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Our Ref: D027  
Date: 8 January 2019



Engineering Services  
Stellenbosch Municipality  
PO Box 17  
Stellenbosch  
7599

**For attention: Mr. Nigell Winter**

Sir

**UPDATED TRANSPORT IMPACT ASSESSMENT FOR HOUSING DEVELOPMENT ON ERF 9445 AND REMAINDER ERF 11330 IDA'S VALLEY, STELLENBOSCH**

This transport impact assessment is an update of the report dated 14 June 2017 and covers the added impact of 36 additional units on Rem Erf 11330. The assessment considers traffic from both the Erf 9445 and 11330 properties, to be developed by ASLA, as well as the Amoi development and the Helshoogte Road study undertaken by iCE Group. Intersection improvements implemented since the 2017 study were taken into account.

**1. BACKGROUND**

Deca Consulting Engineers were appointed by ASLA Devco to assess the transport impact of proposed housing developments on Erf 9445 and Remainder Erf 11330 in Ida's Valley, Stellenbosch. The locations of the two developments are shown in **Figure 1**.

Erf 11330: Remainder Erf 11330 is located in upper Ida's Valley, just north of Old Helshoogte Road. The development will obtain access via the existing lower order road network in Ida's Valley.

Erf 9445: The development is located at the northern end of Ida's Valley.

**2. DEVELOPMENT PROPOSALS**

Erf 11330: The latest Site Layout Plan (*Deca Drawing No. D187-A-06 Rev C dated March 2018*, attached) shows that Remainder Erf 11330 will be subdivided into single and general residential erven as well as roads and public open space. Ninety-six (96) flats will be provided on the two general residential erven, while single residences will be built on the remaining 203 residential erven. A stream runs through the site from east to west and a bridge will be built over the stream to connect the northern and southern portions of the erf. The site will obtain access off Old Helshoogte Road opposite Assegai Road. This road will be extended to link up with Talana Road in the north. Another internal road will link up with the existing Merton Road. There will be no direct property access off Old Helshoogte Road. Spacing for the Erf 11330 access is sufficient, as it will be located directly opposite an existing street. Shoulder sight distance from the southern Erf 11330 access up and down Old Helshoogte Road is sufficient.

Erf 9445: As shown on the attached Site Layout Plan (*Deca Drawing No. D186/01 dated September 2018*), there will be single residential 166 erven. The proposed development will take access off the extension of Starking Road, which is a Class 5 road.

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The difference between the June 2017 and January 2019 development proposals are summarised in **Table 1**.

**Table 1: No. of units on Erf 9445 and Rem Erf 11330 Ida's Valley**

Erf number / development	June 2017 report	January 2019 report
Erf 11330 single residential	203 units	203 units
Erf 11330 flats	60 units	96 units
Erf 9445 single residential	166 units	166 units
<b>Total number of units</b>	<b>429 units</b>	<b>465 units</b>

### 3. EXISTING ROADS AND TRAFFIC

High order roads in the vicinity of the two developments include Helshoogte Road (Main Road 172), the Old Helshoogte Road (Minor Road 5225), Rustenburg Road (Divisional Road 1078) and Cluver Street (Main Road 175). In terms of the 2016 Western Cape Road Access Guidelines Helshoogte Road can be described as a Major Arterial (Class 2), Cluver Street as a Minor Arterial (Class 3) and Rustenburg and Old Helshoogte Roads as Collectors (Class 4).

The intersections that will be affected most by the developments include the following:

- Helshoogte Road / Cluver Street / Rustenburg Road
- Old Helshoogte Road / Rustenburg Road / Sonnebloem Street
- Rustenburg Road / Lelie Street
- Lelie Street / Bloekom Avenue
- Helshoogte Road / Lelie Street

The original transport impact assessment for the ASLA Ida's Valley developments was done in 2015 and therefore traffic counts were originally done in 2015. No new counts were done for this 2019 TIA update. The 2015 traffic counts were increased by 2% per year to 2019 and these volumes were used in the intersection analysis. The results of the analysis are discussed below. Also refer to **Figure 2**.

Helshoogte Road / Cluver Street / Rustenburg Road: The lane layout of this intersection was changed and new lanes were added during 2018. The improved intersection operates at a level of service C during both the morning and afternoon peak hours. The results of the SIDRA analysis were confirmed by observations during a site visit.

