



**ENVIRONMENTAL QUERY FOR THE PROPOSED
CONSTRUCTION OF THE ENHLALAKAHLE
PIPELINE; GREYTOWN BULK WATER SUPPLY
SCHEME – PHASE 2, UMINYATHI MUNICIPALITY,
KZN**



11 FEBRUARY 2013

DOCUMENT DESCRIPTION

Client: Royal Haskoning DHV on behalf of Umzinyathi Municipality

Report name: Environmental Enquiry for the proposed construction of Enhlalakahle pipeline; Greytown bulk water supply scheme – phase 2, Umzinyathi Municipality, KZN.

Report type: Environmental Enquiry

Project name: Greytown bulk water supply scheme – phase 2.

Project number: P0035

Document number: 1

Client Reference: W01.PZB.000125/T2012-EN/CCO

Version: 1

Compiled by:

Author (s)	Date / location	Signature
Chen Read	6 February 2013 / Ballito	
Authorised by:		
Hantie Plomp	11 February 2013/ Ballito	

TABLE OF CONTENTS

1.	TERMS OF REFERENCE	1
2.	ENVIROMENTAL ASSESSMENT PRACTITIONER CONTACT DETAILS	1
3.	ENVIRONMENTAL ASSESSMENT PRACTITIONER COMPETENCE / RELEVANT EXPERIENCE	1
4.	TECHNICAL INFORMATION RELATED TO THE ENQUIRY	2
4.2	Proposed Location and Lay-Out	2
5.	PRELIMINARY ENVIRONMENTAL ASPECTS RELATED TO THE 4,26KM PIPELINE	3
5.1.	Section A: Pipeline to be situated in degraded areas (Approximate first 1,1km of 4,2km)	3
5.2.	Section B: Remainder of pipeline to be situated in transformed grasslands and sensitive / endangered ecosystems	3
5.2.1.	Section B1: Intermitted sections of approximate length of 2,6kms bisecting transformed grasslands	4
5.2.2.	Sections of the remaining 3.2km pipeline to be situated within endangered ecosystems (S57 of NEMBA) and crossing watercourses (wetlands):	5
6.	PRELIMINARY ENVIRONMENTAL EVALUATION OF APPLICABILITY OF THE EIA REGULATIONS, LISTING NOTICES 1 TO 3	6
6.1.	Preliminary Evaluation: Listing Notice 2	6
6.2.	Preliminary Evaluation: Listing Notice 1 and 3	6
6.2.1.	Section A: Pipeline to be situated in degraded areas	6
6.2.2.	Section B1: Pipeline section bisecting transformed grasslands	7
6.2.3.	Section B2: Pipeline sections bisecting endangered ecosystems and watercourses	7
6.3.	Table 1: Detailed evaluation of potential applicable activities in terms of listing notice 1	8
6.4.	Table 2: Detailed evaluation of potential applicable activities in terms of listing notice 3	10
7.	FINDINGS AND RECOMMENDATIONS	11
7.1.	Section A – Laying of the proposed pipeline within the existing pipelines route, just before the splitting point (total of approx. 1 kilometre):	11
7.2.	Section B – Laying of the proposed pipeline from the current construction camp to Enhlalakahle communities:	11
7.2.1.	Section B1	11
7.2.2.	Section B2	12
8.	CONCLUSION	12
9.	REQUEST TO DAEA	13

1. TERMS OF REFERENCE

Royal Haskoning DHV has been appointed by the UMzinyathi District Municipality to carry out the construction of approximately 4.26km of 400/315mm diameter (internal diameter) HDPE pipeline for the transfer of potable water between existing reservoirs to augment the supply of water to ensure adequate provision of water to the newly constructed low cost housing project.

Triplo 4 Sustainable Solutions was appointed by Royal Haskoning DHV as Independent Environmental Assessment Practitioner to identify and confirm the environmental authorisation requirements with DAEA and undertake a Basic Assessment process for the proposed project in terms of the EIA Regulations (2010), if required by DAEA.

