

PROPOSED UPGRADE OF THE KOMAGGAS WATER SUPPLY SYSTEM, NAMA KHOI LOCAL MUNICIPALITY, NAMAKWA DISTRICT MUNICIPALITY, NORTHERN CAPE



DRAFT BASIC ASSESSMENT REPORT

NOVEMBER 2020

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EXECUTIVE SUMMARY

Introduction

The increasing demand for proper housing in Komaggas has led to an increased demand for drinking water. At present water is pumped from various boreholes through supply pipelines to two (2) storage reservoirs. The available water is insufficient for the community of Komaggas and shortages are experienced, especially during the dry summer seasons. The water levels in the municipal boreholes have declined considerably over the years due to the ongoing drought conditions experienced in the region and the over abstraction of the boreholes. The supply from the existing boreholes are therefore not feasible to ensure adequate water supply to the community of Komaggas.

The general condition of the infrastructure is poor and has reached the end of its useful design life. The primary problem on the existing infrastructure is the age thereof and lack of extensive maintenance over a long period of time.

The project comprises of the following:

- Construction of new 1.5 Ml Reservoir (Next to the existing reservoir at Komaggas);
- Construction of a new pipeline between borehole BR 18/2 & BR18/3 (Underground pipeline of approximately 646 m);
- Refurbishment of the existing water main from Buffelsrivier Reservoir to Kwaddas Reservoir and pump station (Underground pipeline of approximately 3.23 km with a Ø160 mm);
- Refurbishment of the existing water main from Kwaddas Reservoir to Voorberg Booster Pump Station and Reservoir (Underground pipeline of approximately 9.75 km with a Ø160 mm);
- Refurbishment of existing water main from Voorberg to Balancing Reservoir No. 3 (Above ground pipeline of approximately 5.13 km with a Ø150mm)
- Refurbishment of existing water main from Balancing Reservoir No. 3 to Komaggas (Above ground pipeline of approximately 6.77 km with a Ø150mm)
- Refurbishment of existing pump stations;
- Construction of a new pipeline from borehole KG19-DT5 (Above ground pipeline of approximately 525 m);
- Construction of a new pipeline from borehole KG19-DT1 (Above ground pipeline of approximately 230 m);
- Construction of Electrical Supply lines to new boreholes;
- Upgrading of service roads to all boreholes

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 9: The development of infrastructure exceeding 1000 meters in length for the transportation of stormwater –

- (i) with an internal diameter of 0,36m or more;
- (ii) with a peak throughput of 120 litres per second or more;

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 48: The **expansion** of;

- (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or
 - (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more;
- where such expansion 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;

Government Notice R324 (Listing Notice 3):

Activity 2: The development of reservoirs with the capacity of more than 250m³ (g) Northern Cape (iii) Outside urban areas: (dd) CBA as identified in systematic biodiversity plans adopted by the competent authority

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;

Activity 23: The **expansion** 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 expansion 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 Assessment (**Appendix D1**), two broad vegetation types are expected within the proposed footprint, namely Namaqualand Blomveld and Namaqualand Klipkoppe Shrubland.

Both these vegetation types are classified as “Least Threatened” (GN 1002, December 2011). Namaqualand Riviere is expected within the floodplains of the dry seasonal rivers such as the Buffels River in this study area.

The site is located within a CBA identified on SANBI BGIS.

According to the Biodiversity Assessment (**Appendix D1**), the main impacts associated with the proposed development will be:

- The temporary impact on indigenous vegetation within a proposed CBA; and
- The potential impact on a number of provincially protected plant species.

However, this is a replacement project, meaning that 95% of the project will be located within an existing disturbance footprint.

The cumulative impact (even without mitigation) is expected to be **Medium-Low**, but this can be reduced to **Low or Very Low** through mitigation.

- Freshwater

There are two major watercourses identified on SANBI BGIS within close proximity to the proposed development:

- Komaggas River
- Buffels River

The Komaggas River is a tributary of the Buffels River. The Buffels River is a non-perennial.

According to the Freshwater Assessment (**Appendix D2**), the pipeline follows roughly a semicircle, first to the north west along the Buffels River, then over the hills and mountain sides into the Komaggas River, a tributary of the Buffels River, in an easterly direction, then along the Komaggas River to the south. The pipeline crosses the road and the Komaggas River several times.

