



**Western Cape
Government**

Environmental Affairs and
Development Planning

DIRECTORATE: LAND MANAGEMENT
REGION 1

EIA REFERENCE NUMBER: E12/2/2/1/4 Bulk Water Supply Infrastructure
ENQUIRIES: RONDINE ISAACS
DATE OF ISSUE: 2013 -01- 30

The Municipal Manager
City of Cape Town
Infrastructure and Project Implementation (Bulk Water)
Directorate: Water Services
38 Wale Street
CAPE TOWN
8001

Attention: Mr P Rhode

Tel: (021) 487 2487
Fax: (021) 487 2592

Dear Sir

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE ENVIRONMENT CONSERVATION ACT, 1989 (ACT NO. 73 OF 1989) AND THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT AMENDMENT REGULATIONS, 2010: THE CITY OF CAPE TOWN'S PROPOSED BULK WATER AUGMENTATION SCHEME: MULDERSVLEI COMPONENT.

With reference to your application for the abovementioned, find below the outcome with respect to this application.

ENVIRONMENTAL AUTHORISATION

DECISION

In terms of section 22 and by virtue of powers delegated by the Minister in terms of sections 28 & 33 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) ("ECA"), (as defined in Government Notice ("GN") No R. 1183 of 5 September 1997, as amended), and by virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Amendment Regulations, 2010, ("NEMA EIA Regulations") the competent authority herewith **grants environmental authorisation** to the applicant to undertake the list of activities specified in section B below with respect to the preferred alternative included in the Environmental Impact Assessment ("EIA") Report dated 24 July 2012 and additional information submitted on 21 August 2012.

The granting of this environmental authorisation is subject to compliance with the conditions set out in section E below.

A. DETAILS OF THE APPLICANT FOR THIS ENVIRONMENTAL AUTHORISATION

City of Cape Town
c/o Mr P Rhode
Infrastructure and Project Implementation (Bulk Water)
Directorate: Water Services
38 Wale Street
CAPE TOWN
8001
Tel: (021) 487 2487
Fax: (021) 487 2592

The abovementioned jurisdic person is the holder of this environmental authorisation and is hereinafter referred to as "the applicant".

B. LIST OF ACTIVITIES AUTHORISED

Government Notice No. R. 1182 of 5 September 1997, as amended -

Item 1 (c):

"The construction, erection or upgrading of facilities with regard to any substance which is dangerous or hazardous and is controlled by national legislation –

- (i) infrastructure, excluding road and rails, for the transportation of any such substance; and*
- (ii) manufacturing, storage, handling, treatment or processing facilities for any such substance";*

Item 1 (d):

"The construction, erection or upgrading of roads, railways, airfields and associated structures";

Item 1 (i):

"The construction, erection or upgrading of canals and channels, including structures causing disturbances to the flow of water in a river bed, and water transfer schemes between water catchments and impoundments";

Item 1 (k):

"The construction, erection or upgrading of reservoirs for public water supply";

Item 1 (l):

"The construction, erection or upgrading of schemes for the abstraction or utilisation of ground or surface water for bulk supply purposes";

Item 1 (n):

"The construction, erection or upgrading of sewerage treatment plants and associated infrastructure";

Item 2 (c):

"The change of land use from agricultural or zoned undetermined use or an equivalent zoning to any other land use"; and

Item 9:

"Scheduled processes listed in the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965).

Government Notice No. R. 544 of 18 June 2010 –

Activity 9:

"The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water –

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

excluding where:

- a. such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or
- b. where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse";

Activity 11:

"The construction of:

- (i) canals;
- (ii) channels;
- (iii) bridges;
- (iv) dams;
- (v) weirs;
- (vi) bulk storm water outlet structures;
- (vii) marinas;
- (viii) jetties exceeding 50 square metres in size;
- (ix) slipways exceeding 50 square metres in size;
- (x) buildings exceeding 50 square metres in size; or
- (xi) infrastructure or structures covering 50 square metres or more

where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line";

Activity 13:

"The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres";

Activity 18:

"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) a watercourse;
- (ii) the sea;
- (iii) the seashore;
- (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater-

but excluding where such infilling, depositing, dredging, excavation, removal or moving:

- (a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or
- (b) occurs behind the development setback line";

Activity 22:

"The construction of a road, outside urban areas,

- (i) with a reserve wider than 13,5 metres or,
- (ii) where no reserve exists where the road is wider than 8 metres, or

- (iii) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010";

Activity 56:

"Phased activities for all activities listed in this Schedule, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold;-

excluding the following activities listed in this Schedule:

2; 11(i)-(vii); 16(i)-(iv); 17; 19; 20; 22(i) & 22(iii); 25; 26; 27(iii) & (iv); 28; 39; 45(i)-(iv) & (vii)-(xv); 50; 51; 53; and 54".

Government Notice No. R. 545 of 18 June 2010 -

Activity 5:

"The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply";

Activity 15:

"Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;

except where such physical alteration takes place for:

- (i) linear development activities; or
- (ii) agriculture or afforestation where Activity 16 in this Schedule will apply";

Activity 19:

"The construction of a dam, where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more".

Government Notice No. R. 546 of 18 June 2010 -

Activity 2:

"The construction of reservoirs for bulk water supply with a capacity of more than 250 cubic metres.

- (d) In the Western Cape:
 - (i) In an estuary;
 - (ii) A protected area identified in terms of NEMPAA, excluding conservancies;
 - (iii) All areas outside urban areas;
 - (iv) In urban areas:
 - (aa) Areas zoned for use as public open space; and
 - (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose";

Activity 4:

"The construction of a road wider than 4 metres with a reserve less than 13,5 metres.

- (d) In the Western Cape:
 - i. In an estuary;

- ii. All areas outside urban areas;
- iii. In urban areas:
 - (aa) Areas zoned for use as public open space within urban areas; and
 - (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose";

Activity 16:

"The construction of:

- (i) jetties exceeding 10 square metres in size;
- (ii) slipways exceeding 10 square metres in size;
- (iii) buildings with a footprint exceeding 10 square metres in size; or
- (iv) infrastructure covering 10 square metres or more

where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.

- (d) In the Western Cape:
 - i. In an estuary;
 - ii. Outside urban areas, in:
 - (aa) A protected area identified in terms of NEMPAA, excluding conservancies;
 - (bb) National Protected Area Expansion Strategy Focus areas;
 - (cc) World Heritage Sites;
 - (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;
 - (ee) Sites or areas identified in terms of an International Convention;
 - (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;
 - (gg) Core areas in biosphere reserves;
 - (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;
 - (ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.
 - iii. Inside urban areas:
 - (aa) Areas zoned for use as public open space;
 - (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose;
 - (cc) Areas seawards of the development setback line or within 100 metres of the high water mark where no setback line has been determined"; and

Activity 26:

"Phased activities for all activities listed in this Schedule and as it applies to a specific geographical area, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold".