2. ENVIROMENTAL ASSESSMENT PRACTITIONER CONTACT DETAILS

Name and Surname:	Aletta J (Hantie) Plomp
Company:	Triplo 4 Sustainable Solutions
Business Telephone Number:	032 946 3213
Business Fax Number:	032 946 0826
Cellphone Number:	083 308 8003
Email Address	hantie@triplo4.com

3. ENVIRONMENTAL ASSESSMENT PRACTITIONER COMPETENCE / RELEVANT EXPERIENCE

Hantie has a Masters Degree in Environmental Management and has been registered with the South African Council for Natural Scientific Professions (SACNASP) since 2001. She headed up the Environmental Systems Section comprising of EMS, Audits and Environmental Assessments within the Environmental Management Department, AngloGold Ashanti and acted as Head of the Environmental Management Department on a number of occasions. She was also an Alternate Director at Midvaal Water Company.

She was a Principal Associate at SSI Engineers and Environmental Consultants and the Sector Area Manager for the Environmental Sector, KZN, before establishing Enspire Environmental cc and then Triplo 4 Sustainable Solutions Pty Ltd.

Hantie has been an environmental professional for more than 15 years and has been extensively involved in inter alia:

- environmental authorisations and feasibility assessments;
- environmental management systems;
- environmental capacity building / training and awareness;
- waste management and pollution control;
- water management; and
- environmental control officer functions and environmental legal compliance audits.

Chen Read has a Post Graduate Qualification in Environmental Management with more than 3 years environmental management experience.

Specific project experience related to Basic Assessments (BA) and Environmental Impact Assessments (EIAs) include, but is not limited to:

- EIAs for residential and commercial developments;
- EIA / Waste license application for a crematorium;
- EIAs for new mining right applications and industrial expansion projects;
- BAs for developments within 100 metres of the high water mark;
- BA's for fuel stations;
- BA's for roads and stream crossings.

4. TECHNICAL INFORMATION RELATED TO THE ENQUIRY

The following information is presented, based on the client and Consulting Project Engineer's project information, Specialist Ecologist Report (refer to attached report) and EAP's site visit and environmental assessment.

4.1 Detailed Project Description

The project proposed the construction of a pipeline, to carry potable water from the existing/proposed Enhlalakahle Reservoirs to serve the Enhlalakahle communities and a portion of Greytown.

The following works will be undertaken for the pipeline:

- Trenching, bedding and backfilling for approximately 4.26km of 400/315 mm nominal bore HDPE gravity main with maximum internal diameter of 0.353m.
- Laying, jointing and testing of all pipes, valves and fittings.
- Construction of valve chambers.

