravel road on the outer border of the corridor is approximately 1.6km in length and the existing road on the inside border of the corridor is approximately 1km in length. The width of the corridor varies between ±400m and ±230m.
- From the specialists' point of view, an access road anywhere within the corridor is supported.

It is therefore requested that DEA approves the corridor for future access as indicated in the Final Layout Plan as shown above (also attached under Appendix A).

11V power line route alternative

- Alternative 1 is the obvious and preferred option because it will be much shorter with obvious positive cost implications. It will also be constructed within an area that has been identified as having a Low and Low-Medium botanical sensitivity. Loss of vegetation within this area is considered as being of a Very Low negative significance.

Conclusion on selecting an alternative

Site Alternative 1, combined with the approval of the Road Corridor as proposed as well as the preferred short 11kV powerline is the preferred options for this development and these alternatives are therefore the alternatives that are recommended for environmental authorisation

Alternative 2

Site Alternative 2 is not the preferred site alternative due to the following reasons:

- It was necessary to measure the pollution levels at both alternative sites. A *Directional Dust Deposit Gauges* was used to determine which site closely correlates to the pollution levels found at KIPTS.
- The pollution levels at Site 2 were much lower than that at Site 1 as well as much lower than that of the existing site. Should KIPTS be constructed at this site the test results will not be comparable with the data and information obtained during the past 30 years.
- The successful evaluation of the natural ageing and pollution performance of insulator products will not be able to continue at this site.

Mitigation is the selection of the Preferred Alternative.

Alternative 3

No-go alternative (compulsory)

The use of the existing KIPTS over the past 30 years has led to a more reliable insulator product being purchased resulting in a more reliable electrical network. However, due to environmental changes (movement of sand dunes) and the promulgation of new environmental legislation KIPTS cannot continue to be operated safely or expanded cost effectively within the requirements of SANAS 17025 in its current location. Thus KIPTS needs to be relocated to a similar natural environment close to its existing location.

Relocating and expanding KIPTS will ensure the continuation of accelerated insulator testing in a naturally polluted environment. This will provide an adequate filter to prevent the use of substandard insulator products in the Eskom network. This will assist with the optimal selection and dimensioning of insulators for use in various environments. And so, KIPTS can continue to play an essential role in the research and development for many local and international insulator manufacturers. None of these advantages will be realised should the no-go option be applied.

Failure to move the site will furthermore jeopardize the answers to the following reasearch questions posed by the Distribution Insulator Research program:

1. How can the in-service performance of polymeric insulators be predicted in the long term?
2. What is the life expectancy of polymeric insulators in naturally polluted environments?
3. What is the expected insulator product lifetime?
4. Should a maximum electric field stress level be specified for insulator designs? If so, how could it be confirmed for a product design?
5. What is the life expectancy of cyclo-aliphatic insulators when compared to equivalent porcelain insulators with particular reference to coastal environments, industrial environments and “clean” (rural) environments?
6. How can failures from the field be correlated to failures obtained at the test stations?

7. What manifestation constitutes the failure of a test insulator (are there new types of failures)?
8. What statistical techniques and other data (as example climate, effect of height and distance from coast) can be applied to extrapolate and predict pollution severity index levels?
9. How can we predict instantaneous pollution events?
10. Does the new hydrophobic cyclo-aliphatic material work and if so what will be the benefits to the Distribution business?
11. Find a coating that can be applied to field-aged cycloaliphatic in a workshop environment.
12. Find the criteria, which will enable an insulators remaining life and flashover performance to be predicted.
13. What is the effect on pollution performance as a result of orientation of the insulator (22 kV line post)?

The maintaining of the status quo, in other words the application of the no-go option, is definitely not recommended for this project.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES	NO

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Environmental Management Plan
The Environmental Management Plan contains, amongst other, the mitigation measures as supplied in this report. It is therefore recommended that the implementation of the Environmental Management Plan must be a condition in the authorisation of the project.

Approval of corridor for future position of the access road
It is not possible at this stage to determine the exact position of the access road because it can only be determined much later on once security issues have been cleared and the position of the future 400kV substation has been determined (note that the 400kV substation does not form part of this project proposal). Important to note is that the Koeberg Nuclear Power Station is a Key Point as determined by the National Key Points Act 102 of 1980 and security is exceptionally strict.

It is therefore proposed that a corridor be approved by the Department of Environmental Affairs in which the access road can be located once all factors as mentioned have been confirmed. A map of this corridor is provided under Appendix A: Final Layout Plan.

Is an EMPr attached?	YES	NO

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.
If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.
Any other information relevant to this application and not previously included must be attached in Appendix J.

Susanna Nel
_____
NAME OF EAP

_____ ____ 29 June 2017_____
SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

Appendix A: Maps

- Locality Map
- Final Site Layout Plan with Road Corridor
- Site Layout Plan with Road Alternatives
- Site Alternatives
- 11kV power line alternatives
- Botanical Sensitivity Map
- Faunal Sensitivity Map
- City of Cape Town Biodiversity Network
- SANBI: Threatened Ecosystem Status

Appendix B: Photographs

- Photo Report

Appendix C: Facility illustration(s)

- KIPTS article in the WattNow, May 2013

Appendix D: Specialist reports (including terms of reference)

- Freshwater Impact Assessment – Blue Science (Pty) Ltd
- Dune Morphology – Werner Illenberger & Associates
- Ecological Assessment – Nick Helme Botanical Surveys
- Notification of Intent to Develop (Heritage Assessment) – ACO Associates

Appendix E: Public Participation

- E1a – Proof of Placement of Advertisements: Newspaper
- E1b – Proof of Placement of Advertisements: Onsite Notices
- E2a – Background Information Document
- E2b – Proof of distribution of Background Information Document
- E2c – Proof of Notification of availability of the Draft BAR to all IAPs
- E3 – Comments & Reponses Report
- E4 – Complete register of Interested & Affected Parties
- E5 – Copies of Correspondence, notes and minutes of meetings
    - E5.1 Written comment received during the first phase notification period
    - E5.2 Notes on the meeting held with SANSA on 25 April 2017 & attendance register
    - E5.3 Written comment received on the Draft BAR

Appendix F: Impact Assessment

- Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

- Environmental Management Plan

Appendix H: Details of EAP and expertise

- Landscape Dynamics Company Profile and Condensed CVs of EAPs

Appendix I: Specialist's declaration of interest

- Nick Helme, Toni Belcher, Werner Illenberger and David Hallket

Appendix J: Additional Information

- Proof of submission of WULA
- Recent or in progress EAs within the KPNS Development Zone
- Map of future infrastructure in relation to the proposed KIPTS site