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GOVERNMENT NOTICE

DEPARTMENT OF WATER AFFAIRS

No. 705 **10 August 2010**

INVITATION TO SUBMIT WRITTEN COMMENTS IN TERMS OF SECTION 110 OF THE NATIONAL WATER ACT 1998 (ACT 36 OF 1998) ON THE PROPOSED RAISING OF THE HAZELMERE DAM AND THE ENVIRONMENTAL IMPACT ASSESMENT RELATING THERETO

The Minister of Water and Environmental Affairs intends constructing the government water works as contained in the Schedule hereto.

In terms of section 110(1)(b)(iii) interested parties are invited to submit written comments on the proposed water works and the environmental impact assessment by 27 September 2010. Comments must be submitted to the Director-General, Department of Water Affairs, Private Bag X313, Pretoria; Fax; 012 336-7399 and marked for attention of Mr. JA Bester, Acting Chief Engineer Options Analysis (East).

SCHEDULE TO THE PROPOSED RAISING OF THE HAZELMERE DAM AS A GOVERNMENT WATER WORKS AND A SUMMARY OF THE ENVIROMENTAL IMPACT ASSESMENT

A. PROPOSED CONSTRUCTION OF THE SCHEME

PURPOSE

The raising of the Hazelmere Dam will increase the water available for supply to the North Coast Region of Kwa-Zulu Natal by some 10 million m^3/a. The supply area of the Hazelmere Dam extends from KwaDukuza (Stanger) in the north, Groutville, Blythedale, Balito and Verulam to the south. The system's water is mainly used for domestic, industrial and agricultural purposes, the latter mainly for the irrigation of sugar cane farming. The dam basin lies in a peri-rural area directly impacting the communities of Verulam and Tongaat. Umgeni Water is responsible for bulk water supply to the users. The added yield will be used to meet the increase in domestic and industrial demand. A locality map of the scheme is attached.

HAZELMERE DAM RAISING

The Hazelmere Dam is situated on the Mdloti River, north of Durban, about 5 km north of the town of Verulam. The dam was built in 1977 to supplement water supply to the rapidly increasing urban and industrial users at the time. The capacity of the dam in 1975 was 23.9 million m^3. The original design of the dam made provision for a second phase which would include the installation of seven radial gates to increase the capacity of the dam, should the need arise. Due to the high rate of sediment deposition, the capacity of the dam rapidly reduced and was estimated at 13.7 million m^3 in 2007, i.e. 57.2% of its original storage. The present yield is insufficient to meet the growing demands of supply in the North Coast region. The second phase of construction has thus become necessary.

Technical details of the dam and its proposed raising are summarised in the table below:

Description	Unit	Current Dam	Raised Dam
Details of structure			
Non-overspill crest of dam (NOC)	m.a.s.l.	94.00	94.00
Full supply level (FSL)	m.a.s.l.	85.98	93.00
Crest length (NOC)	m	463	
Net spillway length	m	91	
Height above original river bed	m	44	
Spillway capacity without over topping	m^3/s	4324	
River bed level at dam	m.a.s.l.	50	
Storage			
Gross Storage in 1975 (Original survey)	million m^3	23.9	43.7
Gross Storage in 1993 (From survey)	million m^3	17.9	36.1
Projected gross storage available to Umgeni Water in 2015	million m^3	10.5	28.2

* The above detail is subject to final design which may require minor changes.

The Hazelmere Dam is a curved concrete gravity dam with a radius of 725m. The maximum wall height of the dam is 44m and the crest length is 463m. The dam wall comprises an ogee crest spillway fitted with splitters and has seven bays each 13m long which is separated by 2m wide piers.

The intake tower consists of an exterior emergency slab gate and a dual diameter 750mm diameter outlet pipes. From the intake tower the abstraction pipes follow a route through a special gallery to exit the dam on the right bank where they link up with the pipeline to the Umgeni Water's Hazelmere Water Treatment Works.

Separate outlet facilities exist to the river and to supply the Umgeni Water Treatment works at Canelands. The outlets consist of 2 x 1500mm diameter pipes at an invert of 61 m.a.s.l. Discharge is controlled from the downstream end by a jet flow gate of 1300 x 1500mm dimensions and a sleeve valve 305mm in diameter.

The dam was designed and constructed for future raising of 7m through the installation of radial gates on the spillway crest. Several methods and configurations for raising the dam were investigated. DWAF Hazelmere Dam Raising Feasibility Study (2001) recommended that raising should take place by installing radial gates.

Seven 13m x 5m radial gates will be installed on the spillway crest. Radial gates will be operated electrically by an automated computerised system that would open individual gates in sequences as incoming floods raise the reservoir level. The flows will be released to keep the FSL at 93 m.a.s.l.

The outlet capacities were re-calculated for the raised dam.

B. SUMMARY OF THE ENVIRONMENTAL IMPACT ASSESMENT (EIA) (For more information please see full EIA on the website http://www.hazelmeredameia.co.za/)

Terrestrial mammals may lose habitat mainly in Msinsi Holdings Recreational Facility. Due to the reduced area available for grazing, Impala, Zebra and Blue Wildebeest would be affected. The Resource Management Plan (RMP) will address this issue.

The Oakford Priory, the Cottonlands Farm and Msinsi Holdings were directly impacted and affected by the development of the dam. The acquisition of land will be done according to best practises in accordance with standing legislation.

Some wetlands will be inundated. There will be a total loss of 8 hectares of wetlands. New wetlands will redevelop in the headwaters of the new impoundment. Human intrusion into the new wetland will be minimised to facilitate development. Once new wetlands are established, DWA will map the area to provide baseline information for development of Environmental Management Plans (EMPs) for future sand mining operations.

