DRAFT ENVIRONMENTAL IMPACT REPORT
APPENDICES: VOLUME NR. 1

LOWS CREEK DAM PROJECT: DEVELOPMENT OF AN INSTREAM STORAGE DAM FOR IRRIGATION PURPOSES ON PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU LOWS CREEK-KAAPMUIDEN AREA, MPUMALANGA.
PROJECT REFERENCE: 1/3/1/16/1E-294

PREPARED BY:

RHENGU ENVIRONMENTAL SERVICES
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MALELANE **Fax: 086 685 8003**
1320 **E–mail: rhengu@mweb.co.za**

PREPARED FOR:

MR. WALTER GIURICICH/RIAAN KOTZE

FOR SUBMISSION TO:

DEPARTMENT OF AGRICULTURE, RURAL DEVELOPMENT, LAND AND ENVIRONMENT AFFAIRS, MPUMALANGA PROVINCIAL GOVERNMENT

APRIL 2021

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ABBREVIATIONS

ASAP	As Soon As Possible
Asl	Above sea level
BEE	Black Economic Empowerment
CBAs	Critical Biodiversity Areas
cm	centimetre
DAFF	Department of Agriculture, Forestry and Fisheries
DARDLEA	Department of Agriculture, Rural Development, Land and Environment Affairs
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ELU	Existing Lawful Use
EMPr	Environmental Management Programme
ER	Ecological Reserve
ESKOM	Electricity Supply Commission
EWR	Ecological Water Requirement
GPS	Geographical Positioning System
ha	Hectare
HIA	Heritage Impact Assessment
I&AP's	Interested and Affected Parties
IEM	Integrated Environmental Management
IUCMA	Inkomati Usuthu Catchment Management Agency
KNP	Kruger National Park
kPa	kilopascal
LUDS	Land Use Decision Support Tool
m	metre
mm	millimeter
MTPA	Mpumalanga Tourism and Parks Agency
m/s	metre per second
NA	Not Applicable

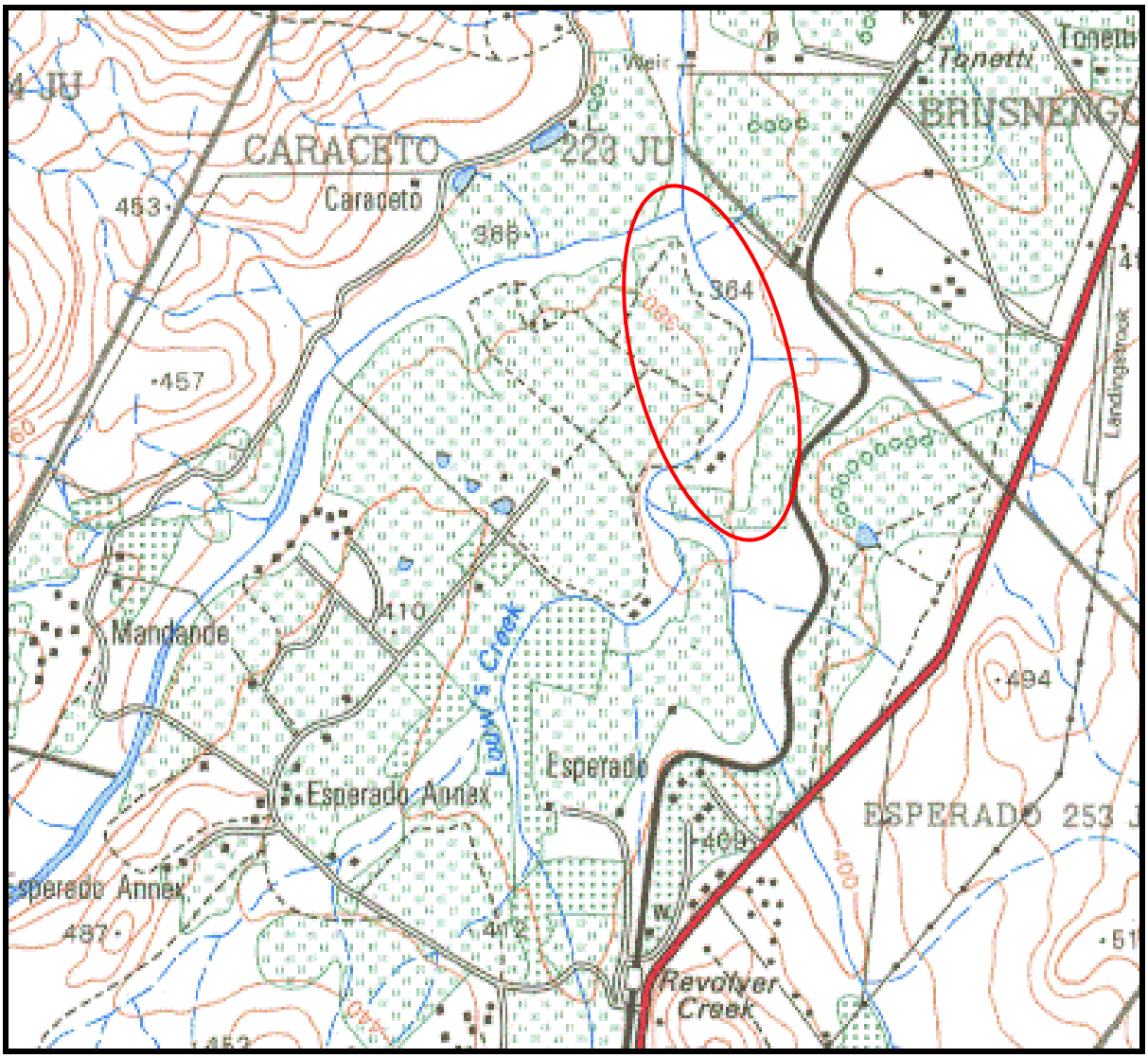
NEMA	National Environmental Management Act
NHBRC	National Housing Building Regulations Council
OHASA	Occupational Health and Safety Act
OMPr	Operational Management Programme
ONA	Other Natural Areas
PDI	Previously Disadvantaged Individual
PES	Present Ecological State
PPP	Public Participation Process
RES	Rhengu Environmental Services
ROD	Record of Decision
ROW	Right of Way
SABS	South African Bureau of Standards
SAHRA	South African Heritage Resources Agency
sqm	square metre
WULA	Water Use Licence Application

APPENDIX 1:
SITE MAPS
SITE PHOTOGRAPHS

GPS Position of the preferred dam site as per the map included in Appendix 1: See Maps below.

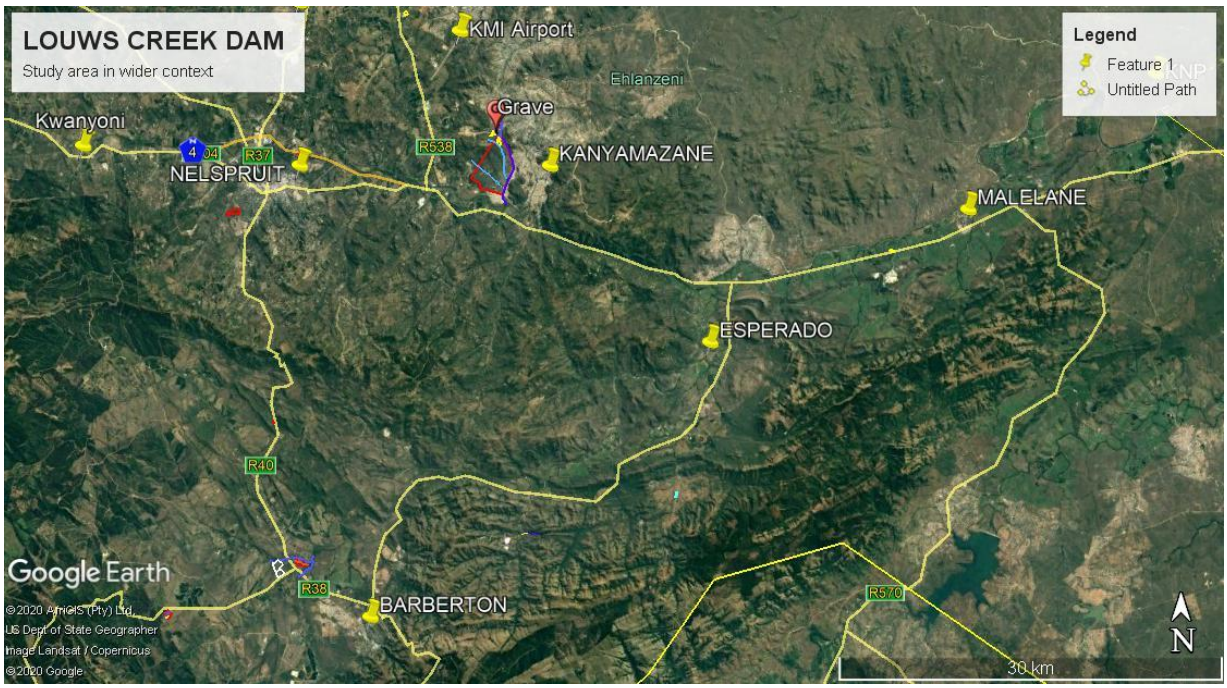
Preferred Site	South	East
A	25°35' 30.6"	031°18' 32.2"

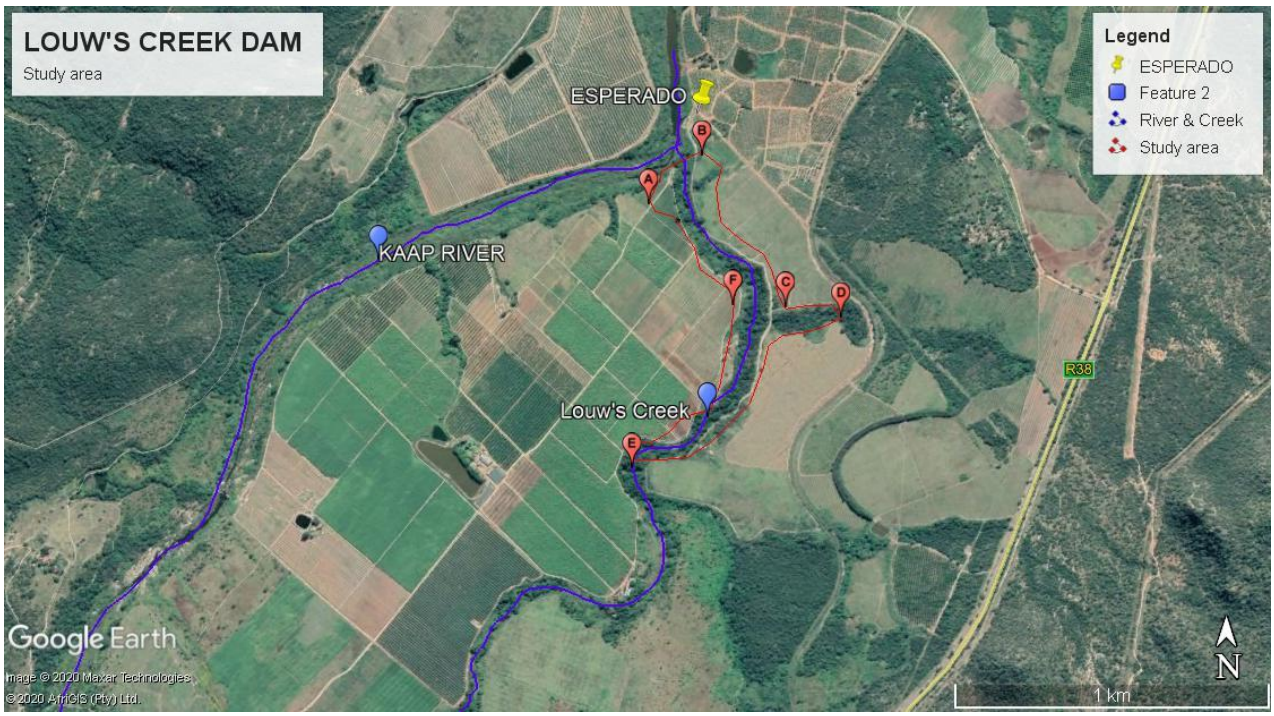
LOCALITY AND TOPOGRAPHICAL MAP: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU



1984 Topographical Map: The study area is within the red oval. Extensive cultivated lands are visible. Red Road: Kaapmuiden to Lows Creek Provincial Road.

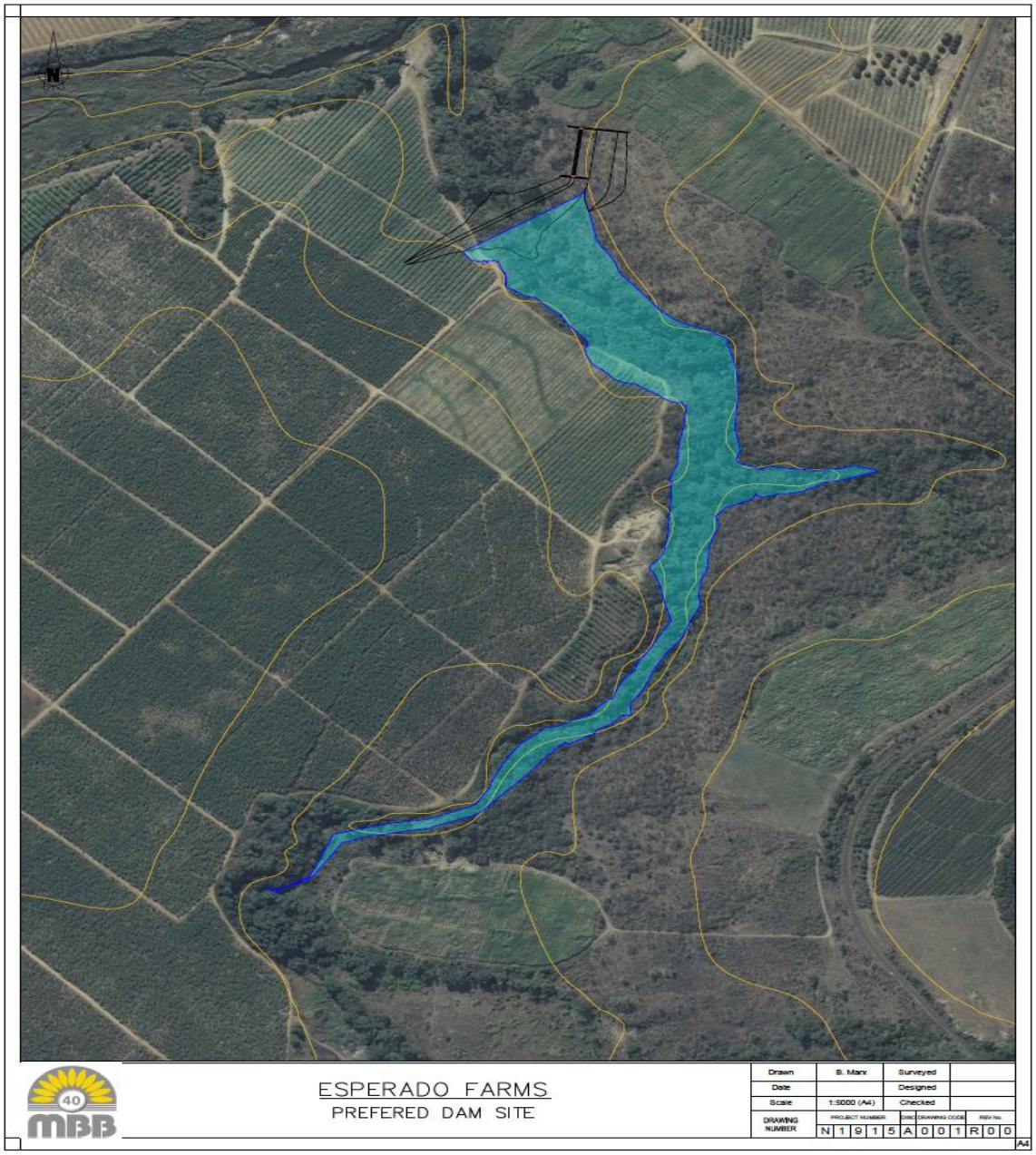
LOCALITY GOOGLE MAP: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU



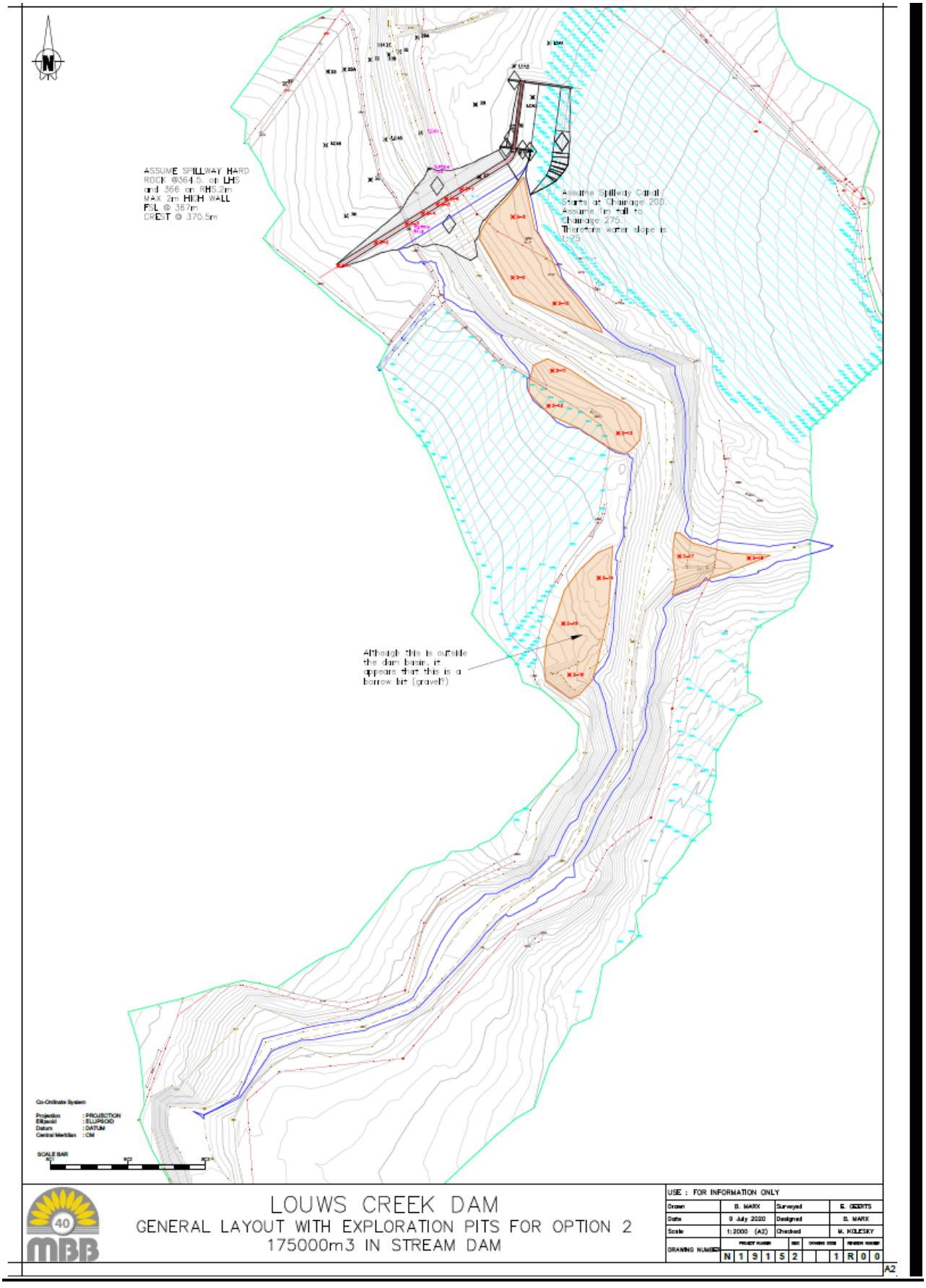


The study area is indicated by the red line.

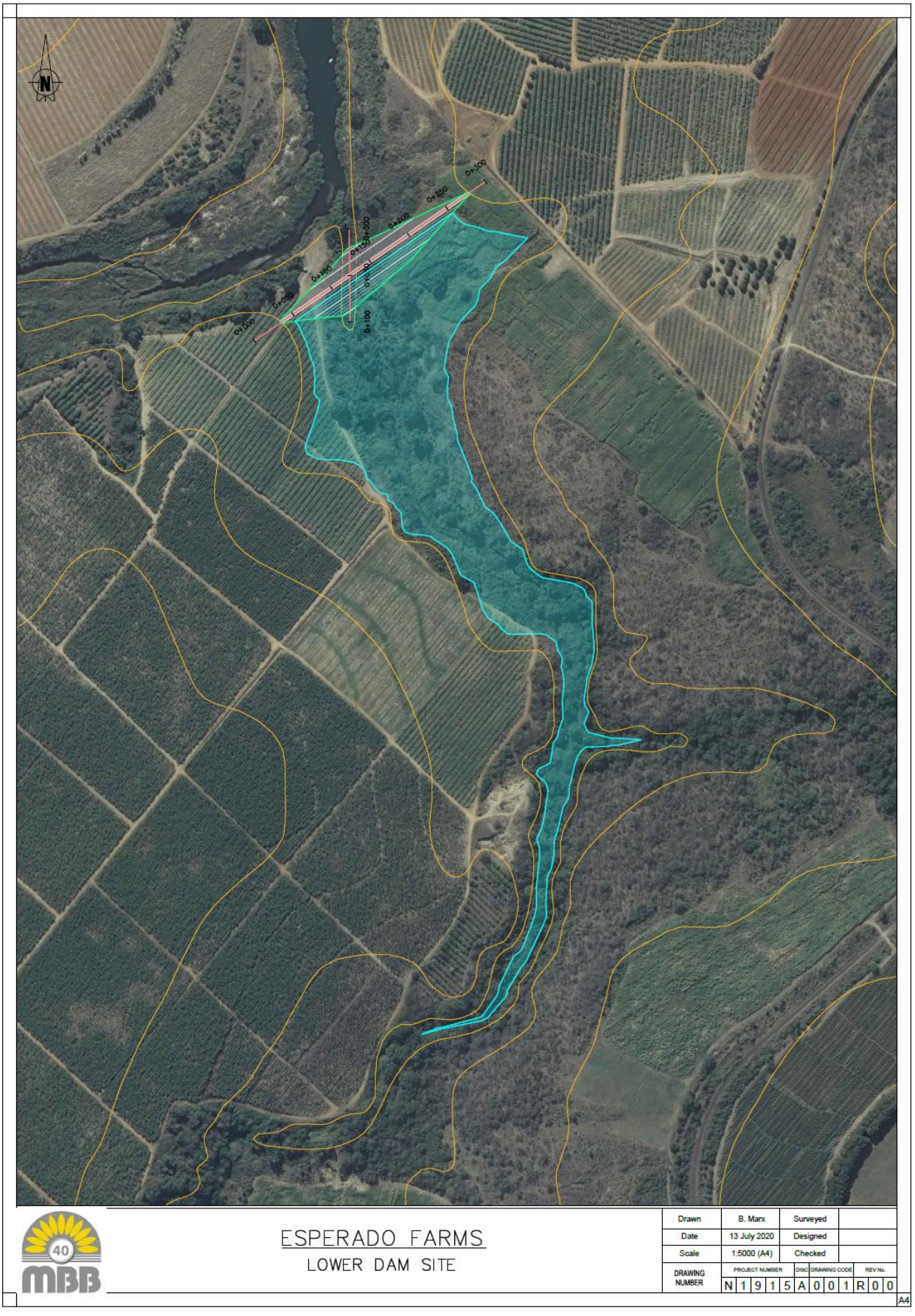
PREFERRED OPTION DAM SITE A: GOOGLE EARTH MAP: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU

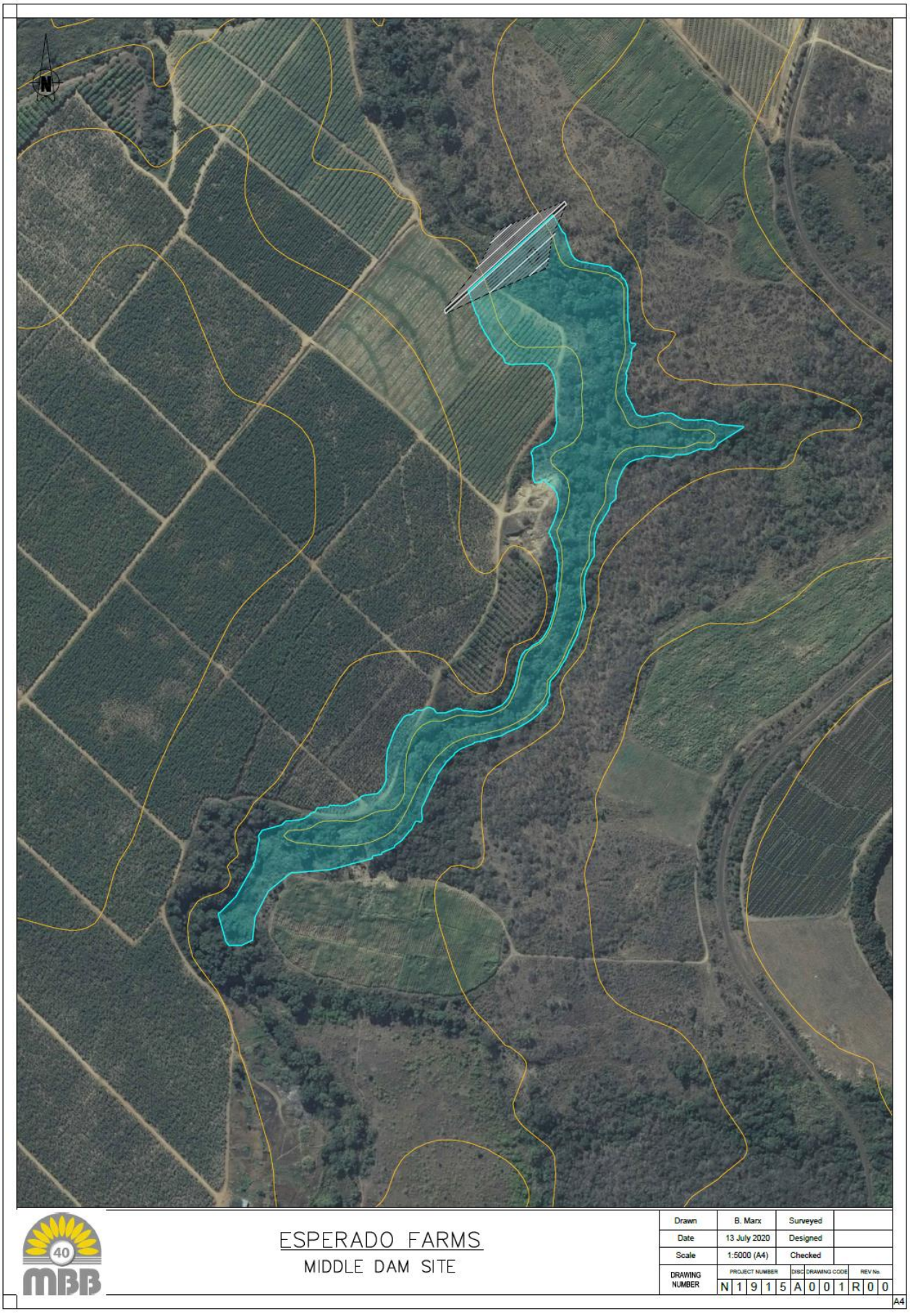


PREFERRED OPTION DAM SITE A CONTOUR MAP: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU



THREE ALTERNATIVE DAM SITE OPTIONS MAP: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU




N
ESPERADO FARMS
MIDDLE DAM SITE
Drawn
B. Marx
Surveyed
Date
13 July 2020
Designed
Scale
1:5000 (A4)
Checked
DRAWING NUMBER
PROJECT NUMBER
DISC
DRAWING CODE
REV No.
N 1 9 1 5 A 0 0 1 R 0 0
A4

ESPERADO FARMS

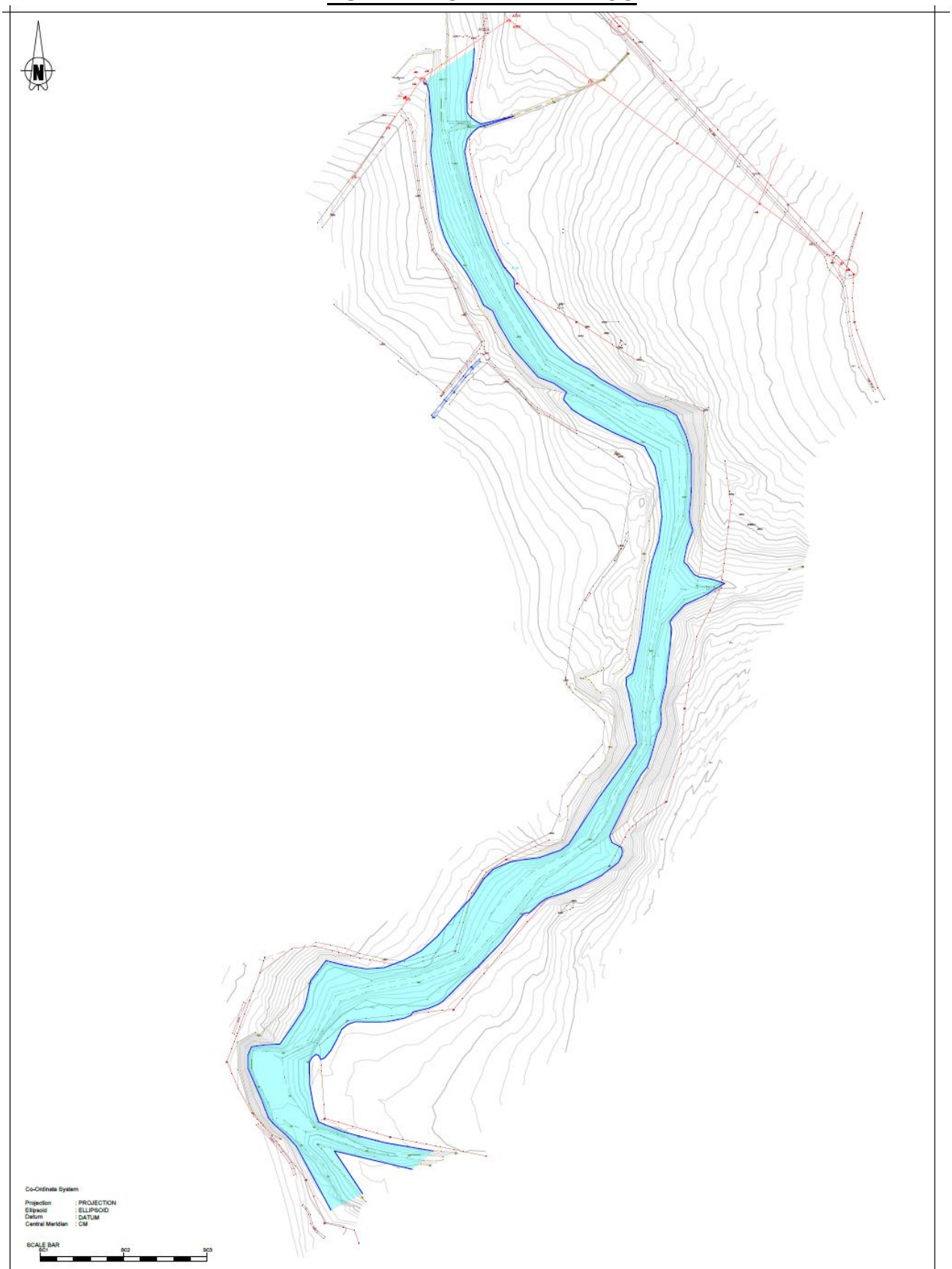
UPPER DAM SITE

Drawn	B. Marx	Surveyed	
Date	13 July 2020	Designed	
Scale	1:5000 (A4)	Checked	

DRAWING NUMBER	PROJECT NUMBER				DISC	DRAWING CODE			REV No.		
	N	1	9	1	5	A	0	0	1	R	0	0

A4

1:100 YEAR FLOODLINE MAP OF THE PREFERRED DAM SITE: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU



LOUWS CREEK
1:100 YEAR FLOOD LINE (377m³/s)

USE : FOR INFORMATION ONLY			
Drawn	B. MARX	Surveyed	E. GEERTS
Date	October 2020	Designed	B. MARX
Scale	1:2500 (A2)	Checked	
DRAWING NUMBER	PROJECT NUMBER: N 1 9 1 5	SEC	DRAWING CODE: 1
			REVISION NUMBER: R 0 0

A2

Site Photographs: EIA: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222 JU

Figure 1: Public Participation: Advertisement at Project Site Entrance off Provincial Road.

Figure 2: Public Participation: Advertisement at Project Site Entrance off Provincial Road. Farm workers in background.

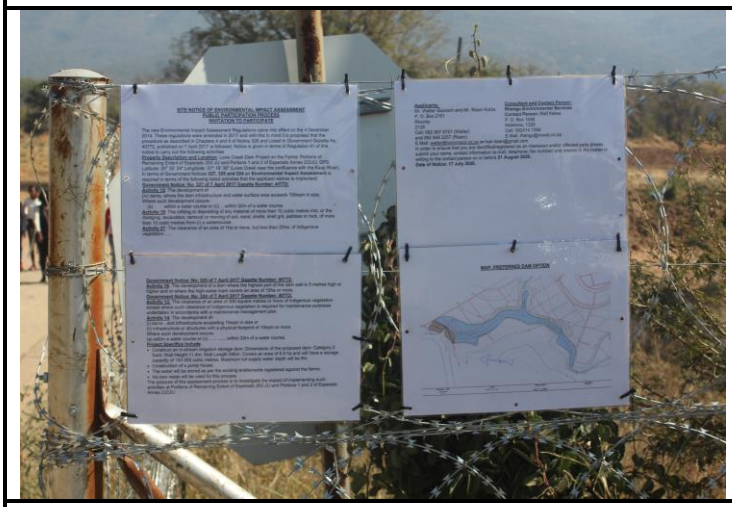


Figure 3: Public Participation: Close up view of Site Notice.

Figure 4: Public Participation: Advertisement at Farm Entrance Gate: Giuricich Property.

Figure 5: Public Participation: Advertisement at Farm Entrance Gate: Giuricich Property.

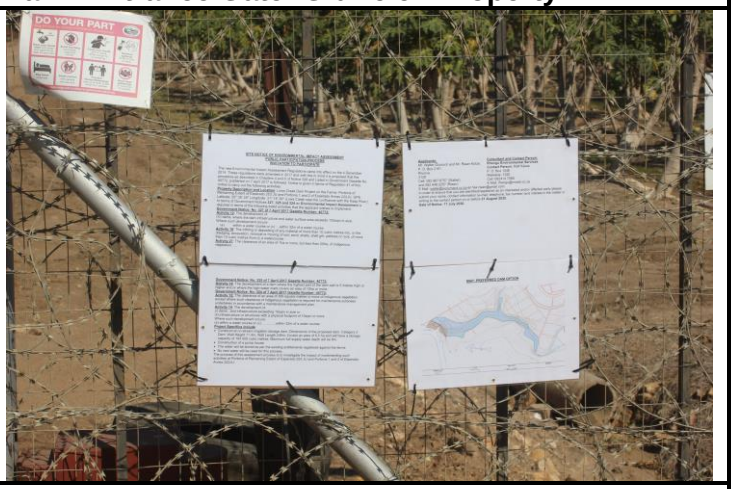


Figure 6: Public Participation: Close up view of Site Notice: Giuricich Property.

Site Photographs: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222 JU

Figure 7: Public Participation: Advertisement at Farm Entrance Gate: Kotze Property.

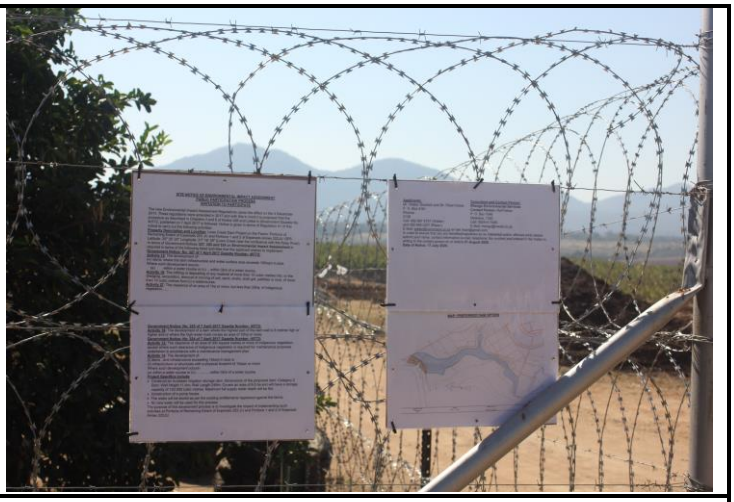
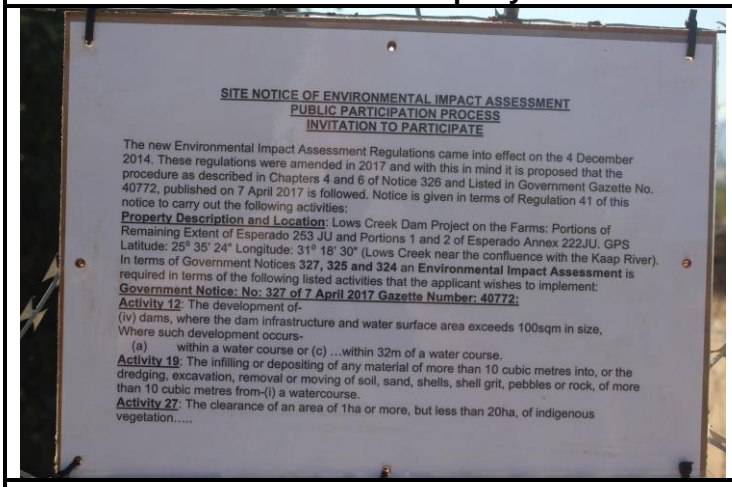


Figure 8: Public Participation: Advertisement at Farm Entrance Gate: Kotze Property.



SITE NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT
PUBLIC PARTICIPATION PROCESS
INVITATION TO PARTICIPATE

The new Environmental Impact Assessment Regulations came into effect on the 4 December 2014. These regulations were amended in 2017 and with this in mind it is proposed that the procedure as described in Chapters 4 and 6 of Notice 326 and Listed in Government Gazette No. 40772, published on 7 April 2017 is followed. Notice is given in terms of Regulation 41 of this notice to carry out the following activities:

Property Description and Location: Lows Creek Dam Project on the Farms: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU. GPS Latitude: 25º 35' 24" Longitude: 31º 18' 30" (Lows Creek near the confluence with the Kaap River). In terms of Government Notices **327, 325 and 324** an **Environmental Impact Assessment** is required in terms of the following listed activities that the applicant wishes to implement:

Government Notice: No: 327 of 7 April 2017 Gazette Number: 40772:

Activity 12: The development of-
(iv) dams, where the dam infrastructure and water surface area exceeds 100sqm in size,
Where such development occurs-
(a) within a water course or (c) …within 32m of a water course.

Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock, of more than 10 cubic metres from-(i) a watercourse.

Activity 27: The clearance of an area of 1ha or more, but less than 20ha, of indigenous vegetation…..

Figure 9: Public Participation: Close-up of Advertisement at Farm Entrance Gate: Kotze Property.

Figure 10: Public Participation: Advertisement at Lows Creek Town Supermarket.

Figure 11: Public Participation: Advertisement at Lows Creek Town Supermarket. Post Boxes in foreground.

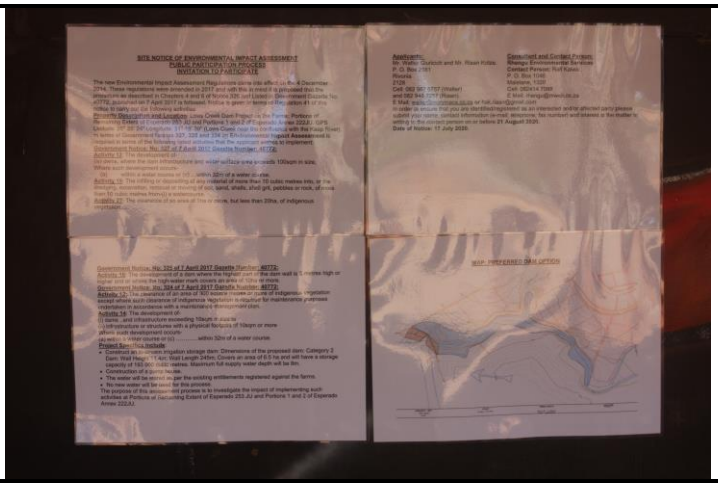


Figure 12: Public Participation: Advertisement at Lows Creek Town Supermarket. Close-up View.

Site Photographs: EIA: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222 JU

Figure 13: PPP: Public Meeting: Officials, Interested and Affected Parties, Irrigation Boards.

Figure 14: PPP: Public Meeting: Officials, Interested and Affected Parties, Irrigation Boards.

Figure 15: PPP: Public Meeting: Covid 19 Regulations applicable. Social distancing important.

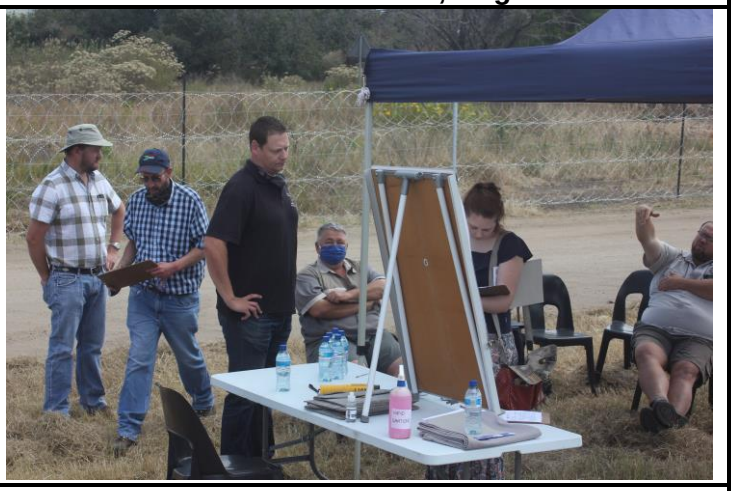


Figure 16: PPP: Public Meeting: Covid 19 Regulations applicable.

Figure 17: Old Pump Station: Kotze Property. Near preferred site.

Figure 18: Preferred Dam Site Option. Near the confluence between the Lows Creek and the Kaap River.

Site Photographs: EIA: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222 JU

Figure 19: Powerlines and Pump House: Near Preferred Site.

Figure 20: Farm equipment and storage facilities: Kotze Farm.

Figure 21: Farm Equipment and Nursery: Kotze Farm.

Figure 22: Papaya Orchards on the Kotze Property.

Figure 23: Macadamia Orchards have been established.

Figure 24: Both Farms produce a variety of crops.

APPENDIX 2:
PUBLIC PARTICIPATION PROCESS
ISSUES AND RESPONSES REPORT
INTERESTED AND AFFECTED PARTIES REGISTER
COPIES OF ADVERTISEMENTS, NEWSPAPER NOTICES AND MINUTES
COPIES OF E-MAIL CORRESPONDENCE
COPIES OF NOTIFICATIONS AND REPORT SUBMISSIONS

ISSUES AND RESPONSES REPORT:
LOWS CREEK DAM PROJECT: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU

Interested and Affected Party: **Note: Questions/queries posed by all parties during meetings, discussions and informal conversations are listed below and included in the report.**	**Response**
1.AG: What department is responsible to assess the EIA process? What department is responsible for investigating transgressions of the National Environmental Management Act?	**1. RK**: The Department of Agriculture, Rural Development, Land and Environment Affairs (DARDLEA) will assess the EIA Reports and the information that is submitted and take a decision on the outcome of the application. Transgressions must also be reported to DARDLEA who will refer the incident to its Compliance and Monitoring Section.
2.HK: How will the new WULA process affect the existing licences, permissions that are in place? Is it a new licence? Also, as we are two applicants how will the licence be allocated, in other words will the new licence be in the name of the dam or a specific person or persons?	**2.JE**: The new licence will be a separate licence, in other words a new licence? Section 33 (abstraction) stays as is and the new WULA will address the new activity, i.e., building a dam and storing water. Sections 21b and c and i will be applicable for the new WULA. Only one company/person's name will be on the licence. This was affirmed by **TR.** The beneficiary list can however include more than one entity. **RK**: It was decided that this is a legal issue which must be resolved through a Memorandum of Agreement (MOA) between the two applicants and has little bearing on the EIA at this stage.
3.AG: Once the dam is completed how will the authorities ensure that the normal flow of the Lows Creek remains intact and functional especially during dry seasons.	**3.AD**: Andrew felt it necessary at this point to explain how his and other studies contribute to the decision making/taking process. Following various ecological assessments, the river is classified. The classification then lists the river as relatively pristine (A Category) all the way to E (badly affected, poor condition etc.). Based on the condition of the river, the presence or absence of sensitive components of biodiversity, the requirements of the fish etc. Andrew's information is then submitted to the Hydrologist (Mr. Stephen Mallory in this case) and the river is then classified. In this case the Lows Creek was classified as a Category B river. Stephen Mallory then using a flow determination model defined the **ecological water requirement** (EWR) which will be necessary during the various months of the year to ensure that the Lows Creek below the dam continues to maintain its ecological integrity. The management authority of the dam will thus have to release the EWR as per the flow requirement table identified during this assessment process. **BM**: Added that the dam is very small and the catchment is quite big. The dam will thus never be able to hold all the water that flows down in the catchment and thus

	water should always be available in the system. Secondly to address the concerns of the downstream users the design of the dam will include the installation of water measuring meters above the dam (measuring what goes into the dam) and one below the dam (measuring water flowing out of the dam). There are no new water rights being applied for. The applicant can take water out of the river and or the dam. Water abstraction must however remain with the approved allocated amount as per the water entitlement.
4.MR: Will the structures measuring the in- and out flow be permanent structures, and who will monitor these flows?	**4.BM**: Yes, structures will be permanent. **WG**: The Lows Creek Irrigation Board/Water Baliff will monitor the flow. Esperado and the Annex falls under the Lows Creek Irrigation Board. The water entitlement covers two systems: The Shiyalongubo and the Lows Creek. The Water Baliff responsible for these systems must monitor the abstraction.
5.RO: The Section 33 approval that the applicants have does not distinguish between the river and or the canal system. You are entitled to 40ha of water. You cannot use the Shiyalongubo system as part of your argument. Although the dam is in the Lows Creek area and the Lows Creek Irrigation Board has jurisdiction the Major Irrigation Board is responsible for the whole catchment system. **MR** will thus also be involved in the monitoring of the abstraction and storage/release process.	**5. RK**: Comments noted.
6.HK: I want clarity on water flowing in and out of the dam? What must be allowed out, even during low flow or during the dry season? Also let us say the dam is 100% full how much can each party abstract especially during the dry season?	**6.RK**: The EWR must be honoured and let through at all times. You are only entitled to abstract the water from the system (river, dam, canal etc.) as per your entitlement. If restrictions are in place at the time, then that will also play a role and you must honour the restrictions as well. The abstraction amount (as per your hectarage) between yourself and WG will have to be decided amongst yourselves, however the EWR will have to be honoured and the engineers will design the dam to also allow for movement of fish and to release the water. A fishway will be installed. **WG** also commented that the Shiyalongubo system is part of the Lomati system and is also subjected to restrictions from time to time. RK suggested that an operational plan will have to be developed between the two applicants to ensure a sustainable and amicable use of the stored water.
7. AG: Do I understand this correct now. This dam and whatever is stored is basically an insurance policy that when the flow in the river goes down you can use the water that you have stored in the dam. You are not allowed to exceed your abstraction amount as per your entitlement.	**7. RK**: Correct.

8. DV: Made the following statement: "The dam as he understands it is to store water during the wet season. It is to be used during the dry season and is thus an insurance policy. It also benefits us downstream as we can then be assured of water during difficult times". **DV**: Will you abstract from the river to fill up the dam if there is not enough rain in the Shiyalongubo system? **Final Comment by DV:** I do not have a problem with the proposed dam.	**8. WG:** We (the applicants) have not decided detail yet. We have off stream facilities (balancing dams) that we will utilise. We will however only abstract and store as per our entitlements. We do however feel that during the season the dam will be kept full from the Shiyalongubo system under normal rainfall conditions. **WG**: Shiyalongubo is obligated to provide 50 000 gallons per day. During this past season, the system continued to support the Lows Creek with water.
9.MR: The meeting must take note that there are many drainage lines and other tributaries that contribute to the water in the Lows Creek and Kaap River. It not only dependent on the Shiyalongubo system.	**9. RK**: Comment noted.
10.AG: All we request is that the dam, if possible, must fill up during the rainy season and we want to have the abstraction and storage amounts monitored by the responsible Irrigation Boards and Water Baliffs. If that is accepted by the meeting, we have no further issues with the application.	**10. RK**: Comment noted.
Interested and Affected Party: **Note: Questions/queries/comments submitted by Interested Parties on the contents of the Draft Basic Assessment Report.**	
1.MTPA: See letter from MTPA below and response by RES.	

List of Participants in Discussions and Queries listed above:

- Mr. Alwyn van Graan (AG) Farmer and Lower Kaap Irrigation Board.
- Mr. M. de Jager (MJ) Farmer and Neighbour.
- Mr. D. Venter (DV) Farmer and Neighbour.
- Mrs. Ronel Oelofsen (RO) Major Irrigation Board: Kaap River.
- Ms. Chane Scheepers (CS) Major Irrigation Board: Kaap River.
- Mr. Mare Le Roux (MR) Major Irrigation Board: Kaap River.
- Mr. Thabo Rasiuba (TR) Inkomati Usuthu Catchment Management Agency.
- Mr. H. A. Kotze (HK) Applicant.
- Dr. Andrew Deacon (AD) Biodiversity Specialist.
- Mr. Barend Marx (BM) Project Engineer.
- Mr. Walter Giuricich (WG) Applicant.
- Mrs. Karin Pelser (KP) IWULA Consultant. Project Team Member.
- Mr. Johan Enslin (JE) IWULA Consultant. Project Team Member.
- Mr. Ralf Kalwa (RK) Rhengu Environmental Services.

PUBLIC PARTICIPATION AND ROLEPLAYERS REGISTER:
INTERESTED AND AFFECTED PARTIES: PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU

Name; Company, Department	Postal Address	E Mail	Fax	Telephone or Cell Number	Attended Public Information Meeting
Abel	NA	Matsulu1@retail.spar.co.za	NA	072 347 7895	No
Deacon, Andrew Dr	House 4, Jakkalsbessie Farm, Opdraend Road, Malelane	andrewd@mpu.co.za	NA	082 325 5583	Yes
De Jager, Marc	Tonetti	Marc@tonetti.co.za	NA	071 319 1981	Yes
Enslin, Johan	Riverside Estate, Skeerpoort, 0232	iwulaspecialist@gmail.com	NA	072 332 2442	Yes
Fakude, Comfort Mdumiso	NA	mdumisocomfort@gmail.com	NA	072 978 6343	No
Giuricich, Walter	P. O. Box 2161 Rivonia 2128	walter@ivorymacs.co.za	NA	082 967 6757	Yes
Kotze, Riaan	Esperado Farm	hak.riaan@gmail.com	NA	082 948 2257	Yes
Marx, Barend	11 Streak Street, Nelspruit, P. O. Box 498, Nelspruit, 1200	barend@mbbnel.co.za	013 752 8213	083 354 5521 013 752 8213/6	Yes
Mazibuko Eugene, Mbongeni	NA	Mbongenieugene1@gmail.com	NA	079 114 2196	No
Mohle, Nicola	NA	nicola@jrmpallets.co.za	NA	083 472 5632	No
Ndlakude, Zito	NA	znlakude@gmail.com	NA	072 880 6673	No
Ndlovu, Sibusiso	NA	Sstarring305@gmail.com	NA	079 058 9262	No
Nkosinathi, Edwin	NA	EdwillNkosinathi995@gmail.com	NA	NA	No
Olive, Sicelo	NA	Siceloolive933@gmail.com	NA	079 717 2407	No
Pelser, Karin	NA	Kp.iwulaspecialist@gmail.com	NA	082 909 5400	Yes
Tsilane, Samuel	NA	tsilanesamuel@gmail.com	NA	NA	No

Van Graan, Alwyn	Klipfontein	baiebesig@gmail.com	NA	083 457 3911	Yes
Venter, Daniel	Eureka	daniel@siyalima.co.za	NA	083 679 7536	Yes
Government or Official Departments/Business Interests	Postal Address	E Mail	Fax	Telephone or Cell Number	Attended Public Information Meeting or other Focus Group Meeting
Claasen, Adri.: Lows Creek Irrigation Board.	P. O. Box 76, Lows Creek, 1302	lowscreekwater@gmail.com	NA	073 170 9146	No
Khumalo, Nokukhanya: SAHRA	P. O. Box 4637, Cape Town, 8001	nkhumalo@sahra.org.za	021 462 4509	021 462 4502	No
Krige, Frans: MTPA	Private Bag X 11338, Nelspruit, 1200.	frans@mtpa.co.za	013 755 3928	013 759 5300	No
Le Roux, Mare	12 Judge Street, P. O. Box 451, Barberton, 1300	water@ roseinnes.co.za		071 301 9856	Yes
Oelofsen, Ronel: Kaap River Valley Major Irrigation Board (also C. Scheepers)	12 Judge Street, P. O. Box 451, Barberton, 1300	Majorboard@roseinnes.co.za		013 712 4200 071 403 3670	Yes
Mabuza, Dumisani: Mbombela Municipality	City of Mbombela P. O. Box 45, Mbombela, 1200	Dumisani.mabuza@mbombela.gov.za	NA	013 759 9140	No
Malele, Khumbelo	Private Bag X 11338, Nelspruit, 1200.	khumbelomalele@gmail.com		013 235 2395 Ext. 222	No
Mashabela, Frans: DAFF: LUSM	P. O. Box 8806, Nelspruit, 1200.	FransMas@nda.agric.za	013 754 0735	013 754 0730 072 130 1204	No
Mashele, Jan: Nkomazi Municipality	Private Bag X 101, Malelane, 1320	Jan.Mashele@nkomazi.gov.za	013 790 0886	013 790 1303 082 265 0528	No
Rasiuba, Thabo: IUCMA Dam Safety and WULA	13 Streak Street MAXMA Building, Nelspruit, 1200	rasiubat@iucma.co.za	013 753 2786	013 753 9030	Yes

Shabangu, Sampie: IUCMA	**13 Streak Street MAXMA Building, Nelspruit, 1200**	**shabangus@iucma.co.za**		**013 753 9000 062 907 9061**	**No**
Mtotywa, Zinzile: DAFF	**Private Bag X 11243, Nelspruit, 1200.**	**ZinzileM@nda.agric.za**	**086 628 7137**	**013 754 0761 071 883 2768**	**No**

MINUTES OF THE MEETING/DISCUSSIONS
HELD WITH INTERESTED AND AFFECTED PARTIES (I&AP's):
LOWS CREEK DAM PROJECT: DEVELOPMENT OF AN IN-STREAM STORAGE DAM FOR IRRIGATION PURPOSES ON PORTIONS OF REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF EPSERADO ANNEX 222JU.
LOWS CREEK AREA, MPUMALANGA.
15 SEPTEMBER 2020
10H00

1. Participants:

- Mr. Alwyn van Graan (AG) — Farmer and Lower Kaap Irrigation Board.
- Mr. M. de Jager (MJ) — Farmer and Neighbour.
- Mr. D. Venter (DV) — Farmer and Neighbour.
- Mrs. Ronel Oelofsen (RO) — Major Irrigation Board: Kaap River.
- Ms. Chane Scheepers (CS) — Major Irrigation Board: Kaap River.
- Mr. Mare Le Roux (MR) — Major Irrigation Board: Kaap River.
- Mr. Thabo Rasiuba (TR) — Inkomati Usuthu Catchment Management Agency.
- Mr. H. A. Kotze (HK) — Applicant.
- Dr. Andrew Deacon (AD) — Biodiversity Specialist.
- Mr. Barend Marx (BM) — Project Engineer.
- Mr. Walter Giuricich (WG) — Applicant.
- Mrs. Karin Pelser (KP) — IWULA Consultant. Project Team Member.
- Mr. Johan Enslin (JE) — IWULA Consultant. Project Team Member.
- Mr. Ralf Kalwa (RK) — Rhengu Environmental Services.

