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Mr Marcus Ray
Deputy Secretary
Planning Services
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Ref: DOC18/107857

cc: David Kitto, Executive Director, Resource Assessments & Business Systems

Dear Mr Ray

HERITAGE COUNCIL OF NSW - TARWYN PARK – BYLONG VALLEY HERITAGE VALUES AND IMPACT ASSSESSMENT RESPONSE REQUESTED BY DEPARTMENT OF PLANNING AND ENVIRONMENT (DPE)

I am pleased to provide the Department of Planning and Environment (DPE) a response to its request to the Heritage Council of NSW (the 'Council') to comment on the proposed KEPCO Mine State Significant Development Application (the Project) currently under approval consideration by the Planning & Assessment Commission (PAC).

I note that DPE specifically requested the Heritage Council provide independent comment on a range of matters as expressed in its letter of 22 September 2017. This response was to cover:

- the identified heritage values of the Tarwyn Park Homestead complex through existing heritage assessments commissioned by the proponent,
- the associated Natural Sequence Farming (NSF) practices deployed on the property by noted land manager Peter Andrews OAM,
- the overall scenic values of the Tarwyn Park property within the Bylong Valley confines including clarifying the National Trust NSW classification of the Bylong Valley Scenic Landscape non-legal heritage classification
- the proposed mine mitigation measures from a heritage and cultural landscape perspective.

As you are aware, the Council engaged an external expert heritage assessment and landscape specialist firm, Hector Abrahams Architects Pty Ltd (HAA), to undertake a desktop and site inspection report. The scope of this request is articulated in the HAA report (attached). HAA have submitted their final report that includes a standalone Heritage Impact Assessment report (HIA) (February 2018) and a broader Heritage Significance Assessment.

The Council formed a subcommittee chaired by myself that inspected the property and the wider Bylong Valley area on 20 December 2017. The whole Council subsequently heard a presentation by Hector Abrahams at its 7 February 2018 Council meeting, and the sub-committee held a further briefing and discussion with the consultant on 13 February 2018. These investigations and discussions form the basis of this response.

The Council recommends the report to DPE and makes the following formal response to the heritage review scope requested.

The Council generally supports the assessment and findings in the report prepared by HAA; *Tarwyn Park & Its Setting, Upper Bylong NSW, Heritage Significance Assessment*, February 2018; and "*Statement of Heritage Impact for Tarwyn Park, Its Setting & The Bylong Landscape Conservation Area*, February 2018". The Council would provide the following specific comments and notes in relation to the findings of the report.

Heritage Significance

1. In terms of the reports' conclusions on the heritage significance of the discreet European Tarywn Park Homestead Complex, the Council supports the finding of local heritage significance;
2. In terms of the report's conclusions on the heritage significance of Tarywn Park's association with the NSW horse racing industry, the Council supports the finding of local heritage significance;
3. In terms of the report's conclusions on the heritage significance of the association and physical evidence in the landscape of the agricultural practice known as Natural Sequence Farming (NSF), the Council notes HAA's finding of potential State heritage significance. However, the Council has not formed a view on this ascribed value at this stage as there is a need for more established comparative evaluation. The Council notes however that Tarwyn Park is today widely recognised as being the first, and longest-running (i.e. operational) example of NSF, and a prototype of this model. The HAA report and the Council's own understanding of the practice, suggests that its take up, study and promotion at a national level gives rise to a potential State significance attribution. Because the concept of NSF was applied to the entirety of the property and its landforms as a method of retention of ground water reserves (a holistic view of water, air, soil, plant and animal interactions in the landscape), the Council considers that the Project could potentially impact the ability to understand the technology, the theory and its application at this site.
4. In regard to the consultant's assessment of the potential State significance value of the greater Bylong Valley as a landscape of scenic (aesthetic) values, and the National Trust's categorisation of the Bylong Conservation Area and National Trust Landscape Conservation Area, also referred to as the 'Bylong Scenic Landscape' (BSL), the Council notes the independent assessment and agrees that this scenic landscape has heritage significance. However, the Council requires a more substantive, in depth assessment of like natural landforms (including the set of 'Ways' transecting the Great Dividing Range and the northern NSW hinterland) to better understand the comparative heritage values of these landscapes to determine the level of this significance. In relation to the projects impact on the heritage significance of the BSL further analysis is needed of the effects of impacting the integrity of one element (the Upper Bylong Valley) on the greater BSL. The question of whether the impact to that valley system effects the values and significance of the other identified scenic valley systems as a tangible, measurable, and understood impact to the group (as expressed in the HAA study).
5. As a result of the examination of the impact of the Project on the BSL, the Council realises that the potential State significant heritage assessment of natural and cultural landscapes is an area in which work is required to develop a more substantive and holistic assessment of landscapes across the State. As a result of the lack of current rigour in the assessment of such landscapes and an understanding of their values as scenic elements, and complex cultural landscapes evolved from initially Indigenous and then European human interactions, the Council cannot at this time confirm the likely State significance attributes of the BSL (including the much smaller Tarwyn Park element).

Mitigation Measures

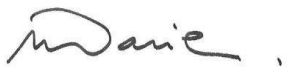
1. In relation to the NSF values the Council strongly urges measures to be introduced (should KEPCO's application be favourably considered) to mitigate loss of the research potential which is across a broader landscape than the physical constructions of NSF on Tarwyn Park and the 'readability' of NSF practices.
2. The Council has significant concerns, aligned to HAA's findings, that the proposed post-mining modified landscape will not adequately respect the current varied, complex and undulating character of the terrain. The Council is concerned that the proposed remediation will create a

landscape that alters the existing reading of the valley system, and is made up of landforms that are too uniform and symmetrical, the whole being too potentially altered to be able to 'read' the pre-disturbance condition. The Council urges DPE to further evaluate the proposed post-mining landscape form to better reproduce the current character of the terrain. This should include a more in-depth study of the patterns of the landscape so that measures are put in place to effectively respect the visual and functional aspects of the former landscape. This should also consider the current layering of European built elements such as roads, buildings, and rural structures in their current context.

In conclusion, the attached reports, particularly the Heritage Impact Assessment has completed a standard heritage impact evaluation on the proposed disturbance activity and made recommendations on appropriate site mitigation measures should the proposal be approved. Importantly, it has not made a finding on the acceptability or otherwise of these impacts.

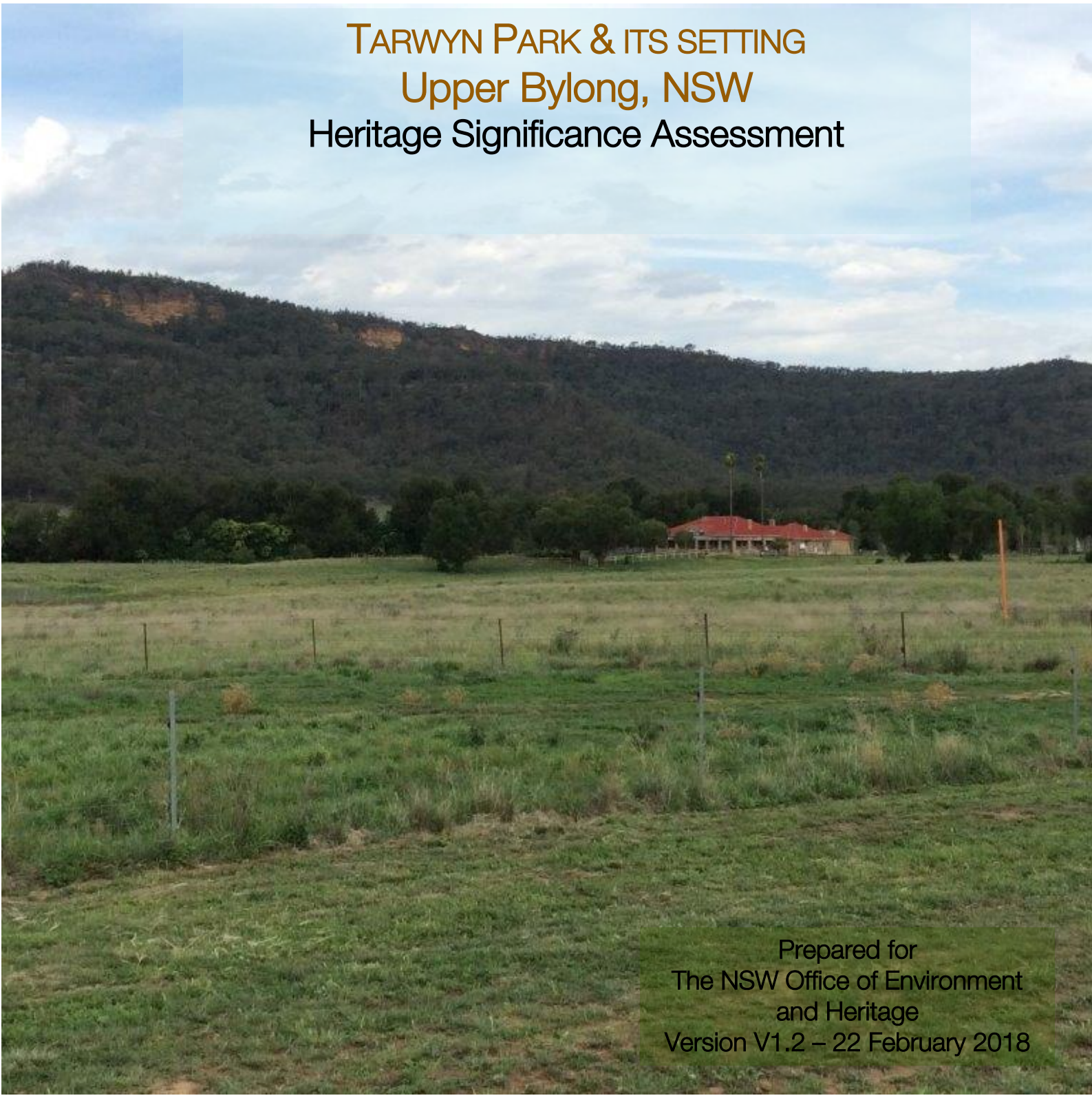
The Council has greatly valued the invitation of DPE to comment on these matters and the PAC's specific request that the broader heritage landscape impacts of the mining proposal are a paramount area of consideration, requiring the expert opinion of the independent Heritage Council of NSW. The Heritage Council proposes to undertake further work on the methodology and approach to the assessment of heritage values of natural and cultural landscapes as a result. We would be happy to participate in further dialogue as the Department continues through its evaluation and recommendation process.

Yours sincerely



Stephen Davies
Chair
Heritage Council of NSW
23/02/2018

TARWYN PARK & ITS SETTING
Upper Bylong, NSW
Heritage Significance Assessment



Prepared for
The NSW Office of Environment
and Heritage
Version V1.2 – 22 February 2018

HECTOR ABRAHAMS
ARCHITECTS

Tarwyn Park & Its Setting
Heritage Significance Assessment V.1.0
Was prepared by

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Version Control

Version Number	Authors	Status	Date
Version 1.0	Hector Abrahams Architects	Draft report to Heritage Office	31 January 2018
Version 1.1	Hector Abrahams	Draft report issued to Heritage Office with complete inventory	5 February 2018
Version 1.2	Hector Abrahams	Final issued with changes requested by Heritage Council	22 February 2018

Executive Summary

This report is about lands traditionally occupied by Aboriginal people of the Wiradjuri, Gamilaraay and Wonnarua nations.

1. This report has been prepared to advise the Heritage Council of New South Wales about the significance of Tarwyn Park and its setting, and its relationship to the significance of the Bylong Scenic Landscape.
2. This assessment has been prepared according to the standard methodology of the Heritage Council and other important standards which are described in section 1.3 Methodology.
3. The assessment is greatly assisted by extensive information about the place in two recent studies Godden Mackay Logan (2017) and AECOM (2018).
4. The methodology of this assessment differs from those other studies in that it is a standalone significance assessment (involving no assessment impact), it takes account of a more extensively documented history of the landscape of Tarwyn Park and the Bylong Scenic Landscape, it undertakes mapping of landscape spaces, visual relationships and the fabric of the place and it produces a Statement of Significance.
5. The Cultural Significance of Tarwyn Park is assessed to be

> *Tarwyn Park and its setting are substantial components in the Bylong Scenic Landscape, one of a group of scenic landscapes traversing the Great Dividing Range which are distinctive to the New South Wales landscape. The Bylong Valley is one of the many valleys of different sizes but consistent geology that together form the western side of the World Heritage-listed Blue Mountains, and contribute to its scenic values. (State level significance)*
>
> *Tarwyn Park is the site of the first and longest running application of Natural Sequence Farming in Australia, and is the basis for all subsequent implementations of the technique. As one of a small number of prominent experimental agricultural practices to gain scientific interest and popular appeal since 1938, Tarwyn Park is significant in the history of Australia's technological advancements in agriculture. (State level significance)*
>
> *Tarwyn Park is a historic pastoral landscape developed by the Lee family. Built to a large scale and designed by a prominent regional architect, Tarwyn Park contains a fine, intact 1920s homestead garden and horse complex, with associations to prominent blood line stallions and notable racehorses. (Local level significance)*

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Abbreviations used in this report

CMP	Conservation Management Plan
HAA	Hector Abrahams Architects
PAC	Planning Assessment Commission
DPE	Department of Planning & Environment
KEPCO	Korea Electric Power Corporation
NSF	Natural Sequence Farming
OEH	NSW Office of Environment & Heritage
SLNSW	State Library of NSW

1. Introduction

1.1. Outline of tasks

This is one of two report that have been commissioned to inform the Heritage Council of NSW in the advice it has been asked to provide to the Department of Planning & Environment (DPE), as recommended by the Planning Assessment Commission (PAC) on the significance of the heritage values of the Tarwyn Park property and its setting, and the likely impacts of the Bylong Coal Project on these values.

The brief of tasks written by the NSW Office of Environment & Heritage (OEH) is entitled *Bylong Coal Proposal – Heritage Council Commissioned heritage significance and impact mitigation assessment tender_1273.*

The brief contained the following specific tasks:

1. Deliver a heritage report to the Heritage Council of NSW, noting that the report will be provided to DPE as an input into its assessment of the Bylong Coal Project which will be determined by the PAC.
2. Specifically, to consider, the PAC's merit review report; and DPE's preliminary assessment report.
3. Review and comment on the findings of the extant GML Heritage and MUSEcape heritage reports.
4. Provide advice on the significance of the heritage values associated with Tarwyn Park landholding, including the areas of natural sequence farming, built features and its broader landscape setting.
5. The advice to be informed by an onsite visit, to form a view on the nature of the built heritage assets and their condition, the remnants of specific farming practices on the site, moveable and archaeological values, and an informed cultural landscape assessment including a determination of aesthetic and picturesque values of the property within its immediate Bylong Valley natural landscape setting. This review should also utilise forthcoming draft Management Plans and a Conservation Management Plan (CMP) to be provided to the consultant in late November-mid December 2017.
6. Advise whether the predicted impacts of the Korea Electric Power Corporation (KEPCO) Bylong Coal project are likely to result in a significant impact on the identified heritage values having regards to:
    - Mitigation measures proposed by KEPCO
    - Conditions recommended by the Department of Planning & Environment
    - The timing and nature of impacts, noting the progressive rehabilitation of the mine over time, and
    - Advise whether anything more could be done to avoid and/or mitigate the heritage impacts of the project.
7. Provide advice on the nature of the NSW National Trust Bylong Landscape Conservation Area and National Trust Landscape Conservation Area recognition status generally.

8. Consult with any parties as seem relevant to assist the task, in particular the Heritage Council, Heritage Division OEH, Department of Planning & Environment and KEPCO Pty Ltd.
9. Note that the successful consultant's final report and findings will be available in the public domain.

This report covers the assessment of Cultural Significance that is, tasks 1-5 and 7 in the above list. A separate report addresses the impact of the proposal on the Cultural Significance.

1.2. Definition of the study area/item (incl. location plan and site plan)

The Study area for this assessment is the land title area of the rural property Tarwyn Park (the place), and its setting. In considering cultural significance, the study takes into account the larger area of the valleys of Lees Creek, Bylong River, Growee River, Kerrabee River, Kerrabee Creek, Baerami River, and Goulburn River, which have been identified as having scenic landscape significance by the National Trust of Australia (New South Wales). In this report the larger area is referred to as the Bylong Scenic Landscape.

These areas are shown in Figure 4 in Appendix 6.2.

1.3. Methodology and Terminology

The principles of assessment and terminology to be used in this report are as defined in the Australia ICOMOS *Charter for Places of Cultural Significance (the Burra Charter)*. In addition to the term Cultural Significance as defined in the Burra Charter, the term Heritage Significance is used also, in line with its definition in the New South Wales Heritage Act (1977) and publications from the Heritage Office. It is held to be commensurate with the term Cultural Significance.

The assessment of Heritage Significance has been prepared in accordance with the guidelines set out in the Heritage Division of the NSW Office of Environment & Heritage publication, *A Guide to the Heritage System* (1996, amended 2005).

In determining comparative significance, the thematic criteria to be used are those developed by the NSW Heritage Council, in *New South Wales Historical Themes Table showing correlation of national, state and local themes, with annotations and examples Dated 4 October 2001*.

The layout and numbering of the Heritage Significance assessment follows the model of the New South Wales Heritage Office in their publication (July 2002).

1.4. Limitations

This assessment of Heritage Significance has been limited in the following ways

- The interior spaces of Tarwyn Park Homestead have been visited, but not surveyed or assessed.
- The interior spaces of Iron Tank Homestead have not been visited.
- The moveable contents of structures have not been surveyed or assessed
- The location of interventions in the lands of Tarwyn Park made during the ownership of Peter Andrews has been observed, but mapping has partly relied on that by GML.

- The history section of this report is a summary of existing historical reports, augmented by additional historic research.
- Two published scientific papers about Natural Sequence Farming have not been seen, although a bibliography has been compiled.
- This assessment was conducted over a short timeframe.

1.5. Identification of authors

This report was written by Hector Abrahams and Tristan Ryan from Hector Abrahams Architects and Meg Quinlisk, historian with editorial assistance from Tonia Reed Abrahams.

1.6. Acknowledgements

The authors would like to thank the following people for their assistance

Mr Tim Smith OAM, Director Heritage Operations Heritage Division

Mr Stephen O'Donoghue, Planning Services, Resource and Energy Assessments, NSW Department of Planning & Environment

Mr Roderick Gordon Rory, WorleyParsons

Dr Susan Lampard, archaeologist and Heritage Specialist, AECOM Australia Pty Ltd

Mr Robert Power, Heritage Advisor to Worley Parsons

Mr Thomas Frankham, Environmental Scientist to Worley Parsons

The staff of the offices of Kepco in the Upper Bylong Valley

2. Documentary Evidence/History

2.1. History

The following history is a summary of the findings of several consultant reports, in particular the research by Terry Kass included in the Tarwyn Park and Iron Tank Draft Conservation Management Plan dated 14 December 2017, and additional sources as cited.

