

Annexure A:
Water Use Licence Application
Summary Report



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ENVIRONMENTAL CONSULTANTS



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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WATER USE LICENCE APPLICATION SUMMARY

NAME OF APPLICANT:

BODHI HOLDINGS PTY LTD

Compiled by:
HD LYONS

Signature:

Date : 17/09/2024

1. Applicant details

The applicant is Bohdi Holdings (Pty) Ltd which currently owns the properties related to this application. Bohdi Holdings (Pty) Ltd is represented by [REDACTED]

Applicant	BODHI HOLDINGS PTY LTD
Representative	[REDACTED]
Street Address	[REDACTED]
Postal Address	[REDACTED]
Contact Number (Office)	[REDACTED]
Alternative Contact details	[REDACTED]
E-mail	[REDACTED]

2. Person submitting application

HD Lyons of HDL Consulting

3. Background and purpose

Bohdi Holdings (Pty) Ltd, herein referred to as "the applicant", represented by [REDACTED] sa, own and farm two (2) properties in the sandveld close to the town of Redelinghuys in the Western Cape Province.

Upon acquiring the property in 2017, the applicant transitioned the land use to establish olive and citrus orchards, predominantly on historically cleared areas north of the R366 Provincial Road. The existing water use consists of water taken from groundwater and surface water. The surface water abstraction takes place by means of a pump station on the Verlorenvlei River. This pump station is placed slightly away from the main channel of the river and abstracts from an excavated sump area.

The cultivation of olives and citrus requires a constant supply of irrigation water, and a storage dam will increase the surety of water supply for irrigation. To increase the water surety, it is proposed to repair the Koopmanskraal Dam located on Remaining Extent of Farm Krommeriviers Valley 14, Piketberg.

The dam was constructed in 1986 to store catchment water but failed due to the concrete encasement and outlet pipe failure which resulted in soil saturation and slope instability and caused a portion of the embankment at the outlet pipe section to collapse.

The repaired Koopmanskraal Dam will primarily serve as a buffer reservoir for summer irrigation activities, particularly during periods of low flow in the Verlorenvlei River. Water for filling the in-stream dam will be drawn both from the catchment and from the Verlorenvlei River through existing pumping infrastructure, falling under the classification of Existing Lawful Use.

The properties related to the application are located approximately 11 km southeast of the town of Redelinghuys, within the Bergrivier Local Municipality and the broader West Coast District Municipality's area of jurisdiction.

The study area falls within the G30D quaternary catchment area in the Breede Olifants WMA.



Figure 1: The two properties related to application



Figure 2: Study area in relation to nearest town and quaternary catchment area

The application is done to repair the Koopmanskraal Dam to bolster water security, crucial for sustaining irrigation needs during the growing season. The water used to fill the dam is considered Existing Lawful Use.

4. Location of water uses

The properties fall under the jurisdiction of Bergrivier Local Municipality and is situated 11 km southeast of Redelinghuys within the Western Cape Province.

The properties related to this water use licence application are located in the West Coast magisterial district and the water use will take place on Remaining Extent of Farm Krommeriviers Valley 14, Piketberg and Portion 5 of Farm Krommeriviers Valley 14, Piketberg.

Table 1: Property details of Bohdi Holdings (Pty) Ltd

Property Owner	Property	District	Extent (ha)	Title Deed
Bohdi Holdings (Pty) Ltd	Remaining Extent of Farm Krommeriviers Valley 14	Piketberg	2141.2753	
Bohdi Holdings (Pty) Ltd	Portion 5 of Farm Krommeriviers Valley 14	Piketberg	2141.2740	

The project falls within the Breede Olifants WMA and falls within the G30D quaternary catchment.

5. Administrative documents and technical reports submitted by applicants

5.1 Administrative documents

5.1.1 The following administrative documents are submitted in support of application:

- i. Proof of Water Use Licence Application Fee
- ii. Section 27 Motivation
- iii. Copy of ID
- iv. Company Registration Certificate
- v. Title Deed Information
- vi. Proxy to Act on behalf of Applicant

5.2 Reports and other technical documents

5.2.1 The following technical documents are submitted in support of application:

Date	Name of Report	Compiled By	
		Company	Author
February 2024	Freshwater Assessment Report	Confluent	JM Dabrowski
27 January 2020	Letter Report for the Proposed Repair of Koopmanskraal Dam	Ingerop South Africa	DJ Hagen
27 January 2020	Repair of Koopmanskraal Dam, Redelinghuys Proposed Method Statement	Ingerop South Africa	DJ Hagen

24 June 2020	Freshwater Impact Assessment Report for the Proposed Repair of Koopmanskraal Dam, near Redelinghuys in the Western Cape	BlueScience	T Belcher
September 2024	WULA Summary Report	HDL Consulting	HD Lyons

6. Project Description

This project involves the repair of the Koopmanskraal Dam, originally built in 1986 to store catchment water. However, the dam suffered failure due to the deterioration of its concrete encasement and a 250 mm asbestos outlet pipe. This failure led to soil saturation, slope instability, and the collapse of a section of the embankment near the outlet pipe.

In 2004 classification for the Koopmanskraal Dam was done by van Breda & Associates (Ref No 12/2/Koopmanskraal). The dam was classified as a Small Dam with Significant Hazard Potential Rating, Category II Dam (Ref No 12/2/G301/39).

The repair of the Koopmanskraal Dam aims to return it to its original design as a 9.4 m high zoned earth-fill dam with a storage capacity of approximately 92 500 m³. Situated at the end of the left flank, the dam features an open channel spillway, which will remain unchanged.

The repair process involves infilling the breached section using materials sourced from the basin and on-site stockpiles, primarily washed materials. Additionally, the entire dam wall requires crest infilling, with a maximum elevation increase of 0.9 meters to accommodate the Standard Event Flood.

Proposed works for Phase 1 include:

- Demolition of the existing broken outlet pipe and installation of a new 250 mm diameter concrete encased HDPE outlet pipe equipped with a sieve inlet and downstream control valves.
- Repair of the embankment breach by backfilling with appropriate zones, including the establishment of a new impermeable core trench foundation.
- Embankment crest infilling to elevate the freeboard from 0.7 m to 1.6 m.
- Placement of riprap (composed of demolished concrete and rock from the dam basin) between 1 m above and 2 m below the Full Supply Level (FSL) on the upstream face.
- Installation of depth markers on the upstream face, settlement beacons on the embankment crest, and warning signs on the embankment crest.

Phase 2, to be executed, if necessary, involves:

- Construction of a new core trench in the upstream toe of the dam, integrated with the existing core zone within the embankment.

Several other waters used in terms of Section 21(c) & (i) of the NWA, 1998 will be included in this application. These water uses are listed below.

7. Methods statement (only for c and i activity) and mining method/ industrial process

7.1 Koopmanskraal Dam

A method statement was prepared for the repair of the Koopmanskraal Dam by Ingerop. The repair of the Koopmanskraal Dam will include the following:

Phase 1:

- Demolition of the existing broken outlet pipe and installation of a new 250 mm diameter concrete encased HDPE outlet pipe with sieve inlet and control valves on the downstream end.
- Repaired of the existing embankment breach by backfilling with appropriate zones, including a new core trench to an impermeable foundation.
- Embankment crest infilling to increase the freeboard from 0.7 m to 1.6 m.
- Placing rip-rap (demolished concrete and rock from dam basin) between 1 m above and 2 m below FSL on the upstream face.
- Depth markers on the upstream face, settlement beacons on the embankment crest and warning signs on the embankment crest.

