water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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WATER USE LICENCE APPLICATION SUMMARY

NAME OF APPLICANT:

MODDERASRIVIER TRUST

Compiled by:

HD LYONS

Signature:

Date : 1 August 2025

1. Applicant details

Name of applicant	Modderasrivier Trust
Trading name	Modderasrivier Trust
Representative	Mr C.P. du Plessis
Postal address	PO Box 138, Tulbagh, 6820
Office phone number	084 657 6797
Cell phone number	084 657 6797
E-mail	admin@modderasrivier.co.za

2. Person submitting application

HD Lyons of HDL Consulting

3. Background and purpose

This application is for the authorisation of a water use in terms of Sections 40 and 41 of the National Water Act, 1998, for the storing of water. The existing Modderas Dam is proposed to be enlarged to a capacity of 310 000m3.

The water uses on Portion 1 of farm Roode Zands Kloof 66, Tulbagh was verified, and a total volume of 421 470 m³/a was confirmed as ELU. The existing water use involved a volume of 363 460 m³/a from surface water sources and 58 010 m³/a from groundwater. The total combined storage that can be regarded as ELU was confirmed as 231 000m^3 in two storage dams.

To provide more surety of water for the irrigation of permanent crops during summer, it was proposed to increase the storage capacity. The property namely Portion 1 of farm Roode Zands Kloof 66, Tulbagh is developed to full capacity in terms of existing crops planted and irrigated. The drought and climate change has shown the applicant that he must put more effort in to secure his water sources. It was therefore proposed to decommission Dam 2 with capacity of 31 000m^3. Dam 2 was investigated, and it was found that it will require maintenance to ensure that the do not leak. A cost estimate has shown that it will be more cost effective to decommission Dam 2 and to add the capacity to the Modderas Dam. Since the Modderas Dam will be enlarged to include the storage capacity of Dam 2, it was decided to create more storage in terms of the taking of surface water that was confirmed as ELU. It is proposed to store 60% of the additional surface water taking of 132 460 m³ into the Modderas Dam.

The project will involve the following components:

- Enlargement of Modderas Dam from 200 000 m³ with a current wall high of 13,8m to a gross storage capacity of 310 000 m³ with a wall height of 15.1m. The proposed total footprint area will be 7.5 ha.
- Extension of the existing Ø200 mm Class 6 uPVC outlet pipe on the upstream side.
- Decommissioning of Dam D2.

The application is made by Mr Phil du Plessis (ID 860524 5125 081) as the representative of the Modderasrivier Trust.

This application pertains to the property, Portion 1 of farm Roode Zands Kloof 66, Tulbagh which is owned by the applicant.

4. Location of water uses

The existing Modderas storage dam that are proposed to be enlarged is situated on Portion 1 of farm Roode Zands Kloof 66, Tulbagh which is owned by Modderasrivier Trust.

Table 1: Property detail

Property owner	Property detail	District	Extent (ha)	Title Deed
Modderasrivier Trust	Portion 1 of farm Roode Zands Kloof 66	Tulbagh	175.7832	T39680/2001

Figure 1: Location of Portion 1 of farm Roode Zands Kloof 66, Tulbagh

The farm is located approximately 8 km north of Tulbagh in the Western Cape. The property can be reached from the Waveren Street in Tulbagh.

The property falls within the jurisdiction of the Berg/Olifants WMA in the G10E quaternary catchment area.

The project falls within the jurisdiction of the Witzenberg Local Municipality and the Cape Winelands District Municipality.

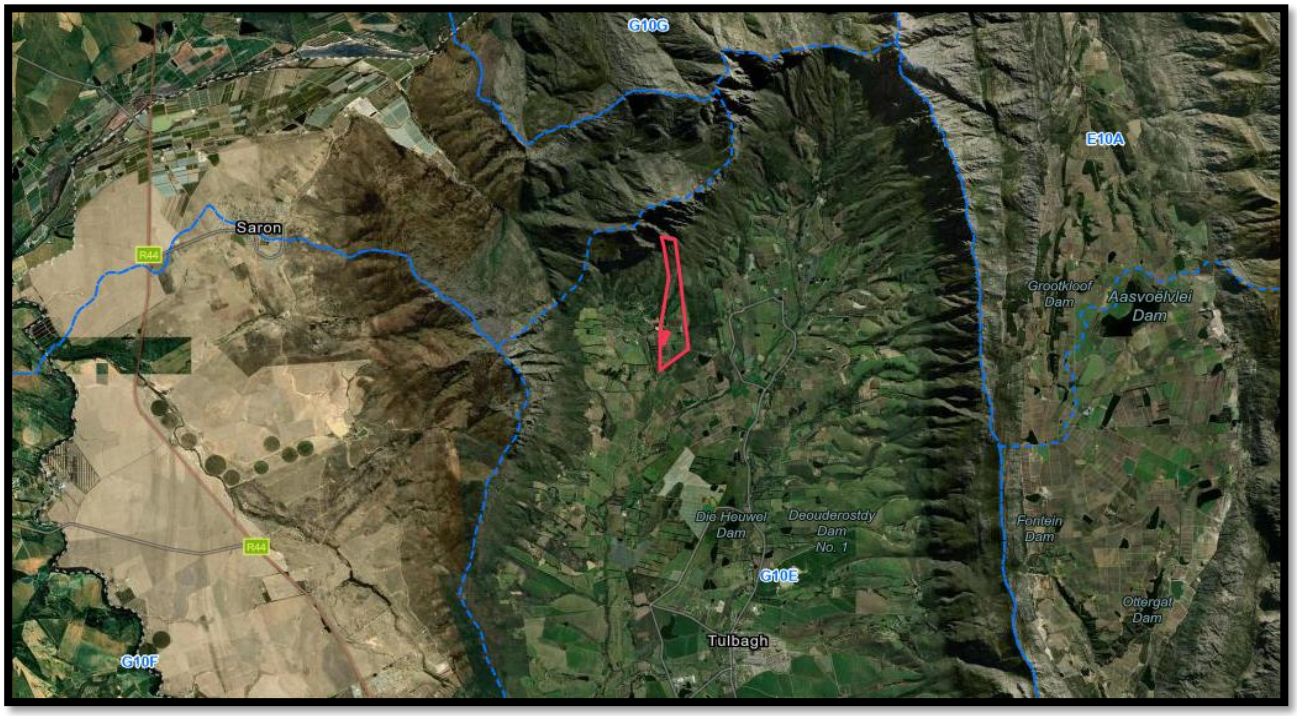


Figure 2: Quaternary catchment area of G10E applicable to application

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:

Certified ID copy of the applicant
Proof of Payment Application Fee
Copy of Title Deed
Consultant Appointment Letter (Proxy)
Confirmation letter in terms of Existing Lawful Water User
Trust Authorisation Letter

5.2 Reports and other technical documents

5.2.1 List of all the technical document relevant to the application

Name of report	Compiled by	Date
WULA Summary Report	HD Lyons	1 August 2025
Engineering Letter Report – Hagen Brink Consulting Engineers	Joseph Mbenga	28 March 2025
Method Statement Hagen Brink Consulting Engineers	Joseph Mbenga	28 March 2025
Aquatic Impact Assessment Report for the proposed enlargement of Modderas Dam	Ms Toni Belcher	May 2025
EIA Report	Lindsay Spears	

6. Project Description

This application is for the enlargement of the Modderas Dam. The storage dam will be filled with water regarded as Existing Law Water. The target storage will be 310 000m^3 to be stored in the enlarged dam. The dam is regarded as an instream dam and the impacts and mitigation measures in terms of the freshwater features were investigated.

The existing storage dam D2 will be decommissioned. This dam is regarded as an off-channel dam and no freshwater features will be impacted in terms of Section 21(c) & (i) of the NWA, 1998.

The enlargement of the Modderas Dam is necessary to consolidate the water in one single dam for the irrigation of the existing fruit trees of 66ha on the property. No new developments are proposed and the water in the dam will be use as water security for irrigation during summer.

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

A method statement dated 28 March 2025 was prepared by HagenBrink Engineering company to cover the proposed enlargement of the Modderas Dam on Portion 1 of the Roode Zands Kloof Farm 66, Tulbagh. The dam is proposed to be enlarged to a storage capacity of 310 000 m³ and a maximum wall height of about 15.1 m.

The works to be undertaken will be within the footprint and full supply level of the proposed enlarged dam. The existing outlet pipe will be extended on the upstream side. A construction period of 4 months over the summer months are anticipated.

Aquatic features on the property comprise of non-perennial tributaries of the Roodezand River which drains into the Klein Berg River, a major tributary of the larger Berg River System. The Modderas River which drains into the Modderas Dam, originates in the foothills of the Groot Winterhoek Mountains and flows in a southerly direction through the property. The stream is joined by some other streams before its confluence with the Roodezant River. Seep wetlands are mapped along most of the streams within the property.

The aquatic ecosystem assessment determined the Modderas River to be moderately to largely modified within its instream habitat and largely modified within its riparian zone. The river is of moderate ecological importance and sensitivity with a target ecological condition of moderately modified. Removal of invasive alien vegetation along the riverbanks would assist in improving the ecological integrity of the river over the long term.

The potential aquatic ecosystem impacts associated with the proposed dam enlargement are:

- Modify flow in the watercourse downstream of the dam
- Disturbance and modification of aquatic habitat within the dam basin of the enlarged dam
- Short-term water quality impacts during the construction works
- Indirect impact on aquatic biota.

Mitigation measures to be implemented includes the following:

- With regards to the implementation of the EWR in the lower Modderas Tributary, it is recommended that the smaller tributary that drains past Dam D2 be utilised to meet the environmental flow requirement **or** to develop an operational plan for the enlarged Modderas Dam that monitors the inflow into the dam and informs environmental flow releases from the dam.
- There should be ongoing removal and control of invasive alien vegetation along the river corridors and in the wetland areas within the property.
- The construction works at the dam should take place during the dry period (October/November to March/April) to prevent any flow and water quality (sedimentation) impacts and should be carried out in conjunction with an approved EMP.

- Disturbance of the natural vegetation cover upstream of the dam and immediately downstream of the dam within the watercourse should be avoided.
- The disturbed areas at the dam should also be monitored for the growth of invasive alien vegetation and any recruitment of alien plants should be removed.
- No stocking of the dam with alien fish should be allowed. Any stocking of the dam would need to get prior approval from CapeNature.

If the mitigation measures as specified in the Aquatic Impact Assessment Report be implemented, the significance of the impact associated with the enlargement of the Modderas Dam could be reduced to being of **Low negative** significance.

8. Stormwater Management Plan

The Modderas Dam embankment crest will be constructed to have a crossfall of 2% to the upstream face. To prevent wave erosion, the upstream face of the embankment must be protected with durable rip-rap.

The spillway channel as well as the embankment downstream face, must be topsoiled and planted with indigenous grass.

Disturbed agricultural areas during construction will be reinstated with appropriate contouring and soil/crop covering.

A typical maintenance schedule for the dam and pipelines should be prepared and retained.

9. Rehabilitation Plan

The rehabilitation will be done in combination with the construction and should include the following:

- Rehabilitation of all streams and associated wetland areas on the property should be done to improve the aquatic ecosystem integrity.
- Any disturbed areas that are located immediately outside of the dam basin should be rehabilitated by reshaping the area to resemble that of the surrounding natural landscape and where necessary, these areas should be planted with suitable local indigenous vegetation.
- The disturbed areas at the dam should also be monitored for the growth of invasive alien vegetation and any recruitment of alien plants should be removed. Longer-term maintenance activities associated with the operation of the dam should follow an adopted MMP for the property.

10. Water Uses applied for

The application includes the following water uses.

Table 2: Water uses applied for

Water Use		Property	Activity	Volume (m^3)	Latitude	Longitude
21(b)	Storing of water	Portion 1 of farm Roode Zands Kloof 66, Tulbagh	Enlargement of Modderas Dam	310 000	33°12'36.90"S	19° 7'25.59"E
21(c)	Impeding/Diverting of water		Enlargement of Modderas Dam	N/A	33°12'36.90"S	19° 7'25.59"E
21(i)	Changing the characteristics of a watercourse		Enlargement of Modderas Dam	N/A	33°12'36.90"S	19° 7'25.59"E

11. Impacts and mitigation measures

The potential impacts and mitigation measures that are expected from the proposed activities are presented in Table below.

