

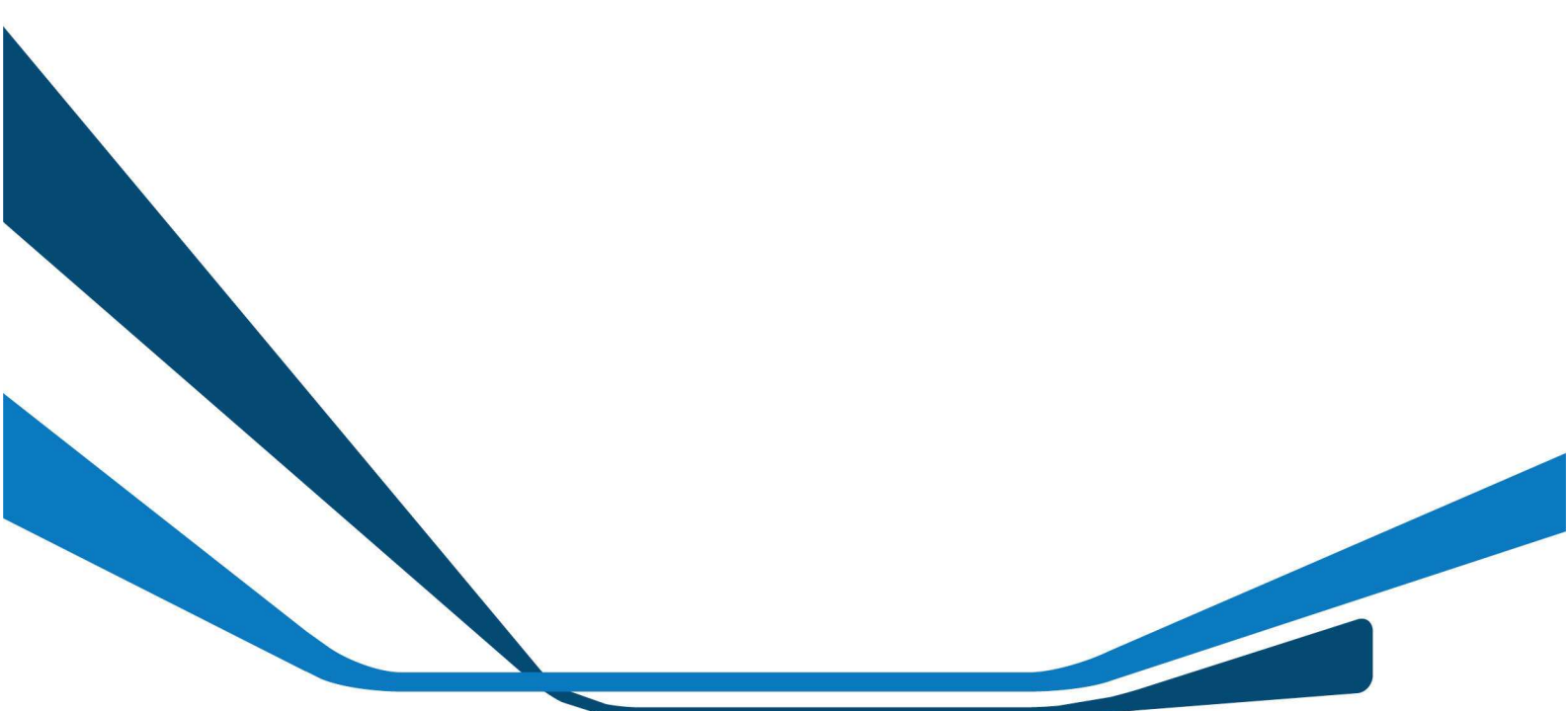
# QCLNG Project

## **Pre-clearing Ecological Survey Report** **QCLNG Export Pipeline and Gas Collection Header**

QGC020-ENV-RPT-0007

Rev 2

Produced for: QGC



## Release authorisation

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<b>Reviewed</b>	Steve Fox
<b>Approved</b>	Steve Fox
<b>Client</b>	QGC

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## 1 Introduction and Purpose

QGC (a BG-Group Company) is in the approval phase of the QCLNG Project with both Commonwealth and State Government approvals obtained in October 2010. The Project comprises three main elements:

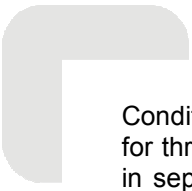
- The Coal Seam Gas (CSG) Fields;
- Gas Collection Header (GCH) and Export Pipeline; and
- LNG facility on Curtis Island.

The CSG Fields and GCH occur in the Southern Brigalow Belt Bioregion of Queensland between the towns of Tipton and Taroom. The LNG Plant is located on Curtis Island on the Central Queensland Coast immediately north of the city of Gladstone. The Export Pipeline links these two areas. The pipeline runs northeast from the western end of Barakula State Forest (north of Miles) through to the Central Queensland Coast. Only the GCH and Export Pipeline are considered in this report (**Figure 1**).

The construction of the Project will include unavoidable impacts on remnant native vegetation protected under the State *Vegetation Management Act 1999* (VM Act) and or the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and flora species listed as Endangered, Vulnerable or Near Threatened (EVNT) under the State *Nature Conservation Act 1992* (NC Act) and or the EPBC Act.

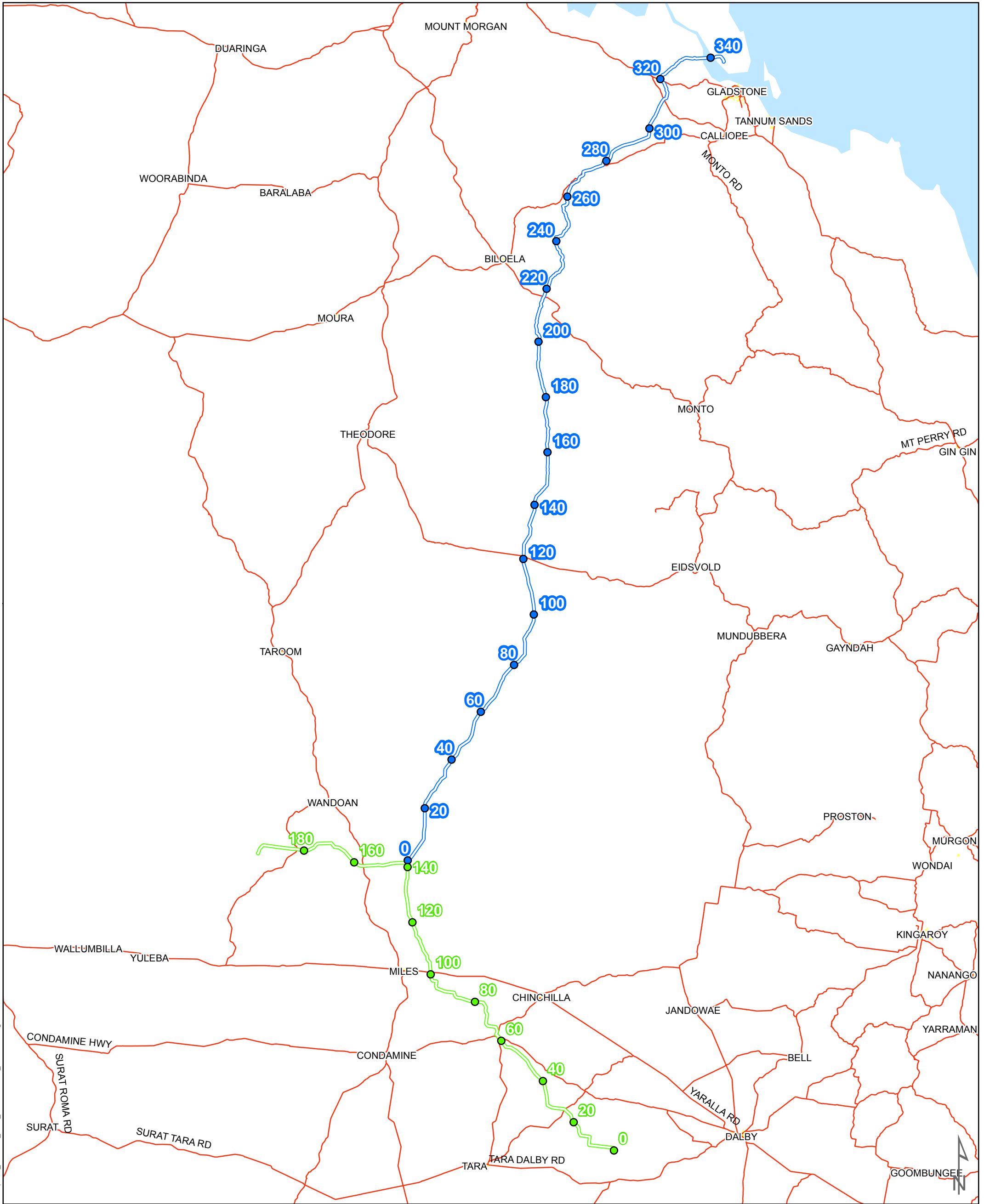
This report addresses Conditions 5 to 7 of the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) Approval, relating to the requirement for a pre-clearance survey. These conditions are:

5. Before the clearance of native vegetation in the pipeline Right Of Way (ROW), the proponent must:
  - a. undertake pre-clearance surveys for the presence of listed threatened species, their habitat and listed ecological communities; and
  - b. alternatively, where recent surveys have already been undertaken and those surveys meet the Department's requirements for surveys for the relevant Matters of National Environmental Significance (MNES), the proponent may elect to develop management plans based on those surveys in accordance with the requirements of Condition 8.
6. Pre-clearance surveys must:
  - a. for each listed species, be undertaken in accordance with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from <http://www.environment.gov.au/epbc/guidelines-policies.html#threatened>;
  - b. be undertaken by a suitably qualified ecologist approved by the Department in writing;
  - c. document the survey methodology, results and significant findings in relation to MNES; and
  - d. apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities.
7. Pre-clearance survey reports (which document the methods used and the results obtained) must be published by the proponent and provided to the Department at the time of publication.



Conditions 8 and 9 of the DSEWPC Approval, which relate to the preparation of management plans for threatened species, migratory species or their habitat and ecological communities, are addressed in separate reports. Condition 10 relates to MNES encountered during the construction phase and therefore cannot be addressed until that stage.

The Draft and Supplementary EIS committed to undertaking a pre-clearance ecological survey of both the GCH and the Export Pipelines prior to their development. This document reports the findings of the pre-clearance ecological survey of the 194km GCH and the mainland portion of the 334km Export Pipeline. It describes the survey methodology, results and significant findings in relation to EPBC Threatened Ecological Communities (TEC), Endangered and Of Concern Regional Ecosystems (ERE and OCRE), EVNT flora species and other ecological features. Information collected in the field was relevant to the alignment revisions current at the time and any minor realignments made subsequently were investigated to determine whether they impacted on additional environmental features. All field information is shown against the most recent alignment revision available at the time of publication of this report.



**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Locational Map

**DOCUMENT NO:** QCLNG-BX00-ENV-MAP-000059 - 11

**DATA SOURCE:**  
 Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

0    12.5    25    50  
 Kilometres  
 1:1,230,000 (A3) GDA94 Lat/Long

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
14/02/2011	AN	NG	Issued for use	0

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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## 2 Definitions and Abbreviations

**Table 1** provides an explanation of terms and acronyms used within the document.

**Table 1. Explanation of Terms and Abbreviations used in the document**

Term	Definition
DERM	Department of Environment and Resource Management
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERE	Endangered Regional Ecosystem as defined under the <i>Vegetation Management Act 1999</i>
EVNT	Endangered, Vulnerable or Near Threatened flora and fauna species under the NC Act and including Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable and Conservation Dependent under the EPBC Act
HERBRECS	A database of all plant specimen records held by the Queensland Herbarium
KP	Kilometre Point along the pipeline ROW
NC Act	<i>Nature Conservation Act 1992</i>
OCRE	Of Concern Regional Ecosystem as defined under the <i>Vegetation Management Act 1999</i>
RE	Regional Ecosystem as defined under the <i>Vegetation Management Act 1999</i>
ROW	Right of Way – the pipeline corridor/easement
SEVT	Semi-evergreen Vine Thicket
TEC	Threatened Ecological Communities
Wildlife Online	Database of recorded wildlife sightings and listings of plants, fungi, protists, mammals, birds, reptiles, amphibians, freshwater fish, marine cartilaginous fish and butterflies in Queensland maintained by DERM

All RE referred to in the document are described in **Table 2**. The RE descriptions are taken from the Regional Ecosystem Description Database Version 6.0b (Queensland Herbarium 2009).

**Table 2. Descriptions of Regional Ecosystems referred to in the document**

RE Label	Short Description
11.3.2	<i>Eucalyptus populnea</i> woodland on alluvial plains
11.3.4	<i>Eucalyptus tereticornis</i> and/or <i>Eucalyptus</i> spp. tall woodland on alluvial plains
11.3.6	<i>Eucalyptus melanophloia</i> woodland on alluvial plains
11.3.25	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines
11.3.26	<i>Eucalyptus moluccana</i> or <i>E. microcarpa</i> woodland to open forest on margins of alluvial plains
11.4.3	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> shrubby open forest on Cainozoic clay plains

11.5.1	<i>Eucalyptus crebra</i> , <i>Callitris glaucophylla</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina luehmannii</i> woodland on Cainozoic sand plains/remnant surfaces
11.5.4	<i>Eucalyptus crebra</i> , <i>Callitris glaucophylla</i> , <i>C. endlicheri</i> , <i>E. chloroclada</i> , <i>Angophora leiocarpa</i> on Cainozoic sand plains/remnant surfaces. Deep sands
11.5.13	<i>Eucalyptus populnea</i> +/- <i>Acacia aneura</i> +/- <i>E. melanophloia</i> woodland on Cainozoic sand plains/remnant surfaces
11.5.21	<i>Corymbia bloxsomei</i> +/- <i>Callitris glaucophylla</i> +/- <i>Eucalyptus crebra</i> +/- <i>Angophora leiocarpa</i> woodland on Cainozoic sand plains/remnant surfaces
11.7.6	<i>Corymbia citriodora</i> or <i>Eucalyptus crebra</i> woodland on Cainozoic lateritic duricrust
11.9.4	Semi-evergreen vine thicket or <i>Acacia harpophylla</i> with a semi-evergreen vine thicket understorey on fine grained sedimentary rocks
11.9.5	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> open forest on fine-grained sedimentary rocks
11.9.7	<i>Eucalyptus populnea</i> , <i>Eremophila mitchellii</i> shrubby woodland on fine-grained sedimentary rocks
11.10.9	<i>Callitris glaucophylla</i> woodland on coarse-grained sedimentary rocks
11.11.3	<i>Corymbia citriodora</i> , <i>Eucalyptus crebra</i> , <i>E. acmenoides</i> open forest on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges
11.11.15	<i>Eucalyptus crebra</i> woodland on deformed and metamorphosed sediments and interbedded volcanics
11.11.18	Semi-evergreen vine thicket on old sedimentary rocks with varying degrees of metamorphism and folding
11.12.21	<i>Acacia harpophylla</i> open forest on igneous rocks. Colluvial lower slopes



### 3 Methodology

The pre-clearance survey was conducted along the entire GCH and mainland portion of the Export Pipeline ROWs to accurately document the ecological values contained within it. Ecological values that were targeted during the survey included:

- presence and extent of TEC under the EPBC Act;
- presence and extent of ERE and OCRE mapped under the VM Act;
- presence of EVNT flora species listed under the EPBC Act and/or the NC Act; and
- presence of EVNT fauna species and other ecological and environmental features incidentally observed including:
  - Regionally significant flora;
  - Hollow-bearing trees;
  - *Brachychiton* species (bottle trees and kurrajongs);
  - Grass and fig trees;
  - Rocky and gravel outcrops;
  - Adjoining wetlands; and
  - Fauna breeding sites.

The survey within the 40m wide Right Of Way (ROW) along the GCH and Export Pipeline was undertaken between May and August 2010.

The presence and extent of TECs under the EPBC Act was determined by recording their start and end Kilometre Points (KP) where they were encountered along the ROW. The same procedure was used for ERE and OCRE communities listed under the VM Act. The presence and extent of Least Concern REs were not documented in the survey. Areas that were mapped as mixed polygons containing ERE and or OCRE by the Queensland Department of Environment and Resource Management (DERM) were separated into their component single RE wherever possible. Where this was not possible, reference was made to DERM data to determine the proportion of OCRE or ERE in each mixed polygon. All Brigalow remnants which could be 15 years old or more were recorded as TEC under the EPBC Act. Generally these remnants contained trees of 8m height or more.

Where EVNT plant species were encountered, their position was recorded on a hand-held GPS device and if they occurred as a population they were enumerated. Significant Species Management Plans were prepared for EVNT flora species (NC Act) that were encountered along the GCH and Export Pipeline. These were provided separately as the following Unidel reports:

- Significant Species Management Plan for *Cycas megacarpa* (Cycadaceae) QGC020-ENV-RPG-0002 Rev 0 (10<sup>th</sup> December 2010);
- *Philothea sporadica* Significant Species Management Plan QGC020-ENV-RPT-0005 Rev 0 (21<sup>st</sup> December 2010); and
- *Gonocarpus urceolatus* Significant Species Management Plan QGC020-ENV-RPT-0006 Rev B (24<sup>th</sup> December 2010).

Most plant specimens observed were identified in the field using appropriate field guides and taxonomic keys. For specimens not readily discernable during the field survey, specimens were collected for identification in the office. Where necessary, confirmation of plant identifications was sought from the Queensland Herbarium. Nomenclature for scientific and common names followed that of Bostock and Holland (2007). Incidental observations of EVNT fauna species, Regionally Significant flora, hollow-bearing trees, *Brachychiton* species, grass trees, fig trees, rocky and gravel outcrops, adjoining wetlands and fauna breeding sites were recorded on a handheld GPS device.

A targeted field survey was conducted by trained ecologists to identify colony sites of the Imperial Hairstreak Butterfly (*Jalmenus eubulus*), Vulnerable under the NC Act. The survey was conducted in late February 2011, during a period when the butterfly is most active and therefore when the butterfly itself is most readily observed. The results of this survey will be presented in a separate Significant Species Management Plan report.

All surveys were undertaken by Bruce Thomson, Wayne Harris, Sandrine Martinez and Martin Bennett of Unidel and Gerry Callaghan of AXM. CVs and written approval from DSEWPC for field ecologists to undertake the surveys are provided in **Appendix 1**.

## 4 Survey Results

This section describes the results of the pre-clearance survey undertaken on the GCH and the mainland portion of the Export Pipeline for:

- EPBC;
- EREs and OCREs;
- EVNT flora species;
- Incidental EVNT fauna species observations; and
- Other ecological and environmental features.

### 4.1 Threatened Ecological Communities

There are a number of different TECs protected by the EPBC Act in the vicinity of the GCH and the Export Pipeline. These include:

- Brigalow (*Acacia harpophylla* dominant and co-dominant);
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland;
- Natural Grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland;
- Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions; and
- Weeping Myall Woodlands.

Semi-evergreen Vine Thicket (SEVT) was mapped as part of mixed polygon RE 11.11.15/11.11.18/11.11.3 at KP 329 to KP 330. The survey confirmed that no SEVT (RE 11.11.18) was present within the ROW. Furthermore, the pipeline route was realigned elsewhere to avoid areas mapped as containing SEVT.

RE mapping and extensive field surveys indicated that the pipeline routes will only impact on the Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community.

**Table 3** and **Table 4** list the areas of Brigalow transected by the GCH and Export Pipeline, respectively. Brief comments about whether the Brigalow is mapped by the Department of Environment and Resource Management (DERM), and the size and condition of the vegetation community impacted are also provided. In total, approximately 2.52ha and 3.92ha of Brigalow community will be impacted by the GCH and Export Pipeline, respectively. **Appendix 2** (TEC, ERE and OCRE Map Series) shows the location of this TEC along the GCH and Export Pipeline.

**Table 3 Brigalow woodlands transected by the GCH**

KP start	KP end	Area (ha)	Comments	Status*
40.60	40.65	0.20	Un-mapped RE 11.9.5	TEC
43.10	43.13	0.12	Brigalow 15m high in poor condition	TEC
77.47	77.50	0.12	Mapped as RE 11.4.3. Brigalow 10-12m high in fair condition and associated with Black tea tree	TEC and ERE
78.90	79.10	0.80	Un-mapped RE 11.4.3. Brigalow 8-10m some 20m high	TEC
84.90	84.93	0.12	Starts 5m west of trench line	TEC
85.70	85.76	0.24	Brigalow narrow band either side of fence	TEC
89.20	89.40	0.80	Brigalow 7 x 8m specimens either side of trench line	TEC
89.70	89.73	0.12	Brigalow 8-10m tall on road reserve	TEC
<b>Total</b>		<b>2.52</b>		

\* TEC – Threatened Ecological Community under the EPBC Act; ERE – Endangered Regional Ecosystem under the NC Act

**Table 4 Brigalow woodlands transected by Export Pipeline**

KP start	KP end	Area (ha)	Comments	Status
9.38	9.65	1.08	Mapped Endangered Dominant RE 11.9.5/11.9.5	TEC and ERE
9.76	10.03	1.08	Start of RE 11.9.5 is within area of mapped RE 11.5.1/11.5.1a/11.5.4 (Least Concern)	TEC
65.52	65.56	0.16	Mapped Endangered RE 11.12.21	TEC and ERE
131.10	131.11	0.04	Up to 8m tall Brigalow under gum top box	TEC
132.10	132.11	0.04	Up to 25m tall Brigalow under gum top box	TEC
132.90	132.91	0.04	Up to 8m tall Brigalow	TEC
133.50	133.51	0.04	6 – 25m tall Brigalow	TEC
134.10	134.11	0.04	Small clump of Brigalow up to 7m tall	TEC
138.80	138.94	0.56	Up to 25m tall Brigalow	TEC
152.50	152.51	0.04	14 Brigalow trees up to 25m tall, 15m west of centre of ROW	TEC
223.45	223.65	0.80	Small edge of mapped Endangered Dominant RE 11.9.5/11.9.7 in ROW	TEC and ERE
<b>Total</b>		<b>3.92</b>		

## 4.2 Endangered Regional Ecosystems

EREs transected by the GCH and the Export Pipeline were the Brigalow-dominated RE 11.9.5, RE 11.12.21 and RE 11.4.3. The vegetation observed in the field was generally consistent with the ERE mapping but discrepancies were observed at three points along the Export Pipeline (**Table 5**).

**Table 5. Discrepancies observed with DERM ERE mapping along the Export Pipeline**

KP	Mapped ERE	VM Act status	Observed RE	VM Act status
30	11.9.5/11.9.4a	Endangered - Dominant	11.5.1a/11.5.21/11.3.2	Of Concern
34 - 40	11.10.9/11.9.5/11.10.9	Endangered - Sub dominant	11.10.9	Least Concern
330	11.11.15/11.11.18/11.11.3	Endangered – Sub Dominant	11.11.3	Least Concern

QGC are currently liaising with DERM and landholders to have the existing DERM RE mapping updated to reflect these discrepancies where landholder approval is granted to lodge a Property Map of Assessable Vegetation application.

The GCH transected a total of 0.12ha of ERE 11.4.3 (**Table 3**) while the Export Pipeline transected a total of 2.04ha of ERE, comprising RE 11.9.5/11.9.5 (1.08ha), RE 11.12.21 (0.16ha) and RE 11.9.5/11.9.7 (0.8ha) (**Table 4**).

## 4.3 Of Concern Regional Ecosystems

The vegetation observed in the field was generally consistent with the OCRE mapping but discrepancies were noted at four locations along the Export Pipeline (**Table 6**).

**Table 6. Discrepancies observed with OCRE mapping along the Export Pipeline**

KP	Mapped OCRE	VM Act status	Observed RE	VM Act status
23.5	11.5.1a/11.5.21/11.3.2	Of Concern – Sub Dominant	11.7.6/11.5.21	Least Concern
26	11.5.1a/11.5.21/11.3.2	Of Concern – Sub Dominant	cleared	Non-remnant
248	11.3.4/11.3.25/11.3.6	Of Concern - Dominant	11.3.25	Least Concern
315	11.3.26/11.3.4	Of Concern – Sub Dominant	11.3.26	Least Concern

QGC are currently liaising with DERM and landholders to have the existing DERM RE mapping updated to reflect these discrepancies where landholder approval is granted to lodge a Property Map of Assessable Vegetation application.

Mixed polygon RE were separated into individual RE units where this could be determined in the field. Where this was not possible, DERM data was used to determine the proportion of OCRE in each mixed polygon. OCRE transected by the GCH and the Export Pipeline are listed in **Table 7** and **Table 8**, respectively. A total of 1.52ha and 16.69ha of OCRE will be transected by the GCH and Export Pipeline, respectively.

**Table 7 Of Concern Regional Ecosystems Transected by GCH**

KP Start	KP Finish	RE Observed	Area (ha)
61.36	61.38	11.3.4	0.08
87.94	87.96	11.3.2	0.08
88.00	88.11	11.3.4	0.44
109.64	109.87	11.3.4	0.92
<b>Total</b>			<b>1.52</b>

**Table 8 Of Concern Regional Ecosystems transected by the Export Pipeline**

KP Start	KP Finish	RE Observed (OCRE in bold)	% of component RE	Total RE area (ha)	OCRE area (ha)
24.52	25.24	11.5.1a/11.5.21/ <b>11.3.2</b>	60/20/20	2.88	0.58
29.66	30.18	11.5.1a/11.5.21/ <b>11.3.2</b>	60/20/20	2.08	0.42
90.65	91.68	<b>11.5.13</b> /11.12.1	60/40	4.12	2.47
92.77	92.91	<b>11.5.13</b> /11.12.1	60/40	0.56	0.34
216.79	216.99	<b>11.3.2</b> / <b>11.3.4</b>	60/40	0.8	0.80
230.22	230.36	<b>11.3.4</b> /11.3.25	90/10	0.56	0.50
241.56	241.83	<b>11.3.4</b> /11.3.25/11.3.6	50/35/15	1.08	0.54
241.90	242.00	<b>11.3.4</b> /11.3.25/11.3.6	50/35/16	0.4	0.20
243.16	243.59	<b>11.3.4</b> /11.3.25/11.3.6	50/35/17	1.72	0.89
244.14	244.27	<b>11.3.4</b> /11.3.25/11.3.6	50/35/18	0.52	0.28
245.66	245.85	<b>11.3.4</b> /11.3.25/11.3.6	50/35/19	0.76	0.41
246.77	246.84	<b>11.3.4</b> /11.3.25/11.3.6	50/35/20	0.28	0.15
248.79	248.99	<b>11.3.4</b> /11.3.25/11.3.6	50/35/21	0.8	0.45
249.21	249.38	<b>11.3.4</b> /11.3.25/11.3.6	50/35/22	0.68	0.39
249.53	250.50	<b>11.3.4</b>	100	3.88	3.88
251.63	251.99	<b>11.3.4</b>	100	1.44	1.44
281.14	281.25	<b>11.3.4</b> / <b>11.3.4</b> /11.3.25	50/35/15	0.44	0.37
306.80	306.90	<b>11.3.4</b> /11.3.25	75/25	0.4	0.30
334.02	334.59	<b>11.3.4</b>	100	2.28	2.28
<b>Total</b>				<b>25.68</b>	<b>16.69</b>

#### 4.4 EVNT Flora Species

Review of the Queensland Herbarium HERBRECS, Wildlife Online and the EPBC Act Protected Matters databases for the study area identified 119 EVNT flora species that had ranges that occurred within and/or in the vicinity of the pipeline corridors (**Appendix 3**). Detailed surveys established the presence of just three of these EVNT flora species along the proposed GCH and Export Pipeline:

- *Cycas megacarpa*;
- *Philothea sporadica*; and
- *Gonocarpus urceolatus*.

##### 4.4.1 *Cycas megacarpa*

*Cycas megacarpa* (Large-fruited Cycad) is a small to medium sized cycad with a trunk of between 3m and 6m tall (Photo 1). The leaves are bright green and glossy, approximately 1m long and moderately keeled. Their seeds are relatively large compared to other Australian cycads, giving the plant its name. It generally occurs in open eucalypt forest on hilly terrain from near Mt Morgan south to near Goomeri, central Queensland. It is listed as Endangered under both the EPBC Act and the NC Act.



**Photo 1. Female *Cycas megacarpa* specimen with fruit**

Three main sites were found within the Export Pipeline ROW:

- site 1 – Lot Plan 3SP217657, between KP 267.6 and 268, near the Dawson Highway;



- site 2 – Lot Plan 4RN903, between KP 261.8 and 262; and
- site 3 – Lot Plan 18RN1457, between KP 253 and 254, near Sunday Creek.

The presence and approximate population densities and population structure of *C. megacarpa* within the Export Pipeline ROW was recorded. Data recorded included:

- exact location of each individual *C. megacarpa* present within the 40m wide ROW;
- age structure; each *C. megacarpa* individual was recorded in the following categories:
  - Seedling (J1) – Plants with three leaves or less
  - Juvenile (J2) – Plants with more than three leaves and no trunk present
  - Small Adult (A1) – Plants with trunk less than 1 m in height
  - Large Adult (A2) – Plants with trunk greater than 1 m in height
  - Fruiting (Fr) – Plants with seeds or male cones
  - Senescing (Sen) – Plants with leaves dead or absent, and growing tip present but brown and appearing dead
  - Dead (D) – Plants with no leaves or growing tip present;
- sex determined for individuals with fruiting or flowering structures; and
- general habitat features including vegetation and soil.

Location coordinates were taken using a handheld GPS device (accuracy +/- 10-20m).

*C. megacarpa* was recorded in woodland to open woodland, along gullies, rocky ridges and steep slopes. The vegetation consisted mostly of Narrow-leaved Ironbark (*Eucalyptus crebra*) woodlands (RE 11.12.1, RE 11.12.3, RE 11.11.15 and RE 11.11.14; Site 1 and 3) and Spotted Gum (*Corymbia citriodora*) woodland (RE 11.12.6; Site 1).

Site 1 was located on a very steep (~45°) ridge overlooking the Dawson Highway. At this site the *C. megacarpa* population was denser on the northern face of the slope. The soil was sandy with very large granite boulders occurring throughout the slope. Weeds, including Cobbler Pegs and Creeping Lantana were abundant on the southern side of the slope.

Site 2 was the only location where the vegetation was classified as non-remnant in RE mapping. The area was partially cleared. At this site, *C. megacarpa* plants occurred on a rocky hillslope with scattered vine forest flora including *Ficus* spp. and *Brachychiton* spp. The grassy understorey contained numerous weeds including Creeping Lantana and Velvet Tree Pear. Site 1 and 2 totalled 55 and 23 individuals respectively, with an average density of four cycads/ha.

Site 3 supported the largest population with a total of 106 individuals. The vegetation at Site 3 consisted of *Eucalyptus crebra* woodland (RE 11.11.15 and RE 11.11.4). *C. megacarpa* plants occurred on a rocky hill slope and became sparse further downhill. At this site the cycads occurred along an approximately 300m long section, with an average density of nine cycads/ha. Five widely scattered individuals occurred a few hundred metres farther south of Site 3 and within the Export Pipeline. They were not considered to constitute a discrete population due to their widely separated occurrence.

**Table 9** outlines the results of the survey at Sites 1, 2 and 3 and outlines the population structure at these locations. An approximate area of cycads was derived for each site by multiplying the length of the Export Pipeline ROW occupied by the cycads by the ROW width (40m) (**Table 9**). The total, 2.47ha, was less than the EPBC approval disturbance limit of 3ha for this species. The distribution of these records is also shown in **Appendix 4** (*Cycas megacarpa* Map Series).

**Table 9 *Cycas megacarpa* survey counts**

Sites	Lot Plan	Growth Stage*							Total number	Approximate area of ROW (ha)
		J1	J2	A1	A2	Fr	Sen	D		
1	3SP217657	2	23	18	5	5	0	2	55	0.71
2	4RN903	0	3	15	3	2	0	0	23	0.59
3	18RN1457	1	15	81	3	4	1	1	106	1.17
<b>Total</b>		<b>3</b>	<b>41</b>	<b>114</b>	<b>11</b>	<b>11</b>	<b>1</b>	<b>3</b>	<b>184</b>	<b>2.47</b>

\* Growth Stage:

J1 = Seedling – up to three leaves

J2 = Juvenile – more than three leaves, no trunk

A1 = Small adult with trunk < 1 m in height

A2 = Large adult with trunk > 1 m in height

Fr = Fruiting – with seeds or male cone

Sen = Senescing – leaves dead, growing tip present but appearing dead

D = Dead – no leaves or growing tip present

#### 4.4.2 *Philotheca sporadica*

*Philotheca sporadica* (**Photo 2**) is an open to compact shrub growing to 150cm high, with numerous branches. Each branch has many small, 1–4mm long, hairless, club-shaped leaves along its length. The white flowers are solitary and occur on short stalks to 0.7mm long at the end of branchlets. *P. sporadica* is generally found on residual hills, which are remnants of laterised Cretaceous sandstones, where the soils are shallow, uniform sandy loams to clay loams of extremely low fertility and poor structure. *P. sporadica* is listed as Vulnerable under both the EPBC Act and NC Act.

The survey identified a number of individuals and populations of this species along the GCH but none along the Export Pipeline. **Table 10** lists the locations of *P. sporadica* observed along the GCH. The distribution of these records is also shown in **Appendix 5** (*Philotheca sporadica* Map Series). The area occupied by *P. sporadica* across these several locations was approximated by multiplying the length of the GCH ROW by its width at each population location. The total area of occupation within the ROW was approximately 1.2ha, less than the disturbance limit of 5ha in the EPBC approval.



**Photo 2.** *Philotheca sporadica* specimen in flower

**Table 10 *Philotheca sporadica* observations along the GCH**

KP	Lot Plan Number	Population or Individual
20.4	35DY76	Population
20.5	35DY76	Population
20.7	14SP226733	Population
20.8	14SP226733	Population
20.9	14SP226733	Population
21.0	14SP226733	Population
21.1	14SP226733	Population

A number of other individuals and populations were found where GCH pipeline realignments were investigated to minimize the impacts on this species and are included in **Table 11**.

**Table 11. *Philothea sporadica* observations - alternative GCH routes**

KP	Lot Plan Number	Population or Individual	Export Pipeline or GCH
19.5	16Dy113	Population	Western Option
20.7	35DY76	Population	Eastern Option
20.7	35DY76	Population	Eastern Option
21.1	35DY76	Population	Eastern Option
21.2	35DY76	Population	Eastern Option
23.1	13SP226733	Individual	Eastern Option
24.4	13SP226733	Population	Western Option
24.6	13SP226733	Population	Western Option
24.7	13SP226733	Population	Western Option
24.7	13SP226733	Population	Western Option
24.7	13SP226733	Population	Western Option
24.7	13SP226733	Individual	Western Option

The field survey found approximately 284 plants around KP20 of the GCH. Surveys adjacent to the pipeline ROW were undertaken to identify the potential for an alternative route with reduced environmental impact, however these yielded higher counts of the species, with approximately 1000 individuals to the east of the ROW and 1600 to the west of the ROW. The alternative routes were therefore rejected.

#### **4.4.3 *Gonocarpus urceolatus***

*Gonocarpus urceolatus* (Raspweed) is a small prostrate herb to 30cm or more, with leaves from 4-15mm in length (**Photo 3**). Leaves are ovate to circular, dull on top and underneath, purple in winter, with stiff bristly hairs on leaves and stems. *G. urceolatus* requires good leaf litter, and prefers filtered shade, or suitably open moist grassy areas to survive. The species is listed as Vulnerable under the NC Act but is not listed under the EPBC Act.

*G. urceolatus* is associated with canopy species such as *Eucalyptus crebra*, *E. exserta*, *Corymbia clarksoniana*, *Angophora leiocarpa*, *Lysicarpus angustifolius*, and *Brachychiton populneus*. Mid-storey species can include: *E. tenuipes*, *Acacia luehmannii*, *A. inophloia*, *A. shirleyi*, *A. julifera*, *A. curranii*, *A. leiocalyx*, *Alstonia constricta*, *Alphitonia excelsa*, *Callitris glaucophylla*, and *Petalostigma pubescens*.

Understorey species can include *Philothea sporadica*, *Kardomia jucunda*, *Micromyrtus sessilis*, *Homalocalyx polyandrus*, *Boronia occidentalis*, *Pomax umbellata*, *Brunoniella australis*, *Poranthera microphylla*, *Dianella longifolia*, *Cheilanthes sieberi*, *Leucopogon* spp., *Dodonaea* spp., *Melichrus urceolatus*, *Jacksonia scoparia*, *Solanum ferocissimum*, *Keraudrenia* spp., *Melhamia oblongifolia*, *Chrysocephalum apiculatum*, *Phyllanthus tenellus*, *Marsdenia microlepis* and the similar *Gonocarpus micranthus* subsp. *ramosissimus*. Grasses, sedges and rushes present can include: *Aristida calycina*, *Aristida caput-medusae*, *Lomandra multiflorus*, *L. leucocephala* and *Gahnia aspera*.



**Photo 3. *Gonocarpus urceolatus* specimen**

*G. urceolatus* has been identified at approximate KP 0-2, 18.4-20.7, 33-35, 97 and 119.6-123.5 along the GCH and KP 4.8-5.7, 13.2-13.6, 20-22.5 along the Export Pipeline. **Table 10** lists the locations of *G. urceolatus* observed along the GCH and Export Pipeline and a breakdown of approximate numbers to occur at each site. The distribution of these records is also shown in **Appendix 6** (*Gonocarpus urceolatus* Map Series).

*G. urceolatus* was found to be common and widespread throughout the area following an extended period of high rainfall through 2010. Results of the field survey found approximately 466,050 plants within the ROW of the GCH and 44,400 plants within the ROW of the Export Pipeline.

As *G. urceolatus* is not an EPBC Act EVNT species no disturbance limit is provided in the DSEWPC Approval.

**Table 12. Area of *G. urceolatus* within and adjacent to pipeline ROW**

Approximate KP	Estimated number within proposed pipeline corridor	Estimated number in the immediate vicinity of proposed pipeline corridor	Comparison of estimated number within corridor to that occurring in the vicinity of the pipeline corridor (%)
<b>Gas Collection Header</b>			
0-2	140,000	60,000 +	233.3
18.4-20.7	25,000	340,000 +	7.35
33-35	120,550	not surveyed	
97	500	20,000 +	2.5
119.6-123.5	180,000	not surveyed	
<b>Export Pipeline</b>			
4.8-5.7	400	180,000	0.2
13.2-13.6	22,000	140,000	15.7
20-22.5	22,000	160,000	13.75
<b>TOTAL</b>	<b>510,450</b>	<b>900,000 +</b>	<b>56.7</b>

In an effort to reduce the impact on *G. urceolatus*, potential realignments were investigated to the east and west of the adopted alignment between KP 21 and KP 25. However, the populations of *G. urceolatus* were greater than on the adopted alignment hence the realignments were rejected.


#### 4.5 EVNT Fauna Species

Database searches identified 42 fauna species listed as EVNT under the EPBC Act and/or the NC Act as previously recorded from the pipeline corridors (**Appendix 3**). Of these species, 9 are listed under both the EPBC Act and NC Act, while 29 are listed under the EPBC Act only and 20 are listed under the NC Act only. Other than the Imperial Hairstreak Butterfly (*Jalmenus eubulus*), no other incidental observations of any EVNT fauna were recorded during the survey. It is recognised, however, that some EVNT fauna species will occur along the 730km of pipeline ROW. The precautionary principle has been adopted for EVNT fauna species. Those that have the potential to occur in the ROW are assumed to be present and appropriate mitigation measures, such as sequential clearing and using fauna spotter-catchers, have been adopted.

#### 4.6 Other Ecological Features

As part of the survey of the GCH and Export Pipeline ROW, incidental observations were made of a number of other ecological features including:

- Regionally significant flora;
- Hollow-bearing trees;
- *Brachychiton* species (bottle trees and kurrajongs);
- Grass and fig trees;
- Rocky and gravel outcrops;
- Adjoining wetlands; and
- Fauna breeding sites.



A large number (over 300) of such features were recorded along the GCH and Export Pipeline and are shown in **Appendix 7** (Ecological Features Map Series). Fauna spotter catchers will be present during all pipeline clearing activities and will be provided with this ecological features and fauna habitat data.



## 5 Conclusion

A pre-clearance survey of the GCH and mainland portion of the Export Pipeline of the QCLNG Project was undertaken between May and August of 2010 to address Conditions 5 to 7 of the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) Approval.

The pre-clearance survey was conducted to identify:

- the presence and extent of Threatened Ecological Communities under the EPBC Act;
- the presence and extent of Endangered and of Concern REs under the *Vegetation Management Act 1999*;
- the presence of EVNT flora species listed under the EPBC Act and/or the NC Act;
- any incidental observations of EVNT fauna species listed under the EPBC Act and/or the NC Act; and
- the presence of other ecological and environmental features including:
  - Regionally significant flora;
  - Hollow-bearing trees;
  - *Brachychiton* species (bottle trees and kurrajongs);
  - Grass and fig trees;
  - Rocky and gravel outcrops;
  - Adjoining wetlands; and
  - Fauna breeding sites.

The Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community was identified at several locations along both the GCH and Export Pipeline. The total extent of Brigalow community transected by the GCH and Export Pipeline was 2.52ha and 3.92ha, respectively.

Areas of Endangered and Of Concern RE were ground-truthed along the GCH and Export Pipeline ROW during the pre-clearance survey. The field investigation established that approximately:

- 0.12ha of Endangered RE and 1.52ha of Of Concern RE will be transected by the proposed GCH. The 0.12ha of Endangered RE 11.4.3 is also a Brigalow (*Acacia harpophylla* dominant and co-dominant) Threatened Ecological Community under the EPBC Act; and
- 2.04ha of Endangered and 16.69ha of Of Concern RE will be transected by the proposed Export Pipeline.

Three EVNT flora species were located within the GCH and Export Pipeline ROW – *Cycas megacarpa*, *Philothea sporadica* and *Gonocarpus urceolatus*. *Cycas megacarpa*, listed as Endangered under both the EPBC Act and NC Act occupied approximately 2.5ha of the Export Pipeline ROW, which was less than the DSEWPC Approval disturbance limit of 3ha.

*Philothea sporadica*, listed as Vulnerable under both the EPBC Act and NC Act, occupied approximately 1.2ha within the GCH ROW, which was less than the disturbance limit of 5ha in the DSEWPC Approval.

*Gonocarpus urceolatus* is listed as Vulnerable under the NC Act but is not listed under the EPBC Act, hence no disturbance limit was provided in the DSEWPC Approval. It was widespread and approximately 466,050 plants within the ROW of the GCH and 44,400 plants within the ROW of the Export Pipeline were estimated to be present.

Apart from the NC Act Vulnerable Imperial Hairstreak Butterfly, *Jalmenus eubulus*, no other EVNT fauna species were observed during the walk-through survey. A number of these species are likely to occur within the ROW from time to time. As such the precautionary principle has been applied and all EVNT species with the potential to occur in the ROW have been assumed to be present and appropriate mitigation measures identified.

## 6 References

Bostock, P.D. and Holland, A.E. (eds) (2007). Census of the Queensland Flora 2007. Queensland Herbarium, Environmental Protection Agency, Brisbane.

Queensland Herbarium (2009) Regional Ecosystem Description Database (REDD). Version 6.0b Updated November 2009, (November 2009) (Department of Environment and Resource Management)



## Appendix 1 - Personnel CVs and DSEWPC Approval of Field Ecologists



# Bruce Thomson

Principal Ecologist

## Profile

Bruce Thomson has 30 years of experience in a broad range of environmental assessment, management, concept planning, project proposal and development and conservation disciplines.

He is a senior ecologist and biodiversity planner and has worked as a professional botanist, wildlife researcher and conservation manager. Bruce has managed scientific and technical staff (project management) and associated budgets and work programs. He has strong communication skills, having negotiated conservation outcomes in difficult situations with potentially hostile stakeholders; published and presented numerous industry papers, workshops and seminars; and participated in media news and documentary interviews.

As a botanist in the Northern Territory and also as a conservation planner in Queensland, Bruce worked for government to develop workable conservation management options for national parks, balancing conservation needs with visitor expectations and other land uses.

One of his primary research interests is microchiropteran bats and he has travelled extensively in his studies, including a mining industry-sponsored research trip to the USA to look at the conservation of bats in abandoned mine sites and the construction of artificial roosts for endangered and vulnerable species. On his return he compiled a guide to the conservation of bats in cave and mine environments in Australia. He is a Scientific Advisor to the American-based conservation group Bat Conservation International.

Bruce's interests also extend to the larger Megachiropteran flying foxes and he was appointed as a member to the Queensland Government's Flying Fox Consultative Committee in 2002 to represent Queensland's then Department of Environment and Heritage. He built strong ties with fruit growers and conducted research on their orchards in FNQ to assess damage and control techniques.

Bruce's government and university background has provided him with highly developed field skills in fauna and flora consultancy work. He has conducted numerous flora and fauna surveys in Queensland for the gas and mining industries and has also conducted surveys for government, including a survey of historic mining precincts on Cape York. He has also worked in other states, conducting fauna and flora surveys in remote environments including the Tanami Desert, Simpson Desert and islands of the Gulf of Carpentaria in the Northern Territory, and flora surveys in the Kimberley and Pilbara of Western Australia.

## Qualifications

PhD "The social ecology of the Chocolate Wattled Bat, *Chalinolobus morio*, in southeast Queensland, University of Queensland, 2010

Masters of Business Administration (Marketing, Public Sector & Strategic Management) – includes formal qualifications in HRM, University of New England, 1996

Bachelor of Applied Science (Natural Resource Management), University of Canberra, 1979



# Bruce Thomson

Principal Ecologist

## Career Summary

2008 - Current	Unidel Group Pty Ltd – Principal Ecologist
2003 - 2008	Senior Conservation Officer (Central Office Brisbane - Bat conservation and policy development)
1993 - 2002	Senior Conservation Officer (Management Planning), Queensland Parks and Wildlife Service
1983 - 1993	Officer in Charge, Northern Territory Southern Regional Herbarium, Wildlife Research Section, Conservation Commission of the Northern Territory, Alice Springs
1981 - 1983	Scientific Research Officer (P2), Northern Territory Herbarium, NT Department of Primary Production, Alice Springs
1979 -1981	Technical Assistant (T2), Wildlife Research Section, Territory Parks and Wildlife Commission, Alice Springs

## Areas of expertise

### Fauna and Flora Field Survey

- Collection / identification of botanical specimens, mammals, birds, reptiles, frogs and insects
- Collection and identification of mammal bone material and scats
- Fauna survey techniques: Elliott and large cage, pit fall, funnel and camera traps, bat echo-location call recording and analysis using ANABAT and time-expanded systems. Also for bats, mist nets, bat traps and water trip lines

### Fauna Research

- Radio telemetry for tracking fauna movements
- Use of PIT tags to monitor fauna movements
- Collection of material and laboratory-based DNA analysis
- Behavioural studies

### Conservation Management

- Development of conservation management strategies - fire, ferals, weeds
- Human interactions with wildlife and their management
- Specialist advice on the management and conservation of Australian bats
- Weed surveys and weed risk assessment and management
- Feral animal assessment and control



## Bruce Thomson

Principal Ecologist

### Industry experience

#### Flora and Fauna Surveys and Assessments

- Flora and fauna surveys, species inventories and biodiversity assessments for numerous projects in the NT - Tanami Desert, Victoria River, Macdonnell Ranges, and in Western Australia, the Pilbara and Kimberley regions. In Queensland - all regions
- Acquisition planning for national parks such as Kings Canyon NP, Gregory NP on the Victoria River and parts of the Tanami Desert
- Conducted fauna trapping surveys for:
  - Qld and NT Governments
  - Queensland Curtis LNG Project (QGC)
  - Galilee-Coal Project (Waratah Coal)
- Conducted fauna habitat assessments for:
  - Newstead to Bulla Park Pipeline (APA Group)
  - Ruby Braemar Pipeline (ERM Power)
  - Wambo to Goondiwindi Pipeline (ERM Power)
  - Wallumbilla to Wambo Pipeline (ERM Power)

#### Flora and Fauna Technical and Management Reports

- Technical Reports for EIS
  - Queensland Curtis LNG Project (QGC)
  - Galilee-Coal Project (Waratah Coal)
- Development of Species Management Plans and Rehabilitation / Recovery Plans for 68 species of conservation concern (plants, mammals, reptiles, birds and invertebrates) for British Gas (QLNG Project)
- Co-authored original concept plan for multi-million dollar, Alice Springs Desert Park
- Developed Species Recovery Plans under the Commonwealth Government Guidelines for three species of Qld endangered bats and co-authored the plan for the Bare-rumped Sheath-tail Bat
- Researched and developed concept plans / project proposals for sustainable development of tourism on Queensland Park's estates



## Bruce Thomson

Principal Ecologist

- NT Government - survey reports, ministerial briefing notes and popular publications and provided high level advice to senior government staff and conducted workshops

### **Natural Resource Management**

Research conducted on the behaviour of cave-dwelling bats when negotiating steel grills (on mine entrances) - Protected roosting habitat for rare and threatened bat species

- Conducted flying fox taste and smell deterrent chemical trials for fruit crop protection
- Designed and provided advice on the construction of several experimental 'artificial caves' in mining areas to replace historic mines lost as a result of re-working
- Monitored and conducted ecological studies on two rare and endangered plant species and described two new species from the northern parts of WA
- Developed and assisted in the implementation of conservation planning strategies for National Parks (DERM) in SE Qld
- Negotiated conservation outcomes in difficult situations with potentially hostile stakeholders, as in the case of fruit growers and flying foxes and grazing lessees in State Forests
- Worked closely with Traditional Aboriginal groups to conduct flora and fauna surveys and to build close relationships as a foundation for future natural resource management activities (NT and Qld)

### **Project Development and Administration**

Provision of specialist advice: Advisory Panel for the Yulara development at Ayers Rock, Flying Fox Consultative Committee Qld Govt, Founding Member of planning group for the Alice Springs Desert Park development, NT

- Scientific advisor / founding member - Qld Govt's Flying Fox Consultative Committee
- Advised Melbourne Botanic Gardens, Sydney Botanic Gardens, Mt Isa and numerous local authorities in greater Brisbane in relation to flying fox management
- In state government (NT & Qld):
  - Recruited, managed, supported and trained effective teams and participated in strategic planning and enterprise bargaining processes
  - Administered budgets up to \$150,000
  - Applied for and administered numerous grants ranging from \$5,000 to \$35,000
  - Coordinated regional industrial placement program for University students



## Bruce Thomson

Principal Ecologist

- Applied for and implemented EPA license conditions for administrative purposes
- Coordinated and supervised the development of management plans for national parks

### **Research, Academic and Other**

Honorary Research Associate - University of New England. Academic supervision of Masters research project on bat roosting ecology

- Research into the social ecology of the Chocolate Wattled Bat (PhD)
- Genetic (MtDNA ) research at Queensland Biosciences Precinct University of Qld., St Lucia
- Taxonomic revision of plants of the Genus *Euphorbia* (Euphorbiaceae) and description of new species in NT and WA
- Curation of the NT Herbarium, Alice Springs and provision of plant identification services to herbarium clients
- Provision of expert evidence on behalf of the NT Police in relation to plant identifications and forensic evidence
- Presented scientific and conservation papers at international scientific conventions
- Conducted radio and TV interviews for news reports, documentaries and children's programs to promote conservation





# Wayne Harris

Principal Ecologist

## Profile

Wayne has more than 20 years experience in biological sciences particularly in plant systematics and plant identification, environmental assessment and vegetation mapping. He has worked in Queensland, Western Australian and Victoria on consultancy assignments for industry and government. Wayne's consultancy work has included route selection, environmental surveying, vegetation mapping, and monitoring.

Wayne has been involved in developing strategies and guidelines for sustainable development and the protection, enhancement and rehabilitation of species and regional ecosystems.

## Qualifications

Doctor of Philosophy (Plant Systematic) [1998] University of Queensland

Master of Science, University of Adelaide

Bachelor of Science, University of Adelaide

## Career Summary

2009 – Present	Senior Botanist, Unidel Group
1998 – Present	Research Associate at the Queensland Herbarium.
2009 (Mar-Jun)	National Project Coordinator for the Weed Spotters Program, CRC for Weed Management
1998 – 2008	Consultant for biodiversity assessments of major development projects  Botanical surveys and services of local shire councils and environmental groups.
1995-1998	Ph.D. at the University of Queensland in Systemic Botany

## Areas of expertise

- Land access management
- Botanical survey
- Plant classification and identification
- Orchids
- Vegetation Mapping



## Wayne Harris

Principal Ecologist

### Industry experience

#### Oil and Gas

- Queensland Curtis LNG Project (QGC)
- Galilee-Coal Project (Waratah Coal)
- Ruby Braemar Pipeline (ERM Power)
- Liquid Niugini Gas. Pipeline route and LNG site selection and botanical surveys.

#### Rail

- 'Missing Link' railway corridor Environmental Impact Assessment for Queensland Rail.

#### Mining

- Coal slurry pipeline for Tarong Power.
- In the early part of his career Wayne was employed as a geologist and became Exploration Manager (Eastern Australia) for the Petroleum Division of Western Mining Corporation.

#### Defence

- Shoalwater Bay Defence property for Department of Defence.
- HMAS Cerberus Defence property for Department of Defence.
- Kikori River (Papua New Guinea) catchment biodiversity study, for the World Wildlife Fund for Nature.

#### Scientific Biological Surveys

- Invited on two occasions to participate on botanical surveys of the Pilbara region, Western Australia for the WA government.
- Survey of Mussau Island (PNG) for the National Capital Botanic Gardens, Port Moresby.
- Expedition to the Torricelli Mountains, PNG for an orchid survey on behalf of the National Capital Botanic Gardens, Port Moresby.



# Martin Bennett

Senior Ecologist

## Profile

Martin has more than 15 years of experience in native plant identification and specialises in weed control and re-vegetation. He was involved in the weed control and re-vegetation of a 35ha area with vine thicket species and has worked with many Queensland Councils, the Department of Environment and Resource Management, Nature Refuges and Voluntary Conservation Agreement Landholders and the CSIRO.

Martin has gained extensive field experience working with botanists and field naturalists and has drawn a wealth of knowledge collaborating with the Queensland Herbarium. He has delivered presentations on weed control, native plant identification and re-vegetation projects for Ipswich City Council, South East Queensland Catchments and local Landcare groups. Land for Wildlife Officer for the Somerset Regional Council and the Lockyer Valley Regional Council.

## Career Summary

2008 – Current	Unidel Group Pty Ltd, Field Botanist
2007 – 2009	Land for Wildlife Extension Officer, Somerset Regional Council
2007 – 2010	Land for Wildlife Extension Officer, and Conservation Officer Lockyer Valley Regional Council
2000 – 2007	Weed Control Contractor (self employed)

## Areas of expertise

- Land access management
- Araucarian ecosystems
- Microphyll vine thickets
- Mistletoes
- Brigalow Communities
- Open forest/woodland communities of the Lockyer Valley and the Darling Downs
- Regional Ecosystems in the Lockyer Valley



## Martin Bennett

Senior Ecologist

### Industry experience

#### Gas

Braemar Phase 2 Gas Pipeline, ERM Power: Martin conducted the weed survey.

Moranbah-Gladstone Gas Pipeline, Enertrade: Martin undertook the ecological Survey, specifically for *Eucalyptus raveretiana* in the Rockhampton area.

Queensland Curtis LNG Project, QGC (\$6 Billion+): The QCLNG project involved the expansion of QGCs gas fields in the Surat Basin and the construction of 730km of pipeline network to connect the gas fields to an LNG Facility on Curtis Island. Martin undertook extensive flora surveys along the length of the pipeline network to identify declared weeds and vegetation listed on both the Nature Conservation Act and Environmental Protection and Biodiversity Act 1999.

#### Environmental reports

Pre-European Regional Ecosystems and the Plant Species of the Black Snake Creek Catchment - for West Moreton Landcare Group.

Remnant Ecosystems and Flora Description of the Black Snake Creek Catchment - for West Moreton Landcare Group.

A Report "Opossum Creek Tracks and Trails" - for L.H. Bird OAM Ipswich City Council Grant.

A Compilation "Woogaroo Scrub Project" a Report on the Woogaroo Scrub Project for L.H. Bird (Ipswich City Council & Envirofund Grants).

Compiled the initial desktop mapping for the *Melaleuca irbyana* project in the Lockyer Valley which resulted in additional mapping of the endangered species – assisted in ground truthing with Queensland Herbarium staff.

#### Re-vegetation projects

A \$200,000 35ha area (in 4 separate plots) for New Hope Coal Australia at Rosewood Queensland using locally collected seed and grown by a local nursery. Thought to be the largest Semi-evergreen vine thicket re-vegetation project in SEQ.

A \$10,000 re-vegetation project for the Sporting Shooters Association of Queensland at Daley's Lagoon (Bundamba Lagoon) south of Ipswich.

#### Weed Control

Martin has managed and been part of numerous weed management teams. Projects have included:



## Martin Bennett

Senior Ecologist

- 20km length (22 farms) of Laidley Creek Chinese Celtis Eradication Project for the Lockyer Valley Catchment Centre
- Weed Control at Welks Remnant and Nelsons Remnant at Laidley for the Lockyer Valley Catchment Centre
- Weed Control at Moonview Nature Refuge Boonah, Pinecliffs NR (Esk), The Gullies (Helidon Hills), Bartopia NR (Mt Barney), Tea Trees NR (Ipswich)
- Weed Control on many Land for Wildlife Properties and Voluntary Conservation Covenants, Voluntary Conservation Agreements – through Ipswich City Councils small grants projects and privately
- Privet Project at Middle Ridge (Toowoomba) for Powerlink
- Weed Control at Lake Dyer Laidley for SunWater

### **Native plant identification**

Martin has undertaken numerous native plant identification requests for both private and public industry, including:

- Lockyer Valley Regional Council
- Ipswich City Council
- Jensen's Swamp Environmental Group
- Land for Wildlife and Nature Refuge Landholders
- SunWater
- Landcare Groups
- Discovery of the 5th location in Qld where *Corynocarpus rupestris* susp. *arborescens* (a vulnerable species) occurs (private)
- Extensive mapping of *Gonocarpus urceolatus* (a vulnerable species) Darling Downs (for QGC BG Group-Unidel)
- Extensive mapping for *Philothea sporadica* (a vulnerable species) (for QGC BG Group-Unidel)



# Sandrine Martinez

Ecologist

## Profile

Sandrine is an ecologist who has been with Unidel for two years. In this time, she has undertaken several flora and fauna surveys, principally in central and southern Queensland, and co-authored a number of ecological assessment reports in the gas and energy sectors, including technical reports, EIS Chapters and Threatened Species Management Plans.

She is familiar with dominant vegetation communities and fauna species of these areas. Sandrine has extensive experience and enjoys remote area fieldwork. She has 4WD and First Aid training certification and is familiar with current workplace safety processes and procedures.

Sandrine has also recently completed a PhD in Biogeoscience where she investigated the palaeoecology of bat fossil assemblages in located at Mt Etna, central eastern Queensland. As part of her research she undertook the first comprehensive taxonomic study of Australian bats based on teeth characters.

Sandrine brings her research capability to her work, undertaking desktop ecological reviews, data interpretation, research and field work for infrastructure projects. She has a good understanding of environmental legislations and is conversant with the principal Queensland environmental legislations and approvals requirements.

## Qualifications

Doctor of Philosophy (Biogeoscience) 2010, Queensland University of Technology

Bachelor of Applied Science (Honours Geology) 2004, Queensland University of Technology

Bachelor of Science (Marine Biology) 2003, Griffith University

Vocational Training Certificate (Executive Assistant) 1997, Lycée de Montgeron - France

## Career Summary

2008 – current	Ecologist, Unidel Group Pty Ltd
2006 – 2009	Tutoring/Demonstrating, Queensland University of Technology
2003 – 2004	Honorary Technical Assistant, Queensland Museum (Fossil Collection)
1998 – 2005	Short-Term Executive Assistant assignments to organisations in France: Groupe Eurosearch, Fortis Investments, Ineum Consulting, Deloitte Touche Tohmatsu, Orsid Production

## Affiliations

- Member of the Australasian Bat Society
- Member of Bat Conservation International



# Sandrine Martinez

Ecologist

## Areas of expertise

- EIS compilation and Approvals
- Desktop research
- Report writing
- Flora and Fauna surveys

## Industry experience

### Mining

Byerwen Coal Project, Byerwen Coal Pty Ltd (13000ha): The project involved the establishment of a new coal mine in the Bowen basin. Sandrine conducted the fauna field survey and co-authored the technical report.

China First Project, Waratah Coal (\$7.5 billion): The project involved the establishment of a new coal mine, railway and port facilities to export high volatile, low sulphur, steaming coal to international markets. It included a new coal terminal within the Abbot Point State Development Area (APSDA) and the Port of Abbot Point, a new mine near Alpha in central Queensland and a new heavy haul standard gauge rail system linking the mine and coal terminal. Sandrine undertook desktop ecological reviews, data interpretation, identification of survey sites and fauna field survey. She was also the principal author of the Mine technical report and co-authored the Rail technical report as well as reviewed several EIS chapters.

### Oil and gas

Queensland Curtis LNG Project, QGC (\$8 billion): World first coal seam gas to LNG project including a 10,000+ well gas field in the Surat Basin, a 400km gas pipeline to Gladstone and LNG plant on Curtis Island. Sandrine's roles included:

- Desktop ecological reviews, data interpretation, assistance in flora and fauna field assessment and report writing
- Literature review of environmentally significant areas and features
- Addressing public and agencies' comments following the release of the Draft EIS
- Pegging parties and vegetation clearance surveys
- Field survey and elaboration of a Threatened Species Management Plan for *Cycas megacarpa*

Ruby Braemar Pipeline, ERM Power (\$546 million): The project involved the construction of a 110 km long gas pipeline near Braemar State Forest in Queensland. Sandrine undertook desktop ecological reviews, data interpretation and report writing.

Wallumbilla to Bulla Park Pipeline, APA (\$500 Million): The project involved the construction of a 660 km long gas pipeline that aims to facilitate the transportation of gas from Wallumbilla



# Sandrine Martinez

Ecologist

in Queensland to users in New South Wales and potentially Victoria and South Australia. Sandrine undertook desktop ecological reviews, data interpretation, assistance in flora and fauna field assessment and report writing.

Wambo to Goondiwindi Pipeline, ERM Power (\$90 million): The project involved the construction of a 203.3 km long gas pipeline from Wambo in Queensland to Goondiwindi. Sandrine conducted desktop ecological reviews, data interpretation, assistance in flora and fauna field assessment and report writing.

Wallumbilla to Wambo Pipeline, ERM Power (\$175 million): The project involved the construction of a 147 km long gas pipeline to supply natural gas, from the Wallumbilla Gas Hub for use at ERM's gas fired power stations located at the Braemar Power Station site. Sandrine undertook desktop ecological reviews, data interpretation, assistance in flora and fauna field assessment and report writing.

Spring Gully Lateral Project, Jemena (\$100 million+): The project involved the construction of a 29.5 km long gas pipeline to connect the Spring Gully gas tenements with the Queensland Gas Pipeline (at the Gooimbah Scraper Station), in central Queensland. Sandrine conducted desktop ecological reviews, data interpretation and report writing.

Lions Way Gas Pipeline, Metgasco (\$100 million+): The project involved the construction of a 145 km long gas transmission pipeline from Casino in northern New South Wales (NSW) to Ipswich in south-east Queensland (QLD). Sandrine identified community organisations and stakeholders and description of social characteristics.

## Electricity

Proposed Russel Island Substation, Energex (\$6,705): Construction of a substation on Russel Island. Sandrine assisted in the vegetation assessment for the Environmental Management Plan.

## Other Experience

- Bat survey including use of harp traps and mist-netting (Queensland and Northern Territory)
- Caving at Mount Etna, Australia for retrieving fossil bats as part of PhD research
- Endangered frog survey (e.g., *Mixophyes* sp.), Connondale Ranges, SEQ
- Tutoring
  - Science concepts and global systems
  - Plant and animal physiology
  - History of life on Earth





# Gerard Callahan Curriculum Vitae

**Position**                      **Senior Environmental Scientist**

**Education**                    **Bachelor of Science (Biology), Central Queensland University (2001)**

**Experience**

**Ecological Assessments**

- Mine site rehabilitation assessments and reporting for Burton Coal Project 2003, 2004, 2005, 2006, 2008 and 2009;
- Baseline flora and fauna assessment and field surveys for expansion of the Selwyn Mine for Ivanhoe Cloncurry Mines, 2009;
- Baseline flora assessment and field surveys for expansion of Yarrabee Coal Mine, 2009;
- Weed survey of the QGC/BG Qld Curtis Gas Pipeline (Miles to Gladstone), 2009;
- Mangrove health assessments for Australian Prawn Farms, Notch Point, 2007, 2008 and 2009;
- Preparation of applications under Queensland's vegetation management legislation for weed clearing permits, regrowth clearing permits and complex PMAVS, 2007 to 2009;
- Assessment of pasture-based rehabilitation at Ensham Mine, 2009 and 2010;
- Ecological assessments of exploration target areas at Yandan Gold Mine and Wirralie Gold Mine for Straits Resources Ltd and preparation of RE map re-assessment applications to Queensland Herbarium, 2007 and 2008;
- Review of ecological assessments and preparation of a PMAV application for Plantation Palms urban development, 2007;
- Ecological assessments and RE map re-assessment applications to Queensland Herbarium for Paluma Road and The Sanctuary Development, Airlie Beach, 2007;
- Flora assessments for Mount Coolon Gold Mines Pty Ltd, including Regional Ecosystem (RE) ground truthing and RE map re-assessment application to Queensland Herbarium, 2007;
- Conducted a flora and fauna assessment and field survey of the proposed sites for Enertrade's gas-fired power station to support a development application under the Integrated Planning Act, Moranbah, 2006;
- Proposed and implemented a monitoring program for the rehabilitation of the 400 km North Queensland Gas Pipeline easement and conducted the 2006 field monitoring, Moranbah to Townsville, 2006;
- Conducted field surveys for rare and threatened flora and fauna for several subdivision applications in the Whitsunday area, 2005;
- Conducted field surveys and reported on the status of threatened Malleefowl and mapped preferred Malleefowl habitat at the Department of Defence Murray Bridge Training Area, 2004;
- Investigated and reported on flora, fauna and land suitability opportunities

# Gerard Callahan Curriculum Vitae

and constraints in relation to the Gloucester Park Resort Development proposal, 2004;

- Developed and implemented an assessment program for pasture-based revegetation at the Burton Coal Project, 2003;
- Completed a flora and fauna assessment and field surveys of the CH4 Pty Ltd PL191 coal-seam methane gas lease area at Moranbah, and reported on the status of threatened ecosystems and protected fauna habitats, 2003;
- Conducted ground truthing and reported on status of Regional Ecosystems and threatened fauna habitats in relation to Enertrade's 380km North Queensland Gas Pipeline, 2002 – 2003;
- Investigated and reported on occurrence of Commonwealth protected plant species within the North Queensland Gas Pipeline easement, Moranbah to Townsville, 2003;
- Conducted an investigation into threatened fauna, flora and habitats in relation to the Whitsunday Golf Course Redevelopment, and recommended mitigation measures for the conservation of the Proserpine rock-wallaby, 2003;
- 

## **Environmental Management and Assessment Programs, Strategies and Resource Applications**

- Prepared a Development Approval application for Material Change of Use for multiple Environmentally Relevant Activities, including development of an Integrated Site-based Management Plan for Stern's Plant Hire, 2009;
- Conducted weed surveys of BMA South Walker Creek Mine and BMA Poitrel Mine and developed weed management options for both mine sites, 2008;
- Prepared a Site-based Management Plan for the re-use of the old Ampol Bulk Terminal at Mackay Harbour, 2007;
- Developed a revegetation plan for the coal-ash storage facility at Stanwell Power Station, 2006;
- Developed and implemented an assessment program for pasture-based revegetation for Thiess Pty Ltd at the Burton Coal Project, 2003, 2004, 2005, 2006, 2008 and 2009;
- Produced an Environmental Management Plan for Marian Haulage Pty Ltd, Marian, Central Queensland, 2005;
- Conducted a risk assessment and developed a management strategy for the North Queensland Gas Pipeline Project in relation to Siam weed, 2004; and
- Prepared Resource Allocation Applications for AJK Contracting, 2004 & 2005, and Camilleri Pty Ltd, 2004 & 2005.

