**PROJECT NAME: KLIPDRIFT WATER TREATMENT WORKS**

**PROJECT LOCATION: MORETELE METROPOLITAN MUNICIPALITY**

**PROJECT VALUE: R 350M**

**PROJECT SUMMARY:**

LTE Consulting in association with Royal HaskoningDHV (formerly SSI Engineers and Environmental Consultants (Pty) Ltd were appointed on 13June 2012 as the Professional Service Provider for Contract MW/KBWS01/2011: Planning and Design of the Upgrade and Extension of the Klipdrift Water Treatment Works (WTW). They have been instructed to provide findings that will determine whether the proposed construction works related to the Klipdrift Water Treatment Works are viable.

Royal HaskoningDHV and LTE Consulting are required to produce a feasibility study that informs of possible integration of the Wallmannsthal and Klipdrift WTW areas of supply including water resources. They are also expected to see to the planning, design and construction site attendance of bulk water supply infrastructure in the areas identified by the client. The work required includes among other things the raising of a weir in Pienaars River, alterations to the Steve Bikoville reservoir and a new clear water reservoir.

**CONTINUE TO DETAILED PROJECT SUMMARY**

Weir

Magalies Water requested that the weir across the Pienaars River be raised by 1,5m for which studies and environmental assessments were carried out and approved. Following investigations, it was noted that the left bank of the weir contains significant rock masses along the entire river from the weir to the pumpstation and the right mainly contains soils. It has been supposed that this is the case as no better alternatives exist to accommodate a weir in the area.

Over time the weir runs the risk of erosion and as such requires design concepts to provide additional protection. In order to mitigate this risk concepts include making use of a stepped downstream face that will reduce the energy of water when it cascades over the weir, as well as additional concrete structures below the weir.

Industry professionals concluded in the report that based on the topography of the area around the weir, the additional height that is required for the weir should not have a significant impact on the floodlines or a negative impact on the pumpstations. The report also informed that it is very likely that a detailed geotechnical foundation study would substantiate this assumption.

Clear Water reservoir

Based on findings from the feasibility study it has been decided that the new clear water reservoir for the works will have a capacity of 10*Ml* and will have the same top water level as the existing clear water sump. From the study it has also been decided that the floor level be aligned with the existing sump level in order to make the total storage volume available to all the clear water pumpstations.

The new reservoir will be approximately, 6m deep, and will have a square footprint of 53m x 53m. It is estimated that roughly 3m of rock will have to be removed from the entire footprint of the reservoir.

The reservoir will be situated north of the existing sump.

Pipe lines

Royal HaskoningDHV and LTE Consulting were tasked to submit conceptual designs for the appurtenant works of the Steve Bikoville pipelines and Moretele pumpstation.

It is proposed that a welded cement mortar line steel pipeline (PN28) be constructed to supply water past the Steve Bikoville reservoir to the City of Tshwane’s (CoT) Babelegi reservoirs. The report informed that this development could form a command reservoir for the proposed Moretele feed.

The new Moretele pumpstation will be positioned on the northern side of the existing Nylstroom pumpstation. The existing Nylstroom pumpstation will be extended to allow for the new Steve Bikoville, Moretele and Babelegi pumpstation. The new Moretele pumpstation will draw water from the new clear water reservoir and lift it to the Moretele supply command reservoir. Such supply command reservoir may include, for instance, the Babelegi reservoir though a reservoir / pipeline termination point has not been finalized by Magalies Water (MW) as yet.

The Moretele pipeline will supply the clear water produced at the works to the Steve Bikoville reservoir. This termination point will be finalized between MW and CoT, however for the purposes of this concept design, it will be assumed that the termination point for the pipeline will be the boundary of the Babelegi reservoir complex.

According to the report while plans are in motion, for concept designs to proceed to final designs and construction drawings, the following have to be completed:

* + Detailed geotechnical foundation study for the weir
  + Environmental investigations (EIA) for Steve Bikoville pipeline
  + Clarification of potential conflicting issues between the existing EIA and current Scope of work.
  + Clarification on the issues surrounding the Steve Bikoville / Moretele / Babelegi reservoir

Upon observation of the planning towards the proposed construction, upgrade and extension of the Klipdrift Water Treatment Works it is evident that Royal HaskoningDHV and LTE Consulting are well equipped to execute the project. However, there are pertinent issues identified in the report that need to be attended to.

While feasibility studied have been conducted for parts of the work the project has yet to meet requirements of the EIA. This is vital as conflicting issues exist with the scope of the work. Some of the works are dependent on the outcome of the assessments which are yet to be conducted.

Additional information and studies are required for pipeline works to proceed from concept design to final designs and construction drawings stage. These include a detailed geotechnical foundation study for the weir, an EIA for the Moretele pipeline; the clarification of conflicting issue between the existing EIA and scope of work and the clarification on the termination reservoir.

The report has indicated that the first order cost of construction (excluding cost allowance for professional fees, specialist studies, additional duties and taxes) is currently estimated to be R 40 500 000. 00.

Based on outstanding processes, designs will most likely be refined and construction drawings and documentation will be prepared.