

GENERAL CONDITIONS OF THIS CONSENT

Development is to be in accordance with approved plan(s)

1. The development is to be implemented in accordance with the plan(s) endorsed with the Council stamp, dated <<DATE>> and set out in the following table except where modified by any conditions of this consent.

Plan Title/Description	Dwg. No	Prepared by	Dated
Location Plan and Drawing List	17020-001 Rev B	Jed Civil	08/05/2018
Proposed Lot Layout	17020-010 Rev C	Jed Civil	06/08/2018
General Arrangement Plan	17020-011 Rev C	Jed Civil	06/08/2018
Earthworks Cut/ Fill Contours	17020-012 Rev C	Jed Civil	06/08/2018

In the event of any inconsistency between conditions of this development consent and the plan(s) referred to above, the conditions of this development consent prevail.

Retaining Walls

2. Retaining walls within 1m of the lot boundary, greater than 600mm above existing ground level, or within 2m of another retaining wall/structural support require a Construction Certificate and Occupation Certificate. All works associated with such retaining walls eg backfill, drainage, supporting footing shall be wholly contained within the allotment boundary.

THE FOLLOWING CONDITIONS MUST BE COMPLIED WITH PRIOR TO ISSUE OF SUBDIVISION WORKS CERTIFICATE

Engineering Construction Plans

3. Engineering construction plans and specifications must accompany the Subdivision Works Certificate application. Such plans are to provide for the works in the following table in accordance with Council's current Design and Construction Manuals and Specifications.

Required work	Specification of work
Street Name Signs	Street name signs and posts to all proposed new roads. <i>(Note: street/road names proposed for the subdivision must be submitted for Council approval 24 weeks prior to lodgement of the Subdivision Certificate application. A suitable name for any new road/s must be in accordance with Council's adopted policy).</i>
Kerb & Gutter, Road Shoulder Construction	Barrier Kerb and gutter, road shoulder and associated drainage construction, footpath formation and turfing including any necessary relocation of services across the frontage of the subdivision.
Full Width Road Construction	Full width road and drainage construction for proposed road 1 on the approved plan. 16m wide road with asphalt seal
Service Conduits	Service conduits to each of the proposed new allotments laid in strict accordance with the service authorities' requirements.
Street Lighting	LED street lighting being provided to the requirements of Essential Energy.
Stripping and Stockpiling	Stripping and stockpiling of existing topsoil on site, prior to commencement of earthworks, and the subsequent re-spreading of this material together with a sufficient quantity of imported topsoil so as to provide a minimum thickness of 80mm over the allotments and footpaths and public reserves, upon completion of the development works.
Inter-allotment Drainage	Inter-allotment drainage to an approved public drainage system for each of the proposed new allotments where it is not possible to provide a gravity connection of future roofwater to the kerb and gutter.
Culverts required	Culvert to be designed to ensure that peak flow rates for the 1 in 100

Required work	Specification of work
across drainage channels or streams	year storm event are not affected. The applicant is to obtain any necessary approvals from the Department of Natural Resources and/or the Department of Primary Industries, Fisheries, and plans.
On-site Stormwater Detention	Stormwater must be discharged via an on-site stormwater detention system that is to be designed to ensure that peak flow rates for the 1 in 5 year storm event exiting the subdivision do not exceed that occurring in the pre-development state. The Design must be in accordance with The Institution of Engineers, Australia (1987), <i>Australian Rainfall and Runoff</i> .
Stormwater Quality	Stormwater quality must be suitable for discharge in accordance with Department of Land and Water Conservation NSW (1998) The Constructed Wetlands Manual and Landcom (March 2004), Managing Urban Stormwater, Soils and Construction.
Access to Stormwater Structures	An all-weather gravel vehicle access must be provided to detention ponds, drainage discharge points, filter controls and wetland areas for access by Council for maintenance purposes.
Tree disposal	Details of the means of tree disposal are to be submitted for Council's approval prior to the commencement of subdivision works.
Existing Electricity and communication cables	Existing Utility cables extending through the site shall be relocated to the satisfaction of the service provider
Footpath Construction	A 1.2 metre wide concrete footpath on one side of the proposed Road 1.

Section 68 Approval

4. Sewer and water mains are to be extended to service all lots. An approval under Section 68 of the *Local Government Act 1993* to connect to Council's infrastructure for water, sewer, and stormwater must be obtained from Council. Engineering plans of the proposed water, sewer and stormwater works shall be submitted for Council's approval prior to the issue of the Subdivision Works Certificate.

Advice: This application must include payment of \$155 for the installation of a water meter to each lot. This figure is subject to adjustment in accordance with Councils Schedule of Fees and Charges.

Erosion and Sedimentation Control Plan

5. Prior to the issue of a Subdivision Works Certificate, an erosion and sediment control plan for all site works, including road works and access, is to be approved by the Principal Certifying Authority. The plan is to cover all measures to control erosion and sediment transport in accordance with the NSW Landcom publication "Managing Urban Stormwater: Soils and Construction – Volume 1, Landcom 2004".

The erosion and sediment control plan is to be prepared by a qualified practising Civil Engineer. The plan must incorporate (without being limited to) information on general site management, material handling practices, soil stabilisation, water control, sediment control, wind erosion control and access measures.

Geotechnical Report

6. Prior to the issue of a Construction Certificate, certification from a professional Engineer experienced in geotechnical investigations is to be provided to the Principal Certifying Authority, certifying that:
 - a The design of the civil engineering works, including retaining walls and/or cut & fill batters, has been assessed as structurally adequate;
 - b The civil engineering works will not be affected by landslip or subsidence either above or below the works;
 - c Adequate drainage has been provided in the design; and

- d Suitable measures/methods will be implemented to ensure the stability of adjoining land and buildings will not be affected by the proposal.

Street Trees

7. A street tree planting scheme prepared in accordance with the requirements of Council's „Street Tree Guidelines" must be submitted to and approved by Council prior to the issue of a Subdivision Works Certificate.

The plan must show all services. Plants to be used in the street tree planting scheme must:

- Be a minimum size of 2 metres in height,
- Have a 50mm calliper diameter,
- Be sourced from at least a 25 litre container,
- Be protected by a suitable tree guard (eg a 750mm square tree guard made from a 3m "Acacia" panel painted "Caulfield Green"),
- Be suitably supported by two 2100mm timber picket posts,
- Provided with slow release fertiliser,
- Include the provision of 125mm flexible agricultural pipe filled with 14mm blue metal for watering of the plant, and
- Be mulched with 100mm of native tree mulch at least 1.5m from the base of the tree or to any impervious area (whichever is closer).

Splay corner required

8. A 7m splay corner is to be dedicated to Council at no cost to Council.

THE FOLLOWING CONDITIONS MUST BE COMPLIED WITH PRIOR TO SUBDIVISION WORKS COMMENCING

Construction Certificate

9. Subdivision work the subject of this development consent **MUST NOT** be commenced until:
- (a) A subdivision works certificate for the subdivision work has been issued by council or an accredited certifier, and
 - (b) The person having the benefit of the development consent has appointed a principal certifying authority for the subdivision work, and
 - (c) The person having the benefit of the development consent has given Council written notice, at least two days prior to work commencing on site, of the name and details of the Principal Certifying Authority and the date construction work is proposed to commence.

Site Construction Sign

10. A sign must be erected before the commencement of the work in a prominent position within the frontage of the subject land:
- a Showing the name, address and telephone number of the Principal Certifying Authority for the work, and
 - b Showing the name of the principal contractor (if any) for any building work and a telephone number on which that person may be contacted outside working hours, and
 - c Stating that unauthorised entry to the work site is prohibited.

The sign is to be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.

Public Liability Insurance

11. The developer and/or contractor must produce evidence to the Principal Certifying Authority of public liability insurance cover for a minimum of \$20 million. Council is to be nominated as an interested party on the policy. The public liability insurance cover is to be maintained for the duration of the period of the works and during any maintenance period.

Erosion & sediment measures

12. Erosion and sedimentation controls are to be in place in accordance with the approved Erosion and Sediment Control Plan.

Note: Council may impose on-the-spot fines for non-compliance with this condition.

THE FOLLOWING CONDITIONS MUST BE COMPLIED WITH DURING SUBDIVISION WORKS

Inspection of Public Works

13. Development works on public land/land to be dedicated to the public are not to proceed past the following hold points without inspection and approval by Council. Notice of required inspection must be given 24 hours prior to inspection. You must quote your development application number and property description to book your inspection.
 - at completion of installation of erosion control measures
 - when the sub-grade is exposed and prior to placing of pavement materials;
 - when trenches are open, stormwater/water/sewer pipes and conduits jointed and prior to backfilling;
 - at the completion of each pavement (sub base/base) layer;
 - before pouring of concrete for kerb and guttering;
 - prior to the pouring of concrete for sewerage works;
 - on completion of road gravelling or pavement;
 - during construction of sewer infrastructure;
 - during construction of water infrastructure;
 - prior to sealing and laying of pavement surface course.

All works at each hold point are to be certified as compliant, in accordance with Council's current Design and Construction Manuals and Specifications, prior to proceeding to the next hold point. Council will undertake random audit of work sites to verify compliance of public works as required.

Approved Plans to remain on site

14. A copy of the approved Subdivision Works Certificate including plans, details and specifications must remain at the site at all times during the construction of the subdivision.

Demolition Works

15. All demolition works are to be undertaken in accordance with the provisions of Australian Standard AS 2601-2001 *"The Demolition of Structures"*. Prior to the commencement of any demolition works, all services are to be disconnected and capped off.

Construction times

16. Any works involving the generation of noise which extends beyond the boundary of the land, other than works required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm, shall only be carried out between 7:00 am and 6:00 pm Monday to Saturday inclusive. No works shall occur on public holidays.

The builder/site manager is responsible to instruct and control sub-contractors regarding the hours of work.

Maintenance of Sediment and Erosion Control Measures

17. Erosion and sediment control measures must be maintained at all times until the site has been stabilised by permanent vegetation cover or hard surface. The measures must ensure that only clean stormwater leaves the site.

Discovery of a Relic

18. The development is to proceed with caution. If any Aboriginal objects are found, works are to stop immediately and the NSW Office of Environment and Heritage (OEH) notified. If human remains are found work is to stop immediately, the site is to be secured and the NSW Police and OEH are to be notified.

THE FOLLOWING CONDITIONS MUST BE COMPLIED WITH PRIOR TO THE RELEASE OF THE SUBDIVISION CERTIFICATE

Plan of Subdivision

19. An application for a Subdivision Certificate must be made on the approved form. The Subdivision Certificate fees, in accordance with Council's adopted schedule of fees and charges, must accompany such application. Two (2) copies of the plan of subdivision are to be submitted with the application for a Subdivision Certificate.

Plan of Subdivision and Section 88B Instrument requirements

20. A Section 88B Instrument and 1 copy are to be submitted with the application for a Subdivision Certificate. The final plan of subdivision and accompanying Section 88B Instrument are to provide for the items listed in the following table:

Item for inclusion in Plan of Subdivision and/or Section 88B Instrument	Details of Item
Dedicated Public Road Access	Dedication of suitable public road accesses to all proposed allotments.
Dedicated Corner Splays	Dedication of 7.5m corner splays at all street junctions and intersections.
Inter-allotment Drainage Easements	The creation of easements for drainage of water, with a minimum width of 1.5 metres, over all inter-allotment drainage pipelines and structures located within the proposed allotments.
Drainage Easements	The creation of easements for drainage of water over all drainage pipelines and structures located within the proposed allotments in accordance with Council's policy.
Drainage Reserve	The dedication of a drainage reserve over the drainage treatment devices and constructed access.
Sewer Easements	The creation of easements for drainage of sewage over all sewage pipelines and structures located within the proposed allotments in accordance with Council's policy.
Easement for Services	The creation of suitable easements for services for proposed Lots
Easement for Electricity	The creation of any necessary easements for electricity purposes as required by the electricity supply authority.

Completion of All Works

21. All roads, drainage and civil works, required by this development consent and associated Construction Certificate, are to be completed.

Erection of Street Signs

22. The developer is to supply and erect street signs for the approved street names in accordance with the Construction Certificate.

Certificates for Engineering Works

23. The submission of all test certificates, owner's manuals, warranties and operating instructions for civil works, mechanical and/or electrical plant, together with a certificate from a suitably qualified engineer certifying that all works have been constructed in accordance with the approved plans and Council's Adopted Engineering Standard.

Works-As-Executed Plans

24. Works-as-executed plans, certified by a suitably qualified engineer or a registered surveyor, are to be submitted with the application for a Subdivision Certificate. Where the design is carried out utilising computer aided design CAD, all CAD computer files are required to be provided on CD (Compact Disc) with the final drawings. The CAD files must include all lot and road boundaries, lot numbers and easements. The data is to be supplied in accordance with the requirements of Council's GIS Officer.

Certificate for Pipes, Access Driveways, etc Within Easements

25. A certificate from a registered surveyor is to be submitted to Council certifying that all pipelines, structures, access driveways and/or services are located wholly within the relevant easements.

Electricity Supply Certificate

26. Written evidence from an electricity supply authority is to be submitted with the application for a Subdivision Certificate stating that satisfactory arrangements have been made for the provision of underground electricity supply throughout the subdivision.

Telecommunications

27. Written evidence from Telstra or NBN is to be submitted with the application for a Subdivision Certificate stating that satisfactory arrangements have been made for the provision of underground telecommunications supply throughout the subdivision.

Record of Infrastructure

28. A record of infrastructure coming into Council ownership, upon registration of the final plan of subdivision, is to be submitted to Council. The format shall be provided in accordance with Council's adopted standard.

Street Lights

29. Evidence is to be submitted that LED lights have been installed in all additional street lights resulting from the development. Alternate lights are only permitted with Council approval.

Section 64 Contributions

30. Prior to the issue of a Subdivision Certificate the developer/consent holder will have to be eligible to obtain a Section 307 Certificate of Compliance under the *Water Management Act 2000*. To be eligible, the developer/consent holder will have to pay the contributions set out in the following table to Council:

Public service	No of Equivalent Tenements	Contribution Rate (Amount per ET)	Contribution Levied	Date until which Contribution rate is applicable
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Public service	No of Equivalent Tenements	Contribution Rate (Amount per ET)	Contribution Levied	Date until which Contribution rate is applicable
Water	4ET	\$13,221.00	\$52,884.00	30 June 2019
Sewer	4ET	\$9,988.00	\$39,952.00	30 June 2019
TOTAL			\$92,836.00	30 June 2019

The contributions payable will be adjusted in accordance with relevant plan and the amount payable will be calculated on the basis of the contribution rates that are applicable at the time of payment.

Section 7.11A Contributions

31. Contributions set out in the following Schedule are to be paid to Council prior to the issue of a Subdivision Certificate. The following contributions are current at the date of this consent. The contributions payable will be adjusted in accordance with the relevant plan and the amount payable will be calculated on the basis of the contribution rates that are applicable at the time of payment.

Schedule of Contributions pursuant to Section 7.11 of the *Environmental Planning and Assessment Act 1979*

Contribution Plan	Unit type	No of Units	Contribution Rate (Amount per Unit)	Contribution Levied	Date until which Contribution rate is applicable
Section 7.11A Development Contribution Plan	Estimated cost of Development	(Est cost \$6,205,938)	1%	\$62,059.38	30 June 2019
TOTAL				\$62,059.38	30 June 2019

Works undertaken by Nambucca Shire Council are **exempt** from contributions under this Plan. No S7.11A contribution shall be payable in the event that the proponent is Council.

Maintenance Bond

32. A maintenance bond of 10% of the value of the works constructed is to be lodged with Council. A copy of the contract construction cost of the subdivision works is to be submitted with the bond. The maintenance period is 6 months and will commence from the date of issue of the final Compliance Certificate. The security may be provided, at the applicant's choice, by way of cash bond or a satisfactory bank guarantee. An application in writing for the release of the bond must be made at the satisfactory completion of the maintenance period.

If the development is undertaken for or on behalf of Council, no maintenance bond is required.

Bushfire Protection

33. In accordance with Section 91 of the *Environmental Planning and Assessment Act 1979* the following conditions are required to be consistent with the General Terms of Approval issued by the Rural Fire Service under section 100B of the *Rural Fires Act 1997*:
- Water, electricity and gas are to comply with section 4.1.3 of 'Planning for Bush Fire Protection 2006'.

- b. Property access roads shall comply with section 4.1.3 (2) of 'Planning for Bush Fire Protection 2006'.

REASONS FOR CONDITIONS

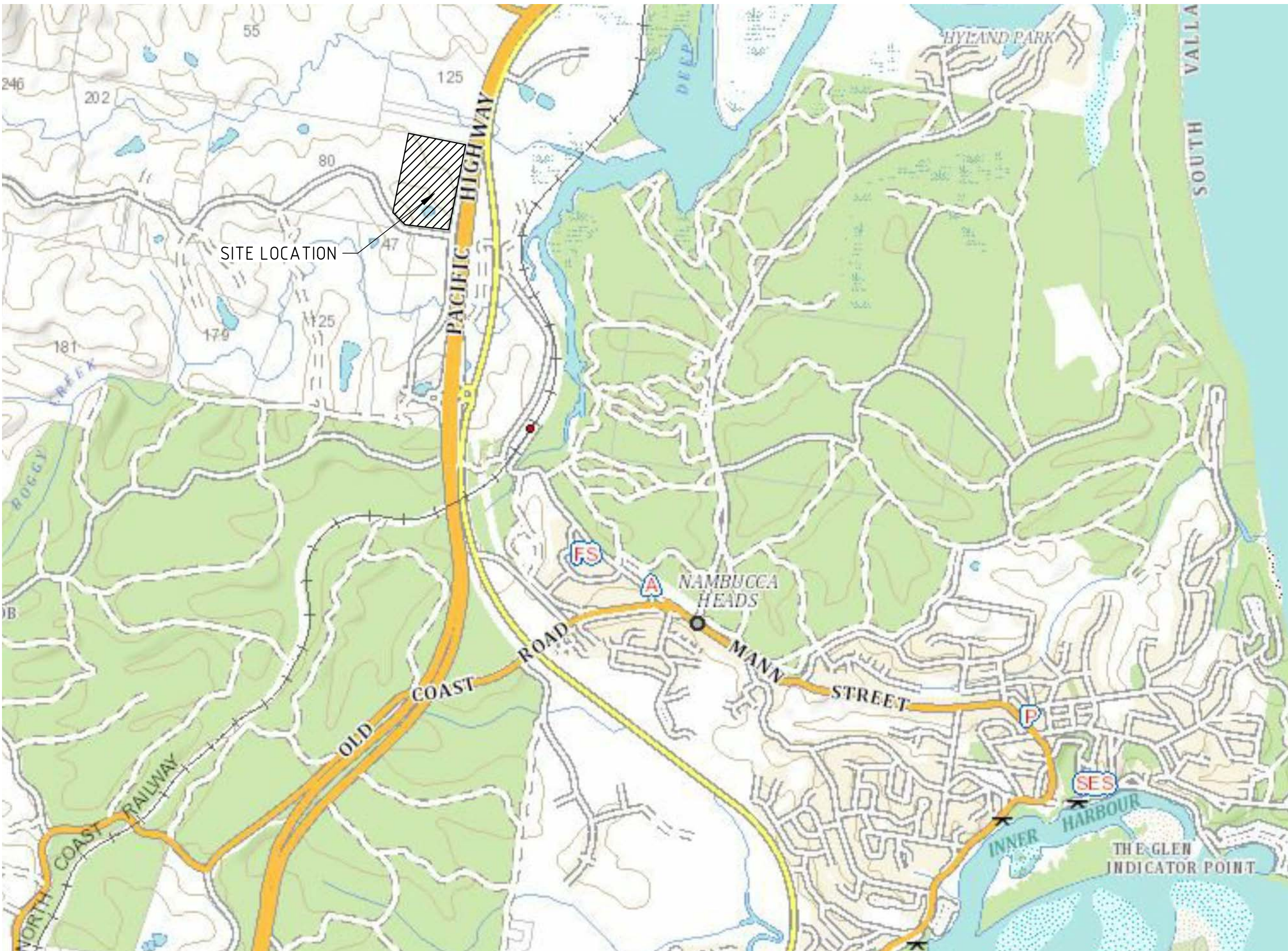
- To ensure that the proposed development:
 - a achieves the objectives of the *Environmental Planning and Assessment Act 1979*;
 - b complies with the provisions of all relevant Environmental Planning Instruments;
 - c is consistent with the aims and objectives of Council's Development Control Plans, Codes and Policies.
- To ensure that the relevant public authorities have been consulted and their requirements met, or arrangements made, for the provision of services to the satisfaction of those authorities.
- To meet the increased demand for public amenities and services attributable to the development in accordance with Section 7.11 of the *Environmental Planning and Assessment Act 1979* and Section 64 of the *Local Government Act 1993*.
- To ensure the protection of the amenity and character of land adjoining and in the locality of the proposed development.
- To minimise any potential adverse environmental, social or economic impacts of the proposed development.
- To ensure that all traffic, car parking and access requirements arising from the development are addressed.
- To ensure the development does not conflict with the public interest.

NAMBUCCA SHIRE COUNCIL

VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1


SUBDIVISION OF LOT 2 DP11173066

80 RED ASH ROAD, VALLA

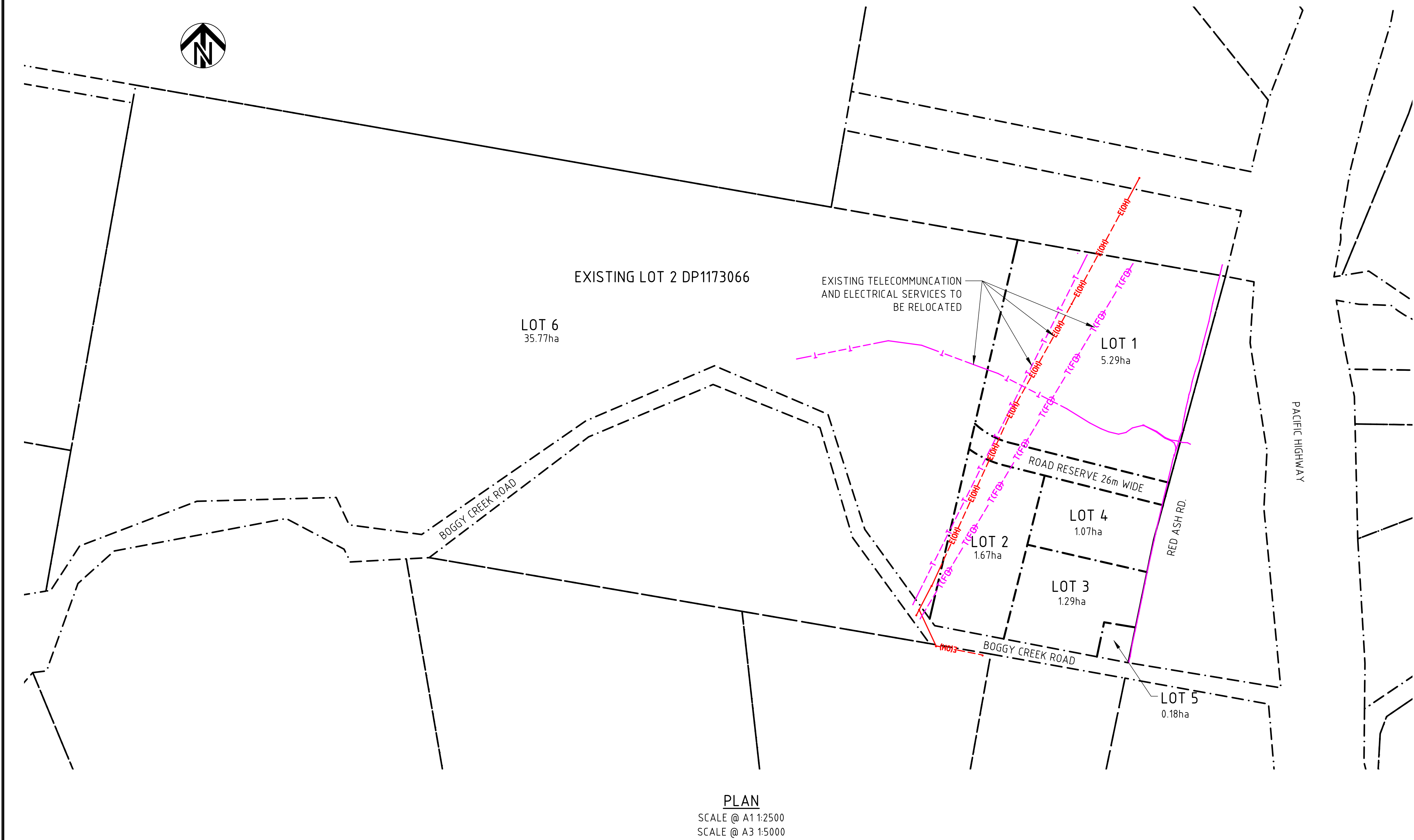


SITE LOCATION PLAN
NOT TO SCALE

DRAWING LIST	
DRAWING NUMBER	TITLE
17020-001	SITE LOCATION PLAN AND DRAWING LIST
17020-010	LOT LAYOUT
17020-011	GENERAL ARRANGEMENT PLAN
17020-012	EARTHWORKS CUT/FILL CONTOURS

					PRELIMINARY DESIGN - REV A					SCALES					100mm ON ORIGINAL DRAWING						<div><div>jed civil</div><div>consultant engineers</div></div> <div><div>Ben Jedrej CPEng RPEQ</div><div>645 Gleniffer Road, Gleniffer, NSW 2454</div><div>E: ben.jedrej@jedcivil.com.au</div><div>M: 0416 843 764</div></div>	TITLE				
					DATE: 06.03.18										NAMBUCCA SHIRE COUNCIL											
					DRAWN: B. JEDREJ										VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1											
					DESIGNED: B. JEDREJ																					
					CPENG No. 2823641																					
					FINAL DESIGN - REV 0																					
					DATE:																					
					DRAWN:																					
					DESIGNED:																					
					CPENG No.																					

- NOTES
1. LOT 5 RESERVED FOR FUTURE SEWAGE PUMPING STATION.
 2. ELECTRIACL AND TELECOMS EASEMENTS NOT SHOWN.



DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

				PRELIMINARY DESIGN - REV A			
						DATE:	06.03.18
						DRAWN:	B. JEDREJ
						DESIGNED:	B. JEDREJ
						CPENG No.	2823641
				FINAL DESIGN - REV 0			
C	REVISED LOTS 2, 3 AND 4	06.08.18	BJ	BJ		DATE:	
B	DEVELOPMENT APPLICATION	08.05.18	BJ	BJ		DRAWN:	
A	PRELIMINARY	06.03.18	BJ	BJ		DESIGNED:	
REV	DESCRIPTION	DATE	DWN	DGN		CPENG No.	
REVISIONS							

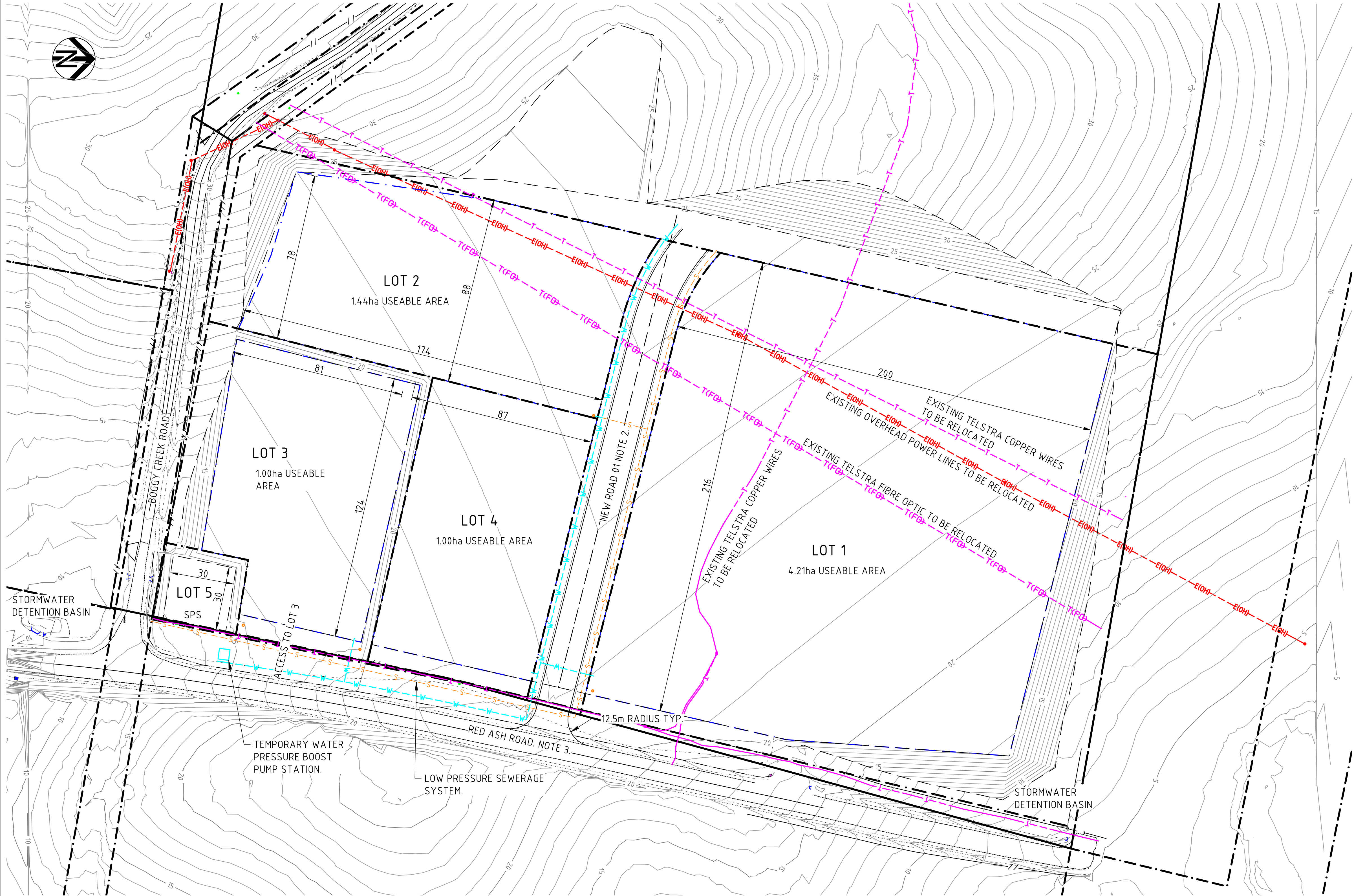
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ORIG. SIZE			
A1			



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TITLE		NAMBUCCA SHIRE COUNCIL VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1	
PROPOSED LOT LAYOUT			
DRAWING NUMBER		17020-010	
REVISION		C	



- NOTES**
1. CONTOURS A 1m INTERVALS.
 2. ROAD 01 HAS 16m WIDE CARRAIGEWAY WITH KERB & GUTTER AND 5m WIDE VERGE. SIMILAR TO TYPE B - MAIN ROAD IN DEVELOPMENT CONTROL PLAN.
 3. UPGRADE WIDENING OF RED ASH ROAD TO OCCUR DURING FUTURE STAGES OF GROWTH AREA.