Table 6: 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 (a)	*The enlargement of the Modderas Dam will be filled with water regarded as ELU.* *A letter to confirm ELU in terms of Section 35(4) of the NWA, 1998 was issued. This confirmed that the water was used since 1998 either in terms of storage or direct irrigation abstraction.*	*To ensure no impact to the water resource of other water users, the EWR releases were investigated.*	*EWR releases can be catered by the stream in which Dam 2 is situated after the decommissioning of Dam 2* *Or a Water Balance Model can be implemented that monitors the inflow into the dam and informs environmental flow releases from the dam.*
Section 21 (b)	*The Modderas Dam will be enlarged to store 31 000m^3 currently stored in Dam D2 and +/- 80 000m^3 of more run-off water regarded as ELU.* *Dam D2 will be decommissioned.*	*The following impacts were identified:* • *Modify flow in the watercourse downstream of the dam* • *Disturbance and modification of aquatic habitat within the dam basin of the enlarged dam* • *Short-term water quality impacts during the construction works* • *Indirect impact on aquatic biota.*	*To limit the impacts the following mitigation measures were proposed:* • *The area immediately to the east of Dam D2 which is to be decommissioned comprises a wider riparian and seep area associated with the smaller tributary of the Modderas River. With decommissioning of the dam, it is important the disturbance of these areas be avoided and that the dam basin simply be filled with soil that is free of alien vegetation seed.* • *With regards to the implementation of the EWR in the lower Modderas Tributary, it is recommended that the smaller tributary that drains past Dam D2 be utilised to meet the environmental flow requirement or develop a water balance model.* • *Removal and control of invasive alien vegetation along the river corridors and in the wetland areas within the property.* • *Construction works at the dam should take place during the dry period (October/November to March/April) to prevent any flow and water quality (sedimentation) impacts.* • *No stocking of the dam with alien fish should be allowed*

Section 21(c) & (i)	*The enlargement of the Modderas Dam is regarded as an in-stream dam and the Aquatic Impact Assessment Report list the impacts and mitigation measures.*	• *Flow modification* • *Modification of aquatic habitat* • *Short-term water quality impacts during the construction works* • *Indirect impact on aquatic biota.*	*Mitigation measures that will be required:* • *Implementation of the EWR in the lower Modderas Tributary.* • *Removal and control of invasive alien vegetation along the river corridors and in the wetland areas within the property.* • *The construction works at the dam should take place during the dry period.* • *Disturbance of the natural vegetation cover upstream of the dam and immediately downstream of the dam within the watercourse should be avoided.* • *The disturbed areas should be monitored for the growth of invasive alien vegetation.*

12. 9. Water demand and water supply

Water demand

The irrigation development on Portion 1 of the Roode Zands Kloof Farm 66, Tulbagh was evaluated. The enlargement of the Modderas Dam is only based on the increased water security that will ensure that sufficient water will be stored during winter that will allow for the irrigation demand in summer.

The following irrigation areas were confirmed:

Table 3: Irrigation demand

		Annual monthly water demand(m3/ha/a)													Total annual(
Crop	Area	Jan	Feb	March	April	May	June	July	Aug	Sep	Okt	Nov	Dec	Total	m3/a)
Plums	18,8	1 100	940	600	350	80	70	0	0	0	160	730	1 120	5 169	
		20 680	17 672	11 280	6 580	1 504	1 316	0	0	0	3 008	13 724	21 056	96 820	96 820
Pears	32,1	1 220	930	960	0	0	0	0	0	0	150	760	1 150	5 170	
		39 162	29 853	30 816	0	0	0	0	0	0	4 815	24 396	36 915	165 957	165 957
Olives	3	1 220	910	670	290	340	0	0	0	1	290	840	1 190	5 751	
		3 660	2 730	2 010	870	1 020	0	0	0	3	870	2 520	3 570	17 253	17 253
Grapes	12,6	1 590	1 330	1 060	470	100	40	0	0	0	0	70	960	5 620	
		20 034	16 758	13 356	5 922	1 260	504	0	0	0	0	882	12 096	70 812	70 812
Total	66,5														350 842

The SAPWAT 4 program was used for the recommended crop/water requirements for the irrigation of the different fruit trees on the property.

Table 4: Summary crop/water requirements

Crop	Crop/water requirement(m^3/ha/a)
Plums	5 160
Pears	5 170
Olives	5 760
Grapes:Wine	5 670

