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17 March 2025
Our ref: 202503 Outeniqua Game Farm: Proposed Irrigation dam R00

Outeniqua Game Farm
Farm Ruiterbos
Mossel Bay
7506

For attention: Mr Patric Reeves-Moore (via email: patricreevesmoore@gmail.com)

Dear Sir

OUTENIQUA GAME FARM - PROPOSED IRRIGATION DAM

1. BACKGROUND

Outeniqua Game Farm (the applicant) is in the process of expanding agricultural production on neighbouring Farm 373 (RE/373) and Farm 420 (RE/420) near Ruiterbos, which is located just north of Mossel Bay in the Western Cape. The Client intends to construct an instream dam (on the Ruiterbos River on RE/420) to fulfil this need. To determine the yield of the catchment area as well as the required storage capacity of the dam a hydrological assessment was undertaken previously by Confluent Environmental (Pty) Ltd.

2. PROJECT LOCATION

The proposed dam is located on the Ruiterbos River on RE/420 and is intended to store water for agricultural activities. See the proposed position of the dam indicated with a red circle in **Figure 1** below.

Figure 1: Project Location

3. SCOPE OF WORKS

The scope of works for this elementary investigation includes the following:

- Evaluate the suitability of the site from a topographical point of view.
- Model a concept dam required to achieve the proposed 150 000 m³ storage capacity.
- Compile concept drawing of dam.

4. CONCEPT INVESTIGATION

4.1 CONCEPT CRITERIA

For the concept the following criteria and assumptions were used:

- Type – Concrete gravity dam
- Crest width – 2.5 m
- Downstream slope of wall – 3V:4H

a. Freeboard – 2.0 m

4.2 CONCEPT OUTCOME

Using National Geo-Spatial Information (NGI) contours (2 m contours) a concept concrete gravity dam wall was modelled. See **Figure 2** below indicating the capacity curve extracted from this model.

It is important to note that the NGI contours do not account for small-scale natural or artificial storm water channels present, as the resolution of the topographic maps used are too coarse.