The abovementioned list is hereinafter referred to as "the listed activities".

The applicant is herein authorised to undertake the following alternative related to the listed activities:

This environmental authorisation is to establish the Muldersvlei Component of the City of Cape Town's Bulk Water Augmentation Scheme, which comprises of the following components:

Water treatment plant:

A water treatment plant with a capacity of 500 megalitres per day ("ML/day"), consisting of various underground and aboveground reinforced concrete and brick structures.

Storage reservoir:

A reservoir with a capacity of 300ML with ancillary buildings and services. The reservoir will occupy an area of approximately 31 500m² and will be a rectangular excavation and embankment-type reservoir that is concrete lined and fully enclosed.

The major components of the water treatment plant and reservoir complex constitute the most visible portions and include the following:

- Individual lime silos of approximately 11.5m in height located approximately 7m above ground level;
- Treatment residue tanks of approximately 8.7m in height and 30m in diameter, projecting aboveground, with an average size of 1500m²;
- The inlet building extending approximately 8.6m above ground level;
- Double-storeyed administration buildings of approximately 8m high and 900m² in size;
- Workshop buildings that are approximately 6m in height;
- Filter buildings of approximately 4m high and 1000m² in size;
- A flammable store; and
- A disinfection building comprising of on-site sodium hypochlorite generation units and storage tanks.

The below-ground components of the development will comprise of the following:

- Filter beds of approximately 4000m² in size; and
- Settling tanks of approximately 14 800m² in size.

Access roads:

A surfaced access road to the water treatment plant and reservoir site is required along existing farm access roads. Existing gravel roads that can be utilised and new roads that will be constructed, will be paved. These roads will have a road reserve of 20m with a 9.5m surfaced roadway.

Ancillary services:

Ancillary services for the water treatment plant and reservoir include domestic water supply, solid waste removal, sewage treatment, effluent disposal, storm water drainage, telecommunications, electricity supply and lighting.

Electricity will be supplied by on-site turbines and Eskom. A backup diesel generator will be located on site for emergencies. Eskom confirmed current electrical capacity available on the Muldersvlei Farmers 2 substation to handle the load of 600 kVA for the reservoir and water treatment plant.

Sewage will be treated on site by means of a commercial sewage treatment package plant. The plant will treat a maximum capacity of approximately 5m³ of effluent per day, with a total annual capacity of approximately 500m³ per year. The treated effluent will mainly be irrigated onto landscaped areas located around the water treatment plant facility. It is anticipated that the treated effluent will be discharged in the watercourse during the winter months, which is located to the south west of the facility.

Pipelines:

The total length of the pipeline required is approximately 40km in length, ranging in sizes from between 1500mm to 2000mm in diameter. The general 60m wide pipeline corridor routes are as follows:

- **Between the Dasbos pump station and the water treatment plant in the Muldersvlei area:**
This pipeline is approximately 1700mm in diameter and will convey raw water from either the Berg River Dam (via the Dasbos pump station) or from the Theewaterskloof Dam (via the Dasbos outlet) to the water treatment plant.
- **Between the Wemmershoek pipeline and the proposed Muldersvlei reservoir:**
Treated water will be conveyed to and from the existing Wemmershoek pipeline that is located in the road reserve of the N1 National Road, to the proposed Muldersvlei reservoir, via connecting pipelines of approximately 1200mm in diameter.
- **Between the proposed Muldersvlei reservoir and the Spes Bona reservoir:**
This pipeline is approximately 1700mm to 2000mm in diameter and will convey water treated at the water treatment plant and stored at the Muldersvlei reservoir to the Spes Bona reservoir.

Cathodic protection infrastructure, as well as surge tanks, will be included, where required, along the pipeline routes described above.

The entire development will be undertaken in two overlapping phases. The reservoir and its links to the Wemmershoek pipeline will be constructed first, followed by the construction of the water treatment plant and its pipelines from Dasbos to Spes Bona.

C. PROPERTY DESCRIPTION AND LOCATION

More than 95% of the area that will be traversed by the infrastructure is designated for agricultural use. The water treatment plant and reservoir will be situated in the Muldersvlei area, on site A1, comprising of the Farms Hohenfelde (Erf 475-2) and Rock Ridge (Weltevrede) (Erf 719-2).

Hereinafter referred to as "the site".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Chand Environmental Consultants
c/o Ms Sadia Chand
PO Box 238
PLUMSTEAD
7801
Tel: (021) 762 3050
Fax: (021) 762 3240

E. CONDITIONS OF AUTHORISATION

1. This environmental authorisation is valid for a period of **ten (10) years** from the date of issue. The holder must commence with the listed activities within the said period or this environmental authorisation lapses and a new application for environmental authorisation must be submitted to the competent authority, unless the holder has lodged a valid application for the amendment of the validity period of this environmental authorisation, before the expiry of this environmental authorisation. In such instances, the validity period will be automatically extended ("the period of

administrative extension") from the day before this environmental authorisation would otherwise have lapsed, until the amendment application for the extension of the validity period is decided. The listed activities, including site preparation, may not commence during the period of administrative extension.

2. In the event that an appeal notice and subsequent appeal is lodged with the competent authority, the effect of this environmental authorisation may be suspended until such time as the appeal is decided.
3. The applicant must in writing, within 12 (twelve) calendar days of the date of this decision and in accordance with Regulation 10(2)–
 - 3.1 notify all registered Interested and Affected Parties of –
 - 3.1.1 the outcome of the application;
 - 3.1.2 the reasons for the decision as included in Annexure 1;
 - 3.1.3 the date of the decision; and
 - 3.1.4 the date of issue of the decision;
 - 3.2 draw the attention of all registered Interested and Affected Parties to the fact that an appeal may be lodged against the decision in terms of Chapter 7 of the Environmental Impact Assessment Amendment Regulations, 2010 detailed in section F below;
 - 3.3 draw the attention of all registered Interested and Affected Parties to the manner in which they may access the decision.
4. Seven calendar days' notice, in writing, must be given to the competent authority before commencement of construction activities.
 - 4.1 The notice must make clear reference to the site details and EIA Reference number given above.
 - 4.2 The notice must also include proof of compliance with the following conditions described herein:
Conditions: 3, 8, and 9.
5. The holder is responsible for ensuring compliance with the conditions by any person acting on his behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.
6. Any changes to, or deviations from the scope of the description set out in section B above must be accepted or approved, in writing, by the competent authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the competent authority may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.
7. The applicant must notify the competent authority in writing, within 24 hours thereof if any condition herein stipulated is not being complied with.
8. The draft Environmental Management Programme ("EMP") submitted as part of the application for environmental authorisation is hereby approved and must be implemented. An application for amendment to the EMP must be submitted to the competent authority if any amendments are to be made to the EMP. The EMP must be included in all contract documentation for all phases of implementation.

