Western Cape Government
Environmental Affairs and Development Planning

Directorate: Development Management
(Region 1)

EIA REFERENCE NUMBER: 16/3/3/2/F4/17/3032/18
NEAS REFERENCE: WCP/EIA/0000461/2018
ENQUIRIES: Ms. M. Schippers
DATE OF ISSUE: 2019 -03- 05

The Director
Oiltanking MOGS Saldanha (RF) (Pty) Ltd.
P. O. Box 55092
Northlands
JOHANNESBURG
2116

Attention: Mr. R. Fraser

Tel: (011) 530 8062
Fax: (011) 530 8069

Dear Sir

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED): THE PROPOSED INSTALLATION OF TWO PIPELINES FOR THE TRANSPORTATION OF DANGEROUS GOODS, THE EXPANSION OF A JETTY AND ASSOCIATED INFRASTRUCTURE, SALDANHA BAY.

1. With reference to the above application, the Department hereby notifies you of its decision to **grant** Environmental Authorisation, attached herewith, together with the reasons for the decision.

2. In terms of Regulation 4 of the Environmental Impact Assessment Regulations, 2014 (as amended), you are instructed to ensure, within 14 days of the date of the decision on the application, that all registered interested and affected parties ("I&APs") are provided with access to the decision and reasons for the decision, and that all registered I&APs are notified of their right to appeal.

3. Your attention is drawn to Chapter 2 of the Appeal Regulations, 2014, which prescribes the appeal procedure to be followed. This procedure is summarised in the attached Environmental Authorisation.

Yours faithfully

ZAAHIR TOEFY
DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)
DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

Copies to: (1) Ms. L. Hattingh (Advisian) Email: Liezel.Hattingh@advisian.com
(2) Ms. N. Duarte (Saldanha Bay Municipality) Fax: (022) 715 1518

Western Cape Government
Environmental Affairs and Development Planning

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ENVIRONMENTAL AUTHORISATION

ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) FOR THE PROPOSED INSTALLATION OF TWO PIPELINES FOR THE TRANSPORTATION OF DANGEROUS GOODS, THE EXPANSION OF A JETTY AND ASSOCIATED INFRASTRUCTURE, SALDANHA BAY.

With reference to your application for the abovementioned, find below the outcome with respect to this application.

DECISION

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 as amended on 07 April 2017 ("NEMA EIA Regulations, 2014") the competent authority herewith **grants environmental authorisation** to the applicant to undertake the listed activities specified in section B below with respect to the preferred alternative described in the Final Environmental Impact Assessment Report ("EIAR") dated November 2018.

The granting of this environmental authorisation is subject to compliance with the conditions set out in section E below.

A. DETAILS OF THE APPLICANT FOR THIS ENVIRONMENTAL AUTHORISATION

Oiltanking MOGS Saldanha (RF) (Pty) Ltd.
c/o Mr. R. Fraser
P. O. Box 55092
Northlands
JOHANNESBURG
2116

Tel: (011) 530 8062
Fax: (011) 530 8069

The abovementioned company is the holder of this environmental authorisation and is hereinafter referred to as "the applicant".

B. LISTED ACTIVITIES AUTHORISED

The listed activities in terms of the NEMA EIA Regulations as amended on 07 April 2017.

Listed activities	Activity/Project description
Activity Number: 19A Activity Description: *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.*	The proposed development will entail the moving of sand, soil rock for the installation of the pipeline to be located along the seabed.
Activity Number: 34 Activity Description: *The expansion of existing facilities or infrastructure for any process or activity where such expansion will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution, excluding—* *(i) where the facility, infrastructure, process or activity is 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:*	A second vapour stack will be installed at the crude oil terminal which will require an amendment to the existing Air Emission License.

Waste Act, 2008 applies; *(ii) the expansion of existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or* *(iii) the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day.* Activity Number: 54 Activity Description: *The expansion of facilities—* *(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 where the development footprint is expanded by 50 square metres or more,* *but excluding—* *(aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; or* *(bb) where such expansion occurs within an urban area.* Activity Number: 65 Activity Description: *The expansion and related operation of* *(i) an anchored platform; or* *(ii) any other structure or infrastructure;* *on or along the sea bed, where the expansion will constitute an increased development footprint, excluding expansion of facilities, infrastructure or structures for aquaculture purposes.*	The proposed development will include the development of a jetty deck. The proposed development will entail the installation of concrete encased pipelines along the anti-scour rock layer located on the sea bed.

Listing Notice 2 of the NEMA EIA Regulations, 2014 (as amended): Activity Number: 7 Activity Description: *The development and related operation of facilities or infrastructure for the bulk transportation of dangerous goods—* *(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;* *(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* *(iii) in solid form, outside an industrial complex, using funiculars or conveyors with a throughput capacity of more than 50 tons per day.*	Pipelines for the transportation of dangerous goods will be developed.

The abovementioned is hereinafter referred to as "the listed activities".

The applicant is herein authorised to undertake the following alternative related to the listed activities:

The proposed development will entail the development of infrastructure on various farms in Saldanha Bay and in the Port of Saldanha Bay to optimise the efficiency and throughput capacity of the existing crude oil tank farm.

The proposed development will include the following:

- Two pipelines for the transportation of dangerous goods with a length of approximately 11km and a diameter of 1067mm and 508mm, respectively, that will follow the route (red line) as indicated in the locality map included in the EIAR (herewith attached as Appendix A). Approximately 760m of the pipelines will be developed along the jetty (Langebaan side) on the anti-scour rock layer above the seabed and will be encased in concrete;

- A jetty deck of approximately 450m² and loading arms to be located on existing infrastructure within the Port;

- A 11kv powerline of approximately 3.340km that will follow the route (purple line) as indicated in the EIAR (herewith attached as Appendix A); and

- A second vapour flare stack at the existing crude oil tank farm. The additional vapour flare stack requires an amendment of the existing Air Emissions License.

C. PROPERTY DESCRIPTION AND LOCATION

The proposed pipelines will run from the existing tank farm to the Port of Saldanha. The powerline will run from the existing tank farm to an existing substation, Saldanha Bay.

Co-ordinates for the vapour flare stack

33°	0'	43.062"	South
18°	3'	24.705"	East

Co-ordinates of the pipeline route:

Starting point

33°	0'	43.062"	South
18°	3'	24.705"	East

Middle point

33°	0'	4.206"	South
18°	1'	41.250"	East

End point

33°	2'	3.253"	South
17°	58'	59.200"	East

Co-ordinates of the powerline route:

Starting point

32°	58'	53.263"	South
18°	2'	58.258"	East

Middle point

32°	59'	49.276"	South
18°	2'	58.787"	East

End point

33°	0'	20.410"	South
18°	3'	23.812"	East

Refer to Annexure 1: Locality Map

hereinafter referred to as "the route".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Advisian
c/o Ms. L. Hattingh
31 Allen Drive
Lovenstein
BELLVILLE
7530

Tel: (010) 593 3937
Email: Liezel.Hattingh@advisian.com

E. CONDITIONS OF AUTHORISATION

Scope of Authorisation

1. The holder is authorised to undertake the listed activities specified in Section B above in accordance with and restricted to the preferred Alternative described in the EIAR dated November 2018 along the route as described in Section C above.

2. The holder must commence with the listed activities within the stipulated validity period which this Environmental Authorisation is granted for, or this Environmental Authorisation shall lapse and a new application for Environmental Authorisation must be submitted to the competent authority.

3. This Environmental Authorisation is granted for a period of five (5) years, from the date of issue, during which period the holder must commence with the authorised listed activities.

4. The holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.

5. Any changes to, or deviations from the scope of the preferred alternative described in section B above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may request information in order to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.

Written notice to the Competent Authority

6. A minimum of seven calendar days notice, in writing, must be given to the competent authority before commencement of the development phase.

    6.1. The notice must make clear reference to the route details and EIA Reference number given above.

    6.2. The notice must also include proof of compliance with the following conditions described herein:

    Conditions: 7, 13 and 17.