4.2 Proposed Location and Lay-Out

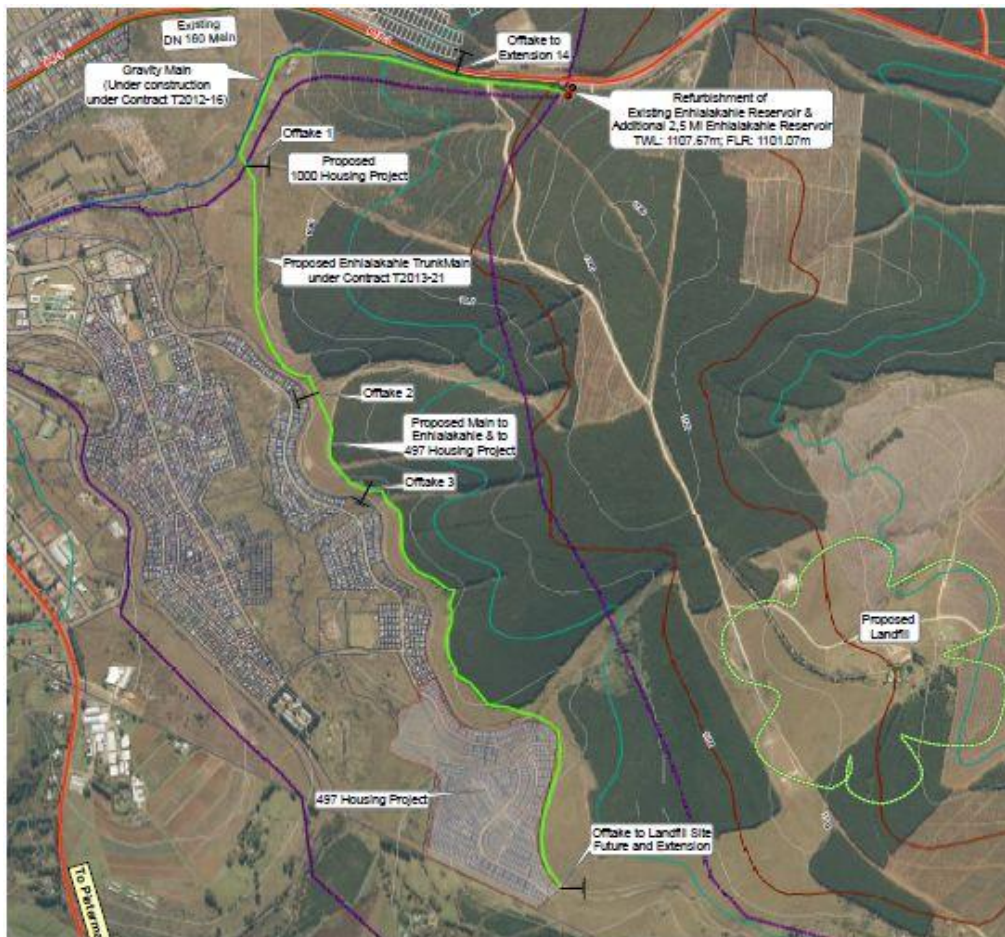


Figure1. Proposed layout of the pipeline (full layout is appended)

Legend:

Green - Proposed route; Blue - Existing route under construction; Purple – Proposed service area

5. PRELIMINARY ENVIRONMENTAL ASPECTS RELATED TO THE 4,26KM PIPELINE

The dimensions of the entire length of the proposed pipeline are as follow:

- The 400 mm diameter HPDE pipeline comprises of 2 sizes due to different classes:
 - For approximately 1973 meters, the internal diameter is 0.353 meter;
 - For approximately 415 meters, the internal diameter is 0.327 meter.
- The remainder of approximately 1872 meters will be constructed with 0.315 meter diameter HPDE pipeline, with an internal diameter of 0.278m.

Although the above internal diameters do not exceed the threshold of 0.36 meter and activity 9 regarding the “construction of infrastructure for the bulk transportation of water longer than 1km” is not triggered, site specific environmental sensitivity areas required further investigation and assessment.

To this end, the route was divided into 2 main sections, Section A & B, with a subdivision B1 and B2 based on:

- environmental aspects and potential for environmental impacts and degradation during the construction process;
- construction methodologies to be employed; as well as
- environmental triggers in terms of the NEMA EIA Regulations (Listing Notice 1 and 3):

5.1. Section A: Pipeline to be situated in degraded areas (Approximate first 1,1km of 4,2km)

The construction of the proposed pipeline:

- for a distance of approximately 1 kilometre (from the Enhlalakahle Reservoirs to, just after the house/site being used as a construction camp where the pipeline currently is being laid, and just before the new proposed pipeline routes will diverge from one another);
- to be situated between two existing pipelines going from the Enhlalakahle reservoir towards Greytown.

It is proposed that the new (and third) pipeline be laid in between the two pipelines (one was recently constructed) in order to reduce the environmental impact of the construction activities and ensure that the existing footprint is not expanded. Construction will occur mostly by manual labour to prevent the accidental damage of the existing pipelines by heavy machinery.

5.2. Section B: Remainder of pipeline to be situated in transformed grasslands (3,1km) and sensitive / endangered ecosystems (0,5km)

Construction of approximately 3.1 kilometres of pipeline commencing from just before the diverging point and ending at the existing reservoir situated above the low cost housing project (refer to the proposed layout attached and below).

Various alternatives have already been looked at to identify the most feasible route alignment from the “split point” to the reservoir near the low cost housing site. These included:

Location Alternatives	Feasibility and Environmental Aspects
On the side of the road adjacent to and/or within the Mondi forest areas	Mondi, as landowner, refused the siting of the pipeline at this location as it would have negative economical implication due to the loss of existing trees and servitude restrictions on future forestry requirements. This option was therefore not feasible after the initial discussions and negotiations with Mondi.
Siting of the pipeline to the right of the railway line	This will have the most negative impact environmental and socio-economical impacts. Being of a greater distance and having to cross the railway line twice as a result of the location of the reservoir, the pipeline will be more costly and take longer to construct. Delays with negotiations with Transnet may further impact on the community awaiting a reliable water source. In addition, the site is the least degraded of the three options evaluated and the construction and new access points within this alignment will thus have the most significant impact environmentally. Impact. This option is least supported by the EAP.
The current proposed alignment (between the road and railway line)	This is following the road and railway line as best as possible, limiting the potential negative environmental impact as many areas are already degraded due to existing activities. Access is already established and impacts will be further limited as access roads will not be required. This option is deemed the most environmentally and socio-economical option within the scope of available options and is supported by the EAP.

