

7 September 2022

Elizabeth Zorondo  
Senior Planner  
Equis  
1/36 Esplanade, Brighton  
Melbourne VIC 3186

Dear Elizabeth,

**Re: Aboriginal and non-Aboriginal heritage constraints assessment for 57 Burgess Lane, Calala NSW**  
**Our Ref: Matter 37807**

This letter of heritage advice outlines the results of an initial desktop heritage assessment to support a draft scoping report for 57 Burgess Lane, Calala New South Wales (NSW) (Part Lot 17 DP 629969) (the study area) (Figure 1 and Figure 2). The purpose of this desktop constraints assessment is to assist Equis with their understanding of any planning risks or heritage constraints associated with the site and the project, while also advising on the potential responsibilities under the *NSW Parks and Wildlife Act 1974* and *NSW Heritage Act 1977*. This desktop heritage assessment consists of a brief heritage context and recommendations.

This desktop constraints assessment was prepared by Ashley Bridge (Project Archaeologist), and reviewed by Joshua Madden (Principal Historical Archaeologist).

## Preliminary background research

### Heritage database searches

An extensive search of the AHIMS database was conducted on 9 August 2022 (Client service ID: 706706). The search identified 97 Aboriginal archaeological sites within an 8.5 kilometre search area, centred on the proposed study area. None of these registered sites are located *within* the study area (Figure 3).

It should be noted that the AHIMS database reflects Aboriginal sites that have been officially recorded and included on the register. A simple analysis of the Aboriginal cultural heritage sites registered within 8.5 kilometres of the study area indicates that the dominant site type is artefacts. Modified trees (carved or scarred), stone quarry, open camp site and water hole are the other site types commonly in the vicinity of the study area.

A review of the *Tamworth Regional Local Environmental Plan 2010 (Tamworth LEP 2010)*, State Heritage Inventory (SHI), National Heritage List, Commonwealth Heritage List, and relevant Section 170 registers indicates that there are no locally listed historical heritage items located within the study area (Figure 4).

There are four locally listed heritage items (Schedule 5 of the *Tamworth LEP 2010*), approximately 3 kilometres north-east of the study area. These items are:

- Nemingha Hall (I255).

- Nemingha School (I256).
- Nemingha Anglican Church (I257).
- House "Glenbrook" (I440).

### Site context

The study area contains a residual geological deposit within the Devonian geology unit (Figure 5). It is entirely contained within the Mandowa Mudstones, which includes lithic formations of arenite, polymictic conglomerate, greywacke and mudstone. They are grey, thinly bedded, laminated and massive mudstone with subordinate, thin siltstone and fine sandstone.

The topography of the study area consists of extensive rolling to undulating hills, radiating from the north-eastern corner to the south-western corner.

Stream order is recognised as a factor which aids in the development of predictive modelling for Aboriginal archaeology in this region. Predictive models which have been developed for the region have a tendency to favour permanent water courses as the locations of complex sites that have been continuously occupied. These sites would have been more likely to provide a stable source of water and by extension other resources which would have been used by Aboriginal groups. Site complexity and density decreases with stream order and distance (Jo McDonald Cultural Heritage Management 2000, pp. 19). The study area is located adjacent to two creek lines; Calala Creek, a second order non-perennial watercourse located north-east of the study area and a first order, non-perennial tributary of Calala Creek, which runs along the western boundary of the study area (Figure 6). A large artificial dam is present directly adjacent to the north-western corner of the study area, coming off of the tributary of Calala Creek. The study area is also approximately 1.1 kilometres south of Peel River, a seventh order perennial watercourse.

Soils within the study area is dominated by the Duri soil landscape (Figure 7). The Duri soil landscape consists of extensive rolling to undulating hills and low hills. It is an extremely complex landscape due to rapid changes in underlying lithology (Banks 2001, pp. 33). Generally, soil within this landscape comprise of moderately deep, moderately well-drained red and brown chromosols, with minor occurrences of shallow, very well-drained rudosols around rock outcrops (Banks 2001, pp. 33). Deep, imperfectly drained red clays and deep to very deep, imperfectly drained non-calcic brown soils occur along drainage lines and on sodic bedrock. While erosion is an issue with areas utilised for cropping or grazing, deep soil deposits have the potential to preserve in-situ archaeological deposits.

Overall, current aerial imagery indicates that the majority of the study area has been extensively cleared, for agricultural and pastoral purposes, with development of shed structures visible in the northern portion of the site (refer to Figure 2). Extensive terracing throughout the southern portion of the study area is likely to have had removal of soils from the site. The clearing across the remaining areas of the study area has likely caused significant disturbance to the soil profile.

### Regional overview

Davies (1991) undertook an archaeological survey of the proposed optic fibre cable route that was to be constructed between Tamworth and Scone. The route would reach a length of 138.3 kilometres and would transect the town of Tamworth at its completion, approximately 6.5 kilometres north-west of the study area. The survey was divided into four sections, with Section 4 covering 39.95 kilometres between Rock Hill and Tamworth. Only one Aboriginal site was discovered in this section of the route. Two flakes, one basalt and one made of fine grained siliceous material, was found within an extremely disturbed portion of the

northern bank of Ainstays Creek. It was noted that in this section, portions of the survey were hampered by low ground surface visibility as well as extensive disturbances in the form of European horticultural activities. Recommendations stated that the project could proceed with caution, however a representative of the Nungaroo LALC should be present during excavations in areas where this low visibility occurred.

