

## EXECUTIVE SUMMARY

### 1. INTRODUCTION

The City of Cape Town: Transport for Cape Town (CoCT), the Applicant, is proposing to upgrade the Bayside Stormwater Outfall Canal, located within Tableview, Cape Town. SLR Consulting (South Africa) (Pty) Ltd (SLR) has been appointed by BVi Consulting Engineers WC (Pty) Ltd (BVi Consulting), on behalf of CoCT, as the independent Environmental Assessment Practitioner to undertake the Basic Assessment process to meet the relevant requirements of the Environmental Impact Assessment (EIA) Regulations 2014 (Government Notice (GN) No. R982), as amended.

It should be noted that an Application for Environmental Authorisation Form for the proposed project, together with a copy of the draft Basic Assessment Report (BAR) was initially submitted to the Department of Environmental Affairs and Development Planning (DEA&DP) on 21 May 2019. However, the Application Form was not recorded as being received by DEA&DP. Thus, DEA&DP requested that a new application be submitted. As the project proposal remains unchanged, the previous distribution of the draft BAR for public review and comment is regarded as a pre-application process for the submission of the new Application for Environmental Authorisation.

An updated draft BAR was subsequently distributed for an additional 30-day review and comment period from 4 March to 3 April 2020. However, following the implementation of the nation-wide lockdown on 27 March 2020, the review and comment period was suspended in accordance with the “Measures to Address, Prevent and Combat the Spread of Covid-19” published in GN No. R 439 of 31 March 2020. Subsequently, on 5 June 2020 updated Directions (“Directions Regarding Measures to Address, Prevent and Combat the Spread of COVID-19 Relating to National Environmental Management Permits and Licences” published in GN No. 650 of 5 June 2020) allowed for the resumption of the review and comment period and allowed for a 21-day extension of the timeframe. Accordingly, an extension of the comment period to 14 July 2020 on the updated draft BAR was granted. This Executive Summary provides a synopsis of the final BAR prepared for the proposed project.

It should be noted that all significant changes to the draft updated BAR are underlined and in a different font (Times New Roman) to the rest of the text.

### 2. AUTHORISATION REQUIREMENTS

A Basic Assessment is required in terms of the EIA Regulations 2014 (as amended) promulgated under the National Environmental Management Act (Act 107 of 1998) (as amended) as the proposed project triggers the following listed activities in terms of GN No. R983 (Listing Notice 1), as amended:

GN R983 (as amended) Listed Activities		Project Description
19	<p><i>The infilling or depositing of any material of more than 10 m<sup>3</sup> into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m<sup>3</sup> from:</i></p> <p><i>(i) a watercourse.</i></p> <p><i>Excluding where such activities:</i></p> <p><i>(a) will occur behind a development setback line; or</i></p> <p><i>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>	The construction of the proposed stormwater treatment system and bypass channel would require the dredging, excavation, removal and/or moving of more than 10 m <sup>3</sup> of soil within the northern portions of Rietvlei.
19A	<p><i>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 -</i></p> <p><i>(ii) ... an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater...</i></p>	The proposed project is located within 100 m of the estuarine portion of Rietvlei.

GN R983 (as amended) Listed Activities		Project Description
27	<i>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> (i) <i>the undertaking of a linear activity; or</i> (ii) <i>maintenance purposes undertaken in accordance with a maintenance management plan.</i>	The construction of the proposed stormwater treatment system and bypass channel would require the removal of more than 1 ha of indigenous vegetation.
GN R985 (as amended) Listed Activities		Project Description
12	<i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i>  (i) <i>Western Cape:</i> i. <i>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004 ...</i>	The area to the north of Rietvlei is mapped as the original extent of Cape Flats Dune Strandveld vegetation type. This vegetation type is listed as “Endangered” in terms of Government Notice R.1002 of 9 December 2011 (the “National List”).

### 3. PROPOSED PROJECT DESCRIPTION

The Bayside Canal serves as the only stormwater outfall culvert for a catchment area that includes a large portion of Tableview and West Beach, as well as large areas of Parklands and Sunningdale (see Figure 1 overleaf). It starts at Link Road and runs southwards adjacent to the road reserve to the east of the R27. The canal crosses Blaauwberg Road and ends at the north-western corner of Rietvlei, within the Table Bay Nature Reserve.

