Traffic Impact Statement

PROPOSED CONSENT USE APPLICATION TO ESTABLISH A SAND MINE ON PORTION 2 MATJIESKUIL 733, PAARL FARMS (VDWPH)

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October 2022

Summary Sheet

Report Type:	Traffic Impact Statement
Title:	Traffic Impact Statement Report for proposed consent use application to establish a sand farm on Portion 2 Matjieskuil no 733, Paarl Farms (VDWPH)
Location:	Portion 2 Matjieskuil no 733, Paarl Farms
Client:	VDW Plant Hire Pty Ltd
Reference Number:	TJ2217
Project Team:	Mr Stephen Fautley (Pr Tech Eng – Reg 200270171), Mr Theo Ferreira
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Date:	27 October 2022
Report Status:	DRAFT
File Name:	https://techsosmartsolutions-my.sharepoint.com/personal/steve_techso_co_za/Documents/TECHSO/Projects/Projects 2022/TIS - VDWPH sand mine Matjieskuil/Final/TIS - Sandmine VDWPH (20221027).docx

This traffic impact study has been prepared in accordance with the National Department of Transport's Guidelines for Traffic Impact Studies' PR93/635 (1995) by a suitably qualified and registered professional Traffic Engineering Technologist. Details of any of the calculations on which the results in this report are based will be made available on request.

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1 PURPOSE OF REPORT

This Traffic Impact Statement (TIS) Report considers the traffic impact of the existing access on the R304 serving the proposed sand mine (VDWPH) located on Portion 2 of Farm Matjieskuil 733, Paarl Farms, and particular attention is given to trip generation, turning lane warrants and shoulder, and stopping sight distance.

2 LOCATION

The subject property is located to the west of the R304 and approximately 3.00 km north of the N1.

