

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED NUCLEAR POWER STATION ('NUCLEAR 1') AND ASSOCIATED INFRASTRUCTURE

Transport Specialist Study Impact Assessment Phase

Volume 3 Annexures A - C



Prepared by: Arcus GIBB (Pty) Ltd

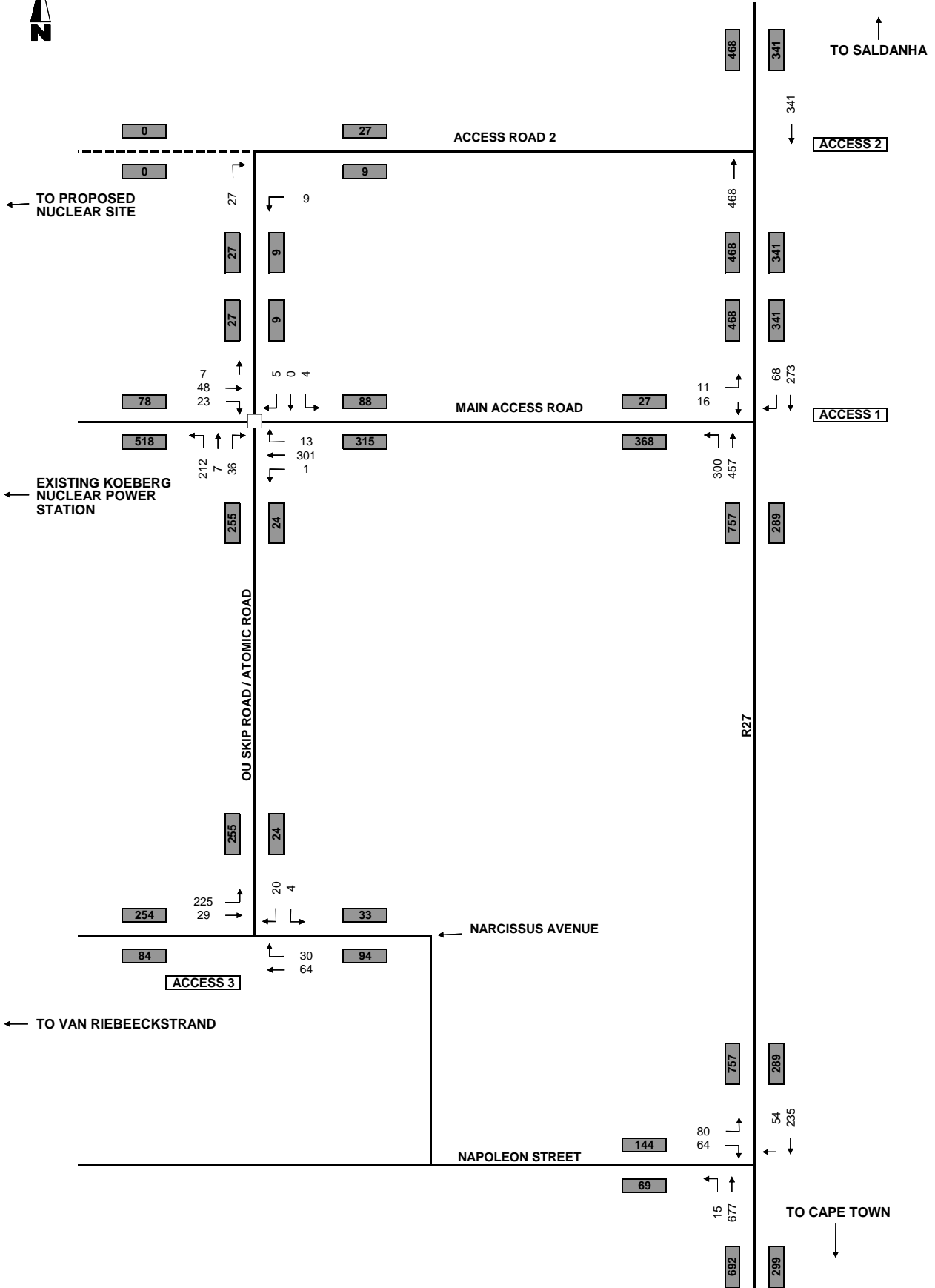
Prepared for: Arcus GIBB (Pty) Ltd

On behalf of: Eskom Holdings Ltd




Version 12
July 2012

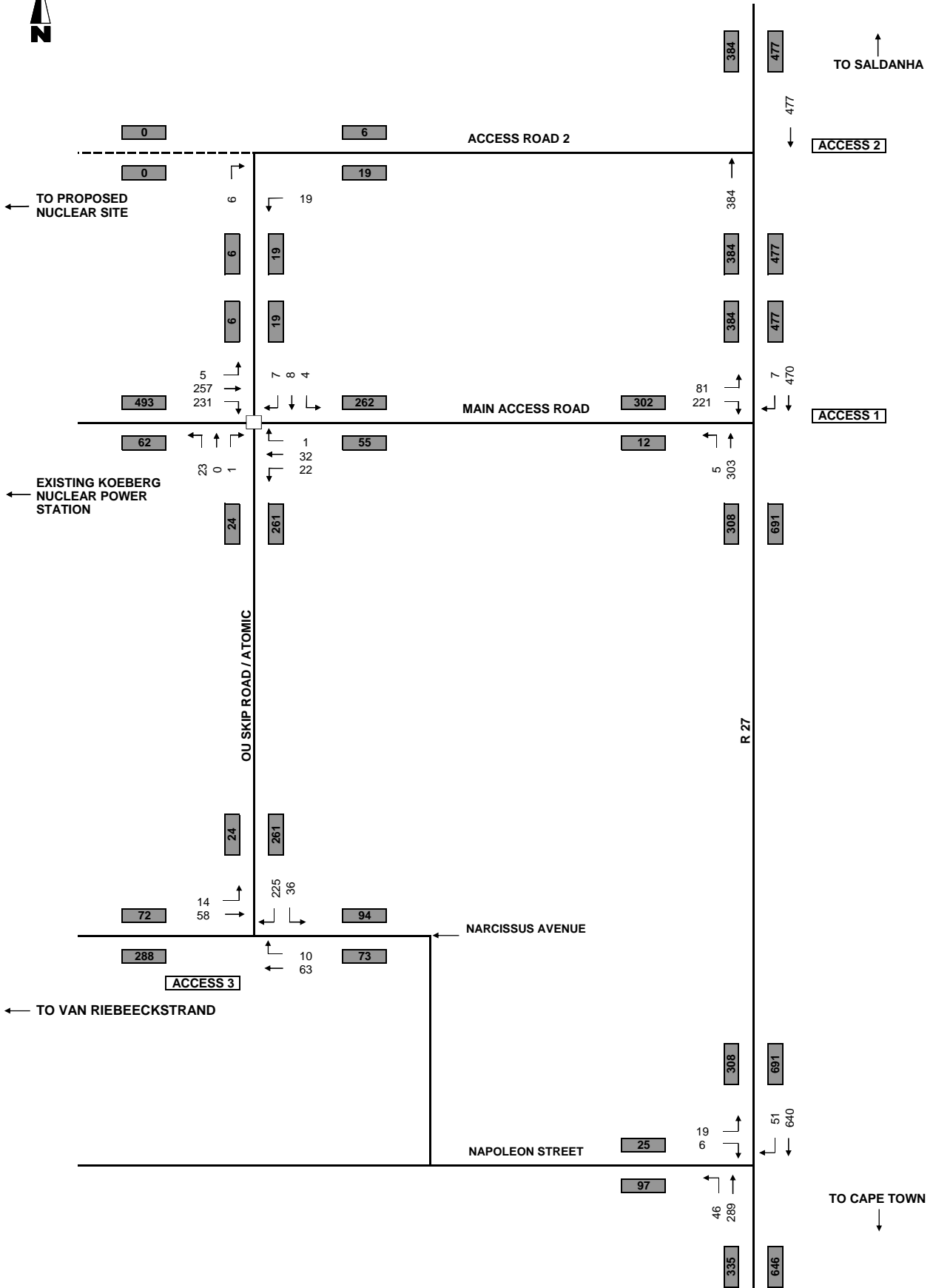
Annexure A



AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP


Project:						
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT						
DUYNEFONTEIN						
Detail:						
2008 AM PEAK - BACKGROUND TRAFFIC						
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A1	



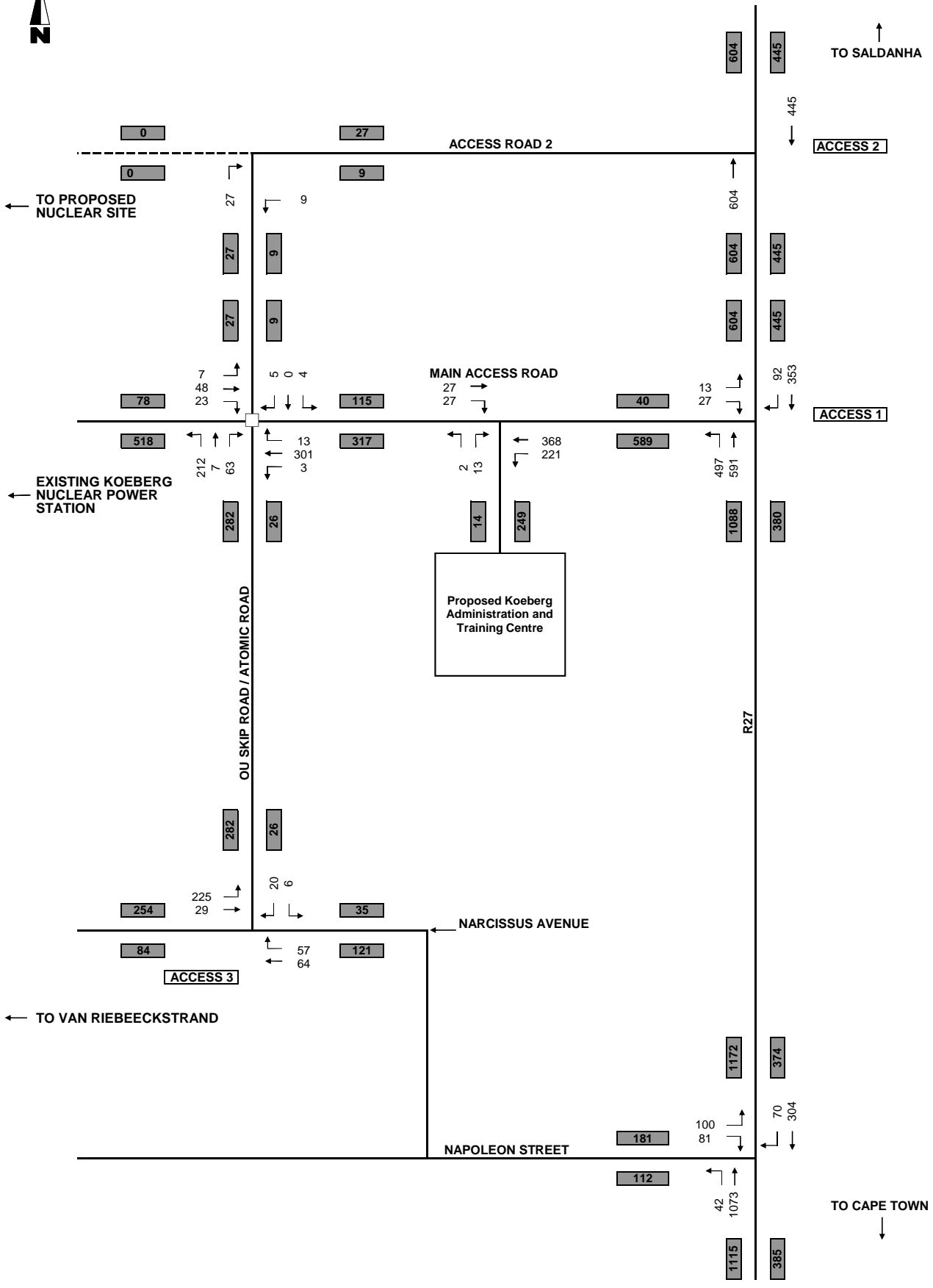


PM PEAK (16:30 -17:30)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN						
Detail: 2008 PM PEAK-BACKGROUND TRAFFIC						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. A2	Rev

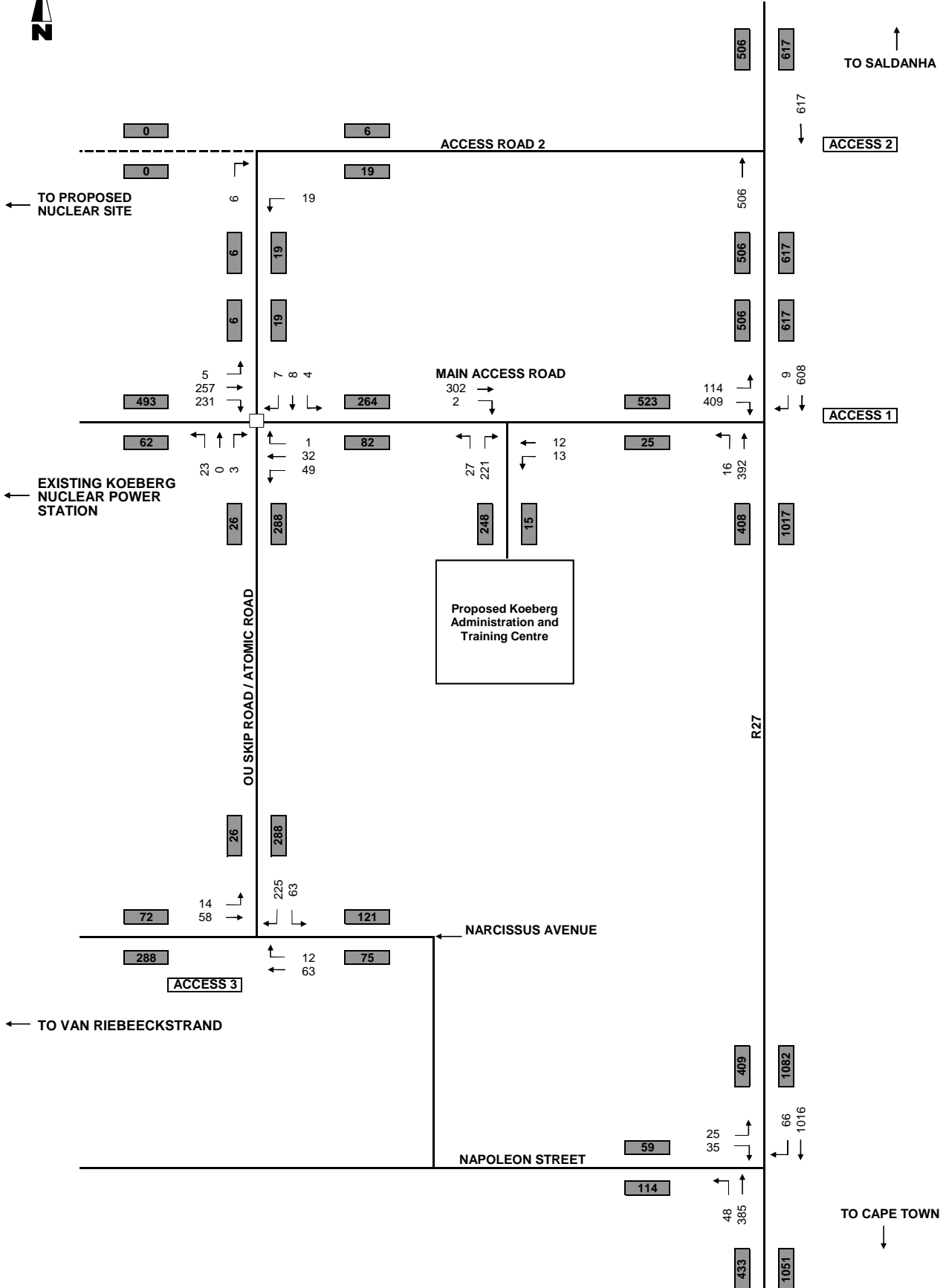


GIBB
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AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN				
Detail:		2023 AM PEAK - BACKGROUND TRAFFIC				
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	12-Jan	J27035	A3	



AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN				
Detail:		2023 PM PEAK - BACKGROUND TRAFFIC				
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P Mvinjelwa	S Chow	A Bulman	12-Jan	J27035	A4	



↑
TO SALDANHA

← TO PROPOSED NUCLEAR SITE

A / 9s
A / 9s
A / 9s

A / 9s
A / 9s
A / 9s

A

B / 1
B / 1

A / 1
A / 1

A / 10s
A / 10s
A / 10s

B / 11s
B / 11s
B / 11s

N / A
N / A

← EXISTING KOEBERG NUCLEAR POWER STATION

OUJ SKIP ROAD / ATOMIC ROAD

R 27

N / A
N / A

B / 1
B / 1

← NARCISSUS AVENUE

A / 1
A / 1





← TO VAN RIEBEECKSTRAND


NAPOLEON STREET

C / 2
C / 2

A / 1
A / 1

↓
TO CAPE TOWN

AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	ALL-WAY STOP
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
A / 1s	LOS / DELAY (sec)
	INTERSECTION LOS

Project:						
<p align="center">NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN</p>						
Detail:				<p align="center">2008 AM PEAK - BACKGROUND TRAFFIC ANALYSIS RESULTS</p>		
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A5	



↑
TO SALDANHA

← TO PROPOSED NUCLEAR SITE

← EXISTING KOEBERG NUCLEAR POWER STATION

OU SKIP ROAD / ATOMIC ROAD

R 27

NARCISSUS AVENUE


← TO VAN RIEBEECKSTRAND


NAPOLEON STREET

↓ TO CAPE TOWN

PM PEAK (16:30 - 17:30)

- EXISTING ROADS
- FOUR WAY STOP
- - - PROPOSED ROADS
- A / 1 LOS / 95th PERCENTILE QUEUE (veh)
- A / 1s LOS / DELAY (sec)
- B INTERSECTION LOS

Project:																				
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN																				
Detail:				<table border="1"> <tr> <td>Prepared by:</td> <td>Checked by:</td> <td>Reviewed by:</td> <td>Date:</td> <td>Project No.</td> <td>Drawing No.</td> <td>Rev</td> </tr> <tr> <td>P. Mvinjelwa</td> <td>S. Chow</td> <td>A. Bulman</td> <td>Jan-12</td> <td>J27035</td> <td>A6</td> <td></td> </tr> </table>			Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev	P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A6	
Prepared by:	Checked by:	Reviewed by:	Date:				Project No.	Drawing No.	Rev											
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12				J27035	A6												
2008 PM PEAK - BACKGROUND TRAFFIC ANALYSIS RESULTS																				

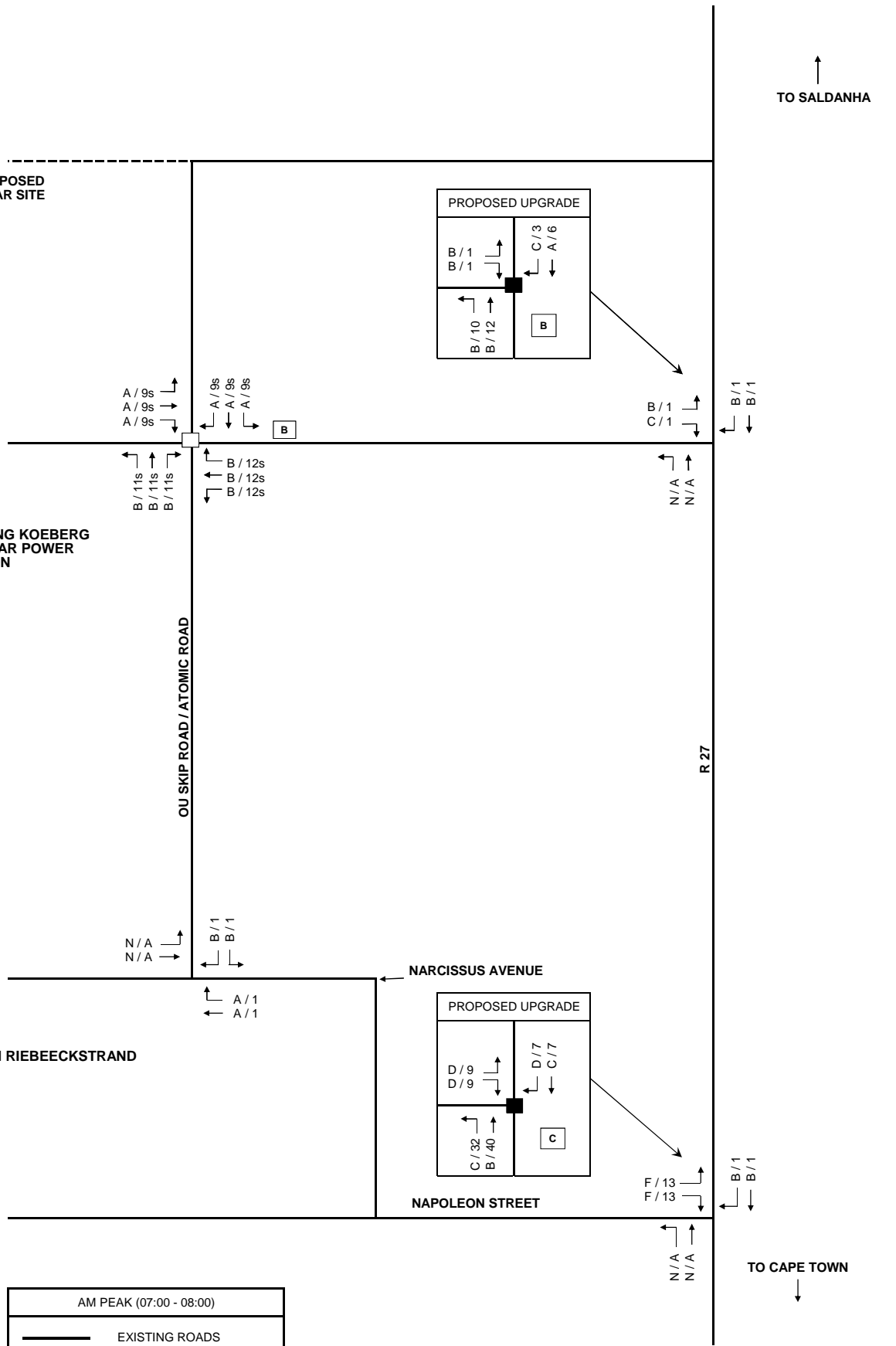
Project:																				
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN																				
Detail:				<table border="1"> <tr> <td>Prepared by:</td> <td>Checked by:</td> <td>Reviewed by:</td> <td>Date:</td> <td>Project No.</td> <td>Drawing No.</td> <td>Rev</td> </tr> <tr> <td>P. Mvinjelwa</td> <td>S. Chow</td> <td>A. Bulman</td> <td>Jan-12</td> <td>J27035</td> <td>A6</td> <td></td> </tr> </table>			Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev	P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A6	
Prepared by:	Checked by:	Reviewed by:	Date:				Project No.	Drawing No.	Rev											
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12				J27035	A6												
2008 PM PEAK - BACKGROUND TRAFFIC ANALYSIS RESULTS																				



↑
TO SALDANHA

← TO PROPOSED NUCLEAR SITE

← EXISTING KOEBERG NUCLEAR POWER STATION



AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	TRAFFIC SIGNAL
	ALL-WAY STOP
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
A / 1s	LOS / DELAY (sec)
	INTERSECTION LOS

Project:				NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN		
Detail:				2023 AM PEAK - BACKGROUND TRAFFIC ANALYSIS RESULTS		
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A7	



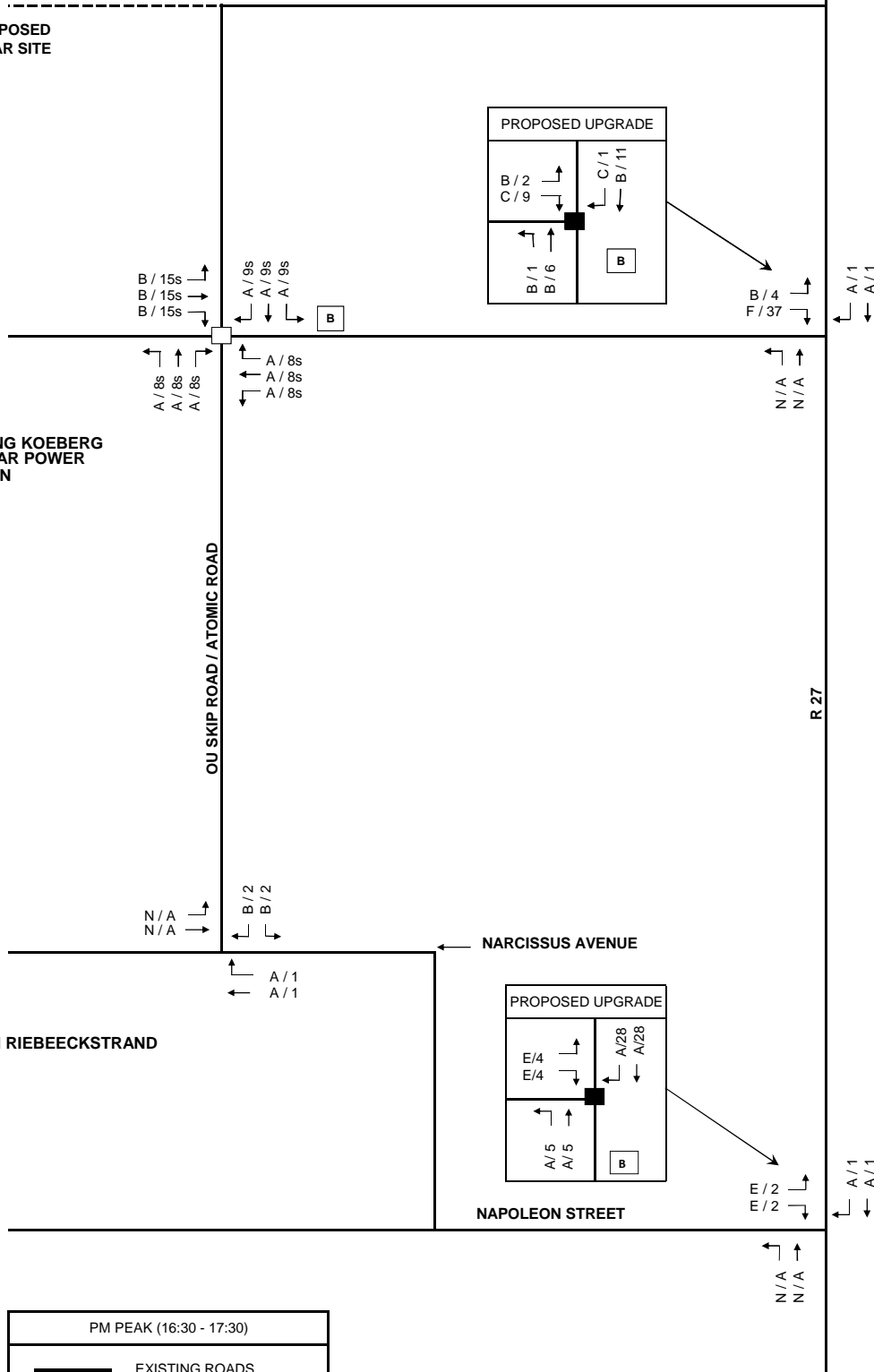
↑
TO SALDANHA

← TO PROPOSED NUCLEAR SITE

← EXISTING KOEBERG NUCLEAR POWER STATION

← TO VAN RIEBEECKSTRAND

↓
TO CAPE TOWN

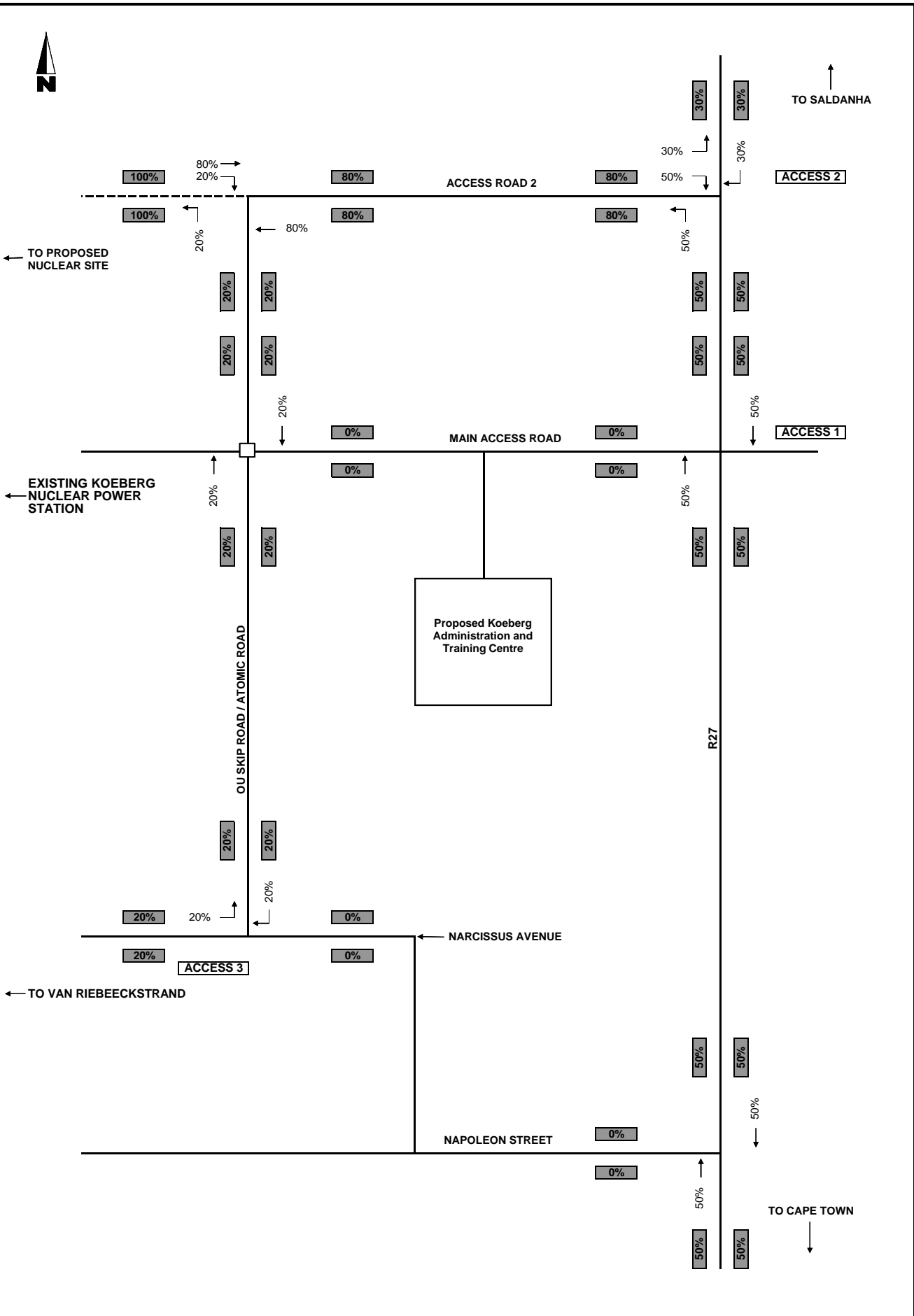


PM PEAK (16:30 - 17:30)	
	EXISTING ROADS
	TRAFFIC SIGNAL
	ALL-WAY STOP
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
A / 1s	LOS / DELAY (sec)
	INTERSECTION LOS

Project:						
<p align="center">NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN</p>						
Detail:				<p align="center">2021 PM PEAK - BACKGROUND TRAFFIC ANALYSIS RESULTS</p>		
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A8	

Annexure A9: Duynfontein Construction Phase Yearly Trips

Description	Unit	Volume	Load	Number of loads	Estimated Daily Transport Distribution								
					1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year
					Vendor staff / day								
General worker numbers					90	200	230	1000	3800	4150	2110	650	0
Buses vendor general workers	person	4 150	60	69 w	2	4	4	17	64	70	36	11	0
Vendor staff numbers					55	130	150	460	1550	1895	1000	505	20
Vendor staff vehicles		1 980	5	396 e	11	26	30	92	310	379	200	101	4
Total vendor				465	13	30	34	109	374	449	236	112	4
Eskom staff / day													
Project staff numbers					40	50	70	120	140	140	140	80	10
Cars (Project staff)	person	220	2.00	110 e	20	25	35	60	70	70	70	40	5
Operational staff numbers					10	10	100	250	550	950	1250	1350	1350
Buses (Operational staff)	person	800	20	40 e	1	1	1	4	10	19	29	31	31
Cars (Operational staff)	person	550	1.30	423 e	7	7	62	145	275	439	529	572	572
Total Eskom				573	28	33	98	209	355	528	628	643	608
Waste and Spoil (Totals for power station construction)					Estimated Annual Transport Distribution								
Sand spoil (20m-8m)	m ³	6 372 044											
Spoil for HV yard	m ³	637 204	10	63 720 w	25 488	19 116	19 116						
Spoil pumped to sea	m ³	5 734 840											
Rock from excavation	m ³	671 071											
Rock to HV yard	m ³	134 214	10	13 421 w	5 369	4 026	4 026						
Rock used on site	m ³	335 536											
Rock transport outside site	m ³	201 321	10	20 132 w	8 053	6 040	6 040						
Rock from outlet tunnel	m ³	12 428	10	1 243 w		249	497	373	124				
Rock from inlet tunnel	m ³	37 285	10	3 729 w		746	1 491	1 119	373				
Waste	m ³	15 000	10	1 500 w	75	150	225	300	375	300	100	150	150
Construction Resources													
Bricks	ea	3 750 000	5 000	750 w	75	150	150	150	150	75			
Finished Concrete	m ³	795 320											
Concrete aggregate	m ³	596 490	10	59 649 w		5 965	11 930	11 930	11 930	11 930	5 965		
Concrete fines	m ³	397 660	10	39 766 w		3 977	7 953	7 953	7 953	7 953	3 977		
Cement	t	357 894	10	35 789 e		3 579	7 158	7 158	7 158	7 158	3 579		
Concrete reinforcing	t	6 766	20	338 e		34	68	68	68	68	34		
Structural steel	t	1 299	20	65 e		6	13	13	13	13	6		
Small bore pipe	m	12 836	200	64 e		6	13	13	13	13	6		
LB Pipe	m	163 914	50	3 278 e		328	656	656	656	656	328		
Conduit	m	381 256	5 000	76 e		8	15	15	15	15	8		
Cable	m	906 884	1 800	504 e		50	101	101	101	101	50		
Terminations	ea	22 025		100 e		10	20	20	20	20	10		
Light delivery vehicles	ea	80 000	1	80 000 e	4 000	4 000	16 000	16 000	16 000	16 000	10 000	10 000	10 000
Ultra heavy loads (x > 100t)	ea	63		63 e		6	13	13	13	13	6		
Heavy loads (10t < x > 100t)	ea	201		201 e		20	40	40	40	40	20		
Equipment	ea	6 000		6 000 e		600	1 200	1 200	1 200	1 200	600		
Total annual construction vehicles					43 060	49 066	76 725	47 120	46 201	45 554	24 689	10 150	10 150
Total daily construction vehicles					190	216	338	208	204	201	109	45	45
LIFECYCLE TRAFFIC (ONE WAY)													
Vehicles per annum				246 202	58 025	72 061	124 905	163 190	312 286	402 159	340 049	285 725	233 530
Vehicles per month					4 835	6 005	10 409	13 599	26 024	33 513	28 337	23 810	19 461
Total Traffic per working day (Construction and staff)					159	198	342	447	856	1 102	932	783	640
Totals if all external material deliveries are transported via eastern access road													
Estimated vehicle numbers / day through eastern access					40	68	165	295	568	750	661	585	486
Estimated vehicle numbers / day through northeren / western access					119	130	177	152	288	353	271	198	154
Totals if all external material deliveries are transported via western access road													
Estimated vehicle numbers / day through eastern access					29	46	99	229	502	684	623	558	459
Estimated vehicle numbers / day through northeren / western access					130	152	243	218	354	419	309	225	181



AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project:
**NUCLEAR 1: ENVIRONMENTAL
 IMPACT ASSESSMENT
 DUYNEFONTEIN**

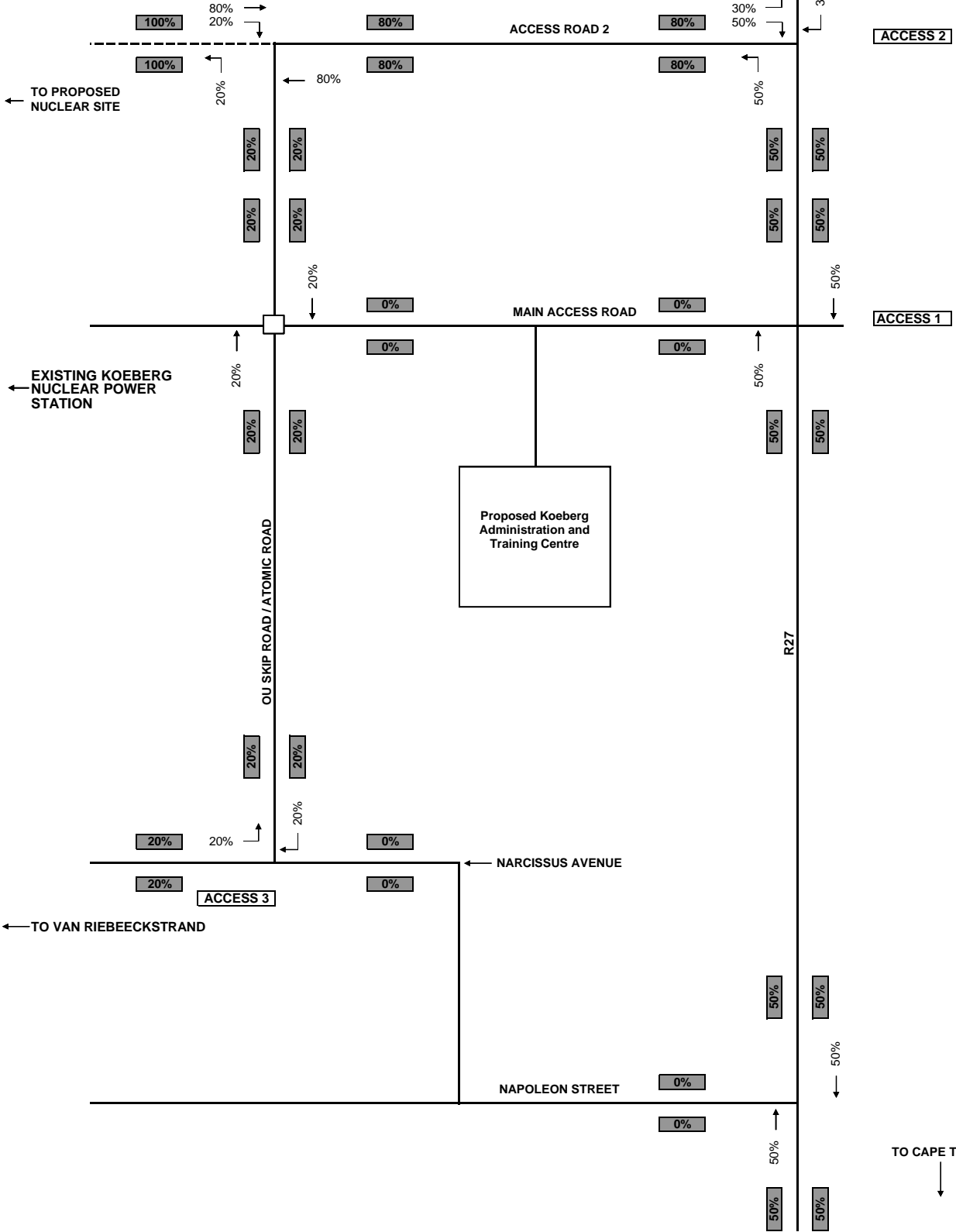
Detail:
**AM PEAK-CONSTRUCTION PHASE
 PERCENTAGE DISTRIBUTION**



Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. A10	Rev
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↑
TO SALDANHA



↓
TO CAPE TOWN

PM PEAK (16:30 -17:30)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project: **NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT**
DUYNEFONTEIN

Detail: **PM PEAK-CONSTRUCTION PHASE PERCENTAGE DISTRIBUTION**

Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12
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Project No. J27035	Drawing No. A11	Rev
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↑
TO SALDANHA

ACCESS 2

ACCESS 1

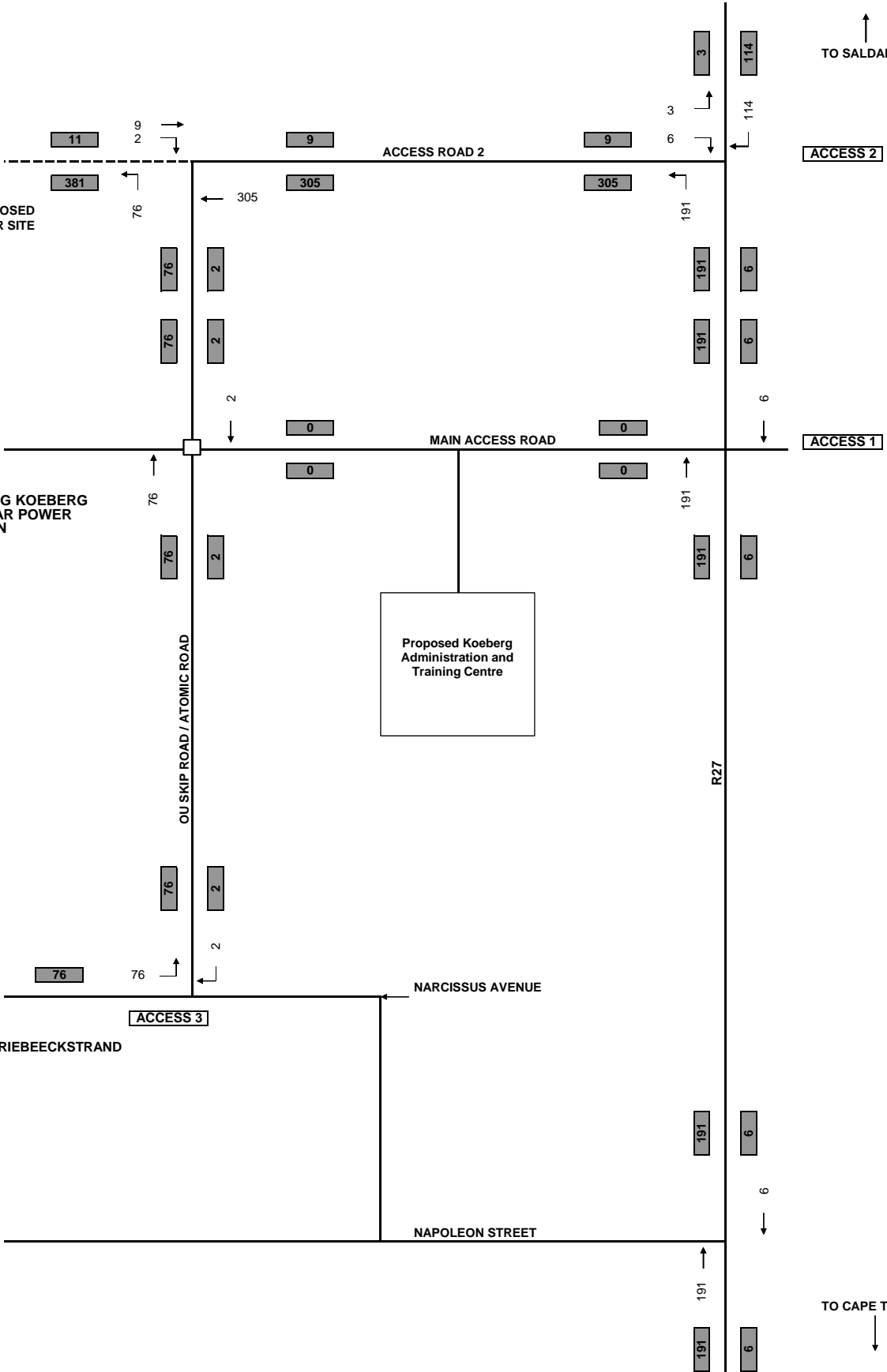
ACCESS 3

↓
TO CAPE TOWN

← TO PROPOSED NUCLEAR SITE

← EXISTING KOEBERG NUCLEAR POWER STATION

← TO VAN RIEBEECKSTRAND



AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN	
Detail:		AM PEAK-CONSTRUCTION PHASE GENERATED TRAFFIC	
Prepared by:	Checked by:	Reviewed by:	Date:
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12
Project No.	Drawing No.	Rev	
J27035	A12		



↑
TO SALDANHA

ACCESS 2

← TO PROPOSED NUCLEAR SITE

← EXISTING KOEBERG NUCLEAR POWER STATION

Proposed Koeberg Administration and Training Centre

OU SKIP ROAD / ATOMIC ROAD

R27

NARCISSUS AVENUE

ACCESS 3


← TO VAN RIEBEECKSTRAND

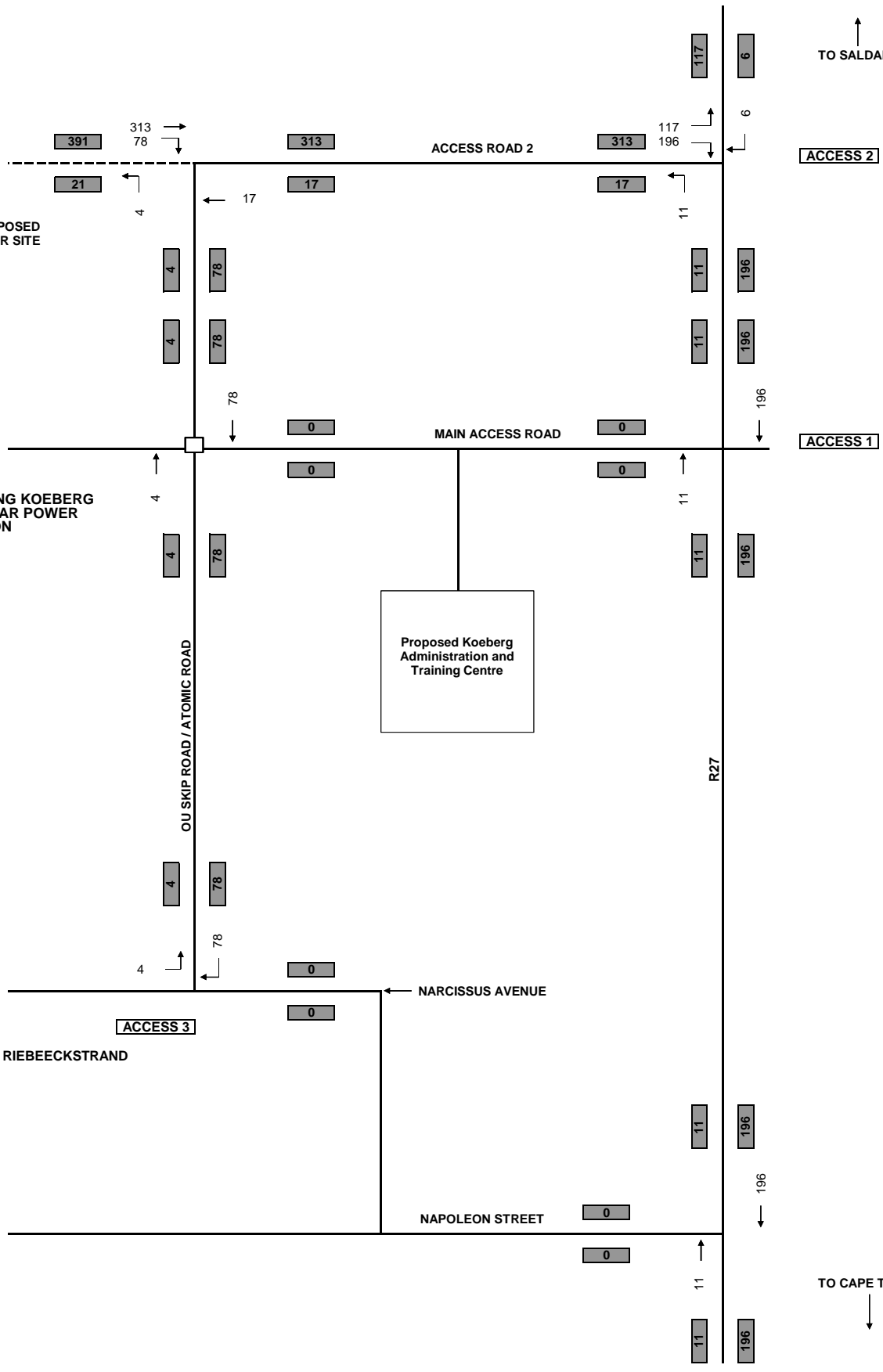
NAPOLEON STREET

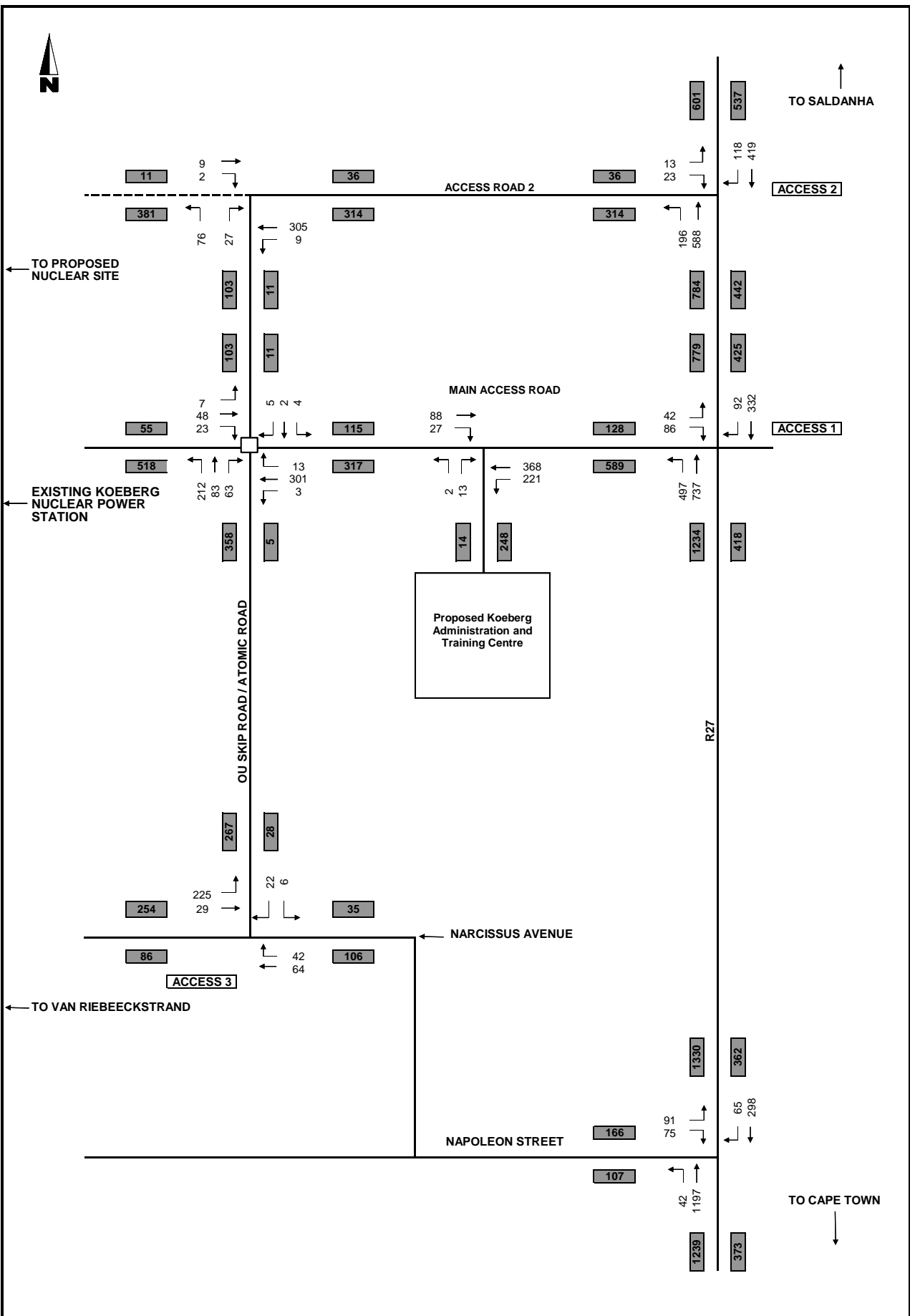
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TO CAPE TOWN

PM PEAK (16:30 -17:30)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project:			
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN			
Detail:			
PM PEAK-CONSTRUCTION PHASE GENERATED TRAFFIC			
Prepared by:	Checked by:	Reviewed by:	Date:
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12

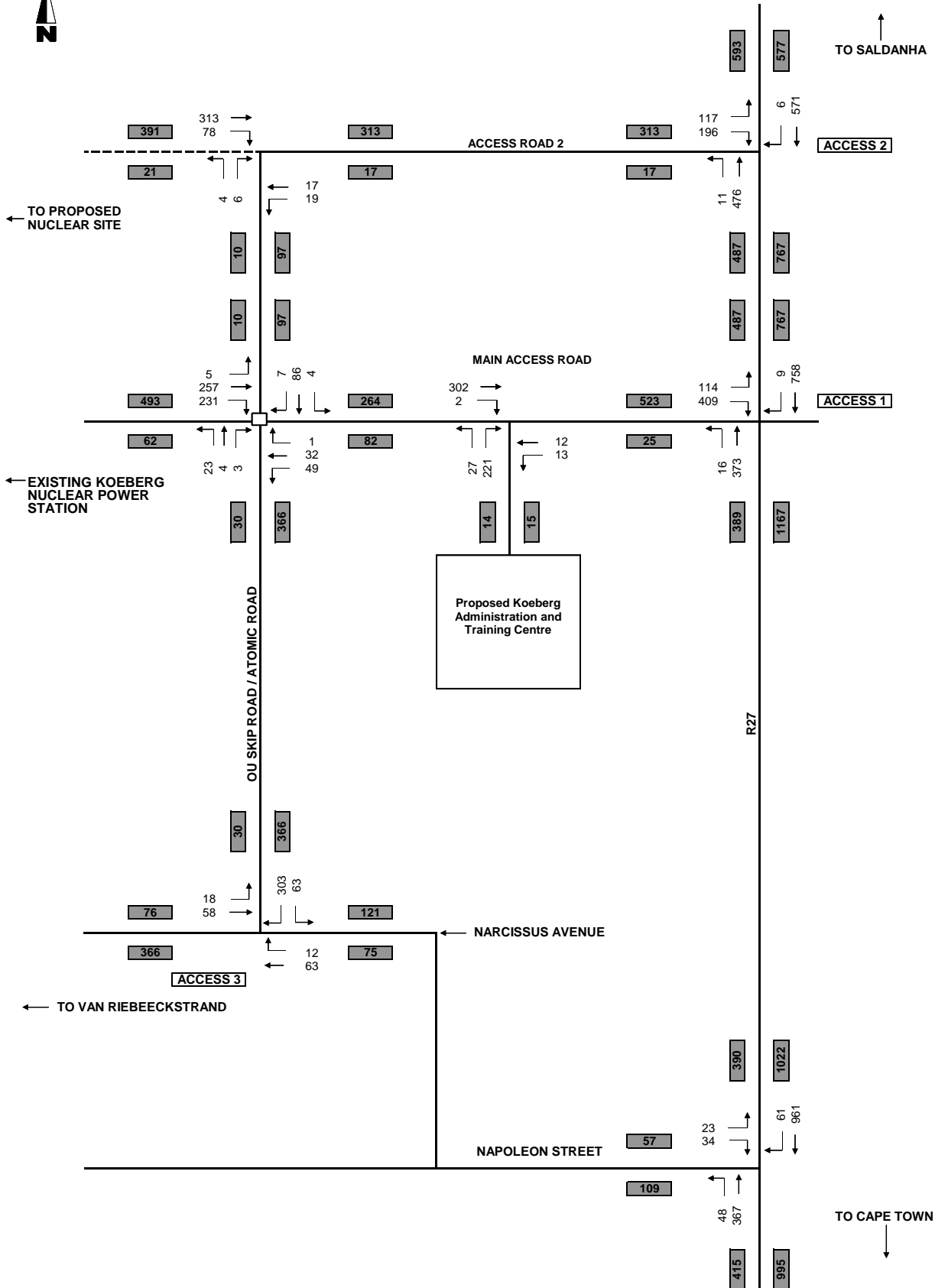
 GIBB ENGINEERING & SCIENCE		
Project No.	Drawing No.	Rev
J27035	A13	





AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project:						
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN						
Detail:		2019 AM PEAK-CONSTRUCTION PHASE TOTAL TRAFFIC				
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A14	

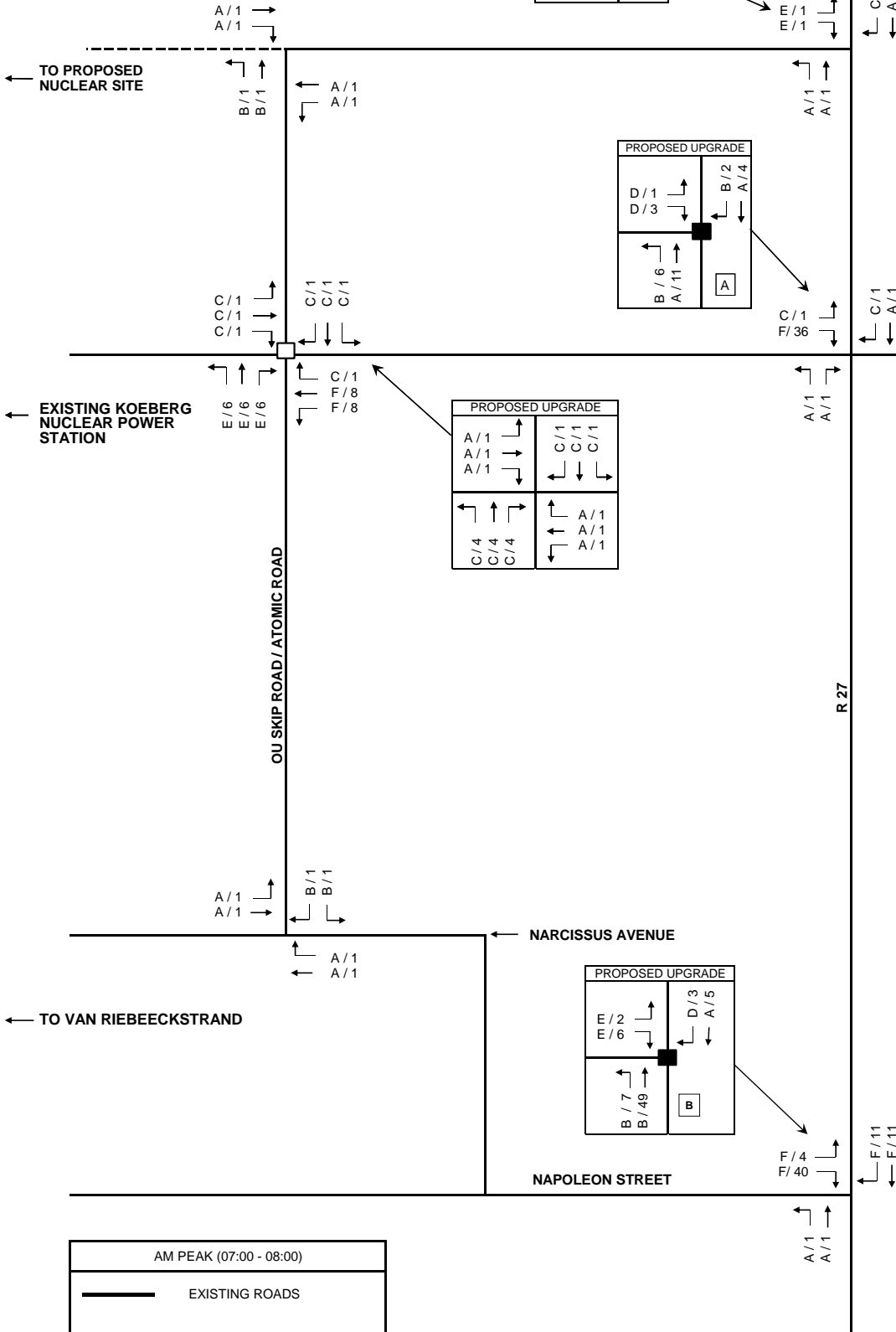


AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ACCESS
	ALL-WAY STOP

Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT DUYNEFONTEIN				
Detail:		2019 PM PEAK-CONSTRUCTION PHASE TOTAL TRAFFIC				
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A15	



