

Amendment to the

# **Assessment Report**

for the Amended Environmental  
Impact Statement

**Ceduna Keys Marina and  
Community Centre**

Proposal

November 2011



**Government of  
South Australia**



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November 2011

**Department of Planning and Local Government**

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GPO Box 1815  
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**Minister for Planning**

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ISBN 978-0-7590-0199-2  
FIS 23309



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# 1 INTRODUCTION

## 1.1 SUMMARY

The Ceduna Keys Marina and Community Centre proposal has been the subject of an Environmental Impact Statement (EIS) process under Sections 46 and 48 of the *Development Act 1993*. The proposal was granted a provisional development authorisation by the Governor on 15 December 2005. Since that time, the approved date within which construction had to be substantially commenced has been extended until 15 December 2011. An application has been lodged by the Ceduna Marina Development Company (the proponent) to modify the proposal and to vary the existing development approval. The main change comprises a modified design for the realignment of the Eyre Highway and associated roads, in order to satisfactorily meet the approval requirements. The planned construction of the development has also been delayed since late 2008, due to the proponent undertaking negotiations for the sale of the proposal, which have now been resolved.

The marina development is proposed to be undertaken in 11 stages over a ten year period. The development will include an entrance channel, breakwaters, marina basins and associated boating facilities, residential allotments (most with water frontage) and commercial and tourist uses. The proposed development is located to the immediate north of the existing township of Ceduna on the West Coast of South Australia.

This Amendment to the Assessment Report (AAR), prepared by the Minister for Planning, assesses any new or modified environmental, social and economic impacts of the modified proposal. It also assesses further information provided by the proponent not available at the time the development authorisation was granted (ie. related to aspects of the proposal that are listed as 'Reserved Matters' in that approval notice).

This report is based on the detailed information contained in the following proponent's documents:

- EIS Amendment dated January 2008
- public and government agency submissions and comments on the EIS Amendment (refer to Appendix A)
- proponent's responses to submissions (refer to Appendix B)
- Environmental Impact Statement (EIS) dated June 2005
- public and government agency submissions and comments on the EIS and responses to these submissions in the proponent's Response Document dated November 2005.

This report also relies on information, comments and advice provided by relevant South Australian Government agencies, the District Council of Ceduna. Additional information was provided by the proponent (refer to Appendix C).

This report amends the Assessment Report dated December 2005.

## 1.2 BACKGROUND

The proponent, Ceduna Marina Development Company, is a consortium of companies with experience related to marina development, town planning, surveying, engineering and earthworks, real estate, environmental management and economic management.

The proponent's objectives for the proposed development are to:

- provide a safe haven for the fishing fleet

- encourage investment in the town and inject vitality into the growing aquaculture and fishing industry
- capitalise on and encourage further investment of tourism in the community
- foster self-determination in the areas of cultural interaction and protection
- strengthen partnerships and further develop and promote the reconciliation process within the community
- maximise employment and education opportunities for local Aboriginal people and wider community
- develop appropriate opportunities for industry development in cultural heritage interpretation and cultural tourism

These objectives have been formulated in consultation with the Ceduna District Council.

The assessment process is detailed in the next section of this report.

### **1.3 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCEDURES**

Environmental Impact Assessment (EIA) is a process of identifying the potential social, environmental and economic impacts of a proposal and of identifying appropriate measures that may be taken to minimise any impacts. The main purpose of EIA is to inform decision-makers of the likely effects of a proposal before any decisions are made. EIA also allows the community to make submissions on a proposal. The specific EIA procedures for Major Developments or Projects in South Australia are outlined out in Sections 46 - 48 of the *Development Act 1993* (the Act).

Pursuant to Section 46(1) of the Act, the proposed Ceduna Keys Marina & Community Centre was declared a Major Development on 23 October 2003 by the previous Minister for Urban Development & Planning. The former Major Developments Panel determined that an EIS was the required level of assessment and set the Guidelines, which were publicly released in June 2004. The EIS was placed on public exhibition from 22 June to 2 August 2005, during which time submissions were invited from the public and relevant Government agencies. Following the public exhibition period, the proponent lodged a Response to submissions on the EIS document with the Minister, which was released concurrently with the Minister's Assessment Report (AR) on 14 December 2005. The proposal was granted development authorisation (ie. provisional approval) by the Governor on 15 December 2005.

Since that time, the Development Assessment Commission (as the Governor's delegate) has granted approval for three applications to vary the development authorisation, comprising extensions of time for the date within which construction had to be substantially commenced. Construction now has to commence by 15 December 2011. These were granted to enable to proponent sufficient time to complete an amendment to an EIS process and whilst the proponent was pursuing a potential sale of the project.

The proponent prepared an EIS Amendment (January 2008) for the modified proposal, which was publicly exhibited from 9 to 31 January 2008. Pursuant to Section 47 of the Act, an EIS and AR may be amended at any time in order to, amongst other things, take account of an alteration to the original proposal. The EIS Amendment details alterations to the proposal from those presented in the original EIS.

Following the display period, the proponent prepared responses addressing matters raised in submissions from the public and Government agencies on the Amended EIS. The responses are reproduced as appendices in this Amended AR.

Pursuant to Section 46D(8) of the Act, the Minister in preparing this report, has taken into account the proponent's EIS Amendment, public and Government Agency submissions, the proponent's response to these submissions, and other matters that the Minister considered appropriate.

This report provides advice to the Governor, who is the final decision-maker on the proposed development. Pursuant to Section 48(5) of the Act, when making a decision on the proposed development, the Governor must have regard to:

- the provisions of the appropriate Development Plan and regulations (so far as they are relevant)
- the Building Rules (if relevant)
- the Planning Strategy
- the objects, general environmental duty and relevant environment protection policies under the *Environment Protection Act 1993* (if the development involves a prescribed activity of environmental significance)
- the objects, objectives and general duty of care under the *River Murray Act 2003* (if the development is to be undertaken within the Murray-Darling Basin)
- the objects, objectives and general duty of care under the *Adelaide Dolphin Sanctuary Act 2005* Act (if the development is to be undertaken within or is likely to have a direct impact on the Adelaide Dolphin Sanctuary)
- the general duty of care and the prohibitions and restrictions applying within the marine park under the *Marine Parks Act 2007* (if the development is to be undertaken within or is likely to have a direct impact on a marine park).
- the proponent's EIS and Response document
- the Minister's Assessment Report
- any other matters considered relevant by the Governor.

Pursuant to Section 48(7) of the Act, the Governor may also specify any conditions that should be complied with if a development authorisation is granted.



## **2 THE PROPOSED DEVELOPMENT**

### **2.1 THE SITE AND LOCALITY**

The proposed site of the development lies on the north-eastern shore of Murat Bay, has an area of some 140 hectares (plus about 30 ha of sea, including tidal flats below high tide mark) and is mainly low-lying. The land is currently unused, but has been used in the past for grazing and horse keeping. The majority of works would be on a 'stranded' coastal estuary, the foredunes and beach. A channel is proposed to project into the bay and breakwaters are proposed to be built out on the tidal flats.

The site is located on the northern township boundary of Ceduna and adjoins the existing golf course and nearby sportsground and showground. An Aboriginal Homeland Settlement exists to the north-west of the site. The site is bisected by the Eyre Highway that runs along the coast. The rest of the surrounding land is used for country living and agricultural purposes.

The development site includes some degraded agricultural land and areas of native vegetation, including saltmarsh and dune communities.

A detailed description of the subject land is contained in the original EIS (Section 4).

### **2.2 NATURE OF THE AMENDED PROPOSAL**

The proposal aims to establish a safe boating harbour and marina, with associated residential/commercial uses, and the opportunity for the development of a community centre. A detailed description of the proposal is contained in the original EIS (Section 3). The EIS Amendment describes the modifications that have been made since the proposal was approved, which are primarily related to an amended design of the Eyre Highway realignment. Figure 1 shows the approved conceptual layout plan and Figure 2 provides a comparison of this plan with the modified plan. Figure 3 shows the amended conceptual layout plan.

The proposed changes to the approved proposal comprise:

- realignment of the Eyre Highway from a route west of the Koonibba – Thevenard railway to a route east of the railway. This would necessitate the establishment of a new rail crossing and the decommissioning of the existing rail crossing
- inclusion of a large roundabout to enable safe access to the residential component and for access to Denial Bay
- deletion of the north-eastern access road to the residential component
- modified layout design of Stages 6 – 9 of the residential component
- modified breakwater and entrance channel design for greater wave protection, to provide additional residential development along the northern breakwater and to reduce vegetation clearance (especially Mangroves)
- redesign of the entry/exit points for the Highway One Roadhouse and Motel to provide improved access
- inclusion of a heavy vehicle route from the Eyre Highway to Denial Bay, via Carpenters Corner Road
- relocation of the PIRSA Quarantine Inspection Station to a location several kilometres further west of Ceduna.

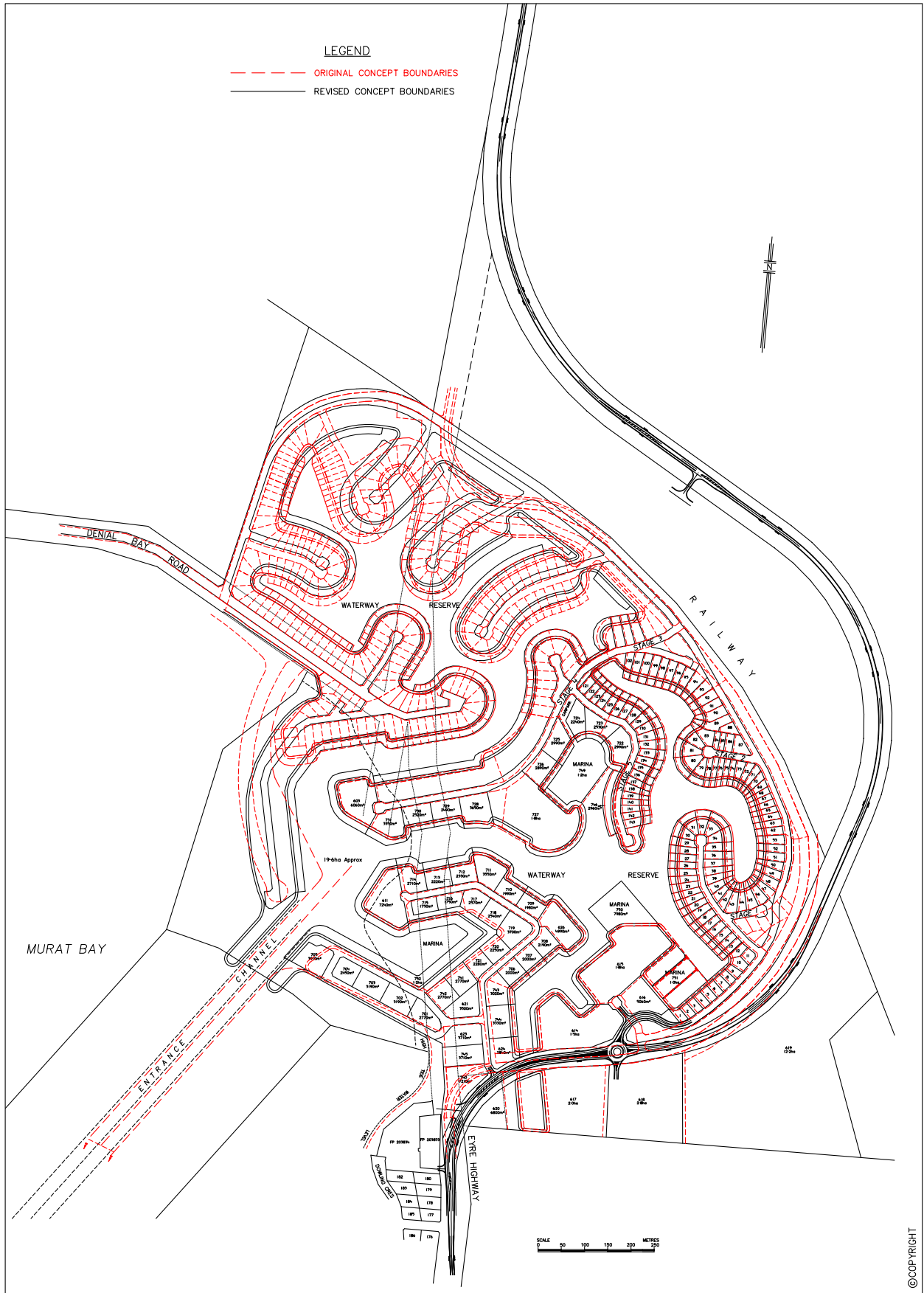
The proposed modifications have been made as a result of the need to modify the route the Eyre Highway realignment, due to road safety and freight requirements. The original development authorisation reserved for future assessment a number of items related to final road alignment and design. Subsequent investigations undertaken have now necessitated a redesign of the conceptual route, which is now proposed to traverse land outside of the site boundary (i.e. to the east). Consequently, the proponent has secured access to the additional land needed. The amended route has resulted in a new rail crossing being proposed to replace the existing one. In addition, the existing Denial Bay Road would no longer be able to be accessed from the Eyre Highway via an internal road along the northern boundary of the site. An access road connecting with the Eyre Highway on the north-eastern boundary of the site has been made redundant and has consequently been deleted. The new route has also necessitated the relocation of the PIRSA Quarantine Inspection Station.



**Figure 1** Approved conceptual layout plan







**Figure 2** Comparison of approved conceptual layout plan (in red) with amended plan (in black)



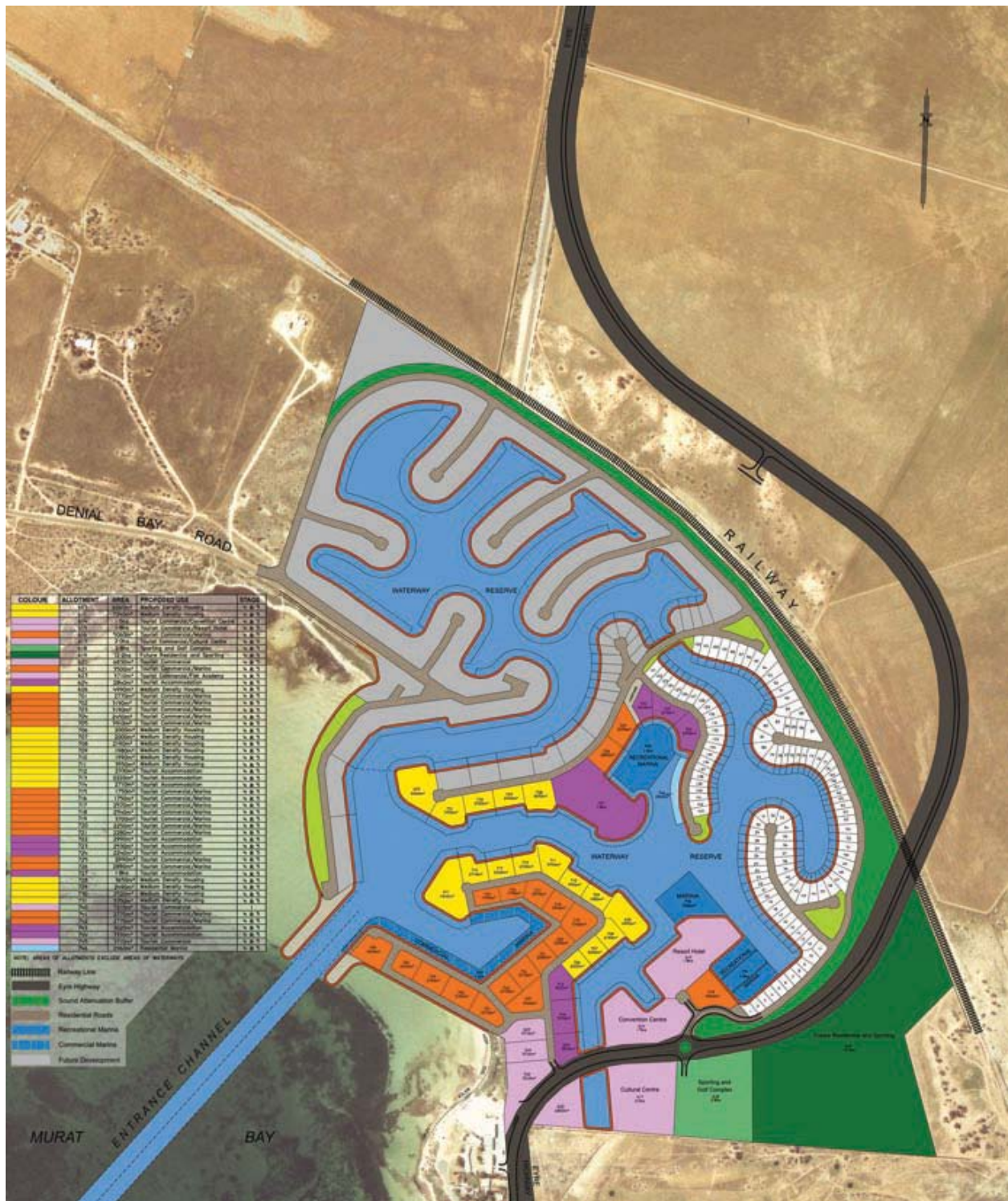


Figure 3 Amended conceptual layout plan



### **3 EXISTING ENVIRONMENT**

Essentially the proposed development is located immediately north of the Ceduna township at the north eastern end of Murat Bay. This part of the bay experiences large tidal fluctuations (generally up to 2 metres), resulting in a broad intertidal zone that is regularly exposed. Topographically the proposed development site includes an off-shore area, the adjacent tidal flat, beach and fore-dune and the adjacent low-lying coastal land that has little relief. The majority of the site being located on a 'stranded' coastal estuary that has been affected by establishment of the Eyre Highway. The site is currently unused, except for off road vehicle use.

Ceduna is the last major service town before the SA-WA border and is a popular tourist destination. The town is also important for local and remote Aboriginal communities. The nearby Port of Thevenard is an important commercial harbour for the fishing industry and for the shipping of local cereal crops, salt and gypsum. Recently, Thevenard has been increasingly used for the export of mineral sands from mining operations located to the north-west of Ceduna. The railway line from the gypsum mine to the wharf runs along the eastern boundary of the site.

A detailed description of the site and surrounding area is provided in the Assessment Report (2005).



## 4 CONFORMITY WITH LEGISLATION AND POLICIES

Section 48(5) of the *Development Act, 1993*, requires that before the Governor considers a proposal that has been declared a Major Development, the Governor must have regard to, amongst other things, the provisions of the appropriate Development Plan and the regulations (so far as they are relevant) and the Planning Strategy. Other matters considered relevant by the Governor can also be taken into account.

The Crown Solicitor has advised that in respect of applications being assessed as Major Developments under the Act, the appropriate Development Plan and Planning Strategy are those current at the time of the decision, as Section 53 of the Act does not apply to the Major Development provisions of the Act.

### 4.1 DEVELOPMENT PLAN AND PLANNING STRATEGY

The Assessment Report (2005) provided a detailed analysis of the proposal against the then *Ceduna District Council Development Plan (2003)* and the *Land Not Within a Council Area (Coastal Waters) Development Plan (2003)*. The Ceduna Development Plan was updated on 16 October 2008, with changes made relating to the 'General' and 'Coastal' policies. The Coastal Zone was changed to a Coastal Conservation Zone. These changes (and a restructuring of the document) were in accordance with the Better Development Plan program that aims to ensure consistent zoning and policies across all Development Plans. The Plan was then amended on 3 June 2008 to include State wide policies on Bulky Goods. The Plan was last amended on 31 March 2011 to include state wide policies related to Bulky Goods (the Coastal Waters Development Plan was also updated in 2007, but the changes do not relate to the proposal).

The Development Plan for the Ceduna District Council (consolidated on 31 March 2011) indicates that the proposed site is located within the following Zones:

- Recreation Zone - Policy Area 14 (Tourist Use): a zone for a range of recreation experiences for residents of the district and visitors. In particular, the zone policy area is identified for recreation and tourist accommodation uses. A system of artificial lakes and passive recreation areas may be appropriate and housing could be considered to support such development. The residential development, Community/Cultural Centre, commercial/retail uses and tourist accommodation/facilities (including hotel, serviced apartments and conference facilities) are proposed for this Zone.
- Coastal Conservation Zone: a zone for the preservation and protection of the coast (to maintain biodiversity and scenic values) and for passive recreation. Intensive development (especially land division) is considered inappropriate. The breakwaters, commercial marina and part of the facilities for the commercial fishing/aquaculture industry and residential development are proposed for part of this Zone.
- Rural Living Zone – Policy Area 23 (Ceduna North): a zone for residential development on large allotments supporting hobby rural activities (ie animal keeping), with a minimum allotment size of 10ha. Waterfront and dryland residential allotments are proposed for part of this Zone.

Part of the proposed site boundary extends into the bay to encompass the breakwater structure, entrance channel and a small part of the commercial marina and waterfront residential development. The Coastal Waters policies in the Development Plan for 'Land Not Within A Council Area' apply. The Plan states that tourist development, marinas etc should only be undertaken in zones designated for such development. The Plan contains strong objectives and development control measures for environmental protection of coastal and marine areas and which aim to maintain public access. The protection of sites of cultural, heritage or scientific significance is also promoted. Development should only be undertaken on land that is not subject to coastal hazards and not require public expenditure on protection of the

development or the environment. Adequate financial guarantees for construction, operation, management and maintenance are also prescribed.

The amended proposal results in the modified route of the Eyre Highway realignment extending into the Primary Production Zone. Development Plan Zones generally do not have polices related to roads, as they are not defined as a 'form of development'. Roads are not considered incompatible with the Objectives nor Desired Character of the Zone.

If the amended proposal is approved under the Major Development provisions, the Council would consider rezoning the area to reflect the approved land uses. Rezoning could be considered an appropriate expansion of the existing township. The *Eyre Peninsula Coastal Development Strategy* (2007) would need to be considered during the rezoning process.

The Assessment Report (2005) also provided a detailed analysis of the proposal against the *Planning Strategy for Regional South Australia (Premier of South Australia, January 2003)*. The Planning Strategy represents the State Government's policy for development. In particular, it seeks to guide and co-ordinate State Government activity in construction and provision of services and infrastructure which influence the development of South Australia. It also indicates to the community, the private sector and local government the envisaged directions for future development, and informs statutory planning policy in Development Plans.

In the time since the proposal was approved, the Planning Strategy now comprises *The 30 Year Plan for Greater Adelaide* and associated volumes for regions of the State. The draft *Eyre and Western Region Plan* is currently undergoing public consultation.

The appropriate Planning Strategy is currently the *Planning Strategy for Regional South Australia – January 2003*. Strategies for the Eyre Peninsula Planning and Development Area seek to build on traditional industries and develop new industries in response to local, national and international market opportunities. In particular, aquaculture, commercial fishing and tourism (especially ecotourism and cultural tourism) are seen as industries that should be further developed. However, such development needs to ensure that the coastal and marine environment are suitably protected. In addition, the Strategy recognises that there are limited water resources and that the provision of adequate infrastructure is a key issue for economic development.

The proposal satisfies the strategies for Eyre Peninsula through the establishment of a safe harbour to support the commercial fishing industry and to encourage the emerging aquaculture industry. The development of a 'commercial fishing/aquaculture hub' would provide improved infrastructure and services for the expansion of these industries. Regional tourism and recreation is also promoted through the establishment of a Community/Cultural Centre and the provision of accommodation, facilities and attractions, with particular emphasis on cultural tourism. The residential component will provide a range of housing opportunities not provided elsewhere in the region, with flow-on economic benefits for local businesses, especially in Ceduna. Importantly, the proposal aims to encourage employment and training opportunities for local Aboriginal communities and promotion of their culture.

The proposed development is considered to be consistent with relevant provisions of the Planning Strategy.

#### **4.2 BUILDING RULES**

This report does not include a specific assessment of the development against the provisions of the Building Rules under the *Development Act 1993*. If the Governor grants a provisional development authorisation, pursuant to Section 48 of the Act, further assessment and certification of the proposed development against the Building Rules may be set as a reserved matter for further decision-making for



each future stage or built component of the development. However, a development authorisation (equivalent to a development approval under Part 1 of the Act) will only be made by the Governor or his delegate *after* a private certifier or the relevant council for the area in which the development has been proposed, has assessed and certified that any work (i.e. for a stage or component) that constitutes ‘building work’ under the Act complies with the Building Rules and has supplied this information to the Minister (as required by Regulation 64 of the *Development Regulations 2008*). The Building Rules certification must be consistent with any provisional development authorisation and would ensure safety (including fire safety) and stability of construction.

#### **4.3 ENVIRONMENT PROTECTION ACT**

The proposed development involves activities of environmental significance (dredging and earthworks drainage, operation of marinas and boating facilities) as defined in Schedule 1 of the *Environment Protection Act 1993*, including earthworks drainage, dredging and the operation of a marina (and other boating facilities).

When proposals involve activities of major environmental significance the Governor, before making a decision on the proposed development, must have regard to the objects of the Act, the general environmental duty and any relevant environment protection policies.

The objects of the Act are:

- *To promote the principles of ecologically sustainable development;*
- *To ensure that all reasonable and practicable measures are taken to protect, restore and enhance the quality of the environment having regard to the principles of ecologically sustainable development, and to prevent, reduce, minimise and, where practicable, eliminate harm to the environment.*

The following Environment Protection Policies are applicable:

- *Environment Protection (Water Quality) Policy, 2003*
- *Environment Protection (Waste to Resources) Policy, 2010*
- *Environment Protection (Air Quality) Policy, 1994*
- *Environment Protection (Noise) Policy, 2007*

The EPA’s comments are summarised in Section 5 of this report.

#### **4.4 MARINE PARKS ACT**

Under the *Marine Parks Act 2007*, the State Government is currently investigating the potential establishment of a Marine Park on the West Coast (the ‘Nuyts Archipelago Marine Park’), including the marine environment surrounding Ceduna. Murat Bay may be designated as a ‘Special Purpose Area (Harbours)’, due to the operation of the Port of Thevenard. A possible ‘Sanctuary Zone (Cape Vivonne)’ may be established 10km south of Ceduna.

## 4.5 OTHER MATTERS

### State Strategic Plan

The Governor has regard to any other matters considered relevant. In this context, an assessment has been carried out with reference to the State Strategic Plan (2007). The State Strategic Plan seeks to widen opportunities for all South Australians through the pursuit of six strategic objectives:

- Growing Prosperity
- Improving Wellbeing
- Attaining Sustainability
- Fostering Creativity
- Building Communities
- Expanding Opportunity

In terms of “growing prosperity” the priority of the Plan is sustained economic growth resulting in rising living standards, with all South Australians sharing in the benefits through more and better job opportunities and access to quality services. The proposal, if approved, will result in upgraded facilities, especially for recreational boating and the commercial fishing and aquaculture industries. In addition the increased resident base will have a positive impact on support industries and the general economic well-being of the region. There is likely to be increased tourism in the area as a result of the marina, the community centre (that would be a focus for cultural and nature based tourism), tourist accommodation and commercial tourism opportunities. On this basis the proposal is consistent with the Strategic Plan aim of “growing prosperity”.

The proposal could potentially be consistent with the Plan objective of ‘attaining sustainability’ if measures are implemented to protect biodiversity (especially the relatively pristine marine environment), to minimise waste and to encourage water and energy sustainability. The Plan sets a target of creating 19 Marine Protected Area by 2010, including the proposed ‘Nuyts Archipelago Marine Park’ that also incorporates the marine environment surrounding Ceduna.

The Plan also deals with ‘building communities’ through the maintenance and development of viable regional population levels and reduction of unemployment rates. The establishment of the proposed residential sub-division, commercial marina, tourist and commercial facilities will assist in maintaining regional population levels and increase jobs in the area. The establishment of the Community Centre (or Cultural Heritage Centre) will also assist in meeting this objective.

The objective of ‘expanding opportunity’ would be fulfilled by the proposal if Aboriginal wellbeing is improved through employment creation and training. However, the proposal is unlikely to encourage the provision of affordable housing in the community. The provision of such housing was not a requirement of the original approval

On balance, it is concluded that the proposed development is consistent with the South Australian Strategic Plan.