The stormwater capacity of Bayside Canal has become severely compromised by extensive reed growth immediately downstream of the canal outlet. The reed growth restricts stormwater discharge to Rietvlei and reduces the capacity of the section of the canal to the south of Blaauwberg Road. As a result, the canal is unable to accommodate the increasing volume of runoff due to development within the catchment area. Thus, there exists a possible threat of flooding of properties upstream of the canal outlet. In addition, litter and solid waste which tends to accumulate in the canal are ultimately conveyed into Rietvlei by the stormwater flow within the canal. The accumulation of litter within Rietvlei has an impact on water quality, as well as a visual impact.

In order to address the above-mentioned issues BVi Consulting undertook the necessary engineering work to investigate and design interventions to increase the capacity of the Bayside Canal and limit the volume of runoff and general waste that enters Rietvlei.

In this regard, various catchment-wide solutions have already been addressed to reduce the catchment area served by the Bayside Canal. These include the following:

- Discharge of stormwater runoff from the most northern portions of Sunningdale to the west via the Big Bay Outfall (this proposal was authorised by means of a separate Basic Assessment process); and
- Development of additional detention facilities to attenuate stormwater runoff from new developments in Sunningdale, Parklands and Sandown. These facilities have been established according to the relevant stormwater master plan for these areas.

Although the above-mentioned solutions have a marked effect in decreasing the total volume of stormwater entering the Bayside Canal, further intervention is required to address the capacity issues of the canal itself. It is on this basis that the CoCT proposed that the Bayside Canal outfall system be upgraded. The preferred solution for implementation would entail (see Figure 2 above):

- Lining of the Bayside Canal between Blaauwberg Road and the canal outlet;
- Construction of a stormwater treatment system which would comprise a litter screening structure at the canal outlet, sedimentation ponds and reed bed ponds (a more detailed description of these infrastructure components is provided below); and

