

Agricultural Report
For Proposed Solar Farm and Industrial Precinct
Lots 1 -3 DP 1234850 and Lot 60 DP1227482
55 Dampier Street and 72 Wallamore Road,
Taminda NSW 2340



Date: 7th March 2019

# **Prepared for:**

Elton Consulting on behalf of Tamworth Industrial Pty Ltd

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Melaleuca Group Pty Limited

#### 1. Introduction

Melaleuca Group has been engaged by Elton Consulting on behalf of Chan Abbey Holdings Pty Ltd to undertake an Agricultural Assessment for 55 Dampier Street and 72 Wallamore Road, Taminda NSW 2340 (the site) to allow for the proposed rezoning of part of the Study Area. The proposal will subsequently include development of a Solar Farm and industrial lands. Please refer to Figures 1 and 2 for the site locality plan and a plan showing the rezoning proposal.

The objective of this assessment is to assess the agricultural impact of the proposed development.

# 2. The Study Area

#### 2.1 Site Identification

The Study Area is located approximately 2.5km west of the Tamworth CBD. The Area consists of four parcels namely (note areas approximate only):

- Lot 1 DP 1234850 90 ha;
- Lot 2 DP 1234850 5 ha;
- Lot 3 DP 1234850 4.5 ha;
- Lot 60 1227482 52 ha; and
- a 1.9ha road reserve.

The Study Area is bound by the Peel River in the north and industrial lands/Wallamore Road in the south. To the east is Tamworth Cemetery and Racecourse and to the west is agricultural lands. The Wallamore Anabranch dissects the Study Area in approximately the middle of the Study Area.

#### 2.2 Zoning and Proposal

The Study Area is zoned RU4 Primary Production Small Lots in accordance with the Tamworth Regional Council (TRC) Local Environmental Plan (2010). Surrounding lands are predominantly also zoned RU4 with exception of lands to the south and south-east whereby a mixture of zones occur including IN1 (General Industrial), SP1 (Special Activities), SP3 (Tourist), RE1 (Public Recreation) and B5 (Business Development).

The proposal would see the rezoning of approximately 11ha within Lots 2-3 to IN1 (6.7ha), B5 (2.4ha) and Road Reserve (1.9ha). The remainder of the Area would remain as RU4. The Solar Farm would be located in Lot 1 which would also not be rezoned. Further, while also not being rezoned, approximately 13ha within Lot 60 would be utilised for flood mitigation measures. This area would not be exclusive to flood mitigation activity as flooding is irregular, thereby allowing for other uses to occur.

#### 2.3 Site Usages

Information pertaining to the historical landuses are limited to information available from Kayandel Archaeological Services (2018), available aerial photography and knowledge of agricultural activities

in the locality. Given the characteristics of the land it is surmised the Study Area has been used for a range of agricultural pursuits for many years (estimated for nearly 200 years).

Kayandel Archaeological Services (2018) indicate the first Europeans to venture into Tamworth area was from 1818 (John Oxley) with other explorers and settlement of the area soon after. In 1833, 313,298 acres of the Liverpool Plains were granted to the Australian Agricultural Company. The following extract is provided from Kayandel Archaeological Services (2018):

Sheep and cattle were grazed on the alluvial plains of the Peel River, and farming consisted primarily of crops such as wheat and, later, tobacco. The Tamworth region, specifically the Goonoo Goonoo estate owned by the Australian Agricultural Company, became known for wool (EJE Town Planning, 2001). The estate was fenced from the mid-1950s, which prevented the shepherding of sheep and was subsequently less cost effective (EJE Town Planning, 2001).

Given the generic history of the area, it is likely the Study Area was settled and cleared around 100 - 180 years ago with the establishment of large pastoral properties in the area. Initially principal uses were likely to be grazing animals but also some subsistence farming could have occurred. Establishment into broad acre cropping would have soon followed and is the typical agricultural pursuit of the area of today.