↑
TO SALDANHA



AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ROADS
	TRAFFIC SIGNAL
	ALL-WAY STOP
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
	INTERSECTION LOS LOS

Project:						
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT						
DUYNEFONTEIN TRANSPORT IMPACT ASSESSMENT						
Detail:						
2019 AM PEAK - CONSTRUCTION PHASE						
TOTAL TRAFFIC ANALYSIS RESULTS						
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A16	





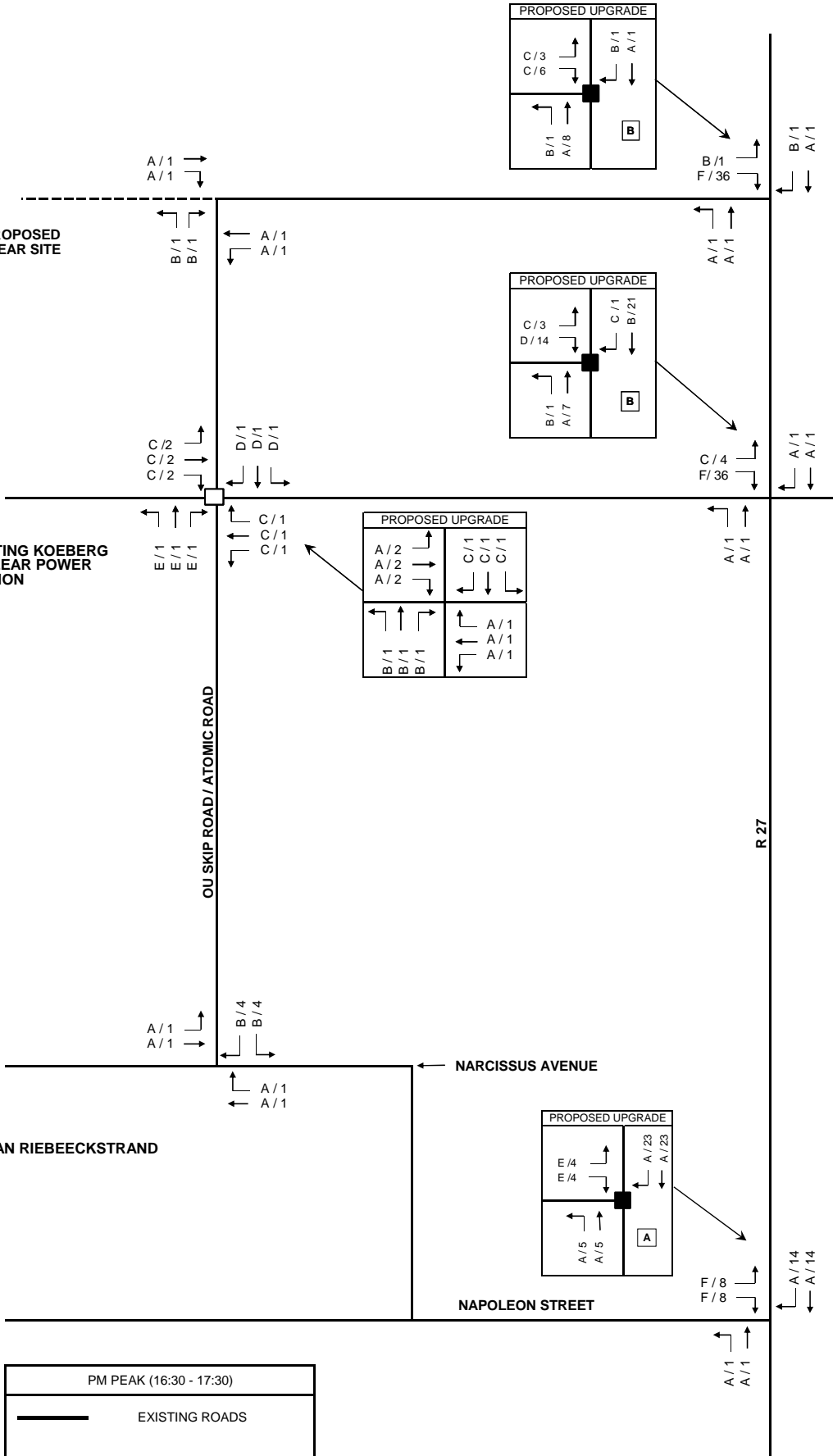
↑ TO SALDANHA

↓ TO CAPE TOWN

← TO PROPOSED NUCLEAR SITE

← EXISTING KOEBERG NUCLEAR POWER STATION

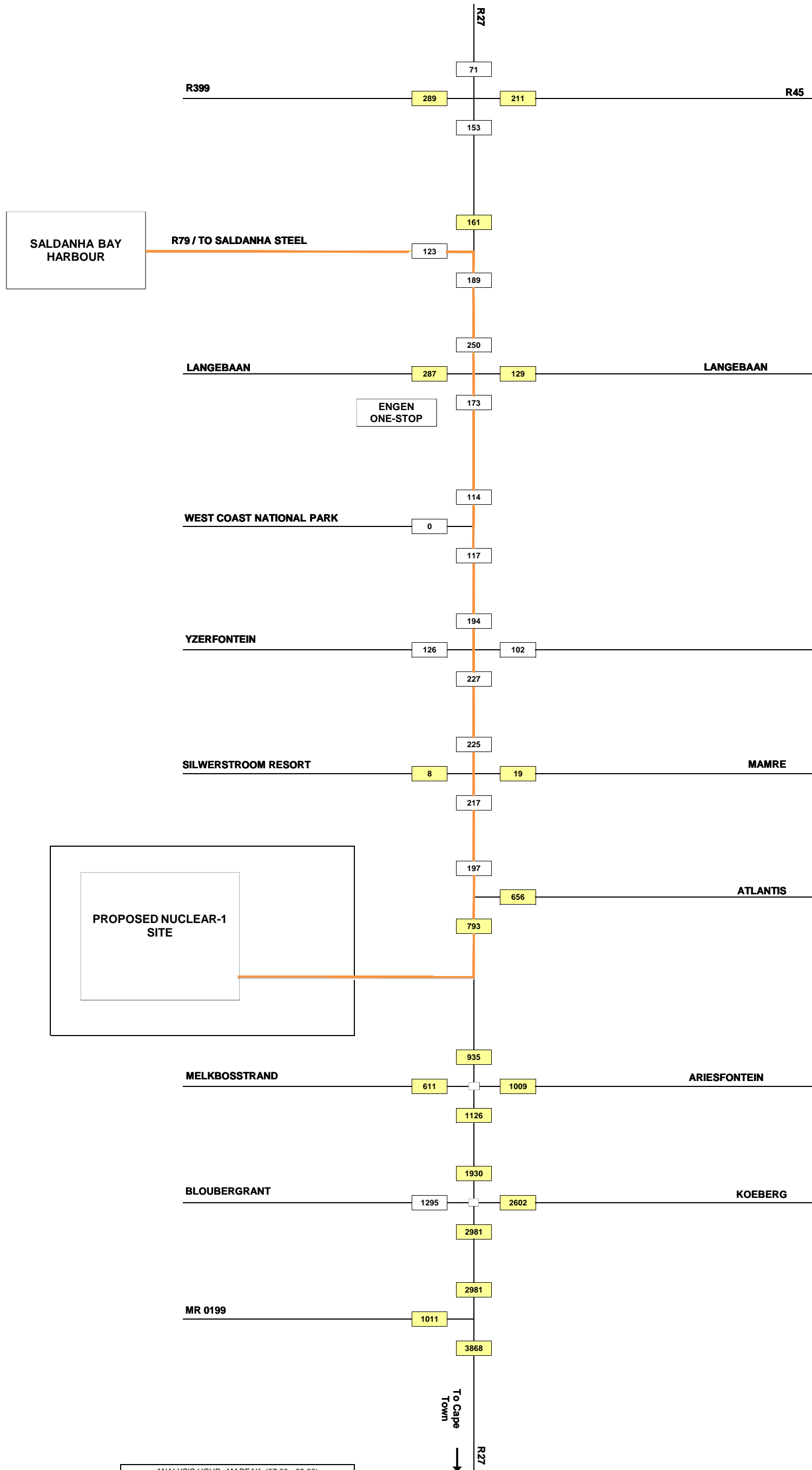
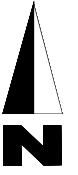
← TO VAN RIEBEECKSTRAND



PM PEAK (16:30 - 17:30)	
	EXISTING ROADS
	PROPOSED ROADS
	TRAFFIC SIGNAL
	ALL-WAY STOP
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
	INTERSECTION LOS

Project:						
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT						
DUYNEFONTEIN TRANSPORT IMPACT ASSESSMENT						
Detail:						
2019 PM PEAK - CONSTRUCTION PHASE						
TOTAL TRAFFIC ANALYSIS RESULTS						
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	A17	

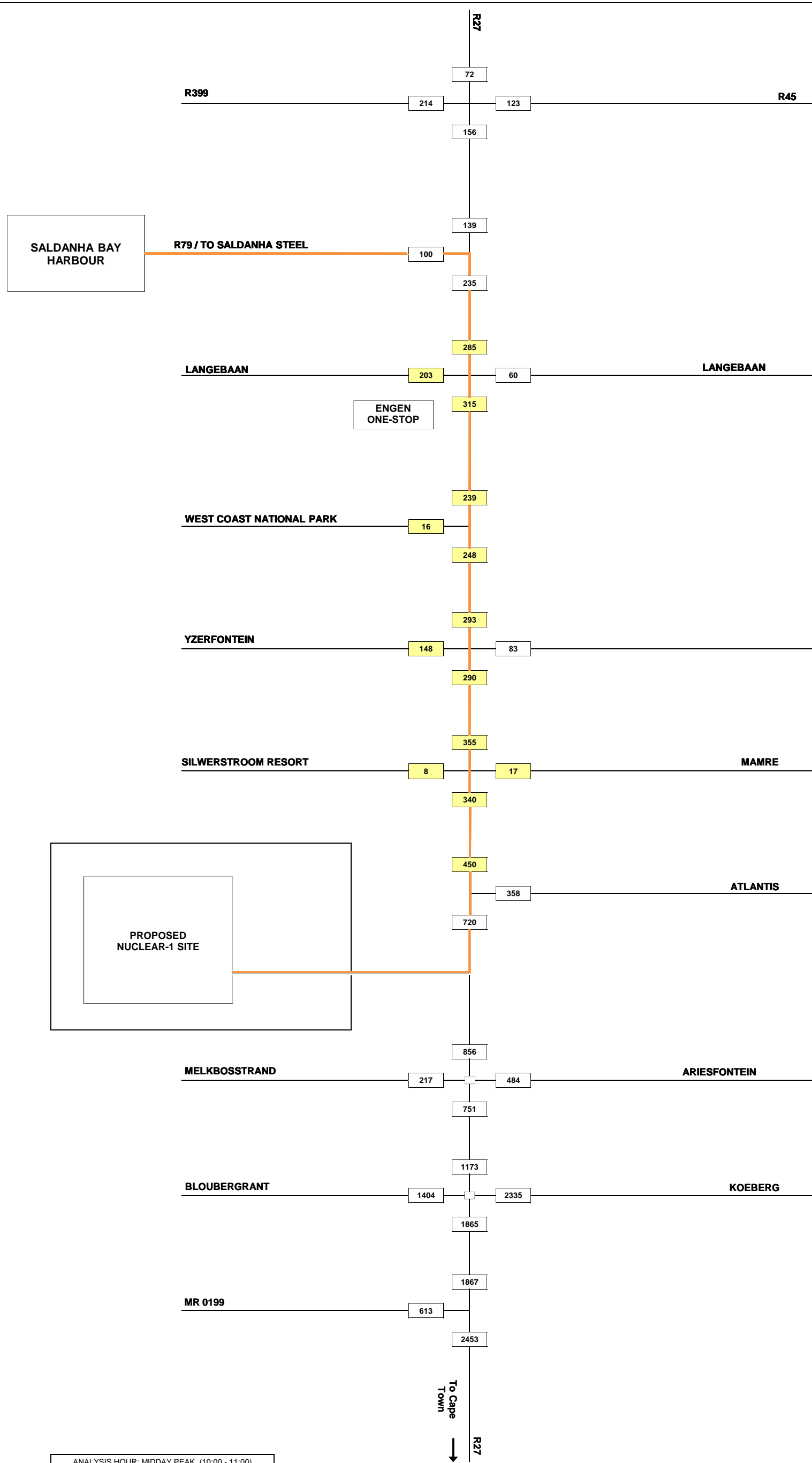
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ANALYSIS HOUR: AM PEAK (07:00 - 08:00)

	EXISTING ROADS
	EXCEPTIONALLY HEAVY LOAD ROUTE
	PROPOSED ROAD
	PEAK HOUR LINK VOLUME
	NON-PEAK HOUR LINK VOLUME
	TRAFFIC SIGNALS

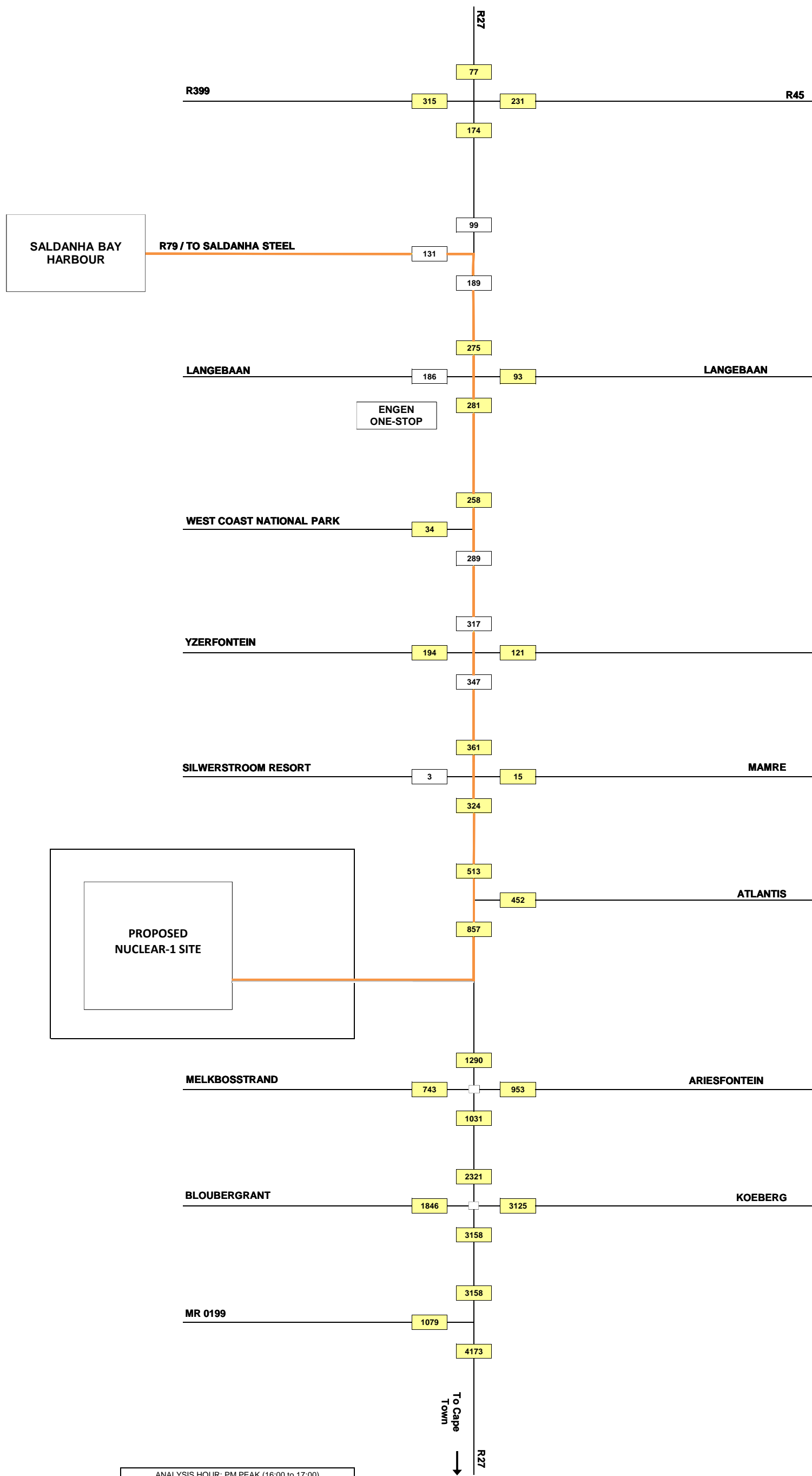
Project: Nuclear 1 : Environmental Impact Assessment Duynefontein Transport Impact Assessment						
Detail: AM TRAFFIC PROFILE ALONG R27 HEAVY LOAD ROUTE						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. A18	Rev



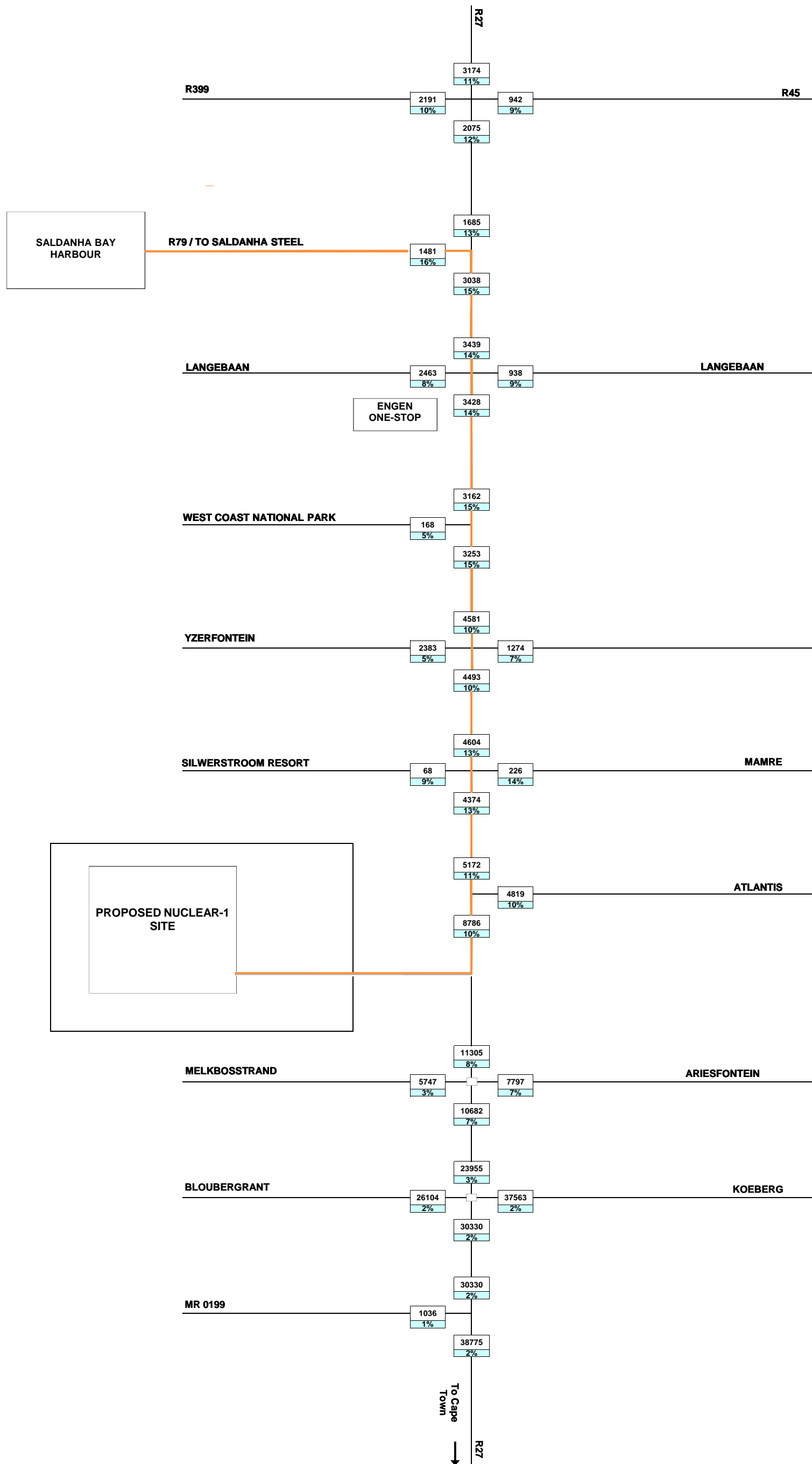
ANALYSIS HOUR: MIDDAY PEAK (10:00 - 11:00)

	EXISTING ROADS
	EXCEPTIONALLY HEAVY LOAD ROUTE
	PROPOSED ROAD
	PEAK HOUR LINK VOLUME
	NON-PEAK HOUR LINK VOLUME
	TRAFFIC SIGNALS

Project: Nuclear 1 : Environmental Impact Assessment Dufnefontein Transport Impact Assessment						
Detail: MIDDAY TRAFFIC PROFILE ALONG R27 HEAVY LOAD ROUTE						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27196	Drawing No. A19	Rev.



Project: Nuclear 1 : Environmental Impact Assessment Durnefontein Transport Impact Assessment						
Detail: PM TRAFFIC PROFILE ALONG R27 HEAVY LOAD ROUTE						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No.: J27196	Drawing No.: A20	Rev:



LEGEND	
	EXISTING ROADS
	AVERAGE ANNUAL DAILY TRAFFIC
	PERCENTAGE HEAVY VEHICLES
	EXCEPTIONALLY HEAVY LOAD ROUTE

Percentage Heavy Vehicles = **10%**

Project: Nuclear 1 : Environmental Impact Assessment Dunefontein Transport Impact Assessment						
Detail: WHOLE DAY TRAFFIC PROFILE ALONG R27 HEAVY LOAD ROUTE						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No.: J27196	Drawing No.: A21	Rev:

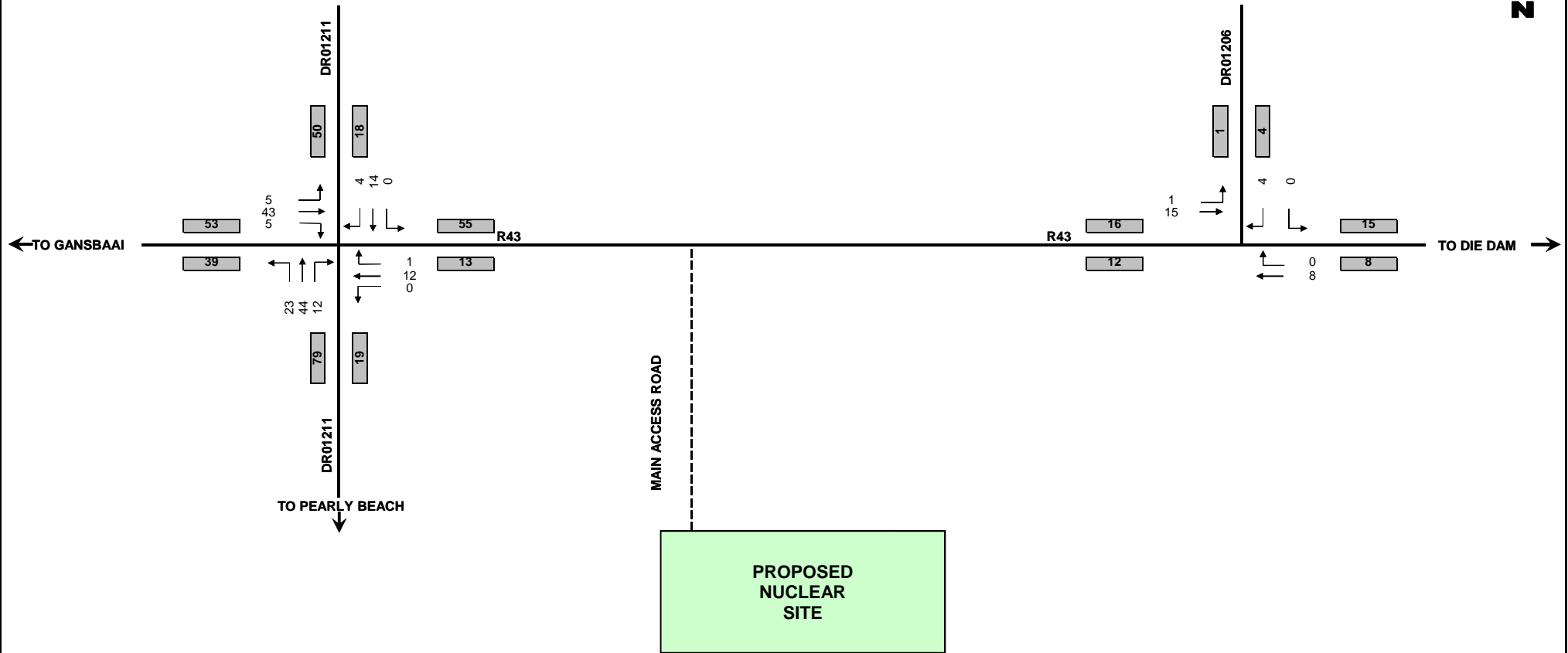
Annexure A22: Operational Phase Trip Generation (Duynefontein)


Land Use Type	Total Staff (No)	Directional Percentage of Shift Staff Travelling in Peak hour				Total Peak Person Trips Generated						Mode of Transport				Total Private Vehicle Trips Generated						Total Taxi Trips Generated						Total Bus Trips Generated						Total Vehicle Trips Generated					
		AM Peak		PM Peak		AM Peak			PM Peak			Private Transport	Public Transport			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak		
		In (Shift 2)	Out (Shift 1)	In (Shift 3)	Out (Shift 2)	In	Out	Total	In	Out	Total		Taxi	Bus	Rail	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total			
Duynefontein: Nuclear Operational Phase	1300	30%	30%	30%	50%	234	59	293	98	390	488	70%	10%	20%	0%	66	16	82	27	109	137	2	0	2	1	3	3	1	0	1	0	1	2	68	17	85	28	113	141
TOTAL	1300					234	59	293	98	390	488					66	16	82	27	109	137	2	0	2	1	3	3	1	0	1	0	1	2	68	17	85	28	113	141

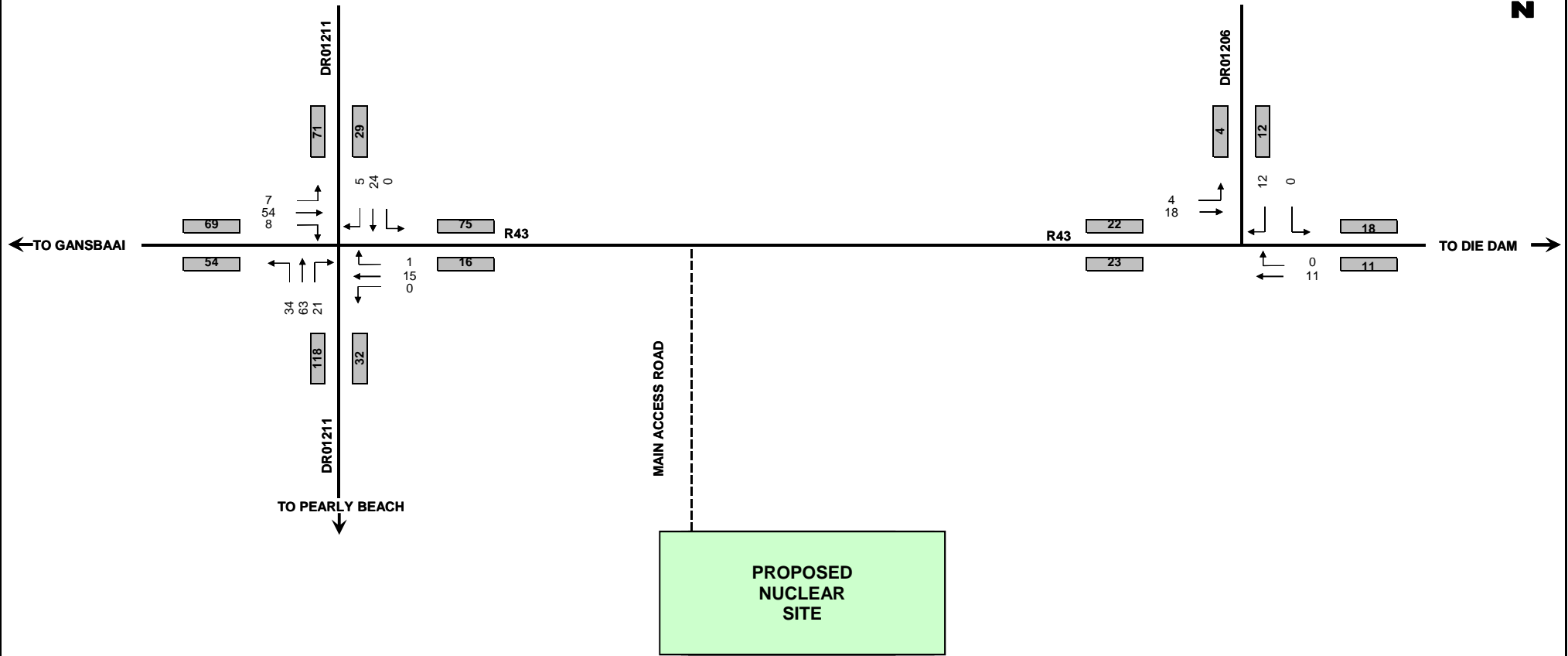
Shift	% Staff per shift	No. Staff per shift
Shift 1	15%	195
Shift 2	60%	780
Shift 3	25%	325
Total	100%	1300

Mode of Transport	Average Occupancy	Capacity
Private Vehicle	2.5	5
Taxi	15	15
Bus	60	60

Annexure B



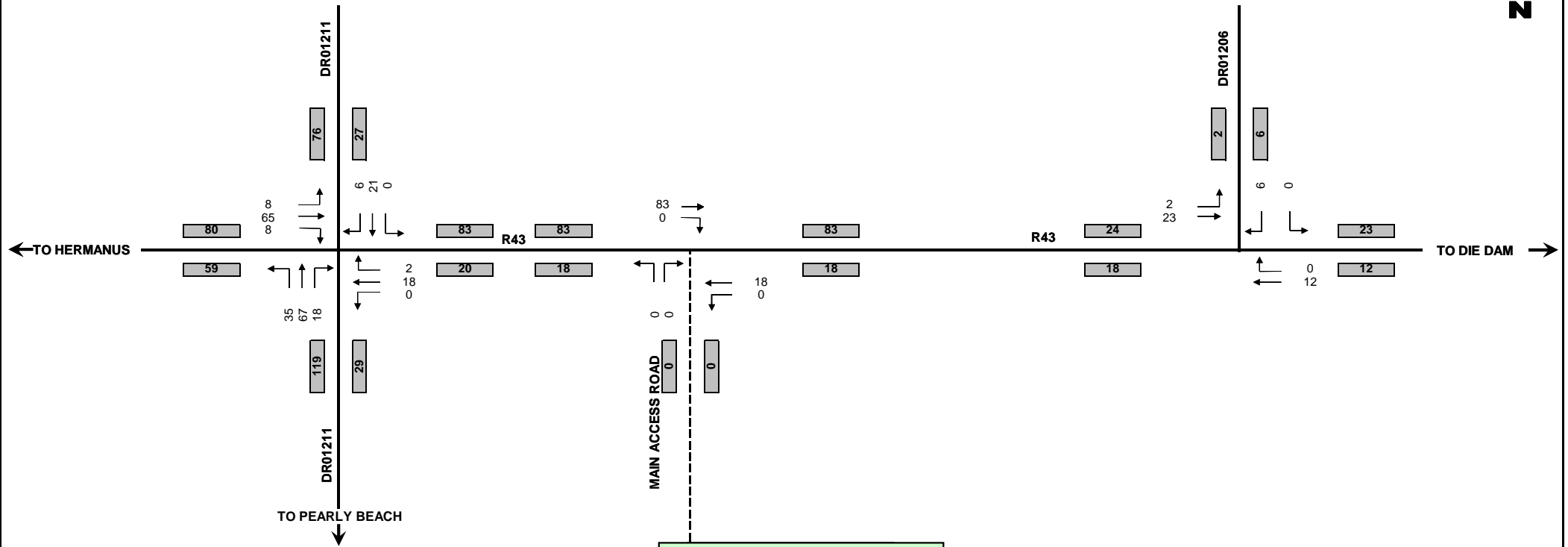
Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP				
Detail:		2007 AM Peak - Background Traffic				
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev.
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	B1	



PM PEAK (16:00 - 17:00)	
————	EXISTING ROADS
- - - - -	PROPOSED ROAD

Project:			NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP		
Detail:			2007 PM Peak - Background Traffic		
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	B2
			Rev.		