#### **4.6 OTHER RELEVANT LEGISLATION**

A number of Acts of Parliament relate to the proposal, which are discussed in greater detail in the Assessment Report (2005), including:

- *Harbors and Navigation Act 1993*
- *Public and Environmental Health Act 1987*
- *Aboriginal Heritage Act 1988*
- *Native Vegetation Act 1991* (and Amended Regulations)

Additional legislation that relates to the modified design of the realignment of the Eyre Highway Include:

- *Road Traffic Act 1961*
- *Highways Act 1926*
- *Rail Safety Act 2007*



## **5 CONSULTATION**

### **5.1 COMMUNITY**

The EIS Amendment was placed on exhibition from 9 - 31 January 2008. Four submissions were received from the public. The main issues raised in public submissions included:

- traffic safety concerns related to the roundabout providing access to the development (including sun glare)
- ability of the roundabout to cater for substantially increased traffic flows and potential congestion problems (especially for current and future truck movements)
- traffic safety concerns related to the rail crossing (especially the 45° angle of the approach road)
- need for a heavy vehicle bypass (especially to cater for the increasing need for trucks to access the Thevenard wharf), either additional to or as an alternative to the realignment of the Eyre Highway
- who will pay for the Denial Bay Heavy Vehicle Route works
- need for a pedestrian/cycle-way to be incorporated into the design of the marina 'ring road' (ie. that also provides access to Denial Bay)
- the introduction of curves into the National Highway
- impact on the Highway One Motel and Roadhouse and the need for an agreement between the owners and the proponent (ie. relating to changed access arrangements) to be executed before further approvals are given.

Two public submissions were also lodged with the Ceduna District Council (including one from the Charra South Australian Farmers Federation Branch) that raised concerns about the proposed Denial Bay Heavy Vehicle Route (especially the additional travel time, costs and inconvenience for truck drivers that would result).

A copy of the public submissions is included as Appendix A.

### **5.2 COUNCIL**

The Ceduna District Council did not provide a submission.

### **5.3 GOVERNMENT**

The key comments provided by Government Agencies on the proposed amendments are included below:

#### *Environment Protection Authority*

- No comments related to the proposed amendments.

#### *Department for Environment and Heritage (now Department of Environment and Natural Resources)*

- In regard to the increased width of the western groyne to accommodate further residential development, the proponent should ensure that adequate protection from storm surge and associated wave overtopping is provided.

#### *Department for Water, Land and Biodiversity Conservation (now Department for Water)*

- No comments related to the proposed amendments.

*Native Vegetation Council*

- Does not support the deletion of the proposed ‘Restricted Area Management Plan’, as this should still be considered as an option to help achieve a Significant Environmental Benefit (SEB) to compensate for the clearance of coastal native vegetation. The Plan would address the potential impacts of the development on the habitat value of adjacent areas of high conservation value (particularly the Yarilena Aboriginal Lands and mudflats of Murat Bay). The protection, management and rehabilitation of this land would provide a worthwhile component of an SEB.
- Given the deletion of the above management plan, further assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* may be required due to the proposed change (particularly with regard to mitigating impacts on migratory waders using Murat Bay).
- The vegetation assessment required for the quarantine inspection station is still outstanding.
- Any SEB offset payment to the Native Vegetation Fund is required prior to any clearance being undertaken.

*Department of Further Education, Employment, Science & Technology*

- No comments related to the proposed amendments.

*Department of Health*

- The upgraded noise study should ensure that the World Health Organisation’s guideline values for community noise and the EPA Noise Environment Protection Policy are met. The Australian Standard *AS 2107:2000* should not be used.
- A full range of noise management measures should be considered, including siting and design of sensitive land uses.

*Department for Trade and Economic Development*

- Concern raised about the affect of the highway realignment on the Highway One Motel and Roadhouse, which is currently the subject of negotiations between the proponent and the owner.

*Department of Transport, Energy and Infrastructure (DTEI)*

- Unclear on DTEI’s involvement in the deletion of the ‘Restricted Area Management Plan’.
- Whilst DTEI has been involved in discussions with the Australian Rail Group (ARG) with regard to the relocation of the level crossing, it should be noted that DTEI does not act for ARG and thus ARG should continue to be consulted as a separate entity.

[It should be noted that Genesee & Wyoming Pty Ltd is now responsible for the rail infrastructure]

- The Amended EIS states that a roundabout is to replace the original entrance to the residential allotments and to also provide access for service vehicles to the proposed Resort Hotel/Convention Centre as well as future access to the proposed Sporting and Golf Complex. The roundabout provides for the through Eyre Highway movement of restricted access vehicles up to B-triples in size. However, for the turning movements at the roundabout (i.e. left, right and U-turns) it is unclear what design vehicle has been used. Turning movements at the roundabout should be designed to accommodate the largest vehicle expected to undertake these manoeuvres. This is likely to be a 19.0 metre semi-trailer.

- No direct vehicular access should be provided from any new development onto the Eyre Highway and all access should be via the local road network. Accordingly, all access to the proposed Convention Centre must be via the proposed local road connecting with the proposed roundabout and development on the opposite side of the Eyre Highway (i.e. Sporting and Golf Complex and Cultural Centre) must gain access via the local road at the roundabout and an internal service road.
- Whilst DTEI raises no objection in-principle with the realignment of the Eyre Highway, final approval of the Eyre Highway realignment concept plan is conditional upon the completion of a Traffic Impact Statement relating to the revised designs, the satisfactory completion of an independent safety audit and an upgrading of the noise study. In particular, approval would be subject to the following being prepared and finalised to the satisfaction of DTEI and the Commonwealth Department of Transport and Regional Services (now called the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government):
  - the concept scheme, including a revised traffic study (taking into account the increase of the number of residential allotments in the marina, the Iluka Mine proceeding, extension of the B-Triple heavy vehicle network etc.) and an independent road safety audit;
  - a detailed design and technical proposal (specifications) for the realignment of the Eyre Highway and associated roads and intersections, including the relocation of the PIRSA Quarantine Inspection Station; and
  - the Proponent's financial arrangements.
- The term heavy vehicle bypass, for the proposed Denial Bay Road Heavy Vehicle Bypass, implies that all heavy vehicles (trucks, semi-trailers and restricted vehicles such as B-Doubles) will use this route. As trucks and semi-trailers are likely to use the existing Denial Bay Road and internal link road to the Eyre Highway, consideration should be given to using the term "Denial Bay Heavy Vehicle Route" instead.
- Whilst DTEI has no legal power to grant provisional approval for the relocation of the PIRSA Quarantine Inspection Station, the relocation is acceptable in-principle, provided it is designed and constructed to the satisfaction of DTEI. As the relocation of the station may also be subject to approvals under the Development Act and Regulations, it should be noted that formal approval is not subject solely to the Native Vegetation Council as stated in the report. Finalised plans, drawings, specifications and financial arrangements still need to be prepared to the satisfaction of DTEI and the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government.
- Sufficient land needs to be set aside as part of the road reserve to ensure that any future grade separations of the level crossing can be undertaken without disruption to the proposed development or necessitating acquisition of land.
- The proximity of the development to Ceduna is likely to generate a substantial amount of pedestrian and cycle traffic. However, it is noted that the "Design Development Report – Road Assets" states that pedestrian and cycle facilities have not been provided for in the design of the realignment. As part of the development, it is recommended that the proposed works sufficiently address cycle and pedestrian traffic issues, including the provision of sufficient lighting.

*Department for Families and Communities*

- No comment.

A copy of the government agency submissions is included as Appendix A.

Given the substantial period of time that had elapsed since the submissions were received, relevant Government Agencies and Council were recently re-consulted on issues that relate to the proposal to assist in the preparation of this report.



## 6 ASSESSMENT OF THE MAIN ISSUES

### 6.1 EYRE HIGHWAY REALIGNMENT

The approved conceptual design of the Eyre Highway realignment was for a route that ran along the western side of the existing railway line (ie. inside the eastern boundary of the site), with an upgrading of the existing rail crossing (refer to Figure 1). The development approval required the final plans and specifications to be completed to the satisfaction of the Department of Transport, Energy & Infrastructure (DTEI) and the former Commonwealth Department for Transport & Regional Services (now the Department of Infrastructure & Transport – DIT), before construction could commence. Further investigations by the proponent and consultation with DTEI identified that the approved route would not meet State and Federal road safety and freight transport requirements. Thus, the realignment has been redesigned to follow a route east of the railway line (refer to Figure 3). A revised Traffic Assessment and a revised Road Safety Audit were used to determine the design requirements for the amended realignment (refer to Appendix B).

The proponent has secured additional land for the amended route. The land is cleared of native vegetation and is used for rural farming. A small amount of roadside vegetation would need to be removed at the point where the realignment meets the existing highway.

A new railway crossing is proposed to be constructed at a location south-east of the existing crossing. The existing crossing would be removed. The highway would cross the railway line at a 45° angle (the existing crossing has a 90° angle).

Road lighting on the realigned Auslink Road would be required south of the rail line.

The original road design proposed to use the PIRSA Quarantine Inspection Station as a means to reduce the speed of traffic into Ceduna to a safe level (ie. a 60km/hr limit). However, it was determined that the open nature of the road (especially being in a rural rather than urban context) would influence drivers not to adequately reduce their speed. In addition, the limited sight lines for the existing rail crossing (especially a suitable stretch of straight road) would pose an unacceptable traffic safety risk. This risk would be heightened when traffic queued up when the rail crossing was activated.

The amended road design (including the rail crossing) now incorporates appropriate measures to meet State and Federal road safety and freight transport requirements. Detailed plans and drawings (ie. construction specifications) would need to be prepared, to the satisfaction of DTEI and DIT, with due consideration to B-triple traffic, AUSROADS requirements and the Code of Technical Requirements for the Legal Use of Traffic Control Devices.. The final design of the rail crossing would also need to be to the satisfaction of Genesee & Wyoming Australia P/L (GWA), which owns the line (formerly owned by the Australian Rail Group).

A sufficient width of road reserve would be provided to give government transport authorities the ability to expand the highway (ie. duplication and grade separation) in the future, if needed.

Formal arrangements with DTEI for the approval of works, designs and reviews would need to be undertaken and funded by the proponent.

All road designs (i.e. construction plans, cross-sections and drawings) and arrangements would need to be finalised before any construction could commence on the site. Construction of the realignment and new rail crossing would need to be completed to the satisfaction of DTEI, DIT and GWA before the section of the Eyre Highway that runs through the site and the existing rail crossing would be closed.

**This AAR concludes that the preliminary design of the Eyre Highway realignment would result in an acceptable level of accessibility and operational safety for all vehicles using the Highway.**

## **6.2 MAJOR ROAD INTERSECTIONS**

### **6.2.1 Access to the Commercial Marina Precinct**

The modified highway realignment has resulted in a slight change to the access point to the marina precinct, with the curve in the road now at a more moderate angle. Further designs for the marina turn-off have now been prepared that ensure traffic safety and freight transport standards are met.

### **6.2.2 Access to the Recreational Marinas, Commercial Areas and Canal Estate**

Apart from the access point to the commercial marina precinct, access to the residential canal estate (and recreational/residential marinas and commercial tourism sites) was originally to be provided by three intersections with the Eyre Highway. The proposed amended highway realignment has resulted in the deletion of the two northern access points. Thus, all related traffic (predominantly residents) would need to use the single, southern access point. This access point would link with the main marina ('ring') road that circumvents the site and joins with the Denial Bay Road. Thus, the access point would also be used for light vehicle traffic access to Denial Bay. The original T-junction intersection has now been replaced with a large roundabout in response to the projected, increased traffic volumes. The roundabout could also provide future access to the tourist/cultural centre, sporting complex and golf course, via a service road.

The revised Traffic Impact Study has been used for determining the design requirements of the roundabout, which would accommodate road trains and B-Triple trucks.

Public submissions raised concerns that a large number of vehicles would use the roundabout, which may cause traffic congestion or pose a high accident risk. In particular, increased heavy vehicle traffic may increase such concerns, especially over time if mineral sand mining operations in the region result in a large number of trucks using the highway. The Department of Transport, Energy & Infrastructure (DTEI) has advised that the design of the roundabout could meet traffic safety and freight transport standards, provided traffic predictions and final designs are resolved as part of the final design process.

The need for a pedestrian/cycle path along the main marina road was also raised in submissions. The proponent has now stated that such a path would be incorporated into the road design.

### **6.2.3 Access to Highway One Motel and Roadhouse**

Proposed access arrangements for the Highway One Motel and Roadhouse have now been prepared that ensure passenger vehicles and trucks can conveniently enter and exit the business. Further designs for the turn-offs have also been prepared that ensure traffic safety and freight transport standards are met. The owners of the business are satisfied that these arrangements would minimise the impact of the proposal on their operations. Tenure (including land transfers), financial arrangements and construction issues form the basis of an agreement between the proponent and the owner that would need to be finalised before construction commences.

**This AAR concludes that the preliminary design of the Eyre Highway realignment would result in an acceptable level of accessibility and operational safety for all vehicles using the Highway .**

### **6.2.4 Local Road Network**

The residential marina proposal is likely to generate additional traffic volumes on local roads that would progressively increase over time. In particular, the intersection of the Eyre Highway with Kuhlmann Street and Poynton Street (the town 'main street') is likely to become more congested in the future. DTEI has advised the intersection would require an upgrade in the future, due to increased traffic demand from the marina development. It is possible that the mining industry and other road users could also generate increased traffic demand in the future. Traffic volumes are predicted to steadily increase over time, with

Phase 2 of the proposal (residential canal estate comprising Stages 6-11) likely to generate the most substantial increase in the future. The proponent would need to prepare a Traffic Impact Assessment to determine the level of traffic demand generated by the marina development compared with other sources and to undertake any necessary road upgrades, to the satisfaction of DTEI and Council, prior to the commencement of Phase 2 construction.

An expanded residential population, resulting from the proposal, is also likely to progressively increase demand on Ceduna Hospital services and road access requirements. Council is currently in the process of improving access to the Hospital, although a further upgrade of the turn-off from the Eyre Highway may be required in the future. The Traffic Impact Assessment would also need to assess the requirement for an upgrade for this part of the highway.

It is considered that construction of proposed Stages 6 – 11 (i.e. the residential canal estate) should not commence until these road upgrades have been completed, to ensure suitable road safety and orderly traffic movements. Formal agreements with DTEI for the approval of works, designs, reviews and funding would need to be entered into by the proponent.

### **6.3 ACCESS TO DENIAL BAY**

The original layout plan proposed to provide access to the Denial Bay township via a new road from the Eyre Highway to link with the Denial Bay Road. A T-junction was to be established immediately south of the existing rail crossing. Thus, there would be minimal impact on existing traffic movements. However, it was determined that this arrangement would not meet road safety standards, due to the close proximity of the T-junction to the railway line. In addition, the modified highway realignment now precludes this approach.

Thus, extra traffic volumes would use the main access point to the development (ie. roundabout) and the main marina ('ring') road. Additional traffic noise, emissions and road congestion would affect marina residents.

#### **6.3.1 Small and Light Vehicles**

Access to Denial Bay for small and light vehicles would now be provided via the main marina ('ring') road, which is likely to result in additional waiting and travel times for commuters. The main access point to the development (i.e. roundabout) has been designed to cater for additional traffic volumes.

#### **6.3.2 Heavy Vehicles**

Heavy vehicles (i.e. trucks and commercial vehicles) would no longer be able to access the existing Denial Bay Road, part of which would be replaced by the main marina road. Such vehicles would need to use a proposed Heavy Vehicle Route that connects to the Eyre Highway at the Carpenters Corner Road intersection. Carpenters Corner Road would be upgraded by Council to a standard suitable for heavy vehicles. An existing 'passive' rail crossing would need to be upgraded to an 'active' crossing (ie. with flashing signals) for traffic safety purposes.

The establishment of the Heavy Vehicle Route would need to be undertaken as a separate project by Council, which has jurisdiction for local roads. Approvals would need to be sought from DTEI (including the DIT) for the design of the intersection with the Eyre Highway. The railway crossing design would need to be approved by GWA. Approval to clear native vegetation may also be required.

The District Council of Ceduna has advised that it would undertake all necessary approval processes for the establishment of the Heavy Vehicle Route.

**This AAR concludes that access arrangements for Denial Bay traffic would be provided in a safe manner. Travel distances and times would increase for some users, especially heavy vehicles.**

### 6.3.3 Pedestrians and Cyclists

The proponent's response to submissions (Appendix B) states that a pedestrian and bicycle way would be incorporated into the detailed design of the main marina ('ring') road. The proponent is currently in consultation with the Council regarding this matter.

The provision of a pedestrian and bicycle way would provide a number of benefits, including:

- reduced vehicle traffic volumes and congestion (including reduced greenhouse gas emissions)
- promotion of fitness, health and wellbeing
- alternative access options for residents of Denial Bay

Given the substantial volumes of traffic that would use the main marina ('ring') road, it is recommended that the pedestrian and bicycle way be located between the eastern side of the road reserve and the acoustic protection mound. This would provide a safer environment (especially for children and the elderly) and greater amenity by being incorporated with streetscaping/landscaping. It would also enable parking (i.e. for residents and visitors) to be provided along the length of the road (i.e. on the western side of the road reserve). Thus, the proposed pedestrian and bicycle way should be incorporated into the design of the acoustic mound and associated streetscaping/landscaping and stormwater management measures.

**This AAR concludes that provisions for the safe movement of pedestrian and cyclist within the development, and for access to Ceduna and Denial Bay, can be adequately integrated into road designs to the satisfaction of the Council.**

### 6.4 QUARANTINE INSPECTION STATION RELOCATION

The approved development proposed to relocate the existing PIRSA Quarantine Inspection Station (QIS) to a location 1 – 2 km's north of the current site. However, the proposed amended route of the highway realignment precludes this option. The QIS is now proposed to be relocated 5km's north-west of the current site. The proposed site generally meets the road safety and freight requirements of DTEI and DIT and is acceptable to PIRSA. The QIS would be located 7km from the centre of Ceduna and the greater travel distance is unlikely to unduly impact on PIRSA staff.

PIRSA has recently purchased a new transportable facility that has recently been erected on the current QIS site. The new facility meets work place safety standards. When the facility is relocated, the proponent would need to provide additional features to meet work place safety standards and the operational needs of PIRSA. In addition, the facility would need to meet the road safety and freight requirements of DTEI and DIT. These could include:

- a shade/shelter over the facility to protect PIRSA staff from the elements
- car parking area
- a wash-down facility for vehicles and machinery large enough to accommodate a road train (approximately 200m<sup>2</sup> area)
- a stock yard (animal holding pen) for at least four road trains (approximately 2,300m<sup>2</sup> area).

The proponent would also be responsible for all required road works, infrastructure, lighting and the provision of all services for the road works and built facilities (including connection of all electrical and sewer services).

All road works on the approaches to the new QIS should be consistent with the road design speed. The road design would need to avoid or minimise the risk of a vehicle collision with the facility or staff, whilst minimising the impact on traffic and freight movements. A Road Safety Audit would need to be undertaken by the proponent as part of the final design phase.

The establishment of the QIS would need to be undertaken as a separate project by PIRSA. A development application (i.e. for a Crown development) would need to be lodged with the Development Assessment Commission. Approvals would also need to be sought from DTEI (and DIT) for works to modify the Eyre Highway and from the NVC for vegetation clearance.

PIRSA and the proponent have reached an 'in principle' agreement on the arrangements for the relocation and establishment of the QIS.

All relevant designs and approvals for the QIS would need to be finalised before any construction could commence on site.

**This AAR concludes that the relocation of the PIRSA Quarantine Inspection Station would be undertaken to the satisfaction of PIRSA and State and Commonwealth Government road authorities.**

## **6.5 ACOUSTIC PROTECTION MOUND AND NOISE MITIGATION**

The proposed amended highway realignment now provides additional land between the railway line and the main marina ('ring') road for the establishment of an adequate acoustic protection mound. The mound is a mitigation measure for minimising the impact of noise from the railway and highway on residents of the marina development. With the proposed realignment of the highway now further away from residential areas, a significant source of noise would be reduced in intensity. The railway would still pose a substantial noise source, although the proponent is investigating options for reducing noise levels from locomotives and rolling stock with the railway operator.

Based on a preliminary acoustic assessment, a conceptual acoustic protection mound (including a fence/barrier mounted on top), with a minimum height of 5.70 metres, was approved subject to further detailed design. For the proposed amended highway realignment route, a simplified acoustic model was used to predict road noise levels. The Acoustic Assessment Report in the proponent's response to submissions (Appendix B) concluded that an earthen mound to a height of 6.0m would be required from the main access road roundabout to the new railway crossing, grading down to 5.70m from the crossing to the northern breakwater. The design would address the combined impact of noise from the highway realignment and the railway. The mound would marginally meet the EPA day-time noise criteria, but the WHO Sleep Disturbance Criterion would not be met by the mound alone. Other measures, such as building façade treatment (e.g. thicker window glazing and keeping windows closed), orientation of noise sensitive spaces (e.g. bedrooms located away from the highway) etc, would need to be adopted to meet the required criteria (including internal design sound levels as per AS 2107:2000).

The report also recommended that all Denial Bay traffic be directed to use the Eyre Highway in order to meet the required noise impact mitigation criteria. However, DTEI does not support this due to the road safety and freight transport implications for the Eyre Highway (i.e. greater volume of traffic turning off/onto the highway).

In addition, signs advising trucks not to use air brakes in the vicinity of the marina development site would need to be erected along the highway realignment as a measure to further mitigate noise impacts.

The owner of the railway line, Genesee & Wyoming Australia P/L, has expressed concern that noise complaints from future residents may have implications for its rail operations if effective mitigation measures are not implemented. The level of the railway line, which is higher than the surrounding land,

would also need to be taken into consideration during the final design phase for the acoustic protection mound.

The effectiveness and practicality of noise mitigation measures would need to be further refined in a Noise Emission Management Plan and also implementation through a complimentary Development Plan Amendment process (i.e. to address the detailed design requirements of houses abutting the railway line and highway).

The design of the acoustic protection mound would also need to include landscaping and stormwater management requirements.

**This AAR concludes that the design of the acoustic protection mound (supplemented by other noise mitigation measures) would satisfactorily the potential minimise noise impacts on marina residents from the Eyre Highway and the railway line.**

## **6.6 BREAKWATERS AND CANAL ESTATE**

The redesign of the highway realignment has provided an opportunity to slightly reconfigure the northern half of the canal estate (i.e. waterfront residential stages 6 – 11). This has provided a more consistent layout of residential peninsulas and waterways. An additional 10 allotments have been created and the waterway area has been reduced slightly. The modified design also reduces the need to clear coastal native vegetation, especially Mangroves.

The northern groyne has now been modified into a wide breakwater, with a short training wall at the end that defines the entrance channel (i.e. similar to the southern breakwater). The additional width has enabled the inclusion of waterfront residential allotments, including two larger allotments near the end of the breakwater for medium density residential use. A public reserve is proposed for the seaward side of the breakwater. A road would separate the reserve from the residential allotments.

The inclusion of residential development on the breakwater, particularly the potential for multi-storey apartments, would increase the visual impact of the development (especially when viewed from the sea and the coast). The public reserve would provide a benefit to the community and tourists, especially if facilities and parking are provided. It is likely that Council would be responsible for establishing the reserve. The design of the breakwater would need to ensure that adequate coastal protection is provided from wave action, storm surge and sea level rise (including an allowance for additional protection works in the future). These matters would need to be addressed at the detailed design stage and be compliant with relevant Coast Protection Board policies. The detailed design would also need to ensure that stormwater is suitably collected and treated (and not directly discharged to the marine environment or waterways).

**This AAR concludes that the proposed modifications to the design of the breakwaters and canal estate would result in no additional impacts.**

**In summary**, the most significant impacts of the proposed amendments are:

- Substantial increase in traffic demand on the main access point and internal road of the marina, primarily due to the redirection of Denial Bay commuter traffic through the development and the deletion of a second access point.
- The diversion of Denial Bay heavy vehicles to a new heavy vehicle route and the resultant increased travel times and costs.

## **6.7 MATTERS RELATED TO DEVELOPMENT APPROVAL REQUIREMENTS**

The Governor's original development approval for the proposal contains fifteen 'Reserved Matters', comprising aspects of the proposal that were not fully resolved, required additional investigations to be undertaken or required further detailed designs or plans to be prepared. The main unresolved matter was the suitability of the route for the Eyre Highway realignment. Many of the other unresolved issues (such as the design of the acoustic protection mound, a Site Preparation/Landscaping Plan, a Noise Emissions Management Plan and a Stormwater Management Plan) are also related to the location of the highway realignment.

Finalisation of investigations related to the highway design (such as the Traffic Impact Study, Road Safety Audit and Acoustic Assessment), determined that the approved conceptual route would not meet road safety and freight transport standards. Consequently, an amended route is now proposed. Given that DTEI and DIT are satisfied with the amended route 'in principle', other related aspects can now be finalised. Thus, many of the 'Reserved Matters' can now be converted to 'Conditions of Approval', if a new (i.e. amended) approval is granted.

With the final route of the highway now resolved, several other 'Reserved Matters' that relate to the provision of infrastructure (including the PIRSA QIS) or to standard project management related documentation (such as management plans) can also be converted to 'Conditions of Approval'. Such conditions would need to be met before construction can commence.

'Reserved Matters' related to the public boat ramp facility and the 'restricted area' no longer apply and can be deleted from the approval.

Other 'Reserved Matters' that can be converted to 'Conditions of Approval' are outlined below.

### **Stormwater Management**

The preparation of a Stormwater Management Plan can now proceed, given that the route of the highway realignment has been finalised. In particular, the Plan would need to co-ordinate stormwater drainage, collection and treatment for the highway, the acoustic protection mound and the main marina ('ring') road. Landscaping/streetscaping and the pedestrian/cycle way would also need to be integrated with the Plan. Water sensitive design objectives and measures need to be adopted.

### **Site Preparation & Landscaping**

The preparation of a Site Preparation and Landscaping Plan can now proceed, given that the route of the highway realignment has been finalised. In particular, the Plan would need to include aspects related to stormwater management (i.e. vegetated swales and detention basins) and the acoustic protection mound.

### **Noise Emission Management**

The preparation of a Noise Emission Management Plan can now proceed, given that the route of the highway realignment has been finalised. In particular, the Plan would need to address mitigation measures that need to be incorporated in to building designs (esp. for residential or tourist accommodation uses) to meet EPA noise criteria and WHO Sleep Disturbance Criterion. Such measures would need to be supported by zone policies as part of the Development Plan Amendment process that would be conducted by Council in the future.

## **Infrastructure**

The establishment of a large multi-component marina development requires the provision of service infrastructure for effluent collection/treatment, telecommunications, water and electricity supplies. Providers of such services have indicated that the demand for infrastructure generated by the proposal can be met, provided infrastructure extensions/upgrades are undertaken (as per most substantial land divisions).

SA Water has advised that it would be able to provide water to the development. The provision of a water supply to the development site would be provided under standard approval processes administered by SA Water. Thus, this aspect does not need to be included in a new (i.e. amended) development approval.

The proposed development would generate a substantial demand for effluent collection and treatment from a range of sources, but primarily from residential dwellings. Such demand would increase over time as the various stages of the development are completed. In 2009 Council completed an upgrade of the Ceduna Community Wastewater Management Scheme to meet the future needs of the community, including all sewerage from the marina development. Council has also installed a comprehensive system of treated wastewater reuse pipes that the development could connect to. Council has advised that the proponent may need to make a capital contribution toward the scheme (i.e. to be negotiated separately).

Thus, this aspect does not need to be included in a new (i.e. amended) development approval.

## **Site Contamination**

The completion of geotechnical investigations and the preparation of a Site Contamination Management Plan can now proceed, given that the route of the highway realignment has been finalised. In particular, the Plan would need to include land associated with the amended route and investigations into potential contamination implications associated with the nearby Council Landfill and a previous landfill (esp. potential leachate and landfill gas migration).

In accordance with *Environment Protection Act 1993* requirements, a Site Contamination Audit Report and a Site Contamination Audit Statement would need to be prepared by an accredited Auditor. The findings of the Report and Statement would need to be incorporated into the Site Contamination Management Plan.

## **Native Vegetation Management**

Calculation of the total amount of native vegetation that would need to be cleared can now proceed, given that the route of the highway realignment has been finalised. In particular, additional clearance would now be required for:

- the amended highway realignment (i.e. roadside vegetation where the new road meets the existing road)
- the Denial Bay Heavy Vehicle Route (i.e. roadside vegetation at the intersection of Carpenters Corner Road and the highway)
- the site for the new PIRSA QIS (i.e. roadside vegetation)

The proponent would need to prepare a strategy to achieve a suitable Significant Environmental Benefit (SEB) to compensate for native vegetation removed for the whole of the proposal.

The SEB would need to be integrated with the Vegetation Management Plan, which would also address the protection of vegetation retained on site (mainly coastal and intertidal communities that were to be managed as part of the previously proposed 'Restricted Access Area').



## **Management, Maintenance & Monitoring Responsibilities**

The AEIS (Appendix G) includes a draft Management, Maintenance and Monitoring (MMM) Agreement that adequately addresses the standard construction requirements, such as the allocation of responsibilities and hand-over arrangements between the proponent and Council. In addition, it incorporates aspects related to the Governor's development authorisation that are specific to multi-component marinas, such as controlling the activities of users, stormwater and pollution sources.

The MMM Agreement now needs to be finalised and executed by both parties before construction can commence.

## **Environmental Management & Monitoring Plans**

The preparation of a Construction Environmental Management & Monitoring Plan (CEMMP) and an Operational Environmental Management & Monitoring Plan (OEMMP) can now proceed, given that the route of the highway realignment has been finalised. The CEMMP would need to be completed before construction commences, whilst the OEMMP would need to be completed before the marina and waterways become operational.

## **Restricted Area**

The 'Restricted Area' was proposed as a measure for minimising the impacts of human activities on nearby coastal and inter-tidal habitat, especially for any migratory wader bird species that may utilise the area. The subject area comprises part of Murat Bay, north to north-west of the northern breakwater. To facilitate this, the Council boundary was extended seaward to a distance generally equivalent to a point just beyond the end of the breakwaters. The intent of this approach was to enable Council to control activities within the restricted area through by-laws (mainly boating movements).

It was considered that this measure would alienate part of the coast over which the community currently has unrestricted access. This was determined to be an unacceptable impact on the community and generally inappropriate, especially when mainly for the benefit of a private commercial development. In addition, the proponent does not have ownership of the land and seabed, which is vested with the Crown, and would not have the ability to restrict use of the land.

Accordingly, this component of the development has been deleted.

## **Public Boat Ramp Facility**

The proponent's response to submissions (Appendix B) states that proposed public boat ramp, slip way, hard stand and associated car parking facility has been deleted, as a similar facility has been developed by the Council nearby (the Puckridge Boat Ramp).

With the establishment of the residential marina, demand for the boat ramp would increase over time. However, most waterfront allotments are likely to have their own boat mooring and would not need to use the boat ramp.



## 7 CONCLUSIONS

The assessment of the amended Ceduna Keys Marina has required the consideration of any new or changed social, economic and environmental issues resulting from the modified proposal.

The information on which the assessment is based is contained in the EIS Amendment (dated January 2008) prepared by the Ceduna Marina Development Company, public comments on the EIS Amendment and the proponent's response to submissions. It also relies on information and comments provided in submissions through the consultation process and advice from relevant South Australian Government agencies.

This assessment concludes that the most significant impacts of the proposed amendments are:

- closure of the existing rail crossing on the Eyre Highway, relocation of the crossing to the south-east as part of the modified route for the realignment of the Eyre Highway and upgrading an existing rail crossing on Carpenters Corner Road (as part of the proposed Denial Bay Heavy Vehicle Route)
- a substantial increase in traffic demand on the main access point and internal road of the marina, primarily due to the redirection of Denial Bay commuter traffic through the development and the deletion of a second access point.
- the diversion of Denial Bay heavy vehicles to a new heavy vehicle route and the resultant increased travel times and costs.

This AAR concludes that these impacts are generally acceptable and would be suitably managed.

The essential nature of the proposal has not substantially changed, nor have the overall potential environmental, social and economic impacts.



## 8 RECOMMENDATIONS

Should the Governor grant an amended provisional development authorisation, the approval should be based on the following requirements:

### RESERVED MATTER

1. Compliance with the Building Rules in relation to the staged construction of all built aspects of the proposed Major Development relating to building works

### CONDITIONS

1. Except where minor amendments may be required by other legislation, or by conditions imposed herein, the proposed Major Development shall be undertaken in strict accordance with the following:
  - (a) Environmental Impact Statement, '*Ceduna Keys Marina & Community Centre Development*', lodged by the Ceduna Marina Development Company, dated June 2005 (except to the extent that it may be varied by a subsequent document in this paragraph);
  - (b) Response to Submissions, '*Response to Submissions: Ceduna Keys, Ceduna Keys Marina & Community Centre Development, Environmental Impact Statement*', lodged by the Ceduna Marina Development Company, dated November 2005 (except to the extent that it may be varied by a subsequent document in this paragraph);
  - (c) Assessment Report prepared by the Minister for Urban Development & Planning, dated December 2005 (except to the extent that it may be varied by a subsequent document in this paragraph);
  - (d) Amended Environmental Impact Statement, '*Ceduna Keys EIS Amendment*', lodged by the Ceduna Marina Development Company, dated January 2008 (except to the extent that it may be varied by a subsequent document in this paragraph);
  - (e) Response to Submissions, '*Ceduna Keys Marina Development Environmental Impact Statement Amendment Response to Submissions*', lodged by the Ceduna Marina Development Company, dated April 2008 (except to the extent that it may be varied by a subsequent document in this paragraph);
  - (c) Amendment to the Assessment Report prepared by the Minister for Planning, dated November 2011.
2. No building work shall be commenced on any stage or part of the proposed Major Development except with the approval in writing of the Governor, or any delegate of the Governor for the purpose of section 48(6) in respect of this provisional development authorisation.

3. No construction activities or building works shall commence until a Management, Maintenance and Monitoring Agreement between the Ceduna Marina Development Company and the District Council of Ceduna has been finalised to the reasonable satisfaction of the Development Assessment Commission.
4. No construction activities or building works shall commence until finalised plans, drawings, specifications and financial arrangements for the realignment of the Eyre Highway and associated roads and intersections have been completed to the reasonable satisfaction of the Department for Transport, Energy & Infrastructure and the Commonwealth Department for Infrastructure and Transport. The plans should include as a minimum the following:
  - (i) allowances for the largest vehicles (i.e. B-triple trucks or road trains) and over-dimensional vehicles to meet the required horizontal and vertical alignment;
  - (ii) design speeds in accordance with the Preliminary Design Road Safety Audit Report (dated November 2007);
  - (iii) no direct access to the highway from allotments; and
  - (iv) suitable road lighting between the new rail crossing and the Highway One Roadhouse/Motel.
5. No construction activities or building works shall commence until the applicant enters into a Developer Agreement with the Department for Transport, Energy & Infrastructure for all road works associated with the realignment of the Eyre Highway.
6. Road, drainage, footpath, cycleway, road lighting and intersection designs (i.e. engineering construction plans) shall be finalised in accordance with the requirements of the Department for Transport, Energy & Infrastructure and the District Council of Ceduna, prior to construction commencing. Road and drainage designs shall include water table levels, drainage inverts and pavement details to AUSTRROADS, Australian (AS) and the Department for Transport, Energy & Infrastructure standards. Traffic control devices shall be designed and constructed in accordance with the Manual of Uniform Traffic Control Devices – AS 1742. The roads and drainage works shall be built in accordance with these designs.
7. All road works shall be designed and constructed to the reasonable satisfaction of the Department for Transport, Energy & Infrastructure, with all costs (including design, construction, project management and any road lighting or stormwater management upgrades required as a result of the development) being borne by the applicant.
8. The new rail crossing associated with the realignment of the Eyre Highway shall be designed and constructed to the reasonable satisfaction of the Department for Transport, Energy & Infrastructure and the Genesee & Wyoming Australia Pty Ltd.
9. No construction activities or building works shall commence until finalised plans, drawings, specifications and financial arrangements for the relocation of the PIRSA Quarantine Inspection Station have been completed to the reasonable satisfaction of the Department for Primary Industries & Resources SA, the Department for Transport, Energy & Infrastructure and the

Commonwealth Department for Infrastructure and Transport. All costs associated with the relocation shall be borne by the applicant.

10. No construction activities or building works shall commence until finalised plans, drawings and specifications for the acoustic protection mound have been prepared to the reasonable satisfaction of the Environment Protection Authority and the Department of Planning & Local Government.
11. No construction activities or building works shall commence until a Site Preparation and Landscaping Plan for the acoustic protection mound and the whole of the site has been prepared to the reasonable satisfaction of the District Council of Ceduna and the Department of Planning & Local Government.
12. No construction activities or building works shall commence until a Noise Emission Management Plan for mitigating the impacts of noise generated by the Eyre Highway and railway line has been prepared to the reasonable satisfaction of the Environment Protection Authority and the Department of Planning & Local Government.
13. No construction activities or building works shall commence until a Vegetation Management Plan has been prepared to the reasonable satisfaction of the Native Vegetation Council and the Department of Planning & Local Government.
14. No construction activities or building works shall commence until a Construction Environmental Management and Monitoring Plan (CEMMP) has been prepared to the reasonable satisfaction of the Environment Protection Authority, the District Council of Ceduna and the Development Assessment Commission.
15. No construction activities or building works shall commence until a heritage survey to identify any Aboriginal Sites, Objects or Remains in the site area has been completed to the reasonable satisfaction of the Department of the Premier & Cabinet (Aboriginal Affairs and Reconciliation). Details of the applicant's Heritage Agreement and consultation with the relevant Aboriginal group shall be provided to the Department of the Premier & Cabinet (Aboriginal Affairs and Reconciliation) and the Department of Planning & Local Government. If it is established that construction activities or building works cannot proceed without damaging, disturbing or interfering with Aboriginal Sites, Objects or Remains, then authorisation from the Minister for Aboriginal Affairs and Reconciliation, under section 23 of the Aboriginal Heritage Act 1988, will be required.
16. No construction activities or building works shall commence until the Environment Protection Authority and an independent Environmental Auditor (Contaminated Land) have certified and approved the Site Contamination Management Plan to identify any soil or groundwater contamination that could affect the development. Additional investigations shall have been undertaken to assess the extent of soil and groundwater contamination at the proposed development site, soil investigations of the proposed entrance channel and potential impacts from off-site contamination on the proposed development.

17. No construction activities or building works shall commence until a Stormwater Management Plan, detailing the approach to the collection, storage, treatment and reuse of stormwater run-off for all components of the development during the operational phase of the development, has been prepared to the reasonable satisfaction of the Environment Protection Authority, the District Council of Ceduna and the Department of Planning & Local Government.
18. No construction activities or building works shall commence until an Environmental Management Implementation Management Plan (EMIP) has been completed, which shall meet the reasonable satisfaction of the Environment Protection Authority and the Department of Planning & Local Government.
19. Prior to the marina and waterways becoming operational, an Operational Environmental Management and Monitoring Plan (OEMMP) for the operational phase of the development must be prepared to the reasonable satisfaction of the Environment Protection Authority, the District Council of Ceduna and the Development Assessment Commission.
20. All contamination management or remediation works shall be undertaken in accordance with an approved Site Contamination Management Plan (as amended from time to time) and to the satisfaction of the Environment Protection Authority.
21. No construction activities or building works shall commence until designs for the proposed effluent disposal system for the development site and connection to the town's Community Wastewater Management Scheme are finalised to the reasonable satisfaction of the District Council of Ceduna.
22. The wastewater collection and treatment system shall be designed to ensure that the general obligations of the Environment Protection (Water Quality) Policy 2003 are met, and to ensure that effluent does not overflow or escape from drains, pipes, sumps, tanks, storage/treatment basins into any watercourse, or into stormwater drains which do not drain into the effluent collection, treatment and disposal system, except where the effluent complies with criteria in the above Policy.
23. All works and site activities shall be undertaken in accordance with the approved Construction Environmental Management and Monitoring Plan, Environmental Management Implementation Management Plan and Operational Environmental Management and Monitoring Plan.
24. The applicant shall establish minimum site levels of 3.00 metres AHD (minimum floor levels of 3.25 metres AHD) for areas within the development that are subject to wave run-up and minimum site levels of 2.70 metres AHD (minimum floor levels of 2.95 metres AHD) for areas that are not subject to wave run-up, as determined by a registered engineer.
25. Transport routes for the delivery of construction materials shall be selected to the reasonable satisfaction of the District Council of Ceduna.



26. Compaction specifications (certified by a registered engineer), to the reasonable satisfaction of the District Council of Ceduna, for the areas for residential allotments, commercial development, retail development, tourist development, carparks, public boat ramp and hardstand shall be submitted to the Department of Planning & Local Government.
27. Stockpiled soils shall be suitably managed to control dust emissions, erosion and weed infestation.
28. Amour rock used for breakwaters and revetments shall not be contaminated by fine sediment.
29. The applicant shall provide undergrounded public lighting, power supply, water supply and telephone supply to each allotment in accordance with, and to engineering design standard plans approved by the electricity, mains water and telephone public utility authorities.
30. The applicant shall ensure that there is no direct discharge of stormwater into the marina basins, waterways or marine environment for rainfall less than, and including, 1:20 year ARI events.
31. The land to be used for land-based allotments shall be formed to prevent stormwater flows entering into the waterways.
32. Undeveloped allotments shall be left in a neat and tidy condition, with soil surfaces stabilised to minimise erosion.
33. Drainage arrangements for existing roads and the railway line easement must not be altered unless agreed by the owner/operator of the road or railway line.
34. Sufficient land to accommodate a road reserve for future Eyre Highway duplication (60 metres) and grade separation of the rail crossing shall be made available, set aside and transferred to the Crown (at no cost) to negate the need for future disruption and land acquisition.
35. Road, intersection and footpath designs shall include measures (including road lighting) for the safe movement of pedestrians and cyclists.
36. All buildings and structures shall be set-back a distance of 2 metres from the top of waterway edge treatments (shall the construction of further coastal protection works be required in the future).
37. Appropriate navigational aids shall be erected in prominent locations, in consultation with the Department for Transport, Energy & Infrastructure, prior to use of the facility for boating purposes.
38. Further engineering designs for breakwaters, edge treatments and other waterway related structures, commercial and recreational moorings, boat refuelling facility and marine toilet pump-out/treatment facility shall be prepared and independently certified by a registered engineer, to the

reasonable satisfaction of the Department for Transport, Energy & Infrastructure. A certificate as to the structural soundness of the proposed structures shall be submitted to the Department of Planning & Local Government, prior to the commencement of their construction.

39. Access systems for all floating boat moorings shall be capable of adjustment or be readily adaptable to projected long-term sea level rise and all marina mooring structures shall be designed in accordance with the Australian Standard AS3962 – 1991 Guidelines for Design of Marinas.
40. The boat refuelling dock and marine toilet pump-out facility shall be designed to meet the requirements of the EPA, the Department for Transport, Energy & Infrastructure and the Department of Health respectively.
41. The proponent shall ensure satisfactory oil spill and fire fighting facilities and contingencies, determined in consultation with the Department for Transport, Energy & Infrastructure and the Metropolitan Fire Service (MFS) and/or the Country Fire Service (CFS) respectively, are in place prior to commencement of operation of the marina.
42. The water contained in the marina basin must be kept to a quality appropriate for secondary contact recreation, public amenity and the maintenance of marine aquatic ecosystems, as stipulated from time to time by the ANZECC Australian Water Quality Guidelines for Fresh and Marine Waters.
43. The acoustic protection mound shall be designed and maintained to ensure stormwater run-off is suitably managed to minimize soil erosion and flooding, to provide public access and to result in noise levels from the Eyre Highway and railway that do not exceed:
  - (a) 52 dB (A) between the hours of 7am and 10pm measured and adjusted at the nearest existing residential property in accordance with the Environment Protection (Noise) Policy 2007.
  - (b) 45 dB (A) between the hours of 10pm and 7am measured and adjusted at the nearest existing residential property in accordance with the Environment Protection (Noise) Policy 2007.
  - (c) a short term typical maximum noise level of 60 dB (A) when measured at the nearest existing residential property.
44. The acoustic protection mound shall be planted with indigenous species and be constructed using suitable materials that are of a quality that would sustain the long-term growth of vegetation.
45. Landscaping and streetscaping of the site shall commence prior to the issuing of Certificates' of Title for each stage of the land division, and when established must be maintained in good health and condition at all times. A plant must be replaced if or when it dies or becomes seriously diseased within the first growing season after the plant dies or becomes seriously diseased. A weed control program shall also be implemented.

46. The District Council of Ceduna shall be given seven days notice, prior to the commencement of works, and be provided with the name and contact details of the person responsible for coordinating site works covered by this approval.
47. The applicant shall not commence the construction of Stages 6 – 11 until a Traffic Impact Assessment has been undertaken, to the reasonable satisfaction of the Department for Transport, Energy & Infrastructure and the District Council of Ceduna, to identify any road upgrades required for the intersection of the Eyre Highway, Kuhlmann Street and Poynton Street and for the Eyre Highway in the vicinity of the Ceduna Hospital.
48. The applicant shall not commence the construction of Stages 6 – 11 until all required road upgrades of the intersection of the Eyre Highway, Kuhlmann Street and Poynton Street and for the Eyre Highway in the vicinity of the Ceduna Hospital have been completed. The applicant shall enter into a Developer Agreement with the Department for Transport, Energy & Infrastructure that details the works required and the funding of works.

### **NOTES TO PROPONENT**

1. Approvals will be required for all components of the development not hereby approved, including:
  - the land division;
  - the marina moorings and other marina facilities;
  - the boat refuelling and boat effluent disposal facility;
  - the installation of navigational aids;
  - the community/cultural centre; and
  - all residential, commercial, retail, tourist related and other buildings.
2. Further design and infrastructure/service plans (i.e. subject to separate applications to Council in the future) would be required should further development approval be sought for the community/cultural centre and for commercial, retail and tourist related buildings.
3. A decision on building rules compliance will only be made after a Building Rules assessment and certification has been undertaken and issued by the District Council of Ceduna, or a private certifier, in accordance with the provisions of the *Development Act 1993*, and after the Minister for Planning receives a copy of all relevant certification documentation, as outlined in Regulation 64 of the *Development Regulations 2008*.
4. Pursuant to *Development Regulation 64*, the proponent is advised that the District Council of Ceduna or private certifier conducting a Building Rules assessment must-
  - (a) provide to the Minister a certification in the form set out in Schedule 12A of the *Development Regulations 2008* in relation to the building works in question; and
  - (b) to the extent that may be relevant and appropriate-

- (i) issue a Schedule of Essential Safety Provisions under Division 4 of Part 12; and
- (ii) assign a classification of the building under these regulations; and
- (iii) ensure that the appropriate levy has been paid under the *Construction Industry Training Fund 1993*.

Regulation 64 of the *Development Regulations 2008* provides further information about the type and quantity of all Building Rules certification documentation for Major Developments required for referral to the Minister for Planning.

5. The District Council of Ceduna or private certifier undertaking Building Rules assessments must ensure that the assessment and certification are consistent with this provisional development authorisation (including any Conditions or Notes that apply in relation to this provisional development authorisation).
6. Should the proponent wish to vary the Major Development or any of the components of the Major Development, an application may be submitted, provided that the development application variation remains within the ambit of the Environmental Impact Statement, Assessment Report, Environmental Impact Statement Amendment and Amendment to the Assessment Report referred to in this provisional development authorisation. If an application variation involves substantial changes to the proposal, pursuant to Section 47 of the *Development Act 1993*, the proponent may be required to prepare an amended Environmental Impact Statement for public inspection and purchase. An amended Assessment Report may also be required to assess any new issues not covered by the original Assessment Report and a decision made by the Governor pursuant to Section 48 of the *Development Act 1993*.
7. The design on the Eyre Highway realignment shall include a 60 metre road reserve in order to accommodate future duplication. Sufficient land shall also be set aside for any future grade separation of the rail crossing. Final design must cater for the largest vehicles (i.e. B-triple trucks or road trains) and over-dimensional vehicles to meet the required horizontal and vertical alignment.
8. The design of the relocated PIRSA Quarantine Inspection Station shall meet all necessary operational, road safety, freight transport and occupational health and safety requirements for the facility. The facility shall also include a suitably sized stock yard for road trains and wash down area. The proponent would be responsible for construction of the facility, including the acquisition of land, provision of service infrastructure and native vegetation clearance approvals.
9. Pursuant to the *Harbors and Navigation Act 1993*, the District Council of Ceduna will need to enter into a licence agreement with the Minister for Transport over adjacent and subjacent land on terms acceptable to the Minister prior to the commencement of construction. Such agreement will require completion of the works to the satisfaction of the Minister, at which time the responsibility and control of the area will be transferred so as to minimise the Minister's ongoing responsibilities. It is currently anticipated that the transfers will be via a sales agreement pertaining to the reclaimed residential, tourist and commercial portions of the land, and undertakings by the Council to accept

the groynes/breakwaters as reserve and the remaining area under long term lease.

10. The Construction Environmental Management and Monitoring Plan (CEMMP) shall cover the pre-construction and construction phases of the proposed Major Development and shall consolidate the proponent's previously submitted draft Construction Environmental Management Plan, Coastal Acid Sulphate Soils Management Plan, Soil Erosion & Drainage Management Plan, Spill Contingency Plan and Waste Management Plan. The matters to be addressed in the consolidated CEMMP shall include, but shall not be limited to, the management, mitigation, monitoring, and corrective actions/contingency plans of the following matters during each of these phases:

- dust and sediment control
- odour emissions
- surface and ground water management
- site contamination
- waste management (for all waste streams) and overall site clean up (including litter)
- chemical, oil, construction-related hazardous substances and fuel use and storage, and other materials that have the potential to contaminate stormwater (including emergency responses).
- noise emissions (including ongoing noise assessment and monitoring to ascertain the effectiveness of noise control measures)
- Aboriginal Heritage requirements in accordance with the *Aboriginal Heritage Act 1988*, commitments by the applicant and Heritage Agreement
- vegetation clearance
- introduced plants and animals
- impacts on the marine environment (especially turbidity).
- visual impacts (including lighting)
- traffic management strategies
- impacts on existing infrastructure (including ensuring that works do not compromise the safety and integrity of the Eyre Highway and the existing railway line).
- effect on existing infrastructure
- impacts on adjacent land users
- site security, fencing and safety and management of impacts on local amenity for residents, traffic and adjacent land users
- periods and hours of construction and operation in accordance with Environment Protection Authority requirements

- management of ongoing earthworks and construction (especially residential and commercial buildings)
  - community complaints register regarding the above matters.
11. The Operational Environmental Management and Monitoring Plan (OEMMP) shall cover the operational phase of the proposed Major Development and shall consolidate the proponent's previously submitted draft Operational Environmental Management Plan, Coastal Acid Sulphate Soils Management Plan, Soil Erosion & Drainage Management Plan, Spill Contingency Plan and Waste Management Plan. The matters to be addressed in the consolidated OEMMP shall include, but shall not be limited to, the management, mitigation, monitoring, and corrective actions/contingency plans of the following matters during each of these phases:
- dust and sediment control
  - surface and ground water management
  - stormwater management, including water-sensitive urban design measures and practices (especially for stormwater capture and reuse)
  - waste management (for all waste streams) and overall site clean up (including litter)
  - chemical, oil, hazardous substances, fuel use and storage, and management/emergency response plans (including spills of toxic materials from the Eyre Highway realignment)
  - safe boating navigation
  - water based activities
  - sand accretion and deposition
  - seagrass wrack accumulation
  - coastal hazards (especially flooding)
  - impacts on the coastal and marine environment
  - pest plant and animal species (both terrestrial and marine)
  - odour emissions
  - noise emissions (including a monitoring program to ascertain the effectiveness of noise control measures)
  - visual impacts (including lighting)
  - streetscaping, landscaping and revegetation
  - traffic management
  - public access

- public safety
- impacts on adjacent land users
- control of land and water based activities
- buildings and structures (including private moorings and fencing)
- periods and hours of building construction and operation
- community complaints register regarding the above matters.

The expression 'operational' is deemed to be when the marina and waterways are available for use by recreational or commercial vessels (excluding vessels used for construction).

12. The proponent's CEMMP and OEMMP should be prepared taking into consideration, and with explicit reference to, relevant EPA policies and guideline documents, including, but not limited to: the *Environment Protection (Air Quality) Policy 1994*, the *Environment Protection (Water Quality) Policy 2003*, the *Occupational Health and Safety Regulations*, *EPA Guidelines on Odour Assessment, using odour source modelling 2007*, *EPA Handbook for Pollution Avoidance on Commercial and Residential Building Sites 2004*, *EPA Bunding and Spill Management Guidelines 2007* and the *EPA Stormwater Pollution Prevention Codes of Practice*, in addition to other legislative requirements and Guidelines/Australian Standards requiring compliance.
  
13. The following activities in relation to the components of the development hereby approved and/or requiring future approval will require licences under the *Environment Protection Act 1993*:
  - Earthworks Drainage: the conduct of earthworks operations in the course of which more than 100 kilolitres of waste water containing suspended solids in a concentration exceeding 25 milligrams per litre is discharged directly or indirectly to marine waters or inland waters.
  
  - Marinas and Boating Facilities: the conduct of -
    - (a) facilities comprising pontoons, jetties, piers or other structures (whether on water or land) designed or used to provide moorings or dry storage for 50 or more powered vessels at any one time; or
    - (b) works for the repair or maintenance of vessels with the capacity to handle five or more vessels at any one time or vessels 12 metres or more in length.
  
  - Dredging: removing solid matter from the bed of any marine waters by any digging or suction apparatus, but excluding works carried out for the establishment of a visual aid to navigation and any lawful fishing or recreational activity.

14. It is likely that as a condition of such licences the Environment Protection Authority will require the licensee to carry out specified environmental monitoring of water quality and to make reports of the results of such monitoring to it.
15. It is also likely that the Environment Protection Authority will require the identification to it of any vessels that visit the marina from international ports or from ports beyond Adelaide and the surrounding area, together with details of the routes travelled by such vessels (for the purpose of identifying the potential introduction of harmful marine species).
16. All works associated with the rehabilitation and remediation of the site must be undertaken in accordance with the General Environmental Duty as defined in Part 4, section 25(1) of the *Environment Protection Act 1993*, the *Environment Protection (Water Quality) Policy 2003*, and other relevant Environment Protection Policies made under Part 5 of the *Environment Protection Act 1993*, the ANZECC *Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand*, draft guideline *Environmental Management of On-Site Remediation* and other relevant EPA publications and guidelines.
17. The proponent is advised of the General Environmental Duty under Section 25 of the *Environment Protection Act 1993*, which requires that a person must not undertake any activity, which pollutes, or may pollute; without taking all reasonable and practical measures to prevent or minimise harm to the environment.
18. The management plan for acid sulphate soils should comply with Guidelines issued by the Coast Protection Board.
19. The proponent is reminded of its obligations under the *Aboriginal Heritage Act 1988* whereby any “clearance” work, which may require permission to disturb damage or destroy Aboriginal Sites, must be undertaken with the full authorisation of the Minister for Aboriginal Affairs and Reconciliation, according to section 23 of the *Aboriginal Heritage Act 1988*.
20. The proponent, and all agents, employees and contractors, such as construction crews, must be conversant with the provisions of the *Aboriginal Heritage Act 1988*, particularly the requirement to immediately contact the Department of the Premier & Cabinet (Aboriginal Affairs and Reconciliation) in the event that archaeological items (especially skeletal material) are uncovered during earthmoving.
21. The proponent, and District Council of Ceduna after hand-over of infrastructure, must comply with the *Public and Environmental Health Act 1987* in regard to the maintenance of suitable water quality within the marina basin and waterways (and any stormwater holding ponds) to protect public health and amenity.
22. Pedestrian and cyclist facilities must meet the requirements of the District Council of Ceduna *Footpaths Strategic Links Plan 2008*.



23. The expression 'secondary contact recreation' includes activities such as wading, boating and fishing in which some human contact with the water may occur, but in which the probability of bodily immersion or the intake of significant amounts of water is minimal.
24. If foreign vessels are allowed to berth in the marina the proponent would need to consult with Transport SA (Marine Safety Section) to address any requirements of the Australian Quarantine Inspection Service (AQIS) and Australian Customs Service.
25. The proponent must ensure that finalised plans, drawings, specifications and financial arrangements for the provision of an adequate water supply to the development site are to be prepared to the reasonable satisfaction of SA Water
26. The proponent must ensure that arrangements for the expansion of the town's effluent lagoons to cater for the increased demand from the development (including the potential long-term demand from the possible residential, commercial, retail and tourist related uses), in relation to which the proponent and the District Council of Ceduna must enter a binding agreement, are to the reasonable satisfaction of the Environment Protection Authority and the Development of Health
27. It is recommended that the proponent approach the District Council of Ceduna with a view to the Council enacting of by-laws to manage activities associated with:
  - the entrance channel and waterways to ensure safe navigation and to protect water quality
  - the boat ramp, wash-down, slip-way and hardstand
  - the refueling facility and marine toilet pump-out facility
  - the residential development and reserves (including stormwater management devices)
28. The District Council of Ceduna will need to review and amend the zoning and policies in the relevant Development Plan to reflect any development approved by the Governor and for future assessment and decision-making for buildings and structures not part of this development authorization.
29. Noise generated from the non-residential components of the development should not exceed:
  - (a) 52 dB (A) between the hours of 7am and 10pm measured and adjusted at the nearest existing residential property in accordance with the *Environment Protection (Noise) Policy 2007*.
  - (b) 45 dB (A) between the hours of 10pm and 7am measured and adjusted at the nearest existing residential property in accordance with the *Environment Protection (Noise) Policy 2007*.
  - (c) a short term typical maximum noise level of 60 dB (A) when measured at the nearest existing residential property.
30. When preparing development plan policies for the marina site, the District Council of Ceduna will need to adopt the following EPA recommended noise criteria for the design of buildings used for residential or tourist accommodation that are potentially affected by noise impacts from the Eyre Highway and railway:
  - (a) internal noise levels ranging from 30-40dB(A) and 35-45dB(A) for bedrooms and living areas respectively

(b) indoor noise levels between 30-45dB(A) for sleep disturbance

31. When preparing development plan policies for the marina site, the District Council of Ceduna will need to consider the following design requirements for buildings used for residential or tourist accommodation that are affected by noise impacts from the Eyre Highway and railway:
- Use of separation, building orientation, sheds, continuous fencing and mounding to reduce noise levels outside of the residence
  - Locating noise sensitive spaces of the proposed residence away from the highway and railway (with the windows and openings directed away from the noise source) and less sensitive areas such as the kitchen, storage areas and laundry towards the noise source
  - Minimising the size and numbers of windows oriented towards the traffic noise source
  - Windows to noise sensitive spaces be closed during the night time
  - Replacing conventional pitched roof / eaves designs with flat roof / parapet designs
  - Using construction techniques that seal air gaps around doors and windows
  - Relocate conventional wall air vents to areas not facing the traffic noise source
  - Using solid core doors in conjunction with rubber seals and internal doors with rubber seals into habitable rooms to provide an “acoustic air lock” arrangement.
  - Using thicker window glass or double-glazing to noise sensitive spaces, such as bedrooms.
  - Providing alternative means of ventilation for rooms where elements such as windows in the dwelling facade are to be closed to provide a minimum acoustic performance.
32. Land division creating allotments extending into the water over the sea bed need to negotiate tenure arrangements with the Minister for Transport. Current policy is that Freehold Title would not be granted if the seabed is alienated. Leasing arrangements are the standard form of tenure for private moorings.
33. It is unlikely that a land division will be approved unless provision is made for a set back distance of two metres from the top of the edge treatments (for the construction of coastal protection works if required in the future).
34. A common building scheme encumbrance or equivalent device for the purpose of ensuring compliance with design standards for residential and other buildings will be required at the land division stage.
35. Binding legal arrangements (e.g. easements, encumbrances, charge-back arrangements etc. as appropriate) as between the proponent and allotment owners must be put in place, prior to application to the Registrar General for the issue of new Certificates of Title, to ensure financial and management responsibilities related to the maintenance of edge treatments, the design and appearance of structures and the installation of future coast protection works are clearly allocated. These arrangements must be to the reasonable satisfaction of the Development Assessment Commission.
36. A Site Audit Report and Statement will be required to be completed by an Environmental Auditor (Contaminated Land) and submitted to the relevant planning authority, prior to the issue of Certificates of Title. The Site Audit Report and Statement should be presented to purchasers of allotments.
37. The Minister has a specific power to require testing, monitoring and auditing under Section 48C of the *Development Act 1993*.

## **9 REFERENCES**

Assessment Report for the Environmental Impact Statement for the Ceduna Keys Marina and Community Centre Proposal, December 2005, Minister for Urban Development & Planning/Planning SA.

Ceduna Keys EIS Amendment, January 2008, prepared by Andrew & Associates for the Ceduna Marina Development Company

Development Plan - Ceduna Council, Consolidated 31 March 2011.

Development Plan - Land Not Within a Council Area (Coastal Waters), Consolidated 31 March 2011.

Eyre Peninsula Coastal Development Strategy, October 2007, Eyre Peninsula Local Government Association/Planning SA.

Guidelines for the preparation of an Environmental Impact Statement for the Ceduna Keys Marina and Community Centre Proposal, June 2004, Major Developments Panel, South Australia.

Issues Paper – Ceduna Keys Marina and Community Centre Proposal, April 2004, Major Developments Panel, South Australia.

Planning Strategy for Regional South Australia, 2007, Planning SA.

The 30 Year Plan for Greater Adelaide – A Volume of the South Australian Planning Strategy, 2010, Government of South Australia - Department of Planning & Local Government.



## **GLOSSARY**

The 'Act'	<i>Development Act 1993</i> (and Regulations)
AEIS	Amended Environmental Impact Statement
AAR	Amendment to the Assessment Report
CASS	Coastal Acid Sulphate Soils
DAC	Development Assessment Commission
DIT	Department of Infrastructure & Transport (Australian Government)
DPLG	Department of Planning & Local Government
DTEI	Department of Transport, Energy & Infrastructure
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
DWLBC	Department of Water, Land and Biodiversity Conservation
Panel	Major Developments Panel
PIRSA	Primary Industries & Resources SA
QIS	Quarantine Inspection Station
Response	Response Document
SEB	Significant Environmental Benefit
WHO	World Health Organisation



**APPENDIX A**

**PUBLIC AND GOVERNMENT AGENCY SUBMISSIONS ON THE AMENDMENT TO THE EIS**





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21.1.08 PA08

I wish to make Submission in three areas in regard to the Amended Ceduna Keys Proposal.

## 1 Concerns Roundabout South of the development.

The small diameter, the proposal indicates that heavy traffic will impinge across legal lines of traffic when moving east or west, this may well place traffic entering from the north or south into harms way, and may restrict their return from whence they came, traffic moving from the East or the West will at times travel into rising or setting sunlight the small diameter of the proposed roundabout does not appear to have space for any screening. Cross road and traffic lights maybe an option.

## 2 The proposed rail crossing.

The crossing to the East of the residential area is stated at 45<sup>deg</sup>, I was of the understanding that road and rail crossings were to be as near as practicable to 90<sup>deg</sup> leaving all traffic road and rail with unrestricted view in both directions; however having raised the angle of crossing there would also be some concern with sunrise and sunset at that site.

In Confidence

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21-1-08 To 08...

- 3 My telephone conversation with MR David Kelsey  
(Marina Development Company)

Some time ago late 06 early 07 I raised the issue of realigned Eyre Highway, putting to him that many members of the Community and also heavy transport operators were against the realignment being constructed incorporating B.P roadhouse then continuing skirting the Marina Development and rejoining the Eyre Highway at the northern rail crossing.

I also raised a Bypass from the junction of the Eyre and Flinders Highway (east of Ceduna) along 18 Tank Road and rejoining Eyre Highway (north of Ceduna) as this would eliminate two rail crossings and a large number of through traffic into township areas. MR Kelsey did think that a bypass would be beneficial to road transport and safer for an expanding community, but this he said was out of the question as a condition by Ceduna Council that a realignment must incorporate B.P roadhouse and remain in the township as part of development.

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I would point out that at the time of Ceduna Council's original concept, a sitting councillor with an interest in B.P Roadhouse and that the councillor's purchase of land from Council 'within the concept area' was and still is in my mind controversial, as that land was not put for sale, tender or auction but sold internally.

Whether this had any bearing on Council's conditions that the B.P Roadhouse remain within the developed area may never be known.

J.W.

South Australian Police investigated Ceduna Council; reported in West Coast Sentinel May 17<sup>th</sup> 2001

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25/1/08

PH & FAX 86253388

PUBLIC SUBMISSION ON THE CEDUNA KEYS MARINA &  
COMMUNITY CENTRE  
PLANNING S.A.

I WOULD LIKE TO MAKE A  
SUBMISSION ON SOME COMMENTS I WOULD LIKE TO MAKE  
IN REGARDS TO THE CEDUNA MARINA EVEN THOUGH THE  
CEDUNA MAYOR MADE A STATEMENT ON ABC RADIO  
RECENTLY VERTUALLY SAYING THAT NO ONE SHOULD  
DO SO. AS I AM A RATE PAYER OF THE CEDUNA  
COUNCIL WHO HAS HAD OUR RATES INCREASED THIS  
YEAR BECAUSE OF THE COSTS OF THE MARINA TO  
THE COUNCIL I FEEL I HAVE A RIGHT TO MAKE COMMENT

I WOULD LIKE TO EXPRESS SOME CONCERNS  
IN REGARDS TO THE HIGHWAY REALIGNMENT AND  
TRAFFIC FLOWS AT THE ROUNDABOUT AT MARINA  
AND THE HEAVY VEHICLE BYPASS AT THE KUHLMANN  
STREET EYRE HWY INTERSECTION.

MOST OF THE FIGURES I WILL QUOTE COME  
FROM THE DEPARTMENT OF PRIMARY INDUSTRIES  
SOME I HAVE HAD TO ESTIMATE. IF WE LOOK  
AT THE MARINA ROUNDABOUT AND TAKE THE  
FIGURES FOR THE BUSY TIME OF THE DAY FROM  
8AM TO 10 PM AND VEHICLES GOING BOTH WAYS  
THERE IS 346 APPROX LOCAL VEHICLES 300 INTERSTATE  
AND FROM THE MARINA WHEN IT REACHES ITS  
FINISH 6.00 VEHICLES AS THERE IS OVER 500  
ALLOTMENTS THIS MAKES AT LEAST 1246 VEHICLE

2

MOVEMENTS EVERY 14 HOURS OF THE BUSIEST PART OF THE DAY MAKES ONE EVERY 40 SECONDS. THIS DOESNT GIVE MUCH TIME FOR A TRIPLE ROAD TRAIN TO GET THROUGH SAFELY.

NOW IF YOU GO TO THE KUHLMANN STREET BYPASS AND EYRE HIGHWAY INTERSECTION THERE IS EVEN HIGHER TRAFFIC FLOWS DUE TO LOCAL TRAFFIC GOING TO THE HOSPITAL AND DOCTORS SURGERY ETC. IF YOU ADD CONSERVATIVULLY A. OTHER 100 VEHICLE MOVEMENTS IN THE 14 HR TIME SPAN IT MAKES 1346 TOTAL OR ONE EVERY 37 SECONDS.

THESE FIGURES DO NOT TAKE INTO ACCOUNT GRAIN TRUCKS, SALT & GYPSUM TRUCKS AS THE TIME OF THE YEAR THE LOCAL TRAFFIC FIGURES WERE TAKEN WAS NOT DURING HARVEST. ALSO IN THE FUTURE ADDED TO THIS WILL BE EXTRA TRAFFIC FROM THE SAND MINING WHICH IS STARTING UP NORTH WEST OF CEDUNA ALSO FURTHER DEVELOPMENT AT DEMIAL BAY AND SURROUNDS ADDING FURTHER TRAFFIC PRESSURES.

THERE IS NOTHING IN THE EIS AS TO HOW THE EXTRA TRAFFIC FLOWS ARE GOING TO BE ~~HAND~~ MANAGED AT THE KUHLMANN STREET BYPASS AND EYRE HIGHWAY INTERSECTION AND WHO WILL HAVE TO PAY FOR ANY UPGRADES AT THIS INTERSECTION.

AS A DRIVER OF A GRAIN TRUCK IT IS DIFFICULT ENOUGH NOW GETTING UP TO THE THEVENARD SILOS WITHOUT ADDING TO IT FURTHER. THE ROUNDABOUT ON MC KENZIE

STREET AND MURAT TCE IS DIFFICULT ENOUGH TO NEGOTIATE AS THE CAR DRIVERS DO NOT REALISE HOW MUCH IT TAKES TO STOP A FULLY LADEN TRUCK SO I WOULD NOT LIKE TO THINK ABOUT A ROUNDABOUT AT THE MARINA WITH ITS HIGH TRAFFIC FLOWS. ESPECIALLY CONSIDERING IT WILL BE RIGHT BY THE 5 STAR HOTEL AND TOURIST & CULTURAL CENTRE WITH ALL THE TOURISTS AND ADDED VISITORS, WITH THE ADDED TRAFFIC FLOWS AT THE KUHLMANN ST BYPASS IT WOULD BE ALMOST IMPOSSIBLE TO GET A TRUCK OUT OF THERE ONTO EYRE HWY AS IT IS DIFFICULT ENOUGH NOW.

IT WOULD SEEM TO ME TO BE A LOGICAL SOLUTION TO INCORPORATE INTO THE HIGHWAY DESIGN A DIRECT ACCESS FROM THE PROPOSED REALIGNMENT EITHER NORTH OR SOUTH OF THE TRAIN LINE STRAIGHT ACROSS TO GOODE ROAD. THIS WOULD THEN GIVE DIRECT ACCESS FOR ALL THE GRAIN, SALT, GYPSUM AND MINING INDUSTRIES TO THE THEVENARD PORT VIA GOODE ROAD AND THE CURRENT HEAVY VEHICLE ROUTE TO THEVENARD. THIS WOULD ALSO ALLOW ~~WIDE~~ OVERSIZE AND DANGEROUS GOODS LOADS EASY ACCESS BACK ONTO THE EYRE HWY WITHOUT HAVING TO GO PAST THE HOSPITAL AND MARINA.

BY MAKING AN ACCESS ROAD TO GOODE ROAD WOULD ACCOMADATE EVERYONE AND WOULD NOT EFFECT HIGHWAY ONE ROADHOUSE WHICH SEEMS TO BE THE ONLY REASON THE HIGHWAY REALIGNMENT IS TO BE DONE AS IS PROPOSED. I THINK SOME THOUGHT NEEDS TO GO INTO THE FUTURE AND THE EVER INCREASING

4

TRAFFIC FLOWS AND FIX THE PROBLEMS WHICH ARE GOING TO DEVELOP NOW WHILE WE HAVE THE CHANCE AND INCREASE THE SAFETY FOR EVERYONE.

NEARLY EVERY TOWN ON THE EYRE HWY HAS HAD A SAFE ACCESS FOR HEAVY VEHICLES TO GET PAST TO INCREASE SAFETY FOR LIGHT TRAFFIC BUT HERE WE ARE WITH THIS PROPOSAL INCREASING THE RISK AND CREATING A BOTTLE NECK.

ALSO THERE IS NO MENTION IN THE EIS AS WHO WILL PAY FOR THE UPGRADE OF CARPENTERS CORNER ROAD TO ACCOMADATE HEAVY VEHICLES COMING DOWN DENIAL BAY ROAD. WILL THIS COST FALL ON THE EVER SUFFERING RATE PAYER AND CAN I LOOK FORWARD TO ANOTHER RATE INCREASE NEXT YEAR TO PAY FOR THIS.

I AM NOT A VERY GOOD LETTER WRITER BUT I HOPE YOU UNDERSTAND MY CONCERNS AND GIVE IT SOME THOUGHT.

THANK YOU FOR YOUR TIME.

YOURS FAITHFULLY

*DK Provis.*

DEANE. K. PROVIS.

RECEIVED  
29 JAN 2008  
PLANNING SA

Victor Edwards  
PO Box 490  
Ceduna  
SA 5690

PLANNING SA  
Document No. 08PLN00303  
File No.

Ph/ Fax 08 86269259

25 January 2008

The Minister for Urban Development and Planning  
Attention: Manager, Assessment Branch  
Planning SA  
GPO Box 1815  
Adelaide SA 5001

**Public's submission on the Ceduna Keys Marina and Community Centre**

The following submission is in regard to the Ceduna Keys EIS Amendment January 2008.

**Additional Heavy Vehicle Traffic through Ceduna**

Two additional sources of heavy vehicle traffic have been identified since the original Ceduna Keys EIS; both of which would increase the amount of heavy vehicle traffic along the Eyre Highway into Ceduna. This should be taken into account when relocating the Eyre Highway.

1. Trials (already underway) and possible future use of multi trailer movement of gypsum from the mine site to Thevenard wharf.
2. Planned mineral sands mining requiring multi trailer movements to Thevenard wharf.

Additional heavy vehicle traffic from either or both of these sources is further reason to relocate the Eyre Highway outside of the Ceduna township area. This additional traffic adds to the existing arguments to removing all heavy vehicle highway traffic from residential areas.

These are not arguments that arise out of the marina development itself; but it is both sensible and timely to relocate the Eyre Highway along Eighteen Tank Road. A sensible solution now would avoid the wasting of a substantial amount of money that



will otherwise be spent on a short term solution to relocate the Eyre Highway around the Marina development as proposed.

Relocating the Eyre Highway along Eighteen Tank Road provides many benefits, not the least being safety for highway users and residents who otherwise would be required to enter and exit the highway in the normal course of their daily activities. Money that the developer would otherwise spend on the proposed highway realignment could be redirected to a solution needed for increased activity from mining and, over time, other increases in highway traffic, particularly heavy vehicle traffic.

### **Roundabout Issues - EIS Page 26**

The previous layout proposed a number of entrances onto the Eyre Highway for the marina and Denial Bay traffic. The revised design directs this traffic to one roundabout. This roundabout would take all the traffic to and from the marina residential area, marina resort hotel and convention centre, Denial Bay residents and farm traffic, including school buses. Added to this traffic, using the roundabout would be tourist and recreational fishing traffic to and from popular destinations such as Davenport Creek, Rocky Point and Point Bell. This roundabout would also provide traffic access to a proposed Sporting and Golf Complex. The use of the one roundabout to carry all the varying types of local traffic onto the national highway represents a potential black-spot.

On the EIS Amendment Page 29 (Drawing 106055–SK32) it depicts a road train and a vehicle side-by-side on the roundabout. This suggests one would not impede the others progress through the roundabout. However it is indicated that the B-Triple would deviate across the dividing circle of the two lanes in the roundabout. It would be the responsibility for traffic following such a road train to not attempt to pass a turning vehicle. As the EIS suggests a 20kph speed, this speed would, because of the road safety need not to pass a road train, impact on all traffic each time a road train entered this section of the highway. Traffic flow would be ‘choked’ by the roundabout.

Along with the issue of road trains cutting across the center roundabout lane, a further safety issue at sunset and sunrise arises out of the near east west orientation of the highway. The combination of heavy vehicles and the many other road users (detailed above) on this roundabout at sunset or sunrise will likely prove a fatal combination for road accidents at the roundabout. This is an unacceptable and avoidable consequence of the roundabout proposed in the EIS Amendment.

The need to relocate the highway is the result of the Marina development; but a safer more sensible alternate location for the highway is identifiable.

### **Proposed Railway Crossing**

An approach to any railway crossing at other than close to 90° presents a dangerous situation. (I have observed that throughout Australia much effort at railway crossings has gone into realigning the rail / road crossings to 90° approaches.) The existing rail crossing that is to be replaced is at right angles. Safety for sighting trains at a rail crossing should not be compromised with its replacement. The 45° angle proposed for the railway crossing should not be accepted.

### **2.1.2 Pedestrian and Cycle Facilities**

While the relocation of the highway from around the marina may remove the need for a cycle-way along the proposed realigned highway it doesn't remove the need for a pedestrian and cycle-way to be a part of the Denial Bay Road which would skirt the marina.

Residents of Ceduna currently ride and walk out along Denial Bay Road. Also some members of Yaralena Community currently walk around the foreshore between Ceduna and the community. There is also a small but growing population of people living along Denial Bay Road who would become isolated from Ceduna should a walking and cycle-way not be included beside the skirting road around the marina. A pushed bike and walking track should also be provided for the marina residents.

This is a new issue which arises with a realignment of the highway to the northern and eastern side of the railway line. On the issue of pedestrian and cycle-way facilities the marina would unacceptably divide coastal road access from Ceduna township if these

facilities were not included in the development. Failure to provide a cycle-way and walking track around the marina would prevent safe access by residence to the coastal road on the marina side of Ceduna, and to Ceduna for those living along the Denial Bay road side of the marina.

### **Introduction of Curves along the Highway**

The realignment of the highway in the EIS Amendment does not remove the issue of unnecessarily introducing curves into the national highway. The argument previously presented with regard to this matter remains in the realigned highway of the amended proposal. Far too much interest in ensuring the realigned highway continues to pass Highway One Motel and Roadhouse is at the cost of introducing unnecessary complexity to the national highway.

Other businesses in Ceduna have in the past suffered what they may have questioned as so-called progress when the highway was some years ago relocated along Kulmann Street and away from their businesses. On that occasion the Eyre Highway was diverted away from the town centre. In a letter to the editor West Coast Sentinel 14/9/06, NS Bennett of Ceduna said, 'Around the time the Khulman Street bypass was opened I operated a fuel outlet in Ceduna and I spent many sleepless Saturday nights on the roadside watching trucks who were once customers of mine slipping down the bypass rather than entering town.' This same situation has occurred in many towns throughout Australia and has been brought about by changing circumstances. Ceduna faces such a situation now.

While the amended proposal for the realignment of the Eyre Highway would serve the interests of some it falls far short of a safe solution for the community of Ceduna and is certainly not the best nor the needed solution for our national highway. It is now a sensible time to divert the highway from the remaining town roads.



Victor Edwards

**E-MAILED**  
31-1-08

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01 FEB 2008  
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**WALLMANS**  
LAWYERS

Our Ref: PFH:CMW:40812  
Your Ref: Manager, Assessment Branch

**PLANNING SA**  
Document No. 08PLW00344  
File No.

31 January 2008

Minister for Urban Development & Planning  
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**VIA EMAIL: lee.webb@saugov.sa.gov.au**

Dear Minister

**DEVELOPMENT ACT 1993  
CEDUNA KEYS MARINA AND COMMUNITY CENTRE  
AMENDED ENVIRONMENTAL IMPACT STATEMENT**

We continue to act for Highway One Motel and Roadhouse ("Highway One") which is located at 35 Eyre Highway ("the Highway") Ceduna SA 5690.

Highway One abuts the Highway and is located on the southern side of the proposed Marina.

Highway One represents an investment of several million dollars and is a significant employer in the town providing an income for several families. It is ideally located and designed for motor vehicles of all kinds. As a consequence, its continued existence and viability are extremely important to the local economy.

As the author of the EIS notes, there has been considerable discussion between the Proponent and the principals of Highway One. Our instructions follow:-

1. Our client remains positive and committed to the Ceduna Keys Project.
2. Equally, Highway One has always been concerned to achieve an outcome which guarantees the continued success of its business.
3. Ongoing discussions have been held between the Proponent and Highway One. An Agreement in writing has been drafted by us on behalf of Highway One following those discussions. That Agreement is about to be provided to the Proponent with a view to the execution of a legally binding Agreement between the parties.
  - 3.1 While there have been discussions and general consensus as to a mutually acceptable outcome, those discussions are far from complete as is any final agreement in writing.
  - 3.2 In view of the fact that what is proposed involves the Highway, the property of a third party, it may well be that that third party needs to be a party to such discussions and a party to any Agreement proposed to be reached.
  - 3.3 The proposed realignment of the Highway includes land, the property of Highway One (presently used for storage of large vehicles opposite Highway One).

- 3.4 The draft Agreement also includes reference to the acquisition by Highway One of three allotments of land which we understand to be the property of the Proponent located to the immediate north of Highway One.
- 3.5 Outstanding issues include but are not limited to the following:-
- 3.5.1 The provision of services and sealing of the land to be acquired by Highway One.
  - 3.5.2 The relationship between the newly realigned Highway, Highway One's present land and that to be acquired (see 3.4 above) including pavement, curtilage and drainage.
  - 3.5.3 Government charges, stamp duty and related.
  - 3.5.4 Signage.
  - 3.5.5 Disruption costs.
  - 3.5.6 Short term arrangements (as required) for the delivery of fuel and retail sale of same during construction.
  - 3.5.7 Site contamination.
  - 3.5.8 Sundry matters pertinent to the EIS including but not limited to native vegetation, indigenous rights etc.
  - 3.5.9 Landscaping to customary Development Plan standards.
  - 3.5.10 Insurance
  - 3.5.11 All necessary Development Approvals
4. We note that final approval for the proposal will not be given by DTEI or DOTARS until completion of a Traffic Impact Statement and an independent Safety Audit. At all times Highway One has retained the expert services of Mr Phillip Weaver, Engineer/Traffic Consultant. Mr Weaver has considered the EIS, in particular those issues of an engineering kind. His observations and concerns follow:-
- 4.1 Mr Weaver notes that a design speed of 70kph is proposed along the Highway adjacent to the Highway One but that the speed limit on this section of the Highway will be 60 kph.
  - 4.2 Maximum cross fall of 3%
  - 4.3 Travel lanes of 3.5 metres width and right turn storage lane of 3.3 metres
  - 4.4 The access/egress proposed appears consistent with discussions with the Proponent generally, but in particular
    - 4.4.1 An access point to be located near the southern boundary of the site labelled drawing 106055-EIS-SKO1 as **Access To Motor Fuel Bowers**. The design of this access point would appear to accommodate left and right turn movements in and out of the site by various design vehicles including left turn in movements associated with fuel tankers (B double vehicles) entering the site



- 4.4.2 A left turn exit only (**Passenger Car Exit Only**) which would be suitable only for cars or similarly sized vehicles exiting the site
- 4.4.3 An access point on the northern side of Highway One to be provided for use by commercial vehicles accessing the site including those refuelling on site. This access is referred to on the plans as an **Access To Fuel Bowsers**. This access point has been designed to accommodate left and right turn entry and exit movements by large trucks, including B-triple road trains.
- 4.4.4 The plans identify the provision of a junction further to the north of the site i.e. to the north of the land which is part of the area to be provided to Highway One in exchange for the land currently owned by Highway One on the eastern side of the existing alignment of the Highway. This access point is identified on the plans as being **Future Access to Marina Development**.
- 4.4.5 Two issues which are of potential concern are as follows:-
- 4.4.5.1 The lack of details in respect of road levels and grades to be provided as part of the realignment of the Highway and how these would tie in with the existing grades on the site and
- 4.4.5.2 The potential impact on the ability of large trucks to exit the proposed truck parking area on the northern side of the subject site in the event that the proposed **Future Access to Marina Development** is not provided at the same time as the rest of the proposed road works (see 4.4.4 above).

#### SUMMARY AND CONCLUSIONS:-

1. Our client remains positive and committed to the Ceduna Keys Marina Development Project
2. The proposal includes land, the property of our client. Our client considers that no final decision should be made in relation to the amended EIS unless and until such time as an agreement in writing is reached and achieved between the parties who may include a third party, the proprietor of the Highway. See in support of this proposition Hackney Hotel v St Peters City Council (1984) 36SASR265 and Twenty Seven Properties Ltd v Noarlunga City Council (1975) 11SASR188
3. The Engineering matters referred to above must be considered and addressed by the Proponent to the satisfaction of all relevant Government departments (State and Federal) and our client before any further approval is given in relation to this proposal.
4. Highway One's continued support for the project remains contingent upon:
  - 4.1 The practical access/egress to its site for vehicles of all kinds as depicted on the Dare Sutton Clarke drawing number 106055-EIS-SK01 marked preliminary and dated 4 April 2007.
  - 4.2 The acquisition by Highway One of the 3 allotments referred to in 3.4 above as depicted on a drawing provided by Andrew & Associates number 203310-60 dated 16 October 2007 or very similar such allotments to be provided with separate and independent essential services including water and power and sealing of the land to the satisfaction of Highway One.

Thank you for the opportunity to comment in respect of the amended EIS. We now await your further communication and that of the proponent.

Yours faithfully,

WALLMANS LAWYERS



PETER HOBAN

Partner

Direct Line: 8235 3001

Email: [peter.hoban@wallmans.com.au](mailto:peter.hoban@wallmans.com.au)

Mark Hoffrichter  
P.O. Box 237  
CEDUNA SA 5690

1 FEB 2008

1 February 2008

Mr. Tony Irvine  
CEO Ceduna Council

The Charra SAFF Branch would like to show it's disapproval that grain trucks be denied access of the coast road past the marina and must go via Carpenters Corner Road making the route further and a major inconvenience.

A response to the request would be appreciated.

Yours sincerely

Mark Hoffrichter  
Secretary Charra SAFF.

14.55.3.5  
A 8227  
TI



KW & BM Mozol  
PO BOX 143  
CEDUNA SA 5690

2 FEB 2008

30<sup>th</sup> January, 2008

Att Grant Drummond  
Ceduna District Council  
PO BOX 175  
CEDUNA SA 5690

**Re: 'Public submission on the Ceduna Keys Marina & Community Centre**

Dear Sir,

I am writing with my concerns about the re-alignment of the Eyre Highway/Denial Bay Access Road, with the proposed changes to accommodate the Ceduna Keys Marina I feel there are issues.

Our understanding of the Denial Bay Access Road proposal is intended for smaller vehicle use only. With this in mind is there a possibility larger vehicles be included in the development of the road. If not would this not affect other businesses, including the Council.

I am a local farmer/truck business owner and initially bought our property to suit our farming/truck business. With the re-alignment it will mean the once 6km turnaround will become a 38km turnaround hence increasing costs eg: fuel, wages/time factor etc...

I can see that this will add more pressure to our viability as a community to continue operating in an already highly competitive world. I feel that this issue needs greater consideration as I think it will impact greatly on small and larger businesses alike.

KW Mozol

14.55.3.5  
I 8235  
TI



AFFORDABLE HOUSING INNOVATIONS UNIT

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178 North Terrace  
Adelaide SA 5000

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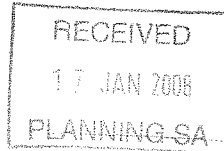
DX115

Tel 08 8124 4073  
Fax 08 8124 4099

ABN 11 525081 744

Our Ref: AHU001322

M Lee Webb  
Chief Environmental Officer  
Assessment Branch  
Planning SA  
GPO Box 1815  
ADELAIDE SA 5000



Dear Mr Webb

<b>Proposal</b>	<b>Ceduna Keys Residential Marina &amp; Community Centre Development</b>
<b>Document Referred</b>	<b>Response Document</b>
<b>Comments Due</b>	<b>5.00PM Thurs 31 January 2008</b>

Thank you for the opportunity to comment on the amended EIS document.

The Ceduna Keys proposal was granted provisional development approval in December 2005. At that time, the question of affordable housing inclusion was not considered and no submission was made by the (then) newly established Affordable Housing Innovations Unit.

Current Government policy sets a target for all significant new residential development to include 15% affordable housing and in accordance with this policy the Minister for Housing and Minister for Urban Development and Planning have (subsequent to the approval of this project), considered that this inclusion should be applied to the assessment of Major Projects in future.

The amended EIS responds primarily to issues associated with the re alignment of the Eyre Highway and other matters that do not relate to the residential component of the project. As public comment is only being sought on the amended items the Department for Families and Communities has no comment.

However, information about affordable housing is available via the Department for Families and Communities Affordable Housing website <http://www.familiesandcommunities.sa.gov.au>. Affordable housing price points are updated and published annually in the Government gazette by the Minister for Housing. The current price point for sales in regional South Australia is \$181,000 and the proponents are invited to contact the Affordable Housing Innovations Unit (AHIU) on 8124 4073 to discuss any queries should they intend to include affordable housing in their project. AHIU is able to provide advice and information, and access to the Affordable Homes Program Property Locator website where affordable homes can be listed for sale.

Yours sincerely

**Philip Fagan-Schmidt**  
**GENERAL MANAGER**  
**AFFORDABLE HOUSING AND SECTOR DEVELOPMENT**

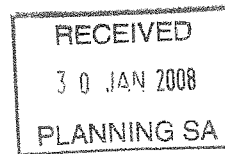
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EHB 003/04/0182

EHB 00308/0087

Mr Lee Webb  
 Chief Environmental Officer  
 Assessment Branch  
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 GPO Box 1815  
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**Public Health**

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Fax 08 8226 7102

ABN 97 643 356 590

[www.health.sa.gov.au](http://www.health.sa.gov.au)

Dear Mr Webb

**Re: Ceduna Keys Marina & Community Centre Development –  
 Amendment to the Environmental Impact Statement (EIS)**

Thank you for the opportunity to provide comment on the above document. It has been reviewed within a framework of the following definition of health by the World Health Organisation (WHO), utilising the broad determinants of health:

*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO 1947)*

Those aspects of the proposed amendments which have the potential for adverse health impacts have generally been appropriately addressed as far as possible. The following comments are made within this context.

**Comment 1 Noise Management** The commitment of the proponents to upgrade the noise study is welcomed. It is considered appropriate that the alignment and design of the acoustic mound is reliant upon the final alignment of the Eyre Highway and these further studies, and hence not included in detail at this stage.

The opportunity is taken to re-iterate the desirability of attaining the level of noise protection provided by the World Health Organisation's (WHO's) guideline values for community noise. These have been set to provide prevent the critical health effects of sleep disturbance, moderate annoyance and interference with speech communication in the general population and may not protect vulnerable groups. Relevant vulnerable subgroups in this case include the children (who are developing speech), the elderly, the ill, those with mental illnesses and those with hearing difficulties.

Even though some of the noise criteria in the EPA's Noise EPP are higher than the WHO guideline values, this EPP is supported by the Department of Health as a reasonable and practicable implementation of them. The use of less stringent environmental noise criteria from Australian Standard AS 2107:2000 are not supported as the Australian Standard gives no rationale for the selection of its criteria.

The full range of noise management measures should be considered, including siting and design of sensitive land uses, eg, residences. However, residents should be able to ventilate their homes naturally, eg, be able to have a bedroom window open at night, whilst achieving the WHO guideline values. This will assist in minimising:

- exposure to toxic compounds emitted by furnishings and construction materials
- fungal products and house dust mites and
- greenhouse gas emissions due to an increased use of air conditioning.

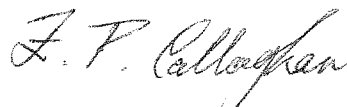
**Comment 2 Wastewater** This issue is not part of the Amendment to the EIS but included in Appendix D for information only on how this reserved matter {b(v)} is progressing. The opportunity is taken to re-iterate that a communal waste water collection, treatment and disposal system must be designed and installed in accordance with the requirements of the Public and Environmental Health Act 1987 and Public and Environmental Health (Waste Control) Regulations 1995.

It is noted that the intention is to use the resultant wastewater for irrigation. As all reuse of wastewater forms part of the disposal system, this requires the approval of the Department. In addition, the irrigation of the foreshore may not comply with the Department's setbacks from the marine environment.

Therefore, the proponent and the District Council of Ceduna are urged to discuss both these issues with the Wastewater Management Section of the Department of Health as soon as possible (contact: Ms Nina Allen, Manager, Wastewater Management Section, phone no 8226 7162).

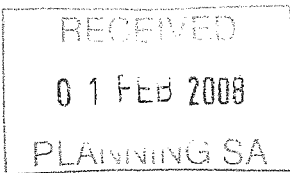
I trust that these comments are beneficial in your assessment of the proposal. If you have any comments or queries, please do not hesitate to contact me (telephone 8226 7145 or e-mail [frank.callaghan@dhs.sa.gov.au](mailto:frank.callaghan@dhs.sa.gov.au))

Yours sincerely



**Frank Callaghan**  
**Principal Scientific Officer**  
**APPLIED ENVIRONMENTAL HEALTH BRANCH**

31/11/2008



G3



**Government of South Australia**  
Department of Trade and Economic  
Development

Reference: 210/003/237  
Enquiries: John Barker  
Telephone: 8303 2372  
Fax: 8303 2509

<b>PLANNING SA</b>
Document No. 08PLW00342
File No.

31 January 2008

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Mr Elmer Evans  
Manager Assessment Branch  
Planning SA  
GPO Box 1815  
ADELAIDE SA 5001

Dear Mr Evans

**Re: Ceduna Keys Marina & Community Centre—Amendment to the Environmental Impact Statement**

Thank you for providing the Department of Trade and Economic Development (DTED) with the opportunity to make comments on the Ceduna Keys Marina & Community Centre amended Environmental Impact Statement.

DTED's only concerns with the proposal are the potential adverse impacts of the Eyre Highway realignment on the Highway One Motel and Roadhouse. DTED would be concerned if the proposed realignment affected access and egress arrangements to an extent that could potentially affect that business. DTED notes however that these matters are the subject of direct negotiations between the developer and the proprietor of the Highway One facility.

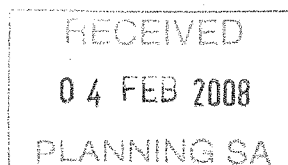
Subject to these issues being satisfactorily resolved, DTED has no further comment in relation to the amended EIS.

If you have any questions relating to this matter, please do not hesitate to contact John Barker on telephone number 8303 2372.

Yours sincerely

Richard Hancock  
**Manager, Planning and Development**

64



EPA 05/11289

Manager  
Assessments Branch  
5th Floor  
136 North Terrace  
ADELAIDE SA 5000

Dear Sir

**Ceduna Keys Residential Marina & Community Centre Development  
Amendment to the Environmental Impact Statement**

The Environment and Conservation Portfolio have the following comments on the amended EIS.

**Environment Protection Authority**

With Reference to Section 4.7 of the MANAGEMENT, MAINTENANCE AND MONITORING AGREEMENT FOR THE CEDUNA KEYS MARINA, it is recommended that reference should be made to the need to comply with the Environment Protection (Water Quality) Policy 2003.

While the agreement outlines liability for any pollution incident that may occur, it should also include the requirement to notify the EPA of any such incident in accordance with Section 83 of the Environment Protection Act 1993

It is recommended that Section 8.5 include a reference to the EPA Code of Practice for Materials Handling on Wharves.

Section 11.2 should be focused on directing all stormwater discharge away from the waterways aiming for very little stormwater entry into the marina waterways and possibly towards recycling etc and the principles of WSUD.

**Department for Environment and Heritage**

The EIS document appears to have addressed DEH's requirements with regard to potential hazard risks pertaining to erosion and flooding. However, DEH still has concerns with respect to other environmental issues, including the presence of coastal acid sulfate soils, turbidity, sea grass wrack management, flushing and water quality, and management of sea grass within the marina.

These issues should be investigated further during the preparation of the Construction Environmental Management and Monitoring Plan. DEH would like to be consulted on this Plan to ensure that these issues are adequately addressed.

Environment Protection Authority

Further to the above however, the amendment includes changes to the width of the western rock groyne to accommodate further residential development. The developer should be made aware that it is their responsibility to ensure any residential development adjacent the rock groyne is adequately protected from storm surge and associated wave overtopping.

*For further information please contact Arron Broom, Planning Officer, Coastal Management Branch on 8124 4924 or e-mail [broom.aron@sau.gov.sa.gov.au](mailto:broom.aron@sau.gov.sa.gov.au).*

**ZeroWaste SA**

No comment.

## Department of Water, Land and Biodiversity Conservation

### General

The Department notes that weed control, and in particular the management of stockpiled soil to prevent weed movement, is addressed (Appendix A).

The developer should work with the Eyre Peninsula Natural Resources Management Board to minimise risk of weed spread, soil erosion and any other issues identified by the Board.

### Native Vegetation

Native vegetation covers much of the 140 ha development site, with the exception of about 12 ha of introduced grassland in the north-west and about 40 ha of natural bare areas (claypans, beaches). Most of the native vegetation will be cleared by the development, including the excavation of a samphire flat, dumping of spoil and clearance for house sites. In addition, sea-grasses will be cleared through the construction of breakwaters and dredging of a deepwater channel (3m deep by 50m wide by 1km long) into a relatively shallow part of Murat Bay.

A major concern of the Native Vegetation Council regarding the proposal was the potential for impacts on waterbirds using the tidal mudflats of Murat Bay. Various reports (e.g. Watkins 1993, Wilson 2000) have highlighted the value of the Murat/Tourville Bay area as a habitat of national significance for shorebirds. For example, Watkins (1993) identifies Murat Bay as a site of national significance for the Sooty Oystercatcher, Ruddy Turnstone and Grey Plover. Unfortunately no proper assessment of the value of the tidal mudflats to migratory shorebirds was undertaken as part of the EIS (or EPBC referral) process. Further, potential impacts on these species from the proposed development are not adequately discussed in the EIS.

The proponents have been advised that set-aside and management that would improve the conservation value of 270 ha of samphire and associated coastal vegetation, plus 200 ha of seagrass, would be required to achieve the required significant environmental benefit. Alternatively a payment to the Native Vegetation Fund would be required to achieve the same benefit. A proposal to revegetate some parts of the adjacent Yariiena Aboriginal Lands was investigated by the Native Vegetation Council, although the proposal was not considered sufficient to result in the required significant improvement of 270 ha of terrestrial native vegetation.

The Amendment to the EIS includes various matters that were reserved in the 2005 development approval, in particular relating to layout changes associated with the Eyre Highway re-alignment and quarantine station. In addition, part b(viii) of the decision requires a Vegetation Management Plan which is to be approved by the Native Vegetation Council and part b(xiii) requires a Management Plan for the restricted area on the adjacent Yariiena Aboriginal Land, to be prepared to the reasonable satisfaction of various government departments including DWLBC.

*For further information contact Sarah Ryan, DWLBC Tel 84636856*



For further information on this matter, please contact Peter Torr on 82042136 or peter.torr@epa.sa.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'P. Torr', with a stylized flourish at the end.

Peter Torr

**MANAGER, ENVIRONMENT ASSESSMENT  
SCIENCE & SUSTAINABILITY DIVISION  
ENVIRONMENT PROTECTION AUTHORITY**

Date: 31/01/08



# Native Vegetation Council

Reference: NVC Mtg 156; Item 4.3; 08WLB00416

Contact: Craig Whisson  
 Telephone: (08) 8124 4755



2<sup>nd</sup> Floor  
 1 Richmond Rd  
 Keswick

GPO Box 2834 Adelaide  
 South Australia 5001  
 Australia

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 Facsimile 8124 4745  
 campbell.lesley@saugov.sa.gov.au

6 March 2008

Elmer Evans  
 Manger Assessment Branch  
 Planning SA  
 GPO Box 1815  
 ADELAIDE SA 5001

Dear Mr Evans

**re: Ceduna Keys Residential Marina and Community Centre  
 - amended EIS Statement**

At its meeting dated 27<sup>th</sup> February 2008 the Native Vegetation Council (NVC) considered your letter of the 7<sup>th</sup> January 2008 and the matter of the *Ceduna Keys Environment Impact Statement Amendment – January 2008*.

The amended EIS document was considered in accordance with Native Vegetation Regulation 5(1)(c) – which provides the NVC with a period of eight weeks to provide comment on EIS documents prepared in accordance with section 48 of the *Development Act 1993*. That regulation requires the clearance of native vegetation ...to be undertaken in accordance with a management plan that has been approved by the NVC that results in a significant environmental benefit (SEB).

The SEB may also be achieved through a payment into the Native Vegetation Fund of an amount considered by the NVC to be sufficient to achieve that benefit. The NVC has previously provided advice on the levels of payment that would be required to fulfil the NVC's requirements should this option be chosen (see letter dated 20 November 2006 – Appendix F). It should be noted that since that earlier advice there has been an amendment to the Native Vegetation Regulations, with the provision of an new exemption relating to clearance associated with approved subdivisions. The new Regulation [5(1)(ab)] still requires any clearance of native vegetation to be offset by an SEB. Officers of the Native Vegetation Group, DWLBC can provide advice on the levels of payment that may be attracted should this option be pursued.

Appendix F also makes the comment that the proponent had previously identified the nearby Yarlilena Aboriginal Lands as a possible option for achieving the required SEB, but that proposal was rejected by the Native Vegetation Council because the '*...revegetation area was insufficient to compensate for the potential loss of existing native vegetation*'. That comment may have been taken out of



**Government  
 of South Australia**

context, rather that the area of revegetation proposed was of itself insufficient to offset the loss of native vegetation identified to be cleared.

Should the onground option be considered, the NVC policy position requires the protection and management of an area of 270ha of terrestrial native vegetation (not including offsets for the clearance of 6.1ha of seagrasses). The letter to the Ceduna Marina Development Company of 20 November 2006 states that '*...the NVC would prefer the SEB requirement to be achieved through on-ground works...*'

In considering the amendment document the NVC noted that the proposed restricted area management plan (and associated revegetation proposal) for the adjacent Yarilena Aboriginal Lands has been deleted. The protection, management and rehabilitation of this land had been one of the options for achieving the SEB provisions required for any clearance to be exempted from the need to obtain a native vegetation clearance consent. The NVC does not support the deletion of the Restricted Area Management Plan, given the potential impacts of the development on the habitat value of adjacent areas of high conservation value, particularly the Yarilena Aboriginal Lands and adjacent mudflats of Murat Bay. The protection, management and rehabilitation of this land provides a worthwhile component of any SEB requirements, but of itself will not totally extinguish these offset requirements. The NVC would encourage that these options be considered again as a means of partially achieving the SEB requirements.

It may be possible to achieve the significant environmental benefit requirements through a combination of onground works and payment into the Native Vegetation Fund. Again officers of the Native Vegetation group, DWLBC would be willing to discuss these options.

The NVC further noted

- the vegetation assessment required for the proposed new quarantine station is still outstanding;
- in the event that the SEB provisions are to be achieved through the provision of an offset payment to the Native Vegetation Fund, that payment is required prior to any clearance being undertaken (as per Native Vegetation Regulation 5(1)(c)).
- given the deletion of the restricted area management plan for the adjacent Yarilena Aboriginal Lands, further assessment under the Commonwealth EPBC Act may be required recognising that there have been significant changes to the proposal (particularly with regard to mitigating impacts on migratory waders using Murat Bay) since the original referral in 2002.

Should you require further information or have any query please do not hesitate to contact me on 8124 4755.

Yours sincerely



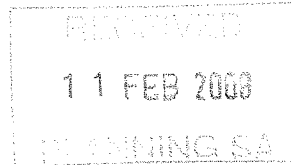
Craig Whisson  
Executive Officer  
Native Vegetation Council



**Government of South Australia**  
 Department of Further Education,  
 Employment, Science and Technology

February 2008

Mr Elmer Evans  
 The Manager  
 Assessment Branch  
 5<sup>th</sup> Floor  
 136 North Terrace  
 ADELAIDE SA 5000



**Policy, Planning and Innovation  
 Workforce Development  
 Directorate**  
 Level 6  
 11 Waymouth Street  
 Adelaide SA 5000  
 GPO Box 320  
 Adelaide SA 5001  
 Tel 08 8463 4355  
 Fax 08 8207 8700

Dear Mr Evans

Thank you for the opportunity to comment on the EIS for the Ceduna Keys Residential Marina & Community Centre Development.

Our interest is in determining the workforce impact of major developments during both the construction and operational phases.

It does not appear that a detailed analysis of the workforce impacts has been conducted, although the project has been identified in the Employment and Skills Formation Network's strategic plan for the Eyre region.

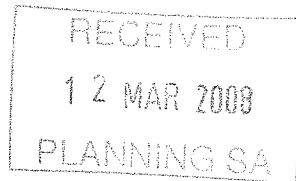
We note that an Indigenous Land Use Agreement is being considered for this project. This should provide opportunities to engage Indigenous workers in both the construction and operational phases. We suggest that local training providers (including TAFE SA) and the local regional development board could be engaged in this process, if they are not already engaged.

Consideration might also be given to model the workforce impact over the short to medium term to determine potential pressures on the labour force.

Yours sincerely

Ms Chris Harrison  
 Director  
 Workforce Development Directorate  
 Department of Further Education, Employment, Science  
 and Technology

In reply please quote 2005/00015, 2433016  
Enquiries to Miss F Hurley  
Telephone (08) 8343 2699



7 March 2008

TRANSPORT SERVICES  
33-37 Warwick Street  
Walkerville, SA 5081

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Telephone: 61 8 8343 2222  
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Manager,  
Assessment Branch  
5<sup>th</sup> Floor  
136 North Terrace  
ADELAIDE SA 5000

Dear Sir,

**RE: CEDUNA KEYS RESIDENTIAL MARINA & COMMUNITY CENTRE DEVELOPMENT – AMENDMENT TO THE ENVIRONMENTAL IMPACT STATEMENT (EIS)**

I refer to your letter of 7 January 2008 regarding the above matter. The Department for Transport, Energy and Infrastructure (DTEI) provides the following comments:

- The Executive Summary, page 4, paragraph 5 states that the Restricted Area Management Plan has been deleted from the proposal following discussions with Planning SA and DTEI.

It is unclear what DTEI's role is in this matter and who in DTEI was consulted.

- Page 9, paragraph 3 states that DTEI act on behalf of the Australian Rail Group (ARG) for the preliminary approval process of the Eyre Highway realignment.

Whilst DTEI was involved in discussion with ARG with regard to the relocation of the level crossing (from existing to proposed location), it should be noted that DTEI does not act for ARG and thus ARG should continue to be consulted as a separate entity.

- Page 9, paragraph 5 states that a roundabout is to replace the original entrance to the residential allotments in the development and to also provide access for service vehicles to the proposed Resort Hotel and Convention Centre as well as future access to the proposed Sporting and Golf Complex.

The Amended EIS demonstrates that the proposed roundabout provides for the through Eyre Highway movement of restricted access vehicles up to B-triples in size. However, for the turning movements at the roundabout (i.e. left, right and U-turns) it is unclear what design vehicle has been used. Turning movements at the roundabout should be designed to accommodate the largest vehicle expected to undertake these manoeuvres. This is likely to be a 19.0 metres semi-trailer.

Furthermore, no direct vehicular access should be provided from any new development onto the Eyre Highway and all access should be via the local road network. Accordingly, all access to the proposed Convention Centre must be via the proposed local road connecting with the proposed roundabout and development on the opposite side of the Eyre Highway (i.e. Sporting and Golf Complex and Cultural Centre) must gain all access via the local road at the roundabout and an internal service road.

- Page 9, paragraph 7 states that DTEI has indicated that final approval of the Eyre Highway realignment concept plan is conditional upon the completion of a Traffic Impact Statement relating to the revised designs, the satisfactory completion of an independent safety audit and an upgrading of the noise study.

Whilst DTEI raises no objection in-principle with the realignment of the Eyre Highway, it should be noted that DTEI wrote to the Proponent (Ceduna Marina Development Company (CMD)) on 11 October 2007 (copy attached) advising that the release of the Reserved Matter relating to the realignment of the Eyre Highway was subject to the following being prepared and finalised to the satisfaction of DTEI and the Commonwealth Department of Transport and Regional Services (now called the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government):

- the concept scheme, including a revised traffic study (taking into account the increase of the number of residential allotments in the marina, the Iluka Mine proceeding, extension of the B-Triple heavy vehicle network etc.) and an independent road safety audit;
- a detailed design and technical proposal (specifications) for the realignment of the Eyre Highway and associated roads and intersections, including the relocation of the PIRSA Quarantine Inspection Station; and
- the Proponent's financial arrangements.

DTEI has yet to receive a response to this letter.

- Page 19 - Denial Bay Road Heavy Vehicle Bypass.

The term heavy vehicle bypass implies that all heavy vehicles (trucks, semi-trailers and restricted vehicles such as B-Doubles) will use this route. As trucks and semi-trailers are likely to use the existing Denial Bay Road and internal link road to the Eyre Highway, consideration should be given to using the term "Denial Bay Heavy Vehicle Route" instead.

- Page 20 - Relocation of the PIRSA Quarantine Inspection Station – The document states that DTEI have granted provisional approval, but formal approval will be subject to approvals from the Native Vegetation Council.

Whilst DTEI has no legal power to grant provisional approval, the relocation is acceptable in-principle provided it is designed and constructed to the satisfaction of DTEI. As the relocation of the station may also be subject to approvals under the Development Act and Regulations, it should be noted that formal approval is not subject solely to the Native Vegetation Council as stated in the report.

It should be noted that the relocation of the PIRSA Quarantine Inspection Station is still a reserved matter subject to finalised plans, drawings, specifications and financial arrangements being prepared to the satisfaction of DTEI and the Commonwealth Department of Transport and Regional Services (now called the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government).

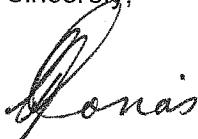
- DTEI requires that sufficient land be set aside as part of the road reserve to ensure that any future grade separations of the level crossing can be undertaken without disruption to the proposed development or necessitating acquisition of land. This has been discussed with the Proponent and the State Working group prior to the submission of the Amended EIS. Accordingly, the Proponent must demonstrate that this requirement is met.
- The proximity of the development to Ceduna is likely to generate a substantial amount of pedestrian and cycle traffic. However, it is noted that the "Design Development Report – Road Assets" states that pedestrian and cycle facilities have not been provided for in the design of the realignment. As part of the development, it is recommended that the proposed works sufficiently address cycle and pedestrian traffic issues, including the provision of sufficient lighting.
- DTEI has forwarded the Amended EIS to the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government. The Commonwealth concurs with the issues raised above.
- Appendix G - Management, Maintenance and Monitoring (MMM) Agreement.

It is noted that Appendices B – N are provided for information only to illustrate how the Proponent has addressed the approval requirements to date. The Amended EIS indicates that the MMM agreement for the Ceduna Keys Marina is between the District Council of Ceduna and CMDC and that the draft MMM agreement is currently subject to consultation between CMDC, the District Council of Ceduna and relevant government bodies. As DTEI is mentioned in the MMM agreement, the Proponent is expected to consult with DTEI.

It should be noted that Council has responsibilities under the Pollution of Waters Act and must ensure that there are plans in place to prevent and/or mitigate the effect of spills of oil or other noxious substances into the marine environment. Council will need to communicate with the State Oil Spill Response Committee, in respect to Contingency Action plans for inclusion within the South Australian Marine Spills Contingency Action Plan (SAMSCAP).

Furthermore, it is also requested that DTEI's Commercial Marine Unit are invited to have representations at any future meetings concerning the ongoing development of the project. The contact officer is Mr Joe Rositano, Manager Commercial Marine Services, telephone (08) 8348 9569.

Yours sincerely,



**MANAGER, TRAFFIC AND ACCESS STANDARDS**

Encl: copy of letter to CMDC

In reply please quote 2005/07442  
Enquiries to Dionysia (Denise) Hatzi  
Telephone 0421 612 843



Government  
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2585

ABN 92 366 288 13

1 October 2007

Managing Director  
Ceduna Marina Development Company  
PO Box 6114 Halifax Street  
ADELAIDE SA 5000

Dear Sir,

**CEDUNA KEYS MARINA & COMMUNITY CENTRE DEVELOPMENT -  
REALIGNMENT OF RN2000 EYRE HIGHWAY, CEDUNA**

On 15 December 2005, the Ceduna Keys Marina & Community Centre Development (the "**Development**") was granted provisional development authorisation, subject to a number of reserved matters and conditions being met, including the following:

*"ii. Realignment of the Eyre Highway and associated roads and intersections (including the relocation of the PIRSA Quarantine Inspection Station), the applicant's finalised plans, drawings, specifications and financial arrangements for which are to be prepared to the reasonable satisfaction of the Department for Transport Energy and Infrastructure and the Commonwealth Department of Transport and Regional Services,"*

Before this reserved matter can be released:

- the concept scheme;
- a detailed design and technical proposal (specifications) for the Development; and
- the Developer's financial arrangements,

must be prepared and finalised by the Ceduna Marina Development Company (the "**Developer**") to our satisfaction and to that of the Commonwealth Department of Transport and Regional Services ("**DOTARS**").

**The Concept Scheme**

DTEI is in receipt of a Design Development Report dated February 2007 and plans forwarded December 2006 for the concept of the realignment of the Eyre Highway.

I draw your attention however to the outstanding items yet to be submitted to DTEI for the concept scheme, being:



- a revised traffic study (as the structure plan of the marina has been amended); and
- an independent road safety audit.

### Detailed Design and Technical Proposal

If written agreement is reached on the concept scheme by both DTEI and DOTARS, then the Developer may proceed to the detailed design (including finalised plans, drawings and specifications).

To carry out the detailed design and technical proposal for the realignment of the Eyre Highway and associated roads and intersections (including the relocation of the PIRSA Quarantine Inspection Station) (the “Works”), the Developer must appoint and fund:

- A qualified designer to undertake all design work associated with the Works including new pavement, kerbing, lighting, landscaping etc as required by the design, in accordance with DTEI Design Requirements.

DTEI Design Requirements for the design component of the Works are currently being prepared and will be forwarded to you.

- An independent auditor to conduct Road Safety Audits at the completion of each of the preliminary design and detailed design stages, in accordance with the Austroads Road Safety Audit Book.

The Developer can obtain a list of prequalified designers and road safety auditors from DTEI. The Developer is not limited to this list, but must obtain DTEI's approval that the chosen designer and road safety auditor meets the qualifications required for the work to be undertaken.

- An independent reviewer engaged by DTEI to provide certification of all finalised plans, drawings, specifications and financial arrangements prepared by the Developer.

In terms of cost for the detailed design, the Developer must:

- Reimburse all of DTEI's cost for overseeing the design component of the Works associated with design checks, administration and associated project management with respect to the Works, excluding construction. The estimated cost is approximately **\$81 000**, however this is an estimate only and actual costs will be charged.

Charges incurred may vary according to the quantity and type of services that DTEI is required to provide to ensure that appropriate standards are met, with respect to design and also directly related to the efficiency of the Developer's design consultant(s).

- All costs associated with acquiring legal advice and approvals.

Accordingly, following agreement of the concept design for the Works and prior to the commencement of any detailed design and final design for the Works, the Developer must:

- Enter into a written agreement with the Commissioner of Highways.
- Provide the name and details of the principal designer undertaking the detailed and final design.
- Provide the name and details of the independent road safety auditor.

## **Financial Information**

DTEI and DOTARS must be reasonably satisfied that the Developer has adequate financial arrangements to meet its on-going obligations in relation to the Work and the Development. DTEI expects that the Developer will provide all such necessary information as a matter of urgency.

All correspondence and verbal communication regarding this matter is to be referred to the undersigned on phone number (08) 8402 1777 or 0421 612 843.

Yours faithfully,

Dionysia (Denise) Hatzi  
Project Manager

Cc: Mr Lee Webb, Planning SA  
Mr Michael Shiel, DOTARS

**APPENDIX B**

**PROPONENT'S RESPONSE TO SUBMISSIONS ON THE AMENDMENT TO THE EIS**



**'Ceduna Keys' Marina  
Development**

**Environmental Impact Statement Amendment**

**Response to Submissions**

April 2008

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### APPENDICES A – C

Appendix A – Vipac Preliminary Acoustic Assessment (Revision – 15 Nov 2007) Vipac Impact of Railway Noise	
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Appendix C – HDS Australia Preliminary Design Road Safety Audit	

## GOVERNMENT SUBMISSIONS

- G1 – Department for Families and Communities  
Comment not applicable to the Amendment.
- G2 – Department of Health  
*Issue*  
Concerns over the effectiveness of measures to mitigate potential noise from the Eyre Highway and the achievement of the Environment Protection Authority noise criteria.  
*Response*  
The revised preliminary acoustic assessment report has detailed attenuation measures to address the combined impact of noise from the re-aligned highway as well as the railway. These measures aim to achieve at least the EPA day-time criterion. Building façade treatment, orientation of noise-sensitive spaces etc are still required to achieve the sleep disturbance criterion. Refer to the revised preliminary acoustic assessment report for further detail.
- G3 – Department of Trade and Economic Development (DTED)  
*Issue*  
That the Highway One Motel and Roadhouse business will be adversely affected by the realignment of the Eyre Highway due to the changes made to the access and egress arrangements.  
*Response*  
The final access and egress arrangements are currently subject to negotiations between the Proponent and representatives of the Highway One facility.  
DTED provides that subject to the matter being satisfactorily resolved, the Department has no further comment. The Proponent is working towards this end.
- G4 – Environment Protection Authority  
Comment not applicable to the Amendment.
- Department for Environment and Heritage  
Comment not applicable to the Amendment.
- Zero Waste Australia  
Comment not applicable to the Amendment.
- Department of Water, Land and Biodiversity Conservation  
Comment not applicable to the Amendment.
- G5 – Department of Transport, Energy and Infrastructure (DTEI)  
*Issues*  
*Comment 1* – Restricted Area Management Plan deleted from the proposal in conjunction with DTEI. DTEI claims no such consultation.  
*Response*  
The proposed Restricted Area included a portion of Murat Bay, which was assumed to be under the care and control of DTEI, hence DTEI was consulted and accordingly, the reference to DTEI consultation upon deleting the Restricted Area Management Plan.
- Comment 2* – DTEI dispute that they act on behalf of the Australian Rail Group (ARG).  
*Response*  
It was understood at the time of negotiations held with the Transport Services Division of DTEI regarding the realignment of the Eyre Highway, that ARG was represented by

DTEI. As this does not appear to be the case, the Proponent is satisfied to conduct any future necessary negotiations directly with ARG.

*Comment 3* – The roundabout provided for at the entrance of the marina development has only been proven for through heavy traffic and not turning heavy traffic.

*Response*

The proposed roundabout caters for left and right turning 19m semi vehicles as illustrated on plan SK 36\_left turn in Figure 1 and plan SK 36\_right turn in Figure 2. The roundabout caters for the through movement of the B-triple vehicles as illustrated on plan 106055 SK32 in Figure 3. The turnpaths have been modelled with a passenger vehicle travelling alongside the B-triple as the vehicles negotiate the roundabout. In reality this may not occur as the B-triple would tend to command both lanes.

The Eyre Highway is not to be accessed from any future development except via local roads that connect with the proposed roundabout.

*Response*

The revised Highway design was always intended to ensure that all surrounding developments, including the proposed Convention Centre and Cultural Centre access the Eyre Highway only via the local roads that will connect with the roundabout and not directly onto the Eyre Highway.

*Comment 4* – Release of the Reserved Matter relating to the realignment of the Eyre Highway. Updated traffic impact report, updated acoustic assessment and completion of an independent design safety audit to be provided to DTEI.

*Response*

The Proponent has been advised by Planning SA that the Reserved Matters are to become Conditions of Approval with detailed design and associated matters to follow. This process will be done at Planning SA's instigation at a time when Planning SA deems it appropriate.

The road safety audit, updated traffic impact assessment and updated acoustic assessment have been provided to DTEI by Dare Sutton Clarke engineers. Copies of these reports are attached in Appendices A – C. Preliminary design details previously provided to DTEI in December 2006 are considered adequate for the purposes of the EIS.

*Comment 5* – Denial Bay Heavy Vehicle Bypass. DTEI wishes to substitute the word "Route" where "Bypass" has been used.

*Response*

The Proponent is satisfied to change the word "Bypass" to "Route".

*Comment 6* – Regarding the relocation of the PIRSA Quarantine Station, DTEI has highlighted that final approval is reliant upon a number of aspects, not only approval from the Native Vegetation Council as indicated in the Amendment.

*Response*

The Proponent understands that there are many aspects relating to gaining final approvals for the relocation of the PIRSA Quarantine Station that require assessment and also consultation with the various government agencies involved, with only one of these being the Native Vegetation Council.

*Comment 7* – DTEI requires that sufficient land is available for any future grade separations of the proposed level crossing. DTEI state that this has been discussed with the Proponent and the State Working Group prior to the Amended EIS submission and accordingly, this requirement must be met by the Proponent.

*Response*

The Proponent maintains that at no time during discussions and negotiations with DTEI and the State Working Group was there a requirement raised by DTEI to ensure that



sufficient land was available to allow future grade separations for the proposed rail crossing. Additional land was acquired by the Proponent to allow for the realignment of the Eyre Highway. At that time, no allowance was made for extra land for grade separation as the matter was never raised by DTEI.

*Comment 8* – Provision of a Pedestrian and Bicycle way within the marina development.

*Response*

The provision of a Pedestrian and Bicycle way around the marina development is intended to form part of the detailed design process. Consultation with the District Council of Ceduna is ongoing concerning this matter.

*Comment 9* – Comment not applicable to the Amendment.

## PUBLIC SUBMISSIONS

### P1 – P3

These public submissions contained similar comments regarding the Amendments to the EIS. Responses have been combined to avoid repetition.

*Issues*

Concerns raised over the size of the proposed roundabout and its ability to handle the predicted traffic volumes.

*Response*

The roundabout has been designed as a two lane roundabout to cater for the mix of potential vehicles. The revised traffic impact assessment report indicates that the roundabout will cope with the generated traffic from the proposed development and the projected traffic on the highway.

Concerns over safety and reduced sight lines for the proposed rail crossing that is to cross the realigned Eyre Highway at an angle of less than 90 degrees.

*Response*

The angle at which the realigned highway crosses the existing rail track has been assessed by DTEI and found to be adequate. The crossing is proposed as an active crossing with signals. The approach sight distance available at this crossing is well in excess of the Australian Standard for the proposed design speed.

Concerns over drivers travelling east and west being blinded at sunrise and sunset as they negotiate the roundabout.

*Response*

East-west oriented roads are a fact of life. Drivers have a duty of care to drive to the prevailing weather conditions.

Eyre Highway/Ceduna Bypass – create a bypass road utilising Goode Road to carry heavy vehicle traffic around the Ceduna Township.

*Response*

Previous consultation by the Proponent with the District Council of Ceduna, local business and the general community indicated a strong emphasis upon the realigned Eyre Highway not bypassing the town. It was deemed that a bypass would be to the detriment of the town's business economy.

P4 – Wallmans Lawyers, acting for Highway One Motel and Roadhouse

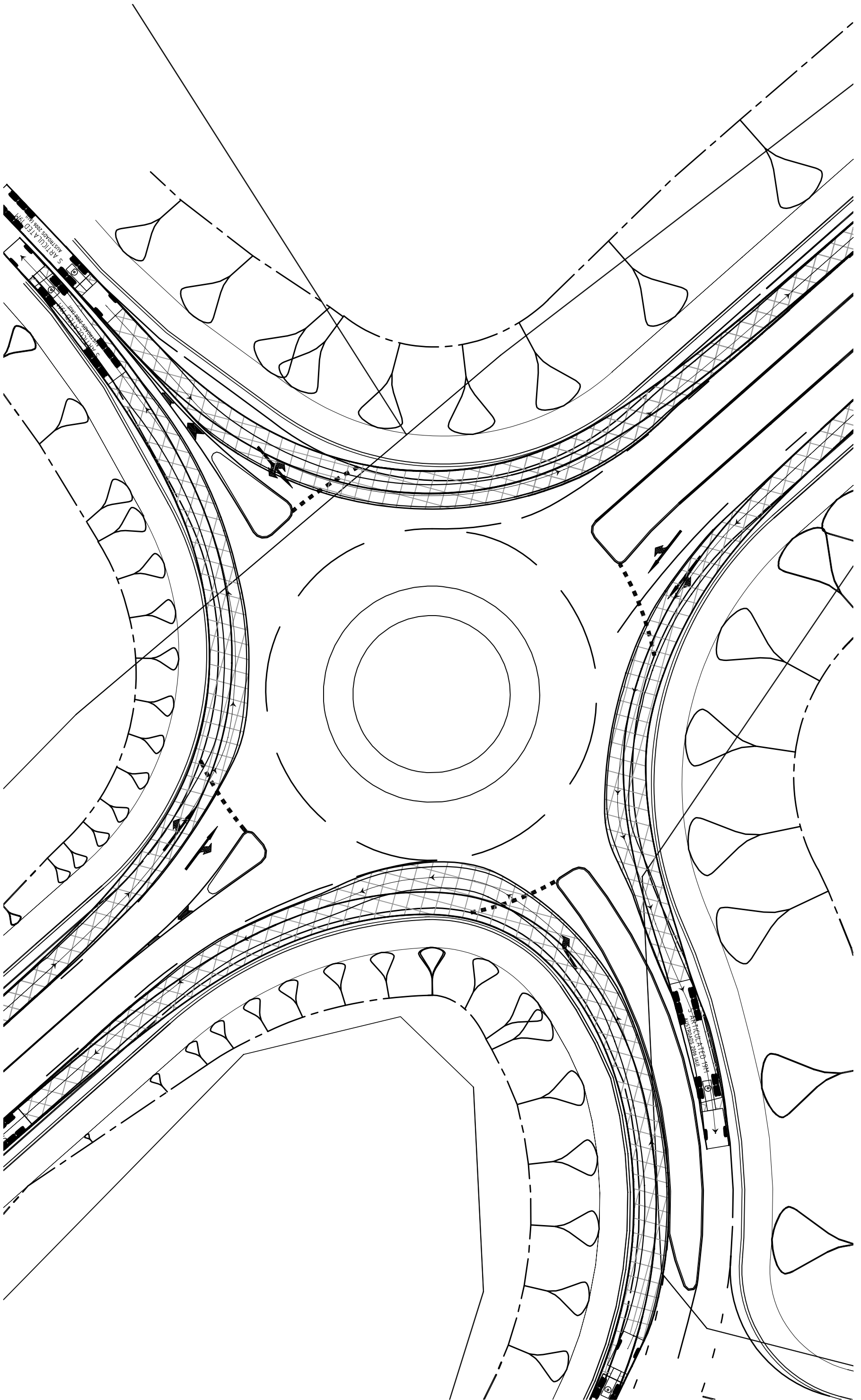
*Issue*

Various matters relating to the relationship between the Highway One facility and the Eyre Highway realignment are still outstanding.

*Response*

The Proponent acknowledges that there are a number of issues (including, but not limited to, access, egress, truck parking and tenure) relating to the realignment of the Eyre Highway that require resolution with the owners of the Highway One facility. Since the beginning of the project, the Proponent has been in negotiations with representatives of Highway One. Negotiations will be ongoing in order to reach a satisfactory outcome for all parties.

The Proponent does not accept the demand that Planning SA approval of the Amendment to the EIS be conditional upon achieving an agreement between relevant parties concerning this matter.



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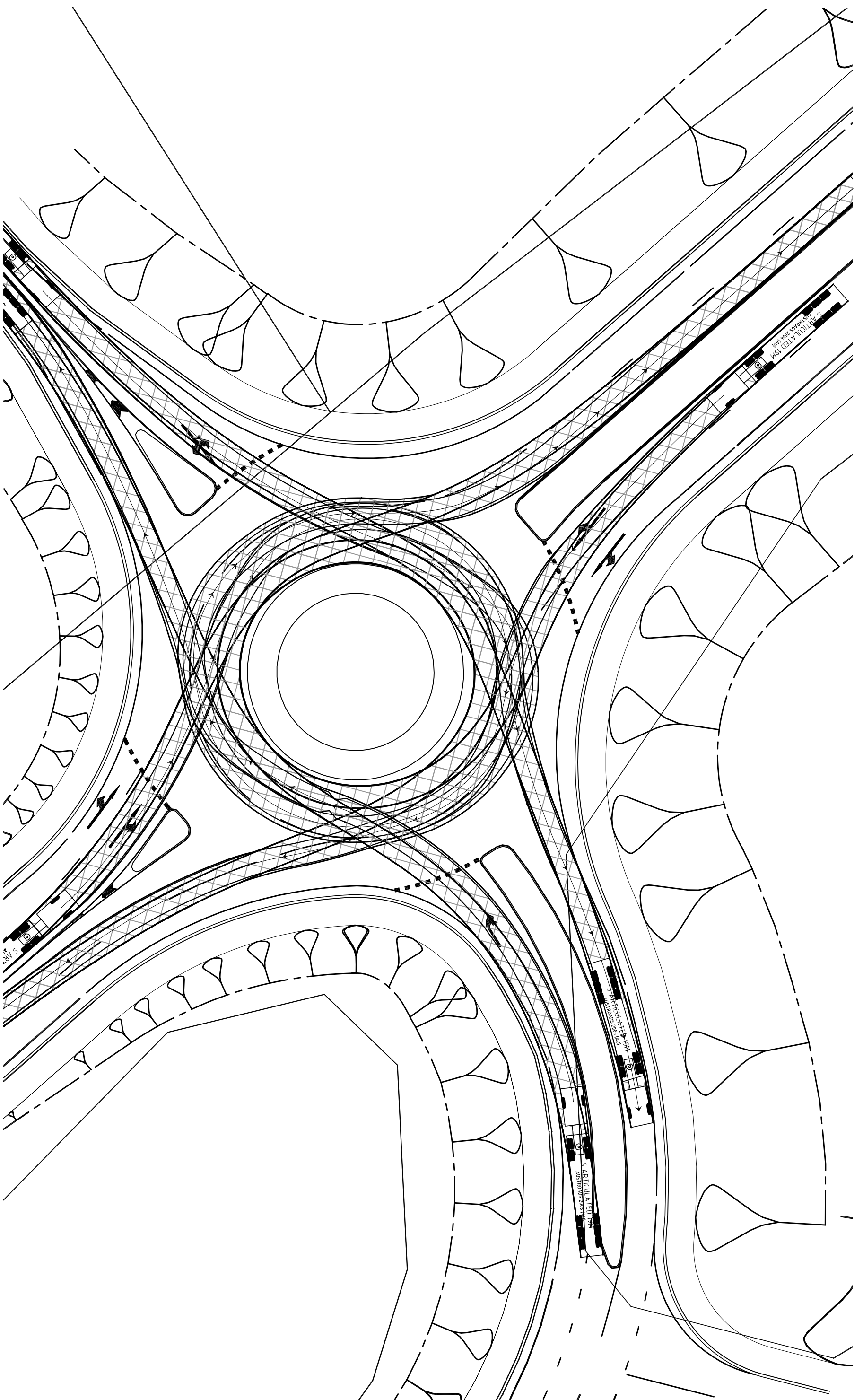
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DATE 1st APRIL '08 SCALE AS SHOWN  
DRAWING NUMBER 106055-SK36 ISSUE PRELIMINARY

NOT FOR CONSTRUCTION



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PROJECT  
EYRE HIGHWAY

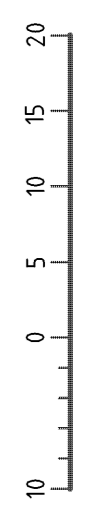
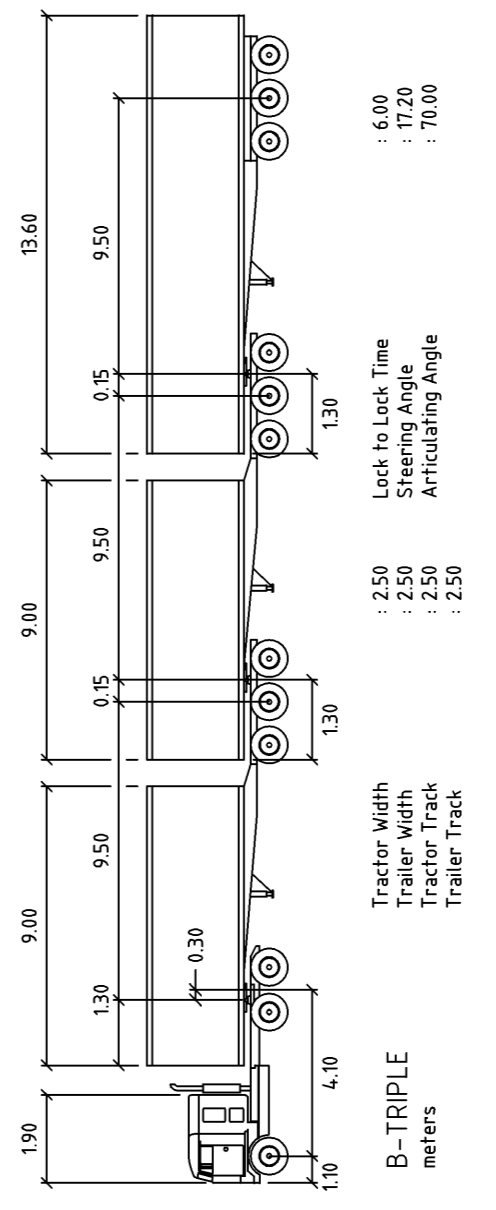
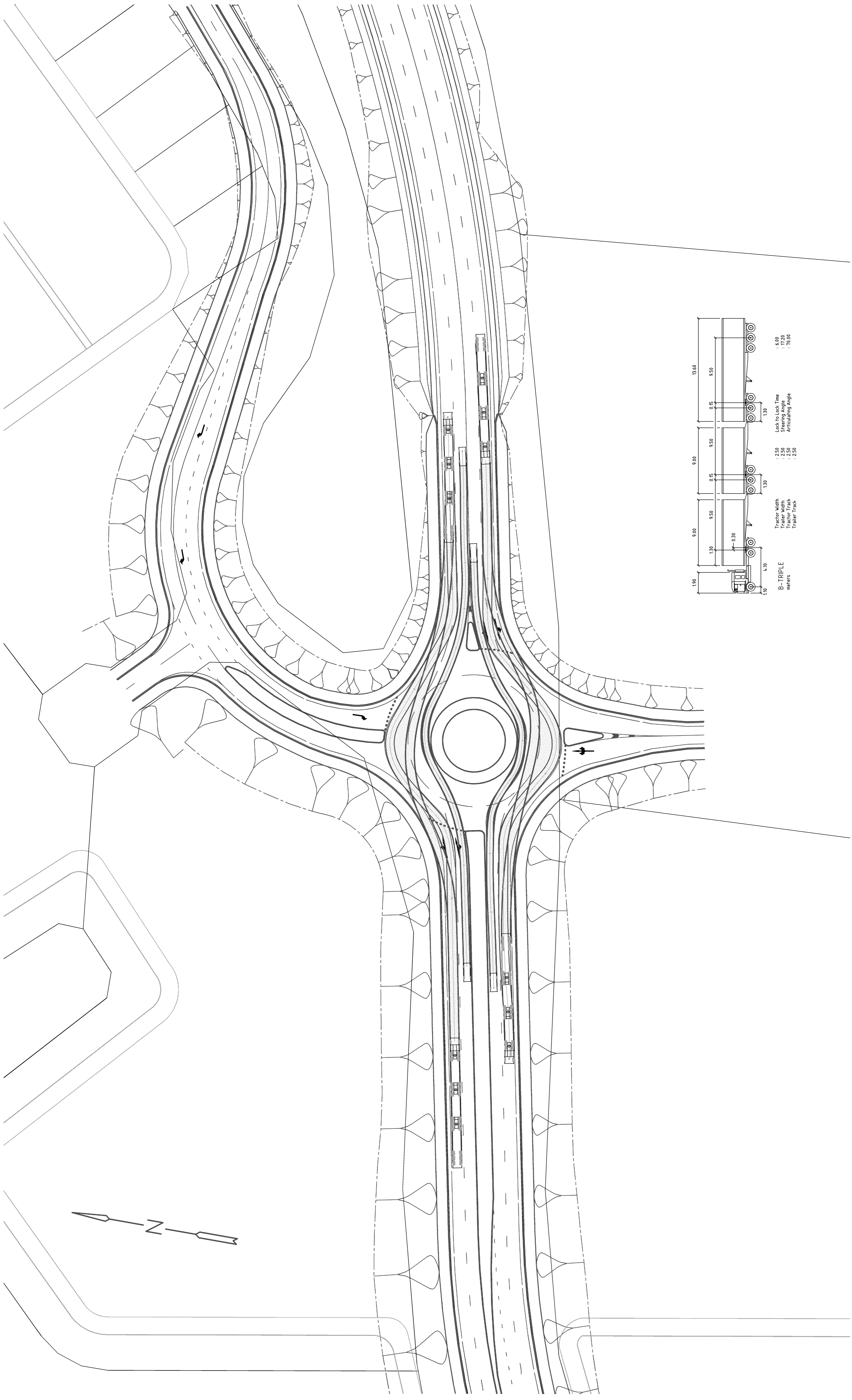
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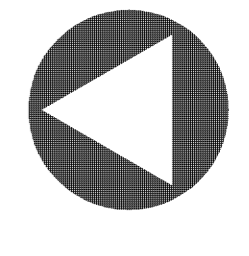
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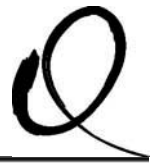


PROJECT EYRE HIGHWAY
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DATE 28th MAR '07 SCALE AS SHOWN DRAWING NUMBER <b>106055-SK32</b> ISSUE <b>PRELIMINARY</b>
<b>NOT FOR CONSTRUCTION</b>



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QEDptyLtd

Dare Sutton Clarke

# Ceduna Keys Marina Proposal Revised Traffic Assessment

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21November 2007

Job No: 10357  
Report No: 07-203

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# Appendices

Appendix A	Transport Model
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# 1 Introduction

Dare Sutton Clarke engaged QED Pty Ltd in October 2005 to undertake a traffic assessment of the proposed Ceduna Keys Marina. Since that time there has been further investigations and assessment of the realignment of the Eyre Highway. This has resulted in a change to the proposed scheme with regard to the location of the Highway and access to the Highway from the proposed development.

This report details the assessment of the traffic impacts that have arisen from the revised proposal.

The proposed development is located just to the northwest of the town of Ceduna on Murat Bay. Figure 1 shows the location of the proposed Ceduna Keys development. It will comprise the following uses:

- A commercial marina
- A commercial precinct that will service the commercial marina
- A residential component of waterfront blocks and medium density housing
- A recreational marina
- A community centre
- Tourist accommodation and related facilities
- Public recreational facilities.

An Environmental Impact Statement (EIS) has been undertaken by the proponent for the proposed development. As part of this process the Transport Services and Transport Planning Divisions of the Department for Transport, Energy and Infrastructure (DTEI) have provided comments on the EIS. These comments are included as an Appendix to this report and are summarised below.

- That the suitability of the realignment of the Eyre Highway be assessed in terms of the standard of the realignment and the impact on heavy vehicle movements,
- The option of realignment of the Highway to the north side of the Kooniba to Thevenard rail line be investigated,
- Identify the impacts of the traffic generated by the proposed development, in particular for the junctions that provide access to the proposed development and heavy vehicle movements through Ceduna's town centre and adjacent residential areas,
- Staging of the realignment of the Eyre Highway,
- Consider the parking requirement for cars, commercial vehicles and bicycles, and
- Assess access requirements for the allotments that are located on the east side of the Eyre Highway.



**Ceduna & Co.**  
**Traffic Assessment**  
**Figure 1**  
**Locality Plan**

The above comments have been taken into consideration in this traffic assessment. Essentially this assessment has involved the following tasks:

- Obtaining data on the existing road network in the vicinity of the proposed development
- Identifying the expected traffic generated by the proposed development
- Predicting traffic volumes on the road network
- Assessing junctions to determine what traffic controls are required
- Assessing the provision of parking
- Assessing the impacts on the road network during construction

Each of these tasks are considered under separate section headings in the following report.

## 2 Project Description

The proposal is for a coordinated development consisting of a commercial and recreational marina, together with a waterfront residential subdivision, a community centre providing for a range of cultural, recreational and leisure activities, and tourist facilities including, interpretive, accommodation, entertainment and limited retail opportunities focussed on convenience shopping. Figure 2 provides an indication of the layout of the proposed development.

The proposal also involves the construction of two breakwaters in order to provide shelter to a waterway system via a designated channel, together with the realignment of the Eyre Highway around the proposed development. There are also significant infrastructure works associated with the development including extension and augmentation of power, water and stormwater services.

The initial construction phase of the marina is to take approximately one year with full development of the marina to be undertaken in stages over 10 years. Development of the various precincts will be staged over this time and be dependent on market demand and take up rates. It is understood that the bulk of the excavation will be used on site although there will need to be a small amount of material that has to be disposed off-site. There will also be a need to import specific materials (rock and aggregates for the rip rap walls and road construction materials) from locations on the Eyre Peninsula.

The specific components of the proposed development are described below.

### Commercial Marina

This marina would accommodate up to 50 vessels ranging in size up to a maximum of 22 metres. The vessels would include a full range of commercial fishing boats, prawn, tuna and scallop fishing vessels and aquaculture crafts. Boat maintenance facilities will not be provided as part of this marina.

### Commercial Marina Facilities

Appropriate onshore facilities will be provided to support the marina and aquaculture / fishing industries. This is expected to include loading / unloading facilities, storage (including cool rooms and preparation areas), refuelling, administration and office accommodation, together with amenities for crew and car parking.

### Recreational Marina

Marina facilities are proposed for 100 recreational craft (sail and powered) berths in three locations within the development. In addition the marinas will also include provision for minor servicing, stocking of stores and tourism activities in support of the recreational marina. As for the commercial marina there is no facility for major maintenance activities.

### Recreational Development

A total of 361 allotments are proposed for detached residential living together with up to 285 future medium density residential dwellings.

# Ceduna Keys Traffic Assessment

**Figure 2**  
Proposed Development

- LEGEND**
- Commercial Marina
  - Residential Marina
  - Tourist Accommodation
  - Tourist Commercial
  - Tourist Commercial/Marina
  - Medium Density
  - Sporting Residential
  - Existing Service Station



### Community Centre

A community centre is proposed for the development and is expected to form an important focus for cultural, recreational and leisure activities for the Ceduna community. It will be located on the east side of the Eyre Highway in Allotment 617.

### Tourist Accommodation and Related Facilities

These facilities are provided to provide a focus for tourist related activities in the region. The facilities are expected to include various forms of accommodation as well as cafes, restaurants, entertainments and a limited range of retail opportunities that will be focussed on convenience shopping.

### Public Recreational Facilities

As an adjunct to the Community Centre and tourist facilities it is expected that a range of public recreational activities will also be provided including, sporting and recreational, community and tourist, and commercial and retail facilities.

It is proposed to provide access to the proposed development at two locations along the Eyre Highway. The first access will be located just west of the existing service station to essentially service the commercial marina area of the development and will comprise a standard channelised junction. The second access is located about 300m west of the first and provides the major access into the development. It is proposed to provide a roundabout at this location.

As part of the proposed development an alternative access to Denial Bay Road will be provided for large commercial vehicles such as B-Doubles.

## 3 Existing Conditions

This section reviews the existing traffic conditions on the surrounding road network.

### 3.1 Road Network

The road network in the area is shown in Figure 1.

The main arterial road in the vicinity of the proposed site is the Eyre Highway. It is a two lane two-way road and forms part of the National Highway system and is maintained by Transport Services Division of DTEI on behalf of the Commonwealth Department for Transport and Regional Services. This road is a gazetted road train route and also caters for a range of over-dimensional vehicles.

In the vicinity of the site the speed zones vary from 80 kilometres per hour east of the Denial Bay Road junction and 100 kilometres per hour west of this junction.

