

INTERIM APPEAL REPORT:

**The Proposed Gas to Power  
Powership Project at the Port of  
Ngqura within the Coega SEZ,  
Nelson Mandela Bay Metropolitan  
Municipality, Eastern Cape**

DFFE REF NO: 14/12/16/3/3/2/2005

INTERIM APPEAL DECISION REFERENCE: LSA 234629

A Project of Karpowership SA (PTY) Ltd)



26 SEPTEMBER 2023



## DOCUMENT DESCRIPTION

**Applicant:** Karpowership SA (Pty) Ltd

**Report name:** Interim Report for the Proposed Gas to Power Powership Project at the Port of Ngqura and Coega SEZ, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape



**Report type:** Interim Report

**Project name:** Gas to Power Powership Project at the Port of Ngqura and Coega SEZ, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape

**Project number:** E-BL01.220537

**Version:** Original

### Compiled and Authorised by:

Compiled By:	Date	Signature
Melissa Gopaul Senior Sustainability Consultant (Pri.Sci.Nat   Reg. EAP (EAPASA))	26 September 2023 / Ballito	
Reviewed and Authorised By:	Date	Signature
Hantie Plomp Managing Director (Pri.Sci.Nat   Reg. EAP (EAPASA))	26 September 2023 / Ballito	

**COMPILED FOR:**  
Karpowership SA (Pty) Ltd

**COMPILED BY:**  
Triplo4 Sustainable Solutions (Pty) Ltd  
Suite 5, The Circle, Douglas Crowe Drive, Ballito,  
4420  
☎ +27 (0)3 946 3213  
☎ +27 (0)32 946 0826  
✉ [hantie@triplo4.com](mailto:hantie@triplo4.com)  
[www.triplo4.com](http://www.triplo4.com)  
© Copyright 2023 Triplo4 Sustainable Solutions

## **STATEMENT OF TRIPLO4 INDEPENDENCE**

Neither Triplo4 nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of Triplo4. Triplo4 has no beneficial interest in the outcome of the assessment which is capable of affecting its independence.

## **DISCLAIMER**

This report has been prepared by Triplo4 Sustainable Solutions (Pty) Ltd (Triplo4) based on information provided by the client and others that is presumed to be correct and professional assessments and opinions that are presumed to be honestly and professionally provided. Triplo4 does not accept any liability for any loss or damage whatsoever, whether direct, indirect or consequential that may result to any person from any advice, opinion, information, representation or omission, whether negligent or otherwise, contained in this report, including the use and interpretation of this report by the client, its representative agents, any government authority or any other third parties.

# TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b>	<b>I</b>
<b>1 INTRODUCTION</b>	<b>2</b>
1.1 INDEPENDENT ENVIRONMENTAL ASSESSMENT PRACTITIONER	2
<b>2 DESCRIPTION OF THE PROPOSED ACTIVITY</b>	<b>3</b>
2.1 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN INCLUDING ASSOCIATED STRUCTURE AND INFRASTRUCTURE	3
2.1.1 OVERVIEW	3
2.1.2 LOCATION	4
2.1.3 BERTHING, MOORING OF THE POWERSHIPS AND FSRU	8
2.1.4 GAS LINES	8
2.1.5 TRANSMISSION LINES AND SWITCHING STATION	8
2.2 MAJOR HAZARDOUS INSTALLATION REQUIREMENTS	9
2.3 TNPA STAKEHOLDER ENGAGEMENT	9
2.4 ALL LISTED AND SPECIFIED ACTIVITIES TRIGGERED IN TERMS OF NEMA	9
2.5 PROJECT LOCALITY	19
2.5.1 LOCALITY PLAN OF ACTIVITY (MARINE & TRANSMISSION)	20
<b>3 ALTERNATIVES</b>	<b>21</b>
3.1.1 LAYOUT ALTERNATIVES: POWERSHIP POSITION WITHIN THE PORT	21
3.1.2 LAYOUT ALTERNATIVES: GAS PIPELINES	24
<b>4 PUBLIC PARTICIPATION PROCESS (PPP)</b>	<b>30</b>
4.1 2023 PPP	30
4.1.1 NEWSPAPER ADVERTISEMENT	30
4.1.2 SITE NOTICES	30
<b>5 SPECIALIST FINDINGS AND EVALUATIONS</b>	<b>31</b>
5.1.1 POLYCENTRIC APPROACH	35
<b>6 CONCLUDING STATEMENT AND RECOMMENDATIONS</b>	<b>35</b>
<b>7 REFERENCES</b>	<b>37</b>

## TABLE OF FIGURES

<b>FIGURE 2-1: PREVIOUSLY ASSESSED PROJECT LAYOUT - PREFERRED ALTERNATIVE 1 (MARINE)</b>	4
<b>FIGURE 2-2: PREVIOUSLY ASSESSED PROJECT LAYOUT - ALTERNATIVE 2 POSITION (MARINE)</b>	4
<b>FIGURE 2-3: PROPOSED PROJECT LAYOUTS – CHANGE IN PREFERRED ALTERNATIVE (FROM 1 TO 2) AND SMALL CHANGES TO THE ASSESSED ALTERNATIVE 2 (MARINE)</b>	5
<b>FIGURE 2-4: PREVIOUSLY ASSESSED PREFERRED ALTERNATIVE 1 TRANSMISSION LINE)</b>	5
<b>FIGURE 2-5: PROPOSED PROJECT LAYOUTS –PREFERRED ALTERNATIVE 1 TRANSMISSION LINE WITH REPOSITIONED TOWERS FROM THE POWERSHIP TO THE SWITCHING STATION</b>	6
<b>FIGURE 2-6: OVERALL PROJECT LAYOUT (TRANSMISSION CORRIDOR, POWERSHIP &amp; FSRU)</b>	7
<b>FIGURE 2-7: EXAMPLE OF FSRU AND LNG CARRIER ALONGSIDE SECURED WITH DOLPHIN MOORING SYSTEM.</b>	8
FIGURE 2-8: LOCALITY MAP (MARINE & TRANSMISSION) – REFER TO APPENDIX 1.1	20
FIGURE 3-1: INITIAL PREFERRED POWERSHIPS AND FSRU POSITION WITH ASSESSED AREA (POLYGON) WITHIN THE PORT	21
FIGURE 3-2: PREVIOUSLY ASSESSED <b>ALTERNATIVE 2 POSITION WITHIN THE PORT.</b>	22
<b>FIGURE 3-3: FINAL PREFERRED POWERSHIP &amp; FSRU ALTERNATIVE FROM PREVIOUSLY ASSESSED ALTERNATIVE 2 (ADDRESSING TNPA REQUIREMENTS)</b>	23
<b>FIGURE 3-4: GAS PIPELINE ROUTE (SUB-SEA – BLUE LINE – FINAL PREFERRED ALTERNATIVE</b>	25
<b>FIGURE 3-5: SUBSEA PIPELINE COORDINATES AND WORKING SERVITUDE– FINAL PREFERRED</b>	26
<b>FIGURE 3-6: PREVIOUSLY ASSESSED PREFERRED ALTERNATIVE 1 TRANSMISSION LINE)</b>	27
<b>FIGURE 3-7: POWER EVACUATION ROUTE CORRIDOR (TRANSMISSION)</b>	28
<b>FIGURE 3-8: TRANSMISSION CORRIDOR –PROPOSED TOWER POSITIONS</b>	28

## LIST OF TABLES

<b>TABLE 1-1: INDEPENDENT EAP DETAILS</b>	2
TABLE 2-1: APPLICABLE LISTED ACTIVITIES	9
TABLE 2-2: LOCATION OF THE PROPOSED ACTIVITY.	19
<b>TABLE 2-3: PROPERTIES DESCRIPTION, THE 21 SG CODES AND THE CENTRAL COORDINATES.</b>	19
<b>TABLE 3-2: COORDINATES OF MARINE POWERSHIPS AND FSRU – FINAL PREFERRED ALTERNATIVE</b>	24
<b>TABLE 3-5: COORDINATES OF SUBSEA AND ONSHORE PIPELINE – PREFERRED ALTERNATIVE 1</b>	25
<b>TABLE 3-6: SIZES OF SUBSEA PIPELINE</b>	25
TABLE 3-9: COORDINATES FOR THE TRANSMISSION LINE	29
<b>TABLE 3-10: COORDINATES FOR THE SWITCHING STATION</b>	29
<b>TABLE 5-1: SPECIALIST FINDINGS</b>	31

## APPENDICES

APPENDIX 1 - SITE PLAN	APPENDIX 5.4 - TERRESTRIAL BIODIVERSITY STATEMENT
APPENDIX 1.1 - DFFE LOCALITY MAP	APPENDIX 5.5 – TERRESTRIAL AVIFAUNA STATEMENT
APPENDIX 1.2 - DFFE CUMULATIVE MAP	APPENDIX 5.6 - UNDERWATER NOISE STATEMENT
APPENDIX 1.3 - SENSITIVITY MAP	APPENDIX 5.7 - UNDERWATER HERITAGE STATEMENT
APPENDIX 1.4 – PREFERRED POWERSHIP AND FSRU LOCATION	APPENDIX 5.8 - MARINE ECOLOGY, AVIFAUNA AND FISHERS STATEMENT
APPENDIX 1.5 - TRANSMISSION LINE & TRANSMISSION PYLON LINES	APPENDIX 5.9 – COASTAL & ESTUARY STATEMENT
APPENDIX 2 - PUBLIC PARTICIPATION	APPENDIX 5.10 - ATMOSPHERIC STATEMENT
APPENDIX 2.1 - PPP SUMMARY	APPENDIX 5.11 – SA TERRESTRIAL NOISE STATEMENT
APPENDIX 2.2 – NOTIFICATIONS TO I&APS	APPENDIX 5.12 - CLIMATE CHANGE STATEMENT
APPENDIX 3.3 – CONTENT OF NOTIFICATIONS	APPENDIX 5.13 - SOCIO-ECONOMIC STATEMENT
APPENDIX 2.4 – ADVERTISEMENT AND PROOF	APPENDIX 5.14 - TOURISM STATEMENT
APPENDIX 3 - EAP UNDERTAKING UNDER OATH AND DETAILS OF EAP	APPENDIX 5.15 – LANDSCAPE & VISUAL STATEMENT
APPENDIX 4 – EMPR & GEMPRS	APPENDIX 5.16 - MHI STATEMENT
APPENDIX 5 – SPECIALIST FINDINGS AND EVALUATION	APPENDIX 5.17 – SUSTAINABILITY STATEMENT
APPENDIX 5.1 – HYDROLOGICAL, AQUATIC, HYDROPEDOLOGY, GEOHYDROLOGICAL, WATER BALANCE STATEMENT	APPENDIX 6 - TECHNICAL REPORTS
APPENDIX 5.2 - WETLAND STATEMENT	APPENDIX 6.1 - MARINE TRAFFIC ASSESSMENT
APPENDIX 5.3 - ARCHAEOLOGICAL STATEMENT	APPENDIX 6.2 - INTEGRATED DISPERSION MODELLING OF THERMAL PLUMES
	APPENDIX 6.3 – PRDW TECHNICAL INFORMATION

## 1 INTRODUCTION

Triplo4 Sustainable Solutions (Pty) Ltd has been appointed by Karpowership SA (Pty) Ltd (Karpowership) to undertake the environmental impact assessment (EIA) and manage the application for Environmental Authorisation as well the Atmospheric Emission Licence for the proposed Gas to Power Powership Project at the Port of Ngqura and Coega Special Economic Zone (SEZ), located within ward 53 of the Nelson Mandela Bay Metropolitan Municipality, Eastern Cape.

A Scoping and Environmental Impact Reporting (S&EIR) process was conducted from 2020-to-date. A record of refusal was issued by DFFE for the environmental authorisation application on the 07 March 2023 based on the Generic Environmental Management Programmes (GEMPrs) (Substation & Transmission Lines) associated with Listing Notice 1, Activity 11 not forming part of the application, and the preferred location of the vessels in the Port of Ngqura not being supported by TNPA due to the accelerated development of a liquid bulk terminal which was initially planned implementation in the next 5-7 years. Following the refusal, Karpowership SA (Pty) Ltd submitted its appeal application against such refusal on 07 April 2023.

On 28<sup>th</sup> August 2023, the Honourable Minister Creecy issued an Interim Appeal Decision (Reference LSA 234629) which was provided to the I&AP database, inclusive of the registered I&APs, instructing the Applicant, amongst others, to submit the Generic Environmental Management Programmes (GEMPrs) (Substation & Transmission Lines), Major Hazardous Installation Assessment (if required) and information pertaining to the alternative ship position within the Port of Ngqura for decision making within 70 days of the issuing of the Interim Appeal Decision.

The EMPs and any new information relating to the location of the vessels were required to be submitted for further public participation, to provide registered I&APs with an opportunity to comment thereon.

**PLEASE NOTE:** This report addresses only the requirements set forth in the Minister's Interim Appeal Decision and is not an attempt to duplicate the final EIAR dated 06 January 2023.

