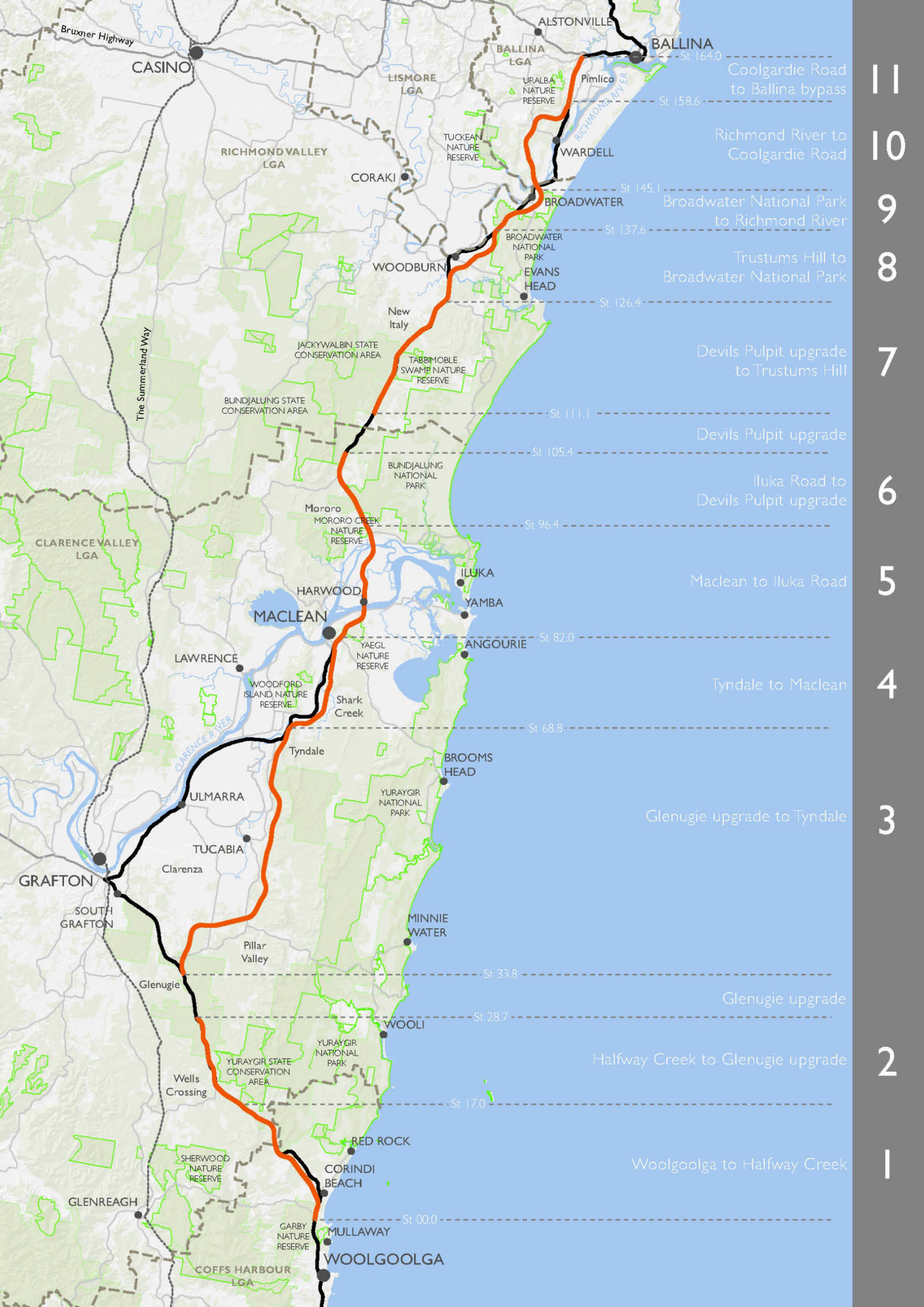


NSW Roads and Maritime Services

WOOLGOOLGA TO BALLINA | PACIFIC HIGHWAY UPGRADE SUBMISSIONS / PREFERRED INFRASTRUCTURE REPORT

Chapter 4

November 2013



Coolgardie Road to Ballina bypass

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Richmond River to Coolgardie Road

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Broadwater National Park to Richmond River

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Trustums Hill to Broadwater National Park

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Devils Pulpit upgrade to Trustums Hill

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Devils Pulpit upgrade

6

Iluka Road to Devils Pulpit upgrade

6

Maclean to Iluka Road

5

Tyndale to Maclean

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Glenugie upgrade to Tyndale

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Glenugie upgrade

2

Halfway Creek to Glenugie upgrade

2

Woolgoolga to Halfway Creek

1

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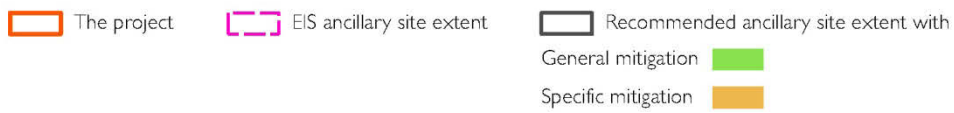
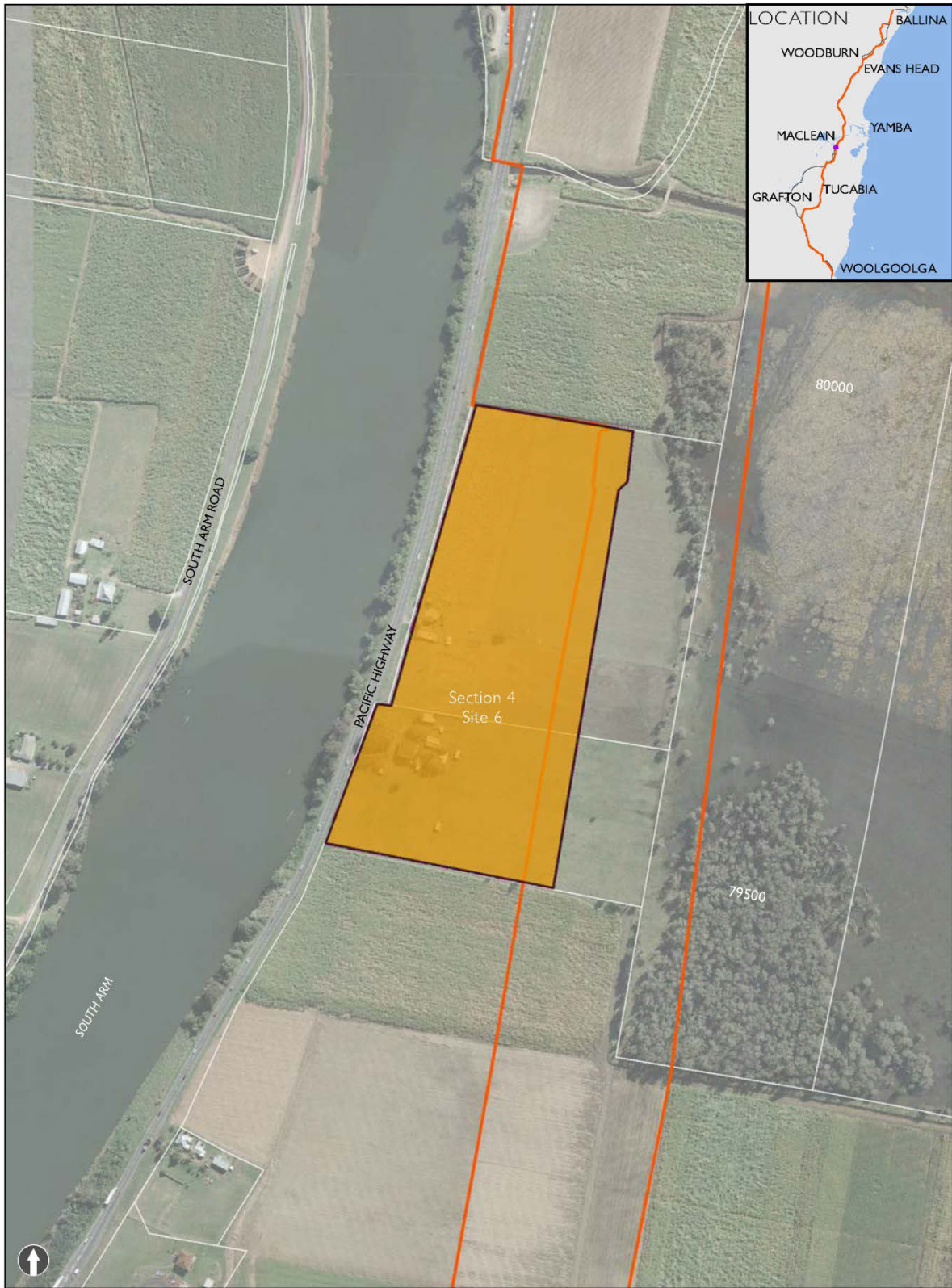


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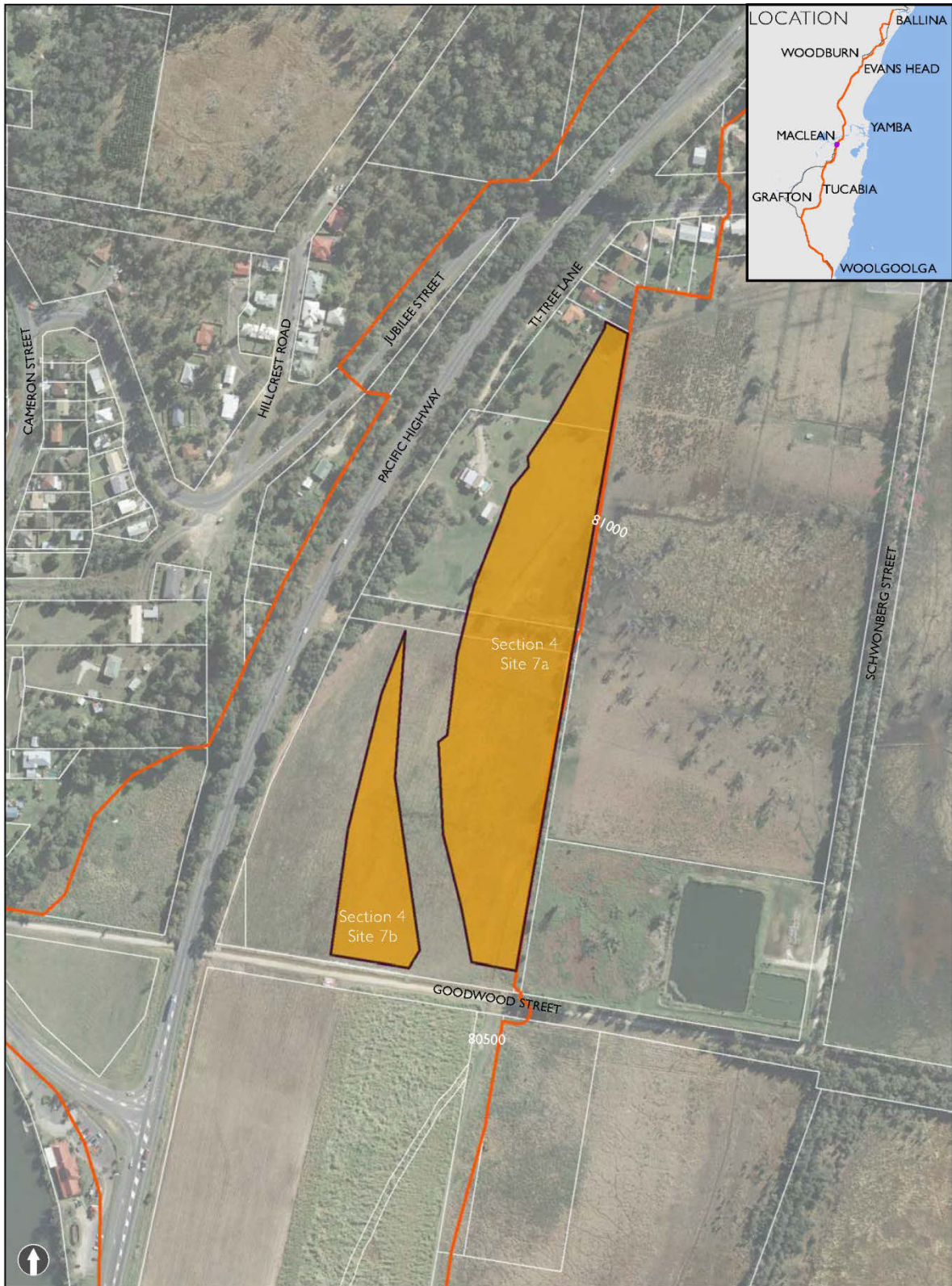


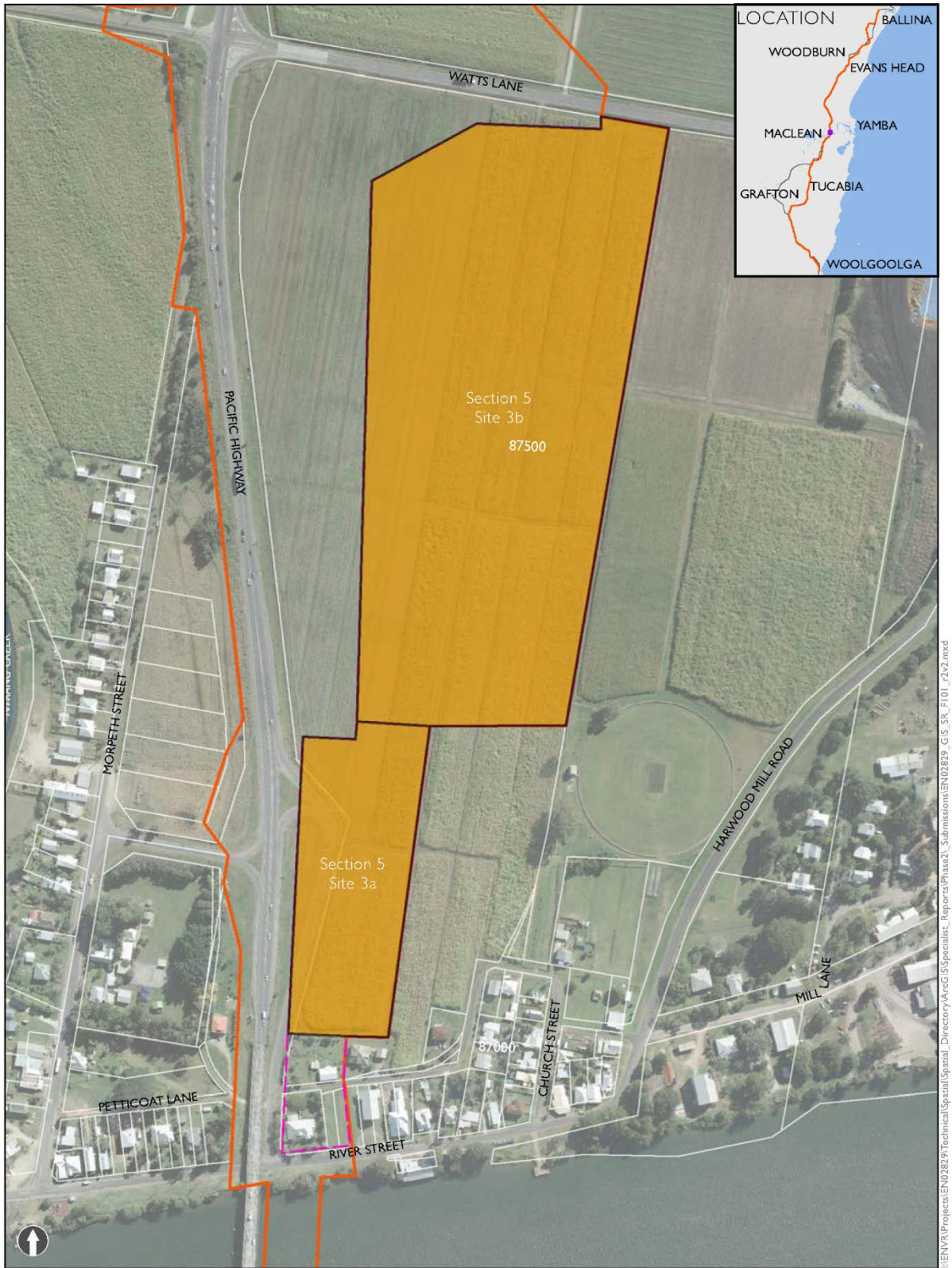
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The project
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 Recommended ancillary site extent with
 General mitigation
 Specific mitigation

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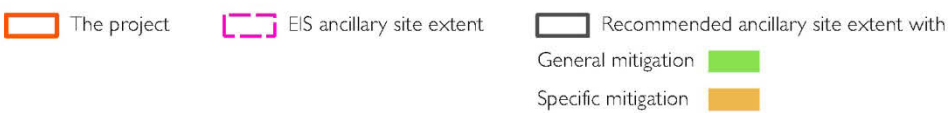


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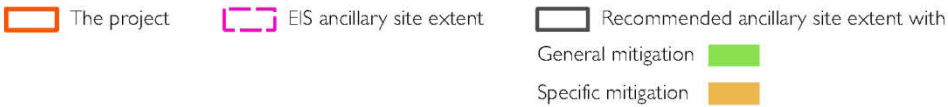


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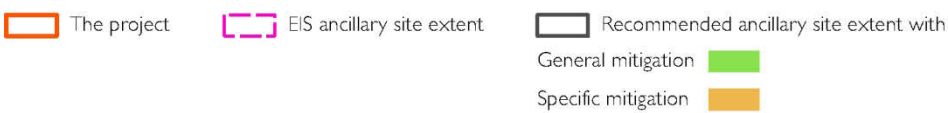
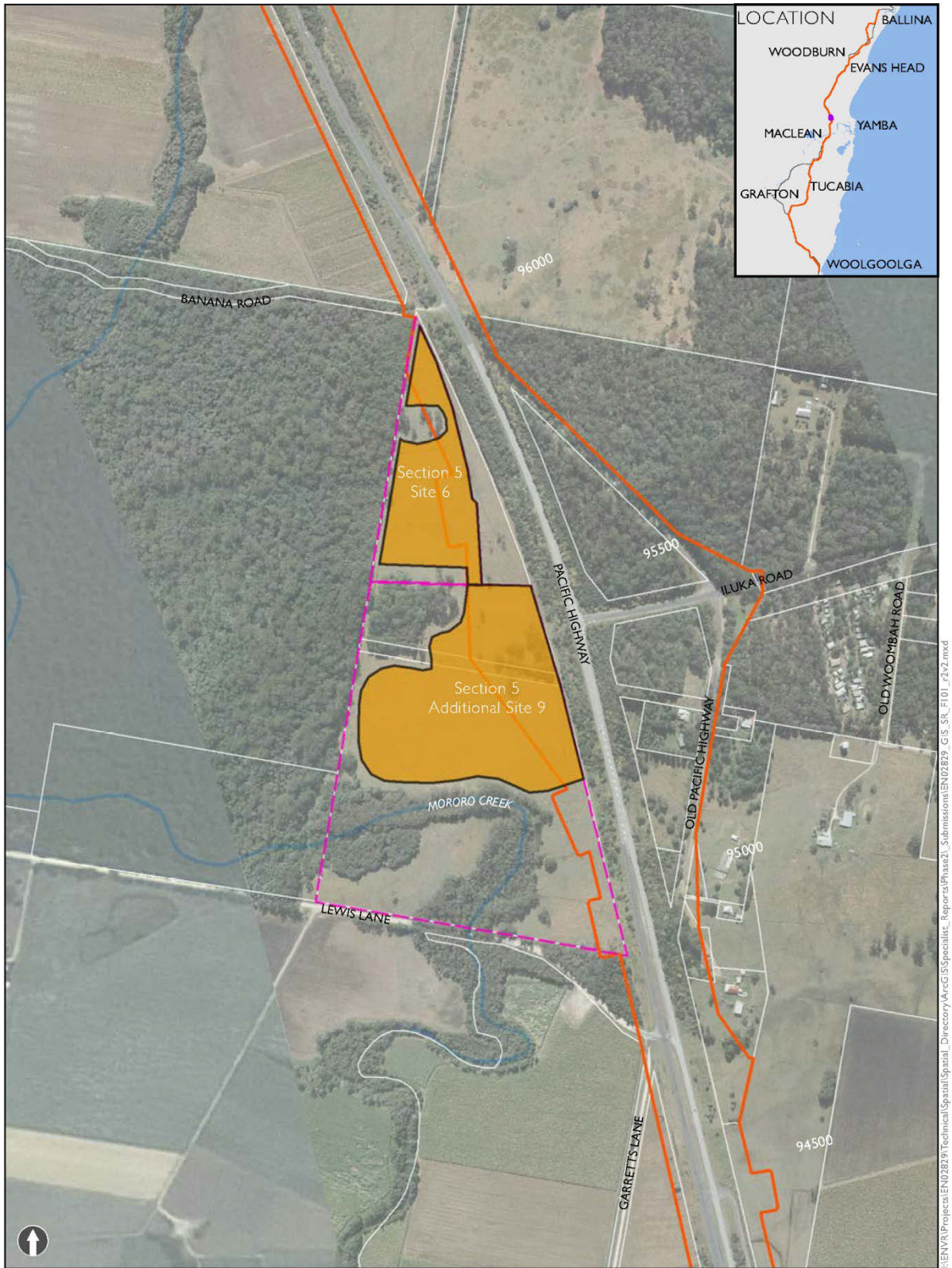


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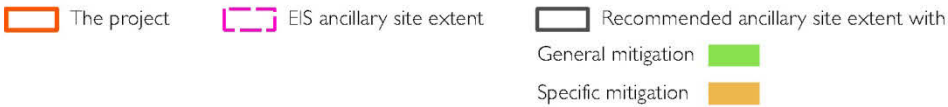


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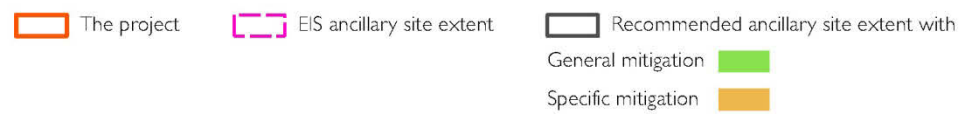
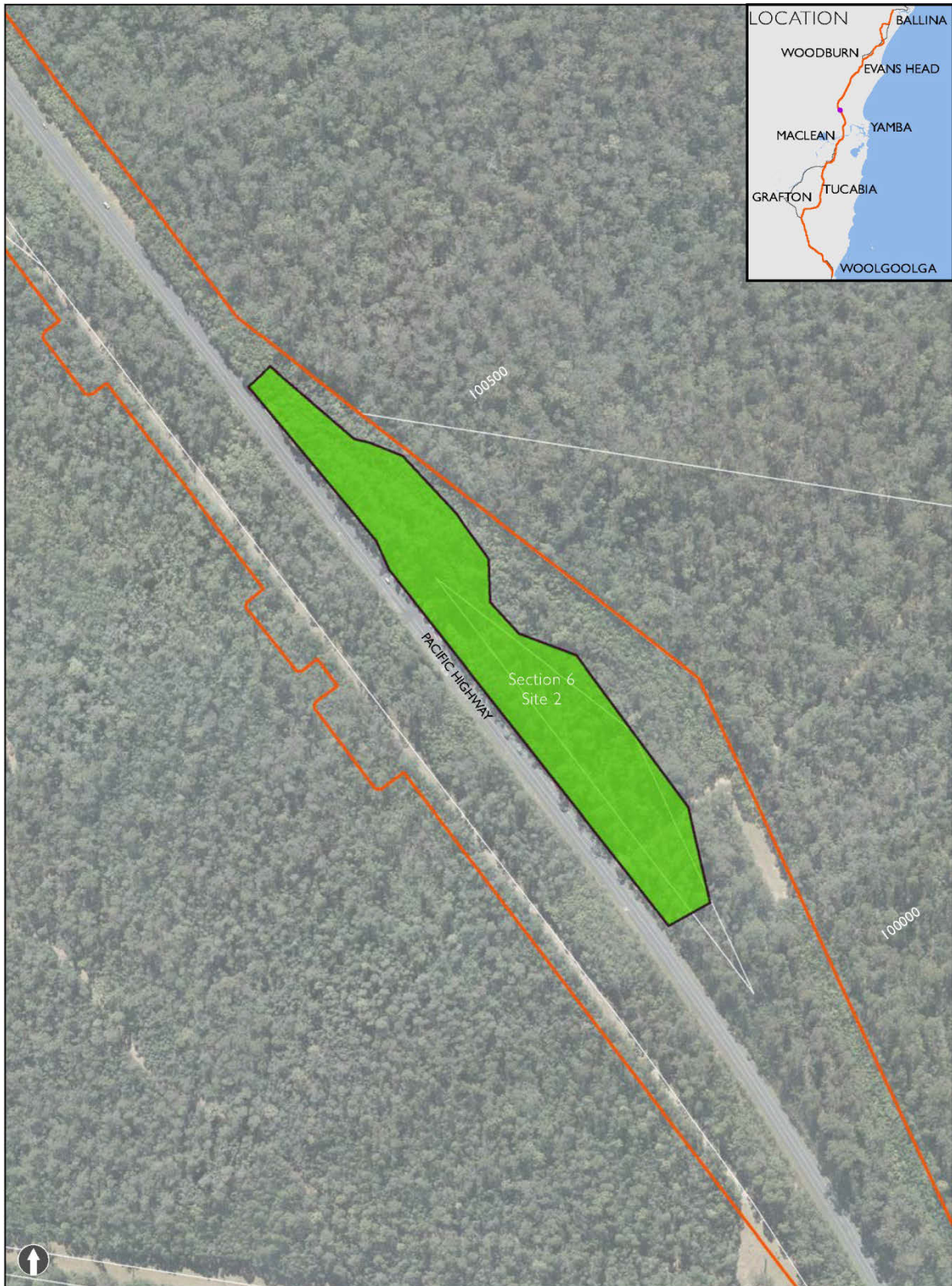


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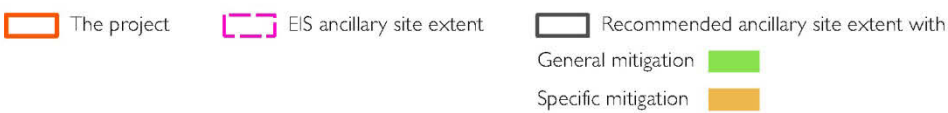
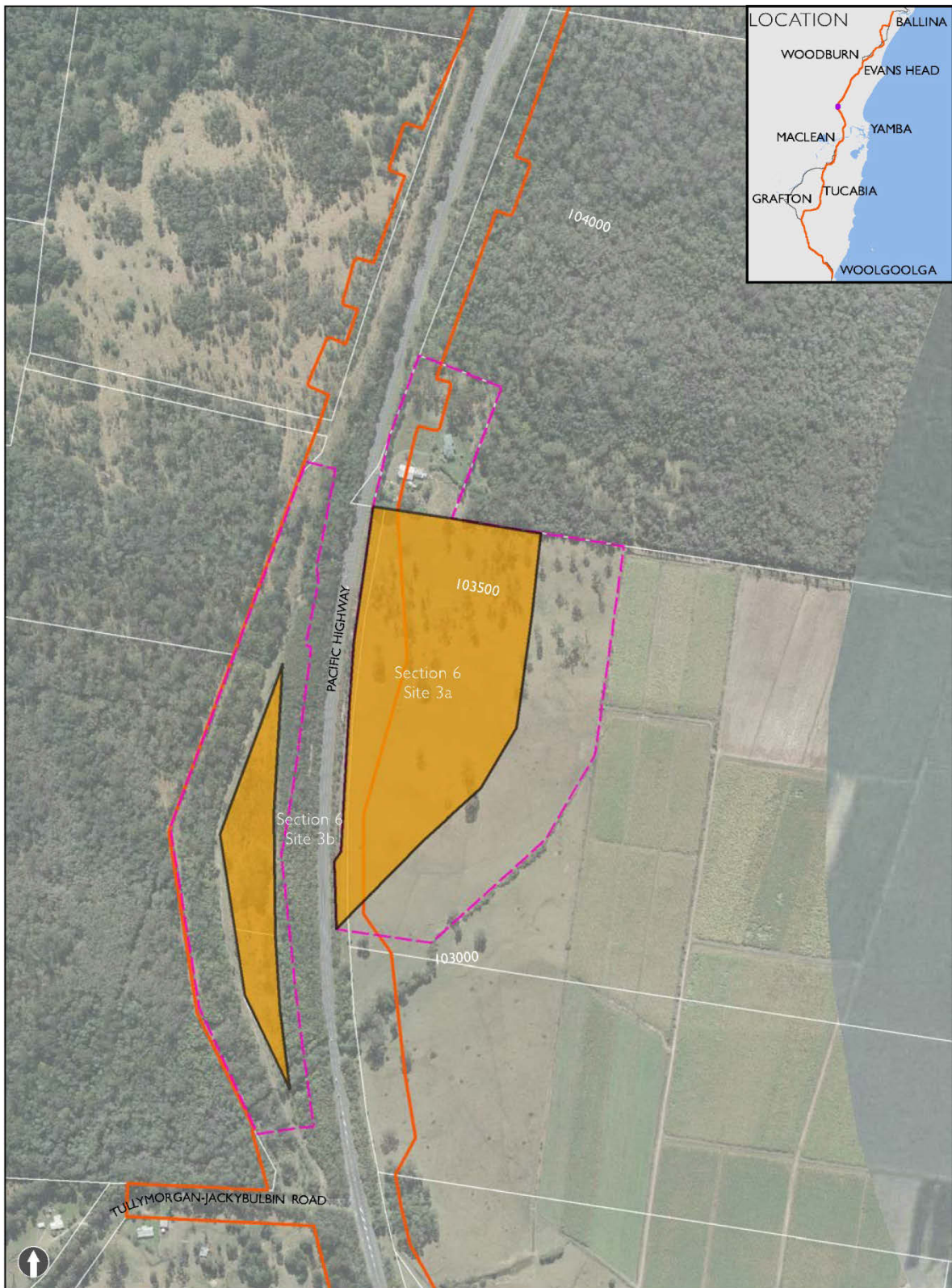


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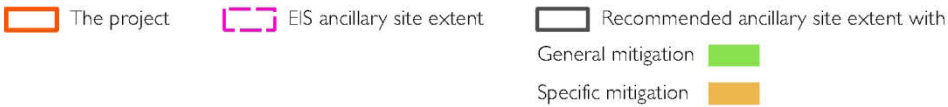
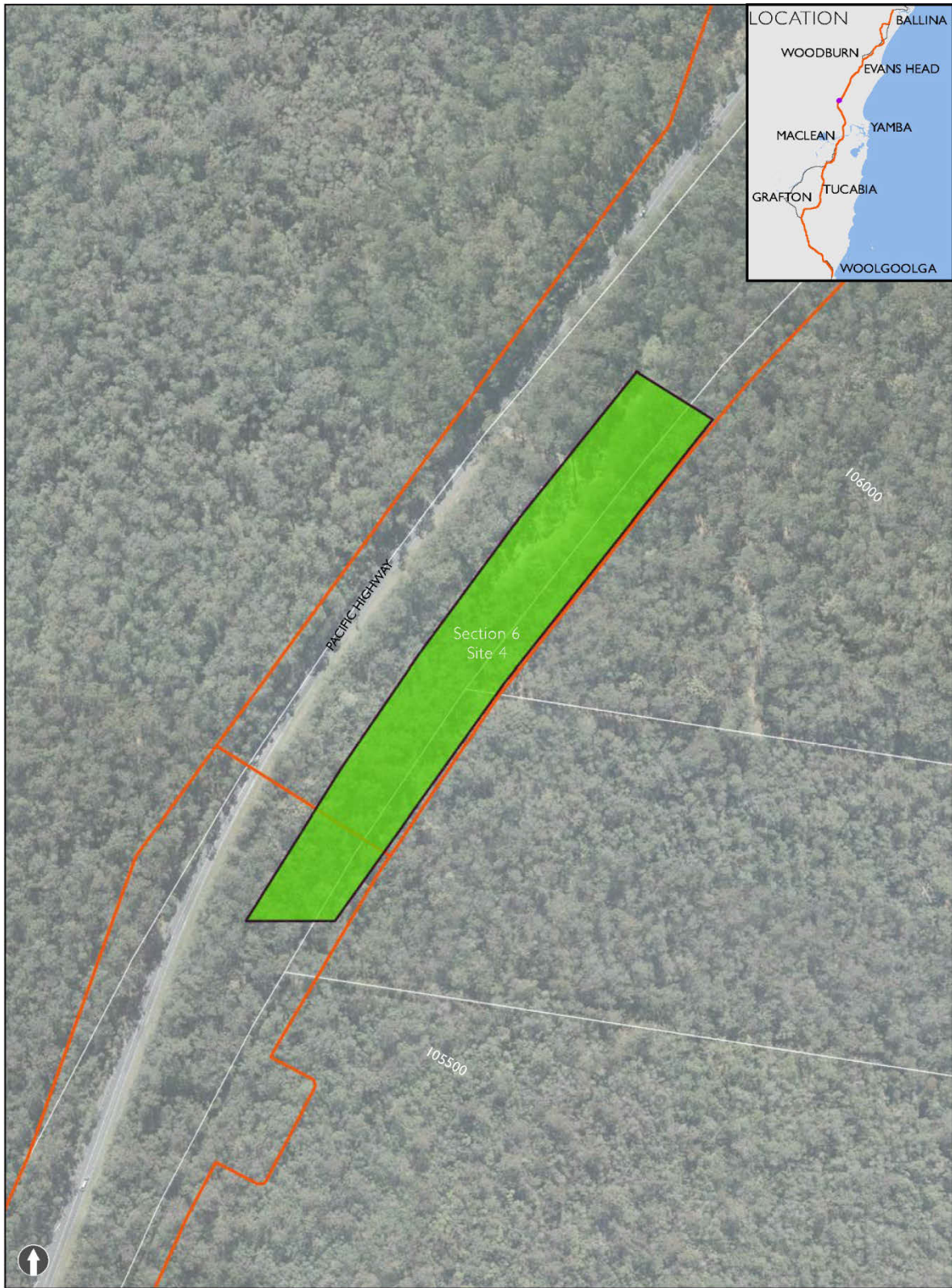


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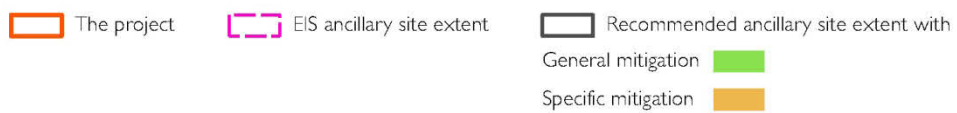
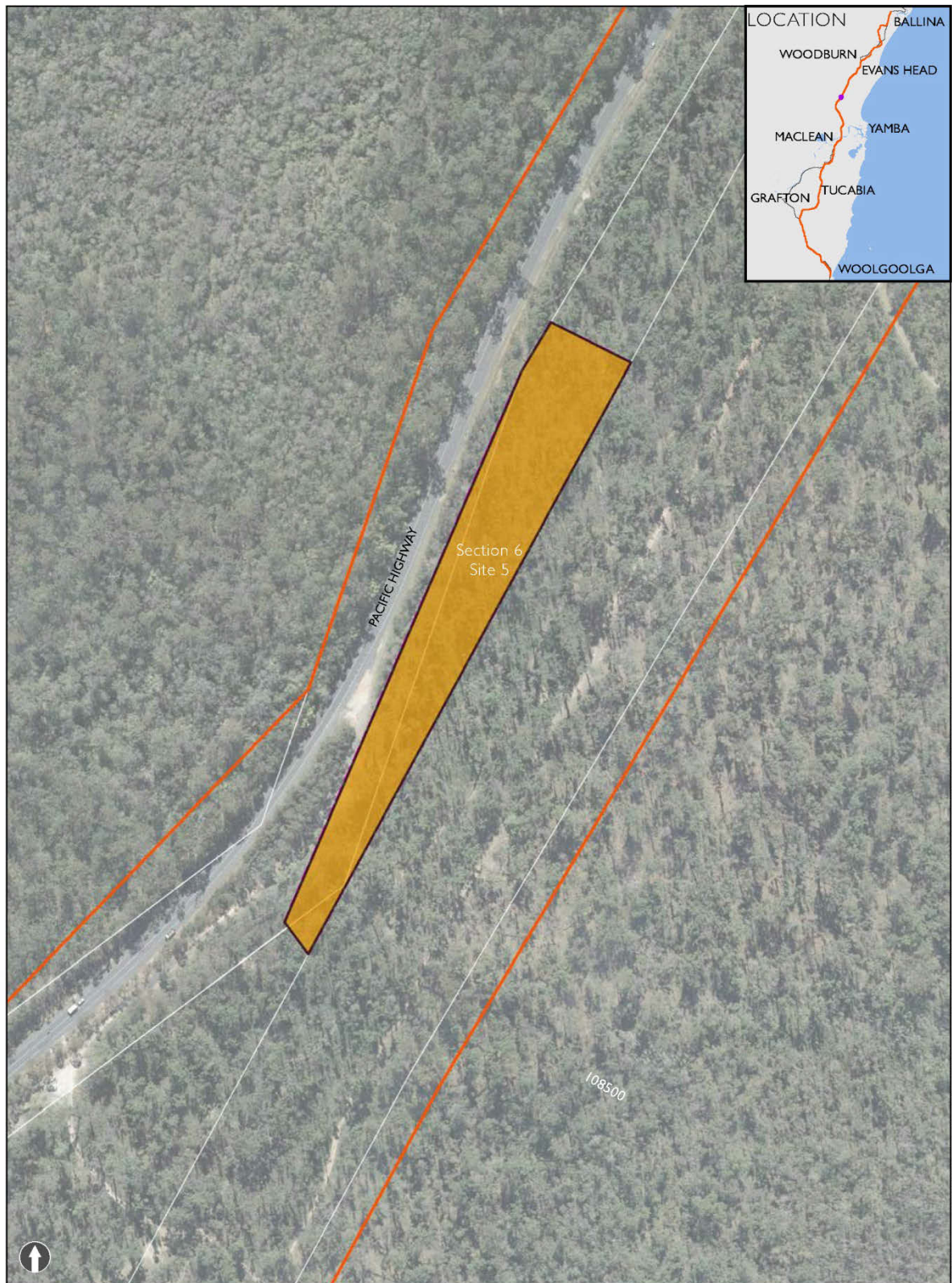


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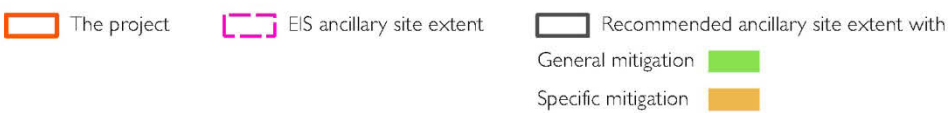
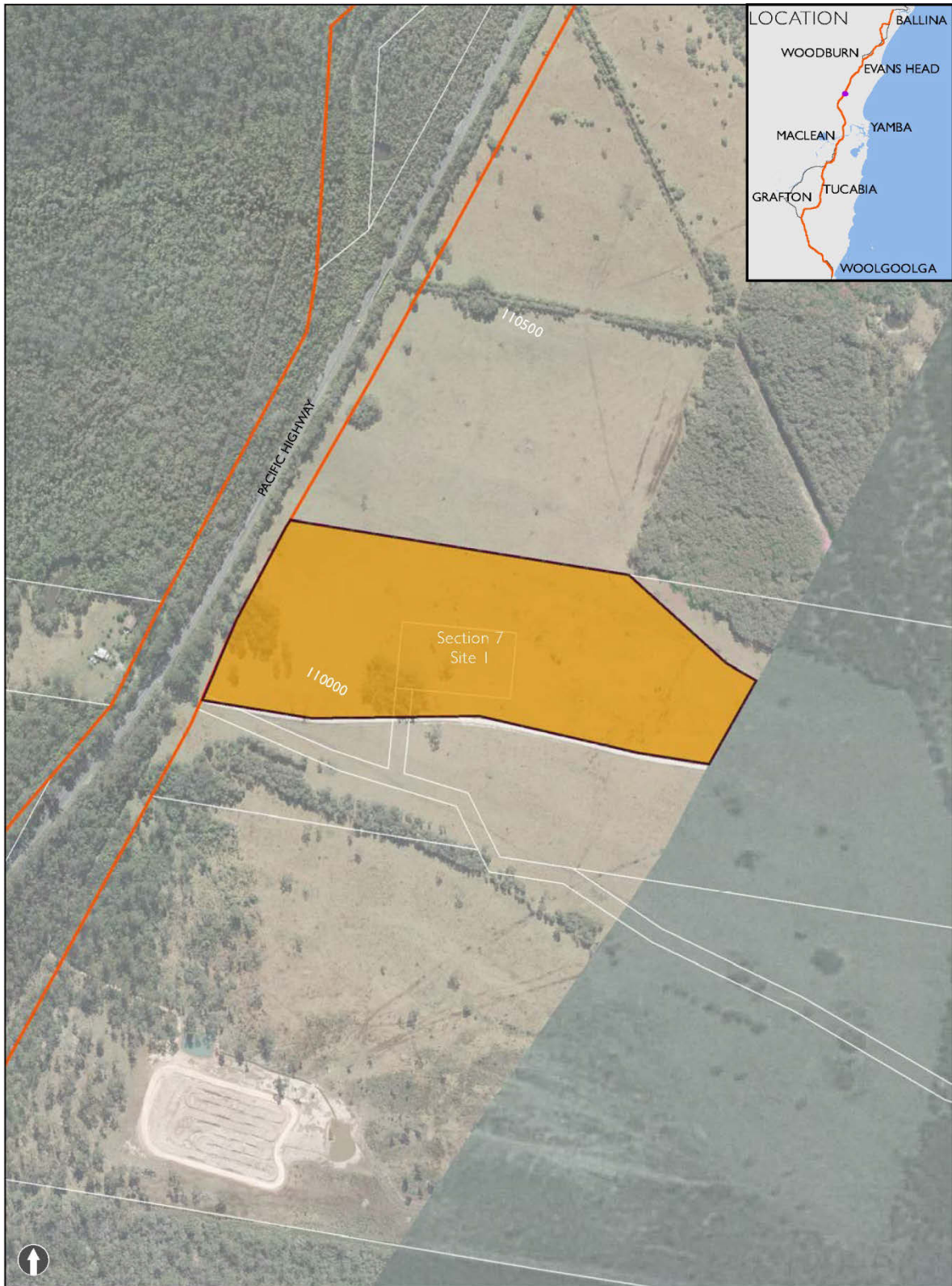