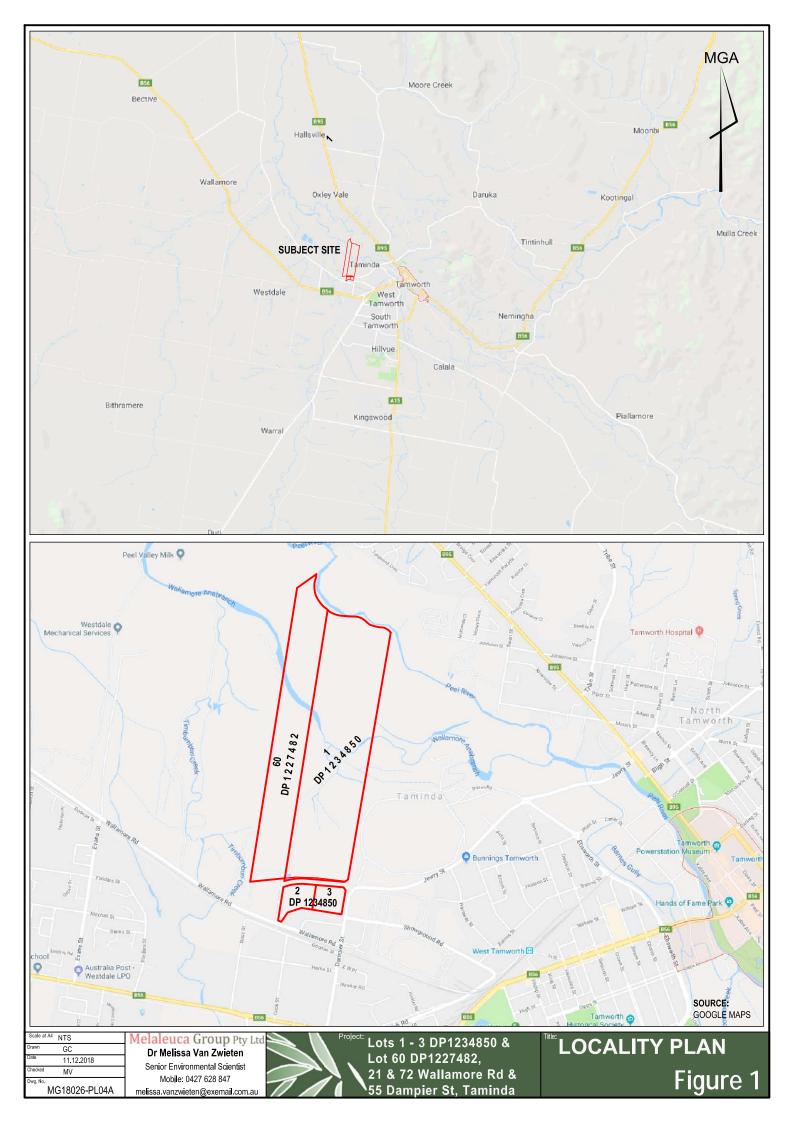
Thereby it is surmised predominantly the land was used low intensity grazing (cattle and sheep) and for broad scale cropping such as Wheat, Tobacco with possibilities of Cotton, Canola, Soybean, Corn, Lucerne and a range of other crops throughout its history. Given the Study Area lies within the floodplain of the Peel River, agricultural uses would need to have been adaptive for the ephemeral nature of flooding.

Plates 1 to 2 show general views some of the cropping land within the site in July 2018.

#### 2.4 Local Geology and Soil Description

Banks (2001) maps (Figure 3) and describes the soil landscapes and geology of the Study Area as follows:

- Majority of Study Area, northern section: Alluvial Peel Soil Landscape. Geology Quaternary (Qa) and recent alluvium of the Peel and lower Cockburn Rivers. Sources of parent materials are extremely diverse;
- Majority of southern section of Study Area (south-west of Racecourse): Alluvial Goonoo Goonoo Soil Landscape. Geology - Quaternary alluvium derived predominantly from Tertiary basalts of the Liverpool Ranges; and
- Small section near southern boundary of Study Area: Residual *Duri* Soil Landscape. Geology
   Complex folded Carboniferous and Devonian sedimentary rocks of the Tamworth Fold Belt.
   The Devonian geology units include the Baldwin Formation, Keepit Conglomerate, and Mandowa Mudstones.



The existing planning controls identifies the land use as an Primary Production Small Lots. It is proposed to amend the planning controls on site as follows.

#### The proposal:

 Amendments to LEP to allow for B5 Business Development and IN1 General Industrial

