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Orchard Hills North Project

Agricultural Assessment: for Rezoning Area

Report to: Legacy Property
Level 45, 25 Martin Place, SYDNEY NSW 2000

Prepared for: Mike Williams, Head of Strategy & Acquisitions

Reference: Orchard Hills North Project

Report Date: 7 January 2023
(Based on original agricultural assessment issued 19 March 2018)

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Document Tracking

Date	Report Version	Details	Issued by
20 February 2018	Draft	Agricultural assessment based on field work completed December 2017.	Andrew Rice, ASPIRE agri
19 March 2018	Final – Version 1	Original agricultural assessment based on field work completed December 2017. Incorporates changes based on feedback from Legacy Property on draft report.	Andrew Rice, ASPIRE agri
25 February 2021	Final – Version 2	<i>No changes to agricultural assessment.</i> Minor revision of report text to address changes sought by NSW DPI&E in Gateway Determination, dated 22 February 2019.	Andrew Rice, ASPIRE agri
8 December 2021	Final – Version 3	<i>No changes to agricultural assessment.</i> Minor revision of report text and statistics tables in relation to project areas to address changes sought by Penrith City Council. The change in area is directly and solely related to a council instruction for Legacy to incorporate the entire width of the perimeter roads (previously mid-point of the roads).	Andrew Rice, ASPIRE agri
7 January 2023	Final – Version 3	<i>No changes to agricultural assessment.</i> Include addendum (page 3) to address various amendments to Planning Proposal leading up to and following the public exhibition period.	Andrew Rice, ASPIRE agri

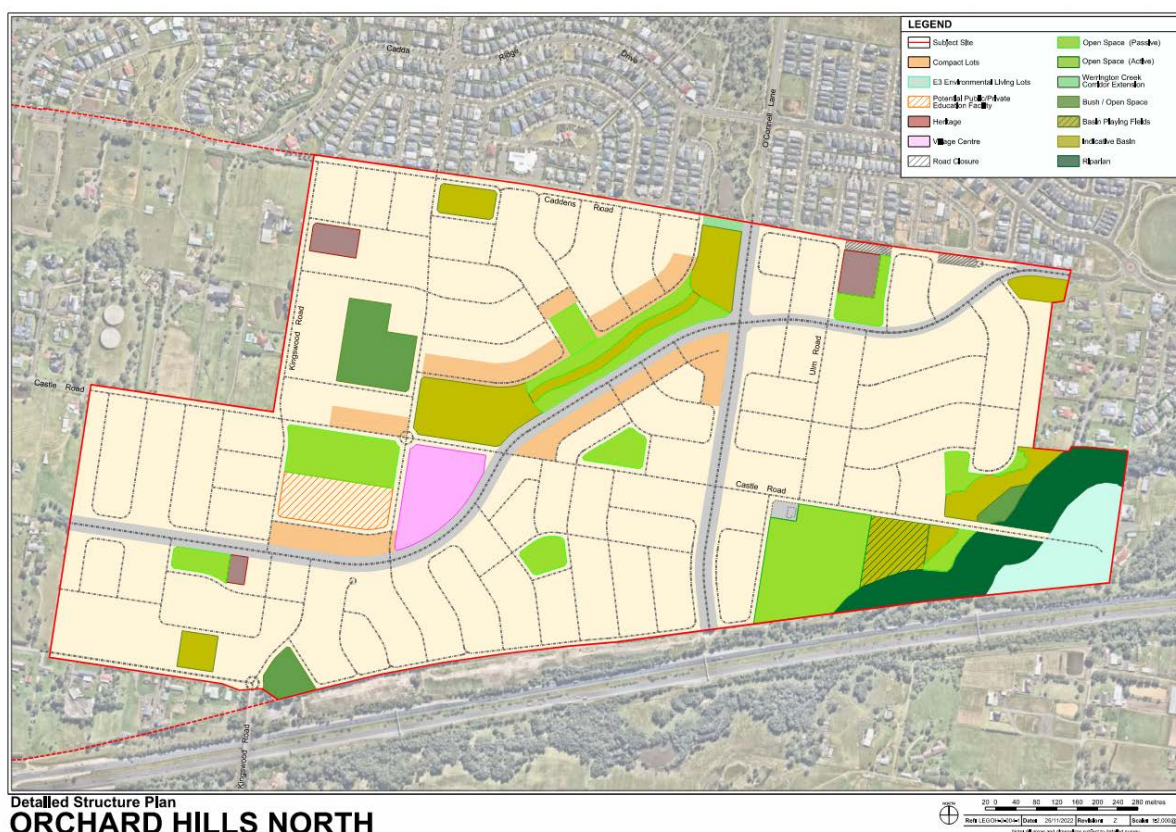
Technical Study Addendum (January 2023)

ASPIRE agri prepared the Agricultural Assessment in support of the Planning Proposal seeking to rezone a 151.9 hectare parcel of land referred to as Orchard Hills North.

Since the original report was prepared (20 February 2018), various amendments have occurred to the Planning Proposal leading up to and following the public exhibition period. These amendments generally include:

- Revision to the configuration of the potential new school site and adjoining open space OS8 in response to the requirements of Schools Infrastructure NSW.
- Incorporation of planning mechanisms relating to reservation of a proposed north-south road corridor, including incorporation of a Transport Investigation Area (TIA) overlay.
- Introduction of an additional stormwater detention basin B8, on the northern side of Frogmore Road.
- Altering or incorporating a range of planning mechanisms relating to:
 - Lot size controls,
 - Building height provisions for the potential new school site,
 - Precinct boundaries and yield controls and
 - Provision of local infrastructure.

Based on information provided by Legacy Property (20 December 2022), ASPIRE agri understands that there has been no overall change to the proposed yield of 1,729 lots or the fundamental intent of the Planning Proposal to facilitate urban development of the site supported by provision of appropriate local infrastructure. The final structure plan is shown in the following plan below.



The final Planning Proposal was endorsed by Penrith City Council on 12 December 2022.

The Planning Proposal is supported by a site specific Development Control Plan (DCP) and draft Section 7.11 Local Contributions Plan.

Technical Study Conclusions

Based on the information supplied to ASPIRE agri by Legacy Property (20 December 2022), the amendments incorporated into the final Planning Proposal are generally minor in nature and have no impact on the conclusions and recommendations of the original Agricultural Assessment.

The relevant recommendations of the report have been previously incorporated into the Planning Proposal and/or DCP as appropriate, and the final Planning Proposal remains consistent with the outcomes of our assessment.

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1. Executive Summary

This report presents an agricultural assessment in relation to a planning proposal to Penrith City Council to rezone 151.92 hectares of rural residential land in Orchard Hills North (“the Rezoning Area”) to permit a residential development project. It was written under instructions from Legacy Property, the planning proposal proponent.

The report investigates the agricultural suitability of lands on the Rezoning Area and potential impacts of the proposed development on agricultural production.

As a summary of the instructions accepted, ASPIRE agri were asked to provide a report detailing:

- Assessment of agricultural suitability of lands on the Rezoning Area;
- Address Section 9.1 Directions relating to rural zones and rural lands (Environmental Planning and Assessment Act 1979); and
- Consider the applicability of Metropolitan Rural Area (MRA) designation for the Rezoning Area contained in the ‘Draft Western City District Plan’ (October 2017)¹ as an element of the broader ‘Draft Greater Sydney Region Plan’ (October 2017)¹.

The agricultural suitability of lands on the Rezoning Area for agricultural production have been mapped by ASPIRE agri based on the Agricultural Land Classification system (NSW Department of Primary Industries).

The areas of each agricultural land class within the Rezoning Area are summarised in the table below. The areas are based on GIS agricultural suitability mapping by ASPIRE agri (February 2018), showing the entire Rezoning Area at that time being estimated as 148.36 hectares. This area differed from the original Rezoning Area (146.12 hectares) quoted in project description supplied by Legacy Property (applicable February 2018). An updated Rezoning Area (151.92 hectares) was advised by Legacy Property in December 2021. The difference between the original and updated Rezoning Areas advised by Legacy Property (i.e. February 2018 and December 2021; 146.12 versus 151.92 hectares) is understood to be solely due to Penrith City Council instructions to incorporate the entire width of the perimeter roads. Originally the Rezoning Area incorporated only the mid-point of roads. The difference between the area shown in the table below (148.36 hectares) and the updated Rezoning Area (151.92 hectares) is largely due to the ‘undevelopable area’ included with the inclusion of the full width of perimeter roads. Based on above, ASPIRE agri estimates that the “the developable area” within in the Rezoning Area is 148.36 hectares.

Area statistics from GIS mapping of ALC Classes on the Rezoning Area

Agricultural Land Class (ALC)	Area (ha)	Proportion of Total Area
Class 1	6.87	4.6%
Class 2	8.51	5.7%
Class 3	85.94	57.9%
Class 4	31.49	21.2%
Class 5	15.55	10.5%
TOTAL	148.36	100.0%

¹ As published by the Greater Sydney Commission.

There was no 'Specialist Class' agricultural land identified on the Rezoning Area.

Based on the agricultural assessment, the proposed re-zoning and development of the Rezoning Area will result in the loss of agricultural land which is potentially available for agricultural production. However, in practice only a limited proportion of potential agricultural land on the Rezoning Area is currently being used for agricultural enterprises. Notwithstanding the uncertainty on the nature of the horse operations on the Rezoning Area, the agricultural land use currently on the Rezoning Area is estimated by ASPIRE agri to be approximately 36.8 hectares (25% of the total developable area of 148.36 hectares).

The proposed re-zoning and development would result in 115 hectares of land with potential for agricultural use to be lost (78% of the total developable area). Approximately 80% of the potential agricultural land that would be lost (approximately 92 hectares) will be Agricultural Land Class (ALC) 3 or 4 lands.

ASPIRE agri considered that the proposed re-zoning and development of the Rezoning Area is generally consistent with the above Rural Planning and Rural Subdivision principles and is of minor significance in a regional context, in particular the MRA. The current agricultural potential of the Rezoning Area is limited by the:

- *current minimum lot size of lots in the Rezoning Area (detailed in Section 5.3);*
- *assessed agricultural suitability of the majority of the Rezoning Area (89.6% of the developable area is ALC Class 3 to 5); and*
- *the ALC Class 1 and 2 areas are relatively small (15.38 hectares; 10.4% of developable area) and fragmented (dissected by public roads and spread across 10 separate lots).*

With respect to the Rezoning Area, the proposal is not considered to contribute significantly to the:

- *fragmentation of agricultural land; and*
- *potential land use conflicts with adjoining rural lands.*

The above ASPIRE agri conclusions are supported by the following:

- *Fragmentation of agricultural land: The current land zoning has already led to fragmentation of rural land and has impacted on the potential for commercial agricultural land use on the Rezoning Area. There are no recognisable agricultural clusters on the Rezoning Area or in nearby areas (see Section 6.3).*
- *Potential land use conflicts: The predominate land use on the Rezoning Area and surrounding area is residential. Therefore, further residential development on the Rezoning Area is unlikely to result in significant potential land use conflict with adjoining rural lands. The motorway provides a substantial buffer from rural areas to the south of the Rezoning Area.*

Based on the matters detailed in this report, ASPIRE agri considers that the proposal is consistent with the requirements of the Draft Western Sydney District Plan (October 2017) and Values of the MRA (2017) with respect to scope of the agricultural assessment commission by Legacy Property.

2. Introduction

2.1 Purpose of this Report

This report presents an agricultural assessment in relation to an intended planning proposal to Penrith City Council to rezone 151.92 hectares of rural residential land in Orchard Hills North ("the Rezoning Area") to permit a residential development project. It was written under instructions from Legacy Property, the planning proposal proponent.

The report investigates the agricultural suitability of lands on the Rezoning Area and the potential impacts of the proposed development on agricultural production.

This report has been prepared with regard to the objectives and strategies set out in the Section 9.1 Directions relating to rural zones and rural lands (Environmental Planning and Assessment Act 1979) and the Metropolitan Rural Area designation contained in the Draft Greater Sydney Region Plan. It has also been prepared in accordance with the Ag Institute Australia code of ethics².

All enquiries which are desirable and appropriate have been made. No relevant matters of significance which the authors regard as relevant have, to the knowledge of the authors, been withheld.

This report has been prepared by Andrew Rice (ASPIRE agri) with the assistance of Peter Tremain (Tremain Ivey Advisory). The conclusions reached, and the opinions expressed within the report are jointly those of both Andrew Rice and Peter Tremain.

2.2 Instructions Accepted

The engagement was managed by The Trustee for Legacy Property Unit Trust ('Legacy Property'; ABN 75 600 144 578).

This report has been prepared in response to 'Orchard Hills rezoning brief' document supplied by Mike Williams, Legacy Property (dated 14 November 2017).

ASPIRE agri were asked to provide a report detailing:

- Assessment of agricultural suitability of lands on the Rezoning Area;
- Address Section 9.1 Directions relating to rural zones and rural lands (Environmental Planning and Assessment Act 1979); and
- Consider the applicability of Metropolitan Rural Area (MRA) designation for the Rezoning Area contained in the 'Draft Western City District Plan' (October 2017)¹ as an element of the broader 'Draft Greater Sydney Region Plan' (October 2017)¹.

It is understood that current and potential land use conflicts between the Rezoning Area and neighbouring lands, and strategies to help minimise the potential for land use conflicts, are not required to be addressed in this assessment. This is based on advice provided by Penrith City Council to Legacy Property³.

² http://www.aginstitute.com.au/data/AIA_Policies/Updated_Code_of_Ethics.pdf

³ Email from M Williams (21 November 2017).

2.3 Information Sources

Legacy Property provided a range of documents for the preparation of this report. These documents were outputs of other consultancies commissioned by Legacy Property in relation to the proposed planning proposal.

While the outputs of all consultancies were reviewed for the preparation of this report, following are the key consultancies that were utilised in the preparation of this report:

- Water Cycle and Flood Study (J Wyndham Prince);
- Rezoning Area Contamination Assessment (JBS&G);
- Ecological Study – Flora and Fauna (Cumberland Ecology); and
- Geotechnical – including salinity (Douglas Partners).

A complete list of information sources used in the preparation of this report is shown in Section 8.

In addition to the above documents, information to assist in the preparation of this report was obtained from an inspection of the Rezoning Area by Andrew Rice (ASPIRE agri) on 14 December 2017.

3. Project Description

3.1 Overview

Legacy Property is proposing to rezone a site in Orchard Hills North, located within the Penrith Local Government Area (LGA). The proposed rezoning area is approximately 151.92 hectares (ha) with frontages to Caddens Road to the north, Kingswood Road to the west, the Western Motorway to the south and Claremont Meadows residential lots to the east.

Orchard Hills North, is well located being north of the Western Sydney Motorway, in close proximity to the University of Western Sydney (to the north), Nepean Hospital (to the north) and to the Penrith City Centre. South of the Motorway is currently mostly Orchard Hills rural lands, Defence Lands and to the south west is Glenmore Park. Further south, will be the Badgerys Creek Airport.

3.2 Rezoning Area Location

The Rezoning Area comprises 54 existing lots (including the school and uniting church), located at the following addresses:

- 80-154 Caddens Road, Orchard Hills;
- 26-48 Kingswood Road, Orchard Hills;
- 117-149 Castle Road, Orchard Hills;
- 53-105 Castle Road, Orchard Hills;
- 182-226 Caddens Road, Orchard Hills;
- 2-164 Castle Road, Orchard Hills;
- 1-5 Castle Road, Claremont Meadows;
- 7 Castle Road, Claremont Meadows; and
- 5, 9, 13, 19, 23, 29, 33 and 35 Frogmore Road, Orchard Hills.

The proposed Rezoning Area is identified in Figure 1 (on page 12).

The regional context for the Rezoning Area is shown in Figure 2 (on page 13).

The existing fragmented ownership of the site has historically been a barrier to coordinated planning or development of the area, however Legacy Property has now secured agreements covering the majority of the rezoning area.

Legacy Property nominated the Orchard Hills North site under Penrith City Council's Accelerated Housing Delivery Program (AHDP) in October 2017. In November 2017 the site was endorsed by Penrith City Council as a short-term rezoning opportunity to provide for housing delivery over the next 3-5 years.

