



Transport
Roads & Maritime
Services



Foxground and Berry bypass

Princes Highway upgrade

Volume 2 – Appendix K

**Technical paper:
Non-Aboriginal (historic) heritage**

NOVEMBER 2012

RMS 12.4571
ISBN 978-1-922041-68-5

(blank page)

Foxground and Berry bypass

Prepared for

Roads and Maritime Services

Prepared by

Navin Officer Heritage Consultants Pty Ltd
4/71 Leichhardt Street, Kingston ACT 2604, Australia

On behalf of

AECOM Australia Pty Ltd
Level 21, 420 George Street, Sydney NSW 2000, Australia

November 2012

© Roads and Maritime Services

The concepts and information contained in this document are the property of Roads and Maritime Services. You must not reproduce any part of this document without the prior written approval of Roads and Maritime Services.

(blank page)

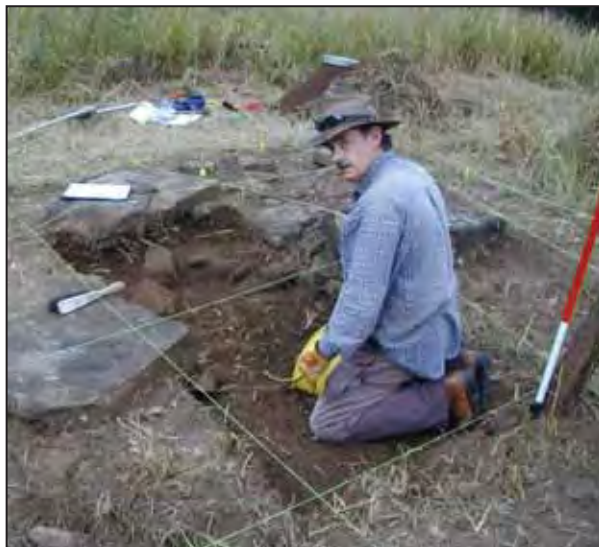


Cotter Dam, ACT, Feb 2008



**This report is dedicated to the memory of
Dr Lindsay Maxwell Smith (1950 – 2011),
Archaeologist.**

Lindsay was a valued member of the NOHC team from 2002 onwards. He conducted much of the research, (including a specific oral history program (NOHC 2009b & c)) on which this assessment is based



Shannon Ck, NSW, June 2002

Executive summary

The project

The Roads and Maritime Services (RMS) is seeking approval under Part 3A of the *Environmental Planning and Assessment Act 1979* for the upgrade of 11.6 kilometres of the Princes Highway, to achieve a four lane divided highway (two lanes in each direction) highway with median separation between Toolijooa Road north of Foxground and Schofields Lane, south of Berry (the project). The project would include bypasses of Foxground and Berry.

The project is one of a series of upgrades to sections of the Princes Highway which aims to provide a four lane divided highway between Waterfall and Jervis Bay Road, Falls Creek. This would improve road safety and traffic efficiency, including for freight, on the NSW south coast.

Methodology

The methodology for this assessment included:

- A literature and database review including former heritage studies and current statutory and non-statutory registers.
- Compilation of an historical overview.
- Archaeological survey and field inspection of the project area.
- Archaeological test excavation at one location (G2B H14).
- Documentation of survey and excavation results.
- Assessment of Significance and Impact according to NSW Heritage Branch guidelines.

Field inspection results

Forty field recordings occur within or near (within 200 metres) the project (G2B H10-30, 45, 47-63 and the Southern Illawarra Coastal Plain and Hinterland Cultural Landscape (SICPH CL).

Six of these recordings were not found to have heritage significance against the assessment criteria. These recordings consist of two cottages (G2B H10 and G2B H50), and four twentieth century highway remnants (G2B H12, G2B H18, G2B H24 and G2B H57).

The remaining 34 recordings were found to have heritage significance and are classed as heritage items. These consist of:

- Ten road sections or remnants (G2B H15, G2B H19, G2B H20, G2B H21, G2B H22, G2B H23 G2B H26 G2B H27, G2B H30 and G2B H55).
- One highway bridge (G2B H29).
- Twelve standing buildings or building groups (G2B H11, G2B H13, G2B H16, G2B H17, G2B H25, G2B H28, G2B H45, G2B H47, G2B H49, G2B H51, G2B H56 and G2B H58).
- Five confirmed or potential archaeological deposits comprising former building sites (G2B H14, G2B H48, G2B H52 G2B H53 and G2B H59).
- One quarried rock outcrop (G2B H61).
- One remnant dry stone wall (G2B H54).
- One tree avenue (G2B H62).

One public park (G2B H63).

- One item of movable heritage, a skid mounted work-site shed (G2B H60).
- One cultural landscape, the Southern Illawarra Coastal Plain and Hinterland (SICPH CL).

Eight of these heritage items are included on existing statutory heritage listings (G2B H16, G2B H29, G2B H45, G2B H47, G2B H54, G2B H58, G2B H62 and G2B H63).

The SICPH CL item defines the cultural heritage values of the landscape traversed by the project, and in particular the landscape context of the Berry township. This item relates to two previously defined landscape and conservation areas, the Berry Bolong Pastoral Landscape (from the Shoalhaven Heritage Study (Peter Freeman Pty Ltd 1998)) and the Berry District Landscape Conservation Area (from a recent National Trust Register citation).

Test excavation program

One of five potential archaeological deposits identified during the survey required further archaeological investigation in order to draft appropriate management strategies relative to assessed significance. This site was G2B H14, the location of former buildings at the northern end of the Broughton Creek village (now Berry).

Fifteen areas of test excavation were conducted across G2B H14. Excavation was undertaken using a by-hand methodology. The excavations demonstrated the presence of limited areas of relatively intact archaeological deposit from the turn of the nineteenth-twentieth century. Examples include a cobbled floor, a post hole, and burnt layers with associated artefacts. The northernmost portion of the site appears to be largely sterile below a cap of modern fill. Two hundred and ninety-four items, totalling almost five kilograms in weight, were recovered from the excavation. Material types comprised glass, ceramic, metal and miscellaneous (brick, shell, wood, plastic). The assemblage is broadly characterised by late nineteenth-century or early twentieth-century material culture, with some more recent roadside debris.

The test excavation program demonstrated the need to conduct salvage excavation across that portion of the deposit which would be subject to development impact.

Significance assessment

Of the forty field recordings:

- Six are considered to fall below the significance assessment thresholds inherent within the specified significance criteria (G2B H10, G2B H12, G2B H18, G2B H24, G2B H50 and G2B H57).
- Three cannot be given definitive assessments until the nature of predicted archaeological deposits are confirmed through test excavation. These items have been given indicative assessments of local context significance, subject to confirmation (G2B H48, G2B H52 and G2B H53).
- One is assessed as having State significance (Graham Park – former agricultural research institution).
- The remaining thirty items are assessed as having heritage significance within a local context, according to one or more of the specified significance criteria.

Summary of project impact

Of the 34 heritage items:

- Nineteen would not be directly impacted.
- Six would be partially impacted, and nine wholly impacted.
- Of those not directly impacted:
 - Thirteen occur within 50 metres of the construction footprint.
 - Eleven would be subject to indirect impacts relating to their landscape contexts.

The project would impact upon the heritage values of the SICPH CL by the imposition of a modern structural component onto the landscape. The scale and curvilinear nature of the bypass would contrast with the existing, and broadly nineteenth century character and features of the landscape.

In the general proximity of Berry, the bypass would:

- Impact upon the short and mid-distance view-sheds from the town streetscapes.
- Impose a contrasting and modern road form relative to those parts of the town structured on a grid pattern.
- Impact upon some remnant pastoral open space along the northern margin of the town grid. This margin provides a visually appealing contrast between the urban and rural and contributes towards a general pastoral character for the town.

A number of project aspects respect the heritage values of the surrounding landscape:

- Apart from substantial deviations across the Broughton Creek valley and around Berry, the project would generally follow the original corridor of the first European road constructed for vehicles between Berry and Gerringong – the 1856 Berry Estate Road. This provides a degree of historical and functional integrity to the bypass. It would remain a modern manifestation of an original mid nineteenth century access and transport corridor.
- The visual impact of the bypass from the northern margins of Berry would be mitigated by the construction of a four metre high reinforced soil noise barrier with a landscaped south-facing slope creating a 'Ha-ha' effect.
- The construction of a bypass of Berry avoids the need to widen and transform one of the town grid streets to accommodate the highway traffic. If the latter option was adopted it would irrevocably change the amenity and heritage character of the town, and require the full or partial demolition of many properties with heritage value.

Impact mitigation and management

All heritage items subject to direct impact are of an assessed local scale of significance. One site of State significance, the former Graham Park agricultural research station (G2B H51), occurs in close proximity to the project, and action would be taken to ensure that incidental or accidental direct impact does not occur.

The project would directly impact a large proportion of the remaining traces of the 1856 Berry Estate Road (G2B H19, G2B H22, G2B H23, G2B H30 and G2B H55). In most instances, the remains of this roadway consist of low ground-surface relief indicating the presence of a road platform, side ditches, and in some cases cutting and benching. In order to compensate for the loss of these remains, it is proposed to combine a program of archival recording and selective archaeological salvage, with the conservation and public interpretation of a high value and representative portion of the road situated away from the development zone at “Bink’s Corner”, Broughton Village (incorporating G2B H25, G2B H26, G2B H27 and G2B H52). In combination with an adjacent portion of the existing highway, and the proposed bypass, this location would showcase 150 years of highway construction and engineering. The impact mitigation and management actions proposed for heritage items affected by the project fall into five broad categories:

- No further action (one item).
- Avoid or minimise impact (five items).
- Manage indirect impacts (visual and contextual) only (nine items).
- Conduct archival recordings and/or archaeological excavations prior to impact (14 items).
- Conserve and manage as specified (five items).
- Manage cultural landscape values (one landscape item).

Recommendations

Indirect and accidental impact

1. It is recommended that measures be instigated to protect the following heritage items, or their remaining portions, from accidental impact during construction: G2B H13, G2B H14, G2B H15, G2B H16, G2B H17, G2B H25, G2B H28, G2B H29, G2B H45, G2B H47, G2B H49, G2B H51, G2B H54, G2B H56, G2B H59, G2B H62 and G2B H63. This may involve, but not be limited to, the erection of temporary fencing to define ‘no-go’ areas.
2. Where there would be impact to the visual and landscape context values of heritage places/items (this is classified as an indirect impact to the place or item), it is recommended that the design, construction and finishing of the project, in the vicinity of the place/item should be realised with the aim of minimising the visual impact to those values. Possible means to achieve this aim include: minimising the height of the road formation and associated fencing or noise barriers; and careful selection of appropriate road side plantings and landscaping. This strategy applies to: G2B H13, G2B H16, G2B H17, G2B H25, G2B H28, G2B H45, G2B H47, G2B H49, G2B H54, G2B H56 and G2B H62.

Nineteenth century road remnants

3. All heritage items comprising nineteenth century road remnants that would be directly impacted by construction, should be the subject of a co-ordinated archival recording program prior to any impact (G2B H19, G2B H22, G2B H23, G2B H30 and G2B H55). This program should include archaeological salvage excavation at selected and representative locations within sites G2B H19, G2B H23 G2B H30 and G2B H55, to record any ditch profiles, subsurface foundations or former surface treatments. The archival recording program should aim to present a researched and documented archival record of the road remnants and the transport systems they formed a part of. The degree and detail of recording required at each remnant will vary according to the nature and preservation of each item.

4. In order to compensate for the loss of a significant proportion of the remaining probable remnants of the former Berry Estate Road, it is recommended that the complex of road related remnants, G2B H26, G2B H27 and G2B H52, situated at 'Bink's Corner' Broughton Village, be permanently conserved, managed and interpreted as a site which illustrates the history of local road construction, function and economics. As part of this management strategy, a detailed recording of these items should be made with the aim of identifying the conservation and management requirements of the complex. Together with the completed project and the existing adjacent highway (known locally as 'the Big Dipper'), this grouping of highway platforms would present, within a limited area, 160 years of road and highway construction history, beginning with the original Berry Estate Road.

The optimal format(s), location(s) and strategies for the public interpretation of this complex of roads and road remnants should be defined in a Heritage Interpretation Plan (HIP) to be developed as part of the project (refer recommendation 37).

None of these heritage items would be subject to direct impact from the project. The recommended conservation management of these items is necessary to:

- a. Compensate for the loss of all remaining remnants of the Berry Estate Road within the project area, and
- b. Conserve the best of the remaining sections of the Berry Estate Road.

Twentieth century road remnants

5. A co-ordinated archival recording program should be conducted at heritage items, G2B H15 and G2B H21, prior to any impact. The scope of the recording at each item should be relative to the type and quality of information which can be recovered. This program may include excavation at selected locations, if and where necessary. These recordings should be incorporated into the archival recording report specified in recommendation three, with the aim of creating an integrated record of former highway construction and alignments for the local area.
6. Impact to G2B H15 (adjacent to *Mananga* homestead) should be limited to essential works. This remnant is an important element in the heritage context of the *Mananga* homestead. Direct impact to that portion of the road adjacent to the Mananga homestead should be minimised.
7. No further action is required at field recordings G2B H12, G2B H18 and G2B H24.

Potential archaeological deposits

8. In the event that construction related impacts would occur at the G2B H48 potential archaeological deposit (current location of *Greystanes Lodge*), it is recommended that an archaeological program of monitoring and/or salvage excavation, as appropriate, be conducted with the aim of recording and recovering any artefacts or other information which relates to the former Berry Estate tenant farm at this location.
9. In the event that demolition of the modern farmhouse (previously known as *Greystanes Lodge*), situated on site G2B H48 would be required, it is recommended that a program of archaeological monitoring by an archaeologist be conducted with the aim of recording and recovering any artefacts or information which relate to the former Berry Estate tenant farm.
10. The remnant tree plantings at G2B H48, which predate the modern farmhouse, should be conserved and protected from damage.

11. The potential archaeological site G2B H52, should be conserved and managed as part of the complex of road related sites outlined in recommendation 4.
12. Prior to the commencement of construction impact, a program of archival recording and archaeological salvage excavation, should be conducted at G2B H53, as appropriate, and as required by the nature and significance of the relics encountered.

Archaeological deposits

13. A program of salvage excavation should be conducted within the construction footprint at G2B H14, south of test pit C110. Where the vertical alignment of the existing highway carriageway within the G2B H14 area is to be lowered, the potential for impact to potential archaeological deposits below the current road platform should also be assessed, and salvage excavation conducted according to the determination of that assessment.

The aim of the salvage excavations would be to recover as much information as possible regarding the history of site use, including the sequence of occupation, property boundaries and activity areas/site functions.

Standing buildings and structures

14. The concrete Broughton Creek bridge (G2B H29), should be conserved, protected from construction impact, and continue to function as a road bridge for the highway when it is converted to a service road following the opening of the project.
15. Subject to the findings of a Heritage Interpretation Plan (refer recommendation no.37), it is recommended that interpretive signage and visitor access, off the existing highway (when it becomes a service road) be installed at heritage item G2B H29. Together with this 1930s bridge and the new bridge proposed as part of the project, the interpretation of this site could include the original early nineteenth century ford crossing at this location, and the sequence of wooden bridges on the original Broughton Village road alignment 620 metres upstream.
16. Where and as feasible, direct development impact to the *Brookside* homestead (G2B H28) should be minimised. The standing structures with heritage value should be protected from construction impact as much as possible and continue to be used as a farmhouse complex or adaptively reused in such a way that heritage values can be maintained.
17. The natural character of Broughton Creek and its banks in the vicinity of the bridge immediately south of the *Brookside* homestead (G2B H28) should be maintained and enhanced as much as feasible. The aim of this strategy is to ameliorate impact to the landscape context by maintaining and reinforcing the visual quality of the creek corridor. This can be achieved by maintaining and augmenting native bank side vegetation, and maximising the distance between the banks and bridge abutments.
18. Prior to impact, an archival recording should be conducted at the *Brookside* homestead (G2B H28), inclusive of those features subject to direct impact, and the homestead building which incorporates structures previously moved from site G2B H59.
19. An archival recording should be conducted of *GlenDevan* (G2B H11) and its grounds prior to any development impact. This record should include documentation of construction methods and materials exposed during any demolition works. Ground disturbance in the area of G2B H11 should be monitored by an archaeologist with the aim of recording any features relevant to the archival recording, and recovering any significant relics.

20. The RMS should remain open to the possibility of a third party proposing to conserve all or part of the G2B H11 structure by moving it to a new location within or near Berry, at that party's expense. In the event of simple demolition, suitable materials (such as bricks and stone masonry) should be recovered and reused (with commemorative identification) in appropriate local infrastructure such as interpretive or entrance features, way-side stop facilities, landscaping or artwork.
21. Direct impact to the existing *Graham Park* (G2B H51) entrance structures (gates, pillars and sculpture of a bull) should be avoided. During construction, temporary fencing should be erected around the feature to identify a 'no-go' area.
22. It is recommended that the design of any access roadworks in the vicinity of the *Graham Park* entrance (G2B H51), should not exclude the capacity for visitors to pull over and safely inspect the entrance feature. If necessary, allowance should be made in the design for the potential future installation of interpretive signage.
23. No further action is required at sites G2B H10 and G2B H58.

Miscellaneous site types

24. Where feasible, direct impact to the remnant dry stone wall G2B H54 should be avoided, and the wall actively conserved and managed. In the event that direct impact to all or part of this site is anticipated then an archival recording of the wall should be conducted prior to any construction impact occurring. Any rock material displaced from the wall as a result of construction works should be retained for use in the repair and conservation management of the original wall.
25. An archival record should be compiled of the quarried rock outcrop, G2B H61, prior to impact.
26. The most northern Poplar tree in the tree avenue G2B H62, should be conserved in situ and would be situated within 10 metres of a proposed water quality pond. Temporary protective fencing should be erected around the root zone of the tree during the period of construction to define a no-go area. Any post-construction planting of the bypass easement in the area of Woodhill Mountain Road should aim to reinforce and replicate the existing landscape character created by the existing planted avenues of poplar trees.
27. Where feasible, the existing front yard plantings at G2B H17 (Hillview homestead) which would fall within the bypass easement (and particularly the Oak tree) should be retained. This may require a minor deviation of the proposed service road.
28. Construction impact to Mark Radium Park (G2B H63) should be minimised wherever feasible.
29. Direct impact to the Shed on skids, G2B H60, should be avoided. It is recommended that the structure be donated and relocated to an appropriate museum, where and if the capability to conserve and store the structure can be demonstrated.

The Southern Illawarra Coastal Plain and Hinterland (SICPH CL)

30. Where feasible, the construction and finishing of the project corridor, embankments and cutting faces should be conducted in such a way to minimise and ameliorate adverse visual impacts, and facilitate the re-establishment of vegetation.
31. The establishment of appropriate forms of vegetation along the project corridor and adjacent areas should be an important strategy in mitigating the broad scale landscape and visual impacts of the project corridor. This should be conducted with an awareness of maintaining important vistas from the project corridor, and the use of vegetation boundaries and alignments that conform to the rectangular patchwork of the surrounding landscape and serve to breakup or scatter the dominant curvilinear of the project corridor.

32. Where there is an opportunity to incorporate artistic elements in structures adjacent to the carriageway, (such as bridgework and retaining and noise abatement walls), it is recommended that designs derived from local cultural heritage themes be considered, especially at locations in close association to places of significance.
33. The design, construction and finishing of the project in the general vicinity of the Berry township should be realised with the dual aims of:
 - a) Minimising and mitigating the visual obstruction caused by the project to views of the surrounding pastoral landscape and the Illawarra Range from the streetscape of the town. The construction of a landscaped noise barrier on the southern and eastern side of the bypass adjacent to Berry should form one strategy to realise this aim (refer details in Appendix I of the Environmental Assessment).
 - b) Being sympathetic to the heritage values and character of the town and its streetscapes. The use of heritage related design elements and materials should be considered in the design of the town interchanges and adjacent noise barriers.

Ancillary facilities

34. The positioning of ancillary facilities and the conduct of ancillary functions should avoid direct impact to the following features: G2B H54 (dry stone wall on Toolijooa Ridge); significant fabric within G2B H49 (*Oakleigh* farmhouse); the mature tree plantings and potential archaeological deposits at G2B H48 (current location of *Greystanes Lodge*); and the skid mounted work-site shed at *Greystanes Lodge*, G2B H60.

General

35. All heritage items that would remain in whole, or in part, within the project corridor following the end of project construction, should be entered on the Section 170 Heritage and Conservation Register(s) compiled by RMS, and any conservation or management requirements determined and adopted.
36. In the event that unexpected cultural heritage finds are encountered during project construction then the Unexpected Finds Procedure or an RMS approved revised version, should be adopted and followed. The procedure should be included within a Construction Environmental Management Plan or equivalent document.
37. The cultural values of the project area should be promoted, interpreted and presented to current and future public audiences using formats, locations and strategies developed by, and defined in a Heritage Interpretation Plan (HIP). The HIP should be drafted with the involvement of relevant stakeholders, landowners and local Councils. Options to be considered should include interpretive signage, onsite public access and/or viewing points, educational materials, and supporting local museum displays. In particular, the HIP should address how best to provide for the public interpretation of the former Berry Estate road (and the surviving remnant G2B H27), and the Broughton Creek bridge (G2B H29).

Contents

Executive summary	i
1 Introduction	1
1.1 Background.....	1
1.2 Project description	1
1.3 Previous related heritage assessments.....	5
1.4 Legislative approval and requirements	6
1.5 Report outline	6
2 Study methodology	7
2.1 Literature and database review	7
2.2 Consultation with statutory authorities.....	8
2.3 Archaeological survey.....	8
2.4 Recording codes and heritage item definition	8
2.5 Archaeological test excavation	9
2.6 Project personnel.....	11
2.7 Recording parameters	11
3 Environmental context	13
3.1 Broad scale context	13
3.2 Small scale context.....	14
4 Historical context	15
4.1 Historical overview.....	15
4.2 Cultural heritage studies and inventory of listed heritage items	52
4.3 Predictive historical archaeology statement	58
5 Field inspection results	59
5.1 Summary of field recordings.....	59
5.2 Summary table of field recording descriptions	60
5.3 Cultural landscape values	67
6 Test excavation program at G2B H14	80
6.1 Requirement for test excavation.....	80
6.2 Site description - G2B H14	80
6.3 Excavation results.....	85
6.4 Summary	94
7 Significance assessment	95
7.1 Assessment criteria	95
7.2 Summary of individual assessments	96
7.3 The significance of the town of Berry as a component of the Southern Illawarra Coastal Plain and Hinterland Cultural Landscape	103
8 Statutory and policy context	104
8.1 Overview of key legislation	104
8.2 Implications for the project.....	107
9 Impact assessment.....	108
9.1 Representative and worst case impact.....	108
9.2 Potential development impact categories.....	109
9.3 Summary of impact and items subject to impact.....	109
9.4 Impact to cultural landscape values and the Berry township	113
9.5 Avoidance and mitigation of impacts to cultural landscape values	117

9.6	Management of recovered artefacts	118
9.7	Summary of impacts and proposed management actions	118
9.8	Potential impact within ancillary areas.....	126
10	Recommendations	127
10.1	Indirect and accidental impact	127
10.2	Nineteenth century road remnants	127
10.3	Twentieth century road remnants	128
10.4	Potential archaeological deposits	128
10.5	Archaeological deposits.....	128
10.6	Standing buildings and structures	129
10.7	Miscellaneous site types	130
10.8	The Southern Illawarra Coastal Plain and Hinterland (SICPH CL)	130
10.9	Ancillary facilities	131
10.10	General	131
11	References	132

List of tables

Table 1.1:	DGRs for non-Aboriginal heritage
Table 4.1:	Listed heritage items by type and individual heritage schedule, located within or near (within 200 m) the project
Table 4.2:	Heritage items in or near (within 200 metres) the project identified in the Shoalhaven City Council Heritage Study 1995-1998
Table 5.1:	Summary of non-Aboriginal field recordings within or near (within 200m) the project
Table 6.1:	Summary of contexts excavated across the G2B H14 test pits
Table 6.2:	Frequency and weights of material types from the G2B H14 assemblage
Table 7.1:	Guide to ascribing relative heritage value to constituent elements of a heritage item or grouping
Table 7.2:	Summary of Non-Aboriginal significance assessments
Table 9.1:	Summary of heritage items according to construction impact categories
Table 9.2:	Interrelation of impact categories used in this analysis and the RMS simplified classification scheme
Table 9.3:	Itemised summary of construction impacts to heritage items
Table 9.4:	Summary of project impact categories and proposed Impact mitigation and management actions for heritage items
Table 9.5:	Summary of measures to mitigate construction impacts
Table 9.6:	Summary of proposed project impacts, mitigation and consequential significance for all heritage items

List of figures

- Figure 1.1: Concept design and key features of the project
- Figure 2.1: Layout of excavation grid at G2B H14
- Figure 2.2: Sieve station at G2B H14
- Figure 4.1: Extract from Robert Dixon's 1837 map of the Colony of NSW showing early land grants and the approximate location of the project
- Figure 4.2: Extract from Baker's Australian County Atlas (County of Camden) 1843 - 1846 showing early land grants and the approximate location of the project
- Figure 4.3: Alexander Berry (1781–1873)
- Figure 4.4: Extract from map of County of Camden, NSW, 1866, showing land tenure and the approximate location of the project
- Figure 4.5: Extract from map of County of Camden, NSW, 1895, showing land tenure and the approximate location of the project
- Figure 4.6: Photograph of the tannery, Berry, c.1875
- Figure 4.7: Photograph of James Wilson's store, Pulman Street, Berry, c.1875
- Figure 4.8: Broughton Creek Village along the ridge at Pullman Street in the 1870s
- Figure 4.9: Photograph of the SS Coomonderry at the (second) Berry wharf, 1896
- Figure 4.10: Early map of Broughton Creek Village area, probably 1870s
- Figure 4.11: Sketch plan of Broughton Township 1883
- Figure 4.12: Map of present day Berry showing locations of historic sites, including Pulman Street, the tannery and the two wharf sites
- Figure 4.13: Extract from Baker's Australian County Atlas (County of Camden) 1843 – 1846, showing Village Reserve (V.R.) in the area of the future Broughton Village (boundary shown in blue), situated on the edge of the Berry and Richardson land grants
- Figure 4.14: Extract from the Fourth edition (1893) of the Parish map for Broughton, County of Camden, showing the area of small land portions adjacent to the Berry land holdings which constituted the Broughton Village
- Figure 4.15: 1855 Plan of Subdivision Allotments in the Village Reserve at Village of Broughton Creek
- Figure 4.16: Extract from an 1866 map of the County of Camden, showing the location of roads between Kiama, Gerringong, Broughton Creek (Berry) and Bomaderry, highlighted in blue. Note the alignment of the Berry Estate Road between Gerringong and Bomaderry which comprises many straight sections with minimal bends and deviations
- Figure 4.17: Enlarged detail from extract of 1866 map of the County of Camden, showing the location of tracks (black dotted lines) and roads (continuous black lines) in the vicinity of the project. Note the location of the original Berry Estate road (blue overlay) which approximated the alignment of the current Princes Highway and the FBB
- Figure 4.18: "A Sketch of the Broughton Creek Road"
- Figure 4.19: Extract of an 1895 map of the County of Camden, showing the road between Gerringong and Bomaderry. Note how the development of the road by local councils, and following the break-up of the Berry Estates has introduced numerous bends and irregularities from Berry's original alignment

- Figure 4.20: Enlarged detail from extract of 1895 map of the County of Camden, showing the location of the roads between Kiama, Gerringong and Broughton Village, the vicinity of the project
- Figure 4.21: Extract from an early 1890s map of 'Part of the Berry Estates, Parishes of Broughton and Coolangatta, County of Camden'
- Figure 4.22: Extract from 1892 plan of 'Roads in the Berry Estates' showing interrelation of original 1856 Berry Estate road (blue dotted line overlay), and the later 1870s onwards highway alignment, between Binks Corner (Upper right) and Tindalls Lane intersection (lower left)
- Figure 4.23: Extract from County and Parish maps showing the change in the orientation of the main south road through Broughton Creek (Berry), from a southwest to an east-west alignment occasioned by the establishment of a street grid in the 1880s
- Figure 4.24: 1937 Photo, looking south, across the Broughton Village bypass, showing the original road alignment on the right (middle portion of photo), and new alignment and Broughton Creek bridge on the left (middle portion of photo)
- Figure 4.25: Extract from the sixth edition of the 6th Ed Broughton parish map, showing the new 1936 highway alignment which bypassed most of Broughton Village and required the construction of a new bridge
- Figure 4.26: View looking south across a straightened alignment of the Princes Highway, south of Broughton Village, completed in 1936. This road section is known locally as the 'Big Dipper'
- Figure 4.27: 'Binks Corner - old abandoned roadway 1937'. The section of former highway was bypassed by the new alignment pictured above in 1936
- Figure 4.28: Extract from the parish map of Broughton (7th Edition) showing the deviation cutting off 'Bink's corner'
- Figure 4.29: Road construction ca. 1918, stated to be in the area of the 'Big Dipper'. Note the apparent depiction of pneumatic drills by the two figures on the left embankment
- Figure 4.30: Road construction at the 'Big Dipper'. This view has been taken of the same cutting, slightly higher and upslope of the picture above
- Figure 5.1: General location of non-Aboriginal field recordings
- Figure 5.2: Distant view of Berry (indicated by blue arrows) and its landscape context, looking southwest from Tulloch Road
- Figure 5.3: A collection of views demonstrating some of the cultural and aesthetic cultural landscape values of the Southern Illawarra Coastal Plain and Hinterland cultural landscape
- Figure 5.4: A collection of views demonstrating some of the cultural and aesthetic cultural landscape values of the Southern Illawarra Coastal Plain and Hinterland cultural landscape
- Figure 5.5: A collection of views demonstrating some of the cultural and aesthetic cultural landscape values of the Southern Illawarra Coastal Plain and Hinterland cultural landscape
- Figure 5.6: Previously defined landscape conservation areas which include the project: Three levels of the National Trust Berry Township Urban Conservation Area (BTUCA) are defined
- Figure 5.7: Detail of the Sub-division boundary and fringing Buffer Zone for the National Trust defined Berry Township Urban Conservation Area
- Figure 5.8: Comparison of 1949 and 2006 aerial images of Berry township, showing the progressive evolution of three main built environment precincts

Figure 5.9:	Distant view of the northern edge of Berry, looking east from Ben Dooley Rd, Berry Mountain
Figure 5.10:	Key vistas to and from the Berry township which relate to the heritage and aesthetic values of the town and its interrelation with the surrounding pastoral landscape
Figure 5.11:	Panoramic view, looking west to northeast, from just east of the intersection of Alexandra St and North Street, Berry, showing the pastoral landscape which extends from the North Street easement, and the distant views of the Southern Illawarra Range
Figure 5.12:	Views along North Street, Berry, showing the distinct boundary between the urban and pastoral landscape, and the pastoral context and character afforded to this edge of the town
Figure 5.13:	Views from the town of Berry which would be impacted by the project, looking north along the north-south aligned town-grid streets
Figure 6.1:	Approximate and indicative location of structures that may have once occupied the area at G2B H14
Figure 6.2:	Archaeological hand excavation at test pit D/E100 in front of the Berry entrance sign
Figure 6.3:	Archaeological recording of features within test pit D/E100 in front of the Berry entrance sign at the northern end of G2B H14, looking south
Figure 6.4:	1944 aerial photograph showing the relative locations of the old Princes Highway, <i>Mananga</i> homestead and a building at G2B H14
Figure 6.5:	1958 aerial photograph showing the changes in highway alignment
Figure 6.6:	Overlay of current and former highway alignments in the area of G2B H14 and an approximation of the probable former building frontage
Figure 6.7:	G2B H14 site plan
Figure 6.8:	Scuffed green glass bottle bases (2058 and 2013)
Figure 6.9:	Corroded iron structural items: bolt (4013), washer (4015), and suspected wire nails (4004)
Figure 6.10:	Stoneware pipe fragment (1003).
Figure 6.11:	Stoneware crown finish fragments from a ginger beer bottle (1007)
Figure 6.12:	Shell pendant (3018)
Figure 6.13:	Dark green heat affected glass (2008)
Figure 9.1:	Location of proposed project relative to the SICPH CL
Figure 9.2:	Location of proposed project relative to the Buffer Zone and Subdivision Boundary of the National Trust defined Berry Township Urban Conservation Area

Appendices

Appendix A	General location mapping of cultural heritage recordings within the Foxground and Berry bypass project
Appendix A.1	All site recordings relative to the bypass project
Appendix A.2	Site recordings relative to indicative ancillary areas
Appendix B	Heritage listings
Appendix C	Test excavation procedure
Appendix D	Detailed description of site recordings
Appendix E	Test pit excavation descriptions
Appendix F	Artefact inventory from G2B H14 test pit excavations
Appendix G	Detailed significance assessment
Appendix H	Unexpected finds procedure
Appendix I	Statement of heritage impact

1 Introduction

1.1 Background

The Roads and Maritime Services (RMS) is seeking approval under Part 3A of the *Environmental Planning and Assessment Act 1979* to upgrade 11.6 kilometres of the Princes Highway between Toolijooa Road north of Foxground and Schofields Lane south of Berry, in New South Wales (NSW) (the project), to achieve a four lane divided highway (two lanes in each direction) with median separation. The project includes bypasses of Foxground and Berry.

The project is one of a series of upgrades to sections of the Princes Highway which aims to provide a four lane divided highway between Waterfall and Jervis Bay Road, Falls Creek. This would improve road safety and traffic efficiency, including for freight, on the NSW south coast.

This technical paper was commissioned by AECOM and presents an assessment of the potential environmental impacts on non-Aboriginal cultural heritage (historic heritage). It supplements the environmental assessment for the project as required under Part 3A of the *Environmental Planning and Assessment Act 1979*.

1.2 Project description

The project is located west of Gerringong, between the junction of the Princes Highway and Toolijooa Road, and the junction of the Princes Highway and Schofields Lane. The project traverses Toolijooa Ridge, Foxground, crosses Broughton Creek in three locations and bypasses the town of Berry. The project lies partly within the Kiama local government area (LGA) and partly within the Shoalhaven LGA.

The project comprises the following key features:

- Construction of a four lane divided highway (two lanes in each direction) with median separation (wire rope barriers or concrete barriers where space is constrained, such as at bridge locations).
- Bypasses of the Foxground bends and the Berry township.
- Construction of around 6.6 kilometres of new highway where the project deviates from the existing highway alignment at Toolijooa Ridge, the Foxground bends and the Berry township.
- Provision for the possible widening of the highway (if required in the future) to six lanes within the road corridor and, in some areas, construction of the road formation to accommodate future additional lanes where safety considerations, traffic disruption and sub-optimal construction practices are to be avoided.
- Grade-separated interchanges at:
 - Toolijooa Road.
 - Austral Park Road.
 - Tindalls Lane.
 - East of Berry at the existing Princes Highway, referred to as the northern interchange for Berry.
 - West of Berry at Kangaroo Valley Road, referred to as the southern interchange for Berry.
- A major cutting at Toolijooa Ridge (around 900 metres long and up to 26 metres deep).

- Six lanes (two lanes plus a climbing lane in each direction) through the cutting at Toolijooa Ridge for a distance of 1.5 kilometres.
- Four new highway bridges:
 - Broughton Creek bridge 1, a four span concrete structure around 170 metres in length and nine metres in height.
 - Broughton Creek bridge 2, a three span concrete structure around 75 metres in length and eight metres in height.
 - Broughton Creek bridge 3, a six span concrete structure around 190 metres long and 13 metres in height.
 - A bridge at Berry, an 18 span concrete structure around 600 metres long and up to 12 metres in height.
- Three highway overbridges:
 - Austral Park Road interchange, providing southbound access to the highway.
 - Tindalls Lane interchange, providing southbound access to and from the highway.
 - Southern interchange for Berry, providing connectivity over the highway for Kangaroo Valley Road along its existing alignment.
- Eight underpasses including roads, drainage structures and fauna underpasses:
 - Toolijooa Road interchange, linking Toolijooa Road to the existing highway and providing northbound access to the upgrade.
 - Property access and fauna underpass in the vicinity of Toolijooa Ridge at chainage 8400.
 - Dedicated fauna underpass in the vicinity of Toolijooa Ridge at chainage 8450.
 - Property access underpass between Toolijooa Ridge and Broughton Creek at chainage 9475.
 - Combined drainage and fauna underpass in the vicinity of Austral Park Road at chainage 12770.
 - Combined drainage and fauna underpass in the vicinity of Tindalls Lane at chainage 13320.
 - Dedicated fauna underpass in the vicinity of Tindalls Lane at chainage 13700.
 - Property access underpass between the Tindalls Lane interchange and the northern interchange for Berry in the vicinity of at chainage 15100.
- Modifications to local roads, including Toolijooa Road, Austral Park Road, Gembrook Road, Tindalls Lane, North Street, Queen Street, Kangaroo Valley Road, Hitchcocks Lane and Schofields Lane.
- Diversion of Town Creek into Bundewallah Creek upstream of its confluence with Connollys Creek and to the north of the project at Berry.
- Modification to about 47 existing property accesses.
- Provision of a bus stop at Toolijooa Road and retention of the existing bus stop at Tindalls Lane.
- Dedicated u-turn facilities at Mullers Lane, the existing highway at the Austral Park Road interchange, the extension to Austral Park Road and Rawlings Lane.
- Roundabouts at the southern interchange for Berry and the Woodhill Mountain Road junction with the exiting Princes Highway.
- Two culs-de-sac on North Street and the western end of Victoria Street in Berry.

- Tie-in with the existing highway about 75 metres north of Toolijooa Road and about 440 metres south of Schofields Lane.
- Left in/left out only provisions for direct property accesses to the upgraded highway.
- Dedicated public space with shared pedestrian/cycle facilities along the southern side of the upgraded highway from the playing fields on North Street to Kangaroo Valley Road.
- Ancillary operational facilities, including permanent detention basins, stormwater treatment facilities and a permanent ancillary facility site for general road maintenance.

Construction activities as part of the project would include the following:

- Site preparation and establishment works.
- Temporary construction facilities, including construction compounds, stockpile sites, creek crossings, sediment control basins and haulage roads.
- Temporary works, including relocation/protection of services, tie-ins, traffic facilities and side tracks.
- Earthworks and bridge construction.
- Pavement construction.
- Drainage construction.
- Street furniture installation.
- Site restoration.

The project and the key features of the project are shown in **Figure 1.1**.

During detailed design, refinements could be made to the design features and construction methods (refer to Chapter 4 of the environmental assessment).

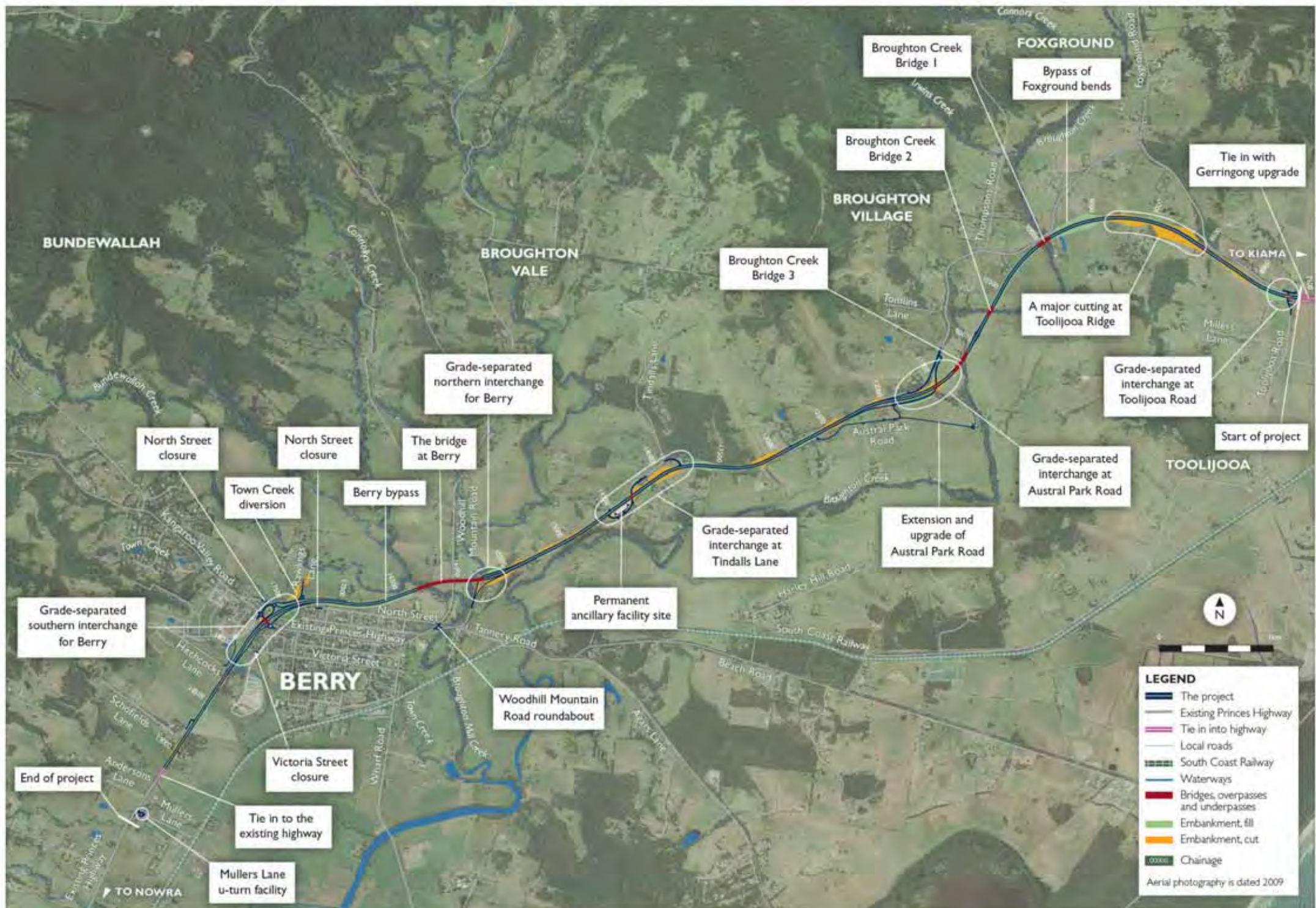


Figure 1.1: Concept design and key features of the project

1.3 Previous related heritage assessments

AECOM was engaged by RMS in December 2006 to carry out an Options and Route Selection Study, Concept Development and Environmental Assessment for the upgrade of the Princes Highway between Gerringong and Bomaderry on the South Coast of New South Wales. Following the Route Selection Study, the upgrade program was divided into three separate projects, of which the current project comprises the middle section of the original program.

The following non-Aboriginal cultural heritage assessments and studies were conducted as part of the Gerringong to Bomaderry assessment prior to the assessment outlined in this report:

- A preliminary Non-Aboriginal heritage assessment, conducted at the route options assessment stage. This study involved:
 - Literature and heritage database reviews.
 - Mapping of known sites.
 - Provision of a predictive model for Non-Aboriginal heritage sites (Navin Officer Heritage Consultants 2007b).
 - An oral history recording program (AECOM Australia 2009)
- A field survey and inspection of the project. The survey comprised:
 - Archaeological survey of surface features and structures.
 - Archaeological survey of the limited extent of ground surface exposures (most of which have occurred within the existing road reserve).
 - A predictive assessment of subsurface archaeological potential (Navin Officer Heritage Consultants 2011).

