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Final Traffic Study

For the proposed establishment of a Memorial Park on the Remainder of Farm Louw's Bos No. 502, Stellenbosch

Project No. : STUR0216

APRIL 2019

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25 April 2019	Final	NAME Sarah Larratt, Pr. Tech Eng	NAME Barend du Preez, Pr. Eng
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TITLE:
TRAFFIC IMPACT ASSESSMENT FOR THE PROPOSED LOUW'S BOS MEMORIAL PARK

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SYNOPSIS:
This report assesses the key transportation issues pertaining to the development of the proposed memorial park on the Remainder of Farm Louws Bos No. 502, Stellenbosch.

SUMMARY SHEET

Report Type	Final Traffic Study
Title	Louw's Bos Memorial Park
Location	Stellenbosch, Western Cape
Client	CK Rumboll & Partners
Reference Number	STUR0216
Project Team	Sarah Larratt
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Date	April 2019
Report Status	Final

This transport impact assessment has been prepared by a suitable qualified and registered professional traffic engineer. Details of any of the calculations on which the results of this report are based will be made available on request.

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ACRONYMS

TIA – Traffic Impact Assessment

SDP – Site Development Plan

LOS – Level of Service

PHF – Peak Hour Factor

NMT – Non-motorised Transport

RNIS – Road Network Information System

AM – Morning

PM – Afternoon

d – Average delay in seconds

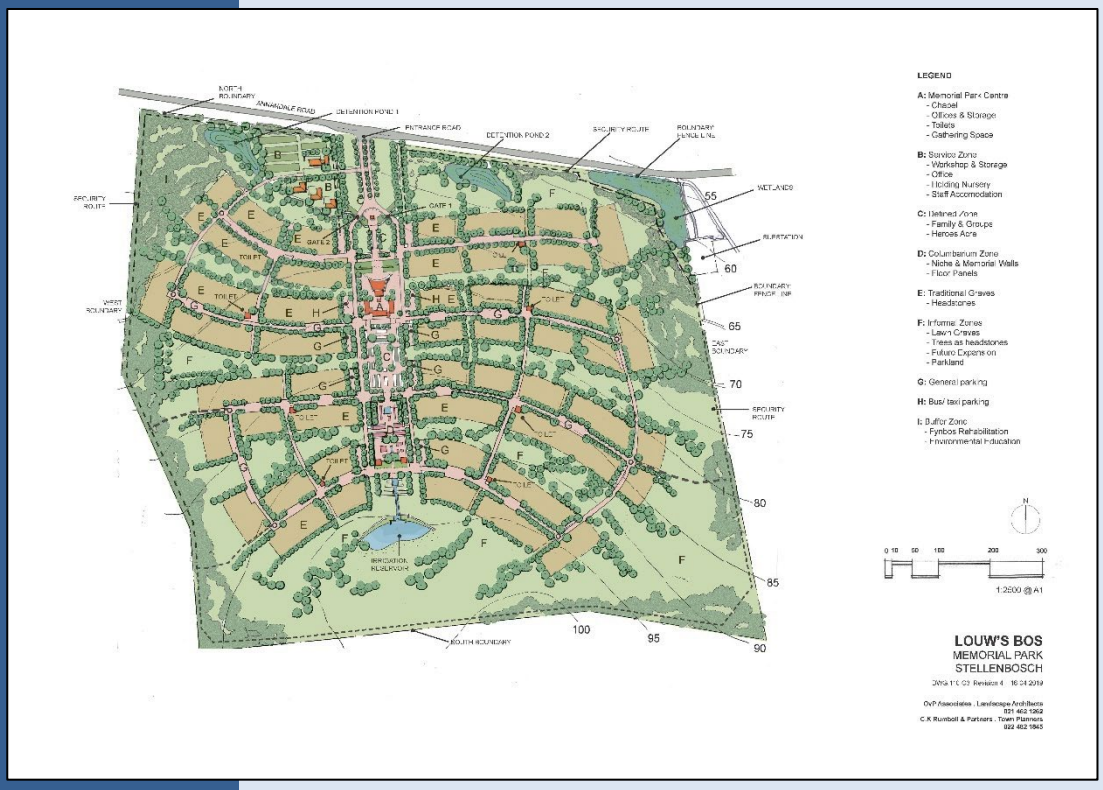
v/c – Volume/capacity ratio

vph – vehicles per hour

Traffic Study

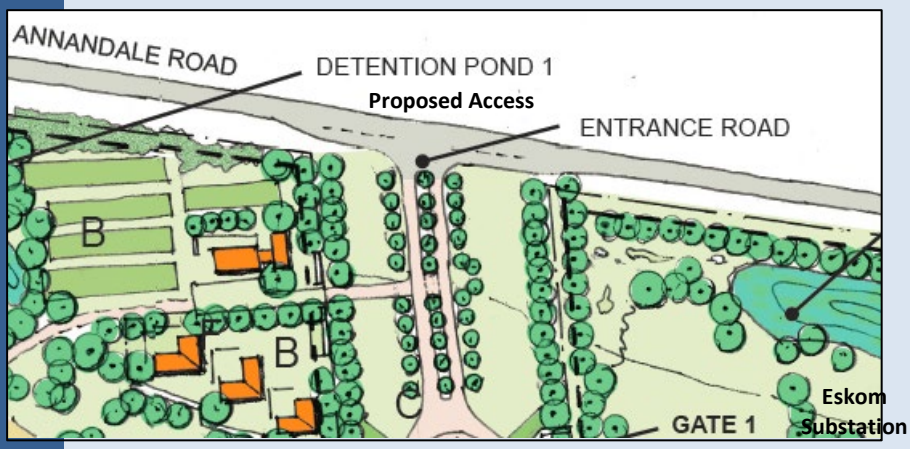
For the proposed development of a memorial park on the Remainder of the Farm Louw's Bos No. 502, Stellenbosch

1. Purpose of Report	To determine the access location and expected transport related impacts of the proposed development on the surrounding road network. This TIA is submitted as part of the application for the proposed development of the Louw's Bos Memorial Park.
2. Locality *Reference: Figure 1*	Remainder Farm Louw's Bos No. 502, Stellenbosch, Western Cape. **Description:** The subject property is located approximately 9 km north of Stellenbosch and borders Annandale Road (DR1050) to the south.
3. Scope of Work	The scope of work included in this TIA covers the following traffic engineering aspects: • Site observations; • Existing and proposed development; • Access arrangements; • Existing and future road network planning; • Existing traffic flows in the vicinity of the development; • Trip generation of the proposed development; • Traffic flow analysis; • Recommended road upgrades if necessary; • Non-motorised transport (NMT); • Public transport; and • Parking requirements.
4. Existing and Proposed Development *Reference: Figure 2*	The proposed development site comprises approximately 70 ha of vacant land. The proposed memorial park will entail the facilities as indicated on the proposed Site Development Plan (SDP) below (Refer to **Figure 2** for a larger copy of the SDP). The area that will be used for the actual cemetery uses includes: • Memorial Park Centre - ±0.64 ha • Defined Zone - ± 1.38 ha • Columbarium Zone - ± 0.75 ha • Traditional Graves ± 19.97 ha • (Informal Zone) Lawn graves, Trees as headstones and future expansion of cemetery uses: ± 11.79 ha **Total size: ± 34.53 ha**



