

**Aurecon Australia Pty Ltd** T +61 7 3173 8000  
 ABN 54 005 139 873 F +61 7 3173 8001  
 Level 14, 32 Turbot Street E brisbane@aurecongroup.com  
 Brisbane QLD 4000 W aurecongroup.com  
 Locked Bag 331  
 Brisbane QLD 4001  
 Australia



Roma Ecological Assessment – Project: Lot 4 on SP180954 and Lots 6 & 7 on WV435	Reference: 221708
--	-------------------

To:	Copy:	Circulate:	Name:	Organisation:	Location/Facsimile:
✓			Paul Wybrew	Santos Ltd	32 Turbot St, Brisbane
From:	Aurecon C/o Vanessa Boettcher			Date: 30 August 2011	Total pages: 6

**IMPORTANT NOTICE** The information contained in this document is CONFIDENTIAL and may also be LEGALLY PRIVILEGED, intended only for the addressee. If you are not the addressee, you are hereby notified that any use or dissemination of the information and any copying of the document is strictly prohibited. If you are not the addressee, please immediately notify us by telephone and we will arrange for the return of this document to us.

Dear Mr Wybrew

## **Grafton Range Trunkline – Addendum to Reports for Lot 4 on SP180954 and Lots 6 and 7 on WV435**

This memorandum is in relation to the ground-truthing of a section of the Grafton Range Trunkline and associated geotechnical survey locations (herein referred to as the 'proposed development area') within Lot 4 on SP180954 and Lots 6 and 7 on WV435 (Figure 1.1, page 3). Reports specific to the additional proposed developments within the aforementioned Lots have been prepared and submitted to Santos previously, with the following document reference numbers:

- Lot 4 on SP180954 – 0020-GLNG-4-1.3-0047
- Lot 6 on WV435 – 0020-GLNG-4-1.3-0042
- Lot 7 on WV435 – 0020-GLNG-4-1.3-0064

This memorandum should be treated as an addendum to the reports listed above. This document is specific to the ecology of the section of the proposed development area shown in Figure 1.1. For additional information relative to the Grafton Range Trunkline footprint located on adjacent properties, please refer to the appropriate Lot-specific report, where this information has been captured.

## **1. Grafton Range Trunkline and associated geotechnical survey locations**

### **1.1 General**

The proposed development area is located to the south of Corridor R73 and extends to the western property boundary of Lot 4 on SP180954, adjacent to the existing road reserve (Figure 1.1). The proposed development area is approximately 650 m in length and 100 m wide, with two geotechnical survey locations partially located within each of the terminal ends of the area assessed (ie RM-40 and TP-38).

The proposed development area is situated within a highly modified environment caused as a result of historical vegetation clearing and agricultural practices (including stock grazing). A property boundary fence and an existing access track traverse the majority of the length of the development area (approximately 550 m), and the remaining area has been previously cleared and is dominated by *Pennisetum ciliare* (Buffel Grass).

The site contains no canopy or sub-canopy species, and the shrub layer is considered very sparse (ie less than 5% cover of the total proposed development area). The ground cover is the dominant stratum with respect to species diversity and abundance, and is considered dense (ie 80-90% cover).

A small patch of regrowth vegetation dominated by *Acacia harpophylla* (Brigalow) extends into the northern end of proposed development area (refer to the blue shaded area on Figure 1.1). This regrowth (height range of 2-7 m) may be considered characteristic of the threatened Brigalow ecological community, and may therefore be referable under the provisions of the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act). The floristics and habitat value of this regrowth Brigalow are discussed further in following sections.

No Regional Ecosystem (RE) communities or Environmentally Sensitive Areas (ESAs) (or associated buffers) are mapped within the proposed development area. The nearest mapped ESA is located more than 2 km to the west of the proposed development area.

No mapped watercourses (Department of Environment and Resource Management [DERM]) occur within the proposed development area, with the nearest watercourse situated approximately 750 m to the west.

## 1.2 Floristics

The proposed development area lacks a canopy and sub-canopy layer, and the shrub layer is very sparse (less than 5% cover of the total area assessed). The shrub layer is dominated by *Acacia harpophylla* (Brigalow) with a height range of 2-7 m, and an average height of 3 m.