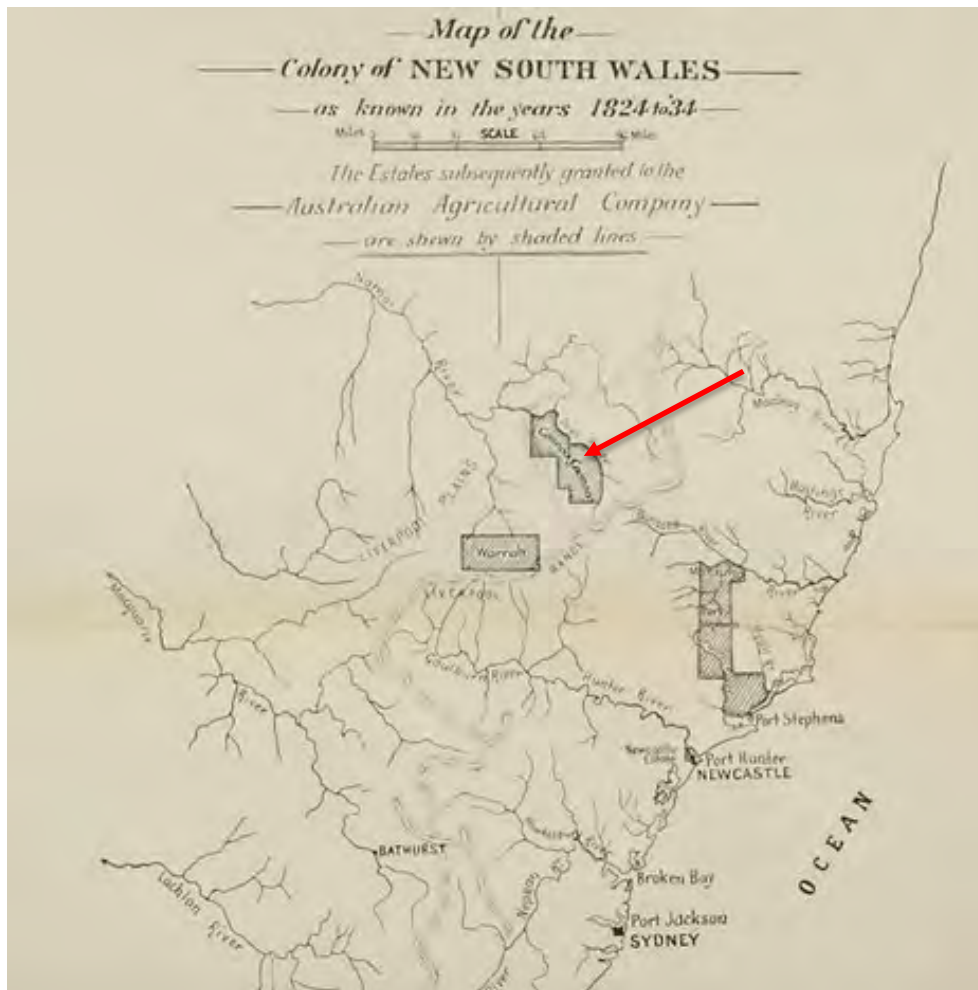
OzArk Environmental and Heritage Management Pty Ltd (2010) was commissioned by TransGrid to undertake an assessment of Aboriginal and non-Aboriginal heritage for the proposed Tamworth to Gunnedah Transmission Line 875 Dismantling project, located approximately 7.2 kilometres west (from Tamworth) from the study area. Previous investigations by Djekic 1984 resulted in the recording of five scarred trees along the proposed transmission line; three confirmed and two potential. The survey undertaken in 2010 identified two new Aboriginal sites; an open camp site (ETL 875-OS1) and a scar tree (ETL 875-ST1). No local or state heritage items were identified as part of this survey. As the Aboriginal sites (inclusive of the five previously recorded scarred trees) were not located within the proposed development footprint, no further works were required and the works could proceed with caution.

Westdale Alliance (2010) undertook salvage excavations and relocation of five scar trees in preparation of the proposed Tamworth Sewerage Augmentation Project and 100% Reuse Scheme at the Westdale Waste Water Treatment Plant in 2010. This was located approximately 14.5 kilometres north-west of the study area. An Aboriginal Heritage Impact Permit (AHIP) was approved by the Department of Environment, Climate Change and Water (DECCW) (now Heritage NSW) in 2009, and the scar trees were excavated and relocated to the Tamworth Botanical Gardens. A shelter was erected over the trees to protect them, and they are now used as an educational tool for tours. No stone artefacts were recovered during the salvage excavations.

Gaynor (2011) undertook an archaeological survey for Brown and Krippner Pty Ltd for a proposed subdivision at Part Lot 191 DP 1107583, near Calala Creek in Calala. This is located approximately 1.5 kilometres north-west of the study area. Two areas were surveyed as part of this investigation. Dense vegetation obscured the ground surface throughout majority of area, however one grey rotated chert core was found on a track within a previously registered PAD (AHIMS 25-2-0006/Redbank IP/1). Along the creek line a stand of trees with a potential scar tree was identified, however it was later determined to not be modified by Aboriginal people by a representative of the Tamworth LALC. The stone artefact and potential scarred tree was located outside of the proposed development works, and therefore it was recommended that they remain in situ and the works proceed with caution.

### **Historical land use**

The rich coal deposits of the Hunter River were first discovered by European settlers in 1797, and a settlement was established at the start of the Hunter River in 1801 (Davies 1991, pp. 16). The Liverpool Plains region was first explored in 1817 and 1818 by Surveyor General, John Oxley and reported the rich pastures back to England, although this area was hard to venture into because of the barrier of the Liverpool Ranges (Goonoo Goonoo Station n.d.). The area was not occupied by European settlers until 1824 when Henry Danger successfully discovered a way to navigate through the Liverpool Ranges via the Hunter Valley (Davies 1991, pp. 16). In April of 1824, the Australian Agricultural Company (AACo) was formed in order to raise and farm sheep for merino wool to sell in London, and in 1828, they acquired one million acres (404,685 hectares) in the Port Stephens area (Australian National University, Archives 2012). In 1832 the pastoral pursuit was expanded, and the AACo acquired an additional 316,000 acres (130,000 hectares) of land along the Peel River, extending from what became Tamworth to Nundle, Attunga and Duri (Photo 1).



**Photo 1 Map showing grants awarded to Australian Agricultural Company, shown in shaded areas; approximate location of the study area indicated by the red arrow (Source: Goonoo Goonoo Station n.d.)**

In 1833, the AACo began moving sheep into this region from Port Stephens and Warrarah, as the sheep that squatters had introduced into the Port Stephens area had been affected with disease and were encroaching on the Warrarah lands (Goonoo Goonoo Station n.d.). Lieutenant-Colonel Henry Dumaresq selected the site of a head station on elevated ground sloping towards the western side of the Peel River near its confluence with the Cockburn River, and buildings were constructed in the middle of 1834 for Superintendent Charles Hall. The station was known as Kallala (Calala), and is now part of suburban Tamworth (approximately 5 kilometres north-west of the current study area).

In 1841 the head station was relocated from Calala to its present position at Goonoo Goonoo (approximately 20 kilometres south of the study area). One reason for this was to move the AACo's flocks of sheep away from the danger of infection from flocks being driven out of Gunnedah. Calala also appears to have been affected by flooding due to its close proximity to Peel River (Goonoo Goonoo Station n.d.).