2. Apologies:

None.

3. Welcome and Background:

RK thanked the participants for the opportunity to meet. RK briefly explained the role of Interested and Affected Parties in an Environmental Impact Assessment (EIA) Process and encouraged everyone to participate in an open and transparent manner. Participants should feel free to voice their comments and provide input at any stage of the process. RK also gave an overview of the EIA process and the procedure of collecting information, the opportunity for I&APs to comment and the procedure for submitting the reports.

Furthermore, RK indicated that the purpose of this Meeting was also specifically planned to inform those parties which may be affected by the proposed dam. In this way the applicant wishes to maintain good neighbour relations and hopefully address any urgent issues timeously and in a sensitive manner.

This meeting is but one of a set of meetings which will be held during the Public Participation Phase. Comments and concerns raised today will be included in the participation process and by attending this meeting the farmers/participants have registered their interest in the project. These minutes will be included in the Environmental Assessment documentation.

- To comply with **Environmental Legislation** an **Application** will be submitted to the Department of Rural Development, Land and Environmental Affairs (DARDLEA) in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment (EIA) Regulations of 2014.
- Several activities which require approval by DARDLEA are listed in these regulations.
- The purpose of this assessment process is to investigate the impact of implementing such activities (i.e., developing an instream storage dam in the Lows Creek).

Having said this, Rhengu Environmental Services (RES) were appointed to undertake the assessment process. As part of this assessment process a **Public Participation Process (PPP)** must be initiated to involve all potential interested and affected parties.

Three development options (alternative sites) have been considered for evaluation. The preferred option map was included in the Background Information Document (BID) submitted to all parties during the invitation process. **Alternative Options**: All alternative options for the project will however be considered during the assessment phase.

A number of Specialist Studies have been commissioned to investigate and evaluate various aspects pertaining to the project site: Biodiversity Study (Aquatic and Terrestrial; Heritage Study and Environmental Water Requirement). Together with the Engineering Reports, these studies will allow the Project Team an opportunity to take an informed decision on the various impacts associated with the proposed development.

Finally, RK reiterated that in parallel to the EIA process the applicant must submit a Water Use Licence Application (WULA) to the Department of Water and Sanitation (IUCMA, i.e., Catchment Management Agency). This process will be managed by Johan Enslin. JE informed the meeting as follows:

- The WULA process will run concurrently with the EIA process and both processes have been advertised together. This Public Participation Process (PPP) will support the WULA process. We will now generate information and we now require engineering designs, method statements including the Biodiversity Study Reports etc. which will be included in the WULA. These reports will be submitted to DWS (IUCMA) for evaluation, perusal and approval. The process can be resolved within 300 days or less. The correctness of the reports, detail of information provided and the input of all specialists will determine the final approval period. Dam Safety will play a major role in the approval process for this project.
- The WULA process will be advertised separately and all Interested and Affected Parties are welcome to participate.

The following issues were raised by participants during the meeting:

Issue	Response
1.AG: What department is responsible to assess the EIA process? What department is responsible for investigating transgressions of the National Environmental Management Act?	**1. RK**: The Department of Agriculture, Rural Development, Land and Environment Affairs (DARDLEA) will assess the EIA Reports and the information that is submitted and take a decision on the outcome of the application. Transgressions must also be reported to DARDLEA who will refer the incident to its Compliance and Monitoring Section.
2.HK: How will the new WULA process affect the existing licences, permissions that are in place? Is it a new licence? Also, as we are two applicants how will the licence be allocated, in other words will the new licence be in the name of the dam or a specific person or persons?	**2.JE**: The new licence will be a separate licence, in other words a new licence? Section 33 (abstraction) stays as is and the new WULA will address the new activity, i.e., building a dam and storing water. Sections 21b and c and i will be applicable for the new WULA. Only one company/person's name will be on the licence. This was affirmed by **TR.** The beneficiary list can however include more than one entity. **RK**: It was decided that this is a legal issue which must be resolved through a Memorandum of Agreement (MOA) between the two applicants and has little bearing on the EIA at this stage.
3.AG: Once the dam is completed how will the authorities ensure that the normal flow of the Lows Creek remains intact and functional especially during dry seasons.	**3.AD**: Andrew felt it necessary at this point to explain how his and other studies contribute to the decision making/taking process. Following various ecological assessments, the river is classified. The classification then lists the river as relatively pristine (A Category) all the way to E (badly affected, poor condition etc.). Based on the condition of the river, the presence or absence of sensitive components of biodiversity, the requirements of the fish etc. Andrew's information is then submitted to the Hydrologist (Mr. Stephen Mallory in this case) and the river is then classified. In this case the Lows Creek was classified as a Category B river. Stephen Mallory then using a flow determination model defined the **ecological water requirement** (EWR) which will be necessary during the various months of the year to ensure that the Lows Creek below the dam continues to maintain its ecological integrity. The management authority of the dam will thus have to release the EWR as per the flow requirement table identified during this assessment process. **BM**: Added that the dam is very small and the catchment is quite big. The dam will thus never be able to hold all the water that flows down in the catchment and thus water should always be available in the system. Secondly to address the concerns of the downstream users the design of the dam will include the installation of water measuring meters above the dam (measuring what goes into the dam) and one below the dam (measuring water flowing out of the dam). There are no new water rights being applied for. The applicant can take water out of the river and or the

	dam. Water abstraction must however remain with the approved allocated amount as per the water entitlement.
4.MR: Will the structures measuring the in- and out flow be permanent structures, and who will monitor these flows?	**4.BM**: Yes, structures will be permanent. **WG**: The Lows Creek Irrigation Board/Water Baliff will monitor the flow. Esperado and the Annex falls under the Lows Creek Irrigation Board. The water entitlement covers two systems: The Shiyalongubo and the Lows Creek. The Water Baliff responsible for these systems must monitor the abstraction.
5.RO: The Section 33 approval that the applicants have does not distinguish between the river and or the canal system. You are entitled to 40ha of water. You cannot use the Shiyalongubo system as part of your argument. Although the dam is in the Lows Creek area and the Lows Creek Irrigation Board has jurisdiction the Major Irrigation Board is responsible for the whole catchment system. **MR** will thus also be involved in the monitoring of the abstraction and storage/release process.	**5. RK**: Comments noted.
6.HK: I want clarity on water flowing in and out of the dam? What must be allowed out, even during low flow or during the dry season? Also let us say the dam is 100% full how much can each party abstract especially during the dry season?	**6.RK**: The EWR must be honoured and let through at all times. You are only entitled to abstract the water from the system (river, dam, canal etc.) as per your entitlement. If restrictions are in place at the time, then that will also play a role and you must honour the restrictions as well. The abstraction amount (as per your hectarage) between yourself and WG will have to be decided amongst yourselves, however the EWR will have to be honoured and the engineers will design the dam to also allow for movement of fish and to release the water. A fishway will be installed. **WG** also commented that the Shiyalongubo system is part of the Lomati system and is also subjected to restrictions from time to time. RK suggested that an operational plan will have to be developed between the two applicants to ensure a sustainable and amicable use of the stored water.
7. AG: Do I understand this correct now. This dam and whatever is stored is basically an insurance policy that when the flow in the river goes down you can use the water that you have stored in the dam. You are not allowed to exceed your abstraction amount as per your entitlement.	**7. RK**: Correct.
8. DV: Made the following statement: "The dam as he understands it is to store water during the wet season. It is to be used during the dry season and is thus an insurance policy. It also benefits us downstream as we can then be assured of water during difficult times". **DV**: Will you abstract from the river to fill up the dam if there is not enough rain in the Shiyalongubo system?	**8. WG:** We (the applicants) have not decided detail yet. We have off stream facilities (balancing dams) that we will utilise. We will however only abstract and store as per our entitlements. We do however feel that during the season the dam will be kept full from the Shiyalongubo system under normal rainfall conditions. **WG**: Shiyalongubo is obligated to provide 50 000 gallons per day. During this past season, the system continued to support the Lows Creek with water.

Final Comment by DV: I do not have a problem with the proposed dam.	
9.MR: The meeting must take note that there are many drainage lines and other tributaries that contribute to the water in the Lows Creek and Kaap River. It not only dependent on the Shiyalongubo system.	**9. RK**: Comment noted.
10.AG: All we request is that the dam, if possible, must fill up during the rainy season and we want to have the abstraction and storage amounts monitored by the responsible Irrigation Boards and Water Baliffs. If that is accepted by the meeting, we have no further issues with the application.	**10. RK**: Comment noted.

General Comments:

- A site visit was arranged however the participants declined the option to view the preferred site.

The meeting and site visit adjourned at 12h20.

COPIES OF ADVERTISEMENTS, NEWSPAPER- AND SITE NOTICES

COPY OF NEWSPAPER ADVERTISEMENT: LOWVELDER 16 JULY 2020

MOTORING

0702 Bakkies & 4 x 4s
0705 Boats & Caravans
0706 Bargains
0708 Combi's / Minibusses
0710 Commercial Vehicles
0715 Farm Equipment
0716 Insurance
0718 4 Wheelers
0720 Motorcycles
0721 Motor Services
0725 New Car Sales
0730 Rental & Leasing
0735 Spares / Accessories
0736 Special Motors
0737 Sound & Security
0738 Trailer
0740 Used Cars
0742 Vehicle Finance
0745 Vehicle Maintenance / Services
0746 Vehicle Storage
0747 Vehicle under R30 000
0750 Wanted
0755 Miscellaneous

0735 SPARES & ACCESSORIES

CANOPIES &

BAKKIES

0738 TRAILERS

0740 USED CARS

0742 VEHICLE FINANCE

LEGALS

0905 Auctioneers
0910 Public & Legal Notices
0915 Sales in Execution
0916 Lost Title Deeds
0920 Tenders
0925 Estates
0930 Liquidations
0935 Town Planning
0940 General

0910 PUBLIC / LEGAL NOTICES

NOTICE
INVITATION FOR PUBLIC COMMENTS IN APPLYING FOR A LIQUOR LICENCE IN TERMS OF SECTION 35(2)(a) OF THE MPUMALANGA LIQUOR LICENCING ACT, 2006
PERSONAL DETAILS
I, VASCO JORGE, ID: 600812 5230 083, an adult male, hereby invite written public comments concerning my application for a liquor licence to the Mpumalanga Liquor Authority to trade under the name of INGWANE TARVEN. I make this application as contemplated in Section 45 of the Act.
LICENCE TYPE
The retail sale of liquor for consumption on and off the premises where the liquor is sold.
BUSINESS PREMISES
Physical address: STAND 3108, EAST KEMPTON, EMJINDINI TRUST being an address in the Republic of South Africa and situated within the Boundaries of Mpumalanga Province.
Postal address: PO BOX 628, BARBERTON, 1300, EMJINDINI TRUST
Cell: 072-187-9843
ADDRESSES TO WHICH COMMENTS MUST BE SUBMITTED
Comments should be made in writing and be addressed to the municipality concerned and a copy to the applicant, to reach the said addresses within thirty (30) days of this publication.
Municipality`s address:
PO Box 45, Mbombela, 1200
Applicant`s address:
STAND 3108, EAST KEMPTON, EMJINDINI TRUST
——————TA009200

NOTICE
MPUMALANGA GAMBLING ACT, 1995 (AS AMENDED) APPLICATION FOR REMOVAL OF A BOOKMAKER LICENCE:
Notice is hereby given that Lottostar (Pty) Ltd, intends submitting an application to the Mpumalanga Economic Regulator (`MER`) for the **removal** of a Bookmakers licence, from Unit 27, Building 1, Sonpark Boulevard Building, Sonpark Centre, Corner of Le Roux and Fourie Streets, Mbombela, Ehlanzeni to Riverside Office Park Block 2 Suites G01 and G02 Ground Floor, Riverside Park Extension 24, 1 Aqua Street, Nelspruit.
This application will be open for public inspection and objection at the offices of the MER from 17 July 2020.
Attention is directed to the provisions of Section 26 of the Mpumalanga Gambling Act, 1995 that makes provision for the lodging of written objections or representations in respect of the application.
Such objections or representations should be lodged with the Chief Executive Officer, Mpumalanga Economic Regulator, Private Bag X9908, White River, Mpumalanga, 1240, within one month from 17 July 2020.
——————TA009168

NOTICE
OF A WATER USE LICENCE APPLICATION FOR ROBERTSOWN 1032
Notice is hereby given that Tradevest (Pty) Ltd is applying for a water use licence to convert the streamflow reduction due to forestry on the farm Robertsown 1032 JT to an irrigation water right. This will entail the removal of 36.88 ha of Eucalyptus to be replaced with 3.5ha of Macadamias.
The application is being submitted in terms of the National Water Act (Act 36 of 1998).
All Interested and Affected Parties (I&APs) are invited to register as I&APs and submit their comments to the contact address below within 60 days of the placement of this advertisement. Additional information can be obtained upon request via the same address.
Contact person: Stephen Mallory
e-mail: stephen @waterresources.co.za
——————TA009182

NOTICE OF A WATER USE LICENCE APPLICATION ON PORTION 21 OF GOEDGELUK 444
Notice is hereby given that Tradevest (Pty) Ltd is applying for a water use licence to convert the streamflow reduction due to forestry on Portion 21 of Goedgeluk 444 to an irrigation water right. This will entail the removal of 36.55 ha of Eucalyptus to be replaced with 3.5ha of Macadamias. The application is being submitted in terms of the National Water Act (Act 36 of 1998). All Interested and Affected Parties (I&APs) are invited to register as I&APs and submit their comments to the contact address below within 60 days of the placement of this advertisement. Additional information can be obtained upon request via the same address.
Contact: Stephen Mallory
e-mail: stephen @waterresources.co.za
——————#C18194A

NOTICE
OF ENVIRONMENTAL IMPACT ASSESSMENT PUBLIC PARTICIPATION PROCESS INVITATION TO PARTICIPATE
The new Environmental Impact Assessment Regulations came into effect on the 4 December 2014. These regulations were amended in 2017 and with this in mind it is proposed that the procedure as described in Chapters 4 and 6 of Notice 326 and Listed in Government Gazette No. 40772, published on 7 April 2017 is followed. Notice is given in terms of Regulation 41 of this notice to carry out the following activities:
Property Description and Location: Lows Creek Dam Project on the Farms: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU. GPS Latitude: 25° 35' 24" Longitude: 31° 18' 30" (Lows Creek near the confluence with the Kaap River). In terms of Government Notices **327, 325 and 324** an **Environmental Impact Assessment** is required in terms of the following listed activities that the applicant wishes to implement:
Government Notice: No: 327 of 7 April 2017 Gazette Number: 40772: Activity 12: The development of- (iv) dams, where the dam infrastructure and water surface area exceeds 100sqm in size, Where such development occurs- (a) within a water course or (c) `within 32m of a water course. **Activity 19**: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock, of more than 10 cubic metres from- (i) a watercourse.
Activity 27: The clearance of an area of 1ha or more, but less than 20ha, of indigenous vegetation`.. **Government Notice: No: 325 of 7 April 2017 Gazette Number: 40772: Activity 16**: The development of a dam where the highest part of the dam wall is 5 metres high or higher and or where the high-water mark covers an area of 10ha or more. **Government Notice: No: 324 of 7 April 2017 Gazette Number: 40772**: **Activity 12**: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **Activity 14**: The development of- (i) dams ..and infrastructure exceeding 10sqm in size or (ii) infrastructure or structures with a physical footprint of 10sqm or more Where such development occurs- (a) within a water course or (c) `` within 32m of a water course. Project Specifics include: ` Construct an in-stream irrigation storage dam: Dimensions of the proposed dam: Category 2 Dam: Wall Height 11.4m; Wall Length 245m; Covers an area of 6.5 ha and will have a storage capacity of 193 000 cubic metres. Maximum full supply water depth will be 8m. ` Construction of a pump house. ` The water will be stored as per the existing entitlements registered against the farms. ` No new water will be used for this process. The purpose of this assessment process is to investigate the impact of implementing such activities at Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU.
Applicants: Mr. Walter Giuricich and Mr. Riaan Kotze. P. O. Box 2161 Rivonia 2128 Cell: 082-967-6757 (Walter)and 082 -948-2257 (Riaan).**Consultant and Contact Person:** PO Box 1046, Malalane 1320 Cell: 082- 414-7088 Email: rhengu@mweb.co.za E Mail: walter@ivorymacs.co.za or hak.riaan@gmail.com In order to ensure that you are identified /registered as an interested and /or affected party please submit your name, contact information (e-mail; telephone; fax number) and interest in the matter in writing to the contact person on or before **21 August 2020. Date of Notice: 16 July 2020.**
——————TA009196

NOTICE
PUBLIC CONSULTATION PROCESS
Notice is given of an application for Environmental Authorisation in terms of Section 24(G) and 24(F) of the National Environmental Management Amendment Act (Act No.62 of 2008) for rectification of the unlawful commencement of a listed activity - the establishment of an Asphalt Plant on Portion 57 of the farm Strathmore 214, Nelspruit District, Mpumalanga. The activity commenced with is Activity 14 of GN R. 327 of the Environmental Impact Assessment (`EIA`) Regulations of 2014 as amended. An Asphalt Plant is also scheduled as a Mandatory Preparation Process which normally requires an Atmospheric Emission License (`AEL`) in terms of the National Environmental Management: Air Quality Act (`NEM:AQA`)(Act No. 39 of 2004). However, a letter was issued by the Ehlanzeni District Municipality exempting the facility from complying with the provisions of Chapter 5 of NEM:AQA, because the facility is currently a mobile, temporary emitter that was planned to operate on the site for less than 2 years. However, the applicant intends to tender for more road construction projects in the area and would in this case need to extend the operating period of the Plant. Therefore, application for an AEL will also be lodged. The site has an approximate footprint of 1.4 ha. However, no indigenous vegetation was cleared for the establishment of the Plant, as the site is located on a Magnesite mine. Thus, the site was significantly disturbed prior to the establishment of the Plant. The site is located approximately 250 m from a NFEPA wetland. The Plant has the capacity to store approximately 296 000 L dangerous goods on site in the form of diesel, paraffin, HFO and bitumen.
The following activities will be applied for: Activity 14 of G.N. R 327 and Activity 6 of G.N. R 325 of the 2014 EIA Regulations as amended and Category 5, Subcategory 5.10 of G.N. R 893 of the NEM:AQA 2013 Regulations.
You are requested to send any issues and/or concerns regarding the proposed project to Turn 180 Environmental Consultants at Suite 221, Private Bag X01, Brandhof, 9324 or 072 873 6665 (T) or 072 967 7962 /072 838 8189 (C) or ansune @turn180.co.za / admin @turn180.co.za (e-mail) within 30 days of the date of this advertisement (on or before 18 August 2020).
——————TA009193

NOTICE
TO CONDUCT A BASIC ASSESSMENT FOR THE PROPOSED ACTIVITIES IN SUPPORT OF A MINING PERMIT FOR TWO BORROW PITS
An application for Basic Assessment in terms of Government Notice 983 for the following listed activity which will be triggered for the mining permit application in terms of Section 27 of the Mineral and Petroleum Resources Development Act, (Act No 28 of 2002) for the two proposed borrow pits will be sent to the Department of Mineral Resources, Mpumalanga Regional Office Mpumalanga province
DESCRIPTION OF THE PROPOSED ACTIVITY
• Any activity including the operation of that activity which requires a mining permit in terms of Section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No 28 of 2002), including:
(a)Associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, activity 21 (a) of Listing Notice 1, 2017
LOCATION OF THE BORROW PITS
Borrow Pit 1: farm Gutshwa 959 JU in the following coordinates
25° 12` 54.69` S 31° 08` 52.60` E
Borrow Pit 2: farm Masoyi 951 JU in the following coordinates
25o 10` 13.66` S 31o 06` 07.97` E
REF NO:
APPLICANT AND CONTACT PERSON
Applicant : Department of Public Works, Roads and Transport
Contact Person:Edwin Baloyi
Postal Address :Private Bag X 1102
MBOMBELA
1200
Tel: 013-766-6696:
Cell: 0 Fax: 013-766-8453:
E-mail: baloyie@mpg.gov.za
ENVIRONMENTAL CONSULTANTS
Mvimbi Business Enterprise cc
Contact Person: Dzunani Makamu
P O Box 332
THULAMAHASHE
1365
Cell: 079-740-2303
E- mail: mvimbeat@gmail.com
Notice of Public Participation is given in terms of the Environmental Impact Assessment (EIA) Regulations promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No 107 of 1998). In order to be registered as an Interested and/or affected Party, submit your name, contact details and interest to the matter to the person given above within thirty (30) days of publication of this advertisement.
Date of this advertisement: 16/07/2020
——————TA009169

0915 SALES IN EXECUTION

NOTICE
IN THE MAGISTRATE`S COURT FOR THE DISTRICT OF STEVE TSHWETE HELD AT MIDDELBURG
CASE NO: 3503/19
In the case between:
ISISWE MILLS (PTY) LTD - PLAINTIFF
And
ALTAFHUSEN YAKUBBHAI PATEL
PASSPORT: J530 9966 - DEFENDANT
NOTICE OF SALE IN EXECUTION
Pursuant to a judgment by the Magistrate, Middelburg given on **31 JANUARY 2020** the under-mentioned goods will be sold at **11:00** on **Wednesday, 2 September 2020,** at **SHOP NO. 1 MINAR`S BUILDING, TONGA MAIN ROAD, KWALUGELANE,** by the Sheriff of Nkomazi to the highest bidder for cash, namely:
JVC 274 MP ISISZU LORRY
FORKLIFT WHITE
2 X ELECTRIC POWE MACHINE
PLEASE NOTE: Due to the Consumer Protection Act 68 of 2008, the following must be stated in the Notice of Sale and Advertisement:
1. The rules of the auction is available 24 hours prior to the auction at the office of the sheriff, **Suite no. 34 Far East Lodge, Tonga Main Road Nkomazi.**
2. Registration as a buyer is a pre- requisite subject to specific conditions, inter alia.
3. FICA legislation requires proof of identity and address particulars payment of registrarion deposit of R500 in cash.
4. The office of the Sheriff will conduct the sale with the auctioneers being the above mentioned Sheriff.
5. Goods will be sold for cash only to the highest bidder or sold subject to confirmation as per the Consumer Protection Act upon instructions from the execution creditor.
Signed at **MIDDELBURG** on the **6th** day of **JULY 2020**
(sgd) M A JACOBS
Attorney for Execution Creditor
34 OR Tambo Street
MIDDELBURG, 1050
Ref: II6986/19+hannie
——————TA009172

TA9183NA

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) AND DRAFT WATER USE LICENSE REPORT FOR PUBLIC REVIEW

In terms of the:
Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA);
National Environmental Management Act, Act 107 of 1998 (NEMA) and associated EIA regulations and listed activities;
National Environmental Management: Air Quality Act, Act 39 of 2004 (NEMAQA) and associated listed activities;
The National Heritage Resources Act (No. 25 of 1999).
The National Water Act, Act 36 of 1998 (NWA).
National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA)

DMR REF NO: (MP) 30/5/1/2/3/2/1/ (83) EM

AMENDMENT TO ENVIRONMENTAL AUTHORISATION FOR THE THETA PROJECT, NEAR PILGRIM'S REST, MPUMALANGA DRAFT ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT AND DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT (EMPR): 30 DAY PUBLIC REVIEW & DRAFT WATER USE LICENSE REPORT: 60 DAY PUBLIC REVIEW

In 2020, TGME continued to complete various detailed engineering designs including additional geotechnical work as part of the approvals process for the water use license, and to inform the final designs of the waste rock dumps and pollution control dams. The applicant also recognised changes in the global market due to the Coronavirus, increase in gold prices and the downgrade of the South African economy to junk status and the potential impacts this would have on the project. These detailed engineering designs for the waste rock dumps, pollution control dams and stormwater management, following additional geotechnical work have resulted in changes to the layout. The change to the mine schedule and the pit sequence to accommodate the significant changes in the global economic environment have resulted in further changes in layout 3, including an increase in the pit dimensions. These factors have triggered the requirement for a further 30-day public participation process as agreed with the DMR&E.

APPLICATION FOR INTEGRATED MINING AND ENVIRONMENTAL AUTHORISATION TO UNDERTAKE THE FOLLOWING ACTIVITIES: National Environmental Management Act, Act 107 of 1998 (NEMA), the EIA Regulations of April 2017 and associated EIA regulations and listed activities and an Amendment in terms of Section 102 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002): Section 23 (a), (b) And (c) read together with Regulation 11(1) (g). The following listed activities are triggered by the proposed development: NEMA: Government Notice 327, Listing Notice 1: Activity 2, 9, 12, 13, 19, 24, 25, 27, 28, 30, and 56. NEMA Government Notice 325, Listing Notice 2: Activity 6, 15, 17, 19, and 24.. NEMA Government Notice 324, Listing Notice 3: Activity 12, 14, 15(b) and 18(a)ee. Regulatory Authority: Department of Mineral Resources (DMR), Limpopo Region (Polokwane office). The project also triggers activities listed in Government Notice Regulation (GNR) 921 of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) (Category A: activities 12, Category B: activities 11) and will require a Waste Management Licence (WML) from the DMRE.

National Water Act, 1998 (NWA): The following water uses will be licensed in terms of section 40 of the National Water Act, Act 36 of 1998. Section 21 (a) and (c) and (i) and (g) and (j) Water Use Authorisation. Section 21 water Uses to be applied for: Section 21 (a): The abstraction of Groundwater (c): Impeding or diverting the flow of water in a watercourse, Section 21 (i): Altering the bed, banks, course or characteristics of a watercourse, Section (g) Disposing of waste in a manner which may detrimentally impact on a water resource, and Section (j) removing, discharging or disposing of water found underground.

AVAILABILITY OF DRAFT EIA/EMPR AND WULA: Notice is given in terms of sections 24 and 24D of the National Environmental Management Act, Act 107 of 1998 (NEMA), the EIA Regulations of April 2017 and associated EIA regulations and listed activities, that the draft EIA/EMPr for the proposed amendment application to the environmental authorization of the current 83MR, to be known as the Theta Project, situated near Pilgrims Rest, Mpumalanga Province will be available for a 30-day public review from **13 July 2020 until 14 August 2020 (draft EIA Report / EMPr).**

Notice is given in terms the National Water Act, Act 36 of 1998 (NWA), that the draft Water Use Licence (WULA) Report for the proposed amendment application to the environmental authorization of the current 83MR, to be known as the Theta Project, situated near Pilgrims Rest, Mpumalanga Province will be available for a 60-day public review from **13 July 2020 until 14 September 2020.**

The draft EIA/EMPr and the draft WUL Report will be available at:
• Offices of TGME near Pilgrim's Rest; and
• Office of Ward Councillor: Mr. Mandla Mokoena (Mobile: 079-399-7651/072-470-6253);
• Website: www.bathoearth.co.za
Interested and Affected Parties (I&APs) must submit all comments in writing to Batho Earth.

Contact details: Ingrid Snyman (Mobile: 082-779-2750; E-mail: ingrid@bathoearth.co.za) or Diana Verster (Mobile: 073-157-7362; E-mail: diana@bathoearth.co.za).
PO Box 415 Postnet Pvt Suite X8, Elarduspark, 0047 Fax: 087-807-4536.

0740
USED CARS

0742
VEHICLE FINANCE

LEGALS

#C181944A

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PUBLIC PARTICIPATION PROCESS INVITATION TO PARTICIPATE

The new Environmental Impact Assessment Regulations came into effect on the 4 December 2014. These regulations were amended in 2017 and with this in mind it is proposed that the procedure as described in Chapters 4 and 6 of Notice 326 and Listed in Government Gazette No. 40772, published on 7 April 2017 is followed. Notice is given in terms of Regulation 41 of this notice to carry out the following activities:

Property Description and Location: Lows Creek Dam Project on the Farms: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU. GPS Latitude: 25` 35` 24` Longitude: 31` 18` 30` (Lows Creek near the confluence with the Kaap River). In terms of Government Notices **327, 325 and 324** an Environmental Impact Assessment is required in terms of the following listed activities that the applicant wishes to implement:

Government Notice: No: 327 of 7 April 2017 Gazette Number: 40772: Activity 12: The development of- (iv) dams, where the dam infrastructure and water surface area exceeds 100sqm in size, Where such development occurs- (a) within a water course or (c) `within 32m of a water course. **Activity 19**: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock, of more than 10 cubic metres from- (i) a watercourse.

Activity 27: The clearance of an area of 1ha or more, but less than 20ha, of indigenous vegetation`.. **Government Notice: No: 325 of 7 April 2017 Gazette Number: 40772: Activity 16**: The development of a dam where the highest part of the dam wall is 5 metres high or higher and or where the high-water mark covers an area of 10ha or more. **Government Notice: No: 324 of 7 April 2017 Gazette Number: 40772: Activity 12**: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **Activity 14**: The development of- (i) dams ..and infrastructure exceeding 10sqm in size or (ii) infrastructure or structures with a physical footprint of 10sqm or more Where such development occurs- (a) within a water course or (c) ````within 32m of a water course. Project Specifics include: ` Construct an in-stream irrigation storage dam: Dimensions of the proposed dam: Category 2 Dam: Wall Height 11.4m; Wall Length 245m; Covers an area of 6.5 ha and will have a storage capacity of 193 000 cubic metres. Maximum full supply water depth will be 8m. ` Construction of a pump house. ` The water will be stored as per the existing entitlements registered against the farms. ` No new water will be used for this process. The purpose of this assessment process is to investigate the impact of implementing such activities at Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU.

Applicants: Mr. Walter Giuricich and Mr. Riaan Kotze. P. O. Box 2161 Rivonia 2128 Cell: 082-967-6757 (Walter)and 082 -948-2257 (Riaan).**Consultant and Contact Person:** PO Box 1046, Maialane 1320 Cell: 082- 414-7088 Email: rhengu@mweb.co.za E Mail: walter@ivorymacs.co.za or hak.riaan@gmail.com In order to ensure that you are identified /registered as an interested and /or affected party please submit your name, contact information (e-mail; telephone; fax number) and interest in the matter in writing to the contact person on or before **21 August 2020. Date of Notice: 16 July 2020.**

Mpumalanga Economic Regulator (`MER`) for the **removal** of a Bookmakers licence, from Unit 27, Building 1, Sonpark Boulevard Building, Sonpark Centre, Corner of Le Roux and Fourie Streets, Mbombela, Ehlanzeni to Riverside Office Park Block 2 Suites G01 and G02 Ground Floor, Riverside Park Extension 24, 1 Aqua Street, Nelspruit.
This application will be open for public inspection and objection at the offices of the MER from 17 July 2020.
Attention is directed to the provisions of Section 26 of the Mpumalanga Gambling Act, 1995 that makes provision for the lodging of written objections or representations in respect of the application.
Such objections or representations should be lodged with the Chief Executive Officer, Mpumalanga Economic Regulator, Private Bag X9908, White River, Mpumalanga, 1240, within one month from 17 July 2020.

TA009168

NOTICE OF A WATER USE LICENCE APPLICATION FOR ROBERTSOWN 1032

Notice is hereby given that Tradevest (Pty) Ltd is applying for a water use licence to convert the streamflow reduction due to forestry on the farm Robertsown 1032 JT to an irrigation water right. This will entail the removal of 36.88 ha of Eucalyptus to be replaced with 3.5ha of Macadamias.
The application is being submitted in terms of the National Water Act (Act 36 of 1998).
All Interested and Affected Parties (I&APs) are invited to register as I&APs and submit their comments to the contact address below within 60 days of the placement of this advertisement. Additional information can be obtained upon request via the same address.
Contact person: Stephen Mallory e-mail: stephen @waterresources.co.za

TA009182

NOTICE OF A WATER USE LICENCE APPLICATION ON PORTION 21 OF GOEDGELUK 444

Notice is hereby given that Tradevest (Pty) Ltd is applying

form of diesel, paraffin, HFO and bitumen.
The following activities will be applied for: Activity 14 of G.N. R 327 and Activity 6 of G.N. R 325 of the 2014 EIA Regulations as amended and Category 5, Subcategory 5.10 of G.N. R 893 of the NEM:AQA 2013 Regulations.
You are requested to send any issues and/or concerns regarding the proposed project to Turn 180 Environmental Consultants at Suite 221, Private Bag X01, Brandhof, 9324 or 072 873 6665 (T) or 072 967 7962 /072 838 8189 (C) or ansune @turn180.co.za / admin @turn180.co.za (e-mail) within 30 days of the date of this advertisement (on or before 18 August 2020).

TA009193

NOTICE TO CONDUCT A BASIC ASSESSMENT FOR THE PROPOSED ACTIVITIES IN SUPPORT OF A MINING PERMIT FOR TWO BORROW PITS

An application for Basic Assessment in terms of Government Notice 983 for the following listed activity which will be triggered for the mining permit application in terms of Section 27 of the Mineral and Petroleum Resources Development Act, (Act No 28 of 2002) for the two proposed borrow pits will be sent to the Department of Mineral Resources, Mpumalanga Regional Office Mpumalanga province

DESCRIPTION OF THE PROPOSED ACTIVITY

- Any activity including the

NOTICE OF AVAIL (EIA) REPORT AN AND DRAF

Mineral and National Environmenti

National Environmen

National Envirc

AMENDMENT TO ENV GRIM'S REST, MPUMA AND DRAFT ENVIRON LIC REVIEW &

In 2020, TGME continued geotechnical work as par final designs of the waste changes in the global ma of the South African econ project. These detailed e stormwater management layout. The change to the changes in the global eco an increase in the pit dim public participation proce

APPLICATION FOR INTEG

SITE NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT
PUBLIC PARTICIPATION PROCESS
INVITATION TO PARTICIPATE

The new Environmental Impact Assessment Regulations came into effect on the 4 December 2014. These regulations were amended in 2017 and with this in mind it is proposed that the procedure as described in Chapters 4 and 6 of Notice 326 and Listed in Government Gazette No. 40772, published on 7 April 2017 is followed. Notice is given in terms of Regulation 41 of this notice to carry out the following activities:

Property Description and Location: Lows Creek Dam Project on the Farms: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU. GPS Latitude: 25º 35' 24″ Longitude: 31º 18' 30″ (Lows Creek near the confluence with the Kaap River).

In terms of Government Notices **327, 325 and 324** an **Environmental Impact Assessment** is required in terms of the following listed activities that the applicant wishes to implement:

Government Notice: No: 327 of 7 April 2017 Gazette Number: 40772:

Activity 12: The development of-
(iv) dams, where the dam infrastructure and water surface area exceeds 100sqm in size,
Where such development occurs-
(a) within a water course or (c) …within 32m of a water course.

Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock, of more than 10 cubic metres from-(i) a watercourse.

Activity 27: The clearance of an area of 1ha or more, but less than 20ha, of indigenous vegetation…..

Government Notice: No: 325 of 7 April 2017 Gazette Number: 40772:

Activity 16: The development of a dam where the highest part of the dam wall is 5 metres high or higher and or where the high-water mark covers an area of 10ha or more.

Government Notice: No: 324 of 7 April 2017 Gazette Number: 40772:

Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

Activity 14: The development of-
(i) dams ..and infrastructure exceeding 10sqm in size or
(ii) infrastructure or structures with a physical footprint of 10sqm or more.

Where such development occurs-
(a) within a water course or (c) ……within 32m of a water course.

Project Specifics include:

- Construct an in-stream irrigation storage dam: Dimensions of the proposed dam: Category 2 Dam: Wall Height 11.4m; Wall Length 245m; Covers an area of 6.5 ha and will have a storage capacity of 193 000 cubic metres. Maximum full supply water depth will be 8m.
- Construction of a pump house.
- The water will be stored as per the existing entitlements registered against the farms.
- No new water will be used for this process.

The purpose of this assessment process is to investigate the impact of implementing such activities at Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU.

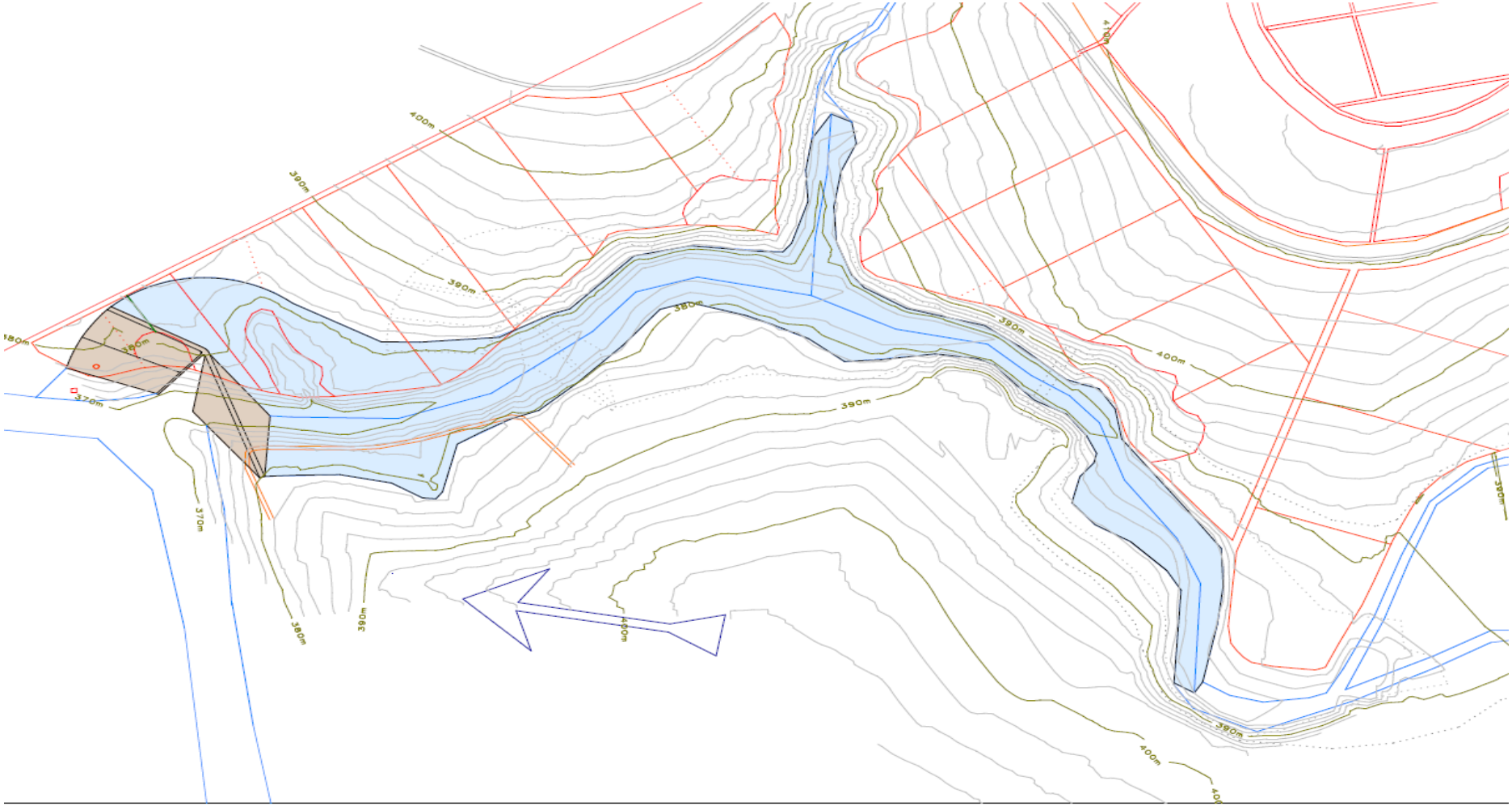
Applicants:
Mr. Walter Giuricich and Mr. Riaan Kotze.
P. O. Box 2161
Rivonia
2128
Cell: 082 967 6757 (Walter)
and 082 948 2257 (Riaan).
E Mail: walter@ivorymacs.co.za **or** hak.riaan@gmail.com

Consultant and Contact Person:
Rhengu Environmental Services
Contact Person: Ralf Kalwa
P. O. Box 1046
Malelane, 1320
Cell: 082414 7088
E Mail: rhengu@mweb.co.za

In order to ensure that you are identified/registered as an interested and/or affected party please submit your name, contact information (e-mail; telephone; fax number) and interest in the matter in writing to the contact person on or before **21 August 2020.**

Date of Notice: 17 July 2020.

MAP: PREFERRED DAM OPTION



COPIES OF E MAILS, NOTIFICATIONS AND RECEIPT OF DOCUMENTS

E Mails:

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Saturday, 18 July 2020 09:21
To: nicola@jrmpallets.co.za; matsulu1@retail.spar.co.za; lowscreekwater@gmail.com; water@roseinnes.co.za; 'Frans Krige' <Frans.Krige@mtpa.co.za>; 'ZinzileM' <ZinzileM@daff.gov.za>; shabangus@iucma.co.za; LoveS@nda.agric.za; lbierman@mpg.gov.za; FransMas@daff.gov.za
Cc: 'Walter' <walter@ivorymacs.co.za>; 'Riaan Kotze' <hak.riaan@gmail.com>; 'Andrew Deacon' <andrewd@mpu.co.za>; 'Christine Rowe' <christinevwr@gmail.com>; 'Johan Enslin' <iwulaspecialist@gmail.com>; 'rhengu' <rhengu@mweb.co.za>; 'Barend Marx - MBB' <barend@mbb.co.za>; 'Zietta van Rensburg' <zvr@vrens.co.za>
Subject: LOWS CREEK IRRIGATION DAM PROJECT

Dear Interested and Affected Party and Government Official

1. Please find attached a notification for the Environmental Impact Assessment on the Farms: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU in your area. This notification was advertised in the Lowvelder newspaper on **16 July 2020**.

2. Please take note that the date for the Public Meeting on-site will be announced once the registration period (after 21 August 2020) has lapsed.

3. Feel free to contact me to discuss any issues of concern and or to verify any information.

Kind regards,
Ralf Kalwa
Rhengu Environmental Services
Cell: 082 414 7088

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Saturday, 18 July 2020 10:55
To: jan.mashele@nkomazi.gov.za; FransMas@nda.agric.za
Cc: 'rhengu' rhengu@mweb.co.za
Subject: FW: LOWS CREEK IRRIGATION DAM PROJECT

Dear Interested and Affected Party and Government Official

1.Please find attached a notification for the Environmental Impact Assessment on the Farms: Portions of Remaining Extent of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU in your area. This notification was advertised in the Lowvelder newspaper on **16 July 2020**.
2.Please take note that the date for the Public Meeting on-site will be announced once the registration period (after 21 August 2020) has lapsed.
3.Feel free to contact me to discuss any issues of concern and or to verify any information.

Kind regards,
Ralf Kalwa
Rhengu Environmental Services
Cell: 082414 7088

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Monday, 20 July 2020 13:56
To: 'Mbongeni Eugene' mbongenieugene1@gmail.com
Cc: 'rhengu' <rhengu@mweb.co.za>; 'Walter' walter@ivorymacs.co.za
Subject: RE: Delivery Status Notification (Failure)

Thank you for the response Mr. Mazibuko.
Your contact details will be included in the Interested and Affected Parties Register.
You will be informed of the Meeting (Date, place and time) once the Registration period has lapsed.

Regards,

Ralf Kalwa
RES

From: Mbongeni Eugene <mbongenieugene1@gmail.com>
Sent: Monday, 20 July 2020 13:19
To: rhengu@mweb.co.za
Subject: Fwd: Delivery Status Notification (Failure)

Dear : Mr Rhengu

I am a resident of Low's Creek and i happens to be a secretarian of Young Communist League of South Africa. I am affected and also have a passion to attending the public participation for the dam project at Low's Creek between Esperado 1 and 2 UJ 253 on farm portion anneture UJ 223. That will take place on August 2020.

Contact: 0791142196
mbongenieugene1@gmail.com
Kingly regards
Mbongeni E. Mazibuko

From: Sibusiso Starring <sstarring305@gmail.com>
Sent: Monday, 20 July 2020 20:20
To: rhengu@mweb.co.za
Subject:
Attention
I am residing in one of the community mentioned on public participation notice and the Branch Chairperson of the ANCYL in this ward. I plea to be registered for the meeting.

Yours Sincerely
*Sibusiso Ndlovu
*0790589262
*sstarring305@gmail.com

From: rhengu@mweb.co.za <rhengu@mweb.co.za>
Sent: Wednesday, 22 July 2020 14:50
To: 'Sibusiso Starring' sstarring305@gmail.com
Cc: 'rhengu' rhengu@mweb.co.za
Subject: EIA Lows Creek Dam Project

Thank you Sibusiso.

You will be informed of the meeting date once it has been finalised.

Regards,
Ralf Kalwa
RES

From: rhengu@mweb.co.za <rhengu@mweb.co.za>
Sent: Monday, 20 July 2020 08:44
To: Dumisani.mabuza@mbombela.gov.za
Cc: 'rhengu' <rhengu@mweb.co.za>
Subject: CONTACT DETAILS FOR ENVIRONMENTAL IMPACT ASSESSMENT IN THE MBOMBELA REGION

Dear Sir

I am conducting an EIA in the Mbombela Region and have to inform the Planning Division of this development. I have tried phoning various offices without success. Could you please forward this to the correct official and also send me his/her contact details?
Kind regards,

Ralf Kalwa
Rhengu Environmental Services
Cell: 082414 7088

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Monday, 20 July 2020 12:19
To: 'Majorboard' Majorboard@roseinnes.co.za
Cc: 'rhengu' <rhengu@mweb.co.za>; 'Walter' walter@ivorymacs.co.za
Subject: RE: LOWS CREEK IRRIGATION DAM PROJECT

Thanks Ronel.

Will do.

Ralf Kalwa
RES

From: Majorboard <Majorboard@roseinnes.co.za>
Sent: Monday, 20 July 2020 11:20
To: rhengu@mweb.co.za
Subject: FW: LOWS CREEK IRRIGATION DAM PROJECT

Good day,

Please register the Kaap River Valley Major Irrigation board as an Interested and affected Party.

Kind Regards,

Ronel Oelofsen
Secretary

KAAP RIVER VALLEY MAJOR IRRIGATION BOARD.
12 Judge Street, Barberton
Tel: 013 7124200
Cell: 071 403 3670
Po Box 451 Barberton 1300

From: ZITO NDLAKUDE <zndlakude@gmail.com>
Sent: Wednesday, 22 July 2020 17:44
To: rhengu@mweb.co.za
Subject: Applicant for dam project

Dear: mr Rhengu
I am here applying to be the part and the parcel of public participation.
I am applying based on UJ 253 farm portions anneture UJ 222 from esperado 1 and 2.

Zito Ndlakude
Contact number
0728806673

Kindly regards
Zito Ndlakude.

Hi Zito
Thanks for your response. You will be informed of the date for the meeting once the Registration period has lapsed.
Regards,

Ralf Kalwa

-----Original Message-----
From: Request Sicelo siceloolive933@gmail.com
Sent: Thursday, 23 July 2020 21:52
To: rhengu@mweb.co.za
Subject: Lows creek dam project on the farm: portion of remaining extent of esperado 253JU and portion 1&2 of esperado annex 222JU

Good evening
I am occupant of lows creek.and also additional member of YCL.
Names: Sicelo Olive
Contact no: 0797172407

-----Original Message-----
From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Friday, 24 July 2020 07:36
To: 'Request Sicelo' siceloolive933@gmail.com
Cc: 'rhengu' rhengu@mweb.co.za
Subject: RE: Lows creek dam project on the farm: portion of remaining extent of esperado 253JU and portion 1&2 of esperado annex 222JU

Thanks Sicelo.

You will be informed of the meeting date once the registration process has lapsed.

Regards,

Ralf Kalwa

From: Mdumiso Comfort mdumisocomfort@gmail.com
Sent: Monday, 27 July 2020 16:06
To: rhengu@mweb.co.za
Subject: Dear Mr/Mrs Rhengu

As one of the originated and biological of Lows Creek, I'm kindly requesting to be one of the applicants who will be publicly participating in the process of assessment which will probably take place in JU222 Esperado 1and2 ANNEXTURE FARM portion JU253
I'm one of the most concern person about anything is taking place in my society whether it benefiting or is terrible
I would be proud if you can take my application into consideration
The following are my personal details
Names: Mdumiso comfort Fakude
Cell number:0729786343
Email address: mdumisocomfort@gmail.com

From: rhengu@mweb.co.za <rhengu@mweb.co.za>
Sent: Monday, 27 July 2020 16:21
To: 'Mdumiso Comfort' mdumisocomfort@gmail.com
Cc: rhengu@mweb.co.za
Subject: RE: Dear Mr/Mrs Rhengu

Thanks for your response Mdumiso.

I will inform you of the meeting date once he registration period has lapsed.
Regards,

Ralf Kalwa

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Wednesday, 29 July 2020 15:58
To: 'Samuel Tsilane' tsilanesamuel@gmail.com
Cc: rhengu@mweb.co.za
Subject: RE: Application for public participation

Good Day Samuel

I do not quite know what you are applying for Samuel? The project you refer to is an Environmental Impact Assessment for a proposed dam. We are currently investigating whether this project could go ahead and we are collecting information to determine the potential impacts of this activity.

Regards,

Ralf Kalwa
Rhengu Environmental Services

From: Samuel Tsilane <tsilanesamuel@gmail.com>
Sent: Wednesday, 29 July 2020 11:32
To: rhengu@mweb.co.za
Subject: Application for public participation

Dear: Mr Rhengu

I am hereby applying for a dam project that is about to start during August 2020. Esperanto 1 and 2 JU 222 farm portion annexture 253.

Kingly regards
Samuel Mashaba

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Friday, 14 August 2020 11:41
To: 'EDWILL NKOSINATHI' edwillnkosinathi995@gmail.com
Cc: 'rhengu' rhengu@mweb.co.za
Subject: RE: Lows Creek dam project on the farm: portion of remaining extent of esperado 253JU and portion 1&2 of esperado annex 222JU

Morning Edwin

I am not quite sure what you are applying for. Currently we are conducting an environmental impact assessment for a proposed storage dam in the Lows Creek River which will be used for irrigation purposes. We are assessing the potential impacts that the project may have on the broader environment.

Regards,

Ralf Kalwa

From: EDWILL NKOSINATHI <edwillnkosinathi995@gmail.com>
Sent: Thursday, 13 August 2020 20:19
To: rhengu@mweb.co.za
Subject: RE:Lows Creek dam project on the farm: portion of remaining extent of esperado 253JU and portion 1&2 of esperado annex 222JU

Good evening
I'm occupancy of Lows Creek and Member of ANCYL applying for dam project

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Saturday, 22 August 2020 08:33
To: matsulu1@retail.spar.co.za; 'Mdumiso Comfort' <mdumisocomfort@gmail.com>; 'Barend Marx - MBB' <barend@mbb.co.za>; barend@mbbnel.co.za; 'Mbongeni Eugene' <mbongenieugene1@gmail.com>; nicola@jrmpallets.co.za; 'ZITO NDLAKUDE' <zndlakude@gmail.com>; 'Sibusiso Starring' <sstarring305@gmail.com>; 'EDWILL NKOSINATHI' <edwillnkosinathi995@gmail.com>; 'Request Sicelo' <siceloolive933@gmail.com>; 'Samuel Tsilane' <tsilanesamuel@gmail.com>; lowscreekwater@gmail.com; nkhumalo@sahra.org.za; 'Frans Krige' <Frans.Krige@mtpa.co.za>; 'Majorboard' <Majorboard@roseinnes.co.za>; Dumisani.mabuza@mbombela.gov.za; FransMas@nda.agric.za; jan.mashele@nkomazi.gov.za; 'Vutlhari Matsane' <matsanev@iucma.co.za>; shabangus@iucma.co.za; 'ZinzileM' <ZinzileM@daff.gov.za>; LoveS@nda.agric.za; lbierman@mpg.gov.za
Cc: rhengu@mweb.co.za; 'Johan Enslin' <iwulaspecialist@gmail.com>; 'Andrew Deacon' <andrewd@mpu.co.za>; 'Walter' <walter@ivorymacs.co.za>
Subject: ENVIRONMENTAL IMPACT ASSESSMENT LOWS CREEK DAM PROJECT SITE MEETING 15 SEPTEMBER 2020

Dear Interested and Affected Party and Government Official

Please find attached a BID for the Environmental Impact Assessment on the Farm: Rem. Ext. of Esperado 253 JU and Portions 1 and 2 of Esperado Annex 222JU.

Please take note that the Public Meeting will be held on site on **15 September 2020 at 10h00.**
Please RSVP on the **attached comment/registration form** to me by close of business on **11 September 2020** to confirm your attendance.

As per Covid 19 regulations and restrictions participants must register to ensure we maintain numbers within the framework of legislation.

Kind regards,
Ralf Kalwa
Rhengu Environmental Services
Cell: 082 414 7088

From: Frans Krige Frans.Krige@mtpa.co.za
Sent: Monday, 24 August 2020 08:37
To: rhengu@mweb.co.za; Khumbelo Malele <khumbelomalele@gmail.com>; Phumla Nkosi <Phumla.Nkosi@mtpa.co.za>
Subject: Re: ENVIRONMENTAL IMPACT ASSESSMENT LOWS CREEK DAM PROJECT SITE MEETING 15 SEPTEMBER 2020

Good Morning Ralf, please register the MTPA as an IAP.

This area lies in Mrs Khumbelo Malele's responsible area, so all correspondance and invitation for site visits should be adressed to her , but also to Phumla Nkosi who are responsible for the registration and processing of documentation.

Kind Regards

Frans Krige

LUA S

MTPA

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Wednesday, 23 September 2020 08:03
To: matsulu1@retail.spar.co.za; 'Mdumiso Comfort' <mdumisocomfort@gmail.com>; 'Barend Marx - MBB' <barend@mbb.co.za>; barend@mbbnel.co.za; 'Mbongeni Eugene' <mbongenieugene1@gmail.com>; nicola@jrmpallets.co.za; 'ZITO NDLAKUDE' <zndlakude@gmail.com>; 'Sibusiso Starring' <sstarring305@gmail.com>; 'EDWILL NKOSINATHI' <edwillnkosinathi995@gmail.com>; 'Request Sicelo' <siceloolive933@gmail.com>; 'Samuel Tsilane' <tsilanesamuel@gmail.com>; lowscreekwater@gmail.com; nkhumalo@sahra.org.za; 'Frans Krige' <Frans.Krige@mtpa.co.za>; 'Majorboard' <Majorboard@roseinnes.co.za>; Dumisani.mabuza@mbombela.gov.za; FransMas@nda.agric.za; jan.mashele@nkomazi.gov.za; 'Vutlhari Matsane' <matsanev@iucma.co.za>; shabangus@iucma.co.za; 'ZinzileM' <ZinzileM@daff.gov.za>; LoveS@nda.agric.za; lbierman@mpg.gov.za; 'Karin Pelser' <kp.iwulaspecialist@gmail.com>; 'Riaan Kotze' <hak.riaan@gmail.com>; baiebesig@gmail.com; mark@tonetti.co.za; 'DANIEL VENTER' <daniel@siyalima.co.za>; water@roseinnes.co.za; 'Thabo Rasiuba' <rasiubat@iucma.co.za>
Cc: 'Johan Enslin' <iwulaspecialist@gmail.com>; 'Andrew Deacon' <andrewd@mpu.co.za>; 'Walter' <walter@ivorymacs.co.za>; rhengu@mweb.co.za
Subject: ENVIRONMENTAL IMPACT ASSESSMENT LOWS CREEK DAM PROJECT SITE MEETING 15 SEPTEMBER 2020 COPY OF MINUTES

Dear Interested and Affected Party and Government Official

Please find attached a copy of the Minutes of the Public Meeting which was held on site on **15 September 2020 at 10h00.**

Please peruse the contents and return any comments to **me** by close of business on **25 September 2020.**

Kind regards,

Ralf Kalwa
Rhengu Environmental Services
Cell: 082 414 7088

From: rhengu@mweb.co.za rhengu@mweb.co.za
Sent: Friday, 25 September 2020 12:02
To: 'Mbongeni Eugene' mbongenieugene1@gmail.com
Cc: rhengu@mweb.co.za
Subject: ENVIRONMENTAL IMPACT ASSESSMENT LOWS CREEK DAM PROJECT SITE MEETING 15 SEPTEMBER 2020 COPY OF MINUTES

Dear Mr. Mazibuko

I take note of your response below. It is unfortunate that you did not attend the Public Meeting on site as per my invitation on 22 August 2020. In terms of your comments below I wish to respond as follows:

1. The Public Participation Process has been implemented to date as per the conditions listed in the National Environmental Management Act (NEMA) and specifically as per the conditions listed in Chapter 6 of the Government Gazette 40772 dated April 20217.
2. The fact that you registered your Interest in the matter in July 2020 is proof of the fact that we were (and still are) **transparent** as we invited the broader public to participate.
3. The Lowvelder Advertisement (16 July 2020) including the On-site and Lows Creek town advertisements in July 2020 afforded Interested and Affected Parties more than **30 days to register**, which many did.
4. We then gave the parties on the Public Register an **additional 24 days** to register and attend the **Public Site Meeting** (E Mail 22 August 2020).
5. My email correspondence on 22 August 2020 clearly indicated that the meeting will be held **on site (the venue) at 10h00**. We waited an additional 30 minutes on the day to afford latecomers the opportunity to participate.
6. In the **Background Information Document** (BID) which you received with the invitation to the meeting, I was listed as the contact person and my cell number etc. were made available to you should you wish to discuss any aspects of concern.
7. The process as it stands is in the infancy stage as we are completing engineering- and other specialist reports. The contents of these reports will be made available to all parties for perusal and comments. I encourage you to study these reports as they are generated and when they become available.

I am also prepared to meet you on site to discuss aspects of concern and show you the preferred dam location. I am available on Thursday **1 October 2020 at 14h00 on site for any discussions. Please advise if this is required.**

I hope this mail clarifies some of the queries you had.

Kind regards,

Ralf Kalwa
Rhengu Environmental Services
Cell: 082 414 7088

From: Mbongeni Eugene <mbongenieugene1@gmail.com>
Sent: Friday, 25 September 2020 01:03
To: rhengu@mweb.co.za
Subject: Re: ENVIRONMENTAL IMPACT ASSESSMENT LOWS CREEK DAM PROJECT SITE MEETING 15 SEPTEMBER 2020 COPY OF MINUTES

We are disputing all the minutes of the PP

Dear Mr Rhengu
First and foremost as Low's Creek community we are not happy about the nature of the public participation which were not more transparent to the residents of the 4 affected societies which I may find an interested to mention them as perspectives Mashayane, Esperado 1 and 2, silver Creek.

1. The public participation basic assessment were never done according to the regulation of government.
2. The information was not deliberately delivered to all the 4 societies of Lows Creek as it was expected.
3. Environmental has failed us dismal to communicate the relevant Venue as you used your own strategic to make the public not to fully participate as you know that the community of Low's Creek their are technological disadvantaged.
4. It was vividly to us that the meeting was meant for a white farmers only.
5. You will reciprocate with me if I may say the total you nevereven meet the quorum and.
The community as large and the most affected parties of Low's Creek we came to conclusions that no project will be commercing without our concern. All the procedures must be followed and respected.
The process must be done in a correct manner starting from basic assessment and make the public participant that would attend in numbers. The transparency of the public assessment was multipulated by the white monopoly policy system which we are not agreeing with.
Info: Young communist league of South Africa
Secretarian YCLSA
Contact no: 0791142196
Mbongenieugene1@gmail.com
Kindly regardsMbongeni.E. Mazibuko

From: rhengu@mweb.co.za <rhengu@mweb.co.za>
Sent: Thursday, 19 November 2020 15:14
To: matsulu1@retail.spar.co.za; 'Mdumiso Comfort' <mdumisocomfort@gmail.com>; 'Barend Marx - MBB' <barend@mbb.co.za>; barend@mbbnel.co.za; 'Mbongeni Eugene' <mbongenieugene1@gmail.com>; nicola@jrmpallets.co.za; 'ZITO NDLAKUDE' <zndlakude@gmail.com>; 'Sibusiso Starring' <sstarring305@gmail.com>; 'EDWILL NKOSINATHI' <edwillnkosinathi995@gmail.com>; 'Request Sicelo' <siceloolive933@gmail.com>; 'Samuel Tsilane' <tsilanesamuel@gmail.com>; lowscreekwater@gmail.com; nkhumalo@sahra.org.za; 'Frans Krige' <Frans.Krige@mtpa.co.za>; 'Majorboard' <Majorboard@roseinnes.co.za>; Dumisani.mabuza@mbombela.gov.za; FransMas@nda.agric.za; jan.mashele@nkomazi.gov.za; 'Vutlhari Matsane' <matsanev@iucma.co.za>; shabangus@iucma.co.za; 'ZinzileM' <ZinzileM@daff.gov.za>; LoveS@nda.agric.za; lbierman@mpg.gov.za; 'Karin Pelser' <kp.iwulaspecialist@gmail.com>; 'Riaan Kotze' <hak.riaan@gmail.com>; baiebesig@gmail.com; mark@tonetti.co.za; 'DANIEL VENTER' <daniel@siyalima.co.za>; water@roseinnes.co.za; 'Thabo Rasiuba' <rasiubat@iucma.co.za>
Cc: 'Johan Enslin' <iwulaspecialist@gmail.com>; 'Andrew Deacon' <andrewd@mpu.co.za>; 'Walter' <walter@ivorymacs.co.za>; rhengu@mweb.co.za
Subject: ENVIRONMENTAL IMPACT ASSESSMENT LOWS CREEK DAM PROJECT DRAFT SCOPING REPORT

Dear Interested and Affected Party and Government Officials

1. We have completed the **Draft Scoping Report** for the Lows Creek Dam Project. We have included/addressed all your comments and suggestions to date in the Issues and Responses Report (Appendix 2).

Hard Copies have been posted or delivered to the following venues and or persons:

ORGANISATION	CONTACT
DARDLEA	**Ms. Robyn Luyt**
IUCMA: Nelspruit	**Mr. Thabo Rasiuba**
SAHRA: Cape Town Office	**Ms. Nokukhanya Khumalo**
MTPA	**Mr. Frans Krige**
DAFF	**Mr. Zinzile Mtotywa**

DAFF: LUSM	**Mr. Frans Mashabela**
Nkomazi Municipality	**Head Planning Division: Jan Mashele**
Mbombela Municipality	**Head Planning Division: Mr. Dumisani Mabuza**
Applicant	**Mr. Walter Giuricich/Riaan Kotze**
Kudu Farms Security Entrance Gate	**Security Staff**
Kaap River Valley Major Irrigation Board	**Ronel Oelofsen**
Lows Creek Irrigation Board	**Adri Claasen**
Rhengu Environmental Services	**Mr. Ralf Kalwa**

2. The Draft Report consists of **two sections**:
   - The Report Section and,
   - The Appendices Section.
3. The Appendices Section is **too large** and cannot be sent via e mail. I have however attached the Report Section on the e mail version of this notification for your convenience. Interested and Affected Parties can access the Public Copy at the Kudu Farms Security Gate opposite the Lows Creek Police Station or at any of the above offices listed in the table above.
4. A digital copy is available on the following link: https://www.dropbox.com/sh/klya4btzjga9lxf/AAByQco9r5bGYLkJtNeRlxira?dl=0
5. Should you have any comments, suggestions, questions and or issues for clarification please submit these to this office in writing by close of business on or before **20 January 2021.**

Many thanks for your assistance and guidance during this project to date.

Kind regards,

Ralf Kalwa
Environmental Assessment Practitioner
Rhengu Environmental Services
Cell: 082 414 7088

From: rhengu@mweb.co.za <rhengu@mweb.co.za>
Sent: Friday, 08 January 2021 09:21
To: 'Thabile Mnisi' <Thabile.Mnisi@mtpa.co.za>
Cc: 'Johan Eksteen' <Johan.Eksteen@mtpa.co.za>; 'Frans Krige' <Frans.Krige@mtpa.co.za>; 'Khumbelo Malele' <Khumbelo.Malele@mtpa.co.za>; 'Komilla Knarasoo' <Komilla.Knarasoo@mtpa.co.za>; 'Andrew Deacon' <andrewd@mpu.co.za>; 'Walter' <walter@ivorymacs.co.za>; rhengu@mweb.co.za
Subject: RE: MTPA's comments regarding the scoping report for the proposed Lows creek dam project for the development of an instream storage dam irrigation purpose.

Dear Khumbelo/Thabile *et al*

1.Many thanks for your comments well received.
2.Dr. Andrew Deacon (Biodiversity Specialist) has undertaken both a Terrestrial- and Aquatic Survey of the Site which will address your comments.
3.Secondly this is an instream dam with limited impact upon terrestrial aspects (mammals etc.). The Biodiversity Report will however outline all impacts and mitigation measures.
Kind regards,

Ralf Kalwa
RES

From: rhengu@mweb.co.za <rhengu@mweb.co.za>
Sent: Saturday, 30 January 2021 08:21
To: 'matsulu1@retail.spar.co.za' <matsulu1@retail.spar.co.za>; 'Mdumiso Comfort' <mdumisocomfort@gmail.com>; 'Barend Marx - MBB' <barend@mbb.co.za>; 'barend@mbbnel.co.za' <barend@mbbnel.co.za>; 'Mbongeni Eugene' <mbongenieugene1@gmail.com>; 'nicola@jrmpallets.co.za' <nicola@jrmpallets.co.za>; 'ZITO NDLAKUDE' <zndlakude@gmail.com>; 'Sibusiso Starring' <sstarring305@gmail.com>; 'EDWILL NKOSINATHI' <edwillnkosinathi995@gmail.com>; 'Request Sicelo' <siceloolive933@gmail.com>; 'Samuel Tsilane' <tsilanesamuel@gmail.com>; 'lowscreekwater@gmail.com' <lowscreekwater@gmail.com>; 'nkhumalo@sahra.org.za' <nkhumalo@sahra.org.za>; 'Frans Krige' <Frans.Krige@mtpa.co.za>; 'Majorboard' <Majorboard@roseinnes.co.za>; 'Dumisani.mabuza@mbombela.gov.za' <Dumisani.mabuza@mbombela.gov.za>; 'FransMas@nda.agric.za' <FransMas@nda.agric.za>; 'jan.mashele@nkomazi.gov.za' <jan.mashele@nkomazi.gov.za>; 'Vutlhari Matsane' <matsanev@iucma.co.za>; 'shabangus@iucma.co.za' <shabangus@iucma.co.za>; 'ZinzileM' <ZinzileM@daff.gov.za>; 'LoveS@nda.agric.za' <LoveS@nda.agric.za>; 'lbierman@mpg.gov.za' <lbierman@mpg.gov.za>; 'Karin Pelser' <kp.iwulaspecialist@gmail.com>; 'Riaan Kotze' <hak.riaan@gmail.com>; 'baiebesig@gmail.com' <baiebesig@gmail.com>; 'mark@tonetti.co.za' <mark@tonetti.co.za>; 'DANIEL VENTER' <daniel@siyalima.co.za>; 'water@roseinnes.co.za' <water@roseinnes.co.za>; 'Thabo Rasiuba' <rasiubat@iucma.co.za>
Cc: 'Johan Enslin' <iwulaspecialist@gmail.com>; 'Andrew' <andrew@nethog.co.za>; 'Walter' <walter@ivorymacs.co.za>
Subject: ENVIRONMENTAL IMPACT ASSESSMENT LOWS CREEK DAM PROJECT FINAL SCOPING REPORT

Dear Interested and Affected Party and Government Officials

1.We have completed the **Final Scoping Report** for the Lows Creek Dam Project (Reference Nr. 1/3/116/1E-294). The Project has now been registered with Environmental Affairs (DARDLEA) in Nelspruit. We have included/addressed the comments from MTPA and DARDLEA. (Appendices 2 and 3).

Hard Copies have been posted or delivered to the following venues and or persons:

ORGANISATION	CONTACT
IUCMA: Nelspruit	**Mr. Thabo Rasiuba**
SAHRA: Cape Town Office	**Ms. Nokukhanya Khumalo**
MTPA	**Mr. Frans Krige**
DAFF	**Mr. Zinzile Mtotywa**
DAFF: LUSM	**Mr. Frans Mashabela**
Nkomazi Municipality	**Head Planning Division: Jan Mashele**
Mbombela Municipality	**Head Planning Division: Mr. Dumisani Mabuza**
Applicant	**Mr. Walter Giuricich/Riaan Kotze**
Kudu Farms Security Entrance Gate	**Security Staff**
Kaap River Valley Major Irrigation Board	**Ronel Oelofsen**
Lows Creek Irrigation Board	**Adri Claasen**
Rhengu Environmental Services	**Mr. Ralf Kalwa**

2. The Final Report consists of **two sections**:
- The Report Section and,
- The Appendices Section.

3. The Appendices Section is **too large** and cannot be sent via e mail. I have however attached the Report Section on the e mail version of this notification for your convenience. Interested and Affected Parties can access the Public Copy at the Kudu Farms Security Gate opposite the Lows Creek Police Station or at any of the above offices listed in the table above.
4. A digital copy is however available on the following link: https://www.dropbox.com/sh/tcgynf98wm481cy/AABALlFbow2piWVEjKLYTldua?dl=0
5. Should you have any additional comments, suggestions, questions and or issues for clarification please submit these to this office in writing by close of business on or before
   22 February 2021.
6. We will now commence with the compilation of the Draft Environmental Impact Report which will include all the Specialist Studies and address the significance/mitigation of potential impacts.

Many thanks for your assistance and guidance during this project to date.

Kind regards,

Ralf Kalwa
Environmental Assessment Practitioner
Rhengu Environmental Services
Cell: 082 414 7088

COMMENT LETTERS FROM GOVERNMENT DEPARTMENTS, IRRIGATION BOARDS ETC. ON DRAFT- AND FINAL SCOPING DOCUMENTS

Low's Creek Irrigation Board

PO Box 76
Low's Creek
1302
E-Mail: lowscreekwater@gmail.com

Technical: Piet Viljoen
Cell: 074 204 7168
Admin: Adri Claasen
Cell: 073 170 9146

17 March 2020

Letter of Recommendation – proposed Low's Creek Dam

Ref: X203/94

The Low's Creek Irrigation Board has no objection to, and fully supports, the proposed construction of the Low's Creek Dam as it will assist in stabilising the flow in the Shiyalongubo/Low's Creek system and have the ability to capture and store water during periods of high water flow for use during periods of low water availability. At present the only other significant storage area for water within the Low's Creek Irrigation Board district is Shiyalongubo Dam which is located approximately 19km upstream of the proposed construction site.

Furthermore, as the existing water use within the System will not increase the Low's Creek Irrigation Board has no objection to the proposed construction of such Dam.

Yours sincerely

A. CLAASEN

SECRETARY

COMMENT FROM MTPA ON DRAFT SCOPING REPORT

Mpumalanga
TOURISM AND PARKS AGENCY

Ref: LUA 20/2567
Unit: LUA /SS
Enquiries: K. Malele
E-mail:khumbelomalele@gmail.com
Tel/Fax: 013- 235 2395 **Ext.** 222

Mr. R. Kalwa

Rhengu Environmental Services
P O Box 1046
Malelane
1320

Fax: 086 685 8003
E-mail: rhengu@mweb.co.za

Dear Mr. Kalwa

SUBJECT: HEREWITH MTPA'S COMMENTS REGARDING THE SCOPING REPORT FOR THE PROPOSED LOWS CREEK DAM PROJECT FOR THE DEVELOPMENT OF AN INSTREAM STORAGE DAM FOR IRRIGATION PURPOSES ON PORTIONS OF THE REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU, SITUATED IN LOWS CREEK-KAAPMUIDEN AREA, MPUMALANGA PROVINCE.

Your correspondence, of date 17/11/2020, has reference.

1. In addition to the proposed specialist studies that will be conducted during the EIA phase please also take the following into consideration:

   - A floristic (plant) survey must be conducted during the growing season to look for species of conservation concern that may potentially occur on site (this may require more than one season's survey in order to identify flowering species) with two (2) visits undertaken (November & February). Visits during other seasons will be determined by the flowering and fruiting times of species that are not identifiable during the summer, but have been recorded within the broader vicinity.

   - Relocation plan for plants of conservation importance should be considered and relocation should be done by specialists with expertise in the area of environmental concern. Plant species of conservation importance include the following:
     - Species Endemic to the Province
     - Red Data Listed Plants
     - Medicinal Plants

- Protected plants (Mpumalanga Conservation Legislation and National Forest Act).

- A list of alien plant species occurring on the property should be provided.
- Existing and / or planned eradication programs of alien vegetation should be indicated in the report.
- A full survey to assess faunal (mammals, birds, reptiles, amphibians and invertebrates) presence and species richness should be carried out. The time of the year to conduct surveys should depend on the activity pattern of species.
- A wetland specialist should map and assess the integrity of wetlands (if any) within the proposed dam area.

2. The MTPA look forward to receiving and reviewing the EIA report and EMP once it has been completed.

Kind Regards

Dr. M.C LÖTTER
Acting Manager Scientific Services
DATE: 17 December 2020

RES Response to MTPA:

From: rhengu@mweb.co.za <rhengu@mweb.co.za>
Sent: Friday, 08 January 2021 09:21
To: 'Thabile Mnisi' <Thabile.Mnisi@mtpa.co.za>
Cc: 'Johan Eksteen' <Johan.Eksteen@mtpa.co.za>; 'Frans Krige' <Frans.Krige@mtpa.co.za>; 'Khumbelo Malele' <Khumbelo.Malele@mtpa.co.za>; 'Komilla Knarasoo' <Komilla.Knarasoo@mtpa.co.za>; 'Andrew Deacon' <andrewd@mpu.co.za>; 'Walter' <walter@ivorymacs.co.za>; rhengu@mweb.co.za
Subject: RE: MTPA's comments regarding the scoping report for the proposed Lows creek dam project for the development of an instream storage dam irrigation purpose.

Dear Khumbelo/Thabile *et al*

1.Many thanks for your comments well received.
2.Dr. Andrew Deacon (Biodiversity Specialist) has undertaken both a Terrestrial- and Aquatic Survey of the Site which will address your comments.
3.Secondly this is an instream dam with limited impact upon terrestrial aspects (mammals etc.). The Biodiversity Report will however outline all impacts and mitigation measures.
Kind regards,

Ralf Kalwa
RES

COMMENT FROM IUCMA ON FINAL SCOPING REPORT

Suite 801, 8th Floor
The MAXSA Building
13 Streak Street
Mbombela

Private Bag X11214
Mbombela
1200

Tel 013 753 9000
Fax 013 753 2786

INKOMATI-USUTHU
CATCHMENT MANAGEMENT AGENCY

Enquiries: Mr Sonnyboy Mhlongo
Mobile No.: 078 120 6094
Reference No.: 114/2/42/X23H/EIA
E-mail : mhlongos@iucma.co.za

16 February 2021

The Director
Rhengu Environmental Services
P O Box 1046
MALELANE
1320

Attention: Mr. Ralf Kalwa

Dear Sir

RE: FINAL SCOPING REPORT FOR THE DEVELOPMENT OF AN INSTREAM LOWS CREEK STORAGE DAM FOR IRRIGATION PURPOSES ON PORTIONS OF THE REMAINING EXTEND OF ESPERADO 253 JU AND PORTIONS 1 AND 2 OF ESPERADO ANNEX 222 JU LOWS CREEK-KAAPMUIDEN ARE, MPUMALANGA PROVINCE.

Reference is made to the above-mentioned report received 20 January 2021 with the reporting deadline of 20 February 2021.

The Inkomati-Usuthu Catchment Management Agency (IUCMA) assessed the report and has no objection towards the project. The following comments are made for noting and actioning:

1. **Water Use-** It is indicated in the report that applicant will develop an instream dam to be use for irrigation purpose.

   The Applicant must note that facility located within a regulated area triggers a water use. A Regulated area is the outer edge of the 1:100-year floodline or delineated riparian habitat or whichever is the greatest. *In the absence of determined 1:100- year flood-line or riparian zone, 100 metres from the edge of the watercourse must be considered. The regulated buffer zone for wetland or a pan is a 500 metres radius from the delineated boundaries. The Applicant should be aware that locating any facility or engaging in any activity within the regulated area must be authorised in terms of section 21 (c) and (i) water uses of the National Water Act, 1998 (Act 36 of 1998) (NWA).*

   Any abstraction of water from a water resource or the dam is also a water use in terms of section 21 (a) of the NWA must be authorized.

2. **Waste Management-** *The IUCMA take note that there may need to appoint a contractor that will remove all construction waste and general waste from the site during construction period.*

The applicant must further note that the IUCMA may request a proof of service level agreement of a letter of consent from the owner of the waste disposal facility indicating that there is enough space to accommodate additional waste from the proposed project. The bund must be constructed around the temporary waste storage area to prevent overflowing of waste into the water resource.

3. From the report and identified activities, the possible water uses that will be triggered in terms of Section 21 of the NWA are as follows:

- *Section 21 (a) – for taking of water from a water resource during construction and operational phase of the dam.*
- *Section 21 (b) – for storing of water into a dam.*
- *Section 21 (c) and (i) – for encroaching regulated area by developing or engaging in any activities within the regulated areas.*

4. In terms of section 22(1) of the NWA "a person may only use water-

(a) without a licence-

(i) If that water use is permissible under Schedule 1;
(ii) If that water use is permissible as a continuation of an existing lawful use (section 32); or
(iii) If that water use is permissible in terms of general authorisation issued under section 39;

(b) if the water use is authorised by a licence under this Act; or
(c) if the responsible authority has dispensed with a licence requirement under subsection (3)".

Therefore, any other water use activities associated with this project that are not permissible as indicated above must be authorised prior to such water use activities taking place.

5. Any pollution incident originating from the storage facilities construction must be reported to the Responsible Authority within 24 hours.

6. The Applicant is advised to engage with the IUCMA for the guidance on the requirements for water use authorization process. In addition, Water use authorisation applications can be lodged on-line on the e-WULAAS platform accessible at www.dws.gov.za.

Should you have any queries, please do not hesitate to contact the official indicated above

Yours faithfully,

Adv. Bernard Shabangu
ACTING-EXECUTIVE OFFICER

Response from WULA Specialist to the IUCMA Letter above:

From: Johan Enslin <Johan@iwula.org>
Sent: Saturday, 20 March 2021 07:27
To: Sonnyboy Mhlongo <mhlongos@iucma.co.za>
Cc: Rhengu Environmental Services <rhengu@mweb.co.za>; Thabo Rasiuba (rasiubat@iucma.co.za) <rasiubat@iucma.co.za>; Walter Giuricich <walter@ivorymacs.co.za>
Subject: Lows Creek Dam - Response to IUCMA Letter

Good day Sonnyboy

- Thank you for the letter from the IUCMA sent from you to Rhengu Environmental Services on 18 March 2021. The letter is attached for ease of reference. I have been appointed by the Applicant to manage the WULA, and therefore I am responding to this letter. We had a Site Inspection together with Thabo Rasiuba from the IUCMA on 15 September 2020.
- Point 1 in the letter is noted and the Applicant is applying for Section 21 (a), (b), (c) & (i)
- Point 2 in the letter is noted and a request has been made to the Applicant requesting a Service Level Agreement for waste management.
- Point 3 in the letter is noted and the Applicant is applying for Section 21 (a), (b), (c) & (i) - **Please clarify/contextualise: "Taking of water from a water resource during construction" and how we should apply for this?**
- Point 4 in the letter is noted.
- Point 5 in the letter is noted, regarding pollution incidents.
- Point 6 in the letter is noted, regarding engaging with the IUCMA.

Kind Regards
Johan Enslin
Cell: 072 332 2442
Email: johan@iwula.org
IWULA Integrated Water Use License Application Management (Pty) Ltd
Company Registration Number: 2015/194136/07
VAT Registration Number: 4480290784
Website: www.iwula.org

COMMENT FROM SAHRA ON CONTENTS OF SCOPING REPORTS

Construction of an irrigation dam on the farm Esperado

Our Ref: 15839

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 15839

Date: Friday January 22, 2021

Interim Comment

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Rhengu Environmental Services

P O Box 1046
MALELANE
1320

Phase 1 AIA / HIA for the construction of an irrigation dam on the farm Esperado, Mpumalanga province

Esperado farms are proposing to construct a storage dam for irrigation purposes near Kaapmuiden, on portions of the remaining extent of the farm Esperado 253 JU and portions 1 and 2 of the farm Esperado Annex JU, in the Nkomazi Local Municipality of Mpumalanga Province. The dam will be 6.5 ha in extent, 8m deep when filled and the dam wall be 11.4m high and 245m in length. The development also includes the pumphouse and pipelines for irrigation.

Rhengu Environmental Services (Pty) Ltd has been appointed to undertake an environmental assessment as part of the Scoping and Environmental Impact Reporting process in support of an Environmental Authorisation (EA) in terms of the National Environment Management Act, Act 107 of 1998 (NEMA) for activities that trigger the NEMA EIA 2014 Regulations.

A Heritage Scoping report by Adonsonia Heritage Consultants cc has been submitted to SAHRA for commenting in terms of section 38(8) of the National Heritage Resources Act, Act 25 of 1999 (NHRA). The proposed dam area has a negligible palaeontological significance according to the SAHRIS palaeomap policy, as such, the application does not require an assessment of impacts on palaeontological resources.

Phase 1 Archaeological / Heritage Impact Assessment For The Proposed Louws Creek Dam Project: Construction Of An Irrigation Dam On Portions Of The Remaining Extent Of The Farm Esperado 253ju And Portions 1 & 2 Of Esperado Annex 222ju, Louw's Creek-Kaapmuiden Area, Mpumalanga Province.

The author undertook a field assessment of the proposed development area and did not identify any heritage

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

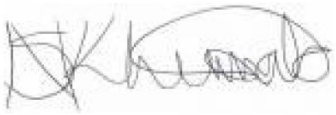
resources. The area is densely vegetated. The author recommends chance finds procedures and monitoring by an archaeologist once construction starts for the pipeline, pumphouse and dam wall. These recommendations must be included in the EMPr.

Interim Comment

The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit will comment on this case once the Draft EIA report and its appendices are submitted to the case.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully



Nokukhanya Khumalo
Heritage Officer
South African Heritage Resources Agency

Phillip Hine
Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: https://sahris.sahra.org.za/node/546729

Construction of an irrigation dam on the farm Esperado

Our Ref: 15839

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 15839

Date: Friday February 26, 2021

Letter

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Rhengu Environmental Services

P O Box 1046
MALELANE
1320

Phase 1 AIA / HIA for the construction of an irrigation dam on the farm Esperado, Mpumalanga province

Esperado farms are proposing to construct a storage dam for irrigation purposes near Kaapmuiden, on portions of the remaining extent of the farm Esperado 253 JU and portions 1 and 2 of the farm Esperado Annex JU, in the Nkomazi Local Municipality of Mpumalanga Province. The dam will be 6.5 ha in extent, 8m deep when filled and the dam wall be 11.4m high and 245m in length. The development also includes the pumphouse and pipelines for irrigation.

Rhengu Environmental Services (Pty) Ltd has been appointed to undertake an environmental assessment as part of the Scoping and Environmental Impact Reporting process in support of an Environmental Authorisation (EA) in terms of the National Environment Management Act, Act 107 of 1998 (NEMA) for activities that trigger the NEMA EIA 2014 Regulations.

A Heritage Impact Assement report by Adonsonia Heritage Consultants cc has been submitted to SAHRA for commenting in terms of section 38(8) of the National Heritage Resources Act, Act 25 of 1999 (NHRA). The proposed dam area has a negligible palaeontological significance according to the SAHRIS palaeomap policy, as such, the application does not require an assessment of impacts on palaeontological resources.

SAHRA issued an Interim Comment dated 22/01/2021 stating they will comment further once the draft EIA report is submitted to the case.

We note that the Final Scoping Report has been submitted to the case, but we await the submission of the draft EIA report to process the case further.

Construction of an irrigation dam on the farm Esperado

Our Ref: 15839

an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 15839

Date: Friday February 26, 2021

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Nokukhanya Khumalo
Heritage Officer
South African Heritage Resources Agency

Phillip Hine
Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: https://sahris.sahra.org.za/node/546729

APPENDIX 3:
DOCUMENTATION WITH DARDLEA

agriculture, rural development,
land & environmental affairs
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

Block 4, Aqua Street, Riverside Park, Mbombela, 1200
Mpumalanga Province
Private Bag X 266, Mbombela 1200
Tel: +27 (13) 759 4000

EHLANZENI DISTRICT

Litiko Letekulima, Kutfutfukiswa Kwetindzawo Tasemakhaya, Temhlaba Netesimondzawo

Departement van Landbou, Landelike Ontwikkeling, Grond en Ongewing Sake

umNyango weZelimo UkuThuthukiswa kweeNdawo zemaKhaya, iNarha neeNdaba zeBhoduluko

Enquiries : X. Nkosi
Telephone : (013) 759 4135
Reference : 1/3/1/16/1E-294

Mr. Ralf Kalwa
Rhengu Environmental Services (RES)
P.O. Box 1046
Malelane
1320

Email : rhengu@mweb.co.za

Dear Sir,

APPLICATION FOR ENVIRONMENTAL AUTHORISATION: THE DEVELOPMENT OF AN IN STREAM DAM FOR PURPOSES OF IRRIGATION ON THE REMAINING EXTENT OF ESPERADO 253 JU AND PORTIONS 1 & 2 OF ESPERADO ANNEX 222 JU, LOWS CREEK-KAAPMUIDEN, NKOMAZI LOCAL MUNICIPALITY

The Department confirms having received the application form for Environmental Authorisation and Draft Scoping Report for the abovementioned project on 22 January 2021.

The application has been assigned the reference number **1/3/1/16/1E-294.** Kindly quote this reference number in any future correspondence in respect of the application. The responsible officer is **Xolani Nkosi** and all correspondence must be directed to: Environmental Impact Management, Ehlanzeni District Office, marked for the attention of the responsible officer. Please note that you must, within 44 days from 21 January 2021, submit to this office a Final Scoping Report – inclusive of specialist reports and an EMPr - which has already been subjected to a public participation process, and was provided to interested and affected parties for a period of 30 days for comments, and which reflects the incorporation of any comments received, including any comments from this office. In this regard you are referred to the requirements of Regulation 40(3).

Please take note in terms of the provisions of regulation 45, the application will lapse, and this office will deem the application to have lapsed, if the applicant fails to submit the Final Scoping Report within the timeframe specified above.

Please draw the applicant's attention to the fact that the activity may not commence prior to an environmental authorisation being granted by the Department.

Sincerely,

R. LUYT
ACTING DIRECTOR: ENVIRONMENTAL IMPACT MANAGEMENT
DATE: 22/01/2021

MPUMALANGA
THE PLACE OF THE RISING SUN

agriculture, rural development,
land & environmental affairs
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

Block 4, Aqua Street, Riverside Park, Mbombela, 1200
Mpumalanga Province
Private Bag X 266, Mbombela 1200
Tel: +27 (13) 759 4000

EHLANZENI DISTRICT

Litiko Letekulima, Kutfutfukiswa
Kwetindzawo Tasemakhaya, Temhlaba
Netesimondzawo

Departement van Landbou,
Landelike Ontwikkeling,
Grond en Ongewing Sake

umNyango weZelimo
UkuThuthukiswa kwaseNdawo zemaKhaya,
iNarha neeNdaba zeBhoduluko

Enquiries : X. Nkosi
Telephone : (013) 759 4135
Reference : 1/3/1/16/1E-294

Mr. Ralf Kalwa
Rhengu Environmental Services
P.O Box 1046
Malelane
1320

Email: rhengu@mweb.co.za

Dear Sir,

FINAL SCOPING REPORT: THE DEVELOPMENT OF A DAM ON PORTIONS OF THE REMAINING EXTENT OF THE FARM ESPERADO 253 JU AND PORTIONS 1 & 2 OF THE FARM ESPERADO ANNEX 222 JU, NKOMAZI LOCAL MUNICIPALITY

The scoping report and plan of study for environmental impact assessment which was submitted by you in respect of the abovementioned application and received by the Department on 2 March 2021 has been accepted by the Department. You may proceed with undertaking the environmental impact assessment in accordance with the tasks that are outlined in the plan of study for environmental impact assessment, subject to fulfilling all the requirements outlined in this Department's comments dated 3 February 2021, which included the following:

1. All relevant sections of Mpumalanga Tourism and Parks Agency, including the aquatic unit, must be registered as I&APs and must be provided with the opportunity to review and comment on all reports.

You are reminded of the requirements of Regulation 23(1), and that if such requirements are not met, then this application will lapse in terms of Regulation 45.

Please draw the applicant's attention to the fact that the activity may not commence prior to an environmental authorisation being granted by the Department.

Sincerely,

R. LUYT
ACTING DIRECTOR: ENVIRONMENTAL IMPACT MANAGEMENT
DATE: 31/03/2021

APPENDIX 4:
SUPPORTIVE DOCUMENTATION
4.1. TITLE DEEDS
4.2. LAND CLAIM DOCUMENTS
4.3. WATER RIGHTS, VERIFICATION PROCESS AND PERMITS
4.4. DAM SAFETY APPLICATION
4.5. SPECIALIST STUDIES:
4.5.1. DAM DESIGN REPORT
4.5.2. GEOTECHNICAL ASSESSMENT REPORT

4.1. TITLE DEEDS OF APPLICANT PROPERTIES

Prepared by me

CONVEYANCER
LIANDA WELLS

SEELREG
STAMP DUTY R.....
FOOI
FEES R 3831,00

T 000008145 / 2019

DEED OF TRANSFER

BE IT HEREBY MADE KNOWN THAT

~~LIANDA WELLS~~ REINETTE GREYLING

appeared before me, the Registrar of Deeds Mpumalanga at Nelspruit, the said appearer, being duly authorised thereto by a power of attorney granted to them by

The Trustees for the time being of
THE NORRIS TRUST
Registration Number IT594/2005

signed at Malelane on 15 JULY 2019

And the appearer declared that:

Whereas the Transferor had truly and legally sold the undermentioned property on 24 January 2019 by Private Treaty

Now therefore the Appearer on behalf of the Transferor, did by these presents, cede and transfer to and on behalf of

ESPERADO FARMS PROPRIETARY LIMITED
Registration Number 2019/048470/07

its successors in title or assigns, in full and free property

REMAINDER OF THE FARM ESPERADO 253,
REGISTRATION DIVISION JU,
PROVINCE OF MPUMALANGA

MEASURING 362,4192 (THREE HUNDRED AND SIXTY TWO COMMA FOUR ONE NINE TWO) HECTARES

FIRST TRANSFERRED BY DEED OF GRANT 197/1923 WITH DIAGRAM ANNEXED THERETO AND HELD BY DEED OF TRANSFER T22805/2006

SUBJECT to the following conditions:

The aforesaid Remaining Extent of the Farm Esperado No 256, district Barberton, measuring as such 362,4192 hectares, (a one-half share wherein is hereby transferred) is SUBJECT and ENTITLED to the following servitudes and rights, namely:

(a) Subject to the provisions of the Crown Land Disposal Ordinance 1903 (Transvaal), and is further subject to the conditions that all roads already made over this land by lawful authority shall remain free and unencumbered; that the land shall be subject to grazing for the cattle of travellers, to be pointed out by the owner.

(b) Subject to the right of power of this Minister of Lands, and which is expressly reserved to him from time to time, by writing under his hand, to authorise and allow construction, laying, repair, maintenance and free use of a channel or furrow or of pipes through, over or under the land hereby transferred for the purpose of supply upon, or outside, the said land to adjoining or other land, subject to the payment to the owner of such compensation for actual damage thereby occasioned to him as may be mutually agreed upon between the owner and the party or parties for whose benefit the channel or furrow is constructed or pipes are laid, or, failing such agreement, as may be determined by arbitration in manner provided by the Arbitration Ordinance (Transvaal).

(c) The property hereby transferred shall be entitled to the use of any surplus water at any time flowing in the Louw's Creek and not diverted by the weir and water furrow referred to in Deed of Servitude No 629/1926 registered in the Deeds Office on the 11th of September 1926.

(d) By virtue of Notarial Deed of Servitude K520/1965S the right to convey electricity over the herein mentioned property is given to the Electricity Supply Commission together with all ancillary rights and subject to conditions as set out in the said notarial deed.

(e) By virtue of Notarial Deed 59/1973 dated 18th of August 1972 with diagram annexed the property hereby transferred is subject to a servitude 9,45 meters wide to convey water over the property in favour of Louws Creek Irrigation Board.

(f) By virtue of Notarial Deed of Servitude K2155/1989 the right to convey electricity over the aforementioned property is given to the Electricity Supply Commission together with all ancillary rights and subject to conditions as set out in the said notarial deed.

(g) The route of the servitude created by virtue of the abovementioned K2155/1989S is set out in Notarial Deed of Servitude K1673/1992S.

(h) By virtue of Notarial Deed of Servitude K6928/2002S dated 8th of July 2002, the within mentioned property is subject to two perpetual servitudes within the permanent servitude area and of a temporary servitude 20 (TWENTY) meters wide of which the boundaries run parallel to that of the permanent servitude area in favour of SASOL.

AND FURTHER SUBJECT to all such conditions as are mentioned or referred to in the aforesaid deed/s.

WHEREFORE the appearer, renouncing all the right and title the said

The Trustees of for the time being of
THE NORRIS TRUST

heretofore had to the premises, did, in consequence also acknowledge them to be entirely dispossessed of, and disentitled to, the same; and that, by virtue of these presents, the said

ESPERADO FARMS PROPRIETARY LIMITED
2019/048470/07

its successors in title or assigns, now is and henceforth shall be entitled thereto, conformably to local customs; the State, however, reserving its rights, and finally acknowledging that the purchase price is the amount of R20 000 000,00 (Twenty Million Rand).

IN WITNESS WHEREOF I, the said Registrar, together with the appearer, have subscribed to these presents, and have caused the seal of office to be affixed thereto.

THUS SIGNED, EXECUTED AND SEALED at the Office of the Registrar of Deeds Mpumalanga at Nelspruit on

In my presence 07 AUG 2019

Registrar of Deeds Mpumalanga

Signature of appearer *q.q.*

Prepared by me

CONVEYANCER
ZIETTA OLIVIER

POWER OF ATTORNEY TO PASS TRANSFER

I, the undersigned

NICOLA GIULIA KATHLEEN MOHLE duly authorised by a resolution of the Trustees of THE NORRIS TRUST dating 24 January 2019
Registration Number IT594/2005
Acting under Letters of Authority issued by the Master of the High Court of South Africa, Mpumalanga Division, Nelspruit on 29 February 2016

Do hereby nominate, constitute and appoint

CALY SMIT or LEON DOYER or LIANDA WELLS or MARIETTE VAN NIEKERK or PETRUS LODEWIEKUS DU TOIT or REINETTE GREYLING

with the power of substitution to be my true and lawful attorney and agent to appear before the Registrar of Deeds Mpumalanga at Nelspruit, or any other competent official in the Republic of South Africa

And then and there to declare that the Transferor did on 24 January 2019 sell by Private Treaty to

ESPERADO FARMS PROPRIETARY LIMITED
Registration Number 2019/048470/07

for the sum of R20 000 000,00 (Twenty Million Rand)

the following property:

REMAINDER OF THE FARM ESPERADO 253,
REGISTRATION DIVISION JU,
PROVINCE OF MPUMALANGA
MEASURING 362,4192 (THREE HUNDRED AND SIXTY TWO COMMA FOUR ONE NINE TWO) HECTARES

HELD BY DEED OF TRANSFER T22805/2006

And further cede and transfer the said property to the said transferee; to renounce all right, title and interest which the Transferor heretofore had in and to the said property, subject to the conditions hereinbefore more fully set out, and generally, for effecting the purposes aforesaid, to do or cause to be done whatsoever shall be requisite, as fully and effectually, to all intents and purposes, as Transferor might or could do if personally present and acting therein, hereby ratifying, allowing and confirming all and whatsoever the said agent shall lawfully do or cause to be done in the premises by virtue of these presents.

Signed at Malelane on 15 JULY 2019 in the presence of the undersigned witnesses.

WITNESSES:

1. _____

2. _____

_____
NICOLA GIULIA KATHLEEN MOHLE

90 (2) 1. 1A. 0

SARS

Transfer Duty **TDREP**

Declaration

Reference Details

Transfer Duty Reference Number: TDE030B12F

Details

Details of Seller / Transferor / Time Share Company

Surname / Registered Name THE NORRIS TRUST	**Full Name**
Company / CC / Trust Reg No IT594/05	**Marital Status**

Details of Purchaser / Transferee

Full Name	**Surname / Registered Name** ESPERADO FARMS PROPRIETARY LIMITED
Company / CC / Trust Reg No 2019047847007	**Marital Notes if applicable**

Details of the Property

Date of Transaction/Acquisition (CCYYMMDD)	2019-01-24		
Total Fair Value	R 20,000,000.00	**Total Consideration**	R 20000000.00

Calculation of Duty and Penalty / Interest

Transfer Duty Payable on Natural Person	R 0.00		

Property Description

1	REMAINDER OF THE FARM ESPERADO 253 REGISTRATION DIVISION JU MPUMALANGA PROVINCE MEASURING 362.4192 (THREE HUNDRED AND SIXTY TWO COMMA FOUR ONE NINE TWO) HECTARES

Exemption Certificate

Exemption Certificate Details

TransferDutyReferenceNo.	TDE030B12F	Exempt in terms of Section 9 of the Transfer Duty Act	Other
Exemptions allowed by another Act	s9(15) Transfer Duty Act, 40 of 1949		

Declaration by Conveyancer / Attorney

I certify that this is a true copy of the transfer duty declaration / receipt / exemption certificate drawn from the SARS eFiling site, which will be retained by me for 5 years from the date of registration of transfer.

XXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXX

Please ensure you sign over the 2lines of 'X's above

Date (CCYYMMDD) 20190716

For enquiries goto www.sars.gov.za or call 0800 00 SARS (7277)

Civic Centre
1 Nel Street
Nelspruit
1201
South Africa

CITY OF MBOMBELA
THE ULTIMATE DESTINATION

P O Box 45
Nelspruit
1200
South Africa
Tel: +27 (0) 13 759-2120
Fax: +27 (0) 13 759-9132

CERT-NO: U 30000
SCHEDULE

CERTIFICATE IN TERMS OF SECTION 118 OF THE LOCAL GOVERNMENT:

MUNICIPAL SYSTEMS ACT, 2000 (ACT NO. 32 OF 2000)

(AS PRESCRIBED IN TERMS OF SECTION 120 OF ACT NO. 32 OF 2000)

ISSUED BY

CITY OF MBOMBELA LOCAL MUNICIPALITY

In terms of section 118 of the Local Government Municipal Systems Act, 2000 Act No. 32 of 2000), it is hereby certified that all amounts that became due to MBOMBELA LOCAL MUNICIPALITY in connection with the under mentioned property situated within that municipality for municipal fees, surcharges on fees, property rates and other municipal taxes, levies and duties during the two years preceding the date of application for this certificate, have been fully paid.

DESCRIPTION OF PROPERTY

Erven	: 00000253
Portion	: 000RE
Extension	: 000
Sectional Tittle	:
EXCLUSIVE USE AREA	:
Zoning	: AGRICULTURE
Suburb/Town	: ESPERADO 253 JU
Registered owner	: NORRIS TRUST

This certificate is valid until 2019/07/31

Given under my hand at NELSPRUIT, on 04/07/2019

CHIEF FINANCIAL OFFICER
CITY OF MBOMBELA LOCAL MUNICIPALITY

CITY OF MBOMBELA
LOCAL MUNICIPALITY
04 JUL 2019
CIVIC CENTRE BUILDING
1 NEL STREET, NELSPRUIT, 1201

21805

Civic Centre
1 Nel Street
Nelspruit
1200
South Africa

CITY OF MBOMBELA
THE ULTIMATE DESTINATION

P O Box 45
Nelspruit
1200
South Africa
Tel: +27 (0) 13 759 9111
Fax: +27 (0) 13 759 2070

CITY PLANNING AND DEVELOPMENT

Your Ref : AA8 ESPERADO 253-JU (SB/19/00536) WIEKUS
Enquiries : Thembelihle Ntimane ☎ (013) 759-2111

The Registrar of Deeds
Private Bag X11239
NELSPRUIT
1200

Sir/Madam

CERTIFICATE IN TERMS OF

Section 70 of the Mbombela By-law on Spatial Planning and Land Use Management

It is hereby certified, in terms of the requirements of Section 70(2) of the Mbombela By-law on Spatial Planning and Land Use Management, that the applicant has complied with the requirements as laid down in terms of Section 70(1) of the Mbombela By-law on Spatial Planning and Land Use Management for the property as mentioned below:

REMAINDER OF THE FARM ESPERADO 253-JU.
REGISTRATION DIVISION J.U., PROVINCE MPUMALANGA

For the transfer from:
NORRIS TRUST.

This certificate is valid for 120 days from the date of signing.

CITY OF MBOMBELA

CITY
LAND USE MANAGEMENT
2019 -07- 31
OF MBOMBELA

Date

PROD . DEEDS REGISTRATION SYSTEM - MPUMALANGA DATE : 20190801 TIME : 11:58:16.0 PAGE : 1
PREPARED BY : DRS11041 - MASHABANE THOBILE

TRACK NUMBER : 110010446915

BLACK-BOOKING ENQUIRY ON NAME - NORRIS TRUST
ID NUMBER - 594/2005
BIRTH DATE - 0
MARITAL STATUS -
MAIDEN NAME -
TYPE OF PERSON - TRUST

PERSON HAS NO CONTRACTS/INTERDICTS

** PLEASE NOTE : THE INFORMATION APPEARING ON THIS PRINTOUT IS FURNISHED FOR PURPOSES OF INFORMATION ONLY.
FOR MORE DETAILED INFORMATION, PLEASE REFER TO THE REGISTERED SOURCE DOCUMENTS.

* * * END OF REPORT * * *

PROD DEEDS REGISTRATION SYSTEM - MPUMALANGA DATE : 20190801 TIME : 11:58:24.0 PAGE : 1
PREPARED BY : DRS11041 - MASHABANE THOBILE

TRACK NUMBER : 110010446915

PROPERTY DETAILS PRINT FOR PORTION 0 (R/E)
FARM NO 253
REG DIV JU

PROVINCE	MPUMALANGA
PREV DESCRIPTION	
DIAGRAM DEED NO	G197/1923
EXTENT	362.4192 H
CLEARANCE	UMJINDI LOCAL MUNICIPALITY
FARM NAME	ESPERADO
SG PLAN NUMBER	LG561/1971

NO INTERDICTS

DOCUMENTS	HOLDER & SHARE	AMOUNT	O/P/A	SCAN/MICRO REF	MMDD
B3842/2015	FIRSTRAND BANK LTD	R1000000.00		20150707150855	0630
K1391/2017S				20171214163122	1213
K1673/1992S	ROETEBEPALING VAN K2155/89S			19920101040248	
K2155/1989S				19920101040248	
K4380/2007S					0619
K520/1965S					0513
K59/1973S					
K6919/2003S				20171214163420	1016
INFO FROM PRETORIA DEEDS REGIS 1/955					0630
JU,253				19880101071417	
LG28/955-11382/1-10/	1/955				

OWNER DETAILS

FULL NAME & SHARE	PURCH DATE	AMOUNT/REASON	O/P/A	IDENTITY	TITLE DEED	MMDD	MICROFILM REF
NORRIS TRUST				594/2005	T22805/2006	0228	20161004091909
	20051027	R4542000.00	P				

* O/P/A - O - MULTIPLE OWNER P - MULTIPLE PROPERTY A - MULTIPLE OWNER AND PROPERTY

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FOR MORE DETAILED INFORMATION, PLEASE REFER TO THE REGISTERED SOURCE DOCUMENTS.

* * * END OF REPORT * * *

(7) EXAMINER's NOTE SHEET.

(1) By-Law lapsed on the 15.07.2019. Lodge new one.

T. THABELA

Done.

02.08.2019

bela.

Opgestel deur my;

AKTEVERVAARDIGER
J H P VAN ROOYEN

VIR ENDOSSEMENTE KYK BLADSY
FOR ENDORSEMENTS SEE PAGE — 11 — ET SEQ

23/11

77841/89
T

T R A N S P O R T A K T E

HIERMEE WORD BEKEND GEMAAK:

DAT ~~JAN HENDRIK PETRUS VAN ROOYEN~~ **GERHARD BECKER**

verksyn het voor my, die Registrateur van Aktes vir Transvaal, te Pretoria, waartoe hy die genoemde Komparant behoorlik gemagtig is kragtens 'n Volmag aan hom verleen deur die Kurator van -

DIE BOEDEL VAN JOHANNES STEPHANUS MALHERBE
Identiteitsnommer 491117 5024 00 3
getroud buite gemeenskap van goedere
BLANKE GROEP

aangestel deur die Meester van die Hooggeregshof kragtens Artikel 28 van die Wet op Landboukrediet 1966.

Gedateer 23 Oktober 1989 en geteken te PRETORIA.

