EXECUTIVE SUMMARY

The purpose of this report is to outline potential environmental impacts of the proposed project and to suggest mitigation measures to negate the impacts. Assessment of the potential impacts is done further-on in this EIA study by evaluating the size, duration and significance of the potential impacts. Recommendations are formulated to mitigate adverse impacts and enhance positive impacts.

The owner of the farm Vluytjes Kraal Noord 149 intent to develop portion 14 and the remainder of portion 3. According to the layout plan the number of dwellings is as follows:

- Erven next to the Orange river (Portion 14) 37
- Small erven development (Portion 14) 68
- Eco development (Portion remainder of portion 3) 45

The development will include the following engineering services:

- Roads
- Storm water drainage
- Water
- Fire Protection
- Refuse removal
- Sewerage
- Electricity

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CONTENTS

1. INTRODUCTION

The owner of the farm, Vluytjes Kraal Noord Boerdery en Ontwikkeling Beperk intent to develop Portion 14 and the Remainder of Portion 3 of the farm Vluytjes Kraal Noord 149, Hopetown Magisterial District. The layout plan proposes that the remainder of portion 3 be an eco-development, and that portion 14 becomes a residential development on the bank of the Orange River.

This development includes:

- 37 Erven next to the Orange River on potion 14
- 68 Small erven development on portion 14
- 45 Eco-development on the remainder of portion 3

2. ENVIRONMENTAL IMPACT ASSESSMENT

2.1 Overview of environmental legislation in South Africa

There are various Acts and regulations that regulate environmental management in South Africa. The proposed must adhere to all relevant legal requirements pertaining to environmental management. The most important of these are:

- National Environmental Management Act (Act 107 of 1998);
- National Water Act (Act 36 of 1998);
- National Heritage Resources Act (Act 25 of 1999).

2.2 EIA Regulations and listed activities

The Vluytjes Kraal Noord 149 residential development proposal is listed in the EIA Regulations under the National Environmental Management Act (NEMA) (Act 107 of 1998). It includes:

Under Government Notice No. 544:

- The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water (no. 9).

- The construction of facilities or infrastructure for the transmission and distribution of electricity (no. 10).

- The construction of bulk storm water outlet structures (no. 11).

- The construction of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more (no. 12).

- The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from a watercourse (no. 18).

- The transformation of undeveloped, vacant or derelict land to residential, retail commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares (no. 23).

Under Government Notice No. 545:

- Physical alteration of undeveloped, vacant or derelict land for residential, retail commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more (no. 15).

2.3 The lead authority

The Northern Cape department of Environment and Nature Conservation is the lead authority. An application for authorisation activities, listed above, in terms of the National Environmental Management Act, 1998, as amended and the Environmental Impact Assessment Regulations, 2006 (Version 1) was submitted to the lead authority. The Northern Cape Environmental Department confirmed that the Scoping process may proceed under Reference number: NC/EIA/PIX/THE/HOPE/2012 (NCP/EIA/0000132/2012).

3. THE PROPONENT

Vluytjes Kraal Noord Boerdery en Ontwikkelings Beperk
P.O. Box 170
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8752

Contact person: Manie Opperman
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E-mail: epog@oranet.co.za

4. LEAD CONSULTANT

Terra Works
P.O. Box 28242
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9310

Contact person: Samuel Pauw
Tel: 051-412 6350
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Cell: 084 7009700
E-mail: sp@terraworks.co.za

Terra Works expertise and competency:

Terra Works Environmental is independent; Mr Samuel Pauw is a registered (at the Interim Certification Board for Environmental Practitioners Reg No: 0071/95) Environmental Assessment Practitioners (EAP's).

5. THE PROPOSED PROJECT

5.1 Description of the proposed activity

According to the Report on the provision of services for Vluytjes Kraal Noord 149:

The application is for residential development and a eco-development on the farm Vluytjes Kraal Noord 149. The layout plan proposes that the remainder of portion 3 be an eco-development, and that portion 14 becomes a residential development on the bank of the Orange River.

The eco-development will comprise of 26 residential stands for medium to high class housing and 14 sites will be self-sufficient. There is no provision for any electrical service to these self-sufficient premises.

The residential development along the Orange River consists mainly of residential stands for medium to high class housing and consists of the following:

- Thirty eight (38) medium size riparian plots that stretched along the river are fitted over a linear distance of approximately 1350 meters. These sites are all exposed to floodline conditions.

- Sixty eight (68) smaller plots that are grouped together and directly border the Orania caravan park.
- The current workers houses about 10, which are located right next to the above mentioned smaller plots 1 to 20, will be smaller units and it will be redeveloped.

The development will include the following engineering services:

- Roads
- Storm water drainage
- Water
- Fire Protection
- Refuse removal
- Sewerage
- Electricity

5.1.1 Roads

Remainder of portion 3 – Eco development

It is proposed that the access collector road BC should be paved from route R369 to the farm boundary fence. The formation of edge breaking and gravel occurring on the surface of Route R369 will then be prevented. The remaining road section BC, will be gravel but measures will be implemented to limit dust. Road section AB functions as a residential road, but will also have a gravel surface. Measures should also be implemented to limit dust. The remainder of the residential roads of this eco-development will have a gravel surface. The traffic volume will be very low and it is expected that dust will not be a problem on these road sections.

Portion 14

It is proposed that the access collector CD be paved from Route 369 to the farm boundary fence. The formation of edge breaking and gravel occurring on the surface of Route R369 will then be prevented. The remaining road sections CD, DE, EF will be gravel and measures should be implemented to limit dust.

The remaining roads will functions as residential roads. Due to the higher volume of traffic on these roads it is proposed that the surface be paved with interlocking blocks (or similar). This will ensure that road maintenance will be reduced and that the formation of dust will be reduced.

The construction of the paved road surface will be scheduled in such a way that it will not damage the pavement layers during the construction of the proposed houses.

5.1.2 Storm water drainage

Remainder of portion 3 - Eco development

Miters and open channels with a limited gradient will be constructed next to road section ABC and the remainder of the residential roads, to accommodate the storm water. The open channels will be lined with stones or concrete in areas where erosion might occur as a result of the gradient of the channels. Energy breaking structures will be constructed at the outfall areas at the end of the channels to help prevent erosion.

It is expected that a few areas will be paved in this eco-development. However, concentration of storm water might occur that could result in erosion formation. Home owners, should be instructed to not allow the concentration of any run-off water that could result in erosion.

Culverts have been provided under Route 369 to accommodate storm water. No erosion was visible at the outlet structures, on portion 14.

Portion 14

Miters and open channels with a limited gradient will be constructed next to road section CDF. The alignment of road section CDF and the position of the miters will be such, as not to have a negative effect on the adjacent pivot irrigation areas.

A typical residential cross section will be used. Storm water will drain from the erven onto the residential roads. The storm water will be disposed of into the Orange River, either by open channels or pipes. Energy breaking structures will be constructed to prevent erosion at the end of the channels and the pipes. The open channels will have to be lined with stone or concrete to prevent erosion in areas with a steep gradient.

Servitudes will have to be registered to make provision for storm water drainage into the Orange River.

5.1.3 Water

According to the layout plan the number of dwellings is as follows:

Erven next to the Orange River (Portion 14) = 37

Small erven development (Portion 14)	=	68
Eco development (Portion remainder of portion 3)	=	45
Total		**150**

It is assumed that 700 liters per dwelling per day will be needed for household purposes. A separate water network will have to be provided for house hold irrigation purposes. The water for household use will be obtained from boreholes. These boreholes will be drilled subject to the completion of the approval processes. The water reservoir will be on the hill, on the remainder of portion 3. See Appendix D.

The water for garden irrigation purposes will be obtained from the sewer treatment plant. The treated water will comply with national irrigation standards.

The water pipes will be installed within the road reserve according to an agreed residential road cross section.

5.1.4 Fire protection

It is expected that wooden house structures will be constructed on portion 14, next to the Orange River. This development can be classified as a high risk development.

The capacity in the water network for household purposes will not be sufficient to comply with the fire protection requirements. The existing irrigation system will have to be used to provide the water for the fire protection requirements.

The household water reticulation system will be a gravity feed system from the reservoirs and will also function as a backup system in the event of an electricity cut.

5.1.5 Sewer

A septic tank will be provided at each erf. The effluent from these septic tanks will be treated in lined natural reed bed filters. The reed bed filters will have a total area of between 600m^2 to 900m^2. It is planned that a separate reed bed be constructed on the remainder of portion 3 and portion 14. The sewage from the septic tanks on portion 14 will have to be pumped to the reed bed filter due to the position adjacent to the Orange River. The effluent will comply with national irrigation standards and will be provided in a separate pipe network to the houses for garden irrigation purposes. A disinfected system may also be installed.

The waste material in the septic tanks will be disposed of at the nearest sewer treatment plant.

Several dry sewer treatment systems already exist and may be used. However, the grey water will have to be treated before it can be used for irrigation purposes.
However, negative user perceptions of dry sewer treatment systems exist and this technology is therefore not widely used in middle to higher income level residential developments.

5.1.6 Electricity

Remainder of portion 3 - Eco-development

The eco-development will comprise of 26 residential stands for medium to high class housing and 14 sites will be self-sufficient. There is no provision for any electrical service to these self-sufficient premises.

Design Parameters

The developer has indicated that it is a requirement that homes will have to use gas for cooking and all the houses must be provided with solar type water heaters.

Electricity supply to individual plots will be limited to a 40 Amp single phase supply for each of the 26 plots. Based on the above mentioned, the required power supply to the development as a whole is calculated to 100kVA.

It is also required by the developers that all electrical distribution within the development should make use of underground cable networks to ensure an aesthetically attractive and neat development.

Electrical Connection

Application must be made by Eskom for a 100kVA low voltage (400 volts) electrical connection directly from the existing Eskom 22kV power line located along the R369 and directly at the entrance to the development.

Electrical design for internal networks

The nature and layout of the development lends itself to using a "step up / step down" distribution network that uses an intermediate voltage 3.300 volts. This design approach

facilitates the reduction of voltage losses over the medium to long distances and contributes to more optimal use of low voltage distribution cables.
The distribution network will consist of the following:

- A 100kVA, 400 volts / 3.300 volt step up transformer at the entrance gate.
- Two 50kVA, 3.300 volt/400 volt step down transformers. A transformer is placed in each of the two streets where the sites are located.
- A 10mm^2, 3-line, 3.300 volts Interdack intermediate voltage cable from the main gate to each of the 50kVA transformers.
- Appropriate 3.300 volt switching facilities will be at the step up as well as the two step down transformers.
- Street-mounted 3 -, 6 - or 9-way meter boxes, equipped with a set of lightning detractors, single phase kW / hour meters and 40 Amp circuit breakers from where individual house connections cables will be provided.

Street Lighting

Provision is made for low level street lighting along the access road to the T junction and then in a northern direction to stand 26. No street lighting in the loop around the hill will be provided.

Pole top mounted lanterns mounted on 4m high with a 40m spacing between poles is proposed. The streetlight installations will take place from the 400 volt distribution transformers via control equipment and will be served by a 10mm^2, 3-line copper cable.

Portion 14

Design Parameters

The developer has indicated that it is a requirement that homes will have to use gas for cooking and all the houses must be provided with solar type water heaters.

Electricity supplies to individual plots will be limited to a 40 Amp single phase supply for each of the plots in the development. Based on the above, the required power supply to the development as a whole is estimated to 300kVA. Standard sizes are 315kVa transformer and therefore the standard 315kVa transformer units will be used in the development.

It is also required by the developers that all electrical distribution within the development should make use of underground cable networks to ensure an aesthetically attractive and neat development.

Electrical Connection

Currently there is a 22 kV power line from Eskom on a portion of the property. The Eskom power line running from the caravan park at Orania, in a north-westerly direction to about stand 28 where it turns south to the R369 Hopetown Road and then along the road north to Hopetown.

The property currently has a low voltage supply from Eskom at the pump station on site 70, about 150 m west of the caravan park. It is recommended that application must be made at Eskom to increase the capacity of the supply with 300 kVA to supply the proposed development with electricity form this point.

Electrical design for internal networks

Because the development along the river is about a 1350 meters stretch it lends the layout of the development to using a "step up / step down" distribution network that uses an intermediate voltage 3.300 volts. This design approach facilitates the reduction of voltage losses over the medium to long distances and contributes to more optimal use of low voltage distribution cables.