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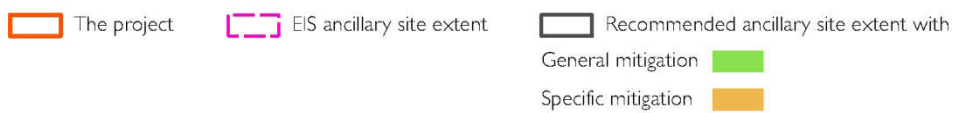
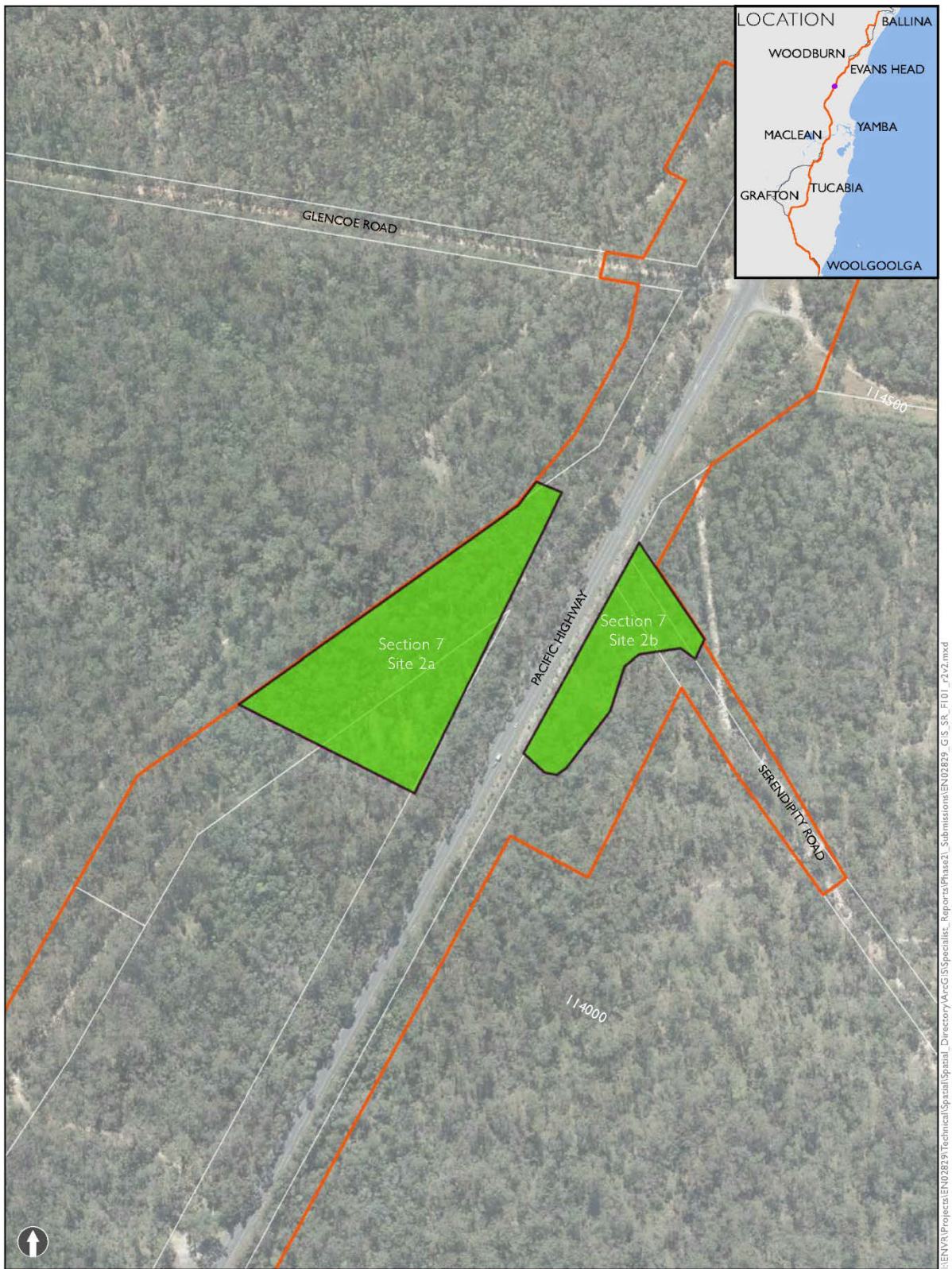


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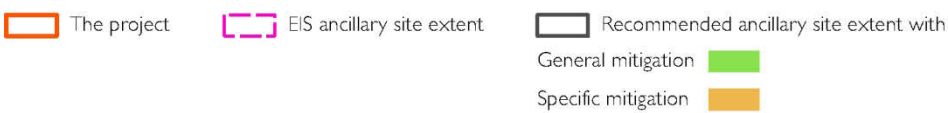
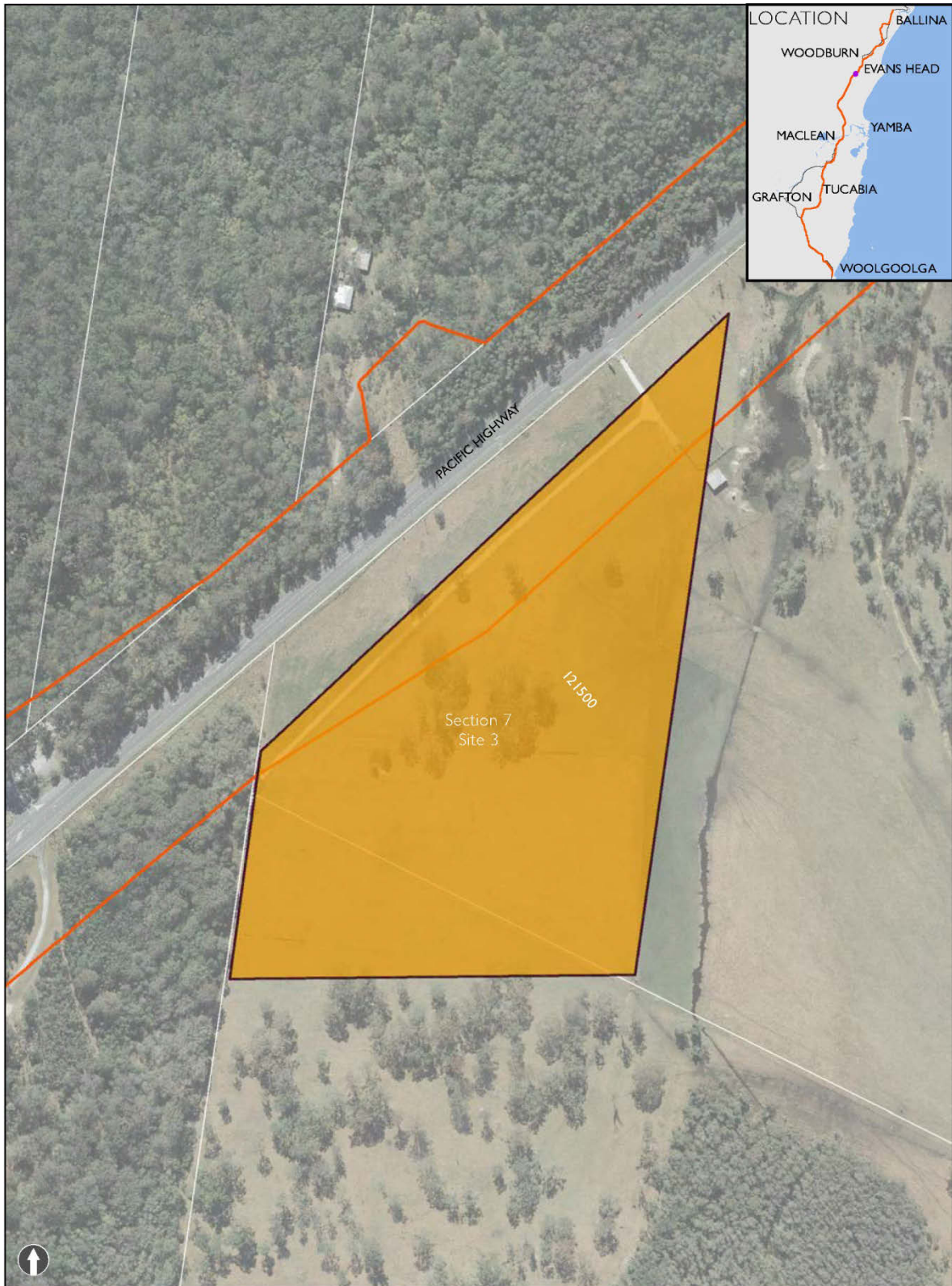
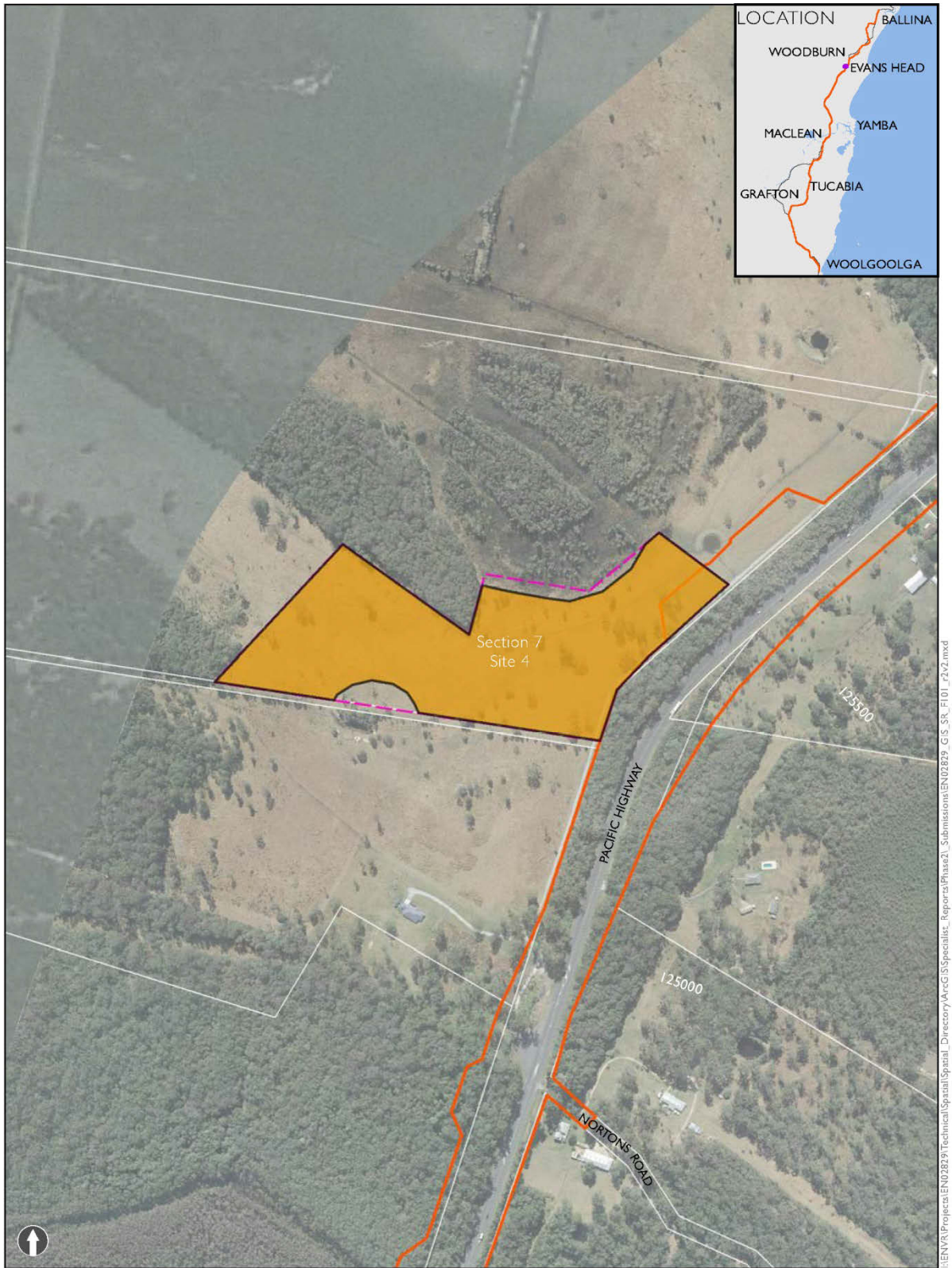


Figure 4-85: Ancillary facility locations – Section 7 site 3



- The project
- EIS ancillary site extent
- Recommended ancillary site extent with
 - General mitigation
 - Specific mitigation

