

Contact Person: Liezl du Plooy
Our Ref: D027
Date: 8 January 2019



Engineering Services
Stellenbosch Municipality
PO Box 17
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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
Total number of units	429 units	465 units

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
Total			265	66	199	265	186	80

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.

Rustenburg 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

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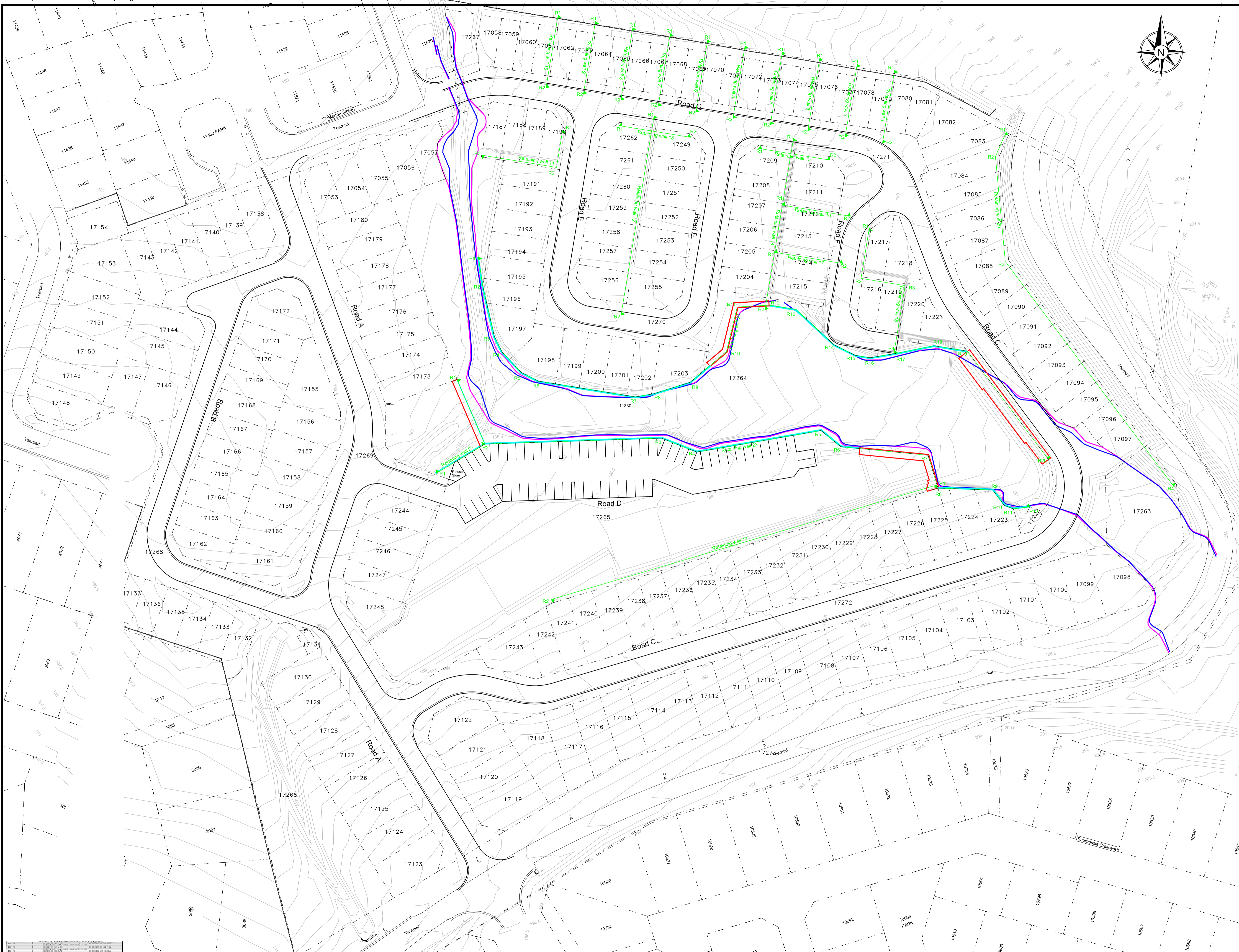
Surveyed		Drawn	R.B
Designed	P.E	Checked	P.E
ENGINEER			
Signed:		Pi, Tech. Eng	Reg No: 201170321
Date:			

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

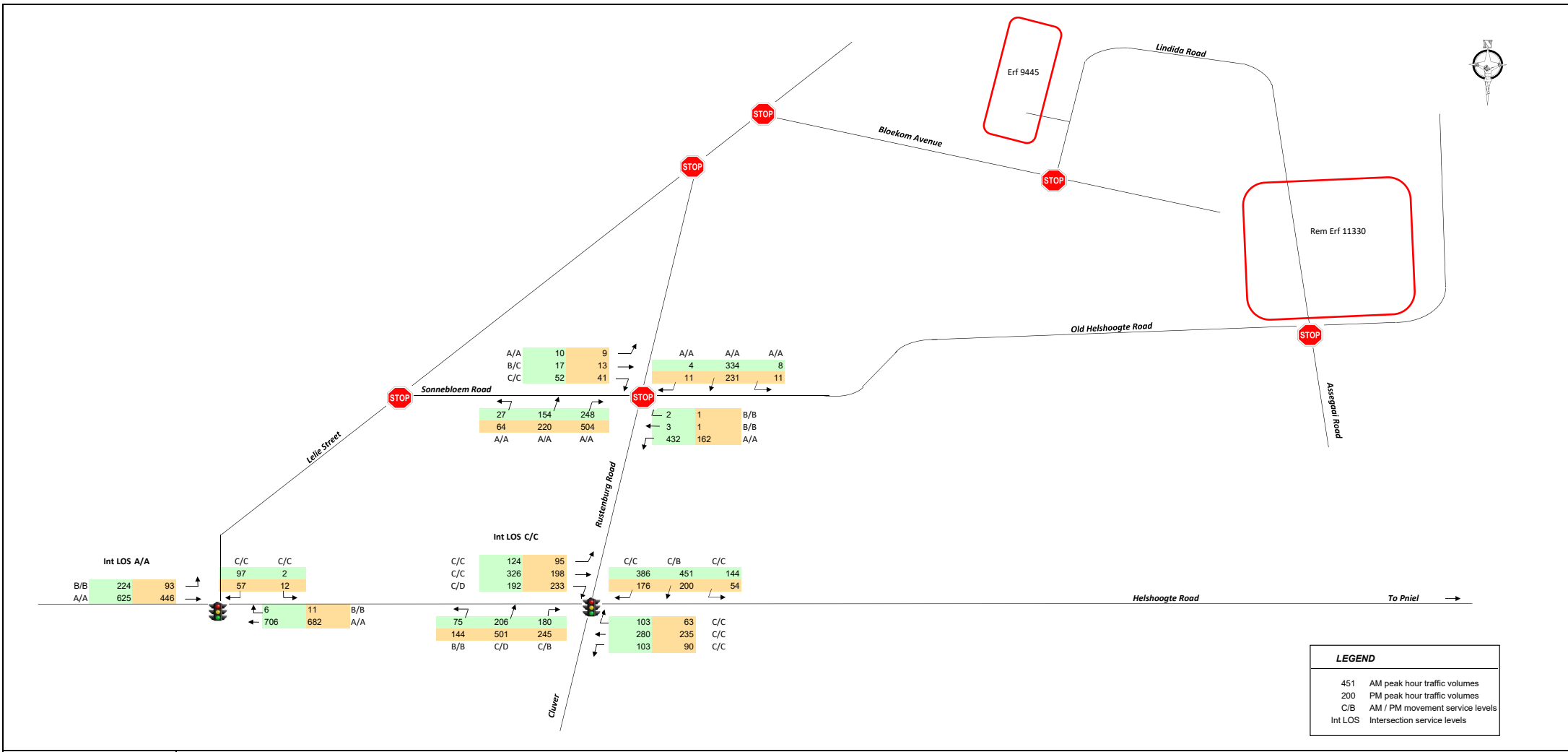
SCALE
 1:500 (A1)