Figure 1: Orchard Hills North aerial plan showing Rezoning area (Design and Planning 2018)

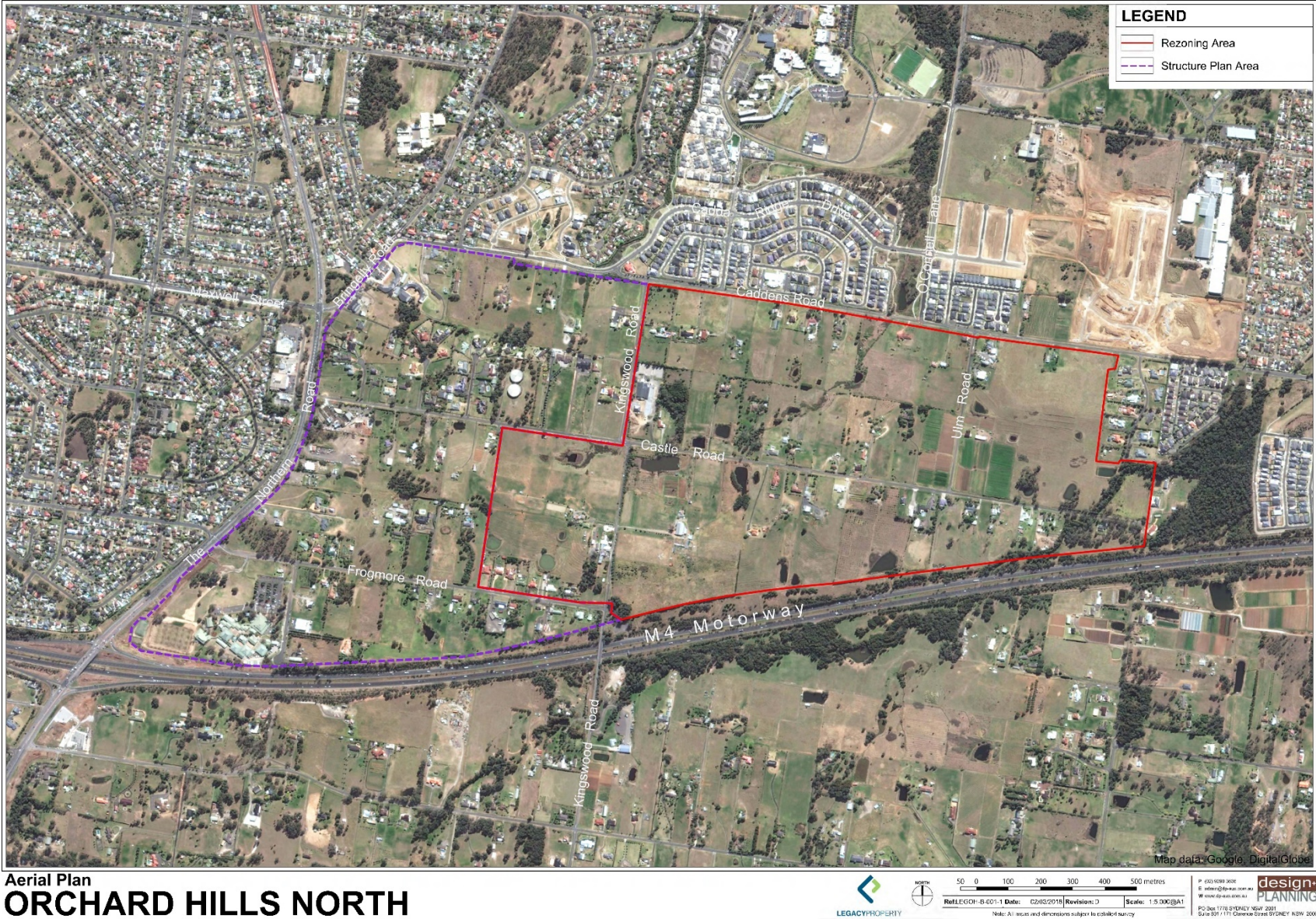
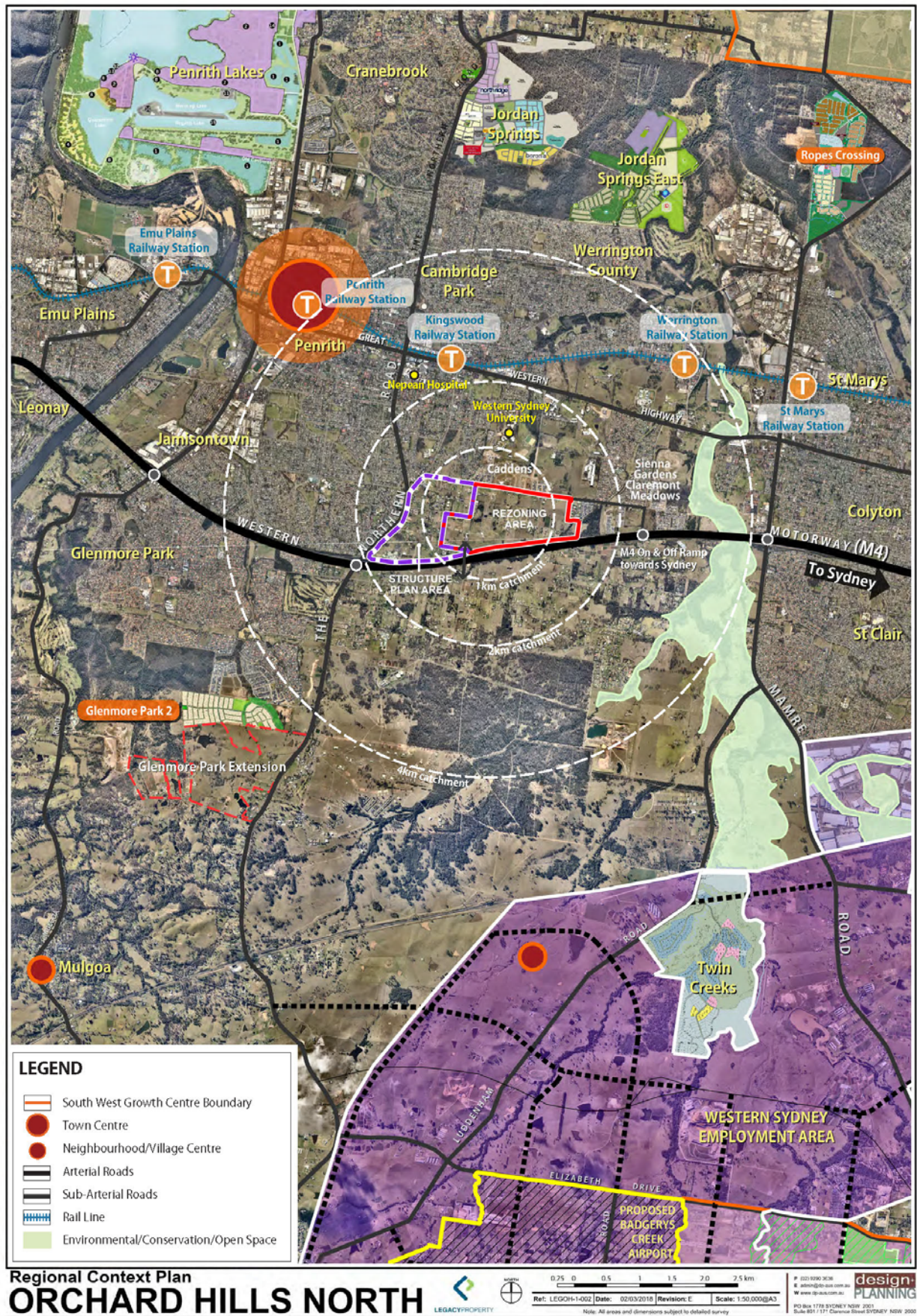


Figure 2: Regional context for the Rezoning Area (Design and Planning 2018)



3.3 Structure Plan and Rezoning Area

The Planning Proposal (PP) for Orchard Hills North aims to rezone the 151.92 ha site from agricultural land to mixed land uses, forming around 1,729 residential lots, a neighbourhood centre and numerous areas of green space.

Discussions with the Department of Planning and Environment (DP&E) and Council have highlighted the need to consider the logical extension of the rezoning area west (namely the Structure Plan area) to The Northern Road, to ensure that future land uses and connections for the entire Orchard Hills North precinct are planned in a holistic manner.

In order to ensure that the future development is fully integrated, a high-level Structure Plan has been prepared for the entire precinct, covering an area of approximately 268.06 ha. The Structure Plan considers how the rezoning area (151.92 ha) integrates with the balance of the precinct (116.14 ha) and identifies potential future land uses as well as key road connections. It is expected that the Structure Plan will provide a framework for the future rezoning of the remaining area, either through a Council Local Environmental Plan (LEP) amendment or a developer/owner led Planning Proposal

Council has endorsed proceeding with the rezoning area at present to meet the objectives of its Accelerated Housing Delivery Program. A significant factor in this approach is that Legacy Property has secured agreements covering a majority of the rezoning area and is therefore in a position to progress with the planning proposal and provide greater certainty for coordinated future development. Council is also proposing to undertake a strategic corridor study for The Northern Road and any proposal to rezone that land may pre-empt the outcome of this study.

As a result, the same level of technical investigations undertaken for the rezoning area have not yet been undertaken for the wider Structure Plan area. The balance of the Structure Plan area has been considered as part of investigations for this planning proposal, however not at a detailed level to support rezoning.

3.4 Background

The cultural landscape of the Orchard Hills North site has developed as a rural landscape over the past 100 years with constantly evolving pastoral practices and declining Cumberland Plain Woodland. Within the last 50 years Orchard Hills North has typically been associated with orchard food production, grazing farming practices with some specialisation in agricultural farming and rural residential communities.

Although genuine food production practices have steadily declined over recent years, and only two lots within the site are currently used for any form of agricultural production, the site remains zoned as RU4 Primary Production Small lots. Today, the majority of the site is utilised for residential purposes and has been substantially cleared.

3.5 Vision

Orchard Hills North will be a residential community set amongst rolling hills in the rich natural landscape of Western Sydney, offering panoramic views to the Blue Mountains and surrounding areas. The development will incorporate a diverse mix of housing types across approximately 1,729 residential lots, focused around a new neighbourhood centre that forms the focal point of the future community and offers a high level of convenience for residents.

The overarching vision of Orchard Hills North is to support a safe and connected community. This will be achieved through the provision of a wide variety of green spaces and links, connecting each of the future neighbourhood precincts with one another as well as the wider regional community, thereby placing a focus on active transport such as walking and cycling.

3.6 Design Principles

A site analysis, supported by extensive technical studies, has informed the following design principles for the Structure Plan and rezoning area:

- Retain key creek lines and capitalise on the opportunity to create a central green link
- Retain existing significant vegetation as natural bushland.
- Manage and retain views into and out of the site.
- Provide opportunities for a diverse mix of housing types, with medium density housing located around the neighbourhood centre and major open space
- Create a new neighbourhood centre combined with a relocated primary school to establish a community focal point
- Respect heritage buildings and the character of the area
- Integrate with the community to the north, west and east.
- Link O'Connell Lane, Caddens Road, Frogmore Road and The Northern Road into a meaningful urban road network.
- Improve water quality and water flow.
- Utilise landscaping and topography on the southern boundary to manage noise.
- Promote pedestrian and cycle linkages.
- Generate employment opportunities along the Northern Road.

3.7 Master Plan and Rezoning description

It is proposed to rezone the site from RU4 Primary Production Small Lots, under Penrith Local Environmental Plan (PLEP) 2010, to part R1 General Residential, B2 Local Centre, RE1 Public Recreation, E2 Environmental conservation and E3 Environmental Management in the south eastern corner of the site, as well as provide for appropriate controls relating to minimum lot size, height, heritage items, and visual landscape.

The rezoning of Orchard Hills North will provide between approximately 1,729 residential lots. It is expected that the site will ultimately provide a broad mix of housing types ranging from larger environmental living lots (2,000 m²) to traditional detached residential lots (primarily 300 to 600 m²) and smaller compact and attached housing lots (minimum of 225 m²). The proposed neighbourhood centre will provide around 6,000 to 8,000 m² of retail space supported by cycle and pedestrian links with approximately 15.77 ha of open space, bushland and riparian corridors.

A new/relocated primary school is proposed adjacent to the neighbourhood centre, supported by open space to facilitate share usage. The location of parks and open space areas have been carefully selected to enhance the existing value of the natural landscape, such as hill tops and

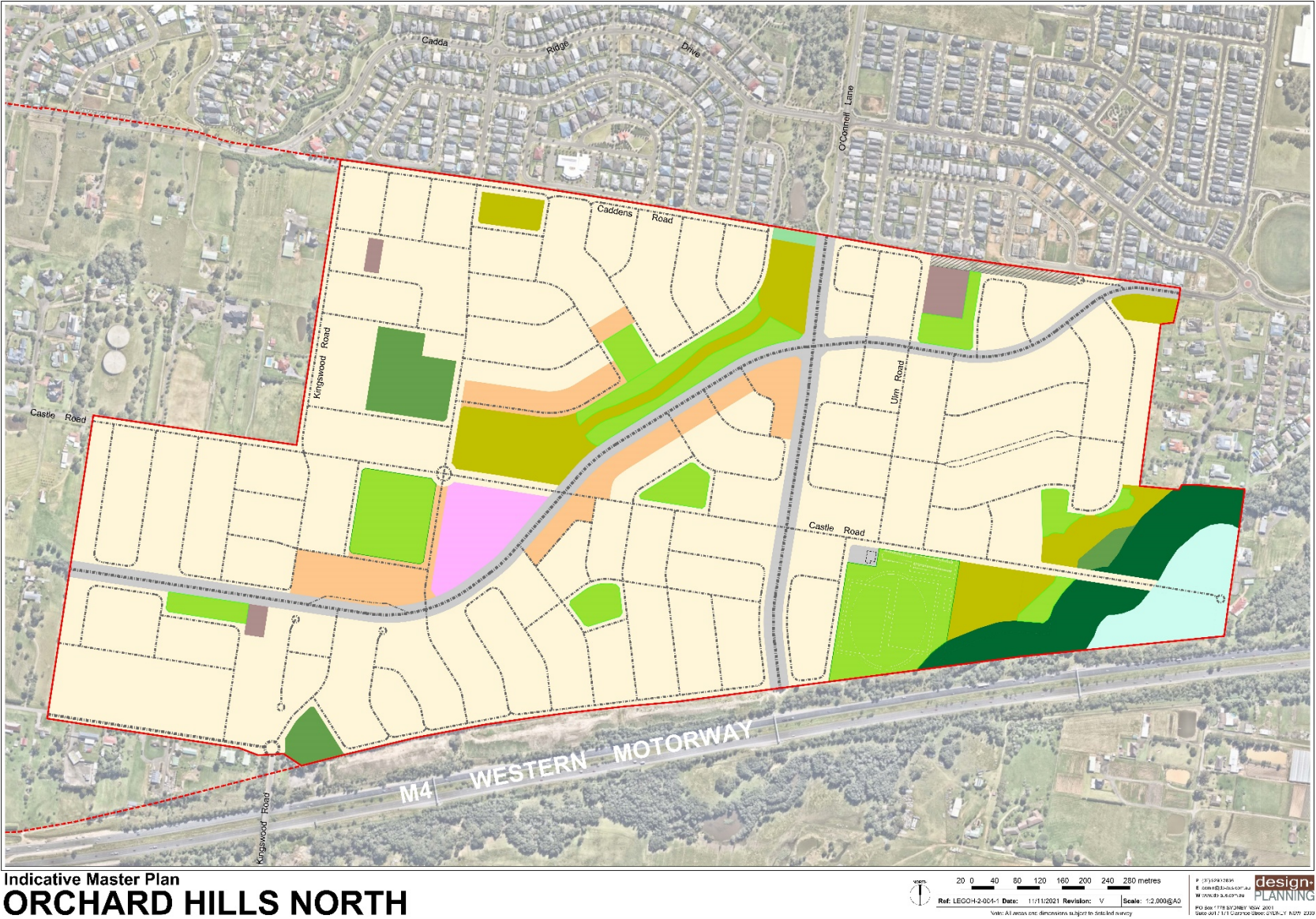
creek lines, and to retain the significant bushland areas, in order to provide the highest level of amenity for future residents.

The site is physically and strategically suited for urban development, noting that:

- It is a discrete area formed by the boundary of an existing urban area and major road infrastructure.
- It adjoins an existing residential subdivision, and in close proximity to the hospital, Western Sydney University and the Penrith CBD.
- There are limited environmental or physical constraints that would prevent redevelopment
- It is outside the Western Sydney Priority Growth Area and is therefore better placed to be rezoned through a developer led PP
- Upgrades are currently being undertaken to the Northern Road, which the Orchard Hills site is located east thereof, and gains access thereto. Thus, the rezoning of the land will support the Government's cost of infrastructure and will result better utilisation of the land
- It is able to capitalise on the availability of new and existing infrastructure, such as the recently completed Werrington Arterial Road and new M4 on and off-ramps, the signalisation of the Frogmore Road/Northern Road intersection as part of The Northern Road upgrade, and four train stations within 4.5km of the site (Penrith, Kingswood, Werrington, St Marys).

The indicative Concept Master Plan for the site is identified in Figure 3 (on page 17).

Figure 3: Indicative Concept Master Plan for the site (Design and Planning 2021)



4. Background to Agricultural Assessment

4.1 Overview

The agricultural assessment has been conducted with regard to the objectives and strategies set out in:

- Section 9.1 Directions relating to rural zones and rural lands (Environmental Planning and Assessment Act 1979);
- The Draft Western City District Plan (October 2017); and
- Values of the Metropolitan Rural Area of the Greater Sydney Region (Ag Econ Plus 2017).

The following subsections detail the available assessment systems for agricultural land, the rationale for the system select for use in this report, the specific methodology employed and the limitations of the assessment.

4.2 Assessment Systems

There are a range of systems to assess and classify land for agricultural land use in Australia. These systems generally focus on the relative suitability or capability of land for sustainable agricultural production, providing guidance on the highest intensity agricultural production systems that can be sustainably supported on the land.

Within New South Wales (NSW) there are two systems that have been in long term, common use to assess and classify land for sustainable agricultural land use. These two systems are detailed below.

4.2.1 Land and Soil Capability assessment scheme

The Land and Soil Capability (LSC) assessment scheme was published in 2012 by the Office of Environment & Heritage (OEH)ⁱ, representing a revision of an earlier scheme that was first published by the former Soil Conservation Service of NSW in 1986ⁱⁱ. The LSC system (2012) builds on the earlier scheme, but with more emphasis on a broader range of soil and landscape properties.

LSC assessment is based on an assessment of the biophysical characteristics of the land, the extent to which this will limit a particular type of land use, and the current technology that is available for the management of the land. It provides information on the broad agricultural land uses most physically suited to an area. That is, it determines the best match between the physical requirements of the use and the physical qualities of the land, and the potential hazards and limitations associated with specific uses over a site. The LSC system can provide guidance on the inputs and management requirements associated with different intensities of agricultural land use.ⁱ

The LSC assessment is based on the premise that *using land beyond its capability may have serious consequences for the land and soil resources of the State as well as broader environmental impacts on water, air and biodiversity*^j.

The LSC assessment scheme comprises eight land capability classes (1 to 8) with values representing a decreasing capability of the land to sustain intensive agricultural land use. Class

1 represents land capable of sustaining most intensive land uses including those that are often associated with regular soil cultivation, whereas Class 8 represents land that can only sustain very low intensity land uses.

The current LSC scheme was initially developed for the NSW property vegetation planning program under the Native Vegetation Act 2003 and further upgraded for the NSW Natural Resources Monitoring, Evaluation and Reporting program.

The LSC assessment scheme uses the biophysical features of the land and soil including landform position, slope gradient, drainage, climate, soil type and soil characteristics to derive detailed rating tables for a range of land and soil hazards. These hazards include water erosion, wind erosion, soil structure decline, soil acidification, salinity, waterlogging, shallow soils, and mass movement. Each hazard is given a rating between 1 (best, highest capability land) and 8 (worst, lowest capability land). The final LSC class of the land is based on the most limiting hazard.

The LSC class gives an indication of the land management practices that can be applied to a parcel of land without causing degradation to the land and soil at the site and to the off-site environment. As land capability decreases, the management of hazards requires an increase in knowledge, expertise and investment. In lands with lower capability, the hazards cannot be managed effectively for some land usesⁱ.

The OEH LSC assessment scheme is most suitable for broad-scale assessment of land capability, particularly for assessment of lower intensity, dry-land agricultural land use. It is less applicable for high intensity land use or for irrigationⁱ.

4.2.2 Agricultural Land Classification

The current Agricultural Land Classification (ALC) systemⁱⁱⁱ was developed by the former NSW Agriculture (now NSW Department of Primary Industries (DPI)). The ALC system is based on, and updates, information in the Rural Land Evaluation Manual (1988)^{iv}.

The ALC system was developed specifically to meet the objectives of the Environmental Planning and Assessment Act 1979, in particular 5(a) (i) 'to encourage the proper management, development and conservation of natural and man-made resources, including agricultural land for the purpose of promoting social and economic welfare of the community and a better environment'ⁱⁱⁱ.

Agricultural land is classified by evaluating biophysical, social and economic factors that may constrain the use of land for agriculture. In general terms, the fewer the constraints on the land, the greater its value for agriculture. Each type of agricultural enterprise has a particular set of constraints affecting production.

Some specific types of agricultural enterprises do not depend on land suitability and are not included in this system. Such activities include intensive animal industries (poultry, pig and cattle feedlots) as well as nurseries, glasshouses, hydroponics and mushroom sheds. NSW DPI and other government agencies produce guidelines that addresses siting and management issues for these industries. As many of these intensive agricultural industries use agricultural land to manage effluent and provide a buffer zone, agricultural land classification is relevant to these aspects of the industriesⁱⁱⁱ.

ASPIRE agri considers that Agricultural Land Classification (NSW DPI)ⁱⁱⁱ is the most suitable system for the meeting the requirements of the agricultural assessment (as detailed in Section 4.1).

4.3 Assessment Methodology applied in this Report

The agricultural assessment detailed in this report is based on the Agricultural Land Classification (NSW DPI) detailed in Section 4.2.

The Agricultural Land Classification (ALC) system does not include a comprehensive and prescriptive list of all the constraints affecting each form of agriculture. However, a set of constraining factors common to most agricultural industries is provided to guide the ALC assessment ⁱⁱⁱ. These common constraining factors are grouped as: biophysical, social and economic. This grouping of constraining factors has been applied in the Agricultural Assessment detailed in this report (see Sections 5.4 biophysical, 5.5 social and 5.6 economic).

In addition to the biophysical, social and economic constraints to agricultural land use, the historical and current land use has also been considered as an additional indicator of agricultural suitability.

Consideration has also been given to the applicable aspects of methodology and assessment guidelines of land use planning from the following documents:

- The Land and Soil Capability assessment scheme: A general rural land evaluation system for New South Wales (NSW Office of Environment and Heritage, October 2012) as described in Section 4.2.1.
- Farm Subdivision Assessment Guideline: Developments with the potential for creating additional dwelling entitlements. 'Prime Facts' Issue 972. (NSW Department of Infrastructure and Investment, 2009).

The ALC mapping within this report has been produced using a combination of:

- field survey (Rezoning Area inspection by ASPIRE agri, 14 December 2017);
- outputs of other consultancies commissioned by Legacy Property in relation to the proposed planning proposal (see Section 2.3);
- interpretation of publicly available remotely sensed data (time series of satellite imagery);
- publicly available natural resource geographic information systems (GIS) datasets; and
- Assumptions with respect to agricultural land use confirmed in consultation with Legacy Property.

The ALC assessment has been made without consideration for the current land tenure and presence of non-agricultural infrastructure. That is, the suitability has been assessed on the basis of ALC Classes being unconstrained by:

- land title: adjoining areas of same ALC Class under different ownership could be operated together; and
- the presence of non-agricultural infrastructure: infrastructure could be removed to permit agricultural land use.

A detailed description of each ALC Class is provided in Appendix 7.3.

4.4 Limitations of the Agricultural Assessment

There are some limitations with the agricultural assessment detailed in this report that should be noted. These limitations relate to the following factors:

- **Field survey:** A detailed field survey of entire land area within the Rezoning Area was beyond the scope of the engagement. ASPIRE agri conducted a targeted inspection of the Rezoning Area, accessing selected properties representing the major land suitability classes and land uses, within the properties where access agreements were in place at the time of the inspection. General observations of lands across the Rezoning Area were also made from the accessed properties and from public lands within the Rezoning Area.
- **Limitations of Scale:** The method by which the ALC mapping was prepared and many of the GIS datasets utilised in the mapping, have 'limitations of scale'.

Limitations of scale with respect to ALC mapping are described in detail by NSW DPI in the key resource for the ALC system^v. An overview of the key aspects is presented below.

Transitional zones: There are transitional zones between most biophysical features, hence there are transition zones between the ALC Classes. Therefore, while mapped in this report as having sharp, definite boundaries, in practice there are transition zones between ALC Classes.

Spatial Variability: Due to both natural and man-made spatial variability in biophysical factors across the Rezoning Area, any mapped ALC Class will comprise lands with characteristics (and hence agricultural suitability) that vary from the predominant ALC Class.

- **Access to detailed biophysical information for the Rezoning Area:** There is limited detailed biophysical information for the Rezoning Area.

There is only very broad information available on soils. Soil type and condition has a significant bearing on the assessment of ALC Class. Detailed soil survey of the Rezoning Area was beyond the scope of this report, and beyond the scope of other consultancies commissioned in relation to the planning proposal. Therefore, the ALC assessment in this report is largely reliant on published, broad scale soil information with scale 1:100,000 to 1:250,000 (see Section 5.4.3).

- **Changes to constraints over time:** An inherent feature of ALC mapping is that they have a limited working life ⁱⁱⁱ.

The ALC system is based on the current biophysical, social and economic constraints to agricultural land use at the time of the assessment. These constraints may change over time. While changes to social and economic constraints are expected to be the

most common, there can also be changes to biophysical factors. For example, if an area classified as Class 3 agricultural land becomes affected by soil salinity, and therefore becomes no longer suitable for cropping, it would need to be reclassified as Class 4 agricultural land ⁱⁱⁱ.

5. Agricultural Assessment for the Rezoning Area

5.1 Overview

The agricultural assessment detailed in this report is based on the Agricultural Land Classification (ALC) system detailed in Section 4.2. The specific methodology employed with the application of the ALC system in this report is detailed in Section 4.3.

As detailed in Section 4.2, the most common constraints affecting agriculture are grouped as: biophysical, social and economic. These grouping of constraining factors have been applied in the agricultural assessment and are detailed the following sub sections of the report.

In addition to the biophysical, social and economic constraints to agricultural land use, the historical and current land use has also been considered as an additional indicator of agricultural suitability as detailed in Section 5.7.

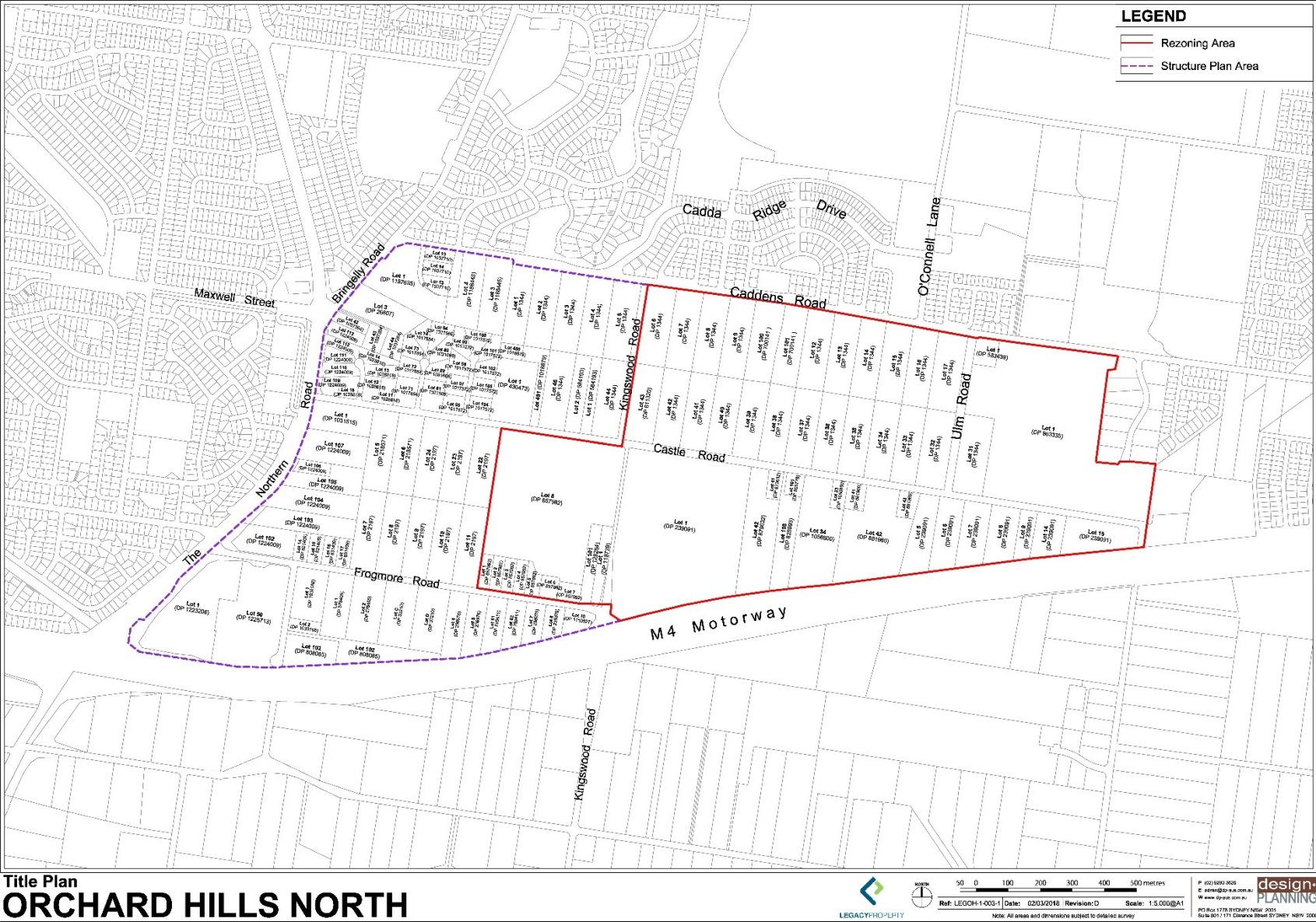
5.2 Current Land Ownership within the Rezoning Area

Legacy Property currently controls approximately 70% of the rezoning area under a combination of option agreements and development management arrangements.

Current land title information for the Rezoning Area is shown in Figure 4 (page 24). Based on details supplied by Legacy Property, ASPIRE agri understand that within the Rezoning Area there are:

- Total of 54 existing lots (including a school and two churches);
- 38 lots under ownership of discrete private owners;
- 9 lots owned by private landowners that are currently tenanted; and
- One lot owned by Penrith City Council (occupied by Rural Fire Service) and another two lots owned by church groups (Brethren Church and Uniting Church).

Figure 4: Current title plan for the Rezoning Area (Design and Planning 2018)



5.3 Current Land Zoning within the Rezoning Area

Current land zoning within the Rezoning Area under the Penrith Local Environment Plan (LEP; 2010) is shown in Appendix 7.1.

As shown in Appendix 7.1, the entire Rezoning Area is zoned 'Primary Production Small Lots'(RU4). Details from the Penrith LEP (2010) for RU4 is presented below^{vi}:

Zone RU4 - Primary Production Small Lots

1. Objectives of zone

- *To enable sustainable primary industry and other compatible land uses.*
- *To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- *To ensure land uses are of a scale and nature that is compatible with the environmental capabilities of the land.*
- *To preserve and improve natural resources through appropriate land management practices.*
- *To maintain the rural landscape character of the land.*
- *To ensure that development does not unreasonably increase the demand for public services or facilities.*

2. Permitted without consent

Extensive agriculture; Home occupations

3. Permitted with consent

Agricultural produce industries; Agriculture; Animal boarding or training establishments; Building identification signs; Business identification signs; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Environmental facilities; Environmental protection works; Farm buildings; Flood mitigation works; Home-based child care; Home businesses; Home industries; Intensive plant agriculture; Information and education facilities; Places of public worship; Plant nurseries; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural supplies; Schools; Secondary dwellings; Tourist and visitor accommodation; Veterinary hospitals

4. Prohibited

Dairies (restricted); Feedlots; Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

Appendix 7.2 shows the minimum lot size as specified in the Penrith LEP (2010) with the current zoning for lots within the area covering the Rezoning Area. The minimum lot size for most of the lots in the Rezoning Area is 2 hectares (map code: Z), with four lots having a minimum lot size of greater than 1,000 hectares (map code: AI).

5.4 Biophysical Constraints

5.4.1 Topography

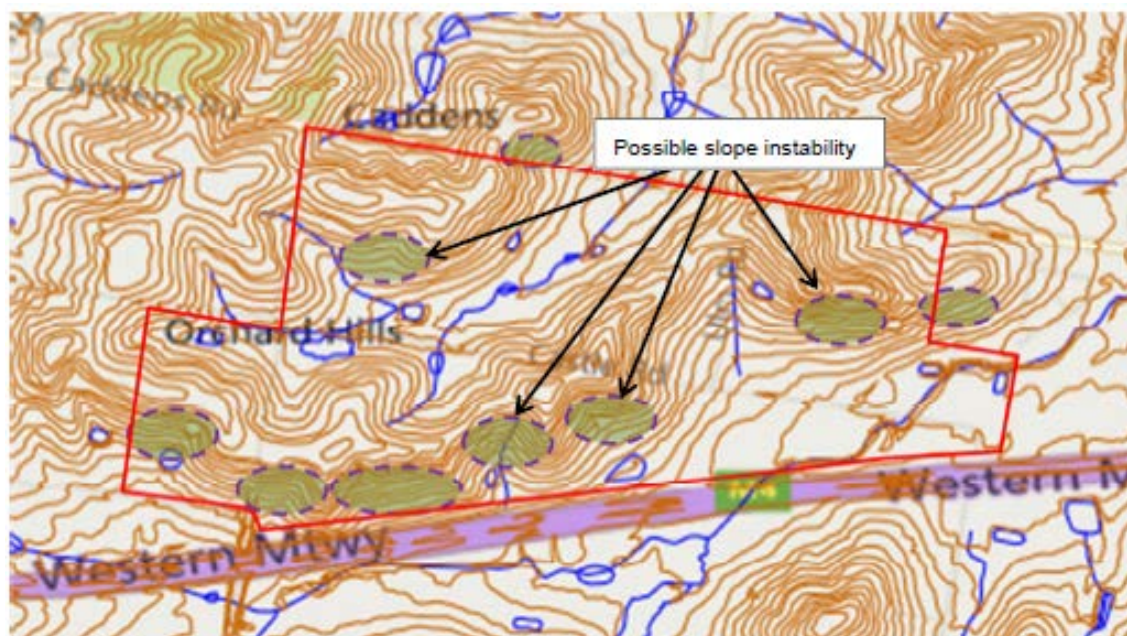
Douglas Partners (2018)^{vii} describes the Rezoning Area topography as undulating, extending across two ridges which trend in a north-easterly direction, across the valley between the two ridges, and down the eastern slope of the eastern ridge.

