Dunster Investments / Kylsilver Pty Ltd

Yellow Rock Road Planning Proposal - Rural Transition Lands

Dunster / Kemister Property

April 2018

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1. Introduction

GHD was contracted by Bruce Dunster of Dunster Investments and Reg Kemister of Kylsilver Pty Ltd (the proponents) at the request of Urbanco Group Pty Ltd to conduct a review of the land characteristics and agricultural production prospects that would influence a planning proposal for the transition of rural land adjoining Yellow Rock Rd, Yellow Rock NSW 2527. The properties are situated to the west of Albion Park in the Shellharbour City Council Local Government Area (LGA) and further location details of the properties are located in section 3.

The proponent is seeking to rezone the site for residential subdivision and development and has submitted a Planning Proposal to Shellharbour City Council for this purpose. The land is the subject of a rezoning application from RU1 Primary Production to RU6 Transition (small lots rural interface). The proposal is to develop 350-400 small rural lots.

The purpose of the Yellow Rock Rural Transition Lands Planning Proposal (February 2018) is to:

- seek support from Shellharbour City Council for the amendment of existing zoning lot size controls which currently apply to the site;
- seek amendments to the current land use zoning arrangements to allow it to deliver a rural transition zone and transition in lot sizes; and
- amend the mapping and land use provisions pertaining to the site under the Shellharbour Local Environment Plan (LEP) 2013, including land use zoning and lot size mapping.

The request sought focus on addressing.

- the historic land use;
- the capacity of the land to support commercial agricultural enterprises; and
- consideration of land use conflicts between existing land use and possible urbanisation.

1.1 Methodology

This assessment was completed by Peter Brown and Paul Dellow of GHD who are agricultural consultants experienced in agricultural land use assessments (CVs included in Appendix B). The assessment included a site inspection completed on 12 February 2018 and a desktop review of relevant policies and documents.

2. Policies and Guidelines

Each of the relevant policies and guidelines used to assist this assessment are outlined below.

2.1 Rural SEPP 2008

This policy outlines the importance of agriculture to the State's economy and therefore requires the proper planning of rural land so that agricultural land is protected as well as providing opportunities for rural lifestyle, settlement and housing which contribute to the social and economic welfare of rural communities. The policies are underpinned by the following Rural Planning Principles:

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;

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; and

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

In addition to the above general planning principles, the Rural SEPP also contains a number of principles related specifically to rural subdivision. These subdivision principles are shown below and are discussed in detail in the body of the report.

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; and

e. ensuring that planning for dwelling opportunities takes account of those constraints.

2.2 Illawarra-Shoalhaven Urban Development Program

The Illawarra-Shoalhaven Urban Development Program (UDP) is the State Government's program for managing land and housing supply in the Illawarra and accompanies the Sydney Housing and Monitor program, which manages land and housing supply for the Sydney Metropolitan Region. The UDP monitors the planning, servicing and development for new urban areas in Wollongong, Shellharbour and Kiama, as well as the provision of housing in existing urban areas.

The subject lands have previously been identified as investigation areas under the Metropolitan Development Program. They were subsequently removed in subsequent reviews or were not implemented. The subject lands as part of this study now directly adjoin the urban settlement edge, allowing sustainable urban design principles and access to services.

2.3 Illawarra-Shoalhaven Regional Plan 2015

Released in November 2015, the Illawarra-Shoalhaven Regional Plan is the NSW Government's strategy for guiding land use planning decisions for the Illawarra-Shoalhaven Region for the next 20 years

The vision for the Illawarra-Shoalhaven is for a sustainable future and a resilient community, capable of adapting to change in economic, social and environmental circumstances. To achieve this vision the Illawarra-Shoalhaven Regional Plan is structured around five goals:

- Goal 1: A prosperous Illawarra-Shoalhaven;
- Goal 2: A variety of housing choice, with homes that meet needs and lifestyles;
- Goal 3: A region with communities that are strong, healthy and well connected;
- Goal 4: A region that makes appropriate use of agricultural and resource lands; and
- Goal 5: A region that protects and enhances the natural environment.

This plan maps key resources of the region including Biophysical Strategic Agricultural Land (BSAL). No land within the subject land holdings has been identified as BSAL.

2.4 Shellharbour Council Local Environment Plan 2013

The planning proposal seeks to amend the planning controls which are proposed to apply to the site under the Shellharbour Council Local Environment Plan (LEP) 2013. Under the 2013 LEP, the site is currently zoned RU1 – Primary Production. The objectives of this RU1 – Primary Production zone are summarised in Table 1 below.

Table 1 Shellharbour LEP 2013

RU1 – Primary Production	
Objectives of zone	• To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. • To encourage diversity in primary industry enterprises and systems appropriate for the area. • To minimise the fragmentation and alienation of resource lands. • To minimise conflict between land uses within this zone and land uses within adjoining zones.
Permitted without consent	Extensive agriculture; Home occupations.

Permitted with consent	Airstrips; Animal boarding or training establishments; Aquaculture; Bed and breakfast accommodation; Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Cellar door premises; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Environmental facilities; Environmental protection works; Extractive industries; Farm buildings; Farm stay accommodation; Flood mitigation works; Helipads; Home-based child care; Home businesses; Home industries; Industrial retail outlets; Intensive livestock agriculture; Intensive plant agriculture; Jetties; Open cut mining; Plant nurseries; Recreation areas; Roads; Roadside stalls; Rural industries; Schools; Truck depots; Veterinary hospitals; Water supply systems
Prohibited	Any development not specified in item 2 or 3

3. Location, Land Use and Land Capability

Current land use was assessed during a site inspection on 12 February 2018. The aerial photograph (Figure 1) depicts the different land uses within close proximity to the subject site. Illustrations of the different land uses are provided via a selection of photos (Appendix A).