Figure 4-86: Ancillary facility locations – Section 7 site 4

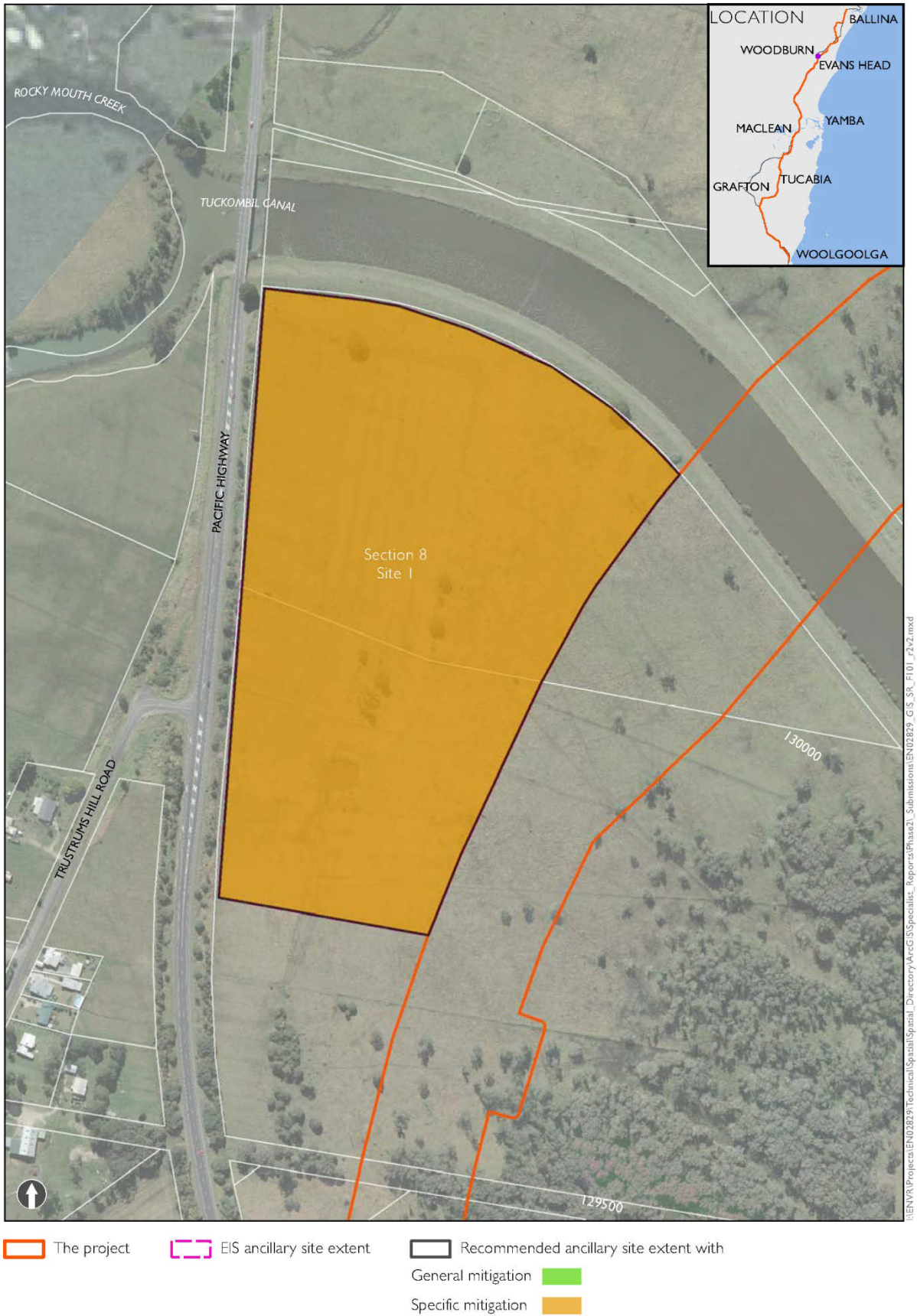


Figure 4-87: Ancillary facility locations – Section 8 site 1

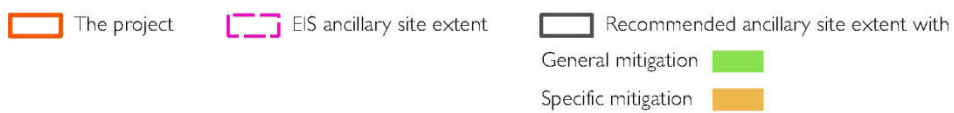
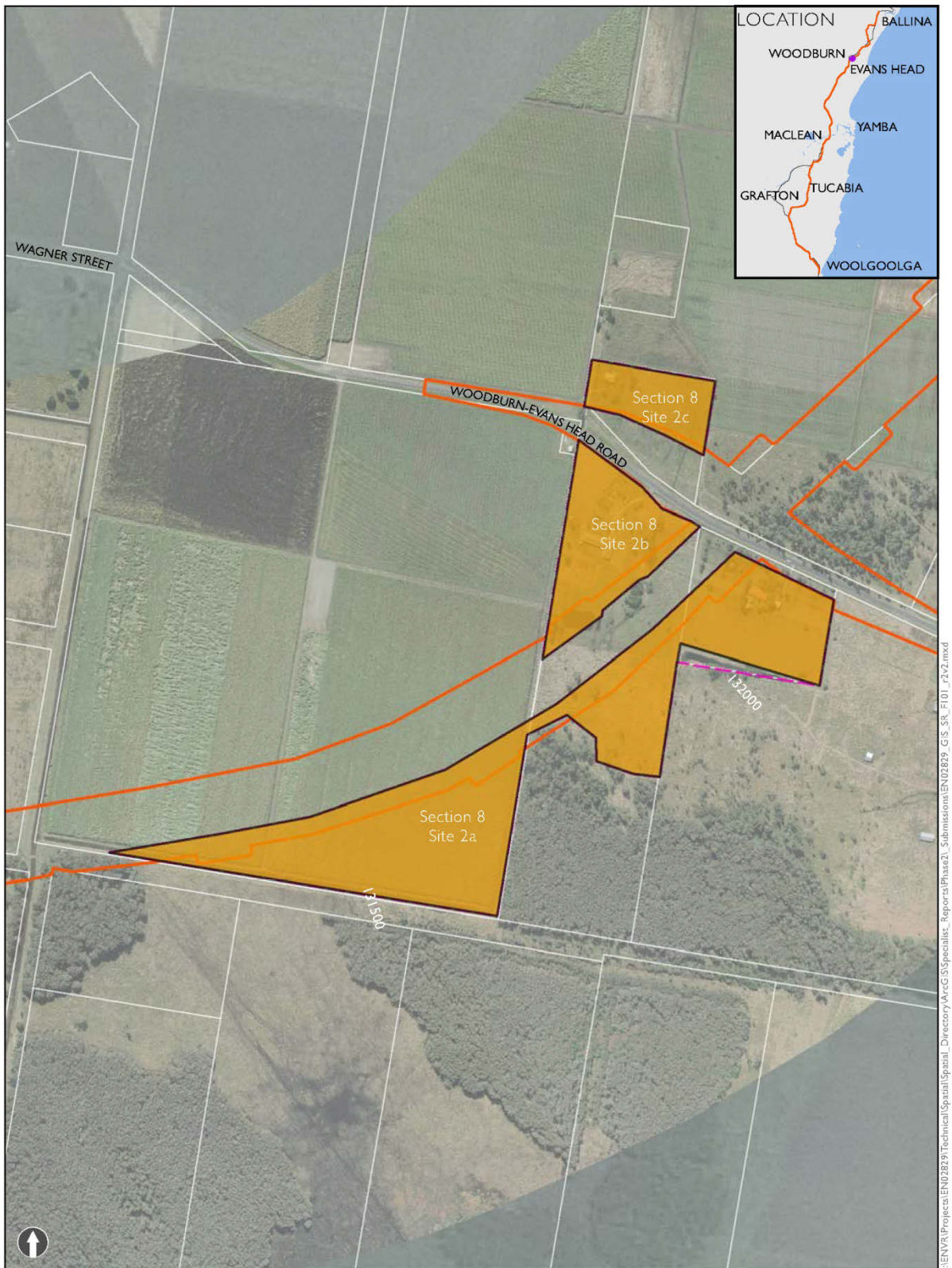
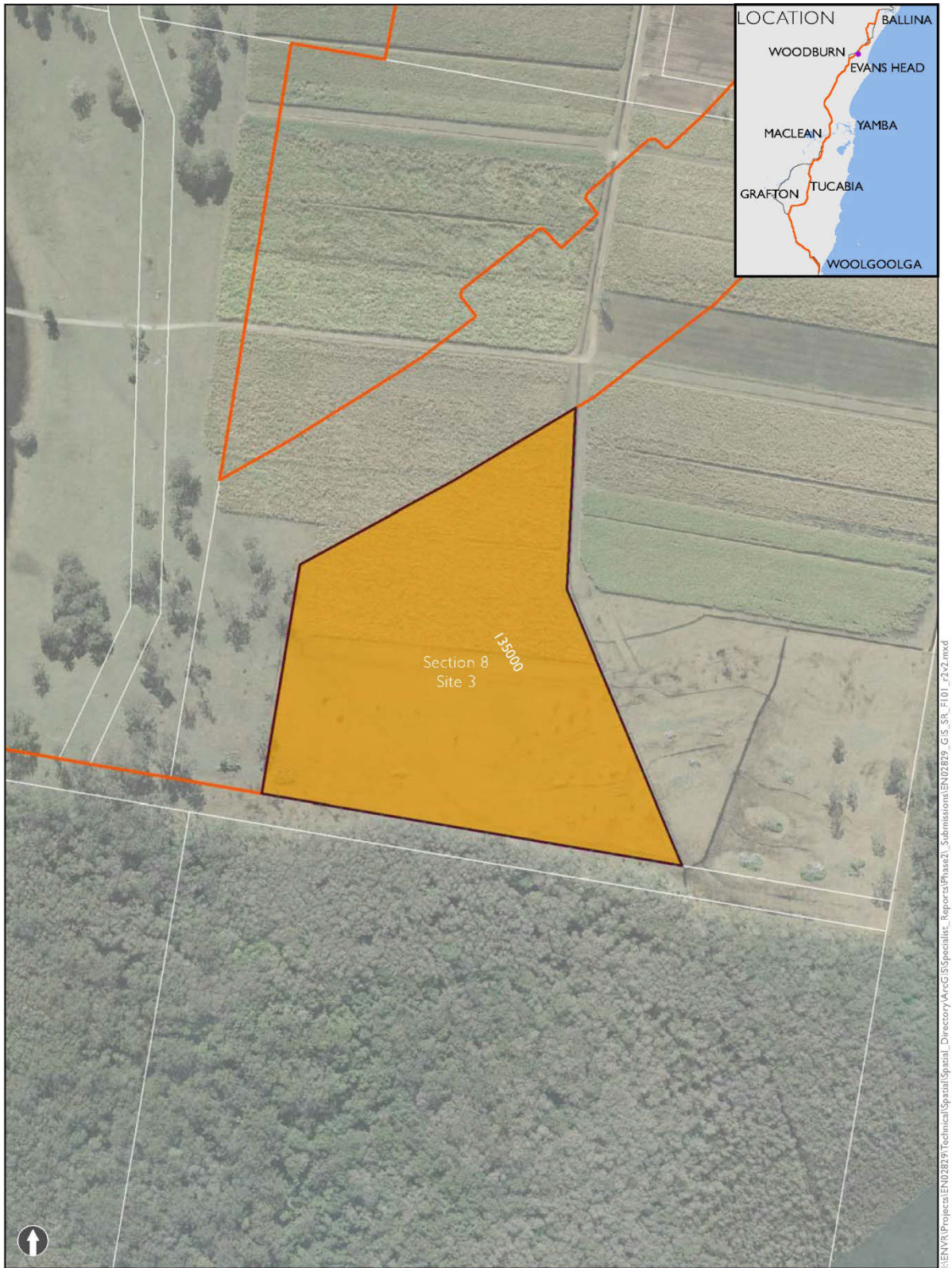


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The project
 EIS ancillary site extent
 Recommended ancillary site extent with
 General mitigation
 Specific mitigation

Figure 4-89: Ancillary facility locations – Section 8 site 3

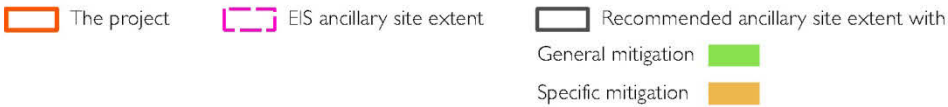
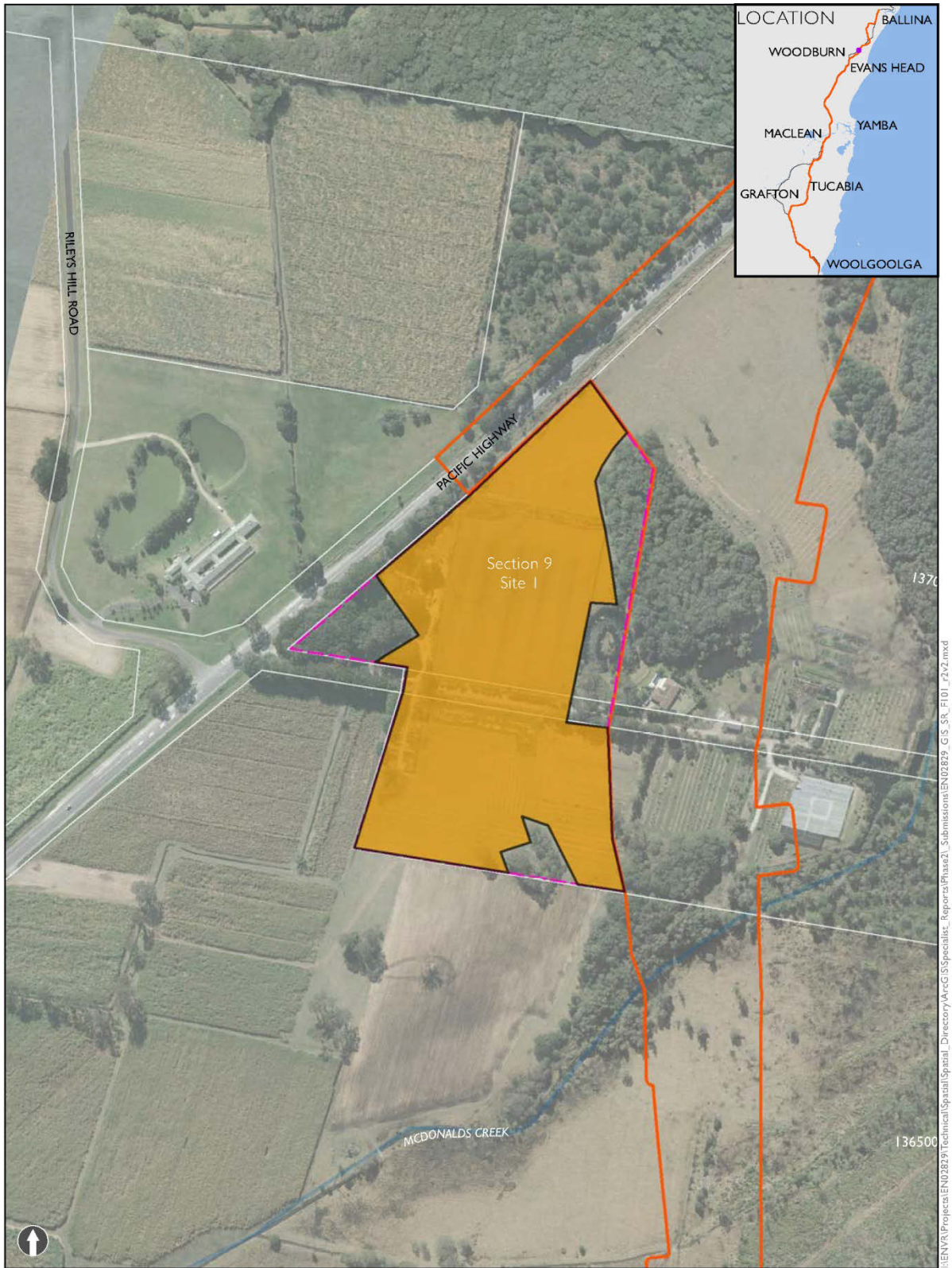


Figure 4-90: Ancillary facility locations – Section 9 site 1

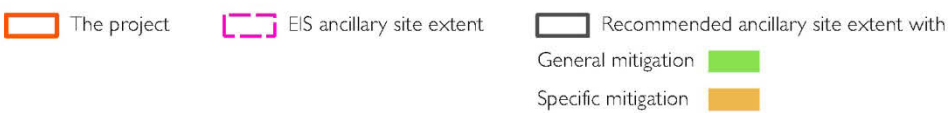
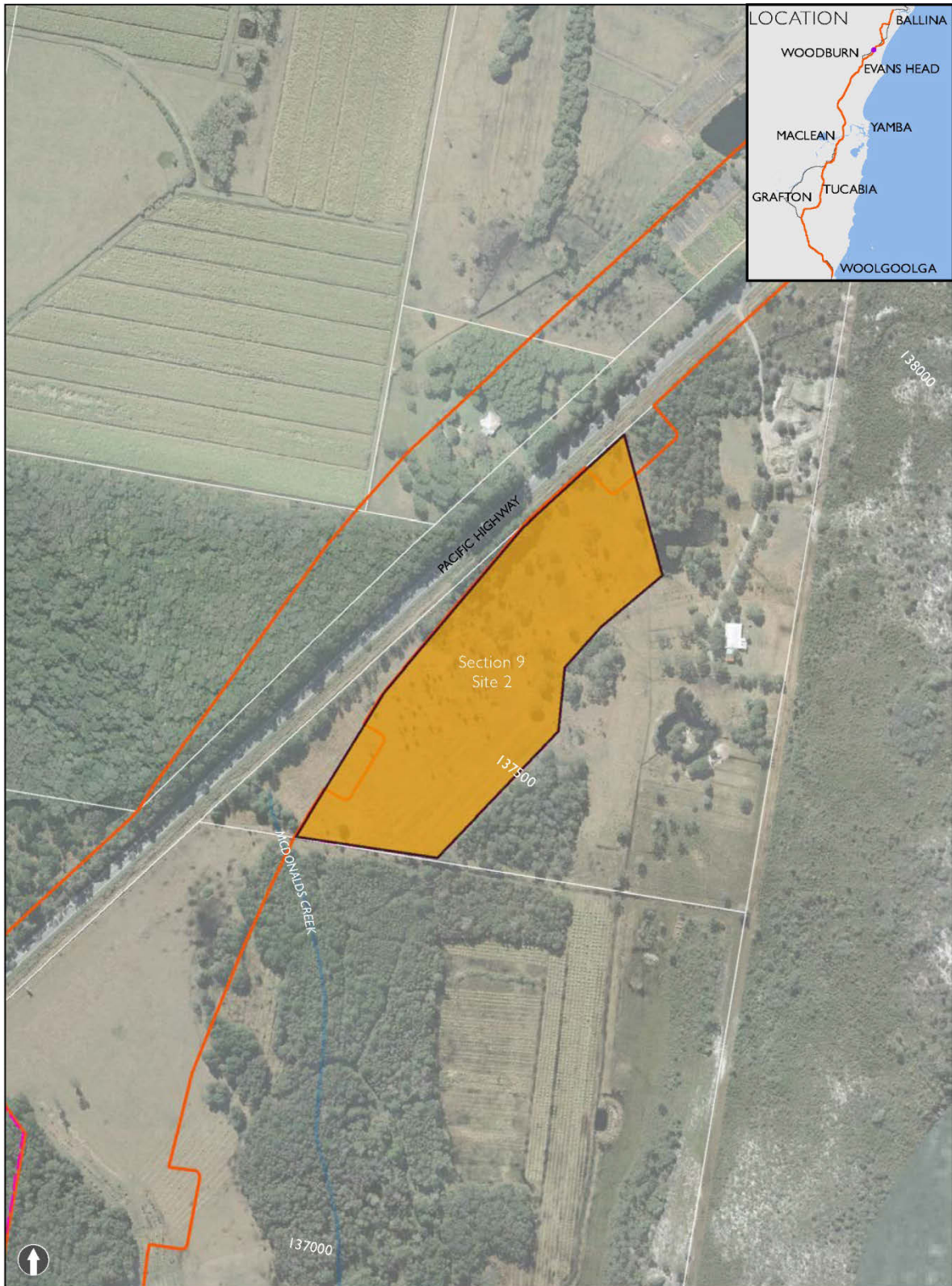


