

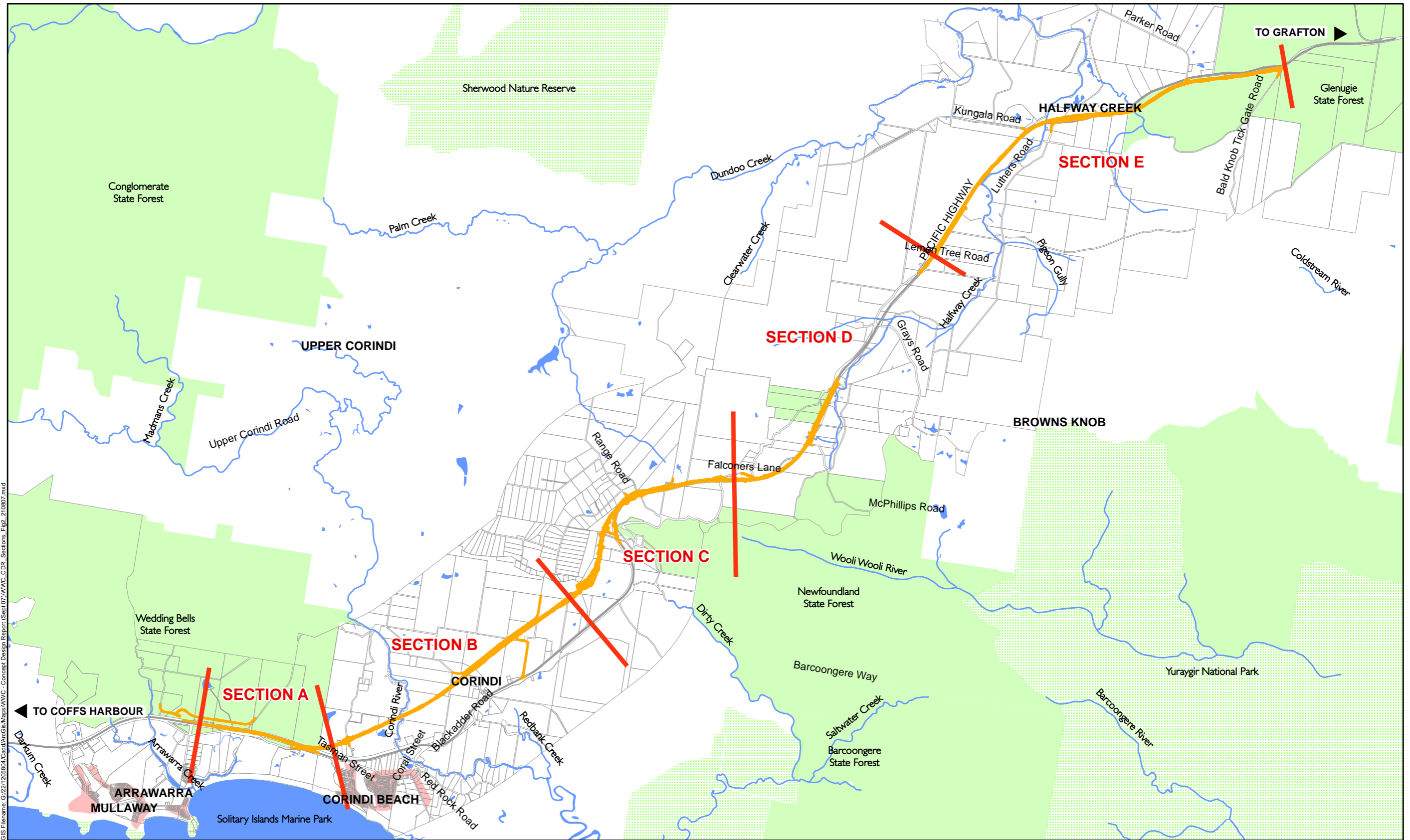
## 2. Highway corridor

### 2.1 Project limit of works

Shown on Figure 1, the preferred route corridor starts from the end of the Sapphire to Woolgoolga project near Arrawarra Beach Road (Ch 1100), and ends approximately 26.3 km north at the intersection of Bald Knob Tick Gate Road and the Pacific Highway (Ch 27,400) where it will connect with the Wells Crossing to Iluka Road Upgrade.

### 2.2 Project sections

During the route corridor studies, the project was divided into five sections (Sections A to E) as shown in. Within each section the corridor characteristics and proposed road treatment are relatively uniform.



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<p><b>SCALE 1:70,000 @ A3</b></p> <p>0 0.5 1 2 Km</p> <p>Map Projection: Universal Transverse Mercator                  Horizontal Datum: Geodetic Datum of Australia 1994                  Grid: Map Grid of Australia, Zone 56</p>		<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: orange;">—</span> Preferred Route</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastre</li> <li><span style="background-color: pink; display: inline-block; width: 10px; height: 10px;"></span> Builtup areas</li> <li><span style="background-color: lightgreen; border: 1px dotted black; display: inline-block; width: 10px; height: 10px;"></span> National parks, Nature reserves</li> <li><span style="background-color: lightgreen; display: inline-block; width: 10px; height: 10px;"></span> State forests</li> <li><span style="color: red;">—</span> Sections</li> </ul>
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Spatial layers courtesy of Coffs Harbour City Council, NSW Department of Lands, NSW Roads & Traffic Authority, Geoscience Australia, NSW Department of Environment & Conservation, NSW Department of Primary Industries.

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## **2.3 Selection of the preferred route**

The Woolgoolga to Wells Crossing project has been developed through three key stages prior to commencement of the concept design stage. The process undertaken to reach the concept design stage is described in this section.

### **2.3.1 Preliminary studies and investigations**

The initial stage of the project involved a number of preliminary studies. These included a review of the existing highway alignment, indigenous and non-indigenous heritage, ecology and traffic usage. The results of these studies were used in the route option development stage of the project.