European explorers of the Goulburn River valleys found well-watered areas of rich grasses which would make excellent pasturage for sheep. In 1825 Surveyor Robert Hoddle commented on the suitability of the land for livestock grazing while measuring out the first grants in the area.[1] One of these grants, as well as numerous subsequent grants and leases, was claimed by William Lee (1794-1870), a pioneering settler from the Bathurst district.

The study area of Tarwyn Park and Iron Tank was contained within the Lee family's extended holdings centred on the Bylong Creek valley. (They also held extensive runs in the Bathurst and Wellington districts.) The family's primary concern shifted from sheep to cattle in the 1840s, and they became known in particular for their shorthorn [Devon] cattle and lucerne. From this time, William Lee's son, John Lee (1824-1909) took over and increased his father's strategically-placed Bylong holdings, and added thoroughbred horses to the estate's fine cattle stock. Evidence from physical remains suggest that, while Lee's overall Bylong holding operated from Homestation and Bylong Station to the north, a farmhouse, hay barn and fencing were constructed in the late nineteenth century in the area of Tarwyn Park.

By the early twentieth century, Lee's Bylong estate measured 18,689 acres. From 1908, it passed quickly through the hands of multiple investors. Smaller farms were subdivided and sold as dairy farms, and in 1919 brothers Herbert Stanley Thompson (1879-1955) and James Cyril Thompson purchased an area of just over 1001 acres, containing the site which had recently become known as Tarwyn Park. The Thompson family were already highly regarded as thoroughbred horse breeders and operated Tarwyn Park in tandem with their nearby Widden Stud, established 1867.

Under HS Thompson's ownership (1919 to 1951), the Tarwyn Park estate developed as a highly regarded thoroughbred horse stud with the addition of extensive stabling, yards, the stone house, garden, fencing, tree planting and drainage works. During this period, construction of the Sandy Hollow-Maryvale railway commenced as relief work during the 1930s Depression. Survey plans for the railway show some of Tarwyn Park's fence lines as well as substantial drainage channels. Although the railway was not completed until several decades later, the railway embankment became a strong visual element in the Tarwyn Park landscape from the late 1930s.[2]

In 1951 Thomas Langhorne Fleming purchased Tarwyn Park and converted it to a cattle stud. The decade of the 1950s was particularly bad for flooding in the Hunter Valley, and the Bylong Valley was not an exception. Plans from the period (drawn to propose the construction of new levees) show the redirection or drainage of old watercourses, levees, and the location of a

[1] SRNSW NRS 13889 Surveyors field books, 1825 Hoddle No. 241, p 4-12
[2] SRNSW NRS 12912 Working plans and sections of railway: Sandy Hollow - Maryvale

pump house, mill and irrigation shed on Tarwyn Park, as well as areas of lucerne planting and the effects of the 1955 flood.[3]

Fleming subdivided the land and in 1961 Harold John Arthur Howes purchased the 'Homestead' block, measuring 844 acres. In 1974, Peter Andrews obtained Tarwyn Park under the company name Imijt Pty Ltd, and commenced his innovative agricultural practice now known as Natural Sequence Farming as a means of restoring the land after years of stagnancy. In 1988 the property now known as Iron Tank, which had previously been owned by HS Thompson, was acquired by Peter Andrews.

[3] SLNSW PXD1329 Series 02: Plans, drawings, subdivisions of factories and buildings mainly in Sydney but also regional New South Wales, Adelaide, Canberra and Melbourne, relating to Richardson & Wrench, 1911-1971 / folder 40: Bylong Valley / Plans of land titles and proposed changes to levees of water channels.

Figure 1: Detail of 1944 aerial photograph showing Tarwyn Park.
(Source: United Photo & Graphic Karrabee 2 April 1944, Film MAP535, Run 8, frame 100666)

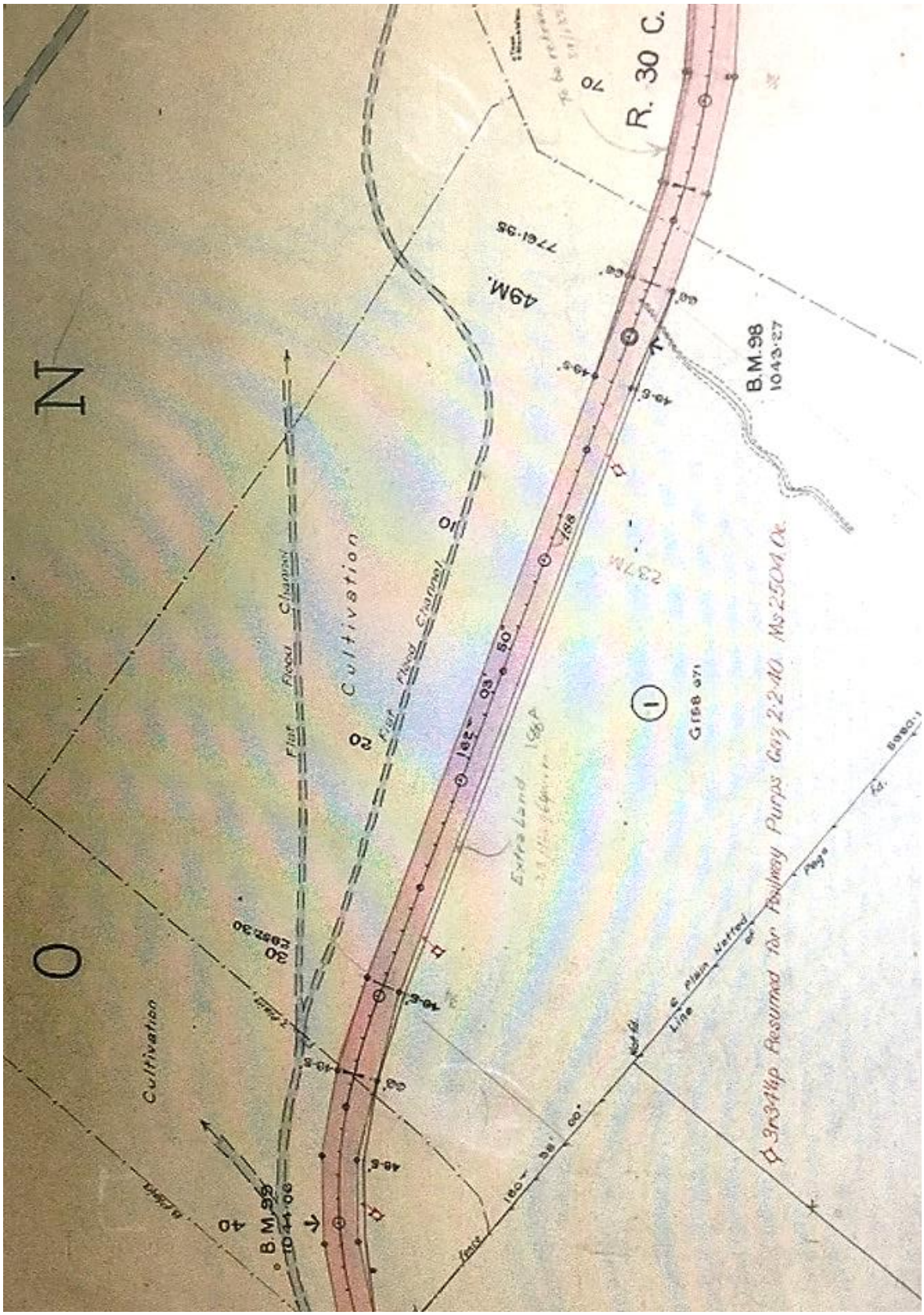

Figure 2: Department of Lands Ms 2476 Oe R

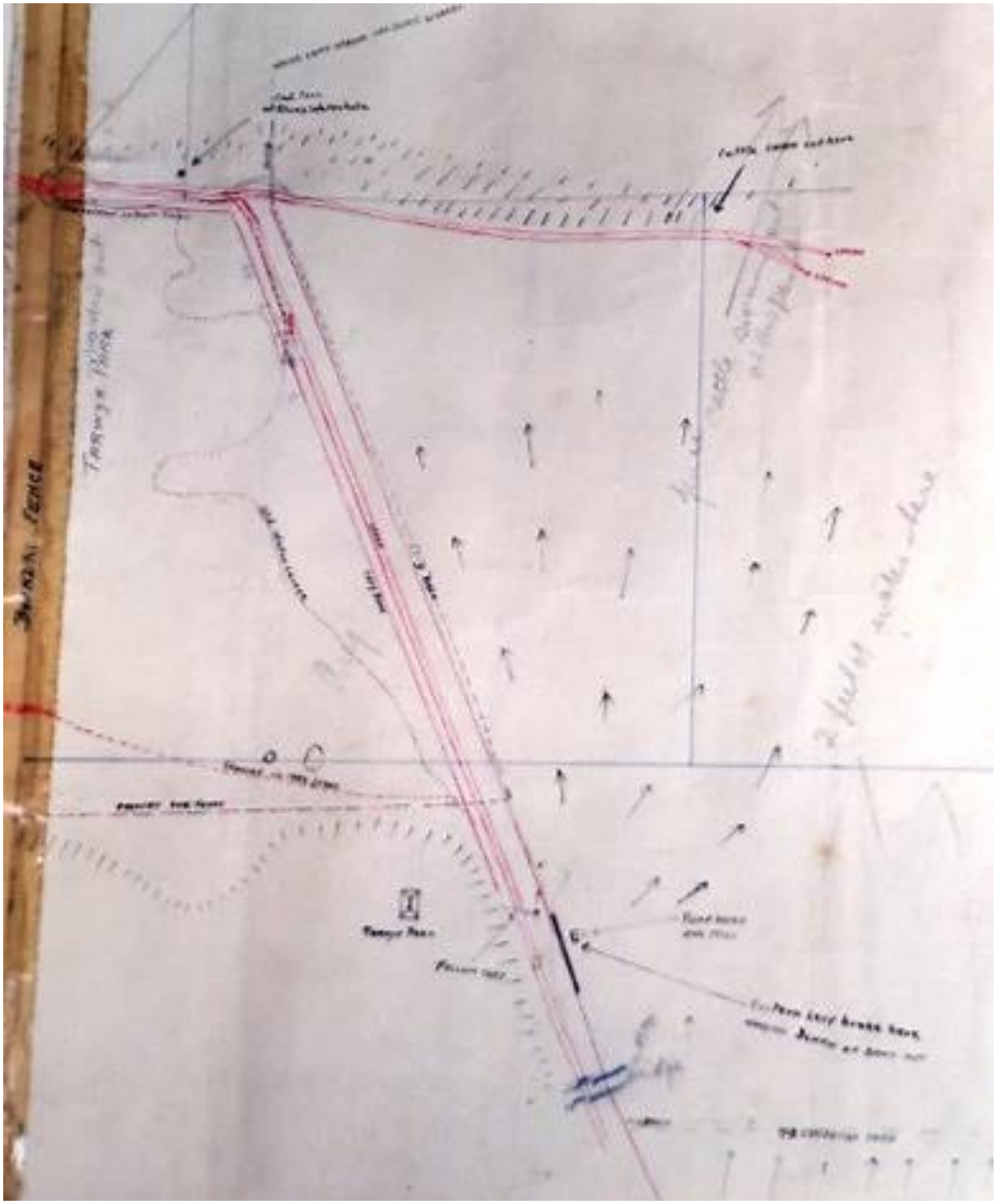

Figure 3: 1950s plan showing effects of flood and proposed levees.
(Source: SLNSW PXD 1329 Folder 40)

2.2. Ability to Demonstrate

Guidelines from the NSW Heritage Office emphasise the role of history in the heritage assessment process. Local historical themes are usually identified within local heritage studies and a list of state historical themes has been developed by the NSW Heritage Council, in New *South Wales Historical Themes Table showing correlation of national, state and local themes, with annotations and examples Dated 4 October 2001.*

The table below identifies fabric, spaces and visual relationships that demonstrate these historic themes in evidence at Tarwyn Park.

Australian Theme	NSW Theme	Notes	Example
3 Developing local, regional and national economies	Pastoralism	Activities associated with the breeding, raising, processing and distribution of livestock for human use	Clearings, hay shed, stables, yards, fencing
	Environment - cultural landscape	Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings	Evidence of land and water management, eg clearings, tree line, drainage, levees; also plantings, roads, fence lines
	Science	Activities associated with systematic observations, experiments and processes for the explanation of observable phenomena	Natural Sequence Farming, including landscape interventions / plantings, soil, water, landform
4 Building settlements, towns and cities	Accommodation	Activities associated with the provision of accommodation, and particular types of accommodation.	Tarwyn Park homestead, Iron Tank, Farm Houses 1 & 2 and associated outbuildings

3. Physical Evidence

3.1. Identification of Existing Fabric, Spaces & Visual Relationships

3.1.1. Description of the place

Tarwyn Park is a substantial rural property situated in the central part of the Upper Bylong Valley It has extensive river alluvial paddocks through which passes the Bylong River, and raised cleared slopes that meet the two public roads of the valley. To the north of the river, the property includes wooded slopes, which rise to a local unnamed peak.

Principal components of the place are its large stone Homestead, formal driveway and front garden spaces: a large complex of stables and yards for the breeding of thoroughbred horses. Located a distance away from the homestead, and facing away are two other houses known currently as number one, number two, and a very large former hay shed. These are visible from the Homestead complex. At the eastern end of the property is a small picturesque cottage known as Iron Tank, sheltered by a row of mature White Cedar Trees and one large Casuarina. On the higher land to the south of the homestead is set out racecourse and open grazing pasture and a small house.

The setting of Tarwyn Park is mostly the Bylong River Valley and Lee Creek Valley. These two small valleys have undulating open pastureland and alluvial lands on the floor cleared to a common contour on the hills that rise out of it. These wooded hills rise steeply into the Growee and Mt Tah Tah Ranges to rocky escarpments. In most directions the escarpments close in the view, except for the west where there are extensive views to the free-standing hill, colloquially known at Telstra Hill, and beyond the Mount Penny range of hills and its ridges on the west of the Growee River Valley.

The main public road in the valley is Upper Bylong Road, which becomes the Lee Creek Road which connects with the Growee River Valley through Budden Gap. Woolley's Road leads to the upper reaches of the Bylong Valley. Tarwyn Park is by far the largest establishment in size and developments in the valley. There is a small village containing a disused public school, former post office, and former community hall adjacent to Tarwyn Park. To the south of the Village is the former Roman Catholic Church, which is prominent in the meeting of the Bylong and Lee Creek Valleys, set high, with a back drop of ranges. Its east axis aligns to an unnamed peak.

These Components are shown in and mapped in Figure 5 and 6 in Appendix 6.2.

3.1.2. Identification of existing fabric spaces and Visual relationships

The existing fabric, spaces and visual relationships of Tarwyn Park and its setting have been mapped and photographed and made into an inventory. See Figures 7-12 in Appendix 6.2.

3.2. Analysis of Existing Fabric, Spaces & Visual Relationships

As part of the inventory, each of the components of the place has been described and dated to its period of construction or formation based on historic documentary evidence or visual evidence of architectural style. The descriptions include reference to discernible major alterations.

Measured drawings of the Tarwyn Park homestead are included in the CMP by AECOM.

In summary:

- The open lands of Tarwyn Park were formed as a result of 19th century settlement and the practice of cattle rearing horse breeding and clearing.
- Houses numbered one and two, the cottage called Iron Tank, some major trees in the vicinity of Iron Tank, appear to date from the late 19th and early 20th centuries. They are evidence of the development in Bylong Valley of a dairy industry in that time. The public school, community hall, and Roman Catholic Church were built and established in this period.
- Tarwyn Park homestead, its formal driveway space, front garden and horse complex are intact to the 1920s construction, with two main exceptions. The front garden and rear yards to the homestead and the major entrance way space have lost much of the plantings evident in the aerial photograph of 1944. There are substantial remaining structural plantings in those spaces.
- Regarding setting, Tarwyn Park homestead and its pair of marker palm trees are visible from the Upper Bylong Road at its first bend after entering the valley and rising to the level of the house. This view has the backdrop of an unnamed mountain peak.
- The entrance to the Tarwyn Park driveway is located at the last major bend in the Upper Bylong Road, where it leads off at an angle to present a view of the homestead, palms and landscape space of the drive. The landscape space of the drive is partly intact.; When created in the 1920s it had a line of pepper trees on two sides, the homestead on the third and the horse complex on the fourth making it a substantial landscape space.
- From the public road at the entrance to Tarwyn Park, and from its front garden and verandahs can be seen substantial parts of the Lee Creek Valley, the Mount Tah Tah Range and Mount Penny Range. These are mapped in the inventory.
- The homestead is laid out facing the Mount Penny Range.

4. Assessment of Cultural Significance

4.1. Comparative Analysis

4.1.1. NSW Heritage Assessment Criteria

The assessment of the significance of a place requires an evaluation of the fabric, uses, associations and meanings relating to the place, from which a detailed statement of significance can be formulated.

The following assessment of significance has been prepared in accordance with the guidelines set out in the Heritage Division of the NSW Office of Environment & Heritage publication, *A Guide to the Heritage System* (1996, amended 2005).

The NSW heritage assessment criteria, as set out in *A Guide to the Heritage System* encompasses the seven types of significance expressed in a more detailed form by the following criteria given in the next section. For each criteria, inclusion and exclusion guidelines are provided as a check list for the evaluation.

The NSW Heritage Division recommends all criteria be referred to when assessing the significance of an item even though only complex items will be significant under all criteria.

The NSW Heritage Division also recommends that items be compared with similar items of local and/or State significance in order to fully assess their heritage significance.

4.1.2. Significance Assessment of Tarwyn Park and its setting

Criterion (a) An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area

The place is part of a broader historic pastoral landscape founded in the early colonial period and continuously developed and worked in pastoral industries of sheep and cattle husbandry, dairying and thoroughbred horse breeding. The valley was settled in the manner typical of European colonial expansion west of the Blue Mountains in the 1820s and succeeding decades, where lands of economic importance were directly sought by colonialists, in cooperation with Government Surveyors. The Upper Bylong Valley's early nineteenth century developments include clearing, fencing and some building to support sheep and cattle breeding; in particular the importation and development of the shorthorn cattle breed.

Tarwyn Park is a pastoral holding developed in the late 19th/early 20th century, comprising a modest timber house, a separate corrugated iron decorative cottage in a picturesque style (the house known as Iron Tank), land modifications, and large hay shed. It is part of the intensified use of the Upper Bylong Valley for dairy farming at that time, which also brought about the public school, community hall, Roman Catholic church, roads, and substantial flood mitigation works on the Bylong River, including levees and drainage channels.

Tarwyn Park is an intact rural estate developed in the 1920s on the earlier estate, for the breeding of thoroughbred horses. It has a main drive space, fully appointed homestead and formal garden, a complex of horse stables, loose box and stalls buildings, covered breaking yard, running track and extensive yards and horse fencing.

Tarwyn Park is the site of a nationally prominent experiment in the land conservation method known as Natural Sequence Farming, which was first initiated at this place by Peter Andrews in 1973. Evidence of its prominence lies in the ABC documentaries about Andrews' theories and the wide popularity of his two books on the subject. The citation for Andrews' admittance to the Order of Australia in 2011, identifies his "service to conservation and the environment through the development and promotion of sustainable farming practises." As the first site to employ Natural Sequence Farming techniques, Tarwyn Park is now synonymous with the method; when the process is reviewed in scientific publications, Peter Andrews and Tarwyn Park are usually identified.

New South Wales has seen the development of a number of important and influential experiments in land conservation following the passing of the *Soil Conservation 1938*, including the pioneering work of Sam Clayton at the Cowra Research Station from 1939, PA Yeoman's Keyline farming system, codified in 1957, and the long-running Permaculture and Landcare Movements. The Natural Sequence Farming methodology first initiated at Tarwyn Park is of similar importance in the history of experimental agricultural practices in Australia.

Inclusion Guidelines	Check
Shows evidence of a significant human activity	Yes
Is associated with a significant activity or historical phase	Yes
Maintains or shows the continuity of a historical process or activity	Yes
Exclusion Guidelines	
Has incidental or unsubstantiated connections with historically important activities or processes	No
Provides evidence of activities or processes that are of dubious historical importance	No
Has been so altered that it can no longer provide evidence of a particular association	No

Level of Significance: LOCAL and STATE

With respect to the history of pastoral industry, the place is of local significance. It is one of many properties that have a similar history in the western slopes, in valleys settled in the same time period, and farmed in various ways today.

With respect to the history of land conservation, and the nation-wide eminence of the site association with Natural Sequence Farming, the place is of state significance.

Criterion (b) An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)

Tarwyn Park is a major part of a historic pastoral landscape associated with two colonial figures, William Lee (1794-1870), notable as a colonial-born pioneer settler west of the Blue Mountains from 1820 and Member of the first Legislative Assembly 1856-59, and his son, John Lee (1824-1909), a prominent cattle breeder.

Tarwyn Park is associated with the thoroughbred horse industry over a long period, from the late nineteenth century to the late 20th century, contributing to a substantial number of blood horse families included in the Australian Stud Book, specifically notable Melbourne Cup winners Hall Mark and Rain Lover, who is buried at the site.

Inclusion Guidelines	Check
Shows evidence of a significant human occupation	Yes
Is associated with a significant event, person, or group of persons	Yes
Exclusion Guidelines	
Has incidental or unsubstantiated connections with historically important people or events	No
Provides evidence of people or events that are of dubious historical importance	No
Has been so altered that it can no longer provide evidence of a particular association	No

Level of Significance: LOCAL

Criterion (c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or in local area)

Assessment of Tarwyn Park as part of The Bylong Scenic Landscape.

Tarwyn Park is a substantial component in the larger area of the valleys of Lees Creek, Bylong River, Growee River, Kerrabee River, Kerrabee Creek, Baerami River, and Goulburn River, which have been identified as having scenic landscape significance by the National Trust of Australia (New South Wales).

A scenic landscape is one which presents as a scene. A scene is usually comprised of foreground, middle ground and background, and appears as presented to the viewer. There is a harmony of contrasts between differing parts of the scene.

Such elements of scenery are consistently experienced visually in the Bylong district as one moves through the landscape on the roads or around the farm properties, where the

foreground is the worked rural lands of the alluvium and undulating valley floors, rimmed by the line of clearing that gives way to wooded slopes and rocky ridges.

Other consistent features are the line of clearing, trees along river lines, farm buildings, homesteads, the bending topographical lines of narrow road, the bending line of the Sandy Hollow-Gulgong Railway. These features are historic landscape elements.

The natural features are the angle of slope of the wooded hills, the uniformity of timber species, the prominence of isolated hills, such as Telstra Hill which is symmetrical and flat topped, and Bald Hill.

The interaction of rural and natural elements is balanced and understood as in harmony visually and experientially.

Evidence that these scenic qualities have been appreciated at different times are:

- The picturesque siting of the Roman Catholic Church as a central feature in the Bylong Valley, and the Anglican churches as focal points in the Growee Valley.
- The siting of the homestead of Tarwyn Park facing in appreciation of the Mt Penny Range, and to view up Lee Creek Valley to the Growee Range and Budden Gap.
- Touring and camping on the route in the 1930s.
- The Visual Analysis of the scenic qualities of the landscape in the Environmental Impact Statement for the Sandy Hollow Gulgong Railway in 1980.
- The designation of the Bylong Scenic Route, and sealing of the road in the late 20th century.
- Listing of the Bylong Landscape Conservation Area on the Register of the National Trust of Australia (New South Wales) in 2015.

Tarwyn Park occupies the Upper Bylong Valley. As part of this assessment, a comparison was made of the form of the landscape in this valley, with the adjacent Lee Creek and Growee Valleys. This is set out as a series of panoramic photographs and descriptive captions in Appendix 3.3. The analysis shows that the Upper Bylong Valley is fully part of the Bylong Landscape. It has the character, form, and is visible from the Bylong Valley Way.

Inclusion Guidelines	Check
Shows or is associated with, creative or technical innovation or achievement	No
Is the inspiration for a creative or technical innovation or achievement	No
Is aesthetically distinctive	Yes
Has landmark qualities	Yes
Exemplifies a particular taste, style or technology	No
Exclusion Guidelines	

Is not a major work by an important designer or artist	No
Has lost its design or technical integrity	No
Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded	No
Has only a loose association with a creative or technical achievement	No

Level of Significance: STATE

A similar scenic character is also found in the other valleys of sandstone geology, found on the western side of the Blue Mountains and Wollemi Ranges with clearing of the floor. From larger to smaller, examples of these are the Grose Valley, Megalong, Jamison, Kedumba, Capertee, Wolgan and Kemps Valleys. Along with clearing on the floors, most have roads leading through them but not traversing the Great Dividing Range like the Bylong Scenic Route. They all share the scenic and landmark qualities of this sandstone geology. Together many of them are identified as significant for this value, being part of the World Heritage Listing for the Blue Mountains.[4]

There are several other long roads that traverse the Great Dividing Range in New South Wales, and which have a similar form as the Bylong Scenic Way, traversing small farm lands, but without the rocky escarpments. Among these are the Richmond River (Summerland Highway), Upper Manning (Nowendoc Road), Gloucester (Buckets Way and Thunderbolts Way), and the Clarence River (Waterfall Highway). There are other coastal valleys with long roads of scenic character that lead to other valleys, through farmland: Orara Valley, Yarramalong Valley, Kangaroo Valley, Wollombi Road (Great North Road) and several valleys lead to the Comboyne Valley. They all have rural scenic value.

Since the Bylong landscape is one of a group of scenic landscapes in which the roads traverse the Great Dividing Range, which together are a distinctive feature of New South Wales landscape, and is one of the many valleys of different sizes but of same geology that together make the western side of the Blue Mountains which contribute to its scenic values, the Bylong landscape's significance is at the State Level. Accordingly, as Tarwyn Park and its setting is part of this landscape, these attributes should be identified in the assessment of its significance.

Assessment of the technological significance of the process of Natural Sequence Farming

The land/water conservation and farm management process called Natural Sequence Farming (NSF) was first developed at Tarwyn Park from 1973, and has been in use there to the present. Evidence for the subsequent recognition and adoption of NSF has been used to analyse the cultural significance of Tarwyn Park as the location of the method's first realisation.

About twenty years after its inception, the process of NSF began to be independently assessed by scientific analysis, initially at Tarwyn Park, then at other locations. The first independent academic analysis of NSF on Tarwyn Park and Homeleigh was made in 1997 (Anderson, P,

[4] Greater Blue Mountains Area World Heritage Listing, reference 917, http://whc.unesco.org/en/list/917

Milne-Home, WA and Knight, MJ). It was followed by a qualitative description by CSIRO Land and Water in 2002.

Following Peter Andrews' implementation of NSF (about 2000) at Barramul Stud in the adjacent Widden Valley, Southern Cross University undertook a major research project to test the base assumptions of the method quantitatively and qualitatively under an Australian Research Grant, 2004-2007. The resulting project, entitled "*Restoring hydrological connectivity of surface and ground waters: Biogeochemical processes and environmental benefits for river landscapes,"* led to a doctoral thesis about aspects of Peter Andrews' Natural Sequence Farming on Barramul Stud by Michael D Cheetham, completed in 2010.

By 2015 the process was adopted on seven other properties in different parts of NSW and one in Queensland. Most properties in NSW are coastal and on the Great Dividing Range, and one is located at West Wyalong. The process of NSF on these properties was the subject of a qualitative description published in 2015 (Hurley). The process is currently being established on another property, Marloo near Kandos (ABC News 29th November 2016).

A research institute to study the process was established at Mulloon Creek in 2015 (Hurley) and a school of Natural Sequence Farming has been running since c. 2005 (Natural Sequence Farming.com)

Hurditch provides a review of the operation of the NSF, based on academic review and published data from Mulloon Creek, and a six-point scientific definition of the principles as first developed by Peter Andrews.

The paper summarises the applied technological significance of NSF.

There is a diversity of experiences of, and outcomes from, implementation of the principles of the Natural Farming Sequence in the above case studies. All warrant further technical evaluation of the long-term benefits of such interventions for enhancement of farm productivity and profitability. However, there is already an emerging consensus amongst Australian landscape scientists and managers that the holistic Natural Farming Sequence approach can offer a low-cost, productive alternative to conventional high-input agricultural practices (Hurley, p. 336 quoting J. Williams)

This survey of the available literature shows that use of NSF as a technological process has developed substantially. The use of it has spread considerably, it has been the subject of very substantial scientific analysis, and that a research institute has been formed to further develop it. We have located no published scientific findings that discredit the application of the technology.

On this evidence, the site is significant for the high degree of technological achievement with respect to the process of Natural Sequence Farming. The nature of this significance is multivalent. The improvements that bring about the process are significant, the process is significant, and the land and waterway on which the process operates, all have significance.

Inclusion Guidelines	Check
Shows or is associated with, creative or technical innovation or achievement	Yes
Is the inspiration for a creative or technical innovation or achievement	Yes

Is aesthetically distinctive	No
Has landmark qualities	No
Exemplifies a particular taste, style or technology	Yes
Exclusion Guidelines	
Is not a major work by an important designer or artist	No
Has lost its design or technical integrity	No
Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded	No
Has only a loose association with a creative or technical achievement	No

Level of Significance: STATE

Since NSF is practiced and studied scientifically state-wide (with nationally-sourced funds in two cases), its significance is State.

Architectural and Garden Significance

Tarwyn Park is a good example of a major homestead and horse stud on account of its size, form, architectural language, quality of construction and interior finishing, considered siting with respect to a scenic landscape, designed garden spaces including major driveway space, formal front garden and rear courts.

The construction or major adaption of homesteads of the 1920s and 30s in New South Wales is not unusual, often around earlier buildings and gardens. Examples from different areas of the state are Hazeldean, Cooma (Wilkinson 1935), Markdale, Crookwell (1920s) Haddon Rig, Warren (1920s) Birling Bringelly (a horse stud by Mould and Mould 1937) Bloomfield, Yass (1926).

The homestead with its garden and outbuildings is a large scale example of the late work of the architect H Hardwick, who practiced in Mudgee in the late 19th and early 20th century. It is an example of the work of a distinctive regional practice, such as have been found in West Maitland (Pender) and Goulburn (Manfred).

The Iron Tank Homestead is an interesting example of a small picturesque cottage in a scenic setting.

Level of significance: LOCAL

Criterion (d) An item has strong or special association with a particular community or cultural group in NSW (or local area) for social, cultural or spiritual reasons

Whilst there is evidence that Tarwyn Park has special association with advocates of Natural Sequence Farming in the early 2000s, when the school of that name was set up, and recent actions to prevent coal mining on the site, these are too recent to be assessed.

Criterion (e) An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)

In light of the technological significance of the process of Natural Sequence Farming, assessed above in criteria (c) as the first and longest running example of the process, the land, improvements and ongoing process at Tarwyn Park have unique potential to yield further information about the technology.

This potential is unique due to the length of time the process has been in place at Tarwyn Park, about twice as long as anywhere else, and the specific characteristics of the place.

Inclusion Guidelines	Check
Has the potential to yield new or further substantial scientific and/or archaeological information	Yes
Is an important benchmark or reference site or type	Yes
Provides evidence of past human cultures that is unavailable elsewhere	No
Exclusion Guidelines	
The knowledge gained would be irrelevant to research on science, human history or culture	No
Has little archaeological or research potential	No
Only contains information that is readily available from other resources or archaeological sites	No

Level of Significance: STATE

The level of significance in this criterion is determined by whether the information which may be yielded may be relevant to the state. Since NSF is practiced and studied scientifically state-wide (with nationally-sourced funds in two cases), its significance is State.

Archaeological Significance

The documentary and field research has found some evidence of former buildings on the place, but no other major structures. The 1944 aerial photograph offers substantial evidence of the landscape design of the driveway space, the rear spaces around the homestead and the front garden.

Each of the buildings on the place contains potential for occupational deposits, concealed spaces under floor, in roof, and under recent finishes. This may yield information about the construction of those buildings and their occupation.

Inclusion Guidelines	Check
Has the potential to yield new or further substantial scientific and/or archaeological information	Yes
Is an important benchmark or reference site or type	No
Provides evidence of past human cultures that is unavailable elsewhere	No
Exclusion Guidelines	
The knowledge gained would be irrelevant to research on science, human history or culture	No
Has little archaeological or research potential	No
Only contains information that is readily available from other resources or archaeological sites	No

Level of Significance: LOCAL

The level of significance in this criterion is determined by whether the information which may be yielded may be relevant to the State. Since the archaeological potential relates to structures that are local, its significance is Local.

Criterion (f) An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)

Several aspects of the significance of the place are unique to this place: the site of the invention of the process of Natural Sequence farming, the state wide, and nationwide recognition of it as the original site of Natural Sequence Farming and its association with Peter Andrews.

Inclusion Guidelines	Check
Provides evidence of a defunct custom, way of life or process	No
Demonstrates a process, custom or other human activity that is in danger of being lost	No

Shows unusually accurate evidence of a significant human activity	No
Is the only example of its type	Yes
Demonstrates designs or techniques of exceptional interest	Yes
Shows rare evidence of a significant human activity important to a community	No
Exclusion Guidelines	
Is not rare	No
Is numerous but under threat	No

Level of significance: STATE

Criterion (g) An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or environments (or a class of the local area's cultural or natural places or environments)

Tarwyn Park is a substantial component in the Bylong Scenic Landscape, which is one of two important groups of landscapes: Scenic Rural Valleys with roads that cross the Great Dividing Range, and the Valleys of Blue Mountains area.

Inclusion Guidelines	Check
Is a fine example of its type	Yes
Has the principal characteristics of an important class or group of items	Yes
Has attributes typical of a particular way of life, philosophy, custom, significant process, design, technique or activity	No
Is a significant variation to a class of items	No
Is part of a group which collectively illustrates a representative type	Yes
Is outstanding because of its setting, condition or size	Yes
Is outstanding because of its integrity or the esteem in which it is held	No
Exclusion Guidelines	
Is a poor example of its type	No
Does not include or has lost the range of characteristics of a type	No

Does not represent well the characteristics that make up a significant variation of a type	No

Level of Significance: STATE

4.2. Definition of curtilage

The area in which the cultural significance of Tarwyn Park are found are as shown in Figure 6 in Appendix 6.2.

4.3. Statement of Significance

Tarwyn Park and its setting are substantial components in the Bylong Scenic Landscape, one of a group of scenic landscapes traversing the Great Dividing Range which are distinctive to the New South Wales landscape. The Bylong Valley is one of the many valleys of different sizes but consistent geology that together form the western side of the World Heritage-listed Blue Mountains, and contribute to its scenic values. (State level significance)

Tarwyn Park is the site of the first and longest running application of Natural Sequence Farming in Australia, and is the basis for all subsequent implementations of the technique. As one of a small number of prominent experimental agricultural practices to gain scientific interest and popular appeal since 1938, Tarwyn Park is significant in the history of Australia's technological advancements in agriculture. (State level significance)

Tarwyn Park is a historic pastoral landscape developed by the Lee family. Built to a large scale and designed by a prominent regional architect, Tarwyn Park contains a fine, intact 1920s homestead garden and horse complex, with associations to prominent blood line stallions and notable racehorses. (Local level significance)

4.4. Gradings of Significance

As well as the significance of the whole site, significance has been assessed for its components. The grading of the significance of components is made by aligning the contribution of the component to the significance of the whole. Grading also recognises that not all components possess equal contribution and some may be intrusive.

Gradings of Significance have been ascribed to individual parts of the site based on the following table of Gradings of Significance defined by the NSW Heritage Office.

Grading	Justification	Status
EXCEPTIONAL	Rare or outstanding element directly contributing to an item's local and State significance.	Fulfils criteria for local or State listing
HIGH	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing
MODERATE	Altered or modified elements. Elements with little heritage value but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing
LITTLE	Alterations detract from significance. Difficult to interpret. For this site we ascribe as 'Little' those elements with little heritage value but which are evidence of the history of the site but do not contribute to an overall significance of the item.	Does not fulfil criteria for local or State listing.
INTRUSIVE	Damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing.
NOT GRADED	The interior fabric of some buildings has not been assessed	

It follows from this analysis that the components of the site can be graded according to the following principles:

Grading	Item
Exceptional (State)	1. All fabric associated with the process of Natural Sequence Farming, including built and planted interventions, the natural systems on which they operate, including the natural soils, geology, vegetation and hydrology 2. All visual relationships, landform, vegetation that form part of the Bylong scenic landscape
Exceptional (Local)	3. The landscape space of the open farmed alluvium and higher paddocks 4. The fabric, landscape spaces and visual relationships that date from the 1920s

Grading	Item
	5. Iron Tank Homestead
High (Local)	6. Fabric, landscape spaces that relate to the cultural landscape of dairying in the late nineteenth and early twentieth century houses nos. 1,2 and the big hay shed.
Moderate (Local)	7. Modified fabric, landscape spaces that relate to the cultural landscape of dairying in the late nineteenth and early twentieth century houses nos. 1,2 and the big hay shed.
Little	8. Alterations that detract from the fabric, landscape spaces that relate to the cultural landscape of dairying in the late nineteenth and early twentieth century houses nos. 1,2 and the big hay shed.
Intrusive	9.
Not ranked	10.

