Traffic Engineering & Transport Planning
STURGEON CONSULTING

Traffic Impact Statement

for the

PROPOSED STOMPNEUS BAY IRDP HOUSING PROJECT FOR SALDANHA BAY MUNICIPALITY ON PORTION 4 OF FARM 6, ST HELENA BAY, WESTERN CAPE

Project No: STUR0414

May 2024
Final Report

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DOCUMENT CONTROL SHEET

<table>
<tr><th>DATE</th><th>REPORT STATUS</th><th>AUTHORED BY:</th><th>APPROVED BY:</th></tr>
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<tr><td rowspan="2">3 May 2024</td><td rowspan="2">Final</td><td>NAME
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<tr><td colspan="4">TITLE:
STOMPNEUS BAY HOUSING PROJECT ON PORTION 4 FARM 6 FOR SALDANHA BAY MUNICIPALITY, ST HELENA BAY: TRAFFIC IMPACT STATEMENT</td></tr>
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<tr><td colspan="4">SYNOPSIS:
This report assesses the key transportation issues pertaining to the Stompneus Bay housing project which consists with 215 IRDP units, a creche and church on Portion 4 of Farm 6 in the Saldanha Bay Municipality, St Helena Bay, Western Cape.</td></tr>
</table>

SUMMARY SHEET

Report Type	Traffic Impact Statement
Title	Saldanha Bay Municipality: Stompneus Bay IRDP Housing Project
Location	Portion 4 Farm 6, St Helena Bay, Western Cape
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Date	May 2024
Report Status	Final Report

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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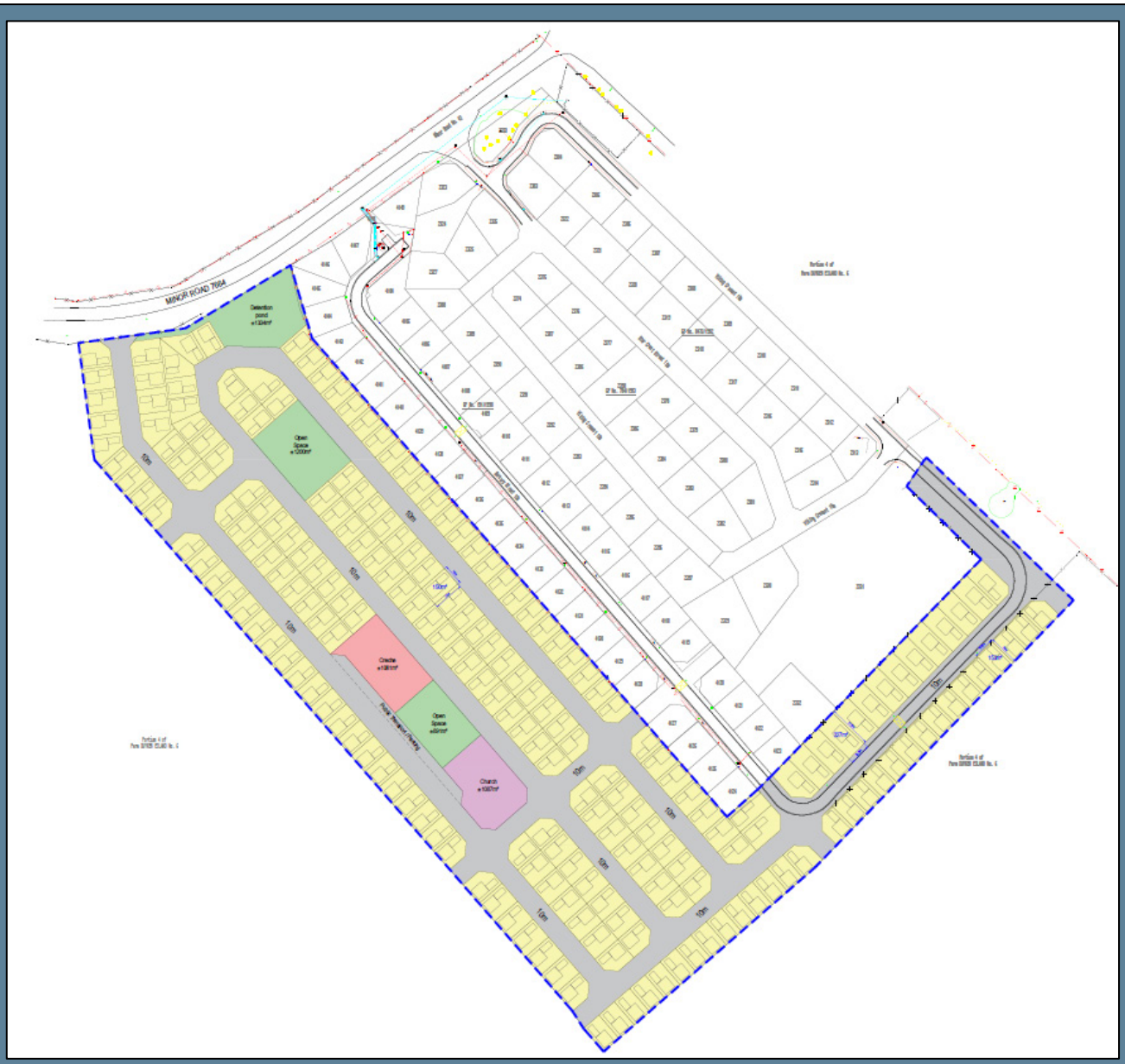
Acronyms

AMG – Access Management Guidelines
RAG- Road Access Guidelines
TIA – Traffic Impact Assessment
TIS – Traffic Impact Statement
SDP – Site Development Plan
LOS – Level of Service
IPTN – Integrated Public Transport Network
WCG – Western Cape Government
NMT – Non-Motorised Transport
PHF – Peak Hour Factor
AM – Morning
PM – Afternoon
d – Average delay in seconds
v/c – Volume/capacity ratio
vph – vehicles per hour
vpd – vehicles per day

Traffic Impact Statement (TIS) Stompneus Bay IRDP Housing Project on Portion 4 of Farm 6 in St Helena Bay, Western Cape	
1. Purpose of Report	Sturgeon Consulting (Pty) Ltd was appointed by iX Engineers to undertake the Traffic Impact Statement (TIS) for the proposed Stompneus Bay Integrated Residential Development Programme (IRDP) housing project on Portion 4 of Farm 6 in St Helena Bay, Western Cape. The proposed development will consist of 214 IRDP residential units, a creche and a church. The purpose of this report is to determine the expected transport related impacts of the proposed development on the surrounding road network.
2. Locality *Reference: Figure 1*	Portion 4 of Farm 6, St Helena Bay, Western Cape **Description:** The subject property is located south of Shelley Point and on the southwest corner of the Main Street (MR533) / Concorde Drive (OP7664) intersection. The site is bordered by Smartie Town residential area to the northeast and Concorde Drive (OP7664) to the northwest. Refer to **Figure 1** in **Appendix A** for the Locality Plan.

3. Scope of Work	The scope of the work included in the TIS covers the following traffic engineering aspects: • Site observations • Existing and proposed development • Access arrangements • Existing traffic flows in the vicinity of the development • Existing and future road network planning • Trip generation for the proposed development • Traffic flow analysis • Recommended road upgrades if necessary • Non-motorised Transport (NMT) and public transport • Parking requirements
4. Proposed Development *Reference: Figure 2*	The subject property is approximately 5.9 ha in extent and is vacant. According to the *Saldanha Bay Municipality Spatial Development Framework, May 2019* the location of the proposed development has been identified as land to be utilised for future residential development. **The proposed development will consist of 214 IRDP residential units, a creche (±50 learners) and a church (±200 seats).** Refer to **Figure 2** in **Appendix A** for the Site Development Plan (SDP).

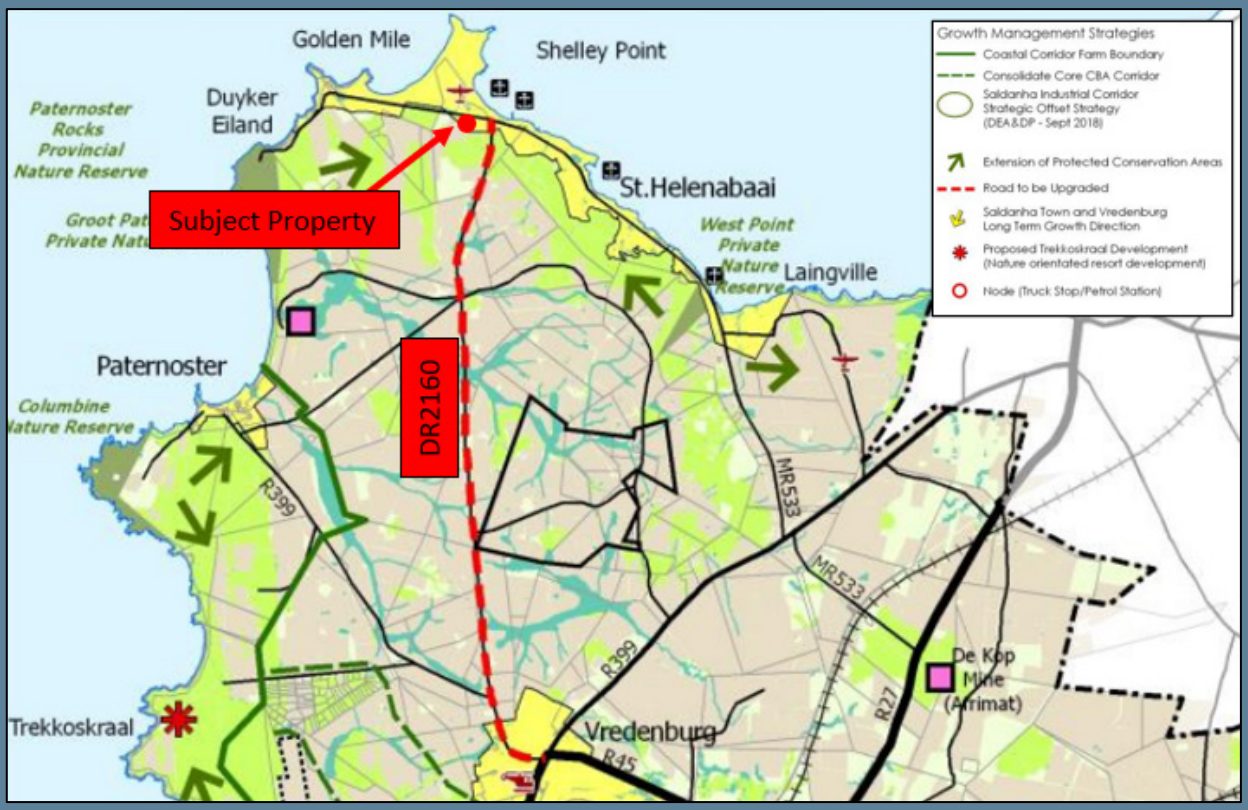


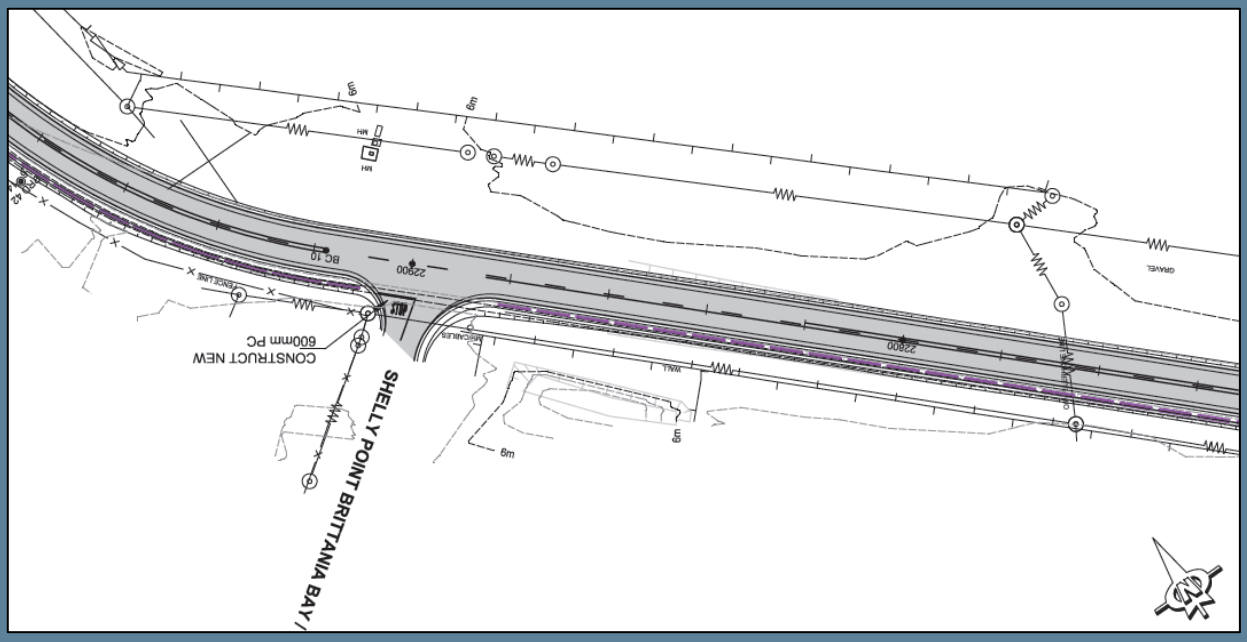
UNITS	SUBDIVISIONAL AREA - ZONING	LAND USE	COLOUR	TOTAL AREA	% OF AREA
214	RESIDENTIAL ZONE IV	Incremental Residential		3.5345 ha	60 %
3	OPEN SPACE ZONE I	Public open space		0.3314 ha	5 %
1	INSTITUTIONAL ZONE II	Church		0.1087 ha	2 %
1	INSTITUTIONAL ZONE I	Creche		0.1081 ha	2 %
1	TRANSPORT ZONE II	Public road		1.8355 ha	31 %
	TOTAL			5.9182 ha	100 %

5. Land Use/Zoning *Reference: Figure 2*	The proposed zoning will be as following: • Residential Zone IV: Incremental Residential • Institutional Zone II: Church • Institutional Zone I: Creche • Open Space Zone I: Public Open Space • Transport Zone II: Public Road Refer to **Figure 2** in **Appendix A** for the Site Development Plan (SDP).
6. Existing Access	The subject property is currently vacant and has no existing accesses. The proposed accesses to the subject property will be further discussed in **Section 12**.
7. Existing Roadways	The roads in the vicinity of the site are as follows: **Main Street (Main Road 533):** is a Class 3 minor arterial two-way undivided provincial main road, with an approximate width of 6.8m. Unsurfaced shoulders are present on both sides but there are no sidewalks in the vicinity of the site. Main Street (MR533) has a posted speed limit of 60km/h. Main Road 533 is currently being upgraded and construction is due to be completed early December 2024.  MR533 looking northwards toward OP7664 **Concorde Drive (Minor Road 7664):** is a Class 3 minor arterial two-way undivided provincial minor road, with an approximate width of 6.4m. Unsurfaced shoulders are present on both sides but there are no sidewalks in the vicinity of the site. Concorde Drive (OP7664) has a posted speed limit of 80km/h.