- LEGEND**
- SW- -SW- STORMWATER DRAIN PIPE
 - <-<- STORMWATER OPEN CHANNEL DRAIN
 - S- -S- SEWER
 - W- -W- WATER MAIN

PLAN
SCALE @ A1 1:1000
SCALE @ A3 1:2000

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

PRELIMINARY DESIGN - REV A				
	DATE:	06.03.18		
	DRAWN:	B. JEDREJ		
	DESIGNED:	B. JEDREJ		
	CPENG No.	2823641		
FINAL DESIGN - REV 0				
	DATE:			
	DRAWN:			
	DESIGNED:			
	CPENG No.			
C	LOT 3 LOWERED LPSS REPLACES CONVENTIONAL SEWERAGE	06.08.18	BJ	BJ
B	DEVELOPMENT APPLICATION	08.05.18	BJ	BJ
A	PRELIMINARY	06.03.18	BJ	BJ
REV	DESCRIPTION	DATE	DWN	DGN
	REVISIONS			

SCALES 100mm ON ORIGINAL DRAWING

SCALE 1:1000

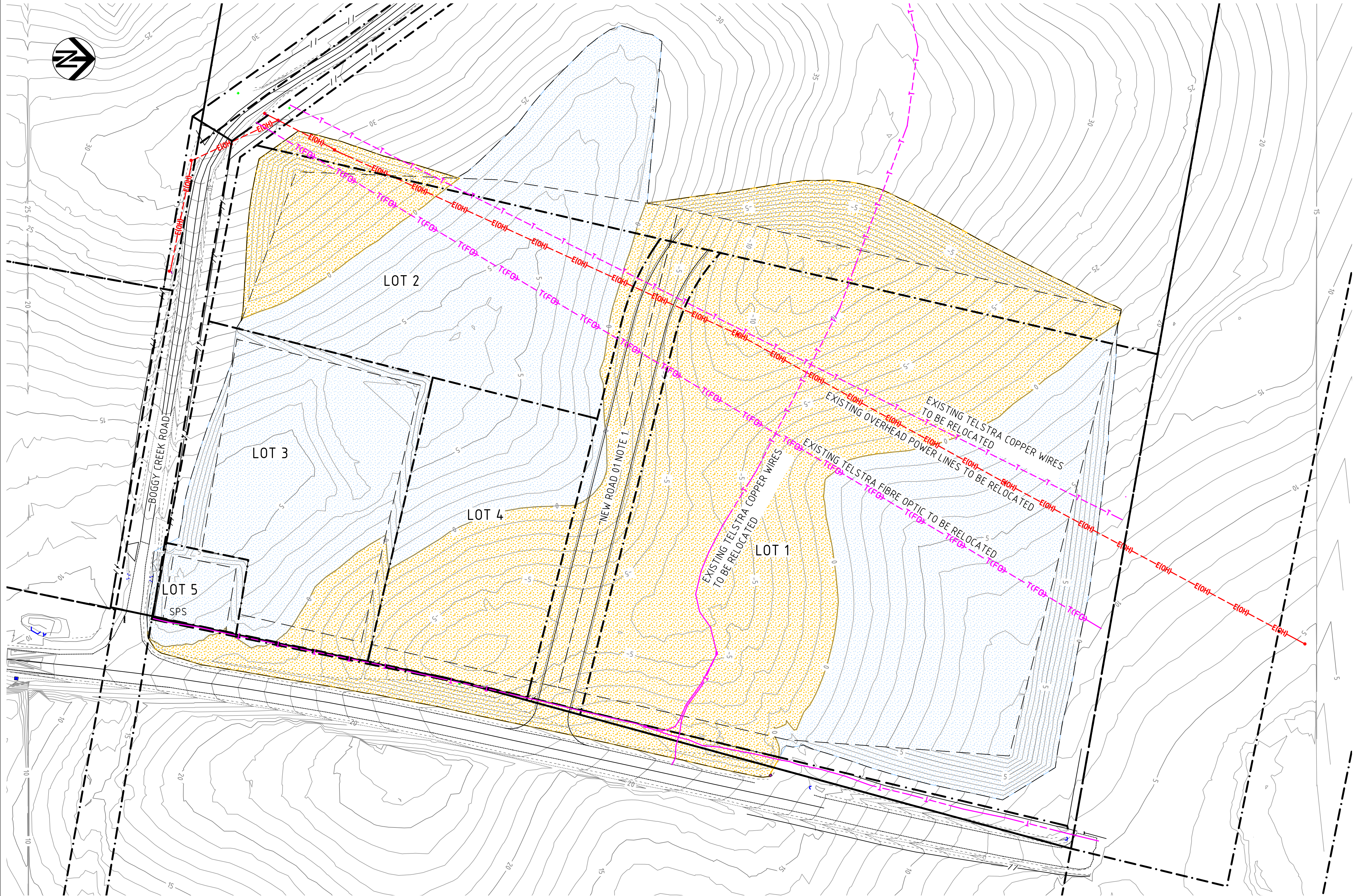
ORIG. SIZE A1



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TITLE	
NAMBUCCA SHIRE COUNCIL VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1	
GENERAL ARRANGEMENT PLAN	
DRAWING NUMBER	REVISION
17020-011	C



- NOTES**
1. CONTOURS A 1m INTERVALS.
 2. REFER TO GEOTECHNICAL INVESTIGATION REPORT BY REGIONAL GEOTECHNICAL SOLUTIONS "PROPOSED INDUSTRIAL SUBDIVISION 80 RED ASH RD PRELIMINARY GEOTECHNICAL ASSESSMENT RGS31376.1-AB 23 FEB 2018" FOR GROUND CONDITIONS.

LEGEND

- CUT
- FILL

PLAN
SCALE @ A1 1:1000
SCALE @ A3 1:2000

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

PRELIMINARY DESIGN - REV A			
DATE:	06.03.18		
DRAWN:	B. JEDREJ		
DESIGNED:	B. JEDREJ		
CPENG No.	2823641		
FINAL DESIGN - REV 0			
DATE:			
DRAWN:			
DESIGNED:			
CPENG No.			
REVISIONS			
REV	DESCRIPTION	DATE	DWN
C	LOT 3 LOWERED.	06.08.18	BJ
B	DEVELOPMENT APPLICATION	08.05.18	BJ
A	PRELIMINARY	06.03.18	BJ

SCALES		100mm ON ORIGINAL DRAWING
SCALE 1:1000		10 0 10 20 30 40 50
ORIG. SIZE	A1	



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TITLE		NAMBUCCA SHIRE COUNCIL VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1
EARTHWORKS CUT/FILL CONTOURS		
DRAWING NUMBER	17020-012	
REVISION	C	

DEVELOPMENT APPLICATION

STATEMENT OF ENVIRONMENTAL EFFECTS

**Proposed Subdivision of
Lot 2 DP11173066 Red Ash Rd, Valla
To Create five (5) Industrial Lots and Residue**

December, 2016
Ref:18027

**DENIS ATKINSON PLANNING PTY LTD
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Email: denisatkinson@bigpond.com**

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Appendix A: Deposited Plan

Appendix B: Staging Plan VUGA

Appendix C: Proposed Subdivision Layout Plan

Appendix D: Engineering Report

Appendix E: Conceptual Engineering Design

Appendix F: Contamination Assessment

Appendix G: Cultural Heritage Assessment

Appendix H: Bushfire Attack Risk Assessment

Appendix I: Flood Study

Appendix J: Geotechnical Assessment Report

1. THE PROPOSAL

It is proposed to undertake a subdivision of lands zoned Zone IN1 (General Industrial) within Lot 2 DP1173066 at the intersection of Red Ash Rd and Boggy Creek Rd, Valla. The subdivision will create five (5) industrial lots of varying dimensions and a residue lot.

The existing allotment is wholly contained within the area identified in the Valla Urban Growth Area and is presently vacant rural land apart from existing residences. The lot has an area of 54.05 hectares and a copy of the Deposited Plan is included at Appendix A.

An overlay plan of the Valla Urban Growth Area DCP (VUGA) 2018 is included at Appendix B, confirming the subject land is located within Stage 1 of the growth area.

The subject land is part zoned Zone IN1 (General Industrial) within which the 5 industrial lots are to be created, the residue lot contains the following zones:

- Part Zone IN1 - General Industrial;
- Part Zone B7 - Business Park
- Part Zone R1 - General Residential; and
- Part Zone E3 - Environmental Management.

These zones are created under the provisions of the Nambucca Local Environmental Plan (NLEP) 2010 and the proposal is permissible with the consent of Council.

The proposed five (5) industrial lots are of varying sizes between 0.18 Ha and 5.29 Ha to facilitate a range of light industrial uses. A copy of the proposed subdivision layout plans has been included at Appendix C. This final layout has been determined after detailed environmental assessment and discussions with Council.

We do not consider the proposal to be “designated development” or “integrated development” and advice has been received that referral to the Rural Fire Service (RFS) is not mandatory.

The release of the industrial lots would be staged as demand dictates. Prior to the release of any lots infrastructure would be provided and this would include all road and road drainage works, watermain with road crossings, all power and telecommunication’s pits and conduits, most inter-allotment drainage pipes and pits along with any necessary sewer extensions and re-location works.

2. SPECIFIC ISSUES

2.1 ADJOINING DEVELOPMENT

The subject land is currently utilised for cattle grazing and is surrounded on three sides by similar rural land use. The Pacific Highway adjoins on the eastern boundary providing a significant buffer to existing residential development.

The consequent industrial development will incorporate environmental protections, buffer zones and controls during construction to protect Deep Creek, its riparian zone and nearby wetlands.

2.2 ENGINEERING ISSUES

Ben Jedrej, consulting engineer, has prepared a separate report relating to engineering issues, which is included at Appendix D. The report provides conceptual detail for:

- Staging
- Road Configuration
- Water Supply, Sewerage and Drainage
- Power Supply
- Telecommunications and
- Access

Along with the design report conceptual engineering design plans have also been prepared, which are provided at Appendix E.

A preliminary Geotechnical assessment has also been carried out which supports the current proposal and these results are included at Appendix J

2.3 POTENTIAL CONTAMINATION

The firm, Coffey Geotech P/L, have previously undertaken a contamination report and geotechnical assessment of the site. A complete copy of their report (GEOTCOFH02266AA-AD) is included at Appendix F.

Based on the results of these investigations, it is concluded that no significant contamination is likely to be present on site. However, it is indicated further soil testing is required prior to commencement of earthworks.

2.4 ABORIGINAL & EUROPEAN CULTURAL HERITAGE ASSESSMENT

Mary Dallas Consulting Archaeologist has undertaken an Aboriginal and European cultural heritage assessment report. This assessment has established that there are no cultural heritages sites likely to be adversely affected by the proposed development. Recommendations from this report should be considered in conditions of development consent.

A copy of the assessment report is included at Appendix G.

2.5 BUSHFIRE HAZARD

Consultants, Mid Coast Building and Environment, has undertaken a bushfire risk assessment based on the current Planning for Bushfire Protection Guidelines 2006.

The bushfire risk assessment report has been included at Appendix H and indicates that subdivision approval can be granted with conditions relating to further development of the site.

2.6 SEPP No.71 (Coastal Protection)

As the subject lands are located within the coastal zone SEPP No.71 must be considered.

As the land is within the Coastal Zone, Clauses 8, 13, 14, 15, 16 and 18 must be considered by the consent authority in determining the application. Our comments in relation to the matters raised in these Clauses are as follows:

- Clause 8 – lists matters for consideration from (a) to (p)
 - (a) We consider the proposal is of a scale and location so as to protect and preserve the coastal environment and have no significant adverse impacts upon the aims (a) to (l) as listed.
 - (b) The site has no frontage to the coastal foreshore.
 - (c) The site has no frontage to the coastal foreshore.

- (d) The proposal is considered suitable within the industrial zone and is not out of character with surrounding development.
- (e) The subject site is not in proximity to the coastal foreshore.
- (f) The development has no impact on the scenic qualities of the NSW coast.
- (g) The proposal will have no significant impact on existing habitat values.
- (h) No adverse impact created upon the marine environment.
- (i) The development will not remove or discontinue any wildlife corridor.
- (j) Due to the site's elevation, there is no likely significant impact by coastal processes or coastal hazards
- (k) No potential conflict between land-based and water-based coastal activities created by this proposal.
- (l) No such sites are known to exist on the subject property.
- (m) As such a minor development, it is unlikely to create any impacts upon the water quality of coastal water bodies.
- (n) No such sites are known to exist on the subject property.
- (o) Not applicable.
- (p) (i) No adverse cumulative impacts.

(ii) Any future development must satisfy the requirements of the National Construction Code.

- Clause 13 – Flexible Zone Provisions

The proposal does not need to take advantage of these provisions.

- Clause 14 – Public Access

The proposal will not result in the impeding or diminishing to any extent the physical land based right of access of the public to or along the coastal foreshore.

- Clause 15 – Effluent Disposal

The site will be serviced by reticulated sewage and all lots will be connected to Council's sewer mains.

- Clause 16 – Stormwater

The development will not discharge stormwater into the sea, or any nearby beach, estuary etc. Stormwater will be directed to an integrated stormwater management system.

2.7 FLORA AND FAUNA

The subject proposal does not require the removal of any significant vegetation and as such has no impact on existing habitats or threatened species or populations.

Previous site inspections and surveys have not revealed any protected Flora or Fauna to be located on the site.

A Species Impact Statement is not required.

2.8 NAMBUCCA LEP 2010

The following clauses of NLEP 2010 are considered relevant to this proposal and our comments on each clause is as follows:

- *Clause 2.3 Zone Objectives and Land Use Table*

The subject property has multiple zones. The industrial development (subdivision) to which this application relates is located in Zone IN1 General Industrial and our comments in relation to the objectives for this zone are as follows:

- the proposal will provide opportunities for a wide range of industrial and warehouse land uses.
- the proposal will encourage employment opportunities.
- the proposal will not have an adverse effect of industry on other land uses.
- The proposal supports and protects industrial land for industrial uses.

The development is in accordance with the Valla Urban Growth Strategy as proposed and has no adverse impacts in relation to the objectives of the other zones within the lot.

- *Clause 2.6 Subdivision*

We, herewith, make application under this clause for development consent for the requested subdivision.

- *Clause 5.5 Development Within the Coastal Zone*

We consider the subject proposal is compliant with the objectives of this clause. Refer to Section 2.7 for our comments in relation to SEPP No.71.

- *Clause 6.1 Arrangements for designated state infrastructure*

Arrangements for designated State public infrastructure have been made in Valla Urban Growth Area DCP 2018 and the proposal is in accordance with the VUGA DCP.

- *Clause 6.2 Development control plan*

(1) The current proposal is in accordance with the Valla Urban Growth Area DCP 2018.

(2) Development consent for the proposed industrial subdivision can now be considered following adoption of the development control plan by Council on 15 March 2018.

- *Clause 7.1 Acid Sulphate Soils*

The report of Regional Geotechnical Solutions P/L shown at Appendix J indicates no potentially Acid Sulphate Soils are found on the subject site.

- *Clause 7.3 Flood Planning*

The Deep Creek Flood Study has identified an area of flood prone land within the subject land. A copy of the Flood Study is provided in Appendix I.

The following extract from the study indicates the minor impact of flooding (1% AEP Event) on the subject land.



Engineering designs for cut and fill works to be carried out on the site are provided in Appendix E and are designed to alleviate any flood issues.

The following matters have been addressed in accordance with NLEP 2010;

(a) the proposal is compatible with the flood hazard on the land, and

(b) stormwater drainage works proposed will ensure no adverse effect on flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and

(c) the proposal incorporates appropriate measures to manage risk to life from flood, and

(d) soil and water management plans will be implemented to prevent erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and

(e) the proposal is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.

- *Clause 7.6 Earthworks*

Engineering designs for cut and fill works to be carried out on the site are provided in attachment D to provide sites grades suitable for industrial developments. A preliminary Geotechnical assessment has been carried out and results are included at Appendix J confirming the suitability of the site.

The following matters have been addressed in accordance with Nambucca LEP 2010;

(a) any detrimental effect on, existing drainage patterns and soil stability are unlikely,

(b) the proposed earthworks will provide site grades suitable for industrial development of the land,

(c) the quality of the fill and the soil to be excavated are to be sourced on the site in accordance with engineering standards as outlined in the report provided at Appendix J,

(d) the earthworks are short term and unlikely to affect the existing and likely amenity of adjoining properties,

(e) filling and any excavation of material is to be carried on and within the subject land,

(f) previous cultural and heritage studies have identified no potential likelihood of disturbing relics,

(g) soil and sediment management plans are to be implemented to prevent adverse impacts on any watercourse, drinking water catchment or environmentally sensitive area.

In conclusion, we consider the proposal to be compliant with the relevant clauses of the NLEP 2010.

2.9 NAMBUCCA DCP 2010

Any proposed development within the Nambucca Shire Local Government Area must consider the applicable components of NDGP 2010. Our comments on the relevant components are as follows:

* PART B - SUBDIVISION

- *B 2.1 Design Principles*

The proposed subdivision is based on the road network design outlined in the Valla Urban Growth Area DCP.

- *B 2.2.1 Orientation to Street*

The subdivision layout complies with lots fronting the street with one street frontage only.

- *B 2.2.2 Energy Conservation*

The subdivision utilises the existing road network and topography will allow for adequate solar access.

- *B 2.3.1 Road Networks*

The proposal does not alter the road network.

- *B 2.3.2 Road Hierarchy*

The proposal does not alter the road hierarchy.

- *B 2.3.3 Design Standards*

Refer to Appendices D, E and J for preliminary engineering reports.

- *B 2.3.4 Road Layout*

The subdivision utilises the existing road locations and relevant engineering design standards.

- *B 2.3.5 Drainage Function of Roads*

Refer to Appendices D and E.

- *B 2.3.6 Road Names*

The road names are to be determined by Council.

- *B 2.3.7 Street Lighting*

Street lighting is to be provided.

- *B 2.4.1 Pedestrian Network*

Pedestrian access is to be provided on unformed footpaths.

- *B 2.6.2 Provision of Open Space*

The proposal does not include the provision of open space and as such Section 94 contributions will be levied.

- *B 2.7.1 Water and Sewage*

All lots will be connected to reticulated services. Refer to Appendices D and E.

- *B 2.8.1 to 2.8.4 Stormwater*

Refer to Appendices D and E.

- *B 2.9.1 Electricity*

Refer to Appendices D and E.

- *B 2.10 Telecommunications*

Refer to Appendices D and E.

- *B 2.11 Service Easements*

Service easements will be created as required.

- *B 2.14 Wildlife and Landscape*

The proposal will not remove any significant vegetation.

- *B 3.1.6 Existing Dwelling House*

Existing dwelling houses are to be removed.

- *B 4.2 Soil and Water Management*

This will be dealt with at the Construction Certificate phase.

- *B 4.3 Road Construction*

Refer to Appendices D and E.

- *C1.1 Carparking and Traffic*

These issues are to be dealt with as the proposed allotments are developed.

PART D - EROSION AND SEDIMENT CONTROL

- *D 1.4 Implementation of this Part*

We request that Council require as a condition of consent the preparation of an Erosion and Sediment Control Management Plan to form part of the Construction Certificate drawings.

In conclusion, we consider the proposal to be generally compliant with the requirements of the Nambucca DCP 2010.

2.10 VALLA URBAN GROWTH AREA DCP 2018

As previously discussed the proposed industrial subdivision has been designed in accordance with the Valla Urban Growth Area 2018 (VUGA). The following provisions of the VUGA DCP are relevant to this proposal:

1.0 Places to Live and Work – The proposed industrial subdivision provides an opportunity for local industries to establish and expand. This meets the objectives of the VUGA DCP 2018 to provide an attractive and appealing place to live and work.

2.0 Vision and Character – The communities vision for the Valla Urban Growth Area includes the provision of:

2.1 Medium to light industrial development to support employment in the area with attractive facades and landscaping....

The initial staged development of industrial land envisaged in the current proposal supports the growth potential identified for the Valla area.

2.2 Master plan - The preferred master plan... shows the industrial areas located adjacent to the Pacific Highway to maximise exposure of the businesses to passing traffic and provide a buffer between the highway and residential areas.

The location of the proposed industrial subdivision is in accordance with the area identified in the master plan for industrial development within the Valla UGA.

2.3 Staging - The first stage concentrates on the establishment of the industrial area and southern portions of the light industrial area to the north of the existing Boggy Creek Road.

The staging of the proposed industrial subdivision is in accordance with the area identified in the master plan.

3.0 Planning Strategy – The major planning strategies for the Valla Urban Growth Area include:

3.1 Environmental Strategy

- *Biodiversity –*

No areas of biodiversity are affected by this proposal.

- *Flooding –*

Provisions for flooding are addressed in section 2.8.

- *Bushfire -*

A bushfire assessment has been undertaken and recommendations are provided in section 2.5 and Appendix H.

- *Contaminated Land -*

Contaminated land issues have been identified see section 2.3 and Appendix F.

- *Aboriginal Heritage -*

The results of investigations by Mary Dallas Consulting Archaeologist are included in Appendix G and section 2.4.

- *Steep Land -*

The current proposal complies see section 2.9, Part D for details.

3.2 Traffic and Transport Strategy

- *Roads -*

Details of compliance with road design standards are included at section 2.2 and Appendix D & E of this report.

- *Cyclists and Pedestrians -*

Provisions for cyclists and pedestrians are addressed in section 2.2 and Appendix E.

- *Public Transport and Parking -*

Provisions for public transport and parking are included in engineering standard designs see section 2.2 and Appendix E.

- *Parking -*

Provisions for on-site parking will need to be addressed in the assessment of future industrial developments.

3.3 Infrastructure Strategy

- *Water Supply -*

The design of water mains is generally consistent with the Master Plan and in compliance with the NDCP 2010.

- *Sewerage -*

Provisions for sewerage connections is in accordance with the Master Plan and provision has been made for future connections.

- *Stormwater -*

Stormwater designs are in accordance with the Master Plan and provision has been made for future connections.

- *Electrical -*

Electrical services are to be located in accordance with the DCP.

- *Telecommunications -*

Telecommunications services are to be provided for all allotments.

3.4 Open Space Strategy

- *Controls -*

The proposed open space layout raises no issues relevant to the current proposal.

3.5 Industrial Strategy

- *Objectives -*

The current proposal provides a range of allotment sizes and locations that will support a wide range of industrial uses.

The siting of the proposed industrial area will not adversely impact the amenity of the Valla UGA.

3.6 Commercial Strategy

- *Objectives -*

The commercial strategy raises no issues relevant to the current proposal.

3.7 Residential Strategy

- *Objectives -*

The proposed industrial subdivision supports future residential strategies.

3. STATUTORY CONSIDERATIONS

Section 4.15 (previously s79C) of the Environmental Planning and Assessment (EP&A) Act 1979 specifies the matters, which a consent authority must consider when determining a development application.

Section 4.15 provides;

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

(a) the provisions of:

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

that apply to the land to which the development application relates,

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

Our comments in relation to this particular proposal against the various matters for consideration are as follows:

3.1 SECTION 4.15 1(a)

- ❖ Section 4.15 (1)(a)(i) – the provisions of any environmental planning instrument.

- * **State Environmental Planning Policies (SEPP)**

There are two State Environmental Planning Policies, which relate to this proposal.

- SEPP No.55 (Contaminated Lands) - refer to Section 2.3 and Appendix F of this report.

- SEPP No.71 (Coastal Protection) – refer to Section 2.6 of this report.

- * **Nambucca Local Environmental Plan 2010**

This proposal as submitted is permissible under the provisions of the NLEP 2010. Our comments in relation to the LEP objectives and specific clauses are contained within Section 2.9 of this document.

- ❖ SECTION 4.15 (1)(a)(ii) – any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority.

- * **Proposed Environmental Planning Instruments.**

There are no draft environmental planning instruments that impact upon this proposal.

- ❖ Section 4.15 (1)(a)(iii) – any development control plan.

Nambucca DCP 2010 refer to Section 2.9 and VUGA DCP 2018 refer to section 2.10 of this report.

- ❖ Section 4.15 (1)(a) (iia) – any planning agreement entered into under S7.4.

There are no planning agreements that impact upon this proposal.

- ❖ Section 4.15 (1)(a)(iv) – the matters prescribed by the regulations.

The matters prescribed by the regulations include;

s.92.1(a) The NSW Coastal Policy – refer to Section 2.6 of this report.

s.92.1(b) Demolition of buildings in accordance with AS2601 – demolition of existing buildings is to be carried out in accordance with AS2601.

s.92.1(b) Orders made pursuant to Schedule 7 of the EP&A Act – no provisions relating to paper subdivisions are applicable.

3.2 SECTION 4.15 (1)(b)

- ❖ Section 4.15 (1)(b) – the likely impacts of the development.

- **Context and setting** – the development is located in accordance with the VUGA DCP and in proximity to existing rural land used predominantly for agriculture.

- **Access, transport and traffic** – access to the site is close to the Pacific Motorway and via the existing road system. Refer to our comments in Section 2.2 of this report.
- **Public Domain** – the area has no adverse impact on any areas of the public domain.
- **Heritage** – recommendations of the Heritage consultant may be considered in relation to conditions of development consent.
- **Other land resources** – there are no known adverse impacts in this regard.
- **Water** – existing water quality will be maintained by adherence to a sediment and erosion plan and control of stormwater flows.
- **Utilities** – electricity and telephone services are available to the site and reticulated water and sewerage can be provided.
- **Soils** – the development site is considered stable and no adverse impacts are created by this development.
- **Air and microclimate** – this proposal will not alter the existing air quality or microclimate, due to management measures.
- **Flora and fauna** – no significant adverse impact by the proposal. Flora will be enhanced by future landscaping.
- **Waste** – collected by Council's Waste Collection Service.
- **Energy** – the development will not significantly alter energy use.
- **Noise and vibration** – the development of industrial land in this location is intended to provide a buffer to reduce noise and vibration from the Pacific Highway.

- **Natural hazards** – the site contains land mapped as being bushfire prone and flood affected. Refer to the Bushfire Risk Assessment Report (Appendix H) and flood assessment (Appendix I).
- **Technological hazards** – the development will not create risks from technological hazards.
- **Safety, security and crime prevention** – the proposed subdivision design has no adverse impacts.
- **Social impact in the locality** – the development will have a positive social impact by providing local employment.
- **Economic impact in the locality** – the development will have a positive economic impact by providing local industrial opportunities.
- **Site design and internal design** – Section 2 of this document provides information on site design and compliance with Council's NDCP 2010 & VUGA 2018.
- **Construction** – the construction of the subdivision will be subject to a Construction Certificate application.
- **Cumulative impacts** – the proposed development is permissible under existing legislation and is not an over development of the site. The development satisfies the requirements of NLEP 2010 and will not create any adverse precedent in the locality.

3.3 SECTION 4.15 (1)(c)

- ❖ Section 4.15 (1)(c) – the suitability of the site for this development.

The suitability of the site for this development has been established by a detailed environmental assessment from which the development has been designed. The proposal is site responsive and satisfies legislative requirements.

3.4 SECTION 4.15 (1)(d)

- ❖ Section 4.15 (1)(d) – any submission made in accordance with the Act or Regulations.

No submissions made.

3.5 SECTION 4.15 (1)(e)

- ❖ Section 4.15 (1)(e) – the public interest.

It is considered that the proposal, being for a standard industrial style development in an industrially zoned area, will have a positive economic impact and create local jobs.

4. CONCLUSION

The land is zoned for industrial uses and is proposed to be developed as stage 1 of the Valla Urban Growth Area DCP 2018 adopted by Council to permit the lodgement of this application.


The proposed subdivision creates lots of varied sizes which will permit future owners the opportunity to develop the individual industrial lots.

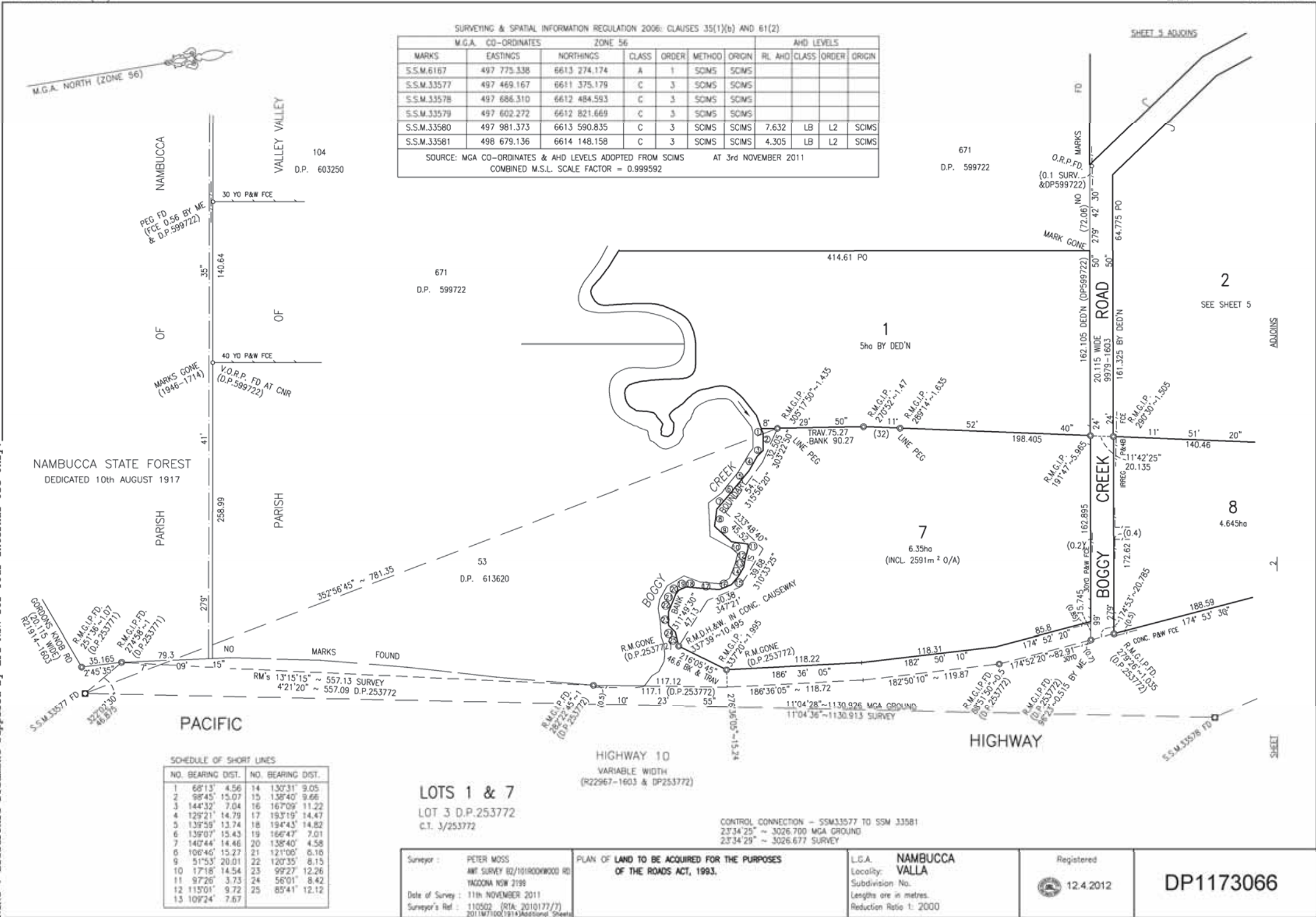
The proposal has been assessed against all relevant Local and State legislative requirements and found to be compliant. The land's constraints and opportunities have all played a role in the final subdivision design layout.

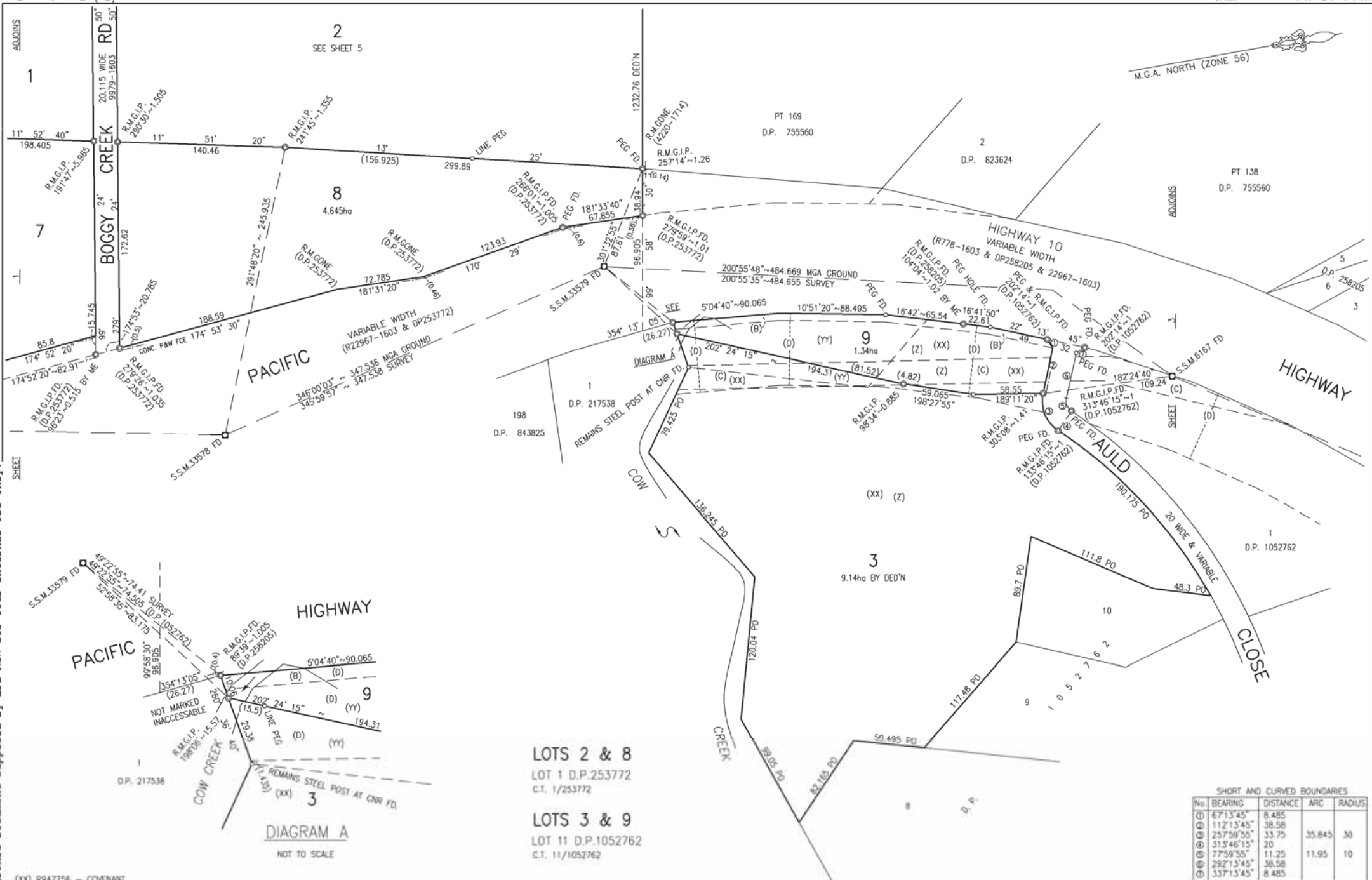
Should Council require any additional information or clarification regarding any issue, please do not hesitate to contact Denis Atkinson of this office.

Appendix A

Existing Deposited Plan

<p>Surveyor : PETER MOSS ANT SURVEY RD/1018000000 RD YACCONA NSW 2199</p> <p>Date of Survey : 11th NOVEMBER 2011</p> <p>Surveyor's Ref : 110502 (RIA: 2010177/7) 2011M73066/1814/Additional Sheets</p>	<p>PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.</p>	<p>L.G.A. NAMBUCCA VALLA</p> <p>Locality:</p> <p>Subdivision No.</p> <p>Lengths are in metres.</p> <p>Reduction Ratio 1: 2000</p>	<p>Registered</p> <p> 12.4.2012</p>	<p>DP1173066</p>
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- (XX) R947756 - COVENANT
 (YY) W94970 - RESTRICTION ON USE
 (Z) LAND EXCLUDES MINERALS AND SUBJECT TO RESERVATIONS - SEE CROWN GRANT(S)
 (B) RIGHT OF ACCESS 8 WIDE (D.P.1052762)
 (C) EASEMENT FOR OVERHEAD ELECTRICITY TRANSMISSION LINES 20 WIDE (D.P.1052762)
 (D) BUFFER ZONE 60 WIDE (D.P.1052762)

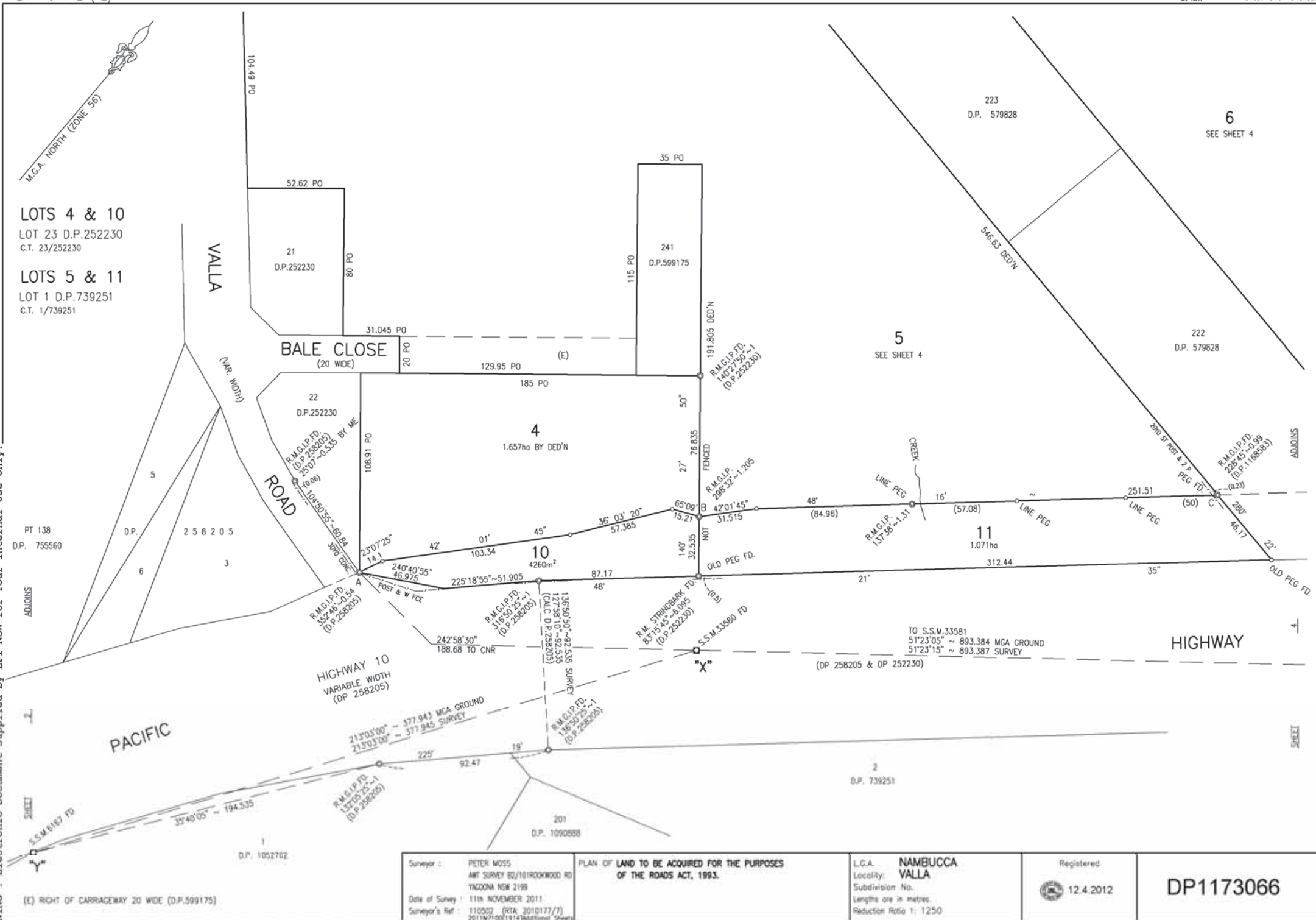
Surveyor : PETER MOSS
 ANT SURVEY 82/101800W00 RD
 TACSONA NSW 2198
 Date of Survey : 11th NOVEMBER 2011
 Surveyor's Ref : 110502 (RTA: 20101777)
 2011M71001(1314)Additional Sheets

PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES
 OF THE ROADS ACT, 1993.

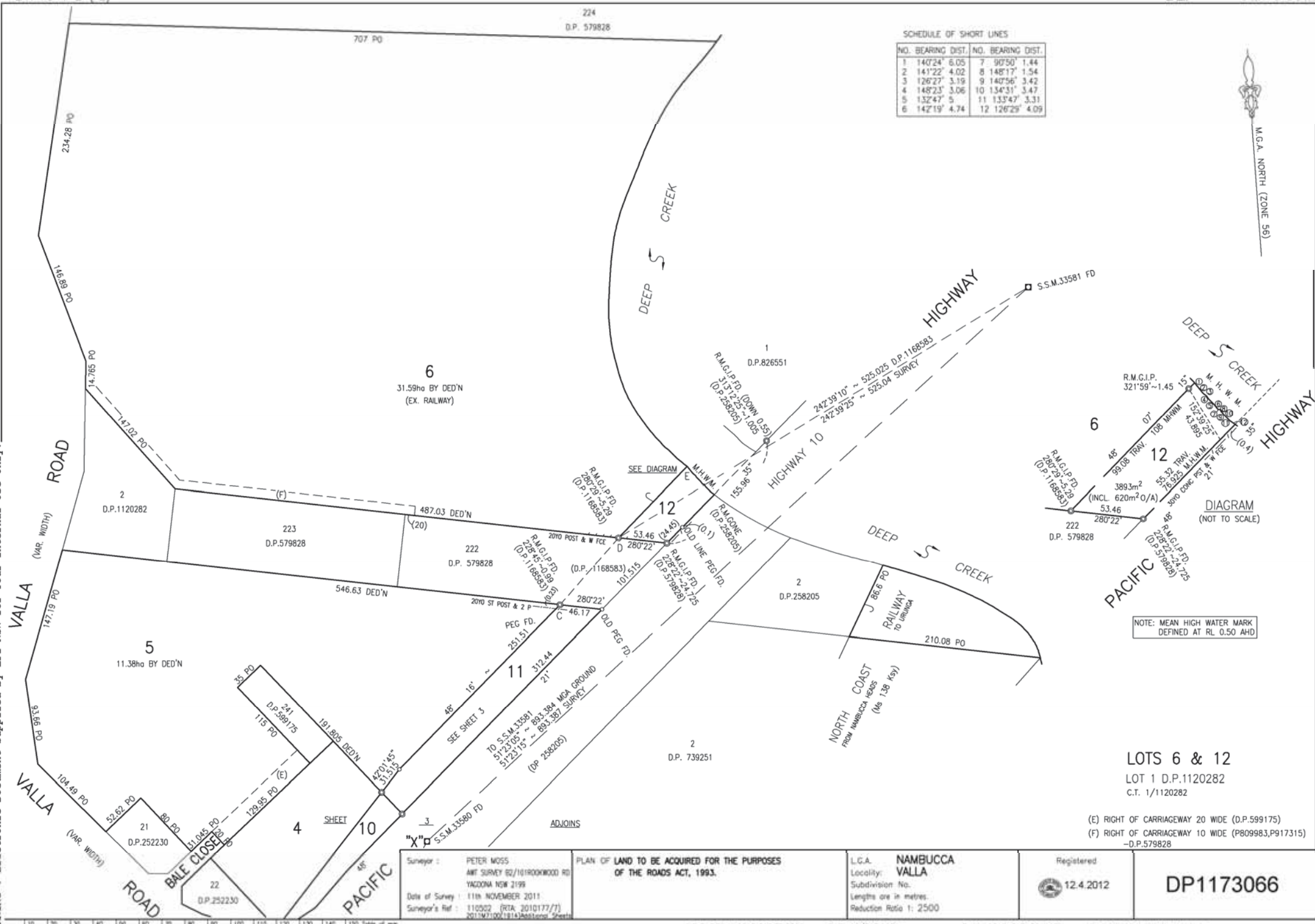
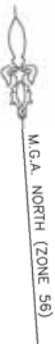
L.G.A. NAMBUCCA
 Locality: VALLA
 Lengths are in metres.
 Reduction Ratio 1: 2000


Registered
 12.4.2012

DP1173066



NO.	BEARING	DIST.	NO.	BEARING	DIST.
1	140°24'	6.05	7	90°50'	1.44
2	141°22'	4.02	8	148°17'	1.54
3	126°27'	3.19	9	140°56'	3.42
4	148°23'	3.06	10	134°31'	3.47
5	132°47'	5	11	133°47'	3.31
6	142°19'	4.74	12	126°29'	4.09



<p>Surveyor : PETER MOSS AMT SURVEY 62/10/ROCKWOOD RD YAGGONA NSW 2199</p> <p>Date of Survey : 11th NOVEMBER 2011</p> <p>Surveyor's Ref : 110202 (RTA 2010177/7) 2011M710016144electronic Certs</p>	<p>PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.</p>	<p>L.C.A. NAMBUCCA VALLA</p> <p>Locality: Subdivision No. Lengths are in metres. Reduction Ratio 1: 2500</p>	<p>Registered</p> <p> 12.4.2012</p>	<p>DP1173066</p>
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DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 1 sheet(s)

SIGNATURES, SEALS and STATEMENTS of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

LOTS 7 TO 12 INCLUSIVE ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT 1993

ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES MARKED A-B-C AND D-E

The Minister for Lands, in accordance with Part 2 Division 5 of the Surveying Regulation 2006, and clause 55N of the Coastal Protection Act 1979 as amended, approves the determination of the Mean High Water Mark as shown hereon.
Department of Lands file 11/13676 only 1/12

[Signature]
for Minister for Lands

APPROVED:

[Signature]
MANAGER, PROPERTY SERVICES
NORTHERN REGION
ROADS AND MARITIME SERVICES

Use PLAN FORM 6A

for additional certificates, signatures, seals and statements

Crown Lands NSW/Western Lands Office Approval

I,in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown herein have been given

Signature:
Date:
File Number:
Office:

Subdivision Certificate

I certify that the provisions of s.108J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to:

the proposed..... set out herein
(insert 'subdivision' or 'new road')

* Authorised Person/General Manager/Accredited Certifier

Consent Authority:
Date of Endorsement:
Accreditation no:
Subdivision Certificate no:
File no:

* Delete whichever is inapplicable.

FILE: 10317.1651

PLAN: 0010 317 SS 42/4

FIELD BOOK: 0010.317.FP.5256

Sheet 1 of 1 sheet(s)

DP1173066

Registered: 12.4.2012

Title System: TORRENS

Purpose: ROADS ACT, 1993

PLAN OF LAND TO BE ACQUIRED FOR THE
PURPOSES OF THE ROADS ACT 1993

LGA: NAMBUCCA

Locality: VALLA

Parish: VALLEY VALLEY

County: RALEIGH

Surveying and Spatial Information Regulation, 2006

I, PETER FREDERICK MOSS
of AWT SURVEY B2/101 ROOKWOOD RD YAGOONA
a surveyor registered under the Surveying & Spatial Information Act,
2002, certify that the survey represented in this plan is accurate, has
been made in accordance with the Surveying and Spatial Information
Regulation, 2006 and was completed on: 11TH NOVEMBER 2011

The survey relates to LOTS 7 TO 12 AND CONNECTIONS
(specify the land actually surveyed or specify any land shown in the
plan that is not the subject of the survey)

Signature

[Signature]

Dated:

28/11/11

Surveyor registered under the Surveying Act, 2002

Datum Line: 'X' - 'Y'

Type: Urban/Rural

Plans used in the preparation of survey/compilation

DP 252230	DP 603250	R1844 - 1714
DP 253772	DP 613620	R1946 - 1714
DP 258204	DP 739251	R2318 - 1714
DP 258205	DP 843825	R4220 - 1714
DP 579828	DP 1052762	R9979 - 1603
DP 599722	DP 1120282	
DP 43818	DP 1168583	

(if insufficient space use Plan Form 6A annexure sheet)

SURVEYOR'S REFERENCE: 110502 2011MT100(1914)Additional Sheets

Appendix B

Staging Plan Valla Urban Growth Area

Figure 2.3

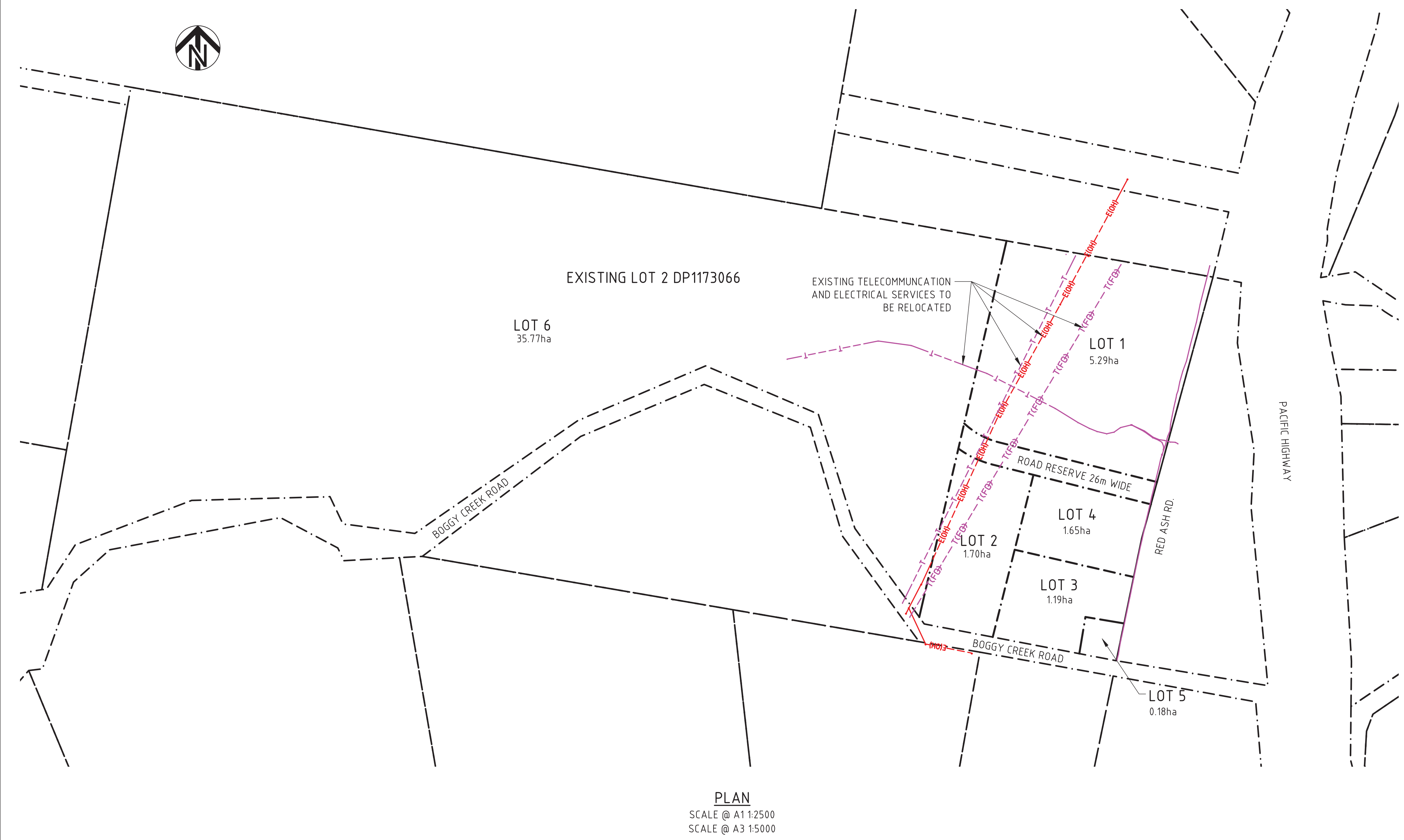
Staging Plan



Appendix C

Proposed Subdivision Layout Plan

- NOTES
1. LOT 5 RESERVED FOR FUTURE SEWAGE PUMPING STATION.
 2. ELECTRIACL AND TELECOMS EASEMENTS NOT SHOWN.



DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

					PRELIMINARY DESIGN - REV A		<div>SCALES</div> <div>100mm ON ORIGINAL DRAWING</div> <div>SCALE 1:2500</div> <div><div>2500</div><div>050100</div></div>		<div> engineering design & drafting</div> <div>Ben Jedrej CPEng RPEQ 645 Gleniffer Road, Gleniffer, NSW 2454 E: ben.jedrej@jedcivil.com.au M: 0416 843 764</div>	TITLE	
					DATE: 06.03.18					NAMBUCCA SHIRE COUNCIL	
					DRAWN: B. JEDREJ					VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1	
					DESIGNED: B. JEDREJ						
					CPENG No. 2823641					PROPOSED LOT LAYOUT	
					FINAL DESIGN - REV 0					DRAWING NUMBER	
					DATE:		ORIG. SIZE			17020-010	
					DRAWN:		A1			REVISION	
					DESIGNED:					B	
					CPENG No.						
B	DEVELOPMENT APPLICATION			08.05.18	BJ	BJ					
A	PRELIMINARY			06.03.18	BJ	BJ					
REV	DESCRIPTION			DATE	DWN	DGN					
					REVISIONS						

Appendix D

Engineering Report

Denis Atkinson Planning
915 Bowraville Rd
Bellingen
NSW 2454

Our ref: 17020ltr01.docx
Your ref:
8 May 2018

Dear Denis,

Valla Urban Growth Area – Stage 1 Phase 1 Industrial Subdivision
Engineering Issue Report

Introduction

Nambucca Shire Council propose to subdivide the property at 80 Red Ash Road, Valla (Lot 2 DP1173066) into four industrial lots varying in area from 1.19ha to 5.29ha, a lot for a future sewage pump station and the residual lot of 35.77ha, refer to drawing 17020-010.

This subdivision is the first phase of Stage 1 of the Valla Urban Growth Area, a long-term plan to develop a new town to the north west of Nambucca Heads. Stage 1 of the plan is to develop industrial land that will attract industry and employment to the area. Subsequent stages will develop commercial and residential areas. Details of the proposed overall development and staging can be found in the Valla Urban Growth Area Development Control Plan (DCP) recently adopted by Nambucca Shire Council.

This report presents the assessment and resolution of engineering issues encountered during the concept design of the subdivision.

Earthworks

Due to the topography of the land to be subdivided extensive earthworks will be required to create level lots suitable for industrial use and approximately 250,000m³ of material will be cut and placed in fill. Fill heights are up to 10m in the north east corner and cut depths up to 14m along the western boundary of the subdivision, refer drawing 17020-012 for cut and fill depth contours.

Regional Geotechnical Solutions (RGS) undertook a preliminary geotechnical assessment of the site and concluded that bulk excavation in the deep cuts could be undertaken with large excavator or scrapers and that pneumatic rock breaking equipment or blasting would not be required. Additionally, the residual clay material found on site would be suitable for controlled fill. Therefore, the earthworks have been balanced to eliminate the need to import or dispose of any excavated material off site. The geotechnical report is attached for your reference.

Roads

The RGS geotechnical assessment included a road pavement design for the new internal roads for the industrial areas. A design life of 1x10⁷ESAs was adopted based on AUS-SPEC recommendations for industrial land and laboratory testing of the residual clays likely to comprise the road subgrade indicated CBRs of 4% and 10%. Adopting the lesser CBR value of 4% requires a total granular pavement depth of 550mm to achieve the design life.

The main route into the new town and this industrial subdivision is the existing Red Ash Road. The RGS geotechnical assessment included an assessment of the pavement of Red Ash Road. It found that the road pavement was between 850mm and 1000mm deep and when assessed with an expected subgrade CBR of 4% exceeded the required depth of 550mm to achieve a design life of 1x10⁷ESAs.

Although the pavement depth of Red Ash Road is sufficient for the expected traffic and design life a significant upgrade will be required to widen the road and comply with the DCP, which requires a 16m wide carriageway to allow for two traffic lanes, two cycleways and carparking on both sides of the road. However, this widening upgrade is not required until latter stages of the development when residential property becomes available and traffic volumes increase significantly.

Water and Sewerage

NSW Public Works Advisory are developing a concept design of the necessary water and sewerage infrastructure to allow the development to connect to the wider Nambucca Shire systems. A large sewage pump station (SPS) will be located in the south east corner of the subdivision. A rising main will convey the sewage from the pump station under the new Pacific Highway to the treatment plant in Nambucca Heads.