Phase 2 (if required):

- Construction of a new core trench in the upstream toe of the dam tied into the existing core zone within the embankment.

7.2 Freshwater Recommendations

In terms of the Freshwater Impacts the following set of guiding principles for the maintenance work in water courses that are of relevance to this site:

- Repairs and maintenance should be undertaken within the dry season, except for emergency maintenance works.
- Where at all possible, existing access routes should be used. In cases where none exist, a route should be created through the most degraded areas avoiding sensitive/indigenous vegetation areas.
- Responsible management of pollutants through ensuring handling and storage of any pollutants is away from the watercourse. When machinery is involved, ensure effective operation with no leaking parts and refuel outside of the riparian area, at a safe distance from the watercourse to manage any accidental spillages and pose no threat of pollution.
- In circumstances which require the removal of any topsoil, this must be sufficiently restored through sustainable measures and practices.
- Concerted effort must be made to actively rehabilitate repaired or reshaped banks with indigenous local vegetation.
- No deepening of the watercourse beyond the original, pre-damage determined thalweg, unless such deepening is directly related to the natural improved functioning and condition of such a watercourse.
- Where at all possible, limit the disturbance to the zone of the thalweg. This is due to the ecological importance of the low flow channel and respective habitat being allowed to re-establish improving the ecological condition.

- The build-up of debris/sediment removed from a maintenance site may:
 - be utilised for the purpose of in-filling or other related maintenance actions related to managing erosion, which form part of an adopted MMP.
 - not be used to enlarge the height, width or any extent of existing berms.
 - not be deposited anywhere within the watercourse or anywhere along the banks of a river where such action is not part of the proposed maintenance activity (ies). Material that cannot be used for maintenance purposes must be removed out of the riparian area to a suitable stockpile location or disposal site. Further action and consideration may be required where the possibility of contaminated material may occur.
- The use of foreign material, such as concrete, rubble, woody debris and/or dry land-based soil, is strictly prohibited from being used in maintenance actions, unless for the specific purpose of repairs to existing infrastructure, coupled with appropriate mitigation measures.
- On completion of the maintenance action, the condition of the site in terms of relative topography should be similar to the pre-damaged state (i.e. the shape of the riverbank should be similar or in a state which is improved to manage future damage). This ultimately dictates that the channel, banks and bed cannot be made narrower, higher or deepened respectively.

8. Stormwater Management Plan

The Contractor shall design, construct and maintain all drains, pumps and other temporary works necessary for the dewatering and flood protection of the permanent works, stockpiles, borrow areas and haul roads. All methods of dewatering and stormwater protection shall be to the approval of the Engineer.

9. Rehabilitation Plan

Rehabilitation of watercourses:

Orchards and road must be removed/decommissioned from the former delineated area of the watercourse and a 15 m buffer must be established either side of the delineated edge of the watercourse. No vegetation, soil or rocks must be pushed into the watercourse during clearing of the buffer area.

No road or orchards must be present in the buffer.

Vegetation in the buffer area must be allowed to re-establish passively over time with indigenous vegetation and must be routinely monitored for alien invasive plant species. A botanist must be appointed to undertake an annual assessment of the buffer areas to determine the success of revegetation and whether any additional active revegetation must take place. This assessment must ideally be undertaken during October and must include an assessment of alien invasive species present and recommended methods for control. Active planting of the buffer can also take place using species indigenous to the area/vegetation type.

- Alien invasive plant species must be routinely controlled as per the recommendations of the botanist.
- The active channel of the watercourse must be allowed to re-establish passively along its former alignment ensuring continued hydrological connectivity with the Verlorenvlei River in the short to medium term.

10. Water Uses applied for

Table 2: Water uses applied for

Water Use	Property	Activity	Capacity (m ³)	Latitude	Longitude
21(b)	Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	Koopmanskraal Dam	92 500	32°31'26.49"S	18°38'35.96"E
21(c) &(i)	Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	Diversion of stream and construction Koopmanskraal Dam D1	N/A	32°31'20.91"S	18°38'34.31"E
21(c) &(i)	Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	Establishment of roads and orchards D2	N/A	32°31'29.05"S	18°38'35.44"E
21(c) &(i)	Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	Removal stockpile from stream	N/A	32°31'37.32"S	18°38'31.06"E
21(c) &(i)	Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	Establishment of roads and orchards D3	N/A	32°31'42.71"S	18°38'52.70"E
21(c) &(i)	Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	Establishment of roads and orchards D4	N/A	32°31'44.88"S	18°39'3.39"E

11. Impacts and mitigation measures



Figure 3: Impacts on streams to be mitigated

The potential impacts and mitigation measures that are expected from the proposed activities are presented below:

Table 3: Summary of impacts and mitigation measures

Water Use activity	Possible causes of the impacts of the activities Impacts to the water resources	Possible Impacts to the water resource and other water users	Mitigation Measures
Section 21(b)	Repair of Koopmanskraal Dam that will also require a new diversion structure to divert water into dam.	On-site verification shows Stream D1 that will be diverted into Koopmanskraal Dam will provide a MAR of 63 000m ³ /a. This water use was confirmed as ELU, and it will not necessarily impact on any water resource or any other person's water use.	The water use is regarded as ELU. The repaired Koopmanskraal Dam is to be filled largely from its catchment and from an existing pump station on the Verlorevlei River. No environmental water requirements were considered. A method statement was provided in terms of the repair of the dam, and it was included in the RMMP that was authorised.
Section 21(c & i)	Diversion of Stream D1 into Koopmanskraal Dam	The Freshwater Assessment by Blue Science dated June 2020 was prepared as part of RMMP that was authorised. The loss of aquatic habitat along the watercourse at and downstream of the dam will not easily be mitigated, given that the storage and taking of water is regarded as ELU.	Implementation of mitigation measures proposed in Freshwater Report to ensure mitigation measures are followed. The Freshwater Report by Confluence dated February 2024 confirmed that the drainage line D1 had historically been diverted into the Koopmanskraal Dam, upstream of the newly established orchards. No rehabilitation of the drainage line downstream of this diversion point is therefore required.
Section 21(c & i)	Impact on stream D2 and road crossing	There is no natural buffer. A road that had previously crossed the lower extent of the watercourse was slightly re-aligned and some small stockpiles of soil remain in the lower extent of the watercourse. The road is an unprotected low-level dirt crossing and will not impede intermittent flows. A new road connecting orchards was also constructed immediately below the Koopmanskraal Dam wall by filling the watercourse in. Currently the road has no culvert to allow intermittent flows to pass beneath the road.	An appropriately sized culvert must be installed to allow intermittent flows to pass under the road crossing at stream D2. Stockpiled soil and rocks should be removed from the watercourse. A single point of access must be used for vehicles to access the watercourse and remove the stockpiled material. A 15 m buffer must be established along the eastern embankment of the watercourse: - Orchards and road must be removed from the former delineated area of the watercourse and a 15 m buffer must be established either side of the delineated edge of the watercourse. - No road or orchards must be present in the buffer. - Vegetation in the buffer area can be allowed to re-

