TRAFFIC IMPACT STATEMENT

SOUTHERN WASTEWATER TREATMENT WORKS

MARCH 2015

Prepared by:
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VERIFICATION PAGE

PROJECT NAME: Traffic Impact Statement for the Southern Wastewater Treatment Works		
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SYNOPSIS: Traffic Impact Statement for the proposed expansion of the Southern Waste Water treatment Works including a new tanker bay facility.		
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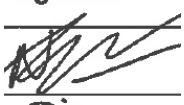
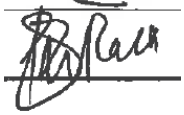
QUALITY VERIFICATION This report has been prepared under the controls established by a quality management system that meets the requirements of ISO 9001: 2000		

Verification	Capacity	Name	Signature	Date
By Author	Traffic Engineer	Nikita Bilala		March 2015
Checked by	Traffic Engineer	Yolan Pillay		March 2015
Authorised by	Traffic Engineer	Theo Le Roux		March 2015

TRAFFIC IMPACT STATEMENT

C O N T E N T S

1. INTRODUCTION

The Southern Wastewater Treatment Works (SWWTW) is located in South Durban, Merewent on the north-eastern bank of the Umlaas Canal. The SWWTW is surrounded by a mixed development node of both residential and industrial developments. The proposed development comprises of the expansion of the existing sewer treatment facility as well as the construction of a new tanker bay facility.

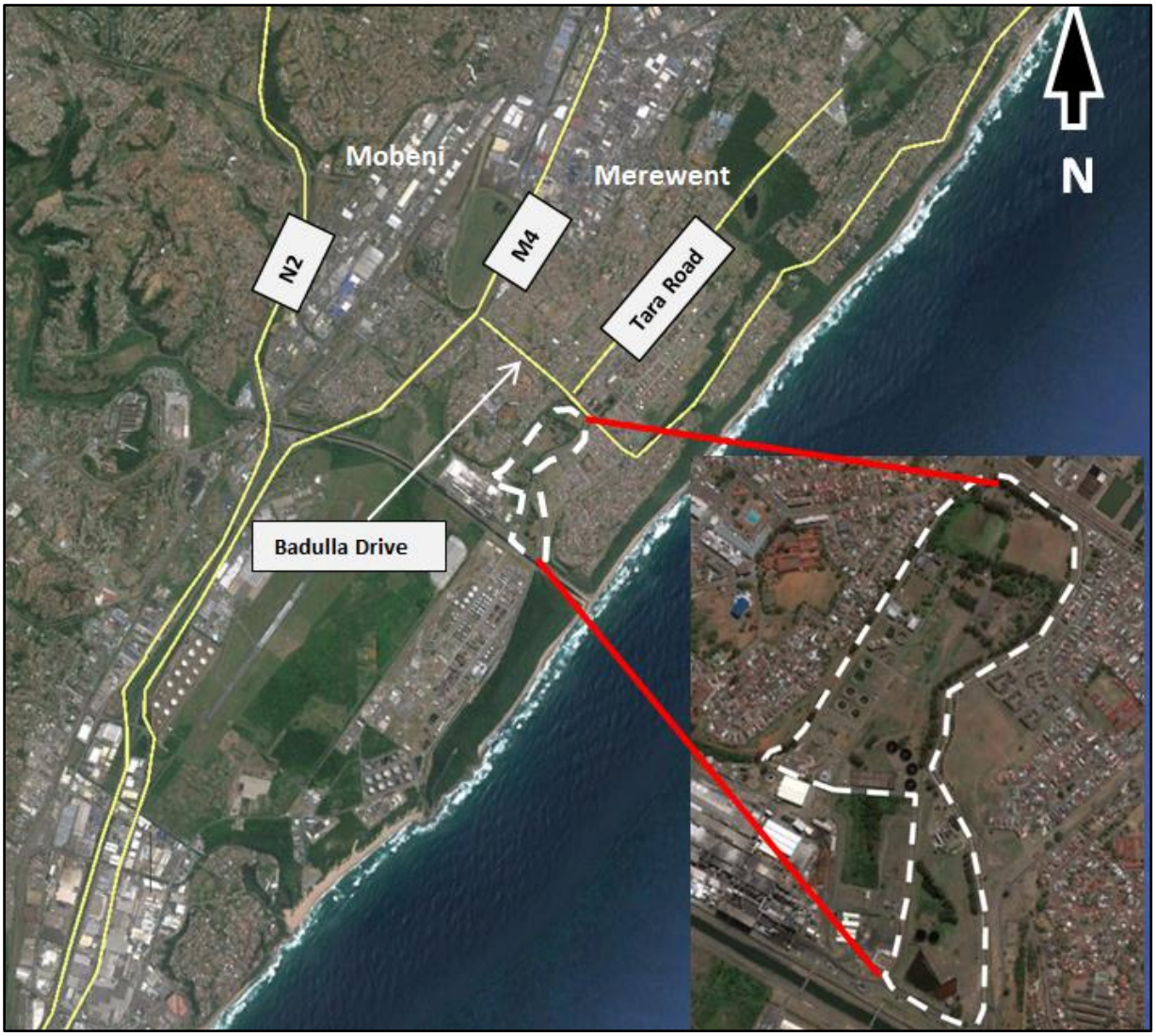


Figure 1: Locality Plan

1.2 Need for a Traffic Assessment

According to the *Manual for Traffic Impact Studies (RR93/635)* issued by the Department of Transport, the threshold values required for the preparation of a Traffic Impact Study are shown below:

Table 1: Threshold Value for a Traffic Impact Study

Recommended Threshold
i) More than 150 peak hour trips – prepare a Traffic Impact Study (TIS).
ii) Less than 150 and more than 50 peak hour trips – prepare a Traffic Impact Statement (TISm).
iii) Less than 50 peak hour trips – no study required except if the surrounding road network is operating at or above capacity.
iv) Discretion of the responsible authority.

According to the guidelines and *Recommended Threshold* listed above, a Traffic Impact Statement is not warranted; however, it was requested by the surrounding community during the stakeholder consultation process.

1.3 Study Objectives

The objectives of this study are:

(i) Assess the existing traffic conditions on the existing road network in the vicinity of the proposed development.

(ii) Assess the traffic generation effects of the proposal.

(iii) Superimpose (ii) on (i) and reassess the traffic operational conditions on the road network.

(iv) Assess the interface conditions between the road network and the site.

(v) Evaluate any other transport related aspect relevant to the proposed development such as road safety, public transport and pedestrian activity.

(vi) Highlight any traffic related concerns resulting from the proposed development.

(vii) If required, assess the on-site traffic arrangements and conditions.

(viii) Make recommendations on the need for mitigation measures.

2. PROPOSED DEVELOPMENT

2.1 Development Details

The proposed development comprises of the following:

- Construction of a new tanker bay facility (including internal site access road) and
- Expansion of existing sewer treatment facility

The proposed tanker bay facility is located as shown in Figure 2 below:

Figure 2: New tanker bay facility location

Appendix A shows three possible layouts within the site. The final option will be determined after the Environmental Impact Aspect is complete. It should be noted that the capacity of the upgrade for all three options are the same while only the physical layout are different.

2.3 Access

Access to SWWTW is through Byfield Road, with the entrance located on the northern border of the facility as shown in Figure 3 below. Byfield Road only provides access to SWWTW and no other land use.

Figure 3: Access road to SWWTW (Byfield Road)

3. EXISTING AREA CONDITIONS

3.1 Roads

The road elements affected by the proposed development are:

(i) Badulla Drive

Badulla Drive extends in a south east / North West direction inland. Badulla Drive is a single carriageway, with one lane in each direction along most sections of the road with additional turning lanes at intersections. The pavement is in a fairly good condition. There is a pedestrian sidewalk on most of the road. Public transport facilities (bus lay-bye) are provided on either side of Badulla Drive.

Figure 4: Badulla Drive

(ii) Tara Road

Tara Road is a single carriageway, with one lane in each direction along majority of the road and additional turning lanes at intersections. The pavement is in fair to good condition along most of the road. There is a sidewalk on the north bound side. Public transport facilities (bus lay-bye) are provided on Tara Road.

Figure 5: Tara Road

(iii) SWWTW Driveway(Byfield Road)

Byfield Road is a single carriageway, with one lane in each direction. This road is a private driveway and provides the entrance to the Southern Waste Water Treatment works. The pavement condition is fairly good. Sidewalks were provided on either side however there are no public transport facilities along this road.