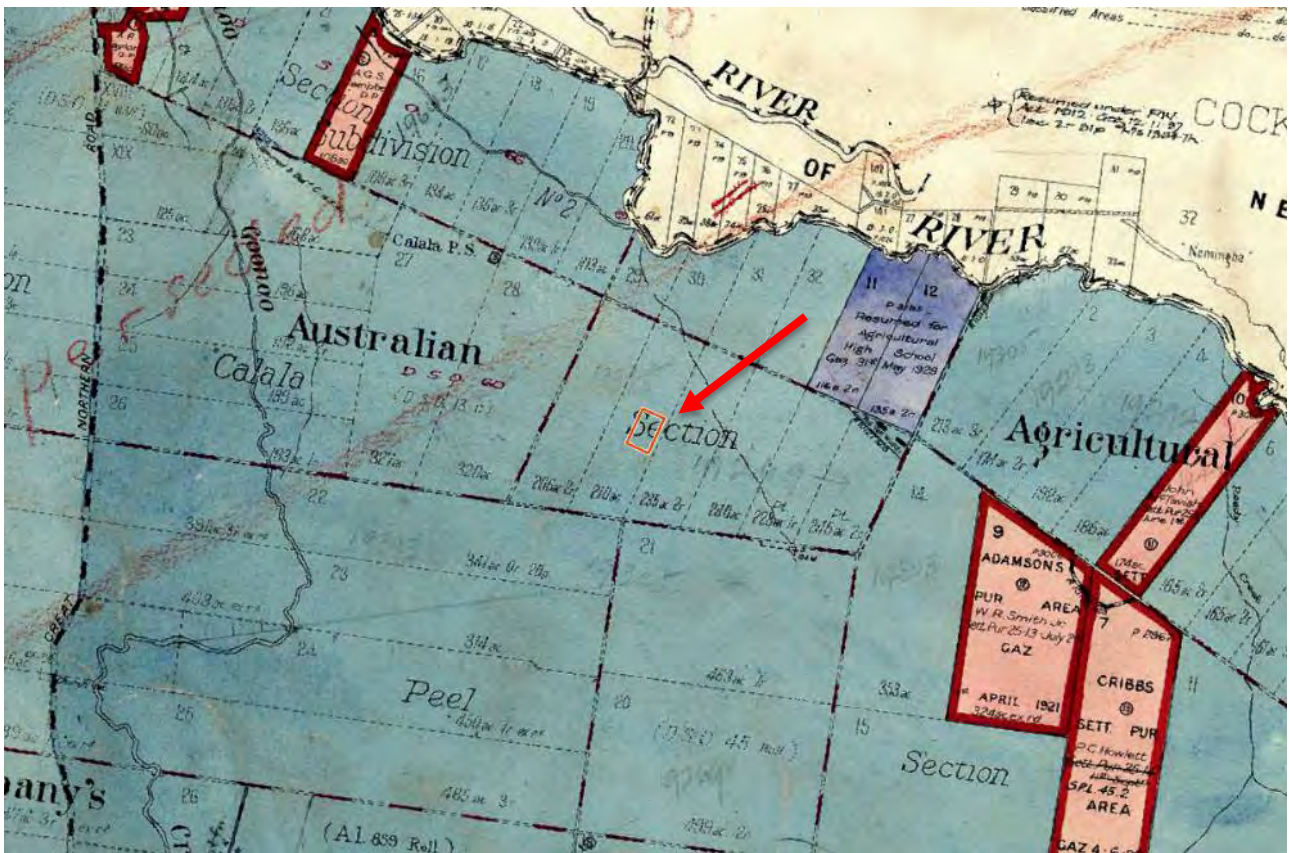
No crown plans or parish maps of the study area are available between 1833 and 1909. It is likely that the study area continued to be used for agricultural and/or pastoral purposes during this time, based on past and current land use throughout the region.

Historical parish maps containing the study area can be traced back to 1909. Mapping from 1909 illustrates that the land grant belonging to the AACo has since been subdivided into several lots, with the study area falling within parish portion 30 (Photo 2). No structures are visible on the map, however it is likely that the study area continued to be used for agricultural purposes during this time.



**Photo 2** 1909 Parish map showing study area, illustrated in red (Source: HLRV, 2022)

A parish map dating to 1932 illustrates that no major changes have occurred over the last 30 years, with no structures visible within the study area (Photo 3).



**Photo 3** 1932 Parish map showing study area, illustrated in red and indicated by the red arrow (Source: HLRV, 2022)

Historical aerial photographs assist in identifying modern developments that occurred within the study area. An aerial photograph dated to 1976 shows that the land within the study area has been subject to extensive vegetation clearance and terracing, with the area being utilised as a paddock (Photo 4). Two small artificial dams are present approximately 100 metres north-west of the study area, transecting with the tributary of Calala Creek. The faint beginnings of a dirt track can be seen through the northern portion of the study area, however no structures are visible at this time.



**Photo 4 Aerial photograph dated to 1976, with the study area indicated by the red boundary (Source: NSW Spatial Services)**

Historical aerials from 1989 show an increase in development throughout the surrounding region. North of the study area (in the north-eastern corner of Lot 17 DP 629969) there is evidence of a residential development, which contains two structures, a round-a-bout driveway and landscaping efforts (Photo 5). The previous two small dams from the 1976 aerials, have been expanded into one large dam. Throughout the study area itself, terracing and potential excavation of soils can be seen throughout the extent of the site. No structures are visible within the study area.



**Photo 5** Aerial photograph dated to 1989, with the study area indicated by the red boundary (Source: NSW Spatial Services)

Aerials dating to 1997 show no significant changes to the study area (Photo 6).



**Photo 6 Aerial photograph dated to 1997, with the study area indicated by the red boundary (Source: NSW Spatial Services)**

Current aerial imagery show heavy ploughing and excavation of soils in the southern portion of the study area, with planted trees lining the fence line in the northern portion of the area and the southern boundary of the site (Figure 2). Two shed structures are present in the central portion of the study area, with bales of hay lining the edge of the fencing, extending from one of the sheds. A dirt track is also visible in the northern portion of the site. No other structures or development are visible to date.

### Visual inspection

A visual inspection of the study area was undertaken on 16 August 2022 by Anthea Vella (Consultant Archaeologist). The visual inspection consisted of a sample survey of the study area to identify and record any Aboriginal archaeological sites visible on the surface (where accessible) or areas of Aboriginal archaeological potential and cultural sensitivity. The archaeological survey was conducted on foot. The methods used during the visual inspection conformed to Requirements 5 to 8 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). For terminology and definitions used within this section, please refer to the aforementioned guideline.

In most archaeological reports and guidelines visibility refers to GSV, and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (DECCW 2010). The southern portion of the study area was unable to be inspected at the time of the survey, it had been recently cultivated for the production of oats (Photo 7). Historical aerials clearly demonstrate that this portion of the study area has been extensively modified through terracing and agricultural practices (Photo 4 and Photo 5), therefore it is unlikely that subsurface deposits would remain intact in these areas. The survey was not undertaken in this area as it was determined that the GSV was 0%.

Within the northern portion of the study area, overall visibility was poor (10 - 15%), with heightened areas of visibility surround areas of exposure, vehicle tracks and around sheds (Photo 8).



**Photo 7** Typical GSV throughout southern portion of the study area, with photo showing interface between the north and south sections where cropping occurs. Facing west



**Photo 8** Typical GSV throughout northern portion of the study area, facing north

Exposure refers to the geomorphic conditions of the local landform being surveyed, and attempts to describe the relationship between those conditions and the likelihood the prevailing conditions provide for the exposure of (buried) archaeological materials. Whilst also usually expressed as a percentage estimate, exposure is different to visibility in that it is in part a summation of geomorphic processes, rather than a simple observation of the ground surface (Burke & Smith 2004, pp. 79, DECCW 2010). Within the northern portion of the study area, exposure was typically poor (10-20%), with areas of heightened areas of exposure typically identified along fence lines, adjacent to access gates, at the interface between the northern and southern portion of the study area or within exposed tyre marks from vehicle tracks (Photo 9, Photo 10 and Photo 11). Exposure in the south was not visible and therefore 0%.



**Photo 9** Exposure throughout the northern portion of the study area, facing east



**Photo 10** Exposure adjacent to fence lines and interface for cropping, facing west



**Photo 11 Exposure within vehicle tracks, facing east**

Disturbance within the study area are associated with human agents. The northern portion of the study area contained extensively modified soils, due to the construction of two shed structures, fencing along the paddock boundaries, landform modification for drainage channels, vehicle tracks and the use of machinery for cultivation and agricultural purposes (Photo 11, Photo 12, Photo 13 and Photo 14). This has impacted the intactness of any potential subsurface Aboriginal or non-Aboriginal deposits within the study area. Within the southern portion, extensive terracing (shown through historical aerial imagery) has resulting in large scale landscape modifications.