5. Land Use *Reference: Figure 2*	Existing Use: Vacant Proposed Use: Memorial Park (Cemetery) Refer to **Figure 2** for a copy of the latest SDP.
6. Existing and Proposed Access	Existing Access: There is currently an existing access at KM2.94 (RHS) that serves an existing ESKOM Substation from DR1050 as well as farm worker's houses located on Farm 557 to the east. Proposed Access: The design speed for Annandale Road (DR1050) is 100km/h which requires a shoulder sight distance of 200m for a passenger vehicle and a stopping sight distance of 155m. The proposed access to the memorial park will be located approximately 445m east of OP5202 on Annandale Road (DR1050) providing a full access

with a right turn lane for traffic coming from Baden Powell Drive and a left turn deceleration lane.



7. Existing Roadways

Annandale Road (DR1050): Annandale Road is very important Class 3 Minor Arterial between Baden Powell Drive (MR168) (R310) and the R44 (MR27) and carries approximately 8 000 vehicles per day which is expected to increase significantly once the current upgrade is completed. The posted speed limit is 100km/h. The Provincial Government is the Road Authority for the DR1050.

8. Future Road Network

Annandale Road (DR1050) is currently being rehabilitated under the Provincial Contract Number (C0921) which includes the section through Farm 502. The contract includes the reconstruction of DR1050 to a standard that includes shoulders and a Non-Motorised Transport (NMT) lane (2m wide) along the northern road reserve boundary.

There are no other known major road upgrading in the vicinity of the site.

9. Analyses Hours	It was assumed that the worst case would be when a funeral takes place on a weekday midday when the traffic flow between the R44 is the highest for a midday. Saturday midday traffic flows are assumed to be around 10% lower than for a weekday, although more funerals take place over a weekend.
10. Scenarios Analysed	• 2019 Present Traffic Demand plus Development (**Figures 3 & 4**) • 2024 Background Traffic Demand plus Development (**Figures 5 & 6**) Intersection analyses were done using latest SIDRA Intersection software (version 8).
11. Study Intersections	The proposed cemetery access intersection located approximately 445m east of OP5202 on Annandale Road (DR1050).
12. Existing Operations	The Road Network Information System (RNIS) operated by Western Cape Department of Transport and Public Works contains a Traffic Counting System (TCS) which serves the Western Cape Provincial Network and has been around since 1999. The main emphasis of the system is on Trunk -, Main - and Divisional Roads - currently only Minor Roads (OPs) that intersect with more important roads are on the system. The TCS comprises of two "types" of counts namely: - Short Term and Permanent Counts. TCS has data for counting stations (4238) at the Baden Powell Drive (MR168)/Annandale Road (DR1050) intersection as well as (4204) at the R44 (MR27)/Annandale Road (DR1050) intersection.

