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Project: Roma Ecological Assessment Report – Geotechnical Site Scout

Reference: 221708

To: Copy: Circulate: Name:

Organisation:

Location/Facsimile:

✓			Paul Wybrew	Santos Ltd	32 Turbot St, Brisbane
From: Aurecon C/o Jane Stark			Date: 16 November 2011		Total pages: 9

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Dear Mr Wybrew

## Roma Ecological Assessment Report – Geotechnical Site Scout

This memo is in relation to the ground-truthing of the proposed geotechnical sites Grafton Range-19 (GR-19), Grafton Range-21 (GR-21), and TP-R37 (from herewith referred to as the 'proposed development areas') that occur within Lot 2 on SP1866211. A specific Lot 1&2 on SP1866211 Ecological Assessment Report has been completed previously (Santos document control id: 0020-glng-4-1-3-0109) and this memo is an addendum to that report. This memo only relates to aforementioned geotechnical sites. Geotechnical Site Grafton Range-19

## General

This proposed development area is situated at the junction of Corridor R71 and the Grafton Range Trunkline, within Lot 2 on SP186211 (Figure 1).

This proposed development area is considered a modified environment, as a result of land clearing associated with grazing activities and the construction of internal access tracks. At the time of inspection, this proposed development area had been recently burnt. As a result, both the shrub and ground stratum within this proposed development area are considered sparse (~10% and 30%, respectively). The canopy cover represented approximately 5% of the vegetation within this proposed development area.

DERM RE mapping (version 6.1) indicates that non-remnant vegetation occurs within the entire footprint of the proposed development area (Figure 1). Upon inspection, it has been concluded that RE mapping is accurate.

Nine (9) Type A restricted species (under the provisions of the NC Act) were detected within the proposed development area, ie *Brachychiton rupestris* (Narrow-leaved bottle trees) and *Brachychiton populneus* (Kurrajong) (Figure 1). The locations of these individuals are presented in Table 1.

No other species of conservation significance (under the provisions of the EPBC Act or NC Act) were detected during targeted searches within the proposed development area.

No ESAs have been mapped within the proposed development area. The closest ESA mapping (Category B) occurs approximately 640 m to the north-east, in association with an Endangered sub-dominant RE community (RE11.9.4a/11.8.3).

No mapped watercourses occur within the proposed development area. The closest watercourse (stream order 1) is located approximately 1.2 km to south-east of the proposed development area.

**Table 1** Location of Type A Restricted Plants (NC Act) within Geotechnical Site Grafton Range 19 Proposed Development Area

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton rupestris</i>	693510	7079111
<i>Brachychiton populneus</i>	693436	7079110
<i>Brachychiton rupestris</i>	693381	7079156
<i>Brachychiton rupestris</i>	693362	7079137
<i>Brachychiton rupestris</i>	693356	7079120
<i>Brachychiton rupestris</i>	693308	7079080
<i>Brachychiton populneus</i>	693388	7079073
<i>Brachychiton populneus</i>	693400	7079071
<i>Brachychiton rupestris</i>	693413	7078947

## Floristics

Indicative species recorded within the sparse canopy layer includes *Allocasuarina luehmannii* (Bull oak), *Corymbia tessellaris* (Moreton Bay ash), *Eucalyptus chloroclada* (Dirty gum), *Geijera parviflora* (Wilga), *Brachychiton rupestris* (Narrow-leaved bottle tree) and *Brachychiton populneus* (Kurrajong).

The sparse shrub layer recorded within this proposed development area is represented by *Acacia harpophylla* (Brigalow), *Alstonia constricta* (Bitterbark), *Atalaya hemiglauca* (White wood), *Carissa ovata* (Currant bush), *Geijera parviflora* (Wilga), *Pittosporum spinescens* (Wallaby apple), and *Alectryon diversifolius* (Scrub boonaree).

The dense ground-cover is represented by a number of native and exotic species, namely *Pennisetum ciliare* (Buffel grass), *Sclerolaena birchii* (Galvanised burr), *Verbena tenuisecta* (Mayne's curse), *Sida subspicata* (Queensland hemp), *Sporobolus creber* (Western rat's tail grass), *Senecio lautus* (Fire weed), *Medicago polymorpha* (Burr medic), *Cheilanthes sieberi* (Mulga fern) and *Indigofera spicata* (Creeping indigo).

A species list for this proposed development area is provided in Table 4.