The alignment for this section of the pipeline (3.1km) is therefore proposed to be situated for most of the length between the functional railway line and the existing dirt road used for forest plantation (managed by Mondi Pty Ltd).

5.2.1. Section B1: Intermittent sections of approximate length of 2,6 kms bisecting transformed grasslands

The Preliminary Ecological Habitat Assessment conducted by Mr. Clayton Cook indicated that large sections of the pipeline bisect transformed or secondary succession Ngogoni *Aristida junciformis* grasslands.

5.2.2. Sections of the remaining 3.1km pipeline to be situated within endangered ecosystems (S57 of NEMBA) and crossing watercourses (wetlands):

The Preliminary Ecological Habitat Assessment further indicated that certain sections of the pipeline bisect sensitive areas. These included:

- Natural Midlands Mistbelt Grassland which is one of the most endangered vegetation units in SA;
- A patch of low-lying rocky outcrop adjacent to valley bottom (5) with several red listed "Declining" Poison Bulbs *Boophone disticta*. Some were as close to 2 m from the proposed alignment. (According to the Specialist a rescue and recovery programme for bulbous geophytes and moribund termite mounds will required),
- Five valley bottom wetlands as well as a patch of hillslope seepage wetland that will also require a WULA.



Figure 2. Summary sensitivity map



Figure 3. Close view of Valley Bottom Wetland 3 and 4:

6. PRELIMINARY ENVIRONMENTAL EVALUATION OF APPLICABILITY OF THE EIA REGULATIONS, LISTING NOTICES 1 TO 3

In order to assess the requirement for a Basic Assessment and / or Environmental Impact Assessment, the following methodology was applied:

- The scope of the project, including sizes and capacities of proposed linear development were discussed and confirmed with the Project's Consulting Engineers;
- A site visit was conducted by the EAP and Specialist and a Specialist Preliminary Ecological Report was compiled (refer to attached report);
- The listed activities as per NEMA EIA Regulations (as amended August 2010) were scrutinized for the entire route:

In assessing the applicability of the listed activities, special attention was given to the following definitions:

“linear activities” include railways, roads, funiculars, pipelines, conveyor belts, cableways, powerlines, fences, runways, aircraft landing strips, and telecommunication lines;

“watercourse” means (a) a river or spring; (b) a natural channel or depression in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998).

“construction” means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed activity or specified activity, but excludes any modification, alteration or expansion of such facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same footprint.

It was noted that the “construction of infrastructure for the bulk transportation of water” was a specified activity in terms of listing notice 1, activity 9. It is therefore inferred that the term “construction” as used within various activity listings will apply to the establishment of the necessary infrastructure i.e. water pipeline, to ensure the bulk transportation of water.

6.1. Preliminary Evaluation: Listing Notice 2

No potential activities relevant to listing notice 2 could be identified.

6.2. Preliminary Evaluation: Listing Notice 1 and 3

The following preliminary evaluations conducted as per Table 1 and 2 below indicated the requirement for environmental authorisations as follows (please refer to the table for further detail):

6.2.1. Section A: Pipeline to be situated in degraded areas

Approximately 1 km of the total route that will be constructed within degraded areas i.e. between the two existing pipelines within the existing impacted footprint.

No activities were identified that triggered the requirement for a basic assessment.

6.2.2. Section B1: Pipeline section bisecting transformed grasslands

Approximately 2,6 km of the remaining route that will be constructed within transformed grasslands.

No activities were identified that triggered the requirement for a basic assessment.

6.2.3. Section B2: Pipeline sections bisecting endangered ecosystems and watercourses

Approximately 0,5 km (excluding buffer zones of 32m on either side) of the remaining route that will be constructed within endangered and sensitive ecosystems.