The Kooniba to Thevenard rail line crosses the Eyre Highway approximately 500 metres west of the Denial Bay Road. This rail crossing is fully activated and has been assessed by the Rail Crossing Unit of the Transport Services Division. A crest to the north of the rail crossing restricts sight distance. Consequently additional signage and active warning has been provided to warn drivers when a train is crossing the Highway.

The Department of Primary Industry and Resources (PIRSA) maintained quarantine station is located on the eastbound lane approximately 300 metres east of the junction with the Denial Bay Road. Typically all eastbound vehicles are stopped at this location. Consequently the Highway has been widened to provide two eastbound lanes.

The main local road affected by the proposed development is the Denial Bay Road. This road is maintained by the District Council of Ceduna and provides access to a range of uses including tourist, residential (Denial Bay), various aquaculture / fishing activities and agricultural industries. It is a gazetted B-Double route.

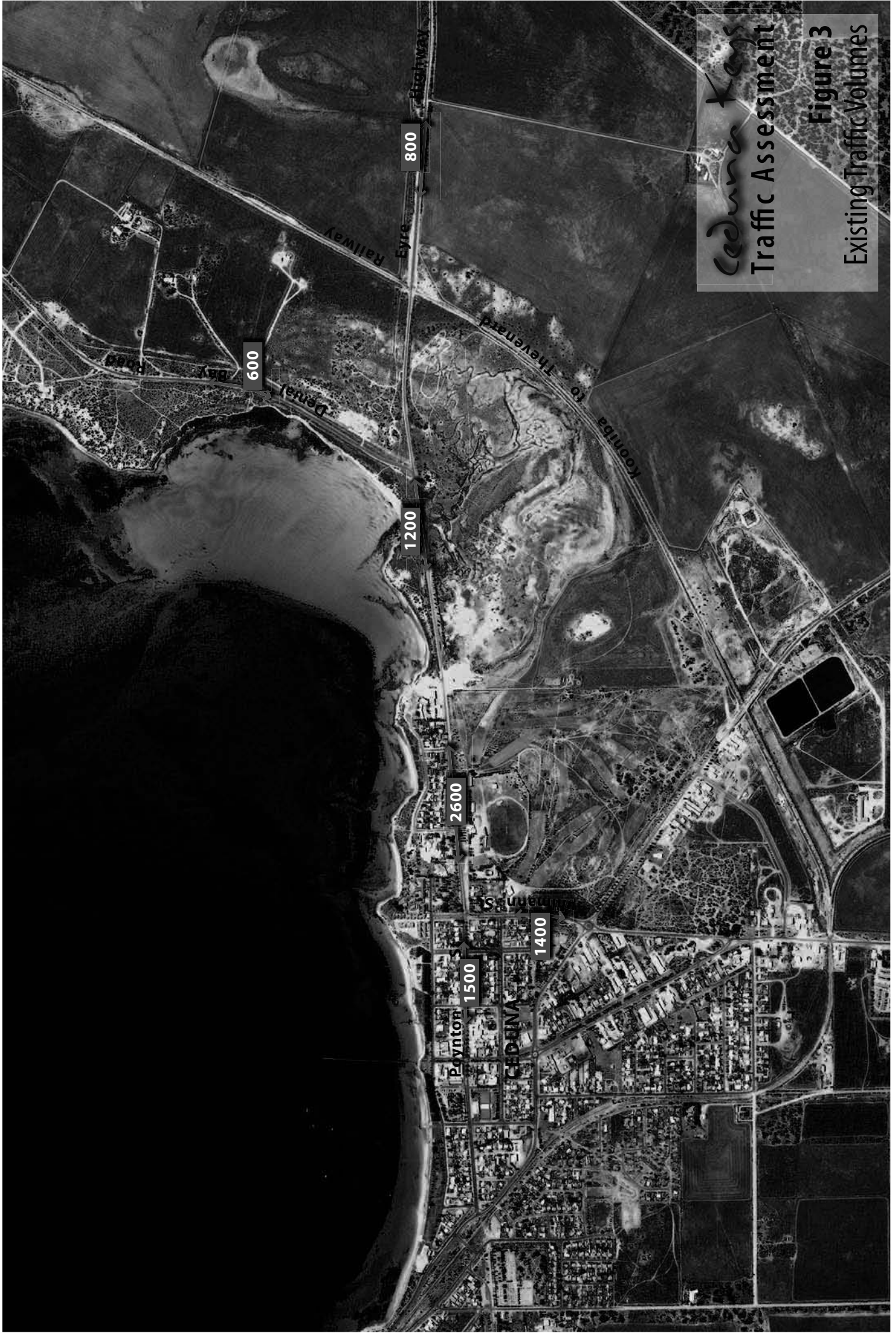
### 3.2 Traffic Volumes

The traffic volumes on the road network have been provided by Transport Services Division and by the District Council of Ceduna. Figure 3 shows the location of the traffic counts.

The traffic counts indicate that 10 kilometres west of Ceduna traffic volumes are in the order of 700 vehicles per day. The commercial vehicle content varies between 35 and 40 percent of the daily volume. Of this, road trains comprise approximately a third of the commercial vehicle traffic.

Traffic volumes increase as the Highway approaches Ceduna. North of the Denial Bay Road the traffic volumes increase to 800 to 900 vehicles per day to 1,300 vehicles per day south of the junction. The daily volumes increase to 2,200 to 3,000 vehicles per day opposite the Ceduna Hospital. A traffic count was undertaken on Kuhlmann





Street which indicated traffic volumes in the order of 1,100 to 1,500 vehicles per day. On this basis, it is estimated that the existing traffic volumes on Poynton Street is approximately 1,500 vehicles per day.

Traffic volumes on the Denial Bay Road vary between 500 and 600 vehicles per day. The counts indicated a commercial vehicle volume of 4% on this road.

Typically the two-way peak volumes are 10 % of the daily volumes.

### **3.3 Road Safety**

Transport Services Division has provided crash statistics for the section of the Eyre Highway between the Rail Crossing and the intersection with Kuhlman Street for the period 2000 to 2004 inclusive.

These statistics indicate that three crashes have occurred in this period all of which are property damage only crashes. The statistics also indicate that four crashes have occurred at the Kuhlman Street / Eyre Highway intersection.

## 4 Traffic Generation

This section of the report details the investigations required to estimate the traffic generated by the proposed development.

As the exact nature of the proposed commercial areas have yet to be determined a number of assumptions have been made regarding the areas available for development and the expected yield in terms gross lease-able area. The proposed development has been assumed to include the following types of developments:

Item	Total Land Area (ha)	Area for development / number
Residential (houses)		361
Residential (med density)		285
Marina		140 (berths)
Tourist commercial	8.60	2.58 (ha)
Marine commercial	2.66	0.86 (ha)

Based on Figure 2 the above areas have been subdivided into various zones that are highlighted in the table below. It has been assumed that tourist accommodation forms part the proposed tourist commercial activities. In addition some of the land uses have been assumed from the artist's impression provided in the EIS.

Zone	Land use	Number	Developable Area (m <sup>2</sup> )
1	Medium Density	125	
	Factory		4,630
	Office		6,700
	Retail		1,800
	Marina	40	
	Tourist Accommodation	100	
2	Marina	60	
	Convention Centre		4,200
	Hotel / tavern		5,400
	Tourist commercial		
3	Residential	95	
4	Residential	38	
	Medium density	125	
	Marina	40	
	Office		2,250
	Retail		2,250
	Tourist Accommodation	100	
5	Residential	228	
	Medium density	35	
6	Office		2,385
	Retail		1,785

Note that Zone 6 is located on the eastern side of the Eyre Highway.

## 4.1 Traffic Generation Rates

There are a number of resource documents used to determine the traffic generated by a particular development, the two most relevant are:

- Land Use Traffic Generating Guidelines, Director General of Transport, South Australia, 1987
- Guide to Traffic Generating Developments, Roads and Traffic Authority, New South Wales, 2000

Based on these two documents the traffic generation rates for the different types of development are:

Item	Daily Trip Rate (2 way)	Peak Hour Trip Rate (2 way)
Residential (houses)	8 trips / dwelling	0.8 trips / dwelling
Residential (med density)	4 trips / dwelling	0.4 trips / dwelling
Marina	2.7 trips / berth	NA
Factory	4 trips /100m <sup>2</sup>	0.5 trips /100m <sup>2</sup>
Office	10 trips /100m <sup>2</sup>	2.5 trips /100m <sup>2</sup>
Retail	60 trips /100m <sup>2</sup>	4 (AM), 10 (PM) trips /100m <sup>2</sup>
Hotel / tavern	60 trips /100m <sup>2</sup>	2 (AM), 10 (PM) trips /100m <sup>2</sup>
Tourist accommodation	4 trips / room	0.4 trips room

The lower rate of 8 trips per residential dwelling has been used in this location as it is expected the majority of allotments will be taken by retirees or couples close to retirement who have moved to Ceduna for lifestyle changes.

For the evening peak hour residential trips, it is estimated that 1/3 are out of the precinct and 2/3 are into the precinct. The morning peak is in the reverse direction to the evening peak. For the factory / office trips, it is assumed that all trips are to the site in the AM peak and during the PM peak period it is assumed 90% are out of the site.

It is expected that even in peak periods the accommodation and related facilities will not be fully utilised. For this assessment it has been assumed that for typical peak periods the proposed development will operate at 70% capacity. This figure has been used for assessments on the Marina Hindmarsh Island and appears to be supported by data from that development.

## 4.2 Trip Distribution

The distribution of trips from the proposed Ceduna Keys development is predicted to be:

- 10% of trips internal to each of the zones
- 10% of trips travel to the west of the proposed development
- 5% or 10% of trips are to other zones within the proposed development depending on land use (the lower value is used if no commercial development)
- 65 to 70 % of trips to Ceduna from each of the zones

The majority of the increase in traffic travelling into Ceduna is expected to travel into the Ceduna town centre (60%) via Poynton Street with the remainder (40%) turning left into Kuhlmann Street.

## 4.3 Predicted Traffic Volumes

The trip generation rate and the distribution of trips was applied to a model developed in Microsoft Excel, the daily and peak hour trips are shown in Figure 4. The summary printouts of the traffic model are contained in Appendix B.

In determining the traffic volume on the road network it is assumed that the current traffic volumes would increase at a rate of 3 percent per annum.

In summary the major increases in daily traffic occur on the Eyre Highway to the east of the proposed development (6,000 vehicles per day) towards Ceduna. There is small increase in traffic to the west of approximately 1,000 vehicles per day.

At the intersection with Kuhlmann Street the majority of traffic (3,700 vehicles per day) is expected to travel into Poynton Street with the remainder on Kuhlmann Street.

In terms of peak volumes the expected increase in traffic volumes would be in the order of 10% of the daily traffic volumes.

Note that the expected volumes generated by the development are based on an interpretation of the form of the proposal which as yet is still to be determined.

# Ceduna Keys Traffic Assessment

**Figure 4**  
Future Traffic Volumes



On this basis the table below provides an indication of the daily traffic volumes that are expected at full development of the proposed site in ten years time.

Road	Section	Existing Daily Traffic	Future Daily Traffic (10 years)	
			No Marina	With Marina
Eyre Highway	West of Rail Crossing	800	1,200	2,600
	Between access points	1,200	1,750	7,200
	North of service station	1,200	1,750	9,000
	At Ceduna Hospital	2,600	3,500	10,000
Kuhlmann Street	East of Poynton Street	1,500	2,000	4,500
Poynton Street	South of Eyre Hwy	1,400 (1)	1,800	5,500
Denial Bay Road	South of Eyre Hwy	600	800	400
Access Rd	At roundabout	NA	NA	6,000
	Start of residential	NA	NA	4,200
	At midpoint	NA	NA	2,000

(1) Estimated based on volume at Kuhlmann Street.

## 5 Assessment of Traffic impacts

This section of the report details the impacts of the proposed development on the traffic operation of the road network.

### 5.1 Realignment of Eyre Highway

The proposed development will require the realignment of the Eyre Highway around the site. There are a number of issues that arise from the realignment. These issues are discussed below and include the PIRSA Quarantine Station, speed zoning, alignment standard and the rail crossing. Some of these are inter-related, for example the selection of the design speed will set the alignment standard.

In terms of the National Highway movements the major impact is the increase in travel time / distance due to the realignment of the Highway.

It is envisaged that travel time through the realigned portion of the Eyre Highway will increase due to the additional road length users will need to travel. This increase in travel time is estimated to add one to two minutes to the journey of east-west travellers. In relation to the National Highway traffic this increase is considered minimal in a journey that is over 24 hours. A similar increase in travel time is expected for road users that drive along the Denial Bay Road who travel daily to Ceduna for work and recreational purposes. As the majority of trips are residential / tourist in nature, this increase in travel time is also considered minor.

#### 5.1.1 PIRSA Quarantine Station

As indicated previously the PIRSA Quarantine Station will require relocation due to the proposed development.

Discussions with officials from Primary Industries of South Australia (PIRSA) held in October 2005, indicate two possible locations for the relocated Quarantine Inspection Station (QIS). However with the new alignment for the National Highway the preferred location for the QIS is 7 kilometres west of Ceduna.

The actual location and form of the Quarantine Station will be determined during the design stage in association with PIRSA.

#### 5.1.2 Speed Zones

The current 60 kilometre per hour speed zone ends at the Ceduna Hospital. The additional traffic and access points together with the visual cue of the increased development suggests that this zone should be extended to just north of the access to the allotments east of the Eyre Highway.

It is proposed to extend the 60 kilometre per hour zone to just north of the main access location and the 80 kilometre per hour zone to north of the new rail crossing. These speed zones have been agreed with DTEI.



### 5.1.3 Alignment Standard

The proposed development is considered to be an extension to the township of Ceduna. It is proposed that the design of the realigned portion of the Eyre Highway meet the following speed requirements,

- 60 kilometres per hour posted speed limit to just north of the access roundabout,
- 80 kilometres per hour posted speed limit to north of the new rail crossing, and
- 100 kilometres per hour posted speed limit beyond the 80 kilometre per hour zone.

It is proposed that minor junctions along the realigned Eyre Highway comply with the Type CHR intersection design as indicated in Austroads Intersections at Grade Part 5 and meet the requirements of a 60 kilometre per hour posted (70 kilometre per hour design) speed. However a roundabout is preferred at the location of the main access to the proposed redevelopment as it provides for the significant turning movements expected at the intersection.

#### Road Cross Section

The following undivided road cross section is proposed:

- 2x3.5m wide lanes
- 2x1.0m wide sealed shoulders
- 2x1.5m wide unsealed shoulders
- Open drains on both sides to cater for stormwater from the highway with pipe crossing where required.

### 5.1.4 Kooniba – Thevenard Rail Crossing

The realigned highway in the vicinity of the rail crossing will be designed to cater for the requirements of an active rail crossing.

### 5.1.5 Allotments 617 to 620

Allotments 617 to 620 are located on the eastern side of the Eyre Highway.

A service road connecting these allotments will be provided to ensure that the proposed development does not permit direct access onto the Highway from any single property.

The form of the service road will be discussed and agreed with Transport Services Division prior to construction.

## 5.2 Traffic Impacts



At full development of the proposed site, the increase in traffic volumes on the Eyre Highway and roads into Ceduna are significant and range from 1,500 to 6,900 vehicles per day. It is expected the Eyre Highway would have sufficient capacity to cater for this extra traffic with only minor delays for through traffic.

The junctions with individual access roads and the Eyre Highway are expected to operate satisfactorily with only minor queues and delays on the access roads. The proposed roundabout has sufficient capacity to cater for the proposed turning movements. However in peak periods at Easter and Christmas Holidays there may be short periods where delays may be experienced for turning traffic.

However the Eyre Highway / Kuhlmann Street intersection is expected to have a significant increase in traffic. As a result there could be delays to some movements but particularly the right turn from Kuhlmann Street to the Eyre Highway north (National Highway movement) as this movement has to give way to traffic travelling to Poynton Street.

There could be a requirement to change the controls at this intersection to facilitate the new traffic conditions. However further investigations will be required once more detail is available on the actual form of the proposed development and turning traffic counts are undertaken at the intersection.

As the Highway is a designated Road Train Route it is suggested that Type C junction treatments (allow for right and left turn storage lanes) be provided for all of the junctions that provide access to the various components of the proposed development. As a minimum this should comprise:

- Separate right and left turn lanes a minimum of 95 metres long where the junctions are located in an 80 kilometre per hour speed zone;
- Separate left and right turn lanes a minimum of 55 metres long where the junctions are located in a 60 kilometre per hour speed zone.

The increase in volumes on the Eyre Highway between the proposed development and the Ceduna township are expected to result in increased congestion at the Service Station and Ceduna Hospital access points. In both locations it is suggested that Type C / painted median treatments be provided to reduce delays and the risk of crashes. This should be discussed in detail with Transport Services Division of the Department for Transport, Energy and Infrastructure.

## 6 Construction Impacts

This section describes the construction impacts of the proposed marina. The main issues relate to the operation of the Eyre Highway whilst it is being realigned, disposal of excess excavation and provision of materials for construction of roads, breakwaters and rip rap walls. Each of these is discussed below.

### 6.1 Eyre Highway Realignment

The proposed development will require the realignment of the Eyre Highway as shown in Figure 2. During construction of the realigned road, the Highway will remain fully operational at all times.

As indicated in the Environmental Impact Statement, it is proposed that the construction of the realigned Eyre Highway be undertaken as part of Stage A. A significant portion of this realignment is located within vacant greenfields land with little impact on the existing road network. The construction of the earthworks for the realigned Eyre Highway during Stage A will essentially be a cut to fill operation. The material excavated to create the waterways in the vicinity of the highway will be placed directly to fill to construct the embankment for the new road. It is envisaged that disruption to daily traffic will be kept to a minimum during this operation as most of this work will occur to the east of the existing highway. The realigned portion of Denial Bay road is also required in Stage A with the construction of a temporary connection to Eyre Highway south of the Kooniba-Thevenard railway line until such time that the permanent junction is required.

Construction of the roadworks necessary for the relocated Quarantine Station together with the northern and southern connections to the existing Eyre Highway is also envisaged as part of the Stage A works and will be required to be undertaken under traffic. A construction traffic management plan will be provided for these works.

### 6.2 Disposal of Excess Excavation

The proposed development of the Marina is expected to result in approximately 350,000 to 400,000 m<sup>3</sup> of soil that will require disposal from the site. It is our understanding the majority of this surplus can be disposed of on the adjacent old landfill site. This site can be accessed via the golf course and OTC Road

From a traffic perspective, this location and any other location to the west of the proposed site would be suitable for disposal as there would be few impacts from this increased commercial vehicle traffic. If however the site for disposal is to the east of Ceduna then the increase in heavy vehicle traffic could result in significant amenity impacts for residents along the Eyre Highway and Kuhlmann Street.

As an example, if 10% of the excess excavation is required to be disposed of off site then this is expected to result in an additional 10 commercial vehicle movements per day (one-way) on the road network for a three month period. However if all material was required to be disposed of off site then there would be an additional 250 movements per day over a 12 month period.

Dust impacts from the carting of the proposed material can be mitigated by requiring all trucks to be covered or the fill moistened before leaving the site. For noise impacts it is suggested that all carting be undertaken during normal daylight hours of say between 7.00am and 6.00pm.

### **6.3 Provision of Materials**

The provision of materials to the site for construction purposes will typically be undertaken by heavy commercial vehicles. At this time the suppliers of material for the proposed development is not known. On this basis it is expected that materials would be obtained from various locations on the Eyre Peninsula.

Consequently there is expected to be some commercial vehicle traffic that would travel through Ceduna to access the proposed site. As for the disposal of excavated material this would result in increased noise levels along Kuhlmann Street and the adjacent residential areas. To mitigate the increase in noise it is suggested that the hours of operation be restricted to normal daylight hours as indicated above.

## 7 Pedestrian and Bicycle Network

The proposed development is within close proximity of the Ceduna foreshore area and town centre. There are also a number of leisure and recreational activities located close to the Highway on the western side of the town. The site visit indicated that there are existing pathways located between the town and the hospital area.

On this basis there is expected to be reasonable demand for pedestrian and bicycle movements within the proposed development and to the Ceduna township. Consequently the following should be provided as part of the proposed development:

- A footpath on one side of all local streets and both sides of collector streets.
- A shared use path that connects the far western residential area of the proposed development to the existing paths within the Ceduna township and in particular any path to the foreshore area.
- A connection across the Eyre Highway (essentially a pedestrian refuge) in the vicinity of the community centre.

The footpaths should be a minimum of 1.2 metres wide on local streets and 1.5 metres wide along the collector road.

The shared use paths will need to comply with Austroads, Guide to Traffic Engineering Practice, Part 14: Bicycle.

This network of pedestrian and cyclist facilities creates a highly permeable and desirable pedestrian and bicycle network linking the proposed development and the Ceduna township.

## 8 Parking Provision

The District Council of Ceduna's Development Plan contains the following guidelines for parking based on various land uses expected for the proposed site. Wherever a use is not included in the Development Plan the rates provided in the Planning SA Bulletin or the New South Wales, Road and Traffic Authority Guide have been used.

Land Use	Parking Rate
Residential	2 spaces / dwelling
Medium Density Residential	1 to 2 spaces per / apartment depending on size
Tourist Accommodation	1 per residential unit plus one per 20 square metres of restaurant area
Community Centre	1 space per 20 square metres of total floor area
Tavern / Hotel	1 space per 2 square metres of bar area plus 1 per 6 square metres of lounge bar and beer garden area and 1 per three guest rooms
Office	1 per 25 square metres of office space
Warehouse / Store	1 per 150 square metres of total floor area
Shop	6 per 100 square metres of total floor area
Restaurant	1 per 4 seats

The car parks within the proposed development should comply with Australian Standard 2890 Parking Facilities, Part 1: Off-street Parking, 2004.

The on-street car parking spaces should comply with Australian Standard 2890 Parking Facilities, Part 5: On-street Parking, 1993.

The commercial vehicle parking spaces that could be expected to use the commercial marina facility should comply with Australian Standard 2890 Parking Facilities, Part 2: Off-street Commercial Vehicle Facilities, 2002.

Bicycle parking for the commercial areas should be provided as per the Planning SA Bulletin.



## 9 Conclusion

For the proposed development:

- There is minimal impact on the surrounding road network
- There is not anticipated to be any congestion within the internal road network under normal operating conditions
- There is adequate sight distance at all intersections
- The speed environment on the Highway is considered to be at appropriate at 60 kilometres per hour to north of the main access roundabout and 80 kilometres per hour to the north.
- The proposed design of the railway crossing is in accordance with current best practice and meets Transport Services Division's Railway Crossing Unit requirements.
- There is a high quality pedestrian and bicycle network that meets the requirement of the Development Plan.
- The construction impacts of the proposed development can be catered for by restricting hours of operation.
- The parking requirements are indicated in Section 7 and cater for all land uses proposed for the development.

As a result of this traffic engineering analysis the proposed development of Ceduna Keys is supported.

**Rob Bremert**

Associate

Principal Transport Engineer and Planner







**Dare Sutton Clarke**

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**EYRE HIGHWAY REALIGNMENT**

**CEDUNA KEYS PROJECT**

**Preliminary Design Road Safety Audit**

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**November 2007**

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**APPENDIX A - PLAN**

## 1.0 INTRODUCTION

### 1.1 Background

The Ceduna Keys Marina project requires the realignment of a section of the Eyre Highway around the marina development.

This report results from a 'desk top' road safety audit undertaken on preliminary design plans for the proposed realignment of the Eyre Highway.

The realignment of the Eyre Highway is approximately 3,700 metres long and begins immediately to the north of Ceduna. Refer to Appendix A.

This audit was requested by Mr. Neville Peters, Director, for Dare Sutton Clarke.

The purpose of this audit was to focus on safety aspects of the proposed realignment of the Eyre Highway relating to its use by all road users.

The audit was carried out by independent, accredited road safety auditors:

- Leigh Dawson, Traffic Engineer, HDS Australia Pty Ltd.
- Barry Fishburn, Principal Technical Officer, HDS Australia Pty Ltd.

### 1.2 Documentation

The audit was undertaken in accordance with Austroad principles as set out in "Road Safety Audit – 2002" and included reference to the following standards and guides.

- Manual of Uniform Traffic Control Devices - Australian Standard 1742
- Various Austroads Guides including
  - Rural Road Design
  - Part 5 Intersections
  - Part 6 Roundabouts
  - Part 14 Bicycles
- Various Department of Main Roads (Queensland) Guides
- Code of Technical Requirements for the Legal Use of Traffic Devices - Transport SA (December 1999)
- Pavement Markings Manual – Transport SA (2004).

Plans provided and examined, as a part of the audit, were not numbered but included the following:

- Geometric Layout
- General Construction
- Traffic Control Layout
- Profiles – vertical geometry
- Cross sections

- Contours
- Typical Cross sections

## 2.0 AUDIT FINDINGS

The realignment of Eyre Highway includes providing access to the existing facilities at Highway One Motel and service station and also the provision of a roundabout to give access to the marina development on both sides of the realigned Eyre Highway.

The proposed realignment of the Eyre Highway is in the order of 3,700 metres long.

### 2.1 Eyre Highway - Horizontal Alignment

#### 2.1.1 Chainage 00 to 900

The proposed alignment of Eyre Highway between chainage 00 and chainage 900 has a design speed of 70kph.

- The proposed horizontal alignment for this section of highway consists essentially of a 250 metre radius horizontal curve with 3% super elevation located between chainages 220 and 580. An examination of Austroads guides indicates the curve caters for a design speed of 83 kph using desirable friction factors and will provide for safe and comfortable driving conditions for drivers.

#### 2.1.2 Chainage 900 to 2400

The proposed alignment of Eyre Highway between chainage 900 and chainage 2400 is required to satisfy a design speed of 90kph.

- The key horizontal elements in this section of highway consist of a 400 metre radius curve between chainages 810 and 1230 and a 500 metre radius curve between chainages 1520 and 2210. Both curves are provided with 3% super elevation. An examination of Austroads guides indicates the 400 metre radius curve caters for a design speed of 90 kph using desirable friction factors and is considered acceptable.

#### 2.1.3 Chainage 2400 to 3697

The proposed alignment of Eyre Highway between chainage 2400 and chainage 3697 must satisfy a design speed of 110kph.

- The key horizontal element in this section of highway consists of a 635 metre radius curve between chainages 2620 and 3340 with 3% super elevation. An examination of Austroads guides indicates the 635 metre radius curve just caters for a design speed of 110 kph using desirable friction factors and is considered acceptable.

### 2.2 Eyre Highway - Vertical Alignment

#### 2.2.1 Chainage 00 to 900

- The provided longitudinal sections for this section of highway indicate that the sag curves between chainage 200 and 240 and also between 420 and 460 satisfy head light sight distance for a design speed of 70 kph with K values well in excess of the required 19.

### 2.2.2 Chainage 900 to 2400

- The provided longitudinal sections for this section of the Eyre Highway indicate that all crest curves satisfy stopping sight distance requirements for 90 kph with K values in excess of the required 46.
- All sag curves within this section of the proposed realignment satisfy head light sight distance for a design speed of 90 kph with K values in excess of the required 32.

### 2.2.3 Chainage 2400 to 3697

- Crest curves within this section of the highway satisfy stopping sight distance requirements for 110 kph with K values in excess of the required 98.
- All sag curves within this section of the proposed realignment satisfy head light sight distance for a design speed of 110 kph with K values in excess of the required 50.

## 2.3 Eyre Highway – Horizontal and Vertical Phasing

An examination of plans and longitudinal sections indicates no dangerous combinations of horizontal and vertical alignment elements.

## 2.4 Eyre Highway - Super Elevation

### 2.4.1 Chainage 00 to 900

- The 3% super elevation is developed over a distance of 50 metres providing a rate of rotation of 2.3% for 70 kph and is considered acceptable.

### 2.4.2 Chainage 900 to 2400

- The 3% super elevation is developed over a minimum distance of 75 metres providing a rate of rotation of 2% for 90 kph and is considered acceptable.

### 2.4.3 Chainage 2400 to 3697

- The 3% super elevation is developed over a minimum distance of 90 metres providing a rate of rotation of 2% for 110 kph and is considered acceptable.

## 2.5 Eyre Highway - Cross Section Elements

A number of Typical Cross-sections have been provided at points along the Eyre Highway proposed realignment.

### 2.5.1 Typical Cross Section A-A

Section A-A is located at chainage 400 and is representative of that section of the realignment with a divided carriageway and protected right turn lanes. The design speed along this section of road is 70kph.

The cross section elements consist of a 3.0 metre footpath, 4.8 metre shared traffic/cycle lane, 3.5 metre median traffic lane, 3.3 metre right turn lanes located within a 4.5 metre raised median.