EN die genoemde Komparant het verklaar dat sy Prinsipaal waarlik en wettiglik verkoop het en dat hy in sy voornoemde hoedanigheid hiermee in volle en vrye eiendomme sedeer en transporteer aan en ten gunste van -

TEKORT BELEGGINGS BK.
CK85/08386/23

BLANKE GROEP

diese Opvolgers in Titel of Regverkrygendes:

EEN:

GEDEELTE 1 VAN DIE PLAAS ESPERADO ANNEX 222, Registrasie Afdeling J.U., Transvaal;

GROOT : 62,8709 (TWEE EN SESTIG komma AGT SEWE NUL NEGE) hektaal;

AANVANKLIK OORGEDRA kragtens Akte van Verdelingstransport T19031/1961 met Kaart daarby aangeheg en gehou kragtens Akte van Transport T40518/1982

ONDERHEWIG aan die volgende voorwaardes:

A. "The Former Portion B of the farm ESPERADO ANNEX 252 in the Registration Division J.U., in the district of Barberton, indicated by the figure e innerbank of Kaap river c middle of Louws Creek d e on diagram No 4054/1960 annexed to Certificate of Consolidated Tile No 19030/1961 dated the 28th August 1961 (of which the property hereby transferred forms a portion) is subject to the following conditions:

(a) That all rights to minerals, mineral products, mineral oils and metals and precious stones on or under the land shall be and are reserved to the State.

(b). That the State shall at all times have the right of resuming the whole or any portion of the land if required for public or mining purposes on payment to the owners of such sums of money as compensation as may be mutually agreed upon by the State and the owners or failing such agreement as may be determined by arbitration in manner provided by the ARbitration Ordinance 1904 (Transvaal).

(c). That the public shall have the right to prospect and peg out mining claims under any existing or future mining laws; the rights which the public and the State now have or may hereafter have or be entitled to obtain under and by virtue of any Law relating to mining stands or to the prospecting, digging, mining for or exploiting of minerals, minerals products, precious stones, precious and base metals on the land or relating to the use of water or timber thereon shall not be impaired diminished or in any way affected by Deed of Grant No. 198/1923.

(d). That the land may be thrown open for prospecting by the State in terms of Act 35 of 1908 (Transvaal) or any amendment thereof and that the grant of discoverer's claims in terms of that Act or any amendment thereof shall not entitle the owners to any compensation for the loss of surface area covered by such claims.

(e). That the owners shall be entitled to fence the land in manner approved by the State, provided they shall allow thereto free access to any bona fide prospector in possession of and producing to them, a current prospector's permit or prospecting licence or to any holder of discoverer's claims and to their bona fide employees.

(f). That the STate shall at all times have the right in such manner and under such conditions as it may think fit to construct and form dams and reservoirs upon the

land and to erect, make and construct telegraph and telephone lines, roads, railways, water furrows, pipe lines, canals and drains upon and conduct same through and over the land in the interest of the public or of the owner, lessee or occupier of or holder of a mining title on any land adjoining or in the neighbourhood of the land hereby transferred, and to take materials therefrom for the foregoing purposes on payment (save as may be otherwise provided by Law) to the owners of such sums of money as compensation for damage or damages actually sustained as may be mutually agreed to between the State and the Owners or failing such agreement as may be determined by arbitration in manner provided by the Arbitration Ordinance 1904 (Transvaal) provided that the ARbitrators may set off against the loss or damage caused to the owners the benefit instand or prospective, which they shall or may derive in consequence of the construction of any of the said works.

(g). That the owners shall be entitled to take from any public stream on the land such water as they may reasonably require for domestic purposes and for watering their own stock running on the land but they shall not be entitled to take for any purposes than those aforementioned any water in any such stream without the written permission of the Minister of Mines or his authorised representative being first had and obtained. The State hereby specially reserves the right and power in addition to those already reserved herein (under clause (f) to enter upon the land at any time and to authorise other to do so for the purpose of making use of the water on the land by the building of reservoirs, dams, intakes, flumes and the like or by pumping or otherwise removing the same from the said land subject to compensation as set forth in clause (f) hereof.

(h). Subject and entitled to certain rights relating to the

use and enjoyment of certain water for water stock and for irrigation and domestic purposes, as will more fully appear from Notarial Deed No. 629/1936-S registered on the 11th September, 1926.

B. (i). The property hereby transferred together with portions 2 and 4 of the said farm, each measuring 62, 8709 Hectares, held under Deed of Partition Transfer No. 19032/1961 are entitled to the following rights against the Remaining Extent of the said farm, measuring as such 0197,7722 Hectares, held under Deed of Partition Transfer No. 19034/1961, which rights shall be exercised in four equal shares by the owners of the said Portions 1,2 and 4 and the said REmaining Extent namely:

(i). the right to maintain in perpetuity an electricity generating plant and a pumping plant on a strip of land 15,74 metres wide on the said Remaining Extent, the centre line of the said strip being indicated by the straight line c d on diagram 4058 annexed to Partition Transfer No. 10932/1961.

(ii). the right in perpetuity to pump water by means of a pipeline over a strip of ground 3,78 metres wide on the said remaining extent, the centre line of the said strip being indicated by the straight line d e on said diagram 4058/60.

(iii). a servitude of aqueduct in perpetuity over the said remaining extent by means of a water furrow 3,78 metres wide, the centre line of the said water furrow being indicated by the curved line e f on said diagram 4058/60.

2. The property hereby transferred together with Portions 2 and 3 of the said farm, held under Deed of Partition Transfer No. 19031/1961 and Deed of Partition Transfer No. 19033/1961 respectively are entitled to a servitude of aqueduct in per-

petuity over portion 4 of the said farm, measuring 62,8709 Hectares, held under Deed of Partition transfer No.19032/1961 by means of a water furrow 3,78 metres wide, the centre line of the said furrow being indicated by the curved line f g on said Diagram 4058/60.

(3.) The property hereby transferred together with portion 2 of the said farm held under Deed of Portition Transfer No. 19031/1961 are entitled to a servitude of aqueduct in perpetuity over portion 3 of the said farm, measuring 62,8709 Hectares held under Deed of Partition Transfer No. 19033/1961, by means of a water furrow 3,78 metres wide the centre line of the said furrow being indicated by the curved line e f on diagram No. 4057/60 annexed to aforesaid Deed of Partition Transfer No. 19033/1961.

(4). The property hereby transferred in entitled to a servitude of aqueduct in perpetuity over Portion 2 of the said farm ESPERADO ANNEX aforesaid, measuring 62,8709 Hectares, held under Deed of Partition Transfer No. 19031/1961 by means of a water-furrow 3,78 metres wide the centre line of which furrow is indicated by the curved line e f g on diagram No. 4056/60 annexed to the aforesaid Deed of Partition Transfer No. 19031/1961.

(5). The property hereby transferred is entitled to the right to construct and maintain in perpetuity a dam for the storage of water of a capacity of eleven comma two five mega litres on Portion 2 of the farm ESPERADO ANNEX aforesaid, measuring 62,8709 Hectares, held under Deed of Partition Transfer no. 19031/1961 at such a site as may be agreed upon coupled with the right to lead water between the said dam and the waterfurrow mentioned in paragraph (4) hereof, by means of a water-furrow 3,78 metres wide along such a route as may be agreed upon.

EN VERDER ONDERHEWIG AAN SODANIGE voorwaardes as in gemelde Aktes vermeld staan of na verwys word.

TWEE:

GEDEELTE 2 van die plaas ESPERADO ANNEX 222, Registrasie Afdeling J.U., Transvaal;

GROOT : 62,8709 (TWEE EN SESTIG komma AGT SEWE NUL NEGE) hektaar;

AANVANKLIK OORGEDRA kragtens Akte van Verdelings-Transport T19031/1961 met kaart daarby aangeheg en gehou kragtens Akte van Transport T40518/1982

A. ONDERWORPE aan voorwaardes A (a), (b), (c), (d), (e), (f), (g) en (h) uiteengesit in paragraaf 1 hierbo;

B. (1) The property hereby transferred together with portions 1 and 4 of the said farm, each measuring 62,8709 (SIXTY TWO comma EIGHT SEWEN NOUGHT NINE) hectare, held under Deeds of Partition Nos 19031/1961 and 19032/1961 respectively, are entitled to the following rights over the Remaining Extent of the said farm, measuring as such 197,7722 (ONE NINE SEVEN comma SEVEN TWO TWO) hectare, held under Deed of Portition Transfer NO. 1903301961, which rights shall be exercised in four equal shares by the owners of the said Portion 1, 2 and 4 and the said Remaining Extent, namely:

(i) The right to maintain in perpetuity an electricity generating plant and pumping plant on a strip of land 15,74 metres (FIFTEEN comma SEVEN FIVE) wide on the said Remaining Extent, the centre line of the said strip being indicated by teh straight line c d on diagram 4058/60 annexed to Partition Transfer No. 19032/1961,

(ii) The right in perpetuity to pump water by means

of a pipeline over a strip of ground 3,78 (THREE COMMA SEVEN EIGHT) metres wide on the said REmaining Extent, the centre line of the said strip being indicated by the straight line d e on said diagram 4058/60.

(iii). A servitude of aqueduct in perpetuity over the said Remaining Extent by means of a water furrow 3,78 (THREE COMMA SEVEN EIGHT) metres wide the centre line of the said water furrow being indicated by the curved line e f on said diagram 4058/60.

(2). The property hereby transferred together with portions 1 and 3 of the said farm, held under Deeds of Partition Transfers Nos. 19031/1961 and 19033/1961 respectively are entitled to a servitude of aqueduct in perpetuity over Portion 4 of the said farm, measuring 62,8709 (SIX TWO COMMA EIGHT SEVEN NOUGHT NINE) Hectare, held under Deed of Partition Transfer No. 19033/1961 by means of a water furrow 3,78 (THREE COMMA SEVEN EIGHT) metres wide, the centre line of the said furrow being indicated by the curved line f g on said diagram 4058/60.

(3). The property hereby transferred together with portion 1 of the said farm held under Deed of partition Transfer No. 19031/1961 are entitled to a servitude of aqueduct in perpetuity over Portion 3 of the said farm measuring, 62,8709 (SIX TWO COMMA EIGHT SEVEN NOUGHT NINE) hectare held under Deed of Partition Transfer No. 19033/1961 by means of a water furrow 3,78)THREE COMMA SEVEN EIGHT) metres wide, the centre line of the said furrow being indicated by the curved line e f on Diagram 4057/60 annexed to Deed of partition Transfer No. 19033/1961.

C. The property hereby transferred is subject to a servitude of aqueduct in perpetuity in favour of Portion 1 of the said farm ESPERADO ANNEX measuring 62,8709 hectare, as held

under of Transfer No 23352/1961 dated 2nd November 1961, over the property hereby transferred, by means of a water-furrow 3,78 (THREE comma SEVEN EIGHT) metres wide, the centre line of which furrow is indicated by the curved line e f g on diagram No 4056/60 annexed to Deed of Partition Transfer 19031/1961; which said conditions was created in Deed of Transfer 23352/1961.

D. The property hereby transferred is subject to the right in favour of Portion 1 of the said farm ESPERADO ANNEX measuring 62,8709 hectare, as held under Deed of Transfer No 23352/1961 dated 2nd November 1961, to construct and maintain in perpetuity a dam for the storage of water of a capacity of 11,25 (ELEVEN comma TWO FIVE) mega litres on the property hereby transferred, at such a site as may be agreed upon coupled with the right to lead water between the said dam and the water-furrow mentioned in paragraph C hereof, be means of a water-furrow 3,78 metres wide along such a route as may be agreed upon.

EN VERDER ONDERHEWIG aan al sodanige voorwaardes as wat in genoemde Aktes vermeld staan of na verwys word.

WESHALWE die Komparant afstand doen van ale die reg en titel wat sy Prinsipaal voorheen op genoemde eiendom gehad het en gevolglik ook erken dat hy geheel en al uit die besit daarvan onthef is en nie meer daartoe geregtig is nie, en dat kragtens hierdie Akte, die genoemde -

TEKORT BELEGGINGS BK

diese Opvolgers in Titel of Regverkrygendes tans en voortaan daartoe geregtig sal wees ooreenkomstig plaaslike gebruik, behoudens die regte van die Staat, en ten slotte erken het dat die koopprys die som van R760 000,00 (SEWEHONDERD EN SESTIG-DUISEND RAND) bedra, en dat die datum van verkoping die 18de dag van AUGUSTUS 1989 was.

TEN BEWYSE WAARVAN ek, die genoemde Registrateur van Aktes tesame met die Komparant hierdie Akte onderteken en met die Ampseël bekragtig het.

ALDUS GEDOEN en GETEKEN op die Kantoor van die Registrateur van Aktes te PRETORIA, Transvaal op

17 11 89

In my teenwoordigheid:

q.q.

REGISTRATEUR VAN AKTES

BC.....

CANCELLED
GEKANSELLEER

REGISTRATEUR / REGISTRAR

DATE / DATUM

Para 1+2 Preference of this Bond waived ifo B 16408/03

B..... 72708/91....

VERBIND
MORTGAGED

vir / for R..... 500 000-00

Aktekantoor / Deeds Office

Registrateur / Registrar

20 09/91

BC 000012326/2013 (2)

GEKANSELLEER
CANCELLED

REGISTRATEUR/REGISTRAR

2013 -11- 14

Paras ①+② - MAE

Preference of this Bond waived ifo B 16408/03

B..... 87172/92

VERBIND
MORTGAGED

(3)

BC 017288 03

CANCELLED
GEKANSELLEER

REGISTRATEUR / REGISTRAR

DATE / DATUM

vir / for R ... 000,00

BC 000012327/2013

GEKANSELLEER
CANCELLED

REGISTRATEUR/REGISTRAR

2013 -11-

Aktekantoor / Deeds Office

PRETORIA

Registrateur / Registrar

DATUM / DATE 02 09/92

Preference of this bond waived ifo B 16408/03

Para 1 en 2 M.A.E

II

B. 70608/97

VERBIND
MORTGAGED

vir / for R..... 750 000,00

Aktekantoor / Deeds Office

PRETORIA

Registrateur / Registrar

DATUM / DATE..... 02 09 97

BC 017291 03

CANCELLED
GEKANSELLEER

REGISTRATEUR / REGISTRAR

DATE / DATUM

BC 000012328/2013 (4)

GEKANSELLEER
CANCELLED

REGISTRATEUR/REGISTRAR

2013 -11- 14

VIR VERDERE ENDOSSEMENTE KYK
FOR FURTHER ENDORSEMENTS SEE..... Bl 12.

B1 12

T 77841/89

1

ENDOSSEMENT KRAGTENS ARTIKEL 27D VAN WET 61 VAN 1973	ENDORSEMENT BY VIRTUE OF SECTION 27D OF ACT 61 OF 1973
BINNEGEMELDE BESLOTE KORPORASIE IS OMSKEP IN 'N MAATSKAPPY EN STAAN NOU BEKEND AS	WITHINMENTIONED CLOSE CORPORATION HAS BEEN CONVERTED INTO A COMPANY AND IS NOW KNOWN AS

Tekot Beleggings (Eiendoms) Beperk

NO. 97/04576/07

BC 65248/97

02 09 97

REGISTRATEUR/REGISTRAR

DIE GROOTTE VAN BINNEGEMELDE EIENDOM
THE EXTENT OF THE WITHINMENTIONED
OMSKEP IN METRIEKE MATE IS
PROPERTY CONVERTED TO METRIC MEASURES IS
HEKTAAR/METERS*
HECTARE(S)/METRES*

REGISTRATEUR VAN AKTES
REGISTRAR OF DEEDS
* SKRAP WAAR NODIG/DELETE WHERE NECESSARY

NOATIEF

Hierdie verband rangeer vóór B72708/91
B87172/92
Paras 1-2 (Landbank) wo B70608/97

VERBIND MORTGAGED

VIR FOR R 2766 250-00

B 16408 03

03 03/03

REGISTRATEUR/REGISTRAR

BC 79921/04

GEKANSELLEER
CANCELLED

REGISTRATEUR/REGISTRAR

26/07/04

Vir verdere endossemente sien 13
For further endorsements see

BLADSY/PAGE 13

T 7784 1/89

Para 8-9 WOP

VERBIND	MORTGAGED
	R 3 100 000 -00

BC 12327/2013 B 24181/04

GEKANSELLEER / CANCELLED DATUM / DATE 26 07 04

REGISTRATEUR/REGISTRAAR

REGISTRATEUR/REGISTRAAR

2013 -11- 14

GETRANSPORTEER AAN / TRANSFERRED TO

Excelsior Estate Kent Boerdery Belange Proprietary Limited

RESTART/REMAINDER

T 000012704/2013

DATUM/DATE 2013 -11- 14

2017 -12- 07

VIR VERDERE ENDOSSEMENTE SIEN / FOR FURTHER ENDORSEMENTS SEE Page 14

BLADSY/PAGE 14

T7784 1/1989

VA 000002064 / 2017

GESERTIFISEER 'N WARE AFSKRIF VAN DIE REGISTRASIEDUPLIKAAT IN TERME VAN REGULASIE 68 KRAGTENS DIE REGISTRASIE VAN AKTES WET, No. 47 VAN 1937, EN IS UITGEREIK OM TE DIEN IN DIE PLEK VAN DIE OORSPRONKLIKE.

CERTIFIED A TRUE COPY OF THE REGISTRY DUPLICATE IN TERMS OF REGULATION 68 UNDER THE DEEDS REGISTRIES ACT, No. 47 OF 1937, AND IS ISSUED TO TAKE THE PLACE OF THE ORIGINAL.

REGISTRASIEKANTOOR
DEEDS REGISTRY

ASST.-REGISTRATEUR VAN AKTES
ASST. REGISTRAAR OF DEEDS

DATUM/DATE 2017 -12- 18

Para 1 and 2

VERBIND MORTGAGED

VIR
FOR R 2 500 000-00

B 000005772 / 2017

2017 -12- 18

REGISTRATEUR/REGISTRAAR

VERBIND MORTGAGED

VIR
FOR R 2 300 000-00

B 000005323 / 2018

14 NOV 2018

REGISTRATEUR/REGISTRAAR

4.2. LAND CLAIM DOCUMENTS

VAN RENSBURG INC.
Attorneys Conveyancer Notary Public

YOUR REFERENCE:

OUR REFERENCE: ZVR/mss/MAT00844

13 MARCH 2020

MESSERS. ESPERADO FARMS PTY LTD
LOW'S CREEK

EMAIL:walter@ivorymacs.co.za

Sir/Madam

RE: LAND CLAIMS : REMAINDER OF THE FARM ESPERADO 253 JU

With reference to the aforementioned, notwithstanding a diligent search of the Government Gazettes, we are unable to allocate a published Land Claim against the property known as the Remainder of the Farm Esperado 253, Registration Division JU.

We confirm that the previous owner was never informed of a Land Claim in terms of section 11 of the Restitution of Land Act, Act 32 of 1994.

Best Regards,

ZIETTA JANSE VAN RENSBURG
Attorney / Conveyancer / Notary Public
Email: zvr@vrens.co.za
Assistant Email: admin3@vrens.co.za

Zietta van Rensburg

From:	Zietta van Rensburg <zvr@vrens.co.za>
Sent:	21 January 2019 09:58 AM
To:	'VAN RENSBURG ATTORNEYS3 (Melanie)'; sam.nkosi@dldlr.gov.za; lebjane.maputha@dldlr.gov.za
Subject:	Sec 11(7)(Aa)(i) Notice - Esperado 253 JU
Attachments:	N95NoticeLCC2019.01.26.pdf

Tracking:

Recipient	Read
'VAN RENSBURG ATTORNEYS3 (Melanie)'	Read: 26/01/2019 10:26 AM
sam.nkosi@dldlr.gov.za	Read: 12/02/2019 01:13 PM
lebjane.maphutha@dldlr.gov.za	Read: 28/01/2019 08:01 AM

Chief Land Claims Commissioner,

Kindly find annexed Notice in terms of Section 11(7)(Aa)(i) for your kind attention.

We confirm that we have been unable to find a gazetted Land Claim against the property,

but are dispatching the relevant notice out of courtesy.

We trust you find the above in order.

Best Regards,

Zietta Janse van Rensburg (Olivier)
Attorney / Conveyancer / Notary Public
Director

VR VAN RENSBURG INC.
Attorneys Conveyancer Notary Public

Tel: (013) 790 1645 / (013) 790 0798
40 Air Street Malelane
P.O. Box 815 Malelane 1320
Direct Email: zvr@vrens.co.za
Assistant Email: admin3@vrens.co.za

VAN RENSBURG INC.

Attorneys Conveyancer Notary Public

YOUR REFERENCE:

OUR REFERENCE: ZVR/mss/N0000095

26 January 2019

CHIEF LAND CLAIMS COMMISSIONER
LAND CLAIMS COMMISSIONER, MPUMALANGA
PRIVATE BAG X11330
NELSPRUIT
1200

EMAIL:sam.nkosi@dldlr.gov.za
Lebjane.maphutha@dldlr.gov.za
REGISTERED MAIL

Sir/Madam

RE: NOTICE IN TERMS OF SECTION 11(7)(Aa)(i) OF THE RESTITUTION OF LAND ACT, ACT 22 OF 1994

We herewith confirm that the below mentioned transaction was entered into:

Date: 24 January 2019
Seller: Norris Trust (IT594/2005)
Purchaser: Castellazzo Pty Ltd (2018/553638/07) (with right to nominate)
Property: Remainder of the Farm Esperado 253, Registration Division JU, Mpumalanga Province, Measuring 362,4192
Purchase Price: R20,000,000.00

We confirm the following:

1. We confirm that all suspensive conditions have been fulfilled.

2. Notwithstanding a diligent search, we are unable to find any gazetted Land Claims against the property and readily enquire if any Land Claims have been lodged against the aforementioned property?
3. Notwithstanding the absence of a gazetted land claim in terms of section 11(1), we herewith give the Land Claims Commissioner one month's notice as envisioned in Section 11(7)(Aa)(i), which notice period will lapse on 27 March 2019.

Best Regards,

ZIETTA JANSE VAN RENSBURG
Attorney / Conveyancer / Notary Public
Email: zvr@vrens.co.za
Assistant Email: admin3@vrens.co.za

Zietta van Rensburg

From:	Zietta van Rensburg <zvr@vrens.co.za>
Sent:	11 February 2019 13:47 PM
To:	sam.nkosi@dldlr.gov.za; lebjane.maputha@dldlr.gov.za
Subject:	Nomination - Sec 11(7)(Aa) Notice Esperado 253
Attachments:	N95NoticeofNomination2019.02.11.pdf

Tracking:	**Recipient**	**Read**
	sam.nkosi@dldlr.gov.za	Read: 13/02/2019 17:51 PM
	lebjane.maphutha@dldlr.gov.za	

Chief Land Claims Commissioner,

Kindly find annexed notice of exercising of nomination by the Purchaser of the Remainder of the Farm Esperado 253 JU.

We trust you find the above in order.

Best Regards,

Zietta Janse van Rensburg (Olivier)
Attorney / Conveyancer / Notary Public
Director

VR VAN RENSBURG INC.
Attorneys Conveyancer Notary Public

Tel: (013) 790 1645 / (013) 790 0798
40 Air Street Malelane
P.O. Box 815 Malelane 1320
Direct Email: zvr@vrens.co.za
Assistant Email: admin3@vrens.co.za

VAN RENSBURG INC.

Attorneys Conveyancer Notary Public

YOUR REFERENCE:

OUR REFERENCE: ZVR/mss/N0000095

10 January 2019

CHIEF LAND CLAIMS COMMISSIONER
LAND CLAIMS COMMISSIONER, MPUMALANGA
PRIVATE BAG X11330
NELSPRUIT
1200

EMAIL:sam.nkosi@dldlr.gov.za
Lebjane.maphutha@dldlr.gov.za
REGISTERED MAIL

Sir/Madam

RE: NOTICE IN TERMS OF SECTION 11(7)(Aa)(i) OF THE RESTITUTION OF LAND ACT, ACT 22 OF 1994

With reference to our notice of 26 January 2019, annexed hereto for your convenience, we confirm that the Purchaser has exercised its right to nominate a recipient transferee being Esperado Farms Pty Ltd (Registration Number: 2019/048470/07) in terms of the nomination agreement, annexed hereto for your convenience.

We confirm that the nomination does not constitute a new agreement or a novation of the agreement. The notice period lapses on 27 February 2019.

Best Regards,

ZIETTA JANSE VAN RENSBURG
Attorney / Conveyancer / Notary Public
Email: zvr@vrens.co.za
Assistant Email: admin3@vrens.co.za

Zietta van Rensburg

From:	Zietta van Rensburg <zvr@vrens.co.za>
Sent:	21 January 2019 09:58 AM
To:	'VAN RENSBURG ATTORNEYS3 (Melanie)'; sam.nkosi@dldlr.gov.za; lebjane.maputha@dldlr.gov.za
Subject:	Sec 11(7)(Aa)(i) Notice - Esperado 253 JU
Attachments:	N95NoticeLCC2019.01.26.pdf

Tracking:

Recipient	Read
'VAN RENSBURG ATTORNEYS3 (Melanie)'	Read: 26/01/2019 10:26 AM
sam.nkosi@dldlr.gov.za	Read: 12/02/2019 01:13 PM
lebjane.maphutha@dldlr.gov.za	Read: 28/01/2019 08:01 AM

Chief Land Claims Commissioner,

Kindly find annexed Notice in terms of Section 11(7)(Aa)(i) for your kind attention.

We confirm that we have been unable to find a gazetted Land Claim against the property,

but are dispatching the relevant notice out of courtesy.

We trust you find the above in order.

Best Regards,

Zietta Janse van Rensburg (Olivier)
Attorney / Conveyancer / Notary Public
Director

VR VAN RENSBURG INC.
Attorneys Conveyancer Notary Public

Tel: (013) 790 1645 / (013) 790 0798
40 Air Street Malelane
P.O. Box 815 Malelane 1320
Direct Email: zvr@vrens.co.za
Assistant Email: admin3@vrens.co.za

NOMINATION

ENTERED INTO BY AND BETWEEN:

NORRIS TRUST

IT 594/2005

Herein duly represented by Nicola Mohle in terms of resolution dating 24 January 2019

VAT Registration Number: 4380223513

(hereafter referred to as the SELLER)

AND

CASTELLAZZO PTY LTD

REGISTRATION NUMBER: 2018/553638/07

Herein duly represented by Walter Giuricich

Duly authorized thereto

(hereafter referred to as the PURCHASER)

WHEREAS the parties entered into a Deed of Sale dating 24 January 2019, including the right of the Purchaser to nominate its recipient of the transfer or replacement as Purchaser per the provisions of the Deed of Sale in paragraphs 1.13 and 22 of the Deed of Sale.

AND WHEREAS the Purchaser herewith nominates

ESPERADO FARMS PTY LTD

REGISTRATION NUMBER: 2019/048470/07

VAT Number: 4110284991

As its duly appointed nominee in terms of paragraphs 1.13 and 22 of the Deed of Sale;

AND WHEREAS the Nominee herewith accepts the nomination.

THIS DONE AND SIGNED AT MALELANE ON THE 8th DAY OF FEBRUARY 2019

AS WITNESSES :

1. _____

2. _____

SELLER

KOMMISSARIS VAN EDE / COMMISSIONER OF OATHS
ZIETTA OLIVIER
PROKUREUR / ATTORNEY NOTARIS/NOTARY
AKTEVERVAARDIGER/CONVEYANCER
VAN RENSBURG PROKUREURS / ATTORNEYS
40 Airstraat, Malelane Posbus 815, Malelane, 1320

THIS DONE AND SIGNED AT MALELANE ON THE 8th DAY OF FEBRUARY 2019

AS WITNESSES:

1. _____

2. _____

PURCHASER and NOMINEE

KOMMISSARIS VAN EDE / COMMISSIONER OF OATHS
ZIETTA OLIVIER
PROKUREUR / ATTORNEY NOTARIS/NOTARY
AKTEVERVAARDIGER/CONVEYANCER
VAN RENSBURG PROKUREURS / ATTORNEYS
40 Airstraat, Malelane Posbus 815, Malelane, 1320

4.3. WATER RIGHTS, VERIFICATION PROCESS AND PERMITS

LAER KAAP BESPROEIINGS RAAD
LOWER KAAP IRRIGATION BOARD

Bus/Box 451 Barberton 1300
Epos/email: water@roseinnes.co.za
Tel Nr: 0137124200
12 Judge Street , Barberton

INLYSTINGSERTIFIKAAT

DATUM: **24 FEBRUARIE 2020**

GEREGISTREERDE EIENAAR: **ESPERADO FARMS PTY LTD**

Hierdie sertifikaat gee slegs u inlysting in terme van die ou Waterwet.

BESKRYWING VAN EIENDOM	GROTE VAN EIENDOM	INLYSTING
ESPERADO 253 JU REMAINING EXTENT	362.4192 hektaar	30.17 x 7000m³ = 211 190m³
TOTALE INLYSTING		30.17 ha x 7000m³ = 211 190m³

Die uwe,

Maré Le Roux
Senior Water Control Officer
Kaap River Major Irrigation Board
071 301 9856 / 013 712 4200

Low's Creek Irrigation Board

PO Box 76
Low's Creek
1302
E-Mail: lowscreekwater@gmail.com

Technical: Piet Viljoen
Cell: 074 204 7168
Admin: Adri Claasen
Cell: 073 170 9146

27 February 2020

TO WHOM IT MAY CONCERN

WATER RIGHTS LISTING CERTIFICATE

Low's Creek Irrigation Board hereby certifies that the property Esperado 253 JU remaining extent, is listed for the following water rights:

	Rights
Canal rights from Shiyalongubu dam	**68.00 ha**
Total in m^3	**660 000 m^3**
Additional pump rights from Low's Creek	**Use of any surplus water at any time flowing in the Low's Creek not diverted by the weir and water furrow (Deed of Servitude No. 926/1926)**

Current registered owner: Esperado Farms (Pty) Ltd

Please note that allocation of water is subject to availability and can under no circumstances be guaranteed. Limitations may be imposed as seen fit by the Irrigation Board. Ideal allocation is 6600 cubic metres per hectare per year.

A. CLAASEN

ADMIN

Suite 801, 8th Floor
The MAXSA Building
13 Streak Street
Mbombela

Private Bag X11214
Mbombela
1200

Tel 013 753 9000
Fax 013 753 2786

INKOMATI-USUTHU

Enquiries: Verification Office
Reference:253JU/0
E-mail: verification@iucma.co.za

Norris Trust
At Post Office
Tonetti
1303
snorris@mweb.co.za

FORMER INKOMATI WATER MANAGEMENT AREA, WITHIN THE INKOMATI-USUTHU WATER MANAGEMENT AREA

LOUW'S CREEK IRRIGATION BOARD

ESPERADO253, JU, PORTION 0, SIZE 362.4192 ha: DECLARATION OF WATER USE AS AN EXISTING LAWFUL WATER USE IN TERMS OF SECTION 33(2) OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998)

Under Section 33(2) of the National Water Act, 1998 (Act 36 of 1998) ["the Act"], the following volume(s) are declared as existing lawful water use(s) on the above mentioned property:

Type of water use	*Volume (m^3/annum)*
Taking of water for irrigation purposes	**660,000.00**
Taking of water for non-irrigation purposes	
Storing of water	

This use may be continued with under Section 34(1) subject to any existing conditions or obligations attached to the use until a licence replaces it.

In terms of Section 148(1)*(e)* of the Act you may appeal against this declaration to the Water Tribunal within 30 (thirty) days from the date of this letter. The Water Tribunal can be contacted as follows:

The Registrar of the Water Tribunal, Mr Robert Mabe
Water Tribunal
Private Bag X316
Pretoria
0001

Tel: 012 336 7034
E-Mail: maber@dws.gov.za

A copy of the appeal must be submitted to this office

The Inkomati-Usuthu Catchment Management Agency (IUCMA) will amend your registration certificate or the registration certificate of the applicable Water Management Institution to reflect the above details. If an appeal is lodged, the certificate may be amended again depending on the outcome of the appeal.

Yours faithfully

Dr THOMAS GYEDU-ABABIO

CHIEF EXECUTIVE OFFICER

DATE: 11/3/2016

Low's Creek Irrigation Board

Box 76
Technical: Piet Viljoen
Low's Creek
Cell: 074 204 7168
1302
Admin: Adri Claasen
E-Mail: lowscreekwater@gmail.com
Cell: 073 170 9146

12 February 2020

TO WHOM IT MAY CONCERN
WATER RIGHTS LISTING CERTIFICATE

Low's Creek Irrigation Board hereby certifies that the properties Esperado Annex 222 JU portion 1 and portion 2 are listed for the following water rights:
Rights

Canal rights from Shiyalongubu dam	**p1**	**35.00 ha**
Canal rights from Shiyalongubu dam	**p2**	**20.00 ha**
Rights to pump from Kaap river p1		**35.00 ha**
Rights to pump from Kaap river p2		**35.00 ha**
Total registered water rights		**125.00 ha**
Total in m^3		**825 000 m^3**
Additional pump rights from Low's Creek*		**11m^3/hour**

(* Subject to restrictions)
Current registered owner: Tekort Beleggings (Edms) Bpk
Please note that allocation of water is subject to availability. Ideal allocation is 6600 cubic metres per hectare per year.

A. CLAASEN
ADMIN

Suite 801, 8th Floor
The MAXSA Building
13 Streak Street
Mbombela

Private Bag X11214
Mbombela
1200

Tel 013 753 9000
Fax 013 753 2786

INKOMATI-USUTHU
CATCHMENT MANAGEMENT AGENCY

Enquiries: Verification Office
Reference:222JU/1
E-mail: verification@iucma.co.za

Excelsior & Tekort Beleggings Pty Ltd
PO Box 96
Kaapmuiden
1295
excelsio@global.co.za

FORMER INKOMATI WATER MANAGEMENT AREA, WITHIN THE INKOMATI-USUTHU WATER MANAGEMENT AREA

LOUW'S CREEK IRRIGATION BOARD

ESPERADO ANNEX222, JU, PORTION 1, SIZE 62.8709 ha: DECLARATION OF WATER USE AS AN EXISTING LAWFUL WATER USE IN TERMS OF SECTION 33(2) OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998)

Under Section 33(2) of the National Water Act, 1998 (Act 36 of 1998) ["the Act"], the following volume(s) are declared as existing lawful water use(s) on the above mentioned property:

Type of water use	*Volume (m^3/annum)*
Taking of water for irrigation purposes	**462,000.00**
Taking of water for non-irrigation purposes	
Storing of water	

This use may be continued with under Section 34(1) subject to any existing conditions or obligations attached to the use until a licence replaces it.

In terms of Section 148(1)*(e)* of the Act you may appeal against this declaration to the Water Tribunal within 30 (thirty) days from the date of this letter. The Water Tribunal can be contacted as follows:

The Registrar of the Water Tribunal, Mr Robert Mabe
Water Tribunal
Private Bag X316
Pretoria
0001

Tel: 012 336 7034
E-Mail: maber@dws.gov.za

A copy of the appeal must be submitted to this office

The Inkomati-Usuthu Catchment Management Agency (IUCMA) will amend your registration certificate or the registration certificate of the applicable Water Management Institution to reflect the above details. If an appeal is lodged, the certificate may be amended again depending on the outcome of the appeal.

Yours faithfully

Dr THOMAS GYEDU-ABABIO

CHIEF EXECUTIVE OFFICER

DATE: 11/3/2016

Suite 801, 8th Floor
The MAXSA Building
13 Streak Street
Mbombela

Private Bag X11214
Mbombela
1200

Tel 013 753 9000
Fax 013 753 2786

INKOMATI-USUTHU
CATCHMENT MANAGEMENT AGENCY

Enquiries: Verification Office
Reference:222JU/2
E-mail: verification@iucma.co.za

Excelsior & Tekort Beleggings Pty Ltd
PO Box 96
Kaapmuiden
1295
excelsio@global.co.za

FORMER INKOMATI WATER MANAGEMENT AREA, WITHIN THE INKOMATI-USUTHU WATER MANAGEMENT AREA

LOUW'S CREEK IRRIGATION BOARD

ESPERADO ANNEX222, JU, PORTION 2, SIZE 62.8709 ha: DECLARATION OF WATER USE AS AN EXISTING LAWFUL WATER USE IN TERMS OF SECTION 33(2) OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998)

Under Section 33(2) of the National Water Act, 1998 (Act 36 of 1998) ["the Act"], the following volume(s) are declared as existing lawful water use(s) on the above mentioned property:

Type of water use	*Volume (m^3/annum)*
Taking of water for irrigation purposes	**363,000.00**
Taking of water for non-irrigation purposes	
Storing of water	

This use may be continued with under Section 34(1) subject to any existing conditions or obligations attached to the use until a licence replaces it.

In terms of Section 148(1)*(e)* of the Act you may appeal against this declaration to the Water Tribunal within 30 (thirty) days from the date of this letter. The Water Tribunal can be contacted as follows:

The Registrar of the Water Tribunal, Mr Robert Mabe
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A copy of the appeal must be submitted to this office

The Inkomati-Usuthu Catchment Management Agency (IUCMA) will amend your registration certificate or the registration certificate of the applicable Water Management Institution to reflect the above details. If an appeal is lodged, the certificate may be amended again depending on the outcome of the appeal.

Yours faithfully

Dr THOMAS GYEDU-ABABIO

CHIEF EXECUTIVE OFFICER

DATE: 11/3/2016

4.4. DAM SAFETY APPLICATION

Classification Application DW 692 E

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

DAM SAFETY OFFICE
PRIVATE BAG X313 PRETORIA 0001

APPLICATION FOR CLASSIFICATION OF A PROPOSED NEW DAM OR ENLARGEMENT OR ALTERATION OF AN EXISTING DAM

Only applicable if the maximum wall height of the dam exceeds 5 metres and the gross storage capacity is more than 50 000 cubic metres

1. PARTICULARS OF THE DAM OWNER

1.1. Name of dam owner: ESPERADO FARMS (PTY) LTD

1.2. Owner's postal address:
POBOX 2128
RIVONIA
Postal code 2128

1.3. Tel/cel. no. of dam owner: 082 967 6 6757

1.4. E-mail address of person in control of the dam: walter@ivorymacs.co.za

1.5 Name and postal address of person in control of the dam (*if applicable*)
ASABOVE
Postal code

1.6. Tel/cel. no. of person in control of the dam: AS ABOVE

1.7. E-mail address of person in control of the dam: AS ABOVE

2. PROPERTY ON WHICH THE DAM IS OR WILL BE SITUATED AND LOCALITY

2.1. Property description as per title deed: ESPERADO 253 JU
& ESPERADO ANNEX 222 JU
PTN 1 & 2

2.2. Magisterial district: BARBERTON

2.3. Nearest city/town: KAAPMUIDEN

2.4. Distance to nearest city or town: 6.9 km

2.5. Direction from nearest city or town: SOUTHEAST

2.6. Number of 1:50 000 scale topographical map: * 2531CB

* ***A copy of the relevant portion of this map which clearly indicates the position of the dam and downstream area must be attached***

2.7. Position of the centre of the dam wall to an accuracy of one second

Latitude: 25° 35' 24" Longitude: 31 18' 30"

2.8. Title deed number: T8145/2019

T 1 9 0 3 1 / 1 9 6 1

3.1. Name of dam: L O U W 'S C R E E K D A M

3.2. Name of watercourse or source: L O U W S C R E E K

3.3. For **clean water** dams, give the purpose of the dam (*mark **all** applicable purposes with X*)

domestic supply		irrigation	X	industrial use	
stock watering		fisheries		other (specify below)	
Describe "other"					

3.4. For **wastewater** dams, give the purpose of the dam (*mark **all** applicable purposes with X*)

pollution control		wastewater disposal		industrial residue	
oxidation / evaporation		mine residue		other (specify below)	
Describe "other"					

3.5. For an existing dam describe the nature and extent of the proposed alterations or enlargements

N O T A P P L I C A B L E

3.6. Proposed starting date of construction: 2 0 2 1 0 5

3.7. Name and postal address of designer or consultant (*if available*)

M B B C O N S U L T I N G S E R V I C E S
P O B O X 4 9 8
N E L S P R U I T Postal code 1 2 0 0

3.8. Tel. no. of designer or consultant: 0 1 3 7 5 2 8 2 1 3

3.9. E-mail adress of designer or consultant: b a r e n d @ m b b . co . za

4. PARTICULARS OF DAM AND BASIN

(For enlargement or alteration of an existing dam, particulars must be for the completed structure)

4.1. Type of dam (*mark applicable type with X - mark more than one for composite dams*)

earthfill	X	rockfill		gravity	
buttress		arch		multi-arch	
earth "service" reservoir		reinforced concrete "service" reservoir			
mine residue deposit *		industrial residue deposit *			

**** This also means any structure generally termed a "tailings or slimes dam"***

other (*specify*):

4.2. Maximum wall height: ** 1 1 , 4 m

***** Note! Wall height is the vertical difference between the lowest downstream ground elevation on the outside of the dam wall and the non-overspill crest level or the general top level of the dam wall***

4.3. Crest length of wall: 2 4 5 m

4.4. Gross storage capacity: 1 9 3 0 0 0 m³

4.5. Area of water surface at full supply level: 6 , 5 ha

4.6. Maximum full supply water depth (*must be provided*): 8 , 0 m

5. PARTICULARS OF DEVELOPMENT DOWNSTREAM OF THE DAM

Describe with the aid of a 1:50 000 scale map the nature and situation of development downstream of a dam that would be threatened by a failure of the dam. Development means any houses, dwellings, other buildings, roads, bridges, cultivated lands, orchards, powerline foundations etc.

The area downstream of the dam wherein all development must be described is defined as follows;

- For every one metre of maximum wall height, at least one kilometre of the valley downstream of the dam wall should be analysed

- For the calculation of the width of the strip the following heights above river bed may be assumed;

2/3 of maximum wall height for the first kilometre downstream and 1/2 of the maximum wall height for the rest of the downstream distance

5.1. Development downstream of the dam (houses, dwellings and other similar structures)

Distance downstream (km)	Purpose or use of structure	Height above river bed (m)	Distance from river (m)	Number of inhabitants or users
1.24	Pump Station	2	10	1
2.43	2 x Pump Stations	2	15	2
4.04	Homestead	7	45	6
4.18	Pump Station	1	15	1
5.51	Pump Station	1	5	1
6.18	Pump Station	2	25	1

5.2. Road and railway crossings downstream of the dam

Distance downstream (km)	(1) Type of road or railway	If a road, is it tarred? (Y/N)	Height of road / railway above river bed (m)	Bridge, culvert or pipe openings: Width (mm)	Height (mm)	Diameter (mm)	How many?	(2) Type of crossing	(3) Visibility distance (m)	Number of vehicles per day
1.56	FRD	N	3 , 0			1500	6	C	i 92 ii 180	20
6.81	MRD	Y	7 , 0	6000	6500		5	B	i 350 ii 272	100
6.87	MTR	N/A	21 , 0	29000	22000		5	B	i 500 ii 200	Unknown
			,						i ii	
			,						i ii	
			,						i ii	

(1) *Type of road or railway - Use one of the following abbreviations*

NRD = national road *MRD = main road* *SRD = secondary road* *DRD = district road*

FRD = farm road *STR = single track railway* *MTR = multi-track railway*

Explain other abbreviations =

(2) *Type of crossing - Use one of the following abbreviations*

C = culverts or pipes encased in concrete *E = culverts or pipes buried in earthfill or rockfill*

B = concrete bridge with piers *D = drift with same height as river bed*

Explain other abbreviations =

(3) *Visibility distance - This is the distance to a bridge or crossing from where a motorist can see if there is any danger in using the bridge or crossing. Both approach distances are required.* ***The order in which i and ii are written does not matter.***

If the distance equals or exceeds 1 kilometre, enter 999

5.3. Other development downstream of the dam, not covered by 5.1 or 5.2

0.1km - Confluence with the Kaap River
5.00 km - Concrete Weir
5.95 km - Concrete Weir
6.25 km - Concrete Weir
6.60 km - Concrete Weir
7.4 km - Confluence with Crocodile River

6. DECLARATION BY APPLICANT

I declare that the information given by me for the classification of the above dam is true and correct.

Signature:  Date: **07/01/2020**

NB! Remember to attach a clear copy of the relevant topographical map (see 2.6)

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

Private Bag X313, PRETORIA, 0001. Sedibeng Building 185, Francis Baard Street, PRETORIA, 0001.
Tel: +27 12 336 7500 www.dws.gov.za

modisel@dws.gov.za

Ms L A Modise
(012) 336-7758
12/2/X203/94

Manager
Esperado Farms (Pty) Ltd
P.O. Box 2128
RIVONIA
2128

EMAIL: walter@ivorymacs.co.za

Sir

CLASSIFICATION OF DAM WITH A SAFETY RISK IN TERMS OF CHAPTER 12 OF THE NATIONAL WATER ACT, 1998 (ACT 36 OF 1998) READ WITH REGULATIONS 2 AND 3 OF THE REGULATIONS PUBLISHED IN GOVERNMENT NOTICE R. 139 OF 24 FEBRUARY 2012: PROPOSED LOUW'S CREEK DAM ON PORTION 1 AND 2 OF THE FARM ESPERADO 253 ANNEX 22, DISTRICT OF BARBERTON

A. APPLICATION

Your application received from Mr Barend Marx of the firm MBB, dated 07 January 2020 refers.

B. CLASSIFICATION

1. The classification of the **Proposed Louw's Creek Dam** is as follows:

Vertical wall height Storage capacity	11.4 meters 193 000 cubic meters
Size classification Hazard potential rating Category	Small Significant II

2. The classification is based on available information. If you have any information on the basis of which you feel the classification is incorrect, you should submit a substantiated application in writing for its revision.

C. REQUIREMENTS BEFORE CONSTRUCTION OF A DAM WITH A SAFETY RISK

1. No construction work as stipulated in regulation 4, 10 to 22 of the said regulations may commence before the following appropriate steps have been followed:

1.1 In terms of Regulation 4(1), no person who intends to construct a dam with a safety risk, may begin any construction work, before he or she is in possession of a licence to construct, issued by the Director-General (Dam Safety Regulation).

12/2/X203/94

1.2 In terms of Regulation 10, any person who intends to construct a Category II dam, so that the completed dam can be classified as a Category II dam, must-

1.2.1 Acquire the services of an approved professional person to design the proposed projects and to draw up plans and specifications for it.

1.2.2 Apply on an official application form (DW695E available on the website: www.dws.gov.za/DSO) for a licence to **construct**, by submitting to the Director-General (Dam Safety Regulation) a proposed design complying with acceptable dam engineering practices and criteria as set out in Regulation 10 to 14.

2. In terms of Regulation 4(2) you have to obtain a water use licence before the dam safety licence to construct/alter/enlarge could be issued.

3. In terms of Regulation 25 an application for a licence to impound after completion of the dam on the form (DW696E) must be submitted. Impoundment of water in the dams may not commence until you are in possession of a licence to impound issued by this Department.

4. In terms of section 120 of the National Water Act, 1998, the dam must be registered at the Dam Safety Regulation of this Department within 120 days of the date on which the dam become capable of containing, storing or impounding water. The form (DW693E) must be completed and submitted to the Dam Safety Regulation for this purpose.

D. THIS LETTER SHALL NOT BE CONSTRUED AS CONFERRING EXEMPTION FROM COMPLIANCE WITH THE FOLLOWING:

1. The provisions of Chapter 4 of the National Water Act, 1998 pertaining to the lawful existence of the dam. Address enquiries and applications in this regard to the following address:

Chief Director: Mpumalanga
Department of Water and Sanitation
Private Bag X11259
NELSPRUIT Tel: (013) 759 7300
1200 Fax: (013) 759 7525

2. The provisions and regulations of the National Environmental Management Act, 1998 (Act No. 107 of 1998) regarding control over activities which may have a detrimental effect on the environment.

Yours faithfully

Ms L A Modise
Designation: Senior Administration Clerk: Dam Safety Regulation
Date: 04 February 2020

Copy to: Email: barend@mbb.co.za

4.5. SPECIALIST STUDIES:
4.5.1. DAM DESIGN REPORT
4.5.2. GEOTECHNICAL ASSESSMENT REPORT

4.5.1. DAM DESIGN REPORT

ESPERADO FARMS (PTY) LTD

LOUWS CREEK DAM DESIGN REPORT

FEBRUARY 2021

Compiled by :

MBB Consulting Engineers (NEL)
P O Box 498
NELSPRUIT
1200

REPORT DETAILS

Project name:	***Lows Creek Dam***
Report title:	***Lows Creek Dam Design Report***
Authors:	***B Marx & M Kolesky***
Status of report:	***Draft***
First issue:	
Final issue:	

APPROVED PROFESSIONAL PERSON
Approved by:

Marius Kolesky	*Date*

TABLE OF CONTENTS

1. INTRODUCTION

MBB Consulting Engineers (MBB) were appointed by Esperado Farms (Pty) Ltd to do the feasibility and detailed design of the proposed Lows Creek Dam. The purpose of this report is as follows:

- Supporting document for the Water Use Licence Application
- Supporting document for the Environmental Impact Assessment

The proposed Lows Creek Dam will store 189 000 m^3 of water on the Farm Esperado 253 JU and Portion 1 and 2 of the Farm Esperado Annex 222 JU. The dam will act as a balancing dam, which will be filled in the summer months by natural runoff from within the catchment, and by releases from the Shiyalongubo System in the winter months.

This report sets out the parameters on which the design of the Lows Creek Dam is based. When the time comes, this report with some minor additions, will be submitted to the DWS DSO for the issuing of the Licence to Construct.

2. BACKGROUND

Esperado Farms (Pty) Ltd operates the farm registered as Rem Extent of Esperado 253 JU situated on the right bank of the Lows Creek and Te Kort Beleggings (Pty) Ltd operates the farms registered as Portions 1 & 2 of Esperado Annex 222 JU situated on the left bank of the Lows Creek.

As a result of the current drought being experienced, Esperado Farms and Te Kort Beleggings have experienced a critical water shortage that has had a severe negative impact on crop production and loss of job opportunities. Both entities wish to mitigate the effects of the current drought by constructing additional storage on the properties. A suitable dam site has been identified on the boundary between Esperado 253JU and Portion 1 of Esperado Annex 22 JU.

The purpose of the proposed dam is not to do any additional irrigation development, requiring excess water above the legally allocated volume of water attached to the existing water rights of the properties of Esperado Farms (Pty) Ltd and Te Kort Beleggings (Pty) Ltd. The idea is to stabilise the water supply so that it can be used in times of shortage.

At the time of writing this report, the exact details of how the dam will be funded and how the water stored in the dam will be shared between Esperado Farms (Pty) Ltd and Te Kort Beleggings (Pty) Ltd have not been finalised.

3. WATER RIGHTS AND LICENCE TO STORE

A summary of the existing water rights allocated to the properties of Esperado Farms (Pty) Ltd and Te Kort Beleggings (Pty) Ltd which will be used to fill the dam during periods of flood are as follows:

Esperado Farms (Pty) Ltd:

- Lower Kaap Irrigation Board: 30.17ha @ 7 000m^3 / annum = 211 190m^3 / annum
- Lows Creek Irrigation Board (Shiyalongubu System): 68ha @ 6 600m^3 / annum = 448 810m^3 / annum
- Total IUCMA existing lawful water use = **660 000 m^3 / annum**

Te Kort Beleggings (Pty) Ltd:

- Lower Kaap Irrigation Board: 70ha @ 6 600m^3 / annum = 462 000m^3 / annum
- Lows Creek Irrigation Board (Shiyalongubu System): 55ha @ 6 600m^3 / annum = 363 000 m^3 / annum
- Total IUCMA existing lawful water use = **825 000 m^3 / annum**

These allocations have been confirmed by the IUCMA, Low's Creek Irrigation Board and the Lower Kaap Irrigation Board (See Annexure A). The applicants have received a letter of support from the Lows Creek Irrigation Board, whom support the construction of the dam.

The existing storage on these properties consists of a number of dams, whose combined capacity is approximately 60 000 m^3. With the addition of the Lows Creek Dam, the storage on the properties will increase to 250 000 m^3, equivalent to 16% of the total allocated water rights. The positions of these dams are shown on the drawings in Annexure B.

4.LOCALITY

Esperado 253 JU and Portions 1 & 2 of the Farm Esperado Annex 222 JU are located in quaternary catchment X23H in the Lows Creek Catchment, a tributary of the Kaap River, which is a tributary of the Crocodile River. The properties are located about 7km South East of Kaapmuiden on the N4 route, in the Nkomazi Local Municipality. The 1:50 000 locality map can be found in Annexure B.

The proposed Lows Creek Dam will be constructed in the Lows Creek about 150m upstream of the confluence of the Kaap and Lows Creek. The dam is approximately 8km upstream of the confluence of the Crocodile and Kaap rivers.

5.CLASSIFICATION

The proposed dam has been classified by the DSO in terms of the Chapter 12 of the National Water Act (36 of 1998) as a Category II Dam with the following characteristics (See Annexure C):

- Size Classification: Small
- Hazard Potential Rating: Significant
- Category: II
- Department Reference: 12/2/X203/94

6.PROJECT TEAM

The project team for the Lows Creek Dam is as follows:

- Approved Professional Person: M. Kolesky
- Co-Design Engineer: B Marx
- Geotechnical Report: M Kolesky / B Marx
- Laboratory: Engolab
- Engineering Geologist: B. Cilliers
- Contractor: To be Confirmed

7.FLOOD HYDROLOGY

The proposed Lows Creek Dam Dam is located in the Quaternary Catchment X23H and has a catchment area of 151.2km^2 as shown on the 1:50 000 locality sketch in Annexure A.

The catchment has a mean annual runoff of 17.1 million cubic meters. The estimated capacity of the Lows Creek Dam is 0.190 million cubic meters (1% of Mean Annual Runoff). It is therefore clear that flood attenuation shall **not** be an important factor in determining the design flood discharges.

The overall catchment comprises of approximately, 52% thick bush and plantations, 35% light bush and farmland and 13% grasslands. The catchment is fairly flat (2% slope) and elongated (23.7km), all factors that have an effect on flood magnitudes.

Recommended Design Flood (RDF) selected for this dam is Q100 (SANCOLD guidelines, Report No 4). Due to size of the dam, the Safety Evaluation Flood (SEF) selected for this dam is Q200 (Flood Hydrology for Southern Africa, W.J.R Alexander, 1990).

The RDF and SEF were routed through the proposed Lows Creek dam to determine the final design discharges (RDD and SED).

