

Paardevlei Seasonal Wetland – Scope of Works /Specifications

Introduction:

The Paardevlei Seasonal Wetland, situated on Farm 794/43 Somerset West, has reference.

Formulation of the overarching management goals (as defined in the Operational Environmental Management Plan dated July 2013, approved in August 2013) for the Paardevlei Seasonal Wetland were established to ensure that the Paardevlei Seasonal Wetland is an aesthetically attractive feature in an urban context, while contributing in an ecologically meaningful and sustainable way to the provision of wetland habitat of a quality and type that is of conservation significance, and which provides both educational and recreational opportunities for its appreciation by local communities.

The primary role of the Paardevlei Seasonal Wetland is as a wetland habitat of conservation importance, and that achieving appropriate levels of biodiversity within the system and by virtue of its connectivity to other systems, should be an underlying thread in management of the system. The urban context means moreover that the wetland will need to provide a variety of so called ecosystem services to its urban community in the form of flood attenuation and the amelioration of water quality in urban runoff.

The Operational Environmental Management Plan (OEMP) outlines the strategy and specific management objectives for achieving the above overarching objective in the management of the Paardevlei Seasonal Wetland and its environs.

To achieve the management goals for Paardevlei in the long term, the following management objectives have been identified:

1. Implement the Paardevlei management plan;
2. Ensure water quality is monitored to work towards achieving the minimum water quality thresholds as defined in the OEMP;
3. Control wetland and terrestrial physical habitat, plant community structure, extent and function, so as to maximise biodiversity, maintain and aesthetically pleasing but natural wetland appearance, and minimise negative impacts to adjacent land owners;
4. Implement the hydrological regime implicit in the design of the vlei, including allowance for annual draw down of water levels at the start of the dry season and facilitation of inundation at the start of the wet season;

5. Manage the extent and impacts resulting from recreational and other uses of the vlei without compromising the biodiversity and conservation requirements of the seasonal wetland management objectives;
6. Manage the perception of the vlei as a natural seasonal wetland with conservation, aesthetic, recreational and educational value, without being biased over time towards one or other user group; and
7. Implement an effective monitoring system which allows the trajectory of the wetland in terms of meeting its ecological, hydrological, recreational, educational and aesthetic objectives to be monitored.

The City of Cape Town is issuing the request for service providers interested in delivering a wetland management service to achieve the management objectives and long term management goals listed above, and actions detailed in the Operational Environmental Management Plan, for the management of the Paardevlei Seasonal Wetland and surrounding environs.

Background:

Paardevlei is located 30 km from Cape Town International Airport in the Eastern Region of the City of Cape Town's jurisdiction. The 730 hectare property was recently acquired by the City Of Cape Town and comprises of various sensitive areas, including the Paardevlei seasonal wetland located in the South Eastern portion of the property on Farm 794/43, adjacent to precinct 1 (see figure 1).



Figure 1: area of work

The main responsibility of the service provider would be to manage, maintain and administer all areas pertaining to the Paardevlei Seasonal Wetland and its environs as defined in figure 1, including:

- Implementation of the long term management actions for the management of the vlei and its environments in accordance with the OEMP;
- Monitoring of water quality to work towards at least achieving the minimum water quality thresholds as defined in the OEMP and advising on necessary actions if required (refer to water quality monitoring locations as these extend beyond that of just the vlei);
- Controlling of wetland and terrestrial physical habitat, plant community structure, extent and function so as to maximise indigenous biodiversity, maintaining an aesthetically pleasing but natural wetland appearance, and minimising negative impacts to adjacent land owners, within the constraints posed by the OEMP and the designed hydrological wetland regime;
- Implementation of the hydrological regime implicit in the design of the vlei;
- Managing the extent and impacts resulting from recreational and other use of the vlei by humans such that the considerable educational and recreational opportunities afforded by the wetland are effectively and productively harnessed

without compromising the biodiversity and conservation requirements of the wetland management objectives;

- Implementation of an effective monitoring system of the wetland in terms of meeting its ecological hydrological, recreational, education and aesthetic objectives as defined in the OEMP;
- Coordination with fire management of remainder of property to ensure wetland/environs are not impacted; and
- Promoting and co-ordinating environmental educational opportunities.