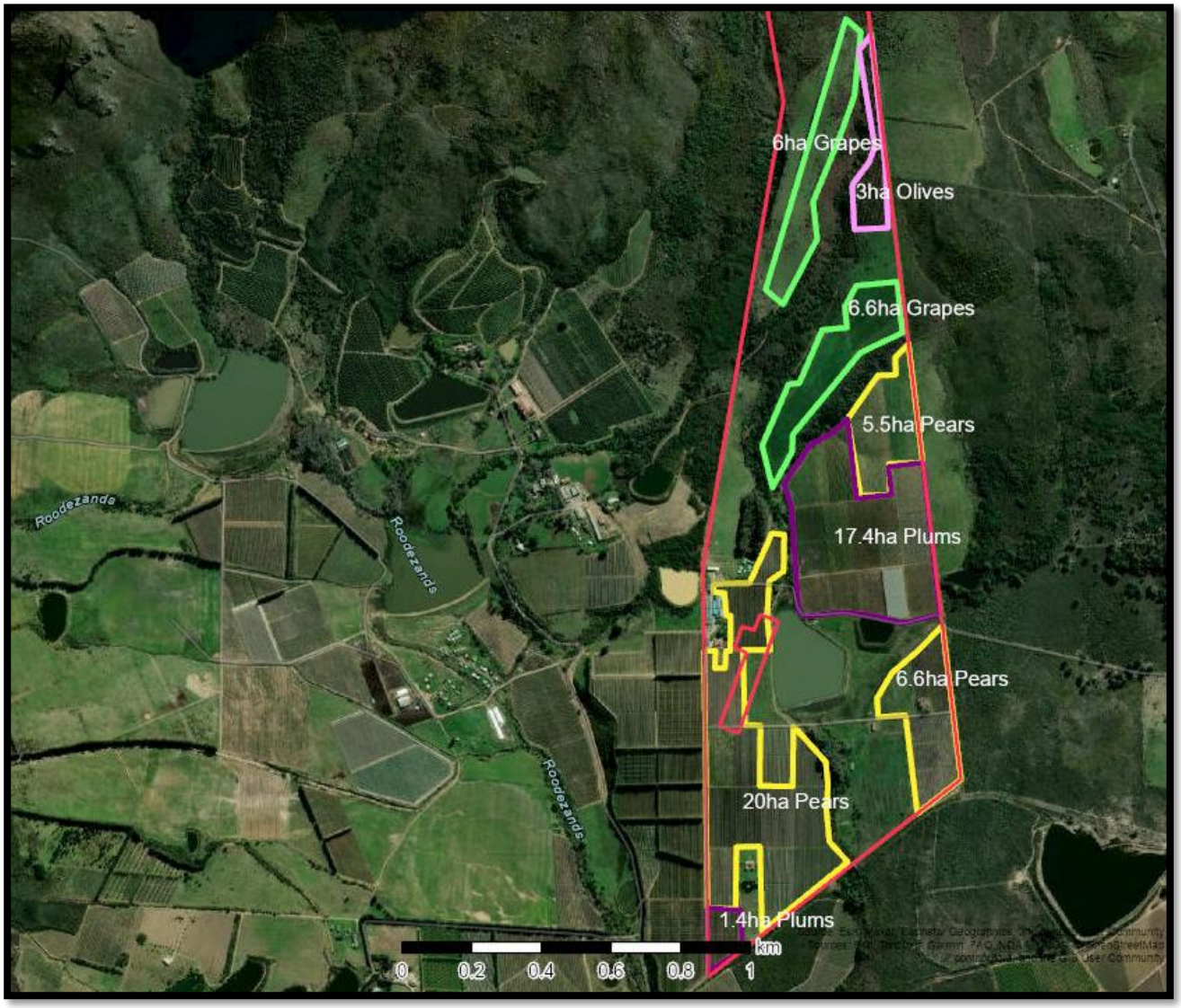


Figure 3: Irrigation demand for existing crops on Portion 1 of farm Roode Zands Kloof 66, Tulbagh

A total combined area of 66,5ha will be irrigated on the property. The storage dam will only provide buffer storage (security) that will be filled during winter to ensure that the required water demand during summer can be met. The Modderas Dam will ensure that water will always be available for irrigation.

Table 5: Water Demand

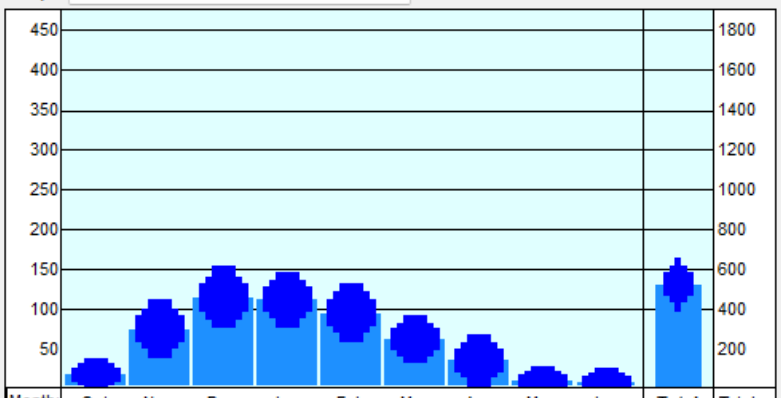
Property	Crop	Area of irrigation (ha)	Crop/water requirement (m3/ha/a)	Total water use(m3/a)
Portion 1 of farm Roode Zands Kloof 66, Tulbagh	Plums	18.8	5 160	96 820
	Pears	32.1	5 170	165 957
	Olives	3.0	5 760	17 253
	Grapes: wine	12.6	5 670	70 812
Total		**66.5**		**350 842**

Sapwat4

Crop Irrigation Requirements

Graph: Levels of non-exceedence

Prunes, Bud break: Mid Spring, 01/10/1950, Drip on Silt clay loam, G10E



Month:	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total	Total
P90	37	110	152	145	132	91	68	26	25	**654**	P90
P80	31	99	140	134	120	81	58	21	19	**611**	P80
P70	26	90	131	126	111	74	50	16	15	**579**	P70
P50	**16**	**73**	**112**	**110**	**94**	**60**	**35**	**8**	**7**	**516**	**P50**
P30	7	56	94	94	76	46	19	0	0	**452**	P30
P20	2	47	85	86	68	39	12	0	0	**420**	P20
P10	0	36	72	75	56	30	2	0	0	**377**	P10

Results:

Crop evapotranspiration	703.0	mm
Transpiration	688.0	mm
Evaporation	15.0	mm
Gross irrigation required	511.0	mm
Gross irrigation applied	516.0	mm
Nett irrigation	490.0	mm
Runoff and percolation losses	0.0	mm
Irri system and DU losses	26.0	mm
Leaching requirement	0.0	mm
Rainfall	301.0	mm
Effective rainfall	212.0	mm
Rain loss	89.0	mm
Rainfall use efficiency	70.0	%
Irrigation schedule efficiency	100.0	%
Change in soil water content	5.0	mm
Estimated yield losses	0.0	%
Design application	3.6	mm/day
Design cycle	20.0	days

Exit

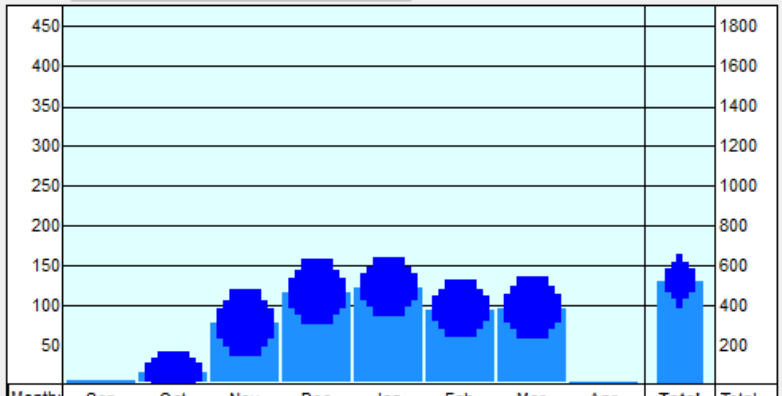
Crop set-up | Irri management | Irri requirement | ETo, ETc (mm) | Irri, Rain, Losses (mm) | Daily (mm) | Notes