3.1 Location

Information provided by Urbanco Group Pty Ltd states that the site has a total area of 165 hectares comprising of the following legal property titles:

- 136 Yellow Rock Road (Lot 1 DP 1089387, Lot 11 DP 1124665)
- 47-58 Tullimbar Lane (Lot 1 DP 724362)
- Lots 15, 16, 17 and 25 DP 111195

Figure 1 shows the location of the site to the west of Albion Park. Yellow Rock Road divides the two land holdings with approximately 90 ha on the western side of Yellow Rock Road and 75 ha on the eastern side. The properties can be accessed from either Yellow Rock Road or Tullimbar Lane. The subject site has an elevation of 20m AHD along Yellow Rock Creek and rises to 120m AHD on the eastern boundary.

3.2 Land use and property infrastructure

Current land use on the western side of Yellow Rock Road is extensive cattle grazing on semi-improved pastures (see photo 1 in Appendix A). Land use on the eastern side of Yellow Rock Road is also extensive cattle grazing on mostly unimproved and degraded pastures. Pasture improvement associated with past land use has meant that the land capable of sustaining agricultural production has been mostly cleared of trees (photo 2 and 3). Areas of dense vegetation still remain along the Yellow Rock Creek and on steeper topography and in gullies to ensure the stability of the land (photo 4).

There are a number of dams across the subject site (capacity not measured) to provide water for livestock. There is also evidence of a number of water tanks that may have historically been used for water reticulation across the property. The property drains to the Yellow Rock Creek Catchment.

The property on the western side of Yellow Rock Road has a residence, farm machinery sheds and a set of livestock handling yards (photo 4). Livestock handling yards are in good condition and are adequate to undertake routine animal husbandry practices. The property on the eastern side has a residence, sheds and other buildings that would have been used for previous agricultural enterprises (including dairy enterpises).

The properties are subdivided into a number of paddocks to assist with historic pasture and grazing management. Paddock and boundary fencing is stock proof and generally in good condition.

Pastures are unimproved with the main specifies being kikuyu and other summer grasses. Pastures would require renovation, fertilisation and the introduction of winter species (rye grass) if a more productive livestock enterprise was established in the future.

The region has had a long history of dairy farming, with a number of dairy farms still in operation across the broader Shellharbour LGA however there are no dairy farms remaining in operation within the immediate Yellow Rock vicinity. Although there is some history of dairy enterprises on

the subject site, it is unlikely that a dairy enterprise could be re-established at this site because the economies of scale now required to achieve a viable financial return from a dairy enterprise means that in excess of 200 milking cows would be required. Added to this is the rationalisation that has occurred in the industry such that dairy cow numbers in NSW have reduced from 311,000 head in 1979/80 to 182,000 head in 2015/16. Similarly, the number of registered dairy farms in NSW has decreased from 3,601 in 1979/80 to 685 in 2015/16 (Source: Dairy Australia 2018).

Land use has been assessed based on data from NSW Office of Environment and Heritage. Table 2 and Figure 2 outline the land use for the subject site based on spatial land use mapping. These 10m contour intervals demonstrates the uneven topography of the site (see photos 3 and 4).

Table 2 Land use of the subject site

Land use	Area (ha)
Grazing modified pastures	125.60
Grazing native vegetation	33.03
Other minimal use (Conservation and Natural Environments)	1.30
Residential and farm infrastructure	5.07
Total	**165.01**

3.3 Other surrounding land

Other land uses surrounding the subject site include: rural residential, extensive agricultural enterprises and environmental protection areas (zoned E3 Environmental Management under Shellharbour LEP 2013). Land directly adjacent to the north is already rezoned as either R2 Low Density Residential or R5 Large Lot Residential. Land to the south of the subject site is also subject to a planning proposal to change the land use from RU1 Primary Production to RU6 Transition.

3.4 Land and soil capability, including slope

Land capability for agricultural production from the property is a function of a range of natural resource conditions including geomorphology, topography, vegetation and soils. Land in NSW is commonly classified according to the capability of land to remain stable under particular land uses. Developed by the NSW Office of Environment and Heritage (2012), this land and soil capability 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. Note that this is a broad scale mapping tool that serves as a guide only.

The 8-class classification is shown in Table 3 and shows that Class 1 to Class 3 are considered to be capable of being regularly cultivated, while the remaining classes are not capable of being regularly cultivated and are suitable for grazing. However, the adoption of nil-till or minimum till cropping technology can extend the capability of Class 4 and above land as suitable for cultivation for pasture improvement.

Table 3 Land and soil capability

Broad category	LSC Class	General definition
Land capable of being regularly cultivated and used for a wide variety of	1	**Extremely high capability land:** Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices.

Broad category	LSC Class	General definition
landuses ((cropping, grazing, horticulture, forestry, nature conservation) Slope < 10%	2	**Very high capability land:** Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation.
	3	**High capability land:** Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.
Land capable of a variety of land uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation) Slope 10 - 20%	4	**Moderate capability land:** Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
	5	**Moderate–low capability land:** Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.
Land capable for a limited set of land uses (grazing, forestry and nature conservation, some horticulture) Slope 20 - 33%	6	**Low capability land:** Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation
Land generally incapable of agricultural land use (selective forestry and nature conservation) Slope > 33%	7	**Very low capability land:** Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. There should be minimal disturbance of native vegetation.
	8	**Extremely low capability land:** Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation.

Source: NSW OEH (2012) *The land and soil capability assessment scheme – second approximation*

It should be noted that the land capability class may not necessarily be associated with land suitability, especially for agricultural land uses that are less soil dependent (eg intensive animal industries such as chicken raising, greenhouses) or for permanent tree crops (eg horticulture and forestry).

Figure 3 shows the land areas and map of the land capability classifications of the subject site. Of this land:

- Class 4 comprises 23.11 hectares (14% of the total)
- Class 5 comprises 132.79 hectares (80%)
- Class 7 comprises 9.11 hectares (6%).

Based on the NSW land and soil capability assessment, the majority of the land is classified as not capable of being regularly cultivated but is suitable for grazing with occasional cultivation as per the definitions in Table 3.

3.5 Fettering and land use conflict

Fettering refers to the restriction that current or future land use could have on future surrounding land use. It is generally expressed as a buffer requirement (e.g. distance, vegetative, topographic, property management) between two different land uses to reduce land use conflict.

Recommended buffer distances between residential areas and selected agricultural industries are shown in Table 4.

Table 4 Buffer distances for primary industries and residential areas

Industry	Distance (metres)
Grazing of stock	50
Greenhouse & controlled environment horticulture	200
Turf farms	300
Dairy sheds and waste storage	500
Poultry sheds and waste storage	1000

Source: Living and Working in Rural Areas – A handbook for managing land use conflict issues on the NSW North Coast, 2007

This proposal will reduce the chance of any land use conflict between rural land and adjoining zoned residential land. There is already the potential for land use to occur between new residential areas at Tullimbar and existing rural properties due to noise, dust and odour as buffer distances are minimal (see photo 5). Less intensive agriculture such as grazing of stock would have minimal impact on surrounding residential areas. However, the prospect for disruption could be reduced by planting trees and shrubs into the buffer area bordering existing and potential higher density residential development.

.

Paper Size A4

0 80 160 320 480 640

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

Property

Road

Urbanco
Yellow Rock Planning Proposal

Job Number 21-27184/5
Revision A
Date 12 Mar 2018

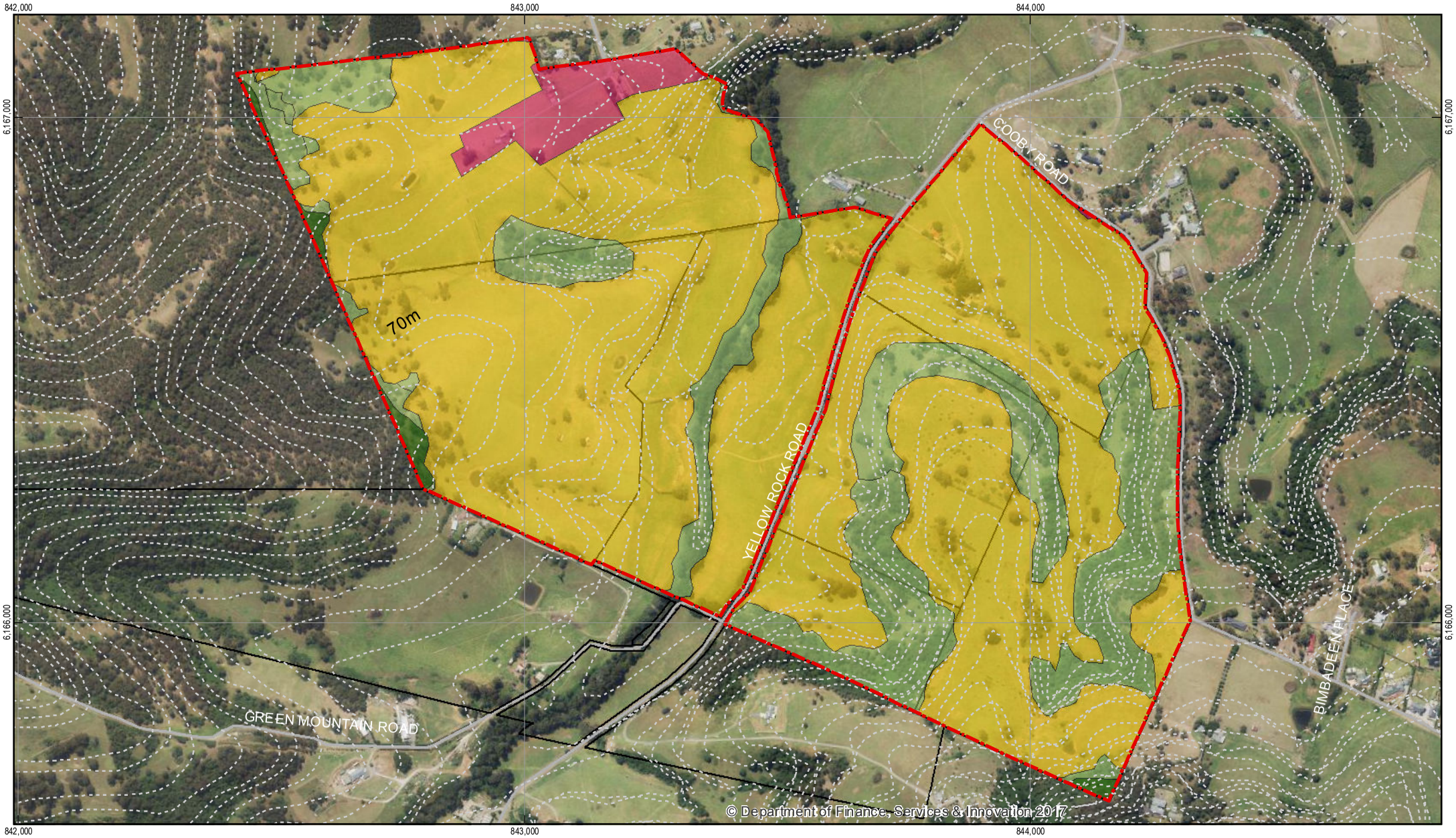
Site location
Dunster/Kemister Property

Figure 1

G:\Hassalls\Prospects\P1201-1500\P1549 - Yellow Rock Planning Proposal\GIS\Maps\MXD\Property_maps_Site_Location_Property1.mxd

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:ccameron



Paper Size A4

0 35 70 140 210 280

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

Land Use - Secondary Category

- 1.3.0 Other minimal use
- 2.1.0 Grazing native vegetation
- 3.1.0 Plantation forestry
- 3.2.0 Grazing modified pastures
- 5.4.0 Residential and farm infrastructure
- Contour (10m)
- Property
- RoadNameExtent

Urbanco
Yellow Rock Planning Proposal

Job Number 21-27184/5
Revision A
Date 12 Mar 2018

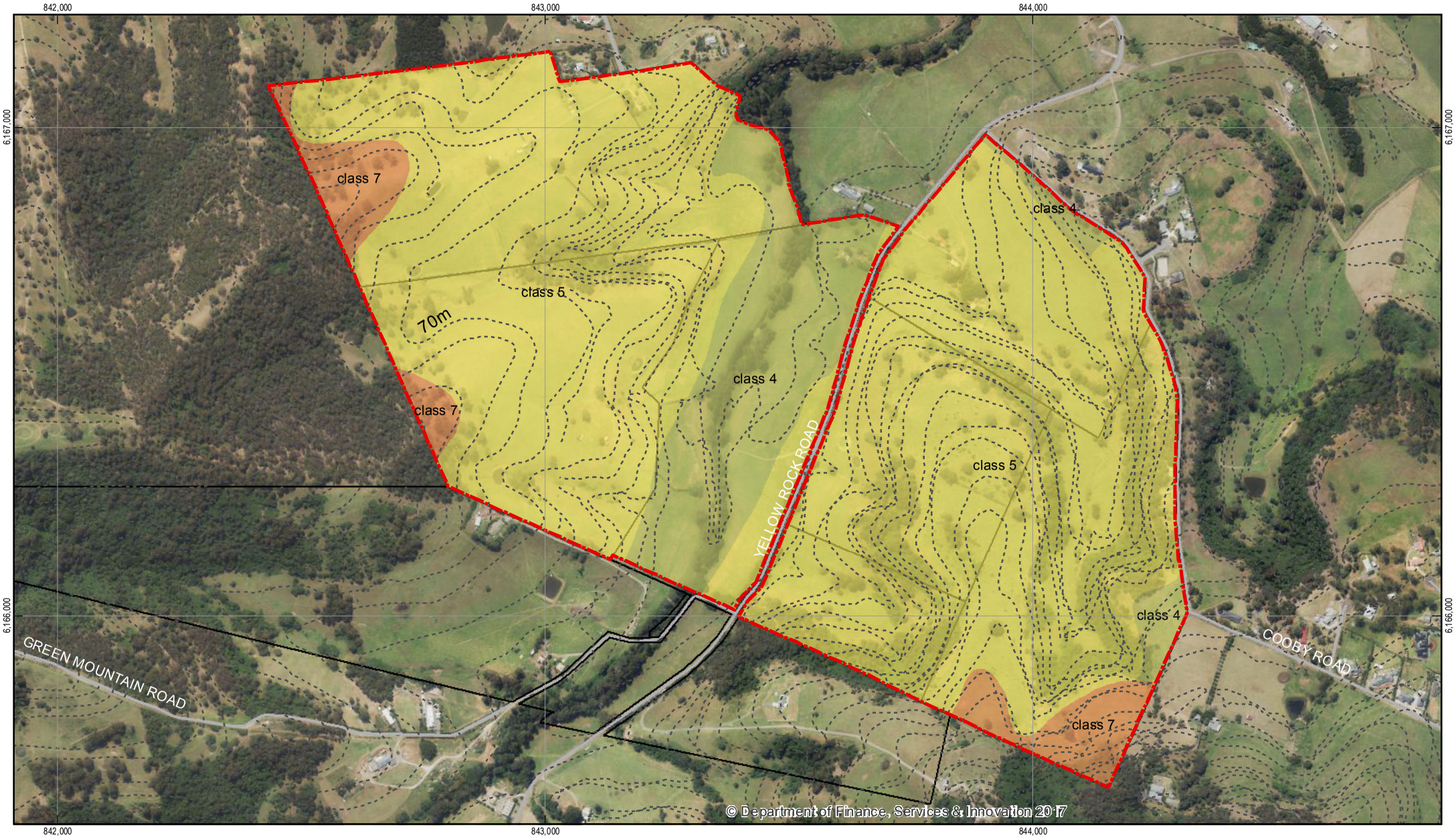
Land use
Dunster/Kemister Property

Figure 2

G:\Hassalls\Prospects\P1201-1500\P1549 - Yellow Rock Planning Proposal\GIS\Maps\MXD\Property_maps_landuse_Property1.mxd

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:ccameron



Paper Size A4

0 37.5 75 150 225 300

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Legend

Land capability class

1
2
3
4
5
6
7
8

Disturbed Terrain
Water
Contour (10m)
Property
RoadNameExtent

Urbanco
Yellow Rock Planning Proposal

Job Number 21-27184/5
Revision A
Date 12 Mar 2018

Land capability
Dunster/Kemister Property

Figure 3

G:\Hassalls\Prospects\P1201-1500\P1549 - Yellow Rock Planning Proposal\GIS\Maps\MXD\Property_maps_landcapability_Property1.mxd

180 Lonsdale Street Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melmail@ghd.com W www.ghd.com

Data source: Data Custodian, Data Set Name/Title, Version/Date. Created by:ccameron

4. Alternative Agricultural Enterprises

4.1 Agricultural value

The agricultural production from land is generally assessed in economic terms as gross margin per hectare (GM/Ha) or some other unit of measurement that allows comparison between land use enterprises. Gross margin is calculated as the gross income from production (eg yield X price) minus the direct costs of production (eg seeds, fertiliser, fodder). Gross margins provide a guide to the selection of enterprises but caution is required in their interpretation because they do not consider overhead and business/financing costs.