Figure 1 – Regional Context

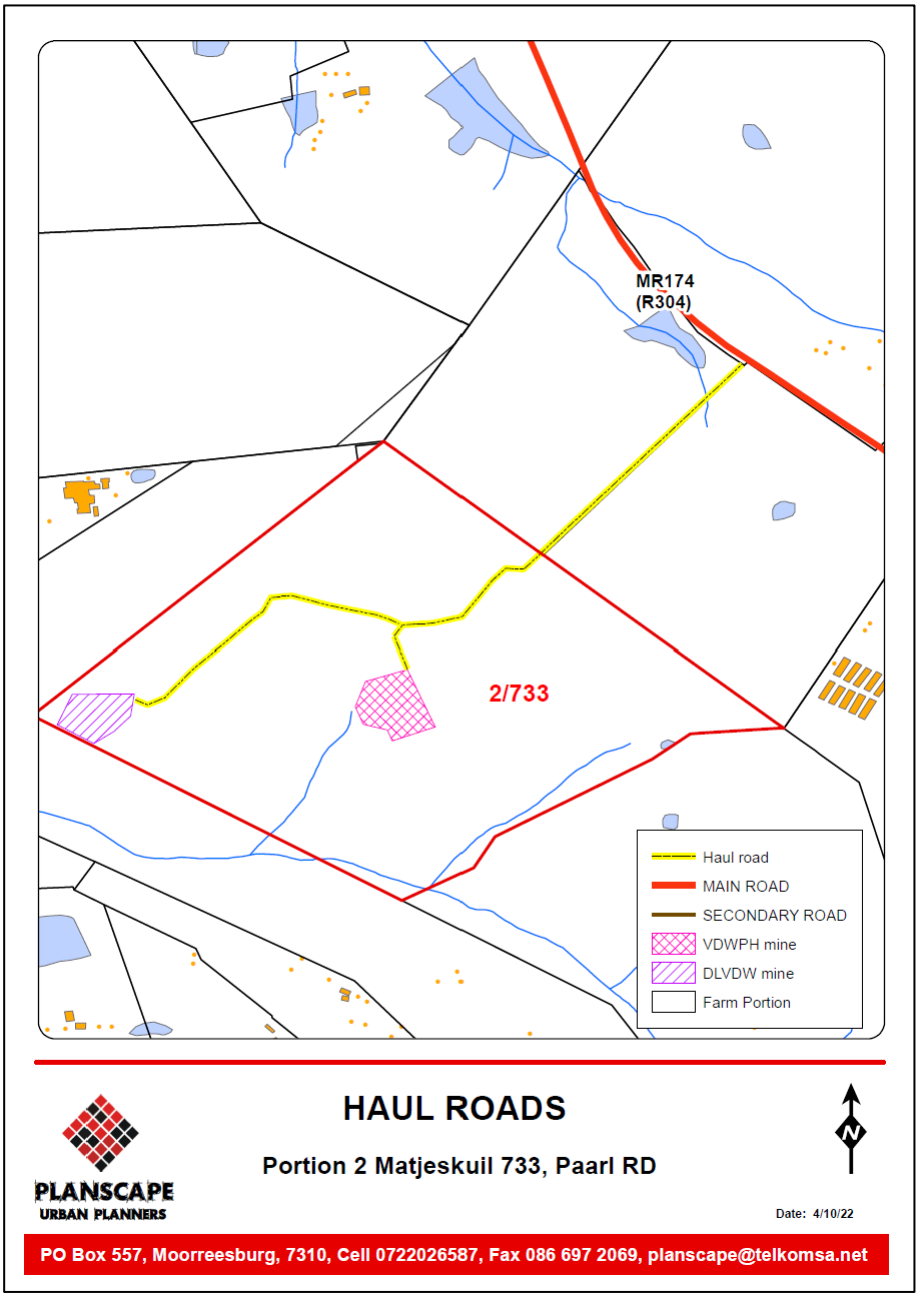

Figure 2 – Local Context (Sand mines VDWPH (and DLVDW) on Portion 2 of Matjieskuil 733, Paarl Farms)

3 SURROUNDING ROAD NETWORK

The R304 is a Primary Arterial (Class 2) District Distributor Road, with a 100 km/h speed limit, in the vicinity of the subject property.

The R304 is a north-south orientated route, between Stellenbosch Township to the south and Malmesbury Township to the north and has an interchange access to the N1 approximately midway between the two towns.

The R304 is a two-lane road and the road section in the vicinity of the site is in a Rural roadside environment.

As such the site enjoys good access to the metropolitan road network.

4 EXISTING AND PROPOSED DEVELOPMENT

It is proposed to establish a Sand Mine (VDWPH) on a 5,00-ha portion of Portion 2 Matjieskuil 733, Paarl Farms (see **Figure 3**).

The existing land development is typically rural / farming in nature, with typical low traffic volumes.