#### Total site area = 10.9Ha

- B5 = 2.4Ha
- IN1 = 6.6Ha
- Bypass Easement = 1.9Ha

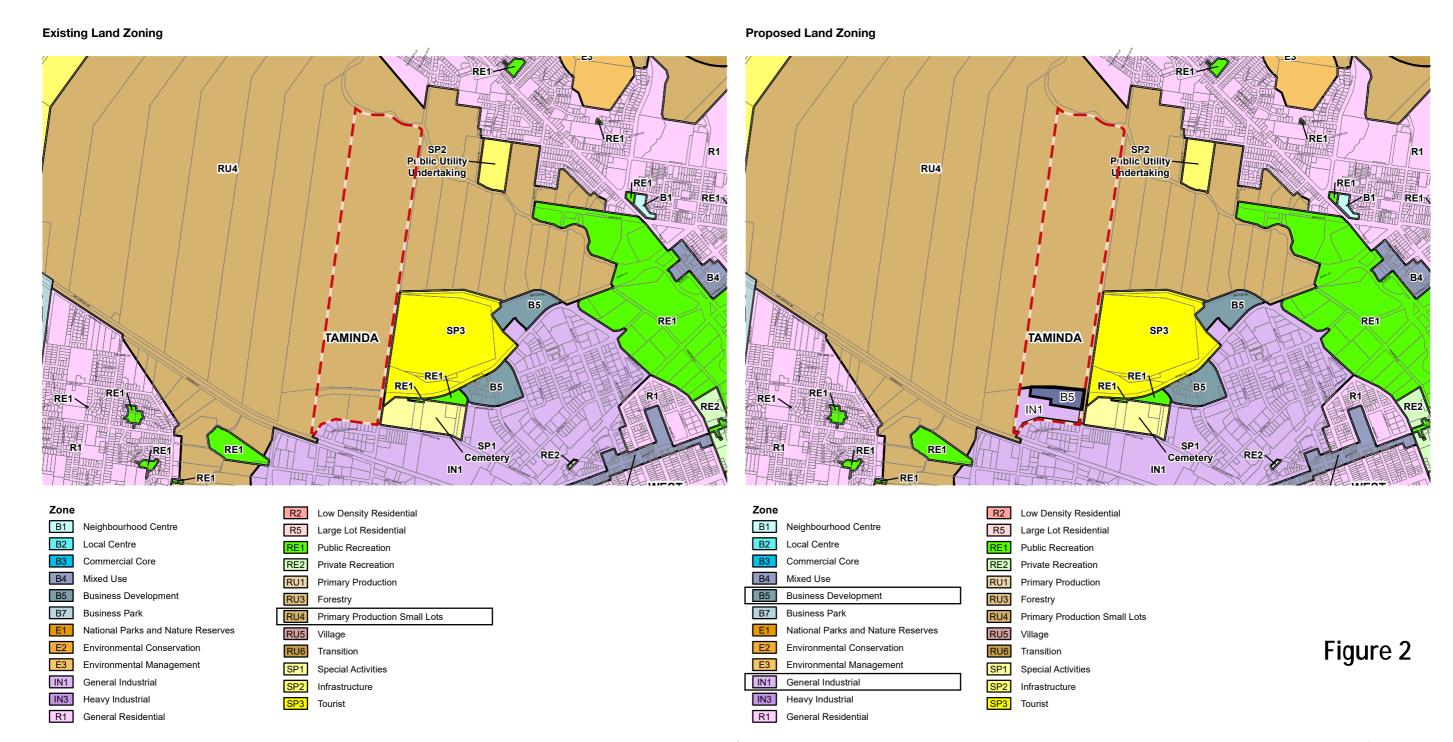




Plate 1: General view of cropping area on Lot 1 (Source: J Foong).



Plate 2: General view of cropping area on Lot 1 (Source: J Foong).



Figure 3. Soil Landscapes (Banks 2001; source: eSPADE NSW OEH website).

These soil landscapes are described by Banks (2001) as:

#### Peel (pe):

**Soils** – soil types are individually extensive, but random in distribution. In decreasing order of dominance, soil types encountered include giant, moderately well-drained Black Dermosols (Chernozems); very deep, imperfectly drained Calcareous Black Vertosols (calcareous Black Earths), very deep, imperfectly drained Haplic Black Vertosols (Black Earths); and moderately deep, moderately well-drained Brown Chromosols (Red-brown Earths).

#### Goonoo Goonoo (gn):

**Soils** – soil types are diverse but individually locally extensive. In decreasing order of importance, soil types encountered include very deep to giant, imperfectly drained Brown Sodosols (Solodic Soils); deep to giant, imperfectly drained Black Vertosols (Black Earths); very deep to giant, poorly drained Grey Vertosols (Grey Clays); shallow, moderately well-drained Calcareous Rudosols (calcareous Alluvial Soils); and deep to giant, imperfectly drained Brown Vertosols (Brown Clays).

#### Duri (du):

**Soils** – extremely complex due to rapid changes in underlying lithology. Generally dominated by duplex soils such as moderately deep, moderately well-drained Red and Brown Chromosols (Noncalcic Brown Soils; Red-brown Earths) with minor occurrences of shallow, very well-drained Rudosols (Lithosols) around rock outcrops. Deep, imperfectly drained Red Vertosols (Red Clays) and deep to very deep, imperfectly drained Red and Brown Chromosols (Noncalcic Brown Soils) and possibly some Sodosols (Solodic Soils) occur along drainage lines and on sodic bedrock.

#### 2.5 Topography

The Study Area is considered relatively flat across its entirety. Some undulations occur (e.g. in vicinity of the Wallamore Anabranch). Elevation is around 380m across the Study Area.