## Habitat values

The proposed development area contains limited woody vegetation and has been extensively disturbed by grazing stock, historical clearing, and recent fire. Habitat features associated with the proposed development area are therefore typically limited to sparse canopy and ground cover vegetation (ie grassy tussocks) with few shrubs. As a result, the habitat value of this survey area is considered low, overall.

Accordingly, the species utilising resources in the proposed development region are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (ie House mouse [*Mus musculus*], macropods etc). Common birds of prey known from the area (ie

Wedge-tailed eagle [*Aquila audax*] and Nankeen kestrel [*Falco cenchroides*] would also be expected to utilise this site and the surrounding areas for foraging purposes.

Three (3) incidental fauna species were recorded during surveys of the proposed development area, namely Crested pigeon (*Ocyphaps lophotes*), Pretty face wallaby (*Macropus parryi*), and Noisy miner (*Manorina melanocephala*). These species are classified as Least Concern under the provisions of the NC Act, and are not listed under the provisions of the EPBC Act. No conservation significant fauna species (under the provisions of the EPBC Act and/or NC Act) were detected during field investigations.

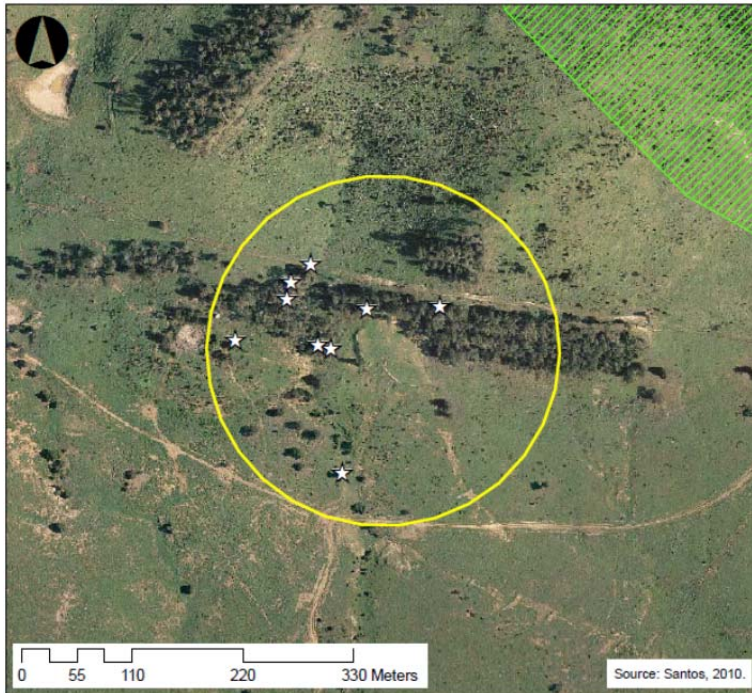


Figure 1 Geotechnical Site Grafton Range 19 Proposed Development Area

## Geotechnical Site Grafton Range-21

### General

This proposed development area is situated at the terminus of proposed Corridor R71, within Lot 2 on SP1866211 (Figure 2).

This proposed development area is considered a highly modified environment, as a result of land clearing and current land-use. As a result, both canopy and shrub strata are considered very sparse (~1-2%). The ground cover is considered dense (~95%).

DERM RE mapping (version 6.1) indicates that non-remnant vegetation occurs within the entire footprint of the proposed development area (Figure 2). Upon inspection, it has been concluded that RE mapping is accurate.

Two (2) Type A restricted species (under the provisions of the NC Act) were detected within the proposed development area, ie *Brachychiton rupestris* (Narrow-leaved bottle trees) and *Brachychiton populneus* (Kurrajong) (Figure 2). The locations of these individuals are presented in Table 2

No other species of conservation significance (under the provisions of the EPBC Act or NC Act) were detected during targeted searches within the proposed development area.

No ESAs have been mapped within the proposed development area. The closest ESA mapping (Category B) occurs approximately 180 m to the south-west, in association with an Endangered sub-dominant RE community (RE11.9.4a/11.8.3).

No mapped watercourses occur within the proposed development area. The closest watercourse (stream order 1) is located approximately 1.2 km to south-east of the proposed development area.

