

ANNEXURE G 10: SPECIALIST REPORT – Traffic Impact



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Reg no. 2003/043709/23

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A Level 1 Contributor to B-BBEE

Date: 29 April 2024

Our Ref: UDS629/Reports/TIA

Uniqon Developers (Pty) Ltd
17 Catherine Road
Shere Agricultural Holdings
PRETORIA EAST
0081

ATTENTION: Mr Etienne Coetzer

Dear Sir,

**RE: APPLICATION FOR REZONING TO SUBDIVISIONAL AREA FOR PROPOSED DEVELOPMENT
OF PORTION 28 OF REMAINDER FARM 468, LYNEDOCH, STELLENBOSCH: TRAFFIC IMPACT
ASSESSMENT**

This company was appointed by *Uniqon Developers (Pty) Ltd* to prepare a Traffic Impact Assessment (TIA) for the proposed development of Remainder Farm Welmoed 468 Portion 28, Lynedoch, Stellenbosch.

1. BACKGROUND AND LOCALITY

The subject property is situated in the Lynedoch area, northwest of Baden Powell Drive and surrounds the Sustainability Institute. See the attached **Locality Plan**.

The subject property is currently undeveloped and situated within the urban edge of the Lynedoch Node.

This TIA accompanies the Application for Rezoning to Subdivisional Area for the proposed development of Portion 28 of Remainder Farm 468, Lynedoch, Stellenbosch.

2. PROPOSED DEVELOPMENT

2.1 Proposed Development

The proposed development will be that of a residential estate, with accompanying institutional- and commercial facilities to tie in with neighbouring Lynedoch Eco-Village and The Sustainability Institute. The extent of the proposed development are as follows:

Allotment Villas	14 units
Single Residential	355 units
Townhouse	515 units
School	1,78 ha (estimated 750 learners)
Commercial	0,50 ha (estimated \pm 2 500 m ² GLA)

A concept layout is indicated on the attached **Block Plan** (Rev 05.2, 28.03.2024) prepared by *Urban Studio Architects & Urban Designers*.

2.2 Access to the Property

Access to the subject property is currently informally obtained via the neighbouring properties and via the Lynedoch service road (parallel to Baden Powell Drive). The said service road is referred to as 'Lynedoch Road' in this report. Access to the proposed development will be along Lynedoch Road, detail of which will be further discussed in *paragraph 4* below.

3. TRAFFIC

3.1 Available Traffic

Traffic counts were conducted on Thursday, 25 May 2023 from 06h00 to 09h00 and again from 15h30 to 18h30 at the following intersections, with locations as indicated in **Diagram 1**:

Table 1 : Intersections counted

1	Baden Powell Drive/Vlaeberg Road	6	Vlottenburg Road/Lynedoch Road
2	Vlaeberg Road/Lynedoch Road (service road)	7	Polkadraai Road/Vlottenburg Road
3	Polkadraai Road/Vlaeberg Road	8	Baden Powell Drive/Annandale Road
4	Lynedoch Road/Sustainability Access	9	Annandale Road/Access
5	Lynedoch Road T-intersection	10	Baden Powell Drive/Access

Intersections 9 and 10 were included for a scenario where additional properties would have formed part of the development proposal, however, this is no longer the case, and these two intersections are thus not included hereafter.

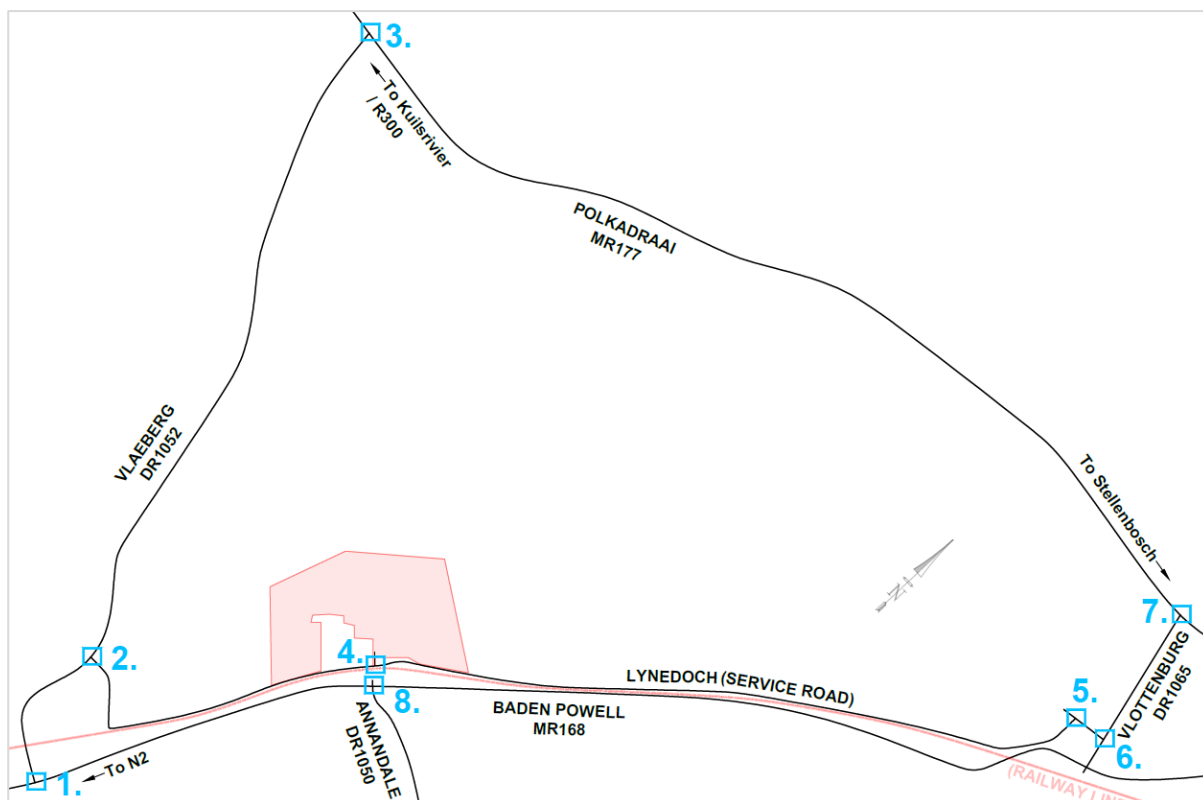


Diagram 1 : Location of intersections counted

The peak hour volumes derived from the abovementioned counts are indicated in **Figure 1** attached.

3.2 Traffic Growth

To account for average traffic growth, the annual rates as suggested in the TMH17 were applied. To assess a five-year horizon (from date of report), the available 2023 peak hour volumes were increased by 3% per annum for six years to obtain the estimated/background 2029 peak hour volumes, as indicated in **Figure 2** attached.

3.3 Trip Generation

Trip generation rates as contained in the TMH17 *South African Trip Data Manual* were consulted to calculate the potential peak hour traffic that can be generated by the proposed development. The TMH17 suggests the following relevant rates:

Table 2 : Relevant TMH17 Trip Generation Rates

Land use	AM Peak Hour		PM Peak Hour	
	Rate	Split (in/out)	Rate	Split (in/out)
Single Dwelling	1,0 trip per unit	25/75	1,0 trip per unit	70/30
Townhouse	0,85 trips per unit	25/75	0,85 trips per unit	70/30
Retail/Shopping Centre*	2,7 trips per 100 m ² GLA	65/35	15,3 trips per 100 m ² GLA	50/50
Private School	0,8 trip per student	50/50	0,3 trips per student	50/50

*Based on the TMH17 Shopping Centre formulas: $0,6 \times \left[1 + \frac{6}{1+m^2/3500}\right]$ & $3,4 \times \left[1 + \frac{6}{1+m^2/3500}\right]$

For the purpose of trip generation calculations, it was assumed that the 'single dwelling' rate as above would be applicable to the Allotment Villas and the Single Residential erven, whilst the 'townhouse' rate applicable to the Townhouses, and the 'retail' and 'private school' rates to the Commercial and School, respectively.

