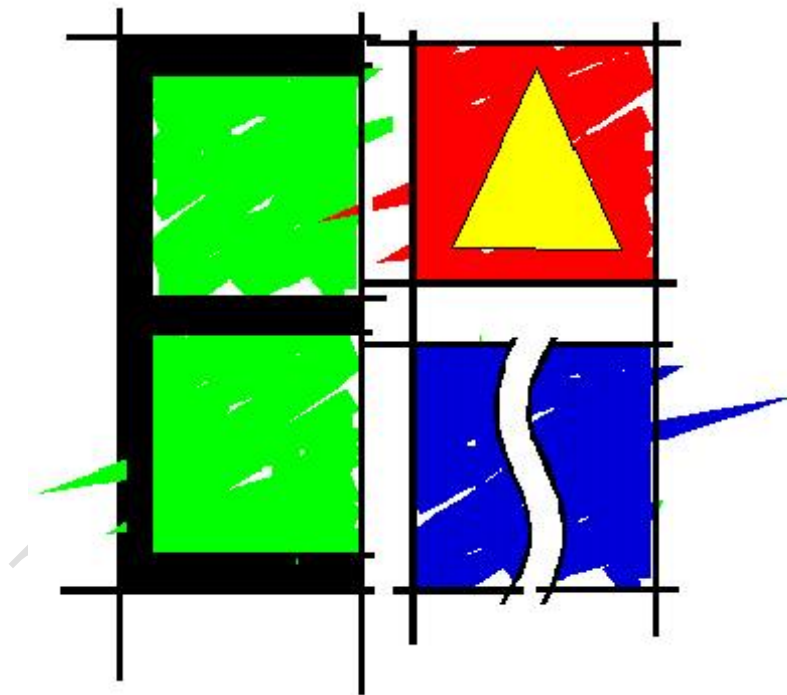


TRAFFIC IMPACT ASSESSMENT

***FOR A
PROPOSED LIQUID NATURAL GAS
TERMINAL AND VEHICLE DISTRIBUTION FACILITY
IN ZONE 10 OF THE COEGA SPECIAL ECONOMIC ZONE***



August 2020

**Prepared for: SRK Consulting (South Africa) Pty Ltd
Obo
Coega Development Corporation**

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ABBREVIATIONS

CBD	Central Business District
CDA	Core Development Area
CDC	Coega Development Corporation
DEA	Department of Environmental Affairs
EAS	Engineering Advice & Services (Pty) Ltd
ECDOT	Eastern Cape Province Department of Transport
FSRU	Floating Storage Gasification Unit
I/C	Interchange
IDZ	Industrial Development Zone
Km/h	kilometres per hour
LNG	Liquified Natural Gas
LOS	Level of Service
NMBM	Nelson Mandela Bay Municipality
SANRAL SOC	South African National Roads Agency Limited
SARTSM	South African Development Community Road Traffic Signs Manual
SEZ	Special Economic Zone
SRK	SRK Consulting (South Africa) (Pty) Ltd
TIA	Traffic Impact Assessment
TMH	Technical Methods for Highways
TRH	Technical Recommendations for Highways
V/C	Vehicle to Capacity ratio

1 INTRODUCTION

1.1 BACKGROUND

Engineering Advice & Services (Pty) Ltd was appointed by SRK Consulting (South Africa) Pty Ltd during February 2020 to conduct a traffic impact assessment for the proposed development of a Liquefied Natural Gas terminal and distribution facility in Zone 10 of the Coega Special Economic Zone, situated just northwest of the Port of Ngqurha in the Nelson Mandela Bay Municipality as indicated on **Figure 1** overleaf.

1.2 OBJECTIVES OF THE STUDY

In broad terms, the purpose of the traffic assessment is to determine the extent and nature of the traffic generated by the proposed development, assess the initial and cumulative impact of this traffic on operation of the associated road network in terms of capacity, and recommend measures to mitigate any problems identified. The following key elements, *inter alia*, are addressed in this traffic impact assessment:

- The suitability and safety of proposals for access to and egress from the site;
- The impact of construction and operational traffic on the capacity of the existing and future road network within the influence radius; and
- The road upgrading measures required to accommodate traffic generated by the proposed facility.

In general, this report serves to satisfy the Department of Environmental Affairs and the South African National Roads Agency SOC Limited that the traffic impact of the envisaged facility is within acceptable limits and that any proposed road and the suggested access requirements and improvements conform to the standards and parameters set by these authorities.

1.3 METHODOLOGY

The approach followed in conducting the traffic impact assessment was in accordance with the guidelines contained in **TMH 16 Volume 1 - South African Traffic Impact and Site Assessment Manual** ⁽¹⁾.

Given the extent of the proposed development and in terms of the aforementioned guidelines, the expansion is considered to be a medium-sized development and this assessment thus considered impact for the development (assumed to be 2020) and development plus ten-year (2030) horizons.

The methodology used was as follows:

- Present traffic flow patterns were obtained during typical weekday morning and afternoon peak periods
- The expected trips that will be generated by the proposed expansion were determined by using trip generation rates determined based on the projected staff complement on the facility and supplemented with the rates specified in **TMH 17 Volume 1 - South African Trip Data Manual** ⁽²⁾.
- The distribution of the generated trips was estimated where after the generated traffic was assigned to the surrounding road network.
- A suitable access location was determined in terms of **TRH 26 South African Road Classification and Access Management Manual** ⁽³⁾ and assessed from an operational and traffic safety perspective;
- The operation of affected junctions was analysed to ensure that they operate at acceptable levels of service and recommendations made on the need for road upgrading, taking cognisance of the proposed development for the 2020 and 2030 planning horizons; and
- Potential cumulative impacts were assessed in terms of operation, traffic safety and road condition for the construction and operational phases of all known power station facilities using the impact rating system described in **Chapter 8**.

1.4 STUDY AREA

Based on the type and extent of the proposed facility and its location adjacent to a National Road (N2 Section 11), the study area focussed on the Hougham Park interchange along the N2 and the roads from the interchange approaching the proposed site.

1.5 ASSUMPTIONS AND LIMITATIONS

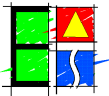
The scope of this TIA is limited to the project as described in Chapter 2.4 and as detailed in the **Draft Scoping Report** ⁽⁴⁾. The scope only deals with vehicular traffic related impacts and excludes consideration of the following:

- Source of gas;
- The transmission of gas via pipelines other than construction traffic related to implementation of such pipelines; and
- The provision of power to consumers from facilities to which gas is supplied.

The report is based on a number of assumptions and is subject to certain limitations. These are as follows:

- That operational trip generation rates are based on information supplied by the prospective plant/facility operator;
- That vehicle occupancy rates for the purposes of determining operational trip generation rates for transport modes are based on average vehicle occupancies used for the NMBM Transport demand model;
- That construction trip generation rates are based on high level assessments of the proposed construction requirements for similar developments;
- That access and road upgrading proposals are conceptual at this stage and subject to detail designs being developed in the event of environmental authorization being granted;
- That the capacity analysis process is based on the highest peak hour traffic volumes of adjacent street traffic based on baseline traffic surveys undertaken for this project;
- That trip distribution is based on the location of the development relative to the surrounding residential areas; and
- That the roads constructed in the SEZ and on which traffic generated by the development travel have been constructed to accommodate traffic volumes over their projected design life and that such roads are operating well below their design traffic class.

Notwithstanding these assumptions it is our view that this TIA provides a good description of the potential traffic issues associated with the proposed development.



Engineering Advice
and Services
Tel: (041) 581 2421



Legend
 Site Boundary

Project Title:
 Traffic Impact Assessment For a Proposed Liquid
 Natural Gas Terminal and Vehicle Distribution Facility
 In Zone 10 of the Coega Special Economic Zone

Drawing Title:
 Figure 1: Locality Plan

Drawing No.:
 1768-P-001

Drawing Date:
 July 2020

Meters
 0 180 360 720
 Scale 1 : 35 000

Prepared by : MS
 Checked by : CH

2 LAND USE RIGHTS, DEVELOPMENT AND ENVIRONS

2.1 SITE LOCATION

As indicated on **Figure 2 overleaf**, the proposed gas power plant is situated on erf 351, Coega to the northwest of the Port of Ngqurha and approximately 25km north of the Port Elizabeth CBD.

The site is located in Zone 10 of the Coega Special Economic Zone and is surrounded by predominantly vacant land use in all directions.

2.2 LAND USE RIGHTS

Erf 351, Coega is zoned for Special Zone (IDZ) purposes. A copy of the rezoning approvals are attached as **Annexure A**.

2.3 DEVELOPMENT ENVIRONS

Much of Zones 7 and 10 are still undeveloped and are earmarked for light industrial uses, with the land to the northeast of the site along the coast earmarked for aquaculture purposes. Land southwest of the gas distribution facility forms part of the Port of Ngqurha.

The proposed Transnet Tank Farm is situated in Zone 8 just north of the power plant with the site platforms currently nearing completion.

The Cerebos Salt facility is situated in Zone 7 just west of the Ring Road.

2.4 PROPOSED DEVELOPMENT

As specified in the **Draft Scoping Report** ⁽⁴⁾, Natural Gas will be pumped from the Port of Ngqurha to a storage and regassification facility.

The storage and regassification facility will initially be a Floating Storage Regassification Unit (FSRU) located adjacent the eastern breakwater in the Port. In the longer term (Phase 2) the FSRU will be replaced by an onshore storage and regassification unit, located at the LNG and gas hub located next to the proposed Zone 10 North Power Station. The LNG and gas hub will be constructed in Phase 1 and will initially be used for gas distribution only. In the longer term (Phase 2) the land-based LNG storage and regassification, will become active.

The facility will enable distribution to the market via LNG and gas pipelines and for third party customers via LNG trucks (assumed 40 x 20-ton LNG trucks per day).

Access to the facility will be gained via an access road from the existing roundabout junction on the Ring Road via the Hougham Park Interchange at Exit 770 on the N2.

Figure 2 overleaf indicates the process conceptually from arrival by ship to the distribution facility.

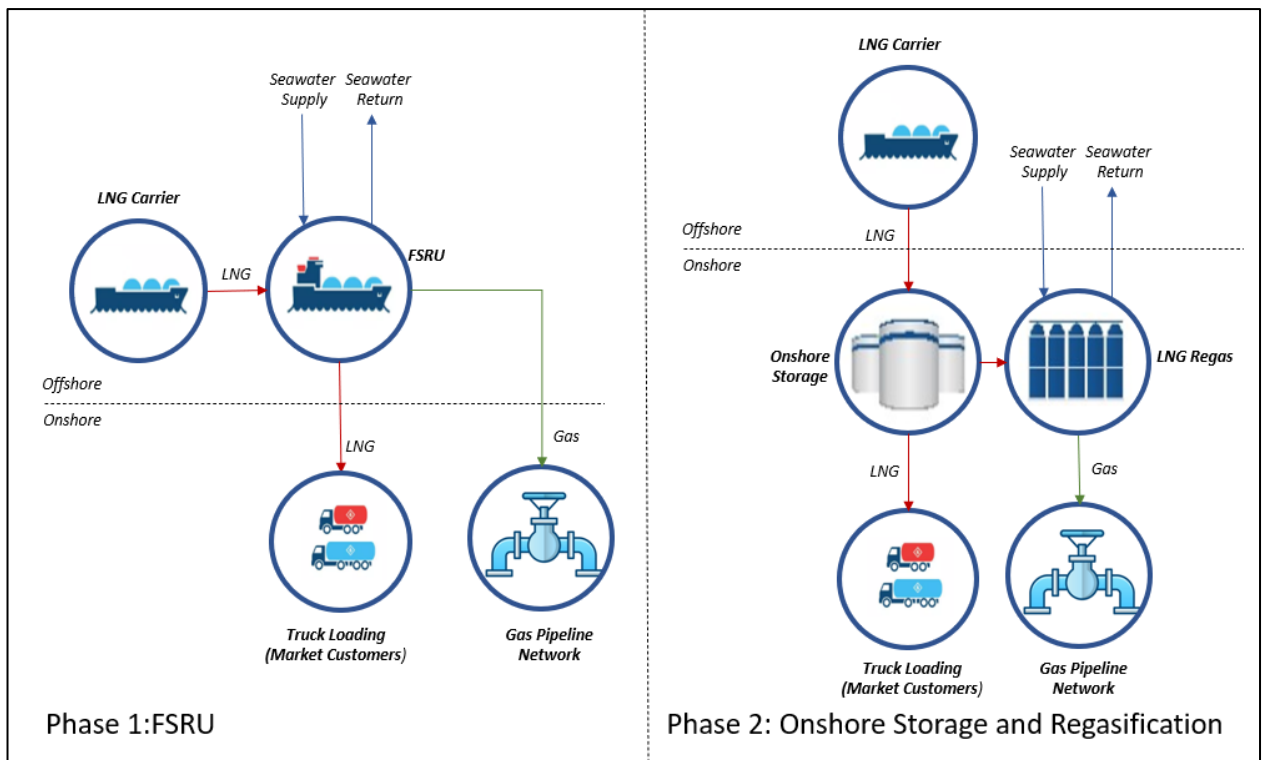


Figure 2: Process from Ship to Distribution Facility

3 DATA COLLECTION

3.1 PEAK HOUR TRAFFIC VOLUMES

Traffic turning movement counts were conducted at the following intersections during a typical weekday on Tuesday 3 March 2020 from 06:00 to 18:00.

- N2 Hougham Park Interchange West terminal
- N2 Hougham Park Interchange East terminal
- R102 / Ring Road

The detailed survey data is attached as **Annexure B** and summarised on **Figure 3** below.

As is evident from the current traffic data, traffic volumes are very low, relative to the limited development that has occurred in Zones 6, 7, 9 and 10.

3.2 HISTORICAL DAILY TRAFFIC VOLUMES

Historical daily traffic volume data at count station 1448 on the N2 just north of the St George's Interchange was sourced from SANRAL. The count information is attached as **Annexure C**.

The data indicates that between 2014 and 2019 ADT on the N2 increased at an average rate of 1.26% per annum.

For the purposes of this study and to be conservative the peak hour volumes have been escalated by 2% per annum.

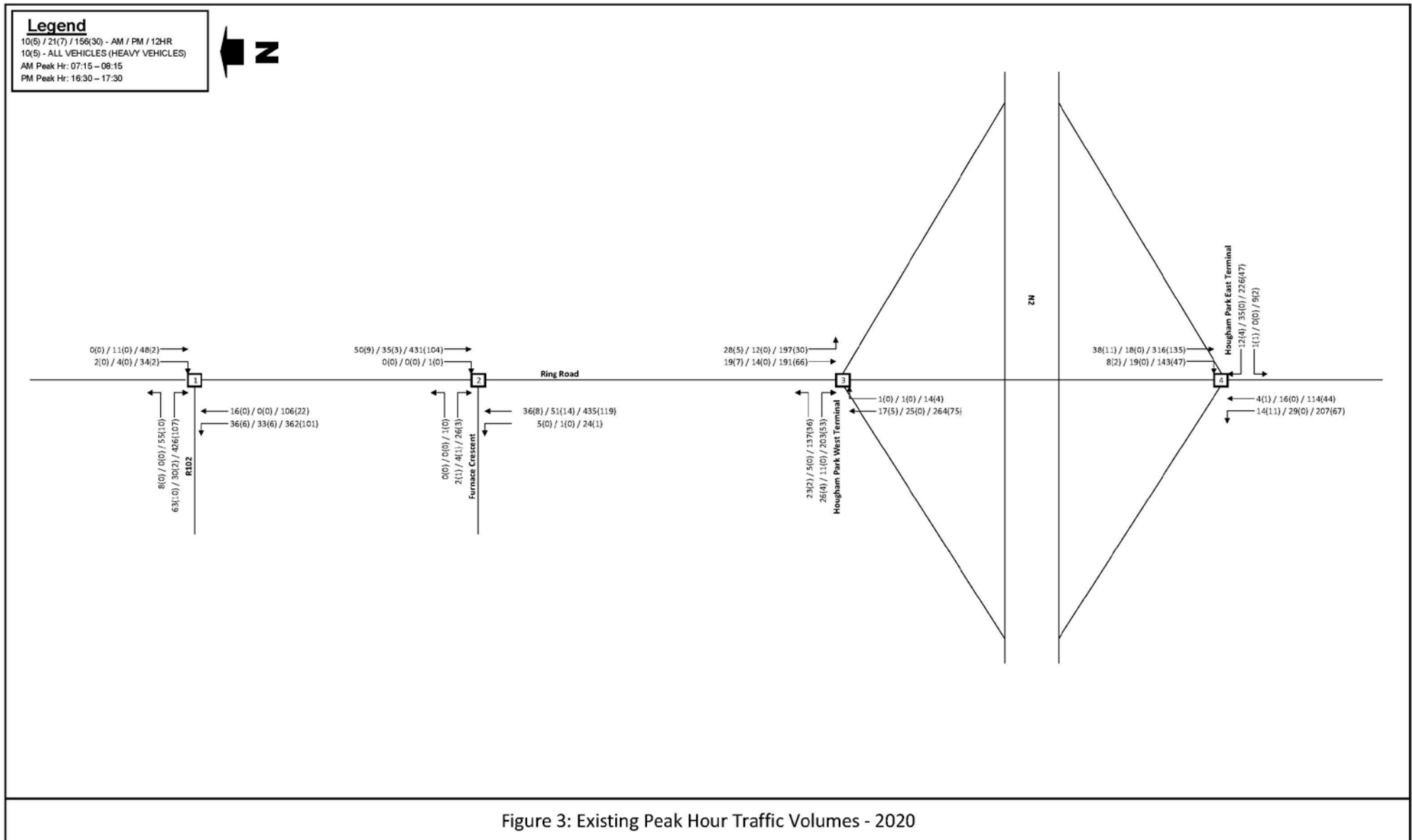


Figure 3: Existing Peak Hour Traffic Volumes - 2020

3.3 PROJECTED PEAK HOUR VOLUMES

The **Coega IDZ Transport Study** ⁽⁵⁾ projected that Zones 7 and 10 would be fully developed by 2030 together with the rest of the IDZ (a theoretical exercise). In addition, Zone 8 - the port and back of port area (east of the Coega River) would also be fully developed by 2030.

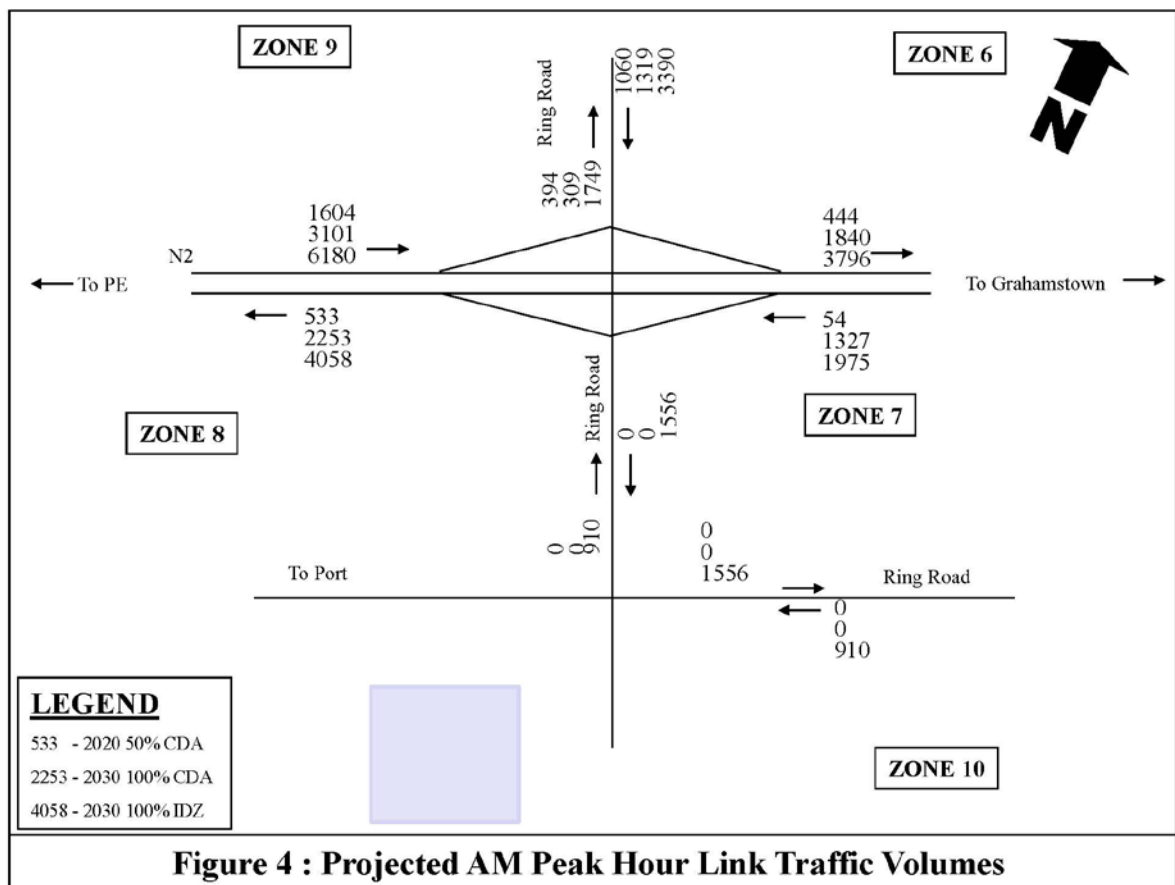
A total of 56 439 employment opportunities were projected in Zones 7 and 10, and a further 3896 in Zone 8, by 2030. This equates to approximately 45 152 and 2482 AM peak hour person trips in Zones 7 & 10 and Zone 8 respectively as indicated in the schedule attached as **Annexure D**. These person trips were converted to vehicle trips using vehicle occupancy rates for various transport modes.

Furthermore, a number of modal split scenarios were modelled for each development scenario in order to assess a possible future shift from private to public transport modes in line with stated national government policy. The main scenarios considered, in line with the NMMM Public Transport Plan, were the so-called C3 and B2 scenarios. The B2 Scenario provides for a trunk bus network without rail while the C3 scenario included a commuter rail service between the CBD and Motherwell as well as a loop through the Coega area. Two sub-scenarios were assessed, namely a 60:40 and a 70:30 public/private modal split.

The scenarios that considered higher private transport trips were used to determine future road requirements (60% public: 40% private transport).

The output of the transport demand modelling process resulted in projected link volumes for the 2020 and 2030 development scenarios as indicated on **Figure 4** below. The detailed transport model outputs for each B2 development scenario are attached as **Annexure E**.

It is important to note that the **Coega IDZ Transport Study** ⁽⁵⁾ makes provision for a second interchange with the N2 situated on the eastern boundary of the SEZ. This interchange would however be constructed dependent upon demand and should development in Zones 7 and 10 proceed as initially envisaged.



3.4 ROAD NETWORK

3.4.1 Existing Roads

The existing road and intersection configuration in the vicinity of the proposed development were obtained from the various zone consultants with the permission of the Coega Development Corporation. As-built information was provided in electronic CAD format. The primary road network can briefly be described as follows:

- **Ring Road 1** is classified as a class 3 arterial road that will serve as one of the main access roads between the N2 and IDZ Development Zones south of the N2 and east of the Coega River (Zones 7, 8 and 10). The road is currently constructed as a single carriageway with one 3.7m traffic lane and a 0.5m shoulder per direction. On the approach to the traffic circle in Zone 10, the road widens to a dual carriageway with two lanes per direction separated by a 7.5m wide median. The circle is configured with two 6.6m wide circulating lanes to accommodate long trucks.

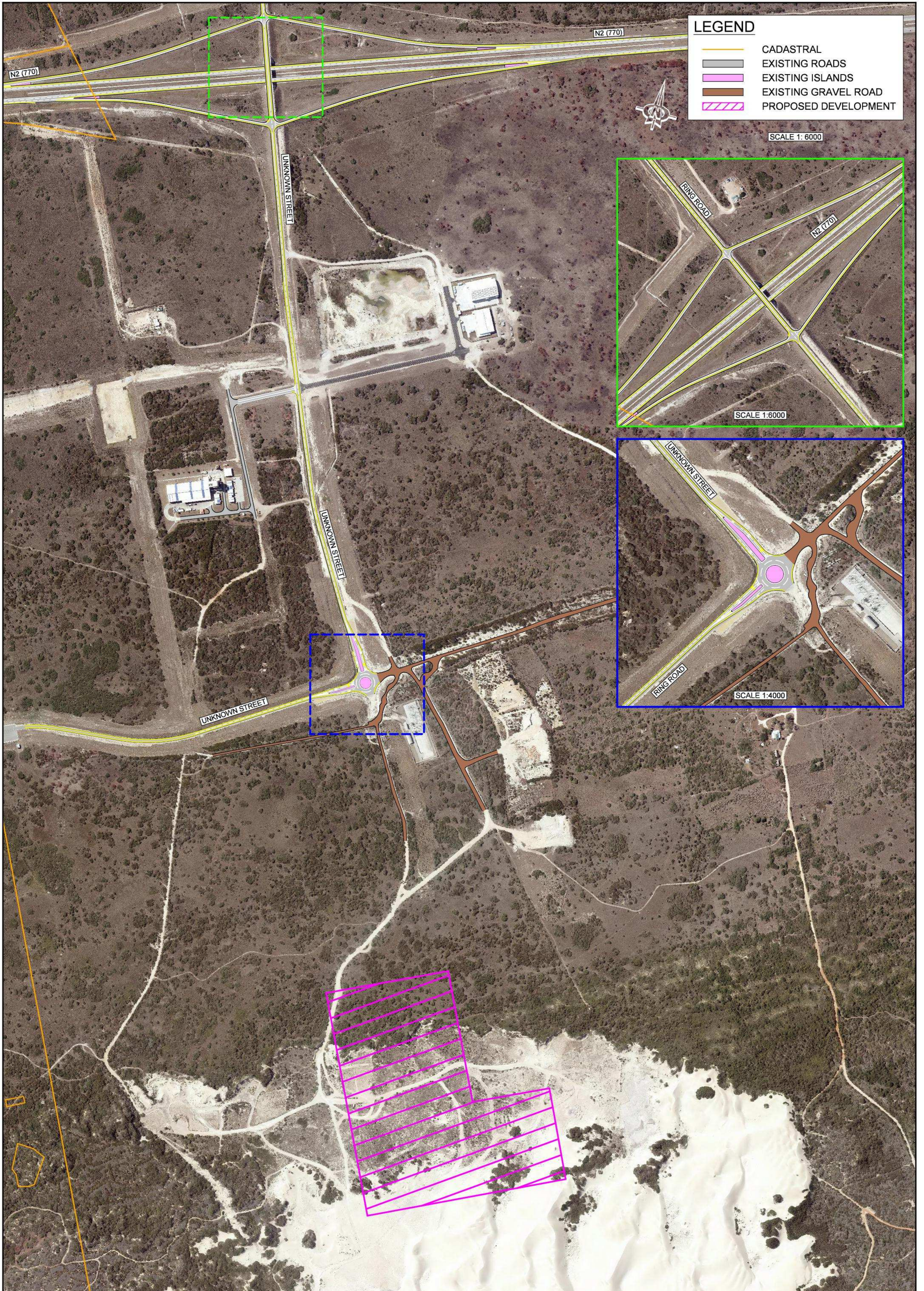
On the bridge over the N2, the shoulders are 1.8m wide.

- **National Route 2** is a class 1 national trunk road. In the vicinity of the proposed development the N2 is a freeway with two 3.5m wide traffic lanes, a 3m left shoulder and 1.5m right shoulder on each carriageway.

The existing road and intersection configuration within the vicinity of the proposed power plant is indicated on **Figure 5** overleaf.



Note that the road classification described above is as per **TRH 26 South African Road Classification and Access Management Manual** ⁽³⁾.



LEGEND	
	CADASTRAL
	EXISTING ROADS
	EXISTING ISLANDS
	EXISTING GRAVEL ROAD
	PROPOSED DEVELOPMENT

SCALE 1: 6000



SCALE 1:6000



SCALE 1:4000

UTSHINTSHO / AMENDMENTS		UMLINGANISELO SCALE	UMLINGANISELO WOMZOBO OHLISWEYO SCALE ON REDUCED DRAWING	UMENZI DESIGN	MSJUC	ENGINEERING ADVICE AND SERVICES associated with ULWAZI	IVUNYELWE APPROVED	IVUNYELWE APPROVED	IPROJETHI / PROJECT	INANI LESIVUMELWANO CONTRACT NO.
TRENT NO.	INCICAZA DESCRIPTION	IVUNYELWE APPROVED	AS SHOWN	UMZOSI DRAWN	TF	73 Hough Road, Welmer P.O. Box 1387 Hurmeewood Port Elizabeth 6013 Tel: (041) 881 2421	INJINELI/ENG.	UMENZELWA / CLIENT	TRAFFIC IMPACT ASSESSMENT FOR A PROPOSED LIQUID NATURAL GAS TERMINAL AND VEHICLE DISTRIBUTION FACILITY IN ZONE 10 OF THE COEGA SPECIAL ECONOMIC ZONE	INANI LOMZOBO DWG. NO. 1768-P-005
				IVUNYELWE APPROVED	CH		UMHLA / DATE	UMHLA / DATE	UMZOBONKCAZA / DWG DESCRIPTION	
				UMHLA DATE	JULY 2020				FIGURE 5: EXISTING ROAD AND ACCESS CONFIGURATION	

3.4.2 Future Roads

The future road network serving Zones 7, 8 and 10 was determined in the **Coega IDZ Transport Study Demand Modelling Report** ⁽⁵⁾ and is indicated conceptually on an extract of the layout in **Figure 6** below. Ring Road 1 which extends from the Hougham Park Interchange through Zones 7 and 10 to the future interchange on the SEZ boundary is a class 2 road which can accommodate 1000 vehicles per hour per lane.

Currently the existing portion of the road is constructed as a single lane per direction but can be upgraded to two lanes per direction should demand require so. Initial projections indicate that two lanes per direction would be required by full development of the SEZ.

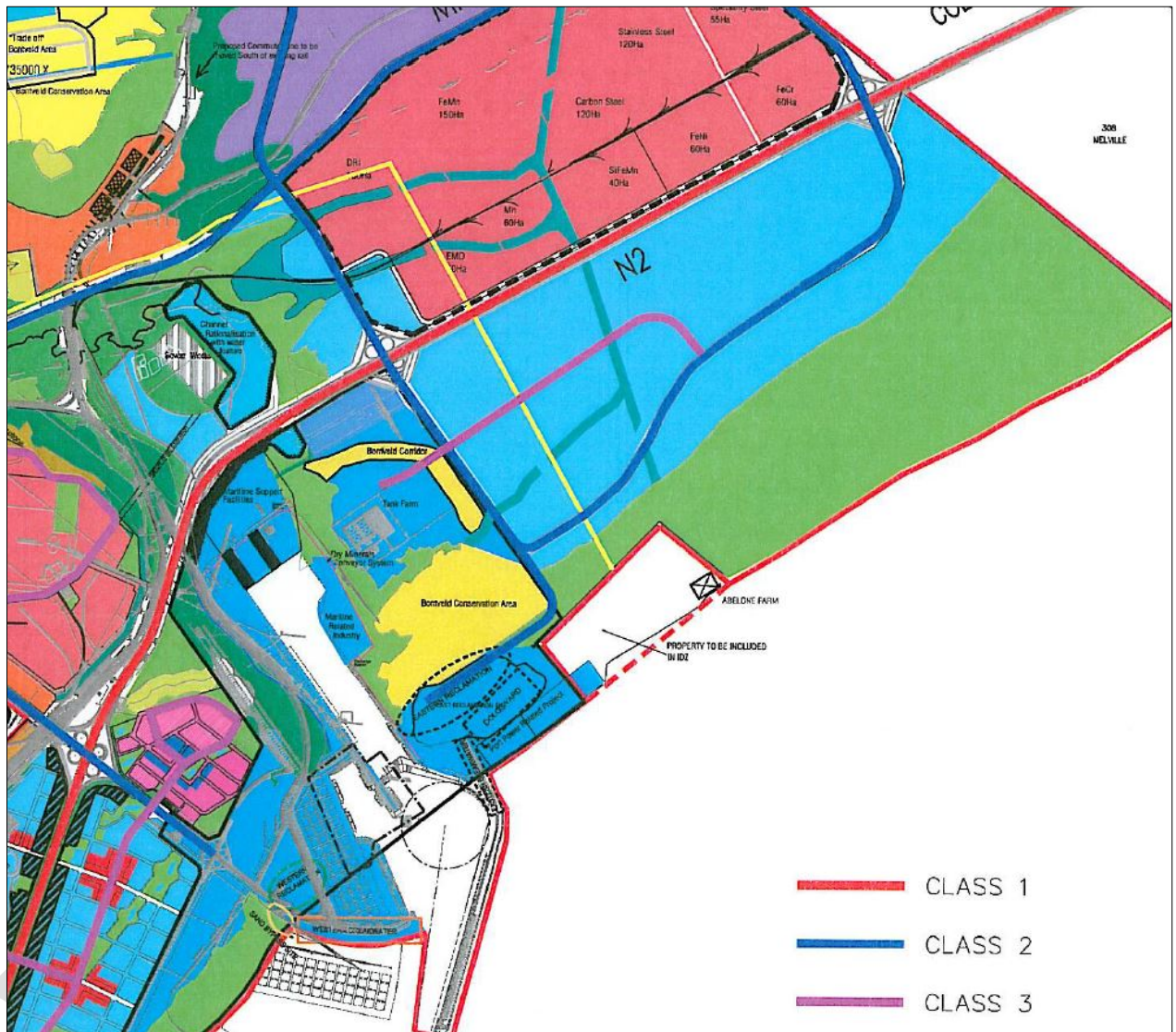


Figure 6: Proposed Road Layout – Zones 7 and 10

3.5 PUBLIC TRANSPORT

Provision was made for two public/private transport modal split scenarios in the **Coega IDZ Transport Study** ⁽⁵⁾. The **Public Transport Plan** ⁽⁶⁾ component of the study assessed the future public transport requirements but due to the long-term nature of the development in these zones did not address the detailed location of public transport interchanges serving Zones 7 and 10.

In the short term however, until critical mass is reached in terms of employees that would make use of public transport services, it is likely that public transport services would be on a contract basis between the plant operator and the relevant service provider as is currently the case.

4 TRIP GENERATION AND DISTRIBUTION

4.1 TRIP GENERATION

Vehicle trips generated by the proposed Gas Distribution site are likely to be at a peak during the construction stage and will comprise of labour transport and construction vehicles.

The construction traffic will likely comprise of construction plant (vehicles such as graders, front-end loaders, bull dozers, tipper trucks and cranes) some of which will arrive on site at the start of construction and remain on site, while others will deliver materials. Construction trips are likely to vary based on the extent of construction material that will be required on the site for the earthworks, road surfaces and paving (aggregate, concrete, etc.) as well as the building materials for the power plant itself (mainly steel elements).

Vehicle trips during operation will be related to staff and deliveries and will most likely be relatively low.

The following vehicle occupancies have been assumed:

Passenger car / LDV	-	1.5 (Average to allow for ride-sharing)
Minibus-Taxi	-	12
Bus	-	55

4.1.1 Construction Traffic

Construction Staff

Approximately 2030 employees are expected to work on the site during construction of the power station, 75% of which are expected to be unskilled and the remaining 25% skilled employees.

Given a construction duration of approximately 24 months, it is assumed that a peak of 60% of the workforce is expected to be on site at one time during construction of the power plant.

It is further assumed that 90% of the unskilled labour force will be transported to site via public transport modes, namely contracted minibus-taxis and buses, with the remaining 10% via private or company passenger vehicles.

Approximately 80% of the skilled labour force is expected to make use of private car or company-LDV vehicles. The remaining 20% will likely travel via minibus-taxi.

Based on the assumed peak of 60% of the labour force, this relates to the number of peak hour vehicle trips indicated in **Table 1** below:

Table 1: Peak Hour Vehicle Trips – Construction Workforce

Employees (60% of 2030)	Skill Level	Transport Mode	Vehicle Occupancy (average)	% Workforce / Mode	Employees / Mode	No of Vehicles
1218	Skilled (25%)	Passenger Car / LDV	1.5	80%	243	162
		Minibus-taxi	12	20%	61	5
	Un-skilled (75%)	Passenger Car / LDV	1.5	10%	91	61
		Minibus-taxi	12	50%	457	38
		Bus	55	40%	366	7
Total						273

Construction Vehicles

The total number of construction vehicles generated by the project is not yet known, given the complexity of the project and that it is still in the planning phase. As such, it is assumed that the construction vehicles generated by the project will operate outside of the peak hour and will not be used in the capacity analysis described in **Chapter 6** below.

The vehicles are comprised of those that will remain on site while the tasks for which they are required are performed and those that are required to deliver various materials to and from the site.

It is assumed that the composition of construction vehicles generated by the development is as follows:

- Construction plant vehicles that will arrive on site once and remain for the duration of the time necessary to perform their tasks (dozers, graders, loaders);
- Steel components (pipes, tanks and sections) will be transported to site;
- Material for foundations will be imported from commercial sources;
- Waste Material will be transported from site to authorized waste disposal sites (tipper trucks); and
- Material supply to a concrete batch plant to be erected on site to mix concrete, to be delivered as and when they required.

Pipe sections will also be transported to the required pipeline route by truck, and most likely be deposited along the route to facilitate more efficient construction of the pipeline. Apart from the initial supply of the pipe sections it is not expected that there will be any significant construction traffic on the road network during construction of the pipelines.

4.1.2 Operational Traffic

Approximately 85 employees are expected to work at the power station once construction has completed, 70% of which are expected to be unskilled and the remaining 30% skilled employees.

It is assumed that 90% of the unskilled labour force will be transported to site via public transport modes, i.e. contracted minibus-taxis and buses, with the remaining 10% via private or company passenger vehicles.

Approximately 100% of the skilled labour force is expected to make use of private car or company-LDV vehicles with an element of ride-sharing. It is further assumed that the workforce will operate on a two-shift basis over 24 hours. This relates to the number of peak hour vehicle trips as indicated in **Table 2** below:

In addition, delivery and collection of the following products will also occur at the frequencies indicated below. These volumes are per truck. Thus, each truck represents two trips, one in and one out:

- Liquefied Natural Gas - 40 20-ton trucks per day (assumed 4 in and 4 out in peak hours)
- General supplies - 1 per month
- Waste (Refuse) - 1 per week

Table 2: Vehicle Trips – Operational Workforce

Employees	Skill Level	Transport Mode	Vehicle Occupancy (average)	% Workforce / Mode	Employees / Mode	No of Vehicles
85	Skilled (30%)	Passenger Car / LDV	1.5	100%	25	17
	Un-skilled (70%)	Passenger Car / LDV	1.5	10%	6	4
		Minibus-taxi	12	50%	30	3
		Bus	55	40%	24	1
Total						25

Figure 8 overleaf indicates the operational AM and PM peak hour trips.

4.1.3 Latent Traffic Volumes

Other known developments that will impact on the access road to the Regasification Terminal and Gas Distribution Facility are the proposed Tank Farm and the OTGC Bulk Liquid and Handling Facility within the Port. The proposed tank farm site will make use of the same access road while the OTGC site will make use of the Port access road.

The Traffic Impact Assessment in the EIA prepared for the proposed Coega Tank Farm ⁽⁷⁾ indicates that the proposed tank farm will generate 26 vehicle trips during the AM and PM peak hours, while the proposed OTGC site will generate 31 peak hour trips.

The trips generated by these two developments are indicated on **Figure 9**.

4.1.4 Other Power Plant Developments

Other known power plant developments that will impact on the access roads to Zones 10 and 13 are the ENGIE Zone 13 plant next to the CDC Zone 13 plant and the Karpowership plant which does not generate any traffic impact as the gas is transported to the DEDEISA power station via pipelines. The ENGIE site will make use of the same access road as the CDC Zone 13 site.

These trips are indicated on **Figure 11**.

4.1.5 Trip Generation Summary Traffic

A summary of the generated AM and PM peak hour trips is indicated in **Table 3** below.

Table 3: Summary of Generated Trips

Component	TRIPS IN		TRIPS OUT	
	AM	PM	AM	PM
Construction – Veh Distribution	273	50*	50*	273
Operation – Veh Distribution	28	4	7	25
Tank Farm and OTGC #	29	28	28	29
Zone 10 North #	25	4*	4*	25
Zone 10 South #	25	4*	4*	25
Zone 13 #	64	5*	5*	64
ENGIE – Zone 13 #	25	4*	4*	25

* These trips are public transport return trips in AM and arriving in PM

Operational trips only

4.2 TRIP DISTRIBUTION

Based on the observed traffic volumes and taking into account the location of the LNG and Gas Hub and Distribution Facility relative to the surrounding residential areas, the following distribution has been assumed for trips generated by the power plant.

Construction Stage

- 80% to and from the west along N2
- 20% to and from the east along N2

Operational Stage

- 90% to and from the west along N2
- 10% to and from the east along N2

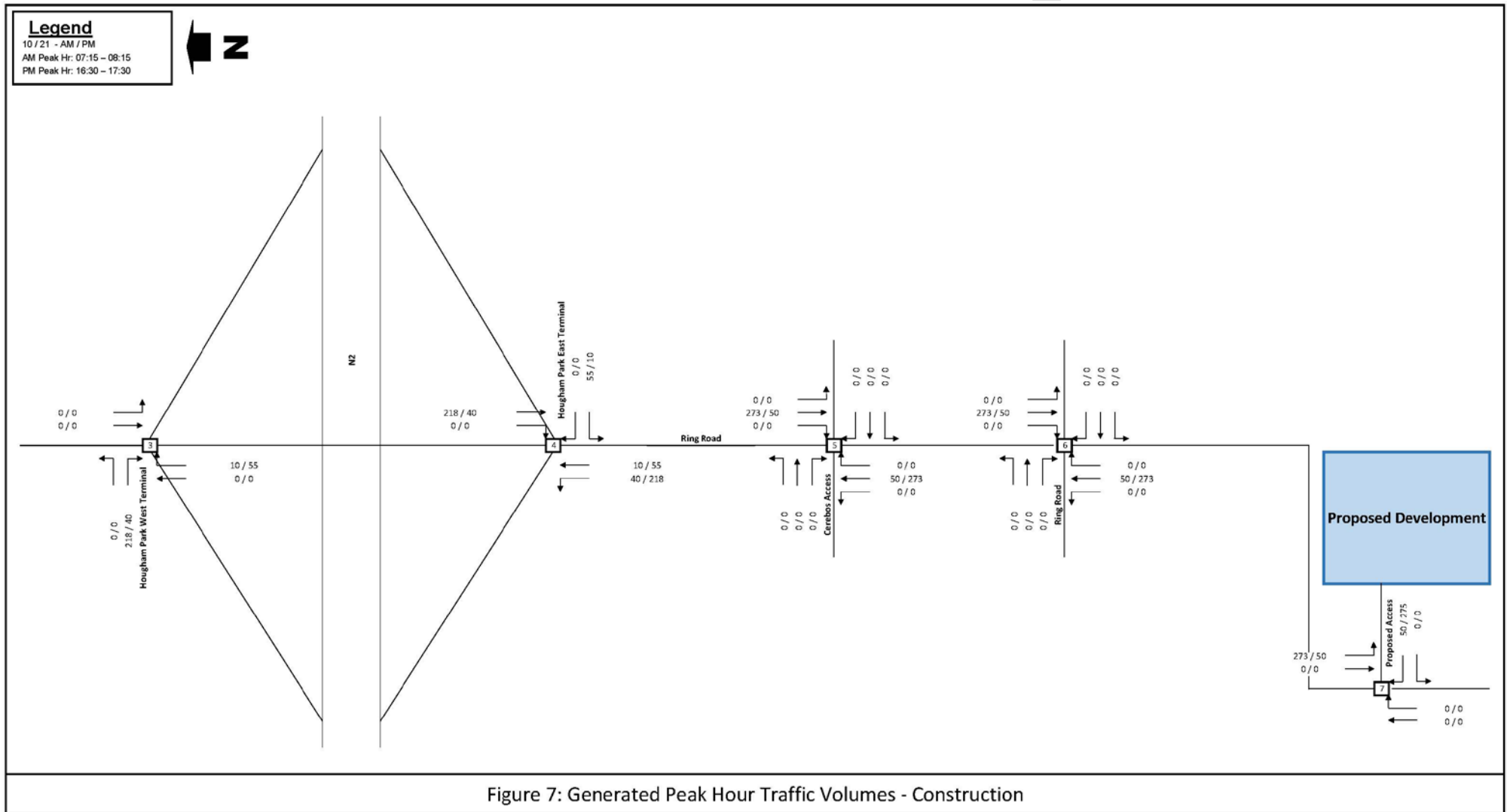
The generated construction peak hour traffic volumes added to the background and latent traffic volumes for the 2020 horizon are indicated on **Figure 10** overleaf.

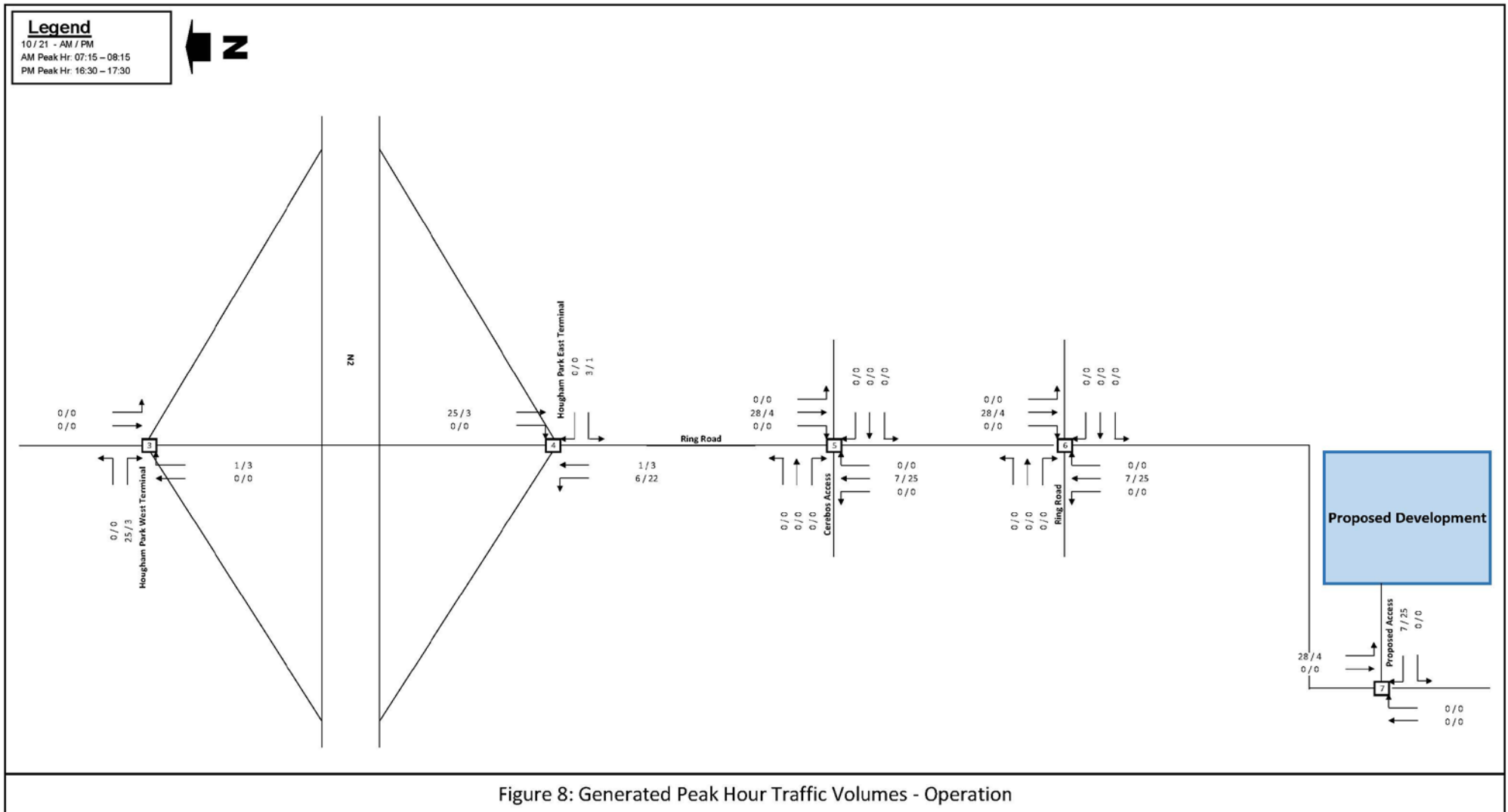
Cumulative Impacts for all Power Stations

It is assumed that all proposed plants will be operational by 2030.

As such **Figure 11** indicates the cumulative operational traffic for the Zone 10 South and North Power Stations, the Zone 13 Power Station and the LNG and Gas Hub and Distribution facility added to the latent volumes and the ENGIE Zone 13 plant and the escalated background traffic volumes for the 2030 development horizon.

It is further noted that the proposed Karpowership will not generate any traffic impact as the gas is transported to the DEDISA power station via pipelines





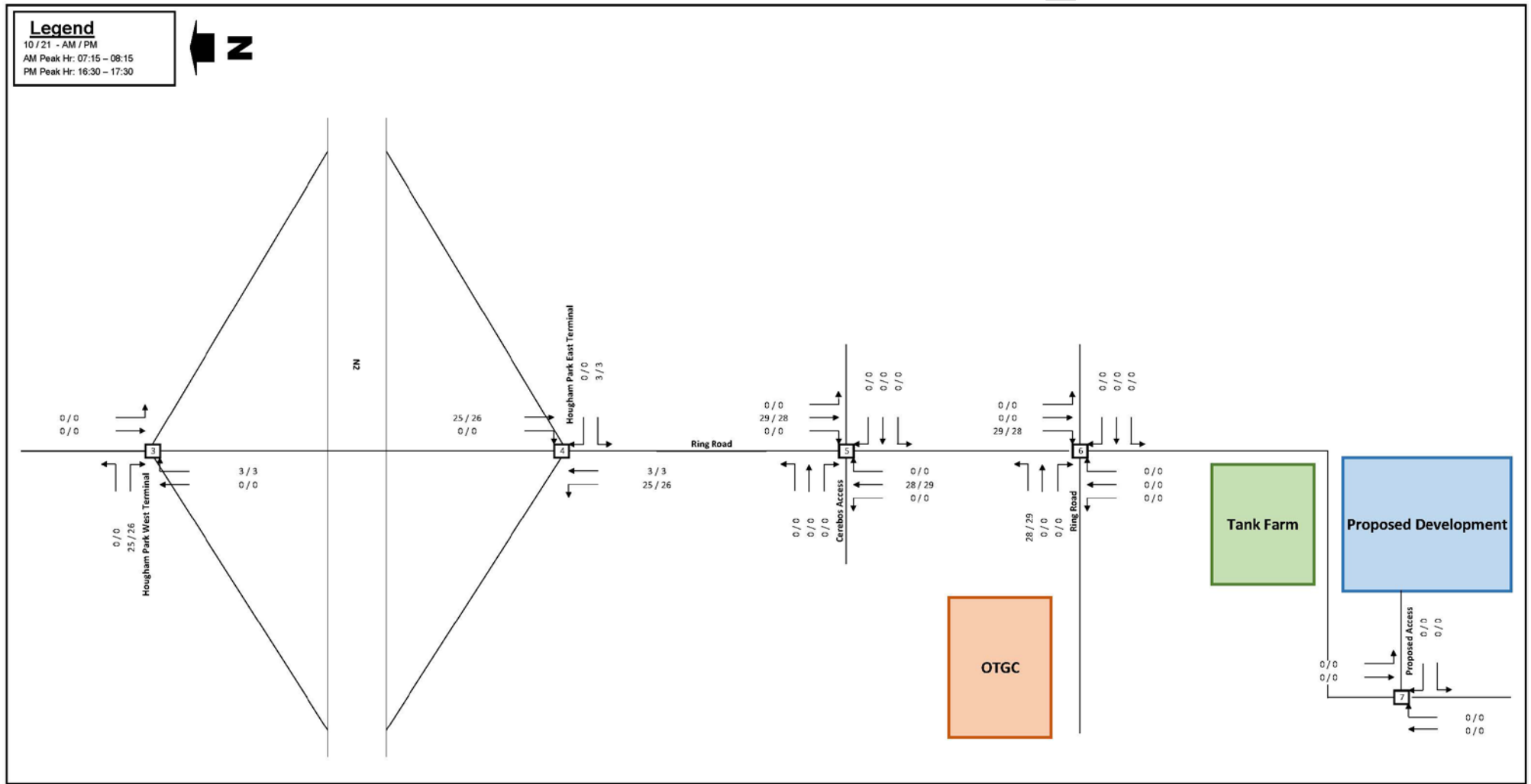
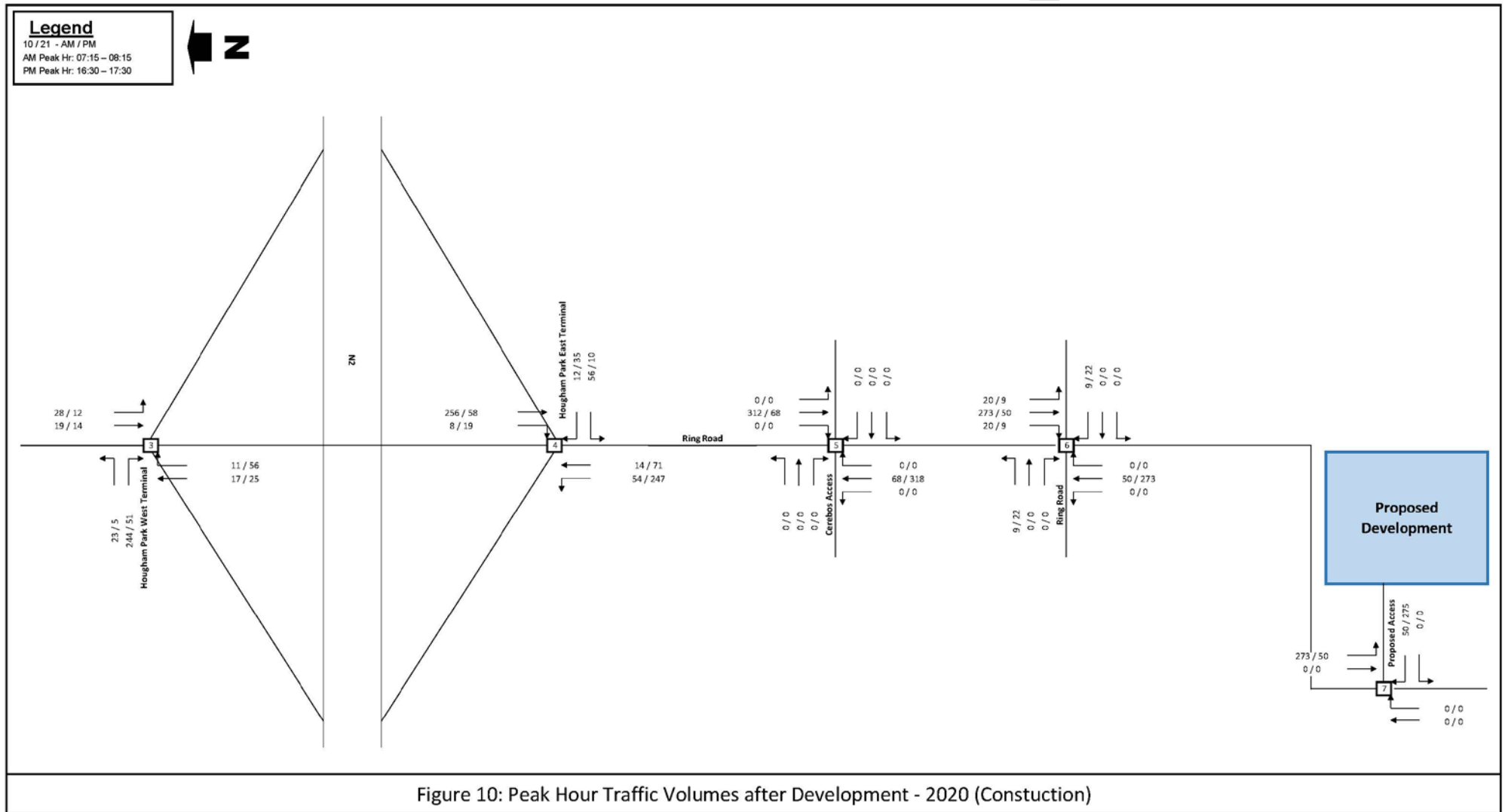
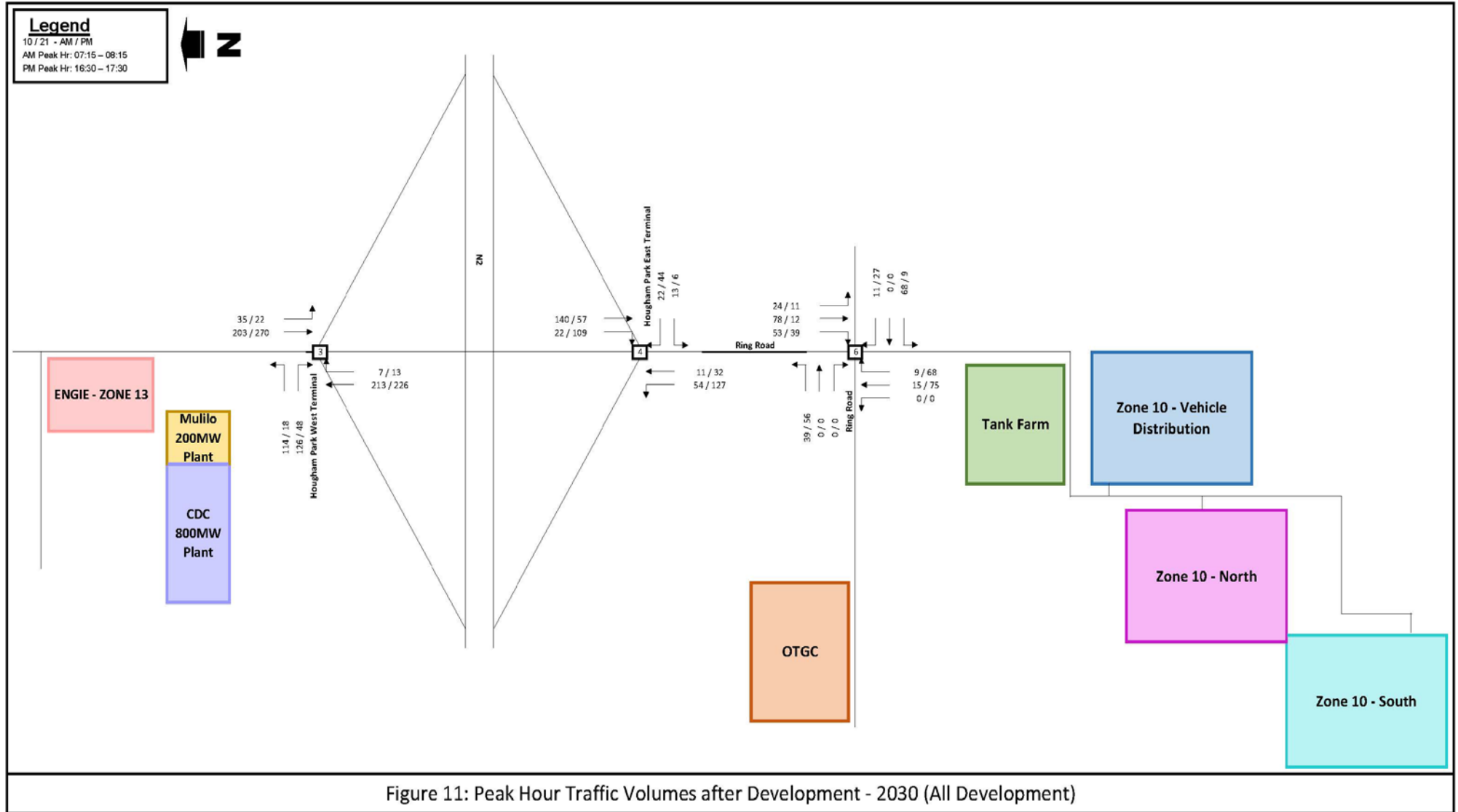


Figure 9: Latent Peak Hour Traffic Volumes - Tank Farm & OTGC





5 PROPOSED ACCESS ARRANGEMENTS

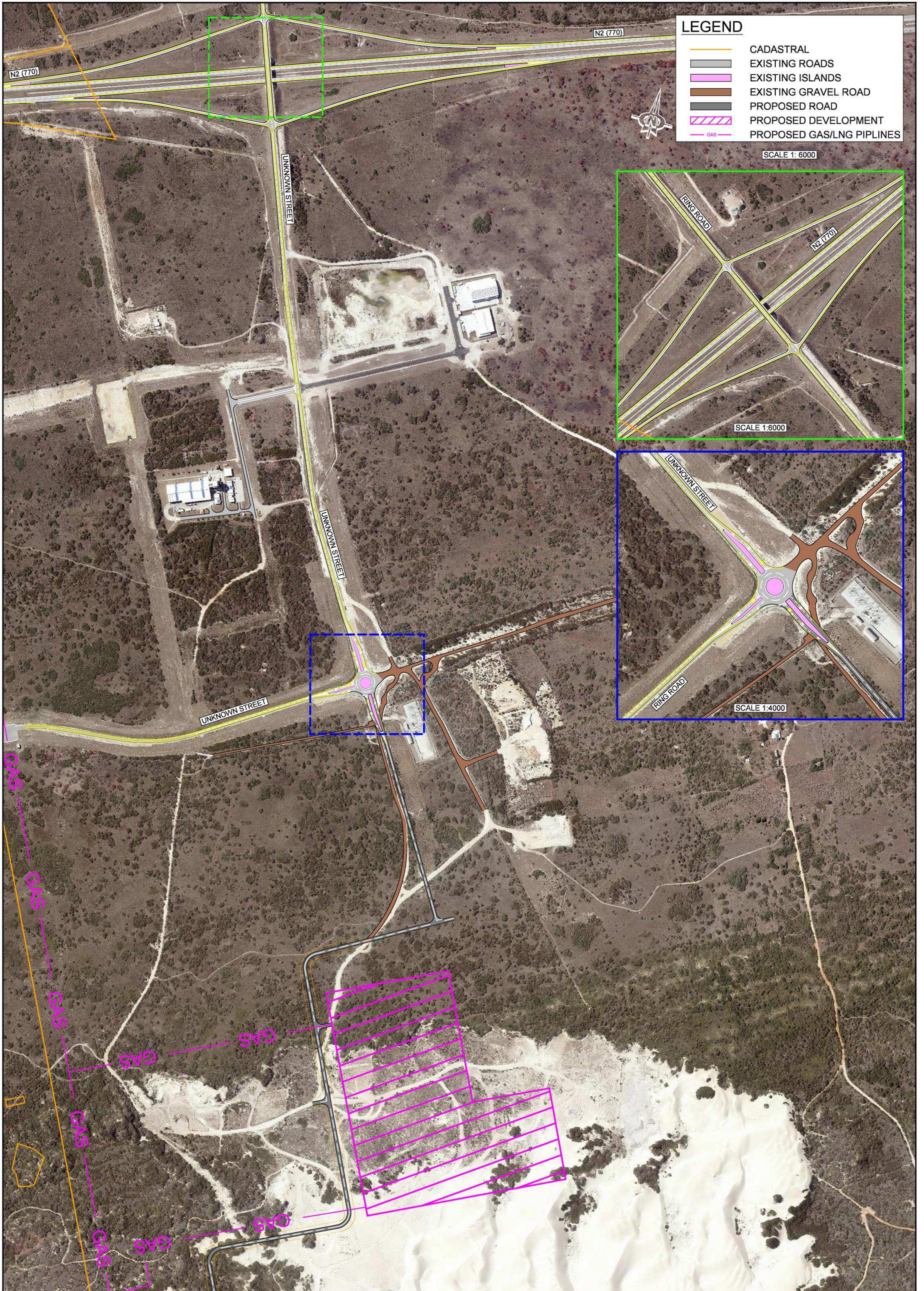
The primary access to the site is proposed from an extension of the Ring Road from the existing roundabout as indicated on **Figure 12**.

Based on the projected peak hour operational volumes a single lane per direction is sufficient to accommodate these volumes.

In terms of **TRH 26 - South African Road Classification and Access Management Manual** ⁽³⁾ the minimum access spacing on Class U2 roads is 150m to 175m. In addition, sight distance requirements for a semi-trailer vehicle entering a road with a design speed of 60 kph turning left or right requires is 200m. The requirement for a passenger car is 120m.

The access to the site must be configured with a minimum of two lanes and the security gates set back at least one truck length (20m) from the kerb-line to ensure no impact on passing traffic.

D
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LEGEND	
	CADASTRAL
	EXISTING ROADS
	EXISTING ISLANDS
	EXISTING GRAVEL ROAD
	PROPOSED ROAD
	PROPOSED DEVELOPMENT
	PROPOSED GAS/LNG PIPELINES

SCALE 1: 6000

SCALE 1:6000

SCALE 1:4000

UTSHINTSHO / AMENDMENTS		UMLINGAN-ISELO SCALE	UMLINGANISELO WOMZOBO OHLISWIYO SCALE ON REDUCED DRAWING	UMENZI DESIGN	MSJUC	ENGINEERING ADVICE AND SERVICES associated with ULWAZI	IVUNYELWE APPROVED	IVUNYELWE APPROVED	IPROJETHI / PROJECT	INANI LESIVUMELWANO CONTRACT NO.
TRANT NO.	INCAZA DESCRIPTION	IVUNYELWE APPROVED	AS SHOWN	UMZOSI DRAWN	TF	73 Hough Road, Welmer P.O. Box 13887 Hurmeewood Port Elizabeth 6013 Tel: (041) 881 2421	INJINELL/ENG.	UMENZELWA / CLIENT	TRAFFIC IMPACT ASSESSMENT FOR A PROPOSED LIQUID NATURAL GAS TERMINAL AND VEHICLE DISTRIBUTION FACILITY IN ZONE 10 OF THE COEGA SPECIAL ECONOMIC ZONE	INANI LOMZOBO DWG. NO. 1768-P-012
			20mm KUMZOBO WANGAPHAMBILI 20mm ON ORIGINAL DRAWING	IVUNYELWE APPROVED	CH		UMHLA / DATE	UMHLA / DATE	UMZOBONKCAZA / DWG DESCRIPTION	
				UMHLA DATE	JULY 2020				FIGURE 12: PROPOSED ACCESS ARRANGEMENTS	

6 CAPACITY ANALYSIS

6.1 INTERSECTION CAPACITY

Level of Service (LOS) is defined as the operating condition that may occur at an intersection when it accommodates various traffic volumes. LOS is a qualitative measure of the effect of speed, travel time, traffic interruptions, freedom to manoeuvre, safety, driving comfort and convenience, and operating costs. **LOS C** is considered an acceptable design standard for SANRAL roads. The LOS applicable to intersections under various control conditions, as defined in the **Highway Capacity Manual** ⁽⁸⁾ are indicated in **Table 5** below:

Table 4: Level of Service definitions for Vehicles (Highway Capacity Manual ⁽⁸⁾ method)

Level of Service	Control delay per vehicle in seconds (d) (including geometric delay)	
	Signals and Roundabouts	Stop Signs and Yield Signs
A	$d \leq 10$	$d \leq 10$
B	$10 < d \leq 20$	$10 < d \leq 15$
C	$20 < d \leq 35$	$15 < d \leq 25$
D	$35 < d \leq 55$	$25 < d \leq 35$
E	$55 < d \leq 80$	$35 < d \leq 50$
F	$80 < d$	$50 < d$

The capacity analysis for each scenario was undertaken using the **SIDRA Intersection 9** ⁽⁹⁾ capacity analysis method and applying the **Highway Capacity Manual** ⁽⁸⁾ gap acceptance criteria for unsignalised intersections where applicable.

6.1.1 Current Situation - 2020

In this scenario, the traffic situation was analysed in order to determine the Level of Service at which the affected intersections and access point would operate under current conditions - 2020 development horizon.

The results are shown in **Table 5** below and the detailed SIDRA output sheets attached as **Annexure F**.

Table 5: Results of Intersection Capacity Analysis – 2020 Existing

Intersection	Delay		V/C		LOS*	
	AM	PM	AM	PM	AM	PM
N2 / Ring Road North	5.1 (8.4)	2.9 (7.8)	0.048 (0.048)	0.016 (0.016)	A* (A)	A* (A)
N2 / Ring Road South	3.4 (9.3)	4.7 (7.8)	0.030 (0.017)	0.039 (0.039)	A* (A)	A* (A*)

* - **SIDRA Intersection Network 9** ⁽⁹⁾ does not calculate intersection LOS for stop-controlled intersections. The LOS indicated is sourced from the **Highway Capacity Manual** ⁽⁸⁾ (Table 4Error! Reference source not found. above).

(B) – Side Road Delay and LOS

The results of the analysis indicate that the affected junctions operate at LOS A with no problems in terms of capacity.

6.1.2 Construction - 2020

In this scenario, the impact of peak hour construction traffic for the Liquefied Natural Gas terminal and distribution facility on the affected junctions is assessed.

The results are shown in **Table 6** below and the detailed SIDRA output sheets attached as **Annexure G**.

Table 6: Results of Intersection Capacity Analysis – 2020 - Construction

Intersection	Delay		V/C		LOS*	
	AM	PM	AM	PM	AM	PM
N2 / Ring Road North	6.8 (7.8)	5.2 (8.0)	0.280 (0.280)	0.062 (0.062)	A* (A)	A* (A)
N2 / Ring Road South	2.4 (9.2)	4.3 (8.3)	0.143 (0.071)	0.178 (0.050)	A* (A)	A* (A)

* - **SIDRA Intersection Network 9** ⁽⁹⁾ does not calculate intersection LOS for stop-controlled intersections. The LOS indicated is sourced from the **Highway Capacity Manual** ⁽⁸⁾ (Table 4 above).

(B) – Side Road Delay and LOS

The results of the capacity analysis in **Table 6** indicate that the affected junctions operate at LOS A with no problems in terms of capacity.

Given the significantly lower peak hour volumes generated after construction, i.e. during operation of the Liquefied Natural Gas terminal and distribution facility, it is submitted that it is not necessary to conduct analysis for the operational situation as the LOS will be better than that of the construction situation.

6.1.3 After Development - 2030

It is not possible to accurately determine turning movements for traffic generated by the full development of Zones 7 and 10 for the 2030 development horizon given the uncertainty regarding future development, and that only link volumes are output from the Transport Demand Model.

This scenario assesses the impact of peak hour operational traffic for the Liquefied Natural Gas terminal and distribution facility and the Zone 10 North and South and Zone 13 power plants combined, added to escalated background traffic volumes as well as operational traffic volumes for known other developments on the affected junctions, namely, the ENGIE Zone 13 power plant, the Tank Farm and OGTC.

The results are shown in **Table 7** below and the detailed SIDRA output sheets attached as **Annexure H**.

Table 7: Results of Intersection Capacity Analysis - 2030

Intersection	Delay		V/C		LOS*	
	AM	PM	AM	PM	AM	PM
N2 / Ring Road North	4.0 (10.6)	1.6 (11.0)	0.323 (0.323)	0.158 (0.112)	A* (B)	A* (B)
N2 / Ring Road South	2.8 (8.5)	4.9 (8.7)	0.090 (0.039)	0.106 (0.062)	A* (A)	A (A)

* - **SIDRA Intersection Network 9** ⁽⁹⁾ does not calculate intersection LOS for stop-controlled intersections. The LOS indicated is sourced from the **Highway Capacity Manual** ⁽⁸⁾ (Table 4 above).

(B) – Side Road Delay and LOS

The results of the capacity analysis in **Table 7** indicate that the affected junctions operate at LOS A with no problems in terms of capacity and that the proposed roads and junctions can adequately accommodate traffic volumes generated by the Liquefied Natural Gas terminal and distribution facility and both power plants.

6.2 LINK CAPACITY

Vehicle/Capacity (V/C) ratios are based on the **Highway Capacity Manual** ⁽⁸⁾. The V/C categories have been grouped as follows: 20%, 40%, 60%, 80%, 100% and >100%. These ratios can be roughly equated to Level of Service (LOS), which is based on the average through vehicle speed for the link of the urban street under consideration. The LOS categories with estimated V/C ratios are described in **Table 8** below.

Table 8: V/C and Estimated Corresponding LOS with Qualitative Description of LOS

V/C	LOS	Qualitative description
0-20	A	Free flow; individual drivers are virtually unaffected by the presence of other vehicles on the road. (Travel speeds of approx. 90% of free flow speed).
21-40	B	A region of stable traffic flow but the presence of other vehicles on the road begins to be noticeable. (Travel speeds of approx. 70% of free flow speed).
41-60	C	A region of stable flow; individual drivers begin to be significantly affected by other vehicles. (Travel speeds of approx. 50% of free flow speed).
61-80	D	The onset of unstable flow; the two opposing directions of traffic begin to operate separately as overtaking becomes extremely difficult. (Travel speeds of approx. 40% of free flow speed).
81-100	E	Operating conditions are at/or near the capacity level. (Travel speeds of approx. 33% or less of free flow speed).
>100	F	Unacceptable to drivers, traffic volumes greater than the available capacity, operations characterised by stop-and-start waves. (Travel speeds of approx. 25 to 33% of free flow speed).

Considering the link volumes and minimum lane requirements along Ring Road for the Full SEZ development horizon, the links are expected to operate at LOS B to D as indicated in **Table 9** below.

Note that these volumes are AM peak hour volumes. The volumes are expected to reverse during the PM peak hour.

Table 9: V/C and Estimated Corresponding LOS for Full SEZ Development - 2030

Description	Direction	AM Peak Traffic Volume (Max)	Theoretical Peak Capacity [#]	Lanes per Direction	V/C	Level of Service
Ring Road – N2 to Circle	SB	1556	3300	2	0.47	C
	NB	910	3300	2	0.28	B
Ring Road – Circle to Zone 8 * (Assumed 50% of N2 to circle)	WB	778	2200	2	0.35	B
	EB	455	2200	2	0.21	B

* Assumed 50% of N2 to circle volumes

Hourly lane capacities on arterial and collector roads are 1 650 and 1100 vehicles per hour respectively.

It is noted that Ring Road would require two lanes by direction at this stage to ensure that it operates at level of service E or better – preferably LOS D.

The portion of Ring Road would only require two lanes per direction should LOS exceed 80% of capacity, i.e. > 800 veh / hour.

In summary, it is considered that the current and future road network can comfortably accommodate the peak hour traffic volumes generated by the proposed Liquefied Natural Gas Terminal and distribution facility

7 PEDESTRIAN, PARKING AND LOADING REQUIREMENTS

7.1 PARKING REQUIREMENTS

Parking requirements for manufacturing developments is currently provided in terms of the in terms of the **Department of Transport Parking Standards** ⁽¹⁰⁾ namely, 1 bay per 100m² in respect of warehouse or manufacturing space and 2.5 bays per 100m² in terms of office space.

Specific requirements for the Liquefied Natural Gas terminal and distribution facility will be determined at Site Development Plan submission stage.

7.2 PEDESTRIAN ARRANGEMENTS

The road cross-sections for each category of road in the Coega IDZ have been planned to accommodate pedestrian sidewalks. Provision for 2m sidewalks has been made along Ring Road 1 although final surface treatment has yet to be applied.

Given that the Liquefied Natural Gas terminal and distribution facility is located far from busy public transport routes and residential areas, pedestrian facilities will only be provided between sites and possible future public transport stops.

7.3 LOADING REQUIREMENTS

Specific areas for deliveries will be specified at Site Development Plan submission stage.

8 POTENTIAL IMPACTS

8.1 IMPACTS

The following potential traffic related impacts relating to the proposed Liquefied Natural Gas terminal and distribution facility have been identified. Note that the impacts will occur both in the short-term (i.e. during the construction phase) and medium to long-term once the plant is completed (operational phase).

- Road Capacity

Additional vehicle trips generated by the proposed development (up to 323 and 29 additional trips during the AM and PM peak hours for the construction and operational scenarios respectively) will have minimal impact in terms of road capacity given the current low hourly volumes along the road links and at the affected intersections and low trips generated by the proposed power plant.

- Access

Access to the development will be provided from Ring Road as indicated on **Figure 12**.

- Road Pavement

The **Coega IDZ Demand Modelling Report** ⁽⁵⁾ indicates that all Class 2 roads would likely need to accommodate 7.5 million E80s per lane over a 20-year period. Given that the Ring Road is a class 2 road it has likely been designed for these volumes. As such the number of E80s generated by the Gas Distribution plant traffic over the 20-year period is minimal.

- Traffic Safety

Safety issues may initially be a concern given low traffic volumes as traffic is likely to operate at high speeds in low traffic environments.

8.2 IMPACT ASSESSMENT

A general assessment has been undertaken of the identified impacts for both the construction/development and operational phases of the development. Cumulative operational impacts are also assessed. Note that this assessment does not deal with issues relating to noise, emissions, job creation or environmental matters, as the author is not qualified to comment on these. If necessary, such key issues will be addressed in separate specialist assessments.

The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur. The criteria used to determine the impact consequences from which a consequence rating is developed, the probability of the impact occurring and the rating system used to determine the overall significance of impacts is attached as **Annexure I**.

The end result will be presentation of the significance rating for each identified impact as follows:

Table 10: Significance rating for specific impact (Example: Additional Lane capacity at access)

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Medium	Medium term	Low	Definite	Low	-	High	Medium
Management Measures									
<ul style="list-style-type: none"> • Construct new traffic lane approaching access • Ensure designs prepared as per specified standards; • Designs submitted to all relevant authorities; • Ensure suitable traffic accommodation measures in place to safeguard other road users; 									
After Management	Local	Low	Short-term	Very Low	Probable	Very Low	-	High	High

The results of the impact assessment for each identified impact are indicated in **Tables 11 to 15** in sections 8.2.1, 8.2.2 and 8.2.3 overleaf. The assessment process for each impact is attached as **Annexure J**.

8.2.1 Construction Phase

Table 11: Significance rating: Additional traffic volumes

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Low	Short-term	Very Low	Definite	Very Low	-	High	High
Management Measures - Essential									
<ul style="list-style-type: none"> • Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic; • Traffic accommodation measures to be provided in terms of Chapter 13 of the South African Road Traffic Signs Manual; • Measures to be provided subject to approval by the Engineer; and • Ensure construction traffic is confined to site area. 									
After Management	Local	Low	Short-term	Very Low	Definite	Very Low	-	High	High

Table 12: Significance rating: Additional Axle Loading

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Low	Medium term	Very Low	Definite	Very Low	-	High	Medium
Management Measures - Essential									
<ul style="list-style-type: none"> • Minimise need for continuous construction traffic on Ring Road by confining construction traffic to the site; • Ensure that vehicle loads are within legislated limits, i.e. maximum Gross vehicle mass of 56 000kg; and • Source relevant permits from the ECDoT should abnormal loads be required for transport of components. 									
After Management	Local	Low	Medium-term	Very Low	Definite	Very Low	+	High	Medium

Table 13: Significance rating: Traffic Safety Impact due to high-speed traffic

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Low	Medium-term	Very Low	Probable	Very Low	-	High	Medium
Management Measures - Essential									
<ul style="list-style-type: none"> • Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic, including speed restriction signage; and • Increased law enforcement protocols. 									
After Management	Local	Low	Medium-term	Very Low	Probable	Very Low	+	High	High

8.2.2 Operational Phase – Distribution Facility

Table 14: Significance rating: Road and Intersection capacity (additional traffic loading)

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Low
Management Measures									
<ul style="list-style-type: none"> No measures required to accommodate additional traffic. 									
After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Low

Table 15: Significance rating: Traffic Safety Impact due to additional traffic

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Medium
Management Measures - Essential									
<ul style="list-style-type: none"> Suitable warning traffic signage be provided to ensure safe operation along Ring Road; and Ongoing enforcement along access roads. 									
After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Medium

8.2.3 Cumulative Impacts - Operational Phase

Table 16: Significance rating: Road and Intersection capacity (additional traffic loading)

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Low
Management Measures									
<ul style="list-style-type: none"> No measures required to accommodate additional traffic. 									
After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Low

Table 17: Significance rating: Traffic Safety Impact due to additional traffic

	Spatial Extent	Intensity	Duration	Consequence	Probability	Significance	+-	Confidence	Reversibility
Before Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Medium
Management Measures - Essential									
<ul style="list-style-type: none"> Suitable warning traffic signage be provided to ensure safe operation along Ring Road; and Ongoing enforcement along access roads. 									
After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Medium

9 PROPOSED MITIGATORY MEASURES

Measures to improve the safety of the existing road and to mitigate against the impact of the additional traffic volumes generated are listed below.

9.1 ROAD CAPACITY MEASURES

As discussed in **Chapter 6** the additional generated peak hour traffic volumes are unlikely to impact on road and junction capacity.

Additional road capacity (widening) is thus not required apart from specific requirements at the proposed access point. A minimum of two entering lanes set back at least one truck length from the site boundary is required to ensure no impact on through traffic flow.

9.2 PAVEMENT LOADING MEASURES

As discussed in **Chapter 6** the additional generated daily traffic volumes are unlikely to impact on the road pavement as the road has been designed to accommodate the required axle loading for full SEZ development.

As such no additional road upgrades are necessary to accommodate the generated axle loads, provided that transported loads are within legislated limits.

9.3 TRAFFIC SAFETY MEASURES

Suitable traffic accommodation and speed control signage must be provided both during construction and operation of the Liquefied Natural Gas terminal and distribution facility to ensure traffic safety, particularly in the initial development of Zones 7 and 10 when low traffic volumes may lead to higher operational speeds.

10 MANAGEMENT ACTIONS

The following management actions should be implemented in order to minimise the impact of the development on other road users:

- Traffic Accommodation Measures
Suitable traffic accommodation measures be provided during construction to ensure safety of all road users;
- Warning traffic signs

Appropriate warning traffic signs (in accordance with the South African Road Traffic Signs Manual ⁽¹⁰⁾) should be erected to warn road users.

11 CONCLUSIONS

The following conclusions can be drawn from the study:

- Access to the proposed development can be provided directly from an Extension of the Ring Road from the existing roundabout as indicated on **Figure 12**;
- The development generates approximately 323 AM and PM peak hour trips during the Construction Phase which equates to approximately 13 % of projected peak hour volumes on Ring Road, although these vehicle trips are only during the construction phase it is important to note that there is plenty of spare capacity on Ring Road;
- The development generates 29 AM and PM peak hour trips during the Operational Phase which equates to approximately 1.2 % of projected peak hour volumes on Ring Road;
- The existing roads have been designed to accommodate traffic generated by the full SEZ development;
- No impact is expected provided that all heavy vehicle loading is within legislated limits;
- During full utilization capacity analysis indicates that no capacity concerns are realized; and
- Capacity analysis indicates that the affected junctions operate at high LOS for the construction scenario and with the Liquefied Natural Gas terminal and distribution facility and both power plants as well as the ENGIE Zone 13 power plant and Karpowership operational.

12 RECOMMENDATIONS

In view of the findings of this study, it is recommended that:

- The relevant mitigatory measures be implemented by the developer during and after construction; and
- Access to the site be provided as indicated on **Figure 12**.

13 REFERENCES

1. *Joubert, Sampson, et al, TMH 16 Vol 1- South African Traffic Impact and Site Assessment Manual*, COTO, September 2013.
2. *Joubert, Sampson, et al, TMH 17 Vol 1- South African Trip Data Manual*, COTO, September 2013.
3. *COTO, TRH26 - South African Road Classification and Access Management Manual*, South African National Roads Agency, August 2012.
4. *SRK Consulting, Draft Scoping report for Proposed Coega 3000MW Integrated Gas to Power Project*, Coega Development Corporation, September 2019.
5. *BKS associated with EAS, Coega Industrial Development Zone Transport Study – Vol 3: Demand Modelling Report*, Coega Development Corporation, September 2007.
6. *BKS associated with EAS, Coega Industrial Development Zone Transport Study – Vol 4: Public Transport Report*, Coega Development Corporation, September 2007.
7. *Prism Environmental Management Services, EIA Report Bay Terminals Group Coega Tank Farm*, Bay Terminals Group, November 2018.
8. *Transportation Research Board, Highway Capacity Manual*, 2000.
9. *Akcelik & Associates (Pty) Ltd, SIDRA Intersection 8 User Guide*, SIDRA Solutions, April 2018.
10. *COLTO Roads Coordinating Committee, SADC Road Traffic Signs Manual*, Department of Transport, 2003.
11. *Department of Transport, PG3/85 - Parking Standards*, Department of Transport, November 1985.

ANNEXURE A
Land Use
Approvals

NELSON MANDELA METROPOLITAN MUNICIPALITY
(PORT ELIZABETH)

Office of the Director : Administration

✉ 116, Port Elizabeth 6000
☎ (041) 506-3111
fax: (041) 506-3336

Your Reference:	DEALS WITH THIS MATTER:	MRS V CAMERON
Our Reference: E01/26/00001P116	Telephone:	506-3321
Date: 3 December 2001	Facsimile:	506-3430

Messrs Metroplan
P O Box 12313
CENTRAHIL
6006

Dear Madam

TOWN PLANNING AMENDMENT 4753 : REZONING OF FARM NEPTUNE 690, PORTIONS 12, 13, 22, 24, 29, 33, 34 AND 35 OF THE FARM SWARTEKOPPEN 302, REMAINDER OF PORTION 6 OF THE FARM SWARTEKOPPEN 302, PORTION 1 OF ERF 551, WELLS ESTATE, ERVEN 9 AND 10, WELLS ESTATE AND PORTION OF REMAINDER ERF 1, WELLS ESTATE (COEGA IDZ)

I refer to previous correspondence in this regard and wish to advise that the Executive Mayor, at its meeting held on 28 November 2001, resolved as follows:

- (a) That the Development Framework Plan, dated September 2000 be adopted as the policy document to regulate development in the Coega IDZ, subject to any amendments being submitted to Council for approval.
- (b) That, notwithstanding the objections received and in terms of Provincial Circular LDC/GOK 9/1988, the Port Elizabeth Zoning Scheme be amended (TPA 4735) by the rezoning of Portion 1, Portion of Remainder Erf 1, Erven 9 and 10 of Wells Estate no. 551, from Undetermined to Special purposes, subject to the following conditions:
 - (i) the approved Development Framework Plan being complied with;
 - (ii) architecture, infrastructure and landscaping guidelines, which should specifically address advertising signage on buildings that may be visible from the National Road (N2), being to the satisfaction of the City Engineer;
 - (iii) the services agreements to be concluded between Council and the CDC being complied with;
 - (iv) the development management plan being to the satisfaction of the City Engineer;

2/...

- (v) an open space system, that will not only ensure the protection of environmentally sensitive areas, but also provide passive or active recreation areas where the general public has freedom of movement, being formulated for the IDZ. This system also being integrated into the city's Metropolitan Open Space System (MOSS) to the satisfaction of the City Engineer;
- (vi) a landscaped "green belt" (30 m wide) being provided along the northern and western boundaries of St George's Village with emphasis on visual screening methods (e.g. tree planting and berming) to act as a buffer between the zone and the residential area. A proposal being submitted to the satisfaction and for the approval of the City Engineer;
- (vii) the Integrated Transportation study and procedures and responsibility for the management, operation, maintenance and implementation of the transportation system as further amplified and specified in agreements between the CDC and NMMM, being implemented;
- (viii) the standard conditions in respect of the preparation of localised traffic impact assessments where deemed necessary by the Council applying;
- (ix) Permitted uses : being in accordance with the approved Development Framework Plan;
- (x) Prohibited uses : residential uses;
- (xi) minimum development controls as specified by the approved Architecture, Infrastructure and Landscaping Guidelines;
- (xii) the following legislation being complied with:
 - Environmental Conservation Act, 1989 (Act no.73 of 1989)
 - National Roads Act, 1971 (Act no. 54 of 1971)
 - Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)
 - Sea Shores Act, 1935 (Act no. 21 of 1935)
 - Physical planning Act, 1991 (Act 125 of 1991)
 - Land Use Planning Ordinance (Ordinance 15 of 1985)
 - National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)
 - Development Facilitation Act, 1995 (Act no. 67 of 1995)
 - Removal of Restrictions Act, 1967 (Act no. 84 of 1967)
 - Development Management Act, 1993 (Act no. 187 of 1993)
 - Port of Coega Establishment Bill, 1998 (Bill no 73 of 1998)
 - National Land Transition Act, 2000 (Act no. 22 of 2000)
- (xiii) should the IDZ fail to materialise within two years from the approval date of this application, Council may initiate steps for the land to revert back to its original zoning.

- (c) That, notwithstanding the objections received and in terms of the Section 8 Regulations of the Land Use Planning Ordinance, Farm Neptune 580, and Portions 12, 13, 22, 24, 29, 33, 34, 35 and Remainder of Portion 6 of the Farm Swartkoppen, be rezoned (TPA4735) from Agriculture Zone 1 to Special Zone (IDZ), subject to the following conditions:
- (i) the approved Development Framework Plan being complied with;
 - (ii) architecture, infrastructure and landscaping guidelines, which should specifically address advertising signage on buildings that may be visible from the National Road (N2), being to the satisfaction of the City Engineer;
 - (iii) the services agreements to be concluded between Council and the CDC being complied with;
 - (iv) the development management plan being to the satisfaction of the City Engineer;
 - (v) an open space system, that will not only ensure the protection of environmentally sensitive areas, but also provide passive or active recreation areas where the general public have freedom of movement, being formulated for the IDZ. This system should also be integrated into the city's Metropolitan Open Space System (MOSS). The open space system being to the satisfaction of the City Engineer;
 - (vi) a landscaped "green belt" (30 m wide) being provided along the northern and western boundaries of St George's Village with emphasis on visual screening methods (e.g. tree planting and berming) to act as a buffer between the zone and the residential area. A proposal being submitted to the satisfaction and for the approval of the City Engineer;
 - (vii) the Integrated Transportation study and procedures and responsibility for the management, operation, maintenance and implementation of the transportation system as further amplified and specified in agreements between the CDC and NMMM, being implemented;
 - (viii) the standard conditions in respect of the preparation of localised traffic impact assessments where deemed necessary by the Council applying;
 - (ix) Permitted uses : being in accordance with the approved Development Framework Plan;
 - (x) Prohibited uses : residential uses;
 - (xi) minimum development controls as specified by the approved Architecture, Infrastructure and Landscaping Guidelines;
 - (xii) the following legislation being complied with:
 - Environmental Conservation Act, 1989 (Act no.73 of 1989)
 - National Roads Act, 1971 (Act no. 54 of 1971)
 - Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)
 - Sea Shores Act, 1935 (Act no. 21 of 1935)
 - Physical planning Act, 1991 (Act 125 of 1991)

- Land Use Planning Ordinance (Ordinance 15 of 1985)
- National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)
- Development Facilitation Act, 1995 (Act no. 67 of 1995)
- Removal of Restrictions Act, 1967 (Act no. 84 of 1967)
- Development Management Act, 1993 (Act no. 187 of 1993)
- Port of Coega Establishment Bill, 1998 (Bill no 73 of 1998)
- National Land Transition Act, 2000 (Act no. 22 of 2000)

(xiii) should the IDZ fail to materialise within two years from the approval date of this application, Council may initiate steps for the land to revert back to its original zoning.

Please advise your client that:

- (i) the subject properties may not be used for the intended purpose until such time as all the conditions of rezoning have been complied with and, therefore, I would urge your client's early compliance therewith; and
- (ii) should the subject properties be used for the intended purposes before all the conditions of rezoning are complied with, legal action will be instituted to ensure cessation of same.

Kindly note that the above decision was taken in terms of Provincial Circular LDC/GOK 8/1988, in terms of which your client has the right of appeal against same.

Should your client wish to exercise this right, please note that the appeal should be in writing, fully motivated and addressed to the Regional Director: Regional Office for Housing and Local Government, Private Bag X6005, Port Elizabeth 6000, with a copy thereof submitted to this office, same to reach both on or before 21 December 2001.

Please also note that the objectors in this regard have a similar right of appeal and should same be exercised, I will write to you again.

Yours faithfully

DIRECTOR : ADMINISTRATION

VC-1U-3/BK

NELSON MANDELA METROPOLITAN MUNICIPALITY



Office of the Business Unit Manager Housing and Land Affairs

116, Port Elizabeth 6001
Tel: (041) 506-3111
Fax: (041) 506-3430

Your Reference:

DEALS WITH THIS MATTER: **MRS V CAMERON**

Our Reference: **E01/26/00001P116**

Telephone: **506-3321**

Date: **28 January 2003**

Facsimile: **506-3430**

Messrs Metroplan
P O Box 12313
CENTRAHIL
6006

FAX TO: A. Zeiss
COMPANY: _____ PAGE 1 OF 3
FAX NO: 5855445 DATE 27/1/2003
FROM: A. Pausse
COMPANY: Metroplan PHONE NO 3731843
FAX NO 373828

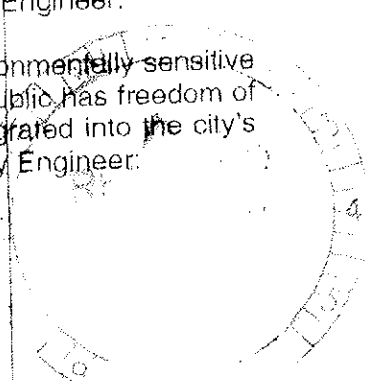
Dear Madam

TOWN PLANNING AMENDMENT 4908 : REZONING OF PORTIONS 13 AND 15 (PORTIONS OF PORTION 2) OF THE FARM SWARTEKOPPEN NO. 302; PORTION 36 (A PORTION OF PORTION 14) OF THE FARM SWARTEKOPPEN NO. 302, PORTION 47 OF THE FARM SWARTEKOPPEN NO. 302 AND REMAINDER OF PORTION 14 (A PORTION OF PORTION 2) OF THE FARM SWARTEKOPPEN NO. 302 (COEGA IDZ)

I refer to previous correspondence in this regard and wish to advise that the Executive Mayor on 4 December 2002, resolved that, in terms of Provincial Circular LDC/GOK 9/1988, the Section 8 Scheme Regulations as contained in Land Use Planning Ordinance (Ordinance 15 of 1985) be amended (TPA 4908) by the rezoning of Portions 13 and 15 (portions of Portion 2) of the farm Swartekoppen no. 302, Portion 36 (portion of Portion 14) of the Farm Swartekoppen no. 302, Portion 47 of the Farm Swartekoppen no. 302 and Remainder of Portion 14 (a portion of Portion 2) of the Farm Swartekoppen no. 302, from Agricultural Zone 1 to Special Zone (IDZ), subject to the following conditions:

- (i) the approved Development Framework Plan being complied with;
- (ii) architecture, and landscaping guidelines, which should specifically address advertising signage on buildings that may be visible from the National Road (N2), being to the satisfaction of the City Engineer;
- (iii) the services agreements to be concluded between Council and the CDC being complied with;
- (iv) the development management plan being to the satisfaction of the City Engineer;
- (v) an open space system, that will not only ensure the protection of environmentally sensitive areas, but also provide passive or active recreation areas where the public has freedom of movement, being formulated for the IDZ. This system also being integrated into the city's Metropolitan Open Space System (MOSS) to the satisfaction of the City Engineer.

file



- (vi) the Integrated Transportation study and procedures and responsibility for the management, operation, maintenance and implementation of the transportation system as further amplified and specified in agreements between the CDC and NMMM, being implemented;
- (vii) the standard conditions in respect of the preparation of localised traffic impact assessments where deemed necessary by the Council applying;
- (viii) Permitted uses : being in accordance with the approved Development Framework Plan;
- (ix) Prohibited uses : residential uses;
- (x) development standards as specified by the approved Architecture, and Landscaping Guidelines;
- (xi) the following legislation being complied with:
 - Environmental Conservation Act, 1989 (Act no.73 of 1989)
 - National Roads Act, 1971 (Act no. 54 of 1971)
 - Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)
 - Sea Shores Act, 1935 (Act no. 21 of 1935)
 - Physical planning Act, 1991 (Act 125 of 1991)
 - Land Use Planning Ordinance (Ordinance 15 of 1985)
 - National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)
 - Development Facilitation Act, 1995 (Act no. 67 of 1995)
 - Removal of Restrictions Act, 1967 (Act no. 84 of 1967)
 - Development Management Act, 1993 (Act no. 187 of 1993)
 - Port of Coega Establishment Bill, 1998 (Bill no 73 of 1998)
 - National Land Transition Act, 2000 (Act no. 22 of 2000)
- (xii) should the IDZ fail to materialise within two years from the approval date of this application, Council may initiate steps for the land to revert back to its original zoning.

Please advise your client that:

- (i) the subject properties may not be used for the intended purpose until such time as all the conditions of rezoning have been complied with and, therefore, I would urge your client's early compliance therewith; and

- (ii) should the subject properties be used for the Intended purposes before all the conditions of rezoning are complied with, legal action will be instituted to ensure cessation of same.

Yours faithfully

M LANGSON
BUSINESS UNIT MANAGER
HOUSING AND LAND AFFAIRS

VC/MM-28-37



nelson mandela bay
MUNICIPALITY
 PORT ELIZABETH | UITENHAGE | DESPATCH

H O U S I N G A N D L A N D

tel: +27(41) 506 3111, fax: +27(41) 506 3430
 PO Box 9, Port Elizabeth 6000
 Republic of South Africa
 e-mail: lmente@mandelametro.gov.za

Your Ref:
 Our Ref: E01/26/00001P116
 Date: 16 August 2007

DEALS WITH THIS MATTER: MS L MENTE
 LAND PLANNING AND MANAGEMENT SUB-DIRECTORATE
 Tel: 506-3244; Fax: 506-3291

NB: Please quote Our Ref. above in all future correspondence

REGISTERED POST

Metroplan Town and Regional Planners
 P O Box 12313
 Centrahil
PORT ELIZABETH
 6000

Dear Sir/Madam

FAX TO: <u>Mr. Allan Zeiss</u>	
COMPANY: <u>CDC</u>	PAGE: <u>1</u> OF: <u>3</u>
FAX NO: <u>041-585 5445</u>	DATE: <u>27-Aug-2007</u>
FROM: <u>Mrs. P. A. Rousseau</u>	
COMPANY: <u>Metroplan</u>	PHONE NO: <u>041-373 1843</u>
FAX NO: <u>041-373 1838</u>	FAX PAD 7551

TOWN PLANNING AMENDMENT 6106 : REZONING OF THE REMAINING AREA WITHIN THE COEGA IDZ (PHASE 3)

I refer to previous correspondence in this regard and wish to advise that the Executive Mayor on 8 August 2007 resolved as follows:

- (a) That Revision 1 of the Development Framework Plan, Plan dated September November 2006, be adopted by Council as a policy guide document to regulate development in the IDZ. Future amendments or revisions to the DFP being submitted to Council for approval.
- (b) That the rezoning of the subject erven from Agriculture Zone 1 to Special Zone (IDZ) in terms of the Section 8 Zoning Scheme Regulations of the Land Use Planning Ordinance 15 of 1985 be approved, subject to the following conditions:
 - (i) the approved Development Framework Plan being complied with;
 - (ii) architecture, Infrastructure and Landscaping Guidelines, which should specifically address advertising signage on buildings that may be visible from the National Road (N2), being to the satisfaction of the Executive Director : Housing and Land;
 - (iii) the Services Agreements concluded between Council and the Coega Development Corporation being complied with;
 - (iv) the Record of Decision issued by the Department of Environmental Affairs and Tourism dated 6 March 2007 being complied with;
 - (v) the Development Management Plan being to the satisfaction of the Executive Director : Housing and Land;

- (vi) an Open Space System for the IDZ being formulated that will not only ensure the protection of environmentally sensitive areas but also provide passive or active recreation areas where the general public have freedom of movement. This system should also be integrated into the Metro's Metropolitan Open Space System (MOSS), the Open Space System being to the satisfaction of the Executive Director : Housing and Land;
- (vii) the Integrated Transportation Study and procedures and responsibility for the management, operation, maintenance and implementation of the transportation system as further amplified and specified in agreements between the CDC and NMMM being implemented;
- (viii) standard conditions in respect of the preparation of localised traffic impact assessments where deemed necessary by the NMMM;
- (ix) Permitted uses:
In accordance with the approved Development Framework Plan;
- (x) Prohibited use:
Residential uses;
- (xi) minimum development controls as specified by the approved Architecture, Infrastructure and Landscaping Guideline;
- (xiii) compliance with the following legislation:
 - National Environmental Management Act, (Act no 107 of 1998)
 - National Roads Act, 1971 (Act no. 54 of 1971)
 - Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)
 - Sea Shores Act, 1935 (Act no. 21 of 1935)
 - Physical planning Act, 1991 (Act 125 of 1991)
 - Land Use Planning Ordinance (Ordinance 15 of 1985)
 - National Building Regulations and Building Standards Act, 1977 (Act 103 of 1977)
 - Development Facilitation Act, 1995 (Act no. 67 of 1995)
 - Removal of Restrictions Act, 1967 (Act no. 84 of 1967)
 - Development Management Act, 1993 (Act no. 187 of 1993)
 - Port of Coega Establishment Bill, 1998 (Bill no 73 of 1998)
 - National Land Transition Act, 2000 (Act no. 22 of 2000)

Please advise your client that:

- (i) the subject properties may not be used for the intended purpose until such time as all the conditions of rezoning have been complied with and, therefore, I would urge your client's early compliance therewith; and
- (ii) should the subject properties be used for the intended purposes before all the conditions of rezoning are complied with, legal action will be instituted to ensure cessation of same.

Kindly note that the above decision was taken in terms of Provincial Circular LDC/GOK 9/1988, in terms of which your client has the right of appeal against same.

Should your client wish to exercise this right, please note that the appeal should be in writing, fully motivated and addressed to the Regional Director : Regional Office for Housing and Traditional Affairs, Private Bag X0035, Bisho, 5605, with a copy thereof submitted to this office, same to reach both on or before 3 September 2007.

Yours faithfully



ACTING EXECUTIVE DIRECTOR : HOUSING AND LAND

16-001P116TRA-LM/NN

ANNEXURE B
Peak Hour
Traffic Volumes

ANNEXURE C
Historical Daily
Traffic Volumes

Traffic Impact Assessment for Proposed CDC Gas to Power Projects

24 Hr Count Volumes

Count Station	Location	Authority	2014	2011	2016	2019	Total Growth (%)	Average Growth Per Annum (2009 - 2018)
1448	N2 - Coega	SANRAL	10030			10677	6.45	1.26 %
			AVERAGE					1.26 %

Traffic Highlights of Site: Coega I/C (1448)

Site No	1448
Site Name	Coega I/C
Site Description	Eastern Side of Neptune Rd/Ngcura Harbour I/C
Road Description	Route : N002 Section : 11E Distance : 48.716 km
GPS Position	Latitude: -33.792488 Longitude: 25.659491
Number of Lanes	8
Station Type	Permanent Piezo

Requested Data Period	01 Jan 2019 - 31 Dec 2019
First and Last Data Dates	01 Jan 2019 - 31 Oct 2019
Data Available for Requested Period as Percentage	83%

Last Full Day Count for ADT and ADTT	31 Oct 2019
Number of Full Days in Requested Period	304

Highlights per Stream		Str 1: On-ramp from Coega IDZ	Str 2: CD Road from Ngcura Harbour	Str 3: To Grahamstown	Str 4: To Port Elizabeth	Str 5: CD Road to Ngcura Harbour
1.1	Total Number of Vehicles	29,479	24,497	1,634,367	1,611,619	26,488
1.2	Average Daily Traffic (ADT)	97	81	5,376	5,301	87
1.3	Average Daily Truck Traffic (ADTT)	26	55	1,051	1,007	23
1.4	Percentage of Trucks	26.9 %	67.9 %	19.5 %	19.0 %	26.6 %
1.5	Truck Split % (Short : Medium : Long)	11 : 6 : 83	11 : 20 : 69	23 : 12 : 65	24 : 13 : 63	24 : 11 : 65
1.6	Percentage of Night Traffic [20h00 - 6h00)	13.8 %	28.9 %	14.1 %	13.1 %	17.1 %
2.1	Speed Limit					
2.2	Average Speed (km/hr)	75.4	75.7	108.0	108.4	88.5
2.3	Average Speed - Light Vehicles (km/hr)	78.0	85.0	112.7	113.1	93.2
2.4	Average Speed - Heavy Vehicles (km/hr)	68.6	70.9	89.8	87.9	76.7
2.5	Average Night Speed (km/hr)	75.4	72.2	104.5	103.1	82.8
2.6	15th Centile Speed (km/hr)	59.8	60.5	85.4	83.5	67.8
2.7	85th Centile Speed (km/hr)	92.9	89.7	125.6	126.8	113.2
2.8	Percentage of Vehicles in Excess of Speed Limit	31.5 %	31.5 %	42.4 %	42.8 %	36.6 %
3.1	Percentage Vehicles in Flows Over 600 (vehs/hr)	0 %	0 %	3.0 %	3.1 %	0 %
3.2	Percentage of Vehicles less than 2s behind vehicle ahead	0 %	0 %	0 %	0 %	0 %

Station Information

Site Identifier	1448	Site Number	1448
Site Name	Coega I/C		
Site Description	Eastern Side of Neptune Rd/Ngcura Harbour I/C		
Site Type	Permanent Piezo	Owner	SANRAL
Physical Lanes	8	Responsibility	NON-TOLL
Logical Lanes	8	Installation Date	2012-06-15
GPS Longitude	25.659491	Termination Date	
GPS Latitude	-33.792488	Status	In Use
Region	South	Companion Site	
Road	N002	Speed Limit	120
Route	N002	Count Type	Normal Traffic Counting Station
Section	11	Distance	48.7160

Lane No	Lane Description	Stream No	Stream Description	Direction	Reverse Lane No	Pos
1	On Ramp from Coega IDZ	1	To Grahamstown	East	0	1
2	CD Road from Ngcura Harbour	1	To Grahamstown	East	0	2
3	Slow to Grahamstown	1	To Grahamstown	East	0	3
4	Fast to Grahamstown	1	To Grahamstown	East	0	4
5	Fast to Port Elizabeth	2	To Port Elizabeth	West	0	4
6	Slow to Port Elizabeth	2	To Port Elizabeth	West	0	3
7	CD Road to Ngcura Harbour	2	To Port Elizabeth	West	0	2
8	Off Ramp from Coega IDZ	2	To Port Elizabeth	West	0	1