Traffic Counts

Time	Light	Heavy	Taxis	Buses
00-01h00				
01-02h00				
02-03h00				
03-04h00				
04-05h00	26	0	0	0
05-06h00	68	4	1	0
Sub-Totals	**94**	**4**	**1**	**0**
06-07h00	428	16	22	2
07-08h00	980	20	15	5
08-09h00	594	19	10	4
09-10h00	343	23	3	0
10-11h00	327	29	3	2
11-12h00	363	27	2	1
12-13h00	342	28	1	0
13-14h00	268	12	2	1
14-15h00	395	18	2	0
15-16h00	483	17	4	4
16-17h00	695	21	2	2
17-18h00	793	24	12	1
Sub-Totals	**6011**	**254**	**78**	**22**
18-19h00	357	15	8	0
19-20h00	149	4	2	0
20-21h00	107	2	0	0
21-22h00	54	0	2	0
22-23h00				
23-24h00				
Sub-Totals	**667**	**21**	**12**	**0**
Totals	**6772**	**279**	**91**	**22**

Station AADT's

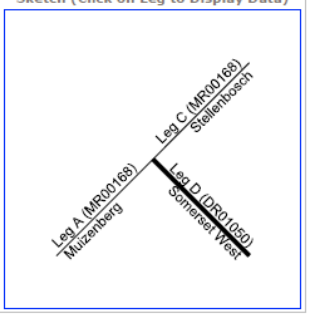
Light	Heavy	Taxis	Buses
6433	265	86	21

Total 6805

Station Data

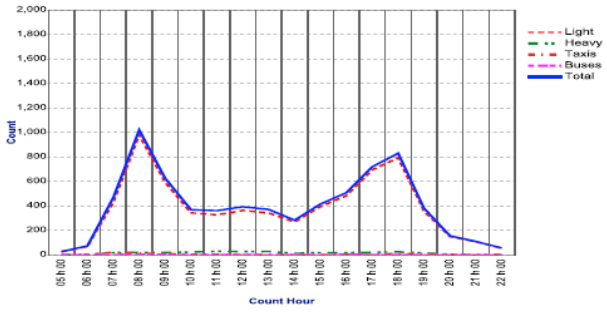
Station No	4238D
Road No	DR01050
Km Distance	0.00
Count Date	17/04/2018
Hours Counted	18
Day Counted	Tuesday
Counted by	C
Expansion Factor	0.95
Night Factor	
Stratum	CA
Peak Hour Ratio	16.00
Total AADT	6806

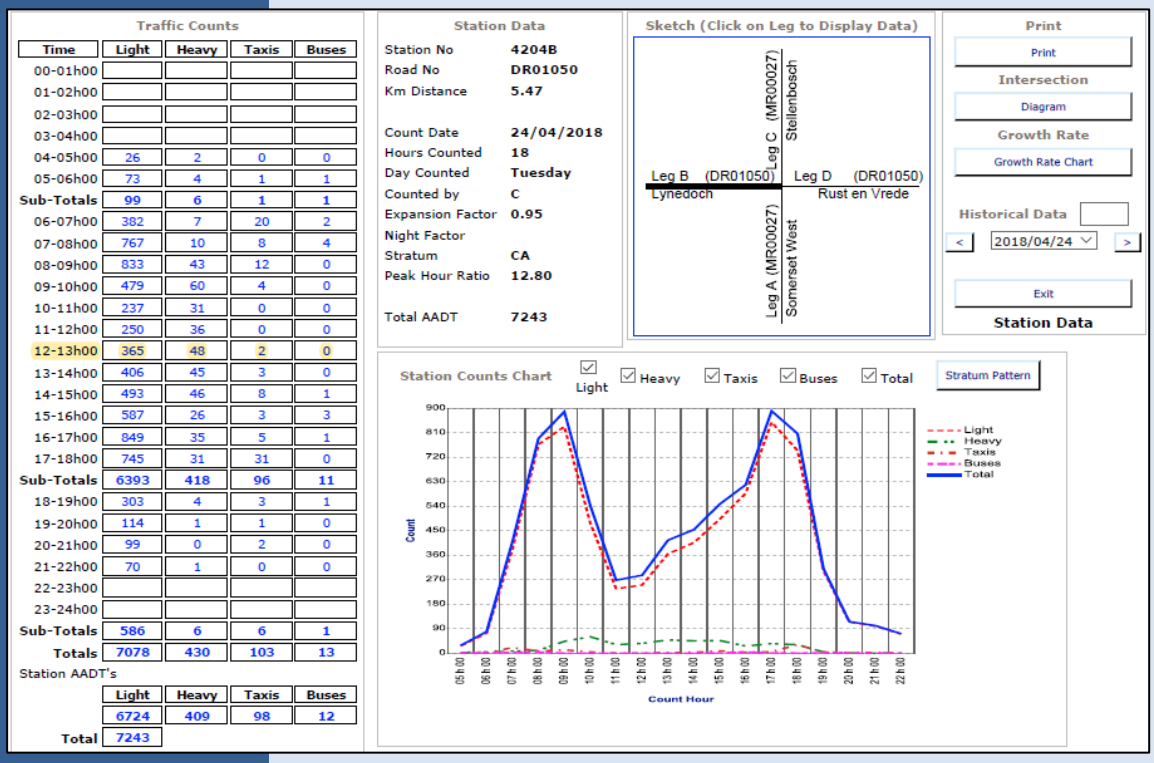
Sketch (Click on Leg to Display Data)