A water transfer main will bring water into the development under the new Pacific Highway at approximately the same location as the sewage pump station and rising main. Water reservoirs are to be constructed as part of the overall town development. However, for this industrial subdivision a temporary water pressure boosting pump station may be required until those reservoirs are constructed.

Internal water and sewerage reticulation is shown on drawing 17020-011. Each lot will be serviced with an industrial water connection and sewerage connection. However, it should be noted that the serviceable area with respect to drainage of sewage from Lots 1 and 2 is restricted to the area shown on the drawing due to the finished ground slope and limiting the depth of the sewer main.

Both the watermain and sewer will be extended into the residual lot to allow for its connection as well as future extension of the industrial area to the west.

Existing Utilities

Existing Essential Energy overhead power lines and Telstra infrastructure, including the Sydney to Brisbane fibre optic cable, traverse the site. Telstra have already been contacted and are aware of the proposed subdivision. They have provided an estimate to relocate their infrastructure.

The relocation of the overhead power lines, which supply power to the property to the north will be addressed with Essential Energy as part of the power supply to the subdivision.

Stormwater

An existing ridge line running east west bisects the property shedding water to the north and south. These natural catchment areas will be maintained as much as possible post development of the subdivision. The northern catchment will be collected by a series of pipes and open channel drains to a detention basin in the north east corner of the subdivision. From there the stormwater will drain through an existing culvert to Cow Creek. Similarly the southern catchment will drain to a detention basin in Red Ash Road reserve to the south of the subdivision and from there, through existing culverts under the Pacific Highway, to an existing watercourse east of the Pacific Highway and ultimately the Deep Creek estuary.

The detention basins will be designed to restrict the peak flow from the develop land to that of the undeveloped land for a 1 in 5 year or 20% AEP storm event. Storm events more frequent may cause localised flooding around the detention basins. Extension of the southern detention basin will be necessary when the privately-owned land south of the subdivision is developed.

The attached flood map of a 1% AEP flood event in Deep Creek and Tributaries suggests that the land may experience some minor inundation at current ground levels. However, as the ground is to

be considerably higher after development flooding of the industrial lots by backwater from Deep Creek is not considered likely. Additionally, the area of flood plain removed by the subdivision is insignificant compared to the whole flood plain and will have no effect on upstream or downstream water levels during a major flood event.

I trust this information is sufficient to satisfy your requirements. If you require additional information or to discuss, please call me on 0416843764.

Yours faithfully,



Ben Jedrej
MIEAust, CPEng 2823641
RPEQ 13734

Attachments:

Jed civil drawings 17020-001, 010, 011 and 012

RGS report *Proposed Industrial Subdivision - 80 Red Ash Road, Valla – Preliminary Geotechnical Assessment* 19 March 2018

Deep Creek 1% AEP Event

Appendix E

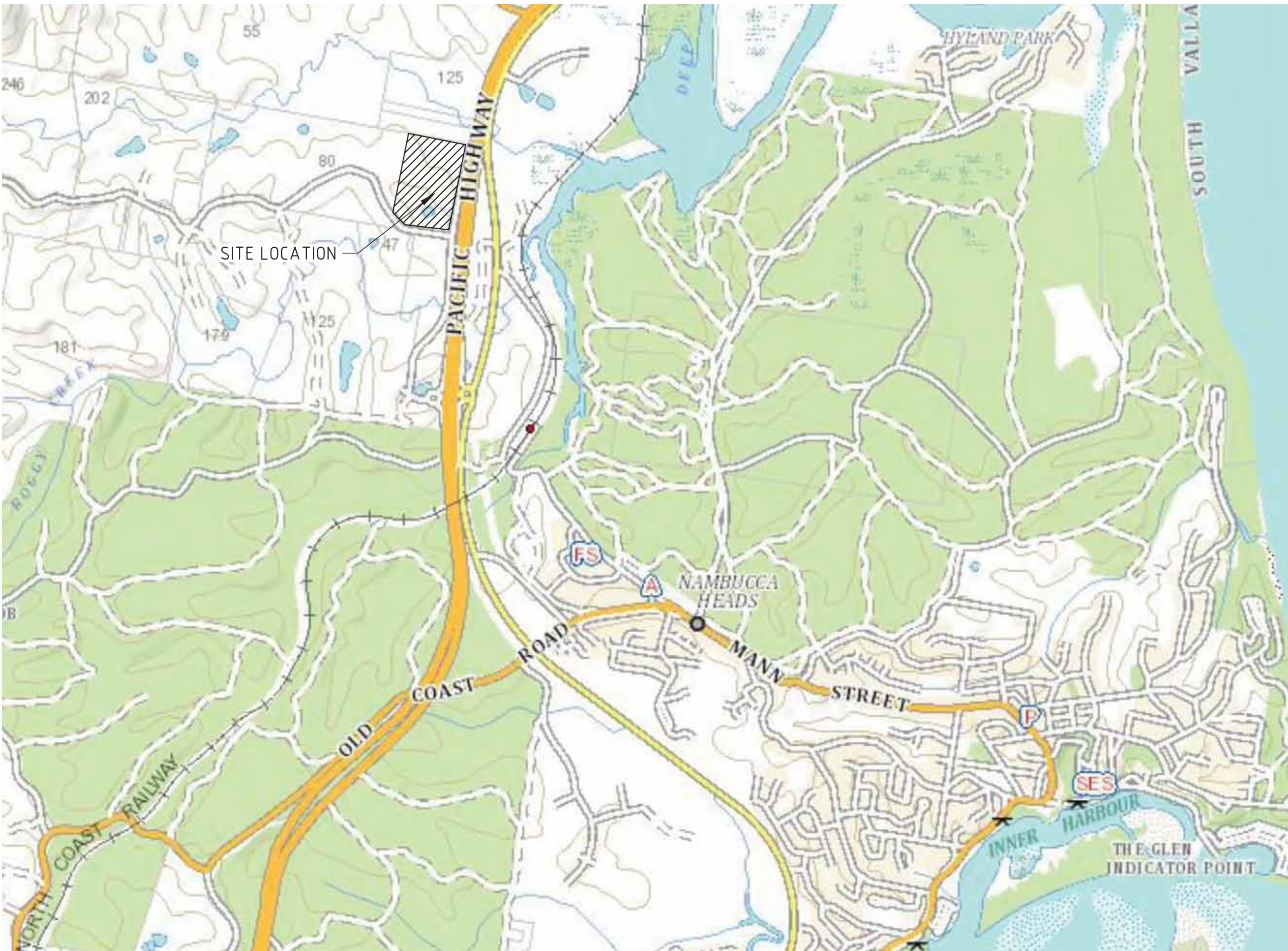
Conceptual Engineering Design

NAMBUCCA SHIRE COUNCIL

VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1

SUBDIVISION OF LOT 2 DP11173066

80 RED ASH ROAD, VALLA

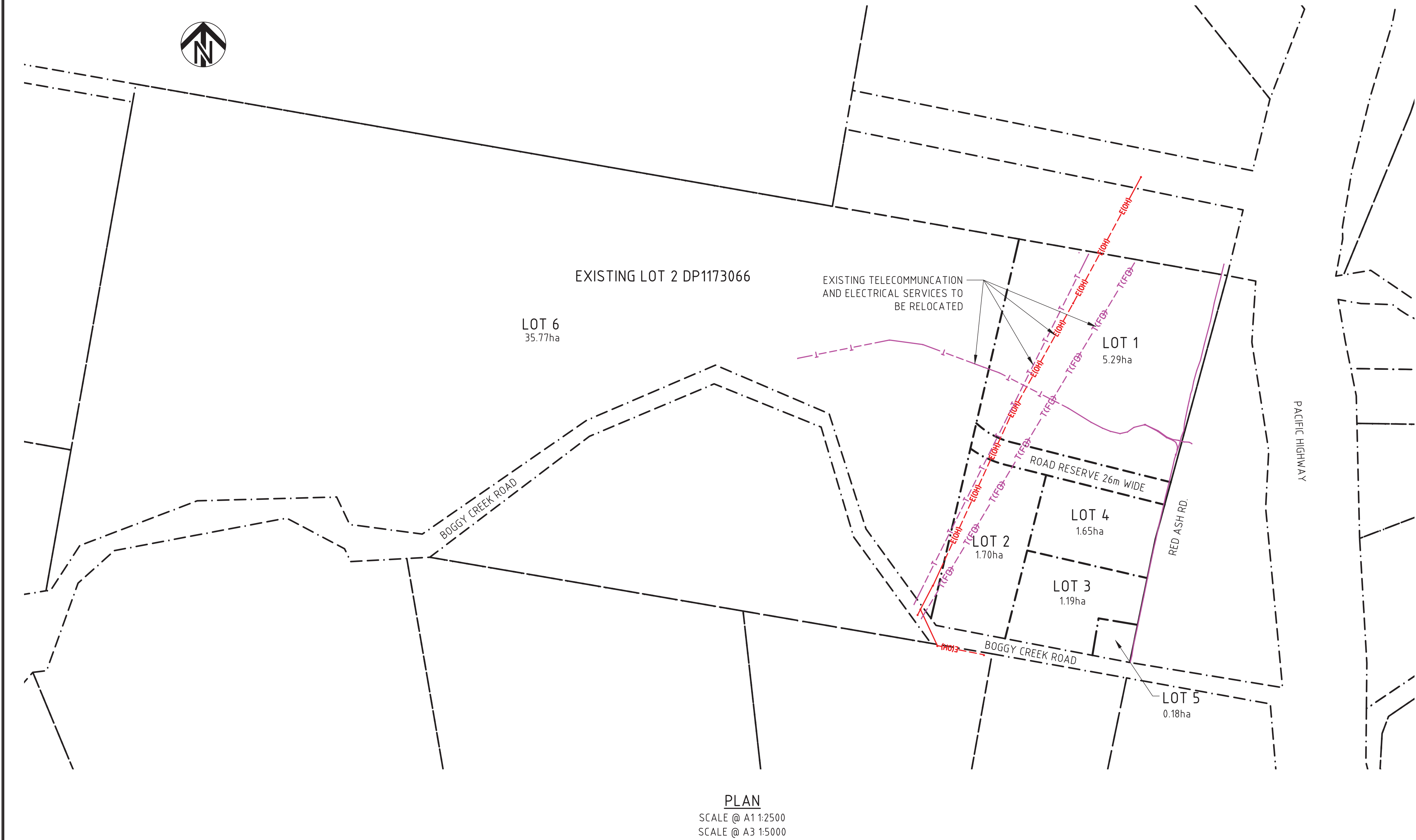


SITE LOCATION PLAN
NOT TO SCALE

DRAWING LIST	
DRAWING NUMBER	TITLE
17020-001	SITE LOCATION PLAN AND DRAWING LIST
17020-010	LOT LAYOUT
17020-011	GENERAL ARRANGEMENT PLAN
17020-012	EARTHWORKS CUT/FILL CONTOURS


				PRELIMINARY DESIGN - REV A				SCALES		100mm ON ORIGINAL DRAWING			<p>jed civil engineering design & drafting</p> <p>Ben Jedrej CPEng RPEQ 645 Gleniffer Road, Gleniffer, NSW 2454 E: ben.jedrej@jedcivil.com.au M: 0416 843 764</p>	TITLE NAMBUCCA SHIRE COUNCIL VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1			
				DATE:	06.03.18									LOCATION PLAN AND DRAWING LIST			
				DRAWN:	B. JEDREJ												
				DESIGNED:	B. JEDREJ												
				CPENG No.	2823641												
				FINAL DESIGN - REV 0													
				DATE:								ORIG SIZE A1					
				DRAWN:													
				DESIGNED:													
				CPENG No.													
B	DEVELOPMENT APPLICATION			08.05.18	BJ	BJ											
A	PRELIMINARY			06.03.18	BJ	BJ											
REV	DESCRIPTION			DATE	DWN	DGN											
				REVISIONS													

- NOTES
1. LOT 5 RESERVED FOR FUTURE SEWAGE PUMPING STATION.
 2. ELECTRIACL AND TELECOMS EASEMENTS NOT SHOWN.



DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

						PRELIMINARY DESIGN - REV A	
						DATE:	06.03.18
						DRAWN:	B. JEDREJ
						DESIGNED:	B. JEDREJ
						CPENG No.	2823641
						FINAL DESIGN - REV 0	
						DATE:	
B	DEVELOPMENT APPLICATION		08.05.18	BJ	BJ	DRAWN:	
A	PRELIMINARY		06.03.18	BJ	BJ	DESIGNED:	
REV	DESCRIPTION		DATE	DWN	DGN	CPENG No.	
REVISIONS							

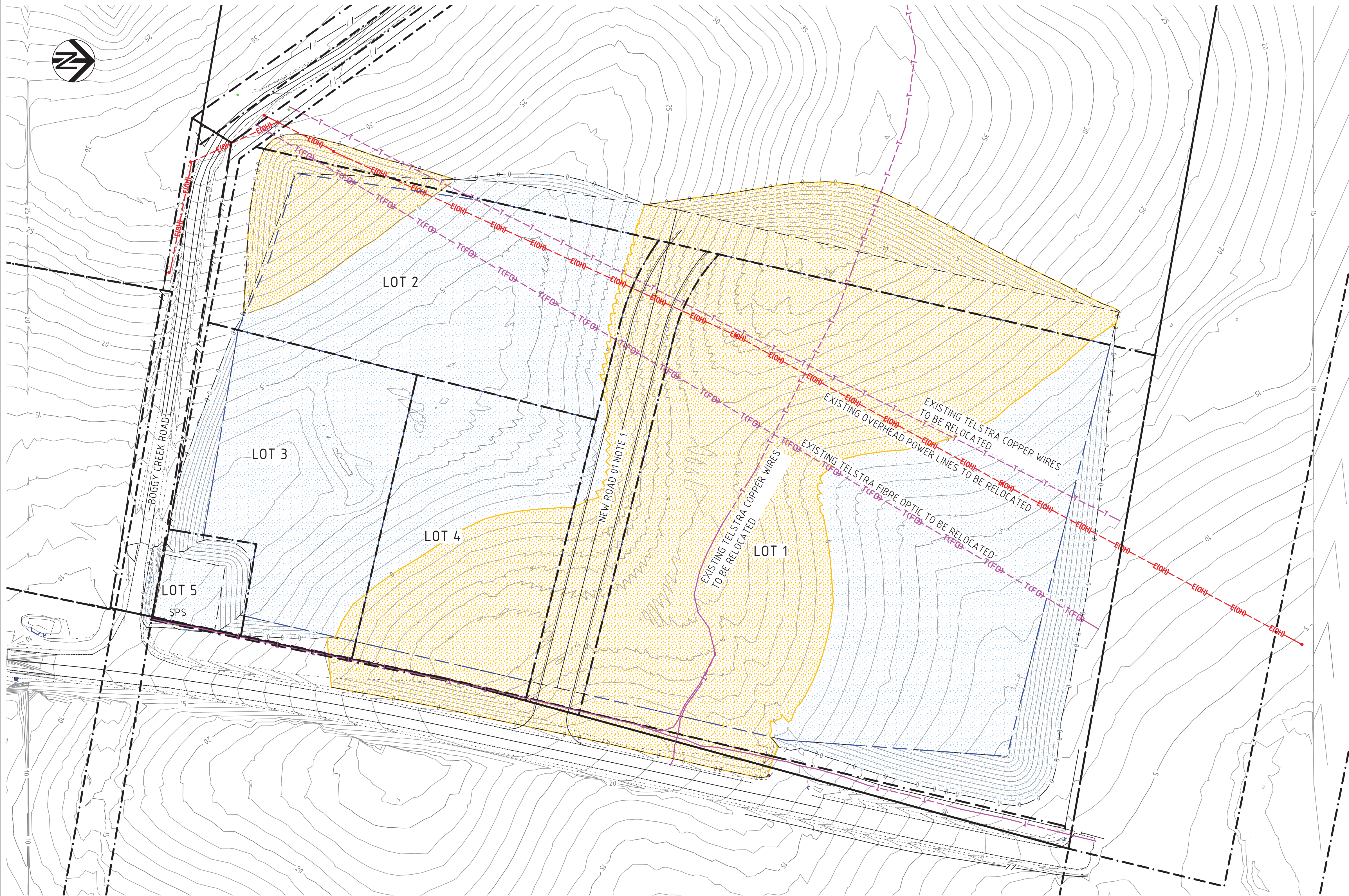
SCALES		100mm ON ORIGINAL DRAWING	
		SCALE 1:2500	
			
ORIG. SIZE			
A1			



jed civil
engineering design & drafting

Ben Jedrej CPEng RPEQ
645 Gleniffer Road, Gleniffer, NSW 2454
E: ben.jedrej@jedcivil.com.au
M: 0416 843 764

TITLE		NAMBUCCA SHIRE COUNCIL VALLA URBAN GROWTH AREA - PHASE 1 STAGE 1	
		PROPOSED LOT LAYOUT	
DRAWING NUMBER		17020-010	
REVISION		B	



- NOTES**
- 1. CONTOURS A 1m INTERVALS.
 - 2. REFER TO GEOTECHNICAL INVESTIGATION REPORT BY REGIONAL GEOTECHNICAL SOLUTIONS "PROPOSED INDUSTRIAL SUBDIVISION 80 RED ASH RD PRELIMINARY GEOTECHNICAL ASSESSMENT RGS31376.1-AB 23 FEB 2018" FOR GROUND CONDITIONS.

LEGEND

- CUT
- FILL

PLAN
SCALE @ A1 1:1000
SCALE @ A3 1:2000

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

				PRELIMINARY DESIGN - REV A				SCALES				100mm ON ORIGINAL DRAWING					<p>jed civil</p> <p>engineering design & drafting</p> <p>Ben Jedrej CPEng RPEQ 645 Gleniffer Road, Gleniffer, NSW 2454 E: ben.jedrej@jedcivil.com.au M: 0416 843 764</p>	TITLE			
				DATE:	06.03.18			SCALE 1:1000										NAMBUCCA SHIRE COUNCIL			
				DRAWN:	B. JEDREJ			ORIG. SIZE				A1						EARTHWORKS CUT/FILL CONTOURS			
				DESIGNED:	B. JEDREJ													DRAWING NUMBER			
				CPENG No.	2823641													17020-012			
				FINAL DESIGN - REV 0												REVISION					
				DATE:												B					
				DRAWN:																	
				DESIGNED:																	
				CPENG No.																	
B	DEVELOPMENT APPLICATION			08.05.18	BJ	BJ															
A	PRELIMINARY			06.03.18	BJ	BJ															
REV	DESCRIPTION	DATE	DWN	DGN																	
															REVISIONS						

Appendix F

Contamination Assessment

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT WELSH AND USSHER PROPERTIES

Valla, NSW
R.A. Welsh Family Trust

GEOTCOFH02266AA-AD
7 August 2009



7 August 2009

R.A. Welsh Family Trust
c/o Blueglass Nominees Pty Ltd
PO Box 5178
WOLLONGONG NSW 2520

Attention: John Oliver - Program Development Manager

Dear Sir

RE: Phase 1 Environmental Site Assessment Welsh and Ussher Properties Valla

Coffey Geotechnics Pty Ltd is pleased to present our report on the Phase 1 Environmental Site Assessment for the above site.

I draw your attention to the attached sheet entitled "Important Information about Your Coffey Environmental Site Assessment" which should be read in conjunction with this report.

I trust that this report meets with your requirements. If you require further information please contact the undersigned in our Coffs Harbour office on (02) 6651 3213.

For and on behalf of Coffey Geotechnics Pty Ltd



Andrew Ballard

Associate Environmental Scientist
Environmental Team Leader – Coffs Harbour

Distribution:	Original held by:	Coffey Geotechnics Pty Ltd (Coffey)
	1 Copy	Coffey (Coffs Harbour library)
	3 Copies	R.A. Welsh Family Trust

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Figure 4: Areas of Environmental Concern (AECs)

Appendices

Appendix A: Site History Information

Appendix B: Laboratory Certificates

1 INTRODUCTION

The site forms part of the Welsh and Ussher properties, which incorporates Lot 19 DP 75560, Lot 1 DP 823624 and Lot 1 DP 253772, located off Cow Creek Road and Boggy Creek Road, Valla NSW. The site is approximately 190 Ha in area of which the majority is cleared land and currently used for grazing purposes or banana plantations which were located in the central west and far northwest of the site. The remainder of the site was dense and semi dense bush land.

Coffey understands that our Phase 1 Environmental Site Assessment (Phase 1 ESA) forms part of a broader investigation to identify urban development constraints which may exist on the subject land. The aim of Coffey's investigation is to provide a comprehensive analysis of both properties including development of constraints mapping in relation to likely presence of acid sulfate soils, geotechnical survey to identify potential geotechnical hazards, potential areas of site contamination, and abandoned mine sites.

The objective of the constraints analysis is to broadly identify, and where possible to define, initial development constraints on the subject land. The constraints analysis will assist decisions on which areas of land within the site may be suitable for future urban development and which areas are marginal and may be excluded from further investigation.

The preliminary geotechnical and acid sulfate soils (ASS) investigations were carried out concurrently with this Phase 1 ESA. The results of the geotechnical and ASS investigation are provided under a separate cover, Ref: GEOTCOFH02266AA-AC.

2 PHASE 1 ENVIRONMENTAL SITE ASSESSMENT OBJECTIVES

The Phase 1 ESA will assess the potential for contamination of the two properties associated with their past use. The objective of the Phase 1 ESA is to identify any past or present potentially contaminating activities, provide a preliminary assessment of any site contamination and, if necessary, to provide a basis for a more detailed Phase 2 ESA Investigation

Coffey Geotechnics scope of works completed for the Phase 1 ESA included:

- Brief site history study comprising a review of historical aerial photographs to help assess any changes in landuse or activities;
- A series of site walkovers to inspect the areas of interest identified from the historical review;
- In addition for the Welsh (Lot 19 DP 75560 & Lot 1 DP 823624) and Ussher (Lot 1 DP253772) properties a historical titles search for past site owners, a dangerous goods search and inspection of Nambucca Shire Council records to help verify previous approved development and site uses;
- A search of groundwater bores and a search of the NSW EPA website for listed properties;
- Interviews with representatives of the Ussher and Welsh families to assist in the location of items such as former buildings abandoned mine working that may represent potential contaminant 'hot spots' on their properties;
- A site walkover of the Ussher and Welsh properties was undertaken to inspect those areas of interest identified from the historical review ;
- Preparation of a Phase 1 ESA report which includes a preliminary site contamination assessment of

potential site contamination issues and areas of environmental concern requiring further investigation prior to residential development occurring.

3 BACKGROUND INFORMATION

3.1 Previous Investigation

Transgrid Easement Soil Analysis

In December 2002, soil laboratory analysis was undertaken for a limited number of samples collected from Transgrid easement that intersect the west of the site. Ten (10) samples were collected to the south of Cow Creek Road extending approximately 700m down the ridge within the existing power lines easement. Eight of the samples were sent to SGS laboratory for arsenic analysis. The reported results for arsenic were elevated in all samples tested ranging from 94 mg/kg to 260 mg/kg, see Appendix B.

The guideline for arsenic in soils for residential uses is 100 mg/kg¹. The results indicate concentrations of arsenic above the adopted DEC 2006 health based soil investigation (HIL) guideline of 100 mg/kg in seven of the eight samples analysed and 96 mg/kg in the remaining sample.

GHD Limited Soil Contamination Assessment

A limited scope contamination assessment was undertaken by GHD in 2004, as supporting information included with a Development Application (DA) for a proposed 6 Lot Rural residential subdivision of the Welsh property. The investigation included the results of soil sampling undertaken earlier in April 2002 of the five proposed building envelopes (700m²) within each allotment.

Within each building envelope eight (8) soil samples were collected and sorted into two (2) composite samples. The results indicated levels of arsenic contamination above the guideline criteria for arsenic in two composite samples (2O and 2E), both samples were from within the same building envelope. The area was located to the south of Cow Creek Road on the lower slopes of the ridge line, refer to figure 4. The other building envelopes analysed reported concentration of arsenic above the laboratories LOR, however, the levels were reported by GHD as below the adopted criteria.

Composite sampling involves collecting a number of sub samples, up to a maximum of four (4), and thoroughly mixing them for chemical analysis. NSW DEC 2005 *Guidelines for Assessing Former Orchards and Market Gardens* provides advice on interpreting the results from composite sampling and includes procedures for adjusting SILs where information on background concentrations of contaminants is not available. The guideline recommends adopting a conservative approach and adjusting the SILs by dividing the HIL's provided in DEC 2006 by the number of soil samples that make up the composite sample. In this case where four samples were composited into one the adjusted SIL for arsenic would be 25 mg/kg and not 100mg/kg as stated.

Applying this procedure to the April 2002 results shows that a further two composite samples (3O and 4O) reported arsenic concentrations of 27 mg/kg and 32 mg/kg respectively which are above the

¹ NSW DEC (now DECC) (2006) *Guidelines for the NSW Site Auditor Scheme*, present health based investigation levels (HILs) for different landuses. The guidelines include levels for residential use with gardens and accessible soil (home grown produce contributing <10% fruit and vegetable intake; no poultry), including children's day-care centres, preschools, primary schools, townhouses, villas (NEHFA).

adjusted SIL. The samples were collected from the proposed building envelopes on allotments 3 and 4 and are located to the west of allotment 2. Allotments 3 and 4 are also bisected by the Transgrid powerline easement which also reported elevated levels of arsenic. The results from this limited soil sampling suggest that elevated levels of arsenic may also occur in other parts of the site which were previously used for small crops.

3.2 Site Description

Locally the Welsh and Ussher properties are located to the west of the Pacific Highway. Cow Creek Road extends along part of the northern eastern boundary of the Welsh property and cuts through the property at the far western end of the site. Similarly Boggy Creek Road follows the southern boundary of the Ussher property and cuts through part of the property at the south western end of the site. A locality plan, Figure 1, and site plan, Figure 2, show the regional locality of the properties and outline of each of the Welsh and Ussher property boundaries respectively.

The site is typified by moderately sloping hills and narrow creek beds that open out towards the east on the low lying alluvial floodplain of Cow Creek. The major topographic features of the site are two east-west trending ridgelines (one in the south and one in the north of the site) which direct surface flow towards Cow Creek in the central area of the site.

Generally the site can be broken down to four sub zones as follows:

- Zone 1 - The far southern area with gentle to moderately sloping hills which direct most surface flow towards the north (towards Cow Creek) and a minor portion of the surface flow to the south;
- Zone 2 - The mid southern area of the site is typified by low lying alluvial landforms and gentle surface slopes which flank Cow Creek, some localised steeper hill slopes were observed abutting the creek alignment;
- Zone 3 - The mid northern area of the site is typified by moderately to steeply sloping hills which direct surface flow towards the south and east towards Cow Creek;
- Zone 4 - The far northern area of the site is typified by moderate to steeply sloping hills which direct surface flow towards the north and east.

A site plan showing each of the four sub zones is presented in Figure 2.

3.3 Geology

The 1:250,000 Geological Series sheet of Dorrig-Coffs Harbour indicates the site is underlain by the Valla Adamellite and Unnamed Phyllite which in turn have been overlain by Quaternary Alluvium in the gully axis and creek lines.

3.4 Hydrology

A search of the NSW Department of Water and Energy groundwater bore information indicated that there were 26 bores within a 500m radius of the site. No information was available for 18 of these bores identified in the search. The information on eight of the bores is summarised in Table 1 below.

Table 1: Summary of Groundwater Bore Information

Bore Number	Authorised Use	Total Depth of Bore (m)	Distance*, Direction & Gradient* from Site	Standing Water Level (m)	Water Bearing Zones (m)
GW066902	Domestic Stock		263m, N, DG	-	-
GW054139	Stock	19.20	350m, NE, DG	-	10.70 – 15.20
GW304675	Domestic	30.0	Onsite	3.0	17.50 – 18.0 26.40 – 27.0
GW068194	Domestic Stock	31.0	263m, E, DG	7.0	12.0 – 15.0 24.0 – 30.0
GW304897	Domestic	39.0	263m, E, DG	18.0	34.0 – 34.50
GW045620	Domestic Stock	4.0	175m, E, DG	-	-
GW302971	Domestic Stock	36.60	Onsite	-	-
GW055529	Domestic	25.30	197m, S, DG	-	7.60 – 9.10 15.20 – 18.30

Notes: N = north, S = south, W = west, E = east, DG = down-gradient. Distances are approximate and gradients are inferred.

3.5 Site History

3.5.1 NSW WorkCover Dangerous Goods Records

WorkCover Dangerous Goods Licensing Records were searched for both properties. No records pertaining to the site were available for review.

3.5.2 Nambucca Shire Council Records

Records held by the Nambucca Shire Council were viewed on the 14 October 2008. The records viewed predominately related to previous and present Development Application (DA) for the site and included:

- DA 2001/237 for proposed 6 Lot Rural Residential subdivision within the Lot 19. The DA was submitted by GHD with a limited contamination assessment undertaken on the proposed building envelopes. The DA was approved, however with two buffer areas of potential contamination highlighted in a supplied site plan. The two buffer areas related to arsenic contamination identified in the GHD contamination assessment and the location of a small abandoned arsenic mine. Subsequently Council has added these areas to the Nambucca Shire Council contaminated land registry.
- A letter dated 7 April 2003, from the Department of Mineral Resources indicated that a small abandoned arsenic mine known as Sullivan's prospect was located within Lot 19, precise location

unknown. The mine produced a small amount of arsenic (in period) via shaft and some underground developments.

- The DA application for the current proposal was also viewed and indicated that the DA is for the preparation of rezoning applications to allow a change from rural to urban land use within the Welsh and Ussher properties.

3.5.3 NSW EPA Notices

A review of the NSW EPA website database on 2 July 2008 revealed that no notices have been issued to the site or adjacent properties under the *Environmentally Hazardous Chemicals Act (1985)* and the *Contaminated Land Management Act (1997)*.

3.5.4 Land Titles Search

Title searches were carried out by Advance Legal Search in November 2008 for Lot 19 DP 755560, Lot 1 DP 823624 and Lot 1 DP 253772.

Lot 19 DP 755560

- Wayne Allan Welsh and Wendy Sue Childs have owned the lot since 2001.
- Prior to 2001 the lot was owned by Robert Welsh (farmer) and was part leased to Peter Michael Ballard (1997 to date) and various commercial leases (1988 to date).
- Prior to 1988 the lot was part of the larger Portion 19 and was still owned by Robert Welsh (farmer). The Portion was leased to various people including; Phillip Russell Welsh and Barry Phillip Welsh (1988 of 1988), Peter Michael Ballard (1984 to 1988), Maxwell John Higgins and Heather Lorraine Higgins of part (1981 to 1990) and Phillip Russel Welsh, banana grower and Bonnie Welsh of part (1980 to 1988).
- Prior to 1978 Portion 19 was owned by Robert Ronald and Robert Allen Welsh, farmers.
- The Smith family owned Portion 19 during 1967.
- Prior to 1967 Portion 19 was owned by Rural Bank of New South Wales, grantee.
- Prior to 1956 Portion 19 was crown land.

Lot 1 DP 823624

- The title searches state that Wayne Allan Welsh and Wendy Sue Childs have owned the lot since 2001.
- Prior to 2001 the lot was owned by Robert Allen Welsh, farmer.
- Prior to 1994 the lot was owned by the State of New South Wales and prior to 1956 was part of crown road.

Lot 1 DP 253772

- The title searches state that Carmel Vera Ussher has owned the lot since 2004.
- Prior to 2004 the lot was owned by Hugh McDonald, banana grower and Carmel Vera Ussher.
- Prior to 1979 the lot was part of Portion 108 and was owned by the Ussher family.

- Prior to 1970 Portion 108 was owned by various people including: Ronald Laurie Cowin, farmer (1968 to 1970); Ervin and Nina Aleta Parkins, farmer (1966 to 1968); Sidney Frederick Amis, miner (1956 to 1966); John Frederick Eichmann and James Alfred Noel Eichmann, storekeepers; Elizabeth Eichmann, grantee (1956 to 1944).
- Prior to 1944 Portion 108 was known as Portion 1089 and was crown land

3.5.5 Review of Aerial Photography

A review of aerial photographs of the site dating from 1956 to 2006 was carried out. A summary of the site in each photograph is provided in Table 2 below.

Table 2: Summary of Aerial Photographs

Year	Welsh and Ussher Properties	Surrounding Land
1956	<p>Photo is black and white.</p> <p>Lot 19 DP 755560</p> <p>The majority of the lot appears to be cleared. A residence is located in the northeast of the lot to the south of Cow Creek Road, with two structures located to the north and south of the house. There appears to be market gardening in the southeast low lying areas and the southwest section, on the steeper slopes.</p> <p>Densely vegetated areas present in northwest and northeast corners and the central western section of the lot. With pockets of semi dense to dense bushland scattered across the lot predominately in the steeper areas and bordering the creeks. Cow Creek intersected the lot through the central area. There were three rural dams within the lot; two in the southwest and one in the northwest.</p> <p>Lot 1 DP 823624</p> <p>The lot contains dense bushland and no structures were present on the lot.</p> <p>Lot 1 DP 253772</p> <p>There is an existing residence in the west of the lot with four small structures around the vicinity of the house. The lot has been partially cleared and appears to be used for grazing and potential market gardening purposes. The semi dense and densely vegetated areas are predominately located in the southern central, western and east section of the lot. Some smaller pockets of bushland are scattered across the lot. Boggy Creek Road borders the lot and intersects through the central portion.</p>	<p>The surrounding land is generally undeveloped and appears to be used for rural and market gardening purposes. A banana plantation is located in the northwest of the lot. The plantation may have previously extended into Lot 19 as the area west of the banana plantation within the lot appears to have remnants of an old banana plantation. There are a few scattered residences surrounding the site, the Pacific Highway is located to the east, with Deep Creek located to the north east of the site.</p>

Year	Welsh and Ussher Properties	Surrounding Land
1967	<p>Photo is black and white.</p> <p>Lot 19 DP 755560 The areas of potential market gardening in the southern central area of the lot and in the southwest on the ridges appears not as distinct which suggest that land may now be predominantly used for grazing purposes. The banana plantation to the northwest of the lot now extends east down the ridgeline into Lot 19. Areas of dense bushland bordering and to the south of Cow Creek Road are present.</p> <p>Lot 1 DP 823624 Appears that bushland on this lot has been thinned as sparser in cover. Could also be no change, due to recovery from bushfire(?)</p> <p>Lot 1 DP 253772 The bushland bordering the eastern section of the lot appears to have a denser cover. No significant changes from the 1956 aerial photograph.</p>	No significant changes to surrounding landuse
1980	<p>Photo is black and white.</p> <p>Lot 19 DP 755560 The banana plantation in the far northwest has extended to the east further down the ridge. A new banana plantation has been established on the ridge to the south of the original banana plantation. Extensive bushland clearing has also occurred and the land is now predominately used for grazing purposes.</p> <p>Lot 1 DP 823624 No significant changes from the 1967 aerial photograph.</p> <p>Lot 1 DP 253772 The lot has been extensively cleared and appears to be used for grazing purposes. A large structure is present in the east of the lot to the south of the residence and a farm dam is also present to the southwest of the structure.</p>	There is now extensive banana plantation development to the far west of the site. No significant changes in landuse to other areas around the site.

Year	Welsh and Ussher Properties	Surrounding Land
1991	<p>Photo is in colour.</p> <p>Lot 19 DP 755560 The banana plantation in the far northwest of the lot appears to have been abandoned and only a small portion appears to be still cultivated to the northwest of the lot near the top of the ridge.</p> <p>Lot 1 DP 823624 No significant changes from the 1980 aerial photograph.</p> <p>Lot 1 DP 253772 No significant changes from the 1980 aerial photograph.</p>	<p>The surrounding landuses/ developments include a residence to the north west, north east and east of Lot 19. Some plantations that appear to be macadamias, have been established to the south of site and a commercial development to the east of Lot 1 DP253772.</p>
2006	<p>Image is in colour (Spatial View)</p> <p>Lot 19 DP 755560 The banana plantation located in the far northwest of the site has expanded within the lot further down the ridgeline. The banana plantation to the south has been partly abandoned in the northwest portion of the lot.</p> <p>Lot 1 DP 823624 The lot appears to have been extensively cleared of bushland. No structures are present within the lot.</p> <p>Lot 1 DP 253772 The majority of the lot is unchanged from the 1991 aerial photograph. The central southern section of the lot to the south of Boggie Creek road is being used for cultivation, although it is not possible to establish if improved pasture or horticultural crops are being grown.</p>	<p>Several new structures present within the commercial development to the east of the site. A residence is present to the south of the site.</p>

3.5.6 Cattle Dip Notices

A review of the NSW Department of Primary Industries website database on 10 November 2008 revealed that no notices have been issued for the site or adjacent properties.

3.5.7 Interviews

Coffey Geotechnics interviewed Wayne Welsh, representative of Welsh family, who stated the following for Lot 19:

- Mr Welsh indicated that land was purchased in 1968 from the Smith family and indicated that they had grown tomatoes in the low lying areas to the south of the house within Lot 19. It was also indicated that arsenic based sprays were used as insecticides during tomato cropping activities. This supports the anecdotal information from the *Valla Memories* reviewed document, which indicated that Albert Smith was one of the original tomato growers in the Valla area.
- Mr Welsh former land holder of Lot 19 advised of the 6 lot rural residential DA, which was previously approved by Nambucca Shire Council. He also indicated that a former packing shed was located on the fence line to the south of Cow Creek Road. The structure had long since been demolished and Mr Welsh believes that the shed may have been the source of the arsenic hotspot identified in the GHD contamination assessment provide for this earlier DA application.
- Mr Welsh indicated that Transgrid had undertaken limited soil sampling during works within the Transgrid powerlines easement, see Section 2.1 of this report. A copy of the test results was provided.
- Mr Welsh also stated that he believed the buffer zone established by council for the former Sullivan's Prospect arsenic mine was incorrectly mapped. His recollection was that these mine workings were on top of the ridge to the north of the buffer area. Mr Welsh recalled that area was once bushland and was cleared in early 1970's and the mine working filled in this period.

3.5.8 Historical Information on the Valla Area

Information supplied by the Nambucca Shire Council on the history of the Valla area was viewed. A letter dated 7 April 2003 from the Department of Mineral Resources advised of small abandoned arsenic mine "Sullivan's Prospect" occurring on Lot 19. No further detail was provided on the location of these mine workings.

Council supplied document titled *Valla Memories* which provides an overview of historical activities undertaken within the area including gold and arsenic mining and early horticultural farming activities, see below:

Gold and Arsenic Mining

Historically, most mining was undertaken from the late 1800's to early 1900's with Valla gold mines situated about 5 miles south of Urunga. The old titles map within the document showed areas of former prospecting leases. These were located to the north, northeast around original Nambucca Head Gold Mine Co mine and not on this site.

Demand for the use of arsenic in the early 1900's caused the re-opening of some mines within the Valla area from 1917 to 1936. Our review of the document found no mention of the Sullivan's prospect arsenic mine located on Lot 19.

Tomato Cropping

Valla Memories provides the following description of the early horticultural farming and establishment of tomato crops within the Valla area. Tomato cropping started in the area in the mid 1920's by various farmers including Mr Alex Smith. Note that the Smith family owned Lot 1 DP755560 prior to the Welsh family purchasing the property and may have been descendants of Mr Alex Smith. In the beginning no sprays were used on the crops as disease and pests were not an issue. Superphosphate was widely used as a fertiliser.

However, this quickly changed and by 1926 tomato cropping was booming in the Valla area with top dressing and spraying of crops by that time widespread. In the early 1930's production increased with the introduction of tomato stakes and irrigation of crops. During this period the fungicide spray used was bluestone and lime and the insecticide used was arsenate of lead. The arsenic for the fungicide sprays was predominately sourced from local arsenic mines. The fertilizers used were Parton Burns No.3 and Sulphate Ammonia for topdressing.

The area of tomato crops was greatly reduced with the outbreak of World War II. The late 1940's saw the introduction of trellises for tomato growing, which allowed crops to expand and be grown on steeper slopes found in the Valla area.

In the mid 1940's new forms of pesticide sprays were introduced in the Valla area including Sulphur and Cosan for the fungus diseases and the first DDT sprays Rulene and Rogor 40 for insect pests. The 1950's saw introduction of misting sprays to apply pesticides to small crops within the Valla area.

The growing of tomatoes and other horticulture crops has declined since the late 1960's to be replaced by cattle grazing. Currently there is still some small cropping occurring within the Valla area with bean crops observed on the Ussher property within the site.

4 POTENTIAL AREAS OF ENVIRONMENTAL CONCERN (AEC) AND POTENTIAL CHEMICALS OF CONCERN (COC)

Based on the sites history information and our site observations several potentially contaminating activities/sources were identified. The potential Areas of Environmental Concern (AECs) and potential Chemicals of Concern (COCs) are summarised in the following table.

Table 2: Summary of Potentially Contaminating Activities, Areas of Environmental Concern, Likelihood of Contamination and Potential Chemicals of Concern

Potentially Contaminating Activity/ Source	Sub Component / Description	Areas of Environmental Concern (see Figure 4)	Likelihood of Contamination	Potential Chemicals of Concern
Banana Plantations	Pesticides used on banana plantation	Banana plantations in the far northwest and western areas of the site.	Medium to high likelihood of soil contamination from application of pesticides on banana plantations.	Organochlorine and Organophosphate Pesticides (OCP/ OPP), metals including; arsenic, lead
Horticulture Small Crops	Pesticides used on small crops within the site	Buffer area identified by council Areas identified as being cleared pre 1967 aerial photograph, see Figure 3.	Medium to high likelihood of soil contamination from application of pesticides on potential market gardens within the periods from 1920's to the 1950's.	OCP, OPP, metals including; arsenic, lead, cadmium, copper, mercury, zinc
	Pesticides used on new areas of small crops following clearing within the site	Areas identified as being cleared post 1967 aerial photograph, refer to Figure 3.	Low likelihood of soil contamination from application of pesticides on small crops grown in these areas after 1967.	OCP, OPP, metals
Abandoned Mine Site	Possible contamination around abandoned mine site and tailings	The buffer area identified by Council, as seen in Figure 3. Also dense bushland in the far northwest of the site which may also contain abandoned mines or prospecting sites.	Medium to high likelihood of soil contamination around the historical mine workings and former arsenic mine.	Metals
Natural Occurring Mineralisation	Possible contamination from weathering of rock out crops	Natural weathering of mineral out crops in the steeper areas in the west of the site.	Low likelihood of soil contamination in the steeper western parts of the site.	Metals including arsenic

5 DISCUSSION

The current landuses on this site are rural activities, primarily cattle grazing, banana plantations and some small crops. These current activities are considered to have a low potential risk of land contamination due to their low impact nature, and the use of modern agricultural chemicals which do not have the same residue problems caused by earlier generation pesticides and chemicals.

The balance of the site which includes the steeper western slopes is covered in dense bushland and may include pockets of natural mineralisation with elevated levels of metals in soils and rock outcrops.

Historically there have been a number of activities conducted on this site and in the surrounding Valla area during the 19th and 20th centuries which are of potentially greater concern for soil contamination. These activities include prospecting and mining for gold and arsenic, early development of horticulture and small crops and banana plantations.

While much of the historic prospecting and mining activities occurred to the north of the site in the vicinity of the Valla Gold Mine there are records of at least one abandoned small arsenic mine, "Sullivans Prospect", occurring on Lot 19.

Correspondence in April 2003 between the NSW Department of Mineral Resources and Nambucca Shire Council identifies the existence of this abandoned mine site although the Department's letter provided no clarification on its exact location. GHD letter to Council dated 22 January 2003 refers to the location of the mine as map reference N496200 and E6613700 and supported Council's approach that a 100m buffer around this location was appropriate. Council records show that no soil testing was carried out within the mapped vicinity.

Council has since listed this mine site on its Contaminated Site Register, ID No. A19.0, and mapped a 100m buffer area around its location on Lot 19 in the north-west of the site.

Based upon our site observations and inspection of the landforms in this locality and anecdotal advice provided by Mr Wayne Welsh it is unlikely that a small mine site would have existed in this location as it is currently mapped. Mr Welsh advised that bushland in this area was cleared following the Welsh family's purchase of Lot 19 after 1967. This clearing is confirmed by our review of the changes between the 1967 aerial photograph and the 1980 photograph. Mr Welsh recalls observing a mine shaft on the ridgeline to the north of the mapped location. He believes that during the vegetation clearing any evidence of the mine still on the surface was pushed into the shaft and the shaft filled in.

During our site walkovers of this mine site location and buffer area no mine shafts, remnants or rock spoils were identified to support the presence of historical mining activity. The landforms in this locality support Mr Welsh's observations as the mapped location occurs in the head of a gully on a colluvial fan. It is an unlikely location to prospect for arsenic using hand tools compared to the nearby ridgeline located to the north. Following the vegetation clearing and subsequent cropping or pasture establishment on this land no visible surface evidence of small arsenic mine remains.

There are densely vegetated bushland areas on the steep slopes that occur in the far north-west and west of the site. Potentially some gold and arsenic prospecting activities may have also historically occurred in these areas. A number of rock outcrops were observed and potentially there may be areas of natural mineralisation on parts of the site around these outcrops. Due to the steep slopes and dense bushland in these areas of the site it is unlikely that these areas are suitable for future urban development.

Our review of the historical aerial photographs shows areas of small crops within the low lying areas in the central section and on the upper slopes of the ridgeline in the south-west of the site. Advice from Mr Welsh indicates that tomato crops were still being grown when the Welsh family acquired the property in 1967.

The horticultural and banana activities conducted in the period prior to the early 1970's included the use of early generation chemical sprays and fertilisers. Many of these chemicals are persistent in the natural environment and potential chemicals of concern include in the following order from earliest to newest metals based sprays of arsenic and lead, organochlorine pesticides including DDT, dieldrin and aldrin and organophosphate pesticides. Some of the early types of fertilisers used in tomato crops in the Valla area may have also contributed to soil contamination through impurities, such as cadmium, contained in these products.

The Valla area had an active horticultural industry in the period between the early 1920's to the 1960's. The anecdotal information contained in the document *Valla Memories* described the extensive tomato cropping which occurred during this period and mentions the use of arsenic based pesticide sprays on these crops. Control of pests and weeds in these crops would have required the application of considerable quantities of arsenic or lead containing chemicals in this period.

Arsenic residues may remain in soils for many years and even decades after the application of these sprays. Once inorganic arsenic or arsenic oxide based pesticides are applied to soil they revert to arsenates. The arsenate ion is readily sorbed by iron and aluminium components present in soils and it is this reaction which binds and restricts the leaching (downward movement) of arsenic in soil and the availability of arsenic to plants. Consequently these metals may still occur in elevated concentrations in surface soils many decades after the use of these sprays ceased.

Results from limited soil sampling on the Welsh property undertaken in 2002 and 2004 reported elevated levels of arsenic, ranging from 110 to 260 mg/kg, in surface soils above guideline values of 100mg/kg for residential use in NSW. These soil samples were collected on Lot 19 along the southern slopes of the ridgeline to the south of Cow Creek Road. The 1967 aerial photograph shows that these areas were cleared land prior to this time and likely to have previously been used for small crops.

On the frost free hill slopes found on the west of the site banana plantations were established in the post WWII period. A review of aerial photographs shows two areas on the site were used for banana plantations. The oldest banana plantation is located northwest of the site and was established prior to 1956. The 1967 photograph shows that the area of bananas has expanded down slope to the east and into the site on Lot 19. The second banana plantation is more recent and was established in the period between 1967 and 1980 and is located to the south of Cow Creek Road in the west of the site.

The banana plantations observed in the 1967 photograph have the greatest potential for soil contamination as it is likely that persistent chemicals have been used in these areas. Both areas of banana plantations may have potential soil contamination and would require further investigation prior to future development occurring in these areas.

The following AEC are identified on this site, see Figure 4:

1. Current and former banana plantations occurring in the west and north-west.
2. Former horticulture and small crops areas occurring on cleared land in the central parts on flats and low hill slopes.
3. Abandoned small arsenic mine recorded on Lot 19.

4. Potentially naturally occurring mineralisation in soil and rock outcrops on the steeper slopes on the west of site.

6 CONCLUSIONS AND RECOMMENDATIONS

The objective of this Phase 1 ESA was to identify any past or present potentially contaminating activities, provide a preliminary assessment of any site contamination and, if necessary, to provide a basis for a more detailed Phase 2 ESA Investigation.

Lands within the site are currently used for grazing purposes, small crops including beans and banana plantations. There is a long history of small crops being grown on the lowlying flats and hillslopes found on this site, particularly in the period prior to 1967 when this land may have been used for many years to grow tomatoes. In the early 1970's vegetation clearing removed areas of bushland from the lower slopes and opened up more land for establishment of pastures and small crops. The recently cleared areas may not have same potential contamination issues as lands cleared prior to 1967.

Prior to the development of agriculture there was historically prospecting and mining for gold and later for arsenic within the Valla area. A small abandoned arsenic mine is recorded as occurring on Lot 19 although its precise location has not been established.

The potential contaminants of concern for the site include metals, primarily arsenic, and organochlorine and organophosphate pesticides. The elevated levels of arsenic reported in soils sampled by others on Lot 19 requires further investigation to determine the source of this contamination and its extent both spatially and vertically in the soil profile.

The potential health risks of elevated levels of contaminants in soils, particularly arsenic, needs to be carefully considered and assessed in more detail prior to the development of new urban residential landuses on the site.

Based on the findings from the Phase 1 ESA it is recommended that:

- a) When likely areas for planned future urban development are identified that further more detailed environmental investigation is undertaken, targeting the AEC's identified in this investigation;
- b) For those areas of the site mapped as AEC and which are identified as potentially suitable for future urban residential development that a Phase 2 ESA investigation involving the sampling and testing of soils occurs to determine the horizontal and vertical extent of PCOC;
- c) The Phase 2 ESA to also include collection of baseline information on groundwater condition and water quality on the site; and
- d) Prior to development occurring in areas that have been identified in a Phase 2 ESA as having elevated levels of PCOC that a remediation program is developed and implemented and these areas validated to demonstrate that they are now fit for intended future use.

7 REFERENCES

DUAP EPA Managing Land Contamination Planning Guidelines, SEPP 55 – Remediation of Land, 1998

Gadsby B, Valla memories. ISBN 0646345389, 1997

NEPM Guideline on Investigation Levels for Soil & Groundwater, 1999

NSW DEC Guidelines for the NSW Site Auditor Scheme (2nd ed), 2006

NSW DEC Guidelines for Assessing Former Orchards and Market Gardens, 2005

NSW EPA Guidelines for Assessing Banana Plantation Sites, 1997

NSW EPA Guidelines for Consultants Reporting on Contaminated Sites, 1997

NSW EPA Guidelines for Assessing Service Station Sites, 1994

8 LIMITATIONS

The findings contained in this report are the result of discrete/specific methodologies used in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the past and present uses of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

This report does not address issues relating to potentially hazardous building materials or services which may be present on the site. This report does not address geotechnical issues at the site.

This report is to be read in conjunction with enclosed information sheet "Important Information About Your Coffey Environmental Site Assessment".

For and on behalf of Coffey Geotechnics Pty Ltd



Andrew Ballard

Associate Environmental Scientist
Environmental Team Leader – Coffs Harbour

Important information about your **Coffey** Environmental Site Assessment

Uncertainties as to what lies below the ground on potentially contaminated sites can lead to remediation costs blow outs, reduction in the value of the land and to delays in the redevelopment of land. These uncertainties are an inherent part of dealing with land contamination. The following notes have been prepared by Coffey to help you interpret and understand the limitations of your environmental site assessment report.

Your report has been written for a specific purpose

Your report has been developed on the basis of a specific purpose as understood by Coffey and applies only to the site or area investigated. For example, the purpose of your report may be:

- To assess the environmental effects of an on-going operation.
- To provide due diligence on behalf of a property vendor.
- To provide due diligence on behalf of a property purchaser.
- To provide information related to redevelopment of the site due to a proposed change in use, for example, industrial use to a residential use.
- To assess the existing baseline environmental, and sometimes geological and hydrological conditions or constraints of a site prior to an activity which may alter the sites environmental, geological or hydrological condition.

For each purpose, a specific approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible, quantify risks that both recognised and unrecognised contamination pose to the proposed activity. Such risks may be both financial (for example, clean up costs or limitations to the site use) and physical (for example, potential health risks to users of the site or the general public).

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man and may change with time. For example, groundwater levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of the subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project and/or on the property.

Interpretation of factual data

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from indirect field measurements and sometimes other reports on the site are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of Coffey through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered with redevelopment or on-going use of the site. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Important information about your **Coffey** Environmental Site Assessment

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. In particular, a due diligence report for a property vendor may not be suitable for satisfying the needs of a purchaser. Your report should not be applied for any purpose other than that originally specified at the time the report was issued.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other professionals who are affected by the report. Have Coffey explain the report implications to professionals affected by them and then review plans and specifications produced to see how they have incorporated the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel), field testing and laboratory evaluation of field samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Contact Coffey for additional assistance


Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to land development and land use. It is common that not all approaches will be necessarily dealt with in your environmental site assessment report due to concepts proposed at that time. As a project progresses through planning and design toward construction and/or maintenance, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

