

# **HARMONY TRUST: THE PROPOSED CONSTRUCTION OF THE NEW HARMONY DAM**

**ON THE REMAINDER OF FARM HOUDENBEK NO. 415 (MORESTER LANDGOED), CERES**

## **PRE-APPLICATION SCOPING REPORT AND PLAN OF STUDY FOR COMMENT**



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## CONTENTS

1. INTRODUCTION.....	5
2. NEED AND DESIRABILITY .....	8
2.1 NEED .....	8
2.2 DESIRABILITY.....	8
The proposed location of the dam site is considered ideally suited for the construction of the dam. .	8
3. LEGAL REQUIREMENTS .....	9
3.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA.....	9
3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998).....	9
3.3 NATIONAL HERITAGE RESOURCES ACT .....	11
3.4 EIA GUIDELINE AND INFORMATION DOCUMENT SERIES.....	11
3.6 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT .....	12
3.7 MOUNTAIN CATCHMENT AREAS ACT NO. 63 OF 1970 .....	12
4. ALTERNATIVES .....	13
4.1 SITE ALTERNATIVES FOR THE PROPOSED DAM.....	13
4.2 ACTIVITY ALTERNATIVES.....	14
4.3 NO-GO ALTERNATIVE .....	14
5. SITE DESCRIPTION .....	15
5.1 LOCATION .....	15
5.2 VEGETATION.....	15
5.3 FRESHWATER.....	15
5.4 CLIMATE .....	15
5.5 SOCIO-ECONOMIC CONTEXT .....	16
5.6 HERITAGE FEATURES.....	16
6. ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS.....	17
7. DETAILS OF THE PUBLIC PARTICIPATION PROCESS .....	20
8. PLAN OF STUDY FOR THE EIA .....	22
8.1 TASKS TO BE UNDERTAKEN .....	22
8.2 PUBLIC PARTICIPATION AND INTERESTED AND AFFECTED PARTIES .....	23
8.3 CRITERIA FOR SPECIALIST ASSESSMENT OF IMPACTS .....	24
9. CONCLUSION AND RECOMMENDATIONS.....	27
10. DETAILS AND EXPERTISE OF THE EAP .....	28

## APPENDICES

<b>APPENDIX 1:</b>	<b>LOCALITY MAPS</b>
<b>APPENDIX 2:</b>	<b>PRELIMINARY DESIGNS</b>
<b>APPENDIX 3:</b>	<b>SITE PHOTOGRAPHS</b>
<b>APPENDIX 4:</b>	<b>SENSITIVITY MAPS</b>
<b>APPENDIX 5:</b>	<b>PUBLIC PARTICIPATION</b>
<b>APPENDIX 6:</b>	<b>CORRESPONDENCE WITH THE DEPARTMENT</b>
<b>APPENDIX 7:</b>	<b>SAREL BESTER INGENIEURS BK PRELIMINARY DESIGN REPORT</b>
<b>APPENDIX 8:</b>	<b>SPECIALIST REPORTS</b>
<b>APPENDIX 9:</b>	<b>EAP CV</b>

## ACRONYMS

BGIS	Biodiversity Geographic Information System
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NID	Notice of Intent to Develop
NWA	National Water Act
OESA	Other Ecological Support Area
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
WULA	Water Use Licence Application

# 1. INTRODUCTION

## 1.1 BACKGROUND

Agriculture forms the backbone of the Cape Winelands District economy. The agricultural sector contributes to 24% of the formal employment opportunities, which makes the sector essential to the livelihoods of the livelihoods of the local residents.

The Applicant, Harmony Trust is a 100% black owned BBEEE farming entity, reference T2213/2003. Harmony Trust have been in the agricultural sector and trading successfully for the past 12 years with their neighbouring partner and mentor, Morester Boerdery. Harmony Trust, together with Morester Boerdery, plan on expanding an existing BBEEE agricultural project by cultivating and irrigating an additional 75ha fruit orchards. The larger Harmony projects entails the design and construction of two proposed instream dams namely Harmony (this application) and Toeka dams (separate application) for irrigation of the proposed 75ha agricultural expansion. The two owners are in an agreement the necessary legal documents pertaining to land owner consent will be provided.

The two dams will have a combined provisional storage capacity of 2 250 000m<sup>3</sup> and are proposed to be constructed on the Farm Houdenberg 415 belonging to Morester Boerdery. The accompanying agricultural development would be for the neighbouring BBEEE farming entity, Harmony Trust on Winkelhaak 224. The proposed 75ha agricultural expansion is proposed in Farm Houdenberg 415 on previously disturbed land.

The proposed Harmony dam is an instream dam and would will have a storage capacity of 250 000m<sup>3</sup> and will store and supply water for approximately 9ha out of the total 75ha. The proposed dam will be filled primarily with runoff from its own catchment area, an unnamed tributary to the Houdenberg River, upstream of the confluence with the larger Riet River. Winter surplus water will be the primary source for the dam.

Although fully based on “new takings” according to the Water Use License Application (WULA), none of the existing downstream uses will be affected negatively since regulatory mechanisms would ensure that only surplus winter water would be abstracted from the larger Houdenberg catchment.

Sarel Bester Engineers has been appointed as the project engineer coordinating and overseeing the various actions and components regarding the design of the dam and handling the WULA.

The applicant is Harmony Trust who will undertake the activity should it be approved. EnviroAfrica CC has been appointed as the independent environmental assessment practitioner (EAP) responsible for undertaking the relevant EIA and the Public Participation Process required in terms of the National Environmental Management Act 107 of 1998, as amended (NEMA).

This Scoping Report, which will be submitted to the Department of Environmental Affairs and Development Planning (DEA&DP) for consideration, forms part of the EIA process.

The purpose of this Pre-Application Environmental Scoping Report (for comment) is to describe the proposed project, the process followed to date, to present alternatives and to list issues identified for further study and comment by specialists.

Should the EIA process be authorised by DEA&DP, the Specialist Studies (noted in Section 8) will be undertaken and the significant issues (noted in Section 6) will be investigated and assessed during the next phase of this application.

## 1.2 DESCRIPTION OF THE PROPOSED ACTIVITY

The proposed site location is within the Koue Bokkeveld district about 15km east from the town, Op-die-berg as the crow flies. This application is for the construction of the proposed Harmony Dam on the Remaining Extent of Farm Houdenbek 415. Water will be used for irrigation of a proposed 75ha BBEEE agricultural expansion. The proposed 75ha agricultural expansion will be on Remaining Extent of Farm Houdenbek 415 in previously ploughed land. No virgin soil will be disturbed. Please refer to **Appendix 1** for Locality Maps. The two owners are in an agreement the necessary legal documents pertaining to land owner consent will be provided.