Notification and administration of appeal

7. The applicant must in writing, within 14 (fourteen) calendar days of the date of this decision and in accordance with Regulation 4 (2) –

    7.1. Notify all registered interested and affected parties of –

        7.1.1. the outcome of the application;
        7.1.2. the reasons for the decision as included in Annexure 3;
        7.1.3. the date of the decision; and
        7.1.4. the date of issue of the decision;

    7.2. Draw the attention of all registered interested and affected parties to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 detailed in section F below;

    7.3. Draw the attention of all registered interested and affected parties to the manner in which they may access the decision;

    7.4 Provide the registered Interested and Affected Parties with-

        7.4.1. the name of the holder (entity) of this environmental authorisation;
        7.4.2. the name of the responsible person for this environmental authorisation;
        7.4.3. the postal address of the holder;
        7.4.4. the telephonic and fax details of the holder;
        7.4.5. the e-mail address if any; and
        7.4.6. the contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&APs in the event that an appeal is lodged in terms of the 2014 National Appeals Regulations.

Commencement

8. The listed activities, including site preparation, must not be commenced with within twenty (20) calendar days from the date the applicant notified the registered I&APs of this decision.

9. In the event that an appeal is lodged with the Appeal Authority, the effect of this Environmental Authorisation is suspended until the appeal is decided.

Management of activity

10. The draft Environmental Management Programme ("EMPr") submitted as part of the application for environmental authorisation is hereby approved and must be implemented.

11. An application for amendment to the EMPr must be submitted to the competent authority if any amendments are to be made to the EMPr other than those required by this environmental authorisation, and this may only be implemented once the amended EMPr has been authorised by the competent authority.

12. The EMPr must be included in all contract documentation for all phases of implementation.

Monitoring

13. The holder must appoint a suitably experienced Environmental Control Officer ("ECO"), or site agent where appropriate to ensure compliance with the EMPr and the conditions contained herein.

14. A copy of the environmental authorisation and the EMPr, audit reports and compliance monitoring reports must be kept at the site office and must be made available to anyone on request.

15. Access to the route referred to in section C above must be granted and, the environmental authorisation and EMPr must be produced to any authorised official representing the competent authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. The environmental authorisation and EMPr must also be made available for inspection by any employee or agent of the applicant who works or undertakes work along the route.

Auditing

16. In terms of Regulation 34 of the NEMA EIA Regulations, 2014, the holder must conduct environmental audits to determine compliance with the conditions of the environmental authorisation and the EMPr and submit Environmental Audit Reports to the Competent Authority.

    16.1. The audit reports must be prepared by an independent person and must contain all the information required in Appendix 7 of the NEMA EIA Regulations, 2014 (as amended);

    16.2. A first audit report must be submitted to the Competent Authority within three (3) months of commencement of the proposed development;

    16.3. A final audit report must be submitted to the competent authority within 6 months of operation;

    16.4. The audit reports must indicate compliance status with the conditions of this environmental authorisation, and the EMPr and make recommendations for improved environmental management;

    16.5. The holder must, within 7 days of the submission of an audit report to the Competent Authority, notify potential and registered I&APs of the submission and make the report available to anyone on request; and

    16.6. If the audit reports are not submitted, the competent authority may give 30 days written notice and may have such an audit undertaken at the expense of the applicant and may authorise any person to take such measures necessary for this purpose.

Specific conditions

17. Development areas and access routes must be clearly demarcated before development commences and any areas outside the development areas must be demarcated as 'no-go' areas.

18. The following must be implemented with respect to the protection of heritage resources:

    18.1. Should any heritage remains be exposed during excavations or any actions along the route, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from

Heritage Western Cape. Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings and graves or unmarked human burials.

18.2. The recommendations as outlined in the Heritage Impact Assessment Report (dated 14 November 2017 and compiled by Asha Consulting (Pty) Ltd.) (herewith attached as Appendix B) must be implemented.

19. The mitigation measures as contained in Section 8 in the Botanical Impact Assessment Report (dated 03 November 2017 and compiled by Nick Helme Botanical Surveys) (herewith attached as Appendix C) must be implemented.

20. The mitigation measures as contained in the Marine Impact Assessment Report (dated August 2017 and compiled by Anchor Environmental) (herewith attached as Appendix D) must be implemented.

21. The mitigation measures as contained in the Air Quality Impact Assessment Report (dated 14 June 2018 and compiled by uMoyo-NILU Consulting (Pty) Ltd.) (herewith attached as Appendix E) must be implemented.

22. An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be employed. Any solid waste must be disposed of at a landfill licensed in terms of the applicable legislation.

23. All noise and sounds generated during the proposed development must comply with the relevant SANS codes and standards and the relevant noise regulations.

F. GENERAL MATTERS

1. The holder is responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.

2. Any changes to, or deviations from the scope of the description set out in section B above must be accepted or approved, in writing, by the competent authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the competent authority may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.

3. The applicant must notify the competent authority in writing, within 24 hours thereof if any condition herein stipulated is not being complied with.

4. The applicant must submit an application for amendment in terms of Chapter 5 of the NEMA EIA Regulations, 2014 (as amended) of the environmental authorisation to the competent authority where any detail or scope with respect to the environmental authorisation must be amended, added, substituted, corrected, removed or updated.

5. Please note that an amendment is not required if there is a change in the contact details of the holder. In this case, the competent authority must only be notified of such changes.

6. Non-compliance with a condition of this environmental authorisation or EMPr may result in suspension of this environmental authorisation and may render the holder liable for criminal prosecution.

G. APPEALS

Appeals must comply with the provisions contained in the National Appeal Regulations 2014.

1. An appellant (if the holder) must –

    1.1. Submit an appeal in accordance with Regulation 4 to the Appeal Administrator and a copy of the appeal to any registered I&APs, any Organ of State with interest in the matter and the decision maker within 20 (twenty) calendar days from the date the holder was notified by the Competent Authority of this decision.

2. An appellant (if NOT the holder) must –

    2.1. Submit an appeal in accordance with Regulation 4 to the Appeal Administrator, and a copy of the appeal to the holder, any registered I&AP, any Organ of State with interest in the matter and the decision maker within 20 (twenty) calendar days from the date the holder notified the registered I&APs of the decision.

3. The holder (if not the appellant), the decision-maker, I&AP and Organ of State must submit their responding statements, if any, to the appeal authority and the appellant within 20 (twenty) calendar days from the date of receipt of the appeal submission.

4. This appeal and responding statement must be submitted to the address listed below:

    By post: Western Cape Ministry of Local Government, Environmental Affairs and Development Planning
    Private Bag X9186
    CAPE TOWN
    8000

    By facsimile: (021) 483 4174; or

    By hand: Attention: Mr Jaap de Villiers (Tel: 021 483 3721)
    Room 809, 8th Floor Utilitas Building, 1 Dorp Street, Cape Town, 8001

    Note: You are also requested to submit an electronic copy (Microsoft Word format) of the appeal and any supporting documents to the Appeal Administrator to the address listed above and/ or via e-mail to Jaap.DeVilliers@westerncape.gov.za.

5. A prescribed appeal form as well as assistance regarding the appeal processes is obtainable from the office of the Minister at: Tel. (021) 483 3721, E-mail Jaap.DeVilliers@westerncape.gov.za or URL http://www.westerncape.gov.za/eadp.

H. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where development or operation subsequent to development is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully

MR. ZAAHIR TOEFY
DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)

DATE OF DECISION: 05/03/2019

Copies to: (1) Ms. L. Hattingh (Advisian)
(2) Ms. N. Duarte (Saldanha Bay Municipality)

Email: Liezel.Hattingh@advisian.co.za
Fax: (022) 715 1518

FOR OFFICIAL USE ONLY:
EIA REFERENCE NUMBER: 16/3/3/2/F4/17/3032/18
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ANNEXURE 1: LOCALITY MAP

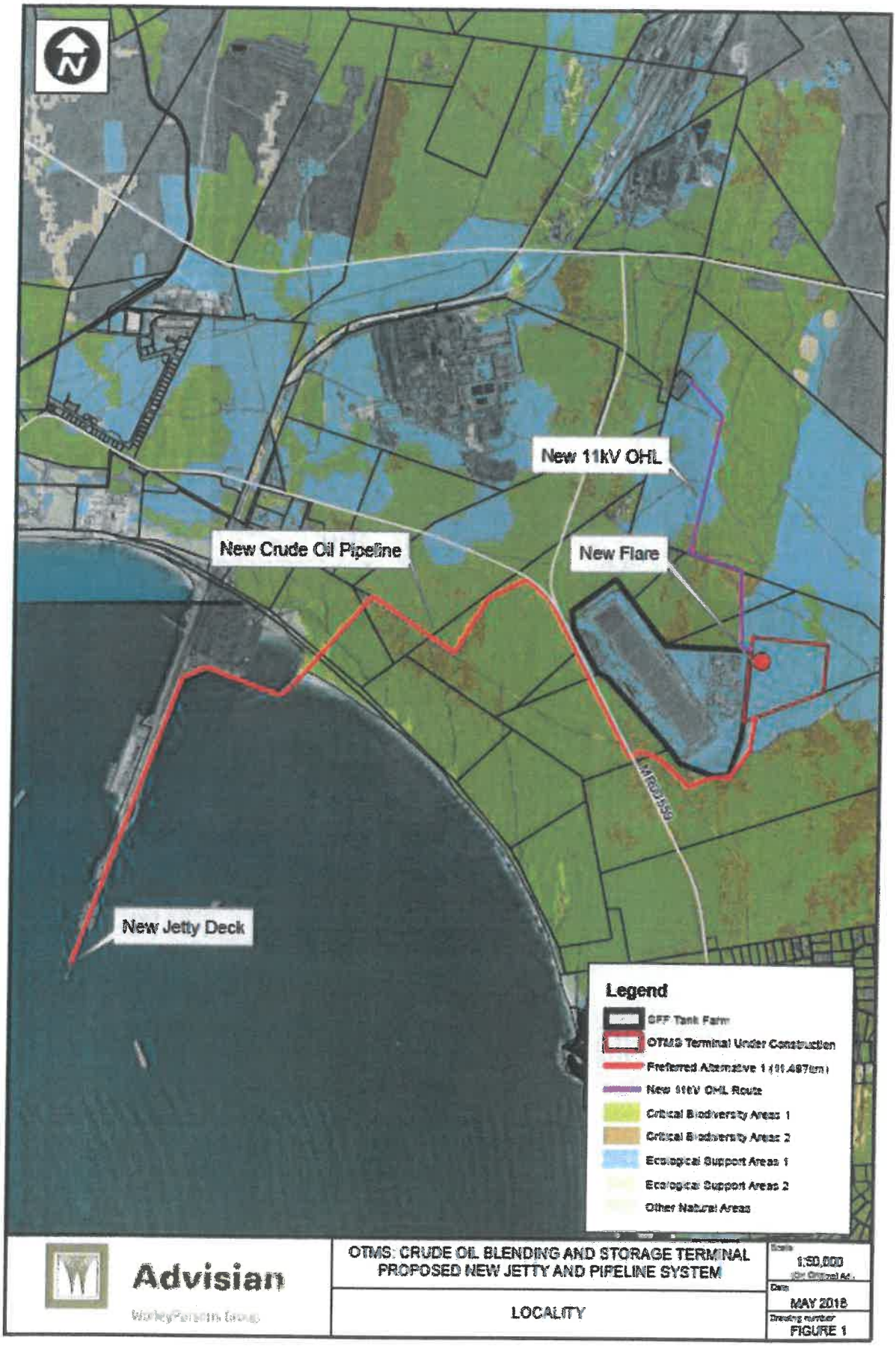


Figure 1: Project locality map (with proposed infrastructure)

ANNEXURE 2: REASONS FOR THE DECISION

In reaching its decision, the competent authority, *inter alia,* considered the following:

a) The listed activities applicable in terms of the NEMA EIA Regulations as amended on 07 April 2017.

b) The information contained in the application form dated 18 August 2018 and received by the competent authority on 21 August 2018, the EIAR received by the competent authority on 06 November 2018 and the EMPr submitted together with the EIAR and the additional information received by this Directorate on 26 February 2019. A previous application lapsed (16/3/3/2/F4/17/3001/18) and the applicant was not required to submit a scoping report since the findings of the previously accepted Scoping Report were still valid and the environmental context has not changed;

c) The assessment of the activities in the EIAR received by the competent authority on 06 November 2018;

d) Relevant information contained in the Departmental information base, including, the Guidelines on Public Participation, Alternatives and Exemptions (dated March 2013);

e) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998);

f) The comments received from interested and affected parties and the responses provided thereon, as included in the EIAR received by the Department on 06 November 2018; and

g) No visits were conducted where the proposed development will be located. The competent authority had sufficient information before it to make an informed decision.

All information presented to the competent authority was taken into account in the consideration of the application for environmental authorisation. A summary of the issues which, according to the competent authority, were the most significant reasons for the decision, is set out below.

1. Public Participation

The public participation process ("PPP") included, *inter alia*, the following:

- identification of and engagement with interested and affected parties;
- fixing a notice board along the route where the listed activities are to be undertaken;
- giving written notice to the owners of the land and owners and occupiers of land adjacent to the route where the listed activities are to be undertaken, the municipality and ward councillor, and the various organs of state having jurisdiction in respect of any aspect of the listed activities; and
- the placing of a newspaper advertisement in the *'Cape Times'* on 11 January 2018 and the *'Weslander'* on 11 January 2018.

The Department is satisfied that the PPP that was followed met the minimum legal requirements and all the comments raised and responses thereto were included in the comments and response report.

Specific management and mitigation measures have been considered in this environmental authorisation and in the EMPr to adequately address significant concerns raised.

2. Alternatives

Preferred Alternative (herewith authorised)

The proposed development will entail the development of infrastructure on various farms in Saldanha Bay and in the Port of Saldanha Bay to optimise the efficiency and throughput capacity of the existing crude oil tank farm.

The proposed development will include the following:

- Two pipelines for the transportation of dangerous goods with a length of approximately 11km and a diameter of 1067mm and 508mm, respectively, that will follow the route (red line) as indicated in the locality map included in the EIAR (herewith attached as Appendix A). Approximately 760m of the pipelines will be developed along the jetty (Langebaan side) on the anti-scour rock layer above the seabed and will be encased in concrete;

- A jetty deck of approximately 450m² and loading arms to be located on existing infrastructure within the Port;

- A 11kv powerline of approximately 3.340km that will follow the route (purple line) in the EIAR (herewith attached as Appendix A); and

- A second vapour flare stack at the existing crude oil tank farm. The additional vapour flare stack requires an amendment of the existing Air Emissions License.

"No-Go" Alternative

The "no-go" alternative will result in the status quo being maintained. The preferred alternative will not result in unacceptable environmental impacts, therefore the "no-go" alternative was not warranted.

3. Impacts, assessment and mitigation measures

3.1. Activity Need and Desirability

The proposed development is required to optimise the efficiency and throughput capacity of the existing crude oil tank farm. Transporting crude oil via road will generate too many truck trips and will have a major impact on traffic in the area, therefore, the pipelines are required. The infrastructure that will be located within the port will facilitate the delivery of crude oil to the existing tank farm.

3.2. Biophysical Environment

According to the Botanical Impact Assessment Report (dated 03 November 2017 and compiled by Nick Helme Botanical Surveys), the three vegetation types occurring in the study area are Saldanha Limestone Strandveld, Langebaan Dune Strandveld and Cape Seashore vegetation. The vegetation is not classified as a critically endangered or endangered ecosystem in terms of the National Environmental Management: Biodiversity Act of 2004 ("NEM:BA"), List of Threatened Ecosystems in Need of Protection, December 2011. The specialist report further indicates that although most of the area is mapped as a Critical Biodiversity Area, the preferred pipeline route avoids majority of the areas identified as being of high botanical sensitivity. Where the pipeline route crosses high sensitivity areas, these are in existing disturbed pipeline servitudes.

