water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED SURFACE WATER DEVELOPMENTS FOR AUGMENTATION OF THE WESTERN CAPE WATER SUPPLY SYSTEM

CONTENT:

1. PURPOSE OF THIS DOCUMENT

Nemai Consulting was appointed by the Department of Water and Sanitation (DWS) as the Environmental Assessment Practitioner to undertake the Environmental Impact Assessment (EIA) for the proposed surface water developments for augmentation of the Western Cape Water Supply System (WCWSS).

The proposed augmentation triggers activities contained in the 2014 EIA Regulations (GN 983, GN 984 and GN 985 of 4 December 2014) and thus a Scoping and EIA Process is required. Further, as the project occurs within a regulated area of a watercourse and involves abstraction of water, it triggers activities that are listed under Section 21 (a), (c) and (i) of the National Water Act (Act No. 36 of 1998). As such a Water Use Licence Application (WULA) process will also be undertaken

This Background Information Document (BID) therefore serves to notify you, as an Interested and Affected Party (IAP) of the public participation that will be undertaken as part of the environmental authorisation process. In addition to the above, it will also provide an overview of the proposed development as well as provide you with information on how to register as an IAP.

2. PROJECT OVERVIEW

The WCWSS serves the City of Cape Town (CCT), surrounding urban centres and irrigators. It consists of infrastructure components owned and operated by both the CCT and the DWS. In 2007, the Western Cape Reconciliation Strategy Study was commissioned by the Department of Water and Sanitation to determine future water requirements for a 25 year planning horizon. The Study investigated a number of options and found that whilst 556 million m^3 per annum would be available from 2007, the estimated water requirement in 2011 would be 560 million m^3/a, with the implication that the system supply will then be fully utilised and thus additional interventions will thus be required.

Based on the above, DWS identified the need for augmentation of the WCWSS by 2019 and proceeded with pre-feasibility and feasibility studies into potential surface water development options. Initially six options were assessed at a pre-feasibility level of detail. These options were then prioritized to identify the two most viable options. These were:

- Berg River-Voëlvlei Augmentation Scheme (BRVAS) (also known as the First Phase Augmentation of Voëlvlei Dam); and
- Breede-Berg Transfer Scheme (BBTS) (also known as the Michell's Pass Diversion Scheme).

Ultimately, the Feasibility Study found that the BRVAS option was the most favourable surface water intervention and as such DWS proposes to implement this scheme which involves the transfer of approximately 23 million m^3 per annum from the Berg River to the existing Voëlvlei Dam.

2.1. PROJECT LOCATION

The proposed project is situated in Western Cape in the Drakenstein Local Municipality of the Cape Winelands District as well as the Swartlands Local Municipality of the West Coast District (**Figure 1).**