Station Traffic Highlights

Traffic Highlights of Site 1448

1.1	Site Identifier	1448		
1.2	Site Name	Coega I/C		
1.3	Site Description	Eastern Side of Neptune Rd/Ngcura Harbour I/C		
1.4	Road Description	Route : N002 Section : 11 Distance : 48.7160 km		
1.5	GPS Position	-33.792488 25.659491		
1.6	Number of Lanes	8		
1.7	Station Type	Permanent Piezo		
1.8	Requested Period	01 Jan 2014 - 31 Dec 2014		
1.9	Length of Records Requested (hours)	8,760		
1.10	Actual First & Last Dates	01 Jan 2014 - 31 Dec 2014		
1.11	Actual Available Data (hours)	8,554		
1.12	Percentage Data Available for Requested Period	97.6%		
		To Port Elizabeth	To Grahamstown	Total
2.1	Total Number of Vehicles	1,784,374	1,790,819	3,575,193
2.2	Average Daily Traffic (ADT)	5,006	5,024	10,030
2.3	Average Daily Truck Traffic (ADTT)	845	870	1,714
2.4	Percentage of Trucks	16.9%	17.3%	17.1%
2.5	Truck Split % (short:medium:long)	30 : 19 : 51	29 : 18 : 53	29 : 19 : 52
2.6	Percentage of Night Traffic [20h00 - 6h00)	12.7%	13.2%	12.9%
3.1	Speed Limit (km/hr)	120		
3.2	Average Speed (km/hr)	97.5	96.3	96.9
3.3	Average Speed - Light Vehicles (km/hr)	102.8	101.4	102.1
3.4	Average Speed - Heavy Vehicles (km/hr)	84.8	86.5	85.6
3.5	Average Night Speed (km/hr)	98.7	99.7	99.2
3.6	15th Centile Speed (km/hr)	86.4	85.3	85.9
3.7	85th Centile Speed (km/hr)	108.9	107.7	108.3
3.8	Percentage of Vehicles in Excess of Speed Limit	13.8%	13.3%	13.6%
4.1	Percentage Vehicles in Flows Over 600 (vehs/hr)	2.1%	2.0%	55.9%
4.2	Highest Volume on the Road (vehs/hr)	17 Apr 2014 (15:00 - 16:00)		1439
4.3	Highest Volume in the West (vehs/hr)	13 Jul 2014 (17:00 - 18:00)		848
4.4	Highest Volume in the East (vehs/hr)	17 Apr 2014 (15:00 - 16:00)		795
4.5	Highest Volume in a Lane (vehs/hr)	13 Jul 2014 (17:00 - 18:00)		488
4.6	15th Highest Volume on the Road (vehs/hr)	13 Jun 2014 (15:00 - 16:00)		1,229
4.7	15th Highest Volume in the West Direction (vehs/hr)	17 Apr 2014 (17:00 - 18:00)		680
4.8	15th Highest Volume in the East Direction (vehs/hr)	03 Oct 2014 (14:00 - 15:00)		655
4.9	30th Highest Volume on the Road (vehs/hr)	05 Dec 2014 (15:00 - 16:00)		1,168
4.10	30th Highest Volume in the West Direction (vehs/hr)	11 Dec 2014 (17:00 - 18:00)		652
4.11	30th Highest Volume in the East Direction (vehs/hr)	13 Jun 2014 (16:00 - 17:00)		626
5.1	Percentage of Vehicles less than 2s behind vehicle ahead	6.2%	4.8%	5.5%
6.1	Total Number of Heavy Vehicles	301,040	309,989	611,029
6.2	Estimated Average Number of axles per Truck	5.1	5.2	5.2
6.3	Estimated Truck Mass (Ton/Truck)	29.6	30.0	29.8

ANNEXURE D
Employment and
Person Trips
Expected per
Development
Scenario

Employment and Person Trips expected per Development Scenario

ZONES	50% CDA			100% CDA			100%IDZ		
	Net Land Area (m ²)	Employment Opportunities	Person Trips	Net Land Area (m ²)	Employment Opportunities	Person trips	Net Land Area (m ²)	Employment Opportunities	Person trips
Zone 1 A	17,292	954	804	365,769	4461	3676	365,769	4461	3676
Zone 1 B	206,698	1928	1620	238,782	1928	1620	238,782	1928	1620
Zone 1 C	127,757	760	617	258,200	1520	1238	258,200	1520	1238
Zone 1 D	12,532	269	218	350,828	2112	1843	350,828	2112	1843
Zone 1 E	58,263	353	282	205,322	1244	995	205,322	1244	995
Zone 1 F	80,352	1507	1223	352,899	2034	1667	352,899	2034	1667
Zone 1 G	209,029	1341	1083	367,891	2477	2040	367,891	2477	2040
Zone 1 H	178,053	2356	1886	285,190	3447	2433	285,190	3447	2433
Zone 2 A	317,836	100	60	399,172	1118	930	399,172	1118	930
Zone 2 B	0	0	0	271,522	1988	1632	271,522	1988	1632
Zone 2 C	363,364	1436	1196	363,364	1436	1196	363,364	1436	1196
Zone 2 D	258,307	989	826	319,975	2748	2309	319,975	2748	2309
Zone 2 E	0	100	100	533,363	1853	1152	533,363	1853	1152
Zone 3 A	288,614	1894	1161	527,750	3649	2417	527,750	3649	2417
Zone 3 B	392,644	1303	785	392,644	1222	785	392,644	1222	785
Zone 3 C	232,811	681	453	383,054	1678	1407	383,054	1678	1407
Zone 4 A	0	0	0	417,834	1263	3494	417,834	1263	3494
Zone 4 B	0	0	0	138,744	1258	1412	138,744	1258	1412
Zone 4 C	0	0	0	362,485	1847	3825	362,485	1847	3825
Zone 4 D	0	0	0	127,819	579	349	127,819	579	349
Zone 5 A	2,000,372	800	480	2,000,372	800	480	2,000,372	800	480
Zone 5 B	496,706	700	420	892,273	2145	1476	892,273	2145	1476
Zone 5 C	0	0	0	185,486	840	506	185,486	840	506
Zone 5 D	55,205	417	251	325,112	1355	816	325,112	1355	816
Zone 5 E	28,614	130	78	327,116	1702	1086	327,116	1702	1086
Zone 6 A	1,711,825	720	432	1,711,825	760	456	1,711,825	760	456
Zone 6 B	1,439,765	1931	1495	1,439,765	1931	1495	1,439,765	1931	1495
Zone 6 C	3,011,052	800	480	3,011,052	800	480	3,011,052	800	480
Zone 6 D	2,549,792	2000	1200	2,549,792	2000	1200	2,549,792	2000	1200
Zone 6 E	862,614	2412	1830	862,614	2412	1830	862,614	2412	1830
Zone 7 A	0	0	0	0	0	0	3,457,983	20955	16764
Zone 7 B	0	0	0	0	0	0	3,303,535	20019	16016
Zone 8 Port	8,333,431	4467	2482	8,333,431	3896	2482	8,333,431	3896	2482
Zone 9 A	1,489,703	9078	7262	1,489,703	9078	7272	1,489,703	9078	7272
Zone 10 A	0	0	0	0	0	0	1,585,416	9608	7686
Zone 10 B	0	0	0	0	0	0	966,485	5857	4686
Zone 11 A	0	0	0	0	0	0	2,501,176	8577	6862
Zone 11 B	0	0	0	0	0	0	5,521,972	20728	16582
Zone 11 C	0	0	0	0	0	0	2,631,119	8946	7157
Zone 12 A	0	0	0	0	0	0	1,853,586	6302	5042
Zone 12 B	0	0	0	0	0	0	4,815,857	16374	13099
Zone 13 A	0	0	0	0	0	0	539,831	1835	1468
Zone 13 B	0	0	0	0	0	0	321,107	1455	877
Zone 13 C	0	0	0	0	0	0	753,611	3414	2057
Zone 14 A	0	0	0	0	0	0	6,592,691	1735	1066
Totals	24,722,632	39,426	28,723	29,791,147	67,581	55,999	64,635,517	193,386	155,360

ANNEXURE E
2030 Link Peak
Hour Traffic
Volumes

P:\3417 COEGA TRANSPORT PLAN\Draw-Lib\Demand-Made-Ma-06\Mar06-PV1-50% CDA.dwg, 2006/05/03 12:13:27 PM, MINCF2203.NDPS Printers.BLV.BKS.BKS_GROUP.pcc



NO.	DATE	REVISION	DRAWN	APPROVED	PR. ENG.

DESIGNED	ITEPA	RESPONSIBLE PERSON	DATE
DRAWN	S POWELL		
CHECKED			
APPROVED			



CLIENT
COEGA DEVELOPMENT CORPORATION

PROJECT
TRANSPORTATION MODELLING

DISCIPLINE
TRANSPORTATION

DRAWING TITLE
**50% CDA DEVELOPMENT
COEGA-60% Pub:40% Pvt
NMMM-50% Pub:50% Pvt
Scenario B2**

SHEET SIZE
A1

SCALE

BKS DRAWING NUMBER					
BKS PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
H3417	32	TPT	1	-Rep-	
DRAWING STATUS CODES :					
R = REPORT	T = TENDER	C = CONSTRUCTION			
D = DRAFT	P = PRELIMINARY	A = AS BUILT			
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NO.	DATE	REVISION	DRAWN	APPROVED	PR. ENG.

RESPONSIBLE PERSON	DATE
DESIGNED: ITEPA	
DRAWN: S POWELL	
CHECKED:	
APPROVED:	



CLIENT	COEGA DEVELOPMENT CORPORATION
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PROJECT	TRANSPORTATION MODELLING
DISCIPLINE	TRANSPORTATION

DRAWING TITLE	100% CDA DEVELOPMENT COEGA-60% Pub:40% Pvt NMMM-50% Pub:50% Pvt Scenario B2
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SHEET SIZE	A1	BKS DRAWING NUMBER	H3417-32-TPT-5-Rep-
SCALE		DRAWING STATUS CODES:	
		R = REPORT	T = TENDER
		D = DRAFT	P = PRELIMINARY
			C = CONSTRUCTION
			A = AS BUILT
			COPYRIGHT RESERVED

P:\3417 COEGA TRANSPORT PLAN\Draw-Lib\Demand-Mode-Ma-06\Mar06-PVT-Full-IDZ.dwg, 2006/05/03 12:23:19 PM, MINCF2203.NDPS Printers.BLV.BKS.BKS_GROUP.pcs3



NO.	DATE	REVISION	DRAWN	APPROVED	PR. ENG.

DESIGNED	ITEPA	DATE	
DRAWN	S POWELL		
CHECKED			
APPROVED			



CLIENT
COEGA DEVELOPMENT CORPORATION

PROJECT
TRANSPORTATION MODELLING

DISCIPLINE
TRANSPORTATION

DRAWING TITLE
**FULL IDZ DEVELOPMENT
 COEGA-60% Pub:40% Pvt
 NMMM-50% Pub:50% Pvt
 Scenario B2**

SHEET SIZE
A1

SCALE

BKS DRAWING NUMBER					
BKS PROJ. No	SUB NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
H3417	- 32	- TPT	- 9	- Rep	-
DRAWING STATUS CODES :					
R = REPORT	T = TENDER	C = CONSTRUCTION			
D = DRAFT	P = PRELIMINARY	A = AS BUILT			
COPYRIGHT RESERVED					

ANNEXURE F
SIDRA Output
Sheets – 2020
Existing

MOVEMENT SUMMARY

Site: 01 [[01] 01 AM ND (Site Folder: [01] 2020 Before Development)]

Network: N101 [2020 AM Before Development (Network Folder: Before Development)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Before Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Coega Ring Road														
2	T1	18	29.4	18	29.4	0.011	0.0	LOS A	0.0	0.0	0.02	0.04	0.02	59.3
3	R2	1	0.0	1	0.0	0.011	5.8	LOS A	0.0	0.0	0.02	0.04	0.02	56.2
Approach		19	27.8	19	27.8	0.011	0.3	NA	0.0	0.0	0.02	0.04	0.02	59.2
North: Coega Ring Road														
7	L2	29	17.9	29	17.9	0.031	5.8	LOS A	0.0	0.0	0.00	0.35	0.00	54.3
8	T1	20	36.8	20	36.8	0.031	0.0	LOS A	0.0	0.0	0.00	0.35	0.00	53.6
Approach		49	25.5	49	25.5	0.031	3.4	NA	0.0	0.0	0.00	0.35	0.00	54.2
West: N2 Eastbound Offramp														
10	L2	24	8.7	24	8.7	0.048	8.5	LOS A	0.1	0.5	0.09	0.95	0.09	51.6
12	R2	27	15.4	27	15.4	0.048	8.3	LOS A	0.1	0.5	0.09	0.95	0.09	47.9
Approach		52	12.2	52	12.2	0.048	8.4	LOS A	0.1	0.5	0.09	0.95	0.09	50.2
All Vehicles		120	20.2	120	20.2	0.048	5.1	NA	0.1	0.5	0.04	0.56	0.04	53.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [[01] 01 PM ND (Site Folder: [01] 2020 Before Development)]

Network: N101 [2020 PM Before Development (Network Folder: Before Development)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Before Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Coega Ring Road														
2	T1	26	0.0	26	0.0	0.014	0.0	LOS A	0.0	0.0	0.01	0.03	0.01	59.7
3	R2	1	0.0	1	0.0	0.014	5.7	LOS A	0.0	0.0	0.01	0.03	0.01	56.5
Approach		27	0.0	27	0.0	0.014	0.2	NA	0.0	0.0	0.01	0.03	0.01	59.5
North: Coega Ring Road														
7	L2	13	0.0	13	0.0	0.014	5.5	LOS A	0.0	0.0	0.00	0.27	0.00	56.1
8	T1	15	0.0	15	0.0	0.014	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	55.4
Approach		27	0.0	27	0.0	0.014	2.6	NA	0.0	0.0	0.00	0.27	0.00	55.8
West: N2 Eastbound Offramp														
10	L2	5	0.0	5	0.0	0.016	8.1	LOS A	0.0	0.1	0.10	0.92	0.10	52.0
12	R2	12	0.0	12	0.0	0.016	7.7	LOS A	0.0	0.1	0.10	0.92	0.10	48.0
Approach		17	0.0	17	0.0	0.016	7.8	LOS A	0.0	0.1	0.10	0.92	0.10	49.8
All Vehicles		72	0.0	72	0.0	0.016	2.9	NA	0.0	0.1	0.03	0.33	0.03	55.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 [[01] 02 AM ND (Site Folder: [01] 2020 Before Development)]

Network: N101 [2020 AM Before Development (Network Folder: Before Development)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Before Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Coega Ring Road														
7	L2	15	78.6	15	78.6	0.015	6.5	LOS A	0.0	0.0	0.00	0.44	0.00	52.4
8	T1	4	25.0	4	25.0	0.015	0.0	LOS A	0.0	0.0	0.00	0.44	0.00	55.0
Approach		19	66.7	19	66.7	0.015	5.0	NA	0.0	0.0	0.00	0.44	0.00	52.7
East: N2 Westbound Offramp														
10	L2	1	100.0	1	100.0	0.017	12.6	LOS B	0.0	0.2	0.16	0.93	0.16	47.9
12	R2	13	33.3	13	33.3	0.017	9.0	LOS A	0.0	0.2	0.16	0.93	0.16	47.5
Approach		14	38.5	14	38.5	0.017	9.3	LOS A	0.0	0.2	0.16	0.93	0.16	47.5
North: Coega Ring Road														
2	T1	40	28.9	40	28.9	0.030	0.0	LOS A	0.0	0.2	0.04	0.11	0.04	58.5
3	R2	8	25.0	8	25.0	0.030	6.1	LOS A	0.0	0.2	0.04	0.11	0.04	53.8
Approach		48	28.3	48	28.3	0.030	1.1	NA	0.0	0.2	0.04	0.11	0.04	57.6
All Vehicles		81	39.0	81	39.0	0.030	3.4	NA	0.0	0.2	0.05	0.33	0.05	54.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 [[01] 02 PM ND (Site Folder: [01] 2020 Before Development)]

Network: N101 [2020 PM Before Development (Network Folder: Before Development)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Before Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h]	HV %	[Total veh/h]	HV %				[Veh. veh]	[Dist m]				
South: Coega Ring Road														
7	L2	31	0.0	31	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.38	0.00	55.2
8	T1	17	0.0	17	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	53.8
Approach		47	0.0	47	0.0	0.025	3.6	NA	0.0	0.0	0.00	0.38	0.00	54.9
East: N2 Westbound Offramp														
10	L2	1	0.0	1	0.0	0.039	8.1	LOS A	0.1	0.4	0.14	0.91	0.14	52.1
12	R2	37	0.0	37	0.0	0.039	7.8	LOS A	0.1	0.4	0.14	0.91	0.14	48.1
Approach		38	0.0	38	0.0	0.039	7.8	LOS A	0.1	0.4	0.14	0.91	0.14	48.3
North: Coega Ring Road														
2	T1	19	0.0	19	0.0	0.022	0.1	LOS A	0.0	0.3	0.11	0.31	0.11	56.0
3	R2	20	0.0	20	0.0	0.022	5.8	LOS A	0.0	0.3	0.11	0.31	0.11	53.2
Approach		39	0.0	39	0.0	0.022	3.0	NA	0.0	0.3	0.11	0.31	0.11	54.5
All Vehicles		124	0.0	124	0.0	0.039	4.7	NA	0.1	0.4	0.08	0.52	0.08	53.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE G
SIDRA Output
Sheets – 2020
Construction

MOVEMENT SUMMARY

Site: 01 [[02] 01 AM CON (Site Folder: [02] 2020 Construction Phase)]

Network: N101 [2020 AM Construction Traffic (Network Folder: Construction)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Construction
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Coega Ring Road														
2	T1	18	0.0	18	0.0	0.016	0.1	LOS A	0.0	0.2	0.10	0.24	0.10	56.8
3	R2	12	0.0	12	0.0	0.016	5.8	LOS A	0.0	0.2	0.10	0.24	0.10	53.9
Approach		29	0.0	29	0.0	0.016	2.3	NA	0.0	0.2	0.10	0.24	0.10	55.6
North: Coega Ring Road														
7	L2	29	0.0	29	0.0	0.026	5.5	LOS A	0.0	0.0	0.00	0.35	0.00	55.4
8	T1	20	0.0	20	0.0	0.026	0.0	LOS A	0.0	0.0	0.00	0.35	0.00	54.2
Approach		49	0.0	49	0.0	0.026	3.3	NA	0.0	0.0	0.00	0.35	0.00	55.1
West: N2 Eastbound Offramp														
10	L2	24	0.0	24	0.0	0.280	8.1	LOS A	0.5	3.4	0.15	0.91	0.15	52.0
12	R2	257	0.0	257	0.0	0.280	7.8	LOS A	0.5	3.4	0.15	0.91	0.15	48.1
Approach		281	0.0	281	0.0	0.280	7.8	LOS A	0.5	3.4	0.15	0.91	0.15	48.7
All Vehicles		360	0.0	360	0.0	0.280	6.8	NA	0.5	3.4	0.13	0.78	0.13	50.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [[02] 01 PM CON (Site Folder: [02] 2020 Construction Phase)]