A small patch of regrowth vegetation dominated by *A. harpophylla* extends into the northern end of proposed development area (refer to the blue shaded area on Figure 1.1). The ground layer within this Brigalow regrowth is sparse and is dominated by *Heteropogon contortus* (Black Spear Grass) and a range of other native grasses. This regrowth may be considered characteristic of the threatened Brigalow ecological community, and may therefore be referable under the provisions of the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).

In the cleared/disturbed areas, the ground cover is relatively dense (80-90% cover of the total area). The ground layer species are predominantly exotic pasture grasses and weeds, with *Pennisetum ciliare* (Buffel grass) dominating the stratum. Native grass/forb species were also recorded, including *Themeda triandra* (Kangaroo Grass), *Sporobolus creber* (Western Rat's-tail Grass), and *Sclerolaena birchii* (Galvanised Burr).

No Type A restricted species were recorded within the proposed development area assessed (Figure 1.1).

A species list for this proposed development area is provided in the Attachment on page 5.

## 1.3 Habitat values

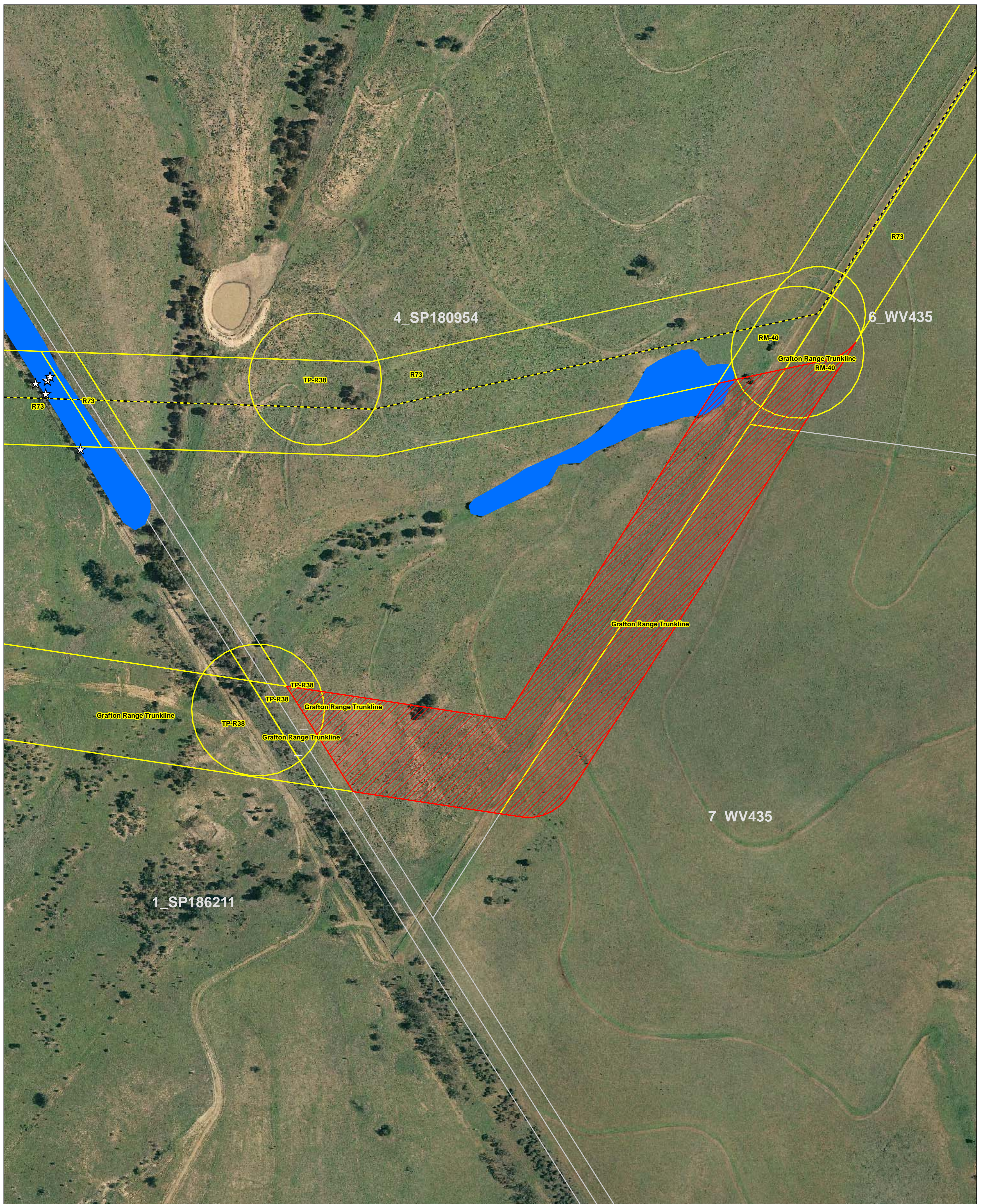
No incidental fauna species were recorded during this survey and, subsequently, no conservation significant fauna species (as listed under the provisions of the EPBC Act and/or the Nature Conservation Act 1992 [NC Act]) were recorded during field investigations.