Figure 21 (on page 52) shows 2 metre contours for the Rezoning Area, providing an overview of vertical relief of the land surface.

Within the Rezoning Area the maximum elevation is approximately 85 m (above sea level) near the western boundary of the Rezoning Area, and the lowest elevation is about 35 metres along Claremont Creek in the eastern corner of the Rezoning Area. The top of the ridges, the base of the valley between the ridges and area adjacent to Claremont Creek (south eastern corner of Rezoning Area) is flat to gently sloping. The sides of the ridges typically have slopes at about 6 to 9 degrees from horizontal (10 to 16% slope), but in some localised areas the slopes increase to 13 to 15 degrees (23 to 27%).^{vii}

While no existing or historic landslips were observed by Douglas Partners during their brief Rezoning Area inspection, they suggested it is quite common for landslips to occur on steep slopes with the geology and seepage conditions as observed on the Rezoning Area, particularly on south facing slopes. A review of the existing contours by Douglas Partners on the Rezoning Area has identified a number of areas where slope instability may be an issue (Figure 5).

Figure 5: Areas of potential slope instability identified by Douglas Partners on the Rezoning Area^{vii}



Map Key: Rezoning Area boundary (solid red line) and potential areas of slope instability (dotted blue lines).

Douglas Partners reported evidence of shallow soil creep on some of the steeper slopes. Observations made by ASPIRE agri of the same areas suggest that the irregular soil surface is a result of terracing for past orcharding land use on the Rezoning Area (Figure 6).

While ASPIRE agri concur with Douglas Partners assessment of areas of potential slope instability due to steep slope, it is not considered that there are any significant areas of historic or current soil creep on the Rezoning Area.

Topographic constraints are considered by ASPIRE agri in the assessment of the agricultural suitability of the Rezoning Area (Section 5.8.1).

Figure 6: Areas on Lot 1 (DP 863335) showing irregular soil surface believed to be associated with past orchard land use



5.4.2 Geology

Douglas Partners (2018)^{vii} confirmed that the Rezoning Area is mostly underlain by Bringelly Shale of the Wianamatta Group of Triassic age, with some more recent alluvial sediments (Quaternary alluvium) present along Claremont Creek (south eastern corner of Rezoning Area). Douglas Partners suggest that Bringelly Shale typically comprises shales, siltstones, and claystones which weather to form clays of high plasticity.

The geology of the Rezoning Area has a bearing on the soils present on the Rezoning Area. Soils are discussed further in Section 5.4.3 (below).

5.4.3 Soils

The contamination and geotechnical (including salinity) reports commissioned for the project are desktop studies. Therefore, no new site-specific soil survey data is available for the agricultural assessment.

The key soil resources used in this report and accessed from eSPADE⁴ include:

- Soil Landscapes of the Penrith 1:100,000 Sheet (published 1990) ^{viii};
- Australian Soil Classification Soil Type map of NSW (scale 1:250,000, published 2012) ^{ix};
- and
- Estimated inherent Soil Fertility of NSW (scale 1:250,000, published 2013) – based on Great Soil Group Classification.^x

The primary soil resource used in this assessment is the Soil Landscapes of the Penrith 1:100,000 Sheet. The other two resources listed above were used as secondary sources in the agricultural assessment. The differences in the scale of mapping for the soil resources (1:100,000 v 1:250,000), was considered in their application to the assessment presented in this report.

Soil landscape (SL) mapping was designed to provide a comprehensive natural resource inventory, with particular emphasis on soils, providing guidance on the potential limitations to urban and rural development. Soil landscapes are areas of land with unique landform features and characteristic soil types. Because landscapes and their soils are formed by the same natural processes, soil landscapes are closely linked to other natural features such as vegetation, geology and hydrology. Soil landscapes have a spatial extent that is delineated on a map by discrete polygons. Accompanying descriptions outline the soils and landforms of the map units. The scale at which the polygons exist depends on the scale of the mapping involved. Because similar causal factors are involved in the formation of both soils and their landscapes, the soil landscape concept permits the integration of both soil and landscape characteristics into a single map unit.^{xi}

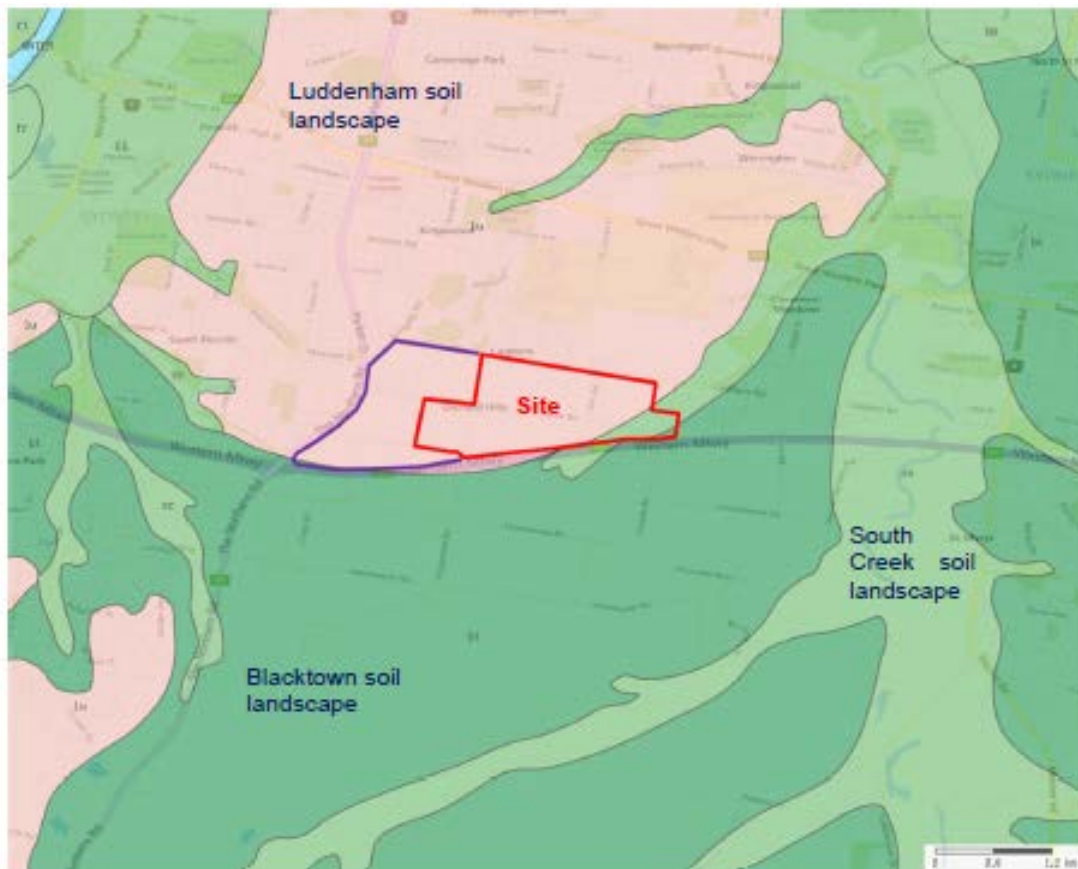
Soil landscape mapping does not provide site specific details of individual soil types, rather soil landscapes (which generally consist of a number of related soil types) are mapped. Using the soil landscape mapping it is possible to predict the likely occurrence of particular soil types in specific locations based on the relative position of the site in the landscape and the surrounding vegetation.

An extract of the soil landscape mapping covering the Rezoning Area is shown in Figure 7. The majority of the Rezoning Area is covered by the Luddenham SL. A small portion of the Rezoning Area in the south eastern corner, is covered by the South Creek SL. The South Creek SL on the Rezoning Area occurs largely in the watercourse area associated with the Claremont Creek.

Soil landscape mapping was prepared at a regional scale and does not provide the specific location of soil types, rather providing details of all soil types that may be found and their common positions in the landscape. The ASPIRE agri inspection of the Rezoning Area confirmed that the mapped soil landscapes (Figure 7) provide an accurate reflection of the soil types present on the Rezoning Area for the purposes of the agricultural assessment in this report.

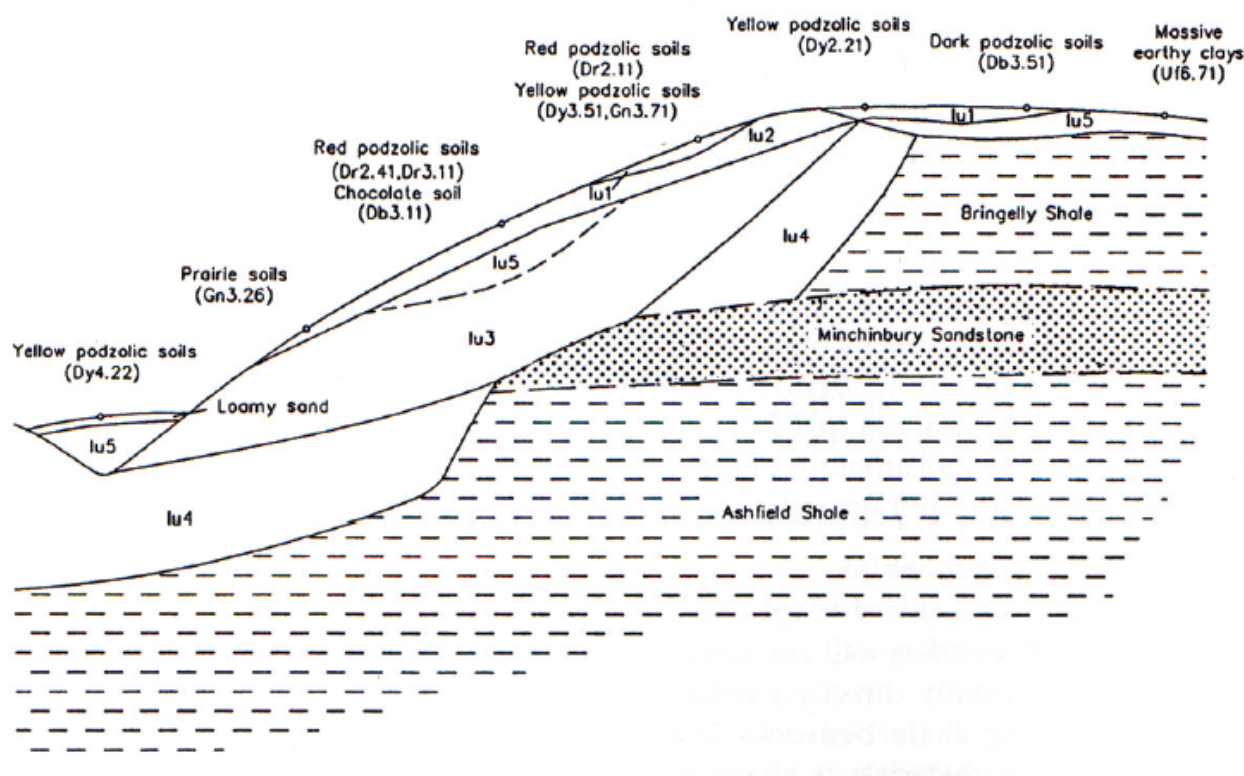
⁴ The data accessible online through eSPADE (NSW Office of Environment & Heritage) is sourced mainly from the NSW Soil and Land Information System and includes all available land and soil mapping, soil profiles and soil landscape mapping.

Figure 7: Soil Landscapes of the Penrith 1:100,000 Sheet (published 1990) - extract covering the Rezoning Area^{vii}



The Luddenham SL comprises a range of dominant soil materials and types. The common locations are shown in Figure 8.

Figure 8: Distribution diagram of the Luddenham Soil Landscape (SL) showing the occurrence and relationship of dominant soil materials and types^{viii}



A soil profile observed by ASPIRE agri, typical of the red podzolic soils in the mid and upper slope areas across much of the Rezoning Area, is shown in Figure 9. This soil type is associated with the predominant land units on the Rezoning Area and consists of the soil materials 'lu1' (friable dark brown loam topsoil) and 'lu2' (hardsetting brown clay loam topsoil) and 'lu3' (strongly pedal clay subsoil) in Figure 8.

While the soil material 'lu1' in the Luddenham SL is described as generally highly erodible (as a limitation to development)^{viii}, observations made by ASPIRE agri do not support this with respect to the Rezoning Area. Areas of intensive grazing and some cultivation were observed on areas of 'lu1', without significant erosion. ASPIRE agri considered that the reference in the Luddenham SL may be an error.

Within the Penrith Soil Landscapes report^{viii} the general description of the Luddenham SL 'lu1' and 'lu2' topsoils is: "lu1 and lu2 have moderate erodibility as they have moderate organic matter percentage, have stable aggregates and are well graded." This is consistent with ASPIRE agri observations during an inspection of the Rezoning Area.

The texture of the soil material 'lu2' (clay loam to fine sandy clay) makes the topsoil prone to hard setting^{viii}. However, this was not considered to be a significant constraint to agricultural land use on the Rezoning Area due to the application of appropriate enterprise selection and management techniques.

Localised areas of low density, generally loose, surface stones (generally less than 20 centimetres in diameter) were observed in the areas of 'lu1' and 'lu2', matching the description in the Penrith Soil Landscapes report^{viii}. Most of the stones were present in areas of 'lu1' on the upper slopes. Considering the position in the landscape and the density and size of the stones,

it is not considered that the stones present a significant constraint to agricultural land use on the Rezoning Area with the application of appropriate agricultural enterprise selection and management techniques.

Within the Penrith Soil Landscapes report^{viii}, fertility of the Luddenham SL is described as follows:

- 'lu1' (topsoil) has moderate fertility with high available water capacity, moderate amounts of organic matter, and moderate nutrient status.
- 'lu2' (topsoil) normally has low to moderate fertility with low available water capacity, moderate organic matter content, low CEC, and intrinsically low nutrient status.

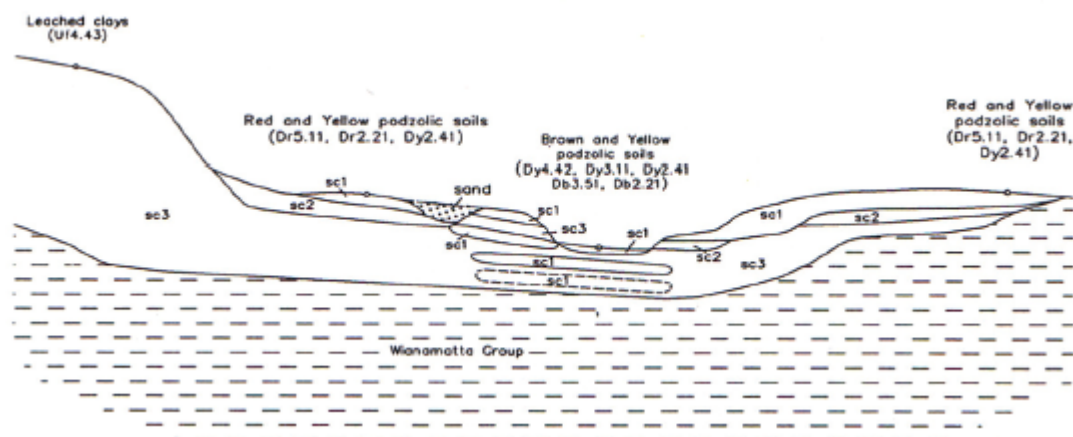
The above descriptions of fertility match observations made by ASPIRE agri with respect to relative pasture production and species composition.

Figure 9: Soil profile on upper slope of Lot 1 (DP 863335)



The South Creek SL comprises a range of dominant soil materials and types. The common locations are shown in Figure 10.

Figure 10: Distribution diagram of the South Creek Soil Landscape (SL) showing the occurrence and relationship of dominant soil materials^{viii}



As the South Creek SL covers only a small proportion of the Rezoning Area which has limited agricultural use, the soil materials and types of this soil landscape have not been discussed in detail.

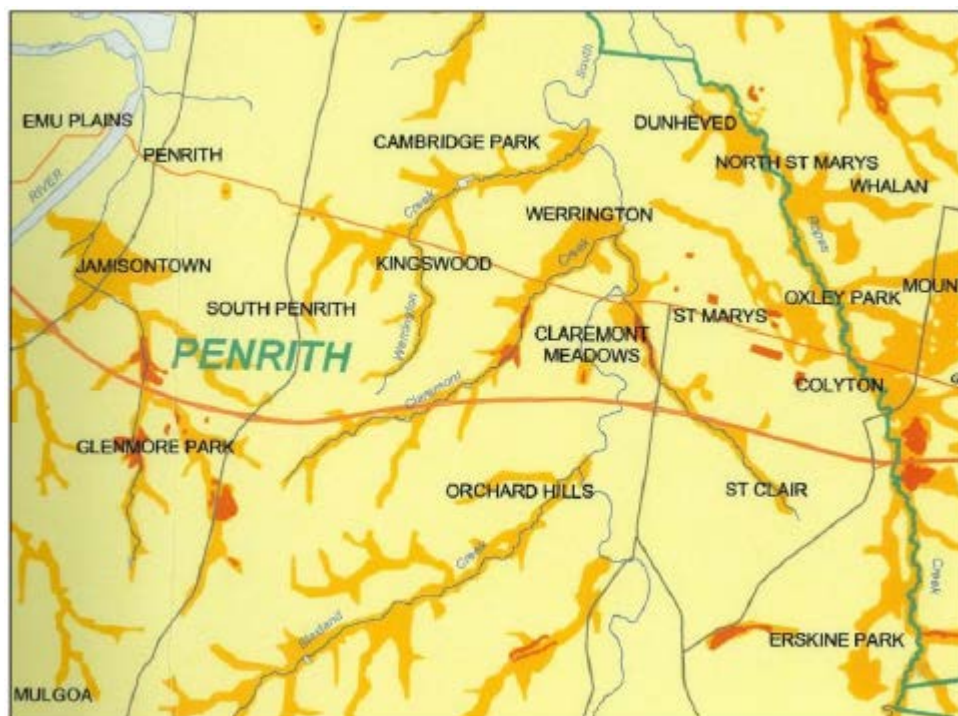
Soil constraints are specifically considered by ASPIRE agri in the assessment of the agricultural suitability of the Rezoning Area (Section 5.8.1).

5.4.4 Soil salinity

Douglas Partners (2018) confirm that the most relevant source of information for soil salinity hazard is regional mapping undertaken by the NSW Department of Infrastructure and Planning in 2002^{vii}. An extract of this mapping, as utilised by Douglas Partners is provided in Figure 11.

The majority of the Rezoning Area has a moderate salinity potential (yellow shading on map in Figure 11); corresponding closely with the areas of the Luddenham SL (Section 5.4.3). Areas of high salinity potential are located along the Claremont Creek in the south eastern corner of the Rezoning Area; corresponding closely with the areas of the South Creek SL (Section 5.4.3), and Werrington Creek in the north-central section of the Rezoning Area.

Figure 11: Regional salinity potential mapping (as at 2002) – extract covering Rezoning Area^{vii}



Map Key: high salinity potential (orange), moderate salinity potential (yellow) and known saline soils (red).

Douglas Partners suggest that all the soils on the Rezoning Area are likely to have a moderate potential for salinity, with a high potential for salinity on the lower parts of the slopes and along the drainage lines^{vii}.

Inspection of the Rezoning Area by ASPIRE agri indicates that some localised low to moderately saline soils occur in flow lines associated with poor drainage or ground water seepage. While soil testing was not conducted, observation of the plant species present in these areas supports the presence of moderately saline soils. Figure 12 shows an example of this type of area.

Soil salinity constraints are specifically considered by ASPIRE agri in the assessment of the agricultural suitability of the Rezoning Area (Section 5.8.1).

5.4.5 Ground water

The presence of springs was noted by Douglas Partners (2018), indicative of ground water seepage in areas of the Rezoning Area^{vii}. This is consistent observation was made by ASPIRE agri, with the seepages being confined to small localised areas in the flow lines, commonly associated with dams used for livestock water and small-scale irrigation. An example of such an area is shown in Figure 12.

Figure 12: Area of poor drainage in Lot 8 (DP857982)



Douglas Partners suggest that these seepages occur where the flow of water through the soils above the weathered rock has met a barrier of lower permeability which causes the water to flow out of the ground surface rather than continuing through the soils. On the lower parts of the Rezoning Area, it is expected that groundwater will be present at relatively shallow depths along the drainage lines^{vii}.

Extensive investigations previously undertaken by Douglas Partners on the Bringelly Shale Formation at a nearby Eastern Creek area indicate that:

- the hydraulic conductivity of the shale/siltstone common on the Rezoning Area is low to very low at an estimated 10^{-6} to 10^{-8} m/second; and
- the groundwater is highly saline and therefore unsuitable for stock watering or irrigation^{vii}.

The hydrogeology of the Bringelly Shale is described by Douglas Partners as being usually characterised by shallow seepage along the soil and shale interface and a deep fractured rock aquifer tens of metres below surface levels. Further, Douglas Partners suggest that aquifer recharge is minimal due to the low permeability of the near surface clays, and horizontal flow velocities in the soil and rock are commonly less than 10 m per year^{vii}.

The use of groundwater for agriculture on the Rezoning Area is discussed in Section 5.4.8.

5.4.6 Flooding, natural drainage and water courses

There are two creeks crossing the Rezoning Area. Werrington Creek runs in a northerly direction between the two ridges in the central section of the Rezoning Area, and Claremont Creek crosses the eastern corner of the Rezoning Area and flows in a north-easterly direction. Both creeks ultimately flow into South Creek to the northeast of the Rezoning Area.

J Wyndham Prince (2018) confirm that Werrington Creek a 2nd order stream (Strahler Classification), whereas Claremont Creek is classified as a 4th order stream (Strahler Classification)^{xii}.

A map prepared by J Wyndham Prince^{xii} of the water courses on the Rezoning Area is shown in Figure 13. The 1% annual exceedance probability (AEP) is shown in Figure 13. The 1% AEP is the extent of flooding of an event with a probability of 0.01 in any one year and an average recurrence interval (ARI) of 100 years.

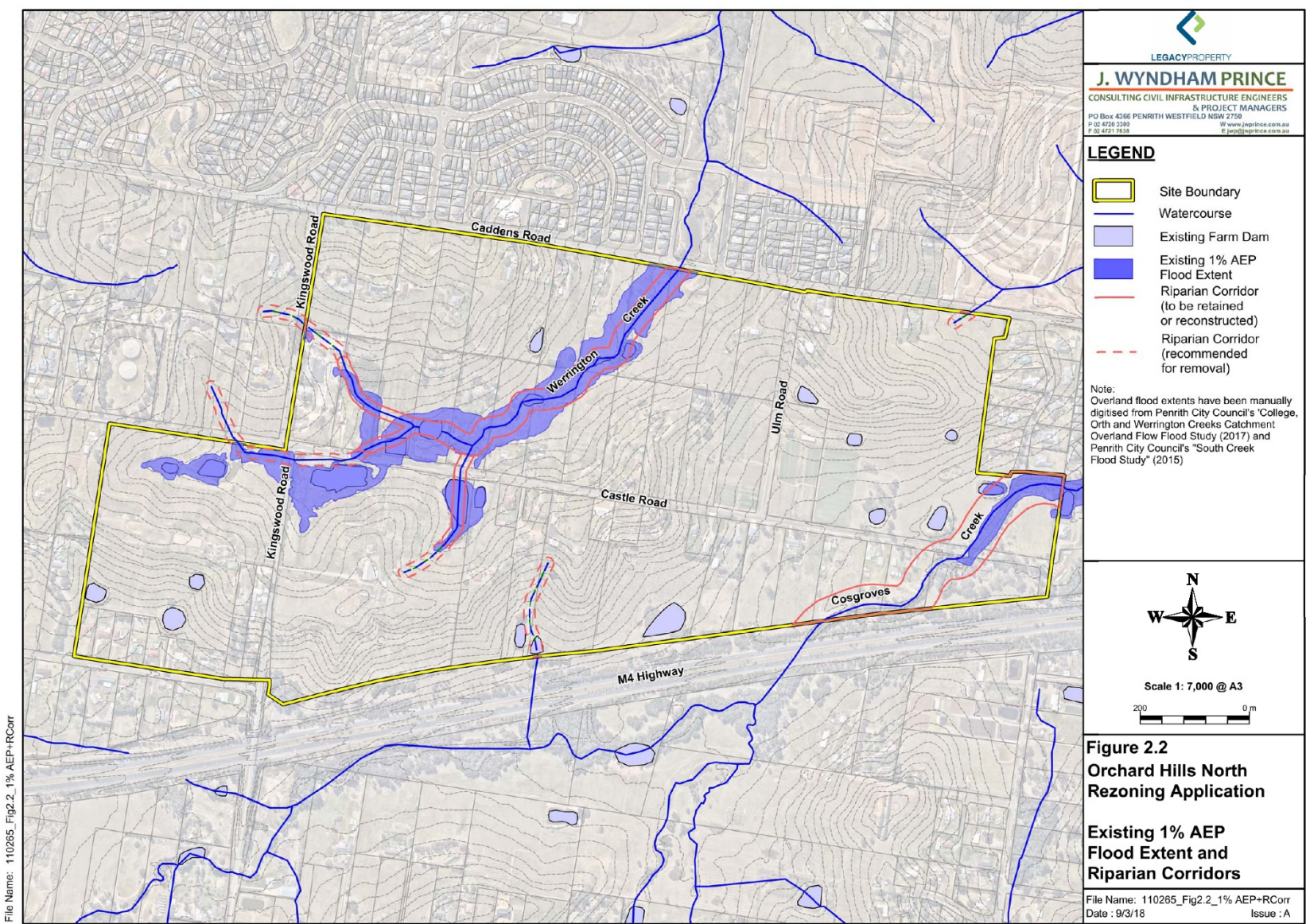
J Wyndham Prince suggest that the existing 1% AEP flood mapping (Figure 13) shows a flood prone area that is generally wider than the riparian corridor limits due to the lack of a formal central channel and is associated with the relatively wide flat areas which surround the existing watercourse^{xii}.

Given the relatively steep slope of significant portions of the Rezoning Area (described in Section 5.4.1) and intensive grazing with livestock on many of the lots, significant quantities of fast flowing surface run off is expected to occur during periods of prolonged and intensive rainfall. This would present some challenges for agricultural production with damage to fences and risk of soil erosion where sufficient ground cover is not maintained.

ASPIRE agri consider that flooding is expected to present a constraint to agricultural land use in the areas mapped by J Wyndham Prince as 1% AEP (Figure 13).

Flooding constraints are specifically considered by ASPIRE agri in assessing the agricultural suitability of the Rezoning Area (Section 5.8.1).

Figure 13: Watercourses, farm dams, riparian extent and flood extent – Orchard Hills North^{xiv}



5.4.7 Vegetation

A detailed assessment of vegetation on the Rezoning Area has been completed by Cumberland Ecology (2018)^{xiii}.

Cumberland Ecology confirm that the majority of the Rezoning Area (120.24 hectares) is currently covered with non-native vegetation communities. This area is dominated by vegetation communities described as exotic dominated grassland (aka. 'exotic grassland'; 111.97 hectares).

The groundcover within the exotic grassland community is described by Cumberland Ecology as being predominantly exotic grass and consisting of species including *Pennisetum clandestinum* (Kikuyu), *Paspalum dilatatum* (Paspalum), *Eragrostis curvula* (African Lovegrass) and *Nassella neesiana* (Chilean Needle Grass). Some native grasses are also present in some areas including *Eragrostis brownii* (Brown's Lovegrass), *Microlaena stipoides* (Weeping Grass), *Rytidosperma caespitosum* (Wallaby Grass), *Sporobolus creber* (Slender Rat's Tail Grass) and *Themeda triandra* (Kangaroo Grass).^{xiii}

In addition to the species noted above by Cumberland Ecology, ASPIRE agri noted areas of native species red grass (*Bothriochloa macra*) and wallaby grasses (*Danthonia spp.*) and introduced species Rhodes grass (*Chloris gayana*) and common couch (*Elymus repens*) in pastures grazed by livestock.

Herbaceous exotic species noted by Cumberland Ecology as being present in the grassland communities include *Bidens pilosa* (Cobbler's Pegs), *Cirsium vulgare* (Spear Thistle), *Hypochaeris radicata* (Catsear), *Oxalis corniculata* (Creeping Oxalis) *Senecio madagascariensis* (Fireweed) and *Sida rhombifolia* (Paddy's Lucerne).^{xiii} ASPIRE agri inspection confirmed two additional significant weed species: blue heliotrope (*Heliotropium amplexicaule*) and European blackberry (*Rubus fruticosus* aggregate).

Pastures on the Rezoning Area are predominantly summer active perennial grasses, being a mixture of natives and introduced species. There were no areas of improved (sown) pastures evident during the Rezoning Area visit by ASPIRE agri.

Broadleaf weeds are present in pastures at variable, but generally only moderate, levels across the Rezoning Area. Spear thistle (*Cirsium vulgare*) is one of the most prominent weed due to the avoidance by livestock when grazing. Blue heliotrope (*Heliotropium amplexicaule*) occurs in isolated patches on the Rezoning Area. Blue heliotrope contains pyrrolizidine alkaloids, toxic to grazing livestock, and is therefore of significance to the horse operations on the Rezoning Area. Blackberry occurs in isolated patches, mainly on Lot 1 (DP 863335).

Vegetation constraints (with respect to pastures for livestock grazing and weeds) are specifically considered by ASPIRE agri in assessing the agricultural suitability of lands within the Rezoning Area (Section 5.8.1).

5.4.8 Water availability for agricultural purposes

Groundwater Bores

Douglas Partners (2018) confirm that two registered water bores (GW060794 and GW103764) are located within the Rezoning Area, both on a property to the south of Castle Road and east of Kingswood Road^{vii}.

Based on records from the NSW Department of Primary Industries – Office of Water⁵, GW060794 was drilled in 1985 to a depth of about 78 metres (m) within the shales to provide water for livestock. The drillers recorded low yields of 0.02 and 0.06 litres per second (L/s) at depths of 18.8 m and 75 m. The salinity of the water was not recorded but, based on Douglas Partners previous experience, it is expected that the water is relatively saline due to the minerals contained within the Bringelly Shale^{vii}.

The second water bore (GW103764) was drilled in 1995 to provide water for irrigation. This bore was drilled to a depth of 232 m and the drillers recorded water bearing zones at depths of 208 m and 216 m from within the sandstones below the shales. The yield from these water bearing zones were measured at 0.4 to 0.8 L/s^{vii}.

Based on the Rezoning Area inspection by ASPIRE agri, there appeared to be an additional ground water bore present on the Rezoning Area. While the exact location of the bore could not be determined, this bore appears to be the source of water for a dam on the southern boundary of Lot 1 (DP 863335), just to the north of Lot 31 (DP 1344) as shown in Figure 14. The location of these lots on the eastern side of the Rezoning Area can be seen in Figure 4 (on page 24). The bore and dam appear to be the water source for the intensive horticulture area (vegetable production) present on a single operation located a Lot 31 and 32 (DP 1344) and a small portion of Lot 1 (DP 863335).

Figure 14: Apparent bore fed dam on Lot 1 (DP 863335)



⁵ <http://allwaterdata.water.nsw.gov.au/water.stm>

Notwithstanding the observations of apparent irrigation of intensive vegetable production using groundwater, the following general conclusions are drawn by ASPIRE agri based on the findings of Douglas Partners (2018)^{vii} with respect of groundwater for irrigated crop production (including horticulture):

- *availability is expected to be limited on the Rezoning Area due to low yields (litres per second; L/s) from bores; and*
- *suitability is expected to be limited by the saline quality of the groundwater.*

Dams harvesting surface water

Based on mapping supplied by J Wyndham Prince (2018)^{xiv}, there are 23 farm dams of various sizes located on the Rezoning Area (Figure 13). These dams are constructed with earth walls and are generally in natural flow lines to harvest surface water flows across the Rezoning Area.

In addition to the intensive vegetable production area described above, another smaller area of vegetable production was also observed during the Rezoning Area inspection on Lot 1 (DP 239091) known as 'Cana Farm'. The source of irrigation water for this area could not be confirmed, assumed to be one or more of the dams fed by runoff water on the Lot.

Overall, the availability of dam water for irrigated crop production is limited by the number of suitable dam locations on the Rezoning Area with sufficient surface water catchment to maintain a reliable water supply.

Horses were the predominant livestock present on the Rezoning Area (further details in Section 5.7.1). Dams fed by runoff water from the Rezoning Area and the council water supply appear to be the primary water sources for livestock.

The dams present on the Rezoning Area appear to adequately meet the current livestock water requirements with supplementation from the council water supply. Future development of dams is limited by the maximum harvestable right administered by the NSW Department of Industry – Water^{xv} (see Section 5.5.1).

Water availability for agriculture is specifically considered as a constraint by ASPIRE agri in assessing the agricultural suitability of the Rezoning Area (Section 5.8.1).

5.5 Social Constraints

5.5.1 Legislative and regulatory

The most significant legislative and regulatory constraints for the Rezoning Area are considered to be: current land zoning (Penrith LEP) and water management regulations with respect to harvesting of surface water runoff.

Current Land Zoning

The entire Rezoning Area is zoned 'Primary Production Small Lots' (RU4), with full details of the permitted agricultural activities being detailed in Section 5.3. Intensive livestock industries, dairy and feedlots are prohibited on the Rezoning Area.

The minimum lot size for most of the lots in the Rezoning Area is 2 hectares (map code: Z), with four lots having a minimum lot size of greater than 1,000 hectares (map code: AI).

Water Management Regulations

With respect to ground water, it is considered by ASPIRE agri that ground water availability and quality are the primary constraints for agriculture. A detailed description of groundwater was provided in an earlier section of this report (Section 5.4.5).

With respect to dams, water management regulations are considered by ASPIRE agri to be the primary constraint to harvesting and storing surface water runoff for agriculture. The NSW Department of Industry – Water administer the ‘Harvestable Rights Orders’ that define the maximum harvestable right (MHR) dam capacity for properties in the Eastern Division covering the Rezoning Area^{xv}. The MHR dam capacity for lands on the Rezoning Area is 0.085 megalitres (ML) per hectare of land holding^{xv}. The MHR dam capacity is relatively low and applies to any dams constructed after 1999, thereby limiting the capacity of dams that can be constructed. Given the average lot size and current dams on the Rezoning Area, the permissible dam capacity would be below that expected to provide a useful quantity of water for crop enterprises.

5.5.2 Land use conflicts

Land use conflicts occur when one land user is perceived to infringe upon the rights, values or amenity of another. Where rural zones occur in close proximity to residential zones and where rural and residential land uses occur in the same zone, land use conflicts can occur between agricultural and residential uses. However, land use conflicts can also occur between different agricultural enterprises.^{xvi}

Rural amenity issues are the most common land use conflict issues, followed by environmental protection issues. Rural amenity issues include impacts to:

- air quality due to agricultural and rural industry (odour, pesticides, dust, smoke and particulates);
- use and enjoyment of neighbouring land due to such factors as noise and odour; and
- visual amenity associated with rural industry.^{xvi}

Current and potential land use conflicts are specifically considered as a constraint by ASPIRE agri in assessing the agricultural suitability of the Rezoning Area (Section 5.8.1).

5.5.3 Availability of labour.

Availability of labour is often a key constraint to agricultural suitability for lands in regional areas.

Given the population in the surrounding Penrith LGA and proximity to the Greater City of Sydney, labour availability is not considered to be a constraint to agriculture on the Rezoning Area.

5.6 Economic Constraints

5.6.1 Farm infrastructure

There is a range of farm infrastructure present on the Rezoning Area. The infrastructure reflects both the current and historical agricultural land uses on the Rezoning Area. A detailed description of both the current and historical land use is provided in Section 5.7.

With respect to historical fruit orchard operations, there are a small number of former fruit packing and storage sheds located on the Rezoning Area. These facilities now appear to be used only for general storage for both agricultural and domestic purposes.

ASPIRE agri consider that for the agricultural enterprises suitable to the Rezoning Area there are no effective constraints presented by farm infrastructure.

5.6.2 Regional and local Infrastructure to support agriculture

ASPIRE agri consider that for the agricultural enterprises suitable to the Rezoning Area, with the exception of irrigation infrastructure, there are no effective constraints presented by regional and local infrastructure.

5.6.3 Accessibility to markets for agricultural produce

ASPIRE agri consider that for the agricultural enterprises suitable to the Rezoning Area, there are no effective constraints presented by accessibility to markets for agricultural produce.

There are a variety of local and regional markets for produce from intensive horticulture and cropping enterprises including wholesale markets, retail green grocers, farmers markets and road side stalls.

The Rezoning Area is also well serviced for key livestock enterprises. Key markets are listed below:

- Saleyard facilities at Camden (operated by Camden Council) – beef and dairy cattle.
- Hawkesbury Valley Meats – pigs, sheep and cattle.
- Luddenham Pet Meat – horses, pigs, sheep and cattle.

5.6.4 Comparative market advantage of the location

ASPIRE agri consider that for the agricultural enterprises suitable to the Rezoning Area, there are generally no significant disadvantages. However, there are significant advantages for some enterprises due to proximity to markets and populous areas.

5.6.5 Contamination from previous land use

A contamination assessment for the Rezoning Area has been preparation by JBS&G (2018) ^{xvii}.

Based on the findings of JBS&G^{xvii}, ASPIRE agri consider that there are no significant constraints to potential agricultural enterprises on the Rezoning Area.

5.7 Agricultural Land Use on the Rezoning Area

5.7.1 Current Land Use

Horticulture

There are two significant intensive horticulture areas (vegetable production) on the Rezoning Area.

The most significant vegetable production areas are associated with a single operation located a Lot 31 and 32 (DP 1344) and a small portion of Lot 1 (DP 863335). These areas are irrigated with small overhead sprinklers on risers (see Section 5.4.5 for further details). It appears that the vegetable production operations are based on Lot 31 (DP 1344), with key infrastructure for the enterprise located on this Lot.

Lot 31 and 32 (DP 1344) are held by the same owner. While appearing to be utilised as part of the one vegetable production operation, Lot 1 (DP 863335) is held by a separate owner. This suggests that a lease or rental (or similar) agreement exists between the land owners for the owners of Lot 31 and 32 (DP 1344) to access a portion of Lot 1 (DP 863335).

Figure 15 and Figure 16, looking west and north west from corner of Ulm and Castle Roads (respectively), shows vegetable production located on Lot 32 (DP 1344).

Figure 17 is taken from Castle Road looking north east and shows vegetable production located on Lot 31 (DP 1344) and a small portion of Lot 1 (DP 863335).

A smaller area of vegetable production is present on Lot 1 (DP 239091) known as 'Cana Farm'. Figure 18, looking south east from Kingswood Road, shows a small area of vegetable production in the middle ground on Lot 1 (DP 239091). It is assumed that this vegetable production is associated with the operations of Cana Farm.

Livestock

Horses were observed to be the predominant livestock present on the Rezoning Area during the inspection. The most significant area grazed by horses is on Lot 8 (DP857982), located in the south west corner of the Rezoning Area.

In addition to Lot 8 (DP857982), evidence of horse grazing was noted on another five smaller lots across the Rezoning Area. Lot 8 (DP857982) has the most significant infrastructure for horses, with the lot sub divided with electric fencing into 10 to 12 paddocks and a laneways system to aid horse movement between paddocks, two horse shelters (4m x 4m, clad with galvanised iron on roof and two sides), a horse shade (4m x 4m, clad with galvanised iron on roof only) and a storage shed (6m x 4m, fully enclosed with galvanised iron cladding). Figure 19 shows the horse infrastructure on Lot 8 (DP857982). Other smaller lots with horses grazing on them had limited infrastructure, mainly temporary sub division fencing and shelters.

Without interviewing the operators, ASPIRE agri is uncertain if the horse grazing operations currently conducted on the Rezoning Area are commercial agricultural enterprises or solely recreational. Only the horse operations on Lot 8 (DP857982) have the size and infrastructure that suggest they are of a commercial nature and therefore constitute an agricultural land use. Based on ASPIRE agri observations during the Rezoning Area visit, the other horse operations have a scale and character that indicates that they are recreational only.

One lot (Lot 1 -DP 863335) was observed to have a small number of cattle (less than 15 head) grazing on it. No other evidence of recent cattle grazing was noted on other lots on the Rezoning Area.

The cattle infrastructure on Lot 1 (DP 863335) included a small set of cattle yards, a livestock water trough and six dams. The dams had varying capacity and states of repair; and some were of limited value due to small size and/or limited catchment area. There is no effective internal sub division fencing on Lot 1 (DP 863335) to assist with management of livestock grazing. While a very small set of cattle yards was noted on Lot 7 (DP 1344), there was no evidence of recent cattle grazing.

The areas surrounding houses were generally maintained by mowing, and there are significant ungrazed areas on lots within the Rezoning Area. The largest ungrazed areas are on the lots south of Castle Road, predominantly on the southern end along the M4 Motorway.

Figure 15: Intensive horticulture areas (vegetable production) on Lot 32 (DP 1344)



Figure 16: Intensive vegetable production on Lot 32 (DP 1344)



Figure 17: Intensive vegetable production on Lot 31 (DP 1344) and small portion of Lot 1 (DP 863335)



Figure 18: Intensive vegetable production on Lot 1 (DP 239091)



Figure 19: Horse infrastructure on Lot 8 (DP857982)



5.7.2 *Historical Land Use*

The inspection of the Rezoning Area by ASPIRE agri revealed evidence of extensive past horticultural plantings. It is understood that these were predominantly stone fruit orchards. Both the Rezoning Area inspection and satellite imagery for the Rezoning Area shows earthworks associated with former horticulture crop planting lines.

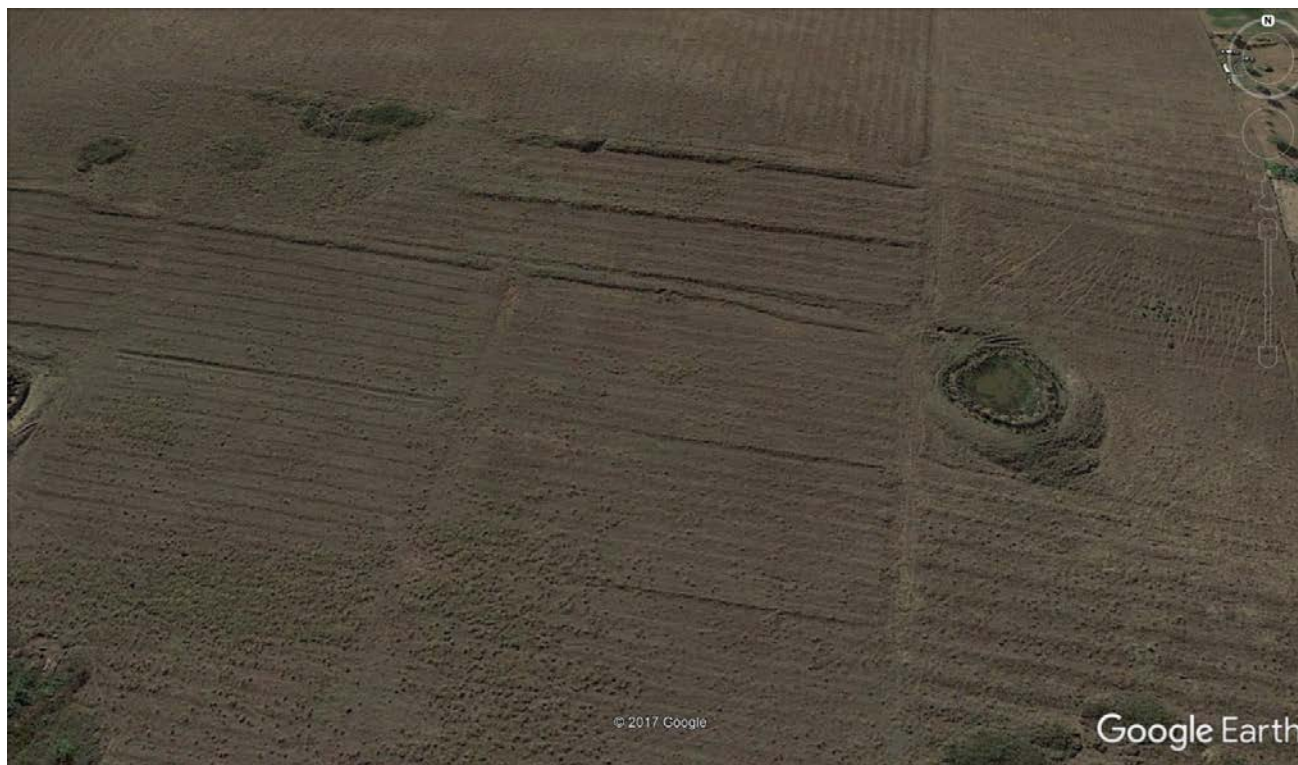
While many areas on the Rezoning Area have significant slope, there is little evidence of soil erosion associated with the past horticulture operations. This is thought to reflect a combination of the soils present (relatively stable and resistant to erosion), terracing earthworks associated with the plantings, and the layout of plantings which was designed to minimise erosion. Some of these features are evident in satellite imagery for the Rezoning Area (Figure 20).

Based on discussions with current landowners, it is understood that that significant property planning, including earthworks, was associated with the last significant phase of horticulture development on properties within the Rezoning Area.

There has been a long history of agriculture in the Orchard Hills area. The suburb of Orchard Hills covers part of the former Frogmore Estate (originally granted by Governor Philip King in 1806 to Mary Putland⁶) and the adjoining York Estate (originally owned by the York family). When the York Estate was subdivided in the late 1880s, the land was mainly sold for orchards and vineyards. By the early 1900s a rural community was well established in the area and a village developed. The district and village did not have a definite name until 17 October 1910, when at a meeting of local residents, the name Orchard Hills was decided upon.^{xviii}

⁶ The daughter of the incoming governor, William Bligh in 1806.

Figure 20: Google Earth image showing remnants of horticultural plant lines and earthworks on central portion of Lot 1 (DP 863335) – Imagery 5 May 2016



5.7.3 Regional Context

The Rezoning Area is understood to be part of the Metropolitan Rural Area (MRA) within the Greater Sydney Region^{xix}.

Ag Econ Plus (2017) described the MRA as that part of Greater Sydney which is generally outside the established and planned urban area. The MRA comprises rural towns and villages, farmland, floodplains, defence land, national parks and areas of wilderness. The rural towns and villages are distinct from urban areas in the MRA in that they provide goods and services for the local community (including agricultural enterprises) and visitors to the area, as distinct from the needs of the broader area of Greater Sydney.^{xx}

The total private land (outside rural towns and villages) in the MRA is 30,881 hectares^{xx}. The Orchard Hills North project Rezoning Area has a total area of approximately 141 hectares of rural land (Section 3.1).

Estimates of the total value of agricultural production for the MRA by region and commodity are available^{xx}. However comparable estimates for the Orchard Hills North project Rezoning Area have not been collated. As there are few commercial agricultural enterprises operating on the Rezoning Area, ASPIRE agri consider that the total value of agricultural production is likely to be lower on a per hectare basis than the broader MRA.

5.8 Results of Assessment

The following subsections present the results of the Agricultural Assessment against the specific instructions provided (Section 2.2).

5.8.1 *Assessed agricultural suitability*

As detailed in Section 5.4.3, the information on soil at the Rezoning Area, a key biophysical constraint to be considered in the agricultural assessment, is based on regional scale mapping (1:100,000). The contamination and geotechnical (including salinity) reports commissioned for the Orchard Hills North project are desktop studies. Therefore, no new site-specific soil survey data is available for the agricultural assessment.

Applying the methodology detailed in Section 4.3, the suitability of lands on the Rezoning Area for agricultural production have been mapped by ASPIRE agri (Figure 21) and are summarised in Table 1, below.

The base cadastre (LPI 2017) and contour information utilised in the GIS mapping is as supplied by Legacy Property. The Agricultural Land Classification (ALC) GIS layer (as shown in Figure 21) has been developed by ASPIRE agri using the methodology detailed in Section 4.3.

Original GIS mapping by ASPIRE agri completed in February 2018 (Figure 21) showed the entire Rezoning Area was 148.36 hectares (Table 1). This area differed slightly from the Rezoning Area (146.12 hectares) quoted in the original project description supplied by Legacy Property, applicable at that time. As the areas were generated from separate GIS systems (ie. ASPIRE agri and other system(s)) we are unsure of the specific reason for the difference in areas.

An updated Rezoning Area (151.92 hectares) was advised by Legacy Property in December 2021 (Section 3.1). The difference between the original and updated Rezoning Areas as advised by Legacy Property (i.e. February 2018 and December 2021; 146.12 versus 151.92 hectares) is understood to be solely due to Penrith City Council instructions to incorporate the entire width of the perimeter roads. Originally the Rezoning Area incorporated only the mid-point of roads. The difference between the area shown in Table 1 (148.36 hectares) and the updated Rezoning Area (151.92 hectares) is largely due to the 'undevelopable area' included with the inclusion of the full width of perimeter roads. Based on above, ASPIRE agri estimates that "the developable area" within in the Rezoning Area is 148.36 hectares.

Table 1: Area statistics from GIS mapping of ALC classes on the Rezoning Area

ALC Class	Area (ha)	Proportion of Total Area
Class 1	6.87	4.6%
Class 2	8.51	5.7%
Class 3	85.94	57.9%
Class 4	31.49	21.2%
Class 5	15.55	10.5%
TOTAL	148.36	100.0%

There was no 'Specialist Class' agricultural land identified on the developable area. 'Specialist Class' agricultural land is defined as land which, because of a combination of soil, climate and other features, is well suited to intensive production of a crop, or a narrow range of crops,

whose special requirements limit their successful culture to such land. This class includes some lands formerly described as unique ⁱⁱⁱ.

A detailed description of ALC Classes 1 to 5, as per the NSW DPI is provided in Appendix 7.3. The NSW DPI description of ALC Classes should be read in conjunction with the descriptions of ALC Classes present on the Rezoning Area below.

Class 1 lands

Class 1 lands comprise only 4.6% of the total developable area and are located in the eastern portion of the Rezoning Area. The Class 1 land are predominantly the current areas of intensive horticulture (vegetable production) either side of Ulm Road located on Lots 31 and 32 (DP 1344) and a small portion of Lot 1 (DP 863335).

Regional soil landscape mapping (1:100,000) suggests that the Class 1 lands are located on areas of the Luddenham SL (Section 5.4.3). Given that the two soil landscapes in the Rezoning Area are mapped as occurring side by side in the Class 1 land, it is to be expected that there will be a transition zone (mixture of the two soil landscapes) rather than a distinct boundary between the two soil land scapes. This is consistent with ASPIRE agri observations of the soils present and the vegetation cover. Class 1 lands general have soils typical of the higher fertility soils from the Luddenham SL.

The Penrith Soil Landscapes report^{viii} describes soil constraints with soils in both Luddenham SL and South Creek SL. With the application of best management practices for vegetable production, these constraints can be economically mitigated. Key fertility constraints listed in the Penrith Soil Landscapes report of nutrient deficiency (nitrogen and phosphorus) and soil acidity are addressed with the application of compound fertilisers and lime.

The Class 1 lands are assessed by ASPIRE agri to extend beyond the current areas of vegetable production into adjoining lots where currently there is no apparent agricultural production. As discussed in Section 4.3, this is based on the assumption that ALC is unconstrained by land tenure and existing non-agricultural infrastructure.

The Class 1 lands on the Rezoning Area have some constraints (soil and slope) and are not of the highest quality Class 1 land. However, ASPIRE agri observe that the lands have sustained intensive horticultural production, with continuous cultivation of crops and soil tillage for an extended period, without degradation of the soil. This being the case, they are unable to be classified at less than Class 1.

Class 2 lands

Class 2 lands comprise 5.7% of the total developable area. Like the Class 1 lands, the Class 2 lands are also confined to the eastern side of the Rezoning Area. The predominant agricultural land use on the Class 2 lands is grazing livestock, not crop production. However, it is assessed that they are suitable for regular cultivation of crops, but not continuous cropping like Class 1.

The Class 2 areas are distinguished from adjoining Class 3 areas based on lesser slope and/or higher fertility soils. The current land use on Class 2 areas is generally the same as the adjoining Class 3 areas.

Like the Class 1 lands, ASPIRE agri considers that the Class 2 lands general have soils typical of the higher fertility soils from the Luddenham SL.

The current land ownership and the discontinuous, irregular shape of the Class 2 lands creates fragmentation and is thought to give rise to the current land use which is either lower than the assessed agricultural potential, or non- agricultural.

Class 3 lands

Class 3 lands comprise 57.9% of the total developable area, representing the predominant ALC Class. The primary constraint on Class 3 lands is steep slope.

While some of the areas assessed as Class 3 share similar topographic character to areas assessed as Class 2, the steeper slope and greater soil constraints result in a lower ALC Class.

The predominant agricultural land use on the Class 3 lands is grazing livestock.

While not suited to continuous cultivation, the Class 3 lands can support limited cropping. Consistent with this assessment, there is a small areas of vegetable production on Lot 1 (DP 239091) known as 'Cana Farm' (Figure 18) without apparent soil erosion. The relatively small scale and intensive management is likely to be permitting higher land use in this area.

Class 4 lands

Class 4 lands comprise 21.2% of the total developable area, representing the second largest ALC Class on the Rezoning Area.

The primary constraint on Class 4 lands is steep slope. However, there is an area of Class 4 land in the south-eastern corner of the Rezoning Area, where flooding and soil fertility are the predominate constraints. Further Class 4 lands with poor drainage, due to both natural and man-made aspects of the topography, restrict surface water flows and hence agricultural land use. An example of such an area with poor drainage is shown in Figure 12.

With the exception of an area on Lot 8 (DP 857982) in the south western corner of the Rezoning Area which is area grazed with horses, the Class 4 lands are currently not in use for agriculture. As discussed in Section 5.7.1, ASPIRE agri is uncertain if the horse operations are commercial (agricultural land use) or solely for recreation (non-agricultural).

The Class 4 lands on the Rezoning Area are predominantly cleared grasslands with no significant tree cover; and the current levels of pasture dry matter observed by ASPIRE agri confirm that the areas have not been grazed for an extended period. The limited agricultural use reflects the location of the areas on lots with a mainly residential purpose and the impact of high slope which restricts access, and limits construction and maintenance of farm infrastructure.

Class 5 lands

Class 5 lands comprise 10.5% of the total developable area.

The primary constraint on Class 5 lands is flooding, hence these areas are located along the major water courses within the Rezoning Area. As stated in Section 5.4.6, the flood prone area that is generally wider than the riparian corridor limits due to the lack of a formal central channel and is associated with the relatively wide flat areas which surround the existing watercourse.

While the majority of Class 5 land is not used for agriculture, there are small areas that appear to be utilised for grazing.

Figure 21: Agricultural Land Classification – mapping of assessed ALC classes on the Rezoning Area

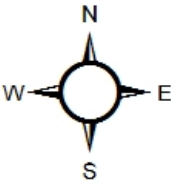


Orchard Hills North Project- Agricultural Land Classification



Legend

Contours/Elevation_2015	42.01 - 54.00m	Rezoning area	Land Classification 1	Land Classification 4
13.00 - 30.00m	54.01 - 68.00m		Land Classification 2	Land Classification 5
30.01 - 42.00m	68.01 - 98.00m		Land Classification 3	Cadastre_LPI_2017



Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS,

5.8.2 Potential impacts

There are a range of potential impacts of the re-zoning and development of agricultural land. The key impact to be considered within the scope of the agricultural assessment is the effect on agricultural production, including the loss of:

- Vegetable production (5.3 hectares): Located on Lots 31 and 32 (DP 1344) and Lot 1 (DP 863335). A small area of non-commercial vegetable production is also present on Lot 1 (DP 239091) and is not included in the area of vegetable production listed here.
- Beef cattle production (18.5 hectares): Located on part of Lot 1 (DP 863335); less than 15 head of cattle present at the time of ASPIRE agri inspection.
- Horse grazing: on various lots, but predominantly Lot 8 (DP857982).

A detailed description of the above agricultural land uses is provided in Section 5.7.1.

As discussed in Section 5.7.1, ASPIRE agri is uncertain of the nature of the horse operations on the Rezoning Area. The operations on Lot 8 (DP857982) appear to be the only activity that may be commercial in nature and therefore is an agricultural land use. The area grazed by horses on Lot 8 (DP857982) is approximately 13 hectares. Allowing for this horse operation, the total agricultural land use currently on the developable area within the Rezoning Area is approximately 36.8 hectares (25% of the total developable area of 148.36 hectares).

As discussed in Section 5.7.3, estimates of the total value of agricultural production for the Metropolitan Rural Area (MRA) by region and commodity are available^{xx}. However comparable estimates for the Orchard Hills North project Rezoning Area have not been collated. As there are few commercial agricultural enterprises operating on the Rezoning Area, ASPIRE agri consider that the total value of agricultural production is likely to be lower on a per hectare basis than the total MRA.

The impacts on the loss of the above agricultural operations is expected to be significant for the current owners and operators of these enterprises. However, in the context of agricultural production from the Metropolitan Rural Area (MRA), the potential impact in terms of agricultural production is considered to be insignificant.

5.8.3 Potential opportunities

With respect to agriculture, ASPIRE agri does not consider that the proposed re-zoning and development of the Rezoning Area would present any potential opportunities.

6. Conclusions based on the Agricultural Assessment

The following sections summarise the conclusions of ASPIRE agri with respect to the proposed re-zoning and development of the Rezoning Area.

6.1 Agricultural Land Classification

Based on the agricultural assessment presented in Section 5.8, the proposed re-zoning and development of the Rezoning Area will result in the loss of agricultural land which is potentially available for agricultural production. However, in practice only a limited proportion of potential agricultural land on the Rezoning Area is currently being used for agricultural enterprises. Notwithstanding the uncertainty on the nature of the horse operations on the Rezoning Area, the agricultural land use currently on the Rezoning Area is estimated by ASPIRE agri to be approximately 36.8 hectares (25% of the total developable area, 148.36 hectares; see Section 5.8.2).

The key planning document for the MRA, Values of the MRA (2017)^{xx}, suggests that the value of land for agricultural production is indicated by its assessed Land and Soil Capability. Within this Agricultural Assessment, Agricultural Land Classification has been utilised as an alternative to Land and Soil Capability, being better suited to the assessing planning proposals (as detailed in Section 4.2.2). While there are differences between the assessment schemes, both can be used as an indicator of the value of agricultural land to both landholders and the wider community.

Based on the GIS mapping by ASPIRE agri, the 'developable area' within the Rezoning Area has a total area of approximately 148.36 hectares. Cumberland Ecology estimate that 13.09 hectares associated with infrastructure (roads, buildings and dams) and a further 4.72 hectares is associated with areas surrounding buildings (ie. not available for agriculture)^{xiii}. Therefore, the current total area unavailable for agriculture is 17.81 hectares.

A further 15.55 hectares has been assessed as Class 5 land with little or no agricultural value (Section 5.8.1). Therefore, the total area available for agricultural production is estimated to be approximately 115 hectares (148.36 less 33.36 hectares).

The proposed re-zoning and development would result in 115 hectares of land with potential for agricultural use to be lost (78% of the total developable area).

The area of each Agricultural Land Classification (ALC) Class on the Rezoning Area is shown in Table 1. The figures in Table 1 include areas associated with infrastructure (roads, buildings and dams) and surrounding buildings. The data in Table 1 indicates that approximately 80% of the potential agricultural land that would be lost (approximately 92 hectares) will be ALC Class 3 or 4 lands. However, the exact area by class has not been determined and cannot be derived from Table 1.

6.2 Section 9.1 Directions

Under the Environmental Planning and Assessment Act 1979 the following Section 9.1 Directions (as at 25 March 2021) relating to rural zones and rural lands apply to specified local government areas (LGAs):

- Direction 1.2 - Rural Zones; and
- Direction 1.5 - Rural Lands.

NSW Department of Planning and Environment (DPI&E) advise that Direction 1.2 applies to the Rezoning Area. The objective of the Direction 1.2 is to protect the agricultural protection value of rural land. Clause 4(a) of the Direction applies as follows:

- Is applicable to all relevant planning authorities; and
- States that a planning proposal must not rezone land from a rural zone to a residential, business, industrial, village or tourist zone.

However, the agricultural land use currently on the Rezoning Area is estimated to be approximately 36.8 hectares (25% of the total developable area). As only a limited proportion of the potential agricultural land is currently being used for agricultural enterprises, the proposal will not result in significant impacts to the overall agricultural production of the surrounding area. For this reason, the inconsistency to the Direction is of minor significance and could be supported.

As detailed in Section 5.3, the Rezoning Area is zoned 'Primary Production Small Lots' (RU4) under the current Penrith LEP (2010). The minimum lot size for most of the lots in the Rezoning Area is 2 hectares, with four lots (out of existing 54 lots) having a minimum lot size of greater than 1,000 hectares.

Under Direction 1.2, there are no specific assessment requirements to guide this Agricultural Assessment. In lieu of this the following principles have been considered in assessing the planning proposal:

- 'Rural Planning Principles'; and
- 'Rural Subdivision Principles'

as listed in State Environmental Planning Policy (Rural Lands) 2008.

6.2.1 Rural Planning Principles

The Rural Planning Principles, as specified in the State Environmental Planning Policy (Rural Lands) 2008⁷, are as follows:

- (a) the promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas,
- (b) recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State,
- (c) recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development,

⁷ <https://www.legislation.nsw.gov.au/#/view/EPL/2008/128/part2>

- (d) in planning for rural lands, to balance the social, economic and environmental interests of the community,
- (e) the identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land,
- (f) the provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities,
- (g) the consideration of impacts on services and infrastructure and appropriate location when providing for rural housing,
- (h) ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.

6.2.2 Rural Subdivision Principles

The Rural Subdivision Principles, as specified in the State Environmental Planning Policy (Rural Lands) 2008⁷, are as follows:

- (a) the minimisation of rural land fragmentation,
- (b) the minimisation of rural land use conflicts, particularly between residential land uses and other rural land uses,
- (c) the consideration of the nature of existing agricultural holdings and the existing and planned future supply of rural residential land when considering lot sizes for rural lands,
- (d) the consideration of the natural and physical constraints and opportunities of land,
- (e) ensuring that planning for dwelling opportunities takes account of those constraints.

6.2.3 General Assessment

As shown in Section 5.3, under the current land zoning the majority of lots within the Rezoning Area have a minimum lot size of 2 hectares. While there are four lots on the Rezoning Area with a minimum lot size of 1,000 hectares, these lots already have areas well below this threshold. The current areas of these lots are estimated to be less than 50 hectares each.

The current small size of most of the lots, and the capacity to reduce some lots to the minimum lot size of 2 hectares with sub division, must be considered when assessing the potential for agricultural production on the Rezoning Area. While the lot size is not considered by ASPIRE agri to be a significant constraint for intensive horticulture, it is a significant constraint for commercial operations based on extensive crop production and grazing (including horses). This is likely to be a significant factor giving rise to the current low level of agricultural land use on the Rezoning Area.

ASPIRE agri considered that the proposed re-zoning and development of the Rezoning Area is generally consistent with the above Rural Planning and Rural Subdivision principles and is of minor significance in a regional context, in particular the MRA. The current agricultural potential of the Rezoning Area is limited by the:

- *current minimum lot size of lots in the Rezoning Area (detailed in Section 5.3);*
- *assessed agricultural suitability of the majority of the Rezoning Area (89.6% of developable area is ALC Class 3 to 5); and*

- *the ALC Class 1 and 2 areas are relatively small (15.38 hectares; 10.4% of developable area) and fragmented (dissected by public roads and spread across 10 separate lots).*

With respect to the Rezoning Area, the proposal is not considered to contribute significantly to the:

- *fragmentation of agricultural land; and*
- *potential land use conflicts with adjoining rural lands.*

The above ASPIRE agri conclusions are supported by the following:

- *Fragmentation of agricultural land: The current land zoning has already led to fragmentation of rural land and has impacted on the potential for commercial agricultural land use on the Rezoning Area. There are no recognisable agricultural clusters on the Rezoning Area or in nearby areas (see Section 6.3).*
- *Potential land use conflicts: The predominate land use on the Rezoning Area and surrounding area is residential. Therefore, further residential development on the Rezoning Area is unlikely to result in significant potential land use conflict with adjoining rural lands. The motorway provides a substantial buffer from rural areas to the south of the Rezoning Area.*

6.2.4 Specific Assessment

Supporting the above ASPIRE agri conclusions, following are specific responses with respect to the Rural Planning and Rural Subdivision Principles as specified in the State Environmental Planning Policy (Rural Lands) 2008:

- a) The promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas.*

Current and potential agricultural land use on the Rezoning Area has been restricted by the current land zoning on the Rezoning Area and the surrounding area. The relatively small area of the Rezoning Area available for agricultural production should limit the further impact of the planning proposal. The current agricultural land use on the Rezoning Area is 36.8 hectares, which is 25% of the Rezoning Area (Section 5.8.2). The potential agricultural land use on the Rezoning Area is 115 hectares, or 78% of Rezoning Area (Section 6.1).

- b) Recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State.*

The current low level of agricultural land use on the Rezoning Area reflects the changing nature of agriculture and constraints to agricultural production in the region. Increased business costs, especially overhead or fixed costs, have reduced the profitability of smaller agricultural enterprises, resulting in many small-scale operators ceasing commercial production.

- c) Recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development.*

The existing agricultural enterprises are significant to the current operators. However, the current low level of agricultural land use on the Rezoning Area limits the social and economic benefit to the wider community of the area and the State.

- d) In planning for rural lands, to balance the social, economic and environmental interests of the community.*

The social and economic interests of the community are discussed in items a) to c) above. The environmental interests of the community are beyond the scope of the agricultural assessment.

- e) The identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land.*

The identification and protection of natural resources are beyond the scope of the agricultural assessment.

- f) The provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities.*

The planning proposal will reduce the opportunities for rural lifestyle, settlement and housing on the Rezoning Area. However, ongoing agricultural land uses in the MRA surrounding the Rezoning Area will maintain some rural opportunities in the vicinity.

- g) The consideration of impacts on services and infrastructure and appropriate location when providing for rural housing.*

The impacts on services and infrastructure are beyond the scope of the agricultural assessment.

The loss of agricultural land is unlikely to have a significant impact on services to agriculture and agricultural infrastructure in the area. This is due to the current low level of agricultural land use on the Rezoning Area.

- h) Ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.*

The planning proposal is considered with respect to the Draft Western Sydney District Plan (October 2017) in Section 6.3.

Rural Subdivision Principles

- a) The minimisation of rural land fragmentation.*

The planning proposal is unlikely to cause substantial further fragmentation of rural land. Current land zoning has already impacted on the potential for commercial agricultural land use on the Rezoning Area and there are no recognisable agricultural clusters on the Rezoning Area or in nearby areas (see Section 6.3).

- b) The minimisation of rural land use conflicts, particularly between residential land uses and other rural land uses.*

The predominate land use on the Rezoning Area and surrounding area is residential. Therefore, further residential development on the Rezoning Area is unlikely to result in significant potential land use conflict with adjoining rural lands.

- c) *The consideration of the nature of existing agricultural holdings and the existing and planned future supply of rural residential land when considering lot sizes for rural lands.*

There are few commercial agricultural enterprises currently operated on the Rezoning Area, and much of the potential agricultural land is not currently used for agriculture (Section 5.7.1). Therefore, changes to lot sizes will have a limited impact on existing agricultural holdings on a local or regional scale.

The existing and planned future supply of rural residential land is beyond the scope of the agricultural assessment.

- d) *The consideration of the natural and physical constraints and opportunities of land.*

The natural and physical constraints and opportunities for agricultural land use on the Rezoning Area have been considered in detail within this agricultural assessment.

- e) *Ensuring that planning for dwelling opportunities takes account of those constraints.*

Planning for dwelling opportunities are beyond the scope of the agricultural assessment and therefore have not be considered in this report.

6.3 Western City District Plan & Metropolitan Rural Area

Based on mapping provided in the Draft Western Sydney District Plan (October 2017)^{xxi}, ASPIRE agri understands that the Rezoning Area is part of the Metropolitan Rural Area (MRA). Based on this, the requirements with respect to the MRA as specified in the Draft Western Sydney District Plan (October 2017)^{xxi} and Values of the MRA (2017)^{xx} need to be applied when considering the planning proposal for the Rezoning Area.

The Draft Western Sydney District Plan contains one specific planning priority relating to the MRA and to rural lands in general as detailed below:

Planning Priority W17 – Better managing rural areas: delivers on Objective 29: Environmental, social and economic values in rural areas are maintained and protected and the corresponding strategies.

The Draft Western Sydney District Plan refers to two actions relevant to the MRA, as follows:

74. Maintain or enhance the values of the Metropolitan Rural Areas using place-based planning to deliver targeted environmental, social and economic outcomes, including rural residential development.

75. Limit urban development to within the Urban Area, except for the investigation areas at Horsley Park, Orchard Hills, and east of The Northern Road, Luddenham.

These actions are equivalent to Strategies 29.1 and 29.2 in the 'Draft Greater Sydney Region Plan' (October 2017).

The rural land on the Rezoning Area was formerly part of an 'agricultural cluster' associated with fruit production. The concept of an agricultural cluster is described in the Values of the

MRA (2017)^{xx}. The cluster is associated with the former, historical land use on the Rezoning Area (described in Section 5.7.2). However, with changes to land zoning, development and independent decisions on land use by individual land holders on the Rezoning Area and surrounding areas, the agricultural cluster no longer exists. Without the cluster, the rural lands on the Rezoning Area are considered by ASPIRE agri to have a lower social and economic value compared to some other lands in the MRA.

The majority of commercially viable agricultural operations within the MRA are intensive enterprises such as mushrooms and poultry^{xx}. Based on the current land zoning for the Rezoning Area (Section 5.3), intensive enterprises such as mushrooms may be permitted with consent, but intensive poultry is prohibited.

The main extensive agricultural enterprises on the Rezoning Area are grazing; horses and beef cattle production. As discussed in Section 5.7.1, most of the current horse operations on the Rezoning Area do not appear to be commercial agricultural enterprises. Like those in the broader MRA^{xx}, ASPIRE agri considers that the cattle enterprises on the Rezoning Area are unlikely to produce a commercial return on the labour and capital investment in the enterprise.

Based on the matters outlined above and in Section 6.2, ASPIRE agri considers that the proposal is consistent with the requirements of the Draft Western Sydney District Plan (October 2017)^{xxi} and Values of the MRA (2017)^{xx} with respect to scope of the agricultural assessment commission by Legacy Property.

6.4 Biophysical Strategic Agricultural Land

In 2014, the NSW Government completed mapping of more than one million hectares of the state's most valuable farming land - known as biophysical strategic agricultural land (BSAL). The published results of this mapping show that there is no BSAL in the Penrith LGA^{xxii}.

BSAL mapping was conducted at a regional (not individual property) scale. Designed for managing competing land uses proposed for high quality agricultural land, the primary use of BSAL mapping was with the assessment of State significant mining or coal seam gas (CSG) proposals.

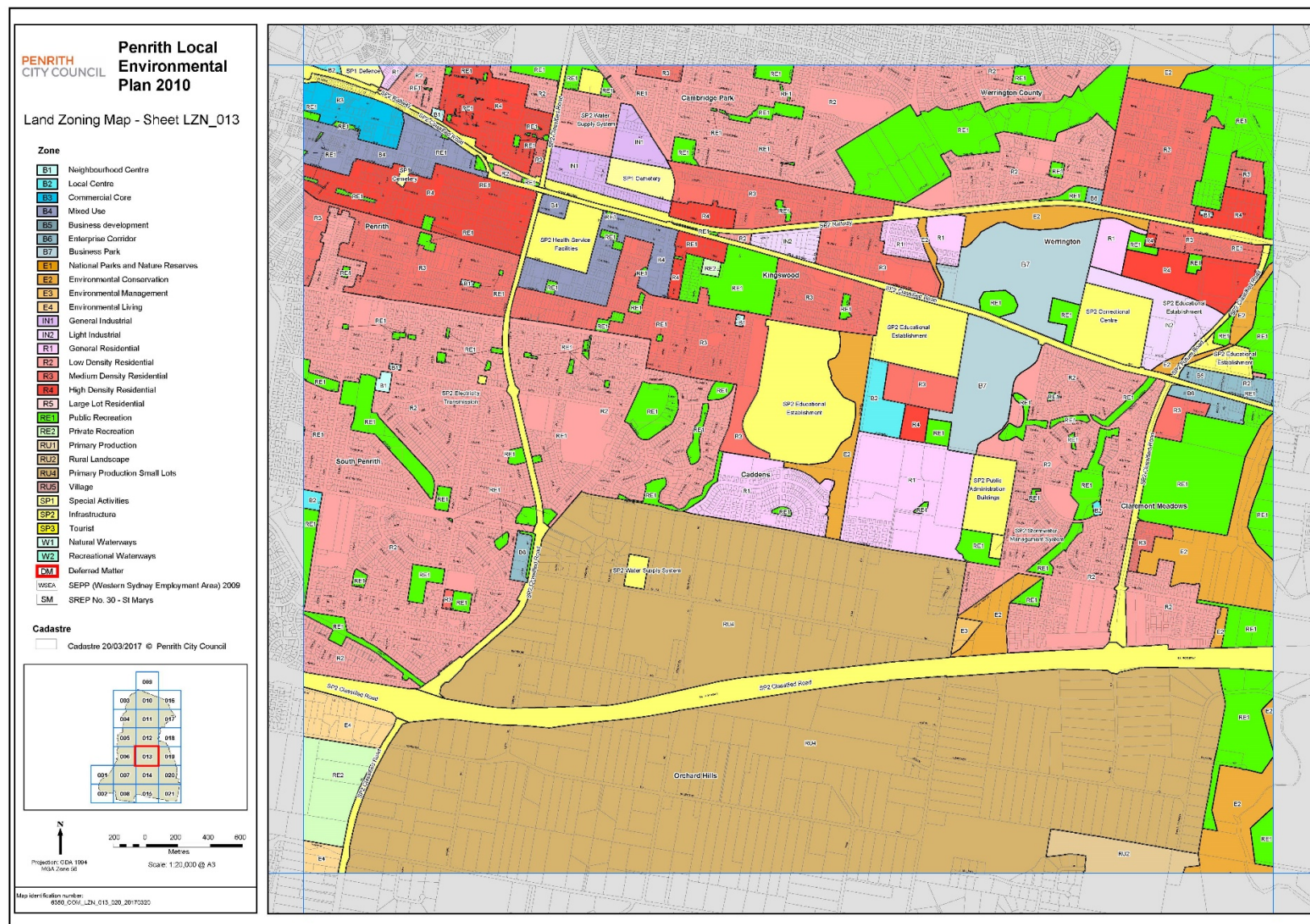
Given that no BSAL occurs on the Rezoning Area, this generally supports the mapping of Agricultural Land Classification in this report (Section 6.1), especially with respect to the limited amount of ALC Class 1 land, and the assessment that Class 1 lands on the Rezoning Area are not of the highest quality.

7. Appendices

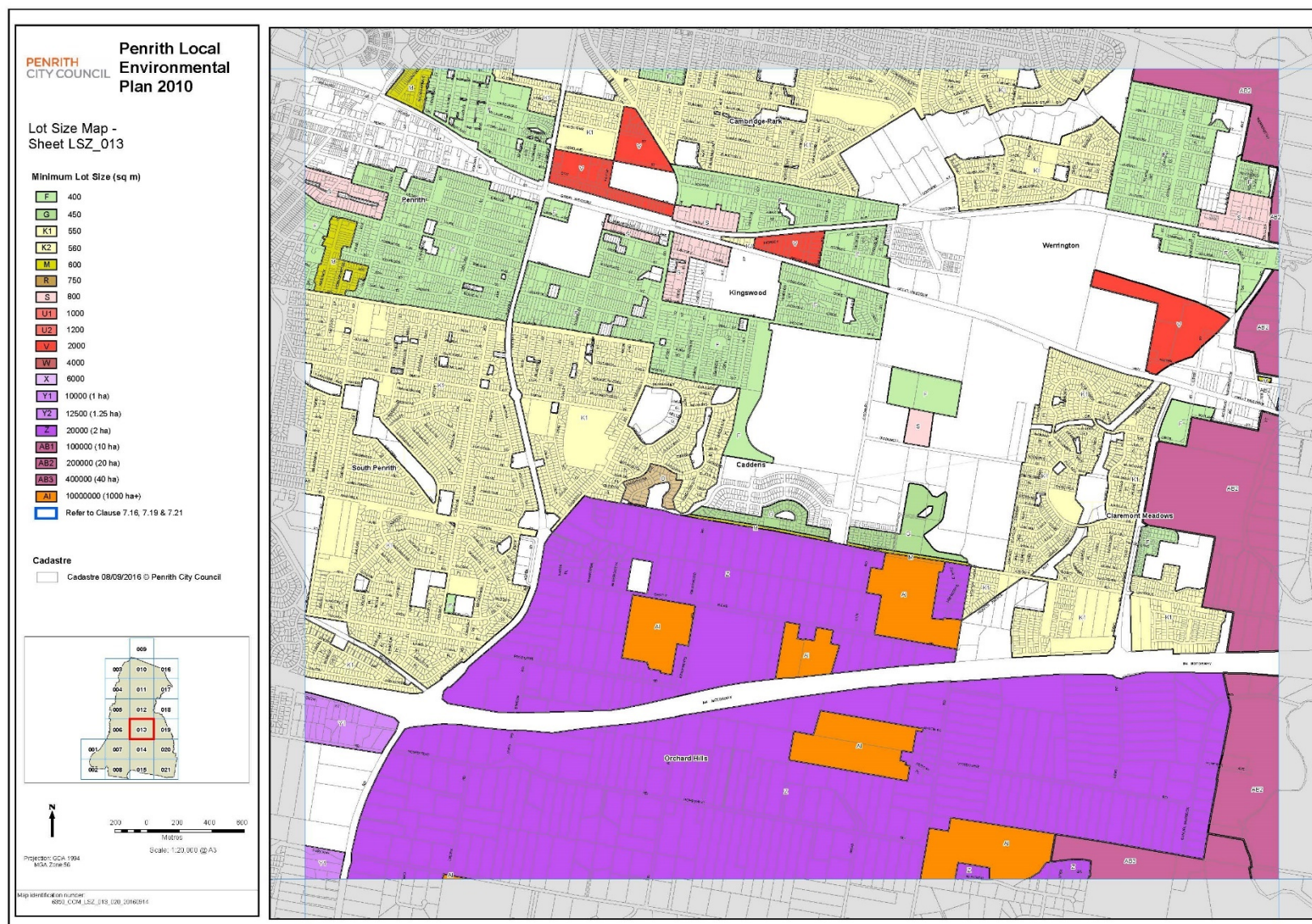
List of appendices:

1. Penrith Local Environment Plan (2010) – Land zoning map covering the Rezoning Area
2. Penrith Local Environment Plan 201 – Lot Size map covering the Rezoning Area
3. Description of Agricultural Land Classification (ALC) Classes 1 to 5

7.1 Penrith Local Environment Plan (2010) – Land zoning map covering the Rezoning Area



7.2 Penrith Local Environment Plan (2010) – Lot size map covering the Rezoning Area



7.3 Description of Agricultural Land Classification (ALC) Classes 1 to 5

Following is a detailed description of the Agricultural Land Classification (ALC) Classes used in the Agricultural Assessment in this report. The ALC Classes represent the current NSW DPI system of the same name ⁱⁱⁱ.

Class 1: Arable land suitable for intensive cultivation where constraints to sustained high levels of agricultural production are minor or absent.

Class 1 lands have all, or nearly all, of the following characteristics:

- Productivity is high to very high for a very wide range of field crops adapted to the area.
- Access to local and export markets is satisfactory.
- Local or regional infrastructure to support intensive forms of agriculture is present and a ready supply of suitable labour is available, if required.
- Potential for land use conflict with neighbours as a result of standard agricultural practices is low.
- Slopes are level to very gently inclined.
- Soils are deep.
- The land is capable of sustaining regular cultivation.
- The soil profile is well drained to moderately well drained.
- Erosion hazard is low, so only simple soil conservation management practices are required to protect the soils from erosion.
- Any soil physical and chemical constraints are capable of being economically overcome for a very wide range of field crops.
- A recurrent extreme of climate does not seriously affect productivity.
- Potential economic losses due to flooding are very low, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is very low.

Class 2: Arable land suitable for regular cultivation for crops but not suited to continuous cultivation. It has a moderate to high suitability for agriculture but edaphic (soil factors) or environmental constraints reduce the overall level of production and may limit the cropping phase to a rotation with sown pastures.

Class 2 lands have all, or nearly all, of the following features:

- Productivity is high to very high for a wide range of field crops adapted to the area.
- Access to local and export markets is satisfactory.
- Local or regional infrastructure to support intensive forms of agriculture is present and a ready supply of suitable labour is available, if required.
- Potential for land use conflict with neighbours as a result of standard agricultural practices is low.
- Slopes are level to gently inclined.
- Soils are deep to moderately deep.
- The land is capable of sustaining regular cultivation; however, conservation tillage practices may be required.

- The soil profile is either moderately well drained or rapidly drained.
- Erosion hazard is low to moderate, so soil conservation measures may need to be adopted to avoid erosion.
- Any soil physical and chemical constraints are capable of being economically overcome for a wide range of field crops.
- Recurrent extremes of climate are unlikely to affect productivity.
- Potential economic losses due to flooding are low, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is low.

Class 3: Grazing land or land well suited to pasture improvement. It may be cultivated or cropped in rotation with sown pasture. The overall production level is moderate because of edaphic factors or environmental constraints. Erosion hazard, soil structural breakdown or other factors including climate may limit the capacity for cultivation, and soil conservation or drainage works may be required. Class 3 lands have generally moderate levels of social, economic or physical limitations, restricting the extent of arable agriculture. For example, erosion hazard, soil structural breakdown or other factors including climate may limit the capacity for cultivation, and soil conservation or drainage works may be required. However, a high to very high level of one particular characteristic may result in an area being classified as Class 3 even where other limitations are absent.

Class 3 lands are characteristically lands with the following features:

- Productivity is high for locally adapted pastures and moderate for crops well suited to the area.
- Access to local and export markets is satisfactory.
- Local and regional infrastructure to support extensive forms of agriculture is present, and a ready supply of suitable labour is available.
- Potential for land use conflict with neighbours as a result of standard agricultural practices may restrict agricultural activities.
- Slopes are level to moderately inclined.
- Soils are moderately deep to shallow.
- The land has moderate to limited suitability for cultivation, so cultivation is only sustainable in rotation with pastures.
- The soil profile is well drained to imperfectly drained.
- Erosion hazard is low to high, so intensive measures of soil conservation may be required to control erosion in the long term.
- Soil physical and chemical properties may limit crop and pasture productivity.
- Recurrent extremes of climate may affect productivity.
- Potential economic losses due to flooding are moderate, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is moderate.

Class 4: Land suitable for grazing but not for cultivation. Agriculture is based on native pastures or improved pastures established using minimum tillage techniques. Production may be seasonally high, but the overall production level is low as a result of major environmental constraints. Class 4 lands have generally moderate to high levels of social, economic or physical limitations, restricting the agricultural productivity. The inability for the preparation of a cultivated seedbed on these lands typifies their limitations. It should be noted that a severe to extreme level of one particular characteristic may result in an area being classified as Class 4 even where other limitations are absent.

Class 4 lands are characteristically lands with the following features:

- Productivity levels for locally adapted pastures are low to moderate; however, productivity for selected tree crops may be high.
- Access to local and export markets may be restricted by location.
- Local infrastructure to support extensive forms of agriculture is present, however suitable labour resources may be limited.
- Potential for land use conflict with neighbours as a result of standard agricultural practices may restrict agricultural activities.
- Slopes are level to steeply inclined.
- Soils are mostly shallow.
- The land is unsuitable for cultivation, but minimum tillage techniques can be used to establish perennial pastures.
- The soil profile is well drained to poorly drained.
- Erosion hazard is low to very high; intensive measures of soil conservation may be required, but erosion may still be significant in the long term.
- Soil physical and chemical properties limit crop and pasture growth, and low productivity levels limit the ability to economically manage this constraint.
- Recurrent extremes of climate are likely to affect productivity.
- Potential economic losses due to flooding are high, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is high.

Class 5: Land unsuitable for agriculture or at best suited only to light grazing. Agricultural production is very low or zero as a result of severe constraints, including economic factors which preclude land improvement. Class 5 lands suffer extreme limitations for agricultural production.

These limitations may be one of, or a combination of, the following features:

- Productivity levels for all types of agricultural crops and pastures are very low.
- Access to local and export markets may be very restricted by location.
- Local infrastructure to support extensive forms of agriculture may be absent, as may suitable labour resources.
- Extremes of slope can be expected.
- The land is unsuitable for cultivation.
- The soil profile is very poorly drained.

- Erosion hazard is extreme, and economic control using conventional soil conservation measures is impractical.
- Soil physical and chemical properties present an extreme limitation to the growth of agricultural plant species.
- Recurrent extremes of climate may seriously affect productivity.
- Potential economic losses due to flooding are high, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is very high to extreme.

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