The TMH17 suggests trip adjustment (reduction) factors, applicable to mixed-use developments. These factors were considered applicable to the proposed development, and are suggested as follows:

Single Dwelling	10%	Shopping Centre	10%
Townhouse	15%	Private School	30%

Based on the above, the proposed development would have the potential to generate the following peak hour trips:

Table 3 : Total peak hour trip generation

Land use	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
Allotment Villas (14 units)	13	4	9	13	9	4
Single Residential (355 units)	320	80	240	320	224	96
Townhouses (515 units)	372	93	279	372	260	112
School (750 learners)	420	210	210	158	79	79
Commercial (2 500 m ² GLA)	60	39	21	344	172	172
Total	1 185	426	759	1 207	744	463

3.4 Trip Distribution

For the purpose of trip distribution, it was assumed that the commercial and school pockets, as well as a portion of the residential (situated to the outside of the security estate) would travel via the central access (shared with The Sustainability Institute), whilst the erven towards the east of the site were distributed via the eastern access, and similarly, the erven towards the west of the site via the western access.

From the said accesses, the proposed development traffic was assumed to travel in the direction of Stellenbosch (25%), the Northern Suburbs (25%), and via the R44 (25%) and N2 (25%) as follows:

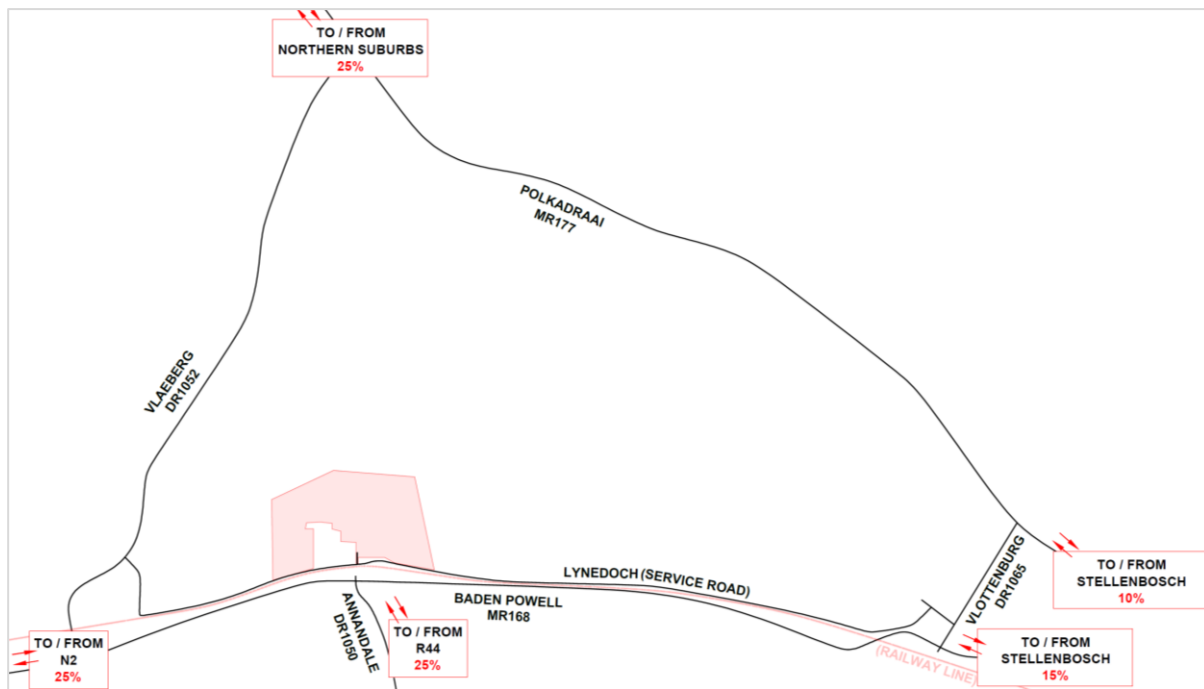


Diagram 2 : Overview of distribution applied

The distributed peak hour volumes are indicated in **Figure 3** attached, whilst these volumes added to the background traffic (**Figure 2**) are indicated in **Figure 4** attached.

3.5 Traffic Analysis

Traffic analyses of the intersections were done by means of the Sidra Intersection 9.1 software. Service levels A to D are considered acceptable, with D the critical.

The intersections analysed consist of lane layouts as follows:

Baden Powell Drive/Vlaeberg Road intersection:

This intersection is currently signalised with dedicated turning lanes on all approaches – see the lane layout below. The upgrade of this intersection formed part of the *Western Cape Government (WCG)* project of dualling Baden Powell Drive (MR168) from the direction of the N2 up to Polkadraai Road.



Diagram 3 : Existing Baden Powell Drive/Vlaeberg Road intersection lane layout

Vlaeberg Road/Lynedoch Road intersection:

This intersection is currently stop-controlled on the Lynedoch Road-approach, with free-flow conditions along Vlaeberg Road. All approaches consist of shared lanes – see the lane layout below.



Diagram 4 : Existing Vlaeberg Road/Lynedoch Road intersection lane layout

Polkadraai Road/Vlaeberg Road intersection:

This intersection is currently stop-controlled on the side streets (Vlaeberg Road- and La Provence Road-approaches) with free-flow conditions along Polkadraai Road. Dedicated right-turn lanes exist along the Polkadraai Road-approaches, whilst a dedicated left-turn lane exists along Vlaeberg Road – see the lane layout below.



Diagram 5 : Existing Polkadraai Road/Vlaeberg Road intersection lane layout

Lynedoch Road/Sustainability Institute access intersection:

This intersection is currently priority controlled, with free-flow conditions along Lynedoch Road. All approaches consist of shared lanes – see the lane layout below.



Diagram 6 : Existing Lynedoch Road/Sustainability Institute access intersection lane layout

Lynedoch Road T-intersection:

This intersection is currently stop-controlled on the Lynedoch Road-approach, with free-flow conditions along the street intersecting Vlottenburg Road to the east of this intersection. No dedicated turning lanes exist on any of the approaches – see the lane layout below.



Diagram 7 : Existing Lynedoch Road T-intersection lane layout

Vlottenburg Road/Lynedoch Road intersection:

This intersection is currently stop-controlled on the side street, with free-flow conditions along Vlottenburg Road. All approaches consist of shared lanes – see the lane layout below.

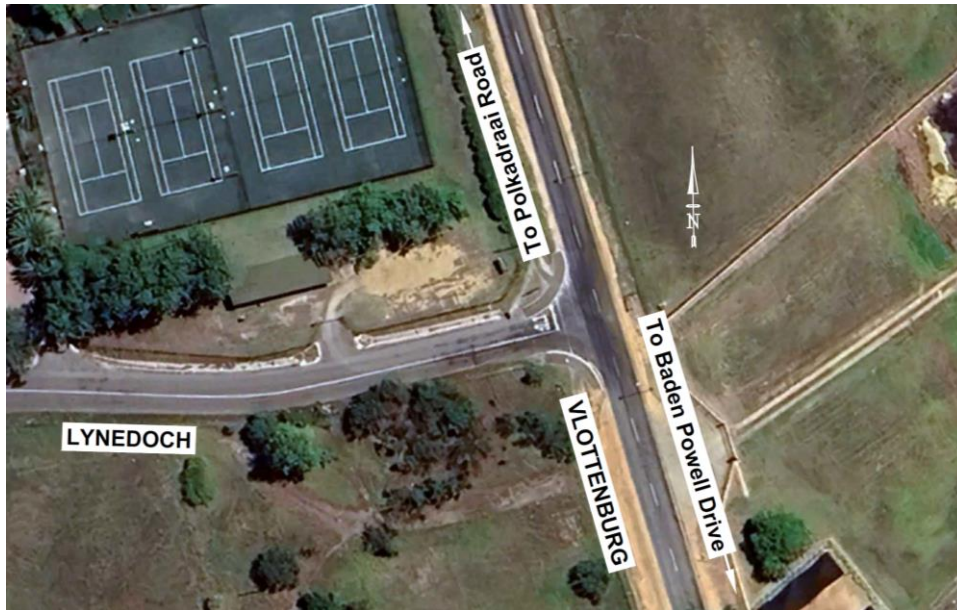


Diagram 8 : Existing Vlotenburg Road/Lynedoch Road intersection lane layout

Polkadraai Road/Vlotenburg Road intersection:

This intersection is currently stop-controlled on the Vlotenburg Road-approach, with free-flow conditions along Polkadraai Road. All approaches consist of shared lanes – see the lane layout below. It should be noted that the future planning in the area includes the realignment of Vlotenburg Road to intersect Polkadraai Road to opposite Stellenbosch Kloof Road (to the east of this intersection) – the existing Polkadraai Road/Vlotenburg Road intersection will thus, at that stage, be closed.



Diagram 9 : Existing Polkadraai Road/Vlotenburg Road intersection lane layout

Baden Powell Drive/Annandale Road intersection:

This intersection is currently signalised with dedicated right-turn lanes on the Baden Powell Drive-approaches and dedicated left-turn lanes on the Baden Powell Drive- as well as Annandale Road-approaches. The filling station-access-approach consists of a dedicated right-turn lane. See the lane layout below.



