

**PROPOSED DEVELOPMENT OF AN IRRIGATION DAM
AND AGRICULTURAL DEVELOPMENT ON ERF 1074,
OLYVENHOUTS DRIFT SETTLEMENT, UPINGTON, DAWID
KRUIPER MUNICIPALITY, Z.F. MGCAWU DISTRICT
MUNICIPALITY, NORTHERN CAPE**



DRAFT BASIC ASSESSMENT REPORT

FEBRUARY 2021

**PROPOSED DEVELOPMENT OF AN IRRIGATION DAM
AND AGRICULTURAL DEVELOPMENT ON ERF 1074,
OLYVENHOUTS DRIFT SETTLEMENT, UPINGTON, DAWID
KRUIPER MUNICIPALITY, Z.F. MGCAWU DISTRICT
MUNICIPALITY, NORTHERN CAPE**

PREPARED FOR:

Turksvy Foto's Kunste en Rame BK

P.O. Box 2135,

Upington,

8800

Tel: 0543322713

PREPARED BY:

EnviroAfrica

P.O. Box 5367

Helderberg

7135

Tel: 021 – 851 1616

Fax: 086 – 512 0154

EXECUTIVE SUMMARY

Introduction

The proposed development is located on Erf 1074, and includes the following components:

- The construction of a new irrigation dam, with a development area of 1.2ha be constructed. The dam will be lined and will have a volume of approximately 48 000m³.
- The development of approximately 18.6ha for agriculture (vineyards).

The entire development, including all associated infrastructure will be approximately 19.8ha in extent.

Water will be abstracted from the Orange River irrigation canal and piped to the irrigation dam via an existing pipeline. The water forms part of the allocation to Erf 754.

The site is located south-east of Upington, adjacent to the N10.

Site Coordinates:

Proposed dam: 28° 27' 46.27"S, 21° 16' 58.16"E

Agricultural area 1: 28° 27' 54.60"S, 21° 17' 07.74"E

Agricultural area 2: 28° 27' 43.06"S, 21° 17' 12.19"E

Environmental Requirements

The National Environmental Management Act (NEMA, Act 107 of 1998), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority based on the findings of an Environmental Assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). According to the regulations of Section 24(5) of NEMA, authorisation is required for the following:

Government Notice R327 (Listing Notice 1):

Activity 12: The development of;

- (i) **dams or weirs**, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres;
- (ii) **infrastructure or structures** with a physical footprint of 100 square metres or more; where such development occurs;
 - (a) within a watercourse;
 - (b) in front of a development setback; or
 - (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;.

Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;

- (a) will occur behind a development setback;
- (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or
- (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies.

Activity 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for;

- (i) the undertaking of a linear activity; or
- (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Government Notice R324 (Listing Notice 3):

Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

Activity 14: The **development** of;

- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 10 square metres;
- (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs;
 - (a) within a watercourse;
 - (b) in front of a development setback; or
 - (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;

Site Description

- Vegetation

According to the Biodiversity Impact Assessment (**Appendix D1**), the site falls in the Bushmanland Arid Grassland. This vegetation type has a “least threatened” conservation status.

The site of the proposed dam is an old borrow pit/quarry. According to the Botanical Impact Assessment (**Appendix D1**), this old borrow pit (or quarry) is rather degraded and invaded by alien plant species such as *Prosopis glandulosa*, *Atriplex inflata* and *Salsola kali*.

The proposed development footprint is located in two distinct plant communities:

- *Senegalia mellifera* - *Salsola tuberculata* Plains Shrubland
- *Prosopis glandulosa* - *Tamarix usneoides* Open Bushveld of the borrow pit

This plains shrubland is degraded in places and is dominated by the shrubs *Senegalia mellifera*, *Salsola tuberculata*, *Salsola aphylla* and the alien *Prosopis glandulosa*.

This old borrow pit (or quarry) is rather degraded and invaded by alien plant species such as *Prosopis glandulosa*, *Atriplex inflata* and *Salsola kali*.

According to the Botanical Assessment (**Appendix D1**), the Orange River is classified as a CBA 1 area, while the area where the proposed reservoir will be built falls in a CBA 2 area (Namakwa Biodiversity Sector Plan 2016). The proposed reservoir falls in a CBA 2 but is located in an old quarry (borrow pit) and the area is highly degraded. The remainder of the site around the proposed reservoir and part of the proposed agricultural development in the site falls in Ecological Support Areas (ESAs).

- Freshwater

Although not indicated on any desktop assessments, including the SANBI BGIS NFEPA overlay, there is a watercourse (ephemeral stream) running through to the property. According to the Freshwater Assessment (**Appendix D2**), there are faint drainage lines on the property, probably the remains of a small next door sub-catchment. The lower end of these drainage lines has been entirely obliterated by the vineyards on the banks of the Orange River.

It is therefore doubtful if the proposed dam is going to be finally installed, would have any more deleterious effects on the drainage lines and its riparian vegetation. Likewise, the new 17 hectares of vineyard on the next-door property is not about to cause more damage to an already obliterated drainage line.