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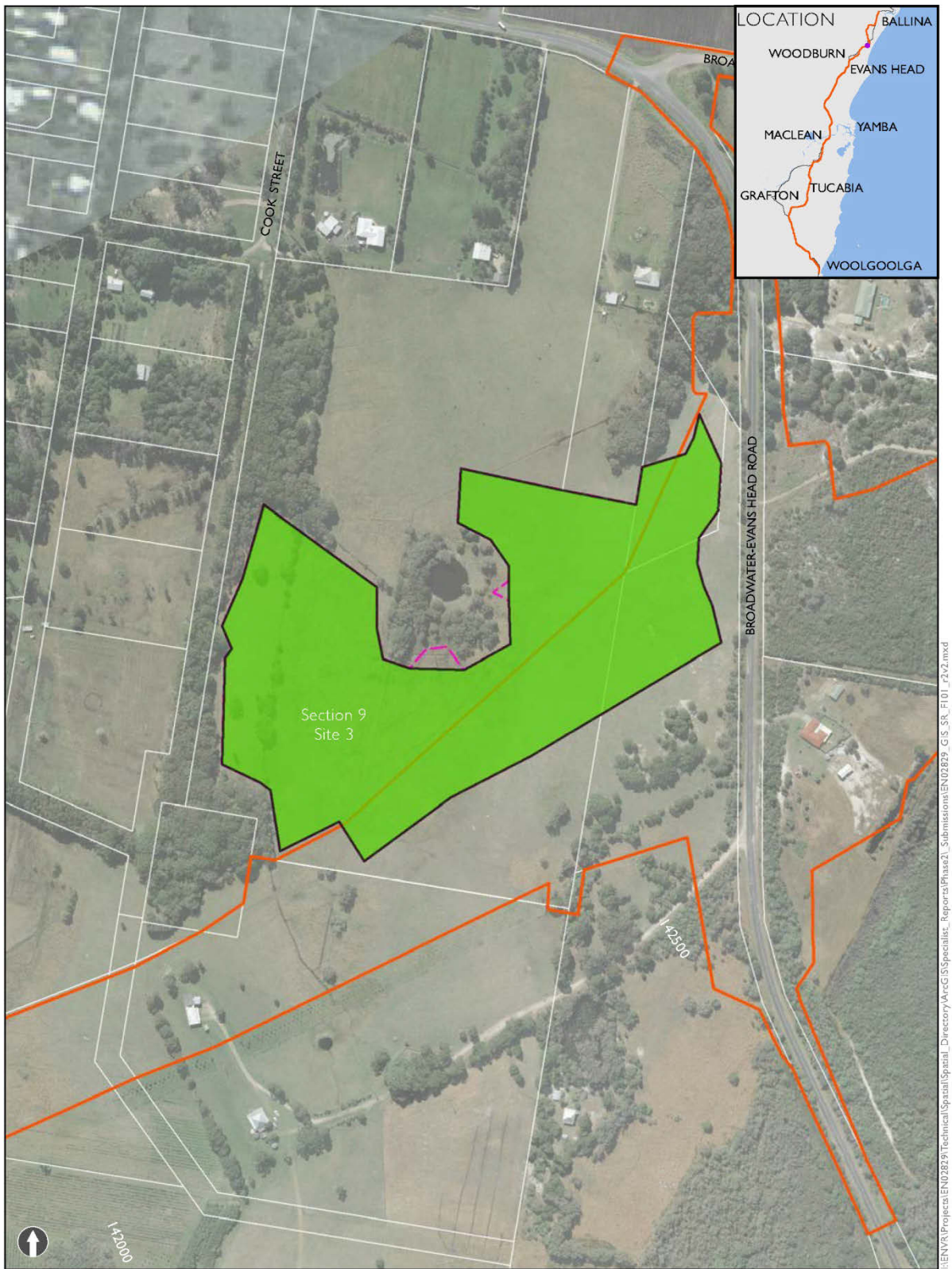


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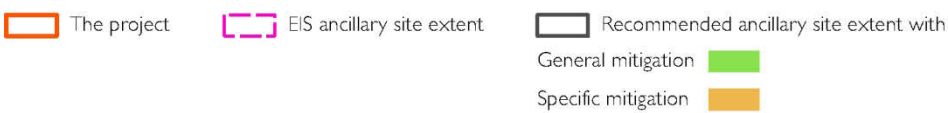


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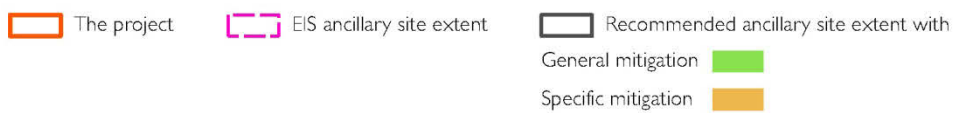
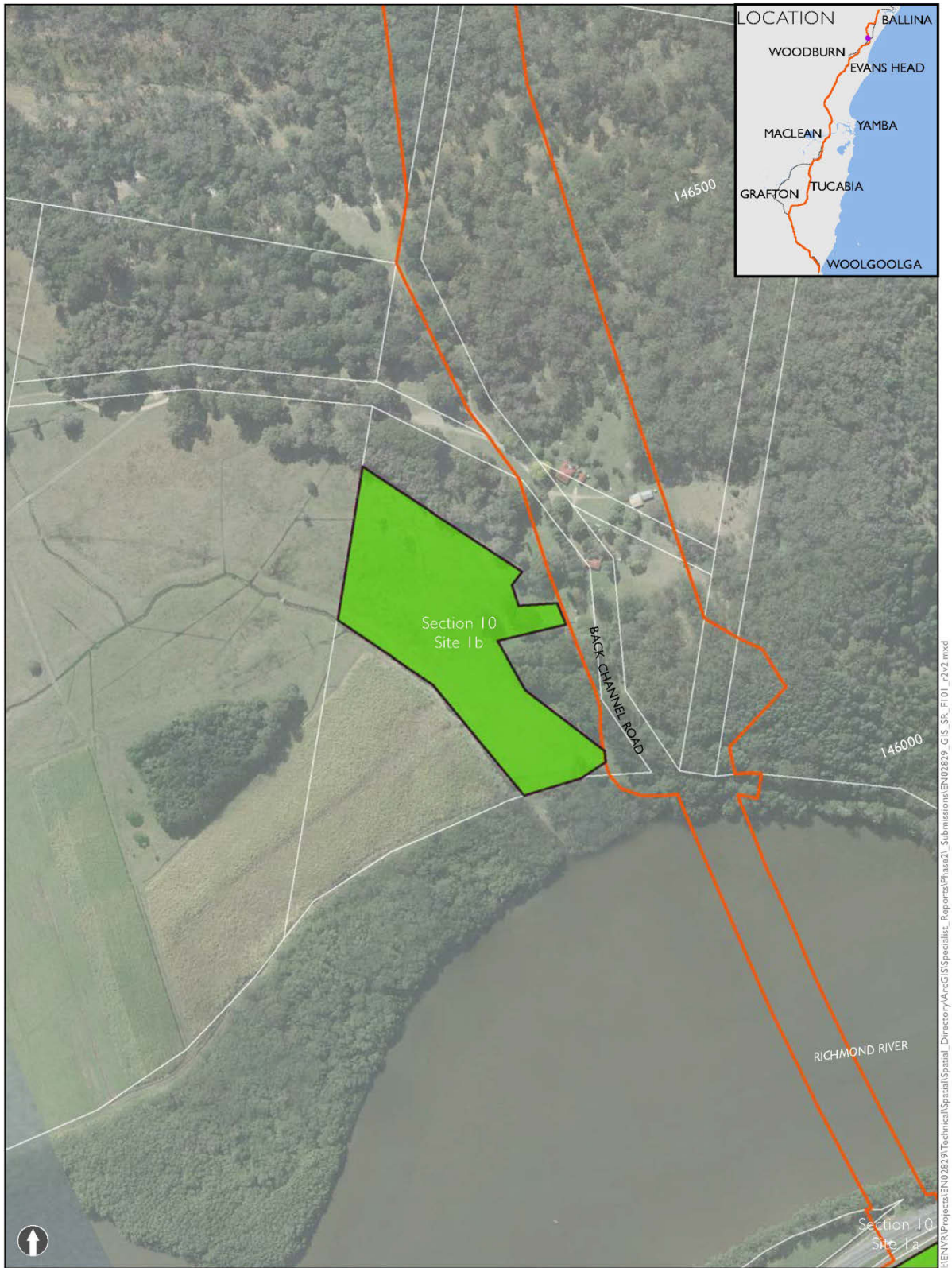


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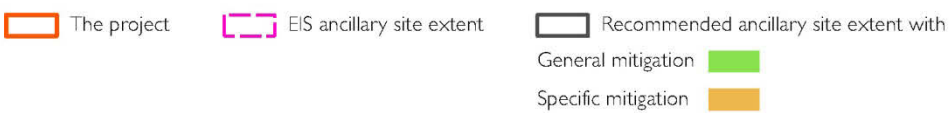
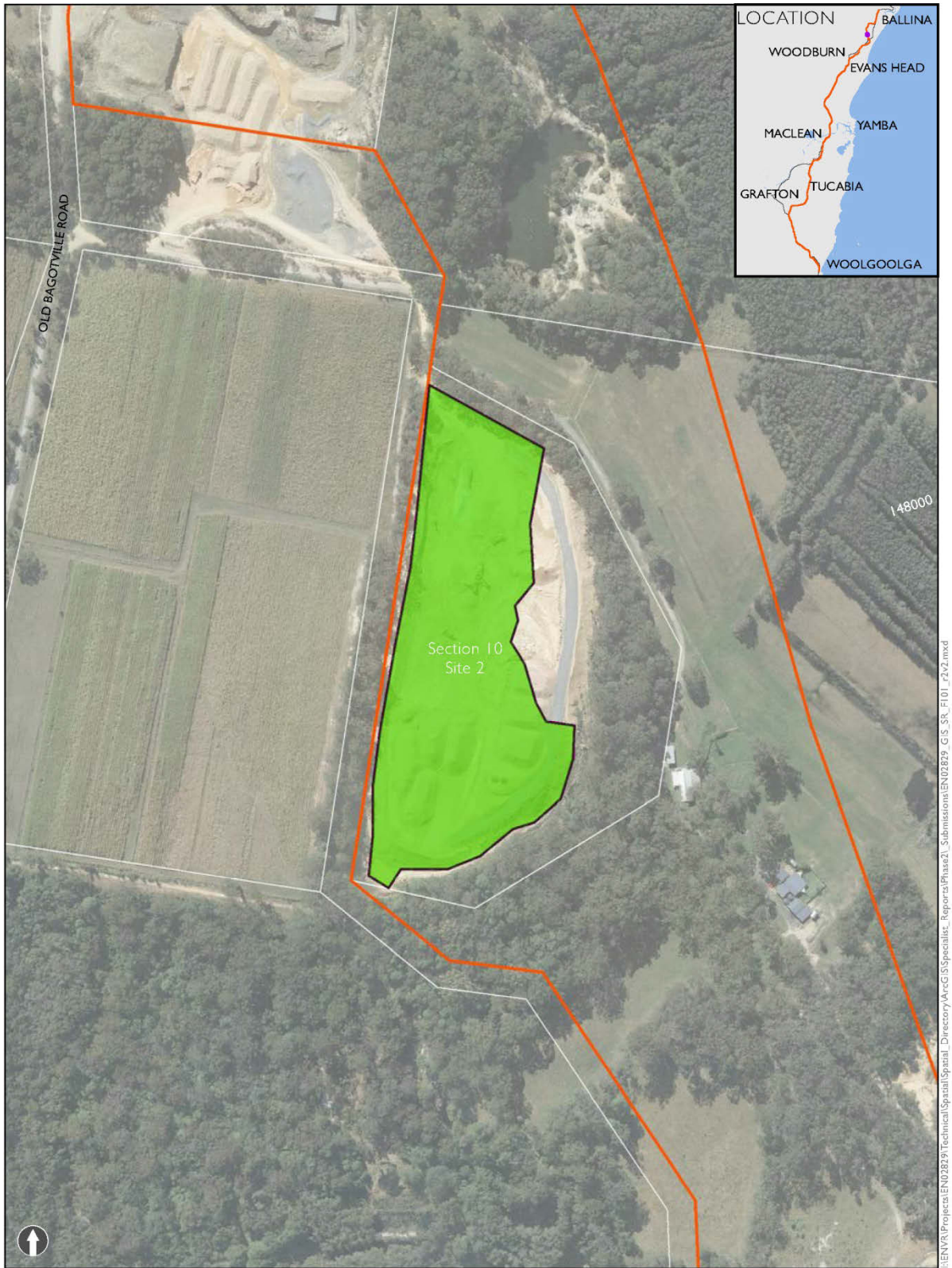


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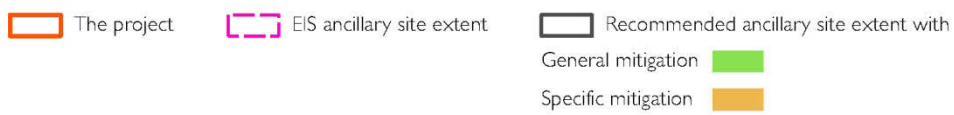
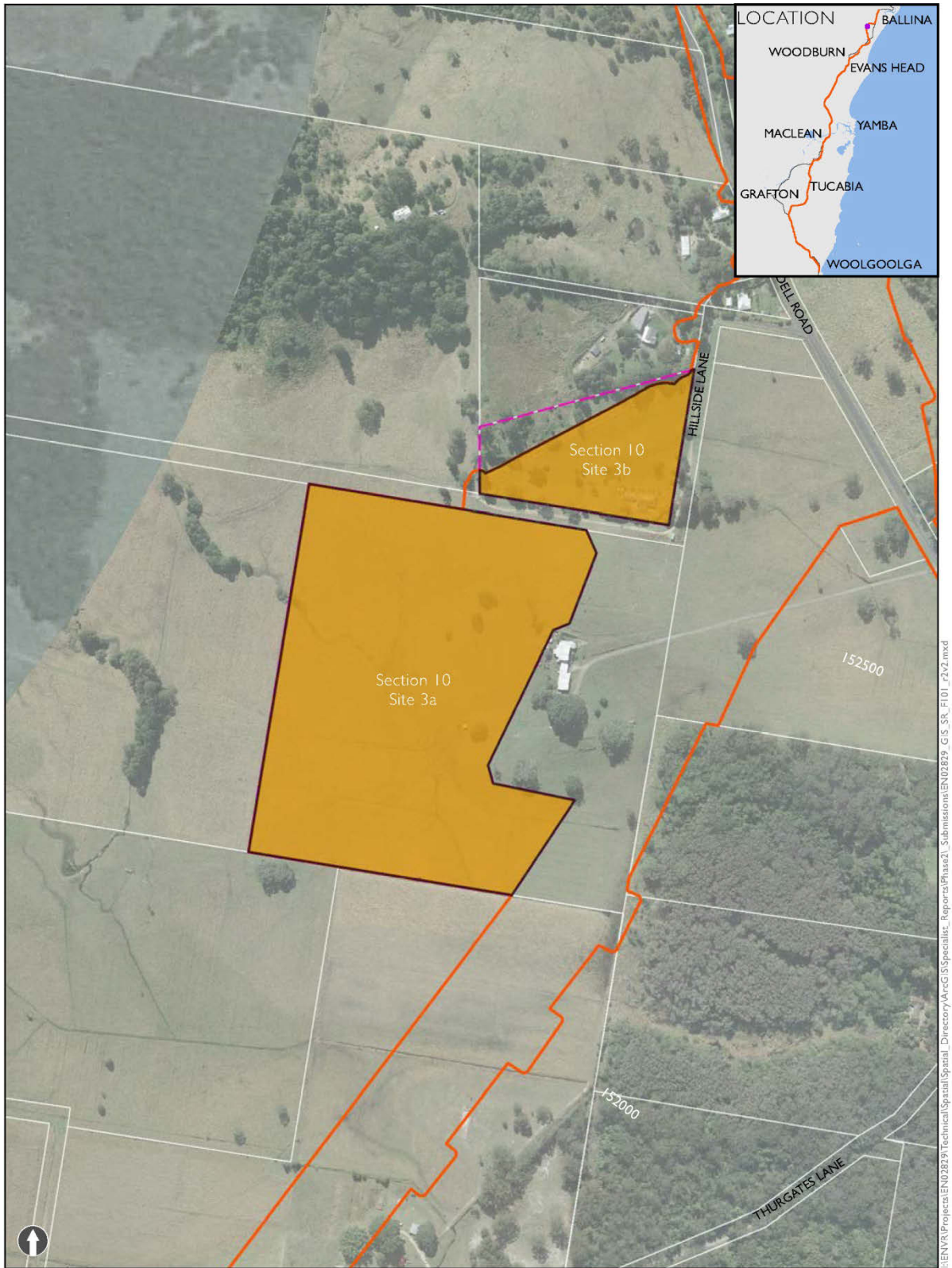


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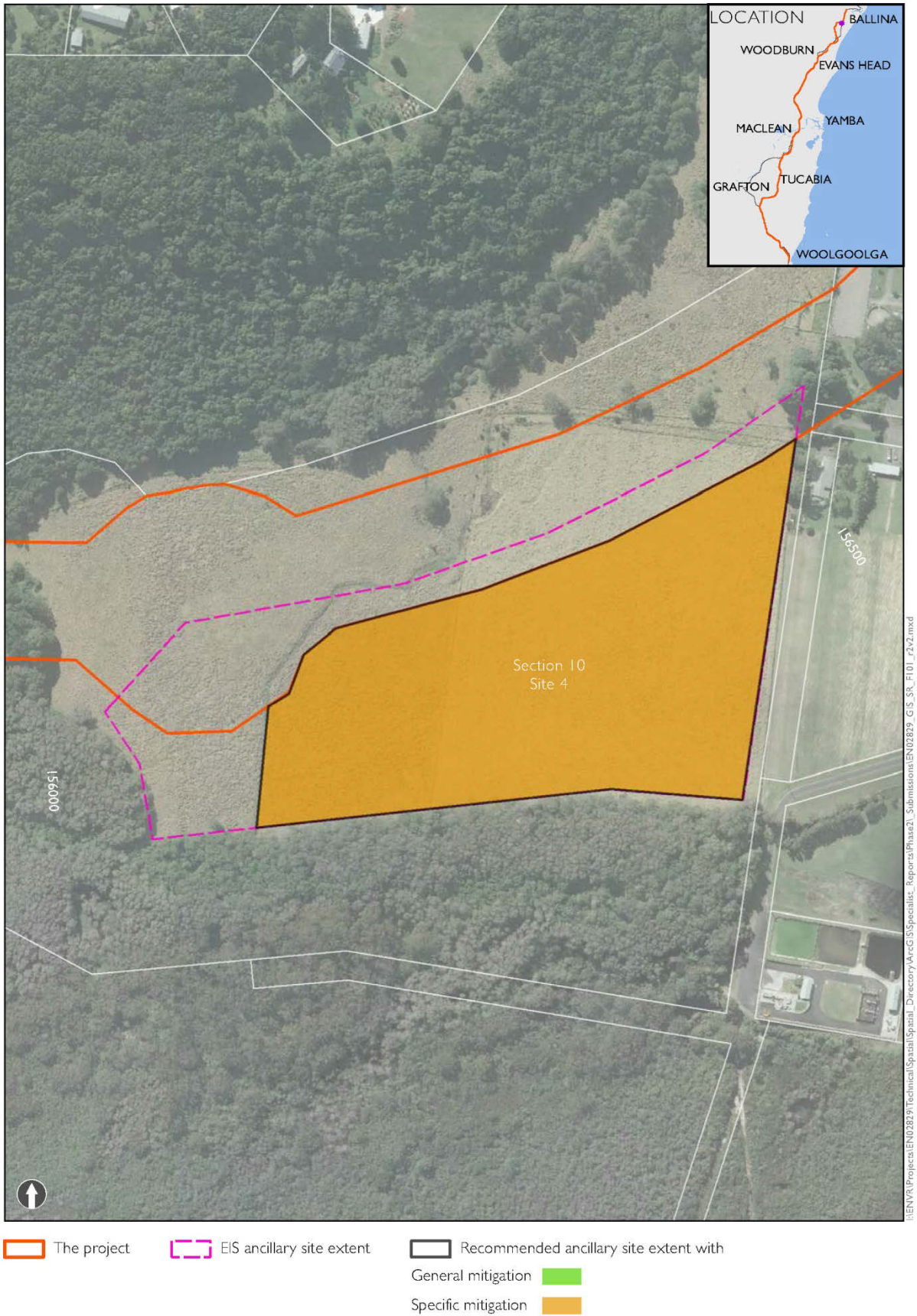


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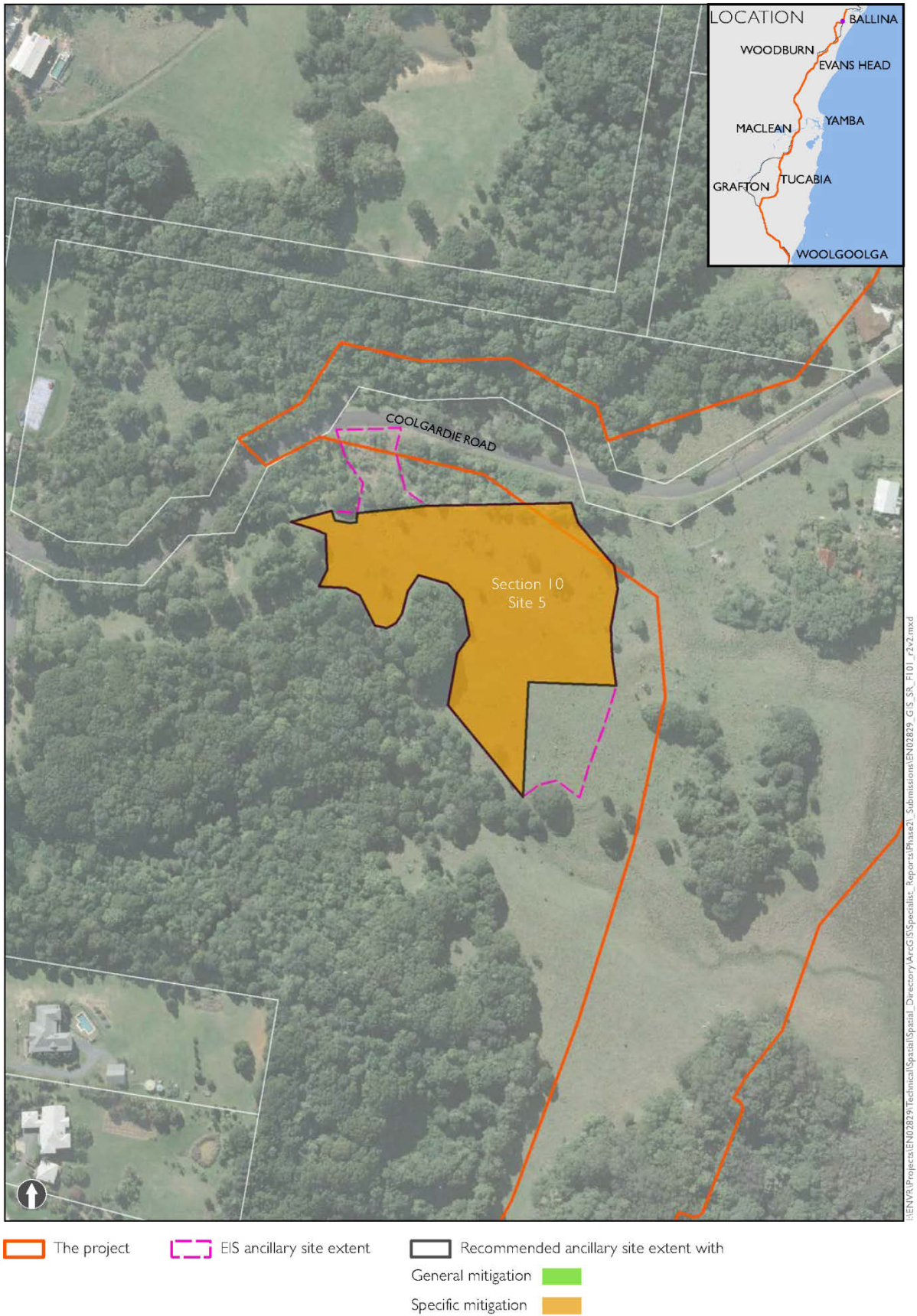


Figure 4-98: Ancillary facility locations – Section 10 site 5

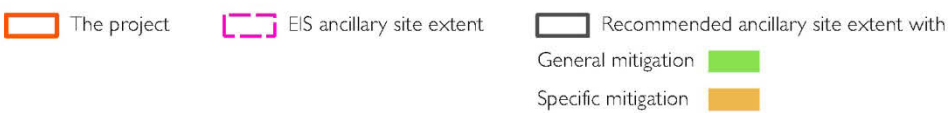
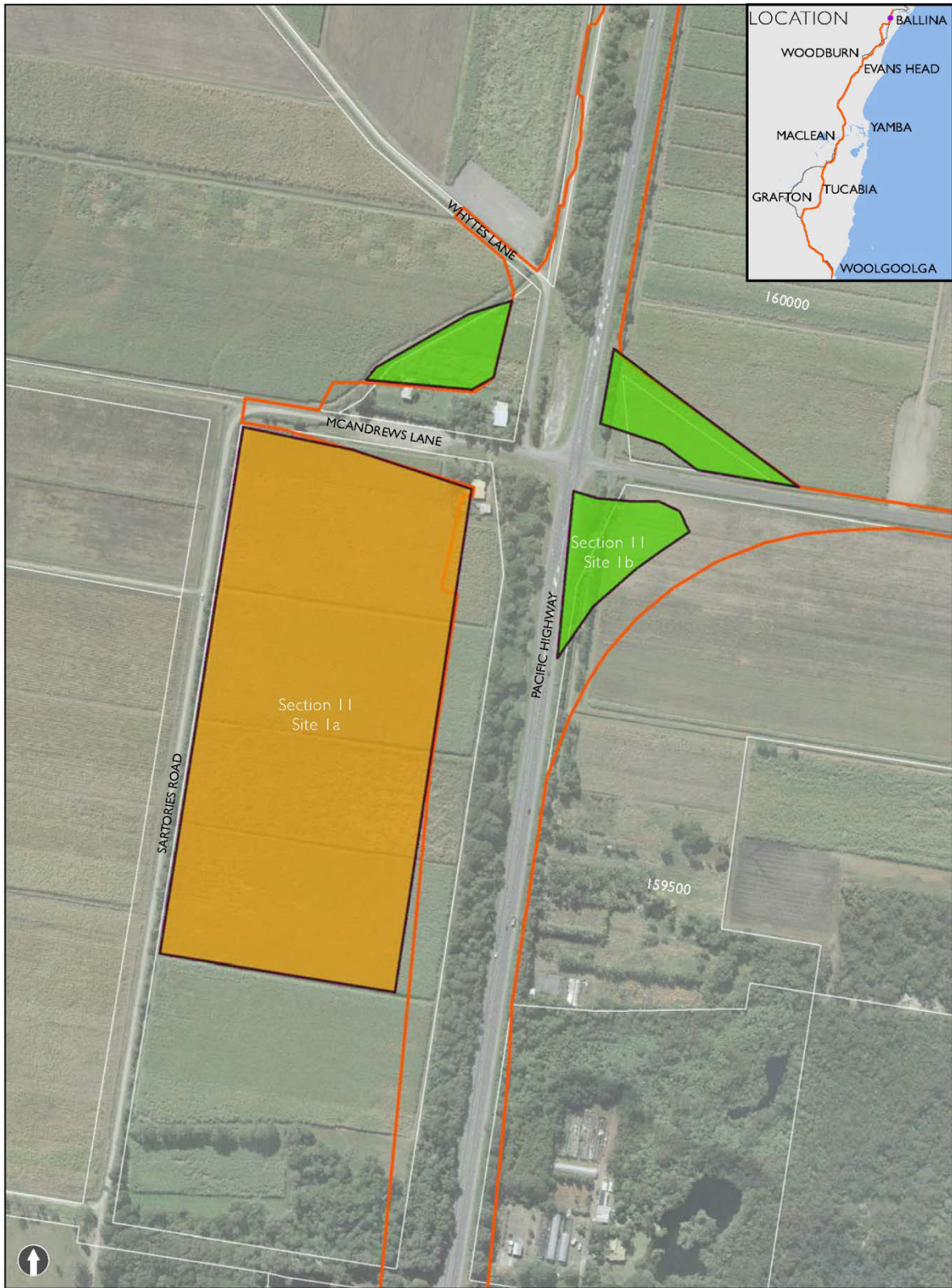


