Annexure 5

Infrastructure services report – Cardno

Infrastructure Services Report

F3 Development
Northbound
Cooranbong, NSW

Prepared for The F3 Development Fund Pty Ltd
06 July 2012

Cardno
Shaping the Future

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1 Executive Summary

Cardno NSW has been commissioned by the *F3 Development Fund Pty Ltd* to undertake an Infrastructure Services and Traffic Assessment for a potential development site adjacent the F3 Freeway at Cooranbong, NSW. The site is identified as Lot 4, DP264501.

This finding outlined in this report are based on information obtained from a previous infrastructure investigation commissioned by the F3 Development Fund in 2009 for an adjacent parcel of land (Lot 10 DPDP 702166) and reference to current utility authority records available through the "Dial Before You Dig" service. Final infrastructure servicing requirements will be confirmed by the respective utility authorities following further design development, confirmation of project details and ongoing consultation with authority representatives.

The main findings of this report are summarised below.

Infrastructure

The investigation has revealed that in order to service the potential development, the following works will be required:

Potable Water Supply: To supply potable water to service the proposed development, the nearest potential point of connection to the water main is the 300DN water main located on the northern side of Newport Road at the frontage of the subject property. Subject to final details for the proposed development being confirmed, Hunter Water may require the main to be upgraded to increase the water pressure and fulfil the requirement of fire fighting supply. An alternative option subject to approval from Hunter Water is by installing onsite system of booster pumps and dedicated fire fighting water storage tank to increase the water pressure.

An alternative connection point is available to a 150DN main on Freemans Drive to the north of the site and provision of a lead in main through an existing road reserve. Hunter Water identified this main as a suitable connection point for development of the neighbouring site (Lot 210 DPDP 702166) in 2009.

Sewer Servicing: There is capacity at the nearest Waste Water Treatment Plant (Dora Creek) to service the potential development. The preferred sewer servicing strategy involves approximately 120m of sewer lead in works to link the proposed development to Dora Creek Waste Water Treatment Works (WWTW) via an existing gravity sewer main located at 267 Newport Road, located opposite the proposed development site. Subject to final development details being confirmed and Hunter Water confirmation, upgrade to Cooranbong Waste Water Pump Station (WWPS) No. 9 is likely to be required to convey flows from the site to Dora Creek WWTP. An alternative connection point to Hunter Water's sewer network at Freemans Drive, 600m west of the site may also be -feasible. This may require a private on-site pumping station, however should not require upgrade works to Hunter Water's WWPS (No.8).

An alternative option subject to approval from Hunter Water is an on-site disposal using proprietary systems such as Envirocycle Units but this is considered to be non-viable for a development of such scale at this stage of the project.

Electrical Servicing: Connection to Endeavour Energy's network to service the proposed development will be from the existing 11kV aerial and underground service traversing the subject site. The developer will be required to construct high voltage feeder cables within the site from the connection point to the development. An 800kVA pad mount substation will be required for the proposed service centre.

There is an existing easement over the high voltage service traversing the site. Endeavour Energy's approval will need to be sought for any works proximate to the easement. Minimum clearances to the aerial cables are required to be maintained which is likely to prevent or limit any filling with in the easement.

A 60m wide transmission line easement traverses across the north west corner of the site. The easement owner, Transgrid Australia, will only allow limited development activities within this easement and this excludes construction of buildings.

Telecommunications Servicing: There is underground Telstra service located within the subject site. However the existing network will need to be upgraded to provide the required telecommunications services to the proposed development. Telstra will undertake a Business Plan assessment for the site once details of the development are confirmed. It is common for Telstra to fund all or the majority of any upgrade works required to site boundary. Any works required within the lot will be funded by the developer.

Natural Gas Servicing: The nearest gas main to the site is the Sydney – Newcastle primary gas main which runs parallel to F3 on the eastern side. Connection to this gas main to service the site would be very costly at approximately $1.5 million and involve a planning, design and construction phase of at least 24 months. The only other alternative is the potential future extension of the Morisset gas network to Cooranbong, however timing for this work is presently unknown. Initial conclusions are that servicing the site with gas within a reasonable timeframe and budget will be difficult and hence planning should be processed on the basis that energy supply will be from the electrical grid or by on-site LPG tanks.

Traffic

Cardno has undertaken high level review of the traffic and parking assessment for the potential development. This assessment includes a review of F3 traffic volumes under existing and future conditions, a review of freeway ramp design requirements, parking requirements for the service centre, general road safety issues and a review of relevant standards and planning documentation

The current Average Annual Daily Traffic (AADT) for the F3 Freeway in the vicinity of the service centre site has increased by 3- 5% per annum between 2000 and 2005, with marginal growth or flat growth for the past three years. In the future, the F3 Freeway traffic volumes forecast shows an increase to at least 3% traffic growth per annum given the NSW State Government plans for the Lower Hunter Region. As part of the Lower Hunter Regional Strategy, substantial residential and employment growth is expected in nearby areas close to the service centre site within the next 25 years with major increases to traffic volumes and the emergence of new key regional centres such as Morisset.

The assessment of possible freeway ramp length for the lot indicates that it will be possible to avoid widening of the freeway bridge across Jigadee Creek to the north of the site. As part of the freeway ramp investigation, an assessment of the required sight distances were undertaken and are shown to meet all of the requirements of the relevant standards. Concept freeway ramp designs have been prepared and forwarded to RMS for review under a separate cover. These concept designs are included in Appendix B. A review of parking requirements were undertaken on the potential land use types and yields noting that these are only preliminary and are likely to be altered in future planning. Parking requirements were assessed for a service centre comprising 8 retail/restaurant tenants including the fuel provider and a drive through facility, a service station convenience store, and a truck stop with some overnight accommodation. The review was undertaken in accordance with the RTA's Guide to Traffic Generating Developments and the Lake Macquarie Council's Parking Development Control Plan (DCP). The RTA's guide requires some 252 car parking spaces, 8 service and delivery parking spaces and 25 truck parking spaces. Lake Macquarie Council requires 180 car parking spaces and does not provide requirements for service and delivery vehicles nor trucks. Accessible parking spaces are to be provided for 2% of total car parking.

General road safety issues were identified as part of this high level assessment in order to identify potential risks/issues in the service centre design development. Some of the issues include the need to reduce conflict points within the service centre site, a reduced speed limit, separation of light and heavy vehicles where possible, the provision for a safe pedestrian walkway and desire lines, general traffic calming measures and clear general traffic signage.

2 Introduction and Study Area

Cardno NSW has been commissioned to undertake an Infrastructure Services and Traffic Assessment for a potential development site adjacent to the F3 Freeway at Cooranbong, NSW. The potential development site is identified as Lot 4, DP264501.

The proposed development site is located on the western side of the F3 Freeway as shown on the site plan in **Appendix 1**. Rezoning will be sought to provide for the following development;

- A commercial/retail business;
- One sit down restaurant;
- Two take-away restaurants;
- A tourist information centre;
- Public toilets; and
- Car and truck parking facilities.

This report outlines the location and nature of existing services infrastructure at or proximate to the site and the upgrades that are envisaged to be required. As the investigation was conducted through "Dial Before You Dig" search and information obtained from nearby projects, further consultation with the relevant authorities will be required to confirm the strategy of delivering infrastructure services to the potential development following conformation of the final details of the development.

The report also includes an assessment of traffic for the potential development.

3 Water Supply

3.1 Existing Water Supply System

The site of the potential development is located within the Morisset-Wyee Water Supply System area and could potentially be supplied from the Dora Creek Reservoir located approximately 1.5m to the west of the site near Hawkmount Road. The nearest potential points of connection to potable water to service the lot is aDN300mm water main running along the northern verge of Newport Road at the frontage for the site and a DN150mm main located on Freemans Drive, west of the subject site.

3.2 Water Supply Servicing Strategy

The preferred point of connection for the proposed development is to the DN300mm main located at the southern frontage of the site.

An alternative connection point is available to a 150DN main on Freemans Drive to the north of the site and provision of a lead in main through an existing road reserve. Hunter Water identified this main as a suitable connection point for development of the neighbouring site (Lot 210 DPDP 702166) in 2009.

As these are existing water mains, the water pressure for fire fighting supply will need to be checked against the final levels for the development site In the event that final levels for the development are higher than that determined by Hunter Water for the purposes of fire fighting, upgrade to part of the water main or the lead in to the site may needed. An alternative to upgrading the water mains to provide on-site booster pump and dedicated fire fighting storage tanks sized to meet fire fighting needs subject to approval of Hunter Water.

Following the NSW Governments December 2008 levy reforms, Hunter Water is no longer able to levy developer charges to subsidise regional water upgrades.

A location plan of the nominated water connection point is included in **Appendix A.**

4 Sewer Servicing

4.1 Existing Sewer System

The existing subject site is presently not connected to Hunter Water's sewer system.