- Heritage

According to the Heritage Impact Assessment (**Appendix D3**), seventeen occurrences of lithic material were recorded across the surveyed area on or in close vicinity to the development footprints on Olyvenhouts Drift Erf 1074. The recorded lithic material consists of low- to medium-density background MSA scatters with cores, scrapers, a bladelet, untrimmed flakes, chips and knapping debris, made predominantly from BIF (Banded Ironstone Formation), with a few isolated pieces produced from CCS (Crypto-Crystalline Silicates) and dolomite pieces. The found lithic material shows various degrees of weathering and are without substantial archaeological context or matrix, and are therefore deemed of minor scientific importance, and not conservation worthy (NCW).

Four occurrences of colonial period material were recorded on Olyvenhouts Drift Erf 1074. Fragments of hole-in-cap tins, square key-wind tins, and hand- and machine-soldered tins dating between the late-19th and early-20th century, as well as a Gargoyle MobilOil, can top dating between 1920-1940, were recorded. The material sample is small and without substantial archaeological context. The development impact on these resources is, therefore, inconsequential and these artefacts are deemed as not conservation worthy (NCW).

There are 27 visible graves of various sizes situated in the middle of Development 1 and 2. The graves are demarcated with quartz and quartzite stones, and many of the graves have local fieldstone headstones.

The impact of the development of the proposed vineyards on Development footprint 1 and 2 will have a negative impact on the identified heritage resources recorded on Olyvenhouts Drift Erf 1074. However, the cultural material is without any substantial archaeological context and deemed not conservation worthy. The negative impact is, therefore, negligible. The graves are of high significance, but the probability of impact on the graves are low, with the new proposed location of the irrigation dam. The probability of the development impacting on palaeontological heritage during the construction phase is regarded as minimal, and the significance of the impact occurring, low.

Need and Desirability

According to the Applicant, the new dam is vital in planting an addition of 18ha of vineyards. The irrigation system is currently on maximum demand and unable to handle additional vineyards. This will bring the farming unit to a 100% operating capacity. The position of the dam will also generate an energy saving of between 25 and 30%. The construction and operation of the dam will generate new job opportunities for the local community.

The proposed development will also provide job opportunities for the community, with approximately 17 job opportunities provided during the construction phase, and 19 during the operational phase of the project. More than 80% of these will be to previously disadvantaged individuals.

Mitigation Measures:

Botanical

The following mitigation actions should be implemented to ensure that the proposed development does not pose a significant threat to the environment:

- Development should be contained within the proposed footprint and unnecessary clearance or disturbance adjacent to the site should be avoided.
- No-go areas, e.g. drainage lines should be avoided.
- Two protected tree species were recorded on site. They are mainly restricted to the drainage line in the south (plant community 1). This habitat should be avoided and not be transformed.
- Permits have to be obtained for the removal of any protected tree species.
- Dust control measures should be implemented during vineyard preparation and reservoir construction.
- Prevent soil erosion on and from the site.
- Vehicles should remain on existing demarcated roads.

EnviroAfrica

- Stream crossings to be designed not to impede or disrupt the direction and flow of water.
- Development should be restricted to the proposed site.
- Use existing and dedicated access roads to limit disturbance of the natural vegetation.
- Raise awareness regarding the negative impacts of alien invasive plant species.
- Establish a monitoring program for the early detection and control of alien invasive plant species.
- Indigenous trees and shrubs should be retained where possible.
- No alien invasive plant species should be used in landscaping on or around the site.
- Alien invasive species should be eradicated on site. Monitor and control new declared weedy and alien invasive species. However, restrict the use of herbicides for the control of alien species.
- No diversion of drainage channels should occur.
- No impeding of water flow should occur.
- Use existing and dedicated access roads to limit disturbance of the natural vegetation.
- Monitor and control declared weedy and alien invasive species.
- Measures to prevent soil erosion should be applied.
- Minimise clearance of natural vegetation and disturbance to the areas surrounding the development.
- Measures should be put in place to rehabilitate denuded and disturbed areas as soon as possible with indigenous vegetation.

Freshwater

The following mitigation measures are recommended in the Freshwater Report:

- Construction only during the dry season, limit the foot print, vegetate disturbed areas.
- When the new vineyard is developed, it should be done during the dry season. No more land should be disturbed than is really necessary and the foot print should not be any bigger than the design area of the vineyard. Earth moving machinery and farming implements should not be allowed outside of the designated area.
- The drainage line next to the new vineyard should be preserved, with an allowance for flow from the catchment right through to the main drainage line on the other side and adjacent to Turksvy Farm, similar to the already present drainage channels through the vineyards.
- Disturbed areas next to the new vineyard should be vegetated as soon as possible to prevent erosion and sediment transport.
- Over-irrigation should be prevented at all costs. State-of-the-art instrumentation is available to measure soil moisture and to aid decisions regarding the correct volume of irrigated water. Apart from huge saving of costs, scientific measurement as standard operating procedures prevents agricultural return flow, the loss of fertiliser downstream and more prolific growth of reeds in the drainage line.

Heritage

No mitigation required.

Sites should be included in the heritage register and may be mitigated

Conclusion

The overall environmental impact is expected to be Low (negative), with the following mitigation measures proposed:

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR.