

# Macquarie Heads Development Road

## Submission to the Parliamentary Standing Committee on Public Works

May 2014

# Table of Contents

<b>1. Introduction .....</b>	<b>4</b>
1.1 Background .....	4
1.2 Project Objectives .....	4
1.3 Project Location .....	4
1.4 Strategic Context of the Project .....	5
1.4.1 Alignment with Approved Strategies .....	5
1.4.2 Alignment with Planning Policies and Themes .....	6
<b>2. Project Details .....</b>	<b>7</b>
2.1 Proposed Works .....	7
2.2 Design Speed .....	7
2.3 Road Cross Section .....	7
2.4 Drainage .....	7
2.5 Utilities .....	7
2.5.1 Overhead Power .....	8
2.5.2 Telecommunications Cables .....	8
2.5.3 Sewer and Water .....	8
<b>3. Social, Environmental Impacts and Stakeholder Engagement .....</b>	<b>9</b>
3.1 Property Acquisition .....	9
3.2 Noise .....	9
3.3 Flora .....	9
3.4 Fauna .....	9
3.5 Aboriginal Heritage .....	10
3.6 Historic Heritage Assessment .....	10
3.7 Landscape and Visual Impacts .....	10
3.8 Stakeholder Engagement .....	10
3.9 Development Approvals .....	12
<b>4. Project Program and Costs .....</b>	<b>13</b>
4.1 Project Program .....	13
4.2 Costs .....	13
<b>5. Conclusion .....</b>	<b>14</b>
<b>Appendix A: Drawings .....</b>	<b>15</b>
<b>Appendix B: P50/P90 Cost Estimate .....</b>	<b>16</b>
<b>Appendix C: Stakeholder Concerns .....</b>	<b>17</b>
Summary of Concerns .....	17
Recommendations .....	18

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# 1. Introduction

The Department of Infrastructure, Energy and Resources (DIER) is undertaking detailed project planning for approximately 5.2km road improvements from Strahan to Smiths Cove. Funding of \$5.25 million has been allocated to this project.

The planned works are in response to the Development Permit issued by the West Coast Council to the Tasmanian Salmonid Growers Association (TSGA) to build an Aquaculture Hub at Smiths Cove.

The purpose of this report is to provide evidence to the Parliamentary Standing Committee on Public Works in support of the proposed upgrade of the roads from Strahan to Smiths Cove.

## 1.1 Background

The TSGA, representing Tassal, Huon Aquaculture and Petuna is currently constructing an aquaculture hub at Smith Cove. The hub will enable relocation of the aquaculture facilities on the wharf in the Strahan Town Centre and facilitate growth of the salmon industry in Macquarie Harbour. The expansion of the aquaculture industry at Macquarie Harbour will result in a doubling of production over five years to an estimated \$269 million per annum farm gate value. Construction of the hub is expected to support approximately 100 jobs and a further 163 operational jobs on completion.

In 2013 the State Government committed \$5.25 million for road improvements at Strahan to support the development of the aquaculture hub and meet the requirements of the Development Permit issued by the West Coast Council. In addition, the State Government negotiated the transfer of ownership of Harvey Street, Ocean Beach Road and Macquarie Heads Road to the Crown (DIER) and the transfer of Harold Street, Esplanade, Bay Street, Innes Street and a section of Andrew Street to West Coast Council. Following the road ownership transfers DIER commenced investigations and planning for upgrade of Harvey Street, Ocean Beach Road and Macquarie Heads Road.

## 1.2 Project Objectives

The objective of this project is to upgrade Macquarie Heads Development Road to contemporary standards to provide for the forecast increase in traffic generated by the expansion of the aquaculture industry at Macquarie Harbour and development of shore based facilities at Smiths Cove. In recognition of the increased heavy vehicle traffic giving rise to increased potential conflict with pedestrians, the project also aims to increase the safety of pedestrians in Harvey Street.

## 1.3 Project Location

The project involves upgrading following roads as shown in the locality plan (Figure 1) below:

- Harvey Street from the Lyell Highway to the Manuka River Bridge
- Ocean Beach Road from the Manuka River Bridge to Macquarie Heads Road, and
- Macquarie Heads Road from Ocean Beach Road to Smiths Cove Road..



Figure 1 Locality Plan Base image by TASMAP [www.tasmap.tas.gov.au](http://www.tasmap.tas.gov.au) © State of Tasmania

## 1.4. Strategic Context of the Project

### 1.4.1 Alignment with Approved Strategies

The aquaculture hub development will result in the removal of existing aquaculture operations from the Strahan Town Centre. This will result in a reduction in heavy vehicle movements in an area used extensively by pedestrians, tourists and other road users unfamiliar with the area. Currently to access the Strahan Town centre, heavy vehicle traffic passes the Strahan School and with the relocation to the new aquaculture hub heavy vehicle traffic will no longer be travelling past the School.

In addition to the benefits associated with removing heavy vehicles from the Strahan Town Centre the Macquarie Heads Development Road upgrade project aligns with the following transport infrastructure strategies:

- Tasmanian Infrastructure Strategy (TIS)
  - The project is consistent with the core objective of the strategy, the coordination of land use development and infrastructure planning in that the upgrading of the road is a direct consequence of the aquaculture hub development. The project will also facilitate the commercial delivery of freight, enhancing logistics chain efficiency.
- The Cradle Coast Integrated Transport Strategy

- The upgrading of road infrastructure to support the growth of the aquaculture industry clearly demonstrates the project's contribution to the aim of the strategy to promote improved network access for freight and ensure the transport system supports and facilitates development opportunities and productivity improvements in private sector industries.
- The Road Safety Strategy
  - Key features of the project such as the provision of lane widening, improvement of sight distance and the construction of pedestrian facilities are incorporated to provide a road environment suitable for the expected road users. These features align with the aims of the Road Safety Strategy to provide road infrastructure that will recognise that human error in the road environment is inevitable, and that infrastructure should accommodate this error and minimise the consequences.
  - The removal of these vehicles is aligned with the Road Safety Strategy as it will improve road safety within the Strahan Town Centre.”

#### **1.4.2 Alignment with Planning Policies and Themes**

The project is consistent with the coordinated infrastructure planning policy theme within the Tasmanian Infrastructure Strategy as the project will support the development of the aquaculture hub at Smiths Cove, which has already received planning approval from the West Coast Council. There is an understanding within West Coast Council that the proposed road upgrade works are solely to support the operation of the aquaculture hub which Council has already supported and will be an important economic driver for the West Coast community.

## 2. Project Details

### 2.1 Proposed Works

The proposed works for the project will include:

- Upgrading of the Lyell Highway (Reid Street) and Harvey Street junction to cater for the turning movements of semi-trailers and improvement of pedestrian facilities.
- Construction of a footpath in Harvey Street from the Henty Main Road (Andrew Street) roundabout to the Manuka River Bridge.
- Widening of Ocean Beach Road from the Manuka River Bridge to Macquarie Heads Road to accommodate the tracking of High Productivity Vehicles.
- Strengthening of the existing pavement where required.
- Re-prioritisation of the Ocean Beach Road/Macquarie Heads Road junction.
- Widening and sealing of Macquarie Heads Road from the Strahan Airport to Smiths Cove Road.

### 2.2 Design Speed

The design speed for Harvey Street and Ocean Beach Road from the Manuka River Bridge through to west of Sarson Close is 50km/h and from west of Sarson Close to Smiths Cove Road is 70km/h. These design speeds are appropriate for the road environment which commences in a residential area and then passes through a recreational/commercial area.

The proposed works are shown on the drawings included as Appendix A.

### 2.3 Road Cross Section

The cross section adopted for this project is as follows:

- |                      |                                     |
|----------------------|-------------------------------------|
| • Traffic lanes      | 3.0m                                |
| • Unsealed shoulder  | 0.5m                                |
| • Verge              | 0.5m                                |
| • Offset to barriers | 4.0m from centreline (as a minimum) |

Curve widening is to be applied in accordance with Table 7.11 of the *Austroads Guide to Road Design Part 3: Geometric Design*.

### 2.4 Drainage

The existing roadside drainage does not provide adequate protection from water seepage for a substantial length of the road corridor, resulting in weakening of the pavement. The upgrade of Macquarie Heads Road will include the provision of table drains to provide protection of the pavement from water seepage.

### 2.5 Utilities

Utilities identified within the project area and potentially impacted by the road works include, overhead power, telephone, sewer and water.

### **2.5.1 Overhead Power**

Relocation of overhead power will be required at the following locations:

- Lyell Highway/Harvey Street junction;
- Proposed new footpath on the southern side of Harvey Street;
- Ocean Beach Road - Sarson Close to the Ocean Beach Road/Macquarie Heads Road Junction - There are two overhead electricity poles (one at chainage 2100 and the other at chainage 2170) which will require relocation so that the poles are clear of the traffic lanes;
- Re-prioritisation of the Ocean Beach Road and Macquarie Heads Road junction will require the relocation of an existing telecommunications cable which serves a private property close to the junction; and
- Macquarie Heads Road – Ocean Beach Road/Macquarie Heads Road Junction to Smiths Cove Road It is likely that in the vicinity of the Strahan Airport there will be a need to relocate a small number of overhead electricity poles. Whilst it is not currently intended to relocate overhead electricity poles which are located inside the clear zone, the establishment of table drains on both sides of the road will result in some poles potentially being destabilised and requiring them to be moved away from the road..

### **2.5.2 Telecommunications Cables**

Relocation of telecommunications cables will be required at the following locations:

- Lyell Highway/Harvey Street junction;
- The new footpath on the southern side of Harvey Street will require the adjustment of approximately six telecommunication pits. It is likely that the footpath will be located over the existing telecommunication cables although at this time it is not expected that relocation of the telecommunication cables will be required; to confirm this further consultation with the utility owners is required; and
- On the northern side of Ocean Beach Road there are telecommunications cables for the entire length, however only the section from chainage 1700 to chainage 2000 is likely to require relocation due to the need to widen the road on the northern side of this section. Adjustment to the levels of several telecommunications pits will also be required.:

### **2.5.3 Sewer and Water**

The water mains within the project area are understood to be of PVC construction and therefore it has not been possible to accurately locate the water mains during collection of the topographic survey. The surveyed location of aboveground infrastructure such as stop valves and fire hydrants does however provide an approximate location of the water and sewer mains. Relocation of sewer and water mains will be required at the following locations:

- Lyell Highway/Harvey Street junction, relocation of sewer pipe inspection lids;
- The new footpath on the Southern side of Harvey Street will require the relocation of two water fire hydrants and two stop valves to suit the new footpath levels; and
- The widening of Ocean Beach Road will require some stop valves and fire hydrants to be raised. It is not expected that relocation of the water main will be required however to confirm this further consultation with Taswater is required.



### **3. Social, Environmental Impacts and Stakeholder Engagement**

A key consideration during the Scoping Phase of the project has been developing an economically, environmentally and socially sustainable design. In the early stages of the project there was pressure from the Strahan community to provide a 'Strahan Bypass' to remove heavy vehicles from the township. As a bypass was not economically viable and would most likely have had an increased environmental impact through its larger footprint, the project team has worked with the community to develop a design which meets the freight needs of the TSGA, provides a road environment appropriate for the increased traffic generated by operation of the aquaculture hub and minimises the footprint of the works.

#### **3.1 Property Acquisition**

Widening of the Lyell Highway/Harvey Street junction will require the acquisition of small areas of land from several properties including:

- IGA supermarket on the corner of Reid Street and Harvey Street. This will not result in any operational impacts for the supermarket as the land required is located outside of the existing car park;
- Title Reference 244967/1 at Mill Bay, currently owned by Dare Roberston;
- West Coast Council (in the vicinity of Sarson Close) and Strahan Airport; and
- Crown land along Macquarie Heads Road, currently managed by the Department of Primary Industries, Water and Environment..

#### **3.2 Noise**

A desk top noise assessment has concluded that due to the low speed environment noise mitigation treatments will not be required for the Macquarie Heads Road project.

#### **3.3 Flora**

A botanical survey and fauna habitat assessment of the road corridor was undertaken in January 2014. No threatened flora species (either state listed or Commonwealth listed) are known to occur in the study area and therefore none are expected to be impacted by the proposed development.

The state listed horned orchid *Orthoceras strictum* (rare) is the only threatened flora species given a low to moderate chance of occurring within the study area. However, there is nothing specific about the site to suggest the species is likely to be present, and given the extensive amount of similar habitat in the area, the context of clearance associated with this project suggest that it would not have a significant impact to the species, if any at all.