Water requirements will be met from runoff from its own catchment area, an unnamed tributary to the Houdenbek River, upstream of the confluence with the larger Riet River. Winter surplus water will be the primary source for the dam as described above. Please refer to **Appendix 7** for *Preliminary Design Report 161DOV-S2 from Sarel Bester Engineers* for the investigation of the water availability. Sarel Bester Engineers applied for the 'new taking' of 85 500m<sup>3</sup> water and 'storing' of 250 000m<sup>3</sup> of water for this application in the WULA. Although fully based on "new takings" according to the Water Use License Application (WULA), none of the existing downstream uses will be affected negatively since regulatory mechanisms would ensure that only surplus winter water would be abstracted from the larger Houdenbek catchment.

The proposed Harmony dam on RE Farm Houdenbek 415, will have the storage capacity of 250 000m<sup>3</sup> and will store and supply water for ±9ha out of the total 75ha (or 9ha / 75ha @ 9500m<sup>3</sup>/ha/a).

According to the *Preliminary Design Report 1618DOV-S2 from Sarel Bester Engineers Appendix 7*, the layout of the proposed Harmony dam is planned as a straight aligned earth filled embankment across the valley. It will be equipped with an open channel or by-wash spillway around the left flank as well as an outlet pipe under the embankment encased in concrete. The outlet works is a planned ø250mm outlet pipe in reinforced concrete with a flanged sluice-gate control valve and manifold system on the downstream side. Irrigation from the dam will mainly be by gravitation to the proposed 75ha expansion. Irrigation pipeline length, diameter, layout to be provided.

The proposed maximum wall high for the dam would be 12.8m with a crest length of 280m. The total earthworks would constitute to 52 800m<sup>3</sup> with a nett storage capacity of ±250 000m<sup>3</sup>. the total footprint/ flooded area would constitute 5.4ha. Please see **Appendix B** for Design Plans.

Max wall height	12.8 m
Cres length	280 m
Total earthworks	52 800 m <sup>3</sup>
Nett storage capacity	±250 000 m <sup>3</sup>
Flooded area	5.4 ha
Storage: Earthworks	4.9 ha
Estimated Cost	±R3.6mil

Sarel Bester Engineers submitted a dam safety and classification application to the Dam Safety Office. Harmony was classified on 18 October 2017 as a medium size Category II dam with a Low Hazard potential rating (*Appendix D Preliminary Design Report 1618DOV-S2 from Sarel Bester Engineers Appendix 7*).





**Figure 1: Locality map of proposed Harmony dam in the landscape**



**Figure 2: Locality map of proposed Harmony Dam on RE Farm Houdenbek 415, Ceres.**

## 2. NEED AND DESIRABILITY

In terms of the National Environmental Management Act, and EIA 2014 regulations, as amended, the Scoping/EIA report must provide a description of the need and desirability of the proposed activity. The consideration of “need and desirability” in EIA decision-making requires the consideration of the strategic context of the development proposal along with the broader societal needs and the public interest.

While the concept of need and desirability relates to the *type* of development being proposed, essentially, the concept of need and desirability can be explained in terms of the general meaning of its two components in which *need* refers to *time* and *desirability* to *place* – i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed? Need and desirability can be equated to *wise use of land* – i.e. the question of what is the most sustainable use of land.

### 2.1 NEED

The applicant, Harmony Trust is planning to further develop an existing 100% black-owned BBEEE farming entity, reference T2213/2003. Harmony Trust have been in the agricultural sector and trading successfully for the past 12 years with their neighbouring partner and mentor, Morester Boerdery.

The plan is to grow and irrigate an additional 75ha of fruit orchards and therefore the development of a dam for irrigation purposes is required to ensure the long term economic viability and sustainability of this project. The success of this project is expected to create a number of permanent jobs within the agricultural industry.

### 2.2 DESIRABILITY

The following factors determine the desirability of the area for the proposed Hut dam.

#### 2.2.1 Location and Accessibility

The proposed location of the dam site is considered ideally suited for the construction of the dam.

From an engineering point of view, the location was chosen to ensure the project life cycle costs are minimised. The decisive factors are normally the basin characteristics with reference to available capacity versus demand, optimal costing of works, risk, etc. The location is preferred based on the available runoff, cost effectiveness and storage capacity.

Access to the proposed dam site will be via existing farm roads,

Locality maps are included in in **Appendix 1**, Design Layout Plans **Appendix B**, with site photographs in **Appendix 3**.

#### 2.2.2 Compatibility with the Surrounding Area

The site is largely surrounded by agricultural activities (**Appendix 4.4** for Crop Census Map and site photographs in **Appendix 3**).

The proposed activity will therefore not be “out of character” with the surrounding land use and is expected to have a negligible impact on the visual character of the area.



### **3. LEGAL REQUIREMENTS**

The current assessment is being undertaken in terms of the National Environmental Management Act (Act 107 of 1998, NEMA), to be read with section 24 (5): NEMA EIA Regulations 2017, as amended. However, the provisions of various other Acts must also be considered within this EIA.

The legislation that is relevant to this study is briefly outlined below.

#### **3.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA**

The Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measures are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

#### **3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998)**

The National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the relevant authorities based on the findings of an environmental assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). These powers are delegated in the Western Cape to the Department of Environmental Affairs and Development Planning (DEA&DP).

On the 4 December 2014 the Minister of Environmental Affairs promulgated regulations in terms of environmental impact assessments, under sections 24(5) and 44 of NEMA, namely the EIA Regulations 2014 (GN No. R 326) these regulations were amended in April 2017, and include:

- GN No. R. 327 (Listing Notice 1);
- GN No. R. 325 (Listing Notice 2); and
- GN No. R. 324 (Listing Notice 3).

Listing Notice 1 and 3 are for a Basic Assessment and Listing Notice 2 for a full Environmental Impact Assessment.