### 1.1 Independent Environmental Assessment Practitioner

*Please see Appendix 3 for EAP Declaration and full Curriculum Vitae.*

**Table 1-1: Independent EAP Details**

EAP	Triplo4 Sustainable Solutions
EAP	Mrs. Hantie Plomp
Educational qualifications	Masters in Environmental Management
Professional Registrations	EAPASA; SACNASP; AP with GBCSA
Voluntary Memberships	IAIAsa; IWMSA; IODSA, WISA
Experience at environmental assessments (yrs.)	> 20 years
Postal Address	P.O. Box 6595 Zimbali, 4418
Telephone Number	032 946 3213

EAP	Triplo4 Sustainable Solutions
Cell Number	083 308 8003
Fax Number	032 946 0826
Email Address	coegaksa@triplo4.com
Assisted by:	Melissa Gopaul
Educational qualifications	Honours in Environmental Management
Professional Registrations	EAPASA; SACNASP
Voluntary Memberships	IAIAsa
Experience at environmental assessments (yrs.)	> 10 years

## 2 DESCRIPTION OF THE PROPOSED ACTIVITY

### 2.1 Description of the Activities to be Undertaken Including Associated Structure and Infrastructure

#### 2.1.1 Overview

The overview of the project is unchanged but has been included in this section for context only.

The Karpowership Project entails the generation of electricity by two Powerships moored in the Port of Ngqura, fueled with natural gas supplied from a third ship, a Floating Storage & Regasification Unit (FSRU). The three ships will be moored in the port for the Project's contracted 20 year lifespan (as per the Risk Mitigation Independent Power (RMI4P) requirements). A Liquefied Natural Gas Carrier (LNGC) will deliver Liquefied Natural Gas (LNG) and offload it to the FSRU approximately once every 20 to 30 days, dependent on power demand which is determined by the buyer, ESKOM. The FSRU stores the LNG onboard and turns the liquid form into gaseous form (Natural Gas) upon demand from the Powership (Regasification). Natural gas will be transferred from the FSRU to the Powerships via a subsea pipeline. The Project's design capacity is 540MW and the contracted capacity will be 450MW of electricity to be supplied to the national grid, which will be measured at the Point of Utility Connection and cannot be exceeded under the terms of the RMI4P. Electricity will be generated on the two Powerships by 27 reciprocating engines, each having a heat input in excess of 10MW (design capacity of 18.32MW each at full capacity). Heat generated by operation of the reciprocating engines is captured, and that energy is used to create steam to drive three steam turbines that each have a heat input of circa 15.45MW.

The electricity that is generated is converted by the on-board High Voltage substation (capacity of 110 – 170kV) will be evacuated via a double circuit twin Tern conductor 132kV transmission line over a distance of approximately 8.25km, from the Powership to the Dedisa Substation. The transmission line is routed on the western side of the services servitude. A connection point (necessitating a new Saltpan 132kV on shore switching station) is required to feed the electricity into the national grid via the Dedisa Substation.



**2.1.2 Location**

The location of the Powership, FSRU, temporary LNGC and gas line will remain in the Port of Ngqura under the jurisdiction of the Transnet National Port Authority (TNPA) (refer to Figure 2-3). The transmission line will remain within Transnet as well as Coega Development Corporation properties (refer to Figure 2-5). Due to TNPA port expansion requirements, the preferred alternative 1 is no longer a possibility and the alternative 2 is the preferred alternative.

Small changes were made for the evacuation route from the Powership to the switching station to ensure the powerline does not traverse the small craft basin, as per TNPA’s requirement. The position of the powerline from the switching station to the Dedisa substation remains unchanged.

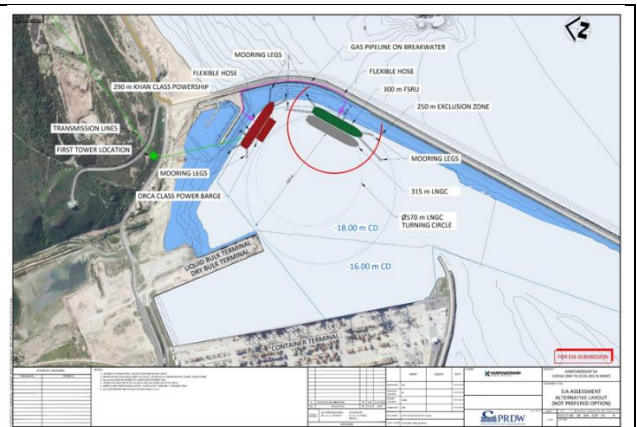
The proposed Powership Alternative 2 remains positioned parallel to the Admin Craft Basin (ACB) jetty with the proposed FSRU along the eastern breakwater within the previously assessed polygon. The gas pipeline will be along the seabed between the Powership and FSRU and not along the breakwater, as per TNPA requirements for infrastructure to avoid establishment on the breakwater. Please refer to alternative 2 for more details.

As per Karpowership, the positioning of the Powerships, FSRU and gas pipeline have been extensively discussed with TNPA and the technical teams, both in person and through written correspondence.

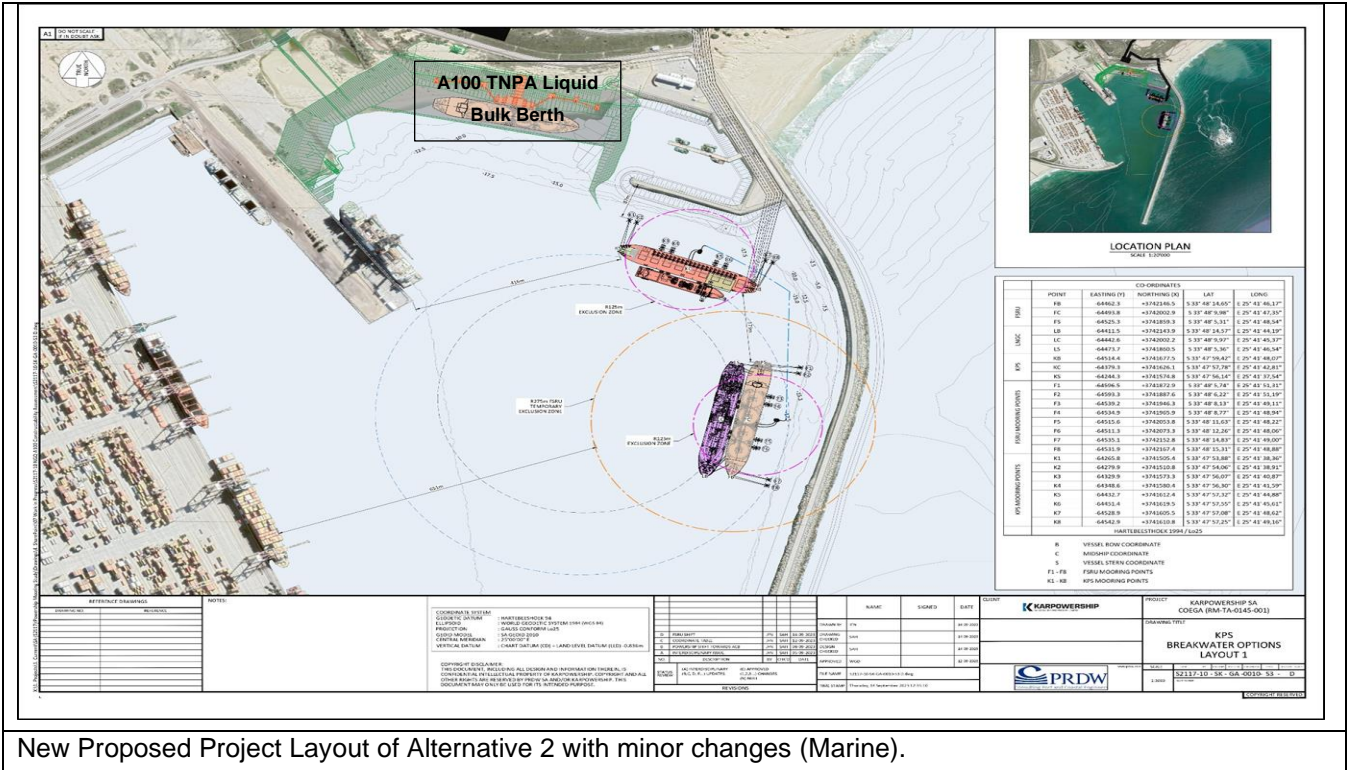
Refer to figure below, depicting the Powership and FSRU, transmission corridor and the project localities of the previously assessed preferred alternative 1 and 2 as well as the final proposed Alternative 2 (now being the preferred alternative) for the marine component (powership, FSRU and gas pipeline), with the required engineering and navigational changes to meet TNPA requirements. The transmission Alternative 1 remains the preferred alternative, with a repositioning of the towers from the Powership to the assessed switching station position. Please refer to the Alternatives Section, Specialist evaluation of the proposed changes to Alternative 2 (Marine) and Evacuation Route (Towers 1-4) and Appendices for more detail.



**Figure 2-1:** Previously Assessed Project Layout - Preferred Alternative 1 (Marine)



**Figure 2-2:** Previously Assessed Project Layout - Alternative 2 position (Marine)



New Proposed Project Layout of Alternative 2 with minor changes (Marine).

Figure 2-3: Proposed Project Layouts – Change in Preferred Alternative (from 1 to 2) and Small Changes to the Assessed Alternative 2 (Marine)

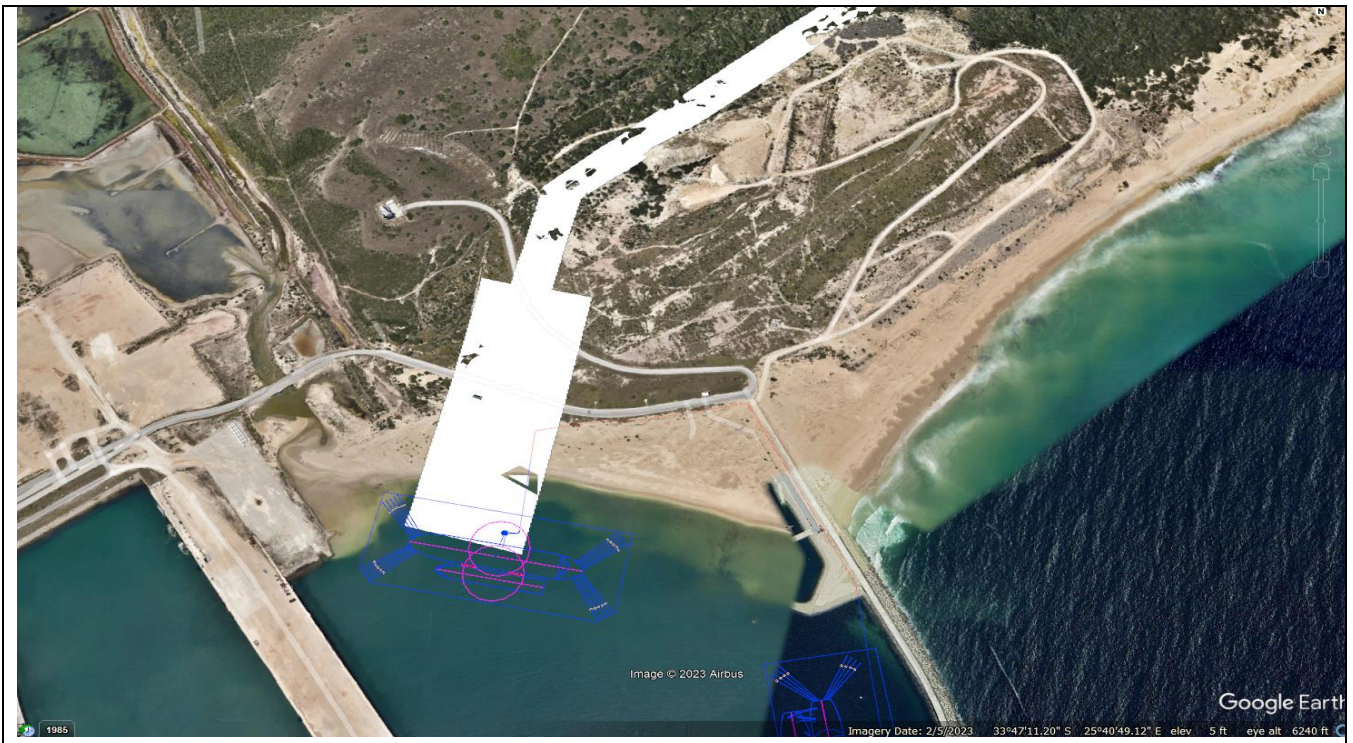
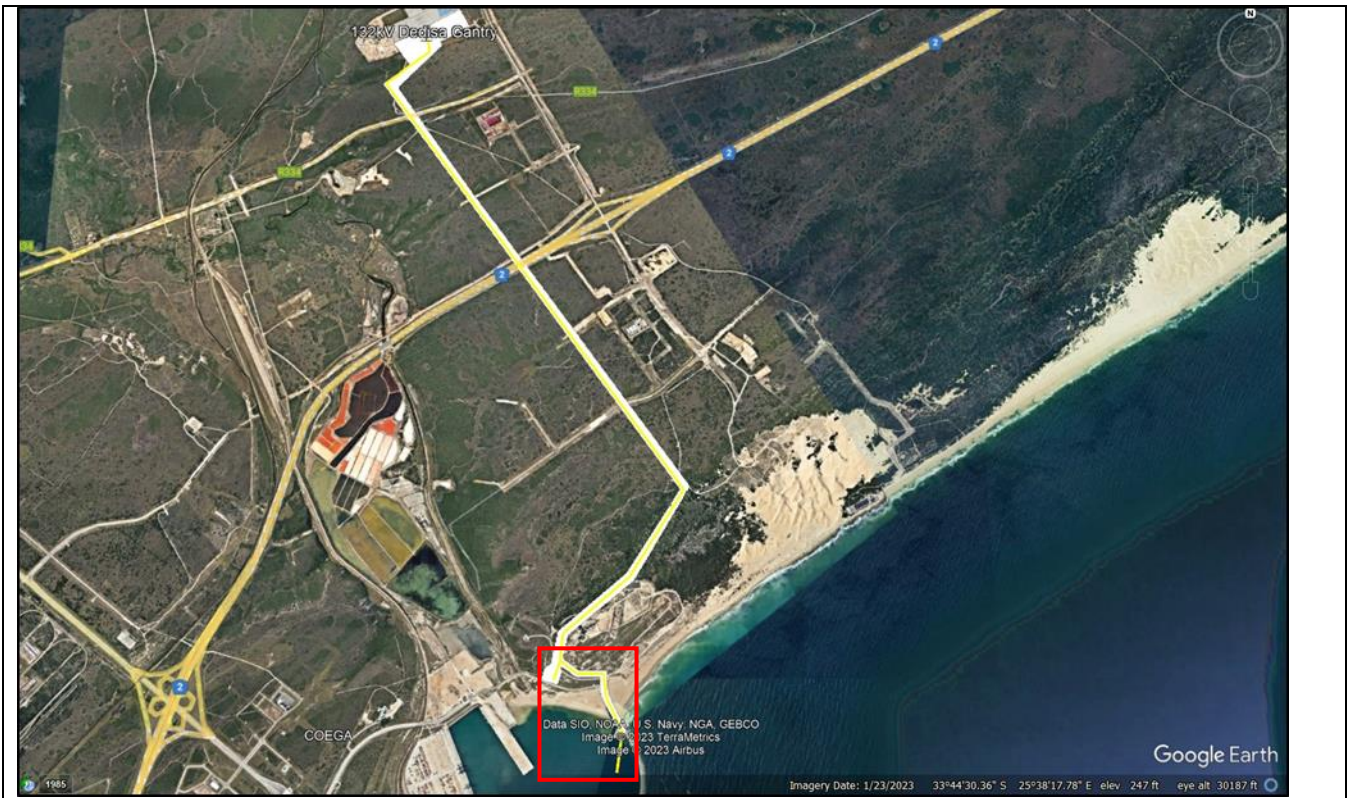