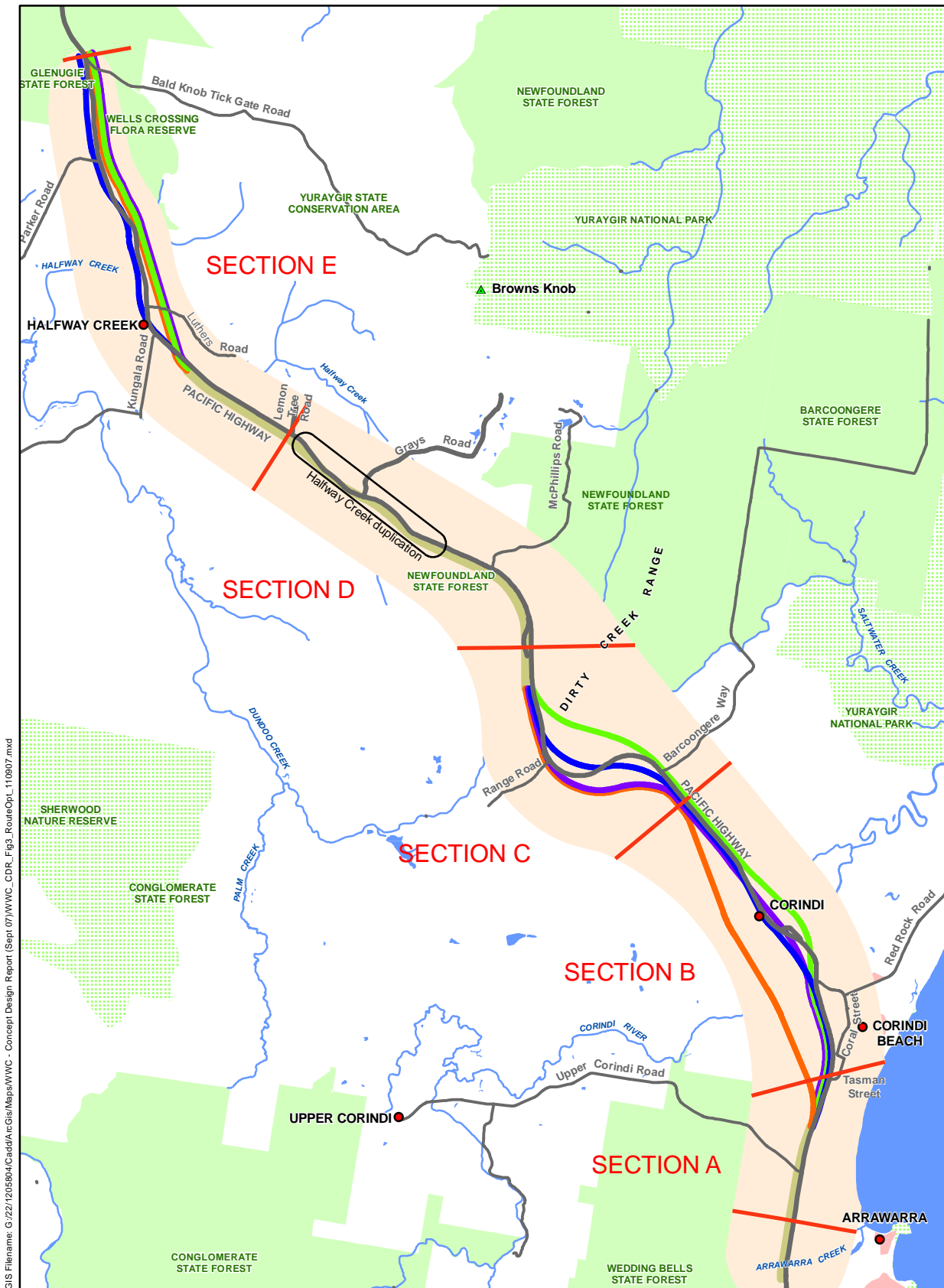
### **2.3.2 Route option development**

The route option development process involved the following steps:

- Review of existing data.
- Site visits — field and aerial inspections of the study area.
- Preliminary ecological, heritage, traffic, geotechnical and other investigations.
- A variety of community involvement activities to identify community interests, issues and concerns.
- Opportunities and constraints workshops.
- Options workshop to consider possible options.
- Identification and refinement of the feasible route options.
- Preparation of the route options development report.

The route options development process concluded with the public display of four route options and the release of the Route Options Development Report. These options were named the orange, blue, green and purple options. Figure 3 depicts the four route options as displayed.

The public display of the route options provided the community with an opportunity to review and make comment on the route options.



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<p><b>SCALE 1:100,000 @ A4</b></p> <p>Map Projection: Universal Transverse Mercator              Horizontal Datum: Geodetic Datum of Australia 1994              Grid: Map Grid of Australia, Zone 56</p>	<p><b>GRID N</b></p>	<p><b>Legend</b></p> <table border="0"> <tr> <td> Blue option</td> <td> Common corridor for all options</td> <td> Urban area</td> <td> State forests</td> </tr> <tr> <td> Green option</td> <td> Highway</td> <td> Study area</td> <td> Locality</td> </tr> <tr> <td> Purple option</td> <td> Main Rd</td> <td> National parks, Nature reserves</td> <td> Hill/Mountain</td> </tr> <tr> <td> Orange option</td> <td></td> <td></td> <td> River / Creek</td> </tr> </table> <p>Note: Coloured options represent a 250m wide corridor, which includes 4 lanes, ie 2 lanes eachway, seperated by a landscaped area</p>	Blue option	Common corridor for all options	Urban area	State forests	Green option	Highway	Study area	Locality	Purple option	Main Rd	National parks, Nature reserves	Hill/Mountain	Orange option			River / Creek
Blue option	Common corridor for all options	Urban area	State forests															
Green option	Highway	Study area	Locality															
Purple option	Main Rd	National parks, Nature reserves	Hill/Mountain															
Orange option			River / Creek															

Spatial layers courtesy of Coffs Harbour City Council, NSW Department of Lands, NSW Roads & Traffic Authority, Geoscience Australia, NSW Department of Environment & Conservation, NSW Department of Primary Industries.