According to the Marine Impact Assessment Report (dated August 2017 and compiled by Anchor Environmental), various impacts associated with the proposed development were assessed. These impacts included, loss of habitat, water quality, increased noise and vibration, waste disposal, spillage of hazardous substances, disturbance of biota, increased vessel traffic and importation of alien species. No impacts where assessed as being of high negative significance and therefore the specialist recommended that the proposed development proceed with the implementation of strict environmentally responsible practices as outlined in the mitigation measures in the specialist report.

3.3. Heritage/Archaeological Impacts

According to the Heritage Impact Assessment Report (dated 14 November 2017 and compiled by Asha Consulting (Pty) Ltd.), no significant palaeontological resources were located during the field assessment but the desktop study reveals that the Langebaan Formation (which will be impacted by the proposed development) frequently contains fossils. No Stone Age archaeological resources were located and none are expected to be found subsurface. Historical resources do occur, although they are far from the proposed pipeline route and will not be impacted on in any way. The cultural landscape is regarded as constantly deteriorating as a result of the industrial development in the area. In light of the fact that the proposed pipelines would be subsurface, no significant impacts to the landscape are expected.

Heritage Western Cape in comment dated 12 December 2017 indicated that they support the proposed development should the recommendations as included in the Heritage Impact Assessment Report (dated 12 December 2017 and compiled by Asha Consulting (Pty) Ltd.) be implemented. With the implementation of the conditions of the EA and the EMPr, potential impacts on heritage resources will be managed to acceptable levels.

3.4. Air Emissions

According to the Air Quality Impact Assessment Report (dated 14 June and compiled by uMoya-NILU Consulting (Pty) Ltd.), dust generated during development is expected to be limited to the site and It is unlikely that dust generated during development will increase the dust fallout levels. The specialist further indicated that the main source of emissions from the proposed crude oil tank farm is the vapour destruction flares and emissions generated at the jetty as a result of crude oil being loaded.

Based on the finding of the specialist, the ambient NO_2, CO and VOC concentrations resulting from the flare emissions are predicted to be significantly below the respective National Ambient Air Quality Standards ("NAAQS") and no exceedances are predicted. The significance of the impact on ambient air quality and human health is considered low. In addition, the ambient VOC concentrations resulting from the jetty when loading crude oil are predicted to be significantly below the respective NAAQS and no exceedances are predicted. The impacts on ambient air quality and human health is therefore considered to be of low negative significance.

3.5. Noise Impacts

All noise and sounds generated during the development phase of the proposed development will comply with the relevant SANS codes and standards. Furthermore, noise impacts will be mitigated by the implementation of the conditions in this environmental authorisation and the EMPr.

3.6. Impact Assessment and significance rating

Impact Assessment and significance rating

3.6.1. The impacts on vegetation associated with the proposed development have been identified in the EIAR as being of low negative significance after mitigation. The impacts will be minimised by the implementation of the conditions of the environmental authorisation and the EMPr.

3.6.2. Potential pollution and disturbance of the marine environment as a result of the development and operational phase has been identified in the EIAR as being of low to medium negative significance after mitigation. Potential impacts will be minimised by the implementation of the conditions of this environmental authorisation and the EMPr.

3.6.3. The potential impacts on palaeontology during the development phase have been identified in the EIAR as being of low to medium negative significance after mitigation.

The potential impacts on archaeology during the development phase have been identified in the EIAR as being of low negative significance after mitigation. Potential impacts will be minimised by the implementation of the conditions of this environmental authorisation and the EMPr.

3.6.4. Potential air quality impacts associated with the development and operational phase have been identified in the EIAR as being of low negative significance after mitigation. Potential air quality impacts will be minimised by the implementation of the EMPr and conditions of this environmental authorisation.

National Environmental Management Act Principles

The National Environmental Management Act Principles (set out in section 2 of the NEMA, which apply to the actions of all organs of state, serve as guidelines by reference to which any organ of state must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between organs of state through conflict resolution procedures; and
- the selection of the best practicable environmental option.

The development will result in both negative and positive impacts.

Negative Impacts Include:

- Impacts on vegetation;
- Potential pollution of the marine environment;
- Impacts on heritage resources; and
- Dust and noise impacts during the development phase.

Positive impacts Include:

- The proposed development will create some temporary employment opportunities;
- The proposed development will optimise the efficiency and throughput capacity of the existing crude oil tank farm; and
- Economic benefits.

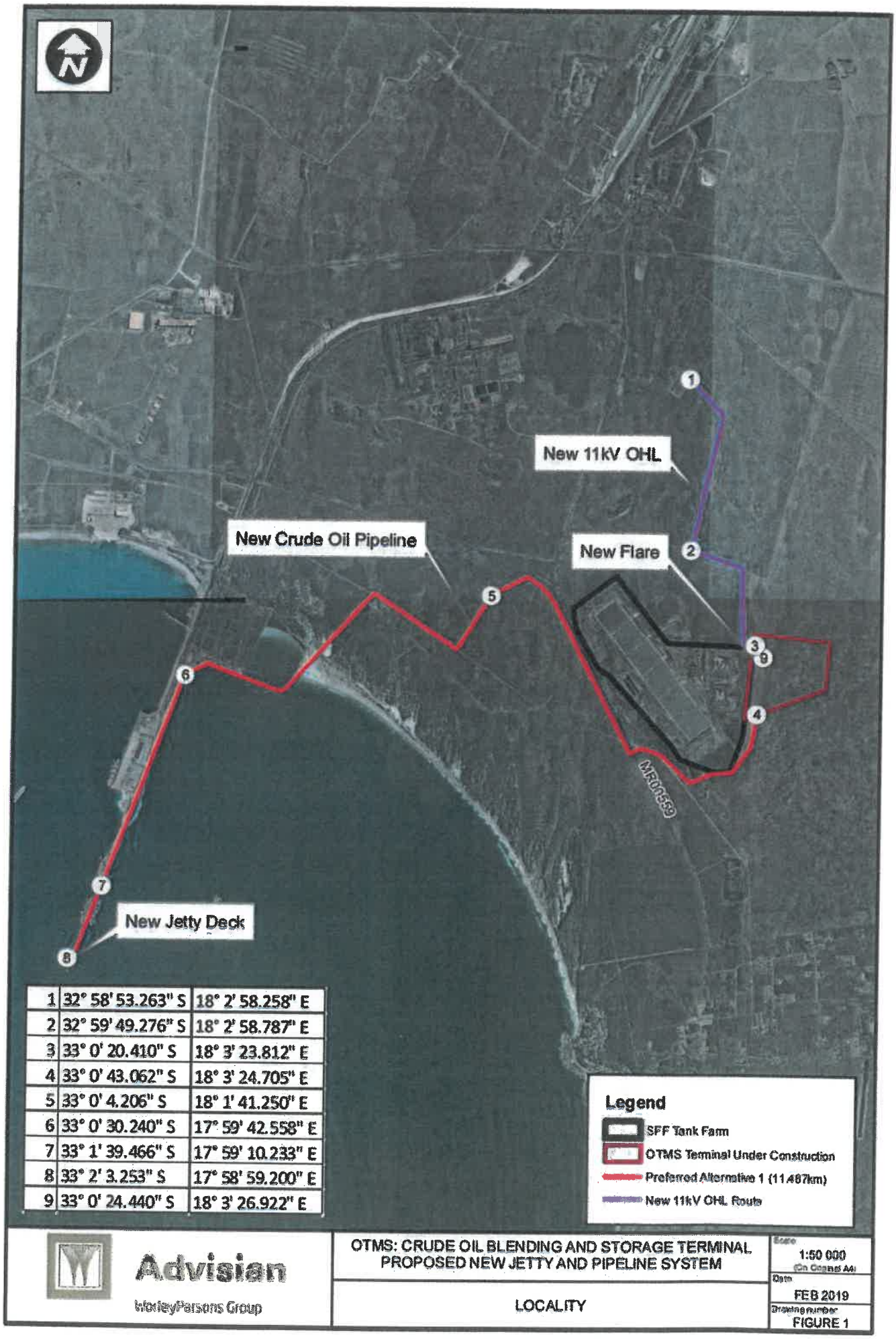
In view of the above, the NEMA principles, compliance with the conditions stipulated in this environmental authorisation, and compliance with the EMPr, the competent authority is satisfied that the proposed listed activities will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels.