Old Helshoogte Road / Rustenburg Road / Sonnebloem Street: The intersection has stop control on the Old Helshoogte Road and Sonnebloem Street approaches. There is free flow of traffic on Rustenburg Road with two approach lanes per direction. According to the SIDRA analysis, all vehicle movements at this intersection operate at a level of service C or better.

The Bloekom Avenue / Lelie Street and Lelie Street / Rustenburg Road intersections are spaced approximately 45 metres apart, as shown in **Photographs 1 and 2**. Bloekom Avenue is the main east-west distributor road serving the northern section of Ida's Valley. Relatively low traffic volumes and short stop-line delays were observed at both intersections.

**Photo 1: Looking south along Lelie Street with the Bloekom Avenue intersection in the foreground and Rustenburg Road intersection in the background**



**Photo 2: Looking north along Lelie Street with the Rustenburg Road intersection in the foreground and the Bloekom Avenue intersection in the background**



The tyre marks and traffic observations at the Lelie Street / Rustenburg Road intersection show that very few vehicles turn right from Lelie Street onto Rustenburg Road. The sub-standard spacing of the two intersections and the acute angle with which Rustenburg Road joins Lelie Street are not ideal, but due to the low right turn traffic volumes and the unobstructed line of sight between the two intersections no improvements are currently required. Should further development occur to the north of Bloekom Avenue, it may be necessary to create two right-angled T-junctions, with the higher order Rustenburg Road being the through road and Lelie Street and Bloekom Avenue the side streets. Refer to **Diagram 1**.

**Diagram 1: Suggestion for future improvement of Rustenburg Road / Lelie Street / Bloekom Avenue intersections**



Helshoogte Road / Lelie Street: This intersection was signalised during 2018. The analysis shows that the upgraded intersection operates at a level of service A during both the morning and afternoon peak hours.

**4. YEAR 2022 BACKGROUND TRAFFIC**

The engineering services for the two developments are already under construction and it is anticipated that both developments will be completed and generating traffic by 2022. Year 2022 background traffic was used as the baseline against which the impact of the development could be measured. Year 2015 traffic counts were increased by 2% per year and added to Amoi development traffic to obtain expected 2022 background traffic volumes. The June 2006 Amoi traffic impact assessment (*Traffic impact study, Proposed rezoning of Farm 490/7 AMOI, Stellenbosch, BKS engineers, June 2006*) was based on 160 residential units, but the proposal has since been reduced to 108 units. The trip figures from the Amoi TIA were reduced accordingly. The analysis of affected intersections with Year 2022 background traffic shows the following (also see **Figure 3**):

Helshoogte Road / Cluver Street / Rustenburg Road: The intersection is expected to operate at a level of service C during the morning and afternoon peak hour.

Old Helshoogte Road / Rustenburg Road / Sonnebloem Street: All vehicle movements at this intersection operate at a level of service C or better.

Lelie Street / Helshoogte Road intersection. According to SIDRA, the intersection will operate at a level of service A during the morning and afternoon peak hours.

## 5. TRIP GENERATION AND DISTRIBUTION

Trip generation rates were obtained from the September 2013 COTO TMH17 South African Trip Data Manual, which gives trip generation rates of 1 trip per unit for single residences and 0,65 trips per unit for flats and apartments. The recommended rate for townhouses (0,85 trips per unit) was used for the Erf 9445 development. The trip generation potential of the Erf 11330 and Erf 9445 developments are summarised in **Tables 1 and 2** below.

**Table 1: Erf 11330 trip generation potential**

Housing type	No. Units	Trip gen rate	AM peak hour trips			PM peak hour trips		
			Total	In	Out	Total	In	Out
Single	203	1	203	51	152	203	142	61
Flats	96	0.65	62	16	47	62	44	19
<b>Total</b>			<b>265</b>	<b>66</b>	<b>199</b>	<b>265</b>	<b>186</b>	<b>80</b>

**Table 2: Erf 9445 trip generation potential**

Housing type	No. Units	Trip gen rate	AM peak hour trips			PM peak hour trips		
			Total	In	Out	Total	In	Out
Subsidy	166	0.85	141	35	106	141	99	42

Erf 11330 trips were distributed via Old Helshoogte Road and Rustenburg Road to the Helshoogte Road / Rustenburg Road / Cluver Street intersection, where it was split to the east, south and west according to the existing directional splits at the intersection. Erf 9445 trips were distributed via Bloekom Avenue and Old Helshoogte Road to Rustenburg Road and the Helshoogte Road / Cluver Street / Rustenburg Road intersection. The trip distribution of the two developments is shown in **Figure 4**.

## 6. TRAFFIC IMPACT

Development trips were added to 2022 background traffic volumes to obtain post development traffic volumes. The analysis of affected intersersections with these volumes show the following:

Helshoogte Road / Cluver Street / Rustenburg Road: The intersection is expected to operate at a level of service D during both the weekday morning and afternoon peak hours with traffic from the ASLA developments added.

Rustenburg Road / Old Helshoogte Road / Sonnebloem Street: All movements will operate at acceptable service levels, with the exception of the right turn movement on Sonnebloem Street which is expected to operate at a level of service E during the morning and afternoon peak hours. The signalisation of the Helshoogte Road / Lelie Street intersection gives an alternative to traffic from the area west of Rustenburg Road and it is anticipated that traffic from that area will move towards the Lelie Street intersection if delays become unacceptable at Rustenburg Road.

Rusteburg Road / Old Helshoogte Road / Lelie Street: The intersection will operate at a level of service A during the morning and afternoon peak hours.

Lelie Street / Bloekom Avenue: All movements at the stop controlled intersection will continue to operate at acceptable service levels.

Rustenburg Road / Lelie Street: All movements at the stop controlled intersection will continue to operate at acceptable service levels.

Post-development traffic volumes and service levels are shown in **Figure 5**. It can be concluded that the proposed developments will have a moderate traffic impact.

## 7. GEOMETRY

Erf 11330: The Site Layout Plan shows that the main road through the development (extension of Assegaai Road) will have a 13 metre-wide road reserve, with all other internal roads having 10-metre wide reserves. These widths are in accordance with the Guidelines for the Development of Engineering Services in Townships. The engineering design shows that all internal roads will have a 5-metre surfaced width. Splays have been provided for all corner properties and sufficient turning space has been provided in dead end streets. The single residential erven will have sufficient space for on-site parking. The engineering design shows that 96 parking bays will be provided at the flats – one per unit. This complies with the minimum rate of 0,75 bays per unit for residents and an additional 0,25 bays per unit for visitors.

Erf 9445: The Site Layout Plan shows that all internal roads will have 10-metre reserve widths. Corner erven all have splays. Dead end streets are maximum 5 erven deep and will not require turning circles. All parking will be provided on site.

## 8. PUBLIC AND NON-MOTORISED TRANSPORT

Erf 11330: It is expected that residents of the new development will walk to the nearest taxi stops on Old Helshoogte Road. No public transport infrastructure is required. The provision of a paved sidewalk along the extension of Assegaai Street through Erf 11330 should be considered.

Erf 9445: It is expected that residents of this development will walk to the nearest taxi stop on Bloekom Avenue. No public transport infrastructure is required. Most roads (Lindida Road, Hector Road, Adendorff Road) in the vicinity of the proposed development has paved sidewalks and it is recommended that the provision of a sidewalk along at least one side of Starking Road, which will be the access road and main ring road serving the development, should be considered.

## 9. CONCLUSIONS

The transport impact of the additional 36 flats on Remainder 11330 will be negligible.

The full developments on Erf 9445 and Remainder Erf 11330 Ida's Valley will have a moderate traffic impact. Other conclusions drawn from the study are summarised as follows:

- Remainder Erf 11330 is located adjacent to Old Helshoogte Road, high up in Ida's Valley. Erf 9445 is located at the northern end of Ida's Valley;
- Both developments will be residential in nature, with 299 units on Remainder Erf 11330 and 166 units on Erf 9445;
- The Remainder Erf 11330 development will obtain access off Old Helshoogte Road directly opposite Assegaai Street. Access spacing and shoulder sight distance are sufficient;
- The Erf 9445 development will obtain access via the extension of Starking Road;
- The Remainder Erf 11330 development will generate 265 trips in each of the morning peak hours, while Erf 9445 will generate 141 trips, also in both the morning and afternoon peak hours.

- The recently upgraded Helshoogte Road / Rustenburg Road / Cluver Street intersection operates at acceptable service levels with total 2022 traffic which will include traffic from the two Asla developments and the Amoi development.