#### 2.6 Surface Water

The Study Area is bounded in the north by the Peel river and the Wallamore Anabranch dissects the Study Area. Timbumburi Creek is located to the west.

## 2.7 Agricultural Land Classification

Three (3) available mapping data sets were available for review, namely:

- Land Capability Mapping (Emery 1985 Soil Conservation Service of NSW);
- Land and Soil Capability Mapping (NSW OEH 2013); and
- Biophysical Strategic Agricultural Land (BSAL) Mapping (Department of Planning and Environment 2013).

Land Capability Mapping (1985) map the majority of the Study Area as:

• Class 2 - Suitable for Regular Cultivation: Soil conservation practices such as strip cropping, conservation tillage and adequate crop rotation (Figure 4).

This area applies to the northern 138 ha of the Study Area. The remaining section of the Area is mapped as Urban.

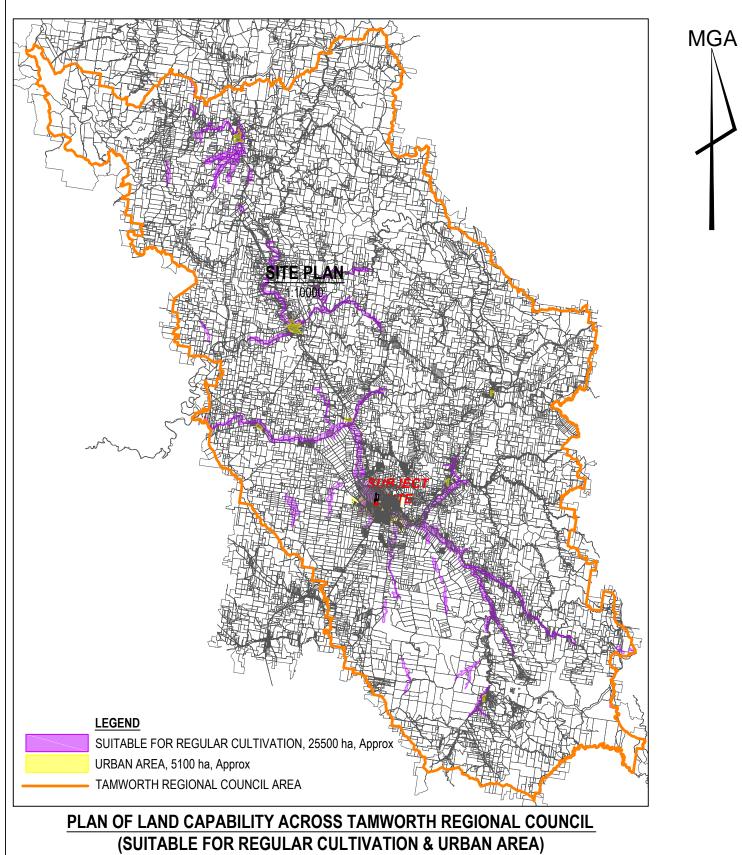
Land and Soil Capability Mapping (NSW OEH 2013) map (Figure 5) the Study Area into three classes, namely:

- Class 2 Slight but significant limitations. Land capable of sustaining high impact land uses which can be managed by readily available, and easily implemented management practices;
- Class 3 Moderate limitations. Land capable of sustaining high impact land uses using more intensive, readily available and accepted management practices;
- Class 4 Moderate to severe limitations. Land generally not capable of sustaining high impact land uses unless using specialised management practices with high level of knowledge, expertise, inputs, investment and technology. Limitations are more easily managed for lower impact land uses (e.g. grazing).

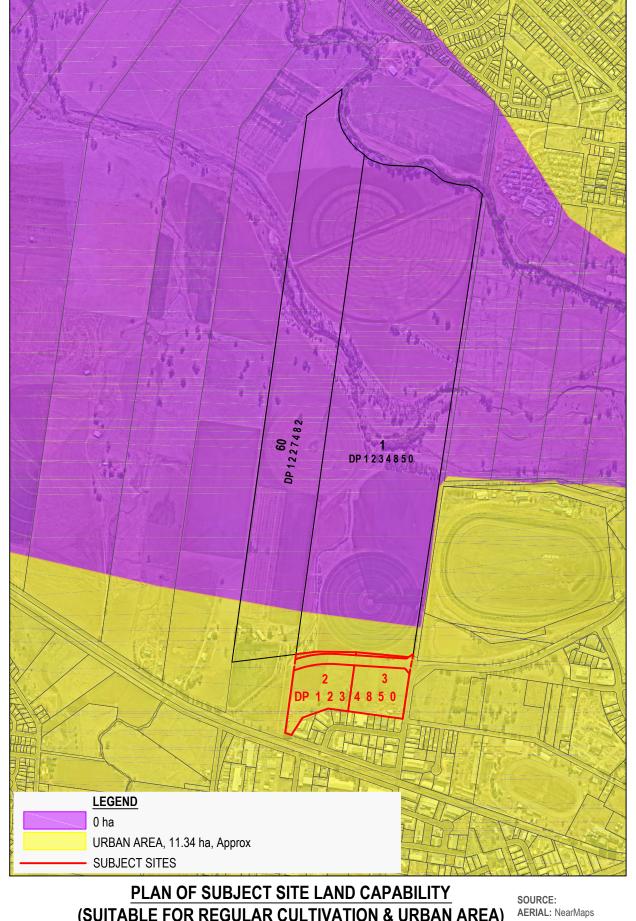
That is, this mapping takes into a number of attributes including:

- Soil acidity;
- Water;
- Soil structure;
- Wind erosion;
- Shallow rock;
- Salinity;
- Mass Movement; and
- Water logging/flooding.

The BSAL (2013) map the majority of the Study Area (152 ha) as strategic agricultural land (143 ha). This area generally aligns to that mapped within the Land Capability mapping of 1985. That is, it excludes the southern portion of the Study Area (Figure 6). It is important to note, the Proposal is not considered neither a mining or coal seam gas development. However, this mapping was utilised to obtain an understanding of the potential of the land for agricultural pursuits. Thereby, it has been determined that this proposal will not require a submission to the Commonwealth Independent Expert Scientific Committee.



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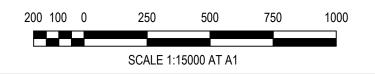


# (SUITABLE FOR REGULAR CULTIVATION & URBAN AREA)

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AERIAL: NearMaps LAND CAPABILITY: Emery 1985 Soil Conservation Service of NSW)

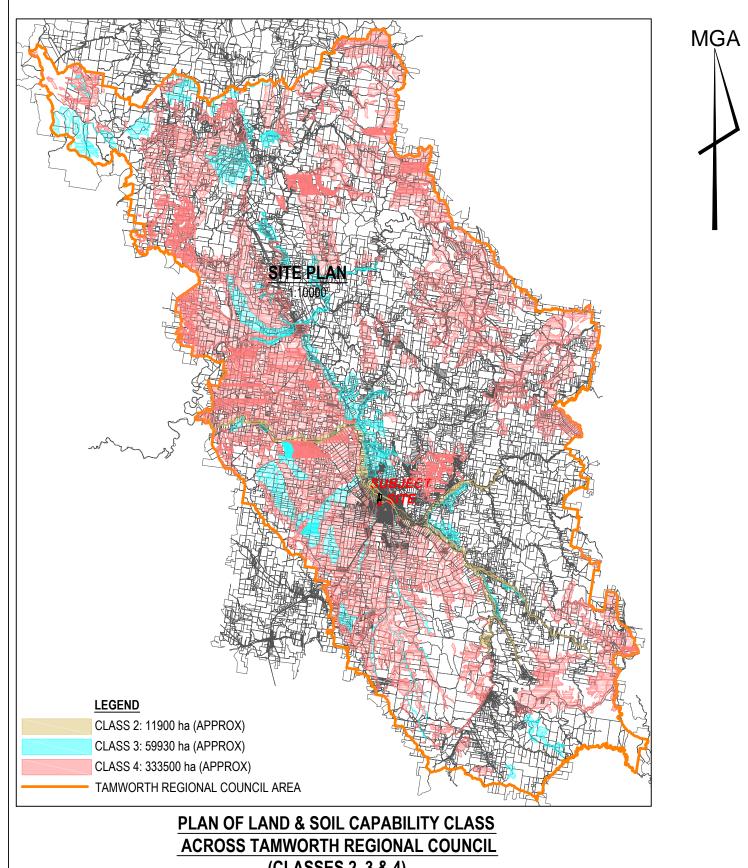
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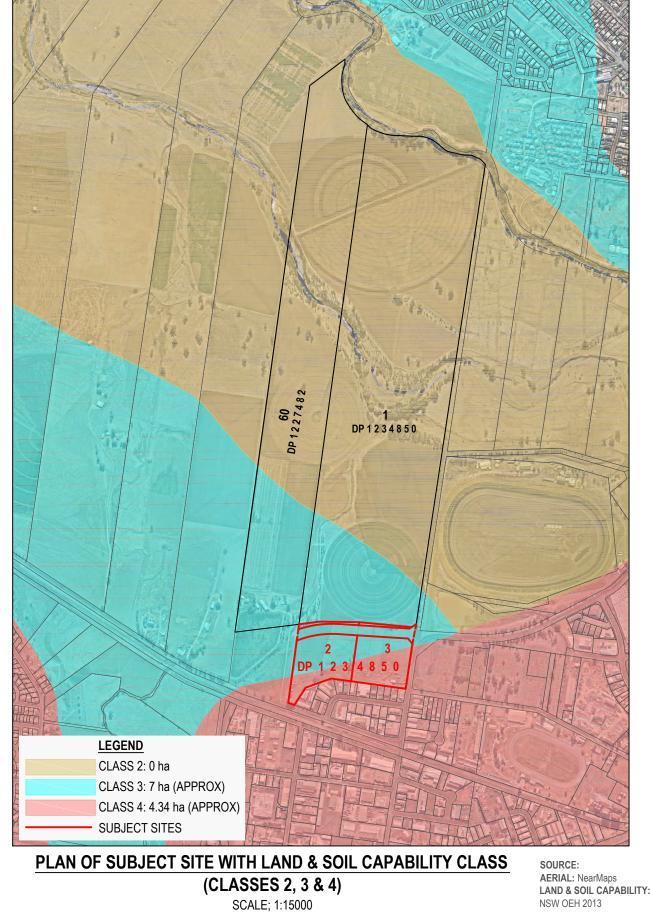
**PLAN OF LAND CAPABILITY** 