#### **3.4 Fauna**

The Botanical Survey and Fauna Habitat Assessment identified that no threatened fauna species are likely to use the study area for nesting; however some may use parts for foraging. The Mill Bay area has been identified as a potential foraging habitat for the Azure King Fisher. Minimising the removal of Melaleuca Swamp Forest at Mill Bay will minimise potential impacts to Azure Kingfisher habitat.

Following the Information Day for the upgrade of the road corridor a resident of Strahan raised concerns of the possible presence of a nesting burrow for the Azure Kingfisher at Mill Bay Hill. Further survey of the area will be undertaken in June to provide a reasonable determination of the presence or absence of burrows suitable for nests of Azure Kingfisher at Mill Bay

### **3.5 Aboriginal Heritage**

Aboriginal Heritage Tasmania (AHT) completed a search of the Tasmanian Aboriginal Site Index (TASI) of the area for the proposed road upgrades (Harvey Street and Macquarie Heads Road) at Macquarie Harbour and advised that there are no Aboriginal heritage sites recorded within or close to the road corridor. Due to a review of previous reports and the area being highly disturbed it is believed that the area has a low probability of Aboriginal heritage being present. Accordingly there is no requirement for an Aboriginal heritage investigation and AHT have no objection to the project proceeding.

### **3.6 Historic Heritage Assessment**

No heritage listed properties will be impacted by the proposed road improvements. Accordingly there is no requirement for an application for a Work Permit under the Tasmanian Cultural Heritage Act 1995.

### **3.7 Landscape and Visual Impacts**

The design for the upgrade of Macquarie Heads Development Road has been developed to minimise the requirements of significant excavations. The Road widening at Mill Bay will require excavations to the hill on the west side of the road to avoid significant vegetation removal along the foreshore and the impacts to the foreshore embankment.

The excavations at Mill Bay will be minimised through the construction of wall for approximately 100 metres. The wall will be constructed using 1 cubic metre concrete blocks and will vary in height from 1 metre to 4 metre. The concrete blocks will be of a neutral colour to blend, rather than contrast with the landscape when viewed from surrounding locations.

### **3.8 Stakeholder Engagement**

In delivering the project, inputs from the West Coast Council, Strahan community and the Tasmanian Salmonid Growers Association (TSGA) have been obtained and considered during the decision making process.

Stakeholder activities commenced in early 2014 and have included:

- Meeting with West Coast Council representatives to brief on project and clarify development application requirements;
- Establishing a project website at DIER  
[http://www.transport.tas.gov.au/infrastructure\\_projects/macquarie\\_heads\\_road\\_strahan\\_road\\_improvements](http://www.transport.tas.gov.au/infrastructure_projects/macquarie_heads_road_strahan_road_improvements)
- Mail-out to adjacent residents advising of property surveys;
- Discussions with Strahan Streets working Group - Mark McDermott (resident of Andrew Street north of Harvey Street) and Dianne Coon (business owner in Andrew Street South of Harvey Street);
- Meeting with Principal for Strahan Primary School to brief on the project and discuss;
- Meeting with Scott and Sharon Newitt – jetty owners in the Mill Bay area;

- Discussions with Tasmanian Salmonid Growers Association (TSGA) to brief on project progress and meeting outcomes;
- Meeting with IGA Supermarket owners to discuss land acquisition for road widening – confirming no impact on parking facilities;
- Meeting with Adam Main (TSGA) and Justin O'Connor (T-Hub Project Manager) to brief on project progress and to discuss funding options for additional footpaths outside of the scope of the project;
- Meeting with Adam Saddler from West Coast Council to discuss options for funding additional footpaths outside the scope of the project from the Vulnerable Road Users program;
- Meeting with West Coast Council representatives – Kellie Keating and Paul Lockwood to brief on project progress and public display;
- Meeting with Strahan Streets Working Group representatives, Mark McDermott, Dianne Coon, Sheree Halkett and Louise Hart to brief on project progress and public display;
- Initial contact with residents along Harvey Street adjacent to the new footpath to brief on footpath design impacts; and
- Public Display of preliminary design.

*The proposed Macquarie Heads Road Improvements design was put on display at the Strahan Primary School on Saturday 12 April from 10:00am – 2:00pm, followed by a static display left at the Strahan Visitor Information Centre from 12-28 April 2014. Response boxes were provided at both venues, asking for comments by 2 May 2014. Approximately 30 people attended the public display at Strahan Primary School.*

*The public display was promoted by the General Manager, West Coast Council in the 'Mayor on the Air' segment, through posters placed in key locations within Strahan and in "The Advocate Newspaper".*

*200 Brochures providing background information about the project and details of the public display were sent to Strahan residents via the Strahan Post Office.*

Comments received on the comment forms provided at the public display include:

- Mr McDermott raised concerns about potential damage to buildings in Andrew Street from heavy vehicle usage on the road and a need for formal pedestrian facilities;
- Dianne Coon raised concerns regarding the increased use of roads within Strahan by heavy vehicles and enquired whether a bypass had been considered (there was some media coverage of this issue);
- Concerns regarding the safety of current and predicted number of students travelling to and from school; and
- Concerns regarding trucks using Andrew Street to access the existing aquaculture and school children walking to school.

The Lyell Highway, Henty Main Road and Macquarie Heads Development Road are already part of an established heavy vehicle route. The proposed upgrades will deliver significant improvements to the existing road infrastructure and an extension to the existing pedestrian facilities in Harvey Street.

DIER has not undertaken investigations of a bypass. A bypass was not required as a condition of approval on the Permit issued by the West Council for the Aquaculture Hub. From previous green fields projects undertaken by DIER a new road constructed to a standard of carrying heavy vehicles would cost at least double the existing budget. Importantly a bypass would require significant environmental and geological surveys and potential be subject to extensive approvals processes. Consequently the planning and construction of a bypass would take considerable time to complete and would potentially delay the development of the aquaculture hub.

### **3.9 Development Approvals**

A Development Permit was issued by the West Coast Council in response to the application by the TSGA for the development of the Aquaculture Hub and the proposed roadworks will satisfactorily address the requirements of the permit with no further permits required.

As discussed above, with the Flora, Fauna and Heritage surveys concluding that the project would not impact on any significant heritage matters or threatened species referral and approval from the relevant State and Commonwealth Government authority is not required.

## **4. Project Program and Costs**

### **4.1 Project Program**

Advertising tenders is targeted for July 2014. This will allow the physical works on site to commence September/October 2014. A warm dry summer may allow the majority of the works to be completed over the 2014/15 construction season.

### **4.2 Costs**

A Strategic Cost Estimate has been prepared for the project using the Department of Infrastructure and Regional Development's Best Practice Cost Estimation Standard for Publicly Funded Road and Rail Construction (see Appendix 2). The outputs of the Strategic Cost Estimate (including cost escalation of 5%) are:

- P50: \$5.10 million
- P90: \$5.80 million

For the purpose of preparing the cost estimate the works were separated into the following sections:

- Lyell Highway/Harvey Street junction including pavement repairs on Harvey Street through to the Andrew Street roundabout;
- Harvey Street from the Andrew Street roundabout to the Manuka River Bridge;
- Ocean Beach Road from the Manuka River Bridge to east of the Ocean Beach Road/Macquarie Heads Road Junction (chainage 1250 to 2850);
- The Ocean Beach Road/Macquarie Heads Road junction (chainage 2850 to 3150); and
- Macquarie Heads Road (chainage 3150 to 5200).

## **5. Conclusion**

The design for the proposed upgrade of Macquarie Heads Development Road has been carried out in accordance with the appropriate design standards and guidelines.

Once complete, the works will provide a safer and higher standard road corridor from Strahan to Smiths Cove Road to provide for the expected increase in traffic generated by the expansion of the aquaculture industry at Macquarie Harbour.

The proposed road works will satisfactorily upgrade the road to an appropriate standard to address the requirements of the development permit.

## **Appendix A: Drawings**



# MACQUARIE HEADS DEVELOPMENT ROAD (A2820)

## NORTH WEST REGION

## STRAHAN

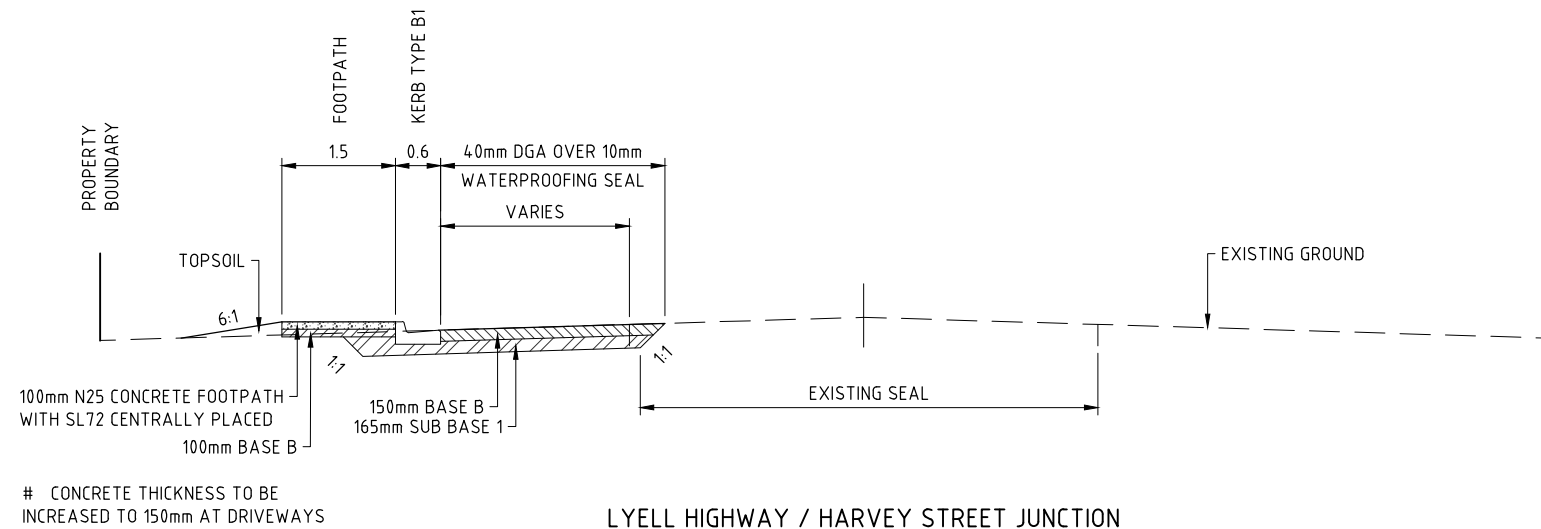
# PRELIMINARY DESIGN



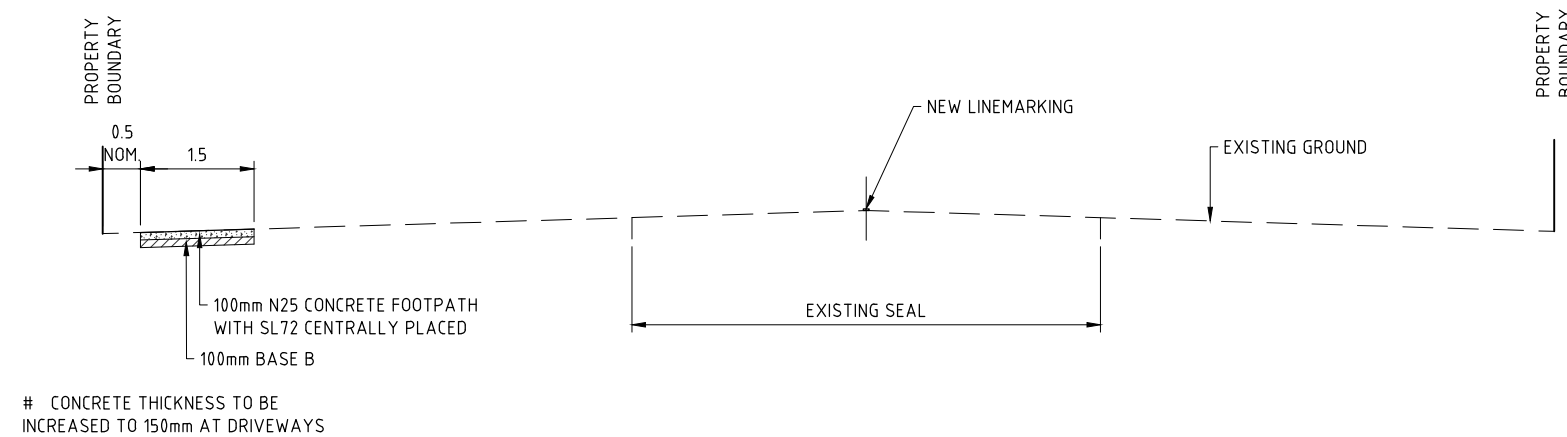
SETOUT REVIEW NAME ..... SIGNED ..... DATE .....	DESIGNED NAME F.SHADWICK ..... SIGNED ..... DATE .....	THESE DRAWINGS HAVE BEEN CHECKED, TAKEN TO SITE AND VERIFIED THAT THEY ARE APPROPRIATE FOR SITE CONDITIONS AND CONSTRAINTS. THE DRAWINGS ARE RECOMMENDED FOR ACCEPTANCE.  DESIGN MANAGER R.MANNERING (DESIGN ORGANISATION) ..... SIGNED ..... DATE .....	I CERTIFY THESE DRAWINGS HAVE BEEN PREPARED IN ACCORDANCE WITH THE BRIEF AND AS DETAILED IN THE FINAL DESIGN REPORT.  PRINCIPAL (DESIGN ORGANISATION) ..... SIGNED ..... DATE .....	THESE DRAWINGS HAVE BEEN PREPARED IN ACCORDANCE WITH THE DESIGN BRIEF AND PROJECT SCOPE. THE DRAWINGS ARE RECOMMENDED FOR ACCEPTANCE.  DIER PROJECT MANAGER ..... SIGNED ..... DATE .....	ACCEPTED MANAGER PROJECT SERVICES ..... SIGNED ..... DATE .....	CONTRACT No. XXXX	DRAWING HB13604-C1000	PRINTED DATE 12-May-14, 3:09 PM	No. of SHEETS -
						REGISTRATION NUMBER A2820.0000			SHEET No. 1000
STRUCTURAL REVIEW NAME ..... SIGNED ..... DATE .....	DESIGN REVIEW NAME R.MANNERING ..... SIGNED ..... DATE .....					ROAD LINK No. START: A2820 05 / 0.00 FINISH: A2820 05 / 5.19			REVISION B



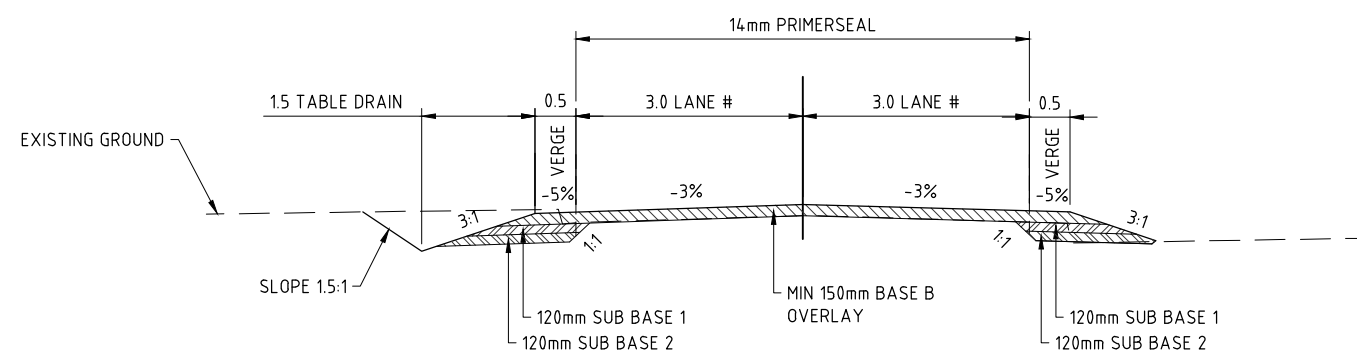




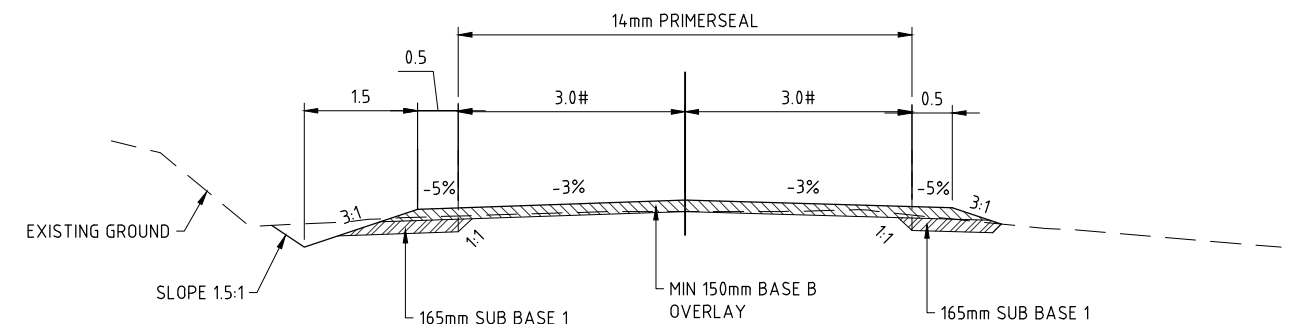
**LYELL HIGHWAY / HARVEY STREET JUNCTION**  
**PAVEMENT WIDENING**



**HARVEY STREET**  
**ANDREW STREET TO MANUKA RIVER BRIDGE**  
CH. 865 TO 1250 (MCM0)



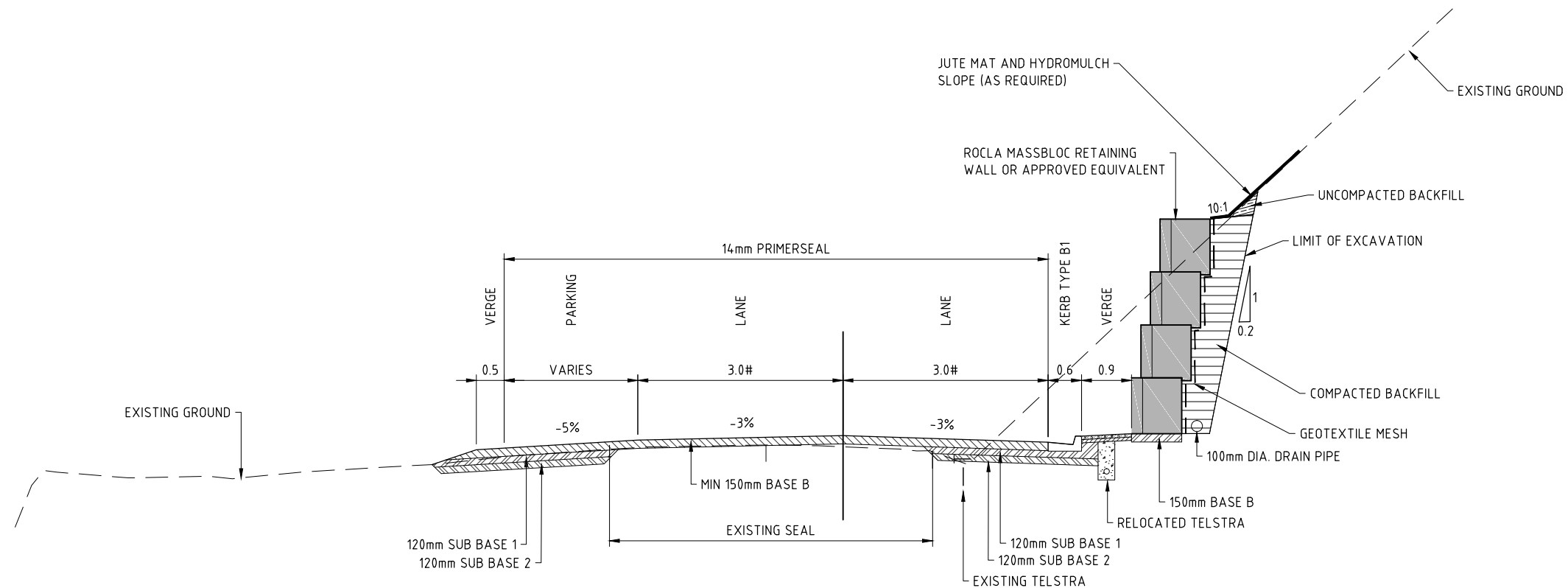
**OCEAN BEACH ROAD**  
**MANUKA RIVER BRIDGE TO MACQUARIE HEADS ROAD**  
CH 1250 TO CH 1950 (MCM0)



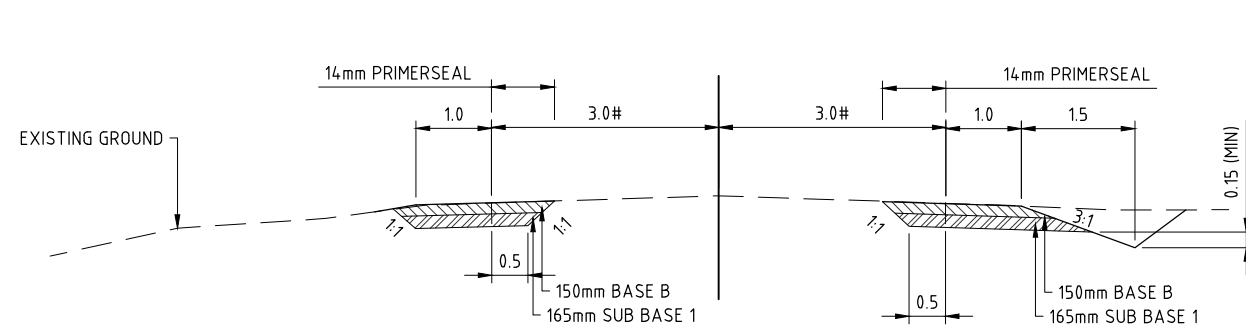
**OCEAN BEACH ROAD**  
**MANUKA RIVER BRIDGE TO MACQUARIE HEADS ROAD**  
CH 1950 TO CH 2120 (MCM0)  
CH 2200 TO CH 2350 (MCM0)  
CH 2650 TO CH 2850 (MCM0)  
CH 3150 TO CH 3310 (MCM0)

# 3m PLUS CURVE WIDENING WHERE REQUIRED  
VERGE WIDENS TO 1.0m FROM CH 2170 (MCM0) TO  
CH 2180 (MCM0) & CONTINUES TO CH 5200 (MCM0)

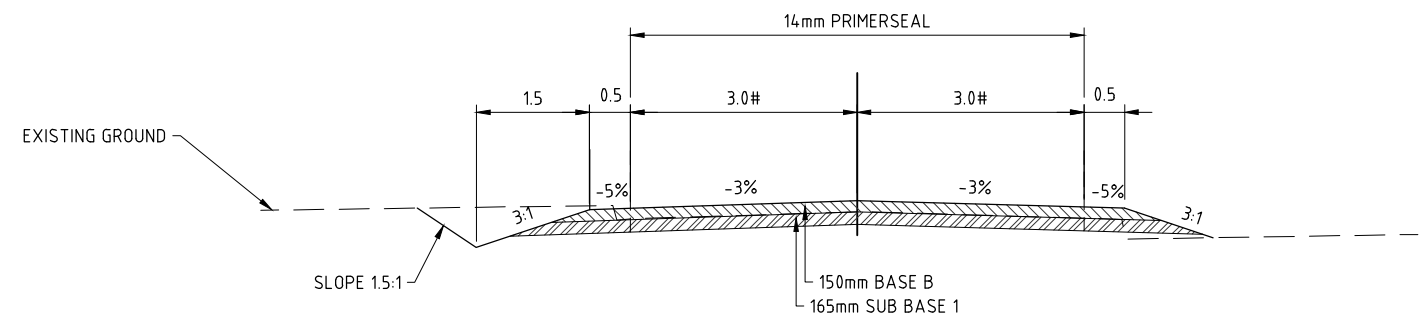
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OCEAN BEACH ROAD  
MANUKA RIVER BRIDGE TO MACQUARIE HEADS ROAD  
VICINITY OF MILL BAY






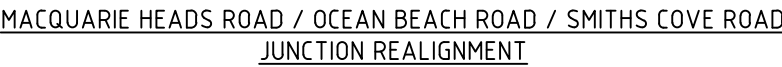
OCEAN BEACH ROAD  
MANUKA RIVER BRIDGE TO MACQUARIE HEADS ROAD  
CH 2350 TO CH 2650 (MCM0)  
CH 3400 TO CH 3480 (MCM0)






OCEAN BEACH ROAD  
MANUKA RIVER BRIDGE TO MACQUARIE HEADS ROAD  
CH 2120 TO CH 2200 (MCM0)  
CH 2850 TO CH 3150 (MCM0)  
CH 3310 TO CH 3400 (MCM0)