## 10. RECOMMENDATIONS

It is recommended that the proposed developments on Remainder Erf 11330 and Erf 9445 Ida's Valley be approved, with the following conditions:

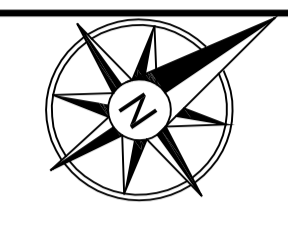
- The municipality should consider providing a paved sidewalk along the extension of Assegai Street through Erf 11330.
- The sub-standard spacing of the Rustenburg Road / Lelie Street and Lelie Street / Bloekom Avenue intersections, and the acute angle with which Rustenburg Road joins Lelie Street are not ideal. Should further development occur to the north of Bloekom Avenue, it may be necessary to create two right-angled T-junctions, with the higher order Rustenburg Road being the through road and Lelie Street and Bloekom Avenue the side streets. Refer to **Diagram 1**.

We trust that you will find this transport impact assessment in order. Kindly contact Liezl du Plooy should you require anything further.

Yours truly



**Liezl du Plooy M. Eng Pr. Eng**  
**Deca**



**FOR APPROVAL**

AMEND.	DATE	DESCRIPTION

**ENGINEER**  
**deca**  
 CONSULTING ENGINEERS  
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 7 Paterson Street  
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 Tel: 028 312 2292  
 Fax: 028 312 2325  
 E-mail: pieter@deca-c-o.co.za

Surveyed		Drawn	R.B
Designed	P.E	Checked	P.E
ENGINEER			
Signed:		Pi.Tech.Eng	Reg No: 201170321
Date:			

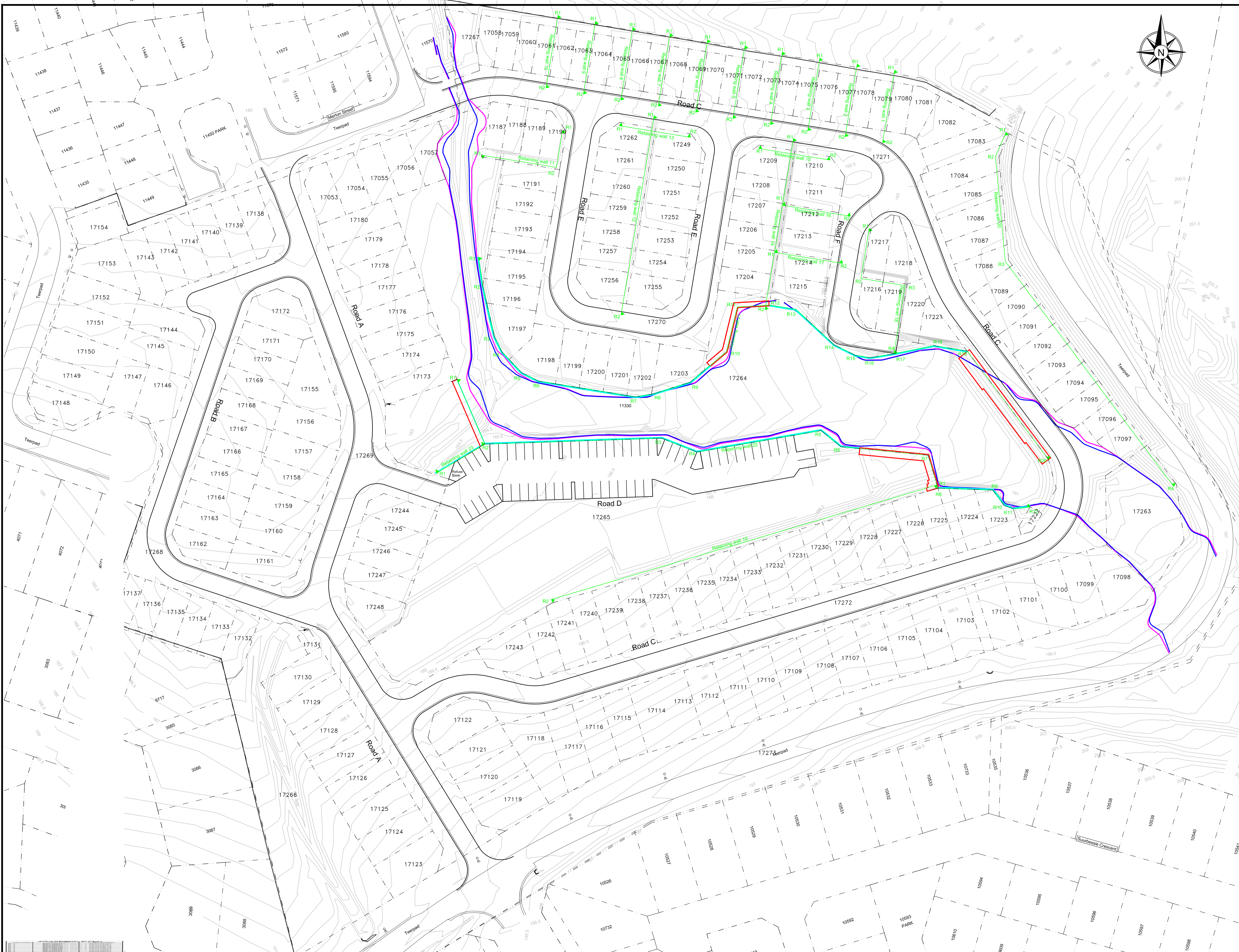
**CLIENT**  
 ASLA DEVCO  
 P.O. BOX 118  
 GORDON'S BAY  
 7151