The concept design upon which the current assessment is based, was developed and refined with consistent reference to known and potential cultural heritage constraints. As a consequence, the design now avoids many items which would have been impacted in earlier versions. The following is a summary of these design revisions:

- The proposed location of the bridge over Broughton Mill Creek at Berry has been moved upstream to avoid direct impact to the Mananga homestead property (G2B H16), and to avoid close proximity and visual impact to buildings belonging to the Pulman Street Conservation Area, notably 'Constables Cottage' or "Wyndree" situated at the northern boundary of the conservation area.
- A proposed round about at the intersection of the (current) Princes Highway with Tannery Road has been replaced with a roundabout at the intersection with Woodhill Mountain Road. The Tannery Road option was situated within the Pulman Street conservation area and would have impacted upon the contextual landscape values of this area.
- The intersection of Schofields Lane and the upgraded highway has been revised to avoid impact to the entrance feature and remaining driveway at Graham Park, a former agricultural research institution with State significance (G2B H51).
- The proposed alignment of the Foxground bypass in the area of Broughton Village was moved to the east to avoid direct impact to the Sedgeford homestead (G2B H25), and a potential archaeological deposit at (former) 'Greystanes Lodge' (G2B H48), and to minimise impact to the outbuildings and property at Brookside (G2B H28).
- The concept design allows the retention of the current highway bridge over Broughton Creek (G2B H29) as part of a future service road. This bridge is listed on the RMS Section 170 Heritage and Conservation Register.

1.4 Legislative approval and requirements

The project is being assessed under the *Environmental Planning and Assessment Act 1979*. The Director-General's requirements (DGRs) for the project were issued on 11 February 2011 by the Department of Planning and Infrastructure and are addressed in the environmental assessment. The DGRs relevant to non-Aboriginal heritage are provided in **Table 1.1** and are addressed in this report.

Table 1.1: DGRs for non-Aboriginal heritage

Director-General's requirements
Aboriginal and historic heritage – including but not limited to:
An assessment of the impact of the project on historic heritage values, in particular impacts on the historic township of Berry.

1.5 Report outline

This report:

- Describes the environmental setting of the study area.
- Provides a background of local and regional archaeology and history for the study area.
- Describes previously recorded or registered heritage items within or near the project.
- Describes the results of the field survey.
- Provides heritage significance assessments and statements of significance for all heritage items.
- Identifies the potential and anticipated impact of the project on heritage items.
- Provides impact mitigation and management recommendations for all potentially affected heritage items.

2 Study methodology

2.1 Literature and database review

A range of archaeological and historical data relevant to the project was reviewed. This literature and data review was used to determine if known historical sites were located within the area under investigation, to facilitate site prediction on the basis of known regional and local site patterns, and to place the project within an archaeological and heritage management context. The review of documentary sources included heritage registers and schedules, local histories and archaeological reports.

Sources of historical information included regional and local histories, heritage studies and theses; parish maps; newspaper articles, local museum displays and websites, and where available, other historical maps, such as Crown survey plans.

Navin Officer Heritage Consultants (NOHC) greatly appreciate the assistance in local historical research provided by members of the Berry and District Historical Society Inc.

Searches were undertaken of the following statutory and non-statutory heritage registers and schedules (updated July 2012):

2.1.1 Statutory lists

World Heritage List

- The National Heritage List (Australian Heritage Council).
- The Commonwealth Heritage List (Australian Heritage Council).
- The State Heritage Register (NSW Heritage Branch, Office of Environment and Heritage).
- Section 170 Heritage and Conservation Register compiled by the Roads and Maritime Services.
- Section 170 Heritage and Conservation Register compiled by Rail Corp.
- Existing and draft Heritage Schedule(s) from the Shoalhaven and Kiama Local Environmental Plans.

2.1.2 Non-statutory lists

- Australian Heritage Database (Department of Sustainability, Environment, Water, Population and Communities).
- The State Heritage Inventory (NSW Heritage Branch, Office of Environment and Heritage).
- Australian National Shipwreck Database (Department of Sustainability, Environment, Water, Population and Communities).
- The Register of the National Estate (Australian Heritage Council).
- Register of the National Trust of Australia (NSW).
- Australian Institute of Architects, Heritage Buildings List.
- Royal Australian Institute of Architects Twentieth Century Register of Significant Buildings.
- Engineers Australia (Engineering Heritage Recognition Program).

2.2 Consultation with statutory authorities

Consultation with the Heritage Branch (OEH) undertaken to date includes:

- Formal notification of the project by RMS.
- A meeting with the Heritage branch of OEH on 2 August 2012 to present the project and discuss the assessment and its outcomes.

Additionally, information has been accessed from the State Heritage Inventory, State Heritage Register and Minutes of the State Heritage Register Committee.

Commensurate with the local level of significance of all the heritage items subject to potential impact from the project, the majority of consultation with government authorities has occurred with heritage staff of the Shoalhaven City and Kiama Municipal Councils. This has included the provision of heritage schedule and heritage inventory information, discussions regarding the status of unlisted items, and the provision of information updates on fieldwork and findings.

2.3 Archaeological survey

An archaeological field survey and inspection was conducted over a period of three months (February to April) in 2009 in multiple survey events according to property access availability and local weather conditions. This program was conducted as part of a wider survey extending between Bomaderry and Gerringong. Isolated and supplementary inspections, specific to the project, have also occurred in 2010 and 2011.

The survey involved inspection both on foot and via vehicle, depending on property access and ground visibility constraints. The intensity of the survey varied according to an appreciation of ground surface visibility, archaeological potential, historical research, and the interpretation of historical mapping and aerial photography.

The field assessment involved the inspection of standing structures, surface and above ground archaeological remains, and an assessment of the potential for subsurface archaeological material.

The area subject to archaeological survey and cultural heritage assessment consisted of the corridor of the preferred route for the project, defined as 200 metre either side of the alignment centreline (**Figure 1.1**).

General location mapping of all recordings is presented in Appendix A.

2.4 Recording codes and heritage item definition

All items recorded in the field (field recordings) have been given a recording code with the prefix G2B H (standing for Gerringong to Bomaderry – Historical), and a consecutive number based on all recordings made across the three Princes Highway upgrade projects between Gerringong and Bomaderry. As a consequence, the numbering sequence in any of the separate projects may be discontinuous. This system originates from the commencement of these projects as a single project.

For this assessment, a distinction has been made between *field recordings* and *heritage items*. A *field recording* refers to any recorded item or site, regardless of its assessed heritage significance. A *heritage item* refers to an item or site which is assessed to have heritage significance which satisfies or exceeds the threshold for significance within a local context (as defined in the NSW *Heritage Act 1977*, refer Section 7.1). Field recordings which were not found to be heritage items have not been considered further in impact identification and mitigation analysis.

The terms *site*, *item*, and *recording* when used in isolation, may refer to both heritage recordings and heritage items.

2.5 Archaeological test excavation

Five potential archaeological deposits were identified as a result of the archaeological survey (G2B H14, G2B H48, G2B H52, G2B H53 and G2B H59 (see Appendix A)). It was determined that only one of these locations required further archaeological investigation in order to draft appropriate management strategies relative to assessed significance. This site was G2B H14, the location of former buildings at the northern end of the Broughton Creek village (now Berry). Of the remaining four potential archaeological deposits, two would not be subject to direct impact and the others would not require further investigation in order to determine an appropriate management strategy.

Excavation of test pits at site G2B H14, Berry, was conducted by hand, and carried out over a period of two weeks during May and July 2011.

A detailed account of the excavation procedure and artefact treatment employed is at Appendix C.

A 120 metre x six metre section of the site was pegged out along the western margin of G2B H14. An alphanumeric grid of one metre x one metre squares was established across this area (aligned to a bearing of 16 degrees) with each grid square allocated a number between '1' and '120' from south to north, and 'A' to 'F' from west to east (**Figure 2.1** and **Figure 5.1**). Each of these one x one metre grid squares was further divided into 50 centimetre x 50 centimetre quadrats identified by roman numerals (northwest: I, northeast: II, southwest: III and southeast: IV).

The site was recorded using an automatic level in conjunction with a tape and compass survey and detailed photographic recording.

The test excavation was undertaken using shovels (including a lightweight pneumatic jack hammer fitted with a shovel-head), trowels and handpicks. Soil recovered from the excavation was 'dry-sieved' through metal sieves with four millimetre meshed apertures (**Figure 2.2**). The excavated area was backfilled with soil recovered from the excavations, and the whole area was re-covered with grass, soil and stones removed from the surface of the site before excavation.

Excavation proceeded in two primary ways:

- Careful excavation following stratigraphic contexts in order to determine the nature of fine scale relationships between artefacts, features and individual contexts.
- Sectioning through stratigraphic contexts in order to obtain an appreciation of broader site formation sequences.

Through these combined techniques, once the presence of layers such as modern introduced fill had been identified, removal of overburden was undertaken utilising tools such as a jack hammer. The archaeological deposits below were then excavated in finer detail by trowel and brush, in keeping with the nature of the questions being tackled in any given excavation area.



Figure 2.1: Layout of excavation grid at G2B H14 (Base image - Google Earth 2011)



Figure 2.2 Sieve station at G2B H14

2.6 Project personnel

The archaeological survey was conducted by archaeologists Kelvin Officer, Kerry Navin and Deirdre Lewis-Cook. Background and historical research was conducted by Lindsay Smith, Kelvin Officer and Caroline Plim.

The test excavation program was directed by Rebecca Parkes. Archaeologists Kelvin Officer, Sam Harper, Damian Tybussek, Emily Cobbald, Mirani Litster and Tom Knight undertook the excavation, with assistance from field assistants Jo Dibden, Glenda Hyde, Phil Price and Alexis Schlegel.

The report was written by Kelvin Officer and Rebecca Parkes.

2.7 Recording parameters

Historical archaeology refers to the 'post-contact' period (at and following the start of the written record) and includes: domestic, commercial and industrial sites as well as most maritime sites. It is the study of the past using physical evidence in conjunction with historical sources. The primary types of places or items that may form part of the historical archaeology context include:

1. Below ground evidence, including building foundations, occupation deposits, features and artefacts.
2. Above ground evidence, including buildings, works, industrial structures and relics that are intact or ruined.
3. Areas of land that display evidence of human activity or occupation.
4. Shipwrecks, deposits and structures associated with maritime activities.

Within these broad parameters, an historical archaeological site may include:

- Topographical features and evidence of past environments (ie resident in pollens and diatoms).
- Evidence of site formation, evolution, redundancy and abandonment (ie features and materials associated with land reclamation, sequences of structural development, demolition/deconstruction, and renewal).
- Evidence of function and activities according to historical theme(s) represented (eg an industrial site may contain diagnostic evidence of process, products and by-products).
- Evidence associated with domestic occupation including household items and consumables, ornaments, personal effects and toys.
- Evidence of diet including animal and fish bones, and plant residues.
- Evidence of pastimes and occupations including tools of trade and the often fragmentary signatures of these activities and processes.
- Methods of waste disposal and sanitation, including the waste itself which may contain discarded elements from all classes of artifact as well as indicators of diet and pathology.
- Any surviving physical evidence of the interplay between site environment and people.

The information found in historical archaeological sites is often part of a bigger picture which offers opportunities to compare and contrast results between sites. The most common comparisons are made at the local level, however, due to advances in research and the increasing sophistication and standardisation of methods of data collection, the capacity for wider reference (nationally and occasionally, internationally) exists and places added emphasis on identification and conservation of historical archaeological resources.

3 Environmental context

3.1 Broad scale context

The project consists of an 11.6 kilometre traverse across the valley floors and fringing spurs and slopes of the Southern Illawarra Coastal plain.

The coastal plain consists of the rolling hills, littoral zone and valley floor topography situated downslope and downstream of the basal ranges and spurs of the Cambewarra Range (a southern extension of the Illawarra Escarpment). The boundary between the foothills and the coastal plain is not distinct and an approximate cut-off would be the 100 metre to 140 metre contour (Above Height Datum (AHD)).

The basal slopes bordering the coastal plain have formed from the Berry Formation (siltstone, shale and sandstones), the Broughton Tuff (tuff and tuffaceous sandstone), and the Bombo Latite. The former two are metamorphic sedimentary formations, the latter a series of igneous lava flows. The Bombo Latite has formed the watershed ridges and higher ground that subdivide the various catchments and valley floors in the Kiama and Gerringong region. It dominates the higher relief of the eastern portion of the project, notably the crest and upper slopes of Toolijooa Ridge and the mid-range of the western slopes of the Broughton Creek valley adjacent to Broughton Village. The lower slopes of Toolijooa Ridge are comprised of the Kiama Tuff (trachytic tuff). Elsewhere across the western half of the project, basal slopes and watershed ridges have formed from the Berry formation.

The valley floor of the coastal plain presents a low relief topography of quaternary fluvial sedimentary deposits which typically includes a suite of depositional landforms such as colluvial fans, flood plain, terrace sequences, current and former streambeds (including palaeochannels), wetland basins and old delta deposits. Quaternary fluvial deposits are encountered on the floor of the Broughton and Broughton Mill Creek valleys.

The majority of the fluvial valley deposits were laid down some 20,000 to 30,000 years ago and the high terrace levels probably date to around 29,000 years ago (Walker 1962). There has been a marked increase in water runoff and the rate of sediment discharged from major Illawarra streamlines in the last 100 years (Wollongong City Council 1976). The increase in sedimentation is attributable to the great disruption of vegetative cover, and the consequent erosion caused by European clearing and agriculture. A consequence has been the deposition of sediment layers across the surface of the plain's basins and fans, causing pre-historic land surfaces to be buried and obscured. Another impact is increased rates of erosion and bank failure.

The town of Berry is situated at a point where the fluvial deposits of the Broughton Mill Creek valley (including Bundewallah Creek) interface with the former estuary embayment of the lower Shoalhaven. Upon entering the estuary, these streams would have dumped their sediments, and formed a small delta which extended progressively from north south into the embayment, prior to its infilling by about 4000 years ago (Wearne 1984:Fig 6.1, Woodroffe et al. 2000).

The sedimentary facies of the coastal margin are dominated by marine and aeolian sediments deposited as a result of prograding coastlines after high sea levels. These consist of estuarine deposits, as well as former sand barriers, dune and beach ridges. Around 8000 years ago, the sea was more than 10 metres below the present level, and reached its present level between 6000 to 6500 years ago. This is known as the post glacial marine transgression (Roy 1994, Thom and Roy 1985, Woodroffe et al. 2000).

Following stabilisation of the former, and the current sea level, sand barriers formed across drowned valley embayments, creating a series of estuarine environments along the eastern seaboard, which subsequently and variously filled with sediment (Roy 1994). The plains of the lower Shoalhaven River are a large scale example of this process. They demonstrate an evolution from a brackish water estuarine environment to freshwater alluvial plains. When the sea reached its present level, most of the plains were flooded to form a large coastal embayment. Following the incipient formation of a sand barrier (of which Comerong Island is an evolved remnant), a coastal lagoon and estuary, similar in extent to Lake Illawarra must have been formed. This lagoon received fluvial input from Broughton Creek to the north and the Shoalhaven River to the west. The gradual infilling of the estuary then proceeded, with a pattern characterised by sedimentation around the periphery and gradual infill in the centre of the flood basin. Most of the plains adjacent to Broughton Creek were infilled between 5000 and 4000 years ago. Infill of the estuary basin was largely complete by 3000 years ago (Woodroffe et al. 2000).

During the last 2000 to 3000 years, the Shoalhaven River appears to have been channelized within levee deposits for most of its course across the plain. Isolated flood basins have persisted to the north and south (Woodroffe et al. 2000).

3.2 Small scale context

The project traverses a series of ridge and spurline slopes, interspersed by valley floor flats and fringing toe slopes. The far eastern end consists of a traverse of the east facing slopes of the Toolijooa Ridge. This forms the watershed between the Crooked River and Broughton Creek catchments, and is the highest point of the project reaching approximately 100 metres AHD. The ridge is a locally dominant, bedrock based, topographic feature which bisects the coastal plain. It extends from Currys Mountain (about 320 metres AHD), two kilometres to the north of the project, to within one kilometre of Seven Mile Beach, four kilometres to the southeast.

West of Toolijooa Ridge, the project traverses obliquely across the basal slopes and floor of the Broughton Creek valley. Broughton Creek is a major drainage line and the largest catchment of the southern Illawarra coastal plain north of the Shoalhaven. The project crosses the creek three times. The localities of Broughton Village and Broughton are situated within this valley, along the historical corridor of the highway. Broughton Village remains a loose concentration of residential buildings and small lot farm holdings, which boasts a history with a higher population and former public and community buildings.

From Tindalls Lane, the project follows the crest of a low spurline which forms the watershed between Broughton Creek to the east, and Broughton Mill Creek to the west. The project traverse of this spurline descends from around 50 metres, to less than 10 metres AHD, at the crossing of Broughton Mill Creek.

The project then traverses the fluvial sedimentary deposits, flats and palaeochannels of the Broughton Mill Creek, and Bundewallah Creek (a tributary of the former), to the north of the Berry township, before crossing a low bedrock formed spurline at the western end of the town (Berry Mountain Road). From this point the project turns southwest, paralleling the current highway corridor and traversing a series of unnamed minor tributary drainage lines and low interfluvial spurs, which drain 800 metres downslope (southeast) to a former wetland basin which form part of the lower flood plain of Broughton Creek.

4 Historical context

4.1 Historical overview

4.1.1 Municipalities

The project study area lies within the administrative boundaries of the Kiama and Shoalhaven municipalities.

The Kiama jurisdiction was determined in the recent past on 11 June 1954. This area originated from the aggregation of smaller town and village-based municipalities, which in turn began as a result of European pastoral activities centred on a number of sizeable land grants in the region as early as the 1820s. By 1850, Alexander Berry had consolidated his estate, which extended close to the southern and western limits of Gerringong. Before the 1820s, except for a few intrepid cedar cutters, the district was mostly unknown to Europeans.

Local Government in the Shoalhaven began on 26th October 1868 with the incorporation of two new Municipal Councils north of the river, Broughton's Creek and Bomaderry and Numbaa on the south side. This achievement by local petitioners for the privilege of establishing their local Councils followed the abortive attempt of James Graham to set up the Municipal Council of Shoalhaven. This Council was proclaimed on 22nd September 1859, but Alexander Berry objected to his lands being included in the Municipality and applied to the Supreme Court for an injunction. Mayor James Graham appealed to the Privy Council, which delivered its findings, in favour of Berry in 1865. The Council became defunct.

Over the next few years the demand for Local Government by residents of the widely scattered settlements saw other Municipal areas declared. These smaller Councils amalgamated into one council, the Shoalhaven Shire Council in 1948. The Shire of Shoalhaven was proclaimed the City of Shoalhaven on 1st August 1979 (Robyn Florance n.d.).

4.1.2 Early exploration

In April 1770, Captain James Cook was the first European to sight the eastern shores of the region while sailing north towards Botany Bay. Cook named Pigeon House Mountain, Cape St George and noted the entrance of what seemed to be a bay (Jervis Bay), the inner north head of which he named Longnose Point, before passing Kiama's shore and on to further exploration.

Nothing more of the area was recorded until after the settlement of Sydney in 1788. On 27 July 1791, Captain Weatherhead of the *Matilda* discovered Jervis Bay, which he named Matilda Bay after his ship, but the name was not retained. Following his visit to the bay on 18 August 1791, Naval Lieutenant Bowen provided the name 'Port Jervis' in honour of Sir John Jervis. Whaling ships immediately began calling there for shelter and water.

The district was first crossed overland by Europeans when Clarke and the remaining surviving sailors of the *Sydney Cove*, which was wrecked in Bass Strait and again at Point Hicks in May 1797, passed through it in April of that year. Later in 1797, The *Cumberland* was wrecked south of Jervis Bay in 1879 and the survivors also made their way overland to Sydney.

In December 1797, George Bass, during his voyage of coastal exploration in a whaleboat with a crew of six seamen, landed in a sheltered bay, later named Kiama Harbour, and followed around the bight of Seven Mile Beach to discover the mouth of a river, which he named Shoals Haven. He spent three days examining the river, noting the fertile banks that he thought would not be subject to flooding (Bayley 1975:15-16, 1976:15).

Knowledge of the area was advanced when on 10 March 1805, Lieutenant Kent of HMS Buffalo returned to Sydney after examining the district overland 18 miles north from Jervis Bay with James Meehan, the assistant Surveyor-General. Information from that expedition confirmed that the area was originally covered with rainforest, brush cedar, soft and hardwoods and a variety of bushes, palms, vines and ferns.

Independent cedar getters were in the Shoalhaven from at least 1811. After grounding on the shoals, the Speedwell managed to bring the first recorded cargo of cedar from the Shoalhaven River to Sydney in December 1812. The timber industry then grew in scale, exploiting the patches of cedar on the rivers and creeks, but the main concentration was in the Long Brush, which stretched from Kiama to Jamberoo (Peter Freeman Pty Ltd 1998:11).

A cedar party comprising George Wood, Jones and Dawson was lost in early 1815 and a search located one body, said to be that of Wood, all having been killed by Aborigines. Following that episode, Governor Macquarie forbade the cedar cutters from visiting the district.

Exploration from landward began in February 1818 when Dr Charles Throsby and James Meehan set out from Sydney to find an overland route to Jervis Bay. The party reached Kangaroo Valley, crossed the Shoalhaven and reached Jervis Bay but found the route to be impractical. To find a better route in 1819, two surveyors, John Oxley and James Meehan, explored Jervis Bay, Currumbene Creek and the site of Nowra. From there Meehan went due north; however, that inland section did not offer a feasible route for wheeled vehicles.

The need for a better route from the Southern Highlands was met, to an extent, in 1821 by a new route pioneered by Hamilton Hume and Charles Throsby through Tallaganda Shire, which Hume reported could be made along a line of where he marked the trees. However, the route was not developed until the 1840s when The Wool Road from Braidwood via Nerriga, Sassafras and Wandandian was created.

No sooner had Hume returned from that expedition when, in January 1822, he left Sydney in the Snapper with Lieutenant Johnston and Alexander Berry to explore the coastal rivers, sailing up the Clyde and trudging inland to the Pigeon House. Although it was a government sponsored voyage it appears that Berry's purpose was to seek out land on which he could make a settlement after an adventurous life of roving in his early days (Bayley 1975:20).

4.1.3 Nineteenth-century estates in the Foxground and Berry bypass study area

The Berry Estate

After a brief stay in Sydney in 1808 during his early career as an international merchant, Alexander Berry returned to London in 1812 by way of Cadiz. In Cadiz Berry met Edward Wollstonecraft, who subsequently became Berry's London agent, and later his partner when they decided to start a business in Sydney. Berry returned to Sydney in July 1819, and Wollstonecraft arrived in September. While Wollstonecraft supervised their George Street business, Berry visited England in March 1820, carrying Governor Macquarie's dispatches, one of which described him as 'an eminent merchant of this place'. In 1827, Berry married Wollstonecraft's sister Elizabeth.

Like other merchants Berry and Wollstonecraft often had to accept stock in payment of debts, and Berry sought a grant of land on which to accommodate the stock. Macquarie refused, as Berry was about to leave for England, but promised him a grant when he took up permanent residence. While he was away Wollstonecraft obtained a grant and located part of it on the North Shore where he built a cottage, 'Crow's Nest'.

On Berry's return he sought a site for the grants made to him and Wollstonecraft, travelling widely even in unsettled districts because 'Everybody was flocking to the Hunter River, Bathurst, and other places and all were elbowing one another. But we neither wished to elbow any one nor to be elbowed'. Berry first visited the Shoalhaven in January 1822, taking the cutter *Snapper* into Crook Haven (formerly Shoals Haven) from which he proceeded overland to examine the country on either side of the river. The rich alluvial soils and natural grassy 'meadows' led him to choose the Shoalhaven as the site for an estate and he returned in June 1822 to occupy it.

In February 1822, Berry and Wollstonecraft had jointly applied for a grant of 10,000 acres under the regulation introduced by the Governor that those accepting grants should maintain, free of expense to the crown, one convict for each 100 acres of the grant. This grant was approved by Governor Brisbane, though the deed was not issued until 1830. It was located on the southern side of the river between the Shoalhaven and Crookhaven Rivers, but Berry established his headquarters at the foot of Mount Coolangatta on the northern side of the river.

The grant to 'Messrs Berry and Wollstonecraft', "Coolloomagatta", was between Broughton Creek and the government reserve along the beach to Black Head and Crooked River, to which was added a 2,000 acre grant on the south side at "Numbaa".

In July 1822, Berry decided that his station would be built at the southeastern foot of Mount Coolangatta. He called it "Cullengatty Farm". A store and huts were erected on the lower slope of Mount Coolangatta and the flat at Numba was prepared for cultivation, becoming the first farm on the Shoalhaven. His residence was begun in 1823 and completed in 1824, by which time he had 120 acres under wheat, 40 under maize, three acres under barley and three as a garden with an orchard planted at Numba, where 250 acres were already cleared. He had 600 cattle, 14 horses and 235 pigs on his estate. A barn was completed in 1830 at Upper Numba or Jindiandy where it may still be seen.

The development of the estate to 1827 is shown on a pencil map, probably drawn by Berry himself. It shows the country north of and including the Shoalhaven River to the head of Broughton Creek. It marks Pig Island, Broughton Creek, 'Bombadara' Creek and shows the western side of Broughton Creek as a 'Large Swamp'. It shows 'Muroo Hut', New Stock Yard' west of and beside the swamp, 'Bangley Creek' with 'Bangley' as its source, 'Good Dog' and a high peak 'Broughton's Rump'. **Figure 4.1** shows a map of Berry's holdings in 1837.

Berry secured additional grants of two lots each of 4000 acres north of the first grant and one lot of 4000 acres west of Broughton Creek. West of the latter, John Berry (one of Alexander's younger brothers) later secured 3225 acres at Bunberra north of Pig Island and several grants surrounding it. On his death in 1848, John Berry's grants passed to Alexander.

Other grants in the area were:

- 1920 acres at Tooliia (Toolijooa) called "Richardson's Farm" promised to J. G. Richardson 23 March 1830 (granted to A. Berry 11 February 1837).
- 1000 acres called "Hyndeston" near Gerringong promised to Thomas Hyndes 24 July 1824 (granted to A. Berry 18 Oct 1839).
- 4000 acres called "Broughton Head Farm" promised to Aspinall and Brown 27 May 1829 (granted to A. Berry 29 May 1838).
- 1280 acres called "Cumbewarra Farm", promised to Charles Staples 27 January 1830 (granted to A. Berry 20 May 1837).
- 1280 acres called "Meroo Farm" promised to Richard Mutton 22 June 1829 (granted to A. Berry 28 November 1837).

By 1840, all had passed to Alexander Berry in whose name the grants were issued. In 1842, Berry also secured 2560 acres called “Burke’s Farm” promised to John Burke (granted to A, Berry 15 February 1842) along Seven Mile Beach (Bayley 1975:24-26, Organ and Doyle 1994).

By the early 1840s, purchases of land from the crown and private individuals increased the size of the estate to about 32,000 acres, and to more than 40,000 acres by 1863. **Figure 4.2** shows a map of Berry’s holdings around 1844.

The total holdings of the Berry Estate, from grants and purchases, north and south of the Shoalhaven River, amounted to 57,000 acres. This included 14,480 acres from nine grants to others which were “bought out”, by Mr Berry. Some or all of these may have already been occupied by their original grantees (Organ and Doyle 1994).



Figure 4.1: Extract from Robert Dixon’s 1837 map of the Colony of NSW showing early land grants and the approximate location of the project – solid blue line (State Library of NSW).

The estate was a cause for considerable criticism of Berry he was publicly accused of negligence in his care of convict servants and of ill-treating them; it was said that a government tax on cedar cut on crown land was engineered to give Berry and Wollstonecraft a virtual monopoly, and that a tax on imported tobacco was introduced for their benefit. By 1846, Berry wrote that he had lost interest in the estate and 'would gladly part with it upon any terms'; this feeling grew as labour became scarcer after the abolition of transportation and the discovery of gold. In the 1850s, Berry began to let farms on clearing leases, and with this occupation by tenant farmers the real development of the Shoalhaven district commenced.

After his wife's death in 1845, Alexander Berry (**Figure 4.1**) became a recluse in his Crow's Nest House. After his brother David took charge of the Shoalhaven estate in 1836 he appears to have rarely visited it. He died at 'Crow's Nest' on 17 September 1873.

Berry had no children and his property passed to his brother David (Perry 1965:92-95).

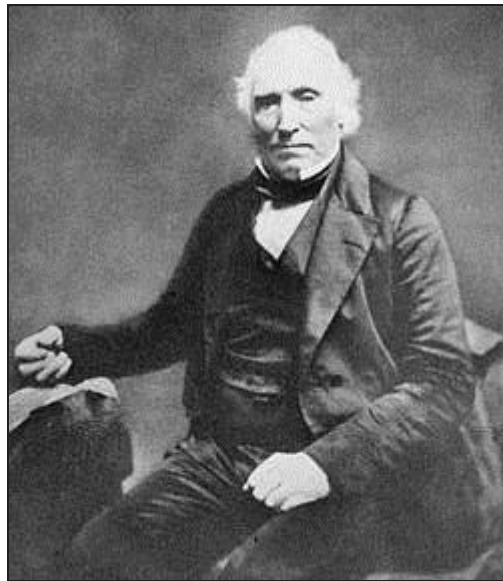


Figure 4.3: Alexander Berry (1781–1873) (Source: State Library of NSW).

David Berry, with his brothers John and William and his sisters Janet and Agnes, put into effect a long-held idea to join their eldest brother Alexander in NSW. They arrived at Sydney in July 1836 went at once to Coolangatta, the Shoalhaven property which, at Wollstonecraft's death in 1832, had passed entirely to Alexander.

Until John Berry died in 1848 he and David jointly managed the property. The greater part of the land was undeveloped and most of the work force was convict. The number of their assigned servants appears to have increased from an original 100 to some 300 in the 1840s. The main source of income was the breeding of cattle and horses, which were scientifically improved by imported blood. After John's death David began leasing some of the land. By 1850, he had 36 tenants, who paid 20 shillings an acre for cleared ground and were allowed five years without rent in order to clear timbered land. When convict labour ceased, David Berry decided to trial Chinese labourers and of German families hired in Hamburg. The Chinese did well as dairymen and house servants but in general Berry considered their usefulness was limited. Leasing was continued and by 1863 he had almost 300 tenants, who occupied some 8650 acres (3500 ha) or about a sixth of Coolangatta and paid an aggregate rent of about £6,000.

Figure 4.4 presents an extract from a map of the County of Camden, NSW, 1866, showing land tenure around that time.

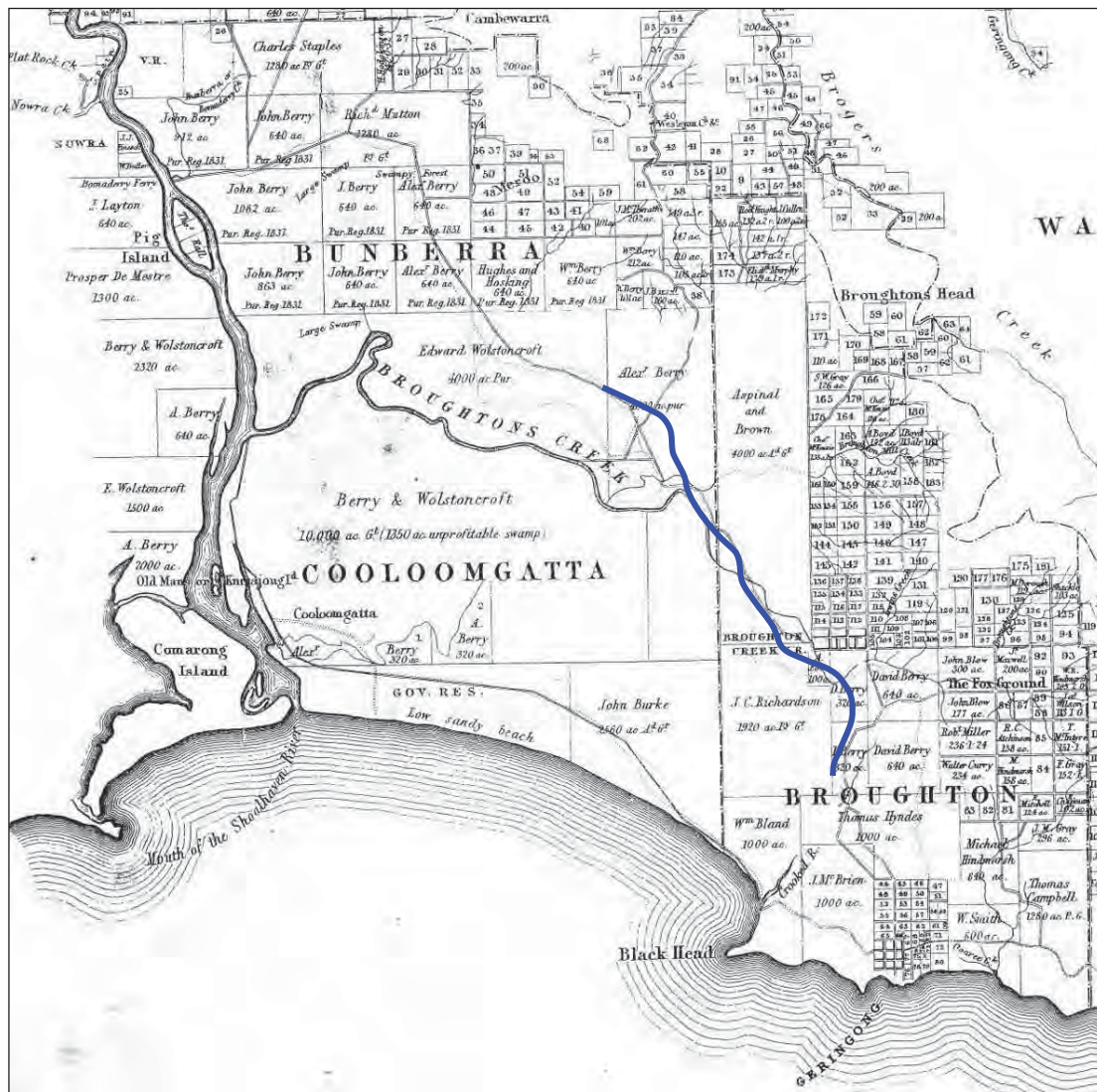


Figure 4.4: Extract from map of County of Camden, NSW, 1866, showing land tenure and the approximate location of the project – solid blue line (NLA)

When David Berry inherited the estate from Alexander, it was valued at £400,000 and consisted of 60,000 acres at Shoalhaven and 500 acres at North Sydney. William Berry died in October 1875, also leaving a will in David's favour. He continued to lease the Shoalhaven land on terms considered more than lenient. Berry also introduced the practice of share farming with land, implements and materials provided by the estate and labour by the farmer, the profits to be shared on an agreed basis.

After 1883, the management of the Shoalhaven estate passed increasingly to Berry's cousin, (Sir) John Hay. When David Berry died unmarried at Coolangatta in 1889 he left an estate valued at £1,250,000. Hay was the principal beneficiary of his will (Stephen 1969:149-151). Hay died without issue at Rose Bay in 1892. Most of his estate of almost £59,000 was left to the children of his brother James (Martin 1972:361-362).

The enormous bequests by David Berry to the University of St. Andrews (Scotland) and to the Endowment of a hospital at Berry, amounting to a quarter of a million pounds, made it necessary for the Trustees to sell the Estate. They immediately set about a comprehensive plan of improvements before selling. Among these the reclamation of the swamp areas took a prominent place.

The entire area of the estate at that time amounted to around 100 square miles. Of that area 40 square miles consisted of alluvial flat land. In its natural state that land consisted of a series of freshwater marshes with surfaces in their lowest, some three or four feet below the flood level of the district in which they lay. Therefore, this area of flat land had to be protected from the influx of possible tidal floods by a system of drains and sluices. Another leading feature of the marsh-reclamation scheme was the freedom of floods when they rose above the natural banks of the Shoalhaven River and Broughton Creek to flow freely into the reclaimed basins. Consequently, at all places where the river banks either from erosion or other causes had fallen below their normal crest-level, levees (or embankments) were employed to restore them (Antill 1982:354).

On 29 March 1892 the sale of the Berry (Shoalhaven) Estates began and continued for three days. The entity was divided into three for the purpose of the sale; first, the Gerringong farms of which there were four and totalled 175 acres; next came the sale of the whole township of Bomaderry followed on 30 March by the Numbaa estates, which consisted of between 5000 and 6000 acres. This was included in the Municipality of Numbaa, which had been incorporated in 1868.

The sale terms were all standardised at 25 per cent deposit, 15 per cent within two years and the balance over five years with an interest rate of five per cent per annum. In all cases preference was given to tenant farmers to secure the land they had formerly farmed many of the present family holdings date their freehold from that date. The disposal by sale of the estates in Shoalhaven and North Sydney began in 1892 and was not completed until 20 years later in 1912 (Sealy 2000: 120-121).

Figure 4.5 presents an extract from a map of the County of Camden, NSW, 1895, showing land tenure and the growth of settlement centres, including Berry, Bomaderry and Gerringong, at that time.

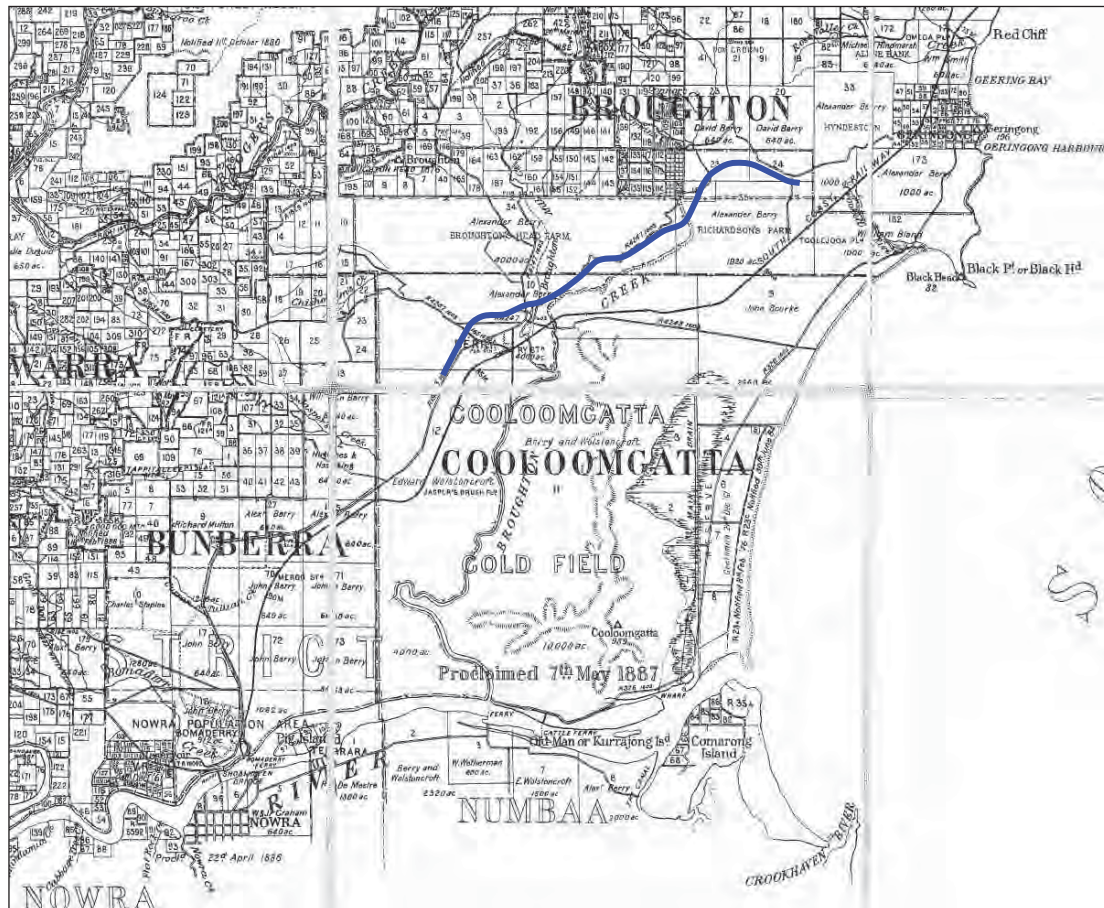


Figure 4.5: Extract from map of County of Camden, NSW, 1895, showing land tenure and the approximate location of the project – solid blue line (NLA)

4.1.4 Settlement and the development of townships

Broughton Creek (Berry)

Until 1899, the town of Berry was known as Broughton's Creek, Broughton Creek, or simply 'The Crick'. It was originally a station of the great Berry Estate.

The place was named after Broughton (c.1798-c.1850) an Aboriginal guide, tracker and constable, who was born at Boon-ga-ree, which became known from 1822-1888 as Broughton Creek and subsequently as Berry. Broughton, whose Aboriginal name was rendered as Toodwick, Toodood or Toodwit, accepted and strove to adapt to the new society introduced by the colonists. By 1818 he was working for Dr Charles Throsby of Liverpool, who probably named him after his friend William Broughton. The trusted Aboriginal served as a guide and translator on several of Throsby's explorations to the south and at least once for John Oxley.

In 1822, Broughton started work for Alexander Berry, whose grant incorporated Boon-ga-ree, setting up Berry's farm, Coolangatta, recruiting Aboriginal labour, keeping the peace, capturing bushrangers, droving cattle and providing his own labour. He became a favourite of Berry, who called him 'my Landsman' and later 'my oldest surviving Black friend' and who presented him with a rectangular breastplate inscribed 'Broughton Native Constable of Shoalhaven 1822'. The names of Broughton and his brother Broger (Brogher) survive in several physical features and localities in the Shoalhaven. Brogers Creek is named after the latter. After the former there is Broughton Creek, Broughton's Head, Broughton Vale, Broughton Village, and Broughton Mill Creek (Campbell 2005:48 -49). Contrary to this conventional allocation, a 1935 newspaper article notes some alternative possibilities: William Broughton, of the 1821 Hume expedition; and Minne Broughton a little girl who figured in a shipwreck (Sydney Morning Herald 25 June 1935 p12).

Broughton Creek was strategically sited on the northern part of Alexander Berry's Coolangatta Estate. With a double wharf on the junction of Broughton Creek and Broughton Mill Creek, a water powered sawmill and a tannery by 1860, the embryonic town proved a focal point for the farming hinterland.

The milling of timber on the estate appears to have begun as an open saw pit site in 1827. In late 1826, a number of 'free' sawyers signed an agreement to saw at Broughton Creek, and the following year, James Smith, described as the Overseer of the timber establishment at Broughton Creek, was measuring the timber on hand. In the early 1830s, a sawmill was erected on the site to replace the saw pits of earlier days (Antill 1982:350). It was in operation from at least 1836 as during a tour of Berry's estate James Backhouse noted in his journal on Saturday 1 October 1836, "*A Black came from a sawing establishment of Alexander Berry's where he has learned to work ...*".