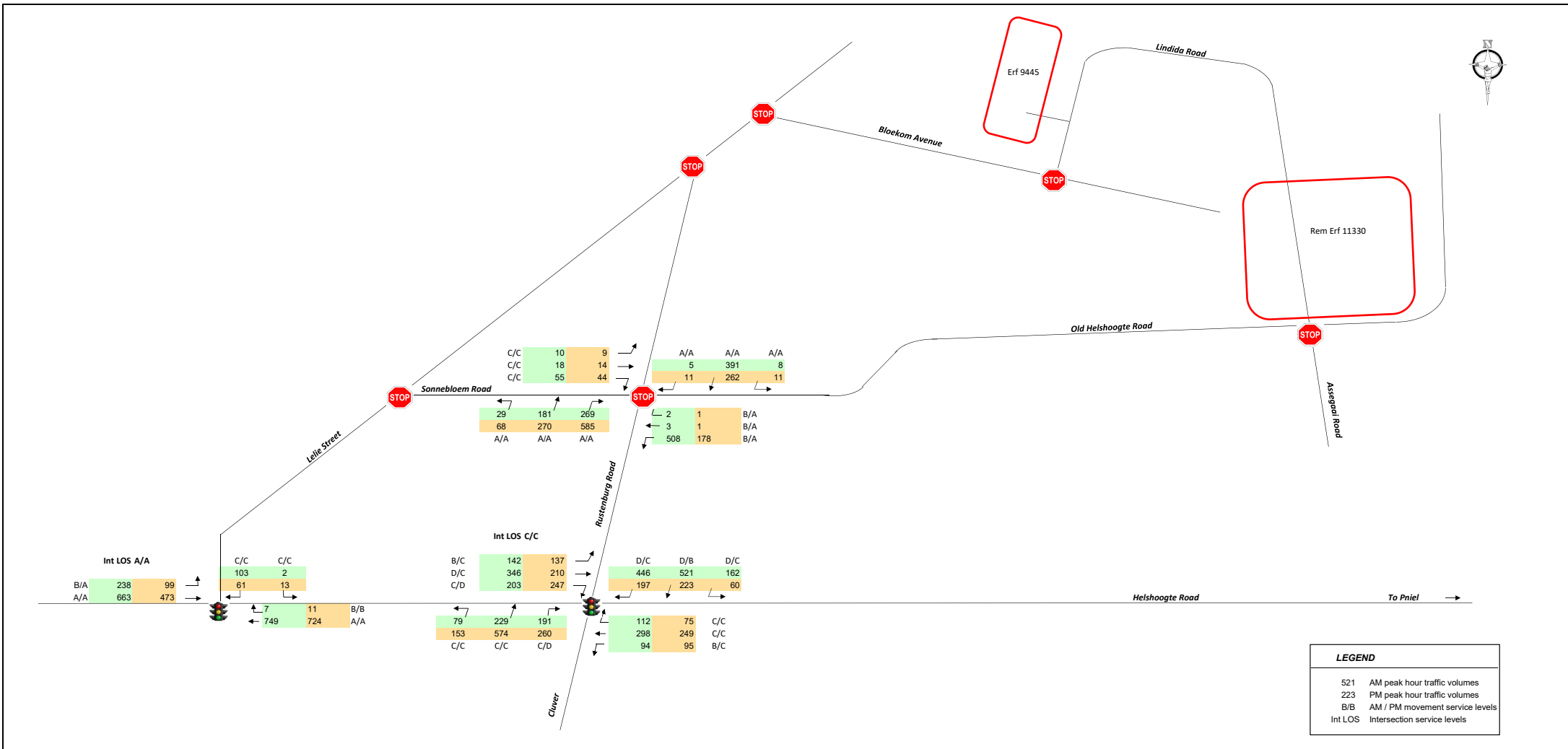
DATE
 MARCH 2018

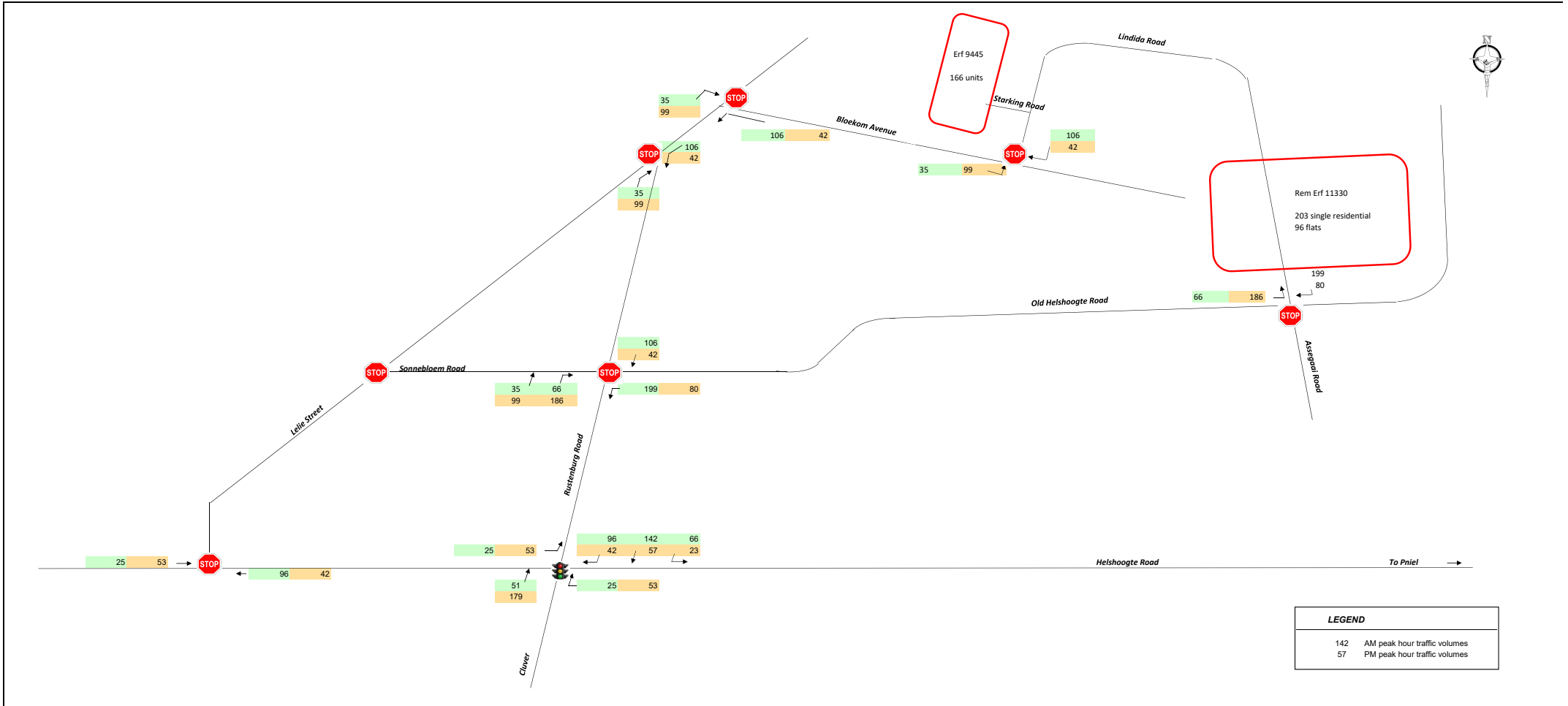
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 D187-A-06^C