The nearest sewer potential connection points for the site is the dead end (DE) sewer located in Lot 1 DP 873984, 267 Newport Road, approximately 120m from the site boundary. This gravity main drains to the Cooranbong 9 Waste Water Pumping Station (WWPS).

A second potential sewer connection point is to the existing DE located approximately 600m west of the site at Lot 122 DP 709158, 764 Freemans Drive. This gravity main drains to the Cooranbong 8 WWPS.

This sewer then connects to the Waste Water Pumping Station which lies within the Dora Creek Waste Water Treatment Works (WWTW) catchment. Hunter Water will need to be consulted to seek for preliminary servicing advice on the connection point.

A location plan of the nominated sewer connection point is included in **Appendix 1.**

4.2 Required Sewer System Upgrades

Hunter Water carried out a regional servicing strategy for this system (Draft Cooranbong / Morisset Wastewater System Analysis) in 2008, however the subject development was not identified in this strategy.

Hunter Water advised in 2009 that there is capacity at the nearest Waste Water Treatment Plant (Dora Creek) to service the proposed development. Allocation of spare capacity will be confirmed once a Section 50 application is submitted and will be distributed on a "first come, first served" basis.

There are several feasible options to service the site for waste water disposal.

The preferred connection point to Hunter Water network is the nearest sewer located in Lot 1 DP 873984, 267 Newport Road. Approximately 120m of sewer lead in works is required to link the proposed development to Dora Creek Waste Water Treatment Works (WWTW) via a the existing gravity sewer network. Subject to final development details being confirmed and Hunter Water confirmation, upgrade to Cooranbong Waste Water Pump Station No. 9 is likely to be required to convey flows from the site to Dora Creek WWTP.

Connection to the existing sewer located at 764 Freemans drive via an public road reserve may also be possible. Subject to further investigation this may require construction of a private pumping station on the site in order to transfer site flows to this main. It is understood that WWPS No.8 to which the Freemans Drive network drains would not require upgrade to service the development.

Further investigation needs to be carried out to investigate whether a private sewer pumping station on site is required. This is dependent on the location of the connection point and whether there is sufficient grade to discharge the effluent. Considering the possible requirement for a private pump to sewer, Hunter Water will require a brief wastewater servicing strategy to review the possible servicing options, to confirm the preferred connection point for the lot and to recommend the best way to service the development.

An alternative to connecting to Hunter Water sewer network is on-site disposal using proprietary systems such as Envirocycle Units. It is understood that there will be a significant portion of the site that will be open space/undeveloped post development, however the waste demands expected to be generated by the potential land use would require substantial areas of open space for such systems to be effective and therefore, applying such on-site waste treatment for a development of this scale is not considered to be a viable option at this stage.

5 Electrical Servicing

5.1 Existing Electrical Supply Network

Based on the Energy Australia (Endeavour Energy) plans supplied for a nearby development, there is an 11kV overhead and underground services traversing the full length of the site from South to North. Endeavour Energy's asset data base indicates that there is an existing easement over this high voltage service traversing the site.

5.2 Electrical Servicing Strategy

The likely linkage point to supply the F3 Development will be to the 11KV aerial service traversing within the lot. Consultation with Endeavour Energy will be required to confirm the linkage point location.

A new on-site pad mount substation will be required to transform the power supply to 415vac for a service station development. Based on an assessment of electrical demands for the site, it is envisaged that a single 800kVA kiosk substation will be required for the lot. A 5.3m long by 3.3m wide easement will be required at the site of the substation. Endeavour Energy's approval will need to be sought for any works proximate to the electrical easement traversing the site from south to north. Minimum clearances to the aerial cables are required to be maintained which is likely to prevent or limit any filling with in the easement.

The proposed development is likely to be classified as *multi-occupant development on private property* under Energy Australia standards, which would mean that the dedication of an easement over the cables through private property from the dedicated customer substation to the linkage point, likely to be at the northern boundary of the site, would be required. We would expect that the easement width would be no more than 2m depending on final design details and further advice from Endeavour Energy.

A 4.0m right of carriageway will be required to enable Endeavour Energy access to the kiosk substations.

Based on demand calculations for the development, we would not expect the development to be classified by Endeavour Energy as a *Large Load Customer* which means that Endeavour Energy would be responsible for network upgrade costs associated with the existing network to the nominated linkage point, which as discussed above is likely to be at the northern boundary of the site. The developer will required to fully fund costs associated with:

- Making connection at the linkage point;
- Installation of HV electrical cabling from the linkage point to the substation – two dedicated cables are required to meet Endeavour Energy's requirements for a loop-in system;
- Labour, plant and materials for the installation of the substation. The reusable components of the substation equipment will be funded by Endeavour Energy (i.e. the transformer, HV switch gear and protection relays).

The contribution figure that Endeavour Energy will make to these works will be advised in a *Design Information Package*, which can be applied for when more details regarding the development are confirmed.

6 Transmission Line Easement

A 60m wide Transgrid transmission line easement bisects Lot 4. Transgrid has confirmed that the easement is required for future provision of transmission lines to the nearby Eraring Power Station and as such Transgrid is not in a position to reconsider any proposal to have the easement extinguished.

Certain development activities are permitted within the easement including:

- Driveways/access way crossings;
- Car parks;
- Minor structures e.g. picnic shelters and fences; and
- Underground utility service crossings.

Activities not permitted within the easement include:

- Construction of buildings (however, buildings can be built up to the easement boundary, including hazardous materials storage);
- Significant alteration of existing ground levels; and

- Vehicles traversing the easement of greater than 4.3m in height.

The developer would need to work with Transgrid when designing works within the easement and obtain Transgrid's approval. As there is no existing transmission infrastructure within the boundary, the future transmission lines as part of the F3 development will be designed in consideration of any new driveways, car parts etc which is in favour of the developer.

7 Telecommunications

7.1 Existing Telecommunications Network

Underground Telstra conduit is located within Lot 4 from the survey, which we understand service the existing dwelling on this lot. Further consultation with Telstra will be required to confirm the location of the Telstra conduit.

7.2 Telecommunications Servicing Strategy

The existing service will need to be upgraded to supply telecommunications infrastructure to the potential development and the existing network could be extended to meet the need of the potential development. The site would be serviced from the Cooranbong exchange which is ADSL2+ enabled.

Telstra will investigate supply options to the site upon formal application following confirmation of development details at the site. A business case will be prepared to determine the cost of the project in the context of new customer base at the site. Depending on the outcome of this analysis, Telstra would fully fund the required upgrades until the site boundary. The developer would be responsible for trenching and conduit works within the site

8 Natural Gas Supply

8.1 Existing Gas Network

According to "Dial Before You Dig" search, the Sydney-Newcastle primary gas main runs parallel to the F3 freeway on the eastern side.

The closest gas reticulation network is located in Morisset approximately 7km to the south of the Site.

8.2 Gas Supply Strategy

Through correspondence with Jemena (the Natural Gas Authority) on the nearby development, Jemena has advised that connection to the Sydney-Newcastle primary main to service the site would be very costly at approximately $1.5 million and involve a planning, design and construction phase of at least 24 months. The only other alternative is a potential future extension of the Morisset gas network to Cooranbong, however timing for this work is presently unknown. Initial conclusions are that servicing the site with gas within a reasonable timeframe and budget will be difficult and hence planning should process on the basis that energy supply will be from the electrical grid or by on-site LPG tanks.

9 Traffic and Parking

9.1 Introduction

This traffic and parking assessment includes a review of the existing situation in the vicinity of the site, traffic volumes, freeway ramp design, sight distances, general road safety, car parking requirements, traffic management and signage.

Reference Documents

The following documents have been referenced as part of this study:

- RTA (RMS) Northern Region AADT 2004;
- Lake Macquarie Council DCP;
- Lower Hunter Transport Needs Study – Traffic Analysis 2008;
- QLD DMR Road Planning and Design Manual 2005;
- RTA Road Design Guide Section 4 2000;
- Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings 2007; and
- Austroads Guide to Roads Design Part 4C: Interchanges 2009.

9.2 Existing Situation

The location of the site adjacent to the F3 Freeway is between the Newport Road underpass to the south, and the Freemans Drive overpass to the north. The nearest bridge to the north of the site crosses Jigadee Creek. The F3 Freeway at this location has a posted speed limit of 110km/hr.

9.3 Traffic Volumes

Annual Average Daily Traffic (AADT) volumes, as supplied by the RMS, for both directions of travel are shown in Table 1 below.

The F3 Freeway, at Hue Hue Road Overpass (Wyee), which is to the south of the site carried 38,877 vehicles in 2008. Between 2000 and 2004, the yearly traffic growth at this location was, on average, approximately 5% per annum. From 2005 to 2008, the traffic volume growth has remained relatively flat, on average, at approximately 1% per annum.