On 3 October 1836, when leaving 'Coolangatta' Backhouse further noted, "*A circuit of about six miles over grassy forest hills between two marshes brought us to Alexander Berry's sawing establishment at Broughton Creek, which is under the superintendence of Alexander Pattison [or Patterson], a respectable Scotchman, with a wife and numerous family*" (Beale et al 1991: 34-35). In January 1840, the Reverend W. B. Clarke also recorded visiting the sawmill noting, "*We came about 5 o'clock to a river, which we crossed, then to the saw-mill established by Mr Berry, which we visited. The machinery is simple and washed by water in the American plan,*" (Organ 1990:250-253). The sawmill was leased to a tenant to cut cedar and hardwood for use on the Estate between 1842 and 1850 (Antill 1982:350).



Figure 4.6: Photograph of the tannery, Berry, c.1875 (Mabbutt nd:6)

At the time of establishing the saw pit site in 1827, Alexander Berry devised a scheme for tanning all the leather required on his establishment (Antill 1982:350). The tannery was a natural adjunct to the sawmill, where the tannin-rich bark stripped from felled timber was used to prepare hides for shipping down Broughton Creek to the Sydney market (Mabbutt n.d.: 6). **Figure 4.6** shows a photograph of the tannery in c. 1875.

James Wilson was a ferryman at Back Forest who was later appointed manager of the tannery and ran a general store there. After the tannery buildings were badly damaged in the severe floods of the 1860s and 1870s, Wilson opened a new store on higher ground on the corner of Pulman Street in nearby Broughton Creek Village (Mabbutt n.d.: 9). **Figure 4.7** gives a photograph of Wilson's Store in Pulman Street, c. 1875.



Figure 4.7: Photograph of James Wilson's store, Pulman Street, Berry, c.1875 (Photographer: Henry Toose, Mabbutt n.d.:9)

The village had a schoolhouse provided by Alexander Berry in 1861 and a postmaster from the same date. By 1866, there were 300 people in the immediate vicinity. Although the sawmill had closed, the tannery flourished. There were two stores, a smithy, a saddlery and a hotel (Bayley 1975).

Figure 4.8 gives a sketch of Broughton Creek Village in the 1870s, looking southwest towards modern day Pulman Street. When in 1868 the municipality of Broughton Creek and Bomaderry was created, contrary to Berry's wishes, it was administered by Broughton Creek.

As the land was opened up first by Berry estate tenant farmers, and in the 1860s, by settlers under the Robertson Land Act, Broughton Creek became the port of a very large area where dairy farms were established. **Figure 4.9** shows a photograph of the (second) wharf at Berry in 1896 – the first wharf was at the 'Crooked S', the junction of Broughton Creek and Broughton Mill Creek (Berry Museum n.d. 2). Farmers from Broughton Vale, Broughton Village, Jaspers Brush, Brothers Creek, Woodhill and even Kangaroo Valley, took their butter and other produce to the wharf at Broughton Creek. From the wharf it was taken to the ocean steamer at Greenwell Point or drogher, until 1871, when Alexander Berry provided a flat bottomed steamer, the *Coolangatta*.

Despite the Berry estate's insistence on yearly tenancies in the area, more stores and shops were built in the 1870s and in 1879, six years after Alexander Berry's death, Broughton Creek was surveyed and a plan for a town was made on the higher land on the right (west) bank of the creek.

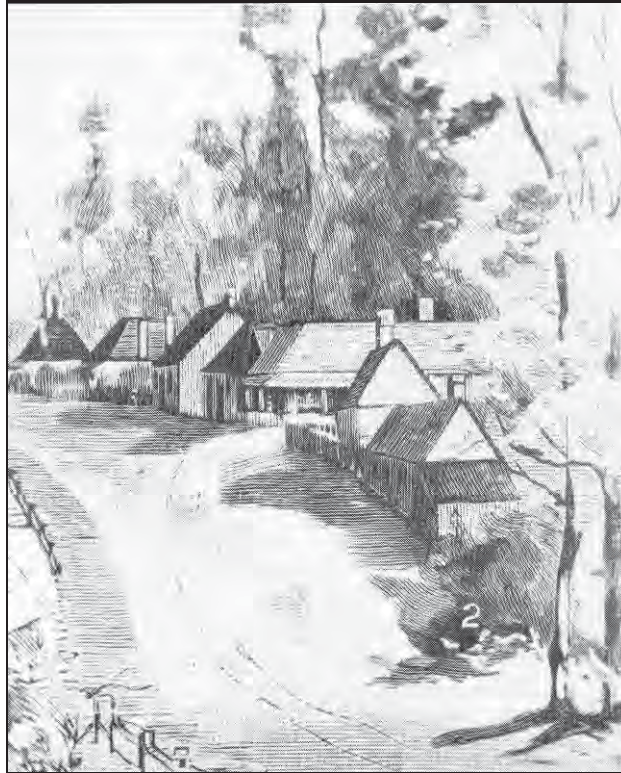


Figure 4.8: Broughton Creek Village along the ridge at Pullman Street in the 1870s (Bayley 1975: 74)

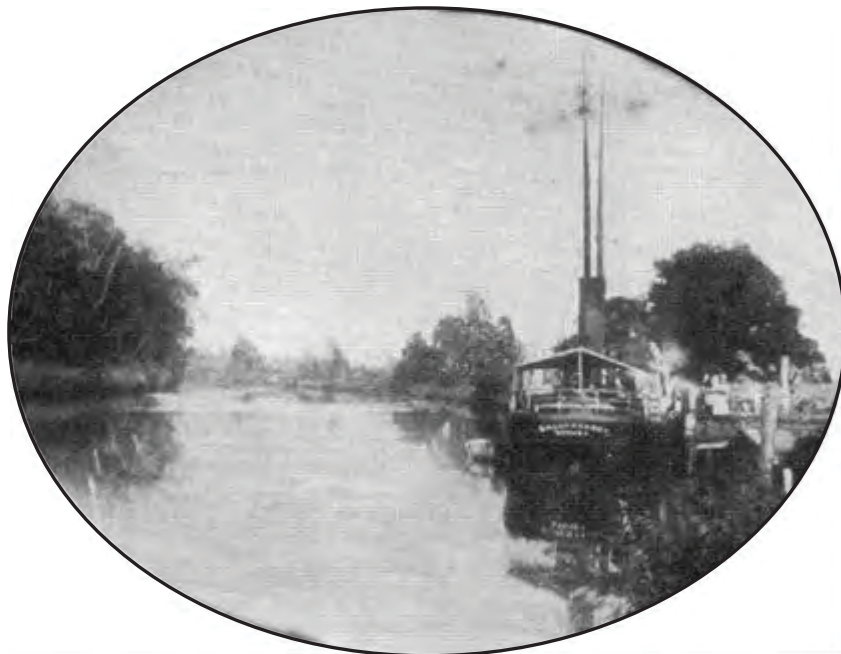


Figure 4.9: Photograph of the SS Coomonderry at the (second) Berry wharf, 1896 (Mabbutt n.d.: 58)

Figure 4.10 shows an extract of an old map (probably the 1870s) of Broughton Creek prior to the survey of the current town grid. The group of buildings shown in **Figure 4.8** are indicated in the middle of the map. When a new town survey established the modern street grid in the 1880s, most of the existing buildings were out of alignment with the new streets, and, in some cases new premises had to be erected in front of the old ones. However the tenants were given longer leases, up to 25 years, and later it was made possible to buy the land.

After David Berry's death in 1889, the name of the township was changed from Broughton Creek to Berry in his honour.

The Illawarra rail line (now the South Coast line) was opened as an isolated line as far as Bombo in 1887. The Bombo to Bomaderry section was opened in 1893 (www.nswrail.net).

The town of Berry continued to flourish as a service centre for a predominantly saw milling and dairying district. The population was 1,300 in 1884, with additional town blocks enlarging the town site from that laid out in 1883. **Figure 4.9** shows a sketch plan of Broughton Township in 1883. Today, Berry continues to provide basic service needs of the community, but the 1980s saw it transformed into a tourist town, with tea rooms, antique and gift shops (Clark 1993:5, Cousins 1994:260-263, Peter Freeman Pty Ltd 1998:20, Lidbetter 1993:4).

Figure 4.12 gives a map of present day Berry showing locations of historic sites, including Pulman Street, the tannery and the two wharf sites.

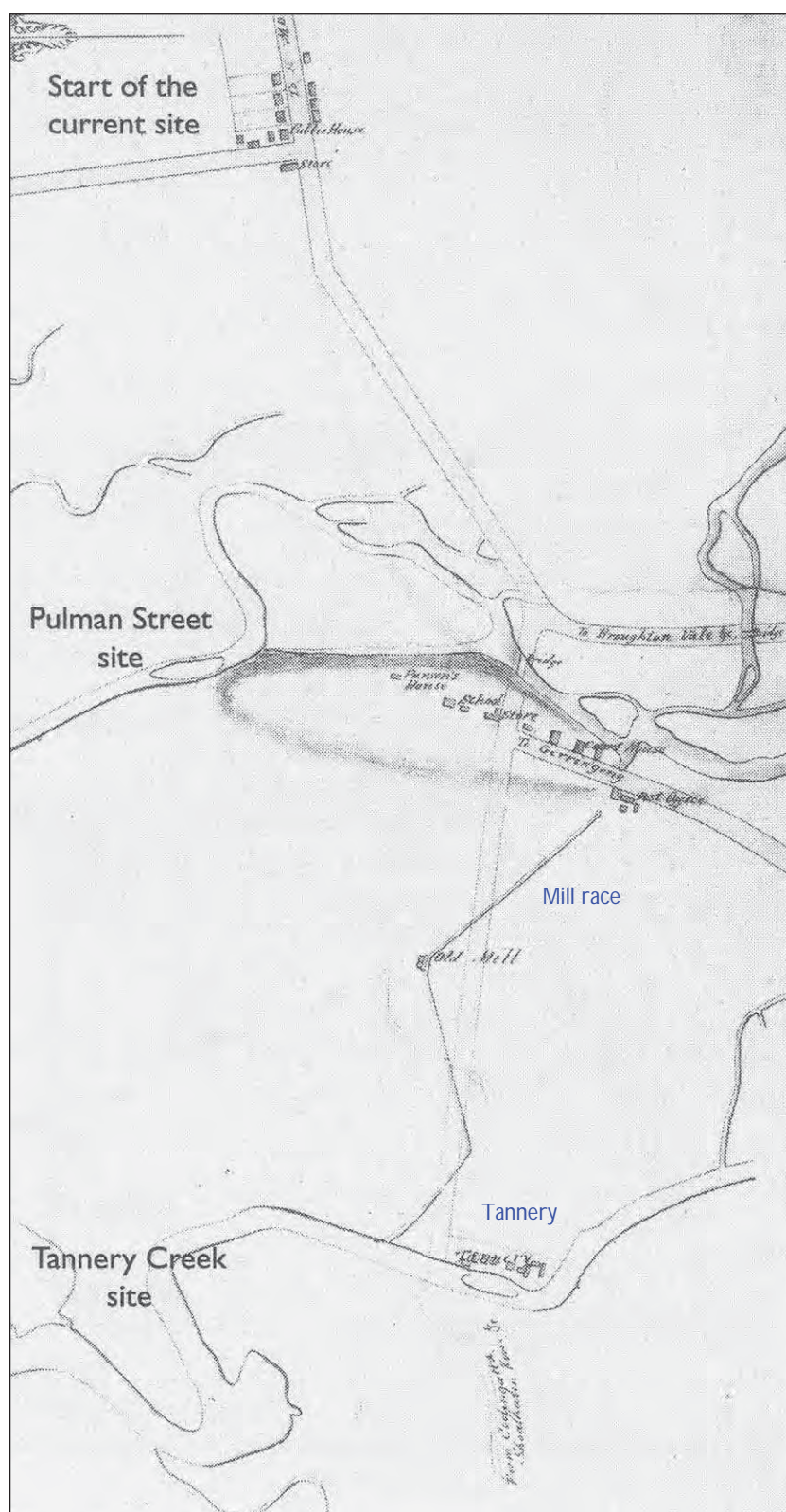


Figure 4.10: Early map of Broughton Creek Village area, probably 1870s (Berry Museum n.d.: 15)

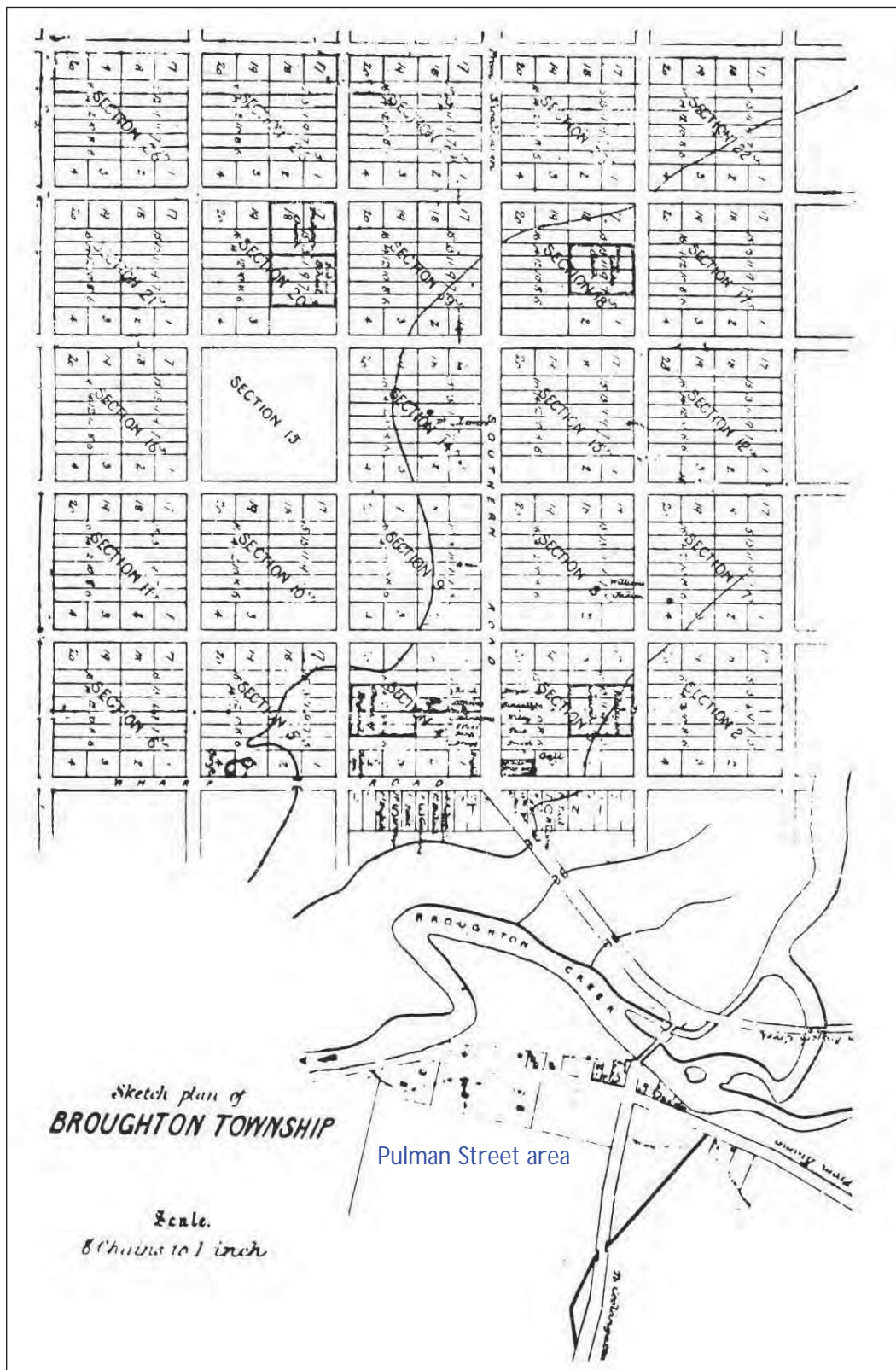


Figure 4.11: Sketch plan of Broughton Township 1883 (Lidbetter 1993:18)

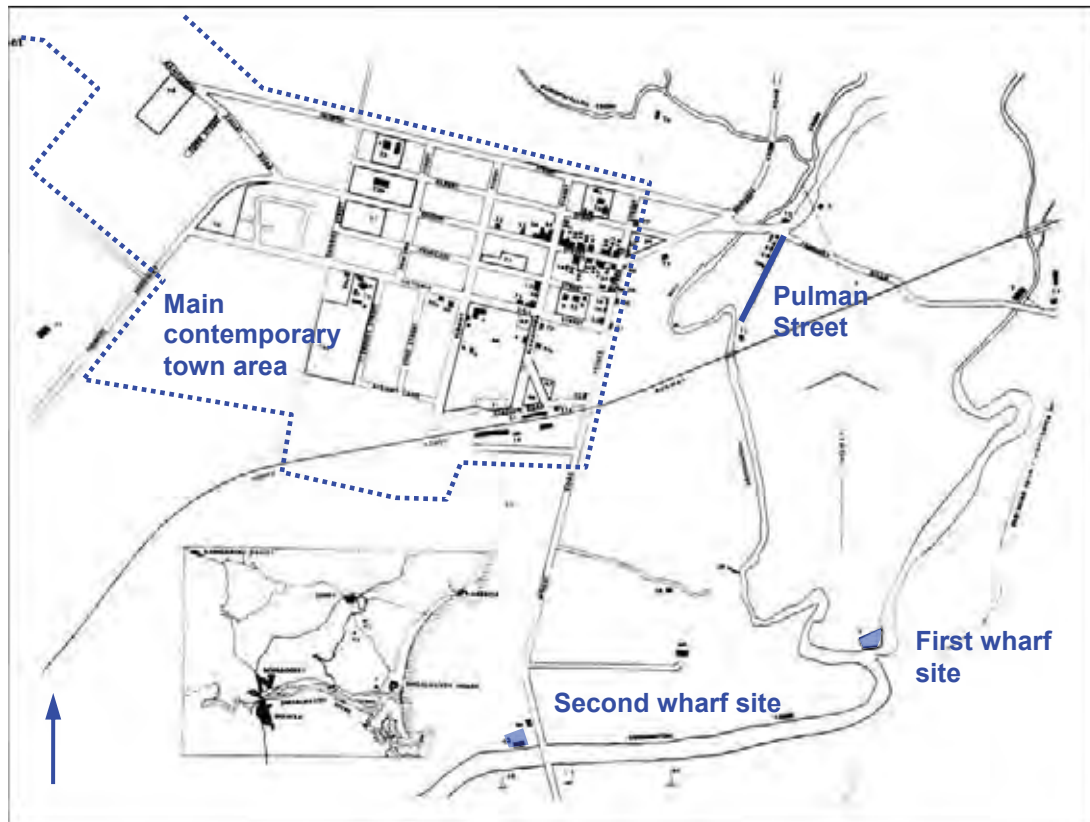


Figure 4.12 Map of present day Berry showing locations of historic sites, including Pulman Street, the tannery and the two wharf sites (after Lidbetter 1993:75)

Broughton Village

Broughton Village is situated on the floor and western basal slopes of the Broughton Creek valley half way between Gerringong and Berry. Today, it consists of a loose grouping of small and larger rural holdings and residences, with no obvious civic centre or buildings. In the past, however, this hamlet included two churches and a school (Elliott 2009).

Since the first land grants on the Shoalhaven, a large rectangular area of land to the west of David Berry's land grant on the upper Broughton Creek was set aside for a village (**Figure 4.13**). The village was surveyed as a government town in 1855 (**Figure 4.14** and **Figure 4.15** Bayley 1975). The surveyed village grid provided for 40 x 2.5 acre blocks and 12 x 25 acre blocks (**Figure 4.14**). Government land sales were held in Kiama in 1856 (Elliott 2009, *The Empire* 13 June 1856:p4).

A Mutual Improvement Society was established in 1868. A provisional school began in 1867 and became a full public school in 1871 (Fletcher and Burnswoods 1983). The Church of England building was erected in 1872 (Bayley 1975). The formation of the Broughton Village Dairy Company was reported in 1888 (*Sydney Morning Herald* 15 Sep 1888: p14), and a butter factory was opened in the following year (Bayley 1975:151).

The 1855 town allotment plan shows all but two of the 36 urban allotments owned by George Tate. Tate called his property *The Pines*. An 1873 description of Broughton Village is dominated by the farm of Mr G. Tate, which is described as "200 acres of fine land, a homestead worthy of inspection and praise... all artificially grassed and cleared – at present devoted to the rearing and fattening of stock" (*Sydney Morning Herald* 26 Aug 1873:p3). The 1855 village plan shows a Church situated 110 metres northwest of the current intersection of Thompson Road and the Princes Highway (GDA reference: 294234.6152832). By 1900, George Thompson is noted as the occupier of most of Tate's land holdings in the village (Crown Survey 6721-1603).

The school closed in 1901 (Fletcher and Burnswoods 1983) and the building used as a school of arts (Bayley 1975). Bayley notes that the passing years saw a gradual decline in the village (Bayley 1975:116). The highway bypassed the northern portion of the village grid in 1936.

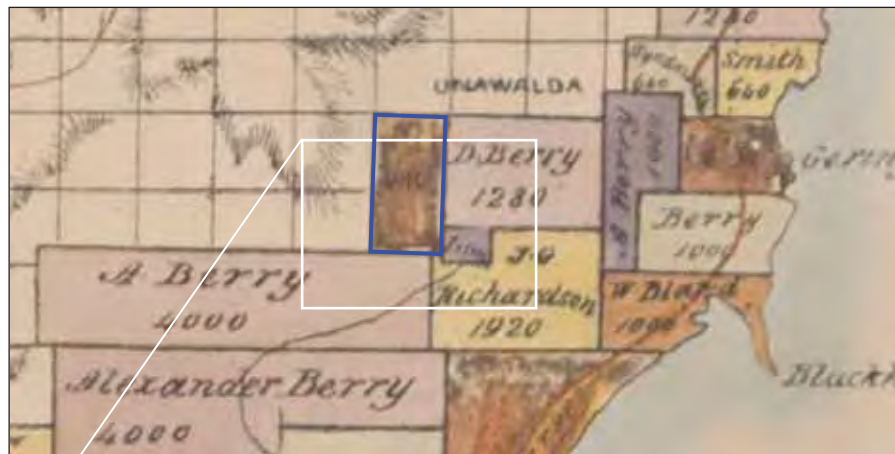


Figure 4.13: Extract from Baker's Australian County Atlas (County of Camden) 1843 – 1846, showing Village Reserve (V.R.) in the area of the future Broughton Village (boundary shown in blue), situated on the edge of the Berry and Richardson land grants. Note the Finn land grant at southeastern end of Village reserve (NLA)



Figure 4.14: Extract from the Fourth edition (1893) of the Parish map for Broughton, County of Camden, showing the area of small land portions adjacent to the Berry land holdings which constituted the Broughton Village (Land and Property Management Authority, Parish Map Preservation Project Image no. 10353801, <http://parishmaps.lands.nsw.gov.au/pmap.html>)

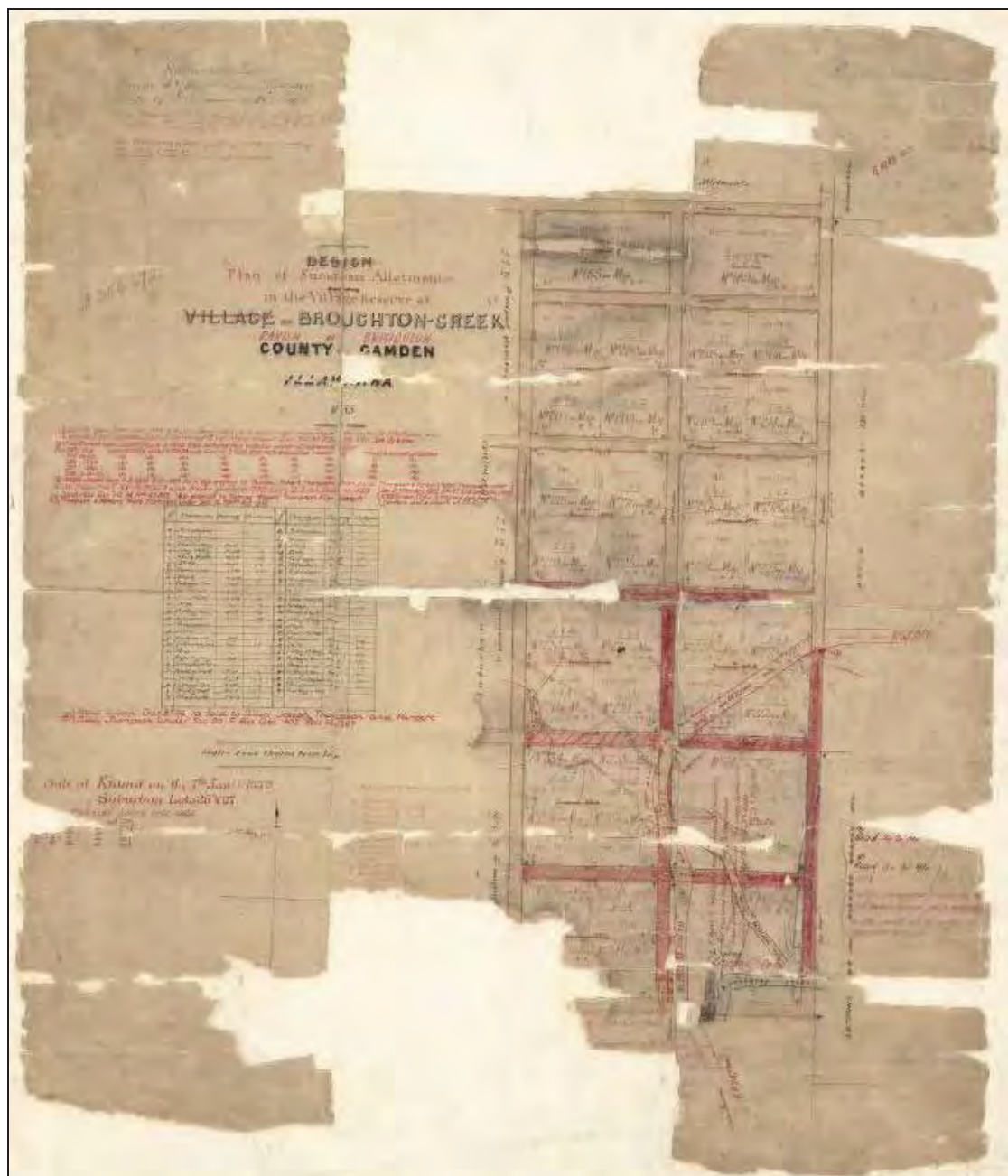


Figure 4.15: 1855 Plan of Subdivision Allotments in the Village Reserve at Village of Broughton Creek (Dept of Lands, Crown Survey 256-672)

4.1.5 The dairy industry

Alexander Berry, being the first in the area to create the concept of a farming village community, also became the first to set up a dairy on the South Coast. Within two years of his arrival, he recorded that, "a shipment of farm produce to Sydney ... included in this shipment 78 lbs of butter and 20 cheeses". So, by the end of 1824 his first dairying trade with Sydney Town has begun.

Within another 10 years or so the dairying herd at 'Coolangatta' had increased in quantity and quality. While the first dairy structures were hurriedly installed and crudely made from packed mud, as the brickfield production improved, later buildings were more substantial. A large dairy was developed on his grants south of the river at Jindiandy, close to Upper Numbaa and strategically placed three miles from the river bank so as to reduce the risk from flooding.

After his arrival in 1836, John Berry, who managed the Shoalhaven Estate, changed its emphasis from agriculture to stock breeding and the production of beef. He was said to have lived on horseback and was eventually thrown from his horse on April 15, 1848, dying from injuries four days later. With John Berry's death and in 1849 the introduction of tenant farmers, the early days of the Shoalhaven being a breeding ground for young stock drew to a close.

Twenty acre plots were leased rent free on the condition that they were cleared and fenced by the end of two to five years. By 1850, the leasing of the Estate started and the tenant farmers began to establish dairying as the chief industry of the Shoalhaven district. By the 1870s most of the cedar had been cut out and the clearing leases had given way to farms - originally for wheat production. Eventually wheat growing was replaced by dairying (Bayley 1975:34-37, Sealy 2000:107).

Bayley (1976: 89) contends that Kiama was the birthplace of dairying in Australia; it was the centre that first tried to export butter to England and it pioneered the system of factory production. A Butter Export Co-operative Co. was formed in 1870 and efforts were made to export butter to London and India, with an initial measure of success. The Kiama Pioneer Co-operative Dairy Factory was officially opened on 18 June 1884 and was the first of its kind in Australia. It was situated near Spring Creek on the Jamberoo Road. A monument commemorating the Butter Factory now stands at that location.

Further south, other dairy factories were established between 1884 and 1894. These were the Kangaroo Dairy Co. (1888) on Sawyers Creek one kilometre south of the Berry Road along Factory Road; the Barrengarri Butter Factory (1888 to 1925); the Kangaroo River Dairy Co. (1890); and the Upper River Butter Factory on the eastern bank 16 km south of the Gerringong Creek junction (1894-1901).

When it was opened in September 1895, the Berry Central Creamery was described as the 'largest and most complete butter factory in the colony'. At that time it was noted that 1,075 tons of butter were produced annually in the Berry district from 12,800 cattle, the product of which could be treated by the Berry Central Creamery. The registered trade mark was a bunch of berries (Lillipilli). In 1911, a group of dairymen purchased the Creamery from the Berry Estate and formed a co-operative, which subsequently became the Berry Rural Co-operative Society Ltd. The milk market continued to grow and in 1958 butter manufacture ceased. A peak annual milk intake was reached in 1976-77 but a downward trend developed in the 1980s. From 1991, milk was collected from farms in the Cooperative's tankers and delivered direct to the Australian Co-operative Foods Limited Factory at Bomaderry (Lidbetter 1993:14-15).

The sub-division of the Berry estate over the 40 years following the death of David Berry created many small dairy farms on both sides of the Shoalhaven. Examples of the style of dairyman's weatherboard house, bails and other outbuildings survive from the period around 1900, such as Knapp's property at 680 Bolong Road, Bomaderry, conveniently close to a dairy factory and the railhead (Peter Freeman Pty Ltd 1998:23).

During the last decade of the nineteenth century, when Alexander Hay was the Manager of the late David Berry's 'Coolangatta Estate', a more scientific approach was adopted towards dairying in the Shoalhaven. Following an investigative trip to Europe by Alexander, the Trustees of the Estate erected the above mentioned Butter Factory at Berry and established a select herd of imported pure bred dairy cattle on a stud farm at Coolangatta.

At that time, two public institutions of importance to the dairy farmers of the district were established at Berry. At the urging of Alexander Hay, a Bill was passed through the NSW Parliament to vary the will of David Berry to the extent that a Stud Farm and an Experimental Farm should share in the endowment bequeathed by him for a Cottage Hospital established at Berry. That was agreed upon and a transfer of Port Jackson foreshores belonging to the Estate and judged to be equal in value to the endowment was satisfactorily arranged. The Crown then assumed the Trusteeship of all three institutions (the Hospital, Stud Farm and Experimental Farm) and established them at Berry (Antill 1982:355).

The Berry Experiment Farm opened near the river beside the road to Coolangatta in October 1899, being the first of its kind on the coast. It continued under the Department of Agriculture until in April 1934 it was taken over by the Child Welfare Department. It was remodelled with the provision of a dining room, dormitories and other facilities with cottages to house 40 boys to take farm training. In 1939, additional buildings were added, together with more modern farming facilities. In the 1970s the Child Welfare Training Farm closed and re-opened as a holiday home for the underprivileged and was later transferred to the Department of Sport and Recreation (Bayley 1975:206, Berry Museum 2006:2).

In 1903, the Government Stud Farm at Berry was described as, 'the most important institution on the coast from the dairymen's point of view. It is well situated, and is within two miles of the town. On one side it has a mile frontage to the deep, navigable waters of Broughton Creek, and the new Moeyan Bridge connects it with Berry and the railway' (Town and Country Journal, 11 February 1903). The Experiment and Stud Farms were co-located on the east side of the Berry - Coolangatta Road (Wharf Road), either side of Broughton Creek, between one and two kilometres south of the present town of Berry.

In the 1920s, a Pasture Research Unit was established off Wharf Road, Berry, by the Department of Agriculture. In the 1950s, the first Artificial Insemination Breeding Station (AIBS) in New South Wales was established at that location, and in 1958, it was moved to Graham Park, southwest of Berry on the Princes Highway. The AIBS, which was established by the NSW Milk Board, occupied a total area of approximately 75 hectares, including bull yards, buildings and a quarantine area from which the semen collection and processing occurred. In the 1990s, the Centre closed and the buildings were used by Wollongong University, until new premises were built for them in 2000 in Nowra (Berry Museum 2006:2).

4.1.6 The development of the main road between Kiama and Bomaderry

Although not supported by direct European historical observations, it is highly probable that the local Aboriginal people used and maintained trails across the southern Illawarra coastal plain. These are likely to have taken advantage of natural corridors, such as creeks and rivers, ridge and spurline crests, and the elevated ground between swamp basins. Other factors which may have influenced Aboriginal cross-country routes, were the incidence of thick 'brush' or lowland rainforest, and the location of saddles and passes providing passage across the Cambewarra Range (NOHC 2007, 2009a).

The purposes and destinations which would have governed an Aboriginal network of trails would not have corresponded with the differing economic and communication interests of the early European inhabitants. However, it is probable that where Aboriginal trails coincided with European interests, trails would have been used and quickly formalised into bridle trails and later into paths and tracks. There is some limited evidence for this process across the Illawarra Ranges where natural passes and interconnecting routes became important for inland communication, and the movement of stock and early dairy produce (Officer 1991a, Griffith 1978).

The first European established roads were most probably sawyers' tracks, which allowed the hauling of felled red cedar logs from the hinterland forests to points of maritime access such as coastal ports and navigable streams. This activity would have commenced with the first cedar harvesting in 1812. Trails are likely to have followed terrain and gradients of least resistance, such as ridge and spur crests, as well as the level ground of the valley floors and associated meadows. Some examples of the informal trails which developed prior to the construction of formal roads are shown on the 1866 County map for Camden (**Figure 4.16** and **Figure 4.17**).

The regular maritime transport of logs to Sydney provided as a secondary function, a means of transport and communication for European settlement, and the sea corridor dominated regional transport well into the late nineteenth century.

An alternative to inland trails was provided by a rough coastal track which developed informally to link the coastal settlements from Bulli, south to Kiama. The 'track' consisted of a series of headland traverses that allowed access onto the intervening beaches. Creek, river and estuary mouths were a hazard that could be crossed depending on local conditions and the depth of sand barriers.

European settlement followed the initial incursions of the cedar getters, and as this occupation extended beyond maritime access points, centres of habitation became linked by informal trails which developed into tracks with continued use. Following the steady alienation of crown lands via government grants and sales, the use of such early tracks became an increasing source of dispute, across the Illawarra, as the rights of private landholders began to be asserted. Amongst the complaints were those of Alexander Berry who stated that his property was being trespassed upon for want of a proper road (J.M.E. 1951:76). Increasing pressure from landholders to survey and establish public roads resulted in an expedition by Surveyor-General Mitchell which, by 1834, had formalised a road route between Appin and the northern Illawarra via Broughtons Pass and Mount Keira. In addition to a northerly extension to Bulli, the road was extended southwards '*as far as Saddleback Mountain to connect some miles inland with a line marked from Kiama to Bong Bong by Surveyor Hoddle in 1830*' (J.M.E. 1951:77).

Mitchell begged '*to observe that the continuance of a great road further south than the Nurrima Range [Saddleback Mountain] should be considered with reference to the passage of the Shoalhaven River and the best direction for a thoroughfare through the Coast Country of St Vincent*'. Mitchell was '*of the opinion that the valley of Broughton's Creek would be the best direction for it to cross...*' (in JME 1951:77).

In 1841 a petition by Gerringong residents to Governor Gibbs stated:

'That your Petitioners grievously labouring under the many disadvantages arising from the Want of a practicable Road on the south side of Kiama do humbly pray your Excellency That you may be pleased to allow a continuation of the Jamberoo Parish Road to be surveyed through Kiama as far as Gerringong...' (in JME 1951:78).

A meeting at Kiama, in 1841, to discuss extending the road from Saddleback Mountain to the Shoalhaven, failed to result in any official action (JME 1951:81). Fifteen years later, in 1856, Surveyor Shone was required to mark a line from Gerringong to Broughton Valley and to report on the expediency of extending the line to Bomaderry. Following further official inaction, Alexander Berry took the initiative, and privately constructed a road across his estate lands from Gerringong to Broughton Creek (Berry) in 1856 and later to Bomaderry by 1858 (JME 1951:81; Cousins 1948:105).

It is this private road that is shown on an 1866 map of the County of Camden (**Figure 4.16** and **Figure 4.17**). The alignment of this road established a transport corridor which has been retained to the present day, with many sections of the Princes Highway retaining the original alignment. The Berry Estate road was distinctive in its use of long straight sections, which often traversed steep spurs and ridges without apparent regard for the consequentially steep gradients. The straight and sometimes steep nature of the road may be explained by:

- The need to minimise length and consequential costs.
- Pressure to establish a road link in a minimal time period.
- The absence of cadastral or land ownership limitations that would otherwise have required deviations and bends.
- The predominant early use of bullock teams to convey produce, and thus a greater tolerance of moderate gradients.

James Wilson is reported to have surveyed and pegged the first “track” from Broughton Creek to the present Foxground area and on to Gerringong (SFHS 2003:vol 2 p.113).

On the 9th August 1858, the *Illawarra Mercury* reported that a road was to be proclaimed from Gerringong to the head of Broughton Creek. It was to be maintained at the expense of the parishes which it traversed. Bayley (1975) notes that the road from Gerringong to Broughton Creek was gazetted by the government in 1858 and Berry sent men to open the road from Gerringong to Bumaderry Creek (Bayley 1975:51).

In August the following year the *Illawarra Mercury* reported that:

‘Mr. David Berry is also busy in the march of progress. He is opening the new road from Bumaderry [Bomaderry] to Broughton’s Creek, and from the number of men employed quarrying stone, and brick making at Bumaderry, Mr. Berry appears at last to have an eye to the future advancement of the district.’ (8th August 1859).

In September 1859 a Municipal Council of Shoalhaven was proclaimed and meetings of elected councillors commenced. Alexander Berry however objected to the inclusion of his estate lands within the boundary of the municipality, and following both a Supreme Court injunction and an appeal to the Privy Council, the area was declared illegal in 1865 and the Council become defunct.

On the 8th December 1859, the *Illawarra Mercury*, reported on the unanimous passing by Council of ‘a resolution of Mr. Bice, ‘as to the necessity for the immediate survey of the road from Bomaderry to Kiama,’ which is very important to the district...’.

In the early 1860s the government provided 140 pounds to be spent on the road between Kiama and Broughton Creek, roughly ten pounds per mile (Cousins 1948:232).

Antill (1982) states that the road from Broughton Creek to Bomaderry was completed and opened for use in July 1869, despite many potholes left by the removal of tree stumps. Bridges over the creeks on the new road between Bomaderry and Gerringong were completed in October (Antill 1982:82).

Prior to Berry's Estate road via Broughton Creek, terrestrial travel southwards had been via Seven Mile beach, with a crossing of the Crooked River near modern Gerroa. Further travel was via the north bank of the Shoalhaven, past Berry's Coolangatta homestead, to a ferry crossing at Numbaa. Following the completion of the Berry Estate road, the ferry service was moved to Bomaderry. A government ferry commenced operation at the Bomaderry crossing in May of 1866 (Shoalhaven Heads website).



Figure 4.16: Extract from an 1866 map of the County of Camden, showing the location of roads between Kiama, Gerringong, Broughton Creek (Berry) and Bomaderry, highlighted in blue. Note the alignment of the Berry Estate Road between Gerringong and Bomaderry which comprises many straight sections with minimal bends and deviations (County of Camden, New South Wales, 1866 compiled by Messrs Braddock & Baly, & engraved by John L. Ross. National Library of Australia 1866. MAP RM 1798. Part 2; <http://nla.gov.au/nla.map-rm1798-s1-sd-cd>)

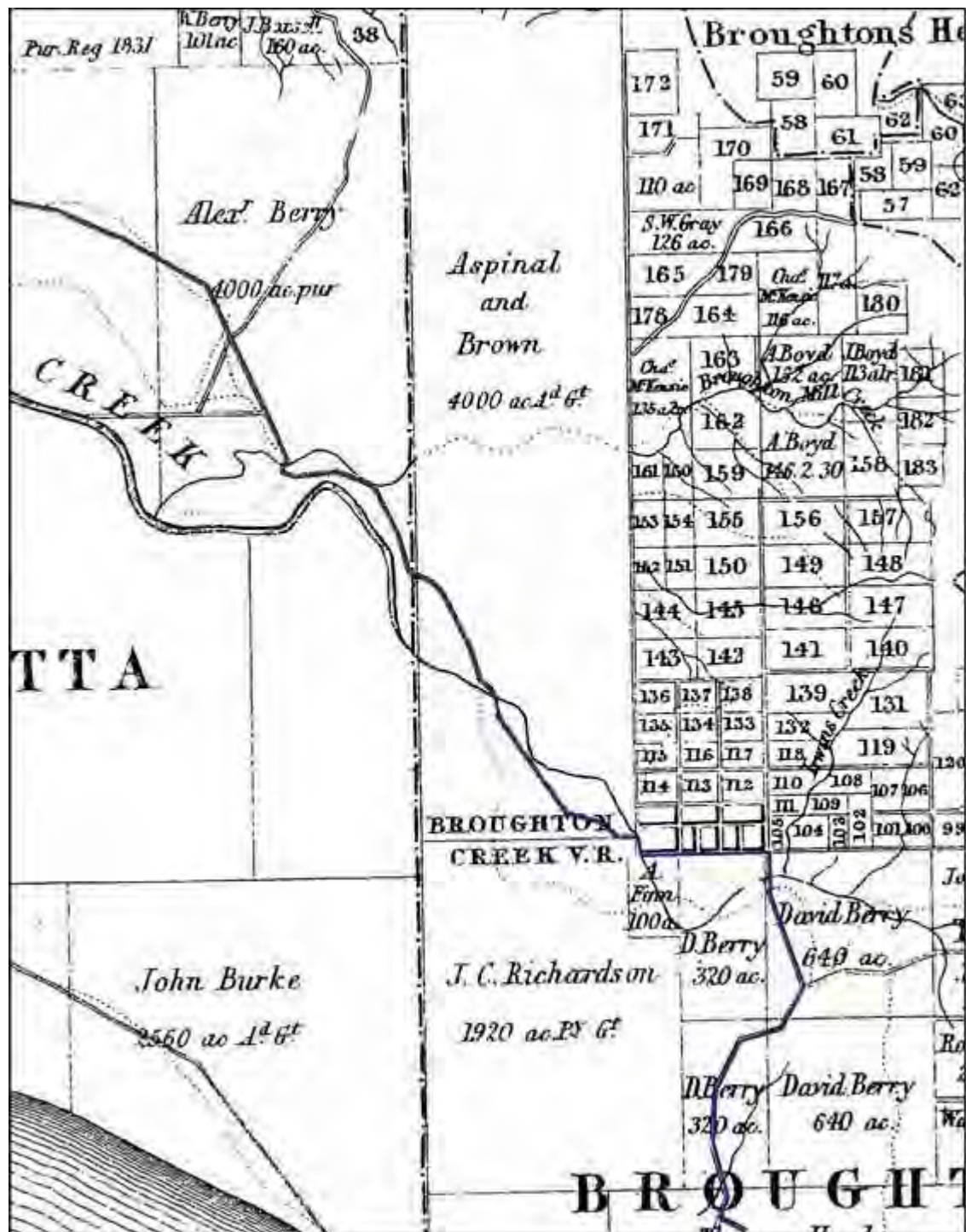


Figure 4.17: Enlarged detail from extract of 1866 map of the County of Camden, showing the location of tracks (black dotted lines) and roads (continuous black lines) in the vicinity of the project. Note the location of the original Berry Estate road (blue overlay) which approximated the alignment of the current Princes Highway and the FBB (County of Camden, New South Wales, 1866 compiled by Messrs Braddock & Baly, & engraved by John L. Ross. National Library of Australia 1866. MAP RM 1798. Part 2; <http://nla.gov.au/nla.map-rm1798-s1-sd-cd>)

Following the cessation of the Shoalhaven Council, two alternative Municipalities of Numba, (south of Shoalhaven) and of Broughton Creek and Bomaderry (north of the river) were proclaimed in 1868. Many of the roads and bridges constructed by the Berry Estate served as the region's main transport corridors, and consequently came under the jurisdiction of the new Councils. These roads were proclaimed, prior to the Councils commencing systematic clearing and stumping, together with the construction of small bridges and culverts. Much of this work had to be done on the Gerringong road and contracts were let in different sections, some at 15 shillings, some at 17 shillings and some at 19s 6d, a chain. Bridges across some of the creeks were also constructed, one for 23 pounds 7s 6d, and another for 16 pounds (Shoalhaven News in Cousins 1948:266; JME 1951:81).

