

SITE SENSITIVITY VERIFICATION REPORT FOR MACASSAR WASTEWATER TREATMENT WORKS, CAPACITY EXTENSION AND ASSOCIATED INFRASTRUCTURE REFURBISHMENT

1. Background

The existing Macassar WWTW is located on Erf 1205 Macassar, at the Eerste River Estuary, approximately 600m south of the town of Macassar. The existing WWTW was constructed in ± 1977 , and receives sewage from Strand, Somerset West and Macassar via the Macassar and Helderberg pump stations. The WWTW receives and treats domestic and commercial/business sewage only (no industrial sewage). The existing Macassar WWTW utilises Conventional Activated Sludge technology and has an estimated hydraulic capacity of 48ML/day Average Dry Weather Flow (ADWF). However, the effective treatment capacity of the works is currently limited to 30ML/day due to suboptimal performance of the works, as a result of insufficient aeration at the existing reactors.

Due to increased urban development and densification in the sewage catchment areas, the volume of incoming sewage being received at the Macassar WWTW is steadily increasing, and the WWTW is fast approaching its design capacity (treatment capacity will be reached within ± 5 years).

It has been observed that the existing inlet works at the WWTW lacks sufficient capacity to accommodate high peak flows and is in a poor condition both mechanically and structurally. During a high flow event in July 2014 the capacity of the existing inlet works was exceeded, and as a result the inlet works overflowed and untreated sewage was discharged into the environment. Flow monitoring at the WWTW indicates that peak flows during winter months are increasing in frequency and intensity, and it is likely that high peak flows will be received at the WWTW on an ongoing basis in the future.

The treatment capacity of the WWTW must be expanded and a new inlet works must be constructed, in order to ensure that the WWTW will have sufficient capacity to handle and treat the current and projected future volumes of incoming sewage (including peak flows), to prevent sewage overflows/spills from recurring in the future, and to improve the quality of the final treated effluent discharged from the WWTW.

The main purpose of the proposed project (subject of this BAR) is to implement the aforementioned authorised upgrade of the WWTW, the construction of which has already commenced. However, due to the time that has passed since the approval in 2016, new design engineers have been appointed to finalise the detailed design. The design engineers have identified alternative technology options that will enable the works to run more efficiently and improve the quality of the effluent being discharged to the estuary.

The proposed revision to the design upgrades will require the clearance of more than 1ha of indigenous vegetation, which includes Endangered Cape Flats Dune Strandveld vegetation. Therefore, Listing Notice 1, Activity 27 and Listing Notice 3 Activity 12 is being applied for.