**Table 2** Location of Type A Restricted Plants (NC Act) within Geotechnical Site Grafton Range 21 Proposed Development Area

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	55S692846	7078143
<i>Brachychiton rupestris</i>	55S692880	7078145

## Floristics

The sparse canopy stratum is represented by *Allocasuarina luehmannii* (Bull oak), with individual *Brachychiton rupestris* (Narrow-leaved bottle tree) and *Brachychiton populneus* (Kurrajong) also present. Whilst the sparse shrub layer is represented by a more diverse array of species including *Alstonia constricta* (Bitterbark), *Allocasuarina luehmannii* (Bull oak), *Eremophila mitchelli* (False sandalwood), *Geijera parviflora* (Wilga), *Bursaria spinosa* (Prickly pine), *Pittosporum spinescens* (Wallaby apple), and *Petalostigma pachyphyllum* (Smooth quinine).

Indicative ground cover species include *Pennisetum ciliare* (Buffel grass), *Verbena tenuisecta* (Mayne's curse), *Sida rhombifolia* (Paddy's lucerne), *Sida subspicata* (Queensland hemp), *Senecio lautus* (Fire weed), *Medicago polymorpha* (Burr medic), *Cheilanthes sieberi* (Mulga fern) and *Indigofera spicata* (Creeping indigo).

A species list for this proposed development area is provided in Table 4.

## Habitat values

The proposed development area contains limited woody vegetation and has been extensively disturbed by grazing stock, historical clearing, and current land-use practices. Habitat features associated with the proposed development area are therefore typically limited to ground cover vegetation (ie grassy tussocks) with few shrubs. As a result, the habitat value of this survey area is considered very low, overall.

Accordingly, the species utilising resources in the proposed development region are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (ie House mouse [*Mus musculus*], macropods etc). Common birds of prey known from the area (ie Wedge-tailed eagle [*Aquila audax*] and Nankeen kestrel [*Falco cenchroides*]) would also be expected to utilise this site and the surrounding areas for foraging purposes.

No incidental fauna species were recorded during surveys of the proposed development area. Accordingly, no conservation significant fauna species (under the provisions of the EPBC Act and/or NC Act) were detected during field investigations.



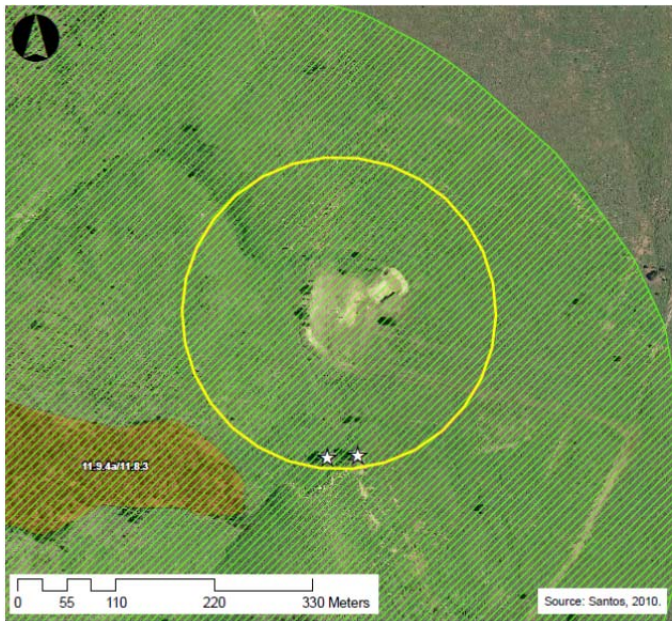


Figure 2 Geotechnical Site GR-21 Proposed Development Area

## Geotechnical Site TP-R37

### General

This proposed development area is situated within the proposed Grafton Range Trunkline, on Lot 2 on SP186211 (Figure 3).

This proposed development area is considered a highly modified environment, as a result of land clearing and current agricultural grazing practices. As a result, mature canopy cover is considered very sparse (~1%), and the shrub layer is considered sparse (~5%). The ground cover is the dominant stratum within the proposed development area, and is considered dense (~90%).

DERM RE mapping (version 6.1) indicates that non-remnant vegetation occurs within the entire footprint of the proposed development area (Figure 3). Upon inspection, it has been concluded that RE mapping is accurate.

Two (2) Type A restricted species (under the provisions of the NC Act) were detected within the proposed development area, ie *Brachychiton rupestris* (Narrow-leaved bottle trees) (Figure 3). The locations of these individuals are presented in Table 3. Furthermore, a number of *B. rupestris* occur surrounding the proposed development area, within the Grafton Range Trunkline (Figure 3).