Figure 6: Byfield Road

(iv) Byfield Road/ Tara Road/ Badulla Road Intersection

The intersection of Byfield Road/ Tara Road/ Badulla Road is a four-way staggered signalised intersection. Badulla Drive is the major road. The pavement is fair to poor at the intersection. There is a freight rail line passing through the intersection, as shown in the figures below, however, this is currently not in use. Road markings were not very visible. Sight distances from all legs beside Byfield Drive are good. The presence of trees adjacent to the rail line provides an obstruction to the driver's left view exiting the site.

Figure 7: Byfield Road / Tara Road / Badulla Drive intersection

4. INTERSECTION TRAFFIC ANALYSIS

As the roads described above are in the urban environment, peak hour flows are relevant for investigation and analysis. The selection of a period for analysis should be based on an assessment of when the combined effects of the traffic generated by the proposed development and the existing traffic are at their worst on a regular basis.

Traffic counts were carried out on the Byfield Road/ Tara Road/ Badulla Drive intersection on 2 February 2015 (Tuesday). 12 hour counts were undertaken. These counts can be found in Appendix B of this report.

The morning and afternoon peak periods analysed are as follows:
AM Peak : 6:45 – 7:45am
PM Peak : 16:15 – 17:15pm

Table 2: 2015 traffic volumes

		AM PEAK	PM PEAK
		Vol Veh/hr	Vol Veh/hr
Badulla South	**LT**	5	1
	S	800	287
	RT	111	83
Tara Road	**LT**	93	108
	S	4	1
	RT	332	358
Badulla North	**LT**	474	315
	S	441	890
	RT	14	4
Byfield Road	**LT**	2	15
	S	1	6
	RT	2	2

4.1 Current Conditions

Geometric layout

The existing intersection layout is shown in Figure 8 below.

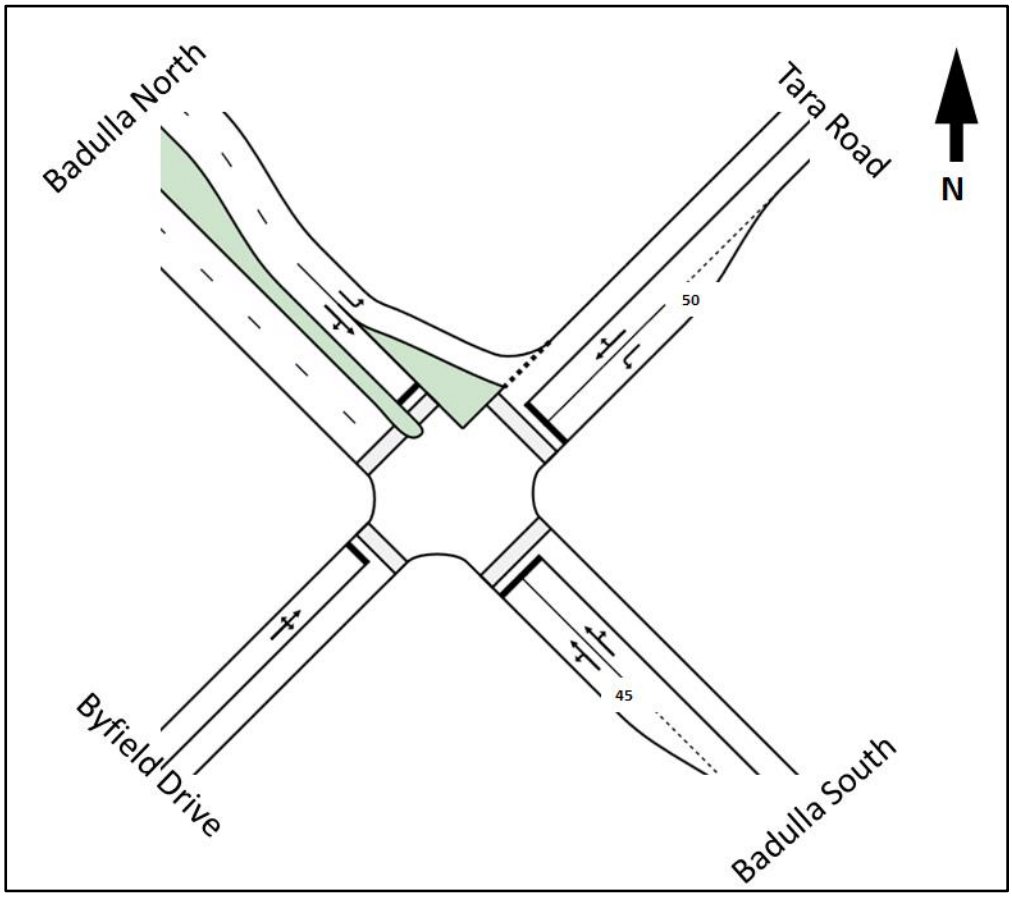


Figure 8: Geometric layout of the Byfield Road/ Tara Road/ Badulla Drive intersection

4.2 Pedestrian Movement and Public Transport

Pedestrian crossings are located on all legs of the intersection; however, the line markings are faded. There are sidewalks on at least one side of the roadway on all legs.

There is a rail line crossing the intersection, in an east- west direction (From Byfield Road to Tara Road). This rail line is currently not in use.

Taxi lay-byes were found on Tara Road, and taxis were observed parking across the road on a strip of land adjacent to Tara Road. There is a primary school located close proximity to the site.

4.3 Existing Level of Service

The existing level of service for this intersection during the morning and afternoon peak periods is as follows:

Table 3: 2015 Level of Service

		AM PEAK				PM PEAK			
		Vol Veh/ hr	LOS	V/C Ratio	Average Delay	Vol Veh/ hr	LOS	V/C Ratio	Average Delay
Badulla South	**LT**	5	**C**	0.755	28.5	1	**C**	0.275	22.8
	S	800	**C**	0.755	22.5	287	**B**	0.275	14.6
	RT	111	**D**	0.755	35.6	83	**E**	0.717	65.6
Tara Road	**LT**	93	**C**	31.5	31.5	108	**D**	0.244	46.0
	S	4	**C**	30.0	30.0	1	**E**	0.870	55.0
	RT	332	**D**	38.3	38.3	358	**E**	0.870	63.3
Badulla North	**LT**	474	**A**	0.347	9.3	315	**A**	0.217	9.9
	S	441	**B**	0.638	19.2	890	**C**	0.858	28.0
	RT	14	**C**	0.638	27.5	4	**D**	0.858	36.3
Byfield Road	**LT**	2	**D**	0.049	42.4	15	**E**	0.365	70.8
	S	1	**C**	0.049	34.2	6	**E**	0.365	62.7
	RT	2	**D**	0.049	42.5	2	**E**	0.365	71.0
Overall LOS			**C**				**C**		

The SIDRA detailed outputs are presented in Appendix C of this report.

The overall performance of the intersection is at an LOS C for both peak periods.

During the A.M peak the intersection operates at an acceptable level of service however, during the P.M period the intersection operates at a lower level of service.

During the P.M peak period, Byfield Road leg currently operates at a level of service E. This can be attributed to the longer delay times experienced by drivers when crossing the intersection and not due to a high V/C ratio – due to the longer lengths and larger turning circles required by tankers.

The Tara Road straight and right turn movement in the afternoon peak operate at LOS E. Traffic making the right turn onto Badulla Drive (north) are high - these vehicles have to wait for opposing traffic going straight through from the

treatment works site even though the volumes from the treatment works are very low .

The Badulla Drive (south) right turn movement in the afternoon peak was also at LOS E.

The current situation indicates that the intersection experiences a low level of service during the afternoon peak period.

4.4 Trip Generation

According to the 12 hour traffic counts undertaken, 63 and 56 tankers currently enter and exit the facility respectively between 6am and 6pm.

With the construction of the new tanker bay facility, it is expected that 25 additional tanker trips will be generated daily. Also, with the expansion of the waste water works, an additional 5 tankers will be required to transport dewatered sludge from the SWWTW to an external facility (still to be investigated) daily. The recommended route for transport of dewatered sludge would be along the M4 (Southern Freeway) towards their destination.

According to operational staff at the Southern Wastewater Treatment Facility, the number of employees is not expected to increase due to the expansion of the facility. See Appendix D for information from the project team.

For the purposes of this report, the number of tankers entering the facility in the morning and afternoon peak periods was based on the following ratio using the existing traffic counts:

$$Ratio\ of\ tankers\ in\ the\ peak\ period = \frac{Volume\ \ of\ heavies\ within\ the\ peak\ hour}{Total\ volume\ of\ \ traffic\ \ within\ the\ peak\ hour}$$

The generated tanker traffic in the morning peak and afternoon peak was expected to be 4 and 4 tankers respectively.

It is expected that most operatons will be during the day therefore an assumption of 70% of tankers entering/ exiting the facility during the day (6am to 6pm) and 30% in the evening (6pm to 6am) was used.

The following table provides the existing, total generated and peak hour tanker volumes.

Table 4: Tanker volumes generated along with percentage split

Period	Number
Existing 12 hour tanker volumes (Out of facility)	63
Existing 12 hour tanker volumes (Into facility)	56
24 hour Generated Tanker Volumes (New Tanker bay facility)	25
24 hour Generated Tanker Volumes (Transportation of dewatered sludge)	5
Tankers generated in AM Peak	4
Tankers generated in PM Peak	4

4.5 Horizon Year Analysis

As per the Department of Transport: Manual for Traffic Impact Studies, for a single passed development, TIS is only undertaken for the base year. However the horizon year was taken as 2020, covering a period of five years.

The existing area is predominately a residential development with limited space for large-scale development therefore growth rate of 2% per year was used.

The horizon year (2020) traffic analysis background and generated traffic for the **existing** intersection during the peak periods is shown below:

Table 5: Generated Tanker Traffic

		AM PEAK	PM PEAK
Byfield Road	**LT**	2	2
	S	1	1
	RT	1	1

Table 6: 2020 Level of Service

		AM PEAK				PM PEAK			
		Vol Veh/hr	LOS	V/C Ratio	Average Delay	Vol Veh/hr	LOS	V/C Ratio	Average Delay
Badulla South	**LT**	6	**C**	0.827	28.5	2	**C**	0.299	22.8
	S	880	**C**	0.827	22.5	317	**B**	0.299	14.6
	RT	122	**D**	0.827	35.6	92	**F**	1.082	65.6
Tara Road	**LT**	102	**D**	0.236	31.5	119	**D**	0.271	46.0
	S	5	**D**	0.856	30.0	2	**F**	1.000	55.0
	RT	365	**D**	0.856	38.3	394	**F**	1.000	63.3
Badulla North	**LT**	521	**A**	0.383	9.3	347	**A**	0.231	9.9
	S	485	**B**	0.649	19.2	979	**D**	0.927	28.0
	RT	16	**C**	0.649	27.5	5	**D**	0.927	36.3
Byfield Road	**LT**	2(*2)	**D**	0.067	42.4	15(*2)	**E**	0.430	70.8
	S	1(*1)	**D**	0.067	34.2	7(*1)	**E**	0.430	62.7
	RT	2(*1)	**D**	0.067	42.5	2(*1)	**E**	0.430	71.0
Overall LOS			**C**				**E**		

*these numbers account for the number of tankers generated by the facility within the peak hour for the horizon year.

The overall performance of the intersection is at an LOS C and LOS E for the A.M and P.M peak periods respectively.

5. CONCLUSIONS

As per the requirements in Table 1: Category III of this report, due to the trip generation volumes being lower than 50 trips in the peak period , a Traffic Impact Statement is not warranted. The need for a TIS arose during the stakeholder communication process as was a request from the nearby residential community.

Based on the above investigations and analysis the following **conclusions** can be drawn from this assessment:

- The Byfield Road/ Tara Road/ Badulla Drive intersection currently operates within capacity for the A.M peak and beyond capacity on certain movements during the P.M peak.
- Analysis of the Byfield Road/ Tara Road/ Badulla Drive intersection for the horizon year indicates that the intersection still operates within capacity during the A.M peak and beyond capacity during the P.M peak.
- The horizon year (2020) analysis of the traffic operational efficiency with the additional traffic (tankers) to be generated by the development has a negligible impact on existing and forecasted traffic operational conditions. The low level of service can be attributed to background traffic.
- The Byfield Road leg (SWWTW entrance) operates at a level of service E for the horizon year due to long delays and not as a result of poor V/C ratios. Although the tanker volumes are low, the turning requirements and longer lengths contribute to delays for the vehicles to make a safe maneuver.

6. RECOMMENDATIONS

- With the addition of background traffic at a 2% growth per year, the intersection performance will operate at an un-acceptable level of service during the P.M peak period, even without the development. This will require improvements by the relevant Road Authority even without this development.
- The impact of the Southern Wastewater treatment works has negligible negative impact on the above mentioned intersection and it is therefore recommended that the expansion of the Southern Wastewater Treatment Works be approved from a traffic engineering perspective.

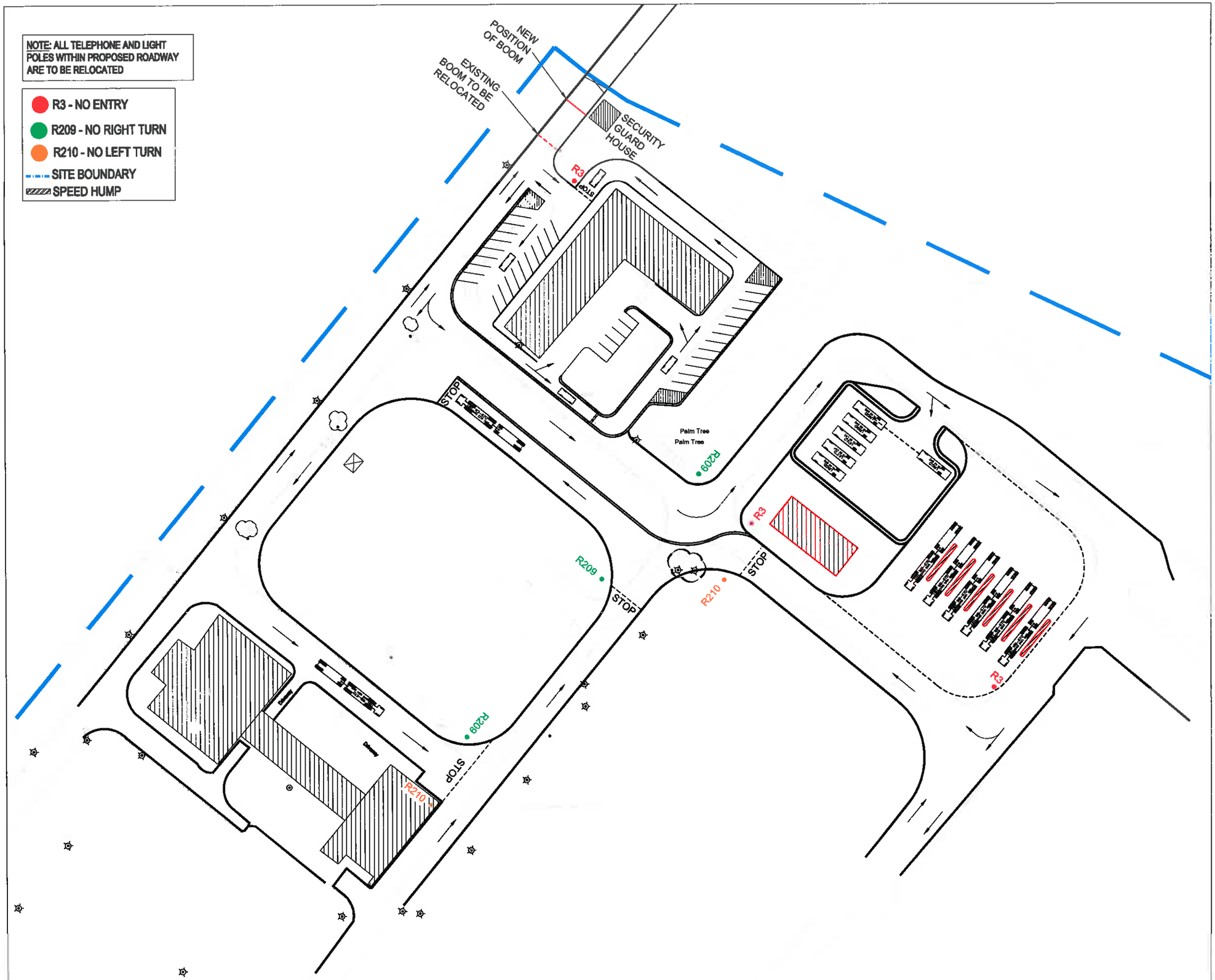
Nikita Bilala
Royal HaskoningDHV

March 2015

Appendix A : Tanker Bay Facility Layout Options

NOTE: ALL TELEPHONE AND LIGHT POLES WITHIN PROPOSED ROADWAY ARE TO BE RELOCATED

- R3 - NO ENTRY
- R209 - NO RIGHT TURN
- R210 - NO LEFT TURN
- SITE BOUNDARY
- SPEED HUMP



LOCALITY MAP
SCALE 1:500

FOR DISCUSSION

AECOM Drawing No.
J01945 - 01 - CIV - 01-004 - P - 00

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DRAWN BY	S. RASOOL	N/A
DESIGN CHECKED BY	D. PILLAY	N/A
DRAWING CHECKED BY	D. PILLAY	N/A

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Revision	Date	Description
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UNDERGROUND SERVICES CHECKED

SERVICE	DATE	SIGNATURE
S.W DRAINS		
SEWERS		
WATER MAINS		
TELKOM CABLES		
ELECTRIC CABLES		
SPOORNET CABLES		
E.S.C. CABLES		
OIL PIPE LINE		

NOTE: Only underground services affected by new construction work are shown.
Care must be taken during excavations for road foundations, trenches etc, to avoid damage to underground services such as sewers, drains, cables,water mains and connections. Wherever possible these must be located before work proceeds.

WATER AND SANITATION

ETHEKWINI MUNICIPALITY

TECHNICAL SUPPORT: DESIGN BRANCH

Contract No. PSC.2012/002

Project Title
SOUTHERN WASTEWATER TREATMENT WORKS

Project No. (-)

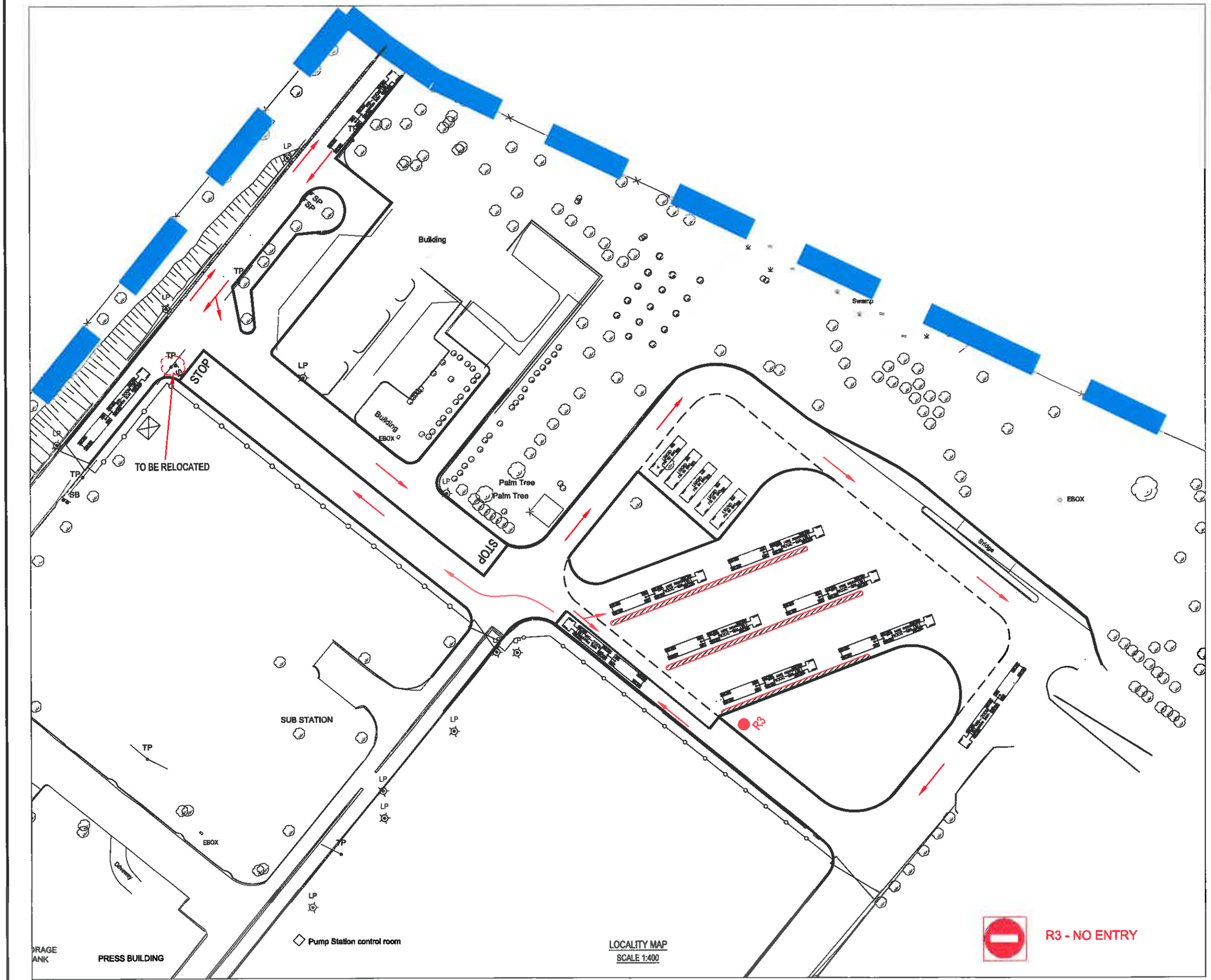
Drawing Title
NEW TANKER BAY FACILITY AND ACCESS ROAD

Works Project Engineer: K. BRACKENBURY

Manager : (Design): D. LARKIN

Deputy Head : Technical Support: F.B STEVENS

Drawing No.	Sheet	Rev.
54931/C/01/004/P	1 OF 1	00



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REVISIONS

Revision	Date	Description
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Project Title
SOUTHERN WASTEWATER TREATMENT WORKS

Project No. (-)

Drawing Title
NEW TANKER BAY FACILITY AND ACCESS ROAD – OPTION 1

Works Project Engineer: K. BRACKENBURY

Manager : (Design): D. LARSON

Deputy Head : Technical Support: F.B STEVENS

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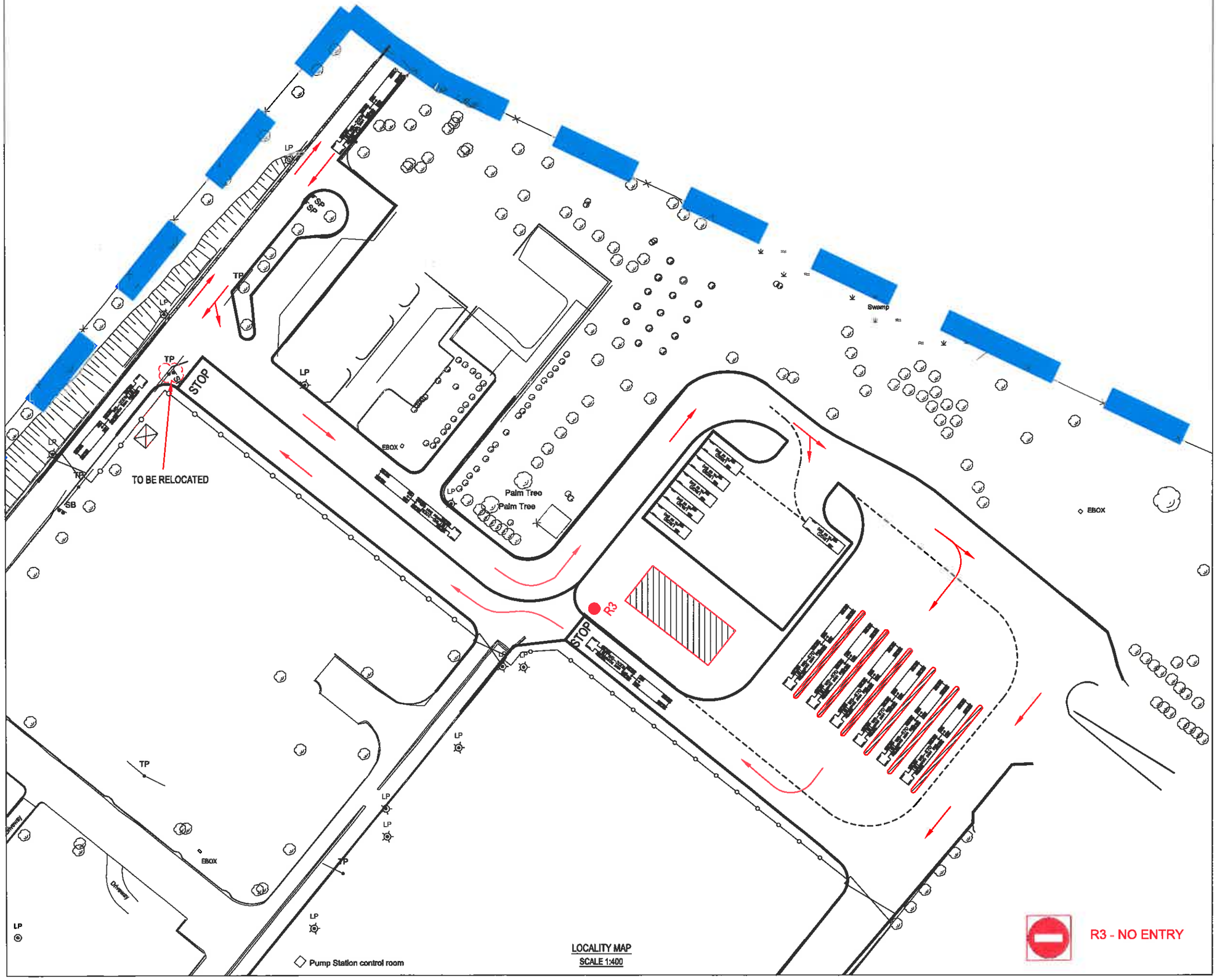