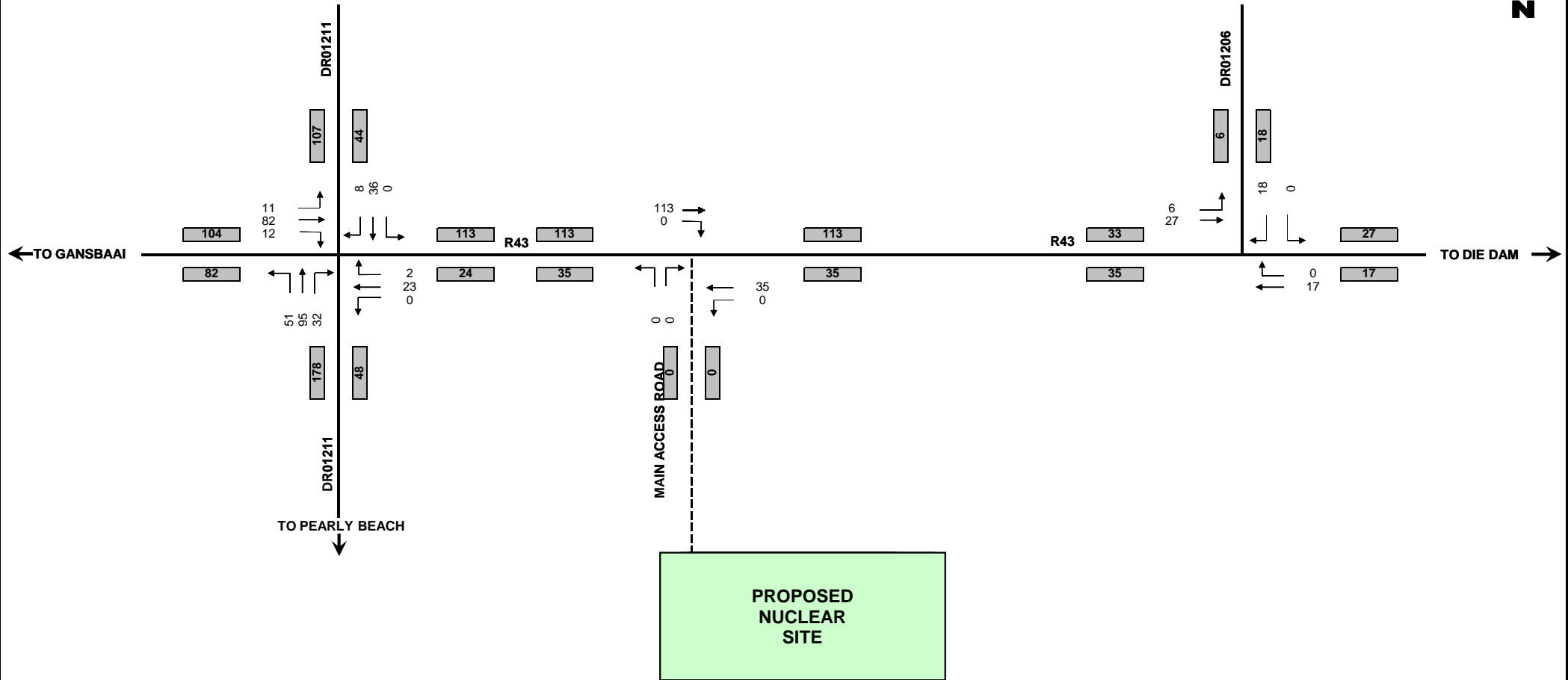





**PROPOSED
NUCLEAR
SITE**

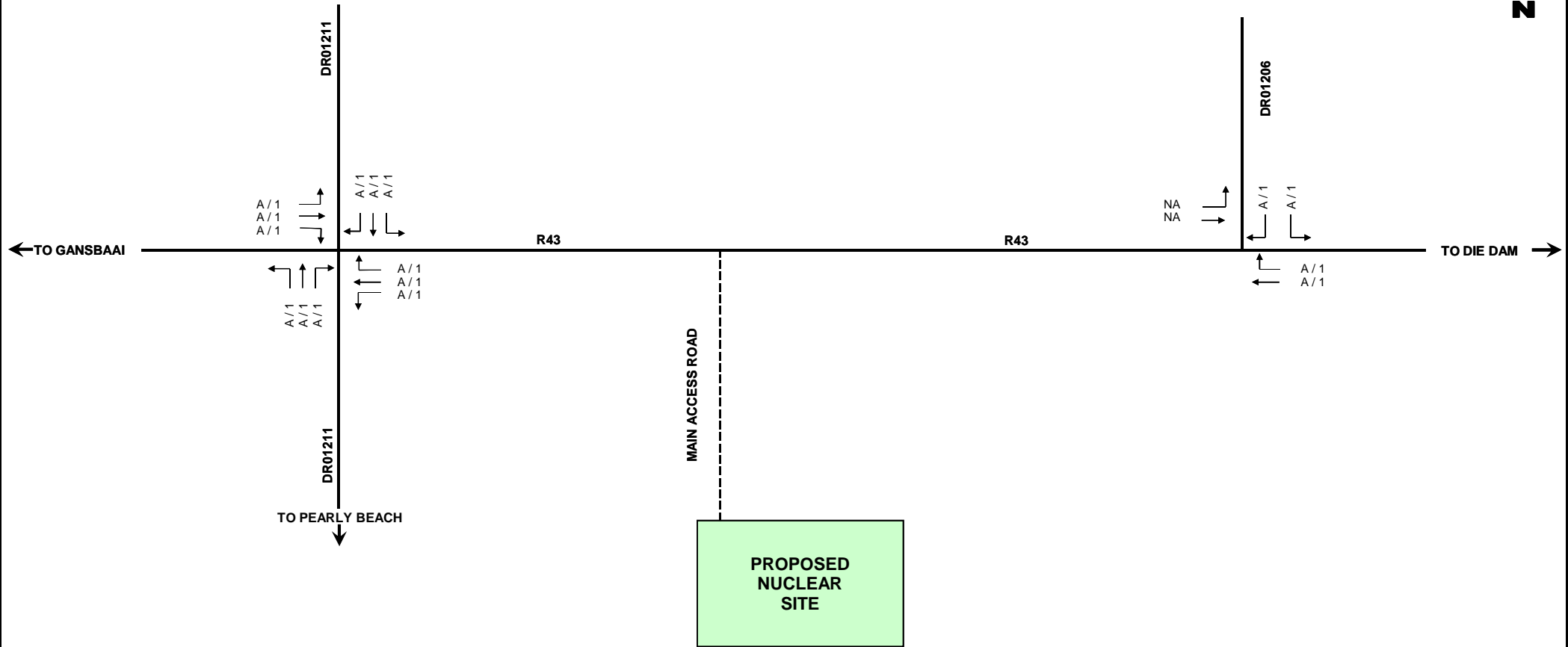
AM PEAK (08:00 - 09:00)	
	EXISTING ROADS
	PROPOSED ROAD




Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: 2023 AM Peak - Background Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B3	Rev.




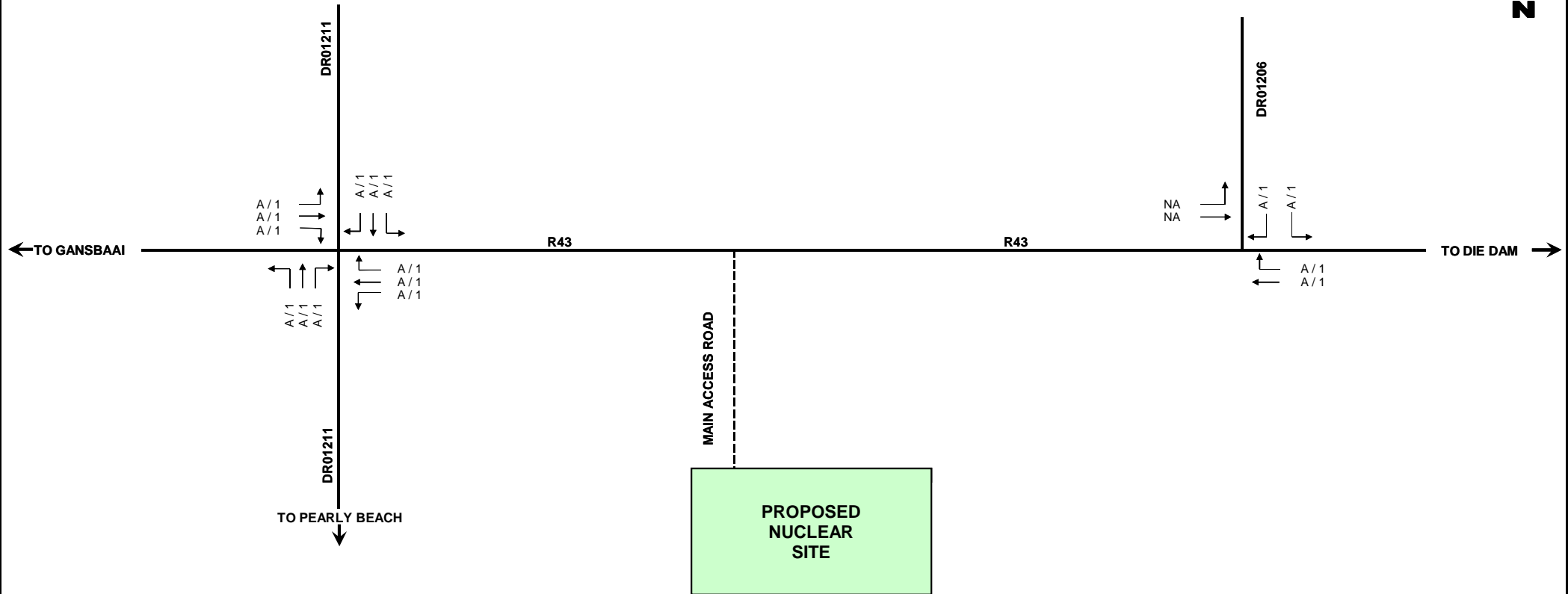
PM PEAK (16:00 - 17:00)	
———	EXISTING ROADS
- - - - -	PROPOSED ROAD

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: 2023 PM Peak - Background Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B4	Rev.



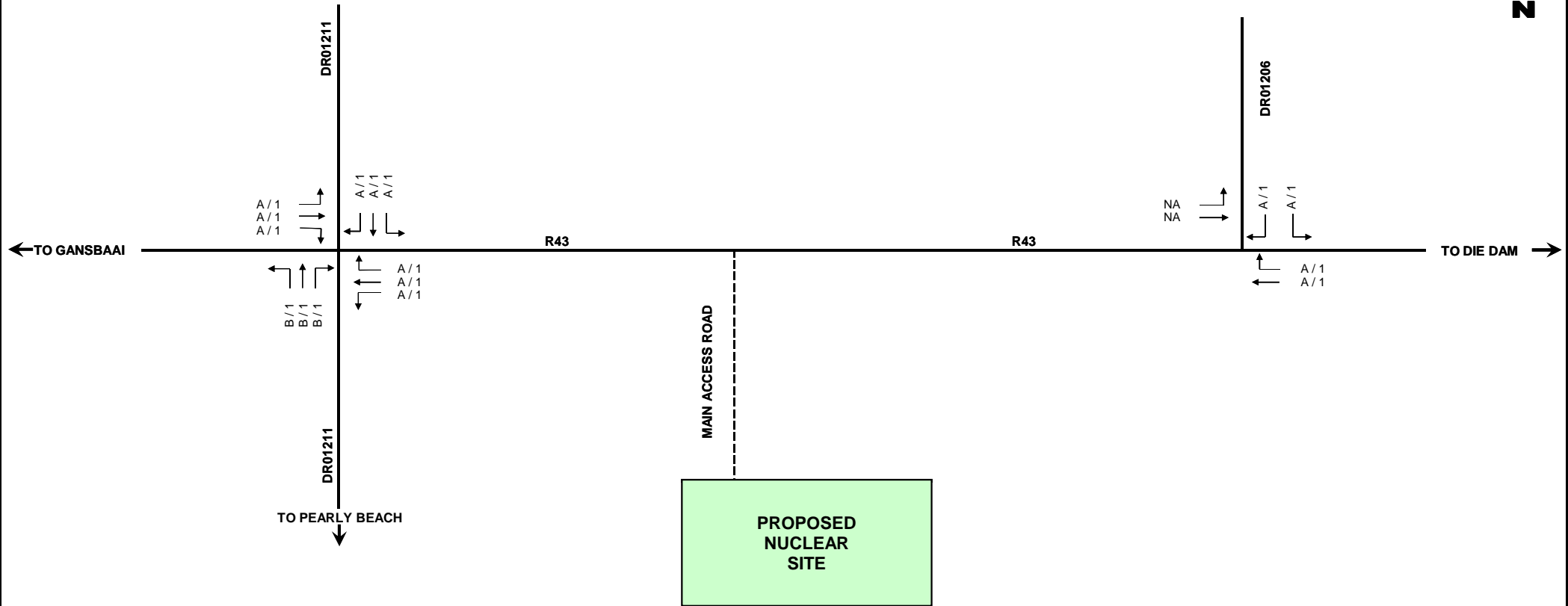
AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
	INTERSECTION LOS




Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: Analysis Results - 2007 AM Peak - Background Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B5	Rev.




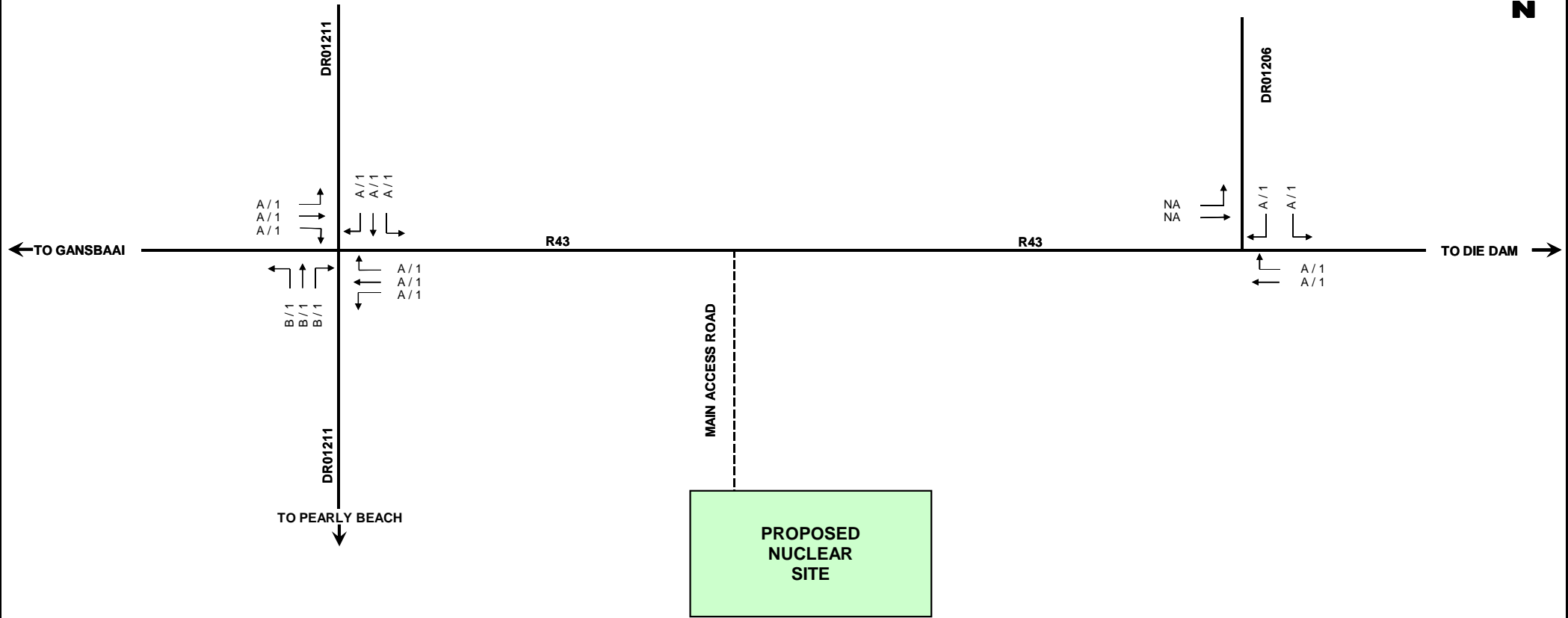
PM PEAK (16:00 - 17:00)	
	EXISTING ROADS
	TRAFFIC SIGNAL
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
	INTERSECTION LOS

Project:						
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail:				Analysis Results - 2007 PM Peak - Background Traffic		
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev.
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	B6	



AM PEAK (07:00 - 08:00)	
	EXISTING ROADS
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
	INTERSECTION LOS

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: Analysis Results - 2023 AM Peak - Background Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B7	Rev.

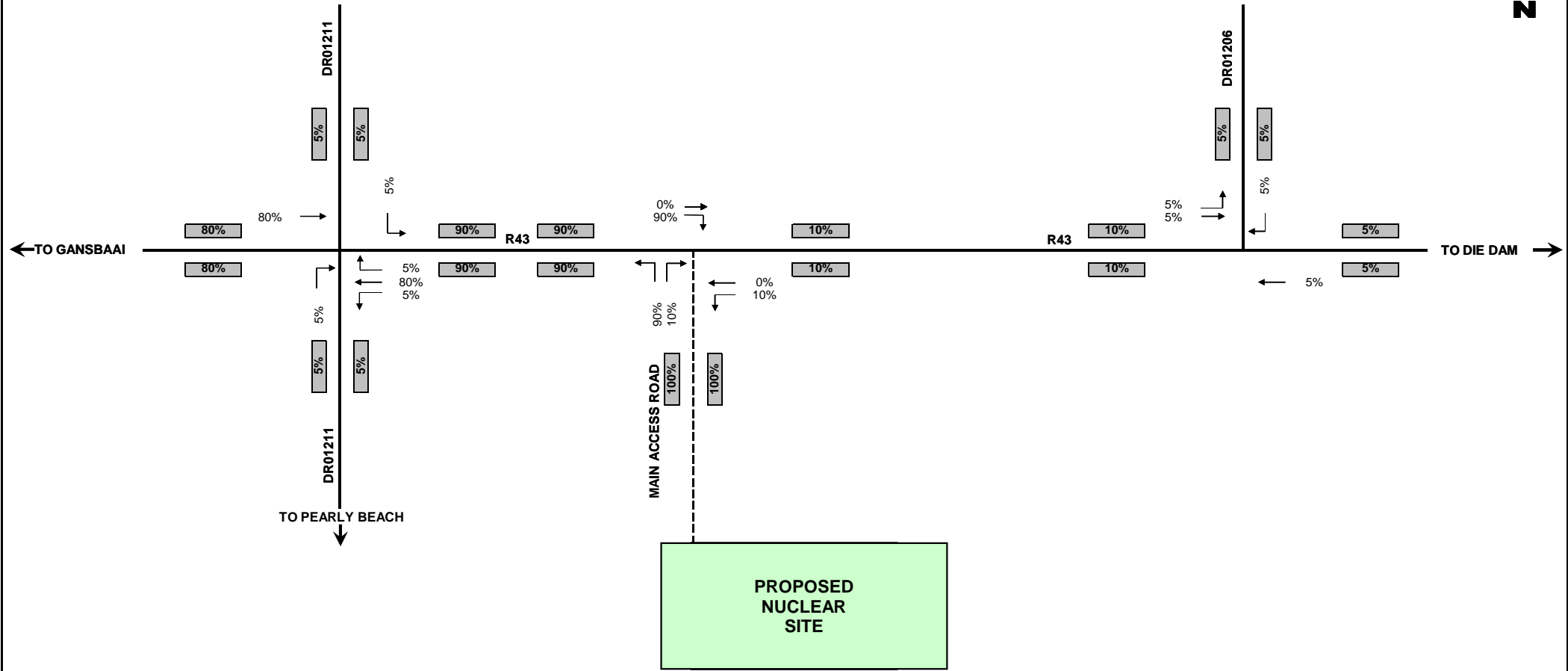


PM PEAK (16:00 - 17:00)	
	EXISTING ROADS
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
	INTERSECTION LOS

Project:						
NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail:				Analysis Results - 2023 PM Peak - Background Traffic		
Prepared by:	Checked by:	Reviewed by:	Date:	Project No.	Drawing No.	Rev.
P. Mvinjelwa	S. Chow	A. Bulman	Jan-12	J27035	B8	

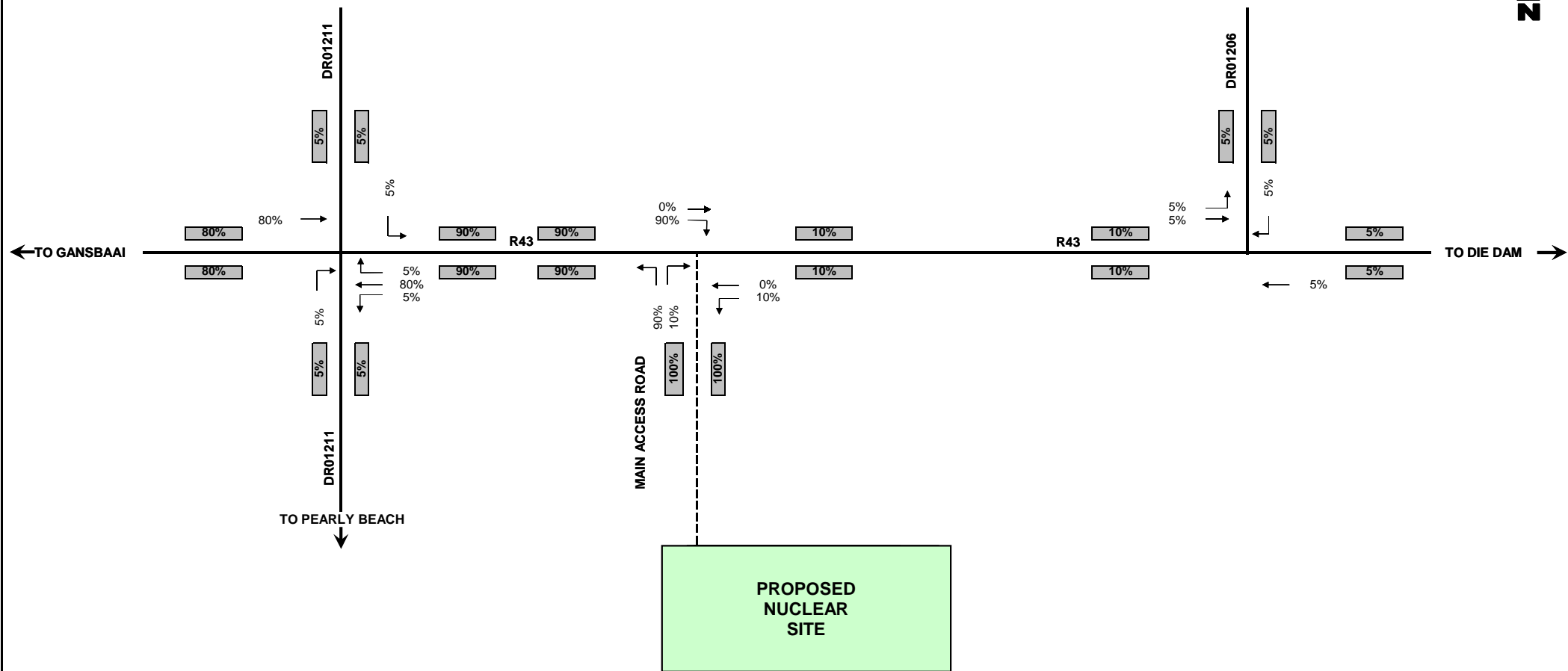
Annexure B9: Bantamskip Construction Phase Yearly Traffic

Description	Unit	Volume	Load	Number of loads	Estimated Daily Transport Distribution									
					1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	
					Vendor staff / day									
General worker numbers					90	200	230	1000	3800	4150	2110	650	0	
Buses vendor general workers	person	4 150	60	69	w	2	4	4	17	64	70	36	11	0
Vendor staff numbers					55	130	150	460	1550	1895	1000	505	20	
Vendor staff vehicles		1 980	5	396	e	11	26	30	92	310	379	200	101	4
Total vendor				465		13	30	34	109	374	449	236	112	4
Eskom staff / day														
Project staff numbers					40	50	70	120	140	140	140	80	10	
Cars (Project staff)	person	220	2.00	110	e	20	25	35	60	70	70	40	5	
Operational staff numbers					10	10	100	250	550	950	1250	1350	1350	
Buses (Operational staff)	person	800	20	40	e	1	1	1	4	10	19	29	31	31
Cars (Operational staff)	person	550	1.30	423	e	7	7	62	145	275	439	529	572	572
Total Eskom				573		28	33	98	209	355	528	628	643	608
Waste and Spoil (Totals for power station construction)														
Estimated Annual Transport Distribution														
Sand spoil (20m-8m)	m³	6 372 044			w	25 488	19 116	19 116						
Spoil for HV yard	m³	637 204	10	63 720	w									
Spoil pumped to sea	m³	5 734 840												
Rock from excavation	m³	671 071												
Rock to HV yard	m³	134 214	10	13 421	w	5 369	4 026	4 026						
Rock used on site	m³	335 536												
Rock transport outside site	m³	201 321	10	20 132	w	8 053	6 040	6 040						
Rock from outlet tunnel	m³	12 428	10	1 243	w		249	497	373	124				
Rock from inlet tunnel	m³	37 285	10	3 729	w		746	1 491	1 119	373				
Waste	m³	15 000	10	1 500	w	75	150	225	300	375	300	100	150	150
Construction Resources														
Bricks	ea	3 750 000	5 000	750	w	75	150	150	150	150	75			
Finished Concrete	m³	795 320												
Concrete aggregate	m³	596 490	10	59 649	w		5 965	11 930	11 930	11 930	11 930	5 965		
Concrete fines	m³	397 660	10	39 766	w		3 977	7 953	7 953	7 953	7 953	3 977		
Cement	t	357 894	10	35 789	e		3 579	7 158	7 158	7 158	7 158	3 579		
Concrete reinforcing	t	6 766	20	338	e		34	68	68	68	68	34		
Structural steel	t	1 299	20	65	e		6	13	13	13	13	6		
Small bore pipe	m	12 836	200	64	e		6	13	13	13	13	6		
LB Pipe	m	163 914	50	3 278	e		328	656	656	656	656	328		
Conduit	m	381 256	5 000	76	e		8	15	15	15	15	8		
Cable	m	906 884	1 800	504	e		50	101	101	101	101	50		
Terminations	ea	22 025		100	e		10	20	20	20	20	10		
Light delivery vehicles	ea	80 000	1	80 000	e	4 000	4 000	16 000	16 000	16 000	16 000	10 000	10 000	10 000
Ultra heavy loads (x > 100t)	ea	63		63	e		6	13	13	13	13	6		
Heavy loads (10t < x > 100t)	ea	201		201	e		20	40	40	40	40	20		
Equipment	ea	6 000		6 000	e		600	1 200	1 200	1 200	1 200	600		
Total annual construction vehicles						43 060	49 066	76 725	47 120	46 201	45 554	24 689	10 150	10 150
Total daily construction vehicles						190	216	338	208	204	201	109	45	45
LIFECYCLE TRAFFIC (ONE WAY)														
Vehicles per annum				246 202		58 025	72 061	124 905	163 190	312 286	402 159	340 049	285 725	233 530
Vehicles per month						4 835	6 005	10 409	13 599	26 024	33 513	28 337	23 810	19 461
Total Traffic per working day (Construction and staff)						159	198	342	447	856	1 102	932	783	640
Totals if all external material deliveries are transported via eastern access road														
Estimated vehicle numbers / day through eastern access						40	68	165	295	568	750	661	585	486
Estimated vehicle numbers / day through northern / western access						119	130	177	152	288	353	271	198	154
Totals if all external material deliveries are transported via western access road														
Estimated vehicle numbers / day through eastern access						29	46	99	229	502	684	623	558	459
Estimated vehicle numbers / day through northern / western access						130	152	243	218	354	419	309	225	181