Print
Print
Intersection
Diagram
Growth Rate
Growth Rate Chart
Historical Data
< 2018/04/17 >
Exit
Station Data

Station Counts Chart
Light Heavy Taxis Buses Total Stratum Pattern





Traffic Counts

Time	Light	Heavy	Taxis	Buses
00-01h00				
01-02h00				
02-03h00				
03-04h00				
04-05h00	26	2	0	0
05-06h00	73	4	1	1
Sub-Totals	99	6	1	1
06-07h00	382	7	20	2
07-08h00	767	10	8	4
08-09h00	833	43	12	0
09-10h00	479	60	4	0
10-11h00	237	31	0	0
11-12h00	250	36	0	0
12-13h00	365	48	2	0
13-14h00	406	45	3	0
14-15h00	493	46	8	1
15-16h00	587	26	3	3
16-17h00	849	35	5	1
17-18h00	745	31	31	0
Sub-Totals	6393	418	96	11
18-19h00	303	4	3	1
19-20h00	114	1	1	0
20-21h00	99	0	2	0
21-22h00	70	1	0	0
22-23h00				
23-24h00				
Sub-Totals	586	6	6	1
Totals	7078	430	103	13

Station AADT's

Light	Heavy	Taxis	Buses
6724	409	98	12

Total 7243

Station Data

Station No	4204B
Road No	DR01050
Km Distance	5.47
Count Date	24/04/2018
Hours Counted	18
Day Counted	Tuesday
Counted by	C
Expansion Factor	0.95
Night Factor	
Stratum	CA
Peak Hour Ratio	12.80
Total AADT	7243

Sketch (Click on Leg to Display Data)

Print

Print

Intersection

Diagram

Growth Rate

Growth Rate Chart

Historical Data

< 2018/04/24 >

Exit

Station Data

Station Counts Chart

Light Heavy Taxis Buses Total Stratum Pattern

The last count at Station 4238 and 4204 took place on Tuesday, 17 April 2018 and Tuesday, 24 April 2018 respectively. A growth rate of 5% per annum has been used to obtain 2019 volumes. The midday peak hour therefore is approximately **450 veh/h** (2-way, 2019) on the Annandale Road leg of the intersections. The estimated direction split is 80% towards the R44 and 20% towards Baden Powell Drive. There are few accesses between the counting stations and the proposed access road and therefore it is assumed that the traffic past the development will be very similar.

The Saturday count was assumed to be approximately 10% less than the weekday midday peak hour. This assumption was made from historical traffic counts obtained from RNIS on Saturday ADT stations on the R44 and Baden Powell Drive.

Therefore, a two-way traffic volume of approximately **400 veh/h** can be used for the 2019 Saturday peak hour. A split of 80/20 towards the R44 has been assumed.

13. Known Developments

There are no known developments for which applications have been submitted close to the Louw's Bos Memorial Park that would have a significant impact on the intersection which would not be covered by the growth in background traffic.

14. Background Traffic

The predicted future traffic flows have been estimated by applying a peak hour growth rate of 5% per annum to the 2019 traffic volumes as well as the 2024 background peak hour traffic volumes. The 5% growth rate was based on historic traffic counts done over many years (1980 to 2018) as part of the Provincial Road Network Information System (RNIS) and is

estimated to be the average annual growth rate in the area taking into account the magnitude of on-going development in and around the area and the current economic climate.

15. Trip Generation Rates

The vehicle trips that will be generated by the proposed development were calculated using the trip generation rates as provided in the TMH17 South African Trip Data Manual (Volume 1, September 2012) published by the Committee of Transport Officials (COTO).