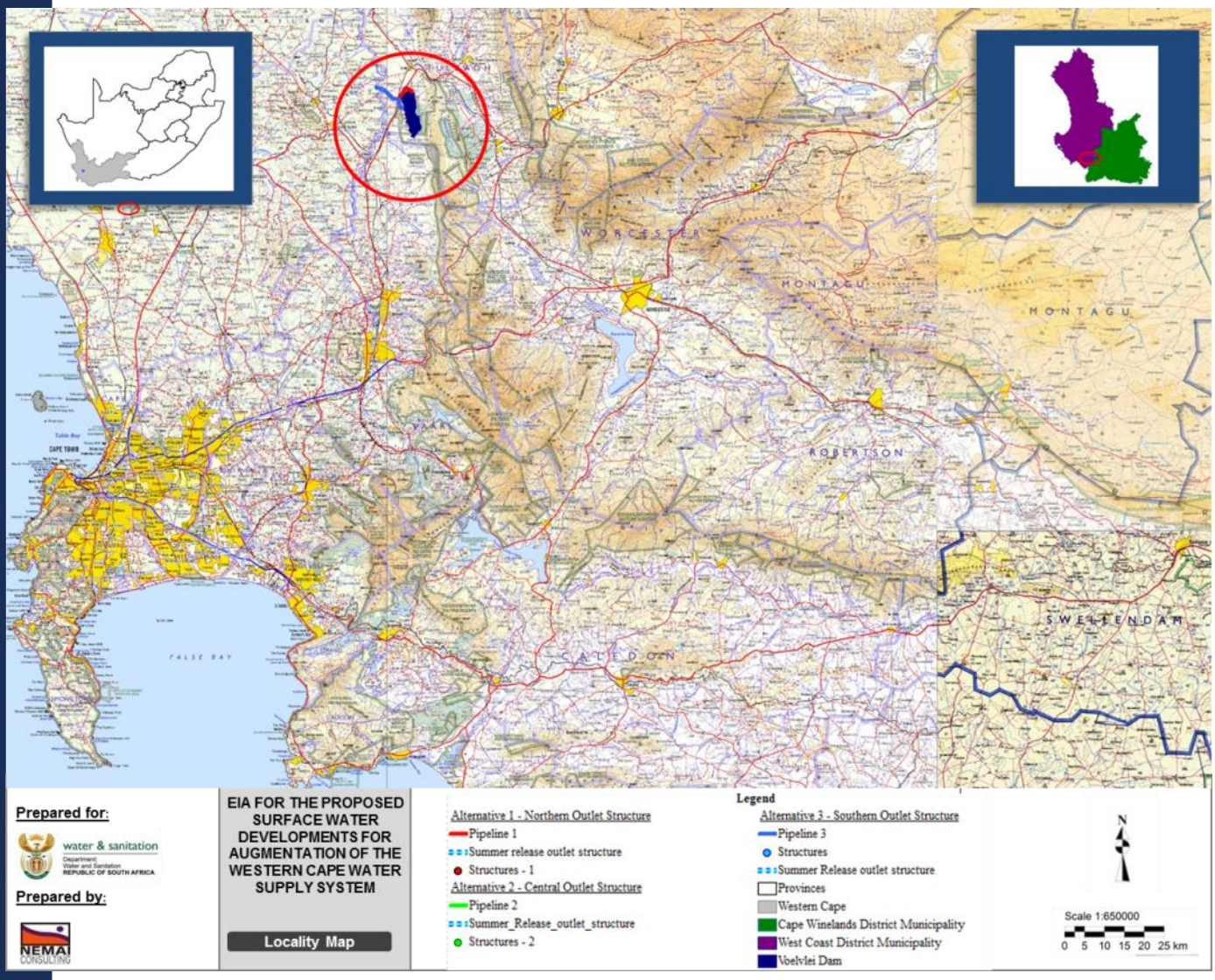

Figure 1: Locality Map

The proposed development falls within the Berg River Catchment of the Berg–Olifants Water Management Area. Both Voëlvlei Dam and the Lorelei abstraction site on the Berg River are located in quaternary catchment, G10F of the Berg River Catchment.

2.2. PROJECT COMPONENTS

The project components are illustrated in **Figure 2** below and include the following:

- A crump weir, abstraction works and 4 m^3/s raw water pump station on the Berg River;
- A rising main pipeline from the Berg River to Voëlvlei Dam;
- A new summer release connection at the existing Swartlands Water Treatment Works to facilitate summer releases; and
- A new connection to existing outlet infrastructure so that water can be released to the Berg River during the summer months under gravity, thus eliminating the need to utilize the existing canal from which water losses occur.