In 1872, a correspondent to *The Sydney Mail* described the road in the following way:

'The road from Jerringong to Broughton Creek is a very hilly one, and, in parts, rough and unformed, though much has been done towards the making and completion of it; and the bridges and culverts are as excellent as they are numerous. Almost the whole of it runs through Mr Berry's estate, over ridge and valley, among pasture farms and comfortable homes, and by tall dead trees rising against the sky, white and ghastly, but relieved by the waving plumes of the cabbage trees that are largely intermixed with them...'

'.. and a good deal of "corn" is grown in places; but from the crossing at Upper Broughton Creek until a view is gained at the big rich valley of Broughton Creek proper, few homesteads are visible. The "bush" is still in a comparatively wild state, though there are "clearings" on either side that cannot be perceived from the road.'

'...From Broughton Creek to the Shoalhaven at Bomaderry ferry, the road is still less formed than that leading to the Creek; but it has the advantage of being comparatively level, and is in course of improvement, It is lined almost throughout with splendid trees, straight as a ship's mast, and far taller; the size and closeness of these make the task of clearing the land a very heavy one; but even here there are "clearings" and some of the most luxuriant corn in the district.' (*The Sydney Mail* May 4 1872:p558).

The first road constructed by the Broughton Creek and Bomaderry Council was a new line between Broughton Creek (Berry) and Broughton Village in the late 1870s. The new alignment was laid to avoid many of the steep gradients involved in the original alignment which was laid out by Surveyor Mann. Once abandoned, the old alignment was known as "Mann's Folly" (Bayley 1975:131). The works continued to the end of 1877 and included the construction of bridges, culverts and drains. The new road was reportedly surveyed by the Council's Mayor, James Wilson (Robson and Knevitt 2008:9).

In September of 1874 *The Sydney Mail* noted that Mr Morton, an agent to Mr David Berry, met with the Mayors of Broughton Creek and Broughton Vale, 'to mark out and define the lines of road, recently very kindly granted by Mr Berry'. One of the lines is described as 'serviceable for such as have business to Gerringong and Kiama' and almost certainly refers to the estate road initially established in the 1850s.

By 1878 it was reported that:

'The Broughton Creek Municipal Council is forming a very good, though circuitous road between Broughton Village and Broughton Creek. There is about twelve chains of road, known as Tates Hill, under the control of the Gerringong Council urgently needing attention.' (*Sydney Morning Herald* May 4 1878:619).

The first bridge over Broughton Creek is thought to have been constructed at about the same time, in the 1870s (BDHS website), with a subsequent timber truss bridge probably being erected in the 1890s (RTA s170 register, Broughton Creek bridge citation). However a news article in May 1878 notes that ‘the Broughton Creek bridge is dangerous and needs extra support so also does the bridge at Broughton Village; if a flood occurs, both will most likely be swept away’ (Sydney Morning Herald May 4 1878:619). A news item in the Sydney Morning Herald on August 27 1889 notes the final availability of funds from the Department of Works for the proposed bridge over Broughton Creek, just north of Broughton Village.



Figure 4.18: “A Sketch of the Broughton Creek Road” (Illustrated Sydney News 21 November 1885:p14 & 16), “ not far distant from Broughton Creek [Berry]”

The second main road bridge to span Broughton Mill Creek at Broughton Creek (Berry) was opened in 1888 at a cost of 1856 pounds (Bayley 1975:136; Shoalhaven Heads website).

In August 1888 The Sydney Morning Herald reported that the Minister of Works had assured the Gerringong Municipal Council that a sum of 1000 pounds would be provided, and that:

‘...on the strength of that assurance an important piece of work at the place known as Brown’s Hill will be commenced forthwith. The Brown’s Hill is the only acclivity of much importance on the main road between Broughton Village and Gerringong, and when the proposed improvements are erected this line of road will be one of the best on the South Coast, the Council having recently made two or three similar alterations at a cost of several hundred pounds, where the hilly nature of the country presented difficulties to travellers’ (Sydney Morning Herald Aug 11 1888:312).

In January 1889, the Department of Works granted the Gerringong Municipal Council 500 pounds to recoup in part ‘money expended with carrying out certain deviations on the main road between Gerringong and Broughton Vale’ (Sydney Morning Herald Jan 29 1889:7).

In July of the same year it was noted that the Department of Works:

'was about to commence the erection of a bridge over the creek north of Broughton Village, for which a special sum of one thousand pounds was voted some time since. The new bridge is not to be on the present main road but some distance down the creek, which will necessitate the making of about a mile of new road by which the worst hill between Gerringong and Berry will be avoided' (Sydney Morning Herald 16 Jul 1889:p7).

In the following year it was noted that 'the survey and plan of the proposed alteration in the main south road near Broughton Village will soon be completed (Sydney Morning Herald May 10 1890:1060).

In the period between Berry's original construction of the estate road from Gerringong to Bomaderry in the late 1850s, and the 1890s, the further development of the road by the local Councils resulted in a longer and more angular alignment, involving switch-backs and deviations around spurs. This is evident in a comparison of the 1866 and 1895 County Maps (**Figure 4.19** to **Figure 4.22**). The elaboration and revision of Berry's originally straight alignments appears to have been a consequence of establishing more gradual grades, suitable for horse drawn vehicles, and complying with various farm boundaries and related cadastre. By this time, most of the latter were now freehold title following the break up and sale of the Berry Estate.

Following the death of David Berry in 1889, the estate passed to his cousin John Hay. Hay developed a formal street grid for the town of Broughton Creek in the 1880s, on the western side of Broughton Mill Creek. This was surveyed in 1879 and well established by 1890 (Cousins 1948:262; RMS s170 register, Broughton Creek bridge citation). This provided for the future growth of the town beyond the limited area on the east of the creek where the original town had developed around the Pulman Street ridgeline (refer **Figure 4.10** and **Figure 4.11**). The new grid was orientated slightly differently to the existing emergent streetscape, and this resulted in many buildings being misaligned, necessitating their movement or realignment to the new pavements (Lidbetter 1993:19). Another consequence was that the existing road to Bomaderry which lead away from the town in a straight south westerly trajectory would be truncated by the new grid, and a new approach road would have to be developed at the north western corner of the grid. The current highway alignment follows this late nineteenth century revision (**Figure 4.23**).

In 1912 M.F. Morton officially opened a new replacement bridge over Broughton Mill Creek (Bayley 1975:168, Sydney Morning Herald 17 Aug 1912:p6).

The approximate route of the current Princes Highway was declared the 'Main South Coast Road' through the Local Government Extension act of 1906. However, in 1920, during a visit to Australia of the Prince of Wales, the National Roads Association secured approval from the Prince to name the coastal road after him. An opening ceremony was held at Bulli on 19 October 1920. The road was formally proclaimed the Prince's Highway (State Highway No.1) in 1928 under the *Main Roads Act*.



Figure 4.19 Extract of an 1895 map of the County of Camden, showing the road between Gerringong and Bomaderry. Note how the development of the road by local councils, and following the break-up of the Berry Estates has introduced numerous bends and irregularities from Berry's original alignment (Map of the County of Camden, Eastern Division, NSW 1895 / compiled, drawn and printed at the Department of Lands, Sydney NSW. 24th June 1895. National Library of Australia <http://nla.gov.au/nla.map-f262>)



Figure 4.20: Enlarged detail from extract of 1895 map of the County of Camden, showing the location of the roads between Kiama, Gerringong and Broughton Village, the vicinity of the project

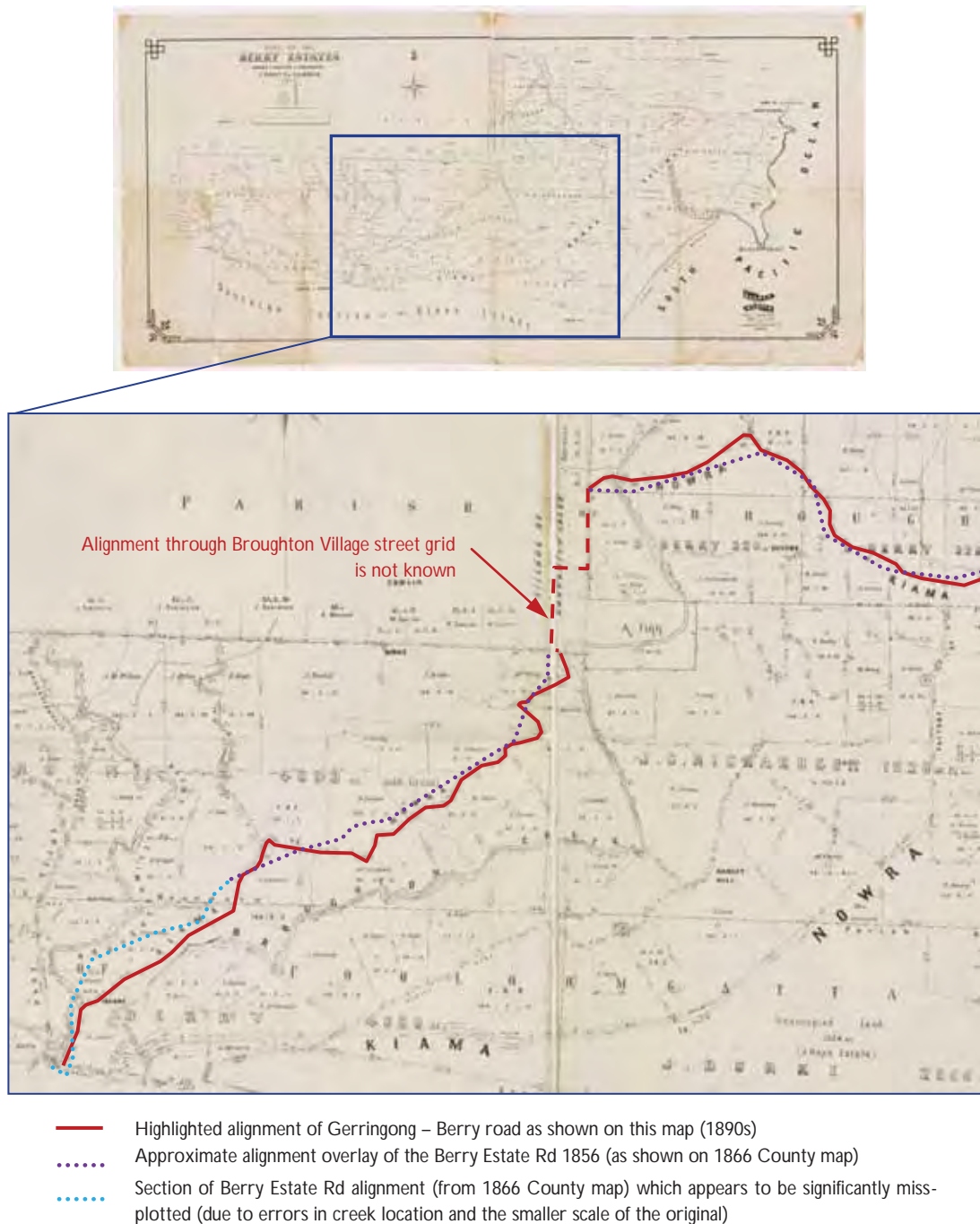
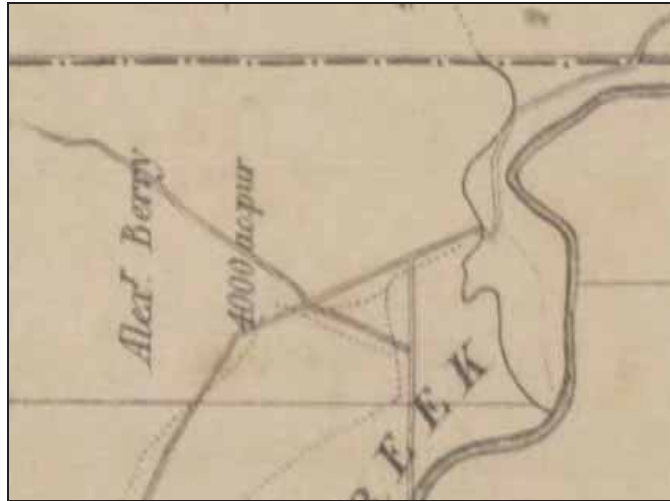


Figure 4.21: Extract from an early 1890s map of 'Part of the Berry Estates, Parishes of Broughton and Coolangatta, County of Camden'. The map records the boundaries of former tenant farms, their associated homesteads, and the road between Gerringong and Berry (highlighted in brown). The dotted line is an approximate overlay of the road shown in the 1866 County map, and presumed to be the estate road constructed by Berry in the 1850s (Figure 4.16 and Figure 4.17). Note that the 1890s road avoids higher gradient slopes, and deviates around cadastral boundaries (Map printed by Gibbs Shallard & Co. Sydney for Harper and Harper Civil Engineers, original at State Library of New South Wales, M_Ser4_000_1_MLMSS315_Map 17).



Figure 4.22: Extract from 1892 plan of 'Roads in the Berry Estates' showing interrelation of original 1856 Berry Estate road (blue dotted line overlay), and the later 1870s onwards highway alignment, between Binks Corner (Upper right) and Tindalls Lane intersection (lower left). (Courtesy of Mr Phil Bragg, Broughton).



County of Camden 1866



County of Camden 1895



Parish of Coolangatta 4th Ed

Figure 4.23: Extract from County and Parish maps showing the change in the orientation of the main south road through Broughton Creek (Berry), from a southwest to an east-west alignment occasioned by the establishment of a street grid in the 1880s.

From the passing of the *Local Government Act* in 1906, road maintenance and improvements were the responsibility of local Councils. This meant that highway works were uncoordinated and tended to be local in nature, and driven by local needs. Many of the municipalities along the road depended heavily on the volunteer support of local landholders in the upkeep of the road. The construction of bridges was the responsibility of the Department of Public Works. Following the Main Roads Act in 1924, the formation of the Main Roads Board in 1925 marked the beginning of an integrated approach to highway maintenance and reconstruction. At its formation, the Board found that the highway through the Shoalhaven area consisted of gravel, broken stone or plain earth surfaces (Bayley 1975:178). The Board immediately embarked on a Statewide programme of improving roads to a standard to suit high speed automobile traffic. The Board first arranged with a number of Councils for the urgent reconstruction or construction of portions of the Highway, and later assumed full responsibility for the whole length of the Highway to the Victoria border (excepting a short section through Wollongong), a length of around 342 miles.

Outside of new and reconstructed portions, a program of gradual improvement was pursued, funded by annual maintenance and improvement budgets. This program included works such as widening of existing formations and pavements, improvements to crests and curves, elimination of V-gutters by the construction of culverts, erection of safety fencing, guide posts, and the strengthening of pavements. By December 1932 the highway between Sydney and the Shoalhaven had been improved and most sections surfaced with a bituminous macadam. By 1951, the Highway had a continuous bituminous surface from Sydney to Moruya (JME 1951:84; OzRoads website; RMS s170 Broughton Creek bridge register).

Unemployment relief work was undertaken along the highway during the 1930s. The lookout at Mount Pleasant was constructed in 1935. In 1935-6 a new concrete bridge was constructed over Broughton Creek, on a short deviation, 650 metres downstream of the original timber structure (**Figure 4.24**). The cadastral street grid of Broughton Village was largely bypassed by the new alignment (**Figure 4.25**).



Figure 4.24: 1937 Photo, looking south, across the Broughton Village bypass, showing the original road alignment on the right (middle portion of photo), and new alignment and Broughton Creek bridge on the left (middle portion of photo) State Library of New South Wales.

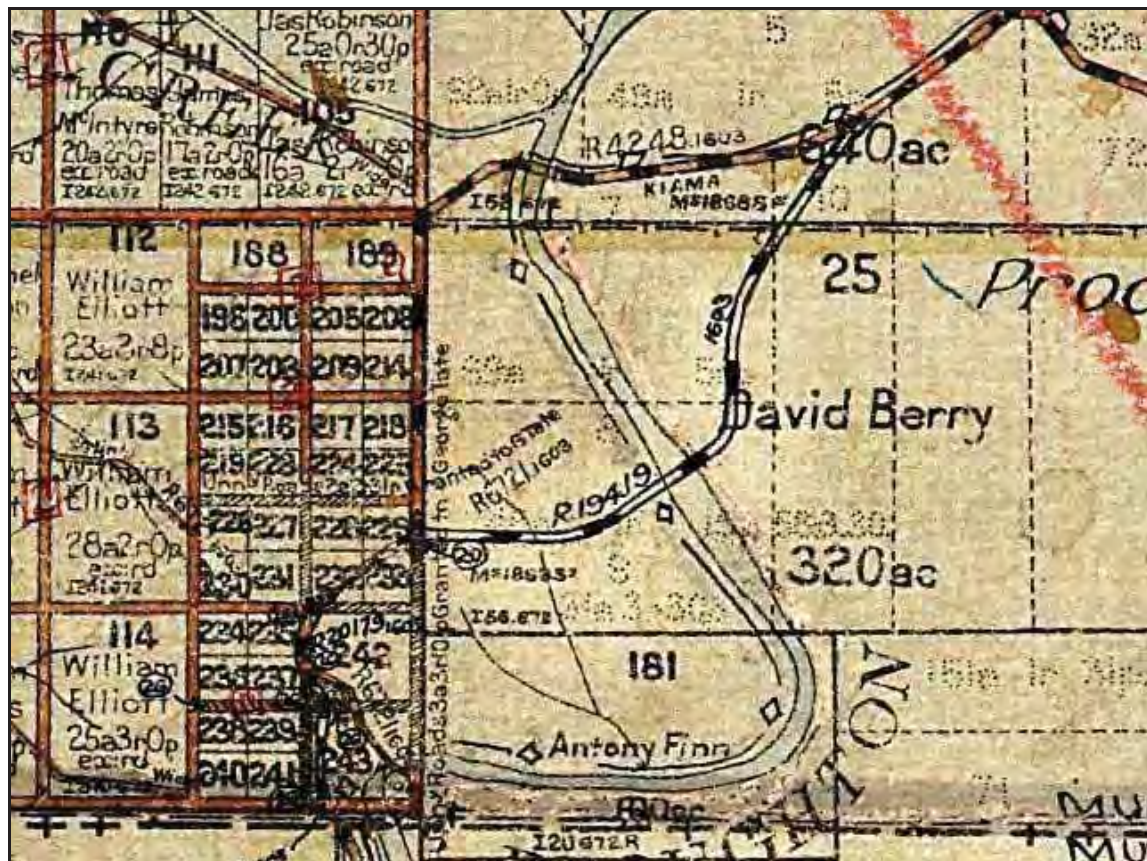


Figure 4.25: Extract from the sixth edition of the 6th Ed Broughton parish map, showing the new 1936 highway alignment which bypassed most of Broughton Village and required the construction of a new bridge.

1936 also saw the completion of a 1.7 kilometre deviation through steep country to the south of the creek (Figure 4.26, Figure 4.27 and Figure 4.28). This section included what is now known as 'The Big Dipper', and cut off a tight bend known at the time as 'Binks' Corner' (OzRoads website; Parish map of Broughton 6th edition 1916-1938).

Photos in the collection of the Berry and District Historical Society are referenced as depicting road construction at the big dipper around 1918 (refer Figure 4.29 and Figure 4.30). This date is contrary to the documentary record of highway works, but appears consistent with the technology depicted - horse drawn carts and possibly also pneumatic drills (c.f. Lees n.d.). Potential explanations are that: the recorded location or date is wrong; or these excavations occurred prior to the 1936 deviation; perhaps as part of the 1870s construction of the Berry to Broughton Village road. The latter option would depend on the identification of pneumatic drills in the photos being incorrect.

The reconstruction of the highway was halted in 1941 due to the onset of war in the Pacific, with funds and manpower being transferred to major defence routes. One of these was the Mount Ousley Road which provided an alternative descent of the Illawarra Escarpment (OzRoads website). 1941 also saw the possessive form removed from the Highway name, which became simply the 'Princes Highway' (OzRoads website).

In 1954 the highway was included in the National Route system as part of National Route 1. Signage was erected along the length of the highway during June 1955 (OzRoads website).



Figure 4.26: View looking south across a straightened alignment of the Princes Highway, south of Broughton Village, completed in 1936. This road section is known locally as the 'Big Dipper' (State Library of NSW d1_27129r)



Figure 4.27: 'Binks Corner - old abandoned roadway 1937'. The section of former highway was bypassed by the new alignment pictured above in 1936. (State Library of NSW d1_27130r)

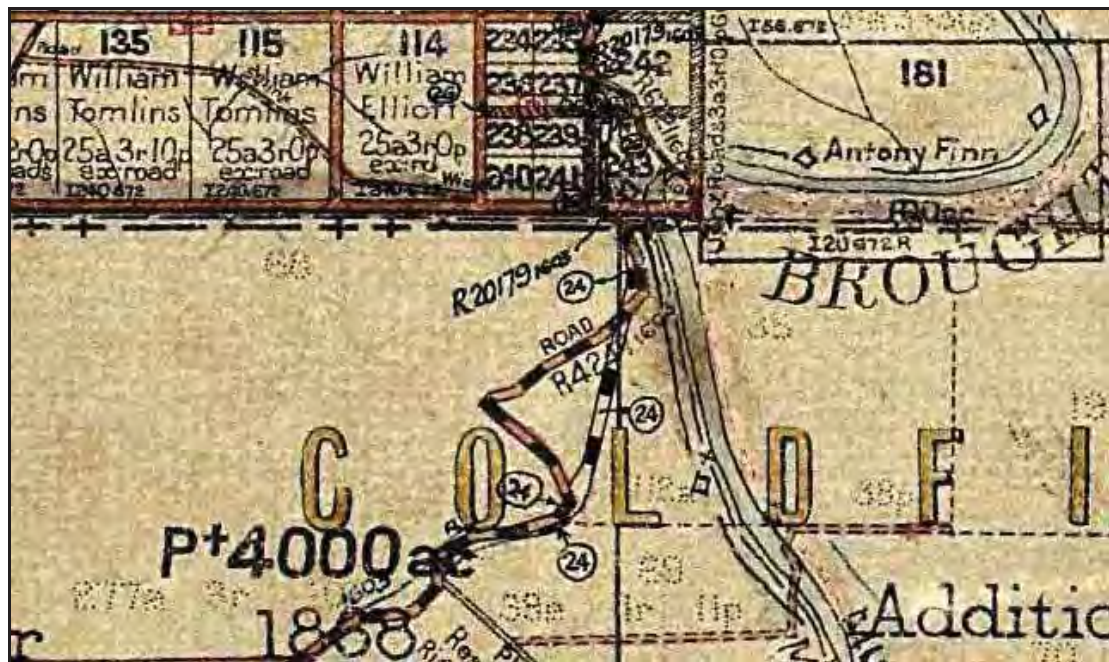


Figure 4.28: Extract from the parish map of Broughton (7th Edition) showing the deviation cutting off 'Bink's corner'



Figure 4.29: Road construction ca. 1918, stated to be in the area of the 'Big Dipper'. Note the apparent depiction of pneumatic drills by the two figures on the left embankment (National Library of Australia nla.pic-vn4607502-v)



Figure 4.30: Road construction at the 'Big Dipper'. This view has been taken of the same cutting, slightly higher and upslope of the picture above. (From collection of Berry and District Historical Society)

In 1955 an inspection of the Broughton Mill Creek Bridge at Berry was made by an appointed administrator of the Shoalhaven Shire, Keith Hawkshaw, who called for a report from the Council engineer on an innovative design of pile for a new bridge. Due to the difficult approach to the bridge, many accidents had occurred. Hawkshaw agreed with Berry residents that actions were required. A new concrete bridge on a new alignment was opened in 1958 (Bayley 1975:213; Robson and Knevitt 2008:48-49).

The 1960s brought the completion of the reconstruction and sealing plan that had been started in 1925. The bitumen finally reached the Victorian Border in 1965.

In 1980, a new three-lane bridge to carry northbound traffic was constructed immediately upstream and adjacent to the 1881 Shoalhaven River steel truss bridge which continued to carry two lanes of southbound traffic. The new bridge cost 2.9 million dollars.

In 1989 the roundabout at the intersection of the Princes Highway and Moss Vale Road (SR79) was installed.

Dual carriageways were completed through Bomaderry in December 1993.

4.2 Cultural heritage studies and inventory of listed heritage items

4.2.1 Statutory and non-statutory registers

The following statutory and non-statutory registers were searched for this assessment (updated July 2012):

Statutory listings:

- World Heritage List.
- The National Heritage List (Australian Heritage Council).
- The Commonwealth Heritage List (Australian Heritage Council).
- The State Heritage Register (NSW Heritage Branch, Office of Environment and Heritage).
- Section 170 Heritage and Conservation Register compiled by the RMS.
- Section 170 Heritage and Conservation Register compiled by Rail Corp.
- Schedule 7 (Heritage Conservation) Shoalhaven Local Environmental Plan 1985 (with amendments as at 21 Oct 2011).
- Schedule 5, Part 1 (Heritage Items, Environmental Heritage) Kiama Local Environmental Plan 2011 (as at 16 Dec 2011).
- Schedule 1 (Items of Environmental heritage) Illawarra Regional Environmental Plan No.1, gazetted 1986 and now deemed a State Environmental Planning Policy, (as at 7 Jan 2011).

Draft statutory listings:

- Schedule 5 (Environmental Heritage) Draft Shoalhaven Local Environmental Plan 2009.
- Kiama Heritage Inventory, Draft Kiama Local Environmental Plan 2010.

Non-statutory listings:

- The Australian Heritage Database (Department of Sustainability, Environment, Water, Population and Communities).
- The State Heritage Inventory (NSW Heritage Branch, Office of Environment and Heritage).
- Australian National Shipwreck Database (Department of Sustainability, Environment, Water, Population and Communities).
- The Register of the National Estate (Australian Heritage Council).
- Shoalhaven Heritage Inventory (includes data sheets on LEP listed items together with non listed items identified in previous Heritage studies and reports).
- Register of the National Trust of Australia (NSW).
- Australian Institute of Architects, Heritage Buildings List.
- Engineers Australia (Engineering Heritage Recognition Program).
- Royal Australian Institute of Architects Twentieth Century Register of Significant Buildings.

The searches found eight heritage items within 200 metres of the project which are included on existing statutory registers (refer **Table 5.1**). These are:

- The existing Princes Highway Broughton Creek bridge listed on the RMS section 170 Heritage and Conservation Register (identified as G2B H29 in this report).
- Six items are included on the Heritage Conservation Schedule (Schedule 7) of the Shoalhaven Local Environmental Plan (1985, with amendments as at 21 Oct 2011):
 - Avenue of Nine Poplar trees on Woodhill Mountain Road, Berry (identified as G2B H62 in this report).
 - *Mananga* Homestead and property, Berry (identified as G2B H16 in this report) .
 - Uniting Church Hall, Berry (identified as G2B H58 in this report).
 - St Patrick's Church, Convent and grounds, Berry (identified as G2B H47 in this report).
 - Mark Radium Park, Berry (identified as G2B H63).
 - Glenvale Homestead and property, Broughton identified as (2B H45 in this report).
- A dry stone wall located on Toolijooa Ridge (G2B H54), may be included within defined heritage schedule items in the Kiama LEP 2011 (Schedule 5, Part 1, Environmental heritage), and the Illawarra Regional Environmental Plan No.1 (Schedule 1, Items of environmental heritage). The LEP includes 'dry stone wall categories for the districts of Foxground (I28) and Kiama (I64), and the REP includes one item defined as 'dry stone walls, Jamberoo, Dunmore and Foxground Area, Kiama'. The inclusiveness of the Schedule definitions is open to debate, however the Kiama Municipal Council assume the REP listing is inclusive of all dry stone walls within the Kiama Local Government Area.

A revision of the Shoalhaven Local Environmental Plan is currently in progress by the Shoalhaven City Council. Public exhibition of a 2009 draft ended in October of 2011 and a revision for re-exhibition is currently in preparation. Schedule 5 (Environmental Heritage) of the Draft Shoalhaven LEP 2009 included the same items as those listed above and did not include any new proposed listings relevant to the project.

Both the Kiama Municipal Council and Shoalhaven City Council compile and maintain heritage inventories, based on NSW Heritage Branch software and data sheet proformas. Neither constitutes a statutory listing and entered items may be based on various received sources although most have been generated by previous Heritage Studies. The inventories serve to inform planning and management actions, but do not infer or define statutory constraints on included items. All or part of the current Kiama Heritage Inventory is included with Schedule 5 of the Kiama LEP 2011. The Shoalhaven Heritage Inventory contains many entries which are not included within either the current 1985, or Draft 2009, Shoalhaven LEP.

Three items are included on non-government registers with no statutory role. Two of these relate to the Berry District Landscape Conservation Area which is a broad scale, landscape based recording, originally defined by the National Trust of Australia (New South Wales). It is listed on the Trust's Register, and was also placed on the Register of the National Estate as an Indicative Place.

A recent addition to the Register of the National Trust is the Berry Township Urban Conservation Area. This listing incorporates three levels:

- A broad scale visual boundary which adopts the regional boundary of the Berry District Landscape Conservation Area.
- A subdivision boundary which relates to the closer urban settlement of the nineteenth century Berry town grid.
- A buffer zone which seeks to protect the immediate rural setting of the urban grid (Clark and Duyker 2010).

The *Mananga* homestead is included on the Royal Australian Institute of Architects 20th Century Register of Significant Buildings (no. 47022656). It is identified simply as a residence on the Princes Highway, with an approximate date of 1910. The presence of very elaborate gable treatment to the southern verandah is noted. This site is also on the Shoalhaven LEP Heritage Schedule.

For detailed descriptions of these recordings please refer to the relevant sections in Appendix G and to register extracts provided in Appendix B.

Table 4.1: Listed heritage items by type and individual heritage schedule, located within or near (within 200 m) the project. (Note, that items on the Shoalhaven Heritage Inventory (ShHI) are only shown on this table if also included on a statutory listing, refer section 4.2.2 for all relevant ShHI listings)

Item			Statutory and draft Statutory listings						Non-Statutory listings				
Project ID	Name	Location	HR	RTA s170	Illaw. REP 1986	Shoal. LEP 85	Draft Shoal. LEP 2009	Kiama LEP 2011	RNE	SHI	NT (NSW)	RAIA	ShHI
Equivalent to SICPH CL	Berry District Landscape Conservation Area (BDLCA)	Embraces the coastline south of Kiama some 30 km southward to Greenwell Point, the undulating coastal plain and the flood plain on both sides of the lower Shoalhaven River and including the steep, benched slopes rising up to the escarpment of the Illawarra plateau.							✓ (IP)		✓		✓
Equivalent to SICPH CL	Berry Township Urban Conservation Area	Three levels: <i>Visual boundary</i> - equates with BDLCA above. <i>Subdivision boundary</i> - comprises area of closer settlement in town C19th urban grid. <i>Buffer zone</i> – comprising of the immediate rural setting of the town									✓		
G2B H16	<i>Mananga</i> homestead and property	A40 Princes Highway, Berry				✓	✓					✓	✓
G2B H29	Broughton Creek Bridge (Bridge no. 704)	Princes Highway, Broughton Village		✓						✓			
G2B H62	Avenue of nine mature Poplar Trees	Woodhill Mountain Road, Berry				✓	✓						✓

Item			Statutory and draft Statutory listings						Non-Statutory listings				
Project ID	Name	Location	HR	RTA s170	Illaw. REP 1986	Shoal. LEP 85	Draft Shoal. LEP 2009	Kiama LEP 2011	RNE	SHI	NT (NSW)	RAIA	ShHI
G2B H63	Mark Radium Park	Cnr of Victoria St and Princes Highway				✓	✓						✓
G2B H45	Glenvale homestead and property	A371 Princes Highway, Broughton				✓	✓						✓
G2B H47	St Patrick's Convent, Church and grounds	80 North Street, Berry				✓	✓						✓
Includes G2B H54	Dry stone walls	All examples situated within Kiama LGA			✓*								
Possibly includes G2B H54	Dry stone walls	Foxground and Kiama districts						✓					
G2B H58	Uniting Church Hall (formerly Wesleyan Chapel)	69 Albert St (adj. to North St)				✓							✓

* The extent to which the 'Dry Stone Walls' listing in Schedule One of the Illawarra Regional Environmental Plan is inclusive of all dry stone walls within the Kiama Local Government Area (LGA) is ill-defined. The inclusion of this listing as applicable to the project is based on the interpretation of the Kiama Municipal Council which considers that the Schedule listing relates to the whole LGA (pers. comm.. Andrew Knowlson, Director of Environmental Services, Kiama Municipal Council, 5 Oct 2011).

Key

HR = NSW Heritage Branch Heritage Register.

SHI = NSW Heritage Branch State Heritage Inventory.

RTA s170 = Roads and Traffic Authority section 170 Heritage & Conservation Register.

Illaw. REP 1986 = Illawarra Regional Environmental Plan (first gazetted 1986).

Kiama LEP 2011 = Draft Kiama Local Environmental Plan 2010 – Kiama Heritage Inventory.

Shoal. LEP 85 = Shoalhaven Local Environmental Plan 1985 – Schedule 7.

Draft Shoal. LEP 2009 = Draft Shoalhaven Local Environmental Plan 2009 – Schedule 5.

ShHI = Shoalhaven Heritage Inventory.

RNE = Register of the National Estate (R = Registered, IP = Indicative Place).

NT = Register of the National Trust of Australia (NSW).

RAIA = Royal Australian Institute of Architects 20th Century Register of Significant Buildings.

4.2.2 Cultural heritage studies

The project is situated within the assessment areas of two previous Heritage Studies, the Shoalhaven City Council Heritage Study 1995-1998 (Peter Freeman Pty Ltd 1998) and the Kiama Heritage Study (Latona Masterman & Associates (1987)).

The Kiama study has been augmented by a number of follow-up heritage reviews conducted by, or on behalf of, Kiama Municipal Council (Perumal Murphy Wu Pty Ltd 1994; Simpson Dawbin 2000; www.nsw.nationaltrust.org.au/sohkiama.html), and a study of stone walling around Kiama (Mayne Wilson and Associates 2000). This has culminated in the exhibition of a revised heritage inventory (refer listed items section above) as part of Draft Kiama LEP (2010).

A detailed review of heritage studies was prepared during the selection of the preferred route for the project (Navin Officer Heritage Consultants 2007b). The reader is referred to this study for detailed information on the subject.

No heritage items were identified by the Kiama Heritage Study within or near (within 200 metres) the project. Eleven relevant items were identified by the Shellharbour Heritage Study (Refer **Table 4.2**). Seven of these are included within the Local Environmental Plan heritage schedule. The four remaining items consist of two buildings along North Street, one on Woodhill Mountain Road and a pastoral landscape recording for the Berry and Bolong district. All of these items are considered further as heritage items within this project assessment.

Table 4.2: Heritage items in or near (within 200 metres) the project identified in the Shoalhaven City Council Heritage Study 1995-1998

Project ID	Heritage Study ID	Name	Location	Level of Identified Significance	Shoalhaven LEP 1985
G2B H47	B004	St Patrick's Convent	80 North Street, Berry	Local	✓
G2B H47	B005	St Patrick's Church	80 North Street, Berry	Local	✓
G2B H58	B017	Uniting Church Hall (former Wesleyan Chapel)	69 Albert St	Local	✓
G2B H63	B061	Mark Radium Park	Cnr of Victoria St and Princes Highway	Local	✓
G2B H16	B087	<i>Mananga</i> Federation, Queen Anne Style Farmhouse	A40 Princes Highway, Berry	Regional	✓
G2B H13	B090	Farm Worker's Cottage	143 North Street, Berry	Local	
G2B H11	B093	Federation Farm House	77 North Street, Berry	Local	
Equivalent to SICPH CL	B094	Berry-Bolong Pastoral Landscapes	Roughly bounded by: <ul style="list-style-type: none"> The Shoalhaven River in the S. The coast in the SE. The City Council boundary in the E. The Cambewarra Range escarpment in the NE, N and NW (as far as Browns Mountain). The northern and eastern margin of Tapitallee, Bangalee and Bomaderry. 	Regional	

Project ID	Heritage Study ID	Name	Location	Level of Identified Significance	Shoalhaven LEP 1985
G2B H62	B095	<i>Populus nigra "italica"</i> (9 Lombardy Poplars)	Woodhill Mountain Road, Berry	Local	✓
G2B H45	B120	Glenvale (former Berry Estate Tenant's Cottage)	A371 Princes Highway, Broughton	Local	✓
G2B H49	B177	<i>Oakleigh</i> Farm House	59 Woodhill Mountain Road, Broughton Vale [Berry]	Local	

4.3 Predictive historical archaeology statement

Unrecorded historic sites and features of heritage significance that potentially may occur within or near the project are likely to comply with the following predictive statements:

- Buildings and structures would be focused in the town and along the early centres and corridors of occupation, agriculture, industry, travel and transport.
- Structures of historical interest and heritage significance may be standing, ruined, buried, abandoned or still in use.
- Standing commercial and public buildings are most likely to survive within the towns and urban landscapes.
- Nineteenth century structures, such as farm dwellings, outbuildings, selector's or tenant farmer cottages may survive as standing buildings, ruins or archaeological deposits and are most likely to survive on less developed rural properties, on early portion numbers, and in or near established farm building complexes.
- Former timber mills and associated infrastructure such as timber pole structures, remains of machinery, tracks and tramways may survive on the outskirts of the towns or adjacent to former or existing forested areas.
- Traces of agricultural and industrial processing or extractive sites such as mills, dairies, factories, and quarries may be found throughout agricultural lands on the valley floor and adjacent low ranges.
- Sites associated with early roads would be closely associated with early private estate and cadastral (public) road reserves, watershed ridgelines, and related to early river and creek crossing points.
- Archaeological sites such as the occupation remains of former dwellings including homesteads, houses and huts, would be distributed in close association with land settlement patterns and correlated with favourable agricultural lands, trading nodes and transport corridors.
- Transport and access routes such as bridle paths, stock routes, and highway alignments of varying forms and ages, may survive as abandoned remnants adjacent to modern transport routes, or as alignments now followed by more modern or upgraded road and track infrastructure.
- Old fence lines (such as dry stone wall and post and rail fencing) may occur along road easement boundaries and enclosed farmlands. Other indications of field systems, such as drainage channels and ridge and furrow ploughlands, may survive in low lying agricultural ground, especially in areas that are now used for grazing, rather than cropping.
- Shipwrecks and the submerged remains of other structures or deposits, such as from wharves, jetties and piers, may occur on river and creek banks and beds.

5 Field inspection results

This chapter provides a summary of Non-Aboriginal field recordings situated within, or within 200 metres of, the project. All previously listed items within the project area are included.

The locations of the recorded items are shown in **Figure 5.1** and Appendix A. Site specific, large scale location mapping is provided in Appendix I. An inventory and summary description of recordings and items is provided in **Table 5.1**. Detailed site descriptions, including site specific background information, are presented in Appendix D.

A description of cultural landscape values and relevant recordings is presented as a separate section (Section 5.3).

Please note that the numbering of the recordings is generated from an on-going inventory of romarchaeological survey results for the whole of the Princes Highway upgrade between Mount Pleasant (Gerringong) and Bomaderry (refer Section 2.4. As a consequence, the numbering sequence is discontinuous.

5.1 Summary of field recordings

Forty non-Aboriginal (European) field recordings have been recorded within or near (within 200 metres) the project (G2B H10-30, 45, 47-63 and SICPH CL).

Six of these recordings were not found to have heritage significance against the assessment criteria (refer section 7.0 and Appendix G). These recordings consist of two cottages (G2B H10 and G2B H50), and four twentieth century highway remnants (G2B H12, G2B H18, G2B H24 and G2B H57).

The remaining 34 recordings were found to have heritage significance and are classed as heritage items. These consist of:

- Ten road sections or remnants (G2B H15, G2B H19, G2B H20, G2B H21, G2B H22, G2B H23, G2B H26, G2B H27, G2B H30 and G2B H55).
- One highway bridge (G2B H29).
- Twelve standing buildings or building groups (G2B H11, G2B H13, G2B H16, G2B H17, G2B H25, G2B H28, G2B H45, G2B H47, G2B H49, G2B H51, G2B H56 and G2B H58).
- Five confirmed or potential archaeological deposits comprising former building sites (G2B H14, G2B H48, G2B H52, G2B H53, and G2B H59).
- One quarried rock outcrop (G2B H61).
- One remnant dry stone wall (G2B H54).
- One tree avenue (G2B 62).
- One public park (G2B H63).
- One item of movable heritage, a skid mounted work-site shed (G2B H60).
- One cultural landscape, the Southern Illawarra Coastal Plain and Hinterland (SICPH CL).

Eight of these heritage items are included on existing statutory heritage listings (G2B H16, G2B H29, G2B H45, G2B H47, G2B H54, G2B H58, G2B H62 and G2B H63).

5.2 Summary table of field recording descriptions

Table 5.1: Summary of non-Aboriginal field recordings within or near (within 200m) the project

ID	Name/location	Description	Statutory listing	MGA references		
				Mid/focal point	end point 1	End point 2
G2B H10	Cottage (72 North St. Berry)	Early twentieth century cottage, impacted by modern renovation		288592.6149727	-	-
G2B H11	<i>GlenDevan</i> Federation House (77 North St. Berry)	Federation house with a number of additions		288638.6149772	-	-
G2B H12	Remnant portion of C20th highway (Stewarts Hill cutting and wayside stop, northern entrance to Berry)	Ceased use as part of highway in 1955, now used as a landscaped wayside stop (170 metres)		290137.6149984	290206.6149987	290097.6149908
G2B H13	Burnett Estate Overseer's Cottage (143 North St. Berry)	Simple weatherboard cottage (c. 1917), former residence for agricultural estate worker		289329.6149710	-	-
G2B H14	Archaeological deposit (former C19th <i>Broughton Creek</i> town buildings)	A number of former town structures were located on the eastern side of the former highway alignment (G2B H15), roughly opposite <i>Mananga</i> . These include the Berry Butter Factory 1889, Overseers Cottage 1858, Court House 1870s, and the Council Chambers 1868, and a Carpenters Cottage		290041.6149820	290063.6149874	290019.6149750
G2B H15	Remnant portion of C20th highway (mid 1950s)	Ceased use as part of highway in 1955, now used as an access road for adjacent residential lots (195 metres)		290056.6149792	290085.6149872	290020.6149720
G2B H16	<i>Mananga</i> , Queen Anne style homestead complex and grounds, former Berry Estate Manager's residence (A40 Princes Highway. Berry)	Federation (1894) Queen Anne style homestead, possibly designed by Sydney architect Howard Joseland. Property includes portion of Berry Estate water mill race	SLEP 1985	290103.6149797	-	-

ID	Name/location	Description	Statutory listing	MGA references		
				Mid/focal point	end point 1	End point 2
G2B H17	<i>Hillview</i> homestead, former Berry Estate tenant farm (A111 Princes Highway Berry)	Former nineteenth century Berry Estate tenant homestead		290542.6150237	-	-
G2B H18	Remnant portion of C20th highway (mid 1930s)	Now resumed within adjacent dairy farm (150 metres)		291551.6150844	291610.6150911	291500.6150827
G2B H19	Remnant portion of C19th road	Poorly preserved remnant of the original Berry Estate Road (430 metres)		291745.6150873	291567.6150828	291987.6150902
G2B H20	Remnant portion of C20th highway	Now resumed within adjacent dairy farm (195 metres)		292397.6150800	292460.6150870	292324.6150850
G2B H21	Remnant portion of C20th highway	Remnant includes a 90 degree bend and upslope embankment, revegetated (120 metres)		292502.6150985	292567.6150985	292492.6150957
G2B H22	Remnant portion of C19th road	Remnant of original Berry Estate Road, includes shallow cutting (460 metres)		292534.6151013	292713.6151056	292296.6150888
G2B H23	Remnant portion of C19th road	Remnant of original Berry Estate Road (320 metres), road is evident as shallow relief and differences in grass cover		293038.6151225	293162.6151296	292911.6151149
G2B H24	Remnant portion of C20th highway	Poorly preserved, has been used extensively as a fill, gravel and materials dump (180 metres)		293508.6151439	293535.6151482	293405.6151406
G2B H25	<i>Sedgeford</i> homestead and grounds (A495 Princes Highway, Broughton Village)	Federation weatherboard homestead (1902) and gardens		293762.6151623	-	-
G2B H26	Remnant portion of C20th highway ("Bink's Corner")	This portion of highway formerly known as "Binks Corner", consists of an angled descent and ascent across a small valley, and was bypassed when the 'Big Dipper' was constructed in 1936. It follows an 1870s-80s alignment of the highway (total length around 612 metres)		293692.6151822	294008.6151962	293839.6151602

ID	Name/location	Description	Statutory listing	MGA references		
				Mid/focal point	end point 1	End point 2
G2B H27	Remnant portion of C19th road	This is a portion of the original Berry Estate Road which was superseded by the adjacent, more gradient sensitive 1870s-80s alignment (G2B H26). It includes three straight sections with two corners, including a well preserved cut and benched section of 260m (total length: 550 metres)		293913.6151961	293188.6152199	293742.6151753
G2B H28	<i>Brookside</i> homestead (A540 Princes Highway. Broughton Village)	Late nineteenth century to early twentieth century homestead. Buildings have been transported from other locations, also archaeological traces of former outbuildings. This recording includes a memorial tree and plot with the cremated remains of Mr William Chittick (died 2005), located 220 metres upstream of the homestead on the western side of the Creek		294107.6151865	-	-
G2B H29	C20th concrete bridge (Princes Highway. Broughton Creek)	RTA Bridge no. 704, Southern Region. Constructed in 1935, using standard concrete beam design, and widened in 1994	RTA s170	294861.6152838	-	-
G2B H30	Remnant portion of C19th road	A relatively well preserved section of road, situated within a pasture field, along the crest and shoulder of a prominent spurline. This remnant is a portion of the original Berry Estate Road. The road platform is evidenced by side ditches and variably shallow ground relief. Includes bordering gum trees at eastern end and descent to Toolijooa Road saddle (530 metres)		296440.6152555	296738.6152431	296277.6152706

ID	Name/location	Description	Statutory listing	MGA references		
				Mid/focal point	end point 1	End point 2
G2B H45	<i>Glenvale</i> homestead, former Berry Estate tenant farm (A371 Princes Highway. Broughton)	Former Berry Estate tenant farm, homestead includes vertical slab construction	SLEP 1985	292662.6151257	-	-
G2B H47	Former St Patrick's Convent (1921), St Patricks Church (1936), and grounds (80 North St. Berry)	Two story brick convent building, brick church, and grounds	SLEP 1985	288660.6149702 (convent) 288688.6149694 (Church)	-	-
G2B H48	Potential archaeological deposit, former Berry Estate tenant farm (now location of Greystanes Lodge)	Location of a former Berry Estate tenant farm, homestead, now redeveloped with modern farm buildings (<i>Greystanes Lodge</i>). Any remaining archaeological items are likely to be substantially disturbed		294547.6152597	-	-
G2B H49	<i>Oakleigh</i> farmhouse (59 Woodhill Mountain Rd. Berry)	Inter War Bungalow style Farmhouse		289727.6150118	-	-
G2B H50	<i>Clare Moy</i> Cottage (342 Princes Highway. Toolijooa)	Early twentieth century weatherboard farm cottage		296794.6152462	-	-
G2B H51	<i>Graham Park</i> former agricultural research institution (8, 9 & 13 Schofields Lane, Berry)	Former agricultural research station. The first Artificial Insemination Breeding Station (AIBS) in New South Wales was established at Berry in the 1950s, and was subsequently moved to Graham Park in 1958. The facility closed in the 1990s		287479.6148712	-	-
G2B H52	Potential archaeological deposit, former Berry Estate tenant farm (A441 Princes Highway. Broughton Village)	Potential archaeological deposit of a former Berry Estate tenant farm, situated on the angle in the 'Binks Corner' remnant highway section (G2B H26). The only such PAD where the original relationship between the structures and the 1870s-80s highway may survive		293659.6151844 (approx.)	-	-

ID	Name/location	Description	Statutory listing	MGA references		
				Mid/focal point	end point 1	End point 2
G2B H53	Potential archaeological deposit, former Berry Estate tenant farm structure (just east of the Toolijooa Ridge)	Potential archaeological deposit of a former Berry Estate tenant farm structure, site includes an indeterminate rock rubble alignment which parallels a former C19th road alignment (Berry Estate Road)		296227.6152738		
G2B H54	Remnant portion of C19th dry stone wall, (west side of current highway, just east of Toolijooa Ridge saddle)	Remnant dry stone wall, situated along former western boundary of highway easement, at least 100m in length, and possibly extending for a further 150 metres north (obscured by lantana growth)		296166.6152881	296197.6152799	296152.6153045
G2B H55	Remnant portion of C19th road (north of <i>Mananga</i> homestead)	Remnant of original Berry Estate Road (100 metres), evident as a cut and benched platform, impacted by modern cross drains		290207.6149941	290246.6149973	290172.6149916
G2B H56	<i>Broughton Mill</i> homestead and Dairy (both disused), former Berry Estate tenant farm, (117 North St., Berry)	Standing ruins of early twentieth century farmhouse, outbuildings, disused dairy, and yards		289005.6149857		
G2B H57	Remnant portion of C20th highway (intersection of Princes Highway and Tindalls Lane)	Small remnant, substantially impacted by more recent road works and the Eastern Gas Pipeline (30 metres)		291636.6150973		
G2B H58	Uniting Church Hall (formerly Wesleyan Chapel 1884-)	Timber frame and weatherboard church hall/chapel	SLEP 1985	289326.6149627		
G2B H59	Archaeological Deposit, and remnant plantings of former non-Berry Estate homestead, Broughton Village – (Finn/Wood/Grant/Stewart/Dinning families)	Remnant tree plantings, garden plants and surface foundation stones are indicative of an archaeological deposit of a former early C19th farm residence		294612.6152138		

ID	Name/location	Description	Statutory listing	MGA references		
				Mid/focal point	end point 1	End point 2
G2B H60	Skid mounted work-site shed (movable item)	Portable (towable) timber frame and corrugated iron shed, currently located at <i>Greystanes Lodge</i> , Broughton Village		294536.6152562		
G2B H61	Quarried rock outcrop, Broughton	A small area of rock quarrying (evidenced by drill holes and fracture surfaces) on a small natural sandstone outcrop forming the bed of a tributary streamline. A nearby concrete highway culvert is situated immediately upslope. Quarrying may be related to an earlier phase of highway construction		292261.6150863	-	-
G2B H62	Avenue of Poplar trees (Woodhill Mountain Rd, Berry)	Nine Lombardy Poplars, situated along the eastern side of Woodhill Mountain Road, between the current highway and just past the Bundewallah Creek bridge. Numerous younger Poplar plantings continue the avenue to the north, on both sides of the road, but do not form part of the SLEP listed item	SLEP 1985	289851.6149758	289862.6149907	289819.6149672
G2B H63	Mark Radium Park, Berry	Recreational and ornamental park and gardens (developed by Berry Apex Club), which commemorates a local Australian champion pony which held high jump records between 1938-1955	SLEP 1985	288189.6149433	-	-
SICPH CL	Cultural Landscape (Southern Illawarra Coastal Plain and Hinterland)	The cultural landscape of the Southern and eastern falls of the Southern Illawarra Range, and adjacent coastal plain		-	-	-

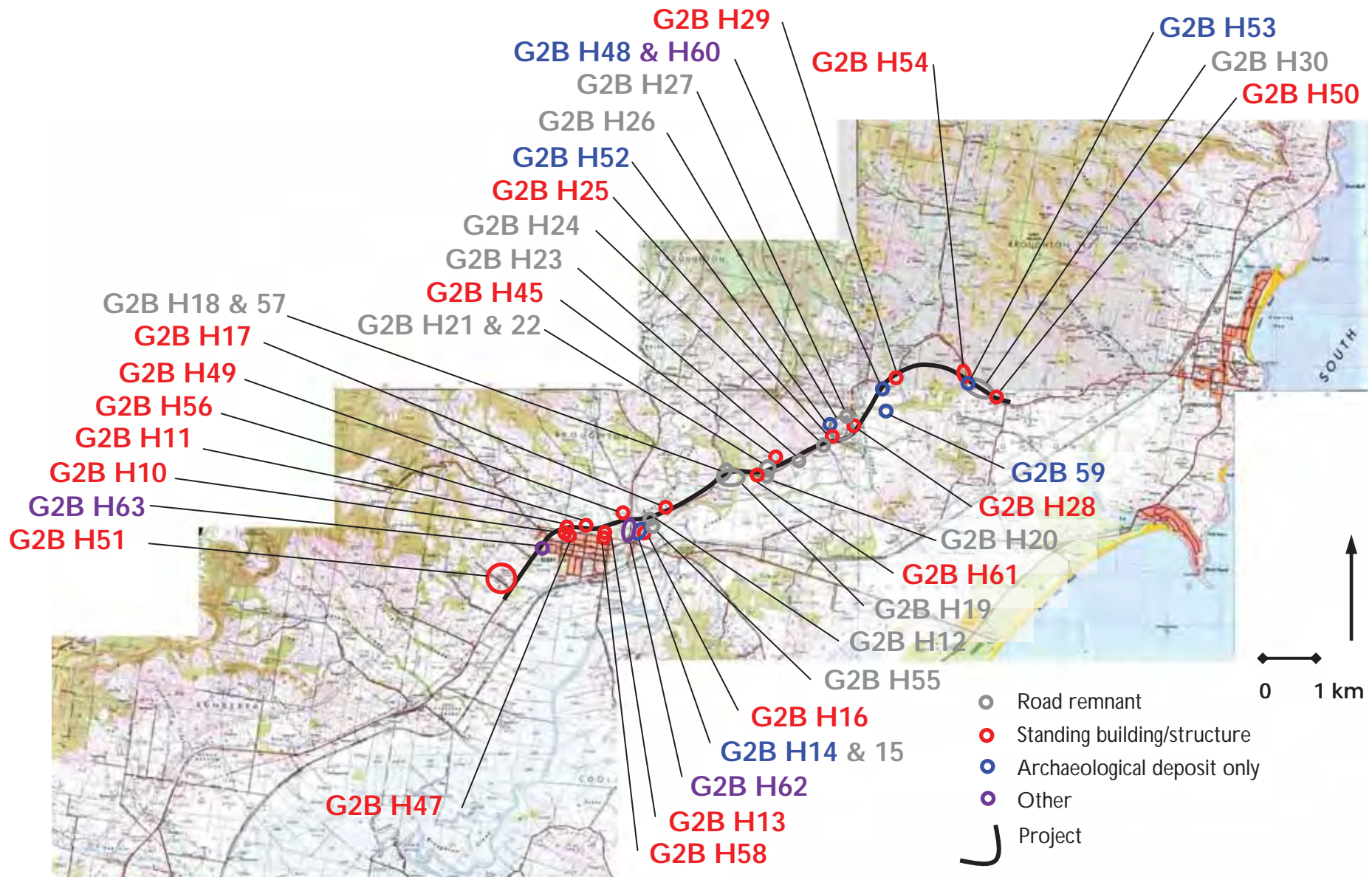


Figure 5.1: General location of non-Aboriginal field recordings (excluding SICPH CL, refer to Figure 5.6 for the location of this item)
 Base map compiled from extracts from the following 1:25,000 topographic maps published by the Central Mapping Authority of NSW: Berry (1988), Kiama (1985) and Kangaroo Valley (1986); and the Land Information Centre: Gerroa (1986).

5.3 Cultural landscape values

5.3.1 Southern Illawarra Coastal Plain and Hinterland Cultural Landscape (SICPH CL)

The predominantly pastoral landscape character of the coastal plain and basal slopes extending southwards from the Southern Illawarra Range, from Mount Pleasant in the east, to Browns Mountain in the west, and extending southwards to Greenwell Point, has been variously recognised as a landscape with significant heritage and conservation values (**Figure 5.2** to **Figure 5.6**). Previous recognition has been either limited to sub-regions and categories (such as the Berry-Bolong Pastoral Landscape), focused on contextual values relative to urban and town centres (such as the Berry Township Urban Conservation Area), or defined primarily in terms of natural and historical landscape characteristics (the Berry District Landscape Conservation Area).

The adoption, in this report, of a cultural landscape classification for this area seeks to recognise cultural heritage values as a consequence of the interplay between cultural practice and the physical environment. This provides for the management of such area's in terms of human processes and economies, as well as physical characteristics.

The area and boundary of the SICPH CL approximates those for the National Trust listing of the Berry District Landscape Conservation Area (**Figure 5.6**). A detailed analysis and definition of a boundary is beyond the scope of this assessment.

The Shoalhaven City Council Heritage Study recognised the western portion of this precinct, north of the Shoalhaven, as the *Berry-Bolong Pastoral Landscape* (Peter Freeman Pty Ltd 1998:44) (**Figure 5.6**). It was noted that the continuity of dairy farming across the region has contributed to the survival of an underlying nineteenth century and early twentieth century pastoral landscape. The development of this landscape has been structured by the evolution of the Berry Estates and surrounding villages and tenant communities, subsequent Free Selection across the surrounding slopes, the development and predominance of the dairying industry, development of the transport corridors, first by water and then by road and rail, and the drainage of the wetland basins across the Shoalhaven flood plain.



Figure 5.2: Distant view of Berry (indicated by blue arrows) and its landscape context, looking southwest from Tulloch Road. Note the coastal plain context framed by the Southern Illawarra Range escarpment and descending spurs from the far right, and the Coolangatta Mountain on the far left.



Gerroa and the Crooked River



Toolijooa Ridge and Palm valley



Broughton Creek, Broughton Village



Girrakool homestead



Turf farming, Woodhill Mountain Road



Poplars, Woodhill Mountain Road

Figure 5.3: A collection of views demonstrating some of the cultural and aesthetic cultural landscape values of the Southern Illawarra Coastal Plain and Hinterland cultural landscape



Bundewallah Creek



Bundewallah Creek



Valley floor, Broughton Village



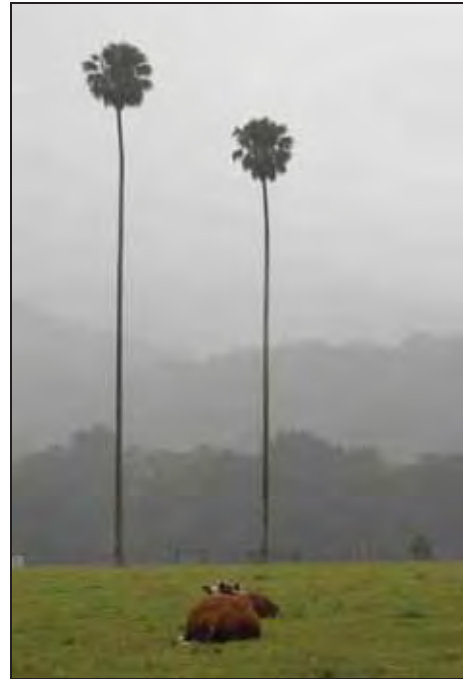
Gate, Willow Springs Rd, Broughton Village

Figure 5.4: A collection of views demonstrating some of the cultural and aesthetic cultural landscape values of the Southern Illawarra Coastal Plain and Hinterland cultural landscape

Despite the decline of many smaller villages and communities, changes in population density, the diminishing viability of small farms, and the growth of rural subdivision, the region retains a fundamentally nineteenth century pastoral structure. This is evident as a patchwork of cleared and drained floodplains, cleared estates, vegetated boundaries, forested upper slopes, and a network of townscapes and valley settlements. All of these elements are aesthetically held together by the backdrop of the Illawarra Range, its top escarpment, and prominent ridgelines extending across the plain to the coast. This landscape includes examples of vernacular buildings, farmscapes, churches and public schools, nineteenth century plantings, Victorian residences and a range of buildings, silos, drainage schemes and structures which demonstrate settlement, landuse patterns and the archaeology of the agricultural development of the Southern Illawarra (Peter Freeman Pty Ltd 1998:45).



Railway cutting, Dooley Road, Toolijooa



Off Thompsons Road, Broughton Village



Highway alignment west of Sedgeford



Highway alignment west of Glenvale



Highway alignment at the 'Big Dipper', Broughton Village



Bridge (constructed 1955) over Broughton Mill Creek, Berry

Figure 5.5: A collection of views demonstrating some of the cultural and aesthetic cultural landscape values of the Southern Illawarra Coastal Plain and Hinterland cultural landscape

The vegetation of the region is also a critical component of the cultural landscape. Landscape elements include the continuous pastoral grasslands of the lowlands which extend up slope into a patchwork of smaller former dairy farm clearings, remnant patches of sclerophyll and regenerating rainforest, ribbons of riparian vegetation, and the widespread iconic incidence of often isolated cabbage fan palms, large spreading fig trees, and boundary plantings of Coral trees.

The National Trust (New South Wales) has recognised the cultural, aesthetic and natural values of the landscape values of the Southern Illawarra by defining the *Berry District Landscape Conservation Area* (BDLCA). This area includes the coastline south of Kiama to Greenwell Point, the lower Shoalhaven River plain, and the slopes leading up to and including the Illawarra escarpment **Figure 5.6**). This area is roughly equivalent to that of the SICPH CL. A description of this identified landscape has been entered onto the Register of the National Estate, as an Indicative Place (Place ID 1625), however no formal nomination or assessment was ever prepared (Refer Appendix B).

5.3.2 Berry as an integral component of the SICPH Cultural Landscape

The town of Berry is an integral component of the cultural landscape and its values identified in the SICPH Cultural Landscape recording, and its previously recorded subsets; the Berry Bolong Pastoral Landscape, and the Berry District Landscape Conservation Area. The importance of the town can be summarised by the following points:

- It is the only town within the SICPH CL, and north of the Shoalhaven, which was founded as a private town, and as a part of the Berry Estate.
- It is the only non-coastal, nineteenth century town within the SICPH CL which has developed a viable urban presence, identity and civic centre.
- It demonstrates the historical progression from a private village, initiated and supported by the Berry Estate, to a public town governed by a local government authority.
- It has always been an important part of local district networking and in particular, infrastructure for communication, transport, industry, trade and administration.
- Its road and rail corridors endure as active elements, its maritime corridor (Broughton Creek) remains as an inactive component.
- Its institutions, industry and organisations have variously dominated and influenced the development, extent and structure of the surrounding region.
- It is centrally located within the SICPH CL and provides an aesthetic and cultural focus.
- Many of the nineteenth century traits of the town have not been replaced or overwhelmed by subsequent latter twentieth century urban or industrial development.
- The context of the town remains pastoral.

Many of these characteristics and values are a basis for the recent recognition, by the National Trust of Australia (NSW) of the *Berry Township Urban Conservation Area* (BTUCA). This area was listed on the Trust's Register in 2011 (refer Appendix B). The listing recognises the historic development of the town, and its distinctive urban character set within a rolling agricultural landscape. The following are identified as key components of the town both singly and in combination:

- The range of nineteenth and first half of the twentieth century (mostly single storey) pitched roofed public, commercial and residential buildings.
- The arrangement of buildings within a strict nineteenth century urban grid.
- The residential gardens and street tree plantings.
- The containment of town development within the grid and the abrupt boundary (and resulting contrast) with the adjacent rural lands.
- The views out from the townscape to the rural lands and the Illawarra escarpment.
- The views into the town.

The BTUCA listing incorporates three levels (**Figure5.6**):

- A broad scale visual boundary which adopts the regional boundary of the Berry District Landscape Conservation Area.
- A subdivision boundary which relates to the closer urban settlement of the nineteenth century Berry town grid.
- A buffer zone which seeks to protect the immediate rural setting of the urban grid (Clark and Duyker 2010).

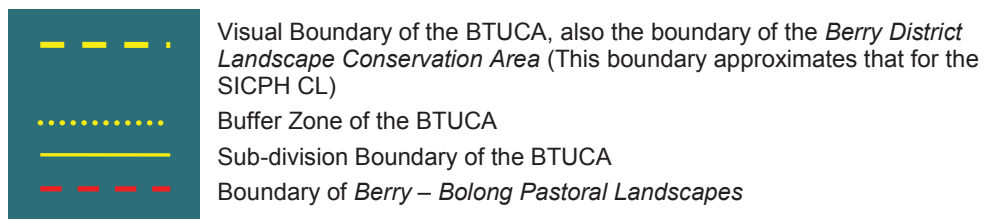


Figure 5.6: Previously defined landscape conservation areas which include the project: Three levels of the National Trust Berry Township Urban Conservation Area (BTUCA) are defined. (After Figure 13 in Clarke and Duyker 2010; and The boundary of the Berry – Bolong Pastoral Landscapes (Shoalhaven Heritage Inventory) (base image: Google Earth Pro 2009).



Figure 5.7: Detail of the Sub-division boundary and fringing Buffer Zone for the National Trust defined Berry Township Urban Conservation Area (After Figure 13 in Clarke and Duyker 2010) (Google Earth Pro 2006).

An analysis of the urban and townscape of Berry was conducted by Conybeare Morrison & Partners (1999). Key elements were found to be:

- The town relationship with the surrounding valleys, foothill and ridges.
- The structure of the urban area, including:
 - The earlier, linear topography determined, town development on the spurline east of Broughton Mill Creek.
 - The rectangular grid, established in the 1880s to the west of Broughton Mill Creek, and south of Bundewallah Creek, (and extended towards the rail line in the 1890s).
 - The smoothing of the squared road intersections along the northern town approach which resulted from upgrading of the highway in the 1950s.
 - To these elements can be added the mid to later twentieth century development areas to the west and southwest of the town (**Figure 5.8**).
- Vistas to and from the town, including how the street grid and surrounding landscape reveal, frame or conceal view scapes.

- Urban texture, including the rapid change in the space of two blocks, from a pastoral landscape with vernacular buildings, to the urban Victorian character of the commercial and public buildings along the main street.
- The surrounding pastoral landscape and its interrelation with the town, especially to the north of the town where the boundary is distinct and vistas allow urban and pastoral elements to be juxtaposed.

A visual analysis of the chronological development of the Berry township and its urban structure is provided in **Figure 5.8**. A number of key points can be made from the analysis:

- There have been four major developmental structural influences:
 - The mid to late nineteenth century commercial and civic focus of the ‘Broughton Creek’ town along the spurline east of Broughton Mill Creek.
 - The establishment of the current town centre and associated urban grid from the 1880s.
 - The imposition of the diagonal rail corridor and associated development across the southeastern corner of the town grid.
 - Urban development outside of, or inconsistent with the grid, from the 1950s onwards. This has focused on elevated topographies to the west and south of the grid. Factors influencing the location of these estates have been the avoidance of low-land subject to flooding, vehicle access, and proximity to the town. These developments have obscured any spatial or visual separation between the town’s nineteenth century grid structure and the surrounding pastoral landscape.
- The sharp boundary between urban and pastoral landscape along the north and southern sides of the town grid, noted in both the National Trust and Conybeare Morrison & Partners descriptions, has only become well defined in the second half of the last century (Figure 5.9). This is due to the confinement of urban development in these areas to within the established town grid. Prior to this, the edge of town was far less distinct, with pastures and farmhouses occurring within the grid. The 1949 aerial photograph demonstrates this. It shows a ‘porous’ edge to the town with much of the current urban grid consisting of pasture (Figure 5.8).
- The survival of the urban-pastoral contrast along northern and eastern edges of the grid is probably a combined consequence of avoiding development on flood prone land, and on the future highway town bypass, anticipated since 1966 to be along North Street.

Conybeare Morrison & Partners (1999) identified a number of significant vistas to and from the town which manifest in the interrelation of heritage and landscape values identified in their analysis (**Figure 5.10**). Consistent with the factors outlined in this review, the vistas relate to the northern and southern margins of the town grid:

- Views from the town grid to the north, as framed from the north-south street alignments (Figure 5.13).
- Views to the west and south from the spurline descent into Berry from the north.
- Views along Pulman Street.

To these can be added:

- Views westwards along North Street, and to the north generally from North Street (Figure 5.11 and Figure 5.12).



Figure 5.8:

Comparison of 1949 and 2006 aerial images of Berry township, showing the progressive evolution of three main built environment precincts (SVY 552/Nowra 5164 Run2 (155-166) 4/04/1949; and Google Earth Pro. 2006)

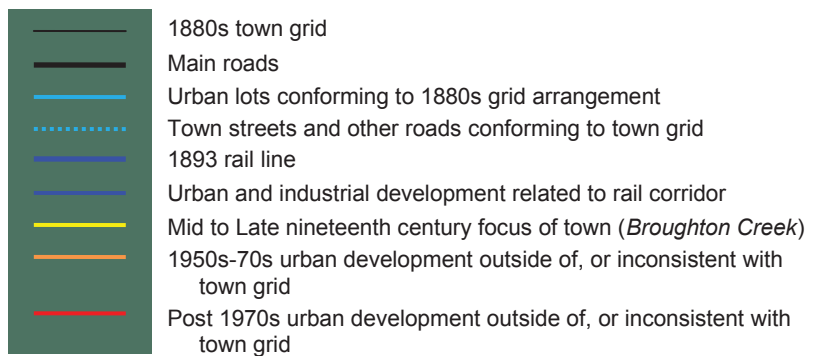




Figure 5.9: Distant view of the northern edge of Berry, looking east from Ben Dooley Rd, Berry Mountain. Note the distinct boundary along North Street (indicated by dotted blue line) between the urban and pastoral landscape.

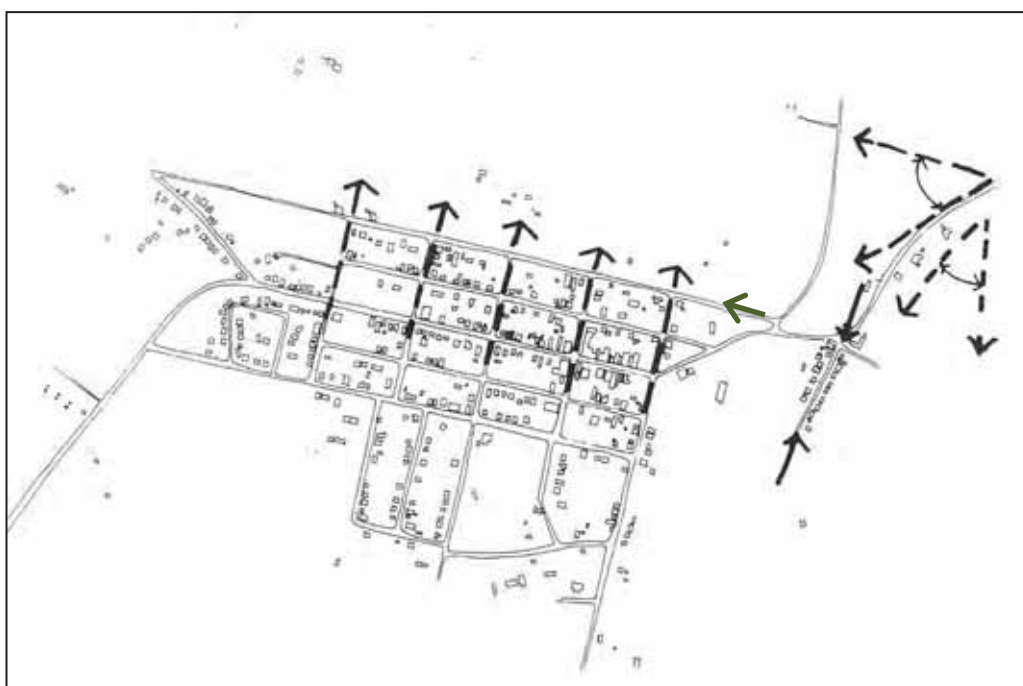


Figure 5.10: Key vistas to and from the Berry township which relate to the heritage and aesthetic values of the town and its interrelation with the surrounding pastoral landscape (after Conybeare Morrison & Partners 1999: Figure 7, green arrow added by authors)



Figure 5.11: Panoramic view, looking west to northeast, from just east of the intersection of Alexandra St and North Street, Berry, showing the pastoral landscape which extends from the North Street easement, and the distant views of the Southern Illawarra Range.



Looking east along North Street, from just east of intersection with the George Street easement



Looking east along North Street, from near intersection with Albany Street



Looking west along North Street, from intersection with Albany Street



Looking west along North Street from near intersection with Alexandra Street

Figure 5.12: Views along North Street, Berry, showing the distinct boundary between the urban and pastoral landscape, and the pastoral context and character afforded to this edge of the town.



Looking north along George Street easement



Looking north from near the end of the George Street easement



Looking north along Edward Street



Looking north from near the end of Edward Street



Looking north along Albany Street



Looking north from near the end of Albany Street



Looking north along Alexandria Street



Looking north from near the end of Alexandria Street

Figure 5.13: Views from the town of Berry which would be impacted by the project, looking north along the north-south aligned town-grid streets.

6 Test excavation program at G2B H14

6.1 Requirement for test excavation

Five potential archaeological deposits were identified as a result of the archaeological survey:

- G2B H14, former C19th Broughton Creek town buildings, Berry
- G2B H48, former Berry Estate tenant farm (now location of Greystanes Lodge, Broughton Village)
- G2B H52, former Berry Estate tenant farm, Broughton Village
- G2B H53, former Berry Estate tenant farm structure, Toolijooa Ridge, and
- G2B H59), former non-Berry Estate homestead, Broughton Village.

It was determined that only one of these locations required further archaeological investigation in order to draft appropriate management strategies relative to assessed significance. This site was G2B H14, the location of former buildings at the northern end of the Broughton Creek village (now Berry). Of the remaining four potential archaeological deposits, two would not be subject to direct impact and the others would not require further investigation in order to determine an appropriate management strategy.

6.2 Site description - G2B H14

GDA Grid References	midpoint: 290041.6149820
	end point 1: 290063.6149874
	end point 2: 290019.6149750

The site G2B H14 extends for approximately 130 metres north-south by 15 metres east-west (at its widest point), along the eastern margin of the current Princes Highway alignment, where it diverges from the former pre 1955 alignment, on the northern approach into Berry. The site comprises potential archaeological deposits from former nineteenth and twentieth century Broughton Creek town buildings that were located along the western side of the former highway alignment (G2B H15), roughly opposite *Mananga*. Based on historical research compiled by members of the Berry and District Historical Society, the following structures are known, or reliably predicted, to have occurred in this area:

- The Berry Butter Factory (1889).
- Court House (1870s).
- Roman Catholic Church (1866).
- The Council Chambers (1868).
- Overseers Cottage (1858).
- A Carpenter's Cottage.

An approximation of the possible relative locations of these structures is provided in **Figure 6.1**, which is based on information gathered by the Berry Historic Museum.

It is not clear where exactly these structures were located, or whether any of the earlier buildings were still in existence when the Berry Butter Factory was constructed in 1889.

The site currently comprises a relatively level grassed area with a row of five plane trees planted at 20 metre intervals along a north-south alignment (**Figure 6.1**, also refer Appendix G Figures G.189-G.191). A "Welcome to Berry" sign is located at the northern end of the site (**Figure 6.2** and **Figure 6.3**), approximately 10 metres north of the northernmost plane tree.

An isolated piece of a dressed sandstone block is situated adjacent the current highway verge, towards the southern end of the site. It is unclear whether this item is *in situ*. There are no other identifiable surface features to provide clues to the location of prior structures.

Aerial photography for this location shows that, in the 1940s (**Figure 6.4**), there was at least one structure opposite *old Mananga*, immediately to the southwest of the potential archaeological deposits identified at G2B H14. This building had disappeared by the 1950s (**Figure 6.5**), when the new highway alignment was shifted to the west. Overlays of the various highway alignments and the location of the structure from the 1940s are provided in **Figure 6.6**. It can be seen from these overlays that the structure present in the 1940s was set back approximately 10 metres from the edge of the highway. This translates to about 30 feet, which was a relatively common width for frontages in NSW towns in the nineteenth and early twentieth-century; indeed, the buildings along the main street in Berry were all situated a similar distance from the road.



Figure 6.1: Approximate and indicative location of structures that may have once occupied the area at G2B H14 (Base image - Google Earth 2011)



Figure 6.2: Archaeological hand excavation at test pit D/E100 in front of the Berry entrance sign (Sam Harper pictured).



Figure 6.3: Archaeological recording of features within test pit D/E100 in front of the Berry entrance sign at the northern end of G2B H14, looking south (Dr Rebecca Parkes and Sam Harper pictured).

Assuming that all the buildings in the vicinity of G2B H14 were set back approximately 10 metres from the road verge, it would appear that the current highway alignment runs through the probable locations of any previous structures. As such, the area of identified potential archaeological deposits to the east of the existing highway is likely to relate to building frontages (pedestrian and/or delivery areas) and possibly the margins of building locations across some of the wider sections of the site.



Figure 6.4: 1944 aerial photograph showing the relative locations of the old Princes Highway, *Mananga* homestead and a building at G2B H14.

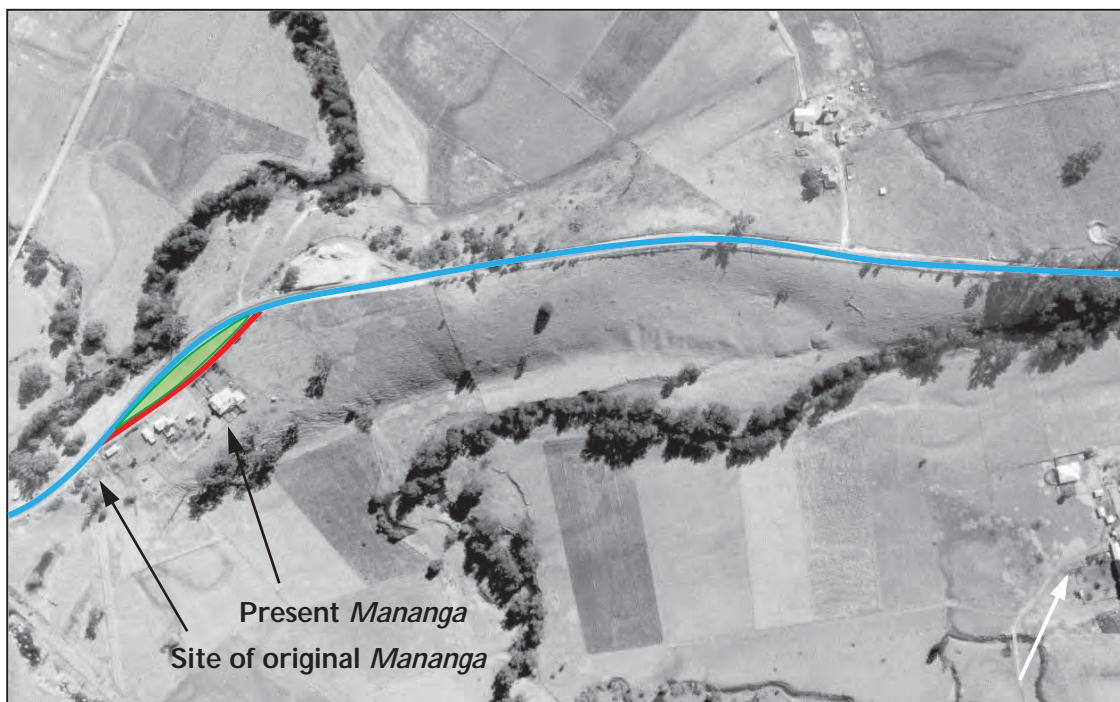


Figure 6.5: 1958 aerial photograph showing the changes in highway alignment: blue is the current alignment, red is the previous alignment. G2B H14 is shaded green.

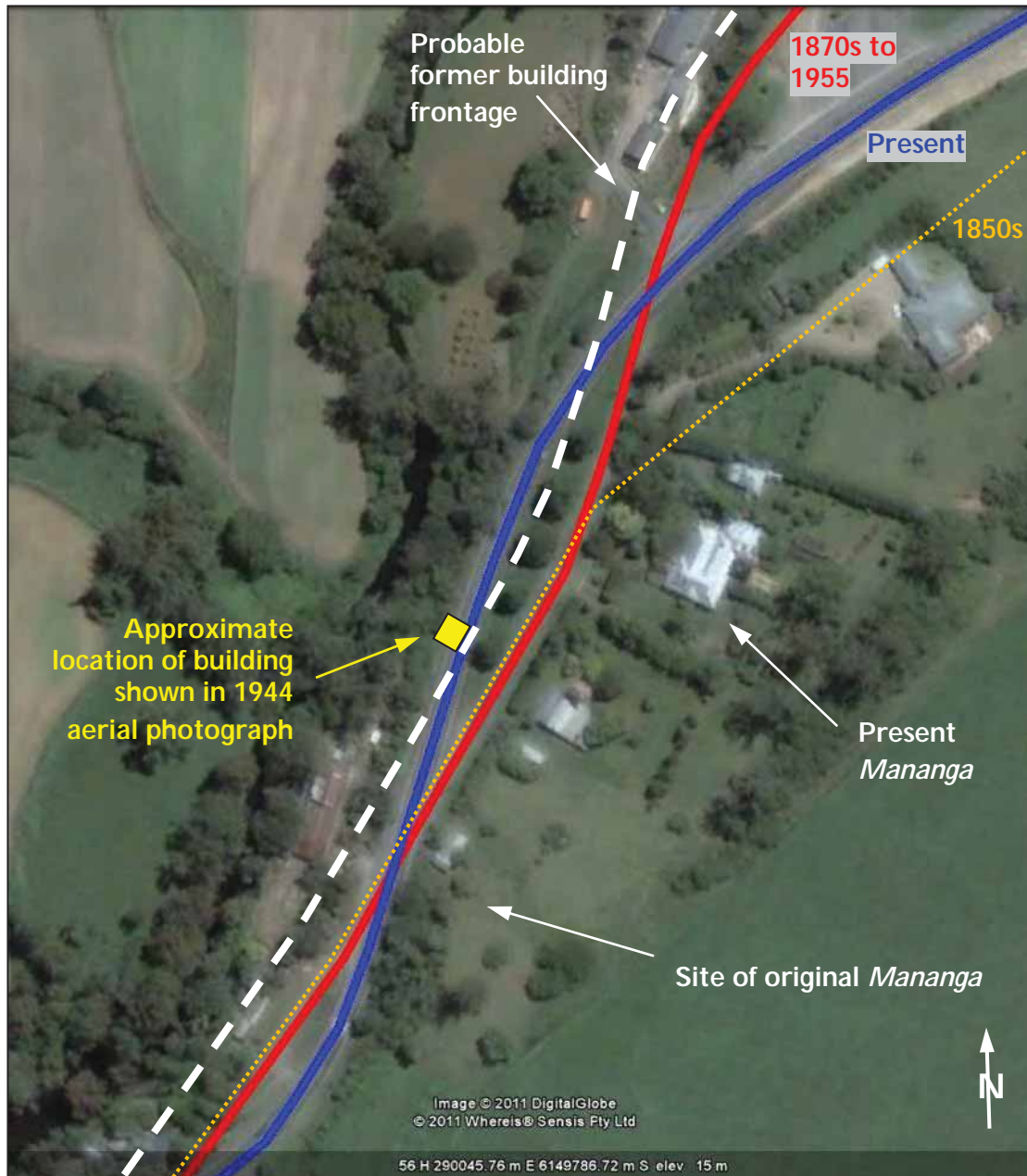


Figure 6.6: Overlay of current and former highway alignments in the area of G2B H14 and an approximation of the probable former building frontage (dashed white line) (Base image – Google Earth Pro 2011).

6.3 Excavation results

6.3.1 Overview

Investigation began with a series of one metre by one metre test pits excavated at 10 metre intervals along the eastern margin of the existing Princes Highway alignment. These pits were then expanded upon, or abandoned, on the basis of the stratigraphy and artefacts contained therein.

Excavation was undertaken by hand (see **Figure 6.2**), using trowels, mattocks, shovels and a pneumatic jack hammer. Individual units included excavation of stratigraphic contexts and excavation of sections with arbitrary contexts.

A summary of the excavation by square and context is provided below in **Table 6.1**. An overview of the layout of the trenches is provided in **Figure 6.7**.