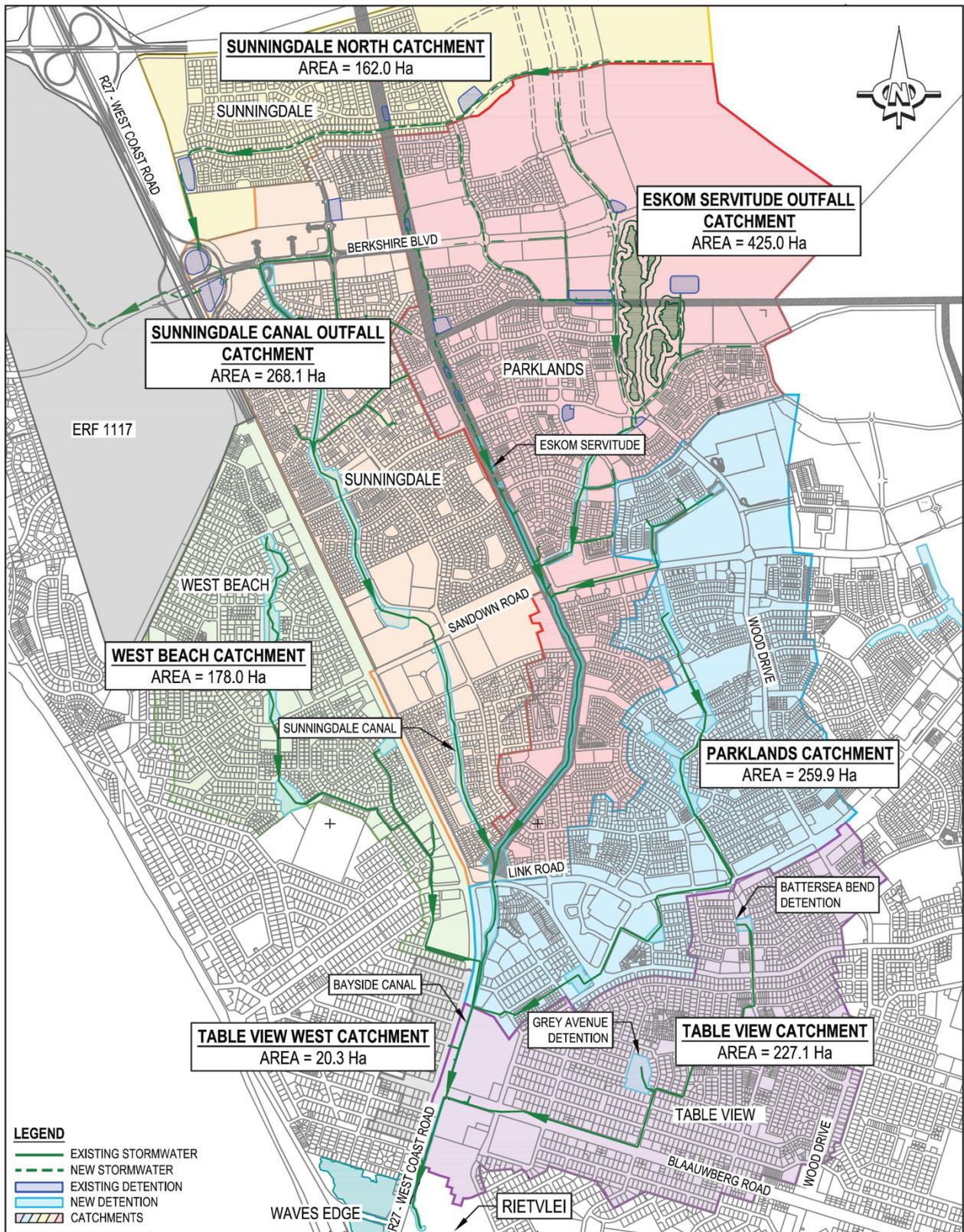
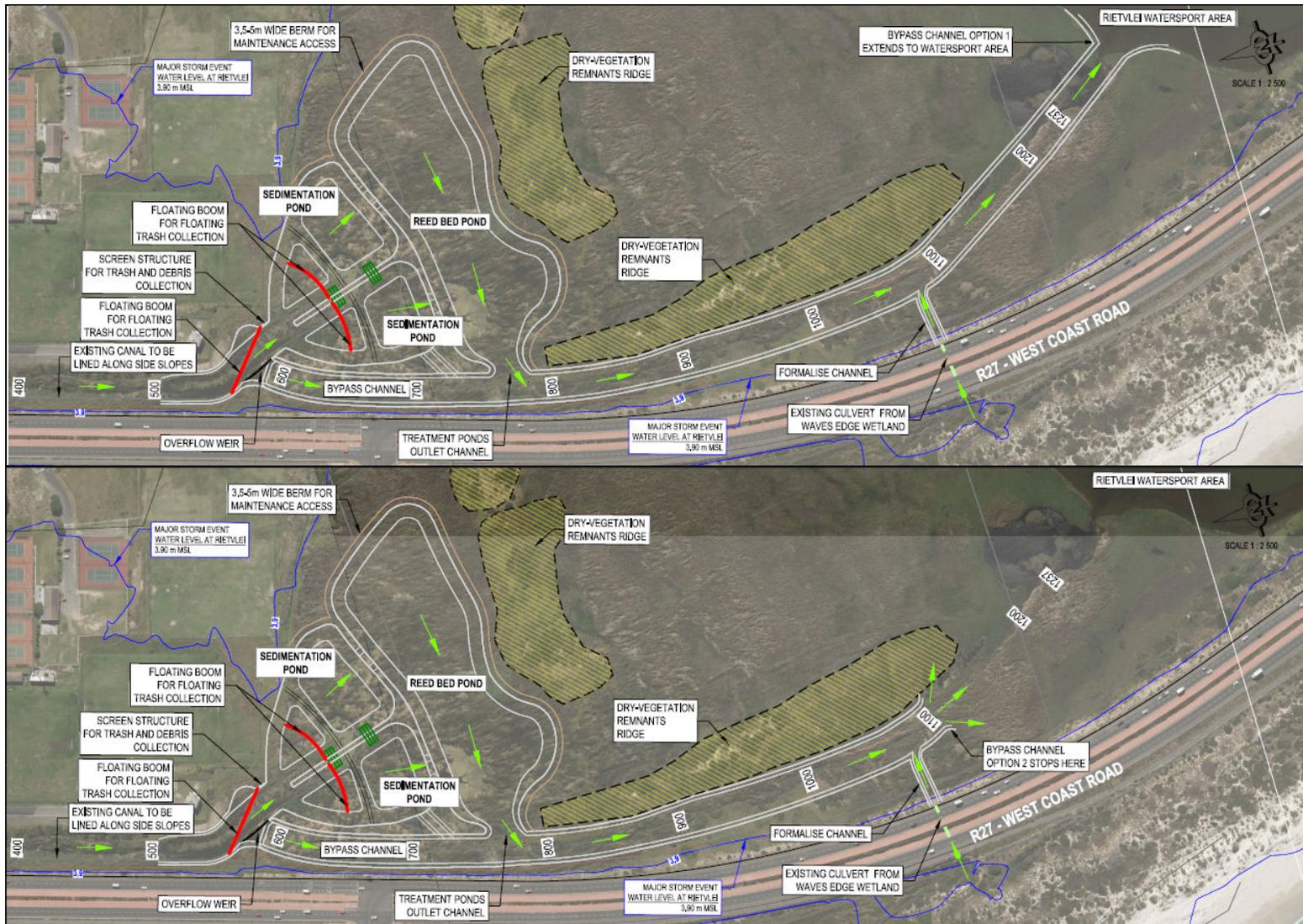