The grades of significance on the site are shown in the inventory.

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6. Appendices

6.1. Tarwyn Park Inventory

Key for Dates

A Andrews (1974-2011)

L Lee (1825-1908)

T Thompson (1919-1951)

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
AREA 1: Iron Tank Homestead and surrounds (refer Figure 7)					
1.1	Iron tank homestead	Single storey cottage ornee. Clad in galvanised corrugated iron on roof and horizontally on walls. Steep pitched roof with pair of matched timber gablets with turned finials on rear and front slopes. Evidence of verandah floor on west rear side. Timber framed, hardwood stumps cypress frame. Stone chimney to eastern front side, sparrowpicked and margined rough ashlar. Awning over rear door and window. Chamfered timber verandah framing at front. No evidence externally of successive builds. Concrete and pipe on verandah at front post 1945.	Early twentieth Century L	Exceptional (Local)	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
1.2	Cement floor slab	Cement slab with cast in upstand for sewer	Mid twentieth Century	Little	
1.3	Tank Stand	Pair of galvanised steel tanks on stone stand	Early twentieth Century L	Exceptional (Local)	
1.4	Row of four White Cedar trees	Four mature trees on western fence line	Early twentieth Century L	Exceptional (Local)	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
1.5	Sheoak	Large mature tree in corner of yard	Early twentieth Century L	Exceptional (Local)	
1.6	Mulberry Tree	Large mature tree on east side of house	Early twentieth Century L	Exceptional (Local)	
1.7	House enclosure	Fenced in a shape parallel to house and road, with star pickets, Edwardian decorative worked wire gate on east side. Rose bush, mulberry tree on east side, grape vine over tank stand, steel posts post 1945, Cement path to rear door, cement path leading to rear gate and cement slab	Early twentieth Century L except Fencing Cement Paths, slab, steel posts	Exceptional (Local) Little (recent fabric)	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
1.8	Machine shed and poultry shed	Steel portal frame, stamped R&N, mounted on concrete upstands, gabled roof, side skillion bush pole, chicken wire enclosed, gates of hardwood slats. Shed contains two stoves and a door likely from house, and loose machine parts.	Post 1945 (welding technology)	Little	
1.9	Windmill	"Southern Cross" windmill, cast cement water trough plumbed in	Post 1945?	Needs further analysis	
1.10	Eucalypt	Mature very significant dieback	L	Exceptional (Local)	Refer to image for 1.9
1.11	Eucalypt	Mature significant dieback	L	Exceptional (Local)	Refer to image for 1.9

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
1.12	White cedars – line of three	Semi mature	Early twentieth Century L	Exceptional (Local)	
1.13	Eucalypt x 2	Mature	L	Exceptional (Local)	Refer to image for 1.12
1.14	Cattle yards	Welded steel with loading ramp	Recent	Little	Refer to image for 1.12
1.15	House paddock	Star pickets and barbed wire	Recent	Little	
1.16	Eucalypt	Single mature tree	L	Exceptional (Local)	Refer to image for 1.9

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
1.17	Eucalypt	Sapling	Recent	Little	
1.18	Eucalypt	Sapling	Recent	Little	
1.19	Gate to property	Welded mesh steel	Post 1970	Little	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
1.20	Large Sheoak	Pair structure	L	Exceptional (Local)	
1.21	Fig tree	Figtree	Recent	Little	Refer to image 1.20
AREA 2: Tarwyn Park Homestead and surrounds (refer Figure 8)					
2.1	Homestead	Single story large stone homestead in Bungalow form, single entrance front to north, looking to Mount Penny. Large roof in Galvanised Steel, pointed red, hipped over suite of main reception rooms, bedrooms to east, kitchen service rooms to west, and separate connected roof to servants' rooms. A small courtyard is enclosed to the south, with a verandah. The homestead has a veranda on three sides, with steps on the north and east side. The entire homestead is walled in rockface squared stone ribbon pointed.	T	Exceptional (Local)	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.2	Front garden space	The garden enclosure is bow shaped, approximating the sweep of the verandah. Its northern and western sides are fenced in steel pipe fencing, the other sides in star picket and chicken wire.	T as a space	Exceptional (Local)	
2.3	Pair of Palms	Placed square to house, terminus of avenue of cottonwood poplars on the drive, and remnant avenue of Peppercorn	T	Exceptional (Local)	
2.4	Stump of large wisteria & stump of rose bush (dead)	Against corner of veranda	T?	Exceptional (Local)	
2.5	Stump of Rosebush	Dead	T?	Exceptional (Local)	Refer to image 2.4

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.6	Stump of rosebush	Alive	T?	Exceptional (Local)	
2.7	Spirea	This durable hedge plant is on the alignment of the front garden enclosure shown in the 1944 Photograph	T	Exceptional (Local)	Exceptional (Local)
2.8	Fruit Tree	Mature. This may be part of the garden enclosure shown in the 1944 photograph	T?	Exceptional (Local)	
2.9	Callistemon	Mature	A	Little	Refer to image 2.8
2.10	Melaleuca	Mature	A	Little	Refer to image 2.8

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.11	Callistemon	Mature	A	Little	
2.12	Native Australian shrub NI	Mature	A	Little	Refer to image 2.11
2.13	Viburnum	Mature. This may be part of the garden enclosure shown in the 1944 photograph	T?	Exceptional	Refer to image 2.11
2.14	Crepe Myrtle	Semi mature	A	Little	Refer to image 2.11
2.15	Callistemon	Mature	A	Little	
2.16	Mandarin	Mature	A	Little	Refer to image 2.15

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.17	Callistemon	Mature	A	Little	
2.18	Ash ?	Semi Mature	A	Little	Refer to image 2.17
2.19	Above ground pool	Kit form pool, metal sides, enclosed in steel pool fence, with metal pump room	A	Intrusive (outside original garden space)	
2.20	Swing set	Welded pipe with side step frame	A	Intrusive (outside original garden space)	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.21	Meat room?	Rectangular single room with one door, under hipped roof, deep eaves, clad in corrugated galvanised steel. Ogee gutters, walls of Pise de Terre, hardwood floor laid on ground, plastered walls internally.	T	Exceptional (Local)	
2.22	Plants around outbuilding	Unidentified shrubs on east, north and west side, vine on north and east	A	Little	Refer to image 2.21
2.23	Tree Stump		Not assessible	Little	
2.24	Hills Hoist		A	Little	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.25	Concrete slab and septic tank below	The platform of the tank appears in the 1944 photograph. Further investigation of the tank is required	T	Exceptional ?	
2.26	Tree with Cassia characteristics	Mature. This may be part of the garden enclosure shown in the 1944 photograph	T?	Exceptional (Local)	
2.27	Robinia Tree	The species became popular in the 1980s	A	Little	Refer image 2.26
2.28	Decorative steel Gate	Wrought steel, in Bungalow squares style	T	Exceptional (Local)	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.29	Number not used				
2.30	Line of drive	Curved sweep leading off diagonal junction of Upper Bylong Road	T	Exceptional (Local)	
2.31	Stone gate bulwarks	Split stone.	A	Intrusive	Refer to image 2.30
2.32	Cotton wood poplar avenue	On line of drive, these obscure the landscape space of the driveway as shown in the 1944 Photograph	A	Intrusive	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.33	Clumps of Peppercorn trees	Mature trees, approximately lining the driveway, and clumped on terrace of land to north of homestead	T	Exceptional (Local)	
2.34	Steel Fence enclosure of raised terrace	Heavy pipe fence painted white, incorporating two electrical stations on east side	A	Little	
2.35	Silky Oak	Mature- not shown on 1944 Photograph	A	Intrusive	
2.36	Mature evergreen	Mature- not shown on 1944 Photograph	A	Intrusive	Refer to image 2.35

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.37	Unidentified shrub	Mature- not shown on 1944 Photograph	A	Intrusive	
2.38	Casuarina	Mature	T?	Exceptional (Local)	
2.39	Orchard enclosure	Fenced in star pickets and chicken wire to west and east and north with some components in Steep pipe, two hardwood posts on south side. Cate from house yard, two large gates to outer yards, large mature pear tree	A	Little	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.40	Garage	Garage open to south pump room, man's room, hardwood posted structure, with three separate skillion roofs framed in hardwood, clad in corrugated galvanised steel, walls of garage infilled east and west in Pise de Terre, other small rooms enclosed in timber stud framing, rusticated weather boards on exterior.	T	Exceptional (local)	
2.41	Stables	Large Stone building with gabled roof in corrugated galvanised steel, containing eleven loose boxes, tack room, man's room, cross passage, hay room, and small mezzanine at north end. Cement floor, internal walls of stone Rendered, sawn hardwood posted constructions, intact boards stall doors, three loose boxes at west end	T	Exceptional (local)	
2.42	Breaking yard	Round yard, posted in hardwood with pole top rail and vertical timber boarded sides, eleven sides, large doors to south Covered by square building four bays each side, hardwood posts, sawn oregon pine rafters, gambrel form at apex	T	Exceptional (local)	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.43	Horse Stalls building	Timber posted bush pole construction, gabled roof, evidence of slotted rail system, concrete floor marked out in squares, cement apron on west side outside building	T	Exceptional (local)	Refer to image 2.42
2.44	Horse loose box building	Gabled stud framed timber with central posts supporting ridge, containing eight loose boxes opening to east and eight opening to west, gabled roof clad in corrugated galvanised steel, vented ridge, D profile gutters, framed and sheeted horse doors in two leaves per stall	T	Exceptional (local)	
2.45	Machine shed	Large steel posted open to south, skillion roof, walls clad in vertical Zincalume ribbed sheeting, adjacent water tank to north east. Placed on site of earlier building	A	Little	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.46	Line of Pepper Trees	Five pepper trees on inside of stables enclosure	T	Exceptional (local)	
2.47	Large Eucalypt	Located on north side of breaking yard	T	Exceptional (local)	Refer to image 2.46
2.48	Pepper tree	Large stump small tree on inside of house yard	T	Exceptional (local)	
2.49	Shrub	Viburnum or similar	A	Little	Not photographed

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.50	Mandarin	Mature tree adjacent to garage building, possibly shown in 1944 photograph	T?	Exceptional (local)?	
2.51	Racecourse	Site only, known from aerial photo of (date)	A	Little	
2.52	House no. 1	Gabled house four roomed, two extra rooms at rear under skillion, facing river, clad externally in corrugated galvanised steel, roof and walls, over clad walls in painted aluminium siding, front door four panels, no mouldings, verandah posts square timber, suspended timber floor on concrete stumps, orange shrub to south west side, windows double hung sashes, horned top sash	L Early Twentieth Century	High	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
2.53	Hay shed	Six bay long five bay wide, gabled posted shed with open sides. Posts are hardwood, raked main rafters are sawn hardwood, purlines are sawn hardwood, bolted connections in steel, damaged at S end	L Early Twentieth Century	High	
2.54	House no. 2	Timber house on raised stumps of timber. Four rooms under main roof, rear wing for kitchen and laundry. Rusticated weatherboards, verandah, small section of timbers from 1970s or later, steel rail house enclosure	L Early Twentieth Century 1970s work	High Little	
2.55	Meat house	Stone squared, rusticated stone, margined at edges, vents in north and south gable vent both the interior and the space above the collars, cement floor, stone chimney to main house, brick on edge chimney to laundry, a retro fit.	L Early Twentieth Century	High	

Item #	Inventory Item	Short Description	Date	Signif. Grading	Notes
Natural Sequence Farming (refer Figure 9)					
3.1	Homestead weir flood gate		A	Exceptional (State)	
3.2	Contour bank stabilisation of gully erosion		A	Exceptional (State)	
3.3	Lines of trees planted perpendicular to river		A	Exceptional (State)	
3.4	Decomposing hay bales		A	Exceptional (State)	
3.5	Crushed limestone rock		A	Exceptional (State)	
3.6	Boxhorn next to dam		A	Exceptional (State)	
3.7	Dam structure		A	Exceptional (State)	
3.8	Stream bank cuttings		A	Exceptional (State)	
3.9	Nutrient sink		A	Exceptional (State)	

3.10	Reinstated wetland		A	Exceptional (State)	
3.11	Nutrient flood out area		A	Exceptional (State)	
3.12	Leaky weirs		A	Exceptional (State)	
3.13					
3.14					
Landscape Spaces on Tarwyn Park (refer Figure 10)					
4.1	Driveway		T	Exceptional (Local)	
4.2	Homestead and front garden		T	Exceptional (Local)	
4.3	Rear of Homestead		T	High	
4.4	Horse Yards		T	Exceptional (Local)	
4.5	Racecourse and upper paddock		L	Exceptional (Local)	
4.6	Dairy Farm		L	Exceptional (Local)	

4.7	River Flat		L	Exceptional (Local)	
4.8	Iron Tank		L	Exceptional (Local)	
4.9	Slopes and hills		L	Exceptional (Local)	
Item #	**Inventory Item**	**Short Description**	**Date**	**Signif. Grading**	**Notes**
Visual Relationships (refer to Figures 11 & 12)					
5.1	Homestead /Mt Penny Range		L and T	Exceptional (State)	
5.2	Homestead/ Lee Creek Valley		L and T	Exceptional (State)	
5.3	Tarwyn Park Entrance/ Homestead and Stables Complex		T	Exceptional (Local)	
5.4	Upper Bylong Road /Homestead and Drive		T	Exceptional (Local)	

6.2. Plans and Diagrams

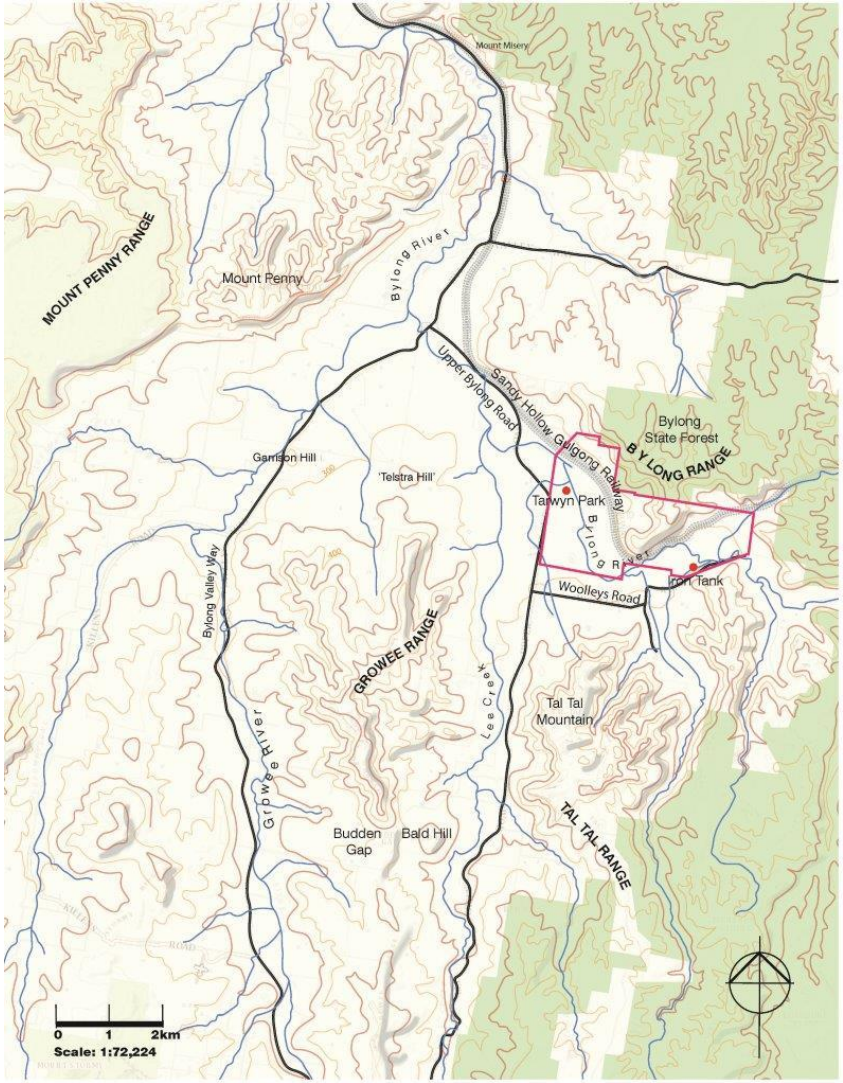

Figure 4: Study Area Tarwyn Park is shown in Red.