Table 6.1: Summary of contexts excavated across the G2B H14 test pits

Square	Context	Description
A64/B64/C64	22	Quadrats III and IV sectioned down to natural clay subsoil
A80	39	Sectioned down to natural clay subsoil
B61	30	Excavated down to dark-brown sandy loam (old A horizon)
B80	1	Removal of grass/topsoil layer
	34	Excavated down to dark-brown sandy loam (old A horizon)
B95	1	Removal of grass/topsoil layer
	33	Excavated down to dark-brown sandy loam (old A horizon)
B96	36	Excavated down to dark-brown sandy loam (old A horizon)
B100	40	Removal of overburden/fill: excavated down to a yellow-brown sandy loam
	41	Excavated through sandy loam and other fill layers to expose burnt layer
	44	Section Quadrat III and southern portion of Quadrat I down to the natural clay subsoil
C24	43	Cut square down to explore context of sandstone block: disturbed road fill
C50	1	Grass/topsoil layer
	2	Brown loam down to orange-brown gravelly clay fill
	42	Section through fill and old ground surface, down to clay.
C60	1	Grass/topsoil layer
	2	Brown loam down to orange-brown gravelly clay fill
	7	Quadrats I and II excavated down to dark brown sandy loam
	10	Quadrats I and II excavated down to yellow brown sandy clay
C61	12	Removal of overburden/fill to expose old A horizon
C70	1	Grass/topsoil layer
	3	Excavated down to yellow-brown clay fill with tree roots
	4	Removal of yellow-brown clay fill
C79	32	Excavated down to dark-brown sandy loam (old A horizon)
	38	Excavated down to natural clay subsoil

Square	Context	Description
C80	1	Grass/topsoil layer
	2	Brown loam down to orange-brown gravelly clay fill
	28	Mixed clayey gravel and gravelly clay, yellow-brown fill
	31	Brown, variably compact loam, with 10-20mm lens of angular blue metal gravels over an apparent A-horizon soil – excavated down to yellow-brown clay with apparent post hole at base
C95	32	Removal of overburden/fill down to old A horizon
	35	Excavated down to natural clay subsoil
C96	37	Excavated down to dark-brown sandy loam (old A horizon)
C110	1	Removal of grass/topsoil layer
	20	Excavated through gravelly layer to a mixed loam and clay fill
	23	Removal of overburden fill, exposed below Context 20
	29	Section down through quadrats I and II to natural clay subsoil
D80	32	Removal of overburden/fill down to old A horizon
	42	Excavated down to natural clay subsoil
D100	27	Cut square down to burnt layer exposed in E100 at base of Context 21
E64	16	Excavated top 150mm across quadrats III and IV
	19	Sectioned down a further 100mm
E100	1	Removal of grass/topsoil layer
	21	Removal of overburden/fill, burnt layer exposed across southern half
	25	Sectioned northern portion of square down to natural clay subsoil
E120	1	Removal of grass/topsoil layer
	24	Sectioned this square down through overburden to natural clay subsoil
F20	1	Grass/topsoil layer
	2	Brown loam down to orange-brown gravelly clay fill
	9	Dark brown loamy gravel with bitumen, blue metal and larger rounded pebbles/cobbles
	15	Continuation of gravelly context and distinct change to a coarse sandy layer with fewer pebbles/cobbles
	18	Excavation of mixed clay and loamy clay with charcoal and orange brown ash down to yellow brown clay across majority of square.
	26	Excavation of quadrat III, following a pocket of dark brown clay down to yellow brown compact clay
F30	1	Grass/topsoil layer
	2	Brown loam down to orange-brown gravelly clay fill
	6	Removal of yellow-brown clay fill
	11	Excavated down to cobbled surface
F31	13	Excavated square down to yellow brown sandy clay
	11	Excavated down to cobbled surface

Square	Context	Description
F39	8	Equivalent to removal of Contexts 1, 2 and 5, down to old A Horizon soil
	14	Western 2/3 of square excavated down to clay layer, with old telecommunications trench exposed running north-south
F40	1	Grass/topsoil layer
	2	Brown loam down to orange-brown gravelly clay fill
	5	Removal of yellow-brown clay fill, down to brown loam (old A horizon soil) with possible post hole in NW quadrat
F64	1	Removal of grass/topsoil layer across quadrats III and IV
	19	Sectioned down to level consistent with E64

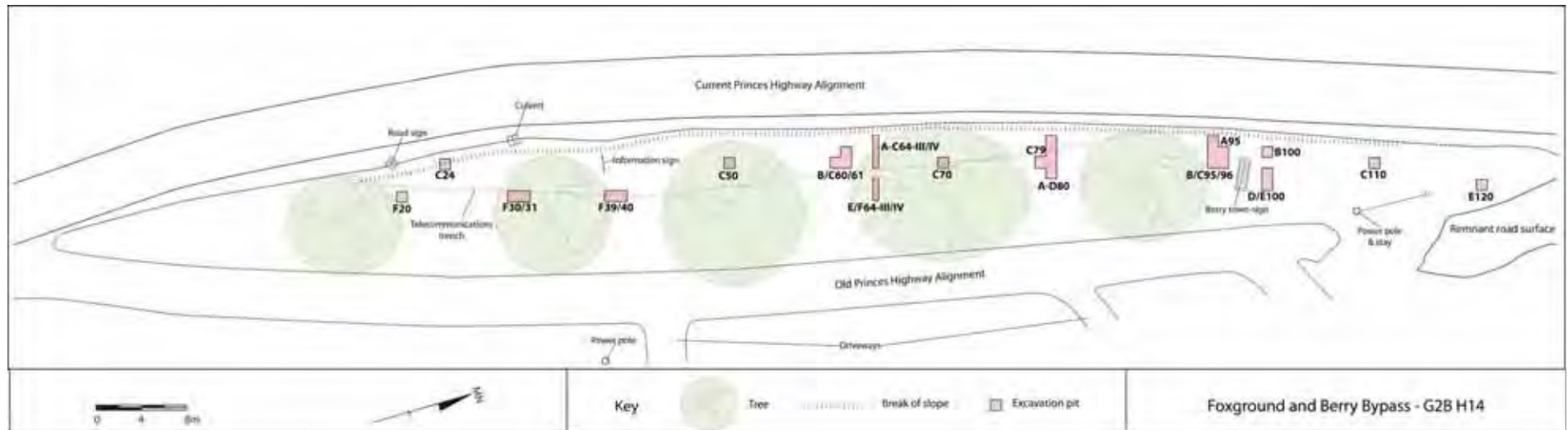


Figure 6.7: G2B H14 site plan

6.3.2 Artefact assemblage

The artefact assemblage from the test pitting program at G2B H14 comprises glass, ceramic, metal and miscellaneous (brick, shell, wood, plastic) items. Two hundred and ninety-four (294) pieces, totalling almost five kilograms in weight (4943.4 grams), were recovered from the excavation (**Table 6.2**; Appendix F). The assemblage is broadly characterised by late nineteenth-century or early twentieth-century material culture and some more recent roadside debris; the latter being most prominent in the upper levels of the site. In terms of material types present, the assemblage is dominated by non corrosive materials such as ceramics or glass. The wet, clayey conditions at the site are likely to have had considerable negative impact on the preservation of metal and other perishable items. Nearly all of the ferrous objects recovered were heavily corroded; often items were unable to be identified in terms of function or chronology. Examples of items that were particularly prone to corrosion include metal fasteners (see **Figure 6.8**). It is probable that such items are underrepresented due to factors influencing artefact survival including possible previous disturbance and the soil moisture content.

Table 6.2: Frequency and weights of material types from the G2B H14 assemblage

Material	Frequency	Frequency %	Weight (g)	Weight %
Ceramic	40	13.6	1988.9	40.2
Glass	194	66.0	742.0	15.0
Miscellaneous	24	8.2	1177.9	23.9
Metal	36	12.2	1034.6	20.9
Total	294	100	4943.4	100

There are a number of clear trends regarding the frequency and weights of the different material types recovered from the test excavations (**Table 6.2**). Glass is represented by high artefact numbers (N=194) and a low overall weight (742 g), indicating that glass items tend to be highly fragmented. This level of fragmentation would suggest that the glass at G2B H14 derives primarily from stray rubbish disposal, as opposed to wholesale dumping of bottles and other glassware. Ceramic items, in contrast, are represented by low numbers (N=40) but the highest weight (1988.9 g), by material type. A significant proportion of the ceramic assemblage is from large fragments of stoneware pipe and porcelain insulators. The metal (N=36) and miscellaneous (N=24) elements of the assemblage are characterised by low numbers and roughly equivalent weights (metal: 1034.6 g; miscellaneous: 1177.9 g), indicating that these items tend to be represented by larger, less fragmented pieces.

Not surprisingly, the more fragile elements, such as glassware and ceramic tableware, tend to be more fragmented, while the more robust items are present in large fragments but never whole items. Overall, this suggests that the assemblage from this site derives from secondary deposition of artefacts, from activities such as cleaning. The absence of whole items is also indicative of high levels of post-depositional disturbance, much of which may relate to site abandonment and subsequent realignment of the highway.

The nature of the artefact assemblage varied in terms of composition, chronology and density across the excavation area. At least four distinct areas are identifiable in terms of artefact types and numbers:

- An area in the south with highly fragmented/worn glass and ceramic items from the late nineteenth century.
- A central area with a mix of nineteenth century and modern artefacts and some evidence for post holes.
- An area in the north with evidence of a nineteenth century burning event.
- The northernmost portion of the site, which is characterised by a general absence of artefacts or other archaeological features.



Figure 6.8: Scuffed green glass bottle bases (2058 and 2013). Scale shows 10mm intervals.

The southern section of the site extends for approximately 20 metres from F20 through to F39-40. This portion of the site is characterised by the presence of *in situ* cobbling (F30 and F31), disturbed cobbling (F20 and to a lesser extent F39-F40) and highly fragmented, worn or scuffed artefacts (**Figure 6.8**). Excavations in F39 revealed an early twentieth-century telecommunications trench, which was also evidenced along the western margin of F30-F31. This feature clearly post-dated the cobbled surface.

The glass artefacts from the F20-F40 area were characterised by bottles produced from moulds, which, on the basis of the absence of any pontil marks, would be likely to date from 1870-1920 (Boow, 1991:114, 116). A fragment of window glass (crown glass) from F20 is similarly indicative of the late nineteenth-century period (Boow, 1991:111). Other diagnostic glass items include two machine made, external screw thread finishes, from upper levels in F39 (Context 8) and C24 (Context 43), these items date to the mid to late twentieth-century (Boow, 1991:114). Similarly, fragments of modern car window glass were recovered from F39 (Context 8) and F40 (Context 5).

Metal items from the southern portion of the site were dominated by fasteners such as nails, bolts and washers from F20 (Contexts 2 and 9). These items were all heavily corroded (**Figure 6.9**), although the nails did appear to potentially be wire nails, which were produced from the 1860s to the 1880s (Varman, 1986:260).

Ceramic artefacts from this area include fragments of glazed stoneware pipe (**Figure 6.10**) from F39 (Contexts 8 and 14), which may have been from a drainage pipe that was subsequently disturbed by installation of the telecommunications trench, and two small fragments of domestic items from F20 (Context 9) and F39 (Context 14). Neither of the domestic fragments is chronologically diagnostic.

Miscellaneous artefacts from this area included brick fragments from F20 (Context 18) and F30 (Contexts 6 and 11) and mortar from F39 (Context 8). These items were too fragmentary to assess their age with any confidence.

The central portion of the site, extending for at least 45 metres between C50 and C96, is characterised by limited structural evidence in the form of postholes (C80 and B60 – Appendix E), and a sparse but relatively diverse artefact assemblage. Ceramic items from this area primarily consisted of fragments from stoneware (**Figure 6.10** and **Figure 6.11**), ginger bottles with a crown-seal finish (**Figure 6.11**) from A64-C64 (Context 22); these artefacts are likely to date to the early twentieth-century (Boow, 1991:117). Other ceramic items included a fragment of plate from C50 (Context 42) and cup fragments from B64 (Context 22) and C79 (Context 32).



Figure 6.9: Corroded iron structural items: bolt (4013), washer (4015), and suspected wire nails (4004). Scale shows 10 millimetre intervals.

Glass items from the area around B60-C60 and A64-F64 are predominantly fragments of moulded bottles from the second half of the nineteenth-century. Other glass artefacts include a fragment of lamp glass from A64 (Context 22) and a fragment of crown window glass from B64 (Context 22). Again, these artefacts appear to be indicative of occupation during the late nineteenth-century. In contrast to this, the glass artefacts from the trenches to the north (C70 and C79-D80) are dominated by machine made items typical of early twentieth-century occupation.

A ground shell pendant with inlaid decoration (**Figure 6.12**), presumably from an earring or necklace, was recovered from the lower levels of D80 (Context 32). This is the only personal item recovered from test excavations at G2B H14; it is difficult to ascertain an accurate date for this item, however its handmade nature and state of preservation is potentially indicative of the turn of the nineteenth to twentieth-century.

In terms of structural artefacts from this area there are two brick fragments from C50, (Context 32) of which one appears to be handmade, possibly dating to the middle to late nineteenth-century (Varman, 1986:260). A metal hinge and a bracket were also recovered from C95 (Context 32) and B95 (Context 33) respectively. The presence of these items is potentially indicative of a nearby structure, although there is very little in the way of other structural evidence from this excavation trench.

The third area corresponds to the area around trenches B100 and D100-E100. While the upper layers in these trenches clearly relate to relatively modern fill, as evidenced by the presence of copper wire and insulators from a telegraph line, the lower contexts (Contexts 25, 27 and 41) are associated with nineteenth century bottle glass, carbonised wood and a dense layer of ash. Twenty fragments of heat affected dark green glass were recovered from D100 and E100 (**Figure 6.7** and **Figure 6.13**). The age of this glass, combined with its exposure to heat and association with a burning event, suggest that the carbonised wood in this area may relate to a burning event from the late nineteenth or early twentieth-century.

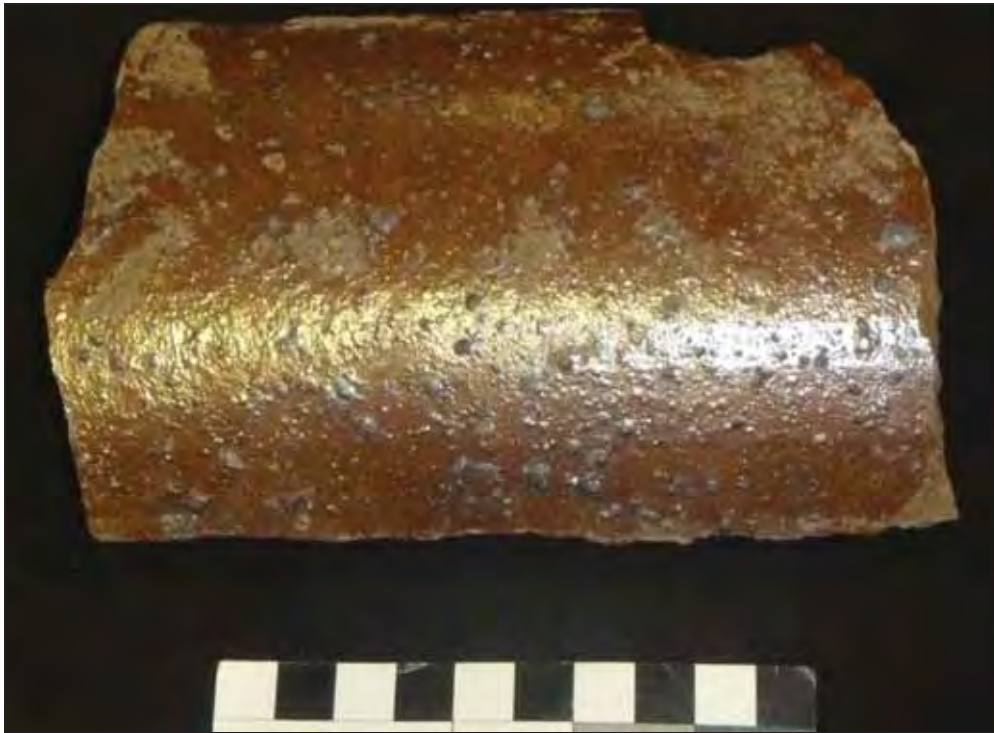


Figure 6.10: Stoneware pipe fragment (1003). Scale shows 10 millimetre intervals.

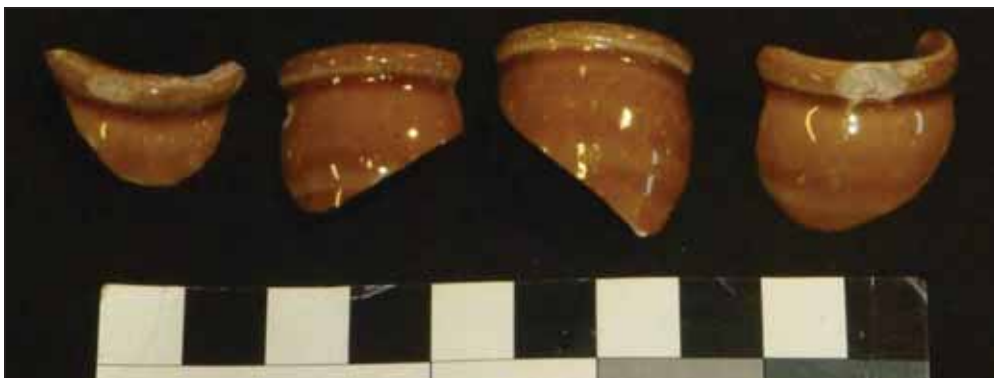


Figure 6.11: Stoneware crown finish fragments from a ginger beer bottle (1007). Scale shows 10 millimetre intervals.



Figure 6.12: Shell pendant (3018). Scale shows 10 millimetre intervals.

Excavation across the northernmost portion of the site, from C110 to E120, resulted in recovery of a single fragment of amber bottle glass, which probably dates to the second half of the twentieth-century. Soil profiles in this area indicate the presence of at least one burning event below the cap of modern fill associated with construction of the existing highway (Appendix E), which may or may not be associated with the burning event identified in B100 and D100-E100. No other structural or artefactual evidence was identified in this portion of the site.

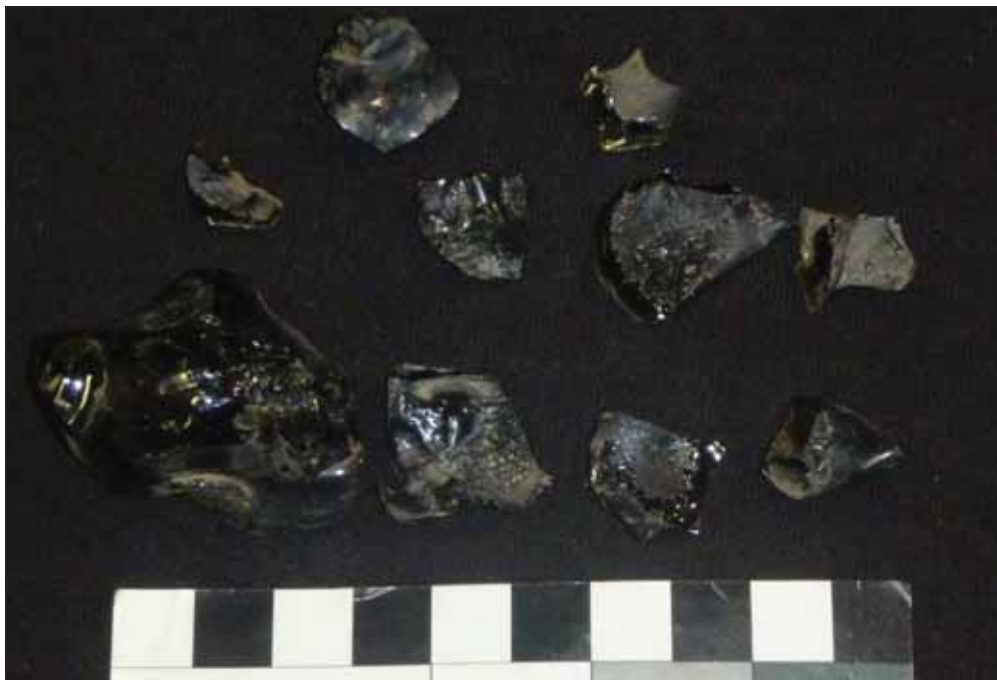


Figure 6.13: Dark green heat affected glass (2008). Scale shows 10 millimetre intervals.

6.4 Summary

The test excavation program at G2B H14 has demonstrated that there are sections, albeit limited areas, of relatively intact deposits from the turn of the nineteenth-twentieth century. Examples of such deposits include the cobbled floor identified in F30-F31, artefacts in association with the old ground surface identified in B60-C61 and A64-C64, the post hole identified in C80 and the burnt layers and associated artefacts in B100 and D100-E100. There are also examples of more disturbed deposits that, while compromised in integrity, appear to contain artefacts that have the potential to provide information about the chronology and function of the site (eg at F20 and F39-F40). However, the northernmost portion of the site, around C110 and E120, appears to be largely sterile below the cap of modern fill.

On the basis of historical research, including analysis of aerial photographs and available maps, it appears that the archaeological deposits at G2B H14 relate primarily to an area of street frontage, as opposed to the site of prior structures. There is however potential for traces of the eastern limits of buildings to occur along the western margins of the site, in the vicinity of A30-B80. The differences in archaeological features and associated artefact assemblages across the site may also be indicative of a series of street blocks, which could potentially be confirmed through additional excavations along a north-south transect.

In summary, archaeological deposits at G2B H14 are assessed as having potential to provide information on the following aspects of the site's history:

- The width of the street frontage and the activities that took place in this area.
- The location of individual buildings or portions of their eastern limits.
- The location of individual lot boundaries that extend east to west across the site.
- Differing site functions across these lots.
- Overall site chronology from the mid nineteenth to mid twentieth-century.

7 Significance assessment

7.1 Assessment criteria

The NSW Heritage Branch has defined a methodology and set of criteria for the assessment of cultural heritage significance for items and places, where these do not include Aboriginal heritage from the pre-contact period (NSW Heritage Branch and DUAP 1996, NSW Heritage Branch 2000). The assessments provided in this report follow the Heritage Branch methodology.

The following heritage assessment criteria are those set out for listing on the State Heritage Register. In many cases items would be significant under only one or two criteria. The State Heritage Register was established under Part 3A of the *Heritage Act 1977* (as amended in 1999) (Heritage Act) for listing of items of environmental heritage that are of State heritage significance. Environmental heritage means those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance (Section 4, Heritage Act).

An item would be considered to be of State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

- 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).
- 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).
- Criterion (c)** An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
- Criterion (d)** An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
- Criterion (e)** An item has potential to yield information that would contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).
- 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).
- Criterion (g)** An item is important in demonstrating the principal characteristics of a class of NSW's:
- cultural or natural places; or
 - cultural or natural environments.
- (or a class of the local area's:
- cultural or natural places; or
 - cultural or natural environments.)

An item is not to be excluded from the register on the ground that items with similar characteristics have already been listed on the register. Only particularly complex items or places would be significant under all criteria.

In using these criteria it is important to assess the values first, then the local or State context in which they may be significant.

Different components of a place may make a different relative contribution to its heritage value. For example, loss of integrity or condition may diminish significance. In some cases it is constructive to note the relative contribution of an item or its components. **Table 7.1** provides a guide to ascribing relative value.

Table 7.1: Guide to ascribing relative heritage value to constituent elements of a heritage item or grouping

Grading	Justification	Status
Exceptional	Rare or outstanding item of local or State significance. High degree of intactness. Item can be interpreted relatively easily.	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.	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.

7.2 Summary of individual assessments

This section provides a summary of the significance assessments conducted for the forty non-Aboriginal (European) heritage recordings within or near (within 200 metres) the project. A detailed assessment of each site or item, against the assessment criteria is presented in Appendix G.

Of the forty non-Aboriginal (European) field recordings:

- Six have been found to fall below the significance thresholds defined within the assessment criteria. These are G2B H10, G2B H12, G2B H18, G2B H24, G2B H50 and G2B H57. These recordings will not be considered further with regard potential impact and impact mitigation.
- Three cannot be given definitive assessments until the nature of predicted archaeological deposits are confirmed through test excavation. These items have been given indicative assessments of local context significance, subject to confirmation (G2B H48, G2B H52 and G2B H53).
- One is assessed as having State significance (Graham Park – former agricultural research institution).
- The remaining thirty items are assessed as having heritage significance within a local context, according to one or more of the specified significance criteria.

These assessments are outlined in **Table 7.2**.

Table 7.2: Summary of Non-Aboriginal significance assessments

ID	Recording	Context of significance	Significance criteria							Summary statement of significance
			a	b	c	d	e	f	g	
G2B H10	Early C20th Cottage (72 North St. Berry)	Below threshold								The cottage at G2B H10 does not meet any of the significance criteria. This item falls below the threshold for heritage listing.
G2B H11	Federation Cottage c.1894 (77 North St. Berry)	Local							✓	The <i>GlenDevan</i> house (G2B H11) is of local significance as a representative example of Federation period housing on the Berry Estate.
G2B H12	Remnant portion of C20th highway (N. Berry wayside stop)	Below threshold								<p>Twentieth century highway remnants</p> <p>The twentieth century road remnants comprised by the recordings G2B H15, G2B 20, G2B 21 and G2B 26 form an important example of elements of early twentieth century highway design, construction and modification.</p> <p>In particular, G2B H26 is important in the course of local highway upgrades. It is also directly associated with the Binks, an early tenant farming family that is of importance due to its involvement with the development of the local dairy industry.</p> <p>Items G2B H20, G2B 21 and G2B 26 all have the potential to yield information regarding standards in early twentieth century road design and construction, and G2B H15 and 26 are notable in terms of their rarity and representativeness.</p> <p>Remnant recordings G2B H12, G2B 18, G2B 24 and G2B 57 all fall below the threshold of significance defined in the assessment criteria.</p>
G2B H15	Remnant portion of C20th highway (Adj to <i>Mananga</i> homestead)	Local						✓	✓	
G2B H18	Remnant portion of C20th highway (near and opposite Tindalls Lane intersection)	Below threshold								
G2B H20	Remnant portion of C20th highway (Broughton)	Local					✓			
G2B H21	Remnant portion of C20th highway (Broughton)	Local					✓			
G2B H24	Remnant portion of C20th highway	Below threshold								
G2B H26	Remnant portion of C20th highway	Local	✓	✓			✓	✓	✓	
G2B H57	Remnant portion of C20th highway (intersection of Highway and Tindalls Lane)	Below threshold								
G2B H13	Burnett Estate Workers Cottage c.1917 (143 North St. Berry)	Local							✓	The Burnett Estate Overseer's Cottage at G2B H13 is a well preserved and locally representative example of an early twentieth century weatherboard overseer's cottage.

ID	Recording	Context of significance	Significance criteria							Summary statement of significance
			a	b	c	d	e	f	g	
G2B H14	Archaeological deposit (former C19th <i>Broughton Creek</i> town buildings)	Local	✓				✓	✓	✓	<p>The site G2B H14 is of importance in terms of the local history, particularly the development of nineteenth-century commercial and government premises and the road network. Excavations at the site have demonstrated that the G2B H14 archaeological deposits have the potential to yield information that will contribute to an understanding of site function(s), the spatial organisation of the urban landscape at Broughton Creek, and site chronology and formation processes.</p> <p>The remaining deposits at G2B H14 are rare within the local Berry context as the only remnants of this northernmost portion of the urban landscape and as a representative example of a relatively undisturbed portion of a nineteenth century street frontage.</p>
G2B H16	<i>Mananga</i> , 1894, Queen Anne style homestead, former Berry Estate Manager's Residence (A40 Princes Highway. Berry)	Local	✓	✓	✓		✓		✓	<p>The <i>Mananga</i> Homestead and the broader site complex are of local historical importance due to their role in the course of the history and development of the Berry Estate and Broughton Creek Village. <i>Mananga</i> Cottage and <i>Mananga</i> Homestead are both directly linked to important members of the Stewart Family, and as such have a strong and special historical association.</p> <p>The complex as a whole, and the <i>Mananga</i> Homestead in particular, display landmark qualities and are important in demonstrating aesthetic characteristics of a Federation period homestead. The site also has the potential to yield information that would contribute significantly to an understanding of the history of and development of the site, the Berry Estate and Broughton Creek Village. Of particular note is the existence of traces of the water race from the 1830 Broughton Creek saw mill.</p> <p>This item is also locally representative of a complex with multiple phases of occupation and a Federation Queen Anne style farm house with Art Nouveau character.</p>
G2B H17	<i>Hillview</i> homestead (2 nd half C19th) former Berry Estate tenant farm) (A111 Princes Highway Berry)	Local					✓	✓	✓	<p>The <i>Hillview</i> homestead is a locally rare and representative example of a mid-nineteenth century slab house from a Berry Estate tenant farm. It is characteristic of a Scottish style of house layout and it has the potential to contribute, through archaeological survey/excavation to an understanding of organisation and operation of the Berry Estate as well as the living conditions and social status of tenant farmers.</p>
G2B H19	Remnant portion of C19th road (West of Gembrook Lane)	Local	✓	✓			✓	✓		<p>Remnants of the Berry Estate Road (c.1856-1870s)</p> <p>The remnant sections of the nineteenth century Berry Estate road are representative and relatively rare examples of a transport corridor that was locally important as a private road and as the first inland route that bypassed Seven Mile Beach.</p> <p>These road remnants have a strong association with Messrs Alexander and David Berry, who were of local importance due to their prominent role in European settlement. They also</p>
G2B H22	Remnant portion of C19th road	Local	✓	✓			✓	✓		
G2B H23	Remnant portion of C19th road	Local	✓	✓			✓	✓		

ID	Recording	Context of significance	Significance criteria							Summary statement of significance
			a	b	c	d	e	f	g	
G2B H27	Remnant portion of C19th road	Local	✓	✓			✓	✓	✓	display the potential to yield information, through archaeological excavation and survey, that would contribute to an understanding of nineteenth century road construction and use.
G2B H30	Remnant portion of C19th road	Local	✓	✓			✓	✓	✓	
G2B H55	Remnant portion of C19th road (north/upslope of <i>Mananga</i> homestead)	Local	✓	✓			✓	✓	✓	
G2B H25	<i>Sedgeford</i> homestead, 1902, (A495 Princes Highway, Broughton Village)	Local		✓					✓	<p>The <i>Sedgeford</i> homestead and gardens have a strong and special association with the Binks Family, a well known local family who have, since the beginning of the twentieth century, made a lasting contribution to the local and wider community through the dairy industry.</p> <p>G2B H25 is representative of an early twentieth century dairy farm in association with a disused highway alignment; it retains well preserved examples of the Federation period homestead and the associated gardens.</p>
G2B H28	<i>Brookside</i> homestead (A540 Princes Highway, Broughton Village)	Local					✓		✓	<p>The Brookside homestead comprises two salvaged structures, one of which appears to be from portion 181, a 100 acre block associated initially with Anthony Finn and later with Dicky Woods. Investigation and analysis of the Brookside homestead's constituent elements, in particular the section from portion 181, may yield information that will help in interpretation of deposits at G2B H59.</p> <p>The archaeological traces of former structures, including a dairy, at G2B H28 have the potential to yield information that will contribute to an understanding of the history of the local dairy industry. They also have the potential to be representative of such a site.</p>
G2B H29	C20th concrete bridge, 1935, (Princes Highway, Broughton Creek)	Local	✓		✓			✓	✓	The Broughton Creek Bridge's construction is associated with the grand scheme of highway improvement undertaken by the Main Roads Board cum Department of Main Roads in an attempt to bring the State's main roads up to the standard required by the modern motoring age emerging in the inter-war period. As a widened bridge, it represents the continual process of upgrading required in response to the increased volume, weight and speed of traffic on this busy highway
G2B H45	<i>Glenvale</i> homestead, former Berry Estate tenant farm (A371 Princes Highway, Broughton)	Local					✓	✓	✓	The <i>Glenvale</i> homestead is a locally rare and representative example of a mid-nineteenth century slab house from a Berry Estate tenant farm. It is characteristic of a Scottish style of house layout and it has the potential to contribute, through archaeological survey/excavation to an understanding of organisation and operation of the Berry Estate as well as the living conditions and social status of tenant farmers.

ID	Recording	Context of significance	Significance criteria							Summary statement of significance
			a	b	c	d	e	f	g	
G2B H47	Former St Patrick's Convent, and St Patrick's Church and grounds (80 North St. Berry)	Local				✓		✓	✓	<p>St Patrick's Church and grounds, including the former St Patrick's Convent, are strongly associated with the local Catholic community; the site has been associated with the Catholic Church since the late nineteenth century.</p> <p>The former convent is a locally rare site type and the complex as a whole is representative of inter-war religious architecture and a Catholic site complex.</p>
G2B H48	Potential archaeological deposit, former Berry Estate tenant farm (now Greystanes Lodge)	Local (subject to confirmation through test excavation)					✓			The potential archaeological deposits at G2B H48 are locally significant as a site that may contribute to an understanding of life on Berry Estate tenant farms.
G2B H49	<i>Oakleigh</i> homestead (59 Woodhill Mountain Rd. Berry)	Local					✓		✓	The homestead at G2B H49 is locally representative of 1930s farm house construction. It is a well preserved example of its type.
G2B H50	<i>Clare Moy</i> Cottage (342 Princes Highway. Toolijooa)	Below threshold								The <i>Clare May</i> Cottage does not meet any of the significance criteria. This item falls below the threshold for heritage listing.
G2B H51	<i>Graham Park</i> former agricultural research institution (8, 9 and 13 Schofields Lane, Berry)	State	✓	✓	✓		✓	✓	✓	<p>Graham Park Research Station is of local and State importance in terms of its role in the development of agricultural research, in particular artificial insemination and stock breeding. It is also historically linked to pioneering research sponsored by the Berry Estate under Alexander Hay, and directly linked to the life and works of Edward Graham, an individual of State importance in the context of government policy on agriculture and agricultural development.</p> <p>Graham Park also derives significance at local and State levels due to its contributions to agricultural research. The complex of buildings, laboratories, sheds and enclosures has the potential to yield information, through archaeological investigation, that would contribute to an understanding of the development and operation twentieth century agricultural research stations.</p> <p>It is a locally rare site that is also representative of its type at local and State levels.</p>
G2B H52	Potential archaeological deposit, former Berry Estate tenant farm (A441 Princes Highway. Broughton Village)	Local (subject to confirmation through test excavation)					✓	✓	✓	The potential archaeological deposits at G2B H52 relate to a nineteenth century Berry Estate tenant farm. This site is of local significance as a place that has the potential to yield information about tenant farms and the interrelationship between such sites and sequences of transport corridor modifications through the nineteenth and early twentieth centuries. It is also locally important as an example of a former tenant farm that maintains its original configuration with the 1856 and 1870s highway alignment and as a representative example of such a site.

ID	Recording	Context of significance	Significance criteria							Summary statement of significance
			a	b	c	d	e	f	g	
G2B H53	Potential archaeological deposit, former Berry Estate tenant farm structure and indeterminate rock rubble alignment (Toolijooa Ridge)	Local (subject to confirmation through test excavation)					✓			The potential archaeological deposits at G2B H53 are locally significant as a site that may contribute to an understanding of life on Berry Estate tenant farms.
G2B H54	Remnant C19th dry stone wall (former highway boundary, Toolijooa Ridge)	Local			✓		✓	✓	✓	The dry stone wall at G2B H54 is of local significance in terms of its aesthetic values, research potential, and its rarity as a fence type and regional outlier.
G2B H56	Farmhouse and Dairy (disused), early to mid C20th, (117 North St., Berry)	Local					✓		✓	The Broughton Mill homestead and dairy is a good and locally representative example, albeit somewhat dilapidated, of an early twentieth century dairy farm.
G2B H58	Uniting Church Hall (formerly Wesleyan Chapel), 1884, Victorian Carpenter Gothic style, (69 Albert St, adj. to North St)	Local	✓			✓		✓	✓	<p>The Uniting Church Hall is of local historical importance as the first building to be erected on land legally acquired in the new township of Berry; it is also important in the course of the development of the township and its places of religious worship.</p> <p>This item is also of local social significance due to its ongoing connection with the Uniting Church community.</p> <p>The church hall is also a locally rare and representative item in terms of a Victorian Carpenter Gothic building.</p>
G2B H59	Archaeological deposit and remnant plantings, former early C19th homestead (Broughton Village)	Local	✓	✓			✓	✓	✓	<p>The potential archaeological deposits at G2B H59 are of local significance as a site associated with early land alienation, in particular an unusually small land grant amongst a series of larger estates. The site also appears to be directly associated with Anthony Finn, an individual of local importance.</p> <p>The potential deposits at G2B H59 have the potential to contribute to an understanding of the nature and phases of nineteenth century occupation. This site is also important as a relatively intact, rare and representative example of archaeological deposits relating to a local, small nineteenth century farm.</p>
G2B H60	Skid mounted work-site shed	Local					✓	✓	✓	The G2B H60 work-site shed on skids is a relatively well preserved and representative example of its type and demonstrates the design and functional requirements of such a structure. It is likely to be a rare example of this shed type, which is unlikely to be well documented, or represented in collections, museums or reserves.
G2B H61	Quarried rock outcrop, Broughton	Local							✓	Quarried rock at Broughton (G2B H61) is a locally representative example of a small sandstone quarry for rock, probably used in early road construction.

ID	Recording	Context of significance	Significance criteria							Summary statement of significance
			a	b	c	d	e	f	g	
G2B H62	Avenue of Poplar trees	Local			✓					The Poplar trees planted at G2B H62 are a locally significant landmark and aesthetic landscape component.
G2B H63	Mark Radium Park	Local		✓	✓					Mark Radium Park is listed on the Shoalhaven LEP heritage schedule as a place of local importance due to its aesthetic qualities and historical association with Jack McGee and his pony Mark Radium.
SICPH CL	Southern Illawarra Coastal Plain and Hinterland Cultural Landscape	Local	✓	✓	✓	✓	✓	✓	✓	<p>The Southern SICPH CL is of local significance in terms of its historical associations and importance in the pattern of local history. It is also locally significant in terms of its strong and special association with the local Aboriginal community.</p> <p>More notably, it is of local and State significance in terms of its aesthetic qualities, which relate in part to the unique natural character of the junction of the coastal plain with the Illawarra escarpment, and in part from the striking contrast between the culturally modified elements of the landscape and the more natural elements. The clearly identifiable nineteenth century structure of the landscape also contributes to the aesthetic value of the SICPH CL.</p> <p>The SICPH CL is a rare landscape type, both in terms of its natural features and also the retention of such clear examples of the late nineteenth and early twentieth century pastoral landscape and associated private towns. It is the only remaining such portion of the broader Illawarra cultural landscape that has not been substantially impacted by urban infill. As such it is also representative of its type and displays considerable research potential in terms of historical themes at local and State levels.</p>

7.3 The significance of the town of Berry as a component of the Southern Illawarra Coastal Plain and Hinterland Cultural Landscape

For the purposes of this assessment, it was considered more effective to recognise the heritage values of the town of Berry, as part of a wider interconnected cultural landscape, than to describe the town as a separate heritage entity with debatable curtilage and viewshed boundaries. This is not to infer however, that the town cannot, or should not, be defined in such a way. But rather, given that the potential for project impact lay within the landscape context of the town, it was preferred to assess this impact relative to the inclusive values of a defined cultural landscape.

As such, the heritage significance of the landscape context of Berry is not simply aesthetic or visual in nature. Also of integral importance are those natural and constructed landscape elements which demonstrate the past and present interrelation of the town with its wider region. Typically these include transport, trade and communication corridors, cadastral patterns of land alienation, and a matrix of resource exploitation mediated by logistical and commercial interests. Local examples of corridors are Broughton Creek, the highway and the Illawarra rail line. The interrelation of surviving forests, pastures, croplands and townscapes provides a further information and contextual layer.

As described in section 5.3.2, Berry was, and remains, an integral component of the Southern Illawarra Coastal Plain and Hinterland Cultural Landscape (SICPH CL). The town holds a central geographic position and was a critical administrative, service, commercial and community centre. Initially it served as an industrial focus for the processing of cedar from the Berry Estate, and subsequently grew with the agricultural development of the Estate. North of the Shoalhaven River, the town was a critical centre for the Estate, together with the main estate buildings at Coolangatta. The town also served as a focus for settlers who established holdings to the north of the Berry Estate, and for the economic diversification that following the Estate's breakup.

This history and role remains evident in the landscape surrounding the town and evident from it. The town is strategically placed on elevated ground adjacent to the navigable limits of the Broughton Creek. A locus which happened to also coincide with an established Aboriginal encampment which probably predated European arrival. The town is connected by a highway and railway, both of which avoid crossing the swampy basins of the plain by traversing the fringing basal slopes and spurlines. Agricultural and pasture lands continue to fringe the town boundaries to the north and south. On the upslope side, the escarpment and higher slopes of the Illawarra Range provide a permanent backdrop, a natural foil to the nineteenth century order of the town grid and its built environment.

All of these elements reveal a past and present interplay between the natural and cultural worlds which are the signature of a cultural landscape. When the high degree of integrity and the retention of these elements are combined with the aesthetic values of the natural landscape, the town and context of Berry must be acknowledged as an exceptional constituent component of the SICPH CL.

8 Statutory and policy context

8.1 Overview of key legislation

8.1.1 Commonwealth legislation

The main Commonwealth Act concerned with the protection and management of cultural heritage places is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The jurisdiction of this Act relates to heritage places on Commonwealth owned or controlled lands; heritage values which may be impacted by actions by the Commonwealth, heritage values associated with items of national environmental significance; and places with heritage significance consistent with World Heritage, National or Commonwealth Heritage listing.

There are no places within the project with cultural heritage values consistent with these jurisdictions.

8.1.2 The Register of the National Estate

The register of the National Estate (RNE) was established under the now repealed *Australian Heritage Commission Act 1975*. The National Estate was defined under this Act as 'those places, being components of the natural environment of Australia or the cultural environment of Australia, that have aesthetic, historical, scientific or social significance or other special value for future generations as well as for the present community'. The project includes one item included on the RNE as an indicative place (the Berry District Landscape Conservation Area).

Following amendments in 2006 to the *Australian Heritage Council Act 2003* (AHC Act), from February 2012 all references to the Register have been removed from the EPBC Act and the AHC Act. The RNE is now maintained on a non-statutory basis as a publicly available archive.

8.1.3 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act), and its regulations, schedules and associated guidelines require that environmental impacts are considered in land-use planning and decision making. Environmental impacts include cultural heritage.

There are four main areas of protection under the EP&A Act:

- Environmental planning instruments allow particular uses for land and specify constraints. Part 3 governs the preparation of planning instruments. Both Aboriginal and historical (non-Aboriginal) cultural heritage values should be assessed when determining land-use.
- Provision for a fast track approval process of developments declared to be State Significant infrastructure, by order or in a State environmental planning policy.
- Part 4 relates to the development assessment process.. Impact to both Aboriginal and historical (non-Aboriginal) cultural heritage values are included.
- State Government agencies which act as the determining authority to decide whether to proceed with proposals must consider a variety of community and cultural factors in their decisions, including Aboriginal and historical (non-Aboriginal) cultural heritage values. Part 5 relates to activities which do not require consent but still require an environmental assessment, such as projects by government authorities.