Eels are able to cross the existing walls in low numbers. With the raised wall it is almost certain that they will be unable to cross unless special provision is made to facilitate upstream migration. An eelway will be constructed to prevent impacts on eel migration.

The Department of Minerals and Energy (DME) must be notified of the potential future inundation of sand deposits in the Hazelmere Dam basin. This may be an important consideration in the drafting of new permits for sand mining in the area. Mining should, however, continue unhindered as long as possible.

The potential loss of recreational facilities is serious but, as these were developed on state land in the knowledge that future flooding would occur when the dam was raised, there would be no cause for compensation. The remaining land is too small to re-establish the facilities in the same area.

As a result of foundation erosion, the road bridge is potentially unstable. Although raising the dam would reduce the risk of further erosion it would also inundate what is now a potential problem. A report on the potential instability will be produced by DWA.

Hazelmere Dam is small relative to Mean Annual Runoff at the site, thus putting the reservoir capacity at risk due to siltation. Although the raised dam would have an acceptable design life (in excess of 50 years), DWA will request the KZN Department of Agriculture (DAEA) to develop a comprehensive plan to reduce soil erosion in the catchment.

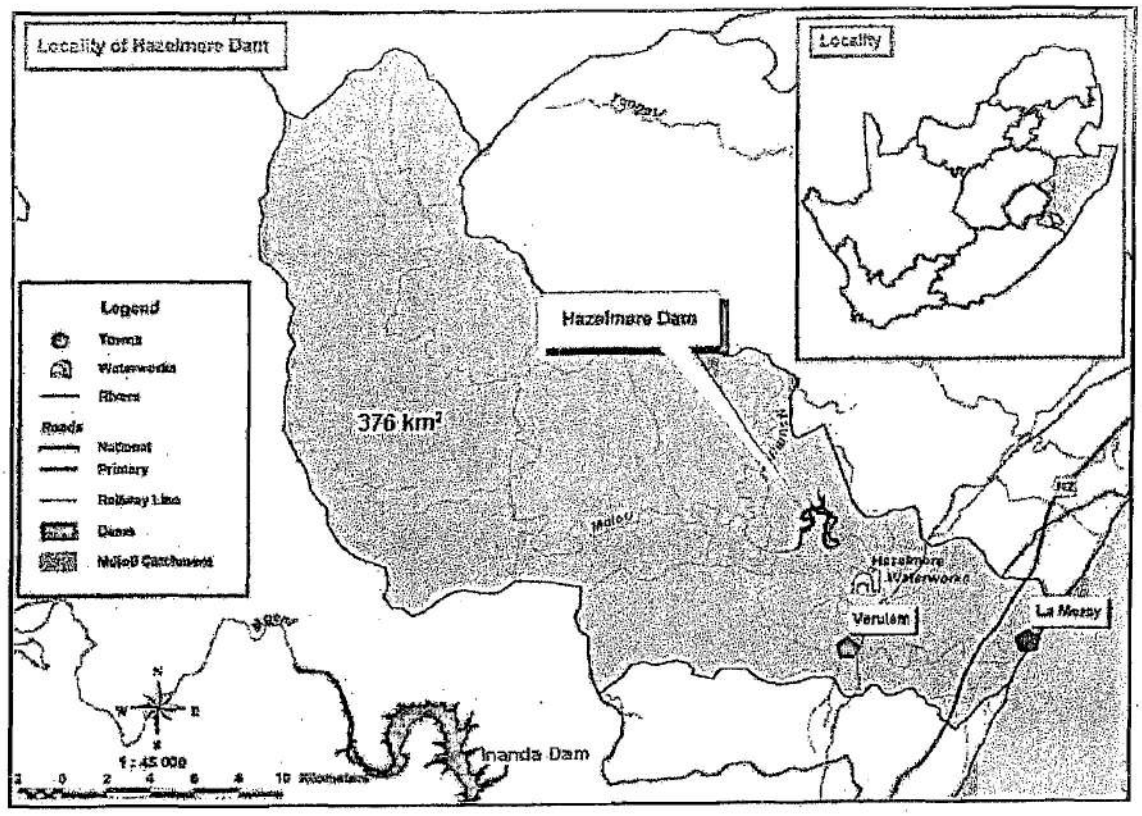
Alien vegetation in the riparian zone of the Mdloti River and its perennial tributaries will be cleared to improve water runoff. The Mdloti river catchment could be promoted as a priority area in the Working for Water Programme.

One archaeological site dating to the Mzonjani Phase of the Early Iron Age was recorded. The site is significant in that it is the first recorded Early Iron Age site along the Mdloti river valley and the pottery decorations may provide important comparisons for inter-site decorations. The site will be cleared of dense vegetation and limited initial excavations will be made to define the extent and importance of the site. After which proposals could be made with regard to possible salvage operations.

The current dam has a well designed and functioning zonation plan allowing for dam functionality, development, recreation and conservation. The plan would have to be reviewed for the raised dam scenario. DWA will develop a detailed RMP, accompanied by a full public participation.

Downstream releases will adhere to the recommendations for downstream ecological flow requirements. The rate of gate opening and closure will be controlled to avoid unnatural sudden changes in the river flow. Periodic audits will be undertaken to check if downstream ecological flow requirements are maintained

detailed EMP must be developed to guide the various activities associated with construction and operation phases of the raised dam. The plan will include details of monitoring requirements and be submitted to Department of Environmental Affairs for approval.


Locality of Hazelmere Dam
Locality
Legend
Towns
Waterworks
Rivers
Roads
National
Primary
Railway Line
Dams
Mvoti Catchment
Hazelmere Dam
376 km²
Mvoti
Hazelmere Waterworks
Verulam
Lot Mezay
Inanda Dam
N
W
E
S
1 : 45 000
Kilometers