The distribution network will consist of the following:

- An additional 315kVa (standard transformer size), 400 volts / 3.300 volt step up transformer at the existing pump station on site 70.
- A total of 4 x 3.300 volt/400 volt step down transformers. The four transformers are strategically placed to optimize the low voltage cable networks, and have the abilities of respectively 25, 50, 100 and 150kVa.
- The 3.300 volt supply to the transformers will be done through 10mm^2, 3-line, 3.300 volts Interdack intermediate voltage cable from the Eskom supply to the pump station to each of the transformers.
- Provision is made for applicable to 3.300 volt switching facilities at the step up and at each of the step down transformers.
- Provision is made for street mounted 3 -, 6 - or 9-way meter boxes, equipped with a set of lightning detractors, single phase kW / hour meters and 40 Amp circuit breakers, from where individual house connection cables will be provided.

Street Lighting

Provision is made for low level street lighting along the two streets in the development. No street lighting is allowed for the access road across the farmland from the R369 Hopetown road.

Pole top mounted lanterns mounted on 4m high with a 40m spacing between poles is proposed. The streetlight installations will take place from the 400 volt distribution transformers and control equipment and will be served via a 10mm^2, 3-ear copper cable.

Project phases

Planning phase

It includes the EIA process. It is important to involve the various relevant parties (i.e. authorities & public) in this phase so that the major concerns and issues can be addressed and if necessary to alter design criteria in order to take into account important issues that may have been overlooked.

Terra Works conducted a site visit to the relevant area.

Construction phase

The construction phase will start as soon as authorization in terms of the National Environmental Management Act: 1998 (Act No. 107 of 1998) is obtained.

Operational phase

Operation of the proposed development will include the day-to-day functionality, planning and organizing, maintenance and control of the facility and associated infrastructure. Guidelines for preventing or minimizing negative environmental impacts during the operational phase will be provided to the proponent by means of an Environmental Management Plan.

5.2 Alternatives

No alternatives were identified.

5.3 Description of the property

The farm portions are located on land directly adjacent to the agricultural holdings Orania. The farm is approximately 40km from Hopetown on the road to Petrusville (Route R369) and borders on the Orange River.

The size of the farm is 284,964ha.

5.4 Location of activity

This residential development will be developed on portion 14 and the remainder of portion 3 on the farm Vluytjes Kraal Noord 149 in the Hopetown district.

Co-ordinates: - 29º48’12.70” S
24º24’54.60” E

Figure 1: Google image of the site

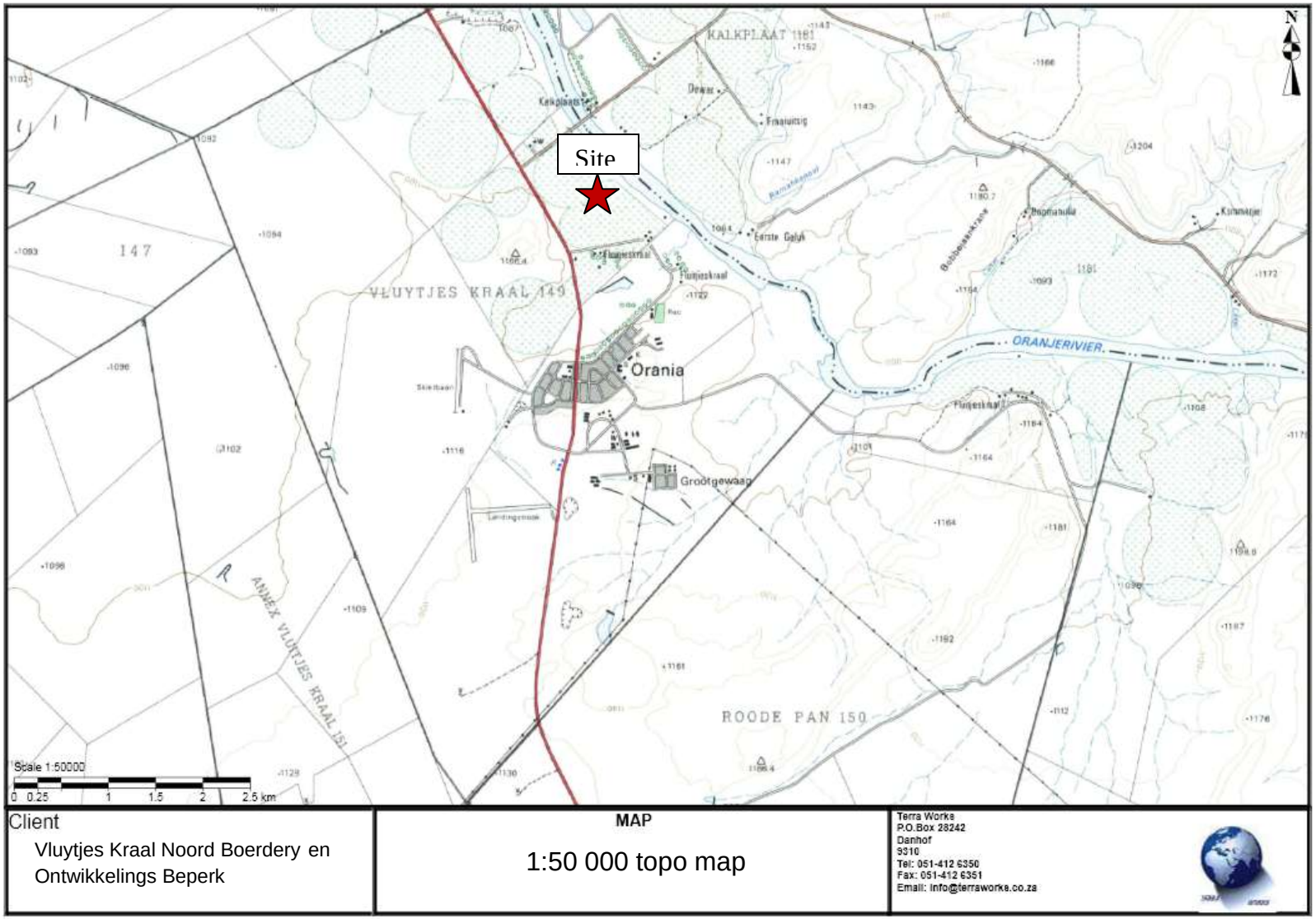

Figure 2: Location map

6. EXISTING ENVIRONMENT IN THE PROJECT AREA

6.1 Vegetation

According to the Ecological and Botanical Risk Assessment Report, two different vegetation types were identified:

Riparian thicket – portion 14 along the Orange River
This area is a close thicket with species such as *Acacia karroo*, *Searsia pendulina, Searsia lancea, Ziziphus mucronata, Lycium hirsutu* and *Asparagus suaveolens*. The plants growing on the river bank is essential for the stabilization of the soil and prevent erosion, large specimens of *Acacia karroo, Searsia lancea* and *Searsia pendulina* plays an important role in the stabilization of the riverbank. The sedge, *Cyperus rupestris,* where found on the riverbank along with other plant species associated with water such as, *Phragmites australis*. The grasses found on this site include: *Eleusine coracana*, *Setaria verticillata* and *Tribolium hispidum.* The area next to this riparian thicket is used as irrigated cultivated lands.

Semi-arid grassy shrubland – remainder of portion 3
The hill consists of typical Karoo vegetation and it is very rocky. By removing the rocks and vegetation it will promote soil erosion. The karoobossie (*Pentzia incana*) is dominant in this area and the following grass species are also present, *Heteropogon contortus, Aristida congesta, A. diffusa, Themeda trianda* and *Melinis repens* as well as *Searsia burchellii, Acacia karroo* and *Aloe broomii.* The area has some grazing potential.

6.3 Climate

The climate in the area is relatively extreme with hot days and cold nights. Temperatures in the area range from -9ºC to 42ºC with an average of 18ºC (Low and Rebelo 1996). The highest temperatures occur in summer from September to March and the coldest temperatures from April to August. The average maximum temperature for the warmest month (January) is 32.9ºC and the average minimum for the coldest month (July) is 3.1ºC. The mean annual is 478mm.

6.4 Fauna

Orania is a conservancy and the natural fauna of the area are being protected. During the site visit the following animal where present: mountain reedbuck (*Redunca fulvorufula)*, guinea fowl (*Numida meleagris*) and Vervet Monkey (*Cercopithecus aethiops*). There were some cows grazing on the hill.

6.5 Land use

The site along the Orange River is being used as cultivated land. There is currently no human activity on the riverbank and on the hill where the eco-development will take place.

6.6 Site Topography

The topography generally consists of large, flat, stony plains dotted with hills and small mountains.

6.7 Geology and Soils

The characteristically weak structureless clayey to sandy soils are derived from sandstones and shales from the Beaufort Group, while dolerite dykes and sills played a role in the formation of the typical Karoo landscape of mesas and buttes.

6.8 Archaeological/Heritage information

There is a graveyard on the hill which will be incorporated in the development. There are also several historical artefacts on the site which will be conserved. (See the heritage report, Appendix E)

6.9 Socio-Economic environment

The area is of considerable economic importance due to the agricultural activities and food security in the vicinity.

To ensure that the positive economic impacts are maximised and prolonged the following measures should be considered, wherever possible:

i) Ensure increased economic development through local procurement wherever possible;
ii) Employ local labourers and contractors wherever possible.

In the present instance, the local community will benefit, directly by the positive economic impact the new development will have. Job opportunities will be created during the construction phase. Formal housing and erven will be constructed and by this formal layout municipal services will be managed and controlled and therefore municipal revenue will be created.

Social issues

The following social issues will be addressed:

- A proper public participation process was implemented.
- Social pride will be imposed into the community and social responsibility established.
- Community needs will be accommodated in the layout.

Economic Issues

A positive economic impact will be created whereby:

- Formal erven will be created and transported into the name of a land owner.
- Registered numbered erven will result in the payment of services to the local authority on a well-structured way.
- Job opportunities will be created during the construction phase.

Institutional issues

The following institutional advantages will be generated:

- Establishment of a formal layout and design to manage and control municipal services.
- Additional sources of municipal revenue will be granted.

Physical issues

The necessary physical/natural issues were addressed:

- Provision of bulk and link services is based on proper design and development principles.
- The geo-technical conditions will be respected and accommodated in the future development.
- The geographical and natural features of the site were incorporated in the layout.

7. PUBLIC PARTICIPATION PROCESS

7.1 Identify and invite potential I&AP's to participate

A well-structured and planned participation process is the backbone of the planning process. The introduction of the planning process and proposals to all levels of the community and other role-players is of utmost importance.

The involvement of Interest and Affected Parties is a key success factor in environmental assessment projects. I&AP were invited to participate through a variety of mechanisms. Those that have been used for this project include:

- Advertisement in a local newspaper:
- The posting and maintenance of on-site notice at the development site and in town.
- Distribution of BID

- Distribution of the Scoping Report

7.2 Registered Interested and Affected Parties

Local Authority	Owner/contact person	Postal address	Contact no.
Private	Marna Swart	P. O. Box 331, Orania, 8752	083 456 3738

7.3 Issues and Comments

- No development should take place within the 1:100 year flood line.
- It is preferred that the sewage be connected to the municipalities reticulation system however if that is not possible then there must be sufficient support, capacity and resources for the operation and maintenance of the septic tanks.

8. DESCRIPTION OF ENVIRONMENTAL ISSUES AND IMPACTS IDENTIFIED

The purpose of this section is to outline potential environmental impacts of the proposed project before mitigation. The discussion of the issues in this section is based on issues identified for the development of the site and related infrastructure. Assessment of the potential impacts will be conducted during the next phase of the EIA to evaluate the size, duration and significance of the potential impacts. Recommendations will be formulated to mitigate adverse impacts and enhance positive impacts.

General issues associated with a new residential township establishment will be assessed and are highlighted as follows:

8.1 Indication of methodology adopted in the assessment of potential impacts

The impacts were evaluated by applying the methodology as described below. The impact is defined and the significance is rated from Low to High, with an explanation of the impact magnitude and a guide that reflects the extent of the proposed mitigatory measures deemed necessary.

Significance	Low	Low-Medium	Medium	Medium-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. *Acceptable.*	Impact is of low order and therefore likely to have little real effect. *Acceptable.*	Impact is real, and potentially substantial in relation to other impacts. *Can pose a risk to company*	Impact is real and substantial in relation to other impacts. Pose a risk to the company. *Unacceptable*	Impact is of the highest order possible. Unacceptable. *Fatal flaw.*
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine Potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Table 1: Assessment methodology

Following is a short description of the assessment criteria as mentioned above:

The **Nature** of impact is a broad indication of what is being affected and how.