## **Environmental Compliance Monitoring**

- The Port of Hay Point Noise, Dust and Meteorological Program - Dalrymple Bay Coal Terminal, Hay Point Services Pty Ltd (BMA), Hay Point



# Gerard Callahan Curriculum Vitae

Queensland, 2002-2007;

- Maintenance of the EPA Mackay Air-monitoring Station, 2007-2008;
- Mackay Sugar Cooperative groundwater monitoring program, 2006;
- Caltex Bulk Terminal Groundwater Monitoring Program, Caltex Australia, Mackay, 2002-2006;
- Mackay City Council Former and Existing Waste Management Facilities Groundwater Monitoring Program, Mackay region, 2004-2005;
- AJK Contracting landfill groundwater monitoring, Mackay, 2004-2005;
- Lavarack Barracks and Mt Stuart Training Area Groundwater Monitoring Program, Townsville, 2004; and
- Blair Athol Coal Dust Monitoring Program, Mt McLaren, Nebo and Hay Point, 2002-2007.

## **Contaminated Site Assessments and Hazardous Materials Audits**

- Performed environmental compliance audits on horizontal directional drill sites for the North Queensland Gas Pipeline – Moranbah to Townsville, 2004;
- Conducted site investigations for hydrocarbon and heavy metals contamination of soils and groundwater for Ergon Energy, Caltex Australia Petroleum, CSR Distilleries, AJK Contracting, Reservoir Ridge Pty Ltd, Queensland Rail and Unimin Australia, 2003-2007; and
- Conducted asbestos audits of more than 60 Central Queensland commercial premises and compiled registers of asbestos materials and products for legislative compliance, 2003-2007.

## **Employment**

- AXM Environmental, 2009-current
- ENSR Australia (previously HLA –Environsciences), 2002-2009
- Energy Resources of Australia Ltd, Ranger Mine, Jabiru, NT, 1984-1997

## **Membership**

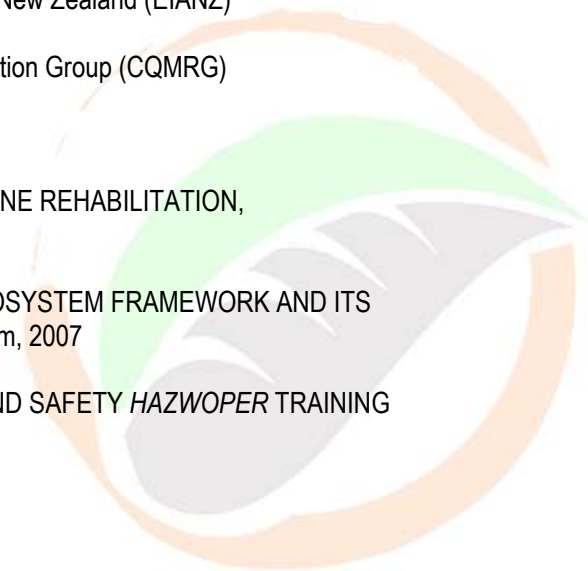
- Environmental Institute of Australia & New Zealand (EIANZ)
- Central Queensland Mining Rehabilitation Group (CQMRG)

## **Additional Study Courses and Qualifications**

THE FUNDAMENTALS OF GOOD MINE REHABILITATION, Short Course, ACMER 2009

THE QUEENSLAND REGIONAL ECOSYSTEM FRAMEWORK AND ITS APPLICATION, Queensland Herbarium, 2007

CONTAMINATED SITES HEALTH AND SAFETY HAZWOPER TRAINING





# Gerard Callahan Curriculum Vitae

ENSR International, 2007

LOSS PREVENTION SYSTEM (Behavioural health and safety training)  
ENSR International, 2007

GENERIC COAL SURFACE INDUCTION  
Queensland Mining Training Advisory Body, 2008

SENIOR FIRST AID,  
St John's Ambulance, 2006

ACID SULFATE SOILS WORKSHOP,  
QASSIT & DNR Qld, 2003

WORKPLACE HEALTH & SAFETY OFFICER – STAGE ONE  
Central Queensland University, 2000

WORKPLACE ASSESSOR LEVEL III  
Mt Cotton Training Services – Certificate, 2001

ANALYTIC TROUBLE SHOOTING PROGRAM  
Kepner Tregoe - Certificate

COLLISION AVOIDANCE/DEFENSIVE DRIVING  
Skilled Motor Vehicle and Rider Training NT - Certificate

TRAIN THE TRAINER 1  
Ranger Uranium Mines Pty Ltd - Certificate of Competency

4 WHEEL DRIVE INSTRUCTOR'S COURSE  
Northern Territory Emergency Service - Certificate

WEED IDENTIFICATION AND SAFE USE OF FARM CHEMICALS  
COURSE  
Northern Territory University

CHAINSAW-OPERATION AND MAINTENANCE COURSE  
Ranger Uranium Mines Pty Ltd - Certificate

SAFE HANDLING AND USE OF EXPLOSIVES  
National Safety Council of Australia - Certificate





**Australian Government**

**Department of Sustainability, Environment, Water, Population and Communities**

Mr Andrew Wharton  
General Manager, Environment  
QCLNG  
QGC Limited  
275 George Street  
BRISBANE QLD 4001

File Ref: 2010/17850 (EPBC 2008/4399)  
2010/15594 (EPBC 2008/4402)  
2010/18397 (EPBC 2008/4398)

Dear Mr Wharton

I am writing to respond to the 22 October 2010 request from James MacDermott, Manager Environment (LNG), QGC, for approval of the ecologists proposed for undertaking pre-clearance ecological surveys and development of species and ecological community management plans.

I have noted the information on the proposed ecologists, including their qualifications and experience as provided in correspondence from James MacDermott, Manager Environment (LNG), QGC, on 20 September 2010, 7 October 2010, and 22 October 2010.

I approve the nominated ecologists as suitable to conduct the pre-clearance ecological surveys and where relevant the development of species and ecological community management plans:

*EPBC 2008/4402 Approval condition 21 c) for the QGC LNG site*  
Dr Kevin Ray Wormington, Senior Ecologist, EGC  
Magdalena Steffens-Bartrim, Principal Consultant, EGC  
Owen Foley, Ecologist, EGC  
RPS ecologists (approved on 25 October 2010);

*EPBC 2008/4399 Approval condition 6 b) for the QGC Gas Transmission Pipeline; and EPBC 2008/4398 Approval conditions 5 g) iii) and 8 and for the Gas Field Development*

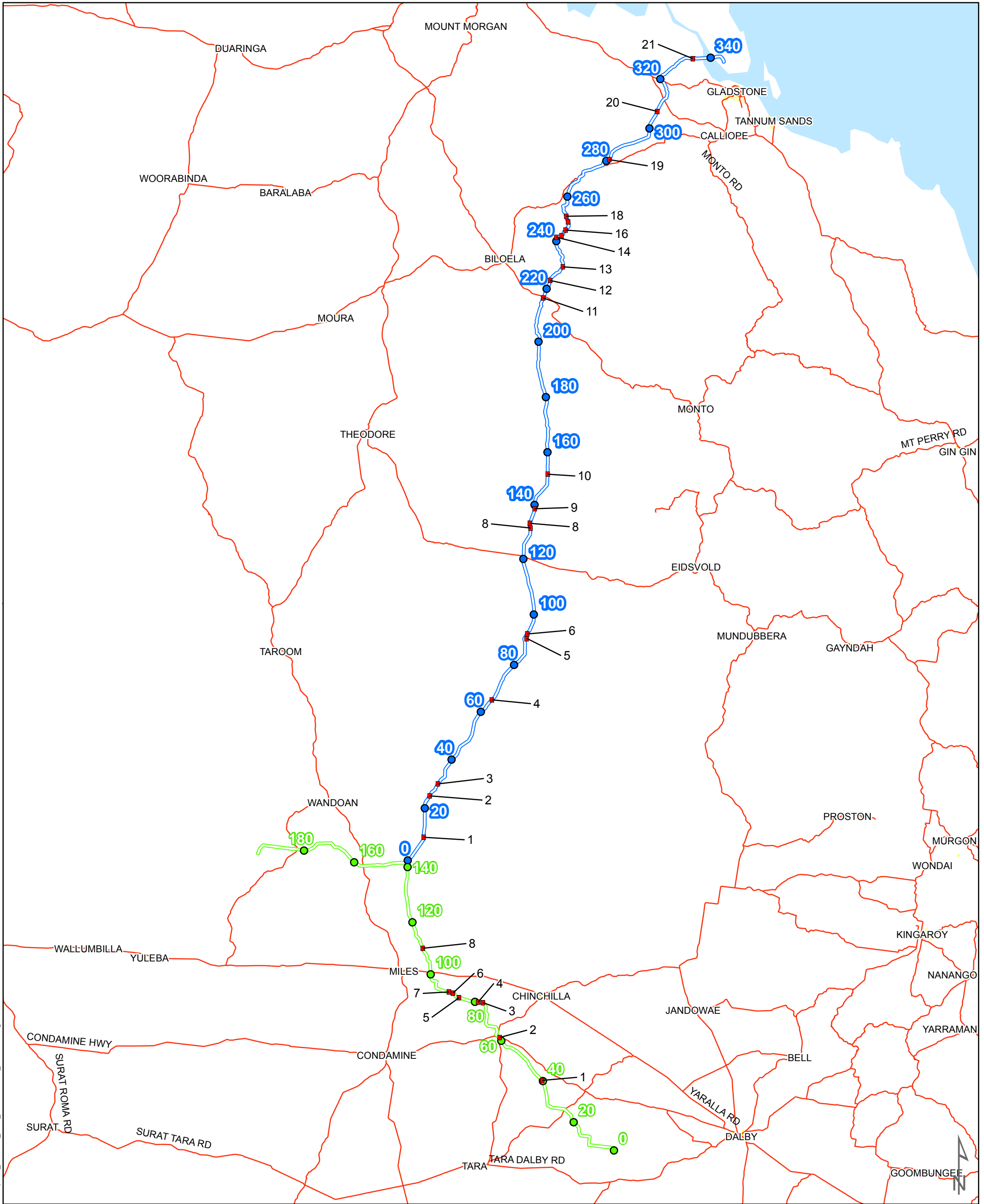
Steve Fox, General Manager, Environment, Unidel  
Jeromy Claridge, Principal Environmental Scientist, Unidel  
Bruce Thompson, Principal Ecologist, Unidel  
Wayne Harris, Senior Botanist, Unidel  
Geoff Sharp, Principle Environmental Scientist, Unidel  
Gerard Callahan, AXM Environmental (subcontractor to Unidel).

Yours sincerely

James Barker  
A/g Assistant Secretary  
Environment Assessment Branch 2  
28 October 2010



## Appendix 2 - TEC, ERE and OCRE Map Series



**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: TEC, ERE & OCRE Map Series Overview  
Gas Collection Header Pipeline

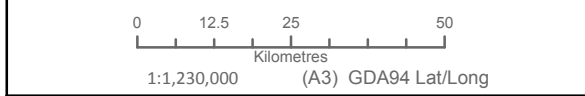
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14/02/2011	AN	NG	Issued for use	0

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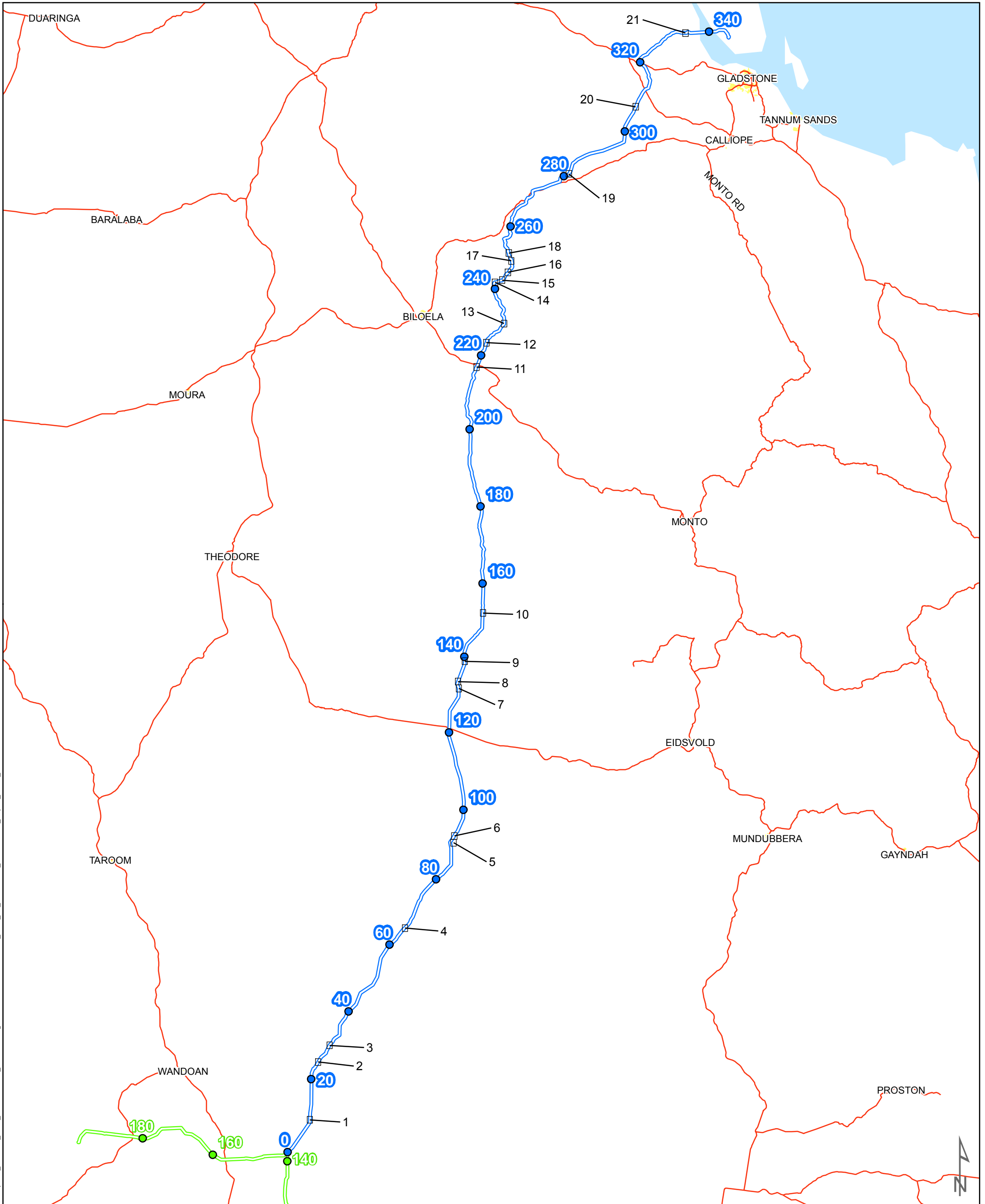
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Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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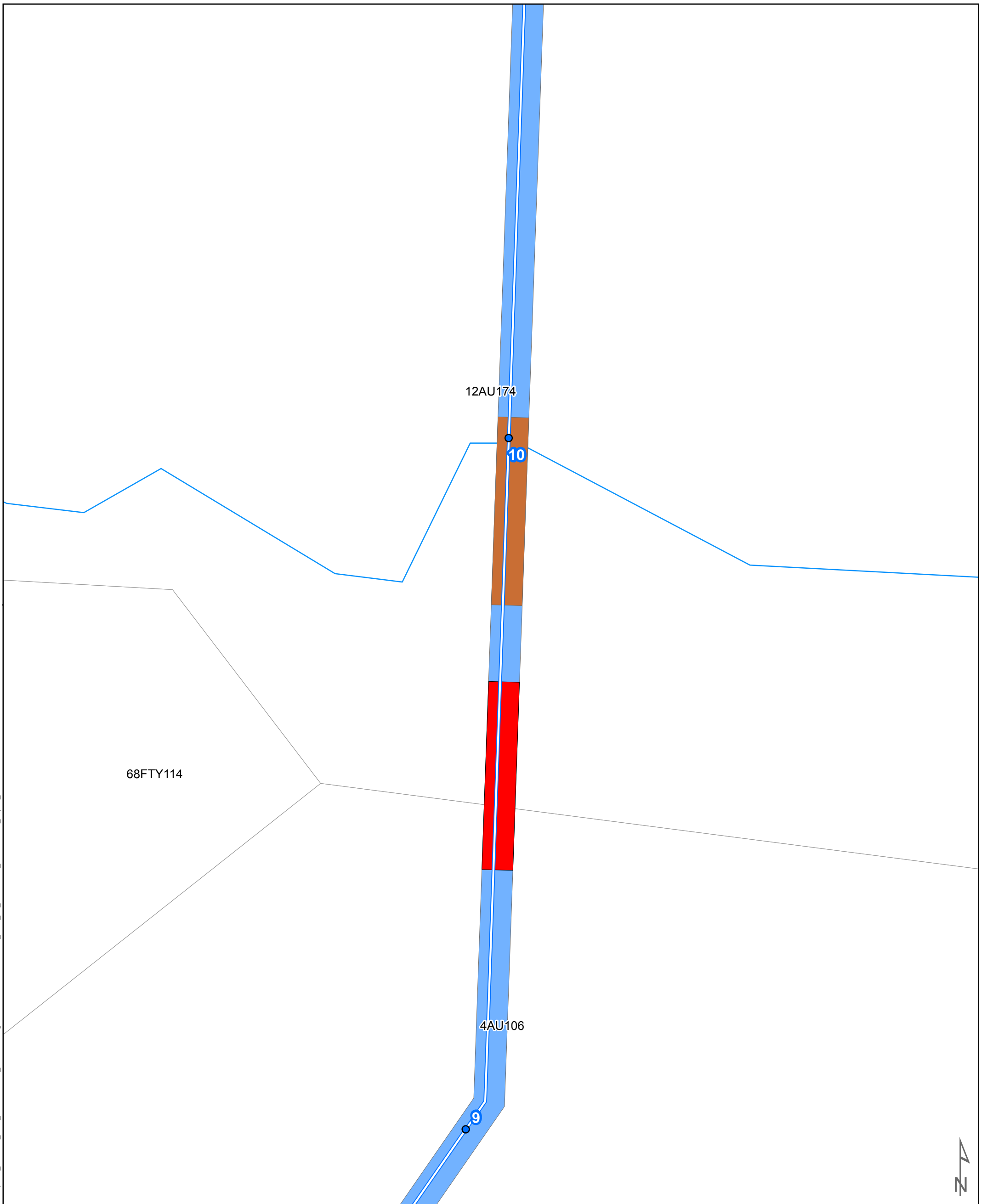
<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																																	
<p><b>TITLE:</b> TEC, ERE &amp; OCRE Map Series Overview Export Pipeline</p> <p><b>DOCUMENT NO:</b> QCLNG-BG00-ENV-MAP-000022- 22</p> <p><b>DATA SOURCE:</b>          Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006          Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: red;">—</span> Roads Major/Minor</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px; margin-right: 5px;"></span> Grid</li> <li><span style="background-color: yellow; display: inline-block; width: 10px; height: 10px; margin-right: 5px;"></span> Built Up Areas</li> </ul>																																			
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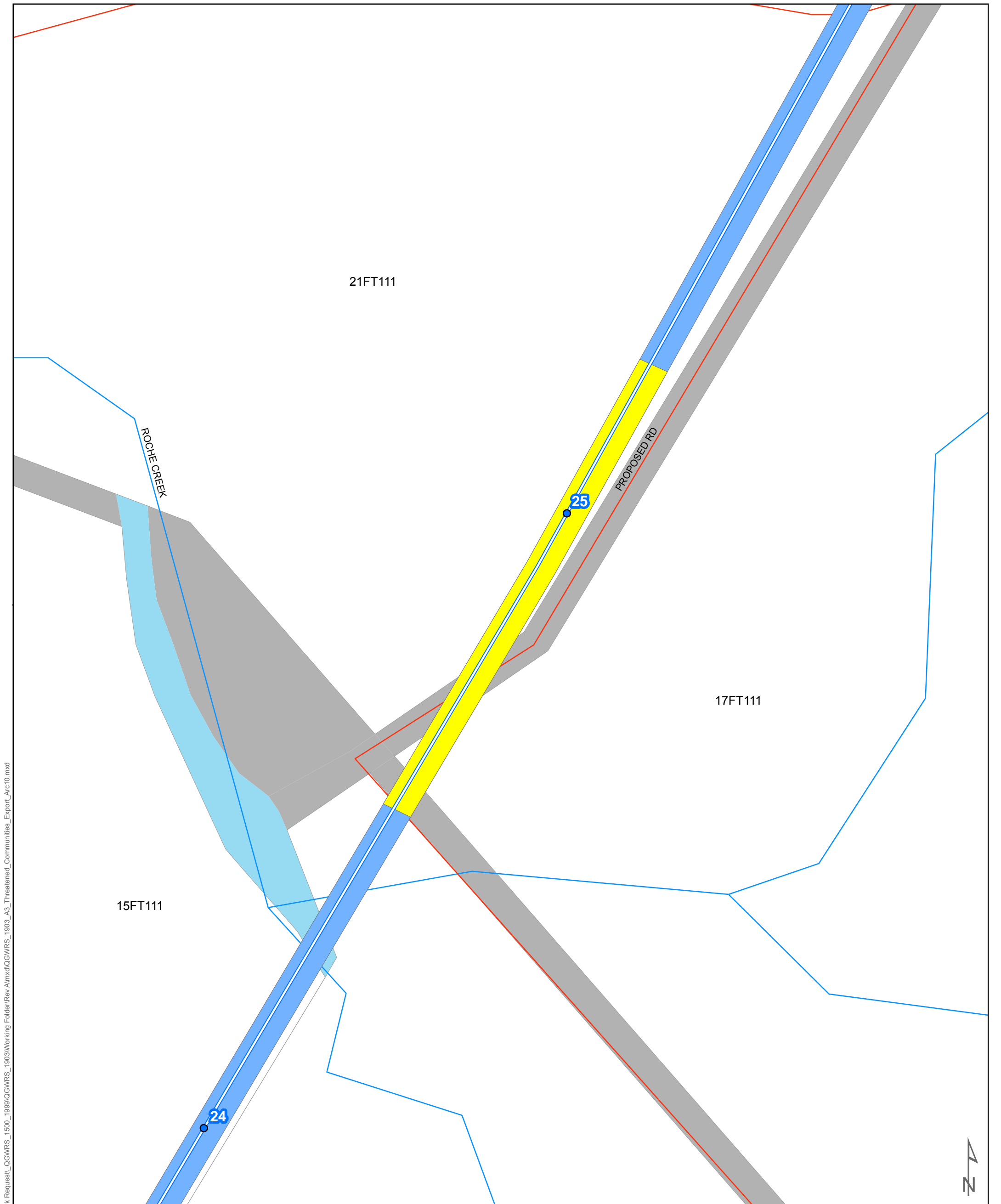


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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>													
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**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 2 of 21

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 2

DATA SOURCE:  
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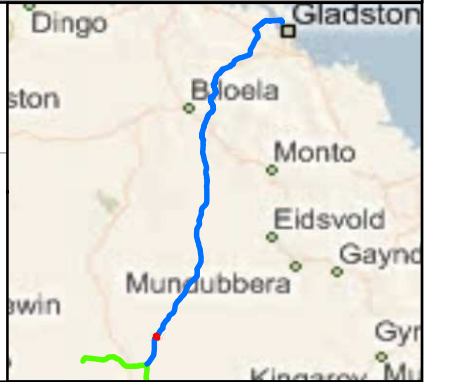
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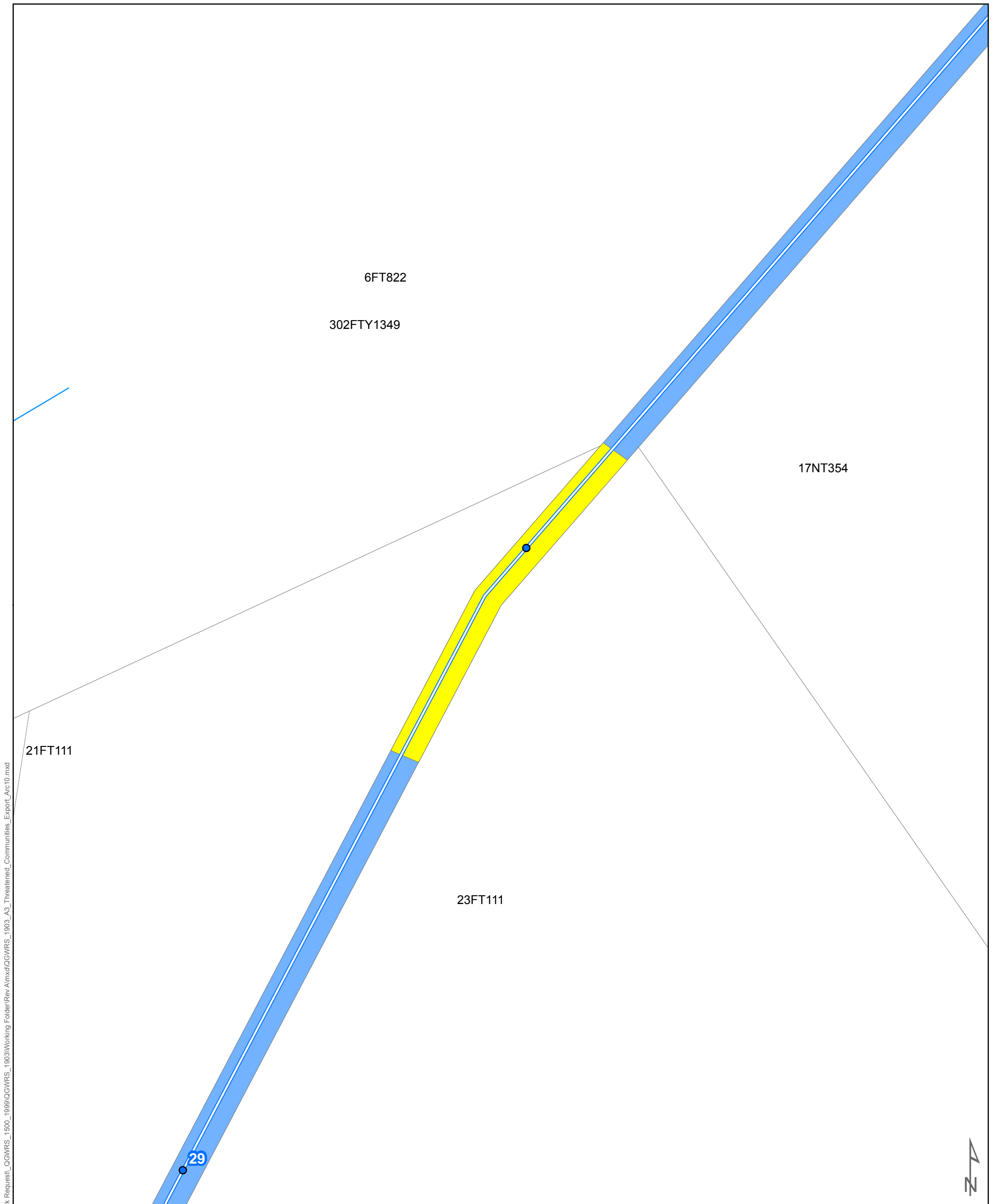
  

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QGC PTY LTD - Queensland Curtis LNG Project

**LEGEND**

**LOCATION DIAGRAM**

TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 3 of 21

Roads	TEC (Brigalow)	Road Casement
Watercourse	TEC & ERE (Brigalow)	Water Casement
Cadastral Boundaries	OCRE	Export Construction Corridor Rev J



DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 3

DATA SOURCE:  
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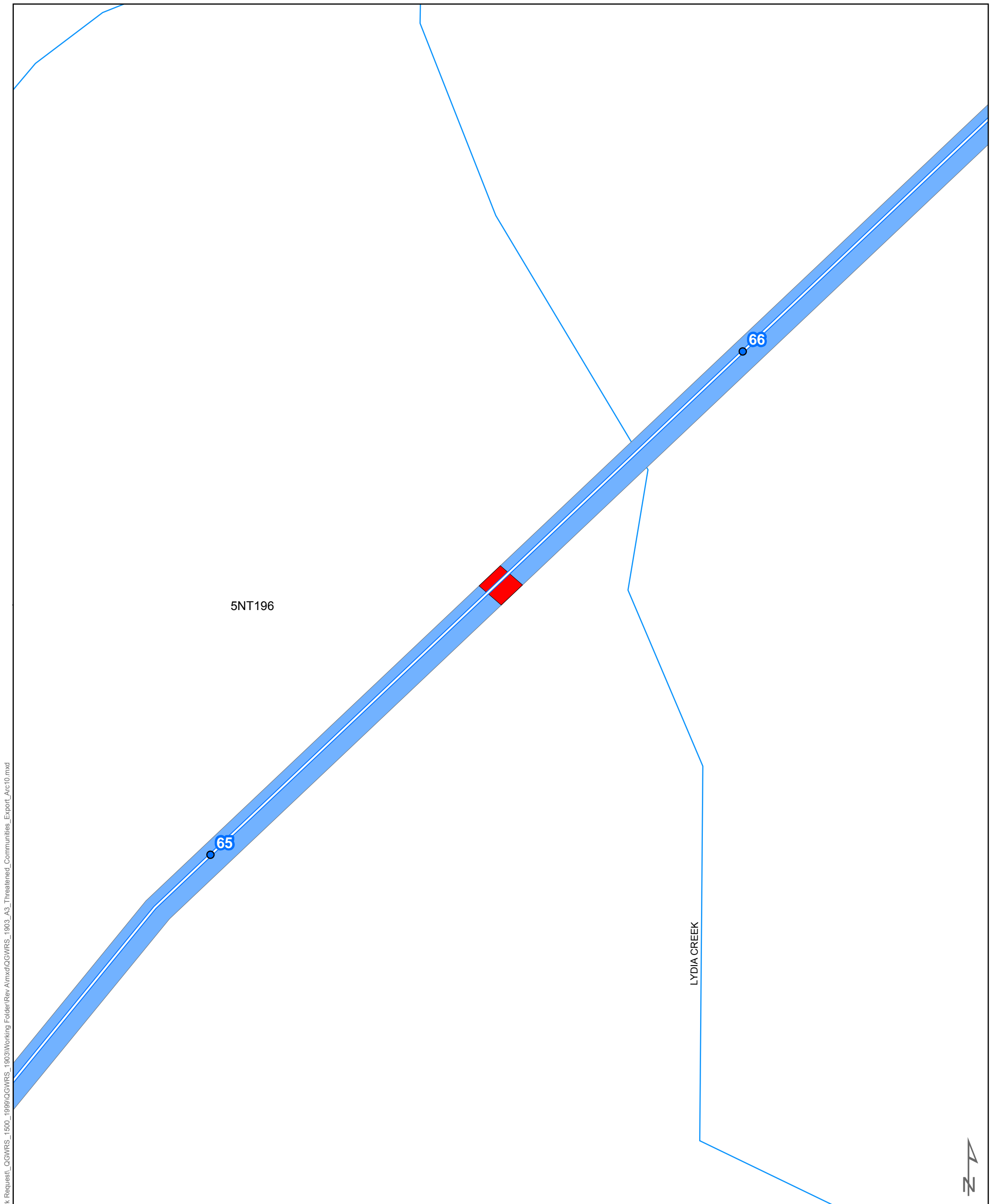
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Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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**TITLE:** TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 4 of 21

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000022 - 4

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

0 50 100 200 300  
Metres  
1:5,000 (A3) GDA94 Lat/Long

**LEGEND**

Roads	TEC (Brigalow)	Road Casement
Watercourse	TEC & ERE (Brigalow)	Water Casement
Cadastral Boundaries	OCRE	Export Construction Corridor Rev J

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**

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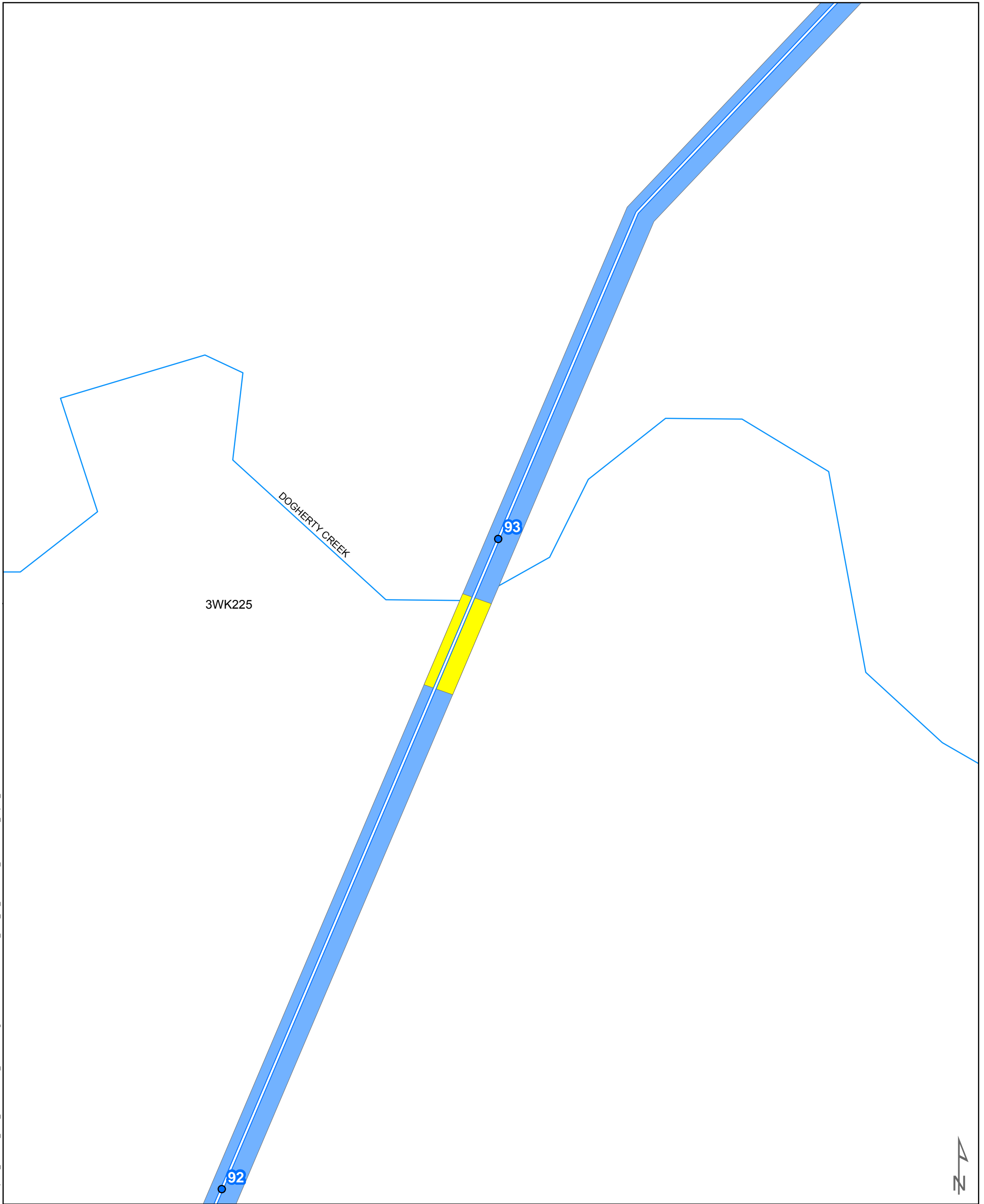
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>													
<p>TITLE: TEC, ERE &amp; OCRE Map Series Export Pipeline Map Number: 5 of 21</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 5</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<table border="0"> <tr> <td> Roads</td> <td> TEC (Brigalow)</td> <td> Road Casement</td> </tr> <tr> <td> Watercourse</td> <td> TEC &amp; ERE (Brigalow)</td> <td> Water Casement</td> </tr> <tr> <td> Cadastral Boundaries</td> <td> OCRE</td> <td> Export Construction Corridor Rev J</td> </tr> </table>		Roads	TEC (Brigalow)	Road Casement	Watercourse	TEC & ERE (Brigalow)	Water Casement	Cadastral Boundaries	OCRE	Export Construction Corridor Rev J					
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Watercourse	TEC & ERE (Brigalow)	Water Casement															
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PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY														
Export Pipeline & KP's	Rev K	08-12-2010	Unidel														
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

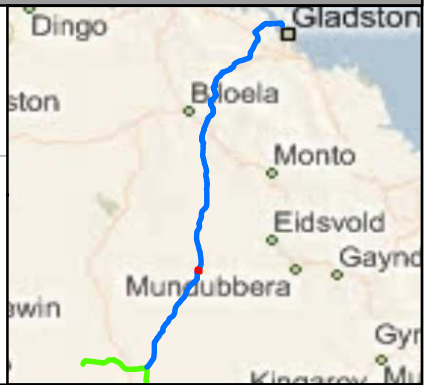
TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 6 of 21

Roads	TEC (Brigalow)	Road Casement
Watercourse	TEC & ERE (Brigalow)	Water Casement
Cadastral Boundaries	OCRE	Export Construction Corridor Rev J

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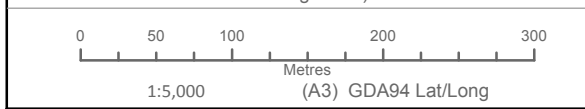
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DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 6

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DATA SOURCE:  
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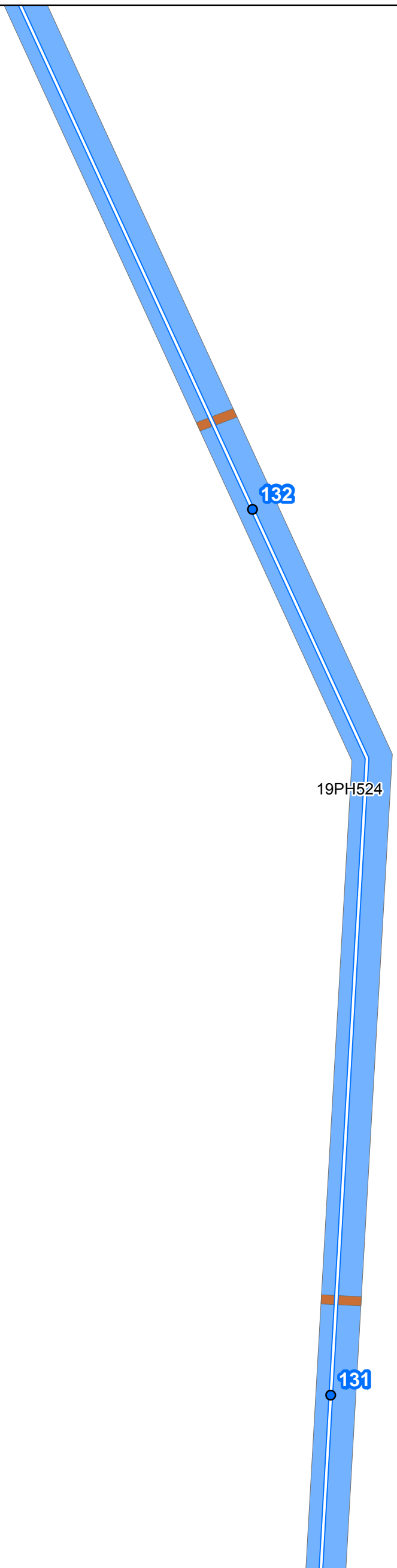


PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

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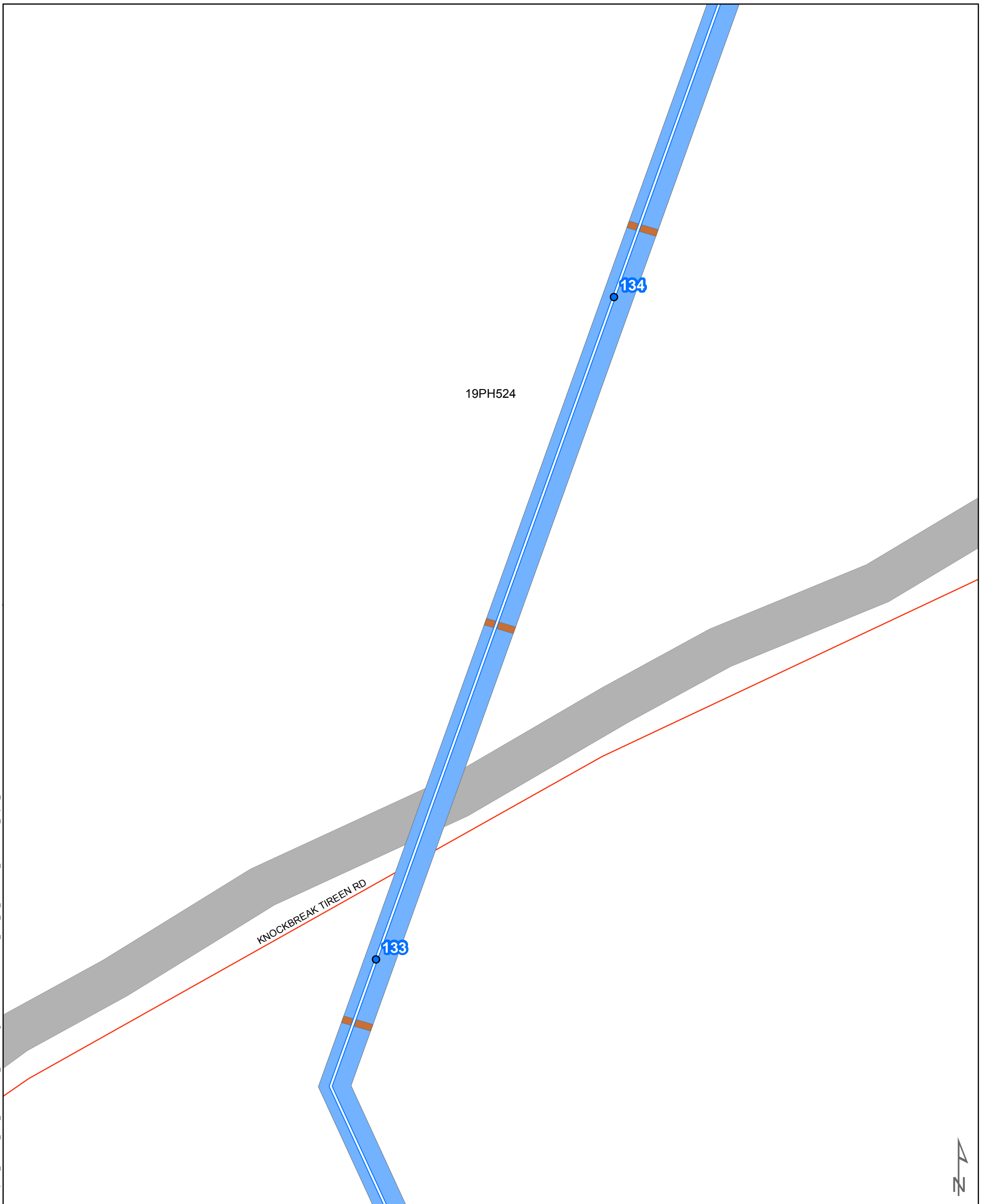
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																					
<p>TITLE: TEC, ERE &amp; OCRE Map Series Export Pipeline Map Number: 7 of 21</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 7</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: red;">—</span> Roads</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastral Boundaries</li> <li><span style="background-color: brown; width: 10px; height: 10px; display: inline-block;"></span> TEC (Brigalow)</li> <li><span style="background-color: red; width: 10px; height: 10px; display: inline-block;"></span> TEC &amp; ERE (Brigalow)</li> <li><span style="background-color: yellow; width: 10px; height: 10px; display: inline-block;"></span> OCRE</li> <li><span style="background-color: grey; width: 10px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: cyan; width: 10px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Export Construction Corridor Rev J</li> </ul>																							
<p>0 50 100 200 300 Metres 1:5,000 GDA94 Lat/Long</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>14/02/2011</td> <td>AN</td> <td>NG</td> <td>Issued for use</td> <td>0</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	14/02/2011	AN	NG	Issued for use	0											<div style="text-align: center;">   <p>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</p> </div>	
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>													
<p>TITLE: TEC, ERE &amp; OCRE Map Series Export Pipeline Map Number: 8 of 21</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 8</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<table border="0"> <tr> <td> Roads</td> <td> TEC (Brigalow)</td> <td> Road Casement</td> </tr> <tr> <td> Watercourse</td> <td> TEC &amp; ERE (Brigalow)</td> <td> Water Casement</td> </tr> <tr> <td> Cadastral Boundaries</td> <td> OCRE</td> <td> Export Construction Corridor Rev J</td> </tr> </table>		Roads	TEC (Brigalow)	Road Casement	Watercourse	TEC & ERE (Brigalow)	Water Casement	Cadastral Boundaries	OCRE	Export Construction Corridor Rev J					
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<p>0 50 100 200 300 Metres 1:5,000 (A3) GDA94 Lat/Long</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	Export Pipeline & KP's	Rev K	08-12-2010	Unidel	Collection Header & KP's	Rev J	08-12-2010	Unidel	<div style="text-align: center;">   <small>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</small> </div> <div style="text-align: center;"> </div>	
PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY														
Export Pipeline & KP's	Rev K	08-12-2010	Unidel														
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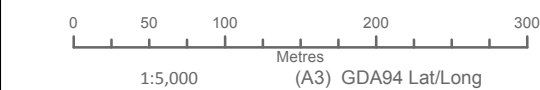


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 9 of 21

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 9

DATA SOURCE:  
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**LEGEND**

- Roads
- Watercourse
- Cadastral Boundaries
- TEC (Brigalow)
- TEC & ERE (Brigalow)
- OCRE
- Road Casement
- Water Casement
- Export Construction Corridor Rev J

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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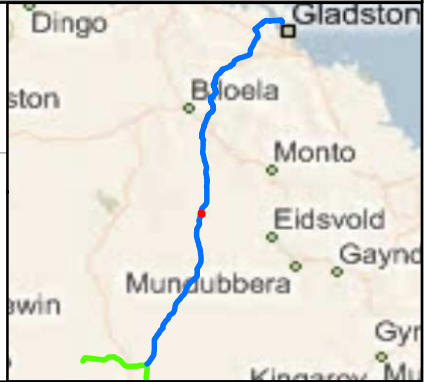
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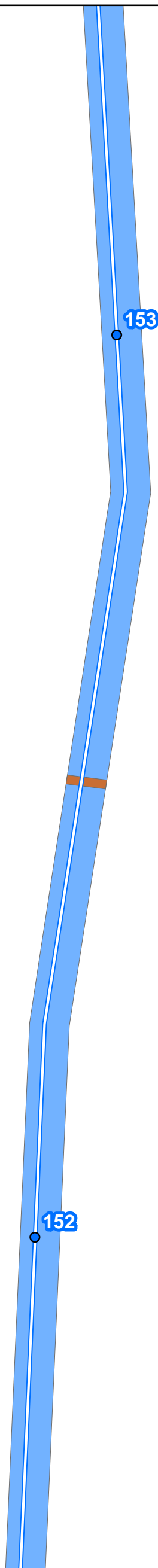
**LOCATION DIAGRAM**



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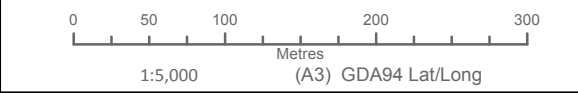


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 10 of 21

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 10

DATA SOURCE:  
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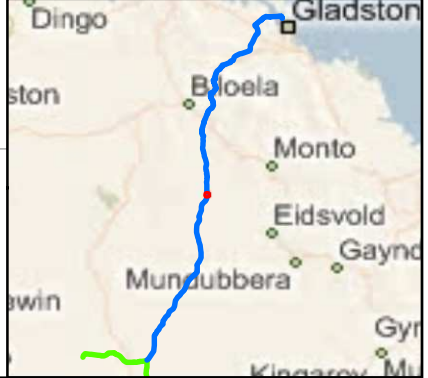
**LEGEND**

- Roads
- Watercourse
- Cadastral Boundaries
- TEC (Brigalow)
- TEC & ERE (Brigalow)
- OCRE
- Road Casement
- Water Casement
- Export Construction Corridor Rev J

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
14/02/2011	AN	NG	Issued for use	0

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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**LOCATION DIAGRAM**



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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 11 of 21

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 11

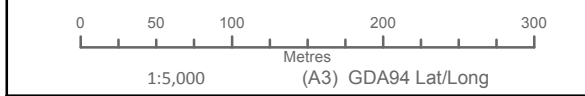
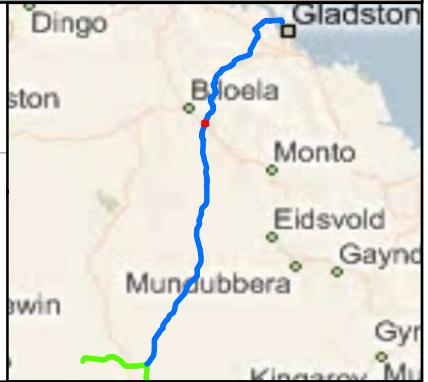
DATA SOURCE:  
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— Roads	■ TEC (Brigalow)	■ Road Casement
— Watercourse	■ TEC & ERE (Brigalow)	■ Water Casement
□ Cadastral Boundaries	■ OCRE	■ Export Construction Corridor Rev J

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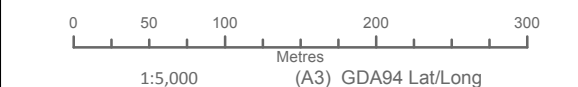


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 12 of 21

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 12

DATA SOURCE:  
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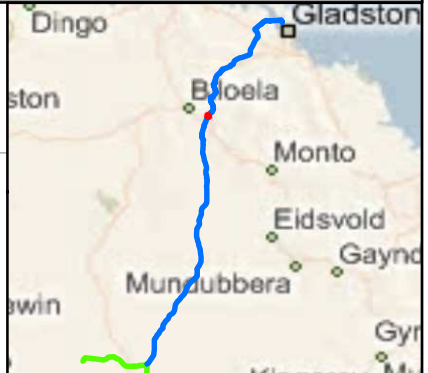
**LEGEND**

- Roads
- Watercourse
- Cadastral Boundaries
- TEC (Brigalow)
- TEC & ERE (Brigalow)
- OCRE
- Road Casement
- Water Casement
- Export Construction Corridor Rev J

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
14/02/2011	AN	NG	Issued for use	0

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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<span style="color: green;">●—</span> Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**



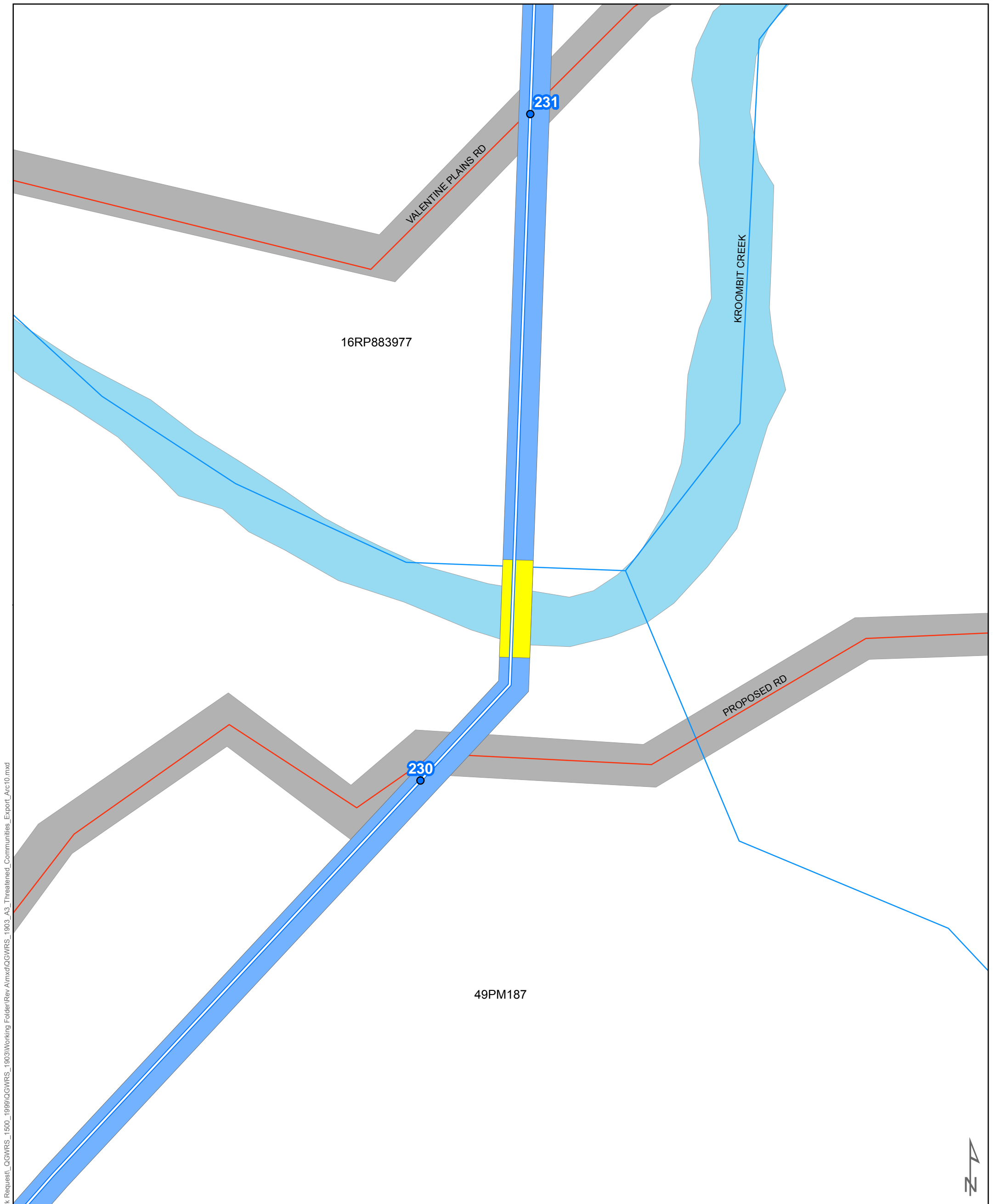
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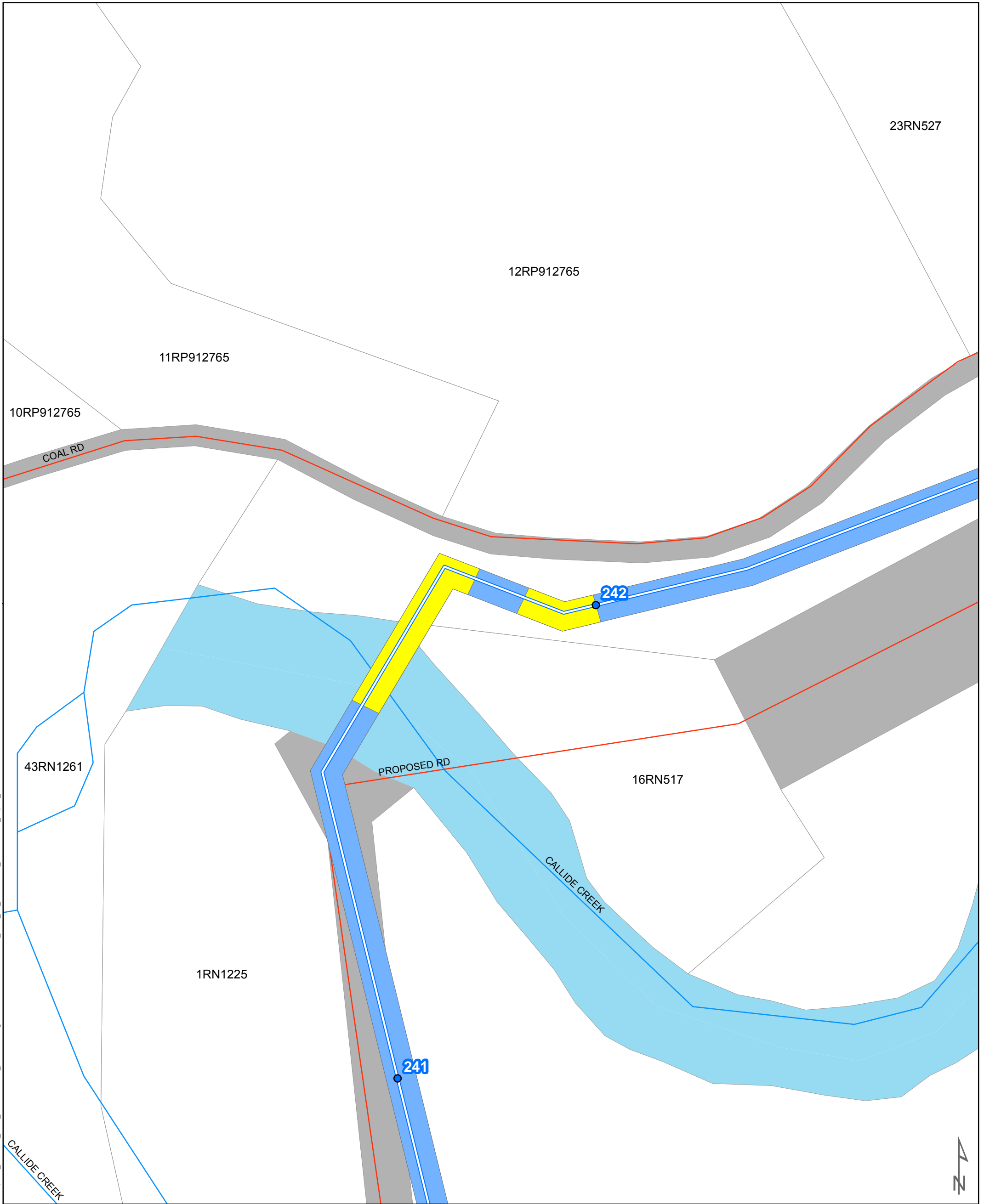
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>													
<p><b>TITLE:</b> TEC, ERE &amp; OCRE Map Series Export Pipeline Map Number: 13 of 21</p> <p><b>DOCUMENT NO:</b> QCLNG-BG00-ENV-MAP-000022 - 13</p> <p><b>DATA SOURCE:</b> Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">— Roads</td> <td style="border-bottom: 1px solid black;">■ TEC (Brigalow)</td> <td style="border-bottom: 1px solid black;">■ Road Casement</td> </tr> <tr> <td style="border-bottom: 1px solid black;">— Watercourse</td> <td style="border-bottom: 1px solid black;">■ TEC &amp; ERE (Brigalow)</td> <td style="border-bottom: 1px solid black;">■ Water Casement</td> </tr> <tr> <td style="border-bottom: 1px solid black;">□ Cadastral Boundaries</td> <td style="border-bottom: 1px solid black;">■ OCRE</td> <td style="border-bottom: 1px solid black;">■ Export Construction Corridor Rev J</td> </tr> </table>		— Roads	■ TEC (Brigalow)	■ Road Casement	— Watercourse	■ TEC & ERE (Brigalow)	■ Water Casement	□ Cadastral Boundaries	■ OCRE	■ Export Construction Corridor Rev J					
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— Watercourse	■ TEC & ERE (Brigalow)	■ Water Casement															
□ Cadastral Boundaries	■ OCRE	■ Export Construction Corridor Rev J															
<p><b>DATE</b>    <b>AUTHOR</b>    <b>APPROVED</b>    <b>REVISION NOTE</b>    <b>REV.</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">14/02/2011</td> <td style="width: 15%;">AN</td> <td style="width: 15%;">NG</td> <td style="width: 45%;">Issued for use</td> <td style="width: 10%; text-align: center;">0</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>		14/02/2011	AN	NG	Issued for use	0						<div style="text-align: center;">   <small>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</small> </div>					
14/02/2011	AN	NG	Issued for use	0													
<p>0    50    100    200    300</p> <p style="text-align: center;">Metres 1:5,000 (A3) GDA94 Lat/Long</p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>PROPOSED PIPELINE ALIGNMENT</b></td> <td style="width: 15%;"><b>REVISION</b></td> <td style="width: 15%;"><b>DATE</b></td> <td style="width: 30%;"><b>SUPPLIED BY</b></td> </tr> <tr> <td>●— Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td>●— Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </table>		<b>PROPOSED PIPELINE ALIGNMENT</b>	<b>REVISION</b>	<b>DATE</b>	<b>SUPPLIED BY</b>	●— Export Pipeline & KP's	Rev K	08-12-2010	Unidel	●— Collection Header & KP's	Rev J	08-12-2010	Unidel	<div style="text-align: center;">   <small>UNIDEL</small> </div>	
<b>PROPOSED PIPELINE ALIGNMENT</b>	<b>REVISION</b>	<b>DATE</b>	<b>SUPPLIED BY</b>														
●— Export Pipeline & KP's	Rev K	08-12-2010	Unidel														
●— Collection Header & KP's	Rev J	08-12-2010	Unidel														

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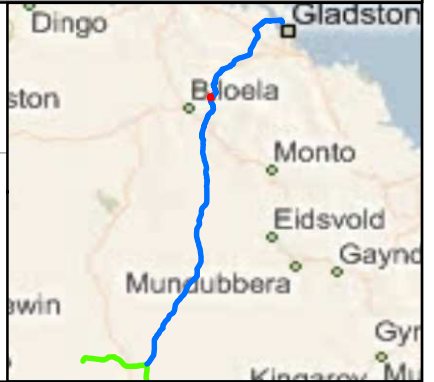


QGC PTY LTD - Queensland Curtis LNG Project

LEGEND

- Roads
- Watercourse
- Cadastral Boundaries
- TEC (Brigalow)
- TEC & ERE (Brigalow)
- OCRE
- Road Casement
- Water Casement
- Export Construction Corridor Rev J

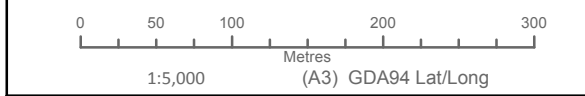
LOCATION DIAGRAM



DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 14

DATA SOURCE:  
 Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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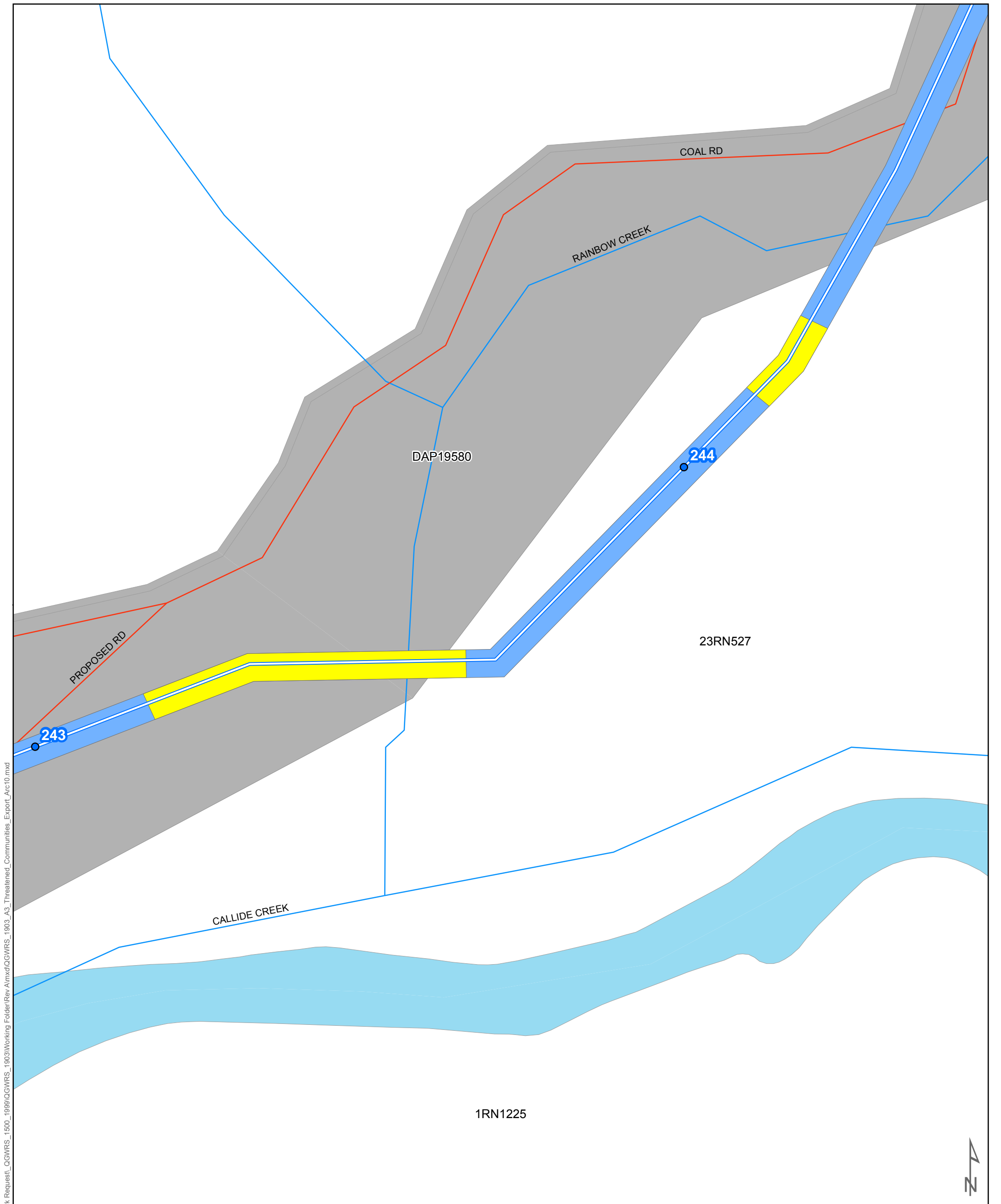
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<span style="color: green;">●</span> Collection Header & KP's	Rev J	08-12-2010	Unidel

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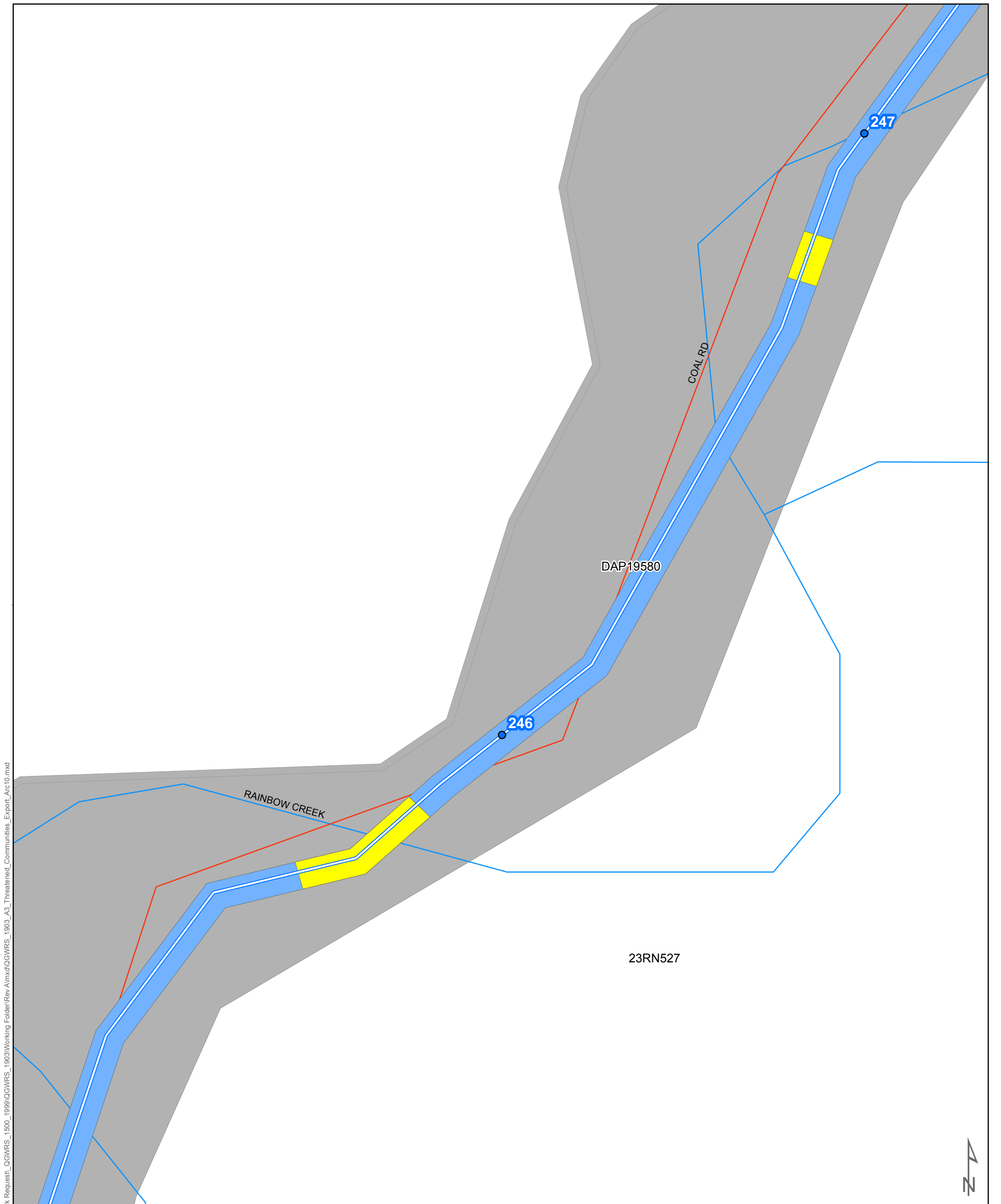
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>													
<p>TITLE: TEC, ERE &amp; OCRE Map Series Export Pipeline Map Number: 15 of 21</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 15</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<table border="0"> <tr> <td> Roads</td> <td> TEC (Brigalow)</td> <td> Road Casement</td> </tr> <tr> <td> Watercourse</td> <td> TEC &amp; ERE (Brigalow)</td> <td> Water Casement</td> </tr> <tr> <td> Cadastral Boundaries</td> <td> OCRE</td> <td> Export Construction Corridor Rev J</td> </tr> </table>		Roads	TEC (Brigalow)	Road Casement	Watercourse	TEC & ERE (Brigalow)	Water Casement	Cadastral Boundaries	OCRE	Export Construction Corridor Rev J					
Roads	TEC (Brigalow)	Road Casement															
Watercourse	TEC & ERE (Brigalow)	Water Casement															
Cadastral Boundaries	OCRE	Export Construction Corridor Rev J															
<p>14/02/2011    AN    NG    Issued for use    0</p>		<table border="0"> <tr> <td> Export Pipeline &amp; KP's</td> <td>REVISION</td> <td>DATE</td> <td>SUPPLIED BY</td> </tr> <tr> <td> Collection Header &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td></td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </table>		Export Pipeline & KP's	REVISION	DATE	SUPPLIED BY	Collection Header & KP's	Rev K	08-12-2010	Unidel		Rev J	08-12-2010	Unidel	 	
Export Pipeline & KP's	REVISION	DATE	SUPPLIED BY														
Collection Header & KP's	Rev K	08-12-2010	Unidel														
	Rev J	08-12-2010	Unidel														
<p>0 50 100 200 300 Metres 1:5,000 (A3) GDA94 Lat/Long</p>																	

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**TITLE:** TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 16 of 21

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000022 - 16

**DATA SOURCE:**  
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Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

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Metres  
1:5,000 (A3) GDA94 Lat/Long

**LEGEND**

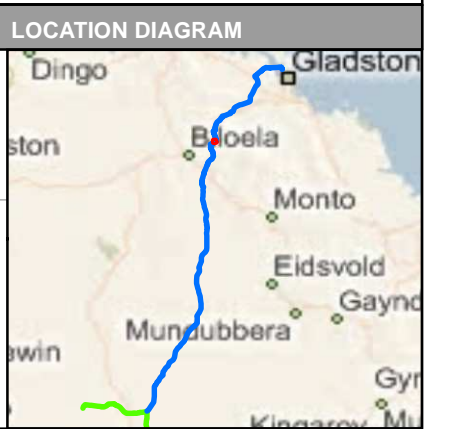
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Watercourse	TEC & ERE (Brigalow)	Water Casement
Cadastral Boundaries	OCRE	Export Construction Corridor Rev J

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
14/02/2011	AN	NG	Issued for use	0

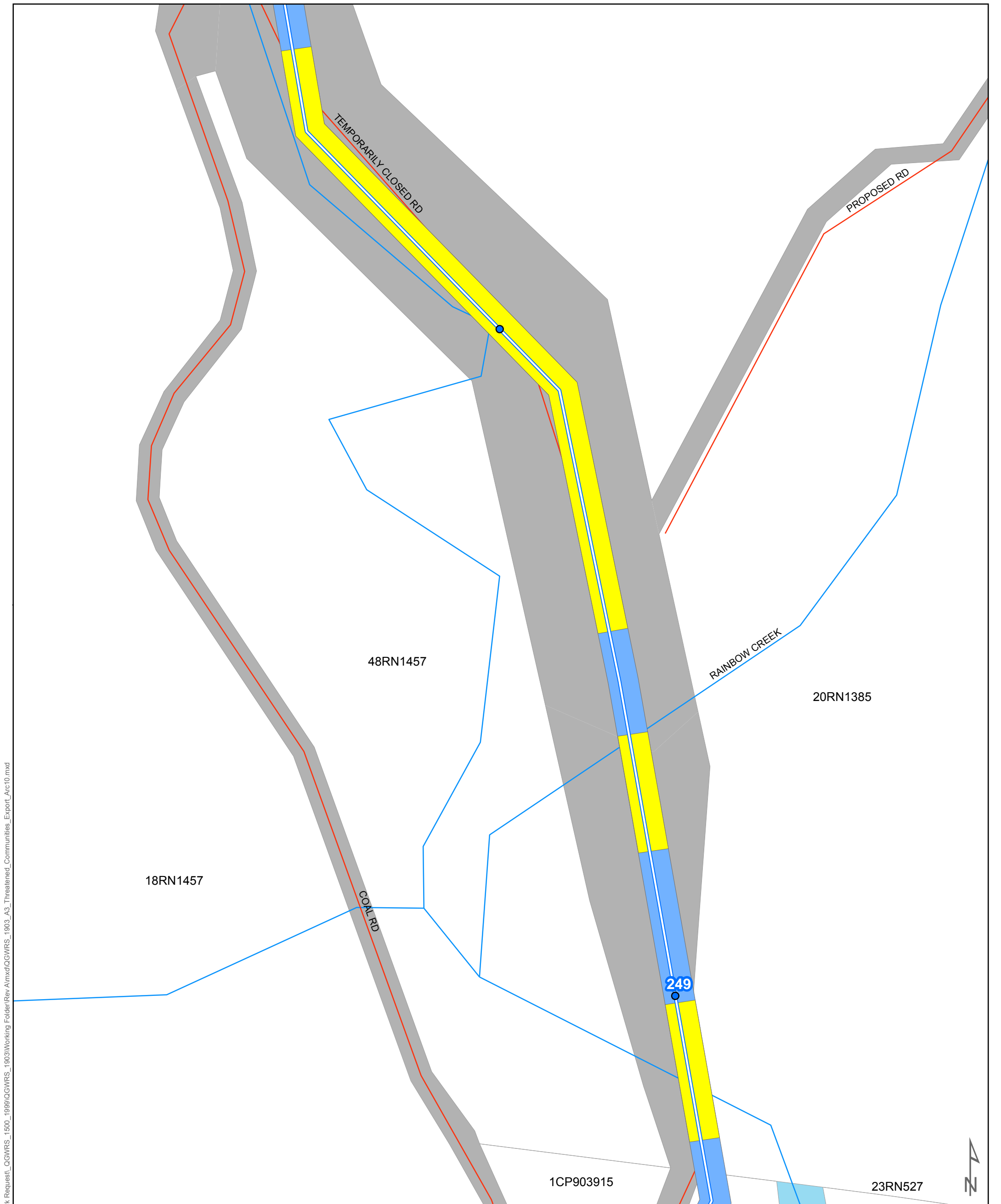
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel



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**TITLE:** TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 17 of 21

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000022 - 17

**DATA SOURCE:**  
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Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

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Metres  
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**LEGEND**

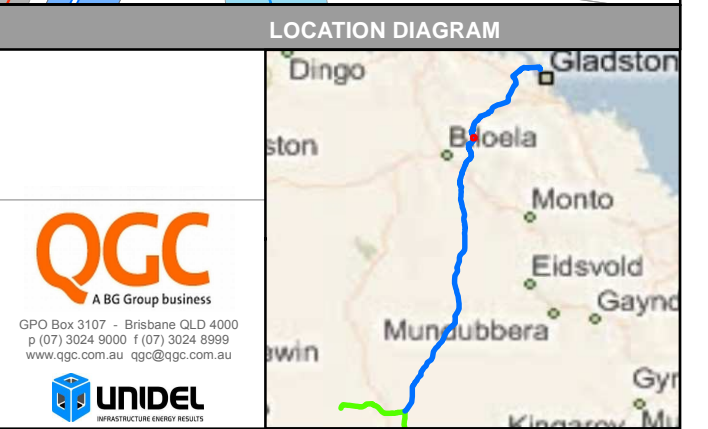
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Watercourse	TEC & ERE (Brigalow)	Water Casement
Cadastral Boundaries	OCRE	Export Construction Corridor Rev J

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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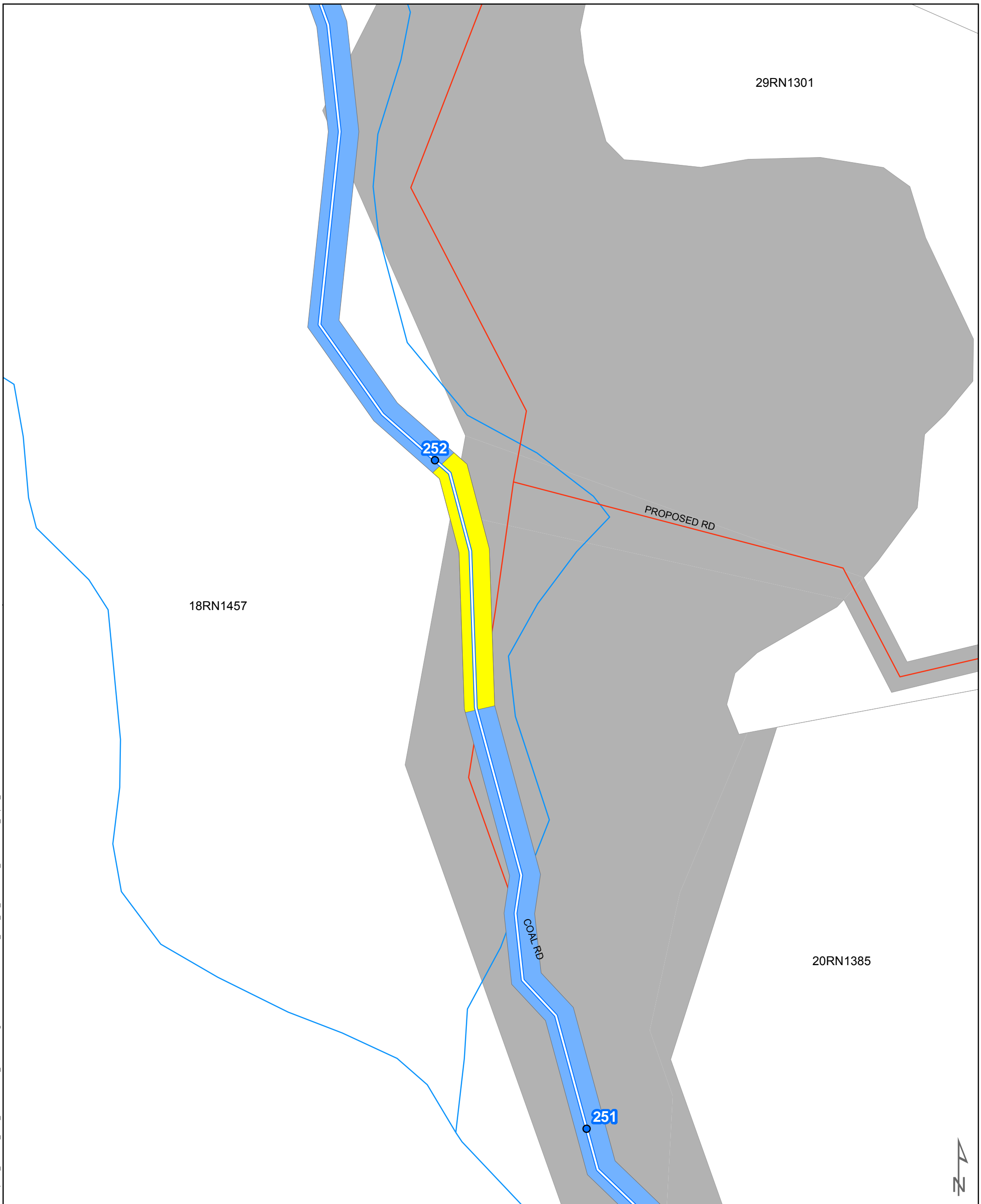
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel



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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																						
TITLE: TEC, ERE & OCRE Map Series Export Pipeline Map Number: 18 of 21		Roads Watercourse Cadastral Boundaries	TEC (Brigalow) TEC & ERE (Brigalow) OCRE	Road Casement Water Casement Export Construction Corridor Rev J																						
DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 18		<table border="1"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>14/02/2011</td> <td>AN</td> <td>NG</td> <td>Issued for use</td> <td>0</td> </tr> </tbody> </table>	DATE	AUTHOR		APPROVED	REVISION NOTE	REV.	14/02/2011	AN	NG	Issued for use	0	<table border="1"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>	PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	Export Pipeline & KP's	Rev K	08-12-2010	Unidel	Collection Header & KP's	Rev J	08-12-2010	Unidel
DATE	AUTHOR	APPROVED	REVISION NOTE	REV.																						
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Collection Header & KP's	Rev J	08-12-2010	Unidel																							
DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010				 																						

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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 19 of 21

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000022 - 19

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
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Metres  
1:5,000 (A3) GDA94 Lat/Long

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14/02/2011	AN	NG	Issued for use	0

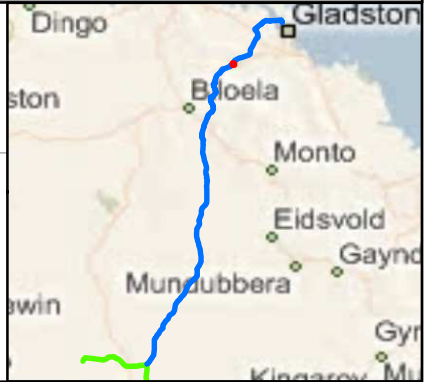
  

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Collection Header & KP's	Rev J	08-12-2010	Unidel

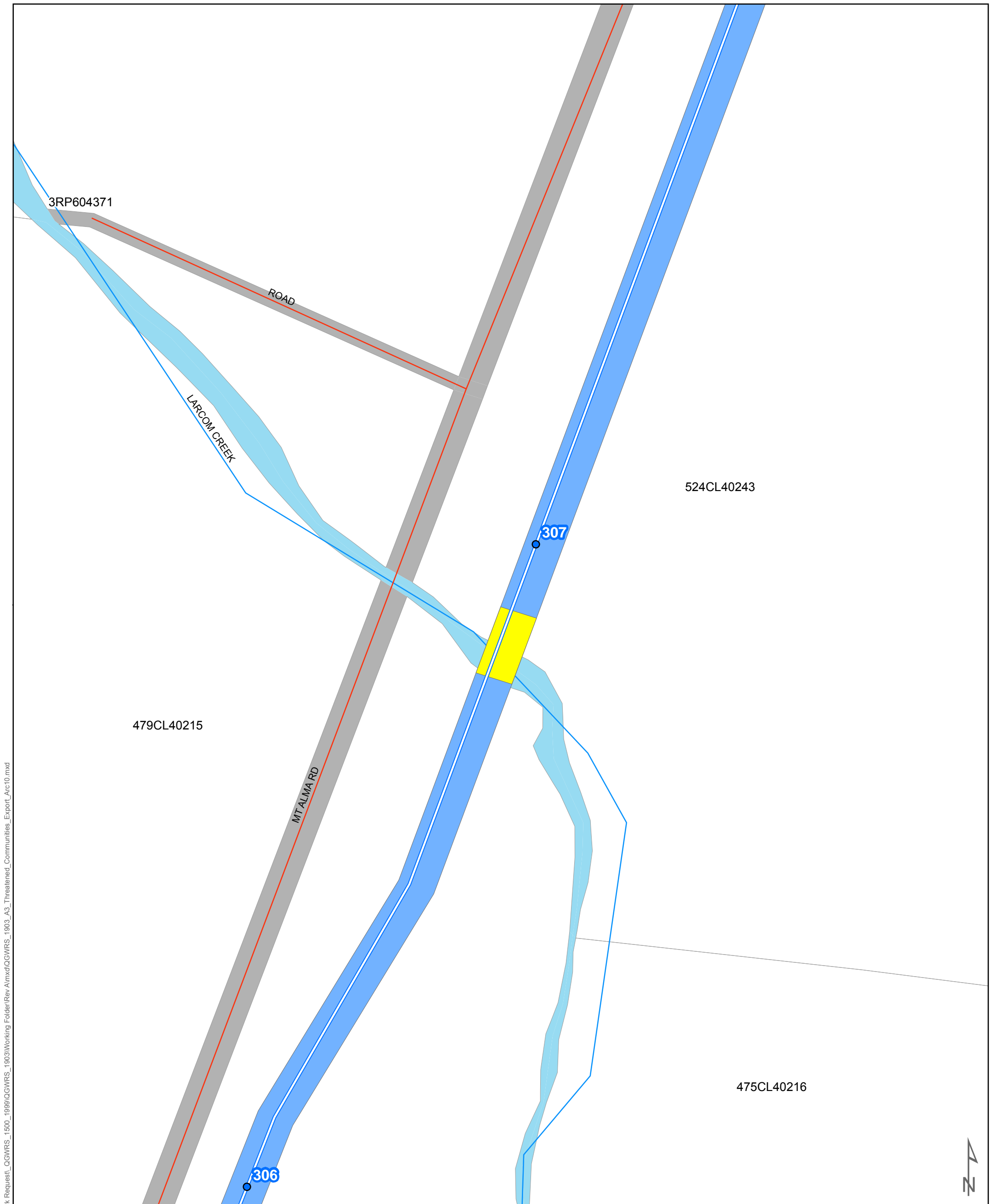
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**TITLE:** TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 20 of 21

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000022 - 20

**DATA SOURCE:**  
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0 50 100 200 300  
Metres  
1:5,000 (A3) GDA94 Lat/Long

**LEGEND**

- Roads
- Watercourse
- Cadastral Boundaries
- TEC (Brigalow)
- TEC & ERE (Brigalow)
- OCRE
- Road Casement
- Water Casement
- Export Construction Corridor Rev J

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
14/02/2011	AN	NG	Issued for use	0

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**

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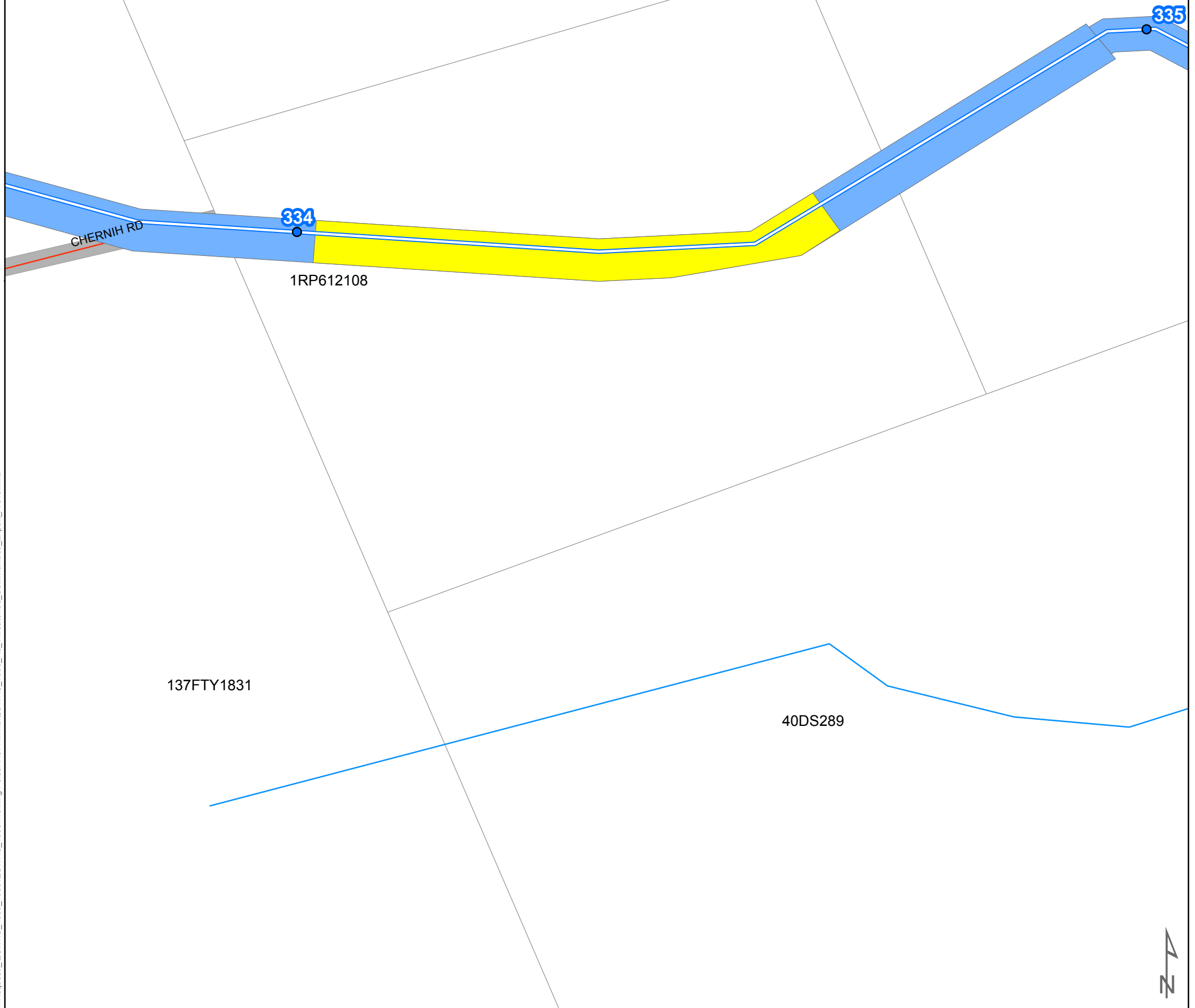
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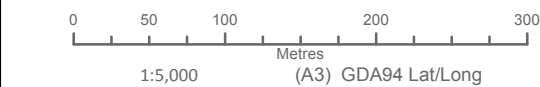


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: TEC, ERE & OCRE Map Series  
Export Pipeline  
Map Number: 21 of 21

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000022 - 21

DATA SOURCE:  
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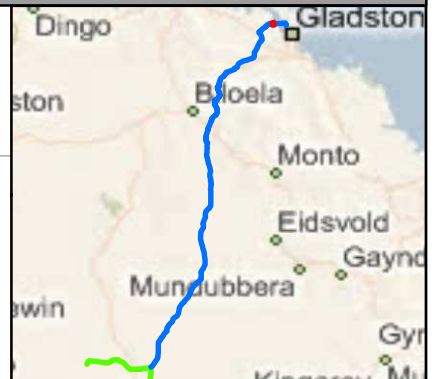
**LEGEND**

- Roads
- Watercourse
- Cadastral Boundaries
- TEC (Brigalow)
- TEC & ERE (Brigalow)
- OCRE
- Road Casement
- Water Casement
- Export Construction Corridor Rev J

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**LOCATION DIAGRAM**



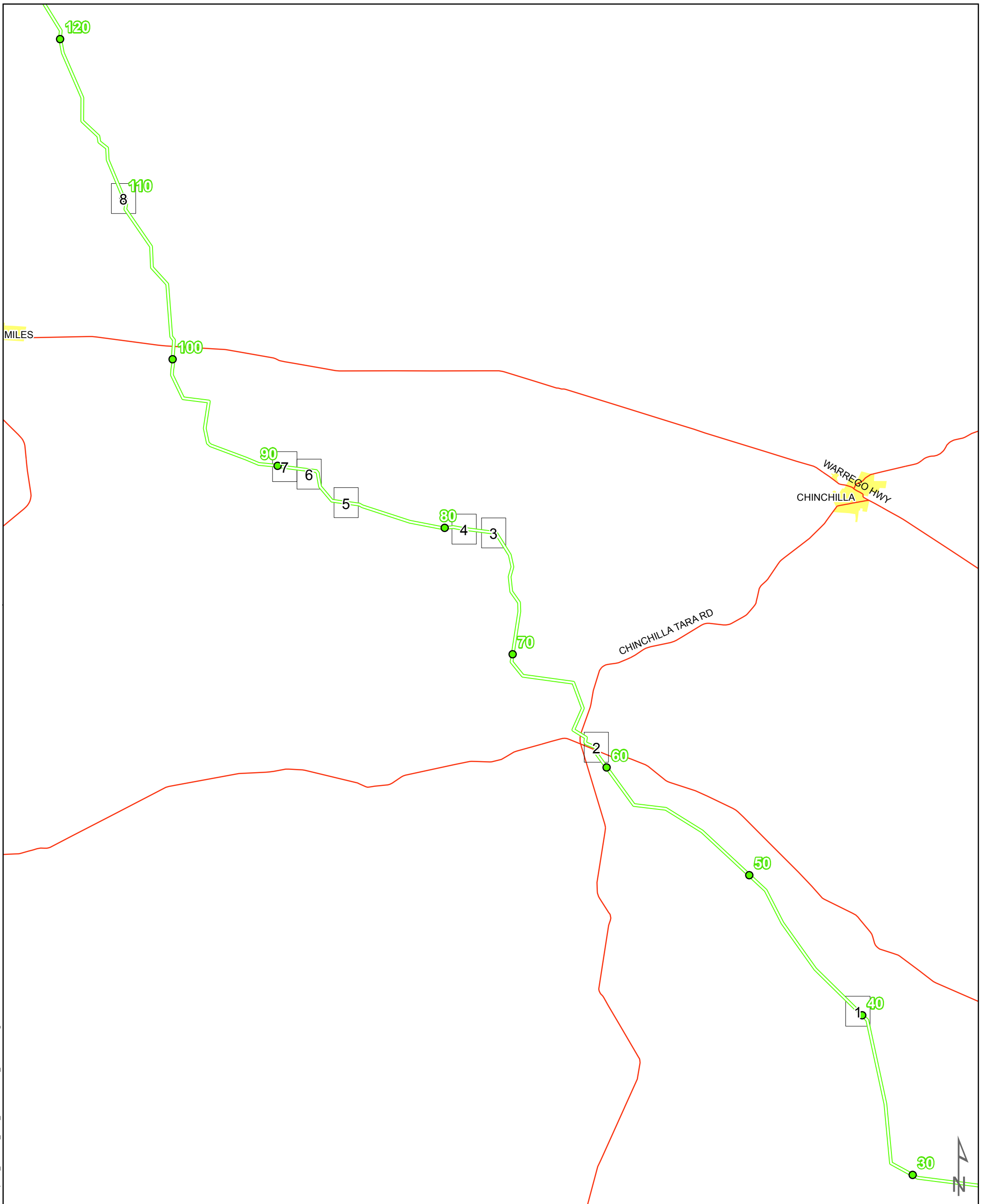
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**QGC PTY LTD - Queensland Curtis LNG Project**

**TITLE:** TEC, ERE & OCRE Map Series Overview Gas Collection Header Pipeline

**DOCUMENT NO:** QCLNG-BX00-ENV-MAP-000059 - 9

**DATA SOURCE:**  
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 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

0 2 4 8  
 Kilometres  
 1:200,000 (A3) GDA94 Lat/Long

**LEGEND**

	Map Series
	Roads Major/Minor
	Built Up Areas

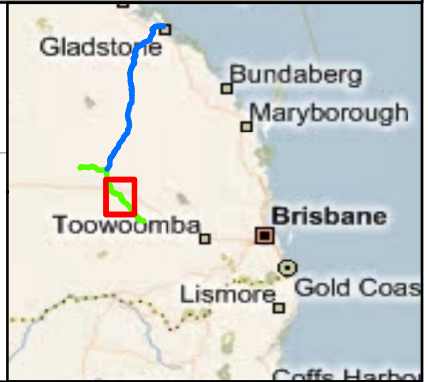
  

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**



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8DY86

9DY86

7DY86

17DY93

19RP836002

MONTROSE RD

41

40

**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: TEC, ERE & OCRE Map Series  
Gas Collection Header Pipeline  
Map Number: 1 of 8

Roads	TEC (Brigalow)	Cadastral Boundaries
Watercourse	TEC & ERE (Brigalow)	Road Casement
OCRE	Water Casement	

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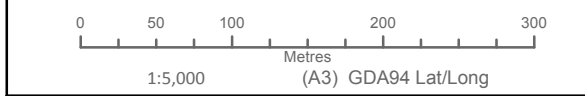
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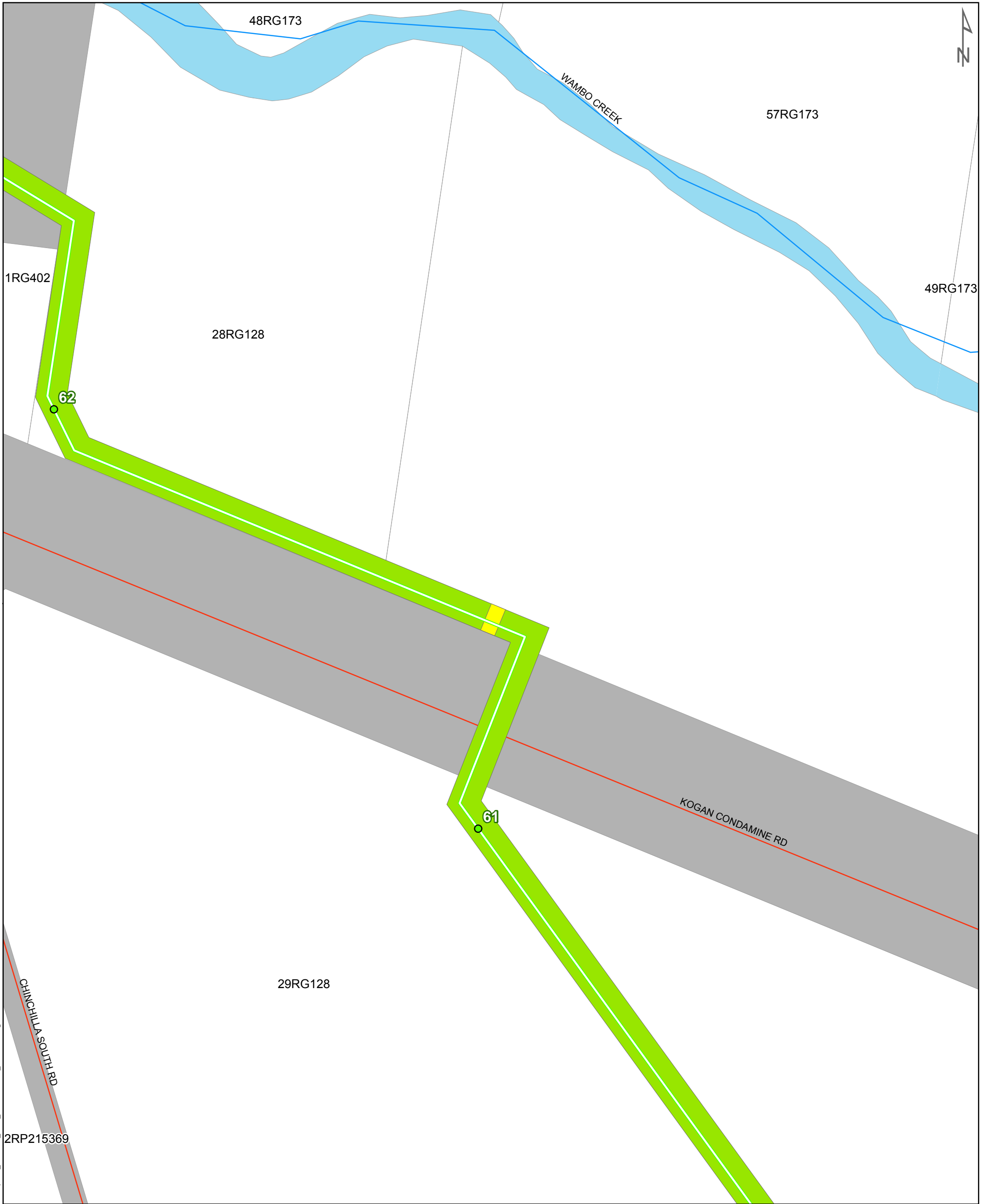
DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
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PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
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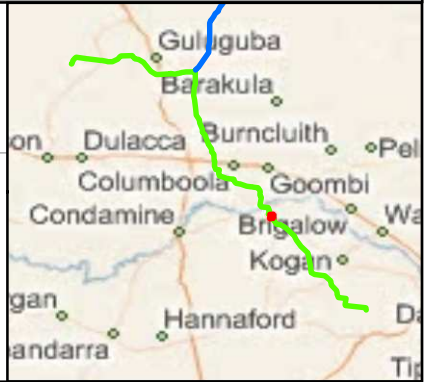
QGC PTY LTD - Queensland Curtis LNG Project

LEGEND

LOCATION DIAGRAM

TITLE: TEC, ERE & OCRE Map Series  
Gas Collection Header Pipeline  
Map Number: 2 of 8

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Watercourse	TEC & ERE (Brigalow)	Road Casement
	OCRE	Water Casement



DOCUMENT NO: QCLNG-BX00-ENV-MAP-000059 - 2

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14/02/2011	AN	NG	Issued for use	0

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Metres  
1:5,000 (A3) GDA94 Lat/Long

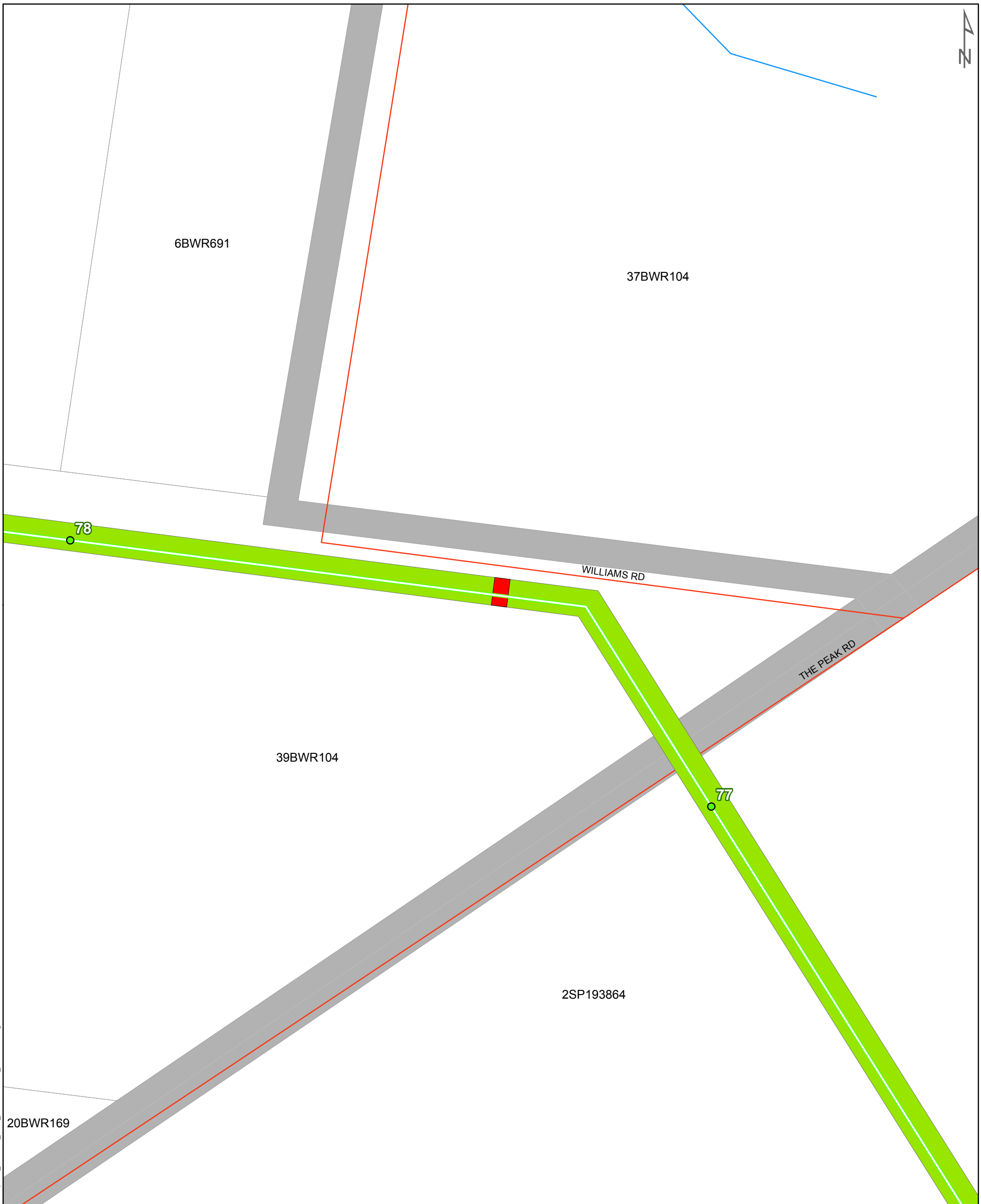
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																					
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2BWR104

37BWR104

52BWR104

39BWR104

CHILDS RD

MCNULTY RD

79

**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

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Gas Collection Header Pipeline  
Map Number: 4 of 8

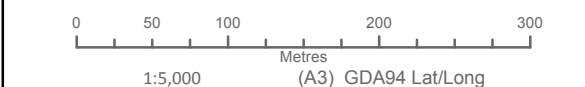
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Watercourse	TEC & ERE (Brigalow)	Road Casement
OCRE	Water Casement	



DOCUMENT NO: QCLNG-BX00-ENV-MAP-000059 - 4

DATA SOURCE:  
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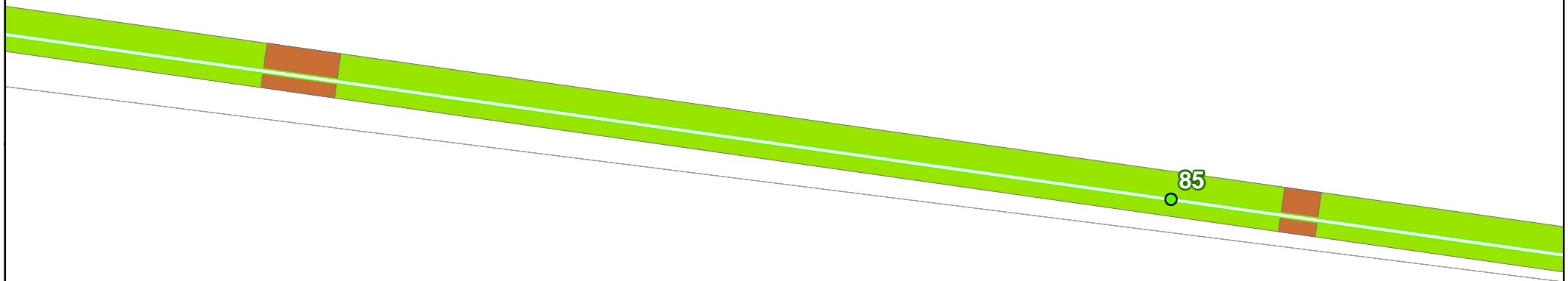
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Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel



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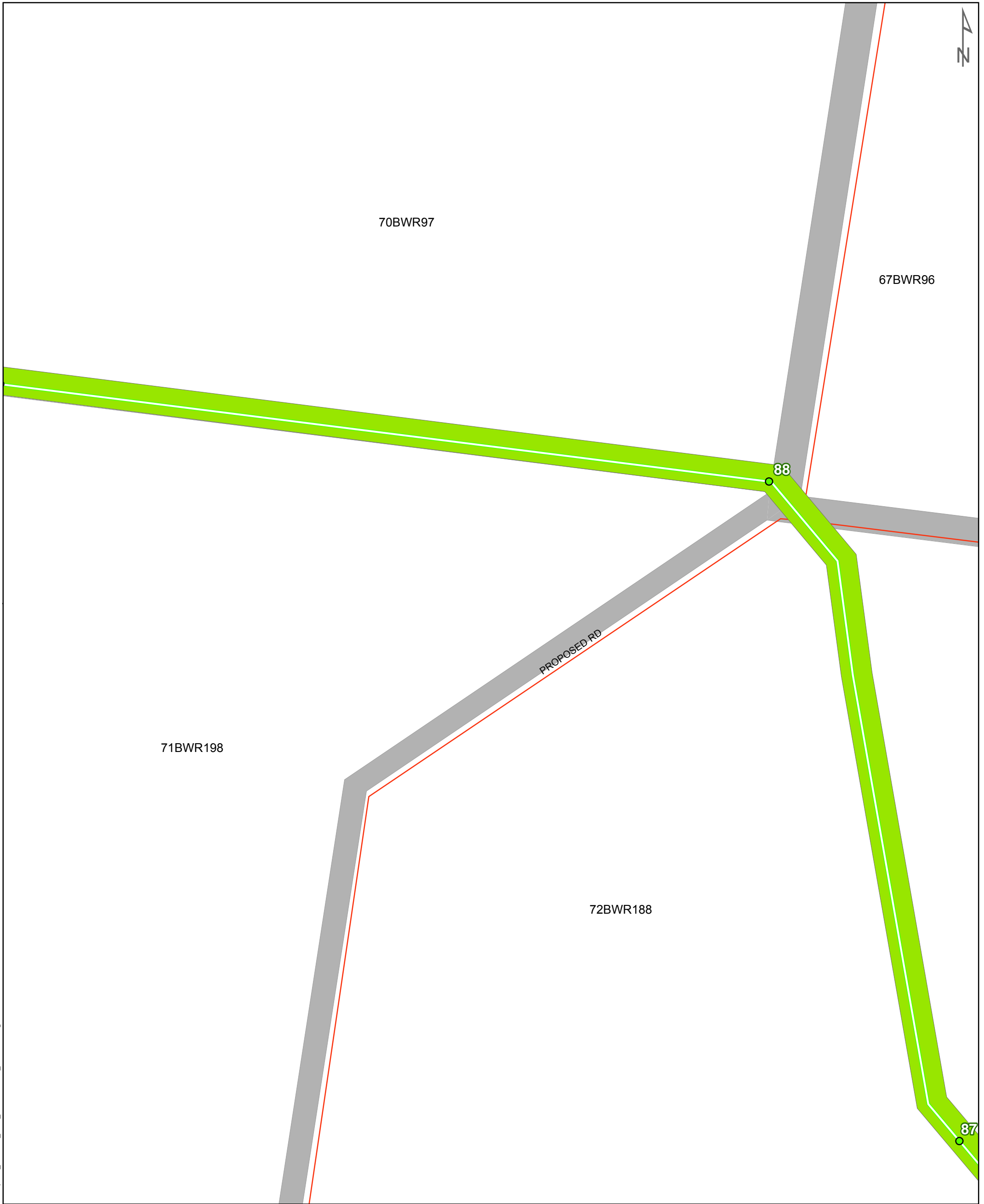


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QGC PTY LTD - Queensland Curtis LNG Project		LEGEND				LOCATION DIAGRAM																					
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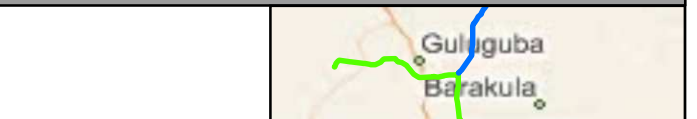
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TITLE: TEC, ERE & OCRE Map Series  
 Gas Collection Header Pipeline  
 Map Number: 6 of 8

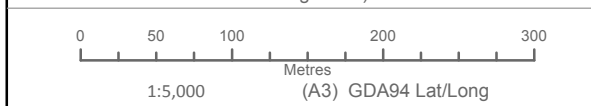
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Watercourse	Road Casement
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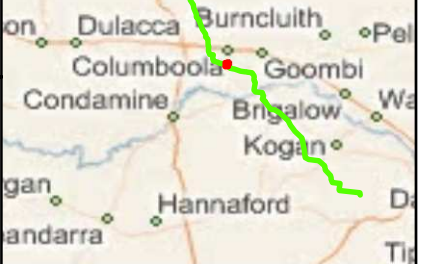
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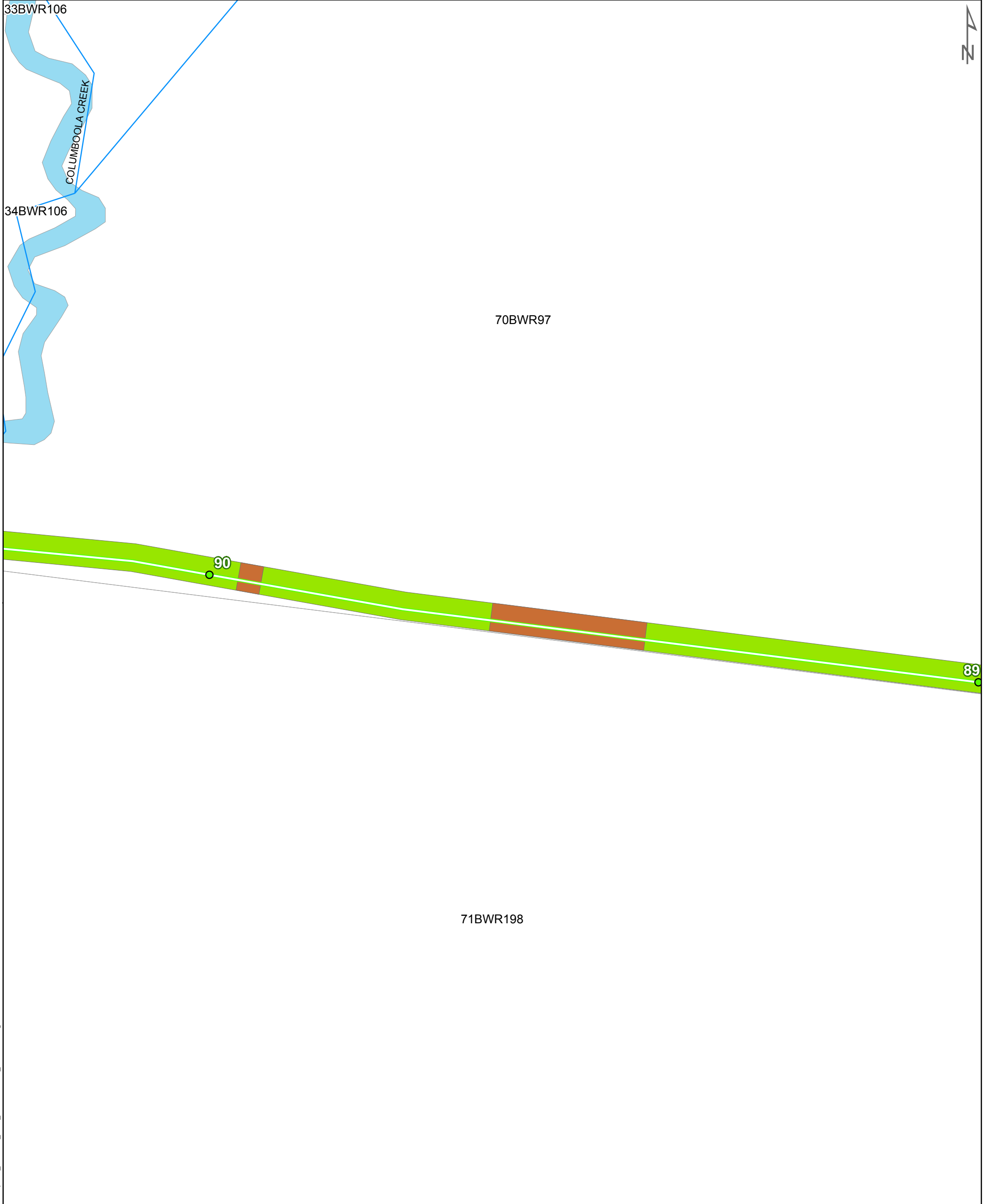


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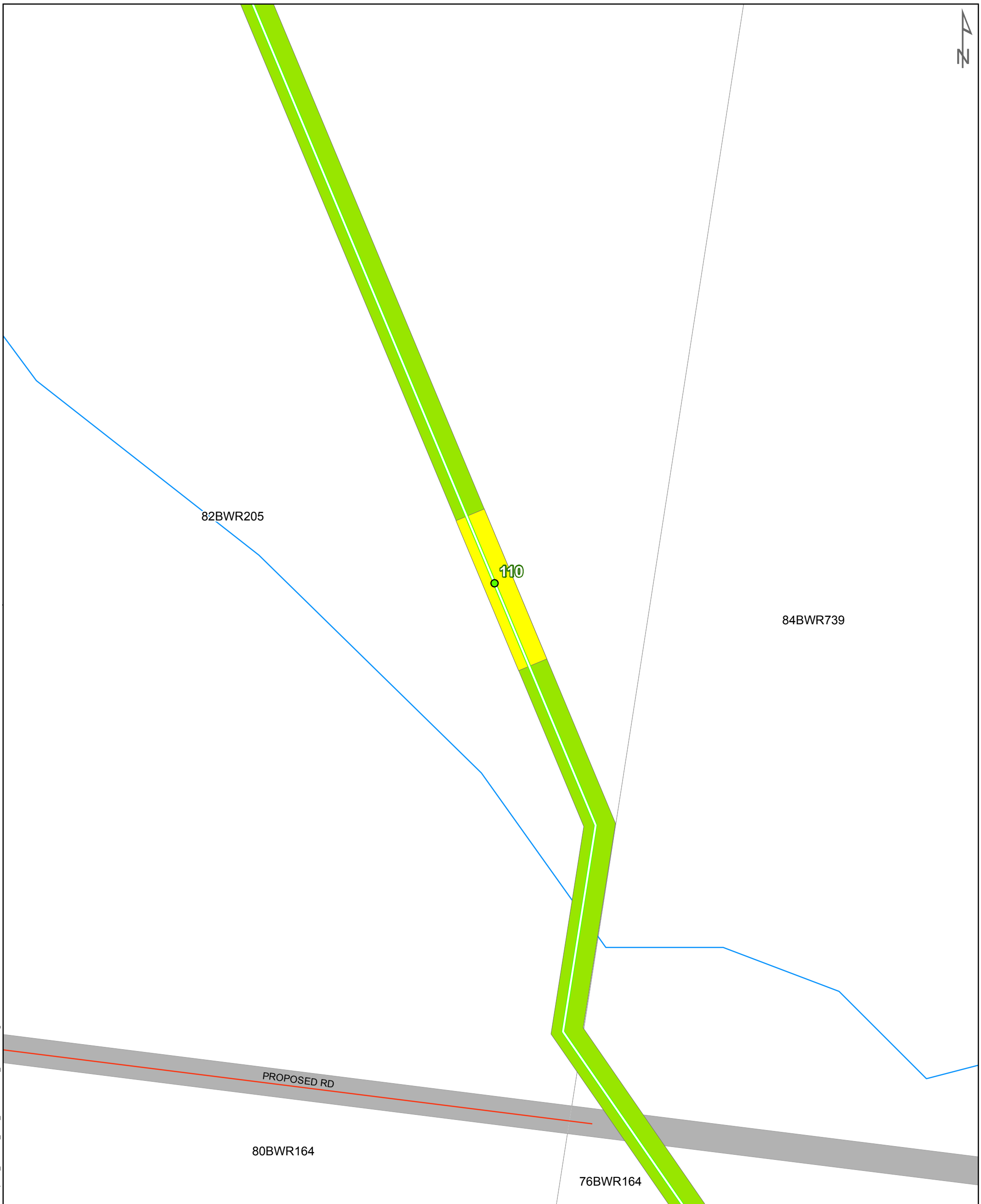
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>			<b>LOCATION DIAGRAM</b>															
<p><b>TITLE:</b> TEC, ERE &amp; OCRE Map Series Gas Collection Header Pipeline Map Number: 7 of 8</p> <p><b>DOCUMENT NO:</b> QCLNG-BX00-ENV-MAP-000059 - 7</p> <p><b>DATA SOURCE:</b> Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"> Roads</td> <td style="width: 33%;"> TEC (Brigalow)</td> <td style="width: 33%;"> Cadastral Boundaries</td> </tr> <tr> <td> Watercourse</td> <td> TEC &amp; ERE (Brigalow)</td> <td> Road Casement</td> </tr> <tr> <td> OCRE</td> <td> Water Casement</td> <td></td> </tr> </table>			Roads	TEC (Brigalow)	Cadastral Boundaries	Watercourse	TEC & ERE (Brigalow)	Road Casement	OCRE	Water Casement								
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TITLE: TEC, ERE & OCRE Map Series  
Gas Collection Header Pipeline  
Map Number: 8 of 8

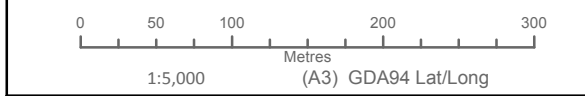
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## Appendix 3 – EVNT Flora and Fauna

### Appendix 3 EVNT Flora

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
Isla Gorge Wattle	<i>Acacia argentina</i>	V	-	Only known in Isla Gorge	2
Waajie Wattle	<i>Acacia barakulensis</i>	V	-	Only known in Barakula SF	2,3,4
Brown Wattle	<i>Acacia brunioides</i>	R	-	In SEQ, restricted to some mountain peaks in the southern Moreton district (Stanley and Ross, 1983). Commonly found sandy, poor soils derived from Granite geology (PlantNET)	2,3
Rare wattle	<i>Acacia calantha</i>	R	-	Found Monto, Taroom and Dawson River. Record by <i>L. Pedley</i> 18km South of Cracow, Qld, 17 Dec. 1976 ( <i>Qld Herbarium Records</i> )	2,3
Chinchilla Wattle	<i>Acacia chinchillensis</i>	V	V	Occurs in south-eastern Qld N of Chinchilla and near Tara. Grows in ironbark <i>Eucalyptus</i> , <i>Callitris columellaris</i> , <i>Casuarina</i> woodland, in sandy or gravelly soils (ABRS, 2001).	1,2,3,4
Curly-bark Wattle	<i>Acacia curranii</i>	V	V	Only known in Gurulmundi wildflower area north of Miles.	1,2,3,4
Eremophila Wattle	<i>Acacia eremophiloides</i>	V	V	On exposed rocky granite ridges in shallow, sandy, well-drained, weakly acidic soils (Pedley & Forster 1986).	1,2
Large-leaved Wattle	<i>Acacia grandifolia</i>		V	Recorded at Barambah Ck, Mundubbera, Coalstoun Lakes, Proston (Qld Herbarium)	1
Hando's Wattle	<i>Acacia handonis</i>	V	V	Understorey plant in <i>Eucalyptus</i> forests on sandstone ridges. Restricted to Barakula State Forest.	1,2,3
Hockings Wattle	<i>Acacia hockingsii</i>	R	-	Restricted to Isla Gorge	2
Isla Gorge Wattle	<i>Acacia islana</i>	R	-	Restricted to Isla Gorge	2,3
Tara Wattle	<i>Acacia lauta</i>	V	V	Found from Tara to Inglewood 1) Property "Marron Glen", 2) 15km nth of Tara and 3) 16km east of Tara.	1,2,3
Pedley's Wattle	<i>Acacia pedleyi</i>	R	-	Recorded in Biloela Area (KP 290).	2,3
Rare Wattle	<i>Acacia pubicosta</i>	R	-	Confined to rocky slopes (Maslin, 2001). Recorded in Biloela Area (KP 290).	2,3
Wyberba Wattle	<i>Acacia pubifolia</i>	V	-	Restricted to Wyberba region (Stanley and Ross, 1983).	2,3
Blackdown Wattle	<i>Acacia storyi</i>	R	-	On the Blackdown Tableland and adjacent lower land on the west side. Grows on sandstone plateau in open forest (Maslin, 2001). One Qld Herbarium record for Curtis Island.	2,3
Scrub Wattle	<i>Acacia tenuinervis</i>	R	-	Found in Brigalow Woodland, Dry Vine Scrub, Also along Gullies, Creeks from Wandoan to Mundubbera	2,3
Wardell's Wattle	<i>Acacia wardellii</i>	V	V	Ridge crests with loamy or gravelly soil. Coloniser of disturbed areas – Thomby Range and a few ridges east of the Condamine.	1,2,3,4



Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
Scrub Daphne	<i>Actephila sessilifolia</i>	R	-	Recorded from Bundaberg north to Yarrow; Known within locations RE 11.3.11, RE 11.3.26, RE 11.5.15 and RE 11.12.4. Occurs in vine thicket and dry rainforest communities along creeks and drainage lines.	3
Large-leaf Chainfruit	<i>Alyxia magnifolia</i>	R	-	Occurs in eastern Queensland, from Eungella in the north to the NSW border in the south. It generally grows in rainforests and also tall open forest with a rainforest understorey. It has been recorded from 130-180 m altitude, usually on granitic substrates (DNR 1999)	3
Rough Alyxia	<i>Alyxia sharpei</i>	R	-	Central Queensland, in Araucarian Microphyll Vineforests, Complex Notophyll Vineforests, Notophyll Scrub, or in tall open woodlands (DNR, 1999).	2,3
Sandstone prickleshrub	<i>Apatophyllum terefolium</i>	R	-	Prickly 40 cm herb found in woodland within RE 11.7.5, RE 11.10.1 and RE 11.10.13. Burnett and Leichhardt Pastoral Districts	2,3
Queensland Lace Plant	<i>Aponogeton queenslandicus</i>	R	-	A seasonally emergent aquatic plant found in throughout much of coastal Queensland. In rivers, streams and temporary freshwater pools to 30-60cm depth. Not usually found in permanent waters (Stephens and Dowling, 2002).	2,3
None Known	<i>Atalaya calicola</i>	R		In dry rainforest and deciduous vine thicket on boulder-strewn slopes, and on hills with granite, limestone, sandstone and basaltic rock outcrops (DNR, 1999).	3
None known	<i>Atalaya collina</i>	E	E	Grows on hillsides, in remnant dry scrubs, together with <i>A. salicifolia</i> , but is not as common as that species (Reynolds, 1991)	3
None known	<i>Atalaya rigida</i>	R		Restricted to eastern Qld from Mt Aberdeen near Bowen, south to Mt Glastonbury south west of Gympie. Occurs in vine thicket and araucarian microphyll notophyll vineforest on red clay soil or black clay loam (DNR, 1999)	3
None known	<i>Bertya pedicellata</i>	R		Restricted to central Queensland. Associated with <i>Corymbia trachypholia</i> (brown bloodwood), <i>Acacia catenulata</i> , <i>A. curvinervia</i> , and <i>A. shirleyi</i> (lancewood) (Qld Herb., 2001).	3
Ooline	<i>Cadellia pentastylis</i>	V	V	Clay plains, sandstone and residual ridges in association with vine thickets, brigalow, belah and red bauhinia.	1,2,3,4
Bailey's Cypress Pine	<i>Callitris baileyi</i>	R	-	Hilly or mountainous areas often in the vicinity of dry vine forests. One Qld Herbarium record near Gurulmundi SF.	2,3

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
Yellow Fringed Myrtle	<i>Calytrix gurulumdensis</i>	V	V	Found on lateritic sandstone ridges. Localised and patchy distribution.	1,2,3,4
Isla Gorge Fringed Myrtle	<i>Calytrix islensis</i>	R	-	Only known in Isla Gorge	2
Endangered Capparis	<i>Capparis humistrata</i> .	E	-	Endemic to south east Qld between Rockhampton and Port Curtis (Hewson, 1982)	2,3
Native Frangipani	<i>Cerbera dumicola</i>	R	-	Widespread in central Qld. Grows in vine thickets and lancewood ( <i>Acacia shirley</i> ) thickets (Forster, 1996).	2,3
Silver Commersonia	<i>Commersonia argentea</i> <i>syn Commersonia sp.</i> ( <i>Cadarga G.P. Guymer 1642</i> )	-	V	Stony ridges, north of Chinchilla	1
Canoona Bloodwood	<i>Corymbia xanthope</i>	V	V	Restricted between Rockhampton and Marlborough and on South Percy Island. Occurring on soils derived from serpentinite (Brooker & Kleinig, 2004).	1,2
Cossinia	<i>Cossinia australiana</i>	E	E	Small tree up to 7 m found in depauperate rainforest relicts, usually on volcanic soil (Stanley and Ross, 1986). Recorded at Kingaroy, Gympie, Munholme Ck, Burnett River (Qld Herbarium)	1,2,3
None known	<i>Cryptandra ciliata</i>	R	-	Tiny leaved plant which are not easily observed if not in flower. Known record at Gurulmundi State Forest (Qld Herbarium)	2,3
Wedge-leaf Tuckeroo	<i>Cupaniopsis shirleyana</i>	V	V	Depauperate rainforests (Stanley and Ross, 1983).	1,2,3
Large-fruited Zamia	<i>Cycas megacarpa</i>	E	E	Stony clay loams on hill tops and steep slopes. Commonly in spotted gum and ironbark open forest and woodland with a grassy understorey (DNR, 1999). Known from KP 280-380.	1,2,3
Endangered Zamia	<i>Cycas ophiolitica</i>	E	E	Tall open forest dominated by <i>Lophostemon confertus</i> and on complex notophyll vine forest margins. Grows on rocky soils derived from tertiary basalts on hill slopes and crests from 250-730m altitude. Often on steep, southfacing hillsides (DNR, 1999)	1,2
Vulnerable Sedge	<i>Cyperus clarus</i>	V	-	Found in Wet creek/drainage lines (Qld Herbarium)	2,3
None known	<i>Dansiea elliptica</i>	R	-	Sandy, granitic soils on rainforest margins in north eastern Queensland, and in low elevation dry rainforest and semi evergreen vine thickets in south eastern Queensland (DNR, 1999).	2,3
Small-leaved Denhamia	<i>Denhamia parvifolia</i>	V	V	Found in semi-evergreen vine thickets. Brown loam or clay loam soils.	1,2,3
Pentland Pea	<i>Desmodium macrocarpum</i>	R		Semi-evergreen Vine Thicket	2,3

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
King Blue Grass	<i>Dichanthium queenslandicum</i>	V	V	Endemic to Qld black soil plains. Occurs in RE's 11.8.11, 11.3.21	1,2,3
Finger Panic	<i>Digitaria porrecta</i>	R	E	Grasslands and forests with grassy understorey. Known from RE 11.3.21. Heavy black soils (Stanley and Ross, 1989).	1,2,3
Tricolour Diuris	<i>Diuris tricolor (sheaffiana)</i>	-	V	Sandy soils, often in Callitris woodlands. Primarily a NSW species with scattered records in Qld.	1
Blake's Spikerush	<i>Eleocharis blakeana</i>	R	-	Known in wet poorly drained soils; Records along Auburn Rd Chinchilla and Lake Broadwater	2,3
Salt Pipewort, Button Grass	<i>Eriocaulon carsonii</i> subsp. <i>orientale</i>	E	E	Known in wet poorly drained soils. Mound Springs areas near Injune.	1,2,3
Queensland Western White Gum	<i>Eucalyptus argophloia</i>	V	V	Restricted to Chinchilla area (Stanley and Ross, 1986).	1,2,3
Tony's ironbark	<i>Eucalyptus beaniana</i>	V	V	Rocky Areas such as Isla Gorge Robinson Gorge and Mundubbera	1,2,3
Plunkett Mallee	<i>Eucalyptus curtisii</i>	R	-	Eucalypt forests, woodlands and shrub lands on rocky slopes or on low poorly drained sites (Qld Herb., 2001).	2,3,4
Northern Blue Box	<i>Eucalyptus magnificata</i>	V	-	Small population in Queensland south of Dalveen (Brooker and Kleinig, 1994).	2,3
Pumpkin Gum	<i>Eucalyptus pachycalyx</i>	E	E	On skeletal sandy soils (Botanic Gardens Trust, 2009)	1,2,3
Black Ironbox	<i>Eucalyptus raveretiana</i>	V	-	Always along creek beds and riverbanks in coastal and subcoastal areas from Ayr and Charters Towers south to Duringa in central Queensland (Brooker and Kleinig, 1994).	2,3
Woollybark	<i>Eucalyptus rubiginosa</i>	R	-	Type was collected within Ironbark and Yellow Bloodwood community (Brooker, 1984)	2,3
Shiny-leaved Ironbark	<i>Eucalyptus virens</i>	V	V	Sandstone ridges. Four populations – 1) Coolmunda Conservation Park 2) Tara, 3) NE of Eidsvold and 4) Maranoa River near Mt Moffatt.	1,2,3
Rare Fringe-rush	<i>Fimbristylis vagans</i>	R	-	Wet creek/drainage lines Wetland plant recorded in the nearby Lake Broadwater Area	2,3
None known	<i>Gonocarpus urceolatus</i>	V	-	Recorded near Chinchilla on heavy loam soils.	2,3
Sturt's Desert Rose	<i>Gossypium sturtianum</i>	R	-	Recorded at Expedition Range, Fairview	2,3
None known	<i>Graptophyllum excelsum</i>	R	-	Restricted to Qld, extending from near Mt Larcom north to the Chillagoe- Mt Mungana area. Occurs on rocky hillsides in Semi-evergreen Vine Thickets. Also recorded growing in grassy eucalypt woodland (DNR, 1999).	2,3

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
None known	<i>Grevillea hockingsii</i>	V	-	Found on slopes in hilly sandstone country on shallow sandy to sandy loam soils in woodland and open forest communities. Restricted to southern Queensland from Mt Morgan south to Monto (DNR 1999)	2,3
None known	<i>Grevillea singuliflora</i>	R	-	Sandy, sandstone and rocky areas.	2,3,4
Cudgerie	<i>Hernandia bivalvis</i>	R	-	Vine forests on rocks with shallow soils (DNR, 1999).	2,3
None known	<i>Homopholis belsonii</i>	E	V	Known from near Gurulmundi, 30km north of Miles in the Darling Downs district (Stanley and Ross, 1989).	1,2,3
Isla Gorge mouse plant	<i>Homoranthus decasetus</i>	R	-	Newly named plant from the Isla Gorge Area	2
None known	<i>Homoranthus decumbens</i>	V	V	Found in two separate locations 1) Blackdown Tablelands and 2) State Forest 302, north of Chinchilla.	1,2,3
None known	<i>Indigofera baileyi</i>	R	-	On clay soil derived from sandstone. Associated with <i>Eucalyptus crebra</i> (narrow-leaved ironbark), <i>E. orgadophila</i> (mountain coolibah) or <i>Corymbia erythrophloia</i> (red-barked bloodwood) (DNR, 1999).	2,3
None known	<i>Kunzea bracteolata</i>	R	-	Known from the Stanthorpe - Wallangarra area (Stanley and Ross, 1986).	2,3
Basalt Pepper-cress	<i>Lepidium hyssopifolium</i>	-	E	Occurs beneath large trees in grassy woodlands where trees are restricting groundlayer competition. Also known in grasslands. Absent where vegetation groundcover is complete and in areas subject to heavy grazing (DPIWE, undated). Known from well south east of the UIC.	1
None known	<i>Leucopogon cuspidatus</i>	-	V	Mainly on rocky slopes, cliffs and rocky outcrops. Commonly in woodland or open woodland and sometimes in heath or shrubland communities (M. Edginton, pers. comm.).	1
None known	<i>Leucopogon grandiflorus</i>	R	-	Is found at 200 to 720 m altitude and occurs in eucalypt forest or woodland on sandstone cliffs or sandy valley floors. It grows on skeletal to deep sands. Restricted to central and south central Queensland, its distribution extends from the Mt Percy region east to Nathan Gorge, and from the Expedition Range, south to Robinson Gorge (DNR 1999).	2,3
Dawson River cabbage tree	<i>Livistona nitida</i>	R	-	Around Dawson River Taroom	2
None known	<i>Macarthuria ephedroides</i>	R	-	In small patches in rocky sandstone hills (White, 1946)	2,3

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
None known	<i>Macropteranthes fitzalanii</i>	R	-	Found in coastal notophyll vine forest, microphyll vine forest and littoral rainforest on rocky outcrops with poor soil. Restricted to coastal areas of central Queensland from the western slopes of Mt Dryander, north of Proserpine down to Rockhampton (DNR 1999).	2,3
None known	<i>Macropteranthes leiocaulis</i>	R	-	Deciduous vine thickets, semi-evergreen vine thickets and Araucarian Microphyll Vine Forests on red euchrozems or sandstone talus (DNR, 1999).	2,3
None known	<i>Macrozamia crassifolia</i>	V	V	Restricted to the Eidsvold – Mundubbera district in Queensland. Found on sandy soils over granite (DEW 2007).	2,3
None known	<i>Macrozamia fearnsidei</i>	V	V	Grows in open forest on sandy soils of sandstone origin either on rocky slopes or in gullies near ephemeral streams at approx 300-400m altitude. Restricted to central Qld (DNR 1999)	2,3
None known	<i>Marsdenia hemiptera</i>	R	-	Notophyll vine forests in gorges or low lying areas near watercourses (DNR, 1999).	2,3
None known	<i>Melaleuca groveana</i>	R	-	Occurs on ridges, high mountain slopes and mountain summits in heaths and eucalypt woodland and forests with heath under-stories (DNR, 1999).	2,3
None known	<i>Melaleuca irbyana</i>	R	-	On silty clay soils often in low lying areas subject to occasional inundation. Usually in association with <i>Eucalyptus moluccana</i>	2,3
Gurulmundi Heath-myrtle	<i>Micromyrtus carinata</i>	E	-	Type collected from Gurulmundi State Forest and it is the only known location	2,3,4
None known	<i>Micromyrtus patula</i>	E	-	Laterised sandstone areas. Type collected in Barakula SF	2,3
Artesian Milfoil	<i>Myriophyllum artesium</i>	E	-	Mound springs and bore drains	2,3
None known	<i>Notelaea pungens</i>	R	-	Known herbarium records Barakula S F Chinchilla in open eucalypt forest (Guymer, 1987).	2,3
None known	<i>Parsonsia kroombitensis</i>	V	-	Occurs on escarpments at the edges of deep valleys and among outcrops of acidic volcanic rocks in low shrubby woodland. Restricted to central east Queensland (DNR 1999)	2

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
None known	<i>Parsonsia larcomensis</i>	V	V	Recorded from 350-750 m elevation. It occurs in open heathland and shrubland at or near the summits of mountain peaks growing in shallow, loamy soils. Restricted to central east and south east Queensland and is confined to the Mt Perry area near Rockhampton (DRN 1999)	1,2,3
Narrow-leaved parsonsia	<i>Parsonsia lenticellata</i>	R	-	Coastal districts in drier rainforests and transitional zone to open forest from Mackay to Port Douglas. Previous records of this species in SE Queensland are now considered <i>P. paulforsteri</i> (Forster, 1996; Stanley and Ross, 1986).	2
None known	<i>Paspalidium scabrifolium</i>	R	-	In Brigalow communities	2,3
None known	<i>Persoonia amaliae</i>	R	-	Small tree to 8 m tall growing in creek-lines	2
None known	<i>Philotheca sporadica</i>	V	V	On residual lateritic rises. Known as widespread in patches in UIC area.	1,2,3,4
None known	<i>Phyllanthus brassii</i>	R	-	Montane rainforest and montane heath on granite, usually along streams at altitudes of 1200 to 1260m (DNR, 1999).	2,3
None known	<i>Phyllanthus sauropodoides</i>	R	-	Araucarian Microphyll Vine Forest and Araucarian Notophyll Vine Forest on alluvium soils (DNR, 1999).	2
None known	<i>Picris evae</i>	V	V	Small daisy in rocky areas	2,3
None known	<i>Pimelea leptospermoides</i>	R	V	Restricted from near Marlborough to Balnagowan near Yeppoon in central Qld, in tall to low open forests and woodland growing on serpentine soils (DNR, 1999).	1,2
None known	<i>Polianthion minutiflorum</i>		V	Known from five areas in eastern Queensland, from Redcliffe Vale south to Kingaroy, usually in forest and woodland on sandstone slopes and gullies with skeletal soil, or sometimes deeper sands adjacent to deeply weathered laterite (Kellerman et al 2006)	3
None known	<i>Prostanthera sp. (Dunmore D.M.Gordon 8A)</i>	V	V	Restricted to three sites near Millmerran. Open forest on stony ridges.	1,2,3
Cobar Greenhood Orchid	<i>Pterostylis cobarensis</i>		V	Stony ridges. Nyngan-Cobar-Burke region.	1,2
None known	<i>Pultenaea setulosa</i>	V	V	Growing in wet to dry sclerophyll forest, subalpine woodland to heaths (often dominated by <i>Eucalyptus albens</i> , <i>E. crebra</i> , <i>E. macrprhyncha</i> , <i>E. mannifera</i> , <i>E. polyanthemos</i> or <i>E. rossii</i> ). Sandy loam on sedimentary rock, granite, porphyry, volcanic substrates, siliceous soil or serpentine (Kok & West, 2002)	1,2

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
Quassia	<i>Quassia bidwillii</i>	V	V	Below 650m in rainforests, open forest, woodland and mangroves (DNR, 1999).	1,2,3
Native Thistle	<i>Rhaponticum australe</i> (syn <i>Stemmacantha australis</i> )	V	V	On heavy clays derived from basalt (DNR, 1999).	1,2,3
None known	<i>Rutidosia crispata</i>	R	-	The species is presently only known from Glenmoral Gap in the Dawson Range. It occurs on ridge tops, in shallow soils on sandstone in open eucalypt forests (Holland 1994).	2,3
None known	<i>Rutidosia glandulosa</i>	R	-	Recorded from Barakula State Forest (Kokubugata & Holland 2002)	2,3
None known	<i>Rutidosia lanata</i>	E	-	Occurs in Eucalypt and Acacia forests. Two populations known 1) near Jackson and 2) near Meandarra.	2,3
None known	<i>Sannantha brachypoda</i> Syn <i>Babingtonia brachypoda</i>	R	-	Found at Isla Gorge nearby only	2
None known	<i>Sarcochilus roseus</i>	V	V	Orchid found in Dry rainforest and/or vine thickets	1,2
None known	<i>Senna acclinis</i>	R	-	Rainforest margins and adjacent open forest between 100-660 m altitude and in association with <i>Pleiogynium timorense</i> , <i>Elattostachys</i> spp., <i>Eucalyptus grandis</i> and <i>Syncarpia glomulifera</i> (DNR, 1999).	2,3
None known	<i>Solanum stenopterum</i>	V	-	Cracking clay soils in vine thickets, woodlands and grassy plains.	2,3
None known	<i>Solanum papaverifolium</i>	E	-	Heavy black soils (Stanley and Ross, 1986).	2,3
None known	<i>Sophora fraseri</i>	V	V	Wet and dry sclerophyll forest particularly near margins with rainforests and a range of rainforest types (DNR, 1999).	1,2
None known	<i>Sporobolus partimpatens</i>	R	-	Open grasslands on black soil. Locally common in undisturbed grasslands. Occurs in RE 11.3.21 (DNR 1999)	2,3
Minute Orchid	<i>Taeniophyllum muelleri</i>	-	V	Coastal Rainforest, Vine thickets	1
None known	<i>Thelypteris confluens</i>	V	-	Occurs in swampy areas or mound springs (Chaffey, 2002).	2
Toadflax	<i>Thesium australe</i>	V	V	Grasslands and dry sclerophyll forests often in damp areas (Stanley and Ross, 1983).	1,2
None known	<i>Trymalium minutiflorum</i>	V	V	Found up to an altitude of 340 m on sandy soil or light brown gravelly loam derived from sedimentary rocks. Been recorded in Callide Ranges, Goodger and Bileola areas (DNR 1999).	1,2
Isla Gorge Blue Bells	<i>Wahlenbergia islensis</i>	R	-	Gorge with Rocky outcrops, Crevices	2,3
None known	<i>Westringia parvifolia</i>	V	V	Stony and gravelly soils. Mallee forests, Woodlands Occurs with <i>Eucalyptus bakeri</i> , <i>Euc viridis</i> , <i>Triodia</i> sp (Edginton 2006)	2

Common Name	Scientific Name	NCA	EPBC	Preferred Habitat	Source^
Durong Sage	<i>Xerothamnella herbacea</i>	E	E	Found in Brigalow, Low chenopod shrubland Records Pelican Back Rd Chinchilla, Theodore S F (Qld Herbarium)	1,2,3
Mt Larcom Zieria	<i>Zieria actites</i>	V	-	Margins of Woodlands	2,3

^: Source: 1 = EPBC Protected Matters search; 2 = WildNet; 3 = Herbreces



**Appendix 3 EVR Fauna**

Common Name	Scientific Name	Status*		Source #	Preferred Habitat
		NC Act	EPBC Act		
Boggomoss Snail	<i>Adclarkia dawsonensis</i>		CE	1	One subpopulation occurs on private property near Taroom. The second at a camping and water reserve at the Isla-Delusion crossing on the Dawson River. Possible occurrence on Cockatoo Creek.
Pale Imperial Hairstreak	<i>Jalmenus eubulus evagoras</i>	V		1	Mature Brigalow communities, often near low rocky hills.
Kroombit Tinker Frog	<i>Taudactylus pleione</i>		V	3	12 small rainforest patches above 500m at Kroombit Tops
Murray Cod	<i>Maccullochella peelii peelii</i>		V	3	Found in the Murray-Darling river system
Australian Lung Fish	<i>Neoceratodus forsteri</i>		V	3	Found in the Burnett and Mary river systems
Common Death Adder	<i>Acanthophis antarcticus</i>	NT		1	Widespread in woodlands and forest habitats.
Short-necked worm-skink	<i>Anomalopus brevicollis</i>	R		1	Rainforest to dry sclerophyll forest . Cracow to Finch-Hatton.
Five-clawed Worm-skink	<i>Anomalopus mackayi</i>		V	3	Grasslands on cracking clay soils. Darling Downs area.
Woma	<i>Aspidites ramsayi</i>	NT		1	Found in the Brigalow Belt, but patchily distributed due to habitat degradation. Brigalow to Spinifex sandplain habitats.
Collared Delma	<i>Delma torquata</i>		V	3	Brigalow and Eucalypt communities – SE Qld but disjunct occurrences elsewhere.
Ornamental Snake	<i>Denisonia maculata</i>		V	3	Found in cracking clay soils in open forests, woodlands and riparian habitats. Shelters under fallen timber and in soil cracks.
Yakka Skink	<i>Egernia rugosa</i>		V	1,3	Dry open forests or woodland with dense ground vegetation, rocky areas, fallen timber and other debris.
Dunmall's Snake	<i>Furina dunmalli</i>	V	V	1,3	Dry sclerophyll forest and woodland and Brigalow scrub on floodplains of cracking soils.
Brigalow Scaly-foot	<i>Paradelma orientalis</i>	V	V	1,3	Eucalypt and Acacia woodlands, usually found under logs and debris.
Fitzroy River Turtle	<i>Rheodytes leukops</i>	V	V	1,3	Confined to fast flowing waters in the Fitzroy River and tributaries.
Golden-tailed Gecko	<i>Strophurus taenicauda</i>	NT		1	Dry sclerophyll forest, especially mixed brigalow, ironbark and Callitris.
Grassland Earless Dragon	<i>Tympanocryptis pinguicolla</i>		E	3	Black, cracking clay soils of the Darling Downs where it is often found in agricultural cropping and grazing areas.

Common Name	Scientific Name	Status*		Source #	Preferred Habitat
		NC Act	EPBC Act		
Grey Goshawk	<i>Accipiter novaehollandiae</i>	NT		1	Broadly distributed in taller forests and riverine environments, often in mountainous or steeply undulating country.
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>	V		1	Coastal forest and open inland woodland. Feeds only on she-oak seeds from species such as Black She-oak, Forest Oak or Belah.
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	NT		1	Predominantly coastal and sub-coastal lakes, swamps, freshwater pools and mangroves.
Yellow Chat (Dawson)	<i>Epthianura crocea macgregori</i>		CE	3	Samphire and low shrublands in the northern parts of Curtis Island. May occur in a very limited area in proximity to the main line.
Red Goshawk	<i>Erythrotriorchis radiatus</i>		V	3	In association with large tracts of intact forest and woodland. Fringes of rainforest and mountainous forest along the Great Dividing Range.
Squatter Pigeon (Southern Subspecies)	<i>Geophaps scripta scripta</i>	V	V	1,3	Forests and woodlands in proximity to water courses.
Swift Parrot	<i>Lathamus discolor</i>		E/Ma	3	Seasonal vagrant from Tasmania where it breeds.
Square-tailed Kite	<i>Lophoictinia isura</i>	NT		1	Woodlands and forests – uncommon but widespread through the study area.
Southern Giant-Petrel	<i>Macronectes giganteus</i>		E/Mi	3	Marine species, not recorded from the study area.
Black-chinned Honeyeater	<i>Melithreptus gularis</i>	NT		1	Seasonally nomadic and patchy distribution throughout the study area. Woodlands and forests.
Star Finch (eastern), Star Finch (southern)	<i>Neochmia ruficauda ruficauda</i>		E	3	Sparsely distributed along well vegetated watercourses. Possibly more abundant in the northern parts of the study area. No recent records from the south.
Turquoise Parrot	<i>Neophema pulchella</i>	NT		1	Coastal and sub-coastal forests and woodlands with grassy understorey in southern Qld and NSW.
Cotton Pygmy-Goose	<i>Nettapus coromandelianus</i>	NT	Ma/Mi	1,3	Freshwater lakes, swamps and impoundments.
Plains-wanderer	<i>Pedionomus torquatus</i>	V	V	1	Open woodlands and grasslands in western Qld. Not recorded in the study area.
Superb Parrot	<i>Polytelis swainsonii</i>		V	3	Not known from the study area. Found in NSW.
Australian Painted Snipe	<i>Rostratula australis</i>	V	V	1,3	Freshwater swamps, marshes and seasonally inundated grasslands.

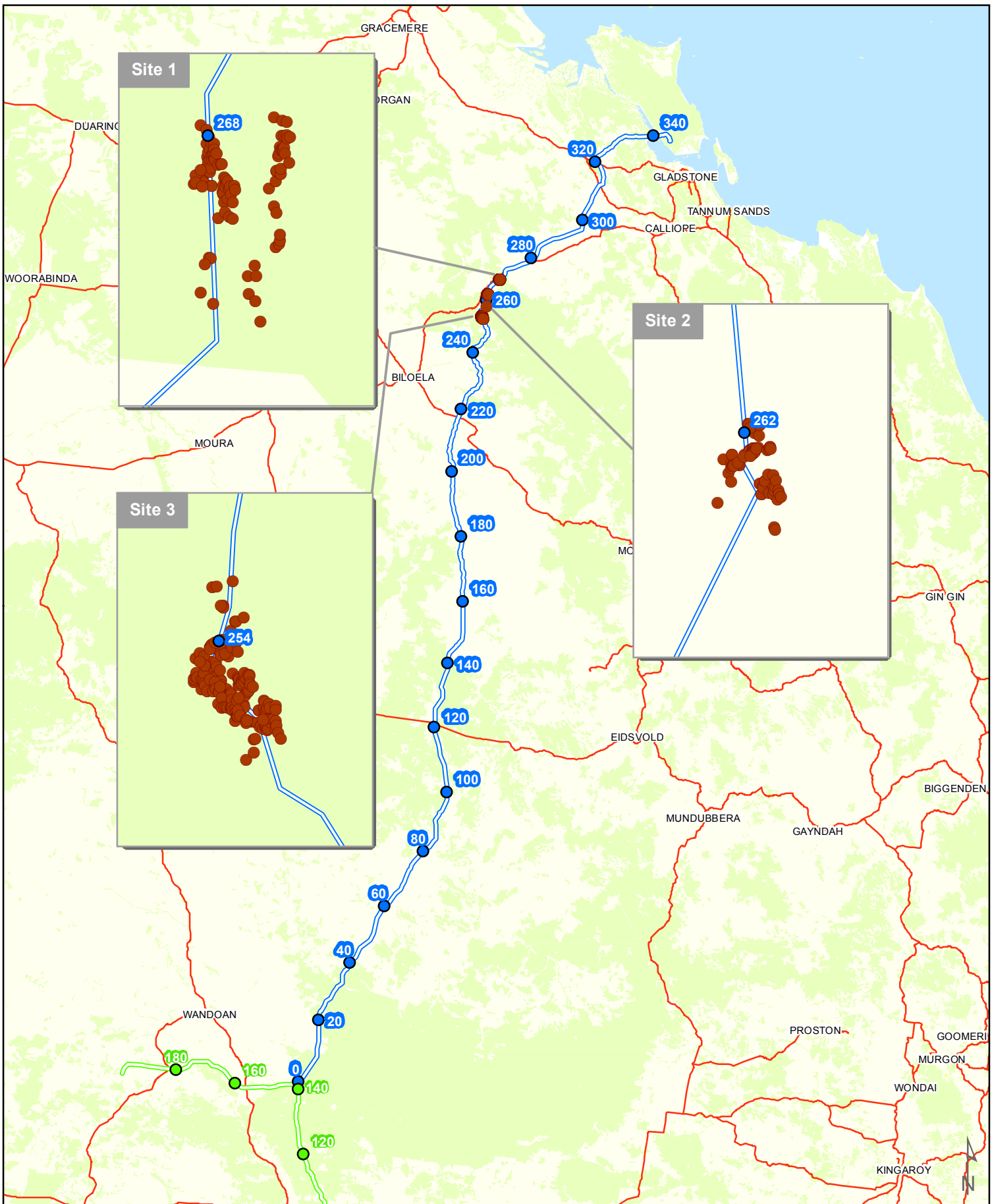
Common Name	Scientific Name	Status*		Source #	Preferred Habitat
		NC Act	EPBC Act		
Black-breasted Button-quail	<i>Turnix melanogaster</i>		V	3	Vine thickets and rainforest habitats. Sometimes in adjacent, disturbed but well vegetated habitats. SE Qld and northern NSW.
Large-eared Pied Bat, Large Pied Bat	<i>Chalinolobus dwyeri</i>		V	3	Cave or tree-roosting bat usually found in association with sandstone escarpments and gorges. Kroombit Tops, Carnarvon Ranges, Cania Gorge.
Little Pied Bat	<i>Chalinolobus picatus</i>	NT		1	Arid woodlands and forests. Widespread but patchily distributed.
Northern Quoll	<i>Dasyurus hallucatus</i>		E	3	Patchy occurrence in northern parts of the study area in forests and woodlands. Records from Carnarvon Range and parts of the Great Dividing Range.
Spotted-tailed Quoll (Southern Subspecies)	<i>Dasyurus maculatus maculatus</i>	V	E	1,3	Rainforest and wet sclerophylly forest habitats is south east Qld. Possibly a patchy distribution in the study area.
Semon's Leaf-nosed Bat	<i>Hipposideros semoni</i>		E	3	Dubious records from St Mary's Forest. Otherwise only known from northern Qld.
Eastern Long-eared Bat	<i>Nyctophilus timoriensis</i>	V	V	2	Arid woodlands in the southern parts of the study area.
Grey-headed Flying-Fox	<i>Pteropus poliocephalus</i>		V	1,3	Coastal forests, mangroves and woodlands.
False Water Rat	<i>Xeromys myoides</i>		V	3	Coastal mangroves and samphire habitats. Patchy distribution along the Qld coast.

Status\* = E = Endangered, V = Vulnerable, R = Rare, NT = Near Threatened, CE = Critically Endangered, Mi = Migratory, Ma = Marine

Source#: 1 = Wildlife Online; 2 = Field Survey; 3 = EPBC Act Search



## Appendix 4 – *Cycas megacarpa* Map Series



QGC PTY LTD - Queensland Curtis LNG Project

LEGEND

LOCATION DIAGRAM

TITLE: **Cycas Megacarpa Along the Export Pipeline**

● Cycas Megacarpa

DOCUMENT NO: QCLNG-BX00-ENV-MAP-000033

DATA SOURCE:  
 Topographic Raster 1:250,000 © Commonwealth of Australia (Geoscience Australia) 2003  
 Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
25/03/2011	RC	BE	Issued for Use	B

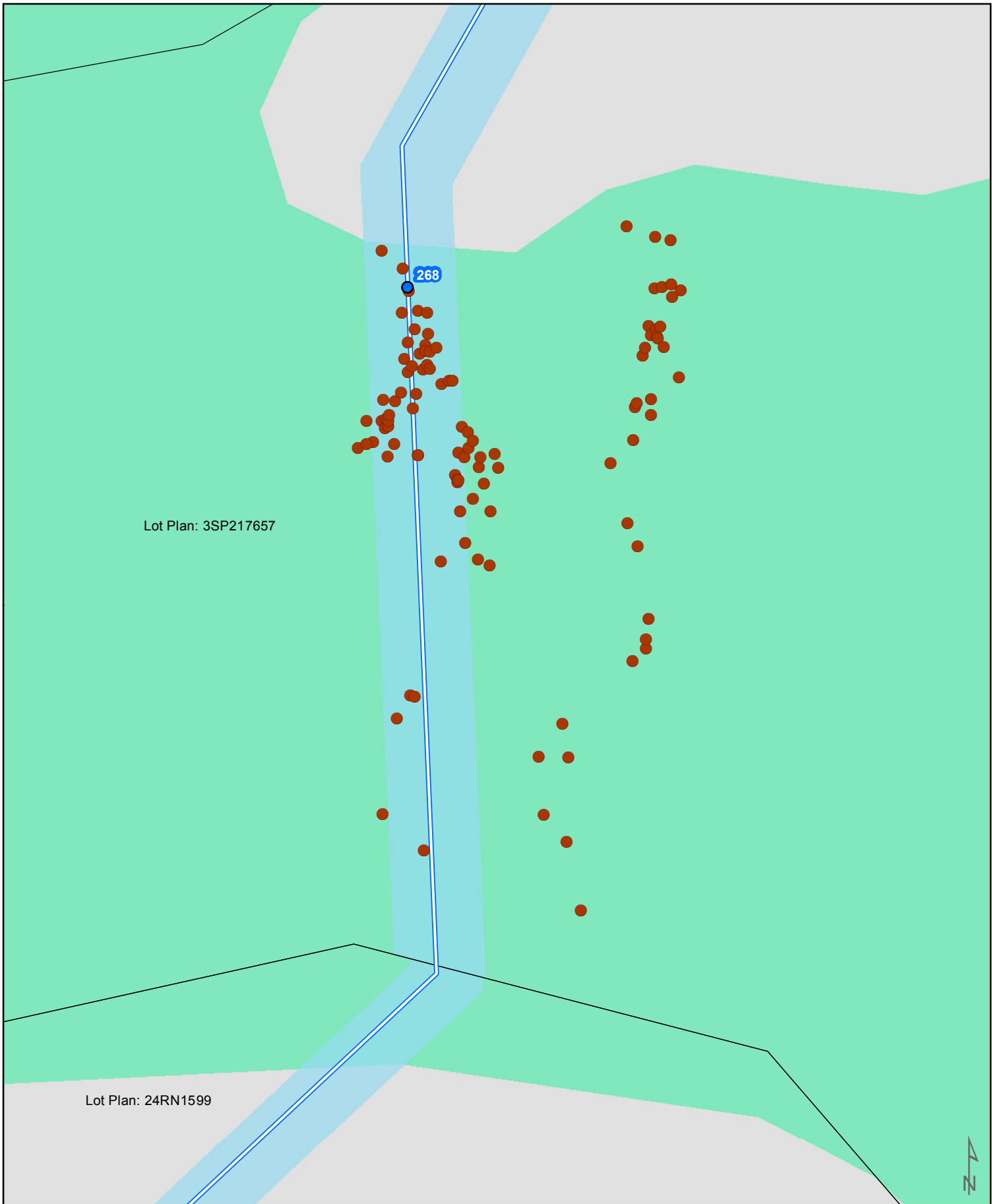


PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
● Export Pipeline	Rev K	08-12-2010	Unidel
● Collection Header	Rev J	08-12-2010	Unidel



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T:\Clients - Projects\QGC\QGC020-0-CLNG\GIS\Biodata\Work\RequesWIR\_QGC\_1000\_1498\WIR\_QGC\_01315\20110325 Rev1\MXD\Site1.mxd

<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>	<b>LOCATION DIAGRAM</b>																				
<b>TITLE: Site 1: Cycas Megacarpa Along the Export Pipeline</b>		<span style="color: brown;">●</span> Cycas Megacarpa <span style="background-color: lightgrey; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Non-remnant / regrowth <span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Cadastral Boundary <span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Not Of Concern <span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 15px; height: 10px;"></span> 40 Pipeline ROW																					
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DATE	AUTHOR	APPROVED		REVISION NOTE	REV.																		
25/03/2011	RC	BE	Issued for Use	B																			
<b>DATA SOURCE:</b> Topographic Raster 1:250,000 © Commonwealth of Australia (Geoscience Australia) 2003 Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td><span style="color: blue;">—●—</span> Export Pipeline</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td><span style="color: green;">—●—</span> Collection Header</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>	PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	<span style="color: blue;">—●—</span> Export Pipeline	Rev K	08-12-2010	Unidel	<span style="color: green;">—●—</span> Collection Header	Rev J	08-12-2010	Unidel									
PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY																				
<span style="color: blue;">—●—</span> Export Pipeline	Rev K	08-12-2010	Unidel																				
<span style="color: green;">—●—</span> Collection Header	Rev J	08-12-2010	Unidel																				
		 <small>GPO Box 3107 - Brisbane, QLD 4000          p(07) 3024 5000 f(07) 3024 8899          www.qgc.com.au qgc@qgc.com.au</small> 																					

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Lot Plan: 4RN903

262



QGC PTY LTD - Queensland Curtis LNG Project

LEGEND

LOCATION DIAGRAM

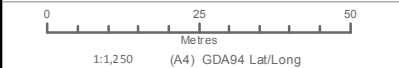
TITLE: **Site 2: Cycas Megacarpa Along the Export Pipeline**

- Cycas Megacarpa
- Cadastral Boundary
- 40 Pipeline ROW
- Non-remnant / regrowth
- Not Of Concern

DOCUMENT NO: QCLNG-BX00-ENV-MAP-000035

DATA SOURCE:  
 Topographic Raster 1:250,000 © Commonwealth of Australia (Geoscience Australia) 2003  
 Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
25/03/2011	RC	BE	Issued for Use	B

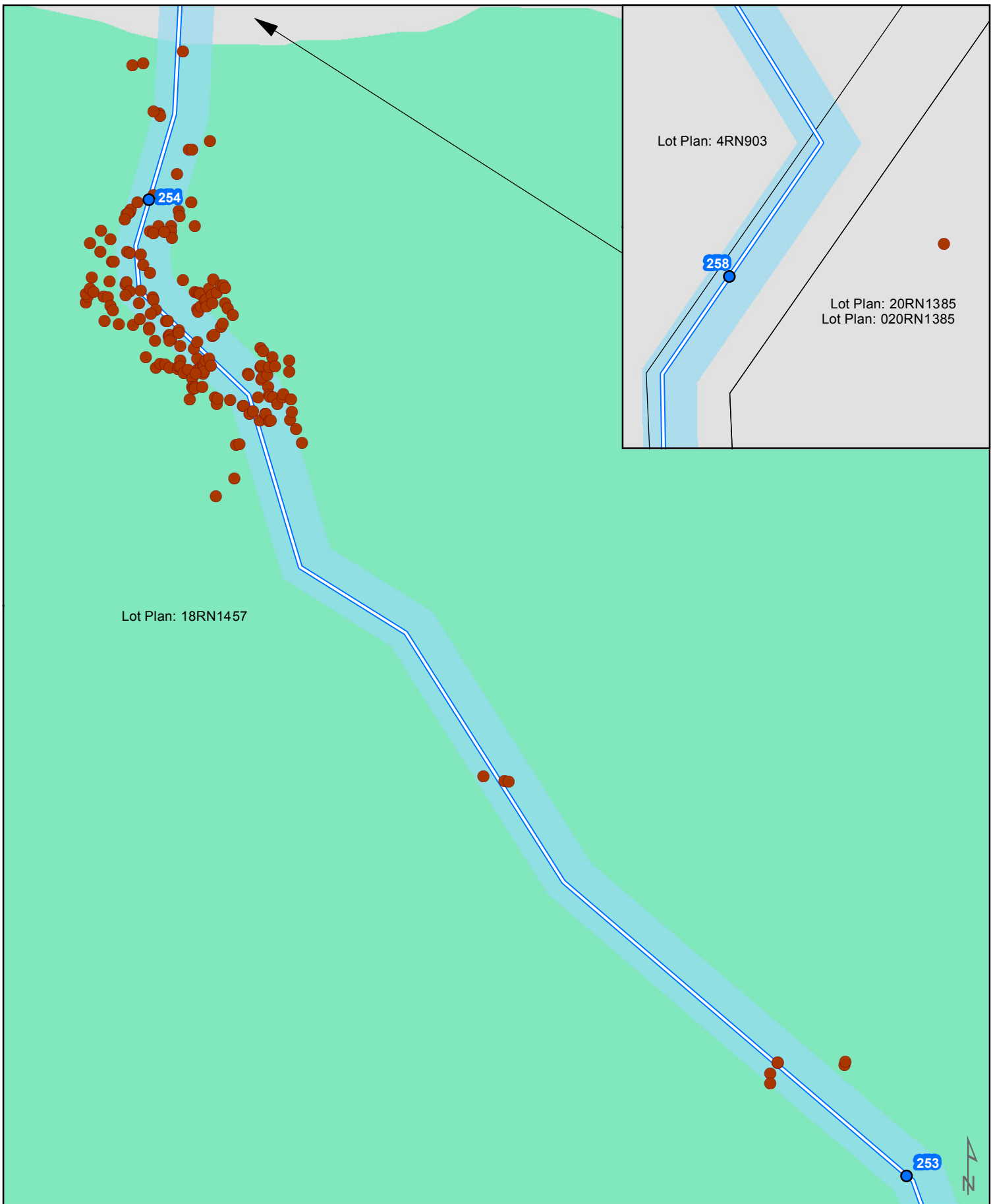


PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
<span style="color: blue;">—●—</span> Export Pipeline	Rev K	08-12-2010	Unidel
<span style="color: green;">—●—</span> Collection Header	Rev J	08-12-2010	Unidel



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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>	<b>LOCATION DIAGRAM</b>																				
<b>TITLE: Site 3: Cycas Megacarpa Along the Export Pipeline</b>		<span style="color: brown;">●</span> Cycas Megacarpa <span style="background-color: lightgrey; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Non-remnant / regrowth <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastral Boundary <span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Not Of Concern <span style="background-color: lightblue; border: 1px solid blue; display: inline-block; width: 10px; height: 10px;"></span> 40 Pipeline ROW																					
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DATE	AUTHOR	APPROVED		REVISION NOTE	REV.																		
25/03/2011	RC	BE	Issued for Use	B																			
<b>DATA SOURCE:</b> Topographic Raster 1:250,000 © Commonwealth of Australia (Geoscience Australia) 2003 Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td><span style="color: blue;">—●—</span> Export Pipeline</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td><span style="color: green;">—●—</span> Collection Header</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>	PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	<span style="color: blue;">—●—</span> Export Pipeline	Rev K	08-12-2010	Unidel	<span style="color: green;">—●—</span> Collection Header	Rev J	08-12-2010	Unidel									
PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY																				
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<span style="color: green;">—●—</span> Collection Header	Rev J	08-12-2010	Unidel																				

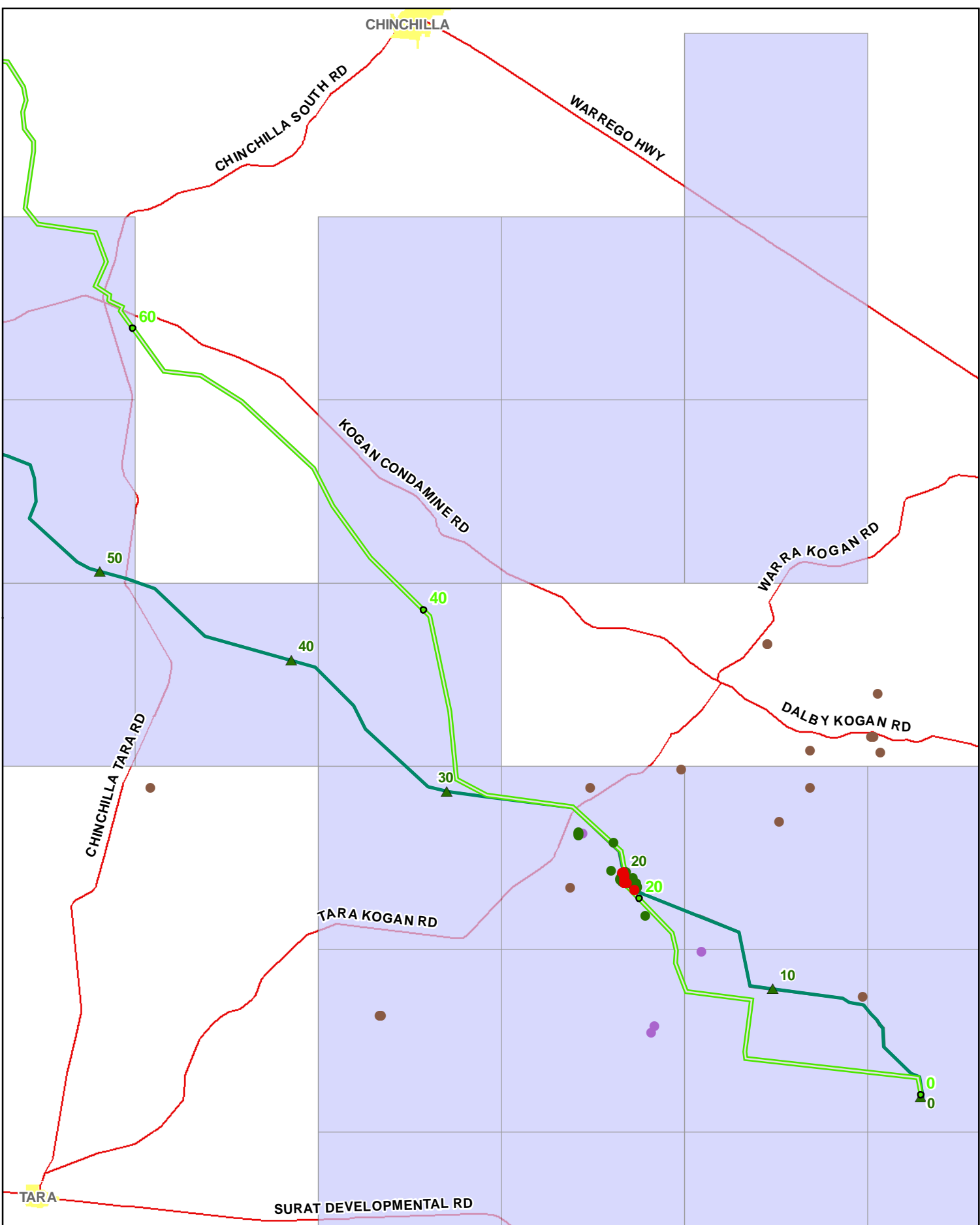
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## Appendix 5 – *Philothea sporadica* Map Series



**QGC PTY LTD - Queensland Curtis LNG Project**

**TITLE:**  
Locations of *Philotheca sporadica*

**DOCUMENT NO:** QCLNG-BF00-ENV-MAP-000066-004

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
HerbRecs Data (Department of Environment and Resource Management) 2008

**LEGEND**

- Highway or Major Road
- UIC Pipeline
- Philotheca sporadica Sites
  - Uindel Flora Survey Within Corridor
  - Uindel Flora Survey Outside Corridor
  - UIC KP
  - Other (Land Access Consultant)
  - Herbrecs (QLD Herbarium)
- GQC Gas Fields
- Built Up Areas

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
18/11/2010	ES	MC	Issued for use	A
25/03/2010	EM	BE	Issued for use	B

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline	Rev K	08-12-2010	Unidel
Collection Header	Rev J	08-12-2010	Unidel

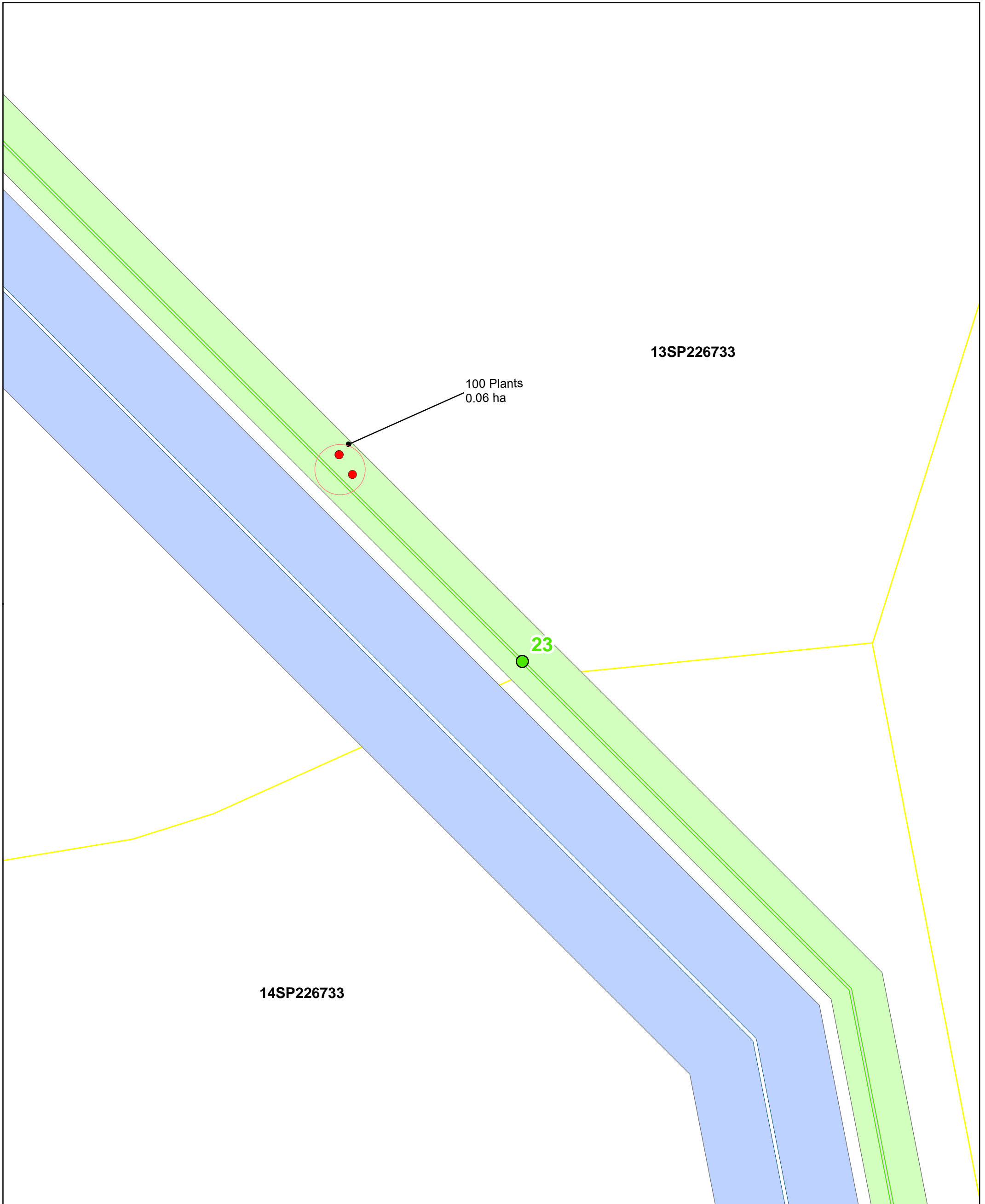
**LOCATION DIAGRAM**

**QGC**  
A BG Group business  
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p (07) 3024 9000 f (07) 3024 8999  
www.qgc.com.au ggc@ggc.com.au

**UNIDEL**  
INFRASTRUCTURE ENERGY RESULTS

Scale: 1:250,000 (A4) GDA94 Lat/Long

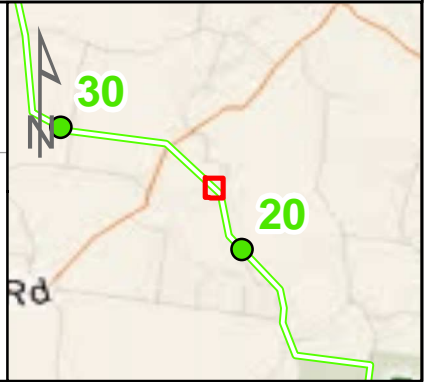
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Project Impacts on *Philothea sporadica* Northern Section  
**DOCUMENT NO:** QCLNG-BF00-ENV-MAP-000066-003

- ▲ *Philothea sporadica*    Outliers - Total area = 0 ha
- *Philothea sporadica*    UIC - Total area = 0 ha
- *Philothea sporadica*    GCH Impact - Total area = 0.06 ha
- Cadastral Boundaries



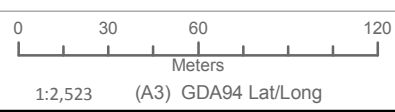
**DATA SOURCE:**  
 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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25/03/2011	EM	BE	Issued for Use	B

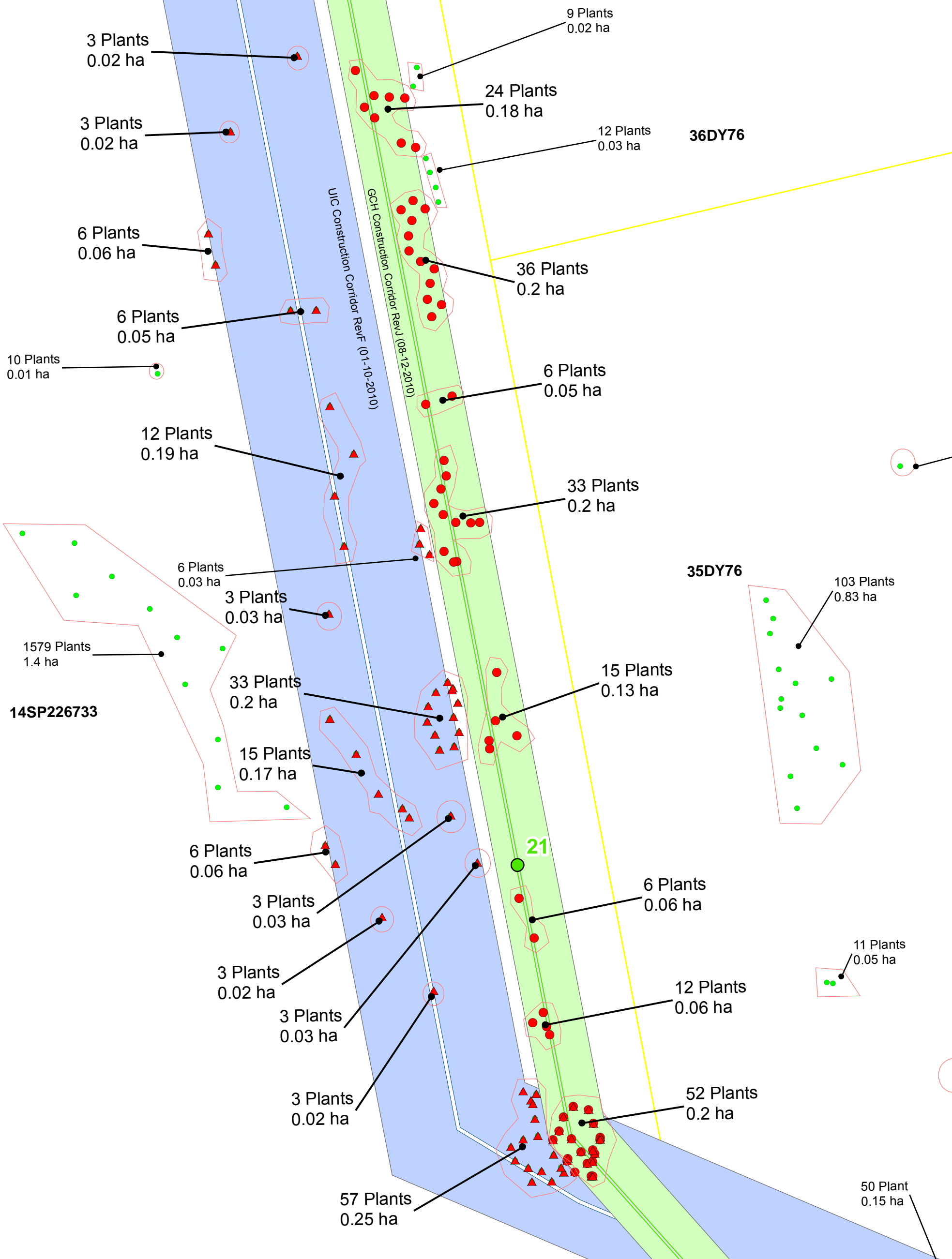
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
<span style="color: blue;">—●—</span> Export Pipeline	Rev K	08-12-2010	Unidel
<span style="color: green;">—●—</span> Collection Header	Rev J	08-12-2010	Unidel

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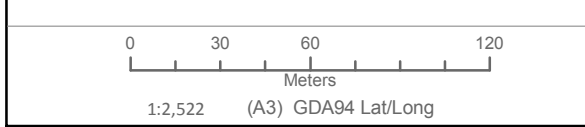
**QGC PTY LTD - Queensland Curtis LNG Project**

**TITLE:** Project Impacts on *Philotheca sporadica* Southern Section  
**DOCUMENT NO:** QCLNG-BF00-ENV-MAP-000066-002

**DATA SOURCE:**  
 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

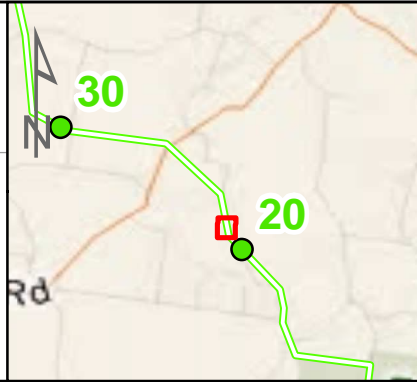
**LEGEND**

- ▲ *Philotheca sporadica* Outliers - Total area = 0 ha
  - *Philotheca sporadica* UIC - Total area = 0 ha
  - *Philotheca sporadica* GCH Impact - Total area = 0.06 ha
  - Cadastral Boundaries
- | DATE       | AUTHOR | APPROVED | REVISION NOTE  | REV. |
|------------|--------|----------|----------------|------|
| 18/11/2010 | ES     | MC       | Issued for Use | A    |
| 25/03/2011 | EM     | BE       | Issued for Use | B    |



PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline	Rev K	08-12-2010	Unidel
Collection Header	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**

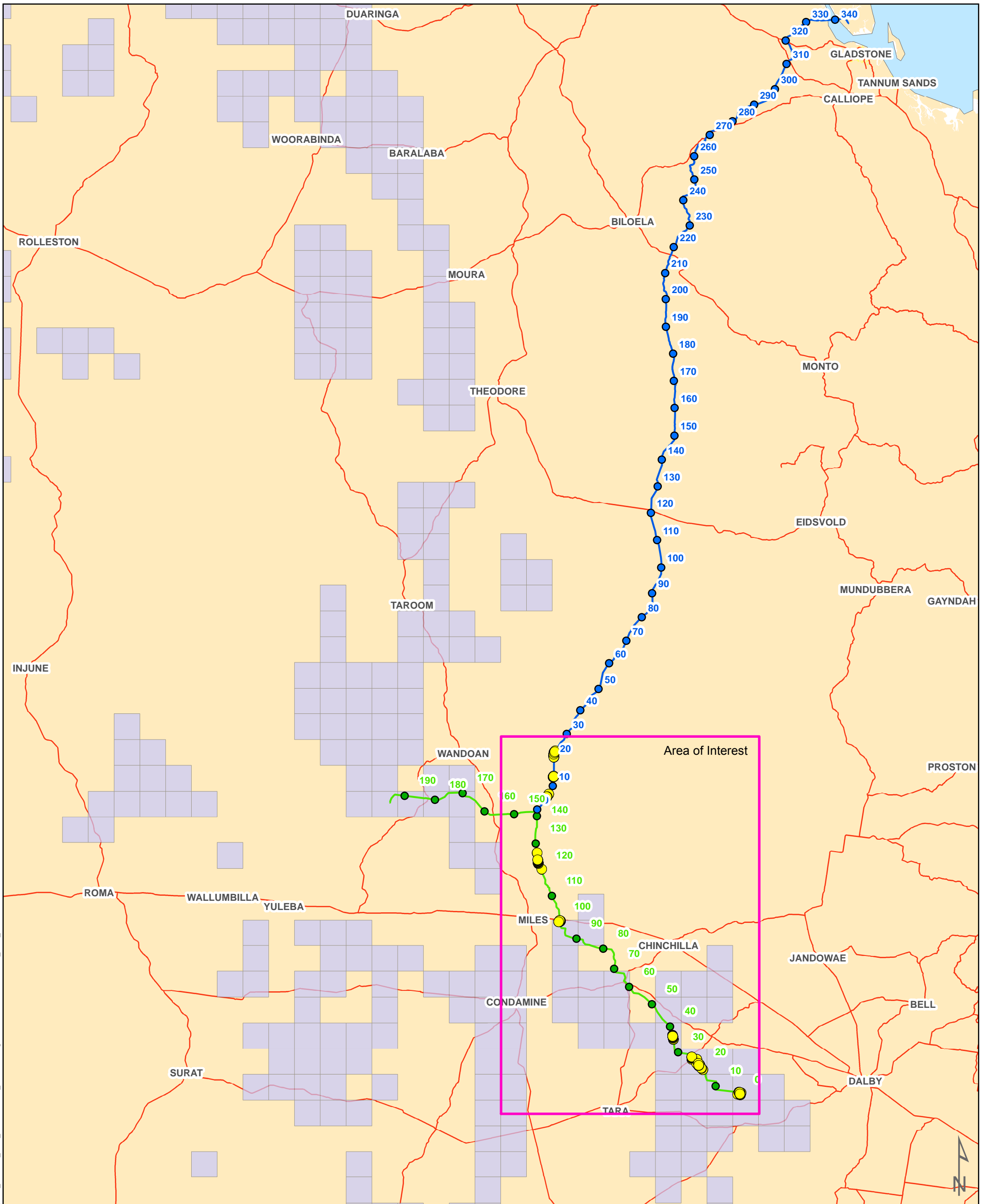


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## Appendix 6 – *Gonocarpus urceolatus* Map Series



QGC PTY LTD - Queensland Curtis LNG Project LEGEND LOCATION DIAGRAM

TITLE: Site Location

DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-002

DATA SOURCE:  
Topographic Raster 1:250,000 © Commonwealth of Australia (Geoscience Australia) 2003

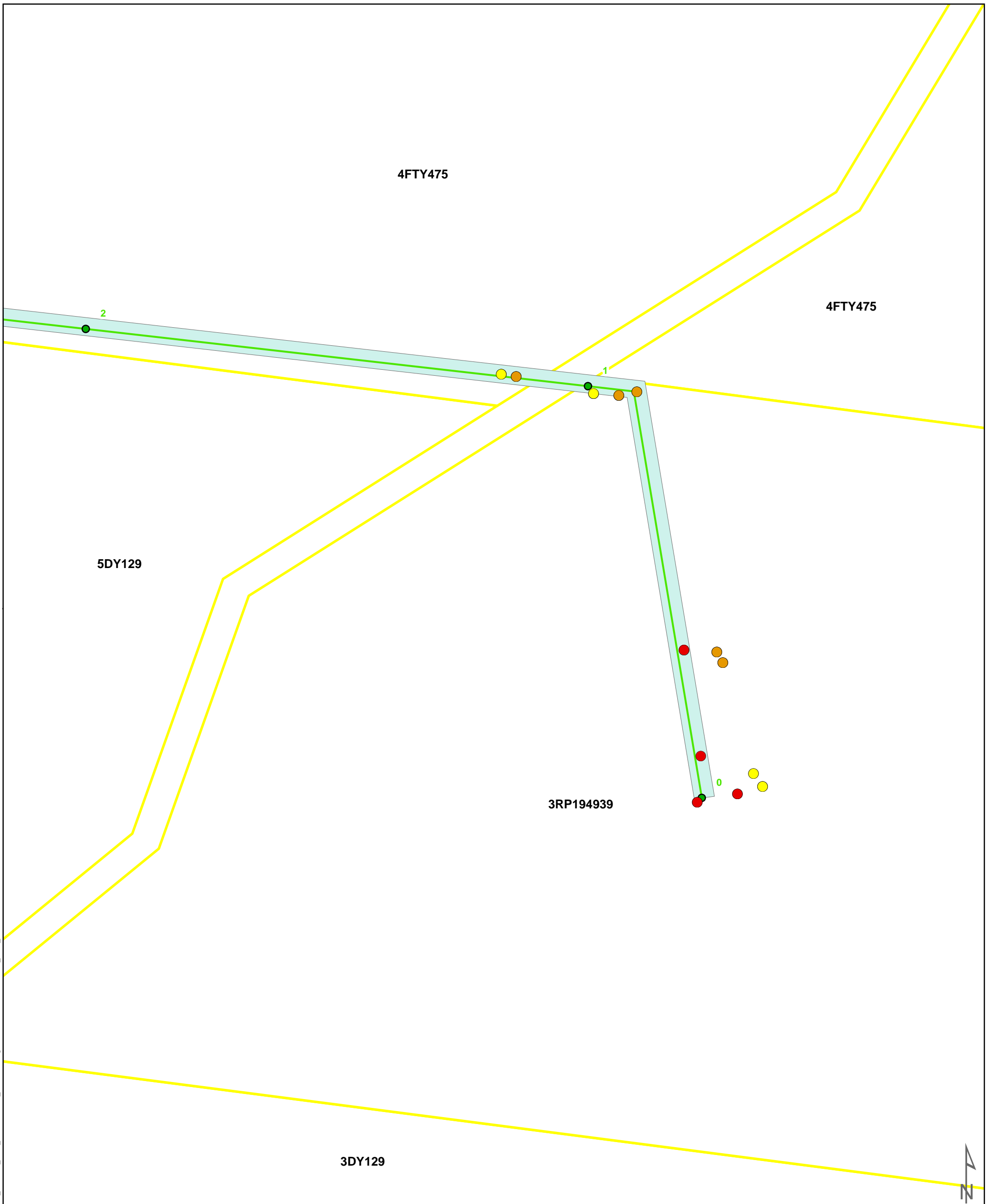
0 25 50  
Kilometres  
1:1,250,000 (A3) GDA94 Lat/Long

<b>Gonocarpus urceolatus</b>					
Roads Major/Minor					
QGC Gas Fields					
	DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
	22/12/2010	ES	SF	Draft Issue	A
	25/03/2011	AN	BE	Issued for use	B
Export Pipeline & KP's	REVISION	DATE	SUPPLIED BY		
Collection Header & KP's	Rev K	08-12-2010	Unidel		
	Rev J	08-12-2010	Unidel		

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p (07) 3024 9000 f (07) 3024 8999  
www.qgc.com.au qgc@qgc.com.au

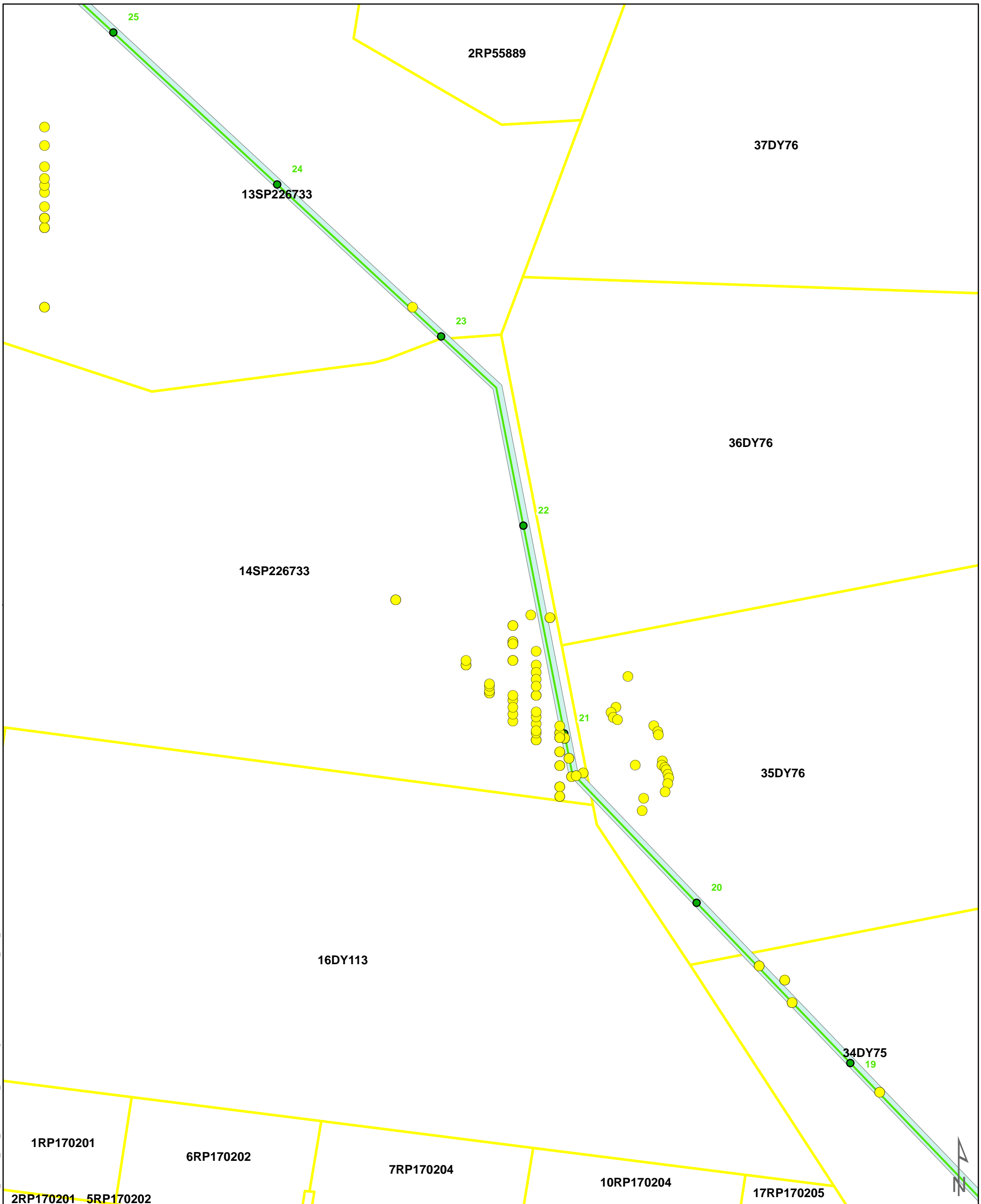


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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>			
TITLE: Project Impacts on Gonocarpus urceolatus - KP 0 to KP 2 (Gas Collection Header Corridor)		<b>Approximate Number of Plants Per Location Point</b> <span style="color: red;">●</span> 20,000 <span style="color: orange;">●</span> 100 <span style="color: yellow;">●</span> 50 <span style="color: green;">●</span> 5		<span style="color: red;">—</span> Roads Major/Minor <span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> GCH Construction Corridor <span style="background-color: lightblue; border: 2px solid blue; display: inline-block; width: 20px; height: 10px;"></span> Export Construction Corridor <span style="border: 2px solid yellow; display: inline-block; width: 20px; height: 10px;"></span> Cadastral Boundaries <span style="background-color: yellow; display: inline-block; width: 20px; height: 10px;"></span> Built Up Areas			
DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-003		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	
DATA SOURCE: Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		24/12/2010	ES	SF	Issued for Use	A	
		25/12/2010	AN	BE	Issued for Use	B	
0 250 500 Metres 1:7,750 (A3) GDA94 Lat/Long		<b>PROPOSED PIPELINE ALIGNMENT</b>		REVISION	DATE	SUPPLIED BY	
		<span style="color: blue;">—●—</span> Export Pipeline & KP's		Rev K	08-12-2010	Unidel	
		<span style="color: green;">—●—</span> Collection Header & KP's		Rev J	08-12-2010	Unidel	
		GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au		UNIDEL INFRASTRUCTURE ENERGY RESULTS			

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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																
TITLE: Project Impacts on Gonocarpus urceolatus - KP 18 to KP 25 (Gas Collection Header Corridor)		<b>Approximate Number of Plants Per Location Point</b> ● 20,000 ● 100 ● 50 ● 5		— Roads Major/Minor — GCH Construction Corridor — Export Construction Corridor — Cadastral Boundaries — Built Up Areas																
DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-004		<table border="1"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>24/12/2010</td> <td>ES</td> <td>SF</td> <td>Issued for Use</td> <td>A</td> </tr> <tr> <td>25/12/2010</td> <td>AN</td> <td>BE</td> <td>Issued for Use</td> <td>B</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	24/12/2010	ES	SF	Issued for Use	A	25/12/2010	AN	BE	Issued for Use	B		
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25/12/2010	AN	BE	Issued for Use	B																
DATA SOURCE: Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		<table border="1"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td>—●— Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td>—●— Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	—●— Export Pipeline & KP's	Rev K	08-12-2010	Unidel	—●— Collection Header & KP's	Rev J	08-12-2010	Unidel					
PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY																	
—●— Export Pipeline & KP's	Rev K	08-12-2010	Unidel																	
—●— Collection Header & KP's	Rev J	08-12-2010	Unidel																	

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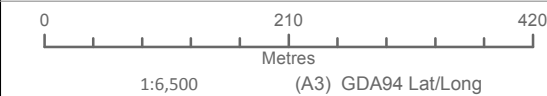


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: Project Impacts on Gonocarpus urceolatus - KP 35 to KP 37 (Gas Collection Header Corridor)

DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-005

DATA SOURCE: Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

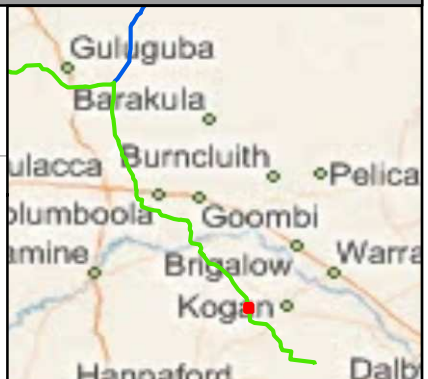


**LEGEND**

- Approximate Number of Plants Per Location Point**
- 20,000
  - 100
  - 50
  - 5

- Roads Major/Minor
- GCH Construction Corridor
- Export Construction Corridor
- Cadastral Boundaries
- Built Up Areas

**LOCATION DIAGRAM**



DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
24/12/2010	ES	SF	Issued for Use	A
25/12/2010	AN	BE	Issued for Use	B

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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<span style="color: green;">—●—</span> Collection Header & KP's	Rev J	08-12-2010	Unidel