			establish passively over time with indigenous vegetation and must be routinely monitored for alien invasive plant species. A botanist must be appointed to undertake an annual assessment of the buffer areas to determine the success of revegetation and whether any additional active revegetation must take place. ○ Alien invasive plant species must be controlled using appropriate methods. ○ No vegetation, soil or rocks must be pushed into the watercourse during clearing of the buffer area.
Section 21(c & i)	Impact on stream D3 and road crossing	 Orchards were established either side of stream D3. A new road was also constructed across the watercourse. The road is an unprotected low-level crossing, and no structures impede flow across the road. Intermittent flows can easily cross the road surface without causing any inundation upstream of the road. In general, the watercourse is well buffered from adjacent orchards (20 - >30 m) in the upper well defined channel section of the watercourse. Orchards have been established immediately adjacent to the lower section of the watercourse but do appear to coincide with the extent of historical agricultural fields.	A small section of road and orchard overlaps with the buffer in the lower section of the watercourse. The road was visible in images prior to the establishment of orchards and the orchard area corresponds with an area of historical disturbance. For this reason, no rehabilitation is required along this watercourse. The new road crossing is considered as being acceptable and has been assessed in the impact assessment.
Section 21(c & i)	Impact on stream D4 and road crossing	Orchards either side of stream D4 were established and encroached into the delineated area of the watercourse. Two roads were also constructed to cross the watercourse. Upstream of the upper road the channel of the watercourse is relatively well preserved, showing a distinct channel. Intermittent flows through this channel are currently blocked by the upper road crossing which was constructed by infilling across the channel. There is no culvert that allows water to pass through the road and intermittent flows will be blocked by the road. The lower road crossing is an unprotected low-level dirt crossing which does not impede flow. Downstream of the roads there is a short section of the former watercourse which did not display any clearly discernible	The upper of the two roads crossing on stream D4 should be removed to allow free flow of water – the lower road can be kept for crossing the watercourse. Removal of infill must not result in deepening the channel and must not cut into the banks of the watercourse. The area should frequently be checked to ensure that no erosion is taking place once the road has been removed.

		channel or bed and banks. Further downstream the former extent of the watercourse has been mostly covered by a road and orchards.	
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12. Water demand and water supply

Water demand

The purpose of the repair of the Koopmanskraal Dam is mainly to increase the surety of water to be available during drought conditions and when low rainfall with a lower associated run-off is experienced.

The following existing crops will be irrigated with the water stored that will be supplemented with groundwater taken from existing boreholes.

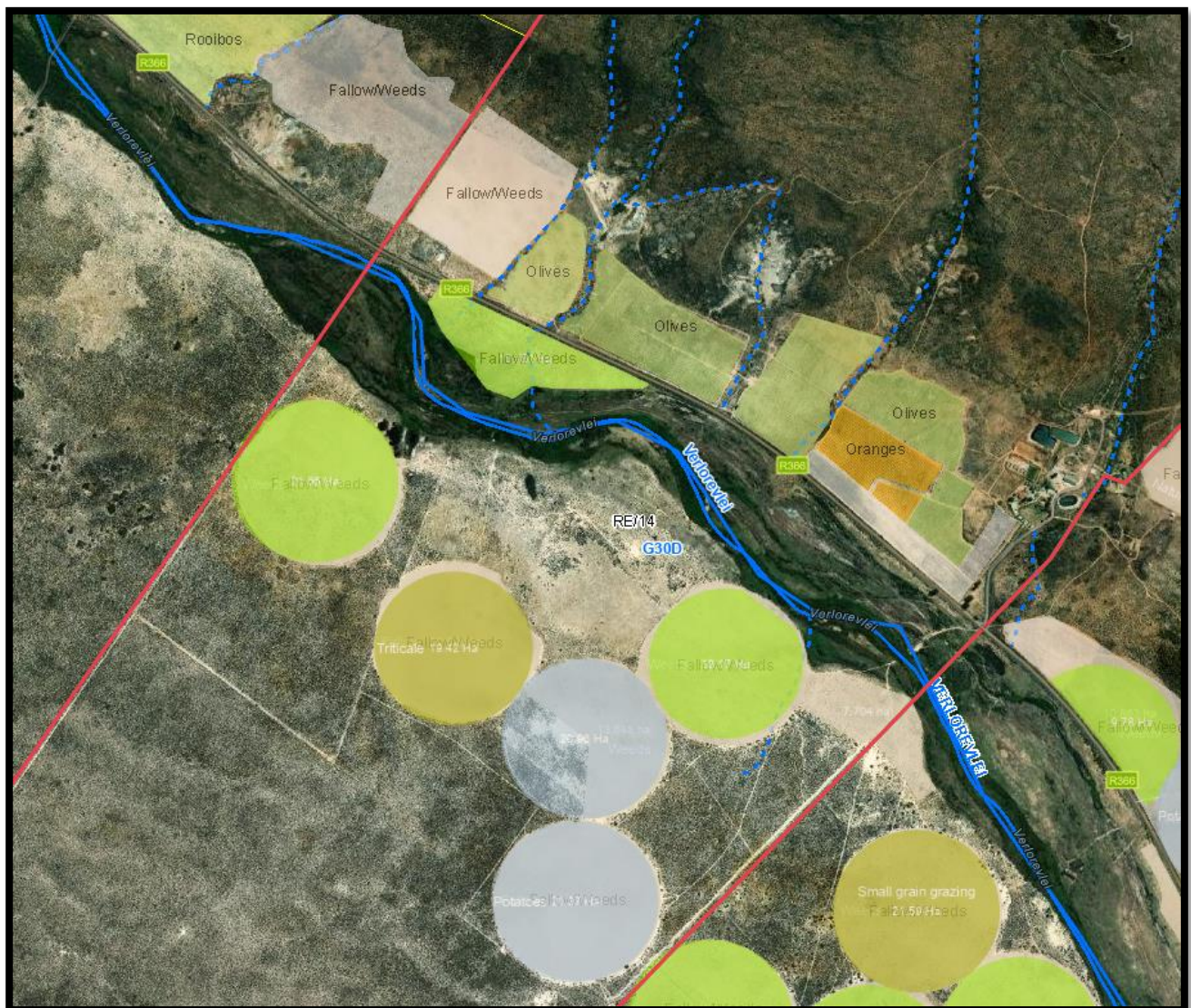


Figure 4: Existing agriculture on Remainder of Krommeriviers Valley 14, Piketberg



Figure 5: Existing agriculture on Portion 5 of Krommeriviers Valley 14, Piketberg

Table 4: Existing water demand Remainder Krommeriviers Valley 14, Piketberg

Crops	Irrigation Area (ha)	Water use Requirement (m ³ /ha/a)	Total Water Use (m ³ /a)
Olive Orchards	32	7 860	251 520
Citrus Orchards	8	10 860	86 880
Potatoes (Rotational crop 1:4)	40	4 990	199 600
Wheat (Rotational crop 1:4)	20	2 830	56 600
	100		594 600

Table 5: Existing water demand Portion 5 of Krommeriviers Valley 14, Piketberg

Crops	Irrigation Area (ha)	Water use Requirement (m ³ /ha/a)	Total Water Use (m ³ /a)
Potatoes (Rotational crop 1:4)	40	4 990	199 600
Wheat (Rotational crop 1:4)	20	2 830	56 600
	60		256 200