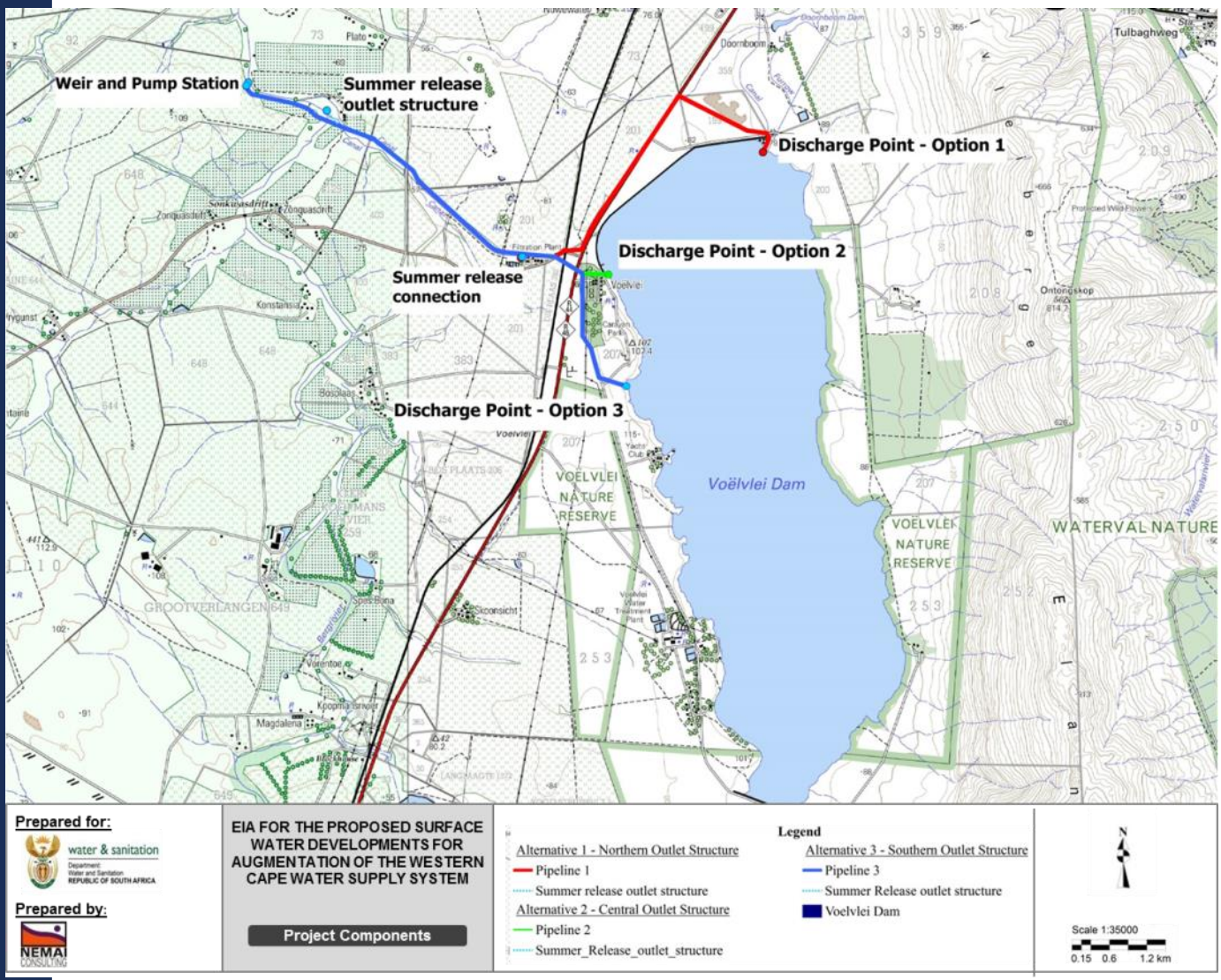

Figure 2: Project Components

The major components of the project are discussed in more detail in the sub-sections to follow.

2.2.1. Diversion Weir and Abstraction Works

The proposed diversion weir will be located on the outer (western) bank of the Berg River. The weir has been designed so that the flow depth would be about 10.4 m during the 1 in 100 year flood and the flow velocity about 2 m/s due to the wide floodplain (DWA, 2012a).

