

QUALITATIVE AGRICULTURAL LAND ASSESSMENT

Smoky Creek Solar Farm



Client: RPS Australia East Pty Ltd

Range Environmental Consultants
266 Margaret Street
Toowoomba Q 4350
T 07 4620 0148
E admin@rangeenviro.com.au

Project Number: J000209
Status: Final
Date: 16/05/2019



Important Note

We have prepared this report for the sole purposes of **RPS Australia East Pty Ltd** (the Client) for the specific purpose for which it is supplied (the Purpose). This report is strictly limited for use by the client for the purpose and the facts and matters stated in it and it shall not be used directly or indirectly for any other use.

Third parties may not rely on this report. Range Environmental Consultants waives all liability to any third party loss, damage, liability or claim arising out of or incidental to a third party publishing, using or relying on the facts, content, opinions or subject matter contained in this report.

We have assumed that all information provided to us by the Client or other third parties which was relied upon, wholly or in part in reporting, was complete, current and accurate at the time of supply. Range Environmental Consultants waives all responsibility for any loss or damage relating to the accuracy, currency and completeness of information provided by the Client or other third parties.

This report and all its components is copyright. All enquiries regarding this report shall be directed to Range Environmental Consultants.

Document Version Register

Version	Purpose	Lead Author	Reviewer	Approved for Issue	
				Approver	Date
1	Final	RJM	LMT	LMT	16/05/2019

Contents

1. Introduction.....	1
2. Project Overview.....	3
3. Method.....	5
4. Review of Mapped Agricultural Land Classes.....	6
4.1 Mapped ALC Classes	6
4.2 Soils	8
4.3 Landholder Evidence	11
4.3.1 Landholder - Geoff Maynard	11
4.3.2 Landholder - David Dunn.....	11
4.3.3 Landholder - Tony Fenech.....	12
4.3.4 Synthesis	12
4.4 Summary of Mapped ALC Review	13
5. Co-existence of Agricultural Uses and Solar Farm Operations at the Site.....	14
6. Potential Agricultural Impacts and Mitigation Measures	15
7. Assessment Against Overlay Code	19
8. Summary	23
9. References	24

Figures

Figure 1 Site Locality	2
Figure 2 Proposed lease areas.....	4
Figure 3 ALC Overlay Map (ECRES-1).....	7
Figure 4 Soils in Lease Areas	10

Tables

Table 1 Development details	3
Table 2 Mapped ALC within the proposed extent of built infrastructure footprint	6
Table 3 Cropping limitations of main soils in in the solar farm lease area mapped as ALC A.....	8
Table 4 Potential impacts and mitigation measures.....	15
Table 5 Banana Shire Council Economic Resources Overlay	20



Appendices

Appendix A: Site PlansA.1

1. Introduction

Range Environmental Consultants (Range Environmental) was engaged by RPS Australia East Pty Ltd (RPS) on behalf of Edify Energy Pty Ltd to conduct a qualitative agricultural land assessment for the proposed Smoky Creek Solar Farm at the following combined address which are hereafter referred to as 'the site' (Figure 1):

- Street address - 480 Tomlins Road, Goovigen, Lot 28 Tomlins Road, Dixalea, Lot 18 Dodsons Road, Dixalea, Lot 37 Hibbs Road, Goovigen, 460 Dodsons Road, Ulogie and Lot 33 Dodsons Road, Ulogie.
- Real property description - Lot 39 RN395, Lot 28 RN211, Lot 18 RN271, Lot 37 RN1147, Lot 29 RN210, Lot 32 RN194 and Lot 33 RN210.

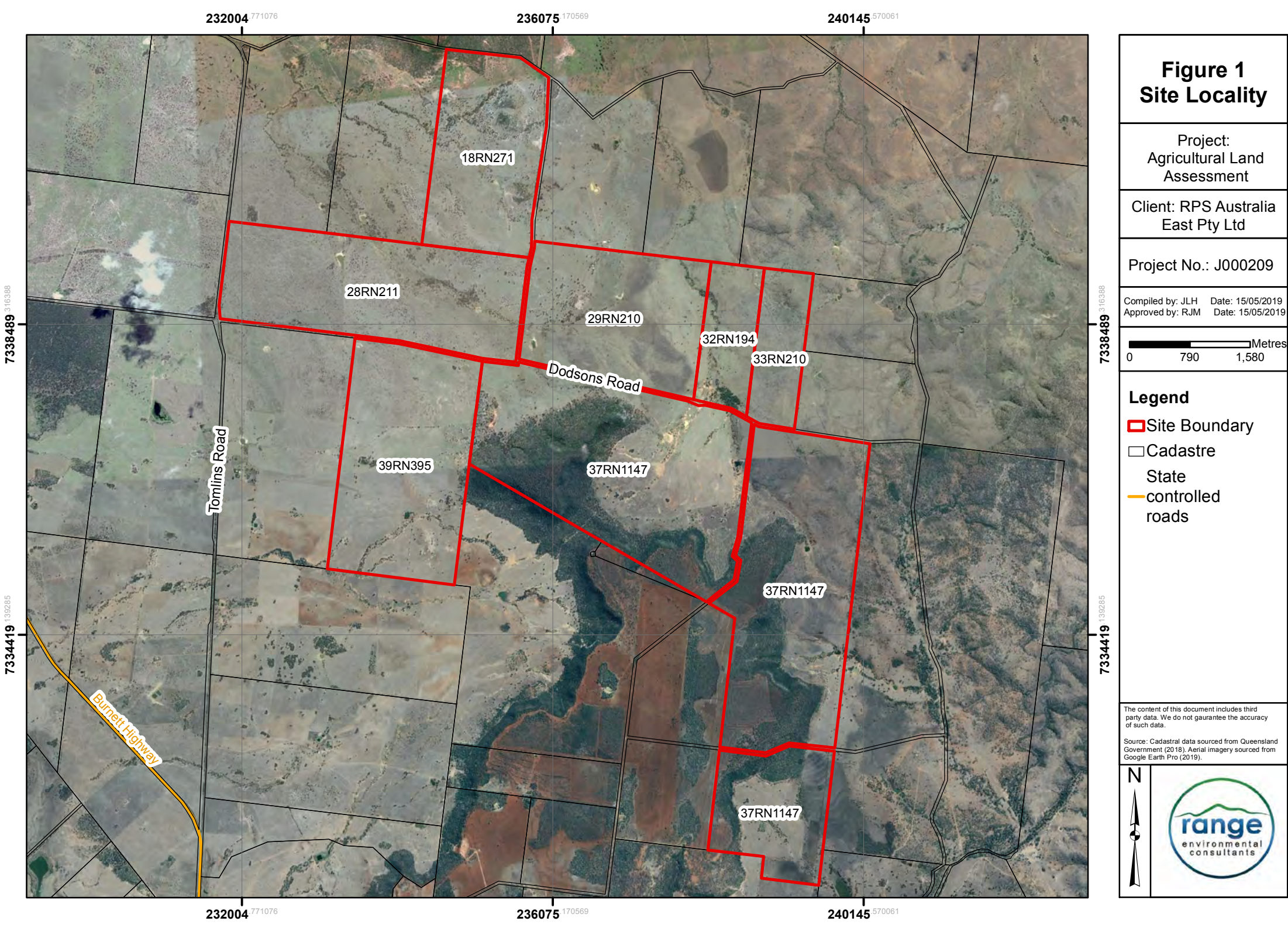
This qualitative agricultural land assessment was prepared to address Item 4 Economic Resources Overlay from the Banana Shire Council's (BSC) Information Request for Development Application COM002-18/19 dated 4 February 2019. Item 4 from the Information Request is presented below for ease of reference.

The response provided to PO1 does not satisfy the performance criteria to sustain the productivity, viability or use of the identified agricultural land for agricultural purposes as required for PO1.

The applicant is to provide a qualitative agricultural land assessment to demonstrate the viability of Council's agricultural land class mapping of A, C1 and C2 for the subject site.

If the agricultural assessment confirms the mapping then the applicant is to provide alternative agricultural uses that could co-exist with the intended use on the land during the life span of the solar farm.

The assessment is to identify any potential impacts and is to propose any suitable alternatives for agricultural practices that might be compatible with the solar farm use to contribute to ongoing viable productivity of the land. A supporting agricultural land assessment is required for the proposed development.



2. Project Overview

Edify Energy Pty Ltd are proposing the staged development of the Smoky Creek Solar Farm at the site. The exact staging arrangements and footprints aren't confirmed but the development may occur over five (5) stages. The solar farm is proposed to be developed across a total of 10 lease areas to be created at the site (Figure 2).

Key development details reported by RPS (2019) that are of relevance to this assessment are summarised below (Table 1). Plans prepared by RPS (2019) that show developable areas and lease areas at the site are provided at Appendix A.

Table 1 Development details

Aspect of Development	Proposal
Zoning	Rural
Current use	Cattle grazing
Proposed development	Solar farm - maximum capacity of 450 megawatt (MW)
Total site area	3,623.044961 hectares (ha)
No. of existing lots	Seven (7)
No. of proposed lease areas	10
Lease period	30-40 years
Total lease area	2188 ha
Total developable area	2113 ha (cleared areas at the site)
Extent of built infrastructure within the developable area	1993 ha (includes 20m offset from total developable area)

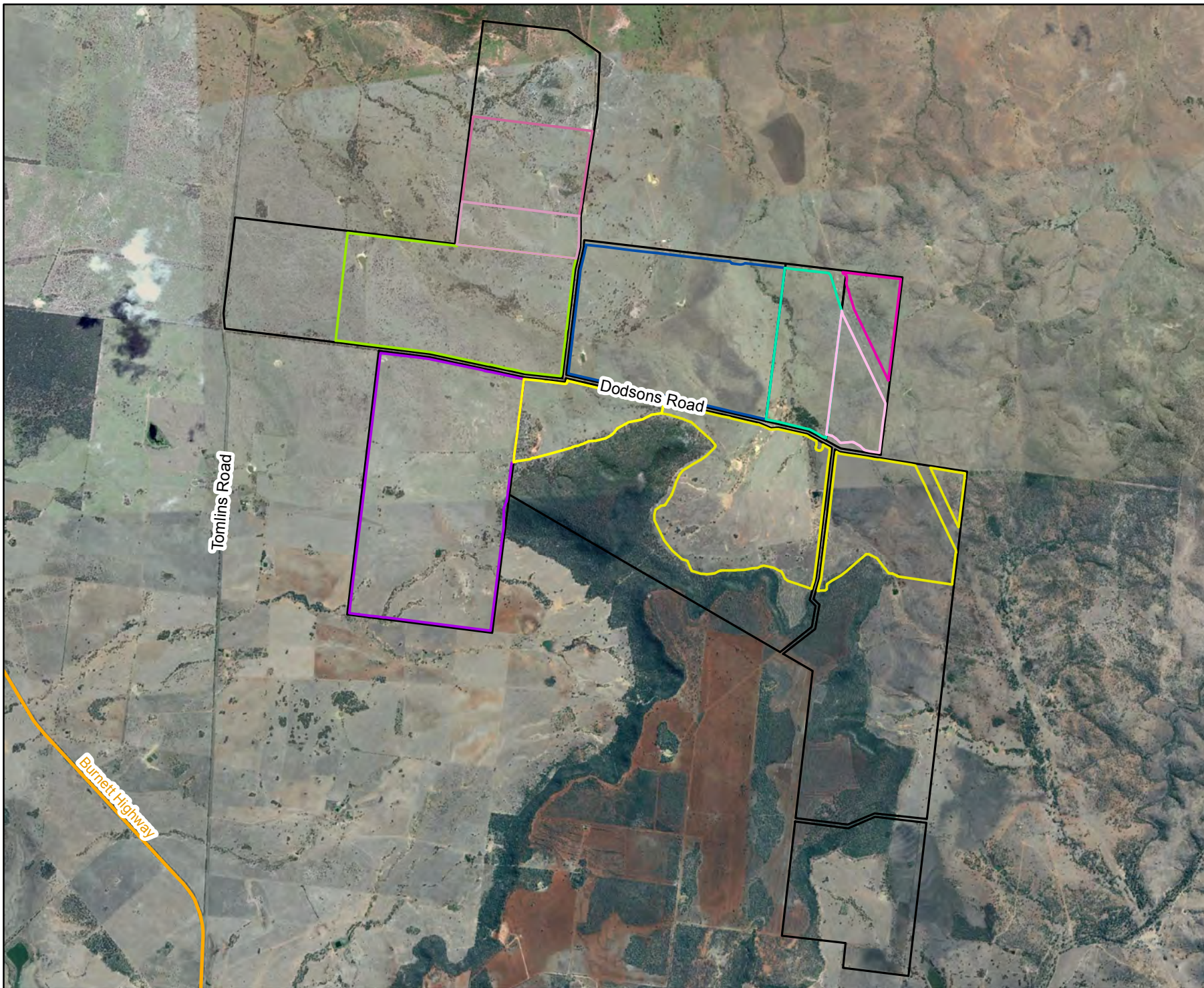


Figure 2 Proposed lease areas

Project:
Agricultural Land
Assessment

Client: RPS Australia
East Pty Ltd

Project No.: J000209

Compiled by: JLH Date: 15/05/2019
Approved by: RJM Date: 15/05/2019

0 790 1,580 Metres

Legend

State controlled
roads

LeaseAreas

- Lease A
- Lease B1
- Lease B2
- Lease C
- Lease D1
- Lease D2
- Lease E
- Lease F
- Lease G1
- Lease G2

Site Boundary

The content of this document includes third party data. We do not guarantee the accuracy of such data.

Source: Cadastral data sourced from Queensland Government (2018). Aerial imagery sourced from Google Earth Pro (2019).



3. Method

This qualitative agricultural land assessment was conducted as a desktop analysis. It included the following works:

- Review of the proposed development;
- Review of relevant mapping for the site and surrounds in relation to agricultural land class, land use and soils;
- Review of relevant climate and water information for the local area;
- Review of relevant literature in relation to the agricultural sector in central Queensland; and
- Interviews with landholders (Geoff Maynard, David Dunn and Tony Fenech) to obtain anecdotal evidence regarding past and current agricultural land uses at the site.

The purpose of the qualitative agricultural land assessment was to address Item 4 of the BSC Information Request and determine:

- The accuracy of BSC's Agricultural Land Class (ALC) Overlay (Map No. ECRES-1) for the site;
- Agricultural activities that may co-exist with the operation of the proposed solar farm over its operational life; and
- The potential agricultural impacts of the proposed solar farm and impact mitigation measures which are compatible with the operation of a solar farm at the site.

An assessment of the proposal against the Economic Resources Overlay (Agricultural Land Class Overlay) Code was also conducted.

4. Review of Mapped Agricultural Land Classes

4.1 Mapped ALC Classes

There are five (5) ALC included in BSC's ALC Overlay Map (ECRES-1). Four (4) of these ALC are mapped at the site (Figure 3). A description and the area of each ALC within the proposed lease areas at the site are provided at Table 2.

Table 2 Mapped ALC within the proposed extent of built infrastructure footprint

ALC	Description	ALC within proposed lease areas at the site	
		Area (ha)	Proportion (%)
A	Crop land - suitable for rainfed cropping and broadacre crops with irrigation.	535	25%
B	Limited crop land - Land marginal for current and potential crops, may contain limited occurrences of suitable land, and also suitable for grazing high quality pastures.	0	0
C1	Pasture land - Suitable for grazing high quality pastures, either sown pastures where ground disturbance is possible for pasture establishment or native pastures on higher fertility soils.	1523	70%
C2	Pasture land - Suitable for grazing native pastures with or without the addition of pasture species introduced without ground disturbance.	73	3%
C3	Pasture land - Suitable for light grazing of native pastures in accessible areas, otherwise very steep land more suited to forestry, conservation or catchment protection.	0	0
-	Other land not classified by overlay.	57	2%

BSC's ALC Overlay Map (ECRES-1) shows that the proposed leased areas are dominated by pasture land (ALC C) (73%) with the most of the balance land (25%) mapped as cropping land (ALC A). The ALC C classification of most of the lease areas is appropriate, however the land within the proposed lease areas mapped as ALC A should be reclassified as pasture land (ALC C). This finding was based on a review of soil data (for the northern portion of land in the solar farm lease area mapped as ALC A) and information provided by landholders.

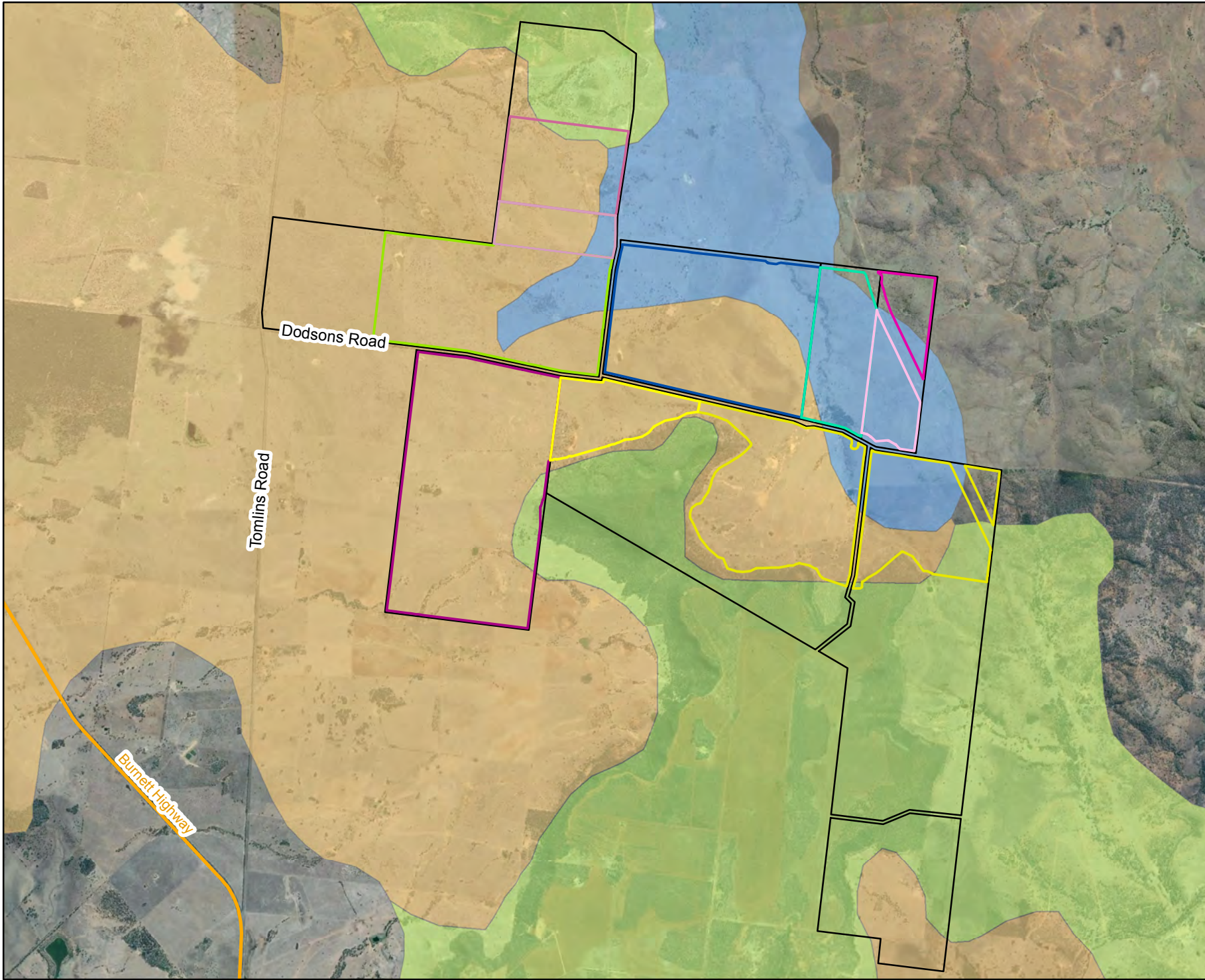


Figure 3
ALC Overlay
Map (ECRES-1)

Project:
Agricultural Land
Assessment

Client: RPS Australia
East Pty Ltd

Project No.: J000209

Compiled by: JLH Date: 15/05/2019
Approved by: RJM Date: 15/05/2019

0 790 1,580 Metres

Legend

State controlled roads

Lease Areas

Lease A

Lease B1

Lease B2

Lease C

Lease D1

Lease D2

Lease E

Lease F

Lease G1

Lease G2

Site Boundary

Label

A

C1

C2

The content of this document includes third party data. We do not guarantee the accuracy of such data.

Source: Cadastral data sourced from Queensland Government (2018). Aerial imagery sourced from Google Earth Pro (2019).

N



4.2 Soils

The northern portion of the solar farm lease area is mapped by BSC's ALC Overlay Map (ECRES-1) as ALC A. Soil mapping prepared by Muller (2008) shows that the main soils in the portion of the solar farm lease area mapped as ALC A include: Kokotungo, Greycliffe melonhole phase, Annandale and Clancy (Figure 4).

Data for these soils reported by Muller (2008) and in the Queensland Government's Soil and Land Information (SALI) database (available via Queensland Globe) were assessed against the Strategic Cropping Land (SCL) criteria for the Western Cropping Zone provided in the Regional Planning Interests Regulation 2014. The purpose of this was to determine if there would be any soil constraints to cropping in the area of land mapped as ALC A.

The assessment found that the main soils in the portion of the solar farm lease area mapped as ALC A are not suitable for cropping due to a range of limitations including: poor drainage, low soil water storage (SWS), strong gilgai microrelief, saline subsoils and shallow soil depth (Table 3).

Table 3 Cropping limitations of main soils in the solar farm lease area mapped as ALC A

Soil	Soil Type	Limiting Factors
Kokotungo	Sodosol (duplex soil)	Subsoils are strongly sodic (Exchangeable Sodium Percentage (ESP) 21%) at 0.85 m depth (Muller, 2008). This creates a chemical barrier to Effective Rooting Depth (ERD). Soil Water Storage (SWS) is calculated as 77 mm as it is restricted to a depth of 0.85 m due to sodicity. This is less than the SWS criteria (100 mm) for the Western Cropping Zone. These soils are described as imperfectly drained due to strongly sodic subsoils (Muller, 2008). These soils would not meet the soil wetness criteria for the Western Cropping Zone which requires at least favourable soil profile drainage.
Greycliffe melonhole phase	Vertosol	These soils exhibit strong melonhole gilgai development (20-60 m across and 0.5 to 1.6 m deep) (Muller, 2008), which is readily apparent in aerial imagery. It is likely that these soils would not meet the gilgai criteria for the Western Cropping Zone. These soils are also highly saline at depth, particularly in the mounds. Chloride levels reported by Muller (2008) exceed the criteria (800 mg/kg) for the Western Cropping Zone at 0.6 m (1730 mg/kg). This elevated salinity limits ERD. Soil water storage is calculated as 72 mm as it is restricted to a depth of 0.6 m due to elevated chloride. This is less than the SWS criteria (100 mm) for the Western Cropping Zone. These soils are described as poorly drained due to strongly sodic subsoils (Muller, 2008). These soils would not meet the soil wetness criteria for the Western Cropping Zone which requires at least favourable soil profile drainage.
Annandale	Vertosol	ERD in these soils is limited by the depth to bedrock (Muller, 2008). The greatest ERD in these soils at the site was 0.67 m (SALI database - BAN sites 2442, 2599 and 2600). Based on soil texture and soil depth, the SWS was calculated as 80 mm. This is less than the SWS criteria (100 mm) for the Western Cropping Zone.

Soil	Soil Type	Limiting Factors
Clancy	Vertosol	ERD in these soils is limited by the depth to bedrock (Muller, 2008). The greatest ERD in these soils at the site was 0.45 m (SALI database - BAN sites 2441, 2540 and 2601). Based on soil texture and soil depth, the SWS was calculated as 54 mm. This is less than the SWS criteria (100 mm) for the Western Cropping Zone. The shallow soil depth (0.45 m) was also less than the criteria (0.6 m) for the Western Cropping Zone.

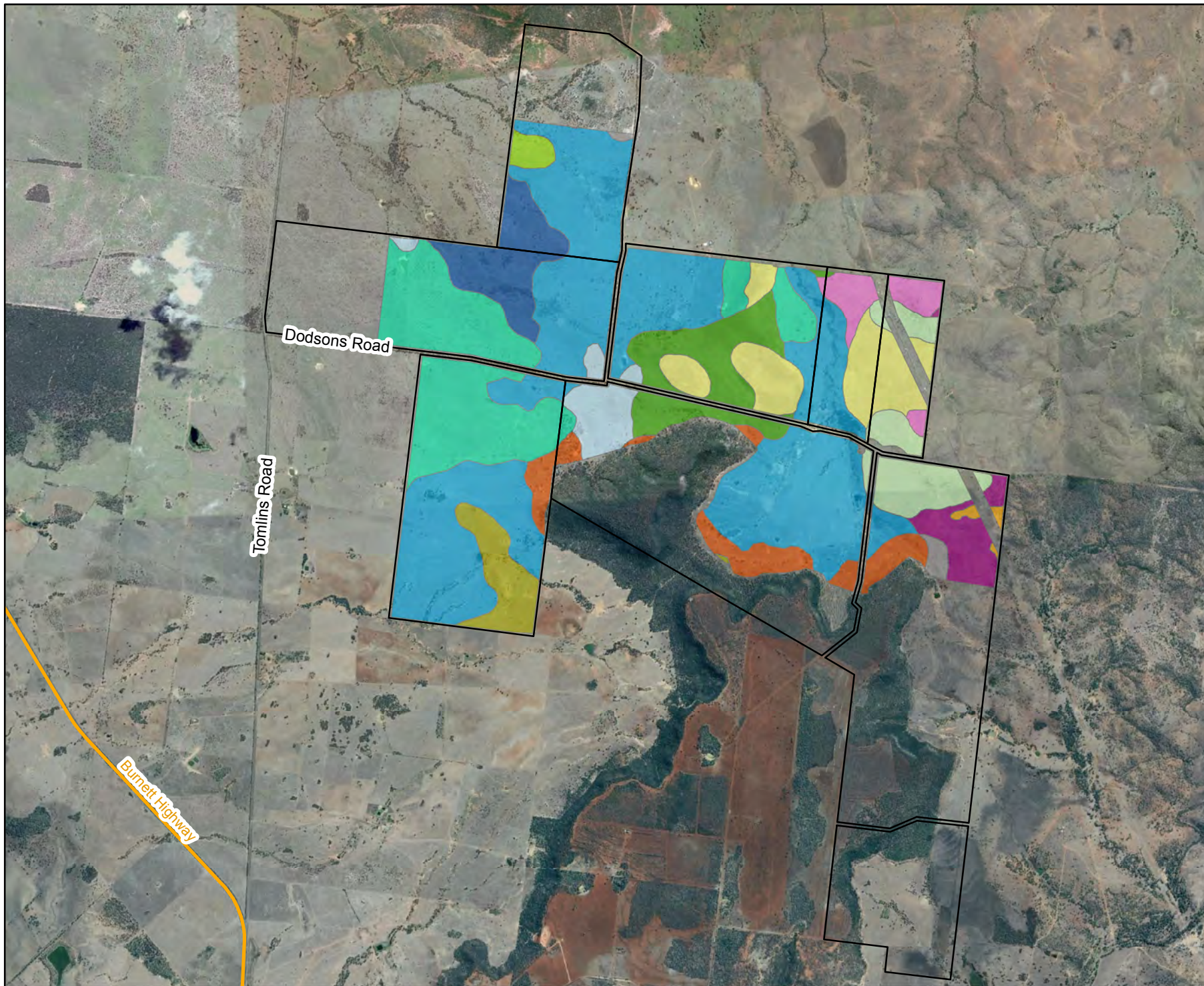


Figure 4
Soil in Lease
Areas

Project:
Agricultural Land
Assessment

Client: RPS Australia
East Pty Ltd

Project No.: J000209

Compiled by: JLH Date: 15/05/2019
Approved by: RJM Date: 15/05/2019

0 780 1,560 Metres

Legend

State controlled roads

Site Boundary

Soil Type

Annandale

Beldean

Bluff

Clancy

Desdemona

Earlsfield

Gleycliffe, melonhole
phase

Gleycliffe

Kokotungo

Kokotungo-Greycliffe
complex

Santo, fertile phase

Santo, stony phase

Spier

Ulogie

The content of this document includes third party data. We do not guarantee the accuracy of such data.

Source: Cadastral data sourced from Queensland Government (2018). Aerial imagery sourced from Google Earth Pro (2019).



4.3 Landholder Evidence

Anecdotal evidence in relation to agricultural uses of the site supplied to Range Environmental by three landholders whose land is part of the Smoky Creek Solar Farm site is summarised below.

4.3.1 Landholder - Geoff Maynard

Geoff Maynard undertakes cattle grazing on Lot 39 RN395 (Lease A) and Lot 37 RN1147 (Lease B). His family purchased Lot 37 in the 1930s and he was raised on that property. He has owned Lot 39 since December 2017.

The grazing history on his property is as follows:

- Improved pasture grazing;
- In the 1980s some areas were used for forage sorghum crops. This practice has ceased for about the last 20 years due to poor rainfall;
- The grazing rate has been 1 head/8 acres as a general rule for about the last 30 years. 1 head/5-6 acres was the general rule when the rainfall conditions were better; and
- The solar farm is expected to generate an increase in cattle production from this property by providing additional revenue for the landholder to invest in pasture improvement activities (e.g. fertilising breeding and fattening paddocks). A net increase in cattle production of 232 head per year is forecast under normal rainfall.
- To his knowledge his property has not been used for broadacre cropping.

4.3.2 Landholder - David Dunn

David Dunn undertakes cattle grazing on Lot 29 RN210 (Lease E), Lot 32 RN194 (Lease F) and Lot 33 RN210 (Lease G). David has been on the property for the past 7-8 years.

The grazing history on his property is as follows:

- Grazing of improved permanent pasture;
- The grazing rate has been 1 head/4-5 acres in good conditions and 1 head/8 acres in poor conditions;
- 400 cattle are sent to the JBS abattoir in Rockhampton per year. This will reduce to approximately 200 head per year once the solar farm is operational; and
- He has not cropped the site. He estimated that cropping may have occurred there approximately 20 years ago when rainfall conditions were better.

4.3.3 Landholder - Tony Fenech

Tony Fenech undertakes cattle grazing on Lot 28 RN211 (Lease C) and Lot 18 RN271 (Lease D). Tony has owned the property since September 2001.

The grazing history on his property is as follows:

- Grazing of improved pasture;
- The grazing rate in 2001 was 1 head/6 acres. The grazing rate for the past 10 years has been 1 head/7-10 acres due to the reduced rainfall;
- Each year, 100-200 head are sent to local abattoirs (JBS and Teys in Rockhampton), 100 bulls are sold via saleyards at Gracemere and Rockhampton and 150-200 head are sold privately into far north Queensland. Once the solar farm is operational, it is expected that there will be a reduction in cattle production by about 100 head per year; and
- He has not cropped the property, only grazed cattle. Tony Fenech advised that even if the rainfall conditions were ideal for cropping on the property, the soil profile would be too waterlogged and not suitable for cropping.

4.3.4 Synthesis

A common limitation to undertaking viable cropping at the site that was identified by landholders was reliability of rainfall. The central Queensland area is susceptible to significant fluctuations in rain-fed cropping production due to its highly variable rainfall (DAF, 2013). Irrigated cropping is undertaken in the local area; however, this is commonly limited to alluvial flats along the Callide Creek (to the south west) and Don River (to the north) where shallow alluvial water supplies and more favourable soils are available.

The landholders interviewed all stated that unreliable rainfall in the area meant that rain-fed cropping was not a viable agricultural use of the site. In the future, the central Queensland region is expected to be subject to longer dry periods interrupted by more intense rainfall events, which will affect water supply and incidence of flooding (DAF, 2019). The unreliable nature of rainfall coupled with the low SWS capacity of soils (refer to Table 3) would greatly limit the cropping potential of land mapped by BSC as ALC A.

One landowner (Tony Fenech) whose land is in the northern part of the site (Lease Area C and D) also noted the poor drainage properties of soils which would limit cropping. The main soils in this area (Kokotungo and Greycliffe melonhole phase) are known to be poorly drained and this assessment found that they were not suitable for cropping (refer to Table 3).

4.4 Summary of Mapped ALC Review

BSC's ALC Overlay Map (ECRES-1) shows that the proposed leased areas are dominated by pasture land (ALC C) with the balance mapped as cropping land (ALC A). This qualitative assessment found:

- The ALC C classification of most of the lease areas is appropriate; and
- Land within the proposed lease areas mapped as ALC A is incorrectly classified. It should be reclassified as pasture land (ALC C).

5. Co-existence of Agricultural Uses and Solar Farm Operations at the Site

Agricultural uses can co-exist with the proposed solar farm development at the site during the life of the solar farm. Cattle grazing will be able to be continued at the site by landholders outside of the proposed solar farm lease areas. Outside of the solar farm lease areas there would be an estimated 1,082 ha⁶ of land available at the site for the continuation of cattle grazing.

Grazing of cattle and other animals within the proposed solar farm was considered but was not found to be viable. Grazing within the solar farm by cattle or goats would present a risk of damage to solar farm infrastructure due to large animal sizes and behavioural traits (e.g. chewing, climbing etc). Sheep present a lower risk to solar farm infrastructure. However, there is unlikely to be the required industry support and supply chain in the region to make this a viable alternative agricultural use, as the grazing industry in the region is strongly dominated by cattle (DAF, 2013). Also, DAF (2013) identified that animal pests and diseases, including sheep blowfly (*Lucilia cuprina*), was a weakness of agricultural sector in the central Queensland region.

Cattle grazing could recommence at the solar farm lease areas at the site after decommissioning at the end of the project life.

⁶ Value determined by the area of mapped grazing land at the site (3270 ha - from Queensland Land Use Mapping (QLD Government, 2016)) less the total proposed lease area (2188 ha).

6. Potential Agricultural Impacts and Mitigation Measures

The construction, operation and decommissioning phases of the proposed solar farm have the potential to have agricultural impacts at the site. However, these impacts are unlikely to be significant as the risks to agricultural values can be managed throughout the life of the project by the implementation of impact management measures (Table 4).

Table 4 Potential impacts and mitigation measures

Potential Agricultural Impact	Description of Impact	Impact Mitigation Measures
Reduced cattle production and available grazing land	<p>The landholders predict that the development of the solar farm will reduce cattle production from the site by 300 head per year. Most cattle from the site are turned off for slaughter, therefore the predicted reduction in cattle numbers from the site were assessed to determine potential impacts to cattle production for the Banana Shire LGA and processing capacity at receiving abattoirs.</p> <p>Slaughter cattle produced in the Banana Shire is 109743 head per annum (Meateng and Felix Domus, 2018). The forecast reduced production rates during operation of the solar farm (a reduction of 300 head per annum) will result in a 0.3% reduction in current annual slaughter cattle production rates for the Banana Shire.</p> <p>Slaughter cattle from the site are sent to two abattoirs in Rockhampton (JBS and Teys) and an abattoir in Biloela (Teys). These abattoirs have a combined processing capacity of 782,760 head per year (Meateng and Felix Domus, 2018⁷). The forecast for reduced production rates during the operation of the solar farm (a reduction of 300 head per annum) will result in a potential 0.04% reduction in current annual slaughter rates for local abattoirs.</p> <p>Predicted reductions in slaughter cattle production during the operation of the solar farm</p>	<ul style="list-style-type: none"> The solar farm will be developed on grazing land (ALC C) and not cropping land (ALC A). Grazing shall be allowed to continue at the site on land outside of the solar farm lease areas. The proposed development will not permanently alienate the land from future agricultural use. At the end of the lease period, the land occupied by the solar farm can be returned to grazing which is the most suitable agricultural use of the land based on inherent soil constraints.

⁷ This is based on a five (5) day operating week. Annual processing capacities for six (6) and seven (7) day operating weeks increase to 937,872 and 1,096,584 respectively (Meateng and Felix Domus, 2018).

Potential Agricultural Impact	Description of Impact	Impact Mitigation Measures
	<p>are unlikely to have a significant impact on the local or regional grazing industry. The forecast reduction in slaughter cattle numbers from the site during the operation of the solar farm would be less than normal variations in production that occur across the industry throughout the year due to various production constraint factors (e.g. weather, markets etc). The slight reduction in slaughter cattle production during the operation of the solar farm will not have a significant impact on industry wide slaughter cattle production rates or associated industries such as abattoirs in the central Queensland region or Banana Shire.</p> <p>It is also important to note that one landholder forecast an increase in cattle production due to the ability to investment in pasture improvement works.</p>	
	<p>Grazing occurs on 75% of land in the central Queensland region. There is currently 8.7 million ha of grazing land in central Queensland and there is potential to increase this to 10.2 million ha (DAF, 2013).</p> <p>The lease areas at the site have a total area of 2188 ha. Grazing will be excluded from the lease areas during the operation of the solar farm. During the operation of the solar farm, 0.03% of grazing land in the central Queensland region will be removed from grazing. Grazing can resume at the solar farm site following decommissioning. During the operation of the solar farm, grazing will be able to be conducted on 1082 ha of land outside the lease areas.</p> <p>The proposed development will not have a significant impact on grazing land availability in the central Queensland region or Banana Shire.</p>	
Introduction of weeds	The current impact of weeds is not significant at the site but introduced grasses and exotic weeds do already occur (RPS, 2019).	To meet the General Biosecurity Obligation (GBO) under the <i>Biosecurity Act 2014</i> , it is recommended that weed and pest control measures be outlined in the following

Potential Agricultural Impact	Description of Impact	Impact Mitigation Measures
	<p>The construction, operation and rehabilitation phases of the solar farm project have the potential to cause the proliferation of existing weeds and the introduction of additional species. Infestations of agricultural weeds could potentially impede agricultural production.</p> <p>The implementation of weed and pest management measures during all phases of the solar farm project will be adequate for managing biosecurity risks associated with the proposal. No significant impacts in relation to biosecurity are anticipated with the implementation of weed and pest management measures.</p>	<p>documents to be prepared for the proposal by the proponent:</p> <ul style="list-style-type: none"> • Construction Environmental Management Plan (CEMP); • Operational Environmental Management Plan (OEMP); and • Rehabilitation Plan.
Impacts to soil and pasture resources	<p>Landholders advised that there are no current erosion concerns at the site. The proposed solar facility will only require minor earthworks for building/structure pads, access tracks and a bench for a switchyard. The proposed areas for the solar panels will retain existing surface levels as the site is generally flat with a consistent grade. Panel frames will be mounted on screw or driven piles (non-displacement piles). The site also contains existing defined drainage channels which won't be impacted by the any proposed earthworks.</p> <p>The construction, operation and rehabilitation phases of the solar farm project have the potential to impact soil and pasture resources due to: soil erosion, soil compaction, inversion of soil profiles in cable trenches and changes to pasture composition from exclusion of grazing. The implementation of soil and pasture management measures will be adequate for managing potential impacts.</p> <p>No significant impacts in relation to soil or pasture are anticipated with the implementation of relevant management measures during the various phases of the project.</p>	<ul style="list-style-type: none"> • An Erosion and Sediment Control Plan (ESCP) should be prepared in accordance with the Best Practice Erosion and Sediment Control (Aust IECA, 2008) guideline for the construction and decommissioning phases of the project to minimise soil erosion. • The CEMP should include soil management measures to preserve topsoil resources at the site and minimise impacts to soil resources. • Pasture within the lease areas should be slashed as required to simulate grazing pressure. This should be incorporated into the OEMP. • The Rehabilitation Plan should include measures to address any identified impacts to soil and to ensure that re-established pasture is at least comparable to active grazing land outside the lease areas at the site at the time of decommissioning.

The potential agricultural impacts of the proposed solar farm can be adequately managed and don't present a risk of significant or permanent impact to agricultural values at the site or on the broader grazing industry in central Queensland.

This finding is supported by a recent judgement in 2017 by the Planning and Development Court (2018) for the proposed Mirani solar farm near Mackay. The proposed Mirani solar farm involved a 165 ha solar farm development on a 229 ha site that was ALC A cropping land. The solar farm lease period was 30-40 years and the balance of the land was to continue to be used for cropping. The Court found the development would not have a significant impact on support industries (i.e. sugar mills) and the land would not be permanently impacted or removed from agricultural production as it could be returned to ALC A cropping land at the end of the lease period.

7. Assessment Against Overlay Code

The proposal was assessed against relevant section of the Economic Resources Overlay from the Banana Shire Council Planning Scheme 2005 (Table 5).

Table 5 Banana Shire Council Economic Resources Overlay

Performance Outcome	Acceptable Outcome	Comment
All Development on land shown as Class A, B or C1 land in the Agricultural Land Class Overlay		
<p>PO1 Land uses and newly created lots are located and designed so as sustain the productivity, viability or use of identified Agricultural Land for agricultural purposes.</p> <p>Note: Demonstration of compliance with the PO can be addressed through:</p> <p>(1) providing separation distances or buffering methods to overcome potential impacts on existing adjacent rural uses;</p> <p>(2) demonstrating that there is an overriding planning need for the development in terms of public benefit and no other site are suitable and available for the purpose; or</p> <p>(3) demonstration that the agricultural quality of the subject land is inconsistent with the Agricultural Land Classification (ALC) Class A and Class B or Class C1 land in accordance with the State Planning Policy mapping.</p>	<p>No acceptable outcomes are specified. Editor's Note – Agricultural Land Classification Areas and Important Agricultural Areas are as shown on the State Planning Policy interactive mapping.</p>	<p>This qualitative agricultural land assessment found that the proposed Smokey Creek Solar Farm would not have a permanent or significant impact on the productivity, viability or use of agricultural land at the site due to the following factors:</p> <ul style="list-style-type: none"> • The land on which the solar farm would be developed is grazing land and not cropping land. • During the operation of the solar farm, cattle grazing can continue at the site outside the lease areas. Once the solar farm has been decommissioned grazing can recommence in the lease areas. • The proposed development will not have a significant impact on grazing land availability in the central Queensland region or Banana Shire. • The forecast reduction in slaughter cattle numbers from the site during the operation of the solar farm would be less than normal variations in production that occur across the industry throughout the year due to various production constraint factors (e.g. weather, markets etc). The slight reduction in slaughter cattle production during the operation of the solar farm will not have a significant impact on industry wide slaughter cattle production rates or associated industries such as abattoirs in the central Queensland region or Banana Shire.

Performance Outcome	Acceptable Outcome	Comment
		<ul style="list-style-type: none"> One landholder forecast an increase in cattle production due to the ability to investment in pasture improvement works. Management measures can be implemented through all phases of the project to minimise the risk of adverse impact in relation to biosecurity and land resources (soils and pasture). The proposed development will not have a permanent or significant impact on the grazing industry in the central Queensland region or the Banana Shire. The proposed development is not a sensitive use and will not restrict agricultural activities on adjacent properties. The land is strategically located to power transmission infrastructure. The proposed development provides a public benefit as it is a renewable energy facility and will assist State and Federal Governments meet clean energy and carbon reduction targets. It also provides employment opportunities at all phases of the project and increases economic diversity for the Banana Shire.
All Development on land shown as Class C2 or C3 land in the Agricultural Land Class Overlay		
<p>PO2</p> <p>Land uses and newly created lots are located and designed so as sustain the productivity or viability of agricultural activities on Class C2 and C3 grazing land.</p>	<p>AO2.1</p> <p>No additional lots are created on land classified as Agricultural Land Classification (Class C2 or Class C3) Areas or Important Agricultural Areas.</p> <p>Or</p>	<p><u>Alternative Solution</u></p> <p>The solar farm land is mapped as ALC A, C1 and C2. This assessment found that the area mapped as cropping land (ALC A) was incorrect and should be re-classified as grazing land (ALC C).</p>

Performance Outcome	Acceptable Outcome	Comment
	<p>AO2.2</p> <p>Development on land classified as Agricultural Land Classification (Class C2 or Class C3) Areas or Important Agricultural Areas is for Agriculture or Intensive Agriculture or is compatible with the productivity of this land for agricultural purposes. Note – Agricultural Land Classification Areas and Important Agricultural Areas are as shown on the State Planning Policy interactive mapping.</p>	<p>The proposal requires the subdivision by lease component to facilitate the land tenure required between the property owners and Edify Energy. The proposal does not seek to change the existing lot boundaries of the parent parcels and therefore, not considered to impact on the sites being used in the future for agricultural activities.</p> <p>As demonstrated in this report, the proposed development will not have a permanent or significant impact on the productivity, viability or use of agricultural land at the site. Once the solar farm has been decommissioned, the lease areas can be returned to grazing.</p>