7.1.RDF

With a time of concentration of 3.5 hours and a C-factor of 0.2 (HRU Report 1/72 Annexure E), the RDF (1:100-year flood) for the catchment area (151.2 km^2) was determined to be 377m^3/s by means of the Rational Method.

The inflow hydrograph for the RDF of the Lows Creek Dam is shown in Figure 1.

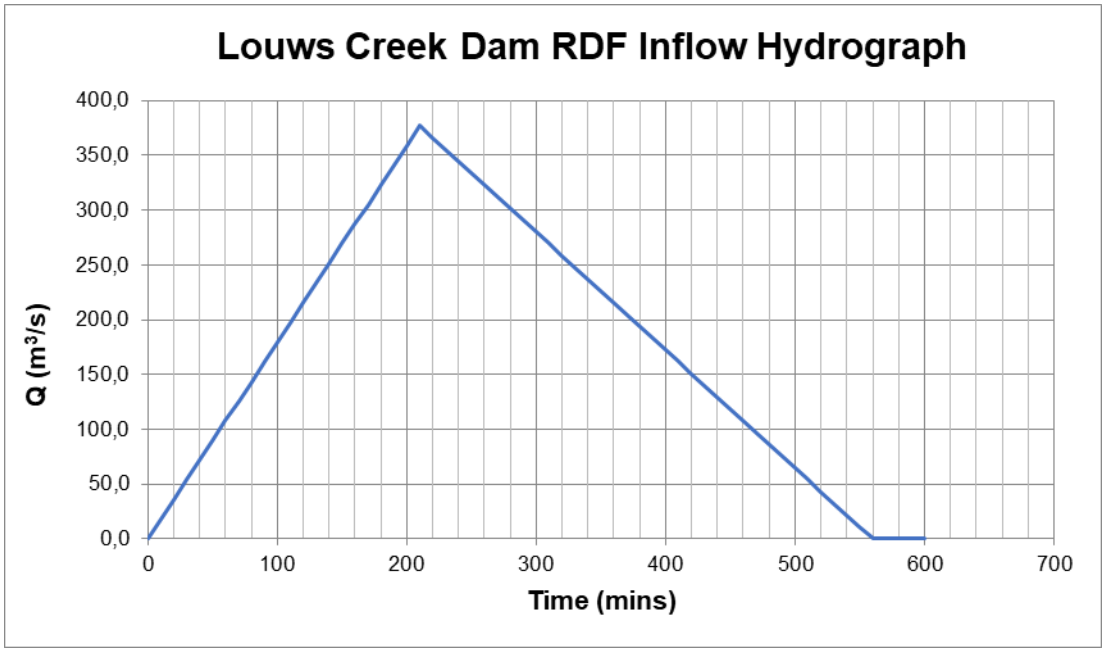


Figure 1: RDF inflow hydrograph for Lows Creek.

7.2.SEF

The SEF was determined to be 502m^3/s. This was done by extrapolating the 1:100-year flood using the extrapolation chart shown in Figure 2. This is equivalent to 3.3m^3/s per km^2 of catchment area.

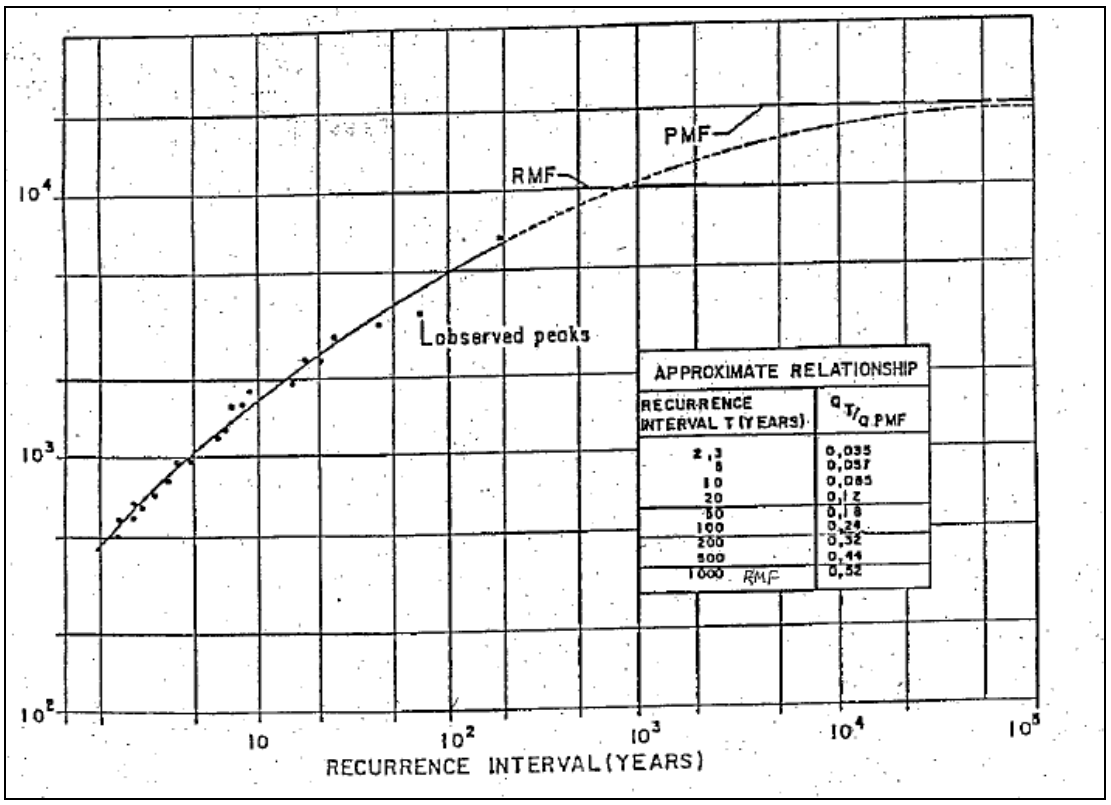


Figure 2. Extrapolation of a Typical Flood Frequency Distribution

SANCOLD guidelines, Report No 4, recommend that the SEF should be calculated using RMF-Δ. This is the equivalent of 720m^3/s (Kovacs Zone 4.6). This is equivalent to 4.7m^3/s per km^2 of catchment area.

Due to the size of the dam (small), the SED was selected as the 1:200-year flood. The inflow hydrograph for the SEF of the Lows Creek Dam is shown in Figure 3.

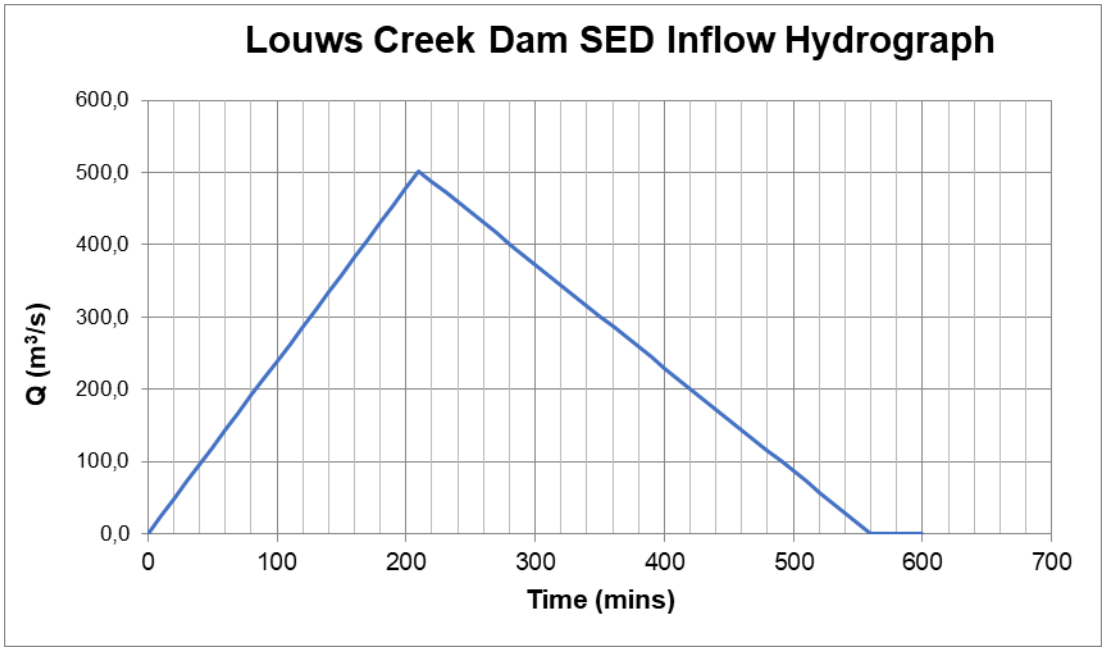


Figure 3: SEF inflow hydrograph for Lows Creek Dam

8.SPILLWAY HYDRAULICS

The spillway should be able to pass the RDF with adequate dry freeboard, while the SEF should be passed without catastrophic failure of the embankment. The degree to which floods will be attenuated in the freeboard depends upon the width of the spillway and the height of the freeboard provided. A 61.3m wide concrete labyrinth spillway is provided on the right bank, discharging back into the Lows Creek. The labyrinth has the following characteristics:

- Labyrinth Width: 61.3m
- Number of Cycles: 6
- Labyrinth Angle (α): 25 Degrees
- Length of Apron: 9.2m
- Effective Overflow Length: 121.8m
- RDF Overflow Depth: 1.5m
- SEF Overflow Depth: 1.8m
- Total Freeboard: 2.8m

The spillway is sized to take the SEF at a flow depth of 1.8m. Due to the positioning of the spillway, the additional 1m freeboard is allowed for water to build up behind the embankment and flow in the spillway channel towards the spillway (see layout drawings).

Due to the complexity of this spillway, the hydraulics (water profile) will be confirmed by a hydraulics specialist prior to the submission of the report to the DWS DSO for the issuing of the Licence to Construct.

Taking the above into cognisance, the RDF inflow hydrograph peak (Figure 1) is reduced to 372m^3/s at a flow depth of 1.42m (RDD).

The inflow and outflow hydrographs are shown in Figure 4.

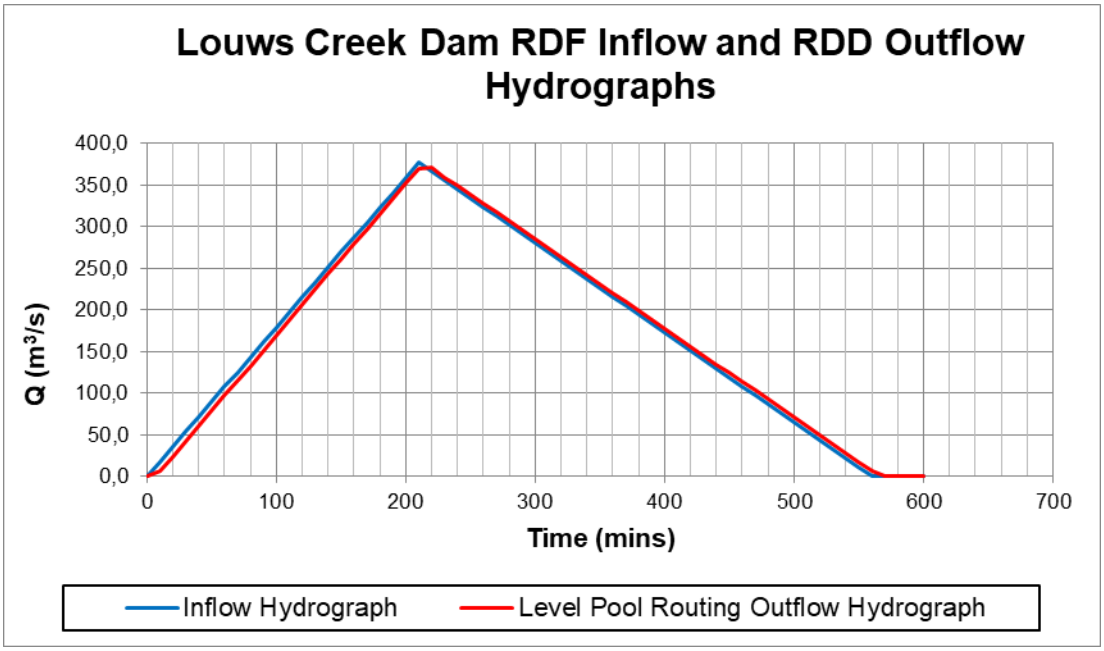


Figure 4: RDF inflow and RDD outflow hydrographs for Lows Creek Dam.

For the SEF it is found that the inflow hydrograph peak (Figure 3) is reduced to 494m^3/s at a flow depth of 1.74m (SED). The inflow and outflow hydrographs are shown in Figure 5.

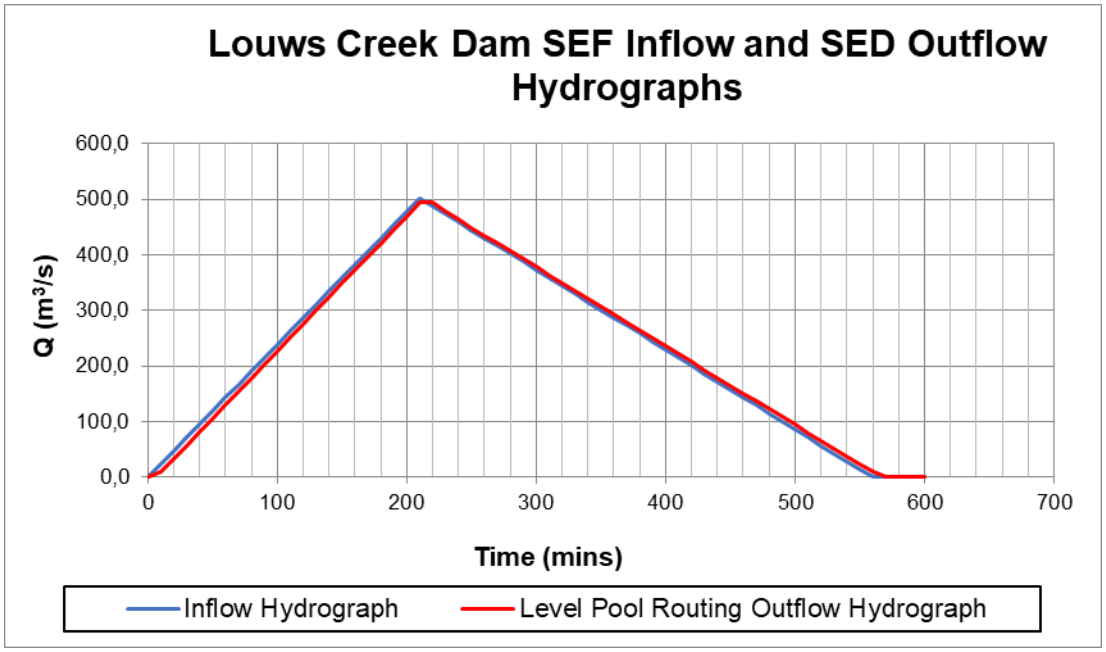


Figure 5: SEF inflow and SED outflow hydrographs for Lows Creek Dam.

From the above it is clear that if the freeboard is 2.8m (effectively 1.8m with 1m allowed to create flow towards the spillway), then the SED will not overtop the embankment with a spillway width of 61.4m. Under RDD conditions, the dry freeboard will be at least 1.0m, which is more than adequate (given that the flow depth will vary across the spillway.

Under RDD flow conditions, the water velocity through the spillway section, will be 2.12m/s. The spillway will be excavated onto competent rock observed during the field investigation (TP27A, TP27B and TPLCA3). This will provide erosion protection. The spillway return will likely be eroded and will stabilise at rock level. Some grouting / dental concrete may be required should the rock be friable. This will be confirmed during construction.

This dam will likely spill frequently due to the small capacity of the dam and the high mean annual runoff in the catchment.

8.1. FREEBOARD

In line with SANCOLD guidelines for Category II dams, with a significant risk, the freeboard is calculated as a combination of the RDD flow depths, the setup, the run-up, and surges and seiches. A 1:100-year wind speed was selected (30m/s).

- The resultant setup was determined to be 0.06m.
- The wave run-up was determined to be 0.17m.

We consider this dam to be too small to be affected by surges / seiches. It is extremely unlikely that the all the conditions above (wind speed and wind direction) will manifest at the same time.

When considering the RDD, embankment settlement, setup and wave run-up, the remaining freeboard is 0.58m.

The height difference between the high flow RDD level and the non-overspill crest is 1.33m. This is considered to be more than sufficient for a dam of this size. This will be confirmed by a hydraulics specialist prior to the submission of the report to the DWS DSO for the issuing of the Licence to Construct.

9.SEDIMENTATION

Sedimentation of the basin will need to be managed over time by the dam owner. According to the methodology used in the HRU manuals to calculate sedimentation rates, the expected sediment yield of this catchment is expected to be approximately 30 ton / annum (50% exceedance probability).

This would imply that the dam of this size would be full of sediment after a period of 6 years. The dam owner has been made aware of this possibility and will manage the risk accordingly.

Experience has shown that the HRU manuals however tend to overestimate expected sedimentation (when originally constructed it was estimated that Gariep Dam would be full of sediment after 50 years, which is currently not the case).

10.RIVER DIVERSION

Construction of the Lows Creek Dam is likely to occur in the months from April to November. It is not expected that river diversion will be a major issue in this time. A large 400mm diameter outlet pipe should be able to manage the flow in the stream. This pipe will be used to release the EWR once the dam was level as reached that point.

11.FOUNDATION

The centre line of the embankment was probed using a 20-ton Excavator. Ten test pits were excavated along the proposed centre line of the embankment. The test pit positions and logs, and the expected foundation condition cross section are included in the Geotechnical Report, attached in Annexure D.

The centre line of the embankment is underlain by Biotite / Trondhjemite (Zg) (Bedrock) from the Nelspruit Suite, below a mantel of transported soils (alluvium and pebble markers). The depth of the bedrock rocks varies between 2 and 5m (see Drawing 4 in Annexure B).

The deeper pits, mainly situated close to and in the riverbed, exposing bedrock at depths of 5+m are mostly overlain by sand layers, alluvium and pebble layers. These conditions will need to be assessed before construction. It is preferable that this material be removed before backfilling. Should this however not be feasible, we will consult with an engineering geologist to give advice on the best approach. Further tests may then need to be done.

12.CUT OFF TRENCH EXCAVATION

It is proposed that the cut off trench be excavated through the alluvium and highly weathered rock and onto at least moderately weathered rock. The size of the excavating machinery (excavator and dozer) is such that refusal can be expected at a moderately weathered level. Test pits indicate that the cut off in a few positions (riverbed area) may be very deep, between 5-6m.

Before construction the permeability of the rock and the need for grouting will be confirmed. Final cleaning and sloping of the cut off trench invert will be very important. Any friable rocks should be removed and it is possible that dental concrete will be required in numerous places.

Every square meter of the cutoff trench invert needs to be inspected and approved for depth and preparation before backfilling can start.

13.MATERIALS

Backfill materials for the embankment will be sourced from both inside and outside the dam basin. This is due to a lack of availability of adequate core material from within the dam basin.

A total of 44 test pits were excavated inside and outside the dam basin. Profiling and sampling were done by Mr M Kolesky and Mr B Marx, in accordance with recognized methods. The test pit positions, soil profiles and laboratory test results are shown in the attached Geotechnical Report (Annexure D).

The basin is underlain by bedrock, below a mantel of transported soils.

13.1. CORE MATERIALS

The cohesive alluvium (Test results TP2-1 and TP10) was classified as a *CL* in terms of the Unified Soil Classification (USC) and is suitable for use in the core. There is limited availability of this material inside the dam basin and an abundance of this material available outside the dam basin. Some material for the core will need to be sourced from outside the dam basin.

13.2. SHOULDER MATERIALS

Sources of material for the outside zones of the embankment are to be sourced from TP2-9, TP26 and TP2-11. These soils are classified as SM / SC and SC (USC) and is available in abundance from within the dam basin.

A transition zone, between the clay core and the downstream shell material, will consist of a 3m wide zone which will act as a chimney drain. This will draw down the phreatic line and to address dispersivity concerns identified. This chimney drain will also prevent the core material from washing into the shell material (see Terzaghi and Peck Filter Criteria in Annexure E for grading criteria). Refer to drawings in Annexure B for these details.

It is expected that materials from the pebble layers exposed in the core excavations and rocks from moderately weathered granite outcrops found within the dam basin will be used on the upstream face of the dam for erosion protection. This can be supplemented by harder rock excavation from the spillway on the right bank.

It is noted that an embankment of this size, positioned as it is in an East / West Direction, warrants full rip rap protection over the upstream face, as the prevailing wind is in a critical direction (51% of the time, the wind will blow in a north-westerly direction, coming from the south east, impacting on the wall). It is suggested that hard rock rip-rap be used around full supply level to the extent that it is available from the above sources, without having to blast.

14.DISPERSIVITY

Double hydrometer test results (see Geotechnical Report) have shown that the alluvium material to be used in the clay core and the material to be used in the shell is potentially dispersive. The current set of test results (double hydrometer and chemical) suggest that the alluvium is potentially dispersive.

With dispersive soils it is generally accepted that an earth embankment be provided with a sand chimney drain and that the core be compacted to 98% Proctor at OMC +2%. Other measures such as stabilization with hydrated lime / gypsum can also be considered.

With the sand found on the farm, a sand chimney drain has been considered (TP29A and TP24). The quantity of sand available is to be confirmed.

It will be important to ensure that the above specifications are adhered to religiously, particularly the compaction and moisture content targets. For this reason, it will be necessary for compaction tests to be carried out regularly.

15.OUTLET PIPE

The dam owner wishes to pump the water from this dam so that it can be used for irrigation on the farm.

It is proposed that a 400mm diameter continuously welded HDPE pipe be installed for this purpose. Puddle flanges will be welded on to the pipe at 6m intervals which, will increase the water flow paths, stopping seepage along the pipe. The pipe will be able to empty a full dam to 10% capacity with no inflow in approximately 4 days.

The outlet pipe will be founded on the left bank, on competent bedrock. This will result in approximately 3-4m of dead storage within the dam. The pipe will be in reinforced concrete surround over its full length. Due to the excavation depth, this trench will be wider than the concrete surround width. Backfilling around the surround will be necessary, requiring that the surround sides be sloped to ensure positive compaction contact.

Main control will be by a downstream RSV or geared butterfly valve. An emergency upstream control in the form of a flap valve, to be controlled by nylon or stainless-steel rope from dam crest, is proposed at the inlet to the outlet pipe.

Provision will be made to release the EWR from the outlet pipe, should the dam not be overflowing. Provision will also be made for a smaller outlet pipe to be installed though the spillway concrete, at a higher level. The EWR can also be released at this point when the dam is not overflowing.

16.DRAINAGE

An internal drainage system consisting of slotted drainage pipes encased in filter material (sand) will be installed to intercept any seepage flow through the chimney drain. This network of pipes will channel seepage flow towards the downstream toe, terminating in the dam toe drains.

To intercept any seepage flow though the dam foundations, it is proposed that toe drains be provided on both banks. The toe drain will consist of a trench, 750mm deep at full supply level, increasing to a depth of 1.5m at the riverbed. The trench will be 500mm wide and filled initially with course river sand to a depth of 500mm. The balance of the trench will be filled with shell material. The drainage capacity will be enhanced with the addition of 150mm diameter slotted drainage pipes. The slot width will be determined once a suitable source of river sand has been determined.

In order to monitor flow and facilitate maintenance, it is proposed that 2 manholes on left flank and 2 on right bank be installed. Outlet structures from both banks should be provided in the river channel.

The upper 500mm of drain is to be backfilled with suitable materials.

17.EMBANKMENT STABILITY

The embankment will be constructed with the available materials as described earlier and indicated on the drawings. The stability analysis of this cross-section is still outstanding pending geotechnical and laboratory information awaited. Considering the material available, there can be little doubt that this section should prove stable with ample factor of safety.

In order for the licence application not to be unduly delayed, it is suggested that the rest of the design be considered while the stability analyses are being carried out. As soon as these analyses are completed and the results submitted, a licence can then hopefully be issued in reasonable time.

18.FISH LADDER AND EWR REQUIREMENTS

The site survey done by Aquatics Specialist Dr A Deacon identified the need for a fish ladder at the dam site to allow for fish to be able to migrate up and down the stream. The design of the fish ladder was completed by Dr M Ross and is attached in Annexure E.

The Ecological Water Requirements (EWR) for the Lows Creek has been estimated for a Category B River. The EWR is summarised in the table below. The monthly EWR figures are shown in Annexure G

Natural flow (million m^3 /annum)	**EWR Category**	**EWR**	
17.1	B	**(million m^3 /annum)**	**% of the MAR**
		5.34	31%

19.QUALITY CONTROL

There are a number of aspects around the construction of the Lows Creek Dam that require a good quality control system to be implemented. These aspects are:

- Excavation of the cut-off trench to moderately weathered rock, to minimize seepage through the foundations.
- Treatment and preparation of cut-off trench floor, to minimize seepage between the rock and clay core interface.
- Compaction of clay core to 98% Proctor, at OMC +2%. Particularly the moisture content will require good control by the contractor (owner).
- Formwork and concrete works for the spillway and outlet pipe.
- The above can only be achieved with good cooperation between Contractor (Owner), APP and Engineering Geologist.
- In addition to the above, the dam is to be constructed in compliance with the specifications laid out in SABS 1200 standard specifications. The following standard specifications will be applicable:

- SABS 1200AD: General (small dams)
- SABS 1200C: Site Clearance
- SABS 1200DE: Small Earth Dams
- SABS 1200DK: Gabions and Pitching
- SABS 1200GA: Concrete Works (small works)
- SABS 1200L: Medium Pressure Pipelines

Proper permanent site supervision by the contractor will be indispensable, while laboratory facilities on site are certainly desirable. All these aspects still need to be discussed with the dam owner for satisfactory arrangements to be arrived at.

20.SUMMARY

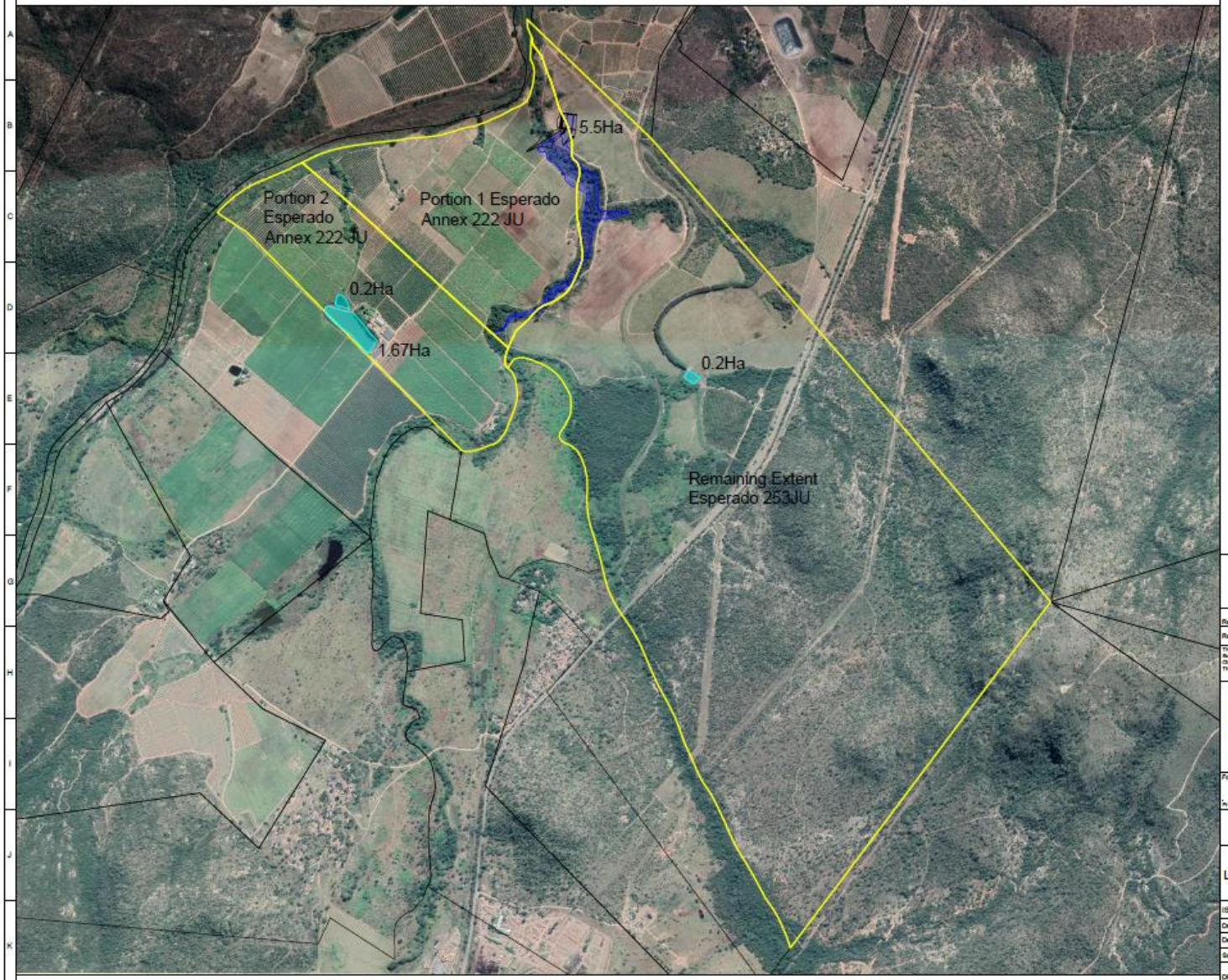
- The proposed Lows Creek Dam is a relatively small dam in a relatively large catchment. The dam will be filled predominantly from natural runoff from within the dam's catchment area as well as releases from the Siyalongubo System. Flood attenuation will not have a marked effect on the design outflow peaks. A 61m wide concrete Labyrinth spillway is proposed on the right bank. A smaller outlet pipe will be provided through the concrete spillway to allow for releases when the dam is not overtopping.
- There is ample construction material inside and outside the dam basin, with clays and gravel available to result in an economical cross section.
- The foundations are expected to be permeable, but less so at depths where moderately weathered bedrock encountered (refusal by 20t excavator and D7 dozer). This is expected to happen between 3 to 4m deep, but in certain areas depths of 5 to 6m may even be required.

- There is evidence of dispersivity of the core material and certain preventative measures are required. A large chimney drain zone will be provided to counter this. This chimney drain will feed a series of drains which will discharge into the toe drain provided to intercept seepage through the foundations.
- An outlet pipe (400mm HDPE in reinforced concrete surround) is provided on left bank. Main control occurs, via downstream RSV or geared butterfly valve, but provision is made for an emergency flap valve on the upstream side. The outlet pipe will be used to release the EWR.
- The embankment construction will require strict adherence to specifications and a suitable quality control system needs to be in place to ensure this.

21.DRAWINGS

The following drawings of the Lows Creek Dam are included herewith in Annexure B.

- N1915/001: Locality Map
- N1915/002: General Layout
- N1915/003: Plan
- N1915/004: Long Section and Embankment Cross Section
- N1915/005: Toe Drain Detail
- N1915/006: Outlet Pipe Detail
- N1915/007: Outlet Pipe Inlet Structure
- N1915/008: Outlet Pipe Long Section
- N1915/009: Water Surface Area / Depth Curve
- N1915/010: Capacity / Depth Curve



Rev.	Date	Grid	Description	By	Chkd

Revisions

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Printing Date

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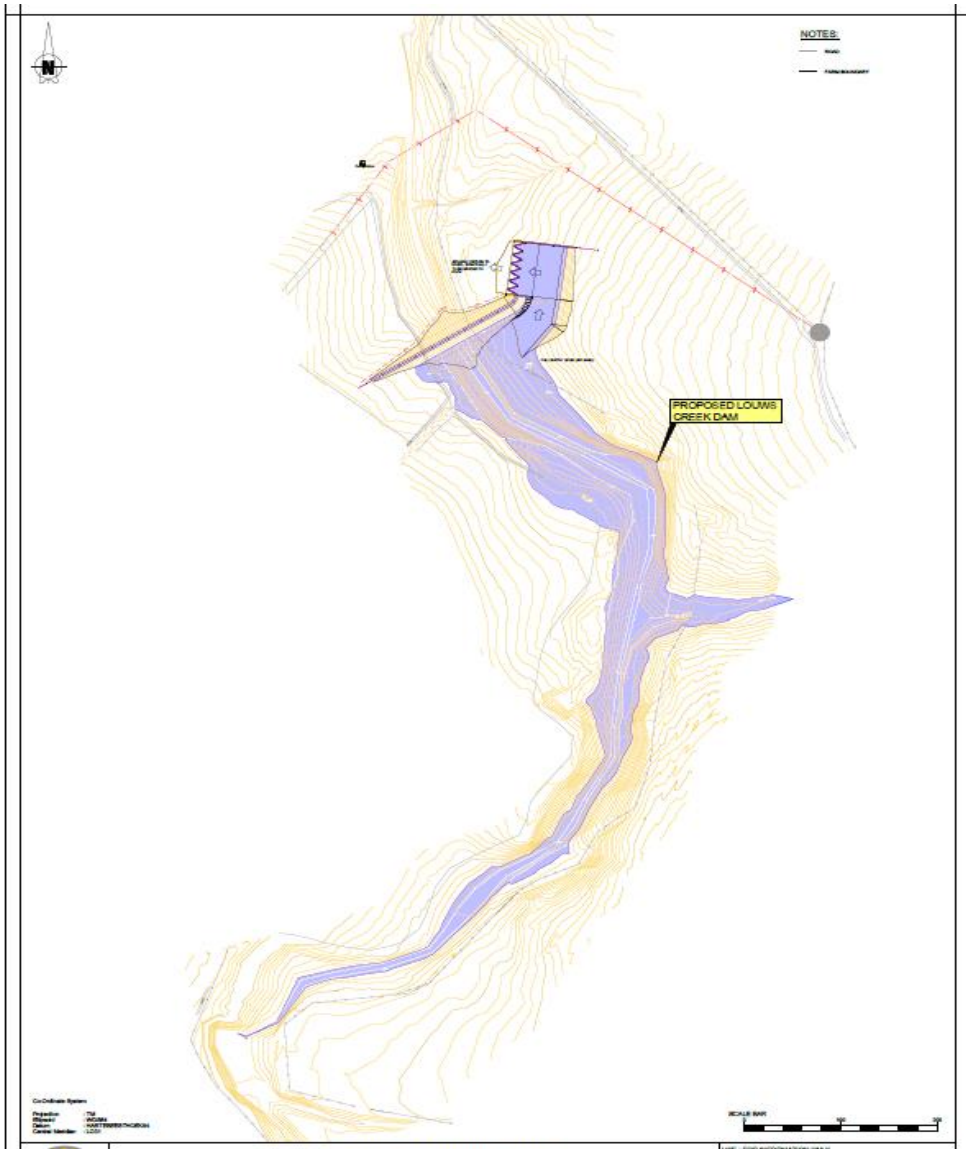
LOUWS CREEK DAM

LOCALITY MAP SHOWING PROPERTIES AND EXISTING DAMS

ISSUED FOR CONSTRUCTION

Drawn	A. Cronje	Surveyed	
Date	FEB 2021	Designed	B. MARX
Scale	1:400	Checked	B. MARX

DRAWING NUMBER: N191500/C001R00

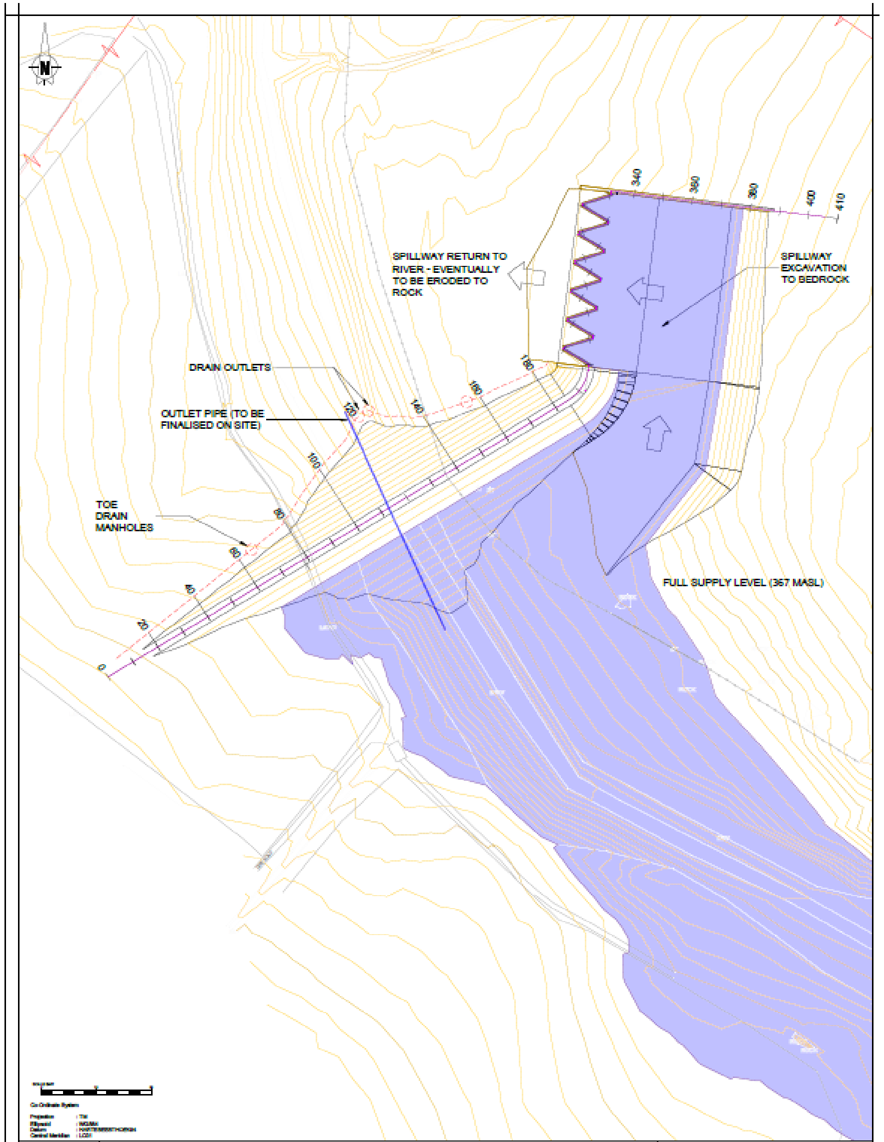


ESPERADO FARMS (PTY)LTD

LOUWS CREEK DAM - GENERAL LAYOUT

190 000m³ IN STREAM DAM

MBB



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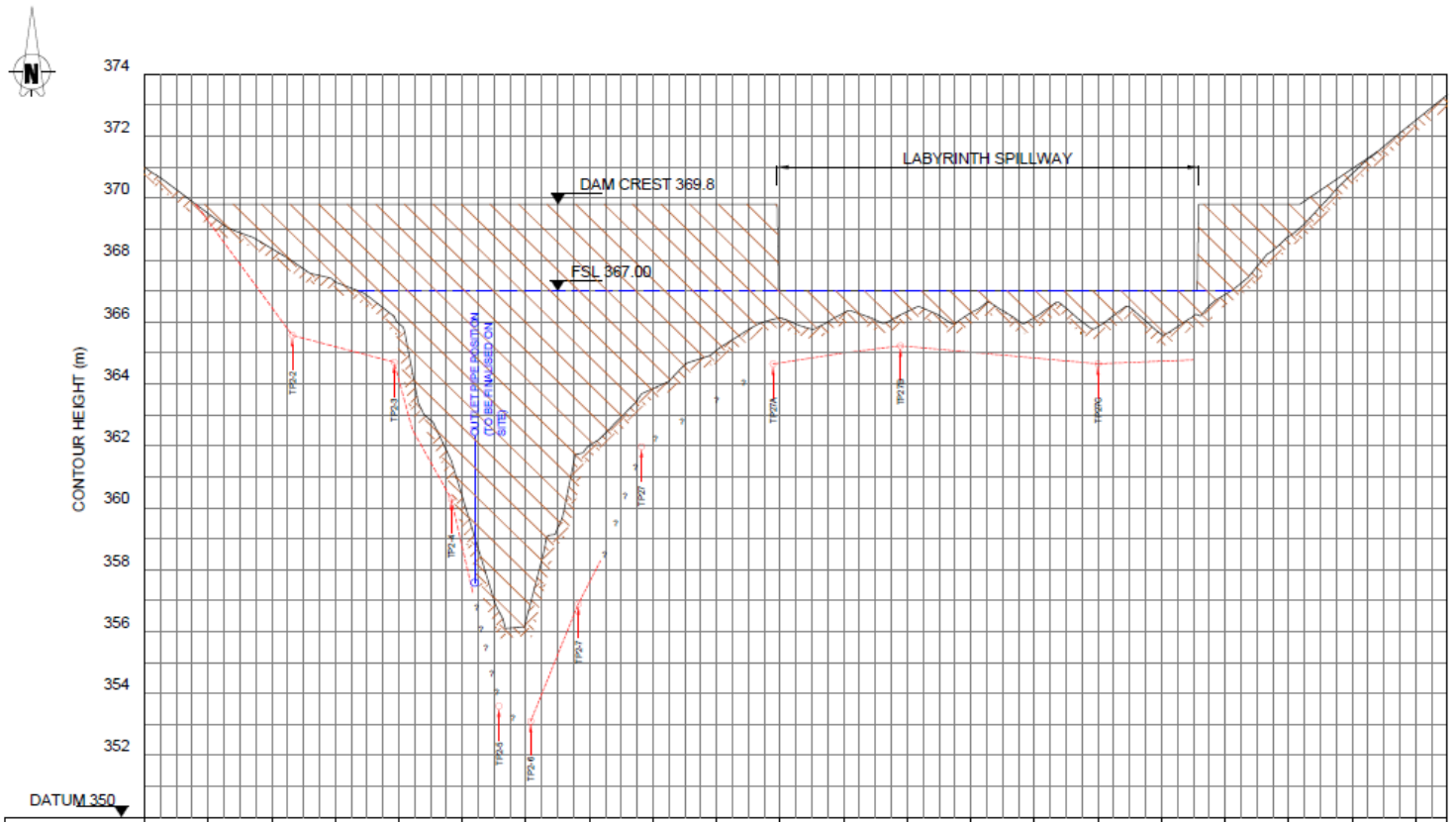
LOUWS CREEK DAM - PLAN

190 000m³ IN STREAM DAM

USE : FOR INFORMATION ONLY

Drawn	B. MARX	Surveyed	B. GERRITS
Date	FEB 2021	Designed	B. MARX
Scale	1:750 (A0)	Checked	M. KOLESKY
DRAWING NUMBER	N1915A003R00		



CHAINAGE	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	
GROUND LEVEL	371.000	369.505	368.374	367.296	365.958	360.364	356.340	362.010	363.849	365.096	366.138	366.292	366.338	366.304	366.144	365.851	365.602	366.896	368.765	370.792	372.516	373.336	
CORE TRENCH LEVEL		369.27	366.48	365.20	364.14	358.73	353.12	357.60	?	?		LABYRINTH SPILLWAY											
WALL CREST		369.80	369.80	369.80	369.80	369.80	369.80	369.80	369.80	369.80	367.000	367.000	367.000	367.000	367.000	367.000	367.000	369.800	369.800	370.949			
WALL HEIGHT		0.30	1.43	2.50	3.84	9.44	12.0	7.79	5.95	4.71	3.66	0.71	0.66	0.70	0.86	1.15	1.40	2.91	1.04	0.16			

LONGITUDINAL SECTION THROUGH CENTRELINE OF CREST

NOTES:

- Exploration pits and soil profile pits investigated by during field investigations
- Expected cut off trench excavation line (from pit excavation depths)

Test Pits TP2-5 and TP27 were excavated without refusal

1. Clay core backfill compaction to 98% Proctor density at OMC + 2%.
2. Outside Zones to be compacted to 95% Proctor density at OMC .
? Depth to cut off trench excavation unknown.

SCALE BAR

Rev.	Date	Grid	Description	By	Chkd

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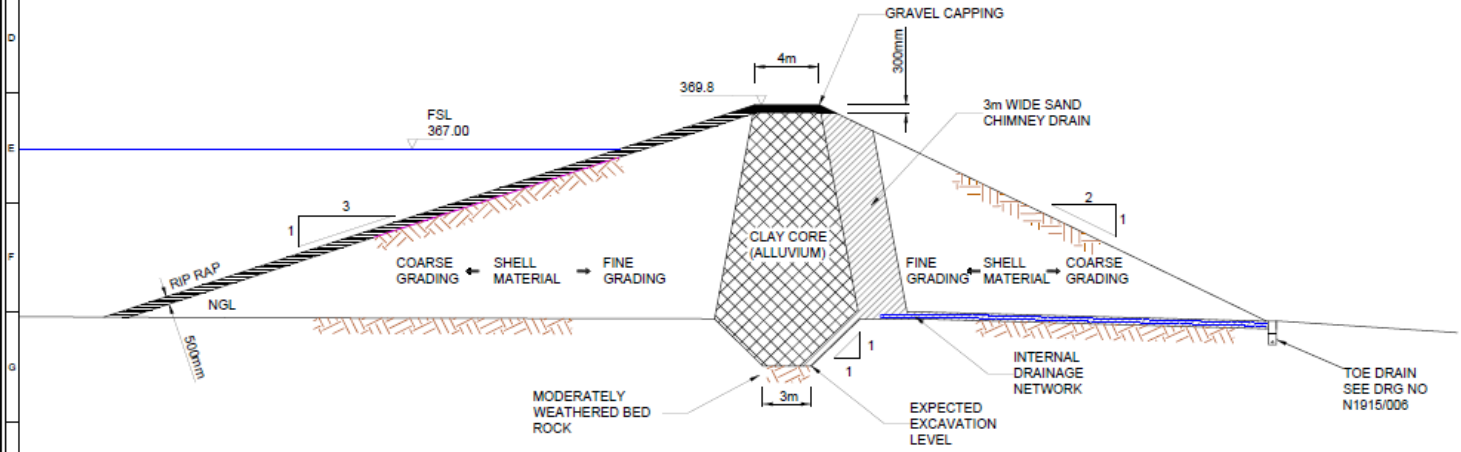
LOUWS CREEK DAM

EMBANKMENT LONGITUDINAL SECTION

USE : FOR INFORMATION ONLY

Drawn	B. MARX	Surveyed	E. GEERTS
Date	Feb 2021	Designed	B. MARX
Scale	1:1000 (A2)	Checked	M.KOLESKY

DRAWING NUMBER: N 1 9 1 5 A 0 0 4 0 0



NOTES:

- Exploration pits and soil profile pits investigated by during field investigations
- Expected cut off trench excavation line (from pit excavation depths)

Test Pits TP2-5 and TP27 were excavated without refusal

1. Clay core backfill compaction to 98% Proctor density at OMC + 2%.
2. Outside Zones to be compacted to 95% Proctor density at OMC .
7. Depth to cut off trench excavation unknown.

SCALE BAR

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LOUWS CREEK DAM

EMBANKMENT CROSS SECTION

USE : FOR INFORMATION ONLY

Drawn	B. MARX	Surveyed	E. GEERTS
Date	Feb 2021	Designed	B. MARX
Scale	1:200 (A2)	Checked	M.HOLESKY

DRAWING NUMBER	PROJECT NUMBER					DISC	STAGE	DRAWING CODE		REVISION NUMBER
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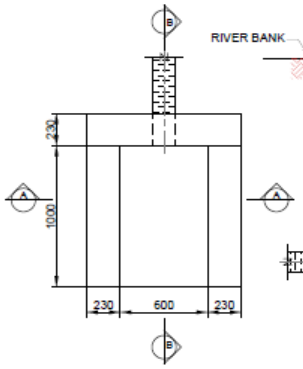

PLAN
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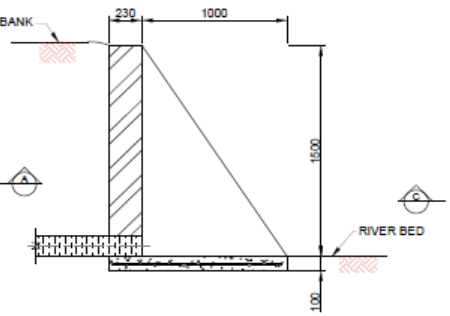

SECTION B-B
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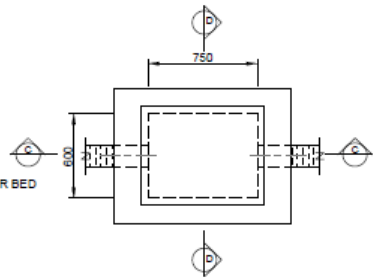

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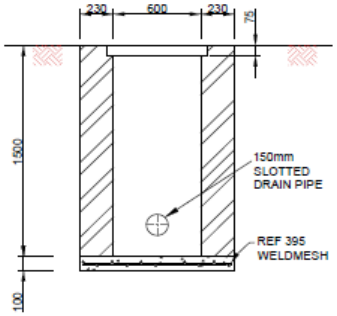

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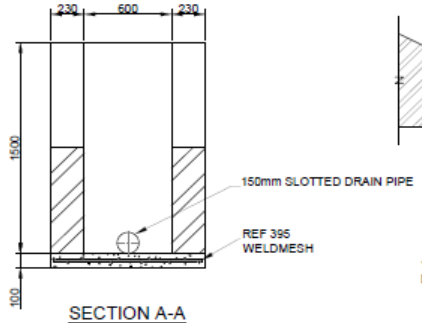
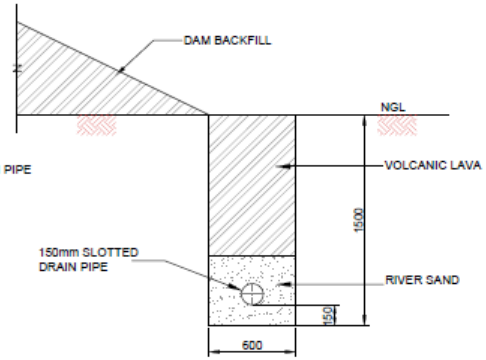
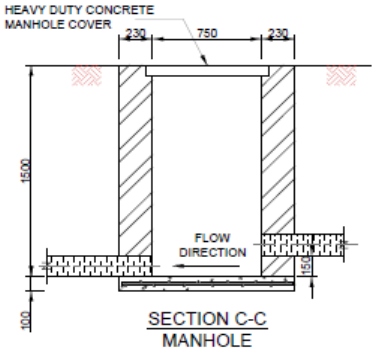


SECTION A-A
DRAIN OUTLET STRUCTURE
SCALE 1:30



TOE DRAIN
SCALE 1:30



SECTION C-C
MANHOLE
SCALE 1:30

NOTES:
1. GRADING ANALYSIS OF COARSE RIVER SAND TO BE MADE AVAILABLE TO ENGINEER TO DETERMINE DRAINAGE PIPE SLOT WIDTHS.
2. ALL BRICKWORK TO HAVE BRICKFORCE EVERY SECOND LAYER. PLASTER WHERE PRACTICABLE.

