



ENVIRONMENTAL IMPACT ASSESSMENT REPORT

**PROPOSED CHANGE IN LANDUSE
FOR 1 300 HA ON PORTION 67 AND THE
REMAINDER OF THE FARM
VAALKOPPIES 40, STRAUSSBURG**

MONEYLINE 645 (PTY) LTD



KHARA HAIS MUNICIPALITY

SEPTEMBER 2010

DEO01.1/10

Index

| SECTION | CONTENT | PAGE |
|---------|---------|------|
|---------|---------|------|



| | | |
|------------------|---|---|
| SECTION A | | |
| 1 | ENVIRONMENTAL ASSESSMENT PRACTITIONER | 4 |
| 1.1 | Details of MEG Environmental Impact Studies | 4 |
| 1.2 | Expertise of EAP | 4 |
| SECTION B | | |
| 2 | EXISTING ENVIRONMENT | 7 |

| | | |
|------------------|---|----|
| 2.1 | Description of the activity | 7 |
| 2.2 | Description of the property | 8 |
| SECTION C | | |
| 3 | DESCRIPTION OF THE ENVIRONMENT | 9 |
| 3.1 | Physical environment | 9 |
| 3.2 | Biological environment | 12 |
| 3.3 | Social environment | 13 |
| 3.4 | Economic environment | 14 |
| 3.5 | Cultural environment | 15 |
| SECTION D | | |
| 4 | PUBLIC PARTICIPATION | 16 |
| 4.1 | Notification | 16 |
| 4.2 | Issues identified | 17 |
| SECTION E | | |
| 5 | DESIRABILITY OF PROPOSED ACTIVITY | 22 |
| 5.1 | Potential environmental impacts | 22 |
| 5.2 | Alternative | 22 |
| 5.3 | Specialist reports | 23 |
| SECTION F | | |
| 6 | ENVIRONMENTAL ISSUES | 24 |
| 6.1 | Historical, cultural and archaeological sites | 24 |
| 6.2 | Flora | 26 |
| 6.3 | Fauna | 29 |
| 6.4 | Land uses | 31 |
| 6.5 | Plough certificate | 32 |
| 6.6 | Water | 32 |
| 6.7 | Sewage disposal | 34 |
| 6.8 | Solid waste disposal | 35 |

| | | |
|-------------------|---|----|
| 6.9 | Noise and air pollution | 36 |
| 6.10 | Public health characteristics | 36 |
| 6.11 | Risks and hazards | 37 |
| SECTION G | | |
| 7 | ENVIRONMENTAL IMPACT STATEMENT | 38 |
| ANNEXURE | | |
| Annexure 1 | Biophysical Survey | |
| Annexure 2 | Heritage Impact Assessment | |
| Annexure 3 | Department of Water Affairs | |
| Annexure 4 | Department of Agriculture , Forestry and Fisheries | |
| Annexure 5 | Department of Agriculture, Forestry and Fisheries | |
| Annexure 6 | //Khara Hais Municipality | |
| Annexure 7 | ESKOM | |
| Annexure 8 | Interested and Affected parties | |
| Annexure 9 | Environment Management Programme | |

SECTION A

1. ENVIRONMENTAL ASSESSMENT PRACTITIONER

1.1 Details of MEG Environmental Impact Studies

MEG Environmental Impact Studies was established in 1998 and since then undertook various Environmental Impact Assessments in the Upington-, Kuruman-, Karoo- and Kalahari-region of the Northern Cape Province. M E Geldenhuys who is personally responsible for each EIA application has a BSc-, as well as a Masters Degree in Environmental Management. With 12 years of hands-on experience since the implementation of the Environmental Conservation Act -1998 and 5 years experience at Northern Cape Nature Conservation Department. She has been responsible for several Environmental Impact Assessments since 1998, which were completed and approved by the Provincial Department of Environment and Nature Conservation in the Northern Cape.

1.2 Expertise of EAP

The experience of MEG Environmental Impact Studies in the environmental management field includes various aspects such as:

KEY QUALIFICATIONS:

| | |
|--|---|
| Environmental Impact Assessment | Manage and coordinate various environmental impact assessments in the Northern Cape Province |
| Environmental Management | Identify issues and compile environmental management plans in the municipal areas of //Khara Hais Municipality, Siyanda District Municipality and Emthanjeni Municipality as required by the Integrated Development Planning Process. |

| | |
|---|---|
| Environmental Management Plan | Manage and compile environmental management plans as required for the development of borrow pits and quarries for the Department of Minerals and Energy. |
| Environmental Management Program | Manage and coordinate various environmental management programs for the implementing of environmental friendly working procedures |
| Environmental Practitioner | Develop and compile environmental management reports as required by the Eurepgap and Nature's Choice standards for the table grape export farmers in the Lower-Orange River region and Namibia. |
| Environmental Education | Furnish and manage an Environmental Education Resource centre for the provincial department of Northern Cape Nature Conservation Service. Compiling and presenting Environmental Education programs for youth groups and schools. |

The following range of projects had been successfully completed and approved over the years by MEG Environmental Impact Studies:

Red meat abattoirs

Poultry abattoirs

Wine Cellar

Water pipelines

Solid waste sites

New Business areas

**Town extensions
/Residential developments**

Construction of power lines

Stormwater drainage

Community safety centre

Low water bridges

Water abstraction facilities

Sewage works

Leisure facilities

Cemeteries

TV Towers

**Upgrading/
Rehabilitation of roads**

Agricultural Developments

Golf Estate Development

Resorts

SECTION B

2. EXISTING ENVIRONMENT

2.1 Description of the activity

The property, namely portion 67 and the remainder of the farm Vaalkoppies 40, on which the proposed development will take place, is situated directly adjacent to the Upington/Groblershoop road, approximately 15 km from Upington, in the Northern Cape Province. The proposed development site is also situated directly to the south of the Straussburg/Ntsikelelo community.

Moneyline 645 (Pty) Ltd, who is the applicant for this environmental impact study, have been registered in 2009 and operates its business under the name of Deo Gloria Olive Estate (Pty) Ltd. The proposed development will therefore be done by Deo Gloria Olive Estate who has a 51% ownership together with the IDC (Industrial Development Corporation) who has the remaining 49% ownership in the company.