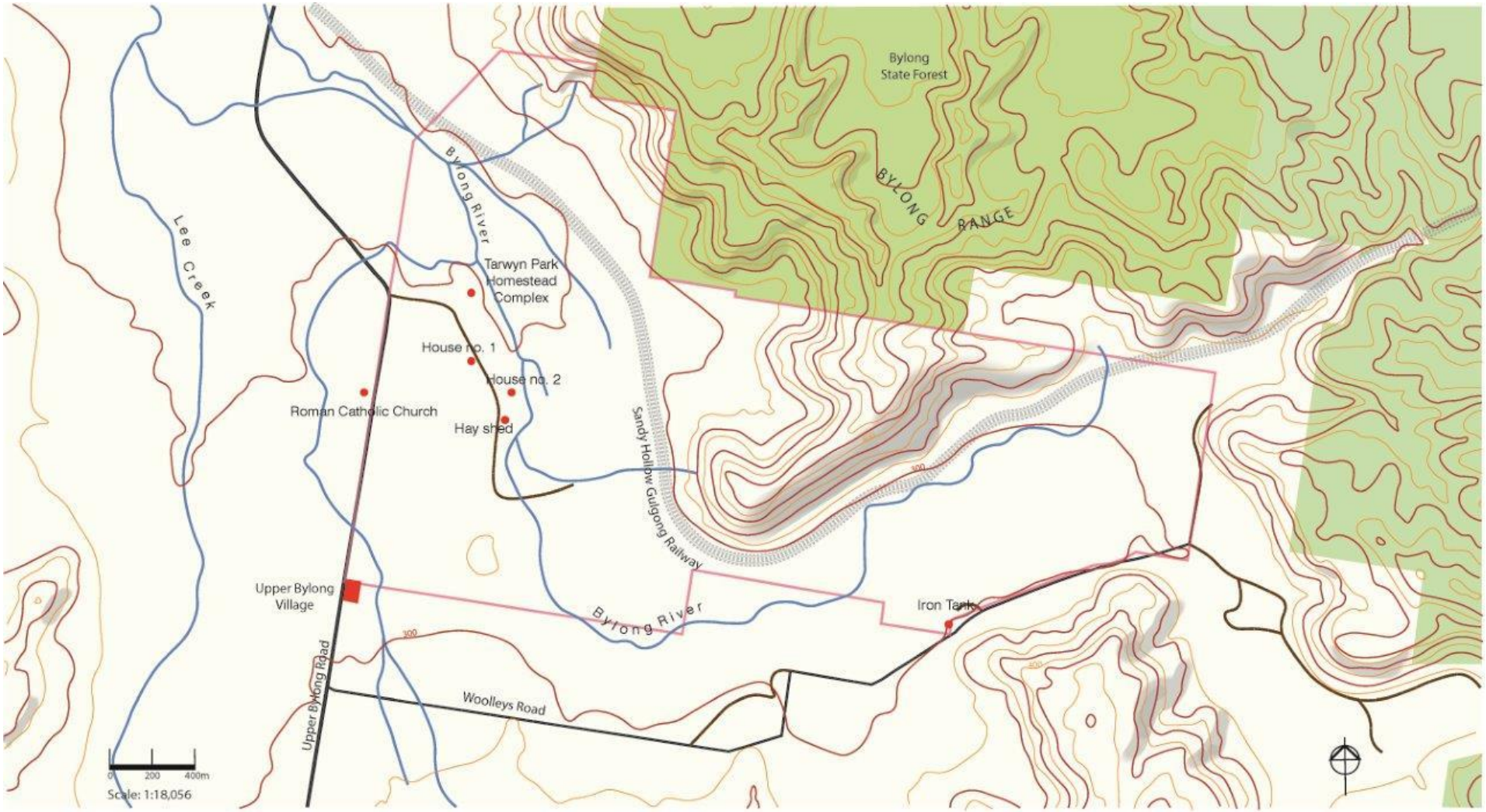

Figure 5: Description diagram (Identification of existing fabric & spaces)

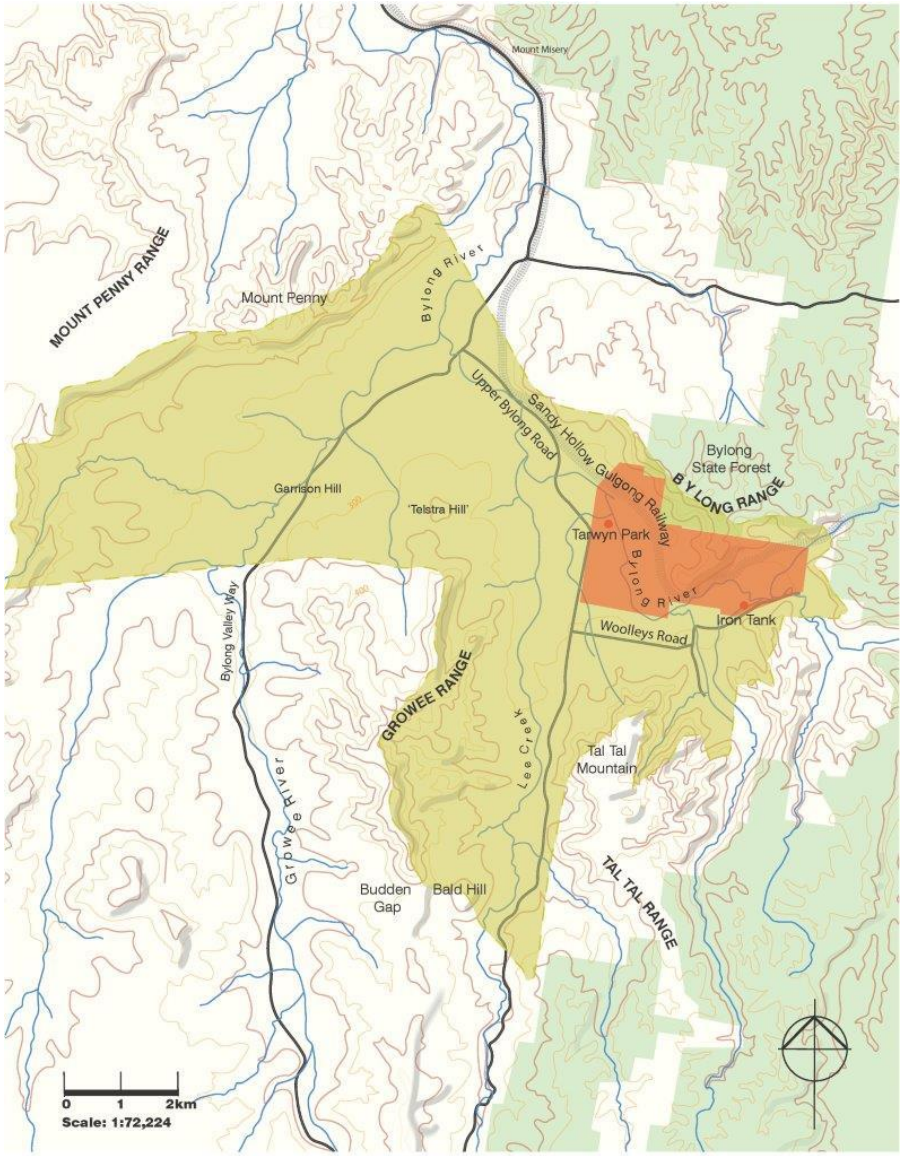

Figure 6: Tarwyn Park (red) and its Visual curtilage (green)

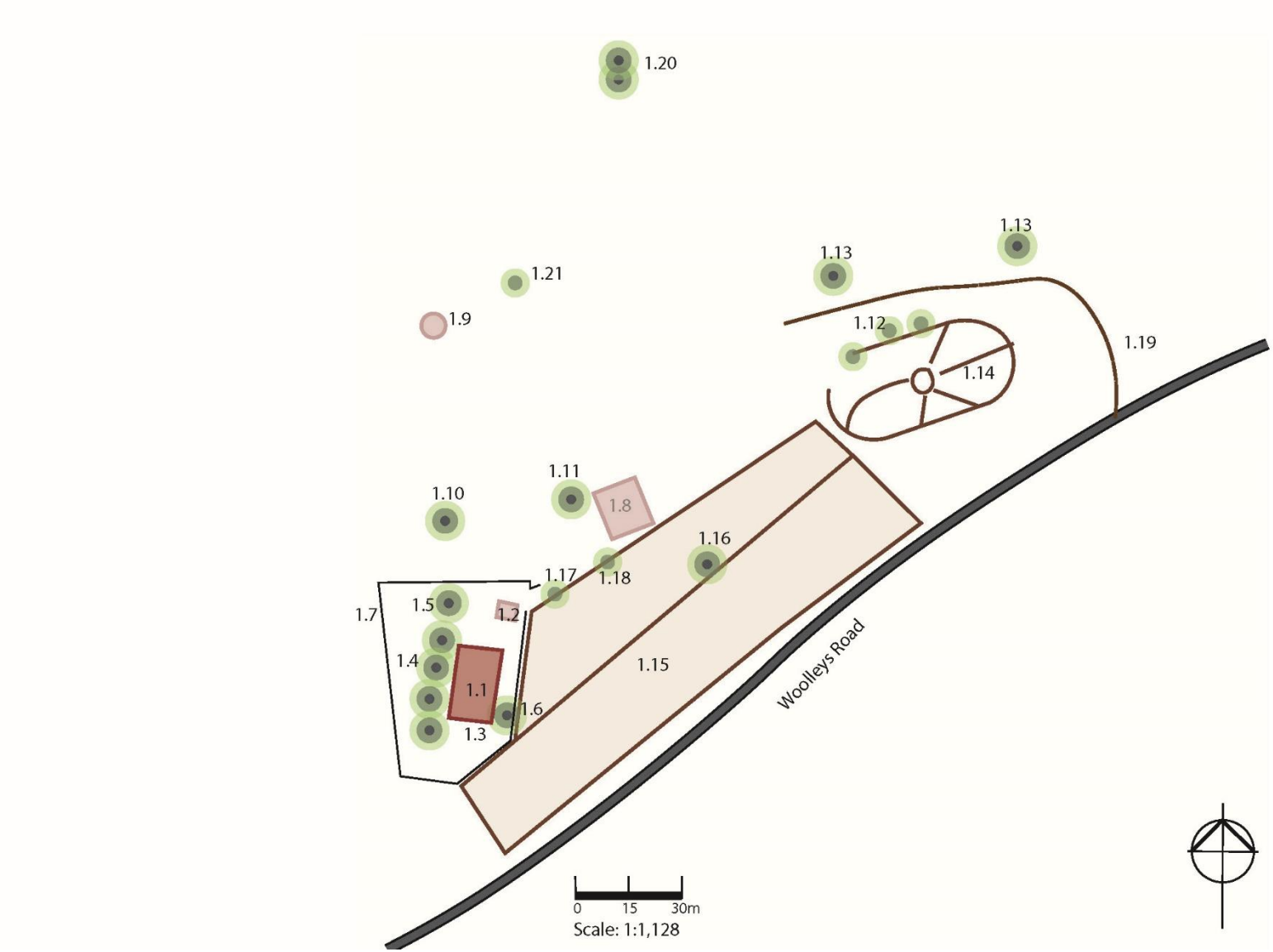

Figure 7: Iron Tank Inventory

Figure 8: Tarwyn Park inventory

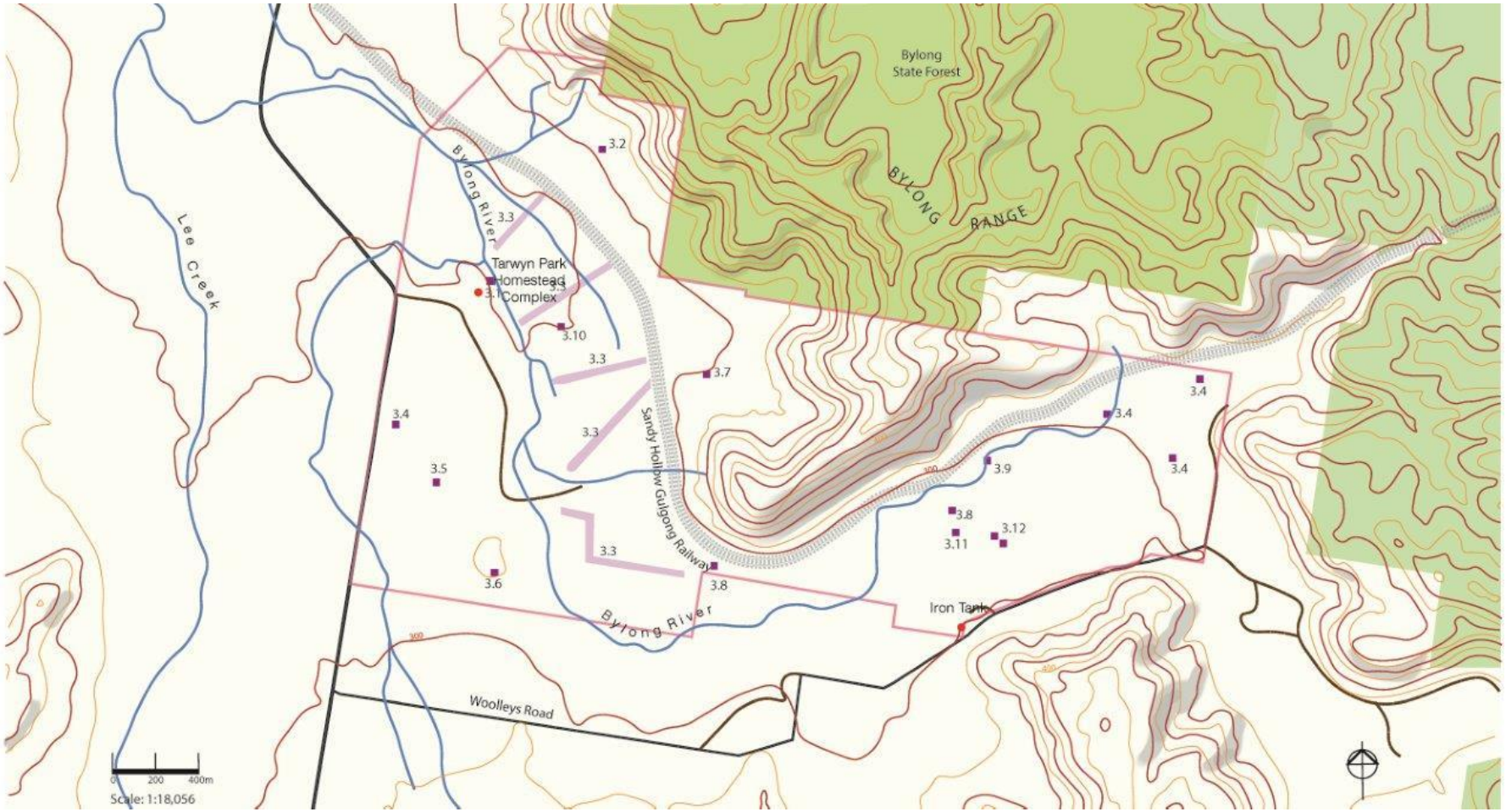

Figure 9: Natural Sequence Farming Inventory

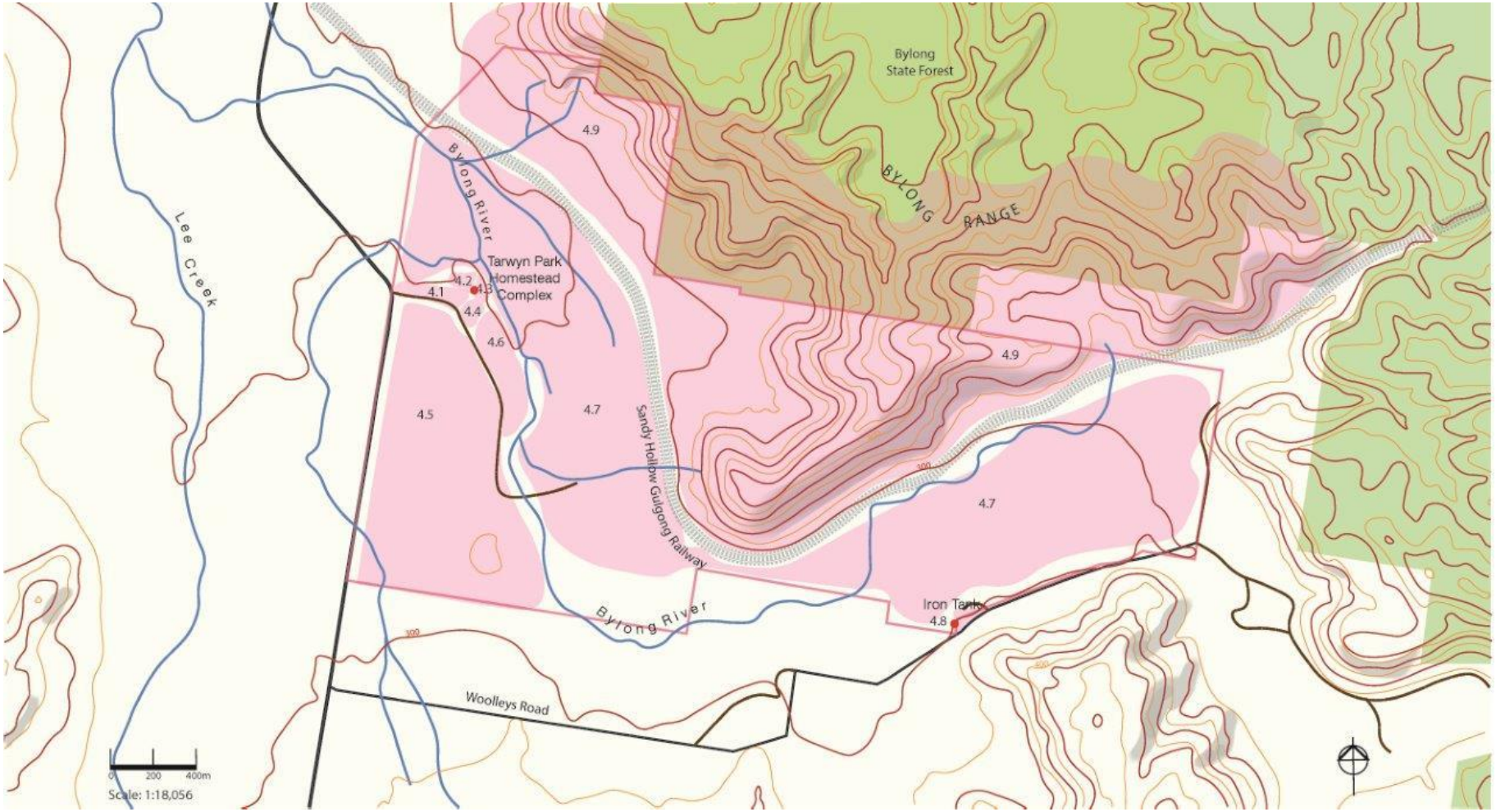

Figure 10: Landscape spaces inventory

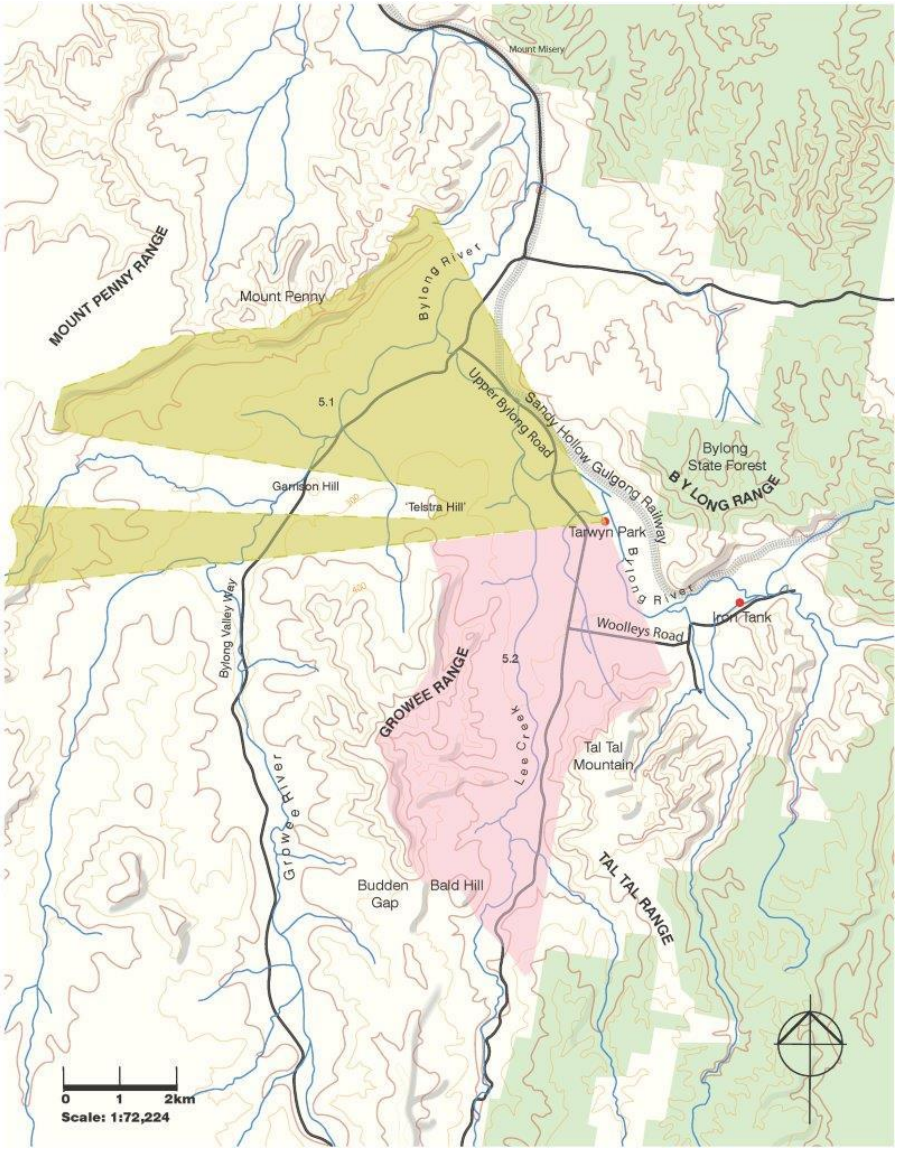

Figure 11: Visual relationships Inventory Homestead and Lee Creek Valley(pink) and Mt Penny Range (green)