The estimated trip generation rates for a Cemetery are:

566 Cemetery									**1 Ha**
Description	AM Peak	PM Peak	Friday PM	Midday	Evening	Saturday	Sunday	Factor A	Factor B
Trip Rate	0.20	0.20		4.00		8.00			
% Heavy									
In/Out	70:30	35:65		75:25		50:50			
PHF Dev		0.65		0.65		0.65			
PHF Street									
Veh Occupancy									
% Pass-by									
% Diverted									

The proposed access intersection on Annandale Road (DR1050) was analysed for a weekday Midday and a Saturday peak hour. No peak hour reduction rates were applied as the property is located in a rural environment.

Data obtained from Stellenbosch Municipality for the number of funerals that took place in 2018 at the existing Jamestown Cemetery are:

- Monday to Friday: 110
- Saturday and Sunday: 376

Unfortunately, these numbers are very difficult to interpret without having more detail on the trends throughout the year. However, during weekdays there is approximately 1 funeral every second day. Weekends are much busier with between 4 and 5 funerals being held on a Saturday and Sunday.

16. Development Trips

The areas that will be used for the actual cemetery uses are:

- Memorial Park Centre - ±0.64 ha
- Defined Zone - ± 1.38 ha
- Columbarium Zone - ± 0.75 ha
- Traditional Graves ± 19.97 ha
- (Informal Zone) Lawn graves, Trees as headstones and future expansion of cemetery uses: ± 11.79 ha

Total size: ± 34.53 ha

The total weekday midday peak hour trips likely to be generated by the cemetery are **138 vph**. For a Saturday peak hour, it would be **276 vph**.

17. Trip Distribution	With the majority of the population in the Stellenbosch Municipal area staying in Stellenbosch town and Somerset West it was estimated that 80% of the trips would come from the R44 and 20% from the western areas via Baden Powell Drive.
18. Total Traffic *References: Figure 3, 4, 5 & 6*	The resulting development trips were added to the existing (2019) and expected (2024) background traffic volumes. The resulting total traffic volumes are shown in **Figure 3, 4, 5 and 6**.
19. Impact of Development Traffic *References: Table 1 & 2*	Overall, the proposed intersection will operate at good levels of service (LOS A) and delay with the v/c showing that the intersection will be under capacity during both the weekday Midday and Saturday peak hours. A right turn lane from Baden Powell Drive will be required to minimise the delay for through traffic on Annandale Road (DR1050) and to improve safety at the intersection. It is also proposed that a left turn deceleration lane be constructed for traffic coming from the east to the cemetery. The design of the intersection should meet the Provincial road design standards.
20. Site Access	Access to the site will be from a new proposed access approximately 445m east of OP5202 on Annandale Road (DR1050) as indicated on the SDP. The posted speed limit on the road is 100km/h and therefore the required shoulder site distances (SSD) are:

Vehicle Type and Road Width	Estimated SSD*			
	60km/h	80km/h	100km/h	120km/h
P (w=7.5m)	120	160	200	240
P (w=15m)	130	180	220	270
P (w=22.5m)	150	200	245	300
SU (w=7.5&15m)	180	240	300	260
SU (w=22.5m)	200	270	330	400
SU+T (w=7.5&15m)	230	305	380	460
SU+T (w=22.5m)	250	330	410	500

* TRH17 (P - Passenger Vehicle; SU - Single Unit Truck, SU+T; Signle Unit plus Trailer)