This development will take place in phases of which phase 1, consisting of 100ha, will be developed for the planting of olive trees in 2011. The remainder of the development will be done in follow-up phases in order to be able to plant in 2011 and onwards.

Part of the development will include a nursery for new trees which will make use of imported plant material from Israel and Spain. Once the nursery has been established the planting of olive trees will commence at an estimated rate of 200 – 300 hectare per annum, starting from the north-easterly section of the property. Since the proposed development activities falls within the definition of agricultural use, no application for rezoning of the land will therefore be necessary.

The proposed development entails the preparation of the soil and the planting of the required olive tree orchards together with the necessary infrastructure. Together with the development of the land for agricultural purposes, the owner will provide additional, associated infrastructure such as irrigation, housing, farm road network, a runway

pump station etc.

Some infrastructure were also developed on the 3 ha area which formed part of the R.24G-application, dated May 2010. This also includes residential houses; sheds, an olive processing facility; a nursery and nursery associated outbuildings as well as a hangar.

ESCOM has already approved an electrical supply of 25kVa for the site and provision has also been made for the future upgrading of this supply to 200kVa.

The site, portion 67 and remainder of the farm Vaalkoppies 40, is the property of the applicant, Moneyline 645 (Pty) Ltd owned by Mr Kobus van der Westhuizen, and therefore the owner's consent for this application will not be necessary.

2.2 Description of the property

The property on which the proposed development is planned is known as portion 67 of the Farm Vaalkoppies 40 which consists of 230ha, as well as the remainder of the Farm Vaalkoppies 40 which consists of 1380ha. The property is located approximately 15km from Upington, to the south of the Upington/Groblershoop road. The property is surrounded by farms including a commercial export farm on the western border. To the north of this property lies the community of Straussburg/Ntsikelelo. The site is mostly undeveloped and will be prepared for olive tree orchards.

A R.24G application has been lodged with the Department of Environment and Nature Conservation for the existing 12ha olive plantation and additional 3ha developments on the property. This application has been undertaken in conjunction with Mr Montshiwa of the abovementioned department.

The application area forms part of a total area of 1 610 ha and is currently zoned for agricultural purposes. The application is for the

change in land use of 1 300ha in order to use it for the cultivation of olives and by-products.

SECTION C

3. DESCRIPTION OF THE ENVIRONMENT

As mentioned previously in this report, the application area consists of portion 67 and the remainder of the farm Vaalkoppies 40, which covers a total area of 1 610ha. The proposed development of 1 300ha will therefore take place on all available agricultural land.

3.1 Physical environment

The characteristics of the area are typical to a farming community which is farmed on a commercial basis and includes the entire infrastructure necessary for a development such as this. Deo Gloria Olive Estate is committed to provide a high quality product and especially olive oil. The proposed development has therefore being planned in conjunction with specialist in this industry from Israel and Spain. Through these inputs as well as ongoing research, the applicant plans to develop plant materials which will suite the conditions of the Northern Cape and its climate best.

Once the necessary preparation work is completed and the necessary approvals have been obtained, the Deo Gloria Olive Estate will form part of the SA Olive Association.

The necessity for the application is therefore to obtain approval for new farming activities including the necessary infrastructure for Deo Gloria Olive Estate (Pty) Ltd. The management team of this farm has to implement the environmental management plan which will form part of the Environmental Impact Report and will address issues such as water resources, soil conservation and waste management.

The site visit to the proposed development area has been done on 23 July 2010 and therefore the status quo of the natural environment and its surroundings at the given time will be given in this report. Mr. K Manyatsa who is the environmental officer that handles the application, was taken to the site on 25 August 2010. The Assistant Director from

the Department of Water Affairs Ms. M Ranwedzi also visited the site on 30 August 2010.

During the site visit it was also found that part of the proposed site has historically been disturbed for the manufacturing of bricks and the excavation of clay for the bricks. A large quarry, currently not in use, has also been identified during the site visit. The largest section of the site was however still in its natural state.

As mentioned in par. 2.1 of this report, the applicant has previously commenced with the development of infrastructure on the farm as no facilities in this regard were available. These disturbances did form part of the R.24G- application as submitted to the Department of Environment and Nature Conservation, dated May 2010.

The applicant intends to develop the necessary infrastructure such as pipelines (less than 0,36 m), 2 x dams (each 30 000m³), pumping station, housing, etc. on the site as there is no infrastructure for operating activities such as this.

TOPOGRAPHY

The topography of the site consists of rocky outcrops and small hills which vary in height from 805m above sea level to 915m above sea level with the highest area in the southeast of the site. Some secondary and smaller natural drainage channels occur on the site with the main drainage channel running in a northerly direction towards the Orange River further to the north. Between the rocky outcrops and small hills some relatively flat plains are to be found which will be suitable for agricultural development.

GEOLOGY AND SOIL TYPES

Surface rubble: rubble is found on the slopes of the small hills to the east. The rubble varies in width and consists of a variety of rock formations with different sizes of fragments. The rubble slopes formed as a result of a fault on the mountain resulting in the lifting of the western side. Accelerated erosion resulted in the deposition of rubble, mainly towards the western side of the Upington-Groblershoop road.

Large parts of the area are covered by windswept sands and surface sand-cover of varying thickness. The area consists of Strausburg granite, Jannelsepan formation and Bethesda formation.

Jannelsepan formation: This formation consists mainly of inlayered metavolcanic and metasediment stones predominantly amphibolite, hornblende gneiss en quartz-feldspar gneiss. A fair amount of deformation has taken place in the formation. Various shear zones are also detectible and are of varying size (from a few centimetres to hundreds of metres). A fairly large shear zone is found in the Louisvaleroad area.

Bethesda formation: Bethesda formation found in this area is light grey, medium granular quartz feldspar gneiss with thin layers of lime silicate formations. A small portion of shear zone is found in the research area.

Strausburg granites: The Strausburg granites are characterised by exfoliation forming granite domes. It consists of quartz, biotite and feldspar. The granite is intrusion in the surrounding formations and is characterised by poor foliation.

In general, the geology and nature of the soil can be described as hard, though typical of the region.

GEOHYDROLOGY

According to the “Preliminary assessment of the hydrogeology of the province of the Northern Cape” (Toens, 1996) the site forms part of Hydrogeological Zone 5a.