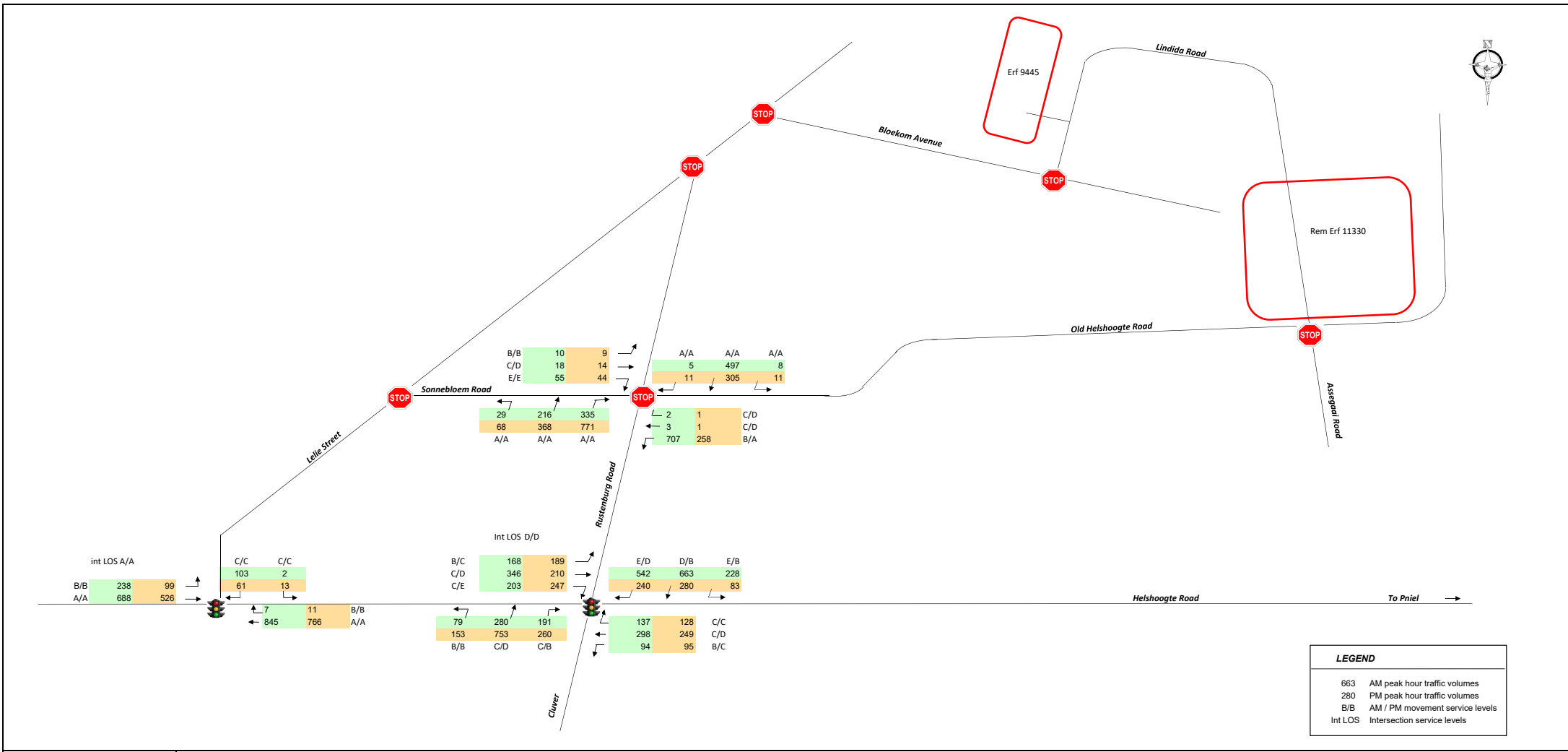
AMENDMENT	A	B	C
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Date: 24 July 2015



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For attention: Mr. Nigell Winter

Sir

TRANSPORT IMPACT ASSESSMENT FOR HOUSING DEVELOPMENTS ON REMAINDER ERF 11330 AND ON ERF 10866/11008 IDA'S VALLEY, STELLENBOSCH

This transport impact assessment accompanies the development application for above mentioned properties.