According to the 2014 EIA regulations, as amended in 2017, the following potentially listed activities may be triggered (refer to Table 1)

**Table 1: Summary of 2014 EIA regulations triggered**

<b>GN R327</b>	<b>Short description of relevant Activity(ies) in terms of Listing Notice 1</b>	<b>Description of specific portion of the development that might trigger the listed activity.</b>
12	The development of (iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 m <sup>2</sup> in size (a) within a watercourse	The proposed instream dam will have a total footprint of ±5.4ha and is proposed within a watercourse.
19	The infilling or depositing of any material of more than 10m <sup>3</sup> into, or the dredging, excavation, removal or moving of soil, sand shells grit, pebbles or rock of more than 10m <sup>3</sup> from (i) a watercourse	The proposed instream dam will have a total footprint of ±5.4ha with earthworks of ±4,9ha within a watercourse
27	The clearance of an area of 1 ha or more, but less than 20 ha of indigenous vegetation	Vegetation clearing of ±5.4ha is expected for the proposed construction of the dam.
<b>GN R325</b>	<b>Short description of relevant Activity(ies) in terms of Listing Notice 2</b>	<b>Description of specific portion of the development that might trigger the listed activity.</b>
16	Development of a dam, where the highest part of the dam wall, measured from the outside toe of the wall to the highest part of the wall, is 5m or higher or where the highwater mark of the dam covers an area of 10ha or more	The proposed dam wall is 12.8 m.
<b>GN R324</b>	<b>Short description of relevant Activity(ies) in terms of Listing Notice 3</b>	<b>Description of specific portion of the development that might trigger the listed activity.</b>
14	The development of (iv) dams, where the dam, including infrastructure and water surface area exceeds 10m <sup>2</sup> in size where such a development occurs (a) within a watercourse: <u>Western Cape</u> (i) Outside urban areas: (aa) A protected area in terms of the NEMPPA	The proposed instream dam will have a total footprint of ±5.4ha and is proposed within a watercourse within the proclaimed Koue Bokkelveld Mountain Catchment Area.

An Application Form will be submitted to DEA&DP. This Pre-Application Scoping Process is undertaken to identify potential issues.

The principles of environmental management as set out in section 2 of NEMA have been taken into account. The principles pertinent to this activity include:

- People and their needs will be placed at the forefront while serving their physical, psychological, developmental, cultural and social interests. The activity seeks to provide additional employment and economic development opportunities, which are a local and national need – *the proposed activity is expected to have a beneficial impact on people, especially developmental and social benefits, as well providing additional employment and economic development opportunities.*
- Development will be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. The impact that the activity will potentially have on these will be considered, and mitigation measures will be put in place - *potential impacts have been identified and considered, and any further potential impacts will be identified during the public participation process. Mitigation measures will be included in the EMP.*

- Where waste cannot be avoided, it will be minimised and remedied through the implementation and adherence of the Environmental Management Programme (EMP) – *this will be included in the EIR.*
- The use of non-renewable natural resources will be responsible and equitable.
- The negative impacts on the environment and on people's environmental rights will be anticipated, investigated and prevented, and where they cannot be prevented, will be minimised and remedied.
- The interests, needs and values of all interested and affected parties will be taken into account in any decisions through the Public Participation Process.
- The social, economic and environmental impacts of the activity will be considered, assessed and evaluated, including the disadvantages and benefits.
- The effects of decisions on all aspects of the environment and all people in the environment will be taken into account, by pursuing what is considered the best practicable environmental option.

### 3.3 NATIONAL HERITAGE RESOURCES ACT

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). South African National Heritage Resources Agency (SAHRA) is the enforcing authority and in the Western Cape, SAHRA have, in most cases, delegated this authority to Heritage Western Cape (HWC).

In terms of Section 38 of the National Heritage Resources Act, SAHRA and/or HWC will require a Heritage Impact Assessment (HIA) where certain categories of development are proposed. Section 38(8) also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is found to be adequate, a separate HIA is not required.

The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- *any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup> in extent;*

Furthermore, in terms of Section 34(1), no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the SAHRA, or the responsible resources authority. Nor may anyone destroy, damage, alter, exhume or remove from its original position, or otherwise disturb, any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority, without a permit issued by the SAHRA, or a provincial heritage authority, in terms of Section 36 (3). In terms of Section 35 (4), no person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority.

### 3.4 EIA GUIDELINE AND INFORMATION DOCUMENT SERIES

The following are the latest guidelines that form part of the DEA&DP's *Environmental Impact Assessment Guideline and Information Document Series (Dated: October 2011)*:

- ✓ *Guideline on Transitional Arrangements*
- ✓ *Guideline on Alternatives*
- ✓ *Guideline on Public Participation*
- ✓ *Guideline on Exemption Applications*
- ✓ *Guideline on Appeals*
- ✓ *Guideline on Need and Desirability*

- ✓ *Information Document on the Interpretation of the Listed Activities*
- ✓ *Information Document on Generic Terms of Reference for EAPs and Project Schedules*

### **3.5 NATIONAL WATER ACT**

Besides the provisions of NEMA for this EIA process, the proposed dam also requires authorizations under the National Water Act (Act N0. 36 of 1998). The Department of Water Affairs, who administer that Act, will be a leading role-player in the EIA.

Existing water extraction rights of 40 ha (240 000 m<sup>3</sup>) from the Eksteenskloof will be used. Additional water rights might have to be obtained for which a WULA application process will be launched.

In terms of Chapter 12 of the National Water Act, the proposed dam is considered a dam with a safety risk. The dam therefore requires a permit to construct from the Dam Safety Office of the Department of Water Affairs. The design and construction must conform to the conditions of the Dam Safety Regulations as set out in Government Notice R139 in Government Gazette No. 35062 of 24 February 2012. Regulations 10 and 15 will be applicable to the proposed dam. A licence to construct application will only be submitted after an application for the safety classification of the proposed dam has been submitted, and only after the NEMA process has been concluded.

### **3.6 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT**

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) is part of a suite of legislation falling under NEMA, which includes the Protected Areas Act, the Air Quality Act, the Integrated Coastal Management Act and the Waste Act. Chapter 4 of NEMBA deals with threatened and protected ecosystems and species and related threatened processes and restricted activities. The need to protect listed ecosystems is addressed (*Section 54*).

### **3.7 MOUNTAIN CATCHMENT AREAS ACT NO. 63 OF 1970**

The Mountain Catchment Areas Act, encourages conservation, use, management and control of mountain catchment areas. The management of mountain catchment areas will maintain sustained yields of quality streamflow, nature conservation, fire hazard reduction, afforestation, grazing, tourism and recreational opportunity. The owner of the designated land must manage that land through prevention of soil erosion, removal of exotic vegetation and fire protection.



## 4. ALTERNATIVES

Alternatives have been considered during the Scoping phase and these are described below.