8. Summary

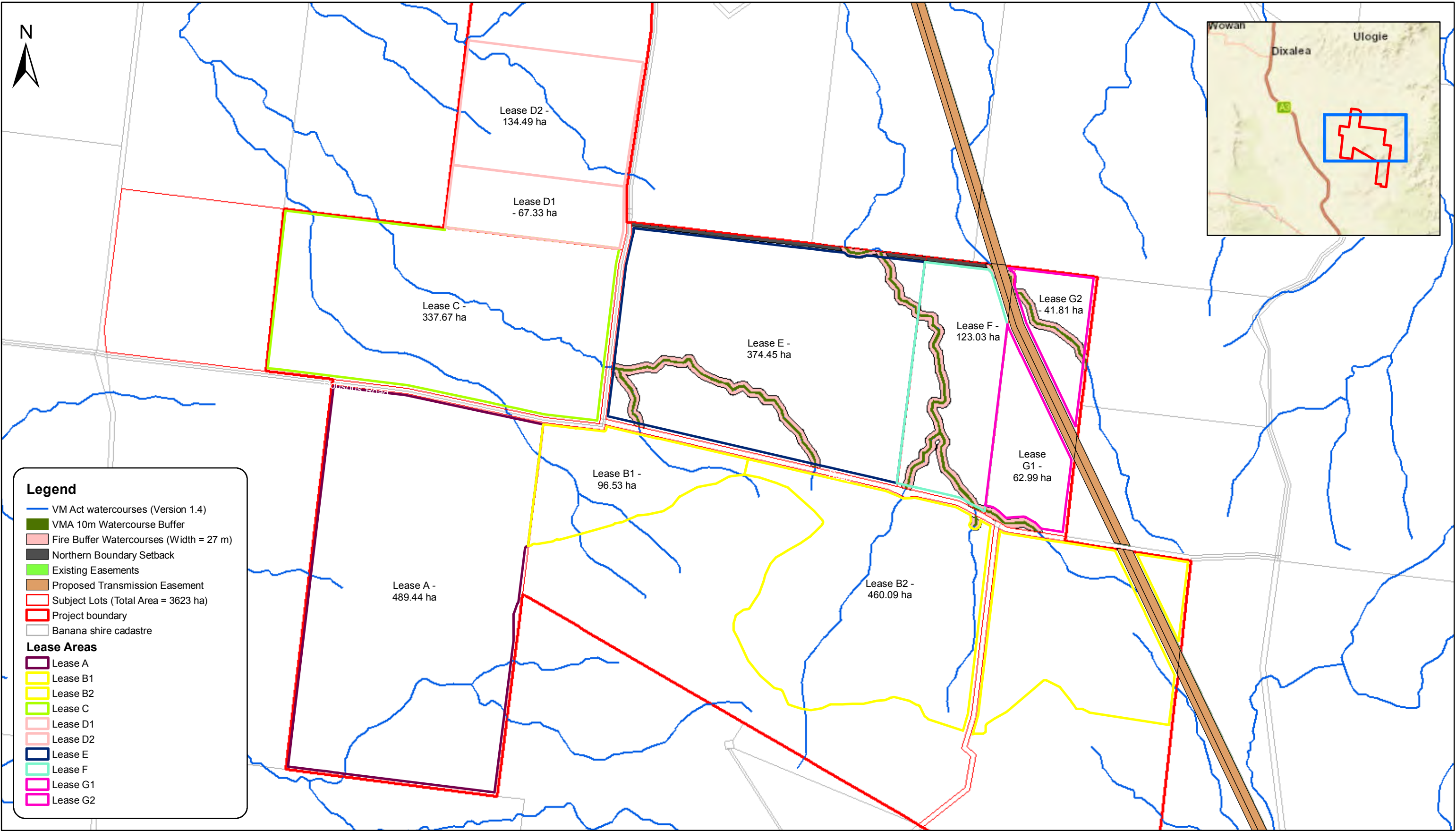
- A qualitative agricultural land assessment was undertaken for the site of the proposed Smoky Creek Solar Farm.
- The solar farm will be developed on grazing land and not cropping land.
- Cattle grazing can continue outside of the proposed solar farm lease areas. Cattle grazing can recommence at the solar farm lease areas at the site after decommissioning at the end of the project life.
- The proposed development will not have a significant impact on grazing land availability in the central Queensland region or Banana Shire.
- The slight forecast reduction in slaughter cattle production during the operation of the solar farm will not have a significant impact on industry wide slaughter cattle production rates or associated industries such as abattoirs in the central Queensland region or Banana Shire.
- At least one landholder noted that additional revenue from the solar farm is expected to lead to an increase in cattle production due to the ability to invest in pasture improvement activities.
- The implementation of weed and pest management measures during all phases of the solar farm project will be adequate for managing biosecurity risks associated with the proposal.
- The implementation of soil and pasture management measures during the various phases of the project will be adequate for managing potential impacts to land resources.
- The proposed development will not have a permanent or significant impact on:
 - The productivity, viability or use of agricultural land at the site; or
 - The grazing industry and support businesses in the central Queensland region or Banana Shire.

9. References

- Department of Agriculture and Fisheries. 2013. Queensland Agricultural Land Audit - Chapter 10 Central Queensland. Available online at <https://www.daf.qld.gov.au/business-priorities/agriculture/sustainable/ag-land-audit/download-audit>.
- Department of Agriculture and Fisheries. 2019. Agricultural Climate Assessment. Assessment Area 150.3883,-24.0467 with 25 kilometre radius. Available online at <https://www.daf.qld.gov.au/business-priorities/agriculture/sustainable/ag-land-audit/request-an-agricultural-values-assessment>.
- Meateng and Felix Domus. 2018. Analysis of Beef Cattle Supply and Evaluation of Commercial Viability of Locations for Processing Facilities in Queensland. Prepared for the Department of Agriculture and Fisheries. Reference 467004.
- Muller. P. G. 2008. Soils of the Banana Area Central Queensland.
- Queensland Government. 2016. Queensland Land Use Mapping Program (QLUMP). Accessed from: <https://www.qld.gov.au/environment/land/management/mapping/statewide-monitoring/qlump>
- RPS. 2019. Town Planning Report - Smoky Creek Solar Farm. Version 5, 07/01/2019. Reference PR140339-1.
- The Planning and Development Court of Queensland. 2018. Mirani Solar Farm Pty Ltd (appellant) v Mackay Regional Council & Anor (respondent).