A number of potential relevant listing notice 1 and 3 activities were identified, namely

- Listing notice 1: Activities 11, 18 and 56; and
- Listing Notice 3: Activity 12

6.3. Table 1: Detailed evaluation of potential applicable activities in terms of listing notice 1

LEGEND: GREEN TEXT – ACTIVITY IS NOT DEEMED APPLICABLE; RED TEXT - ACTIVITY IS DEEMED APPLICABLE

Activity	Section A: Degraded Area	Section B: Sensitive Areas	
	Laying of pipes in between existing pipelines (approx 1,1km)	Pipeline bisecting transformed grasslands (approx 2,6km)	Pipeline bisecting endangered ecosystems and/or sensitive environments (watercourses)
Activity 9: “The construction of facilities or infrastructure exceeding 1000 metres in length for the <u>bulk transportation of water</u> , 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”.	The internal dimensions of the proposed pipeline will be of 0.278, to 0.353 meters.	The internal dimensions of the proposed pipeline will be between 0.278 and 0.353 meters.	The internal dimensions of the proposed pipeline will be between 0.278 and 0.353 meters.
Activity 11: “The construction of infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse	Construction of infrastructure does not occur within a watercourse or within 32 metres of a watercourse	The current pipeline will be in the vicinity of five valley bottom wetlands as well as a patch of hillslope seepage wetland Drainage line bisecting / traversing is included in the section B2 assessment and construction must be confined outside the 32m buffer.	Although construction of infrastructure for the bulk transportation of water does not exceed an internal diameter of 0,36km, it occurs within watercourses i.e. wetlands and drainage lines. Five valley bottom wetlands as well as a patch of hillslope seepage wetland will be crossed during the construction phase. In addition, a Water Use Licence will be required in terms of the NWA. Environmental authorisation must be obtained for the areas as well as the 32m buffer zones on both sides of the delineated areas.
Activity 18: “Excavation, removal or moving of soil, sand, rock of more than 5 cubic meters from a watercourse.”	The current pipeline is in the vicinity of a small drainage line. Drainage line bisecting / traversing is included in the section B2 assessment.	No excavation, removal or moving of soil, sand, rock of will occur from any of the watercourses. The watercourse areas are included within Section B2.	Cumulatively, due to the size of the watercourses (5 valley bottom wetlands and hillslope seepage wetland) as well as the length of the pipeline, cumulatively more than 5 cubic meters of soil, sand or rock will be excavated or moved during the construction of the pipelines through these areas.

Activity	Section A: Degraded Area	Section B: Sensitive Areas	
	Laying of pipes in between existing pipelines (approx 1,1km)	Pipeline bisecting transformed grasslands (approx 2,6km)	Pipeline bisecting endangered ecosystems and/or sensitive environments (watercourses)
Activity 23: "The transformation of undeveloped, vacant or derelict land to – residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place for linear activities."	This transformation will take place for a linear activity.	This transformation will take place for a linear activity.	This transformation will take place for a linear activity.
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.	No cumulative impacts that will result in a total exceedance of thresholds have been identified.	No cumulative impacts that will result in a total exceedance of thresholds have been identified.	Activity 18 is not excluded from the list of phased activities. As cumulative impact will exceed the excavation and moving of more than 5 cubic of soil sand and rock from the identified watercourses, this activity is deemed applicable.

6.4. Table 2: Detailed evaluation of potential applicable activities in terms of listing notice 3

LEGEND: GREEN – ACTIVITY IS NOT DEEMED APPLICABLE; RED ACTIVITY IS DEEMED APPLICABLE

Activity	Section A: Degraded Area	Section B: Sensitive Areas	
	Laying of pipes in between existing pipelines (approx 1,1km)	Pipeline bisecting transformed grasslands (approx 2,6km)	Pipeline bisecting endangered ecosystems and/or sensitive environments (watercourses)
<p>Activity 12: “The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation”: (a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA</p>	<p>The pipeline is proposed to be constructed between two existing pipeline, one of which has been recently constructed. The area is mostly bare and can be described as degraded.</p>	<p>The sections of the pipeline will occur within transformed / secondary succession grasslands.</p>	<p>The sections of the pipeline will occur within critically endangered ecosystems listed in terms of Section 52 of NEMBA, namely:</p> <ul style="list-style-type: none"> • Natural Midlands Mistbelt Grassland which is one of the most endangered vegetation units in SA; • A patch of low-lying rocky outcrop adjacent to valley bottom (5) with several red listed "Declining" Poison Bulbs <i>Boophone distichta</i>. Some were as close to 2 m from the proposed alignment. (According to the Specialist a rescue and recovery programme for bulbous geophytes and moribund termite mounds will required), • Five valley bottom wetlands as well as a patch of hillslope seepage wetland that will also require a WULA.