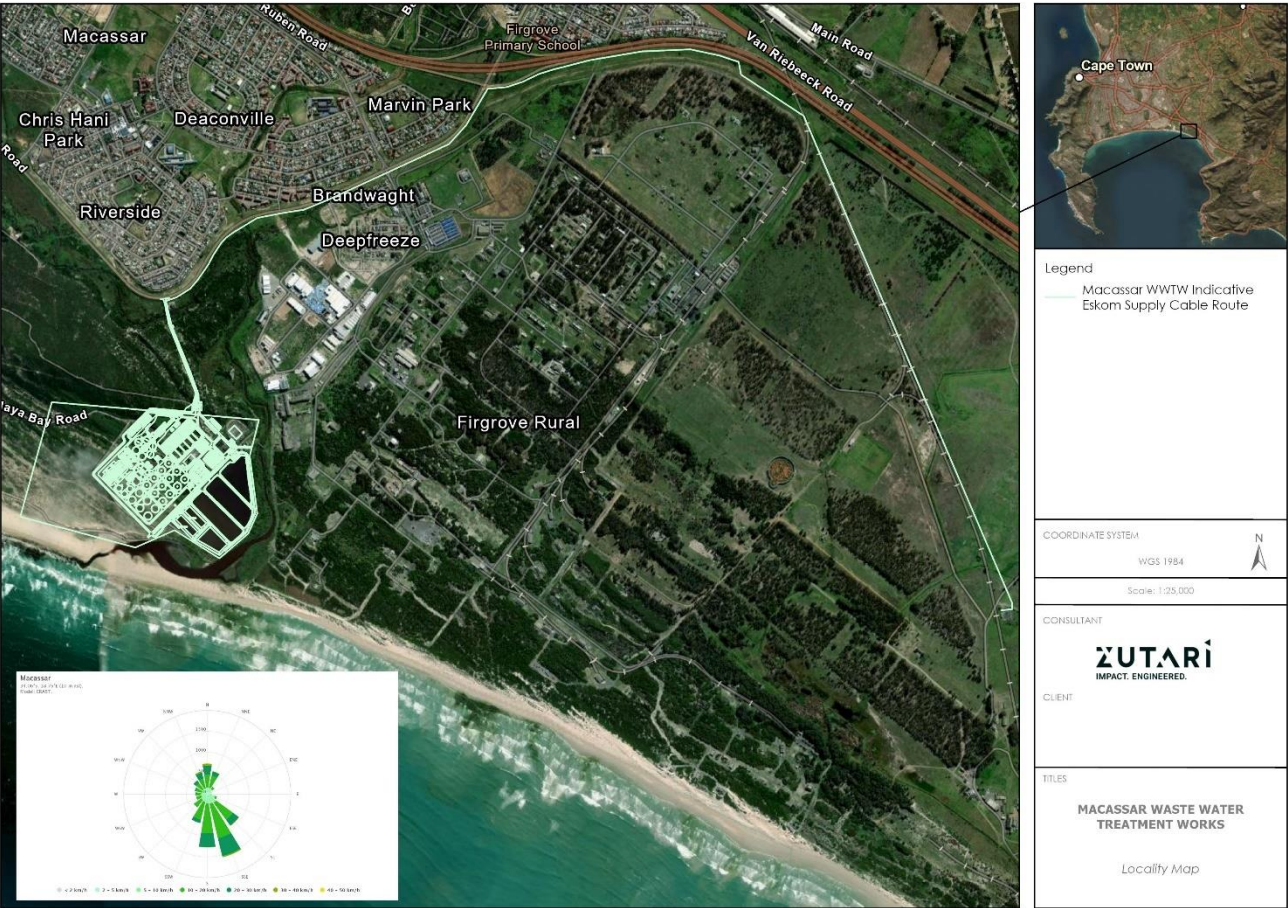


Figure 1: Locality Plan for the project.

2. Photographs of the Site



Inlet Works



Inlet Works



Reactor



Reactor



Reactor



Reactor



Reactor



Screw Lift Pump Station



Pump Station



Flow Splitter



Secondary Settling Tank



Secondary Settling Tank



Chlorine Contact Tank



Maturation Ponds



Belt Presses - Dewatering



Sludge Storage



Old Sludge Lagoon



Dune Vegetation

3. Purpose of the Report

City of Cape Town appointed Zutari to undertake the required Basic Assessment (BA) Environmental Process in terms of the National Environmental Management Act, 1998 (No. 107 of 1998; NEMA, as amended) and the 2014 Environmental Impact Assessment (EIA) Regulations (as amended) in order to seek authorisation for the proposed expansion of the Macassar WWTW.

A screening tool report was generated, and the sensitivities identified for the site are included in **Table 1** below.

Table 1: Environmental sensitivities picked up by the national screening tool.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme			X	
Defence Theme				X
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Whilst the above sensitivities were identified for the site, several specialist studies have been identified for inclusion in the environmental process and are listed below – bolded text indicates themes for which a sensitivity was picked up. It is the responsibility of the Environmental Assessment Practitioner (EAP) to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

1. **Agricultural Impact Assessment**
2. **Archaeological and Cultural Heritage Impact Assessment**
3. Palaeontology Impact Assessment
4. **Terrestrial Biodiversity Impact Assessment**
5. **Aquatic Biodiversity Impact Assessment**
6. **Plant Species Assessment**
7. Animal Species Assessment
8. Civil Aviation
9. Defence

In accordance with the Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of NEMA, Zutari compiled this Site Sensitivity Report to provide a rationale for the specialist studies to form part of the environmental process.