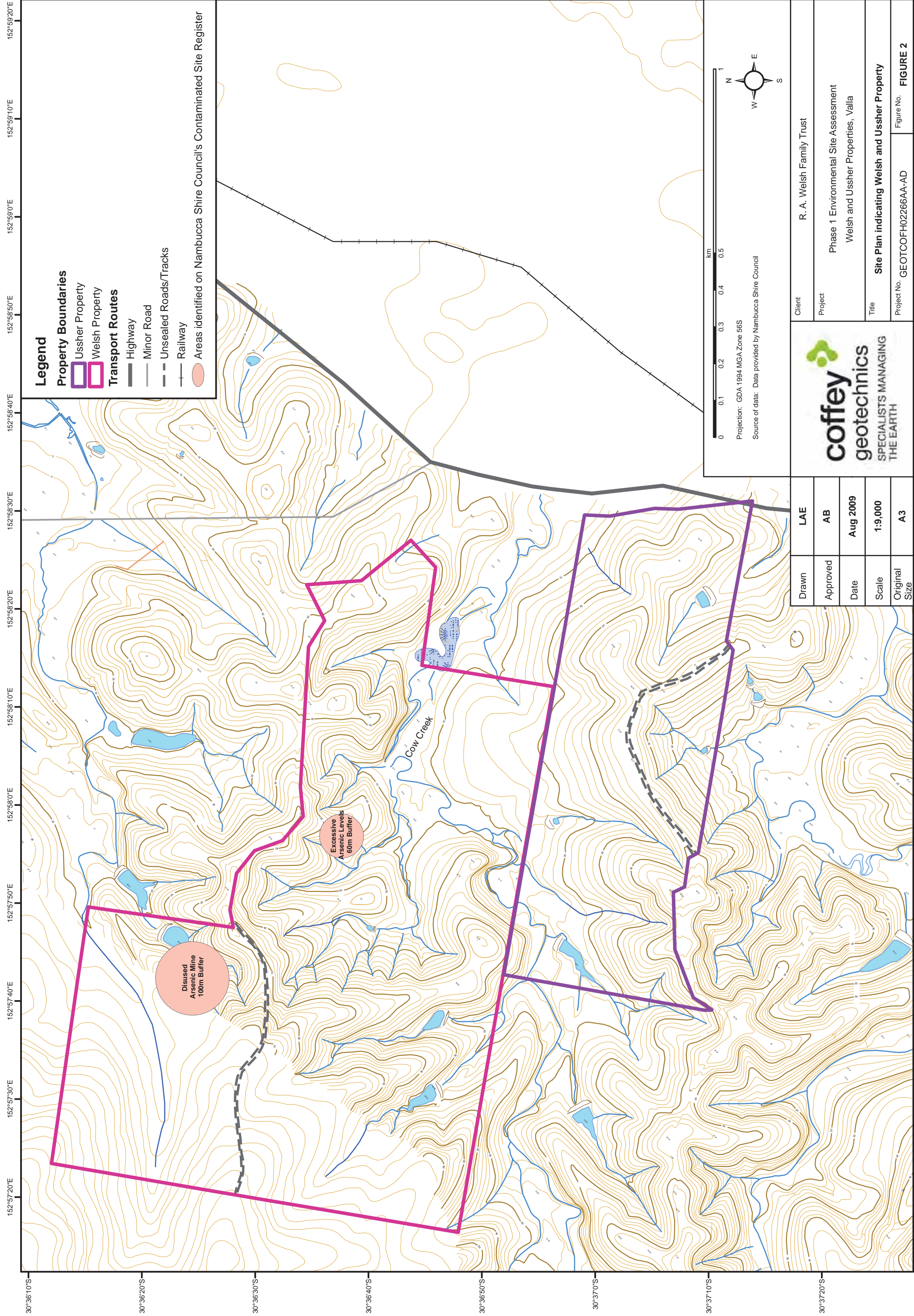
Responsibility


Environmental reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

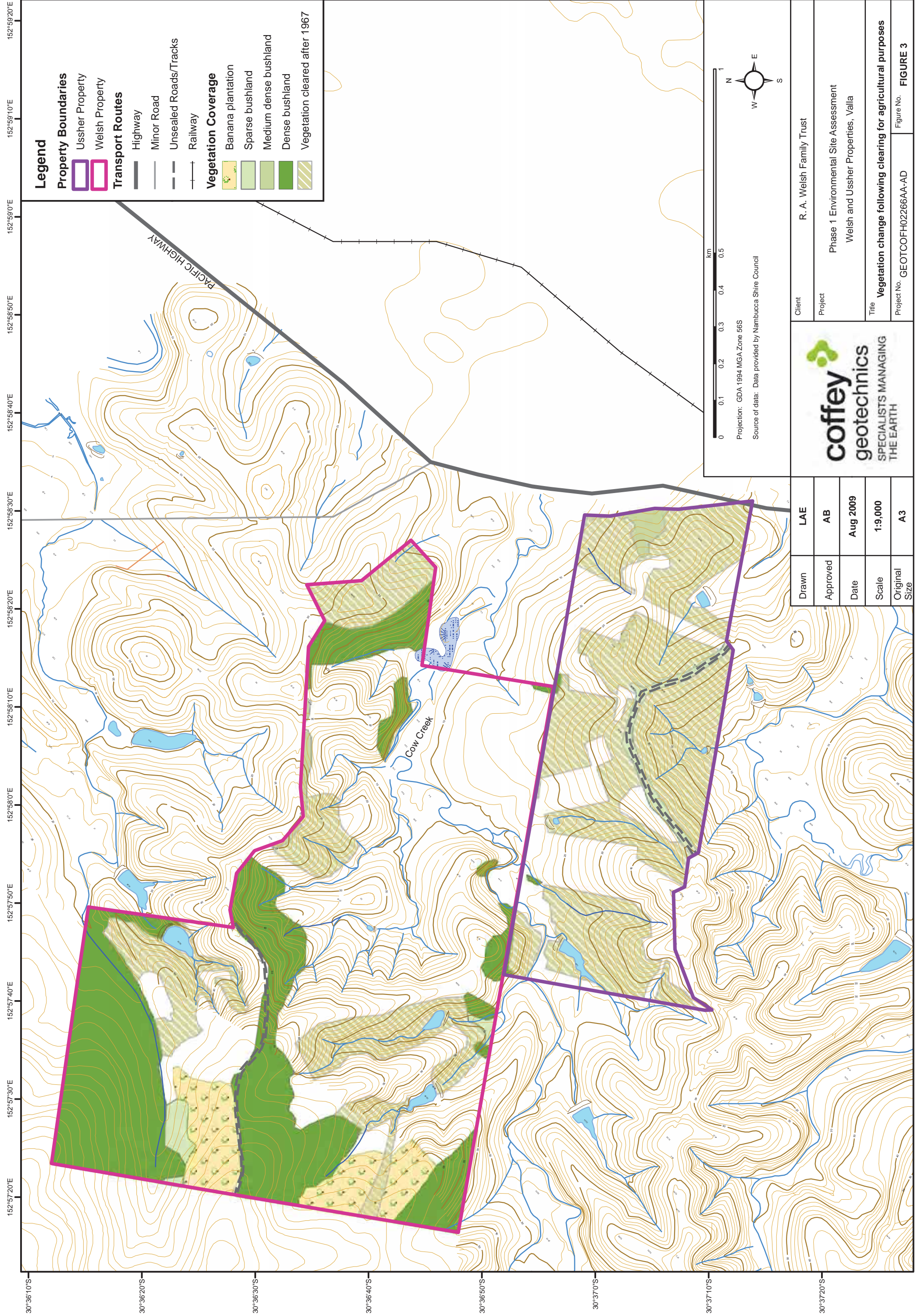
Figures

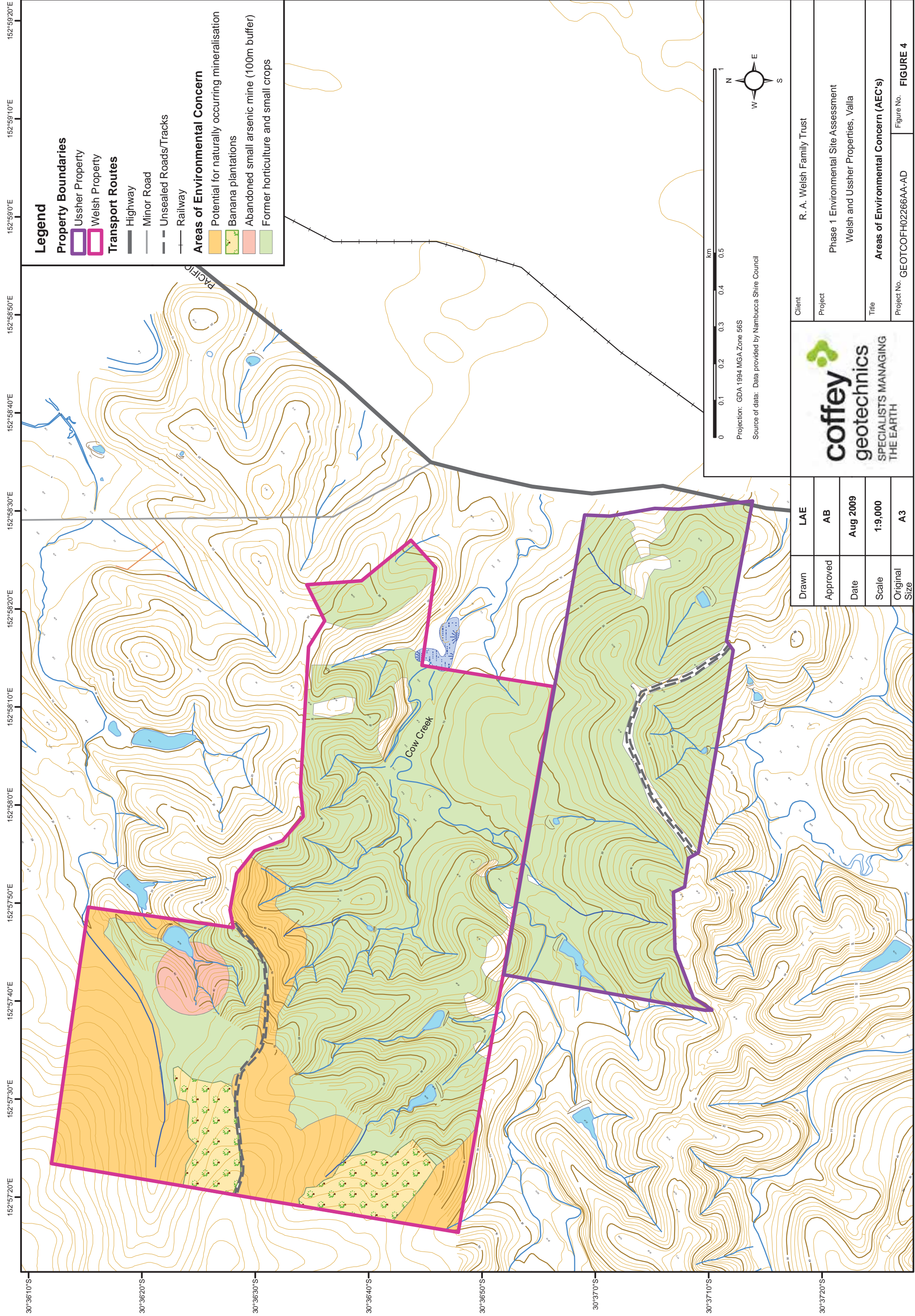


revision		description		drawn	approved	date	Legend: — Approximate Location of Site				drawn	JP	 SPECIALISTS MANAGING THE EARTH		client:	R.A. Welsh Family Trust	
		Image sourced from Google Earth									approved	AB			project:	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla	
											date	August 2009					
											scale	NTS			title:	Site Locality Plan	
							original size		project no: GEOTCOFH02266AA-AD		figure no: FIGURE 1						



 SPECIALISTS MANAGING THE EARTH	Drawn	LAE	Client	R. A. Welsh Family Trust	
	Approved	AB	Project	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla	
	Date	Aug 2009	Title	Site Plan indicating Welsh and Ussher Property	
	Scale	1:9,000	Project No.	GEOTCOFH02266AA-AD	Figure No.
Original Size			FIGURE 2		





Drawn	LAE
Approved	AB
Date	Aug 2009
Scale	1:9,000
Original Size	A3



Client	R. A. Welsh Family Trust
Project	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla
Title	Areas of Environmental Concern (AEC's)
Project No.	GEOTCOFH02266AA-AD
Figure No.	FIGURE 4

Appendix A

Site History Information



Our Ref: D08/091004
Your Ref: Andrew Ballard

15 September 2008

Attention: Mr Ballard
Coffey Geotechnics – Coffs Harbour
PO Box 704
Coffs Harbour NSW 2450

Dear Mr Ballard

RE SITE: Lot 19 DP75560, Lot 1 DP823624, Lot 1 DP253772 Valla NSW 2448.

I refer to your search request of 11th September 2008 requesting information on licences to Keep Dangerous Goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover has not located any records pertaining to the above-mentioned premises.

If you have any further queries, please contact Dangerous Goods Licensing staff on (02) 4321 5500.

A handwritten signature in black ink, appearing to read 'M. A. Jones'.

Brent Jones
Senior Licenceing Officer
Dangerous Goods

WorkCover. **Watching out for you.**



NSW DEPARTMENT OF MINERAL RESOURCES
Suite 4, 175 Rusden St (PO Box 65)
Armidale NSW 2350 Australia
Phone (02) 6776 0300
Fax (02) 6776 0399
www.minerals.nsw.gov.au
ABN: 68 040 288 347

General Manager
Nambucca Shire Council
PO Box 177
Macksville NSW 2447

OUR REF: L01/0460
YOUR REF: DA 2001/237

Dear Sir,

Sullivans prospect disused arsenic mine (Ref MI 0548) Lot 19 in DP 755560, Cow Creek Road, Valla

Thank you for your letter of 1 April 2003 about this matter.

The Department has previously corresponded with GHD Pty Ltd about this matter.

The area of land proposed for rural subdivision contains a small abandoned arsenic mine known as Sullivans prospect. A small amount of arsenic may have been produced at this mine via shafts and some underground developments. No economic mineral resource remains within the subject area.

As a consequence of the previous mining, there is the possibility of mine subsidence and arsenic contamination of the immediate vicinity of this abandoned mine and of waters draining this area. The Department suggests that Council adequately addresses the possible problems of mine subsidence and arsenic contamination surrounding this abandoned mine as part of the development consent process. A geotechnical survey of the mine area, together with geochemical sampling and analyses of the mine site and draining waters should be carried out to determine the adequacy of the proposed 100m buffer around the mine site.

Should you have further questions about this matter, please contact Jim Stroud at our Armidale office on 6770 2112.

Yours faithfully,

J. MacRae 7/4/03

GP MacRae
Acting Manager
Land Use & Resource Assessment

NAMBUCCA SHIRE COUNCIL	
File No.:	DA 2001/237
Rego No.:	2003/4589
RECEIVED	11 APR 2003
Referred to:	DECP
Copies to:	
Action:	File

[Management overview](#)[Site auditor scheme](#)[Guidelines under the CLM Act](#)[Record of EPA notices](#)[Engaging a consultant](#)[Information on gasworks sites](#)[Regulatory Impact Statement - Proposed Underground Petroleum Storage Systems Regulation](#)[Frequently asked questions](#)[More information about land](#)

Search results

Your search for: LGA:
Nambucca
Shire Council

[SearchAgain](#)[RefineSearch](#)

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the [planning process](#).

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... [more search tips](#)

More information about particular sites may be available from:

- The [POEO public register](#)
- The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).



Print-friendly
version

2 July 2008



[Home](#) » [Animals](#) » [Health, disease and pests](#) » [Cattle health and disease](#) » [Cattle tick](#) »

Cattle dip site locator

This search retrieved 3 dip sites.

for more information about each dip site, click on the name below.

Dip name	Road	Town/Locality	Council
MACKSVILLE	PRINCESS STREET	MACKSVILLE	NAMBUCCA
NEAVES	SULLIVANS ROAD	VALLEY VALLEY URUNGA	NAMBUCCA
TAPES	NEWEE ROAD,	VIA NAMBUCCA	NAMBUCCA

Related information:

- [Cattle tick control in NSW](#)

Dip name

Road

Town/Locality

Council

NAMBUCCA

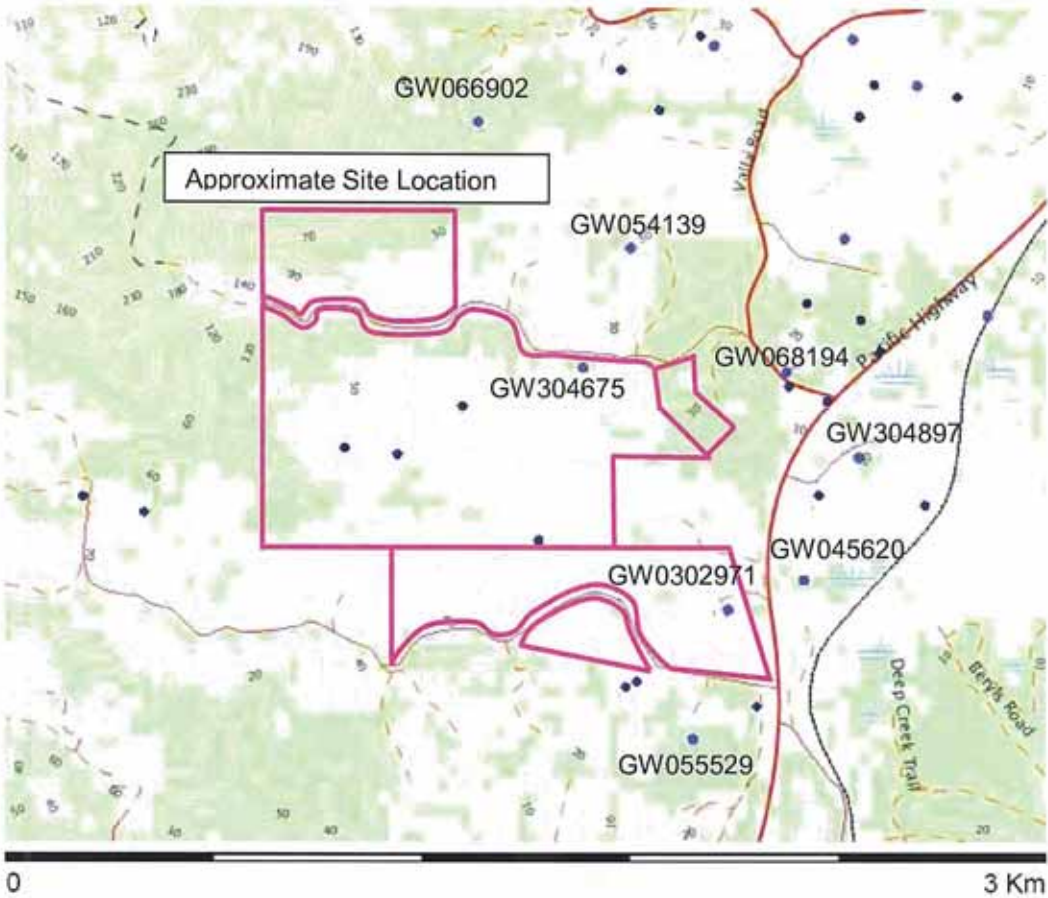
Search

The information contained in this web page is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of NSW Department of Primary Industries or the user's independent adviser.

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Map from the NSW Natural Resource Atlas

Map created with NSW Natural Resource Atlas - <http://nratlas.nsw.gov.au>
Tuesday, November 11, 2008



Legend

Symbol	Layer	Custodian
	Cities and large towns	renderImage: Cannot build image from features
	Populated places	renderImage: Cannot build image from features
	Towns	
	Groundwater Bores	
	Catchment Management Authority boundaries	
	Major rivers	
	Topographic base map	

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW066902

Works Details [\(top\)](#)

GROUNDWATER NUMBER GW066902
LIC-NUM 30BL143623
AUTHORISED-PURPOSES DOMESTIC STOCK
INTENDED-PURPOSES
WORK-TYPE
WORK-STATUS (Unknown)
CONSTRUCTION-METHOD
OWNER-TYPE
COMMENCE-DATE
COMPLETION-DATE
FINAL-DEPTH (metres)
DRILLED-DEPTH (metres)
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY N/A
GWMA - GREAT ARTESIAN BASIN
GW-ZONE - WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL
SALINITY
YIELD

Site Details [\(top\)](#)

REGION 30 - NORTH COAST
RIVER-BASIN 205 - BELLINGER RIVER
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE Est. Contour 8-15M.
NORTHING 6614718.00
EASTING 496509.00
LATITUDE 30 36' 0"
LONGITUDE 152 57' 49"
GS-MAP 0030D3

AMG-ZONE 56
COORD-SOURCE GD.,ACC.MAP
REMARK

Form-A ([top](#))

COUNTY RALEIGH
PARISH VALLEY VALLEY
PORTION-LOT-DP LOT 1 DP551642

Licensed ([top](#))

COUNTY RALEIGH
PARISH VALLEY VALLEY
PORTION-LOT-DP 1 551642

Construction ([top](#))

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE- NO	PIPE- NO	COMPONENT- CODE	COMPONENT- TYPE	DEPTH- FROM (metres)	DEPTH- TO (metres)	OD (mm)	ID (mm)	INTERVAL DETAIL
1	1	Casing	P.V.C.	0.00	0.00	125		

Water Bearing Zones ([top](#))

no details

Drillers Log ([top](#))

no details

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

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Work Requested -- GW054139

Works Details [\(top\)](#)

GROUNDWATER NUMBER	GW054139
LIC-NUM	30BL113857
AUTHORISED-PURPOSES	STOCK
INTENDED-PURPOSES	STOCK
WORK-TYPE	Bore
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Rotary
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1981-02-01
FINAL-DEPTH (metres)	19.20
DRILLED-DEPTH (metres)	19.20
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	- GREAT ARTESIAN BASIN
GW-ZONE	- WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details [\(top\)](#)

REGION	30 - NORTH COAST
RIVER-BASIN	205 - BELLINGER RIVER
AREA-DISTRICT	
CMA-MAP	9436-1N
GRID-ZONE	56/2
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6614164.00
EASTING	497095.00
LATITUDE	30 36' 18"
LONGITUDE	152 58' 11"
GS-MAP	0030D3

AMG-ZONE 56
 COORD-SOURCE GD.,ACC.MAP
 REMARK

Form-A [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP 131

Licensed [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP 131

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
 ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE- NO	PIPE- NO	COMPONENT- CODE	COMPONENT- TYPE	DEPTH- FROM (metres)	DEPTH- TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	(Unknown)	0.00	19.50	115			Driven into Hole
1	1	Opening	Slots	7.50	19.50	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones [\(top\)](#)

FROM- DEPTH (metres)	TO- DEPTH (metres)	THICKNESS (metres)	ROCK- CAT- DESC	S- W- L	D- D- L	YIELD	TEST- HOLE- DEPTH (metres)	DURATION	SALINITY
10.70	15.20	4.50	Fractured			5.05			Good

Drillers Log [\(top\)](#)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.50	1.50	Soil Sand		
1.50	6.00	4.50	Sand		
6.00	9.10	3.10	Shale		
9.10	19.20	10.10	Basalt Water Supply		
9.10	19.20	10.10	Rock Bars Fractured		

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW304675

Works Details [\(top\)](#)

GROUNDWATER NUMBER	GW304675
LIC-NUM	30BL182735
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2004-04-21
FINAL-DEPTH (metres)	30.00
DRILLED-DEPTH (metres)	30.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	PARKINS
GWMA	- HUNTER
GW-ZONE	- WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL	3.00
SALINITY	1100.00
YIELD	1.00

Site Details [\(top\)](#)

REGION	30 - NORTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6613630.00
EASTING	496913.00
LATITUDE	30 36' 36"
LONGITUDE	152 58' 4"
GS-MAP	

AMG-ZONE 56
 COORD-SOURCE GPS - Global Positioning System
 REMARK

Form-A [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP LT 2 DP 739251

Licensed [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP 2 739251

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
 ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE- NO	PIPE- NO	COMPONENT- CODE	COMPONENT- TYPE	DEPTH- FROM (metres)	DEPTH- TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	12.00	195			Rotary Air
1		Hole	Hole	12.00	30.00	170			Down Hole Hammer
1	1	Casing	PVC Class 9	0.00	18.00	140	126		Glued; Seated on Bottom PVC Class 9; Casing - Hand Sawn Slot; SL: 200mm; A: 2mm
1	1	Opening	Slots - Vertical	18.00	30.00	140			Graded; GS: 5- 7mm; Q: .3m ³
1		Annulus	Waterworn/Rounded	15.00	30.00				

Water Bearing Zones [\(top\)](#)

FROM- DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK- CAT- DESC	S- W-L	D- D- L	YIELD	TEST-HOLE- DEPTH (metres)	DURATION	SALINITY
17.50	18.00	0.50				0.50	18.00	0.50	700.00
26.40	27.00	0.60		3.00		0.50	27.00	1.50	1100.00

Drillers Log ([top](#))

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.20	0.20	TOP SOIL		
0.20	1.00	0.80	ORANGE SILTY CLAY		
1.00	2.00	1.00	QUARTZE GRAVELY ORANGE CLAY		
2.00	5.00	3.00	CREAMY SILTY CLAY		
5.00	11.00	6.00	QUARTZE GRAVELLY CREAMY CLAY		
11.00	14.00	3.00	WEATHERED TAN SHALE		
14.00	17.50	3.50	HARD BLUE SHALE		
17.50	18.00	0.50	WATER CUT		
18.00	26.40	8.40	HARD BLUE SHALE		
26.40	27.00	0.60	WATER CUT		
27.00	30.00	3.00	HARD BLUE SHALE		

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW068194

Works Details [\(top\)](#)

GROUNDWATER NUMBER	GW068194
LIC-NUM	30BL140010
AUTHORISED-PURPOSES	DOMESTIC STOCK
INTENDED-PURPOSES	DOMESTIC STOCK
WORK-TYPE	Bore
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Rot. Rev. Circ. Air
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	1989-09-28
FINAL-DEPTH (metres)	31.00
DRILLED-DEPTH (metres)	31.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	- GREAT ARTESIAN BASIN
GW-ZONE	- WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL	7.00
SALINITY	
YIELD	0.50

Site Details [\(top\)](#)

REGION	30 - NORTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6613611.00
EASTING	497694.00
LATITUDE	30 36' 36"
LONGITUDE	152 58' 33"
GS-MAP	

AMG-ZONE 56
 COORD-SOURCE
 REMARK

Form-A [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP LOT 21 DP252230

Licensed [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP 21 252230

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
 ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE- NO	PIPE- NO	COMPONENT- CODE	COMPONENT- TYPE	DEPTH- FROM (metres)	DEPTH- TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	31.00	165			Rotary Air
1	1	Casing	PVC Class 9	0.00	31.00	160			Seated on Bottom
1	1	Opening	Slots - Vertical	19.00	31.00	160			PVC; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones [\(top\)](#)

FROM- DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK- CAT- DESC	S- W-L	D- D- L	YIELD	TEST-HOLE- DEPTH (metres)	DURATION	SALINITY
12.00	15.00	3.00				0.10			
24.00	30.00	6.00		7.00		0.40			

Drillers Log [\(top\)](#)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	2.00	2.00	CLAY LOAM		
2.00	12.00	10.00	CLAY		
12.00	15.00	3.00	SHALE		
15.00	24.00	9.00	COAL SHALE		
24.00	30.00	6.00	QUARTZ & SHALE		
30.00	31.00	1.00	HARD SHALE		

Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW304897

Works Details [\(top\)](#)

GROUNDWATER NUMBER GW304897
LIC-NUM 30BL183160
AUTHORISED-PURPOSES DOMESTIC
INTENDED-PURPOSES DOMESTIC
WORK-TYPE Bore
WORK-STATUS
CONSTRUCTION-METHOD Rotary - Percussion (Down Hole Hammer)
OWNER-TYPE
COMMENCE-DATE
COMPLETION-DATE 2004-10-29
FINAL-DEPTH (metres) 39.00
DRILLED-DEPTH (metres) 39.00
CONTRACTOR-NAME
DRILLER-NAME
PROPERTY NILSON
GWMA - GREAT ARTESIAN BASIN
GW-ZONE - WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL 18.00
SALINITY 200.00
YIELD 0.40

Site Details [\(top\)](#)

REGION 30 - NORTH COAST
RIVER-BASIN
AREA-DISTRICT
CMA-MAP
GRID-ZONE
SCALE
ELEVATION
ELEVATION-SOURCE
NORTHING 6613231.00
EASTING 497973.00
LATITUDE 30 36' 49"
LONGITUDE 152 58' 44"
GS-MAP

AMG-ZONE 56
 COORD-SOURCE
 REMARK

Form-A ([top](#))

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP 10 1052762

Licensed ([top](#))

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP 10 1052762

Construction ([top](#))

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
 ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE- NO	PIPE- NO	COMPONENT- CODE	COMPONENT- TYPE	DEPTH- FROM (metres)	DEPTH- TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.00	195			Rotary Air
1		Hole	Hole	6.00	39.00	175			Rotary - Percussion (Down Hole Hammer)
1	1	Casing	Steel - ERW	0.00	30.00	140	124		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	30.00	39.00	140			Steel - ERW; Casing - Hand Sawn Slot; SL: 200mm; A: 2mm
1		Annulus	Waterworn/Rounded	24.00	39.00				Graded; GS: 3- 6mm; Q: .6m ³

Water Bearing Zones ([top](#))

FROM- DEPTH (metres)	TO- DEPTH (metres)	THICKNESS (metres)	ROCK- CAT- DESC	S-W- L	D- D- L	YIELD	TEST- HOLE- DEPTH (metres)	DURATION	SALINITY
34.00	34.50	0.50		18.00	0.40	39.00	1.50	200.00	

Drillers Log ([top](#))

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.20	0.20	Top soil		
0.20	0.80	0.60	Clay orange		
0.80	24.00	23.20	weathered shale		
24.00	34.00	10.00	shale blue		
34.00	34.50	0.50	water cut		
34.50	39.00	4.50	shale blue		

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Groundwater Works Summary

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Work Requested -- GW045620

Works Details [\(top\)](#)

GROUNDWATER NUMBER	GW045620
LIC-NUM	30BL104254
AUTHORISED-PURPOSES	DOMESTIC STOCK
INTENDED-PURPOSES	DOMESTIC STOCK
WORK-TYPE	Well
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Hand Dug
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1977-01-01
FINAL-DEPTH (metres)	4.00
DRILLED-DEPTH (metres)	0.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	- GREAT ARTESIAN BASIN
GW-ZONE	- WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details [\(top\)](#)

REGION	30 - NORTH COAST
RIVER-BASIN	205 - BELLINGER RIVER
AREA-DISTRICT	
CMA-MAP	9436-1N
GRID-ZONE	56/2
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6612686.00
EASTING	497761.00
LATITUDE	30 37' 6"
LONGITUDE	152 58' 36"
GS-MAP	0030D3

AMG-ZONE 56
 COORD-SOURCE GD.,ACC.MAP
 REMARK

Form-A [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP L2 (123)

Licensed [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP L2 (P+ Port 123)

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
 ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE- NO	PIPE- NO	COMPONENT- CODE	COMPONENT- TYPE	DEPTH- FROM (metres)	DEPTH- TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	Concrete Cylinder	0.00	4.00	1200			(Unknown)

Water Bearing Zones [\(top\)](#)

FROM- DEPTH (metres)	TO- DEPTH (metres)	THICKNESS (metres)	ROCK- CAT-DESC	S- W-L	D- D- L	YIELD	TEST- HOLE- DEPTH (metres)	DURATION	SALINITY
0.00	0.00	0.00	(Unknown)	0.00		0.00			(Unknown)

Drillers Log [\(top\)](#)

no details

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Groundwater Works Summary

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Work Requested -- GW302971

Works Details [\(top\)](#)

GROUNDWATER NUMBER	GW302971
LIC-NUM	30BL179170
AUTHORISED-PURPOSES	DOMESTIC STOCK
INTENDED-PURPOSES	DOMESTIC STOCK
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	
FINAL-DEPTH (metres)	36.60
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	" USSHER'S "
GWMA	- GREAT ARTESIAN BASIN
GW-ZONE	- WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL	
SALINITY	
YIELD	1.60

Site Details [\(top\)](#)

REGION	30 - NORTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6612556.00
EASTING	497470.00
LATITUDE	30 37' 11"
LONGITUDE	152 58' 25"
GS-MAP	

AMG-ZONE 56
COORD-SOURCE
REMARK

Form-A ([top](#))

COUNTY RALEIGH
PARISH VALLEY VALLEY
PORTION-LOT-DP LT 1 DP 253772

Licensed ([top](#))

COUNTY RALEIGH
PARISH VALLEY VALLEY
PORTION-LOT-DP 1 253772

Water Bearing Zones ([top](#))

no details

Drillers Log ([top](#))

no details

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Groundwater Works Summary

For information on the meaning of fields please see [Glossary](#)
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Work Requested -- GW055529

Works Details [\(top\)](#)

GROUNDWATER NUMBER	GW055529
LIC-NUM	30BL120701
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Bore
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1981-07-01
FINAL-DEPTH (metres)	25.30
DRILLED-DEPTH (metres)	25.30
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	- GREAT ARTESIAN BASIN
GW-ZONE	- WARREGO GROUNDWATER SOURCE
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details [\(top\)](#)

REGION	30 - NORTH COAST
RIVER-BASIN	205 - BELLINGER RIVER
AREA-DISTRICT	
CMA-MAP	9436-1S
GRID-ZONE	56/2
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6611978.00
EASTING	497335.00
LATITUDE	30 37' 29"
LONGITUDE	152 58' 20"
GS-MAP	0030D3

AMG-ZONE 56
 COORD-SOURCE GD.,ACC.MAP
 REMARK

Form-A [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP L53 (72)

Licensed [\(top\)](#)

COUNTY RALEIGH
 PARISH VALLEY VALLEY
 PORTION-LOT-DP L53 (P+ Port 72)

Construction [\(top\)](#)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
 ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE- NO	PIPE- NO	COMPONENT- CODE	COMPONENT- TYPE	DEPTH- FROM (metres)	DEPTH- TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	P.V.C.	0.00	25.90	115			Driven into Hole
1	1	Opening	Slots	7.70	25.90	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones [\(top\)](#)