A copy of the environmental authorisation and the EMP must be kept at the site where the listed activities will be undertaken. Access to the site referred to in section C

above must be granted and, the environmental authorisation and EMP must be produced to any authorised official representing the competent authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. The environmental authorisation and EMP must also be made available for inspection by any employee or agent of the applicant who works or undertakes work at the site.

9. The holder must appoint a suitably experienced Environment Control Officer ("ECO"), or site agent where appropriate, for all phases of implementation before commencement of any land clearing or construction activities to ensure compliance with the CEMP and OEMP and the conditions contained herein.
10. The draft Operational EMP ("OEMP") submitted as part of the application for environmental authorisation dated June 2012 is herewith accepted and must be implemented.

An application for amendment to the OEMP must be submitted to the competent authority if any amendments are to be made to the OEMP, and this may only be implemented once the amended OEMP has been authorised by the competent authority. The OEMP must be included in all contract documentation for the operational phase of implementation.

11. A copy of the environmental authorisation and the EMP's must be kept at the site where the listed activities will be undertaken. Access to the site referred to in section C above must be granted and, the environmental authorisation and EMP's must be produced to any authorised official representing the competent authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. The environmental authorisation and EMP's must also be made available for inspection by any employee or agent of the applicant who works or undertakes work at the site.
12. The applicant must submit an application for amendment of the environmental authorisation to the competent authority where any detail with respect to the environmental authorisation must be amended, added, substituted, corrected, removed or updated. Further, the rights granted by this environmental authorisation are personal rights (i.e. not attached to a property, but granted to a natural or juristic person). As such, only the holder may undertake the activities authorised by the competent authority. Permission to transfer the rights and obligations contained herein must be applied for in the following manner:
 - 12.1 The applicant must submit an originally signed and dated application for amendment of the environmental authorisation to the competent authority stating that he wishes the rights and obligations contained herein to be transferred, and including (a) confirmation that the environmental authorisation is still in force (i.e. that the validity period has not yet expired or the activities were lawfully commenced with); (b) the contact details of the person who will be the new holder; (c) the reasons for the transfer; (d) an originally signed letter from the proposed new holder acknowledging the rights and obligations contained in the environmental authorisation and indicating that he has the ability to implement the mitigation and management measures and to comply with the stipulated conditions.
 - 12.2 The competent authority will issue an amendment to the new holder either by way of a new environmental authorisation or an addendum to the existing environmental authorisation if the transfer is found to be appropriate.

13. Non-compliance with a condition of this environmental authorisation or EMP's may result in suspension of this environmental authorisation and may render the holder liable for criminal prosecution.
14. Notwithstanding this environmental authorisation, the holder must comply with any other statutory requirements that may be applicable to the undertaking of the listed activities.
15. Should any heritage remains be exposed during excavations or any actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings; shipwrecks; and graves or unmarked human burials.

A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.

16. An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be employed. Any solid waste must be disposed of at a landfill licensed in terms of the applicable legislation.
17. No surface or ground water may be polluted due to any actions on the site. The applicable requirements with respect to relevant legislation pertaining to water must be met.
18. The applicable requirements with respect to relevant legislation pertaining to occupational health and safety must be adhered to.
19. The ECO must, at all times, ensure that the construction activities comply with the Noise Regulations in terms of the relevant legislation.

F. APPEALS

Appeals must comply with the provisions contained in Chapter 7 of the NEMA EIA Regulations.

1. An appellant must –
 - 1.1 submit a Notice of Intention to Appeal to the Minister, within 20 (twenty) calendar days of the date of the decision;
 - 1.2 submit the appeal within 30 (thirty) calendar days after the lapsing of the 20 (twenty) calendar days contemplated in Regulation 60(1), for the submission of the Notice of Intention to Appeal; and
 - 1.3 within 10 (ten) calendar days of having lodged the Notice of Intention to Appeal, provide each person and Organ of State registered as an Interested and Affected Party in respect of the application, or the applicant, with –
 - 1.3.1 a copy of the Notice of Intention to Appeal form; and
 - 1.3.2 a notice indicating where and for what period the appeal submission will be made available for inspection by such person, Organ of State, or applicant, on the day of lodging it with the Minister, and that a responding statement may be made on the appeal within 30 (thirty) calendar days from the date the appeal submission was lodged with the Minister.

2. A person, Organ of State or applicant who submits a responding or answering statement in terms of Regulation 63 must within 10 (ten) calendar days of having submitted the responding or answering statement, serve a copy of the statement on the other party.
3. If the person, Organ of State or applicant fails to meet a timeframe with respect to the requirements as detailed above, the person, Organ of State or applicant must immediately submit a written explanation to the Ministry providing a concise explanation for the non-compliance.
4. All Notice of Intention to Appeal and Appeal forms must be submitted by means of one of the following methods:
By post: Western Cape Ministry of Local Government, Environmental Affairs and Development Planning
Private Bag X9186
CAPE TOWN
8000

By facsimile: (021) 483 4174; or

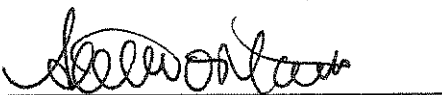
By hand: Attention: Mr J. de Villiers
Room 305 A
3rd Floor Leeusig Building (Entrance at: Utilitas Building, 1 Dorp Street, Cape Town, 8001)
5. A prescribed Notice of Intention to Appeal form and Appeal form as well as assistance regarding the appeal processes are obtainable from the office of the Minister at: Tel. (021) 483 3721, E-mail Jaap.DeVilliers@westerncape.gov.za or URL <http://www.westerncape.gov.za/eadp>.

G. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully



MR HENRI FORTUIN
DIRECTOR: LAND MANAGEMENT (REGION 1)

DATE OF DECISION: 30-01-2013
Copied to: (1) Ms Sadia Chand (Chand Environmental Consultants)

Fax: (021) 762 3240

FOR OFFICIAL USE ONLY:

EIA REFERENCE NUMBER:
NEAS EIA REFERENCE NUMBER:

E12/2/2/1/4 Bulk Water Supply Infrastructure
WCP/EIA/0904/2004

ANNEXURE 1: REASONS FOR THE DECISION

In reaching its decision, the competent authority, *inter alia*, considered the following:

- a) The information contained in the EIA Application Form and Scoping Checklist and Plan of Study for Scoping dated 29 June 2004, as received by the competent authority on 13 July 2004, the Scoping Report and Plan of Study for EIA dated 25 January 2006, the status updates dated 20 March 2007 and 7 October 2009, respectively, the EIA Report dated 24 July 2012, the EMP's submitted together with the EIA Report, and the additional information dated 21 August 2012, 23 August 2012, 19 September 2012, 2 October 2012, 18 October 2012 and 24 October 2012, respectively;
- b) Relevant information contained in the Departmental information base, including, the Guidelines on Public Participation and Alternatives (dated October 2011);
- c) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- d) The comments received from Interested and Affected Parties and the responses provided thereon, as included in the EIA Report dated 24 July 2012;
- e) This application was submitted in terms of the ECA EIA Regulations and was pending at the time of the promulgation of the Environmental Impact Assessment Amendment Regulations, 2010. Some of the listed activities herein authorised may not have been listed under the ECA EIA Regulations, but are now listed in terms of the Environmental Impact Assessment Amendment Regulations, 2010. In accordance with Regulation 76(3) of Government Notice No. R. 543, these activities may be authorised as if applied for;
- f) The meetings held on:

Date: 18 August 2008

Attended by Ms M. Oosthuizen and Ms R. Isaacs of the Department of Environmental Affairs and Development Planning ("DEA&DP"), Ms S. Chand and Ms M. van Breda of Chand Environmental Consultants, Mr P. Rhode of the City of Cape Town and Mr I. Malherbe of BKS (Pty) Ltd.