4. Desktop Analysis

According to the 2018 National Vegetation Map the site falls in an area that contains the Cape Flats Dune Strandveld which is listed in the National List of Threatened Ecosystems (Government Gazette, 2022) as 'endangered'.

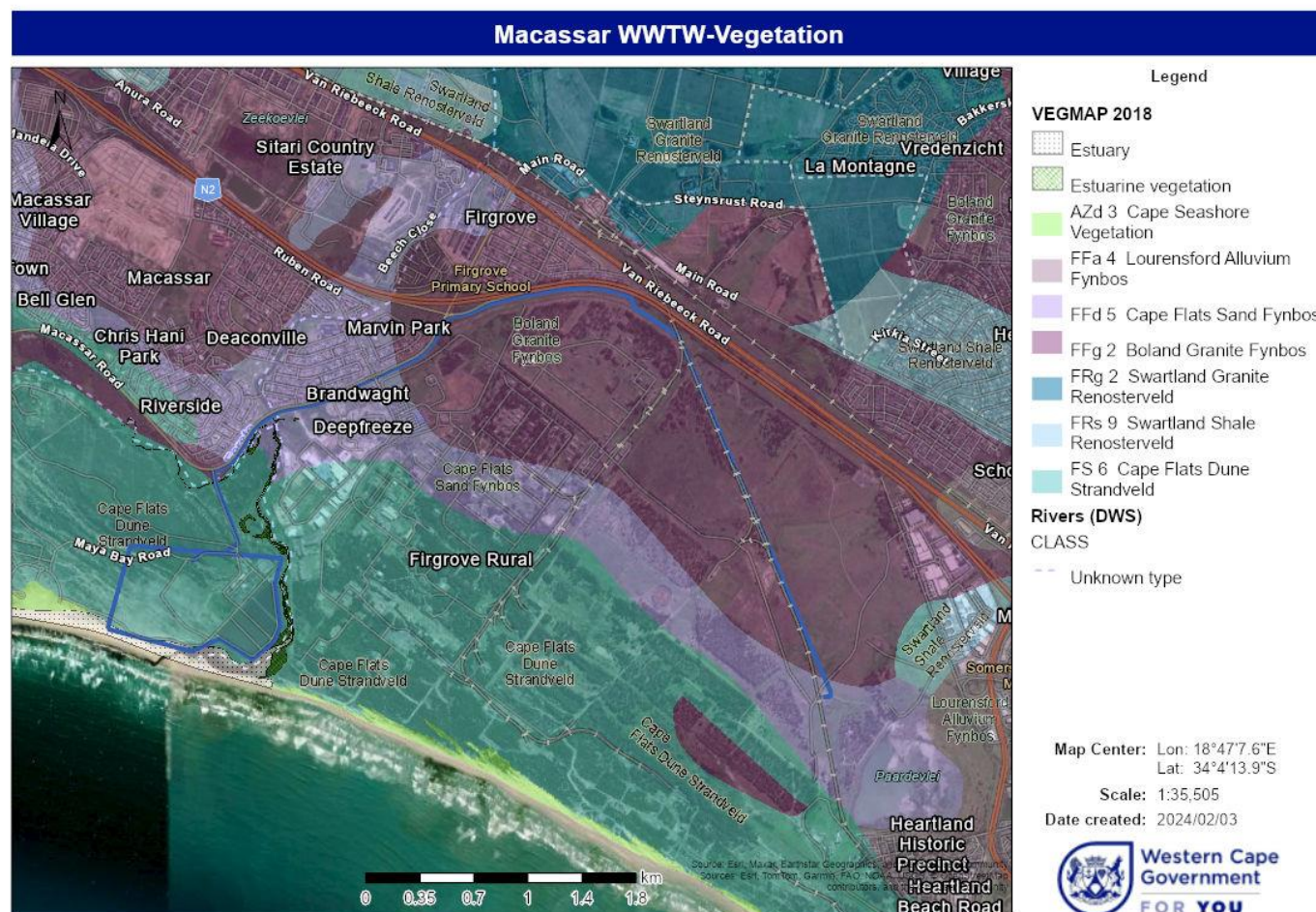


Figure 3: Vegetation Map

According to the 2017 Western Cape Biodiversity Spatial Plan (WCBSP, 2017) there are two Critical Biodiversity Areas (CBA) 1b, good condition indicated at the site.

The Wetlands Inventory does indicate artificial water bodies that are artificial wetlands associated with the existing Macassar WWTW. There is the Eerste River and the Eerste River Estuary east of the WWTW (refer to figure 5).

The desktop screening identified an artificial wetland within the WWTW. The Eerste River and Estuary lie immediately to the east of the site, while to the west there is still largely natural vegetation remaining. It is recommended that the Breede-Olifants Catchment Management Area (BOCMA) regarding amendment to the existing water use licence for the WWTW.