The F3 Freeway at Palmers Road Overpass which is to the north of the site carried 28,114 vehicles in 2008. Between 2000 and 2007, the yearly traffic growth at this location was approximately 3% per annum based on RMS data. From 2007 to 2008, the traffic volume growth has remained relatively flat.

Therefore, there is a noticeable difference of some 10,763 vehicles between the two count stations. This difference is due to the Mandalong Road interchange (full diamond) and the Freemans Drive interchange (half diamond).

Table 1 - RMS AADT Volumes

Location	2000	2001	2002	2003	2004	2005	2006	2007	2008
F3 Freeway at Hue Hue Road Overpass (Wyee)	32,258	32,702	36,000	37,490	38,494	37,881	38,178	39,304	38,877
F3 Freeway at Palmers Road Overpass	22,537	23,156	24,621	26,126	26,951	26,864	27,565	28,109	28,114

Whilst traffic volume growth has reduced slightly over the past few years, this is expected to increase in the future due to proposed major population increases in the nearby areas of the development site. As part of the NSW Government's Lower Hunter Regional Strategy, the area of Morisset is proposed to become a Major Emerging Regional Centre. Major increases in population growth in the areas of Cooranbong, Morisset and Wyee, are foreseen into the future which will further increase the traffic volumes along the F3 Freeway itself and the local road networks in these areas.

Based on traffic volume forecasts from the Lower Hunter Transport Needs Study – Traffic Analysis, conservative traffic growth forecasts of up to 3% are documented, however, this does not take into full consideration the anticipated developments and population growth of the area. It can therefore be estimated that yearly traffic growth on the F3 Freeway will be in excess of 3%, based on these studies as well as other major developments and major residential land releases in the area.

The Regional Strategy is the strategic land use planning framework to guide the sustainable growth of the Lower Hunter over the next 25 years. Key indicators of likely development growth in proximity of the F3 site include the Lower Hunter Regional Strategy; Part 3A applications, relevant urban settlement strategies; and local land release information.

A number of Part 3A applications for developments within the Lake Macquarie LGA have been lodged. It is noted that Catherine Hill Bay, Nords Wharf and Gwandalan are more than 20km from the site; however, the F3 will provide the principal transit route from these areas and hence they are likely to play a role in generating potential users of the site and its facilities.

9.4 Freeway Ramp Design

A concept design of the exit and entry ramps from the proposed service centre has been completed and lodged to the RMS for review and approval under a separate cover. The concept design drawings are included in Appendix 2. The design of the ramps complies with the following guidelines specified by RMS;

1. Austroads 'Guide to Road Design.
2. Roads and Maritime Services – Supplements to Austroads Guides.
3. Pacific Highway Design Guidelines – October 2009.

The design and compliance criteria is summarised below.

Design Element	Design Value	Compliance Value (Desirable Min)	Reference
Northbound Exit Ramp			
Diverge Length	110m	110m	Pacific Highway Design Guideline – Figure 3
Deceleration Distance	165m	150m	Austroads Guide to Road Design – Part 4a, Table 5.2
Grade Correction	No grade correction applied	No grade correction to be applied	Austroads Guide to Road Design – Part 4a, Table 5.3
Northbound Entry Ramp			
Acceleration Length	460m	430m	RMS Austroads Guide to Road Design Supplements – Part 4a, Table 5.4
Grade Correction	No grade correction applied	No grade correction to be applied	Austroads Guide to Road Design – Part 4a, Table 5.5
Auxiliary Lane Length	120m	120m	Pacific Highway Design Guideline – Figure 3
Taper Length	110m	110m	Pacific Highway Design Guideline – Figure 3

9.5 General Road Safety

The following items need to be catered for to ensure general road safety for vehicles from the F3 Freeway entering and exiting the service centre and within the service centre site including:

- Adequate sight distance is provided;
- Adequate and clear signage to and from the site;
- Signage placed to allow adequate decision time for drivers;
- Gore area clear of signage and obstacles (hazards);
- Low speed limit (20km/hr) and traffic calming upon entry to the Sites;
- Provide internal road network with minimal conflicts;
- Provide separation of light and heavy vehicles; and
- Traffic calming measures including speed humps, zig zag pavement markings, and rumble strips.

9.6 Car Parking Requirements

RTA Guide to Traffic Generating Developments

The RTA Guide to Traffic Generating Developments requires:

Service Station with Convenience Store

- 5 Spaces per 100m^2 GFA for service stations with convenience store.

Service Station with Work Bays

- 6 spaces per work bay for service stations with work bays.

Restaurant with Service Station

- Greater of 15 spaces per 100m^2 GFA or 1 space per 3 seats for restaurant within service stations.
- 1 space per 400m^2 GFA for restaurant for service and delivery vehicles.

Restaurant with Drive Through Facilities

- The greater of 1 space per 2 seats (internal seating) OR 1 space per 3 seats (internal and external seating) for drive-in take away food outlet with on site seating and drive through facilities.
- 1 space per 400m^2 GFA for restaurant for service and delivery vehicles.

Restaurant without Drive Through Facilities

- 12 spaces per 100m^2 GFA or the greater of 1 space per 5 seats (both internal and external seating) OR 1 space per 2 seats (internal seating) for drive-in take away food outlet with on site seating but no drive through facilities.
- 1 space per 400m^2 GFA for restaurant for service and delivery vehicles.

Motel

- 1 space per room + 1 space per 2 employees for motel.
- 1 space per 50 rooms for motel for service and delivery vehicles.

Truck Stop with Accommodation and Public Restaurant

- 1 truck parking space for each motel unit (overnight accommodation) plus 1 car space per 2 employees.
- 15 spaces per 100m^2 GFA or 1 space per 3 seats whichever is greater for public restaurant (50% allocated to truck parking for accommodation and public restaurant).

Lake Macquarie DCP Transport, Parking, Access and Servicing

The Lake Macquarie Development Control Plan (DCP) requires:

Service Station with Convenience Store

- 1 space per 60m^2 GFA for service stations with convenience store.

Service Station with Work Bays

- 1 space per work bay for service stations with work bays.

Restaurant with Service Station

- 1 space per 10m^2 GFA for restaurants within service stations.

Restaurant

- 1 space per 10m^2 GFA for restaurants.

Motel

- 1 space per short term room + 1 space per 2 employees for motel.

Truck Stop with Accommodation and Public Restaurant

- N/A.

Potential Development

The proposed yields for this development are still in the early stages of planning. The parking requirements estimated for this development is provided in the **Table 2** below (please note that land use types and yields may change in the future).

Accessible Parking Spaces

Accessible parking spaces are to be provided on site for 2% of total car parking spaces.

Table 2 - Development Parking Requirements

Land Use	GFA (m2)/ Size/ or Number	Car Parking Spaces Required by RTA	Delivery and Service Vehicle Spaces Required by RTA	Truck Spaces Required by RTA	Car Parking Spaces Required by Council
Service Station with Convenience Store	250m^2	13	1	-	4
Service Station with Work Bays	1	6	-	-	1
Restaurant within Service Station (Total 1)	250m^2	19#	1	19#	25
Restaurant (Total 4)	1000m^2	150	2	-	100
Drive Through Restaurant (Total 1)	250m^2, 100 seats internal and external	33	1	-	25
Non Drive Through Restaurant (Total 1)	250m^2, 100 seats internal and external	30	1	-	25
Truck Stop with Accommodation and Public Restaurant	6 beds and 250m^2 public restaurant and 2 employees	1	-	6	-
	TOTALS	**357**	**8**	**25**	**285**

* Note – the above parking requirements are for one site only. The truck stop is linked with the service station.

- 50% of the parking required for the restaurant is allocated to cars and 50% to trucks.

The provision for bus and coach, minivans and campervans as well as truck parking needs to be provided by the developer on an as needs basis.

F3 Development –
Cooranbong, NSW

APPENDIX

A

SITE PLAN

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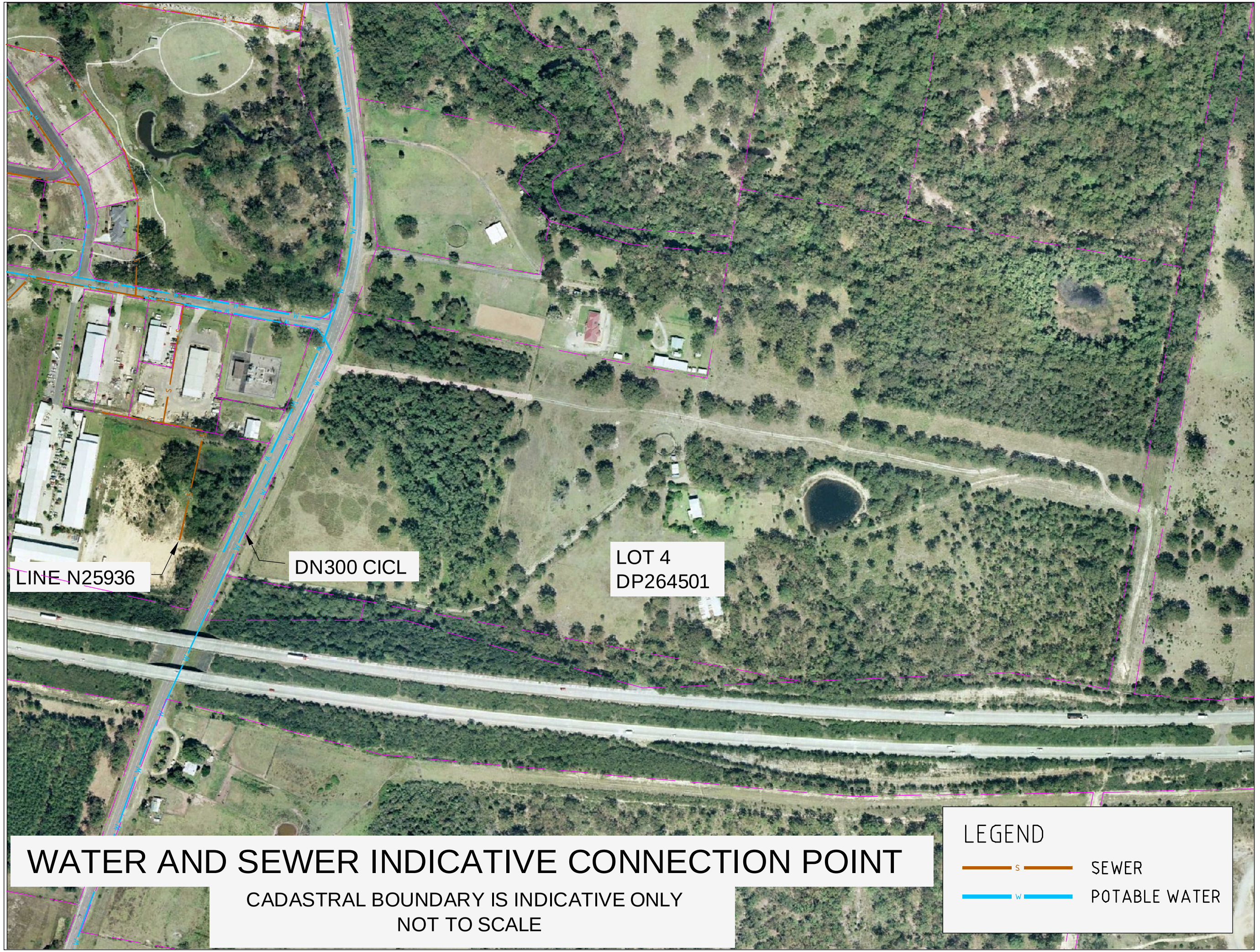
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LOT 4
DP264501
WATER AND SEWER INDICATIVE CONNECTION POINT
CADASTRAL BOUNDARY IS INDICATIVE ONLY
NOT TO SCALE
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S
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F3 Development –
Cooranbong, NSW

APPENDIX B

CONCEPT FREEWAY RAMP DESIGN DRAWINGS

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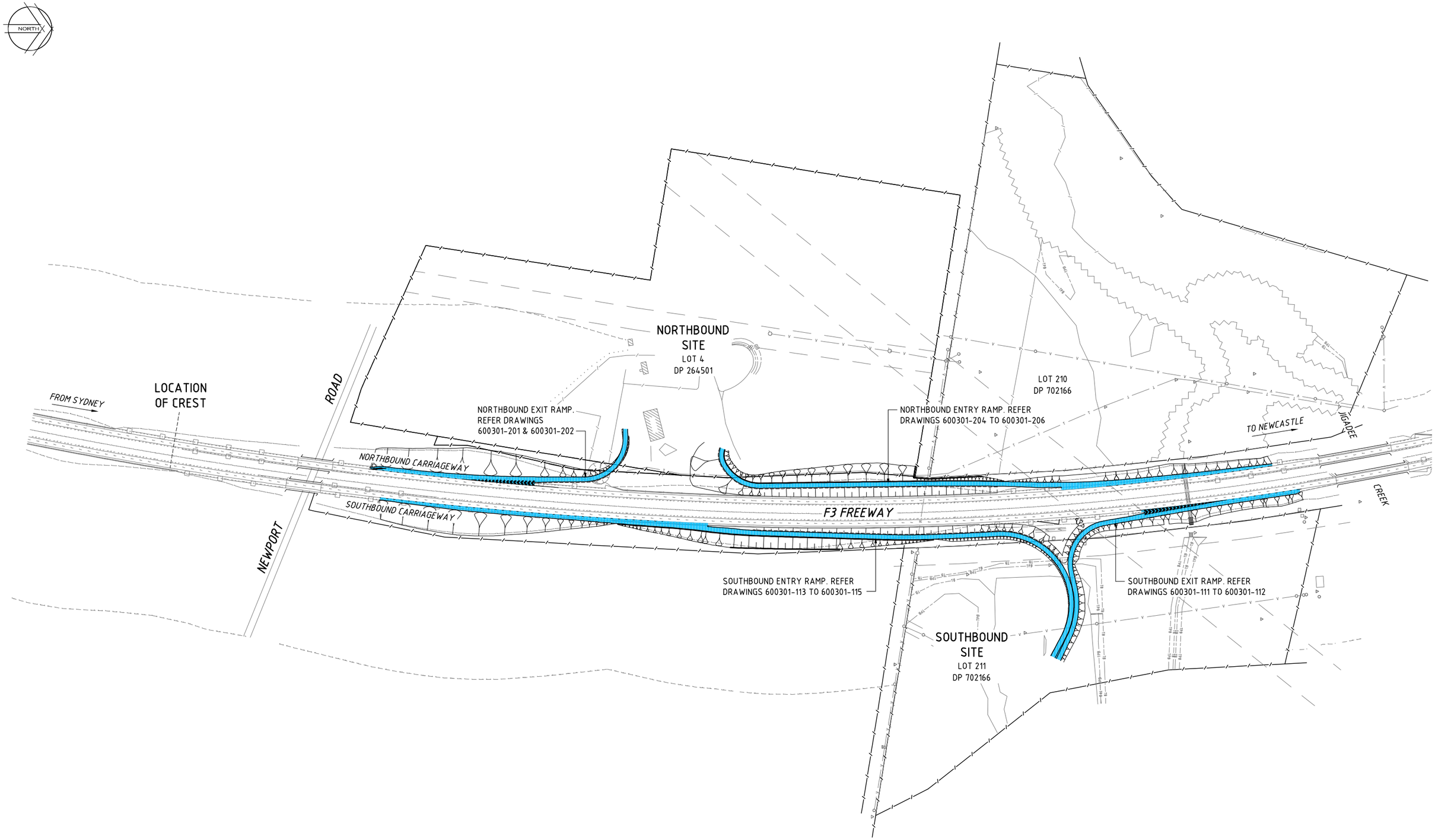

PLAN
SCALE 1:2500

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50 30 10
SCALE 1:2500

Rev.	Date	Description	Drawn	Appr.
2	14/06/2012	FOR APPROVAL	DPT	GJN
1	12/06/2012	FOR REVIEW	DPT	GJN

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		Date
Drawn	MJM	
Checked	GJN	
Designed	JLH	
Verified		
Approved		

Client: BLAXLAND PROPERTY

F3 SERVICE CENTRE DEVELOPMENT
COORANBONG NSW
CONCEPT RAMP DESIGN

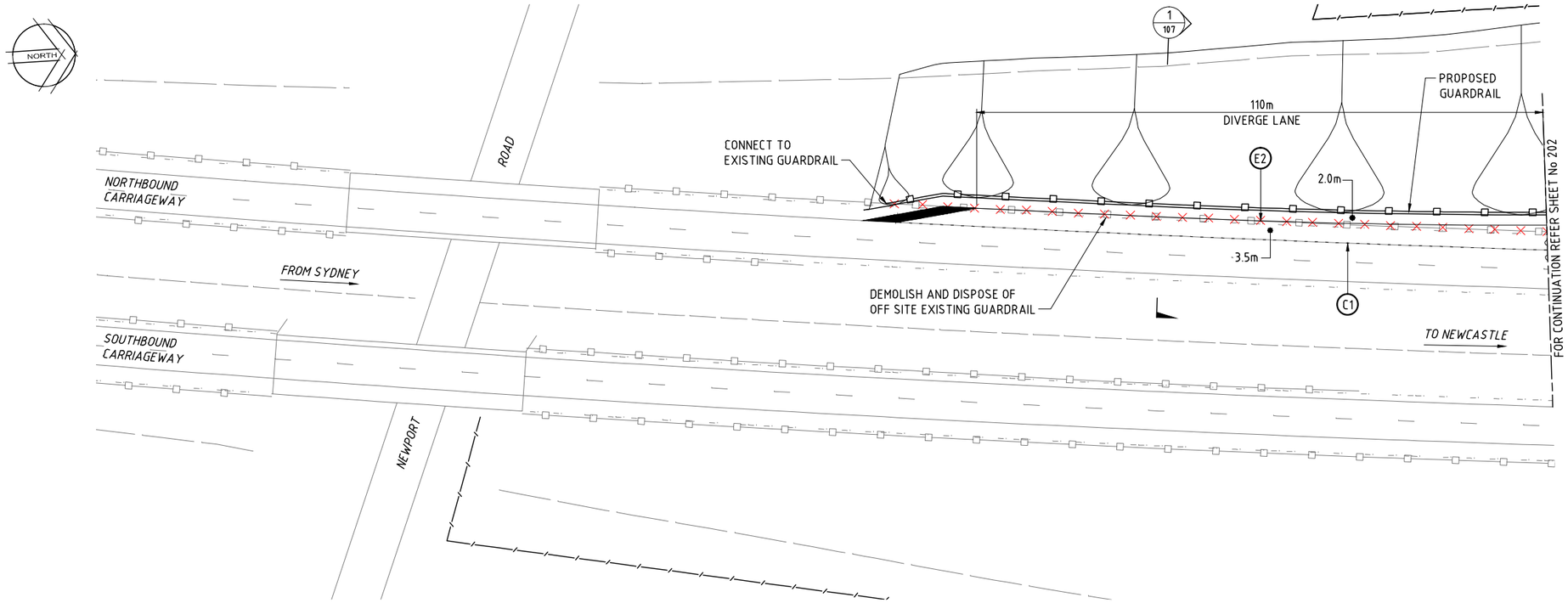
OVERALL PLAN

Status: NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
12/06/2012	AHD	AS SHOWN	A1

Drawing Number: 600301-200
Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL



PLAN
SCALE 1:500

LEGEND

EXISTING

- PROPERTY BOUNDARY
- LANE LINE
- GUARDRAIL
- GUARDRAIL TO BE REMOVED
- TELSTRA

PROPOSED

- VERGE
- GUARDRAIL
- BATTER
- VERGE
- SO — RTA TYPE SO GUTTER
- C1 — CONTINUITY LINE C1
- E2 — EDGE LINE E2
- E3 — EDGE LINE E3
- E4 — EDGE LINE E4

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

Rev	Date	Description	Drawn	Appr.
2	14/06/2012	FOR APPROVAL	DPT	GJN
1	12/06/2012	FOR REVIEW	DPT	GJN

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Quality Endorsed Company
AS 9001 Lic. 5960 Standards Australia

		Date
Drawn	MJM	
Checked	GJN	
Designed	JLH	
Verified		
Approved		

Client: BLAXLAND PROPERTY

F3 SERVICE CENTRE DEVELOPMENT
COORANBONG NSW
CONCEPT RAMP DESIGN

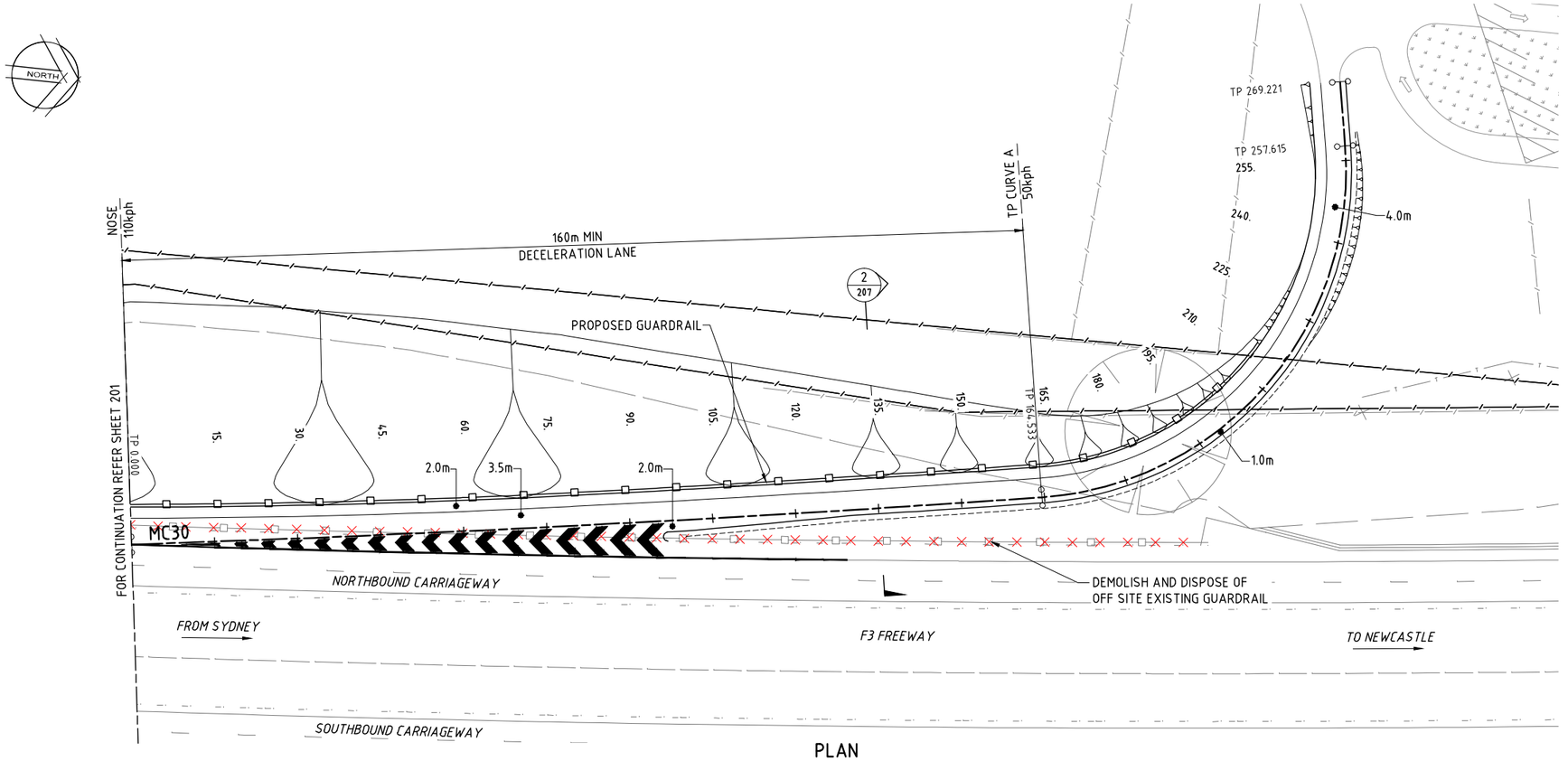
NORTHBOUND EXIT
PLAN & LONGITUDINAL SECTION - SHEET 1

Status: NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
12/06/2012	AHD	AS SHOWN	A1

Drawing Number: 600301-201
Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm
ON A1 ORIGINAL



PLAN
SCALE 1:500

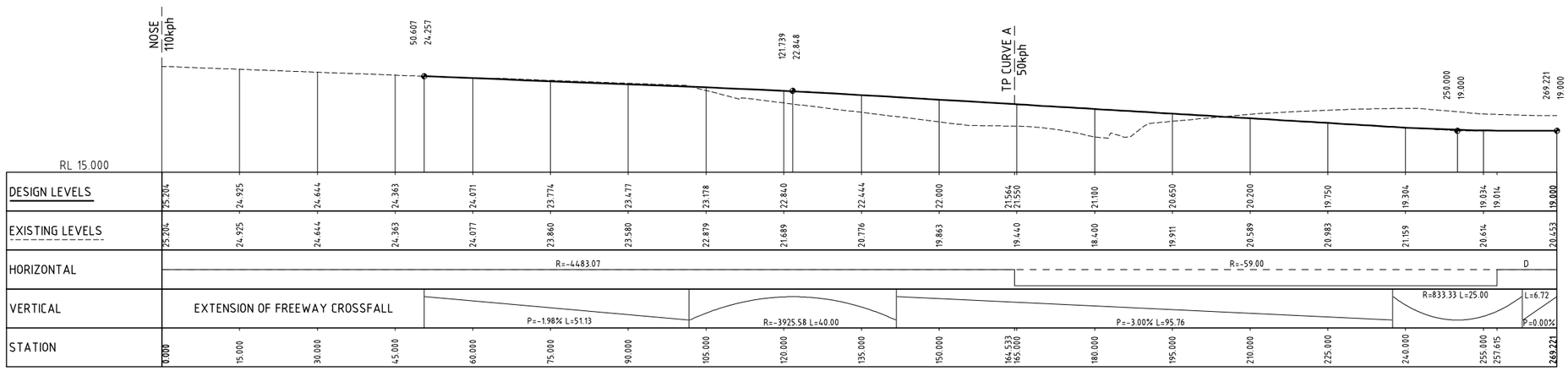
LEGEND

EXISTING

- PROPERTY BOUNDARY
- LANE LINE
- GUARDRAIL
- GUARDRAIL TO BE REMOVED
- TELSTRA

PROPOSED

- VERGE
- GUARDRAIL
- BATTER
- VERGE
- SO RTA TYPE SO GUTTER
- C1 CONTINUITY LINE C1
- E2 EDGE LINE E2
- E3 EDGE LINE E3
- E4 EDGE LINE E4



LONGITUDINAL SECTION - MC30 - NORTHBOUND EXIT
SCALE 1:500 (HORI)
SCALE 1:250 (VERT)

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

Rev	Date	Description	Drawn	Appr.
2	14/06/2012	FOR APPROVAL	DPT	GJN
1	12/06/2012	FOR REVIEW	DPT	GJN

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	Date
Drawn MJM	
Checked GJN	
Designed JLH	
Verified	
Approved	

Client: BLAXLAND PROPERTY

F3 SERVICE CENTRE DEVELOPMENT
COORANBONG NSW
CONCEPT RAMP DESIGN

NORTHBOUND EXIT
PLAN & LONGITUDINAL SECTION - SHEET 2

Status: NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
12/06/2012	AHD	AS SHOWN	A1

Drawing Number: 600301-202
Revision: 2

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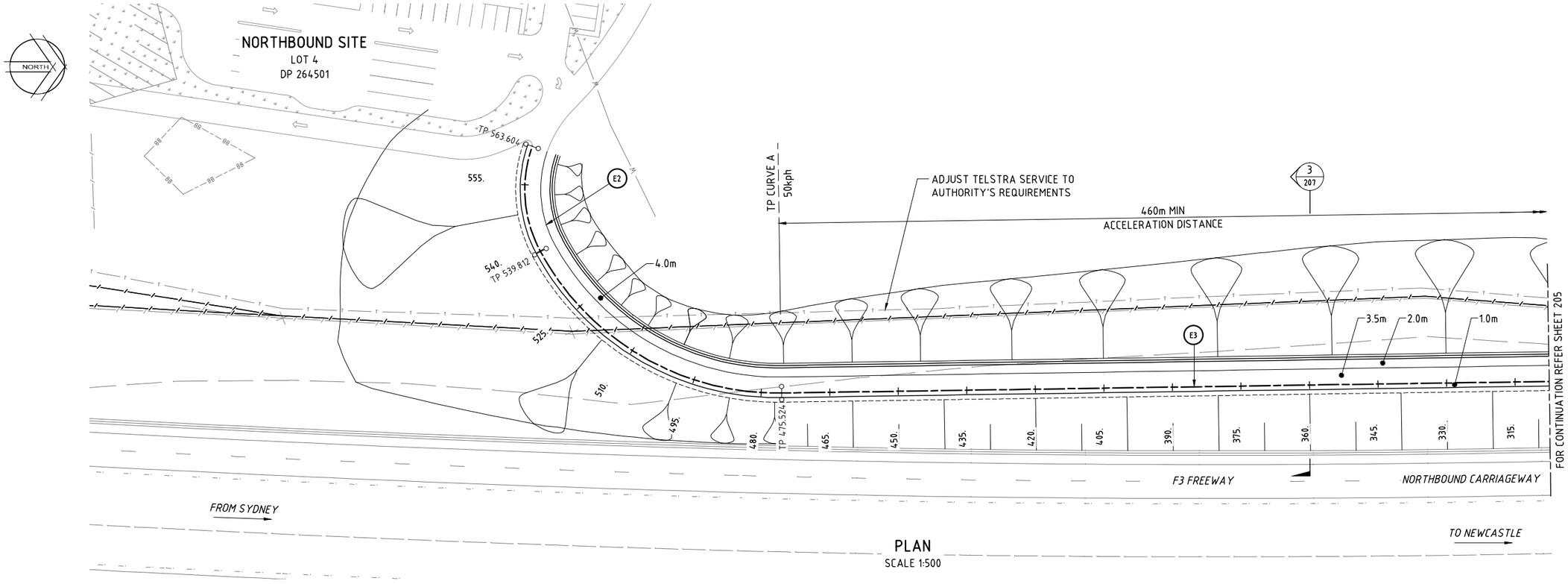
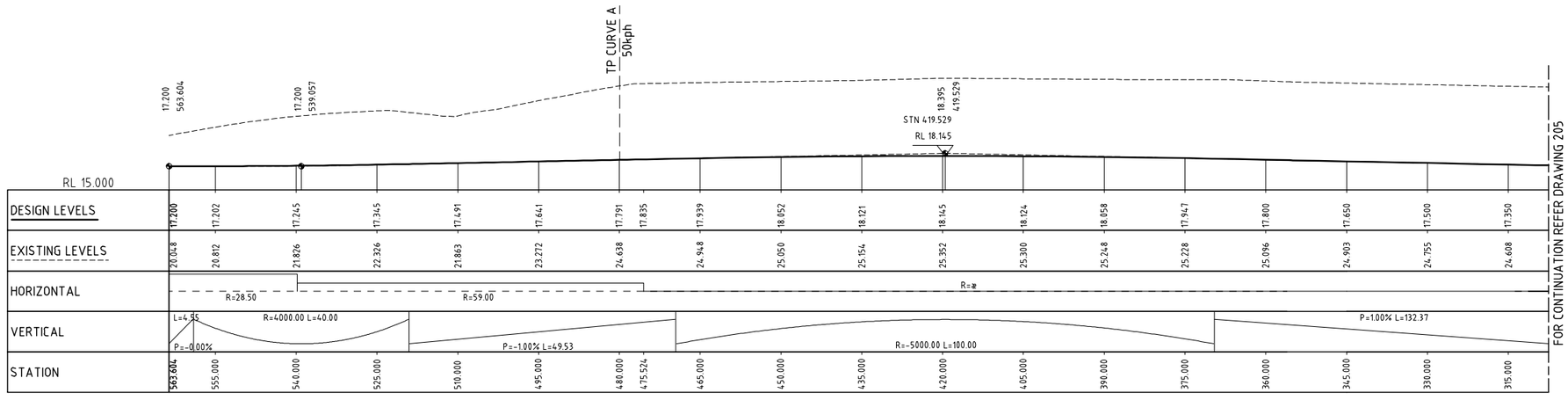


PLAN
SCALE 1:500

LEGEND

EXISTING
- PROPERTY BOUNDARY
- LANE LINE
- GUARDRAIL
- GUARDRAIL TO BE REMOVED
- TELSTRA

PROPOSED
- VERGE
- GUARDRAIL
- BATTER
- VERGE
- SO RTA TYPE SO GUTTER
- C1 CONTINUITY LINE C1
- E2 EDGE LINE E2
- E3 EDGE LINE E3
- E4 EDGE LINE E4



LONGITUDINAL SECTION - MC10 - NORTHBOUND ENTRY
SCALE 1:500 (HORI)
SCALE 1:250 (VERT)

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

Rev.	Date	Description	Drawn	Appr.
2	14/06/2012	FOR APPROVAL	DPT	GJN
1	12/06/2012	FOR REVIEW	DPT	GJN

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AS 9001 Lic. 3960 Standards Australia

		Date
Drawn	MJM	
Checked	GJN	
Designed	JLH	
Verified		
Approved		

Client: BLAXLAND PROPERTY

F3 SERVICE CENTRE DEVELOPMENT
COORANBONG NSW
CONCEPT RAMP DESIGN

NORTHBOUND ENTRY
PLAN & LONGITUDINAL SECTION - SHEET 1

Status: NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
12/06/2012	AHD	AS SHOWN	A1