Figure 2-4: Previously Assessed Preferred Alternative 1 Transmission Line)



New Proposed Preferred Layout of Alternative 1 Transmission Line with repositioned (Towers 1-4).

**Figure 2-5: Proposed Project Layouts –Preferred Alternative 1 Transmission Line with repositioned towers from the Powership to the Switching Station**

Interim Appeal Report for the Gas to Power Powership Project at the Port of Ngqura and Coega SEZ, EC

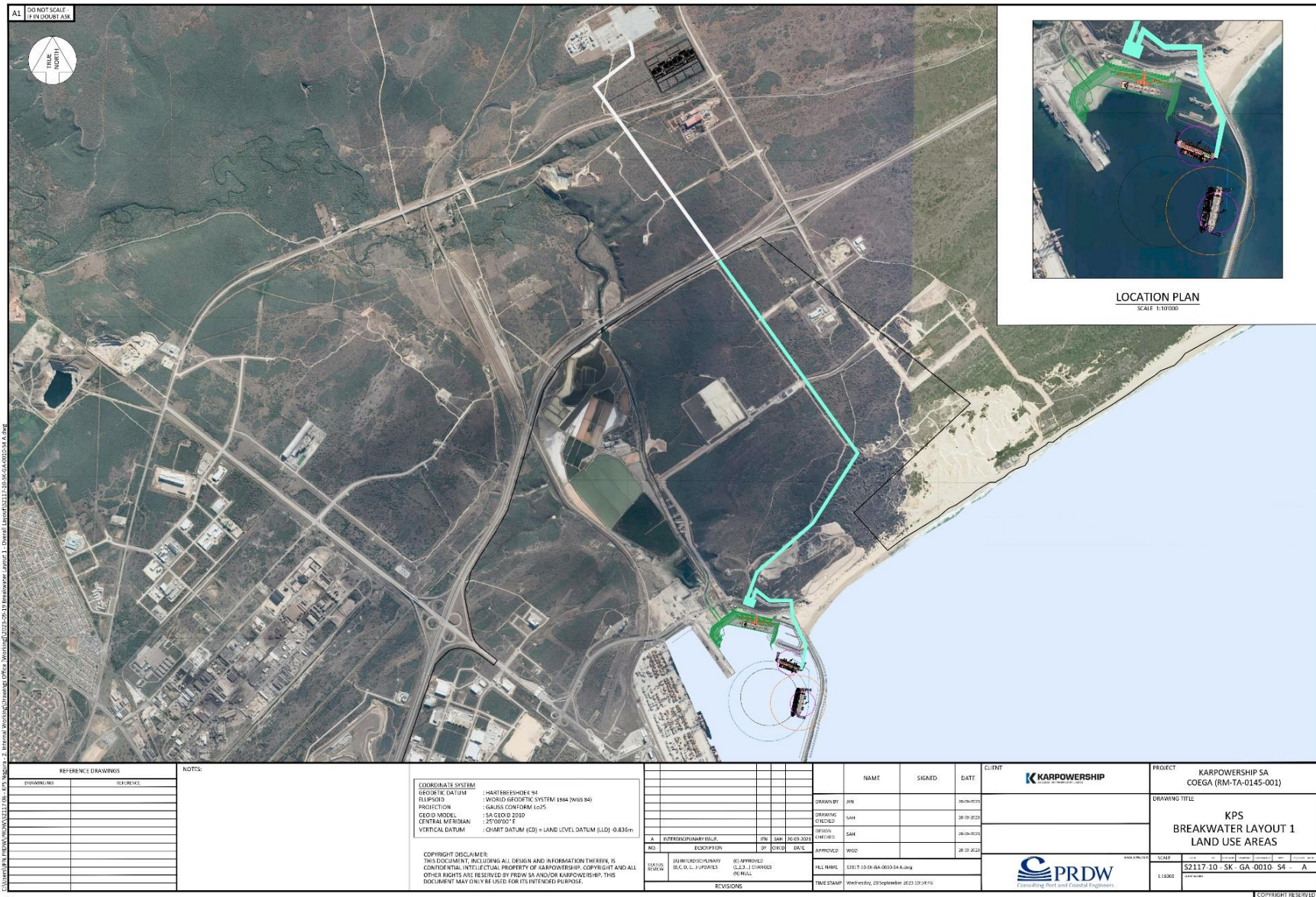


Figure 2-6: Overall Project Layout (Transmission Corridor, Powership & FSRU)

### 2.1.3 Berthing, Mooring of the Powerships and FSRU

To reduce the footprint of the mooring area, a dolphin mooring arrangement has been proposed comprising 4 catenary mooring and 4 breasting dolphins per berth. Breasting dolphins to be fitted with high-capacity fenders to resist vessel loads. The breasting dolphins will also secure the spring lines from the vessel. The mooring dolphins will receive the bow and stern mooring lines.



Figure 2-7: Example of FSRU and LNG carrier alongside secured with dolphin mooring system.

No dredging is envisaged for the mooring locations. No impulsive sources of noise will be used in construction. For the installation of the mooring dolphins only vibrational drivers (vibropiling) will be used. Please refer to Appendix 6.3 for further details on this technical aspect.

### 2.1.4 Gas Lines

The gas pipeline route is reduced compared to the initially preferred alternative and now runs completely subsea directly between the FSRU PLEM and the Powership PLEM. The subsea pipeline will have a servitude of approximately 50m each side.

Please refer to Appendix 6.3 for further details on this technical aspect.

### 2.1.5 Transmission Lines and Switching Station

The electricity generated on the ship will be converted by the on-board High Voltage substation and transmitted along a double circuit Twin Tern conductor 132kV line. The transmission line of approximately 8.25km routed along the western side of the services servitude and will interconnect the Powership to the National Grid utilising the existing Dedisa network via a new Saltpan 132kV on shore switching station. Approximately 38 towers are proposed within a 50-metre corridor which includes the 31m working servitude.

The change related to the transmission corridor (Towers 1-4), is the alignment from the Powership to the previously assessed switching station and increased in length from 7,4 km to 8,25 km, to ensure the powerline did not traverse over the admin craft harbour.

## 2.2 Major Hazardous Installation Requirements

As per Interim Appeal Decision dated 28 August 2023, the relevant qualifications, accreditation, and experience of the specialist that conducted the MHI were submitted to DFFE within the specified timeframe. Proof of relevant qualifications, accreditation, and experience of the specialist was provided and SANAS accreditation, confirming that these requirements were met, was included. Based on the above, the requirements outlined in the Interim Appeal Decision related to the MHI have been met and therefore, no new MHI Assessment is required. Refer to valid SANAS accreditation – Appendix 5.16.

## 2.3 TNPA Stakeholder Engagement

Triplo4 was informed that, following numerous interactions between TNPA and KPS SA, the outcome was that the breakwater vessel site is the most feasible solution for the Port of Ngqura. To ensure that the designed solutions are compatible with the TNPA's future expansion plans, comply with safety and regulatory requirements and do not interfere with port operations, the TNPA has disclosed that KPS must meet a number of requirements. Subject to TNPA conditions being met, it is not anticipated that the TNPA will unilaterally refuse to approve the use of the Breakwater vessel location.

## 2.4 All Listed and Specified Activities Triggered in terms of NEMA

The table below indicates activities that are deemed applicable to the proposed project, based on Triplo4's assessment, legal guidance and a precautionary approach taken:

### NEMA

**Table 2-1: Applicable Listed Activities**

LISTED NOTICES		
LISTING NOTICE 1		
Activity No.	Activity Description	Applicability
Activity 11	<p><i>The development of facilities or infrastructure for the transmission and distribution of electricity—</i></p> <p><i>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or</i></p> <p><del><i>(ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more;</i></del></p> <p><del><i>excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is—</i></del></p> <p><del><i>(a) temporarily required to allow for maintenance of existing infrastructure;</i></del></p> <p><del><i>(b) 2 kilometres or shorter in length;</i></del></p> <p><del><i>(c) within an existing transmission line servitude;</i></del></p> <p><i>and</i></p>	<p>Application is made for this listed activity for the transmission line proposed between the Shark and Khan Powerships moored within the Port of Ngqura at the locations that are not associated with the berths terminals or admin craft basin. The power generated on the ship will be converted by the on-board High Voltage substation (110kV-170kV) and transmitted along the 132kV twin conductor overhead transmission line.</p>

LISTED NOTICES		
LISTING NOTICE 1		
Activity No.	Activity Description	Applicability
	<del>(d) will be removed within 18 months of the commencement of development.</del>	
Activity 12	<p>The development of—</p> <p><del>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</del></p> <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs—</p> <p><del>(a) within a watercourse;</del></p> <p><del>(b) in front of a development setback; or</del></p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —</p> <p>excluding—</p> <p><del>(dd) where such development occurs within an urban area;</del></p>	<p>This Listed Activity is triggered since the location of the proposed switching station (including the associated 50-meter corridor and 31-meter working servitude) will be within 32 meters of a watercourse. This activity also does not exclude industrial complexes and it is highly debatable whether the proposed activities are associated with built up areas or the edge of built-up areas given the vast expense of open areas associated with the CDC. In addition, although no NFEPA wetland was physically identified on site, the wetland is still indicated on NFEPA.</p>
Activity 15	<p>The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding—</p> <p><del>(i) the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</del></p> <p><del>(ii) the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</del></p> <p><del>(iii) the development of temporary structures within the beach zone 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</del></p> <p>(iv) activities listed in activity 14 in Listing Notice 2 of 2014, in which case that activity applies.</p>	<p>This Listed Activity is triggered since the location of the proposed contractor facilities and stringing yard for the gas pipeline facility, will have the effect of increasing the footprint of the port. There is no existing gas infrastructure at the port. The contractor facilities and associated activities will exceed 6 weeks. This Listed Activity is accordingly applied for. Activity 14 in Listing Notice 2 (2014), is applied for in terms of the gas pipeline and mooring structures and thus these components can be excluded from this activity.</p>
Activity 17	<p>Development—</p> <p>(i) in the sea;</p> <p><del>(ii) in an estuary;</del></p> <p>(iii) within the littoral active zone;</p>	<p>This Listed Activity is triggered since the mooring systems, the secured gas pipeline, the proposed towers for the transmission line, the</p>