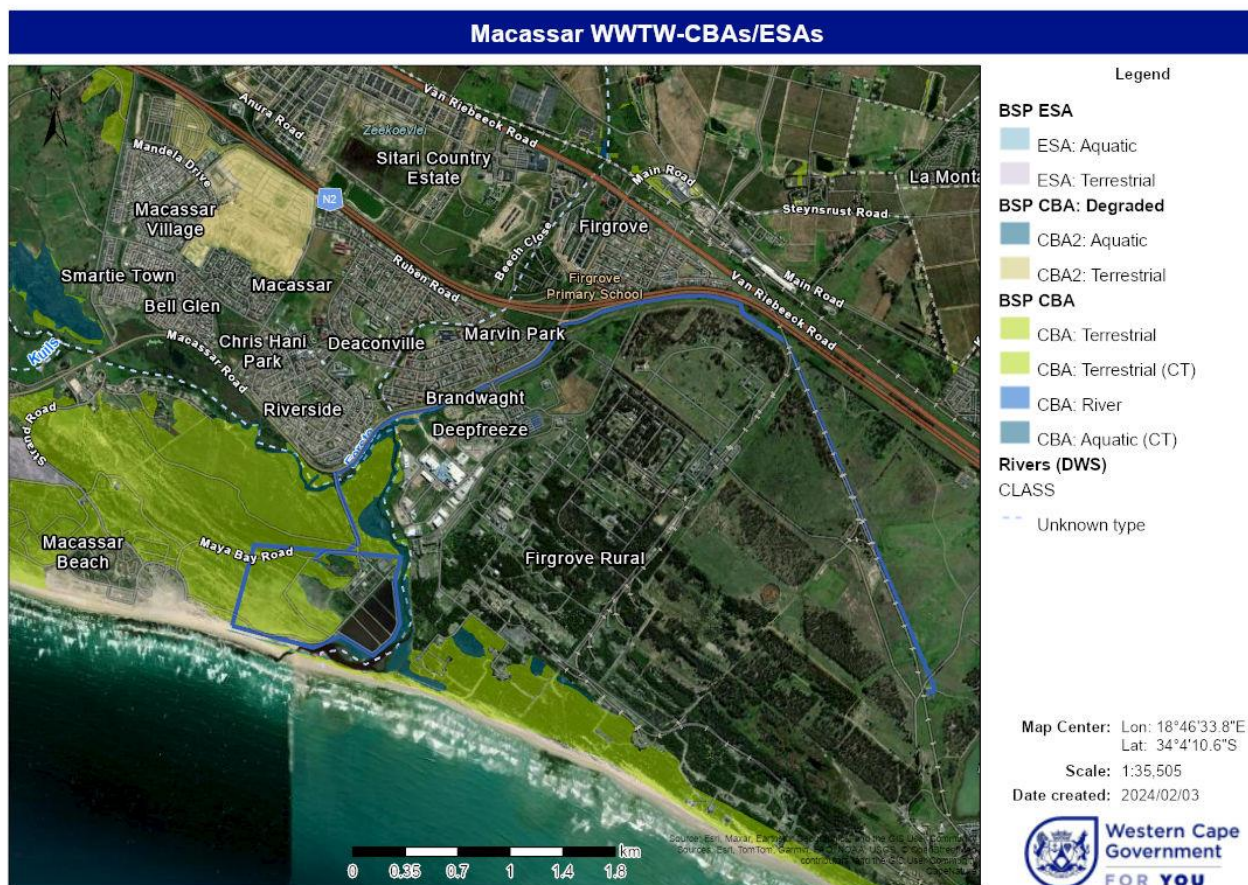


Figure 4: There are two Critical Biodiversity Areas (CBA)s indicated at the site.

Macassar WWTW-Water Resources



Figure 5: Water resources in close proximity to the site

5. Site Visit / Assessment

The EAP undertook as site visit of the site and the photographs included in Section 2 were taken during the site inspection.

An aquatic, botanical, agricultural and terrestrial biodiversity specialist have both investigated the site and concluded that the proposed works would result in a manageable level of environmental impacts.

6. Motivation / Rationale for Specialist Studies

• Hydrology Assessment

- The screening tool recommend that a hydrology impact assessment be considered for the proposed project, even though a sensitivity has not been picked up for this theme.
- A hydrology impact assessment will not be undertaken for this project as it was not picked up as a sensitivity and the project will be located adjacent and within the footprint of the existing infrastructure.
- The project is to refurbish the existing Macassar WWTW. The letter from DEA&DP dated 26 July 2023 indicated that the listed activity to be applied for is Listing Notice 1 Activity 27 and Listing Notice 3 Activity 12 in terms of the EIA Regulations, 2014 (as amended). The current EA dated 7 July 2017 is still valid which assessed the establishment and hydrology impact of the WWTW.

• Archaeological and Cultural Heritage Impact Assessment

- Notice of Intent to Development (NID) was submitted to Heritage Western Cape (HWC). The response on the NID states the following. *You are hereby notified that, since there is reason to believe that the Proposed wastewater treatment works on Erven 703 and 1205, Macassar, will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of Section 38(3) of the NHRA be submitted. This HIA must in addition have specific reference to the following: Palaeontological Impact Assessment*