Drawing Number: 600301-204
Revision: 2

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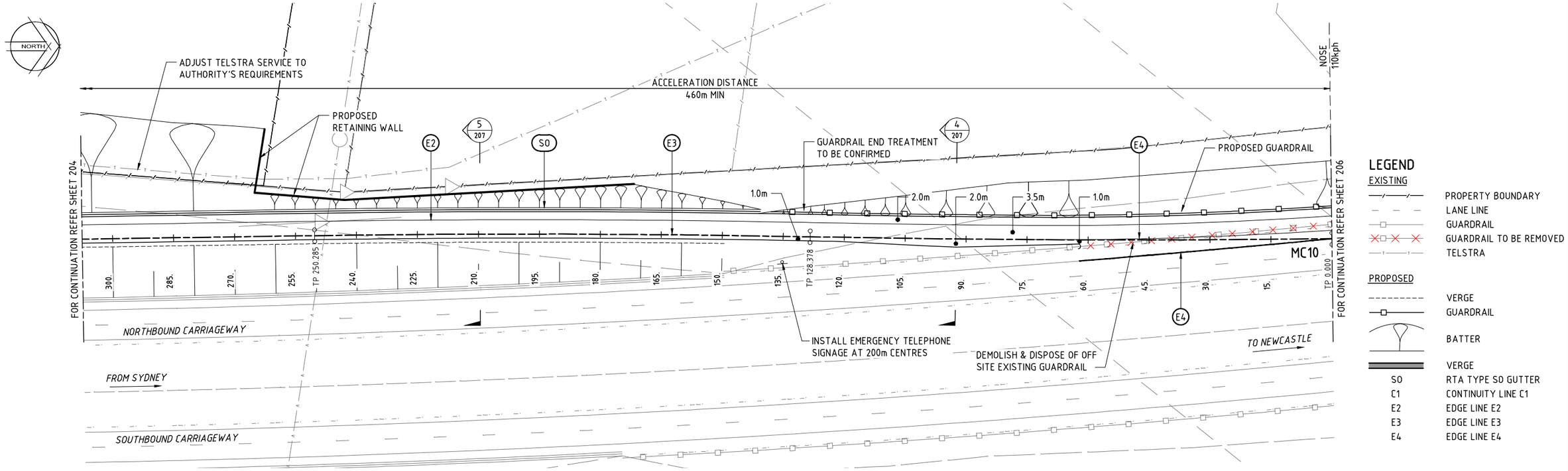
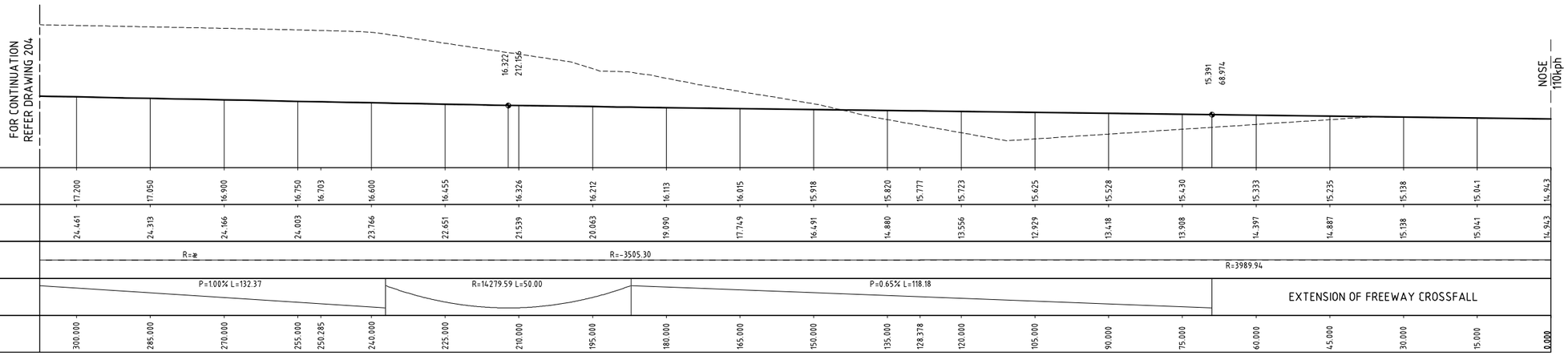


PLAN
SCALE 1:500

LEGEND

EXISTING
- PROPERTY BOUNDARY
- LANE LINE
- GUARDRAIL
- GUARDRAIL TO BE REMOVED
- TELSTRA

PROPOSED
- VERGE
- GUARDRAIL
- BATTER
- VERGE
- S0 RTA TYPE S0 GUTTER
- C1 CONTINUITY LINE C1
- E2 EDGE LINE E2
- E3 EDGE LINE E3
- E4 EDGE LINE E4



DESIGN LEVELS	17.200	17.050	16.900	16.750	16.703	16.600	16.455	16.326	16.212	16.113	16.015	15.918	15.820	15.777	15.723	15.625	15.528	15.430	15.333	15.235	15.138	15.041	14.943
EXISTING LEVELS	24.461	24.313	24.166	24.003		23.766	22.651	21.539	20.063	19.090	17.749	16.491	14.880		13.556	12.929	13.418	13.908	14.397	14.887	15.138	15.041	14.943
HORIZONTAL	R=∞							R=-3505.30															R=3989.94
VERTICAL	P=1.00% L=132.37							R=14279.59 L=50.00					P=0.65% L=118.18						EXTENSION OF FREEWAY CROSSFALL				
STATION	300.000	285.000	270.000	255.000	250.285	240.000	225.000	210.000	195.000	180.000	165.000	150.000	135.000	128.378	120.000	105.000	90.000	75.000	60.000	45.000	30.000	15.000	0.000

LONGITUDINAL SECTION - MC10 - NORTHBOUND ENTRY
SCALE 1:500 (HORI)
SCALE 1:250 (VERT)

0 5 10 15 20 25m
5 4 3 2 1
SCALE 1:250

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

Rev.	Date	Description	Drawn	Appr.
2	14/06/2012	FOR APPROVAL	DPT	GJN
1	12/06/2012	FOR REVIEW	DPT	GJN

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Drawn	MJM	Date
Checked	GJN	Date
Designed	JLH	Date
Verified		Date
Approved		Date

Client: BLAXLAND PROPERTY

F3 SERVICE CENTRE DEVELOPMENT
COORANBONG NSW
CONCEPT RAMP DESIGN

NORTHBOUND ENTRY
PLAN & LONGITUDINAL SECTION - SHEET 2

Status: NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
12/06/2012	AHD	AS SHOWN	A1

Drawing Number: 600301-205
Revision: 2

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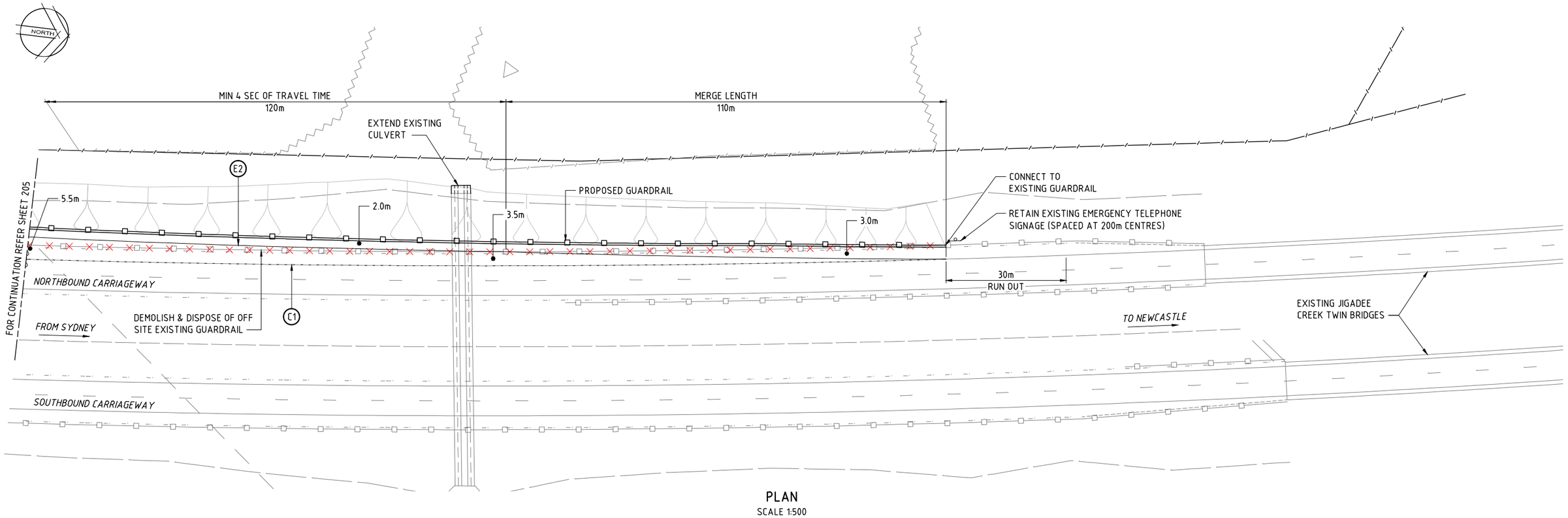

PLAN
SCALE 1:500

LEGEND

EXISTING

- PROPERTY BOUNDARY
- LANE LINE
- GUARDRAIL
- GUARDRAIL TO BE REMOVED
- TELSTRA

PROPOSED

- VERGE
- GUARDRAIL
- BATTER
- VERGE
- SO — RTA TYPE SO GUTTER
- C1 — CONTINUITY LINE C1
- E2 — EDGE LINE E2
- E3 — EDGE LINE E3
- E4 — EDGE LINE E4

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

Rev	Date	Description	Drawn	Appr.
2	14/06/2012	FOR APPROVAL	DPT	GJN
1	12/06/2012	FOR REVIEW	DPT	GJN