Sapwat4

Crop Irrigation Requirements

Graph: Levels of non-exceedence

Pears, Bud break: Early spring, 01/09/1950, Drip on Silt clay loam, G10E



Month:	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total	Total
P90	0	42	118	156	159	130	135	0	**653**	P90
P80	0	34	105	143	148	119	123	0	**611**	P80
P70	0	27	96	134	139	110	114	0	**580**	P70
P50	**0**	**15**	**76**	**115**	**122**	**93**	**96**	**0**	**517**	**P50**
P30	0	3	56	96	105	76	77	0	**454**	P30
P20	0	0	47	86	96	68	68	0	**423**	P20
P10	0	0	34	73	85	57	56	0	**381**	P10

Results:

Crop evapotranspiration	654.0	mm
Transpiration	626.0	mm
Evaporation	28.0	mm
Gross irrigation required	516.0	mm
Gross irrigation applied	517.0	mm
Nett irrigation	491.0	mm
Runoff and percolation losses	0.0	mm
Irri system and DU losses	26.0	mm
Leaching requirement	0.0	mm
Rainfall	192.0	mm
Effective rainfall	157.0	mm
Rain loss	35.0	mm
Rainfall use efficiency	82.0	%
Irrigation schedule efficiency	100.0	%
Change in soil water content	1.0	mm
Estimated yield losses	0.0	%
Design application	3.9	mm/day
Design cycle	18.0	days

Exit

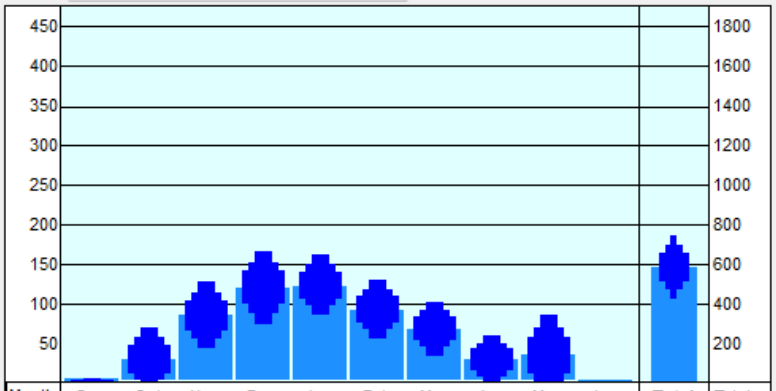
Crop set-up | Irri management | Irri requirement | ETo, ETc (mm) | Irri, Rain, Losses (mm) | Daily (mm) | Notes

Sapwat4

Crop Irrigation Requirements

Olive, Standard, 01/09/1950, Drip on Silt clay loam, G10E

Graph: Levels of non-exceedence



Month:	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total	Total
P90	4	69	127	166	160	128	102	59	86	0	**739**	P90
P80	3	57	113	152	149	117	91	50	70	0	**689**	P80
P70	3	48	104	141	140	108	83	43	58	0	**652**	P70
P50	**1**	**29**	**84**	**119**	**122**	**91**	**67**	**29**	**34**	**0**	**576**	**P50**
P30	0	11	65	98	104	74	51	15	11	0	**501**	P30
P20	0	1	55	87	95	65	43	8	0	0	**464**	P20
P10	0	0	42	73	83	53	33	0	0	0	**414**	P10

Results:

Crop evapotranspiration	822.0	mm
Transpiration	809.0	mm
Evaporation	13.0	mm
Gross irrigation required	573.0	mm
Gross irrigation applied	576.0	mm
Nett irrigation	547.0	mm
Runoff and percolation losses	0.0	mm
Irri system and DU losses	29.0	mm
Leaching requirement	0.0	mm
Rainfall	318.0	mm
Effective rainfall	270.0	mm
Rain loss	48.0	mm
Rainfall use efficiency	85.0	%
Irrigation schedule efficiency	100.0	%
Change in soil water content	3.0	mm
Estimated yield losses	0.0	%
Design application	3.9	mm/day
Design cycle	29.0	days

Exit

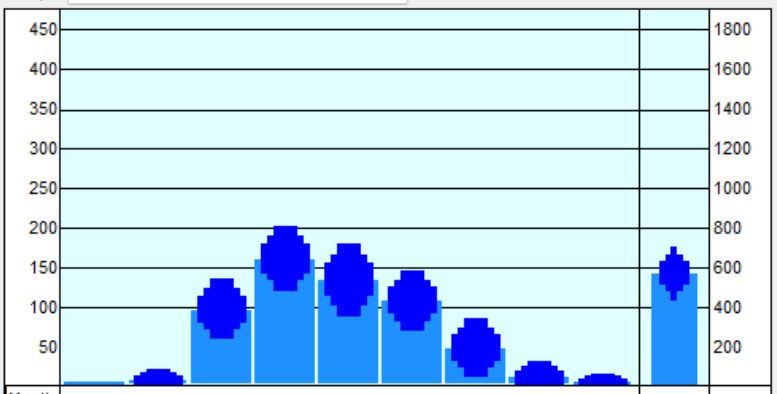
Crop set-up | Irri management | Irri requirement | ETo, ETc (mm) | Irri, Rain, Losses (mm) | Daily (mm) | Notes

Sapwat4

Crop Irrigation Requirements

Grapes, Wine; Bud break: Mid spring, 01/10/1950, Drip on Silt clay loam, G10E

Graph: Levels of non-exceedence



Month:	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total	Total
P90	0	21	135	201	180	145	85	31	16	**701**	P90
P80	0	17	123	188	165	133	73	25	12	**658**	P80
P70	0	13	114	178	155	124	65	20	9	**626**	P70
P50	**0**	**7**	**96**	**159**	**133**	**106**	**47**	**10**	**4**	**562**	**P50**
P30	0	0	78	140	112	88	30	1	0	**498**	P30
P20	0	0	69	130	101	79	22	0	0	**467**	P20
P10	0	0	57	117	87	67	10	0	0	**424**	P10