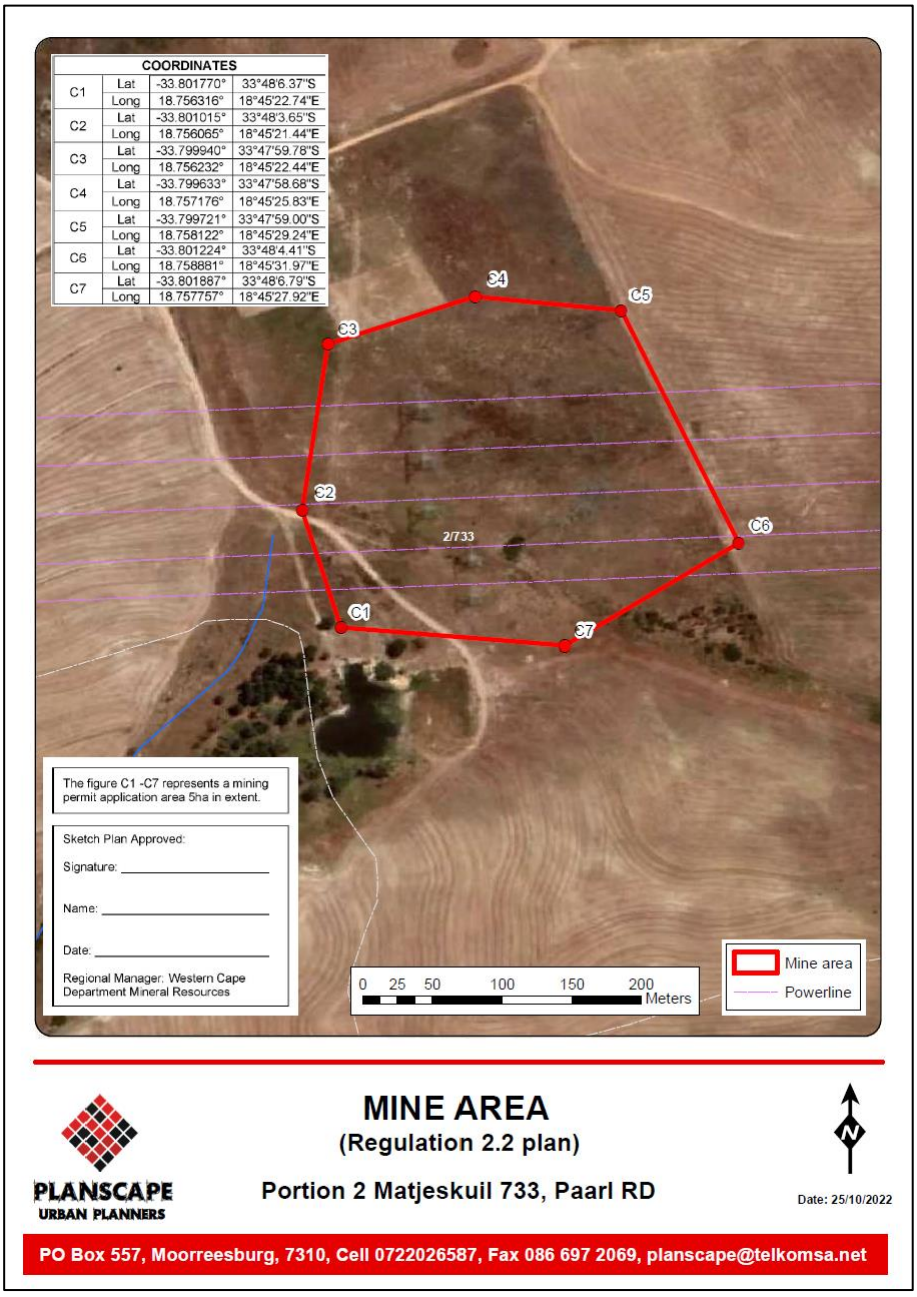

Figure 3 – VDWPH Sand Mine Area

5 ACCESS SIGHT LINES

Site access on R304 is located on the outside of a curve with good shoulder sight distance in each direction (exceeding the required 380 m for trucks) (see **Pic 1 to 4** below taken on 2022/10/20).

The stopping sight distance on the R304 approaches to the access exceeds the minimum 185 m and is adequate.

Pic 1 - Looking right (towards N1) from access (sight distance good)

Pic 2 - Looking left from access (sight distance good)

Pic 3 - Looking at access from access bell mouth on R304

Pic 4 - Looking at farm access on R304

6 ACCESS TREATMENT

To reduce carry of gravel onto the R304, the access on the R304 should be hard surfaced for at least 15 metres from the R304 premix road edge.

7 TRIP GENERATION

The volume of sand to be mined over a five-year period is approximately 55 000 m^3.

Assuming all sand is mined over a period of five years and transported by 10m^3 trucks, this activity will generate 11 000 truck trips (split 50% in / 50% out) over five years. The trip generation is therefore some 8.3 (say 8) trips per day (4 in / 4 out), assuming 22 working days in a month.

These trips will have a negligible traffic impact and should be accommodated at the access and on the surrounding road network with ease.

8 INTERSECTION ANALYSIS

Intersection analysis should be undertaken where a development is expected to generate 50 vehicle trips in the peak hour. The expected peak hour trips are negligible and therefore does not warrant analysis.

9 CUMULATIVE TRIPS

There are existing and proposed sand mines on Portion 2 Matjieskuil 733 and on Portion 2 Hercules Pilaar 1242. These sand mines utilise the same haul road with access on the R304 (see **Figure 4**).