### 4.1 SITE ALTERNATIVES FOR THE PROPOSED DAM

Sarel Bester Engineers together with Van Breda & Associates conducted the investigation of two alternative dam sites referred to as Harmony 266 on RE Houdenbek Farm 415 and Harmony 268 on RE Vaalbokskloof 211. The evaluation was based upon runoff calculations and surveys done by Boland Opmetings (Appendix B of *Preliminary Design Report 161DOV-S2 from Sarel Bester Engineers Appendix 7*). The distinctive factors when looking at alternatives are normally the basin characteristics with reference to available capacity versus demand, optimal costing of the works, risk etc.

Two site locations for the proposed dam have been considered and investigated. Two locations were identified as possible locations, and referred to as:

- Alternative A referred to as Harmony 266 (Preferred site alternative)
- Alternative B, referred to as Harmony 268 (Not-preferred site alternative)

These are indicated in Figure 3 below.



**Figure 3: Locations Alternatives - Harmony 266 on RE Houdenbek 415 (Alt A - Preferred) and Harmony 268 on RE Vaalbokskloof 211 (Alt B - Not preferred) (Sarel Bester Engineers Prelim design report )**

#### Alternative A, Harmony 266 (Preferred site alternative):

Harmony 266 on RE Houdenbek 415 is considered the preferred alternative based on the available runoff, cost effectiveness as well as storage capacity. The proposed dam would have a larger footprint when considering Alternative B (Harmony 269, not preferred) but the preferred site would not sacrifice potential production land. Alternative A (Harmony 266, preferred alternative) would have lower wall heights requiring less earthmoving and disturbance resulting in more efficient storage

rations and overall better economic. This proposed site also has a gravitation advantage as water will be able to flow via gravitation from the outlet to the proposed orchards and a pump station will not be required.

From Cape Farm Mapper it seems that Harmony 266 (Alt A – preferred) does not fall within a Critical Biodiversity Area (CBA) and just intersects an Ecological Support Area (ESA) and falls within the proclaimed Kouebokkeveld Mountain Catchment Area. Harmony 266 also falls within Winterhoek Sandstone Fynbos and intersects a section of Kouebokkeveld Alluvium Fynbos. These findings will be confirmed by the specialist and discussed in specialist findings.

Please refer to **Appendix 4.1.1 & 4.1.2** for sensitivity maps in terms of alternatives.

Alternative B Harmony 268 (Not preferred site alternative):

Harmony 268 on RE Vaalbokskloof 211 (Alt B – not preferred) is not considered feasible as it will not be cost effective. Due to the topography of the site the dam does not have enough storage capacity, more earth moving, and a higher wall will be required. The associated stream does also not provide enough runoff and the locality does not have a gravitational advantage when getting water from the dam to the proposed orchards for irrigation. Alternative B also falls on the neighbouring farm which is not ideal as land owner consent would be required and compensation would have to be arranged.

From Cape Farm Mapper it seems the Harmony 268 (Alt B – not preferred) does not fall within a CBA or ESA but the site also falls within proclaimed Kouebokkeveld Mountain Catchment Area. Harmony 268 also falls within Winterhoek Sandstone Fynbos. These findings will be confirmed by the specialist and discussed in specialist findings.

Please refer to **Appendix 4.1.1 & 4.1.2** for sensitivity maps in terms of alternatives.

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## **4.2 ACTIVITY ALTERNATIVES**

The purpose of the proposed dam is to provide the Harmony Trust with enough water for its irrigation requirements. No activity alternatives were considered.

## **4.3 NO-GO ALTERNATIVE**

This is the option of not developing the proposed dam. Although this might result in no potential negative environmental impacts, the direct and indirect socio-economic benefits of not constructing the storage dam will not be realised. As described in *Section 2.1*, it is of critical importance to the success and feasibility of the business proposal for developing new nut orchards on the farm, which is expected to create jobs in the area, that there be sufficient supply and storage of irrigation water.

## 5. SITE DESCRIPTION

### 5.1 LOCATION

The preferred dam, Harmony 266 (Alternative A) will be located on RE Farm Houdenberg 415, Ceres. The preferred site is located within the Koue Bokkeveld district about 15km east from the town, Op die-Berg as the crow flies.

The site coordinates for proposed Harmony dam is: S 32° 59'44.7", E19° 27'50.90".

The SG code for the proposed site is: C019 0000 00000415 00000

Access to the farm is from the R303, the site can be accessed via existing farm roads on the property.

Please refer to Figure 1 and 2 above as well as **Appendix 1** for Locality maps.

### 5.2 VEGETATION

According to the vegetation map from Cape Farm Mapper (**Appendix 4.2**) the vegetation that can be expected at the preferred Harmony 266 dam site is Wintershoek Sandstone Fynbos and smaller portion of Kouebokkeveld Alluvium Fynbos.

Kouebokkeveld Alluvium Fynbos is classified as Endangered in the Western Cape in terms of NEMBA National list of Ecosystems that are threatened and in need of protection and Wintershoek Sandstone Fynbos is not in need of protection.

The proposed Harmony 266 dam does not fall within a CBA but does intersect an ESA and is located within the proclaimed Kouebokkeveld Mountain Catchment Area.

The Botanical impact assessment finding will be included in the impact report.

### 5.3 FRESHWATER

The Harmony 266 dam will be located along a small tributary within the larger Houdenberg River Catchment area upstream of the confluence of the Winkelhaak River into the Riet River which forms part of the larger Doring River, a tributary to Olifants River system. Water to the dam will purely be based on surplus winter water from the Houdenberg catchment. Regulatory mechanism will be implemented to ensure that only winter surplus water be abstracted to not negatively impact existing downstream uses.

Sarel Bester Engineers BK is doing the WULA Application for the taking and storing of water.

A Freshwater impact assessment findings will be included in the impact report.

### 5.4 CLIMATE

In Op die Berg, the climate is warm and temperate. The winter months are much rainier than the summer months in Op die Berg. In Op die Berg, the average annual temperature is 13.5 °C. In a year, the average rainfall is 432 mm. The driest month is January. There is 6 mm of precipitation in January. Most of the precipitation here falls in May, averaging 79 mm. With an average of 19.8 °C, January is the warmest month. July is the coldest month, with temperatures averaging 7.6 °C. The precipitation varies 73 mm between the driest month and the wettest month. Throughout the year, temperatures vary by 12.2 °C. (<https://en.climate-data.org/location/27253/>)

## 5.5 SOCIO-ECONOMIC CONTEXT

According to the Witzenberg Local Municipality(WLM) IDP 2018 the Agric-economic environmental has indicated a positive growth over the next five years and it is necessary that the municipality provides sufficient bulk and network infrastructure to support investment and job creation opportunities.