Table 6: Summary of total water demand

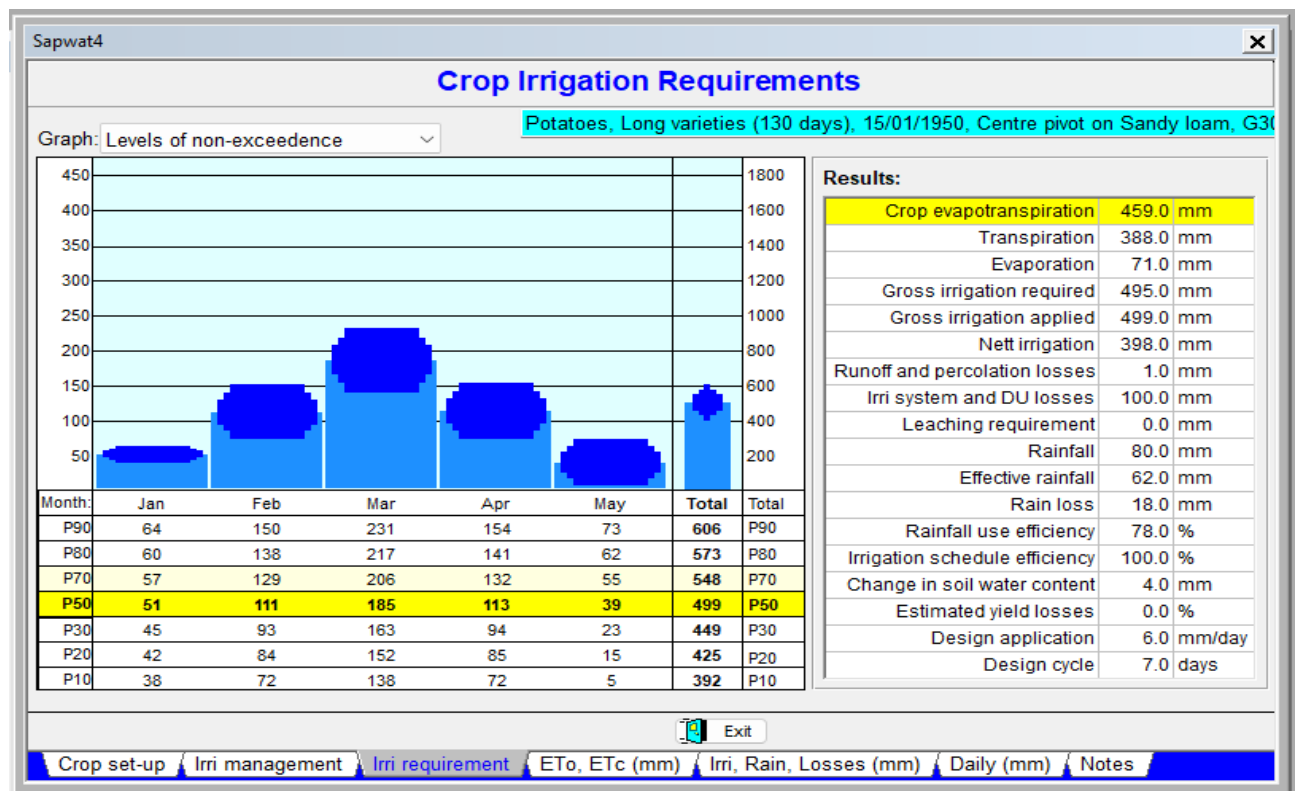
Property	Total combined irrigation area (ha)	Total Water Use (m ³ /a)
Remainder Krommeriviers Valley 14, Piketberg	100	594 600
Portion 5 of Krommeriviers Valley 14, Piketberg	60	256 200
Total	260	850 800

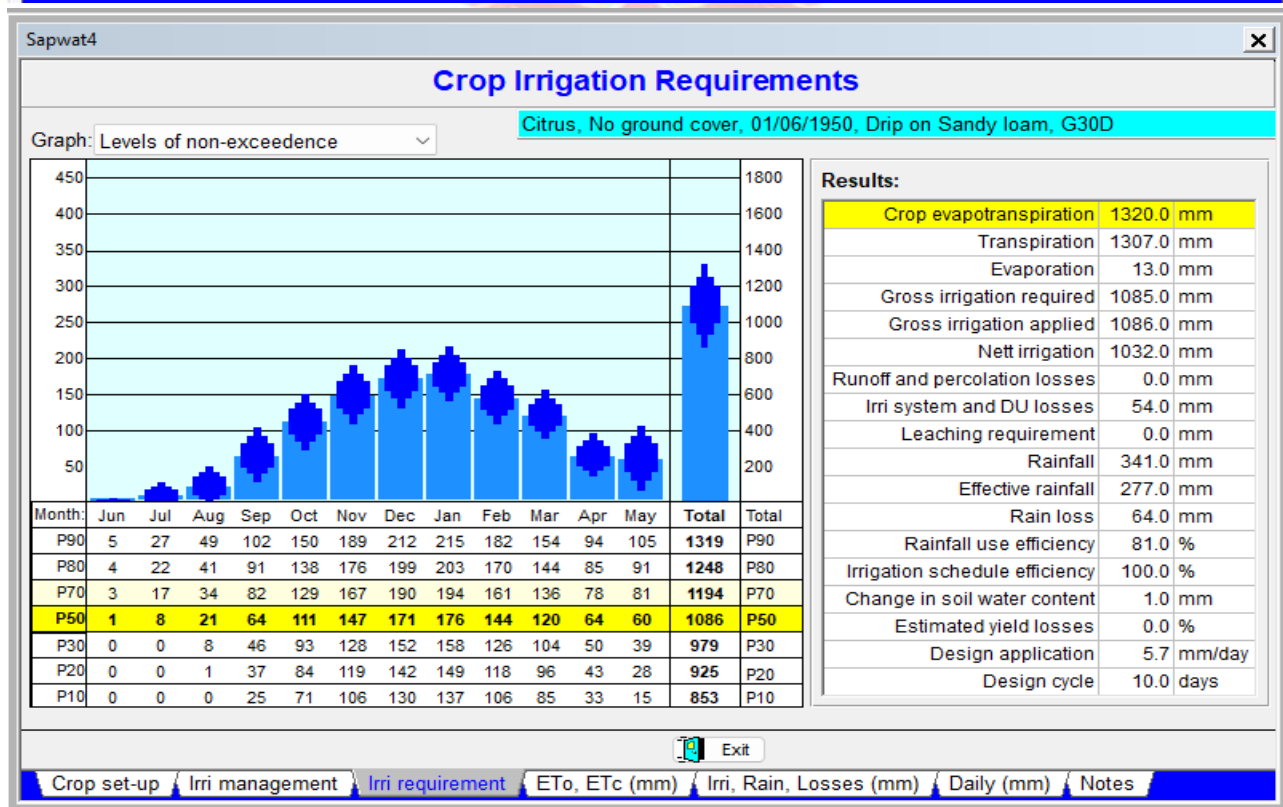
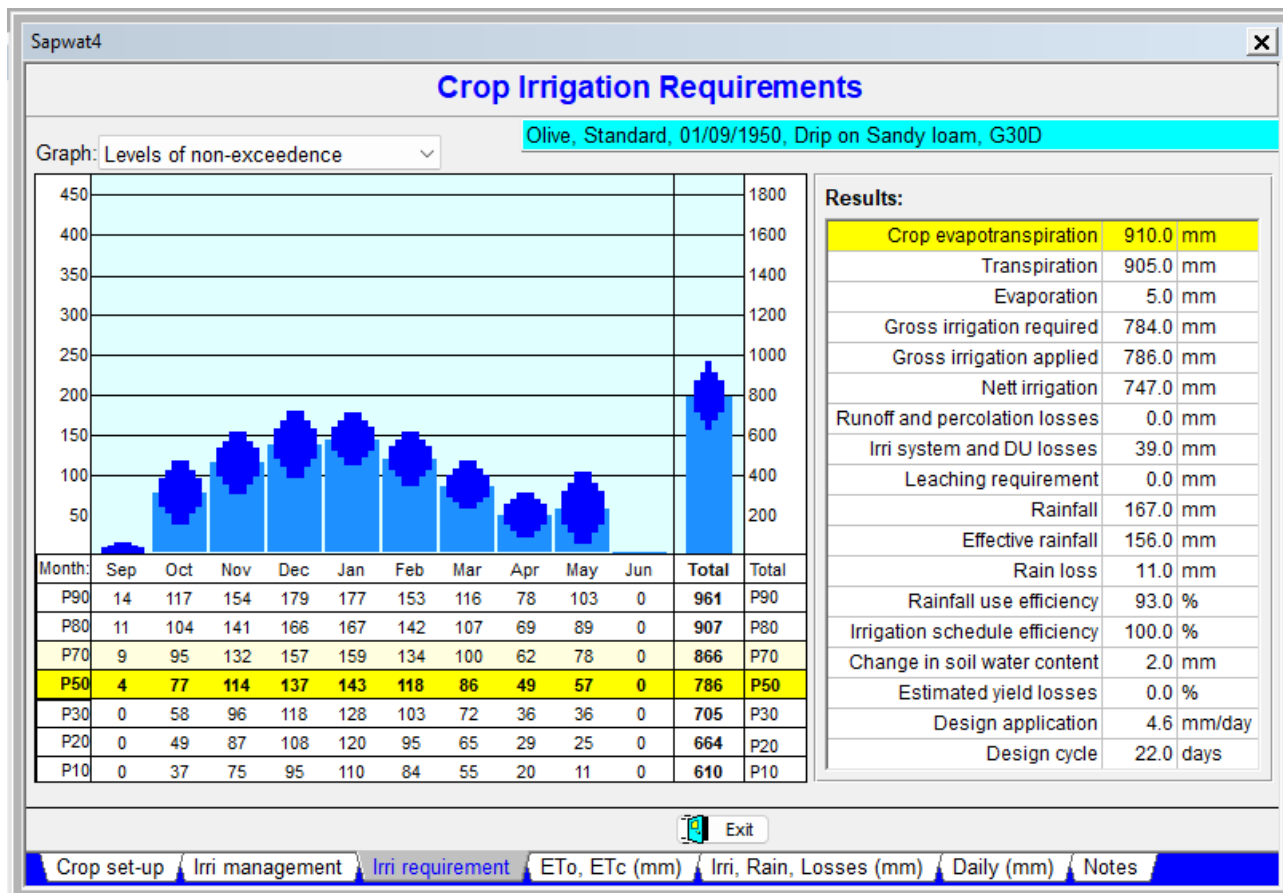
The default crop water requirement for the G30D quaternary catchment was determined as 7 000m³/ha/a during the V&V projects with a recommended crop factor of 7 000m³/ha/a for citrus and 6 700m³/ha/a for potatoes.