Table 5 shows indicative gross margins for a selection of agricultural enterprises that might be considered on the subject site. Gross margins are expressed as low, medium and high because presentation of absolute figures would require a more in-depth analysis. To provide some context to the low, medium and high categories, a beef cattle enterprise in the Albion Park area would have an indicative gross margin income of around $300 -$375 per hectare of cleared pasture land and dependent on the condition of pastures.

As the subject site consists of two land holdings and are currently run as separate agricultural entities, we have analysed the gross margins for each land holding. The eastern side of Yellow Rock Road would have an indicative gross margin of around $300 per hectare. This is equivalent to $16,500 per year for the 55 hectare of the subject site that is suitable for grazing.

The western side of Yellow Rock Road has more improved pastures and would have an indicative gross margin of around $375 per hectare. This is equivalent to $28,125 per year for the 75 hectare of the subject site that is suitable for grazing.

Both these gross margins are considered to be a 'low' gross margin, too low to support a family. Even if the properties were combined and run under a single entity, they would still be unlikely to be run as a viable standalone enterprise and supplementary off-farm income would be required.

The current land use is relatively low intensity cattle grazing which is unlikely to cause land use conflict. However, the economic viability of low intensity agriculture is not sustainable. Development of higher intensity use (eg dairy, fruit trees, viticulture) would demand specialised skills and expose the enterprise to a higher risk of conflict.

Note that the list of enterprises selected in Table 5 is not exhaustive but is considered to be the most likely for consideration for this climatic region.

Table 5 Gross margins of indicative agricultural enterprises

Agricultural enterprises	Indicative gross margins
Beef cattle grazing	Low
Dairy cattle	Medium
Turf farm	High
Fruit/nut trees	High
Greenhouses	High
Poultry	High

Although a number of enterprises have high gross margins (which potentially could support a farming family), there may be other constraints on their establishment at this site. This is discussed in section 4.2.

4.2 Potential land use analysis

The opportunities and constraints of potential alternative agricultural land uses on the subject site are shown in the following matrix (Table 6). The constraints considered are:

- Fettering – will the activity potentially result in land use conflict?
- Topography – will the steep and/or uneven topography restrict cultivation or building construction (eg flat land is required for a greenhouse)?
- Irrigation – will the enterprise require irrigation and is there a sufficient water source available?
- Existing infrastructure – can the enterprise be conducted with the existing infrastructure or will some enhancements be required?
- Investment capital – is establishment of the enterprise likely to require significant capital investment?
- Economic viability – for those enterprises that are physically feasible, what is the likelihood of their economic viability?

Table 6 Matrix of potential land uses (at an economic level)

Constraint / Enterprise	Fettering	Topography	Irrigation	Existing infrastructure	Investment capital	Economic viability
Beef cattle grazing	✓	✓	☐	✓	☐	×
Dairy cattle	✓	✓	☐	×	×	×
Fruit / nut trees	✓	✓	ns	×	×	×
Greenhouses	✓	×	ns	ns	ns	ns
Poultry	×	ns	ns	ns	ns	ns

Legend:
☐ not relevant
✓ not constrained
× constrained
ns not suitable due to land capability constraints
? uncertain and will depend on individual circumstances

The above analysis shows that the site is physically capable of supporting grazing enterprises. However the economic viability of these enterprises is uncertain because of the level of investment capital required for establishment and the type of business structure that would support any development. For example, a beef cattle enterprise is unlikely to be viable as a stand-alone business because of the low gross margin income (see section 4.1) but could contribute to income as an addition to a larger enterprise within reasonable proximity.

Irrigation is out of the question due to lack of permanent water sources, the topography and soil types. Turf farming is out of the question due to soil types and topography. Fruit and nut production is limited by local infrastructure and market opportunities.

The introduction of more intensive land uses is also constrained by associated operational procedures (e.g. buffer distances and effluent management) and legislative requirements and the proximity of existing urban land. As an example, poultry and similar operations would require ongoing fox management. In regards to fox baiting and 1080 fox baits. Local Land Services have responsibility for administering baits and the *Pesticides Act 1999 – Pesticide Control Order*

under Section 38 details the rules and processes to follow. This requires that a person must not lay any fox baits on any land unless they have given a minimum of three (3) days notice to all property owners within a 1km radius. This is impractical to achieve given that surrounding land has been rezoned for residential development.

In summary, it appears that there is no agricultural enterprise that immediately comes to mind as being suitable as a stand-alone business on the site without reservations.

5. Agricultural Assessment Framework

From the previous sections related to various policies and guidelines (section 2); land capability (section 3); and value of alternative agricultural enterprises (section 4); a framework for assessing the agricultural value of the subject land is provided in Table 7 below.

The table considers a range of criteria and/or issues from the various policies and guidelines and then discusses the attributes of the subject land against these with respect to agricultural value. The final column provides a summary assessment of agricultural value for each criterion as justification for the loss of agricultural farm land.