The kerbside lane is 4.8 metres wide and is within the Austroad range for shared traffic/cycle lanes for a speed of 70 kph and should provide adequate clearance between cyclists and the large number of commercial vehicles that will use the Eyre Highway.

The 3.5 metre traffic lane is adequate although Austroads recommends a consideration of 3.7 metre lanes where there is a greater than 10% commercial vehicle content and road trains are to be catered for.

The proposed 4.5 metre raised median is less than the absolute minimum recommended Austroad width required to shelter right turning vehicles.

**Recommendation:** Consider widening the central traffic lane to 3.7 metres to cater for road trains and the high commercial vehicle content.

Consider also widening the raised central median to 5.0 metres to provide protection for right turning vehicles in accordance with Austroad recommendations.

#### 2.5.2 Typical Cross Section B-B

Cross section B-B is similar to section A-A without the need for protected right turn lanes.

**Recommendation:** Consider widening the central traffic lane to 3.7 metres to cater for road trains and the high commercial vehicle content.

#### 2.5.3 Typical Cross Section D-D

This section of road is considered a rural road.

The cross section elements consist of 1.0 metre sealed shoulders and two 3.5 metre traffic lanes on either side of a barrier line. There are 1.5 metre unsealed shoulders outside of the sealed shoulders.

Austroads recommends a minimum traffic lane of 3.5 metres for rural roads with an AADT in excess of 500 vehicles with a consideration for traffic lanes in the order of 3.6 metres to 3.75 metres for significant volumes of larger trucks which is the case here. This section of the Eyre Highway is a road train route.

The use of 3.5 metre traffic lanes with shoulder seals is considered a more effective use of a given total seal by providing a reasonable width and control for cars and a greater sealed width when required by larger vehicles such as road trains.

The 1.0 metre sealed shoulder conforms to Austroad recommendation for a commercial vehicle content in excess of 10%.

The combined sealed and unsealed shoulder width is equivalent to a 2.5 metre shoulder. Austroads recommends a 3.0 metre shoulder to provide for trucks stopping on the side of a road.

**Recommendation:** Consider widening the central traffic lanes to 3.7 metres to cater for road trains passing in the opposite direction.

Consider widening the unsealed shoulder width to 2.0 metres to provide a total shoulder width of 3.0 metres and enable large vehicles to stand clear of the travelled way.

#### 2.5.4 Typical Cross Section E-E

This section of road is considered a rural road.

The cross section elements consist of 1.0 metre sealed shoulders and single 3.5 metre traffic lanes catering for traffic in either direction. There are 1.5 metre unsealed shoulders outside of the sealed shoulders.

**Recommendation:** Consider widening the unsealed shoulder width to 2.0 metres to provide a total shoulder width of 3.0 metres and enable large vehicles to stand clear of the travelled way.

### 2.6 Side Slopes and Road side Hazards

An examination of cross sections for the proposed realignment indicates height and side slopes satisfy Austroads recommendations with no requirements for safety fence along the main alignment.

**Recommendation:** Check the situation regarding height and side slopes and also road side hazards within the clear width zone during the final design process and provide guardfence as required.

### 2.7 Drainage

At this stage of the project drainage inlet points have not been identified on the provided plans.

An examination of contours indicates no section of the proposed alignment is likely to experience excessively long flow paths from storm water surface run off although super elevation development at times will take flow paths across the road and back again but the flow paths are usually less than 50 metres long and therefore unlikely to cause aquaplaning situations.

**Recommendation:** Check the storm water flow depths for the longer flow paths and the likelihood of aquaplaning, particularly in the vicinity of super elevation development.

Super elevation and quite flat longitudinal grades may cause flow widths to be quite large against raised medians and also create a situation where concentrated flows may cross the carriageway at median noses. There is a potential for concentrated flow release at median noses at chainages 340, 440 and 490.



**Recommendation:** Ensure drainage inlets are provide within raised medians to reduce flow widths and concentrated flows at median nose release points.

The flat longitudinal grades and super elevation may provide for large storm water flow widths within the shared cycle/traffic outer lane. This may encourage cyclists to travel away from the kerb and gutter thereby impacting on the effectiveness of the lane and placing the cyclists in danger.

**Recommendation:** Ensure drainage inlets are provided at appropriate intervals to reduce the storm water flow width against the kerb and gutter.

The circulating lanes within the roundabout appear to drain well although there is an unusual configuration of contours on the eastern approach along Eyre Highway in the vicinity of chainage 760.

**Recommendation:** Ensure levels in the vicinity of chainage 760 are correct and encourage storm water run off.

Ensure drainage headwalls and field gullies on the side slopes and within the clear zone width are drive-able.

## 2.8 Roundabout

The proposed roundabout consists of two 6.5 metre circulating lanes with two approach and exit lanes along Eyre Highway and single approach and exit lanes on the north and south approach lanes. The central island diameter is 24.2 metres with a mountable section 3 metres wide within the central island. The design vehicle along the Eyre Highway is a Type 1 (36.5 metre) Road Train. The design vehicle on the north and south approaches is a 19 metre Semi Trailer.

### 2.8.1 Sight Distance

There are three sight distance criteria identified in the Austroads Guide to Traffic Engineering Practice: Part 6 - Roundabouts.

#### Criteria 1

The approaches to the roundabout should provide a good view of the splitter islands, the central island and desirably the circulating lane of the roundabout. Adequate approach stopping sight distance should be provided to the holding lines at the roundabout. Approach sight distance for 70 kph is 70 metres from 1.05 to zero height.

An examination of the plan and profiles indicate this will be comfortably achieved. The vertical alignment is relatively flat and the immediate horizontal alignment is generally straight or on a relatively large radius curve that allows for good sight distance to the roundabout. The exception is the northern approach on a 60 metre radius. Drivers should however get an appreciation of the roundabout from 70 metres back as the approach and roundabout are elevated above the natural terrain and drivers will be able to look across the inside of the curve to the roundabout. The northern approach splitter island is approximately 50 metres long and will provide an additional visual cue

as to the existence of the roundabout. The design speed for the 60 metre radius approach curve is in the order of 45 kph to 50 kph and will provide for a controlled approach to the roundabout.

Criteria 1 sight distance is satisfied.

### Criteria 2

A driver stationary at the roundabout holding line should have a clear line of sight to traffic approaching the roundabout immediately to the right. In this case, the sight distance should be no less than the distance travelled at 50 km/h for the critical acceptance gap e.g. for 50 km/h and 5 sec gap a distance of 70m is required. Criteria 2 sight distance should also be checked for in respect to vehicles already on the circulating lane having entered from other approaches.

An examination of the proposed design indicates that criteria 2 sight distance will be achieved. The lines of sight should be clear of any adjacent vegetation.

Drivers on the multi lane approaches to the roundabout may experience problems with large vehicles in adjacent lanes impeding sight distance.

### Criteria 3

This criteria normally applies to four way roundabouts and requires that drivers approaching the roundabout are able to see entering vehicles well before they reach the Give Way lines. The 40m-70m triangle shown in Part 6 allows for an approaching driver travelling at 50 kph to stop and avoid a vehicle driving through the roundabout at 50 kph.

Drivers on the multi lane approaches to the roundabout may experience problems with large vehicles in adjacent lanes restricting sight distance as they approach the roundabout.

**Recommendation:** Keep vegetation clear of the 40-70 sight triangle.

## 2.8.2 Speed Control and Deflection through the Roundabout

Adequate deflection of the paths of vehicles entering a roundabout is the most important factor influencing its safe operation. Roundabouts should be designed so that the speed of all vehicles is restricted to less than 50 kph within the roundabout. Refer to Austroads Part 6.

The deflections through the roundabout on the eastern and western approaches along the Eyre Highway were analysed using criteria for multi lane roundabouts as detailed in Austroads – Part 6.

This criteria assumes a vehicle will pass through the roundabout on a path starting from the left hand kerb line and cutting across the circulating lane lines and travel no closer than 1.5 metres from the central island.

Both approaches indicated a path approximating a 100 metre radius which is equivalent to 50 kph and is compliance with Austroad requirements.

The deflections through the roundabout on the northern and southern approaches were analysed using criteria for single lane roundabouts as detailed in Austroads – Part 6.

Once again both approaches indicated a path approximating a 100 metre radius which is equivalent to 50 kph and considered in compliance with Austroad requirements.

### 2.8.3 Circulating Lane

The circulating lane width as proposed consists of 6.5m inner + 6.5m outer lanes with a 3.0 metre mountable central section.

A provided Autotrack simulation indicates a B Triple vehicle approaching the roundabout in the left turn lane can pass through the roundabout with a car adjacent in the central lane.

The design development report indicates the design vehicle for the roundabout is a Type 1 Road Train. Discussions with a driver who operates in the area indicated the largest vehicle used in this area is an A-B Double vehicle.

Further discussions indicated that drivers of Road Trains, in practice, generally indicate early and straddle the lane lines on approach to a roundabout thereby establishing a physical right over the full width of the circulating lane.

***Recommendation:***

We are not sure of the difference in the tracking characteristics between a B Triple and an A Double. Establish the likely design vehicle to be used in the future and ensure that the vehicle can pass through the roundabout along Eyre Highway without encroaching into the adjacent circulating lane thereby, in theory at least, providing room for a car and Road Train to travel through the roundabout side by side.

Ensure a low profile kerb is used on the mountable section of the central island to maximise stability for large vehicles that may have the wheels on one side of the vehicle mounted on the central island.

### 2.8.4 Splitter Islands and Entrance Geometry

The projection of the curve on the entry side of splitter islands should be tangential to the central island. The projection of the entry curve is permitted to cut slightly into the central island.

***Recommendation:***

Shape the entry curves on splitter islands to better lead drivers into the circulating lane, particularly on the northern and southern approaches to the roundabout.

The entry width on the southern approach is very wide at approximately 7 metres and may encourage vehicles to approach the roundabout two abreast increasing the potential for side swipe type crashes as drivers enter the circulating lanes.

**Recommendation:** As above shape the entry curve on the splitter island and reduce the entry width on the southern approach to the roundabout.

## 2.9 Junctions

The junctions along the realigned section of the Eyre Highway have not been fully developed at this stage of the project and it is difficult to fully appreciate their layout in some cases.

### 2.9.1 Protected Turn Lanes – 70kph Section

The required total deceleration length for 70 kph is 75 metres using comfortable deceleration rates. An examination of the plans indicates appropriate deceleration lengths are achieved for the right turn lanes within the 70 kph section of the Eyre Highway.

**Recommendation:** Ensure storage requirements and deceleration lengths are satisfied.

The nose of the right turn lane at chainage 490 appears to be set well back from the junction.

**Recommendation:** Examine the situation and extend the median closer to the junction if required.

The right turn lane between chainage 590 and 490 is allowed to continue across the junction at chainage 450 and into another right turn lane leading to the junction at chainage 350. This may create some confusion and increase the potential for rear end type crashes with drivers unsure which road the driver in front is going to turn right into.

**Recommendation:** Examine the situation and consider separating the right turn lanes with a wider section of median immediately to the south of the junction at chainage 450. This may however require drivers to initiate deceleration prior to entering the second right turn lane as the length will be less than required for comfortable deceleration.

### 2.9.2 Protected Turn Lanes – 90 kph/110kph

The junction at chainage 2420 is located on the border of the 90kph and 110kph zone. The required total deceleration length for 90 kph is 90 metres using the maximum deceleration rate.

The proposed left turn lane into the junction is only 60 metres long.

**Recommendation:** Increase the length of the proposed left turn lane to conform to Austroad requirements for deceleration

for the posted speed along this section of the Eyre Highway.

The flush median nose located at chainage 2435 appears to be too far into the junction to allow vehicles to right turn into the junction from Eyre Highway without crossing the flush median.

**Recommendation:** Examine the situation and relocate the median nose as required.

### 2.9.3 Observation Angle

A number of the junctions are provided with large radii left turn corners. This may provide for the turning movements of large vehicles but will encourage drivers of smaller vehicles to approach the main road at an angle that provides them with a very poor observation angle to the right.

**Recommendation:** Use chevron pavement markings on the left turn corners to encourage smaller vehicles to approach the main road with improved observation angles.

## 2.10 Diverge Tapers

At chainage 40 the proposed north bound carriageway along the Eyre Highway begins to transition from a single lane to two lanes over a distance of 110 metres. The design speed along this section of the road is 70 kph. The diverge taper develops across the junction at chainage 100.

At chainage 1230 the proposed southbound carriageway along the Eyre Highway transitions from a single lane to two lanes over a distance of approximately 160 metres. The design speed along this section of the road is 90 kph.

**Recommendation:** The length of taper in each of the above cases will provide for very comfortable divergence of traffic from one stream of traffic into two streams with slower vehicles likely to move into the left lane and faster traffic into the right lane.

The development of the diverge taper across the junction at chainage 100 may confuse drivers exiting from the side road. Consider developing the taper prior to the junction.

Continuity lines are not required to develop from one lane to two lanes. Start the line marking for the two lanes when enough width is available.

## 2.11 Merge Tapers

At chainage 170 the proposed southbound carriageway along the Eyre Highway transitions from two lanes to a single lane over a distance of 110 metres. The design speed along this section of the road is 70 kph.

The merge taper develops across the junction at chainage 100.

At chainage 1070 the proposed northbound carriageway along the Eyre Highway transitions from two lanes to a single lane over a distance of 160 metres. The design speed along this section of the road is 90 kph.

**Recommendation:**

The length of taper in each of the above cases corresponds to Austroads requirements and is considered adequate.

The development of the merge taper across the junction at chainage 100 may confuse drivers exiting from the side road. Consider developing the taper prior to the junction.

Consider providing a 'run out' area for the merge taper at chainage 1070 (no kerb) to accommodate those vehicle unable to merge as they approach the narrowed section. Refer to Austroads 'Rural Road Design' 13.8.2.

Consider using a zip merge and eliminating the continuity lines from the merge tapers. Use 'Form One Lane' signs

## 2.12 Railway Crossing

A railway crossing is located at chainage 1400 on the Eyre Highway within the proposed 90 kph speed zone. The traffic assessment report indicates the crossing is to be an active crossing.

For railway crossings controlled by lights, as is proposed in this case, the sight distance requirements relate to the ability of a driver to see the signals and not the train.

An examination of plans and profiles indicates 170 metre straight sections of approach road with gentle 0.8% upgrades on both approaches to the crossing. Large radius horizontal curves precede the straights.

Austroads recommends a desirable Approach Sight Distance of 140 metres (1.05 to zero height) for 90 kph. The sight distance available at this crossing is well in excess of the requirements and is enhanced even further given that drivers will be looking to the signals rather than an object at ground level.

The Eyre Highway northbound carriageway merges from two lanes to one lane at chainage 1230 some 170 metres prior to the crossing but is not considered to provide a distraction for drivers from the crossing ahead. The Traffic Control plans indicate a short section of broken separation line between the barrier line for the diverge and the barrier line for the railway crossing

**Recommendation:**

Extend the barrier line through to the crossing.

The traffic control devices indicated on the Traffic Control plan seem appropriate including the use of the RX-9 assembly given the rural nature of the location.

## 2.13 Cyclists

Cyclists are provided with a wide kerb lane that serves as a shared cycle/traffic from the beginning of the Eyre Highway realignment (chainage 0) through to the roundabout.

Hazards to cyclists are considered higher for cyclists on large multi lane roundabouts.

**Recommendation:** Consider the provision of paths for cyclist external to the roundabout. Refer to Austroads Part 5 (Figure 5.2) and Part 14 (Figure 5-29).

## 2.14 Traffic Control

The Traffic Control plans do not appear to be fully developed at this stage of the project, particularly in the vicinity of the junctions.

Some of the issues / omissions are as follows:

- Missing signs on approach median noses and at the roundabout.
- Missing direction and advance direction signs
- Missing line marking in the form of separation lines on side roads.
- Left and right turn lanes erroneously line marked with respect to the length of continuity line and unbroken line. Refer to DTEI standards.
- Continuity lines are not required to develop an additional lane from a single lane.
- Pavement arrows on the southern and northern approaches to the roundabout are not required.

**Recommendation:** Provide all traffic control devices in accordance with AS 1742 and DTEI requirements.

### 3.0 SUMMARY – KEY ISSUES

- For Typical Section A-A and B-B consider widening the central traffic lane to 3.7 metres to cater for road trains and the high commercial vehicle content. Refer to 2.5.1, 2.5.2.and 2.5.3.
- Consider widening the raised central median to 5.0 metres to provide better protection for right turning vehicles in accordance with Austroad recommendations. Refer to 2.5.1.
- For Typical Section D-D consider widening the unsealed shoulder width to 2.0 metres to provide a total shoulder width of 3.0 metres and enable large vehicles to stand clear of the travelled way. Refer to 2.5.3 & 2.4.4.
- Check the storm water flow depths for the longer flow paths and the likelihood of aquaplaning, particularly in the vicinity of super elevation development. Refer to 2.7
- Ensure drainage inlets are provide within raised medians to reduce flow widths and concentrated flows at median nose release points. Refer to 2.7.
- Ensure levels in the vicinity of chainage 760 are correct as the provided contours look unusual. Refer to 2.7.
- Keep vegetation clear of the 40-70 sight triangle on approaches to the roundabout. Refer to 2.8.1.
- Shape the entry curves on roundabout splitter islands to better lead drivers into the circulating lanes, particularly on the northern and southern approaches to the roundabout. Refer to 2.8.4.
- At the junction at chainage 2420 increase the length of the proposed left turn lane to conform to Austroad requirements for deceleration for the posted speed along this section of the Eyre Highway. Refer to 2.9.2
- Use chevron pavement markings on the large radii left turn corners of junctions to encourage smaller vehicles to approach the main road with improved observation angles. Refer to 2.9.3.
- Continuity lines are not required to develop from one lane to two lanes. Refer to 2.10
- Consider using a zip merge and removing the continuity lines from the merge tapers. Refer to 2.11
- Consider relocating the diverge and merge tapers currently proposed between chainages 40 and 170 to a location prior to the junction located at chainage 100.
- Consider the provision of paths for cyclist external to the roundabout. Refer to 2.13.



#### 4.0 CONCLUDING STATEMENT

We have examined the plans and documents provided and listed in the Introduction to this report.

This Road Safety Audit has been carried out for the sole purpose of identifying any features on the design plans that could be amended to improve the safety of the proposed realignment of Eyre Highway.

The identified concerns have been noted in this report and recommendations put forward for consideration prior to the completion of this project.



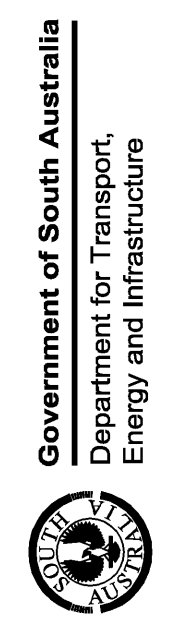
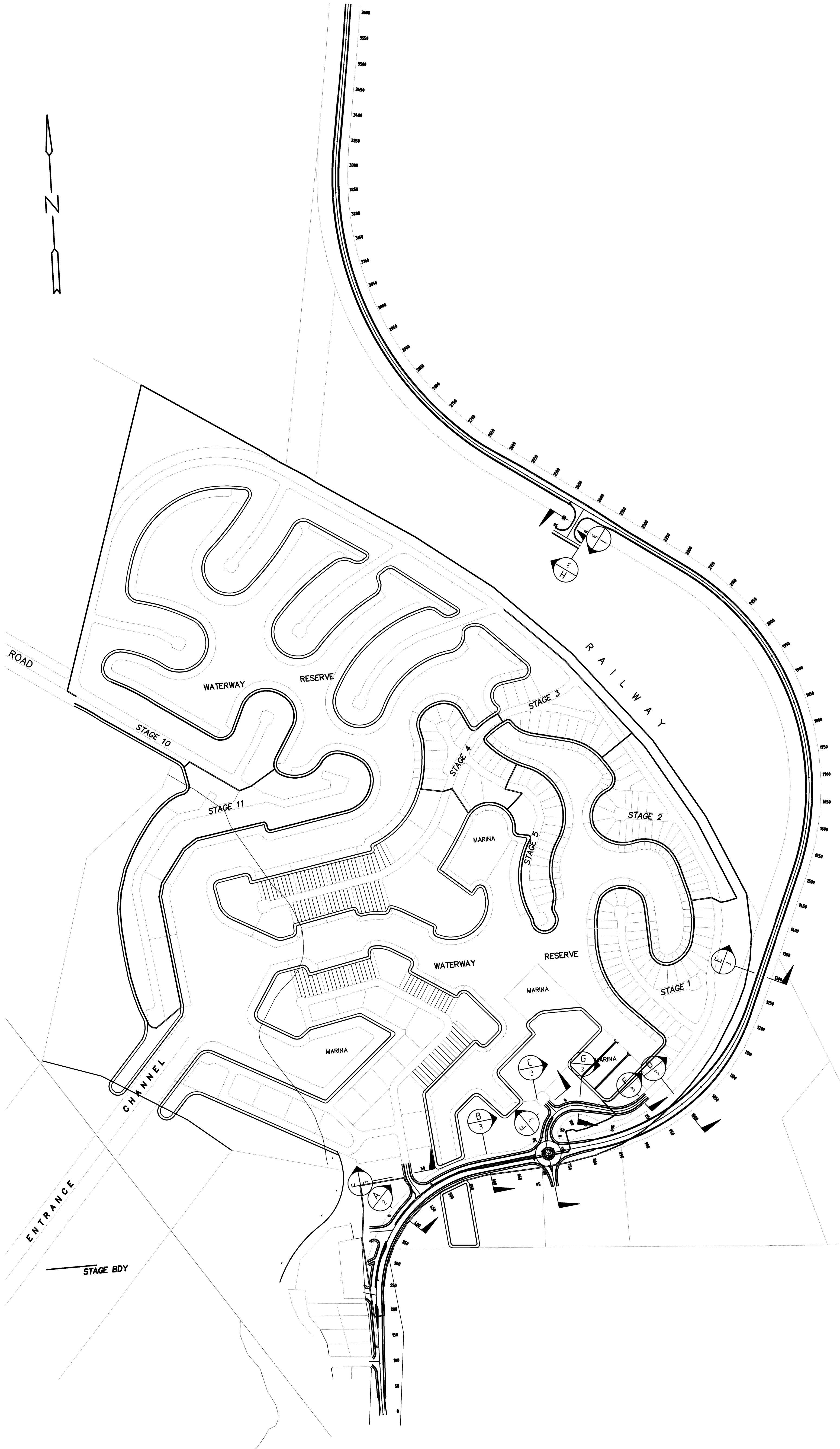
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HDS Australia Pty Ltd

November 2007



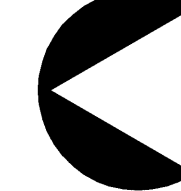
Government of South Australia  
Department for Transport,  
Energy and Infrastructure

ROAD NO. <b>EYRE HIGHWAY</b>		DESIGN DSC	CONSTRUCTED DATE	AS FOR SH ???
TYPICAL CROSS SECTIONS SHEET 1 OF 3		DRAWN DSC	LAND ACQUISITION	
PROJECT START : RRD. 199.78		CHECKED DSC	LANDSCAPE	
PROJECT END : RRD. 201.84			VEG SURVEY	
PROJECT NO SURVEY FILE			TREE REMOVAL	
AMEND SHEET			DUCT LOCATION	
DRG			P.A.C/S. KING	
APPROVED			TRAFFIC SIGNS	
FOR EXECUTIVE DIRECTOR			T. CONTROL JUNG.	
DATE			T. CONTROL INST.	
			T. CONTROL LAYOUT	
			LIGHTING	
			SIGNS	
			PAV'T MARKING	
			PAV'T. S. / RBS.	
			SURVEY MARKS	
			SEWERAGES	
			DRAINAGE	
			GROSS SECTIONS	
			LONG. SECTIONS	
			SURFACE LEVELS	
			GEOM. LAYOUT	
			INDEX/LOCALITY	

FILE NAME : 106055-XT-01.dwg  
DIRECTORY : F:\106055 DSC Drawings\Highways



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**ceduna keys**  
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ENGINEER / DESIGNER	PROJECT MANAGER	DESIGN MANAGER
HLD	AVB	NGP
HLD	AVB	NGP

DATE

SCALE 1:4,000 @ A1

TECH. DETAILS

TSD 27

TCD AMENDTS

RES/AUTHORISED

DATE

NO.

DESCRIPTION

AMENDMENTS

APPROVED FOR E.D.

APPROVED FOR E.D.

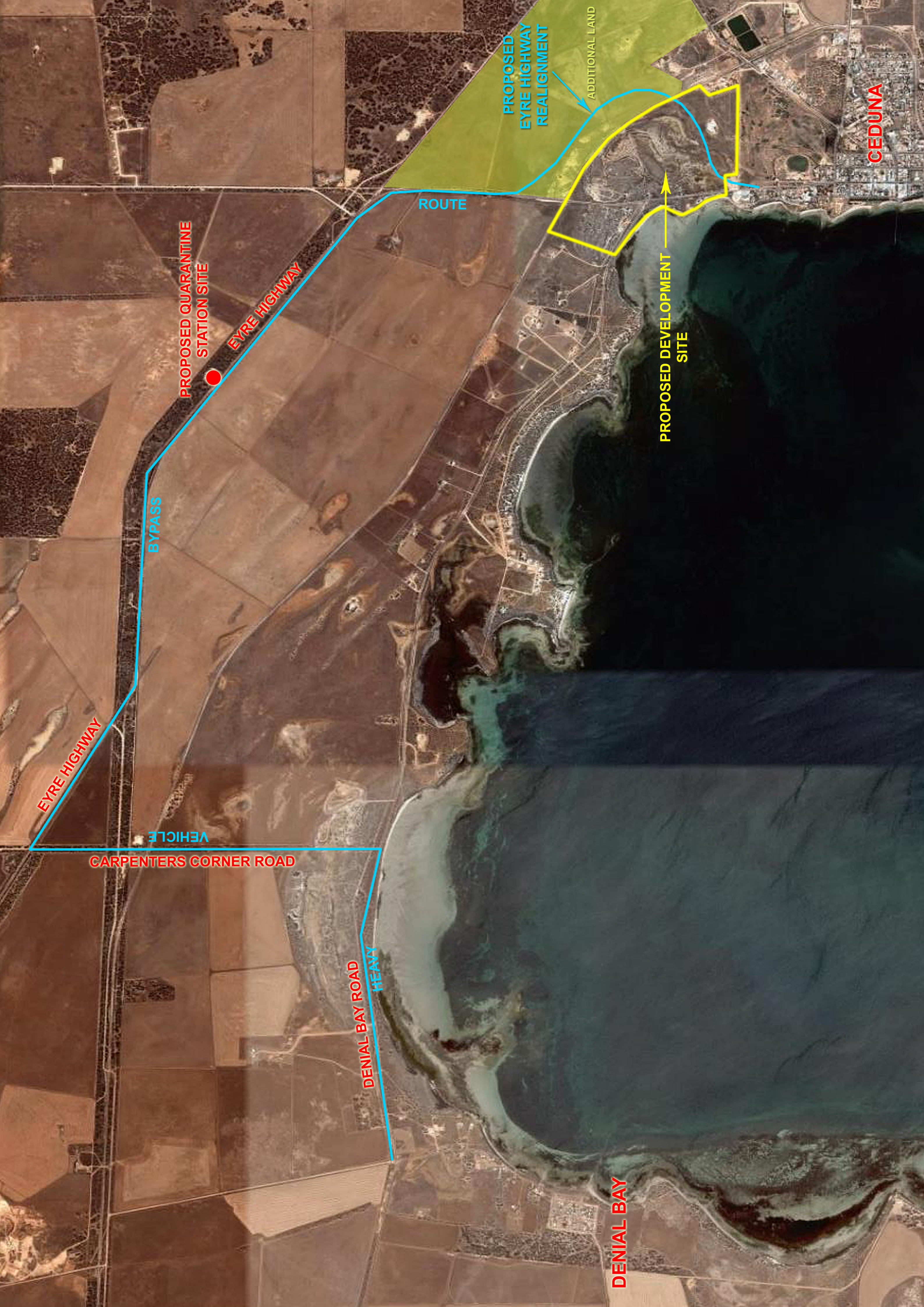
DATE

CONST. DATE

**APPENDIX C**

**ADDITIONAL INFORMATION PROVIDED BY THE PROPONENT**





CEDUNA

PROPOSED  
EYRE HIGHWAY  
REALIGNMENT

ADDITIONAL LAND

ROUTE

PROPOSED QUARANTINE  
STATION SITE

EYRE HIGHWAY

PROPOSED DEVELOPMENT  
SITE

BYPASS

EYRE HIGHWAY

VEHICLE

CARPENTERS CORNER ROAD

DENIAL BAY ROAD  
HEAVY

DENIAL BAY