- A HIA as per the protocols has been undertaken by a heritage specialist.

- **Palaeontology Impact Assessment**

- The screening tool recommend that a palaeontology impact assessment be considered for the proposed project, even though a sensitivity has not been picked up for this theme.
- Based on the input from HWC, there will be an HIA which will have specific reference to a Palaeontological Assessment.

- **Terrestrial Biodiversity Impact Assessment**

- The screening tool picked up a **very high sensitivity** for this theme. A terrestrial biodiversity impact assessment as per the protocols has been undertaken by a biodiversity specialist. About half the proposed development area supports vegetation and faunal habitat that is mapped as High or Medium sensitivity and is also mapped as CBA1b in the City's Biodiversity Network. These areas should ideally not be lost to development. Ideally a biodiversity offset would be required, to help minimise the unavoidable High negative ecological impacts of the proposed development, even though High negative impacts are supposed to present a No Go (Red Flag) scenario in terms of offsets (Dept. of Forestry, Fisheries & Environment 2022).

- **Aquatic Biodiversity Impact Assessment**

- The screening tool picked up a **very high sensitivity** for this theme. An aquatic impact assessment as per the protocols has been undertaken by an aquatic specialist.

- **Ambient Air Quality Impact Assessment**

- The project is to refurbish the existing Macassar WWTW. The letter from DEA&DP dated 26 July 2023 indicated that the listed activity to be applied for is Listing Notice 1 Activity 27 and Listing Notice 3 Activity 12 in terms of the EIA Regulations, 2014 (as amended). The current EA dated 7 July 2017 is still valid which assessed the establishment of the WWTW. The refurbishment will not affect air quality and therefore a study is not deemed necessary.