Table 7 Assessment framework

Criterion or issues	Attributes of Subject Land	Assessment
Consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General (Rural SEPP).	The subject site has been identified as accommodating future residential and small lot rural housing under a variety of strategies and environmental studies since the early 1990s.	The Strategy has sought to balance the social, economic and environmental interests of the community. Protection of agricultural land needs to be considered against competing demands for land use.
Minimisation of rural land fragmentation (Rural SEPP)	The subject land remains as two fragmented land holdings with planning proposals being considered to convert RU1 Primary Production to RU6 Transition (small lots rural interface) in the north and west. If those planning proposals are successful then this would leave the subject site as an isolated pocket of land. This restricts its ability to be aggregated into a larger parcel of rural land to enable economies of scale.	Due to other planning proposals being considered for adjacent properties, this site will become fragmented from other rural lands which will restrict its agricultural development opportunities.
Minimisation of land use conflict (Rural SEPP)	The current land use is relatively low intensity cattle grazing which is unlikely to cause land use conflict. However, the economic viability of low intensity agriculture is questionable. Development of higher intensity use (eg dairy, fruit trees) would result in a higher risk of conflict.	Current land use is sub-economic and development of economically viable agricultural enterprises could lead to higher risk of land use conflict.
Promotion of the continued use of agricultural land and particularly makes appropriate use of agricultural and resource lands (Illawarra-Shoalhaven Regional Plan 2015).	Land capability on the subject land and the additional properties is not prime crop and pasture land (Classes 1 to 3 or mapped as BSAL). Topography, land and soil capability, and vegetation restrict land use.	Development would not compromise the aim of protecting prime agricultural land.
A capacity to effectively cater for specialised agricultural developments.	A range of specialised agricultural developments were considered in section 4 (poultry,	Specialised agricultural developments are unlikely to deliver viable opportunities.

Criterion or issues	Attributes of Subject Land	Assessment
	greenhouses, orchards) however topography and fettering constraints mean they are not suitable for the site.	
Appropriate provisions to allow farms to expand to gain economies of scale in times of declining terms of trade while taking into consideration the buffers required by residential land uses as a result of increasing environmental regulation regarding noise, dust, odour and chemical use	The subject site is limited in its ability to expand physically because surrounding land use (to the north and south) is being considered for a residential planning proposal. Expansion to other areas is not physically possible due to other developments. The densely vegetated areas to the east and south and the steep topography would also preclude agricultural enterprises.	Expansion of the property is not likely to be economically viable.

6. Summary and conclusion

The proposed rezoning of RU1 Primary Production land adjacent to Yellow Rock Rd, Yellow Rock to residential land has been assessed for its impact on the preservation of agricultural land at the site and in the vicinity of the site. The assessment considered the various policies, strategies and guidelines for the development of land in the area and a site inspection established the current land uses at the site and surrounding land.

The issues that were considered central to the assessment were the potential for the development to impact on;

- Fragmentation of agricultural land;
- Land use conflict - impacts of residential land use on surrounding agricultural land and impacts of routine agricultural activities on future residential areas;
- Consideration of the natural and physical constraints and opportunities of the land; and
- Relevant policies and future supply of rural residential land.

Fragmentation of agricultural land

The subject site consists of two land holdings totalling 165 hectares which is currently used for rural residential and for cattle grazing. Surrounding agricultural land immediately to the south is also subject to residential planning proposals.

The development of more intensive agricultural activities is also constrained by its proximity to other future development proposals. Additional properties that are in close proximity to the subject site, and are not under future planning proposals would not add to its agricultural value if they were aggregated to form a larger parcel of land.

In assessing the income generating capacity from the two land holdings for the prudent land use which is extensive grazing, it would fail to generate sufficient funds to support a family.

Land use conflict

The current land use is relatively low intensity cattle grazing which is unlikely to cause land use conflict. Development of higher intensity use (eg dairy, fruit trees) would result in a higher risk of conflict and would require specialised skills. Current land use is sub-economic and development of economically viable agricultural enterprises could lead to higher risk of land use conflict. Areas of dense vegetation will also be retained to provide a natural buffer and ensure the stability of the land.

Consideration of the natural and physical constraints and opportunities of the land

The topography of the land is undulating and uneven and is predominately classified as Land Capability class 5. As such, it is not considered to be prime agricultural land for cropping purposes and development of non-soil dependent enterprises (e.g. greenhouses) is constrained by access to a reliable water source.

Relevant policies

The subject site has previously been identified as accommodating future residential and small lot rural housing under a variety of strategies and environmental studies since the early 1990s.

As such, despite the loss of agricultural farm land, the rezoning of the site for residential subdivision and development can be justified.

Appendices

Appendix A – Site Photographs

Selected photos taken on 12 February 2018

Photo 1: Looking west from Yellow Rock Road towards Yellow Rock Creek. Beef cattle are grazing on semi-improved pastures and fences are stock proof and are in good condition.

Photo 2: Looking south-east from Yellow Rock Road. Pastures are unimproved and fences while stock proof are in fair condition.

Photo 3: Looking north-east towards Cooby Road with cattle grazing on unimproved pastures.

Photo 4: Looking west across the two land holdings from Cooby Road. Yellow Rock Road fragments the two properties.

Photo 5: The urban/rural interface demonstrating where residential properties are directly adjacent to existing rural landholdings with minimal buffers to reduce the potential of land use conflict. The prospect for disruption could be reduced by planting trees and shrubs into the buffer area bordering existing and potential residential development areas.

Appendix B – Curriculum Vitae

Curriculum Vitae

Peter Brown

Principal Consultant – Natural Resources and Agriculture

Qualified.
Completed Australian Commercial Disputes Centre course on Commercial Mediation (1993)
Risk Analysis & Risk Management Short Course, University of NSW (1991)
Bachelor of Science in Agriculture, University of Sydney (1962)

Relevance to project. Peter commenced consulting in agriculture and agricultural planning in 1963, working with 45 farm families at Wellington in the central west of NSW for some 20 years. During the later years, he undertook assignment work in agriculture, both in Australia and internationally. Since 1989, he has focused his attention on the definition of impacts from physical and policy changes and from catastrophic events that affect agricultural lands and landholders and the identification of solutions for actual and potential disputes where agriculture is involved.
Peter was elected a Fellow of The Institute of Agricultural Science and Technology for his contribution to agricultural impact and economic loss assessment and dispute resolution. In 2006, Peter was awarded the Murray Medal in recognition of his work with the rural communities along the Murray River in addressing impacts from managed flows and assisting resolve a path forward that met the requirements of the affected landholders and the Governments involved in the Murray Darling Basin Commission.

Impacts of Instream and Overbank Flows, Murray from Hume Dam to Lake Mulwala, (Current) for MDBC & River Murray Water
The assignment involves providing technical advice to a reference group which is charged with the responsibility of developing a process to facilitate implementation of the River Management Plan for the Murray between Hume Dam and Lake Mulwala. The input includes identifying and quantifying the impacts of instream and overbank flows; discovering the community attitudes to various options for securing the right to release managed flows; and developing a matrix that combines the impact parameters with economic consequences. This assignment follows extensive consultation with the 180 landholders on the floodplain. The consultation process was conducted on an individual basis and by a series of meetings arranged by River Murray Water.

Economic Impact Assessment of release options from Dartmouth Dam where the impacts would be felt by the Mitta Mitta River floodplain landholders (Dartmouth Dam to Mitta Mitta River) (2002), for River Murray Water.
Task involved building a profile of the economic costs from a range of flow regimes that would achieve a total delivery of water from Dartmouth to the Murray River system. Prior knowledge gained over the last six years working with flood plain landholders enabled this assignment to be conducted over a three day period.

Development of protocols for agricultural enterprise and environmental protection during the process of transmission line construction and subsequently during the operation and maintenance phase of the proposed transmission line (NSW, NW Vic, SA) for Transgrid
Transgrid is looking to extend electricity provision from its Buronga Substation in western NSW 366 km through NW Victoria into SA along the Murray River. The extension involved a 50 m wide easement to accommodate 40 m high steel towers at separation of 400-500m. The proposed route for the extension will impact on 105 landowners.

The assignment required discussion with stakeholders (including landholders, relevant government agencies).

Assessment of impacts associated with a proposed mining development, at Robinvale Victoria for a mining company.

Responsible for assessment of the impacts of a proposed mining development on three farms in the district; the farming systems included intensive horticulture and extensive dryland farming and grazing; prepare economic impact assessments and assist negotiate compensation packages. Researched and advised on precedents of the Victorian Land Valuation Board of Review in relation to determinations on compensation for disturbance arising from mining in the state of Victoria.

Braidwood Lands at the site of Welcome Reef Dam (NSW) for Sydney Catchment Authority

The assessment included identification of broad land use options for land currently owned by the SCA in the Braidwood Area, including leased lands; a financial evaluation of the expected costs of these options; identification of other costs and benefits, including social, political, environmental and the impacts to stakeholders of these options; and recommendations regarding the best land use option(s) for management of the SCA's lands.

Reduced Water Availability - Border Rivers (Qld & NSW)

Prepare assessment of the impact of reduced water availability on the economic viability of landholders growing cotton on irrigated areas serviced by the Border Rivers; undertake a major review of a proposal by a public company to purchase irrigated cotton properties in the border Rivers region of NSW and Queensland. Appear at and present evidence at hearing in Bogabilla.

Land Classification and Planning Projects

Hornsby: Investigate the agricultural suitability of land in the Hornsby Shire and assess potential impacts from subdividing this land for low intensity dwellings. Task involved soils assessment, land classification review, land use possibilities and report preparation. Gave evidence at Land and Environment Court hearing in August 1996.

Leppington: Working with the Australian Government Solicitor and the Australian Construction Services. Undertake a detailed assessment of the impact of land resumption for Sydney's Second Airport at Badgerys Creek on a major dairy enterprise. Assess the economic cost of reinstatement of the infrastructure and business;

Rouse Hill: Undertake extensive examination of the prospects of intensive agricultural production from a ten hectare site at Rouse Hill. Investigation involved assessment of soil suitability, topography impacts, proximity to markets, water demand and potential storage including roadside catchment. Prepare assessment of agricultural worth of land and possible value as property retained for agriculture; and

Badgerys Creek: Examine prospects for intensive landuse adjacent to the proposed Sydney Second Airport and resolve economic merits of moving flower production business to area where land values were lower and control of water supply possible.

Nowra: Worked with Valuer examining past financial records of a 400 cow dairy at Nowra where the owners' Bank was concerned about the viability of the business. Assisted in the review of business plans and the monitoring of the business after the Bank made additional carryon funds available.

Camden: An Independent Assessment of Agriculture in the Camden Region - Proposed Agricultural Protection Area. Agricultural assessment of a small area in South West Sydney (Camden) that is tagged for as a Protected Agricultural Land. Peter provided advise on the possibility of establishing dairy enterprises on the Protected Agricultural Land. The report found that the economic future of broadacre enterprises is constrained and that the future viability of agriculture will depend on the conversion to intensive enterprises.

Curriculum Vitae

Paul Dellow

Senior Economist – Natural Resources and Agriculture

Qualified. Bachelor of Agricultural Economics, University of Sydney

Relevance to project. Paul has a Bachelor of Agricultural Economics, undertaking a major in Economics at the University of Sydney and has been a part of GHD's Natural Resource and Agriculture service group since 2007. Paul's work at GHD has focused around economic analysis, agricultural and natural resource management policy, economic loss assessments and agricultural land use planning.