**Photo 12 Typical disturbances throughout the northern portion of the study area, facing east**



**Photo 13** Cropping in the southern portion of the study area, facing west



**Photo 14** Redeposition of soils within the study area, facing south

No historical items or relics were identified during the survey. The results of the visual inspection are outlined in Figure 8.

### **Aboriginal heritage constraints**

Artefact sites, followed by modified scar trees, are considered the most likely site type to occur within the study area. Assessments completed in the region suggest that Aboriginal sites are most likely to be present within elevated landforms and in close proximity to creek lines, with site density and complexity decreasing with stream order and proximity (Rich 1988, Navin Officer 2003, AMBS 2007).

The close proximity to Peel River and Calala Creek and the broad undulating topography increases the likelihood for sites to be present in the study area. The geology and the soil profiles present a likelihood for artefactual material to be present in the northern portion of the study area, as there has been less disturbance here. However, there was evidence of ploughing and soil redeposition suggesting that some of

the soils throughout this section is disturbed. The southern portion of the study area has undergone significant ground disturbance as a result of large scale terracing and cultivation and/or agricultural practices, which in turn has likely removed soils from the site, thus removing or disturbing potential archaeological deposits. While the southern portion of the study area was not able to be accessed during the survey, historical aerals clearly illustrate this disturbance. Based upon preliminary background research, there is low potential for Aboriginal objects or areas of archaeological potential to be present within the study area.

### **Recommendations**

While low archaeological potential for Aboriginal heritage has been assessed as part of this constraints assessment, it is noted that the proposed works are being undertaken as a State Significant Infrastructure (SSI), under Part 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Therefore, an Aboriginal Cultural Heritage Assessment (ACHA) report is recommended to be undertaken with full consultation prior to works proceeding.

### **Non-Aboriginal heritage constraints**

A search of the *Tamworth LEP 2010*, SHI, National Heritage List, Commonwealth Heritage List, and relevant Section 170 registers did not identify any items of historical significance within the study area. However, there are four locally listed heritage items (Schedule 5 of the *Tamworth LEP 2010*), within 3 kilometres of the study area. The background research indicates that the study area has likely undergone historical clearing activities, extensive terracing throughout the southern portion of the study area and was utilised historically as grazing and agricultural land. The study area possesses low potential to contain early buildings or relics associated with the AACo. The field investigation for the study area also did not identify any heritage items or areas of historical archaeological potential, however the majority of the study area could not be surveyed due to existing crops in the southern portion of the study area.

### **Recommendations**

While low archaeological potential for non-Aboriginal heritage has been assessed as part of this constraints assessment, it is noted that the proposed works are being undertaken as a State Significant Infrastructure (SSI), under Part 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Therefore, an Historical Heritage Assessment (HHA) is recommended prior to works proceeding. This must be completed in accordance with the Heritage Manual (Heritage Office & Department of Urban Affairs and Planning 1996) and associated guidelines.

Please contact me if you have any enquiries.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Ashley Bridge', written in a cursive style.

Ashley Bridge  
Project Archaeologist

## References

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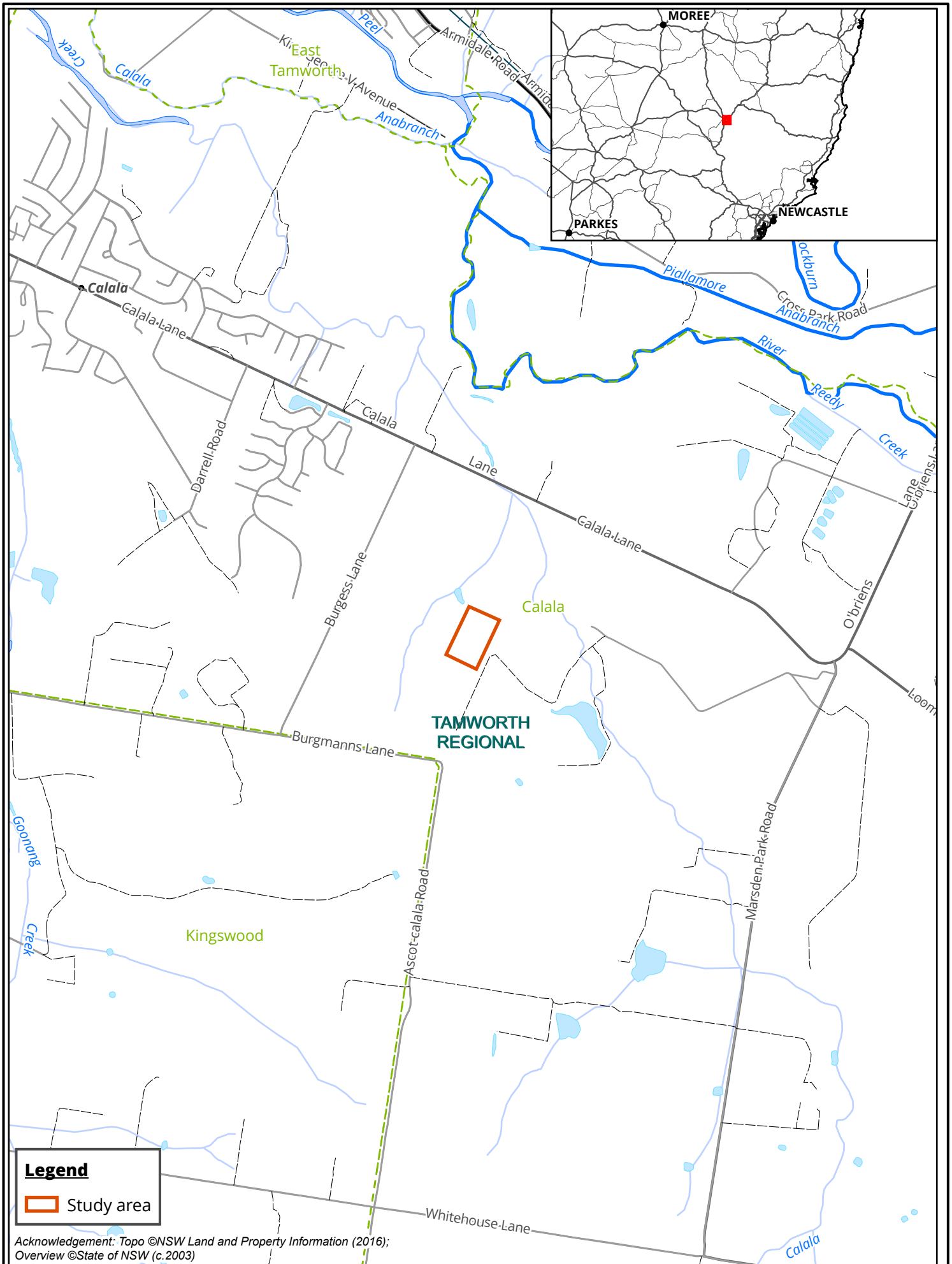
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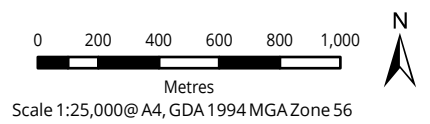
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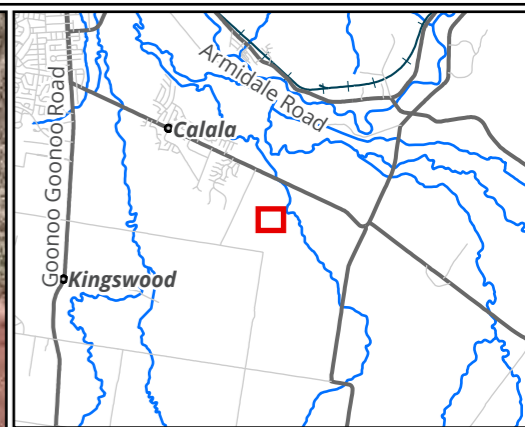
Westdale Alliance 2010. *SALVAGE REPORT, AHIP # 1101340, AHIMS # 3146. Report for Tamworth Regional Council, United Group & MWH*,.