**PROJECT**  
 ERF 9445  
 IDAS VALLEY

**PLAN DESCRIPTION**  
 OAK TREE VILLAGE:  
 ROAD, CULVERT AND GABION LAYOUT

SCALE	1:500 (A1)
DATE	SEPTEMBER 2018
PLAN NUMBER	D186/01
AMENDMENT	





NOTES

AMEND.	DATE	DESCRIPTION
A	10/04/2018	Retaining wall 23 added to layout
B	17/05/2018	Issued for construction
C	01/10/2018	Cadastral information amended

Surveyed	RAP Land Surveyors	Drawn	R.B
Designed	P.E	Checked	P.E

ENGINEER

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
 CLIENT

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
 ENGINEER



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PROJECT

IDAS VALLEY

PLAN DESCRIPTION

ERF 11330:  
 RETAINING WALL LAYOUT

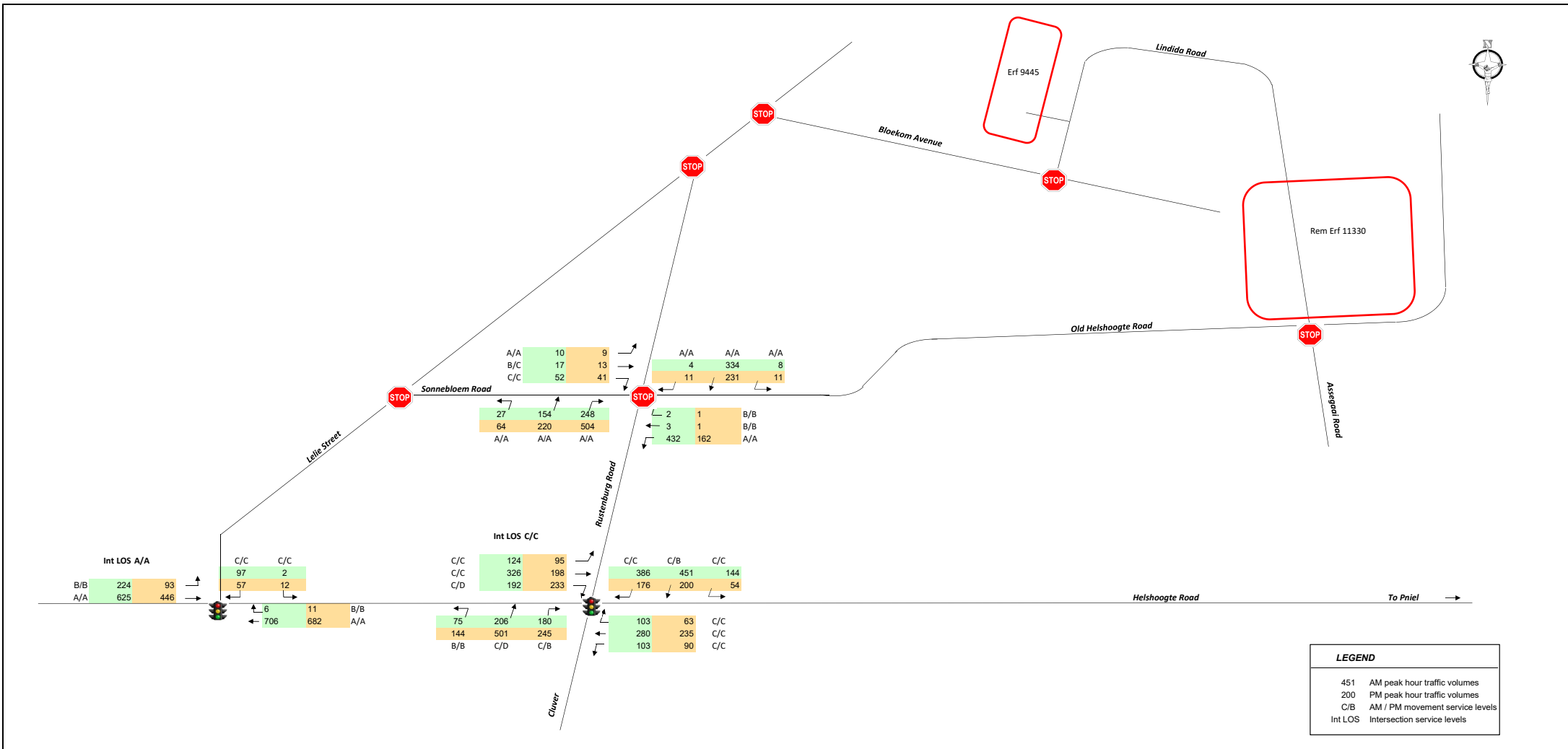
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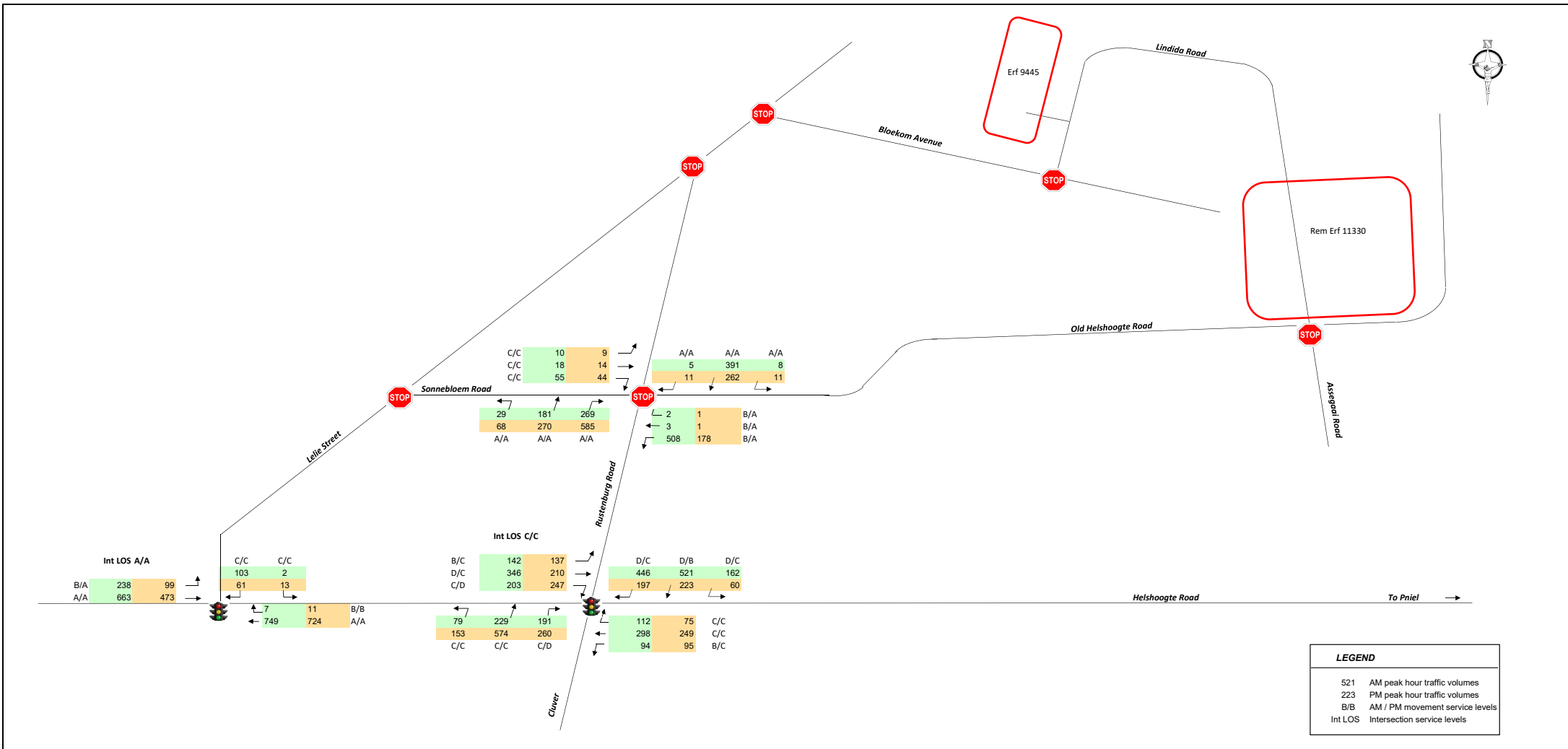
DATE  
 MARCH 2018