LOCALITY MAP
SCALE 1:400

R3 - NO ENTRY

AECOM Drawing No.
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TECHNICAL SUPPORT: DESIGN BRANCH

Contract No. PSC.2012/002

Project Title
SOUTHERN WASTEWATER TREATMENT WORKS

Project No. (-)

Drawing Title
NEW TANKER BAY FACILITY AND ACCESS ROAD – OPTION 2

Works Project Engineer: K. BRACKENBURY

Manager : (Design): D. LARKIN

Deputy Head : Technical Support: F.S STEVENS

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Appendix B : Traffic Counts

TRAFFIC SURVEY

CLIENT: ROYAL HASKONING DHV

SITE: INTERSECTION OF TARA ROAD AND BADULLA DRIVE

DATE: 12 HOUR COUNT ON TUESDAY 03 FEBRUARY 2015
UNITS: CLASSIFIED

APPROACH FROM NAME	NORTH TARA ROAD															TOTAL
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	15	0	0	1	16	0	0	0	0	0	32	1	0	2	35	51
06:15 - 06:30	10	0	1	1	12	0	0	0	0	0	34	1	1	0	36	48
06:30 - 06:45	13	0	1	5	19	0	0	0	0	0	69	0	1	3	73	92
06:45 - 07:00	16	0	0	4	20	0	0	0	0	0	58	1	2	1	62	82
07:00 - 07:15	19	0	1	2	22	0	0	0	0	0	70	1	6	1	78	100
07:15 - 07:30	23	2	0	3	28	1	0	0	0	1	85	1	3	2	91	120
07:30 - 07:45	21	1	1	0	23	1	0	2	0	3	95	2	4	0	101	127
07:45 - 08:00	17	2	1	2	22	1	0	1	0	2	59	0	2	2	63	87
08:00 - 08:15	11	0	0	0	11	1	0	0	0	1	41	3	6	2	52	64
08:15 - 08:30	19	0	0	0	19	0	0	0	0	0	29	0	2	0	31	50
08:30 - 08:45	8	0	1	0	9	0	0	1	0	1	26	0	9	0	35	45
08:45 - 09:00	12	0	1	0	13	4	0	0	0	4	26	1	2	0	29	46
09:00 - 09:15	5	0	0	0	5	0	0	1	0	1	32	0	9	2	43	49
09:15 - 09:30	17	0	0	0	17	1	0	0	0	1	45	0	1	1	47	65
09:30 - 09:45	9	0	0	0	9	0	0	0	0	0	37	2	3	0	42	51
09:45 - 10:00	11	0	2	0	13	0	0	0	0	0	55	2	6	0	63	76
10:00 - 10:15	7	0	0	0	7	0	0	0	0	0	37	1	1	0	39	46
10:15 - 10:30	11	1	0	0	12	1	0	0	0	1	41	3	7	0	51	64
10:30 - 10:45	18	0	0	0	18	0	0	0	0	0	46	1	3	1	51	69
10:45 - 11:00	18	0	1	0	19	0	0	1	0	1	25	0	3	0	28	48
11:00 - 11:15	10	1	0	0	11	0	0	0	0	0	61	2	7	0	70	81
11:15 - 11:30	16	0	2	0	18	0	0	0	0	0	45	2	6	0	53	71
11:30 - 11:45	27	1	1	0	29	0	0	0	0	0	70	2	4	0	76	105
11:45 - 12:00	15	0	3	0	18	0	0	0	0	0	50	2	6	0	58	76
12:00 - 12:15	10	0	1	0	11	0	0	0	0	0	38	2	7	0	47	58
12:15 - 12:30	14	3	0	0	17	3	0	0	0	3	34	0	6	0	40	60
12:30 - 12:45	19	3	0	0	22	3	0	0	0	3	58	3	4	0	65	90
12:45 - 13:00	11	1	0	1	13	0	0	0	0	0	23	0	3	1	27	40
13:00 - 13:15	27	2	1	0	30	1	0	0	0	1	30	4	8	1	43	74
13:15 - 13:30	14	2	0	0	16	1	0	0	0	1	43	0	6	0	49	66
13:30 - 13:45	25	2	0	0	27	0	0	0	0	0	51	2	1	0	54	81
13:45 - 14:00	16	0	0	1	17	0	0	0	0	0	40	2	2	1	45	62
14:00 - 14:15	11	2	0	0	13	0	0	1	0	1	46	0	5	0	51	65
14:15 - 14:30	8	1	0	0	9	0	0	0	0	0	49	5	2	0	56	65
14:30 - 14:45	19	1	3	0	23	2	0	0	0	2	75	2	5	1	83	108
14:45 - 15:00	11	1	0	1	13	0	0	0	0	0	47	0	6	0	53	66
15:00 - 15:15	29	0	0	0	29	0	0	0	0	0	51	4	2	1	58	87
15:15 - 15:30	19	0	0	0	19	0	0	0	0	0	55	0	3	0	58	77
15:30 - 15:45	27	0	1	1	29	0	0	0	0	0	82	2	10	0	94	123
15:45 - 16:00	17	0	0	0	17	0	0	0	0	0	124	0	4	0	128	145
16:00 - 16:15	21	0	0	1	22	0	0	0	0	0	158	1	3	0	162	184
16:15 - 16:30	40	0	1	0	41	0	0	1	0	1	105	2	3	0	110	152
16:30 - 16:45	25	0	0	0	25	0	0	0	0	0	87	0	3	0	90	115
16:45 - 17:00	12	0	0	0	12	0	0	0	0	0	68	0	2	1	71	83
17:00 - 17:15	30	0	0	0	30	0	0	0	0	0	82	0	5	0	87	117
17:15 - 17:30	17	0	0	2	19	0	0	0	0	0	93	0	2	0	95	114
17:30 - 17:45	31	1	1	2	35	1	0	0	0	1	111	0	6	0	117	153
17:45 - 18:00	27	1	0	0	28	0	0	0	0	0	79	0	1	0	80	108
TOTAL	**828**	**28**	**24**	**27**	**907**	**21**	**0**	**8**	**0**	**29**	**###**	**57**	**193**	**23**	**3070**	**4006**