Figure 4



(CLASSES 2, 3 & 4)

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**NSW OEH 2013** 

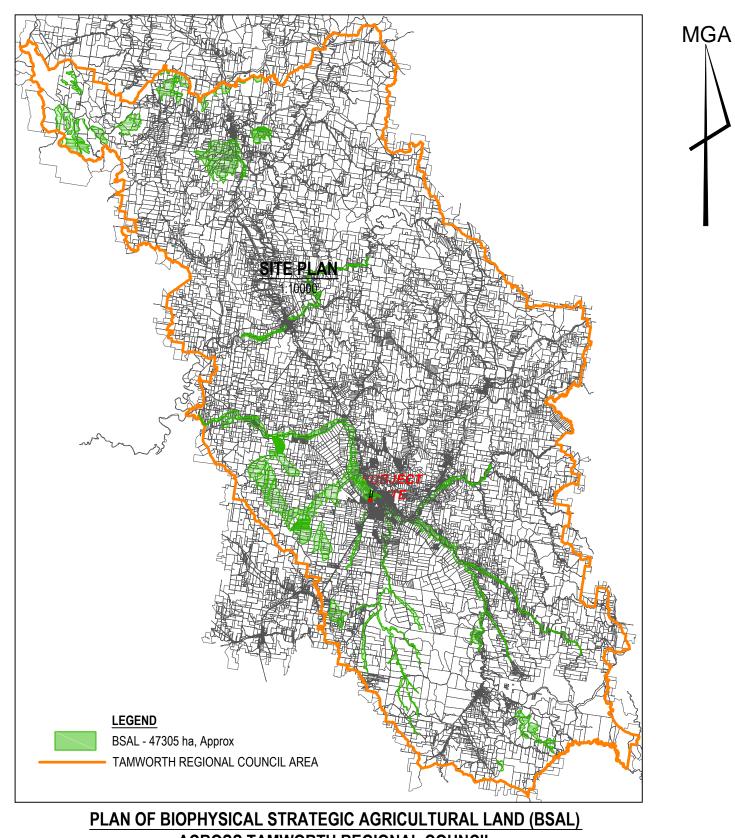




Lots 1 - 3 DP1234850 & Lot 60 DP1227482, 21 & 72 Wallamore Rd & 55 Dampier St, Taminda

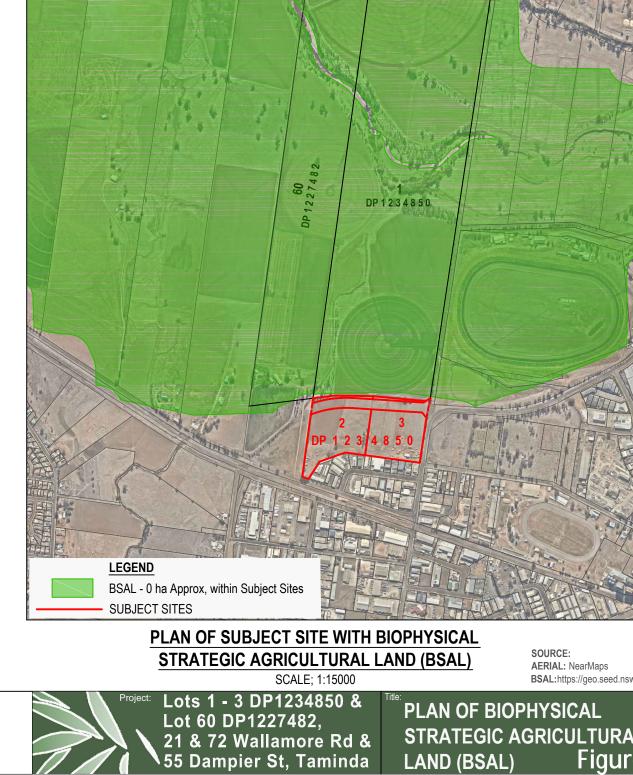
PLAN OF LAND & SOIL **CAPABILITY** 

Figure 5



# ACROSS TAMWORTH REGIONAL COUNCIL

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BSAL:https://geo.seed.nsw.gov.au