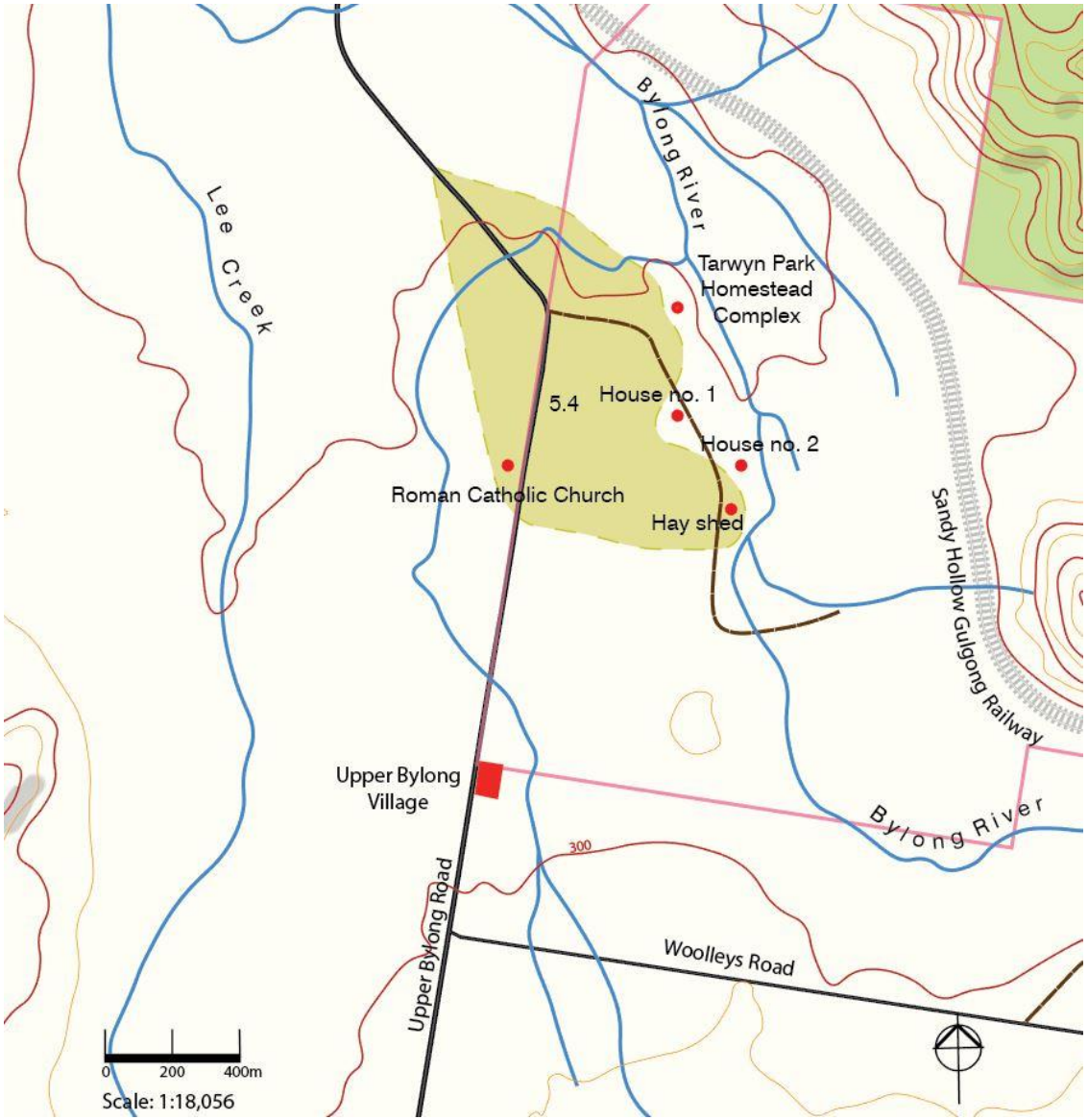

Figure 12: Visual Relationships inventory 5.4 Upper Bylong Road, Homestead and drive

6.3. Analysis of Scenic & Serial Qualities of Upper Bylong and Lee Creek Valley.

Photo from centre of Upper Bylong Valley: view of east, south and west
Undulating level floor scattered trees, wooded steep hills, craggy tops
Visually closed. Intimate

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Photo looking South up Lee Creek valley: symmetrical balance, flat top hill at terminus above double conical peak of Red Hill

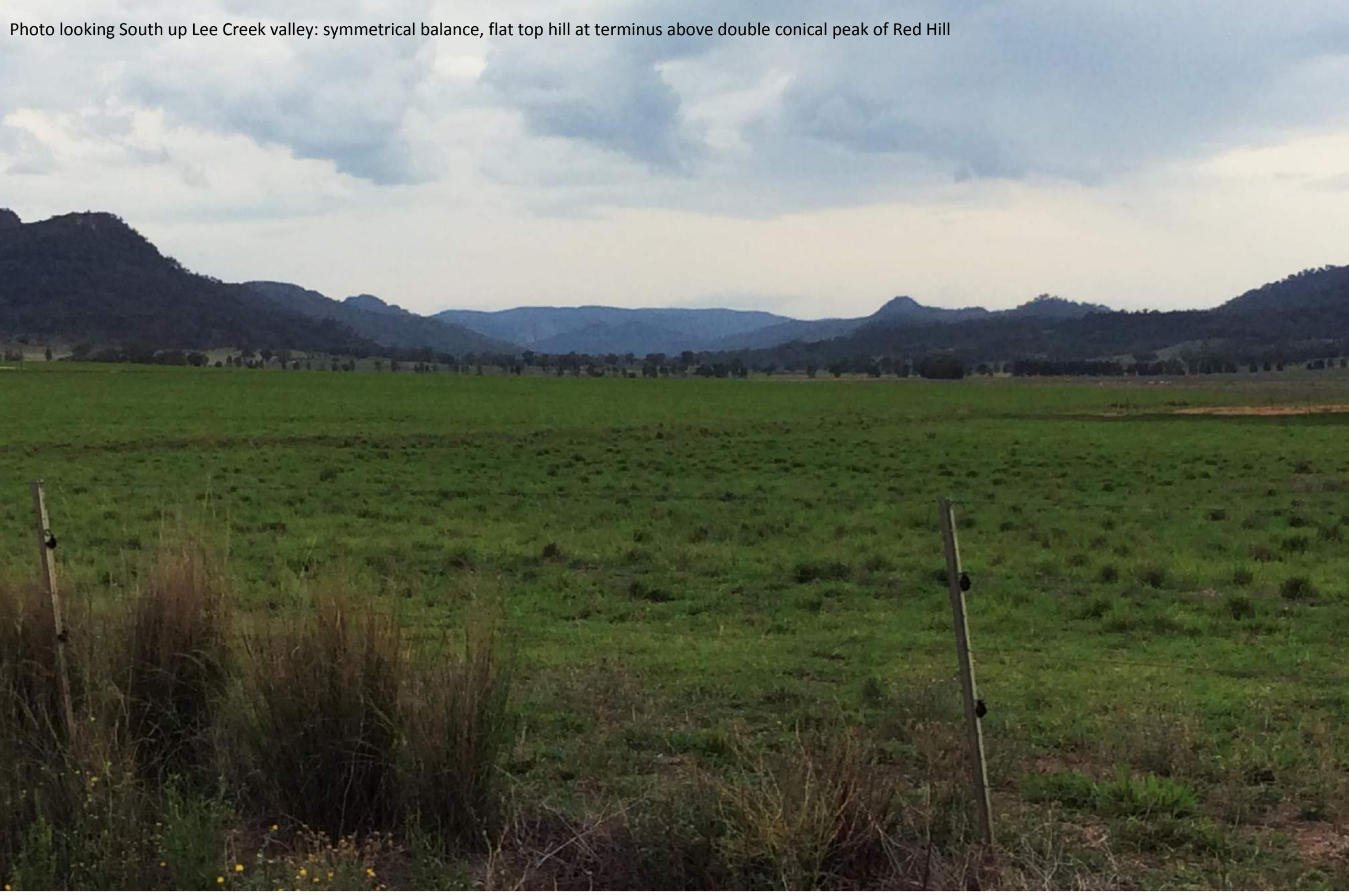

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Photo adjacent gate to Tarwyn Park looking north, east and south
Alluvium, creek line, rail levee, rising pasture slopes, highly defined tree line, steep rocky wooded hill

Photo of Tarwyn Park in setting:
Entrance to homestead drive bend in road, church seem silhouetted against distance hills of Lee Creek valley, stone abutments, poplar lined drive, pairs of pepper trees, pair of palms settled homestead bungalow roof

Photo looking south along straight road into Lee Creek Valley and west to Telstra hill top: olive hedge, silhouetted eucalyptus trees and church

View of church looking South, axial view east elevation, axial view to local peak

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Photographs at upper Bylong Village: large trees along road, school post office and hall addressing street, long view over sloping pastures north west Telstra ridge, ridge beyond

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High point west end of Woolley’s road looking north: all of village in its trees, church, 1970s house addressing road, long gently sloping pastures, trees on creekline, large roof red of Tarwyn Park homestead and stables, strong tree line beyond creek, steep wooded hills craggy tops

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At west end looking east along Woolley's road
Undulating pastured, steep wooded hills, craggy tops, dramatic close up view of Tal Tal mountain

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East end of high part of Wooley's road: broadest view of Upper Bylong valley
Peppercorns of old occupation site, village, church, sloping pastures, alluvium, treed creekline, sloping hillside beyond, tree line, wooded steep hill sides craggy tops

Photo of occupation site: eleven pepper trees and one radiate pine

East end of Woolley’s at point where it descends steeply to the alluvium
Long view north west to Mt Penny, basin of valley floor, red roofs of Tarwyn Park, Stone building, sheds at rear of 1970s house, iron tank roofs steep nestled in its white cedar trees, more intimate top end of valley.

Photo of road west of iron tank
South dramatic close view of Mt Tal Tal

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West visual curtilage to Telstra Hill over alluvium
This is the longest view of alluvium iron tank addresses road
Tall hill sides close in.

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Lee Creek Valley

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Source:
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Growee Valley

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Bylong Valley

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26 / 26

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Statement of Heritage Impact for:

TARWYN PARK, its SETTING

and

The Bylong Landscape Conservation Area

This statement forms part of independent advice to the NSW Heritage Council with respect to the following works:

Construction and operation of a coal mine comprising open cut and underground mining

Reference to current listings:

National Trust of Australia (New South Wales) National Trust Register: Bylong Landscape Conservation Area

Address:

401 Upper Bylong Road, Upper Bylong, NSW 2849

Prepared by:
Hector Abrahams Architects Pty Ltd

For:
NSW Heritage Council, NSW Office of Environment and Heritage

Version V1.2 of 20th February 2018

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Summary of Assessment

1. The construction and operation of a coal mine in all its components will have a very high negative impact on the heritage significance of the Bylong scenic landscape. The impact arises from the introduction of a nonrural use for a period from 10 and 30 years, and the permanent introduction of artificial landforms which alter the valley shape of the Lees Creek Valley and Bylong River Valley.
2. The removal and reconstruction of a substantial portion of the land of Tarwyn Park has a very high negative impact on its technological significance as it will remove the substantial and unique research potential and historic association with the technology of Natural Sequence Farming.
3. The construction and operation of an open cut coal mine and associated operations in the setting of the Tarwyn Park Homestead will have a high negative impact on its cultural significance for the loss of the character of its setting and certain key visual relationships.
4. At the end of this report is a list of modifications to the proposal that would ameliorate the impact on significance. They have been placed in order from most to least effective. Their inclusion does not suggest that this would make acceptable the impact on heritage significance of this proposal.

Introduction

5. This is one of two reports that have been commissioned to inform the Heritage Council of NSW in the advice on heritage it has been asked to provide to the Department of Planning & Environment (DPE). The seeking of this advice has been recommended by the Planning Assessment Commission (PAC) with respect to the Tarwyn Park property and its setting, and the likely impacts of the Bylong Coal Project on these values.

6. The brief of tasks written by the NSW Office of Environment & Heritage (OEH) is entitled *Bylong Coal Proposal – Heritage Council Commissioned heritage significance and impact mitigation assessment tender_1273.*

7. The first report covers the assessment of Cultural Significance of Tarwyn Park and its Setting, along with a part assessment of the Bylong Scenic Landscape. That report included definition of terms, and maps showing the location of the places discussed in this assessment.

8. This report provides an assessment of the impact of the proposed works on the heritage significance of the place and its setting and the Bylong Landscape Conservation Area.

9. This report provides advice on possible ways to ameliorate negative impacts.

10. The report has been prepared in the form prescribed by the NSW Heritage Office publication Statements of Heritage Impact (2002).

11. This report was prepared by Hector Abrahams, who inspected the place on 20 and 21 December 2017, and 16 January 2018.

Description

12. Tarwyn Park is a substantial rural property situated in the central part of the Upper Bylong Valley. It has extensive river alluvial paddocks through which passes the Bylong River, and raised cleared slopes that meet the two public roads of the valley. To the north of the river, the property includes wooded slopes, which rise to a local unnamed peak.

    Principal components of the place are its large stone homestead, formal driveway and front garden spaces: a large complex of stables and yards for the breeding of thoroughbred horses. Located a distance away from the homestead, and facing away are two other houses known currently as number one, number two, and a very large former hay shed. These are visible from the homestead complex. At the eastern end of the property is a small picturesque cottage known as Iron Tank, sheltered by a row of mature White Cedar trees and one large Casuarina. On the higher land to the south of the homestead is set out a racecourse and open grazing pasture and a small house.

    The setting of Tarwyn Park is mostly the Bylong River Valley and the Lee Creek Valley. These two small valleys have undulating open pastureland and alluvial lands on the floor cleared to a common contour on the hills that rise out of it. These wooded hills rise steeply into the Growee and Mt Tah Tah Ranges to rocky escarpments. In most directions the escarpments close in the view, except for the west where there are extensive views to the free-standing hill, colloquially known at Telstra Hill, and beyond the Mount Penny Range of hills and its ridges on the west of the Growee River Valley.

The main public road in the valley is Upper Bylong Road, which becomes the Lee Creek Road which connects with the Growee River Valley through Budden Gap. Woolley's Road leads to the upper reaches of the Bylong Valley. Tarwyn Park is by far the largest establishment in size and developments in the valley. There is a small village containing a disused public school, former post office, and former community hall adjacent to Tarwyn Park. To the south of the Village is the former Roman Catholic Church, which is prominent in the meeting of the Bylong and Lee Creek Valleys, set high, with a back drop of ranges. Its east axis aligns to an unnamed peak.