The proposed development area contains limited woody vegetation and has been extensively disturbed as a result of historical clearing, stock grazing and the invasion of exotic pasture species.

Habitat features associated with the proposed development are therefore typically limited to dense groundcover vegetation (ie grassy tussocks) and woody debris (ie fallen/felled timber). As a result, the habitat value of the proposed development area is considered low, overall.

Accordingly, the species utilising resources in the proposed development area shown in Figure 1.1 are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (ie House mouse [*Mus musculus*], common macropods). Common birds of prey (eg Nankeen Kestrel [*Falco cenchroides*], Black Kite [*Milvus migrans*]) are also expected to utilise this site and the surrounding areas for foraging purposes.





Map by: PIC P:\GIS\Projects\215648\_Fairview\_Eco\_Assessment\215648\_Fairview\_076.mxd 01/09/2011 16:10

**Legend**

- |                             |   |                           |
|-----------------------------|---|---------------------------|
| Additional Areas Assessed   | <i>Acacia harpophylla</i> (Includes Regrowth) | <b>Regional Ecosystem</b> |
| EVNT and Type A Species     | <b>ESA Mapping (Including Buffer Areas)</b>   | Endangered - Dominant     |
| Corridors - Ground Truth    | Category A                                    | Endangered - Sub-dominant |
| Additional Geotech Borehole | Category B                                    | Of Concern - Dominant     |
| Cadastre                    | Category C                                    | Of Concern - Sub-dominant |
| Watercourse                 |   | Least Concern             |

Source:  
Cadastre: DERM, 2011.  
Regional Ecosystems: Version 6, The State of Queensland  
(Department of Environment and Resource Management),  
Nov 2009.



A1 scale: 1:2,000  
0 25 50 100 150 Meters

Date: 01/09/2011 Version: 1 Job No: 215648  
Coordinate system: GDA\_1994\_MGA\_Zone\_55