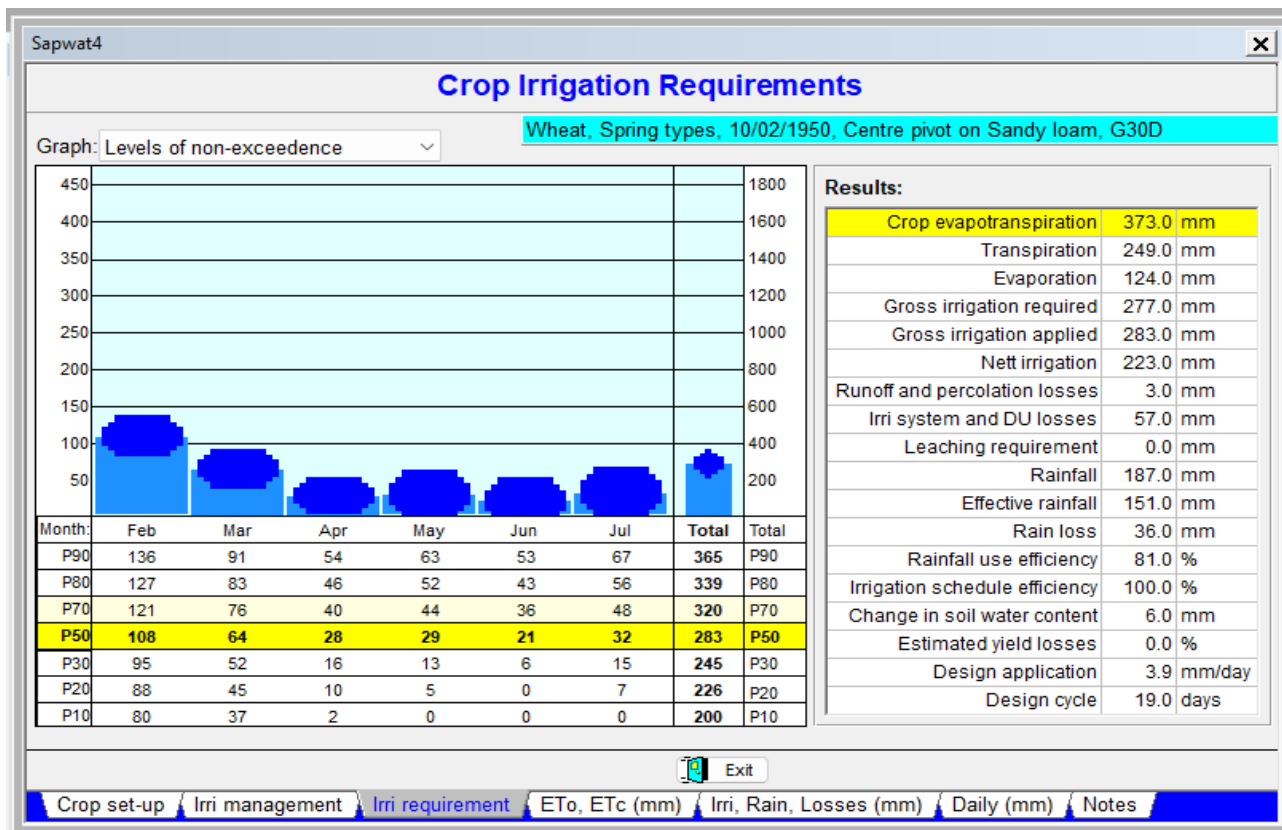
The default crop water requirement was tested against the SAPWAT 4 programme. The outcome was summarised as follows:

Table 7: Summary of crop/water requirements in G30D quaternary catchment area

Crop	Irrigation system	Default crop factor(m ³ /ha/a)	Recommended crop factor(m ³ /ha/a)
Potatoes	Centre pivot	7 000	4 990
Wheat	Centre pivot	N/A	2 830
Citrus	Drip	7 000	10 860
Olives	Drip	N/A	7 860







Water supply

This application is to create water surety in the Koopmanskraal Dam. The increase in the storage of water for irrigation during the summer months will not require the taking of more water. The Koopmanskraal Dam will be filled with the water from the catchment and the Verlorenvlei River that can be regarded as ELU.

The ELU in terms of Section 35 of the NWA, 1998 was not yet finalised, however, the recommended ELU was determined to be:

Table 8: Recommended water use as ELU

Property	Surface Water (m ³ /a)	Groundwater (m ³ /a)	Total (m ³ /a)
Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	189 000	231 000	420 000
Portion 5 of Farm Krommeriviers Valley 14, Piketberg	252 000	168 000	420 000
TOTAL			840 000

This water can be regarded as ELU as it was taken from the Verlorenvlei River and existing boreholes.