According to this report the ground water level in this zone varies from between 10 and 50 below surface. Ground water is difficult to locate in this zone and no boreholes yielding more than 2 l. /s is known in this zone. In much of these areas, the ground water therefore needs to be desalinated before it can be considered acceptable for human consumption.

On the farm there are 4 boreholes. The following information with regard to these boreholes was obtained:

Borehole 1:

This borehole has a yield of 2 000 l/hour at a depth of 30 metres. The water from this borehole is currently used for household purposes.

Borehole 2:

This borehole has a yield of 7 700 l/h at a depth of 120 metres and also supplies water for household use.

Borehole 3:

This borehole has a yield of 5 400 l/h at a depth of 60 metres and this water is used for the game on the farm.

Borehole 4:

This is a new borehole which is not currently in use and has a yield of 30 000 l/h at a depth of 120 metres.

CLIMATE

The climate is typical of the region and can be described as a summer rainfall area with a climate of extremes. The average rainfall varies between 150 and 200 mm per annum.

December and January are the hottest months with an average maximum temperature of 35°C. The coldest months, with a minimum temperature of -5°C, are June and July. The highest rainfall is recorded in March (average of 42 mm) while the lowest is recorded in June and July. The rainfall mostly occurs in the form of thunderstorms with a prevailing north-westerly wind.

The winter months are characterised by mild days and cold nights when the temperature goes down to subzero. Cold fronts from the Atlantic Ocean can very quickly change mild days into icy cold days with frost at night. In spring and summer the prevailing winds originate from a north and north-north-westerly direction. During winter months, strong south-west and south-south western winds are experienced although they are not of a long lasting nature.

As a result of its location, this terrain is not subject to flood situations.

3.2 Biological environment

According to the “Vegetation Assessment of the proposed Deo Gloria Olive Estate” dated August 2010, the northwestern corner of Deo Gloria Olive Estate falls in the Bushmanland Arid Grassland, while the rest of the site falls in the Kalahari Karroid Shrubland, which are both classified as areas of “least concern” because little of the areas has been transformed.

The Bushmanland Arid Grassland type consists of extensive to irregular plains on a slightly sloping plateau sparsely vegetated by grassland and dwarf shrubs. A third of this area is covered by alluvium and calcrete. During the site visit some bird species were seen.

This veld type namely, Kalahari Karroid shrubland is typically forming belts alternating with belts of Gordonia Duneveld on plains. Patches of this veldtype also occur around Kakamas. It consists of low karroid shrubland on flat, gravel plains. Karoo-related shrubs meet here with northern floristic elements, indicating a transition to the Kalahari region and sandy soils.

According to the vegetation assessment, eight plant communities were distinguished on the proposed development site covering the rocky areas and small outcrops, sandy plains and drainage lines.

During the site visit held on 23 July 2010 various game species and other fauna species were found at the site. Due to the proposed development area of 1 300ha, the remaining 300 ha will be left undisturbed as a game camp and therefore this development should not have a significant negative impact on the survival of fauna.

3.3 Social environment

The proposed project which entails the planting of olive trees and the processing of the olives to produce olive oil is a joint initiative of Deo

Gloria Olive Oil Estate (Pty) Ltd (51% shareholder) and the Industrial Development Corporation (49%) shareholder.

In the long run the whole farm will be used for the cultivation of olive trees. These trees will be planted at a density of 830 trees per hectare. The harvesting period for the olives is between 2 ¹/₂ to 3 ¹/₂ months and harvesting of the olives will be done both mechanically and manually for which 300 – 400 seasonal workers will be needed.

This farm will form part of the highly commercial agricultural (farming) community of the Upington area. This community is characterized by intensive farming practices with larger communities such as Upington and smaller communities at Louisvaleroad, Straussburg/Ntsikelelo and Leerkrans.

This project will be managed by a very competent and motivated workforce, who contributes positively to the local economy and the provision of job opportunities in the region and the Northern Cape Province and the development of these activities will also add to the social upliftment in the area. The local workers of the Straussburg/Ntsikelelo community will directly benefit as a result of this development. This will contribute positively to the social and economic upliftment of previously disadvantaged persons in this area and the agricultural sector as a whole.

The number of employment opportunities will expand during the following years together with the expansion of this project.

3.4 Economic environment

In order to ensure that the proposed project will be sustainable and economically viable, the applicant will also make use of the existing labour force that is on the farm. Harvesting of the olives takes place in April – June autumn/winter.

Initially the development will entail the planting of between 200 and 300ha olive trees per annum.

The expected capital outlay for the proposed 1 300ha development will be in the order of R90 – R100 million. The expected yearly income after ± 5 years that will be generated as a result of this activity is estimated to be R70 - 90 million per year

All of these work opportunities, as well as the creation of buying power, will contribute positively to the economic environment of the area.

3.5 Cultural environment

During the site visit an existing cemetery site was found in the north-western corner of the property. This site will however not be affected by the proposed development and will not be disturbed at all. A Heritage Impact Assessment has also been done as part of the environmental impact assessment. The purpose of this report is to identify and assess features of heritage significance, identify possible impacts and propose management measures to mitigate negative impacts.

The findings of this report by Cultmatrix states that there are no compelling reasons not to authorise the proposed change of land use and that the proposed development can continue with provided mitigation.

SECTION D

4. PUBLIC PARTICIPATION

The following steps were taken in accordance with the plan of study for EIA.

4.1 Notification

During the public participation process the following interested and affected parties were identified and had been consulted:

| NAME | ADDRESS | NOTIFIED BY: |
|---|---------------------------------------|----------------|
| DENC Department of Environment and Nature Conservation | Private Bag X6102, KIMBERLEY, 8300 | SCOPING REPORT |
| DWA Department of Water Affairs | Private Bag X5912, UPINGTON, 8800 | SCOPING REPORT |
| DAFF Department Agriculture, Forestry and Fisheries | Private Bag X5912, UPINGTON, 8801 | SCOPING REPORT |
| DAFF Department of Agricultural , Forestry and Fisheries | P O Box 52, UPINGTON, 8801 | SCOPING REPORT |
| ADJACENT LAND OWNERS AND INTERESTED PARTIES: | | |
| //Khara Hais Municipality | Private Bag X6003, UPINGTON, 8801 | LETTER |
| Straussburg Irrigation Board | P O Box 2142, UPINGTON, 8801 | LETTER |
| Johan van der Colff Trust | P O Box 1928, UPINGTON, 8800 | LETTER |
| Vredelus Boerdery | P O Box 1932, | LETTER |

| | | |
|------------------------------|---------------------------------|--------|
| | UPINGTON, 8801 | |
| Gordonia Verspreiders CC | P O Box 759, UPINGTON, 8801 | LETTER |
| New Haven Trust | P O Box 93, UPINGTON, 8801 | LETTER |
| Mr JS Strauss | P O Box 1458, UPINGTON, 8801 | LETTER |
| De Wet Strauss Familie Trust | P O Box 106, UPINGTON, 8801 | LETTER |
| ESKOM | PO Box 500, UPINGTON, 8801 | LETTER |