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		Date
Drawn	MJM	
Checked	GJN	
Designed	JLH	
Verified		
Approved		

Client: BLAXLAND PROPERTY

F3 SERVICE CENTRE DEVELOPMENT
COORANBONG NSW
CONCEPT RAMP DESIGN

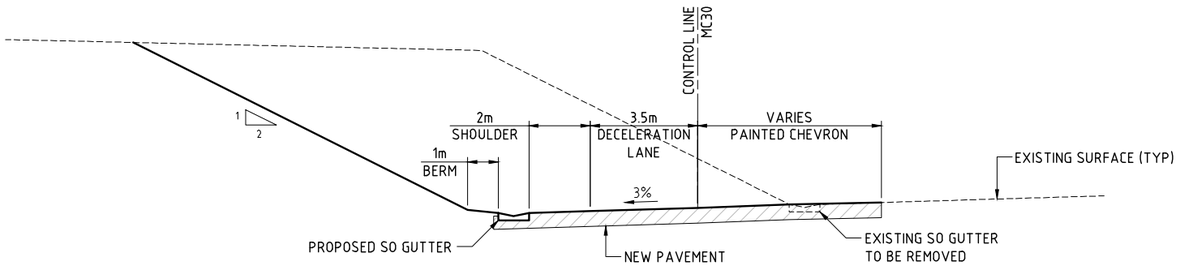
NORTHBOUND ENTRY
PLAN & LONGITUDINAL SECTION - SHEET 3

Status: NOT FOR CONSTRUCTION

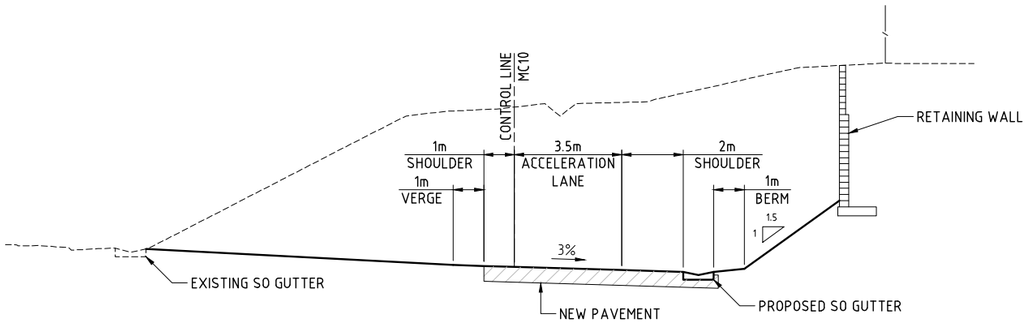
Date	Datum	Scale	Size
12/06/2012	AHD	AS SHOWN	A1

Drawing Number: 600301-206
Revision: 2

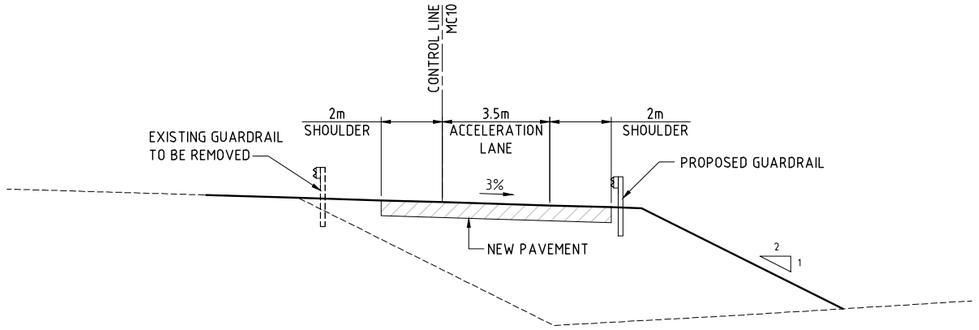
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL



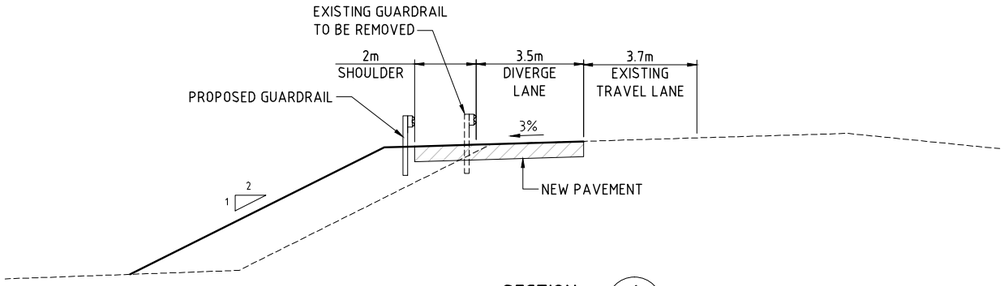
SECTION 2
SCALE 1:100 202



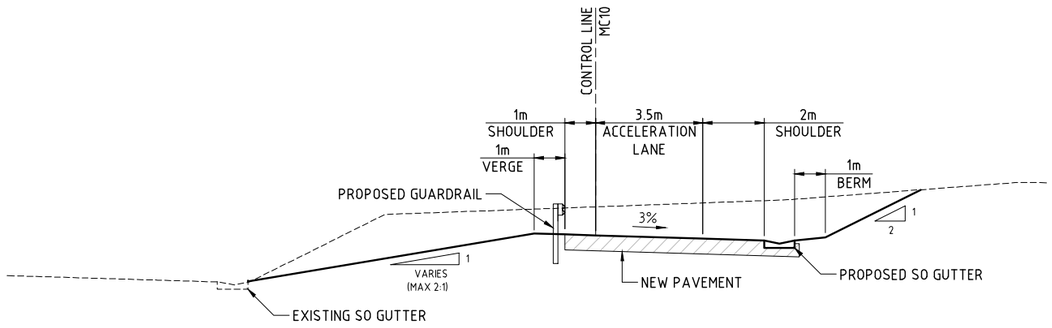
SECTION 5
SCALE 1:100 205



SECTION 4
SCALE 1:100 205



SECTION 1
SCALE 1:100 201



SECTION 3
SCALE 1:100 204

0 2 4 6 8 10m
SCALE 1:100

Rev	Date	Description	Drawn	Appr.
2	14/06/2012	FOR APPROVAL	DPT	GJN
1	12/06/2012	FOR REVIEW	DPT	GJN

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Drawn	MJM Date
Checked	GJN Date
Designed	JLH Date
Verified	Date
Approved	Date

Client: BLAXLAND PROPERTY

F3 SERVICE CENTRE DEVELOPMENT
COORANBONG NSW
CONCEPT RAMP DESIGN

NORTHBOUND
TYPICAL SECTIONS

Status: NOT FOR CONSTRUCTION

Date	Datum	Scale	Size
12/06/2012	AHD	AS SHOWN	A1

Drawing Number: 600301-207
Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL

Annexure 6

Letter from RMS

FILE COPY

Transport
Roads & Maritime
Services

3 August 2012

SF2011/018946
MJ

Mr Garry Neville
Cardno
PO Box 19
ST LEONARDS NSW 1590

Attention: Mr Garry Neville

SYDNEY TO NEWCASTLE FREEWAY (F3): PROPOSED NORTHBOUND SERVICE CENTRE, COORANBONG

Dear Mr Neville,

I refer to your letter dated 14 June 2012 regarding the revised design of the onload and offload ramps for the subject development forwarded to Roads and Maritime Services (RMS) for consideration.

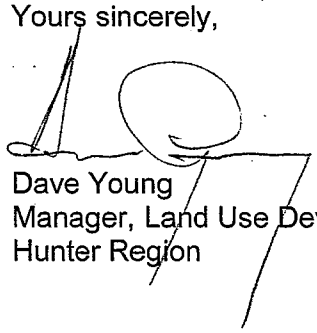
RMS has reviewed the revised strategic concept design for the northbound onload and offload ramps and the following comments apply:

- The review only addresses the feasibility of the option and does not consider all design criteria that will need to be incorporated in the concept and detail design
- The strategic concept design of horizontal and vertical alignments are considered satisfactory with regards to the northbound exit and entry ramps.
- As discussed, you may consider regrading the entry ramp to minimise earthworks and reduce the size of the retaining wall structure. A preliminary review of the regrading indicates that acceleration requirement for the design (42.5 tonne) vehicle (80-85kmh) can be satisfied.
- There are some anomalies in the sections shown. Sections shown on sheet 600301 - 207 do not reflect the information shown on the plans.

Please note that these are preliminary comments only. Further changes may be required at the concept and detailed design phases during the RMS Works Authorisation Deed process - subject to project approval.

Please contact me on 4924 0688 if you require further advice.

Yours sincerely,



Dave Young
Manager, Land Use Development
Hunter Region