7. FINDINGS AND RECOMMENDATIONS

The following findings and recommendations could be made from the afore-mentioned project description, Specialist study and EAP assessment:

7.1. Section A – Laying of the proposed pipeline within the existing pipelines route - from the reservoirs to the construction camp, just before the splitting point (total of approx. 1,1 kilometre):

The proposed pipeline aims to use the same route as the current pipeline, currently under construction, for approximately 1.1 kilometre, thereby confining development to the existing development footprint degraded area. From our understanding, the proposed pipeline does not trigger any listed / specified activities and can be constructed without an environmental authorisation.

In addition, it is recommended that an EMPr for the entire route of the project be developed and implemented in order to manage and mitigate potential negative environmental aspects that may arise from the planning, construction and operational phases of this section of the project.

7.2. Section B – Laying of the proposed pipeline from the current construction camp to Enhlalakahle communities (total length of approx 3,1km):

The route alignment for section B was evaluated and according to the EAP is the best given the available options. Although there will be environmental impacts to sections of the pipeline due to the sensitive environments identified on site, this alignment will have the least environmental impact and is also the most positive from a socio-economic point of view.

7.2.1. Section B1 (approximate length of 2,6km)

This section of the route will take place in transformed, secondary succession grasslands near an existing road and wood plantation.

From our understanding, the proposed pipeline does not trigger any listed / specified activities and can be constructed without an environmental authorisation. Although the construction of these sections will require linking to the sections that require and environmental assessment, the specialist evaluation and impacts assessed in terms of the environmental and socio-economic aspects already indicate that the recommended alignment will be best suitable to meet the environmental requirements and ensure that the Municipality meet the community needs in terms of a reliable water resource.

It is recommended that an EMPr for the entire route of the project be developed and implemented in order to manage and mitigate potential negative environmental aspects that may arise from the planning, construction and operational phases of the project. It is also respectfully requested that construction be allowed to commence in order to expedite service delivery.

7.2.2. Section B2 (accumulative length of approximately 0,5km, excluding buffer zones)

This section of the route will occur within endangered ecosystems listed in terms of Section 52 of NEMBA / watercourses namely:

- Natural Midlands Mistbelt Grassland which is one of the most endangered vegetation units in SA;
- A patch of low-lying rocky outcrop adjacent to valley bottom (5) with several red listed "Declining" Poison Bulbs *Boophone distichta*. Some were as close to 2 m from the proposed alignment. (According to the Specialist a rescue and recovery programme for bulbous geophytes and moribund termite mounds will required),
- Five valley bottom wetlands as well as a patch of hillslope seepage wetland that will also require a WULA.

Listed activities in terms of Listing Notice 1 and 3 were potentially identified.

8. CONCLUSION

It is with our understanding that a section of the proposed pipeline route:

- **Sections A and B1** does not trigger any listed activity in terms of the NEMA EIA Regulations, 2010 and in our opinion that no Environmental Authorization in terms of the NEMA is thus required;
- **Section B2** triggers listing notice 1 and 3 activities and will require Environmental Authorization in terms of the NEMA, EIA Regulations.

Furthermore, potential negative environmental aspects during the planning, construction and operational phases can be identified and prevented or mitigated by developing and implementing the EMPr for the proposed development.

Additionally, as per the ecological specialist recommendations, a thorough walk and inspection of the pipeline route should be conducted. This will allow for site specific mitigatory measures such as a proposed rescue and recovery programme for bulbous geophytes and moribund termite mounds, rehabilitation of bank erosion, management of alien vegetation adjacent to the valley bottom wetland crossings and a more comprehensive sensitivity map (specifically on the grassland habitat, as the natural Midlands Mistbelt Grassland is one of the most endangered vegetation units in SA).

The client must ensure that the sizes and capacities of the proposed development and infrastructure do not meet or exceed the relevant threshold as discussed within Table 1. Should any aspect of the scope of the project as evaluated be amended, a re-assessment of the applicability of the listed activities in terms of NEMA will be required.

9. REQUEST TO DAEA

We hereby respectfully request the Department of Agriculture and Environmental Affairs to:

- confirm or correct the understanding regarding the conclusion that no listed activities are triggered by the proposed construction of **Sections A and B1 of the pipeline**, and that construction can commence without obtaining environmental authorisation;
- confirm or correct the understanding regarding the conclusion that listed activities are triggered by the proposed construction of **Section B2 of the pipeline**, therefore requiring the conducting of a basic assessment;
- specify any other activities relevant to the proposed development, should these have been overlooked.

Your favourable consideration and response will be appreciated.

Yours faithfully



Hantie Plomp

Triplo 4 Sustainable Solutions Pty Ltd