AM PEAK (06:00 - 07:00)	
————	EXISTING ROADS
- - - - -	PROPOSED ROAD

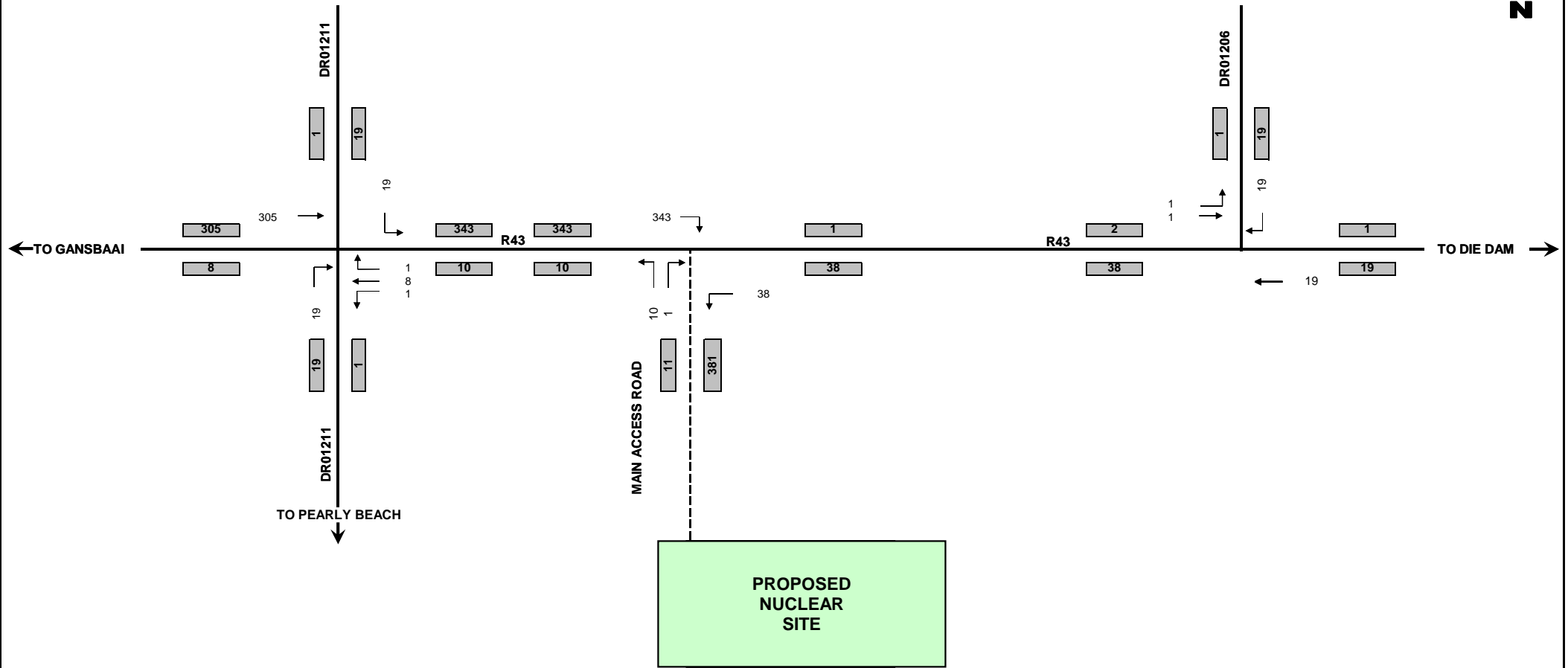
Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: AM Peak - Construction Phase % Distribution						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B10	Rev.



PM PEAK (16:00 - 17:00)	
————	EXISTING ROADS
- - - - -	PROPOSED ROAD

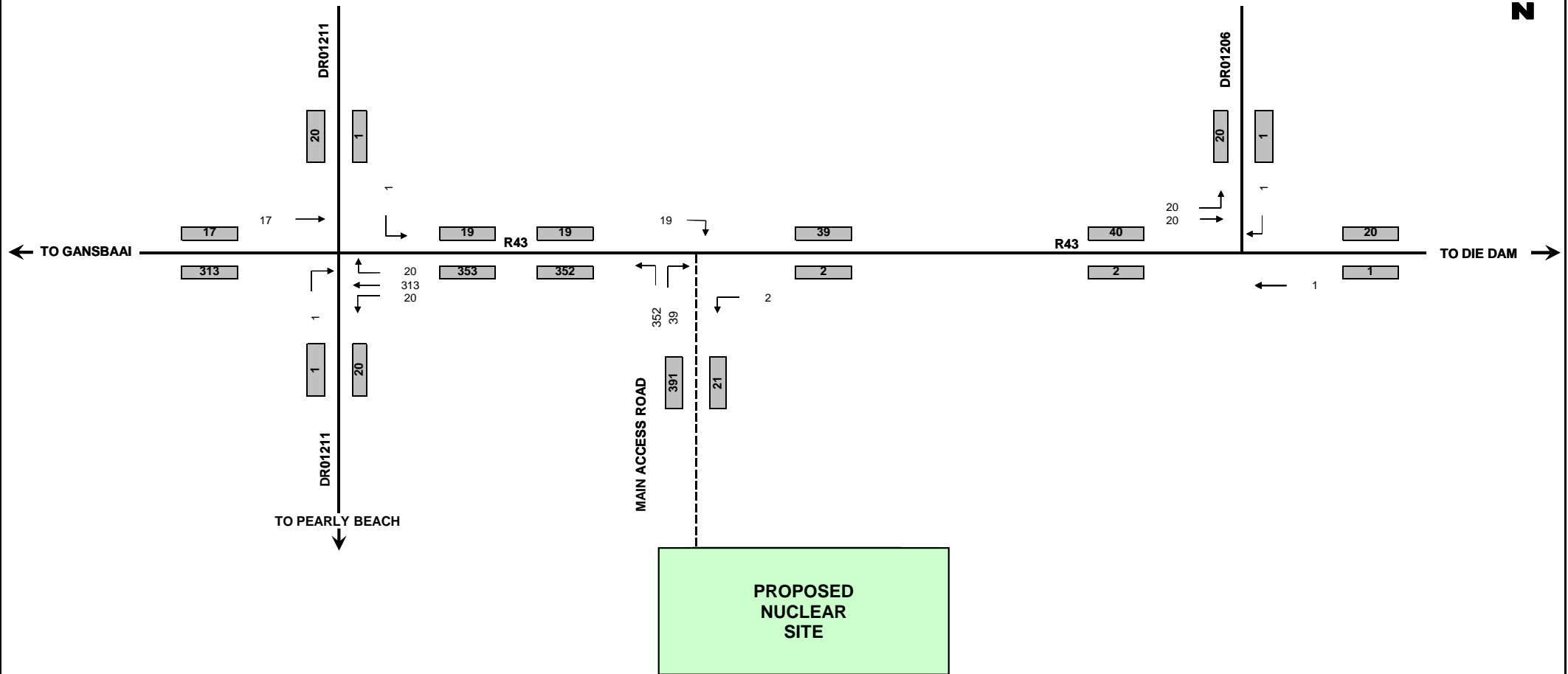
Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: PM Peak - Construction Phase % Distribution						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B11	Rev.





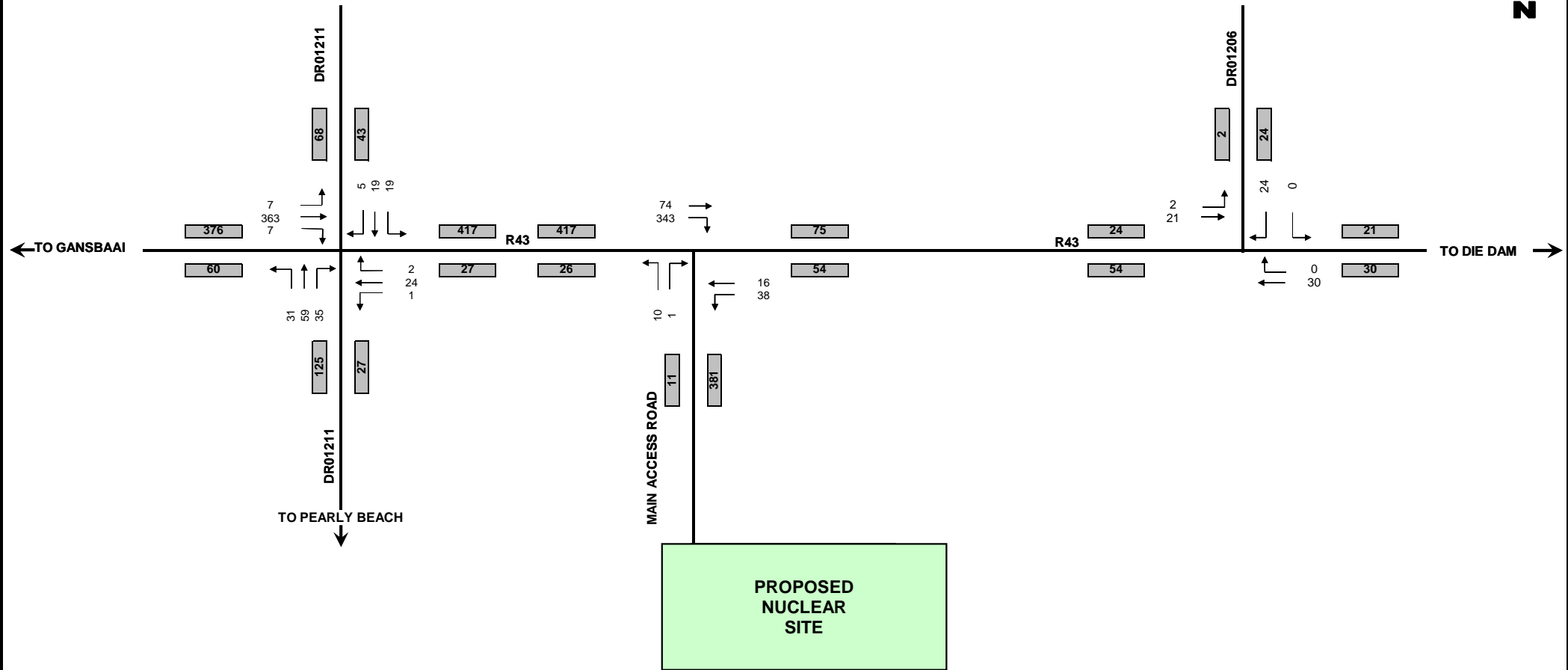
AM PEAK (06:00 - 07:00)	
	EXISTING ROADS
	PROPOSED ROAD

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: AM Peak - Construction Phase Generated Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B12	Rev.



PM Peak (16:00 - 17:00)	
	EXISTING ROADS
	PROPOSED ROAD

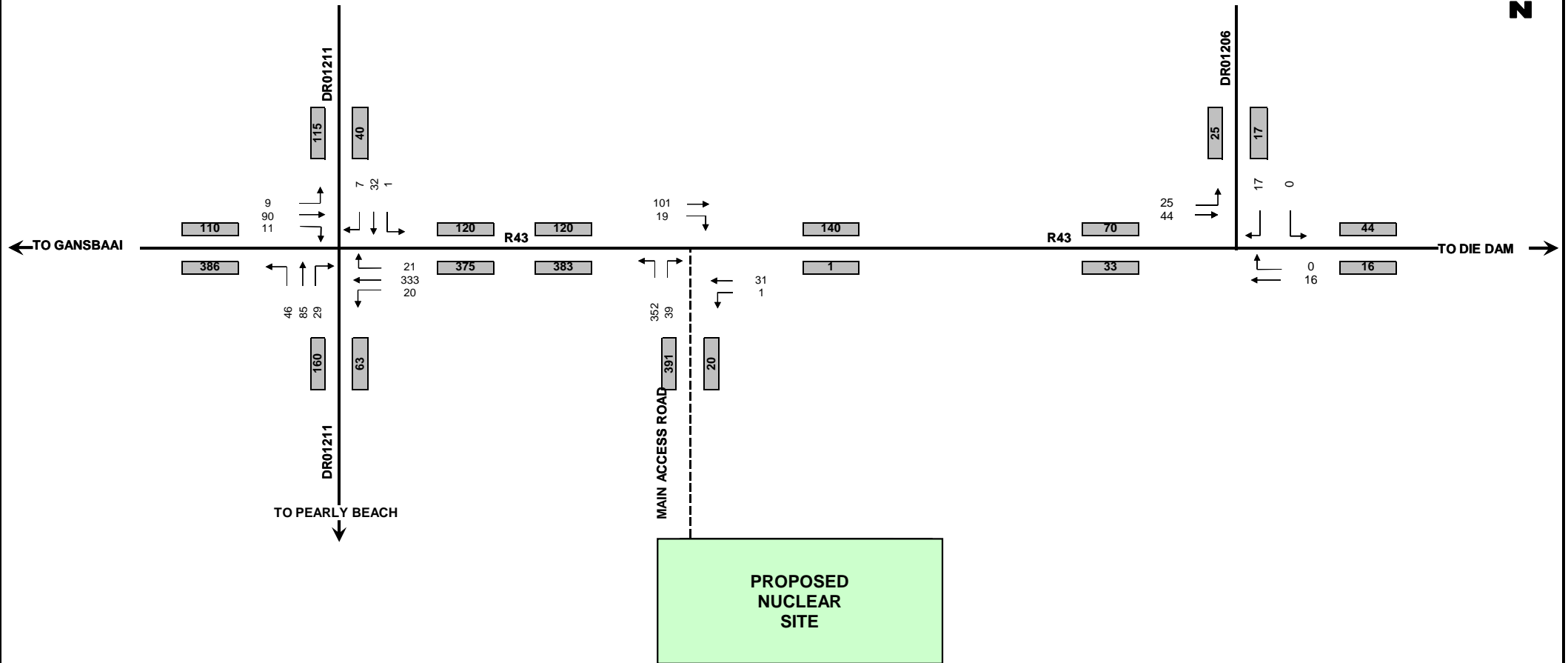
Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: PM Peak - Construction Phase Generated Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B13	Rev.



AM PEAK (06:00 - 07:00)	
	EXISTING ROADS
	PROPOSED ROAD

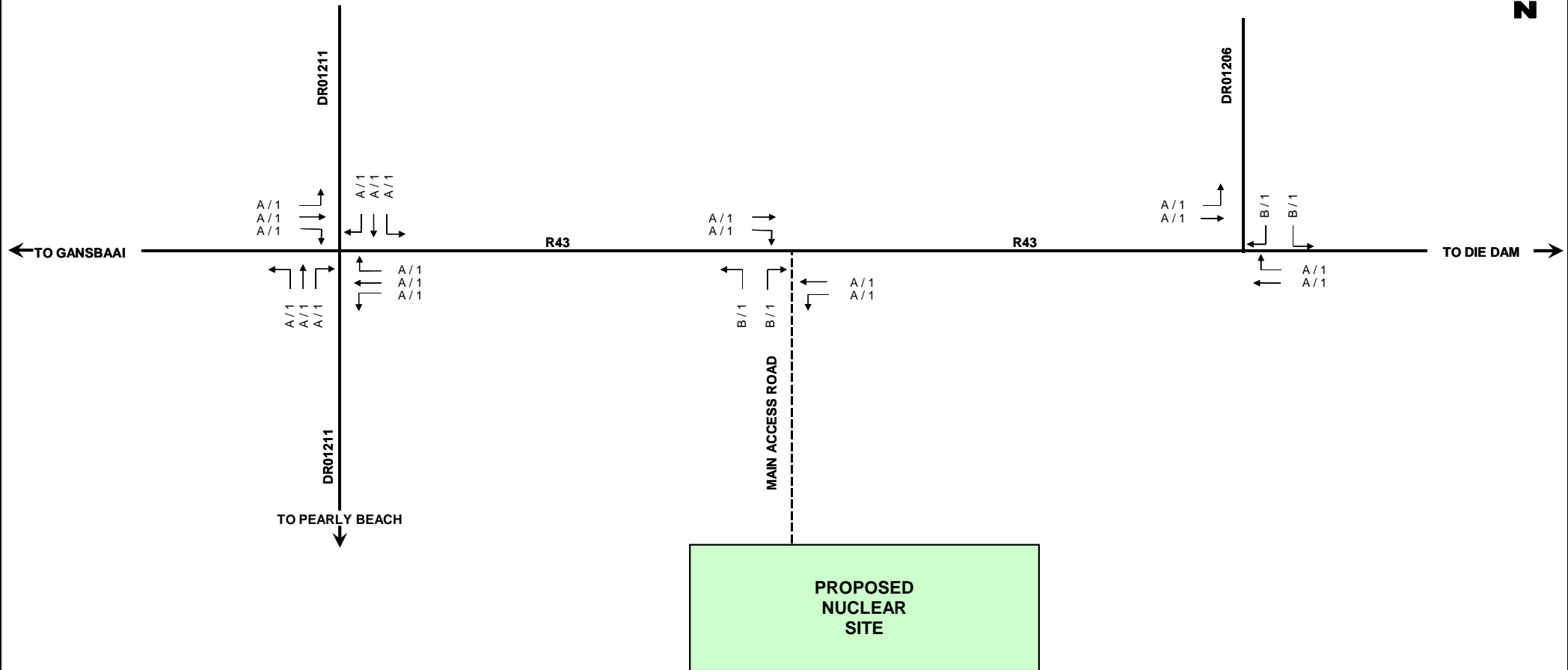
Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: 2019 AM Peak Construction Total Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B14	Rev.





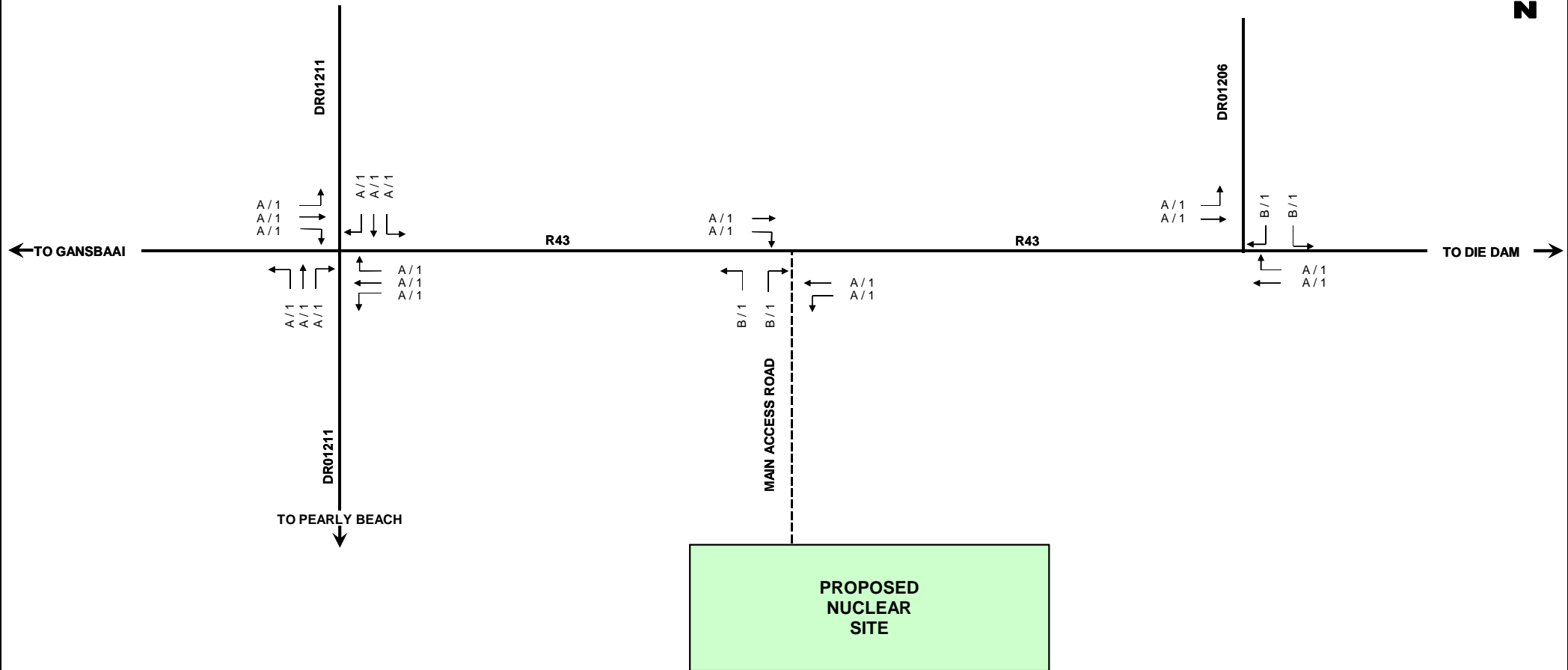
PM PEAK (16:00 - 17:00)	
	EXISTING ROADS
	PROPOSED ROAD

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: 2019 PM Peak Construction Total Traffic						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B15	Rev.



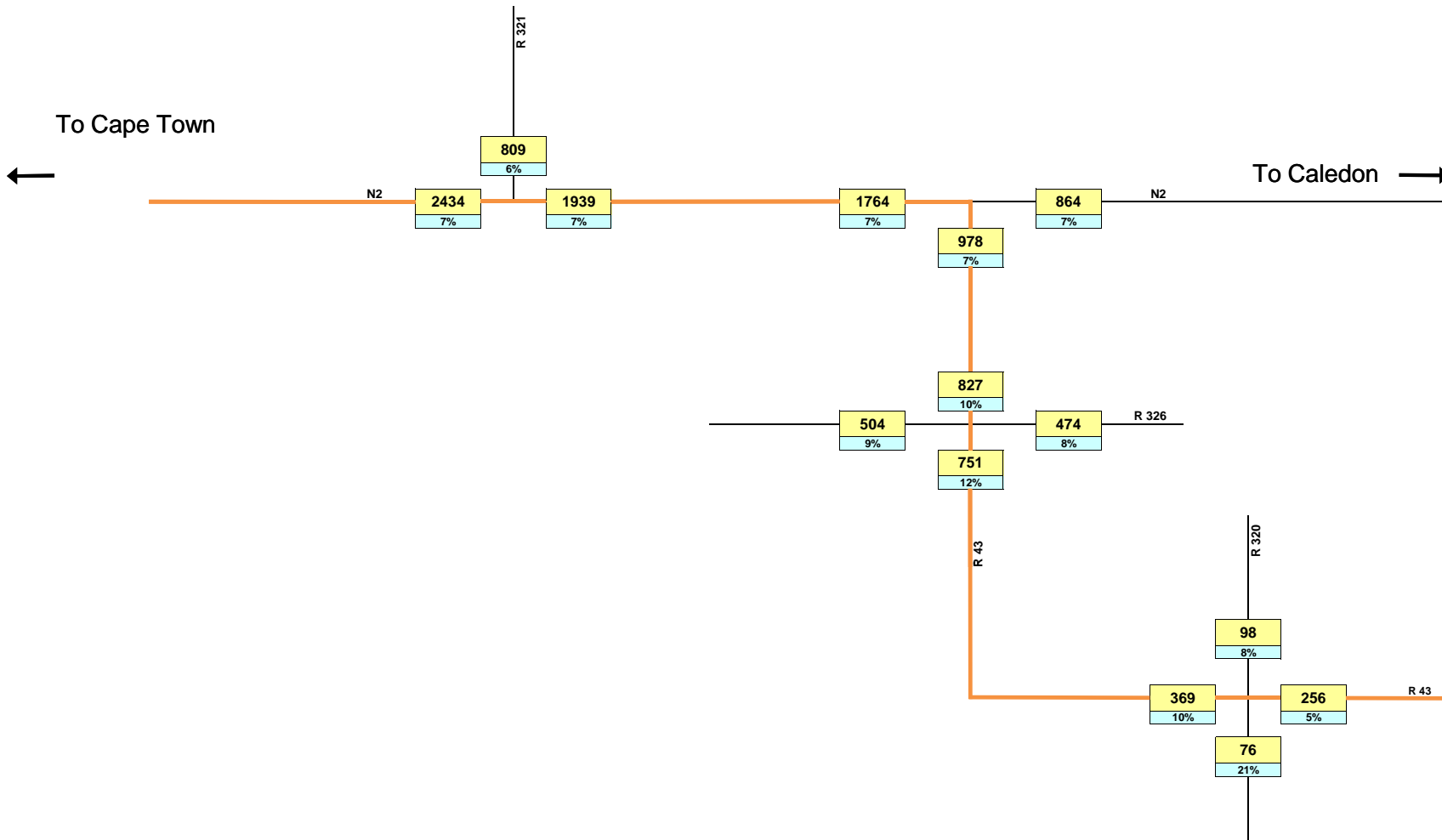
AM PEAK (06:00 - 07:00)	
	EXISTING ROADS
	PROPOSED ROADS
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
	INTERSECTION LOS

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: Analysis Results - 2019 AM Peak - Construction Phase						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B16	Rev.



AM PEAK (16:00 - 17:00)	
	EXISTING ROADS
	PROPOSED ROADS
A / 1	LOS / 95TH PERCENTILE QUEUE
	INTERSECTION LOS

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP						
Detail: Analysis Results - 2019 PM Peak - Construction Phase						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B17	Rev.