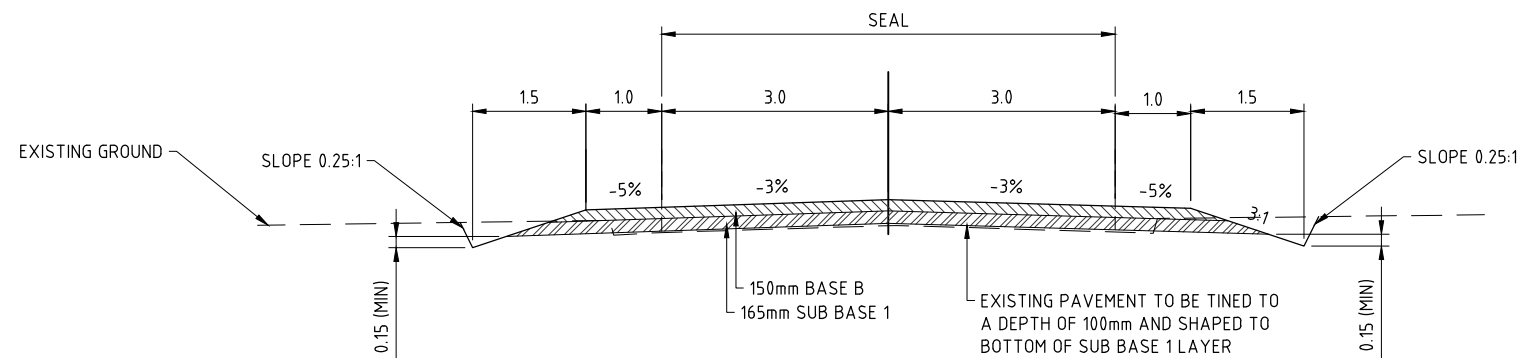
# 3m PLUS CURVE WIDENING WHERE REQUIRED  
VERGE WIDENS TO 1.0m FROM CH 2170 (MCM0) TO  
CH 2180 (MCM0) & CONTINUES TO CH 5200 (MCM0)

				SCALES		 		Infrastructure Energy and Resources				CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
				1:100 (A3)				MACQUARIE HEADS DEVELOPMENT ROAD (A2820)				XXXX	HB13604-C1012	12-May-14, 3:10 PM	
B	ISSUE FOR DEPARTURE FROM STANDARD APP	R.M.	12/05/14					NORTH WEST REGION							
A	ISSUE FOR PRELIMINARY DESIGN	R.M.	02/04/14	SCALE IN METRES - 1:100				STRAHAN							
No.	Amendment Description	Initials	Date									REGISTRATION NUMBER			
A3 original	This sheet may be prepared using colour and may be incomplete if copied			Co-ordinate System: MGA ZONE 55		Height Datum: A.H.D.		TYPICAL CROSS SECTIONS - DRG 2 OF 4				A2820.0000			
												1012			
												REVISION B			

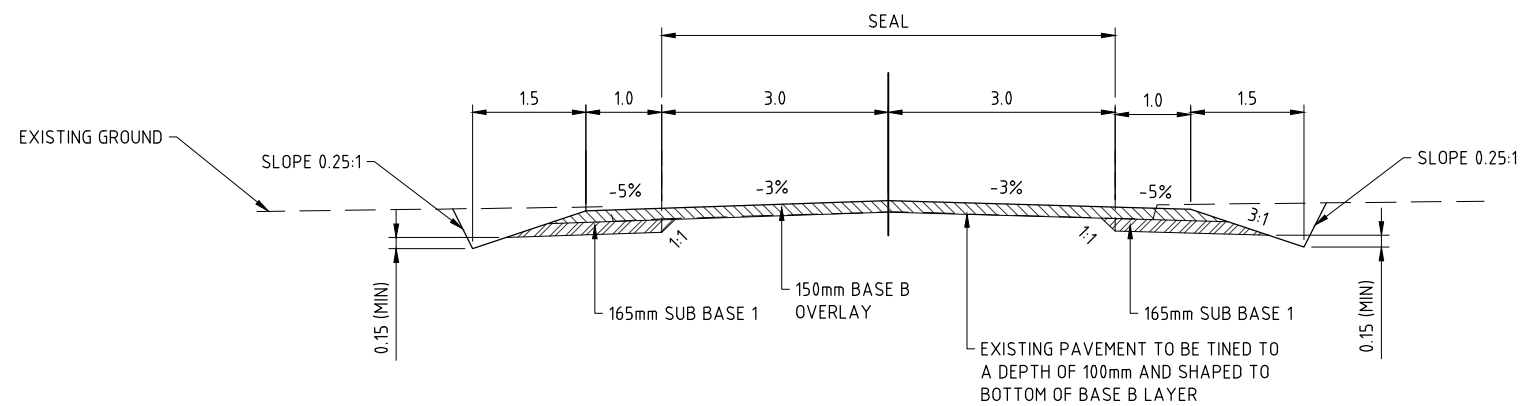


# 3m PLUS CURVE WIDENING WHERE REQUIRED  
VERGE WIDENS TO 1.0m FROM CH 2170 (MCM0) TO  
CH 2180 (MCM0) & CONTINUES TO CH 5200 (MCM0)

				<div>SCALES</div> <div>1:100 (A3)</div> <div></div> <div>SCALE IN METRES - 1:100</div>		<div></div> <div></div>		Infrastructure Energy and Resources			CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.  1013
								MACQUARIE HEADS DEVELOPMENT ROAD (A2820) NORTH WEST REGION STRAHAN			XXXX	HB13604-C1013	12-May-14, 3:10 PM	
											REGISTRATION NUMBER <b>A2820.0000</b>			
B	ISSUE FOR DEPARTURE FROM STANDARD APP	R.M.	12/05/14			DESIGNED F.SHADWICK		TYPICAL CROSS SECTIONS - DRG 3 OF 4						
A	ISSUE FOR PRELIMINARY DESIGN	R.M.	02/04/14			REVIEWED R.MANNERING								
No.	Amendment Description	Initials	Date											
A3 original		This sheet may be prepared using colour and may be incomplete if copied		Co-ordinate System: MGA ZONE 55		Height Datum: A.H.D.					REVISION B			