Results:

Crop evapotranspiration	754.0	mm
Transpiration	721.0	mm
Evaporation	33.0	mm
Gross irrigation required	555.0	mm
Gross irrigation applied	562.0	mm
Nett irrigation	534.0	mm
Runoff and percolation losses	0.0	mm
Irri system and DU losses	28.0	mm
Leaching requirement	0.0	mm
Rainfall	320.0	mm
Effective rainfall	220.0	mm
Rain loss	100.0	mm
Rainfall use efficiency	69.0	%
Irrigation schedule efficiency	100.0	%
Change in soil water content	7.0	mm
Estimated yield losses	0.0	%
Design application	5.1	mm/day
Design cycle	14.0	days

Exit

Crop set-up | Irri management | Irri requirement | ETo, ETc (mm) | Irri, Rain, Losses (mm) | Daily (mm) | Notes

Water supply

The water to fill the Modderas Dam can be regarded as Existing Lawful Water Use.

The WARMS registration certificate 22043520 dated 21 November 2023 show the validation and verification of water uses on Portion 1 of the Roode Zands Kloof Farm 66, Tulbagh as FINAL in terms of the confirmation of the water users in terms of Section 35(4) of the NWA, 1998.

A summary of the water uses confirmed as ELU is listed below:

Table 6: Enlistment allocation confirmed by Boegoeberg WUA from Gariep Canal

Property detail	Volume (m^3/a)	Source
Portion 1 of the Roode Zands Kloof Farm 66, Tulbagh	132 460	Surface water via stream
	231 000	Surface water via storage
	58 010	Groundwater
Total	**421 470**	

The water available of **421 470m^3/a** will be sufficient for the irrigation of 66.5ha fruit trees that will require a total water demand of **350 842m^3/a.**

The stored water will ensure that water will be roll-over for the irrigation requirement early in the next irrigation season prior to the start of the rainy season.

13. Public participation

A Public Participation Process (PPP) is still in process.

Earth Grace Environmental Consulting will initiate a Public Participation Process in terms of NEMA for the Environmental Authorisation that will be required. This process will include all water use related activities.

The following minimum requirements will be included in the PPP:

i. List of I&A parties were identified.
ii. Electronic notice will be sent to identified I&A parties.
iii. A Notice will be display at the entrance gate to the farm.
iv. A notice will be published in the newspaper.

In terms of WULA Regulations 267 dated 24 March 2017, it is noted in terms of Point 17(2) of the Regulations that:

- Where a public participation process has already been undertaken through the Environment Impact Assessment processes or any other public consultation process, and that public participation process contains and covers all issues pertaining to water use activities, then that public participation process report may, be submitted for the requirements of the water use licence application.
- Notice of the application must be provided to interested and affected parties by fixing a written notice board at a visible and accessible place to the public at the boundary or on the fence of the site where the water use activity to which the application relates is or is to be undertaken.
- Placing an advertisement in one local newspaper.

A complete PPP report with a Comments and Response table will be submitted once available.

Table 7: Outcome of public participation process

Person who commented	Comments (support or object)	Reasons for objection	Applicant's response to the objection

10. Other authorisations applicable to the activity

10.1 Dam Safety Requirements

Dam safety assessments will be required for any dams posing a safety risk, specifically those with a wall height exceeding 5 meters and a storage capacity greater than 50 000m^3.

This application has confirmed that, the enlargement of the Modderas Dam falls within the category of a dam with a safety risk and will require approval in terms of Dam Safety Regulation.

The dam safety application process will commence with an application for the classification of the Modderas Dam to determine the appropriate safety requirements and regulatory oversight.

Once classified, a comprehensive design report, including detailed design drawings, will be prepared.

Following this, applications for licences to construct or enlarge the dams will be submitted, all of which are essential for compliance with the NWA of 1998. These dam safety processes will be managed by Hagenbrink and will only begin once the EA and WULA processes have reached further stages of approval, ensuring that all necessary authorisations are in place before proceeding with construction.

11. Section 27 (1)

a) Existing lawful water use/s

The water use allocation on Portion 1 of farm Roode Zands Kloof 66, Tulbagh was confirmed in terms of Section 35(4) of the NWA, 1998.

Table 8: ELU as confirmed in terms of Section 35(4) of NWA, 1998

Property detail	District	Taking of water(m^3/a)	Source
Portion 1 of farm Roode Zands Kloof 66	Tulbagh	363 460	Surface run-off
		58 010	Groundwater
Total		**421 470**	

This property has two existing storage dam that was confirmed as ELU.

Table 9: Detail on existing storage dam on Portion 1 of farm Roode Zands Kloof 66, Tulbagh

Dam name	Wall height (m)	Surface Area (ha)	Storage capacity (m^3)
Modderas Dam(G102/CD)	13,8	2.94	200 000
Dam D2	4,31	0.72	31 000
Total			**231 000**

Figure 6: Aerial map dated 2000

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

The Amended AgriBee Sector Code, dated 8 December 2017, specify in paragraph 2.7 that an Enterprise with an annual total revenue of less than R10 million will be classified as Exempted Micro Enterprise (EME) and will enjoy a deemed BBBEE recognition **Level 4** and that a sworn affidavit will be sufficient evidence in this regard.

The income level of the Modderasrivier Trust (IT2069/2000) was confirmed as less than R10 million and they provided an affidavit in this regard and an automatic BBBEE rating of **Level 4** is applicable.

The further commitment from the Modderasrivier Trust within the agriculture trade was studied and it was determined that the firm contribute extensively towards job creation in the agricultural sector. The contribution in terms of job creation ensure that the past racial and gender discrimination is addressed.

- Employment Equity

A constant employment amount of 40-50 farmworkers is employed in different job positions on the farm. The demographic of the work profile is listed below:

Table 5: Workforce Profile

African Male	Coloured Male	White Male	African Female	Coloured Female	White Female	**Total**
17	3	1	18	3	1	**43**

Seasonal temporary workers are hired when required during harvesting times. A total of 10 Males and 10 Females are hired on an annual basis.

- Skills Development

The Modderasrivier Trust ensure that the farmworkers are exposed to several skills' development opportunities. Some life skills trainings are provided in-house on a regular basis. This includes the following:

- First Aid.
- Health & Safety.
- Fire Fighting.
- Chemical Handling.
- Personal Hygiene.