Significance

13. As assessed in the first report, the Heritage Significance of the place is as follows:

Tarwyn Park and its setting are substantial components in the Bylong Scenic Landscape, one of a group of scenic landscapes traversing the Great Dividing Range which are distinctive to the New South Wales landscape. The Bylong Valley is one of the many valleys of different sizes but consistent geology that together form the western side of the World Heritage-listed Blue Mountains, and contribute to its scenic values. (State level significance)

Tarwyn Park is the site of the first and longest running application of Natural Sequence Farming in Australia, and is the basis for all subsequent implementations of the technique. As one of a small number of prominent experimental agricultural practices to gain scientific interest and popular appeal since 1938, Tarwyn Park is significant in the history of Australia's technological advancements in agriculture. (State level significance)

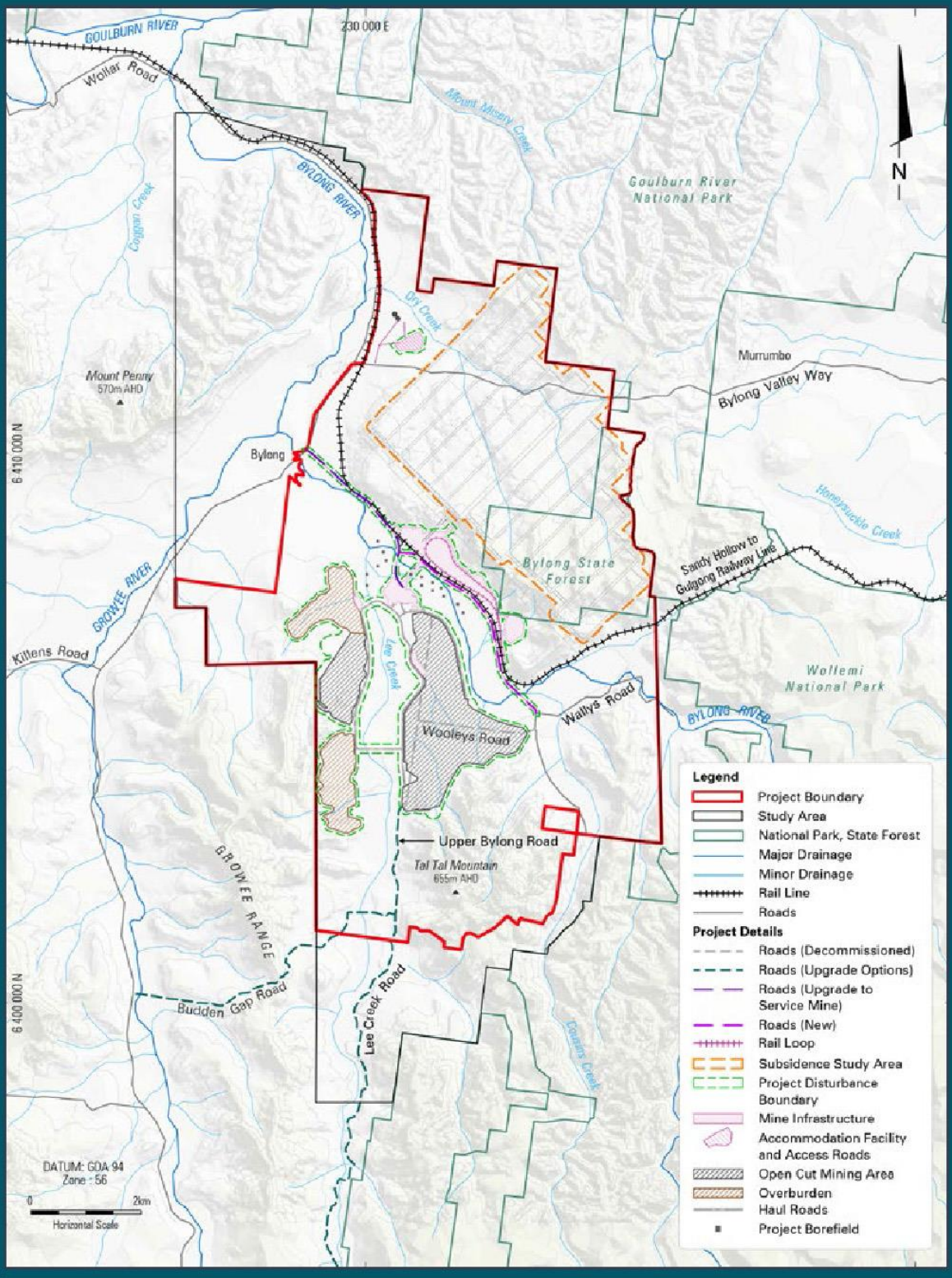
Tarwyn Park is a historic pastoral landscape developed by the Lee family. Built to a large scale and designed by a prominent regional architect, Tarwyn Park contains a fine, intact 1920s homestead garden and horse complex, with associations to prominent blood line stallions and notable racehorses. (Local level significance)

Proposed Works

14. The following description of the proposal is adopted from the Bylong Coal Project EIS by Hanson Bailey September 2015. The proposed works are as follows:
15. Construction of two open cut mining areas, associated hall roads, overburdened and placement areas;
16. Operation of two open cut mining areas and related activities nonstop over a 10-year period and storage of coal processing reject materials from the longer term underground operation;
17. Construction and operation of administration workshop, bath house, explosive magazines and other open cut mining work facilities in that area;
18. Construction and operation of underground coal mine nonstop over approximately 20-year period;
19. Construction of and operation of facility to support underground mining operations including ventilation shaft workshop offices and employee amenities, fuel and gas management facilities;

20. Construction and operation of a coal handling processing plant;
21. Construction of the rail loop and associated loading facility of the existing Sandy Hollow-Gulgong railway line;
22. Construction of service and groundwater water reticulation schemes including drains dams, bore fields, pipelines pumping stations and other infrastructure;
23. Installation of communications and electrical reticulation infrastructure;
24. Construction of a workforce accommodation facility adjacent to the Bylong Valley Way;
25. Upgrade of a Bylong Road construction and operation as mine access road;
26. Removal of sections of existing public roads in upper Bylong Valley and construction of alternative routes;
27. Infilling of mining voids rehabilitation of disturbed areas decommissioning works;
28. The location of these works is shown in the following map reproduced from the Executive Summary of the EIS by Hanson Bailey of September 2015 (figure 6 in the report).

FIGURE 6 Conceptual Project Layout



29. A useful illustration of the layout of the components of the proposed coal mine on the existing landscape are shown in the following oblique aerial photograph reproduced from *Appendix W of the EIS, Bylong Coal Project Rehabilitation Strategy and BSAL Reinstatement Strategy*

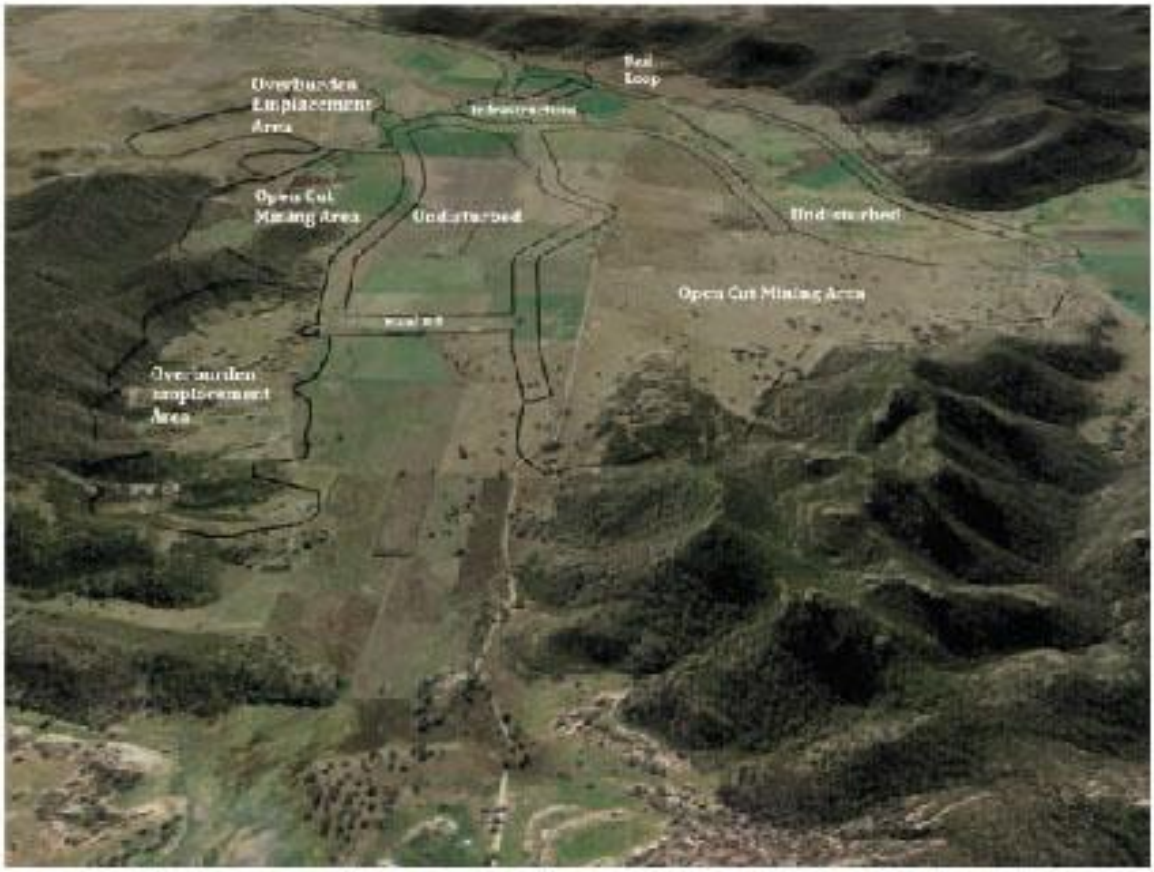


Plate 1: Pre-mining landscape with Project components: northerly aspect through Bylong Valley

Heritage Impact Assessment Methodology

30. The impact assessment methodology used in this case is as follows:

31. An examination of the impact of the components of the proposed works with respect to their impact on heritage significance;

32. Discussion of the key aspects of the impact of the proposal on heritage significance;

33. Discussion of the level of impact on heritage significance.

Heritage Impact Assessment

Examination of Components of the Proposal

34. The discussion under each of the components draws upon site inspections of the Bylong Valley, descriptions of each component in the EIS, and further descriptions in *Appendix W Bylong Coal Project Rehabilitation Strategy and BSAL Reinstatement Strategy*: JVP Visual Planning and Design Appendix Y *Visual Impact Assessment*

Construction of two open cut mining areas, associated hall roads, overburden emplacement areas

35. The construction of two open cut mining areas and overburden emplacement areas are the two largest interventions in The Bylong Valley in this proposal.

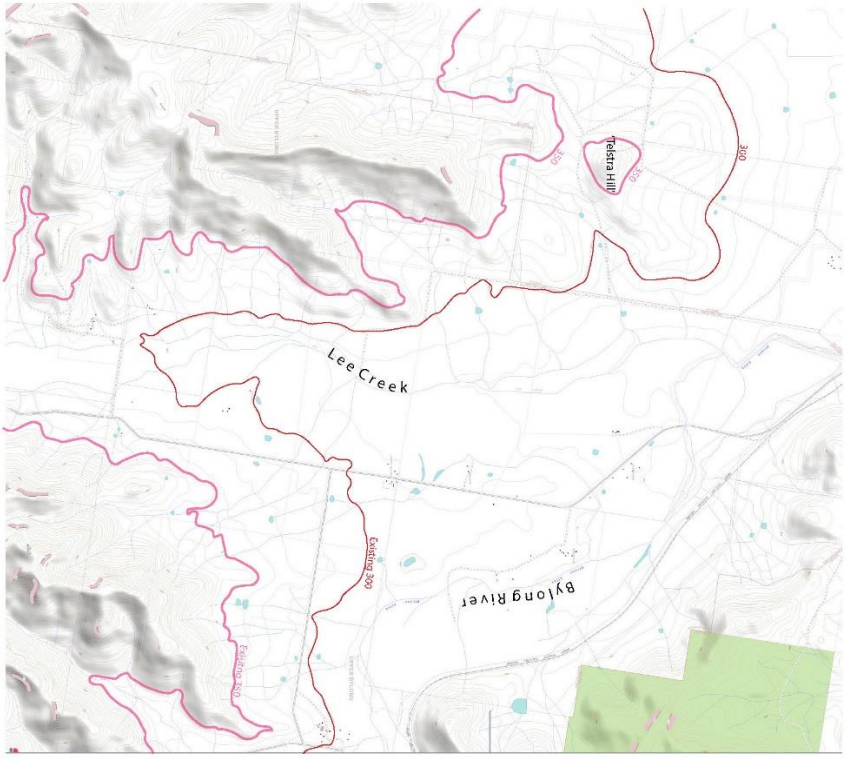
36. The construction of open cut mining will remove all of the cultural landscape elements, vegetation, soils and geological substrates from two large areas in the Lee Creek Valley and Bylong Valley.

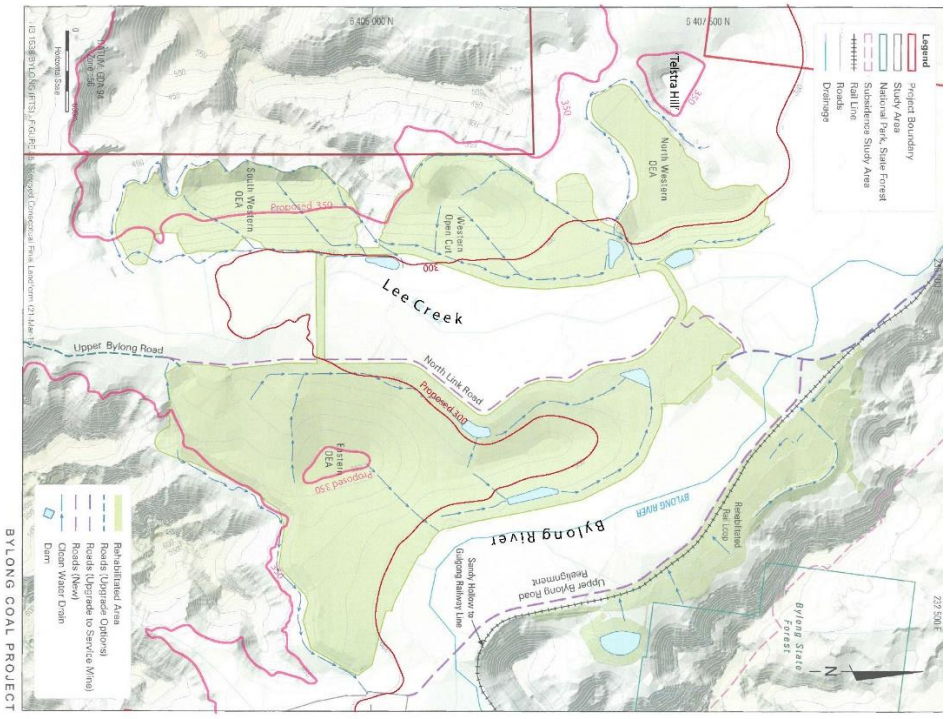
    The area for removal includes the upper paddock racecourse lands of Tarwyn Park.

37. The construction of two overburden emplacement areas is a major physical intervention in the future landscape. Their design is described as a "conceptual final landform". Section 7.15.4 (Page 277) of the EIS describes principles of design and planning for the eventual land form. These are landform stability, erosion minimisation and landform compatibility with surrounding environment. The leading design factors described are the stability of the landform safety and maximising the geotechnical angle. Some linear contour banks spacing will be practised in the steeper slopes of the mounds. This is understood to be benching. There will be no voids after the closure of the open cut mining.

38. In the design of the mounds, there is apparent an emphasis on safety and efficiency without reference to the character of the existing landscape. By character we mean its slope shape and pattern as shaped by natural forces and the overlay of land use both Aboriginal and European. This emphasis away from character is a potential source of serious impact on significance through introducing artificial form

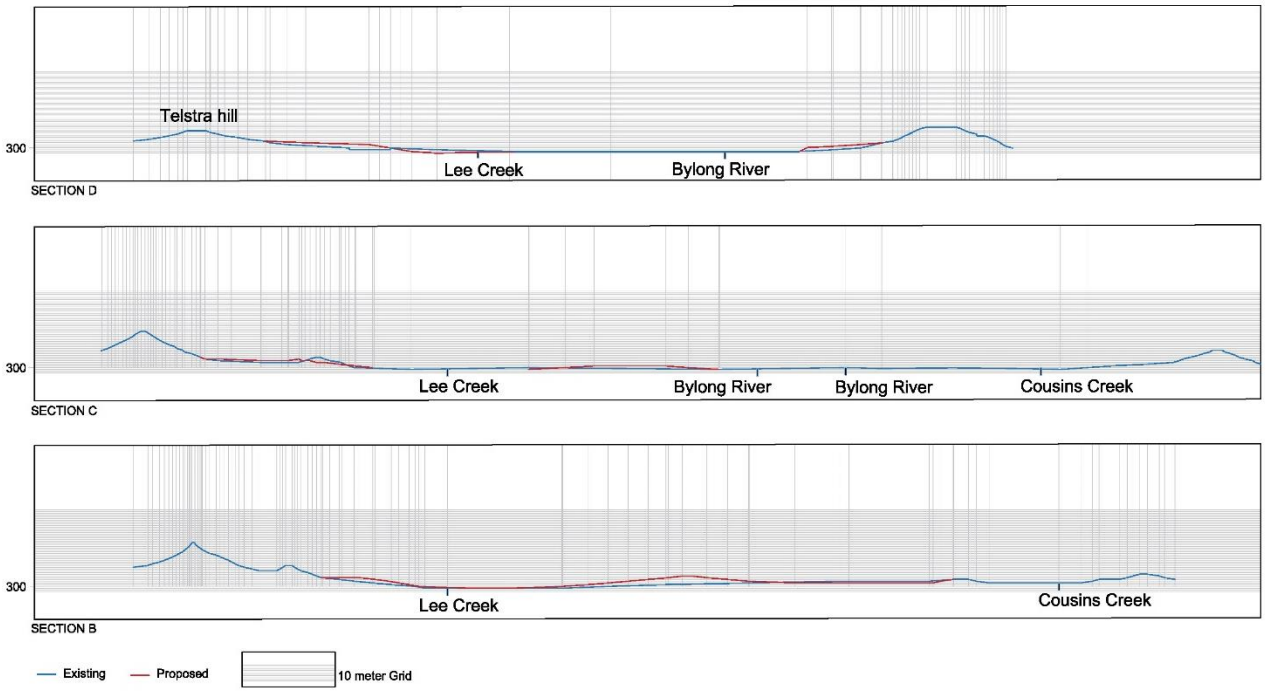
39. A comparison of the existing and proposed conceptual landform is shown in the plans below, which have been prepared to examine the scale and form of change. They show the 300 and 350 m contours proposed to be extended northwards, following generally the pattern of existing ridges and valleys.





BYLONG COAL PROJECT

40. A cross section analysis of the proposed landform compared to the existing is set out below.



Sectional drawings -
Existing and Conceptual landform
(Bylong Coal Project)

0 1km

41. Comparing the existing and proposed 300m and 350m contour lines indicates the area of change to the undulating floor of the valley. It is observed that the overburden of open cut mining is proposed to be formed into two mounds. In the west the mound is placed against the Growee Range. The east mound raises the ground level 20 to 50m higher than the existing level over land some two kilometres to the north of the Mt Tah Tah Range. Near the range there is proposed a new peak connecting against higher sections Mt Tah Tah.

42. As a result, the form of the valley of Lee's Creek is extended northward by about two kilometres, and becomes more pronounced and spatially less connected to the Bylong River Valley.

43. The form of the Bylong River Valley is narrowed by about one kilometre as it passes the side of the eastern mound.

44. As a result of the lifting of the level of the land at the eastern mound, existing views of the Lees Creek Valley and Budden Gap from Upper Bylong Road, and the formal spaces around the Tarwyn Park Homestead are altered. As shown in the proponents' photomontage (in the Bylong Coal Project EIS, Visual Impact Assessment, prepared by JVP Visual Planning in July 2015), the view of the top of the Growee Range and Buddens Gap is lost.