The proposed layout of the abstraction works is provided in **Figure 3**

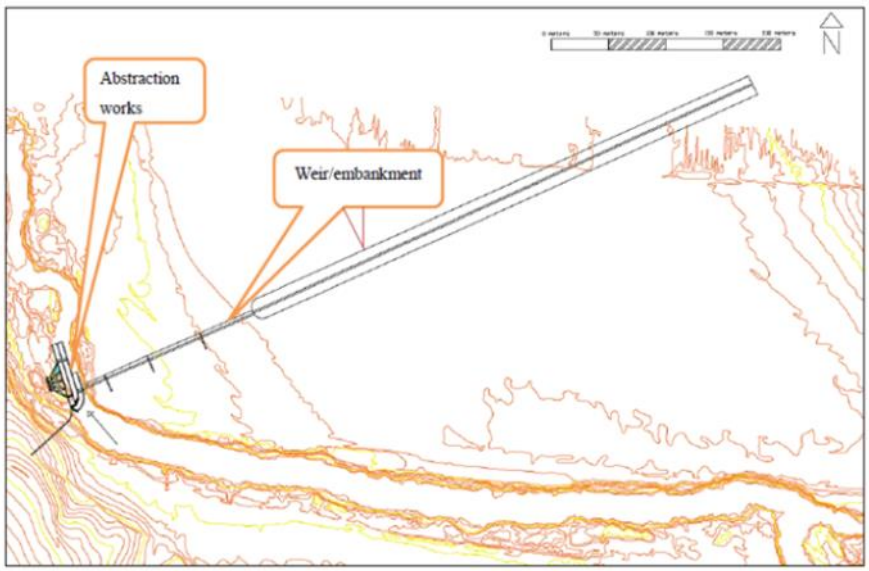

Figure 3: Proposed Abstraction Works and Weir

Figure 4 illustrates these works which would comprise the following components:

- A crump weir;
- A protected embankment on the right bank floodplain to be designed to be overtopped;
- A boulder trap with a radial gate to flush sediments;
- A gravel trap comprising two canals and a dividing wall, with radial gates downstream for flushing;
- An underwater opening would allow water to be diverted to supply the pumps, while keeping floating debris away from the trashracks; and
- The pumps would be located in a dry well and flushing durations are expected to be less than 30 minutes.

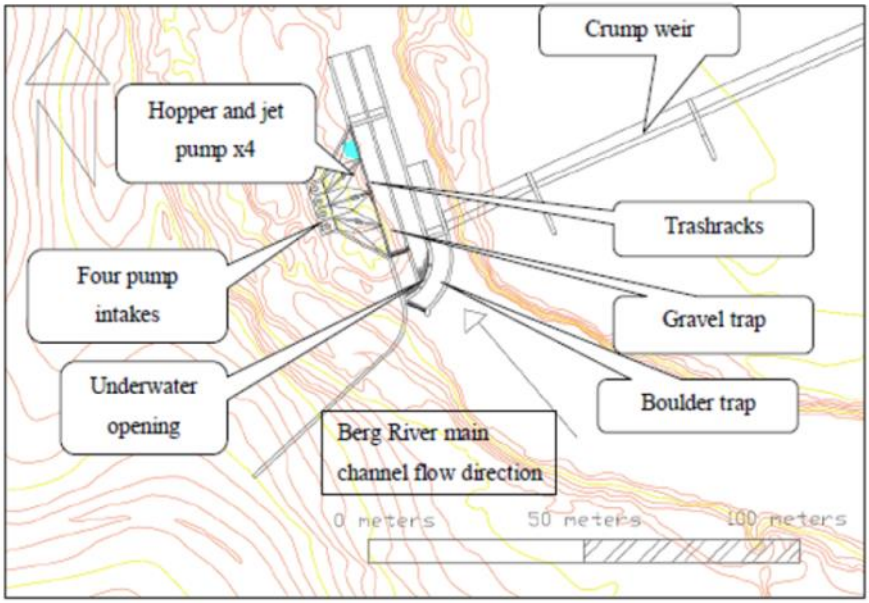

Figure 4: Components of the Proposed Abstraction Works

2.2.2. Rising Main Pipeline

Three pipeline routes will be assessed as part of the EIA. These routes are related to three potential discharge options into the dam from the Diversion Weir site and include:

- Pipeline route to Northern Discharge Point = 8 115 m;
- Pipeline route to Central Discharge Point = 5 000 m; and
- Pipeline Route to Southern Discharge Point = 6 300 m.