FROM- DEPTH (metres)	TO- DEPTH (metres)	THICKNESS (metres)	ROCK- CAT- DESC	S- W- L	D- D- L	YIELD	TEST- HOLE- DEPTH (metres)	DURATION	SALINITY
7.60	9.10	1.50	Fractured			0.39			(Unknown)
15.20	18.30	3.10	Fractured			0.52			(Unknown)

Drillers Log [\(top\)](#)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	8.50	8.50	Clay		
8.50	25.30	16.80	Shale	Water Supply	

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

ADVANCE LEGAL SEARCH PTY LIMITED

(ACN 077 067 068)

ABN 49 077 067 068

PO Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

09 July 2008

COFFEY GEOTECHNICS Pty Ltd
PO Box 704
COFFS HARBOUR NSW 2450

Attention: Andrew Ballard

RE:

**Welsh & Ussher
Valla – Nambucca Heads
GEOTCOFH02266AA**

Note 1: Lot 19 DP 755560
Note 2: Lot 1 DP 823624
Note 3: Lot 1 DP 253772

Note 1:

Current Search

Folio Identifier 19/755560 (title attached)
Crown Plan 2317 – 1714 (plan herewith)
Dated 04 July 2008
WAYNE ALLAN WELSH
WENDY SUE CHILDS

Title Tree
Lot 19 DP 755560

Folio Identifier 19/755560

Certificate of Title Volume 14270 Folio 10

Certificate of Title Volume 7084 Folio 10

Summary of Proprietor(s)
Lot 19 DP 755560

Year	Proprietor
------	------------

	(Lot 19 DP 755560)
2001 – todate	Wayne Allan Welsh Wendy Sue Childs
<i>(1997 – todate)</i>	<i>(lease to Peter Michael Ballard of part)</i>
<i>(1988 – todate)</i>	<i>(various commercial leases see Historical Folio 19/755560)</i>
1988 – 2001	Robert Allen Welsh, farmer
	(Portion 19 Parish Valley Valley – CTVol 14270 Fol 10)
1980 – 1988	Robert Allen Welsh, farmer
<i>(1988 – 1988)</i>	<i>(lease to Phillip Russell Welsh and Barry Phillip Welsh)</i>
<i>(1984 – 1988)</i>	<i>(lease to Peter Michael Ballard)</i>
<i>(1981 – 1990)</i>	<i>(lease to Maxwell John Higgins & heather Lorraine Higgins of part)</i>
<i>(1980 – 1988)</i>	<i>(lease to Phillip Russell Welsh, banana grower & Bonnie Welsh of part)</i>
	(Portion 19 Parish Valley Valley – Area 336 Acres – CTVol 7084 Fol 99)
1978 – 1980	Robert Allen Welsh, farmer
1967 – 1978	Cyrus Ronald Welsh, farmer Robert Allen Welsh, farmer
1967 – 1967	Henry Thomas Smith, farmer
1967 – 1967	Ronald Alexander Smith, boiler attendant Albert William Smith, farmer Maud Smith, widow
1956 – 1967	Rural Bank of New South Wales, grantee
	(Portion 19 Parish Valley Valley – Area 336 Acres)
Prior – 1956	Crown Land

Note 2:

Current Search

Folio Identifier 1/823624 (title attached)
DP 823624 (plan herewith)
Dated 04 July 2008
WAYNE ALLAN WELSH
WENDY SUE CHILDS

Title Tree
Lot 1 DP 823624

Folio Identifier 1/823624

Crown Road

Summary of Proprietor(s)
Lot 1 DP 823624

Year	Proprietor
	(Lot 1 DP 823624)
2001 – todate	Wayne Allan Welsh Wendy Sue Childs
1994 – 2001	Robert Allen Welsh, farmer
1994 – 1994	State of New South Wales
	(Part Crown Road – Parish Valley Valley)
Prior – 1994	Crown Road

Note 3:

Current Search

Folio Identifier 1/253772 (title attached)
DP 253772 (plan herewith)
Dated 04 July 2008
CARMEL VERA USSHER

Title Tree
Lot 1 DP 253772

Folio Identifier 1/253772

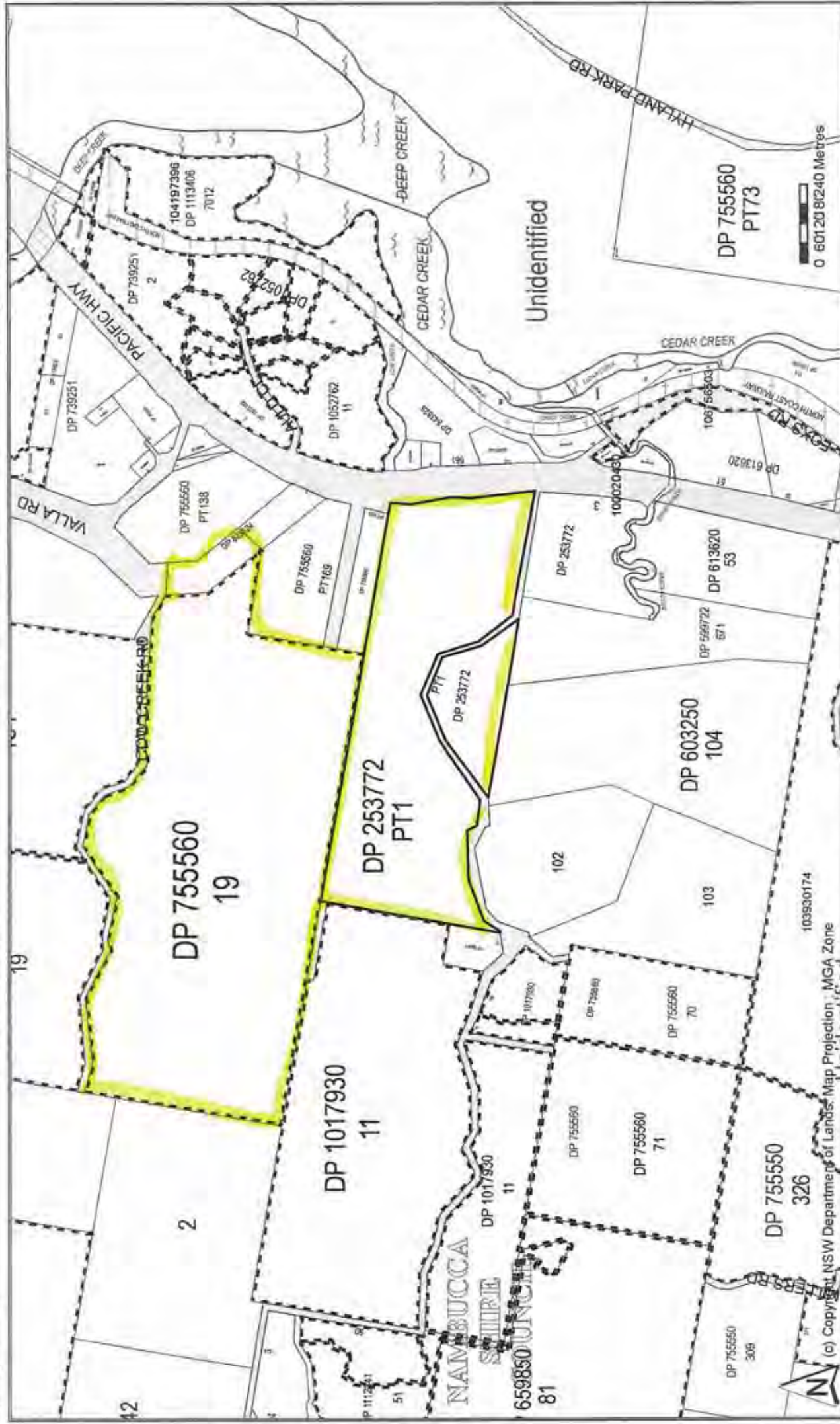
Certificate of Title Volume 13871 Folio 249

Certificate of Title Volume 5419 Folio 238

Crown Land

**Summary of Proprietor(s)
Lot 1 DP 253772**

Year	Proprietor
	(Lot 1 DP 253772)
2004 – todate	Carmel Vera Ussher
1987 – 2004	Hugh McDonald Ussher, banana grower Carmel Vera Ussher
	(Lot 1 DP 253772 – CTVol 13871 Fol 249)
1979 – 1987	Hugh McDonald Ussher, banana grower Carmel Vera Ussher
	(Portion 108 Parish Valley Valley – Area 151 Acres 2 Roods – CTVol 5419 Fol 238)
1970 – 1979	Hugh McDonald Ussher, banana grower Carmel Vera Ussher
1968 – 1970	Ronald Laurie Cowin, farmer
1966 – 1968	Ervin Parkins, farmer Nina Aleta Parkins
1956 – 1966	Sidney Frederick Amis, miner
1956 – 1956	John Frederick Eichmann (jnr), storekeeper James Alfred Noel Eichmann, storekeeper
1944 – 1956	Elizabeth Eichmann, married woman, grantee
	(Portion 1089 Parish Valley Valley – Area 151 Acres 2 Roods)
Prior – 1944	Crown Land



Information Provided Through
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Ph. 0297541590 Fax. 0297541364

Title Search

LEAP Legal
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 19/755560

SEARCH DATE	TIME	EDITION NO	DATE
4/7/2008	8:19 AM	5	22/11/2007

LAND

LOT 19 IN DEPOSITED PLAN 755560
LOCAL GOVERNMENT AREA NAMBUCCA
PARISH OF VALLEY VALLEY COUNTY OF RALEIGH
(FORMERLY KNOWN AS PORTION 19)
TITLE DIAGRAM CROWN PLAN 2317.1714

FIRST SCHEDULE

WAYNE ALLAN WELSH
WENDY SUE CHILDS
AS JOINT TENANTS (TA 8060666)

SECOND SCHEDULE (7 NOTIFICATIONS)

- 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
- 2 LAND EXCLUDES THE ROAD SHOWN IN THE TITLE DIAGRAM
- 3 R468191 RIGHT OF CARRIAGEWAY AFFECTING THE LAND SHOWN SO BURDENED IN THE PLAN WITH R468190
- 4 3610058 LEASE TO PETER MICHAEL BALLARD OF PART BEING LOT 1 IN PLAN WITH 3610058. EXPIRES 1-7-2003. OPTION OF RENEWAL 5 YRS.
- 5 7725345 PROPOSED ACQUISITION PURSUANT TO SECTION 11 LAND ACQUISITION (JUST TERMS COMPENSATION) ACT, 1991 AFFECTING EASEMENT FOR TRANSMISSION LINE IN DP1008558 & DP 1019158
- 6 7972369 EASEMENT FOR OVERHEAD ELECTRICITY TRANSMISSION LINE 45 WIDE AFFECTING THE PART SHOWN SO BURDENED IN DP1008558
- 7 AD580274 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Coffey - Nambucca Heads ALSP

PRINTED ON 4/7/2008

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Historical Search

LEAP Legal
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

4/7/2008 8:25AM

FOLIO: 19/755560

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 14270 FOL 10

Recorded	Number	Type of Instrument	C.T. Issue
12/12/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
7/4/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
18/4/1991		AMENDMENT: TITLE DIAGRAM	
24/12/1993	1846673	LEASE	
24/12/1993	1846674	MORTGAGE OF LEASE	EDITION 1
26/9/1997	3445774	DISCHARGE OF MORTGAGE	
26/9/1997	3445775	TRANSFER OF LEASE	
26/9/1997	3445776	VARIATION OF LEASE	EDITION 2
10/12/1997	3610058	LEASE	EDITION 3
8/3/1999	5656909	DEPARTMENTAL DEALING	
15/12/1999	DP1008558	DEPOSITED PLAN	
24/7/2001	7725345	REQUEST	
6/9/2001	7916486	DEPARTMENTAL DEALING	
27/11/2001	7972369	REQUEST	
27/11/2001	8060666	TRANSMISSION APPLICATION	EDITION 4
22/11/2007	AD580274	MORTGAGE	EDITION 5

*** END OF SEARCH ***

Coffey - Nambucca Heads ALSP

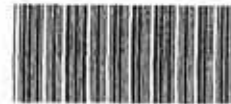
PRINTED ON 4/7/2008

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STATE OF TITLE

PROPERTY ACT, 1900



14270010

Prior Title (Crown Grant)
Vol. 7084 Fol. 99



Vol. 14270 Fol. 10

EDITION ISSUED

30 10 1980

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED

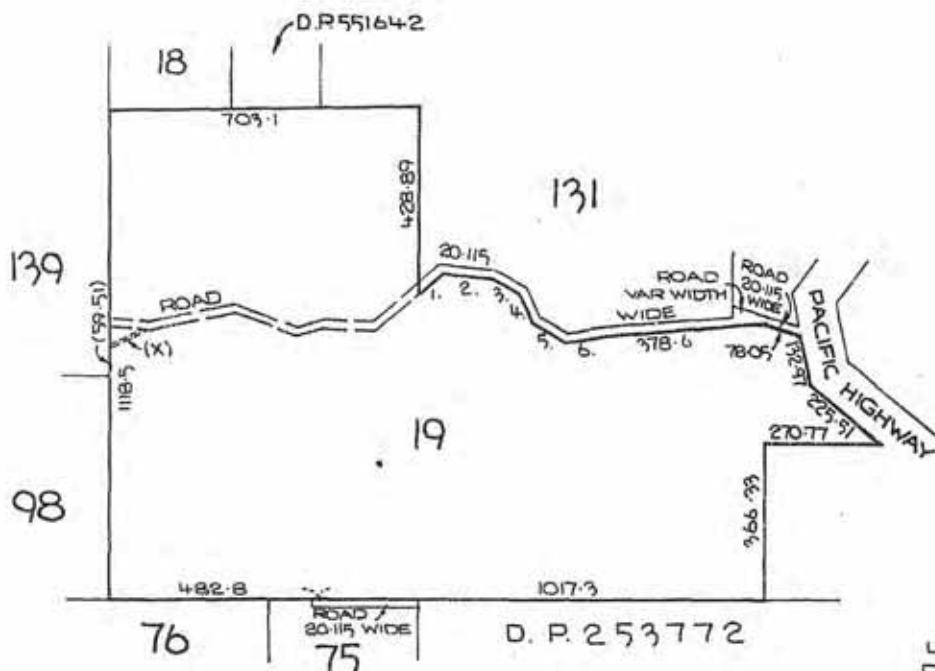


Registrar General.

PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO

LENGTHS ARE IN METRES



(X) RIGHT OF CARRIAGEWAY 4 WIDE - R468191


AREA : 135.9 ha

THIS AREA DOES NOT INCLUDE
THE AREA OF THE ROAD

REDUCTION RATIO 1:12500

ESTATE AND LAND REFERRED TO

LINE	DISTANCE
1.	67.99
2.	100.78
3.	74.23
4.	70.61
5.	96.16
6.	78.86

R468191 
PM

Estate in Fee Simple in Portion 19 in the Shire of Nambucca Parish of Valley Valley and County of Raleigh. EXCEPTING THEREOUT the road shown in the plan hereon and the minerals reserved by the Crown grant.

FIRST SCHEDULE

ROBERT ALLEN WELSH of Nambucca Heads, Farmer.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown grant above referred to.
2. Restrictions on dealings - see section 272 Crown Lands Consolidation Act, 1913
(CP1911/70 Bellingen).
3. R468191/Right of carriage way affecting the land shown so Burdened in the plan
hereon.

B97

/Req: B440036

/Doc: CT 14270-010

/Prt: 03-Jul-2008

(Page 1) VOL. 1






PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOT

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE REGISTRAR GENERAL'S OFFICE

FIRST SCHEDULE (continued)

[illegible]

SECOND SCHEDULE (continued)

INSTRUMENT		PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION
NATURE	NUMBER				
Lease	R974018	of the land in plan with R974018 to Phillip Russell Welsh of Taylor's Ann, Banana Grove and Bernice Welsh, his wife, as Joint Tenants. Date of Expiry 30-6-1988	2-12-1980		
S363461	Lease to Maxwell	John Higgins and Heather Lorraine Higgins, as joint tenants, of premises being	Lot 192 in		
S363461	Lease	plan annexed to Lease S363461. Together with Option of Renewal, Expires 13-10-1990. Registered	6-7-1981		
R974018	Lease	annexed to Lease S363461. Together with Option of Renewal, Expires 13-10-1990. Registered	15-12-1981		
S363461	Lease	Transfer to Peter Michael Ballard. Registered 3.12.1984			Withdrawn X265303
S363461	Lease	Transfer of Lease to Phillip Russell Welsh and Barry Phillip Welsh as joint tenants.			
		Registered 8-1-1988			

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

NAMBUCCA SHIRE

Cancels Part of Plan R11471714 R.

PLAN OF PORTION 19

County of Raleigh Parish of Valley Valley
LAND DISTRICT OF Bellingen LAND BOARD DISTRICT OF Grafton

Resumed Area No

Pastoral Holding, Eastern Division.

Applied for under the

Section of the Crown Lands Act of 1 by

Within the boundaries of the
Orara Gold Field.

Partly within Nambucca Population Area Procl^d 2-10-86

Within R 29126 from Sale for Mining Purposes Notified 18th March 1899 Revoked 13th Oct 1909

Partly within Reserve for Classification Not^d 22 7.08 Revoked 15th December 1909.

Within Reserve for Classification Not^d 13th Oct 1909 Revoked 15th December 1909.

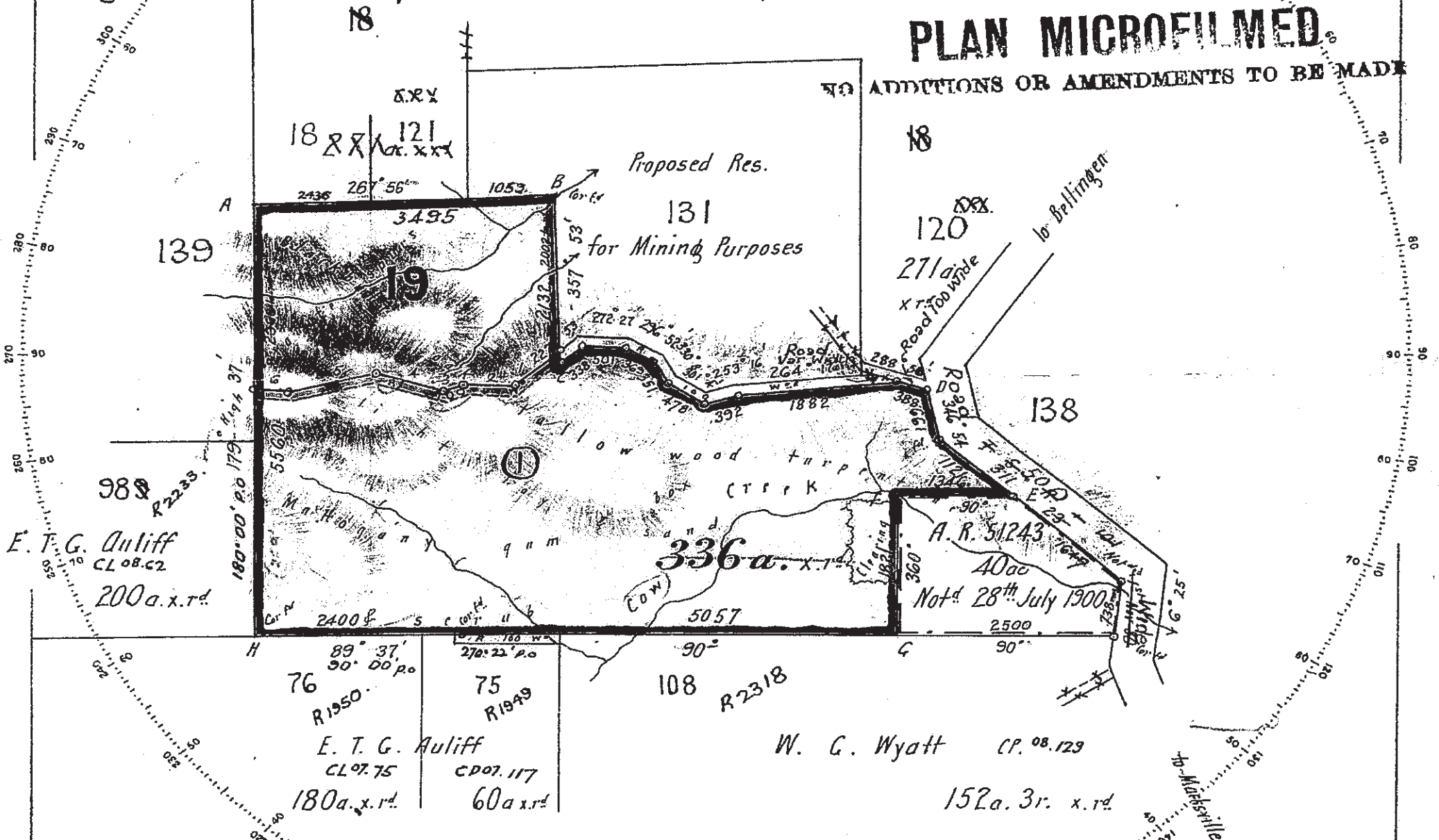
Por 19. Conditional Purchase Lease Area No 218 Capital Value @ £1.2.6 per acre Notified 15th December 1909.

Por 19. C.P.L. 10-2, 3rd Feby, Henry Hales, 336 ac.

① Por 19. Now O.C.P. 11-70 of 9th May (Sec 19, Act '05), Henry Hales. 336 ac. now Rural Bank of New South Wales, Sale completed 18th Sales 42.978

PLAN MICROFILMED

ADDITIONS OR AMENDMENTS TO BE MADE



Azimuth taken from Por 18

Field Book Vol. 9160 Folio 54, 67 to 83.5

Reference to Corners

Corner	Bearing	From	Links	No on Free
JA	64 46	Gum	55.6	18.19
IB	224 44	Blackbutt	30	19
JC	4 50	Gum	23.3	19
JD	98 10	Blackbutt	42.6	19
JE	330 49	Blackbutt	56.3	19
JE	192 31	Brush	35.4	19
JG	154 30	Oak	33.5	19
JH	336 49	Gum	27.8	19.89

Value of Improvements Clearing £5

Reference to Traverse

Line	Bearing	Distance
1	227 51	692 J
2	272 25	617 J
3	252 52	221 J
4	285 46	812 J
5	255 54	1045 J
6	275 37	418 J

I hereby certify that I in person made and on the 22nd Decem^r 1908 completed the survey represented on this plan on which are written the bearings and lengths of the lines measured by me and I declare that the survey has been executed in accordance with the regulations published for the guidance of Licensed Surveyors and the practice of the Department of Lands.

2317-1714
Thomas Chilton Licensed Surveyor

Transmitted to the District Surveyor with my letter of 28th February 1909

Voucher No 2317 Passed £230-10-00 22 8 9
Calculation Book No 2231 Folio 74
Checked and Charted 19.3.09 J. J. Croft
Examined and Plan approved J. J. Croft

Scale 20 Chains to an Inch

R 2317 1714

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Ph. 0297541590 Fax. 0297541364

Title Search

LEAP Legal
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Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/823624

SEARCH DATE	TIME	EDITION NO	DATE
4/7/2008	8:21 AM	4	22/11/2007

LAND

LOT 1 IN DEPOSITED PLAN 823624
AT VALLA
LOCAL GOVERNMENT AREA NAMBUCCA
PARISH OF VALLEY VALLEY COUNTY OF RALEIGH
TITLE DIAGRAM DP823624

FIRST SCHEDULE

WAYNE ALLAN WELSH
WENDY SUE CHILDS
AS JOINT TENANTS (TA 8060666)

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 U443883 LAND EXCLUDES MINERALS - SEE SECTION 171 CROWN LANDS ACT 1989
- 2 AD580274 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Coffey - Nambucca Heads ALSP

PRINTED ON 4/7/2008

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Historical Search

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

4/7/2008 8:26AM

FOLIO: 1/823624

First Title(s): 1/823624

Prior Title(s): PA90000

Recorded	Number	Type of Instrument	C.T. Issue
31/5/1994	DP823624	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
16/6/1994	DP823624	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
17/6/1994	U338424	APPLICATION	
20/7/1994	U443883	REQUEST	EDITION 1
21/11/1994	U803949	TRANSFER	EDITION 2
27/11/2001	8060666	TRANSMISSION APPLICATION	EDITION 3
22/11/2007	AD580274	MORTGAGE	EDITION 4

*** END OF SEARCH ***

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B97

/Req: B440048
/Doc: DL U803949
/Prt: 07-Jul-2008

TRANSFER

Real Property Act, 1900



U
803949 A



\$75.00

Office of State Revenue use only

00*54\$

20/9/1333176/02 00194 0709 04 001733176/02

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

FOLIO IDENTIFIER 1/823624

(B) **LODGED BY**

L.T.O. Box

124E

Name, Address or DX and Telephone

LEGALINK

PARALEGAL SUPPORT SERVICES

LTO BOX 124E

REFERENCE (max. 15 characters): J-CILL-15657

(C) **TRANSFEROR**

THE STATE OF NEW SOUTH WALES

(D) acknowledges receipt of the consideration of \$6,000.00

and as regards the land specified above transfers to the transferee an estate in fee simple

(E) subject to the following ENCUMBRANCES 1. 2. 3.

(F) **TRANSFEEE**

T

ROBERT ALLAN WELSH

-as joint tenants/tenants in common-

(G)

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. DATE 1st November 1994

Signed in my presence by the transferor who is personally known to me.

John Cairds
Signature of Witness

JOHN WILLIAM CAIRDS

Name of Witness (BLOCK LETTERS)

8 HEWITT STREET, CRAFTED 2460

Address of Witness

Robert Welsh
Signature of Transferor

Signature of Transferor

Signed in my presence by the transferee who is personally known to me.

By delegation pursuant to section 180 of the
Crown Lands Act 1989 and with authority under
section 13L of the Real Property Act 1900 from
the Minister administering the Crown Lands Act
1989 on behalf of the State of New South Wales

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

Anne Gillin
Signature of Transferee

ANNE GILLIN

CHECKED BY (office use only)

RAZ
221

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

BOUNDARIES ACCEPTED
IN LAND TITLES OFFICE

AUTHORISED OFFICER

Crown Lands Office Approval

PLAN APPROVED Approved 24-5-94.
 Authorised Officer
 Land District BELLINGHAM
 Paper No. GF93H205 & GF93H206
 Field Book _____ Dates _____

Council Clerk's Certificate

I hereby certify that —

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

"(b) the requirements of section 34B of the † Metropolitan Water, Sewerage and Drainage Act, 1904, as amended, † Hunter District Water, Sewerage and Drainage Act, 1938, as amended

have been complied with by the applicant in relation to the proposed
(insert "new road", "subdivision" or "consolidated lot") set out herein

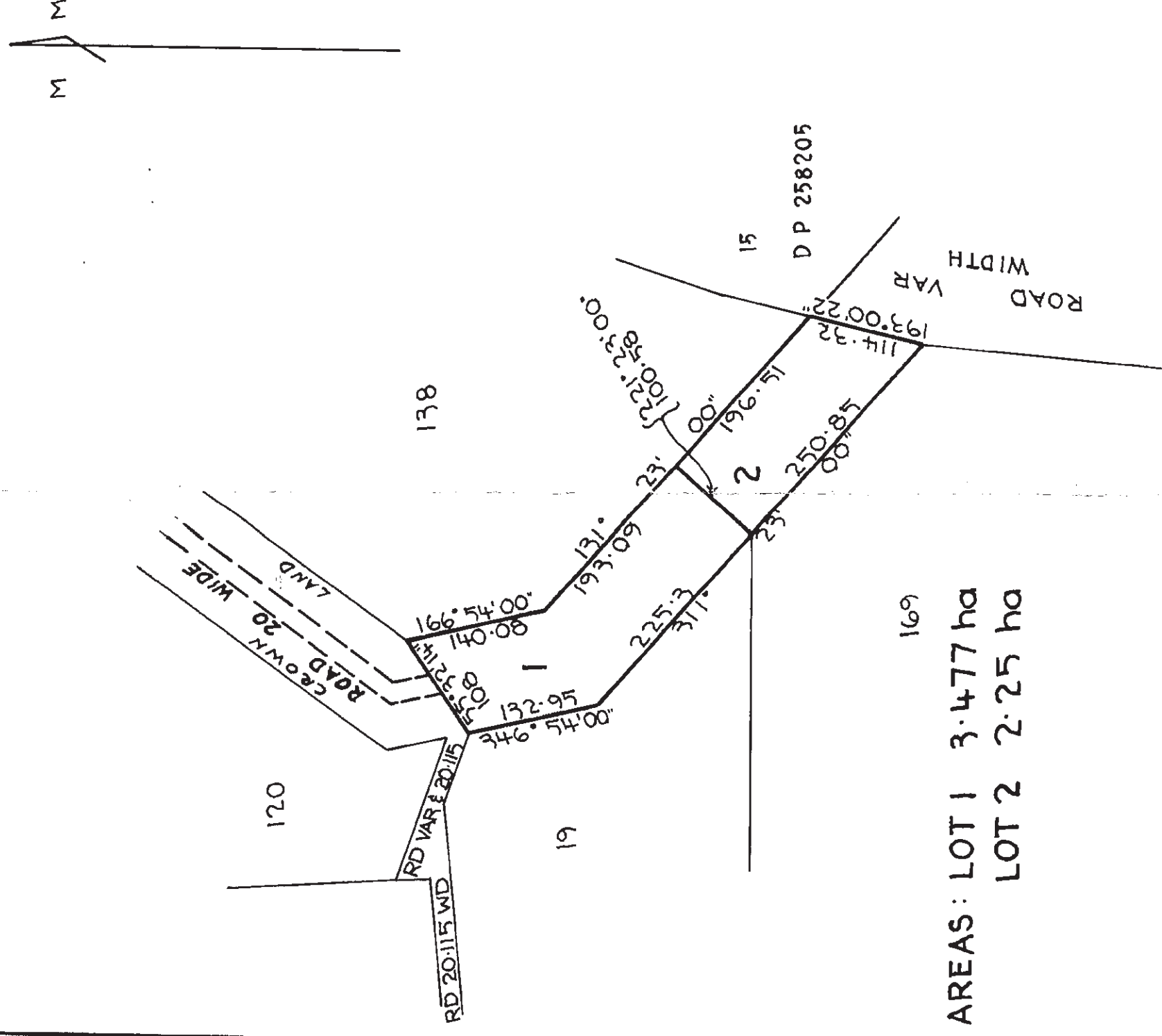
Subdivision No.