Under the EP&A Act, various environmental planning instruments can be prepared and approved, such as local environmental plans (LEPs) (Part 3, Division 4) and State Environmental Planning Policies (SEPPs) (Part 3 Division 2). These planning instruments may identify places and features of cultural heritage significance and define various statutory requirements regarding the potential development, modification and conservation of these items. In general, places of identified significance, or places requiring further assessment, are listed in various heritage schedules that form part of a local environmental plan. Listed heritage items are then protected from certain defined activities, normally including demolition, renovation, excavation, subdivision, and other forms of damage, unless consent has been gained from an identified consent authority. The consent authority under a local environmental plan is normally the Local Shire or City Council.

As of 1 July 2009, regional environmental plans (REPs) are no longer part of the hierarchy of environmental planning instruments in NSW. All remaining REPs are deemed to be State environmental policies.

8.1.4 Projects lodged under former Part 3A of the EP&A Act

Prior to its repeal in October 2011, Part 3A of the EP&A Act established a separate development assessment and approvals regime for infrastructure projects. This regime removed the need for single-issue approvals under eight other Acts, including the Heritage Act. Environmental planning instruments such as within regional and local environmental plans, (other than State environmental planning policies) do not apply to projects declared under Part 3A.

Assessment under Part 3A required the preparation of an environmental assessment including a Statement of Commitments (SoC), as per the specifications of the Department of Planning and Infrastructure (DP&I). The SoC specified how the project would be managed in an environmentally suitable manner. The Minister could refuse the project, or approve it with any conditions considered appropriate.

Transitional arrangements now cover projects which were lodged under the now repealed Part 3A. Project applications for which DGRs were issued on or before 8 April, 2011, will remain as Part 3A applications. The Foxground and Berry bypass project falls into this category and will be assessed as a Part 3A application.

8.1.5 NSW Heritage Act 1977

The Heritage Act regulates the identification, assessment and management of non-Aboriginal heritage values within NSW. The Act recognises two levels of heritage significance – State and local significance across a broad range of values.

Some key provisions of the Act are:

- The establishment and functions of the Heritage Council (Part 2).
- Interim heritage orders (Part 3), the State Heritage Register (Part 3A).
- Heritage Agreements (Part 3B).
- Environmental planning instruments (Part 5).
- The protection of archaeological deposits and relics (Part 6).
- The establishment of Heritage and Conservation Registers for State Government owned and managed items (Part 7).

Generally this Act provides protection to items that have been identified, assessed and listed on various registers including the:

- State Heritage Register (consisting of items and places of State heritage significance).
- State government authority Section 170 registers (consisting of significant items and places managed by State authorities).
- Heritage Schedules included within Local and Regional environmental plans, and administered by Local Government.

In addition, section 139 of the Act specifically provides protection for any item classed as a relic. A relic is defined as:

"...any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance."

(Heritage Amendment Act 2009, Part 1, Section 4).

Section 146 of the Act requires that the discovery of a previously unknown relic be reported to the Heritage Council within a reasonable time of its discovery.

Current policy and interpretation by the NSW Heritage Branch (Department of Planning and Infrastructure) limits the scope of the 'relic' definition to exclude above ground structures and a range of ground features or 'works' which may include roads, embankments and other forms of constructed ground relief. This interpretation is based on the definition of 'environmental heritage' in Section 4 of the Act which states that environmental heritage means 'those places, buildings, works, relics, moveable objects and precincts, of State or local significance'. The Heritage Branch interprets each of these categories to be mutually exclusive (correspondence from Reece McDougall, Executive Director, Dept of Planning, to K. Officer, Navin Officer Heritage Consultants 30/5/07).

In general, the Act disallows interference with a place or item listed on the State Heritage Register, or disturbance to a relic, except according to the provisions of a permit. A number of standard exemptions and general or additional exceptions to the requirement for permits have also been defined (Sections 57 and 139).

For projects lodged under the now repealed Part 3A of the EP&A Act, these permit provisions do not apply.

Section 170 of the Act requires all state government instrumentalities to establish and maintain a Heritage and Conservation Register that lists items of environmental heritage. The register is to include items which are, or could potentially be, the subject of a conservation instrument, and which are owned, occupied or otherwise under the control of that instrumentality. One item listed on the RMS Section 170 register occurs within the project (G2B H29).

8.1.6 The National Trust of Australia (NSW)

The National Trust of Australia (NSW) compiles and maintains a register of items and places which the Trust determines to have cultural significance and to be worthy of conservation. Although the Register has no statutory authority, the inclusion of an item or place is likely to lend support to an assessment of heritage value.

8.2 Implications for the project

This project is being assessed under the EP&A Act as a project lodged under the now repealed Part 3A of that Act. As such, the Act removes the requirement for permits under section 139 of the *Heritage Act 1977*. Similarly, environmental planning instruments established in Regional and Local Environmental Plans do not have legal effect. There remains however requirements to report any findings to the Heritage Branch, OEH (Section 146 of the Heritage Act).

Despite these exemptions, as a part of the environmental assessment for the project required under the EP&A Act, the potential impact on historic heritage values must be assessed and effective impact mitigation and conservation management proposed. The application of this process to historic heritage values is mentioned specifically in the DGRs for the project (refer section 1.3).

9 Impact assessment

9.1 Representative and worst case impact

The general requirements included in the Director-Generals Requirements for the project specify that the environmental assessment must include:

An assessment of the key issues, including an assessment of the worst case and representative impact for each issue for all aspects of the project... (general requirement no.3)

For this assessment, representative impact is defined as that impact which has been anticipated in this analysis and to which the proposed management and impact mitigation strategies are directed. It is representative of the expected scenario, based on an analysis of the best information available and on a reasonable or normative level of prediction.

Worst case impact is defined as an extreme scenario where the highest conceivable degree of impact is anticipated due to unexpected occurrences which are extraordinary and outside of a reasonable level of prediction.

The worst case scenario with regard to non-Aboriginal cultural heritage values consists of the unexpected encounter of a heritage item or items which, due to a high level of assessed significance (such as at a State or National level) warrants in situ conservation and a consequential change in the project alignment. This would conceivably be due to the discovery of a previously undetected and unpredicted item, or to a much less likely degree, the discovery of a new feature associated with a known heritage item. Conceivable examples of worst case scenario discoveries include the following:

- A unique, well preserved and substantial remnant or archaeological deposit of the early industry and occupation of the Berry Estate (such as a cemetery, maritime vessel, convict stockade, road bridge or mill).
- An archaeological deposit containing rare and well preserved organic items due to water logged and anaerobic conditions, such as may be found within a swamp or peat deposit.

The potential for a worst case scenario is considered to be very low and has been minimised by the conduct of a robust analysis which included:

- The use of predictive modelling and a review of historical documentary and pictorial sources.
- Archaeological survey and interpretation.
- Reference to oral tradition and information provided by local community sources.
- Review of aerial photography.

An unexpected finds procedure has been developed by the RMS which defines a protocol to be followed in the event that an unexpected find is made during the process of construction (refer Appendix H). The adoption of this procedure provides both a safeguard and management process in the event of a worst case scenario.

9.2 Potential development impact categories

The classification of development impact falls into two broad categories, direct or indirect impact. This classification is made relative to the identified heritage item (which may also include or constitute a place and/or curtilage). Direct impact is where a development would result in physical loss or change to a heritage item, causing a loss of heritage value or significance. Direct impact may occur to a part of an item (partial impact), or affect the whole of the item (whole impact).

Indirect impact is where a development would change the context and surroundings of an item, causing a loss of heritage value or significance. This may include visual, sonic and olfactory changes, as well as the physical loss or concealment of landscape elements. Indirect impacts may reduce the integrity of an item, by effecting components of its setting which are important for an appreciation of its history, function and meaning.

The potential impacts of the project on heritage items consist of the following categories:

- a. A whole or complete degree of direct impact to a heritage item resulting in the physical loss of the item. This can be expected to occur in up to 100 per cent of the planned highway easement, although there may be some limited potential for site remnants to survive in undeveloped areas or in some ancillary areas.
- b. Partial or minor direct impact to heritage item(s). The resulting loss or reduction in heritage significance will depend on the nature of the item and the extent and scope of the physical impact. Included in this category are: instances where a proportion of the item will remain, impact to the defined curtilage of an item, and impact to a minor or small proportion of an item, such as the root stock of a heritage tree.
- c. Indirect impacts, such as to the contextual and landscape values associated with an item. Typically this occurs when a development is now adjacent to, or closer to the item.
- d. Indirect impact to items of movable heritage which could be moved to avoid direct impact and as a consequence lose contextual integrity.
- e. No significant impact. This category involves instances where the development would either: not pose an impact to a heritage item (direct or indirect), or any measurable impact was insignificant and did not reduce the heritage value or significance of the item. An example would be where a development occurs within the viewshed from an item, but does not obscure, remove or reduce the role of contextual or landscape components that contribute to the significance of the item. A further example would be where a development, close to an item, does not increase the level of impact that has already occurred from existing elements or actions.

9.3 Summary of impact and items subject to impact

A summary of the project impact on the non-Aboriginal heritage items is provided below. Detailed and site specific statements of heritage impact are provided in Appendix I.

Of the 34 heritage items, 19 would not be directly impacted, six would be partially impacted, and nine wholly impacted. Of those not directly impacted (19), 13 occur within 50 metres of the construction footprint (CF) and 11 would be subject to indirect impacts relating to their landscape contexts.

A summary of the impact categories is provided in **Table 9.1** The interrelation of the categories used in this analysis and a simplified scheme provided by the RMS (refer below), is shown in **Table 9.2**. An inventory of item specific impact is provided in **Table 9.3**.

Mapping of recording locations relative to a simplified scheme of impact categories is provided in Appendix A.1. The simplified scheme is preferred by the RMS for a general audience. The interrelation of the categories used in this analysis and the simplified scheme is shown in **Table 9.2**, and used in **Table 9.5**. The scheme equates direct impact with *physical impact*, and indirect impact with *visual impact*. In this regard it should be noted that the term *physical impact* refers only to the type of impact to the heritage item. Its use in the simplified scheme is distinct from the physical impact of the project which may also cause indirect or *visual* impacts. Although *visual impact* does not strictly include all indirect impacts, such as non-visual changes to a heritage item's context (such as noise, hydrology, and access), this inclusivity should be assumed in the simplified scheme. Lastly, the term *no impact* is applied to mean no significant impact. That is, the degree of impact does not rise above a threshold relative to the significant values of the heritage item or a pre-existing level of impact. An example of a pre-existing threshold would be an already present road in close proximity to an item. An example of a non-significant impact could be a distant visual intrusion into a viewscape or vista from a heritage item or a relatively small increase in noise.

Table 9.1: Summary of heritage items according to construction impact categories (refer Section 9.2 for category definitions)

Direct impact	Impact category	Items	Total items
yes	a) Whole direct impact	G2B H11, G2B H19, G2B H21, G2B H22, G2B H23, G2B H30, G2B H53, G2B H55 and G2B H61	9
yes	b) Partial direct impact	G2B H14, G2B H15 and G2B H63	3
yes	b) Partial direct impact <i>and</i> c) Indirect impact	G2B H28, G2B H54 and SICPH CL	3
no	c) Indirect impact	G2B H13, G2B H16, G2B H17, G2B H25, G2B H29, G2B H47, G2B H48, G2B H49, G2B H56, G2B H59 and G2B H62	11
no	e) No significant impact	G2B H20, G2B H26, G2B H27, G2B H45, G2B H51, G2B H52, G2B H58 and G2B H60	8

Table 9.2: Interrelation of impact categories used in this analysis and the RMS simplified classification scheme (refer Appendix A.1, where these categories are employed in project mapping)

Simplified Impact Category	Categories used in analysis			
	Direct Impact	Impact category	Items	Total items
Physical impact – Wholly impacted	yes	a) Whole direct impact	G2B H11, 19, 21, 22, 23, 30, 53, 55 and 61	9
Physical impact – Partially impacted	yes	b) Partial direct impact	G2B H14, 15 and 63	3
	yes	b) Partial direct impact <i>and</i> c) Indirect impact	G2B H28, 54 and SICPH CL	3
Visual impact only	no	c) Indirect impact	G2B H13, 16, 17, 25, 29, 47, 48, 49, 56, 59 and 62	11
No impact	no	e) No significant impact	G2B H20, 26, 27, 45, 51, 52, 58 and 60	8

Table 9.3: Itemised summary of construction impacts to heritage items

Site ID	Recording type	Direct impact	Impact category	Comments (CF = Construction footprint)
G2B H11	<i>GlenDevan</i> Federation House (77 North St. Berry)	yes	a	Whole of site would be impacted
G2B H13	Burnett Estate Overseer's Cottage (143 North St. Berry)	no	c	Located within 50 metres of CF
G2B H14	Archaeological deposit (former C19th <i>Broughton Creek</i> town buildings)	yes	b	Partial impact – due to construction of on-ramps and off- ramps and a realigned service road intersection
G2B H15	Remnant portion of C20th highway	yes	b	Partial impact – due to upgrade as extended service road and new intersection
G2B H16	<i>Mananga</i> , homestead complex, (A40 Princes Highway. Berry)	no	c	Located within 50 metres of CF
G2B H17	<i>Hillview</i> homestead (A111 Princes Highway Berry)	no	c	Located within 50 metres of CF
G2B H19	Remnant portion of C19th road	yes	a	Whole of site would be impacted
G2B H20	Remnant portion of C20th highway	no	e	Located within 50 metres of CF
G2B H21	Remnant portion of C20th highway	yes	a	Whole of site would be impacted
G2B H22	Remnant portion of C19th road	yes	a	Whole of site would be impacted
G2B H23	Remnant portion of C19th road	yes	a	Whole of site would be impacted
G2B H25	<i>Sedgeford</i> homestead (A495 Princes Highway, Broughton Village)	no	c	Grounds located within 50 metres of CF
G2B H26	Remnant portion of C20th highway	no	e	Southern end of remnant occurs within 50m of CF
G2B H27	Remnant portion of C19th road	no	e	Located more than 150m away from CF
G2B H28	<i>Brookside</i> homestead (A540 Princes Highway. Broughton Village)	yes	b & c	Partial impact – Acquisition of land for the bypass easement would include a southern outbuilding and associated platforms. Main residential buildings occur outside of the easement boundary but are in close proximity (within 50 - 100 metres of an elevated bridge over Broughton Creek). A memorial planting is 200 metres away from CF
G2B H29	C20th concrete bridge (Princes Highway. Broughton Creek)	no	c	Bridge would be retained for use on service road, located immediately adjacent to CF (within 50 metres of CF)

Site ID	Recording type	Direct impact	Impact category	Comments (CF = Construction footprint)
G2B H30	Remnant portion of C19th road	yes	a	Whole of site would be impacted
G2B H45	<i>Glenvale</i> homestead, (A371 Princes Highway. Broughton)	no	e	Homestead buildings occur 120 metres from easement boundary. Note that the whole of the current property holding is listed on the Shoalhaven. LEP 1985 and portions of this property would be directly impacted, however this would not result in any loss of heritage significance
G2B H47	Former St Patrick's Convent, St Patricks Church and grounds (80 North St. Berry)	no	c	Located within 50 metres of CF
G2B H48	Potential archaeological deposit, former Berry Estate tenant farm (now Greystanes Lodge)	no	c	Located within 50 metres of CF
G2B H49	<i>Oakleigh</i> homestead (59 Woodhill Mountain Rd. Berry)	no	c	Located 100 metres away from easement boundary
G2B H51	<i>Graham Park</i> former agricultural research institution (8, 9 & 13 Schofields Lane, Berry)	no	e	Located within 50 metres of CF
G2B H52	Potential archaeological deposit, former Berry Estate tenant farm (A441 Princes Highway. Broughton Village)	no	e	Located 300 metres away from CF
G2B H53	Potential archaeological deposit, former Berry Estate tenant farm (Toolijooa Ridge)	yes	a	Whole of site would be impacted
G2B H54	Remnant C19th dry stone wall (Toolijooa Ridge)	yes	b & c	Partial – At least the southern half of the known extent of the wall would be directly impacted
G2B H55	Remnant portion of C19th road (north of <i>Mananga</i> homestead)	yes	a	Whole of site would be impacted
G2B H56	<i>Broughton Mill</i> Homestead and Dairy (disused) (117 North St., Berry)	no	c	Located within 50 metres of CF
G2B H58	Uniting Church Hall (formerly Wesleyan Chapel)	no	e	Located 200 metres away from CF
G2B H59	Archaeological deposit former (non Berry Estate) homestead (Broughton Village)	no	c	Located 180 metres away from CF
G2B H60	Skid mounted work site shed (movable item)	no	e	Current location is within 50 metres of CF, but location is not intrinsic to heritage value of item

Site ID	Recording type	Direct impact	Impact category	Comments (CF = Construction footprint)
G2B H61	Quarried rock outcrop, Broughton	yes	a	Whole of site would be impacted
G2B H62	Avenue of Poplar trees	no	c	Located within 50 metres of CF - the northern most Poplar tree is located 10m from a proposed water quality pond.
G2B H63	Mark Radium Park	yes	b	Partial - a narrow portion of land along the western margin of the park would be impacted
SICPH CL	Cultural Landscape (Southern Illawarra Region)	yes	b & c	Partial – Impacts would include the visual and structural impact of the carriageway formation, deep cuttings, and visually obtrusive embankments

9.4 Impact to cultural landscape values and the Berry township

The following section provides an overview of the development impact to cultural landscape values. A detailed statement of heritage impact is provided in Appendix I under the Southern Illawarra Coastal Plain and Hinterland recording, item SICPH CL. **Figure 9.1** and **Figure 9.2** illustrate the location of the project relative to the zones and boundaries of the SICPH CL and previous landscape recordings.

9.4.1 The nature and extent of anticipated development impact

The project would impose a modern structural component onto the landscape. The formal traits of the project would contrast with those of the existing landscape in the following ways:

- The horizontal alignment of the project would be curvilinear within the constraints of standardised and even radius curves. This would contrast with most of the existing broad scale man made landscape features which are based on grids, right angles, or straight intervals joined by relatively tight curves.
- The vertical alignment of the project would be gradual and incremental, and would include ramps, embankments and cuttings to maintain standard rates of climb or descent. This is in contrast to most of the existing broad scale man made landscape features which are more reflective of natural gradients and elevations.
- The width of the project corridor (including the carriageways, ramps and associated easement) would vary from around 50 metres to up to 200 metres. This is in major contrast to existing man made corridors which are nearly all less than 50 metres in width.
- Unlike the alignment of existing roads which, through their curves, and opportunistic alignments, manifest the natural topography they are traversing, the bypass alignment would create its own topography of cuttings and embankments as required by limited tolerances in vertical and horizontal alignment. As a consequence the bypass may run contrary to the natural flow of ridges, valley orientation, and slope contours.
- Whereas the overwhelming character of property boundaries, field delineation, artificial lowland drainage, and secondary and minor roads is one of a grid and rectangular divisions, the bypass would superimpose this patchwork with a visually dominant and curvilinear corridor, following its own independent directional agenda.

In the general proximity of Berry, the project would:

- Impact upon the short and mid-distance view-sheds from the town's northern streetscapes.
- Impose a contrasting and modern (curvilinear) road form upon, the grid dominated nineteenth century character of the existing rural town fringe.
- Impact upon some remnant pastoral open space along the northern margin of the town grid. This margin provides a visually appealing contrast between the urban and rural, and contributes a pastoral character and setting for the town.

These impacts, without mitigation, would amount to a significant deterioration in the cultural landscape values of the SICPH CL and specifically to the Berry landscape setting. The construction of the project would intersect, interrupt, or truncate previous landform elements which contribute to those values such as roads, field systems, natural landforms and vegetation belts. On the northern margin of Berry, the existing pastoral setting of valley-floor fields, farm buildings, and converging tree lined streamlines, would be divided by the project, and blocked from near and middle distance views from the town. This combination of interruption and obscuration could, without mitigation, amount to a significant impact to the northern landscape setting of the town, and thus the heritage values of that setting.

The project, due to its size and engineered character would also have the potential to significantly change the character of its surroundings. The necessary vertical alignment of the project would, in places, result in substantial cuttings, embankments and ramps. These, and their continuous nature, ensure the potential of the project to be a dominant landform in its own right. Across the northern margin of Berry, from east to west, the project would descend to the valley floor via the bridge at Berry over Broughton Mill Creek. It would then traverse the valley floor before passing under Kangaroo Valley Road via a cutting at the Berry interchange. Each of these sections, the bridge, valley traverse, and underpass/interchange, have the potential to impose significant visual impacts onto the town setting. This potential includes both disruption to existing elements, and the introduction of new and inappropriate elements, such as modern and incompatible design and engineering elements.

9.4.2 Project aspects which respect or enhance the cultural landscape values

The Southern Illawarra Coastal Plain and Hinterland has an assessed local level of significance under all criteria: a, b, c, d, e, f and g.

Apart from substantial deviations across the Broughton Creek valley and around Berry, the project would generally follow the original corridor of the first European road constructed for vehicles between Berry and Gerringong – the 1856 Berry Estate Road. This provides a degree of historical and functional integrity to the project. It would remain a modern manifestation of an original mid nineteenth century access and transport corridor.

The construction of a bypass of Berry avoids the need to widen and transform one of the town grid streets to accommodate the highway traffic. If the latter option was adopted it would irrevocably change the amenity and heritage character of the town, and require the full or partial demolition of many properties with heritage value.

It is proposed to minimise and ameliorate adverse visual impacts of the project, through careful design of the project corridor and its infrastructure, minimising cuttings, embankments and carriageway elevation where feasible, and the establishment of vegetation.

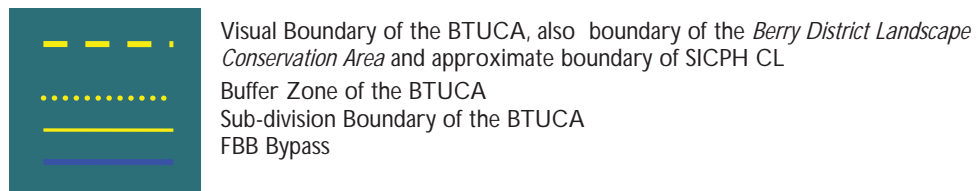


Figure 9.1: Location of proposed project relative to the SICPH CL. (After Figure 13 in Clarke and Duyker 2010; and The boundary of the Berry – Bolong Pastoral Landscapes (Shoalhaven Heritage Inventory) (base image: Google Earth Pro 2009)



Figure 9.2: Location of proposed project relative to the Buffer Zone and Subdivision Boundary of the National Trust defined Berry Township Urban Conservation Area (After Figure 13 in Clarke and Duyker 2010) (Google Earth Pro 2006).

9.5 Avoidance and mitigation of impacts to cultural landscape values

9.5.1 Proposed strategies for managing impact

The following strategies are proposed to avoid and mitigate project related impacts to cultural landscape values and specifically, the landscape context of the Berry township:

- It is proposed to minimise and ameliorate adverse visual impacts where feasible through the appropriate design and conduct of construction and finishing of the project corridor, embankments and cutting faces, and the re-establishment of vegetation.
- The establishment of appropriate forms of vegetation along the project corridor and adjacent areas would be an important strategy in mitigating the broad scale landscape and visual impacts of the project corridor. This would be conducted with an awareness of maintaining important vistas from the road corridor, and the use of vegetation boundaries and alignments which conform to the rectangular patchwork of the surrounding landscape and serve to breakup or scatter the dominant curvilinear character of the project corridor.
- Where there is an opportunity to incorporate artistic elements in structures adjacent to the carriageway, (such as bridgework and retaining and noise abatement walls), it is proposed that designs derived from local cultural heritage themes be considered, especially at locations in close association to places of significance.
- The design, construction and finishing of the project in the general vicinity of the Berry township would be realised with the dual aims of:
 - Minimising and mitigating the visual obstruction caused by the project to views of the surrounding pastoral landscape and the Illawarra Range from the streetscape of the town. The construction of a landscaped noise barrier on the southern and eastern side of the project adjacent to Berry should form one strategy to realise this aim.
 - Being sympathetic to the heritage values and character of the town and its streetscapes. The use of heritage related design elements and materials should be considered in the design of the town interchanges and adjacent noise barriers.
- The visual impact of the bypass from the northern margins of Berry would be mitigated by a landscaped barrier which would also serve as a noise barrier. Appendix I - *Urban Design Technical Paper* (AECOM, 2012) of the environmental assessment provides details of this barrier and various options for its configuration. The barrier would be landscaped in such a way as to reduce the visual impact of the project on the landscape context of the Berry township, and of heritage items on the northern margin of the town. It is proposed that the barrier would reach a height of up to around four metres and consist of a reinforced soil noise barrier with a landscaped south-facing slope creating a 'Ha-ha' effect. This is where a containing wall is concealed in a particular direction by an adjacent slope and/or trench. This would provide a visual barrier that could be treated so that it was consistent with the rural setting, and would obscure the main carriageway and its traffic from south side viewers. Views to the escarpment and upper slopes of the Illawarra Range would remain unaffected for viewers positioned away from the barrier.

9.5.2 Residual impacts following mitigation

The 'Ha-ha' function of the proposed noise barrier to be installed between the project and the northern margin of Berry, would substantially reduce the visual impact of the project on the heritage values of the Berry landscape context and the northern town margin. The barrier, combined with the planting of vegetation that was compatible with the rural and town settings, would largely obscure both the carriageway and the vehicles using it. The view of the Illawarra Range's upper slopes and scarps would remain unaffected. Despite the unavoidable physical impact of the project on the rural setting north of Berry, the proposed barrier would mask these impacts and reinstate a more-or-less continuous visual screen which would support and maintain the rural character of the northern town margin.

Following the establishment of mitigation, the residual impacts of the project on the landscape setting of Berry would consist of:

- Views of the project, away from the northern town margin, such as from Woodhill Mountain Road, of the southern and northern interchanges, and the southern bypass approach to the town.
- The disturbance to, and loss of, landscape elements due to the physical placement of the project. These include fencelines, field systems, riparian vegetation, and road alignments. None of these features had heritage significance as individual items however. Their value is as constituent parts of the much larger SICPH CL.
- The visual impact of the project looking south, from the north side of the project. This however, is not a significant heritage viewshed as it does not include the framing upper register of the Illawarra Range, nor serve as part of a visitor's experience of the Berry town.

Many of these residual visual impacts occur in settings already impacted by the existing highway town entrances or by later twentieth century urban development. The visual amenity of the key vistas and settings with remaining heritage value, namely those looking northwards from the northern margin of the town, would be substantially maintained through the conduct of the proposed mitigation strategies. On this basis, it can be concluded that the residual impacts to the Berry landscape setting would be acceptable when weighed against the benefits and objectives of the project.

In general, and away from the Berry setting, the project would present a similar set of residual impacts to the SICPH CL:

- The addition of a major engineered landscape component in the form of a consistently graded and angled curvilinear road platform associated with extensive bridges, cuttings and embankments.
- Visual intrusion of the project into views of, and across, the landscape.
- Disturbance to, and loss of, landscape elements due to the physical placement of the project. These include ridge and creeklines; cadastral boundaries defined by fencelines, field systems, and road alignments; and patterns of both native and introduced vegetation.

The primary means of mitigating the landscape impacts of the project would be through the re-establishment of vegetation, the appropriate use of landscaping and barriers, and the use of complimentary visual components and compatible design elements. With the effective use of these strategies, it can be concluded that the residual impacts to the SICPHL would be acceptable when weighed against the benefits and objectives of the project.

9.6 Management of recovered artefacts

Subject to stakeholder agreement (including consultation with Heritage Branch), it is proposed to lodge any non-Aboriginal artefactual material recovered during test and proposed salvage excavations with either the Berry Museum (Berry and District Historical Society) or the Gerringong Heritage Museum (Gerringong and District Historical Society), depending on the location (LGA) and nature of the finds. The material would be appropriately inventoried and accompanied by supporting documentation.

9.7 Summary of impacts and proposed management actions

All heritage items subject to direct impact are of an assessed local scale of significance. One site of State significance, the former Graham Park agricultural research station (G2B H51), occurs in close proximity to the project, and action would be taken to ensure that incidental or accidental direct impact does not occur.

The project would directly impact a large proportion of the remaining traces of the 1856 Berry Estate Road (G2B H19, G2B H22, G2B H23, G2B H30 and G2B H55). In most instances, the remains of this roadway consist of low ground-surface relief indicating the presence of a road platform, side ditches, and in some cases cutting and benching. In order to compensate for the loss of these remains, it is proposed to combine a program of archival recording and selective archaeological salvage, with the conservation and public interpretation of a high value and representative portion of the road situated away from the development zone at “Bink’s Corner”, Broughton Village (incorporating items: G2B H25, G2B H26, G2B H27 and G2B H52). In combination with an adjacent portion of the existing highway, and the project, this location could showcase 150 years of highway construction and engineering.

The impact mitigation and management actions proposed for heritage items affected by the project fall into five broad categories:

- No further action (one item).
- Avoid or minimise impact (five items).
- Manage indirect impacts (Visual and contextual) only (nine items).
- Conduct archival recordings and/or archaeological excavations prior to impact (14 items).
- Conserve and manage as specified (five items).
- Manage cultural landscape values (one landscape item).

These categories and the heritage items involved are outlined in **Table 9.4**. A summary of impacts and proposed management measures is provided in **Table 9.5**. An item specific list of proposed impacts, mitigation measures, and before and after significance assessments is provided in **Table 9.6**.

Table 9.4: Summary of project impact categories and proposed Impact mitigation and management actions for heritage items

Management categories		Type of impact	Heritage Items
No further action		No impact	G2B H58
Avoid or minimise impact	Avoid direct impact	No direct impact	G2B H20, 51, 59 & 62
	Avoid or minimise impact where feasible	Direct impact	G2B H63
Manage indirect (visual and contextual) impacts only		Indirect impact only	G2B H13, 16, 17, 25, 45, 47, 49, 56 & 62
Conduct archival recording and/or archaeological excavation prior to impact	Conduct salvage excavation and/or archival recording prior to impact	Direct impact	G2B H11, 14, 15, 19, 21, 22, 23, 28, 30, 53, 54, 55 & 61
	Conduct test/salvage excavation if direct impact anticipated	Potential direct impact	G2B H48
Conserve	Conserve, and as specified: manage and/or interpret	No direct impact	G2B H26, 27, 29 & 52
	Movable heritage – remove and donate to museum		G2B H60
Manage cultural landscape values	Manage and mitigate impact to cultural landscape values	Direct and indirect impacts	SICPHCL

Table 9.5: Summary of measures to mitigate construction impacts

Management measures	Extent of impact*	Heritage items	Total no. of heritage items
'No go' zones (e.g. Use of temporary fencing, signage, tool box talks, etc)	Full physical impact	n/a	n/a
	Partial physical impact	G2B H14, 15, 28, 45, 54,	5
	Visual impact only	G2B H13, 16, 17, 25, 62, 63,	6
	Nil	G2B H29, 47, 48, 51, 56, 59, 60	7
Minimise through urban design	Full physical impact	n/a	n/a
	Partial physical impact	G2B H28, 45, 54	3
	Visual impact only	G2B H13, 16, 17, 25, 47, 49, 56, 62	8
	Nil	n/a	n/a
Archival recording	Full physical impact	G2B H11, 19, 21, 22, 23, 30, 53, 55, 61	9
	Partial physical impact	G2B H15, 28,	2
	Visual impact only	n/a	n/a
	Nil	G2B H27	1
Archaeological monitoring and/or salvage	Full physical impact	G2B H11, 23, 30	3
	Partial physical impact	G2B H14	1
	Visual impact only	n/a	n/a
	Nil	G2B H27	1
Interpretation strategy	Full physical impact	G2B H11	1
	Partial physical impact	n/a	n/a
	Visual impact only	n/a	n/a
	Nil	G2B H26, 27, 29, 52	4
Relocation of item	Full physical impact	G2B H11	1
	Partial physical impact	n/a	n/a
	Visual impact only	n/a	n/a
	Nil	n/a	n/a
Conservation of fabric	Full physical impact	n/a	n/a
	Partial physical impact	n/a	n/a
	Visual impact only	n/a	n/a
	Nil	G2B H48	1
Unexpected Finds Procedure	n/a	Unexpected finds within construction footprint	n/a
S170 Heritage Register listing	n/a	All heritage items within RMS road reserve	n/a

*The impact categories used in this table is the RMS simplified classification scheme (refer Table 9.2).

Table 9.6: Summary of proposed project impacts, mitigation and consequential significance assessments for all heritage items

ID	Heritage Item	Current significance		Project impact	Proposed mitigation	Likely significance of item following mitigation actions and project completion
		Context	Criteria			
G2B H11	Federation Cottage c.1894 (77 North St. Berry)	Local	g	Whole direct impact	Conduct archival recording prior to impact, monitor ground disturbance, salvage and reuse some materials. Allow a potential third party to relocate all or part of structure	No significance. If all or part(s) of the building are salvaged and reused this remaining fabric may have limited local significance, depending upon its context and function.
G2B H13	Burnett Estate Workers Cottage c.1917 (143 North St. Berry)	Local	g	Indirect impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained.
G2B H14	Archaeological deposit (former C19th <i>Broughton Creek</i> town buildings)	Local	aefg	Partial direct impact	Conduct salvage excavation prior to impact	Remaining portions of the deposit would continue to have current significance. The information generated from the salvage excavations would augment and support the research value of the remaining deposit portions.
G2B H15	Remnant portion of C20th highway (Adj to <i>Mananga</i> homestead)	Local	fg	Partial direct impact	Minimise impact and conduct archival recording prior to those impacts	Current significance would be maintained.
G2B H16	<i>Mananga</i> , 1894, Queen Anne style homestead, former Berry Estate Manager's Residence (A40 Princes Highway. Berry)	Local	abceg	Indirect impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained.
G2B H17	<i>Hillview</i> homestead (2 nd half C19th) former Berry Estate tenant farm) (A111 Princes Highway Berry)	Local	efg	Indirect impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained.
G2B H19	Remnant portion of C19th road (West of Gembrook Lane)	Local	abef	Whole direct impact	Conduct salvage excavation and archival recording prior to impact	No significance.
G2B H20	Remnant portion of C20th highway (Broughton)	Local	e	No significant impact	Avoid direct impact	Current significance would be maintained.

ID	Heritage Item	Current significance		Project impact	Proposed mitigation	Likely significance of item following mitigation actions and project completion
		Context	Criteria			
G2B H21	Remnant portion of C20th highway (Broughton)	Local	e	Whole direct impact	Conduct archival recording prior to impact	No significance.
G2B H22	Remnant portion of C19th road	Local	abef	Whole direct impact	Conduct archival recording prior to impact	No significance.
G2B H23	Remnant portion of C19th road	Local	abef	Whole direct impact	Conduct salvage excavation and archival recording prior to impact	No significance.
G2B H25	<i>Sedgeford</i> homestead, 1902, (A495 Princes Highway, Broughton Village)	Local	bg	Indirect impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained. The conservation status and heritage management of this item would have been improved.
G2B H26	Remnant portion of C20th highway	Local	abefg	No significant impact	Conserve, and as specified: manage and interpret	Current significance would be maintained. The conservation status and heritage management of this item would have been improved.
G2B H27	Remnant portion of C19th road	Local	abefg	No significant impact	Conserve, and as specified: manage and interpret	Current significance would be maintained. The conservation status and heritage management of this item would be improved.
G2B H28	<i>Brookside</i> homestead (A540 Princes Highway. Broughton Village)	Local	eg	Partial direct impact and indirect impact	Minimise impact, conduct archival recording prior to impact	Current significance would be reduced due to substantial loss of integrity to the homestead's landscape context.
G2B H29	C20th concrete bridge, 1935, (Princes Highway. Broughton Creek)	Local	acfg	Indirect impact	Conserve, and as specified: manage and/or interpret	Current significance would be maintained.
G2B H30	Remnant portion of C19th road	Local	abefg	Whole direct impact	Conduct salvage excavation and archival recording prior to impact	No significance.

ID	Heritage Item	Current significance		Project impact	Proposed mitigation	Likely significance of item following mitigation actions and project completion
		Context	Criteria			
G2B H45	<i>Glenvale</i> homestead, former Berry Estate tenant farm (A371 Princes Highway. Broughton)	Local	efg	No significant impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained.
G2B H47	Former St Patrick's Convent, and St Patrick's Church and grounds (80 North St. Berry)	Local	dfg	Indirect impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained.
G2B H48	Potential archaeological deposit, former Berry Estate tenant farm (now Greystanes Lodge)	Local (subject to confirmation through test excavation)	e	Indirect impact and potential direct impact	Avoid impact to remnant fig trees, Conduct test/salvage excavation if direct impact to deposit is anticipated	Current significance could be maintained if demolition of existing buildings or further building is not required.
G2B H49	<i>Oakleigh</i> homestead (59 Woodhill Mountain Rd. Berry)	Local	eg	Indirect impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained.
G2B H51	<i>Graham Park</i> former agricultural research institution (8, 9 and 13 Schofields Lane, Berry)	State	abcefg	No significant impact	Avoid impact and manage as specified	Current significance would be maintained.
G2B H52	Potential archaeological deposit, former Berry Estate tenant farm (A441 Princes Highway. Broughton Village)	Local (subject to confirmation through test excavation)	efg	No significant impact	Conserve, and as specified: manage and interpret	Current significance would be maintained. The conservation status and heritage management of this item would be improved.
G2B H53	Potential archaeological deposit, former Berry Estate tenant farm structure and indeterminate rock rubble alignment (Toolijooa Ridge)	Local (subject to confirmation through test excavation)	e	Whole direct impact	Conduct salvage excavation and archival recording prior to impact	No significance.

ID	Heritage Item	Current significance		Project impact	Proposed mitigation	Likely significance of item following mitigation actions and project completion
		Context	Criteria			
G2B H54	Remnant C19th dry stone wall (former highway boundary, Toolijooa Ridge)	Local	cefg	Partial direct impact and indirect impact	Avoid impact where feasible, conserve remaining portions and conduct archival recording prior to impact	Current significance would be reduced due to partial loss of wall section at southern end, however, the remaining portion would be restored and conserved, thereby increasing the conservation management status of the item.
G2B H55	Remnant portion of C19th road (north/upslope of <i>Mananga</i> homestead)	Local	abefg	Whole direct impact	Conduct salvage excavation and archival recording prior to impact	No significance.
G2B H56	Farmhouse and Dairy (disused), early to mid C20th, (117 North St., Berry)	Local	eg	Indirect impact	Manage indirect (visual and contextual) impacts only	Current significance would be maintained. Site is actively deteriorating and its management is outside the scope of this assessment.
G2B H58	Uniting Church Hall (formerly Wesleyan Chapel), 1884, Victorian Carpenter Gothic style, (69 Albert St, adj. to North St)	Local	adfg	No significant impact	No further action	Current significance would be maintained.
G2B H59	Archaeological deposit and remnant plantings, former early C19th homestead (Broughton Village)	Local	abefg	Indirect impact	Avoid direct impact	Current significance would be maintained.
G2B H60	Skid mounted work-site shed	Local	efg	No significant impact	Movable heritage – remove and donate to museum	Current significance would be maintained.
G2B H61	Quarried rock outcrop, Broughton	Local	g	Whole direct impact	Conduct salvage excavation and/or archival recording prior to impact	No significance.
G2B H62	Avenue of Poplar trees	Local	c	Indirect impact	Avoid direct impact and manage indirect (visual and contextual) impacts	Current significance would be reduced due to visual intrusion of overpass across Woodhill Mountain streetscape.

ID	Heritage Item	Current significance		Project impact	Proposed mitigation	Likely significance of item following mitigation actions and project completion
		Context	Criteria			
G2B H63	Mark Radium Park	Local	bc	Partial direct impact	Minimise impact where feasible	Current significance (which relates to commemorative function of park) would be maintained despite loss of area from around eastern park boundary.
SICPH CL	Southern Illawarra Coastal Plain and Hinterland Cultural Landscape	Local	abcdefg	Partial direct impact and indirect impact	Manage and mitigate impact to cultural landscape values	<p>Project impacts can be minimised and managed through effective mitigation.</p> <p>Despite residual impacts, current significance can be maintained, including contextual values around Berry.</p>

9.8 Potential impact within ancillary areas

The location of heritage sites and items relative to the indicative location of ancillary areas is shown in Appendix A.2.

There are no known or predicted sites that would be potentially affected by ancillary works which are in addition to the sites and features addressed in this report.

The following recordings occur within the indicative location of ancillary areas:

- G2B H24 Remnant portion of C20th highway.
- G2B H30 Remnant portion of C19th road (1856 Berry Estate Road).
- G2B H48 Potential archaeological deposit, former Berry Estate tenant farm (Greystanes Lodge).
- G2B H49 Oakleigh farmhouse (Interwar) (59 Woodhill Mountain Rd. Berry).
- G2B H54 Remnant C19th dry stone wall (former highway boundary, Toolijooa Ridge).
- G2B H60 Skid mounted work-site shed (movable item).

Of these, two recordings do not impose constraints on ancillary functions: no further action is recommended for G2B H24; and construction impact to G2B H30 would be managed through archival recording (including archaeological excavation) prior to impact.

The remaining four recording are associated with the following constraints to ancillary functions:

- Avoidance of direct impact to the dry stone wall, G2B H54 on Toolijooa Ridge.
- Avoidance of direct impact to significant fabric within the Oakleigh farmhouse, G2B H49.
- Avoidance of direct impact to the mature tree plantings and potential archaeological deposits at G2B H48 (location of the current Greystanes farmhouse).
- Avoidance of direct impact to the skid mounted work-site shed at Greystanes farmhouse, G2B H60.

10 Recommendations

The following recommendations relate specifically to the assessed impacts of the project as it is described in this report. In the event of a future change to the anticipated area or nature of project impact, it should not be assumed that the absence of a reference to a particular heritage item in these recommendations means that no action remains appropriate in the light of any change.

10.1 Indirect and accidental impact

1. It is recommended that measures be instigated to protect the following heritage items, or their remaining portions, from accidental impact during construction: G2B H13, G2B H14, G2B H15, G2B H16, G2B H17, G2B H25, G2B H28, G2B H29, G2B H45, G2B H47, G2B H49, G2B H51, G2B H54, G2B H56, G2B H59, G2B H62 and G2B H63. This may involve, but not be limited to, the erection of temporary fencing to define 'no-go' areas.
2. Where there would be impact to the visual and landscape context values of heritage places/items (this is classified as an indirect impact to the place or item), it is recommended that the design, construction and finishing of the project in the vicinity of the place/item should be realised with the aim of minimising the visual impact to those values. Possible means to achieve this aim include: minimising the height of the road platform and associated fencing or noise barriers; and careful selection of appropriate road side plantings and landscaping. This strategy applies to: G2B H13, G2B H16, G2B H17, G2B H25, G2B H28, G2B H45, G2B H47, G2B H49, G2B H54, G2B H56 and G2B H62.