4.2 Issues identified

The following comments have been received from adjacent land owners as well as interested and affected parties (See Annexure 3-8):

| NAME | DATE RECEIVED | COMMENTS AND RESPONSE |
|---|----------------------|---|
| DWA Department of Water Affairs (annexure 3) | 10.09.2010 | <p>The department indicated that during the site inspection a big seasonal stream, several small seasonal tributaries together with natural drainage systems were observed on site. The department recommends that no development should take place within 32m of the water course and if so, the water course should be delineated in order to provide an appropriate buffer to maintain such water course.</p> <p>The department stated that, as indicated in the Scoping report, there are only 14.3 ha of water</p> |

| | | |
|--|--|---|
| | | <p>rights which are allocated to portion 67 of the farm Vaalkoppies 40, Straussburg. The applicant must note that the 14.3 ha water rights can be used in portion 67 only (which is 230 ha) and cannot be used on the remainder of the farm. If the applicant intends to use these waterrights on the remainder of the farm Vaalkoppies 40, the applicant must apply for the temporary or permanent transfer of water rights from the Department of Water Affairs before the authorization can be granted. The department also stated that in order to obtain additional water rights for portion 67 and the remainder of the farm Vaalkoppies 40, a license application must be submitted to their office and authorization obtained before the development commences.</p> <p>Should any new installation for a pump station on a new site on the river bank be required, it constitutes to a water use and it must be authorized in terms of section 21 (i) of the Act.</p> <p>The applicant indicated that olive trees require approximately 200 liter water/tree per month and that 14.3 ha of water rights can provide water for 107 ha olive plantation. – The Dept. of Water Affairs indicated that the applicant must submit a substantiate</p> |
|--|--|---|

| | | |
|--|------------|---|
| | | <p>document supporting this statement. – The applicant will provide the department of Water Affairs with the required information in this regard.</p> <p>The department requested that a detailed layout plan for the sewerage system and its connection to the closed tank needs to be submitted to the Department of Water Affairs before the development commences.</p> <p>The department takes note that the applicant will provide the necessary rubbish bins in order to prevent littering on the farm.</p> <p>The Department of Water Affairs will have no objection to the development, if the above stipulated issues be taken into consideration and the needed information provided.</p> |
| <p>DAFF Department of Agricultural, Forestry and Fisheries (Annexure 4)</p> | 06.09.2010 | <p>Indicated that they are also responsible for the issuing of plough certificates and that this will be considered once the necessary test has been done to determine the possibility to irrigate the soil. These tests will be done in conjunction with the said department and will also be a legal requirement before the commencement of the project.</p> |
| <p>DAFF Department of Agricultural, Forestry and Fisheries</p> | 23.08.2010 | <p>The department stated that layout plans must take protected tree species, if any, into consideration during the layout planning process</p> |

| | | |
|---|------------|---|
| (Annexure 5) | | <p>for the proposed development. If layouts cannot be adopted the necessary Forest Act License must be applied for in order to remove and/or disturb the trees. As requested a copy of the ecological report will be given to the mentioned Department.</p> <p>Herbicides containing the active ingredients of <i>bromacil</i> and <i>tebuthiuron</i> must be avoided during the management of invader species.</p> <p>A copy of the EMP will be forwarded to the department.</p> <p>Note was taken on the address change.</p> <p>In principle, the department has no objection against the proposed development as long as protected trees are not adversely affected by this development.</p> |
| //Khara Hais Municipality (annexure 6) | 12.08.2010 | //Khara Hais Municipality indicated that the proposed development of this agricultural area will contribute to an improved usage of the land and economic development in the area. They also indicated that the proposed development is within the properties existing landuse rights of Agricultural zone 1 and they do not have any objection to the proposed development. They also indicated that they support the development. |

| | | |
|---|------------|--|
| ESKOM (Annexure 7) | 02.08.2010 | No objection to the proposed development. |
| ADJACENT LAND OWNERS AND INTERESTED PARTIES (Annexure 8) | | |
| Mr Van der Colff | 25.08.2010 | No objection to the proposed development |
| Mr D de Wet Strauss | 04.08.2010 | The landowner indicated that he had a discussion with the applicants and that he requested them to ensure that workers do not trespass on his property. He also wishes the applicant best of luck with the proposed development. |
| Newhaven Trust (Mr NS Strauss) | 07.09.2010 | Mr. Strauss expressed his concern if the applicant will make use of groundwater for irrigation purposes as he is of the opinion that it will not be sustainable. – The applicant confirmed that he will not make use of any groundwater resources for irrigation purposes. Should any groundwater however be used, an application must first be lodged with the Department of Water Affairs. |

SECTION E

5. DESIRABILITY OF THE PROPOSED ACTIVITY

5.1 Potential environmental impacts

The application procedures and requirements were addressed in the Plan of Study for EIA to ensure that the correct procedures were followed and the report is considered by the delegated authority in terms of the ECA.

The following methodology was utilised in the compilation of the environmental impact study:

- An analysis of both the needs of the applicant and the scope of the project.
- Consultations took place with the applicant, specialists/experts, various departments and other interested and affected parties to exchange information and express their views and concerns.
- The proposed project was discussed.
- Site visits were conducted to identify the area where the development is proposed, identify the visual character and land uses in the area as well as obvious impacts that the proposed development may have on the environment.
- Experts were consulted (where necessary) to obtain a specialist report on the archaeology of the area as requested by SAHRA.
- Obtain information continuously from the applicant on specific aspects of the proposal that might affect the environment;
- Comprehensive and continuous liaison with various stakeholders such as interested and affected parties, departments, landowners, etc.
- Assimilate and analyse all information gathered throughout the process.
- Conclusions made and recommendations supplied in respect of the information gathered.