Date: 3 November 2010

Attended by Ms M. Oosthuizen, Ms R. Isaacs, Ms Y. Mabentsela, Ms T. de Waal, Ms M. Mabunda and Ms H. Olivier of the DEA&DP, Ms S. Chand and Ms M. Webber of Chand Environmental Consultants, Mr P. Rhode of the City of Cape Town and Mr I. Malherbe of BKS (Pty) Ltd.

Date: 19 September 2011

Attended by Ms M. Oosthuizen, Ms R. Isaacs, Ms A. La Meyer, Mr L. McBain-Charles, and Ms K. Rughoobeer of the DEA&DP, Ms S. Chand, Ms M. van Breda, Ms E. Dudley and Ms M. Webber of Chand Environmental Consultants, Mr P. Rhode, Mr P. Flower and Mr S. Pieterse of the City of Cape Town, Mr I. Malherbe of BKS (Pty) Ltd and Mr E. Cerff of Errol Cerff Consulting.

Date: 30 November 2011

Attended by Ms M. Oosthuizen and Ms R. Isaacs of the DEA&DP, Ms M. van Breda and Ms K. Diedericks of Chand Environmental Consultants, Mr P. Rhode of the City of Cape Town, Mr I. Malherbe of BKS (Pty) Ltd, Mr E. Cerff of Errol Cerff Consulting and Ms S. Lane of Sue Lane & Associates.

g) The site visit conducted on:

Date: 3 February 2012

Attended by Ms M. Oosthuizen, Ms R. Isaacs and Mr M. Baderoon of the DEA&DP, Ms M. van Breda of Chand Environmental Consultants, Mr P. Rhode of the City of Cape Town, Mr I. Malherbe of BKS (Pty) Ltd, Mr E. Cerff of Errol Cerff Consulting and Ms S. Lane of Sue Lane & Associates.

All information presented to the competent authority was taken into account in the consideration of the application for environmental authorisation. A summary of the issues which, according to the competent authority, were the most significant reasons for the decision is set out below.

1. Public Participation

The Public Participation Process comprised of the following:

- Letters were distributed to all the existing Interested and Affected Parties on the project database on 17 October 2005;
- Letters were posted to Interested and Affected Parties on 27 March 2006 inviting them to attend the open house workshop of 12 April 2006;
- Advertisements were placed in the "Vukani", "Die Burger", Cape Argus and Cape Times newspapers, respectively on 30 March 2006;
- Posters were placed in well-frequented areas within Klipmuts inviting Interested and Affected Parties to attend the open house workshop of 12 April 2006;
- An open house workshop was held on 12 April 2006 at the Klipmuts Primary School Hall;
- Letters were distributed to Interested and Affected Parties on 14 June 2006 informing them of the availability of the draft EIA Report;
- Letters dated 12 July 2006 were distributed to Interested and Affected Parties informing them of a delay in finalizing the draft EIA Report;
- An additional letter was sent out on 3 August 2006 informing registered Interested and Affected Parties that the public review period would be from 16 August 2006 until 6 September 2006;
- Advertisements were placed in the "Vukani", "Die Burger", Cape Argus and Cape Times newspapers, respectively informing the general public of the public review period of the draft EIA Report;
- Registered letters dated 14 February 2007 were posted to inform Interested and Affected Parties of the status of the EIA process;
- Letters were sent to all the Interested and Affected parties on 5 May 2008 to inform them of the status of the EIA process and the availability of the revised draft EIA Report at the Cape Town, Paarl, Franschhoek and Stellenbosch libraries, respectively;
- Registered letters dated 28 November 2008, 9 March 2009 and 19 January 2010, respectively, were posted to Interested and Affected Parties to inform them of the status of the EIA process;
- Letters were sent to Interested and Affected Parties on 4 November 2011 announcing the availability of the second revised draft EIA Report;
- The second revised draft EIA Report was made available at the Cape Town, Paarl, Franschhoek and Stellenbosch libraries, respectively;
- Advertisements were placed in "Die Burger", Cape Argus and Cape Times newspapers, respectively on 9 November 2011 and in the "Vukani" on 10 November 2011, announcing the availability of the second revised draft EIA Report;
- The final EIA Report was made available to registered Interested and Affected Parties on 26 July 2012.

Authorities consulted

The authorities consulted included the following:

- Department of Water Affairs;
- Department of Agriculture;
- CapeNature;
- Drakenstein Municipality;
- Department of Transport and Public Works;
- Directorate: Waste Management of the DEA&DP;
- Various branches of the City of Cape Town; and
- Heritage Western Cape.

A summary of the main issues raised during the public participation process, and the EAP's responses, is provided below:

Issues raised during the public participation process pertained to the following:

1. Bio-security concerns related to County Fair's operations in the area;
2. Pipeline routes, construction corridors and pipeline maintenance;
3. Risk of using chlorine gas;
4. Compensation for land;
5. Alternative siting of the Water Treatment Plant;
6. Noise and dust pollution;
7. Irrigation with treated effluent;
8. Visual impact; and
9. Security.

The EAP addressed these issues as follows:

1. The pipeline route was changed to adhere to a 100m buffer zone in response to the bio-security concerns raised by County Fair Chickens.
2. Preferred pipeline routes have been determined in consultation with landowners whose properties would be crossed by the pipeline. For the purpose of investigating the potential impacts of the pipeline, a 60m wide pipeline corridor was determined. The pipeline, which would require a 15m wide servitude, would require a 27m wide construction footprint within the 60m wide planning corridor. The 15m servitude will not limit agricultural activities, as these activities can continue once construction is completed. Pipeline maintenance is addressed in the CEMP.
3. Chlorine gas will no longer be used. Instead, the facility will make use of on-site sodium hypochlorite generation, which means that the facility is not a Major Hazard Installation.
4. Compensation for land will be done in accordance with the relevant legal requirements. Furthermore, the preferred site ensures a more equitable distribution of environmental impacts in that the facility is located on more than one property.
5. A number of alternative sites for the Water Treatment Plant were considered.
6. Noise from the on-site generators will comply with the relevant SANS codes, and appropriate dust suppression measures have been included in the CEMP.
7. Treated effluent will conform to the Department of Water Affairs' general standards.
8. Mitigation measures to reduce the visual impact of the development have been included in the CEMP. Visual impact was one of the factors affecting the choice of alternative site for the development.
9. Security will be addressed by the fact that personnel will not be allowed to live on site. The only personnel allowed on site after working hours, would be security personnel.