45. The overburden mound to the west will connect with the side of Telstra Hill. This has the effect of reducing its standalone symmetrical character. Telstra Hill is prominent from the Bylong Scenic Way and the Wollar Road.

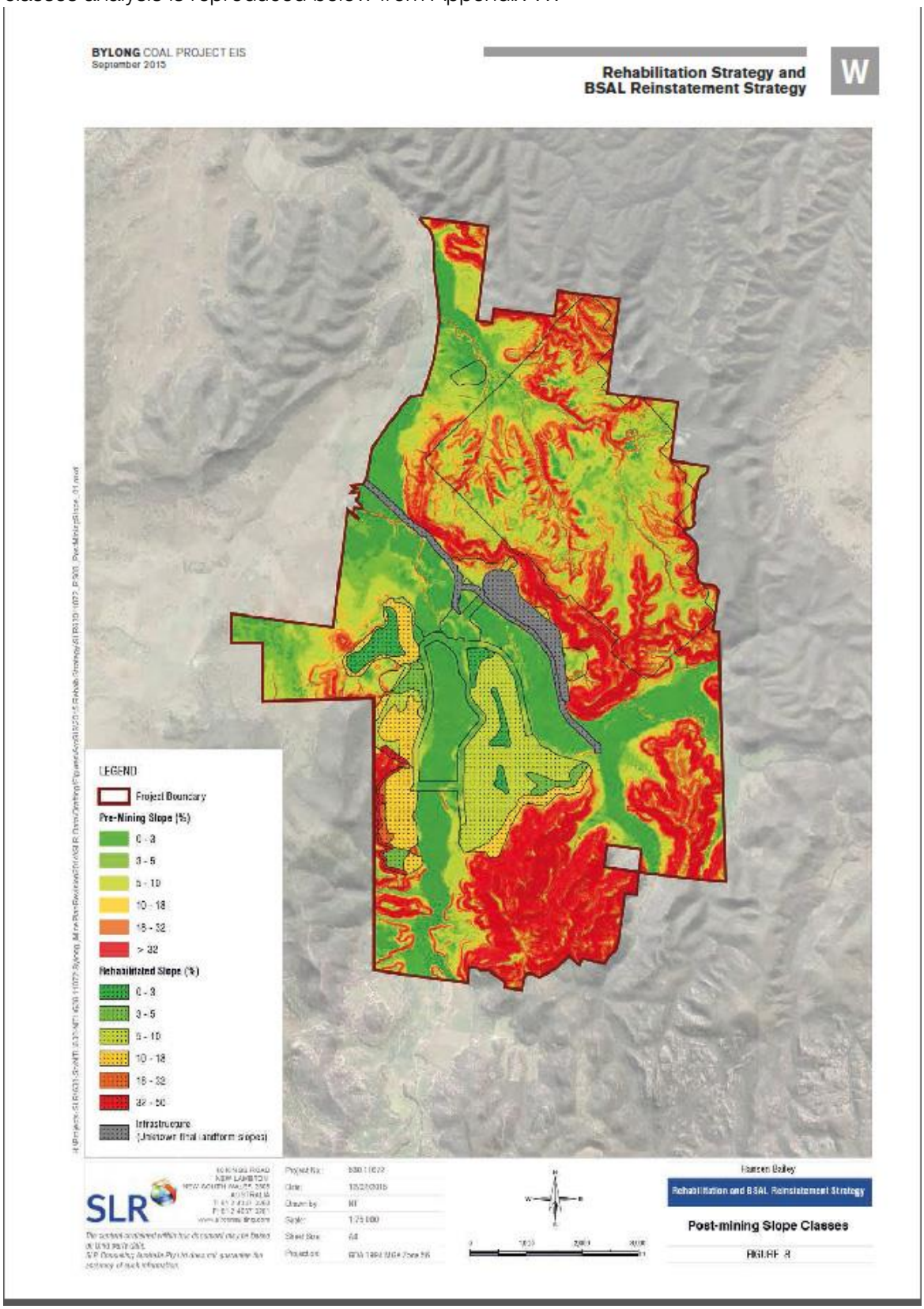
46. The site of this impact on the east side of Telstra Hill will be visible from Wollar Road, at the location shown in the photograph below, at the location labelled “A”:

47. The site of this impact on the east side of Telstra Hill is visible from the Bylong Scenic Way where it is first visible at the crossing of the Sandy Hollow Gulgong Railway, as shown in the photograph below.

48. The site of this impact on the east side of Telstra Hill is also visible from the Bylong Scenic Road where first visible at the Bylong Village, as shown in the photograph below, at the location labelled “A

49. This has the effect of altering the view of the top of the Mount Penny Range from Tarwyn Park. As shown in the proponents’ photomontage (in the Bylong Coal Project EIS, Visual Impact Assessment, prepared by JVP Visual Planning in July 2015).

50. Further information about the design of the mounds is provided by the post mining slope classes analysis is reproduced below from Appendix W.



51. This shows large areas of the mounds will be of one uniform slope category. In the case of the eastern mound 5 to 10° for the western 10 to 18°.
52. Such large areas of these slope gradients are not currently found in the Bylong and Lee's Creek valleys, where existing form is more undulating and complex.
53. Eastern overburden placement will appear artificial as it is a new type of form, foreign in its height and area of dominant slope profile to the character of the Bylong Valley.
54. The western overburden placement will blur the contrast between the undulating valley floor and the steep slopes of the Growee Range. It will appear artificial as it is of different character.
55. The western overburden placement appears to obscure the freestanding symmetrical character of Telstra Hill by interrupting the contour at the foot of the hill formation (contour level 350).

Operation of two open cut mining areas and related activities nonstop over a 10-year period and storage of all processing reject materials from the longer-term underground mine

56. The operation of two open cut mines introduces the first non-pastoral use to the Bylong Valley and adjacent valleys that are part of the Bylong scenic landscape.
57. The construction appears to maintain some pastoral use of the Bylong Valley through the life of the mine.
58. The impact of a change of use is long-term but not permanent. Active surface mining will progress for a period of 10 years, progressively during that time, and afterwards, the areas subject to open cut mining will return completely to grazing and cropping.

Construction and operation of administration workshop, bath house, explosive magazines and other open cut mining work facilities in that area

59. As these appear to be located at the northern end of the eastern Overburden Emplacement Area. They are not visible from the Bylong Valley Way.

Construction and operation of underground coal mine nonstop over approximately 20-year period

60. The operation underground will not be visible and does not directly affect any of the land holding of Tarwyn Park. The operation of the mine will have a permanent visible effect on the landscape. The effect of blasting is expected to be the falling of rock from the high rocky escarpments. (This information is described in Appendix Y Visual Analysis)

Construction of and operation of facility to support underground mining operations including ventilation shaft workshop offices and employee amenities, fuel and gas management facilities.

61. This is a large complex of buildings and equipment located on the north side of the existing Gulgong Sandy Hollow Railway line. It will not be visible from the Bylong Way.

Construction and operation of a coal handling processing plant

62. This very large complex is the main intervention above ground apart from the open cut and overburden emplacement areas. It is located on the north side of the existing Sandy Hollow-Gulgong Railway line. It will not be visible from the Bylong Way.

Construction of the rail loop and associated loading facility of the existing Sandy Hollow-Gulgong Railway line

63. This major work is proposed to be located on the north side of the existing Sandy Hollow -Gulgong Railway line. It will not be visible from the Bylong Way.

Construction of service and groundwater water reticulation schemes including drains dams, bore fields, pipelines pumping stations and other infrastructure

64. These are ground level structures, visible inside but not outside the Bylong Valley.

Construction of a workforce accommodation facility adjacent to the Bylong Valley Way

65. This is a large assembly of single storey buildings for which a nominal layout and elevations are given. The site is to the east of the Wollar Road, in the location shown in the photograph below. This will be visible from the Bylong Valley Way and the Wollar Road. It will operate over the life of the mine, and open at all times. The site of the proposed facility seen from the Wollar Road is shown in the photograph below at the location labelled “A”.

Upgrade of a Bylong Road construction and operation as mine access road

66. A section of the existing public road is to be upgraded. The nature of the upgrade is not provided.

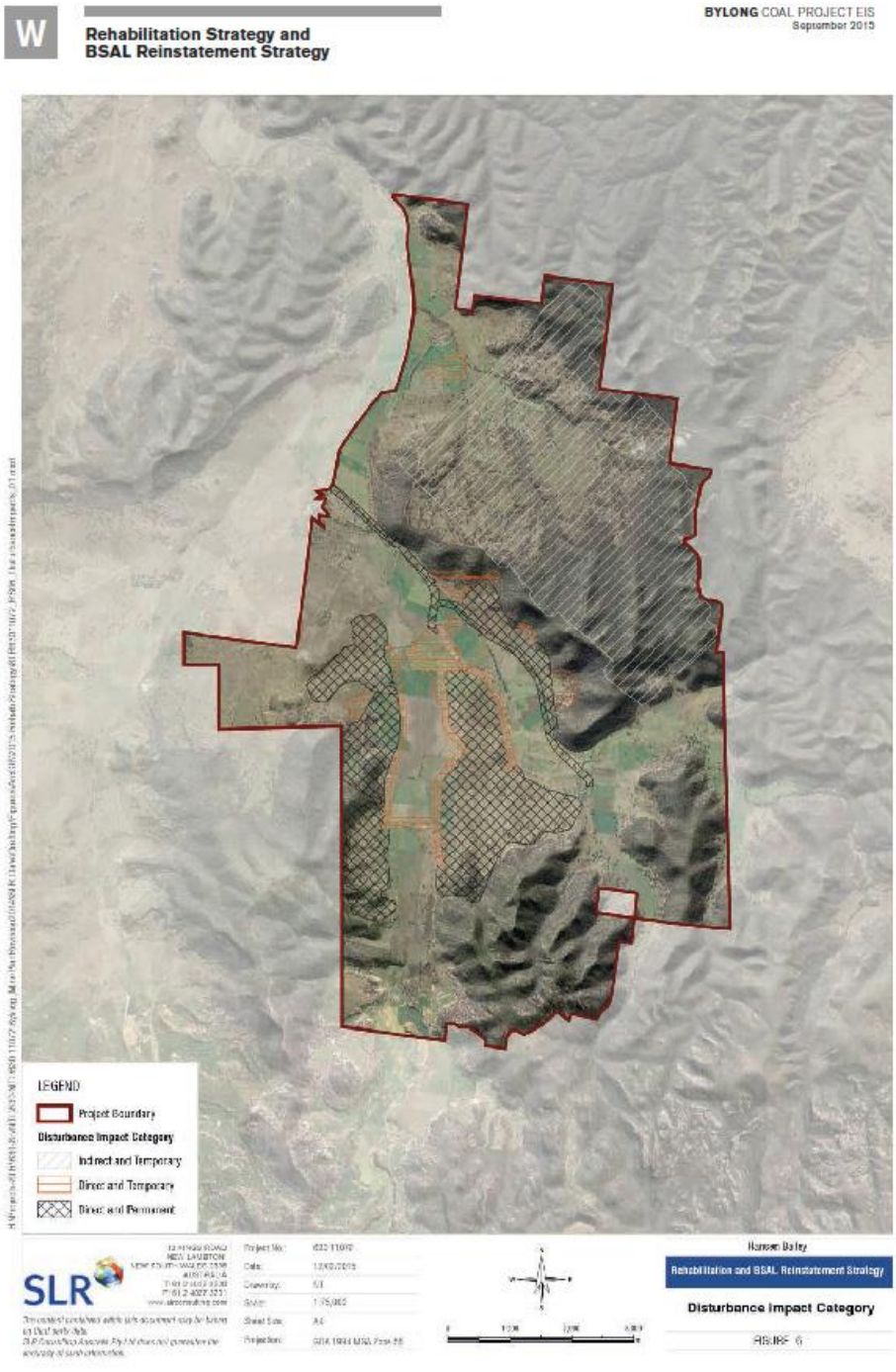
Removal of sections of existing public roads in upper Bylong Valley and construction of alternative routes

67. About half the length of the Upper Bylong Road, and about a kilometre of Woolley's Road are to be removed. The proposal does not show them reconstructed at the end of the mining.

Infilling of mining voids rehabilitation of disturbed areas decommissioning works

68. The rehabilitation works comprise the reestablishment of soil and plant ecology over a large portion of the Bylong Valley. The area affected by soil removal and vegetation.

Reinstatement is shown in the figure 6 below from Appendix W of the EIS.



69. With respect to Tarwyn Park, the grazing paddocks and the alluvial land north of the railway, plus a strip on the south are proposed to be rebuilt. This will remove a large amount of the land, vegetation and alter the hydrological profile of the existing land.

Key Aspects of Impact of the Proposal on Heritage Significance

In summary of the above examination:

Impact on Bylong Scenic Landscape Significance

70. Introduction of a major non-pastoral use, affecting the existing character of the Bylong Scenic Landscape.
71. Visual intrusion into the landscape of a large foreign element, an operating open cut coal mine, all operations being visible in the Bylong Valley, for a period of ten years and some being visible from the Bylong Valley Way and Wollar Road for a period of about four years.
72. Aural intrusion into the landscape of blast noise to the level of 354dB on the Bylong Valley way and higher in Bylong Valley for a period of ten years.
73. Visual intrusion into and change of character of the existing landscape by the construction of two permanent new artificial formations to store overburden of mining operations.
74. Visual intrusion into and change of character of the existing landscape by the predicted fall of rock from high stone escarpments.
75. Removal of a public road which connects the Lee Valley to the Bylong Valley reduces the scenic value of the landscape.

Impact on Technological significance of Tarwyn Park

76. Loss of historic association of Tarwyn Park with Natural Sequence Farming, through the change of use of much of its land and setting to an operating coal mine.
77. Loss of most of the high-level land, substantial part of the alluvial land, including underlying geological layer, soil, vegetation and interruption to hydrology of the property, which have unique potential to yield information about the process of Natural Sequence Farming.

Impact on Historical and Aesthetic significance of Tarwyn Park

78. Loss of character of scenic setting through changes to character of the natural landforms within its setting.
79. Reduction in visual connection from the main homestead to the Mount Penny Range as a result of the lifting of land near Telstra Hill.
80. Loss of visual connection from the homestead complex to the upper valley of Lee Creek, in particular with Budden Gap and the Growee Range, as a result of the construction of the eastern overburden mound.

Discussion on the level of impact on Heritage Significance

Level of Impact on Bylong Scenic Landscape Significance

81. The significance of the Bylong scenic landscape area relates to its particular scenic values as one of a number of such landscapes in New South Wales that cross the Great Dividing Range. This landscape has a long evolved pastoral character. The proposal to introduce a different, non-pastoral land use, visual and aural intrusions, represents a change to its character as an evolved rural landscape. As the existing character is uniform, the change is radical, and accordingly the negative impact on significance is very high.

82. The proposal alters the valley shape of the Lees Creek and Bylong River Valleys by the introduction of two large artificial forms. The nature of the impact is to alter the natural character of the valleys. These valleys are the most northern of the group of valleys with rocky escarpments found on the western side of the Blue Mountains, which have recognised scenic values. In this proposal the valleys will be no longer wholly natural, becoming an exception to the group. The level of impact on significance is therefore high.

Level of Impact on Technological significance of Tarwyn Park

83. The introduction of coal mining on Tarwyn Park impacts its historic associations with Natural Sequence Farming. Considering that the association is very well documented, on a national scale, and the impact irreversible, the level of impact is very high.

84. With respect to the loss of research potential, the level of impact on a unique resource is not able to be assessed. In view of the State level of significance of the technology, and in accordance with the precautionary principle of conservation, the negative impact of loss of this research potential is very high.

Level of Impact on historic and aesthetic significance of Tarwyn Park and its setting

85. The proposal changes the pastoral character of the setting of Tarwyn Park, and the placement of two large mounds removes some prospects from Tarwyn Park, in particular to the Mt Penny Range and the Lee Creek Valley. Since the siting of Tarwyn Park was to enable prospects to these landscapes, the level of negative impact on significance is therefore high.

Measures to ameliorate impact

86. The following is a list of possible modifications to the proposal that would ameliorate the impact on significance, in order from most to least effective.

87. The making of these suggestions does not warrant or imply that the impact of the proposal as a whole is reduced to an acceptable level.

Delete open cut operations from the mining proposal.

88. This would almost entirely ameliorate the visual impact on the Bylong scenic landscape, and the loss of technological significance of the Tarwyn Park and its setting. It would not ameliorate the impact on the character of the Bylong landscape scenic landscape area as the mine would still be audible, rockfall and mine traffic visible, the mine operations on the

surface and the workforce accommodation facility visible. It would not ameliorate the loss of association with the history development of Natural Sequence Farming.

Redesign of the overburden mounds

89. Redesign of the overburden mounds to replicate more sympathetically the slope gradient character of the Bylong scenic landscape area would reduce the visual impact on significance. The process of redesign would define a set of design principles extracted from a study of existing slopes, the contour of the line of clearing, and contribution of freestanding elements. This would ameliorate the visual impact on the Bylong Scenic Landscape and setting of Tarwyn Park, however the level of impact on heritage significance would still be high.

90. Relocation of overburden away from adjacent to Telstra Hill, would ameliorate one aspect of the visual impact of the mound on the Bylong Scenic Landscape as experienced on the Bylong Scenic Way.

Reconstruction of cultural landscape elements

91. The cultural landscape elements that could be restored or reconstructed are the Upper Bylong Road, Woolley's Road, Roman Catholic Church and plantings, Bylong Public school, Bylong community hall, Bylong Post Office, site of the former public school. This would substantially ameliorate impact on the setting of Tarwyn Park.

Operation of research facility about Natural Sequence Farming at Tarwyn Park

92. This proposal to open a research facility is vaguely suggested in the recent response to PAC by the Bylong Coal Project. Were the project to be scoped appropriately and implemented with a substantial benchmarking phase prior to the commencement of mining operations, this facility may ameliorate some of the loss of research potential. It may ameliorate some of the loss of historic significance by continuing a direct association with Natural Sequence Farming.

Improved post mining use proposal

93. The current post-mining use proposal is to return the land to pastoral and agricultural use. This does not include to date any specific proposal to re-populate the landscape on a permanent basis. Were the landscape to be re-populated using existing houses, roads, reconstructed community facilities, this would have an amelioration on the loss of rural character on the Bylong scenic landscape.

94. It is stated in the EIS that the proposal does not exhaust the coal resource of the Bylong Valley.

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