You are reminded of the general duty of care towards the environment in terms of Section 28(1) of the NEMA which states: *"Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."*

-END

APPENDIX A

PIPELINE AND OVER HEAD POWERLINE ROUTE PREFERRED ROUTE



1	32° 58' 53.263" S	18° 2' 58.258" E
2	32° 59' 49.276" S	18° 2' 58.787" E
3	33° 0' 20.410" S	18° 3' 23.812" E
4	33° 0' 43.062" S	18° 3' 24.705" E
5	33° 0' 4.206" S	18° 1' 41.250" E
6	33° 0' 30.240" S	17° 59' 42.558" E
7	33° 1' 39.466" S	17° 59' 10.233" E
8	33° 2' 3.253" S	17° 58' 59.200" E
9	33° 0' 24.440" S	18° 3' 26.922" E

Advisian
WorleyParsons Group

OTMS: CRUDE OIL BLENDING AND STORAGE TERMINAL
PROPOSED NEW JETTY AND PIPELINE SYSTEM

LOCALITY

Scale: 1:50 000 (On Original A4)
Date: FEB 2019
Drawing number: FIGURE 1

APPENDIX B

RECOMMENDATIONS AS CONTAINED IN THE HERITAGE IMPACT ASSESSMENT REPORT

6. Anticipated Impacts on Heritage Resources

While the vast majority are isolated fossil finds are of low significance, the possibility does exist that excavation of trenches may reveal dense pockets of fossil bones. No other significant impacts are expected to occur.

7. Recommendations

Because of the limited negative impacts to heritage resources that might occur, it is recommended that the proposed pipeline project should be authorised, but subject to the following conditions which must be incorporated into the Environmental Authorisation:

- A brief training workshop must be held at the start of construction in order to brief all ground staff on the possibility of uncovering fossils and enable easier recognition of such material in the ground. This must be repeated in the event that new staff are brought in;
- The pipeline trench must be examined by a palaeontologist in order to locate, record and collect exposed fossils as required and to record geological information. The timing and duration of monitoring must be ascertained prior to the start of construction in order to maximise the potential information gained during each visit (the vicinity of the SFF Terminal is noted as being especially sensitive in this regard). The monitoring must be conducted under a Workplan approved by HWC so that any fossils found can be immediately rescued;
- The ECO must be aware of the possibility of finding fossils at any time during the excavation of the pipeline trenches and must report anything that is discovered. The material must, if possible, be left in place until such time as it has been inspected by a palaeontologist;
- The historical *kraal* and any loose building stones surrounding it and the cottage must be declared no-go areas and protected from harm throughout the construction and operation of the pipeline; and
- If any archaeological material, palaeontological material or human burials are uncovered during the course of development then work in the immediate area must be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist or palaeontologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

8. Author/s and Date

Heritage Impact Assessment: Jayson Orton, ASHA Consulting (Pty) Ltd, 14 November 2017
Archaeological specialist study (incorporated into HIA): Jayson Orton, ASHA Consulting (Pty) Ltd, 17 October 2017
Palaeontological specialist study: Graham Avery Archaeozoology, Stone Age Archaeology and Quaternary Palaeontology, October 2017

APPENDIX C

MITIGATION MEASURES AS CONTAINED IN THE BOTANICAL IMPACT ASSESSMENT REPORT

management in the pipeline servitude. After mitigation this could be reduced to a Low negative level.

8. REQUIRED MITIGATION AND EMP REQUIREMENTS

The following mitigation is considered reasonable, feasible and essential, and is factored into the assessment:

- The pipeline construction corridor in the area within and between the High, Medium and Medium – High sensitivity areas (as per Figure 4) should be minimised and kept as narrow as possible, and must be less than 15m wide in this area. The approved development footprint in this area must be surveyed and clearly demarcated with wire or coloured rope, and strung with warning signs, prior to any construction.
- The ECO must ensure that no disturbance occurs outside the approved development footprint of the pipeline route during construction.
- Topsoil removed from the pipeline trench must be kept separate from other fill during the construction process, and must be replaced last, on the soil surface.
- Alien invasive annual species (such as ryegrass or oats), or straw containing any such species, should not be used for temporary soil stabilisation of the pipeline corridor, as these will then rapidly dominate these areas, to the exclusion of indigenous species.
- Plant Search and Rescue must be undertaken from the entire pipeline development corridor, with the exception of Low sensitivity areas (as per Figure 4), prior to any development. All translocatable plant species, but notably the succulents and geophytes, must be bagged up and stored in a nursery for later use, once construction of the pipeline has been completed and rehabilitation is required in this area south of the road. Replanting of these rescued specimens should be undertaken in the first autumn – winter (May – June) after construction has been completed, giving the plants maximum time to establish before the next summer dry period.
- Additional rehabilitation of the High and Medium – High sensitivity sections of the pipeline servitude (as per Figure 4) should be undertaken using locally indigenous Strandveld species that are additional to those used in the Search and Rescue process. This work should be undertaken by an experienced horticultural contractor who has access to suitable locally grown species. Key elements suggested include shrubs such as *Othonna cylindrica, Limonium peregrinum, Calobota sericea,*

Thamnochortus spicigerus, Searsia laevigata, Searsia glauca, Lycium ferocissimum, Euclea racemosa and *Putterlickia pyracantha*.

- Ongoing alien invasive plant management must be undertaken on an annual or biannual basis within the full pipeline servitude, ideally in the month of October. No spraying of herbicide should be undertaken in these areas as this kills numerous non-target species, and no further soil disturbance should be allowed. The focus should be on removing (using CapeNature approved methodology) all alien invasive shrubs and large herbs (such as *Echium* species), although in some cases it may be possible and necessary to also remove invasive alien grasses such as kikuyu (*Pennisetum clandestinum*) or ryegrass (*Lolium* species).

9. CONCLUSIONS

- Although most of the area is a mapped Critical Biodiversity Area, the four alternative routes avoid the majority of the areas of High botanical sensitivity. Where the routes do cross High sensitivity areas these are in existing disturbed pipeline servitudes.
- Alternative 1 is the preferred development alternative from a botanical perspective, followed by Alternative 2. Alternatives 3 and 4 are the least suitable from a botanical perspective.
- Alternative 1 is likely to have a Low negative botanical significance before and after mitigation. The route corridor is a relatively good compromise route from a botanical perspective and there is no good reason to consider changing it, as it follows existing, disturbed servitudes through the highest sensitivity parts of the route.
- The primary construction phase impacts are long term loss and degradation of up to 1.2ha of Medium – High and High sensitivity vegetation in the pipeline corridor (up to 15m wide). Additional less significant impacts will be associated with other, less sensitive parts of the pipeline route.
- Operational phase botanical impacts are likely to be relatively minor and of no regional significance, for all development alternatives.
- Cumulative impacts are of some significance as there are likely to be other similar pipelines built in this area in the near future (e.g. Helme 2015), some of which are likely to be within the same corridor just east of the dunes.
- All mitigation outlined in Section 8 is considered feasible, reasonable and essential, and should be included in any Environmental Authorisation.