LISTED NOTICES		
LISTING NOTICE 1		
Activity No.	Activity Description	Applicability
	<p><del>(iv) in front of a development setback; or</del></p> <p><del>(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;</del></p> <p><del>in respect of—</del></p> <p><del>(a) fixed or floating jetties and slipways;</del></p> <p><del>(b) tidal pools;</del></p> <p><del>(c) embankments;</del></p> <p><del>(d) rock revetments or stabilising structures including stabilising walls; or</del></p> <p><del>(e) infrastructure or structures with a development footprint of 50 square metres or more —</del></p> <p><del>but excluding—</del></p> <p><del>(aa) the development of infrastructure and structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</del></p> <p><del>(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;</del></p> <p><del>(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</del></p> <p><del>(dd) where such development occurs within an urban area.</del></p>	<p>switching station and the temporary laydown area for the gas pipeline installation will cumulatively exceed a footprint of 50 square meters within the sea, and littoral active zone.</p>
Activity 18	<p><i>The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion.</i></p>	<p>This Listed Activity is triggered since sections of the transmission line, where it comes on shore, need to be stabilised to prevent erosion on the substrate where the transmission line is established.</p> <p>Furthermore, rehabilitation for the land-based portions will be required. Although some port areas have already been transformed due</p>



LISTED NOTICES		
LISTING NOTICE 1		
Activity No.	Activity Description	Applicability
		<p>to port activity, the planting of vegetation on exposed sand surfaces within the port and dune areas along the transmission route of more than 10 square meters to ensure proper environmental management will be required.</p> <p>Application for this activity is also made in regard to the maintenance management plan, forming part of the EMPr for activities required to maintain the infrastructure and operations.</p>
Activity 19	<p><i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</i></p> <p><i>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</i></p> <p><del>(a) will occur behind a development setback; —</del></p> <p><del>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</del></p> <p><del>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</del></p> <p><del>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</del></p> <p><del>(e) 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.</del></p>	<p>Although no NFEPA wetland was physically identified on site, the wetland is still indicated on NFEPA. It is preferable that the indicated NFEPA wetland be considered from a precautionary perspective. (This is despite our contention that the proximity of such activities is to the estuary itself and not to a watercourse). Application for this activity is also made in regard to the maintenance management plan, forming part of the EMPr for activities required to maintain the infrastructure and operations.</p> <p>In such event, it could follow that such infrastructure and structures are deemed to increase the development footprint of the port and thus are not excluded from this activity. As a matter of caution therefore, we persist with the application for this Listed Activity.</p>
Activity 19A	<p><i>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation,</i></p>	<p>This Listed Activity is triggered since the mooring systems, the</p>

LISTED NOTICES		
LISTING NOTICE 1		
Activity No.	Activity Description	Applicability
	<p>removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from—</p> <p>(i) the seashore;</p> <p>(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or</p> <p>(iii) the sea; —</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</p> <p><del>(f) will occur behind a development setback;—</del></p> <p>(g) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p><del>(h) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</del></p> <p><del>(i) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</del></p> <p>(j) 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.</p>	<p>secured gas pipeline, the erection of the towers for the transmission line, and the construction facilities will require the infilling or depositing, excavation, removal or moving of more than 5 cubic metres of material from the littoral active zone, an estuary or within a distance of 100 meters of an estuary, and the sea. Installation of the subsea will require excavation, levelling, infilling and compaction.</p> <p>These structures and infrastructure are deemed to increase the development footprint of the port and thus are not excluded from this activity.</p> <p>Application for this activity is also made in regard to the maintenance management plan, forming part of the EMPr for activities required to maintain the infrastructure and operations.</p>
Activity 27	<p>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—</p> <p>(i) the undertaking of a linear activity; or maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>This Listed Activity is triggered. The proposed switching station and the temporary construction facilities will cumulatively require clearance of more than 1 hectare of indigenous vegetation. The 50-metre corridor which includes the 31-meter working servitude is part of the switching station and it can be strongly contended that it is not part of the linear activity.</p> <p>Application for this activity is also made in regard to the maintenance management plan, forming part of</p>

LISTED NOTICES		
LISTING NOTICE 1		
Activity No.	Activity Description	Applicability
		the EMPr for activities required to maintain the infrastructure and operations.

Activity No.	Activity Description	Applicability
LISTING NOTICE 2		
Activity 2	<i>The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where the electricity output is 20 megawatts or more.</i>	This Listed Activity is triggered since the Project's design capacity is 540MW and the contracted capacity will be 450MW of electricity to be supplied to the national grid. Electricity will be generated by up to 27 reciprocating engines, each having a heat input in excess of 10MW (design capacity of 18.32MW each at full capacity). Heat generated by operation of the reciprocating engines is captured, and that energy is used to create steam to drive three steam turbines that each have a heat input of circa 15.45MW. Related operation of facilities or infrastructure include the facilities and infrastructure on the Powership, the FSRU, gas pipeline and evacuation of power from the onboard substation.
Activity 4	<i>The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres</i>	This Listed Activity is triggered since the storage of LNG on the FSRU will exceed 500 cubic meters (maximum estimated storage is 175 000 cubic meters at any given time).
Activity 6	<i>The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding— (i) <del>activities which are identified and included in Listing Notice 1 of 2014;</del></i>	This Listed Activity is triggered since the engines used for electricity generation are a Listed Activity under GN 893 of 22 November 2013 (as amended) in terms of section 21 of the NEM:AQA Sub-Category 1.5: Reciprocating Engines. In the case of the proposed project, the Powerships

Activity No.	Activity Description	Applicability
<b>LISTING NOTICE 2</b>		
	<p><del>(ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies;</del></p> <p><del>(iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or</del></p> <p><del>(iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day.</del></p>	<p>will have a combined sum of 27 engines that each have a heat input capacity of more than 10MW.</p> <p>The three steam turbines have a heat input capacity of less than 50MW, but more than 10MW. These units are therefore declared Controlled Emitters and they will be regulated in terms of GN 831 of 1 November 2013 applicable to Small Boilers.</p>
Activity 7	<p>The development and related operation of facilities or infrastructure for the bulk transportation of dangerous goods—</p> <p><del>(i) in gas form, outside an industrial complex, using pipelines, exceeding 1 000 metres in length, with a throughput capacity of more than 700 tons per day;</del></p> <p><del>(ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1 000 metres in length, with a throughput capacity of more than 50 cubic metres per day; or</del></p> <p><del>(iii) in solid form, outside an industrial complex, using funiculars or conveyors with a throughput capacity of more than 50 tons per day.</del></p>	<p>This Listed Activity is triggered since a subsea gas pipeline for transportation of gas in gas form, exceeding 1000 meters, is proposed. This Listed Activity does not exclude pipelines in the “sea” or within a port. The exclusion of “within an industrial complex” is open to dispute and interpretation, so it cannot be relied upon.</p>
Activity 14	<p>The development and related operation of—</p> <p><del>(ii) an anchored platform; or</del></p> <p><del>(iii) any other structure or infrastructure — on, below or along the sea bed;</del></p> <p><del>excluding—</del></p> <p><del>(a) development of facilities, infrastructure or structures for aquaculture purposes; or</del></p> <p><del>(b) the development of temporary structures or infrastructure where such structures will be removed within 6 weeks of the commencement of development and where coral or indigenous vegetation will not be cleared.</del></p>	<p>This Listed Activity is triggered since the Powerships and FSRU will be anchored and moored in the port utilising the vessel’s anchoring system. The transmission of the regassified LNG will flow via a secured gas pipeline from the moored floating storage regasification unit (FSRU) ship along the seabed to the main generation ships (the Powerships) for processing. The subsea gas pipeline is proposed to be installed,</p>

Activity No.	Activity Description	Applicability
<b>LISTING NOTICE 2</b>		
		operated and maintained along the toe of the existing dredged slopes between the FSRU and Powership to ensure gas supply for power generation.

Activity No.	Activity Description	Applicability
<b>LISTING NOTICE 3</b>		
Activity 10	<p><i>The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</i></p> <p><b>a. Eastern Cape</b></p> <p><i>i. Outside urban areas:</i></p> <p><del>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</del></p> <p><del>(ee) National Protected Area Expansion Strategy Focus areas;</del></p> <p><del>(ff) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</del></p> <p><del>(gg) Sites or areas identified in terms of an international convention;</del></p> <p><del>(hh) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</del></p> <p><del>(ii) Core areas in biosphere reserves;</del></p> <p><del>(jj) Areas within 40 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</del></p> <p><del>(kk) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined;</del></p> <p><del>(ll) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;</del></p>	<p>This Listed Activity is triggered due to the proximity of the Project to various identified protected areas. Since quantities of between 30 and 80 cubic meters of LNG is anticipated to be contained in the proposed facilities or infrastructure (the gas pipeline itself) at any given time. The storage of up to 175 000 cubic meters of LNG in the FSRU is also obviously covered by Listed Activity 4 (LN2) above.</p>

Activity No.	Activity Description	Applicability
<b>LISTING NOTICE 3</b>		
	<p>(mm) <i>Within 500 metres of an estuarine functional zone, excluding areas falling behind the development setback line;</i></p> <p>(nn) <i>In an estuarine functional zone, excluding areas falling behind the development setback line; or</i></p> <p><del>(oo) Within a watercourse; or</del></p> <p><i>ii. Inside urban areas:</i></p> <p><del>(aa) Areas zoned for use as public open space;</del></p> <p><del>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or</del></p> <p><del>(cc) Within 500 metres of an estuarine function zone excluding areas falling behind the development setback line.</del></p>	
Activity 12	<p><i>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></p> <p><b>Eastern Cape</b></p> <p><del>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;</del></p> <p><del>ii. Within critical biodiversity areas identified in bioregional plans;</del></p> <p><del>iii. Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line or even in urban areas;</del></p> <p><del>iv. Outside urban areas, within 100 metres inland from an estuarine functional zone; or</del></p> <p><del>v. 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.</del></p>	<p>This Listed Activity is triggered since indigenous vegetation exceeding 300 square metres will be cleared for the establishment of the transmission line towers, onshore gas pipeline and switching station, within the littoral active zone and within 100 metres inland from the highwater mark of the sea and estuarine functional zone.</p> <p>Application for this activity is also made in regard to the maintenance management plan, forming part of the EMPr for activities required to maintain the infrastructure and operations.</p>
Activity 14	The development of—	This Listed Activity is triggered since the proposed infrastructure or structures (transmission line and

Activity No.	Activity Description	Applicability
<b>LISTING NOTICE 3</b>		
	<p><del>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or</del></p> <p><del>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</del></p> <p>where such development occurs—</p> <p><del>(a) within a watercourse;</del></p> <p><del>(b) in front of a development setback; or</del></p> <p><del>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</del></p> <p>excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>Eastern Cape</p> <p>i. Outside urban areas:</p> <p><del>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</del></p> <p><del>(bb) National Protected Area Expansion Strategy Focus areas;</del></p> <p><del>(cc) World Heritage Sites;</del></p> <p><del>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</del></p> <p><del>(ee) Sites or areas identified in terms of an international convention;</del></p> <p><del>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</del></p> <p><del>(gg) Core areas in biosphere reserves;</del></p> <p><del>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</del></p>	<p>corridor) with a footprint of more than 10 square meters will be developed within the Port of Ngqura (the preferred option), within the estuarine functional zone and within 5km of the Coega Bontveld and within 1km of the high water mark the CDC's potentially preferred alignment of the transmission line and the associated 50 metre corridor which includes the 31m working servitude will be located within 32m of a watercourse. This Listed Activity must be applied for since this infrastructure and structures are deemed to increase the development footprint of the port and thus are not excluded from this activity.</p>

Activity No.	Activity Description	Applicability
<b>LISTING NOTICE 3</b>		
	<p>(ii) <del>Areas seawards of the development setback line or</del> within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or</p> <p>(jj) In an estuarine functional zone, <del>excluding areas falling behind the development setback line;</del></p>	

## 2.5 Project Locality

Table 2-2: Location of the Proposed Activity.

Description	Location of the Activity
<b>Metropolitan Municipality</b>	Nelson Mandela Bay Municipality (NMBM)
<b>Municipal Ward</b>	Ward 53 (borders Ward 60)
<b>Area / Town / Village</b>	Port of Ngqura and Coega Special Economic Zone, situated near Port Elizabeth
<b>Property Description &amp; 21 Digit SG Code</b>	See Table 2-3 below

Table 2-3: Properties Description, the 21 SG codes and the Central Coordinates.

Property Description	21 SG CODES	CENTRAL GPS-COORDINATE	
		Longitude	Latitude
Erf 251 Coega	C07600230000025100000	25.690411	-33.795652
Erf 312 Coega	C07600230000031200000	25,6960670	-33,7877900
Remainder of Erf 252 Coega	C07600230000025200000	25,6944580	-33,7711600
Remainder of Erf 281 Coega	C07600230000028100000	25,6835390	-33,7585280
Remainder of Erf 275 Coega	C07600230000027500000	25,6789980	-33,7532740
Rem of Erf 276 Coega	C07600230000027600000	25.675593	-33.750389
Erf 329 Coega	C07600230000032900000	25.675109	-33.746749
Erf 356	C07600230000035600000	25.688591	-33.797403

Figures 2-8 below present the Locality Map which illustrates the following:

- Preferred Powerships position and FSRU;
- Preferred gas pipeline route,
- Preferred transmission route corridor;



### 2.5.1 Locality Plan of Activity (Marine & Transmission)



Figure 2-8: Locality Map (Marine & Transmission) – Refer to Appendix 1.1

### 3 ALTERNATIVES

#### 3.1.1 Layout Alternatives: Powership Position within the Port

**Initial Preferred Powerships and FSRU position within the Port:** was no longer deemed feasible as it was conflicted with Transnet National Ports Authority’s (TNPA’s) fast tracked spatial development plans for the liquid bulk terminal which was initially planned implementation in the next 5-7 years.