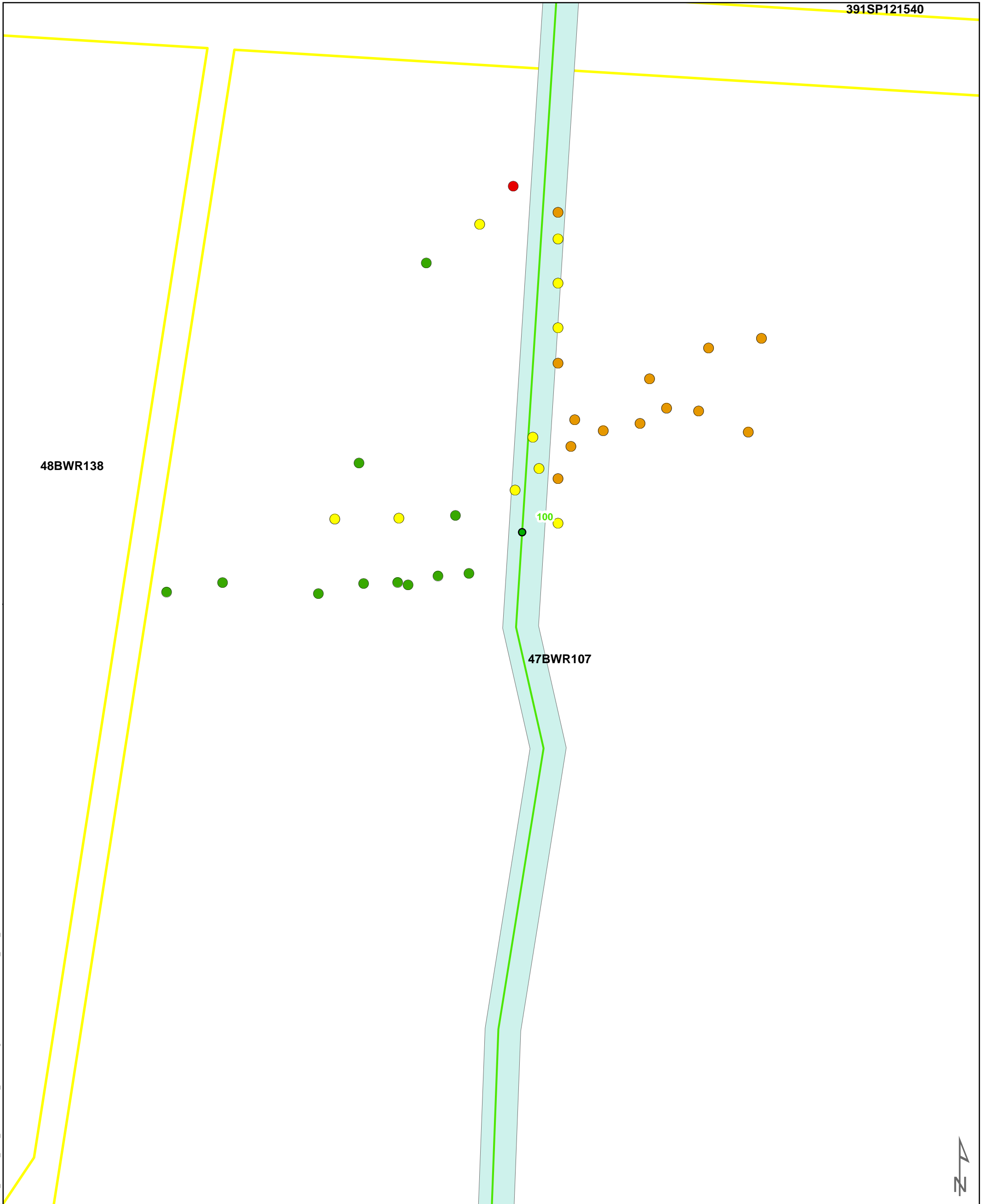
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b> TITLE: Project Impacts on Gonocarpus urceolatus - KP 99 to KP 100 (Gas Collection Header Corridor) DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-006 DATA SOURCE: Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		<b>LEGEND</b> <b>Approximate Number of Plants Per Location Point</b> ● 20,000 ● 100 ● 50 ● 5 — Roads Major/Minor GCH Construction Corridor Export Construction Corridor Cadastral Boundaries Built Up Areas		<b>LOCATION DIAGRAM</b> 																			
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DATE	AUTHOR	APPROVED	REVISION	NOTE	REV.																		
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25/12/2010	AN	BE		Issued for Use	B																		
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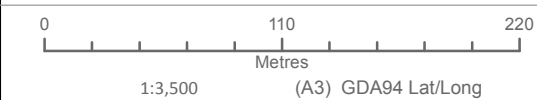


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: Project Impacts on Gonocarpus urceolatus - KP 120 to KP 121 (Gas Collection Header Corridor)

DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-007

DATA SOURCE:  
Cadastral Data © State of Queensland  
(Department of Environment and Resource Management) 2010



**LEGEND**

**Approximate Number of Plants Per Location Point**

- 20,000
- 100
- 50
- 5

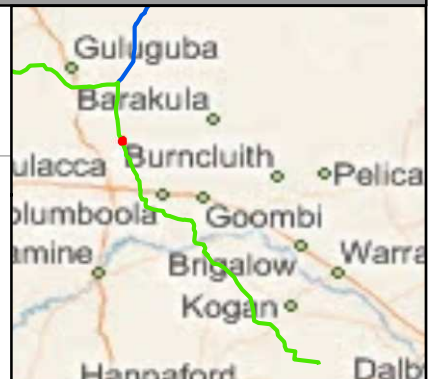
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- GCH Construction Corridor
- Export Construction Corridor
- Cadastral Boundaries
- Built Up Areas

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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25/12/2010	AN	BE	Issued for Use	B

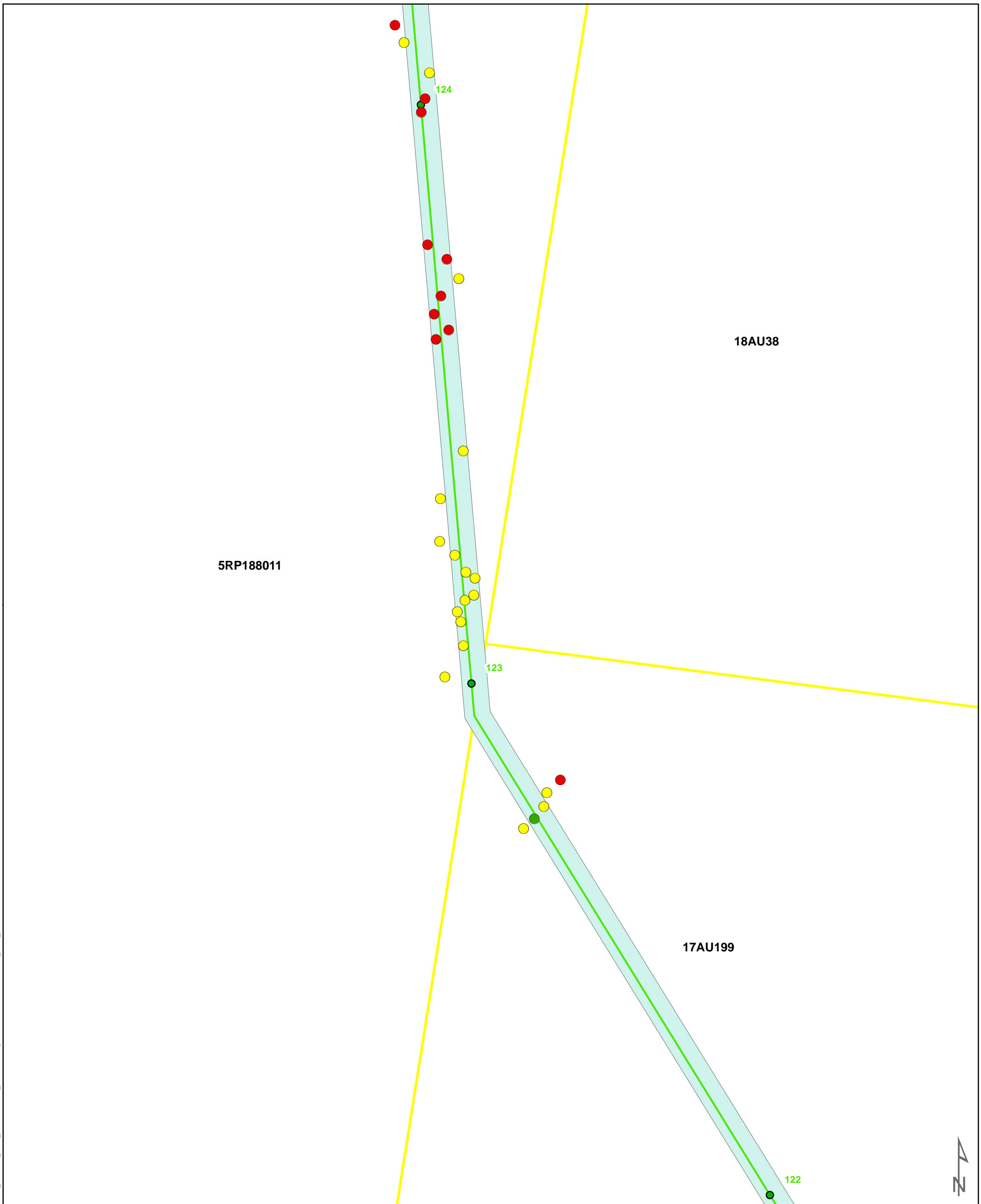
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**LOCATION DIAGRAM**



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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																
TITLE: Project Impacts on Gonocarpus urceolatus - KP 122 to KP 124 (Gas Collection Header Corridor)		<b>Approximate Number of Plants Per Location Point</b> ● 20,000 ● 100 ● 50 ● 5		— Roads Major/Minor ■ GCH Construction Corridor ■ Export Construction Corridor ■ Cadastral Boundaries ■ Built Up Areas																
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25/12/2010	AN	BE	Issued for Use	B																
DATA SOURCE: Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		<table border="1" style="width:100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td>● Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td>● Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	● Export Pipeline & KP's	Rev K	08-12-2010	Unidel	● Collection Header & KP's	Rev J	08-12-2010	Unidel					
PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY																	
● Export Pipeline & KP's	Rev K	08-12-2010	Unidel																	
● Collection Header & KP's	Rev J	08-12-2010	Unidel																	

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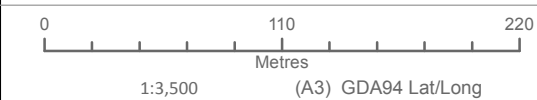


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: Project Impacts on Gonocarpus urceolatus -  
KP 126 to KP 127 (Gas Collection Header Corridor)

DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-009

DATA SOURCE:  
Cadastral Data © State of Queensland  
(Department of Environment and Resource Management) 2010



**LEGEND**

**Approximate Number of Plants Per Location Point**

- 20,000
- 100
- 50
- 5

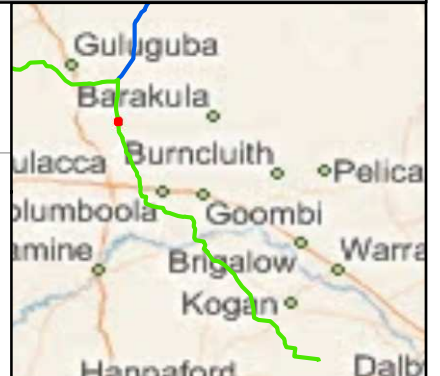
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- GCH Construction Corridor
- Export Construction Corridor
- Cadastral Boundaries
- Built Up Areas

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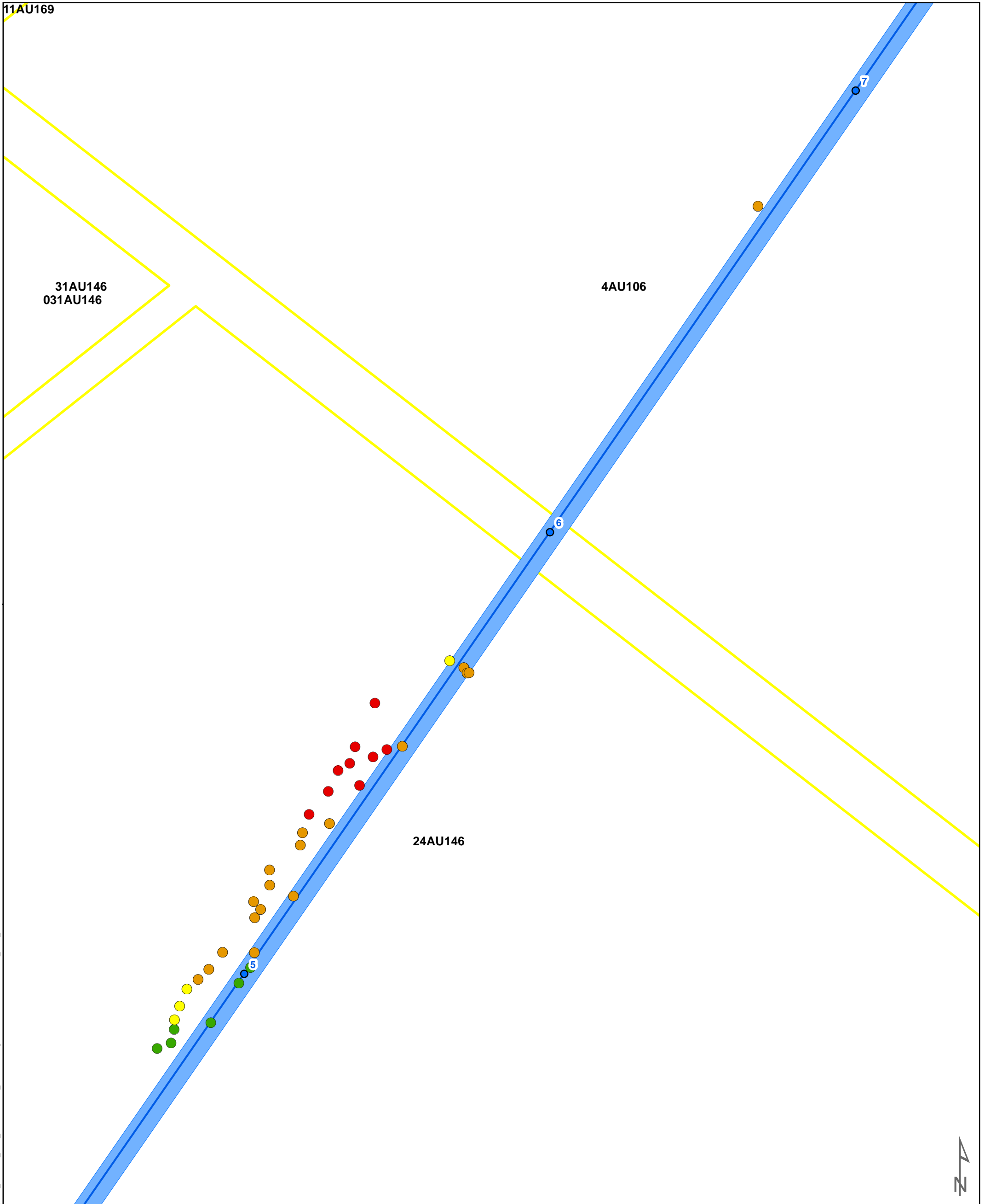
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●— Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**



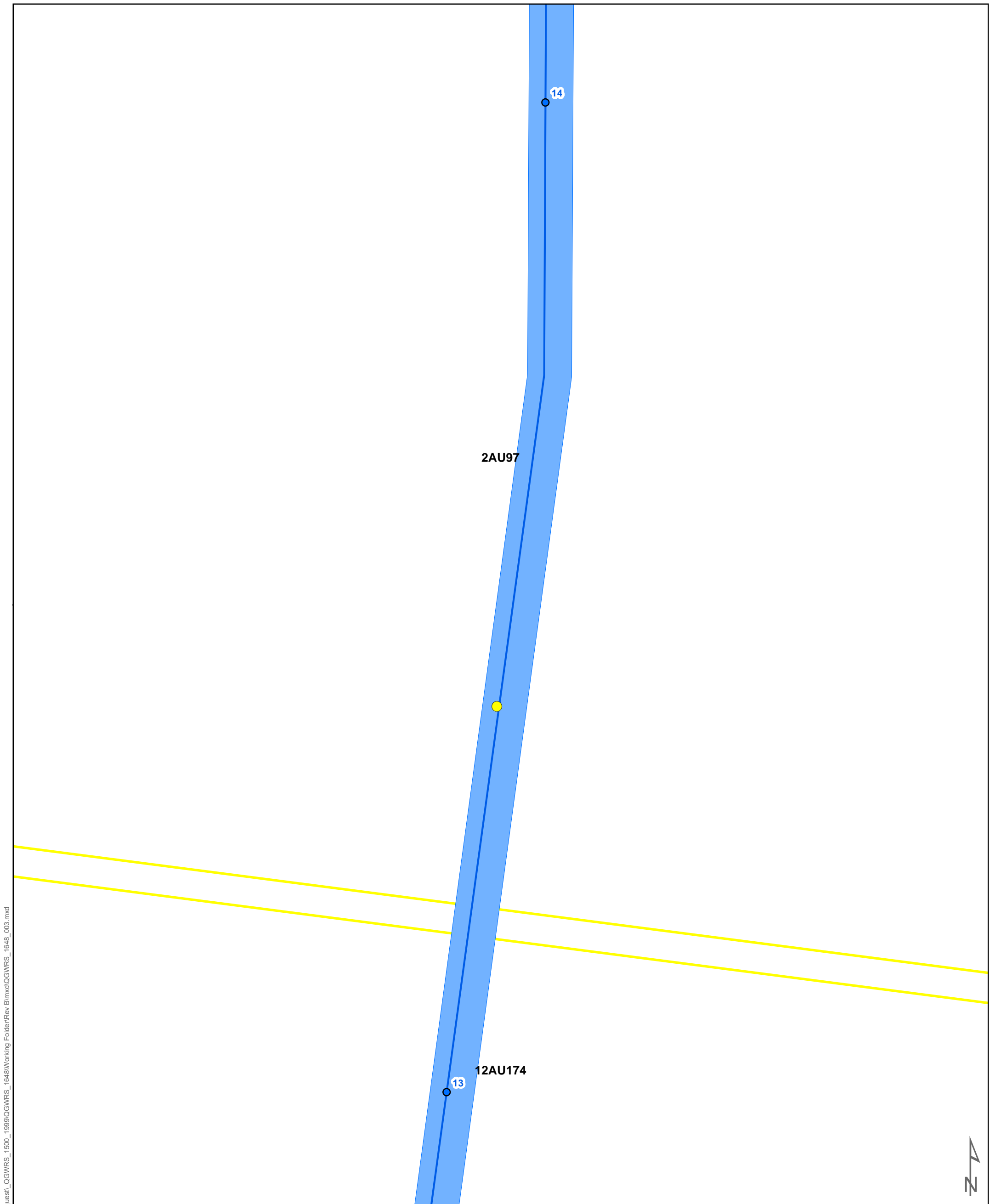
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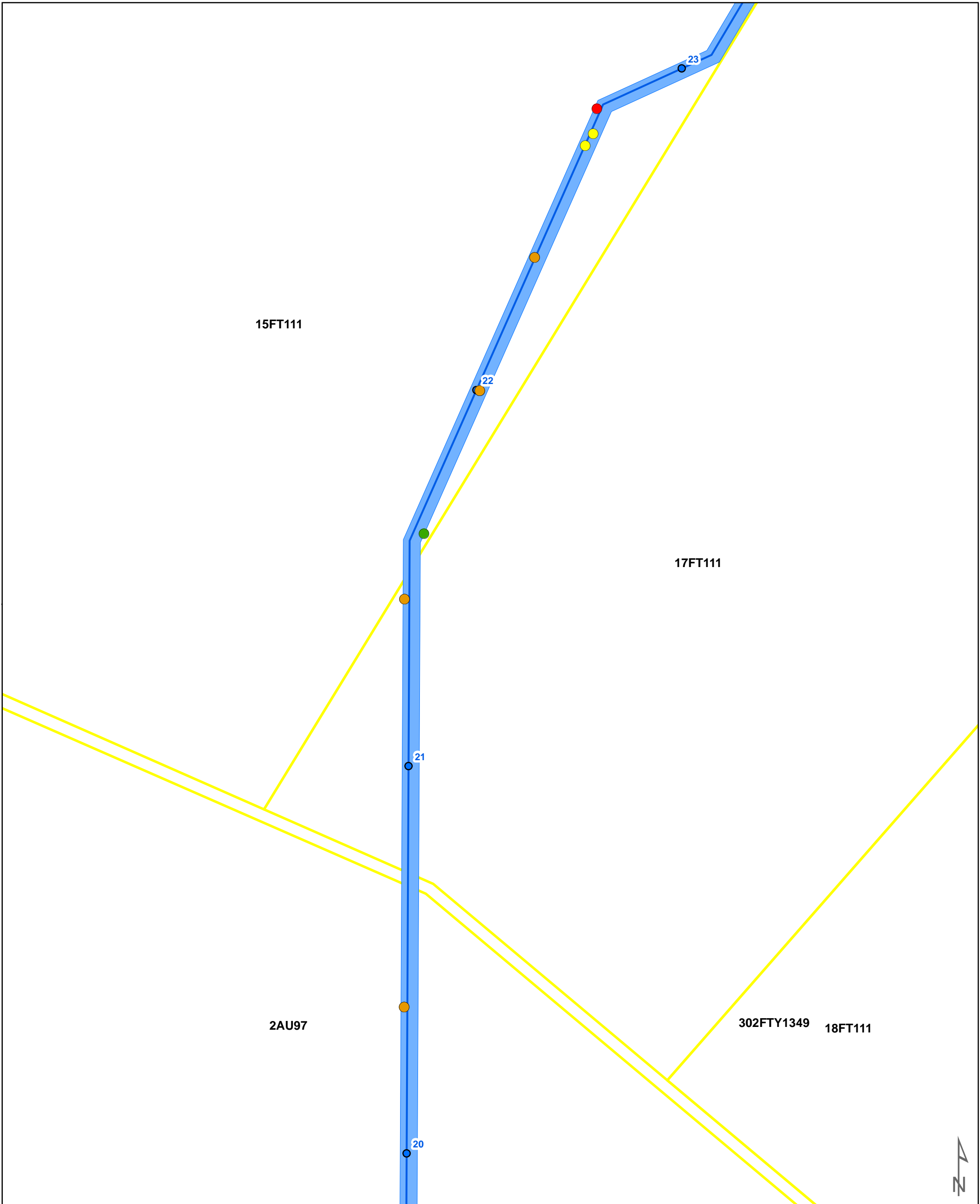
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<p>TITLE: Project Impacts on Gonocarpus urceolatus - KP 5 to KP 7 (Export Corridor)</p> <p>DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-010</p> <p>DATA SOURCE: Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<p><b>Approximate Number of Plants Per Location Point</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">●</span> 20,000</li> <li><span style="color: orange;">●</span> 100</li> <li><span style="color: yellow;">●</span> 50</li> <li><span style="color: green;">●</span> 5</li> </ul> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> Roads Major/Minor</li> <li><span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> GCH Construction Corridor</li> <li><span style="background-color: blue; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Export Construction Corridor</li> <li><span style="border: 2px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Cadastral Boundaries</li> <li><span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Built Up Areas</li> </ul>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>24/12/2010</td> <td>ES</td> <td>SF</td> <td>Issued for Use</td> <td>A</td> </tr> <tr> <td>25/12/2010</td> <td>AN</td> <td>BE</td> <td>Issued for Use</td> <td>B</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	24/12/2010	ES	SF	Issued for Use	A	25/12/2010	AN	BE	Issued for Use	B	<div style="text-align: center;"> <p>A BG Group business</p> <p>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</p> <p>INFRASTRUCTURE ENERGY RESULTS</p> </div>	
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																
TITLE: Project Impacts on Gonocarpus urceolatus - KP 13 to KP 14 (Export Corridor)		<b>Approximate Number of Plants Per Location Point</b> ● 20,000 ● 100 ● 50 ● 5		— Roads Major/Minor ■ GCH Construction Corridor ■ Export Construction Corridor ■ Cadastral Boundaries ■ Built Up Areas																
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: Project Impacts on Gonocarpus urceolatus - KP 20 to KP 23 (Export Corridor)

DOCUMENT NO: QCLNG-BX00-ENV-MAP-000058-012

DATA SOURCE:  
Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

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Metres  
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Approximate Number of Plants Per Location Point			Roads Major/Minor		
● 20,000	● 100	● 50	—	—	—
● 5			—	—	—

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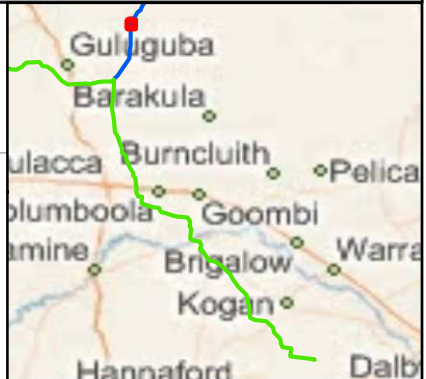
  

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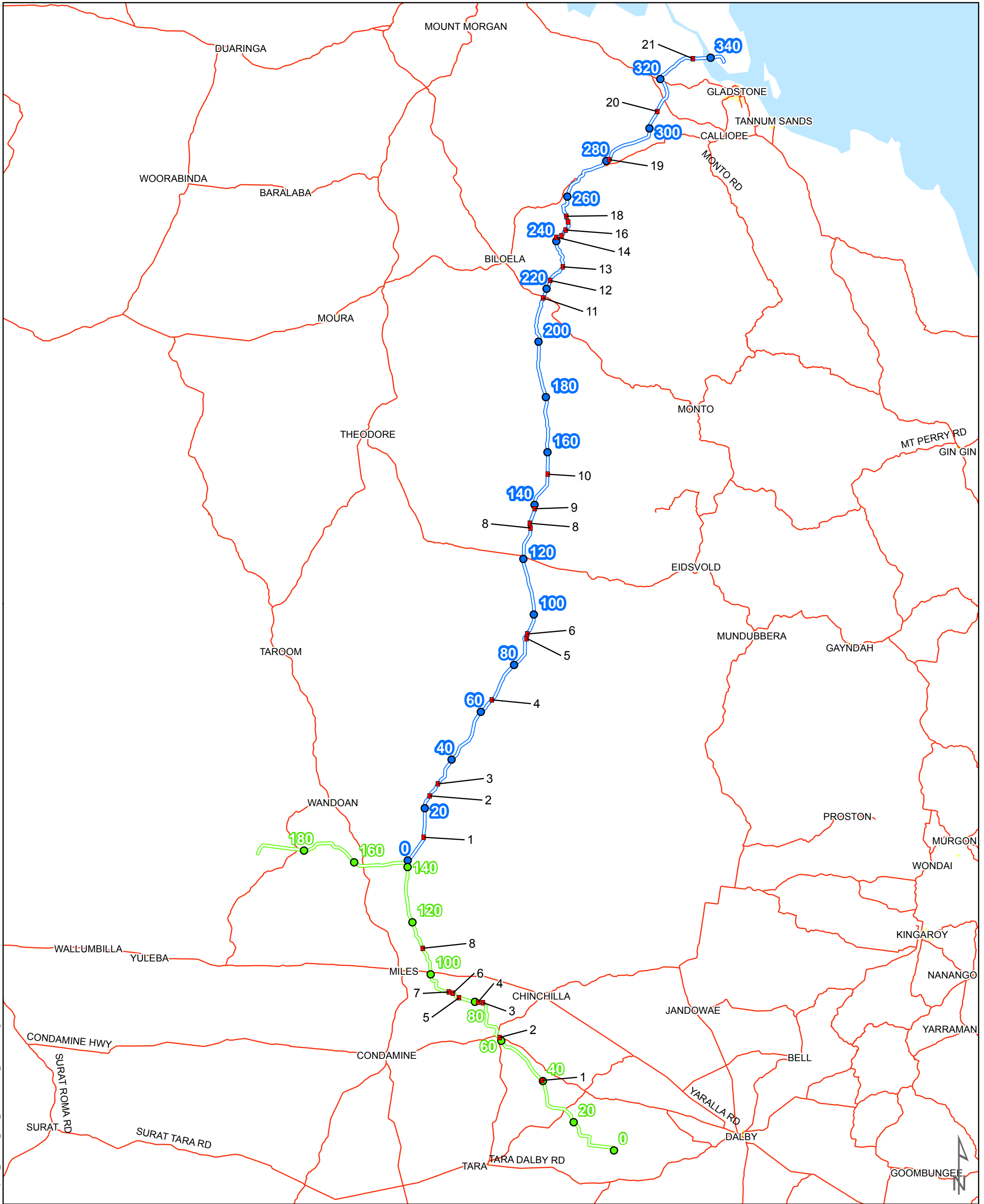


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## Appendix 7 – Ecological Features Map Series



**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: TEC, ERE & OCRE Map Series Overview  
Gas Collection Header Pipeline

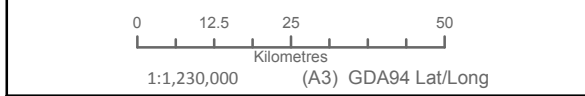
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DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

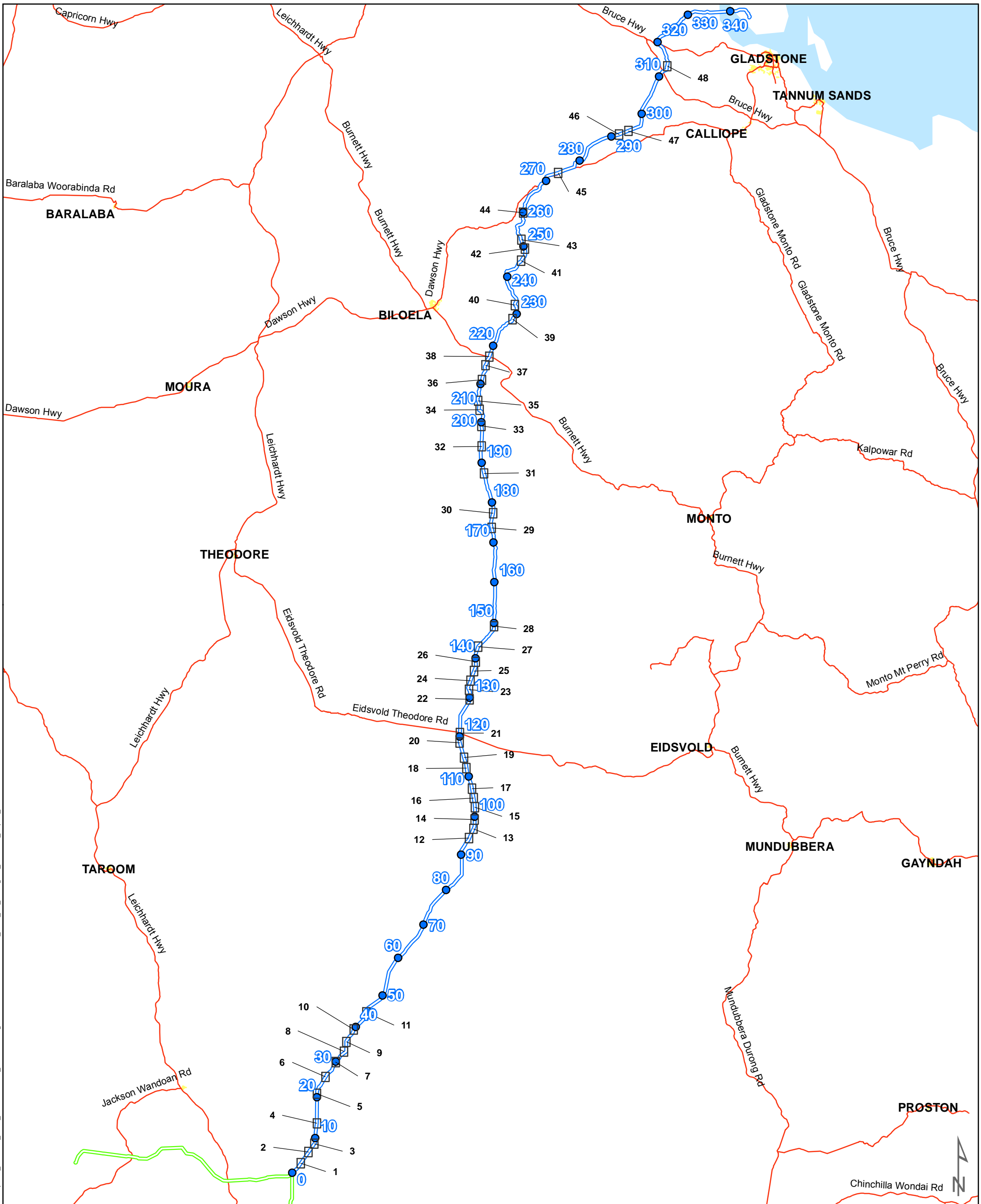
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Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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p (07) 3024 9000 f (07) 3024 8999  
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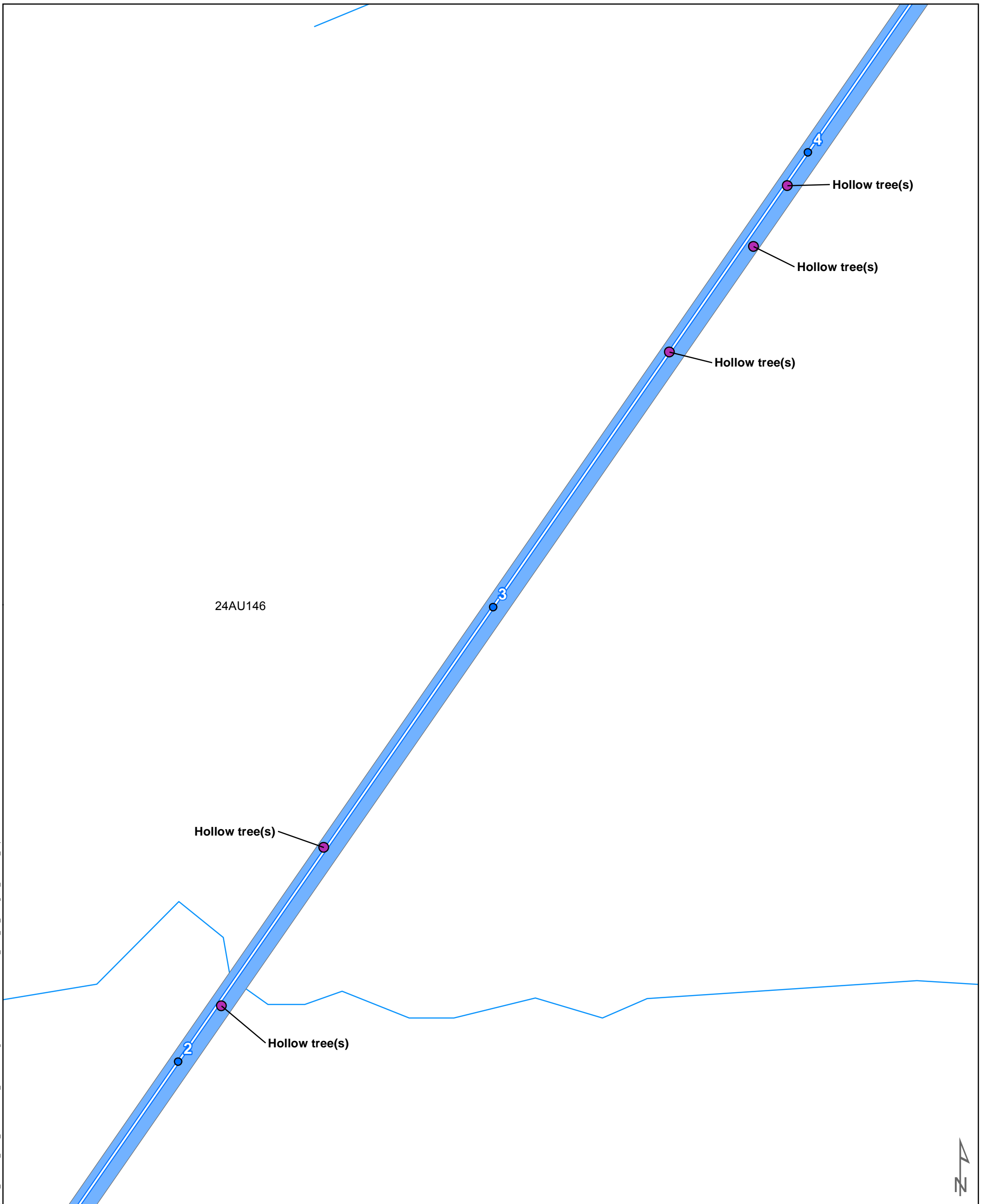
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																					
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11/02/2011	AN	NG	Issued for use	2																					
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24AU146

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 1 of 48

	Ecological feature		Road Casement
	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		

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DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 1

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
(Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of  
Environment and Resource Management) 2010

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11/02/2011	AN	NG	Issed for use	2
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Metres  
1:6,500 (A3) GDA94 Lat/Long

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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68FTY114

KNIGHTS RD  
31AU146  
ARCHINALS STOCK RTE

4AU106

24AU146

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

6

5



**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 2 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 2

DATA SOURCE:  
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Cadastral Data © State of Queensland (Department of  
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	Ecological feature		Road Casement
	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		

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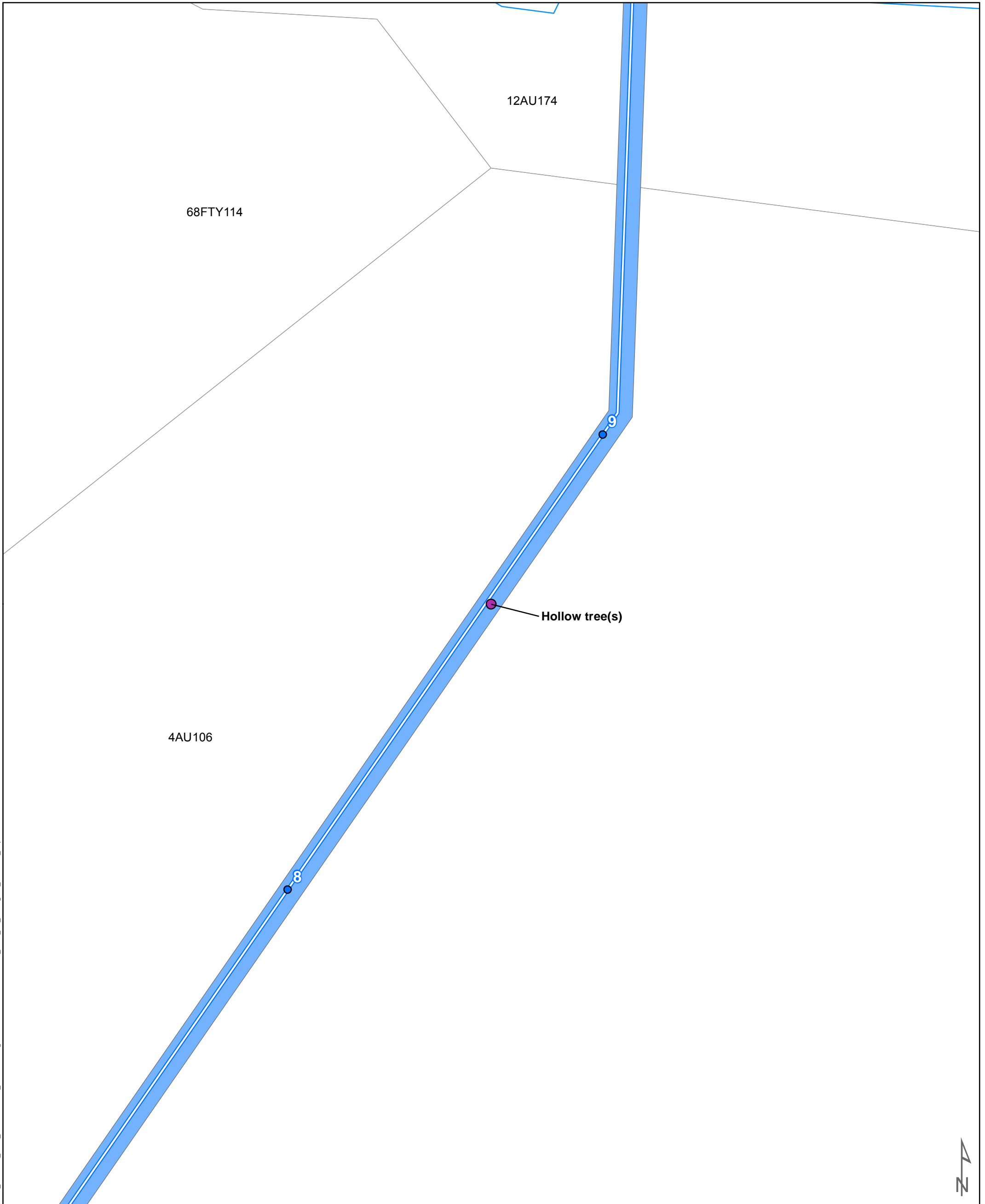
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
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2AU97

14

Hollow tree(s)

KNIGHTS RD

13

12AU174

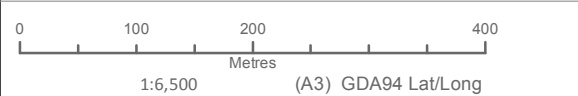


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 4 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 4

DATA SOURCE:  
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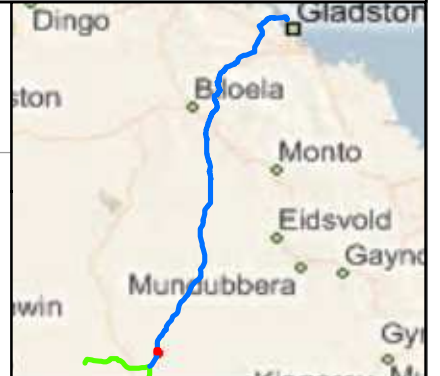
**LEGEND**

- Ecological feature
- Roads
- Watercourse
- Cadastral Boundaries
- Road Casement
- Water Casement
- Export Construction Corridor Rev K

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25/03/2011	AN	SC	Issed for use	3

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**

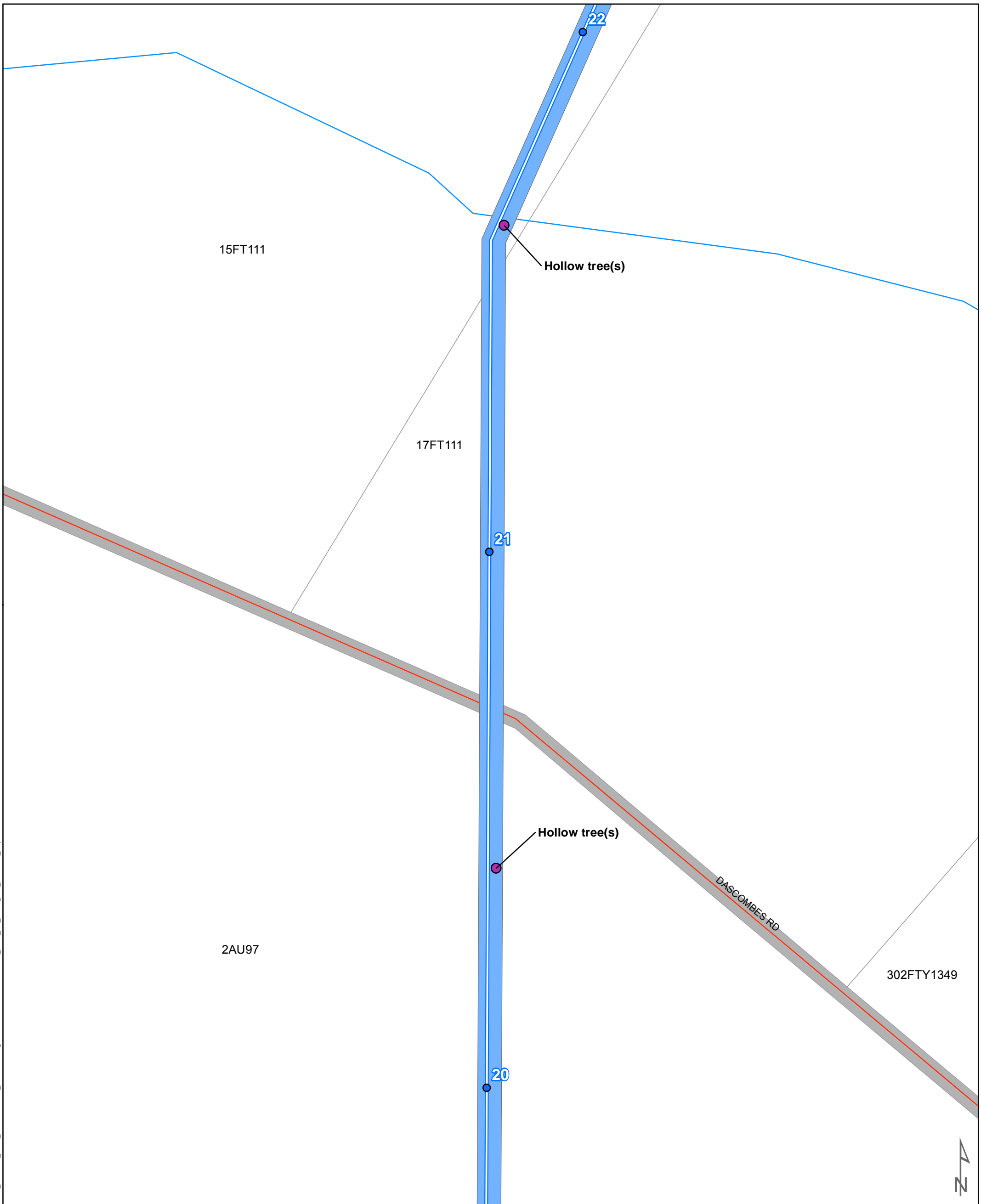


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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 5 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 5

**DATA SOURCE:**  
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0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

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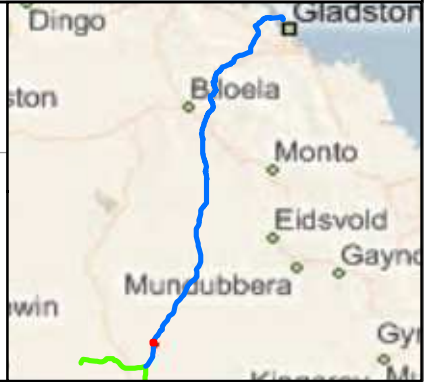
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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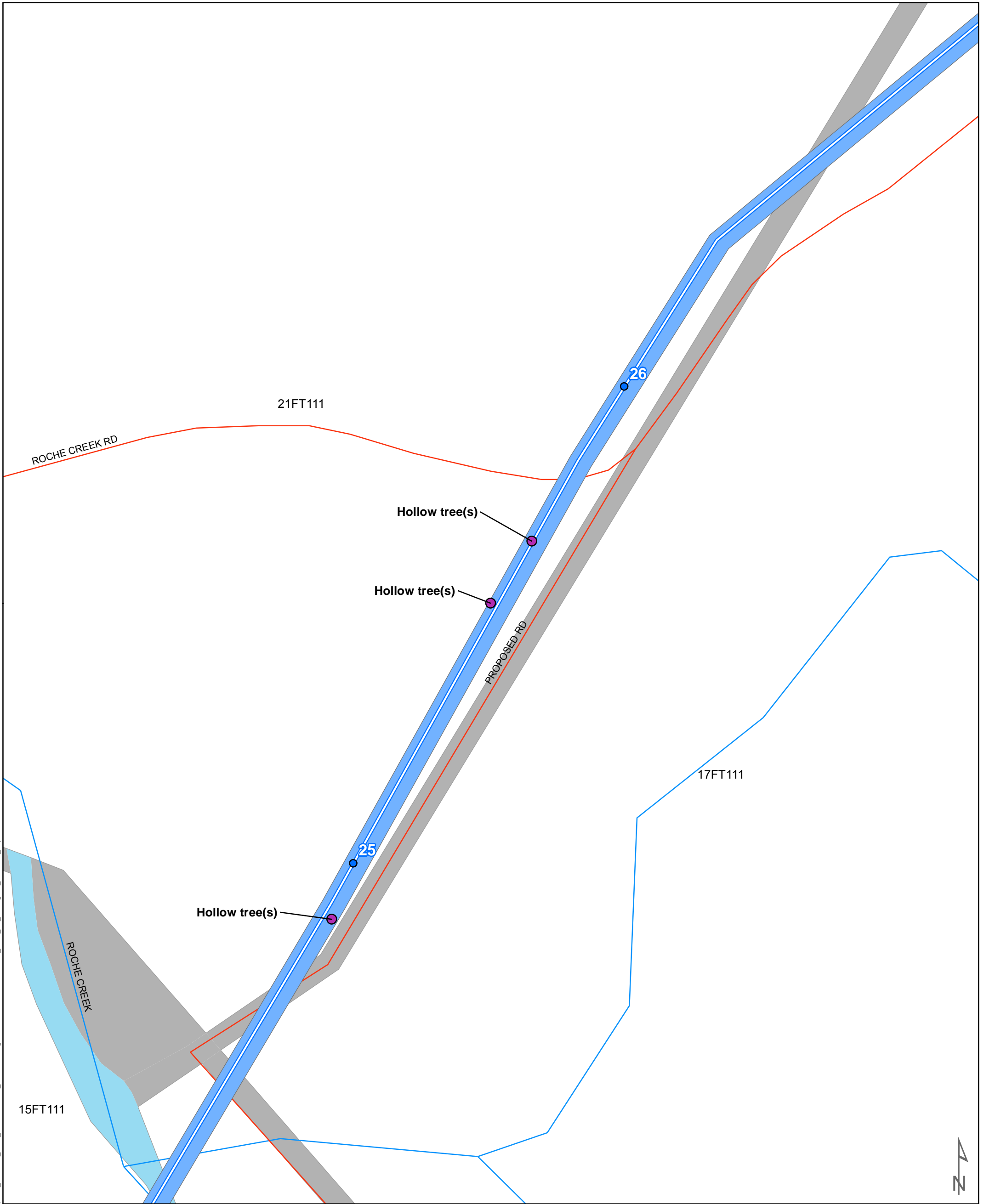
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**LEGEND**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 6 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 6

**DATA SOURCE:**  
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0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

Ecological feature	Road Casement
Roads	Water Casement
Watercourse	Export Construction Corridor Rev K
Cadastral Boundaries	

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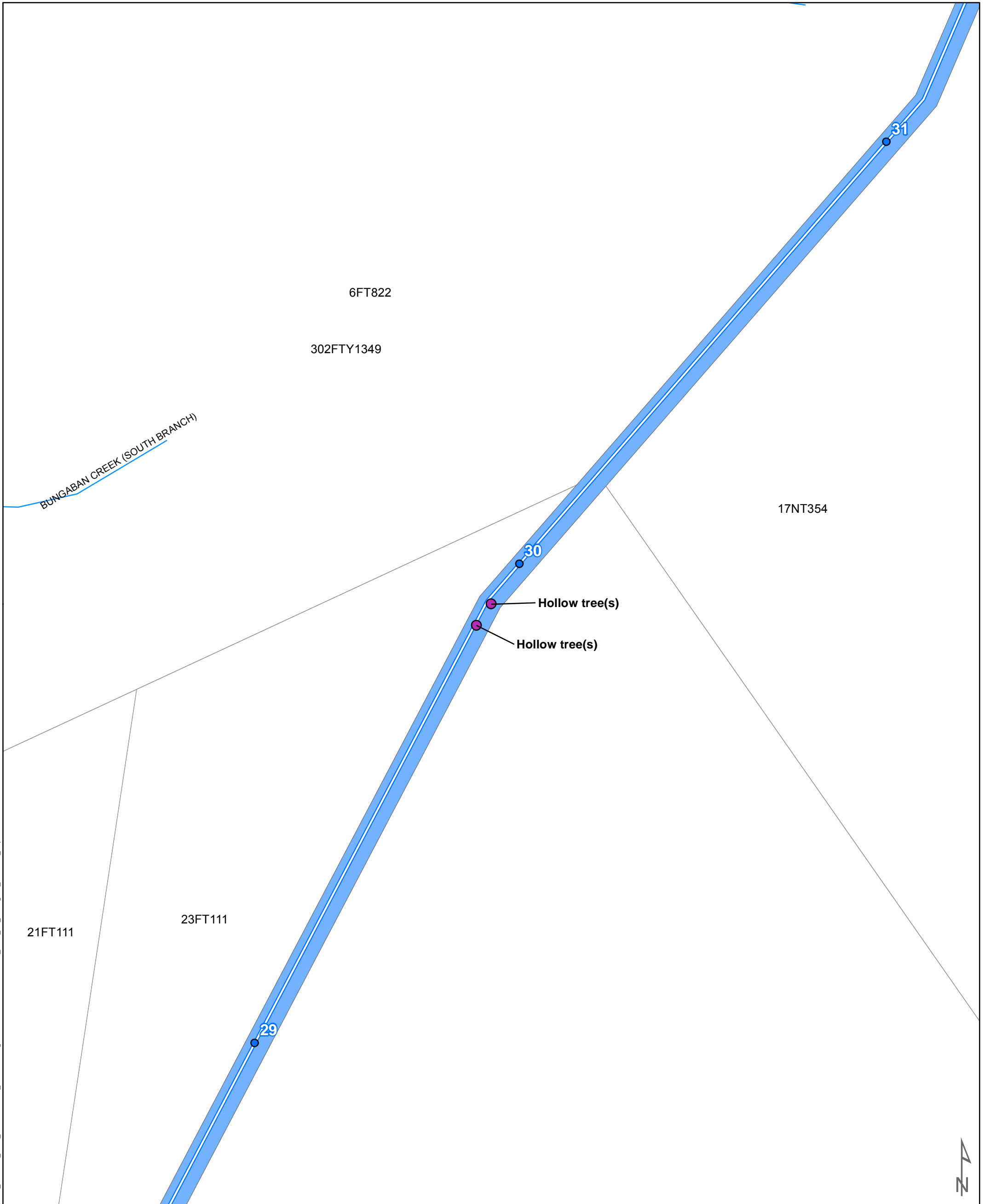
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**



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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 7 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 7

**DATA SOURCE:**  
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Metres  
1:6,500 (A3) GDA94 Lat/Long

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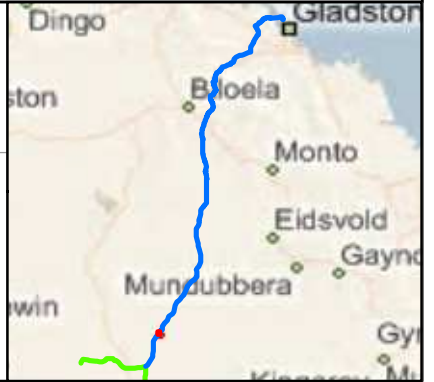
  

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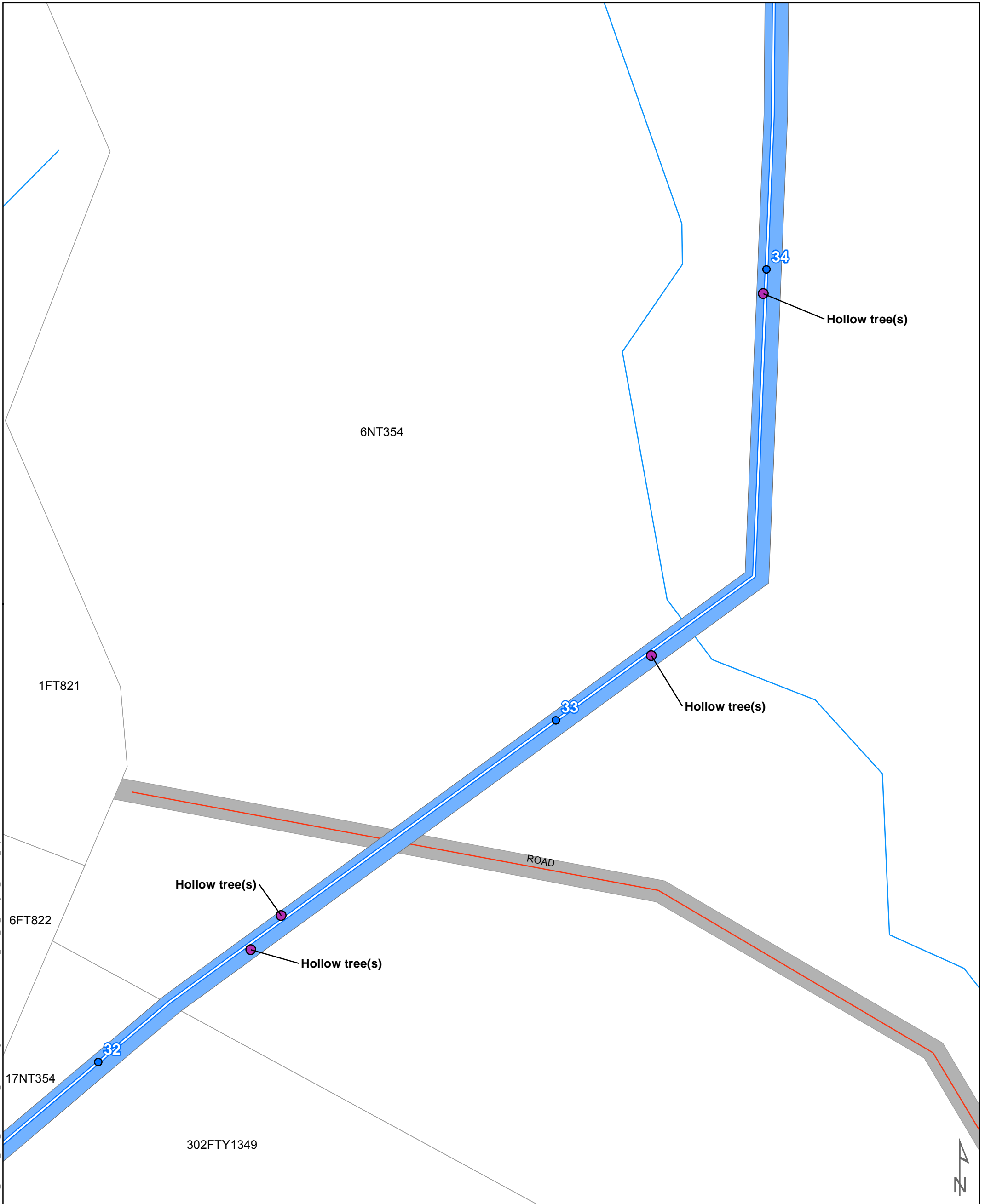
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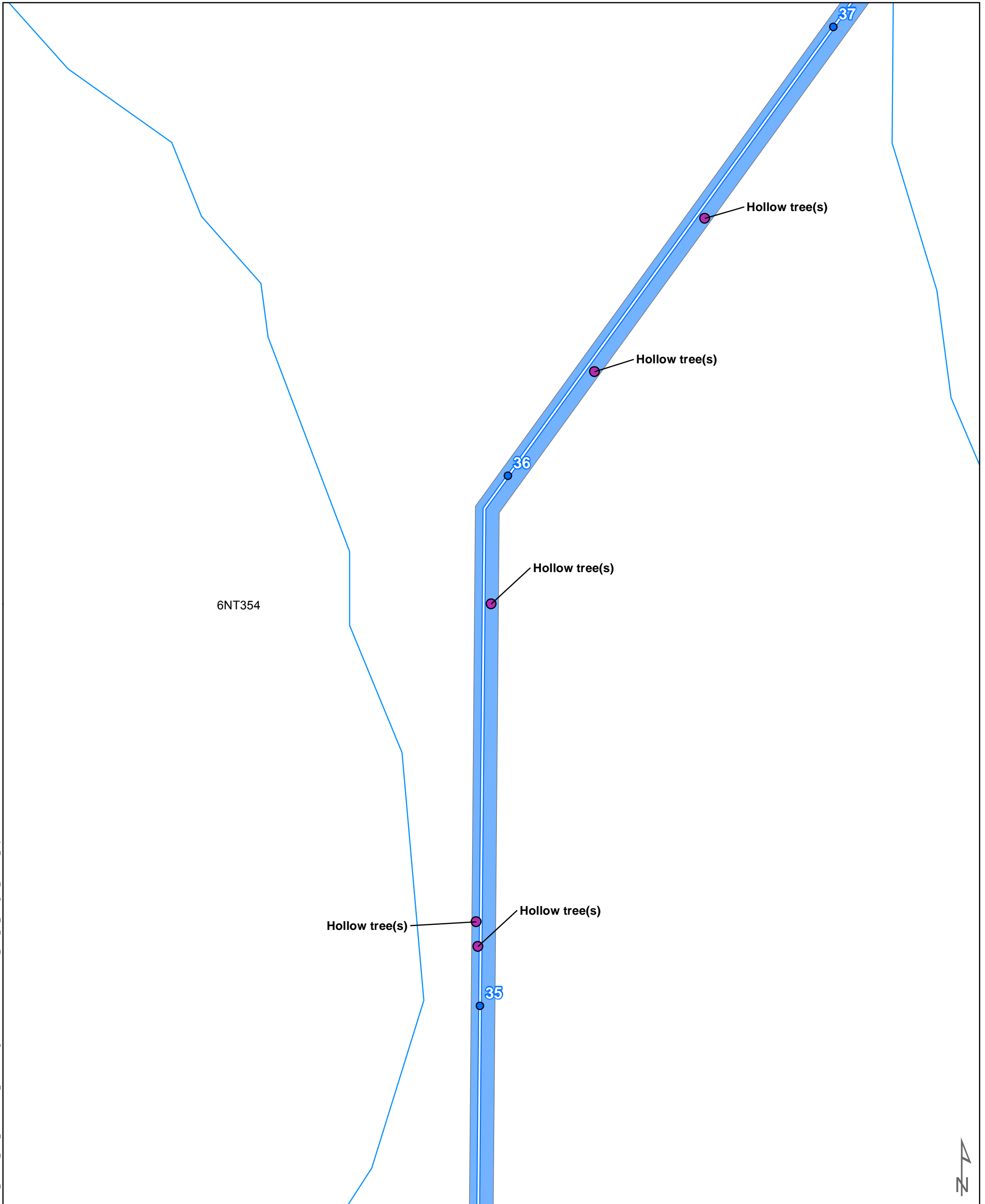


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<p>TITLE: Ecological Features Map Series Export Pipeline Map Number: 8 of 48</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 8</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: red;">—</span> Roads</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastral Boundaries</li> <li><span style="background-color: grey; width: 10px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Export Construction Corridor Rev K</li> </ul>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issed for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issed for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issed for use</td> <td>3</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issed for use	1	11/02/2011	AN	NG	Issed for use	2	25/03/2011	AN	SC	Issed for use	3	<div style="text-align: center;"> <p><b>QGC</b> A BG Group business</p> <p>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</p> <p><b>UNIDEL</b> INFRASTRUCTURE ENERGY RESULTS</p> </div>	
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41SP137907

42SP137907

302FTY1349

AYNT233

39

40

Hollow tree(s)



**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

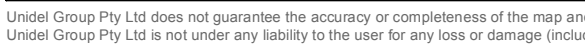
TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 10 of 48

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	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		

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Collection Header & KP's	Rev J	08-12-2010	Unidel

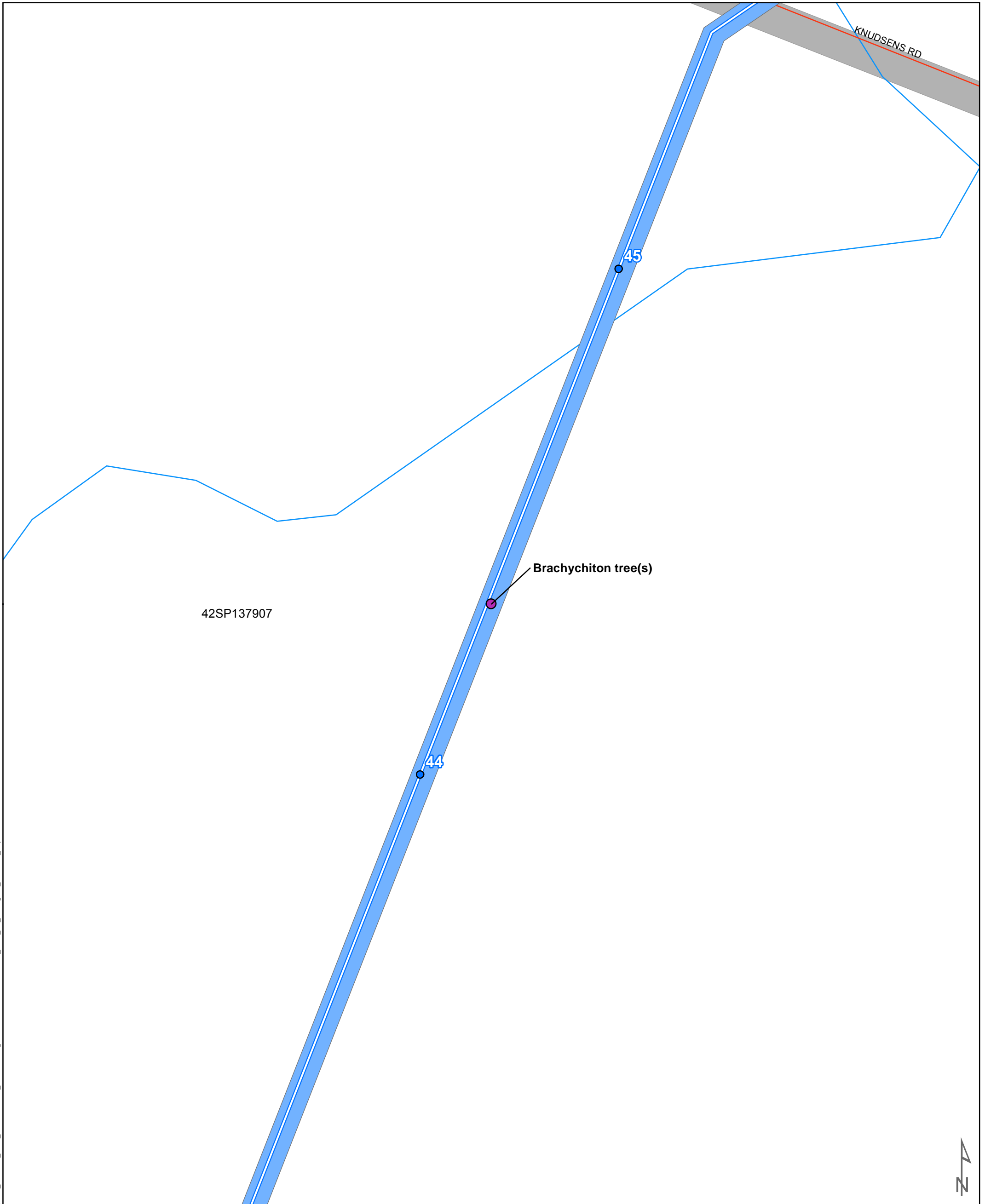


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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 11 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 11