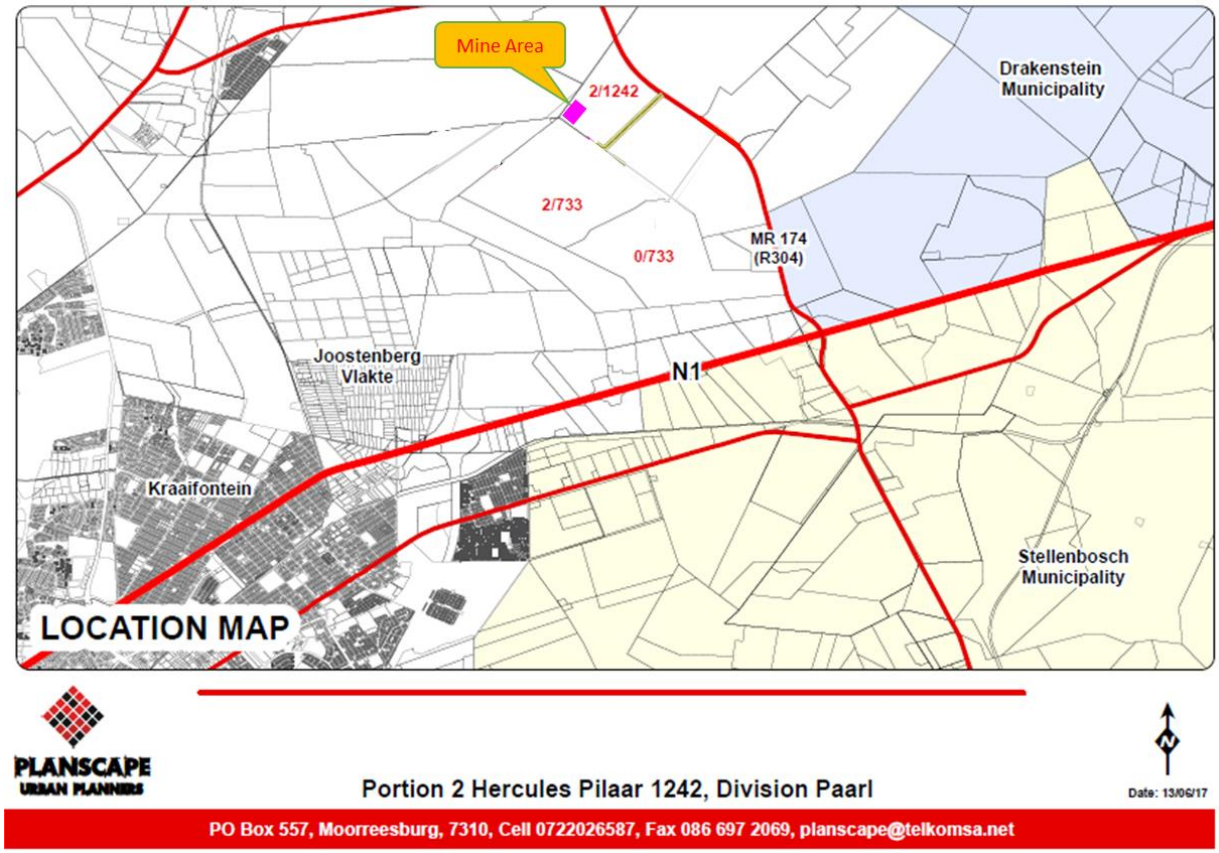

Figure 4 – Portion 2 Herculus Pilaar 1242 Location Map

Sand Mines on Portion 2 Matjieskuil 733

The two sand mines proposed on Portion 2 Matjieskuil 733 will operate consecutively. The subject VDWPH sand mine will only become operational after the DLVDW sand mine is mined out, therefore the DLVDW sand mine will have no impact on cumulative trips, as shown in **Table 1** below.

Sand Mines on Portion 2 Hercules Pilaar 1242

There is an existing operational sand mine and a proposed sand mine on Portion 2 Hercules Pilaar 1242. These two sand mines will operate consecutively. Only the operations of the proposed sand mine on Portion 2 Hercules Pilaar will overlap with the subject VDWPH sand mine which will have an impact on cumulative trips. The highest average number of cumulative trips is 12 trips (6 in/6 Out) per day, as shown in **Table 1** below.

Table 1 – Cumulative Trips

Cumulative Trips															
Farm	Mine	Operational Years	Trips/Day	Order of Operations (Trips/Day per Year)											
				Existing	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2/733 Matjieskuil	VDWPH*	5	8							8	8	8	8	8
2/733 Matjieskuil	DLVDW	4	4			4	4	4	4					
2/1242 Hercules Pilaar	Existing	3	8	8	8	8	8							
2/1242 Hercules Pilaar	Proposed	5	4					4	4	4	4	4		
Total					**8**	**12**	**12**	**8**	**8**	**12**	**12**	**12**	**8**	**8**

* For this application

These cumulative trips will have a negligible traffic impact and should be accommodated at the access and on the surrounding road network with ease.