The average pipe depths required for the pipeline are about 3,5 m with a minimum cover of 1 m. The selected pipe material is glass-fibre reinforced polyester (GRP) with a stiffness of 5 000 N/m². **Table 1** shows the design parameters adopted for the rising main between the diversion weir and Voëlvlei Dam.

Table 1: Design Parameters for the rising main between the Diversion Weir and Voëlvlei Dam (DWA, 2012a)

Design Parameter	4m^3/s Design Flow
Rising Main Properties	1700 mm diameter GRP
Static Head	28.0 m
Dynamic Head	35.8 m
Maximum Flow Velocity	1.762 m/s

2.2.3. Pump Station

The design parameters adopted for the 4m^3/s Pump Station are provided in **Table 2** below.

Table 2: Design Parameters for the 4m^3/s Pump Station

Design Parameter	4m^3/s Design Flow
Abstraction	Raw water from Berg River in Winter
Rising Main Static Pressure	28.0 m
Friction Losses	7.8 m
Inlet Static Pressure	1.8 m
Pump Duty	34.0 m

The 4 m^3/s abstraction will be based on a step-pumping operating rule, allowing a minimum flow (spill) of 1 m^3/s past the abstraction point down the Berg River at all times, after abstraction. The abstraction scheme consists of a set of pumps each with a 1 m^3/s capacity. Each pump starts up when the river inflow to the site exceeds the sum of the required environmental base flow of 1 m^3/s and the abstraction, in 1 m^3/s steps (DWA, 2012a). During the winter abstraction period, water from the Berg River will flow into the sump at the pump station. A level transmitter on the diversion weir will provide an input value for the flow calculation to determine the amount of water to be abstracted and pumped to the Voëlvlei Dam (DWA, 2012a).

Figure 5: Location of the Pump Station

3. ENVIRONMENTAL ASSESSMENT

3. 1. EIA PROCESS

Nemai Consulting was appointed by DWS to act as the Environmental Assessment Practitioner (EAP) to undertake the requisite EIA process for the project, in accordance with GN No. R. 982 of 4 December 2014.
In terms of National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the lead decision-making authority for the environmental assessment is the Department of Environmental Affairs (DEA) as the project proponent (DWS) is a national department. An overview of the EIA process is provided in **Figure 6** below.