Rev.	Date	Grid	Description	By	Chkd
Revisions					

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LOUWS CREEK DAM
TOE DRAIN DETAIL

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Drawn	M. McMillan	Surveyed	
Date	Feb 2021	Designed	B. MARX
Scale	AS SHOWN	Checked	M. KOLESKY

DRAWING NUMBER	PROJECT NUMBER	DISC	DRAWING CODE	REVISION NUMBER
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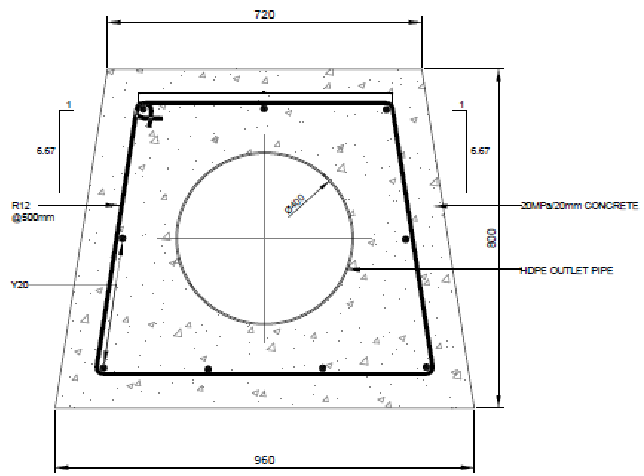
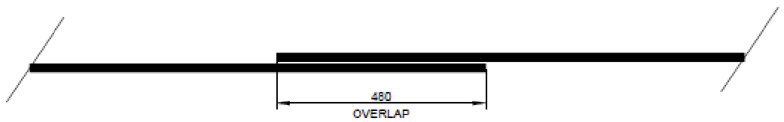


SECTION - ENCASED PIPE

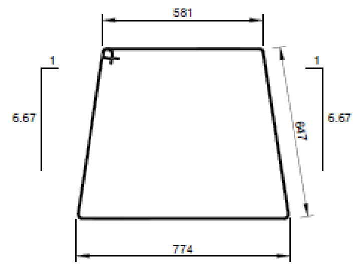


Y20 REINFORCING JOINTS

NOTES:
1. CONCRETE STRENGTH 20MPa

BENDING SCHEDULE

MEMBER	No OF	BARS PER MEMB	DIA	LENGTH	TOTAL No.	MARK	S C	BENDING A	BENDING B	BENDING C	BENDING D	E/r
PIPE	1	9	Y20	6500	99	A	20	6500				
ENCASING		132	R12	2800	132	B	99	775	650	580		



Shape Code 99

Cover = 100mm on links

	8	10	12	16	20	25	32	40	TOT		
R			340m								
Y					643m						
TOT			340m		643m					1800kg	

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LOUWS CREEK DAM

OUTLET PIPE DETAILS

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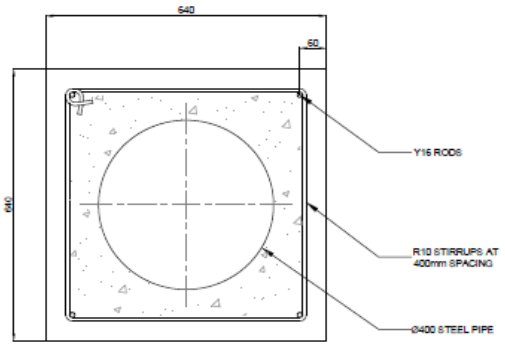
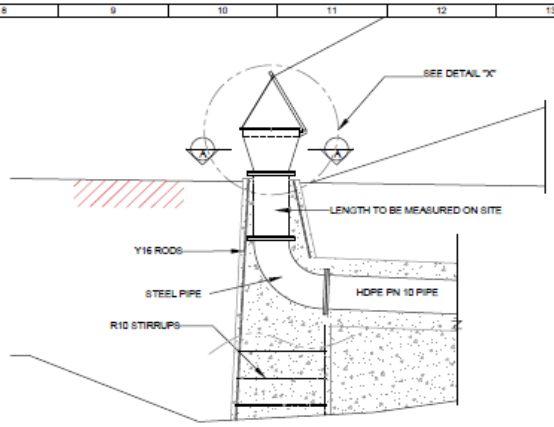
Drawn	M. McMillan	Surveyed	
Date	Feb 2021	Designed	B. MARX
Scale	1 : 10	Checked	M. KOLESKY

DRAWING NUMBER: N 1 9 1 5 A 0 0 7 R 0 0

A3



VIEW A-A
SCALE 1:10



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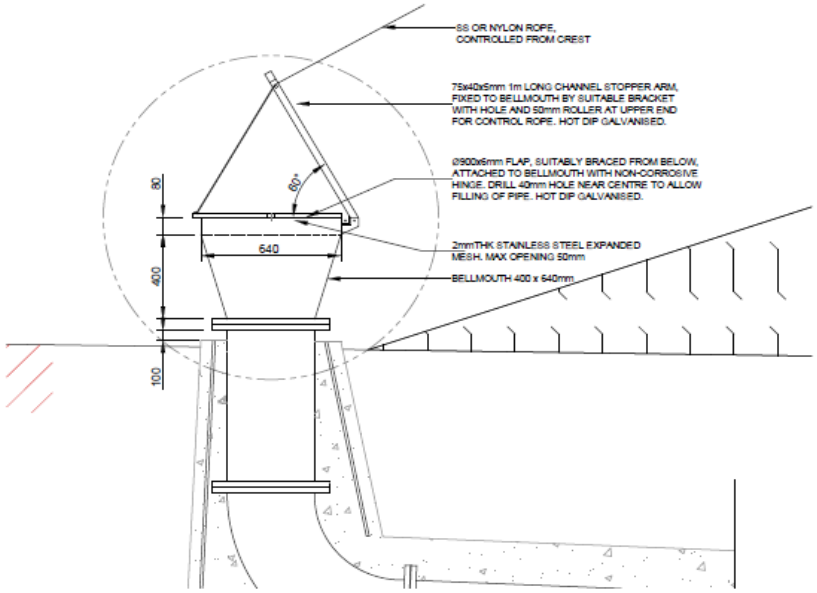

DETAIL X-X
SCALE 1:20

Rev.	Date	Grid	Description	By	Chkd

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Civil, Agricultural, Structural, Environmental, Project Management

For MBB CONSULTING ENGINEERS (NEL)

Pr Eng Date

ESPERADO FARMS (PTY) LTD

LOUWS CREEK DAM
OUTLET PIPE INLET STRUCTURE

USE : FOR INFORMATION ONLY

Drawn	M. McMillan	Surveyed	
Date	Feb 2021	Designed	B. MARX
Scale	AS SHOWN	Checked	M. KOLESKY

DRAWING NUMBER	PROJECT NUMBER	ORIG	DRAWING CODE	REVISION NUMBER
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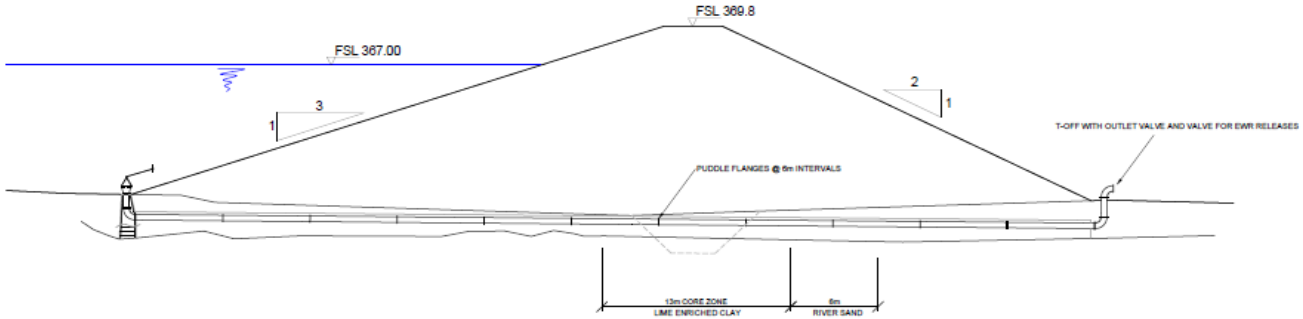

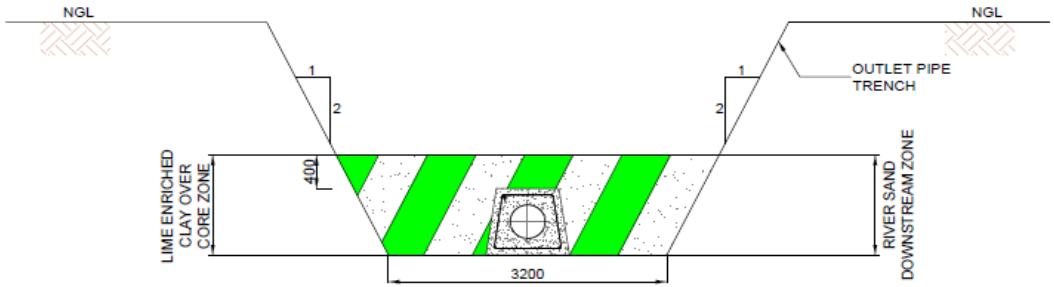

CROSS SECTION
SCALE 1:50

Rev.	Date	Grid	Description	By	Chkd

Revisions

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MBB CONSULTING ENGINEERS (NELSPRUIT)
Civil, Agricultural, Structural, Environmental, Project Management

For MBB CONSULTING ENGINEERS (NELS.)

Pr Eng ..... Date .....

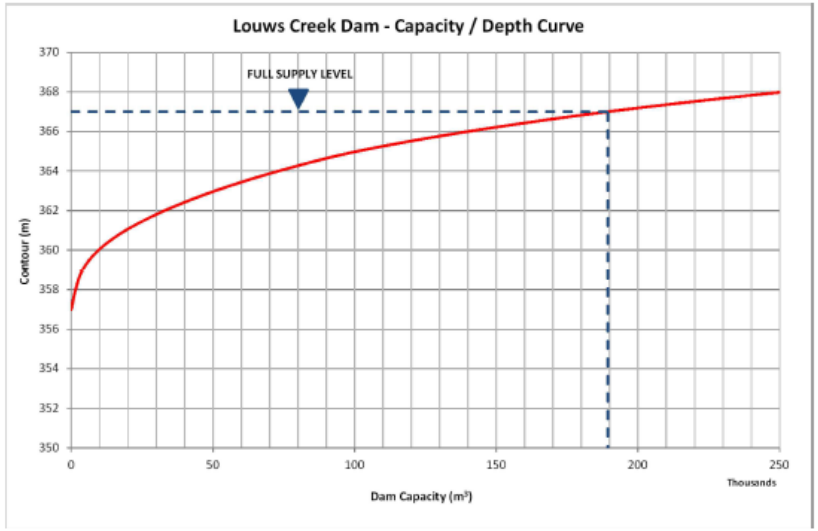
ESPERADO FARMS (PTY) LTD

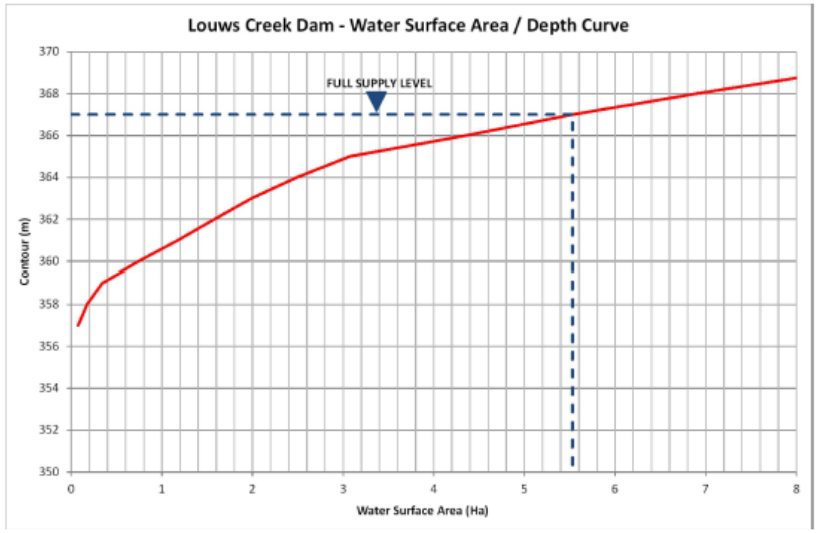
LOUWS CREEK DAM
OUTLET PIPE LONG SECTION

USE : FOR INFORMATION ONLY

Drawn	M. McMillan	Surveyed	
Date	Feb 2021	Designed	D. MARX
Scale	AS SHOWN	Checked	M. KOLESKY

DRAWING NUMBER: PROJECT NUMBER N178 | DISC A | ORIGINATOR CODE 009 | REVISION NUMBER R00





Rev.	Date	Grid	Description	By	Chkd

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CONSULTING ENGINEERS
(NELSPRUIT)

Civil, Agricultural, Structural, Environmental, Project Management

For MBB CONSULTING ENGINEERS (NEL)

Initial ..... Date .....

ESPERADO FARMS (PTY) LTD

LOUWS CREEK DAM
DEPTH / CAPACITY CURVES

USE : FOR INFORMATION ONLY

Drawn	M. McMillan	Surveyed	
Date	Feb 2021	Designed	B. MARX
Scale	AS SHOWN	Checked	M. KOLESKY

DRAWING NUMBER: N 1 7 8 6 A 0 1 0 R 0 0

A3

Terzaghi and Peck Filter Criteria

Das 2002, Principles of Geotechnical Engineering, pg 214

It is extremely important that the filter material be chosen carefully, taking into consideration that the soil is to be protected. To describe the selection criteria of the filter, refer to Figure 1. Note that, in this figure, the soil to be protected is referred to as the *base material*. Terzaghi and Peck (1948) suggested the following criteria for selection of the filter material:

1. $\frac{D_{15(F)}}{D_{85(B)}} < 4$
2. $\frac{D_{15(F)}}{D_{15(B)}} > 4$

Where:

$D_{15\,(F)}, D_{15(B)}$ = diameters through which 15% of the filter and base material , respectively, will pass
$D_{85(B)}$ = diameter through which 85% of the base material will pass

The first criterion is for the prevention of the movement of particles of the base material (that is, the soil to be protected) through the filter.
The application of the filter selection criteria just described can be explained by using Figure 2, in which curve *a* is the grain size distribution curve of the base material. From criterion 1, $D_{15(F)} < 4D_{85(B)}$. The abscissa point *A* is $D_{85(B)}$, so the magnitude of $4D_{85(B)}$ can be calculated, and point *B*, whose abscissa is $4D_{85(B)}$, can be plotted. Similarly, from criterion 2, $D_{15(F)} > 4D_{15(B)}$ The abscissas of points *C* and *D* are $D_{15(B)}$ and $4D_{15(B)}$, respectively. The curves *b* and *c* are drawn, which are geometrically similar to curve *a* and are within the limits of points *B* and *D*. A soil whose grain-size curve falls within the boundaries of curves *b* and *c* is a good filter material.

Figure 1: Definition of base material and filter material

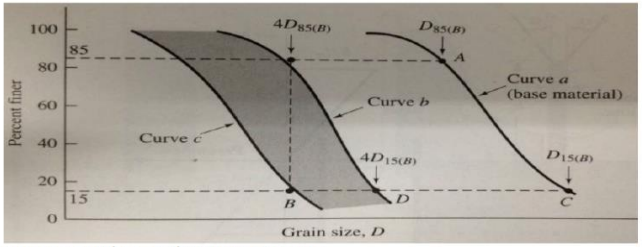
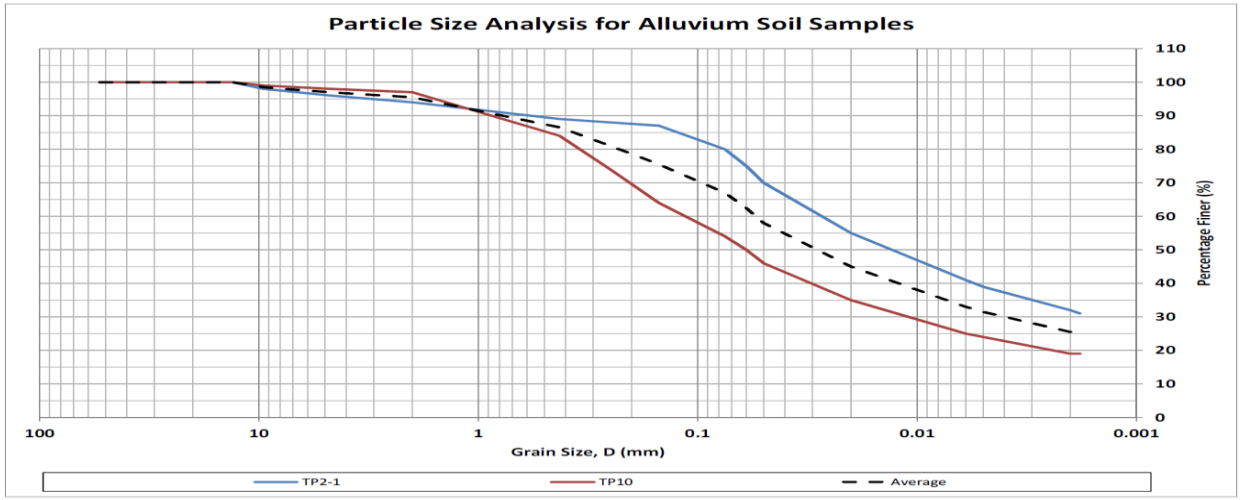


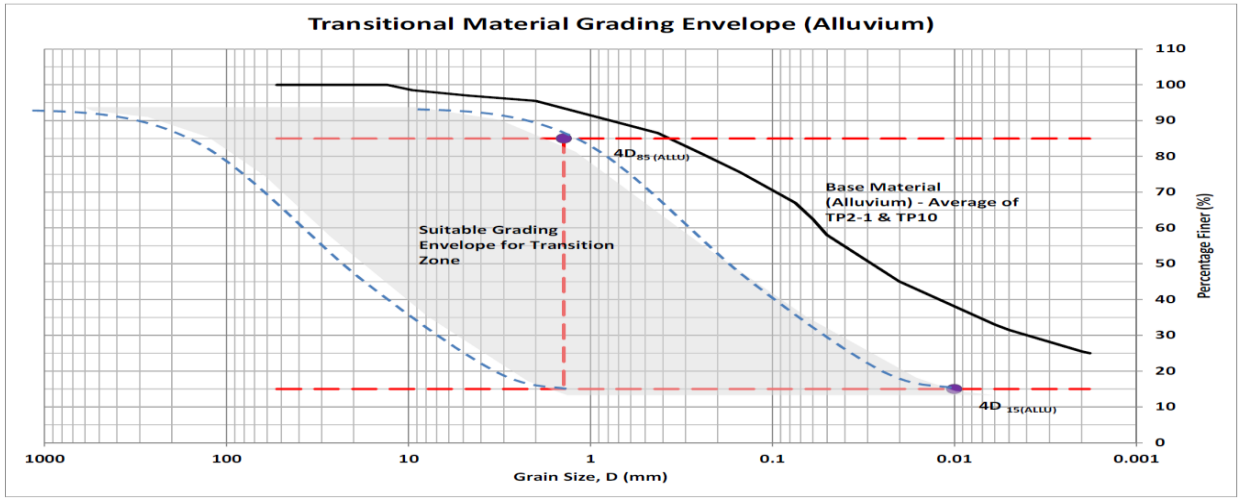
Figure 2: Filter Selection Criteria

Alluvium Sieve Analysis Results (From Geotechnical Report)

The sieve analysis results of the alluvium soils to be used in the core (TP 2-1 and TP 10) are shown below.

Particle Size (mm)	TP2-1 % Passing	TP10 % Passing	Average % Passing
53	100	100	100
37.5	100	100	100
26.5	100	100	100
19	100	100	100
13.2	100	100	100
9.5	98	99	99
4.75	96	98	97
2	94	97	96
0.425	89	84	87
0.25	88	74	81
0.15	87	64	76
0.075	80	54	67
0.06	75	50	63
0.05	70	46	58
0.02	55	35	45
0.006	41	25	33
0.005	39	24	32
0.002	32	19	26
0.0018	31	19	25

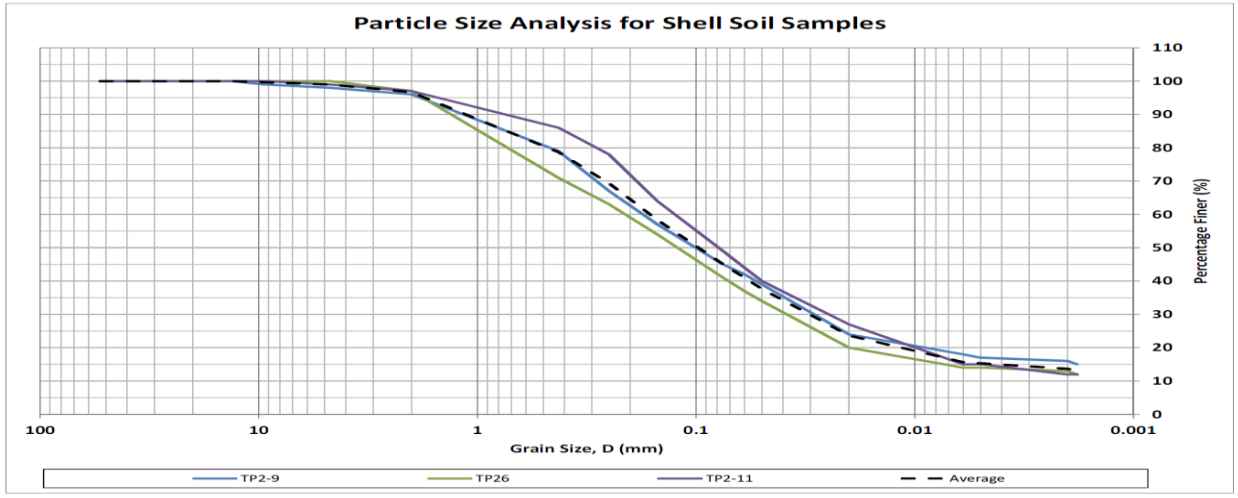

Particle Size Analysis for Alluvium Soil Samples
110
100
90
80
70
60
50
40
30
20
10
0
Percentage Finer (%)
100
10
1
0.1
0.01
0.001
Grain Size, D (mm)
TP2-1
TP10
Average

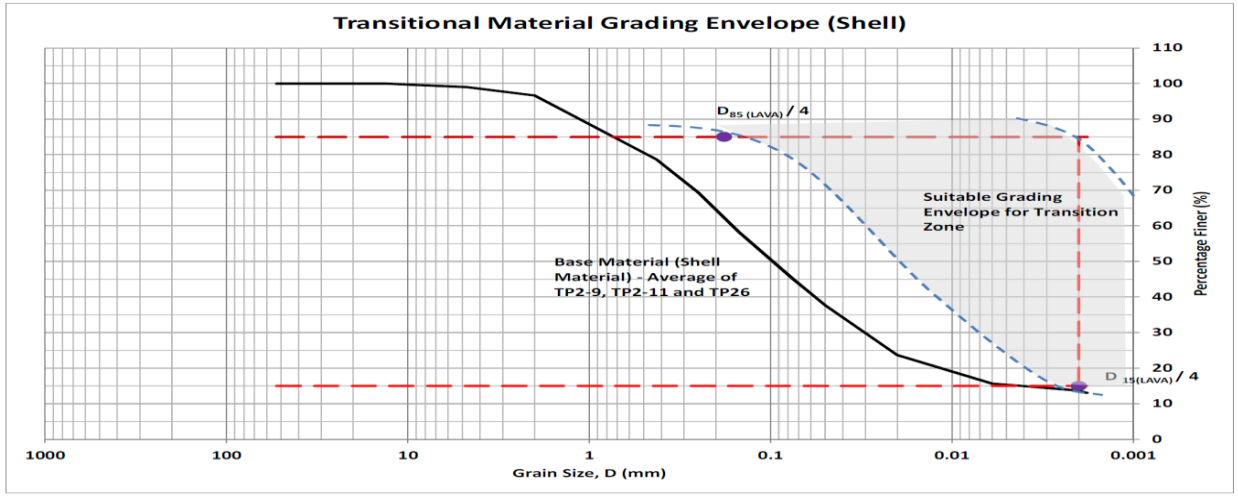

Transitional Material Grading Envelope (Alluvium)
110
100
90
80
70
60
50
40
30
20
10
0
Percentage Finer (%)
4D85 (ALLU)
Base Material
(Alluvium) - Average of
TP2-1 & TP10
Suitable Grading
Envelope for Transition
Zone
4D 15(ALLU)
1000
100
10
1
0.1
0.01
0.001
Grain Size, D (mm)

Shell Material Sieve Analysis Results (From Geotechnical Report)

The sieve analysis results of the Shell Materials to be used in the embankment (TP2-9, TP2-11 and TP26) are shown below.

Particle Size (mm)	TP2-9 % Passing	TP26 % Passing	TP2-11 % Passing	Average % Passing
53	100	100	100	100
37.5	100	100	100	100
26.5	100	100	100	100
19	100	100	100	100
13.2	100	100	100	100
9.5	99	100	100	100
4.75	98	100	99	99
2	96	97	97	97
0.425	79	71	86	79
0.25	67	63	78	69
0.15	57	54	64	58
0.075	45	41	49	45
0.06	42	37	44	41
0.05	39	34	40	38
0.02	24	20	27	24
0.006	18	14	15	16
0.005	17	14	15	15
0.002	16	13	12	14
0.0018	15	12	12	13

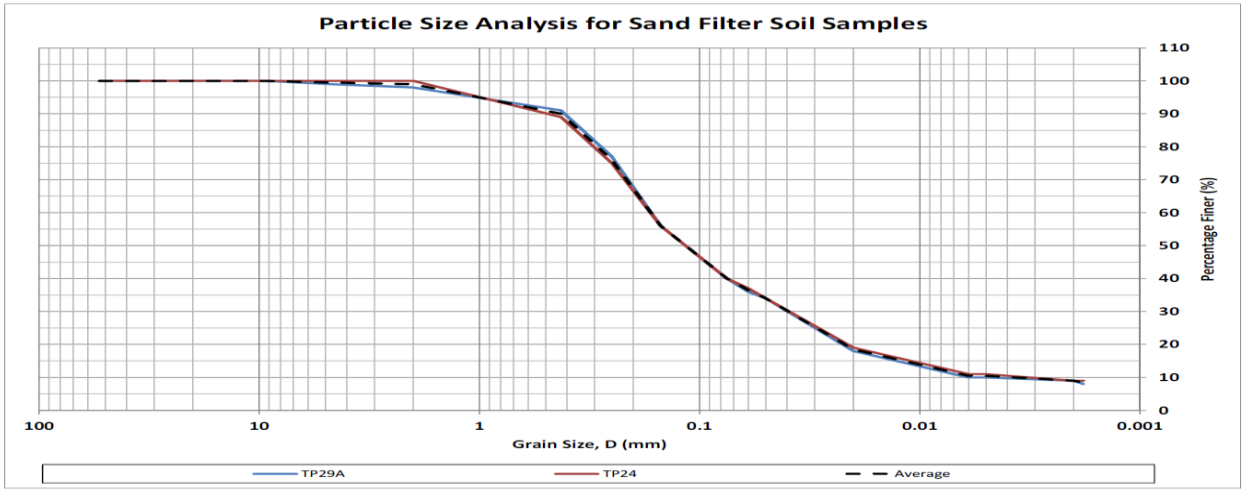

Particle Size Analysis for Shell Soil Samples
110
100
90
80
70
60
50
40
30
20
10
0
Percentage Finer (%)
100
10
1
0.1
0.01
0.001
Grain Size, D (mm)
TP2-9
TP26
TP2-11
Average


Transitional Material Grading Envelope (Shell)
110
100
90
80
70
60
50
40
30
20
10
0
Percentage Finer (%)
D85 (LAVA) / 4
Suitable Grading Envelope for Transition Zone
Base Material (Shell Material) - Average of TP2-9, TP2-11 and TP26
D 15(LAVA) / 4
1000
100
10
1
0.1
0.01
0.001
Grain Size, D (mm)

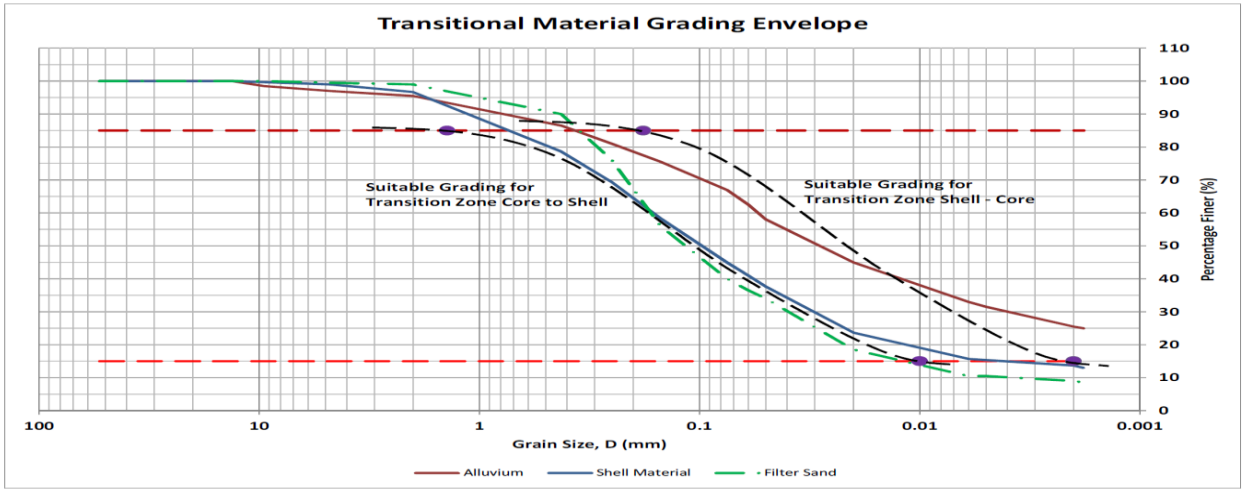
Sandy Material (Filter?) Sieve Analysis Results (From Geotechnical Report)

The sieve analysis results of the sandy materials to possibly be used as filter materials within the embankment (TP29A and TP 24) are shown below.

Particle Size (mm)	TP29A % Passing	TP24 % Passing	Average % Passing
53	100	100	100
37.5	100	100	100
26.5	100	100	100
19	100	100	100
13.2	100	100	100
9.5	100	100	100
4.75	99	100	100
2	98	100	99
0.425	91	89	90
0.25	77	75	76
0.15	56	56	56
0.075	40	40	40
0.06	36	37	37
0.05	34	34	34
0.02	18	19	19
0.006	10	11	11
0.005	10	11	11
0.002	9	9	9
0.0018	8	9	9



Combined Envelope



4.5.2. GEOTECHNICAL ASSESSMENT REPORT

LOUWS CREEK DAM DESIGN REPORT

GEOTECHNICAL INVESTIGATION REPORT

NOVEMBER 2020

Compiled by :

MBB Consulting Engineers (NELSPRUIT)
P O Box 498
NELSPRUIT
1200

REPORT DETAILS

Project name:	***Louws Creek Dam Design Report***
Report title:	***Geotechnical Investigation Report***
Authors:	***B Marx & M Kolesky***
Status of report:	***Final***
First issue:	***4 December 2020***
Final issue:	***4 December 2020***

APPROVED PROFESSIONAL PERSON

Approved by:

2020/12/04

Marius Kolesky, PrEng
APP

Date

MBB CONSULTING SERVICES

Approved by:

2020/12/04

Barend Marx, PrEng

Date

TABLE OF CONTENTS

1 INTRODUCTION

MBB Consulting Services was appointed by Esperado Farms (Pty) Ltd to conduct a Geotechnical Investigation for the Proposed Dam Site on Portions 1 and 2 of the Farm Esperado Annex 222 JU and Esperado 253 JU in the Barberton District.

The report is to be included in the Design Report for the above dam site, which will be included in the DWS Water Use Licence Application.

2 GENERAL

The primary dam site is located on Portions 1 and 2 of the Farm Esperado Annex 222 JU and Esperado 253 JU between Kaapmuiden and Louws Creek in Mpumalanga (see Drawing 001 in Annexure A).

A number of potential dam sites were investigated along the river reach. The suitability of each site was assessed for fatal flaws. The preferred dam site was then investigated further. The co-ordinates of a position on the centreline of each embankment investigated are as follows, provided in Table 1:

Table 1: Co-ordinates of a position on the Centreline of Embankment

Dam	Easting	Northing
Position 1	Y-31 018	X2 831 519
Position 2 (Preferred)	Y-31 060	X2 831 653

The proposed embankments, the physical characteristics of which are provided in Table 2, are to be used for storage and irrigation purposes. The embankments will be of *medium* height, i.e. ranging from 10-14m, classifying them as dams with a safety risk. The dam has been classified by the Dam Safety Office as a Category 2 dam (small dam with a significant hazard potential rating) (4 February 2020).

Table 2: Physical Characteristics of Proposed Dams

Dam Name	River Name	Type of Dam	*Additional Material Volume Required (m^3)	Wall		Elevations		Maximum Water Depth (m)
				Height (m)	Length (m)	Crest (masl)	FSL (masl)	
Position 1	Louws Creek.	Earth Embankment on-line Facility	12 245	14.5	360	368.5	365	11.0
Position 2 (Preferred)			33 835	14.5	320	370.5	367	11.0

Notes: The material required is the additional material needed after essential excavations, to construct each dam. A breakdown of cut / fill volumes is given in Table 3. Estimated fill volumes include a 20% compaction factor. Cut volumes are obtained from core trench and spillway excavation.

Table 3. Cut / Fill Volumes of Each Dam.

Dam	Cut Volume (m^3)	Fill Volume (m^3)	Additional Material Required (m^3)
Position 1	45 320	57 564	12 245
Position 2 (Preferred)	6 920	42 626	33 835

A third dam position situated between Position 1 and 2 was also investigated during the field work. The investigation of this position was however abandoned during the field visit due to the lack of adequate founding material in the river bed.

3 FIELDWORK

The field work was undertaken on 28 July 2020, 30 July 2020, 5 August 2020 and 10 September 2020, and comprised of the excavation of forty four pits with a 20 ton excavator across the investigated dam sites.

The pits were positioned to probe soil units from within the dam basins, identified beforehand, and pits positioned along the centrelines of the dam sites. For most part the pits were excavated to the limit or refusal of the provided plant. The pits were profiled according to standard procedures. The resultant soil profiles are attached in Annexure B. The approximate positions of the pits and the dam embankments investigated are shown on Drawing 002 and 003 in Annexure A.

To classify the soils and evaluate their moisture-density relationships, permeability and dispersiveness, representative samples of the regolith were recovered from the pits and submitted to Engeo Lab (Pty) Ltd and Labserve (Pty) Ltd in Nelspruit for testing in accordance to our instructions. The test results, in the format they were received from the laboratories, are attached in Annexure C.

4 DATA ANALYSIS AND GEOTECHNICAL EVALUATION

4.1 General

Based on the observations from the fieldwork, and the 1:250 000 Geological Maps published by the Department of Mineral and Energy Affairs (1986), the centreline and basin of the various dam positions, shown in Drawing 004 are underlain by Biotite / Trondhjemite Gneiss (Zg) from the Nelspruit Suite (Stentor Pluton). A mantel of transported soil (pebble markers + alluvium) was observed as being on top of this base layer.

The Geological Maps indicate the presence of linear features to the north and south of the dam positions. These linear features do not cross any of the walls.

The three dam positions are in very close proximity to each other (within 200m). Each embankment will straddle the northern flowing Louws Creek. The Louws Creek discharges into the Kaap River, approximately 200m to the north, which in turn discharges into the Crocodile River, 8km to the north.

4.2 Dam Position 1

The centreline position was proposed by Esperado Farms (Pty) Ltd. Thirteen pits were dug along the centreline.

Left Bank

Five pits were dug along the centreline. The following was observed at each test pit:

- **TP37** was excavated to the extent of the machine (no refusal). A deep stiff yellow / brown sandy clay was exposed.

- **TP33** was excavated to the extent of the machine (no refusal). A red gravelly clay was exposed. As the depth of the pit increased, the gravel component in the clay reduced.
- **TP33A** exposed weathered bedrock at a depth of 4m. This was not quite refusal for this machine. Refusal is expected at 5m. The weathered bedrock was overlain by a 1m sandy clay layer, a 2m gravelly clay with lime accretions and highly weathered bedrock.
- **TP32** exposed weathered bedrock at a depth of 1.4m. This was not quite refusal for this machine. Refusal is expected at 2.4m. The weathered bedrock was overlain by a 1m layer of highly weathered bedrock.
- **TP32B** exposed weathered bedrock at a depth of 1m. This was not quite refusal for this machine. Refusal is expected at 1.75m. The weathered bedrock was overlain by a layer of alluvial sand.

Right Bank

Eight pits were dug along the centreline. The following was observed at each test pit:

- **TP30** exposed weathered bedrock at a depth of 2.4m. This was not quite refusal for this machine. Refusal is expected at 2.9m. The weathered bedrock was overlain by a layer of alluvial sand. Water ingress into the pit was observed at 2.2m
- **TP29A** exposed weathered bedrock at a depth of 6m. This was not quite refusal for this machine. Refusal is expected at 7m. The weathered bedrock was overlain by a layer of alluvial sand.
- **TP24** exposed bedrock at a depth of 4.2m. This was refusal for this machine. The bedrock was overlain by a 1m thick pebble layer and a 3.2m thick layer of alluvial sand. Water ingress into the pit was observed at 3.2m.
- **TP23** was excavated to the extent of the machine (no refusal). Two pebble layers, a layer of sandy clay alluvium and a layer of red clayey alluvium were exposed. Water ingress into the pit was observed at 5.8m
- **TP20** was excavated to a depth of 4m. The depth of excavation could not be more due to water ingress collapsing the pit at lower levels. A thick pebble layer and a soft red / brown clay alluvium was exposed. Water ingress into the pit was observed at 3m.
- **TP14** exposed weathered bedrock at a depth of 4m. This was not quite refusal for this machine. Refusal is expected at 4.5m. The weathered

bedrock is overlain by a thick red gravel layer. Slight water ingress into the pit was observed at 1.7m.

- **TP8** exposed weathered bedrock at a depth of 2.9m. This was not quite refusal for this machine. Refusal is expected at 3.9m. The weathered bedrock is overlain by a 1m layer of gravelly topsoil, a 1.5m layer of red alluvium and a 0.5m layer of highly weathered bedrock.
- **TP5** exposed weathered bedrock at a depth of 3.4m. This was not quite refusal for this machine. Refusal is expected at 3.9m. The weathered bedrock is overlain by a thick layer of red gravelly alluvium and a 0.5m layer of highly weathered bedrock.

The expected cut off trench depth for Dam Position 1 is shown in Drawing 005 in Annexure A. Indicator samples were recovered from the following pits excavated along the centreline and within the dam basin: TP33, TP29A, TP24, TP23, TP10, TP1, TP26, TP35, TPLCA5 and TPLCA6. Not all of the indicator samples taken were tested. The results of the indicator samples tested are summarized in Table 4.

The purpose of the investigation was to identify and confirm the position of the spillway. This was of utmost importance as the dam has a very large catchment (158km^2). According to WJR Alexander's publication, SA Flood Hydrology (1991), a dam of this classification is required to have a spillway that has the capacity to pass a 1:200 year flood event. This is equivalent to 502m^3/s.

The identified spillway position is on the Right Bank (TP14-TP5). Hard bedrock is expected to be found at depths of 3.9m to 4.5m below the natural ground level in this region. This would require a lot of excavation to open the spillway down to this level as well as the construction of a 60m long by 3m high Ogee spillway. Preliminary costings done on Dam Position 1 indicated that as a result of these works, this option would be unfeasible. As a result, Dam Position 2 was investigated as an alternate option.

4.3 Dam Position 2 (Preferred)

The centreline position was identified during the field work and proposed by MBB Consulting Services (Pty) Ltd. Ten pits were dug along the centreline.

Left Bank

Five pits were dug along the centreline. The following was observed at each test pit:

- **TP2-1** exposed weathered bedrock at a depth of 4.8m. This was not quite refusal for this machine. Refusal is expected at 5.8m. The weathered bedrock was overlain by a thin layer of highly weathered bedrock, a 2m pebble layer and a 2m brown / yellow clay layer.
- **TP2-2** exposed bedrock at a depth of 2.4m. The bedrock was overlain with a pebble layer consisting of transported material and 50-300mm diameter pebbles.
- **TP2-3** exposed bedrock at a depth of 1.4m. The bedrock was overlain with a layer of gravel and a layer of weathered material.
- **TP2-4** exposed bedrock at a depth of 1.1m.The bedrock was overlain with a layer of loose gravel and weathered material.
- **TP2-5** was excavated to a depth of 2.4m. The depth of excavation was limited due to water ingress collapsing the pit at lower levels. A 2m thick layer of alluvial sand was exposed. A black / wet layer consisting of organic material and pebbles was exposed beneath this. Whilst at this pit the centre of the river was probed. Hard material may have been found approximately 2m below the water level. The machine operator agreed with this possibility.

Right Bank

Five pits were dug along the centreline. The following was observed at each test pit:

- **TP2-6** was partially excavated to refusal to a depth of 4.1m. A dark green siltstone / mudstone was exposed at the bottom of the pit. The siltstone / mudstone was overlain by a 1.5m thick pebble layer and a 2.5m layer of alluvial sand with the top portion of this layer containing vegetation and sand.
- **TP2-7** exposed bedrock at a depth of 4.9m. The bedrock was overlain by a layer of highly and moderately weathered rock, a 1m layer of conglomerate and a 3.2m layer of red alluvial sand.
- **TP27** was excavated to a depth of 1.8m. The machine did not excavate to refusal but progress was very slow. A tough, compacted and weathered material was exposed.
- **TP27A** exposed weathered bedrock at a depth of 1m. This was not quite refusal for this machine. Refusal is expected at 2m. The weathered bedrock was overlain by a layer of weathered material and a sand layer.

- **TP27B** exposed bedrock at a depth of 1m. The bedrock was overlain by a thin layer of sandy topsoil.

The expected cut off trench depth for Dam Position 2 is shown in Drawing 006 in Annexure A. Indicator samples were recovered from the following pits excavated along the centreline and within the dam basin: TP2-1, TP2-3, TP2-9, TP2-11. Not all of the indicator samples taken were tested. The results of the indicator samples tested are summarized in Table 4.

The identified spillway position is on the Right Bank (TP27A – TPLCA3). Hard bedrock is expected to be found at depths of 1.0m to 0.7m below the natural ground level in this region. This site was more suitable for the position of the spillway for the following reasons:

- Good rock found at a reasonably shallow level
- As a result of the good bedrock levels, the height of the spillway structure is expected to be between 1 to 2.5m high.
- The permeability of the rock is to be confirmed. We accept at this stage that it will be adequately contained by a deep founding depth into the rock.
- A suitable apron will need to be provided downstream to prevent erosion.

This is the preferred dam site. All further work was done on **Dam Position 2.**

4.4 Dam Position 3

Dam Position 3 was also investigated. This wall position lies between Positions 1 and 2. Five pits were excavated along the centreline. These pits are TPLCA1, TPLCA2, TP26 (Position 1 Basin), TPLCA5 (Position 1 Basin) and TPLCA6 (Position 1 Basin).

This position was abandoned due to the following:

- No bedrock for dam foundation exposed at TP26, TPLCA5 & TPLCA6

4.5 Testing and Test Results

Due to the results of the field work, soil testing was focused on **Dam Position 2.** The following tests were done on the obtained indicator samples:

Indicator Samples	Tests Conducted
TP2-1, TP2-9 and TP26	Grading, Atterberg Limits, Proctor Density, Permeability @ 95% Proctor, Double Hydrometer, Organic Matter, Chemical Tests for Dispersivity
TP10, TP29A, TP24, TP2-11 and TP2-3	Grading, Atterberg Limits, Proctor Density, Organic Matter
TP10	Dispersivity and Permeability at 95% Proctor
TP29A	Permeability at 90% Proctor

Table 4: Laboratory Determined Soil Properties from Indicator Tests

Dam No	Test Pit No	Soil Origin	Horizon Depth (m)		Sample Depth (m)	Soil Constituents (%)				Atterberg Limits			GM	Activity	Classification	
			From	To		Clay	Silt	Sand	Gravel	LL	PI	LS			Unified	PRA
2	TP2-1	Alluvium	0.3	2.5	1.2	32	42	20	6	44	17	8.2	0.37	Low-Medium	CL	A-7-6 (12)
2	TP2-9	Alluvium	0.5	3.1	1.5	16	26	55	4	24	5	2.9	0.80	Low	SM / SC	A-4 (2)
2	TP26	Alluvium	0.7	3.3	1.5	13	24	60	3	27	7	4.2	0.92	Low	SC	A-4(1)
2	TP10	Alluvium	0.5	2.5	1.5	19	30	47	3	33	10	5.2	0.65	Low	CL	A-6(4)
2	TP2-11	Alluvium	0.2	1.7	0.95	12	32	53	3	26	7	4.2	0.68	Low	SC	A-4 (3)
2	TP2-3	Pebble / Weathered Material	0.3	1.4	0.85	2	8	25	65	28	2	4.2	2.33	Low	GC	A-2-4-(0)
2	TP 29A	Alluvium	0.5	6.0	3.25	9	28	62	2	20	4	1.9	0.71	Low	SM	A-4(1)
2	TP24	Alluvium	0	3.2	1.6	9	27	63	0	20	4	1.6	0.71	Low	SM/SC	A-4(1)

Notes: PI = Plastic Limit, LL = Liquid Limit, LS = Linear Shrinkage, GM = Grading Modulus

4.6 Other Test Results

Moisture-density tests on representative samples of the alluvium were done and are summarized in Table 5.

To assess the permeability of the recovered soil samples, permeability tests were undertaken on 4 bulk samples of the alluvium. These samples were remoulded to 95% Proctor density at optimum moisture content. The results are summarised in Table 5.

Double hydrometer tests were undertaken on 4 bulk samples of the alluvium. The results are summarized in Table 5. The results for these samples indicated that the soil should be treated as being dispersive.

Table 5: Other Test Results.

Dam No	Test Pit No	Proctor Compactive Effort		Permeability*	Dispersivity
		MDD (kg/m^3)	OMC (%)	(cm/s)	(%)
2	TP2-1	1569	22.6	1.83E-8	15
2	TP2-9	1854	14.5	1.56E-4	47
2	TP26	1771	13.4	3.27E-5	57
2	TP10	1675	15.7	1.59E-7	79
2	TP2-11	1845	14.8	N/A	N/A
2	TP29A	1830	14.9	4.88E-5	N/A

Notes: MDD = Maximum Dry Density, OMC = Optimum Moisture Content, * 95% Proctor Density @ OMC. The permeability test for TP 29A was done at **90%** Proctor Density.

Chemical tests were also conducted to confirm dispersivity of the soil as well as the organic matter content of the sand soil samples recovered. These results are presented in Table 6 and Table 7.

Table 6. Organic Matter (% C)

Dam No	Test Pit No	Organic Matter as C
2	TP29A	0.11%
2	TP24	0.14%

The methodology to evaluate if the soils are dispersive, based on chemical test results is the flow chart for Chemical Evaluation done by Harmse (1980).

Table 7. Chemical Dispersion Results

ROUTE 1 - PH<7.8

Dam No	Test No	pH	pH < 7.8	Conductivity (µS/cm)	Conductivity > 250µS/cm	SAR	Dispersivity
2	TP2-1	6.74	Yes	617	Yes	0.67	Non Dispersive
2	TP2-9	6.42	Yes	414	Yes	0.45	Non Dispersive
2	TP2-11	6.5	Yes	370	Yes	0.31	Non Dispersive
2	TP10	5.78	Yes	867	Yes	2.73	Non Dispersive
2	TP26	5.28	Yes	308	Yes	0.81	Non Dispersive

The results from the chemical tests indicated that the soils are non-dispersive. However, based on both the physical and chemical tests, the soils to be used in the embankment should be treated as being **Dispersive.**

4.7 Typical Properties of Soils Used in Construction of Dams

Table 8 shows the typical properties of soils used for the construction of embankment dams in South Africa, compared to the soils found at the dam sites for construction.

Table 8 shows that the soils available for construction are relatively close to those used in embankment dam construction.

It is proposed that the dam be constructed as a zoned embankment as follows:

- Core, using material excavated from TP2-1 and TP10 and the surrounding area.
- Front and Rear Zone, using materials excavated from TP2-9, TP26 and TP11
- Filter material, using material excavated from TP29A and TP24.

It is estimated that there is sufficient material to construct the dam, based on the thickness of the soil layers encountered. It is anticipated that some material for the core will need to be obtained from outside the dam basin (TP10 and surrounding area).

Table 8: Typical Properties of Soils used in the Construction of Embankment Dams

Embankment Zone	**Clay (%)**	**% < 0.425 Sieve**	**LL**	**PI**	**MDD (kg/m^3)**	**LS**	**OMC (%)**	**K (cm/s)**	**MDD PI x W**
Core (Impervious)	10-30	>60	30-60	12-24	1590-1830	10-4	14-22	≤ 1Ex10 -7	2-11
TP2-1	32	89%	44	17	1569	8.2	22.6	1.82E-8	4.08
TP10	19	84%	33	10	1675	5.2	15.7	1.57E-7	10.6
Front & Rear Zone (Semi-Impervious)	<10	>40	<30	4-12.5	1750-1990	0-5	10-16	≥ 1Ex10 -5	13-28
TP2-9	16	79	24	5	1854	2.9	14.5	1.56E-4	26
TP26	13	71	27	7	1771	4.2	13.4	3.27E-5	19
TP2-11	12	86	26	7	1845	4.2	14.8	-	18
Filter (Pervious)	<10%	>20%	<20	<5	1700-2000	<2	8-12	≥ 1Ex10 -4	18-28
TP29A	9	91	20	4	1830	1.9	14.9	4.88E-5	31
TP24	9	89	20	4	-	1.6	-	-	-

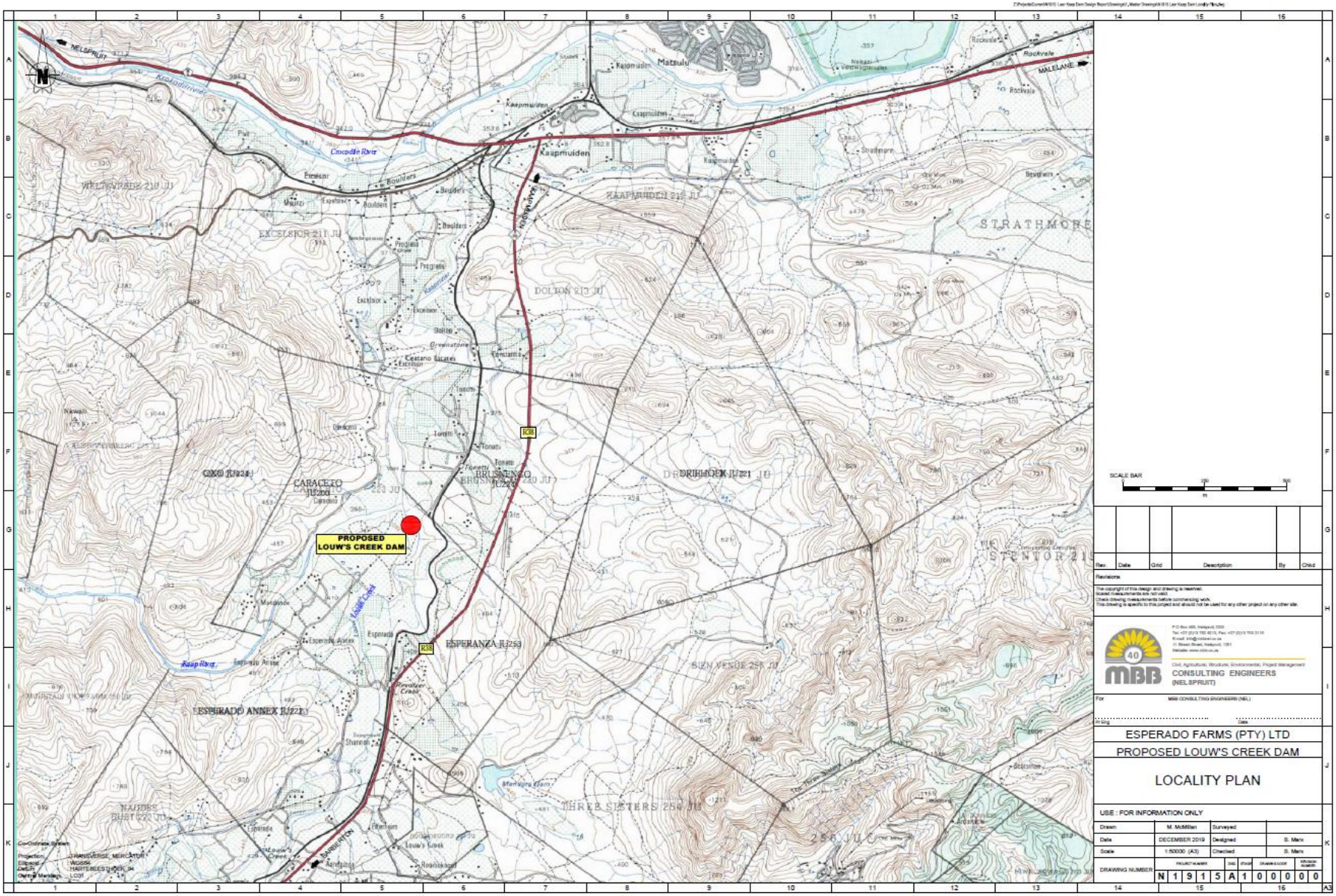
Notes: Data gathered from Tables 4, 5, 6 and 7.

5 RECOMMENDATIONS

The recommendations are as follows:

- The information gleaned from the available laboratory results and fieldwork suggests there is merit in pursuing a zoned embankment, with the more clayey material to be used as the core, with the sandier (less clayey) soil to be used in the upstream and downstream shells. Sandy soil will be used for the filters.
- Due to the dispersive nature of the soil, the embankments should be compacted to a minimum of 98% Proctor Density at + 3% of Optimum Moisture Content. Lifts should be no more than 300mm at a time. Lifts should be continuously placed to avoid them drying out. Should the layer dry out for any reason, the layer must be ripped and re-compacted.
- Where possible, impermeable core material should be placed on competent bedrock throughout. The bedrock must be cleaned with compressed air and inspected by a competent person prior to placement. Dental concrete should be used where necessary (steps, cracks etc).
- In the absence of tests to determine the shear strength parameters of the alluvium, it is recommended that the sidewalls of the core trench be battered to at least 1:1 to reduce the risk of instability. These excavations should be monitored daily.
- Based on the available information, there is adequate material for the construction of these dams, albeit some core material will need to be sourced from outside the dam basin.

