Water Use License Application for a Proposed Instream Dam on the Ruiterbos River, Farm 420 and 373, Ruiterbos, Western Cape.

BACKGROUND INFORMATION DOCUMENT

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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. Increased abstraction and storage of water is necessary for the sustainable irrigation of proposed increased crop areas on the farms. The applicant plans to abstract water (180 000 m^3) from the Ruiterbos River to irrigate crops on Farm 373. The applicant has an existing lawful authorisation to abstract 80 000 m^3 from the river and will apply to abstract an additional 100 000 m^3. In addition, the applicant plans to construct a 150 000m^3 instream dam on the Ruiterbos River to store water for the aforementioned irrigation use. Flow in the river is irregular and non-perennial and the purpose of the dam is to capture a portion of the periodic peak flood flows for agricultural (irrigation and livestock) and domestic use on the farm.

1.1 Study Site

The proposed dam is located on the Ruiterbos River on RE/420 and is intended to store water for agricultural activities on this farm and the neighbouring RE/373 – both of which are owned by the applicant. The Ruiterbos River meets the Palmiet River (which drains quaternary catchment K10C) and together form the Brandwag River (Figure 1).

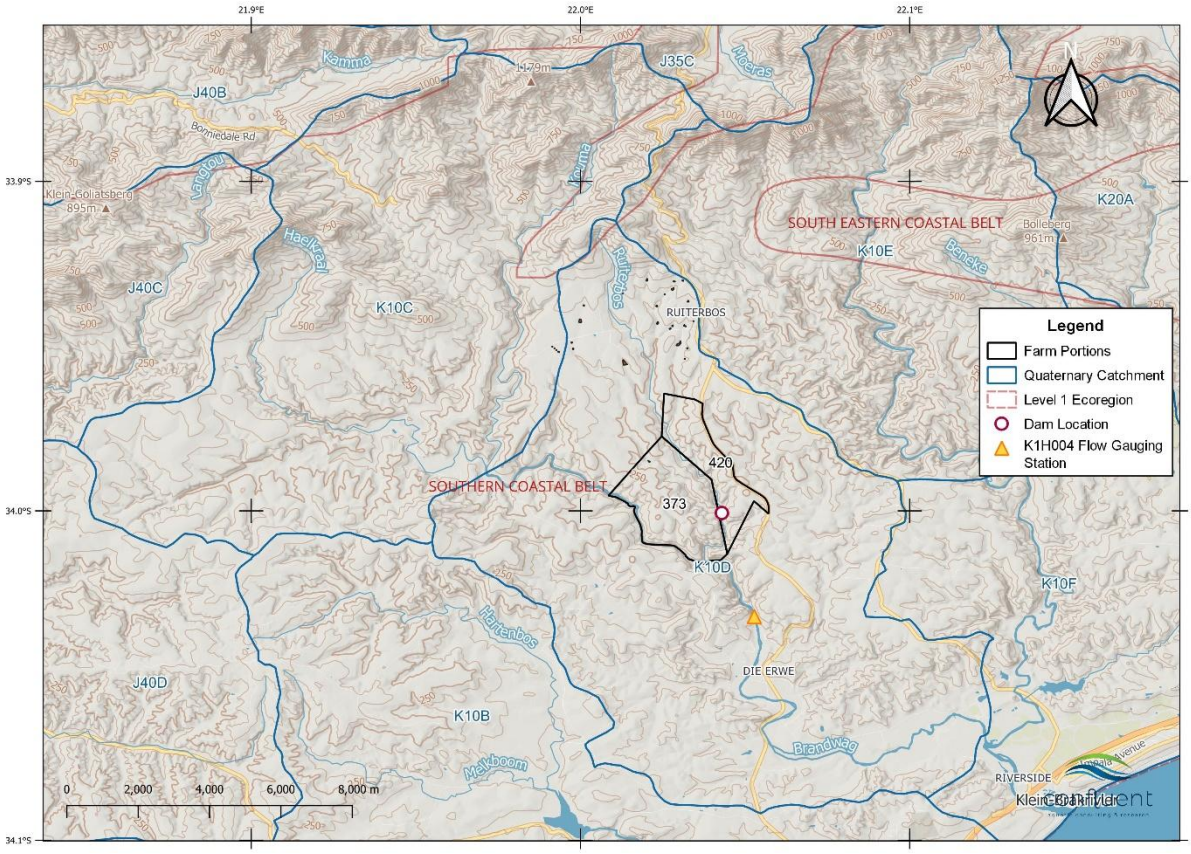

Figure 1: Map indicating the location of RE/373 and RE/420.