8. Future Road Network

According to *the Saldanha Bay Minicipality Spatial Development Framework, May 2019*, Divisional Road 2160 (DR2160) has been identified to be upgraded. DR2160 will form a north-south link between St Helena Bay and Vredenburg. The Main Street (MR533) / DR2160 intersection is located approximately 650m east of the proposed development. During the site visit it was confirmed that the upgrading of DR2160 has been completed.



	Main Street (MR533) for the entire length of St Helena Bay will be upgraded. The planned upgrading of Main Street (MR533) includes the upgrading of the Main Street (MR533) / Concorde Drive (OP7664) intersection. The proposed layout of the future Main Street (MR533) / Concorde Drive (OP7664) intersection, provided by Ero Engineers (Pty) Ltd, is shown below. The geometry of the Main Street (MR533) / Concorde Drive (OP7664) intersection will remain as is with each approach having two lanes (one per direction) and the Concorde Drive (OP7664) approach being stop-controlled. During the site visit it was confirmed that Main Street (MR533) is currently under construction in the vicinity of the proposed development and that a Stop/Go was in place at the Main Street (MR533) / Concorde Drive (OP7664) intersection. The construction is due to be completed early December 2024.
	
	No other future road network changes are foreseen in the vicinity of the proposed development.
9. Scenarios Analysed	The following scenarios for the TIS were analysed: • 2024 Present Traffic Demand • 2024 Total Traffic Demand (2024 traffic volumes including development trips) Intersection analyses were done using SIDRA Intersection 9.1 software.

10.Study Intersections	Based on our experience with similar traffic studies, the anticipated traffic impact on the surrounding road network and its location within the wider road network, the following intersections were included in the scope of the study: 1. Main Street (MR533) / Concorde Drive (OP7664) (Stop-controlled) 2. Concorde Drive (OP7664) / Star Crescent (Stop-controlled)

11. Existing Operations *References: Figure 3 & 4, Table 1*	Peak period traffic counts were conducted at the above-mentioned intersections on Thursday 11 April 2024 between 06:00 and 09:00 (3 hours) in the morning and between 15:00 and 18:00 (3 hours) in the afternoon. The peak hours are as follows: • AM peak hour 07:15 – 08:15

- PM peak hour 16:45 – 17:45

It should be noted that at the time of the traffic counts, Main Street (MR533) was being upgraded and a Stop/Go was in place along the majority of Main Street (MR533) as well as at the Main Street (MR533) / Concorde Drive (OP7664) intersection.

Refer to **Figure 3** and **Figure 4** for a summary of the existing traffic volumes at the study intersections.

The following comments are made in relation to the traffic volumes (total two-way) on the surrounding road network:

- Main Street (MR533) carries medium volumes of traffic to the south of the Main Street (MR533) / Concorde Drive (OP7664) intersection with approximately **550 vph** (two-way) during the AM peak hour and approximately **570 vph** (two-way) during the PM peak hour.
- The southeast-northwest directional split along Main Street (MR533) southeast of the Main Street (MR533) / Concorde Drive (OP7664) intersection is 55:45 during the AM peak hour and is 50:50 during the PM peak hour.
- Concorde Drive (OP7664) carries medium volumes of traffic west of the Main Street (MR533) / Concorde Drive (OP7664) intersection with approximately **460 vph** (two-way) during the AM peak hour and approximately **470 vph** (two-way) during the PM peak hour.
- The northeast-southwest directional split along Concorde Drive (OP7664) southwest of the Main Street (MR533) / Concorde Drive (OP7664) intersection is 60:40 during the AM peak hour and is 50:50 during the PM peak hour.
- Main Street (MR533) carries low volumes of traffic to the north of the Main Street (MR533) / Concorde Drive (OP7664) intersection with approximately **155 vph** (two-way) during the AM peak hour and approximately **180 vph** (two-way) during the PM peak hour.
- The northwest-southeast directional split along Main Street (MR533) northwest of the Main Street (MR533) / Concorde Drive (OP7664) intersection is 60:40 during the AM peak hour and is 50:50 during the PM peak hour.
- The major traffic movement along Main Street (MR533) southeast of the Main Street (MR533) / Concorde Drive (OP7664) intersection is southeast during both peak hours.
- The major traffic movement along Concorde Drive (OP7664) is northeast during both peak hours.

To supplement the traffic data, traffic counts obtained from the Western Cape Government's Road Network Information System (RNIS) at Main Street (MR533) / Concorde Drive (OP7664) intersection has been included. The latest traffic counts were conducted in 2022. The traffic data recorded at counting station, Station 0383B, located at km16.04 along Concorde Drive (OP7664) and the traffic data recorded at counting station, Station 0383A, located at km22.88 along Main Street (MR533) is shown below:

Concorde Drive (OP7664) – Leg B

Traffic Counts

Time	Light	Heavy	Taxis	Buses
00-01h00				
01-02h00				
02-03h00				
03-04h00				
04-05h00	3	0	0	0
05-06h00	31	0	0	1
Sub-Totals	**34**	**0**	**0**	**1**
06-07h00	114	0	8	1
07-08h00	246	1	19	1
08-09h00	312	9	1	0
09-10h00	349	17	1	0
10-11h00	329	20	0	0
11-12h00	305	26	1	0
12-13h00	295	23	0	0
13-14h00	328	25	3	1
14-15h00	333	13	1	2
15-16h00	324	14	2	1
16-17h00	329	14	10	1
17-18h00	315	2	10	1
Sub-Totals	**3579**	**164**	**56**	**8**
18-19h00	155	6	0	0
19-20h00	71	2	0	0
20-21h00	27	0	0	0
21-22h00	14	0	0	0
22-23h00				
23-24h00				
Sub-Totals	**267**	**8**	**0**	**0**
Totals	**3880**	**172**	**56**	**9**

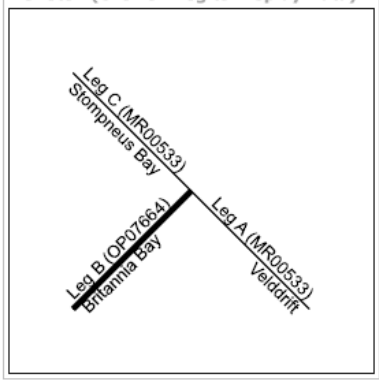
Station AADT's

	Light	Heavy	Taxis	Buses
	4734	**210**	**68**	**11**
Total	**5023**			

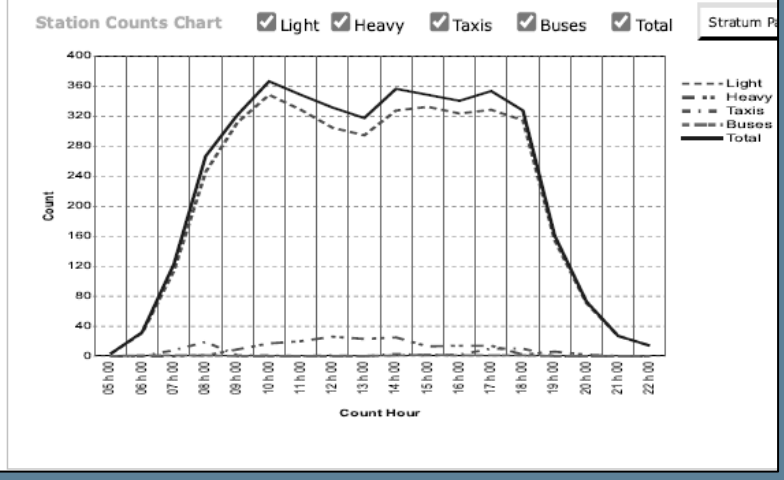
Station Data

Station No	**0383B**
Road No	**OP07664**
Km Distance	**16.04**
Count Date	**14/03/2022**
Hours Counted	**18**
Day Counted	**Monday**
Counted by	**C**
Expansion Factor	**1.22**
Stratum	**RA**
Peak Hour Ratio	**0.00**
Total AADT	**5023**

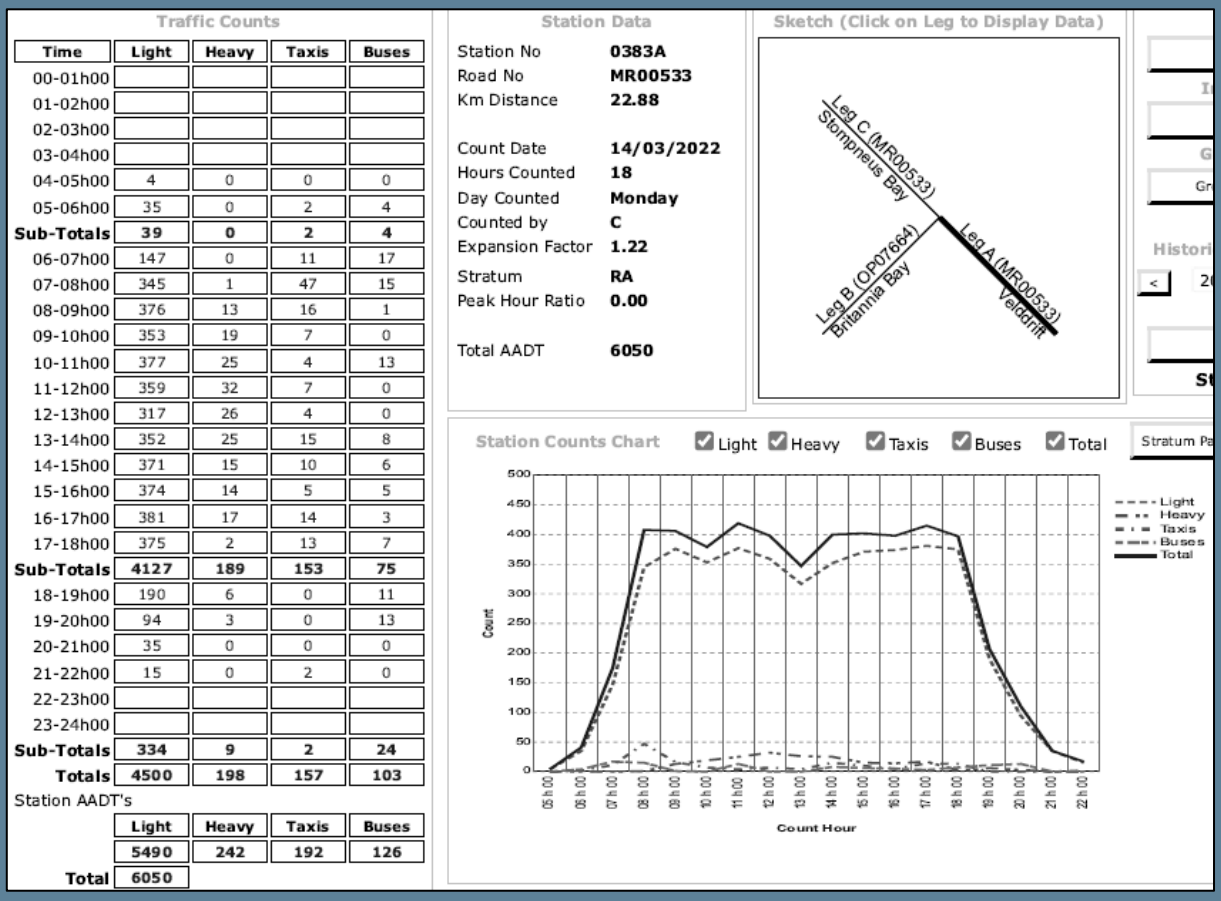
Sketch (Click on Leg to Display Data)



Station Counts Chart



Main Street (MR533) – Leg A



Traffic Counts

Time	Light	Heavy	Taxis	Buses
00-01h00				
01-02h00				
02-03h00				
03-04h00				
04-05h00	4	0	0	0
05-06h00	35	0	2	4
Sub-Totals	**39**	**0**	**2**	**4**
06-07h00	147	0	11	17
07-08h00	345	1	47	15
08-09h00	376	13	16	1
09-10h00	353	19	7	0
10-11h00	377	25	4	13
11-12h00	359	32	7	0
12-13h00	317	26	4	0
13-14h00	352	25	15	8
14-15h00	371	15	10	6
15-16h00	374	14	5	5
16-17h00	381	17	14	3
17-18h00	375	2	13	7
Sub-Totals	**4127**	**189**	**153**	**75**
18-19h00	190	6	0	11
19-20h00	94	3	0	13
20-21h00	35	0	0	0
21-22h00	15	0	2	0
22-23h00				
23-24h00				
Sub-Totals	**334**	**9**	**2**	**24**
Totals	**4500**	**198**	**157**	**103**

Station AADT's

	Light	Heavy	Taxis	Buses
	5490	242	192	126
Total	6050			

Station Data

Station No	**0383A**
Road No	**MR00533**
Km Distance	**22.88**
Count Date	**14/03/2022**
Hours Counted	**18**
Day Counted	**Monday**
Counted by	**C**
Expansion Factor	**1.22**
Stratum	**RA**
Peak Hour Ratio	**0.00**
Total AADT	**6050**

Concorde Drive (OP7664) carried an Average Annual Daily Traffic (AADT) of **±5 020 vehicles per day**, in 2022. In the AM peak hour, it carried approximately 365 vph (two-way) and 355 vph (two-way) in the PM peak hour.