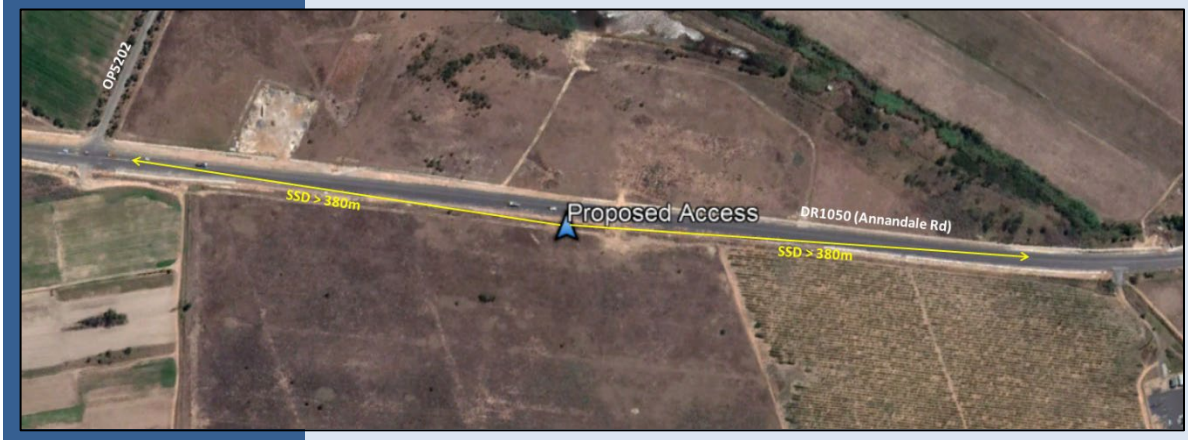
Object height = 1.3m

Eye height for P = 1.05m

Eye height for SU and SU+T = 1.8m

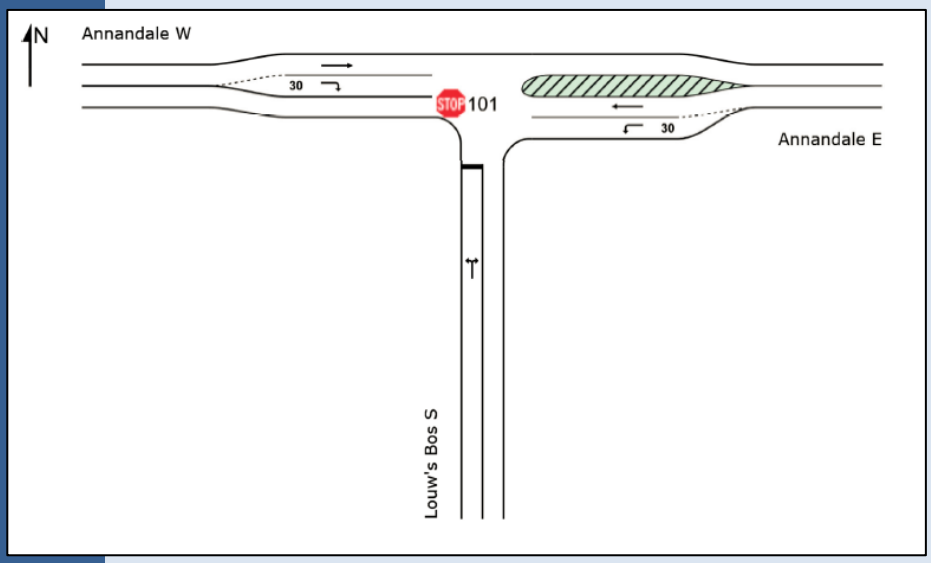
Location of object = 5m from yellow line or edge of tar if no paved shoulders

The proposed access meets all the required SSDs.



The detail design of the access will have to be agreed with the Western Cape Government by their roads geometric design department.

The access will require a right turn lane for traffic coming from Baden Powell Drive as well as a left turn deceleration lane (shown below).

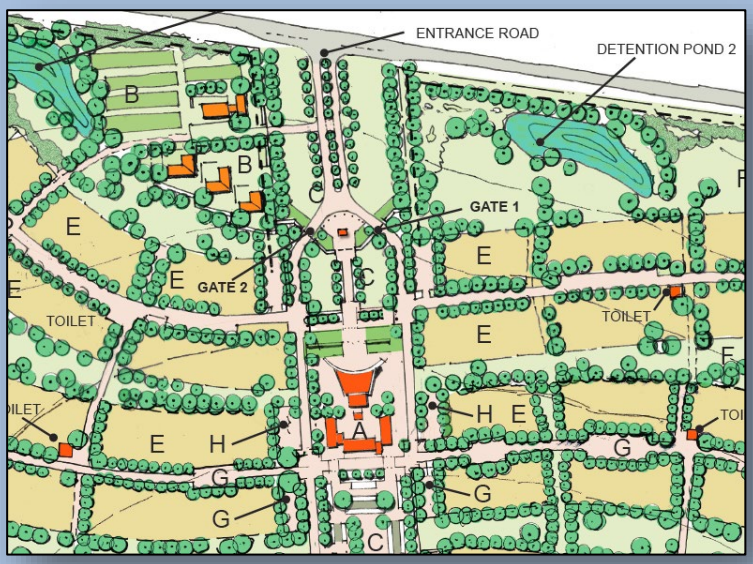


It should be noted that the length of the turning lanes will depend on the detail design standards of the Provincial roads design department.

The Roadside Development Environment (RDE) is Semi-Rural and Annadale Road (DR1050) is a Class 3 road which requires unsignalised full intersections (UFI-UFI) to be spaced at no less than 305m. The proposed access is located approximately 445m from OP5202 and approximately 520m from the ESKOM access.

21. Parking Requirements

The layout allows for people to travel towards the Memorial Park Centre (A) within the cemetery and park in allocated areas (G) nearest to where they would need to be. Formal parking for buses and taxis (H) is provided for at the entrance to the Memorial Park Centre (A), refer to **Figure 2**.