Scope of works:

The service provider will be required to provide the following services, including but not limited to the following:

1) Landscape specifications and maintenance

A suitably qualified landscaper with botanical expertise and experience, as well as horticultural knowledge and experience in wetland management and indigenous re-vegetation, must undertake the following in consultation with the Freshwater Specialist and the City's Environmental & Heritage Management (E&HM) Branch:

- Provide a programme of works for the duration of the contract to the satisfaction of the E&HM Branch;
- Shape islands and marginal areas of wetlands so as to maximise their contribution to habitat quality, and in case of marginal areas to maximise contribution to protective function in buffering the wetlands from adjacent impacts;
- Do ongoing planting of these areas in a phased manner to establish quality wetland and terrestrial habitats across the Paardevlei wetland and the surrounding open space, in keeping with the ecological vision as defined in the OEMP and as per the programme to be agreed with the E&HM Branch;
- Ensure planting includes locally indigenous vegetation;
- Ensure propagation of species from the site for replanting;
- Repair and maintain existing paths/ boardwalks/stepping stones; and
- Erect informative signage as required and provided by City.

2) Hydrological management

Hydrological management to take place as per the OEMP, in consultation with the Freshwater Specialist, and should include but not be limited to:

- Draw the vlei down annually at the start of the dry season (30 September) in consultation with the Freshwater Ecologist and the City of Cape Town's E&HM Branch by opening the weir;

- Close the weir annually at the start of the rainy season, but after the first flush (April/May), in consultation with the Freshwater Ecologist and the City of Cape Town's E&HM Branch;
- Ensure the draw down is done as prescribed in the OEMP, and must include at least 4 months of dryness.

3) Alien invasive management

- Establish an alien clearing programme and implementation plan to the satisfaction of the E&HM Branch for the removal and control of alien vegetation throughout the year and for the duration of the contract, and implement accordingly.

4) Water quality monitoring

- Continue implementation of the monitoring programme, in consultation with the Freshwater Specialist and avian Specialist as per the OEMP, by monitoring the following:
 - Meteorological data (rainfall and temperature)
 - Hydrological data temperature
 - Sediment depth and quality
 - Water quality data for inflowing and in lake conditions
 - Presence and extent of alien invasive species and indigenous vegetation
 - Fish population structure and size
 - Bird population structure and size and seasonal change
 - Seasonal and spatial changes in bird activities
- Monitor all sediment traps/litter traps/stormwater inlets into the vlei visually monthly;
- Clear all sediment traps/litter traps/stormwater outlets monthly or as required, and after runoff events;
- Take and test water quality samples for the following variables:

NOTE: Sampling points are as per Figure 2 and Figure 2.1 below. The additional points shown in Figure 2 (i.e all points except those shown in Figure 2.1) do not require analysis as this will be undertaken by the City of Cape Town and therefore only requires the physical collection of the samples. Sampling as shown in Figure 2.1 must include sampling and analysis as detailed below:

 - In situ - pH, EC, Temperature, Turbidity, DO and Fluoride (sampling sites shown in Figure 2.1 only)
 - Laboratory analysis of major nutrients (NH₄-N, NH₃, NO₃+NO₂-N, PO₄-p, Total Phosphorus, Chlorophyll, fluoride and sulphur)
 - Laboratory analysis of TSS
- Do laboratory analysis of Escherichia coli bacteria and faecal coliforms;

- Undertake sampling on a monthly basis at all the points shown in Figures 2 and 2.1, as agreed with the E&HM Branch;
- Produce quarterly monitoring reports red flagging problem areas, and submit it to the E&HM Branch;
- Do sediment monitoring by means of:
 - Measuring sediment at fixed sites once per year at the end of the dry season as per Figure 2.1
 - Collecting sediment samples and analysing it at a laboratory for at least total phosphorus
 - Measuring total organic carbon
 - Measuring article size fraction
- Produce an annual monitoring report red flagging problem areas and recommend remediation activities where necessary, and submit it to the E&HM Branch.



Figure 2: Water Quality sampling points as per the yellow markers



Figure 2.1: Water quality and soil monitoring sites in and around Paardevlei

5) Bird Monitoring

Arrange with Bird Club to undertake bird monitoring on a monthly basis.

6) Auditing and Reporting

- Coordinate and attend quarterly site meetings to assess progress and management of vlei; and
- Produce a quarterly report, including water quality and water level data, landscaping progress and alien clearing progress, and submit it to the E&HM Branch.

7) General

- The service provider appointed must comprise of the following expertise:
 - Freshwater Specialist / Ecologist with specific wetland rehabilitation experience;
 - Landscaper with Botanical and Horticultural experience specific to wetland rehabilitation, re-vegetation, and propagation with locally indigenous vegetation;
 - Avian Specialist; and
 - A person to take water samples.
- The service provider will be expected to be on site with a team continually implementing the management requirements as agreed with the E&HM Branch.
- The service provider will be expected to monitor access and usage of the vlei and surrounding environs.