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

Type of criteria	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant/ Non harmful	Small/Potential harmful	Significant/ Harmful	Great/ Very harmful	Disastrous Extremely harmful
Social/Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action

Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance / Easy reversible	Low cost to mitigate	Substantial cost to mitigate/ Potential to mitigate impact/ Potential to reverse impacts	High cost to mitigate	Prohibitive cost to mitigate/Little or no mechanism to mitigate impact/ Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Extent refers to the spatial influence of an impact is local (extending only as far as the activity, or will be limited to the site and its immediate surroundings), regional (will have an impact on the region), and national (will have an impact on a national scale) or international (impact across international borders):

Rating	Description
1-Low	Immediate, fully contained area
2-Low medium	Surrounding area
3-Medium	Within business unit area of responsibility
4-Medium high	Within town boundary area
5-High	Regional, National and International

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

Rating	Description
1-Low	Once a year or once / more during operation
2-Low medium	Once / more in 6 months
3-Medium	Once / more in a month
4-Medium high	Once / more in a week
5-High	Daily

Probability considers the likelihood of an impact/incident occurring over time.

Rating	Description
1-Low	Almost never / almost impossible
2-Low medium	Very seldom / highly unlikely
3-Medium	Infrequent / unlikely / seldom
4-Medium high	Often / regularly / likely / possible
5-High	Daily / highly likely / definite

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place.

Rating	Description
1-Low	Almost never / almost impossible
2-Low medium	Very seldom / highly unlikely
3-Medium	Infrequent / unlikely / seldom
4-Medium high	Often / regularly / likely / possible
5-High	Daily / highly likely / definite

8.2 Description and assessment of the potential impacts on the environment

The following issues were identified for assessment. The following Potential **Construction Phase Impacts** are investigated by means of the Methodology described under point 8.1:

- **Construction camp**

	Rating:	
Nature of impact - • Accommodation for construction workforce; • Provision of temporary sanitation facilities; • Use of access routes; • Clearance of site to facilitate a construction camp; • Material and equipment stockpiles; • Storing and handling of hazardous substances like petrochemicals.	Severity	2
	Extent	3
	Frequency	3
	Probability	4
	Duration	3

Significance – **Medium** During construction the above mentioned issues may potentially be substantial if not managed in terms of best practice standards. Management plans are used to address the management and monitoring of construction camp setup and lifespan.
Mitigation - • Site contractor to use EMP (see appendix C); • Appointment of a site ECO to monitor the site camp, and construction activities.

- **Vehicle refuelling and servicing**

	Rating:	
Nature of impact - • Storage and handling of petrochemicals; • Maintenance and repairs during breakdowns. • Spills of hazardous materials. • Fuel and oil spills from construction vehicles and equipment • Contamination of groundwater	Severity	2
	Extent	3
	Frequency	3
	Probability	4
	Duration	3
Significance – **Medium** During construction the above mentioned issues may potentially be substantial if not managed in terms of best practice standards. Existing SAN Standards are in place to control the storage of petrochemicals.		
Mitigation - • Site contractor to use construction phase EMP (see appendix C); • Appointment of a site ECO to monitor the site camp, and construction activities; • Temporary petrochemical storage tanks to be installed in terms of SANS; • No construction vehicle to be serviced on site.		

• Ensure that vehicles are in good working order. • Ensure that drivers are trained and that good housekeeping rules are applied • A procedure for the clean-up of fuel and oil spills must be drawn up and strictly enforced.

- **Vegetation clearance**

		Rating:
Nature of impact - • Loss of natural habitat and biodiversity, • Several invader alien species were found on site and should be remove, these species include: *Salsola kali, Dature ferox, Arundo dorax* and *Opuntia ficus-indica.*	Severity	4
	Extent	3
	Frequency	3
	Probability	4
	Duration	4
Significance – **Medium – high** The vegetation of the riverbank is important in the stabilization of the soil and to prevent erosion.		
Mitigation – According to the Biodiversity Assessment Report • No trees thicker than 100mm must be removed on the riverbank. • The invasive alien species, *Salsola kali, Dature ferox, Arundo dorax and Opuntia ficus-indica*, occurring on site must be removed and destroyed.		

- **Soil erosion**

		Rating:
Nature of impact - • Loss of topsoil during the construction period. • Soil erosion. • Deterioration of soil quality.	Severity	4
	Extent	3

• Soil pollution. The stabilising vegetation cover of soils will be removed from certain areas in order to facilitate construction. Soils will also be compacted by vehicles and construction equipment. Once disturbed, soils become more susceptible to erosion. Changes to natural drainage patterns are often necessary to accommodate the creation of slopes suitable for the construction of houses and access roads. Diversion of stormwater may result in large volumes of water being concentrated in certain areas, thereby increasing the risk for erosion. Erosion of the soil surface has dramatic impact on topsoil availability and the ability of an area to support vegetation growth. Soil particles that enter watercourses due to erosion result in the elevation of sediment loads and are regarded as pollutants. During construction of houses and related infrastructure, petrochemical products leaking from construction vehicles, spills at construction camps, sewerage and grey water from temporary sanitation facilities, refueling areas and concrete batching plants, may result in contamination of soils.	Frequency	3
	Probability	4
	Duration	3

Significance –

Medium

Topsoil is a valuable resource and contains a seedbed that supports natural succession and replacement of floral specimens. The slow rate of soil formation means that soil can be seen as a non-renewable resource. Taking this into consideration and the impact assessment criteria used above the impact of construction activities on soils is assessed as being of medium significance. The following mitigation measures are proposed in order to keep construction activities from negatively impacting on soils.

Mitigation -

- When topsoil is removed, it should be removed approximately 300 mm deep

in normal circumstances and stockpiled separate from subsoil. Heaps should not be higher than 2m,

- Vegetation clearance should be minimised to avoid exposing soils, no trees thicker than 100mm must be removed,
- Topsoil stockpiles to be placed on a levelled area and measures to be implemented to safeguard the piles from being washed away in the event of heavy rains/storm water,
- Topsoil stockpiles should be kept free from weeds,
- Topsoil need to be stored at designated areas only. This need to be planned and indicated on the site-layout plan,
- Ensure that topsoil is not mixed with subsoil and/or any other excavated material,
- Rehabilitate areas disturbed during construction, as soon as possible after the disturbance has ceased,
- Monitor areas of exposed soil during periods of heavy rainfall throughout the construction phase of the project so as to implement sediment dispersal measures as appropriate.

- **Dust nuances:**

		Rating:
Nature of impact - • Dust generation due to construction vehicle movement.	Severity	3
	Extent	3
	Frequency	3
	Probability	3
	Duration	2
Significance – **Medium**		

The impact of dust during construction can be dealt with in terms of mitigation measures to minimize dusting.
Mitigation - • Access roads and exposed ground should be regularly wetted in a manner that effectively keeps down the dust. Stockpiles of fine materials should be wetted or covered with tarp during windy conditions. • Workers on the site should be issued with dust masks during dry and windy conditions.

- **Construction waste:**

		Rating:
Nature of impact - Solid waste generated during site preparation and construction work would include cut vegetation and typical construction waste (e.g. wasted concrete, bags, waste earth materials, etc.). This waste would negatively impact the site and surrounding environment if not properly managed and treated. Solid waste, if allowed to accumulate in drainage ways, could cause localized pooling and flooding. Pooling of water, in turn, would create conditions conducive to the breeding of nuisances. Poor construction waste management constitutes a short-term negative impact.	Severity	3
	Extent	3
	Frequency	3
	Probability	4
	Duration	2
Significance – **Medium** During construction substances such as petrochemicals, cement etc. will be used. Excavation of rock (spoil) etc. must also be disposed off. Small amounts of domestic waste will also be generated. This will however be of short duration.		
Mitigation - • All domestic waste generated must be treated at the site. • Hazardous waste must be removed by a reputable removal company to a hazardous waste site. • Hazardous and petrochemical material must be stored in terms of the SANS		

requirements.

- A contingency plan must be in place to serve as emergency protocol for any possible hazardous substance spillages.
- Spoil material should not be mixed or stockpiled on topsoil heaps.
- Combustible waste must not be burned on the site.

The following Potential **Operational Phase** Impacts were identified.

- **Waste handling:**

	Rating:	
Nature of impact - Domestic waste production will increase due to the residential development.	Severity	3
	Extent	3
	Frequency	3
	Probability	4
	Duration	4
Significance – **Medium** The impact is assessed to be of medium significance. A formal domestic waste removal programme should be established.		
Mitigation - • All domestic waste generated must be collected and be disposed of at a licensed waste disposal site. • If hazardous waste is generated it must be removed by a reputable removal company to a hazardous waste site.		

- **Infrastructure and Services:**

	Rating:	
Nature of impact - This residential development may result in additional pressure being placed on existing infrastructure and services. This may result in degradation of area road networks, blocked or overflowing sewage systems and disruptions in electricity and water supply.	Severity	3
	Extent	3
	Frequency	3
	Probability	3
	Duration	3
Significance – **Medium** Connection to existing service networks should be done in accordance with an approved services report. If existing infrastructure capacity is overloaded or needing of repairs additional load will inevitably lead to cumulative strain.		
Mitigation - • Installation of all services must be done in terms of appropriate standards. • Service upgrades should be done via an approved service report. • Service infrastructure must be maintained in good working order.		

9. RECOMMENDATION

The following recommendations stems from the assessment of the environmental issues in Section 9, and the Public Participation Process.

Short-term issues:

- Loss of topsoil during the construction period,
- Erosion due to unmanaged increase in activity during the construction phase,
- Losses of vegetation cover during the construction phase,
- Dust nuances,
- Biophysical related mitigation measures include:

- Existing mature trees and conservation worthy species should be retained to the extent possible. Alien trees must however be phased out over time and be replaced with suitable indigenous species.
- For lawns, LM Grass (*Dactyloctenium Australe*) should be used instead of Kikuyu (*Pennisetum clandestinum)*, which readily invades natural habitats. This will not only prevent alien plant species escaping into natural habitat, but, because the indigenous species are relatively drought tolerant, will reduce water consumption.
- In terms of landscaping within the development, only local indigenous species should be cultivated.

All other recommendations related to the short-term issues (mostly during construction phases) are part of the Draft Environmental Management Plan.

Long-term issues:

Long-term issues are recommended to be addressed by monitoring, feedback and follow-up actions by the client. To summarize the recommendations in this regard, the following:

- Monitoring systems should be implemented by the applicant. Monitoring should cover at least the following aspects:

- A monitoring program can be set up to supervise the success of the rehabilitation of denuded areas created by construction activities. This should be carried out for at least one growing season after construction activities ended.

10. ENVIRONMENTAL IMPACT STATEMENT

Moderate impacts associated with the proposal of a medium significance are anticipated during the construction and operational phases. The impacts are as follows with its significance rating indicated:

Construction phase:

- Construction camp site impacts (medium).
- Vehicle refuelling and servicing (medium).
- Loss of topsoil during excavations (medium).
- Soil erosion due to increase storm water flow, movement of vehicles, and vegetation removal (medium).
- Destruction of flora species (medium – high).

- Generation of construction and domestic waste, improper disposal of this waste, littering (medium).
- Dust nuances (medium).

Following proper implementation of mitigation measures these impacts are anticipated to be successfully mitigated to result in impacts of low significance.

Operational phase:

- Waste handling operations (medium).
- Infrastructure and Services (medium).

APPENDIX A
Proof of advertisements

Orania.

Volksblad Maandag 20 Februarie 2012

100 YEARS 1911-2011
Auditing to build public confidence

AUDITOR-GENERAL SOUTH AFRICA

REQUEST FOR BID (RFB)

The Auditor-General of South Africa (AGSA) has a constitutional mandate and, as the Supreme Audit Institution (SAI) of South Africa, it exists to strengthen our constitutional democracy by enabling oversight, accountability and governance in the public sector through auditing, thereby building public confidence.