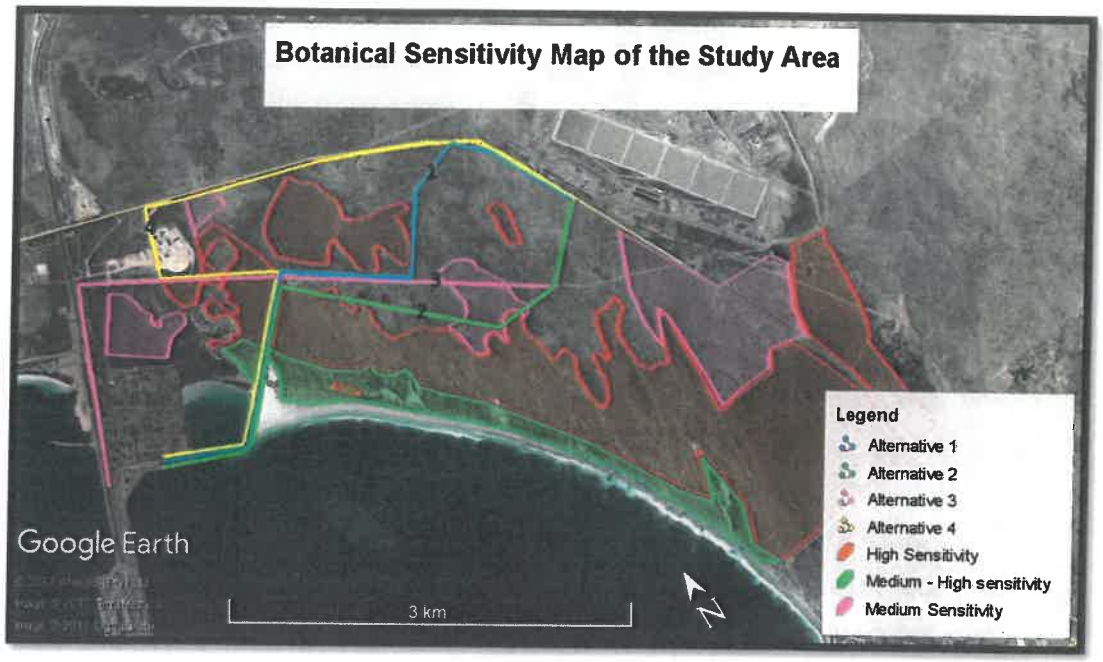


Figure 4: Map of the botanical sensitivity in the study area. Note that unshaded areas within the project area are of Low sensitivity.

6. ISSUES IDENTIFIED

In terms of the construction of the proposed infrastructure the following ecological issues have been identified:

- Loss of portions of site populations of up to five plant Species of Conservation Concern within the pipeline route is possible, but relatively few such species are likely to be impacted, in only 15% of each of the route alternatives, and only in low numbers.
- Direct loss and degradation of areas of Medium – High and High sensitivity habitat during pipeline construction. This is likely to be of long term duration (5-19yrs), but some form of natural rehabilitation is likely to mitigate the impacts.
- Indirect, long term botanical impacts at the operational phase. The main impact in this regard is likely to be facilitated spread of alien invasive vegetation as a result of the soil disturbance. This is not likely to be a significant impact for the pipeline route, and is fairly easily mitigated by ongoing alien invasive vegetation management.

No potentially positive ecological impacts associated with this project have been identified.

7. IMPACT ASSESSMENT

APPENDIX D

MITIGATION MEASURES AS CONTAINED IN THE MARINE IMPACT ASSESSMENT REPORT

Table 4.5 **Impact 5: The effect of increased noise and vibration from construction on marine organisms.**

	Extent	Duration	Probability	Severity	Significance	Status	Confidence
Without mitigation	Proximal 2	Project-duration 1	Highly probable 5	Very low 1	LOW/MEDIUM	-ve	Medium
Recommended mitigation measures: • Subject mobile equipment, vehicles and power generation equipment to noise tests at commencement and periodically throughout the construction phase.							
With mitigation	Proximal 2	Project-duration 1	Possible 3	Very low 1	LOW	-ve	Medium

4.1.6 Solid waste

South Africa has laws against littering, both on land and in the coastal zone, but unfortunately these laws are seldom rigorously enforced. Objects which are particularly detrimental to marine fauna include plastic bags and bottles, pieces of rope and small plastic particles. Large numbers of marine organisms are killed or injured daily by becoming entangled in debris or as a result of the ingestion of small plastic particles (Wallace 1985, Gregory 2009, Wright *et al.* 2013). If allowed to enter the ocean, solid waste may be transported by currents for long distances out to sea and around the coast. Thus, unlike fuel or sewage contamination, the extent of the damage caused by solid waste is potentially large. The impact of floating or submerged solid materials on marine life (especially seabirds, cetaceans and fish) can be lethal and can affect rare and endangered species.

The problem of litter entering the marine environment has escalated dramatically in recent decades, with an ever-increasing proportion of litter consisting of non-biodegradable plastic materials. In order to reduce this, all domestic and general waste generated must be disposed of responsibly. All reasonable measures must be implemented to ensure there is no littering and that construction waste is adequately managed. Staff must be regularly reminded about the detrimental impacts of pollution on marine species and suitable handling and disposal protocols must be clearly explained and sign boarded. The 'reduce, reuse, recycle' policy must be implemented. This impact is rated as 'moderate' without mitigation and is reduced to 'low' by implementing the actions outlined in Table 4.6.

Table 4.6 **Impact 6: Waste generation and disposal during construction.**

	Extent	Duration	Probability	Severity	Significance	Status	Confidence
Without mitigation	Regional 4	Long-term 4	Possible 3	Medium 3	MEDIUM	-ve	High
Essential mitigation measures: • Inform all staff about sensitive marine species and the suitable disposal of waste. • Suitable handling and disposal protocols must be clearly explained and sign boarded. • Reduce, reuse, recycle.							
With mitigation	Regional 4	Long-term 4	Improbable 2	Low 2	LOW/MEDIUM	-ve	High

4.1.7 Hazardous substances

The risk of spillage of a variety of hazardous substances may occur during the use of heavy machinery, construction vehicles and construction vessels. For example, spillage may occur as a result of fuel leaks, refuelling, or collision. Hydrocarbons are toxic to aquatic organisms and precautions must be taken to prevent them from contaminating the marine environment. This impact can be mitigated successfully if authorities implement a rigorous environmental management and control plan to limit ecological risks from accidents. All fuel and oil must be stored with adequate spill protection and no leaking vehicles should be permitted on site. Intentional disposal of any substance into the marine environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately. After mitigation, the impact of accidental spillage is considered to be 'low/medium' **(Error! Reference source not found.)**.

Table 4.7 **Impact 7: The effect of the spillage of hazardous substances on marine biota.**

	Extent	Duration	Probability	Severity	Significance	Status	Confidence
Without mitigation	Proximal 2	Medium-term 3	Possible 3	Medium 3	MEDIUM	-ve	High
Essential mitigation measures: • Intentional disposal of any substance into the marine environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately. • Implementation of a rigorous environmental management and control plan (including procedures for remediation). • All fuel and oil is to be stored with adequate spill protection. • No leaking vehicles are permitted on site. • All hazardous substances must be accompanied by a permit, a hazard report sheet, and a first aid treatment protocol and may only be handled by suitably trained operators.							
With mitigation	Proximal 2	Medium-term 3	Improbable 2	Low 2	LOW/MEDIUM	-ve	High

4.1.8 Disturbance of the Seafarm Dam biota

Preferred Alternative 1 (Figure 2.2) would require the laying of the pipeline over the existing artificial rocky breakwater created during construction of the existing oil pipeline. Construction of this pipeline would require widening of the Oyster Pond causeway, which may cause disturbance to the biota of the enclosed 25 hectare coffer dam (Seafarm Dam) at the base of the ore jetty.

The Seafarm Dam is connected to the larger Bay via a pipe that allows for limited tidal fluctuation (about 10 cm). This has resulted in reduced oxygen and nitrate concentrations and elevated temperature, ammonia and phosphate levels in the dam relative to the surrounding water, and has led to the development of faunal and floral communities in the dam that are distinct from those in the Bay. These communities are comprised of dinoflagellate phytoplankton, rotifers, sea hares, cultured black mussels and Pacific oysters (Brown *et al.* 1983). Blood worm *Arenicola loveni* are reportedly abundant in the shallow sandy areas of the dam, whilst fish species included most of those found within the surrounding bay. No data exists on the macrofauna inhabiting the adjacent beach but the biota is likely to be similar to that found on sandy shores in Big Bay and Small Bay with comparable levels of wave exposure. This sheltered beach is used by gulls, common terns, and

Mitigation measures:

- Not considered necessary due to low significance.