The most prominent places in the WLM area are Tulbagh, Wolseley and Ceres, with Prince Alfred's Hamlet and Op-die-Berg two northern outposts. Activities around these settlements are essentially agriculture based, with the towns being "agricultural service centres", with some agri-processing related to wine, fruit, vegetables and other niche products. The region is also well-known for its fruit and wine products, as well as producing other agriculturally linked products such as olive and grain producing areas, beef and pork products. Horse and cattle stud farms are also found within the municipality.

The municipality has made tremendous progress in mobilising and harnessing the energies and expertise of the business sector in developing effective economic development strategies and programmes. This is articulated in its new economic vision as adopted in 2011, namely:

"To strategically partner with the private sector, other spheres of government and its agencies, development institutions and donor agencies and in concert develop sizable commercial projects which encompasses the imperatives of employment creation and broad-based black economic empowerment and contributing to the general expansion of the economic base of Witzenberg."

The sectors that employed the most residents included the agriculture, forestry and fishing sector at 22,2%. Agriculture employs the largest proportion of the population. The districts main produce is grapes, deciduous fruits and vegetables.

This proposed application is part of a larger projects for the further development of an existing 100% black-owned BBEEE farming entity, namely Harmony Trust, reference T2213/2003. They have been in the agricultural sector and trading successfully for the past 12 years with their neighbouring partner and mentor, Morester Boerdery. The plan is to grow and irrigate 75ha of fruit orchards in addition to the existing 40ha of vegetable pastures. This would benefit the existing BBBEE entity and more importantly also the broader economy by creating work opportunities for the previously disadvantaged groups.

## 5.6 HERITAGE FEATURES

The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- *any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup> in extent;*

A heritage screener was conducted by CTS Heritage and a Notice of Intend to Develop (NID) was submitted to Heritage Western Cape. HWC is yet to give comment on the NID. Findings will be discussed in the Impact report.



## 6. ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

Specialist have been appointed. These specialists include:

- Botanical Specialist
- Fresh Water Specialist
- Heritage Specialist

The impact studies of the Heritage as well as Fresh Water Specialist has been received (Please see attached as **Appendix 4.1** and **4.2**). The comments and recommendation of these specialist have been considered to evaluate the potential environmental issues and impact the proposed development will have. Once the Botanical Impact assessment is received, comments and recommendations from this report will be included in the Scoping report which will be sent out for decision.

Issues raised by Interested and Affected parties during the initial public participation process as well as informal discussions with the project team was also considered when evaluating potential impacts on the environment.

The following section will discuss the issues raised:

### 6.1 BIODIVERSITY

#### 6.1.1 Botanical

According to the vegetation map from Cape Farm Mapper (**Appendix 4.2**) the vegetation that can be expected at the preferred Harmony 266 dam site is Wintershoek Sandstone Fynbos and smaller portion of Kouebokkeveld Alluvium Fynbos.

Kouebokkeveld Alluvium Fynbos is classified as Endangered in the Western Cape in terms of NEMBA National list of Ecosystems that are threatened and in need of protection and Wintershoek Sandstone Fynbos is not in need of protection.

The proposed Harmony 266 dam does not fall within a CBA but does intersect an ESA 1 (Aquatic and Terrestrial) and is located within the proclaimed Kouebokkeveld Mountain Catchment Area.

ESA 1 are not essential for meeting biodiversity targets, but play a role in supporting the functioning of CBAs. And are often vital for delivery ecosystems services. The objective is to maintain a functional, near natural state. Some habitat loss of acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

A full botanical assessment still has to be conducted to determine if there is any sensitive or endangered vegetation on the proposed site, findings will be discussed in the impact report.

The botanical assessment will include the following:

- The significance of the potential impact of the proposed project, alternatives and related activities – with and without mitigation – on biodiversity pattern and process at the site, landscape and regional scales.
- Recommended actions that should be taken to prevent or, if prevention is not feasible, to mitigate impacts.

### 6.2.2 Fauna

Because of the proximity to intensive cultivated areas it is not expected that the proposed dam location will have a significant impact on fauna species. Avi-fauna (water species) may even benefit from the dam. The impact on reptiles and amphibian will be much localised and may result in species being displaced (snakes and lizards) but not significant permanent impact on species is expected.

A full botanical assessment still has to be conducted, findings will be discussed in the impact report.

## 6.2 FRESHWATER

A fresh water impact assessment is proposed. This is due to the fact that the dam is considered an instream dam which is likely contain remaining elements of riparian vegetation. The small stream has also been included as an ESA1. Please see **Appendix 4.3** for the water resources map.

The terms of reference for the Freshwater assessment and River Rehabilitation Plan are as follows:

- Literature review and assessment of existing information
- Site Assessment of the proposed activities and impact on the associated freshwater systems  
This will include an assessment of the freshwater ecological condition, using river health indices such as in-stream and riparian habitat integrity, aquatic macro-invertebrates and riparian vegetation to determine set back lines and geomorphological condition of the streams, which will then determine the overall Ecstatus of the streams and provide data that will inform the Water Use Licence Application of the project. This will include both the stream to be impacted by the dam development and the pump station establishment.
- Describe ecological characteristics of freshwater systems and compile report based on the data and information collected in the previous two tasks, describe ecological characteristics of the freshwater systems, comment on the conservation value and importance of the freshwater systems and delineate the outer boundary of the riparian zones/riverine corridors.
- Evaluate the freshwater issues on the site and propose mitigation measures and measures for the rehabilitation of the site as well as setback lines for future development.
- Compilation of the documentation for submission of the water use authorisation application (WULA) to the Department of Water Affairs (if deemed necessary).

The Fresh water impact assessment findings will be discussed in the impact report.

## 6.3 HERITAGE

The possible impact on heritage resources has been identified as a possible environmental impact because of the construction of the dam. The dam with associated infrastructure is expected to have a footprint of approximately 5.4 ha.

The terms of reference for the heritage study will be as follows:

- To determine whether there are likely to be any important archaeological sites or remains that might be impacted by the proposed development;
- To identify and map archaeological sites/remains that might be impacted by the proposed development;
- To assess the sensitivity and conservation significance of archaeological sites/remains in the inundation area;
- To assess the status and significance of any impacts resulting from the proposed development, and

- To identify measures to protect any valuable archaeological sites/remains that may exist within the estimated inundation area.

A heritage screener was conducted by CTS Heritage. A heritage NID was submitted to Heritage Western Cape (HWC). HWC is yet to give comments. Findings and recommendations to be discussed in the impact report.

#### **6.4 VISUAL IMPACT**

The potential impact on the sense of place of the proposed dam has also been considered. The surrounding area is characterised by agricultural activities, as well as a number of farm dams in the local area, and the proposed dam will therefore not be uncharacteristic for the area.