The AGSA invites bids for the following requirements:

Bid number	Bid description	Briefing session(s)	Closing date and time
AGSA/02/2012	Appointment of a service provider for the construction of a building with an option to lease or lease of existing offices for a period of five (5) years	Briefing Session Date: 29 February 2012, Venue: First Floor Anlar Building, 31 McDougal Street, Kimberly Time: 10h00	06 March 2012 @ 15h00
AGSA/03/2012	Appointment of a service provider for the supply and installation of Uninterruptable Power Supply (UPS) system for a period of three (3) years	No briefing session for this bid	05 March 2012 @ 15h00
AGSA/04/2012	Appointment of a service provider for the supply, installation, support and training of a video-conferencing solution that delivers full HD video for a period of three (3) years	No briefing session for this bid	12 March 2012 @ 15h00
AGSA/05/2012	Appointment of a service provider for the provision of a 3 fold survey i.e culture, leadership and staff engagement to measure the progress made by the AGSA in building a motivated, high performing and diverse workforce	No briefing session for this bid	12 March 2012 @ 15h00

NB: Bidders are kindly requested to view the bid specifications and/or terms of reference on the website to verify whether they are eligible to bid prior to buying a CD.

The bid documents are available at a non-refundable cost of R285 (VAT inclusive) per CD to be collected at the Supply Chain Management Office, Head Office Building, Ground Floor, 300 Middel Street, (corner Veale and Middel Streets), New Muckleneuk, Brooklyn, Pretoria.

To receive copies via email upon proof of payment, kindly send an email to procurement@agsa.co.za to obtain the AGSA's banking details.

Interested bidders are invited to submit their proposals before the closing date. Applications will be adjudicated in accordance with the applicable criteria as stipulated in the bid document.

Duly completed and signed proposals and supporting documents, enclosed in an envelope clearly marked with the relevant bid number, description and addressed to: Senior Manager: Supply Chain Management, must be deposited in the bid box at the AGSA's Head Office Building, Ground Floor, 300 Middel Street, (corner Veale and Middel Streets), New Muckleneuk, Brooklyn, Pretoria.

No late submissions, facsimiles, electronic or telephonic bids will be accepted. The AGSA reserves the right to accept any application in whole or part thereof and does not bind itself to accept any submission.

For general enquiries kindly contact Ms Celia Matsusela, CeliaM@agsa.co.za. Only written enquiries will be responded to.

Please note that this advertisement and bid specifications and/or terms of reference may also be viewed on our website, www.agsa.co.za by clicking on the Tenders link.

J: AMPTELIK

120 Amptelike kennisgewings

120 OMGEWINGSIMPAKPROSES

crossword 11 168

122 Boedels

130 BLOEMFONTEIN WATERSPORTKLUB/ WAD VAN NIEKERK/ DREYERS DRUKKERS

KENNISGEWING VAN VERKOPING

Across:
4. Tear off (6)
7. Rush of animals (8)
13. Leopard (7)
15. Wide inlet of sea (3)
16. Fruit (3)

Advert in the Volksblad

Site notices

Site notice placed at the entrance where the eco-development will take place.

Site notice placed on the way to the farm.

Site notice placed at the post office in Orania.

APPENDIX B
Comments and Response Report

ORANIA VLUYTJES KRAAL RESIDENTIAL DEVELOPMENT

ENVIRONMENTAL IMPACT ASSESSMENT

Background Information Document

Purpose of this document

- Provide an overview of the environmental impact assessment process (EIA) for the Orania Vluytjes Kraal residential development project;
- Invite you as an Interested and Affected Party (I&AP) to participate in the EIA process; and
- Provides you as I&AP with the opportunity to contribute to the EIA for the project.

INTRODUCTION

The owner of the farm, Vluytjes Kraal Noord Boerdery en Ontwikkeling Beperk intent to develop Portion 14 and the Remainder of Portion 3 of the farm Vluytjes Kraal Noord 149, Hopetown Magisterial District. The size of the farm is 284,964 ha. The layout plan proposes that the remainder of portion 3 be an eco-tourism development, and that portion 14 becomes a residential development on the bank of the Orange River. The farm is approximately 40 km from Hopetown on the road to Petrusville (Route R369) and borders on the Orange River. GPS Coordinates - 29°48'12.7" S / 24°24'54.6 E. Portion 14 and the remainder of portion 3 are divided by Route R369.

PROJECT DESCRIPTION

This project will include the provision of the following engineering services (including the bulk services):

- Roads;
- Storm water drainage;
- Water;
- Fire Protection;
- Refuse removal;
- Sewerage;
- Electricity.

The findings of the EIA will provide information that will be used to define the extent, and significance of these areas on the affected area's environment.

THE EIA PROCESS

In accordance with the National Environmental Management Act, Act 107 of 1998 an EIA needs to be undertaken and compiled and approved by the Department of Environmental and Nature Conservation, Northern Cape before the proposed extension can commence. A number of activities as listed in the EIA Regulations (GN. R 544, and 545) promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA) are proposed to be undertaken on site requiring an EIA to be undertaken as part of the approval process. An application has been submitted under NEMA for inter alia the following activities:

- GN R 544 activity no. 9 (storm water infrastructure), 10 (electricity distribution), 11 (storm water outlet), 12 (water reservoirs), 18 (removal of soil in a water course), 23 (transformation of land to residential)
- GN R 545 activity no. 15 (Alteration of undeveloped land for residential)

The aim of the EIA process is to identify and assess the potential impacts associated with the proposed project and to develop measures through which potential negative biophysical and socio-economic impacts can be mitigated and positive benefits can be enhanced. The EIA will ensure that all issues are integrated into the lifecycle of the holiday destination and its infrastructure. This will occur during the planning, construction, and operation phases. The EIA process culminates in the compilation of an Environmental Impact Assessment Report.

The EIA involves the assessment of the probable environmental impacts that will potentially be caused by the construction, operation of the residential development.

The EIA process will provide the authorities and I&APs with clear, accurate and understandable information about the expected environmental impacts associated with the proposed project.

Figure 2: EIA Timeframes according to GN R 385

PUBLIC PARTICIPATION

Who are the Interested and Affected Parties (I&APs)?

I&APs are the persons who will be directly or indirectly involved and/or affected by the project.
Your role as I&AP is to:

- Register with the environmental consultants, who will include you on a database of I&APs in order for you to receive future project information and/or formally record issues and concerns; and
- Contact the consultants to obtain further information and / or raise issues and concerns.

Availability of Reports

The future environmental reports associated with this project will include the Environmental Scoping report, an EIA and will be submitted to the Dept. of Environmental and Nature Conservation and other relevant Government Departments on completion. At the same time these reports will be made available to the public for comments for a period of 30 days. All registered I&APs will be informed of the availability of these reports prior to them being made available.

Contact Details

Should you have any queries, comments or concerns, please contact the consultant listed below.

CONTACT PERSON: Samuel Pauw

Bloemfontein
Tel: 051-436 8488
Fax: 051-436 8458
E-mail: sp@terraworks.co.za

Postal Address: P.O. Box 28242
Danhof, 9310

How to comment

Comments, questions or issues, which you wish to raise, can be made by in writing (sent to us by fax, e-mail or post). A comment sheet is attached. It is not essential that you submit comments, but please ensure that you provide us with your name, contact details and interest in the project.

Interested and Affected Party Comments Form
PROPOSED RESIDENTIAL DEVELOPMENT OF THE FARM VLUYTJES KRAAL NOORD 149, ORANIA, NORTHERN CAPE
Interested and Affected Party Comments Form

The Environmental Impact Assessment
(EIA Process)

Notice is given in terms of Regulation 54 of the regulations published in Government Notice No. R. 543 in Government Gazette No. 33306 of 18 June 2010 under the National Environmental Management Act (Act No. 107 of 1998) of intent to carry out the following activity:

The applicant, VluytjeS Kraal Noord Boerdery en Ontwikkelings Beperk intent to develop Vluytjes Kraal Noord 149 for residential and eco-tourism purposes. This development will comply with all the necessary legislative requirements and processes.

This proposal triggers the following listed activities (see attached descriptions):

(a) GN R 544 activity no. 9, 10, 11, 12, 18, 23
(b) GN R 545 activity no. 15

A public consultation process forms an integral component of this EIA process.
You are kindly requested to complete the comments form and give any comment/concern or input with regard to the environment that you may have, on the proposed development. If we do not receive any comments from you within 30 days we will accept that you do not have any objections against the project.

Name/Naam	
Organisation/Instansie	
Address/Adres	
Tel	
Fax/Faks	
E-mail/E-pos	

Comments/ Opmerkings:

Please return this form to:
Samuel Pauw
Terra Works
P.O. Box 28242, Danhof
Bloemfontein, 9310

Tel: 051-436 8488
E-mail: sp@terraworks.co.za
Fax: 051-436 8458

41 Groenvlei
Frans Kleynhans Rd
Bloemfontein
RSA

PO BOX 28242
Danhof
9310
RSA

Tel:
+27 51 412 6350

Fax:
+27 51 412 6351

Terra Graphics (PTY) Ltd T/A Terra Works.

Reg No: 2000/020654/07.
VAT Reg No:
4700 197 405

Directors:
AC Pauw
(Managing)
Environmental Management

1 June 2012

Department of Agriculture, Land Reform and Rural Development
Private Bag X5018
Kimberley
8300
Tel. (053) 831 4049
Fax: 053-8324328

Attention: Ms Tina Joemat-Petterson

Dear Madam

Re: DRAFT SCOPING REPORT – THE DEVELOPMENT ON PORTION 14 AND THE REMAINDER OF PORTION 3 OF THE FARM VLUYTJES KRAAL NOORD 149, ORANIA

Hereby included we submit a draft scoping report for your consideration and review

We trust that the document will fulfil the expectations of the Department and will gladly supply any additional information if needed.

Should you have any queries, please do not hesitate to contact me.

Yours faithfully

.....

Samuel Pauw
Environmental Management
Cell: 084 700 9 700
E-mail: sp@terraworks.co.za

Notification letter of draft scoping report to department of Agriculture

41 Groenvlei
Frans Kleynhans Rd
Bloemfontein
RSA

PO BOX 28242
Danhof
9310
RSA

Tel:
+27 51 412 6350

Fax:
+27 51 412 6351

Terra Graphics (PTY) Ltd T/A Terra Works.

Reg No: 2000/020654/07.
VAT Reg No:
4700 197 405

Directors:
AC Pauw
(Managing)
Environmental Management

1 June 2012

Department of Water Affairs
Private Bag X6101
KIMBERLEY
8300
Tel: (053) 830 8803
Fax: (053) 831 4534

Attention: Mr A Abrahams

Dear Madam

Re: DRAFT SCOPING REPORT – THE DEVELOPMENT ON PORTION 14 AND THE REMAINDER OF PORTION 3 OF THE FARM VLUYTJES KRAAL NOORD 149, ORANIA

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Yours faithfully

.....
Samuel Pauw
Environmental Management
Cell: 084 700 9 700
E-mail: sp@terraworks.co.za

Notification letter of draft scoping report to Water Affairs

41 Groenvlei
Frans Kleynhans Rd
Bloemfontein
RSA

PO BOX 28242
Danhof
9310
RSA

Tel:
+27 51 412 6350

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+27 51 412 6351

Terra Graphics (PTY) Ltd T/A Terra Works.

Reg No: 2000/020654/07.

VAT Reg No:
4700 197 405

Directors:
AC Pauw
(Managing)
Environmental Management

6 June 2012

Department of Environment and Nature Conservation
Private Bag X6120
Kimberley
8300
Tel: 053 807 7300
Fax: 053 807 7328

Attention: Mr Thulani Mthombeni

Dear Madam

Re: DRAFT SCOPING REPORT – THE DEVELOPMENT ON PORTION 14 AND THE REMAINDER OF PORTION 3 OF THE FARM VLUYTJES KRAAL NOORD 149, ORANIA

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Yours faithfully

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Environmental Management
Cell: 084 700 9 700
E-mail: sp@terraworks.co.za

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Terra Graphics (PTY) Ltd T/A Terra Works.

Reg No:
2000/020654/07.

VAT Reg No:
4700 197 405

Directors:
AC Pauw
(Managing)
Environmental Management

1 June 2012

Thembelihle Local Municipality
Private Bag X3
Hopetown
8750
Tel. 053 203 0008
Fax: 053 203 0490

Attention: Mr Zolile Monakali

Dear Sir

Re: DRAFT SCOPING REPORT – THE DEVELOPMENT ON PORTION 14 AND THE REMAINDER OF PORTION 3 OF THE FARM VLUYTJES KRAAL NOORD 149, ORANIA

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Should you have any queries, please do not hesitate to contact me.