### 2.3.3 Preferred route selection

The public display of the four route options also marked the beginning of the preferred route selection process.

The selection of the preferred route involved the following steps:

- Public display of the route options and receipt of submissions from the community.
- Review and consideration of submissions from the community.
- A value management workshop.
- Additional investigations as a result of community submissions and the outcomes of the value management workshop.
- A project team route selection workshop, which considered the findings of the value management workshop, community submissions and the results of additional investigations.
- Preparation of the preferred route report.

The key details of this process are provided below.

#### Value management workshop

A two-day value management workshop was held in December 2005 following the public display of the route options. During the value management workshop, only route options within Sections B, C and E of the project were assessed as the route options within Sections A and D all share a single common corridor, and therefore did not require assessment (ie there were no corridor options to choose from).

The key outcomes from the value management workshop were:

- In Section B, the Orange option was recommended as the preferred option to move the project forward for more detailed investigation and development because it had the highest assessment in terms of functionality, social and economic criteria and has the ability for improvement to its environmental performance with some slight alignment adjustments at the southern end of the Section.
- In Section C, the Orange option was recommended as the preferred option because it had a consistently higher ranking, on average, across all three criteria categories and the cost variations between options were not considered to be significant. The Orange option also has the greater opportunity for alignment improvements if considered desirable after further investigations.
- In Section E, the Orange option was recommended as the preferred option to move the project forward for more detailed investigation and development. However, this recommendation was made subject to further investigation regarding various environmental and heritage impacts.
- The group also suggested that the project team investigate the feasibility of straightening the alignment of the Orange option in Sections B, C and E (ie moving the corridor further to the west) in an attempt to improve the potential performance of the highway upgrade in several areas, including:
  - Further reduce the length of the highway upgrade and minimise the length of new local access road to be constructed.
  - Minimise environmental and indigenous heritage impacts.

- Improve accessibility for local road users and reduce impacts on private property.

This new option in Sections B, C and E was generally referred to as the **Refined Orange option**.

### **Route selection workshop**

A two-day project team route selection workshop was held in March 2006 to assess the four route options (within Sections B, C and E) and placed on public display against the assessment criteria.

The route selection workshop also assessed the Refined Orange option, which was developed following the recommendations of the value management workshop.

The recommended preliminary route corridors in Sections B, C and E from the route selection workshop process were:

- In Section B the Refined Orange option.
- In Section C the Refined Orange option.
- In Section E the combination of the Blue, Refined Orange and Orange options.

### **Announcement of the preferred route**

The preferred route was announced in August 2006 after consideration of the following:

- Issues raised in community submissions from the public display of route options, which took place from 21 October 2005 to 2 December 2005.
- Recommendations from the value management workshop held in December 2005.
- The findings of further technical studies undertaken following the value management workshop.
- Recommendations from the project team route selection workshop held in March 2006.

The preferred route corridor as displayed in August 2006, prior to refinement, is depicted in Figure 4. A description of the preferred route is provided in Section 2.4.

The process undertaken to determine the preferred route along with a detailed description of the preferred route is described in detail in the Woolgoolga to Wells Crossing Preferred Route Report (GHD, 2006).

### **Corridor refinement**

Following the announcement of the preferred route in August 2006, further activities were undertaken to refine the wider corridor in the Barcoongere Way and Luthers Road areas (Section B/C and Section E). These processes are discussed in detail in Woolgoolga to Wells Crossing Preferred Route Report – Barcoongere Way and Luthers Road Areas (GHD 2007).