10 TURNING LANE WARRANTS

The Western Cape Government Access Management Guidelines of September 2020 (see Section 13, Reference No. 2) contains guidelines for turning lanes. **Table 2** below shows the key risk elements when considering for the turning movements at the haul road access on the R304.

Table 2 – Key Risk Considerations in Rural and Semi-Rural Areas

Criteria	Data
Key Risk Considerations in Rural and Semi-Rural Areas	
■ Rear-end collisions, particularly in instances where a driver who is unfamiliar with the road brakes unexpectedly to turn into an access, or only indicates his intention very late;	The access is clearly visible to motorists, and truck drivers transporting sand will be familiar with the site and access. The access has a low traffic flow
■ Right angle collisions: where there are high volumes of turning traffic and following vehicles cannot pass on the left, right-turning drivers may feel pressured to take very short gaps;	Following vehicles can pass right-turn vehicles by encroaching on the premix shoulder.
■ Drivers passing on the left where pedestrians, cyclists or slow/stationary vehicles in the shoulder are not clearly visible due to overcast/rainy weather, darkness or deep shade. Sudden stops by vehicles wanting to turn may also force following vehicles into the shoulder to avoid a rear-end collision.	The location of the site is in a rural area where there should be no cyclists or pedestrians or slow-moving vehicles in the shoulder, thereby freeing up use of the road shoulder for passing opportunities. Also, the road section is level and the road and shoulder is clearly visible to approaching vehicles.

The site is located in a rural area, 3.00 km north of the N1, where there are negligible to nil cyclists or pedestrians or slow-moving vehicles in the road shoulder, thereby freeing up use of the 2,0m wide road shoulder for passing opportunities.

The R304 (MR174) approaches to the sand mine access is level with good visibility of approaching vehicles.

Low traffic volumes are anticipated at the access on the R304 (MR174). Truck drivers transporting sand should be familiar with the access and there should be no need for sudden braking at the access.

The proposed sand mine trips will not add any significant trips to the existing access traffic and therefore deceleration lanes and turning lanes are not warranted.

11 CONCLUSIONS

It is concluded that:

1. The site has access on the R304, a Class 2 metropolitan road, located in a rural roadside environment.
2. The R304 is a two-lane road with a 100 km/h speed limit and is in good condition.
3. The existing agricultural land use development has a typical low trip generation.
4. The proposed sand mine will generate a low volume of truck trips, approximately 8 trips per day (4 Trips In / 4 Trips Out) and will have a negligible impact on traffic.
5. The maximum number of cumulative trips per day are approximately 12 trips (6 Trips In / 6 Trips Out) and will have a negligible impact on traffic.
6. The low development trips, wide surfaced road shoulders, low pedestrian, and cycle traffic do not warrant deceleration or turning lanes at the access.
7. The access has more than adequate shoulder sight distance.
8. Stopping sight distance on the R304 approaches to the access is good.
9. The access on the R304 is not hard surfaced and could lead to the deposit of gravel material onto the R304.
10. The current levels of service at the access are maintained and the safety of the general road user is not adversely affected.

12 RECOMMENDATIONS

It is recommended that:

The application for consent to establish a sand mine on the subject property be favourably considered subject to:

1. The last 15 m of the access leading to the R304 should be hard surfaced, to reduce materials carry onto the R304.

13 REFERENCES

1. Department of Transport, Guidelines for Traffic Impact Studies, Report No. PR93/635, Pretoria, 1995.
2. Committee of Transport Officials, South African Traffic Impact and Site Traffic Assessment Manual, TMH 16 Volume 1, August 2012.
3. Committee of Transport Officials, South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual, TMH 16 Volume 2, February 2014.
4. Western Cape Government Road Access Guidelines - September 2020
5. TRH 17 – Geometric Design of Rural Roads - 1988
6. City of Cape Town Planning By-law - 2019
7. City of Cape Town Public Right of Way – Plan RD-1.1 - August 2013
8. Committee of Transport Officials – Technical Method for Highways 17 Volume 1 July 2020
9. Techso TIS - Traffic Impact Statement Report for proposed consent use application to establish a sand mine on Portion 2 Hercules Pilaar 1242, Paarl Farms - Ref TJ2003 dated 30 September 2021
10. Techso TIS - Traffic Impact Statement Report for proposed consent use application to establish a sand mine on Portion 2 Hercules Pilaar 1242, Paarl Farms - Ref TJ2003 dated 02 March 2022