No other species of conservation significance (under the provisions of the EPBC Act or NC Act) were detected during targeted searches within the proposed development area.

No ESAs have been mapped within the proposed development area. The closest ESA mapping (Category B) occurs approximately 950 m to the south-west, in association with an Endangered sub-dominate RE community (RE11.9.4a/11.8.3).

No mapped watercourses occur within the proposed development area. The closest watercourse (stream order 1) is located approximately 840 m to south-west of the proposed development area.

**Table 0.1** Location of Type A Restricted Plants (NC Act) within Geotechnical Site TP-R37 Proposed Development Area

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton rupestris</i>	55S694960	7078890
<i>Brachychiton rupestris</i>	55S694901	7078898

## Floristics

The very sparse canopy layer is represented by one species, namely *Eucalyptus populnea* (Poplar box).

The sparse shrub layer recorded within this proposed development area is represented by *Acacia harpophylla* (Brigalow), *Alstonia constricta* (Bitterbark), *Atalaya hemiglauca* (White wood), *Carissa ovata* (Currant bush), *Geijera parviflora* (Wilga), *Pittosporum spinescens* (Wallaby apple), and *Alectryon diversifolius* (Scrub boonaree).

The dense ground-cover is represented by a number of native and exotic species, namely *Pennisetum ciliare* (Buffel grass), *Sclerolaena birchii* (Galvanised burr), *Verbena tenuisecta* (Mayne's curse), *Sida subspicata* (Queensland hemp), *Sporobolus creber* (Western rat's tail grass), *Senecio lautus* (Fire weed), *Medicago polymorpha* (Burr medic), *Cheilanthes sieberi* (Mulga fern) and *Indigofera spicata* (Creeping indigo).

A species list for this proposed development area is provided in Table 4.

## Habitat values

The proposed development area contains limited woody vegetation and has been extensively disturbed by grazing stock, historical clearing, and current land-use practices. Habitat features associated with the proposed development area are therefore typically limited to ground cover vegetation (ie grassy tussocks) with few shrubs. As a result, the habitat value of this survey area is considered very low, overall.

Accordingly, the species utilising resources in the proposed development region are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (ie House mouse [*Mus musculus*], macropods etc). Common birds of prey known from the area (ie Wedge-tailed eagle [*Aquila audax*] and Nankeen kestrel [*Falco cenchroides*]) would also be expected to utilise this site and the surrounding areas for foraging purposes.

Two incidental fauna species were recorded during surveys of the proposed development area, namely Turquoise parrot (*Neophema pulchella*) and Galah (*Eolophus roseicapilla*). These species are listed under the provisions of the NC Act as Least Concern, and are not listed under the provisions of the EPBC Act. Thus, no conservation significant fauna species (under the provisions of the EPBC Act and/or NC Act) were detected during field investigations.

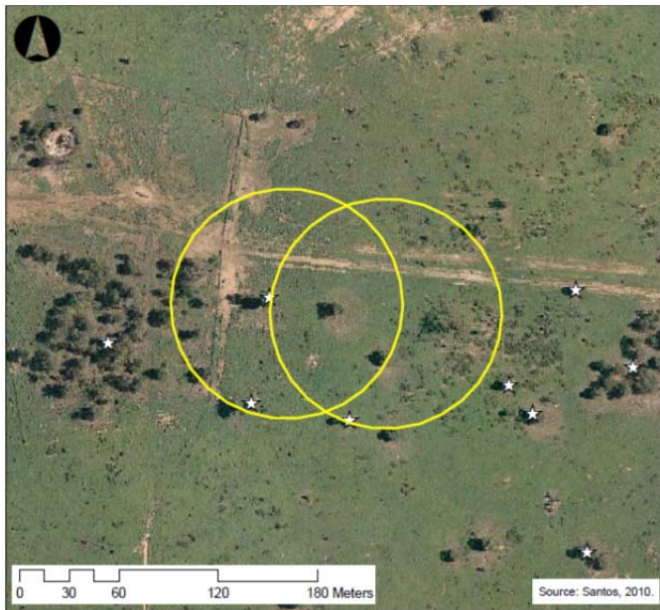


Figure 3 Geotechnical Site TP-R37 Proposed Development Area

## Botanical Species List

Table 4 Botanical species lists for Campo Santo and Geotech TP-F034 Proposed development areas