1. Background

Deca Consulting Engineers were appointed by ASLA Devco to assess the impact of two proposed housing developments in Ida's Valley, Stellenbosch. At the time of assessment, there was uncertainty regarding the feasibility of the development of Erven 10866 and 11008. For this reason, the transport impact of only the Erf 11330 and of both developments combined are discussed in this report. Remainder Erf 11330 is located in upper Ida's Valley, just north of Old Helshoogte Road. The Erf 10866 / 11008 development is located at the northern end of Ida's Valley. The location of the two developments are shown in **Figure 1**. Both developments will obtain access via the existing lower order road network in Ida's Valley.

2. Proposed developments

As shown on the attached **Proposed Subdivision** plan (Nuplan Africa Drawing No. 2.530-S2-02 dated 22 July 2014), Remainder Erf 11330 will be subdivided into 194 smaller erven. Of these, 123 erven will be 180m² and larger, with the remaining 71 erven being 120m² or smaller in size. The property will be divided by a stream / public open space running from east to west through the site. The southern portion will obtain access off Old Helshoogte Road opposite Assegai Road. This road will be extended to link up with Talana Road in the north. The northern portion will obtain access directly off Old Helshoogte Road. The last development plan for Erf 10866 / 11880 shows that this property will be subdivided into 96 erven. This development will obtain access via the extension of Starking Road.

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 2002 Western Cape Road Access Guidelines Helshoogte Road can be described as a Primary Arterial (Class 2); Cluver Street as a District Distributor (Class 3) and Rustenburg and Old Helshoogte Roads as Local Distributors (Class 4).

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Spacing for the southern 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, as shown in **Photographs 1 and 2**.

Photo 1: Shoulder sight line looking east along Old Helshoogte Road from Erf 11330 access



Photo 2: Shoulder sight line looking west along Old Helshoogte Road from Erf 11330 access



The spacing of the access to the northern portion is sufficient. The Guidelines for the provision of Engineering Services in Townships (Blue Book) suggests that the shoulder sight distance on a Class 4 road should be 80-90 metres, and 45 metres for a Class 5a road. The shoulder sight distance from the northern portion's access northwards along Old Helshoogte Road is approximately 70 metres (see **Photographs 3 and 4**). Sight distance to the south is more than 100 metres. Due to the low traffic volumes on the upper section of Old Helshoogte Road, the 70-metre sight line is deemed to be sufficient.

Photo 3: Looking south down Old Helshoogte Road from proposed Erf 11330 access. Shoulder sight distance is sufficient



Photo 4: Looking north up Old Helshoogte Road from proposed Erf 11330 entrance.



The Erf 10866/11008 development will take access off Starking Road, which is a Class 5 road. See **Photo 5**.

Photo 5: Looking west along Starking Road, which will be extended to give access to Erf 10866/11008



In order to assess the current traffic situation on the higher order roads serving the developments, traffic counts were obtained at the Helshoogte Road / Cluver Street / Rustenburg Road and Old Helshoogte Road / Rustenburg Road / Sonnebloem Street Intersections. Observations were made at the Rustenburg Road / Lelie Street and Lelie Street / Bloekom Avenue intersections, but no counts were done there.

The weekday morning and afternoon peak hours were assessed to determine existing service levels at these intersections. Refer to **Figure 2** for existing 2015 traffic volumes and service levels. The SIDRA analysis shows that the signalised Helshoogte Road / Cluver Street / Rustenburg Road intersection can operate at a level of service C during both the AM and PM peak hours with optimal signal staging. Please refer to the signal staging plans in **Annexure B**.

The Old Helshoogte Road / Rustenburg Road / Sonnebloem Street intersection has stop control on the Old Helshoogte Road and Sonnebloem Street approaches. Due to the intersection's close proximity to the Helshoogte Road / Cluver Street intersection, free flow of traffic with two lanes per direction is maintained on Rustenburg Road. All vehicle movements at this intersection operate at a level of service B or better.

The Bloekom Avenue / Lelie Street and Lelie Street / Rustenburg Road intersections are spaced approximately 45 metres apart, as shown in **Photographs 6 and 7**. 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 6: Looking south along Lelie Street with the Bloekom Avenue intersection in the foreground and Rustenburg Road intersection in the background



Photo 7: 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 developments 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



4. Remainder Erf 11330 traffic impact

For this development, it was assumed that the 123 larger erven would generate 1,1 trips per unit and that the 71 smaller erven would generate 0,9 trips per unit. See Table 1 for the trip generation potential of Erf 11330.

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
Gap	123	1.1	135	34	101	135	101	34
Subsidy	71	0.9	64	26	38	64	38	26
Total			199	59	140	199	140	59

All these 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. **See Figure 3.**

The generated trips were added to the 2015 background traffic volumes to obtain expected 2016 traffic volumes. The 2016 volumes were again analysed to determine the impact caused by the additional trips. The analysis shows that, although delays will increase slightly, the Helshoogte Road / Cluver Street / Rustenburg Road intersection will continue to operate at a level of service C during both the weekday AM and PM peak hours with the traffic signals running on a three-stage phasing plan. The service level of the Sonnebloem Street approach at the Rustenburg Road / Old Helshoogte Road / Sonnebloem Street intersection will deteriorate to a C, but the other approaches will continue to operate at a level of service A. **See Figure 4.** It can be concluded that the development of Remainder Erf 11330 will have a low traffic impact.