Diagram 10 : Existing Baden Powell Drive/Annandale Road intersection lane layout

3.5.1 Analysis of Available and Estimated Peak Hour Volumes (excluding proposed development)

Link volumes:

The link volumes (total two-way traffic) along the surrounding roads during the available 2023 and estimated 2029 (i.e. background) peak hours are as tabled below.

Table 4 : Link Volumes (total two-way) along Surrounding Roads

Road	Section	Available 2023 (AM/PM)	Estimated 2029 (AM/PM)
Baden Powell Drive	West of Vlaeberg	1 667 / 1 582	1 991 / 1 889
	East of Vlaeberg	1 707 / 1 658	2 038 / 1 979
Vlaeberg Road	North of Baden Powell Drive	800 / 690	955 / 824
	North of Lynedoch Road	722 / 646	862 / 771
Polkadraai Road	West of Vlaeberg Road	1 678 / 1 614	2 004 / 1 927
	East of Vlaeberg Road	1 056 / 1 057	1 260 / 1 262
	West of Vlottenburg Road	1 212 / 1 066	1 447 / 1 273
	East of Vlottenburg Road	1 333 / 1 121	1 592 / 1 339
Vlottenburg Road	South of Lynedoch Road	122 / 88	145 / 104
	North of Lynedoch Road	171 / 116	204 / 138
Lynedoch Road	East of Vlaeberg Road	92 / 70	109 / 83
	West of Vlottenburg Road	67 / 54	79 / 64

Of these road sections, the Baden Powell Drive- and Polkadraai Road-sections are dual carriageways, whilst the Vlaeberg Road-, Lynedoch Road- and Vlotenburg Road-sections are single carriageways.

The link volumes tabled above are still within the respective single- and dual carriageway capacities, i.e. the dualling of the sections currently single carriageways are not considered necessary to accommodate the background traffic.

Baden Powell Drive/Vlaeberg Road intersection:

According to the Sidra analyses, this signalised intersection currently experience acceptable service levels C and above during the existing AM and PM peak hours. During the estimated 2029 (i.e. background) peak hours, these service levels can be expected to remain, with marginal increase in queueing/delays.

It can thus be concluded that no upgrades are considered necessary at the Baden Powell Drive/Vlaeberg Road intersection to accommodate the background traffic.

Vlaeberg Road/Lynedoch Road intersection:

According to the Sidra analyses, acceptable service levels A are experienced along the Vlaeberg Road-approaches, whilst acceptable service levels B are experienced on the Lynedoch Road-approach during the existing 2023 peak hours. During the estimated 2029 peak hours, these service levels can be expected to remain, with marginal increase in queueing/delays.

It can thus be concluded that no upgrades are considered necessary at the Vlaeberg Road/Lynedoch Road intersection to accommodate the background traffic.

Polkadraai Road/Vlaeberg Road intersection:

According to the Sidra analyses, acceptable service levels are experienced along the Polkadraai Road-approaches, whilst the through- and right-turn movements of the side streets (i.e. Vlaeberg Road- and La Provence Road to the opposite side of the road) experience unacceptable service levels and delays as result of the large free-flow through movements along the higher order road (Polkadraai Road). On-site, safety issues exist based largely on the significant number of right-turning vehicles – to address this, it would be suggested that streetlighting be provided, and the signalisation of the intersection be considered. To ensure mobility remain along Polkadraai Road, minimum green time would be suggested on the side streets.

During the estimated 2029 peak hours, the said delays are expected to increase along with the increase in traffic along Polkadraai Road. With traffic signals at this intersection, the Sidra analyses show acceptable service levels C and above on all movements.

It can thus be concluded that to accommodate the background traffic at the Polkadraai Road/Vlaeberg Road intersection, it is suggested that the provision of traffic signals be considered (along with the required streetlighting).

Lynedoch Road/Sustainability Institute access intersection:

According to the Sidra analyses, acceptable service levels are experienced, and can be expected to remain, on all movements during the existing- and estimated peak hours.

It can thus be concluded that no upgrades are considered necessary at the Lynedoch Road/Sustainability Institute access intersection to accommodate the background traffic.

Lynedoch Road T-intersection:

According to the Sidra analyses, acceptable service levels are experienced, and can be expected to remain, on all movements during the existing- and estimated peak hours.

It can thus be concluded that no upgrades are considered necessary at the Lynedoch Road T-intersection to accommodate the background traffic.

Vlottenburg Road/Lynedoch Road intersection:

According to the Sidra analyses, acceptable service levels A are experienced on all movements during the existing 2023 peak hours. During the estimated 2029 peak hours, these service levels can be expected to remain, with marginal increase in queueing/delays.

It can thus be concluded that no upgrades are considered necessary at the Vlottenburg Road/Lynedoch Road intersection to accommodate the background traffic.

Polkadraai Road/Vlottenburg Road intersection:

According to the Sidra analyses, acceptable service levels A are experienced along the Polkadraai Road-approaches, whilst service levels F and D are experienced on the Vlottenburg Road-approach during the AM and PM peak hours, respectively.

During the estimated 2029 peak hours, the abovementioned conditions can be expected to remain, except for the Vlottenburg Road-approach expected to experience service level F during the PM peak hour. However, upgrades to this intersection are not suggested at this time, especially taking into consideration the planned realignment of Vlottenburg Road (to opposite Stellenbosch Kloof Road), which would include the signalisation of the realigned intersection.

It can thus be concluded that no upgrades are considered necessary to accommodate the background traffic at the Polkadraai Road/Vlottenburg Road intersection at this time.

Baden Powell Drive/Annandale Road intersection:

According to the Sidra analyses, this signalised intersection currently experience acceptable service levels C and above during the existing AM and PM peak hours. During the estimated 2029 (i.e. background) peak hours, acceptable service levels D and above can be expected.

It can thus be concluded that no upgrades are considered necessary at the Baden Powell Drive/Annandale Road intersection to accommodate the background traffic.

3.5.2 Analysis of Expected Peak Hour Volumes (including proposed development)

Link volumes:

The link volumes (total two-way traffic) along the surrounding roads during the expected 2029 peak hours (including proposed development) are as tabled below.

Table 5 : Link Volumes along Surrounding Roads

Road	Section	Expected 2029 (AM/PM)
Baden Powell Drive	West of Vlaeberg	2 288 / 2 192
	East of Vlaeberg	2 335 / 2 282
Vlaeberg Road	North of Baden Powell Drive	1 549 / 1 430
	North of Lynedoch Road	1 157 / 1 071
Polkadraai Road	West of Vlaeberg Road	2 299 / 2 227
	East of Vlaeberg Road	1 260 / 1 262
	West of Vlottenburg Road	1 447 / 1 273
	East of Vlottenburg Road	1 710 / 1 460
Vlottenburg Road	South of Lynedoch Road	323 / 284
	North of Lynedoch Road	322 / 259
Lynedoch Road	East of Vlaeberg Road	998 / 989
	West of Vlottenburg Road	375 / 365

The link volumes tabled above are still within the respective single- and dual carriageway capacities, i.e. the dualling of the sections currently single carriageways are not considered necessary to accommodate the proposed development traffic.

External Intersections:

At the signalised Vlaeberg Road- and Annandale Road-intersections along Baden Powell Drive, the acceptable service levels D and above on all movements as discussed during the background peak hours can be expected to remain, with increase in queuing/delays, however, still considered acceptable.

At the priority-controlled Vlaeberg Road- and Vlottenburg Road-intersections along Polkadraai Road, the acceptable conditions along Polkadraai Road, and the delays as result of the large free-flow through movements along the higher order road (Polkadraai Road) can be expected to remain, with increase in the queues along the Vlaeberg Road- and Vlottenburg Road-approaches. As discussed above, the signalisation of the Polkadraai Road/Vlaeberg Road intersection is suggested to be considered to address existing safety issues – the signalised intersection can be expected to remain operating acceptably with the addition of the proposed development traffic. Similar to the conclusion of the background peak hours, no upgrades to the Polkadraai Road/Vlottenburg Road intersection are suggested at the time – the realignment of Vlottenburg Road to opposite Stellenbosch Kloof Road is also expected to become signalised in future, which would further assist vehicles from the side streets.