- Heritage

According to the Archaeological Impact Assessment (**Appendix D3**), a small number of isolated Middle Stone Age tools were recorded during the field assessment.

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The small numbers, isolated and disturbed context in which they were found, mean that the archaeological remains have been rated as having *LOW* (Grade IIIC) significance.

No graves, or typical grave features such as stone cairns were encountered.

The field study identified no significant impacts to pre-colonial archaeological heritage that will need to be mitigated prior to proposed construction activities commencing.

While it is possible that proposed construction activities may impact on archaeological resources, it is likely that these resources will have low archaeological significance. The nature of the proposed development also requires minimal surface disturbance and excavations.

The overall impact significance of the proposed Komaggas Water Supply Project on archaeological heritage is assessed as *LOW* and therefore there are no objections to the development proceeding.

According to the Palaeontological Impact Assessment (**Appendix D4**), the proposed pipeline is installed shallowly underground in late Quaternary (Q-s2) deposits up to the Voorberg location, from where it proceeds above ground across the gneiss bedrock. The anticipated impact of shallow earthworks in the superficial Quaternary deposits is rated as *LOW*, in conformity with the S. Afr. Heritage Information System (SAHRIS) Palaeontological Sensitivity Map. Furthermore, the new water main pipeline replaces the old pipeline in the existing disturbed material of the shallow trench, further decreasing the potential for fossil finds.

Notwithstanding, although improbable, a chance occurrence of fossil bone material cannot be entirely dismissed.

Need and Desirability

The increasing demand for proper housing in Komaggas has led to an increased demand for drinking water.

The community of Komaggas is totally dependent of water abstracted from boreholes and the water that is supplied from Buffelsrivier. The current system of Buffelsrivier must be upgraded to ensure a constant water supply from Buffelsrivier to Komaggas. The upgrade to the water infrastructure in Komaggas will ensure adequate water supply to the community for at least the next 20 years.

The proposed development is included in the Nama Khoi IDP Review (2017-2022) in the list of projects towards service delivery improvement.

The proposed development will also provide job opportunities for the community.

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:

- All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include the recommendations made in this report. A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies.
- Before any work is done search & rescue must be completed.
- Lay-down areas or construction sites must be located within the construction footprint.
- No clearing of any area outside of the construction footprint may be allowed.
- All waste that had been illegally dumped within the footprint must be removed to a Municipal approved waste disposal site.
- An integrated waste management approach must be implemented during construction.

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- Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites.
 - Alien invasive *Prosopis* plants within the footprint (and immediate surroundings) must be removed in a responsible way (to ensure against regrowth).
 - All waste that had been illegally dumped within the footprint must be removed to a Municipal approved waste disposal site.
 - An integrated waste management approach must be implemented during construction.
 - Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites.
- Freshwater

The following mitigation measures are recommended in the Freshwater Report:

- Limit the footprint
- Level and landscape after construction
- Exit pipe from the river bed well out of riparian zone
- Clean up after construction
- If new pedestals are required, construct well out of riparian zone
- Prevent construction of new road
- Limit use of roads
- Limit water abstraction to sustainable levels
- Disallow increase of abstraction
- Plan for alternative water resources
- Monitor tree line and adjust abstraction according to monitoring results

- Heritage

Palaeontology

- No areas of particular palaeontological sensitivity are identified.
- Notably, where the new water main pipeline is below ground in the superficial Q-s2 deposits, it replaces the pipeline in the existing disturbed material of the shallow trench, further decreasing the potential for fossil finds.
- Notwithstanding, although improbable, a chance occurrence of fossil bone material cannot be entirely dismissed and when fossils are found in low-sensitivity formations, they are often very significant additions to the geological understanding of the area.
- The monitoring of excavations by on-site personnel is recommended during installation of the upgraded water supply infrastructure, under supervision of the Environmental Control Officer (ECO). As part of Environmental and Health & Safety awareness training, personnel must be instructed to be alert for the occurrence of fossil bones, archaeological material and of unrecorded burials.
- A basic Fossil Find Procedure for incorporation into the Environmental Management Programme for the project.

Archaeology

- No mitigation of archaeological resources is required is required prior to construction activities commencing.
- If any human burials, or ostrich eggshell caches, for example, are uncovered during construction activities then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and will require inspection by a professional archaeologist.
- The above recommendations must be included in the Environmental Management Plan (EMP) for the proposed development.

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Conclusion

The overall environmental impact is expected to be generally 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.