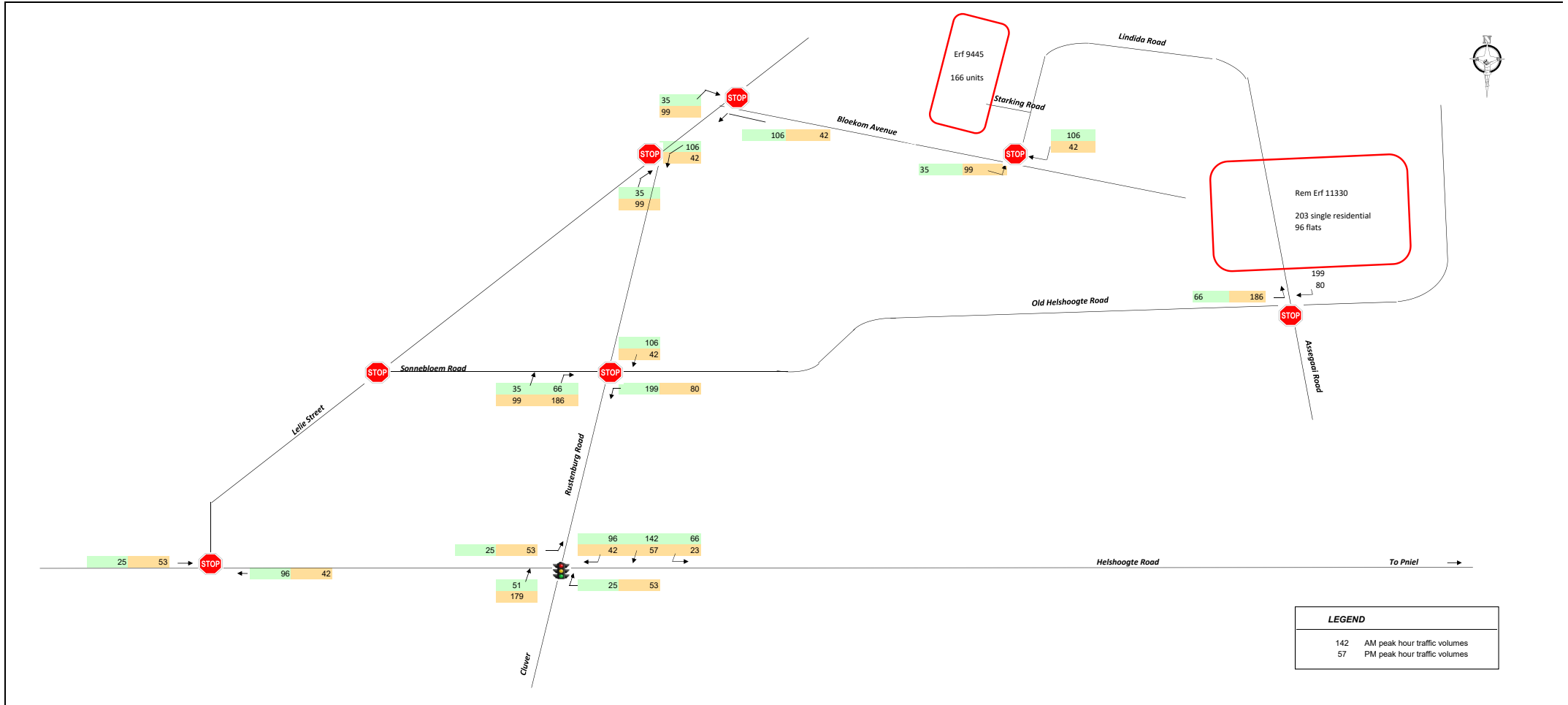
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 D187-A-06<sup>C</sup>