Further job orientated training are provided when required and includes the following:

- Forklift Training.
- Tractor driver licence.
- Irrigation scheduling and equipment.
- Pruning of maintenance of fruit trees.

- Socio-economic Development

Housing, education, medical services, and transport are provided as required. These services ensure in collaboration with a fixed job opportunity that the farmworkers get access to the financial system and to improve living standards.

- Supplier Development

Accredited suppliers are used, and it includes the Overberg and Agrimark in Tulbagh and Porterville.

c) Efficient and beneficial use of water in public interest

The enlarged Modderas Dam would provide better water surety if more water that is currently taken directly from the stream can be stored. A volume of 132 460m^3/a from the stream can be regarded as ELU. The application includes a volume of 79 476m^3/a that will be stored in the Modderas Dam in combination with the capacity of Dam 2 that will be decommissioned.

The agricultural activities taking place in the Tulbagh district play a major role in the agriculture and agri-business sectors. The project is situated in the Tulbagh area, which is well-suited to producing high value crops under irrigation. The enlargement of the Modderas Dam would assist the applicant to make more efficient use of the surface resource, as water could be stored in winter months to be used for irrigation in summer months.

Additional storage in the enlarged dam will ensure that beneficial irrigation of crops can take place. This will make the farming business more viable and allow for a greater contribution in terms of the GDP for the country.

The additional 79 476m^3/a of water that will be taken from the stream, to fill the dam can be regarded as part of the Existing Lawful Water. The water taken will be subjected to measurement to ensure that the allocation of water cannot be exceeded. The Freshwater study report has proposed that a simple water balance must form part of the application. A specified % of the incoming water will be released to ensure that the reserve will be addressed, however it is also noted that a major portion of the reserve will be addressed from the stream in which Dam D2 is situated. It is proposed to decommission Dam D2 and therefore all water from that stream will be available for the reserve.

Drip irrigation is regarded as the most efficient irrigation system, and it saves time, money, and water because the system is so efficient.

d) Socio-economic impact:

i. Of the water use if authorised

The applicant created job opportunities and could create even more job opportunities. The secure jobs that are provided to permanent workers also provides the workers and their families opportunities to education, medical services, transport, and training.

The agriculture activities on the Modderas Farm will improve equity, justice, well-being, and dignity for farm workers. This will be applicable in the full food and agricultural supply value chain and more importantly within the rural communities.

The enlargement of the Modderas Dam will provide better surety in terms of water availability for the irrigation of the existing crops. A better water availability will increase the harvesting yield of the crops and thus provide a secure income that will ensure a profitable farming business.

ii. Of the failure to authorise the water use

If more water cannot be stored, the irrigation of the existing crops will be negatively influencing the quality of the agriculture crops on the property. A lower harvest yield will also have a negative impact on the market and job creation in the agriculture sector.

A viable successful farming business will ensure a contribution to the Gross Domestic Product of the country in terms of income, investment and food security.

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

Currently there is no Catchment Management Strategy (CMS) for the Berg River WMA. Once the CMS is available it should bring social, technical, water, economic, environmental and political-institutional aspects and issues in the Berg River WMA together to ensure the sustainable management of water resources.

This application is not for the taking of new water, but only to store a larger portion of the existing lawful water use that will ensure a more viable agriculture venture to the benefit of all.

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

A Freshwater Specialist Report has investigated the likely effect of the water use on the water resource.

The aquatic ecosystem assessment has determined that the stream, in which the existing Modderas Dam is located, is already moderately to largely modified. The instream habitat is largely modified within its riparian zone. The river is of moderate ecological importance and sensitivity with a target ecological condition of moderately modified. Removal of invasive alien vegetation along the riverbanks would assist in improving the ecological integrity of the river over the long term.

The proposal to enlarge the Modderas Dam from 200 000m^3 to 310 000m^3 including the decommissioning of Dam D2 with capacity of 31 000 m^3, was assessed. The potential aquatic ecosystem impacts associated with the proposed dam enlargement are:

- Modify flow in the watercourse downstream of the dam.
- Disturbance and modification of aquatic habitat within the dam basin of the enlarged dam.
- Short-term water quality impacts during the construction works.
- Indirect impact on aquatic biota.

The Modderas Dam is an instream dam on the lower Modderas Tributary of the Klein Berg River. The tributary contributes less than 1% of the flow to the Klein Berg River. The enlargement dam would likely however be a greater than 1 MAR dam which implies it will likely not spill every year, only in wetter-than-average years. Environmental flow mitigation was proposed to maintain the downstream watercourse.

The tributary that joins the Modderas River downstream of the dam in which Dam D2 is situated contributes about 40% of the flow in the lower river. The decommissioning of Dam D2 will therefor ensure the EWR contribution for the lower river from this tributary.

The proposed decommissioning of Dam D2 must follow the mitigation measures to protect the wider riparian and seep area associated with the smaller tributary of the Modderas River.

If the proposed EWR releases and mitigation measures are implemented, it will limit the impact on the water resource or any other downstream water user.

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

The proposed classes of the water resources and resource quality objectives for the water resources in the Berg Catchment were published in GN 655, dated 10 May 2019.

The Present Ecological State of the G10E quaternary catchment has been indicated as C/D Ecological Category.