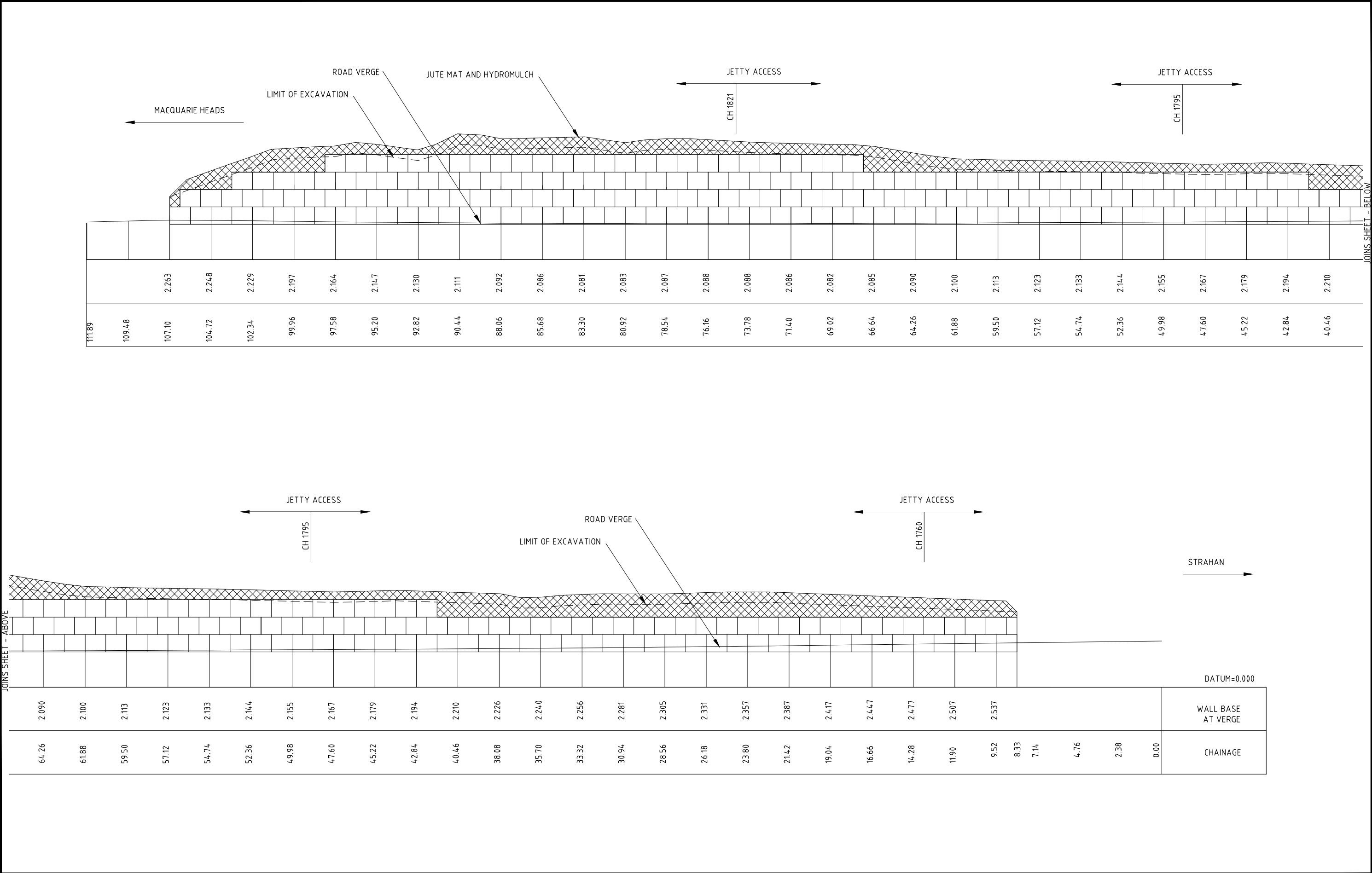




**MACQUARIE HEADS ROAD**  
 CH 3480 TO CH 3810 (MCM0)  
 CH 4080 TO CH 4320 (MCM0)  
 CH 4500 TO CH 4980 (MCM0)

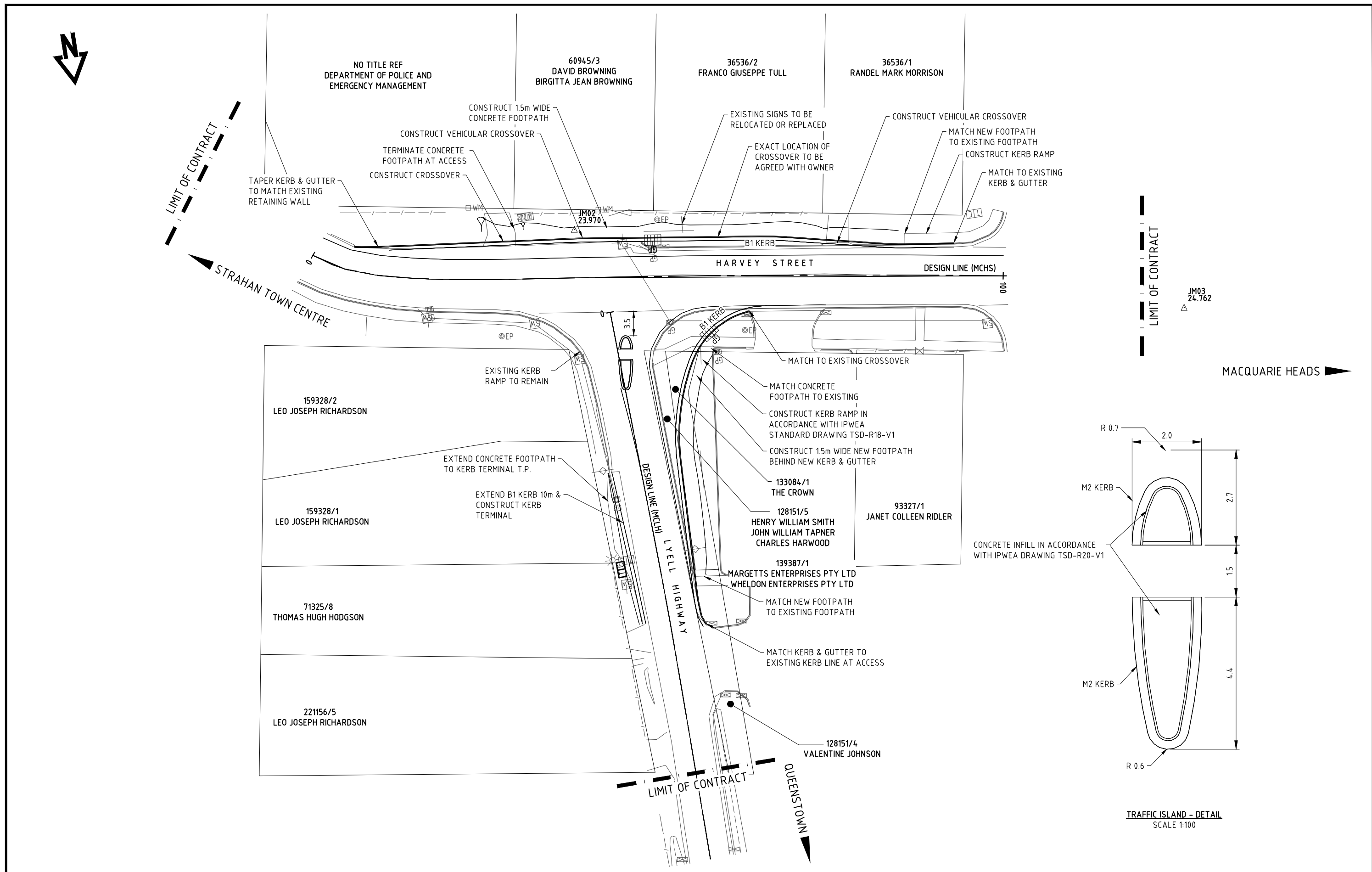





**MACQUARIE HEADS ROAD**  
 CH 3810 TO CH 4080  
 CH 4320 TO CH 4500  
 CH 4980 TO CH 5200

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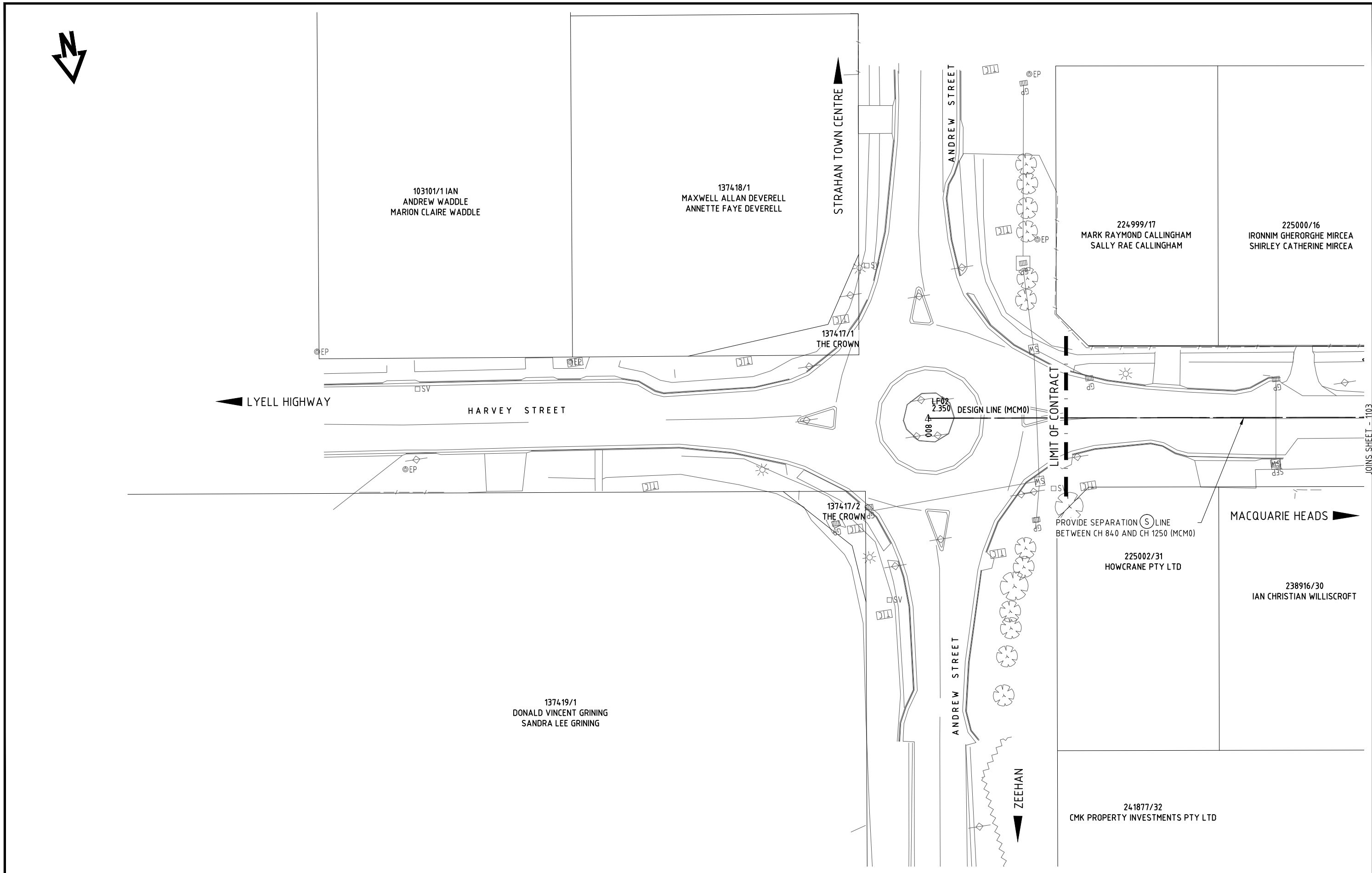





				SCALES (NTS)				Infrastructure Energy and Resources		CONTRACT No. XXXX	DRAWING HB13604-C1021	PRINTED DATE 12-May-14, 3:10 PM	SHEET No.  1021
								MACQUARIE HEADS DEVELOPMENT ROAD (A2820) NORTH WEST REGION STRAHAN		REGISTRATION NUMBER  A2820.0000			REVISION A
A	ISSUE FOR DEPARTURE FROM STANDARD APP							R.M.	12/05/14	DESIGNED F.SHADWICK			
No.	Amendment Description			Initials	Date	REVIEWED R.MANNERING							
A3 original	This sheet may be prepared using colour and may be incomplete if copied			Co-ordinate System: MGA ZONE 55		Height Datum: A.H.D.		RETAINING WALL PROFILE - CH 1755 TO CH 1855 (MCM0)					



						SCALES		 		Infrastructure Energy and Resources		CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
						1:500 (A3)				MACQUARIE HEADS DEVELOPMENT ROAD (A2820)		XXXX	HB13604-C1101	12-May-14, 3:10 PM	1101
										NORTH WEST REGION		REGISTRATION NUMBER			
						SCALE IN METRES - 1:500				STRAHAN		A2820.0000			
B		ISSUE FOR DEPARTURE FROM STANDARD APP		R.M.		12/05/14		DESIGNED		F.SHADWICK		GENERAL ARRANGEMENT - LYELL HWY JUNCTION			
A		ISSUE FOR PRELIMINARY DESIGN		R.M.		02/04/14		REVIEWED		R.MANNERING					
No.		Amendment Description		Initials		Date									
A3 original		This sheet may be prepared using colour and may be incomplete if copied				Co-ordinate System: MGA ZONE 55		Height Datum: A.H.D.							



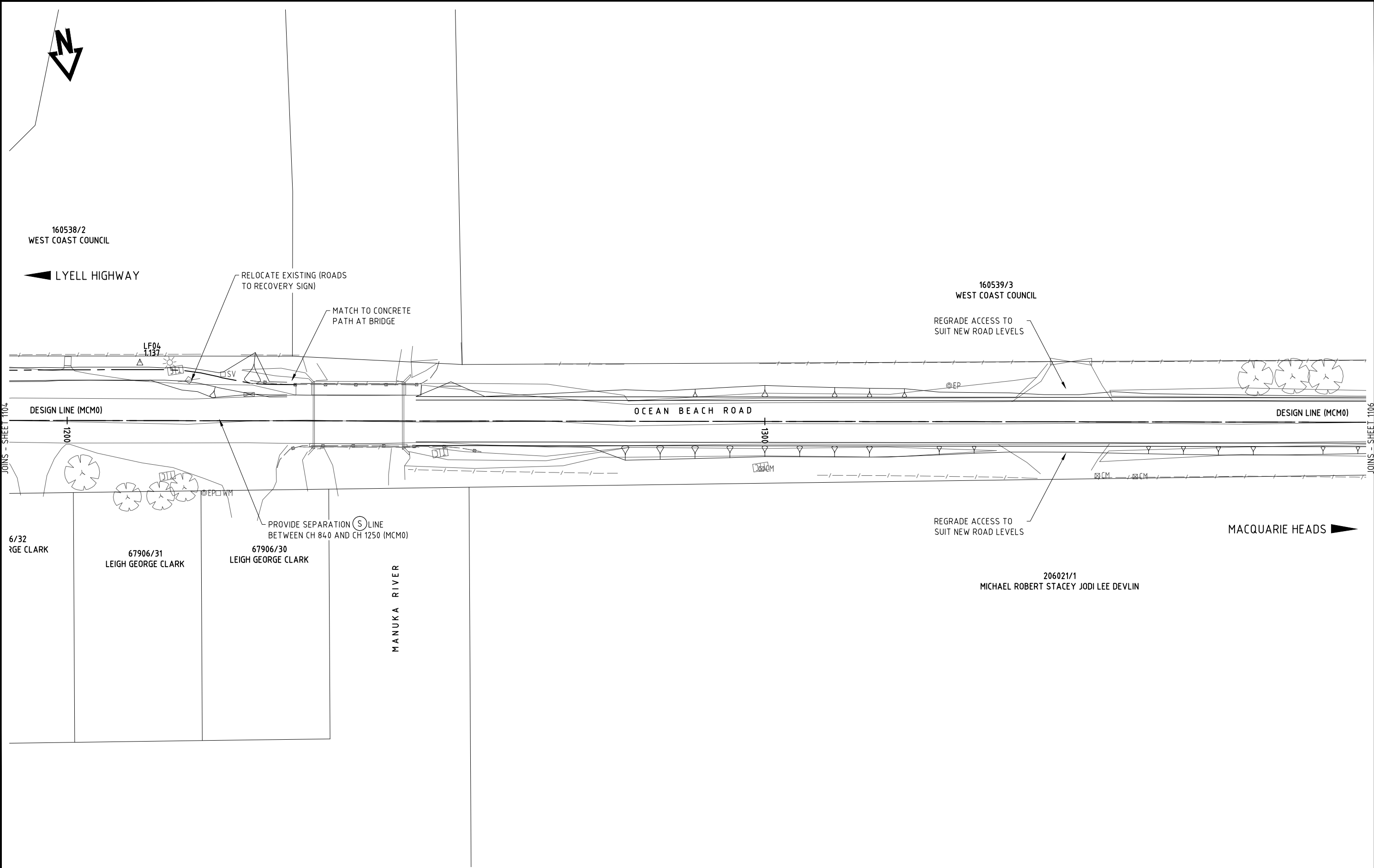




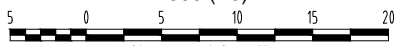
						SCALES						Infrastructure Energy and Resources			CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.	
						1:500 (A3)						MACQUARIE HEADS DEVELOPMENT ROAD (A2820)			XXXX	HB13604-C1102	12-May-14, 3:10 PM	1102	
												NORTH WEST REGION			REGISTRATION NUMBER				A2820.0000
B		ISSUE FOR DEPARTURE FROM STANDARD APP		R.M.		12/05/14						STRAHAN							
A		ISSUE FOR PRELIMINARY DESIGN		R.M.		02/04/14						GENERAL ARRANGEMENT - DRG 1 OF 13						REVISION B	
No.		Amendment Description		Initials		Date													
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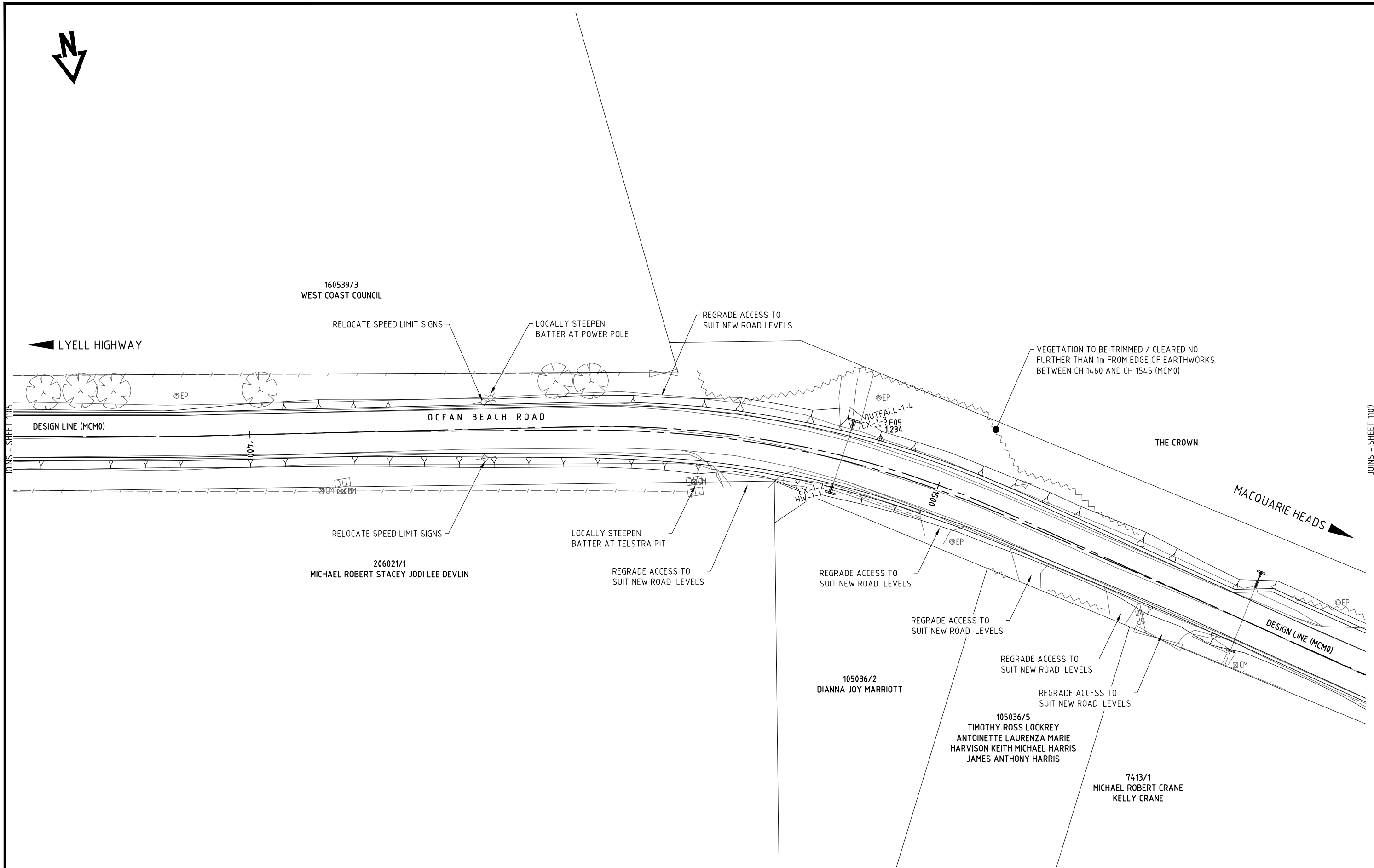







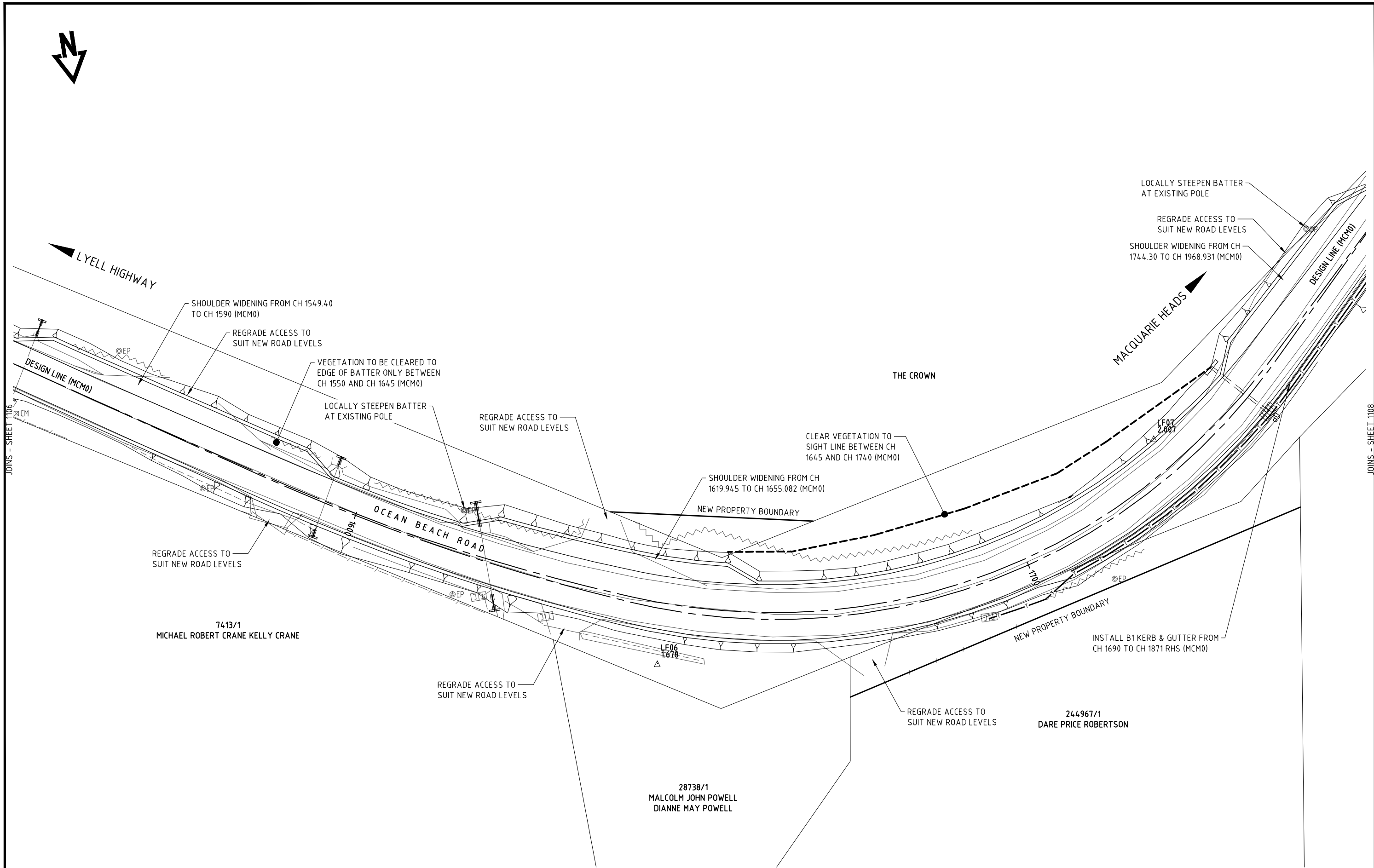




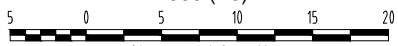


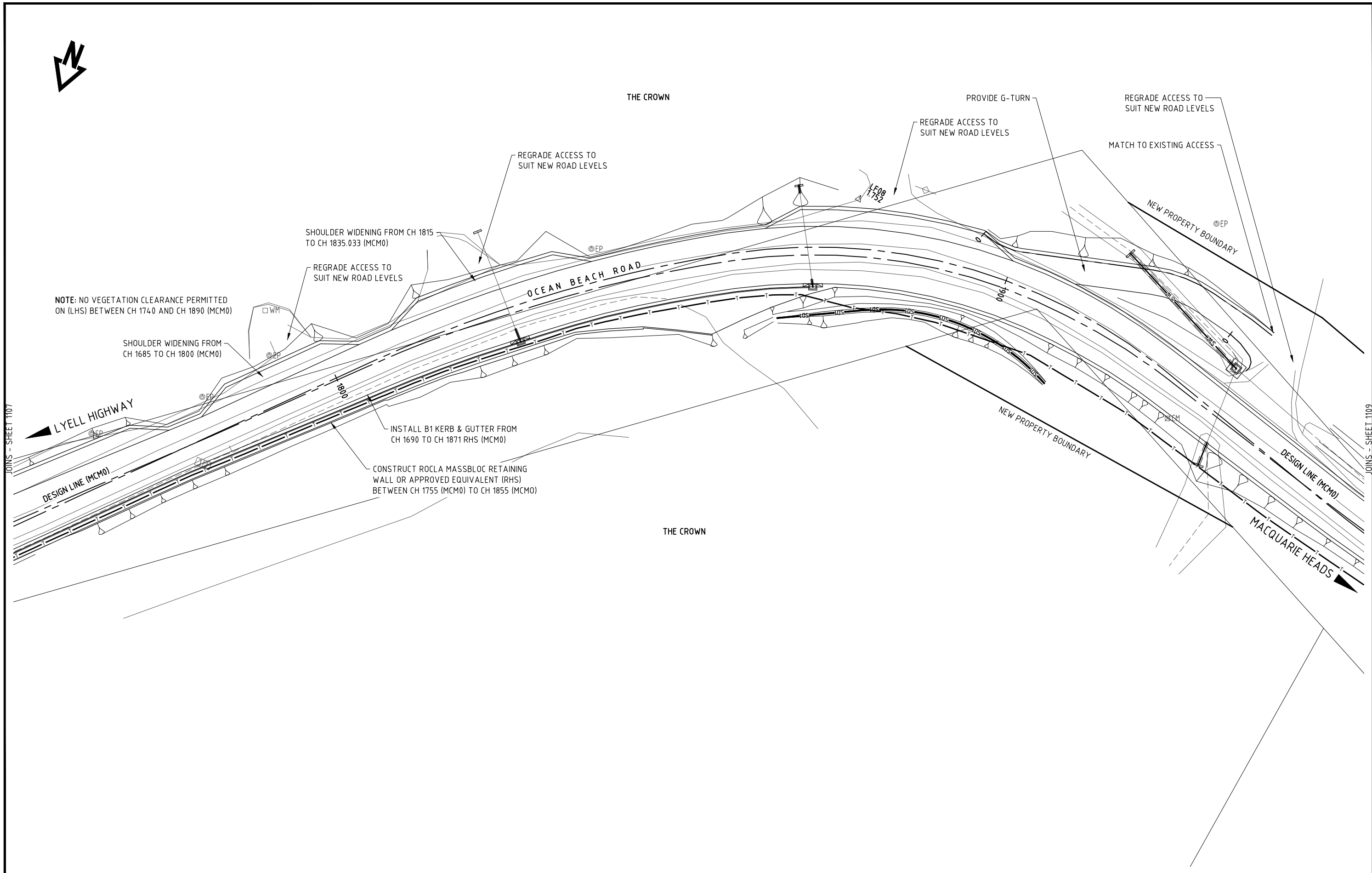
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B	ISSUE FOR DEPARTURE FROM STANDARD APP	R.M.	12/05/14			DESIGNED F.SHADWICK		NORTH WEST REGION STRAHAN		REGISTRATION NUMBER A2820.0000			REVISION B
A	ISSUE FOR PRELIMINARY DESIGN	R.M.	02/04/14	SCALE IN METRES - 1:500		REVIEWED R.MANNERING							
No.	Amendment Description	Initials	Date	Co-ordinate System: MGA ZONE 55		Height Datum: A.H.D.							
A3 original	This sheet may be prepared using colour and may be incomplete if copied												



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								DESIGNED		F.SHADWICK		GENERAL ARRANGEMENT - DRG 5 OF 13						
								REVIEWED		R.MANNERING				REVISION B				