**Figure 1 Location of the study area**

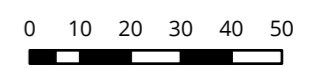
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**Legend**  
[Orange outline] Study area  
[White outline] Lot

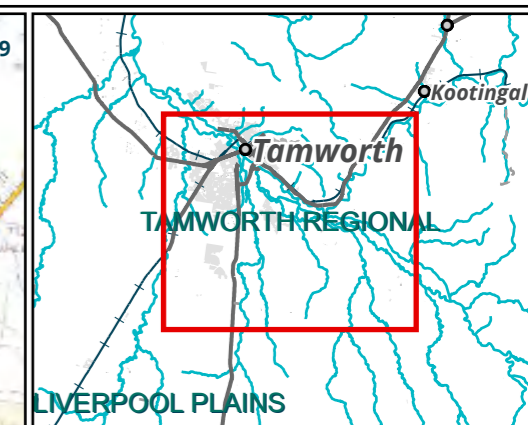
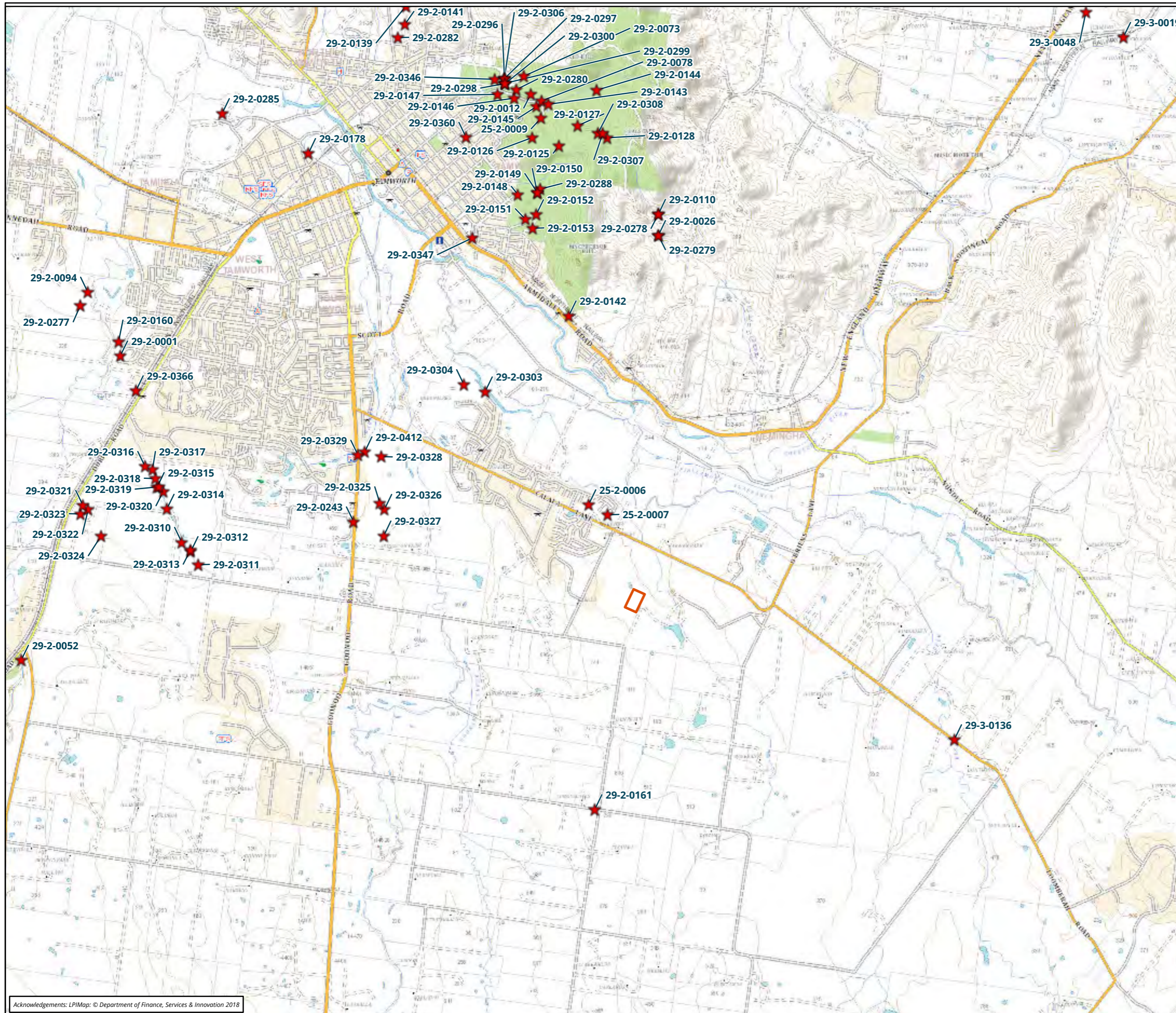
**Figure 2 Study area detail**



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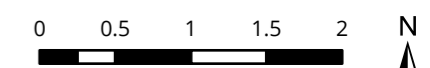
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**Legend**