With the addition of the proposed development traffic at the Vlaeberg Road/Lynedoch Road intersection, dedicated turning lanes are considered required. With dedicated left- and right-turn lanes on all approaches, acceptable service levels can be expected on all movements except the right-turn movement from Lynedoch Road to Vlaeberg Road. To address this, traffic signals are suggested, which can be expected to result in acceptable service levels C and above on all movements. A schematic layout of the proposed upgrade is indicated below. This intersection is spaced ± 850 metres

from the Baden Powell Road-intersection – the spacing between the two signalised intersections are thus not considered an issue.

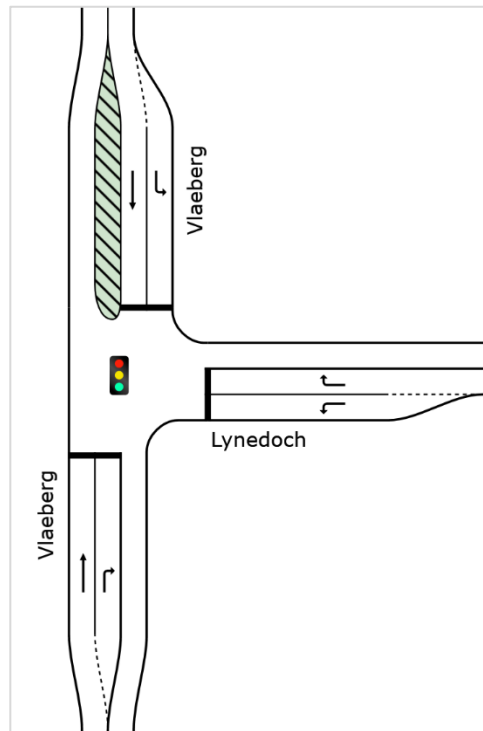


Diagram 11 : Proposed Vlaeberg Road/Lynedoch Road intersection upgrade (schematic)

The Vlotenburg Road/Lynedoch Road intersection can be expected to remain operating acceptably (service levels A) as discussed during the background peak hours, with some increase in queuing/delays on the side street-approach. According to the available information of the Baden Powell Road-construction currently underway, its limit-of-construction seems to terminate to the south of this intersection, thus no changes to the intersection at this time. With the planned realignment of Vlotenburg Road, changes to this intersection might likely occur, the details of which has not yet been finalised.

It can thus be concluded that to accommodate the proposed development traffic at the external intersections, the upgrade of the Vlaeberg Road/Lynedoch Road intersection by way of dedicated turning lanes and traffic signals are suggested.

Lynedoch Road-Access Intersections:

To accommodate the proposed development traffic at the three access-intersections along Lynedoch Road, dedicated turning lanes will be required. On the access-approaches, a dedicated left- and right-turn lane each will be required, with dedicated left- and right-turn lanes along the Lynedoch Road-approaches as well. It is suggested that the intersections remain stop-controlled on the access-approaches, with free-flow conditions along Lynedoch Road. With these lane layouts (**Diagram 12** below), the eastern access can be expected to experience acceptable service levels B on the right-turn movement outbound, whilst the central access (shared with the Sustainability Institute) can be expected to experience acceptable service levels C on the same movement – all other movements are expected to experience service levels A. The western access, where the larger residential volumes are expected, can be expected to experience service level D on the outbound right-turn movement during the AM peak hour and service level D during the PM peak hour, which is still considered acceptable. The provision of the dedicated turning lanes at the access intersections are thus considered sufficient to accommodate the proposed development traffic.

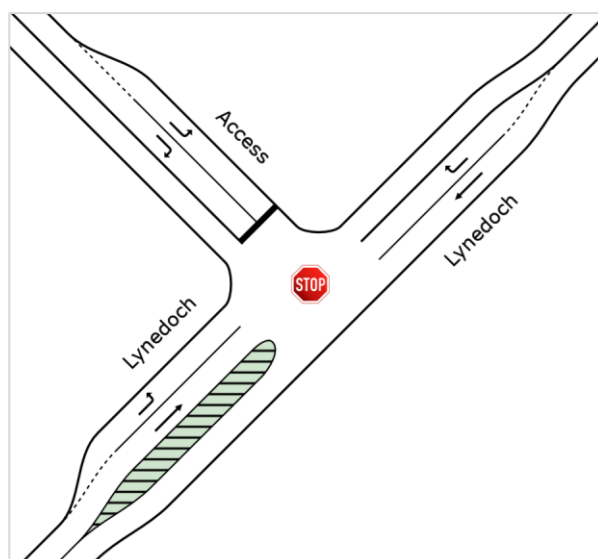


Diagram 12 : Proposed Lynedoch Road/Access Intersections – schematic upgrade

Should the traffic along Lynedoch Road, for some reason, drastically increase in future, it could be considered implementing traffic signals at these access intersections, the spacing of which conforms to the relevant guidelines (as will be discussed in *paragraph 4* below).

It can thus be concluded that to accommodate the proposed development traffic at the access intersections along Lynedoch Road, the provision of dedicated left- and right-turn lanes on all approaches are considered sufficient.

4. GEOMETRY AND PARKING

As previously mentioned, access to the proposed development will be obtained along Lynedoch Road. The said road is accessed from Vlaeberg Road and Vlottenburg Road, both of which are accessed via Baden Powell Drive and Polkadraai Road. These roads are classified as tabled and indicated below.

Table 6 : Classification of Surrounding Roads

Road	Classification according to:	
	Road Network Information System (RNIS) of WCG	Stellenbosch Municipality Road Master Plan
Baden Powell Drive (MR168)	Class 2	Class 2
Polkadraai Road (MR177)	Class 2	Class 2
Vlaeberg Road (DR1052)	Class 3	Class 3
Vlottenburg Road (DR1065)	Class 3	Class 4
Lynedoch Road	n/a	Class 4



Diagram 13 : Classification of Surrounding Roads (Stellenbosch Road Master Plan)

The Lynedoch ‘service’ Road was constructed as part of the Baden Powell Drive upgrade (dualling) in the vicinity. A portion of the subject property was expropriated for the purpose of the road – see **Diagram 14** below. The road has a 60 km/h posted speed limit and measures between $\pm 6,4$ and 7 metres in width (two lane road, i.e. one lane per direction) along its extent. Space within the expropriated ‘road reserve’, i.e. between the railway line and the opposite property boundary is very limited.

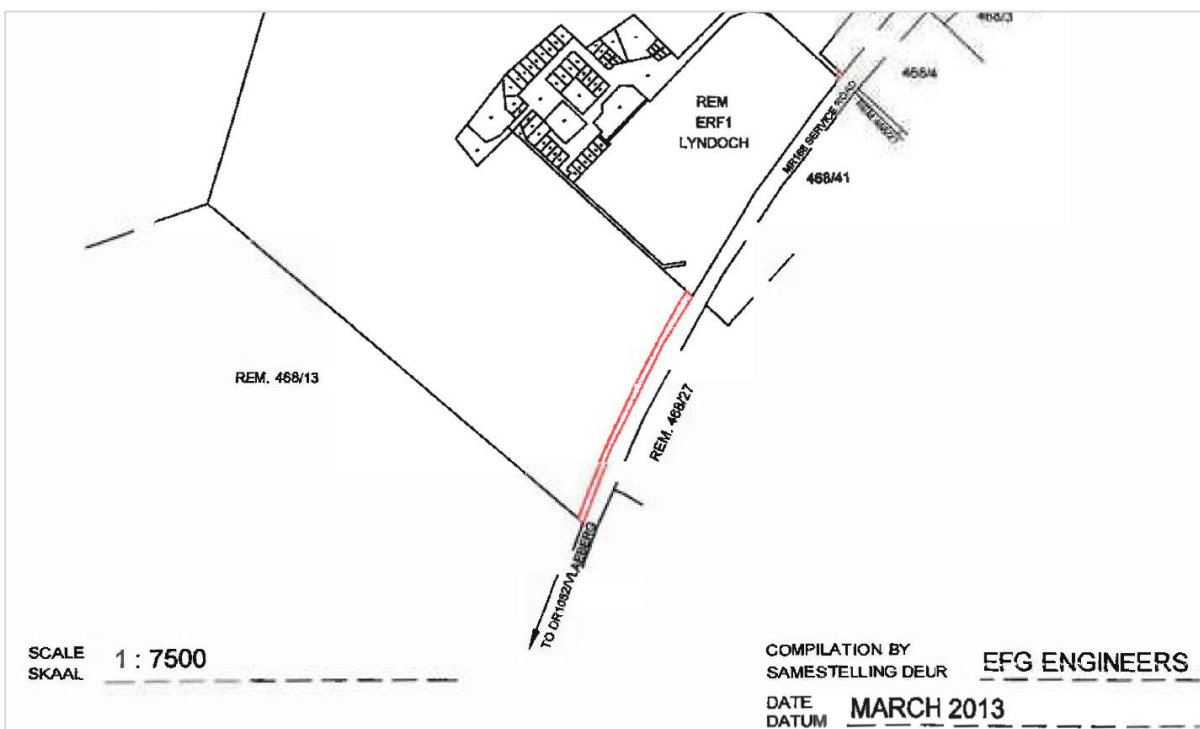


Diagram 14 : Expropriation extract – subject property

The three (3) accesses as proposed along Lynedoch Road are situated ± 420 and ± 235 metres apart – see **Diagram 15** below. The former is in accordance with the intersection spacing as contained in the *Access Management Guidelines* (AMG) of WCG. The required spacing for signalised intersections along a Class 4-road in a Suburban area (which the section abutting the road could be considered as with the development of the subject property) is 370 metres.