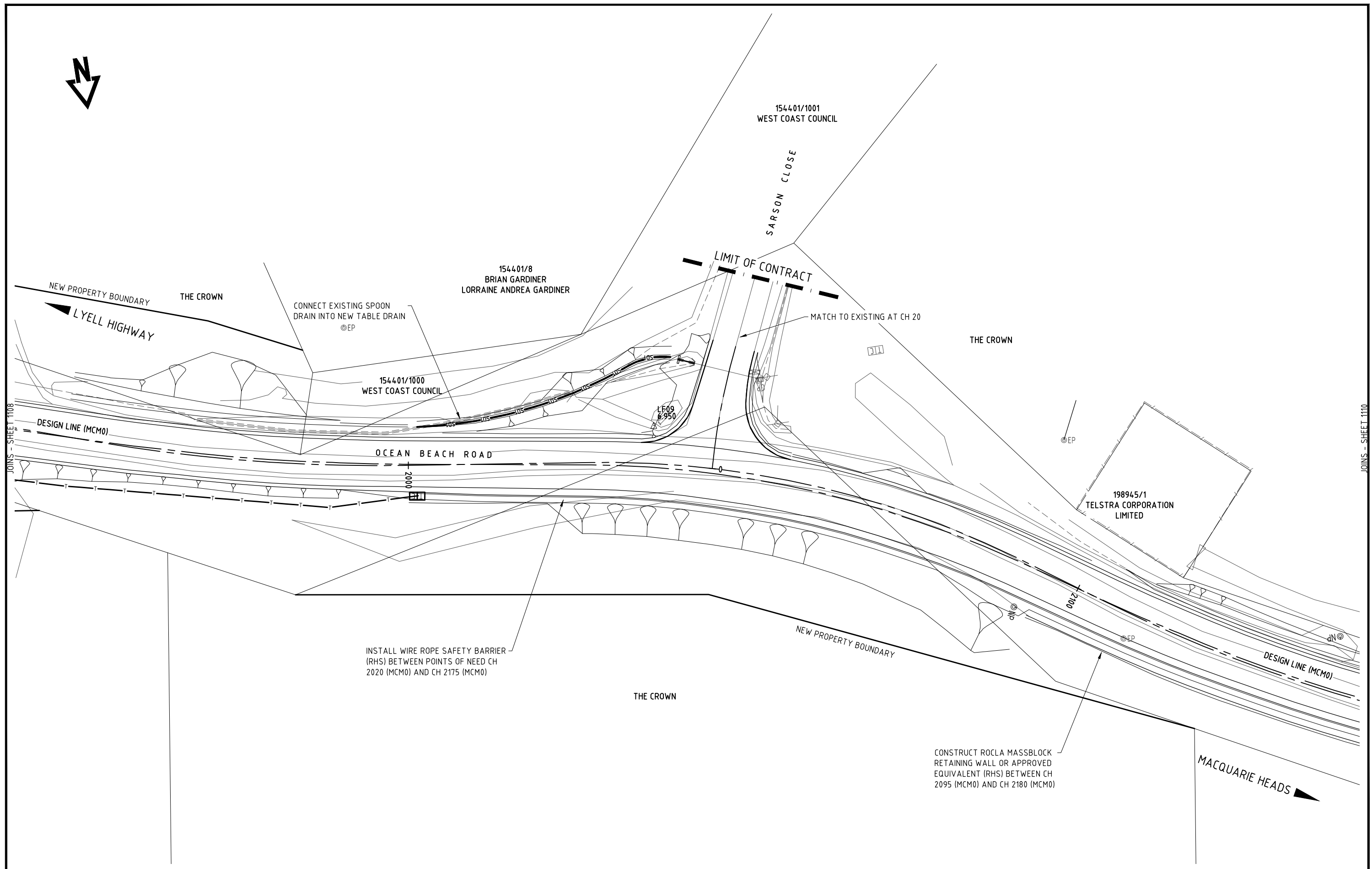





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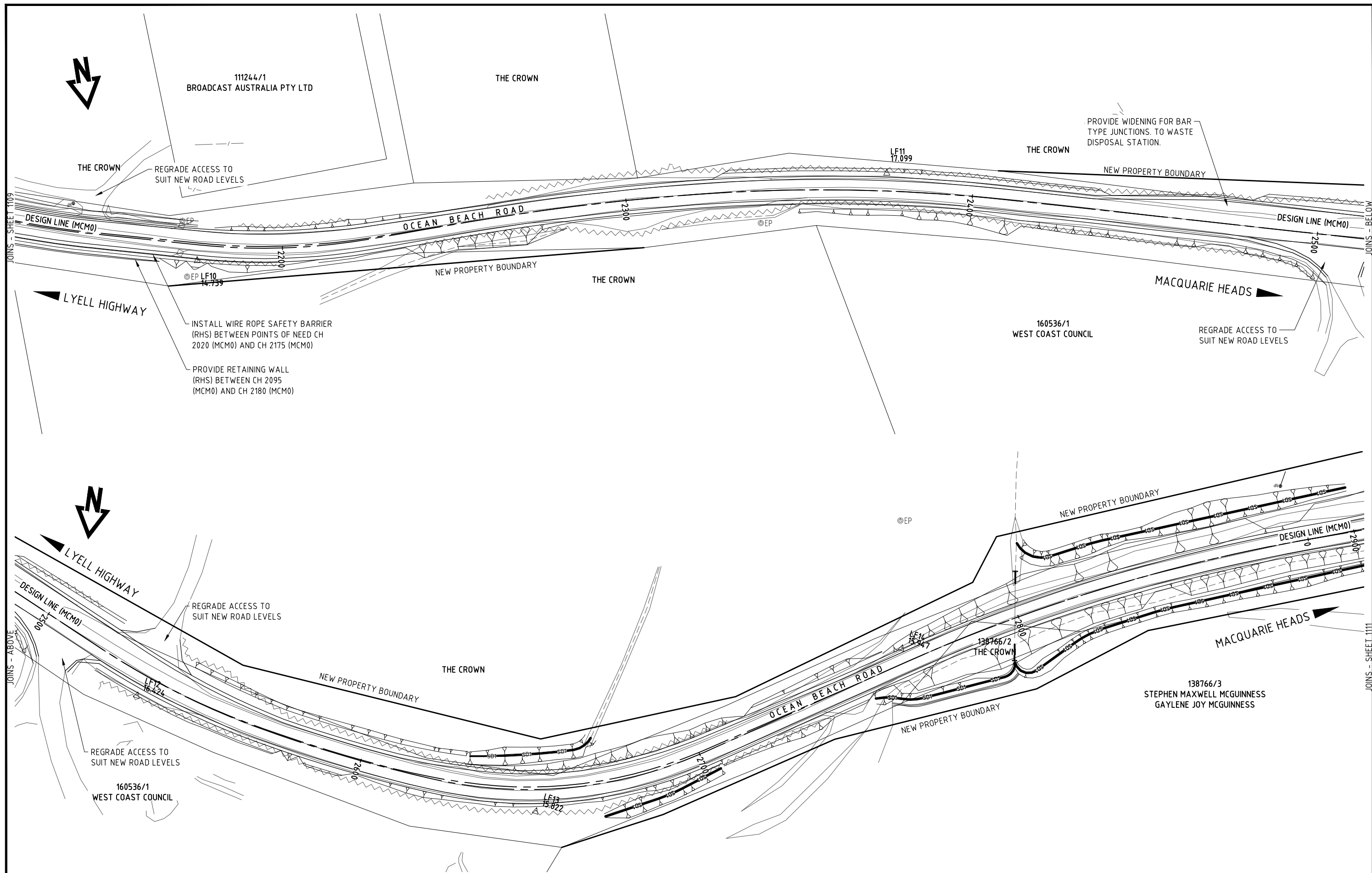





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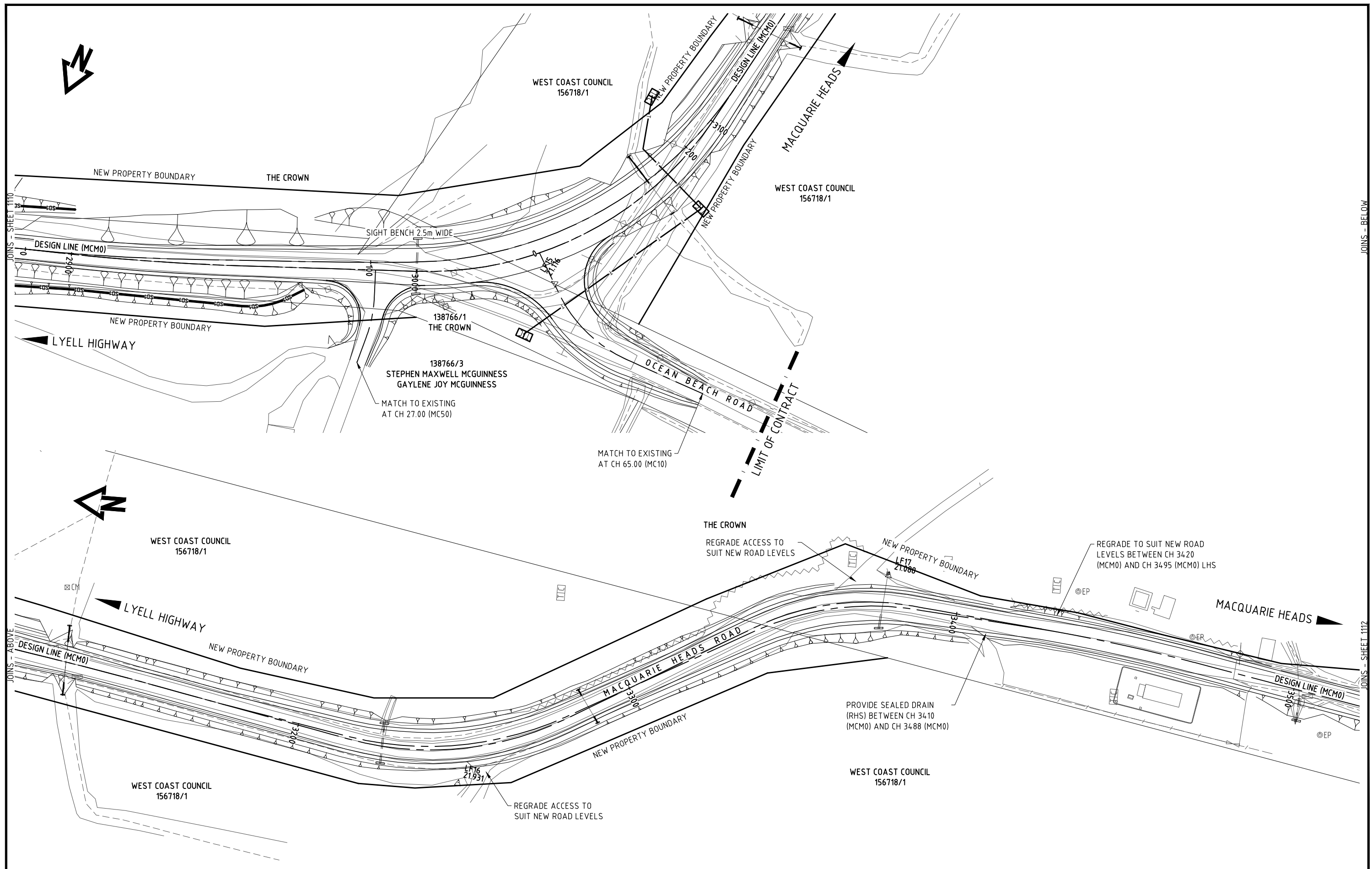


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A		ISSUE FOR PRELIMINARY DESIGN		R.M.		02/04/14														
No.		Amendment Description		Initials		Date		SCALE IN METRES - 1:500		DESIGNED F.SHADWICK		GENERAL ARRANGEMENT - DRG 8 OF 13				A2820.0000			REVISION B	
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A3 original		This sheet may be prepared using colour and may be incomplete if copied				Co-ordinate System: MGA ZONE 55		Height Datum: A.H.D.												



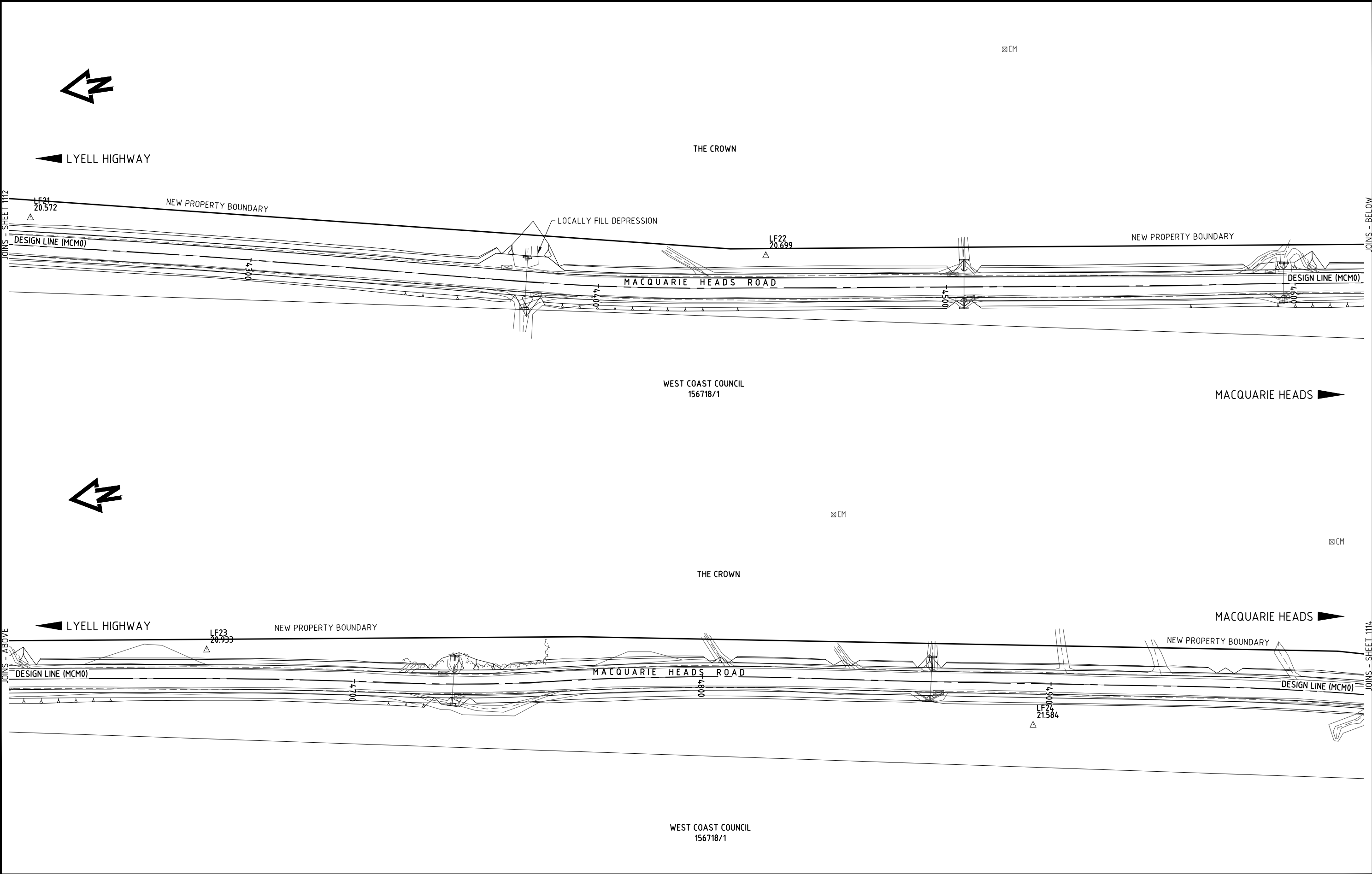
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B		ISSUE FOR DEPARTURE FROM STANDARD APP		R.M.		12/05/14						NORTH WEST REGION			REGISTRATION NUMBER			A2820.0000	
A		ISSUE FOR PRELIMINARY DESIGN		R.M.		02/04/14		SCALE IN METRES - 1:1000				STRAHAN							
No.		Amendment Description		Initials		Date						GENERAL ARRANGEMENT - DRG 9 OF 13							
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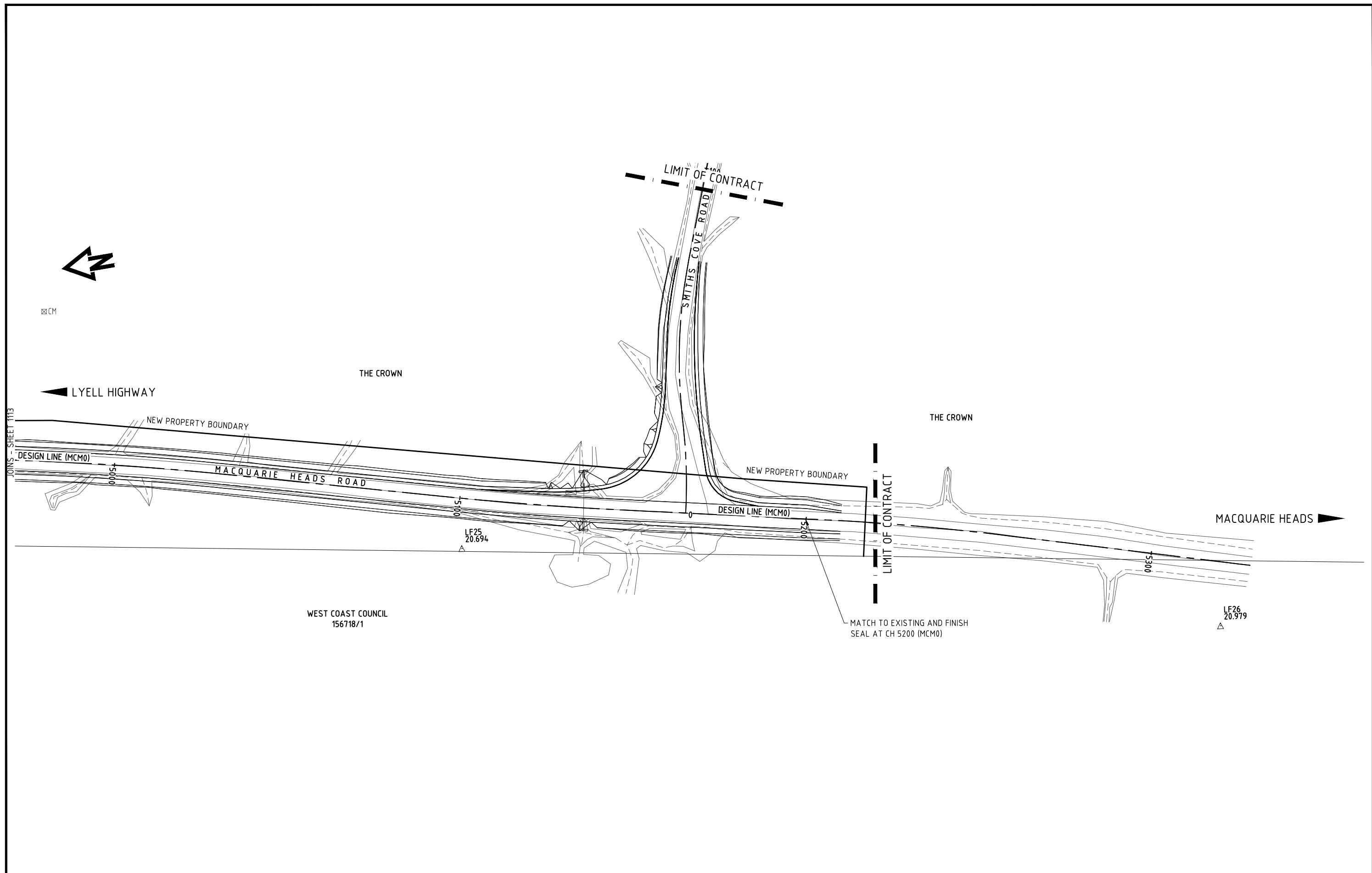


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A			ISSUE FOR PRELIMINARY DESIGN			R.M.			02/04/14												
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## Appendix B: P50/P90 Cost Estimate

Base Estimate Date: Mar 2014		Qty	Rate	Amount
1	Scoping Phase			
	Project Scoping		\$ 150,000	\$ 150,000
	Project Management		\$ 140,000	\$ 140,000
	Public Consultation		\$ 20,000	\$ 20,000
	<i>Subtotal: Scoping Phase</i>			\$ 310,000
2	Development Phase			
a	Preliminary Design		\$ 100,000	\$ 100,000
b	Client Development Application Costs		\$ 10,000	\$ 10,000
c	Detailed Design		\$ 130,000	\$ 130,000
d	DIER Project Management		\$ 50,000	\$ 50,000
e	Public Consultation		\$ 50,000	\$ 50,000
	<i>Subtotal: Development Phase</i>			\$ 340,000
3	Property Acquisition			
a	Property Acquisition		\$ 50,000	\$ 50,000
	<i>Subtotal: Property Acquisition</i>			\$ 50,000
4	Delivery Phase			
a	DIER Project Management		\$ 90,000	\$ 90,000
b	Public Consultation		\$ 30,000	\$ 30,000
c	Contract Administration		\$ 130,000	\$ 130,000
d	Owner's Costs			
e	Client supplied Insurances, Fees, Levies		0.4497%	\$ 16,010
	<i>Subtotal: Delivery Phase Client Costs</i>			\$ 266,010
5	<i>Total Client's Costs</i>			\$ 966,010
	Construction			
a	Project Specific		\$ 518,190	\$ 518,190
b	Earthworks		\$ 538,750	\$ 538,750
c	Drainage		\$ 237,975	\$ 237,975
d	Pavement		\$ 1,284,870	\$ 1,284,870
e	Bituminous Surfacing		\$ 381,092	\$ 381,092
f	Traffic Facilities		\$ 77,907	\$ 77,907
g	Landscaping		\$ 75,760	\$ 75,760
h	Miscellaneous		\$ 350,550	\$ 350,550
6	<i>Total Construction Costs</i>			\$ 3,465,094
	Electrical Relocation Direct payment to Aurora			\$ 35,000
	Telecommunications relocation direct payment to Telstra			\$ 60,000
7	<i>Total Client Supplied Material or Services</i>			\$ 95,000
8	<i>Total Construction Cost (TCC)</i>			\$ 3,560,094
9	<i>Total Construction + CA Cost</i>			\$ 3,826,103
10	Base Estimate			\$ 4,500,000
			P50	P90
	Contingency - inherent risks		\$93,000	\$403,900
	Contingency - contingent risks		\$299,397	\$642,812
11	<i>Total Contingency</i>		\$392,397	\$1,046,712
12	<i>Project Estimate</i>		\$4,900,000	\$5,500,000
13	<i>Escalation (applied to Project Estimate)</i>		\$ 200,000	\$ 300,000
	% escalation (compared to base estimate + contingency)		4.08%	5.45%
14	<i>Total Outturn Cost</i>		\$5,100,000	\$5,800,000

# Appendix C: Stakeholder Concerns

## Summary of Concerns

Issue	Comments
<i>Additional footpaths required along Reid Street to Charles Street, towards Lyell Highway direction and along Andrew Street between Harvey Street and Henry Street to protect residents from trucks.</i>	A footpath along Harvey Street between the Andrew Street roundabout and Manuka Bridge and some footpaths at Harvey Street and Reid Street junction are currently within project scope. Residents of Strahan have been advised that additional footpaths other than what is in the preliminary design are outside of the scope of the project and that TSGA and West Coast Council are investigating funding options for additional footpaths, in particular along Reid Street and Andrew Street.
<i>Vibrations from trucks rattling houses in Andrew Street and causing damage.</i>	The road pavement in Andrew Street has shown signs of 'rutting' due to large trucks braking and slowing which may be contributing to additional vibration. The speed trucks are travelling may also be a contributing factor. DIER is liaising with the Salmonid Industry to develop a Code of Practice that addresses speed of travel through the township. DIER's Asset Management Branch has been made aware of the pavement integrity to consider as part of their pavement maintenance program. Improvement in the pavement surface and speed of trucks travelling may improve the truck vibrations.
<i>Improved safety measures focussed on Southern entrance (Lyell Hwy) to Strahan – not Northern entrance (Henty Main Road).</i>	The junction at Andrew Street/Harvey Street (northern entrance) has been assessed as being adequate for heavy vehicle movement. However, the Reid Street/Harvey Street junction (southern entrance) was deficient and could not accommodate trucks using the junction safely.
<i>Bypass is required as a long term measure to get trucks off Strahan residential streets.</i>	Residents were advised that the scope of the planned works were determined by the Council's planning permit issued to the Salmonid Industry. The budget allocated for the road improvements would not be sufficient to pay for a Bypass.

<i>General design and junction amendments are good and appropriate.</i>	The road widening, sealing and general upgrades planned for each junction received support and were appreciated.
<i>Reports of truck drivers speeding and resorting to dangerous manoeuvres to avoid pedestrians in Reid and Andrew Street</i>	DIER undertook to investigate speed monitoring options for Andrew Street in particular where there were several reports of speeding trucks in Andrew Street. The issue of driver behaviour will be raised with the Salmonid Industry through the TSGA with DIER providing a briefing on feedback relating to trucks driving dangerously and too fast.
<i>Speed zone approaching Andrew Street from Henty Road needs to be amended from 60km/h to 50km/h.</i>	The West Coast Council have advised that they support amending the 60km/h speed limit to 50km/h and will submit an application to DIER to have the speed limit amended.

## Recommendations

That DIER:

- Investigates all avenues possible for funding footpaths in Reid Street and Andrew Street to improve the safety for residents sharing the road with heavy vehicles as part of the project implementation.

The West Coast Council has developed concept plans for footpaths in Andrew Street and Reid Street and recently submitted an application for partial funding for construction of the footpaths under the DIER *Safer Roads: Vulnerable Road Users Program*. In the interim the West Coast Council has indicated that a temporary footpath will be constructed on Reid Street from the Harvey Street to Charles Street.

- Conducts a traffic count, including speed monitoring for vehicles entering Andrew Street from the Henty Main Road entrance.

DIER strategically undertakes traffic counts on a periodic basis on the State road network. Future counts will be undertaken on Macquarie Heads Development Road, Lyell Highway and Henty Main Road when the Aquaculture Hub has been developed.

- Briefs the TSGA on reported driver behaviour practices relating to speeding and braking for addressing through the Code of Practice being developed by the industry.

DIER is currently working with the TSGA in developing a Code of Practice for truck drivers accessing the Hub at Smiths Cove. The Code of Practice will include reduced speed and not using engine break within the 50km/h residential speed zone.