Table 9: Water Balance

Months	Water requires (80ha potatoes)	Water require (40ha wheat)	Water require (8ha citrus)	Water require (32ha olives)	Total monthly water demand (m3/a)	Water Supply (m ³ /a)	Deficit to take from dam(m ³ /a)	Surplus to be stored (m ³ /a)
January	40 800	0	14 080	45 760	100 640	33 250	67 390	0
February	88 800	43 200	11 520	37 760	181 280	33 250	148 030	0
March	148 000	25 600	9 600	27 520	210 720	33 250	177 470	0
April	90 400	11 200	5 120	15 680	122 400	106 750	15 650	0
May	31 200	11 600	4 800	18 240	65 840	106 750	0	-40 910
June	0	8 400	80	0	8 480	106 750	0	-98 270
July	0	12 800	640	0	13 440	106 750	0	-93 310
August	0	0	1 680	0	1 680	106 750	0	-105 070
September	0	0	5 120	1 280	6 400	106 750	0	-100 350
October	0	0	8 880	24 640	33 520	33 250	270	0
November	0	0	11 760	36 480	48 240	33 250	14 990	0
December	0	0	13 680	43 840	57 520	33 250	24 270	0
TOTAL	399 200	112 800	86 960	251 200	850 160	840 000	448 070	-437 910

13. Public participation

Public Participation Process

The principle of a “*One Environmental Management System*” will be used to only follow one Public Participation Process.

PUBLIC PARTICIPATION PROCESS

A complete Public Participation Process (PPP) was conducted during the approval of a River Maintenance Management Plan conducted by Cornerstone. The River Maintenance Management Plan was conducted specifically for the repair of the Koopmanskraal Dam, and it was approved by DEA&DP. The Comments and Response Table prepared during the PPP done for the approval of the RMMMP includes the following comments:

Table 10: Outcome of the public participation in terms of RMMP

Person who commented	Comments (support or object)	Reasons for objection	Applicant's response to the objection
R. Nieuwoudt, Department of Water and Sanitation	Confirm Koopmanskraal Dam		Noted
Felicity Strange, Friends of Verlorenvlei	Not yet been able to comment		Noted
LM Netshilema, Department of Agriculture Forestry and Fisheries	No Objection		Noted
Saa-rah Adams, DEA&DP: Development Management	The material, sediment and vegetation removed from the watercourses must be appropriately disposed of.		Form Part of RMMP
JH Smit, Western Cape Agriculture: LandCare West Coast	Abstraction from the Verlorenvlei River and stream flow reduction of the Verlorenvlei River.		Application do NOT include the taking of water.
JH Smit, Western Cape Agriculture: LandCare West Coast	The Verlorenvlei Estuary is a RAMSAR site and the impact of the surrounding agricultural developments are often blamed in the media for the latest drought situation within the Verlorenvlei Estuary.		Application do NOT include the taking of water.

R. Nieuwoudt, Department of Water and Sanitation	No mention is made to the Verlorenvlei being a RAMSAR site.		RMMP refer to Verlorenvlei as RAMSAR Site.
R. Nieuwoudt, Department of Water and Sanitation	Application needs to include taking of water ito Section 21(a) of NWA, 1998		RMMP refer to repair of Koopmanskraal Dam to be filled with water regarded as ELU.
Saa-rah Adams, DEA&DP: Development Management	Borrow area and design of Koopmanskraal Dam		Concerns were addressed.
R. Nieuwoudt, Department of Water and Sanitation	Dam Safety Regulations		The applicant is aware of Dam Safety Regulations and appointment of APP prior to repair and construction.
JH Smit, Western Cape Agriculture: LandCare West Coast	ELU		Awaiting final ELU from DWS.
LM Netshilema, Department of Agriculture Forestry and Fisheries	Comments to address CARA regulations.		Noted and addressed accordingly.
Angila Joubert, Bergrivier Municipality	No Comments		Noted
Gunther Frantz, DEA&DP: Pollution and Chemicals Management	Pollution concerns with mitigation measures.		Noted

A further environmental process in terms of Section S24G of NEMA is in process and a further PPP will follow.

After the closure of the comment period, the public comment received will be prepared in a Comments and Response Report.

10. Other authorisations applicable to the activity

A Section S24G in terms of NEMA is in process for the rectification of activities that was performed prior to authorisation. has been aBasic Assessment process will be required in terms of NEMA for the enlargement of the De Denne Dam.

Dough Jeffery Environmental Consultants was appointed to perform this process.

11. Section 27 (1)

The requirements contained in Section 27(1) of the National Water Act, 1998 (Act 36 of 1998) have been considered and are discussed further below.

a) Existing lawful water use/s

This application aims to ensure water reliability at Koopmanskraal Dam. Enhancing water storage for summer irrigation won't necessitate additional water extraction. The dam will be replenished using catchment runoff and Verlorenvlei River flow, both can be regarded as ELU.

The ELU in terms of Section 35 of the NWA, 1998 was not yet finalised, however, the recommended ELU was determined to be:

Table 11: Recommended water use as ELU

Property	Surface Water (m ³ /a)	Groundwater (m ³ /a)	Total (m ³ /a)
Remaining Extent of Farm Krommeriviers Valley 14, Piketberg	189 000	231 000	420 000
Portion 5 of Farm Krommeriviers Valley 14, Piketberg	252 000	168 000	420 000
TOTAL			840 000

This water can be regarded as ELU as it was taken from the Verlorevlei River and existing boreholes. A GA was confirmed in terms of existing 3 storage dams that was below 40 000m³.

The GA allowance for the storage of water in terms of Appendix A of GA 538 of 2016 in the G30D quaternary catchment area allows for storage up to 40 000m³.

b) Need to redress the results of past racial and gender discrimination

Bodhi Holdings (Pty) Ltd is resolutely committed to redressing the enduring impacts of past racial and gender discrimination within its operations. Embracing a multifaceted approach, the company proactively implements initiatives to foster inclusivity and equality. One significant step in this journey is the deliberate appointment of diverse leadership figures like Albert Tsai, an accomplished young Asian man, as its farm manager.

Albert's role not only underscores Bodhi Holdings' commitment to meritocracy but also serves as a powerful symbol of its dedication to overcoming historical biases. Furthermore, the company actively works to ensure equitable representation across its workforce, as demonstrated by the diverse profile of its permanent staff. By prioritizing diversity and inclusion in its hiring practices, Bodhi Holdings aims to dismantle systemic barriers and create a more equitable work environment for all employees, regardless of race or gender. Through these concerted efforts, Bodhi Holdings is steadfastly advancing towards a future where every individual is afforded equal opportunities for success and fulfilment.

i. Socio-economic Development

Bodhi Holdings (Pty) Ltd has developed a strategic roadmap encompassing long-term, medium-term, and short-term objectives. This plan aims to empower its workforce, enabling them to facilitate education, healthcare, and various socio-economic advancements within the community.

Housing

Bodhi Holdings (Pty) Ltd prioritizes the well-being of its workforce, ensuring access to adequate housing despite the absence of residential facilities on the farm. Through strategic partnerships with local housing authorities and private developers, the company has established a comprehensive housing program. This initiative includes the construction of affordable housing units within close proximity to the farm, equipped with modern amenities and infrastructure. Additionally, Bodhi Holdings offers financial assistance and guidance to employees seeking alternative housing solutions, such as rental subsidies and home ownership support. By addressing the housing needs of its workers, the company fosters a supportive and sustainable environment conducive to personal and professional growth.