LEGEND	
	EXISTING ROADS
200	AVERAGE ANNUAL DAILY TRAFFIC
	PERCENTAGE HEAVY VEHICLES
	PROPOSED ROAD
	EXCEPTIONALLY HEAVY LOAD ROUTE

Percentage Heavy Vehicles = 9%

Project: NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT BANTAMSKLIP TRANSPORT IMPACT ASSESSMENT						
Detail: WHOLE DAY TRAFFIC PROFILE ALONG HEAVY LOAD ROUTE						
Prepared by: P. Mvinjelwa	Checked by: S. Chow	Reviewed by: A. Bulman	Date: Jan-12	Project No. J27035	Drawing No. B18	Rev

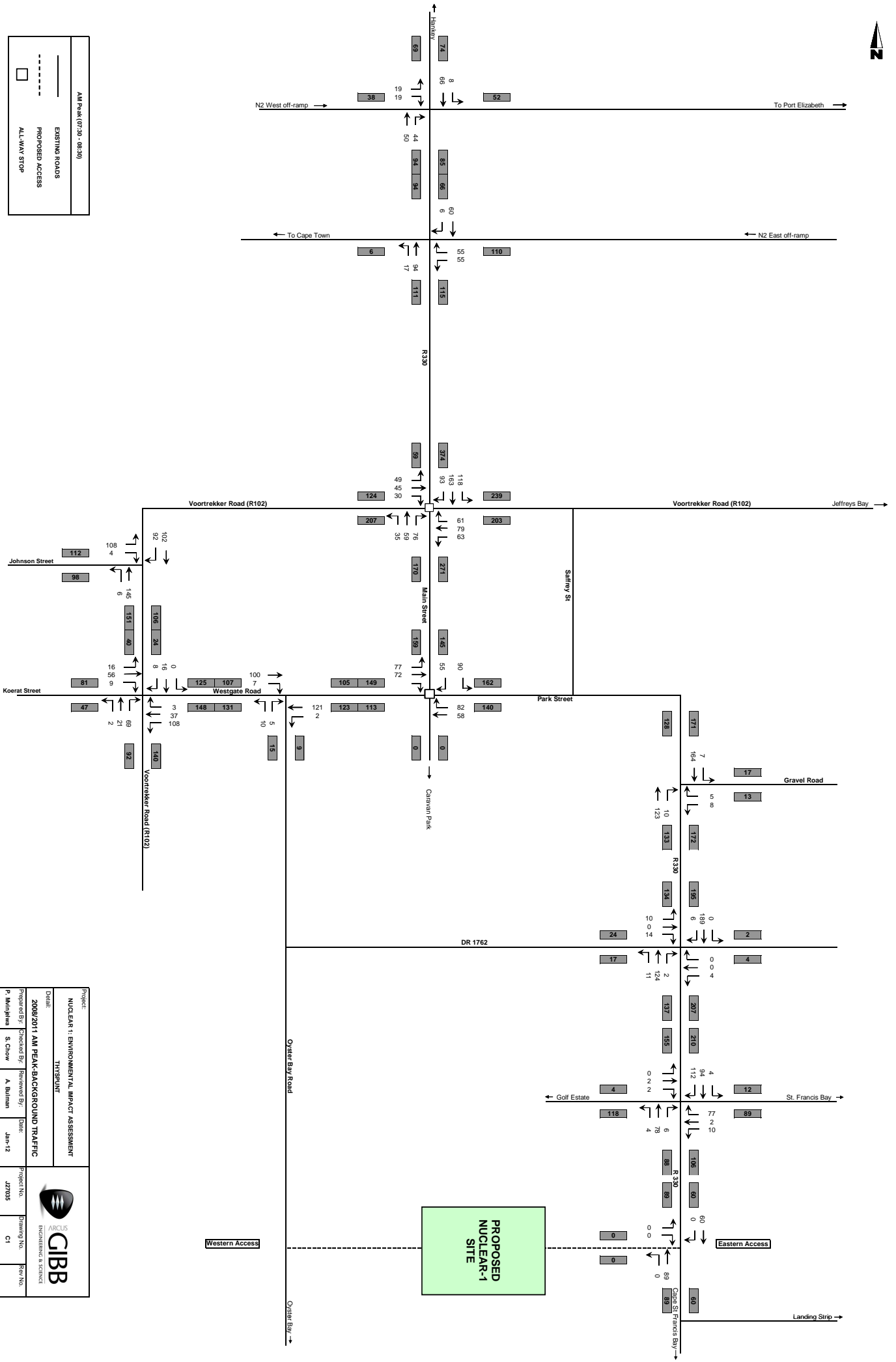
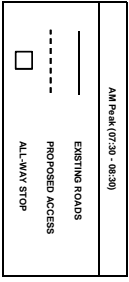
Annexure B19: Operational Phase Trip Generation (BANTAMSKLIP)

Land Use Type	People (No)	Directional Percentage of Shift Staff Travelling in Peak hour				Total Peak Person Trips Generated						Mode of Transport				Total Private Vehicle Trips Generated						Total Taxi Trips Generated						Total Bus Trips Generated						Total Vehicle Trips Generated					
		AM Peak		PM Peak		AM Peak			PM Peak			Private Transport	Public Transport			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak		
		In (Shift 2)	Out (Shift 1)	In (Shift 3)	Out (Shift 2)	In	Out	Total	In	Out	Total		Taxi	Bus	Rail	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total			
Proposed Nuclear Site at Bantamsklip	1300	30%	30%	30%	50%	234	59	293	98	390	488	70%	20%	10%	0%	66	16	82	27	109	137	3	1	4	1	5	7	0	0	0	0	1	1	69	17	86	29	115	144
TOTAL	1300					234	59	293	98	390	488					66	16	82	27	109	137	3	1	4	1	5	7	0	0	0	0	1	1	69	17	86	29	115	144

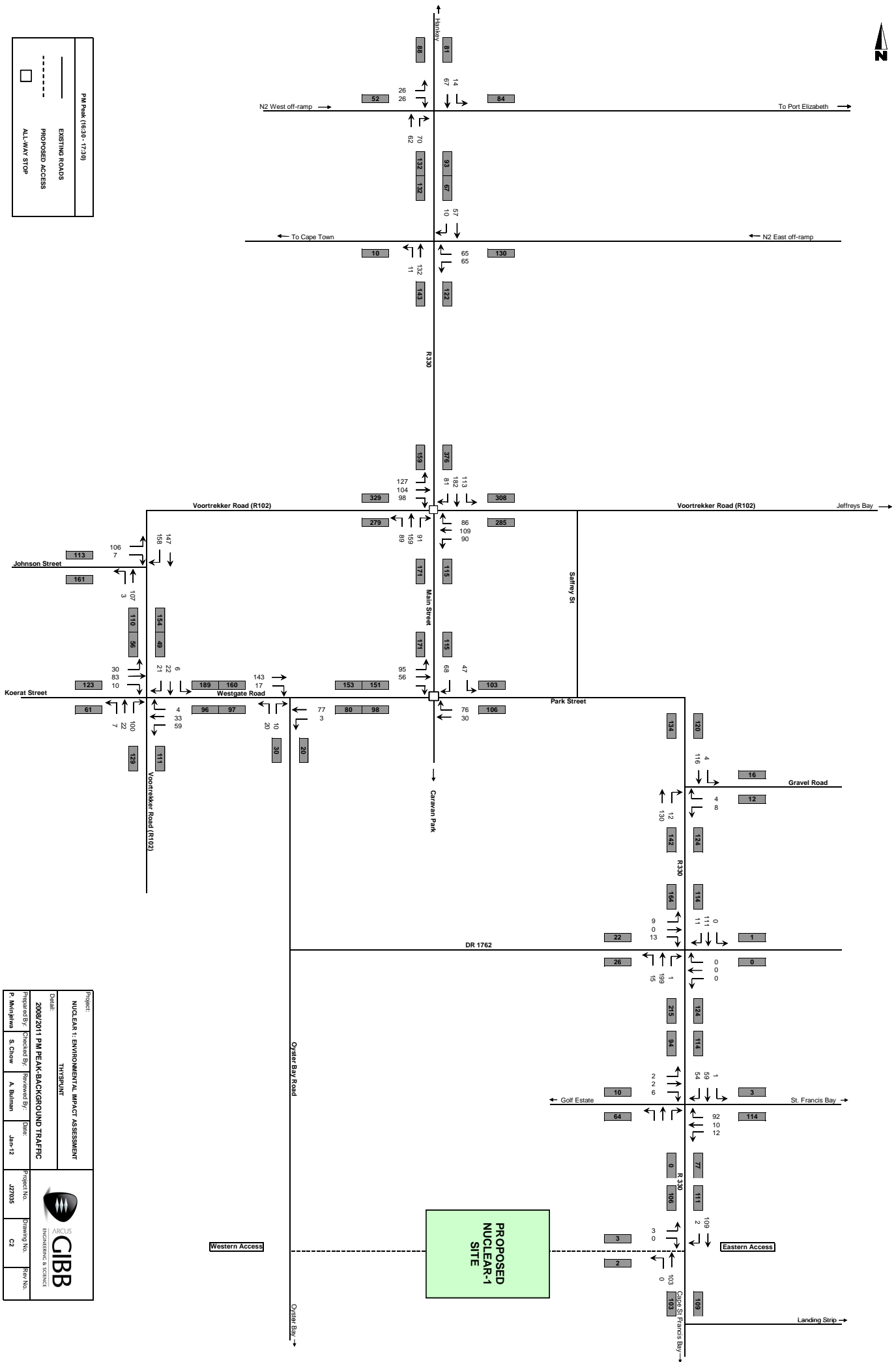
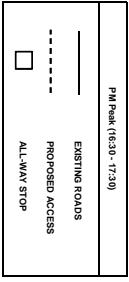
Shift	% Staff per shift	No. Staff per shift
Shift 1	15%	195
Shift 2	60%	780
Shift 3	25%	325
Total	100%	1300

Mode of Transport	Average Occupancy	Capacity
Private Vehicle	2.5	5
Taxi	15	15
Bus	60	60

Annexure C

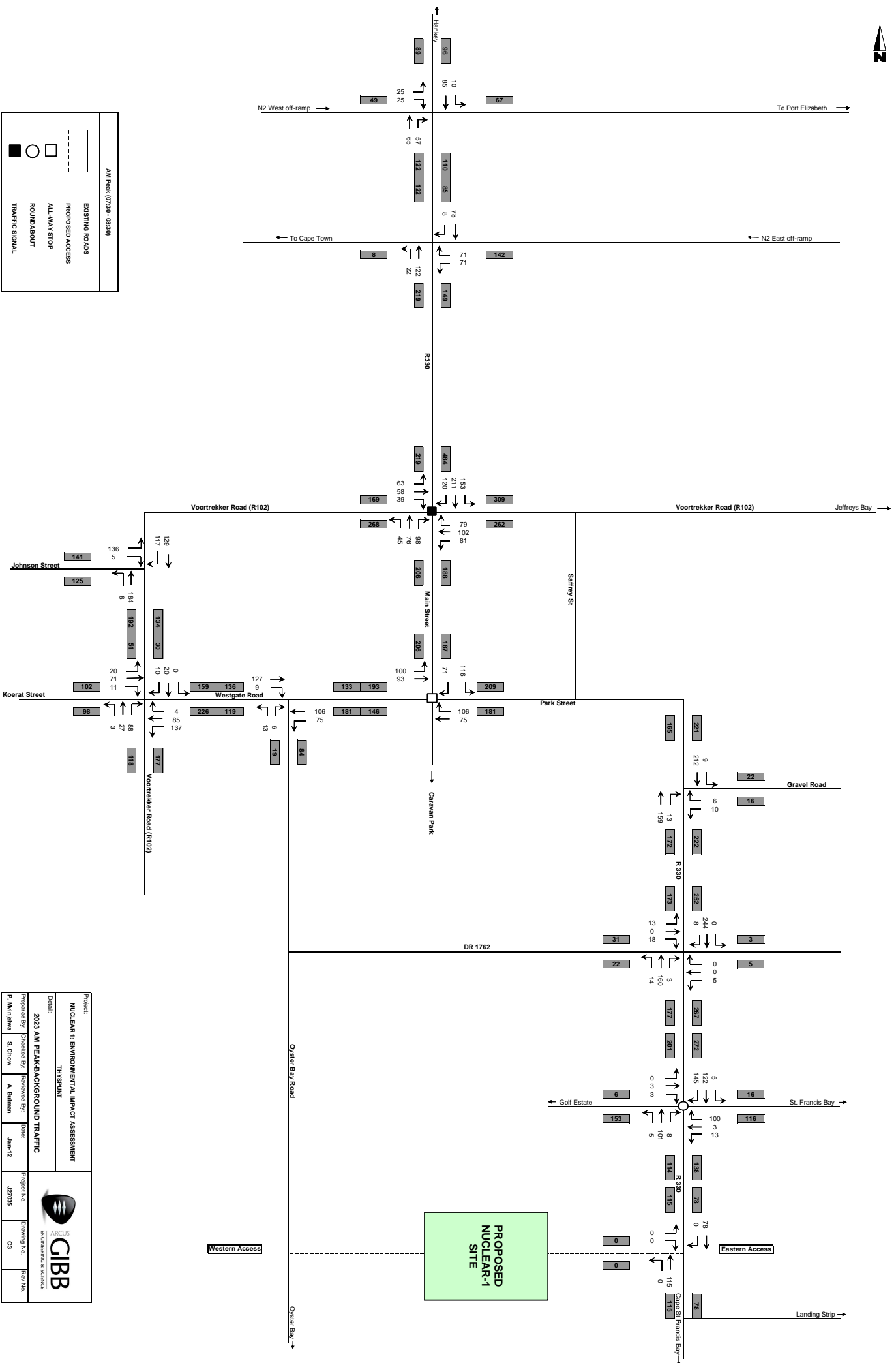
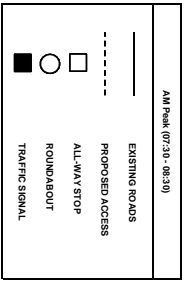


Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		TRAFFIC	
Prepared By:		2008/2011 AM PEAK-BACKGROUND TRAFFIC	
P. Mwanjwa	Checked By:	S. Chow	Reviewed By:
A. Bulman	Drawn:	Jan-12	Project No.:
JZ7035	Drawing No.:	C1	Rev. No.:
 GIBB ENGINEERING & SCIENCE			



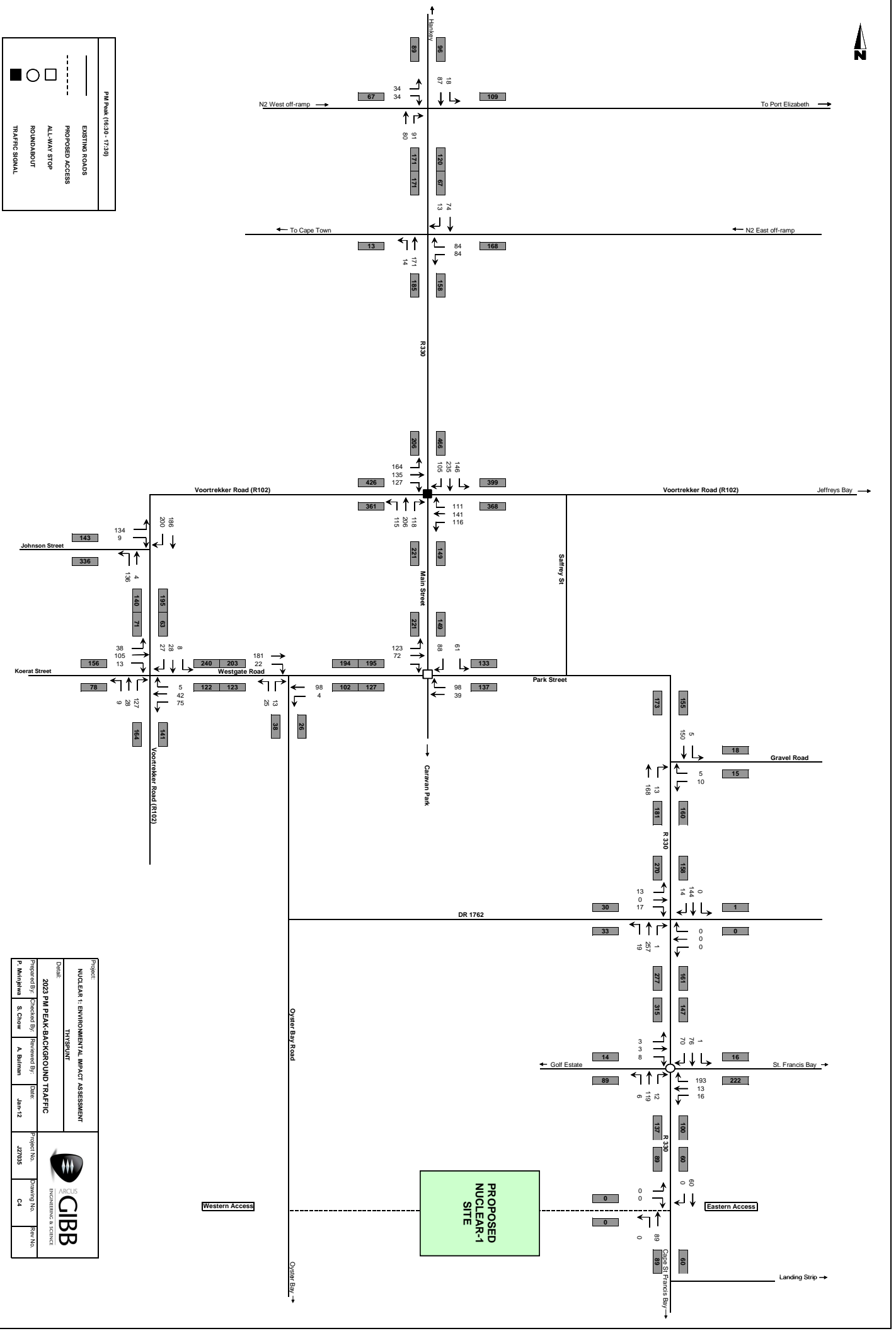
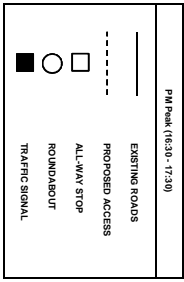
Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THRESHOLD	
Prepared By:		2008/2011 PM PEAK-BACKGROUND TRAFFIC	
P. Mwanjwa	Checked By:	S. Chow	Reviewed By:
		A. Buman	
	Date:	Jan-12	
	Project No.:	JZ7035	
	Drawing No.:	C2	
	Rev. No.:		





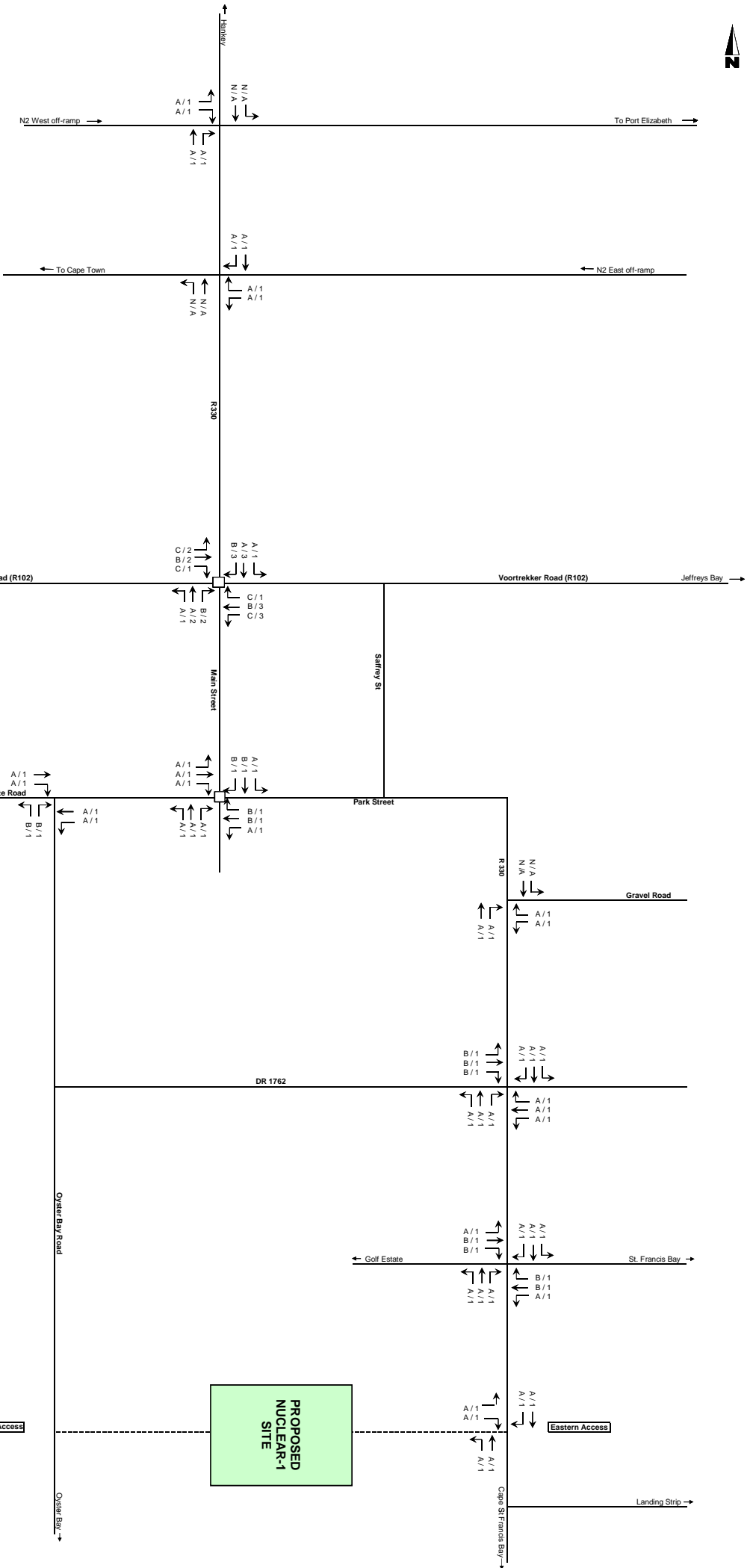
Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Date:		THIRERUN	
2023 AM PEAK-BACKGROUND TRAFFIC			
Prepared By:	Checked By:	Reviewed By:	Date:
P. Muthurwa	S. Chow	A. Berman	Jan-12
Project No.:	Drawing No.:	Rev. No.:	
JZ7035	C3		





Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		TRAFFIC	
2023 P.M. PEAK-BACKGROUND TRAFFIC			
Prepared By:	Checked By:	Reviewed By:	Date:
P. Muthurwa	S. Chow	A. Berman	Jan-12
Project No.:	Drawing No.:	Rev. No.:	
JZ7035	C4		



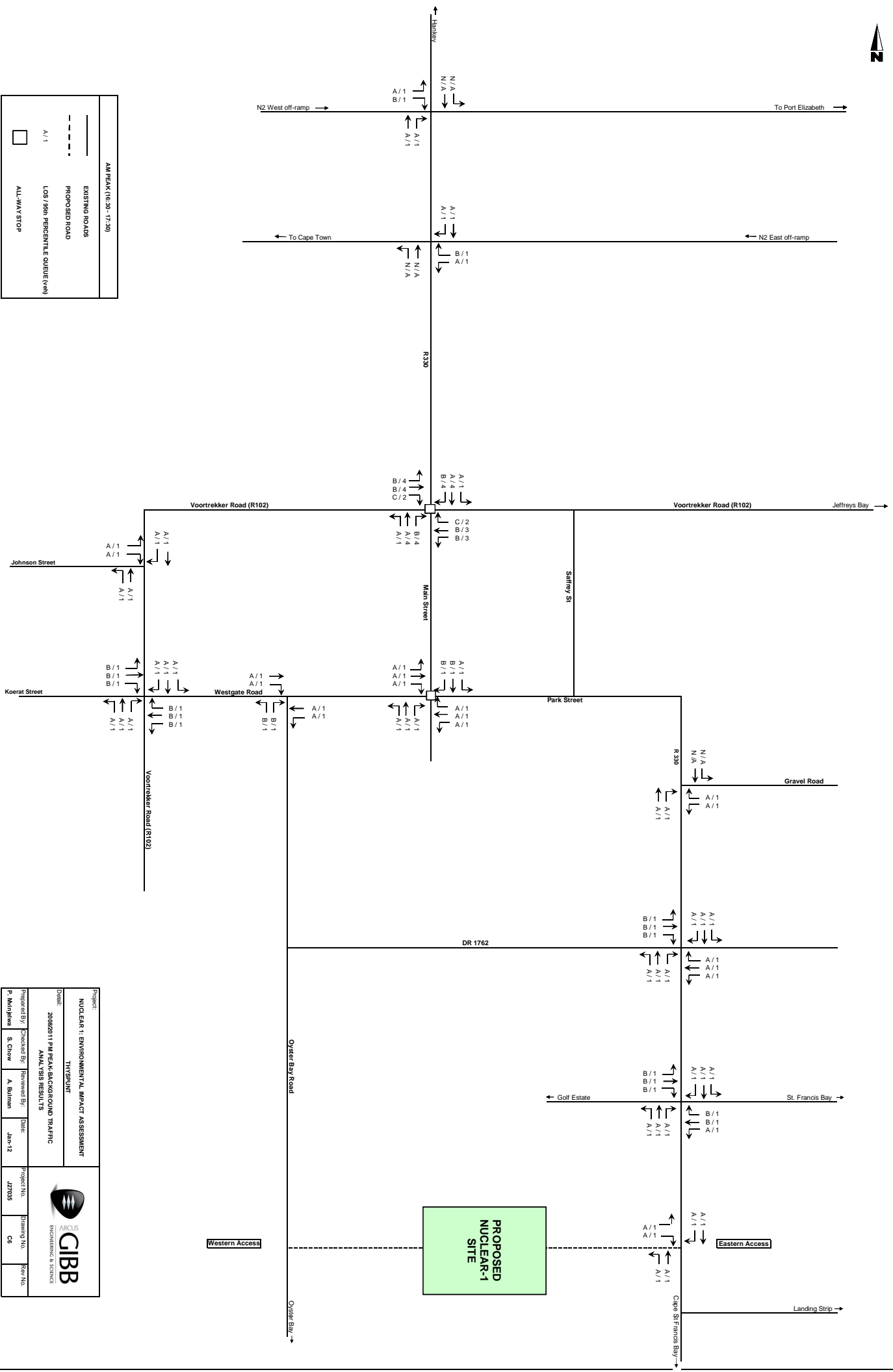


AM PEAK (07:30 - 08:30)
EXISTING ROADS
PROPOSED ROAD
LOG / 95th PERCENTILE QUEUE (m)
A / 1
ALL-WAY STOP

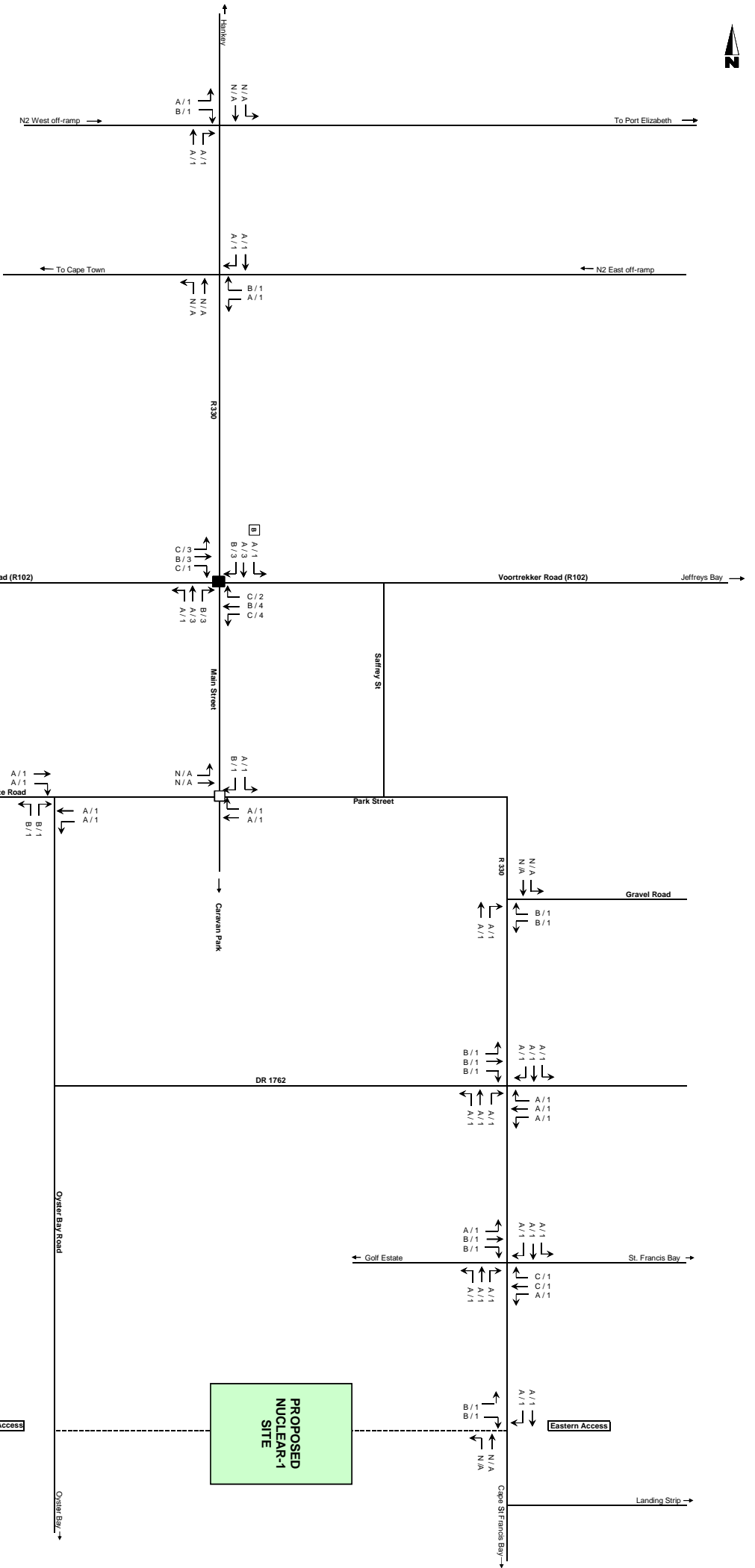
Project: NUCLEAR 1 ENVIRONMENTAL IMPACT ASSESSMENT			
Type: TYPSPURF			
Date: 2018/01/11 AM PEAK-BACKGROUND TRAFFIC ANALYSIS RESULTS			
Prepared By: P. Mkhabela	Checked By: S. Chow	Reviewed By: A. Berman	Date: Jan-12
Project No: JZ7035		Drawing No: C5	
Client: ARBUS ENGINEERING & SCIENCE		Rev. No:	



AM PEAK (16:30 - 17:30)	
—	EXISTING ROADS
- - -	PROPOSED ROAD
A / 1	LOS / 95th PERCENTILE QUEUE (veh)
□	ALL-WAY STOP



Project: NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT		Client: ARBUS ENGINEERING & SCIENCE	
Type: TYPICAL		Date: Jan-12	
Prepared By: P. Muthuwa	Checked By: S. Chow	Reviewed By: A. Berman	Project No.: JZ7035
			Drawing No.: C8
			Rev. No.:

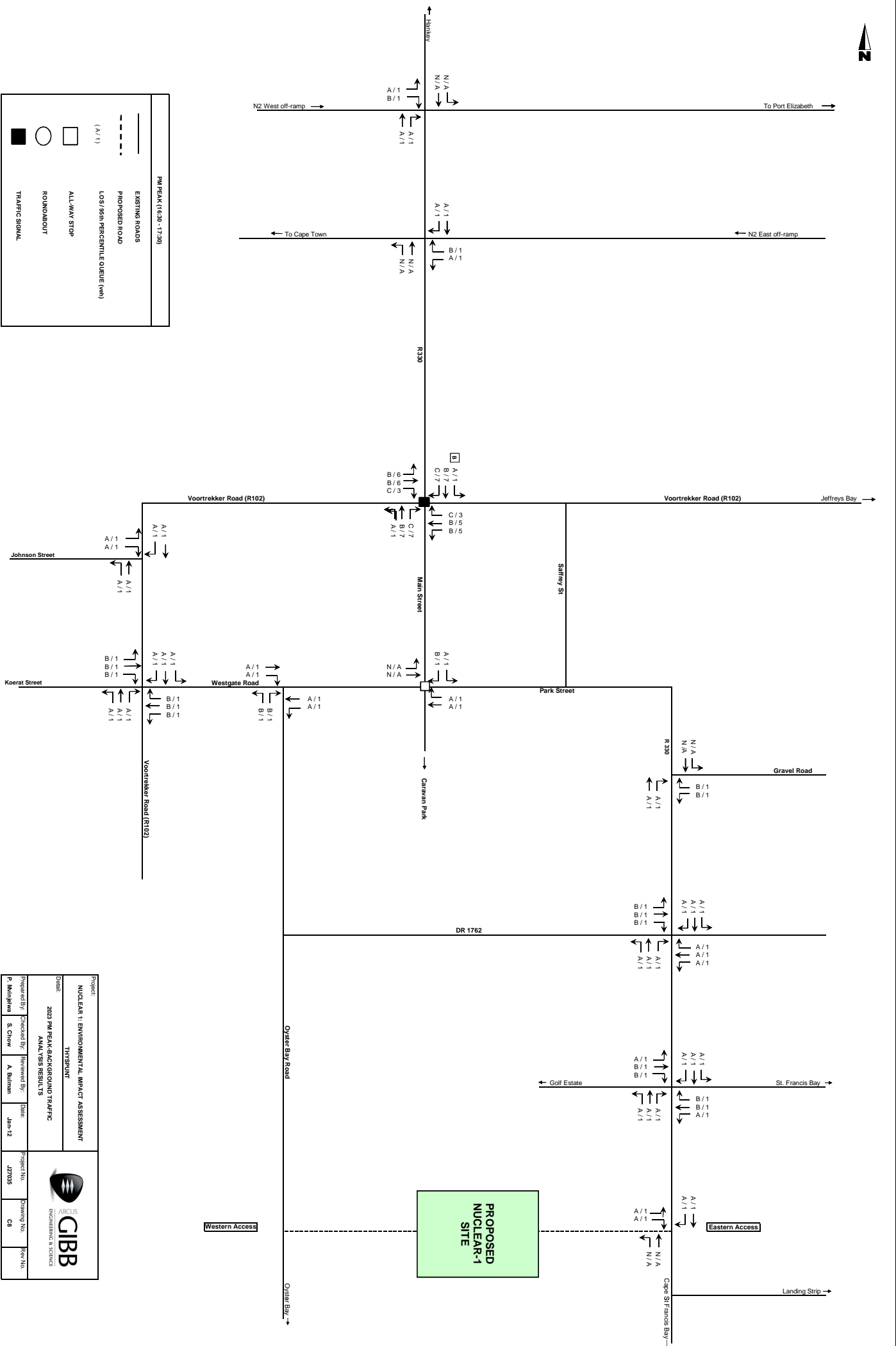


—	EXISTING ROADS
- - -	PROPOSED ROADS
(A/1)	LOS/95th PERCENTILE QUEUE (m)
□	ALL-WAY STOP
○	ROUNDABOUT
■	TRAFFIC SIGNAL

Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Client:		THYSPIJN	
Prepared By:		2023 AM PEAK BACKGROUND TRAFFIC ANALYSIS RESULTS	
P. Mwanjwa	S. Chow	Reviewed By:	A. Buman
Date:	Jan-12	Project No.:	JZ035
Drawing No.:	C7	Rev. No.:	



—	EXISTING ROADS
- - -	PROPOSED ROAD
(A/1)	LOS/95th PERCENTILE QUEUE (km)
□	ALL-WAY STOP
○	ROUNDABOUT
■	TRAFFIC SIGNAL

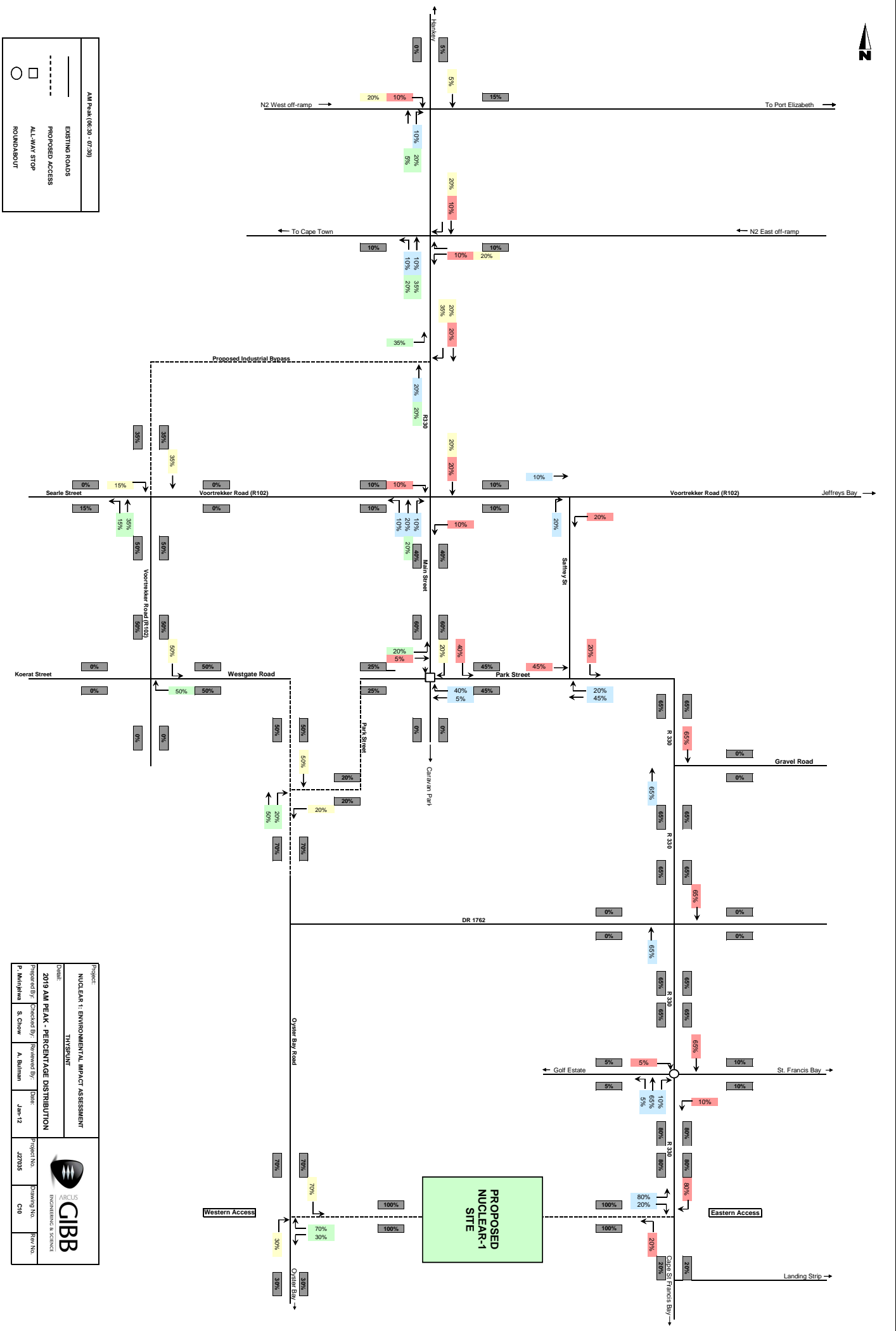
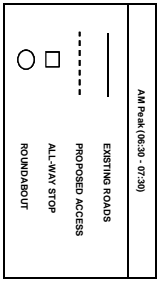


Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Client:		THYSPIJN	
Prepared By:		2023 PM PEAK-BACKGROUND TRAFFIC ANALYSIS RESULTS	
P. Mwanjwa	S. Chow	A. Buman	Jan-12
Checked By:	Reviewed By:	Project No.:	Drawing No.:
S. Chow	A. Buman	JZ035	C8
Date:		Project No.:	Rev. No.:
Jan-12		JZ035	



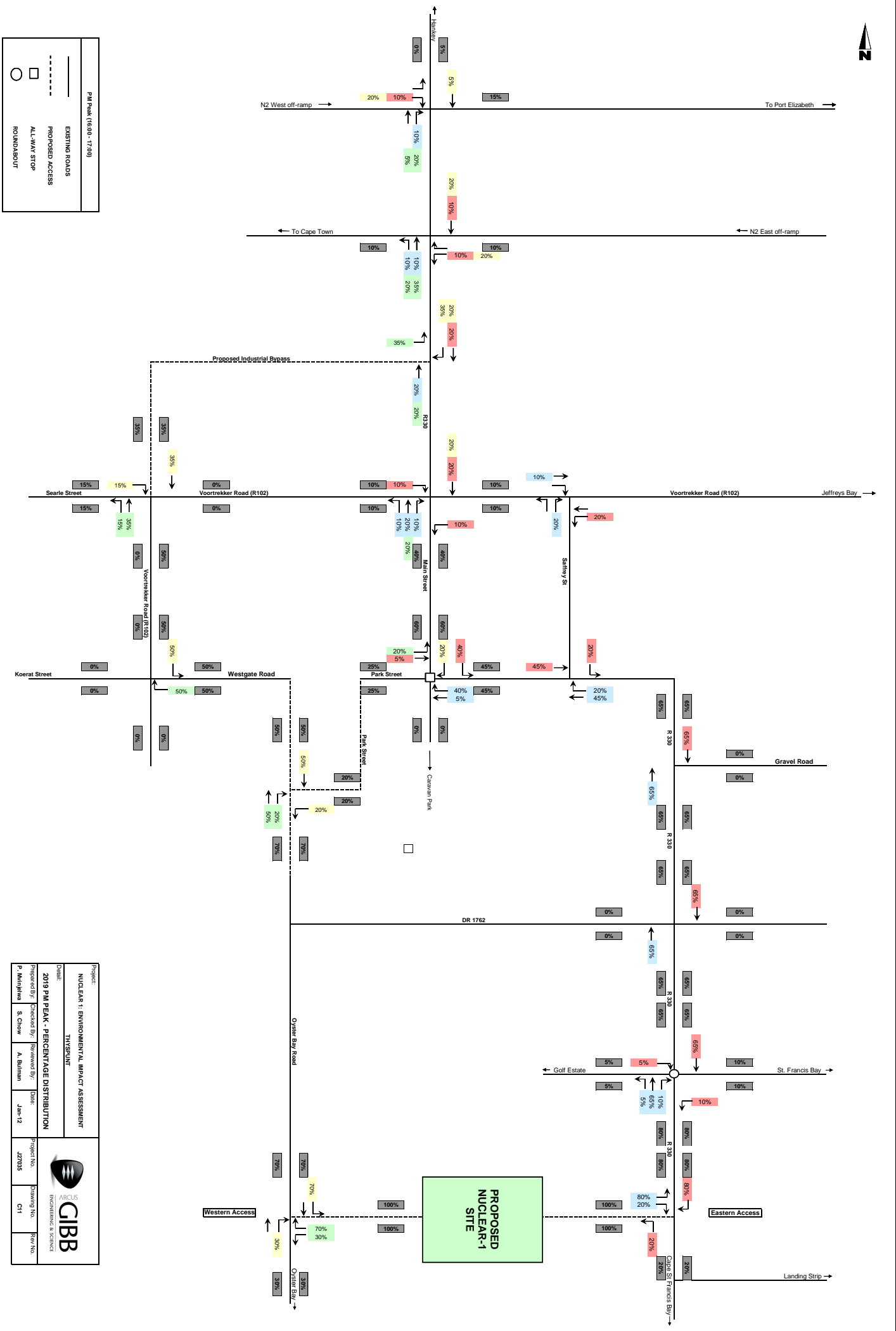
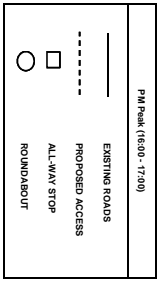
Annexure C9: Thuyspunt Construction Phase Yearly Trips

Description	Unit	Volume	Load	Number of loads	Estimated Daily Transport Distribution									
					1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	
					Vendor staff / day									
General worker numbers					90	200	230	1000	3800	4150	2110	650	0	
Buses vendor general workers	person	4 150	60	69 w	2	4	4	17	64	70	36	11	0	
Vendor staff numbers					55	130	150	460	1550	1895	1000	505	20	
Vendor staff vehicles		1 980	5	396 e	11	26	30	92	310	379	200	101	4	
Total vendor				465	13	30	34	109	374	449	236	112	4	
Eskom staff / day														
Project staff numbers					40	50	70	120	140	140	140	80	10	
Cars (Project staff)	person	220	2.00	110 e	20	25	35	60	70	70	70	40	5	
Operational staff numbers					10	10	100	250	550	950	1250	1350	1350	
Buses (Operational staff)	person	800	20	40 e	1	1	1	4	10	19	29	31	31	
Cars (Operational staff)	person	550	1.30	423 e	7	7	62	145	275	439	529	572	572	
Total Eskom				573	28	33	98	209	355	528	628	643	608	
Waste and Spoil (Totals for power station construction)														
Estimated Annual Transport Distribution														
Sand spoil (20m-8m)	m ³	6 372 044												
Spoil for HV yard	m ³	637 204	10	63 720 w	25 488	19 116	19 116							
Spoil pumped to sea	m ³	5 734 840												
Rock from excavation	m ³	671 071												
Rock to HV yard	m ³	134 214	10	13 421 w	5 369	4 026	4 026							
Rock used on site	m ³	335 536												
Rock transport outside site	m ³	201 321	10	20 132 w	8 053	6 040	6 040							
Rock from outlet tunnel	m ³	12 428	10	1 243 w		249	497	373	124					
Rock from inlet tunnel	m ³	37 285	10	3 729 w		746	1 491	1 119	373					
Waste	m ³	15 000	10	1 500 w	75	150	225	300	375	300	100	150	150	
Construction Resources														
Bricks	ea	3 750 000	5 000	750 w	75	150	150	150	150	75				
Finished Concrete	m ³	795 320												
Concrete aggregate	m ³	596 490	10	59 649 w		5 965	11 930	11 930	11 930	11 930	5 965			
Concrete fines	m ³	397 660	10	39 766 w		3 977	7 953	7 953	7 953	7 953	3 977			
Cement	t	357 894	10	35 789 e		3 579	7 158	7 158	7 158	7 158	3 579			
Concrete reinforcing	t	6 766	20	338 e		34	68	68	68	68	34			
Structural steel	t	1 299	20	65 e		6	13	13	13	13	6			
Small bore pipe	m	12 836	200	64 e		6	13	13	13	13	6			
LB Pipe	m	163 914	50	3 278 e		328	656	656	656	656	328			
Conduit	m	381 256	5 000	76 e		8	15	15	15	15	8			
Cable	m	906 884	1 800	504 e		50	101	101	101	101	50			
Terminations	ea	22 025		100 e		10	20	20	20	20	10			
Light delivery vehicles	ea	80 000	1	80 000 e	4 000	4 000	16 000	16 000	16 000	16 000	10 000	10 000	10 000	
Ultra heavy loads (x > 100t)	ea	63		63 e		6	13	13	13	13	6			
Heavy loads (10t < x > 100t)	ea	201		201 e		20	40	40	40	40	20			
Equipment	ea	6 000		6 000 e		600	1 200	1 200	1 200	1 200	600			
Total annual construction vehicles					43 060	49 066	76 725	47 120	46 201	45 554	24 689	10 150	10 150	
Total daily construction vehicles					190	216	338	208	204	201	109	45	45	
LIFECYCLE TRAFFIC (ONE WAY)														
Vehicles per annum				246 202	58 025	72 061	124 905	163 190	312 286	402 159	340 049	285 725	233 530	
Vehicles per month					4 835	6 005	10 409	13 599	26 024	33 513	28 337	23 810	19 461	
Total vehicles per working day (Construction and staff)					159	198	342	447	856	1 102	932	783	640	
Totals if all external material deliveries are transported via eastern access road														
Estimated vehicle numbers / day through eastern access					40	68	165	295	568	750	661	585	486	
Estimated vehicle numbers / day through northeren / western access					119	130	177	152	288	353	271	198	154	
Totals if all external material deliveries are transported via western access road														
Estimated vehicle numbers / day through eastern access					29	46	99	229	502	684	623	558	459	
Estimated vehicle numbers / day through northeren / western access					130	152	243	218	354	419	309	225	181	



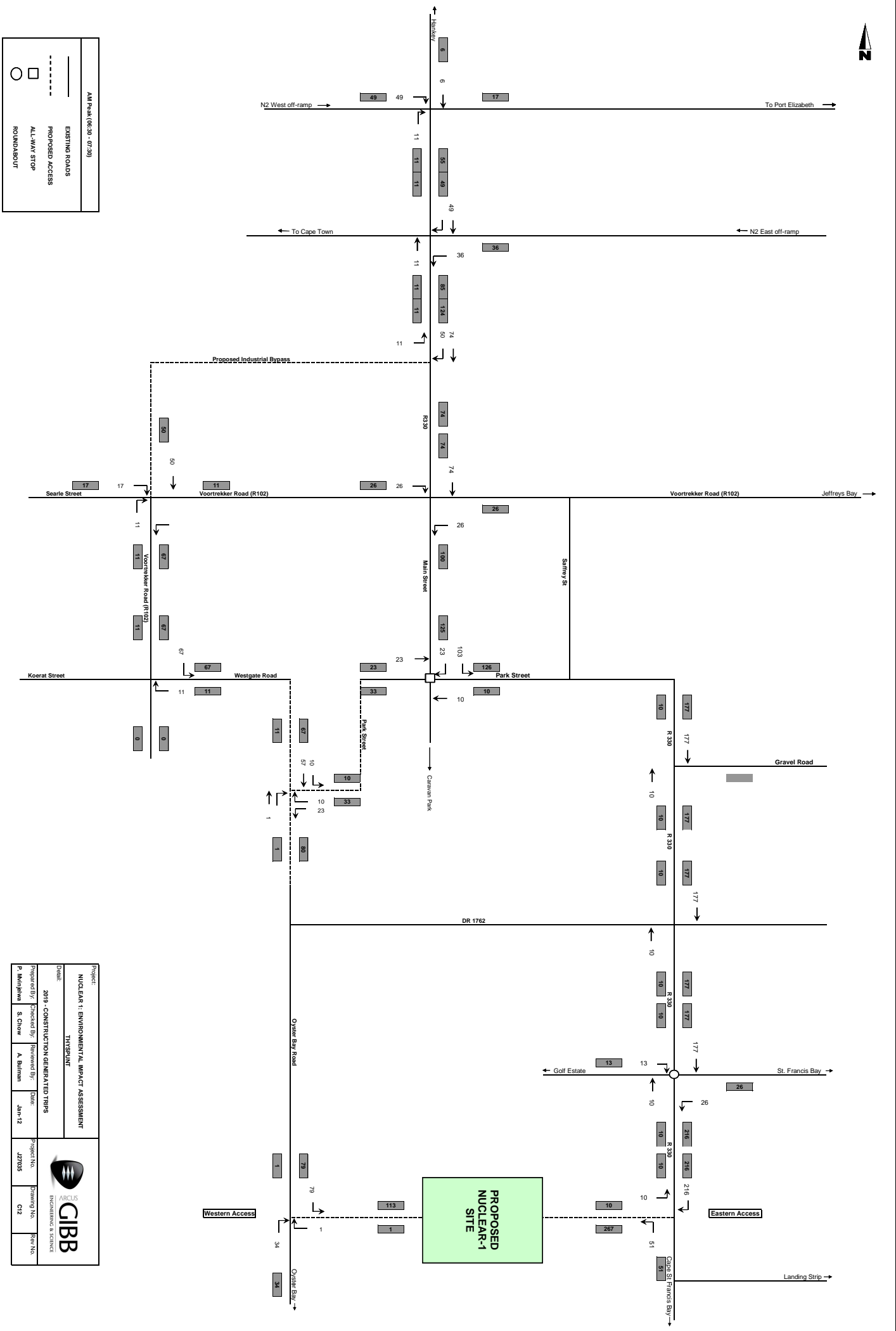
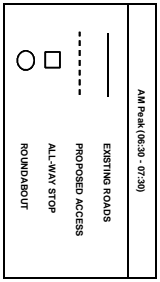
Project:		NUCLEAR 1 ENVIRONMENTAL IMPACT ASSESSMENT	
Drawn By:		TJYSBUNT	
2019 AM PEAK - PERCENTAGE DISTRIBUTION			
Reviewed By:	Checked By:	Reviewed By:	Date:
P. Mvuleniwe	S. Chow	A. Bulman	Jan-12
Project No.:		ZJ703	
Drawing No.:		C10	
Rev. No.:			





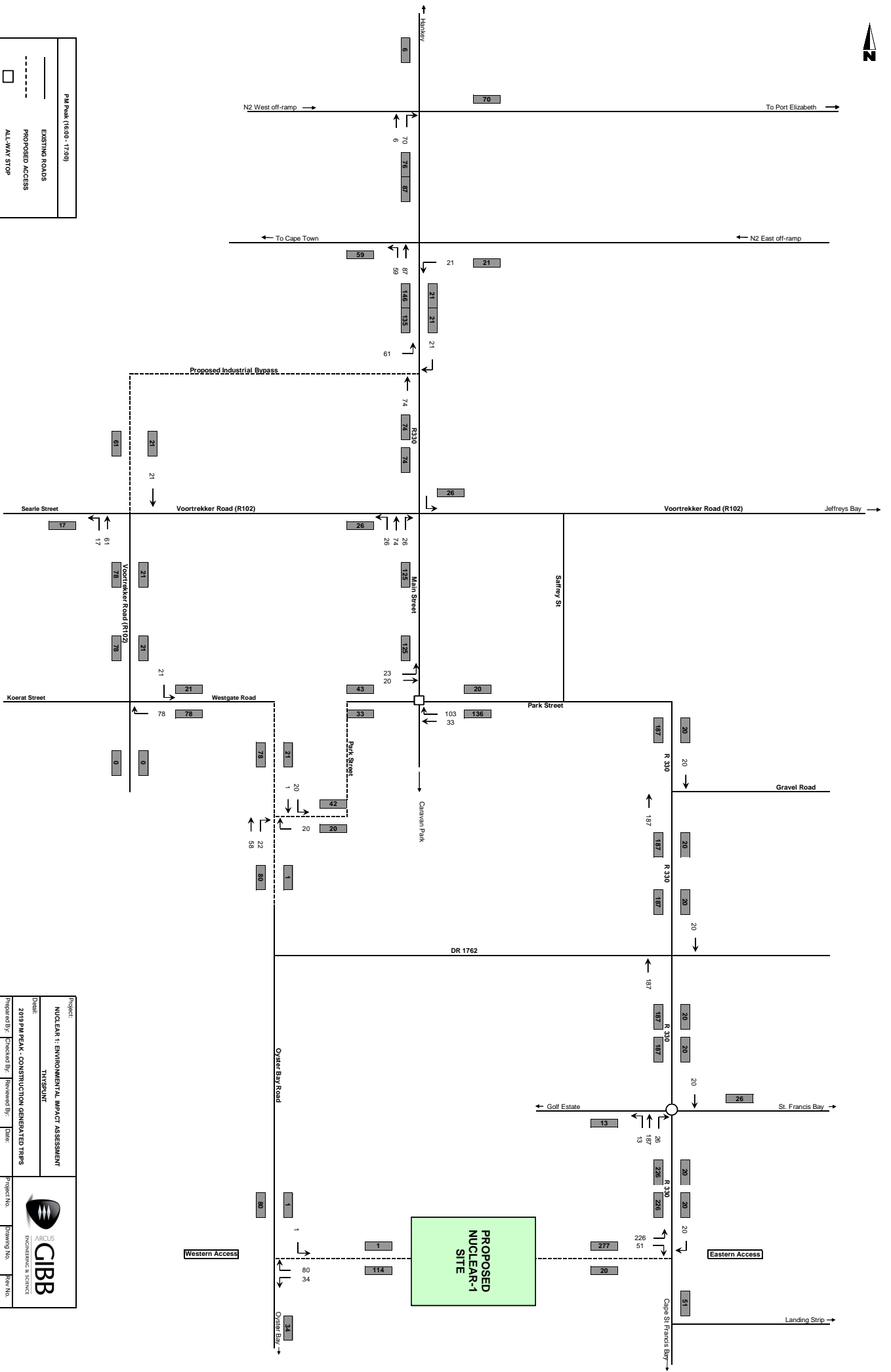
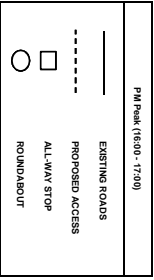
Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Drawn By:		TJYSBUNT	
2019 PM PEAK - PERCENTAGE DISTRIBUTION			
Reviewed By:	Checked By:	Reviewed By:	Date:
P. Mvulwana	S. Chow	A. Bulman	Jan-12
Project No.:		ZT708	
Drawing No.:		C11	
Rev. No.:			





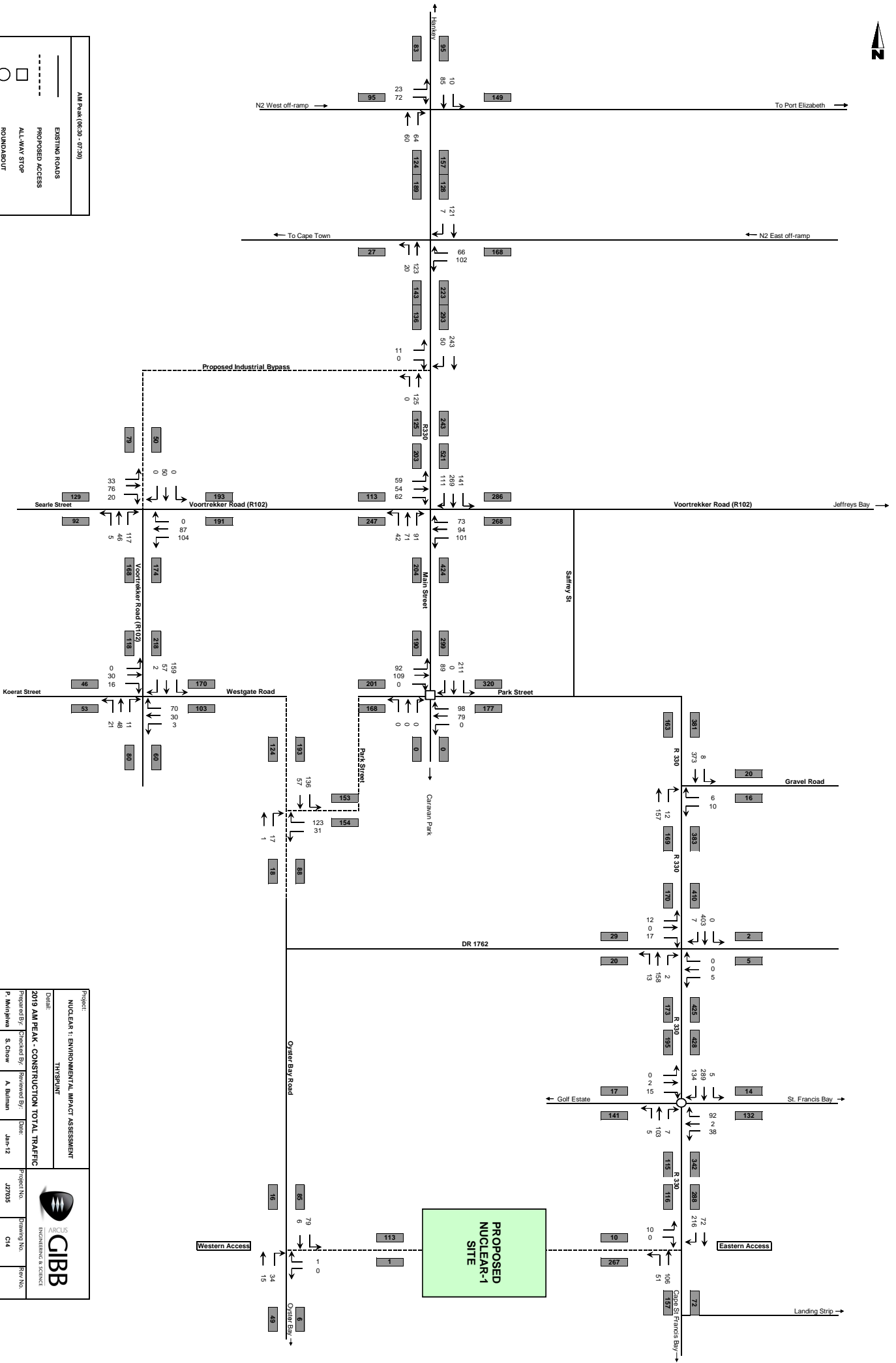
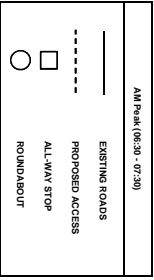
Project:		NUCLEAR 1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THRESHOLD	
Prepared By:	Checked By:	Reviewed By:	Date:
P. Mwanjwa	S. Chow	A. Bulman	Jan-12
Project No.:	Drawing No.:	Rev. No.:	
JZ7035	C12		





Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THRESHOLD	
Prepared By:	Checked By:	Reviewed By:	Date:
P. Mphahlela	S. Chow	A. Berman	Jan-12
Project No.:	Drawing No.:	Rev. No.:	
J27035	C13		