The traffic growth rate provided by RNIS was approximately 8% per annum. This relates to approximately **425 vph** (two-way) and **415 vph** (two-way) in the 2024 AM and PM peak hours, respectively.

Main Street (MR533) to the southeast carried an Average Annual Daily Traffic (AADT) of **±6 050 vehicles per day**, in 2022. In the AM peak hour, it carried approximately 405 vph (two-way) and 415 vph (two-way) in the PM peak hour.

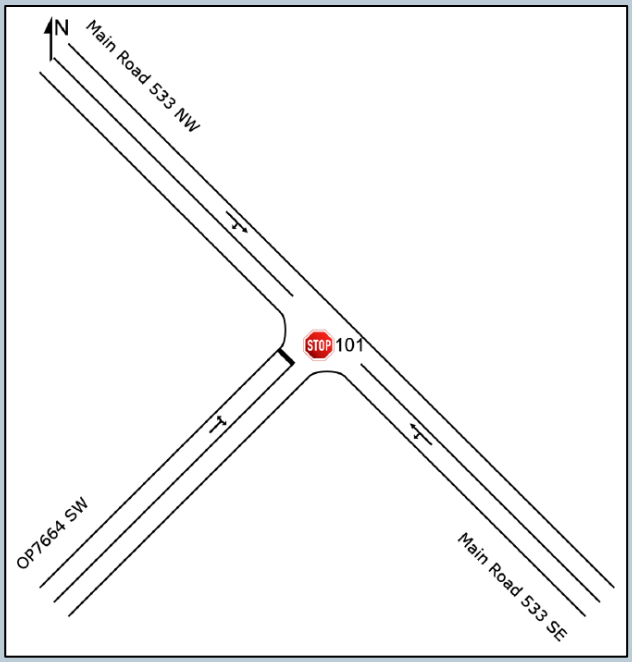
The traffic growth rate provided by RNIS was approximately 7.55% per annum. This relates to approximately **470 vph** (two-way) and **480 vph** (two-way) in the 2024 AM and PM peak hours, respectively.

The expected number of two-way trips calculated along Main Street (MR533) and Concorde Drive (OP7664) for 2024 based on the RNIS growth rates are slightly lower than the traffic volumes recorded in 2024

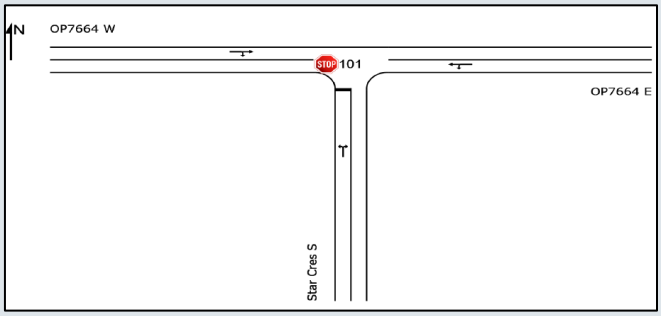
along these roads. To account for the worst-case scenario the counted 2024 traffic volumes were utilised as recorded with no adjustments.

The existing 2024 traffic operations at the study intersections were analysed using SIDRA Intersection 9.1 software.

1. Main Street (MR533) / Concorde Drive (OP7664) (Stop-controlled)

GEOMETRY	CAPACITY ANALYSIS RESULTS
	**AM Peak Hour:** Operates at acceptable Level of Service LOS). No capacity constraints along the critical southwestern approach (LOS A). **PM Peak Hour:** Operates at acceptable Level of Service (LOS). No capacity constraints along the critical southwestern approach (LOS A).

2. Concorde Drive (OP7664) / Star Crescent (Stop-controlled)

GEOMETRY	CAPACITY ANALYSIS RESULTS
	**AM Peak Hour:** Operates at acceptable Level of Service (LOS). No capacity constraints along the critical southern approach (LOS A). **PM Peak Hour:** Operates at acceptable Level of Service (LOS). No capacity constraints along the critical southern approach (LOS B).

	No upgrades are required in these scenarios for any of the study intersections. Refer to **Table 1** for a summary of the SIDRA results. Full details of the SIDRA analyses can be provided if required.
12.Trip Generation Rates *References: Table 2*	The additional 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 (Draft 2.1, August 2020)* published by the Committee of Transport Officials (COTO). For the residential portion of the proposed development a trip rate of 1.00 trips per unit for single dwelling units (COTO210) during the AM and PM peak hours was used. To account for the very low car ownership in the area, a trip reduction factor of 70%, as per *Table 3.2* in the *TMH17*, was applied to the single dwelling units trip generation rates. The trip rate for the residential portion of the proposed development will therefore be taken as **0.3 peak hour trips per unit** during the AM and PM peak hours. The trip generation from *TMH17* for the creche and church are as follows: • Creche (COTO565): 1.00 trips/student (AM), 0.80 trips/student (PM) • Church (COTO561): 0.05 trips/seat (AM), 0.05 trips/seat (PM) Furthermore, the following reductions to the trip generation rates for the church and the creche, as per *Table 3.2* in the *TMH17*, was applied to account for the very low car ownership in the area: • Creche (COTO565): Reduction of 80% • Church (COTO561): Reduction of 80% Based on the above trip generation rates and reduction factors, the expected trips for the proposed development are shown in the table below:

Land Use	Peak Hour	Extent	Trip Rate[1]	Split		Trips		Total
				In	Out	In	Out	
Residential	AM	214 units	0.3	25%	75%	16	48	64
	PM		0.3	70%	30%	45	19	64
Creche	AM	±50 students	0.2	50%	50%	5	5	10
	PM		0.16	50%	50%	4	4	8

	Church	AM	±200 seats	0.01	50%	50%	1	1	2
		PM		0.01	50%	50%	1	1	2
	Total AM						**22**	**54**	**76**
	Total PM						**50**	**24**	**74**

Note 1: TGR with reduction factors.

Refer to **Table 2** for a summary of the Trip Generation Rates and Estimated Peak Hour Trips.

10.Development Trips
References: Figure 5 & 6, Table 2

The total peak hour trips likely to be generated by the proposed development during the AM and PM peak hours are as follows:

- 76 AM trips (22 inbound, 54 outbound)
- 74 PM trips (50 inbound, 24 outbound)

Refer to **Table 2** for a summary of the Trip Generation Rates and Estimated Peak Hour Trips.

11. Trip Distribution

The generated traffic associated with the proposed development has been distributed onto the surrounding road network taking the following into account:

- Present traffic conditions;
- The nature of the development is residential; and
- Knowledge of the area.

Based on the location of the proposed development and traffic patterns on the surrounding network, the following distribution was used to assign the development traffic to the surrounding network during the AM and PM peak hours:

- 85% to/from the northeast along Concorde Drive (OP7664)
- 15% to/from the west along Concorde Drive (OP7664)
- 20% to/from the northwest along Main Street (MR533)
- 65% to/from the southeast along Main Street (MR533)

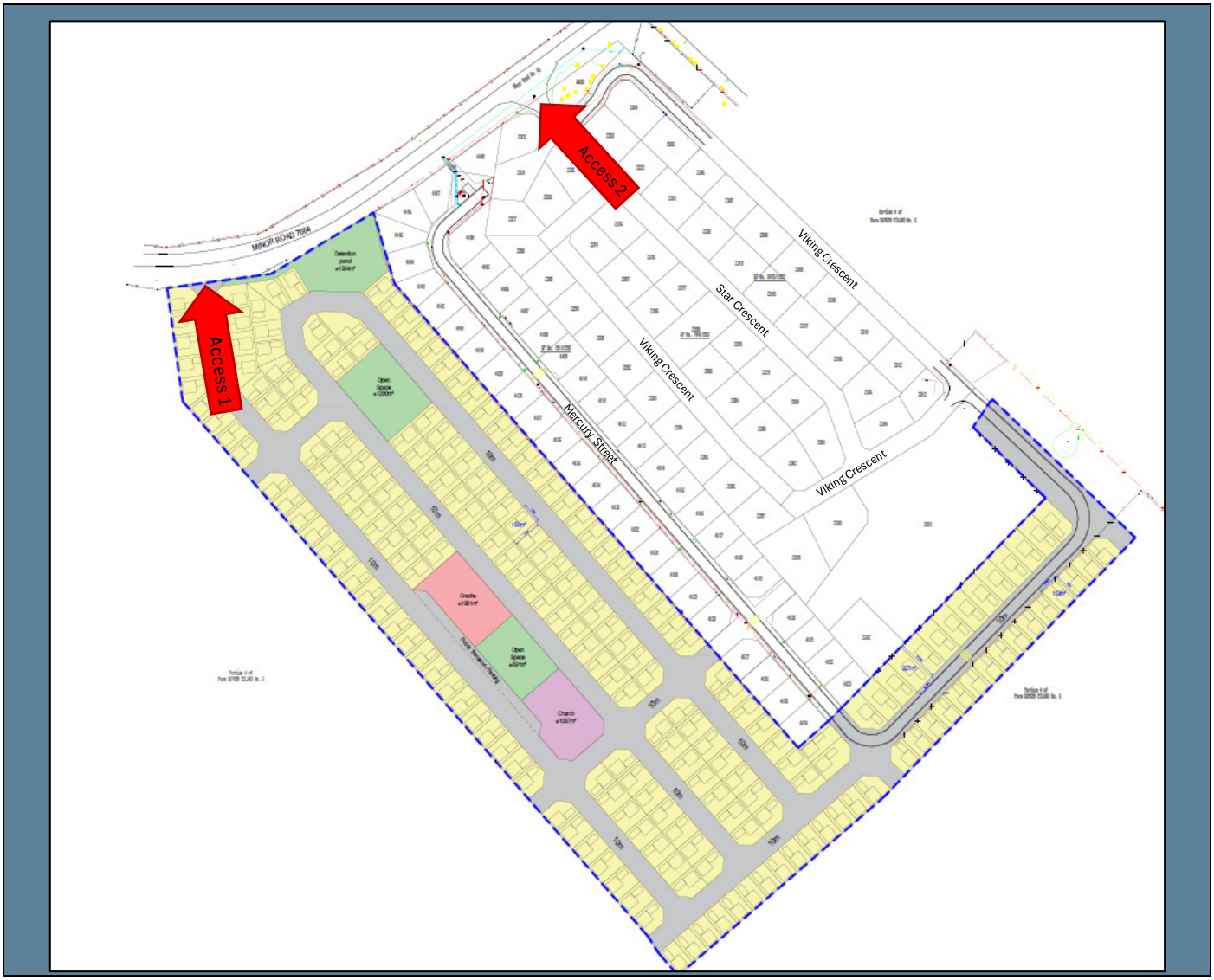
It was assumed that 80% of trips would make use of the proposed access along Concorde Drive (OP7664) to gain access to the wider road network while the remaining 20% of trips would make use of the existing Concorde Drive (OP7664) / Star Crescent intersection. The proposed accesses to the subject property will be further discussed in **Section 12**.

12. Site Access

The locations of the proposed accesses are shown on the figure below. All proposed accesses must have a two-lane cross-section with one lane in each direction. The main proposed access (Access 1) to the site will be via Concorde Drive (OP7664) located approximately 85m east of the Concorde Drive (OP7664) / Concorde Drive (north-south) intersection and approximately 190m southwest of the Concorde Drive (OP7664) / Star Crescent intersection. The main proposed access via Concorde Drive (OP7664) must be stop-controlled on the development side.

The proposed development will also make use of Star Crescent as a secondary access that will link the existing residential area, Smartie Town, with the proposed development. Star Crecsent is located along Concorde Drive (OP7664) approximately 80m southwest of the Main Street (MR533) / Concorde Drive (OP7664) intersection and is stop-controlled on the Smartie Town side.