- Study area
- ★ AHIMS

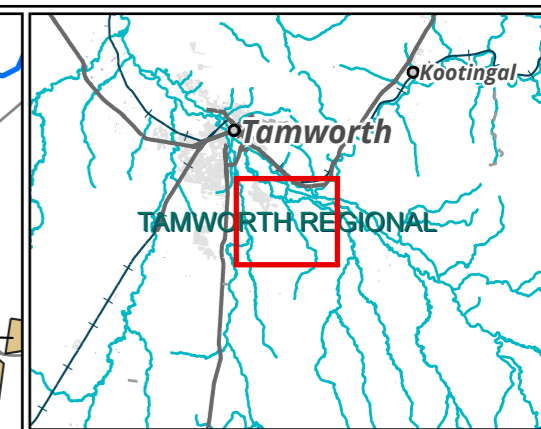
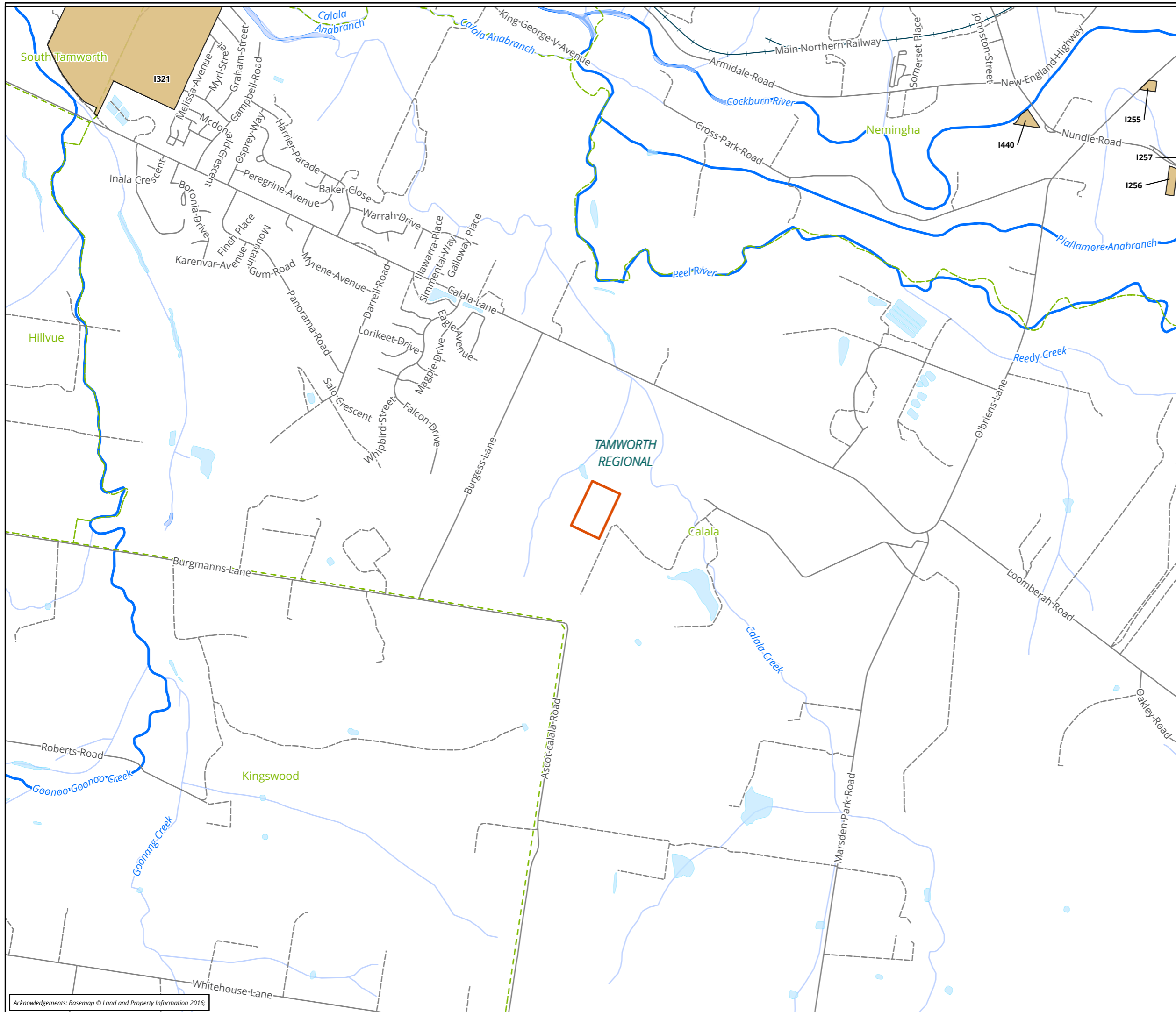
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**Figure 3 AHIMS within the vicinity of the study area**



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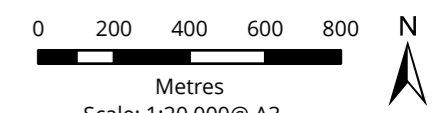


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- Legend**
- Study area
  - Local Environmental Plan**
  - Item - General

**Figure 4 Heritage items in the vicinity of the study area**

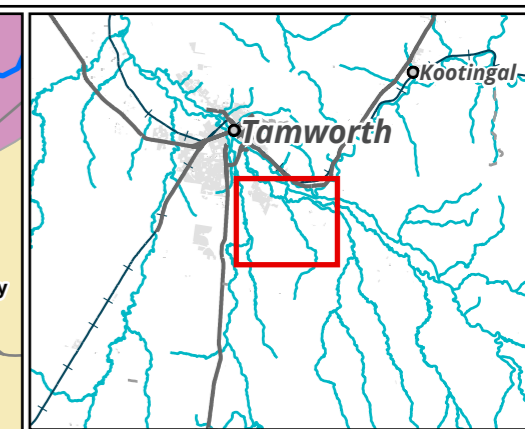
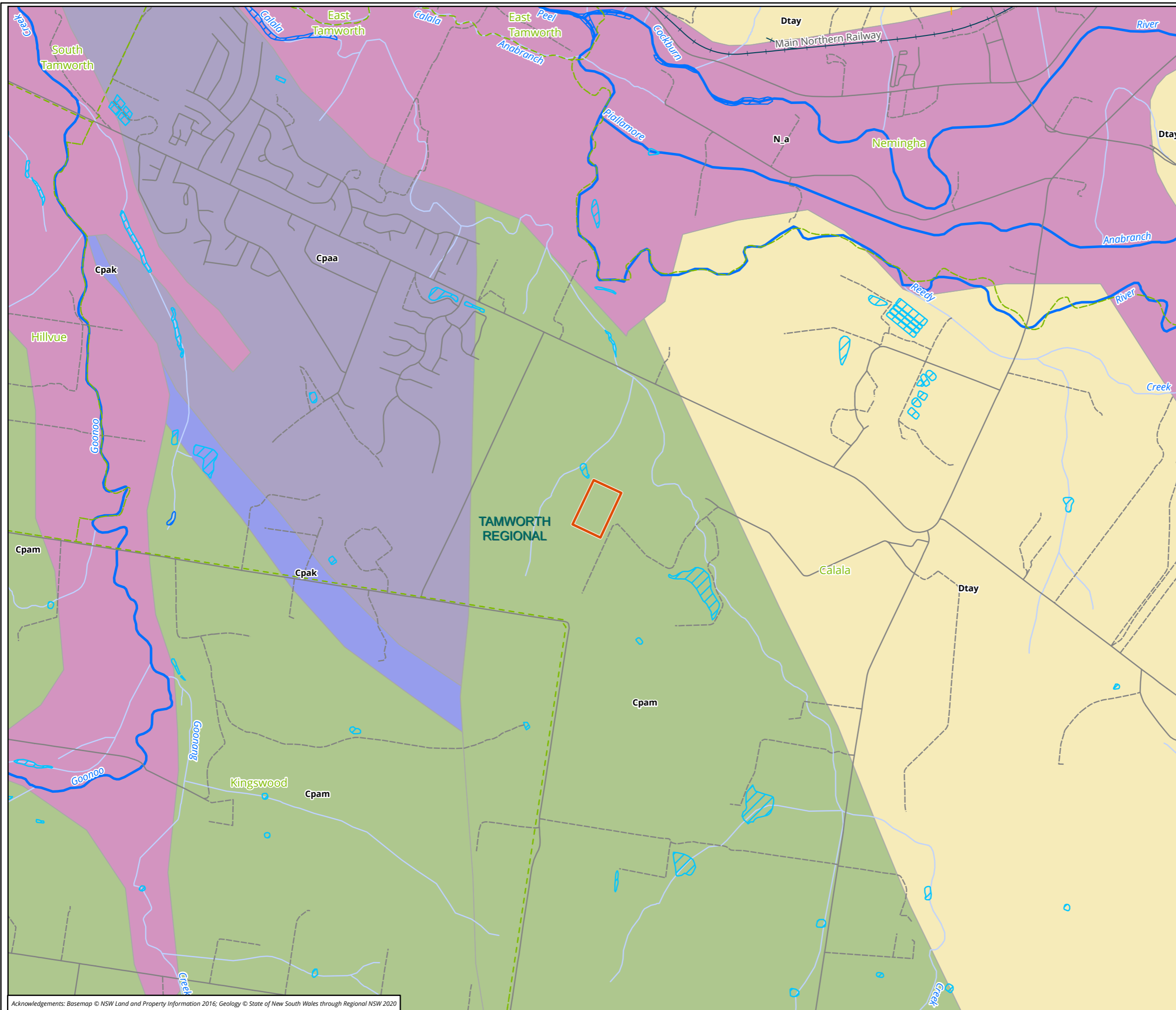