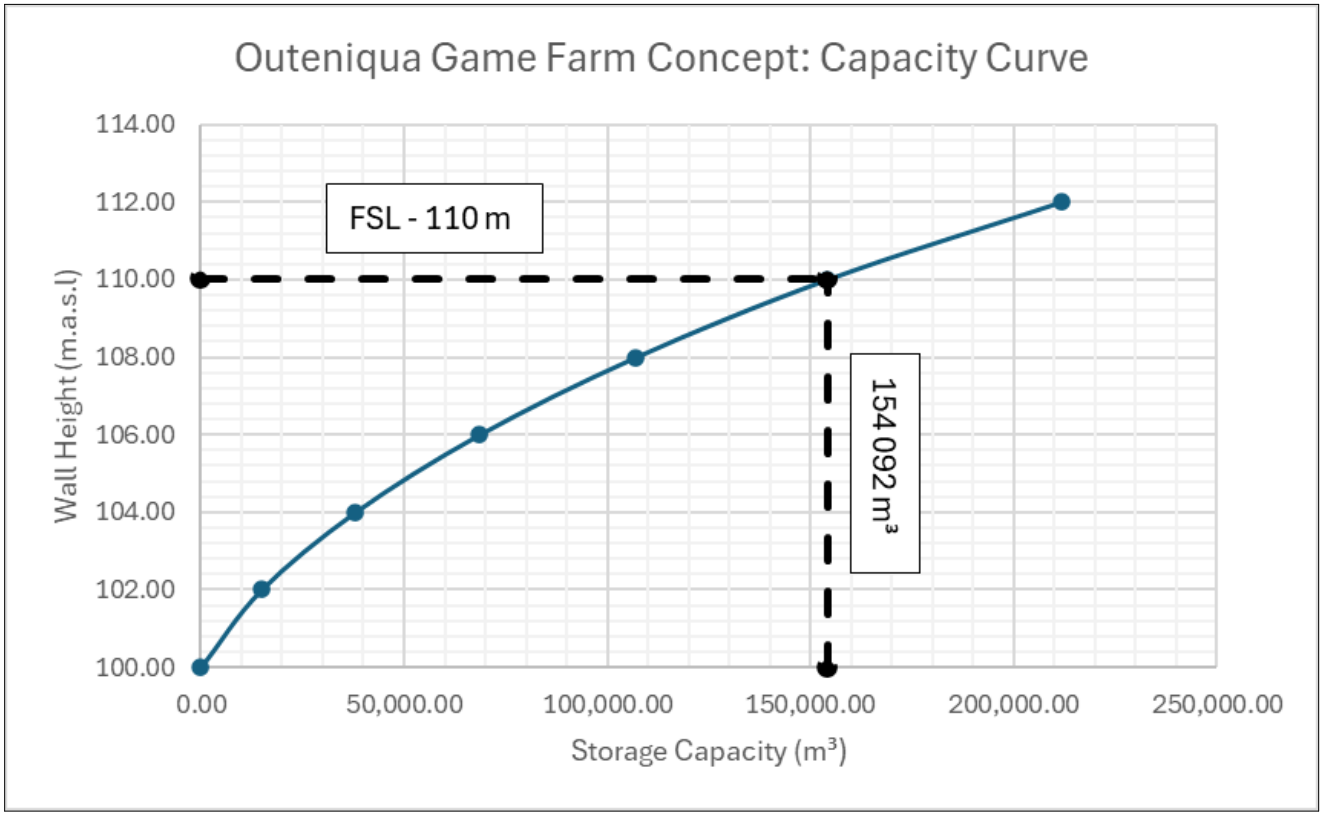

Figure 2: Capacity Curve

The outcome of the concept investigation is the following:

- Full supply level (FSL) – 110 m above sea level
- Dam capacity @ FSL – 154 092 m^3
- Wall height – 12 m
- Estimated wall concrete volume – 8 150 m^3

A quick analysis of the catchment area and mean annual run-off was also conducted and compared to the figures contained in the report *"Hydrological Assessment for a Proposed Instream Dam on the Ruiterbos River, Farm 420, Ruiterbos, Western Cape".* The outcome of the analysis compares well with the figures contained in the report, and it is therefore safe to conclude that the run-off generated from the catchment area should be sufficient to fill the dam.

Find a concept drawing of the proposed concrete gravity dam attached as **Annexure A**.

5. CONCLUSION

From the analysis it seems like the site is favourable for the construction of the proposed irrigation dam. A detailed investigation and design will however be required to confirm all assumptions.

We trust the information provided in this report will be sufficient to assist you in the decision-making process regarding the feasibility of the proposed dam.

Feel free to contact the undersigned should you require any further information.

Yours faithfully

Hagen Brink Consulting Engineers (Pty) Ltd

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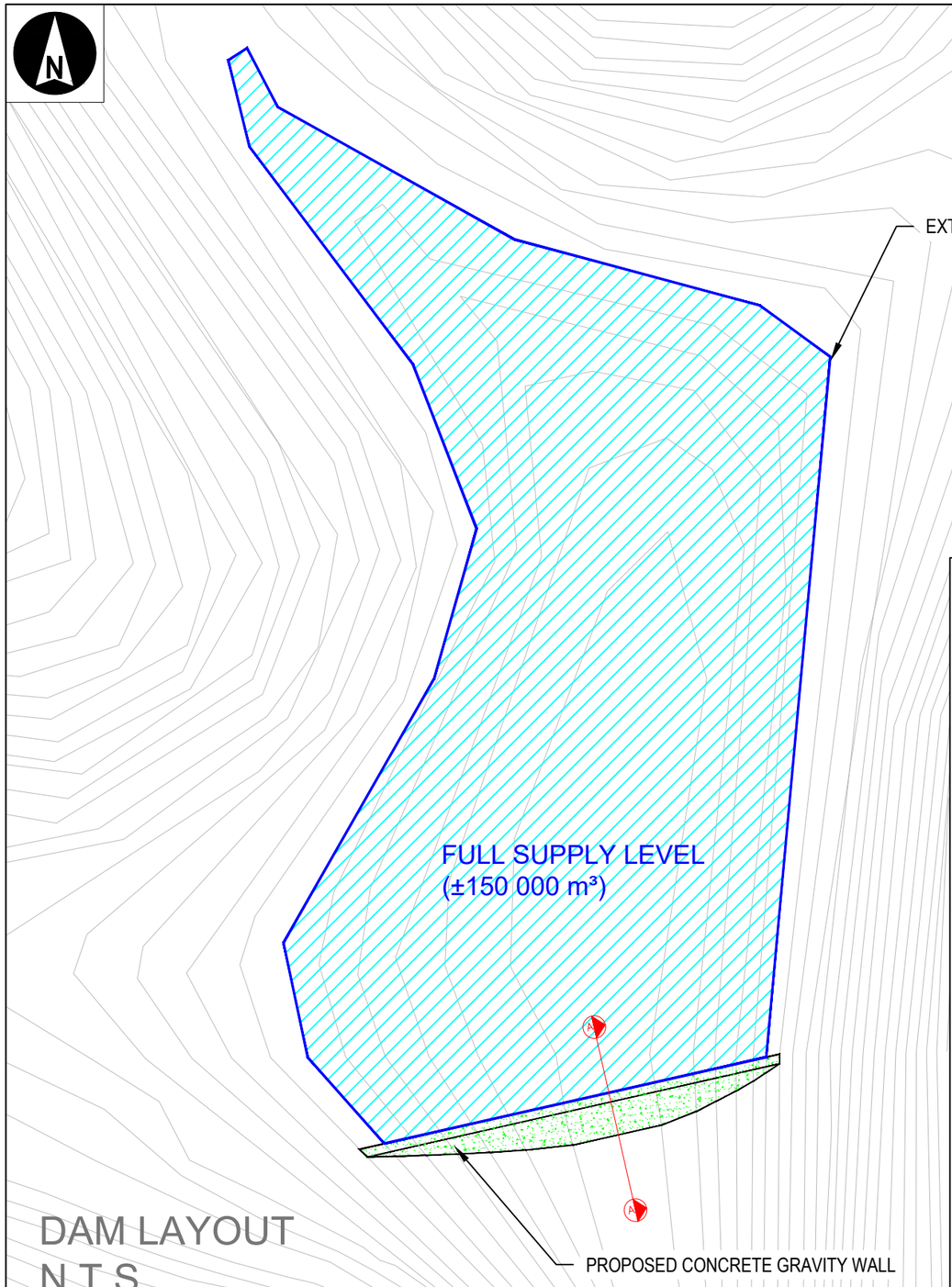
Jan Brink Pr. Eng
Director