5. Erf 10866 / 11008

Due to the small erf sizes in this development, it was assumed that the development will be aimed at a lower income market with low vehicle ownership. A trip generation rate of 0,9 trips per unit was used. See **Table 2** for the trip generation potential of the Erf 10866 / 11008 development.

Housing type	No. Units	Trip gen rate	AM peak hour trips			PM peak hour trips		
			Total	In	Out	Total	In	Out
Subsidy	96	0.9	86	35	52	86	52	35

Erf 10866/11008 trips were distributed via Bloekom Avenue and Old Helshoogte Road to Rustenburg Road and the Helshoogte Road / Cluver Street / Rustenburg Road intersection as shown in **Figure 5**. Traffic from the Erf 10866/11008 development was added to existing traffic and Erf 11330 traffic to obtain expected 2017 traffic volumes. The analysis of affected intersections indicates that:

- All movements at the stop controlled Rustenburg Road / Old Helshoogte Road / Lelie Street intersection will operate at a level of service C or better;
- The signalised Helshoogte Road / Cluver Street / Rustenburg Road intersection will operate at a level of service C.

It is expected that all movements at the stop controlled Lelie Street / Bloekom Avenue intersection and at the Rustenburg Road / Lelie Street intersection will continue to operate at acceptable service levels. Expected traffic volumes and calculated service levels with traffic from the full development included are shown in **Figure 6**. The full proposed development (Remainder 11330 plus Erf 10866/11008) will have a low traffic impact.

6. Geometry

The **Proposed Subdivision** plan shows that the main road through the Erf 11330 development (extension of Assegai Road) as well as the second access off Old Helshoogte Road will have 13 metre road reserve widths. Other internal road reserve widths vary from 8 to 10 metres. These are all in accordance with the guidelines for the development of engineering services in townships. Blacktops should be at least 5,5 metres wide on the roads with 13- and 10-metre reserve widths and minimum 4 metres wide on the short stretch of road with an 8-metre wide reserve.

Splays have been provided for all corner properties and sufficient space has been provided for turning circles in dead end streets. All bellmouths should have a radius of at least 5 metres. The larger, higher income erven will have sufficient space for on-site parking, but the smaller erven will not have enough space and cars will have to park on the road shoulder. This is common practice in low-vehicle ownership areas and should not pose a problem.

The preliminary Erf 10866/11008 layout shows road reserve widths of 10 metres (5,5-metre wide blacktops) for the access road and ring road, with 8-metre road reserves (4-metre blacktops) on the shorter link and culs-de-sac. Corner erven all have splays and bellmouths with 7-metre radii are shown on the drawing. Dead end streets are maximum 4 erven deep and will not require turning circles.

7. Public and Non-motorised transport

It is expected that residents of the two new developments will walk to the nearest taxi stops on Bloekom Avenue and Old Helshoogte Road, respectively. No public transport infrastructure is required.

Most roads (Lindida Road, Hector Road, Adendorff Road) in the vicinity of the Erf 10866/11008 development has paved sidewalks and it is recommended that a sidewalk should be provided along at least one side of Starking Road, which will be the access road and main ring road serving the development.

It is also recommended that a paved sidewalk should be provided along the extension of Assgaai Street through Erf 11330 and that a pedestrian bridge be provided across the stream / public open space dividing the northern and southern sections of this development.

8. Conclusions

8.1 Remainder Erf 11330

- This erf will be subdivided into 194 smaller erven, of which 123 erven will be 180m² and larger and 71 erven will be 120m² or smaller in size;
- The southern portion of this development will obtain access off Old Helshoogte Road directly opposite Assgaai Street. Access spacing and shoulder sight distance are sufficient;
- The northern portion of this development will obtain access off Old Helshoogte Road further to the north. Access spacing is sufficient. The approximately 70 metre-shoulder sight distance to the north of the access is a little less than the suggested 80-90 metre standard, but is deemed sufficient given low traffic volumes on the upper section of Old Helshoogte Road;
- The development will generate 199 trips in each of the AM and PM peak hours;
- The development will have a low traffic impact.

8.2 Erf 10866 / 11008

- There is uncertainty regarding the feasibility of the development of this erf;
- If developed according to the 2014 layout proposal, the property will be subdivided into 96 smaller erven;
- Access will be obtained via the extension of Starking Road;
- The development will generate 86 trips in each of the AM and PM peak hours;
- The development will have a low traffic impact.

9. RECOMMENDATIONS

9.1 General

- The traffic signal phasing plan at the Helshoogte Road / Cluver Street / Rustenburg Road intersection needs to be changed to a three-stage plan;
- 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 developments 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**.

9.1 Remainder Erf 11330

- The internal roads with 13- and 10-metre reserve widths should have minimum 5,5-metre wide blacktops and the short stretch of road with the 8-metre wide reserve should have a blacktop width of at least 4 metres;
- All bellmouths should have a radius of at least 5 metres;

- A paved sidewalk should be provided along the extension of Assgai Street through Erf 11330;
- A pedestrian bridge should be provided across the stream / public open space dividing the northern and southern sections of this development.