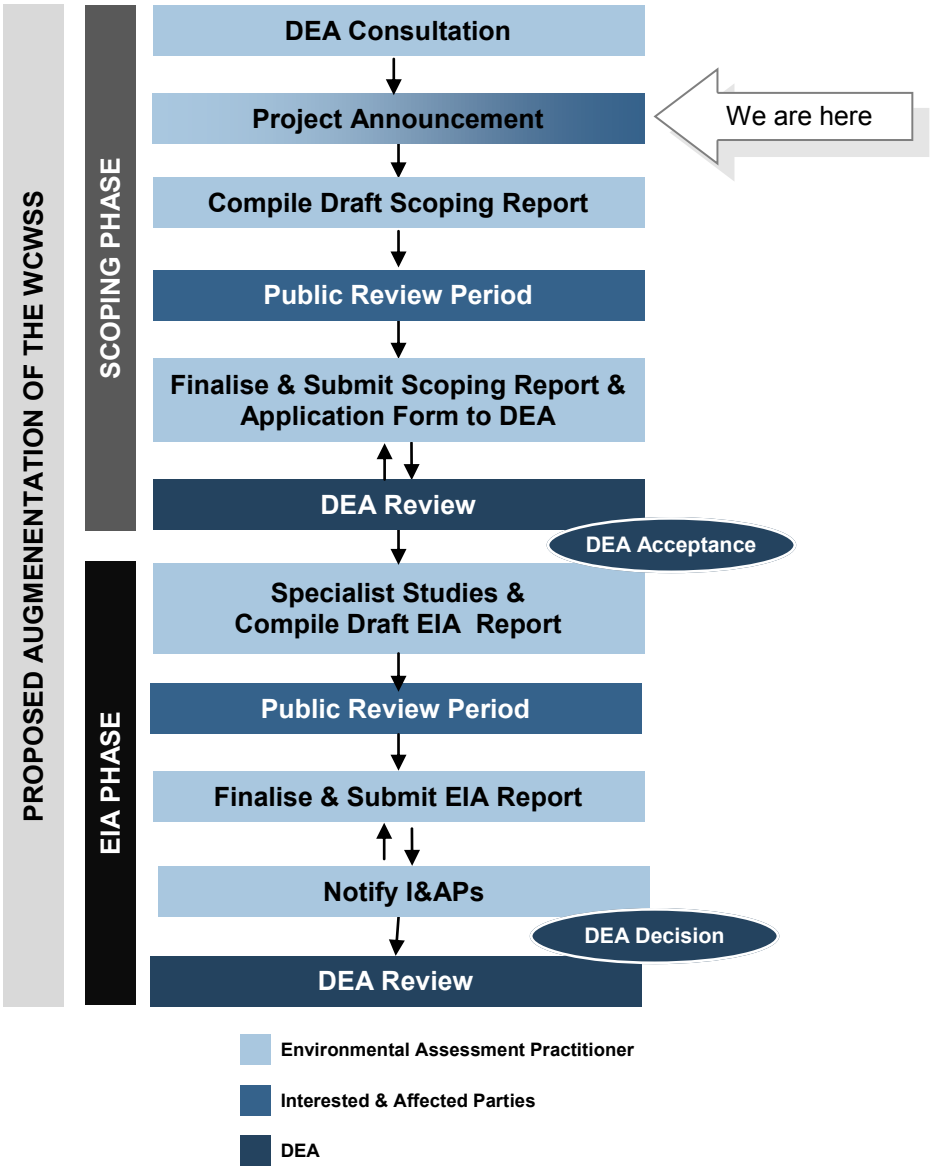

Figure 6: ***Overview of Scoping and EIA process***

3. 2. EIA TRIGGERS

A full explanation of the listed activities will be included in the Scoping Report and can also be provided upon request. The list of activities will be refined as the EIA process unfolds (as necessary). A summary of the triggered activities are as follows:

Table 3: Listed Activities

Listing Notice	Activities
1 (GN No. R. 983)	9, 12, 14, 19, 24, 27, 28 and 30
2 (GN No. R. 984)	11
3 (GN No. R. 985)	4 (b) (i) , 12 (a), 14 © (ii)

3.3. SPECIALIST STUDIES

The nature and extent of the specialist studies to be conducted for the purposes of the EIA will be determined during the Scoping Phase. At this stage, the following environmental specialist studies have been identified:

- Ecological Impact Study;
- Aquatic Assessment and Wetland Delineation;
- Socio-Economic Assessment;
- Heritage Impact Assessment; and
- Agricultural Impact Assessment.

3.4. PUBLIC PARTICIPATION

As described in Figure 6, all IAPs will have a 30 day registration period in which to review this BID and to register as an IAP for the project. This initial registration takes place between **26 May 2016 to 27 June 2016**. In order to register, please complete the registration form contained on the next page and then email or fax it to the consultant below.

All **registered IAPs** will be notified of the process as it continues (including the dates of the public review of the Draft Scoping and EIA Reports and public meetings). We would therefore like to urge you to register as an IAP before **27 June 2016.**

4. CONTACT DETAILS

Contact Person:	*Vanessa Stippel*
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We look forward to your contribution to the EIA process. Please do not hesitate to contact us should you require any further information.

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PROPOSED SURFACE WATER AUGMENTATION OF THE WCWSS

Reply Form
Registration as an Interested and Affected Party

(*Complete and return by **27 June 2016** to Vanessa Stippel)*

Date:				**OFFICIAL USE**
Name of organisation: ***(if applicable)***				**Date received:**
Name & Surname:				**Our reference:**
Address	**Postal:**	**Physical:**		**Status**
Tel No:				
Cell No				
Fax No:				
Email:				
Registration as an IAP:	**Yes**	**No**		

Please include the contact details of any possible other I&APs you might be aware of:

Comments: *(note - additional pages may be included if the space provided is insufficient)*