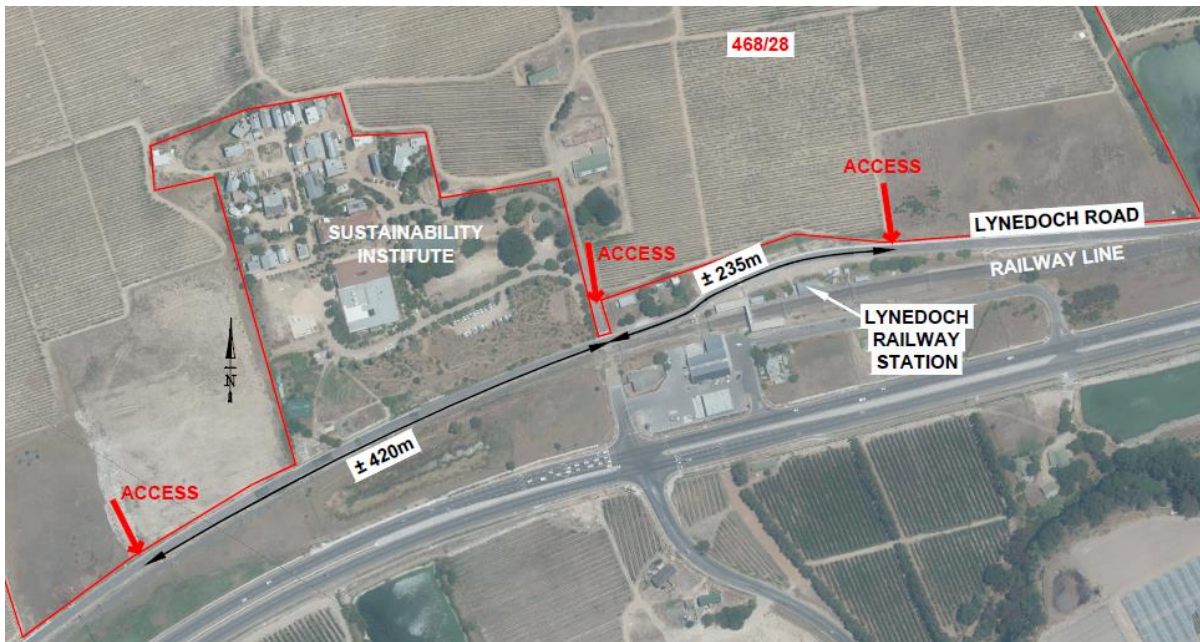


Diagram 15 : Proposed development accesses along Lynedoch Road

The 'middle/central' access will be situated on the subject property (portion of existing panhandle), however, shared with the neighbouring Sustainability Institute (currently being used as their main access). As far as could be established, a formal right-of-way servitude does not currently exist for the said use of the access across the subject property. Should the shared access arrangement as proposed not be acceptable to the neighbouring property, alternative access to the neighbouring property will have to be taken from Lynedoch Road, at an acceptable position between the two proposed accesses east and west thereof.

Internal roads are proposed to be private. The main internal street providing access to the pockets within the development is proposed to have a 16 metre road reserve and 6,8 metre surfaced width – based on the slopes, the road will be surfaced with interlocking pavers. Bellmouth radii along the main internal street is proposed to be 8 metres at the sections accommodating two-way traffic, whilst 6 metre radii are proposed along the short one-way sections. These streets will most likely accommodate vehicles up to and including the size of single unit trucks, i.e. the size of vehicles allowed to enter the development would be limited. Although the internal streets indicated at this time is schematic, the provided road reserves are considered sufficient to accommodate the required residential streets.

Two security-controlled accesses are proposed, i.e. the eastern- and western accesses. The space provided for these control points accommodates two inbound- and two outbound-lanes at the security booms. The booms at the eastern access is proposed to be situated further into the development about 25 metres from the internal intersection as indicated, whilst the booms at the western access is proposed ± 50 metres from the edge of Lynedoch Road, providing sufficient stacking space for the proposed development. The school- and commercial pockets, as well as one of the residential pockets will be situated to the outside of the said security controls.

Refuse removal is proposed to be handled privately, with the intention to explore the possibility of combining recycling with the Sustainability Institute. Detail on this will be addressed during further design/application stages.

Parking will be provided within the individual pockets as the slopes of the internal main street will likely not accommodate on-street parking. When the detail of the individual pockets is determined, it should be ensured that sufficient parking is provided in accordance with the relevant Zoning Scheme Requirements.

5. PUBLIC- AND NON-MOTORISED TRANSPORT

The Lynedoch Railway Station is situated just to the southeast of the subject property, within walking distance of the proposed development. A pedestrian crossing is situated in the vicinity thereof, with a sidewalk between the railway station and the subject property/Sustainability Institute-access. The said sidewalk is currently overgrown with vegetation at some points along it. It is suggested that this sidewalk be maintained and extended up to the eastern access of the proposed development, and tie in with the facilities provided on-site. Refer to the schematic proposal below. Furthermore, it is suggested that the existing pedestrian crossing be raised, which would also address traffic calming along this section of road.

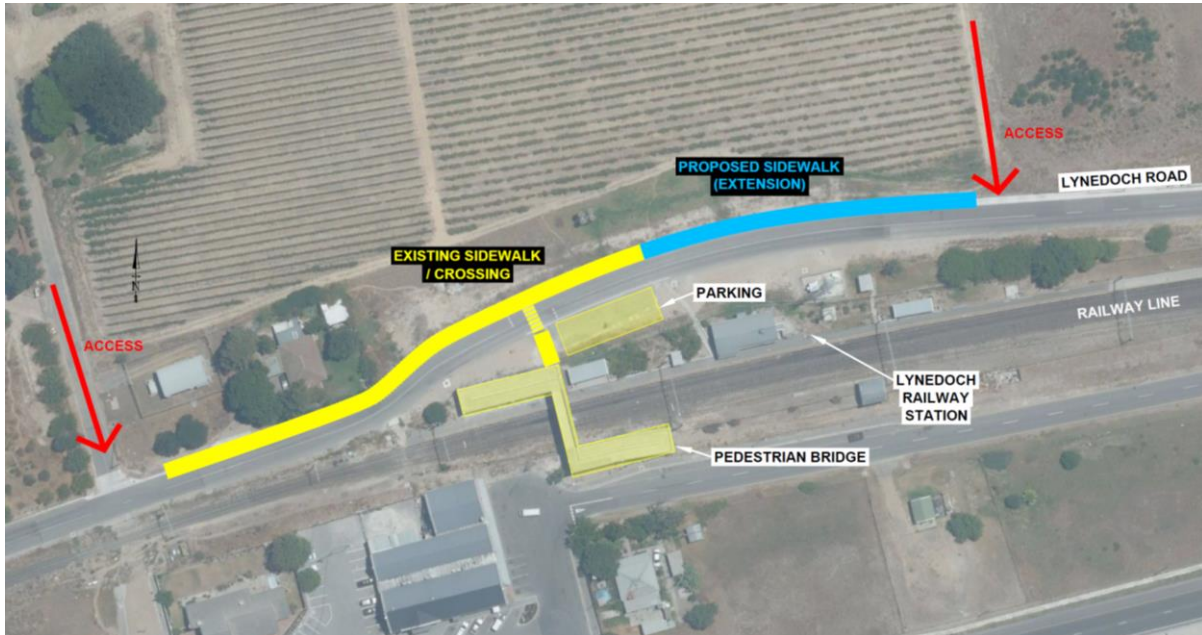


Diagram 16 : Existing and proposed pedestrian- and public transport accommodation

Ideally, the sidewalk along the northern side of the road would be extended in a westerly direction, up to the western access, as well, however, as result of the limited space within the 'road reserve' of Lynedoch Road, the said sidewalk would encroach onto the neighbouring property.