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STRATEGIC AGRICULTURAL Figure 6

# 3. Agricultural Impacts

#### 3.1 Proposal

As described above, the proposal is to rezone 11ha (or approximately 7% of the Study Area) within Lots 2 and 3 to IN1 (6.7ha), B5 (2.4ha) and road reserve (1.9 ha). The remainder of the Area would remain as RU4. The remainder of the Area would remain as RU4. The Solar Farm would be located in Lot 1 which would also not be rezoned. Further, while not being rezoned, approximately 13ha within Lot 60 would be utilised for flood mitigation measures. This area would not be exclusive to flood mitigation as flooding is irregular. That is, the area is likely to be available for use for agricultural purposes (surmised grazing only).

### 3.2 Agricultural Characteristics

The majority of the Study Area is considered to have good agricultural characteristics. The soils of the site are, in general, considered deep and fertile. The site is relatively flat and irrigation water can be accessed under approved licences.

However, the entire Study Area is located within a floodplain. Thereby, both historically and continuing, agricultural pursuits need to be adaptive to the ephemeral nature of flooding regimes. In addition, the site is located in close proximity to urban and industrial landuses. The latter bounds the south-eastern corner of the site. It is understood Jewry St is earmarked for extension to Wallamore Road and property boundaries confirm this alignment. That is, the road reserve dissects both Lots and 3 in the northern section of those allotments.

The Study Area represents a relatively small area of agricultural land within the LGA as follows:

Land Capability Mapping (Emery 1985 Soil Conservation Service of NSW):

- The Study Area within allotments represents 0.51% of the total area for 'Regular Cultivation' within the Tamworth LGA;
- None of the proposal is located within areas of 'Regular Cultivation' within the Tamworth LGA;
- The Proposal Area is wholly contained within the 'Urban' classification of this mapping;
- Thereby the proposal does not impact on any mapped area of Agriculture (e.g. Regular Cultivation) within the Tamworth LGA.

Land and Soil Capability Mapping (NSW OEH 2013):

- The Study Area within allotments represent:
  - o 0.97% of the total area of Class 2 within the Tamworth LGA;
  - o 0.06 % of the total area of Class 3 within the Tamworth LGA; and
  - 0.001% of the total area of Class 4 within the Tamworth LGA.
- The proposal area represents:
  - o 0.013 % of the total area of Class 3 within the Tamworth LGA; and

o 0.001% of the total area of Class 4 within the Tamworth LGA.

Biophysical Strategic Agricultural Land (BSAL) Mapping (Department of Planning and Environment 2013):

- The Study Area represents 0.302% of the total BSAL area within the Tamworth LGA; and
- None of the proposal area is mapped within the BSAL area.

#### 3.3 Agricultural Impacts by the proposal

The Study Area is considered to consist of relatively good Agricultural lands. It is considered if sufficient water was available, a range of agricultural activities could be pursued. However, a major natural characteristic precludes the Study Area being utilised for a range of high intensity, high value agricultural pursuits (e.g. orchards, plant nursery, intensive animal production). Flooding is considered restrictive for these pursuits as flooding would cripple any infrastructure installed (e.g. machinery, internal roads, buildings and the like). Historically the site has most likely been used for grazing purposes through the majority of its history and this would remain the most viable option for ephemeral use of the land (i.e. ease of moving stock during times of flood).

Recent cropping of the land is possible due to irrigation and crops selected would either be grown out of typical flooding periods (e.g. winter cropping, summer fallow) or crop selection may allow some tolerance to inundation.

The conflicts between Agriculture and urbanisation is likely to possibly be occurring at the site and is considered likely to escalate at the site with the continued growth of Tamworth. Conflicts often occur due to either direct or perceived impacts by both parties and include:

- air quality due to agricultural and rural industry (odour, pesticides, dust, smoke and particulates);
- use and enjoyment of neighbouring land e.g. noise from machinery;
- visual amenity associated with rural industry e.g. the use of netting, planting of monocultures and impacts on views;
- soil erosion leading to land and water pollution;
- clearing of native vegetation;
- stock access to waterways;
- harassment of livestock from straying domestic animals;
- trespass;
- changes to storm water flows or water availability; and
- poor management of pest animals and weeds.