TRAFFIC SURVEY

CLIENT: ROYAL HASKONING DHV

SITE: INTERSECTION OF TARA ROAD AND BADULLA DRIVE

DATE: 12 HOUR COUNT ON TUESDAY 03 FEBRUARY 2015
UNITS: CLASSIFIED

APPROACH FROM NAME	SOUTH ACCESS FROM WASTE WATER WORKS															TOTAL
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
06:15 - 06:30	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
06:30 - 06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 - 07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 - 07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2	3
07:30 - 07:45	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
07:45 - 08:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
08:00 - 08:15	2	0	1	0	3	0	0	0	0	0	0	0	1	0	1	4
08:15 - 08:30	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
08:30 - 08:45	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
08:45 - 09:00	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
09:00 - 09:15	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	5
09:15 - 09:30	5	0	2	0	7	1	0	0	0	1	2	0	0	0	2	10
09:30 - 09:45	2	0	2	0	4	1	0	1	0	2	3	0	0	0	3	9
09:45 - 10:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
10:00 - 10:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	3	0	3	0	0	0	0	0	0	0	3	0	3	6
10:45 - 11:00	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
11:00 - 11:15	2	0	2	0	4	1	0	1	0	2	0	0	0	0	0	6
11:15 - 11:30	1	0	0	0	1	1	0	1	0	2	0	0	0	0	0	3
11:30 - 11:45	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
11:45 - 12:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
12:00 - 12:15	1	0	2	0	3	2	0	0	0	2	0	0	0	0	0	5
12:15 - 12:30	2	0	3	0	5	2	0	0	0	2	0	0	0	0	0	7
12:30 - 12:45	2	0	2	0	4	2	0	0	0	2	0	0	0	0	0	6
12:45 - 13:00	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
13:00 - 13:15	2	0	1	0	3	1	0	0	0	1	1	0	0	0	1	5
13:15 - 13:30	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	4
13:30 - 13:45	1	0	3	0	4	0	0	0	0	0	1	0	0	0	1	5
13:45 - 14:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
14:00 - 14:15	4	0	0	0	4	1	0	0	0	1	0	0	0	0	0	5
14:15 - 14:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
14:30 - 14:45	4	0	3	0	7	0	0	1	0	1	2	0	0	0	2	10
14:45 - 15:00	1	0	1	0	2	0	0	1	0	1	4	1	0	0	5	8
15:00 - 15:15	3	0	1	0	4	1	0	0	0	1	1	0	0	0	1	6
15:15 - 15:30	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	4
15:30 - 15:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
15:45 - 16:00	3	0	2	0	5	2	0	0	0	2	0	0	0	0	0	7
16:00 - 16:15	4	0	2	0	6	0	0	0	0	0	0	0	0	0	0	6
16:15 - 16:30	2	0	0	0	2	1	0	1	0	2	0	0	0	0	0	4
16:30 - 16:45	3	0	3	0	6	1	0	0	0	1	1	0	0	0	1	8
16:45 - 17:00	5	0	0	0	5	2	0	1	0	3	1	0	0	0	1	9
17:00 - 17:15	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
17:15 - 17:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
17:30 - 17:45	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0	5
17:45 - 18:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL	**77**	**0**	**52**	**0**	**129**	**23**	**0**	**7**	**0**	**30**	**19**	**1**	**4**	**0**	**24**	**183**

CLIENT: ROYAL HASKONING DHV

SITE: INTERSECTION OF TARA ROAD AND BADULLA DRIVE

DATE: 12 HOUR COUNT ON TUESDAY 03 FEBRUARY 2015
UNITS: CLASSIFIED

APPROACH FROM	EAST															TOTAL
NAME	BADULLA DRIVE															
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	2	0	0	0	2	82	2	0	3	87	16	0	0	0	16	105
06:15 - 06:30	1	0	0	0	1	102	2	0	3	107	22	0	0	0	22	130
06:30 - 06:45	1	0	0	0	1	139	2	1	4	146	24	1	0	2	27	174
06:45 - 07:00	2	0	0	0	2	155	4	0	2	161	28	1	0	0	29	192
07:00 - 07:15	0	0	0	0	0	198	8	1	1	208	22	2	0	1	25	233
07:15 - 07:30	1	0	0	0	1	194	10	1	1	206	29	2	0	0	31	238
07:30 - 07:45	2	0	0	0	2	209	11	1	4	225	23	3	0	0	26	253
07:45 - 08:00	0	0	0	0	0	107	5	0	1	113	26	1	0	1	28	141
08:00 - 08:15	0	0	0	0	0	74	4	0	2	80	14	1	0	1	16	96
08:15 - 08:30	0	0	0	0	0	81	5	2	1	89	11	1	0	0	12	101
08:30 - 08:45	1	0	0	0	1	55	3	1	1	60	20	0	1	0	21	82
08:45 - 09:00	0	0	0	0	0	48	5	0	1	54	9	0	0	0	9	63
09:00 - 09:15	0	0	0	0	0	50	5	0	0	55	14	0	1	1	16	71
09:15 - 09:30	0	0	0	0	0	72	2	0	1	75	16	0	1	0	17	92
09:30 - 09:45	3	0	0	0	3	49	4	0	0	53	8	0	0	0	8	64
09:45 - 10:00	3	0	0	0	3	61	4	1	1	67	18	0	0	0	18	88
10:00 - 10:15	0	0	0	0	0	31	2	2	0	35	11	0	0	1	12	47
10:15 - 10:30	1	0	0	0	1	39	1	4	0	44	11	0	1	0	12	57
10:30 - 10:45	0	0	0	0	0	36	1	2	1	40	12	0	0	0	12	52
10:45 - 11:00	0	0	0	0	0	34	3	0	0	37	6	0	0	0	6	43
11:00 - 11:15	0	0	0	0	0	55	3	1	1	60	13	0	0	1	14	74
11:15 - 11:30	0	0	0	0	0	42	3	2	2	49	17	0	0	0	17	66
11:30 - 11:45	1	0	0	0	1	64	2	3	1	70	20	0	0	0	20	91
11:45 - 12:00	0	0	0	0	0	40	2	2	2	46	13	0	0	0	13	59
12:00 - 12:15	0	0	0	0	0	39	2	2	2	45	13	0	0	0	13	58
12:15 - 12:30	0	0	0	0	0	42	2	2	1	47	16	2	0	1	19	66
12:30 - 12:45	0	0	0	0	0	50	1	0	3	54	27	0	0	0	27	81
12:45 - 13:00	0	0	0	0	0	34	4	3	0	41	16	1	0	0	17	58
13:00 - 13:15	0	0	0	0	0	57	6	1	0	64	17	1	0	0	18	82
13:15 - 13:30	0	0	0	0	0	63	10	0	1	74	20	2	0	0	22	96
13:30 - 13:45	0	0	0	0	0	68	5	0	0	73	22	0	0	0	22	95
13:45 - 14:00	0	0	0	0	0	59	3	0	3	65	13	0	0	0	13	78
14:00 - 14:15	0	0	0	0	0	75	5	1	1	82	24	1	1	0	26	108
14:15 - 14:30	1	0	0	0	1	49	4	4	2	59	11	1	0	1	13	73
14:30 - 14:45	0	0	0	0	0	53	5	3	0	61	15	0	0	0	15	76
14:45 - 15:00	1	0	0	0	1	57	4	2	3	66	18	1	0	0	19	86
15:00 - 15:15	0	0	0	0	0	36	1	1	0	38	16	0	2	1	19	57
15:15 - 15:30	2	0	0	0	2	17	1	1	1	20	6	0	1	0	7	29
15:30 - 15:45	2	0	0	0	2	38	1	2	2	43	18	0	1	2	21	66
15:45 - 16:00	0	0	0	0	0	55	2	0	0	57	8	0	0	1	9	66
16:00 - 16:15	0	0	0	0	0	65	1	0	0	66	12	0	1	0	13	79
16:15 - 16:30	0	0	0	0	0	58	1	0	1	60	12	0	0	3	15	75
16:30 - 16:45	1	0	0	0	1	83	3	0	0	86	27	0	1	4	32	119
16:45 - 17:00	0	0	0	0	0	69	3	0	1	73	15	0	0	0	15	88
17:00 - 17:15	0	0	0	0	0	61	4	1	2	68	21	0	0	0	21	89
17:15 - 17:30	1	0	0	0	1	76	2	1	0	79	13	0	0	1	14	94
17:30 - 17:45	0	0	0	0	0	76	3	0	1	80	22	0	0	0	22	102
17:45 - 18:00	1	0	0	0	1	58	3	1	0	62	30	0	1	0	31	94
TOTAL	27	0	0	0	27	###	169	49	57	3630	815	21	12	22	870	4527