**Previously Assessed Alternative 2:** was considered feasible, but less suitable from an engineering perspective at the time, as the Powerships and the FSRU were located too close together and there were more concerns regarding navigational aspects. Refer to Figure 3-2.

**Final Preferred Powership & FSRU Alternative from Previously Assessed Alternative 2 (addressing TNPA requirements):** A slightly amended position for the Powership along the Admin Craft Basin (ACB) and eastern breakwater has been proposed. To accommodate the Powership in this location, the FSRU mooring location shifts further south along the eastern breakwater, within the previously assessed polygon. Navigational simulations and TNPA discussions regarding FSRU and Powership positioning ensured the optimal location of the vessels to avoid marine traffic collisions and align with TNPA Port planning.

The alternatives are illustrated in the figures below:

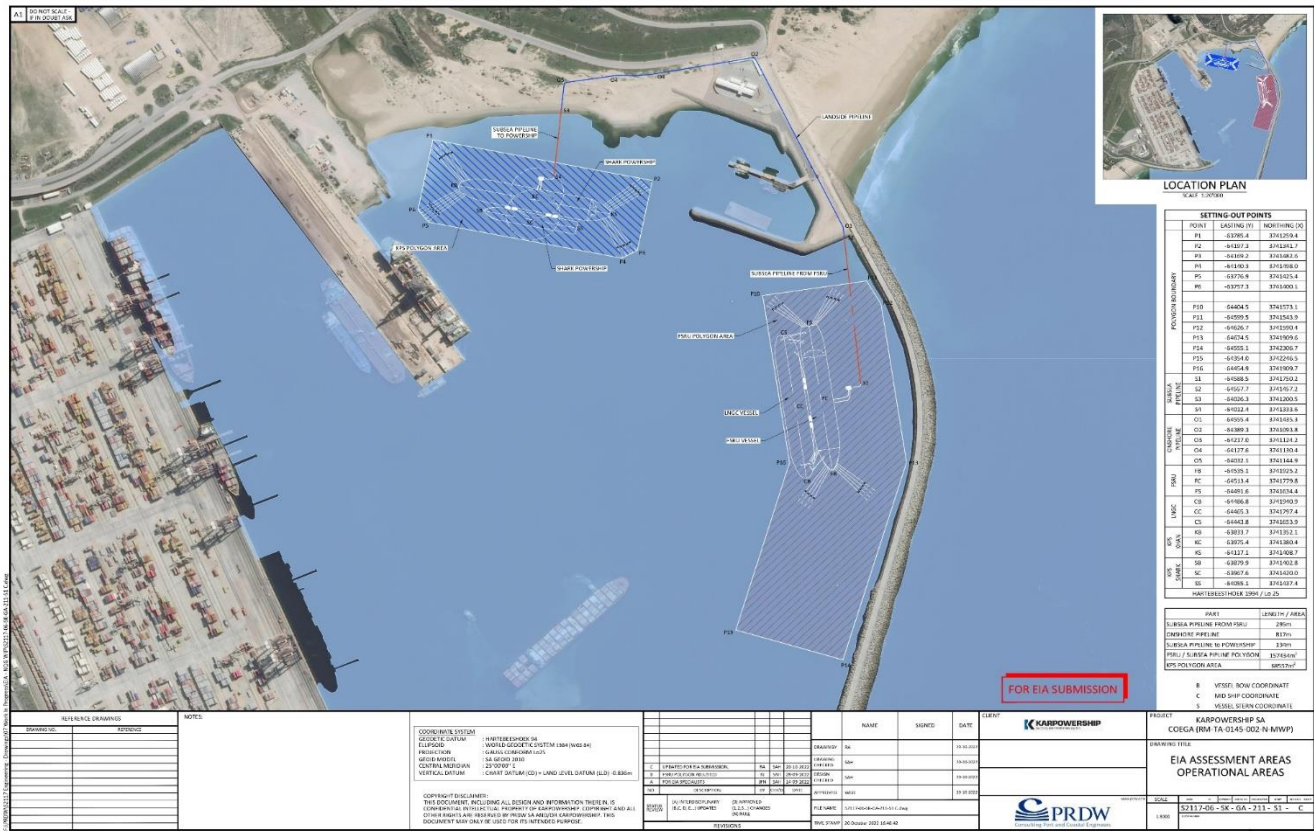


Figure 3-1: Initial Preferred Powerships and FSRU position with assessed area (polygon) within the Port

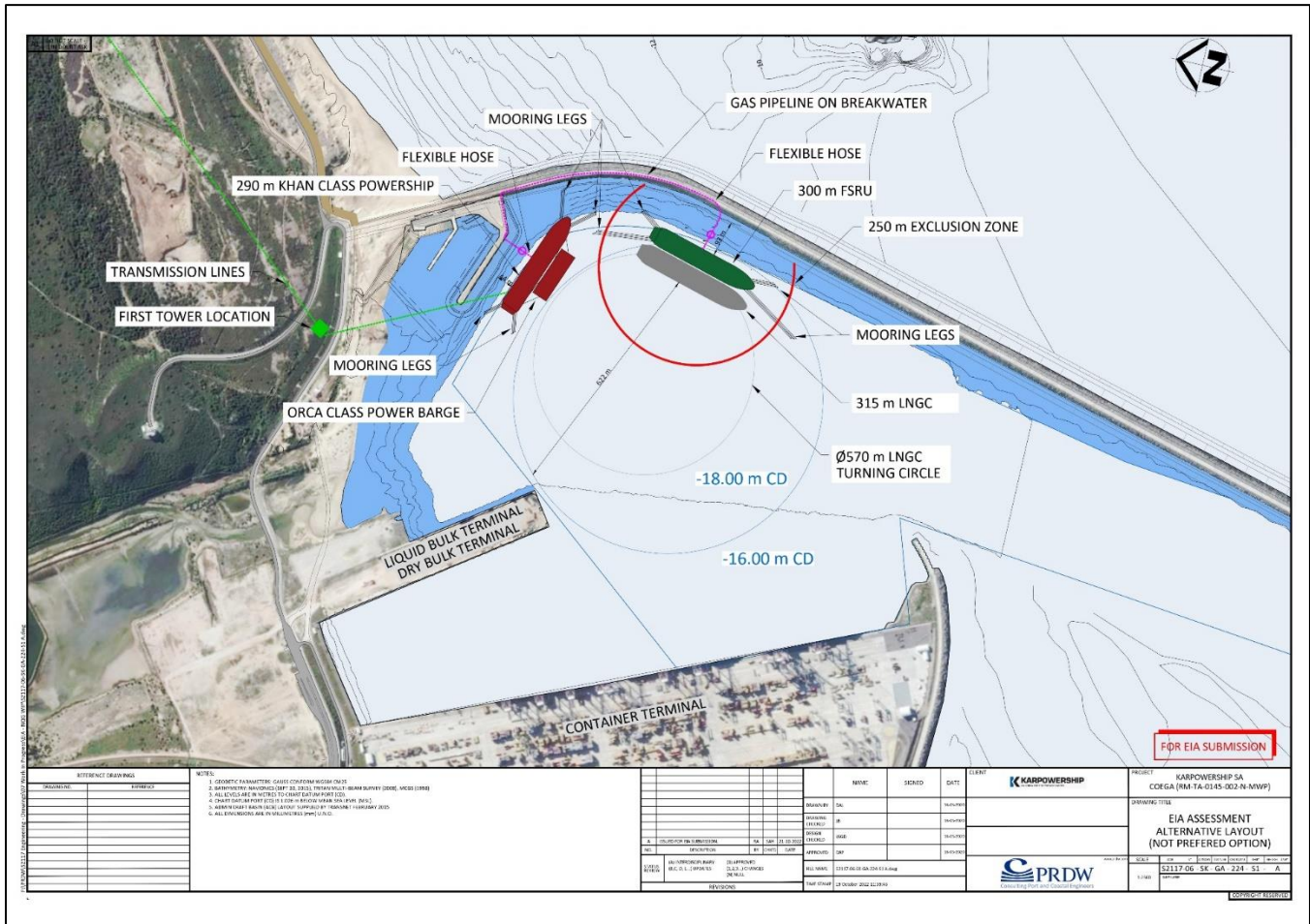


Figure 3-2: Previously Assessed Alternative 2 Position within the Port.

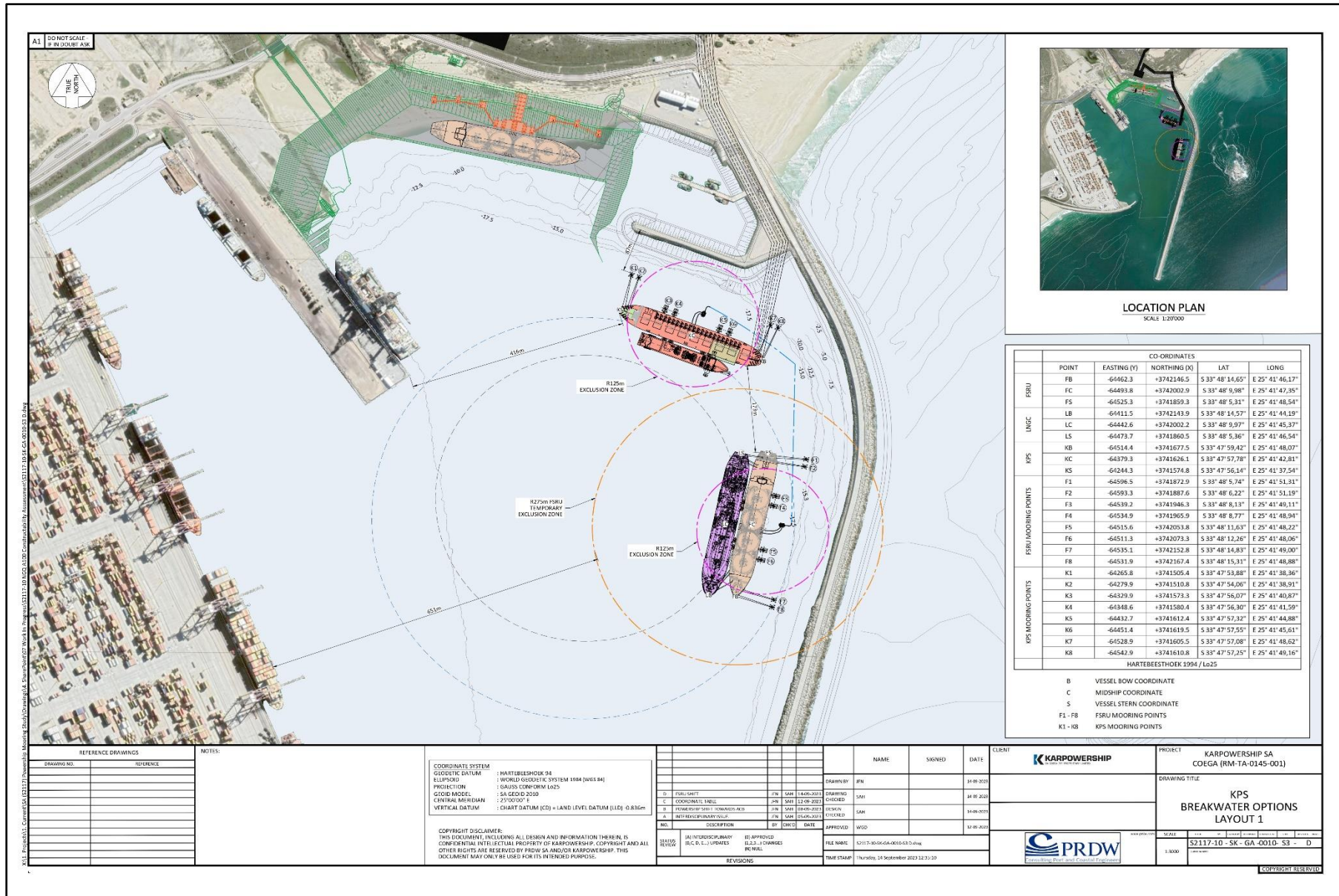


Figure 3-3: Final Preferred Powership & FSRU Alternative from Previously Assessed Alternative 2 (addressing TNPA requirements)