**Santos Upstream Ecological Assessment**

**Figure 1-1: Location of Additional Investigation Areas**



Family name	Scientific name	Common name	Notes
Amaranthaceae	<i>Alternanthera nodiflora</i>	Common Joy Weed	
Asteraceae	<i>Bidens pilosa</i>	Cobblers Pegs	
Asteraceae	<i>Brachycome dentata</i>	Lobe-seed Daisy	
Asteraceae	<i>Bracteantha bracteata</i>	Everlasting Daisy	
Asteraceae	<i>Calotis cuneifolia</i>	Purple Burr Daisy	
Asteraceae	<i>Calotis lappulacea</i>	Yellow Burr Daisy	
Asteraceae	<i>Calotis multicaulis</i>	Woolly Head Burr daisy	
Asteraceae	<i>Cirsium vulgare</i>	Spear Thistle, Black Thistle	
Asteraceae	<i>Conyza bonariensis</i>	Fleabane	
Asteraceae	<i>Pterocaulon redolens</i>		
Asteraceae	<i>Xanthium occidentale</i>	Noogoora Burr	
Cactaceae	<i>Opuntia stricta</i>	Prickly Pear	LP Act Class 2 Weed
Capparaceae	<i>Capparis loranthifolia</i>	Nipan, Wait a while	
Chenopodiaceae	<i>Chenopodium album</i>	Fat Hen	
Chenopodiaceae	<i>Chenopodium carinatum</i>	Keeled Goosefoot	
Chenopodiaceae	<i>Chenopodium desertorum</i>	Desert Goosefoot	
Chenopodiaceae	<i>Maireana microphylla</i>	Small-leaf Bluebush	
Chenopodiaceae	<i>Maireana villosa</i>	Silky Bluebush	
Euphorbiaceae	<i>Chamaesyce drummondii</i>	Caustic Weed	
Fabaceae - Faboideae	<i>Desmodium varians</i>	Tree Foil	
Fabaceae - Faboideae	<i>Medicago polymorpha</i>	Burr Medic	
Fabaceae - Mimosoideae	<i>Acacia harpophylla</i>	Brigalow	
Goodeniaceae	<i>Goodenia rotundifolia</i>	Goodenia	
Malvaceae	<i>Abutilon oxycarpum</i>	Chinese Lantern	
Malvaceae	<i>Malva parviflora</i>	Small-flowered Mallow	
Malvaceae	<i>Sida retusa</i>	Golden Sida	
Malvaceae	<i>Sida rhombifolia</i>	Paddy's Lucerne	
Malvaceae	<i>Sida spinosa</i>	Spiny Sida	
Myrsinaceae	<i>Anagallis arvensis</i>	Scarlet Pimpernel	
Plantaginaceae	<i>Plantago cunninghamii</i>	Plantago	
Poaceae	<i>Aristida calycina</i>	Dark Wiregrass	
Poaceae	<i>Aristida caput medusae</i>	Curly Head Wire Grass	
Poaceae	<i>Aristida jerichoensis</i>	Jericho Wire grass	

Poaceae	<i>Aristida personata</i>	Spear Grass	
Poaceae	<i>Austrostipa verticillata</i>	Slender Bamboo Grass	
Poaceae	<i>Bothriochloa ewartiana</i>	Desert Blue Grass	
Poaceae	<i>Chloris pectinata</i>	Comb Chloris	
Poaceae	<i>Cynodon dactylon</i>	Green Couch	
Poaceae	<i>Dichanthium sericeum</i>	Queensland Blue Grass	
Poaceae	<i>Eragrostis brownii</i>	Browns Lovegrass	
Poaceae	<i>Eragrostis fallax</i>	Tall Lovegrass	
Poaceae	<i>Eragrostis lacunaria</i>	Tall Lovegrass	
Poaceae	<i>Eragrostis sororia</i>	Blue Eragrostis	
Poaceae	<i>Eriachne ciliata</i>	Slender Wanderrie	
Poaceae	<i>Melinis natal</i>	Red Natal	
Poaceae	<i>Panicum buncei</i>	Native Panic	
Poaceae	<i>Panicum decompositum</i>	Hairy Panic	
Poaceae	<i>Panicum laevinode</i>	Panic Grass	
Poaceae	<i>Paspalidium distans</i>	Paspalidium	
Poaceae	<i>Sporobolus caroli</i>	Desert Sporobolus	
Polygonaceae	<i>Emex australis</i>	Spiny Emex	
Portulacaceae	<i>Portulaca oleracea</i>	Pig Weed	
Solanaceae	<i>Solanum americanum</i>	American Nightshade	
Solanaceae	<i>Solanum brownii</i>	Violet Nightshade	
Solanaceae	<i>Solanum parviflora</i>		
Sterculiaceae	<i>Keraudrenia nephrosperma</i>	Keraudrenia	
Thymelaeaceae	<i>Pimelea linifolia</i>	Slender Rice-flower	
Verbenaceae	<i>Verbena aristigera</i>	Fine Leaf Verbena	
Verbenaceae	<i>Verbena bonariensis</i>	Bunchy Verbena, Purpletop Verbena	
Verbenaceae	<i>Verbena officinalis</i>	Common Verbena, Native Verbena	
Violaceae	<i>Viola hederacea</i>	Native Viola	

Notes <sup>1</sup> – Taxonomic classifications, nomenclature and naturalised status of species is derived from the Census of Queensland Flora 2010

LP Act – Land Protection (Pest and Stock Route Management) Act 2002