Appendix A: Site Plans



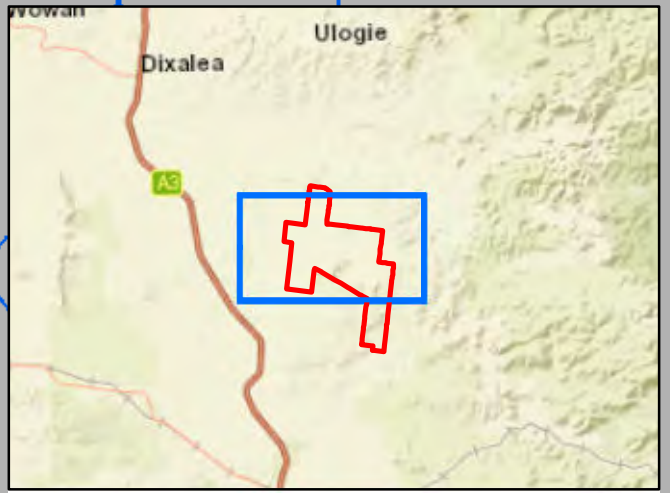
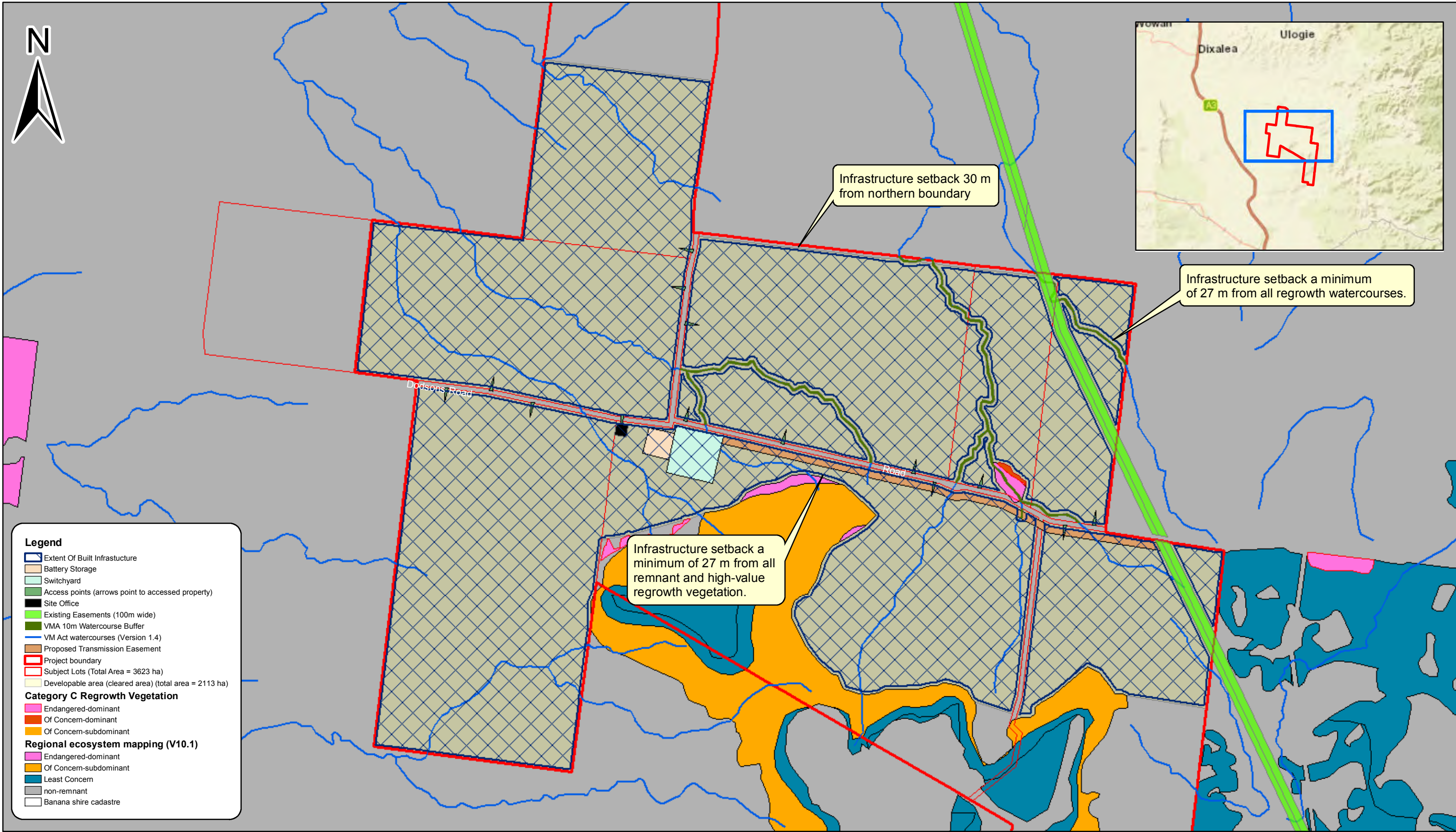
Legend

- VM Act watercourses (Version 1.4)
- VMA 10m Watercourse Buffer
- Fire Buffer Watercourses (Width = 27 m)
- Northern Boundary Setback
- Existing Easements
- Proposed Transmission Easement
- Subject Lots (Total Area = 3623 ha)
- Project boundary
- Banana shire cadastre

Lease Areas

- Lease A
- Lease B1
- Lease B2
- Lease C
- Lease D1
- Lease D2
- Lease E
- Lease F
- Lease G1
- Lease G2

<div><div><div><div></div><div>RPS</div></div><div><div>© COPYRIGHT PROTECTS THIS PLAN. Unauthorised reproduction or amendment not permitted. Please contact the author.</div></div></div><div><div>RPS Australia East Pty Ltd ACN 140 292 762 ABN 44 140 292 76</div><div><div>Level 5, Central Plaza 370 Flinders Street (PO Box 977) Townsville QLD 4810 T +61 7 4724 4244 W rpsgroup.com.au</div></div></div></div>			<div>PROJECT</div> <div>SMOKY CREEK SOLAR PROJECT</div>		<div>Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014. Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015. Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015 Vegetation management - essential habitat map - version 4.34© State of Queensland (Department of Natural Resources and Mines) 2016</div> <div>Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.</div> <div>Coordinate System: GDA 1994 MGA Zone 56 Projection: Transverse Mercator Datum: GDA 1994</div>			
<div>Plan Ref</div> <div>140339-1-01</div>			<div>Rev</div> <div>E</div>	<div>Sheet</div> <div>A3</div>	<div>01,0002,0003,0004,000Meters</div> <div>Reference Scale: 1:28,000</div>			
					<div>Document Name: 140339-1-01RevE_SubdivisionProposalPlan</div>			
					<div>Date: 21/12/2018</div>		<div>Author: AF</div>	<div>Project Manager: MC</div>



Legend


- Extent Of Built Infrastructure
- Battery Storage
- Switchyard
- Access points (arrows point to accessed property)
- Site Office
- Existing Easements (100m wide)
- VMA 10m Watercourse Buffer
- VM Act watercourses (Version 1.4)
- Proposed Transmission Easement
- Project boundary
- Subject Lots (Total Area = 3623 ha)
- Developable area (cleared area) (total area = 2113 ha)

Category C Regrowth Vegetation

- Endangered-dominant
- Of Concern-dominant
- Of Concern-subdominant

Regional ecosystem mapping (V10.1)

- Endangered-dominant
- Of Concern-subdominant
- Least Concern
- non-remnant
- Banana shire cadastre

 <p>RPS Australia East Pty Ltd ACN 140 292 762 ABN 44 140 292 76</p> <p>Level 5, Central Plaza 370 Flinders Street (PO Box 977) Townsville QLD 4810 T +61 7 4724 4244 W rpsgroup.com.au</p> <p>© COPYRIGHT PROTECTS THIS PLAN. Unauthorised reproduction or amendment not permitted. Please contact the author.</p>			<p>PROJECT</p> <p>SMOKY CREEK SOLAR PROJECT</p>		<p>Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014. Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015. Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015 Vegetation management - essential habitat map - version 4.34 © State of Queensland (Department of Natural Resources and Mines) 2016</p> <p>Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.</p> <p>Coordinate System: GDA 1994 MGA Zone 56 Projection: Transverse Mercator Datum: GDA 1994</p>		
<p>Plan Ref</p> <p>140339-1-02</p>			<p>Rev</p> <p>E</p>		<p>Document Name: 140339-1-02RevE_ProjectProposalPlan</p>		
<p>Sheet</p> <p>A3</p>			<p>Reference Scale: 1:30,000</p>		<p>Date: 28/11/2018</p>		
			<p>Reference Scale: 1:30,000</p>		<p>Author: AF</p>		
			<p>Reference Scale: 1:30,000</p>		<p>Project Manager: MC</p>		