Education

Bohdi Holdings (Pty) Ltd is committed to providing educational opportunities for its workforce, even in the absence of nearby educational institutions. Through innovative approaches, the company facilitates access to education by establishing on-site learning centers and partnering with local schools and universities to offer distance learning programs. Furthermore, Bohdi Holdings invests in training and development initiatives, providing scholarships, tuition assistance, and vocational training opportunities for employees and their families. By prioritizing education, the company empowers its workforce to acquire valuable skills and knowledge, fostering personal growth and contributing to the long-term prosperity of the community.

Medical Service

Prioritising the well-being of its workforce, Bohdi Holdings (Pty) Ltd ensures access to comprehensive medical services. In collaboration with healthcare providers, Bodhi Holdings (Pty) Ltd invites mobile clinics to access the farm, ensuring convenient access to medical services for its workforce. These clinics are staffed by trained professionals and equipped with essential medical equipment, facilitating on-site healthcare provision. Additionally, Bohdi Holdings (Pty) Ltd organizes regular health screenings, wellness programs, and preventive care services to promote employee health and wellness. In cases requiring specialized treatment, the company facilitates access to nearby healthcare facilities, offering transportation assistance and insurance coverage.

Transport

Transport services provided by Bodhi Holdings (Pty) Ltd encompass various facets of support for its workforce. Firstly, dedicated transport services are provided for workers, facilitating their daily commute from their residences to work areas on the farm and back. Moreover, transportation is arranged for employees attending training courses, ensuring they can participate without logistical constraints. Additionally, Bodhi Holdings (Pty) Ltd offers supplementary transportation for farmworkers, enabling visits to their homelands whenever necessary.

Transformation

Bodhi Holdings (Pty) Ltd extends its support to NGOs like Amitofo Care Centre Germany through the implementation of Bodhi Park, an innovative agricultural model concept. By helping children it serves as a transformative instrument, fostering growth and resilience.

Bodhi Holdings (Pty) Ltd is guided by four core concepts, echoing the power of love:

1. Respect for life
2. Stewardship of the planet
3. Integration into nature and society
4. Collaborative learning for enlightenment

The company not only provides future job opportunities for orphans but also fosters self-sufficiency. The initiative aims to empower residents with employment opportunities, ensuring sustainable operations. The founder envisions the expansion of the Cape Town Bodhi Park model to all Amitofo Care Centres, both locally and internationally, to provide education and support for the many orphans in Africa, nurturing their well-being and future prospects.

ii. Skills Development

Training programs at Bodhi Holdings (Pty) Ltd are meticulously designed to foster skill development across various agricultural disciplines on the farm. These programs are structured to occur annually and on an ad hoc basis, tailored to the specific needs of each agricultural field. A diverse range of training courses is offered to enhance employee expertise and promote professional growth. These include forklift training to ensure safe and efficient handling of materials, health and safety courses to prioritise workplace well-being, and first aid and fire fighting training to equip employees with life-saving skills.

Additionally, specialised courses cover topics such as safe chemical handling, irrigation techniques, and trimming and pruning skills to optimize agricultural practices. Moreover, comprehensive training is provided for general farm workers, incorporating essential life skills and ethical principles. Furthermore, emphasis is placed on food safety and hygiene standards to uphold quality assurance throughout the production process. To bolster operational efficiency, tractor driving and safe usage training are also offered. Quality control training rounds out the program, ensuring adherence to rigorous standards and continuous improvement. Beyond skill enhancement, Bodhi Holdings (Pty) Ltd also invests in social development initiatives to enrich the lives of its workforce, fostering a supportive and inclusive work environment.

iii. Preferential Procurement

Bodhi Holdings (Pty) Ltd prioritises sourcing its essential consumables and goods from suppliers who hold Broad-Based Black Economic Empowerment certification. This commitment underscores the company's dedication to supporting businesses that promote economic inclusion and empowerment within historically disadvantaged communities. By giving preference to B-BBEE certified companies, Bodhi Holdings (Pty) Ltd actively contributes to the advancement of sustainable economic growth and social transformation. Moreover, this practice aligns with the company's broader ethos of fostering diversity and inclusivity across its supply chain.

iv. Accessible Leadership Opportunities:

Bodhi Holdings (Pty) Ltd actively promotes leadership opportunities for individuals from historically marginalized groups, ensuring that farm management positions are accessible to all. By providing pathways for career progression and advancement, the company empowers individuals to take on leadership roles and make meaningful contributions to the farm's success.

v. Gender-Neutral Policies and Practices:

The company adopts gender-neutral policies and practices in all aspects of its farming operations, from recruitment and hiring to promotion and performance evaluation. Bodhi Holdings ensures that all individuals are treated fairly and equally, regardless of their gender identity, thereby fostering a more inclusive and supportive work environment for everyone.

c) Efficient and beneficial use of water in public interest

This application seeks approval for the repair of the Koopmanskraal Dam, designed to store 92 500 m³ of water. The imperative for this dam arises during drought conditions when conventional water sources, like the Verlorenvlei River, experience diminished flow rates and water restrictions.

Repairing the Koopmanskraal Dam is not merely a proactive measure; it's a strategic move to bolster water assurance, guaranteeing availability precisely when it's most needed for summer irrigation.

The dam's construction offers a vital buffer against water scarcity, ensuring a continuous supply for irrigating permanent crops such as olive and citrus orchards. Importantly, the filling of the dam draws from existing surface and groundwater sources, qualifying as ELU. With no additional water extraction, there's negligible impact on the broader water resource or existing users.

It's worth emphasising that this initiative doesn't involve expansive land development. Rather, it focuses on optimising the newly established orchards for sustainable farming practices. The irrigation strategy employed, utilising drip irrigation with a crop-water requirement of 7 000 m³/ha/a, underscores a commitment to water efficiency and conservation. This advanced technique minimises water wastage while maximising crop yield.

Furthermore, proactive measures are in place to address potential environmental concerns. Freshwater Assessments indicate low anticipated impacts from the repair and operation of the Koopmanskraal Dam, especially with mitigation measures factored in.

Looking ahead, there's a commitment to embracing cutting-edge technology for irrigation, underscoring a dedication to innovation and sustainability. Implementing state-of-the-art solutions ensures not just effective water management but also sets a precedent for responsible agricultural practices.

In sum, the Koopmanskraal Dam project embodies a forward-thinking approach to water management, blending environmental stewardship with agricultural prosperity. By leveraging existing resources responsibly and embracing innovative solutions, it promises to secure both water availability and the long-term viability of olive and citrus farming in the region.

d) Socio-economic impact:

i. Of the water use if authorised

Bohdi Holdings (Pty) Ltd plays a pivotal role in fostering socio-economic development by generating employment opportunities and facilitating the growth of essential skills among farm workers. The secure and stable jobs offered to both permanent and seasonal workers enable access to crucial resources such as education, healthcare, transportation, and training. The cultivation of olives and citrus demands skilled labour, presenting an avenue for workers to undergo training programs that elevate their socio-economic status and ensure a steady income.

Seasonal employment during pruning and harvesting seasons not only bolsters the local economy but also uplifts individuals within disadvantaged communities in the Sandveld area.