ANNEXURE A: DRAWINGS



Rev.	Date	Grid	Description	By	Chkd

Revisions

MBB CONSULTING ENGINEERS
CONSULTING ENGINEERS
(NELSPRUIT)
Civil, Agriculture, Structure, Environmental, Project Management

For MBB CONSULTING ENGINEERS (NEL)

Drawing Date

ESPERADO FARMS (PTY) LTD

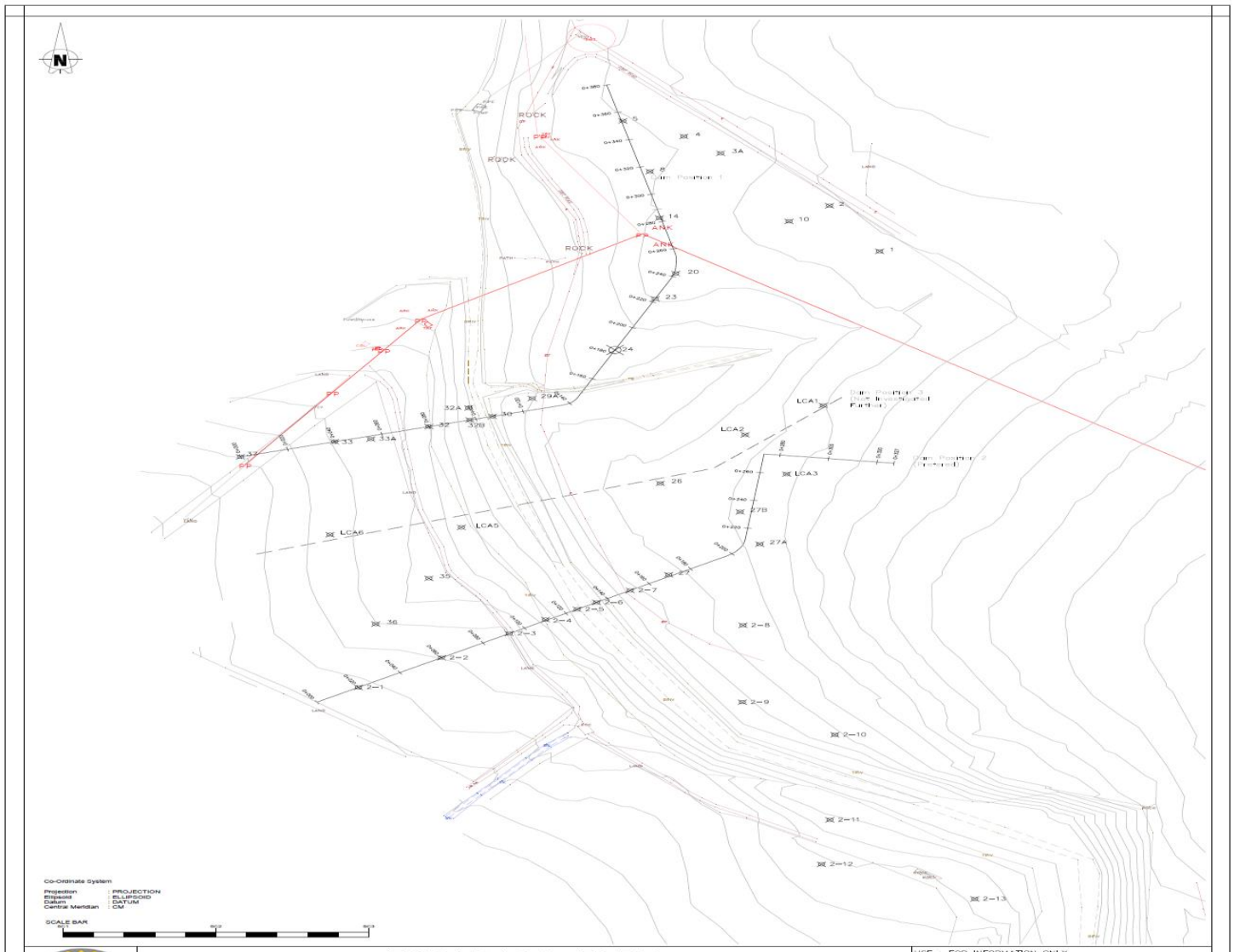
PROPOSED LOUW'S CREEK DAM

LOCALITY PLAN

USE : FOR INFORMATION ONLY

Drawn	M. McMillan	Surveyed	
Date	DECEMBER 2019	Designed	B. Marx
Scale	1:50000 (A3)	Checked	B. Marx

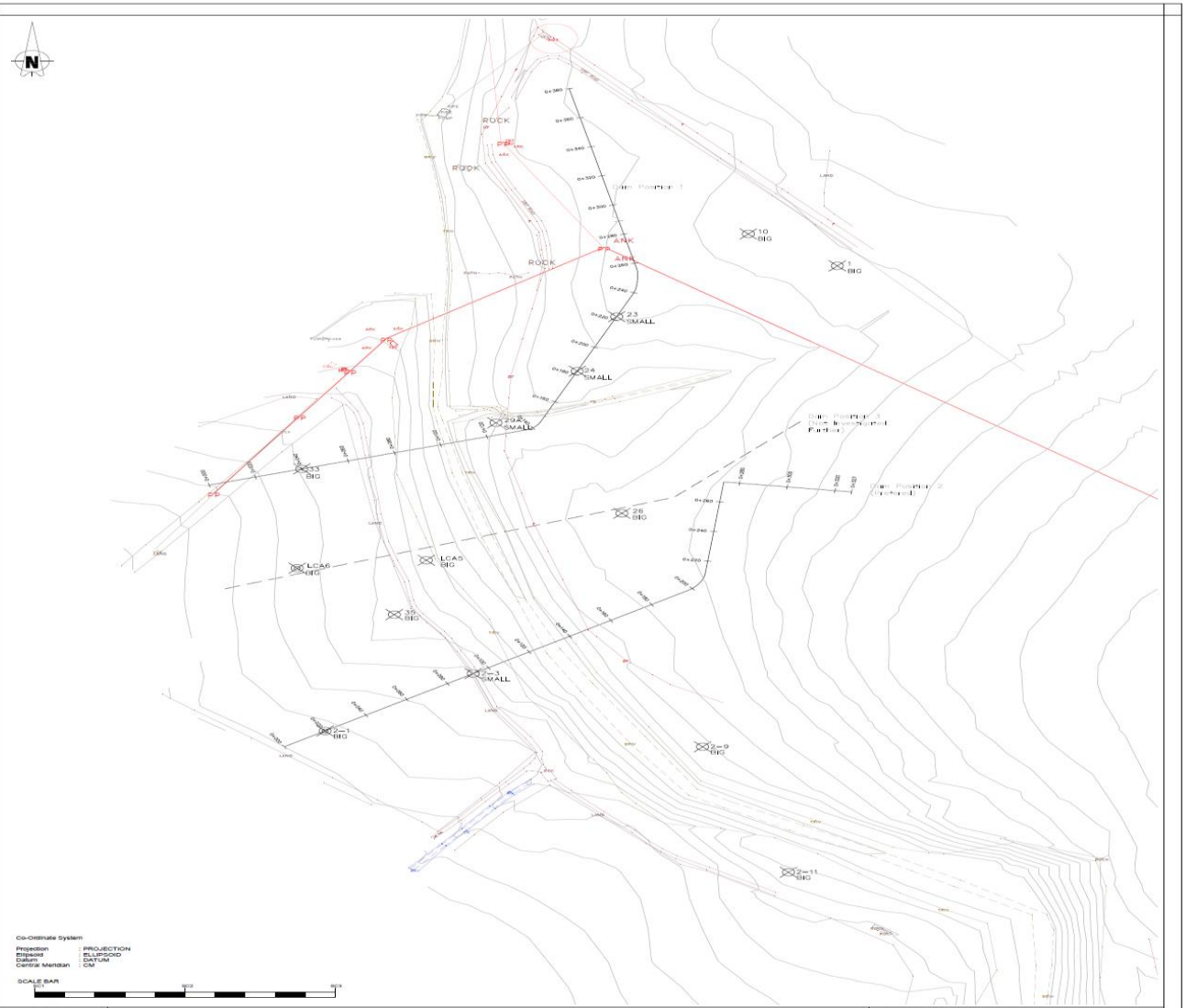
DRAWING NUMBER: N 1 9 1 5 A 1 0 0 0 0 0



ESPARADO FARM
LOUWS CREEK DAM
DAM CENTRELINES & TEST PIT LOCATIONS

USE : FOR INFORMATION ONLY			
Drawn	A. CRONJE	Surveyed	E. GEERTS
Date	NOV 2020	Designed	S. MARX
Scale	1:1250 (A2)	Checked	M. KOLESKY
DRAWING NUMBER	PROJECT NUMBER: N1915 / DRG: A / DRAWING CODE: 002 / REVISION NUMBER: R00		

A2



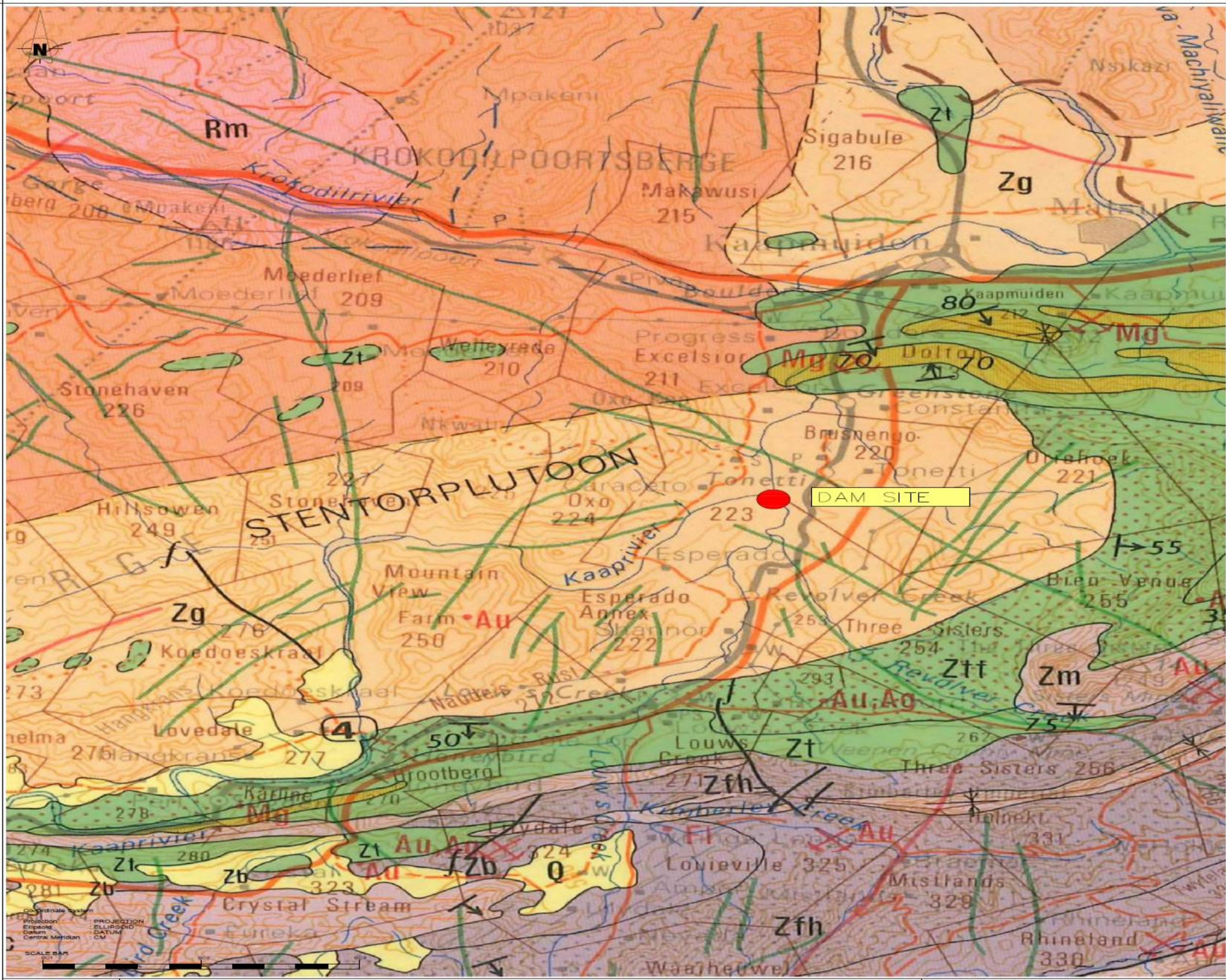
ESPARADO FARM
LOUWS CREEK DAM
DAM CENTRELINES & SOIL SAMPLE LOCATIONS

USE : FOR INFORMATION ONLY

Drawn	A. CRONJE	Surveyed	E. GEERTS
Date	NOV 2020	Designed	S. MARX
Scale	1:1250 (A2)	Checked	M. KOLESKY

DRAWING NUMBER: N 1 9 1 5 A 0 0 3 R 0 0 (PROJECT NUMBER | DISC | DRAWING CODE | REVISION NUMBER)

A2



USE : FOR INFORMATION ONLY			
Drawn	A. CRONJE	Surveyed	E. GEERTS
Date	NOV 2020	Designed	B. MARX
Scale	NTS	Checked	M. KOLESKY
DRAWING NUMBER	N 1 9 1 5 A 0 0 4 R 0 0		

ESPARADO FARM

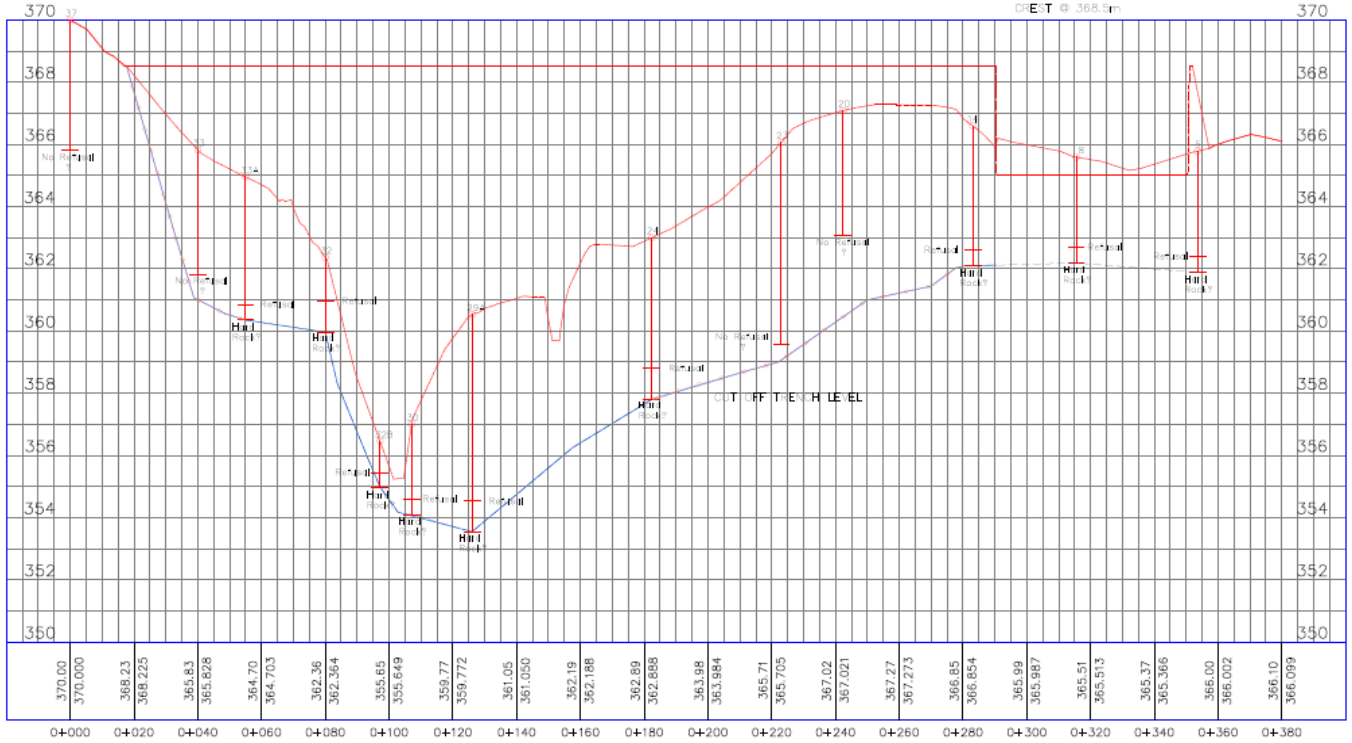
LOUWS CREEK DAM

1:250 000 GEOLOGICAL MAP

A2

Dam Centreline PROFILE

ASSUME SPILLWAY HARD ROCK @362m
MAX 2m HIGH WALL
FSL @ 365m
CREST @ 368.5m



SCALE BAR

Rev.	Date	Grid	Description	By	Chkd

Revisions

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11 Streak Street, Nelspruit, 1201
Website: www.mbb.co.za

Civil, Agricultural, Structural, Environmental, Project Management
CONSULTING ENGINEERS
(NELSPRUIT)

For MBB CONSULTING ENGINEERS (NEL)

Ir Eng: Date:

ESPERADO FARMS

LOUWS CREEK DAM OPTION 1

DAM LONG SECTION WITH EXPLORATION PITS AND CUT OFF TRENCH POSITION

USE : FOR INFORMATION ONLY

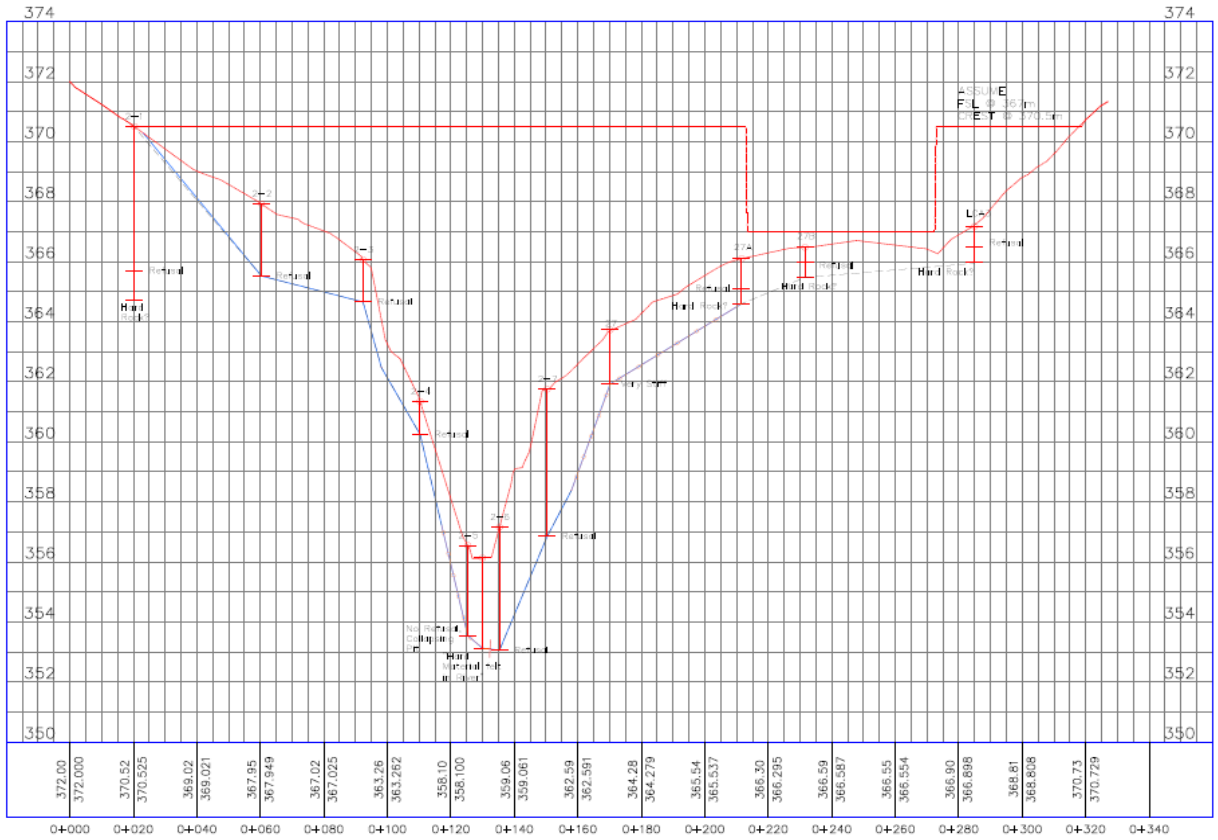
Drawn	B. MARX	Surveyed	E. GEERTS
Date	NOV 2020	Designed	B. MARX
Scale	1:1000 (A3)	Checked	M.KOLESKY

DRAWING NUMBER: PROJECT NUMBER N191 | DRG TYPE 51 | DRAWING CODE A00 | REVISION NUMBER 500

Co-Ordinate System
Projection : PROJECTION
Ellipsoid : ELLIPSOID
Datum : DATUM
Central Meridian : CM

2

Dam Centreline PROFILE



SCALE BAR

Rev.	Date	Grid	Description	By	Chkd

Revisions

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E-mail: info@mbbnelcc.co.za
11 Streak Street, Nelspruit, 1201
Website: www.mbb.co.za

Civil, Agricultural, Structural, Environmental, Project Management
CONSULTING ENGINEERS
(NELSPRUIT)

For MBB CONSULTING ENGINEERS (NEL)

Pr Eng Date

ESPERADO FARMS

LOUWS CREEK DAM OPTION 2

DAM LONG SECTION WITH EXPLORATION PITS AND CUT OFF TRENCH POSITION

USE : FOR INFORMATION ONLY

Drawn	B. MARX	Surveyed	E. GEERTS
Date	NOV 2020	Designed	B. MARX
Scale	1:1000 (A3)	Checked	M.KOLESKY

DRAWING NUMBER	PROJECT NUMBER	DISC	TYPE	DRAWING ZONE	DRAWING NUMBER
	N 1 9 1 5 2			0 0 6 0	0

Co-Ordinate System

Projection : PROJECTION
Ellipsoid : ELLIPSOID
Datum : DATUM
Central Meridian : CM

2

A2

ANNEXURE B: SOIL PIT PROFILES

NOTE: COPIES OF THE PLETHORA OF SOIL PIT PROFILES (44 IN TOTAL) ARE AVAILABLE AT REQUEST FROM THE EAP

ANNEXURE C: LABORATORY TEST RESULTS

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B	**PROJECT :**	1915	**Date**	**Job No.**	2114
Position :	2-1	**Depth [m] :**	0	**Source :**	insitu	14-Oct-20	**Sample No.**	0409

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	98	96	94	89	88	87	80	75	70	55	41	39	32	31

ATTERBERG LIMITS

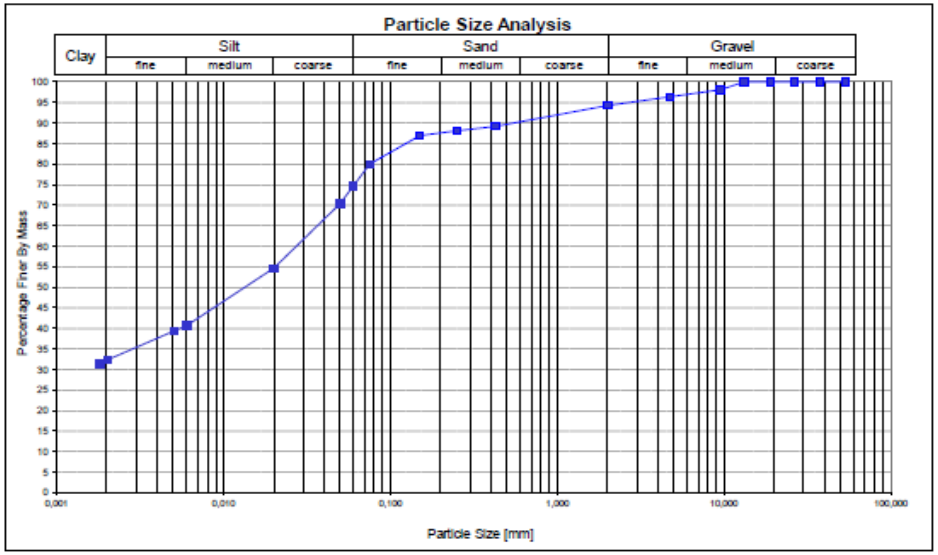
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
44	19	17	8,2	0,37

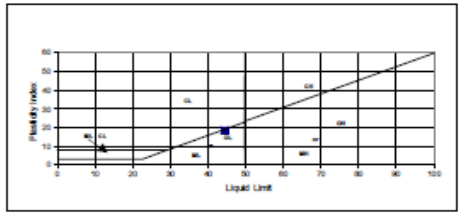
CLASSIFICATION

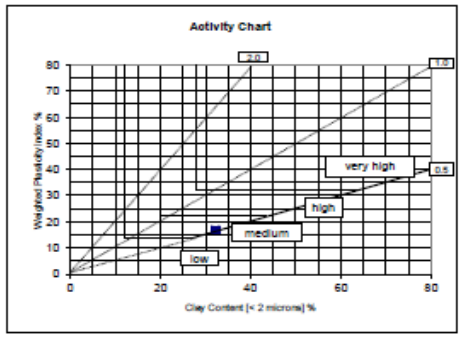
UNIFIED	PRA	TRH
CL	A-7-6 (12)	

Soil constituents % :	**Clay :**	32	**Silt :**	42	**Sand :**	20	**Gravel :**	6	**Fines :**	89	**Soil description :** light brown

D_{10} :		D_{30} :		D_{60} :	0,027	**Uniformity coefficient :**	not available	**Curvature coefficient :**	not available	Active program :	YES







REMARKS: chemical

CHECKED BY : H Schurink

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B			PROJECT :	1915		
Position :	2-1	Depth [m] :	0	Source :	insitu		

Date	Job No.	2114
14-Oct-20	Sample No.	0409

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	98	97	94	89	88	86	80	72	65	30	7	6	5	5

ATTERBERG LIMITS

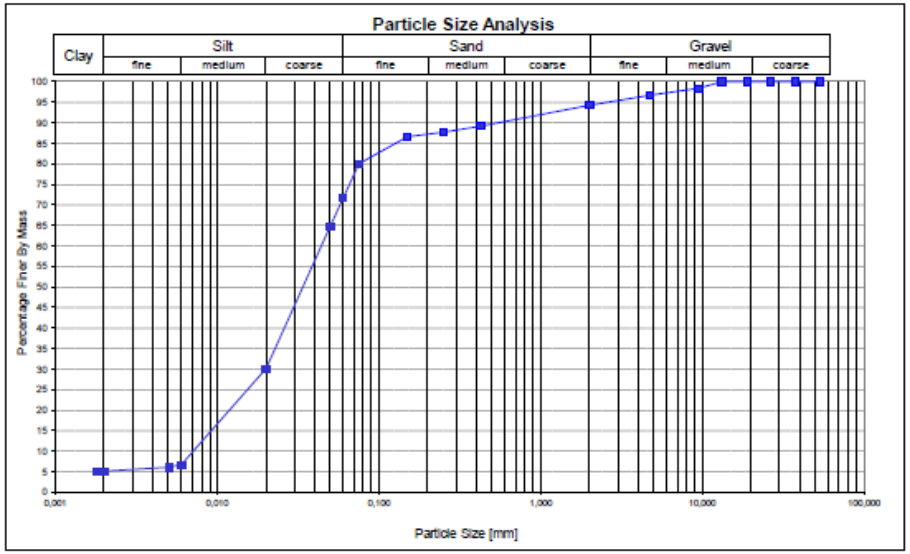
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
44	19	17	8,2	0,37

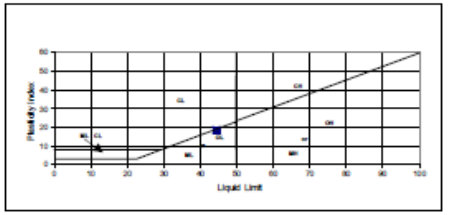
CLASSIFICATION

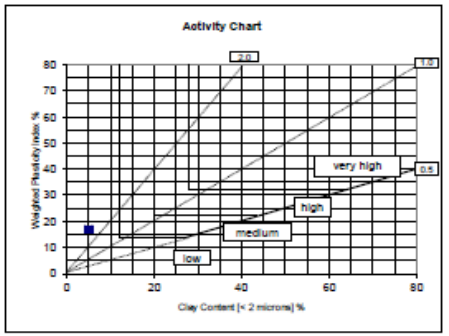
UNIFIED	PRA	TRH
CL	A-7-6 (12)	

Soil constituents % :	Clay :	5	Silt :	66	Sand :	23	Gravel :	6	Fines :	89	Soil description :	light brown

D_{10} :	0,007	D_{30} :	0,020	D_{60} :	0,044	Uniformity coefficient :	6	Curvature coefficient :	1	Active program :	YES







REMARKS: no chemical

CHECKED BY : H Schurink

1

indicator v2.53h_2.2114.0409 b

Engeo Lab (Pty) Ltd
Civil Engineering Materials Laboratory

PROCTOR DRY DENSITY & OPTIMUM MOISTURE CONTENT RESULTS

Tests done according to ASTM D698

Job No.	2114
Client	M.B.B
Project	1915

Date	Sample No.	km / Hole No.
9-Oct-2020	409	2-1

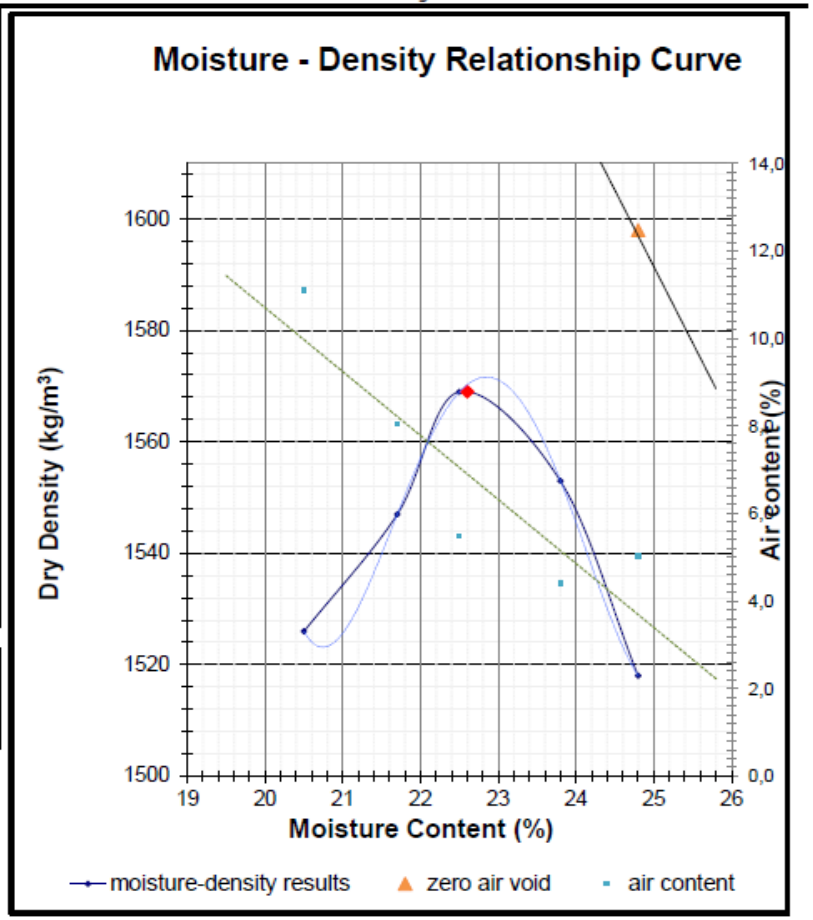
Layer	insitu
% Stab.	0
Material Description	light brow

Dry Density (kg/m^3)	Moisture Content (%)	Corrected % Moisture
1526	20,5	20,5
1547	21,7	21,7
1569	22,5	22,5
1553	23,8	23,8
1518	24,8	24,8

Proctor Dry Density (kg/m3)	1569
Optimum Moisture Content (%)	22,6

@ MDD:	SG	e	Air content
	2,65	0,689	5,33

REMARKS:



2020/10/14

ENGEO LAB (Pty) Ltd
Civil & Geotechnical Engineering
Materials Laboratory

FALLING HEAD PERMEABILTY TEST

DATA SHEET

Laboratory reference

Received: 23/October/2020 | Laboratory Project No: 2114 | Laboratory No.: 20-0409

Client information

Client: MBB Consulting Engineers | Reference: 1915

Sample | Position: 2-1 | Depth (m): | Rem. or Undisturbed : R

Sample

Orientation - | Horizontal / Vertical: V | Depth in sample (mm): | Specimen (A, B or C): A

Area of sample = 78,54 cm^2

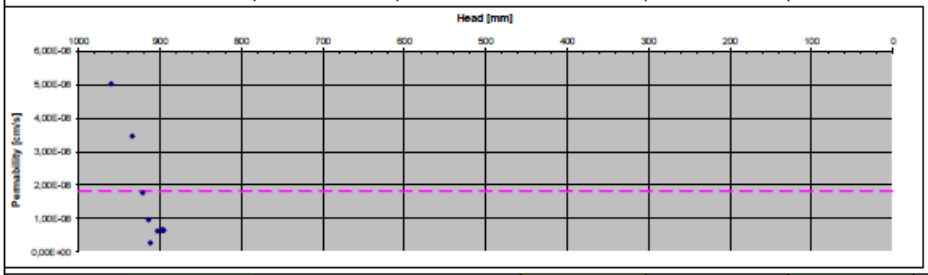
permeameter diameter [cm]	10
void height in permeameter [cm]	0,2
permeameter height [cm]	11,50
sample height [cm]	11,33

For multiple test on the same sample - Test #: 1

READINGS

Manometer tube being used : 3 | diameter [mm] : 2,0 | Area of tubes [cm^2]: 0,031

Time		Head	Time		Head
minutes	seconds	[mm]	minutes	seconds	[mm]
0		999			
60		960			
120		934			
180		921			
240		914			
300		912			
420		903			
510		896			



PERMEABILITY (AVG) 1,83E-08 cm/s | Degree of saturation : % | G_w = 0,9975

Post-test

	Pan no:	P19		Pan (g):	22,8	I	
From permeameter	Pan & sample (g):	63,2	J	Sample (g):	40,4	K	
Oven dried	Pan & sample (g):	52,2	L	Sample (g):	29,4	M	Moisture (%): 37,4%

SG if available: | void ratio: | dry density: | kg/m^3

Miscellaneous

Tested by: sm | Checked by: hjs | Approved by: hjs

Notes: test undertaken on sample remoulded to 95% Proctor Density at OMC

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B			PROJECT :	1915		
Position :	2-9	Depth [m] :	0	Source :	insitu		

Date	Job No.	2114
14-Oct-20	Sample No.	0410

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	99	98	96	79	67	57	45	42	39	24	18	17	16	15

ATTERBERG LIMITS

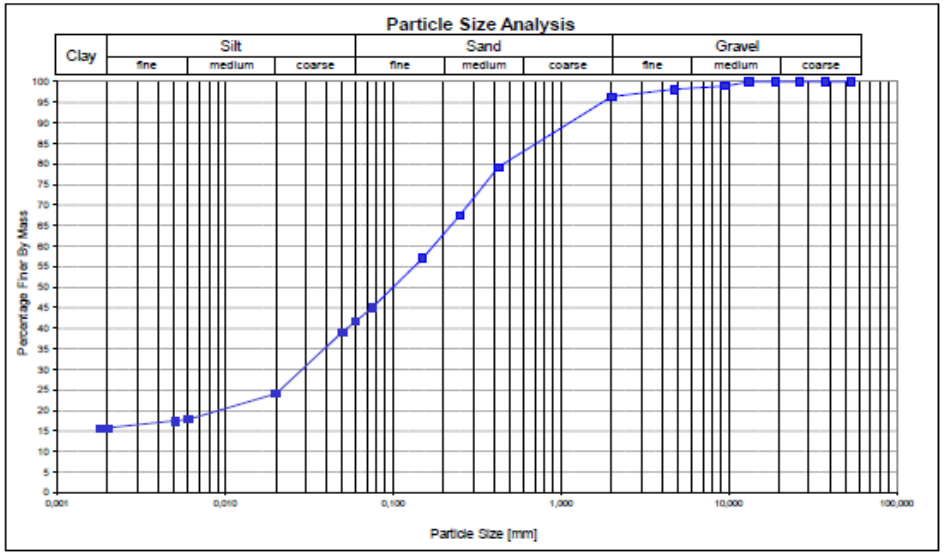
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
24	6	5	2,9	0,80

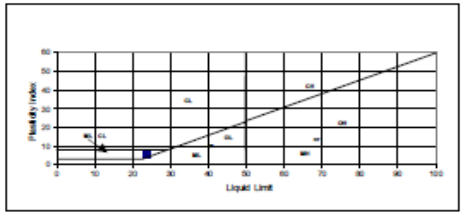
CLASSIFICATION

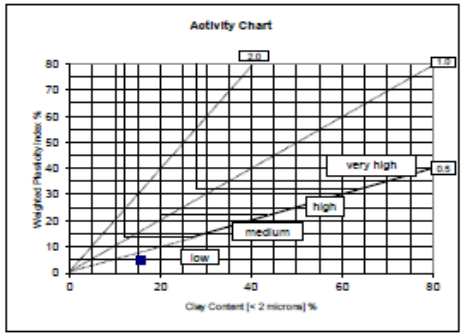
UNIFIED	PRA	TRH
SM/SC	A-4 (2)	

Soil constituents % :	Clay :	16	Silt :	26	Sand :	55	Gravel :	4	Fines :	79	Soil description :	light brown

D_{10} :		D_{30} :	0,029	D_{60} :	0,174	Uniformity coefficient :	not available	Curvature coefficient :	not available	Active program :	YES







REMARKS: chemicals

CHECKED BY : H Schuriak

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B	**PROJECT :**	1915	**Date**	**Job No.**	2114
Position :	2-9	**Depth [m] :**	0	**Source :**	insitu	14-Oct-20	**Sample No.**	0410

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	99	98	96	79	69	59	45	40	36	16	8	8	6	6

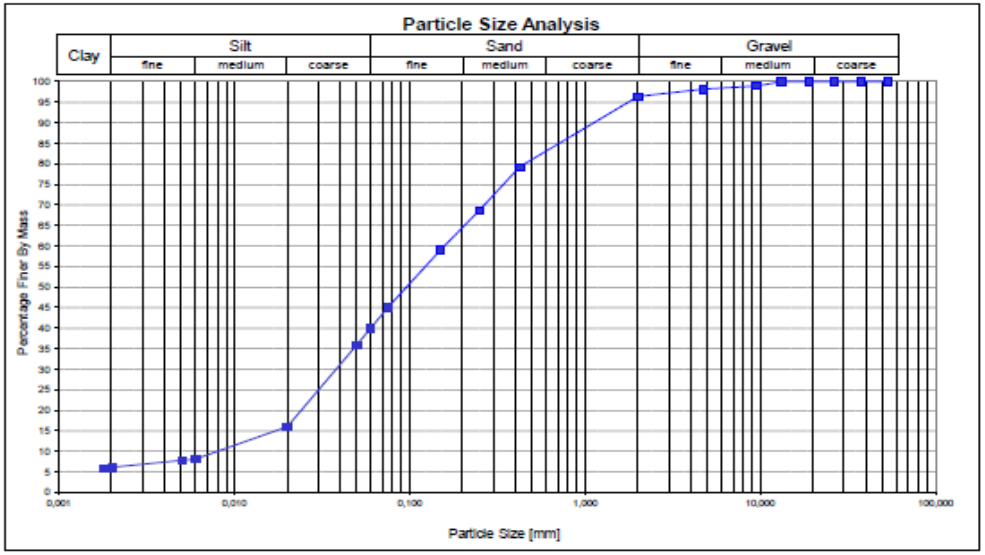
ATTERBERG LIMITS

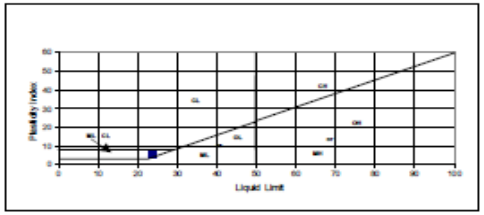
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
24	6	5	2,9	0,80

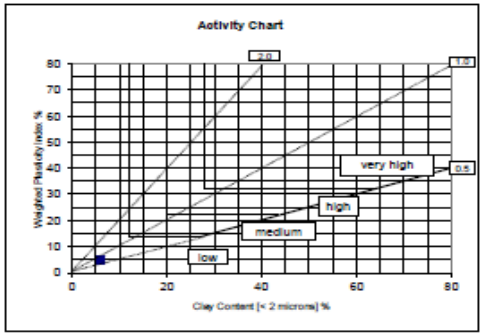
CLASSIFICATION

UNIFIED	PRA	TRH
SM/SC	A-4 (2)	

Soil constituents % :	**Clay :**	6	**Silt :**	34	**Sand :**	56	**Gravel :**	4	**Fines :**	79	**Soil description :**	light brown	
D_{10} :	0,008	D_{30} :	0,038	D_{60} :	0,158	**Uniformity coefficient :**	20	**Curvature coefficient :**	1	Active program :	YES		







REMARKS: no chemicals

CHECKED BY : H Schurink

indicator v2 53b 2 2114 0410 b

Engeo Lab (Pty) Ltd
Civil Engineering Materials Laboratory

PROCTOR DRY DENSITY & OPTIMUM MOISTURE CONTENT RESULTS

Tests done according to ASTM D698

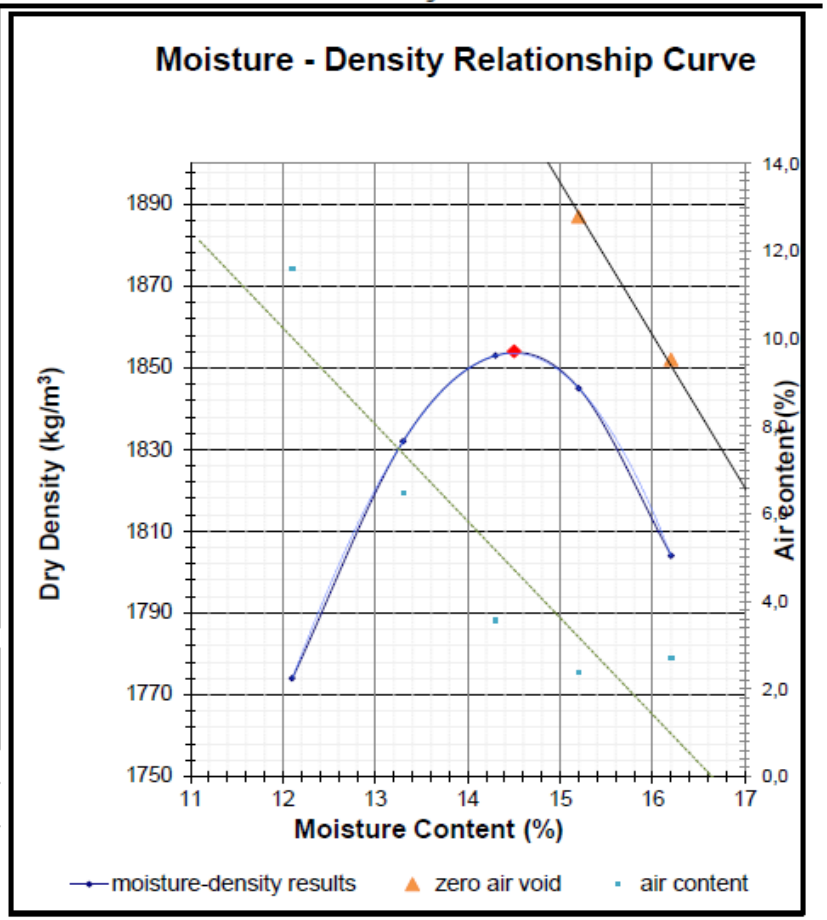
Job No.	2114	
Client	M.B.B	
Project	2114	
Date	Sample No.	km / Hole No.
9-Oct-2020	410	2-9
Layer	insitu	
% Stab.	0	
Material Description	light brown	

Dry Density (kg/m^3)	Moisture Content (%)	Corrected % Moisture
1774	12,1	12,1
1832	13,3	13,3
1853	14,3	14,3
1845	15,2	15,2
1804	16,2	16,2

Proctor Dry Density (kg/m3)	1854
Optimum Moisture Content (%)	14,5

@ MDD:	SG	e	Air content
	2,65	0,429	3,13

REMARKS:



ENGEO LAB (Pty) Ltd
Civil & Geotechnical Engineering
Materials Laboratory

FALLING HEAD PERMEABILTY TEST

DATA SHEET

Laboratory reference

Received: 23/October/2020 | Laboratory Project No: 2114 | Laboratory No.: 20-0409

Client information

Client: MBB Consulting Engineers | Reference: 1915

Sample | Position: 2-1 | Depth (m): | Rem. or Undisturbed: R

Sample

Orientation - | Horizontal / Vertical: V | Depth in sample (mm): | Specimen (A, B or C): A

Area of sample = 78,54 cm^2

permeameter diameter [cm]: 10

void height in permeameter [cm]: 0,2

permeameter height [cm]: 11,50

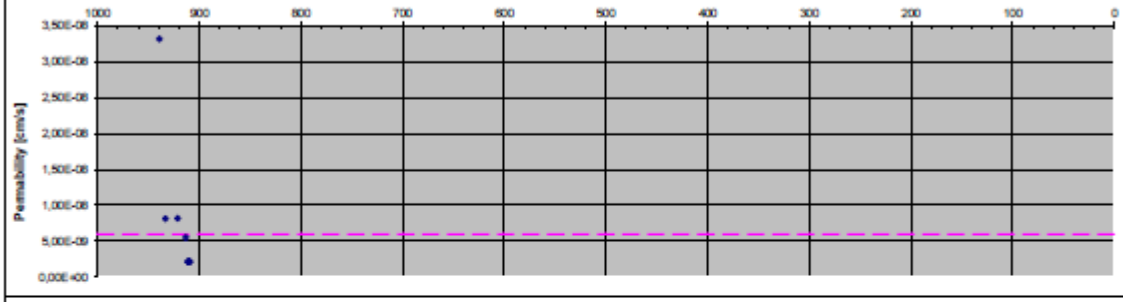
sample height [cm]: 11,33

For multiple test on the same sample - Test #: 2

READINGS

Manometer tube being used: 3 | diameter [mm]: 2,0 | Area of tubes [cm^2]: 0,031

Time		Head	Time		Head
minutes	seconds	[mm]	minutes	seconds	[mm]
0		964			
60		939			
120		933			
240		921			
360		913			
476		910			



PERMEABILITY (AVG) 1,14E-08 cm/s | Degree of saturation: % | G_w = 0,9975

Post-test

Pan no: | Pan (g): I

From permeameter: Pan & sample (g): J | Sample (g): J-I K

Oven dried: Pan & sample (g): L | Sample (g): L-I M | Moisture (%): (M-K)/M

SG if available: | void ratio: | dry density: kg/m^3

Miscellaneous

Tested by: sm | Checked by: hjs | Approved by: hjs

Notes: test undertaken on sample remoulded to 95% Proctor Density at OMC

ENGEO LAB (Pty) Ltd
Civil & Geotechnical Engineering
Materials Laboratory

FALLING HEAD PERMEABILTY TEST

DATA SHEET

Laboratory reference

Received:	23/October/2020	Laboratory Project No:	2114	Laboratory No.:	20-0410

Client information

Client:	MBB Consulting Engineers	Reference:	1915		
Sample	Position: 2-9	Depth (m):		Rem. or Undisturbed :	R

Sample

Orientation -	Horizontal / Vertical:	v	Depth in sample (mm):		Specimen (A, B or C):	A

Area of sample = 78,54 cm^2

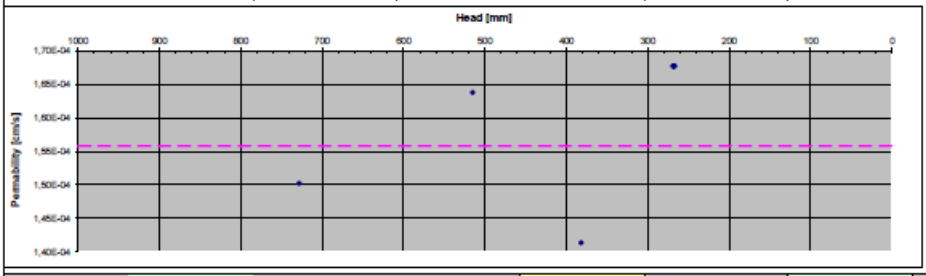
permeameter diameter [cm]	10
void height in permeameter [cm]	0,2
permeameter height [cm]	11,50
sample height [cm]	11,33

For multiple test on the same sample - Test #: 3

READINGS

Manometer tube being used : 1 | diameter [mm] : 5,0 | Area of tubes [cm^2]: 0,196

Time		Head	Time		Head
minutes	seconds	[mm]	minutes	seconds	[mm]
0		1000			
1		728			
2		515			
3		382			
4		268			



PERMEABILITY (AVG) 1,68E-04 cm/s | Degree of saturation : % | G_s = 0,9975

Post-test

	Pan no:	P10		Pan (g):	23,0	I	
From permeameter	Pan & sample (g):	47,9	J	Sample (g):	24,9	K	
Oven dried	Pan & sample (g):	43,3	L	Sample (g):	20,3	M	Moisture (%): 22,7%

SG if available: | void ratio: | dry density: kg/m^3

Miscellaneous

Tested by:	sm	Checked by:	hjs	Approved by:	hjs

Notes: test undertaken on sample remoulded to 95% Proctor Density at OMC

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B		PROJECT :	1915		Date	Job No.	2114
Position :	LC26	Depth [m] :	0	Source :	insitu	14-Oct-20	Sample No.	0411

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	100	100	97	71	63	54	41	37	34	20	14	14	13	12

ATTERBERG LIMITS

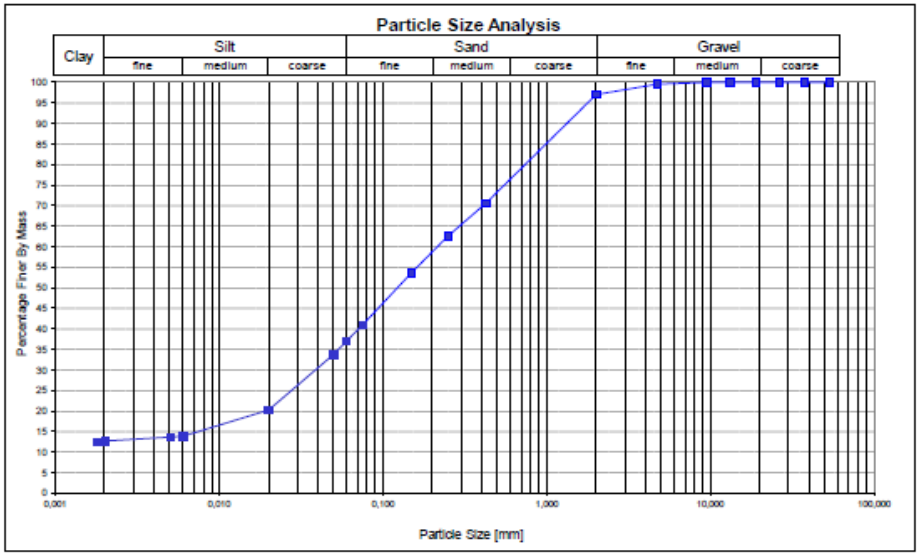
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
27	10	7	4,2	0,92

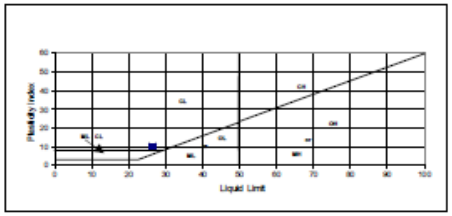
CLASSIFICATION

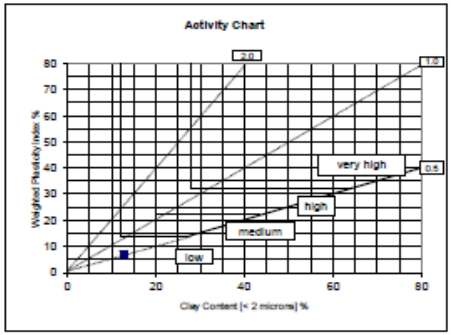
UNIFIED	PRA	TRH
SC	A-4 (1)	

Soil constituents % :	Clay :	13	Silt :	24	Sand :	60	Gravel :	3	Fines :	71	Soil description :	dark grey

D_{10} :		D_{30} :	0,039	D_{60} :	0,216	Uniformity coefficient :	not available	Curvature coefficient :	not available	Active program :	YES







REMARKS: chemicals

CHECKED BY : H Schurink

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B	**PROJECT :**	1915	**Date**	**Job No.**	2114
Position :	LC26	**Depth [m] :**	0	**Source :**	insitu	14-Oct-20	**Sample No.**	0411

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	100	100	97	71	62	52	40	35	31	13	9	8	6	6

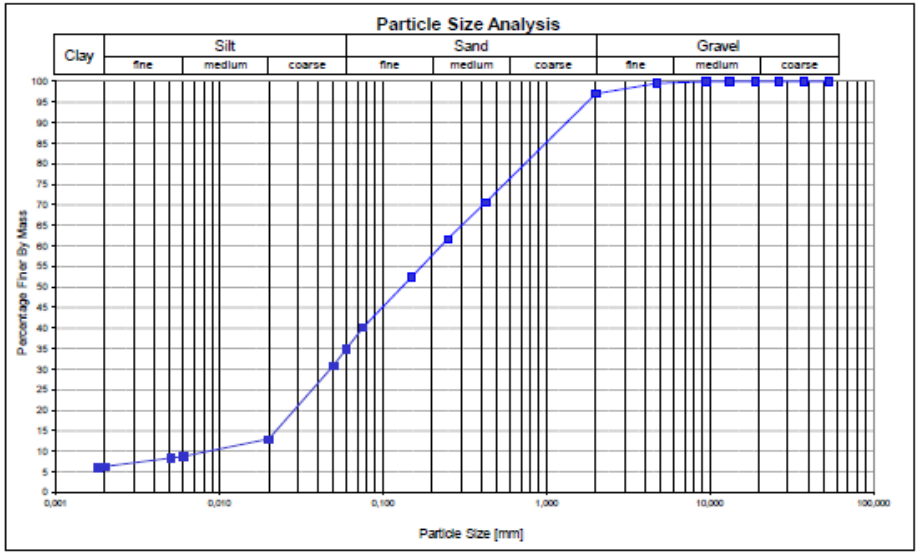
ATTERBERG LIMITS

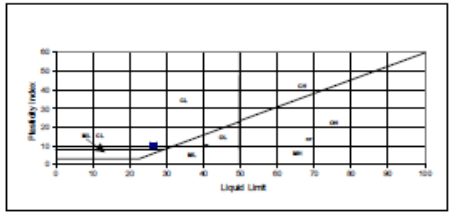
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
27	10	7	4,2	0,93

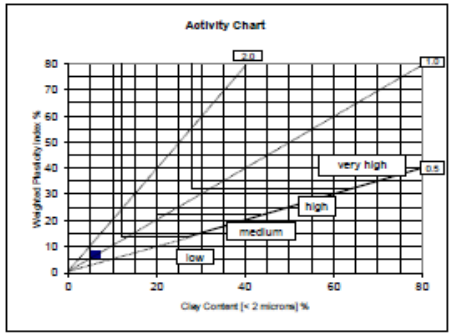
CLASSIFICATION

UNIFIED	PRA	TRH
SC	A-4 (1)	