While the proposal removes a small area of medium to good Agricultural land from the Tamworth LGA, the majority of the Study Area would be retained for agricultural purposes. This would include the area earmarked for flood mitigation measures whereby it is considered likely grazing activities could continue.

The Study Area lies in close proximity to the Tamworth urban area. The City of Tamworth is located to the north, south and east. The Study Area is somewhat isolated already from expansive areas of agricultural lands of the Tamworth LGA. Residential areas of Westdale are located to west. As such the proposal does not result in further isolation of agricultural lands. The proposal extends on existing developed lands thereby minimising the impact on agricultural lands in the immediate locality (i.e. Taminda).

#### 4. Discussion and Conclusion

Melaleuca Group Pty Ltd has been commissioned by Elton Consulting on behalf of Chan Abbey Holdings Pty Ltd to undertake an Agricultural Assessment for 55 Dampier Street and 72 Wallamore Road, Taminda NSW 2340 (the site) to allow for the proposed rezoning of part of the Study Area.

The investigation was completed using desktop resources. The Study Area in its current condition is considered degraded due to recent prolonged drought conditions. However, physical characteristics of the Study Area, obtained from desktop resources, indicate the Area is representative of good Agricultural land for the Tamworth area.

However, the Study Area is also flood prone. As such, limitations on intensifying agricultural pursuits are limited due to the inherent risk on infrastructure for such activities. Historical and future agricultural pursuits need to be adaptive to the ephemeral nature of flooding regimes. As such, it is considered likely that low intensity grazing and winter broadscale cropping are the most likely pursuits suitable for the Study Area.

In addition, the Study Area is located within an expanding urban area of the City of Tamworth where urbanisation exists to the north, south and east. Residential development, while not immediately adjacent is located to the west and north. In essence, the Study Area has already become isolated from expansive agricultural lands of the LGA. The proposal expands on urbanisation and does not segregate the remaining portion of the Study Area from agricultural lands.

The Study Area and to a lesser amount, the proposal represents very small areas of good agricultural lands within the LGA. The rezoning proposal would result in areas less than 0.1% of good agricultural land being lost from the LGA. Part of the proposal includes a solar farm.

It is important to note that solar farms do not preclude the use of land for agriculture. Grazing is one agricultural activity that is still possible whilst a solar farm is operating. In addition, it is considered likely that agricultural activities which were occurring prior to the construction of the solar farm would be able to continue once the solar farm is decommissioned and removed. Thereby the loss of agricultural lands by this proposal is considered less than that represented within this report.

In conclusion, this Agricultural Report has identified that while the site demonstrates medium to good agricultural characteristics, flooding, proximity to urbanisation, isolation from other lands and the small scale of the proposal does not represent a significant impact on agricultural lands in the LGA.

#### 5. References

Banks, R.G. 2001, Soil Landscapes of the Tamworth 1:100,000 Sheet Map, Department of Land and Water Conservation, Sydney

Cunningham, G.M., Higginson, F.R., Riddler, A.M.H., and Emery K.A., 1988, Systems used to classify rural lands in New South Wales.

EJE Town Planning. (2001). Parry Shire community based heritage study: draft report. Newcastle. (cited by Kayandel Archaeological Services 2018).

Emery, K. A. 1985, Rural Land Capability Mapping, Soil Conservation Service of NSW.

Kayandel Archaeological Services 2018, Proposed Industrial Rezoning, 55 Dampier Street (Lot 3 DP1234850), Taminda, Tamworth Regional Council LGA, NSW. Statement of Heritage Impact Prepared for Elton Consulting on behalf of Tamworth Industrial Pty Ltd December 2018. Lance Syme, Natalie Stiles and Meggan Walker.

NSW Agriculture, 2002. Agricultural Land Classification Agfact AC.25. Therese Hulme, Tom Grosskopf, John Hindle.

New South Wales Department of Environment and Planning, 1981, Rural Land Evaluation Manual, Woodward, R., and F. Neilson, Eds.

New South Wales Department of Planning, 1988, Rural Land Evaluation Manual", rev. edn., Woodward, R.

NSW Office of Environment and Heritage 2013, Land and Soil Capability mapping of NSW. Bioregional Assessment Source Dataset.

NSW Department of Primary Industries Office of Water 2018, http://allwaterdata.water.nsw.gov.au/water.stm

Office of Environment and Heritage 2012, The land and soil capability assessment scheme. Second approximation. A general rural land evaluation system for New South Wales.

Riddler A.M.H., 1996, Agricultural suitability maps - uses and limitations, NSW Agriculture Agfact AC.9, 3rd edn.

Stephens, C.G., 1962, A Manual of Australian Soils; Third Edition., CSIRO, Melbourne.

Tamworth Regional Council (TRC) 2010, Local Environmental Plan.

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