5.2 Alternative

The No Development alternative was taken into account during the

initial evaluation of the proposed development and the site visits, together with the Environmental Officer from the Department of Environment and Nature Conservation. During these investigations of the property, it was however concluded that if the proposed development is done in accordance with the necessary recommendation contained in this report, effect on the biodiversity and the heritage resources of the region be minimal and manageable, while it will definitely have a positive impact on the socio-economic environment of the area.

5.3 Specialist reports

The following specialist studies were undertaken as part of the investigation:

Vegetation Survey of the property (Annexure 1)

A detailed Vegetation Assessment of the proposed Deo Gloria Olive Estate was done by Dr. N van Rooyen, a specialist in this field, and the findings of this study, together with the recommendations made has been included in the detailed report attached as Annexure 1. This report and the findings and the recommendations made, should therefore form an integral part of the Record of Decision by the Department of Environment and Nature Conservation.

Heritage Impact Assessment Report (Annexure 2)

A Heritage Impact Assessment Report was compiled by an accredited archaeologist in order to evaluate the archaeological and heritage significance of the proposed development area. After a thorough investigation by Dr RC de Jong and Dr JA van Schalkwyk from the Cultmatrix, it was concluded that there are no compelling reasons not to authorise the proposed change of land use and that the proposed development can continue provided that the mitigation measures in report are adopted.

SECTION F

6. ENVIRONMENTAL ISSUES

This section of the report addresses the possible impacts, as identified during the initial environmental impact assessment. The possible environmental impacts and suggested mitigation measures/recommendations as identified are as follows:

6.1 Historical, cultural and archaeological sites

During the site visits by M Geldenhuys to the site no sites of historical, cultural and archaeological value were found at the development area. Nevertheless a Heritage Impact Assessment Report (HIAR) was done by Cultmatrix.

The general aim of any HIAR is to ensure that the needs of socio-economic development are balanced by the needs to preserve significant heritage resource.

According to the report the most significant heritage features that were identified are:

1. A site where Late Stone Age artifacts were quarried and manufactured, located near the western boundary fence (similar sites may occur elsewhere on the property).
2. a large cemetery associated just outside the northern boundary near Straussburg and Ntsikelelo
3. A monument dedicated to JC Strauss, the founder of Straussburg, near the northern boundary overlooking the two quarries

The predicted heritage impacts on the development areas within the site are:

1. Neutral (no impact) where no significant heritage features were found.
2. Direct impacts where the two Late Stone Age quarry sites and the western of the two cemeteries are affected.

Visual impacts are of less importance because the wider study area is already being transformed by residential and farming developments.

Cultmatrix states that there are no compelling reasons not to authorize the proposed change of land use and that the proposed development can continue provided that the following mitigation measures are adopted as a heritage management tool:

Mitigation

1. Should any hidden human remains (highly unlikely) be disturbed, exposed or uncovered during (plant) site preparation and planting, these should immediately be reported to an archaeologist. Burial remains should not be disturbed or removed until inspected by an archaeologist.
2. Site preparation and planting activities must be monitored for the occurrence of any hidden archaeological material (Stone Age tools) and similar chance finds and if any are exposed; this should be reported to an archaeologist so that an investigation and evaluation of the finds can be made.
3. The significance of the Strauss memorial should be retained by avoiding and protecting the place.
4. The significance of the two LSA quarries should be retained by documenting, avoiding and protecting them through a fence and a 15 m wide buffer zone around each site.
5. The significance of the Ntsikelelo cemetery should be retained by avoiding it and ensuring a buffer zone of at least 15 m wide around the periphery and by ensuring access from the village.

Should any areas or objects of significant heritage potential be found during the proposed development, the following requirements, according to the National Heritage Resources Act, Act no 25 of 1999 will still apply: (“No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site”)

Should any conservation worthy archeological or cultural historical

finds be made during the proposed development, the necessary expertise of the McGregor Museum should be called upon to investigate any such findings.

6.2 Flora

During the site visits it was found that the proposed development site is situated in a “least concern” area.

A Vegetation Assessment of the proposed Deo Gloria Olive estate of the site was done by Dr Noel van Rooyen and attached to this report as Annexure 1. In the report it was confirmed that the northwestern corner of Deo Gloria Olive Estate falls in the Bushmanland Arid Grassland, while the rest of the site falls in the Kalahari Karroid Shrubveld.

Eight plant communities were distinguished on the proposed development site covering the rocky areas and small outcrops, sandy plains and drainage lines.

According to the Northern Cape Nature Conservation Act 2009 (Act No 9 of 2009) the following plant species on site are of importance:

Schedule 2 - Protected species:

CITES 2009: The plant species on site are in the Appendix II category and include:

Aloe claviflora – endemic

Anacampceros cf filamentosa - endemic

Avonia payracea - endemic

Boscia albitrunca

Boscia foetida subsp. *foetida*

Euphorbia avasmontana

Euphorbia decussate

Euphorbia gariepina

Lithops cf bromfieldii

Psilocaulon coriarium

Sarcostemma viminale

Zygophyllum spp. – endemic

According to the National Red List of Plants 2009, *Acacia erioloba* is classified as declining. All other species on site is classified as of “least concern”. National protected tree species on site are *Acacia erioloba* and *Boscia albitrunca*.

The sensitivity rating of the area has been discussed in the detailed Biophysical survey under Chapter 8 and divides the area in different categories. Of the eight plant communities in the area, communities 4,5 and 7 are classified as low sensitivity areas. Communities 2 & 3 are classified as low-medium sensitivity areas, community 6 as medium and communities 1 & 8 as medium-high sensitivity areas.

The impact of the proposed development on the ecosystems, plant communities, physical habitat and habitat for fauna was evaluated.

1. Impact on the physical environment - medium significance

The prominent rocky hills and rocky outcrops should not be included in the development envisaged. The drainage lines and their associated vegetation should be conserved, flow of water along the drainage lines should not be impeded or redirected, and where necessary erosion control measures should be taken, e.g. by using gabions. Silt transport to the Orange river should therefore be minimized. A buffer zone of non-disturbance of approximately 10m – 32 m between the drainage lines and the plains and between the plains and the rocky mountains in the east. Measures to prevent erosion and silt transport should be taken, e.g. erections of gabions.