**Table 3-1: Coordinates of Marine Powerships and FSRU – Final Preferred Alternative**

	CO-ORDINATES				
	POINT	EASTING (Y)	NORTHING (X)	LAT	LONG
FSRU	FB	-64462.3	+3742146.5	S 33° 48' 14,65"	E 25° 41' 46,17"
	FC	-64493.8	+3742002.9	S 33° 48' 9,98"	E 25° 41' 47,35"
	FS	-64525.3	+3741859.3	S 33° 48' 5,31"	E 25° 41' 48,54"
LNGC	LB	-64411.5	+3742143.9	S 33° 48' 14,57"	E 25° 41' 44,19"
	LC	-64442.6	+3742002.2	S 33° 48' 9,97"	E 25° 41' 45,37"
	LS	-64473.7	+3741860.5	S 33° 48' 5,36"	E 25° 41' 46,54"
KPS	KB	-64514.4	+3741677.5	S 33° 47' 59,42"	E 25° 41' 48,07"
	KC	-64379.3	+3741626.1	S 33° 47' 57,78"	E 25° 41' 42,81"
	KS	-64244.3	+3741574.8	S 33° 47' 56,14"	E 25° 41' 37,54"
FSRU MOORING POINTS	F1	-64596.5	+3741872.9	S 33° 48' 5,74"	E 25° 41' 51,31"
	F2	-64593.3	+3741887.6	S 33° 48' 6,22"	E 25° 41' 51,19"
	F3	-64539.2	+3741946.3	S 33° 48' 8,13"	E 25° 41' 49,11"
	F4	-64534.9	+3741965.9	S 33° 48' 8,77"	E 25° 41' 48,94"
	F5	-64515.6	+3742053.8	S 33° 48' 11,63"	E 25° 41' 48,22"
	F6	-64511.3	+3742073.3	S 33° 48' 12,26"	E 25° 41' 48,06"
	F7	-64535.1	+3742152.8	S 33° 48' 14,83"	E 25° 41' 49,00"
	F8	-64531.9	+3742167.4	S 33° 48' 15,31"	E 25° 41' 48,88"
KPS MOORING POINTS	K1	-64265.8	+3741505.4	S 33° 47' 53,88"	E 25° 41' 38,36"
	K2	-64279.9	+3741510.8	S 33° 47' 54,06"	E 25° 41' 38,91"
	K3	-64329.9	+3741573.3	S 33° 47' 56,07"	E 25° 41' 40,87"
	K4	-64348.6	+3741580.4	S 33° 47' 56,30"	E 25° 41' 41,59"
	K5	-64432.7	+3741612.4	S 33° 47' 57,32"	E 25° 41' 44,88"
	K6	-64451.4	+3741619.5	S 33° 47' 57,55"	E 25° 41' 45,61"
	K7	-64528.9	+3741605.5	S 33° 47' 57,08"	E 25° 41' 48,62"
	K8	-64542.9	+3741610.8	S 33° 47' 57,25"	E 25° 41' 49,16"

**3.1.2 Layout Alternatives: Gas Pipelines**

The gas pipeline route is reduced compared to the initially preferred and now runs completely subsea directly between the FSRU PLEM and the Powership PLEM.

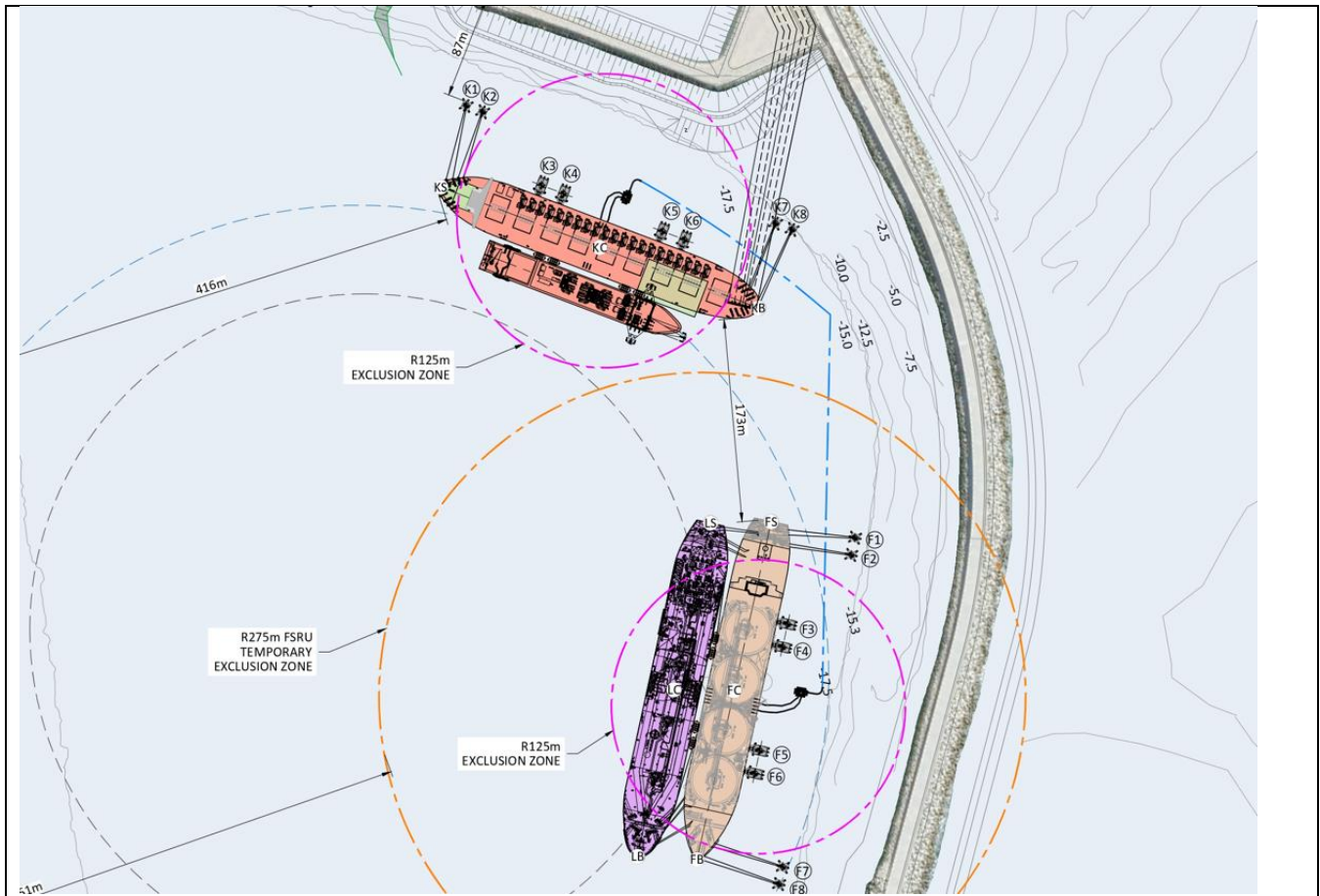


Figure 3-4: Gas pipeline route (Sub-sea – blue line – Final Preferred Alternative)

Table 3-2: Coordinates of Subsea Pipeline – Final Preferred

CO-ORDINATES					
	POINT	EASTING (Y)	NORTHING (X)	LAT	LONG
SUBSEA PIPELINE	P1	-64568.8	+3742000.6	S 33° 48' 9,89"	E 25° 41' 50,27"
	P2	-64575.5	+3741683.3	S 33° 47' 59,59"	E 25° 41' 50,45"
	P3	-64414.5	+3741569.6	S 33° 47' 55,93"	E 25° 41' 44,16"
HARTEBEESTHOEK 1994 / Lo25					

Table 3-3: Sizes of Subsea Pipeline

PART	LENGTH	DIAMETER	WORKING SERVITUDE
SUBSEA PIPELINE FROM FSRU to POWERSHIP	515m	24inch equivalent to approx. 60cm (600mm)	50m each side

Interim Appeal Report for the Gas to Power Powership Project at the Port of Ngqura and Coega SEZ, EC

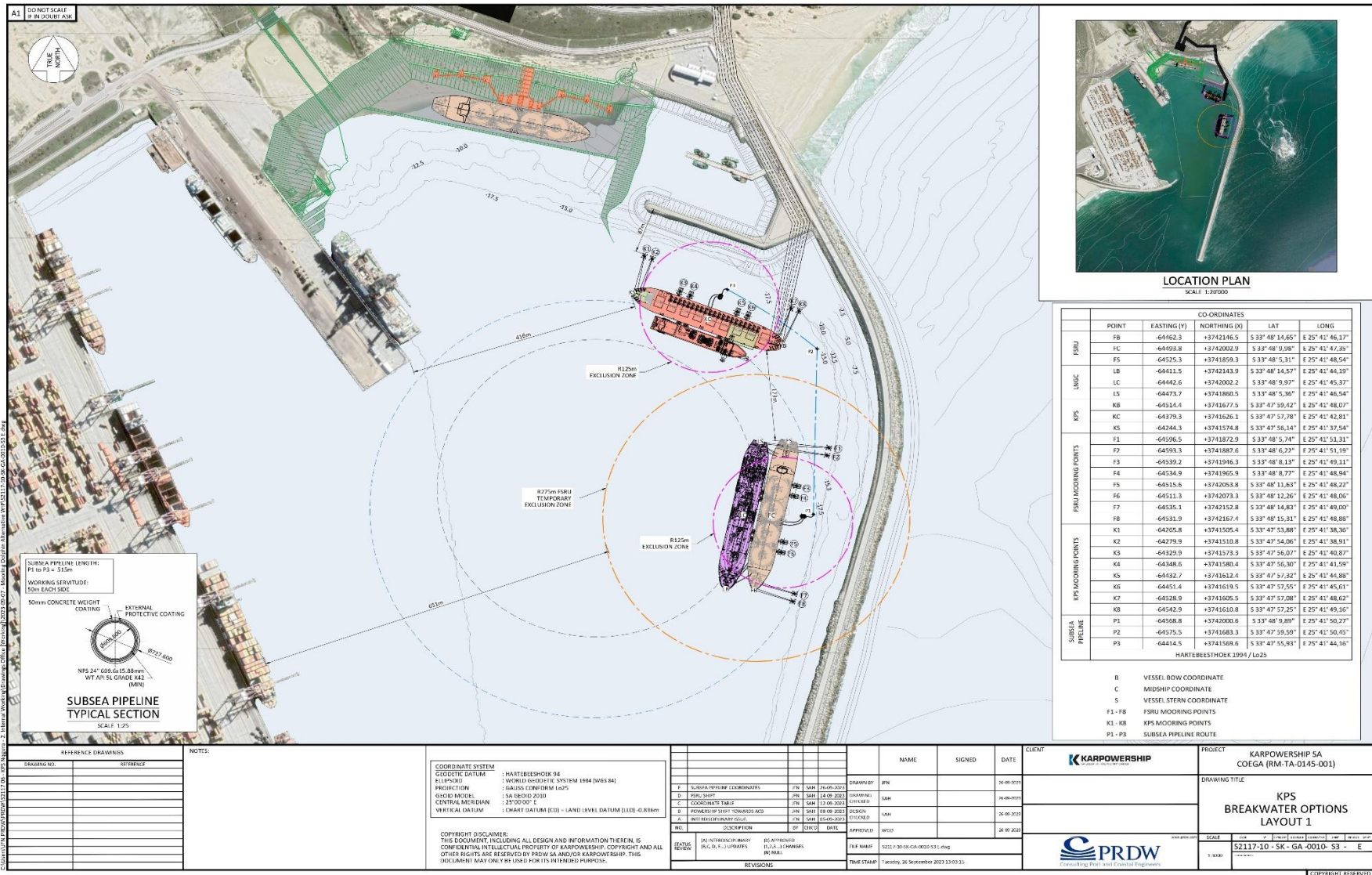


Figure 3-5: Subsea pipeline coordinates and working servitude– Final Preferred

The proposed gas pipeline diameter is 24 inches, equivalent to approx. 60cm (600mm)). It is anticipated that the subsea section of the pipeline will have a servitude of approximately 50m each side.

**Preferred Alternative 1 (Assessed):** The electricity that is generated is converted by the on-board High Voltage substation (capacity of 110 – 170kV) will be evacuated via a double circuit twin Tern conductor 132kV transmission line over a distance of approximately 8.25km, from the Port of Ngqura’s tie-in point to the Eskom line which is routed on the western side of the services servitude, at a connection point (necessitating a new Saltpan 132kV on shore switching station located adjacent to Klub Road near Port Control in proximity to the existing Dedisa Substation, which feeds electricity into the national grid.