The Department concurs with the Environmental Assessment Practitioner's responses to the issues raised during the PPP and has included appropriate conditions in this environmental authorisation and in the EMP.

2. Alternatives

Regional location of the water treatment plant:

The following alternatives were considered for the location of the water treatment plant between Franschhoek and Muldersvlei:

Option A: Dwars River Valley

Option B: Dasbos outlet

Option C: Wemmershoek

Option D: Muldersvlei/Joostenberg

Based on environmental, technical and financial considerations, Option D in the Muldersvlei/Joostenberg area was chosen as the preferred location for the water treatment plant. It is the least environmentally sensitive of all the options, and from a technical point of view, has the following advantages:

- The total capital and operating cost of Option D is significantly less than the other options.
- The water treatment plant and reservoir will be located in close proximity to each other as the reservoir must be located in the Muldersvlei area.
- Based on the interest for raw water connections that has been shown by farmers along the pipeline route, Option D will allow for the maximum availability of raw water.

Positioning of the storage reservoir:

The Muldersvlei/Joostenberg area is considered the most suitable location for the siting of the reservoir, based on the following considerations:

- It is primarily required to assist in supplying the expected increase in water demand in the Drakenstein municipal area and the Tygerberg and Oostenberg areas. In that respect, this part of the Muldersvlei/Joostenberg area is centrally located at a geographic high point.
- It is located in close proximity to the existing Wemmershoek pipeline and is located at a suitable elevation to connect into the Wemmershoek pipeline.
- It will provide back-up storage should the Wemmershoek water treatment plant be shut down for maintenance purposes and is located at a suitable elevation to connect into the Wemmershoek pipeline.
- It will enable under-utilised capacity of the existing Wemmershoek pipeline to be used.
- It is at a suitable elevation to provide strategic emergency bulk water storage to both the Blaauwberg and Tygerberg areas.
- It is at a suitable elevation to gravitate water to the City of Cape Town area.

Locational alternatives for siting the water treatment plant and reservoir within the Muldersvlei/Joostenberg area:

Initially, eight feasible combinations of water treatment plant and reservoir sites were identified in the Muldersvlei/Joostenberg area. This was reduced to three sites (sites A, B and G), based on, amongst others, technical and cost factors. Site G was subsequently excluded as an alternative, and an additional alternative, site A1, identified.

Site A:

This site is situated along the south eastern boundary of the Farm Hohenfelde in the Muldersvlei area, north of the N1. The site has a reasonable slope across it and the elevations are such that it can accommodate the hydraulic constraints. Based on input received during the public participation process, and in order to minimize environmental impacts, this site is not regarded as the preferred site.

Site A1:

This site straddles the boundary between the Farms Hohenfelde and Rock Ridge (Weltevrede) in the Muldersvlei area, approximately 2km north of the N1 and 1km east of the R304. Site A1 essentially comprises of an eastward shift of site A by approximately 300m. Approximately 12.53ha of the site footprint is located on the Farm Hohenfelde, and approximately 9.72ha on Rock Ridge (Weltevrede). As a result of its close proximity to site A, the two sites are very similar in terms of

topographical and hydraulic constraints. This is the preferred site since the impacts associated with the development will be more equitably shared between two landowners.

Site B:

This site is situated in the north eastern corner of the Farm Klipdam in the Muldersvlei area, north of the N1. The site has an almost ideal slope across it and the elevations are such that it can accommodate the hydraulic constraints. Based on input received during the public participation process, and in order to minimize environmental impacts, this site is not regarded as the preferred site.

Site G:

This site is situated on the property of the Stellenbosch Wine and Country Estate (Pty) Ltd, on the western edge of Klapmuts. The slopes across the site are steep, but are still acceptable. This is the closest site to the Dasbos outlet and the associated pipeline lengths are the least in comparison to the other three sites. However, the operational costs associated with pumping water up to the site are substantially more expensive than for sites A, A1 and B, because of the higher elevation of the inlet to the water treatment plant. Site G's proximity to Klapmuts introduces a number of key planning and environmental justice issues that do not affect sites A, A1 and B. The Klapmuts Spatial Development Framework (2010) identifies the land to the west of Klapmuts (where site G is located) as suitable for urban development. The water treatment plant will not only utilise the land on which residential development could be sited, but will rule out future residential development. For this reason, site G is not preferred by the City of Cape Town.

Pipeline route alternatives between the Dasbos pump station and Spes Bona Reservoir:

Two main alternative pipeline corridors, namely the High and Low Routes, between the Dasbos outlet and Klapmuts, as well as between Muldersvlei and the Spes Bona Reservoir were considered. No alternative pipeline routes exist for the section from the Dasbos pump station to the Dasbos outlet.

Dasbos outlet to Klapmuts:

High Route:

The High Route crosses numerous farms, as well as a number of watercourses. From the Dasbos outlet, it is located adjacent to the existing railway line between Paarl and Franschhoek. At the intersection of the R45 and the road between Klapmuts and Simondium, it is directed in a southern direction towards the Simonsberg Mountains. The route then crosses a number of farms until it reaches the Klapmuts Road, where it joins with the Low Route, crosses a railway line and turns west towards Klapmuts. At Klapmuts it follows the northern boundary of the existing township development in Klapmuts up to point K1. The motivation for the location of this pipeline corridor is that it will be less visible than the Low Route during the construction phase and there will be less disruption to traffic and services. The alignment along the railway line will also mean that a part of the railway line servitude can possibly be utilised to minimise the impact on the affected landowners.

Low Route:

From the Dasbos outlet, the Low Route initially runs along the R45 and then joins up with the existing railway line. From this point it is located adjacent to the railway line, up to the junction of the R45 and the Klapmuts Road. From here, it runs along the Klapmuts Road towards Klapmuts, until it joins up with the High Route, a short distance before Klapmuts. It then follows the same route as that of the High Route to a point just east of the R45, close to Klapmuts. From here, the Low Route is located inside the road reserve of the R101 and then passes through the northern extremities of Klapmuts. Through Klapmuts, two alternatives to the Low Route, namely Alternatives KP1 and KP2 have been identified. These two alternative routes are located to the north and south of the existing road through Klapmuts, within the boundaries of the road reserve.

The motivation for the choice of this pipeline corridor is that it will be easily accessible during the construction and operational phases, and construction activities will be limited to the boundaries

of the properties, apart from the alternative routes through Klapmuts. The alignment along the railway line also means that a part of the railway line servitude can possibly be utilised to minimise the impact on the affected landowners. It will also be located in close proximity to the existing Wemmershoek pipeline. Furthermore, this route will have a significantly lower impact than the High Route from a hydraulic and cost perspective.