Internally, the cross-sections of the private streets propose to have sidewalks along at least one side of the street (both sides along relevant sections where possible).

The accommodation of taxis is also considered necessary to be addressed in this area. Embayments could be considered along Lynedoch Road at the accesses, however, as noted above, space within the 'road reserve' of this Lynedoch service road is limited. It is thus likely that if embayments are considered necessary, it would encroach onto the subject property. It should be noted, however, that as result of the size of the development and the incline of the internal streets, it could be expected that residents would likely, as example, pick domestic workers up at the railway station.

6. CONCLUSIONS

The following can be concluded from the report:

- 1) That this TIA accompanies the application for rezoning to subdivisional area for the proposed development of Farm 468/29, situated in the Lynedoch area, northwest of Baden Powell Drive, and surrounds the Sustainability Institute;
- 2) That the proposed development is that of a residential estate (14 allotment villas, 355 single residential units, 515 townhouses) with accompanying commercial ($\pm 2\,500\text{ m}^2$ GLA) and institutional (± 750 learners) facilities, obtaining access along the Lynedoch service road;
- 3) That the proposed development would have the potential to generate 1 185 AM peak hour trips (426 in, 759 out) and 1 207 PM peak hour trips (744 in, 463 out);
- 4) That to accommodate the background traffic:
 - a) The signalisation (with the required streetlighting) be considered at the Polkadraai Road/Vlaeberg Road intersection to address existing safety concerns;
- 5) That to accommodate the addition of the proposed development traffic:
 - a) The upgrade of the Vlaeberg Road/Lynedoch Road intersection by way of dedicated left- and right-turn lanes along all approaches, as well as traffic signals; and
 - b) The provision of dedicated left- and right-turn lanes on all approaches at the three access-intersections;
- 6) That space within the expropriated 'road reserve' of the Lynedoch service road is limited, thus some space would be required along the proposed development-side of the road for providing the required turning lanes at the accesses;
- 7) That the 'middle/central' access will be situated on the subject property, and shared with the Sustainability Institute (currently used as their main access, however, without formal right-of-way servitude according to available information);
- 8) That internal roads are proposed to be private, within 16 metre road reserves where two-way traffic is accommodated and 8 metre reserves where one-way traffic is accommodated, and that vehicles up to and including the size of single unit trucks are expected to be accommodated, thus limiting the size of vehicles allowed within the estate;
- 9) That the larger residential component will obtain access via two security controlled accesses, whilst the commercial, institutional and a small portion of residential will be situated to the outside of the security controls;
- 10) That the proposed booms at the said two accesses are setback sufficiently to accommodate the expected queuing at the access controls, and that two inbound- and two outbound-lanes are provided at both accesses which is considered sufficient for the proposed development;
- 11) That refuse removal is proposed to be handled privately and that parking will be provided on the individual erven/within the development pockets – detail of which to be addressed during further design/application stages;
- 12) That the Lynedoch Railway Station is situated just to the southeast of the subject property, with a short section of sidewalk and pedestrian crossing across Lynedoch Road existing – it is suggested that the existing sidewalk be maintained (overgrown vegetation), the pedestrian crossing raised (to inter alia address traffic calming in the vicinity) and that the sidewalk be extended up to the eastern development access, to tie in with the facilities proposed on-site; and
- 13) That the possibility of providing public transport embayments along Lynedoch Road at the development-accesses be further investigated.

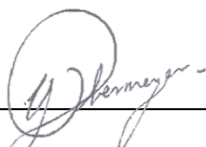
7. RECOMMENDATIONS

From the above, it is recommended that the proposed development be considered for approval from a traffic point of view, on the following conditions:

- 1) That to accommodate the background traffic (i.e. prior to the development of the subject property), the provision of traffic signals (with the required streetlighting) be considered at the Polkadraai Road/Vlaeberg Road intersection to address existing safety concerns;
- 2) That to accommodate the proposed development traffic:
 - a) Dedicated left- and right-turn lanes along all approaches, and traffic signals be provided at the Vlaeberg Road/Lynedoch Road intersection; and
 - b) Dedicated left- and right-turn lanes be provided along all approaches to the development accesses;
- 3) That the existing pedestrian crossing across Lynedoch Road (at the railway station) be raised and that the existing sidewalk along Lynedoch Road be improved and extended up to the eastern development-access.

We trust that the Traffic Impact Assessment will be to your satisfaction and will gladly provide any additional information required on request.

Yours faithfully,



Compiled by: Yolandi Obermeyer (B Eng)



Piet van Blerk Pr Eng

UDS AFRICA



Attachments:

Locality Plan

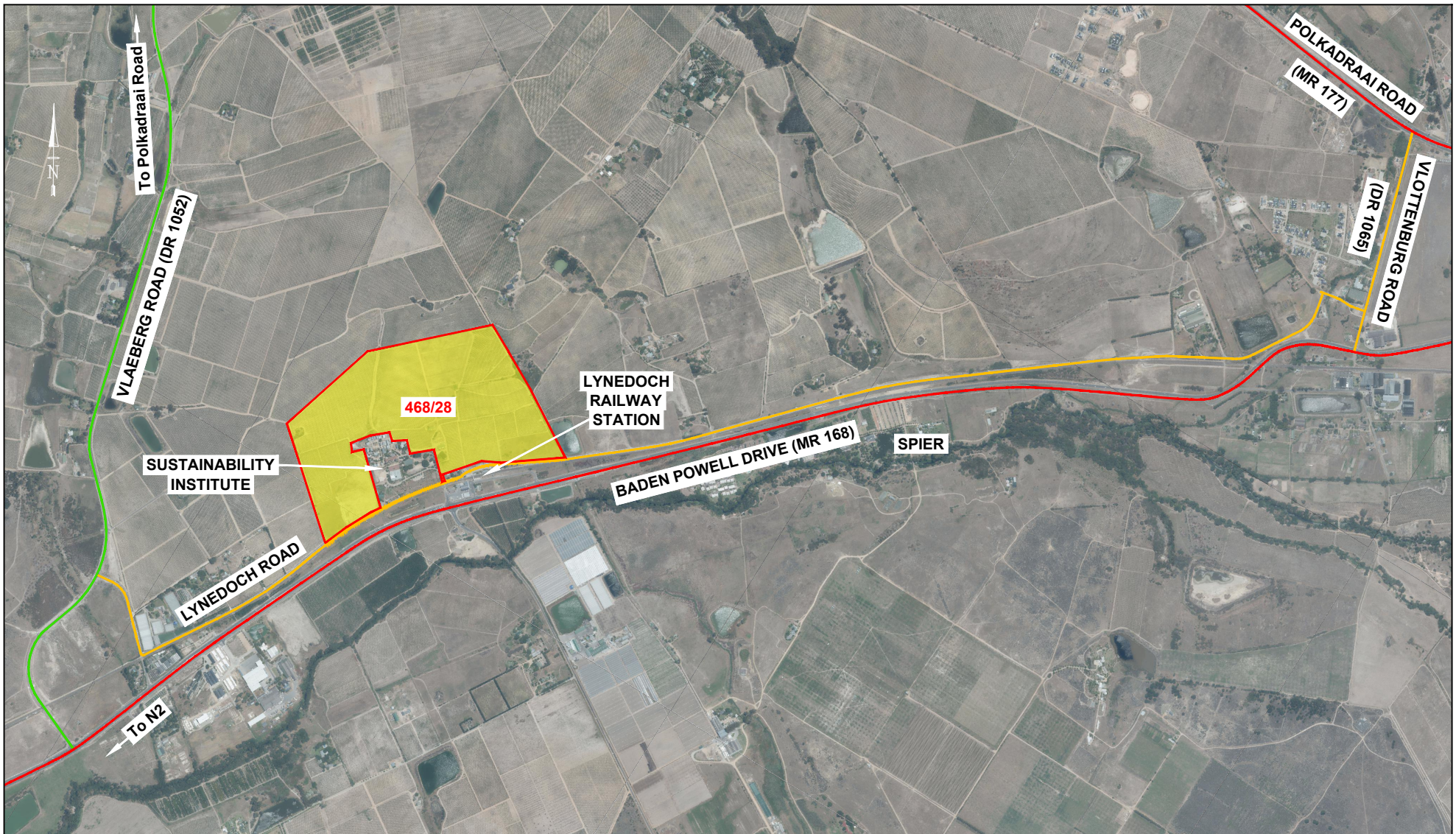
Block Plan (Rev 05.2, 28.03.2024) (*Urban Studio Architects & Urban Designers*)