The sense of place is not expected to be altered by the proposed dam, and no further studies are suggested.

#### **6.5 SAFETY**

Sarel Bester Engineers submitted a dam safety and classification application to the Dam Safety Office. Harmony was classified on 18 October 2017 as a medium size Category II dam with a Low Hazard potential rating (*Preliminary Design Report 1618DOV-S2 from Sarel Bester Engineers Appendix 7*).

#### **6.6 LOSS OF AGRICULTURAL LAND**

One of the reasons contributing to the preferred location of Harmony dam 288 on RE Houdenberg 415 (Alternative A) is the fact that potential agricultural land will not have to be sacrificed for the establishment of the dam.

#### **6.7 SOCIO-ECONOMIC IMPACT**

Although the construction of the proposed dam will create jobs during the construction phase of the activity, the dam will indirectly secure additional jobs during the operational phase. As indicated in *Section 2.1*, the proposed dam is of critical importance to the success to establish fruit orchards, which is expected to create permanent job opportunities in the agricultural sector.

This proposed application is part of a larger projects for the further development of an existing 100% black-owned BBEEE farming entity, namely Harmony Trust, reference T2213/2003. They have been in the agricultural sector and trading successfully for the past 12 years with their neighbouring partner and mentor, Morester Boerdery. The plan is to grow and irrigate 75ha of fruit orchards in addition to the existing 40ha of vegetable pastures. This would benefit the existing BBBEE entity and more importantly also the broader economy by creating work opportunities for the previously disadvantaged groups.

#### **6.8 OTHER ISSUES IDENTIFIED**

Any further issues raised during the public participation process or by the Competent Authority not mentioned in this section, will be dealt with during the EIA phase.

## 7. DETAILS OF THE PUBLIC PARTICIPATION PROCESS

Interested and Affected Parties (I&APs) were identified throughout the process. Landowners adjacent to the proposed site, relevant organs of state, organizations, ward councillors and the Local and District Municipality were added to this database. A complete list of organisations and individual groups identified to date is shown in **Appendix 5**.

Public Participation was conducted for this proposed dam in accordance with the requirements outlined in Regulation 41, 42, 43 and 44 of the NEMA EIA Regulations 2014 as amended, as well as the Department of Environmental Affairs and Development Planning's guideline on Public Participation 2011. The issues and concerns raised during the scoping phase will be dealt with in the EIA phase of this application.

As such each subsection of Regulation 54 contained in Chapter 6 of the NEMA EIA Regulations will be addressed separately to thereby demonstrate that all potential Interested and Affected Parties (I&AP's) were notified of the proposed development.

**Table 2: Summary of the public participation process**

<b>R41</b>	<b>Posters, Advertisement &amp; Notification letters</b>
(2) (a) (i)	Posters were displayed on Farm Houdenberg 514 and Winkelhaak 224 Posters were also placed on the notice boards at Op die Berg Spar, Witzenberg Local Municipality and Op die Berg Agrimark.  Please see Appendix 5.1.1
(ii)	N/A No feasible alternative site
(2) (b) (iii)	Notification letters were sent to the municipal ward councilor at the Witzenberg Municipality. Please see Appendix 5.1.2
(iv)	Notification letters were sent to Cape Winelands District Municipality and Witzenberg Local Municipality.  Please see Appendix 5.1.2
(v)	Notification letters were sent to the following organs of state: <ul style="list-style-type: none"> <li>• Department of Environment and Development Planning</li> <li>• BGCMA – future of the reports (including this one) will be sent to DWS as they are the commenting authority</li> <li>• Cape Nature</li> <li>• Heritage Western Cape</li> <li>• WC Department of Agriculture and Land Use Management</li> </ul> Please see Appendix 5.1.2
(vi)	Notification letters were sent to neighbours Please see Appendix 5.1.3
(2) (c) (i)	An advert was placed in the Witzenberg Herland on &July 2017 Please see Appendix 5.1.4



<b>R42 &amp; 34</b>	<b>Register of I&amp;AP</b>
(a), (b), (c), (d)	A register of interested and affected parties was opened and maintained and is available to any person requesting access to the register in writing Please see Appendix 5.1.5
<b>R43</b>	<b>Registered I&amp;AP entitled to comments</b>
3	I&AP were given 30 days for comments during the initial public participation phase
<b>R44</b>	<b>I&amp;AP to be recorded</b>
	A summary of issues raised by I&AP are addressed in the Comments and Response Report (C&RR). Please see Appendix 5.1.6 for the C&RR as well as comments received.

## 8. PLAN OF STUDY FOR THE EIA

### 8.1 TASKS TO BE UNDERTAKEN

In terms of the NEMA EIA process the Scoping process must follow certain prescribed process or steps

#### 8.1.1 Pre-Application Phase

In terms of the 2014 EIA requirements, this application is now in what is termed the “Pre-Application Phase”, which included the following steps:

- Project preparation, site visits and meetings with client;
- Preparation of draft background information document;
- The National Application process does not require a “Notification of Intend” to develop and as a result no pre-application meeting was scheduled with the Department of Environmental Affairs (DEA).
- Initial public participation was done (Refer to **Appendix 5**);
- Register of interested and affected parties was compiled (Refer to **Appendix 5.1.5**);
- A comments and response report was established (**Appendix 5.1.6**);
- Specialist were appointed;
- Preparation of Scoping Report for comment (this document).

The Scoping Report will be advertised for a 30-day comment period. Comments received during the Public Participation Process will be incorporated into the Draft Environmental Impact Report.

#### 8.1.2 Application Phase

The process will now enter the formal application process. The NEMA EIA (2014) as amended, process prescribes the following tasks:

**Table 3: Summary of the NEMA EIA (2014) process that will be followed**

TASKS	NUMBER OF DAYS	PROJECTED DATES
<b>1. PRE-APPLICATION PHASE</b>	90	
• <i>Notice of Intent (NoI): Prepare &amp; Submit</i>		9 June 2017
• Appoint Specialists		9 June 2017
• <b>PPP</b> (1 <sup>st</sup> round): Advertisement, Posters, mail drops, Register I&AP's	30	9 June 2017
• Submit <b>Pre-Application Scoping</b> report to competent authority & I&APs for comment	30	<b>1 October 2018</b>
<b>NB: Post-App SR: Prepare for comment + update EMP and C&amp;R report</b>		
<b>2. APPLICATION PHASE</b>	<b>43</b>	
<b>2.1. Application document: Prepare &amp; Submit to competent authority</b> (CA have 10 days to respond)		<b>16 Nov 2018</b>
2.2. Submit <b>Post-App SR</b> to CA + IAP's for comments	30	16 Nove2018
<b>2.3. Submit Post-App SR to CA for approval</b>	<b>43</b>	15 Jan 2018