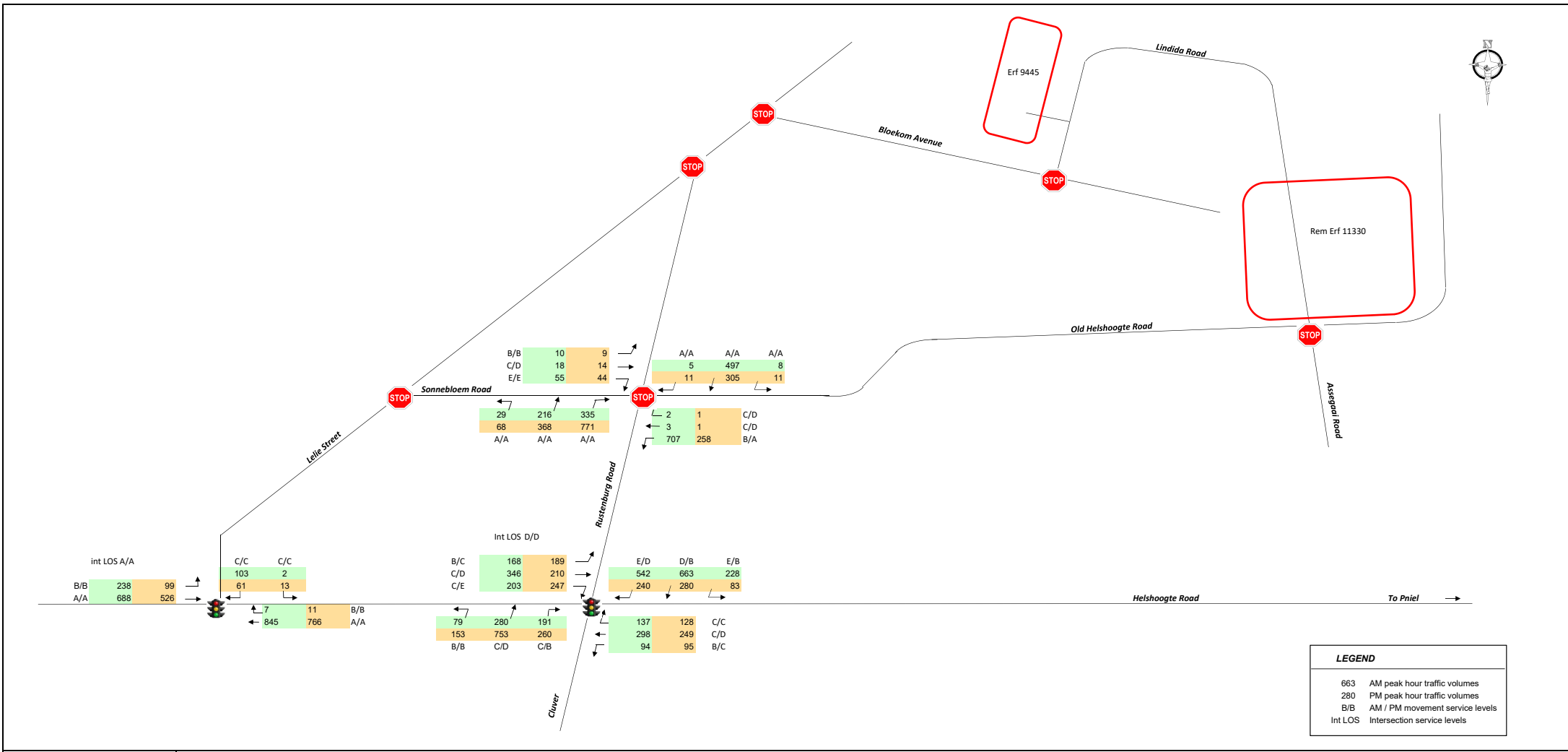
AMENDMENT	A	B	C
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TOTAL YEAR 2022 TRAFFIC AND SERVICE LEVELS  
(INCLUDING TRIPS FROM ERF 9445 AND REMAINDER ERF 11330)

FIGURE 5