No erven included in the proposed development will have direct access to Concorde Drive (OP7664). The internal road reserve widths are proposed to be 10m.


Access 2
Access 1
Viking Crescent
Star Crescent
Viking Crescent
Mercury Street
Viking Crescent

Accesses must follow the spacing requirements set out in the *Access Management Guidelines, 2020* published by the Western Cape Government's Transport and Public Works Department. As previously mentioned, Concorde Drive (OP7664) is a Class 3 minor arterial. Once the development has been constructed the Roadside Development Environment (RDE) will become Intermediate in the vicinity of the site.

Due to the number of expected trips during the peak hours, it was determined that the proposed main access and Star Crescent would be classified as high-volume driveways (30 – 100 veh/h). Concorde Drive (north-south) provides access to Shelly Point and the Shelly Point Golf Course and it was therefore assumed that this road would be classified as an equivalent collector (100 – 625 veh/h).

A minimum spacing of 60m is required between a full unsignalised intersection and a high-volume driveway as well as between two high-volume driveways in an Intermediate RDE along Class 3 roads without a median.

Sufficient access spacing is therefore available at the proposed main access along Concorde Drive (OP7664) in both directions.

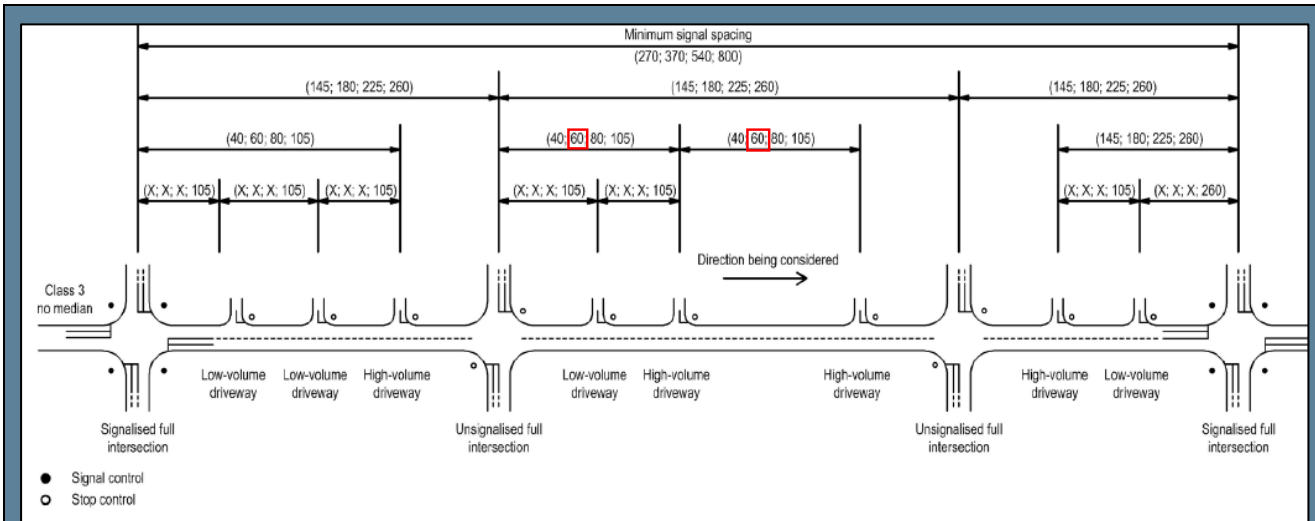
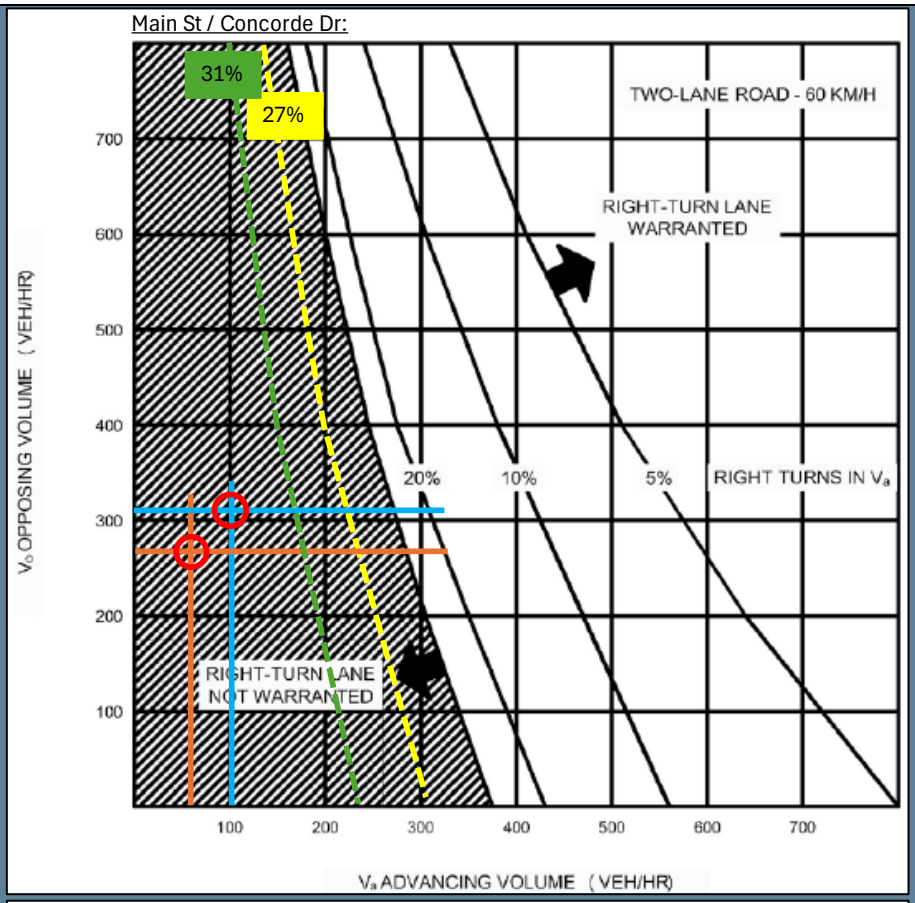


FIGURE 12-12: Class 3 minimum spacing distances – without median

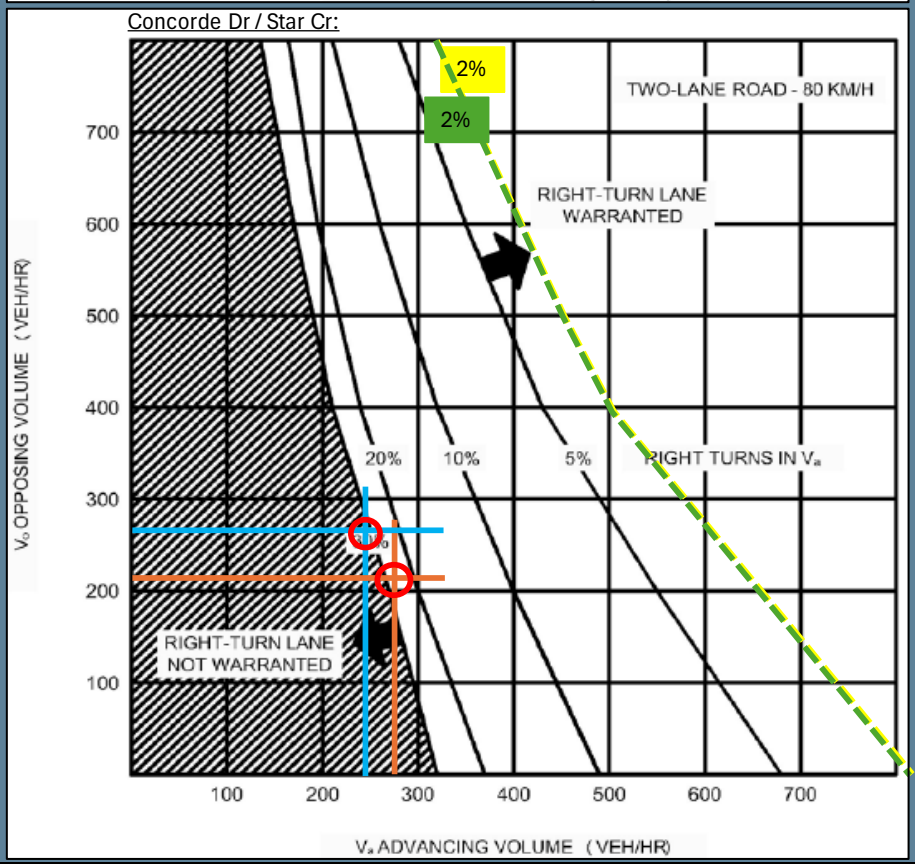
The *Access Management Guidelines, 2020* provides graphs to determine the warrants for right turn lanes for two-lane roads with different operating speeds. The opposing and advancing traffic volumes at the study intersections and the Concorde Drive (OP7664) / Proposed Main Access intersection, as shown in **Figure 7** and **Figure 8**, was utilised to determine if dedicated right turn lanes are warranted during either of the peak hours.

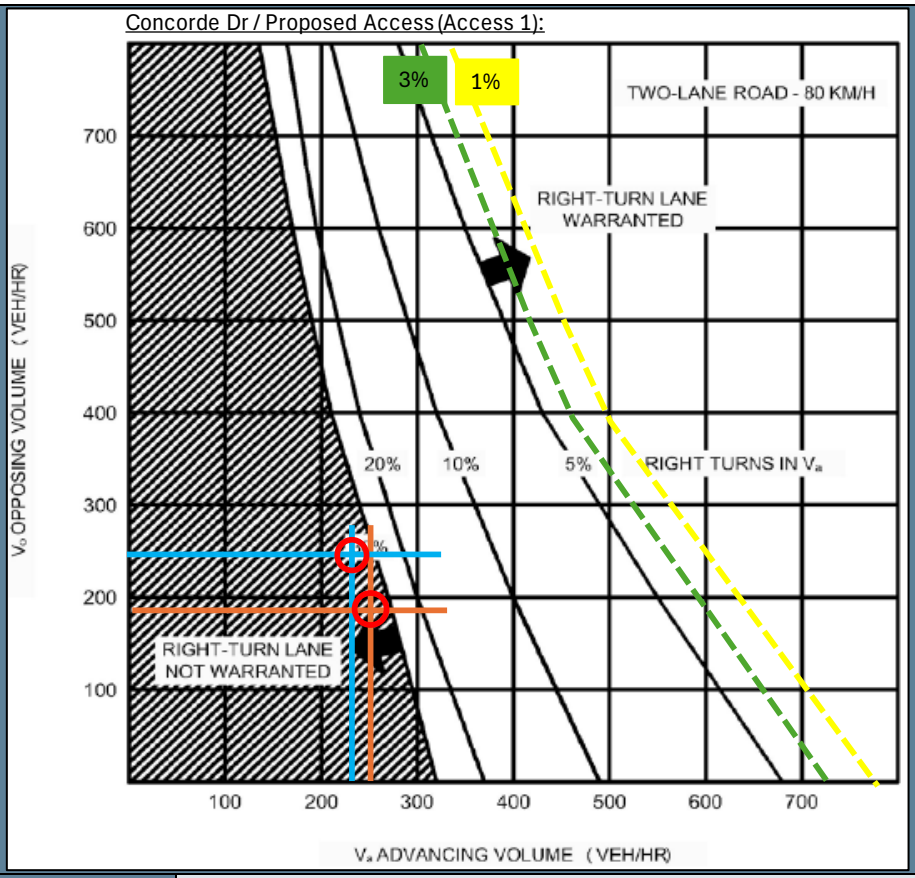
No dedicated right turn lanes are warranted at the Main Street (MR533) / Concorde Drive (OP7664) intersection, the Concorde Drive (OP7664) / Star Crescent intersection or the Concorde Drive (OP7664) / Proposed Main Access intersection during the AM or PM peak hours.