<b>3. IMPACT REPORT</b> (Timeframe start on decision from CA on SR)	<b>106</b>	
3.1. Submit <b>IR</b> to CA & IAP's for comment (PPP on IR)	30	March 2019
<b>3.2. Submit Final IR to CA for approval</b>	<b>20</b>	April 2019
CA to provide decision within 107 days		
<b>Total for NON-SUBSTANTIVE EIA Application</b> (90 + 43 + 44 + 106 + 107 days)		

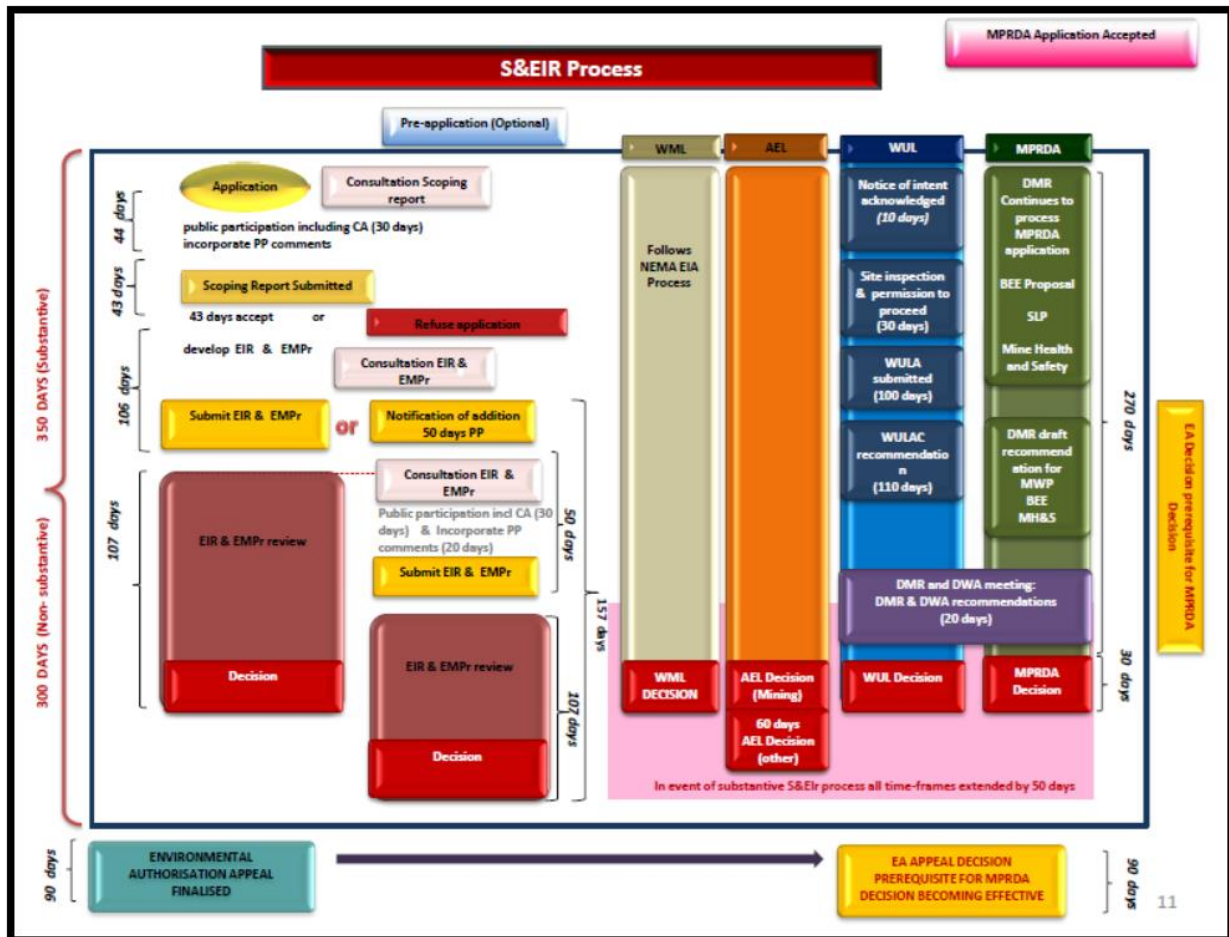


Figure 4: Summary of the Scoping and EIA 2014 Process

## 8.2 PUBLIC PARTICIPATION AND INTERESTED AND AFFECTED PARTIES

Please refer to Figure 5 to see where the public participation process is present in the environmental impact assessment. The Interested and Affected Parties will have a chance to view and comment on all the reports that are submitted. The figures also indicated what timeframes are applicable to what stage in the process. If required, meetings with key stakeholders will be held.

At the end of the comment period, the Scoping report (for comment) will be revised in response to feedback received from I&APs. All comments received and responses to the comments will be incorporated into Scoping report for decision (this report). This report will be sent to DEA&DP for decision. The Department will then have 44 days to either accept or reject the Scoping Report. Once the Scoping report has been accepted by the Department, the Environmental Impact Report will be compiled. This report will include all the outstanding specialist report as well as further comments

from DEA&DP. The Environmental Impact Report (for comment) will then be sent out to I&APs for comment. After the 30 days commenting period, comments from I&APs and state organisations will be included, with responses, in the Environmental Impact Report. This report can then be viewed as the final impact report and will be submitted to DEA&DP for final decision.

Correspondence with I&APs will be via post, fax, telephone, email and newspaper advertisements.

Should it be required, this process may be adapted depending on input received during the on-going process and as a result of public input. DEA&DP will be informed of any changes in the process.

### 8.3 CRITERIA FOR SPECIALIST ASSESSMENT OF IMPACTS

As a result of the environmental issues and potential impacts identified in *Section 6*, the need for the following specialist studies has been identified:

- Botanical Assessment
- Freshwater Assessment
- Heritage Impact Assessment

The impacts of the proposed activity on the various components of the receiving environment will be evaluated in terms of duration (time scale), extent (spatial scale), magnitude and significance as outlined in Table 2. These impacts could either be positive or negative.

The magnitude of an impact is a judgment value that rests with the individual assessor while the determination of significance rests on a combination of the criteria for duration, extent and magnitude. Significance thus is also a judgment value made by the individual assessor.