Figure 1: Catchment area served by the Bayside Canal (after BVi Consulting, 2018).



**Figure 2: Proposed project layout showing the location of the existing Bayside Canal, the proposed stormwater treatment system and bypass channel Alternative 1 (above) and 2 (below) (after BVi Consulting, 2018).**

- Construction of a bypass channel to discharge stormwater directly into Rietvlei during high-order storm events.

### **3.1 WIDENING OF THE BAYSIDE CANAL**

It is proposed that the cross-section of the canal be formalised between Blaauwberg Road and the canal outlet. This would include the flattening and lining the side slopes of the canal along this section which falls within the R27 road reserve. The lining of the slopes would reduce the amount of vegetation growth within the canal and assist in general maintenance operations. The reduction of vegetation growth (specifically reeds) in the downstream portion of the canal and outlet would allow water to flow freely into the Rietvlei area and ensure that the flow capacity of the canal is maintained.

### **3.2 STORMWATER TREATMENT SYSTEM**

Stormwater from the Bayside Canal currently flows into the reed beds located in the northern section of Rietvlei. These reed beds treat the stormwater by allowing suspended solids to settle out and by absorbing excess nutrients via root systems. In order to maintain this natural treatment function, while at the same time allowing for easier maintenance and periodic clearing of litter which is trapped within the natural reed bed, it is proposed that a formalised stormwater treatment system utilising reed beds be developed. The stormwater treatment system would consist of the following elements:

#### **3.2.1 Litter Screening**

It is proposed that initial litter screening would be undertaken within the Bayside Canal using a litter boom to intercept floating litter and debris. The installation of the floating boom would require the widening of a section of the canal in order to reduce the velocity of the stormwater flow. The boom would trap floating debris on the surface and ultimately collect it in a screen box installed on the eastern bank of the canal. The waste collected in the screen box could then be easily collected and removed manually on a weekly basis. A second stage of litter screening is also proposed and would comprise the installation of a second floating boom located within the primary sedimentation ponds (described below).

#### **3.2.2 Primary and Secondary Sedimentation ponds**

The proposed primary and secondary sedimentation ponds would allow any suspended sand, grit and other solids to settle out of the stormwater runoff discharged by the canal. Two primary sedimentation ponds are planned to serve as sand traps where heavier suspended matter will drop out of suspension due to the reduction in velocity of the stormwater flows. The two secondary sedimentation ponds would allow for the removal of the finer suspended matter that has passed through the primary sedimentation ponds. Over time, the settled material would be removed from the sedimentation ponds to ensure that the flow of stormwater runoff is not impeded.

#### **3.2.3 Reed bed ponds**

After passing through the sedimentation ponds, stormwater would overflow into a series of reed bed ponds. The reed beds would allow for the uptake of nutrients and physical filtration of pollutants by the reeds. The establishment of formalised reed beds would allow for easier management once the reeds become overgrown.