Figure 1 Available AM/PM Peak Hour Traffic Volumes

Figure 2 Estimated 2029 AM/PM Peak Hour Traffic Volumes

Figure 3 Distribution of Peak Hour Traffic Potentially Generated by Proposed Development

Figure 4 Expected 2029 AM/PM Peak Hour Traffic Volumes

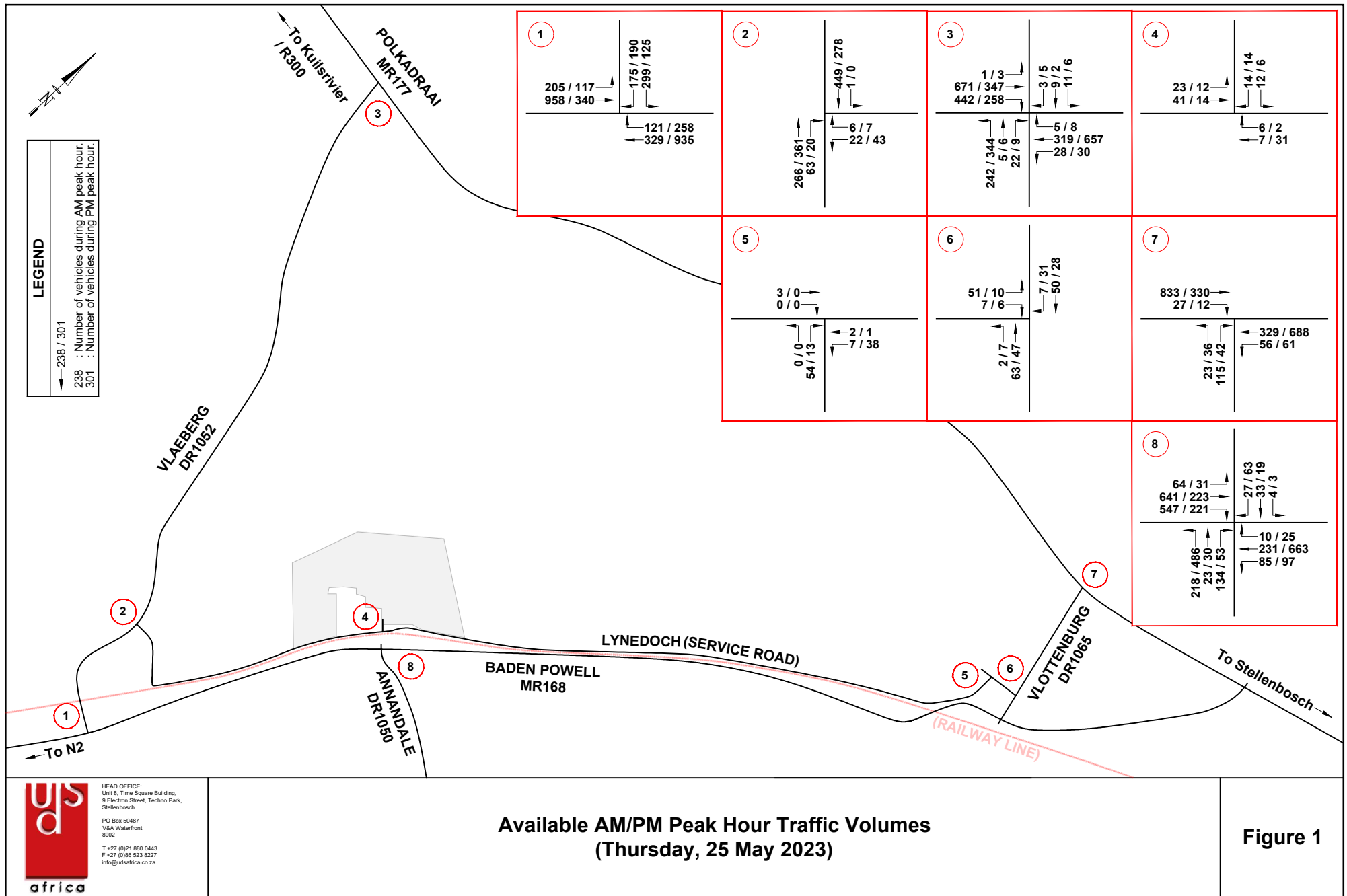


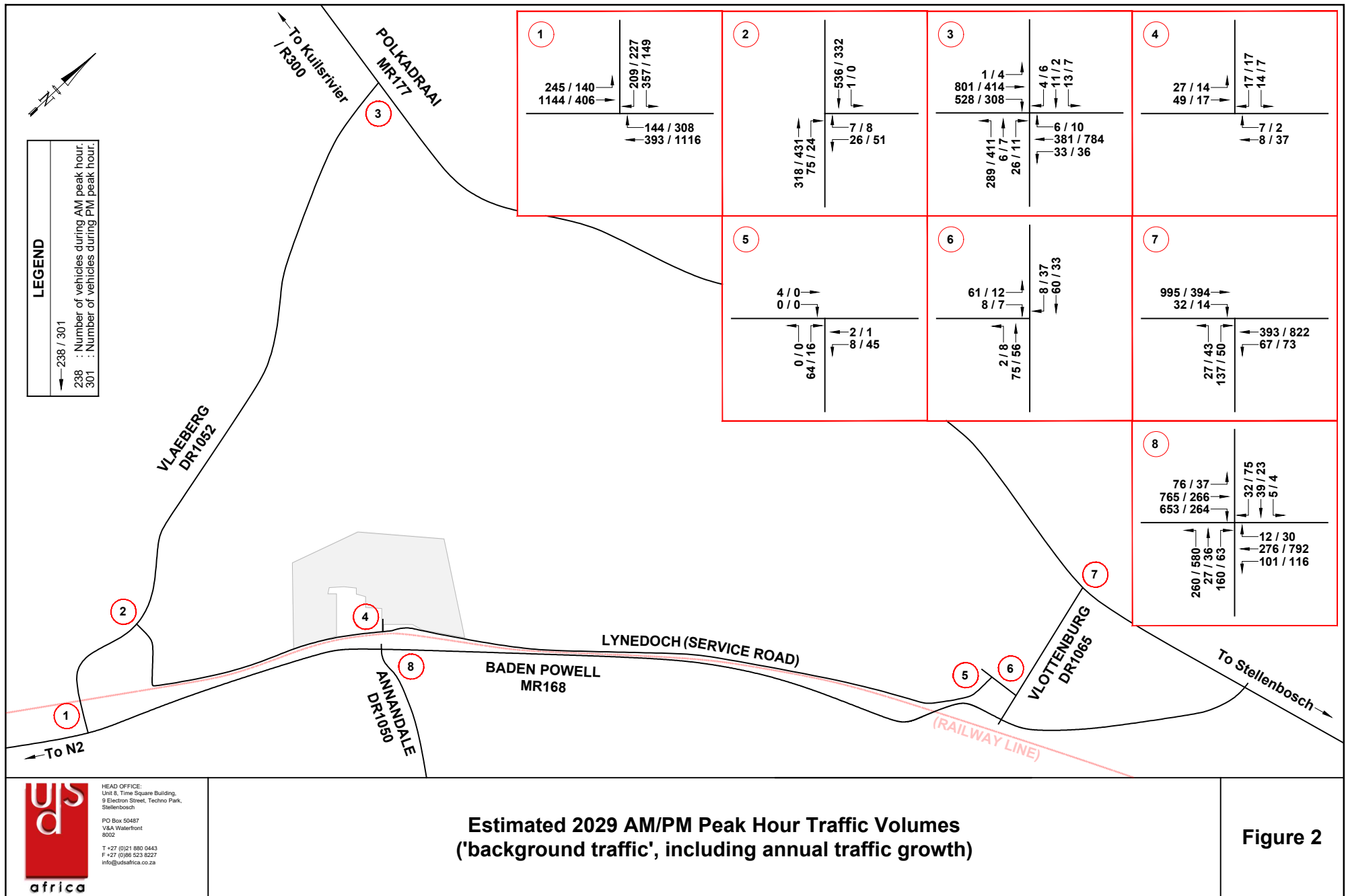
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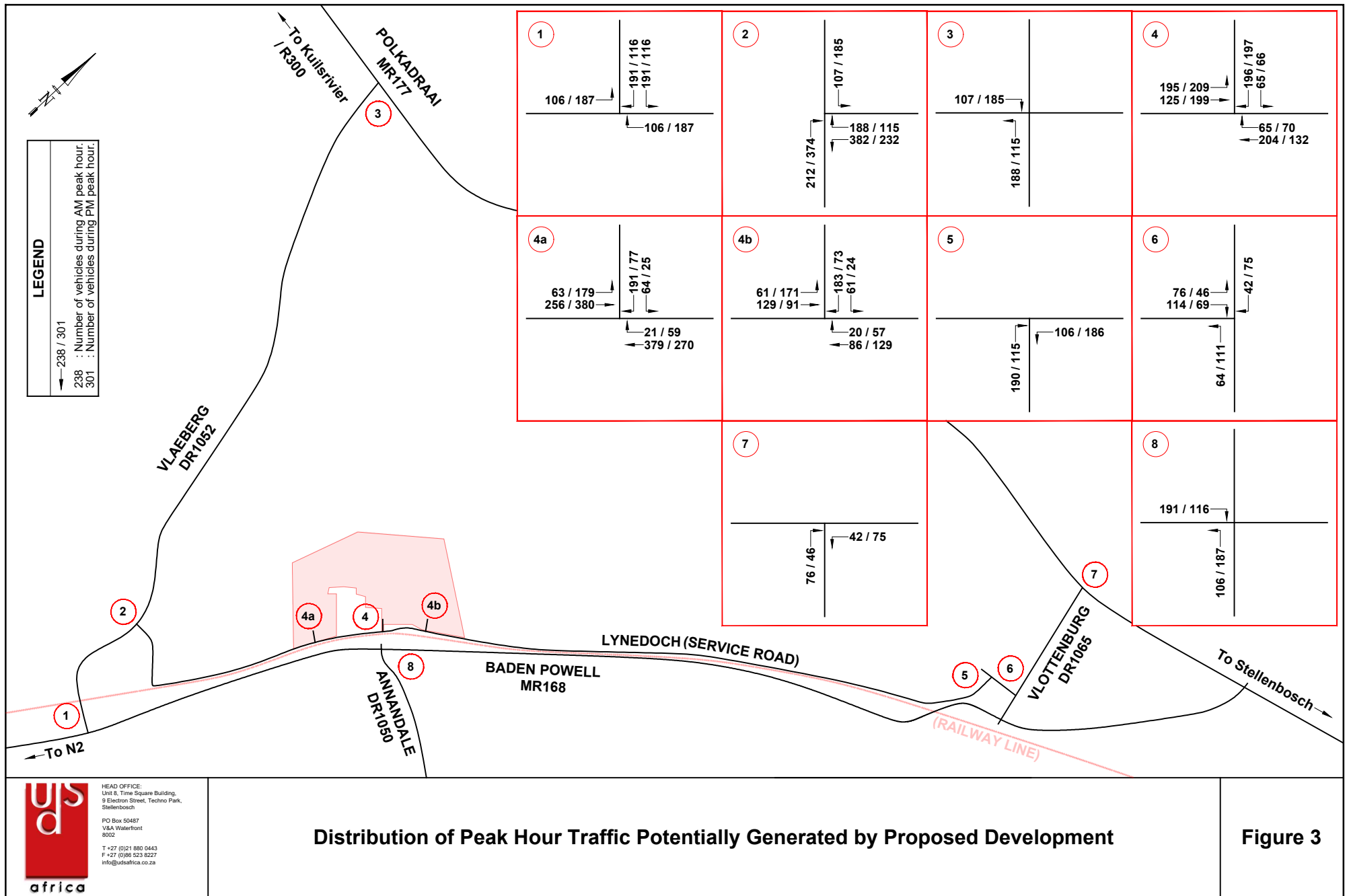
Locality Plan