Main St / Concorde Dr:



Concorde Dr / Star Cr:

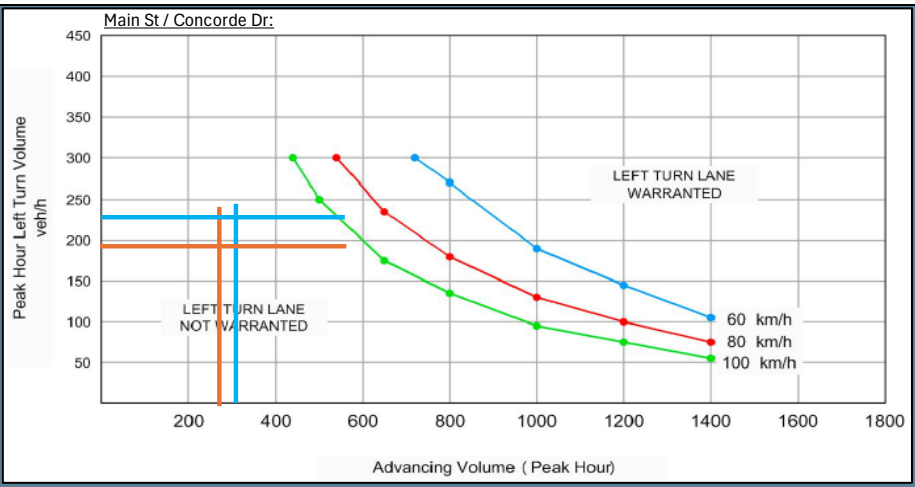




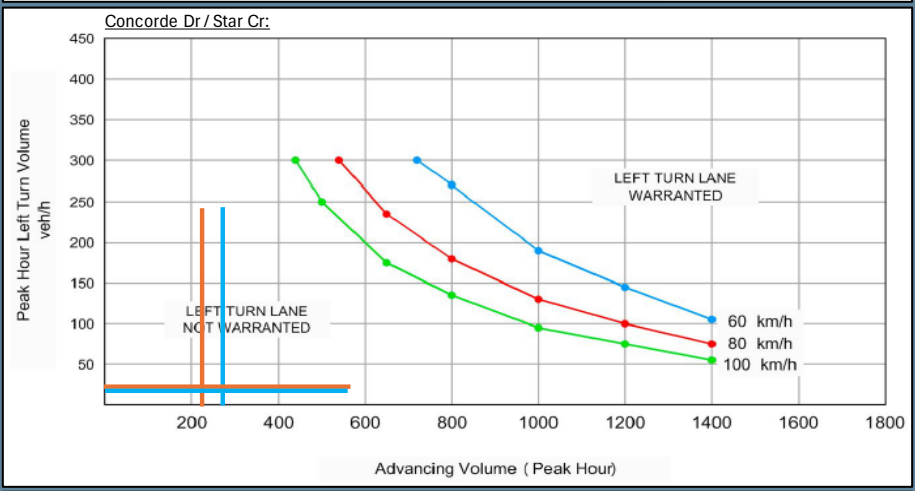
The *Access Management Guidelines, 2020* also provides a graph to determine the warrants for left turn lanes at a 3-leg unsignalised intersection on a two-lane arterial. The advancing and left turn traffic volumes at the study intersections and the Concorde Drive (OP7664) / Proposed Main Access intersection, as shown in **Figure 7** and **Figure 8**, was utilised to determine if dedicated left turn lanes are warranted during either of the peak hours.

No dedicated left turn lanes are warranted at the Main Street (MR533) / Concorde Drive (OP7664) intersection, the Concorde Drive (OP7664) / Star Crescent intersection or the Concorde Drive (OP7664) / Proposed Main Access intersection during the AM or PM peak hours.

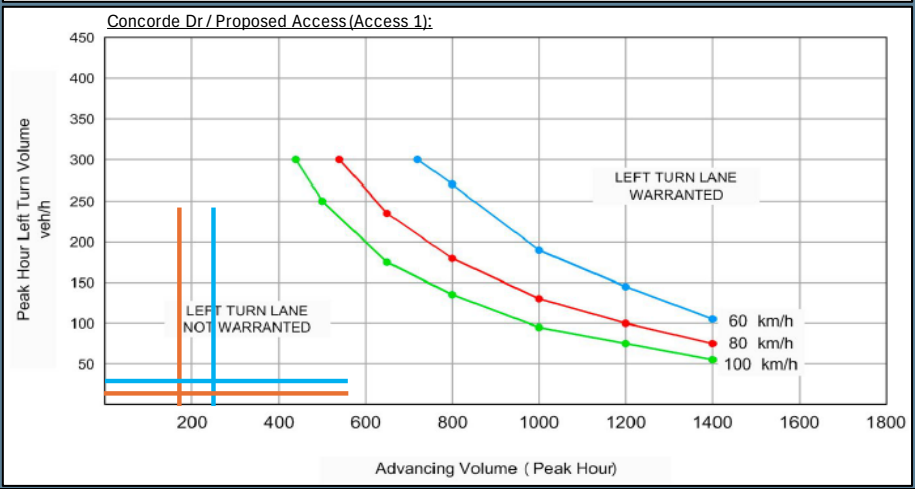
Main St / Concorde Dr:



Concorde Dr / Star Cr:



Concorde Dr / Proposed Access (Access 1):



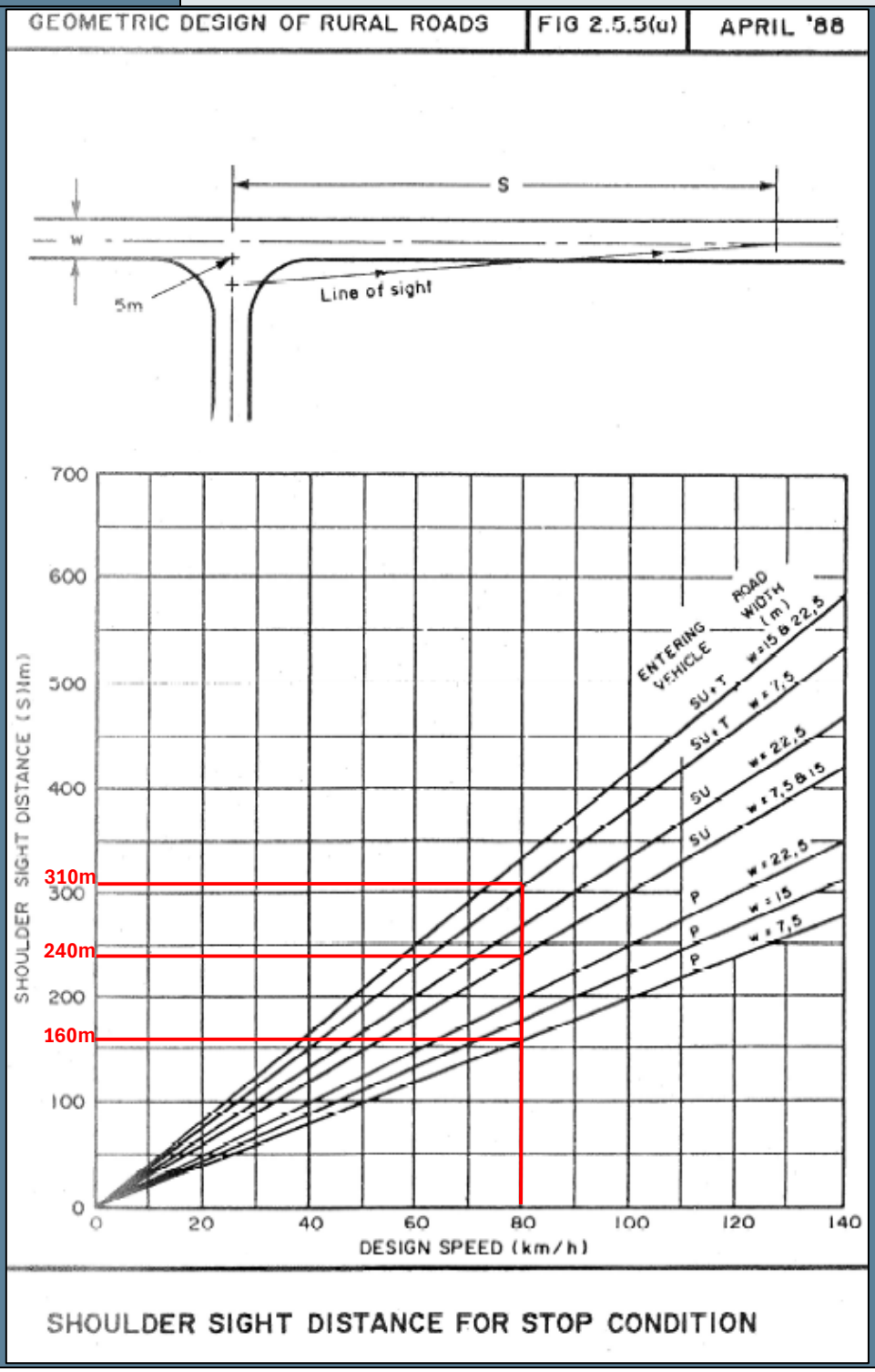
13. Shoulder Sight Distance

Shoulder sight distance (SSD) at an access/egress should be provided to enable drivers to enter the major road via a left or a right turn without impeding traffic on the major road.

As previously mentioned, Concorde Drive (OP7664) has a speed limit of 80km/h in the vicinity of the site.

The SSD required for a passenger vehicle (P), a single unit truck (SU) and

	a single unit truck plus trailer (SU + T) along roads with a design speed of 80km/h and an approximate width of 7.5m is 160m, 240m and 310m respectively. Due to the development consisting of primarily residential dwelling units a minimum SSD of 240m is required at the proposed main access along Concorde Drive (OP7664) in both directions.



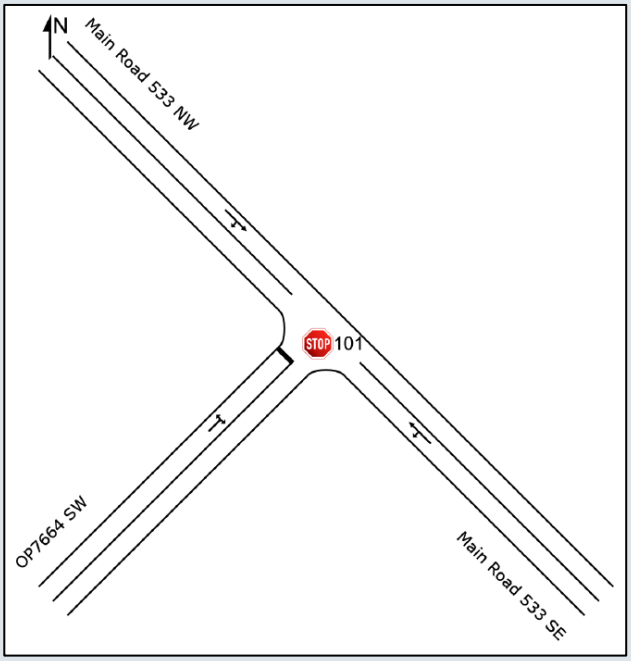
During the site visit it was determined that an SSD of more than the require 240m was available to the west along Concorde Drive (OP76664) at the proposed main access. From the proposed main access location an SSD of approximately 270m, up to the Main Street (MR533) / Concorde Drive (OP7664) intersection, is available to the northeast along Concorde Drive (OP7664). Therefore, sufficient SSD is available at the proposed main access along Concorde Drive (OP7664) in both directions.

14.Impact of Development Traffic
References: Figure 7 & 8, Table 1

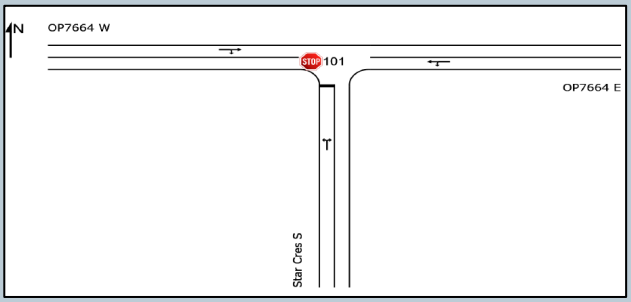
To assess the impact of the proposed development on the surrounding road network, the development traffic was added to the 2024 existing traffic volumes. The total 2024 traffic volumes can be seen in **Figure 7** and **Figure 8**.

The total 2024 traffic operations at the study intersections and the Concorde Drive (OP7664) / Proposed Main Access intersection were analysed using SIDRA Intersection 9.1 software.

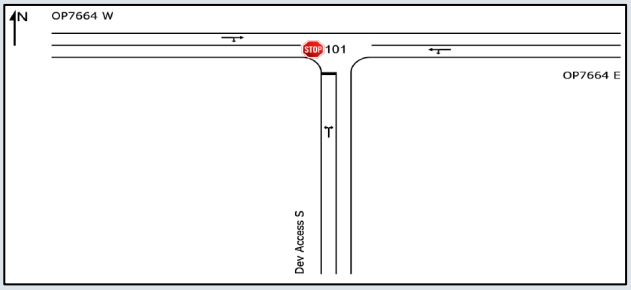
1. Main Street (MR533) / Concorde Drive (OP7664) (Stop-controlled)

GEOMETRY	CAPACITY ANALYSIS RESULTS
	**AM Peak Hour:** Expected to operate at acceptable Level of Service (LOS). No capacity constraints along the critical southwestern approach (LOS A). **PM Peak Hour:** Expected to operate at acceptable Level of Service (LOS). No capacity constraints along the critical southwestern approach (LOS A).