4.2.3 Importation of alien species

Anthropogenic activates in the marine system may transport alien biota either in ballast water, or as biofouling organisms on hulls. The release of foreign species into the Port of Saldanha carries the risk of allowing the establishment of populations and potential competitive exclusion of indigenous species from food, space and nutrients. In the worst case, this may lead to the development of invasive populations with the capacity to severely disrupt and modify communities and ecological processes. The envisioned increased capacity of the oil terminal as a result of the proposed development could result in increased vehicle traffic, and a subsequent small increased risk for the introduction of invasive species.

Despite a long history of international shipping passing through South African ports, there are only ten confirmed cases of alien species becoming established in South African coastal waters (Robinson *et al.* 2005). The best known of these include the Mediterranean mussel (*Mytilus galloprovincialis*), an important species in marine bivalve farming, the ascidian (*Ciona intestinalis*), a biofouling organism common in harbours, and the European shore-crab (*Carcinus maenas*). In addition to the confirmed cases of invasion, 22 species are classified as 'cryptogenic' (i.e. organisms with wide distributions suspected of being alien species). The mussel and ascidian can be regarded as invasive as they have replaced or displaced indigenous fauna resulting in widespread economic implications, while other species are generally found in small, restricted populations. This notwithstanding, the Port of Saldanha is known to support established communities of shell worms (*Boccardia proboscidea*), Pacific mussels (*Semimytilus algosus*), acorn barnacles (*Balanus glandula*), brooding anemones (*Sagartia ornata*) and European porcelain crabs (*Porcellana platycheles*) to name but a few.

Standards and procedures for reducing the risk of importing alien organisms via ballast water were developed by the International Convention for the Control and Management of Ship's Ballast Water and Sediments of 2004 (BWM Convention). South Africa ratified to this Convention and subsequently, the Draft Ballast Water Management Bill was published in the Government Gazette in April 2013 (Notice 340 of 2013). The bill outlines protocols for the discharge of ballast water, and requires all ships to have a ballast water management plan and to keep up to date ballast water record books.

Thirty-nine oil tankers entered Saldanha Port in 2014 and released only 2% of the total volume of ballast water that year, compared to the 291 iron ore vessels that released approximately 96% of the total ballast water discharge recorded in 2014 (Anchor 2014). The significance of this risk is therefore rated 'low/medium' after mitigation measures are implemented (Table 4.11).

Table 4.11 **Impact 11: Ecological effects of introducing alien species through increased vessel traffic as a result of increased infrastructure capacity.**

	Extent	Duration	Probability	Severity	Significance	Status	Confidence
Without mitigation	Regional 4	Long-term 4	Possible 3	High 4	MEDIUM/HIGH	-ve	High

Essential mitigation measures: • Apply ballast water management protocols as per Draft Ballast Water Management Bill.							
With mitigation	Regional 4	Long-term 4	Improbable 2	Low 2	LOW/MEDIUM	-ve	High

4.2.4 Waste

4.2.4.1 Solid waste

All domestic and general waste generated during the operational phase must be disposed of responsibly. All reasonable measures must be implemented to ensure there is no littering and that waste is adequately managed. In order to prevent litter from entering the marine environment, staff must be regularly reminded about the detrimental impacts of pollution on marine species and suitable handling and disposal protocols must be clearly explained and sign boarded. The 'reduce, reuse, recycle' policy must be implemented in all areas of the Port. See impact assessment Table 4.12 for impact severity rating and mitigation.

4.2.4.2 Spillage of hydrocarbons

The risk of accidental spillage of hydrocarbons may occur during the use of equipment, vehicles and vessels required during the operational phase. In addition, there is a risk of the spillage of oil from the pipeline itself. Hydrocarbons are toxic to aquatic organisms and precautions must be taken to prevent them from contaminating the marine environment. This impact can be mitigated successfully if authorities implement a rigorous environmental management and control plan to limit ecological risks from accidents and day to day operations. All fuel and oil must be stored with adequate spill protection and no leaking vehicles should be permitted on site. See impact assessment Table 4.12 for impact severity rating and mitigation.

4.2.4.3 Hazardous substances associated with increased vessel traffic

An increase in vessel traffic means a potential increase in the concentration of anti-fouling paint dissolving in the water. Anti-fouling paint is a specialized coating applied to the hull of a vessel to slow the growth of organisms that affect a vessel's performance and durability. Anti-fouling paint is known to contain copper and other noxious products that are toxic to marine life. Accumulation of these substances in the sediment could potentially have a negative effect on the biodiversity and abundance of sandy macrofauna, particularly the mud prawn *Callichirus kraussi*. It is very difficult to regulate the amount of anti-fouling sloughing off vessels originating from foreign ports.

If the mitigation measures outlined in Table 4.12 are not strictly followed to obtain a 'low/medium' significance, contamination of the marine environment by hazardous substances will be severe and will result in a 'medium/high' rating. Toxicity testing would have to be performed to raise the confidence up to high.

Table 4.12 **Impact 12: Ecological effects caused by hazardous substances entering the water through improper waste management, spillage and vessel maintenance.**

	Extent	Duration	Probability	Severity	Significance	Status	Confidence
Without mitigation	Proximal 2	Long-term 4	Probable 4	Medium 3	MEDIUM/HIGH	-ve	Medium

Essential mitigation measures:

- Inform all staff about the sensitivity of the marine environment and the suitable disposal of waste.
- Suitable handling and disposal protocols must be clearly explained and sign boarded.
- All fuel and oil is to be stored with adequate spill protection.
- No leaking vehicles are permitted on site.
- Intentional disposal of any substance into the marine environment is strictly prohibited, while accidental spillage must be prevented, contained and reported immediately.

With mitigation	Site specific 1	Medium-term 3	Improbable 2	Low 2	LOW/MEDIUM	-ve	Medium

4.2.5 Increased discharge of storm water, wash water and runoff

The proposed project is associated with an increase in hardened surface area. This will alter runoff patterns and increase runoff volumes, which may contain contaminants (e.g. hydrocarbons, heavy metals, cleaning agents). It is unlikely that the increased volume of freshwater entering the Port will affect the marine life, although contaminated runoff may have devastating effects on marine life. This is reflected in the 'low/medium' impact rating which should be reduced to 'low' by application of the appropriate mitigation measures (Table 4.13).

Table 4.13 **Impact 13: Water quality deterioration from additional freshwater runoff and wastewater containing hydrocarbons, heavy metals and chemicals associated with washing agents.**

	Extent	Duration	Probability	Severity	Significance	Status	Confidence
Without mitigation	Proximal 2	Long-term 4	Possible 3	Low 2	LOW/MEDIUM	-ve	High

Essential mitigation measures:

- The volume of wastewater produced must be minimised at the source.
- No storm water from the site may enter the marine environment.
- Emergency management and spill contingency planning must be put into place.

Recommended mitigation measures:

- The storm water management system design should allow for the separation and treatment of contaminated runoff.

With mitigation	Proximal 2	Long-term 4	Improbable 2	Very Low 2	LOW	-ve	High

4.3 Decommissioning phase

It is envisioned that only minor routine maintenance will be required over the course of the design life of the pipe and jetty. The estimated design life of the pipeline has not been specified as yet. Impacts expected in the decommissioning phase have been dealt with in the construction phase (see Section 4.1).

4.4 Cumulative marine environmental impacts

Cumulative marine environmental impacts associated with this project are primarily related to permanent habitat loss (soft-bottom benthic habitat and open water habitat), operational impacts

APPENDIX E

MITIGATION MEASURES AS CONTAINED IN THE AIR QUALITY IMPACT ASSESSMENT REPORT

» the **status**, is described as either positive, negative or neutral.
» the degree to which the impact can be reversed.
» the degree to which the impact may cause irreplaceable loss of resources.
» the *degree* to which the impact can be *mitigated.*

The **significance** is calculated by combining the criteria in the following formula:

S = (E+D+M) x P, where:

S = Significance weighting
E = Extent
D = Duration
M = Magnitude
P = Probability

The **significance weightings** for each potential impact are:

» < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
» 30 to 60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
» > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

These criteria are applied to assess the significance of the impacts associated with the pipeline construction (Table 14), emissions from the OTMS Crude Oil Terminal (Table 15) and emissions from the jetty when loading (Table 16), without mitigation and with mitigation.