Preferred route from Dasbos outlet to Klapmuts:

From the Dasbos outlet to Simondium, the preferred route generally follows the Low Route, except for a short section across the Farm Bellingham. The primary motivation for choosing this route is that the landowners along this section of the pipeline generally prefer the Low Route, and it is considered to have an acceptable level of impact from an environmental point of view.

Muldersvlei to the Spes Bona Reservoir:

This pipeline will convey treated water from point H1, en route from the proposed reservoir in the Muldersvlei area, to the Spes Bona Reservoir. Both the High and Low Route corridors cross a number of large farms and a few smaller undeveloped properties. The High Route will be a more direct route and follow an elevated route in comparison to the Low Route and is also more accessible during the construction and operational phases.

Preferred route from Muldersvlei to the Spes Bona Reservoir:

The High Route is the preferred pipeline route for the section between Muldersvlei and Spes Bona, as it is the most direct route. It will have the least impact on existing landowners and will be the most accessible route during the construction and operational phases. Apart from a crossing of the Mosselbank River, the route will not cross any areas of natural vegetation. It is also considered to have an acceptable level of impact on the affected landowners.

Pipeline route alternatives associated with the water treatment plant/reservoir on site A/A1:

(a) Klapmuts to the water treatment plant on site A/A1:

A number of pipeline route alternatives have been identified for this option as follows:

- From point K1, Route KA1 will initially be located inside the road reserve of the R101, and thereafter inside the western boundary of a vacant municipal property from where it crosses the N1. From the N1, it will cross through the middle of a number of small holdings and smaller farms up to the intersection with a gravel road at point M1. From this point, it will cross over a number of larger farms to the water treatment plant at sites A and A1.
- From point K1, proposed Route KA2 will run inside the eastern boundary of a vacant municipal property and thereafter crosses the N1. At a gravel road it will be directed in a westerly direction and join up with Route KA1. From this point, it will cross over a number of larger farms, at a higher elevation than Route KA1, to the water treatment plant on sites A and A1.

(b) Reservoir on site A/A1 to the entrance of the Farm Hohenfelde:

Only one route alternative (Route RA1) is proposed since it will traverse an open field over a very short distance to point H1, northwest of site A. Point H1 will be the common connection point for the pipelines, from the three sites in the Muldersvlei area to the Spes Bona Reservoir, at the entrance to the Farm Hohenfelde.

(c) Reservoir on site A/A1 to the Wemmershoek pipeline:

Two pipelines will be required to and from the Wemmershoek pipeline, located in the road reserve of the N1. From the reservoir on site A/A1 to the Wemmershoek pipeline, two possible routes have been identified namely, Routes AW1 and AW2/A1W2. Both follow similar routes across the farms, however, Route AW1 is shorter. Both routes will cross some natural vegetation close to the N1.

Preferred pipeline route alternatives associated with the water treatment plant on site A:

(a) Klapmuts to the water treatment plant on site A:

Route KA1 is the preferred route for this section of the pipeline. This is the most direct route and is considered to have an acceptable level of impact on the affected landowners.

(d) Reservoir on site A to the Wemmershoek pipeline:

Route AW1 is the preferred route from the Wemmershoek pipeline to the reservoir on site A. It is the most direct route and is considered to have an acceptable level of impact on the affected landowners. In addition, the environmental impact is considered to be less than that of Route AW2.

Preferred pipeline route alternatives associated with the water treatment plant on site A1:

(a) Klapmuts to the water treatment plant on site A1:

Route KA1 is the preferred route for this section of the pipeline. This is the most direct route and is considered to have an acceptable level of impact on the affected landowners.

(c) Reservoir on site A1 to the Wemmershoek pipeline:

Route AW1 is the preferred route from the Wemmershoek pipeline to the reservoir on site A1. It is the most direct route and is considered to have an acceptable level of impact on the affected landowners. In addition, the environmental impact is considered to be less than that of Route AW2.

Pipeline route alternatives associated with the water treatment plant/reservoir on site B:

As site B is geographically located in very close proximity to site A, almost all of the proposed pipelines will, to a large extent, follow the same alignments.

(a) Klapmuts to the water treatment plant on site B:

A raw water pipeline between point K1, west of Klapmuts, and the water treatment plant on site B, en route from the Dasbos outlet of the Department of Water Affairs tunnel system is required. A number of pipeline route alternatives have been identified as follows:

- From point K1, proposed Route KB1 will initially be located inside the road reserve of the R101, and thereafter inside the western boundary of a vacant municipal property from where it crosses the N1. From the N1, it will cross through the middle of a number of small holdings and smaller farms up to the intersection with a gravel road at point M1. From this point, it will cross a number of larger farms to the water treatment plant at site B.
- From point K1, proposed Route KB2 will run inside the eastern boundary of a vacant municipal property and thereafter crosses the N1. At a gravel road it will be directed in a westerly direction and join up with Route KB1. From this point, it will cross over a number of larger farms, at a higher elevation than Route KB1, to the water treatment plant on site B.

(b) Reservoir on site B to the entrance of the Farm Hohenfelde:

From the reservoir on site B, Route RB1 will follow a direct route through vineyards and open fields, as well as across a natural watercourse to point H1. Route RB2 will follow an alternative (longer) alignment through the vineyards.

(c) Reservoir on site B to the Wemmershoek pipeline:

From the reservoir on site B to the Wemmershoek pipeline, two pipelines have been identified, namely, Routes BW1 and BW2. Both will follow similar routes through the farms, but Route BW1 is preferred by the landowner of the Farm Joostenberg, as Route BW2 will potentially impact on existing vineyards. Route BW1 follows a more direct route than Route BW2. Both routes cross some natural vegetation and wetland areas close to the N1.

Preferred pipeline route alternatives associated with the water treatment plant on site B:

(a) Klappmuts to the water treatment plant on site B:

Route KB1 is the preferred route for this section of the pipeline. This is the most direct route and is considered to have an acceptable level of impact on the affected landowners.

(b) Reservoir on site B to the entrance of the Farm Hohenfelde:

Route RB1 is the preferred route for this section of the pipeline. This is the most direct route and minimises the impact on existing vineyards.

(c) Reservoir on site B to the Wemmershoek pipeline:

Route BW1 is the preferred route from the Wemmershoek pipeline to the reservoir on site B. It is the most direct route and is considered to have an acceptable level of impact on the affected landowners.

Access roads:

The following roads to the water treatment plant and reservoir have been considered:

Site A:

Access off the R304, approximately 2km north of the N1, will involve the construction of a new road to site A. Alternative roads were initially considered but were not considered feasible.