- **Geotechnical Assessment**

- A geotechnical investigation has been undertaken as part of the engineering scope and therefore deemed not necessary for the environmental study.
- The project is to refurbish the existing Macassar WWTW. The letter from DEA&DP dated 26 July 2023 indicated that the listed activity to be applied for is Listing Notice 1 Activity 27 and Listing Notice 3 Activity 12 in terms of the EIA Regulations, 2014 (as amended). The current EA dated 7 July 2017 is still valid which assessed the establishment of the WWTW.

- **Socio-Economic Assessment**

- The project is to upgrade and existing WWTW and would improve the livelihoods of people living in areas that a serviced by the WWTW. Therefore, having a positive impact on the socio-economic environment.
- The project is to refurbish the existing Macassar WWTW. The letter from DEA&DP dated 26 July 2023 indicated that the listed activity to be applied for is Listing Notice 1 Activity 27 and Listing Notice 3 Activity 12 in terms of the EIA Regulations, 2014 (as amended). The current EA dated 7 July 2017 is still valid which assessed the establishment and socio-economic impact of the WWTW and therefore an additional Socio-economic impact assessment is deemed not to be required.

- **Plant Species Assessment**

- The screening tool picked up a **medium sensitivity** for this theme and based on the site visit from the botanical specialist the medium/high rating is supported because the area probably contains at least two plant species of Conservation Concern (SoCC). . About half the proposed development area supports vegetation and faunal habitat that is mapped as High or Medium sensitivity and is also mapped as CBA1b in the City's Biodiversity Network. These areas should ideally not be lost to development. Ideally, a biodiversity offset would be required, to help minimize the unavoidable High negative ecological impacts of the proposed development, even though High negative impacts are supposed to present a No Go (Red Flag) scenario in terms of offsets (Dept. of Forestry, Fisheries & Environment 2022).
- A management plan to ensure the survival of the important vegetation and protected flora on site is implicit to the expansion development of the WWTW.

- **Animal Species Assessment**

- The screening tool has picked up a high sensitivity for this theme and based on the terrestrial biodiversity study at least one threatened animal species is likely to be present in the footprint area- which is listed vulnerable. An animal species impact component was integrated into the Biodiversity assessment.

- **Agricultural Impact Assessment**

- The screening tool report picked up a high sensitivity for this theme. An agricultural compliance statement was compiled by an agricultural specialist. The high sensitivity is disputed by the specialist as the land capability of >8 and rates the entire proposed site as being of medium agricultural sensitivity with a maximum land capability of 7. The appropriate land capability of land that is unsuitable for viable rain-fed crop production is ≤7 because the relationship between land capability and agricultural production potential is such that a land capability of >7 should denote land that is suitable for viable rain-fed crop production.

- **Civil Aviation Theme**

- The screening tool picked up a medium sensitivity for this theme. This sensitivity is disputed as the project is in line with the character of the area and will not add a new risk to any civil aviation activities either as an obstacle or in terms of communications.
- The sensitivity in terms of this theme, based on the findings of the site inspection, should be low and no studies or statements are required.
- The project is to refurbish the existing Macassar WWTW. The letter from DEA&DP dated 26 July 2023 indicated that the listed activity to be applied for is Listing Notice 1 Activity 27 and Listing Notice 3 Activity 12 in terms of the EIA Regulations, 2014 (as amended). The current EA dated 7 July 2017 is still valid which assessed the establishment of the WWTW.

- **Defence Theme**

- No studies or statements are required. The low sensitivity picked up by the screening tool should be negligible as there will no difference from the status quo once the wastewater treatment is completed.

7. Conclusion

This site sensitivity verification reports were compiled in line with the protocols for impact assessments and guided by the screening tool report generated for the project.

The screening tool recommended a number of specialist assessments and picked up different sensitivities for the site. This report provides a rationale for which specialist studies/inputs will be acquired for the project.