9.2 Erf 10866 / 11008

- A sidewalk should be provided along at least one side of Starking Road, which will be the access road and main ring road serving the development.

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**





ZONING	LAND USE	PTN'NR	N Erven	N Units	AREA (ha)	%
Single Residential	GAP & Affordable housing	1 - 205	194	194	2,81	44,89
General residential	Flats	208, 209	2	60	0,41	6,55
Public open space	Public open space	210 - 213	4		0,82	13,10
Local authority	Roads				2,22	35,46
TOTAL			200	254	6,26	100

- Typical erf sizes:**
- 20m x 11m = 220m² (24erven)
 - 20m x 9m = 180m² (47erven)
 - 20m x 6m = 120m² (46erven)
 - 14.5m x 6.52m = 94.54m² (58erven)
 - 14.5m x 8.02m = 116.29m² (19erven)
- Contours:**
Intervals 1m
- Subdivisional area

NOTA: ALLE AFSTANDE BY BENADERING EN ONDERHEWIG AAN OPMETING
NOTE: ALL MEASUREMENTS APPROXIMATE AND SUBJECT TO SURVEYING

HERSIENINGS • REVISIONS		
NO	DATUM/DATE	BESKRYWING/DESCRIPTION
01	18 Feb 2011	Change description land use table - single residential
01	10 April 2012	Redesign northern component - replace with subsidy housing
01	25 Oct 2012	Finalize land use table
02	22 July 2014	Revise layout and land use table

NuPLAN AFRICA
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Projek • Project
IDAS VALLEY
Rem Erf 11330