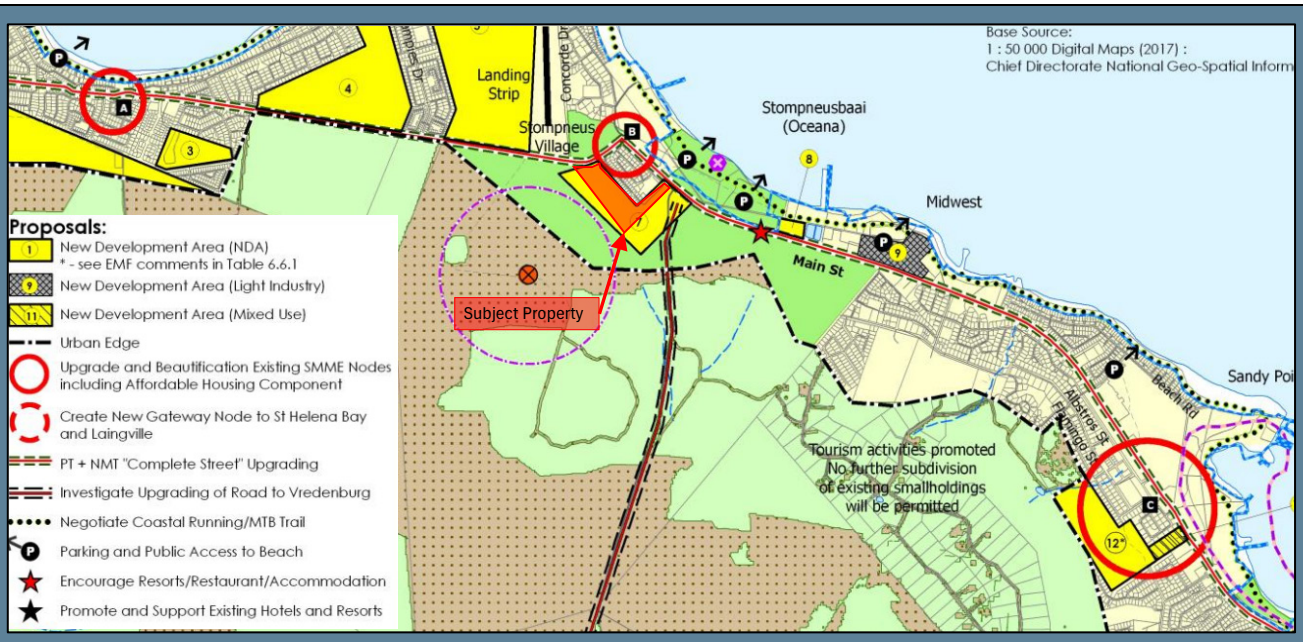
2. Concorde Drive (OP7664) / Star Crescent (Stop-controlled)

GEOMETRY	CAPACITY ANALYSIS RESULTS
	**AM Peak Hour:** Expected to operate at acceptable Level of Service (LOS). No capacity constraints along the critical southern approach (LOS B). **PM Peak Hour:** Expected to operate at acceptable Level of Service (LOS). No capacity constraints along the critical southern approach (LOS B).

3. Concorde Drive (OP7664) / Proposed Main Access (Stop-controlled)

GEOMETRY	CAPACITY ANALYSIS RESULTS
	**AM Peak Hour:** Expected to operate at acceptable Level of Service (LOS). No capacity constraints along the critical southern approach (LOS A). **PM Peak Hour:** Expected to operate at acceptable Level of Service (LOS). No capacity constraints along the critical southern approach (LOS B).

	No upgrades are required in these scenarios for any of the intersections. Refer to **Table 1** for a summary of the SIDRA results. Full details of the SIDRA analysis can be provided if necessary. The number of trips that will be generated by the proposed development is low (<150 peak hour trips) and will have an insignificant traffic impact. Therefore, no further analysis will be required.
15.Parking Requirements	Parking provision for the proposed development should satisfy the requirements as suggested in the *Integrated Zoning Scheme By-Law, March 2020* published by the Saldanha Bay Municipality. The following parking requirements are associated with the applicable land uses for the proposed development: • Dwelling House: 2 parking bays per dwelling unit • Place of Worship: 1 parking bay per 4 seats • Day Care Facility: 1 parking bay per staff member plus 1 parking bay per 6 learners The parking layout will be addressed at the detailed precinct development planning and detailed design stage.
16.Public Transport and Non-Motorised Transport (NMT)	The *Saldanha Bay Municipality Spatial Development Framework, May 2019* indicates that Main Street (MR533) and Concorde Drive (OP7664) will be upgraded to accommodate public – and non-motorised transport. These upgrades will include the prioritisation of cycle lanes from Ecklonia Street in Britannia Bay to Laingville along Concorde Drive (OP7664) and Main Street (MR533).

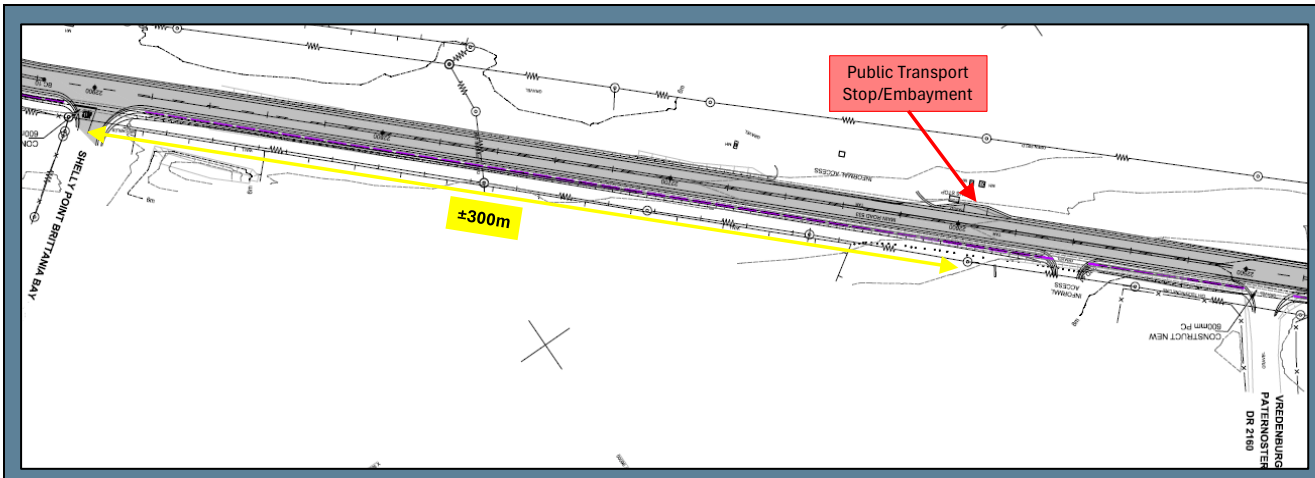


No formal sidewalks are present in the vicinity of the site along either Main Street (MR533) or Concorde Drive (OP7664). Low volume of pedestrians were observed walking in the gravel shoulders of the roads.

The traffic counts revealed low volumes of minibus taxis (13 vph) and buses (2 vph) on OP7664 during the AM peak hour and 6 minibus taxis and 1 bus during the PM peak hour. MR533 carries slightly higher volumes of minibus taxis and buses (23 minibus taxis & 11 buses) during the AM peak hour and 3 minibus taxis and 7 buses during the PM peak hour.

During the site visits public transport shelters were noted along Main Street (MR533), but these shelters were relocated to the edge of the road reserve to provide space for the upgrading of Main Street (MR533). The public transport shelters were in good condition, and it was assumed that they will be utilised again once the upgrading of Main Street (MR533) has been completed. Furthermore, minibus taxis were observed operating along Main Street (MR533).

A public transport stop/embayment has been included in the proposed layout of the future Main Street (MR533) in the vicinity of the site. The proposed public transport stop will be located along Main Street (MR533) approximately 300m southeast of the Main Street (MR533) / Concorde Drive (OP7664) intersection. The proposed layout of the future Main Street (MR533) was provided by Ero Engineers (Pty) Ltd is shown below.



	The nature of the development is not foreseen to increase the need significantly for public or non-motorised transport facilities. Therefore, provision to cater for additional public or non-motorised transport is not proposed.
17. Conclusions and Recommendations	This report describes the investigation of transport implications of the proposed development on Portion 4 of Farm 6 in St Helena Bay, Western Cape. It summarises the existing transportation conditions within the site vicinity, provides an assessment of the transportation impacts of the proposed development on the surrounding road network and recommendations about improvements to mitigate negative impacts, if relevant. The main findings are as follows: • This TIS is in support of the application for the proposed development on Portion 4 of Farm 6 in St Helena Bay, Western Cape. • The proposed development will consist of 214 IRDP residential units, a crech (±50 learners) and a church (±200 seats). • Main Street (MR533) in the vicinity of the site is currently being upgraded, due to be completed early December 2024. • A Stop/Go was in place at the Main Street (MR533) / Concorde Drive (OP7664) intersection during the site visit and traffic counts. • The capacity analyses of the existing 2024 traffic operations indicated that both of the study intersections are currently operating at acceptable levels of service (LOS) with minimal average delays during both peak hours. • The proposed development has the potential to generate **76 new trips** during the AM peak hour (22 in, 54 out)

	and **74 new trips** during the PM peak hour (50 in, 24 out). • The proposed development will be accessed via two locations. • The proposed main access will be located along Concorde Drive (OP7664) approximately 85m east of the Concorde Drive (OP7664) / Concorde Drive (nort-south) intersection and approximately 190 southwest of the Concorde Drive (OP7664) / Star Crescent intersection. • Star Crescent, located approximately 80m southwest of the Main Street (MR533) / Concorde Drive (OP7664) intersection, will be utilised as a secondary access for the proposed development via Smartie Town. • The proposed main access will have a two-lane cross-section with one lane per direction. • The proposed main access will be stop-controlled on the development side. • Star Crescent, the secondary access, has a two-lane cross-section with one lane per direction and is stop-controlled on the Smartie Town side. • The proposed main access will have sufficient access spacing available along Concorde Drive (OP7664) in both directions. • No dedicated right- or left turn lanes are warranted at the Main Street (MR533) / Concorde Drive (OP7664) intersection, the Concorde Drive (OP7664) / Star Crescent intersection or the Concorde Drive (OP7664) / Proposed Main Access intersection. • No upgrades are necessary at any of the intersections. • Sufficient SSD is available at the proposed main access along Concorde Drive (OP7664) in both directions. • The capacity analyses of the total 2024 traffic operations indicated that both study intersections and the Concorde Drive (OP7664) / Proposed Main Access instersection is expected to operate at acceptable levels of service (LOS) with minimal average delays during both peak hours. • Parking should be addressed at the detailed SDP stage amd satisfy the relevant parking requirements contained in the *Saldanha Bay Municipality Integrated Zoning Scheme By-Law, March 2020*. • No sidewalks are present along Main Street (MR533) / Concorde Drive (OP7664) in the vicinity of the site. • Low volumes of pedestrians were observed walking in the gravel shoulders of the roads. • Public transport shelters were observed along Main Street (MR533) in the site vicinity.

	• Minibus taxis were observed operating along Main Street (MR533) and OP7664. • No additional non-motorised – or public transport facilities are proposed in the vicinity of the site. • A public transport stop/embayment will be constructed along Main Street (MR533), approximately 300m southeast of the Main Street (MR533) / Concorde Drive (OP7664) intersection, as part of the planned upgrading with Ero Engineers. It is recommended that: • The detailed design of the proposed main access on OP7664 is approved by the responsible Road Authority. This report has shown that the proposed development will have an insignificant traffic impact and can be accommodated by the adjacent transport network. From a traffic engineering perspective, the approval of the application for this development is supported and it is recommended that the development be approved.

REFERENCES

1. Western Cape Government: Access Management Guidelines, Final AMG, 2020.
2. Department of Transport, Guidelines for Traffic Impact Studies, Report No. PR93/645, Pretoria, 1995.
3. Department of Transport, South African Trip Generation Rates, Report No. RR92/228, Pretoria, 1995.
4. Committee of Transport Officials (COTO), South African Trip Data Manual, TMH 17, Committee Draft 2.2, August 2020.
5. Committee of Transport Officials (COTO), South African Traffic Impact and Site Traffic Assessment Manual Standards and Requirements Manual, Volume 2 TMH 16, Committee Draft 2.0, October 2020.
6. Committee of Transport Officials (COTO), South African Traffic Impact and Site Traffic Assessment Manual, Volume 1 TMH 16, Committee Draft 2.0, May 2018.
7. Western Cape Government Environmental Affairs and Development Planning, Saldanha Bay Municipality Spatial Development Framework Report, Volume 2, May 2019.
8. Saldanha Bay Municipality, Integrated Zoning Scheme By-Law, March 2020.