Network: N101 [2020 PM Construction Traffic (Network Folder: Construction)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Construction
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h]	HV %	[Total veh/h]	HV %				[Veh. veh]	[Dist m]				
South: Coega Ring Road														
2	T1	26	0.0	26	0.0	0.047	0.1	LOS A	0.1	0.6	0.09	0.42	0.09	54.9
3	R2	59	0.0	59	0.0	0.047	5.7	LOS A	0.1	0.6	0.09	0.42	0.09	52.3
Approach		85	0.0	85	0.0	0.047	4.0	NA	0.1	0.6	0.09	0.42	0.09	53.1
North: Coega Ring Road														
7	L2	13	0.0	13	0.0	0.014	5.5	LOS A	0.0	0.0	0.00	0.27	0.00	56.1
8	T1	15	0.0	15	0.0	0.014	0.0	LOS A	0.0	0.0	0.00	0.27	0.00	55.4
Approach		27	0.0	27	0.0	0.014	2.6	NA	0.0	0.0	0.00	0.27	0.00	55.8
West: N2 Eastbound Offramp														
10	L2	5	0.0	5	0.0	0.062	8.1	LOS A	0.1	0.6	0.17	0.91	0.17	51.9
12	R2	54	0.0	54	0.0	0.062	8.0	LOS A	0.1	0.6	0.17	0.91	0.17	47.9
Approach		59	0.0	59	0.0	0.062	8.0	LOS A	0.1	0.6	0.17	0.91	0.17	48.5
All Vehicles		172	0.0	172	0.0	0.062	5.2	NA	0.1	0.6	0.10	0.56	0.10	52.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 [[02] 02 AM CON (Site Folder: [02] 2020 Construction Phase)]

Network: N101 [2020 AM Construction Traffic (Network Folder: Construction)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Construction
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h]	HV %	[Total veh/h]	HV %				[Veh. veh]	[Dist m]				
South: Coega Ring Road														
7	L2	57	0.0	57	0.0	0.038	5.5	LOS A	0.0	0.0	0.00	0.46	0.00	54.5
8	T1	15	0.0	15	0.0	0.038	0.0	LOS A	0.0	0.0	0.00	0.46	0.00	52.5
Approach		72	0.0	72	0.0	0.038	4.4	NA	0.0	0.0	0.00	0.46	0.00	54.3
East: N2 Westbound Offramp														
10	L2	59	0.0	59	0.0	0.071	9.2	LOS A	0.1	0.8	0.37	0.88	0.37	51.4
12	R2	13	0.0	13	0.0	0.071	9.4	LOS A	0.1	0.8	0.37	0.88	0.37	47.1
Approach		72	0.0	72	0.0	0.071	9.2	LOS A	0.1	0.8	0.37	0.88	0.37	51.0
North: Coega Ring Road														
2	T1	269	0.0	269	0.0	0.143	0.0	LOS A	0.0	0.2	0.01	0.02	0.01	59.7
3	R2	8	0.0	8	0.0	0.143	5.9	LOS A	0.0	0.2	0.01	0.02	0.01	56.6
Approach		278	0.0	278	0.0	0.143	0.2	NA	0.0	0.2	0.01	0.02	0.01	59.6
All Vehicles		421	0.0	421	0.0	0.143	2.4	NA	0.1	0.8	0.07	0.24	0.07	56.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 [[02] 02 PM CON (Site Folder: [02] 2020 Construction Phase)]

Network: N101 [2020 PM Construction Traffic (Network Folder: Construction)]

Traffic Impact Assessment for the Proposed
Gas Distribution Facility - Coega SEZ Zone 10
2020 Construction
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
		[Total veh/h]	HV %	[Total veh/h]	HV %				[Veh. veh]	[Dist m]				
South: Coega Ring Road														
7	L2	260	0.0	260	0.0	0.178	5.6	LOS A	0.0	0.0	0.00	0.45	0.00	54.5
8	T1	75	0.0	75	0.0	0.178	0.0	LOS A	0.0	0.0	0.00	0.45	0.00	52.6
Approach		335	0.0	335	0.0	0.178	4.3	NA	0.0	0.0	0.00	0.45	0.00	54.3
East: N2 Westbound Offramp														
10	L2	11	0.0	11	0.0	0.050	8.2	LOS A	0.1	0.5	0.21	0.90	0.21	51.8
12	R2	37	0.0	37	0.0	0.050	8.4	LOS A	0.1	0.5	0.21	0.90	0.21	47.6
Approach		47	0.0	47	0.0	0.050	8.3	LOS A	0.1	0.5	0.21	0.90	0.21	49.1
North: Coega Ring Road														
2	T1	61	0.0	61	0.0	0.047	0.5	LOS A	0.1	0.4	0.22	0.16	0.22	57.1
3	R2	20	0.0	20	0.0	0.047	6.8	LOS A	0.1	0.4	0.22	0.16	0.22	54.2
Approach		81	0.0	81	0.0	0.047	2.0	NA	0.1	0.4	0.22	0.16	0.22	56.4
All Vehicles		463	0.0	463	0.0	0.178	4.3	NA	0.1	0.5	0.06	0.45	0.06	54.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE H
SIDRA Output
Sheets – 2030
Operations
Combined

MOVEMENT SUMMARY

 Site: 01 [[03] 01 AM AD (Site Folder: [03] 2030 After Development)]

Network: N101 [2030 AM After Development (Network Folder: After Development)]

Traffic Impact Assessment for the Proposed Liquid Natural Gas Power Station - Coega SEZ Zone 10
2030 After Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Coega Ring Road														
2	T1	224	0.0	224	0.0	0.120	0.0	LOS A	0.0	0.2	0.03	0.02	0.03	59.6
3	R2	7	0.0	7	0.0	0.120	6.6	LOS A	0.0	0.2	0.03	0.02	0.03	56.5
Approach		232	0.0	232	0.0	0.120	0.3	NA	0.0	0.2	0.03	0.02	0.03	59.5
North: Coega Ring Road														
7	L2	37	0.0	37	0.0	0.129	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	57.6
8	T1	214	0.0	214	0.0	0.129	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	58.4
Approach		251	0.0	251	0.0	0.129	0.8	NA	0.0	0.0	0.00	0.09	0.00	58.2
West: N2 Eastbound Offramp														
10	L2	120	0.0	120	0.0	0.323	9.4	LOS A	0.6	4.1	0.46	0.95	0.50	50.5
12	R2	133	0.0	133	0.0	0.323	11.8	LOS B	0.6	4.1	0.46	0.95	0.50	45.5
Approach		253	0.0	253	0.0	0.323	10.6	LOS B	0.6	4.1	0.46	0.95	0.50	48.6
All Vehicles		735	0.0	735	0.0	0.323	4.0	NA	0.6	4.1	0.17	0.36	0.18	54.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [[03] 01 PM AD (Site Folder: [03] 2030 After Development)]

Network: N101 [2030 PM After Development (Network Folder: After Development)]

Traffic Impact Assessment for the Proposed Liquid Natural Gas Power Station - Coega SEZ Zone 10
2030 After Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Coega Ring Road														
2	T1	238	0.0	238	0.0	0.132	0.1	LOS A	0.0	0.3	0.06	0.04	0.06	59.3
3	R2	14	0.0	14	0.0	0.132	6.8	LOS A	0.0	0.3	0.06	0.04	0.06	56.2
Approach		252	0.0	252	0.0	0.132	0.5	NA	0.0	0.3	0.06	0.04	0.06	59.1
North: Coega Ring Road														
7	L2	23	0.0	23	0.0	0.158	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	57.9
8	T1	284	0.0	284	0.0	0.158	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	59.1
Approach		307	0.0	307	0.0	0.158	0.5	NA	0.0	0.0	0.00	0.05	0.00	58.9
West: N2 Eastbound Offramp														
10	L2	19	0.0	19	0.0	0.112	9.0	LOS A	0.2	1.1	0.46	0.94	0.46	50.2
12	R2	51	0.0	51	0.0	0.112	11.8	LOS B	0.2	1.1	0.46	0.94	0.46	45.0
Approach		69	0.0	69	0.0	0.112	11.0	LOS B	0.2	1.1	0.46	0.94	0.46	47.1
All Vehicles		628	0.0	628	0.0	0.158	1.6	NA	0.2	1.1	0.07	0.14	0.07	57.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 02 [[03] 02 AM AD (Site Folder: [03] 2030 After Development)]

Network: N101 [2030 AM After Development (Network Folder: After Development)]

Traffic Impact Assessment for the Proposed Liquid Natural Gas Power Station - Coega SEZ Zone 10
2030 After Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Coega Ring Road														
7	L2	57	0.0	57	0.0	0.037	5.5	LOS A	0.0	0.0	0.00	0.48	0.00	54.4
8	T1	12	0.0	12	0.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.48	0.00	52.2
Approach		68	0.0	68	0.0	0.037	4.6	NA	0.0	0.0	0.00	0.48	0.00	54.2
East: N2 Westbound Offramp														
10	L2	14	0.0	14	0.0	0.039	8.6	LOS A	0.1	0.4	0.27	0.88	0.27	51.7
12	R2	23	0.0	23	0.0	0.039	8.5	LOS A	0.1	0.4	0.27	0.88	0.27	47.6
Approach		37	0.0	37	0.0	0.039	8.5	LOS A	0.1	0.4	0.27	0.88	0.27	49.7
North: Coega Ring Road														
2	T1	147	0.0	147	0.0	0.090	0.0	LOS A	0.1	0.4	0.05	0.09	0.05	58.7
3	R2	23	0.0	23	0.0	0.090	5.9	LOS A	0.1	0.4	0.05	0.09	0.05	55.7
Approach		171	0.0	171	0.0	0.090	0.8	NA	0.1	0.4	0.05	0.09	0.05	58.3
All Vehicles		276	0.0	276	0.0	0.090	2.8	NA	0.1	0.4	0.07	0.29	0.07	55.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: F:\1700-1799\1768\Design\SIDRA\Zone 13 - Power Plant\SIDRA.sip9

MOVEMENT SUMMARY

 Site: 02 [[03] 02 PM AD (Site Folder: [03] 2030 After Development)]

Network: N101 [2030 PM After Development (Network Folder: After Development)]

Traffic Impact Assessment for the Proposed Liquid Natural Gas Power Station - Coega SEZ Zone 10
2030 After Development
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Coega Ring Road														
7	L2	134	0.0	134	0.0	0.089	5.6	LOS A	0.0	0.0	0.00	0.47	0.00	54.5
8	T1	34	0.0	34	0.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.47	0.00	52.4
Approach		167	0.0	167	0.0	0.089	4.4	NA	0.0	0.0	0.00	0.47	0.00	54.2
East: N2 Westbound Offramp														
10	L2	6	0.0	6	0.0	0.062	8.2	LOS A	0.1	0.6	0.26	0.90	0.26	51.6
12	R2	46	0.0	46	0.0	0.062	8.7	LOS A	0.1	0.6	0.26	0.90	0.26	47.3
Approach		53	0.0	53	0.0	0.062	8.7	LOS A	0.1	0.6	0.26	0.90	0.26	48.2
North: Coega Ring Road														
2	T1	60	0.0	60	0.0	0.106	0.5	LOS A	0.2	1.4	0.28	0.40	0.28	54.4
3	R2	115	0.0	115	0.0	0.106	6.2	LOS A	0.2	1.4	0.28	0.40	0.28	51.8
Approach		175	0.0	175	0.0	0.106	4.3	NA	0.2	1.4	0.28	0.40	0.28	52.7
All Vehicles		395	0.0	395	0.0	0.106	4.9	NA	0.2	1.4	0.16	0.49	0.16	52.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE I
Impact Rating
Methodology

Impact Rating Methodology

The assessment of impacts will be based on the professional judgement of specialists at Engineering Advice & Services (Pty) Ltd according to the SRK impact assessment methodology presented below. The impact ratings will be informed by the findings of specialist assessments conducted, fieldwork, and desk-top analysis. The significance of potential impacts that may result from the proposed development will be determined in order to assist DEDEAT in making a decision.

The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur. The criteria that are used to determine impact consequences are presented in **Table 1** below.

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in **Table 3**.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table below.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence		Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a 'benefit')
	– ve (negative – a 'cost')
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS's judgment and/or specialist knowledge.	Low
	Medium
	High

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings as described below:

- Insignificant: the potential impact is negligible and will not have an influence on the decision regarding the proposed activity/development.
- Very Low: the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity/development;
- Low: the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development.
- Medium: the potential impact should influence the decision regarding the proposed activity/development.
- High: the potential impact will affect the decision regarding the proposed activity/development.
- Very High: The proposed activity should only be approved under special circumstances

Practicable mitigation measures will be recommended and impacts will be rated in the prescribed way both with and without the assumed effective implementation of mitigation measures. Mitigation measures will be classified as either:

- Essential: must be implemented and are non-negotiable; or
- Optional: must be shown to have been considered, and sound reasons provided by the proponent, if not implemented

ANNEXURE J
Impact
Significance
Ratings

Construction Phase – Additional traffic Volumes (Table 11)

Before Management

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in Table 3.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table overleaf.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence		Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a 'benefit')
	- ve (negative – a 'cost')
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS's judgment and/or specialist knowledge.	Low
	Medium
	High

Mitigation Measures

Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic

After Management

After Management	Local	Low	Short-term	Very Low	Definite	Very Low	-	High	High
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Construction Phase – Additional Axle Loading (Table 12)

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in **Table 3**.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table overleaf.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence		Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below.

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a ‘benefit’)
	– ve (negative – a ‘cost’)
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS’s judgment and/or specialist knowledge.	Low
	Medium
	High

Mitigation Measures

- Minimise need for continuous construction traffic on Ring Road by confining construction traffic to the site;
- Ensure that vehicle loads are within legislated limits, i.e. Gross vehicle mass of 56 000kg;
- Should abnormal loads be required for transport of components, relevant permits must be sourced from the ECDOT

After Management

After Management	Local	Low	Medium-term	Very Low	Definite	Very Low	-	High	Medium
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Construction Phase – Safety Impact High Speed Traffic (Table 13)

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in **Table 3**.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table overleaf.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence	&	Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below.

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a 'benefit')
	- ve (negative – a 'cost')
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS's judgment and/or specialist knowledge.	Low
	Medium
	High

Mitigation Measures

- Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic, including speed restriction signage; and
- Increased law enforcement protocols.

After Management

After Management	Local	Low	Medium-term	Very Low	Probable	Very Low	+	High	High
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Operational Phase – Road and Intersection capacity (additional traffic loading) (Table 14)

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in **Table 3**.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table overleaf.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence	&	Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below.

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a ‘benefit’)
	- ve (negative – a ‘cost’)
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS’s judgment and/or specialist knowledge.	Low
	Medium
	High

Mitigation Measures

- No capacity or upgrade measures required.

After Management

After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Low
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Operational Phase – Traffic Safety Impact due to additional traffic (Table 15)

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in **Table 3**.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table overleaf.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence	&	Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below.

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a ‘benefit’)
	- ve (negative – a ‘cost’)
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS’s judgment and/or specialist knowledge.	Low
	Medium
	High

Mitigation Measures

- No capacity or upgrade measures required.

After Management

After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Medium
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Cumulative Operational Phase – Road and Intersection capacity (additional traffic loading) (Table 16)

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in **Table 3**.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table overleaf.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence	&	Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below.

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a ‘benefit’)
	– ve (negative – a ‘cost’)
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS’s judgment and/or specialist knowledge.	Low
	Medium
	High

Mitigation Measures

- No capacity or upgrade measures required.

After Management

After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Low
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Cumulative Operational Phase – Traffic Safety Impact due to additional traffic (Table 17)

Table 1: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
None		0
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment		
None	0	0
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the time frame for which the impact will be experienced		
None		0
Short-term	Up to 2 years	1
Medium-term	2 to 15 years	2
Long-term	More than 15 years	3

The combined score of these three criteria corresponds to a Consequence Rating, as follows:

Table 2: Method used to determine the Consequence Score

Combined Score (A+B+C)	0 – 2	3 – 4	5	6	7	8 – 9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high

Once the consequence has been derived, the probability of the impact occurring will be considered using the probability classifications presented in **Table 3**.

Table 3: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	>70% - 90% chance of occurring
Definite	> 90% chance of occurring

The overall significance of impacts will be determined by considering consequence and probability using the rating system prescribed in the table overleaf.

Table 4: Impact Significance Ratings

Significance Rating	Possible Impact Combinations		
	Consequence		Probability
Insignificant	Very Low	&	Improbable
	Very Low	&	Possible
Very Low	Very Low	&	Probable
	Very Low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very High	&	Improbable
	Very High	&	Possible
Very High	Very High	&	Probable
	Very High	&	Definite

Finally, the impacts will also be considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The system for considering impact status and confidence (in assessment) is laid out in the table below.

Table 5: Impact status and confidence classification

Status of impact	
Indication whether the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a ‘benefit’)
	- ve (negative – a ‘cost’)
Confidence of assessment	
The degree of confidence in predictions based on available information, EAS’s judgment and/or specialist knowledge.	Low
	Medium
	High

Mitigation Measures

- No capacity or upgrade measures required.

After Management

After Management	Local	Low	Long-term	Very Low	Definite	Very Low	-	High	Medium
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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

1782

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Traffic Impact Assessment for a Proposed Liquid Natural Gas Power Station in Zone 10 (North) of the Coega Special Economic Zone

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	Engineering Advice & Services (Pty) Ltd		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	2	Percentage Procurement recognition
			125%
Specialist name:	Cary Grant Andrew Hastie		
Specialist Qualifications:	Master Diploma in Technology (Civil Engineering – Transportation)		
Professional affiliation/registration:	Engineering Council of South Africa Professional Technologist - 200070122		
Physical address:	73 Heugh Road, Walmer, Port Elizabeth		
Postal address:	P O Box 13867, HUMEWOOD		
Postal code:	6013	Cell:	083 4000 377
Telephone:	041 581 2421	Fax:	086 683 9899
E-mail:	caryh@easpe.co.za		

2. DECLARATION BY THE SPECIALIST

I, CARY GRANT ANDREW HASTIE, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the Specialist

Engineering Advice & Services (Pty) Ltd

Name of Company:

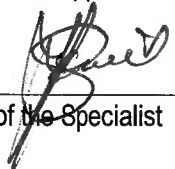
19 JANUARY 2021

Date



3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Cary Grant Andrew Hastie, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

Engineering Advice & Services (Pty) Ltd

Name of Company

19/01/2021

Date

(G.G. MC INTYRE) 0010 -

0425 097-4

Signature of the Commissioner of Oaths

Geoffrey MC INTYRE
1-3 hea Place HUMWOOD
2021-01-19

Date