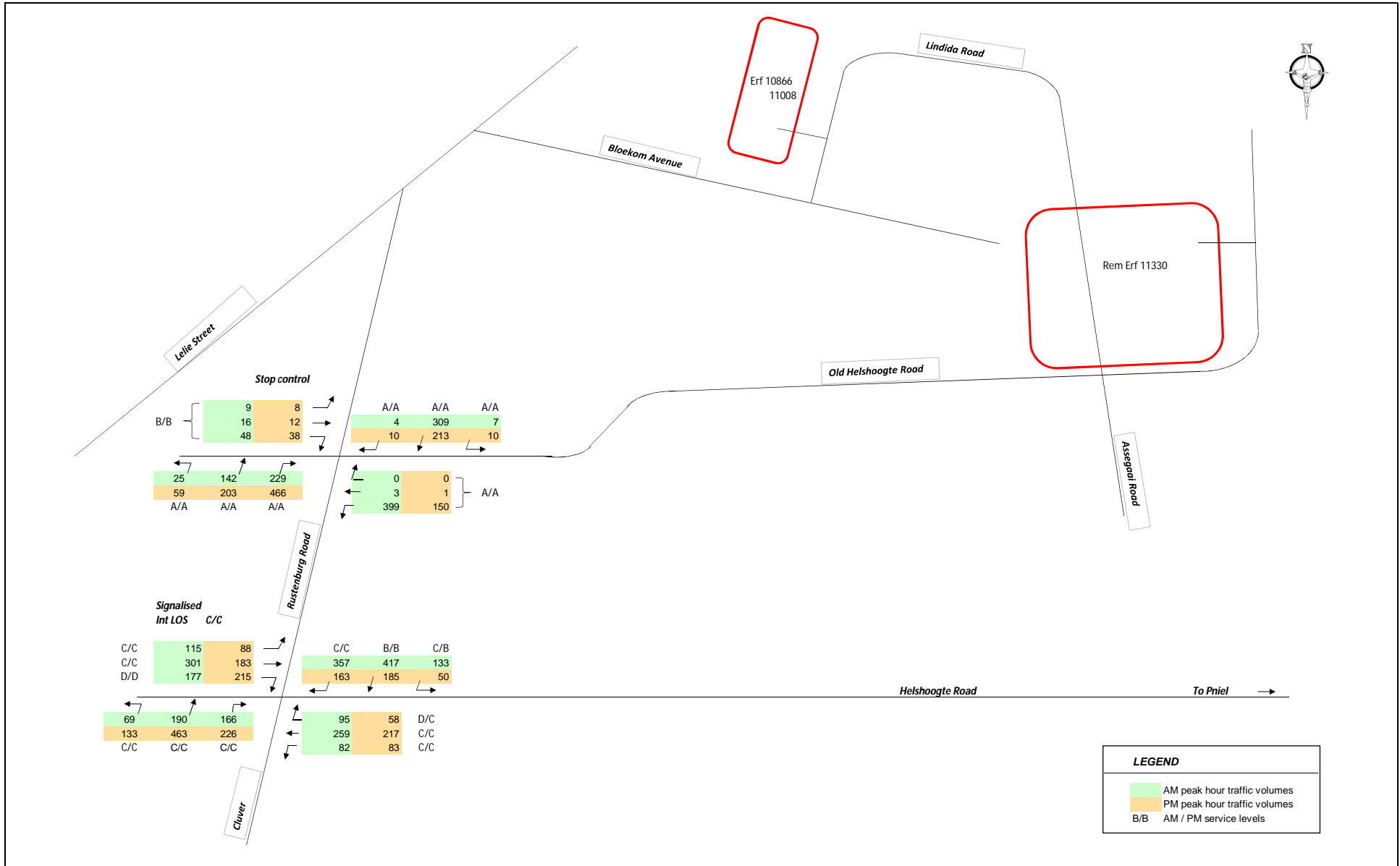
Tekening • Drawing
Proposed subdivision

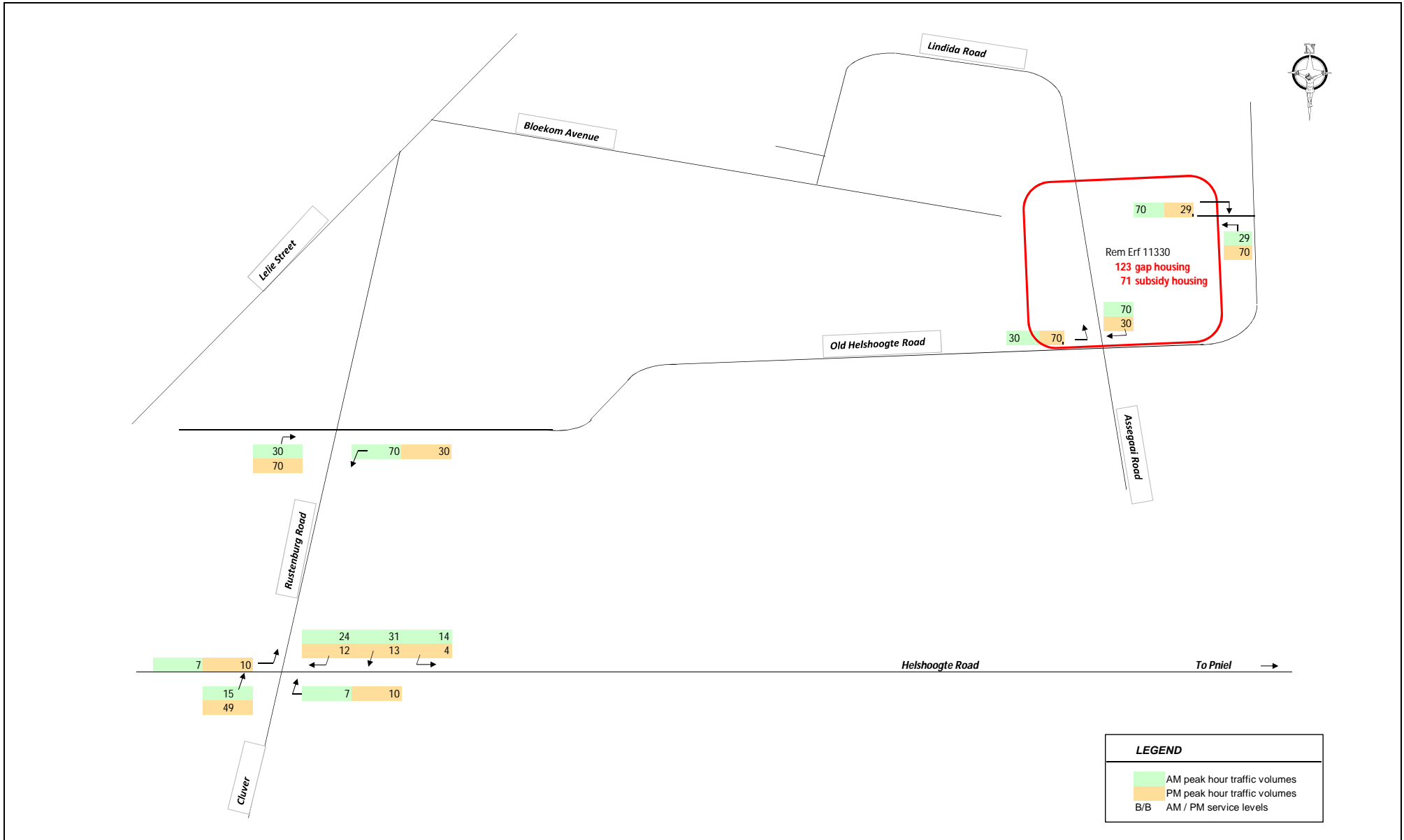
DATUM DATE	22 July 2014	GETEKEN DRAWN	AV
SKAAL SCALE	A3 - 1:1500	ONTWERP DESIGNED	AV

PROJ • TEK/DWG • HERS/REV
TEK.Nr DWG.No 2.530 - S2 - 02

Base map & topographical info supplied by Rene Pesch Land Surveyor

DRAFT





LEGEND	
	AM peak hour traffic volumes
	PM peak hour traffic volumes
B/B	AM / PM service levels