APPENDIX A: FIGURES

STURGEON CONSULTING Traffic Engineering & Transport Planning Transport Planning & Traffic Engineering 021 553 4167 / 083 701 2299	Project: STOMPNEUS BAY IRDP HOUSING PROJECT ON PORTION 4 OF FARM 6, ST HELENA BAY: TIA	Job No: STUR414
	LOCALITY PLAN	Figure: 1

NOTE:
ALL AREAS AND DISTANCES ARE SUBJECTED TO SURVEYING

COMPILED BY:
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Tel: 022 - 4821845
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E-pos: zanelle@rumboll.co.za

DATE: APRIL 2024

SCALE: 1:2000 (A3)

REF: SAL/13549/ZN/SDP_3

LEGEND

DEVELOPMENT AREA

Total area: ±5.9182 ha

On average 150m² sized erven

214 UNITS

UNITS	SUBDIVISIONAL AREA - ZONING	LAND USE	COLOUR	TOTAL AREA	% OF AREA
214	RESIDENTIAL ZONE IV	Incremental Residential		3.5345 ha	60 %
3	OPEN SPACE ZONE I	Public open space		0.3314 ha	5 %
1	INSTITUTIONAL ZONE II	Church		0.1087 ha	2 %
1	INSTITUTIONAL ZONE I	Creche		0.1081 ha	2 %
1	TRANSPORT ZONE II	Public road		1.8355 ha	31 %
	TOTAL			5.9182 ha	100 %

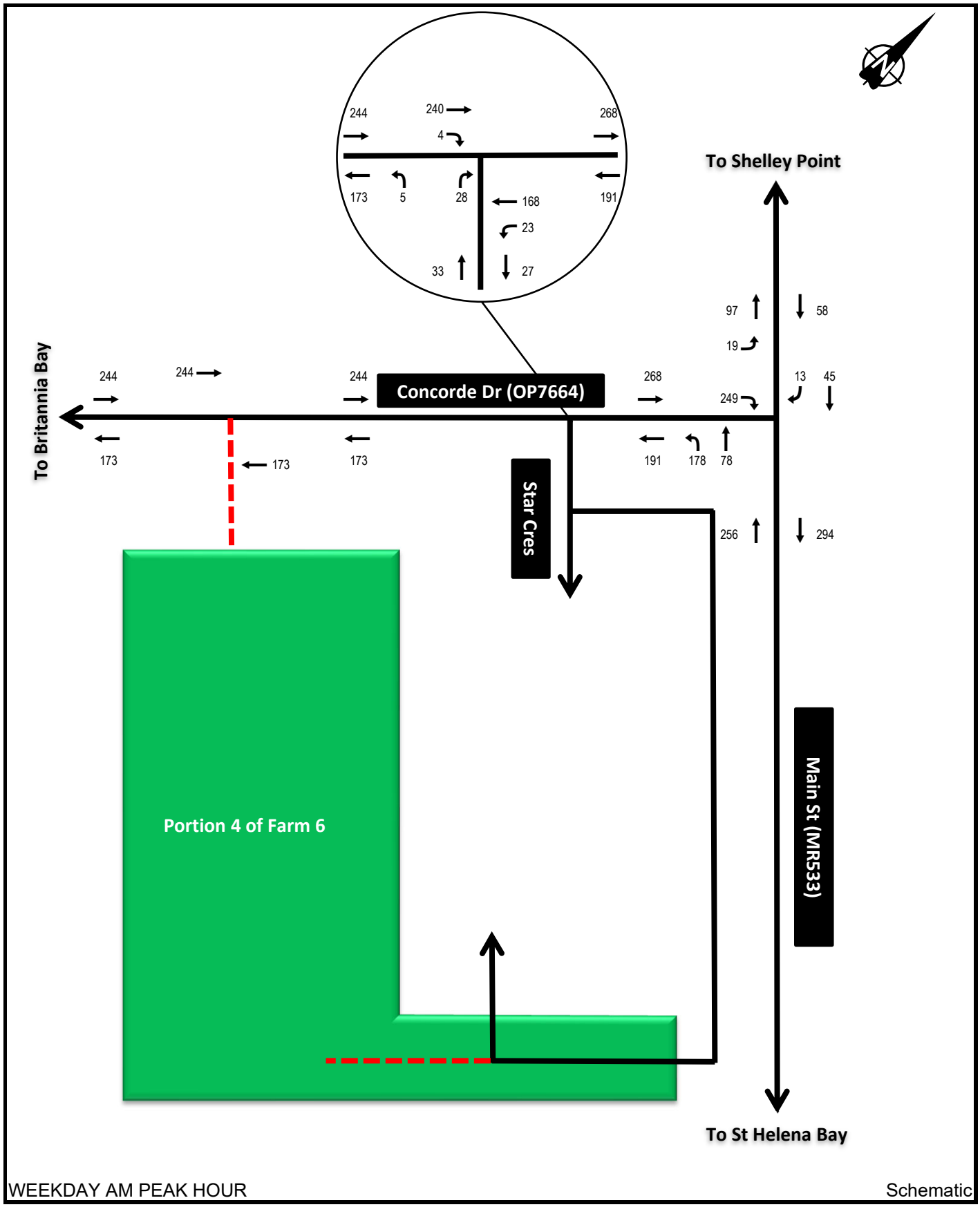
Traffic Engineering & Transport Planning
STURGEON CONSULTING
Transport Planning & Traffic Engineering
021 553 4167 / 083 701 2299

Project:
STOMPNEUS BAY IRDP HOUSING PROJECT ON PORTION 4 OF FARM 6, ST HELENA BAY: TIA

Job No:
STUR414

SITE DEVELOPMENT PLAN

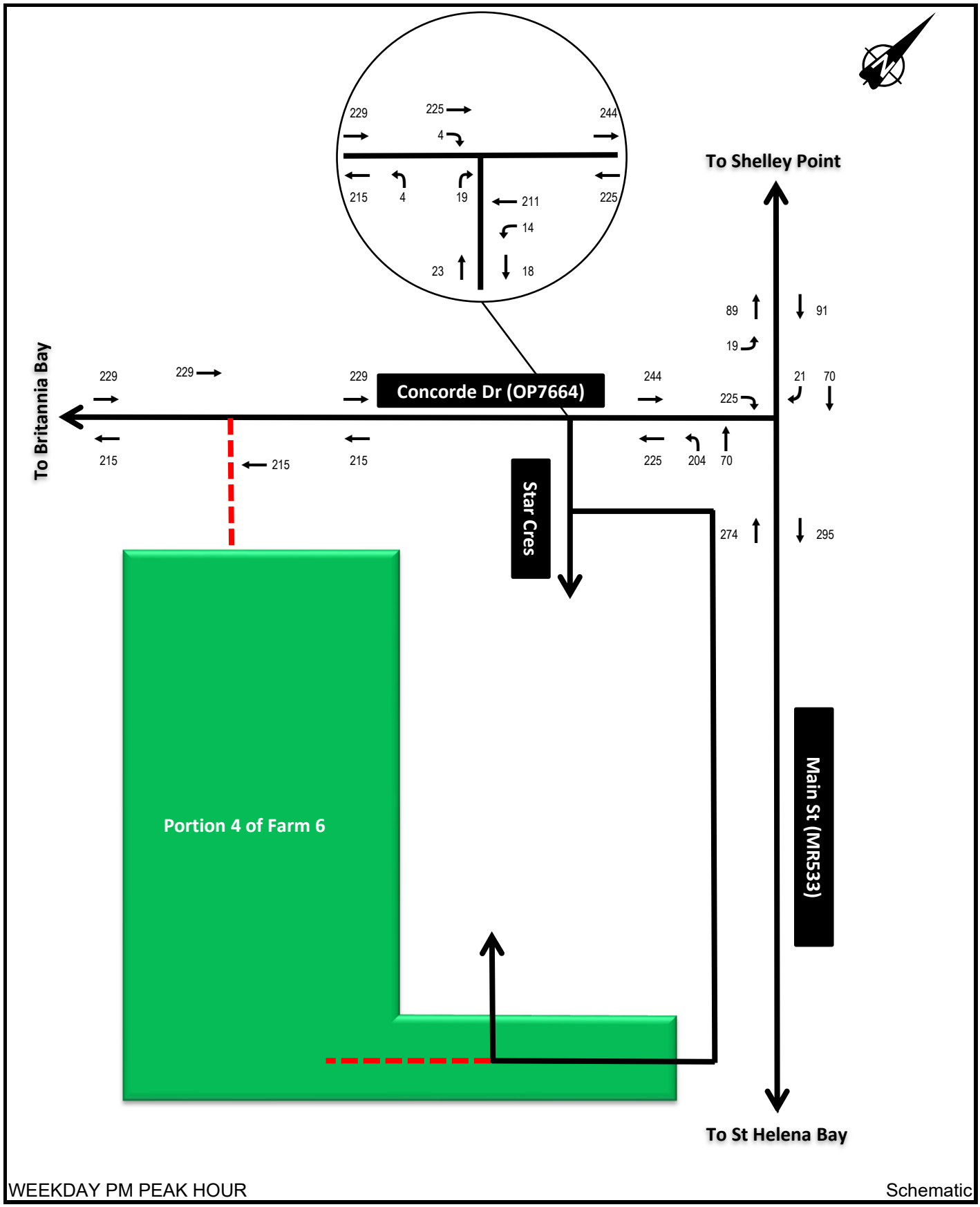
Figure:
2



WEEKDAY AM PEAK HOUR

Schematic

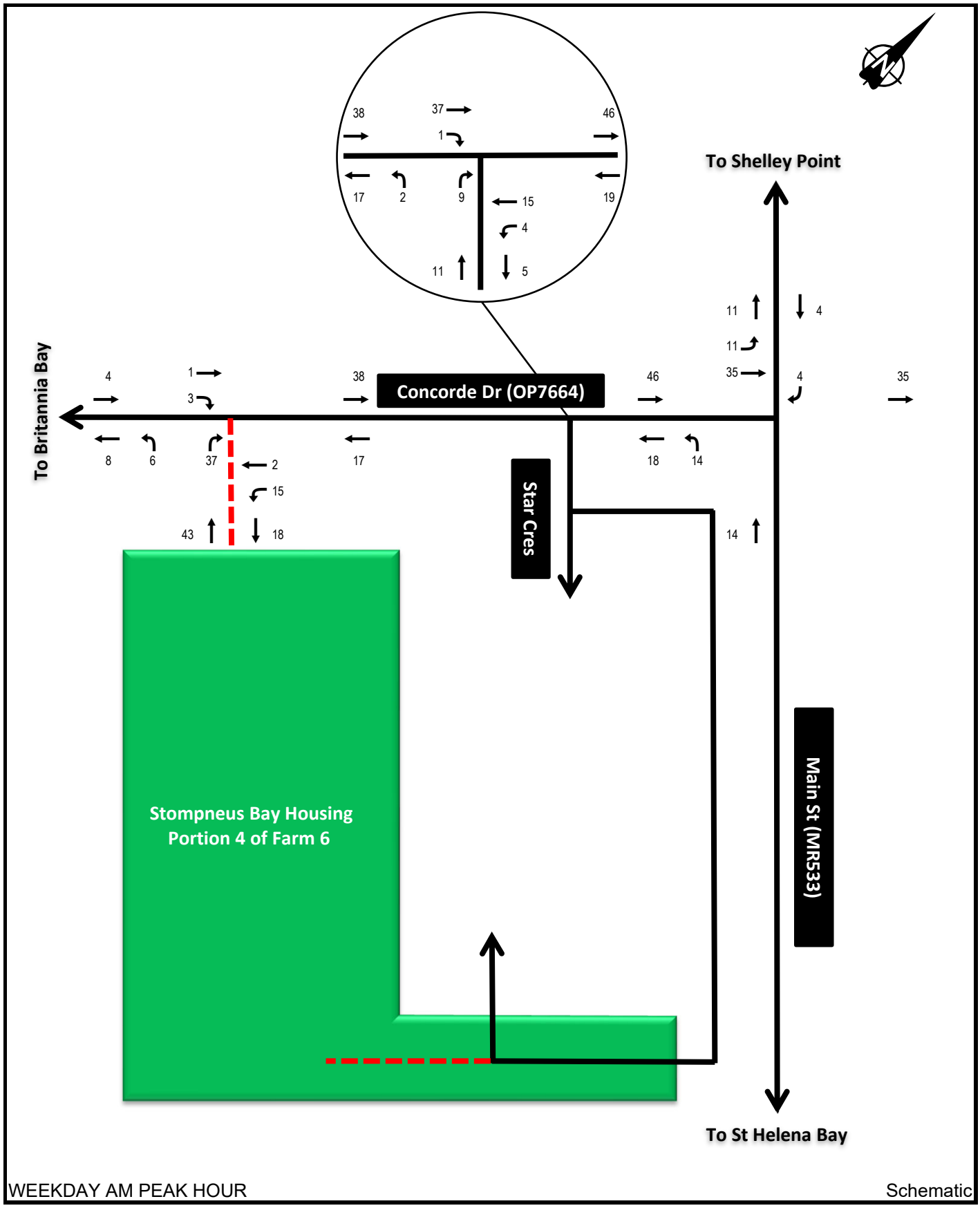
STURGEON CONSULTING	Stompneus IRDP Housing Project (Portion 4 of Farm 6)	Job Ref No: STUR0414
	Present Traffic Demand (2024)	Fig: **3**