**Table 4: Criteria used for evaluating impacts (example)**

Criteria	Category
<b>Nature of impact</b>	This is an evaluation of the effect that the construction, operation and maintenance of a proposed dam would have on the affected environment. This description should include what is to be affected and how.
<b>Duration</b> (Predict whether the lifetime of the Impact will be temporary (less than 1 year) short term (0 to 5 years); medium term (5 to 15 years); long term (more than 15 years, with the Impact ceasing after full implementation of all development components with mitigations); or permanent.	<b>Temporary:</b> < 1 year (not including construction) <b>Short-term:</b> 1 – 5 years <b>Medium term:</b> 5 – 15 years <b>Long-term:</b> >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference) <b>Permanent:</b> Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary
<b>Extent</b> (Describe whether the impact occurs on a scale limited to the site area; limited to broader area; or on a wider scale)	<b>Site Specific:</b> Expanding only as far as the activity itself ( <i>onsite</i> ) <b>Small:</b> restricted to the site's immediate environment within 1 km of the site ( <i>limited</i> ) <b>Medium:</b> Within 5 km of the site ( <i>local</i> ) <b>Large:</b> Beyond 5 km of the site ( <i>regional</i> )
<b>Intensity</b> (Describe whether the magnitude (scale/size) of the Impact is high; medium; low; or negligible. The specialist study must attempt to quantify the magnitude of impacts, with the rationale used explained)	<b>Very low:</b> Affects the environment in such a way that natural and/or social functions/processes are not affected <b>Low:</b> Natural and/or social functions/processes are slightly altered <b>Medium:</b> Natural and/or social functions/processes are notably altered in a modified way <b>High:</b> Natural and/or social functions/processes are severely altered and may temporarily or permanently cease



<b>Probability of occurrence</b> Describe the probability of the Impact <u>actually</u> occurring as definite (Impact will occur regardless of mitigations)	<b>Improbable:</b> Not at all likely <b>Probable:</b> Distinctive possibility <b>Highly probable:</b> Most likely to happen <b>Definite:</b> Impact will occur regardless of any prevention measures
<b>Status of the Impact</b> Describe whether the Impact is positive, negative (or neutral).	<b>Positive:</b> The activity will have a social/ economical/ environmental benefit <b>Neutral:</b> The activity will have no affect <b>Negative:</b> The activity will be socially/ economically/ environmentally harmful
<b>Degree of Confidence in predictions</b> State the degree of confidence in predictions based on availability of information and specialist knowledge	<b>Unsure/Low:</b> Little confidence regarding information available (<40%) <b>Probable/Med:</b> Moderate confidence regarding information available (40-80%) <b>Definite/High:</b> Great confidence regarding information available (>80%)
<b>Significance</b> (The impact on each component is determined by a combination of the above criteria and defined as follows) The significance of impacts shall be assessed <u>with and without mitigations</u> . The significance of identified impacts on components of the affected biophysical or socio-economic environment (and, where relevant, with respect to potential legal requirement/s) shall be described as follows:	<b>No change:</b> A potential concern which was found to have no impact when evaluated <b>Very low:</b> Impacts will be site specific and temporary with no mitigation necessary. <b>Low:</b> The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures <b>Moderate:</b> Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures. <b>High:</b> Impacts have a high magnitude and will be experienced regionally for at least the life span of the development, or will be irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented.

In addition to determining the individual impacts against the various criteria, the element of mitigation, where relevant, will also be brought into the assessment. In such instances the impact will be assessed with a statement on the mitigation measure that could/should be applied. An indication of the certainty of a mitigation measure considered, achieving the end result to the extent indicated, is given on a scale of 1-5 (1 being totally uncertain and 5 being absolutely certain), taking into consideration uncertainties, assumptions and gaps in knowledge.

**Table 4: The stated assessment and information will be determined for each individual issue or related groups of issues and presented in descriptive format in the following table example or a close replica thereof.**

<b>Impact Statement:</b>		
<b>Mitigation:</b>		
<b>Ratings</b>	Duration	
	Extent	
	Intensity	
	Probability of impact	
	Status of Impact (Positive/negative)	
	Degree of confidence	
<b>Significances</b>	Significance <b>without</b> Mitigation	
	Significance <b>WITH</b> Mitigation	

Indication of the certainty of a mitigation measure considered, achieving the end result to the extent indicated, is given on a scale of 1-5 (1 being totally uncertain and 5 being absolutely certain), taking into consideration uncertainties, assumptions and gaps in knowledge	
<b>Legal Requirements</b> (Identify and list the specific legislation and permit requirements which are relevant to this development):	

## 9. CONCLUSION AND RECOMMENDATIONS

A scoping exercise is being undertaken to present the proposed activities to the I&APs and to identify environmental issues discussed in this report and concerns raised as a result of the proposed development alternatives to date. The issues and concerns were raised by I&APs, authorities, the project team as well as specialist input, based on baseline studies undertaken.

This Draft Scoping Report, being undertaken in terms of NEMA, summarises the process undertaken, the alternatives presented and the issues and concerns raised.

As a result of the above, the need for the following specialist studies, have been identified:

- Botanical Assessment
- Freshwater Assessment
- Heritage Assessment

Any further issues raised as a result of the Public Participation Process will be dealt with during the EIA phase.

The significance of the impacts associated with the alternatives proposed will be assessed in these specialist studies, as part of the EIA. Once the specialist studies have been completed, they will be summarised in an Environmental Impact Report (EIR), which integrates the findings of the assessment phase of the EIA.

Based on the significance of the issues raised during the ongoing Public Participation Process and Scoping Phase, it is evident that an Environmental Impact Assessment (EIA) is required. ***It is therefore recommended that authorisation for the commencement of an EIA for the proposed development is granted.*** Should the EIA process be authorised, the significant issues raised in the process to date will be addressed and the specialist studies noted in this report, will be undertaken.

## 10. DETAILS AND EXPERTISE OF THE EAP

This Scoping Report was prepared by Inge Erasmus who has a BA Honours in Geography and Environmental Studies from Stellenbosch University. Before completing her honours degree Inge gained practical experience as a junior environmental consultant at Hatch Goba in Johannesburg from 2014 until 2015. Inge acted as an environmental control officer on a variety of projects in the Northern Cape, conducting environmental compliance audits, as well as being part of a project team working on a major resettlement project for Kumba Iron ore. Inge joined Enviro Africa in February 2017, generally performing duties as an environmental assessment practitioner with regards to NEMA EIA applications. The entire process and report was supervised by Bernard De Witt who has more than 10 years experience in environmental management and environmental impact assessments.

Please refer to **Appendix 9** for the CV's of the EAPs.

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