Paul has undertaken rural land use planning studies for State and local government agencies and agricultural impact statements for development proposals with a potential to impact on the continuation of agricultural production. Paul has also been involved in undertaking agricultural economic loss assessments for agricultural enterprises affected by bushfires and flooding. Having grown up at Oberon in the Central West of NSW, Paul has a sound knowledge of agricultural and natural resource systems and has conducted numerous consultations with natural resource management groups, landholders and industry groups.

On-Farm & Regional Economics

Murrumbidgee Irrigation Area Renewal Alliance (2011)

GHD is working with Murrumbidgee Irrigation to implement its Modernisation Plan designed to improve the efficiency of irrigation water delivery and use, while at the same time ensuring the future viability of its customers and broader stakeholders. This project involves the preparation of the Private Irrigation Infrastructure Operators Program submissions for integrated delivery system / on-farm water efficiency infrastructure projects and on-farm projects that will generate water savings for the Australian Government. These submissions involved a benefit-cost analysis of the various irrigation options to be undertaken highlighting the Net Present Value of each option and the associated Benefit-Cost Ratio.

Agricultural Analysis

Narromine Shire Council (2012)

GHD has been commissioned by NSW Department of Planning and Infrastructure and Narromine Shire Council to prepare an Agricultural Lands Strategy – Intensive Plant Agriculture in order to:

- Identify and protect existing land utilised for intensive plant agriculture; and
- Identify any additional land appropriate for intensive plant agriculture.

This study examined the agricultural resource base through aiming to protect the agricultural land with preferred soil fertility and access to water.

Harden Rural and Residential Land Study

Harden Shire Council (2015)

GHD has been engaged by Harden Shire Council to undertake a comprehensive review of its current environmental planning instruments via the preparation of a Rural and Residential Land Study. Paul was involved in analysing the rural and agricultural land use component of this study.

Agricultural Impact Assessments

Paul has recently completed a number of Agricultural Impact Assessments for a variety of infrastructure projects across regional NSW that were a key component of the Environmental Impact Statement (EIS).

Inland Rail – Australian Rail Track Corporation (2016)

Paul prepared the Agricultural Impact Assessment for the Inland Rail for the Parkes to Narromine and Narrabri to North Star section of the rail corridor.

Gilgandra Solar Farm – NEON (2017)

This project involved preparing an Agricultural Impact Assessment to examine the impact of removing agricultural land from production and converting the site to a solar farm. Issues to

consider included site access, land use and land capability, biosecurity and impacts on adjoining landholders.

Koondrook-Perricoota Flood Enhancement Project (2015)

Paul was responsible for undertaking the landholder consultation as part of the environmental assessment to modify the operating conditions of the Koondrook-Perricoota Flood Enhancement Project to enable the Alternative Downstream Flow Options (ADFO) to be implemented. The ADFO is intended to enable a more flexible operating regime to be implemented to manage operational and environmental risks by reducing the depth and duration of inundation in the downstream areas of the Forest to better meet the environmental water requirements of vegetation communities and be more consistent with natural inflows.

Agricultural Analysis

Agricultural Land Use Planning

Paul has undertaken Land Use Conflict Risk Assessments (LUCRA) for development proposals with a potential to impact on the continuation of agricultural production on neighbouring farms in western Sydney. In the past year Paul has been the Job Manager for two of these projects at Picton and Bringelly. The main issues requiring assessment were:

- Loss of agricultural land including risk of incremental loss;
- Examination of agricultural productivity of the land and potential environmental constraints of its long-term agricultural viability.
- Fragmentation of agricultural land;
- Alienation of agricultural land; and
- Land use conflict – impacts of this proposed development on surrounding agricultural land and impacts on routine agricultural activities.

Land Use Planning

Sustainable Agricultural Futures Project, Western Sydney Parklands Trust (2009)

The purpose of this study is to assist the trust in making informed decisions on the future of agricultural production within certain areas in the Western Sydney Parklands and to assist the Trust to develop an appropriate procurement strategy. Paul was involved in developing gross margins for various agricultural options within the Sydney basin and responsible for undertaking consultation with key stakeholders across various agricultural industries.

Sydney Agricultural Lands Mapping Project, NSW Department of Planning and Infrastructure (2012)

GHD was engaged by DP&I to use remote sensing and existing mapping to describe the size, location and distribution of agricultural and resource land uses in the ASGC 2011 Sydney Statistical Division. The main purpose of this project was to provide a snapshot of the amount of land used for agricultural purposes, the characteristics of the land and production capability of the land within the Sydney Basin.

Promotion of Rural Activities and Feasibility of Establishing a Viable and Sustainable Agribusiness Precinct in Penrith LGA, Penrith City Council (2012-)

GHD has currently been engaged by Penrith City Council to undertake a project to:

- Recommend strategies to support and promote sustainable agricultural production; and
- Prepare a feasibility study on the establishment of a viable and sustainable agribusiness precinct in Penrith LGA.

As part of this project, GHD will be analysing agricultural production within the LGA, consulting with stakeholders and making recommendations about future agricultural planning strategies

Broader Western Sydney Employment Area, NSW Department of Planning and Infrastructure (2013)

GHD was commissioned by the NSW Department of Planning and Infrastructure (DP&I) to provide an analysis of agriculture and agribusiness opportunities as part of the Broader Western Sydney Employment Area (BWSEA) Structure Plan. This study involved reviewing government policies and directions on agricultural lands and agribusiness and an evaluation of the agricultural land use and primary production was undertaken. Paul was the Job Manager for this project.

Other related areas of interest

- **Socio-Economic Analysis**
- **Rural land use studies**
- **Stakeholder consultation**
- **Understanding of agricultural systems**
- **Economic analysis – Benefit-Cost Analysis, gross margin analysis**

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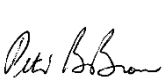
Rev 0	P. Dellow	P.Dellow		P.Brown		19.4.18

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