**DATA SOURCE:**  
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Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

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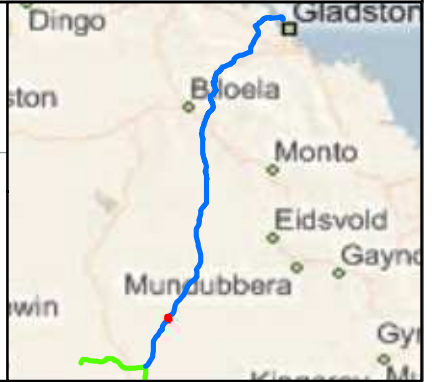
  

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Collection Header & KP's	Rev J	08-12-2010	Unidel

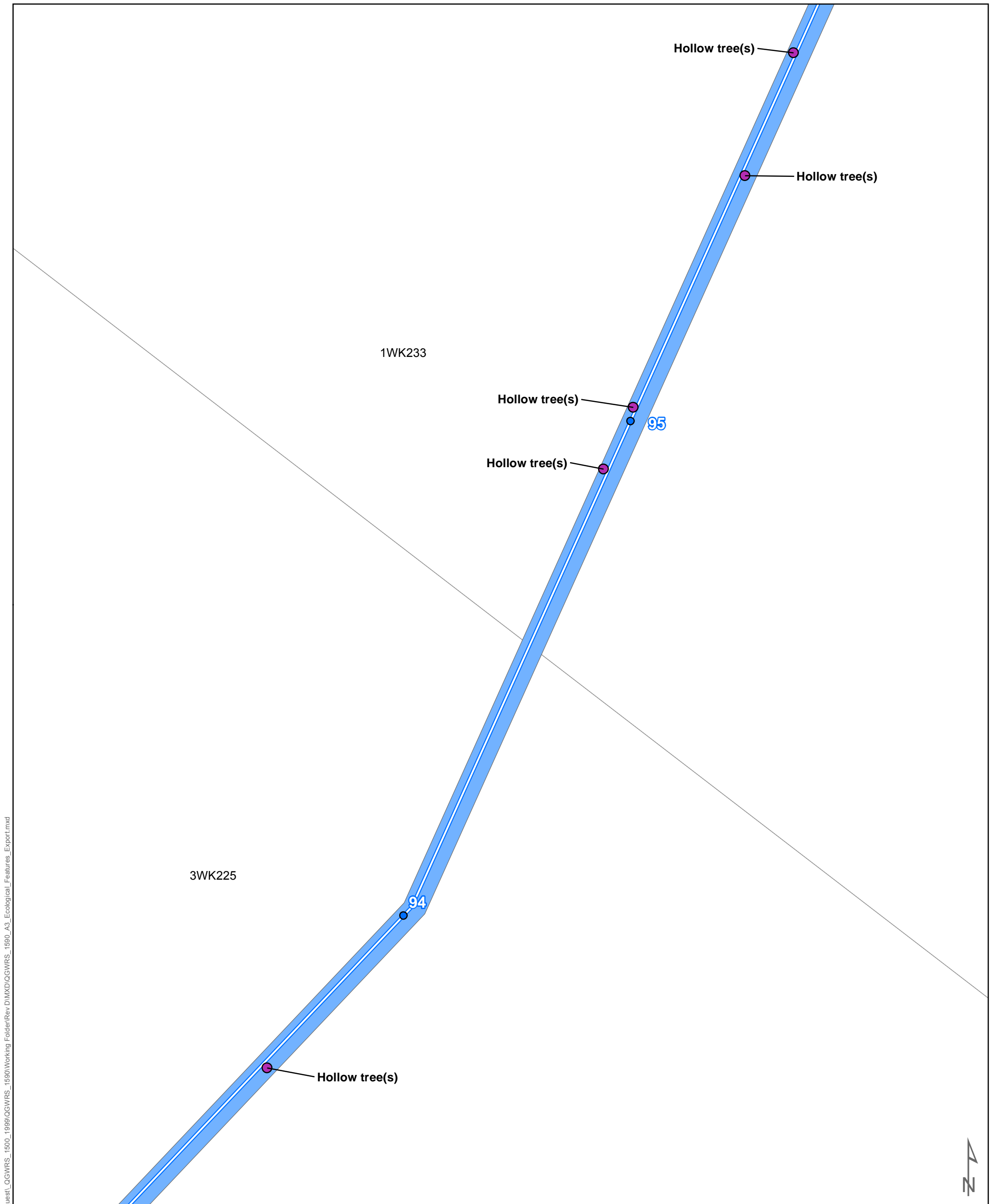
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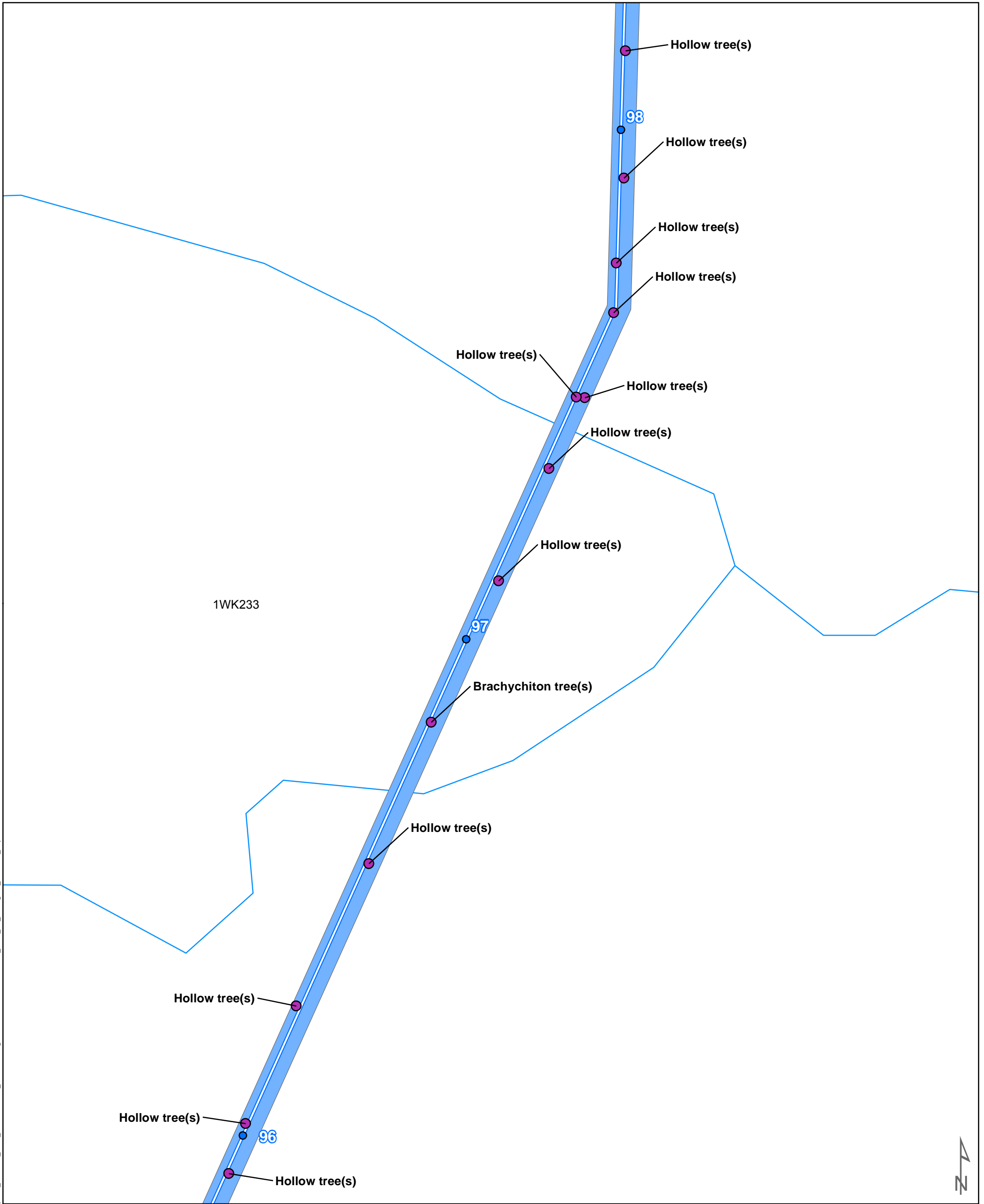


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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 13 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 13

**DATA SOURCE:**  
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1:6,500 (A3) GDA94 Lat/Long

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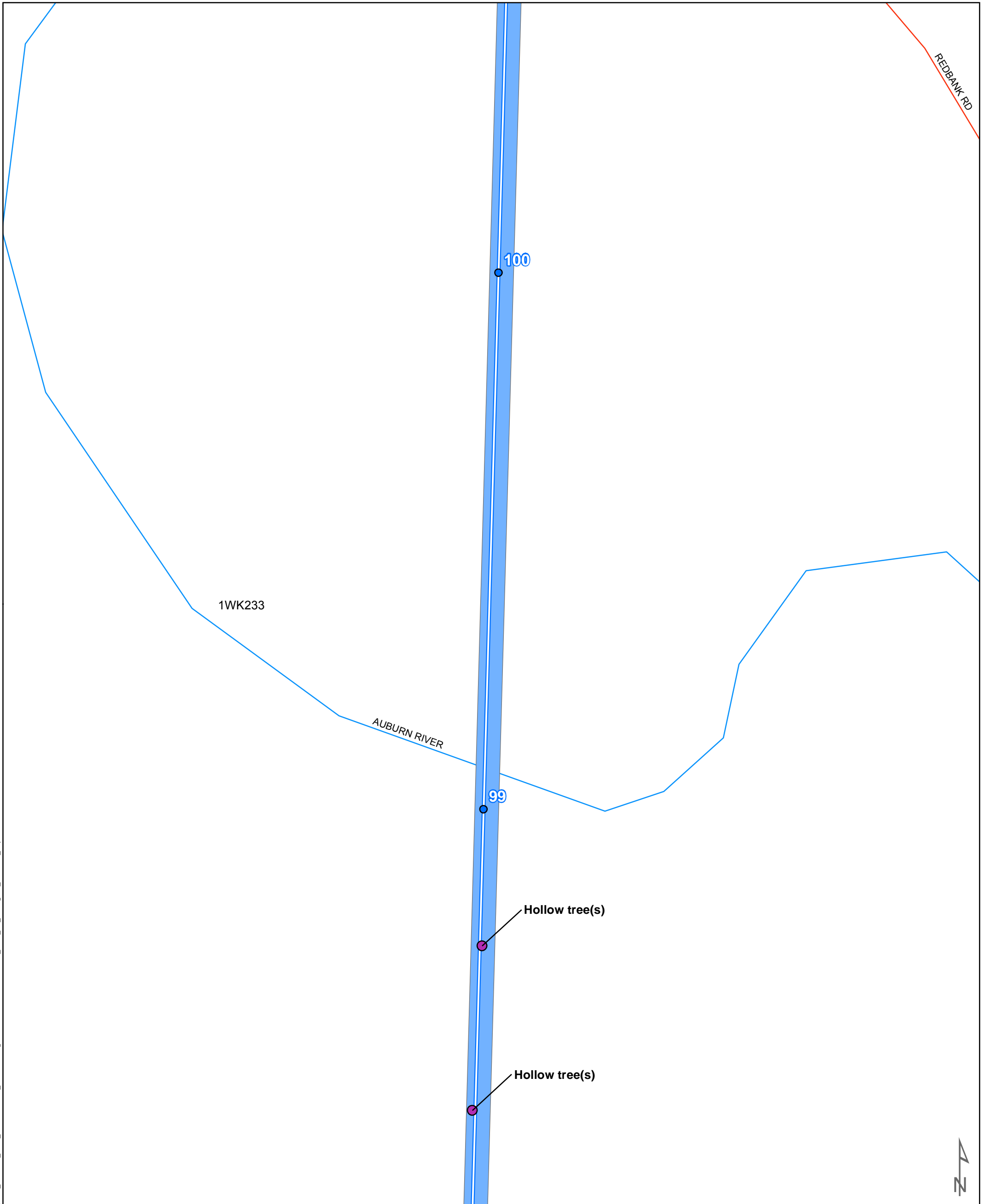
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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 14 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 14

**DATA SOURCE:**  
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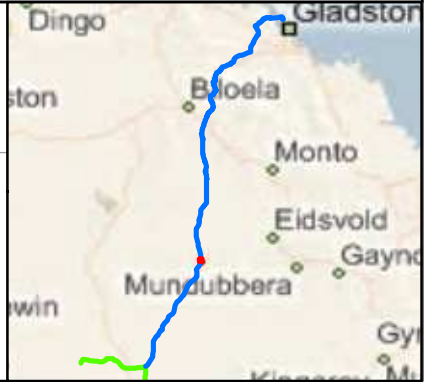
  

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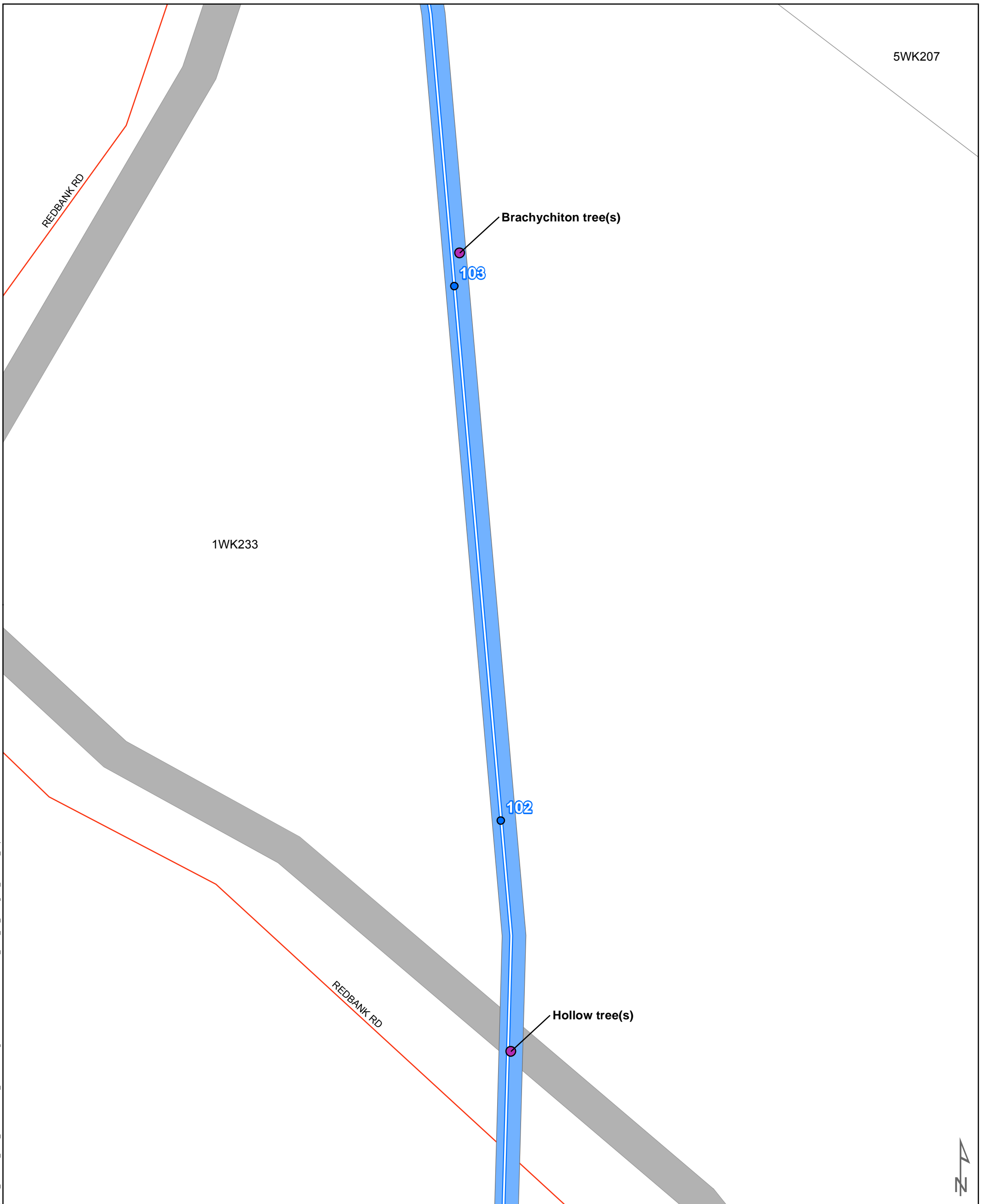
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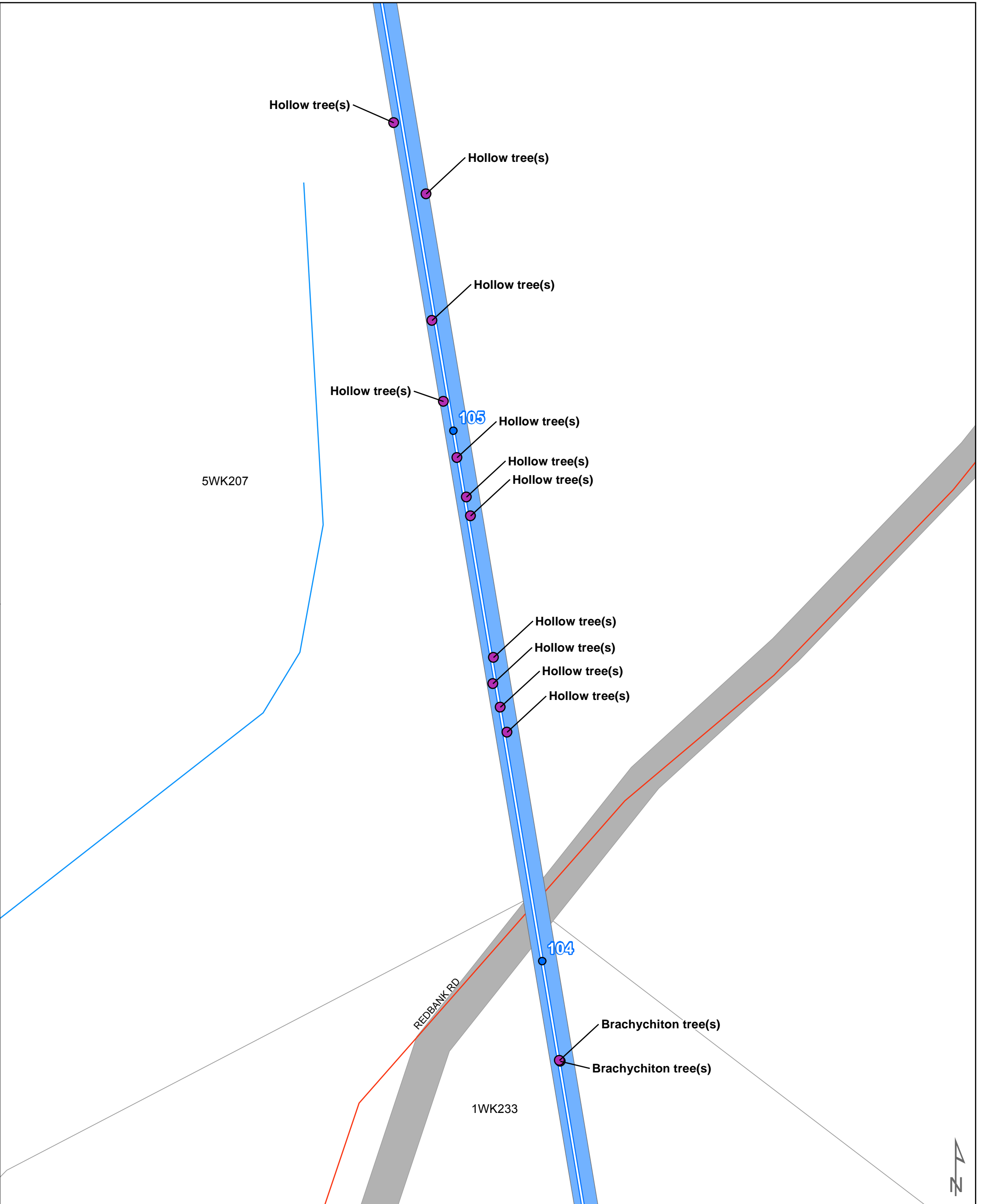


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<p><b>TITLE:</b> Ecological Features Map Series Export Pipeline Map Number: 15 of 48</p> <p><b>DOCUMENT NO:</b> QCLNG-BG00-ENV-MAP-000018 - 15</p> <p><b>DATA SOURCE:</b> Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<table border="0"> <tr> <td> Ecological feature</td> <td> Road Casement</td> </tr> <tr> <td> Roads</td> <td> Water Casement</td> </tr> <tr> <td> Watercourse</td> <td> Export Construction Corridor Rev K</td> </tr> <tr> <td> Cadastral Boundaries</td> <td></td> </tr> </table>		Ecological feature	Road Casement	Roads	Water Casement	Watercourse	Export Construction Corridor Rev K	Cadastral Boundaries		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issed for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issed for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issed for use</td> <td>3</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issed for use	1	11/02/2011	AN	NG	Issed for use	2	25/03/2011	AN	SC	Issed for use	3	<div style="text-align: center;"> <p><b>QGC</b> A BG Group business</p> <p><small>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</small></p> </div> <div style="text-align: center;"> <p><b>UNIDEL</b> INFRASTRUCTURE ENERGY RESULTS</p> </div>	
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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 16 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 16

**DATA SOURCE:**  
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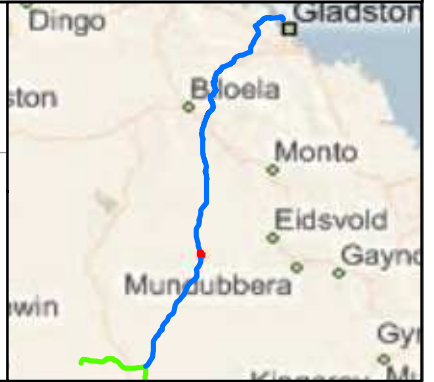
  

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8WK171

3WK86

THISTLE CREEK

Hollow tree(s)

113

5WK207

112

Hollow tree(s)

111



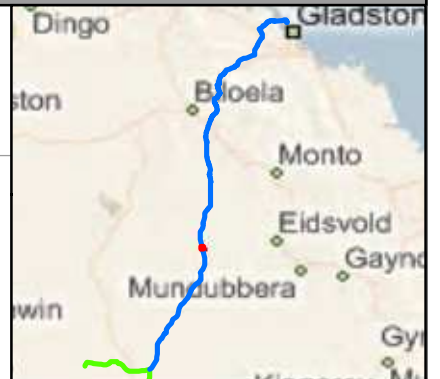
**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 18 of 48

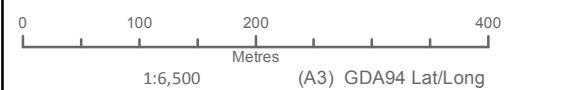
Ecological feature	Road Casement
Roads	Water Casement
Watercourse	Export Construction Corridor Rev K
Cadastral Boundaries	



DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 18

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
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25/03/2011	AN	SC	Issed for use	3



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Collection Header & KP's	Rev J	08-12-2010	Unidel

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3SP104391

227FTY1244

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

115

Hollow tree(s)

Hollow tree(s)

THISTLE CREEK

3WK86

8WK171

114

Brachychiton tree(s)

Hollow tree(s)



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**LEGEND**

**LOCATION DIAGRAM**

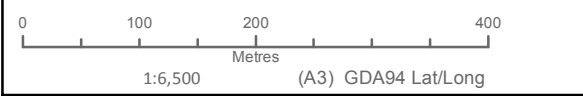
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Export Pipeline  
Map Number: 19 of 48

	Ecological feature		Road Casement
	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
10/12/2010	EM	GR	Issed for use	1
11/02/2011	AN	NG	Issed for use	2
25/03/2011	AN	SC	Issed for use	3

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 19

DATA SOURCE:  
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Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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10WK190

3SP104391

119

Brachychiton tree(s)

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

118

THISTLE CREEK

227FTY1244



**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 20 of 48

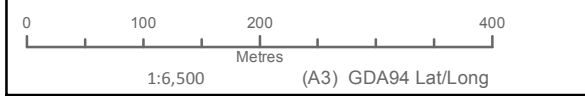
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	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		



DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 20

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
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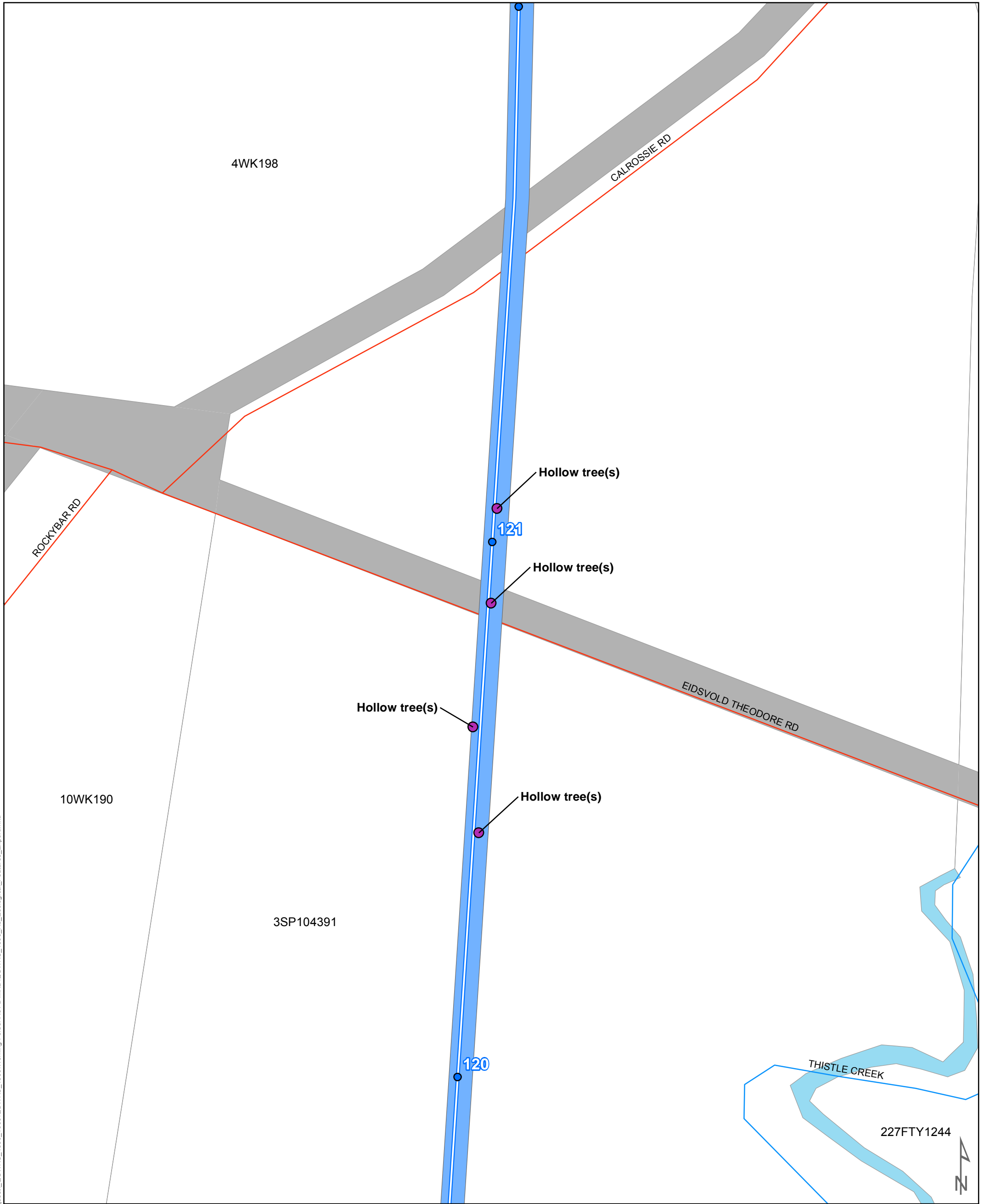
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**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 21 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 21

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
(Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of  
Environment and Resource Management) 2010

0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

	Ecological feature		Road Casement
	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		

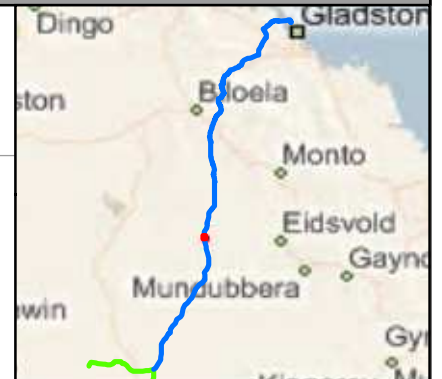
  

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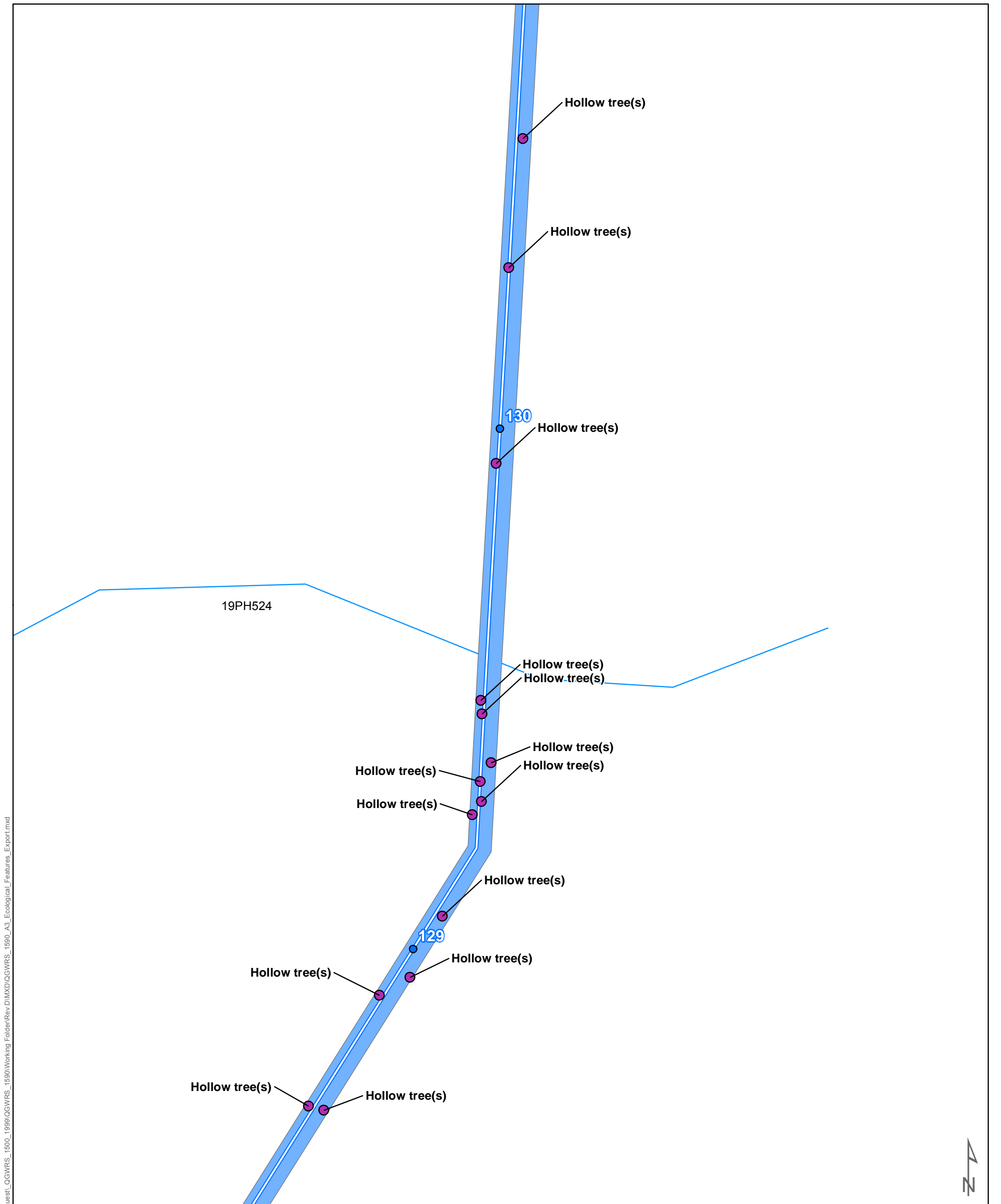
PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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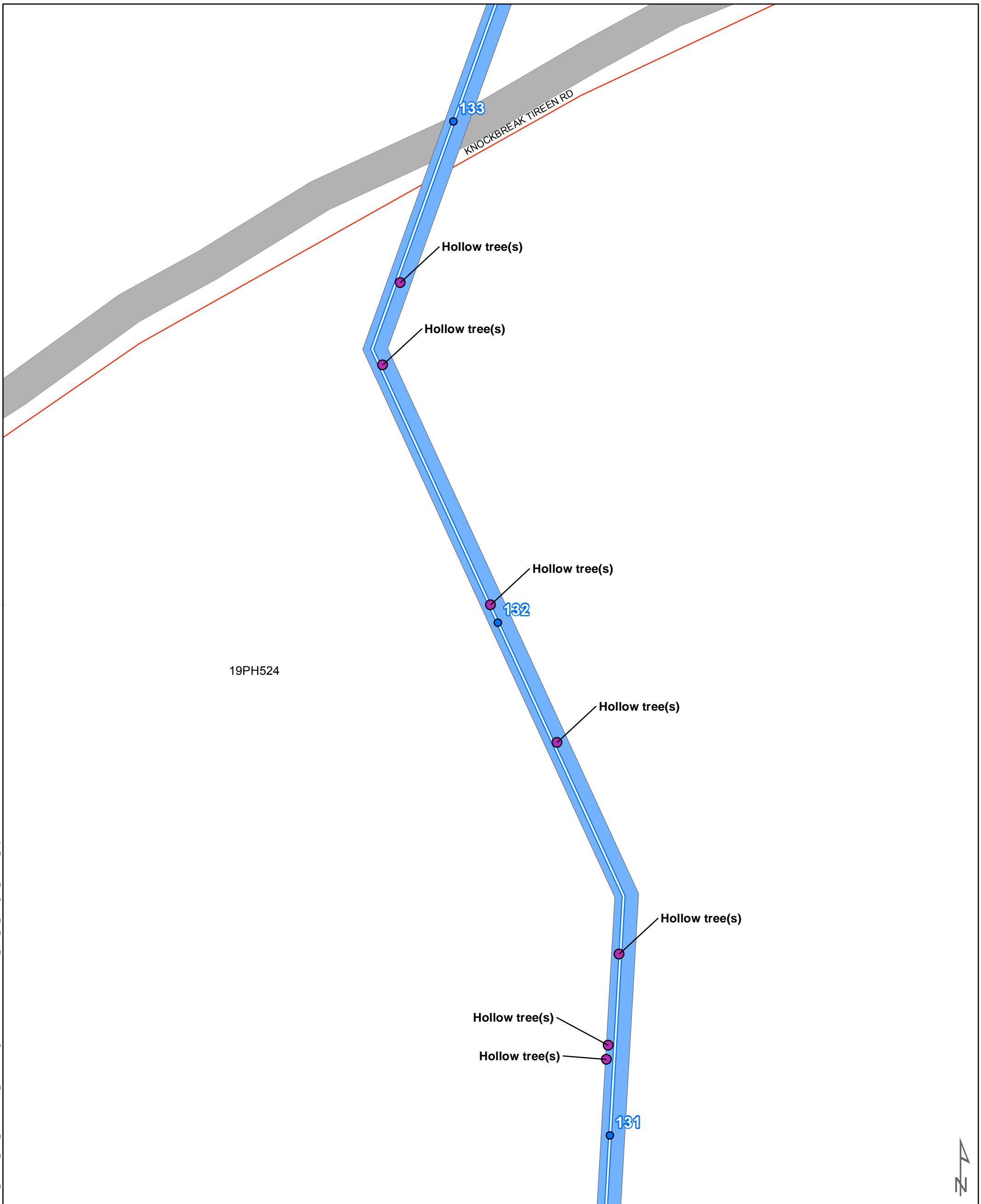
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TITLE: Ecological Features Map Series Export Pipeline Map Number: 22 of 48		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: orange;">—</span> Roads</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastral Boundaries</li> <li><span style="background-color: gray; width: 10px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Export Construction Corridor Rev K</li> </ul>				<p>GPO Box 3107 - Brisbane QLD 4000          p (07) 3024 9000 f (07) 3024 8999          www.qgc.com.au qgc@qgc.com.au</p>																	
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DATE	AUTHOR	APPROVED	REVISION NOTE	REV.																			
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11/02/2011	AN	NG	Issed for use	2																			
25/03/2011	AN	SC	Issed for use	3																			
DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td><span style="color: blue;">—●—</span> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td><span style="color: green;">—●—</span> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	<span style="color: blue;">—●—</span> Export Pipeline & KP's	Rev K	08-12-2010	Unidel	<span style="color: green;">—●—</span> Collection Header & KP's	Rev J	08-12-2010	Unidel								
PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY																				
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19PH524

133

KNOCKBREAK AK TIREEN RD

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

132

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

Hollow tree(s)

131



**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 23 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 23

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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25/03/2011	AN	SC	Issed for use	3

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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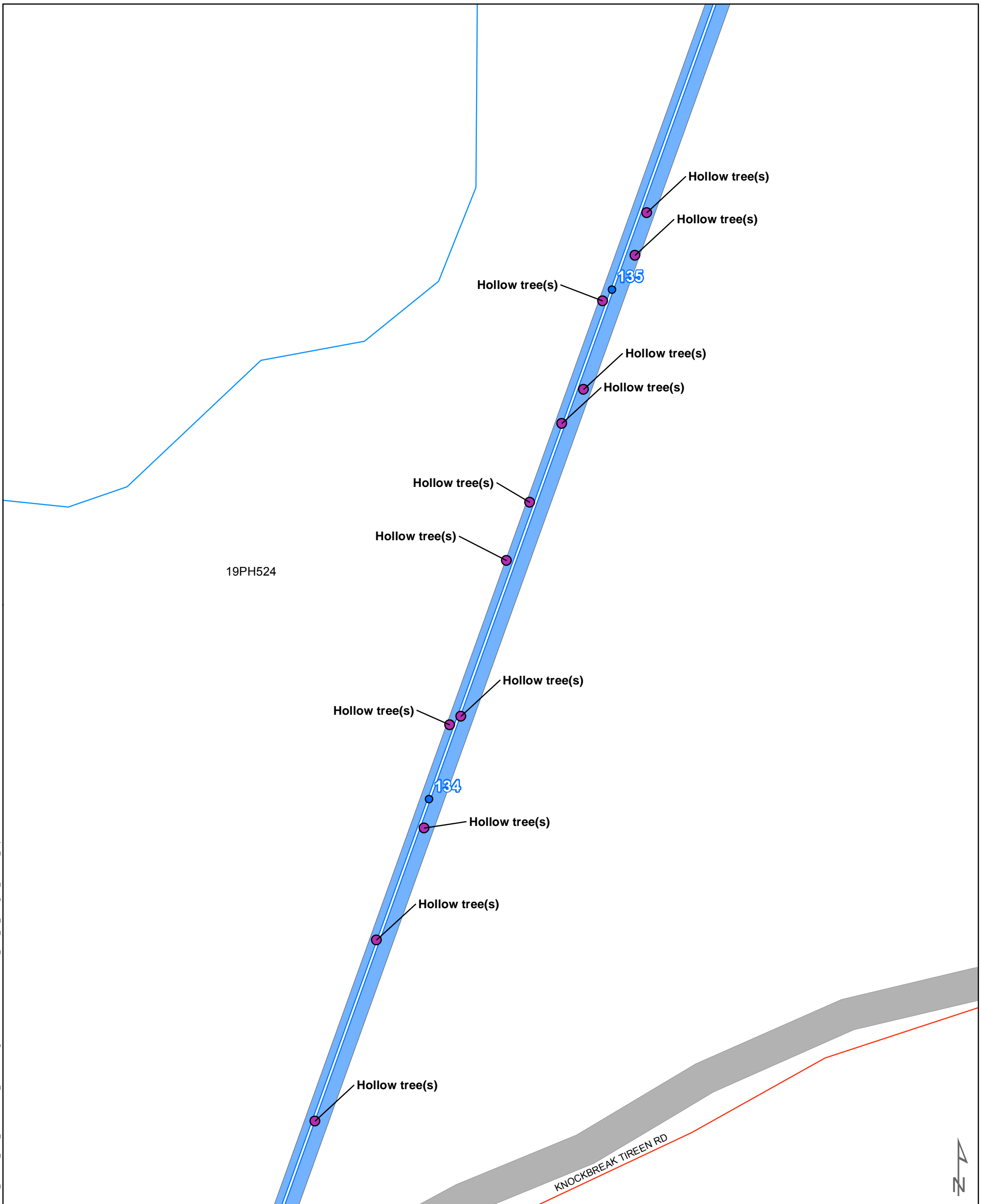
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**QGC PTY LTD - Queensland Curtis LNG Project**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 24 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 24

**DATA SOURCE:**  
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0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

**LEGEND**

Ecological feature	Road Casement
Roads	Water Casement
Watercourse	Export Construction Corridor Rev K
Cadastral Boundaries	

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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25/03/2011	AN	SC	Issed for use	3

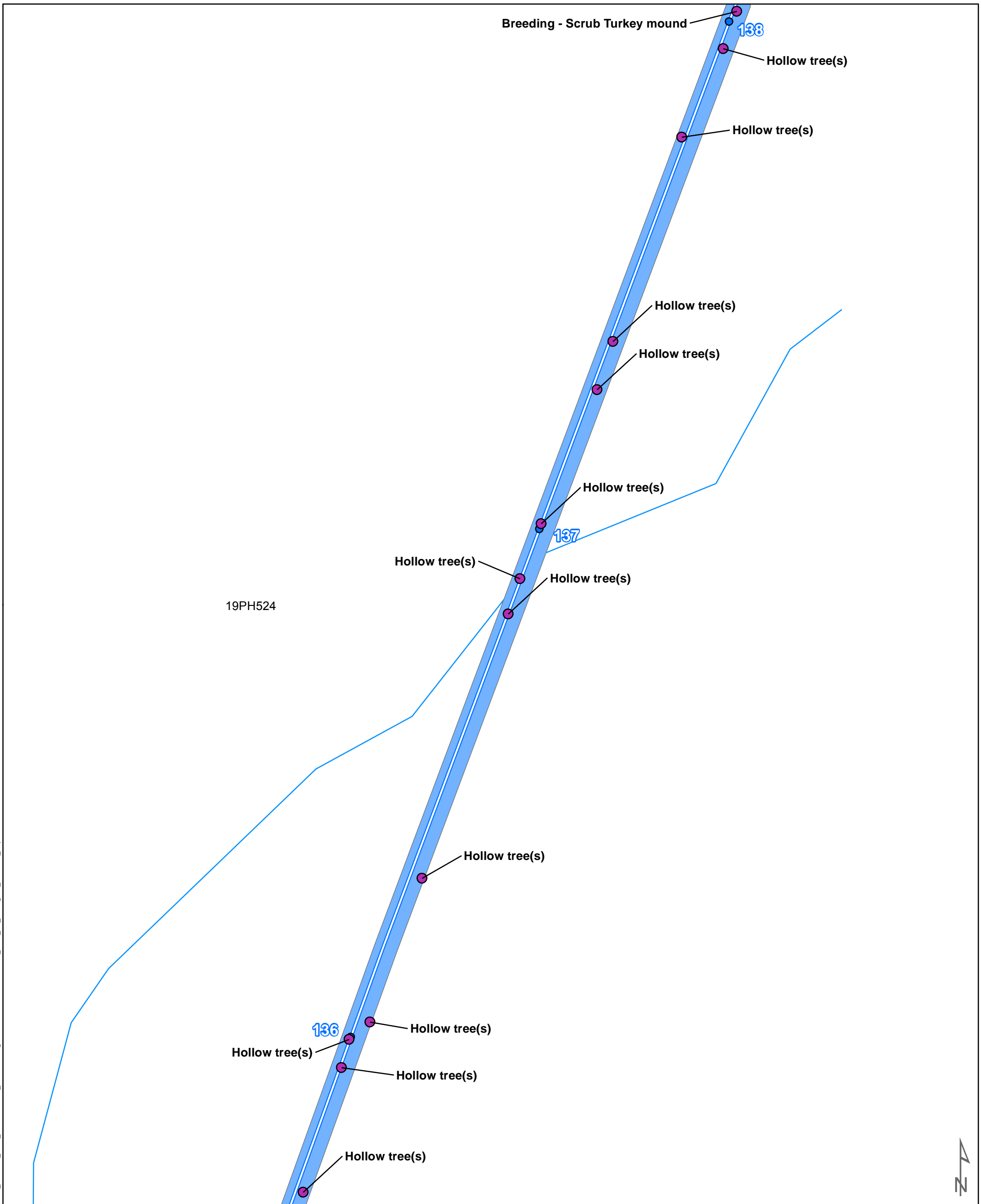
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**LOCATION DIAGRAM**



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TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 25 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 25

DATA SOURCE:  
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0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

Ecological feature	Road Casement
Roads	Water Casement
Watercourse	Export Construction Corridor Rev K
Cadastral Boundaries	

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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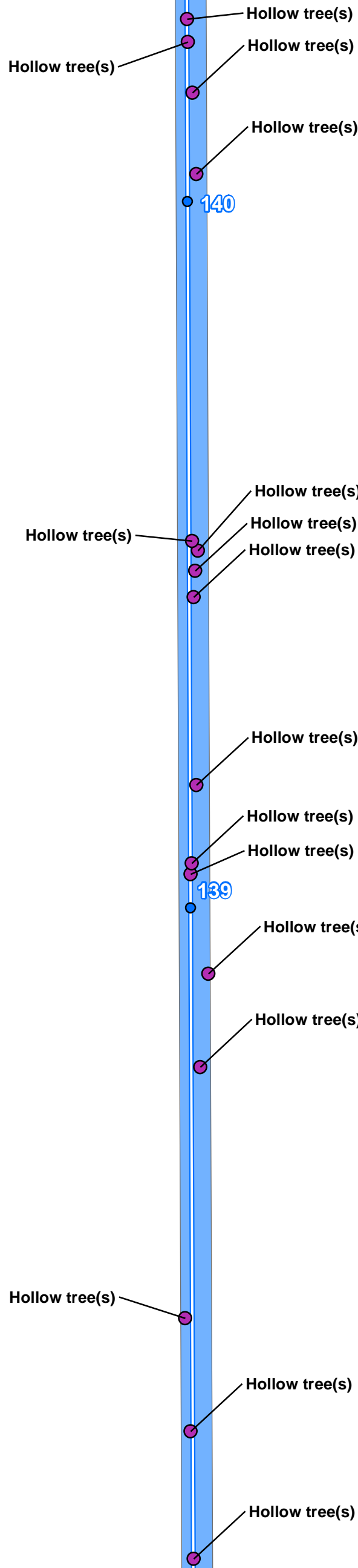
  

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19PH524



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LEGEND

LOCATION DIAGRAM

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 26 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 26

DATA SOURCE:  
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Metres  
1:6,500 (A3) GDA94 Lat/Long

Ecological feature	Road Casement
Roads	Water Casement
Watercourse	Export Construction Corridor Rev K
Cadastral Boundaries	

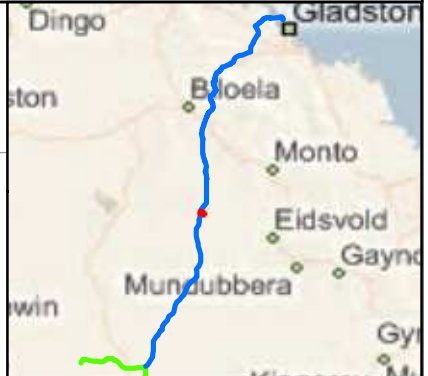
  

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25/03/2011	AN	SC	Issed for use	3

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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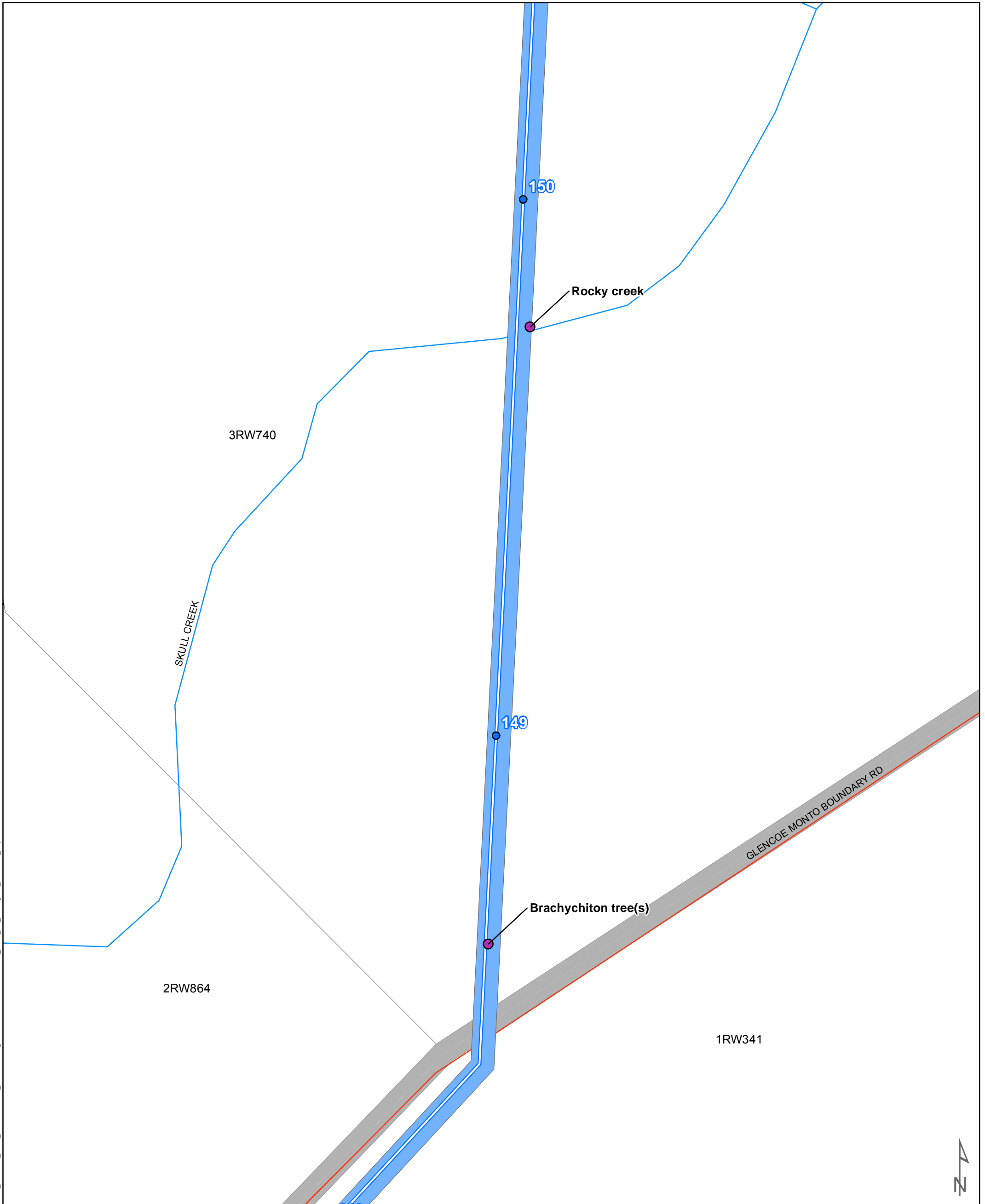
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																							
<p>TITLE: Ecological Features Map Series Export Pipeline Map Number: 27 of 48</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 27</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: red;">—</span> Roads</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastral Boundaries</li> <li><span style="background-color: grey; width: 10px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Export Construction Corridor Rev K</li> </ul>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issed for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issed for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issed for use</td> <td>3</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issed for use	1	11/02/2011	AN	NG	Issed for use	2	25/03/2011	AN	SC	Issed for use	3	<div style="text-align: center;"> <p><b>QGC</b> A BG Group business</p> <p>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</p> <p><b>UNIDEL</b> INFRASTRUCTURE ENERGY RESULTS</p> </div>	
DATE	AUTHOR	APPROVED	REVISION NOTE	REV.																							
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25/03/2011	AN	SC	Issed for use	3																							
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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 28 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 28

**DATA SOURCE:**  
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Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

Ecological feature	Road Casement
Roads	Water Casement
Watercourse	Export Construction Corridor Rev K
Cadastral Boundaries	

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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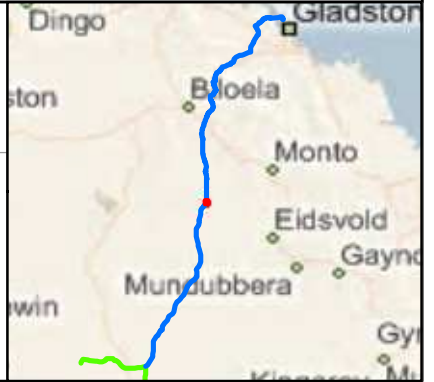
  

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Collection Header & KP's	Rev J	08-12-2010	Unidel

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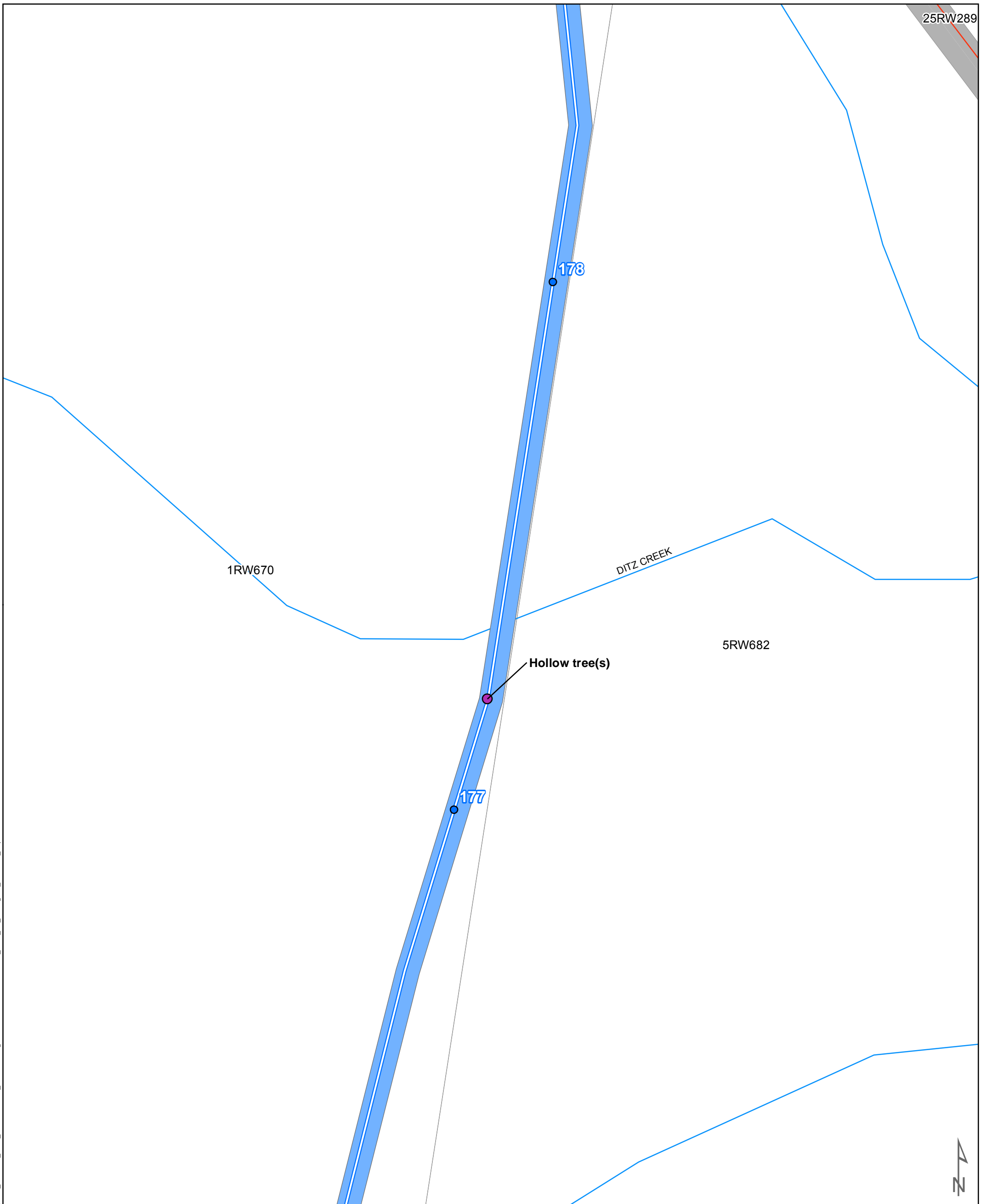
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																									
<p>TITLE: Ecological Features Map Series Export Pipeline Map Number: 29 of 48</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 29</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: orange;">—</span> Roads</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastral Boundaries</li> <li><span style="background-color: gray; width: 10px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Export Construction Corridor Rev K</li> </ul>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issed for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issed for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issed for use</td> <td>3</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issed for use	1	11/02/2011	AN	NG	Issed for use	2	25/03/2011	AN	SC	Issed for use	3	<div style="text-align: center;"> <p><b>QGC</b> A BG Group business</p> <p><small>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</small></p> </div> <div style="text-align: center;"> <p><b>UNIDEL</b> INFRASTRUCTURE ENERGY RESULTS</p> </div>			
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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 30 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 30

**DATA SOURCE:**  
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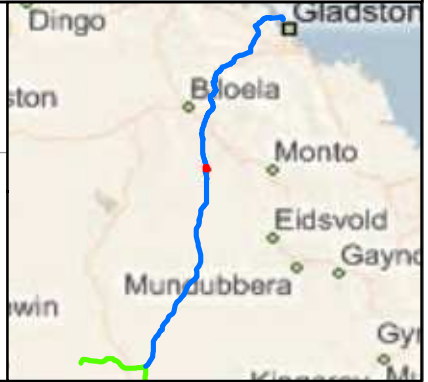
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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13RW330

188

Brachychiton tree(s)

14RW329

187

GRAVINGS RD

15RW329



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LEGEND

LOCATION DIAGRAM

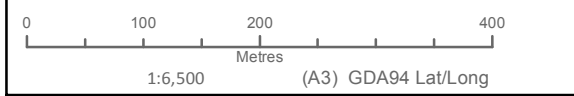
TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 31 of 48

- Ecological feature
- Roads
- Watercourse
- Cadastral Boundaries
- Road Casement
- Water Casement
- Export Construction Corridor Rev K

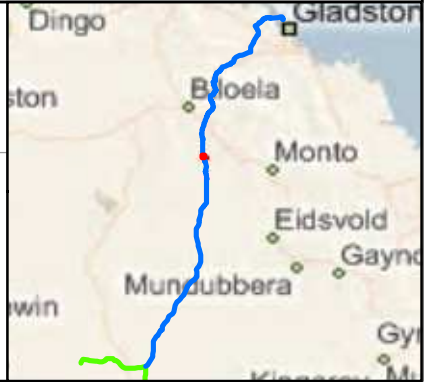
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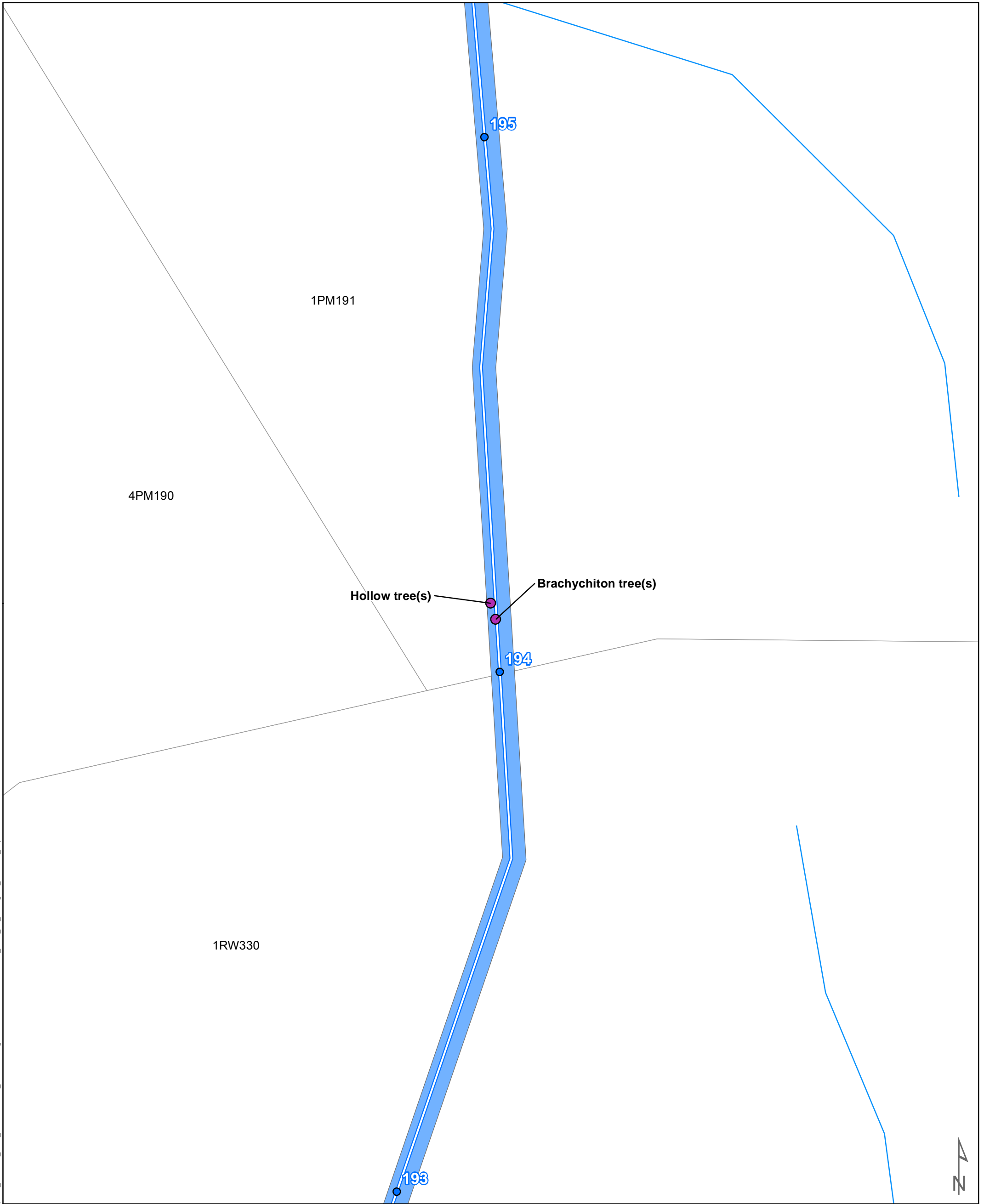
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**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
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DATA SOURCE:  
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	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		

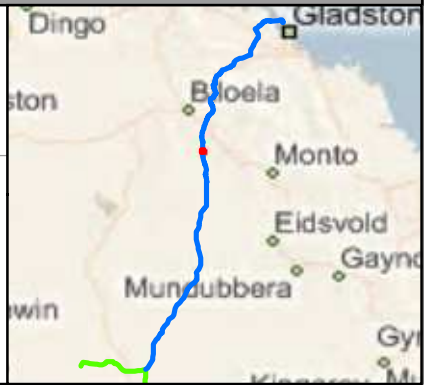
  

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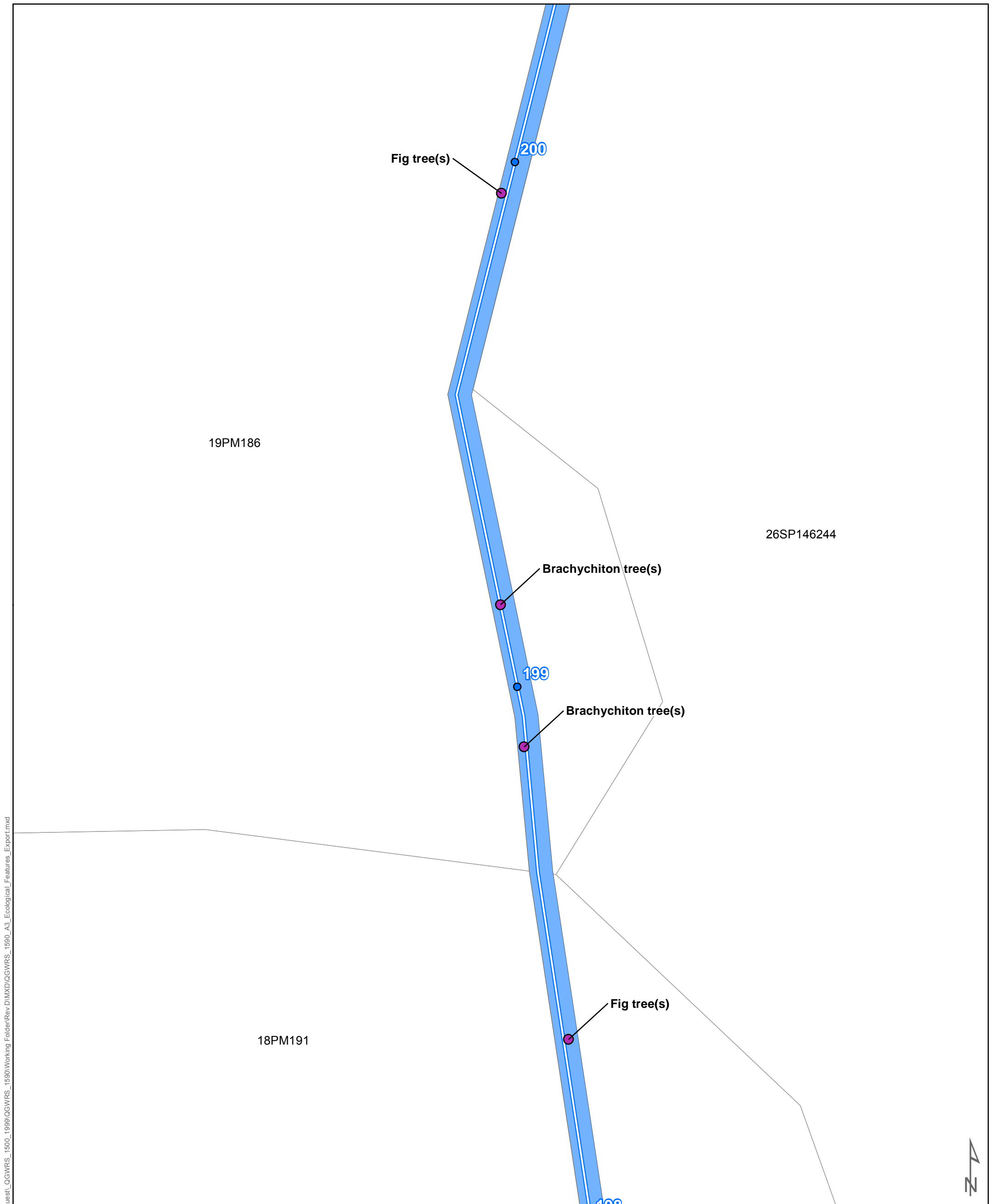
  