Yours faithfully

.....
Samuel Pauw
Environmental Management
Cell: 084 700 9 700
E-mail: sp@terraworks.co.za

Notification letter of draft scoping report to Local Municipality

water affairs

Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

Enquiries: G. Nel
Telephone: 051 405 9000
Reference: 16/2/7/D330/D4

DEPT. OF WATER AFFAIRS
FREE STATE REGION
MH NEL SAC
28 -06- 2012
PRIVATE BAG X528
BLOEMFONTEIN • 9300

Samuel Pauw
Terra Works
PO Box 28242
DANHOF
9310

DRAFT SCOPING REPORT – DEVELOPMENT ON PORTION 14 AND REMAINDER OF PORTION 3 OF THE FARM VLUYTJES KRAAL NOORD 149 - ORANIA

The Draft Scoping Report is here by referred to:

The Department has no objection towards the above mentioned development. However, the applicant should ensure the following:

- No development should take place within the 1:100 year floodline. Section 144 of the National Water Act, 1998, Act no.36 of 1998 must be brought to your attention: It reads as follows: For the purpose of ensuring that all persons who might be affected have access to information regarding the potential flood hazards, no person may establish a residence unless the layout plan shows, **in a form acceptable to the local authority concerned**, lines indicating the maximum level likely to be reached by floodwaters on average once every 100 years.
- Information and detail of water to be used at the development must be submitted to this Department. Registration under section 21 of the National Water Act (Act 36 of 1998) is compulsory.
- It is preferred that the sewage be connected to the municipalities reticulation system however if that is not possible then there must be sufficient support, capacity and resources for the operation and maintenance of the septic tanks. **NO sewage works may be built within the 1:100 year flood line.**
- **Detailed plans for the sewage treatment works at the development must be submitted this Department**
- Storm water management plans should also be implemented.
- Comply with all the conditions as stated in the National Water Act (Act 36 of 1998).

For any clarity, please do not hesitate to contact this Department

Regards

25/06/2012

T Ntili
REGIONAL HEAD: FREE STATE
Letter signed by: Mr. F. van der Walt
Designation: Acting Deputy Director: Water Regulation

Comments received from Water Affairs

APPENDIX C
Site photos

APPENDIX: Photos of development area

Figure 1: Access collector (Remainder of portion 3)

Figure 2: Access collector to portion 14

Figure 3: Position of Reservoir

Figure 4: Position reed bed filter portion 14

Figure 5: Portion 14 along the river

Figure 6: Portion 14. Where the residential development will take place.

Figure 7: Portion 3. Where the eco-development will take place.

APPENDIX D
Draft Environmental Management Plan

DRAFT ENVIRONMENTAL MANAGEMENT PLAN

1. INTRODUCTION

The Environmental Management Plan (EMP) sets out the method by which proper environmental controls are to be implemented by the contractor.

The provisions of this EMP are binding on the contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contact particularly the Environmental Authorisation, once issued. In the event that any conflict occurs between the terms of the EMP and the project specifications of the Environmental Authorisation, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provision of the project specification.

The EMP identifies the following:

- Construction activities that will impact on the environment;
- Specifications with which the contractor shall comply in order to protect the environment from the identified impacts;
- Actions that shall be taken in the event of non-compliance.

2. DEFINITIONS

Alien Vegetation: alien vegetation is defined as undesirable plant growth. Other vegetation deemed to be alien shall be those plant species that show the potential to occur in number, any area within the defined construction area and which are declared to be undesirable.

Construction Activity: a construction activity is any action taken by the contractor, his subcontractors, suppliers or personnel during the construction process.

Environment: environment means the surroundings within which humans exists and that could be made up of –

- The land, water and atmosphere of the earth;
- Micro-organisms, plant and animal life;
- Any part or combination of (i) and (ii) and the interrelationships among and between them,; and

- The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Aspect: an environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

Environmental Impact: an impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

Environmental Authorisation: an environmental authorisation is a written statement from the Department of Economic Development, Tourism and Environmental Affairs, Free State Province, that records its approval of a planned undertaking, and the mitigation measures required to prevent or reduce the effect of environmental impacts during the life of a contract.

3. ADMINISTRATION OF ENVIRONMENTAL OBLIGATION

3.1 Appointment of a Environmental Control Officer (ECO)

For the purpose of implementing the conditions contained herein, the contractor shall submit for approval the appointment of a nominated representative as the ECO for the contract. The ECO shall be the responsible person for ensuring that the provisions of this EMP are complied with during the life of the construction phase.

3.2 Training

The ECO must be conversant with all legislation pertaining to the environment applicable to this proposed landfill development and must be appropriately trained in environmental management and must possess the skills necessary to impart environmental management skills to all personnel involved in the construction phase.

All construction employees shall have been given an induction presentation on environmental awareness.

4. ASPECTS OF THE ACTIVITY COVERED BY DRAFT EMP

Any sites or environmental sensitive issues identified during negotiations, survey, construction, operation or maintenance should be notified to afford certain special caution and consideration.

i. **ACCESS**: Access to the property via the formal route as determined. No wandering on the surrounding property, under any circumstances. Construction activities are to be confined to the works area or as negotiated with the landowner.

ii. **FENCING**: No fences or gates that provide access to the site/construction campsite may be cut, lowered, removed or damaged in any way. Leave private gates, as they are found (open or closed). Gates to adjacent properties or onto public roads must be closed at all times. Open gates must be guarded to prevent animals from straying onto adjacent camps, roads or properties.

iii. **VEHICULAR MOVEMENT**: Vehicles should be driven at moderate speeds and special care should be taken (especially in wet weather) to avoid eroding tracks. In circumstances where access is limited, a single track/road is to be used. Multiple tracks are to be avoided at all times. All movement of vehicles must take place on servitude roads or on private roads as agreed in advance. No movement may take place through the veldt. If any vehicle should get stuck, the damage must be repaired immediately so that no deep ruts remain.

iv. **DAMAGE TO PROPERTY**: The developer, contractors and their employees may not cause damage to property. Any damage to private property must immediately be reported to the landowner. The damage must be rectified immediately if possible. Record of damages and rectifying action must be kept. The landowner's satisfaction with the outcome of rectifying action must be obtained in writing. Activities that may cause conflict with adjacent landowners, tenants, the local work force or the local community must be avoided. Should conflict arise, it should immediately be reported to the engineer's project manager.

v. **EROSION**: Reasonable measures to prevent soil erosion shall be implemented at all times. Drainage channels must not be blocked or silted as a result of any construction activity. Storm water run-off must be efficiently managed and must not cause erosion or damage to surrounding property. No earth moving equipment may be used to make access roads, except in rough terrain and then such use must be approved by the property owner, project manager or his delegate. Soil disturbance should be kept to a minimum. Topsoil removed should be stored for

later use in rehabilitation. Any responsible party in consultation with other affected parties should rectify soil erosion resulting from an act or omission.

vi. **BUSHCLEARING**: Should be kept to a minimum. Should mature indigenous trees be found on site, it must be clearly marked during the construction phase and where possible not cleared. If any such trees need to be cleared, the appointed ECO must first give approval.

vii. **HERBICIDES**: Only registered herbicides may be applied according to specifications.

viii. **WASTE DISPOSAL**: A proper system of waste management must be instituted on site during the construction phase. This entails that sufficient waste bins are available in the construction camp. No containers, scrap metal, conductor etc. may be left at the camp site. No oil, diesel or other chemicals may be spilled or discarded anywhere. If an accidental spill occurs, it must be reported immediately and cleaned to the satisfaction of the engineer and the landowner. All hazardous waste must be suitably enclosed, labelled, stored and removed as per legal guidelines. The storage area must be properly demarcated and cordoned. These hazardous materials may not be disposed of with regular domestic waste. All excess material must be removed upon completion of any work performed and disposed of in a suitable manner by the respective Contractor.

ix. **FACILITIES**: Washing and toilet (chemical) facilities must be provided on site and in the construction camp.

x. **SOCIAL**: The engineer, contractors and their employees must at all times be courteous towards landowners, tenants and the local community. Infringement of their rights is strictly forbidden. The integrity of all personnel or their contractors should never come to be questioned.

xi. **FIRES**: No open fires are permitted on private property, on site or in the veldt, except under strictly controlled conditions and subject to the requirements of local ordinances and the National Veldt and Forest Act (Act No. 101 of 1998). In the event that equipment that might pose a fire hazard is used in the construction process, suitable fire fighting equipment is to be made available at the construction site. Fire extinguishers must be available on site and in the construction camp.

xii. **CONTINGENCY PLANS**: The engineer must ensure that contingency plans for fire, water contamination etc. is in place in case of possible environmental hazardous situations that might occur during the construction period.

xiii. CHEMICALS

- No oil, diesel or other chemicals may be spilled or discarded anywhere.
- Chemicals such as oil and cleaning fluid must be stored in a proper storeroom designed for such products.

Appropriate oil management systems must be installed to prevent oil pollution of the surrounding environment in the case of an oil spill.

4. PROPOSED MANAGEMENT OR MITIGATION MEASURES

This document is based on the findings of the EIA Report (Environmental Impact Assessment). It includes environmental impacts or objectives in respect of:

4.1 Pre-construction and construction activities

i. Should any archeological important sites be found during construction, it has to be reported to the SAHRA.
ii. Measures must be implemented to prevent soil erosion due to construction activities.
iii. Topsoil must be stored and re-used during rehabilitation and landscaping of the site after construction is finalized.
iv. Dust generation must be kept to a minimal.
v. Noise pollution must be kept to a minimal by working normal working days and hours.
vi. Special care must be taken regarding the interference with traffic around the area during construction period.
vii. Visual impact is regarded, as important and special care should be given to allow no littering on or near the site.

<u>The main construction activities:</u>

i. Survey activities and site clearing;
ii. Excavating soil for layering during operation;
iii. Laying out, construction of housing structures and associated infrastructure, access roads and barriers.
iv. Clearing of site, protection of erosion sensitive areas, and re-instalment of terrain.
v. Final inspection and commissioning.

Proposed mitigation measures

i. Vegetation Clearance
   - Wherever possible access will be along existing roads and tracks.
   - Noise and dust will both be limited to the actual working section and are unlikely to have any significant impact on fauna or flora.

ii. Construction activities
   - The noise generated by the machinery for excavation, and construction will be highly localised. No machinery is allowed to be serviced on site.

iii. Environmental Education
   - It is recommended that all the contractors, including any casual labourers should attend a short induction lecture on environmental awareness. The lecture should cover aspects such as:
     - Poaching;
     - Firewood collection;
     - Artefacts;
     - Litter;
     - Fires;
     - Diesel spillage;
     - Waste management, etc.

4.2 Operation or undertaking of the activity

It is recommended that a Monitoring System be implemented to ensure sound environmental management principles for the operation of this activity.

4.3 Rehabilitation of the environment

Once an area has been vacated by a contractor and is no longer required, the affected area should be rehabilitated to its original condition or to the satisfaction of the landowner.

i. Interaction with different species of fauna or flora might occur at the relevant site.
ii. Disturbance of their natural habitat and movements must be kept to a minimum.

4.4 Closure

Camp and office sites must be removed after completion of the construction phase.

5. RESPONSIBILITY OF IMPLEMENTATION OF EMP MEASURES

The onus is on the Applicant to ensure compliance with this Environmental Management Plan. Use of *private roads* must be arranged in advance. *Water* on private land must only be used with the expressed consent of the landowner - A formal agreement may be entered into as to the terms and conditions of use of these amenities. An area suitable for the establishment of a *construction camp* should be investigated and the contractor should enter into a formal agreement with the landowner as to the terms and conditions of use of the site if and when one is found. Camp and office sites must be removed after completion of the contract. The site must be rehabilitated as close as possible to its original condition.

6. TIME PERIODS FOR EMP MEASUREMENT

i. All Acts and Ordinances pertinent to environmental factors are to be adhered to.
ii. Notwithstanding anything contained herein, all aspects pertinent to contractor and/or maintenance work as set out by the Applicant is to be complied with at all times.
iii. All local Proclamations and Ordinances of the Province pertinent to environmental factors are to be adhered to.

7. MONITORING AND REPORTING ON EMP COMPLIANCE ISSUES

A monitoring procedure should be in place to not only ensure conformance to the EMP but also to monitor environmental issues and impacts that have not been accounted for in the EMP that are or could result in significant environmental impacts for which corrective action is required.

An Environmental Control Officer must be appointed to ensure that all environmental legislation and specific conditions are adhered to. He/she must attend all progress meetings, compile control reports, and report all non-conformance issues directly to the Department (DENC – Northern Cape). These reports should contain the activity, targets, conformance / non-conformance, comments, etc.

8. CONCLUSION

The impact to the Environment during the project life cycle can be effectively minimized and managed by the implementation and continuation of this Environmental Management Plan.