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Acknowledgements: Baseimap © Land and Property Information 2016;



**Legend**

Study area

**Geological units**

- Cpaa, Noumea beds
- Cpak, Keepit Conglomerate
- Cpam, Mandowa Mudstone
- Dtay, Yarrimie Formation
- N\_a, Alluvium

**Figure 5 Geological units in the vicinity of the study area**

0 200 400 600 800 N

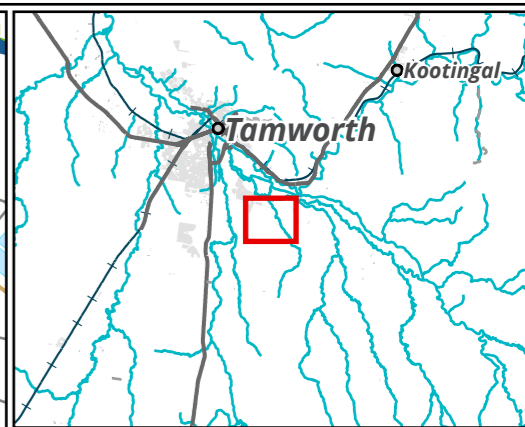
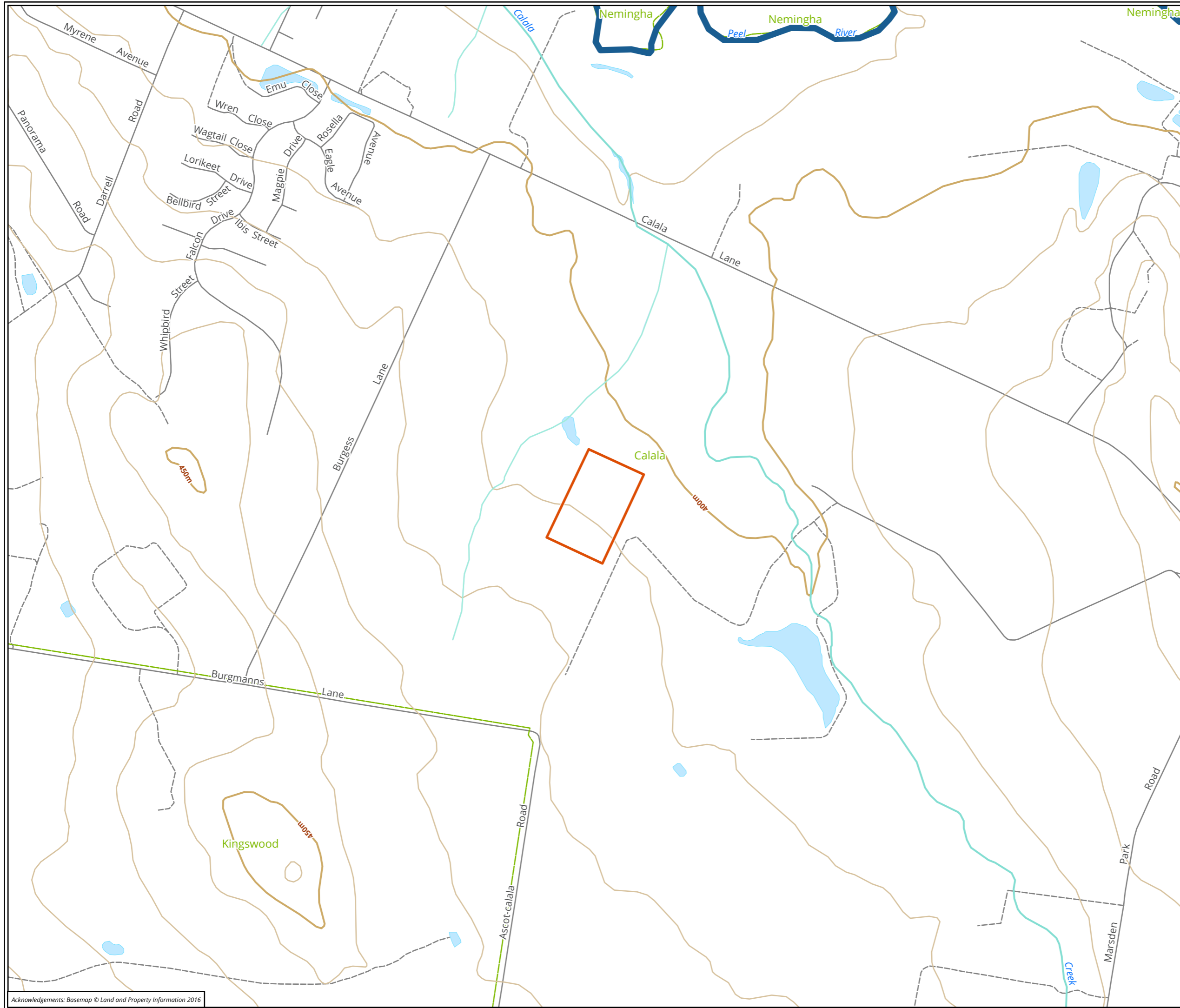
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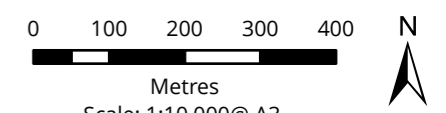
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Acknowledgements: Basemap © NSW Land and Property Information 2016; Geology © State of New South Wales through Regional NSW 2020



- Legend**
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- Strahler Order**
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  - 2
  - 7