PORTION 28 LAND USE TABLE			
Site area	45.48 Ha		
Land use	Area	Units	
School Component (A2)	1.78 Ha		
Commercial (A1,B5)	0.50 Ha		
Clubhouse Component(B5)	0.18 Ha		
Mixed Use Component (B1-4)	0.7 Ha	515 units	
Residential (@80 du/ha)	5.88 Ha		
Residential (@40 du/ha)	8.74 Ha		
Alottment Villas	10.31 Ha	14 units	
Total (excluding areas below)	28.09 Ha	884 units	
Detention & SW area	1.15 Ha		
Indigenous slopes	6.43 Ha		
Roads & squares	4.86 Ha		
Private open space	4.04 Ha		







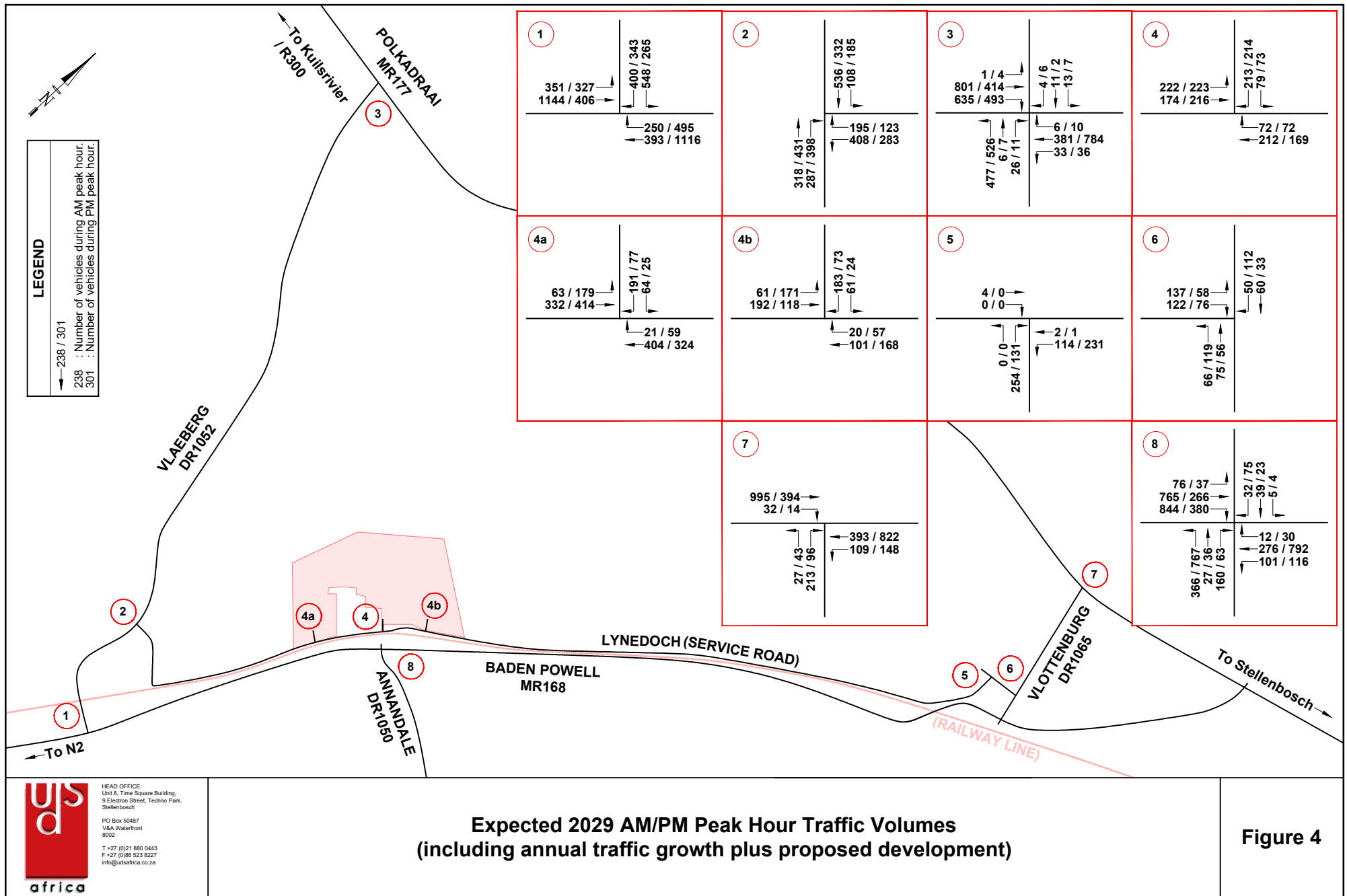


Distribution of Peak Hour Traffic Potentially Generated by Proposed Development

Figure 3



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**Expected 2029 AM/PM Peak Hour Traffic Volumes
 (including annual traffic growth plus proposed development)**

Figure 4



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