9. RECOMMENDATIONS

It is recommended that:

i. This Environmental Management Plan is viewed as a living document that should change to suit the needs of the project. All amendments are to be done in consultation with the relevant role players.

ii. The Environmental Management Plan must be presented and explained to the Construction team and/or contractors to sensitize them to pertinent environmental agreements and conditions.

iii. That site visits be conducted at intervals for the duration of the project by the relevant ECO as well as representatives from construction and project management as well as affected parties as deemed necessary.

iv. A regular monitoring program to be in place to not only ensure conformance to the EMP but also to monitor environmental issues and impacts that have not been accounted for in the EMP that are or could result in significant environmental impacts for which corrective action is required.

v. A post-construction audit is conducted to identify non-conformance for which corrective action must be taken. Corrective action must take place before the contract is completed or signed off.

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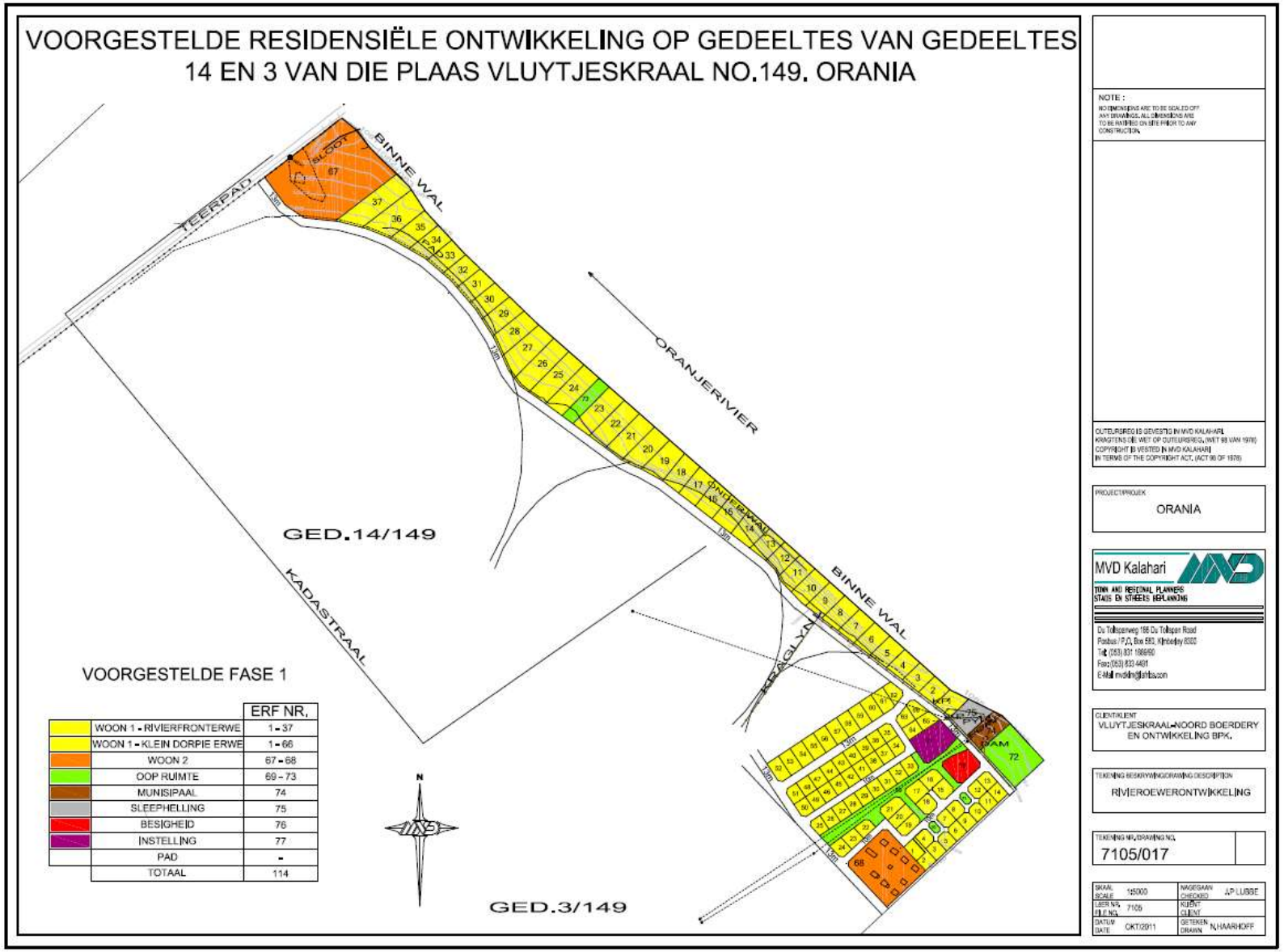
APPENDIX E
Layout Plans


VOORGESTELDE RESIDENSIËLE ONTWIKKELING OP GEDEELTES VAN GEDEELTES 14 EN 3 VAN DIE PLAAS VLUYTJESKRAAL NO.149. ORANIA
TEERPAD
SLOOT
BINNE WAL
ORANJERIVIER
GED.14/149
KADASTRAAL
BINNE WAL
KRAGLYN
GED.3/149
VOORGESTELDE FASE 1
ERF NR.
WOON 1 - RIVIERFRONTERWE 1 - 37
WOON 1 - KLEIN DORPIE ERWE 1 - 66
WOON 2 67 - 68
OOP RUIMTE 69 - 73
MUNISIPAAL 74
SLEEPHELLING 75
BESIGHEID 76
INSTELLING 77
PAD -
TOTAAL 114
NOTE :
ORANIA
MVD Kalahari
TOWN AND REGIONAL PLANNERS
STADS EN STREEKS BEPLANNING
CLIENT/KLIENT
VLUYTJESKRAAL-NOORD BOERDERY EN ONTWIKKELING BPK.
RIVIEROEWERONTWIKKELING
7105/017
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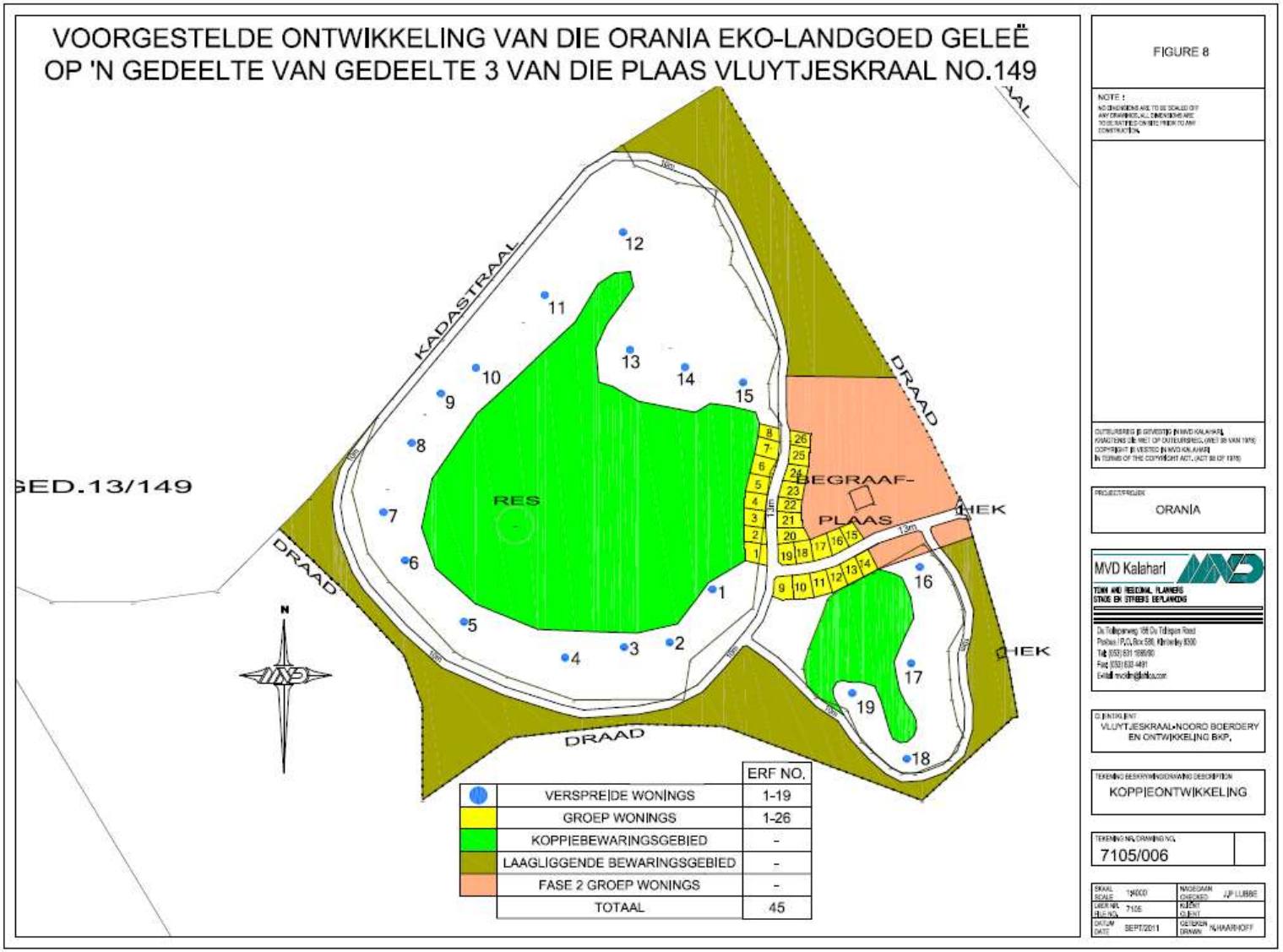
NAGESIEN CHECKED AP LUBBE
LêER NR. FILE NO. 7105
KLIENT CLIENT
DATUM DATE OKT/2011
GETEKEN DRAWN N.HAARHOFF