There were no changes to the preferred transmission (western alignment) other than the alignment from the new Final Preferred PowerShip & FSRU Alternative to the previously assessed new Saltpan 132kV on shore switching station (refer to positions 1-4 as per lay-out below:



Figure 3-6: Previously Assessed Preferred Alternative 1 Transmission Line)



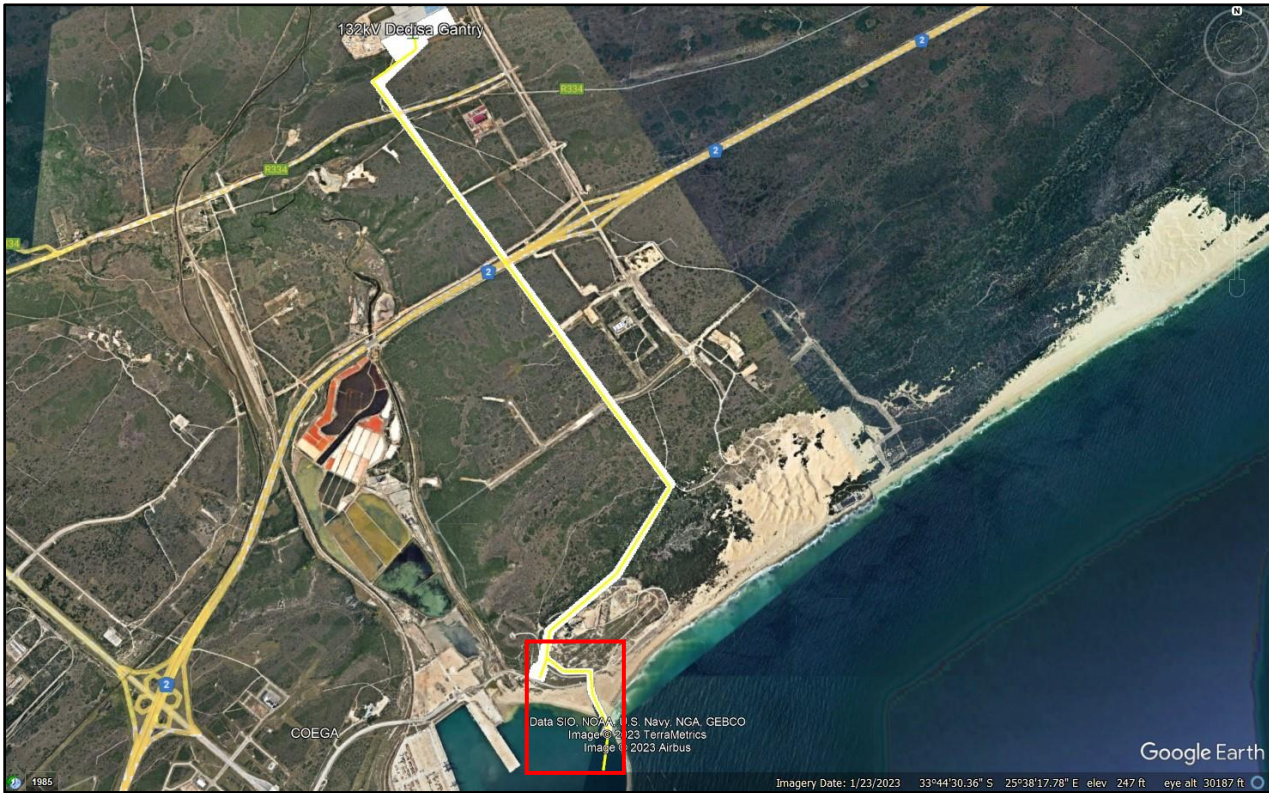


Figure 3-7: Power Evacuation Route Corridor (Transmission)

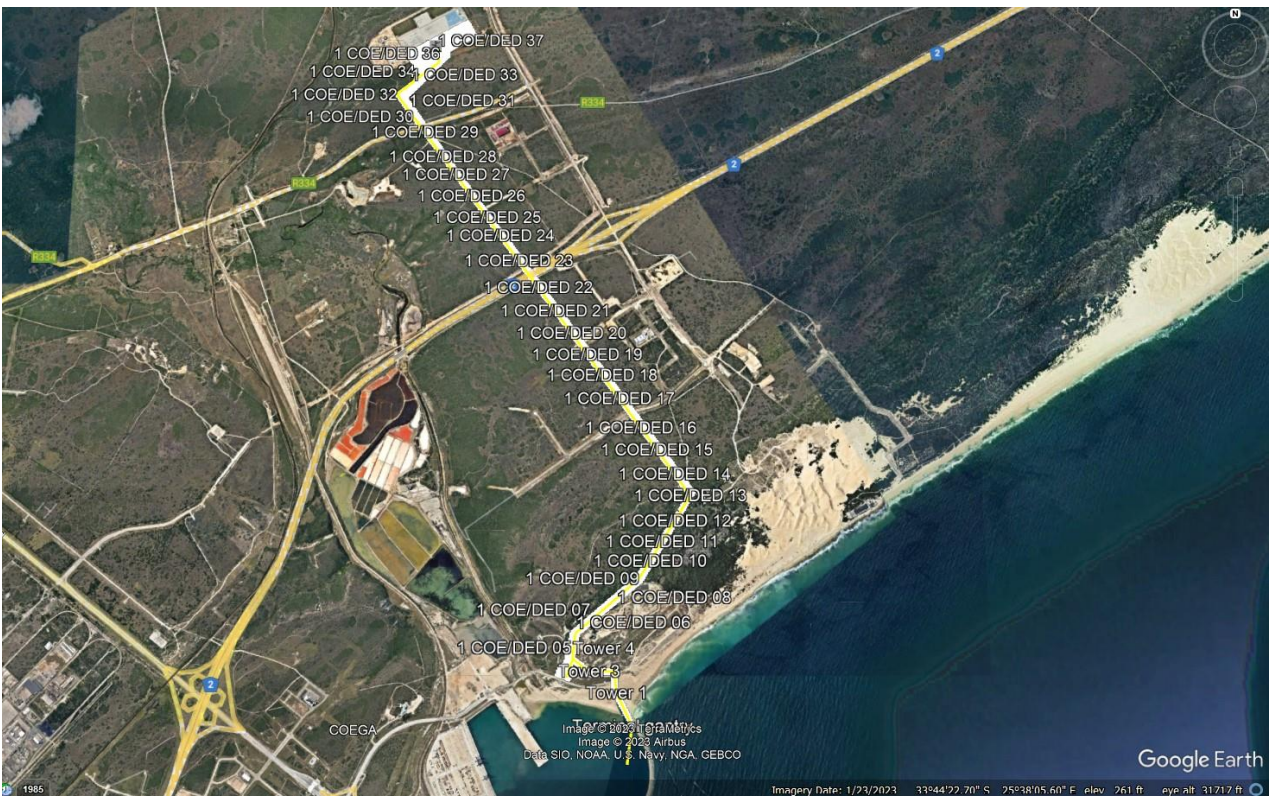


Figure 3-8: Transmission Corridor –Proposed Tower Positions

**Table 3-4: Coordinates for the Transmission line**

Description		GPS-COORDINATE OF POLYGON			
		Left		Right	
		Longitude	Latitude	Longitude	Latitude
<b>Preferred Line Route</b>					
<b>Preferred Alternative Route</b>  Length: 8.25 km Approx. no. of towers:38 Corridor: 50m Working servitude: 31m	<b>Start</b>	25°41'48.94"E	33°47'52.47"S	25°41'50.41"E	33°47'51.72"S
	<b>Bend 1</b>	25°41'47.83"E	33°47'50.21"S		
	<b>Bend 2</b>	25°41'43.28"E	33°47'43.23"S		
	<b>Bend 3</b>	25°41'42.72"E	33°47'41.83"S	25°41'44.30"E	33°47'41.60"S
	<b>Bend 4</b>	25°41'42.69"E	33°47'37.74"S	25°41'44.13"E	33°47'36.38"S
	<b>Bend 5</b>	25°41'34.99"E	33°47'37.81"S	25°41'35.48"E	33°47'36.39"S
	<b>Bend 6</b>	25°41'35.04"E	33°47'37.81"S	25°41'30.17"E	33°47'33.11"S
	<b>Bend 7</b>	25°41'29.55"E	33°47'34.73"S		
	<b>Bend 8</b>	25°41'29.39"E	33°47'35.82"S		
	<b>Bend 9</b>	25°41'29.16"E	33°47'26.22"S	25°41'31.78"E	33°47'27.19"S
	<b>Bend 10</b>	25°41'50.63"E	33°47'11.29"S	25°41'52.45"E	33°47'13.08"S
	<b>Bend 11</b>	25°42'7.95"E	33°46'49.03"S	25°42'10.43"E	33°46'48.09"S
	<b>Bend 12</b>	25°40'25.15"E	33°44'50.97"S	25°40'29.75"E	33°44'52.05"S
	<b>Bend 13</b>	25°40'34.06"E	33°44'44.83"S	25°40'44.24"E	33°44'39.13"S
	<b>Bend 14</b>			25°40'43.97"E	33°44'37.56"S
	<b>Bend 15</b>			25°40'53.77"E	33°44'32.57"S
<b>End</b>	25°40'28.34"E	33°44'38.23"S	25°40'50.41"E	33°44'27.59"S	

A transmission line corridor will allow for technical construction requirements to be maintained on site, and the corridor was determined in consideration with sensitivities on site.

**Saltpan Switching Station:**

The electricity generated on the ship is required to be integrated into the Eskom National grid via a switching station. The location of the switching station is located on-shore adjacent to Klub Road near Port Control. The switching station is part of the Eskom self-build process and will be built by Karpowership and handed to Eskom for their ownership and operation. The switching station will facilitate the control of the incoming lines from the Powership and the outgoing lines to the Dedisa network.

The switching station will measure approximately 9000m<sup>2</sup> in size and will comprise of an incoming circuit for the lines from the ship, a busbar system to distribute the power and an outgoing circuit for the power to Eskom. The switching station further comprises of landing gantries, breakers, isolators, current transformers, voltage transformers and a control room for the monitoring, measurement and control of the power.

**Table 3-5: Coordinates for the Switching Station**

Saltpan Switching Station			
Corner	Longitude	Latitude	Area

1	25°41'24.05"E	33°47'38.40"S	9000m <sup>2</sup>
2	25°41'25.09"E	33°47'35.44"S	
3	25°41'32.27"E	33°47'37.72"S	
4	25°41'31.14"E	33°47'40.50"S	
Midpoint	25°41'27.79"E	33°47'37.75"S	

### Powerline between Ships

Power will be transferred from the Shark Class Powership to the Khan Class Powership via an overhead connection to the towers which are already existing on the Powerships. The overhead line will span approximately 50- 70m between the ships.

## 4 PUBLIC PARTICIPATION PROCESS (PPP)

### 4.1 2023 PPP

Following the Honourable Minister Creecy's decision dated 28th August 2023, a further public participation process ("PPP") is being conducted, to provide registered I&APs with additional opportunity to comment on the additional information.

I&APs from the extensive database, inclusive of Registered I&AP's were provided with details on the 30 day commenting period by e-mail (**27 September – 26 October 2023**) and the location of the report availability for review at the following places:

- Cllr Offices (Ward 53): 33175, Nkwenkwezi Street, Kamvelihle, Motherwell 6211;
- Cllr Offices (Ward 60): Corner of Sityhotyholweni Street and Jijana Street, Wells Estate),
- North End Library: 12 Mount Road Mount Croix North End; as well as;
- Triplo4's website: [www.triplo4.com](http://www.triplo4.com) / online platform).

In addition, the generic EMPs and appendices, are available on the Karpowership website, as well as the Triplo4 website, on behalf of the applicant.

#### 4.1.1 Newspaper Advertisement

In addition to email and SMS notices to all I&AP's on the database, an advertisement to draw the public's attention to the interim appeal documentation and comment period was placed in the Daily Dispatch in English. The advert contained the project status quo, the dates and locations for review of the Report, as well as details of EAP and contacts details for commenting.

Refer to Appendix 2.4 for advertisement, providing the displayed detail and proof of publication.

#### 4.1.2 Site Notices

Site notices were placed in the four official provincial languages, i.e., English, Afrikaans, isiZulu and isiXhosa. The site notices were printed in size A2 and placed in the following locations on the 22<sup>nd</sup> and the 23<sup>rd</sup> of September 2023:

- Cllr Offices (Ward 53): 33175, Nkwenkwezi Street, Kamvelihle, Motherwell 6211;

- Cllr Offices (Ward 60): Corner of Sityhotyholweni Street and Jijana Street, Wells Estate),
- North End Library: 12 Mount Road Mount Croix North End;
- In close proximity to the Transnet National port authority offices.

## 5 SPECIALIST FINDINGS AND EVALUATIONS

As a result of the Minister’s decision, specialists reviewed the new information relating to the location change of the vessels as received from the technical team and provided a specialist statement.