2. Impact on the ecosystems and plant communities of the undulating plains (communities 2- 7) - low significance

The site falls in the Bushmanland Arid Grassland and Kalahari Karroid Shrubland. Only small patches of these vegetation types are conserved in statutory conservation areas. The significance of habitat loss on the property is therefore low from the point of view of the overall condition and the total area covered by the vegetation type in other areas.

Mitigation: Conserve offset areas by conserving the remainder of the habitat on Deo Gloria Olive Estate.

3. Impact on the rocky ridges and rocky outcrops (community 1)

This habitat should be excluded from any development and the impact of the development should therefore be low. The summits of many of the hills on site are very rocky and especially where quartzitic gravel and rocks occur, these habitats should be preserved because this is the specialized habitat for endemic and protected species such *Aloe claviflora*, *Avonia papyracea*, *Anacampceros cf filamentosus*, *Lithops cf bromfieldii* and *Euphorbia decussata*. These and other protected species such as *Euphorbia avasmontana* and *Boscia foetida subsp. foetida* may not be removed or damaged without permits issued by the relevant authorities.

4. Impact on the drainage lines (community 8) - medium significance

Comments and mitigation: This habitat should be excluded from development and indirect impacts should be minimized. The drainage lines that dissect the plains should not be re-directed. The drainage lines are for most of the year dry and flow for short periods after relatively heavy rains. The upper reaches of these seasonal drainage lines are not considered to be wetlands in the strict sense of the word. However, the flow of water along the upper reaches should not be impeded and prevention of erosion should be a high priority if the area is to be developed. The current experimental plot of olive trees is an example where the orchard was established across drainage lines and may therefore experience damage during high rainfall events.

The lower reaches to the south are more defined and should be conserved and should not form part of the proposed development. A buffer zone of non-disturbance of about 32m along the main water courses should preferably be set aside. Protected tree species such as *Acacia erioloba* and *Boscia albitrunca* may not be removed or damaged without permits issued by the relevant authorities.

6. Impact of the exotic vegetation

All exotic plants including declared weeds and invaders should be destroyed according to the regulations on alien and invasive plants (Section 70 of NEMA:BA (Act 10 of 2004) and the conservation of Agricultural Resources Act no 43 of 1983, as amended.

Mitigation

The following basic recommendations must be taken into account during the planning, construction and operation phases of this proposed development. They are as follow:

- Protected trees such as Camel thorn and shepherd trees should not be disturbed and an area around them should remain in tact. The root feeding zone of these trees should not be disturbed and/or compacted at all, as trees absorb moisture as well as oxygen through the fine hair roots occurring in this area. No filling, cutting or addition of topsoil should thus be done within this area
- All invader species such as *Prosopis sp.* - suidwesdoring, should be removed.
- Roads should be restricted especially in areas where no planting has been done. This will prevent unnecessary destroying of the natural vegetation and also prevent erosion. After rains, roads should be repaired and no new tracks made next to eroded roads.

General measures to be taken:

No disturbance of any protected flora may take place without the required permit from the Department of Agricultural, Forestry and Fisheries and the Department of Environment and Nature Conservation.

Any possible impacts will be addressed by careful planning, the planting of endemic plants and minimal water abstraction. The use of pesticide should be severely limited, or banned entirely to maintain biodiversity, especially within the mentioned drainage areas.

6.3 Fauna

The property occurs south of the Orange River and is relatively close to Upinton. The northern boundary of the site borders in some places on small settlements. Poaching of fauna by means of dogs occur sometimes on site. The grass cover varies from low to medium. During the initial site investigation various species have been found in the south of the farm. Some livestock such as cattle were also found at the site.

The proposed development also makes provision for a 300ha game camp where game will be accommodated (see preliminary map in the Scoping Report).

A complete discussion of the vegetation of the area has been included in the “Vegetation assessment of the proposed Deo Gloria Olive Estate”, Chapter 7. This report also includes a detailed discussion of all the faunal species in the area.

The number of faunal species found in the Augrabies Falls National Park may give an indication of the biodiversity of the region in general. The lists include species from all kinds of habitats in the region, including the Orange River and surrounds.

According to the Biophysical Survey Report the impact on fauna has low significance. “No indigenous large mammals were seen on the property during the survey in February. The habitat on site is in poor to moderate condition due to a very sparse grass and forbs cover as well as grazing pressure by livestock.

The grass species composition of the plains makes it suitable for grazing animals. Some shrubs such as *Acacia mellifera*, *Boscia foetida* and *Rhigozum trichotomum*, as well as many dwarf shrub species are common on site and provide some browse for browser species. Browse is particularly abundant along the drainage lines where species such as *Acacia mellifera*, *Boscia foetida*, *Ziziphus mucronata*, *Boscia albitrunca* and *Acacia erioloba* are abundant. The deep sandy soils in certain areas

on the plains are suitable for small ground-living animals as well as for large burrowing animals such as the aardvark. The rocky ridges and other outcrops provide habitat for species such as the rock hyrax, e.g. at the disused open pit mine (quarry), where a large population occurs.

Impacts of habitat destruction on fauna – medium significance

Comments and mitigation: Most of the gravelly and rocky areas have a sparse vegetation cover. The sandy plains where the development is envisaged are also the preferred habitat for most of the larger herbivores on site. The area available for these animals will be significantly reduced and the stocking density should be adapted for the remaining area.

The indigenous and endemic trees and shrubs, especially *Acacia erioloba*, *Boscia albitrunca*, *Boscia foetida* subsp. *foetida*, *Acacia mellifera* and *Ziziphus mucronata* should be protected as far as possible. Besides being protected tree species, they form important food sources and habitats for various fauna. The underbrush normally associated with these species also forms an important micro-habitat for a number of animal species. It is important to have an undisturbed offset area of at least the same size and of similar habitat in the same area, to allow for natural movement and re-colonization of displaced fauna if the development is to proceed.

Habitat destruction and the possible genetic contamination of species are however all factors that can negatively impact on vertebrate species, but can be minimized through applying the following mitigation measures:

Mitigation

- The new plantations can be protected from damage caused by dassies, small game and rabbits by covering the stems of the small trees with tubes.
- Regular maintenance of the water network will minimize the damage done by porcupines.
- No hunting of small game with dogs may be allowed.