### **3.3 BYPASS CHANNEL**

A bypass channel is proposed along the eastern boundary of the R27 in order to divert high volumes of stormwater runoff generated during higher order storms. The bypass channel would include a weir which would force all runoff from periods of lower rainfall (below the 5-year Return Interval storm event) through the reed bed ponds for treatment prior discharging into Rietvlei. When the water level reaches the top of the weir, the excess volumes of stormwater would be diverted into the bypass channel and discharge directly into Rietvlei. During normal flow conditions, the channel would serve as an outlet for the stormwater which has passed through the treatment system discussed above.

Two alternatives regarding the proposed bypass channel have been assessed in the Basic Assessment Report: (1) a longer alternative that ends at the main Rietvlei water body (Alternative 1) and (2) a shorter channel (Alternative 2).

#### 4. AFFECTED ENVIRONMENT

The Rietvlei wetland is located within the Table Bay Nature Reserve. It is a floodplain/estuarine wetland associated with the Diep River System. Rietvlei is largely driven by surface water flows from the Diep River with minimal groundwater contribution. The wetland is a dynamic system, characterised by a seasonal cycle of sudden inundation in winter due to inflows from the Diep River (in addition to stormwater flows via the Bayside Canal), followed by gradual desiccation during spring and summer. The wetland comprises wet and open water habitat, a marginal habitat that is dominated by bulrushes and a surrounding transitional zone that is intermittently inundated during winter. The north-western portion of Rietvlei, where the proposed stormwater treatment system would be located, consists largely of a palustrine marginal to wet area.

The wetland is considered to be in a moderately to largely modified ecological state as a result of surrounding land use and flow modification activities within the catchment. The level of impact varies within the wetland area due to the level and nature of impacts experienced at different locations. Four distinct wetland flora communities were identified, namely:

- Reed marsh;
- Sedge marsh;
- Open pans; and
- Sedge pan.

The reed marsh habitat comprises monospecific stands of *Phragmites* reeds and *Typha* bulrushes, with the sedge marsh habitat of lower growing sedges and rushes (such as *Cyperus textilis* and *Scirpus littoralis*) located on the fringes of *Phragmites* stands. The reed marsh habitat has expanded considerably over time as a result of the increased nutrient-rich stormwater supply to the wetland, as well as increased siltation from the catchment.

The sedge and open pan habitats are located to the west of the R27. These features, although fragmented from Rietvlei by the R27, form part of the Rietvlei System and linked the vlei to the sea prior to the construction of the road. The pans still contain largely indigenous vegetation. *Typha* bulrushes largely dominate the margins to the open waters with clumps of *Phragmites* reeds, the rush *J. kraussii* and *C. coronopifolia*, arum lilies (*Z. aethiopica*) and sedges such as *Scirpus maritimus*.

The area to the north of Rietvlei is mapped as a portion of the original extent of the Cape Flats Dune Strandveld vegetation type. This vegetation type is listed as "Endangered" in terms of Government Notice R.1002 of 9 December 2011 (the "National List"). However, the botanical specialist has noted that the road reserve of the R27 is completely disturbed with no natural vegetation remaining. The only area where the Cape Flats Dune Strandveld vegetation type was observed on site was within the remnant dune within Rietvlei Nature Area.

Rietvlei is considered to be particularly important for birdlife, with over 200 recorded birds, of which 102 species are waterbirds and 76 are regularly present. Breeding has been confirmed for 23 waterbird species and is suspected for a further 13 species. Threatened and near-threatened species found at Rietvlei are the Greater Flamingo (*Phoenicopterus roseus*), Lesser Flamingo (*Phoeniconaias minor*), Great White Pelican (*Pelecanus onocrotalus*), African Marsh Harrier (*Circus ranivorus*), and African Black Oystercatcher (*Haematopus moquini*).

Nine amphibian species have been recorded in the area, with the Cape River Frog (*Amietia fuscigula*), Clicking Stream Frog (*Strongylopus grayii*) and Common Platanna (*Xenopus laevis*) being common. Indigenous fish species such as Cape Galaxia (*Galaxias zebratus*), Flathead Mullet (*Mugil cephalus*), Southern Mullet (*Liza richardsonii*), Longfin Eel (*Anguilla mossambica steinitzi*), Barehead Goby (*Caffrogobius nudiceps*), White Steenbras (*Lithognathus lithognathus*) and White Stumpnose (*Rhabdosargus globiceps*) have been recorded in the lower Diep River System. Alien fish species, including Carp (*Cyprinus carpio*) and Mosquito Fish (*Gambusia affinis*) have also been recorded in the system.