VOORGESTELDE ONTWIKKELING VAN DIE ORANIA EKO-LANDGOED GELEË
OP 'N GEDEELTE VAN GEDEELTE 3 VAN DIE PLAAS VLUYTJESKRAAL NO.149
FIGURE 8
KADASTRAAL
DRAAD
RES
BEGRAAF-
PLAAS
ORANIA
MVD Kalahari
VLUYTJESKRAAL-NOORD BOERDERY EN ONTWIKKELING BKP.
KOPPIEONTWIKKELING
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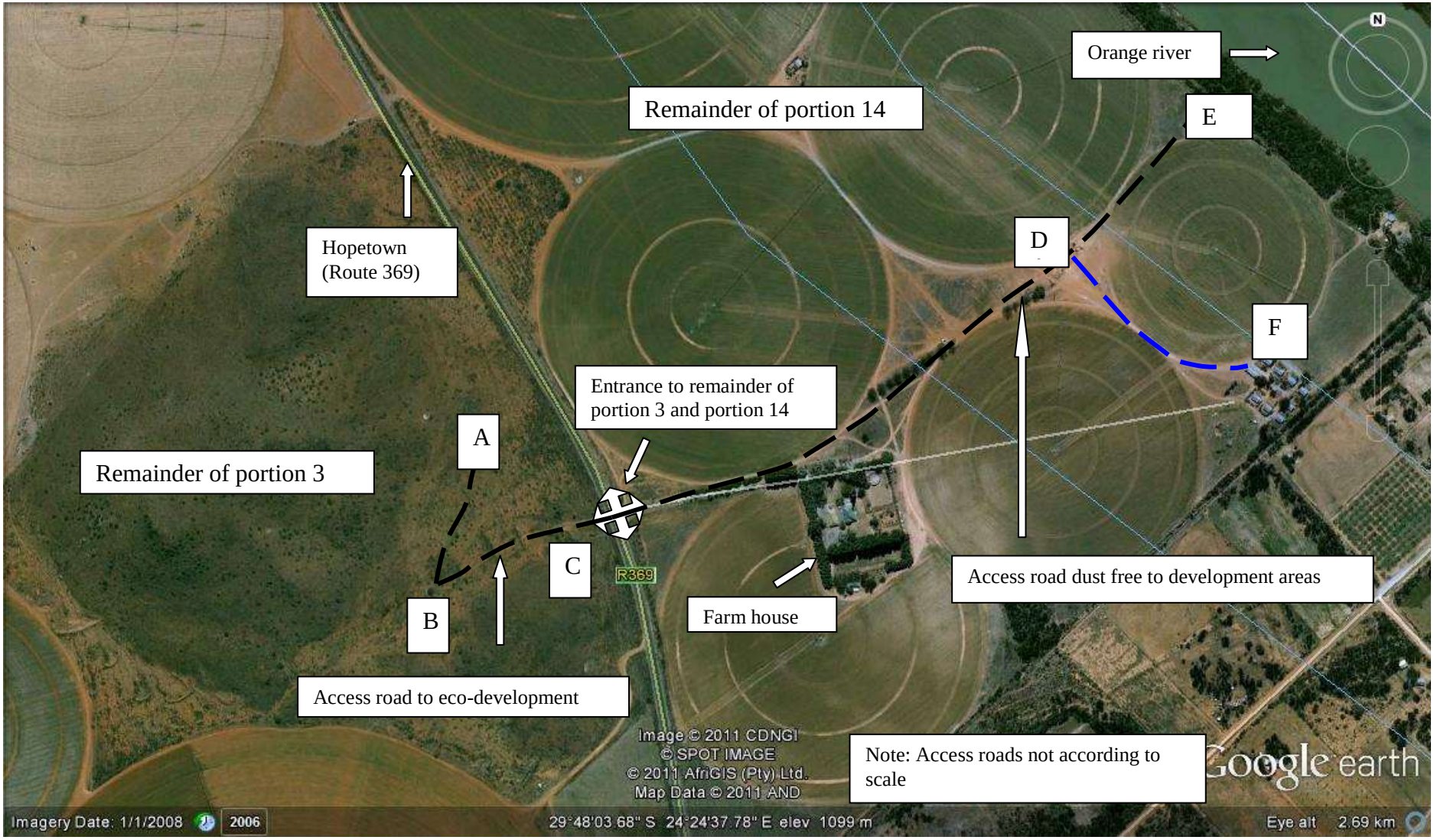
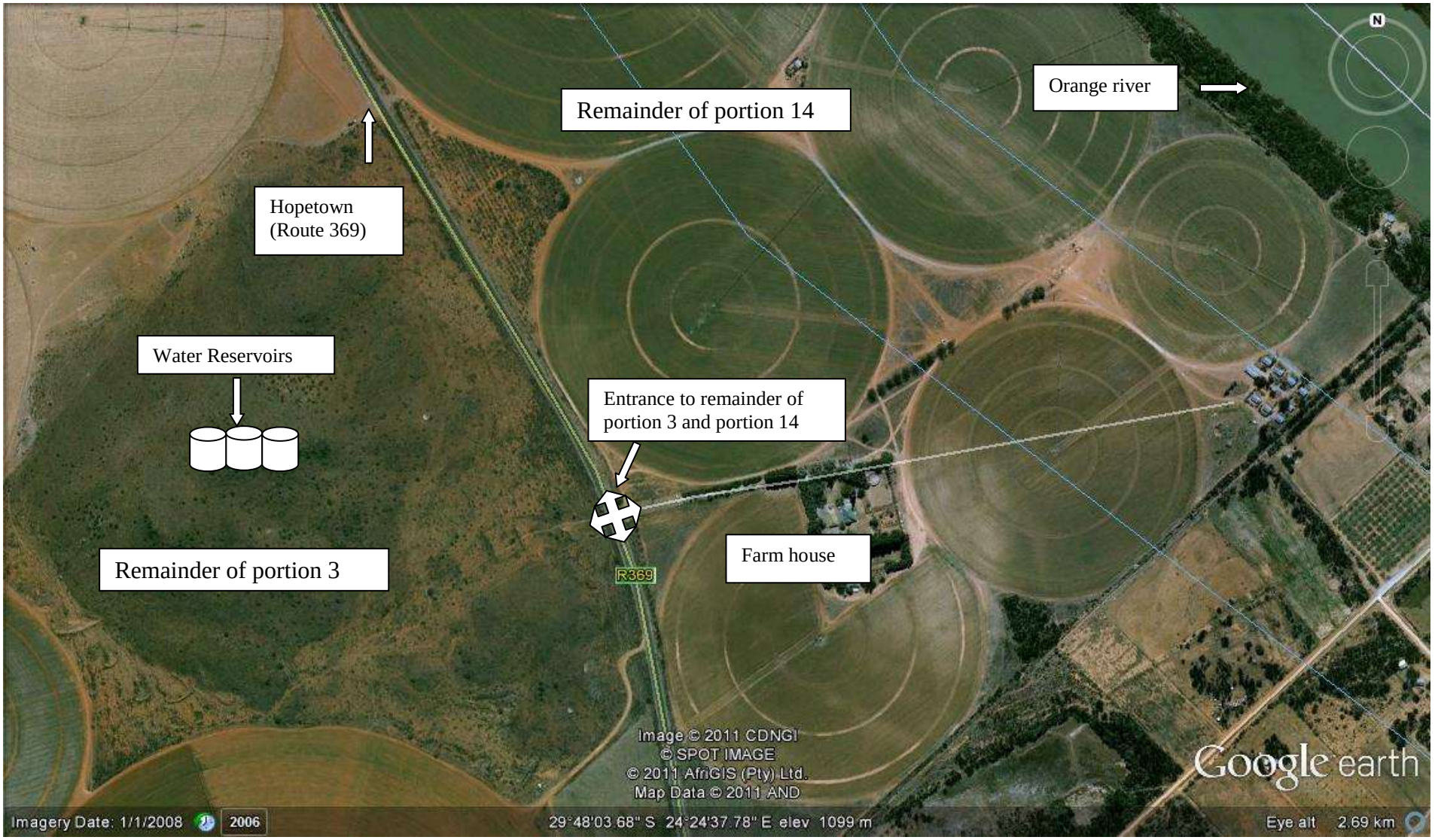
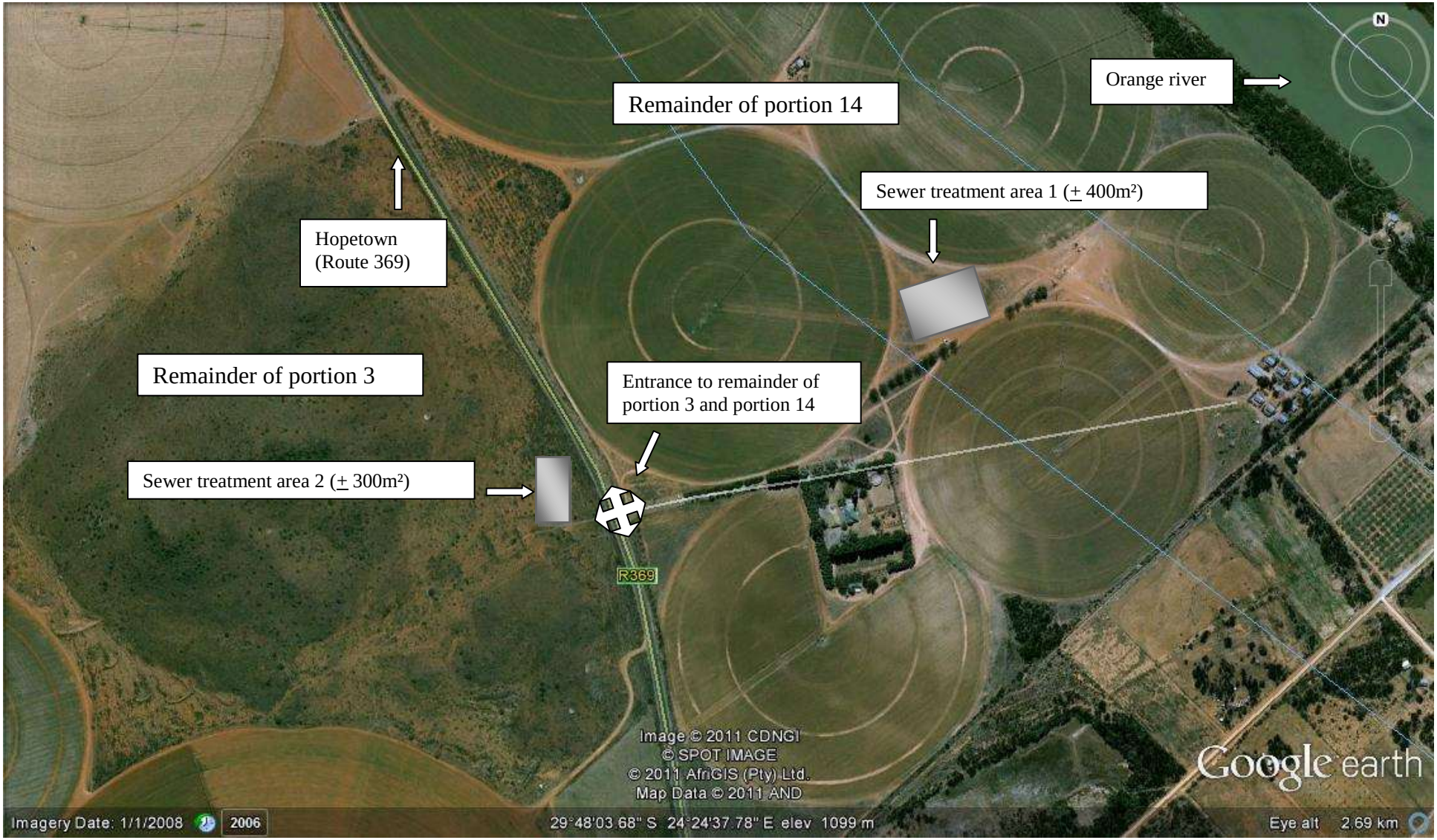
ERF NO.
VERSPREIDE WONINGS 1-19
GROEP WONINGS 1-26
KOPPIEBEWARINGSGEBIED -
LAAGLIGGENDE BEWARINGSGEBIED -
FASE 2 GROEP WONINGS -
TOTAAL 45



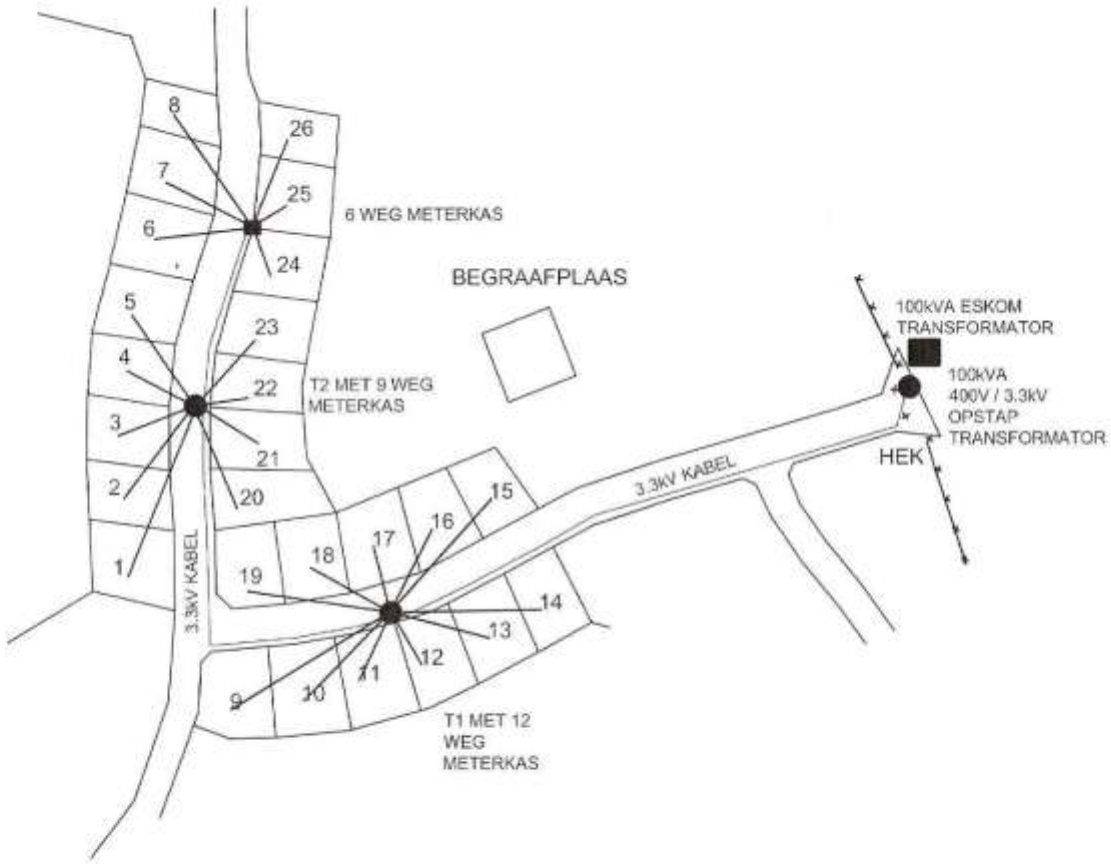
Access collector road layout on the farm Vluytjes Kraal Noord 149.