- In order to ensure that all fauna will be able to relocate to the adjacent veld, openings should be made in the fences within the proposed development area, before any construction work may commence so that the species can enter the 300 ha game camp.

An Environmental Management Plan has been compiled and included in this EIA report. This EMP also addresses important issues such as the prohibition of the hunting of small game etc.

6.4 Land uses

The planned development is situated within an agricultural area near Upington/Straussburg and to the south of the Upington-Groblershoop road. As previously mentioned the site is located directly adjacent to the existing residential area of Straussburg/Ntsikelelo. The nature of the proposed development namely agricultural will therefore have no impact on any surrounding land uses in the area, except for future job creation.

6.5 Plough certificate

The applicant will have to obtain a plough certificate from the Department of Agriculture, Forestry and Fisheries before any development can take place and after the authorization for the application has been received. The inputs from the Department of Agriculture, Forestry and Fisheries had been therefore being requested and comments from the said department are included in this EIA report as annexure 4.

6.6 Water

The applicant has confirmed that he will not exceed its approved water rights allocated to the farm for the proposed developments. Presently portion 67 of the farm Vaalkoppies 40 has 14.3ha water rights allocated to it. Water is currently extracted from the irrigation canal by means of

existing pumps and transported via existing pipelines to the farm. Should additional water rights be obtained, the existing pipeline will in the future also be upgraded.

Comments from the Department of Water Affairs (Annexure 3) have been addressed under par. 4.2. The additional information as requested will be forwarded to the said department as soon as the applicant provides it.

Additional to the requested information it will only be possible and allowed by the Department of Water Affairs, if the following requirements are adhered to:

1. An approved plough certificate has been obtained for the proposed site where the plantation will be developed;
2. Water meters, approved by department Water Affairs, has been installed to monitor water usage and,
3. The applicant provides the department of Water Affairs with monthly readings of water usage.

Should the applicant not be able to adhere to the abovementioned requirements, he will only be able to develop and irrigate 14,3 ha land.

In addition to the above requirements, the applicant, in conjunction with the Industrial Development Corporation, will lodge an application for additional water rights with the department of Water Affairs as these water rights will be needed for the development of the remainder of the farm.

As indicated in the comments received during the public participation process (annexure 8) the use of any groundwater for irrigation purposes is a great cause for concern. Any use of groundwater however constitutes a water use and according to National Water Act, 1998 (Act 36 of 1998): Section 21(a) requires an license application.

The design of the irrigation system by an irrigation firm will also be done in such a manner as to ensure the optimal use of water resources. The new irrigation system will also link up with the existing system

currently in use.

Mitigation

- < Measures should be implemented to reduce water use within the proposed development, such as the use of tension meters to avoid over irrigation of the soils.
- < Before any groundwater be utilized for irrigation purposes, an application for “Taking water from a water resource” must be lodged with the department of Water Affairs.
- < Environmental education programs for workers will ensure that they will be sensitive to the environment and report incidents such as leaking taps, broken irrigation systems, hunting of small game etc.
- < Awareness/education notices are essential to get support from the exporters/tourists.

6.7 Sewage disposal

Due to the fact that the proposed development entails new agricultural activities, additional infrastructure will be needed as a result of this development. The applicant will provide the workers with mobile flush toilets as the chemical toilets are not effective enough.

At the housing area the sewerage system will consist of a closed tank system which will be emptied on a regular basis and disposed off at the local sewerage disposal facilities.

Mitigation

Regarding the construction work at the site, it must be ensured that the applicant/contractor provide sufficient sanitation facilities for the use of his employees during the actual construction/preparation period. The applicant/contractor will be solely responsible for the proper use and maintenance thereof in conditions, which are to the satisfaction of both the contractor and the applicant. All facilities must be positioned within walking distance from wherever employees or laborers are at work. //Khara Hais Municipality will be contacted to empty these tanks into a registered sewage system when it becomes necessary.

It is important to note that the department of Water Affairs requested

that a detailed layout plan for the sewerage system and its connection to the closed tank system needs to be submitted to DWA before the development commences.

Other specifications to be adhered to are, amongst others, the following;

- All facilities provided at the site must comply with the requirements of the Local Municipality.
- No facility may be erected within a radius of 100m from a water source.
- The applicant/contractor must be held responsible for the cleaning of the sanitary facilities to prevent health hazards for the duration of the contract.
- Sanitary facilities must be provided at a ratio of one (1) facility for every ten (10) persons.

All sanitation facilities must be sited, in terms of the specifications of the *National Water Act no. 36 of 1998*, in such a way that they do not cause water- or other pollution.

6.8 Solid waste disposal

The applicant must provide the necessary rubbish bins in order to prevent unnecessary littering on the farm. The application area is located within the municipal area of //Khara Hais Municipality and all household waste will then be disposed of at the municipal solid waste disposal site.

Since the proposed development site is adjacent to the Straussburg/Ntsikelelo community it is recommended that the applicant make use of this service by paying the required service fees. This way the household waste will be removed on a weekly basis by //Khara Hais Municipality.

All facilities in use during the construction phase must be utilized and maintained in a manner that prevents pollution of any groundwater sources. No waste of any kind may be disposed of in the surrounding

environment.

Mitigation

Deo Gloria Olive Oil Estate (Pty) Ltd must ensure that they implement the environmental management plan included in the EIR in order to ensure that everybody adheres to the requirements and guidelines for the daily handling of solid waste on the farm. A no-nonsense approach with regard to littering on the farm exists and the neatness of the workplace as well as the residential areas is all high priorities for the management.

Sufficient provision should be made for rubbish bins on the farm to prevent workers from littering. These rubbish bins should be clearly marked and be visible.

It is noted in the comments from the Department of Water Affairs that the applicant will provide the necessary rubbish bins in order to prevent littering on the farm.

6.9 Air and noise pollution

Air Pollution

During the construction phase, and due to the nature of the project, an amount of smoke (from machines) and dust will be generated. Dust pollution may have an impact on the operational workers.

Mitigation

In order to minimize the effect of dust pollution, the construction area can be kept wet as far as possible and the workers must wear the necessary safety clothing.