## 5. ENVIRONMENTAL IMPACT SUMMARY AND STATEMENT

As indicated above, two alternatives regarding the proposed bypass channel have been assessed. Given that all of the proposed project components would (apart from the length of the bypass channel) be the same for both alternatives, the large majority of the identified potential impacts assessed below apply to both alternatives. A separate assessment for each alternative has been provided for those impacts which are anticipated to have a different significance rating in Tables 1 and 2 below.

The majority of the impacts associated with the construction phase of the project would be localised, of short-term duration and of low intensity, and are considered to be of **VERY LOW** significance after mitigation. Socio-economic benefit during the construction phase, through the creation of employment opportunities, is rated as **LOW (POSITIVE)** significance after mitigation.

During the operational phase, the identified potential impacts would be localised over the long-term duration and the majority would be of low intensity and are thus deemed to be of **VERY LOW** to **LOW** significance after mitigation. The improved litter management and increased capacity of the Bayside Canal were identified as positive impacts and are rated as **LOW (POSITIVE)** and **MEDIUM (POSITIVE)** significance after mitigation, respectively.

Implementation of the No-Go option would mean failure to implement the proposed project. As noted previously, the implication is that the Bayside Canal would continue to experience capacity problems due to backwater in the lower portion of the canal and there would be a high likelihood that properties upstream of the canal outfall point would experience flooding during periods of high rainfall. The No-Go option is rated to be of **MEDIUM** to **HIGH** significance (see Table 4.3) and is not considered to be feasible.

**Table 1: Impacts during the construction phase.**

Impact	Significance without mitigation	Significance with mitigation
Disturbance of aquatic habitats:		
• Upgrade of Bayside Canal:	<b>Very Low</b>	<b>Very Low</b>
• Construction of Stormwater Treatment System	<b>Very Low to Low</b>	<b>Very Low</b>
• Construction of bypass channel	<b>Low</b> (for Alternative 1) to <b>Very Low</b> (for Alternative 2)	<b>Low</b> (for Alternative 1) to <b>Very Low</b> (for Alternative 2)
Water quality	<b>Very Low to Low</b>	<b>VERY LOW</b>
Disturbance of terrestrial vegetation and habitats	<b>Medium</b>	<b>LOW</b>
Direct Mortality and Loss of Faunal Habitat	<b>Very Low to Low</b>	<b>VERY LOW</b>
Employment	<b>Low (positive)</b>	<b>LOW (POSITIVE)</b>
Noise, dust and visual	<b>Low</b>	<b>VERY LOW</b>

**Table 2: Impacts during the operational phase.**

Impact	Significance without mitigation	Significance with mitigation
Disturbance of freshwater-related habitats	<b>Low</b>	<b>VERY LOW</b>
Litter management	<b>Low (Positive)</b>	<b>LOW (POSITIVE)</b>
Water quality (during normal flow conditions)	<b>Low (Positive)</b>	<b>LOW (POSITIVE)</b>
Water quality (higher order storms)	<b>Low to Medium</b> (for Alternative 1) and <b>Very Low to Medium</b> (for Alternative 2)	<b>LOW</b> (for Alternative 1) and <b>VERY LOW</b> (for Alternative 2)
Increased capacity of Bayside Canal	<b>Medium (Positive)</b>	<b>MEDIUM (POSITIVE)</b>
Noise, dust and visual	<b>Low</b>	<b>VERY LOW</b>

**Table 3: Impacts associated with the no-go option.**

Impact	Significance without mitigation
Risk of flooding upstream properties during high rainfall conditions.	<b>MEDIUM TO HIGH</b>

## 7. RECOMMENDATIONS

It is recommended that the following mitigation measures be implemented should an Environmental Authorisation is issued for the proposed project:

The following mitigation measures are proposed during the Construction phase:

- The Detailed Design Drawings and an Operation and Maintenance Manual must be submitted to the City of Cape Town Head: Environmental & Heritage Management – Northern Region for consideration and comment prior to them being approved by the City of Cape Town Transport Department.
- In relation to freshwater ecosystems:
  - Minimise disturbance of the wetland area to the south of the proposed treatment system, particularly over the longer term.
  - Shape and landscape the treatment ponds in such a manner that these areas can form an integral part of the larger Rietvlei wetland area over the longer term.
  - Replant disturbed areas (outside of the identified proposed reed ponds) with suitable local indigenous vegetation.
  - Compile a Rehabilitation Plan to guide the shaping and revegetation of disturbed areas after construction. The Rehabilitation Plan must be approved by the Head: Environmental & Heritage Management - Northern Region of the City of Cape Town prior to the commencement of activities. The disturbed areas should be revegetated with appropriate indigenous riparian vegetation (which must be approved by the Head: Environmental & Heritage Management - Northern Region of the City of Cape Town in consultation with the Reserve Manager of the Table Bay Nature Reserve) as soon as possible after construction.
  - The Diep River Maintenance Management Plan (MMP) must be updated once the Operation and Maintenance Manual has been approved for the upgraded stormwater facilities.
  - Set aside existing indigenous vegetation that occurs along the banks of the Bayside Canal, where possible, for use in rehabilitating disturbed areas.
  - Remove invasive alien plants that currently exist within the immediate vicinity of the proposed construction activities.
  - Prevent contaminated runoff from construction areas from entering the wetland area.
  - Store and contain all materials on the construction sites properly and outside of a 32 m buffer zone from the wetland.
  - Manage waste disposal in accordance with sound environmental principles.
  - During construction locate ablution facilities away from the wetland and arrange regular services of these facilities.
  - Address, implement and monitor measures to minimise impact on water quality in terms of the Construction EMP.
  - Remove topsoil to a depth of 150 mm where possible and stockpile locally for revegetation.
  - Ensure that every effort is made to save and relocate any amphibian, reptile, bird or mammal encountered during site preparation that cannot flee of its own accord. Relocate these animals to a suitable area immediately outside the proposed project footprint.
  - Contain the construction footprint of the proposed project within as small an area as possible.
  - Ensure that construction camps are not established in natural areas and that construction vehicles do not enter natural vegetation outside of the proposed area required for construction.
  - Implement litter control measures and appropriate measures for visual screening.
- In relation to terrestrial vegetation:
  - Ensure that the sedimentation and reed ponds are located to the north of the remnant dunes in the detailed design of the proposed treatment system. This is to ensure that the dunes remain intact and could be rehabilitated over time through the removal of Kikuyu grass.
  - On a regular basis remove any alien vegetation occurring within the immediate vicinity of the treatment system.
  - Replant disturbed areas (outside of the identified proposed reed ponds) with suitable local indigenous vegetation.
- General site management:

- Maintain all construction machinery and vehicles in good working order.
- Limit construction activities to “normal working hours” and adhere to any regulations and by-laws regarding the generation of noise and hours of operation.
- Minimise the generation of dust by implementing a dust control programme (with due consideration to conserving water) to maintain a safe working environment and minimise nuisance for local residents and road users. Ensure that exposed areas and material stockpiles are adequately protected against wind.
- Without compromising construction activities and schedules, local SMME and BEE service providers and local labour should be employed, as far as possible.

The following mitigation measures are proposed during the operational phase:

- Undertake the operation of the proposed treatment system and related maintenance activities in a manner that will minimise any potential impacts to the wetland. Such activities should be undertaken in compliance with the Maintenance Management Plan compiled for the Diep Estuary (agreed to by DEA&DP in accordance with the EA [Reference No.: 16/3/1/3/1/A7/4/2031/12] issued for the City’s routine stormwater maintenance and management programme, dated 13 February 2015). The required maintenance activities include the removal of sediment accumulation, invasive aquatic plants and litter from the canal and proposed treatment system.
- Provide suitable access to the proposed treatment system to allow for maintenance purposes.
- Avoid disturbance of the surrounding wetland area during maintenance and management of the proposed treatment system.
- Remove any alien vegetation occurring within the immediate vicinity of the treatment system on an ongoing basis.