The key activities undertaken were to refine the corridor were;

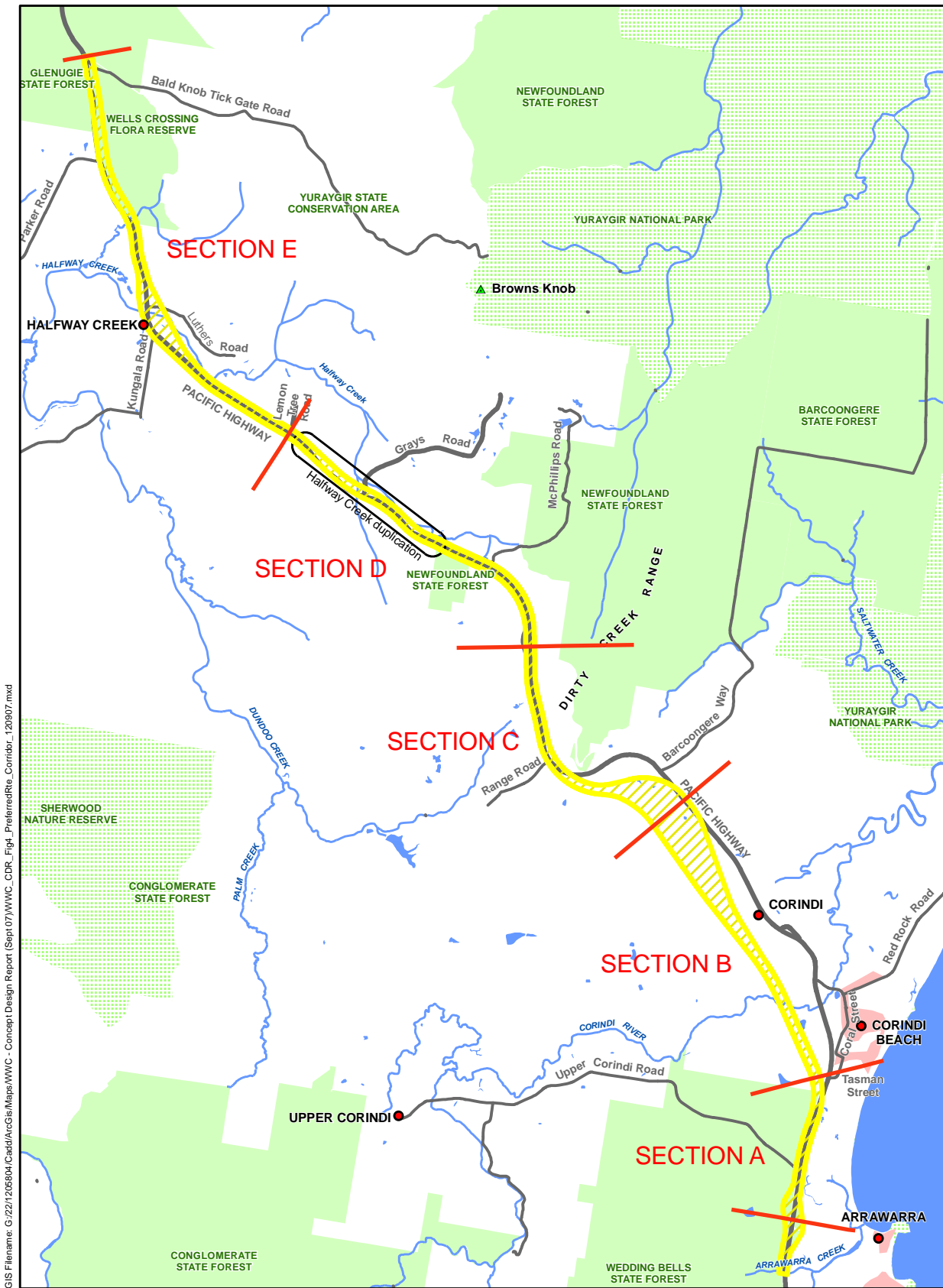
- Further investigation of the Bora Indigenous heritage site adjacent to Halfway Creek (Luthers Road area).
- Comparison of travel costs between the eastern and western route across the Corindi floodplain and approaches to Dirty Creek Range (Barcoongere Way area).
- Investigation and comparison of environmental impacts between the eastern and western route in the Barcoongere Way area.
- Review of community submissions from the preferred route display period.