Family Name	Scientific Name	Common Name	Proposed Development Area		
			GR-21	RM-37/TP-R37	GR-19
Adiantaceae	<i>Cheilanthes sieberi</i>	Mulga Fern			
Amaranthaceae	<i>Alternanthera pungens</i>	Kaki Burr			
Apocynaceae	<i>Alstonia constricta</i>	Bitter Bark			
Apocynaceae	<i>Carissa ovata</i>	Currant Bush			
Apocynaceae	<i>Parsonsia lanceolata</i>	Monkey Rope			
Asteraceae	<i>Brachyscome dentata</i>	Lobe-seed Daisy			
Asteraceae	<i>Calotis cuneifolia</i>	Purple Burr Daisy			
Asteraceae	<i>Cirsium vulgare</i>	Spear Thistle, Black Thistle			
Asteraceae	<i>Pycnosorus globosus</i>	Drumstick/ Billybuttons			
Asteraceae	<i>Senecio lautus</i>	Fire Weed			
Asteraceae	<i>Sonchus oleraceus</i>	Sow Thistle			
Brassicaceae	<i>Lepidium sagittulatum</i>	Pepper Cress			
Brassicaceae	<i>Sisymbrium thellungii</i>	African Turnip Weed			

Family Name	Scientific Name	Common Name	Proposed Development Area		
			GR-21	RM-37/TP-R37	GR-19
Cactaceae	<i>Opuntia tomentosa</i>	Velvety Tree Pear			
Campanulaceae	<i>Wahlenbergia gracilis</i>	Sprawling Bluebell			
Capparaceae	<i>Apophyllum anomalum</i>	Warrior bush			
Capparaceae	<i>Capparis loranthifolia</i>	Nipan, Wait a while			
Casuarinaceae	<i>Allocasuarina leuhmannii</i>	Bull Oak			
Chenopodiaceae	<i>Maireana microphylla</i>	Small-leaf Bluebush			
Chenopodiaceae	<i>Sclerolaena birchii</i>	Galvanised Burr			
Fabaceae - Faboideae	<i>Indigofera spicata</i>	Creeping Indigo, Purple Indigo			
Fabaceae - Faboideae	<i>Medicago polymorpha</i>	Burr Medic			
Loranthaceae	<i>Dendrophthoe glabrescens</i>	Orange mistletoe			
Malvaceae	<i>Abutilon malvifolium</i>	Chinese Lantern			
Malvaceae	<i>Sida rhombifolia</i>	Paddy's Lucerne			
Malvaceae	<i>Sida subspicata</i>	Queensland Hemp			
Mimosaceae	<i>Acacia harpophylla</i>	Brigalow			
Mimosaceae	<i>Acacia macradenia</i>	Zigzag Wattle			
Myoporaceae	<i>Eremophila longifolia</i>	Creek Wilga			
Myoporaceae	<i>Eremophila mitchellii</i>	False Sandalwood			
Myrtaceae	<i>Corymbia tessellaris</i>	Moreton Bay Ash			
Myrtaceae	<i>Eucalyptus chloroclada</i>	Dirty Gum			
Myrtaceae	<i>Eucalyptus populnea</i>	Poplar Box			
Picrodendraceae	<i>Petalostigma pachyphyllum</i>	Smooth Quinine			
Pittosporaceae	<i>Bursaria spinosa</i>	Prickly Pine			
Pittosporaceae	<i>Pittosporum spinescens</i>	Wallaby Apple			
Poaceae	<i>Aristida caput-medusae</i>	Curly Head Wire Grass			
Poaceae	<i>Austrostipa verticillata</i>	Slender Bamboo Grass			



Family Name	Scientific Name	Common Name	Proposed Development Area		
			GR-21	RM-37/TP-R37	GR-19
Poaceae	<i>Pennisetum ciliare</i>	Buffel Grass			
Poaceae	<i>Sporobolus creber</i>	Western Rats Tail Grass			
Rutaceae	<i>Geijera parviflora</i>	Wilga			
Sapindaceae	<i>Alectryon diversifolius</i>	Scrub Boonaree			
Sapindaceae	<i>Atalaya hemiglauca</i>	Whitewood			
Sterculiaceae	<i>Brachychiton rupestris</i>	Narrow Leaved Bottle Tree			
Verbenaceae	<i>Verbena officinalis</i>	Common Verbena, Native Verbena			
Verbenaceae	<i>Verbena tenuisecta</i>	Mayne's Curse			