WEEKDAY PM PEAK HOUR

Schematic

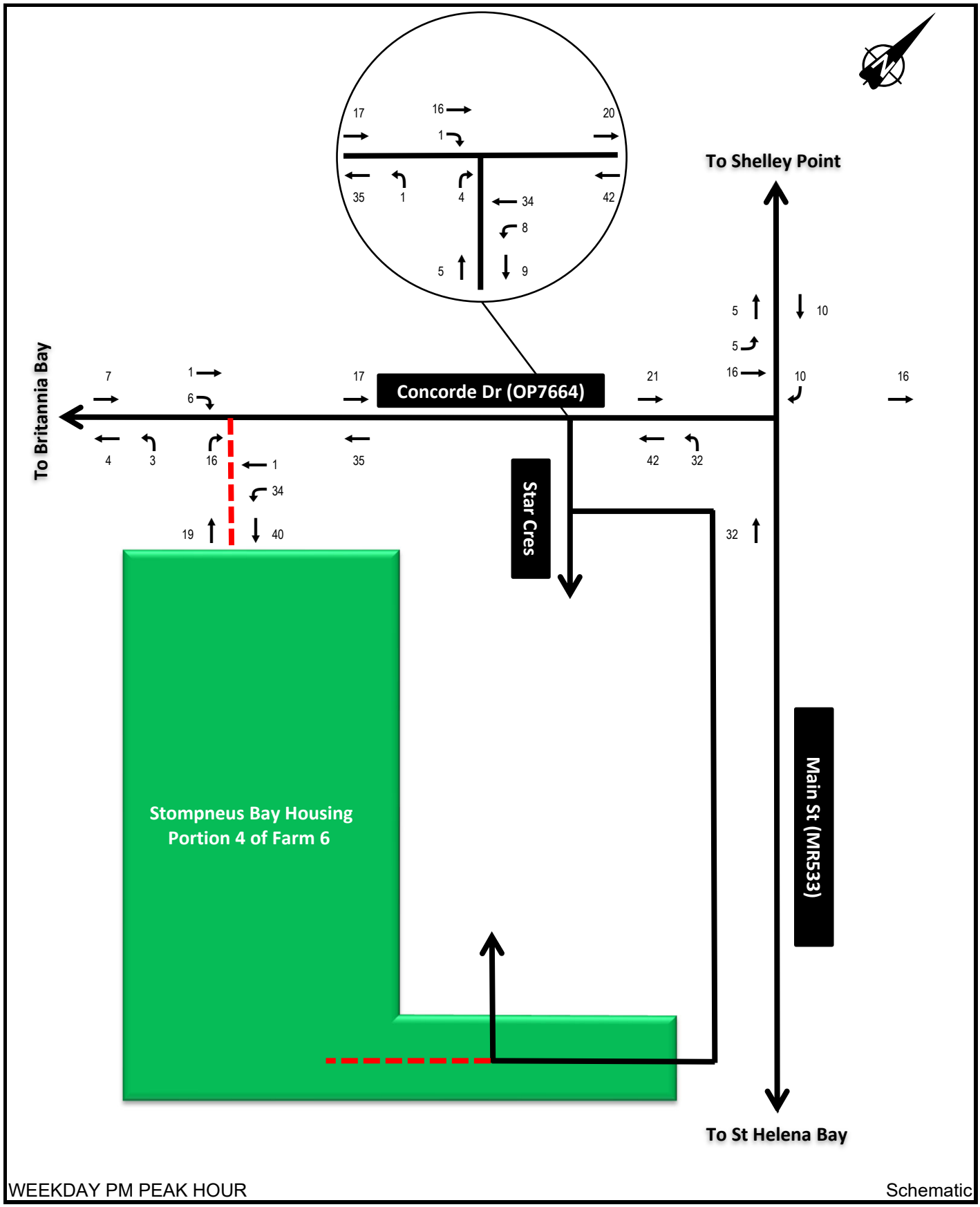
STURGEON CONSULTING	Stompneus IRDP Housing Project (Portion 4 of Farm 6)	Job Ref No: STUR0414
	Present Traffic Demand (2024)	Fig: **4**



WEEKDAY AM PEAK HOUR

Schematic

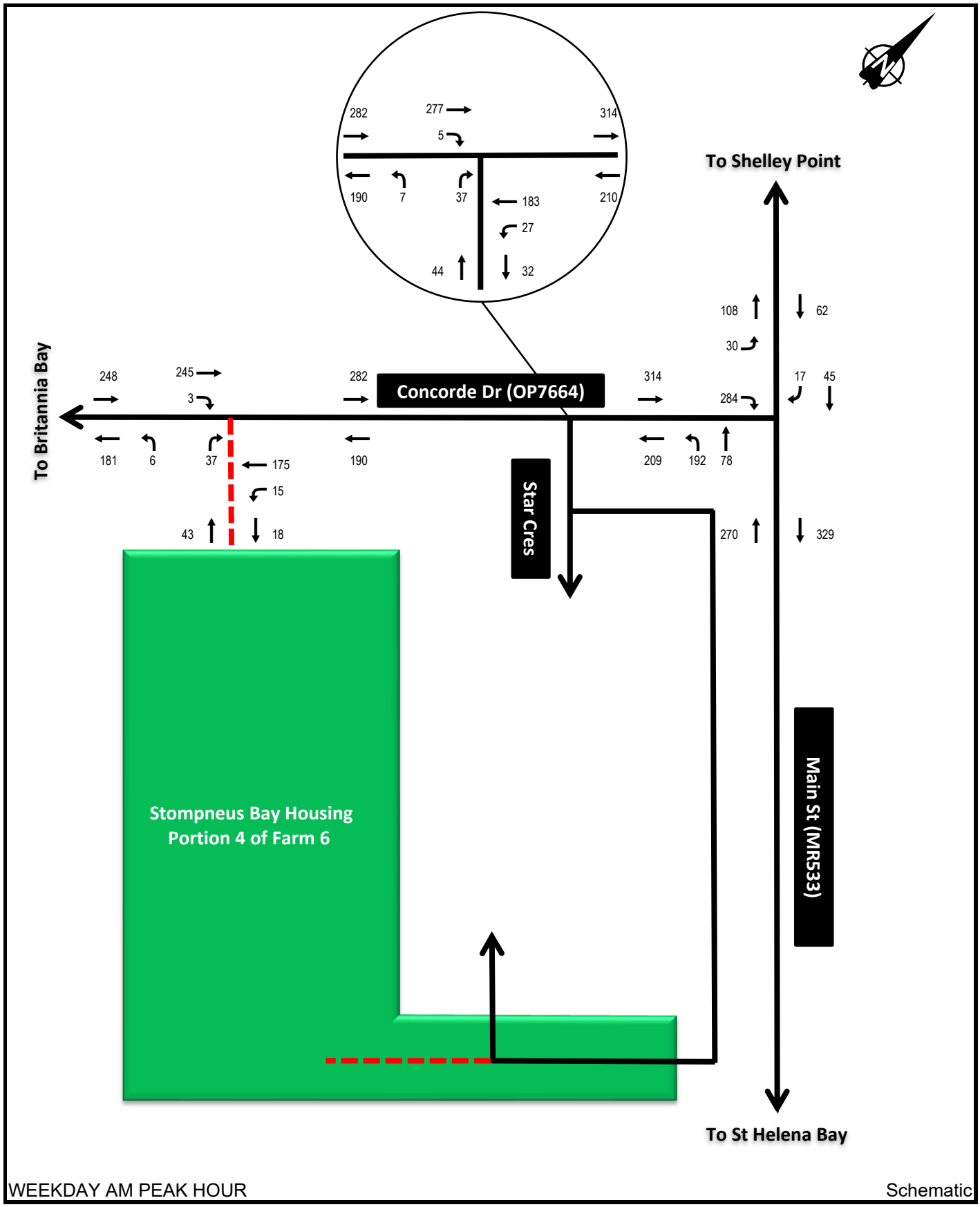
STURGEON CONSULTING	Stompneus IRDP Housing Project (Portion 4 of Farm 6)	Job Ref No: STUR0414
	Development Traffic	Fig: **5**



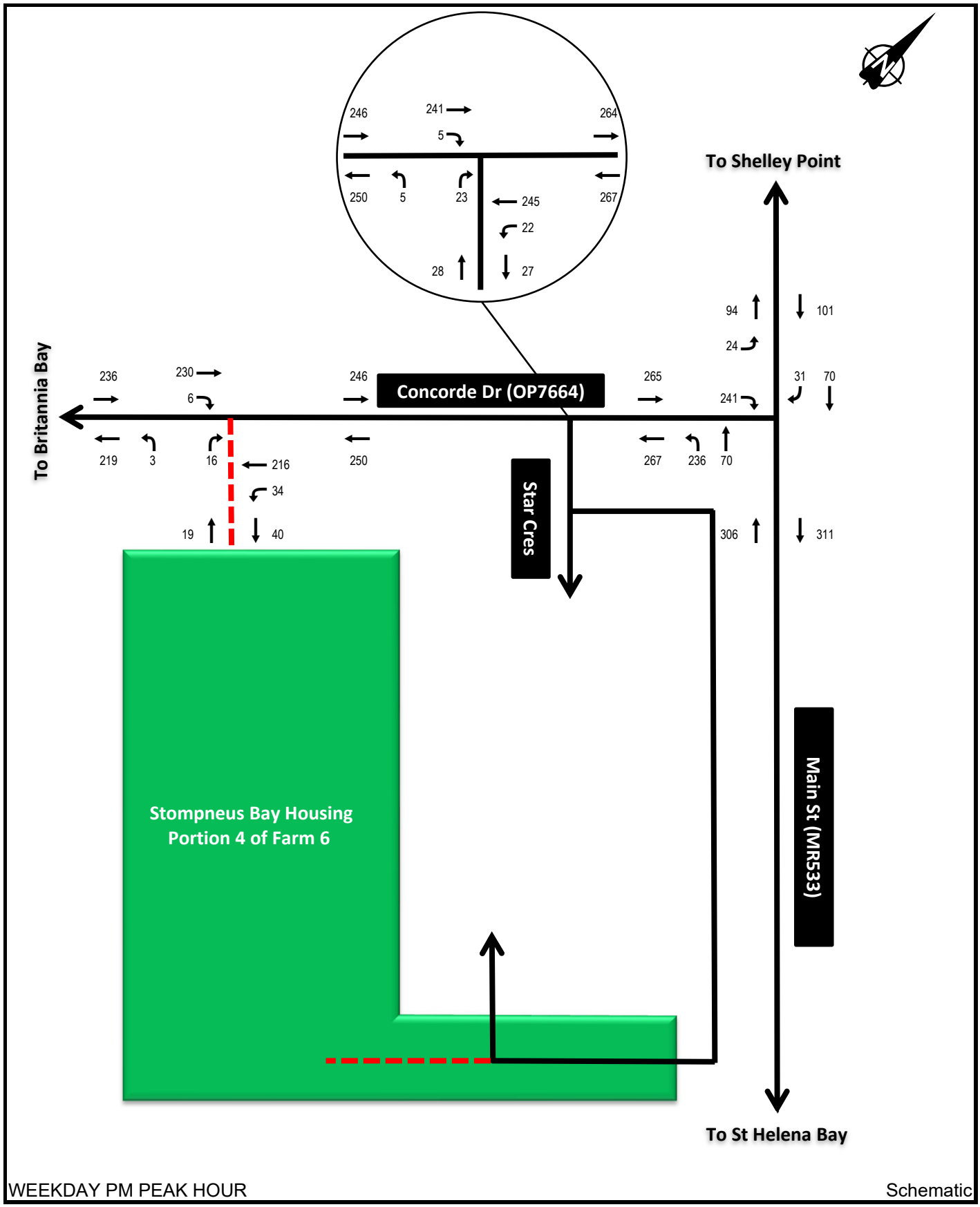
WEEKDAY PM PEAK HOUR

Schematic

STURGEON CONSULTING	Stompneus IRDP Housing Project (Portion 4 of Farm 6)	Job Ref No: STUR0414
	Development Traffic	Fig: **6**



STURGEON CONSULTING	Stompneus IRDP Housing Project (Portion 4 of Farm 6)	Job Ref No: STUR0414
	Present Traffic Demand plus Development	Fig: 7



WEEKDAY PM PEAK HOUR

Schematic

STURGEON CONSULTING	Stompneus IRDP Housing Project (Portion 4 of Farm 6)	Job Ref No: STUR0414
	Present Traffic Demand with Latent Rights plus Development	Fig: **8**

APPENDIX B: TABLES

Table 1: Peak Hour Traffic Conditions at Study Intersections

Study Intersection	Scenario	Intersection Control	Peak Hour	Intersection			Critical Approach			
				Ave Delay (s)	LOS	v/c	Approach	Ave Delay (s)	LOS	v/c
1. Main Street (MR533) / Concorde Drive (OP7664)	Existing Traffic (2024)	Stop-controlled	AM	5.7	NA	0.212	Southwest	8.2	A	0.212
	Total Traffic (2024)	Stop-controlled		5.9	NA	0.252	Southwest	8.3	A	0.252
	Existing Traffic (2024)	Stop-controlled	PM	5.5	NA	0.208	Southwest	8.4	A	0.208
	Total Traffic (2024)	Stop-controlled		5.7	NA	0.229	Southwest	8.5	A	0.229
2. Concorde Drive (OP7664) / Star Crescent	Existing Traffic (2024)	Stop-controlled	AM	1.0	NA	0.134	South	9.6	A	0.045
	Total Traffic (2024)	Stop-controlled		1.2	NA	0.155	South	10.1	B	0.064
	Existing Traffic (2024)	Stop-controlled	PM	0.7	NA	0.127	South	10.1	B	0.033
	Total Traffic (2024)	Stop-controlled		0.9	NA	0.148	South	10.5	B	0.043
3. Concorde Drive (OP7664) / Access	Total Traffic (2024)	Stop-controlled	AM	1.1	NA	0.136	South	9.7	A	0.059
	Total Traffic (2024)	Stop-controlled	PM	0.8	NA	0.148	South	10.2	B	0.041

LOS – Level of Service, Delay in seconds per vehicle, V/C – Volume to Capacity Ratio.
N/A – Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control.

Table 2: Proposed Trip Generation Rates and Estimated Peak Hour Trips

Land Use	GLA / Number of Units	Peak Hour	Trip Generation Rate*	Split		Total Trips		Total Trips
				IN	OUT	IN	OUT	
Single Dwelling Units (COTO210)	214 units	AM	0.3	25%	75%	16	48	**64**
		PM	0.3	70%	30%	45	19	**64**
Pre-School (Day Care Centre) (COTO565)	50 students	AM	0.2	50%	50%	5	5	**10**
		PM	0.16	50%	50%	4	4	**8**
Places of Public Worship (Weekday) (COTO561)	200 seats	AM	0.01	50%	50%	1	1	**2**
		PM	0.01	50%	50%	1	1	**2**
AM Total						**22**	**54**	**76**
PM Total						**50**	**24**	**74**

*Reductions applied to the trip generation rates for very low vehicle ownership as per Table 3.2 in the TMH17