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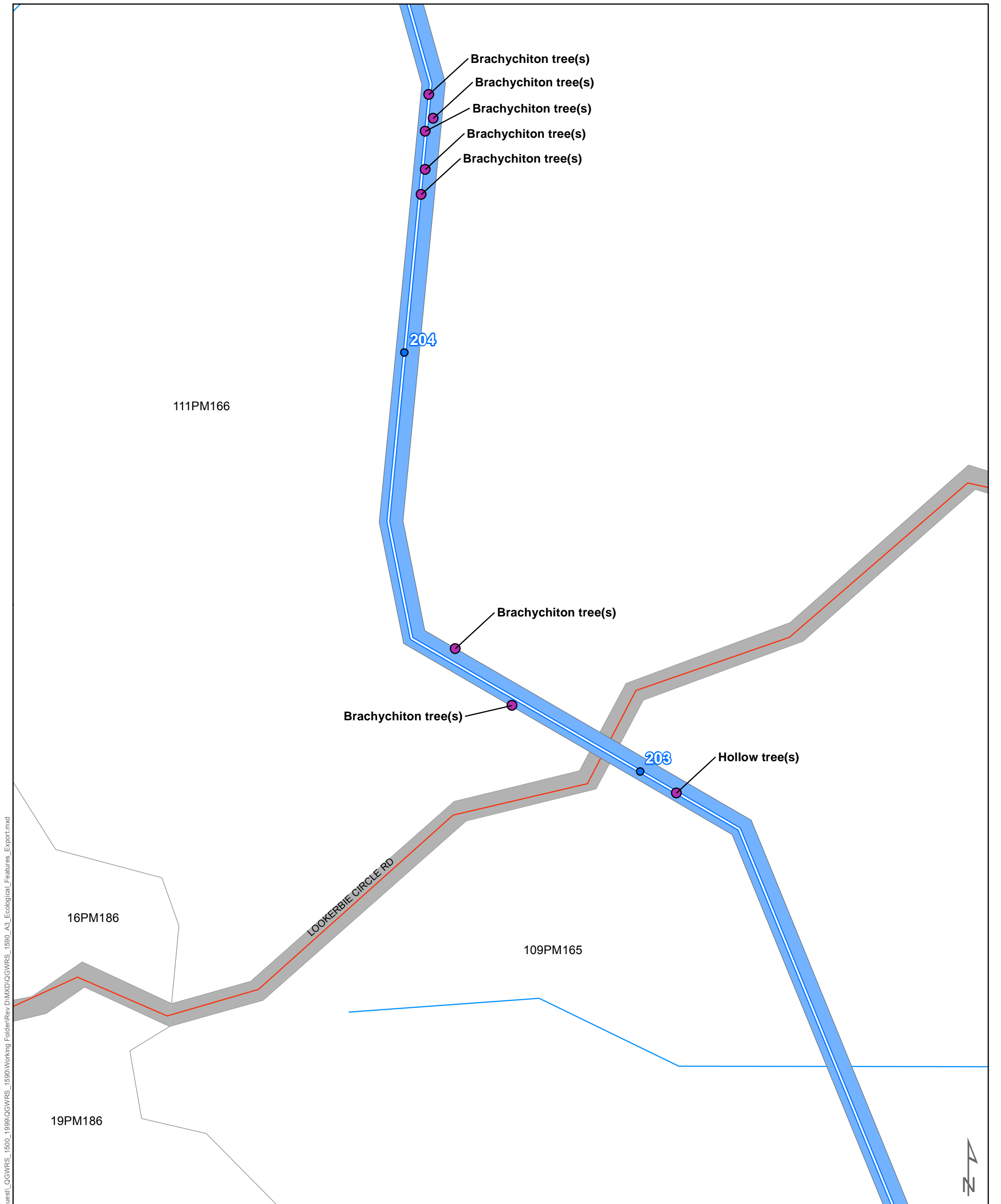


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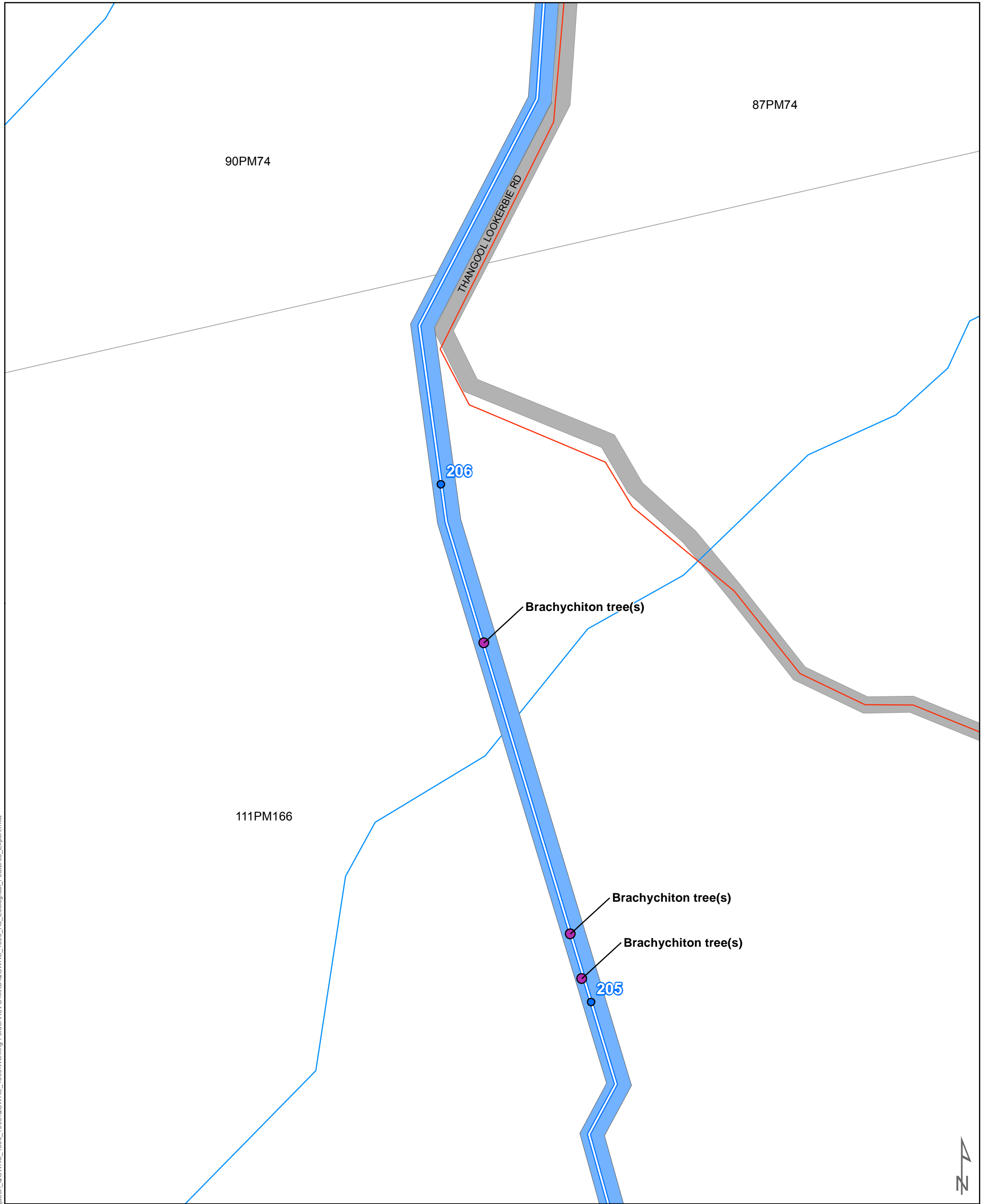
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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 35 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 35

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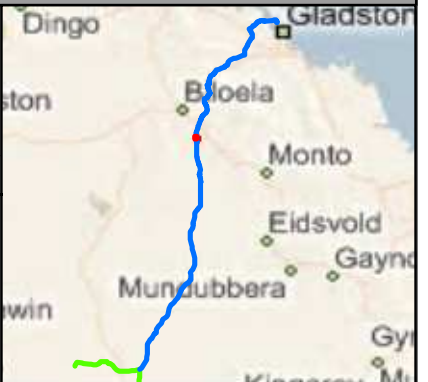
  

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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 36 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 36

**DATA SOURCE:**  
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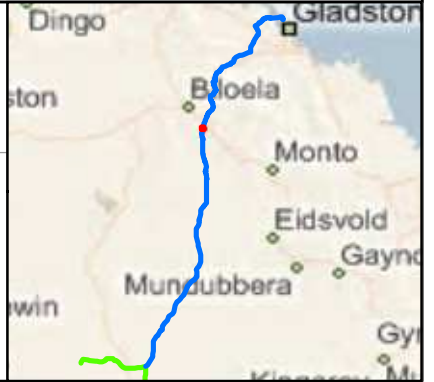
  

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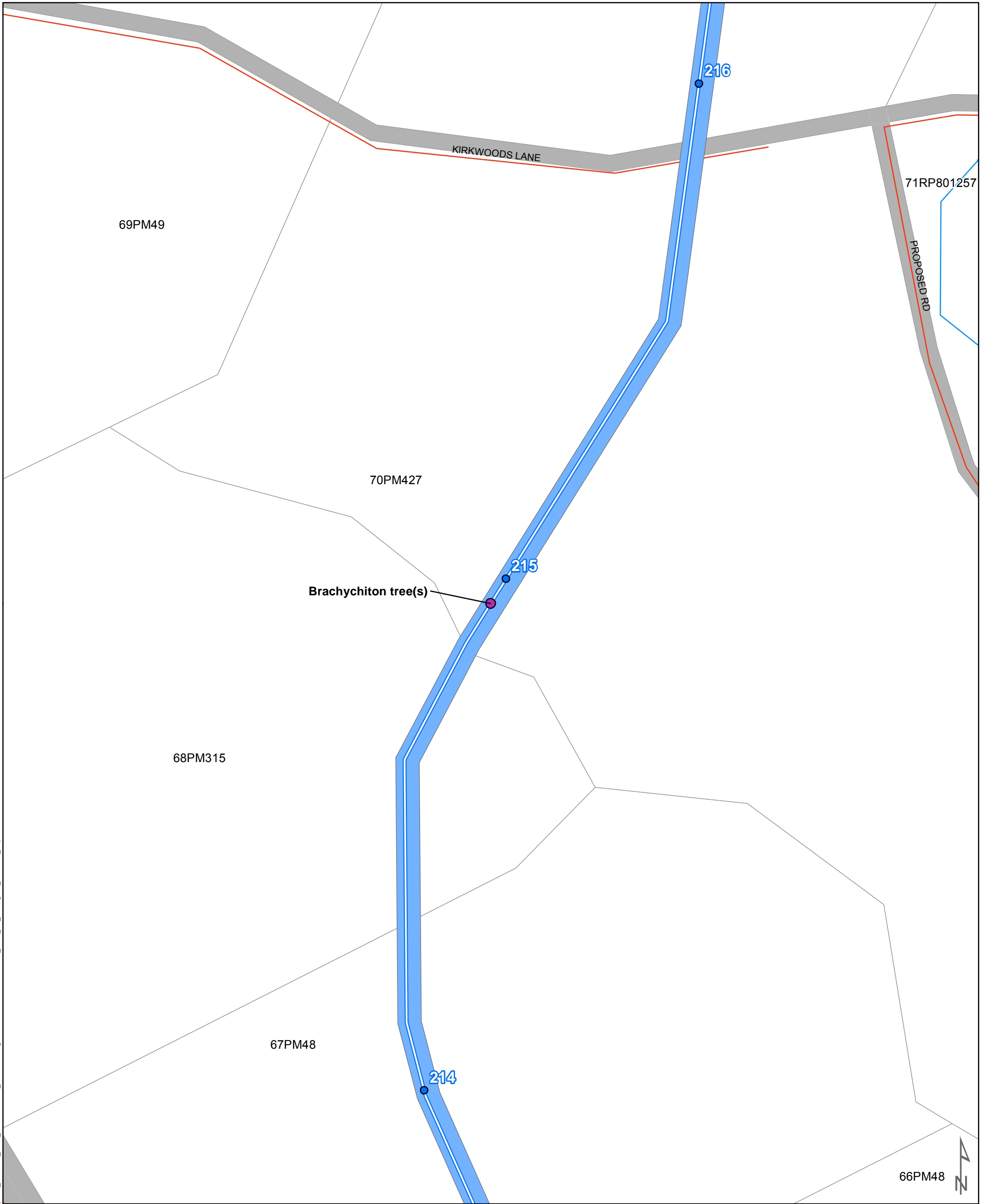
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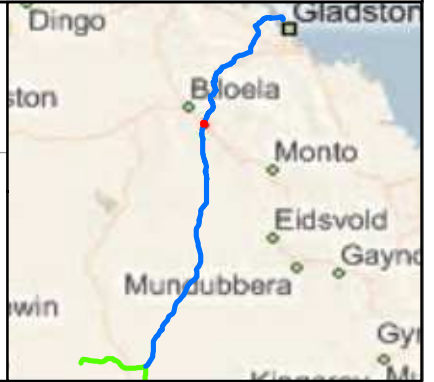
**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 37 of 48

- Ecological feature
- Roads
- Watercourse
- Cadastral Boundaries
- Road Casement
- Water Casement
- Export Construction Corridor Rev K



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**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 38

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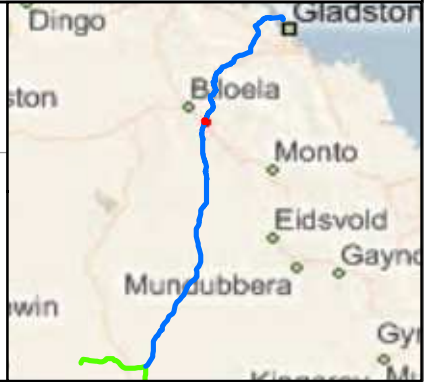
  

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Collection Header & KP's	Rev J	08-12-2010	Unidel

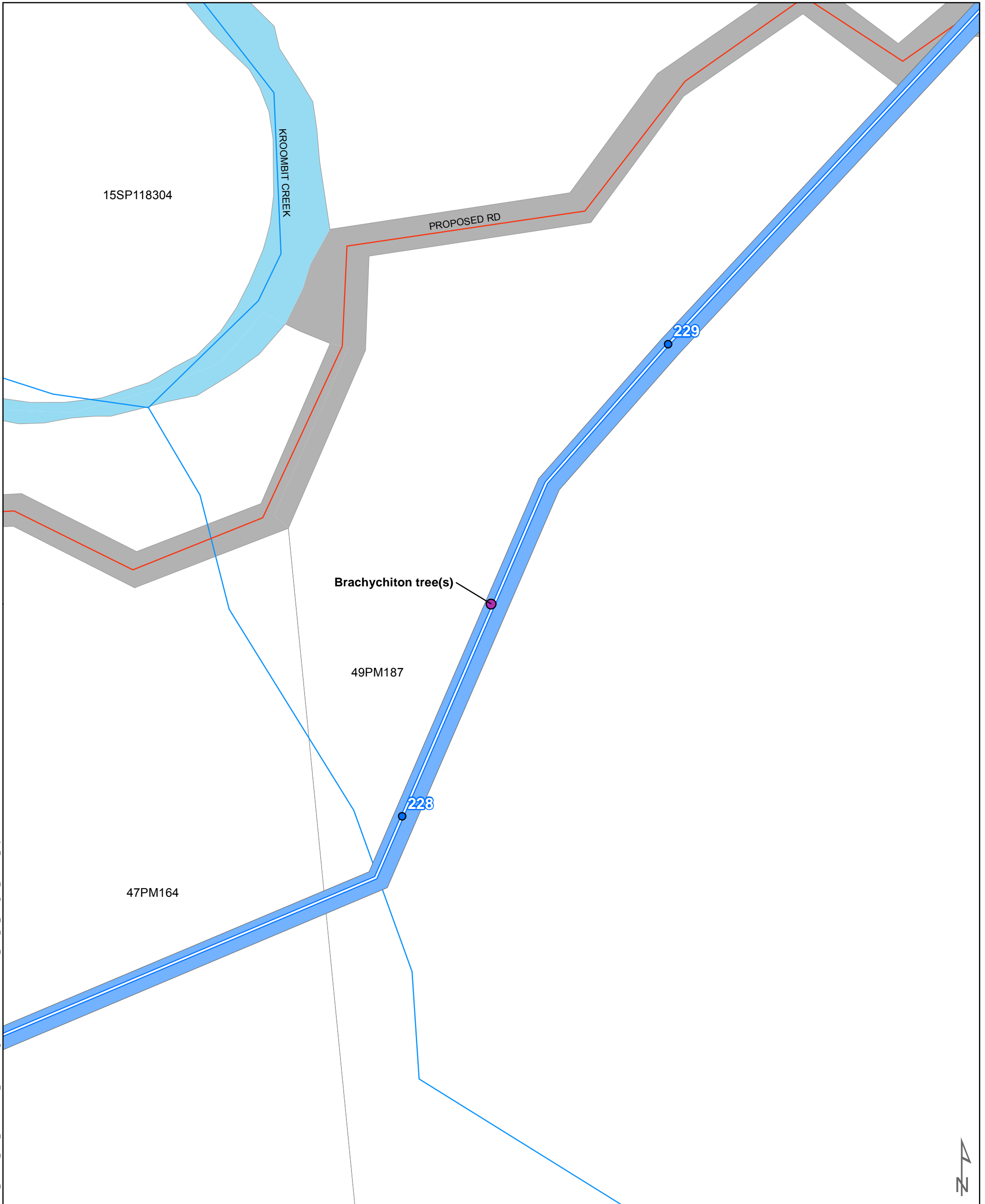
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 39 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 39

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

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Metres  
1:6,500 (A3) GDA94 Lat/Long

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25/03/2011	AN	SC	Issed for use	3

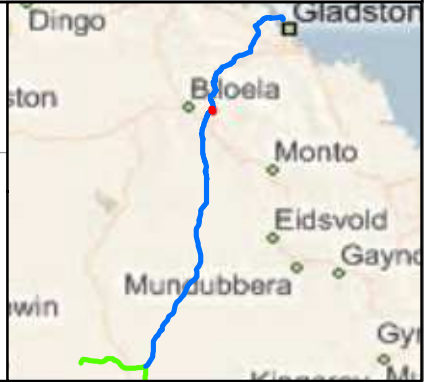
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

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5RN516

15RN474

14SP118304

16RP883977

red gravelly soil

233


232

QGC PTY LTD - Queensland Curtis LNG Project

LEGEND

LOCATION DIAGRAM

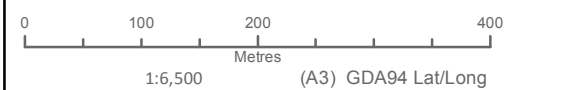
TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 40 of 48



-  Ecological feature
-  Roads
-  Watercourse
-  Cadastral Boundaries
-  Road Casement
-  Water Casement
-  Export Construction Corridor Rev K

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 40

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
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Cadastral Data © State of Queensland (Department of  
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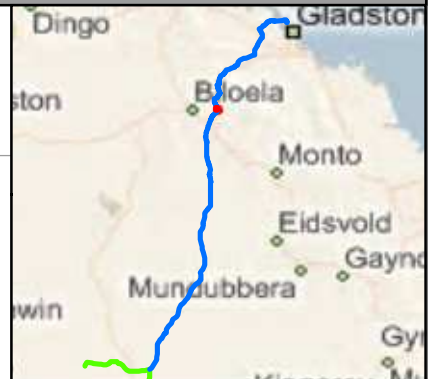
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25/03/2011	AN	SC	Issed for use	3



PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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 Collection Header & KP's	Rev J	08-12-2010	Unidel

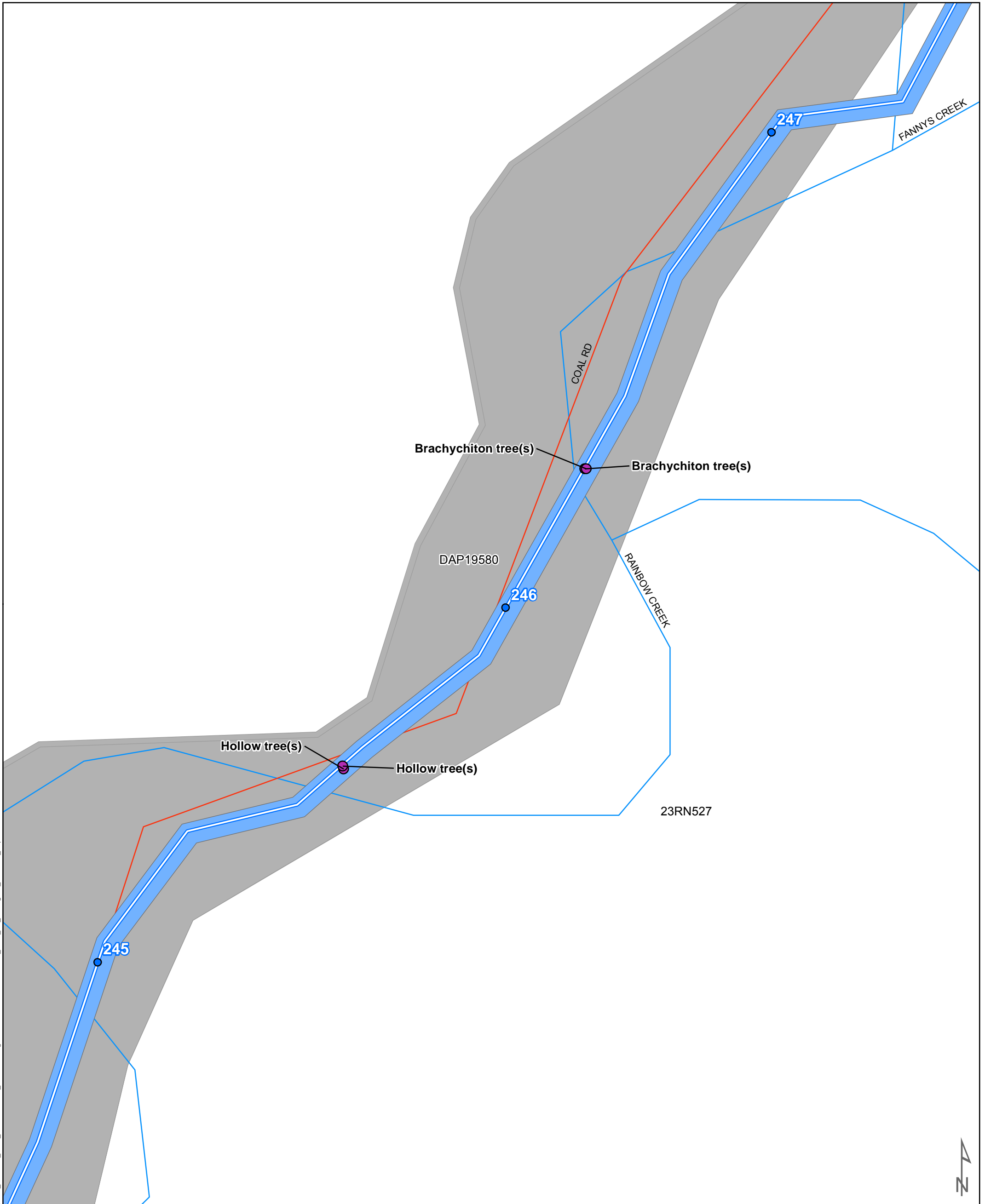


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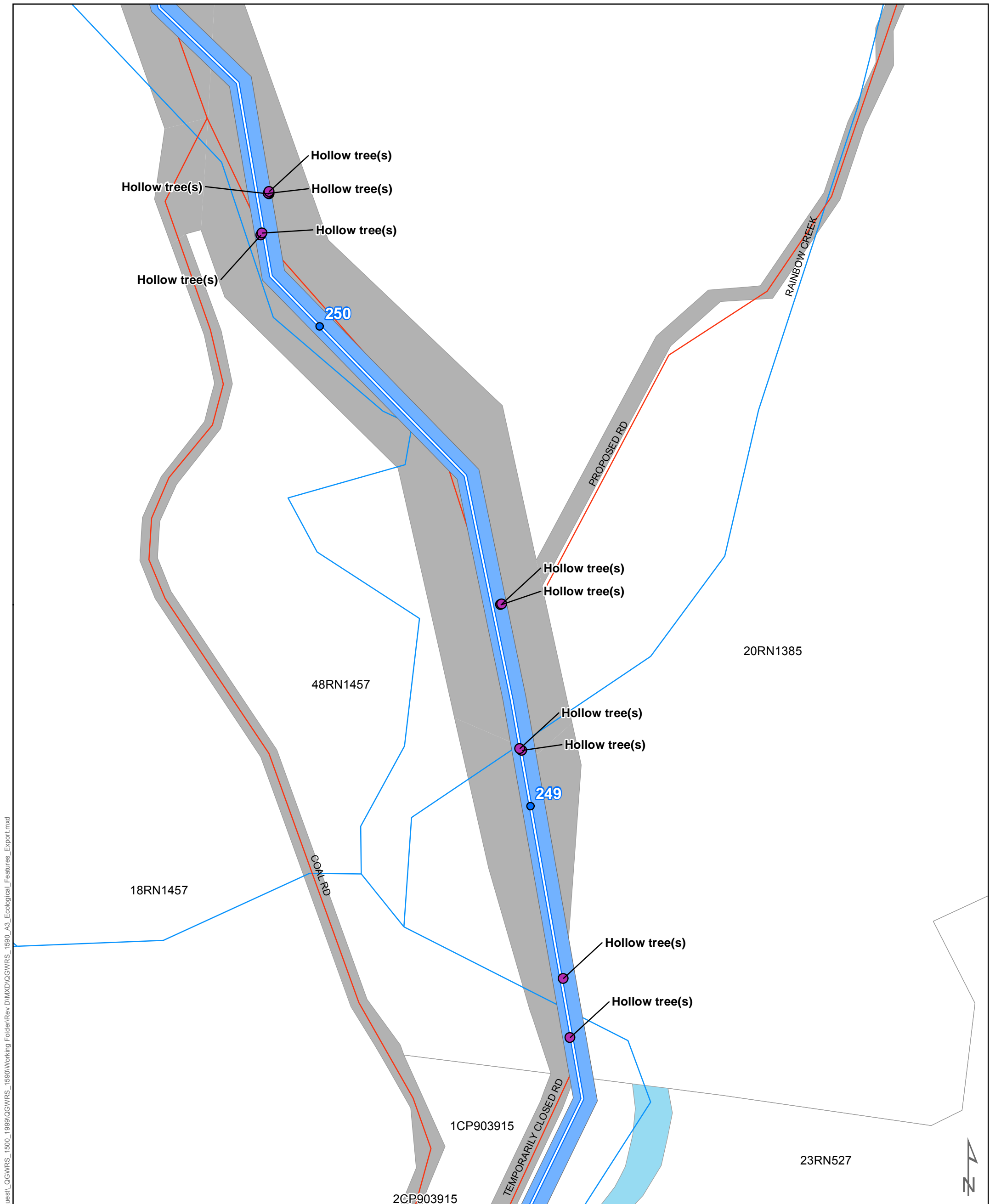
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																							
<p>TITLE: Ecological Features Map Series Export Pipeline Map Number: 41 of 48</p> <p>DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 41</p> <p>DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: red;">—</span> Roads</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Cadastral Boundaries</li> <li><span style="background-color: gray; width: 10px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: lightblue; width: 10px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Export Construction Corridor Rev K</li> </ul>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issed for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issed for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issed for use</td> <td>3</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issed for use	1	11/02/2011	AN	NG	Issed for use	2	25/03/2011	AN	SC	Issed for use	3	<div style="text-align: center;"> <p><b>QGC</b> A BG Group business</p> <p>GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au</p> <p><b>UNIDEL</b> INFRASTRUCTURE ENERGY RESULTS</p> </div>	
DATE	AUTHOR	APPROVED	REVISION NOTE	REV.																							
10/12/2010	EM	GR	Issed for use	1																							
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25/03/2011	AN	SC	Issed for use	3																							
<p>0 100 200 400 Metres 1:6,500 (A3) GDA94 Lat/Long</p>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td><span style="color: blue;">—●—</span> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td><span style="color: green;">—●—</span> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	<span style="color: blue;">—●—</span> Export Pipeline & KP's	Rev K	08-12-2010	Unidel	<span style="color: green;">—●—</span> Collection Header & KP's	Rev J	08-12-2010	Unidel												
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**QGC PTY LTD - Queensland Curtis LNG Project**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 42 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 42

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
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0 100 200 400  
Metres  
1:6,500 (A3) GDA94 Lat/Long

**LEGEND**

- Ecological feature
- Roads
- Watercourse
- Cadastral Boundaries
- Road Casement
- Water Casement
- Export Construction Corridor Rev K

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
10/12/2010	EM	GR	Issed for use	1
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25/03/2011	AN	SC	Issed for use	3

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**

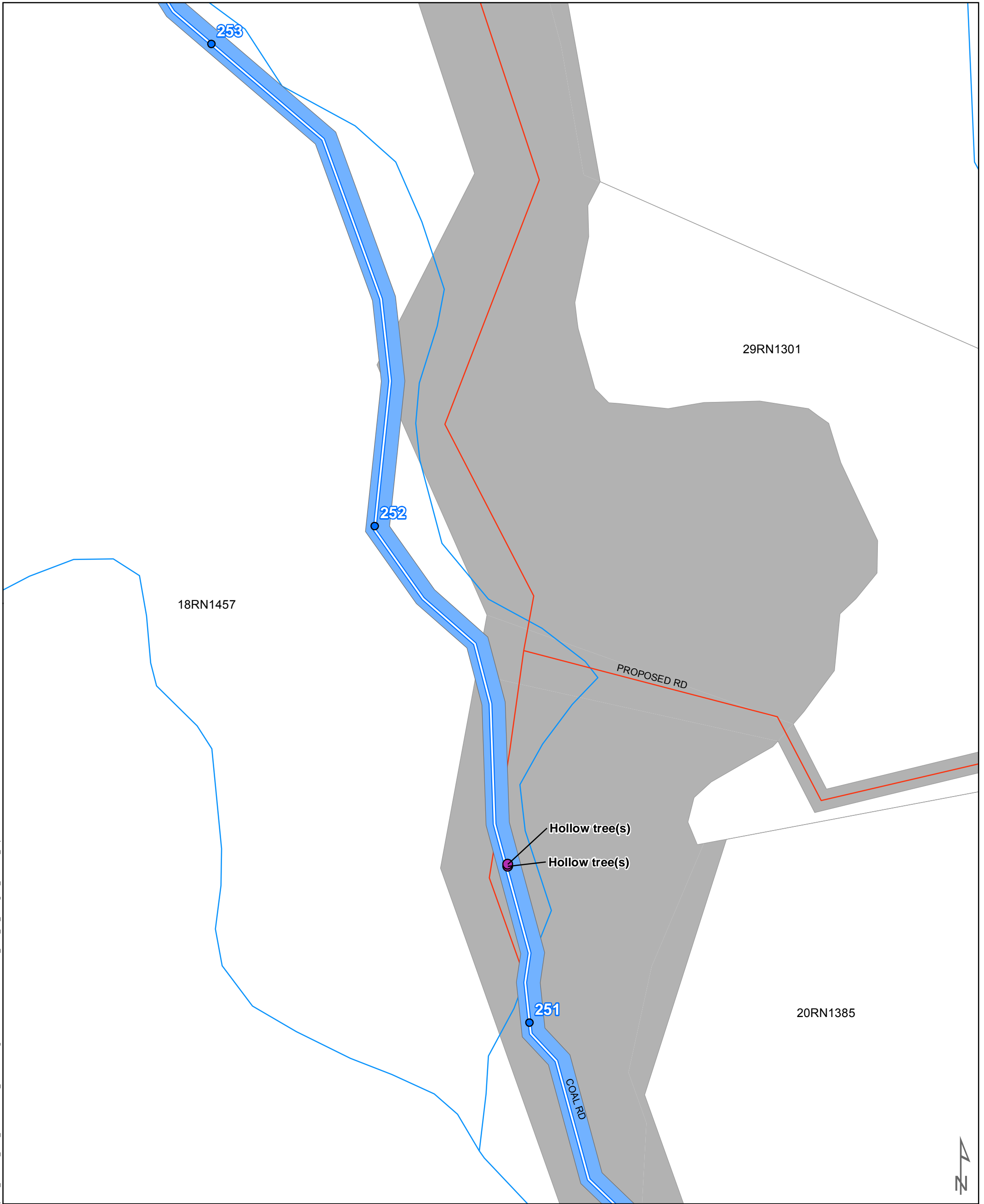
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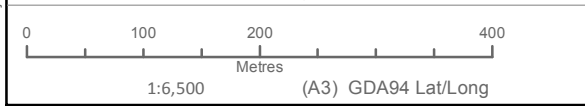


**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 43 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 43

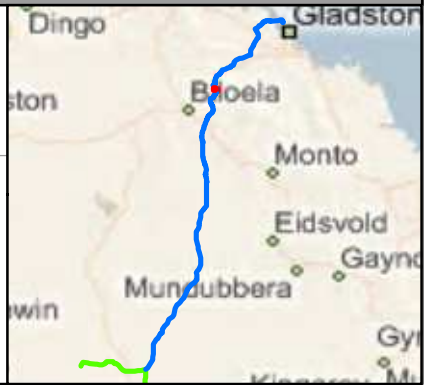
DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
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PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 44 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 44

**DATA SOURCE:**  
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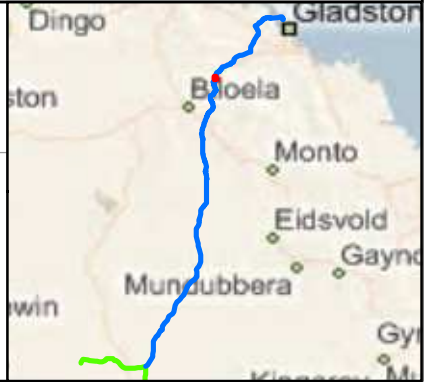
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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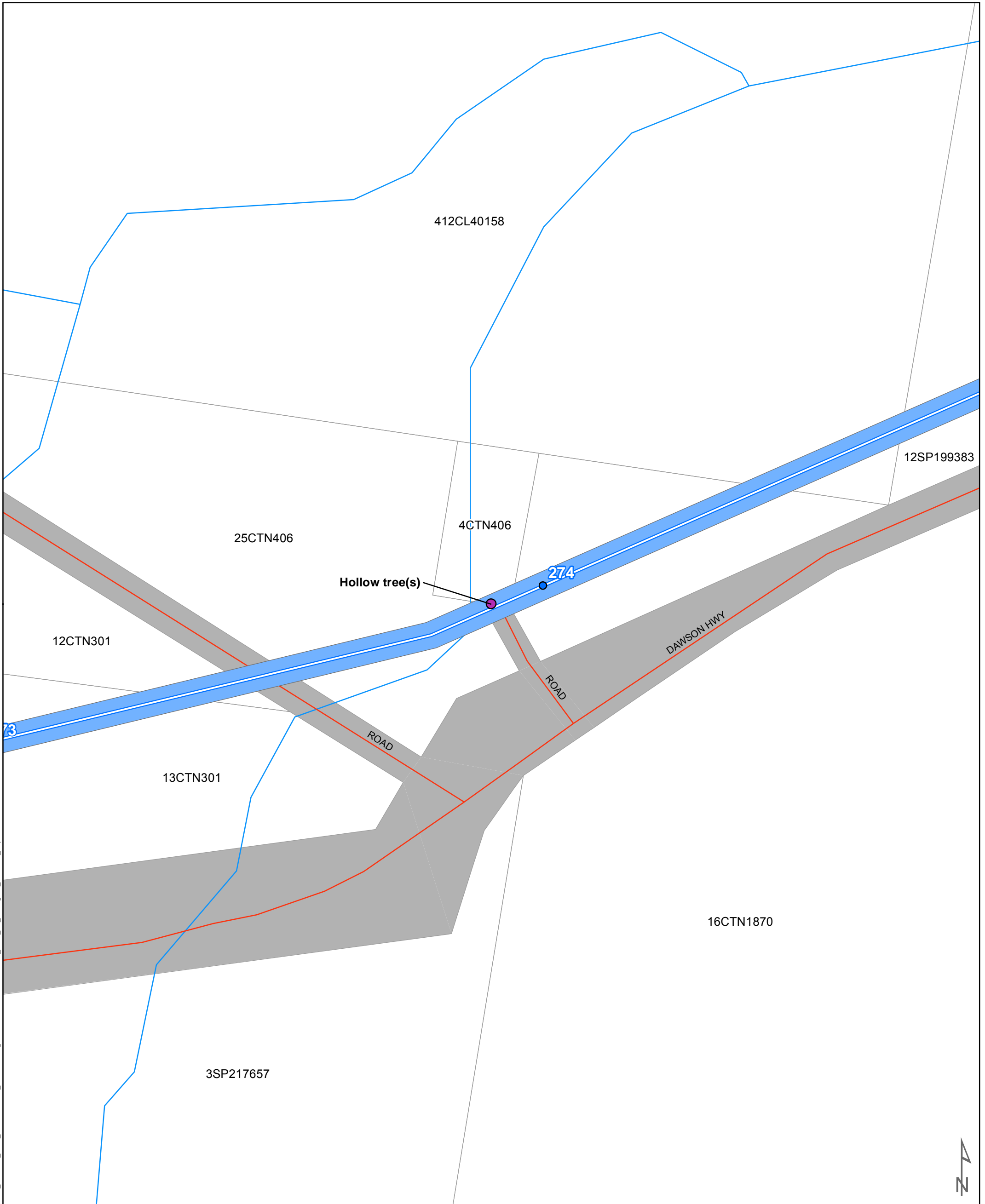
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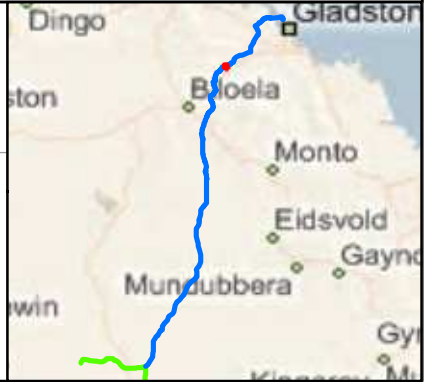
**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

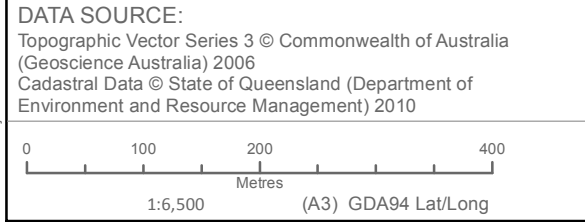
TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 45 of 48

	Ecological feature		Road Casement
	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		



DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 45

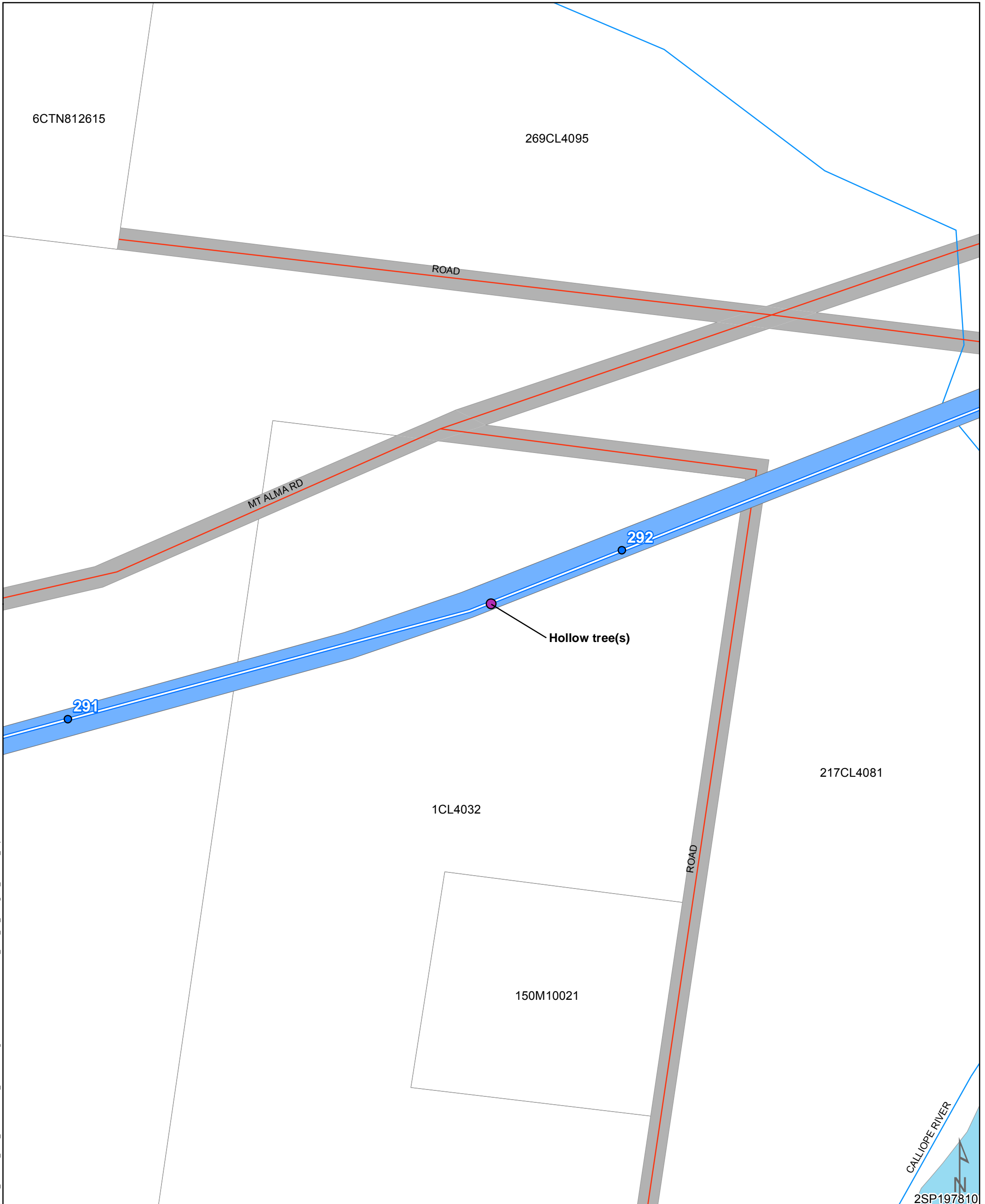
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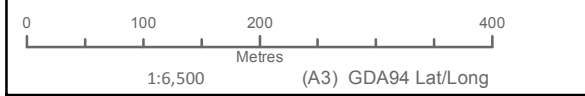


**QGC PTY LTD - Queensland Curtis LNG Project**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 46 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 46

DATA SOURCE:  
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**LEGEND**

	Ecological feature		Road Casement
	Roads		Water Casement
	Watercourse		Export Construction Corridor Rev K
	Cadastral Boundaries		

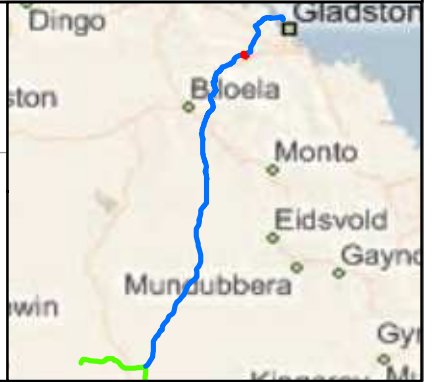
  

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PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

**LOCATION DIAGRAM**



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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Export Pipeline  
Map Number: 47 of 48

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000018 - 47

**DATA SOURCE:**  
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1:6,500 (A3) GDA94 Lat/Long

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25/03/2011	AN	SC	Issed for use	3

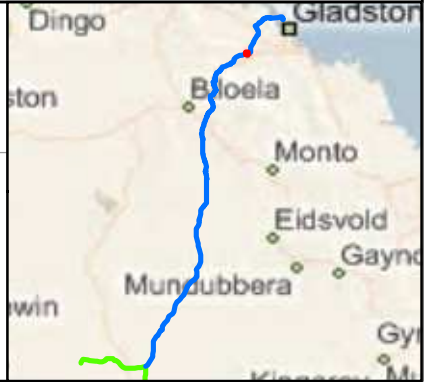
  

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Collection Header & KP's	Rev J	08-12-2010	Unidel

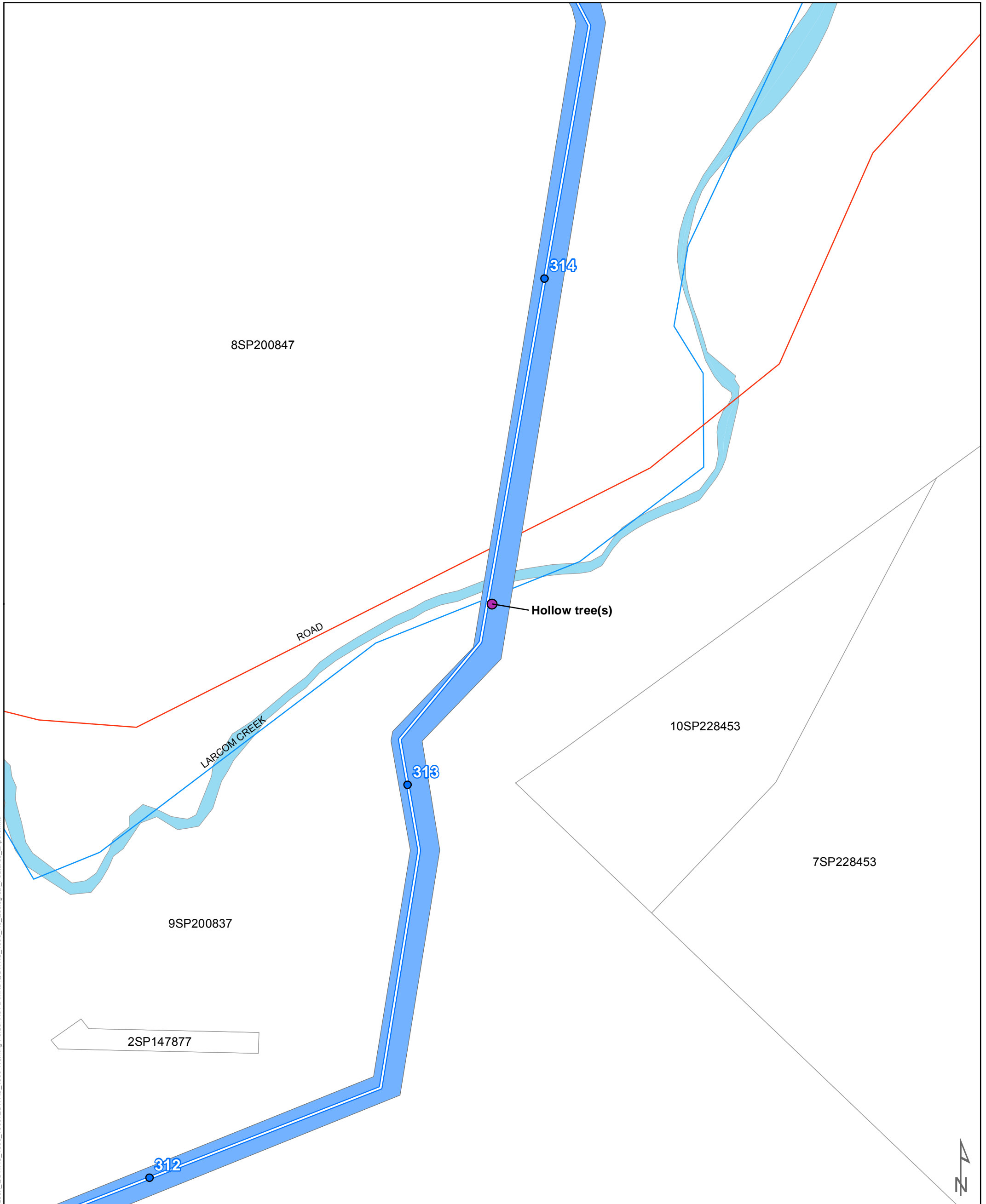
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Export Pipeline  
Map Number: 48 of 48

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000018 - 48

DATA SOURCE:  
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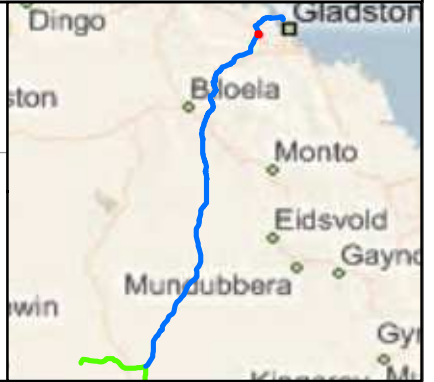
  

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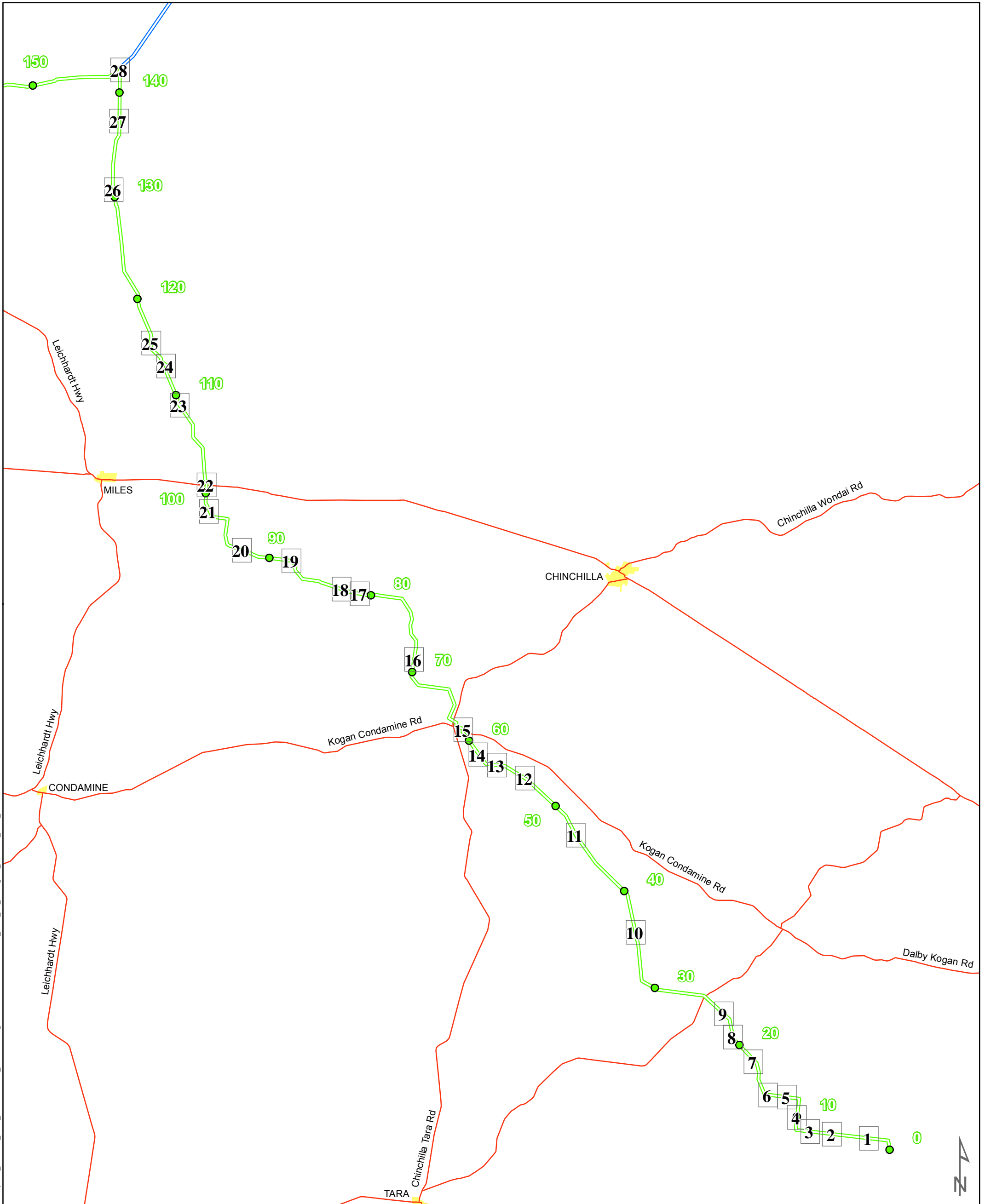
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																			
TITLE: Ecological Features Map Series Overview Gas Collection Header Pipeline		<ul style="list-style-type: none"> <li><span style="color: red;">—</span> Roads Major/Minor</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px; margin-right: 5px;"></span> GCH Map Series</li> <li><span style="background-color: yellow; display: inline-block; width: 10px; height: 10px; margin-right: 5px;"></span> Built Up Areas</li> </ul>																					
DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017- 29		<table border="1" style="width:100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issued for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issued for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issued for use</td> <td>3</td> </tr> </tbody> </table>				DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issued for use	1	11/02/2011	AN	NG	Issued for use	2	25/03/2011	AN	SC
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DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		<table border="1" style="width:100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td><span style="color: blue;">—●—</span> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td><span style="color: green;">—●—</span> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	<span style="color: blue;">—●—</span> Export Pipeline & KP's	Rev K	08-12-2010	Unidel	<span style="color: green;">—●—</span> Collection Header & KP's	Rev J	08-12-2010	Unidel	<p style="font-size: x-small;">GPO Box 3107 - Brisbane QLD 4000          p (07) 3024 9000 f (07) 3024 8999          www.qgc.com.au qgc@qgc.com.au</p>							
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13DY13

4FTY475

5DY129

Rocky

ROAD

KUMBARILLA FOREST RD  
3RP194939

**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

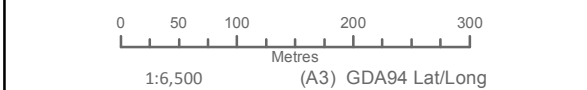
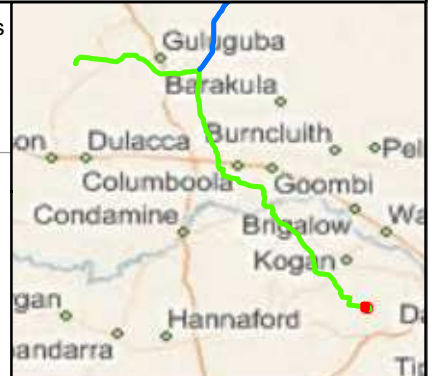
TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 1 of 28

- Ecological feature
- Watercourse
- Roads
- GCH Construction Corridor Rev J
- Road Casement
- Water Casement
- Cadastral Boundaries

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 1

DATA SOURCE:  
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Cadastral Data © State of Queensland (Department of  
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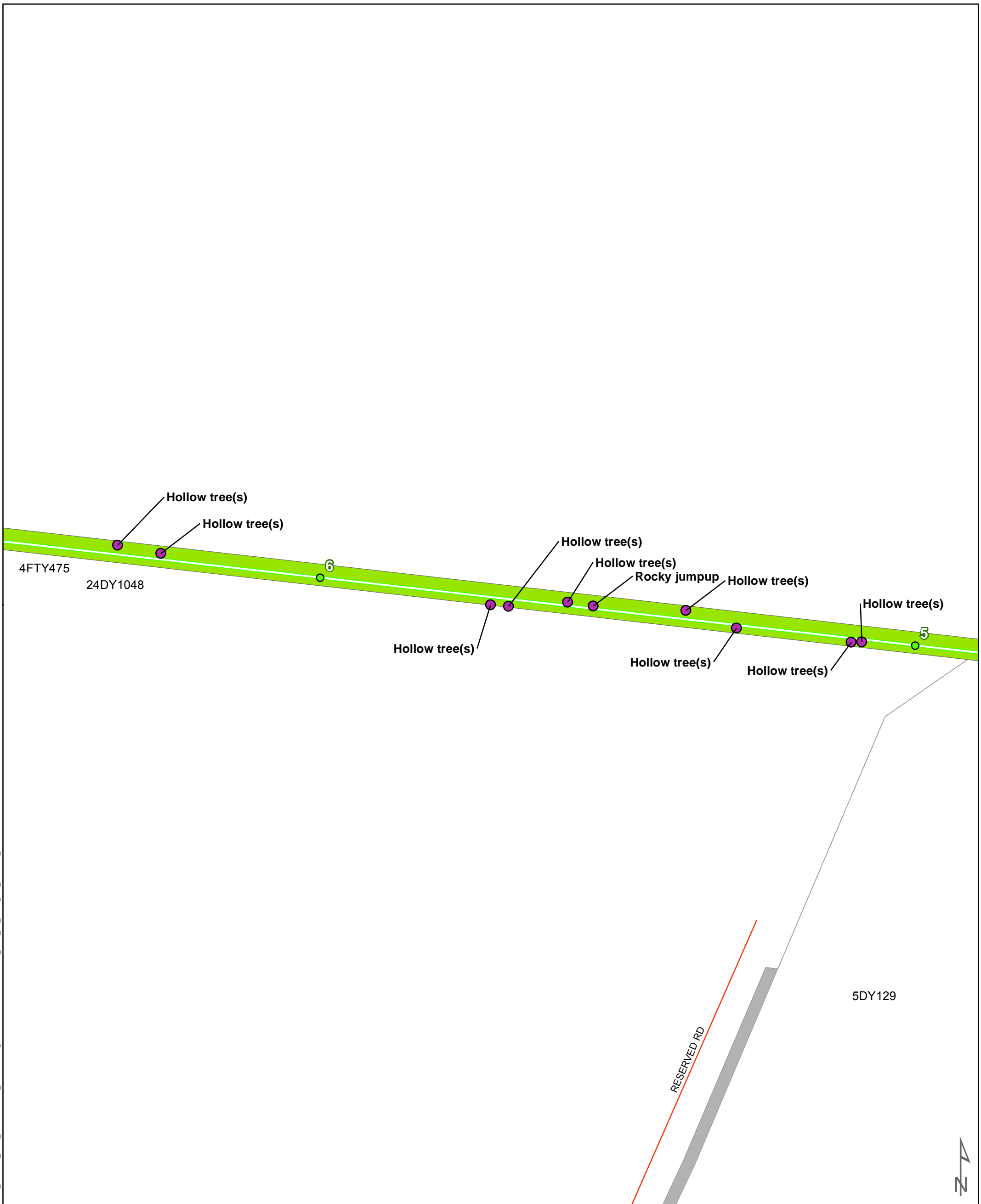


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<span style="color: green;">—●—</span> Collection Header & KP's	Rev J	08-12-2010	Unidel



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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 2 of 28

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 2

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
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Cadastral Data © State of Queensland (Department of  
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Metres  
1:6,500 (A3) GDA94 Lat/Long

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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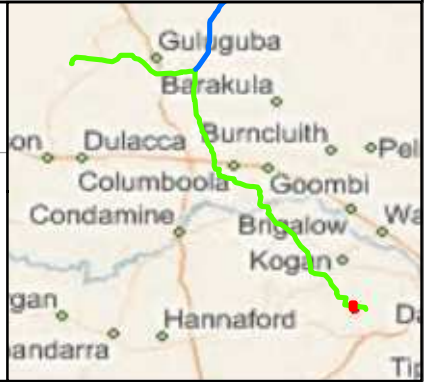
  

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Collection Header & KP's	Rev J	08-12-2010	Unidel

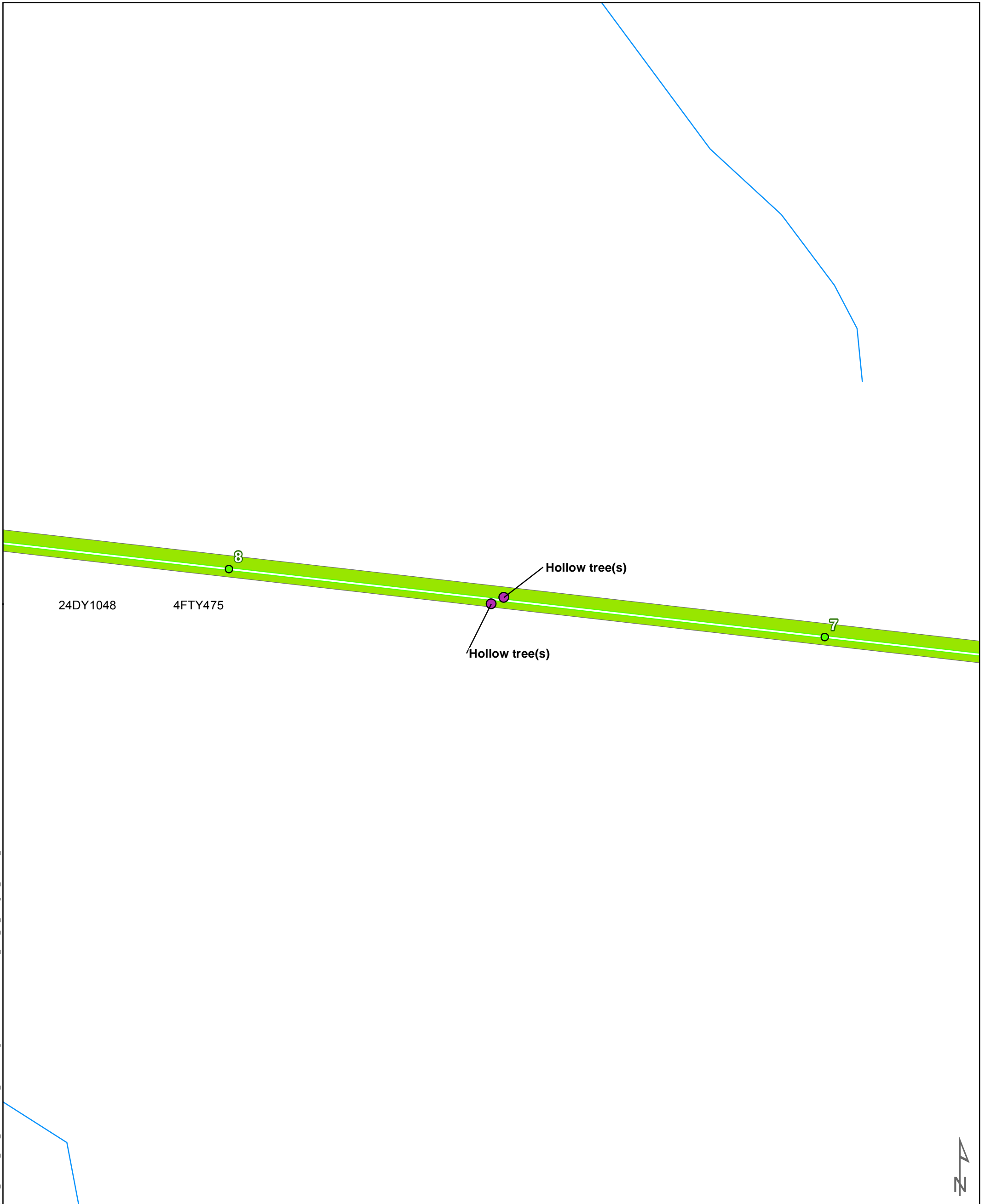
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 3 of 28

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000017 - 3

**DATA SOURCE:**  
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(Geoscience Australia) 2006  
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1:6,500 (A3) GDA94 Lat/Long

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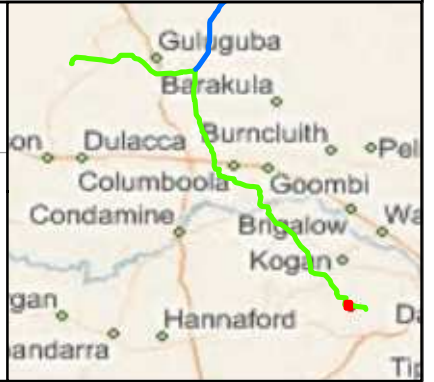
  

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Collection Header & KP's	Rev J	08-12-2010	Unidel