Position of the water reservoirs on the farm Vluytjes Kraal Noord 149.



Position of sewer treatment areas on the farm Vluytjes Kraal Noord 149.



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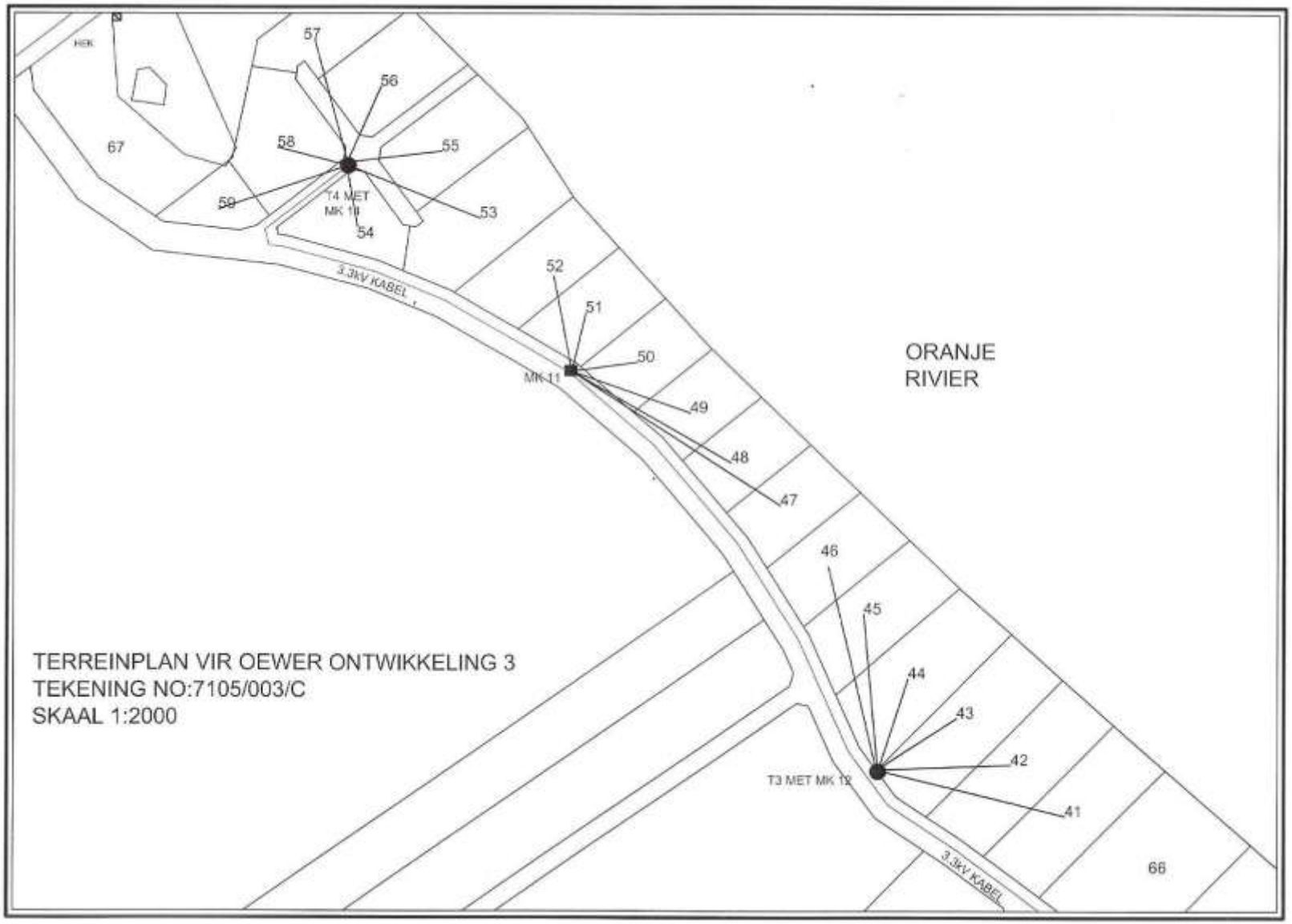
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T4 MET
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MK-11
ORANJE
RIVIER
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T3 MET MK 12
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3.3kV KABEL
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TEKENING NO:7105/003/C
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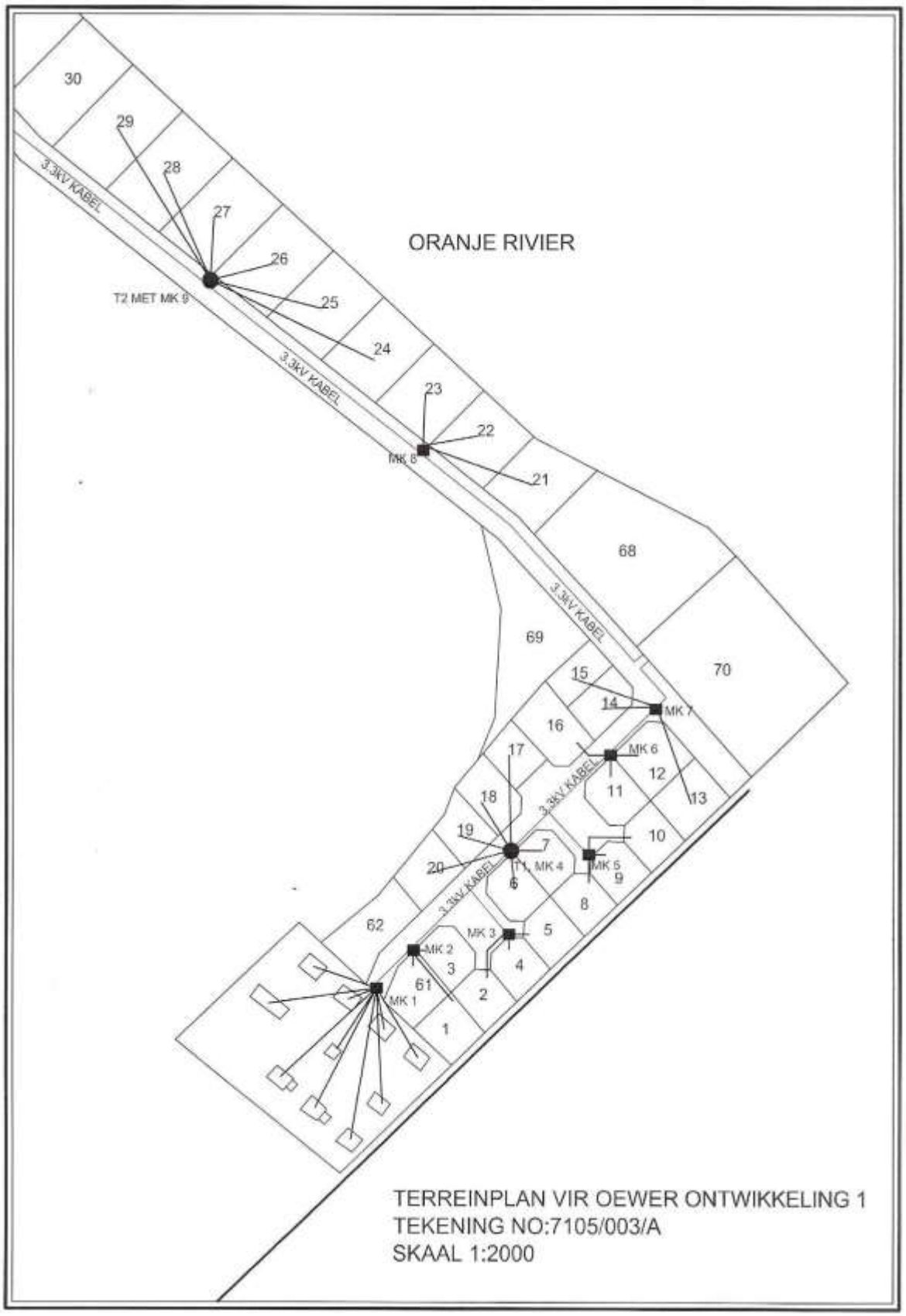
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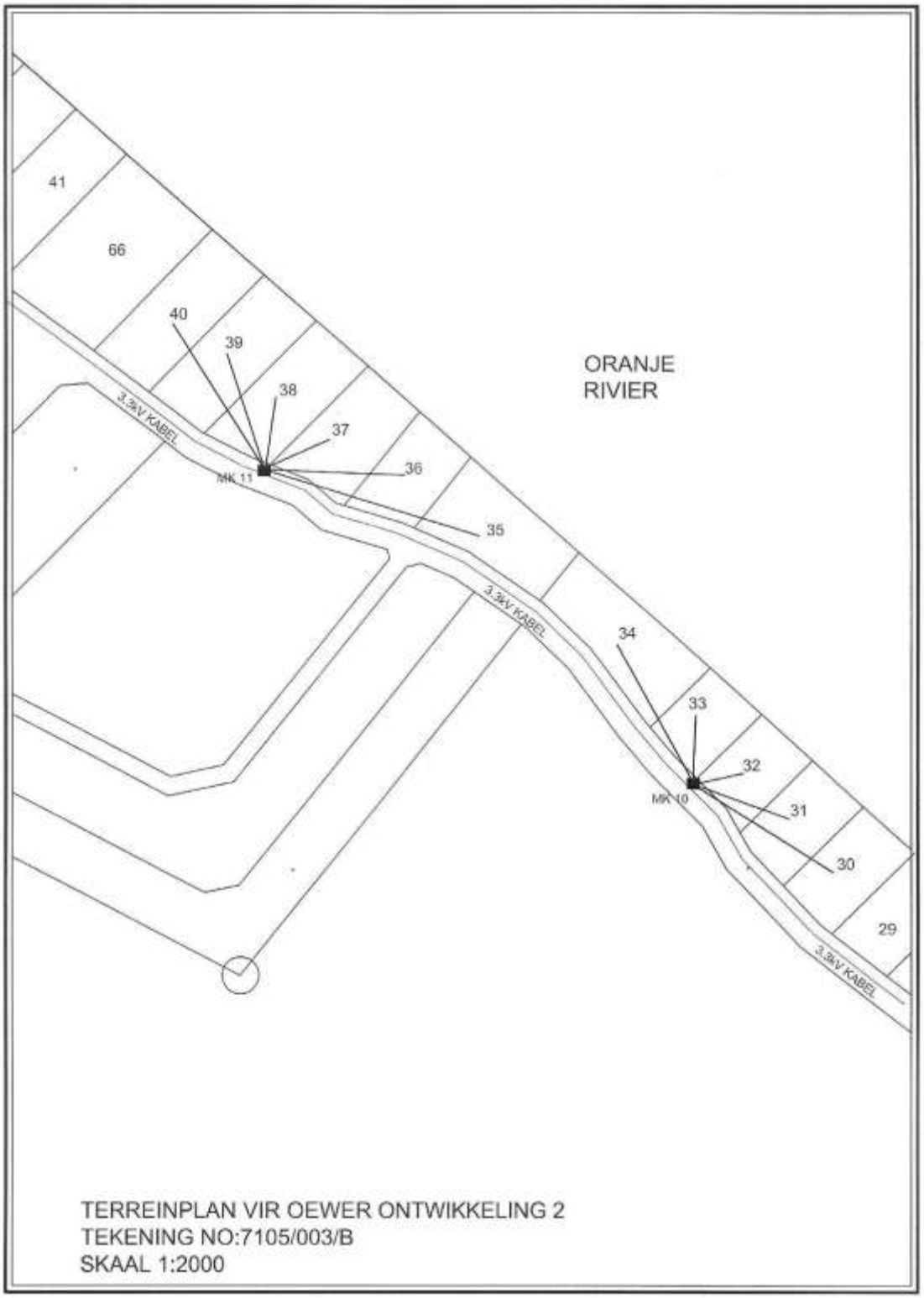
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ORANJE
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MK 10
3.3kV KABEL
TERREINPLAN VIR OEWER ONTWIKKELING 2
TEKENING NO:7105/003/B
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APPENDIX F
Specialist Reports

APPENDIX G
Report on the provision of services for Vluytjes Kraal Noord 149

APPENDIX H
Bouvoorskrifte Vluytjes Kraal