The outcomes of these further activities were assessed at the corridor refinement workshop held by the project team on 28<sup>th</sup> November 2007. The recommendations of the workshop were to;

- Adopt the western option for the Barcoongere Way area.
- Adopt the western option for the Luthers Road area.

The refined preferred route is shown in Figure 4b.

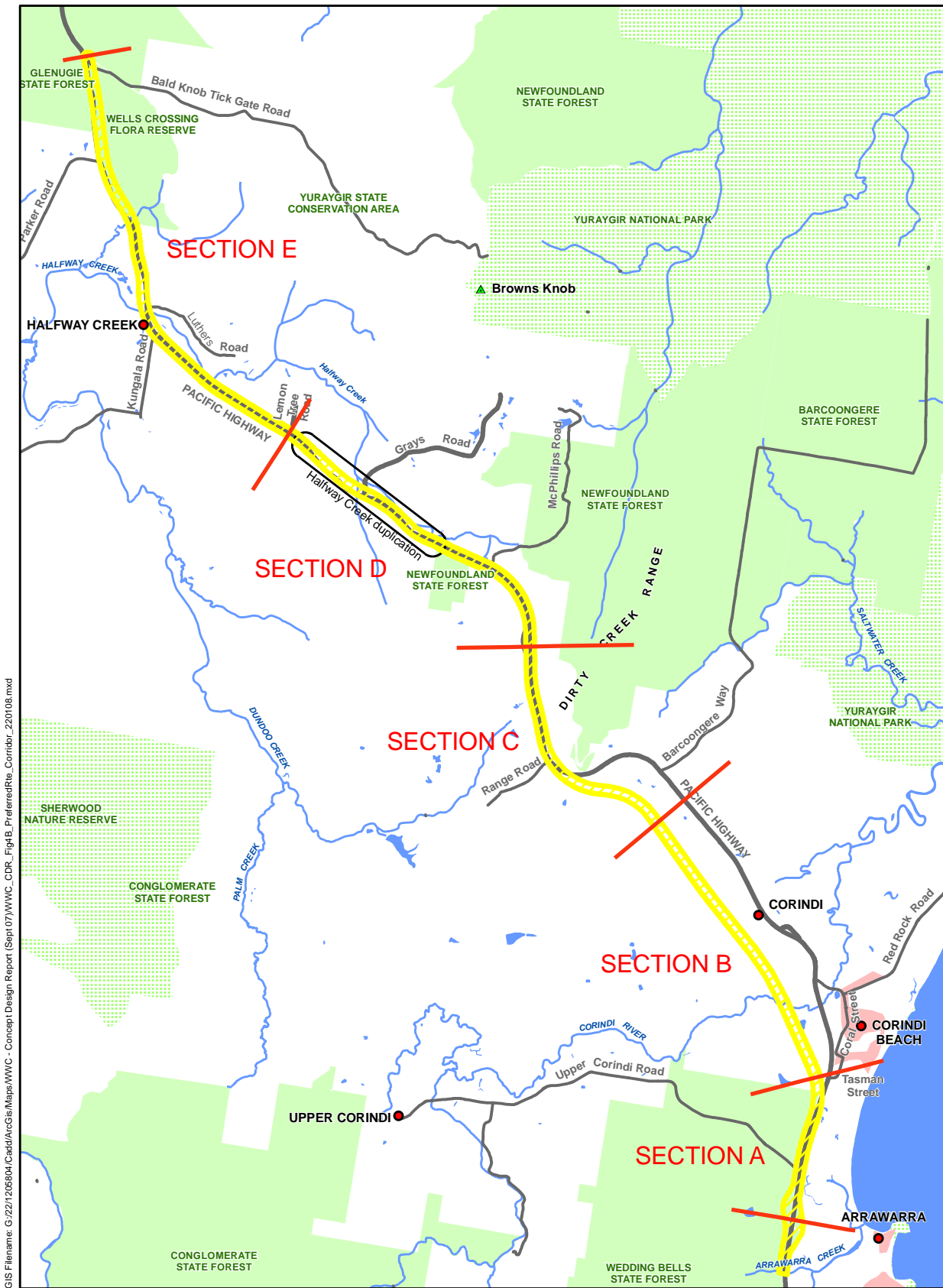




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<p><b>SCALE 1:100,000 @ A4</b></p> <p>Map Projection: Universal Transverse Mercator Horizontal Datum: Geodetic Datum of Australia 1994 Grid: Map Grid of Australia, Zone 56</p>	<p><b>GRID N</b></p>	<p><b>Legend</b></p> <table border="0"> <tr> <td> Preferred Route Corridor</td> <td> Urban area</td> <td> National parks, Nature reserves</td> <td> Locality</td> </tr> <tr> <td> Highway</td> <td> Study area</td> <td> State forests</td> <td> Hill/Mountain</td> </tr> <tr> <td> Main Rd</td> <td></td> <td></td> <td> River / Creek</td> </tr> </table>	Preferred Route Corridor	Urban area	National parks, Nature reserves	Locality	Highway	Study area	State forests	Hill/Mountain	Main Rd			River / Creek
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Spatial layers courtesy of Coffs Harbour City Council, NSW Department of Lands, NSW Roads & Traffic Authority, Geoscience Australia, NSW Department of Environment & Conservation, NSW Department of Primary Industries.



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<p><b>SCALE 1:100,000 @ A4</b></p> <p>Map Projection: Universal Transverse Mercator              Horizontal Datum: Geodetic Datum of Australia 1994              Grid: Map Grid of Australia, Zone 56</p>	<p><b>GRID</b></p>	<p><b>Legend</b></p> <table border="0"> <tr> <td> Refined Preferred Route Corridor</td> <td> Urban area</td> <td> National parks, Nature reserves</td> <td> Locality</td> </tr> <tr> <td> Highway</td> <td> Study area</td> <td> State forests</td> <td> Hill/Mountain</td> </tr> <tr> <td> Main Rd</td> <td></td> <td></td> <td> River / Creek</td> </tr> </table>	Refined Preferred Route Corridor	Urban area	National parks, Nature reserves	Locality	Highway	Study area	State forests	Hill/Mountain	Main Rd			River / Creek