Figure 4-99: Ancillary facility locations – Section 11 sites 1a and 1b

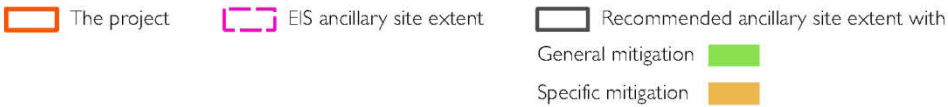
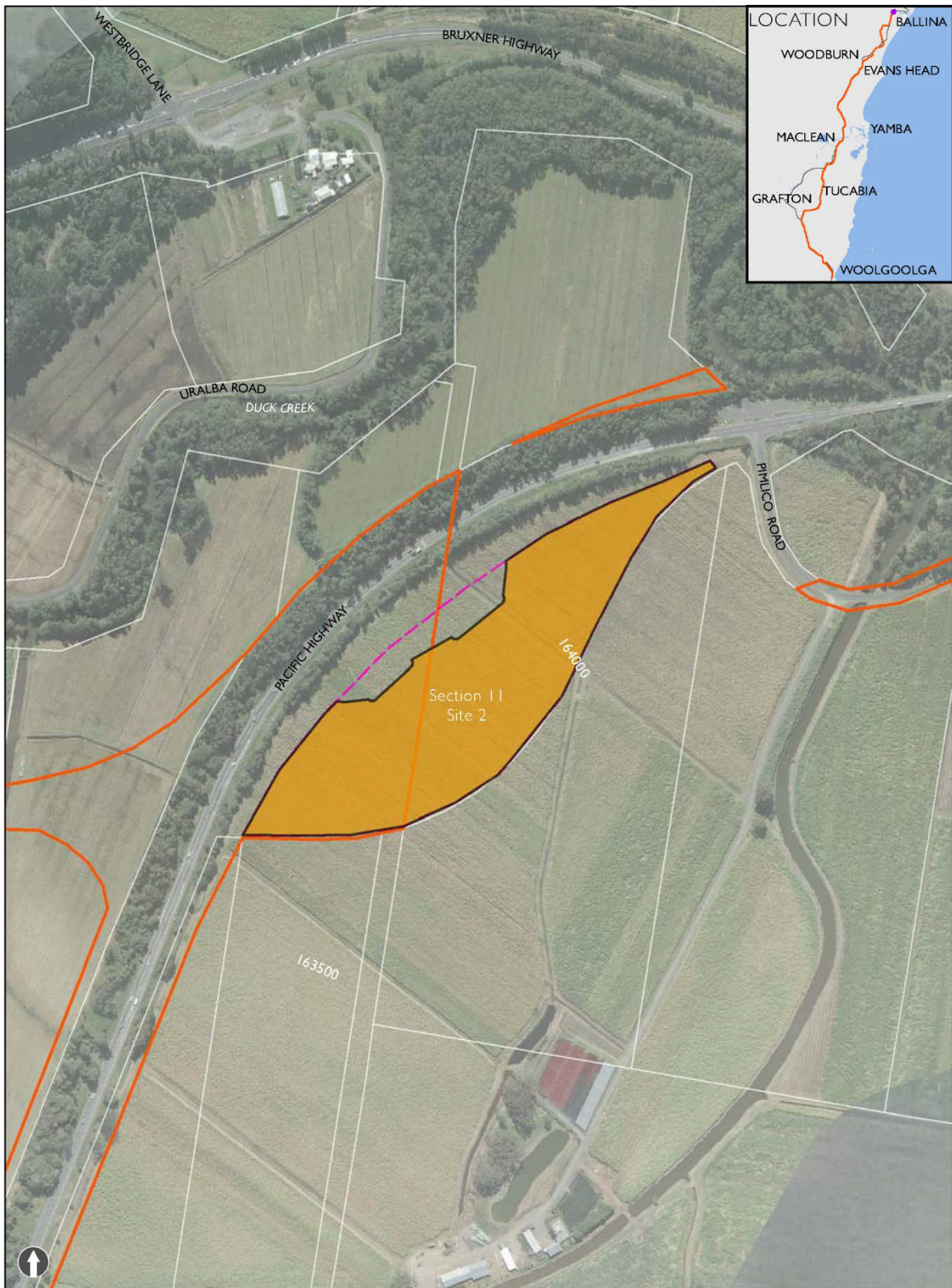


Figure 4-100: Ancillary facility locations – Section 11 site 2

4.5 Minor design refinements

Minor design refinements have been developed to minimise EIS impacts where possible and in response to:

- Consultation with the community during the EIS exhibition period.
- Submissions received during and following the EIS exhibition period.
- Landowner discussions during property acquisition and adjustment.
- Further concept design review of the EIS design.

The minor design refinements are described and assessed in Table 4-69.

These design refinements would not result in additional impacts on EPBC Act listed species and communities.

Table 4-69: Minor design refinements

Description	EIS design	Proposed design refinement	Environmental assessment
Section 1			
Cycle access at Eggins Drive	The design includes the realignment of Eggins Drive along its 1.5 kilometre length and an additional shoulder within the road reserve. This provides the opportunity to extend the cycle path network from Coffs Harbour.	Eggins Drive would be realigned further west to include a dedicated cycleway/shared user path on the eastern side. The path would be at least two metres in width, consistent with the shared user path provided south of Arrawarra Beach Road to the south of the upgrade, provided as part of the Sapphire to Woolgoolga project.	While there would be temporary construction noise, there would be no change to predicted impacts, No additional impacts are anticipated during construction and operation. The project boundary and width of the cycleway/shared user path would be confirmed during detailed design in consultation with Coffs harbour City Council.
Flood immunity at Eggins Drive	The design includes the realignment, widening and resurfacing of Eggins Drive in the upgrade to arterial standard. As part of the ultimate upgrade, Eggins Drive would have a 1 in 20-year flood immunity and become part of the service road network.	The vertical alignment and cross drainage of Eggins Drive would be modified to change the current flood immunity from a 1 in 1 year to a desirable 1 in 100-year level. The final flood immunity level would be confirmed by Roads and Maritime as part of on-going discussions with Coffs Harbour City Council and the community.	The design change would improve flood immunity for users of Eggins Drive, accessing Corindi and Red Rock. This improved flood impact would provide better access for road users during flood events up to a 1 in 100-year level. Depending on the final design at Eggins Drive, an increase in footprint could result in an increase in vegetation clearing. This could include removal of around an additional four hectares of vegetation. No further impacts are anticipated during construction and operation.
Access to Dundoo Reach (station 10.5)	The design would include access to Dundoo Reach (west of the project) at station 10.5.	A concept design review found that the Dundoo Reach access ended short of the actual road location. Dundoo Reach access has been extended around 350 metres north to tie into the existing local road. The access would include two property accesses including refinement to the access at station 10.4. There would be no change to the motorway standard arrangement.	The design refinement would reduce the area of acquisition. Under the ultimate motorway upgrade, access to Dundoo Reach would continue to be via the service road. While there would be temporary construction noise, there would be no change to predicted impacts, No additional impacts are anticipated during construction and operation from the EIS design.
Access to Grays Road, Milleara (station	The arterial upgrade design retains the existing turning arrangements at Grays Road. Under the ultimate motorway upgrade,	Under an upgrade to arterial standard, the intersection with the highway at Grays Road would be modified to provide two right turn lanes. Two dedicated median turning bays would be constructed for a right turn movement about 200	Under the arterial upgrade, the intersection with the highway at Grays Road would be modified to improve functionality. Access to the highway would be restricted under the motorway upgrade. Access arrangements as described in the EIS would continue

Description	EIS design	Proposed design refinement	Environmental assessment
15.6)	the intersection would be closed and Grays Road deviated to the south, crossing over the highway to connect to the service road.	metres from Grays Road to allow safe merging into highway traffic. This design refinement follows further review of the concept design.	to be available via the service road and interchange at Range Road. While there would be temporary construction noise, there would be no change to predicted impacts, Additional clearing would be required in the median to accommodate the turning bays. The design refinement would not affect any area beyond the EIS project boundary and so predicted impacts would be consistent with those described in the EIS.
Section 3			
Local access between Bondi Hill Road and Byrons Lane (station 69.4 to 71.1)	Between station 69.4 and 71.1, the design comprises a new connection between Bondi Hill Road, Tyndale, and Byrons Lane to the south of the upgraded highway to provide property access.	The service road between Byrons Lane and Bondi Hill Road has been removed. Instead, a 3 metre wide property access track would be constructed from Bondi Hill Road to the east of the highway. A 2 metre wide cane drain would pass under the highway at station 70.0. A 3.5 metre wide cane drain would be constructed to the west of the northbound carriageway between station 69.7 and station 70.5. This design refinement responds to landowner consultation.	This design refinement would assist in minimising disruption to land use, particularly cane farming operations, drainage and related vehicle movements. Local property access would be refined by improving the geometry and access into a property east of the upgrade at station 69.6. While there would be temporary construction noise, there would be no change to predicted impacts, This refinement would reduce the project boundary and reduce property acquisition by 3.1 hectares. The impacts of this design refinement would be consistent with the impacts and mitigation described in the EIS. No additional impacts are anticipated during construction and operation from the EIS design.
Section 5			
Access at interchange at Watts Lane (station 87.8)	In the arterial standard, the EIS design did not include through access from Watts Lane north to the property access road and Serpentine Channel Road South. As part of the ultimate motorway upgrade, the design comprises an access road to connect Watts Lane with Serpentine Channel Road South.	The access road from Watts Lane to Serpentine Channel Road South would be delivered as part of the initial arterial upgrade, rather than the ultimate motorway upgrade. This design refinement responds to landowner consultation, and consultation with Harwood Mill and Refinery.	As this design refinement would be provided as part of the arterial upgrade, it would provide a direct connection between Harwood Mill and Serpentine Channel Road South, earlier than anticipated in the EIS. This would provide improved local access and access to the mill for cane farms on Harwood Island. The impacts of this design refinement would be consistent with the impacts and mitigation described in the EIS. No additional impacts are anticipated during construction and operation.

Description	EIS design	Proposed design refinement	Environmental assessment
Section 6			
Property access under a motorway upgrade (station 95.9 to 97.2)	No property access is provided east of the highway north of Iluka Road and south of Mororo Road.	<p>A recent subdivision has resulted in four properties potentially becoming landlocked under the motorway upgrade. An extension of a property access road up the eastern side of the upgrade from station 95.9 to 97.2 has been included to provide property access from Iluka Road.</p> <p>In the arterial upgrade standard, property access would be via the U-turn opportunity at station 97.0 and the interchange at Iluka Road, Woombah.</p> <p>This design refinement is in response to consultation with the landowner and Submission 043.</p>	<p>Property access to the east of the highway would be improved through the construction of a property access road north of Iluka Road.</p> <p>The design refinement would remain within the EIS project boundary and no further impacts are anticipated.</p>
Section 7			
Local access at Whites Road, Redgate Road and Turners Road (station 122.9), New Italy	<p>In the interim arterial upgrade, Whites Road would be deviated to the west to a left-in, right-in and left-out intersection with the highway.</p> <p>In the ultimate motorway upgrade, the Whites Road intersection would be removed. Whites Road would connect to Swan Bay New Italy Road via an access road on the western side of the upgrade.</p> <p>In the interim arterial upgrade, Redgate Road and Turners Road would maintain their existing intersections with the Pacific Highway. Access onto the upgraded highway would be via a left-in, left-out intersection to the north.</p> <p>In the ultimate motorway upgrade, the intersections at Redgate Road and Turners Road would be removed and the roads would connect directly to the service road on the eastern side of the</p>	<p>Under the interim arterial upgrade, access would be provided at station 122.8 to the north to provide a connection to Whites Road. At station 123.0, an access would be provided to the south for access to Redgate Road. The access would be designed to cater for oversized vehicles.</p> <p>Under the ultimate motorway upgrade, access arrangements would remain unchanged.</p> <p>This design refinement responds to landowner consultation.</p>	<p>The design refinement would allow access across the highway. This would improve local access to Whites Road, Redgate Road and Turner Road.</p> <p>No additional impacts are anticipated during construction and operation from the EIS design.</p>

Description	EIS design	Proposed design refinement	Environmental assessment
	upgrade.		
Section 9			
Truck access to MacDonald Street, and Broadwater interchange (station 143.3)	The design includes an alteration to Macdonald Street to the west of the proposed upgrade to cater for heavy vehicles. However, the project boundary allows for modifications to access at Broadwater to enable B-double access from Broadwater Mill via Macdonald Street to the interchange at Broadwater.	<p>There is no current design refinement proposed at this location.</p> <p>Three potential options are available and would be considered further in consultation with Broadwater Mill. Alternate access would be confirmed during detailed design.</p> <p>This proposal responds to Submission 053.</p>	<p>Providing additional access at this location would improve connectivity for B-double trucks using Macdonald Street, travelling between the mill and molasses plant.</p> <p>At this stage, no additional impacts are anticipated during construction and operation. A Consistency Assessment would be completed during detailed design in consultation with Department of Planning and Infrastructure to further assess potential environmental impacts. Alternatively, a modification to the project approval would be sought by Roads and Maritime.</p>
Project boundary at property south of Richmond River (station 144.7)	The design required the acquisition of 17.86 hectares of property to provide a wide boundary to allow a temporary tie-in to the existing highway should Section 9 be built ahead of the bridge crossing of the Richmond River.	<p>The project boundary has been adjusted to acquire only that land required for the highway upgrade and not the temporary tie-in.</p> <p>This design refinement responds to landowner consultation.</p>	<p>The design refinement would reduce the project boundary.</p> <p>While there would be temporary construction noise, there would be no change to predicted impacts, To minimise land use and property impacts, the project boundary has been narrowed to reduce the required acquisition from 17.86 to 10 hectares. As well as reducing property acquisition, it would also reduce impact on sugar cane. No additional impacts are anticipated during construction and operation beyond those described in the EIS.</p>
Section 11			
Boundary at Whytes Lane to Pimlico Road (station 160.0 to 162.7)	The design between Whytes Lane and Pimlico Road included a realignment of local access and widening of the existing highway.	<p>The project boundary has been adjusted to avoid direct impact on several cane drains and reduce acquisition to the west of the project.</p> <p>This design refinement responds to landowner consultation.</p>	<p>This design refinement was developed in consultation with property owners who wished to reduce property acquisition and farm and cane drain impacts. Acquisition would reduce by around 4.97 hectares from 6.44 hectares to 1.47 hectares.</p> <p>No additional impacts are anticipated during construction and operation beyond those described in the EIS.</p>