The applicant is referred to section 19 of *the National Water Act no. 36 of 1998* with regard to the prevention of, and remedies for, the effects of pollution. In terms of this section of the Act, the person who owns controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources and property.

Noise Pollution

During the construction phase there may be minimal and sporadic incidents of noise pollution due to the construction activities such as noise as a result of earthworks. Due to the fact that the area is situated within a remote environment, the impact is not expected to be severe.

Mitigation

The contractor should make adequate provision to prevent or minimize the possible effects of noise pollution. Should the noise from the construction work be found to cause problems, (which is not anticipated to be the case) work hours in these areas may be restricted between 06:00 and 20:00, or as otherwise agreed between the parties involved. Strict measures should therefore be enforced, especially in terms of the contract specifications, to prevent any negative impacts in this regard.

6.10 Public health characteristics

Due to the nature of the development, there will be minimal, if any, dangers of the health of workers being jeopardized. The proposed development will occur according to the specific need of the site and the contractor will have to make use of trained staff. Where local communities are employed, it will be the responsibility of the contractor to see to their safety and to provide the relevant training for the execution of their tasks.

6.11 Risks and hazards

The applicant and the contractor should meet the following general conditions and requirements with regard to the proposed development:

- < The contractor will have to ensure that all the necessary precautions in terms of the necessary legislation and contract specifications are taken to guarantee the safety of the workers and the public.
- < Oil and fuel must at all times be properly stored in containers such as drums and tanks that are properly sealed. If it is necessary to store petrol during the construction phase it must

be less than 30 000 l above ground.

- < Drip pans must always be attached to stationary machines such as compressors, generators, etc. These drip pans should be regularly monitored and cleaned when necessary. In case of oil, diesel or petrol spills, immediate action should be taken to prevent the spill from contaminating ground- or surface water.

SECTION G

7. ENVIRONMENTAL IMPACT STATEMENT

During the Environmental Impact Assessment process it was found that the possible impacts as listed in the report can be classed as being of low to medium significance especially if the proposed mitigation measures are adhered too. The overall impact of the proposed development will be of a permanent nature.

The most important impacts identified during the EIA process, could be addressed during the planning phases of the project. These impacts include aspects such as the conservation of the natural run-off areas and all vegetation within these areas, the conservation of all protected plant species and by not disturbing any of these plants without the necessary permits. By obtaining the necessary licenses and permits from the relevant departments, such as plough certificates etc. before the commencement of any development takes place, compliance in this regard will be ensured. All cultural and heritage areas such as cemeteries should be preserved during the proposed development.

Should the necessary recommendations and mitigations be applied, the impacts can be minimized. The loss or changing of vegetation must also be weighed against the probable direct as well as indirect economic gain associated with the proposed development.

Recommendation by the Practitioner

After consideration of the proposed development it is recommended that a positive record of decision be granted on the following conditions:

1. That all the mitigation measures for identified impacts as outlined in this report, specialist reports, as well as the Environmental Management Plan (EMP – annexure 9) are documented in the Record of Decision.
2. That the mitigation measures as well as conditions of the EMP are

legally binding on the applicant as well as the successful contractor.

3. That all accompanying approvals/licenses from the relevant sector departments, such as Water Affairs, and Department of Agriculture, Forestry and Fisheries and SAHRA are obtained by the developer.

Determining identified impact significance:

| POTENTIAL IMPACTS | EXTENT – site specific, local, regional, national or international | INTENSITY – L within site boundary, M beyond site boundary, H widespread Negative - ⁻ Positive - ⁺ | DURATION – L short term (0 – 5 years), M (5 – 15 years), H (15 + years) | MITIGATORY POTENTIAL – L no mitigation for negative impact, M potential to mitigate neg. imp, H mitigate neg. imp. to insignificant effects. | ACCEPTABILITY – L acceptable, M manageable, H unacceptable | DEGREE OF CERTAINTY – L(unsure) less than 40%the likelihood of an impact occurring, M(probable) over 40 %, H(unacceptable) more than 90% sure of the |
|---------------------------|---|---|--|---|---|---|
| 5.1 ARCHAEOLOGICAL | Site specific | L | L | M | M | L |
| 5.2 FLORA | Site specific | L | M | M | M | L |
| 5.3 LAND USES | Site Specific | L | M | M | L | L |
| 5.4 | | | | | | |

| POTENTIAL IMPACTS | EXTENT – site specific, local, regional, national or international | INTENSITY – L within site boundary, M beyond site boundary, H widespread Negative - ⁻ Positive - ⁺ | DURATION – L short term (0 – 5 years), M (5 – 15 years), H (15 + years) | MITIGATORY POTENTIAL – L no mitigation for negative impact, M potential to mitigate neg. imp, H mitigate neg.imp. to insignificant effects. | ACCEPTABILITY – L acceptable, M manageable, H unacceptable | DEGREE OF CERTAINTY – L(unsure) less than 40%the likelihood of an impact occurring, M(probable) over 40 %, H(unacceptable) more than 90% sure of the |
|----------------------------|---|---|--|--|---|---|
| WATER AVAILI | Local | M | M | M | L | L |
| 5.5 SEWAGE DISPOSAL | Site Specific | L | M | M | L | L |
| 5.6 SOLID WASTE | Site Specific | L | M | M | L | L |
| 5.7 | | | | | | |

| POTENTIAL IMPACTS | EXTENT – site specific, local, regional, national or international | INTENSITY – L within site boundary, M beyond site boundary, H widespread Negative - ⁻ Positive - ⁺ | DURATION – L short term (0 – 5 years), M (5 – 15 years), H (15 + years) | MITIGATORY POTENTIAL – L no mitigation for negative impact, M potential to mitigate neg. imp, H mitigate neg.imp. to insignificant effects. | ACCEPTABILITY – L acceptable, M manageable, H unacceptable | DEGREE OF CERTAINTY – L(unsure) less than 40%the likelihood of an impact occurring, M(probable) over 40 %, H(unacceptable) more than 90% sure of the |
|----------------------------|---|---|--|--|---|---|
| POLLUTION: | | | | | | |
| AIR | Site Specific | L | L | M | L | L |
| NOISE | Site Specific | L | L | L | L | L |
| 5.8 PUBLIC HEALTH | Site Specific | L | L | M | L | L |
| 5.9 RISKS + HAZARDS | Site Specific | L | L | M | L | L |