A DWS flow gauging station (K1H004) is located further down the Brandwag River, just upstream of an intensive agricultural area. The Brandwag River meets the Moordkuil River at the Klein Brak Estuary. Several, small instream farm dams are located in the upper most reaches of the Ruiterbos River and its catchment, where a mixture of dryland and irrigated

pastures are farmed as well as small areas of macadamia and avocado. The properties fall within the Southern Coastal Belt (Ecoregion Level 1: 22) which is located from 0 to 500 m.a.m.s.l. and is characterized by undulating plains and low hills of moderate relief. Terrain throughout the properties consists of flat to gentle sloping plains at higher altitudes, interspersed with very steep valleys along the Ruiterbos River and its tributaries.

2 FRESHWATER ASSESSMENT

The site visit confirmed that the Ruiterbos River is confined to a well-defined channel with clearly discernible bed and banks (relatively incised in places). From a geomorphological perspective, the entire width of the active channel is dominated by bedrock and sand/gravel substrate (with occasional cobbles/boulders) and is consistent with a predominantly Transitional (Geozone C) to Upper Foothill zonation (or Geozone D). Transitional rivers are typically moderately steep rivers running along a confined valley, dominated by bedrock, with limited floodplain development. Narrow sand and gravel bars were present along lower gradient stretches which are more typical of Upper Foothill rivers. Water levels were very low at the time of the assessment and biotopes were dominated by shallow, slow flowing pools and occasional narrow shallow runs. Occasional narrow stretches of channelled valley bottom wetland habitat were observed along sand banks but were not continuous along the entire length of the river channel. In terms of classification, the river reach is considered to be primarily a river dominated by granite bedrock, with narrow, intermittent patches of channelled valley-bottom wetland habitat where sand banks have formed along gentler gradients.

The river has been impacted by upstream agriculture (abstraction of water and regulation of flows due to instream dams) and dense invasions of *Acacia mearnsii* along the riparian zone. These activities have resulted in modifications to river flows and channel morphology (eroded banks and incised channel). Instream habitat and biotopes (while of a relatively low diversity) are however relatively unaffected and representative of the natural geomorphological zonation of the river. The river reach is not considered important from a fish diversity perspective, and only the extralimital *Tilapia sparmanii* (introduced to the Western Cape) was observed. A survey of macroinvertebrates was conducted applying the South African Scoring System (SASS5). SASS scores are relatively low and are likely a reflection of water quality impacts from agriculture and low instream biotope diversity (dominated by relatively shallow pools in a bedrock and sand substrate).

3 HYDROLOGICAL ASSESSMENT

Findings of the hydrological assessment (Appendix 2) are summarised as follows:

- The mean estimated irrigation requirements for crops that will be irrigated from the dam is approximately 180 000 m^3 per annum, with maximum demand reaching up to 215 000 m^3. Considering an existing water entitlement of 80 000 m^3 from the Ruiterbos River, a Water Use License (WUL) would be required to abstract and additional 100 000 m^3 to 135 000 m^3
- A catchment modelling exercise indicates that the mean annual runoff from the catchment area of the dam is approximately 1.24 Mm^3, which is sufficient to meet the irrigation demands of crops.

- Based on a detailed monthly water balance based on weather data covering a 50-year period, a dam size of 150 000 m^3 is expected to provide at least a 95 % assurance of supply.
- There are no additional users on the Ruiterbos River downstream of the proposed dam. Base flows are however likely to reduce and low to zero flow conditions are expected to increase from 40 % of the time to approximately 60 % of the time. This reduction of flow is likely to have a significant impact of aquatic biota in the river.
- According to the WRSM model output, the Ruiterbos River (upstream of the dam) contributes approximately 1.24 Mm^3 (or 9.5 %) of the total mean annual flow volumes measured at K1H004. Based on the 50-year simulation assuming a 150 000 m^3 dam and abstraction for meeting irrigation requirements, mean annual flow simulated at K1H004 would reduce from 11.08 Mm^3 to 10.87 Mm^3 (or 2 %).

4 WATER USES

Based on the project layout and proposed plans, the following water uses have been identified and will form the subject of the WULA:

- Section 21 (a): Abstraction of water from the Ruiterbos River.
- Section 21 (b): Storage of water in an instream dam on the Ruiterbos River
- Section 21 (c): Impeding or diverting the flow of water in a watercourse.
- Section 21 (i): Altering the bed, banks, course or characteristics of a watercourse.

5 REPORTS AND OTHER TECHNICAL DOCUMENTS

Table 1: Additional technical reports & documents submitted

Technical documents	Compiled by	Date compiled
Appendix 1 – Freshwater Assessment Report	Confluent Environmental	February 2025
Appendix 2 – Hydrology Report	Confluent Environmental	February 2025