Integrated Unit of Analysis (IUA)	Water Resource Class for IUA	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	% nMAR*
A1 Berg Estuary	II	G10M	A1-E01	Berg (Groot)	Bxi1	C	52
A2 Langebaan	II	G10M	A2-E04	Langebaan	Bxi3	A	N/A
D8 Upper Berg	II	G10A	D8-R01	Berg	Bvii13	A	98
		G10A	D8-R02	Berg	Bviii1	C	27
		G10C	D8-R03	Berg	Biii3	D	53
D9 Middle Berg	III	G10C	D9-R04	Pombers	Bvii11	C	366
		G10D	D9-R05	Kromme	Bvii3	D	89
		G10D	D9-R06	Berg	Bvii5	D	49
C5 Berg Tributaries	II	G10E	C5-R07	Klein Berg	Biii4	C	82
		G10G	C5-R08	Vier-en-Twintig	Bi1	B/C	23
B4 Lower Berg	III	G10J	B4-R09	Berg	Bvii6	D	52
		G10K	B4-R10	Berg	Bvii12	D	51
D10 Diep	III	G21D	D10-R11	Diep	Bv1	D	66
		G21D	D10-R12	Diep	Biv6	D	68
		G21F	D10-E03	Rietvlei / Diep	Bxi7	C	78
E11 Peninsula	II	G22B	E11-R13	Hout Bay	Bvii16	D	97
		G22A	E11-R14	Silvermine	Bvi20	C	98
		G22A	E11-E04	Wildevöelvlei	Bxi14	C	107
E12 Cape Rats	III	G22D	E12-R15	Keysers	Bvi7	D	93
		G22K	E12-E05	Zandvlei	Bxi9	C	93
		G22K	E12-E05	Zeekoevlei	Bxi9	D	N/A
D6 Eerste	III	G22F	D6-R16	Eerste (Jonkershoek)	Biii6	C	93
		G22G	D6-R17	Klippies	Biv8	D	77
		G22H	D6-E06	Eerste	Bxi3	D	90
D7 Sir Lowry's	II	G22J	D7-R18	Lourens	Bvi21	D	114
		G22K	D7-R19	Sir Lowry's Pass*	Bviii9	C	84
		G40A	D7-R20	Steenbras	Bvi22	B/C	81
		G22J	D7-E07	Lourens	Bxi4	D	85

Figure 8 Summary of recommended Water Resource Classes for each IUA and the Target Ecological Category (TEC) for priority biophysical river and estuary nodes

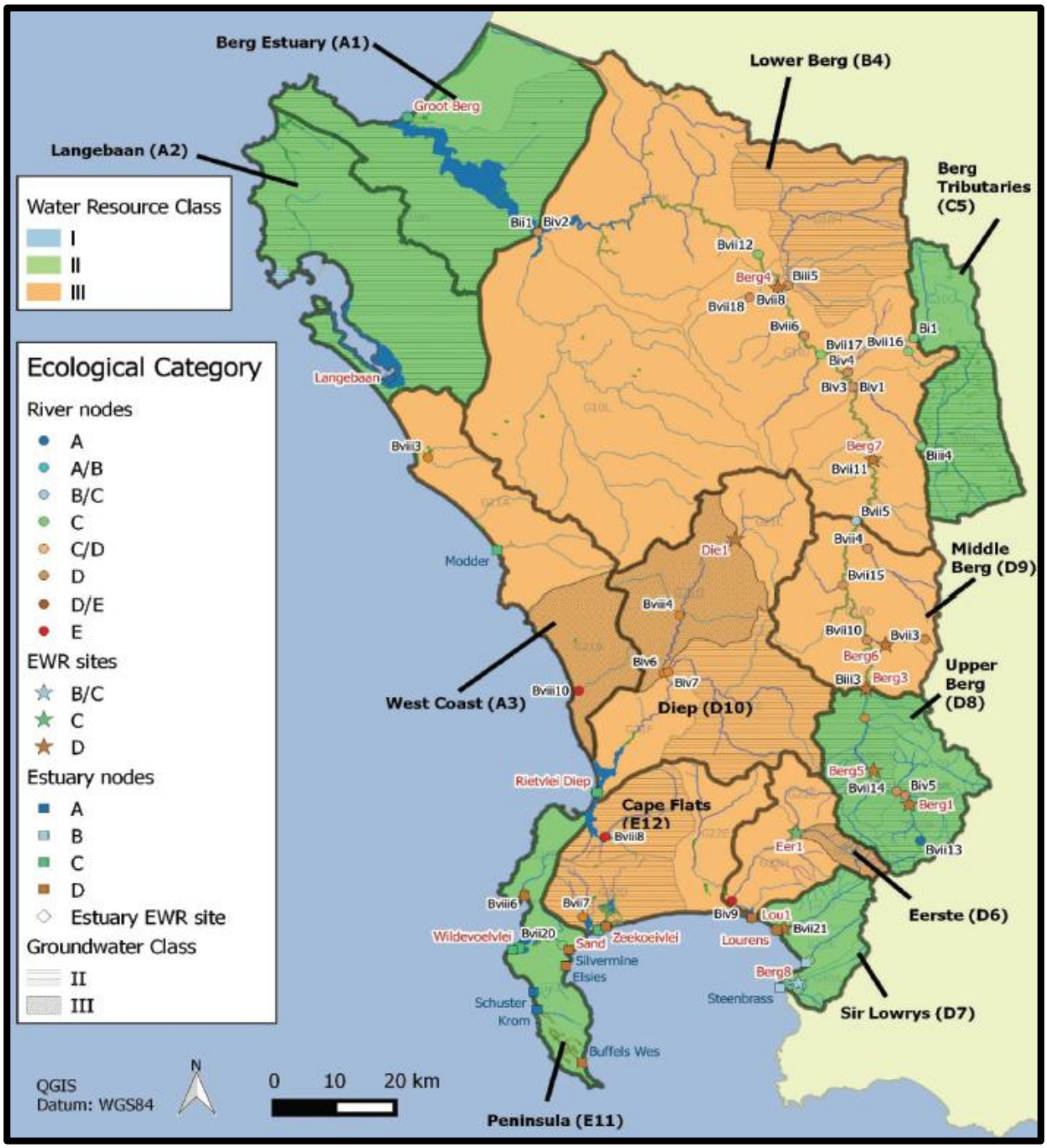


Figure 9: Proposed Water Resource Classes for the Berg Catchment

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

The enlargement of the Modderas Dam on Portion 1 of farm Roode Zands Kloof 66, Tulbagh is critical to the success of the farming activities.

The enlarged storage dam will assist with the water supply during the irrigation season. The Modderas Dam will ensure that the permanent crops will be irrigated, and no negative impact can be expected on the farming business.

The following cost estimates include the construction of the dam and all the requirements in terms of specialist studies in preparation for the construction of the Modderas Dam and the complete project:

Enlargement Construction	R 4 600 000-00
Engineering feasibility studies	R 30 000-00
Survey, planning and investigation	R 30 000-00
Environmental & other authorisations	R 300 000-00
TOTAL INVESTMENTS	R 5 000 000-00

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 Modderas Dam 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]