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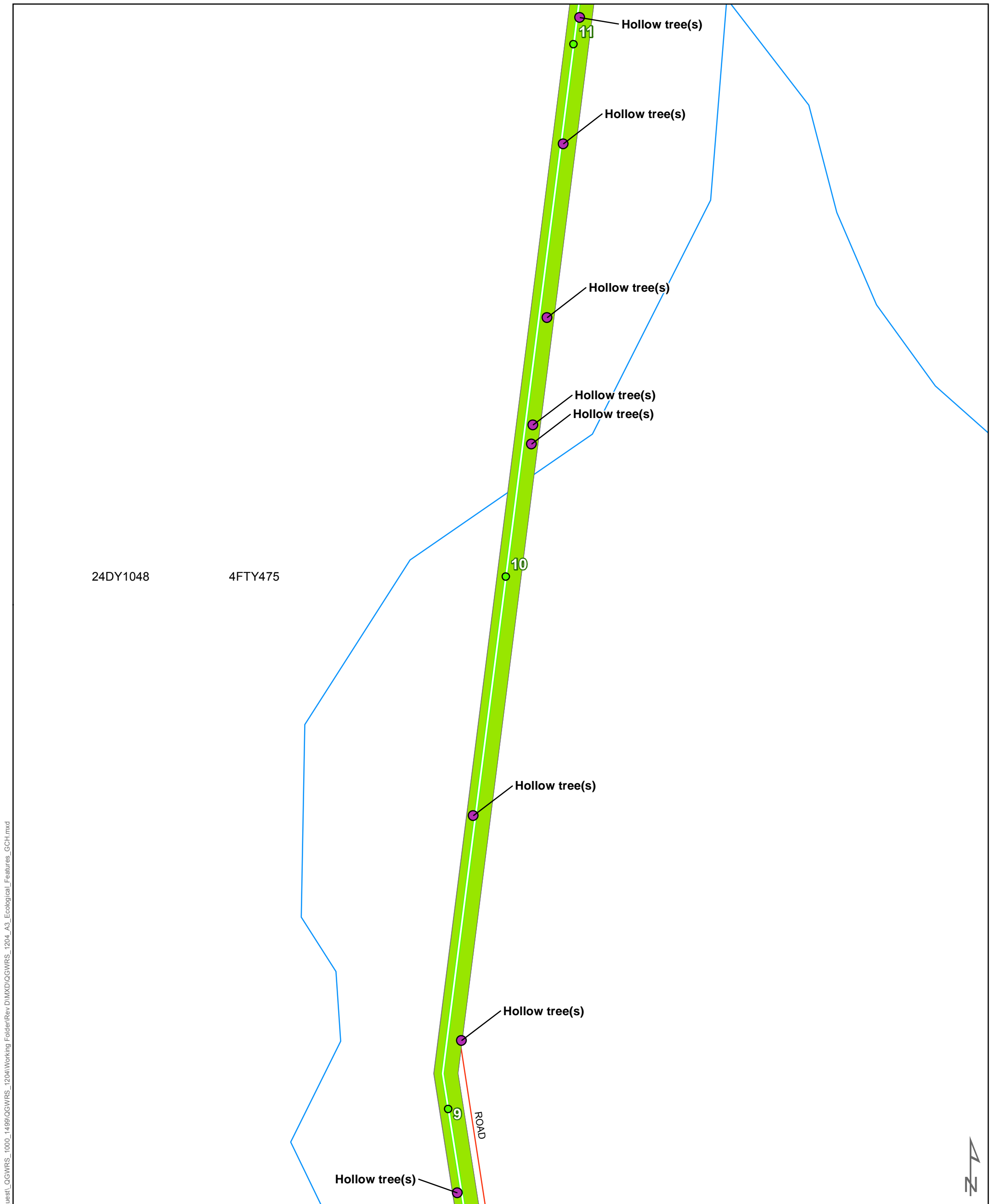
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																					
TITLE: Ecological Features Map Series Gas Collection Header Pipeline Map Number: 4 of 28		Ecological feature Watercourse Roads	GCH Construction Corridor Rev J Road Casement Water Casement	Cadastral Boundaries																					
DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 4		<table border="1" style="width:100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issued for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issued for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issued for use</td> <td>3</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issued for use	1	11/02/2011	AN	NG	Issued for use	2	25/03/2011	AN	SC	Issued for use	3		
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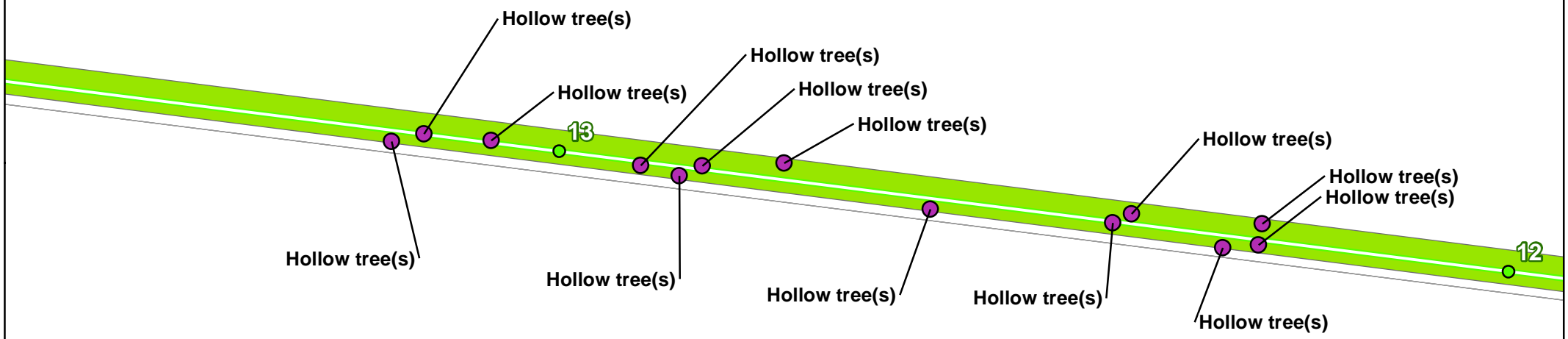
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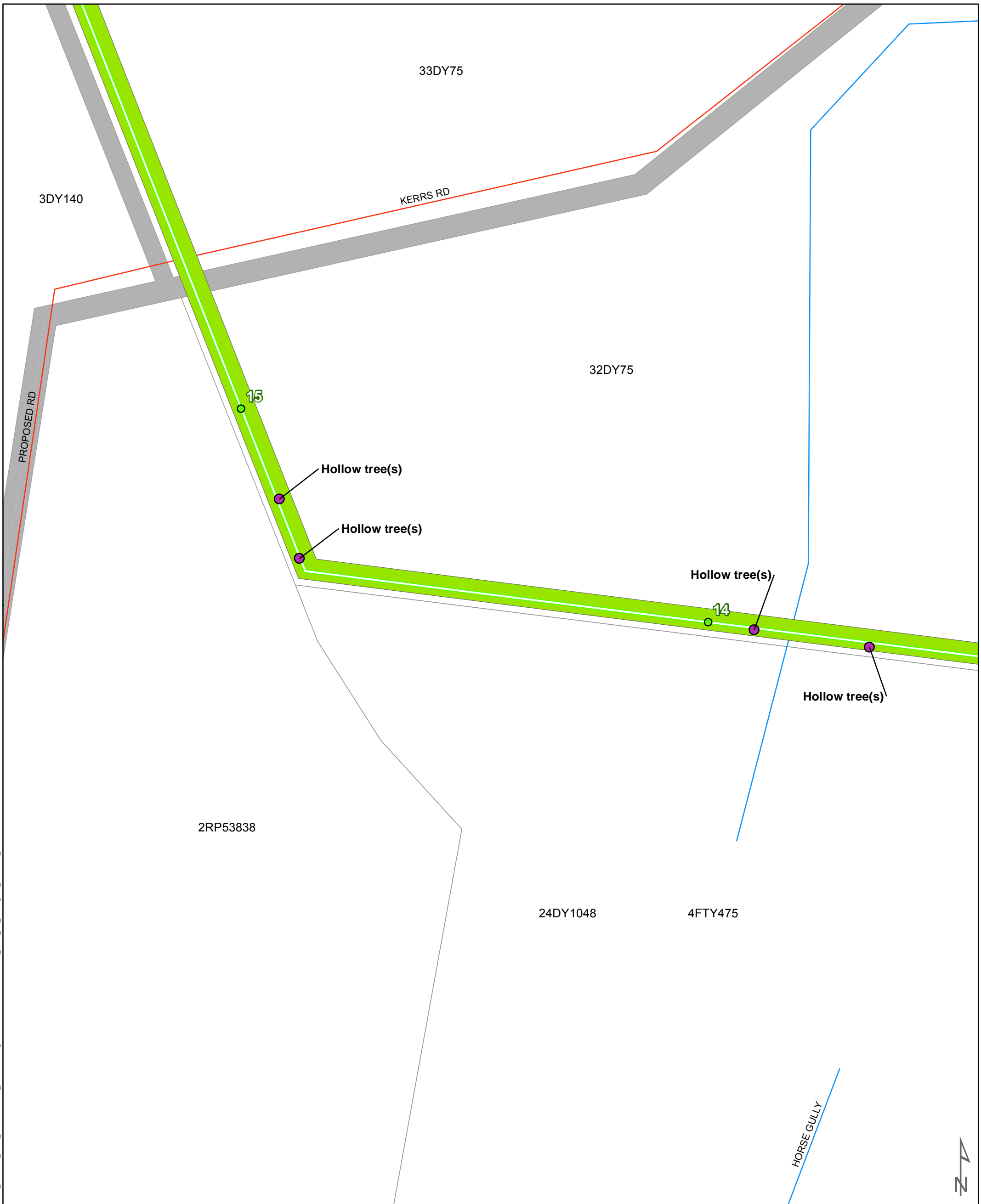
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																																	
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DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		Roads	Water Casement																																		
0 50 100 200 300 Metres 1:6,500 (A3) GDA94 Lat/Long		<table border="1"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issued for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issued for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issued for use</td> <td>3</td> </tr> </tbody> </table>	DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issued for use	1	11/02/2011	AN	NG	Issued for use	2	25/03/2011	AN	SC	Issued for use	3	<table border="1"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>	PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	Export Pipeline & KP's	Rev K	08-12-2010	Unidel	Collection Header & KP's	Rev J	08-12-2010	Unidel		
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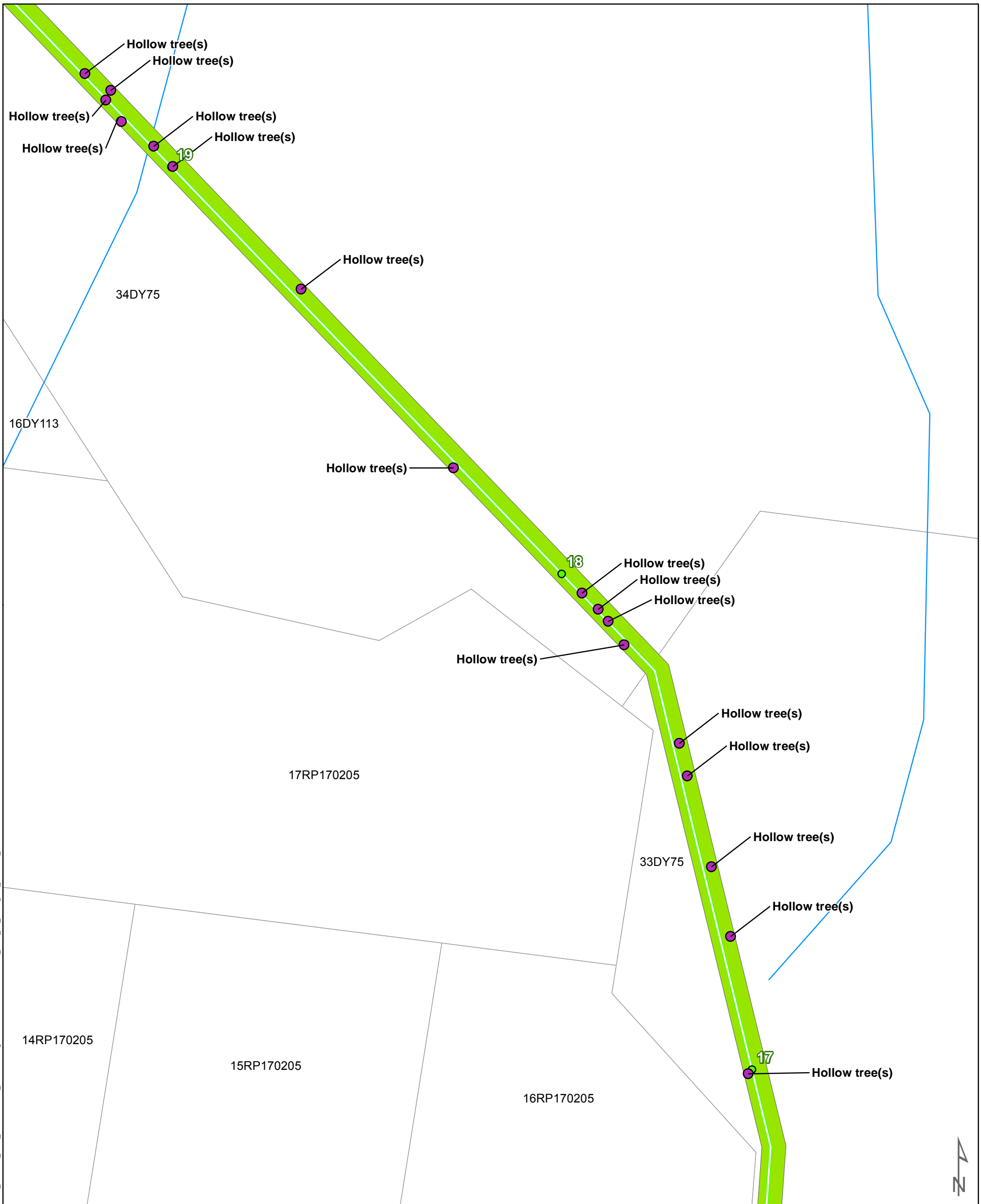
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																				
TITLE: Ecological Features Map Series Gas Collection Header Pipeline Map Number: 6 of 28		Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries																				
DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 6		Watercourse	Road Casement	Water Casement																				
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 7 of 28

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000017 - 7

**DATA SOURCE:**  
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Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries
Watercourse	Road Casement	
Roads	Water Casement	

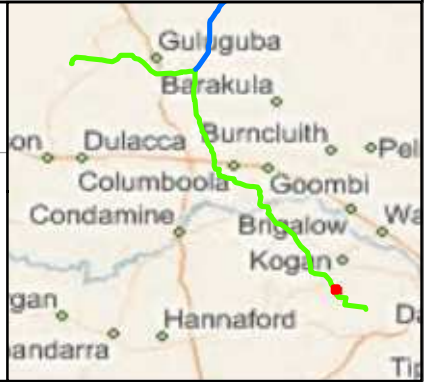
  

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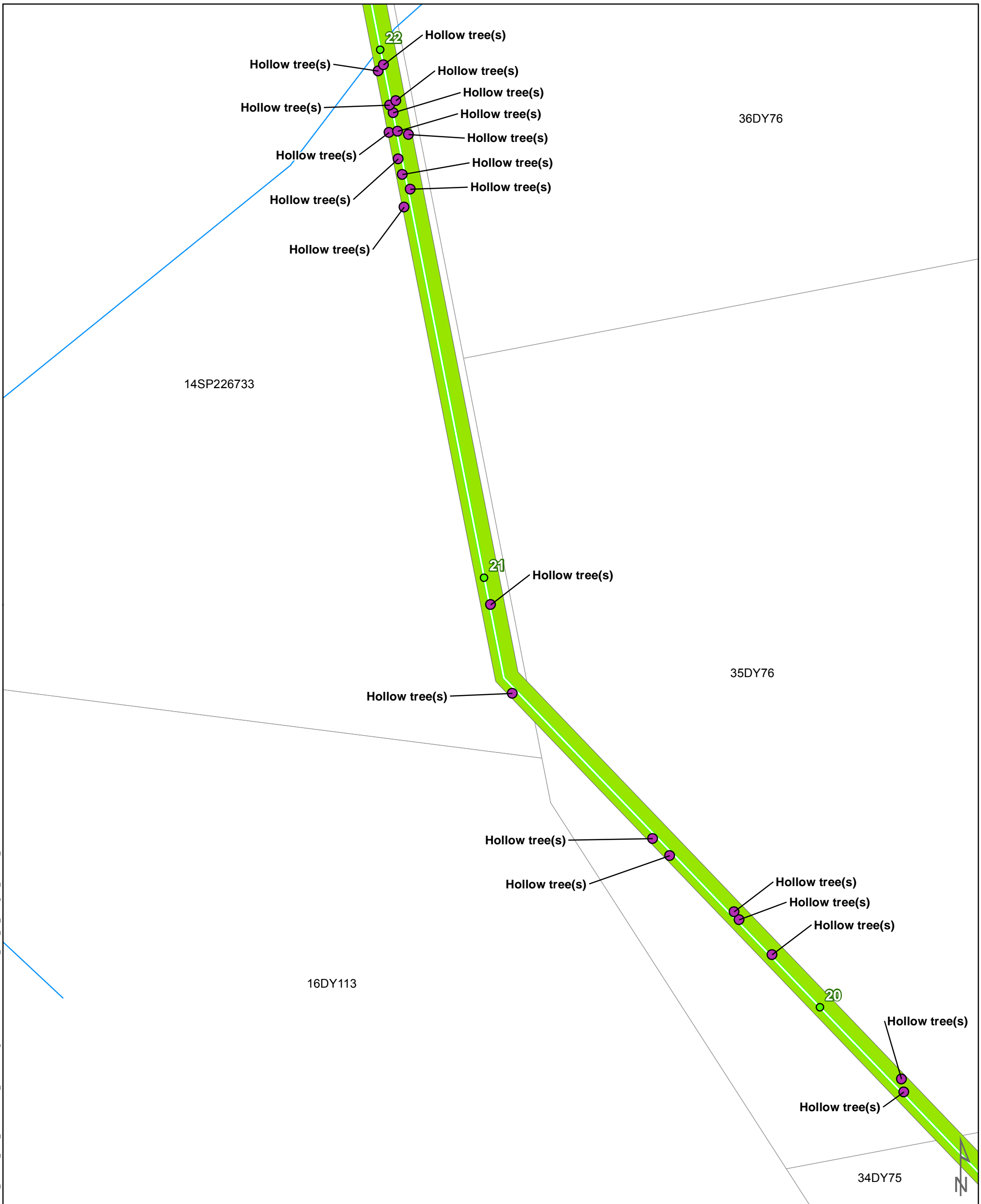
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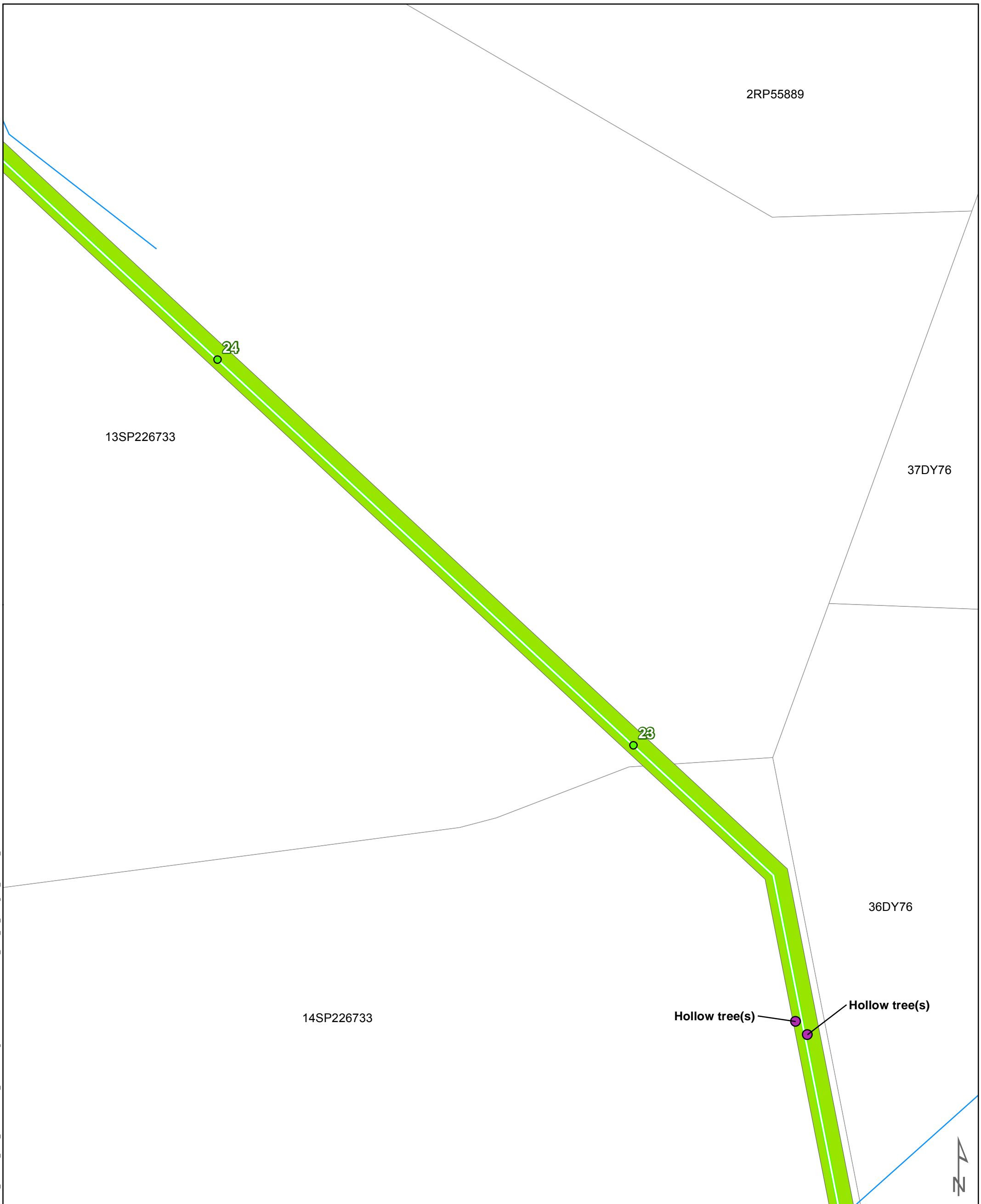
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																																
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DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 8		Watercourse	Road Casement																																	
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																																			
TITLE: Ecological Features Map Series Gas Collection Header Pipeline Map Number: 9 of 28		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="color: red;">—</span> Roads</li> <li><span style="background-color: green; width: 15px; height: 10px; display: inline-block;"></span> GCH Construction Corridor Rev J</li> <li><span style="background-color: grey; width: 15px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: lightblue; width: 15px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="border: 1px solid black; width: 15px; height: 10px; display: inline-block;"></span> Cadastral Boundaries</li> </ul>																																					
DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 9		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issued for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issued for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issued for use</td> <td>3</td> </tr> </tbody> </table>		DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issued for use	1	11/02/2011	AN	NG	Issued for use	2	25/03/2011	AN	SC	Issued for use	3			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td><span style="color: blue;">—●—</span> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td><span style="color: green;">—●—</span> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	<span style="color: blue;">—●—</span> Export Pipeline & KP's	Rev K	08-12-2010	Unidel	<span style="color: green;">—●—</span> Collection Header & KP's	Rev J	08-12-2010	Unidel
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19RP836002

18CP900887

20DY86

37

36

Hollow tree(s)

Hollow tree(s)

35

MILLBANK RD

4DY119

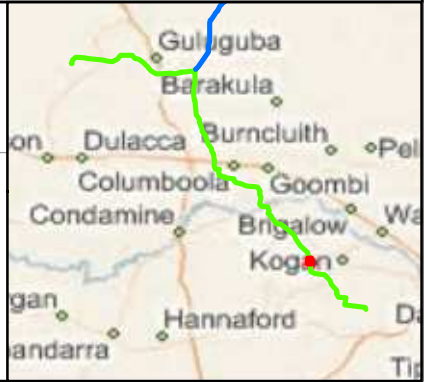
5DY119



**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 10 of 28

Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries
Watercourse	Road Casement	
Roads	Water Casement	



DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 10

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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0 50 100 200 300  
Metres  
1:6,500 (A3) GDA94 Lat/Long

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
Collection Header & KP's	Rev J	08-12-2010	Unidel

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8RP190982

9RP190989

13RP205405

47

Hollow tree(s)

1RP190989

8RP205405

5RP190989

WAMBO CREEK

7RP205405

46

2DY94

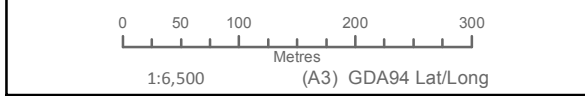


**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 11 of 28

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 11

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
(Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of  
Environment and Resource Management) 2010



- Ecological feature
- Watercourse
- Roads
- GCH Construction Corridor Rev J
- Road Casement
- Water Casement
- Cadastral Boundaries

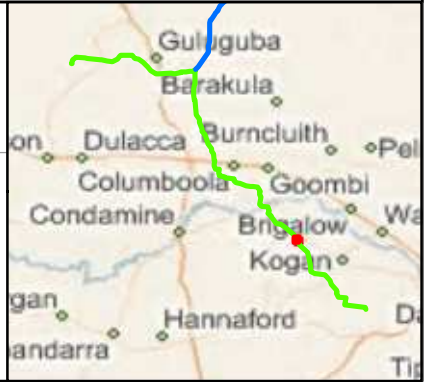
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25/03/2011	AN	SC	Issued for use	3

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

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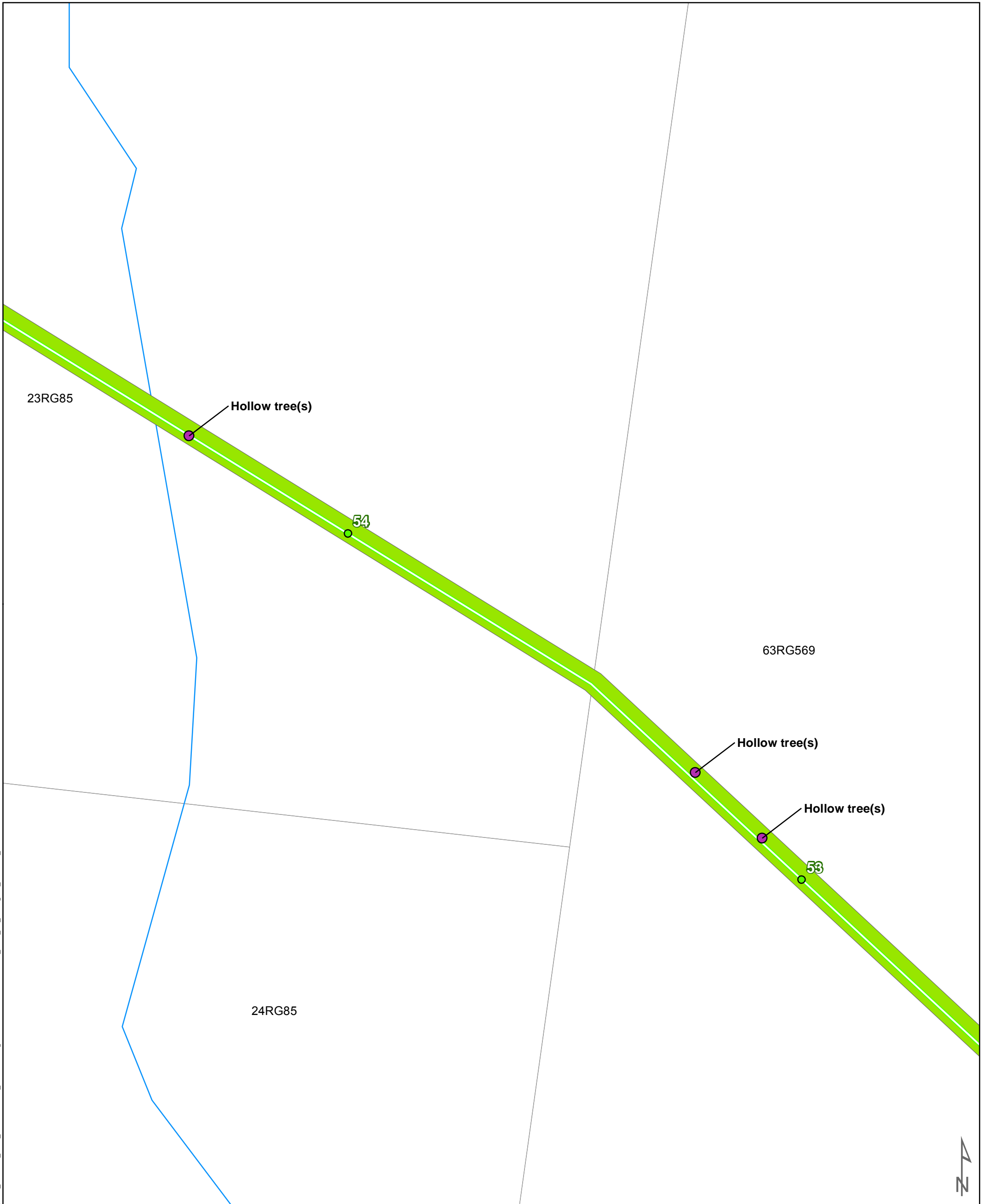
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**TITLE:** Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 12 of 28

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000017 - 12

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

0 50 100 200 300  
Metres  
1:6,500 (A3) GDA94 Lat/Long

Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries
Watercourse	Road Casement	
Roads	Water Casement	

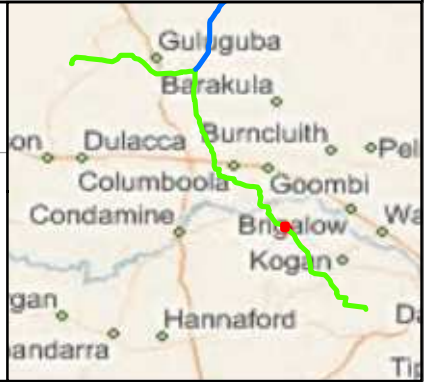
  

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11/02/2011	AN	NG	Issued for use	2
25/03/2011	AN	SC	Issued for use	3

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
Export Pipeline & KP's	Rev K	08-12-2010	Unidel
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<p><b>TITLE:</b> Ecological Features Map Series Gas Collection Header Pipeline Map Number: 13 of 28</p> <p><b>DOCUMENT NO:</b> QCLNG-BG00-ENV-MAP-000017 - 13</p> <p><b>DATA SOURCE:</b> Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="color: red;">—</span> Roads</li> <li><span style="background-color: #90EE90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> GCH Construction Corridor Rev J</li> <li><span style="background-color: #cccccc; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Road Casement</li> <li><span style="background-color: #add8e6; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Water Casement</li> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Cadastral Boundaries</li> </ul>																		
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																																
TITLE: Ecological Features Map Series Gas Collection Header Pipeline Map Number: 14 of 28		● Ecological feature — Watercourse — Roads	■ GCH Construction Corridor Rev J ■ Road Casement ■ Water Casement																																	
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

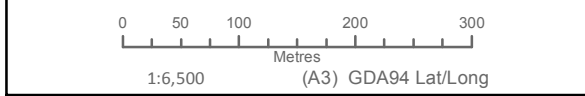
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Gas Collection Header Pipeline  
Map Number: 15 of 28

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000017 - 15

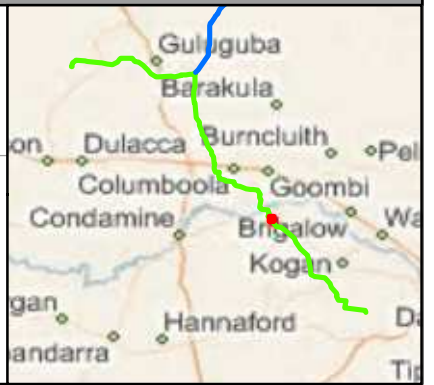
**DATA SOURCE:**  
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Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010

Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries
Watercourse	Road Casement	
Roads	Water Casement	

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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40BWR181

GREENSWAMP RD

49BWR176

72

Brachychiton tree(s)

71

6RP893550

12BWR45



**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 16 of 28

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 16

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
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Cadastral Data © State of Queensland (Department of  
Environment and Resource Management) 2010

	Ecological feature		GCH Construction Corridor Rev J		Cadastral Boundaries
	Watercourse		Road Casement		Water Casement
	Roads				

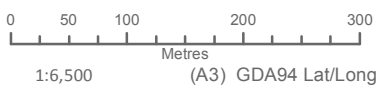
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PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

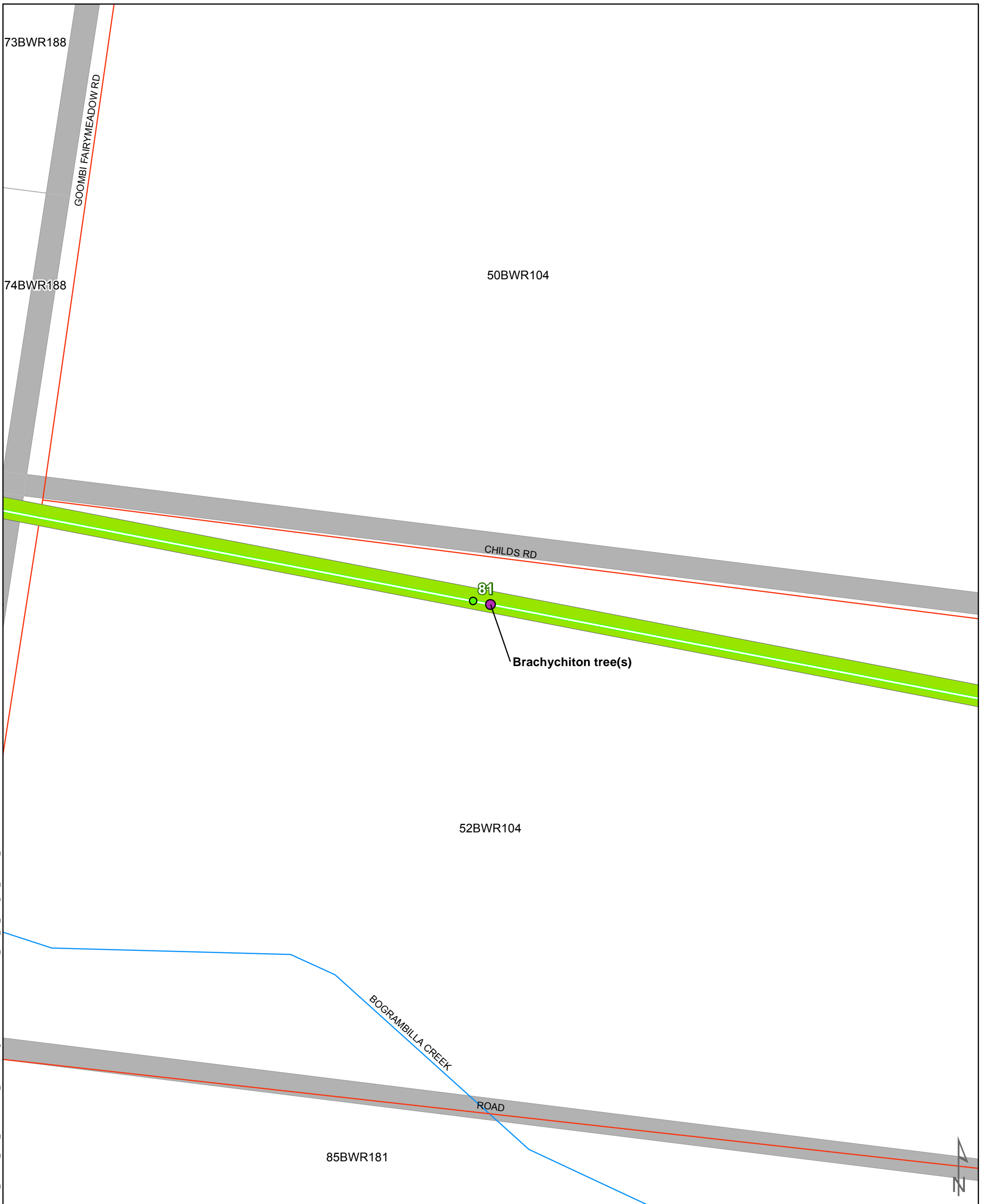
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																				
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DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 17		Watercourse	Road Casement																					
DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		Roads	Water Casement																					
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73BWR188

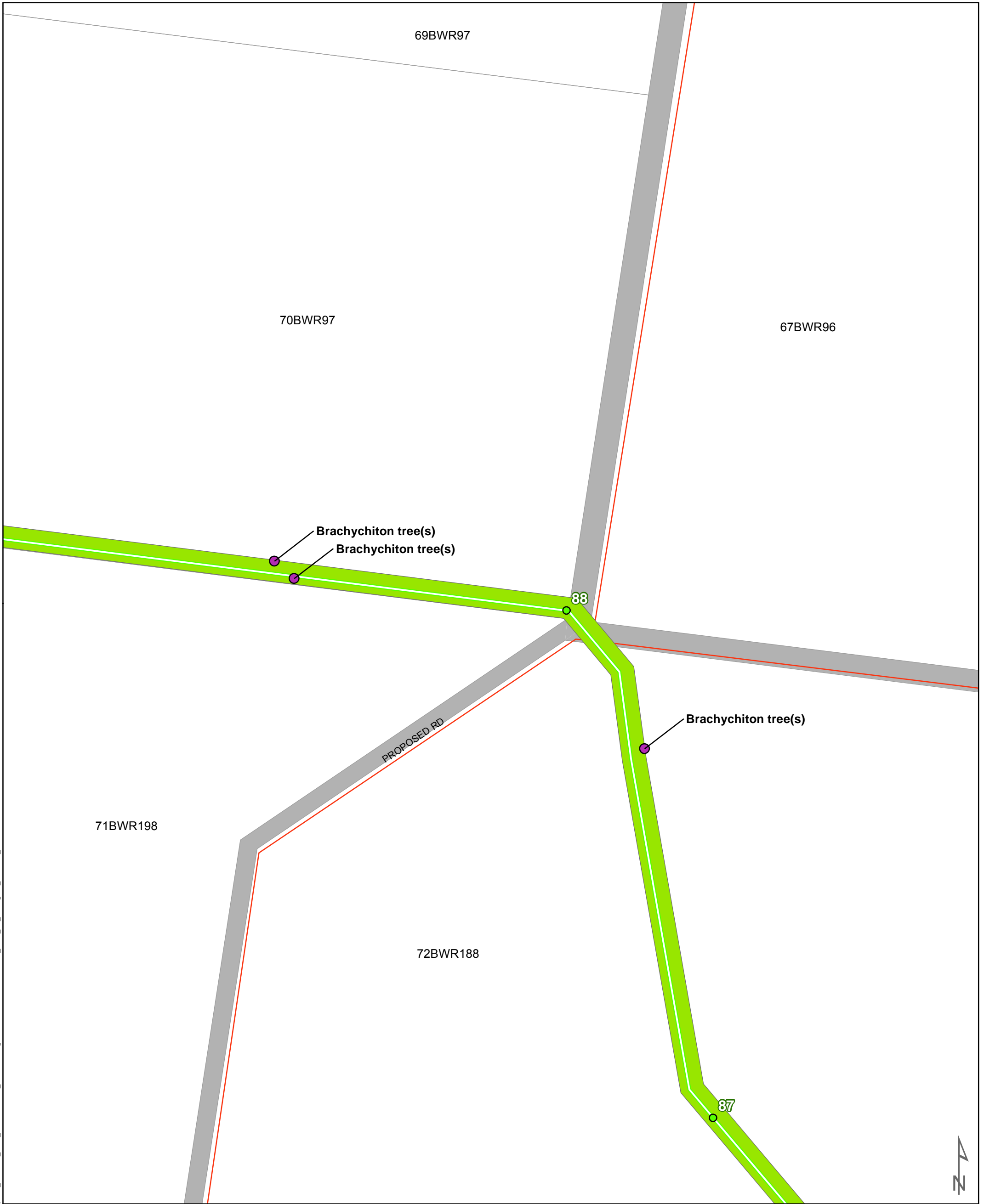
74BWR188



<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																																	
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DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 18		Watercourse	Road Casement																																		
DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		Roads	Water Casement																																		
0 50 100 200 300 Metres 1:6,500 (A3) GDA94 Lat/Long		<table border="1"> <thead> <tr> <th>DATE</th> <th>AUTHOR</th> <th>APPROVED</th> <th>REVISION NOTE</th> <th>REV.</th> </tr> </thead> <tbody> <tr> <td>10/12/2010</td> <td>EM</td> <td>GR</td> <td>Issued for use</td> <td>1</td> </tr> <tr> <td>11/02/2011</td> <td>AN</td> <td>NG</td> <td>Issued for use</td> <td>2</td> </tr> <tr> <td>25/03/2011</td> <td>AN</td> <td>SC</td> <td>Issued for use</td> <td>3</td> </tr> </tbody> </table>	DATE	AUTHOR	APPROVED	REVISION NOTE	REV.	10/12/2010	EM	GR	Issued for use	1	11/02/2011	AN	NG	Issued for use	2	25/03/2011	AN	SC	Issued for use	3	<table border="1"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>	PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	Export Pipeline & KP's	Rev K	08-12-2010	Unidel	Collection Header & KP's	Rev J	08-12-2010	Unidel		
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																					
TITLE: Ecological Features Map Series Gas Collection Header Pipeline Map Number: 19 of 28		Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries																					
DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 19		Watercourse	Road Casement																						
DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		Roads	Water Casement																						
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33BWR106



**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

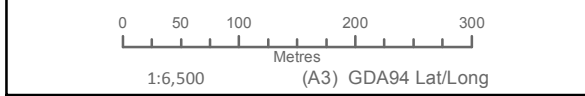
TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 20 of 28

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 20

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
(Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of  
Environment and Resource Management) 2010

Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries
Watercourse	Road Casement	
Roads	Water Casement	

DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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11/02/2011	AN	NG	Issued for use	2
25/03/2011	AN	SC	Issued for use	3



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Collection Header & KP's	Rev J	08-12-2010	Unidel



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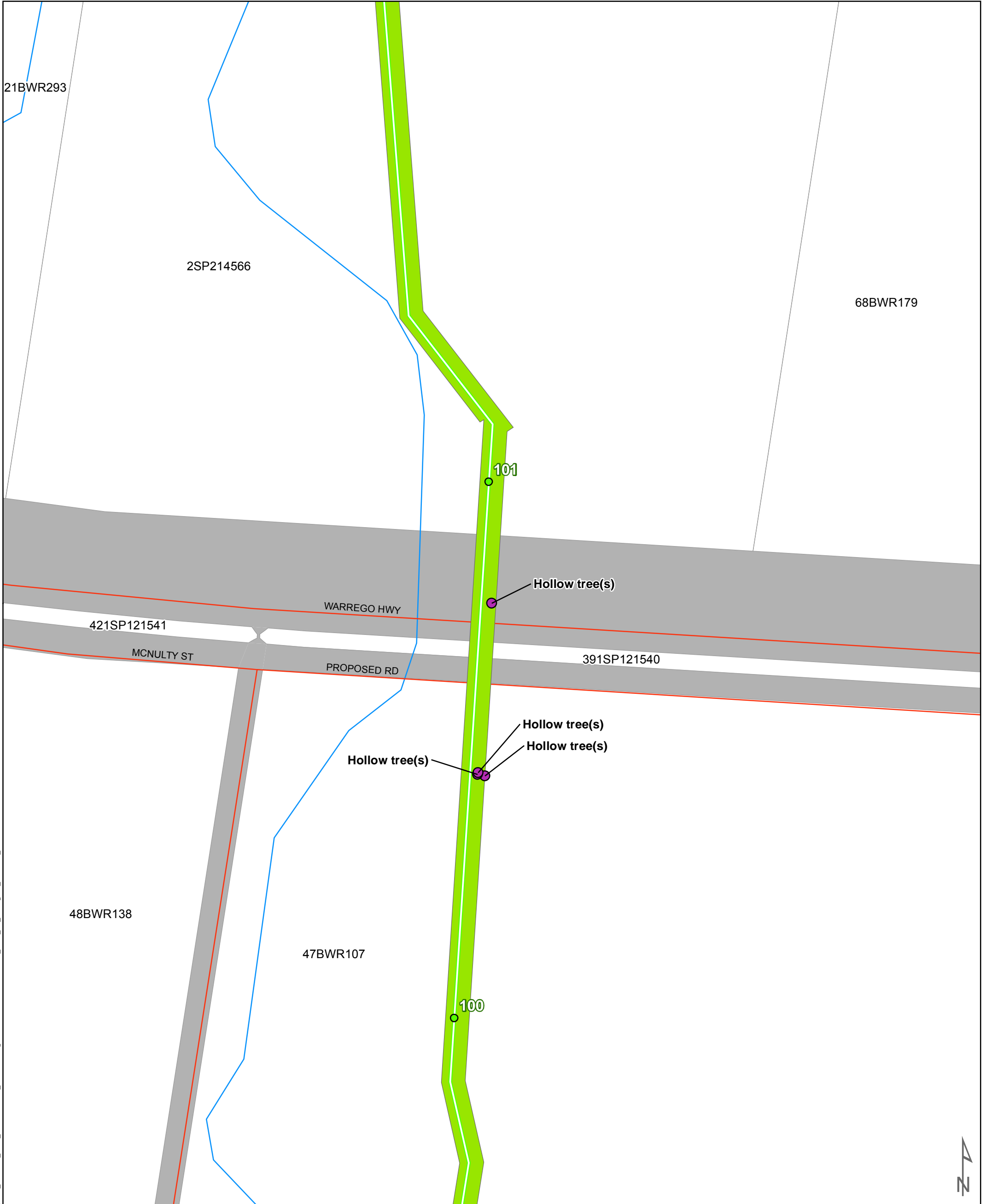
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																												
<p><b>TITLE:</b> Ecological Features Map Series Gas Collection Header Pipeline Map Number: 21 of 28</p> <p><b>DOCUMENT NO:</b> QCLNG-BG00-ENV-MAP-000017 - 21</p> <p><b>DATA SOURCE:</b> Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010</p>		<ul style="list-style-type: none"> <li><span style="color: purple;">●</span> Ecological feature</li> <li><span style="color: blue;">—</span> Watercourse</li> <li><span style="color: red;">—</span> Roads</li> <li><span style="background-color: #90EE90; border: 1px solid black; width: 20px; height: 10px; display: inline-block;"></span> GCH Construction Corridor Rev J</li> <li><span style="background-color: #cccccc; border: 1px solid black; width: 20px; height: 10px; display: inline-block;"></span> Road Casement</li> <li><span style="background-color: #add8e6; border: 1px solid black; width: 20px; height: 10px; display: inline-block;"></span> Water Casement</li> <li><span style="border: 1px solid black; width: 20px; height: 10px; display: inline-block;"></span> Cadastral Boundaries</li> </ul>																														
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**TITLE:** Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 22 of 28

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000017 - 22

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia  
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Cadastral Data © State of Queensland (Department of  
Environment and Resource Management) 2010

0 50 100 200 300  
Metres  
1:6,500 (A3) GDA94 Lat/Long

Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries
Watercourse	Road Casement	
Roads	Water Casement	

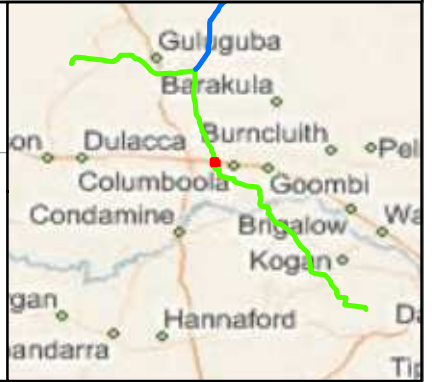
  

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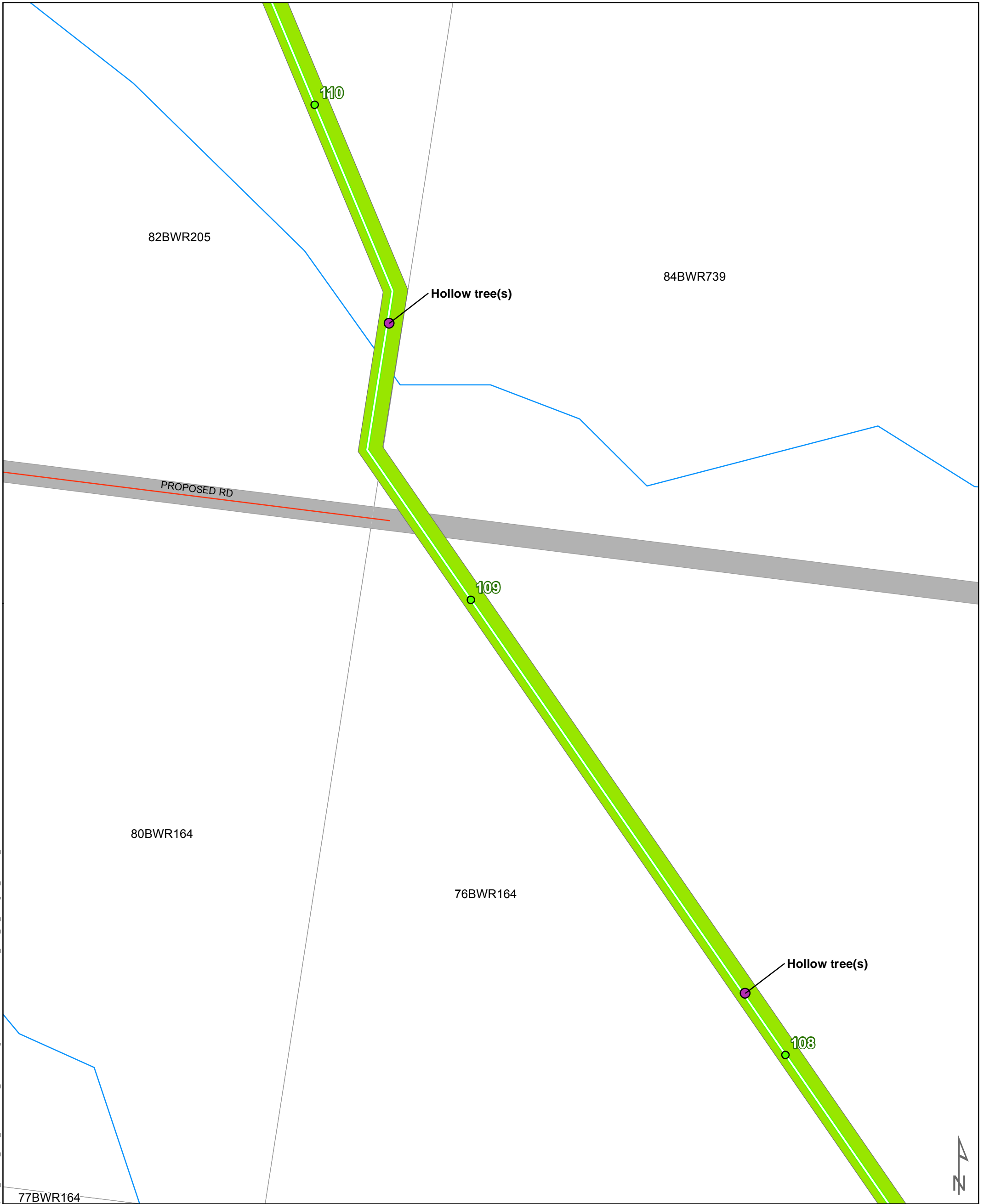
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY
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Collection Header & KP's	Rev J	08-12-2010	Unidel

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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 23 of 28

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 23

DATA SOURCE:  
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0 50 100 200 300  
Metres  
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Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries
Watercourse	Road Casement	
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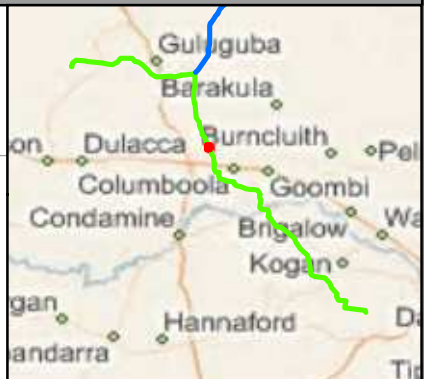
  

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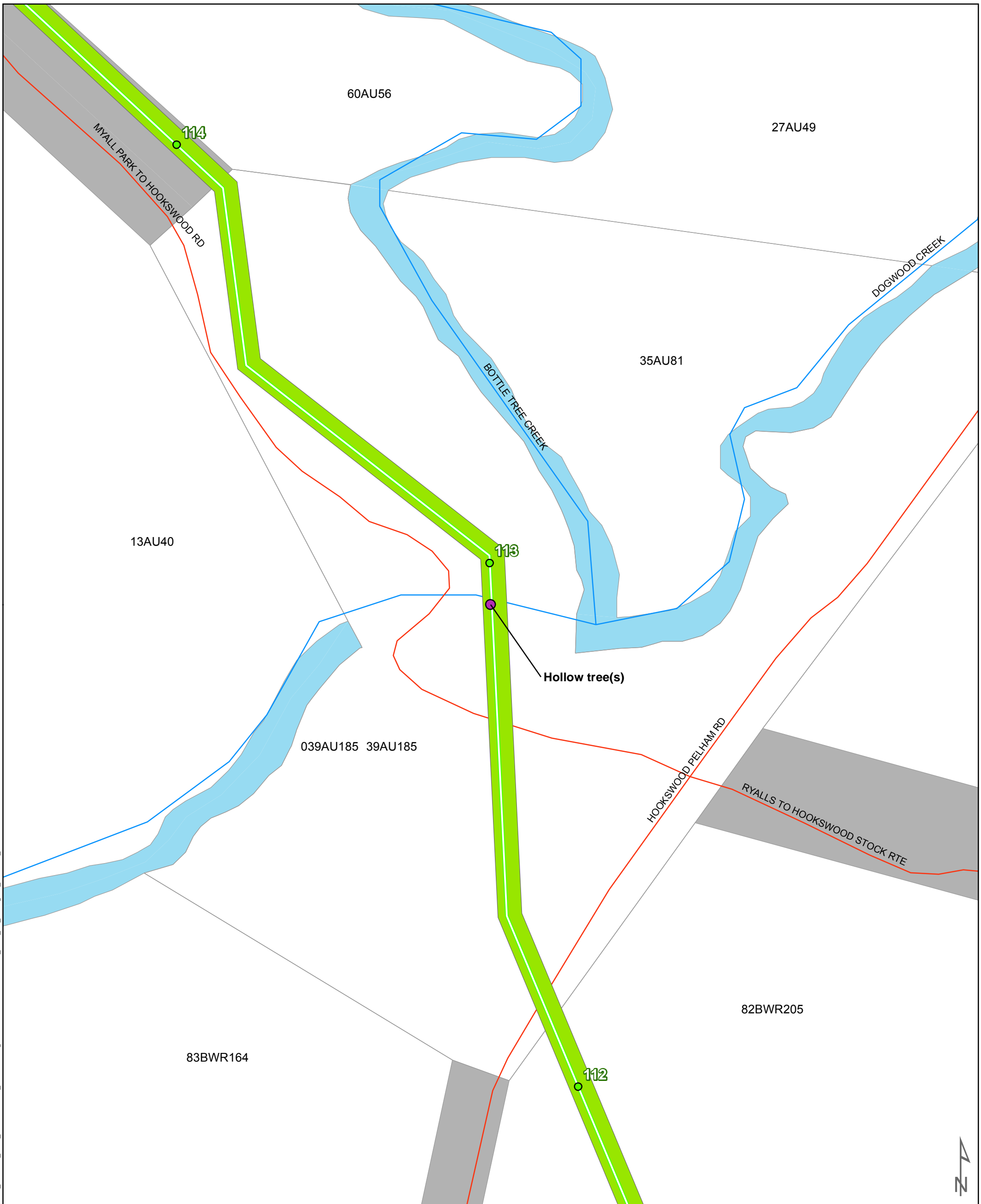
  

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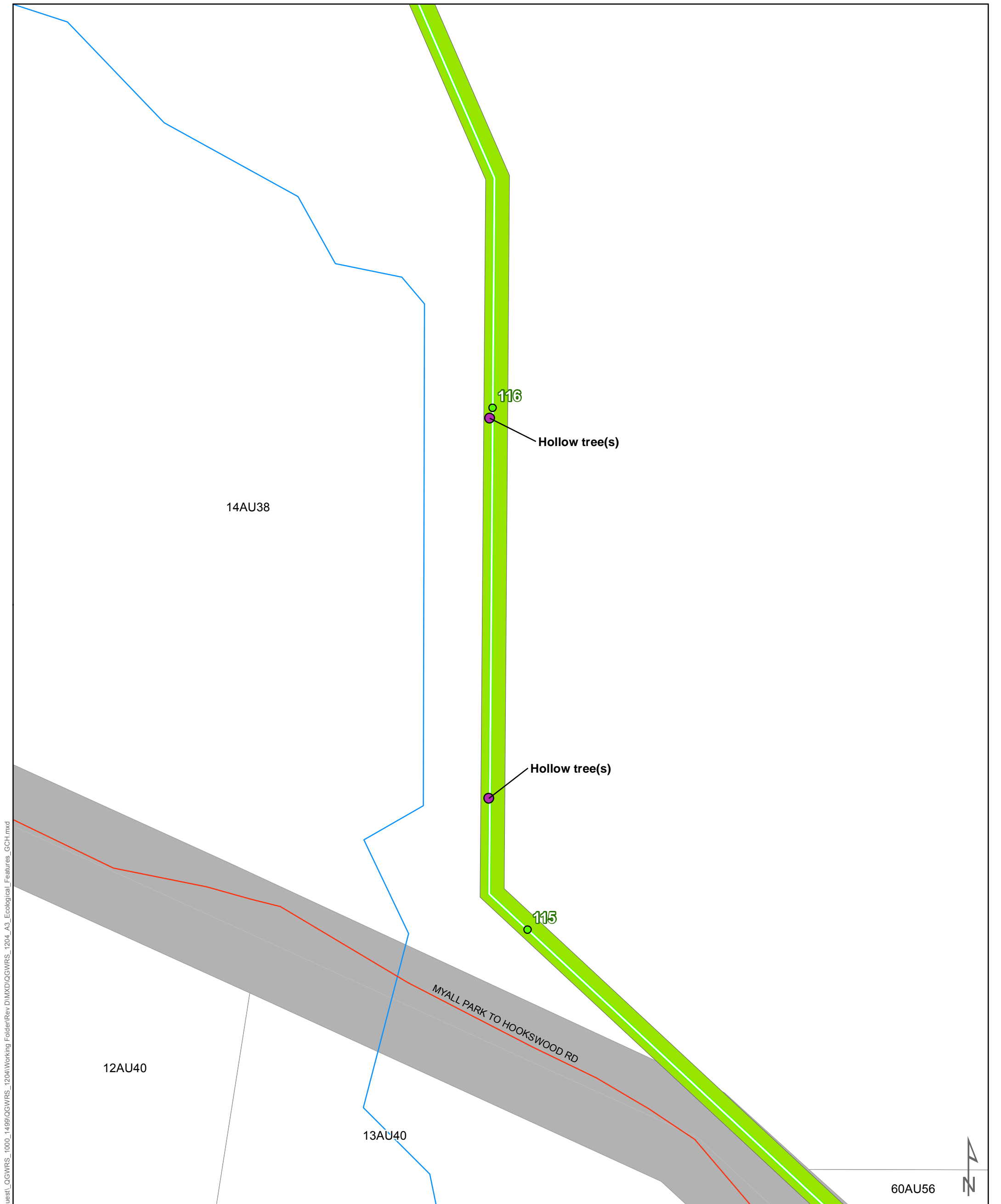
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<b>QGC PTY LTD - Queensland Curtis LNG Project</b>		<b>LEGEND</b>		<b>LOCATION DIAGRAM</b>																																
TITLE: Ecological Features Map Series Gas Collection Header Pipeline Map Number: 24 of 28		Ecological feature	GCH Construction Corridor Rev J	Cadastral Boundaries																																
DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 24		Watercourse	Road Casement																																	
DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		Roads	Water Casement	 GPO Box 3107 - Brisbane QLD 4000 p (07) 3024 9000 f (07) 3024 8999 www.qgc.com.au qgc@qgc.com.au																																
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TITLE: Ecological Features Map Series Gas Collection Header Pipeline Map Number: 25 of 28		Ecological feature Watercourse Roads	GCH Construction Corridor Rev J Road Casement Water Casement	Cadastral Boundaries																					
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DATA SOURCE: Topographic Vector Series 3 © Commonwealth of Australia (Geoscience Australia) 2006 Cadastral Data © State of Queensland (Department of Environment and Resource Management) 2010		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>PROPOSED PIPELINE ALIGNMENT</th> <th>REVISION</th> <th>DATE</th> <th>SUPPLIED BY</th> </tr> </thead> <tbody> <tr> <td> Export Pipeline &amp; KP's</td> <td>Rev K</td> <td>08-12-2010</td> <td>Unidel</td> </tr> <tr> <td> Collection Header &amp; KP's</td> <td>Rev J</td> <td>08-12-2010</td> <td>Unidel</td> </tr> </tbody> </table>		PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	Export Pipeline & KP's	Rev K	08-12-2010	Unidel	Collection Header & KP's	Rev J	08-12-2010	Unidel										
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141RP844277

1SP118157

2SP118157

TIN HUT CREEK

131 Rocky creek

Hollow tree(s)

130



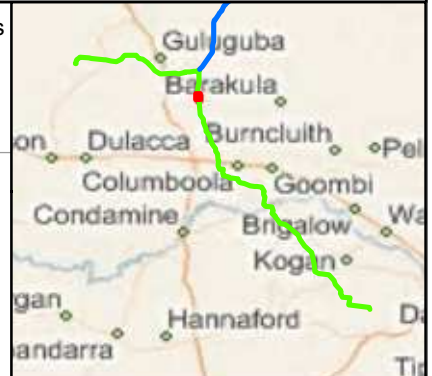
**QGC PTY LTD - Queensland Curtis LNG Project**

**LEGEND**

**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 26 of 28

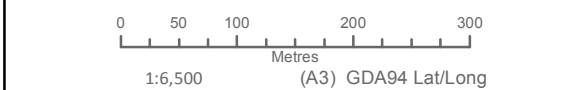
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	Watercourse		Road Casement		
	Roads		Water Casement		



DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 26

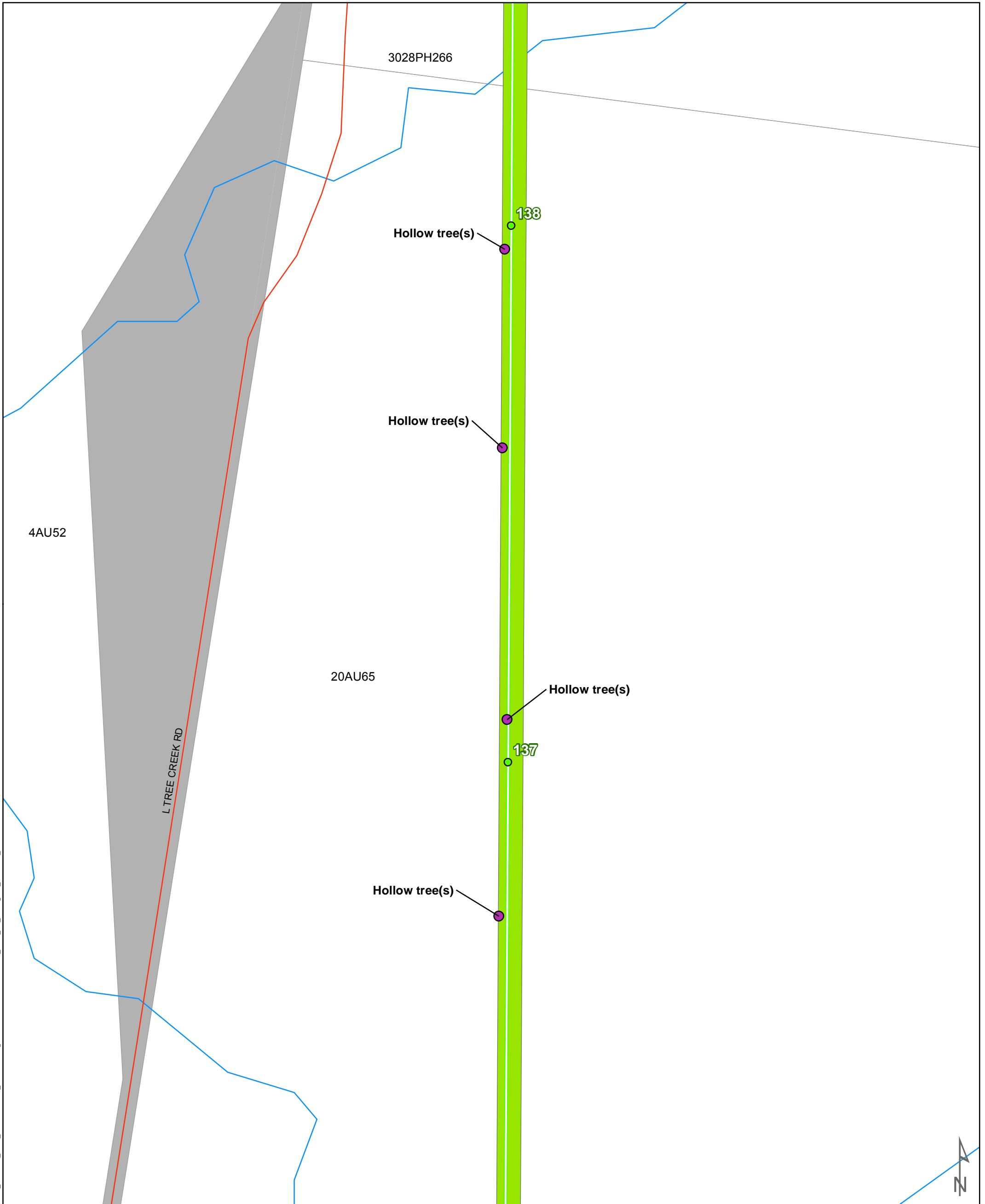
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**QGC PTY LTD - Queensland Curtis LNG Project**      **LEGEND**      **LOCATION DIAGRAM**

**TITLE:** Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 27 of 28

**DOCUMENT NO:** QCLNG-BG00-ENV-MAP-000017 - 27

**DATA SOURCE:**  
Topographic Vector Series 3 © Commonwealth of Australia  
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0 50 100 200 300  
Metres  
1:6,500 (A3) GDA94 Lat/Long

●	Ecological feature	■	GCH Construction Corridor Rev J	□	Cadastral Boundaries
—	Watercourse	■	Road Casement		
—	Roads	■	Water Casement		

DATE	AUTHOR	APPROVED	REVISION	NOTE	REV.
10/12/2010	EM	GR	Issued for use		1
11/02/2011	AN	NG	Issued for use		2
25/03/2011	AN	SC	Issued for use		3

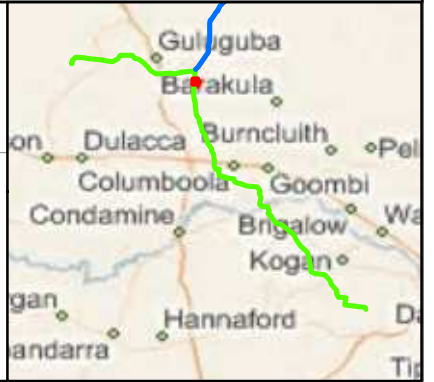
  

PROPOSED PIPELINE ALIGNMENT	REVISION	DATE	SUPPLIED BY	
●—	Export Pipeline & KP's	Rev K	08-12-2010	Unidel
●—	Collection Header & KP's	Rev J	08-12-2010	Unidel

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T:\Clients - Projects\QGC\QGC020-0-CLNG\GIS\Data\Work Request\_LQG\WRS\_1000\_1499\QGWRS\_1204\Working Folder\Rev DIMXD\QGWRS\_1204\_A3\_Ecological\_Features\_GCH.mxd

24AU146

Hollow tree(s)

142

143



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**LEGEND**

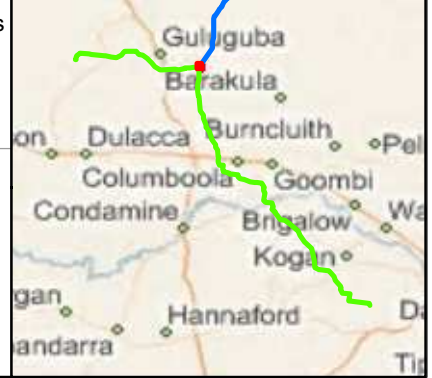
**LOCATION DIAGRAM**

TITLE: Ecological Features Map Series  
Gas Collection Header Pipeline  
Map Number: 28 of 28

DOCUMENT NO: QCLNG-BG00-ENV-MAP-000017 - 28

DATA SOURCE:  
Topographic Vector Series 3 © Commonwealth of Australia  
(Geoscience Australia) 2006  
Cadastral Data © State of Queensland (Department of  
Environment and Resource Management) 2010

	Ecological feature		GCH Construction Corridor Rev J		Cadastral Boundaries
	Watercourse		Road Casement		
	Roads		Water Casement		



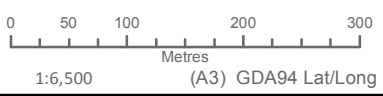
DATE	AUTHOR	APPROVED	REVISION NOTE	REV.
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