The findings of the specialists are presented in the table below. Please refer to the Appendices for the detailed submissions:

**Table 5-1: Specialist Findings**

Specialist	Findings
GCS Environmental and Water Consultants  Hydrological Assessment Baseline Aquatic Assessment Desktop Hydrogeology Assessment Geohydrological Assessment Water Balance Assessment	<ul style="list-style-type: none"> <li>▪ No new significant impacts would occur;</li> <li>▪ The initial impacts identified by the specialist report remain the same;</li> <li>▪ No additional mitigation measures are prescribed;</li> <li>▪ No additional impacts are associated with this construction.</li> </ul>
Suheil Malek Hoosen Wetland Delineation & Functional Assessment	<ul style="list-style-type: none"> <li>▪ No new significant impacts would occur;</li> <li>▪ The initial impacts identified by the specialist report remain the same from a freshwater perspective.</li> <li>▪ No additional mitigation measures are prescribed;</li> <li>▪ No additional impacts are associated with this construction from a freshwater perspective.</li> </ul>
Agency of Cultural Resource Management (ACRM) Archaeological Impact Assessment	<ul style="list-style-type: none"> <li>▪ The layout of the proposed new transmission line and position of the switching station, does not pose a significant threat to local archaeological heritage resources, where the receiving environment is already transformed;</li> <li>▪ No further archaeological mitigation is required.</li> </ul>
The Biodiversity Company Terrestrial Biodiversity Assessment	<ul style="list-style-type: none"> <li>▪ No new significant impacts would occur;</li> <li>▪ The initial impacts identified by the specialist report remain the same;</li> <li>▪ No additional mitigation measures are prescribed;</li> <li>▪ No additional impacts are associated with this construction</li> </ul>
Dr Paul Martin Terrestrial Avifauna Impact Assessment	New Powership Position <ul style="list-style-type: none"> <li>▪ Impacts on terrestrial avifauna will be the same as assessed for Alternative 2;</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Impact of physical disturbance to the Coega River Mouth area after mitigation is reduced from Low to Very Low;</li> <li>▪ Mitigation measures include lighting not to be directed towards Jahleel Island</li> <li>▪ Night light audit to include at the base (beach end) of the Eastern Breakwater;</li> </ul> <p>Overhead Transmission Line</p> <ul style="list-style-type: none"> <li>▪ impacts and recommended mitigation measures with respect to terrestrial avifauna will remain the same;</li> <li>▪ Use dynamic reflective bird flappers with lights that flash at night on the most sensitive spans of the transmission line between the Powerships and the top of the Eastern Reclamation;</li> <li>▪ acceptable levels of environmental risk to terrestrial avifauna subject to implementation of the recommended mitigation measures</li> </ul>
<p>Subacoustech Environmental Ltd</p> <p>Underwater Noise Assessment</p>	<ul style="list-style-type: none"> <li>▪ Noise effect from the operational ships outside the harbour, on the shielded side of the breakwater, will be negligible;</li> <li>▪ The side of the Powership Is also directed away from the breakwater; No impact on species associated with Jahleel Island, in particular penguins is predicted;</li> <li>▪ Due to this distance and the substantial obstruction that the breakwater represents to the passage of sound, no impact is expected at St Croix Island.</li> <li>▪ The impact of the noise on these species of marine mammal should be negligible in the majority of the harbour.</li> </ul>
<p>Contract Maritime Archaeologist</p> <p>Underwater Heritage Compliance Letter</p>	<ul style="list-style-type: none"> <li>▪ No new impacts will result from the proposed change;</li> <li>▪ Mitigation measures remain the same.</li> </ul>
<p>Marine Ecology, Avifauna and Fisheries Assessment</p> <p>Anchor Environmental</p>	<ul style="list-style-type: none"> <li>▪ Seven potentially significant impacts of the proposed FPP facility on the surrounding marine ecology at the Port of Ngqura were identified, assessed, and descriptions, updated. All mitigation measures and all impact ratings remain the same with this update.</li> </ul>
<p>Coastwise Consulting &amp; GroundTruth</p> <p>Coastal and Estuarine Impact Assessment</p>	<ul style="list-style-type: none"> <li>▪ Proposed new layout aligns largely with Alternative 2 as assessed in the specialist report;</li> </ul>

	<ul style="list-style-type: none"> <li>▪ No new impacts in terms of the estuarine and coastal environment;</li> <li>▪ No additional mitigation measures are prescribed;</li> <li>▪ The new layout is considered acceptable from a coastal and estuarine perspective provided that all mitigation measures are implemented.</li> </ul>
<p>uMoya-NILU Consulting (Pty) Ltd</p> <p>Atmospheric Impact Assessment</p>	<ul style="list-style-type: none"> <li>▪ dispersion footprint resulting for the project is therefore likely to remain unchanged;</li> <li>▪ predicted ambient concentrations will remain very low for SO<sub>2</sub> and PM<sub>10</sub> and low for NO<sub>2</sub>;</li> <li>▪ area where the predicted maximum concentrations occur will move approximately 60m to the south-southwest;</li> <li>▪ there will be no change to the significance rating i.e., ambient air quality will be very low;</li> <li>▪ The significance of the cumulative impact of the Project with other sources of air pollution will remain unchanged, i.e. very low; as will significance of Project with other gas-to-power projects.</li> <li>▪ As per the short term (2032) Port expansion strategy, the existing TNPA bulk liquid fuel terminal will be relocated to the A100 berth. The significance of the cumulative impact of the Project with this change will remain unchanged, i.e. very low.</li> </ul>
<p>Safetech</p> <p>SA Terrestrial Noise Assessment</p>	<ul style="list-style-type: none"> <li>▪ Results indicate that the noise levels are within acceptable limits;</li> <li>▪ Overall environmental noise impact significance remains low, from a human impact perspective;</li> <li>▪ Specific conclusions and recommendations remain the same as per previous Noise Impact Assessment Report</li> </ul>
<p>Promethium Carbon</p> <p>Climate Change Impact Assessment</p>	<ul style="list-style-type: none"> <li>▪ There is no change to the original estimate of the project's lifecycle greenhouse gas (GHG) emissions as there is no indication any alterations to the technologies employed. As such the emissions from the project are estimated to be 1.5 million tCO<sub>2e</sub>/year during the operational phase and 31 million tCO<sub>2e</sub> over its lifetime.</li> <li>▪ None of the results differ based on the alternative layout, with a potential exception being 'sea surges and wave action resulting from storm activity'</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Preferred alternative for the Powership location has a slightly lower risk of being impacted by a 1 m sea level rise in the preferred alternative location, relative to its location in the original layout where the Powership was located closer to the shore rather than on the breakwater;</li> <li>▪ Preferred alternative has the identical risks already reported for ocean pH, wind and sea surface temperatures;</li> <li>▪ Measures to reduce the impact of the project on climate change remain the same, as do the adaptation measures to increase the project's resilience to climate change</li> </ul>
<p>Afro Development Planning Pty Ltd</p> <p>Socio-Economic Impact Assessment</p>	<ul style="list-style-type: none"> <li>▪ The findings remains as is despite the shift in the proposed development from the preferred site, to Alternative 2.</li> <li>▪ Considering that the repositioning of the proposed development should 1) not change the direct, indirect or induced socio-economic impacts and 2) no new negative impacts are anticipated by the specialist team, and no increased significance of the anticipated findings has been recorded through the specialist assessments undertaken, the findings and recommendations of the above-mentioned report remain relevant to the EIA and have not been adjusted.</li> </ul>
<p>3T Business Fusion</p> <p>Tourism Impact Research</p>	<ul style="list-style-type: none"> <li>▪ The previous findings from the Tourism Impact Research Port of Ngqura date 08 November 2022 still stand;</li> <li>▪ The change of location will not have any significant impact on Tourism</li> </ul>
<p>Environmental Planning and Design</p> <p>Landscape and Visual Impact Assessment</p>	<ul style="list-style-type: none"> <li>▪ Even with the loss of partial screening provided by landform that was associated with the original alternative, the significance of visual impacts associated with the new preferred locations is still considered to be low.</li> <li>▪ The original assessment classified the impact on the Addo Elephant Park as improbable with a low significance.</li> <li>▪ Due largely to distance and port activities, it is unlikely that the ships will be visually obvious;</li> <li>▪ Therefore, this assessed level of impact will also not change with the proposed amended location.</li> </ul>

<p>Major Hazard Risk Consultants</p> <p>Major Hazard Risk Installation Assessment</p>	<ul style="list-style-type: none"> <li>▪ the results for both the 'Risks' and the 'Consequences' will move in direct relation to the change of position of the Power Ship, FSRU and LNGC in the Port;</li> <li>▪ the changes would not influence the population, weather or any other data used in the calculations;</li> <li>▪ The risks will not impact on Jahleel Island and although the consequences show that the flammable cloud could reach the island the chances of it happening is less than one in thirty million.</li> </ul>
---------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**5.1.1 Polycentric Approach**

The Sustainability Specialist *“carefully considered and integrated the key findings of specialist reports, across the full duration of the EIA consultative, assessment and reporting phases of the project. It provides a wholistic perspective of the proposed projects anticipated impacts across a broad spectrum of sustainability variables, with a specific focus on supporting a polycentric analysis of cumulative change.*

*Considering that no new negative impacts are anticipated by the specialist team, and no increased significance of the anticipated findings has been reported across the spectrum of specialist assessments undertaken, the findings and recommendations of the Sustainability Report remain relevant to the EIA and have not been adjusted.”*

**6 CONCLUDING STATEMENT AND RECOMMENDATIONS**

Due to TNPA’s requirements for accelerated long term port planning, the initial feasible and preferred alternative 1 was no longer supported from TNPA and the feasible alternative 2, with minor changes as per the project description, is now the feasible and preferred alternative.

The Project description remained unchanged: apart from the following small changes to ensure TNPA requirements were met:

- Slight adjustments were made to the FSRU and Powership mooring positions to allow for navigational requirements. Most of the adjustment remained within the initial assessed FSRU polygon;
- 132KV powerline increased in length from 7,4 km to 8,25 km due to the repositioning of towers from the Powership to the switching station, to ensure the powerline did not traverse over the admin craft basin (ACB).
- The spread mooring was changed to a combined system of spread and dolphin mooring to ensure unobstructed navigation within the port and the gas pipeline will be established on the seabed between the FSRU and Powerships to avoid the breakwater as per TNPA environmental approvals.

To ensure avoidance in terms of the mitigation hierarchy all relevant studies and engineering interventions were reassessed to ensure engineering challenges were addressed and TNPA navigational risks were mitigated through appropriate positioning of the marine and transmission components.



The required additional studies, guided by TNPA's requirements, the Engineering (Technical) aspects as discussed, as well as the Specialists requirements to provide assurance of findings and recommendations, were conducted and provided as per descriptions and attached Specialist statements. As per the Specialist evaluations and statements following a polycentric approach, there were no changes to the impacts and risks or significance ratings.

It is the reasoned opinion of the EAP that the alternative 2 with the small changes proposed as per the report, read together with the EMPr and GEMPRs is acceptable, will not create unacceptable environmental impacts and can be reasonably authorised subject to the implementation of the mitigations and management measures.

## 7 REFERENCES

Anchor Environmental 2023. Marine Ecology & Fisheries Specialist Impact Statement – Powership Relocation. September 2023.

Ann de Wet. L. 2023. New Transmission Line Layout – Port of Ngqura – KPS. Eastern Cape. 18 September 2023.

Breetzke. T and Meyer. C. 2023. Karpowership Project: Port of Ngqura - New Location of Powerships and Transmission Line Route. 21 September 2023.

GCS, 2023. New Transmission Line Layout- Port of Ngqura-KPS. Report No. 22-0886. Version: Final 1. 21 September 2023.

Hoosen, S. M. 2023. Proposed new ship position and evacuation of the transmission line route from ship to switching station – Port of Ngqura – KPS. Eastern Cape. 18 September 2023.

Kaplan J 2023 Proposed Karpowership At The Port Of Ngqura: Proposed New Transmission Line Layout 23 September 2023

Marshall. J. 2023. Port of Ngqura. Proposed Amendment to the proposed locations of the Powership and FSRU- Landscape and Visual Implications. 20 September 2023

Martin. A, P. 2023. Gas to Power Karpowership Project, Port of Ngqura. Proposed Alternative Marine Component. Terrestrial Avifauna. Gqeberha. 18 September 2023.

Mason, T. 2023. Underwater noise assessment – Port of Ngqura, Coega – Powership relocation. Report No. P292R1201. 18 September 2023.

Smith A 2023 Port of Ngqura, Proposed Amendment To The Proposed Locations Of The Powership And FsrU – Palaeontological Implications

Steenkamp. M 2023 Socio-economic impact assessment statement regarding the repositioning of the proposed development to Alternative 2 for the project titled: The Proposed Gas to Power Powership Project at the Port of Ngqura within the Coega SEZ, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape (DEA/EIA14/12/16/3/3/2005) 24 September 2023

Steenkamp T 2023 Sustainability Specialist Statement regarding the repositioning of the proposed development to Alternative 2 for the project titled: The Proposed Gas to Power Powership Project at the Port of Ngqura within the Coega SEZ, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape (DEA/EIA14/12/16/3/3/2005) 22 September 2023

Thackwray. C. 2023. Addendum No.001 of report Pon22003 for the Port of Ngqura: Results for alternative Powership Positions. 20 September 2023.

Tlhobolo. K. 2023. New Preferred Alternative Site Tourism Impact – Port of Ngqura. 22 September 2023.

Williams. B. 2023. Re-Modelling of noise impact assessment-Coega Karpower Gas to Power Project. Report No. 7665. Version: 5. 19 September 2023.

Weiss. J. 2023. Specialist Climate Change Impact Assessment for the Karpowership Gas to Power Project: Update statement to Specialist 'Current' Assessment based on New Preferred Alternative for Port of Ngqura. 18 September 2023.

uMoya-NILU (2023): Karpowership Project in Port of Ngqura: Air Quality Comment on the New Preferred Alternative Mooring. 23 September 2023

Vanessa. M. 2023. New Powership and pipeline layout for Proposed Gas to Power via Powership Project, Port of Ngqura. 20 September 2023.