Site A1:

The access road to site A1 is virtually the same as that for site A due to the close proximity of the two sites. However, in the case of site A1, provision is made for three alternative access points (Options A, B and C) to the site as a result of the occurrence of natural vegetation and the location of two small farm dams immediately to the south of the site. Option A is the preferred access point as the two other options impact on the ability of farm animals to access the dams. The alignment of Option A respects the recommendations made by the botanical specialist (i.e. it will be shifted 30m to the east to avoid the sensitive Renosterveld remnant) and thus follows the same alignment as the pipeline associated with site A1.

Site B:

Two alternative access routes are possible, both off the gravel road between the R304 and the road across the Hoopenburg Bridge, referred to as Alternatives 1A and 2A/2B, and Alternatives 1B and 2A/2B. Alternative 1B and 2B is the preferred option as it is the most direct route from the N1 to the site and access road 2B follows the route of the preferred pipeline route from the reservoir back to the Wemmershoek pipeline (Route BE2). Hence, the impact on the farm will be minimised. The provision of this access road to site B will involve the paving of an existing gravel road (Alternative 1A or 1B) and the construction of a new road across the adjacent Farm Bakenrug (Alternative 2A or 2B).

"No-Go" Alternative

The project has been initiated to ensure the timeous development of certain components of the City of Cape Town's future bulk water infrastructure required to meet the anticipated growth in water demand for the City of Cape Town area. If this infrastructure is not provided, the City of Cape Town will be unable to supply sufficient water in the future during peak demand periods.

Summary of the preferred alternative (map attached as Appendix A):

Preferred site:

The water treatment plant and storage reservoir will be situated on site A1 in the Muldersvlei/Joostenberg area.

Preferred pipeline routes associated with the water treatment plant/reservoir on site A1:

- The Low Route is the preferred route from the Dasbos outlet to Simondium.
- The High Route is the preferred route for the section between Muldersvlei and Spes Bona.
- Route KA1 is the preferred route between Klappmuts and the water treatment plant on site A1.

- Route AW1 is the preferred route from the Wemmershoek pipeline to the reservoir on site A1.

Access roads to the water treatment plant and reservoir on site A1:

A new road from the R304 will be constructed, with Option A being the preferred access point to site A1.

3. Impacts, assessment and mitigation measures

3.1 Activity Need and Desirability

In 2001 the former Cape Metropolitan Council commissioned a study, a *Computer Model Analysis and Master Plan for the Bulk Water Supply System for the City of Cape Town*. The first draft of this study identified the need for a new water treatment plant with a capacity of 500ML/day and a new bulk storage reservoir in the Muldersvlei area with a capacity of 300ML. Following on from planning carried out during the *Integrated Water Resource Planning Study* that was completed in August 2001, the City of Cape Town commissioned two further studies in October 2001, namely, *The Integration of Raw Water Sources Supplying the City of Cape Town area* that was completed in February 2002, and *An update of the Master plan for the Bulk Water Supply System* that was completed in July 2002.

A number of possible water treatment plant sites were identified as part of the *Integration of Raw Water Sources Supplying the Cape Metropolitan Area Study*. A recommendation from this study was that potential sites for the location of a new water treatment plant, which would treat water abstracted from the Dasbos outlet, should be further investigated. With a view to continuing the planning exercise, the City of Cape Town appointed OWS/BKS JV to undertake the Bulk Water Infrastructure Planning Study for the Muldersvlei Component of the City of Cape Town's Bulk Water Augmentation Scheme.

The siting of a new water treatment plant to abstract water from the Dasbos outlet has a number of advantages, namely:

- It will increase the flexibility of the bulk water supply system which will assist in maximizing the water resources of the Western Cape Water Supply System.
- Raw water from the Berg River Dam can be supplied directly to the new water treatment plant and not have to be conveyed through the RSE tunnel system. This will reduce the City of Cape Town's reliance on abstracting water from the Department of Water Affairs' RSE tunnel system.
- An additional pipeline from the Dasbos outlet can supply the high growth areas of Oostenberg and Tygerberg within the City of Cape Town directly.
- It will assist in the operation and maintenance of the existing Wemmershoek pipeline from the Wemmershoek Dam to the Glen Garry Reservoir.
- It will allow under-utilised infrastructure to be used more optimally and to its full capacity.
- It will provide a flexible solution to cater for the development of possible future water resources.

3.2 Botanical Impacts

Klapmuts pipeline:

The original natural vegetation in the study area has been mapped as Swartland Alluvium Fynbos which is regarded as critically endangered on a national basis. Less than 26% of its original extent still remains and less than 8.5% is conserved. Given the long history of agriculture (grazing, cultivation and eutrophication) and urbanisation there is essentially no natural vegetation remaining in the study area. The open areas are dominated by weedy species, most of which are alien grasses and herbs. The few remaining indigenous species are common, widespread and resilient species of no conservation significance. Overall indigenous species diversity is very low with invasive alien kikuyu being dominant in many areas. The conservation value of the vegetation within the routes of KP1 and KP2 is deemed

to be very low on a local and regional basis. Given the heavily disturbed nature of the area and the consequent lack of natural vegetation, impacts are likely to be negligible from a botanical point of view.

Site alternative A1:

The original natural vegetation has been mapped as Swartland Shale Renosterveld which is regarded as critically endangered on a national basis. Site A1 potentially impacts on the northern edge of a patch of Renosterveld and may result in the loss of a limited area of partly disturbed natural vegetation (<1ha) and possibly in the loss of rare species in this area. The patch of Renosterveld has been disturbed by relatively heavy grazing and trampling by cattle. It has subsequently lost approximately 20% of its expected potential plant diversity, but is still of high conservation value and sensitivity.

3.3 Freshwater Impacts

Dasbos pump station – Dasbos outlet

The pump station and first few hundred metres of the bulk water pipeline are located within the Berg River floodplain and will impact on a floodplain wetland that is considered to be of moderate conservation importance. The wetland provides good quality wetland habitat and play a role as an ecological corridor associated with the Berg River. Further along the pipeline route is a braided drainage area that lies within the Waterval River sub-catchment. The streams were assessed to be of high ecological importance and sensitivity. Both the in-stream and riparian integrity were assessed as being moderately modified. The braided channels have been modified primarily as a result of alien tree encroachment. These braided channels were assessed to be of high conservation importance.

The pipeline also traverses a wetland that is located at the bottom of a steep slope below the Dasbos outlet. The wetland was assessed as being of moderate to high conservation importance due to the fact that it is a fairly large seep area supporting diverse wetland vegetation components.

Low route pipeline – Dasbos-Klapmuts section

The Dasbos-Klapmuts section of the low route pipeline crosses the Waterval and Dwars Rivers. These rivers were assessed to be of high ecological importance and sensitivity. The in-stream habitat integrity was categorized as moderately modified, largely due to the presence of road crossings. The low route crosses the Bellingham Stream, the Graham Beck Stream, Stream d and Stream a, all of which were assessed as having moderate ecological importance and sensitivity. Considerable modification of the beds and banks of the streams has occurred, however, the streams still provide important links between the mountain slopes and the Berg River. The remaining riverine sites impacted by the low route (Streams c and e and the Klapmuts River) were assessed as having low/marginal ecological importance and sensitivity. The streams are considered to be of low conservation importance.