10.2 Nineteenth century road remnants

3. All heritage items comprising nineteenth century road remnants that would be directly impacted by construction should be the subject of a co-ordinated archival recording program prior to any impact (G2B H19, G2B H22, G2B H23, G2B H30 and G2B H55). This program should include archaeological salvage excavation at selected and representative locations within sites G2B H19, G2B H23, G2B H30 and G2B H55, to record any ditch profiles, subsurface foundations or former surface treatments. The archival recording program should aim to present a researched and documented archival record of the road remnants and the transport systems of which they formed part. The degree and detail of recording required at each remnant will vary according to the nature and preservation of each item.
4. In order to compensate for the loss of a significant proportion of the remaining probable remnants of the former Berry Estate Road, it is recommended that the complex of road related remnants, G2B H26, G2B H27 and G2B H52, situated at 'Bink's Corner', Broughton Village, be permanently conserved, managed and interpreted as a site which illustrates the history of local road construction, function and economics. As part of this management strategy, a detailed recording of these items should be made with the aim of identifying the conservation and management requirements of the complex. Together with the completed project and the existing adjacent highway (known locally as 'the Big Dipper'), this grouping of highway platforms would present, within a limited area, 160 years of road and highway construction history, beginning with the original Berry Estate Road.

The optimal format(s), location(s) and strategies for the public interpretation of this complex of roads and road remnants should be defined in a Heritage Interpretation Plan (HIP) to be developed as part of the project (refer recommendation 37).

None of these heritage items would be subject to direct impact from the project. The recommended conservation management of these items is necessary to:

- a. Compensate for the loss of all remaining remnants of the Berry Estate Road within the project area, and
- b. Conserve the best of the remaining sections of the Berry Estate Road.

10.3 Twentieth century road remnants

5. A co-ordinated archival recording program should be conducted at heritage items, G2B H15 and G2B H21, prior to any impact. The scope of the recording at each item should be relative to the type and quality of information which can be recovered. This program may include excavation at selected locations, if and where necessary. These recordings should be incorporated into the archival recording report specified in recommendation three, with the aim of creating an integrated record of former highway construction and alignments for the local area.
6. Impact to G2B H15 (adjacent to *Mananga* homestead) should be limited to essential works. This remnant is an important element in the heritage context of the Mananga homestead. Direct impact to that portion of the road remnant adjacent to the Mananga homestead should be minimised.
7. No further action is required at field recordings G2B H12, G2B H18 and G2B H24.

10.4 Potential archaeological deposits

8. In the event that construction related impacts would occur at the G2B H48 potential archaeological deposit (current location of *Greystanes Lodge*), it is recommended that an archaeological program of monitoring and/or salvage excavation, as appropriate, be conducted with the aim of recording and recovering any artefacts or other information which relates to the former Berry Estate tenant farm at this location.
9. In the event that demolition of the modern farmhouse (previously known as *Greystanes Lodge*), situated on site G2B H48 would be required, it is recommended that a program of archaeological monitoring by an archaeologist be conducted with the aim of recording and recovering any artefacts or information which relate to the former Berry Estate tenant farm.
10. The remnant tree plantings at G2B H48, which predate the modern farmhouse, should be conserved and protected from damage.
11. The potential archaeological site G2B H52, should be conserved and managed as part of the complex of road related sites outlined in recommendation 4.
12. Prior to the commencement of construction impact, a program of archival recording and archaeological salvage excavation, should be conducted at G2B H53, as appropriate, and as required by the nature and significance of the relics encountered.

10.5 Archaeological deposits

13. A program of salvage excavation should be conducted within the construction footprint at G2B H14, south of test pit C110. Where the vertical alignment of the existing highway carriageway within the G2B H14 area is to be lowered, the potential for impact to potential archaeological deposits below the current road platform should also be assessed, and salvage excavation conducted according to the determination of that assessment.

The aim of the salvage excavations would be to recover as much information as possible regarding the history of site use, including the sequence of occupation, property boundaries and activity areas/site functions.

10.6 Standing buildings and structures

14. The concrete Broughton Creek bridge (G2B H29), should be conserved, protected from construction impact and continue to function as a road-bridge for the highway when it is converted to a service road following the opening of the project.
15. Interpretive information should be made available to the public on the concrete Broughton Creek bridge (G2B H29). The format and location of this information should be determined by and defined in a Heritage Interpretation Plan (refer recommendation no.37)., it is recommended that interpretive signage and visitor access, off the existing highway (downgraded to a service road) be installed at heritage item G2B H29. Together with this 1930s bridge and the new bridge proposed as part of the project, the interpretation of this site could include the original early nineteenth century ford crossing at this location, and the sequence of wooden bridges on the original Broughton Village road alignment 620 metres upstream.
16. Where and as feasible, direct development impact to the *Brookside* homestead (G2B H28) should be minimised. The standing structures with heritage value should be protected from construction impact as much as possible and continue to be used as a farmhouse complex or adaptively reused in such a way that heritage values can be maintained.
17. The natural character of Broughton Creek and its banks in the vicinity of the bridge immediately south of the *Brookside* homestead (G2B H28) should be maintained and enhanced as much as feasible. The aim of this strategy is to ameliorate impact to the landscape context by maintaining and reinforcing the visual quality of the creek corridor. This can be achieved by maintaining and augmenting native bank side vegetation, and maximising the distance between the banks and bridge abutments.
18. Prior to impact, an archival recording should be conducted at the *Brookside* homestead (G2B H28), inclusive of those features subject to direct impact, and the homestead building which incorporates structures previously moved from site G2B H59.
19. An archival recording should be conducted of *GlenDevan* (G2B H11) and its grounds prior to any development impact. This record should include documentation of construction methods and materials exposed during any demolition works. Ground disturbance in the area of G2B H11 should be monitored by an archaeologist with the aim of recording any features relevant to the archival recording, and recovering any significant relics.
20. The RMS should remain open to the possibility of a third party proposing to conserve all or part of the G2B H11 structure by moving it to a new location within or near Berry, at that party's expense. In the event of simple demolition, suitable materials (such as bricks and stone masonry) should be recovered and reused (with commemorative identification) in appropriate local infrastructure such as interpretive or entrance features, way-side stop facilities, landscaping or artwork.
21. Direct impact to the existing *Graham Park* (G2B H51) entrance structures (gates, pillars and sculpture of a bull) should be avoided. During construction, temporary fencing should be erected around the feature to identify a 'no-go' area.
22. It is recommended that the design of any access roadworks in the vicinity of the *Graham Park* entrance (G2B H51) should not exclude the capacity for visitors to pull over and safely inspect the entrance feature. If necessary, allowance should be made in the design for the potential future installation of interpretive signage.
23. No further action is required at sites G2B H10 and G2B H58.

10.7 Miscellaneous site types

24. Where feasible, direct impact to the remnant dry stone wall G2B H54 should be avoided, and the wall actively conserved and managed. In the event that direct impact to all or part of this site is anticipated then an archival recording of the wall should be conducted prior to any construction impact occurring. Any rock material displaced from the wall as a result of construction works, should be retained for use in the repair and conservation management of the original wall.
25. An archival record should be compiled of the quarried rock outcrop, G2B H61, prior to impact.
26. The most northern Poplar tree in the tree avenue G2B H62, should be conserved in situ and would be situated within 10 metres of a proposed water quality pond. Temporary protective fencing should be erected around the root zone of the tree during the period of construction to define a no-go area. Any post-construction planting of the bypass easement in the area of Woodhill Mountain Road should aim to reinforce and replicate the existing landscape character created by the existing planted avenues of poplar trees.
27. Where feasible, the existing front yard plantings at G2B H17 (Hillview homestead) which would fall within the bypass easement (and particularly the Oak tree) should be retained. This may require a minor deviation of the proposed service road.
28. Construction impact to Mark Radium Park (G2B H63) should be minimised wherever feasible.
29. Direct impact to the Shed on skids, G2B H60, should be avoided. It is recommended that the structure be donated and relocated to an appropriate museum, where and if the capability to conserve and store the structure can be demonstrated.

10.8 The Southern Illawarra Coastal Plain and Hinterland (SICPH CL)

30. Where feasible, the construction and finishing of the project corridor, embankments and cutting faces should be conducted in such a way to minimise and ameliorate adverse visual impacts, and facilitate the re-establishment of vegetation.
31. The establishment of appropriate forms of vegetation along the project corridor and adjacent areas should be an important strategy in mitigating the broad scale landscape and visual impacts of the project. This should be conducted with an awareness of maintaining important vistas from the project, and the use of vegetation boundaries and alignments which conform to the rectangular patchwork of the surrounding landscape and serve to breakup or scatter the dominant curvilinear of the bypass corridor.
32. Where there is an opportunity to incorporate artistic elements in structures adjacent to the carriageway, (such as bridgework and retaining and noise abatement walls), it is recommended that designs derived from local cultural heritage themes be considered, especially at locations in close association to places of significance.
33. The design, construction and finishing of the project in the general vicinity of the Berry township should be realised with the dual aims of:
 - a) Minimising and mitigating the visual obstruction caused by the project to views of the surrounding pastoral landscape and the Illawarra Range from the streetscape of the town. The construction of a landscaped noise barrier on the southern and eastern side of the bypass adjacent to Berry should form one strategy to realise this aim (refer details in Appendix I of the environmental assessment).
 - b) Being sympathetic to the heritage values and character of the town and its streetscapes. The use of heritage related design elements and materials should be considered in the design of the town interchanges and adjacent noise barriers.

10.9 Ancillary facilities

34. The positioning of ancillary facilities and the conduct of ancillary functions should avoid direct impact to the following features: G2B H54 (dry stone wall on Toolijooa Ridge); significant fabric within G2B H49 (*Oakleigh* farmhouse); the mature tree plantings and potential archaeological deposits at G2B H48 (current location of *Greystanes Lodge*); and the skid mounted work-site shed at *Greystanes Lodge*, G2B H60.

10.10 General

35. All heritage items which would remain in whole, or in part, within the project corridor following the end of project construction, should be entered on the Section 170 Heritage and Conservation Register(s) compiled by RMS, and any conservation or management requirements determined and adopted.
36. In the event that unexpected cultural heritage finds are encountered during project construction then the Unexpected Finds Procedure (provided in Draft form in Appendix H), or an RMS approved revised version, should be adopted and followed. The Procedure should be included within a Construction Environmental Management Plan or equivalent document.
37. The cultural values of the project area should be promoted, interpreted and presented to current and future public audiences using formats, locations and strategies developed by, and defined in a Heritage Interpretation Plan (HIP). The HIP should be drafted with the involvement of relevant stakeholders, landowners and local Councils. Options to be considered should include interpretive signage, onsite public access and/or viewing points, educational materials, and supporting local museum displays. In particular, the HIP should address how best to provide for the public interpretation of the former Berry Estate road (and the surviving remnant G2B H27), and the Broughton Creek bridge (G2B H29).

11 References

- AECOM Australia Pty Ltd 2009 *Oral History Gerringong to Bomaderry Princes Highway upgrade, Oral History Recording December 2009*. Prepared by Navin Officer Heritage Consultants Pty Ltd, for Roads and Traffic Authority.
- Anne Groston Ali 1981 *Illawarra Region Historic Buildings & Sites*
- Antill, R. G. 1982 *Settlement in the South: A record of the discovery, exploration and settlement of the Shoalhaven River Basin 1803-1982*. Weston & Co. Publishers Pty. Ltd.
- Australia ICOMOS 1987 *The Australia Icomos Charter for the Conservation of Places of Cultural Significance (The Burra Charter), Guidelines to the Burra Charter: Cultural Significance and Conservation Policy*. Pamphlet, Australia Icomos (Inc).
- Bayley, W. A. 1975 *Shoalhaven: History of the Shire of Shoalhaven, New South Wales*. Nowra Shoalhaven Shire Council.
- Bayley, W. A. 1976 *Blue Haven: History of Kiama Municipality, New South Wales*. Kiama Municipal Council.
- Beale, E., W. Mitchell and M. Organ (eds) 1991 *Backhouse & Walker in Illawarra & Shoalhaven 1836*. Illawarra Historical Society.
- Berry Museum (Berry and District Historical Society) website: www.berryhistory.org.au
- Berry Museum n.d. *Berry Walkabout: A Guide for Walking or Driving*. The Berry Museum.
- Blocklow, N. 2005 *The Accidental Politician: Edgar High Graham*. FourW Press, Wagga Wagga.
- Boow, J. 1991. *Early Australian Commercial Glass: Manufacturing Processes*. The Heritage Council of New South Wales, Sydney.
- Braddock and Baly (compilers) 1866 County of Camden, New South Wales, (map) engraved by John L. Ross. Scale: two miles to an inch, Office of the Surveyor General, Sydney., Thomas Richards, Government Printer, Sydney. (held by National Library of Australia Map room 1798. part2 internet access: <http://nla.gov.au/nla.map-rm1798-s1-sd-cd>)
- Caldwell, V. 1999 'Frank McCaffrey #13', information posted by Vivienne Caldwell on archiver.rootsweb.ancestry.com 12/03/1999, transcript from Francis McCaffrey Collection, University of Wollongong Archives D92.
- Chapman, B, & M. 2010 '1st / 3rd Foot (The East Kent, The Buff's) Regiment of Foot" In ancestry.com rootsweb website: <http://freepages.history.rootsweb.ancestry.com/~garter1/3rdfoot.htm>
- Christian, A.T. and S.M. Hill Regolith-landform mapping of the Shoalhaven River Delta and hinterland, NSW: towards a model for landscape change and management. In Roach, I.C. ed 2002. *Regolith and Landscapes in Eastern Australia*. Pp 8-13. CRC LEME.
- Chisholm, P. 'Joseland, Richard George Howard (1860–1930)', *Australian Dictionary of Biography*, National Centre of Biography, Australian National University, <http://adb.anu.edu.au/biography/joseland-richard-george-howard-6886/text11937>, accessed 25 September 2011
- Clark, A. (ed.) 1993 *Villages of Shoalhaven*. Shoalhaven Tourist Board.
- Clarke, B. and S. Duyker Nov. 2010 National Trust of Australia (NSW) Classification Report – Berry Township Urban Conservation Area. Draft Classification Report, approved 30/03/2011.

- Conybeare Morrison & Partners 1999 Berry Bypass Townscape & Heritage Assessment. Report to the RTA.
- Corkill, T. 1986 Gaining Ground: A predictive model for Holocene infill areas on the South Coast of New South Wales. Unpublished B.A.(Hons) thesis, Dept. Anthropology, University of Sydney.
- Cousins, A. 1948 (reprint edition:1994) *The Garden of New South Wales. A History of the Illawarra & Shoalhaven Districts 1770-1900*. Originally published by Producers' Co-op. Distributing Society Ltd, Sydney. This edition published by Illawarra Historical Society, Wollongong.
- Cowling, M. (no date) 'Sedgeford' Manuscript (possibly a student report)
- Donlan, D.1991a Preliminary archaeological survey of proposed roadworks programme between Gerringong and Berry, NSW. Report to RTA.
- Elliott, C. 2009 'Broughton Village NSW', information posted by Carole Elliott on archiver.rootsweb.ancestry.com 8/04/2009
- ERM Mitchell McCotter 1998 Berry Bypass Environmental Impact Statement. (Draft).
- Faherty, P.J. (accessed Sep 2011) 'History of St. Patrick's, Berry' <http://www.nowraparish.org.au/history/st-patricks-berry>
- Fletcher, J. and J. Burnswoods 1983 *Government Schools of New South Wales 1848 – 1983*. Directorate of Planning Services NSW, Department of Education.
- Florence, R. 2011 *Broughton Village In Past Times*. The Broughton Village History Group, Ulladulla Printing Service.
- Gemmell, W. 1986 *And So We Graft From Sic to Six, The Brickmakers of New South Wales*. Angus and Robertson, Sydney.
- Graham, J. 1998 The Northern Section of the Berry Estate (first published in *Illawarra Branches* Dec 1998), <http://www.rootsweb.ancestry.com/~nswgdhs/berry01.htm>
- Griffith, J. 1978 *A History of Kangaroo Valley, Australia*. Kangaroo Valley Historical Society, Bomaderry Printing Co., Bomaderry, NSW
- J.M.E. 1951 The History of the Prince's Highway *Main Roads* Vol XVI No. 3
- Jervis, J. 1942 Illawarra: A Century of History, 1788-1888. *Journal and Proceedings of the Royal Australian Historical Society*. 28(2-6):65-107, 129-156, 193-248, 273-302, 353-374.
- Kiama Municipal Council 1996 *Kiama Local Environmental Plan 1996*. Accessed 8/9/11, <http://www.legislation.nsw.gov.au/scanview/inforce/s/1/?EPITITLE=%22Kiama%20Local%20Environmental%20Plan%201996%22&nohits=y>
- Kiama Municipal Council 2010 Draft *Kiama Local Environmental Plan 2010*. Accessed 8/9/11, <http://www.kiama.nsw.gov.au/environmental-services/draft-LEP-2010.html>
- Latona Masterman and Associates 1987 Kiama Heritage Study, Thematic History of Kiama Municipality. Report prepared for Kiama Municipal Council
- Lees, D. (no date) 'History of Drill and Blast' from Australasian Tunnelling Society Website www.ats.org.au
- Lidbetter M. 1993 *Historic Sites of Berry* The Berry and District Historical Society Inc. (Revised Ed)
- Mabbutt, E. n.d. *Click Go the Years! With Photographs from Berry 1875-1925*. Berry and District Historical Society Inc.
- Martin, A. W. 1972 'Hay, Sir John (1816 – 1892)', *Australian Dictionary of Biography*, Volume 4, Melbourne University Press, pp 361-362.

- Maunsell Australia Pty Ltd 2008 *Gerringong to Bomaderry Princes Highway Upgrade Preferred Option Report*. Prepared by Maunsell for the RTA.
- Mayne-Wilson 1998 West Kiama: A Heritage Assessment of its Dry Stone Walls. Report prepared for Kiama Municipal Council by Mayne-Wilson and Associates, Paddington.
- Mayne-Wilson & Associates 2000 Conserving the Dry Stone Walls of Kiama. Report to Kiama Municipal Council.
- McCaffrey, F. Francis McCaffrey Collection, University of Wollongong Archives D92, 5/2/1914, transcript in Caldwell 1999.
- Mitchell, T.L. 1834 *Map of the Colony of New South Wales*, Sydney
- Morris, E.E. (ed) 1889 *Cassels Picturesque Australasia*. Vol IV. Cassell & Company Ltd, Melbourne
- Navin Officer Heritage Consultants 2005 Re: SH1 Princes Highway and Tindalls Lane Berry. Letter format report on assessment of cultural heritage impacts of upgrading of Tindalls Lane intersection with Princes Highway. Letter to Ms Janneth Baquero Robles from Kerry Navin 11 Dec 2005.
- Navin Officer Heritage Consultants 2006 SH1 Princes Highway and Tindalls Lane Berry Upgrade Works. (Letter) Report to NSW RTA.
- Navin Officer Heritage Consultants 2007 Princes Highway Gerringong to Bomaderry Cultural Heritage Assessment Preliminary Report. Report to Maunsell on behalf of the NSW RTA.
- Navin Officer Heritage Consultants 2009a Gerringong to Bomaderry Princes Highway Upgrade, Aboriginal Cultural Values. Report to Maunsell on behalf of the NSW RTA.
- Navin Officer Heritage Consultants 2009b Gerringong to Bomaderry (G2B) Princes Highway Upgrade, Route Selection, Oral History Recording Project. Report to Maunsell Australia Pty Ltd on behalf of the NSW RTA.
- Navin Officer Heritage Consultants 2009c *Oral History, Gerringong to Bomaderry Princes Highway Upgrade, Oral History Recording, December 2009*. Prepared by Navin Officer Heritage Consultants Pty Ltd contracted to Maunsell Australia Pty Ltd, for the NSW RTA. RTA Publication 09.541
- Navin Officer Heritage Consultants 2011 Princes Highway Berry and Foxground Bypass Cultural Heritage Assessment Archaeological Survey and Initial Analysis. Report to AECOM on behalf of the RTA.
- NSW Heritage Council, State Heritage Register Committee, Minutes 5 Oct 2005 (File no. H99/00007) accessed on internet:
<http://www.heritage.nsw.gov.au/docs/heritagecouncil/shrminutesoct2005.pdf>
- Organ, M.K. and A.P. Doyle (eds) 1994 *Early Land Settlement in Illawarra 1804 – 1861 by Benjamin Lindsay*, Illawarra Historical Publications, especially Chapter 18: 'Reference to Lands comprised in the Berry Estate, An Epitome of Alexander Berry's Career, Analysis of "Free" and "Purchase" Grants in the Berry Estate, Disposal of Remaining Lands on the Mountains & Slopes, South of the Minnamurra River'.
- OzRoads.com.au 'Princes Highway – History and Development',
<http://www.ozroads.com.au/NSW/Highways/Princes/history.htm>
- Parliament of NSW website (accessed 15/9/11) Former Members Biographical notes:
<http://www.parliament.nsw.gov.au/prod/parlament/members.nsf/ec78138918334ce3ca256ea200077f5d/4e4d1265d37a974fca256e6d000c30e3?OpenDocument>

- Perry, T. M. 1966 'Berry, Alexander (1781 – 1873)', *Australian Dictionary of Biography*, Volume 1, Melbourne University Press, pp 92-95.
- Perumal Murphy Wu Pty Ltd 1994 Illawarra Heritage Study Review Kiama Inventory. Vols 1 & 2.
- Peter Freeman Pty Ltd 1998 *Shoalhaven City Council Heritage Study 1995-1998*. Peter Freeman Pty Ltd in association with JRC Planning Services, Sydney, Prepared for the Shoalhaven City Council.
- Pleadon, A. 1900 *Coastal Explorers*, Milton/Ulladulla & District Historical Society
- Ritchie, M.S. 1988 *Bailey Family Reunion*. (Self Published).
- Robson, J. And P. Kneivitt 2008 *Shoalhaven Rising A History of over 100 years of Local Government. Berry New South Wales 1868-2004*. The Berry and District Historical Society.
- Rosenman, H. 1988 *Dumont d'Urville – Two Voyages to the South Seas*, Melbourne University Press, Brunswick.
- Roy, P.S., 1994 Holocene estuary evolution: stratigraphic studies from southeastern Australia. In Dalrymple, R., Boyd, R. and Zaitlin, B.A. eds *Incised valley systems: origin and sedimentary sequences*. SEPM Special Publications 51 pp 241-263.
- RTA Environmental Technology 2006 Impact on Dry Stone Walls from Proposed Construction of Northbound Princes Highway On-Ramp, Bland Street, West Kiama. Statement of Heritage Impact. RTA Environmental Technology, Parramatta.
- Sainty, M.R and K.A. Johnson 1980 *Census of New South Wales, November 1828*. Library of Australian History, Sydney
- Sealy, M. 2000 *The Journeys to Coolangatta: Alexander Berry, the Scottish Settler, and His Australian Succession*. Book House, Glebe, NSW.
- Sharpe, M. 1975 *Sharpe Family History*. (Self published) Gerringong NSW
- Simpson Dawbin 2000 Kiama Heritage Review 2000
- Shoalhaven City Council 1985 *Local Environmental Plan 1985 with amendments made as at 21 Apr 2011*. Accessed 8/9/11, <http://doc.shoalhaven.nsw.gov.au/displaydoc.aspx?record=D11/119323>
- Shoalhaven City Council 2009 *Draft Shoalhaven Local Environmental Plan 2009*. Accessed 8/9/11, <http://slep2009.shoalhaven.nsw.gov.au/content/written-documentinstrument>
- Shoalhaven Heritage Inventory (Accessed Sep 2011) Database managed and progressively updated by the Shoalhaven City Council, based on datasheets originally prepared by Peter Freeman Pty Ltd for the 1998 Shoalhaven Heritage Study (kindly provided by Mr John Flett, Shoalhaven City Council) .
- Shoalhaven Family History Society Inc (SFHS) 2003 *Shoalhaven Pre 1900 Pioneer Register*. Volumes 1 and 2, Klimpton Press, Nowra South.
- Shoalhaven Heads Website 'On This Day' <http://shoalhavenheads.net.au/shoalhaven-history-2/>
- Silcox, R. 1990 Archaeological Assessment of Aboriginal and Historic Sites on the Proposed North Kiama Bypass between Dunmore and Bombo, Kiama NSW. Unpublished report to NSW RTA.
- Stephen, M. D. 1969 'Berry, David (1795 – 1889)', *Australian Dictionary of Biography*, Volume 3, Melbourne University Press, pp 149-151.
- Thom, B.G. and Roy, P.S. 1985 Relative sea levels and coastal sedimentation in southeastern Australia in the Holocene. *Journal of Sedimentary Petrology*. 55:257-264.





- Thomas, S. 1975 *The Town at the Crossroads: A Story of Albion Park*. Weston and Co. Publishers
- Town and Country Journal*, 11 February 1903.
- Uebel, L. 2001 Bushrangers, convicts etc. Information posted by Lesley Uebel on archiver.rootsweb.ancestry.com 26/03/2001
- Varman, R. 1986. Building Materials as Criteria for Dating in Sydney and Environs from 1788: A Documentary Survey and Assessment of Dating Potential. Unpublished PhD thesis, University of Sydney.
- Walker, P.H. 1962 Terrace Chronology and Soil Formation on the South Coast of New South Wales. *Journal of Soil Science* 13: 178-186.
- Wollongong City Council 1976 *Lake Illawarra: An Environmental Assessment Project*. Wollongong City Council and University of Wollongong.
- Woodroffe, C.D., Buman, M., Kawase, K. and Umitsu, M., 2000 Estuarine Infill and Formation of Deltaic Plains, Shoalhaven River. *Wetlands (Australia)* 18(2), 72-84.
- Wearne, I.M., 1984 Patterns of Sedimentation in the Shoalhaven Delta. Unpublished B.Sc. Thesis, Dept of Geography, University of Sydney.
- Young, R., White, K.L. and Price, M.D. 1996 Fluvial Deposition on the Shoalhaven Deltaic Plain, Southern New South Wales. *Australian Geographer* 27(2), 215-233.

Appendix A






General location mapping and impact classification of Non-Aboriginal cultural heritage recordings within the Foxground and Berry bypass project

General location mapping and impact classification of Non-Aboriginal of cultural heritage recordings within the Foxground and Berry bypass project

KEY TO GRAPHICS

	Field recording code or ID
	Non-Aboriginal field recording
	Non-Aboriginal field recording with indeterminate or approximate boundary
	Boundary of property listed on a Local Environmental Plan Heritage Schedule

Simplified categories of project impact

	Physical Impact – Wholly impacted (corresponds to (a) 'Whole direct impact' as used in report analysis)
	Physical Impact – Partially impacted (corresponds to (b) 'Partial direct impact' with or without (c) 'Indirect impact', as used in report analysis)
	Visual Impact only (corresponds to (c) 'Indirect impact' as used in report analysis)
	No Impact (corresponds to (e) 'No significant indirect impact')
	Non heritage item – impact not defined

Note: For large scale mapping of individual recordings refer to Appendix I

KEY TO FIELD RECORDING CODES SHOWN ON MAPS

Site ID	Recording
G2B H10	Cottage (72 North St. Berry)
G2B H11	<i>GlenDevan</i> Federation Cottage (77 North St. Berry)
G2B H12	Remnant portion of C20th highway (Stewarts Hill cutting)
G2B H13	Burnett Estate Overseer's Cottage (143 North St. Berry)
G2B H14	Archaeological deposit (former C19th <i>Broughton Creek</i> town buildings)
G2B H15	Remnant portion of C20th highway
G2B H16	<i>Mananga</i> , Queen Anne style homestead complex, former Berry Estate Manager's residence (A40 Princes Highway. Berry)
G2B H17	<i>Hillview</i> homestead former Berry Estate tenant farm) (A111 Princes Highway Berry)
G2B H18	Remnant portion of C20th highway
G2B H19	Remnant portion of C19th road (1856 Berry Estate Road)
G2B H20	Remnant portion of C20th highway
G2B H21	Remnant portion of C20th highway
G2B H22	Remnant portion of C19th road (1856 Berry Estate Road)
G2B H23	Remnant portion of C19th road (1856 Berry Estate Road)
G2B H24	Remnant portion of C20th highway
G2B H25	<i>Sedgeford</i> homestead (A495 Princes Highway, Broughton Village)
G2B H26	Remnant portion of C20th highway ("Bink's Corner") Broughton Village
G2B H27	Remnant portion of C19th road (1856 Berry Estate Road)
G2B H28	<i>Brookside</i> homestead (A540 Princes Highway. Broughton Village)
G2B H29	C20th concrete bridge (Princes Highway. Broughton Creek)
G2B H30	Remnant portion of C19th road (1856 Berry Estate Road)
G2B H45	<i>Glenvale</i> homestead, former Berry Estate tenant farm (A371 Princes Highway. Broughton)
G2B H47	St Patrick's (former) Convent, Church and grounds (80 North St. Berry)
G2B H48	Potential archaeological deposit, former Berry Estate tenant farm (<i>Greystanes Lodge</i>)
G2B H49	<i>Oakleigh</i> farmhouse (Interwar) (59 Woodhill Mountain Rd. Berry)
G2B H50	<i>Clare Moy</i> Cottage (342 Princes Highway. Toolijooa)
G2B H51	<i>Graham Park</i> former agricultural research institution (8, 9 & 13 Schofields Lane, Berry)
G2B H52	Potential archaeological deposit, former Berry Estate tenant farm (A441 Princes Highway. Broughton Village)
G2B H53	Potential archaeological deposit, former Berry Estate tenant farm structure and indeterminate rock rubble alignment (Toolijooa Ridge)
G2B H54	Remnant C19th dry stone wall (former highway boundary, Toolijooa Ridge)
G2B H55	Probable remnant portion of C19th road (1856 Berry Estate Road) (NE of <i>Mananga</i>)
G2B H56	<i>Broughton Mill</i> Farmhouse and Dairy (disused) (117 North St., Berry)
G2B H57	Remnant portion of C20th highway (nr Tindalls Lane)
G2B H58	Uniting Church Hall (formerly Wesleyan Chapel)
G2B H59	Archaeological deposit, and plantings, former C19 and C20th (non-Berry Estate) homestead
G2B H60	Skid mounted work-site shed (movable item)
G2B H61	Quarried rock outcrop, Broughton
G2B H62	Avenue of Poplar trees
G2B H63	Mark Radium Park

SUMMARY OF PROJECT IMPACT CATEGORIES AND AFFECTED HERITAGE ITEMS





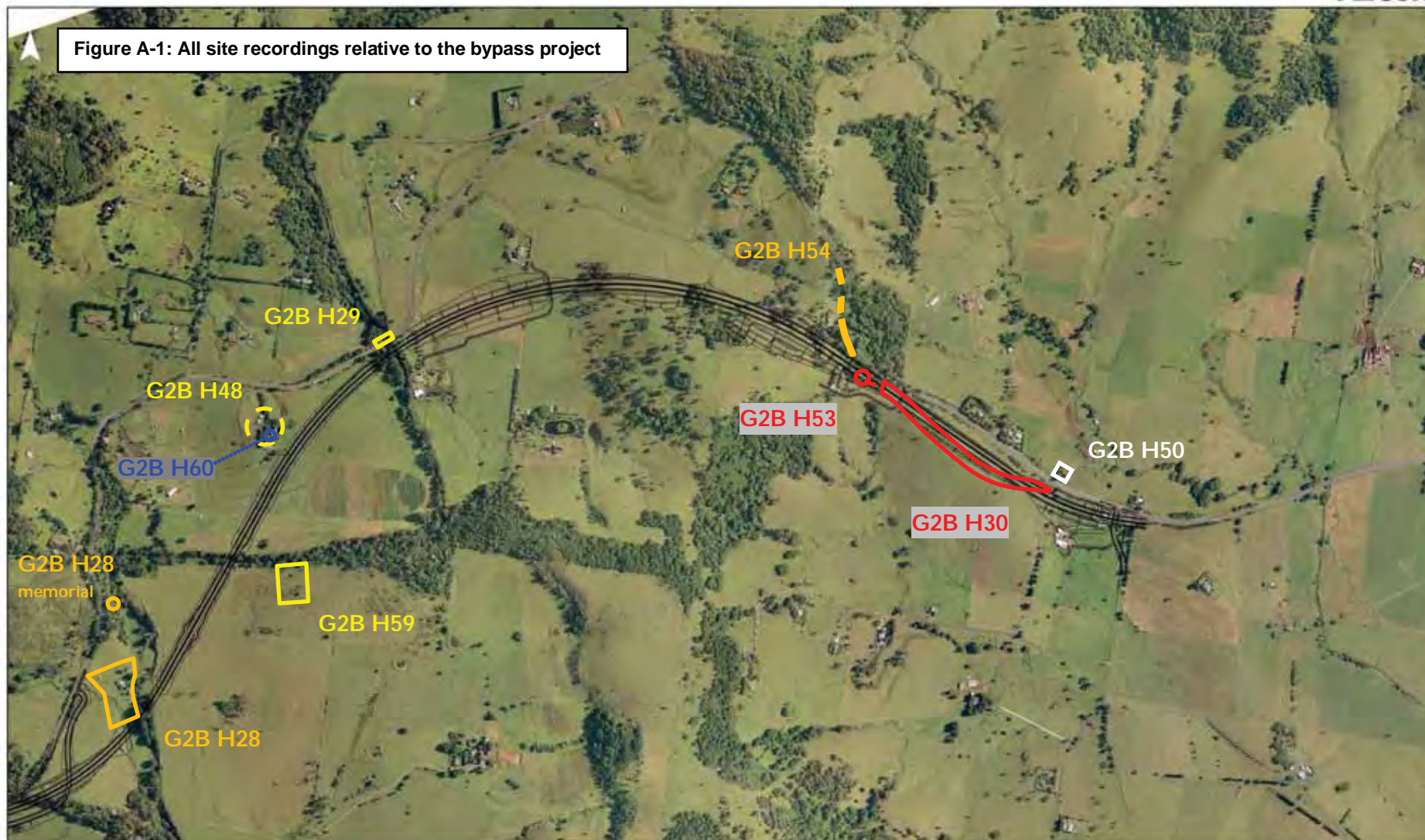
Simplified Impact Category	Map Key	Categories used in analysis			
		Direct Impact	Impact category	Items	Total items
Physical impact – wholly impacted		yes	a) Whole direct impact	G2B H11, 19, 21, 22, 23, 30, 53, 55 & 61	9
Physical impact – partially impacted		yes	b) Partial direct impact	G2B H14, 15 & 63	3
		yes	b) Minor or partial direct impact <i>and</i>	G2B H28, 54 & SICPH CL	3
			c) Indirect impact		
Visual impact only		no	c) Indirect impact	G2B H13, 16, 17, 25, 29, 47, 48, 49, 56, 59 & 62	11
No impact		no	e) No significant impact	G2B H20, 26, 27, 45, 51, 52, 58 & 60	8

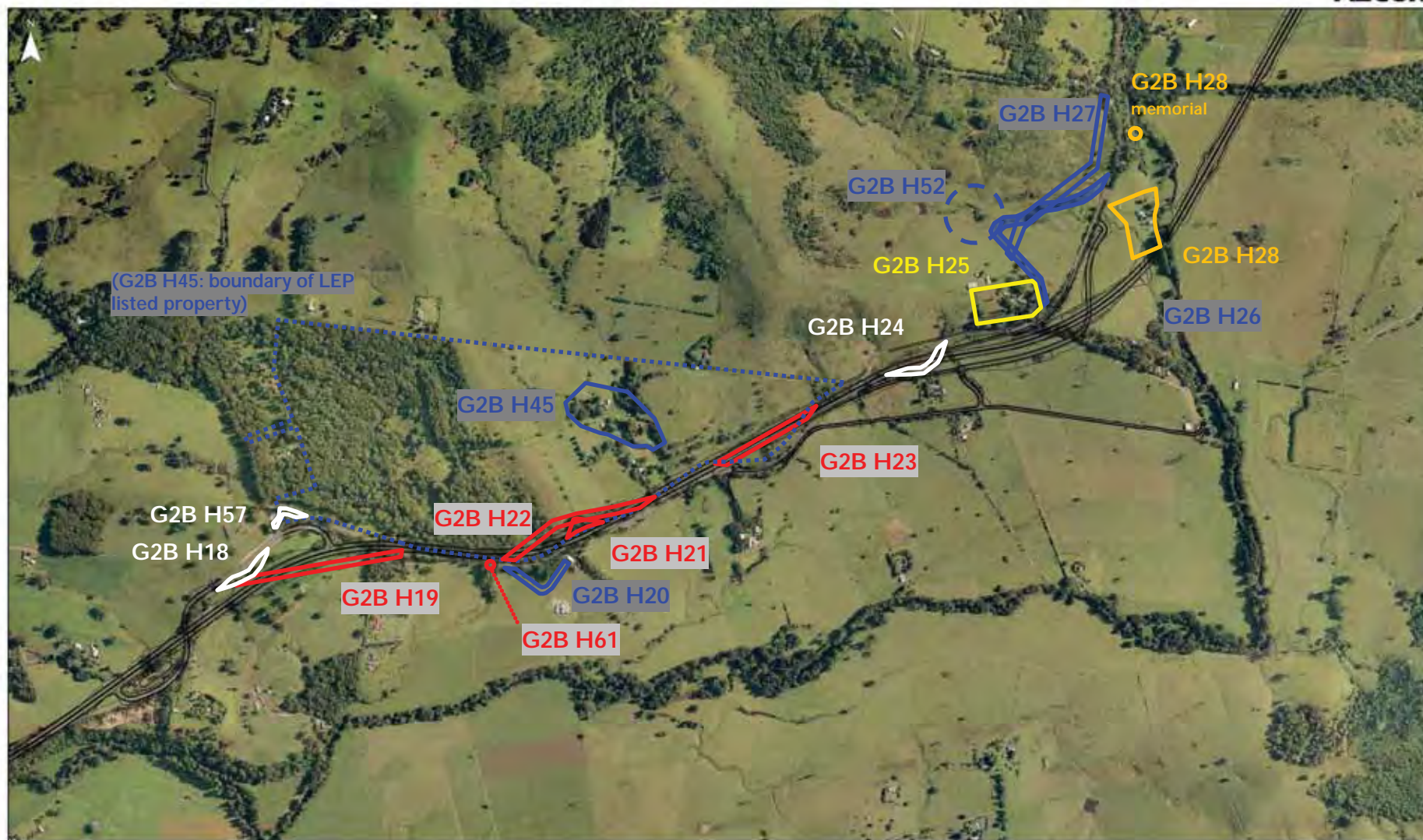
Figure A-1: All site recordings relative to the bypass project



Page 1 of 4

PRINCES HIGHWAY UPGRADE
FOXGROUND AND BERRY BYPASS
Source: Fugro (2007), Dept. of Lands (2007), RTA (2011)
01 AUG 2012
60021933

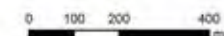
0 100 200 400
m

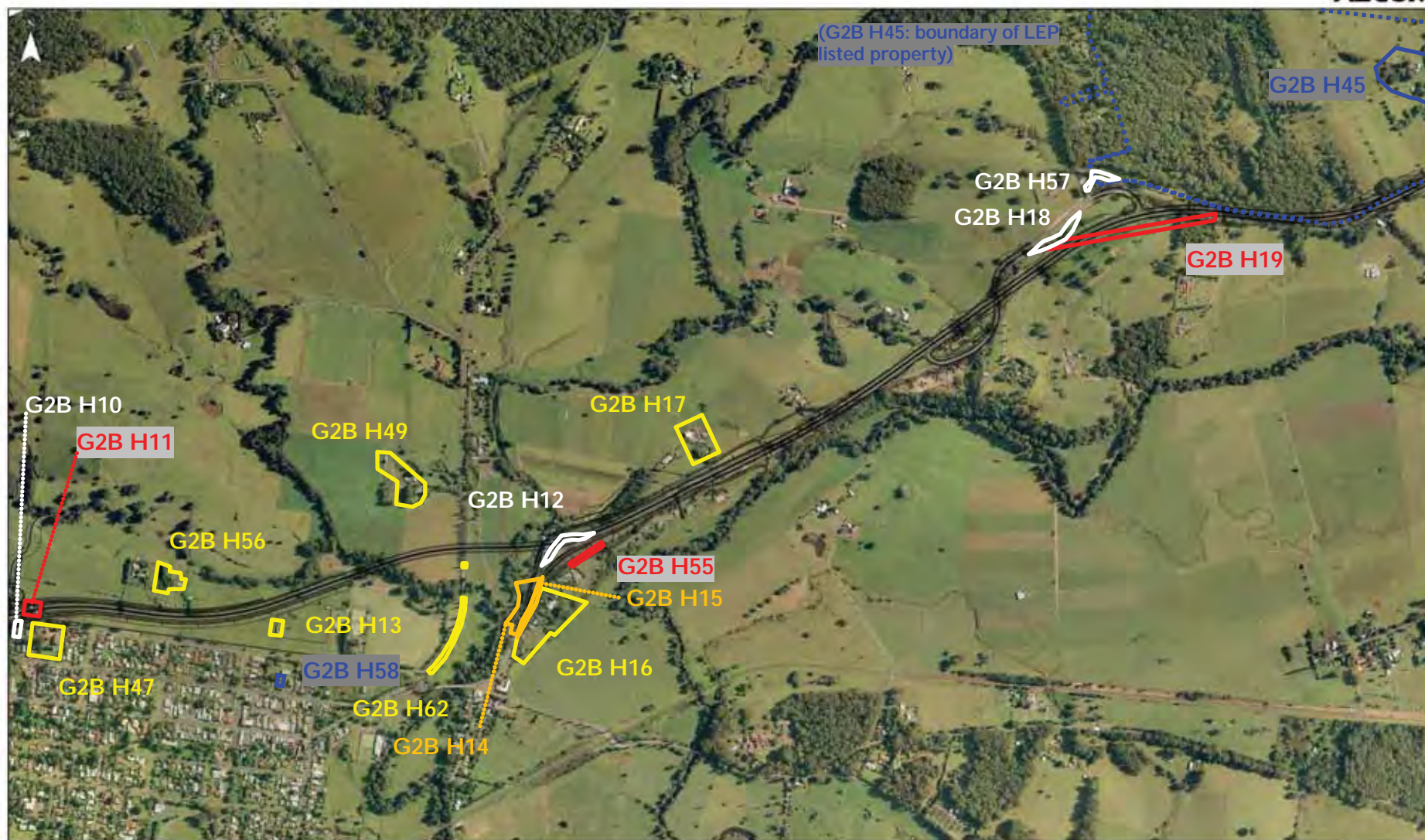


Page 2 of 4

PRINCES HIGHWAY UPGRADE
FOXGROUND AND BERRY BYPASS
Source: Fugro (2007), Dept. of Lands (2007), RTA (2011)

01 AUG 2012
60021933





Page 3 of 4

PRINCES HIGHWAY UPGRADE
FOXGROUND AND BERRY BYPASS
Source: Fugro (2007), Dept. of Lands (2007), RTA (2011)
01 AUG 2012
60021933

0 100 200 400
m



Page 4 of 4

PRINCES HIGHWAY UPGRADE
FOXGROUND AND BERRY BYPASS
Source: Fugro (2007), Dept. of Lands (2007), RTA (2011)

01 AUG 2012
60021933

0 100 200 400
m

Figure A.2 Site recordings relative to indicative ancillary areas