The establishment of the Koopmanskraal Dam for water storage guarantees a reliable water supply for irrigation, thereby sustaining a profitable olive and citrus business catering to both local and international markets. The assurance of water availability, especially during drought periods, safeguards against potential disruptions in crop irrigation, ensuring consistent production levels. By enhancing water security, the agricultural sector can yield better-quality crops, thus making a positive contribution to the national economy.

ii. Of the failure to authorise the water use

Failure to authorise the water usage poses significant threats to Bohdi Holdings (Pty) Ltd's operations, hindering the realization of return on investment and jeopardizing the viability of the business. A shortage of water during critical irrigation stages could lead to decreased production and lower-quality olives and citrus, resulting in financial losses and potential job layoffs. The inability to ensure water security undermines the stability of employment for current workers, thereby impacting their socio-economic well-being.

Furthermore, any drought, such as those experienced in the Western Cape recently, exacerbates the challenges faced by agricultural activities in the region. Insufficient summer surface water runoff from the Verlorenvlei River necessitates stored water to supplement irrigation needs, highlighting the critical role of water storage in bolstering water assurance during periods of scarcity.

e) Any catchment management strategy applicable to the relevant water resource

The Catchment Management Strategy for the Olifants Doorn WMA is not yet available. The ISP however recommend and support the construction of dams to be filled during high flow conditions.

f) Likely effect of the water use to be authorised on the water resource and on other water users

This water use will not have any effect on the water resource or on any other water user's water use. The water used to fill the Koopmanskraal Dam has been previously allocated, and the dam will only enhance the reliability of the water supply.

Initial assessments of the ELU have estimated the water usage on the Remaining Extent of Farm Krommeriviers Valley 14, Piketberg, at approximately 189 000 m³/a from the Verlorenvlei River, while Portion 5 of Farm Krommeriviers Valley 14, Piketberg, is estimated to use around 252 000 m³/a from the same source. These usage levels will not be increased.

Additionally, approximately 231 000 m³/a of groundwater on the Remaining Extent of Farm Krommeriviers Valley 14, Piketberg, and 168 000 m³/a of groundwater on Portion 5 of Farm Krommeriviers Valley 14, Piketberg, will be extracted and are also considered as ELU as it was utilised during the qualifying window period.

Strict controls will be implemented to ensure that the water taken from the Verlorenvlei River does not exceed the allocated volume. The installation of measuring devices is mandatory and must adhere to the specifications outlined in GN 15 dated 12 January 2018.

The Freshwater Aquatics were studied by both Toni Belcher and James Dabrowski and the possible impacts on the freshwater resources was regarded as mostly LOW and appropriate mitigation measures were proposed. If the proposed mitigation steps as outlined in the Freshwater Study Reports are followed, it is proposed that the likely effect on the resource and on other users will be even lower.

g) Class and the resource quality objectives of the water resource

The classification of the Berg-Olifants WMA's water resources commenced in 2010. On 22 April 2016 the Minister of Water and Sanitation Affairs published a notice on the classes and resource quality objectives of each significant water resource for catchments of the Olifants-Doorn in terms of Section 13(1) (a) of the NWA, 1998.

IUA	Quaternary	Node	River	Location for monitoring	Hydrology				Floods in addition to Desktop Model	Implications of flood RQOs
					Month with lowest flow	Mean of month with lowest flow (m3/s)	Instantaneous drought absolute minimum (m3/s)	%nMAR		
	E21L		Groot	E2H002	February	0.017	0.001	48.1	>80% of natural floods for July, August and September	No in-channel dams
	E21J	R38	Groot	EWR Site 6	February	0.010	0.001	48.1	>80% of natural floods for July, August and September	No in-channel dams
		-		Brandkraals	February	-	0.001	48.1	>80% of natural floods for July, August and September	No in-channel dams
	Tributary of Leeu in E21H	A1	Twee	Twee	February	0.125	0.001	60.4	>80% of natural floods for July, August and September	No in-channel dams
	E21G	R 41	Leeu	E2H007	February	0.010	0.001	13.2	>60% of natural floods for July, August and September	Limited in-channel dams
Doring Rangelands	E23K	R27	Tankwa	Tankwa	The Tankwa River is ephemeral. Thus minimum lowflows do not apply.			26.4	>80% of natural floods for July, August and September (incremental)	No in-channel dams
Kniersvlakte	E33C	R8	Vars	None	The Vars, Geelbek and Hol Rivers are ephemeral. Thus minimum lowflows do not apply.			17.0	-	None
	E33D		Geelbek					17.1	-	None
	E33E		Hol					17.4	-	None
	E32E	R3	Doring(b)	None	The Doring(b) River is ephemeral. Thus minimum lowflows do not apply.			26.2	-	None
Sandveld	G30D	R 53	Verlorevlei	G3H001	March	0.019	0.001	20.7	>60% of natural floods for July, August and September	Limited in-channel dams
	G30F	R56	Langvlei	River Node R56: 32°12'40.05"S, 18°23'8.25"E / Up stream of the Wadtf Pan and Wetland	March	0.010	0.001	19.3	-	None
	G30G	R 57	Jakkals	River	March	0.005	0.001	19.2	-	None

Figure 6: Relevant abstract from published RQO in Olifants Doorn WMA.

IUA	Class for IUA	Quaternary catchment	River Name	Mainstem / Cumulative Ecological Category	Average Tributary / Incremental Ecological Category	Wetland area (% of quaternary) and [Ecological Category]
Sandveld	III	G30A	Papkuils	C	C	4.1% [35% in A/B]
		G30B	Kruismans	C	C	0.9% [10% in A/B]
		G30C	Bergvallei	C	C	1.5% [7% in A/B]
		G30D	Verlorevlei	C	C	0.8% [3% in A/B]
		G30E	Verlorevlei	B	C	7.9% [3% in A/B]
		G30E-Est	Verlorevlei	C		-
		G30F	Langvlei	C	C	1.5% [5% in A/B]
		G30G	Jakkalsvlei	C	C	0.9% [11% in A/B]
		G30H	Sandlaagte	C	C	1.4% [25% in A/B]

Figure 7 : Relevant abstract from published RQO in Olifants Doorn WMA.

h) Investments already made and to be made by the water user in respect of the water in question

The storing of water is critical to the success of the agricultural ventures of Bohdi Holdings (Pty) Ltd and therefor the company has invested in the construction of the Koopmanskraal Dam.

The following expenses occurred during the implementation of the project and more investments will be added during the execution of the project:

Repair of Koopmanskraal Dam	
Maintenance of Pump Station and Pipeline	
Upgrade of road/river crossing	
Establishment of new orchids	
Engineering Costs Planning Phase	
Rivier Maintenance Management Plan	
Engineering Costs Construction Phase	
Environmental Authorisation (S24G)	
Water Use Licence Authorisation	
Total	

The activities that have already been done, will require a S24G authorisation from DEA&DP and it is estimate that a fine will be included in the authorisation process that is currently unknown.

i) Strategic importance of the water use to be authorised

This is not of strategic importance.

j) The quality of the water resource which may be required for the Reserve and for meeting international obligations

There are no international obligations to be met with regards to this application.

k) The probable duration of any undertaking for which a water use is to be authorised

The lifespan of the Koopmanskraal Dam, the established orchards and road crossings will be more than 40 years.

It is therefore recommended that the water use licence be authorised for at least a period of 20 years.

14. Declaration by the applicant with signature confirming that the information submitted is correct

I, HD Lyons, hereby declare that the information submitted is correct.



[END OF WATER USE LICENCE APPLICATION SUMMARY]