The low route also crosses three wetlands. One of the wetlands (low route 10) was assessed as having a moderate conservation importance. Although small and artificial (associated with a farm dam), the quality of the wetland vegetation is such that it provides relatively good quality wetland habitat. The remaining two patches of wetland were assessed to be of low conservation importance.

High route – Spes Bona-Muldersvlei section

The high route crosses the Mosselbank River which is of moderate to high importance, and a small tributary of the Mosselbank River to the west of the R302. The high route also impacts on two wetland patches which were assessed as being of low conservation importance. The preferred route for this section of the bulk water pipeline follows the high route, and thus avoids the wetlands that would be impacted by the low route. The preferred route will,

however, still cross over the Mosselbank River at one point. Although it will impact on the small tributary of the Mosselbank, it avoids the major tributary higher up the catchment.

Water treatment plant and reservoir on site A1

The water treatment plant and reservoir will impact on a small earth farm dam which has some wetland habitat around its perimeter. However, the dam is an artificial habitat, and due to its small size, is considered to be of low conservation importance.

The applicant is required in Condition 9 of this environmental authorisation to appoint an ECO to ensure that construction activities remain in line with the CEMP and the conditions of this environmental authorisation. Adherence to Condition 9 will help to ensure that the environmental impacts of the development do not become significant. Specific management and mitigation measures have also been considered in this environmental authorisation and in the CEMP to adequately address the impacts on the receiving environment.

3.4 Visual Impacts/Sense of Place

A Visual Impact Assessment dated May 2010 was conducted by Hendrik van der Hoven. Site A1 comprises of open wheat fields set against shallow slopes. It is also situated closer to nearby Eskom high tension power lines. A few major and minor visual horizons on and around the site result in it being visible only from certain areas or positions within the foreground and middle distance. The visual absorption of site A1 is generally low due to the site being open, and it is further reduced during summer when the seasonal crops are more or less absent. However, the visual absorption will be slightly better during the winter when the general environment is green. The natural views along the major roads running past the site generally do not provide a good view of the site, or only for a limited time before it is obscured by trees.

3.5 Agricultural impacts

A Soils and Vitivinicultural Environmental Risk Assessment, dated March 2010, was conducted by J. Lambrechts and D. Saayman. The assessment concluded that, provided that mitigation measures are implemented to minimise soil and drainage deterioration, dust and erosion control measures during construction, the medium and long term potential negative impacts of the development on existing surrounding vineyards and on present and future soil utilisation, are considered to be negligible.

3.6 Cultural historic

An Archaeological Impact Assessment was conducted by the Agency for Cultural Resource Management, dated February 2010.

More than 95% of the pipeline route from the Dasbos outlet to Muldersvlei and from Muldersvlei to Spes Bona passes through agricultural lands. No archaeological remains are located in the 2km route from the Dasbos pump station to the Dasbos outlet. Low-density scatters of Early Stone Age tools are located in/alongside/near to the route, from the Dasbos outlet to Muldersvlei. Several large flakes and chunks are found in a cobble-strewn sandy track near a small tributary of the Berg River, approximately 1km north of the Dasbos outlet. Early Stone Age tools including large flakes, chunks, split cobbles and several large cores are also found on a number of smallholdings and farms through which the pipeline crosses. Tools are mainly noted in gravel and sandy farm roads, culverts and excavations, degraded areas, among piles of stones removed from nearby fields and in blocks of vineyards. No formal tools were found.

A large section of the pipeline is located alongside the existing R45 between Franschhoek and Klipmuts. All the tools are located in a severely disturbed context and are graded as having low local significance.

From Muldersvlei to Spes Bona, Early Stone Age tools, including flakes, chunks, a few large cores and broken river cobbles are found in the surrounding vineyards. The tools are all in a severely disturbed context and are graded as having low local significance.

A number of historic wood and iron railway buildings occur alongside the railway line/R45 at Groot Drakenstein and Simondium, in the alignment of the pipeline route.

A large, informal cemetery is located in a small pine forest on the Farm Simonsvlei, about 50m west of the Klappmuts/Simondium Road. Although the cemetery is located relatively close to the pipeline route, it will not be impacted on by the development.

The Archaeological Impact Assessment of the water treatment plant, reservoir, roads and pipeline route has shown that no significant pre-colonial archaeological impacts are likely to occur during construction and implementation of the project. There are also no significant archaeological risks associated with the project.

3.7 Socio-economic

The water treatment plant, reservoir and associated pipelines and access roads may have a negative impact on land use and associated commercial enterprises on and in the areas immediately surrounding the alternative sites. On-site impacts may stem from the loss of agricultural land. Off-site impacts may stem primarily from environmental risks that may increase surrounding the development, as well as impacts associated with the placing of pipelines and access roads.

Site A1 will entail losses that is more focused on wheat fields and grazing land which is considered a lower impact and will not threaten current operations on the property.

The potential social impacts associated with site A1 are likely to be less than those associated with site A. The key impact is ultimately linked to the impact that the water treatment plant, reservoir and associated pipelines will have on the current and future activities on the affected farms. Land losses associated with site A1 on the Farms Hohenfelde and Rock Ridge (Weltevrede) will have a moderate impact. The siting of an access road associated with site A1 will have a low to moderate impact on three farms (Damarakloof, Klipdam and Rock Ridge (Weltevrede)). Site A1 represents a more equitable distribution of impacts over four properties and the overall social impacts associated with site A1 are therefore regarded as more equitable.

The project will present the opportunity for the creation of employment opportunities during both construction and operation. Approximately 1180 jobs will be created for the construction phase, implying a relatively high intensity impact over the construction phase at the local level. Impacts for the local area will be of a medium to high significance during construction and a medium significance during operations with mitigation.

In summary, the development will therefore result in both positive and negative impacts.

Negative Impacts:

The Department is satisfied that all the above negative impacts of significance will be addressed by the conditions contained in the environmental authorisation and the mitigation measures contained in the EMP's.

Positive impacts:

Although the development will result in biophysical and visual impacts, it can be mitigated to acceptable levels. The development will increase the flexibility of the bulk water supply system which will assist in maximizing the water resources of the Western Cape Water Supply System which would have otherwise not been achieved should the *status quo* have remained.

National Environmental Management Act Principles

The National Environmental Management Act Principles (set out in section 2 of the NEMA, which apply to the actions of all Organs of State, serve as guidelines by reference to which any Organ of State must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between Organs of State through conflict resolution procedures; and
- the selection of the best practicable environmental option.

Conclusion

The competent authority is satisfied that the proposed listed activity will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels, provided that the following is observed:

- Adherence to the NEMA principles,
- Compliance with the conditions stipulated in this environmental authorisation, and
- Compliance with the mitigation measures in the EMP.

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APPENDIX A