22. Non-Motorised Transport (NMT)	As part of the rehabilitation of Annandale Road under the Provincial Contract Number C0921, an NMT shared path (Class 2 facility) along the northern road reserve boundary is constructed. Hard shoulders on both sides are also being constructed.
23. Public Transport	Although minibus taxis travel along DR1050, no public transport facilities are evident between Baden Powell Drive and the R44. Minibus taxis will bring people to the cemetery and the layout does make provision for buses and taxis to park (shown in 'H'). 
***24.* Conclusions**	The main findings and conclusions are: • To allow for the proposed cemetery do be developed taking direct access off Annandale Road (DR1050). • Annandale Road (DR1050) is currently under construction as part of rehabilitation for the Provincial Government which includes the section through Farm 502. • The newly constructed road includes hard shoulders and an NMT path along the northern road reserve boundary. • The access to the cemetery will be located approximately 445m east of OP5202 on Annandale Road (DR1050). • DR1050 carries approximately **8 000 vehicles per day** two-way and approximately **450 veh/h** on a weekday midday and approximately **400 veh/h** two-way in the Saturday peak hour for 2019. • The proposed access meets the required Shoulder Sight Distances. • The proposed access also meets the access spacing required for a Class 3 road in a semi-rural environment. • The intersection will require a right turn lane for traffic travelling from Baden Powell Drive on Annandale Road (DR1050). A left turn deceleration lane is proposed on the eastern leg. • The intersection operates overall at good levels of service (LOS A) and minimal delays for both now and in 2024.

25. **Recommendations**	From the report, the following recommendations are made: • The new intersection on DR1050 at ±KM 2.44 must be designed and approved in accordance with the Provincial Standards; This report has shown that the proposed development can be accommodated by the adjacent transport network, provided the recommendations presented in the report are implemented. From a traffic engineering perspective, the application for this development is supported.

REFERENCES

1. Provincial Administration: Western Cape, Department of Economic Affairs, Agriculture and Tourism: Transport Branch, Road Access Guidelines and Policies, Sept 2002.
2. Western Cape Government: Access Management Guidelines, Draft, July 2016.
3. Department of Transport, Guidelines for Traffic Impact Studies, Report No. PR93/645, Pretoria, 1995.
4. Department of Transport, South African Trip Generation Rates, Report No. RR92/228, Pretoria, 1995.
5. Committee of Transport Officials (COTO), South African Trip Data Manual, Volume 1 TMH 17, September 2012.
6. Committee of Transport Officials (COTO), South African Traffic Impact and Site Traffic Assessment Manual Standards and Requirements Manual, Volume 2 TMH 16, September 2012.
7. Committee of Transport Officials (COTO), South African Traffic Impact and Site Traffic Assessment Manual, Volume 1 TMH 16, September 2012.

APPENDIX A: FIGURES

STURGEON CONSULTING Transport Planning & Traffic Engineering 021 553 4167 / 083 701 2299	Project: **LOUW'S BOS MEMORIAL PARK**	Job No: **STUR0216**
	LOCALITY PLAN	Figure: **1**

LEGEND

A: Memorial Park Centre
- Chapel
- Offices & Storage
- Toilets
- Gathering Space

B: Service Zone
- Workshop & Storage
- Office
- Holding Nursery
- Staff Accomodation

C: Defined Zone
- Family & Groups
- Heroes Acre

D: Columbarium Zone
- Niche & Memorial Walls
- Floor Panels

E: Traditional Graves
- Headstones

F: Informal Zones
- Lawn Graves
- Trees as headstones
- Future Expansion
- Parkland

G: General parking

H: Bus/ taxi parking

I: Buffer Zone
- Fynbos Rehabilitation
- Environmental Education

N

0 10 50 100 200 300

1:2500 @ A1

LOUW'S BOS
MEMORIAL PARK
STELLENBOSCH

DWG 110-C3 Revision 4 16-04-2019

OvP Associates . Landscape Architects
021 462 1262
C.K Rumboll & Partners . Town Planners
022 482 1845

STURGEON CONSULTING Transport Planning & Traffic Engineering 021 553 4167 / 083 701 2299	Project: **LOUW'S BOS MEMORIAL PARK**	Job No: **STUR02016**
	SITE DEVELOPMENT PLAN (N.T.S)	Figure: **2**

STURGEON CONSULTING	Louw's Bos Memorial Park, Stellenbosch	Job Ref No: **STUR0216**
	Present Traffic Demand plus Development	Fig: **3**

SATURDAY PEAK

Schematic

STURGEON CONSULTING	Louw's Bos Memorial Park, Stellenbosch	Job Ref No: **STUR0216**
	Present Traffic Demand plus Development	Fig: **4**

STURGEON CONSULTING	Louw's Bos Memorial Park, Stellenbosch	Job Ref No: **STUR0216**
	Expected 2024 Traffic Demand plus Development	Fig: **5**

SATURDAY PEAK

Schematic

STURGEON CONSULTING	Louw's Bos Memorial Park, Stellenbosch	Job Ref No: **STUR0216**
	Expected 2024 Traffic Demand plus Development	Fig: **6**