Soil constituents % :	**Clay :**	6	**Silt :**	29	**Sand :**	62	**Gravel :**	3	**Fines :**	71	**Soil description :**	dark grey	
D_{10} :	0,009	D_{30} :	0,048	D_{60} :	0,228	**Uniformity coefficient :**	26	**Curvature coefficient :**	1	Active program :	YES		







REMARKS: no chemicals

CHECKED BY : H Schurink

Engeo Lab (Pty) Ltd
Civil Engineering Materials Laboratory

PROCTOR DRY DENSITY & OPTIMUM MOISTURE CONTENT RESULTS

Tests done according to ASTM D698

Job No.	2114
Client	M.B.B
Project	1915

Date	Sample No.	km / Hole No.
9-Oct-2020	411	LC26

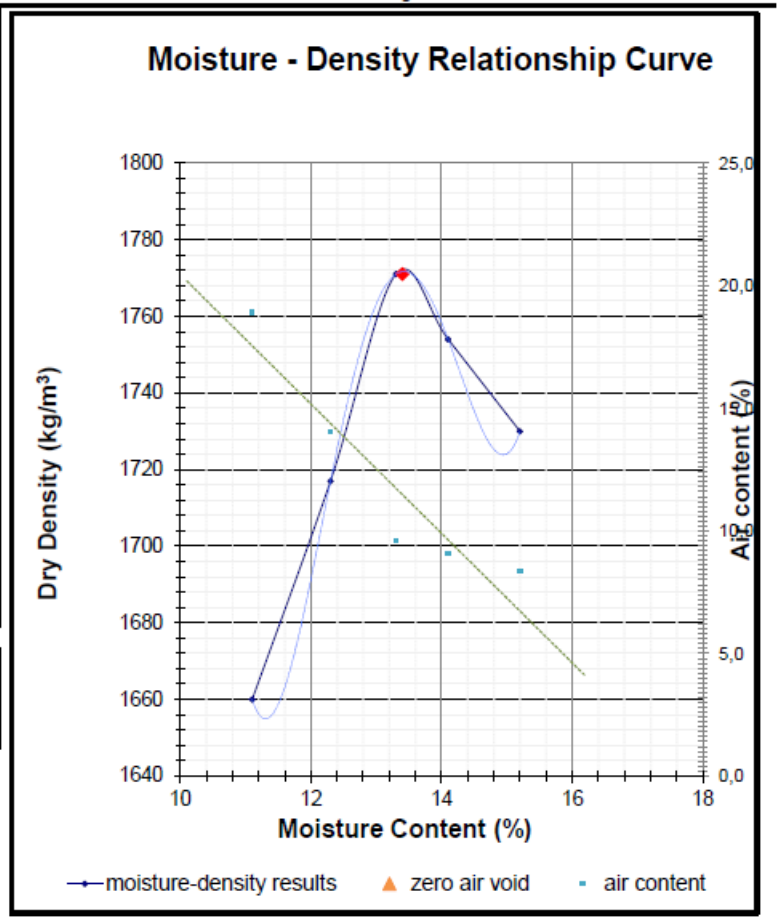
Layer	insitu
% Stab.	0
Material Description	dark grey

Dry Density (kg/m^3)	Moisture Content (%)	Corrected % Moisture
1660	11,1	11,1
1717	12,3	12,3
1771	13,3	13,3
1754	14,1	14,1
1730	15,2	15,2

Proctor Dry Density (kg/m3)	1771
Optimum Moisture Content (%)	13,4

@ MDD:	SG	e	Air content
	2,65	0,496	9,42

REMARKS:



2020/10/14

ENGEO LAB (Pty) Ltd
Civil & Geotechnical Engineering
Materials Laboratory

FALLING HEAD PERMEABILTY TEST

DATA SHEET

Laboratory reference

Received: 23/October/2020 | Laboratory Project No: 2114 | Laboratory No.: 20-0411

Client information

Client: MBB Consulting Engineers | Reference: 1915

Sample | Position: LC 26 | Depth (m): | Rem. or Undisturbed: R

Sample

Orientation - Horizontal / Vertical: | Depth in sample (mm): | Specimen (A, B or C): A

Area of sample = 78,54 cm^2

permeameter diameter [cm]: 10

void height in permeameter [cm]: 0,2

permeameter height [cm]: 10,50

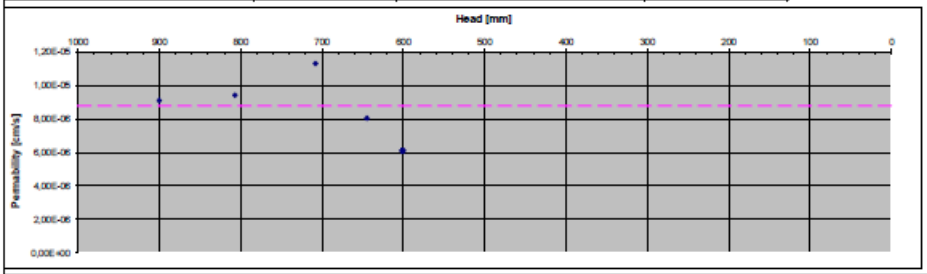
sample height [cm]: 10,34

For multiple test on the same sample - Test #: 2

READINGS

Manometer tube being used: 1 | diameter [mm]: 5,0 | Area of tubes [cm^2]: 0,196

Time		Head	Time		Head
minutes	seconds	[mm]	minutes	seconds	[mm]
0		1000			
5		900			
10		807			
15		708			
20		645			
25		601			



PERMEABILITY (AVG) 8,80E-06 cm/s | Degree of saturation: % | G_s = 0,9975

Post-test

Pan no: P13 | Pan (g): 22,6 | I

From permeameter: Pan & sample (g): 46,3 | J | Sample (g): 23,7 | K

Oven dried: Pan & sample (g): 41,9 | L | Sample (g): 19,3 | M | Moisture (%): 22,8%

SG if available: | void ratio: | dry density: kg/m^3

Miscellaneous Tested by: sm | Checked by: hjs | Approved by: hjs

Notes: test undertaken on sample remoulded to 95% Proctor Density at OMC

ENGEO LAB (Pty) Ltd
Civil & Geotechnical Engineering
Materials Laboratory

CONSTANT HEAD PERMEABILITY TEST

DATA SHEET

Laboratory reference

Received: 23/October/2020 | Laboratory Project No: 2114 | Laboratory No.: 20-0411

Client information

Client: MBB Consulting Engineers | Reference: 1915

Sample | Position: LC 26 | Depth (m): | Rem. or undisturbed: R

Sample

Orientation - horizontal/vertical: V | Depth in sample (mm): | Specimen (A, B or C): A

Area of sample = 78,54 cm^2

permeameter diameter [cm]: 10

height of void [cm]: 0,16

permeameter height [cm]: 11,5

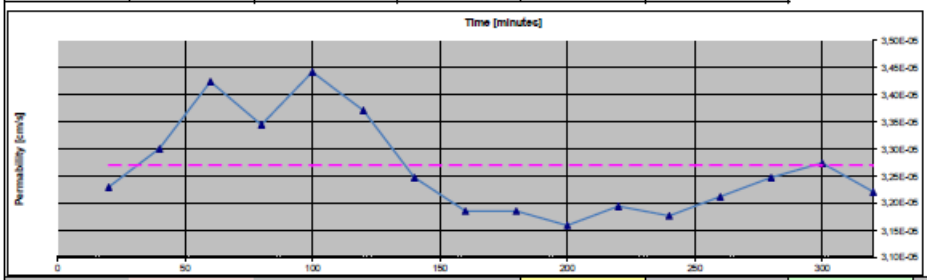
sample height [cm]: 11,34

For multiple test on the same sample - Test #: 1

READINGS

Manometer tube being used: | diameter [mm]: | Area of tubes [cm^2]: 0,298

Time		Weight	Time		Weight	Container Weight
minutes	seconds	[g]	minutes	seconds	[g]	[g]
20	0	806	180	0	801	440,0
40	0	814	200	0	798	
60	0	828	220	0	802	Head (cm)
80	0	819	240	0	800	1360,0
100	0	830	260	0	804	
120	0	822	280	0	808	
140	0	808	300	0	811	
160	0	804	320	0	805	



PERMEABILITY 3,27E-05 cm/s | Degree of saturation: | % | G_s = 0,9975

(Permeability to be estimated either using average of adjacent tabulation, or entering a value for the line best fitting the data to be used)

Post-test

Pan no: P19 | Pan (g): 22,8 I

From permeameter: Pan & sample (g): 66,2 J | Sample (g): 43,4 K

Oven dried: Pan & sample (g): 58,1 L | Sample (g): 35,3 M | Moisture (%): 22,95%

SG if available: 2,62 | void ratio: | dry density: | kg/m^3

Miscellaneous Tested by: | Checked by: | Approved by:

yyyy / mm / dd | yyyy / mm / dd | 2016.02.17

Notes: sampled remoulded to 95 % Proctor density at optimum moisture content

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B			PROJECT :	1915		
Position :	LC10	Depth [m] :	0	Source :	insitu		

Date	Job No.	2114
14-Oct-20	Sample No.	0412

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	99	98	97	84	74	64	54	50	46	35	25	24	19	19

ATTERBERG LIMITS

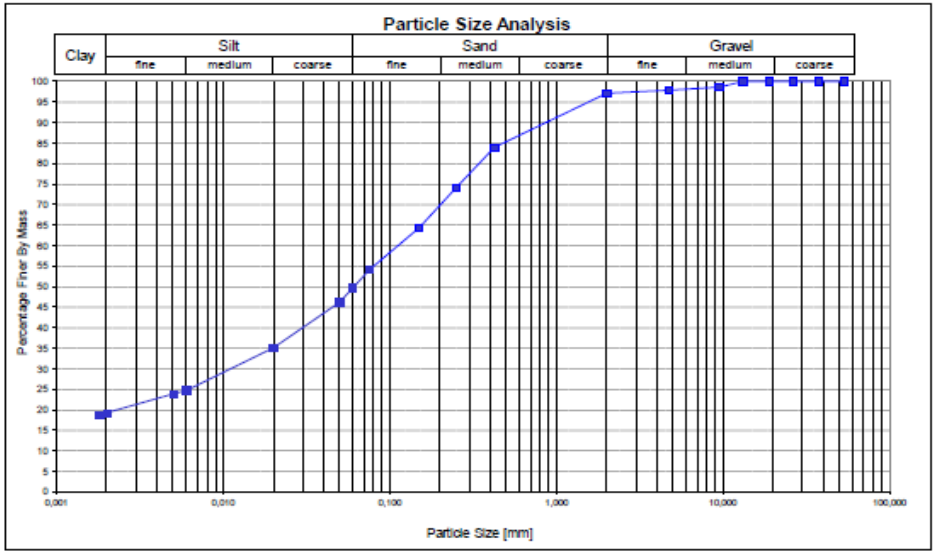
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
33	11	10	5,2	0,65

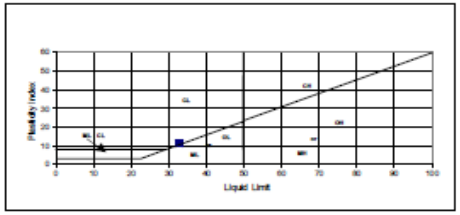
CLASSIFICATION

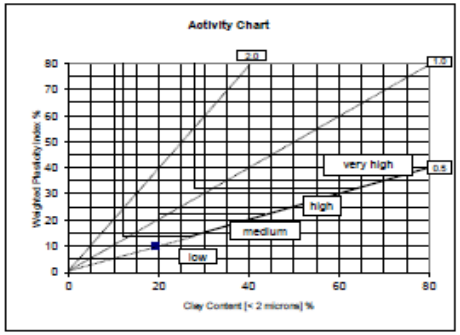
UNIFIED	PRA	TRH
CL	A-6 (4)	

Soil constituents % :	Clay :	19	Silt :	30	Sand :	47	Gravel :	3	Fines :	84	Soil description :	light reddish brown

D_{10} :		D_{30} :	0,011	D_{60} :	0,112	Uniformity coefficient :	not available	Curvature coefficient :	not available	Active program :	YES







REMARKS: none

CHECKED BY : H Schurink

1

indicator v2.53h 2.2114.0412

Engeo Lab (Pty) Ltd
Civil Engineering Materials Laboratory

PROCTOR DRY DENSITY & OPTIMUM MOISTURE CONTENT RESULTS

Tests done according to ASTM D698

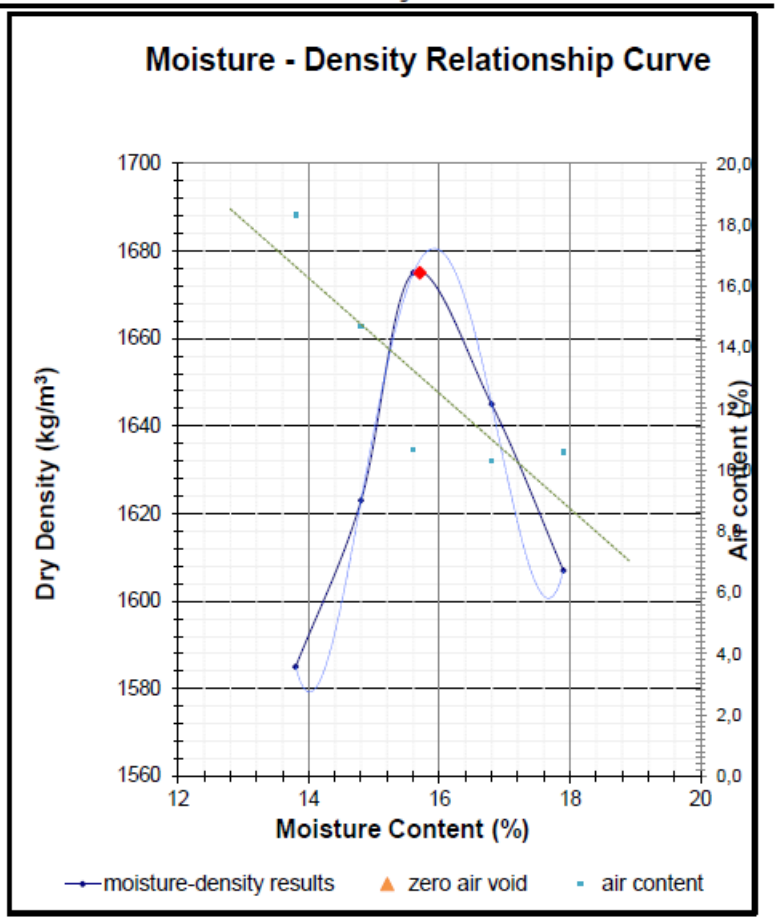
Job No.	2114	
Client	M.B.B	
Project	1915	
Date	Sample No.	km / Hole No.
8-Oct-2020	412	LC10
Layer	insitu	
% Stab.	0	
Material Description	light reddish brown	

Dry Density (kg/m^3)	Moisture Content (%)	Corrected % Moisture
1623	14,8	14,8
1675	15,6	15,6
1645	16,8	16,8
1607	17,9	17,9
1585	13,8	13,8

Proctor Dry Density (kg/m3)	1675
Optimum Moisture Content (%)	15,7

@ MDD:	SG	e	Air content
	2,65	0,582	10,49

REMARKS:



2020/10/14

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B	**PROJECT :**	1915	**Date**	**Job No.** 2114
Position :	LC10	**Depth [m] :** 0	**Source :** insitu	19-Nov-20	**Sample No.** 0412

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	99	98	97	84	74	64	54	50	46	35	25	24	19	19

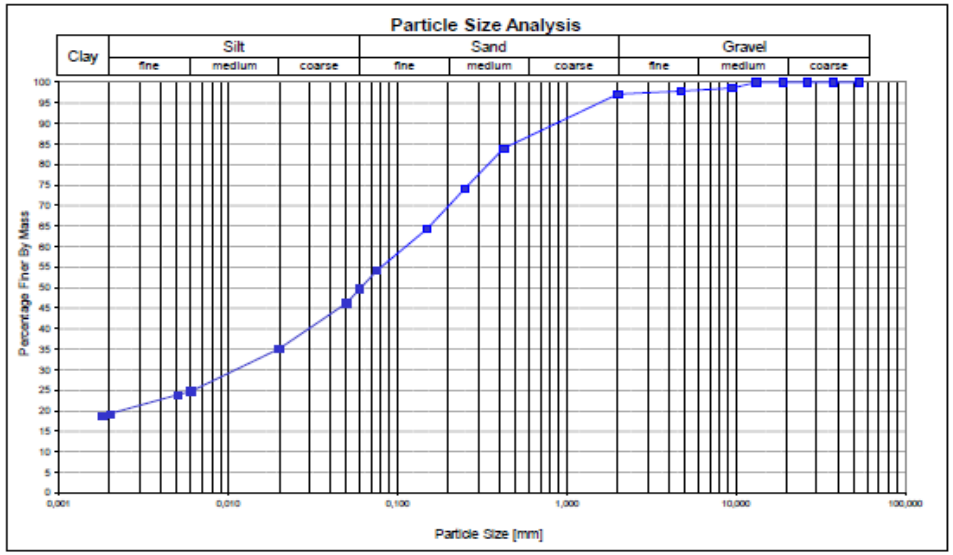
ATTERBERG LIMITS

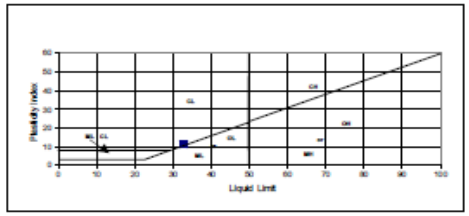
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
33	11	10	5,2	0,65

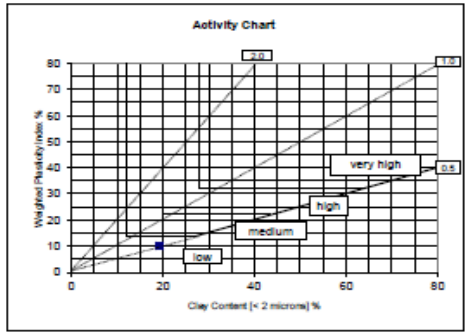
CLASSIFICATION

UNIFIED	PRA	TRH
CL	A-6 (4)	

Soil constituents % :	**Clay :** 19	**Silt :** 30	**Sand :** 47	**Gravel :** 3	**Fines :** 84	**Soil description :** light reddish brown					
D_{10} :		**D_{30} :** 0,011	**D_{60} :** 0,112	**Uniformity coefficient :** not available		**Curvature coefficient :** not available		Active program : YES			







REMARKS: Dispersivity =19/24 =79%

CHECKED BY : H Schurink

1

ENGEO LAB (Pty) Ltd
Civil & Geotechnical Engineering
Materials Laboratory

FALLING HEAD PERMEABILTY TEST

DATA SHEET

Laboratory reference

Received: 23/October/2020 | Laboratory Project No: 2114 | Laboratory No.: 20-0412

Client information

Client: MBB Consulting Engineers | Reference: 1915

Sample | Position: LC10 | Depth (m): | Rem. or Undisturbed: R

Sample

Orientation - Horizontal / Vertical: | Depth in sample (mm): | Specimen (A, B or C): A

Area of sample = 78,54 cm^2

permeameter diameter [cm]: 10

void height in permeameter [cm]: 0,16

permeameter height [cm]: 11,50

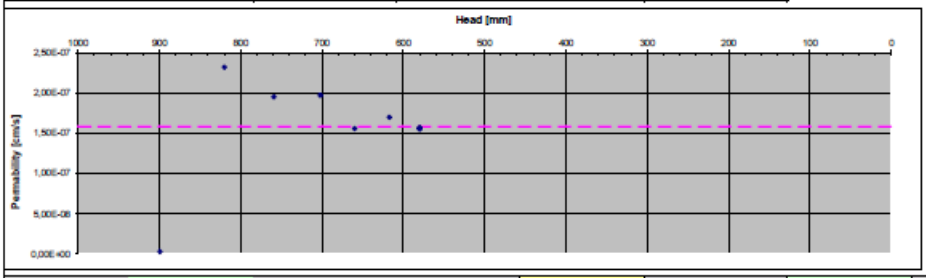
sample height [cm]: 11,34

For multiple test on the same sample - Test#: 1

READINGS

Manometer tube being used: 3 | diameter [mm]: 2,0 | Area of tubes [cm^2]: 0,031

Time		Head	Time		Head
minutes	seconds	[mm]	minutes	seconds	[mm]
0		900			
30		899			
60		820			
90		759			
120		702			
150		660			
180		617			
210		580			



PERMEABILITY (AVG) 1,68E-07 cm/s | Degree of saturation: % | G_s = 0,9975

Post-test

Pan no: | Pan (g): | I

From permeameter: Pan & sample (g): | J | Sample (g): J-I | K

Oven dried: Pan & sample (g): | L | Sample (g): L-I | M | Moisture (%): (M-K)/M

SG if available: | void ratio: | dry density: | kg/m^3

Miscellaneous Tested by: sm | Checked by: hjs | Approved by: hjs

Notes: test undertaken on sample remoulded to 95% Proctor Density at OMC

ENGEO LAB (Pty) Ltd
Civil & Geotechnical Engineering
Materials Laboratory

FALLING HEAD PERMEABILTY TEST

DATA SHEET

Laboratory reference

Received: 23/October/2020 | Laboratory Project No.: 2114 | Laboratory No.: 20-0412

Client information

Client: MBB Consulting Engineers | Reference: 1915

Sample | Position: LC10 | Depth (m): | Rem. or Undisturbed: R

Sample

Orientation - | Horizontal / Vertical: | Depth in sample (mm): | Specimen (A, B or C): A

Area of sample = 78,54 cm^2

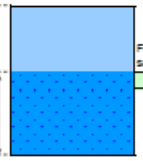
permeameter diameter [cm]: 10

void height in permeameter [cm]: 0,16

permeameter height [cm]: 11,50

sample height [cm]: 11,34

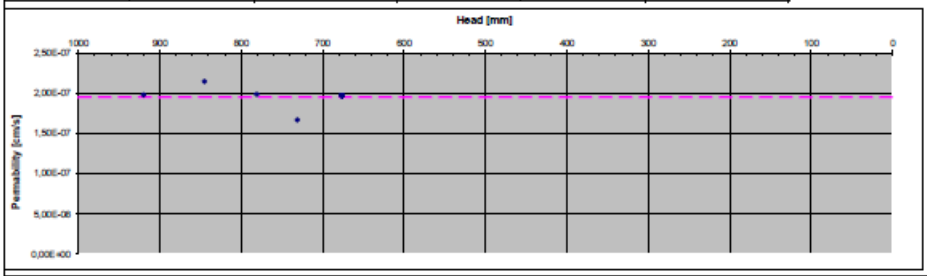
For multiple test on the same sample - Test #: 2



READINGS

Manometer tube being used: 3 | diameter [mm]: 2,0 | Area of tubes [cm^2]: 0,031

Time		Head	Time		Head
minutes	seconds	[mm]	minutes	seconds	[mm]
0		995			
30		920			
60		845			
90		781			
120		731			
150		676			



PERMEABILITY (AVG): 1,86E-07 cm/s | Degree of saturation: % | G_s = 0,9975

Post-test

Pan no: | Pan (g): | I

From permeameter: Pan & sample (g): | J | Sample (g): J-I | K

Oven dried: Pan & sample (g): | L | Sample (g): L-I | M | Moisture (%): (M-K)/M

SG if available: | void ratio: | dry density: | kg/m^3

Miscellaneous

Tested by: sm | Checked by: hjs | Approved by: hjs

Notes: test undertaken on sample remoulded to 95% Proctor Density at OMC

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B		PROJECT :	1915		Date	Job No.	2114
Position :	2-11	Depth [m] :	0	Source :	insitu	14-Oct-20	Sample No.	0413

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	100	99	97	86	78	64	49	44	40	27	15	15	12	12

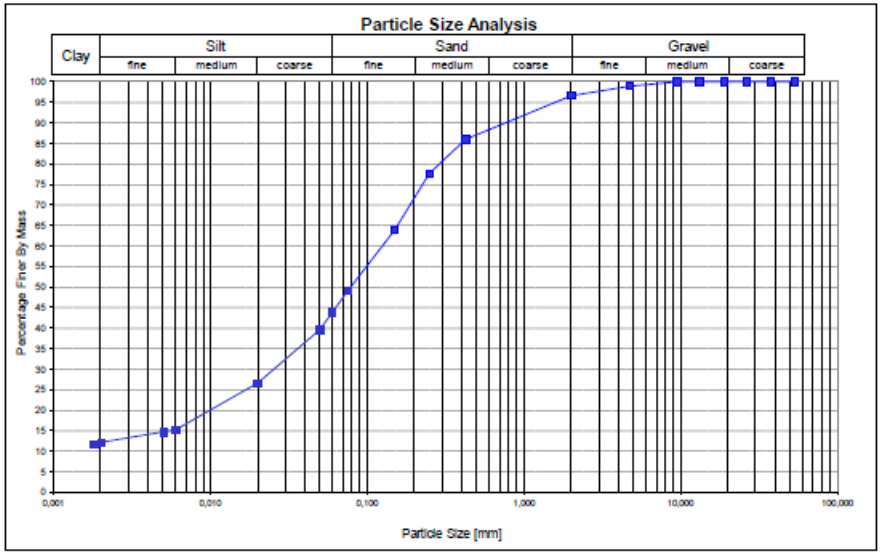
ATTERBERG LIMITS

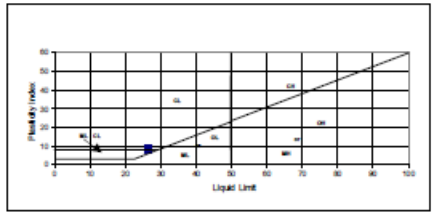
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
26	8	7	4,2	0,68

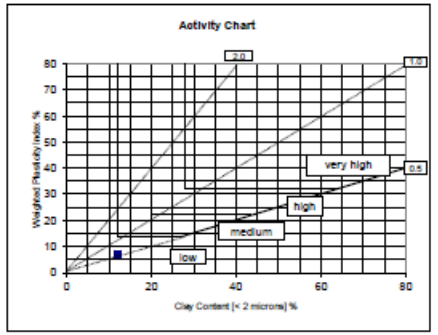
CLASSIFICATION

UNIFIED	PRA	TRH
SC	A-4 (3)	

Soil constituents % :	Clay :	12	Silt :	32	Sand :	53	Gravel :	3	Fines :	86	Soil description :	dark brown	
D_{10} :		D_{30} :	0,026	D_{60} :	0,125	Uniformity coefficient :	not available		Curvature coefficient :	not available	Active program :	YES	







REMARKS: none

CHECKED BY : H Schurink

Engeo Lab (Pty) Ltd
Civil Engineering Materials Laboratory

PROCTOR DRY DENSITY & OPTIMUM MOISTURE CONTENT RESULTS

Tests done according to ASTM D698

Job No.	2114
Client	M.B.B
Project	1915

Date	Sample No.	km / Hole No.
9-Oct-2020	413	2-11

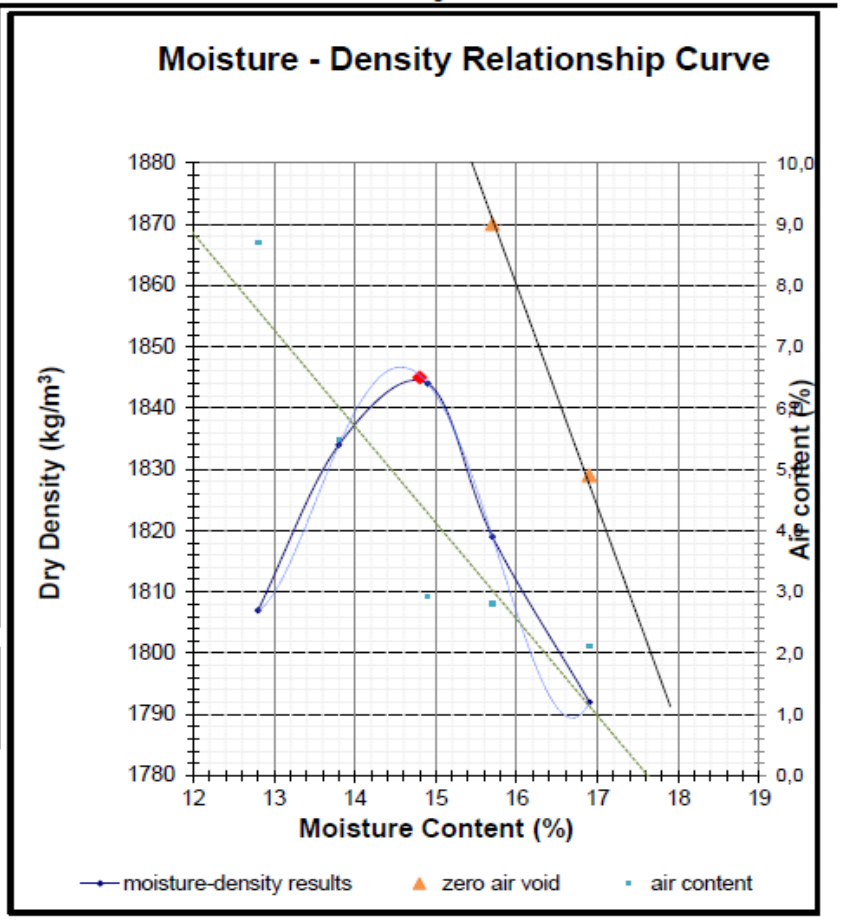
Layer	insitu
% Stab.	0
Material Description	dark brown

Dry Density (kg/m^3)	Moisture Content (%)	Corrected % Moisture
1834	13,8	13,8
1844	14,9	14,9
1819	15,7	15,7
1792	16,9	16,9
1807	0,0	12,8

Proctor Dry Density (kg/m3)	1845
Optimum Moisture Content (%)	14,8

@ MDD:	SG	e	Air content
	2,65	0,436	3,05

REMARKS:



2020/10/14

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Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B			PROJECT :	1915		
Position :	2-3	Depth [m] :	0	Source :	insitu		

Date	Job No.	2114
14-Oct-20	Sample No.	0414

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	88	70	60	53	49	42	35	21	17	14	11	10	9	6	3	3	2	2

ATTERBERG LIMITS

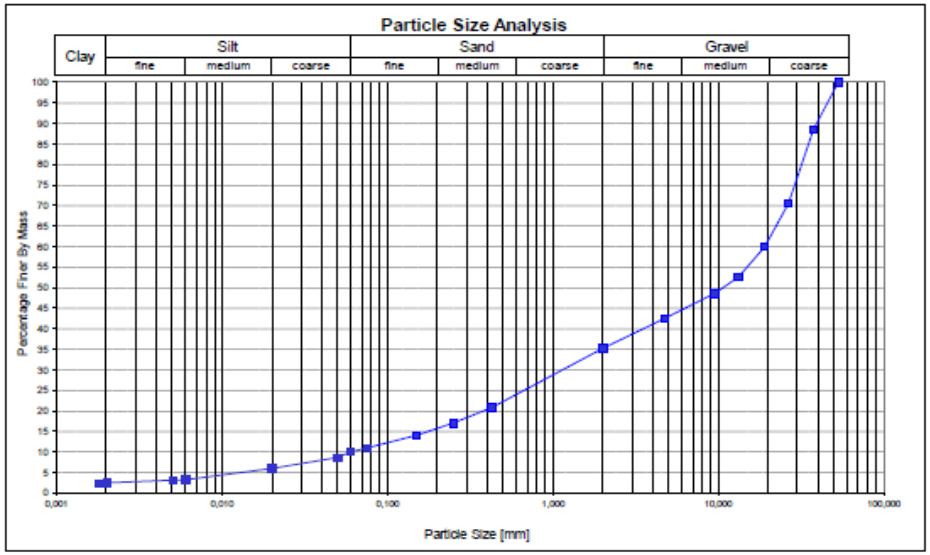
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
28	10	2	4,2	2,33

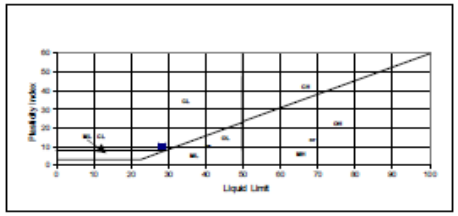
CLASSIFICATION

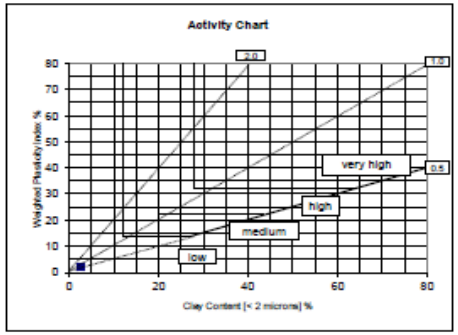
UNIFIED	PRA	TRH
GC	A-2-4 (0)	

Soil constituents % :	Clay :	2	Silt :	8	Sand :	25	Gravel :	65	Fines :	21	Soil description :	light brown

D_{10} :	0,060	D_{30} :	1,145	D_{60} :	19,073	Uniformity coefficient :	318	Curvature coefficient :	1	Active program :	YES







REMARKS: none

CHECKED BY : H Schurink

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Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B	PROJECT :	1915		
Position :	29-A	Depth [m] :	0	Source :	insitu

Date	Job No.	2114
14-Oct-20	Sample No.	0415

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	100	99	98	91	77	56	40	36	34	18	10	10	9	8

ATTERBERG LIMITS

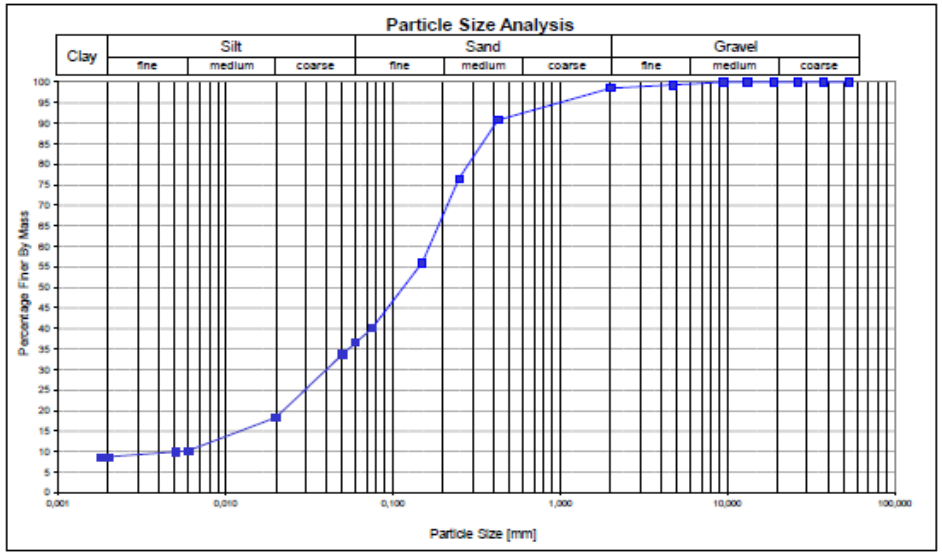
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
20	4	4	1,9	0,71

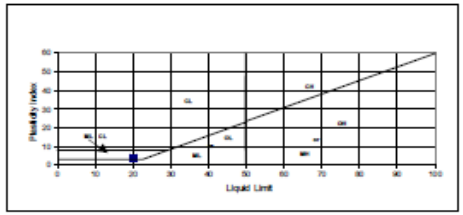
CLASSIFICATION

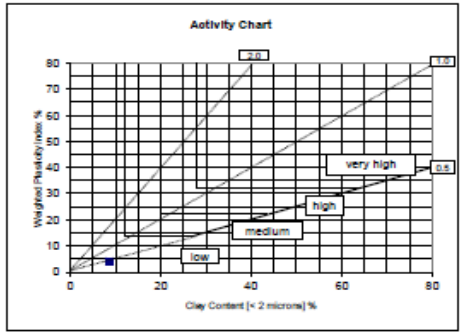
UNIFIED	PRA	TRH
SM	A-4 (1)	

Soil constituents % :	Clay :	9	Silt :	28	Sand :	62	Gravel :	2	Fines :	91	Soil description :	light brown

D_{10} :	0,005	D_{30} :	0,040	D_{60} :	0,166	Uniformity coefficient :	31	Curvature coefficient :	2	Active program :	YES







REMARKS: none

CHECKED BY : H Schutnik

Engeo Lab (Pty) Ltd
Civil Engineering Materials Laboratory

PROCTOR DRY DENSITY & OPTIMUM MOISTURE CONTENT RESULTS

Tests done according to ASTM D698

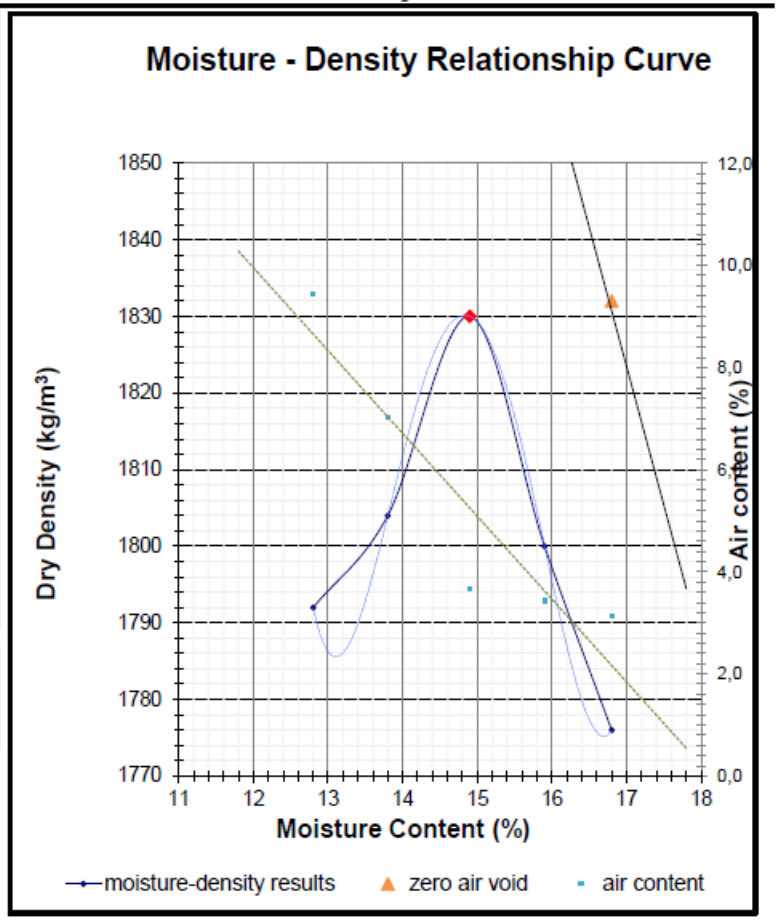
Job No.	2114	
Client	M.B.B	
Project	1915	
Date	Sample No.	km / Hole No.
9-Oct-2020	415	29-A
Layer	insitu	
% Stab.	0	
Material Description	light brown	

Dry Density (kg/m^3)	Moisture Content (%)	Corrected % Moisture
1792	12,8	12,8
1804	13,8	13,8
1830	14,9	14,9
1800	15,9	15,9
1776	0,0	16,8

Proctor Dry Density (kg/m3)	1830
Optimum Moisture Content (%)	14,9

@ MDD:	SG	e	Air content
	2,65	0,448	3,67

REMARKS:



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CONSTANT HEAD PERMEABILITY TEST

DATA SHEET

Laboratory reference

Received: 23/October/2020 | Laboratory Project No: 2114 | Laboratory No.: 20-0411

Client information

Client: MBB Consulting Engineers | Reference: 1915

Sample | Position: 29-A | Depth (m): | Rem. or undisturbed: R

Sample

Orientation - horizontal/vertical: V | Depth in sample (mm): | Specimen (A, B or C): A

Area of sample = 78,54 cm^2

permeameter diameter [cm]: 10

height of void [cm]: 0,15

permeameter height [cm]: 11,5

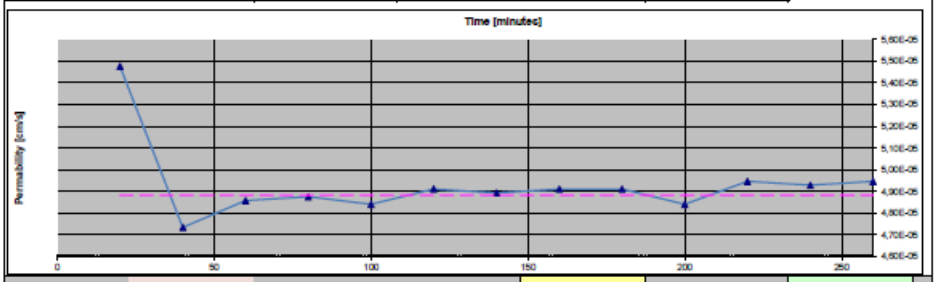
sample height [cm]: 11,35

For multiple test on the same sample - Test #:

READINGS

Manometer tube being used : | diameter [mm] : | Area of tubes [cm^2]: 0,298

Time		Weight	Time		Weight	Container Weight
minutes	seconds	[g]	minutes	seconds	[g]	[g]
20	0	1062	180	0	998	442,0
40	0	978	200	0	990	
60	0	992	220	0	1002	Head (cm)
80	0	994	240	0	1000	1360,0
100	0	990	260	0	1002	
120	0	998		0		
140	0	996		0		
160	0	1000		0		



PERMEABILITY 4,88E-05 cm/s | Degree of saturation : % | G_w = 0,9975

(Permeability to be estimated either using average of adjacent tabulation, or entering a value for the line best fitting the data to be used)

Post-test

Pan no: P18 | Pan (g): 22,8 I

From permeameter: Pan & sample (g): 53,5 J | Sample (g): 30,7 K

Oven dried: Pan & sample (g): 48,4 L | Sample (g): 25,6 M | Moisture (%): 19,92%

SG if available: 2,62 | void ratio: | dry density: | kg/m^3

Miscellaneous

Tested by: | Checked by: | Approved by:

yyyy / mm / dd | yyyy / mm / dd | 2016.02.17

Notes: sampled remoulded to 90 % Proctor density at optimum moisture content

EngeoLab (Pty) Ltd
Civil Engineering Materials Laboratory

FOUNDATION INDICATOR TEST RESULT

Tests undertaken in terms of TMH 1 Methods: A1a, A2, A3, A4, A5

CLIENT:	M.B.B	**PROJECT :**	1915		
Position :	LC24	**Depth [m] :**	0	**Source :**	insitu

Date	**Job No.**	2114
14-Oct-20	**Sample No.**	0416

SIEVE ANALYSIS (% PASSING)

53.0mm	37.5mm	26.5mm	19.0mm	13.2mm	9.5mm	4.75mm	2.0mm	0.425mm	0.250mm	0.150mm	0.075mm	0.060mm	0.050mm	0.020mm	0.006mm	0.005mm	0.002mm	0.0018mm
100	100	100	100	100	100	100	100	89	75	56	40	37	34	19	11	11	9	9

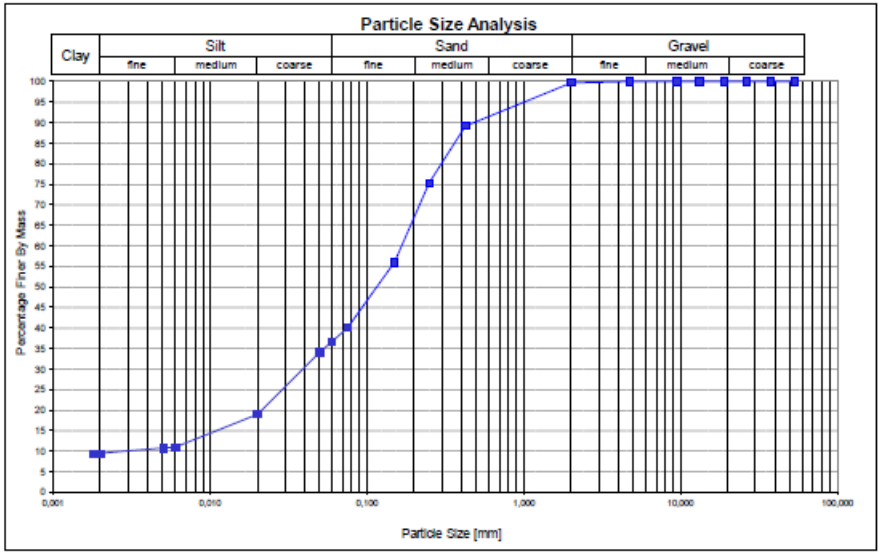
ATTERBERG LIMITS

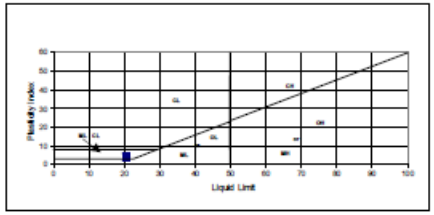
Liquid Limit	Plasticity Index	PI (weighted)	Linear Shrinkage	Grading modulus
20	4	4	1,6	0,71

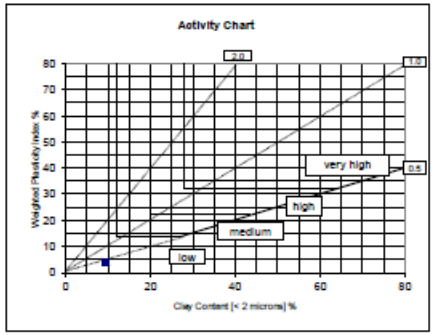
CLASSIFICATION

UNIFIED	PRA	TRH
SM/SC	A-4 (1)	

Soil constituents % :	**Clay :**	9	**Silt :**	27	**Sand :**	63	**Gravel :**	0	**Fines :**	89	**Soil description :**	dark brown	
D_{10} :	0,003	D_{30} :	0,039	D_{60} :	0,167	**Uniformity coefficient :**	54		**Curvature coefficient :**	3	Active program :	YES	







REMARKS: none

CHECKED BY : H Schurink

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www.labserve.net

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Test Report - Soil Analysis

MBB Consulting Services Nelspruit
P.O Box 498
Nelspruit

Samples received: 2020-09-29
Sampling date: Unknown
Sampled by: Unknown
Report # : A21-03009
Order #: 04561
Acc # : X139

Sample(s) received: 2 x soil sample(s)
Sample condition: Average
Sub-contractor: None

LAB No.		A21-03009	A21-03010
Your Reference		29A	24
Parameter:	**Unit:**	**Results:**	**Results:**
Organic Matter as C	%	0.11	0.14

* P = Ambic 1 Extraction method.

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Test Report - Soil Analysis

Report # : A21-03009

		Optimum Range for Soil
pH (KCl)	pHunit	5.2-6.5
Calcium as Ca	mg/kg	> 200
Magnesium as Mg	mg/kg	> 60
Potassium as K	mg/kg	> 40
Sodium as Na	mg/kg	-
"S" Value	me%	-
Ca Ratio	me%	55-75
Mg Ratio	me%	18-30
K Ratio	me%	6-10
Na Ratio	me%	< 2.0
Phosphorus as P*	mg/kg	20-80
Zinc as Zn	mg/kg	2-10
Copper as Cu	mg/kg	1-10
Manganese as Mn	mg/kg	10-250
Iron as Fe	mg/kg	10-250
Organic Matter as C	%	> 0.75

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Test Report - Soil Analysis

MBB Consulting Services Nelspruit
P.O Box 498
Nelspruit
1200

Acc # : X139
Order #: 4561
Sample condition: Average

Report #: A21-03011
Samples received: 2020-09-29
Sampling date: Unknown
Testing date: 2020-10-01

		pH	Exchangeable cations				P	Zn	Cu	Mn	Fe	B	B**	S	Al	Mo
		(KCl)	Na	K	Ca	Mg	(Ambic1)									
LAB No.	Sample Name	pH Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
A21-03011	2-1	6.74	171	156	2957	1177	0.7	0.2	1.8	10.5	9.7	NR	NR	NR	NR	NR
A21-03012	2-9	6.42	84	101	2167	278	3.9	0.5	3.2	19.2	27.5	NR	NR	NR	NR	NR
A21-03013	2-11	6.50	63	95	2479	343	5.3	0.2	5.2	25.2	33.0	NR	NR	NR	NR	NR
A21-03014	LC10	6.78	558	152	855	1401	1.9	0.3	1.2	13.3	20.7	NR	NR	NR	NR	NR
A21-03015	LC26	5.28	143	77	1714	384	3.4	0.2	4.2	25.3	52.0	NR	NR	NR	NR	NR

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Test Report - Soil Analysis

MBB Consulting Services Nelspruit
P.O Box 498
Nelspruit
1200

Acc # : X139
Order #: 4561
Sample condition: Average

Report #: A21-03011
Samples received: 2020-09-29
Sampling date: Unknown
Testing date: 2020-10-01

		Exchangeable cations				T-Value*	Acid saturation*	"S" Value*	Ca Ratio	Mg Ratio	K Ratio	Na Ratio	Effective CEC*
		Na	K	Ca	Mg								
LAB No.	Sample Name	cmol/kg	cmol/kg	cmol/kg	cmol/kg	cmol/kg	%	me%	me%	me%	me%	me%	cmol/kg
A21-03011	2-1	0.74	0.40	14.78	9.80	25.73	-	25.7	57	38	1.6	2.9	25.7
A21-03012	2-9	0.37	0.26	10.84	2.32	13.78	-	13.8	79	17	1.9	2.7	13.8
A21-03013	2-11	0.27	0.24	12.40	2.86	15.77	-	15.8	79	18	1.5	1.7	15.8
A21-03014	LC10	2.43	0.39	4.27	11.67	18.76	-	18.7	23	62	2.1	12.9	18.8
A21-03015	LC26	0.62	0.20	8.57	3.20	12.59	-	12.6	68	25	1.6	4.9	12.6

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Test Report - Soil Analysis

MBB Consulting Services Nelspruit
P.O Box 498
Nelspruit
1200

Acc # : X139
Order #:
Sample condition: Average

Report #: A21-03011
Samples received: 2020-09-29
4561 Sampling date: Unknown
Testing date: 2020-10-01

		C	H+ (Eksteen)	EC	CEC	N	Cl
LAB No.	Sample Name	%	cmol/kg	mS/cm	cmol/kg	mg/kg	mgkg
A21-03011	2-1	NR	-	0.617	12.61	NR	NR
A21-03012	2-9	NR	-	0.414	5.67	NR	NR
A21-03013	2-11	NR	-	0.370	7.78	NR	NR
A21-03014	LC10	NR	-	0.867	10.17	NR	NR
A21-03015	LC26	NR	-	0.308	8.23	NR	NR

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A member & participant of the SABS Water-Check Scheme, the National Laboratory Association's Microbiology Scheme, and Agrilasa's Interlaboratory Control Scheme

Additional Information

Soil Optimum Range		
	Unit	Range
pH (KCl)	pH unit	5.2 - 6.5
Al	mg/kg	< 30
B	mg/kg	1 - 4
Ca	mg/kg	> 200
Cu	mg/kg	1 - 10
Fe	mg/kg	10 - 250
K	mg/kg	> 40
Mg	mg/kg	> 60
Mn	mg/kg	10 - 250
P (Ambic 1)	mg/kg	20 - 80
S	mg/kg	15 - 40
Zn	mg/kg	2 - 10
Ca Ratio	me%	55 - 75
Mg Ratio	me%	18 - 30
K Ratio	me%	6 - 10
Na Ratio	me%	< 2.0
C	%	> 0.75

*Calculations:

"T" Value = Na + K + Ca + Mg + H+ (in cmol/kg)

Acid Saturation = (cmol/kg H^+ / cmol/kg T-Value) x 100

Effective CEC = K + Ca + Mg + Na (in cmol/kg)

**The reported values were converted to a hot water extraction equivalent from calcium phosphate extraction values.

	Na (mg/kg)	Na (cmol/kg)	Na+ (meq/kg)	Ca (mg/kg)	Ca (cmol/kg)	Ca2+ (meq/kg)	Mg (mg/kg)	Mg (cmol/kg)	Mg2+ (meq/kg)	K (mg/kg)	K (cmol/kg)	K (meq/kg)	SAR	ESP
A21-03011	171	0.7434783	0.0743478	2957	14.785	0.73925	1177	9.647541	0.482377	156	0.4	0.04	0.6729342	5.5650617
A21-03012	84	0.3652174	0.0365217	2167	10.835	0.54175	278	2.2786885	0.1139344	101	0.2589744	0.02589744	0.451487	5.0858593
A21-03013	63	0.273913	0.0273913	2479	12.395	0.61975	343	2.8114754	0.1405738	95	0.2435897	0.02435897	0.3144425	3.3730057
A21-03014	558	2.426087	0.2426087	855	4.275	0.21375	1401	11.483607	0.5741803	152	0.3897436	0.03897436	2.7316974	22.684026
A21-03015	143	0.6217391	0.0621739	1714	8.57	0.4285	384	3.147541	0.157377	77	0.1974359	0.01974359	0.8128892	9.3103355

ESP = Exchangeable {(Na)/(Ca + Mg + K + Na)} x 100

SAR = Na*0,0435/SQRT((Ca*0,0499 + Mg*0,08226)/2)

mg/kg to cmol/kg
https://www.scu.edu.au/media/scueduau/eal/documents/Agricultural-soil-methods7b60.pdf

cmol/kg to meq/100g
https://www.agronomy.org/files/publications/jnrlse/pdfs/jnr014/014-02-0084.pdf

ROUTE 1 - PH<7.8

Dam No	Test No	pH	pH < 7.8	Conductivity (µS/cm)	Conductivity > 250µS/cm	SAR	DISPERSIVITY
2	TP2-1	6.74	Yes	617	Yes	0.67	Non Dispersive
2	TP2-9	6.42	Yes	414	Yes	0.45	Non Dispersive
2	TP2-11	6.5	Yes	370	Yes	0.31	Non Dispersive
2	TP10	5.78	Yes	867	Yes	2.73	Non Dispersive
2	TP26	5.28	Yes	308	Yes	0.81	Non Dispersive