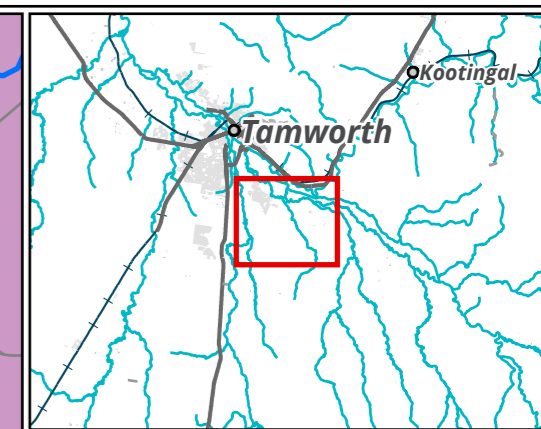
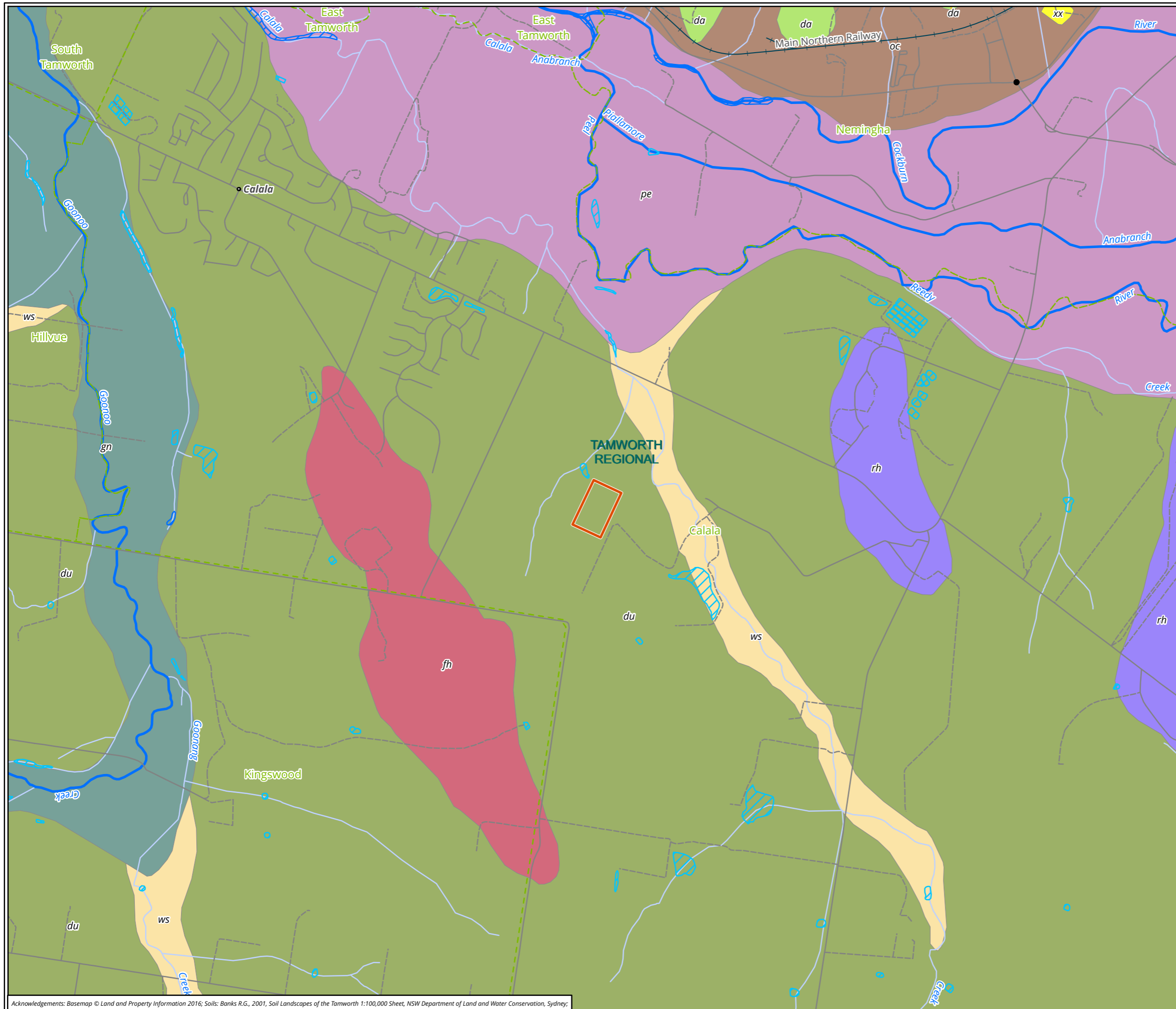
**Figure 6 Hydrology and topography in the vicinity of the study area**



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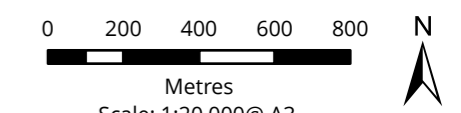


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- Legend**
- Study area
  - Soil landscape units**
  - da - DARUKA
  - du - DURI
  - fh - FULLWOODS HILL
  - gn - GOONOO GOONOO
  - oc - ORCHARD CREEK
  - pe - PEEL
  - rh - ROUND HILL
  - ws - WARRAL STATION
  - xx - DISTURBED TERRAIN

**Figure 7 Soil landscapes in the vicinity of the study area**

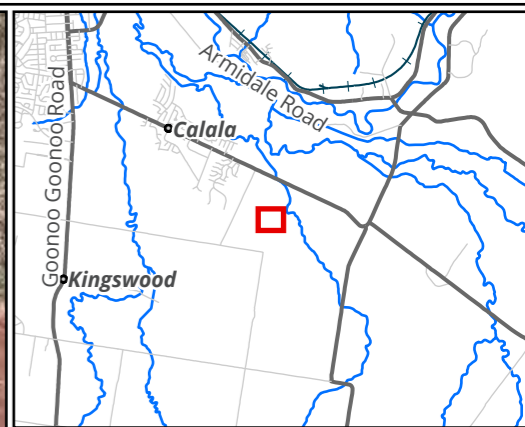


Scale: 1:20,000@ A3  
 Coordinate System:  
 GDA 1994 MGA Zone 56



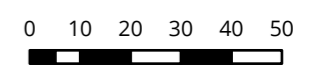
Matter: 37807, Date: 11 August 2022,  
 Drawn by: JB, Checked by: AB, Last edited by: jbeckius  
 Location: P:\37800s\37807\Mapping\  
 37807\_CalalaBESS\_constraints\_ACHA, Layout: 37807\_ACHA\_F7\_Soils

Acknowledgements: Basemap © Land and Property Information 2016; Soils: Banks R.G., 2001, Soil Landscapes of the Tamworth 1:100,000 Sheet, NSW Department of Land and Water Conservation, Sydney;



- Legend**
- Study area
  - Survey tracks
- Archaeological potential**
- Low

**Figure 8 Survey effort and result**



Metres  
 Scale: 1:1,500@ A3  
 Coordinate System:  
 GDA 1994 MGA Zone 56



Matter: 37807, Date: 18 August 2022,  
 Drawn by: JB, Checked by: AB, Last edited by: jbeckius  
 Location: P:\37800s\37807\Mapping\  
 37807\_CalalaBESS\_Constraints\_ACHA, Layout: 37807\_ACHA\_F8\_SurveyResults

**Figure 9: Due diligence flow chart**