APPENDIX B: TABLES

Table 1: 2019 Peak Hour Traffic Conditions at Intersections

Site: 101 [Annandale Rd/Louw's Bos Access 2019 Midday + Dev]

Midday
Site Category: Existing 2019 + Dev
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Louw's Bos S												
1	L2	7	2.0	0.045	9.4	LOS A	0.1	0.5	0.48	0.88	0.48	50.6
3	R2	29	2.0	0.045	10.7	LOS B	0.1	0.5	0.48	0.88	0.48	50.4
Approach		37	2.0	0.045	10.5	LOS B	0.1	0.5	0.48	0.88	0.48	50.5
East: Annandale E												
4	L2	87	2.0	0.048	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
5	T1	237	2.0	0.123	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		324	2.0	0.123	1.5	NA	0.0	0.0	0.00	0.16	0.00	58.1
West: Annandale W												
11	T1	237	2.0	0.124	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	22	2.0	0.022	6.8	LOS A	0.0	0.2	0.39	0.61	0.39	52.0
Approach		259	2.0	0.124	0.6	NA	0.0	0.2	0.03	0.05	0.03	59.2
All Vehicles		620	2.0	0.124	1.7	NA	0.1	0.5	0.04	0.16	0.04	58.0

Site: 101 [Annandale Rd/Louw's Bos Access 2019 Sat + Dev]

Saturday
Site Category: Existing 2019 + Dev
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Louw's Bos S												
1	L2	29	2.0	0.170	9.4	LOS A	0.3	2.1	0.49	0.92	0.49	50.6
3	R2	116	2.0	0.170	10.8	LOS B	0.3	2.1	0.49	0.92	0.49	50.4
Approach		145	2.0	0.170	10.5	LOS B	0.3	2.1	0.49	0.92	0.49	50.4
East: Annandale E												
4	L2	116	2.0	0.063	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
5	T1	211	2.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		326	2.0	0.109	2.0	NA	0.0	0.0	0.00	0.20	0.00	57.5
West: Annandale W												
11	T1	211	2.0	0.110	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	29	2.0	0.029	6.8	LOS A	0.0	0.3	0.39	0.62	0.39	52.0
Approach		240	2.0	0.110	0.8	NA	0.0	0.3	0.05	0.08	0.05	58.9
All Vehicles		712	2.0	0.170	3.3	NA	0.3	2.1	0.12	0.31	0.12	56.3

Table 2: 2024 Peak Hour Traffic Conditions at Intersections

Site: 101 [Annandale Rd/Louw's Bos Access 2024 Midday + Dev]

Midday
Site Category: Expected 2024 + Dev
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Louw's Bos S												
1	L2	7	2.0	0.052	9.9	LOS A	0.1	0.6	0.54	0.91	0.54	50.1
3	R2	29	2.0	0.052	11.8	LOS B	0.1	0.6	0.54	0.91	0.54	49.8
Approach		37	2.0	0.052	11.4	LOS B	0.1	0.6	0.54	0.91	0.54	49.9
East: Annandale E												
4	L2	87	2.0	0.048	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
5	T1	302	2.0	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		389	2.0	0.157	1.3	NA	0.0	0.0	0.00	0.13	0.00	58.4
West: Annandale W												
11	T1	302	2.0	0.158	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	22	2.0	0.023	7.2	LOS A	0.0	0.3	0.43	0.63	0.43	51.8
Approach		324	2.0	0.158	0.5	NA	0.0	0.3	0.03	0.04	0.03	59.3
All Vehicles		751	2.0	0.158	1.4	NA	0.1	0.6	0.04	0.13	0.04	58.3

Site: 101 [Annandale Rd/Louw's Bos Access 2024 Sat + Dev]

Saturday
Site Category: Expected 2024 + Dev
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Louw's Bos S												
1	L2	29	2.0	0.194	9.8	LOS A	0.3	2.4	0.55	0.96	0.55	50.1
3	R2	116	2.0	0.194	11.9	LOS B	0.3	2.4	0.55	0.96	0.55	49.9
Approach		145	2.0	0.194	11.4	LOS B	0.3	2.4	0.55	0.96	0.55	49.9
East: Annandale E												
4	L2	116	2.0	0.063	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
5	T1	268	2.0	0.139	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		384	2.0	0.139	1.7	NA	0.0	0.0	0.00	0.17	0.00	57.9
West: Annandale W												
11	T1	268	2.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	29	2.0	0.031	7.2	LOS A	0.0	0.3	0.43	0.64	0.43	51.8
Approach		298	2.0	0.140	0.7	NA	0.0	0.3	0.04	0.06	0.04	59.0
All Vehicles		827	2.0	0.194	3.1	NA	0.3	2.4	0.11	0.27	0.11	56.7