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Spatial layers courtesy of Coffs Harbour City Council, NSW Department of Lands, NSW Roads & Traffic Authority, Geoscience Australia, NSW Department of Environment & Conservation, NSW Department of Primary Industries.

## 2.4 Summary of the preferred route

The preferred route report determined an approximate road corridor in relation to the existing highway. This alignment is described in Table 2-1:

**Table 2-1 Project sections**

Section	Approx length (km)	Northbound carriageway	Southbound carriageway
A	2.8	New northbound carriageway to the west of the existing highway.	Existing carriageway is reused as the southbound carriageway.
B	5.2	New alignment up to 800 m to the west of the existing highway.	New alignment up to 800 m to the west of the existing highway.
C	4.2	At the southern end of Section C, new alignment up to 600 m west of the existing highway.  At the northern end, new northbound carriageway on the western side of the existing highway.	At the southern end of Section C, new alignment up to 600 m west of the existing highway.  At the northern end, the existing carriageway is reused as the southbound carriageway (existing carriageway to be reconstructed because of poor vertical alignment).
D	5.9	At the southern end of Section D, new northbound carriageway to the west of the existing highway.  At northern end of Section D, the existing duplication through Halfway Creek to be retained (approximately 3.2 km).	At southern end of Section D, existing carriageway becomes southbound carriageway.  At northern end of Section D, the existing duplication through Halfway Creek to be retained (approximately 3.2 km).
E	7.9	At the southern end of Section E, new northbound carriageway to the west of the existing highway.  At the northern end of section E, new alignment to the east of the existing highway.	At southern end of Section E, the existing highway is reused (in part) as the southbound carriageway.  At the northern end of section E, new alignment to the east of the existing highway.