6. ANNEXURE A – CONCEPT DRAWING

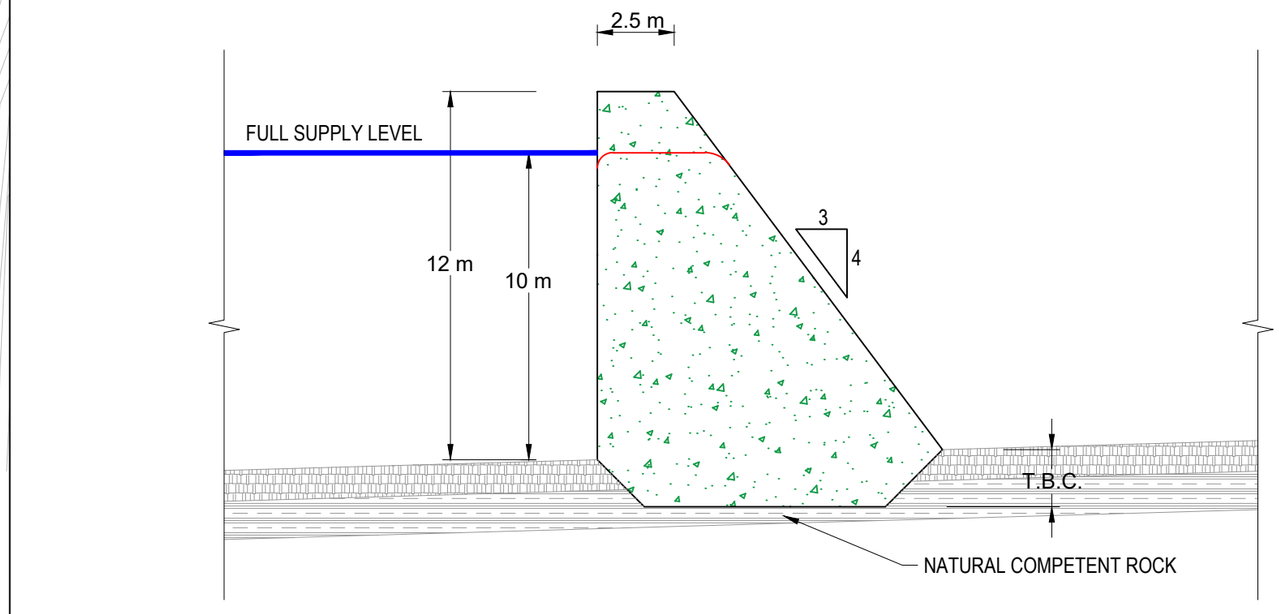
NO DIMENSION OR LEVEL TO BE SCALED OFF THIS DRAWING

ALL DIMENSIONS AND LEVELS TO BE CONFIRMED ON SITE PRIOR TO MANUFACTURING AND CONSTRUCTION

THE POSITION OF ALL EXISTING SERVICES ARE TO BE OBTAINED FROM LOCAL AUTHORITIES AND/OR OWNER. IF UNKNOWN THE EXACT POSITION SHALL BE DETERMINED BY CAREFUL HAND EXCAVATION.



DAM LAYOUT
N.T.S



TYPICAL DAM WALL SECTION (SECTION A - A)
N.T.S

No.	DATE	REVISION DESCRIPTION	CONSULT. ENG.
A	04/04/2025	FOR CONCEPT REPORT	HBCE

CLIENT:

OUTENIQUA GAME FARM

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PROJECT TITLE

OUTENIQUA GAME FARM - PROPOSED IRRIGATION DAM

DRAWING TITLE

CONCEPT LAYOUT AND SECTION

SCALE : AS SHOWN | **DRAWING SIZE : A3**

APPROVED BY:		
20080228		04-04-2025
PR. ENG.	SIGNATURE	DATE

DESIGNED BY:	CHECKED BY:
JEAN DIPPENAAR	JAN BRINK
DRAWN BY: JEAN DIPPENAAR	DATE: 04-04-2025

PROJECT No	DRG No	REV No
202503	202503-01	A