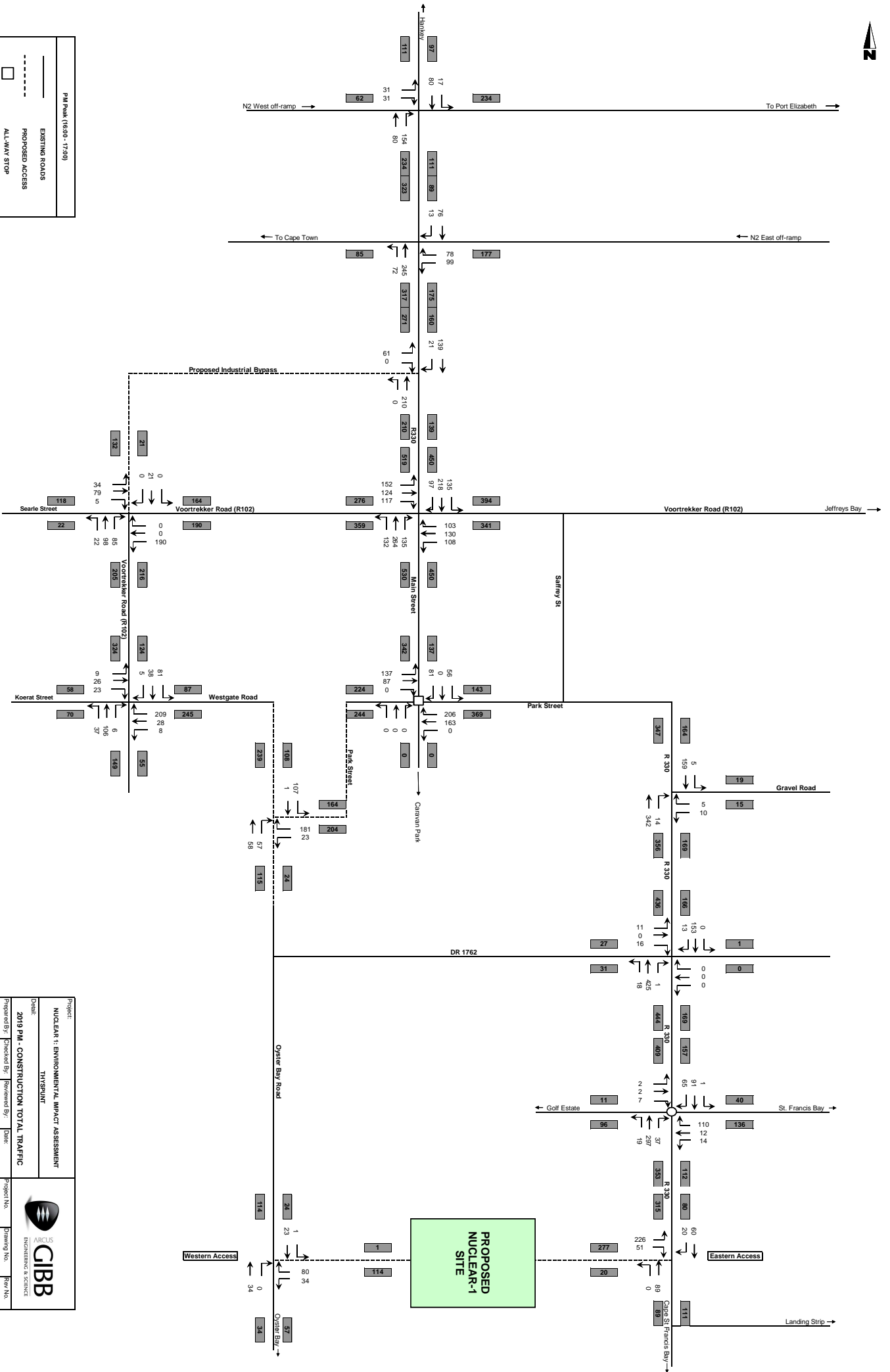
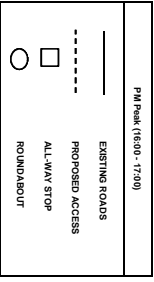




Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Title:		THRESHOLD	
Prepared By:		P. Mwanjwa	
Checked By:		S. Chow	
Reviewed By:		A. Buman	
Date:		Jan-12	
Project No.:		JZ7035	
Drawing No.:		C14	
Rev. No.:			

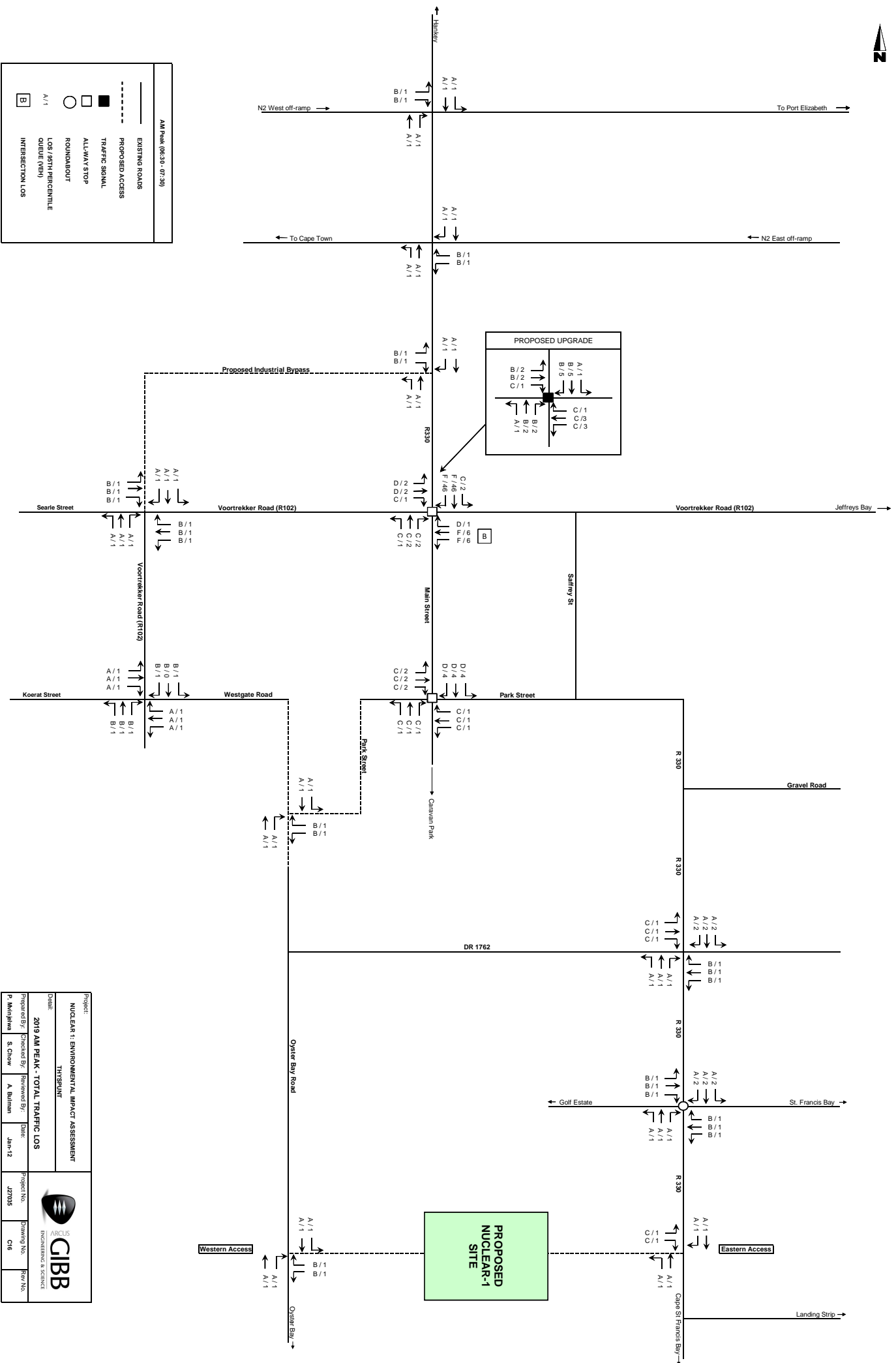
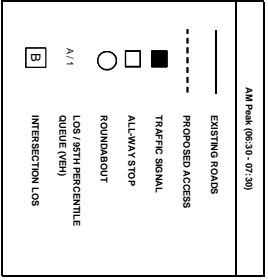


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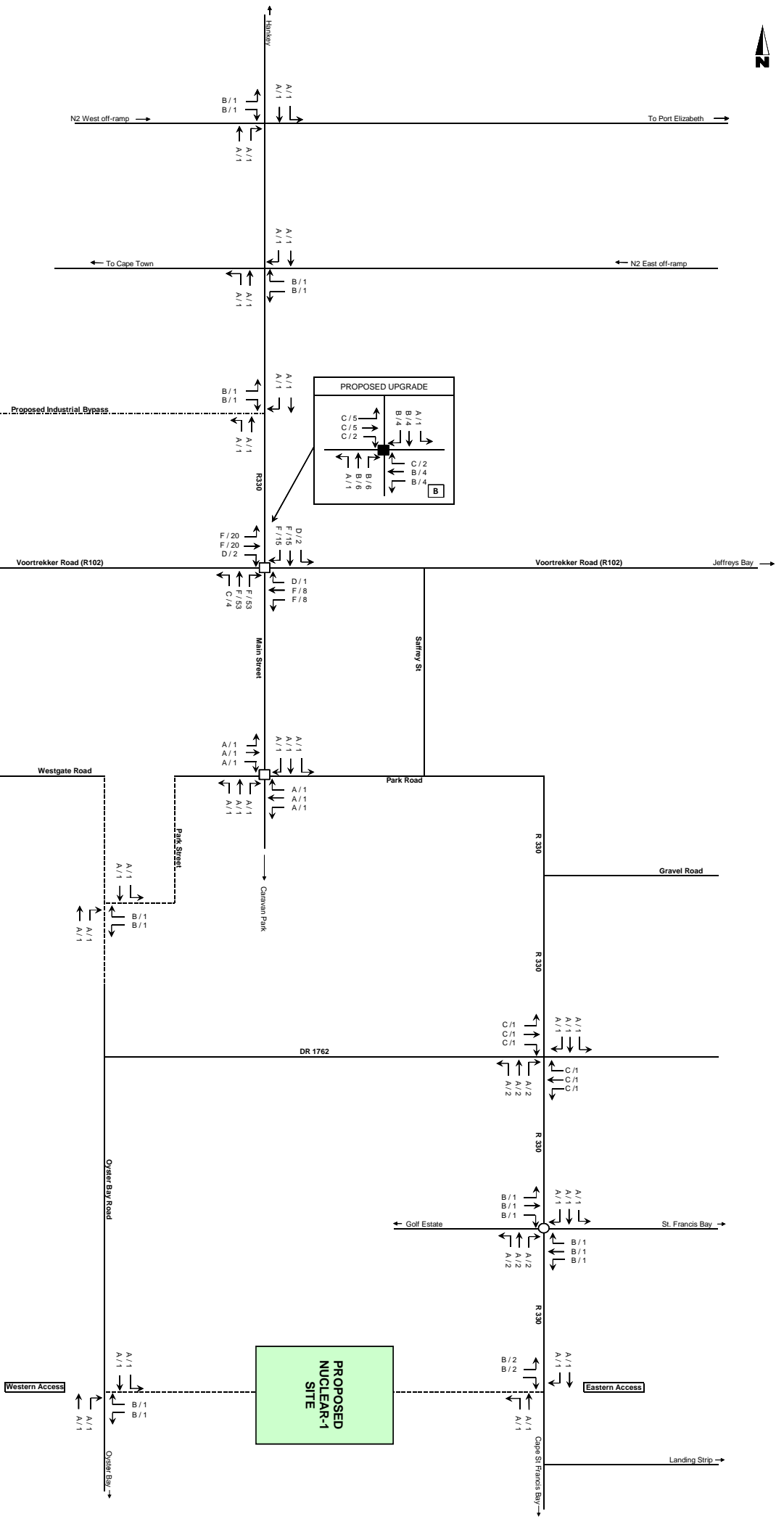
Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THRESHOLD	
Prepared By:		2019 PM - CONSTRUCTION TOTAL TRAFFIC	
Checked By:		P. Mwanjwa	
Reviewed By:		S. Chow	
Date:		A. Buman	
Project No.:		Jan-12	
Drawing No.:		ZJ7035	
Rev. No.:		C15	





Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THRESHOLD	
Prepared By:	Checked By:	Reviewed By:	Date:
P. Mwanjwa	S. Chow	A. Bulman	Jan-12
Project No.:		JZ7035	
Drawing No.:		C16	
Rev. No.:			

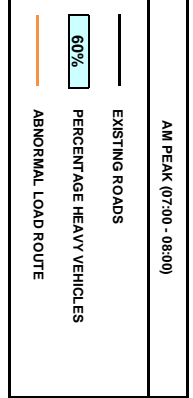
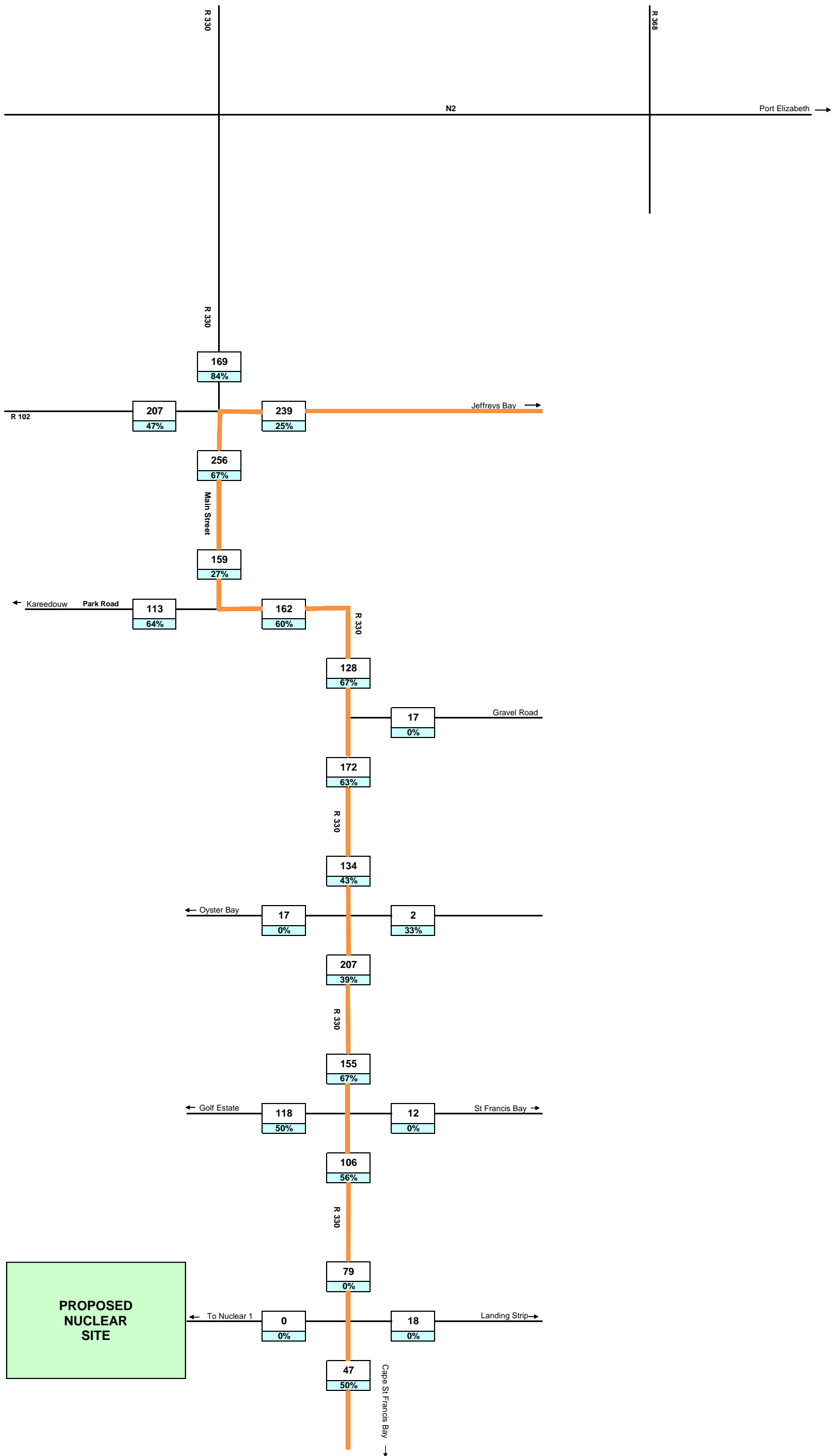




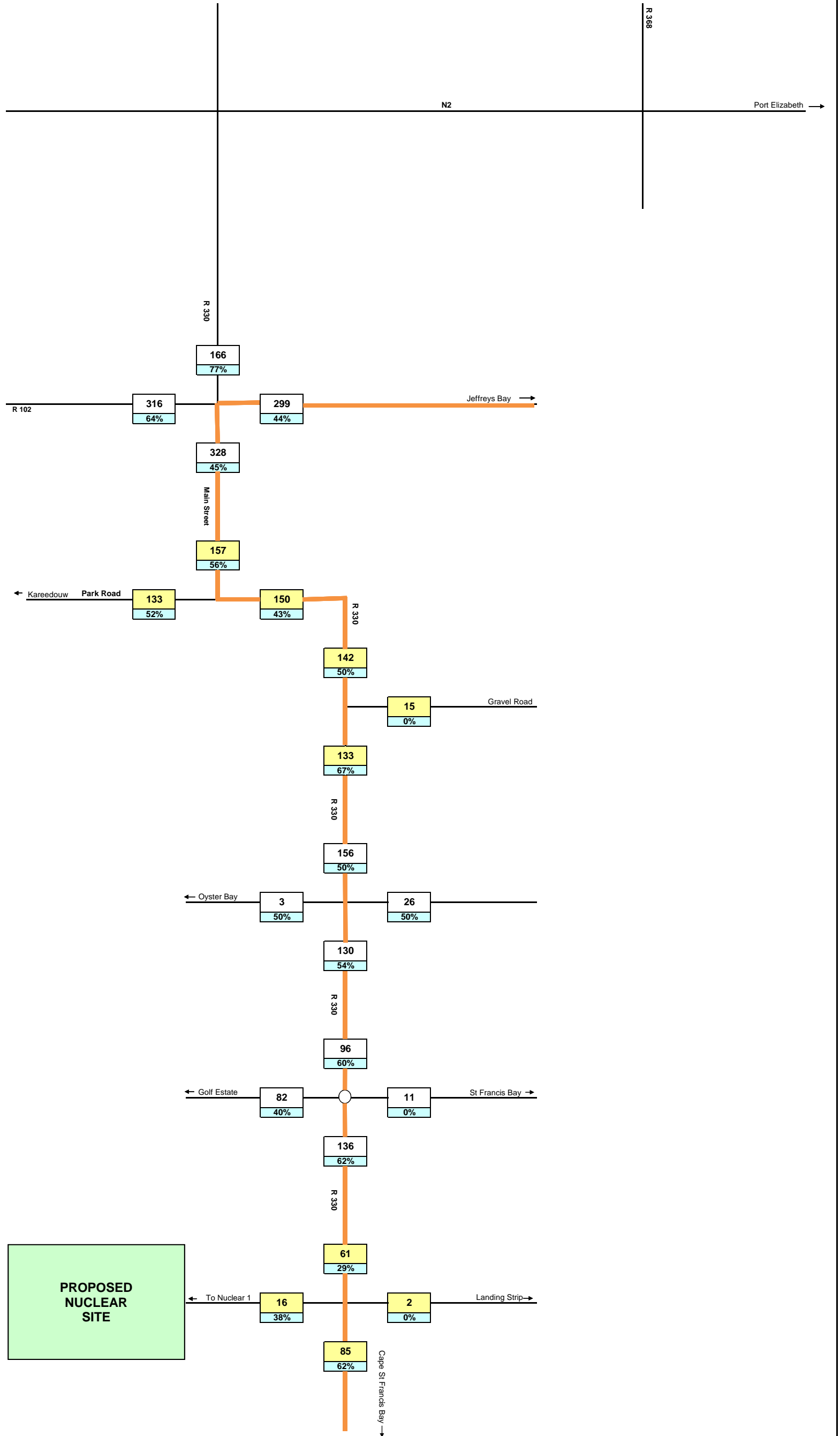
—	EXISTING ROADS
- - -	PROPOSED ACCESS
■	TRAFFIC SIGNAL
□	ALL-WAY STOP
○	ROUNDABOUT
○	LOS/95TH PERCENTILE QUEUE (VEN)
□	INTERSECTION LOS

Project:		NUCLEAR-1 ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THRESHOLD	
2019 PM PEAK - TOTAL TRAFFIC LOS			
Prepared By:	Checked By:	Reviewed By:	Date:
P. Mwanjwa	S. Chow	A. Bulman	Jan-12
Project No.:	Drawing No.:	Rev. No.:	
JZ7035	C17		





Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT		Project No. J27035	
Detail:		THYSRUNT		Drawing No. C18	
Prepared By: P. Mvinyelwa		Checked By: S. Chow		Date: Jan-12	
Reviewed By: A. Bulman		Date: Jan-12		Rev No.	
ARCUS ENGINEERING & SCIENCE		GIBB		Rev No.	

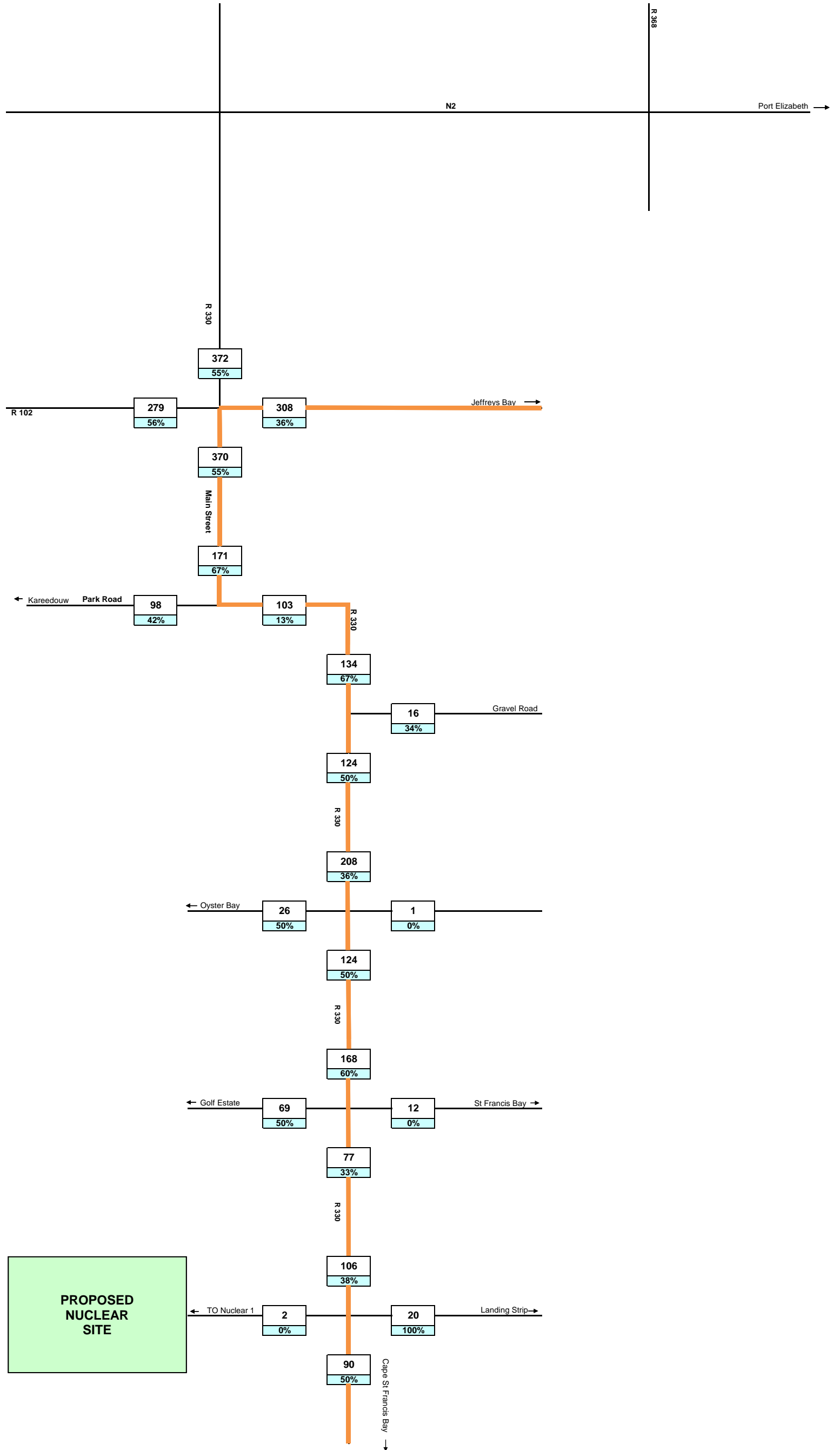


PROPOSED NUCLEAR SITE

MIDDAY PEAK (11:00 - 12:00)	
EXISTING ROADS	PERCENTAGE HEAVY VEHICLES
ROUNDABOUT	
ABNORMAL LOAD ROUTE	

Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THYSRUNT	
MIDDAY PEAK TRAFFIC PROFILE			
Prepared By:	Checked By:	Reviewed By:	Date:
P. Mvinyelwa	S. Chow	A. Bulman	Jan-12
Project No.:	J27035	Drawing No.:	C19
Rev No.:			

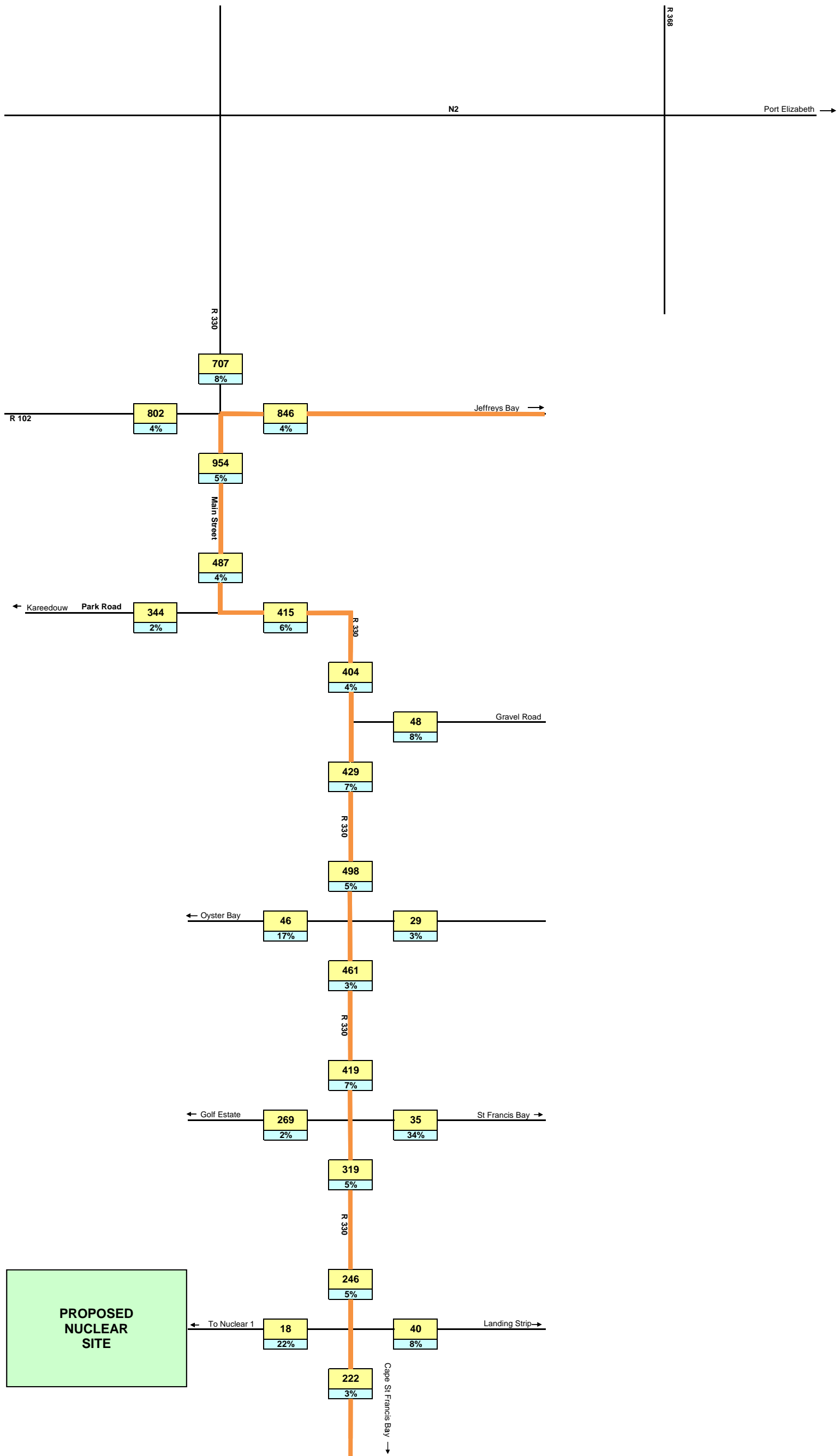




PM PEAK (16:30 - 17:30)
EXISTING ROADS
PERCENTAGE HEAVY VEHICLES
ABNORMAL LOAD ROUTE

Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THYSRUNT	
Prepared By: P. Mvinyelwa			
Checked By: S. Chow			
Reviewed By: A. Bulman			
Date: Jan-12			
Project No.:		J27035	
Drawing No.:		C20	
Rev. No.:			





Percentage Heavy Vehicles = 5%

LEGEND	
—	EXISTING ROADS
—	ABNORMAL LOAD ROUTE
344	AVERAGE ANNUAL DAILY TRAFFIC
2%	PERCENTAGE HEAVY VEHICLES

Project:		NUCLEAR 1: ENVIRONMENTAL IMPACT ASSESSMENT	
Detail:		THYSRUNT	
Whole Day Peak Traffic Profile			
Prepared By:	Checked By:	Reviewed By:	Date:
P. Mvinyelwa	S. Chow	A. Bulman	Jan-12
Project No.:	J27035	Drawing No.:	C21
Rev No.:			



PROPOSED NUCLEAR SITE

Annexure C22: Operational Phase Trip Generation (THYSPUNT)

Land Use Type	People (No)	Directional Percentage of Shift Staff Travelling in Peak hour				Total Peak Person Trips Generated						Mode of Transport			Total Private Vehicle Trips Generated						Total Taxi Trips Generated						
		AM Peak		PM Peak		AM Peak			PM Peak			Private Transport	Public Transport			AM Peak			PM Peak			AM Peak			PM Peak		
		In (Shift 2)	Out (Shift 1)	In (Shift 3)	Out (Shift 2)	In	Out	Total	In	Out	Total		Taxi	Bus	Rail	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Proposed Nuclear Site at Thyspunt	1300	30%	50%	30%	30%	234	98	332	98	234	332	70%	20%	10%	0%	66	27	93	27	66	93	3	1	4	1	3	
TOTAL	1300					234	98	332	98	234	332					66	27	93	27	66	93	3	1	4	1	3	

Shift	% Staff per shift	No. Staff per shift
Shift 1	15%	195
Shift 2	60%	780
Shift 3	25%	325
Total	100%	1300

Mode of Transport	Average Occupancy	Capacity
Private Vehicle	2.5	5
Taxi	15	15
Bus	60	60