CLIENT: ROYAL HASKONING DHV

SITE: INTERSECTION OF TARA ROAD AND BADULLA DRIVE

DATE: 12 HOUR COUNT ON TUESDAY 03 FEBRUARY 2015
UNITS: CLASSIFIED

APPROACH FROM	WEST BADULLA DRIVE															TOTAL
NAME	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
MOVEMENT																
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	53	0	4	0	57	34	1	1	1	37	2	0	1	0	3	97
06:15 - 06:30	43	3	2	0	48	38	2	0	1	41	0	0	0	0	0	89
06:30 - 06:45	64	1	5	0	70	65	0	0	1	66	0	0	0	0	0	136
06:45 - 07:00	111	3	5	0	119	72	11	1	1	85	6	0	0	0	6	210
07:00 - 07:15	107	5	0	1	113	115	11	0	2	128	3	0	0	0	3	244
07:15 - 07:30	93	7	2	0	102	109	9	3	1	122	0	0	1	0	1	225
07:30 - 07:45	132	1	7	0	140	93	10	1	2	106	4	0	0	0	4	250
07:45 - 08:00	60	4	4	0	68	58	5	0	2	65	1	0	0	0	1	134
08:00 - 08:15	44	3	5	0	52	47	6	0	1	54	3	0	1	0	4	110
08:15 - 08:30	33	3	0	0	36	49	2	1	0	52	2	0	1	0	3	91
08:30 - 08:45	17	1	1	0	19	38	5	0	1	44	0	0	2	0	2	65
08:45 - 09:00	32	3	8	0	43	34	2	2	0	38	2	0	2	0	4	85
09:00 - 09:15	32	3	6	0	41	47	4	2	2	55	1	0	2	0	3	99
09:15 - 09:30	37	2	8	0	47	44	3	0	0	47	0	0	0	0	0	94
09:30 - 09:45	43	2	5	1	51	45	1	1	2	49	1	0	3	0	4	104
09:45 - 10:00	53	3	8	0	64	60	3	0	1	64	1	0	1	0	2	130
10:00 - 10:15	25	0	3	0	28	32	1	2	0	35	2	0	0	0	2	65
10:15 - 10:30	40	2	5	0	47	57	2	1	1	61	1	0	2	0	3	111
10:30 - 10:45	26	1	8	0	35	44	1	1	0	46	0	0	3	0	3	84
10:45 - 11:00	52	1	5	0	58	50	2	0	0	52	2	0	2	0	4	114
11:00 - 11:15	33	2	8	0	43	51	3	1	0	55	0	0	0	0	0	98
11:15 - 11:30	31	1	5	0	37	38	1	0	1	40	0	0	1	0	1	78
11:30 - 11:45	39	1	3	0	43	44	3	2	2	51	2	0	0	0	2	96
11:45 - 12:00	45	3	9	1	58	54	4	1	0	59	0	0	2	0	2	119
12:00 - 12:15	31	3	3	1	38	39	1	1	0	41	0	0	2	0	2	81
12:15 - 12:30	28	2	6	0	36	64	2	1	1	68	2	0	1	0	3	107
12:30 - 12:45	46	1	3	0	50	82	3	1	3	89	0	0	2	0	2	141
12:45 - 13:00	22	2	4	0	28	59	8	4	0	71	1	0	0	0	1	100
13:00 - 13:15	43	2	2	0	47	45	2	1	1	49	1	0	1	0	2	98
13:15 - 13:30	29	2	3	0	34	52	1	0	0	53	2	0	4	0	6	93
13:30 - 13:45	31	1	5	1	38	44	3	1	2	50	2	0	0	0	2	90
13:45 - 14:00	38	3	4	1	46	53	6	1	1	61	1	0	0	0	1	108
14:00 - 14:15	50	4	7	5	66	65	7	2	1	75	0	0	2	0	2	143
14:15 - 14:30	34	2	6	2	44	60	4	1	0	65	1	0	1	0	2	111
14:30 - 14:45	59	0	5	1	65	99	9	6	1	115	1	0	0	0	1	181
14:45 - 15:00	32	0	0	2	34	54	2	0	0	56	1	0	2	0	3	93
15:00 - 15:15	46	2	6	1	55	75	1	1	1	78	4	0	2	0	6	139
15:15 - 15:30	33	2	4	1	40	39	0	0	1	40	1	0	1	0	2	82
15:30 - 15:45	47	1	8	1	57	68	2	2	0	72	1	0	2	0	3	132
15:45 - 16:00	63	2	7	1	73	81	2	0	1	84	0	0	1	0	1	158
16:00 - 16:15	73	0	10	3	86	155	1	0	1	157	3	0	0	0	3	246
16:15 - 16:30	73	2	1	1	77	184	1	0	4	189	0	0	1	0	1	267
16:30 - 16:45	82	0	3	1	86	215	3	0	1	219	0	0	2	0	2	307
16:45 - 17:00	76	0	1	0	77	216	5	0	4	225	1	0	0	0	1	303
17:00 - 17:15	73	0	2	0	75	253	2	1	1	257	0	0	0	0	0	332
17:15 - 17:30	71	0	5	0	76	174	2	0	0	176	0	0	0	0	0	252
17:30 - 17:45	73	0	5	0	78	166	5	2	3	176	0	0	0	0	0	254
17:45 - 18:00	72	0	7	1	80	170	0	0	0	170	1	0	0	0	1	251
TOTAL	*******	**86**	**223**	**26**	**2805**	*******	**164**	**45**	**49**	**4088**	**56**	**0**	**48**	**0**	**104**	**6997**

Appendix c : SIDRA Intersection Analysis

2015 AM PEAK

MOVEMENT SUMMARY

Site: Badulla/ Byfield/ Tara Road 2015 AM PEAK

New Site
Signals - Fixed Time Cycle Time = 70 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Badulla South											
21	L2	5	3.0	0.755	28.5	LOS C	16.9	121.2	0.99	0.83	36.4
22	T1	800	3.0	0.755	22.5	LOS C	16.9	121.2	0.91	0.86	34.8
23	R2	111	3.0	0.755	35.8	LOS D	12.2	87.9	0.96	0.92	31.7
Approach		916	3.0	0.755	24.1	LOS C	16.9	121.2	0.92	0.86	34.4
NorthEast: Tara Road											
24	L2	93	3.0	0.211	31.5	LOS C	2.6	18.6	0.84	0.78	32.1
25	T1	4	3.0	0.760	30.0	LOS C	11.7	84.3	0.99	0.90	29.2
26	R2	332	3.0	0.760	38.3	LOS D	11.7	84.3	0.99	0.90	29.2
Approach		429	3.0	0.760	36.7	LOS D	11.7	84.3	0.95	0.87	29.8
NorthWest: Badulla North											
27	L2	474	3.0	0.347	9.3	LOS A	3.3	23.9	0.34	0.71	47.6
28	T1	441	3.0	0.638	19.2	LOS B	12.9	92.3	0.87	0.76	37.1
29	R2	14	3.0	0.638	27.5	LOS C	12.9	92.3	0.87	0.76	37.1
Approach		929	3.0	0.638	14.3	LOS B	12.9	92.3	0.60	0.73	41.8
SouthWest: Byfield Road											
30	L2	2	80.0	0.049	42.4	LOS D	0.2	2.0	0.84	0.84	28.0
31	T1	1	80.0	0.049	34.2	LOS C	0.2	2.0	0.84	0.84	28.0
32	R2	2	80.0	0.049	42.5	LOS D	0.2	2.0	0.84	0.84	28.0
Approach		5	80.0	0.049	40.8	LOS D	0.2	2.0	0.84	0.84	28.0
All Vehicles		2279	3.2	0.760	22.5	LOS C	16.9	121.2	0.79	0.81	36.0