Table 14: Impact table for the pipeline and jetty construction

Nature: *The impact of dust from laying the pipeline* ***(Direct impact)*** The impact of dust generated from construction activities does not typically pose health risks. Rather it is more of a nuisance due to the typically coarse particle size. The nature of the activity has a relatively short duration and impact on ambient air quality is limited to the duration of the pipeline laying activity.		
	Without mitigation	**With mitigation**
Extent	Local (2)	Site (1)
Duration	Very short (1)	Very short (1)
Magnitude	Minor (2)	Minor (2)
Probability	Improbable (2)	Improbable (2)
Significance	**Low (10)**	**Low (8)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No

Can impacts be mitigated?	Yes	N/A
Mitigation: The following measures to control dust from construction activities are recommended: » Limit the removal of vegetation to the immediate pipeline trench area; » Limiting site access to construction vehicles only; » Revegetate the area as the trench is closed.		
Residual: There is no residual risk		

6.1.6 Operation

The operational phase includes the activities at the OTMS Crude Oil Terminal and the jetty when loading.

Table 15: Impact table for emissions from the OTMS Crude Oil Terminal during normal operating conditions

Nature: *Emissions of NO_x, CO and VOCs from the OTMS Crude Oil Terminal have the potential to increase ambient concentrations in the surrounding area* – ***Direct impact*** Exposure to NO_x, CO and VOCs such as benzene through inhalation has known negative human health impacts. The predicted ambient concentrations of these pollutants in the surrounding environment is low and the impact on ambient air quality and human health is expected to be localised. It will however endure for the life of the operations.		
	Without mitigation	**With mitigation**
Extent	Local (2)	Site (1)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	**Low (30)**	**Low (21)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	N/A
Mitigation: » The vapour destruction flares are used to reduce the VOC emissions from working losses by 98,5%. It is necessary that the flares operate whenever the tanks are being filled and are operated optimally.		
Residual: There is no residual risk		

Table 16: Impact table for VOC emissions from the jetty during vessel loading

Nature: *Emissions of VOCs from the jetty when loading have the potential to increase ambient concentrations in the surrounding area* – ***Direct impact*** Exposure to VOCs such as benzene through inhalation has known negative human health impacts. The predicted ambient concentrations of these pollutants in the surrounding environment is relatively low and the impact on ambient air quality and human health is expected to be localised. It will however endure for the life of the operations when ships are loaded.		
	Without mitigation	**With mitigation**
Extent	Local (2)	Site (1)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	**Medium (36)**	**Low (21)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	N/A
Mitigation: » Fugitive VOC emissions from the jetty when loading can be reduced. Examples are a vapour destruction flare or vapour capture system.		
Residual: There is no residual risk		

6.2 Cumulative Assessment

6.2.1 Construction

The current levels of dust fallout in the project area are limited to the Saldanha iron ore terminal. The construction activities for the pipeline are relatively small and will involve some excavation. Dust generated during construction can be controlled and is expected to be limited to the site. It is therefore unlikely that dust generated during construction will increase the current dust fallout to levels that exceed the national standard (DEA, 2013b). The associated risk with respect to air quality and human health risk is expected to be minor and is therefore considered to be acceptable (Table 17).

Table 17: Cumulative assessment table for the construction of the pipeline and jetty when loading

Nature:

The impact of dust from construction activities ***(Direct impact)***		
	Without mitigation	**With mitigation**
Extent	Local (2)	Site (1)
Duration	Very short (1)	Very short (1)
Magnitude	Minor (2)	Minor (2)
Probability	Improbable (2)	Improbable (2)
Significance	**Low (10)**	**Low (8)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	N/A
Confidence	High	
Mitigation: The following measures to control dust generated from the construction of the pipeline are recommended: » Limit the removal of vegetation to the immediate pipeline trench area; » Limiting site access to construction vehicles only; » Revegetate the area as the trench is closed.		
Residual: There is no residual risk		

6.2.2 Operational phase

The operational phase includes the activities at the OTMS Crude Oil Terminal and the jetty when loading.

The SFF Crude Oil Terminal is a source of BTEX near the OTMS Crude Oil Terminal, but ambient monitoring data is not available to inform this assessment. However, the predicted ambient concentrations of BTEX from the OTMS terminal are very low and will only add marginally to the existing ambient concentrations.

At the jetty, sources of BTEX include ships and harbour craft. The predicted ambient concentrations of BTEX will add to the existing concentrations. In the unmitigated case exceedance of the NAAQS for benzene are highly likely at the jetty, and exceedances of ambient guidelines for xylene are likely. Compliance can be achieved with mitigation to control fugitive emissions at the jetty when loading.

The risk associated with the proposed development from an air quality and human health risk perspective is considered to be acceptable if fugitive emissions at the jetty when loading are controlled (Table 18).

Table 18: Cumulative impact table for the OTMS crude oil operations

Nature: *Emissions of NO_x, CO and VOCs from the OTMS Crude Oil Terminal have the potential to increase ambient concentrations in the surrounding area – **Direct impact***		
	Cumulative Contribution of Proposed Project	**Cumulative Impact without Proposed Project**
Extent	Local (2)	Site (2)
Duration	Very short (4)	Very short (4)
Magnitude	Moderate (6)	Minor (2)
Probability	Probable (3)	Probable (3)
Significance	**Medium (36)**	**Low (24)**
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Confidence	High	
Mitigation: » Fugitive VOC emissions from the jetty when loading can be reduced with a vapour destruction flare, for example.		
Residual: There is no residual risk		

7. COMPLAINTS

Some complaints regarding dust emissions generated during the OTMS Terminal site's construction phase have been recorded in the site's complaint register which is maintained by the WBHO Environmental Officer.

8. CURRENT OR PLANNED AIR QUALITY MANAGEMENT INTERVENTIONS

The proposed OTMS Crude Oil Terminal does not have any approved air quality management improvement interventions which are currently implemented for the terminal; or scheduled for the next 5 years, as it is a proposed terminal.

To meet compliance with air quality regulation, the measures recommended to be included in the Environmental Management Programme (EMPr) are listed for construction and decommissioning (Table 19), and operations (Table 20):

Table 19: Recommendation for the EMPr for construction

Project component	Control of dust generation from construction activities		
Potential Impact	Potential to exceed the national standards for dust fallout beyond the construction site		
Activity/risk source	Construction activities and entrained dust from the construction site		
Mitigation: Target/Objective	On site dust control measures to ensure compliance with the national dust fallout standards for industrial areas		
Mitigation: Action/control		**Responsibility**	**Timeframe**
• Limit the removal of vegetation to the immediate pipeline trench area; • Limiting site access to construction vehicles only; • Revegetate the area as the trench is closed.		Site manager	The duration of construction
Performance Indicator	Compliance with the national dust fallout standard for industrial areas on the facilities fenceline		
Monitoring	N/A		

Table 20: Recommendation for the EMPr for OTMS operational activities

Project component	Control of VOC emissions		
Potential Impact	Potential to exceed the NAAQS for benzene beyond the site		
Activity/risk source	Poor operations of the vapour destruction flares		
Mitigation: Target/Objective	Optimum operation of vapour destruction flares to maintain 98,5% VOC reduction working losses Reduction of fugitive emissions at the jetty when loading during loading		
Mitigation: Action/control		**Responsibility**	**Timeframe**
• Conduct routine maintenance of vapour destruction flares • Implement a fenceline monitoring program for BTEX • Implement control measures for fugitive emissions		Operations manager Operations manager OTMS and TNPA	• Ongoing process optimisation • Ongoing from date of commissioning • To be confirmed
Performance Indicator	Compliance with the NAAQS for benzene		
Monitoring	Monthly monitoring and reporting		

9. COMPLIANCE AND ENFORCEMENT ACTIONS

The under construction OTMS Crude Oil Terminal does not have any air quality compliance and enforcement actions undertaken against the enterprise in the last 5 years, as it is a not yet operational