2015 PM PEAK

MOVEMENT SUMMARY

Site: Badulla/ Byfield/ Tara Road 2015 PM PEAK

New Site
Signals - Fixed Time Cycle Time = 115 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Badulla South											
21	L2	1	3.0	0.275	22.8	LOS C	8.4	60.7	0.57	0.49	41.1
22	T1	287	3.0	0.275	14.8	LOS B	8.4	60.7	0.57	0.49	41.1
23	R2	83	3.0	0.717	65.6	LOS E	5.0	36.1	1.00	0.89	21.3
Approach		371	3.0	0.717	26.1	LOS C	8.4	60.7	0.66	0.58	34.1
NorthEast: Tara Road											
24	L2	108	3.0	0.244	46.0	LOS D	4.9	35.1	0.85	0.78	26.5
25	T1	1	3.0	0.870	55.0	LOS E	22.0	158.1	1.00	0.96	21.8
26	R2	358	3.0	0.870	63.3	LOS E	22.0	158.1	1.00	0.96	21.8
Approach		467	3.0	0.870	59.3	LOS E	22.0	158.1	0.96	0.91	22.7
NorthWest: Badulla North											
27	L2	315	3.0	0.217	9.9	LOS A	3.3	23.8	0.27	0.68	47.1
28	T1	890	3.0	0.858	28.0	LOS C	45.8	328.6	0.93	0.90	32.3
29	R2	4	3.0	0.858	38.3	LOS D	45.8	328.6	0.93	0.90	32.3
Approach		1209	3.0	0.858	23.3	LOS C	45.8	328.6	0.75	0.84	35.2
SouthWest: Byfield Road											
30	L2	15	80.0	0.365	70.8	LOS E	1.4	16.3	1.00	0.72	20.5
31	T1	6	80.0	0.365	62.7	LOS E	1.4	16.3	1.00	0.72	20.5
32	R2	2	80.0	0.365	71.0	LOS E	1.4	16.3	1.00	0.72	20.5
Approach		23	80.0	0.365	68.7	LOS E	1.4	16.3	1.00	0.72	20.5
All Vehicles		2070	3.9	0.870	32.4	LOS C	45.8	328.6	0.79	0.81	30.9

2020 AM PEAK

MOVEMENT SUMMARY

Site: Badulla/ Byfield/ Tara Road 2020 AM PEAK -

New Site
Signals - Fixed Time Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Badulla South											
21	L2	6	3.0	0.827	32.5	LOS C	21.3	153.2	0.84	0.85	34.2
22	T1	880	3.0	0.827	27.3	LOS C	21.3	153.2	0.88	0.90	32.4
23	R2	122	3.0	0.827	41.5	LOS D	17.0	122.2	0.96	0.99	29.2
Approach		1008	3.0	0.827	29.0	LOS C	21.3	153.2	0.89	0.91	32.0
NorthEast: Tara Road											
24	L2	102	3.0	0.236	35.2	LOS D	3.3	23.5	0.85	0.77	30.4
25	T1	5	3.0	0.856	40.2	LOS D	16.4	117.6	1.00	0.97	25.6
26	R2	365	3.0	0.856	48.5	LOS D	16.4	117.6	1.00	0.97	25.6
Approach		472	3.0	0.856	45.5	LOS D	16.4	117.6	0.97	0.93	26.5
NorthWest: Badulla North											
27	L2	521	3.0	0.383	9.4	LOS A	4.2	30.4	0.33	0.71	47.5
28	T1	485	3.0	0.649	19.8	LOS B	15.6	112.4	0.85	0.76	36.7
29	R2	16	3.0	0.649	28.1	LOS C	15.6	112.4	0.85	0.76	36.7
Approach		1022	3.0	0.649	14.6	LOS B	15.6	112.4	0.59	0.73	41.6
SouthWest: Byfield Road											
30	L2	4	80.0	0.078	48.4	LOS D	0.3	3.3	0.96	0.66	25.9
31	T1	1	80.0	0.078	40.3	LOS D	0.3	3.3	0.96	0.66	25.9
32	R2	2	80.0	0.078	48.6	LOS D	0.3	3.3	0.96	0.66	25.9
Approach		7	80.0	0.078	47.3	LOS D	0.3	3.3	0.96	0.66	25.9
All Vehicles		2509	3.2	0.856	26.3	LOS C	21.3	153.2	0.78	0.84	33.9

2020 PM PEAK

MOVEMENT SUMMARY

Site: Badulla/ Byfield/ Tara Road 2020 PM PEAK

New Site
Signals - Fixed Time Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Badulla South											
21	L2	2	3.0	0.299	23.0	LOS C	9.7	69.8	0.57	0.50	41.0
22	T1	317	3.0	0.299	14.8	LOS B	9.7	69.8	0.57	0.50	41.0
23	R2	92	3.0	1.082	250.0	LOS F	12.9	92.8	1.00	1.54	7.6
Approach		411	3.0	1.082	67.5	LOS E	12.9	92.8	0.66	0.73	20.7
NorthEast: Tara Road											
24	L2	119	3.0	0.271	48.0	LOS D	5.7	40.7	0.85	0.78	25.8
25	T1	2	3.0	1.000	125.9	LOS F	38.9	279.2	1.00	1.21	12.7
26	R2	394	3.0	1.000	134.2	LOS F	38.9	279.2	1.00	1.21	12.7
Approach		515	3.0	1.000	114.2	LOS F	38.9	279.2	0.97	1.11	14.4
NorthWest: Badulla North											
27	L2	347	3.0	0.231	9.8	LOS A	3.5	25.0	0.25	0.68	47.4
28	T1	979	3.0	0.927	44.6	LOS D	66.5	477.3	1.00	1.07	25.8
29	R2	5	3.0	0.927	52.9	LOS D	66.5	477.3	1.00	1.07	25.8
Approach		1331	3.0	0.927	35.5	LOS D	66.5	477.3	0.80	0.97	29.3
SouthWest: Byfield Road											
30	L2	17	80.0	0.430	74.2	LOS E	1.6	19.3	1.00	0.72	19.9
31	T1	7	80.0	0.430	66.0	LOS E	1.6	19.3	1.00	0.72	19.9
32	R2	2	80.0	0.430	74.3	LOS E	1.6	19.3	1.00	0.72	19.9
Approach		26	80.0	0.430	72.0	LOS E	1.6	19.3	1.00	0.72	19.9
All Vehicles		2263	3.9	1.082	59.4	LOS E	66.5	477.3	0.82	0.95	22.3

Appendix D : Email Correspondence

Nikita Bilala

From: Langa Ngcobo <Langa.Ngcobo@durban.gov.za>
Sent: 25 February 2015 02:07 PM
To: Nikita Bilala
Cc: Novashni Moodley
Subject: RE: SWTW: Traffic queries

Hi Nikita,

This is a general number of tankers entering the SWWTW. Work on 25 tankers per day specific to the new tanker facility.

Regards
Langa,

From: Nikita Bilala [mailto:Nikita.Bilala@rhdhv.com]
Sent: Wednesday, February 25, 2015 2:03 PM
To: Langa Ngcobo
Cc: Novashni Moodley
Subject: FW: SWTW: Traffic queries

Hi Langa,

I am currently working on the traffic impact statement for the SWWTW.

Just a query, the number of trucks to the works (50 per day) – is this volume specific to the new tanker bay facility, or is to the wastewater treatment works in general?
Your help would be much appreciated.

Thanks!

Regards,
Nikita

From: Novashni Moodley
Sent: 10 February 2015 02:12 PM
To: Nikita Bilala
Cc: Yolan Pillay
Subject: FW: SWTW: Traffic queries

Hi,

Requested information below.

Kind Regards
Sharleen

From: Langa Ngcobo [mailto:Langa.Ngcobo@durban.gov.za]
Sent: 10 February 2015 10:11 AM
To: Lalitha Moodley

Nikita Bilala

From: Novashni Moodley
Sent: 10 February 2015 02:12 PM
To: Nikita Bilala
Cc: Yolan Pillay
Subject: FW: SWTW: Traffic queries

Hi,

Requested information below.

Kind Regards
Sharleen

From: Langa Ngcobo [mailto:Langa.Ngcobo@durban.gov.za]
Sent: 10 February 2015 10:11 AM
To: Lalitha Moodley
Cc: Jugwanth, Samista
Subject: RE: SWTW: Traffic queries

Hi Lalitha,

Below is the info that you requested in red,

Can you please provide the CURENT and EXPECTED of the following:

1. Number of trucks to the works – 50 per day
2. Types of vehicles - Tankers
3. Time of drop-off. – 24 hrs

We require traffic information to perform our detailed pavement design.
We need the following:

- Maximum number of truck-passes going over a single spot – 50 per day
- Type of design vehicle….is it only tankers? – mainly tankers
- Is there a loaded mass of the vehicle that we could use? – 32 tons
- Typically, how many axles does each truck have? - 2
- A design life of 30 years is typically used for concrete pavements, is this acceptable? – should be fine
- Is there a chance that the facility will grow in terms of its capacity and therefor have an increase in traffic. If so, what would be a reasonable growth rate (possibly 4% per year?) – for now it is safe to assume no growth

I trust that this info will assist you in your planning.

Regards
Langa,

From: Lalitha Moodley
Sent: Tuesday, February 10, 2015 8:34 AM
To: Langa Ngcobo
Cc: Jugwanth, Samista
Subject: FW: SWTW: Traffic queries