Date
(Signature)
Council Clerk
Council File No.

"This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the area of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

† Delete if inapplicable.

INVESTIGATOR'S REFERENCE:



AREAS: LOT 1 3.477 ha
LOT 2 2.25 ha

DP823624

Registered **OKU** 31.5.1994

C.A.:

Title System: CROWN LAND

Purpose: CROWN FOLIO CREATION

Ref. Map: PARISH#

Last Plan: _____

PLAN OF LOTS 1 AND 2

Lengths are in metres. Reduction Ratio 1: 5000

Man./Shire NAMBUCCA
City

Locality: VALLA

Parish: VALLEY VALLEY

County: RALEIGH(67)

Plans used in preparation of ~~survey~~/compilation.

R 4220-1714, R 4070-1714 &
R 2317-1714. & DP 258205

.....
 I, of
 a surveyor registered under the Surveyors Act, 1920, as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulations, 1933 and any special requirements of the Department of Lands, and was completed on
 #
 Signature
 Surveyor registered under Surveyors Act, 1920, as amended.
 Datum Line of Azimuth.
 #Insert date of survey.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

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Title Search

LEAP Legal
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/253772

SEARCH DATE	TIME	EDITION NO	DATE
4/7/2008	8:21 AM	2	10/8/2004

LAND

LOT 1 IN DEPOSITED PLAN 253772
LOCAL GOVERNMENT AREA NAMBUCCA
PARISH OF VALLEY VALLEY COUNTY OF RALEIGH
TITLE DIAGRAM DP253772

FIRST SCHEDULE

CARMEL VERA USSHER (ND AA866988)

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
- 2 T149118 RESUMPTION THE LAND BEING LOT 1 AND 2 IN DP43818 IS NOW PUBLIC ROAD

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Coffey - Nambucca Heads ALSP

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Historical Search

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Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

4/7/2008 8:28AM

FOLIO: 1/253772

First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 13871 FOL 249

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
30/9/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
14/4/1993	I254248	DISCHARGE OF MORTGAGE	EDITION 1
10/8/2004	AA866988	NOTICE OF DEATH	EDITION 2

*** END OF SEARCH ***

Coffey - Nambucca Heads ALSP

PRINTED ON 4/7/2008

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or Title (Crown Grant)
 ume 5419 Folio 238

Vol. 13871 Fol. 249

EDITION ISSUED

7 6 1979

ify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject
 rheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED

Registrar General.

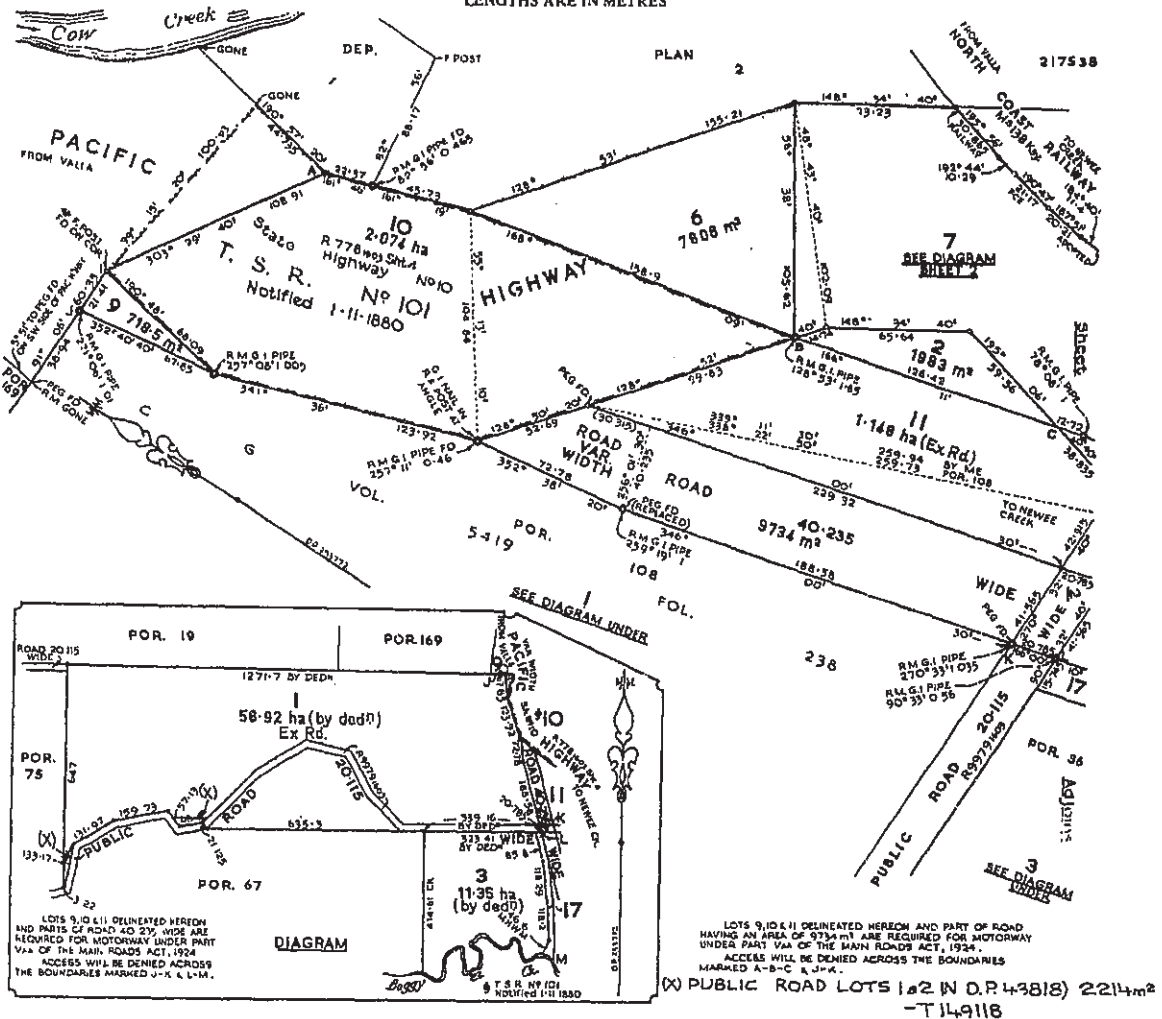


SEE AUTO FOLIO



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 253772 in the Shire of Nambucca Parish of Valley Valley and County of Raleigh. EXCEPTING THEREOUT the minerals reserved by the Crown Grant.

FIRST SCHEDULE

HUGH McDONALD USSHER of Taylors Arm, Banana Grower and CARMEL VERA USSHER, his wife as joint tenants.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

REGISTERED PROPRIETOR

[illegible]

SECOND SCHEDULE (continued)

[illegible]

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

DP253772

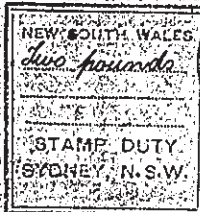


I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 25th day of May, 1977

J.M.R. FILE: 10/317-1138

D.M.R. PLAN: 0010 317 551915

*Urgent
Grant Decisions
£25
R3252
U36*



[LAND GRANT]

CANCELLED
REGISTER BOOK

VOL. 5419 FOL. 238

GRANT OF LAND PURCHASED BY CONDITIONAL SALE.

*6.9.1908/129
Bellingon*

GEORGE VI. by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India:
TO ALL to whom these Presents shall come, Greeting:—

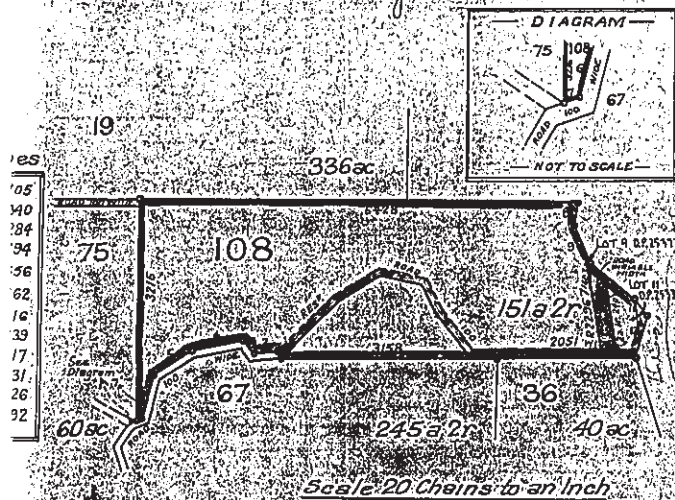
Whereas *Elizabeth Lichmann* the wife of *John Frederick Lichmann* of *Nambucca Heads* in Our State of New South Wales claims to be entitled to the Parcel of Land hereinafter described in virtue of a Conditional Purchase of the same applied for on the *second* day of *July 1908*

under the provisions of the Crown Lands Act of 1884 and a certificate of compliance with the conditions applicable to such purchase has been issued. And Whereas the sum of *one hundred and fifty one pounds ten shillings* Sterling being the purchase money payable for the said Land has been duly paid into the Office of the Treasurer of Our said State And all things required by law to be done to entitle the said *Elizabeth Lichmann*

to a Grant of the fee simple of the said Land subject to the Reservations and Exceptions hereinafter contained, have been done and performed Now Know Ye That for and in consideration of the said sum for and on Our behalf well and truly paid into the Treasury of Our said State before these Presents are issued and of all and singular the premises WE HAVE GRANTED and for Us Our Heirs and Successors Do HEREBY GRANT unto the said *Elizabeth Lichmann* her

Heirs and Assigns Subject to the Reservations and Exceptions hereinafter contained ALL THAT Piece or Parcel of Land in Our said State containing by admeasurement *one hundred and fifty one acres two rods* be the same more or less situated in the County of *Raleigh*

and Parish of *Valley Valley Portion 108* commencing at the North



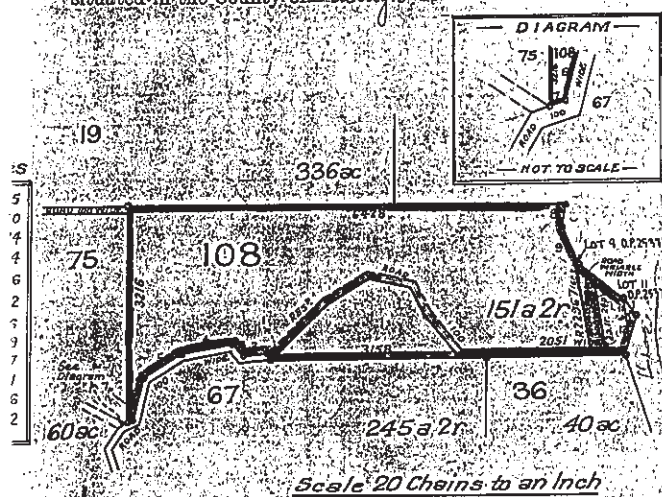
Eastern corner of portion thirty six of forty acres and bounded thence on the South by the Northern boundary of portion thirty six bearing South eighty nine degrees forty eight minutes West twenty chains fifty one links thence by the Northern boundary line of portion sixty seven of two hundred and forty five acres two rods bearing West thirty one chains fifty eight links on the South West by a line crossing a road one chain wide bearing North twenty eight degrees thirty two minutes West one chain five links on the South East by that road dividing this land from portion sixty seven bearing South seventy eight degrees forty six minutes West three chains forty links again on the South West by that road bearing North thirty eight degrees twenty six minutes West two chains eighty four links and again on the South East by that road bearing South seventy eight degrees fifty seven minutes West seven chains ninety four links South fifty eight degrees fifty nine minutes West six chains fifty six links South twelve degrees forty three minutes West six chains sixty two links and thence South seventy four degrees sixteen minutes West sixteen links on the West by the Eastern boundary of portion seventy five of sixty acres and the end of a road one chain wide in all bearing North twenty minutes East thirty two chains sixteen links on the North by part of the Southern boundary of portion

seventy five of sixty acres and a line in all bearing North eighty nine degrees forty minutes East sixty four chains twenty eight links again on the South East by a line bearing South ten degrees eight minutes West three chains thirty nine links on the North East by a line bearing South nine degrees four minutes East six chains seven links South fifty one degrees fifty six minutes East eight chains thirty one links and thence South thirty two degrees fourteen minutes East three chains twenty six links and again on the South East by a line bearing South fourteen degrees eighteen minutes West five chains ninety two links to the point of commencement. Exclusively of a road one chain wide passing through this land in a North Easterly thence in a South Easterly and thence in an Easterly direction along part of the Southern boundary the area of which has been deducted from the total area.

As per Plan in the margin hereof With all the Rights and Appurtenances whatsoever thereto belonging To Wit unto the said *Elizabeth Lichmann*

her Heirs and Assigns for ever. **Provided** Nevertheless AND WE DO HEREBY RESERVE AND EXCEPT unto Us Our Heirs and Successors all minerals which the said Land contains with full power and authority for Us Our Heirs and Successors and such person or persons as shall from time to time be authorized by Us or Them to enter upon the said Land and to search for mine dig and remove the said minerals And also all such parts and so much of the said Land as may hereafter be required for public ways viaducts canals railways tramways dams sewers or drains in over and through the same to be set out by Our Governor for the time being of Our said State or some person by him authorized in that respect And also all sand clay stone gravel and indigenous timber and all other materials the natural produce of the said Land which may be required at any time thereafter for the construction and repair of any public ways bridges or canals or for naval purposes or railways and tramways or any fences embankments viaducts dams sewers or drains necessary for the same together with the right of taking and removing all such materials by such person or persons as may be authorized in that behalf by Our Governor as aforesaid. **Provided** Lastly AND WE DO HEREBY RESERVE for Us Our Heirs and Successors and for Our Governor as aforesaid by such person or persons as shall be by Us or Them or him authorized in that behalf full power to make and conduct through in under upon or over the said Land or any portion thereof all public ways viaducts railways tramways canals and all common or public drains and sewers which may be deemed expedient And the right of full and free ingress egress and regress into out of and upon the said Land for the several purposes aforesaid or any of them. **In Testimony Whereof** We have caused this Our Grant to be Sealed with the Seal of Our said State the words *in the margin of the forty four line hereof having been previously written over and signed*

Hairs and Assigns Subject to the Reservations and Exceptions hereinafter contained ALL THAT Piece or Parcel of Land in Our said State containing by admeasurement one hundred and fifty one acres two rods be the same more or less situated in the County of Ralush and Parish of Valley Valley Portion 108.60 commencing at the Fork



nineteen of three hundred and thirty six acres and a line in all bearing North eighty nine degrees forty minutes East sixty four chains twenty eight links again on the South East by a line bearing South ten degrees eight minutes West three chains thirty nine links on the North East by a line bearing South nineteen degrees four minutes East six chains seventeen links South fifty one degree fifty six minutes East eight chains thirty one links and thence South thirty two degrees fourteen minutes East three chains twenty six links and again on the South East by a line bearing South fourteen degrees eighteen minutes West five chains ninety two links to the point of commencement seclusively of a road one chain wide passing through this land in a North easterly thence in a South easterly and thence in an easterly direction along part of the Southern boundary the area of which has been deducted from the total area.

As per Plan in the margin hereof With all the Rights and Appurtenances whatsoever thereto belonging. In W^{it}h unto the said *Elizabeth Richmann*

Our Heirs and Assigns for ever. **Prohibited Nevertheless AND WE DO HEREBY RESERVE AND EXCEPT unto Us Our Heirs and Successors** all minerals which the said Land contains with full power and authority for Us Our Heirs and Successors, and such person or persons as shall from time to time be authorised by Us or Them to enter upon the said Land and to search for mine dig and remove the said minerals. **And** also all such parts and so much of the said Land as may hereafter be required for public ways viaducts canals railways tramways dams sewers or drains in over and through the same to be set out by Our Governor for the time being of Our said State or some person by him authorised in that respect. **And** also all sand clay stone gravel and indigenous timber and all other materials the natural produce of the said Land which may be required at any time hereafter for the construction and repair of any public ways bridges or canals or for naval purposes or railways and tramways or any fences or embankments viaducts dams sewers or drains necessary for the same together with the right of taking and removing all such materials by such person or persons as may be authorised in that behalf by Our Governor as aforesaid. **Prohibited Nevertheless AND WE DO HEREBY RESERVE for Us Our Heirs and Successors and for Our Governor as aforesaid by such person or persons as shall be by Us or Them or him authorised in that behalf full power to make and conduct through in under upon or over the said Land or any portion thereof all public ways viaducts railways tramways canals and all common or public drains and sewers which may be deemed expedient. And the right of full and free ingress egress and regress into out of and upon the said Land for the several purposes aforesaid or any of them. In Continuing Whereof We have caused this Our Grant to be Sealed with the Seal of Our said State and under our hand and the seal of the said Governor at the City of the said Land this first day of June 1884.**

This Card is cancelled as to name (a card New
Certificates of Title have expired 31-6-1999 for John
Dorland. Plan 253713 no follow 11-6-1999 for John
Fols 2192050 - currently

Witness Our Right Trusty and Well-beloved JOHN DE VERE, BARON WAKEHURST, Knight-Commander of Our Most Distinguished Order of Saint Michael and Saint George, Captain in the Reserve of Officers of Our Territorial Army, Governor of Our State of New South Wales and its Dependencies in the Commonwealth of Australia, at Sydney in Our said State, this *twentieth* day of *April* in the eighth year of Our Reign, and in the year of Our Lord one thousand nine hundred and forty four.

Wakehurst
Governor.

RECORDED and ENROLLED in the Registrar General's Office, at Sydney, in New South

Wales, this 2nd day of June 1944.

W. Wells
Registrar General

No. D 333793 Resumption of land for public road. Notice in Government Gazette dated 3rd November 1944 Folio: 1915 whereby and by operation of the Public Roads Act of 1902 the road shown in the plan catalogued P 22667-1603 in the Department of Lands and colored pink on the plan hereon was declared to be a Public Road. Produced 1st December 1944 and entered 24th July 1945 at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL

John Frederick Eichmann Junior and James Alfred Spel Eichmann both of Nambucca Heads Storekeepers on (Excluding Road shown by Pink Colour on the plan hereon)

now the registered proprietors of the land within described.

See Section 84 Application No. 4119514

Entered 27th January 1956

J. Wells
REGISTRAR GENERAL

4119516 CAVEAT by the Registrar General.

Entered 27th January 1956

J. Wells
REGISTRAR GENERAL

The within Caveat No. 4119516 is hereby withdrawn

Dated 18th June 1956

J. Wells
REGISTRAR GENERAL

No. G 516075 TRANSFER dated 3rd May 1956

from the said John Frederick Eichmann Junior and James Alfred Neill Eichmann to Sydney Frederick Ames of Nambucca Heads Miner (including the road shown by pink colour on the plan hereon) the land within described

Produced 8th June 1956 and entered 18th June 1956 at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL

No. G 516076 MORTGAGE dated 3rd May 1956

from the said Sydney Frederick Ames to the

Erwin Perkins of Nambucca Heads Farmer and Nina Aleta Perkins his wife are

now the registered proprietors of the land within described.

See TRANSFER No. K 437965 dated 25th July 1966 including land shown pink on the plan hereon

Entered 13th October 1966

Jaworski
REGISTRAR GENERAL

No. K 437966 MORTGAGE dated 25th July 1966 to Sydney Frederick Ames of Nambucca Heads Farmer including land shown pink on the plan hereon

Entered 13th October 1966

Jaworski
REGISTRAR GENERAL

MORTGAGE No. K 437966 has been discharged.

See L 47778 Entered 29th May 1968

Jaworski
REGISTRAR GENERAL

Ronald Laurie Cairns of Nambucca Heads Farmer is

now the registered proprietor of the land within described.

See TRANSFER No. L 47779 dated 29th May 1968 (excluding the road colored pink on the plan hereon)

Entered 29th May 1968

Jaworski
REGISTRAR GENERAL

William Marshall Moore of Roth Taylor Arms and Ammunition Co.

in the plan catalogues R.2267-1603 in the Department of Lands
and colored pink on the plan hereon was declared to be a Public Road
Produced 1st December, 1944 and entered 21st July, 1945
at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL



John Frederick Eichmann Junior and James Alfred Joel
Eichmann both of Spaulbush Heads Storekeepers are
Excluding road shown by lines below on the plan hereon

now the registered proprietors of the land within described.
See Section 94 Application No. 9419574
Entered 27 January 1956

J. Wells
REGISTRAR GENERAL



CAVEAT by the Registrar General.
Entered 31 January 1956

J. Wells
REGISTRAR GENERAL



The within Caveat No. 6419516 is hereby withdrawn

Dated 18 June 1956

J. Wells
REGISTRAR GENERAL



No. 6516075 TRANSFER dated 3rd May 1956
from the said John Frederick Eichmann Junior and James
Alfred Joel Eichmann to Sydney Frederick Amis
of Waverley Minor (Excluding the road shown by
pink colour on the plan hereon) the land within described
Produced 8th June 1956 and entered 18th June 1956
at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL



No. 6516076 MORTGAGE dated 3rd May 1956
from the said Sydney Frederick Amis to the
English, Scottish and Australian Bank
Limited (Excluding the road shown by pink colour on
the plan hereon)

Produced 8th June 1956 and entered 18th June 1956
at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL



MORTGAGE No. 6516076 has been discharged.
See K437964 Entered 13th October 1966

J. Wells
REGISTRAR GENERAL



from portions of Namibuccal Head and
and Nina Oleta Parkins his wife are

now the registered proprietors of the land within described.

See TRANSFER No. K437965 dated 25th July 1966
Excluding road shown by pink on the plan hereon

Entered 13th October 1966

J. Wells
REGISTRAR GENERAL



No. K437966 MORTGAGE dated 25th July 1966
to Sydney Frederick Amis of Waverley Farmer
Excluding road shown by pink on the plan hereon

Entered 13th October 1966

J. Wells
REGISTRAR GENERAL



MORTGAGE No. K437966 has been discharged.
See L47778 Entered 29th May 1968

J. Wells
REGISTRAR GENERAL



Ronald Laurie Cowen of Namibuccal Head
Farmer is

now the registered proprietor of the land within described.

See TRANSFER No. L47779 dated 7th April 1968
(Excluding the road colored pink on the plan hereon)

Entered 29th May 1968

J. Wells
REGISTRAR GENERAL



Hugh McDonald Wether of North Taylor Road
Bamunga Creek and Carmel Wether his
wife as joint tenants are

now the registered proprietors of the land within described.

See TRANSFER No. L712709 dated 28th January 1970
Excluding road colored pink on the plan hereon

Entered 10th March 1970

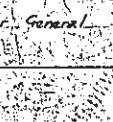
J. Wells
REGISTRAR GENERAL



Transfer No. R.41920 The Commissioner for Main Roads is now the registered proprietor of part of the land
within described being lots 9 and 11. D.P. 253772 is now motorway
Registered 12-3-1970

The land in this
doeing is now
comprised in
Vol. 100
Page 100

J. Wells
REGISTRAR GENERAL



For Cancellation
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RUN: 2

DATE: 5/7/1956

ALTITUDE: 6451M ASL

drawn	ST		client:	R.A. Welsh Family Trust	
approved	AB		project:	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla	
date	Aug 2009		title:	AERIAL PHOTOGRAPH - 1956	
scale	NTS		project no:	GEOTCOFH02266AA-AD	figure no: 1956
original size	A3				



RUN: 3
DATE: 5/7/1967
ALTITUDE: 7741M ASL

drawn	ST		client:	R.A. Welsh Family Trust	
approved	AB		project:	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla	
date	Aug 2009		title:	AERIAL PHOTOGRAPH 1967	
scale	NTS		project no:	GEOTCOFH02266AA-AD	figure no: 1967
original size	A3				



RUN: 2

DATE: 13/7/1980

ALTITUDE: 5212M ASL

drawn	ST		client:	R.A. Welsh Family Trust	
approved	AB		project:	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla	
date	Aug 2009		title:	AERIAL PHOTO 1980	
scale	NTS		project no:	GEOTCOFH02266AA-AD	figure no: 1980
original size	A3				



RUN: 4

DATE: 12/9/1991

ALTITUDE: 4602M ASL

drawn	ST
approved	AB
date	Aug 2009
scale	NTS
original size	A3



client:	R.A. Welsh Family Trust	
project:	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla	
title:	AERIAL PHOTOGRAPH 1991	
project no:	GEOTCOFH02266AA-AD	figure no: 1991



RUN: NA
DATE: 2006
ALTITUDE: NA

drawn	ST		client:	R.A. Welsh Family Trust	
approved	AB		project:	Phase 1 Environmental Site Assessment Welsh and Ussher Properties, Valla	
date	Aug 2009		title:	AERIAL PHOTO 2006	
scale	NTS		project no:	GEOTCOFH02266AA-AD	figure no: 2006
original size	A3				

Appendix B

Laboratory Certificates

12 March 2002

TEST REPORT

Gutteridge Haskins & Davey Pty Ltd
PO Box 6120
COFFS HARBOUR
NSW 2450

Your Reference: Part Lot 19 DP755560,Valla
Report Number: 18661

Attention: Shaun Lawer

Dear Shaun

The following samples were received from you on the date indicated.

Samples:	Qty.	10 Soils
Date of Registration		5/03/02
Date of Receipt of Samples:		05/03/02
Date of Receipt of Instructions:		05/03/02
Date Preliminary Report Faxed:		Not Issued


These samples were analysed in accordance with your written instructions. A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report. Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully

AUSTRALIAN ENVIRONMENTAL LABORATORIES


Tania Notaras
Manager Sydney

NATA Accredited Laboratory

Number:



NATA ENDORSED TEST REPORT
This document shall not be reproduced,
except in full.

Jacinta Hurst
Operations Manager

Acid Extractable Metals in Soil Our Reference: Your Reference	UNITS -----	18661-1 20	18661-2 2E	18661-3 30	18661-4 3E	18661-5 40	18661-6 4E	18661-7 50	18661-8 5E	18661-9 60	18661-10 6E
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Arsenic		160	170	27	15	32	21	9	9	10	14
Lead		12	10	12	9	9	10	11	17	9	13

W

OC Pesticides in Soil Our Reference: Your Reference	UNITS	18661-1 20	18661-2 2E	18661-3 30	18661-4 3E	18661-5 40	18661-6 4E	18661-7 50	18661-8 5E	18661-9 60	18661-10 6E
HCB	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
alpha-BHC	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
gamma-BHC(Lindane)	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Heptachlor	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aldrin	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
beta-BHC	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Oxychlordane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
delta-BHC	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Heptachlor Epoxide	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o,p'-DDE	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
alpha-Endosulfan	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
trans-Chlordane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
cis-Chlordane	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
trans-Nonachlor	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
p,p'-DDE	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dieldrin	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Endrin	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o,p'-DDD	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o,p'-DDT	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
beta-Endosulfan	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
p,p'-DDD	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
p,p'-DDT	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Endosulfan Sulphate	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Endrin Aldehyde	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Methoxychlor	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Endrin Ketone	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Surrogate	%	114	108	103	114	107	108	113	112	104	113

2

Moisture Our Reference: Your Reference	UNITS ----- -----	18661-1 20	18661-2 2E	18661-3 30	18661-4 3E	18661-5 40	18661-6 4E	18661-7 50	18661-8 5E	18661-9 60	18661-10 6E
Moisture	%	18	23	16	14	21	22	24	24	15	17

Method ID	Methodology Summary
SEM-004	Arsenic - Determination of Arsenic by Continuous Hydride Generation Atomic Absorption Spectroscopy. Based on APHA 20th ED, AS3641.1-1989; Varian Publications No. AA38, 1983, AA56, 1986.
SEM-001	Metals - Determination of various metals using Air / Acetylene Flame Atomic Absorption Spectroscopy. Based on APHA 20th ED, 3111A, C.
SEO-005	OC/OP/PCB - Determination of a suite of Organochlorine Pesticides, Chlorinated Organo-phosphorus Pesticides and Polychlorinated Biphenyls (PCB's) by sonication extraction using dichloromethane for waters or acetone / hexane for soils followed by Gas Chromatographic separation with Electron Capture Detection (GC/ECD). Based on USEPA 3510,3550,8140, 8080. The surrogate spike used is 2,4,5,6-Tetrachloro-m-xylene.
SEP-001	Air Dry - Cover air drying at 40 C, moisture content at 103 C - 105 C, wet slurring, compositing and preparation of a 1:5 soil suspension.

✓

QUALITY CONTROL Acid Extractable Metals in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base+Duplicate+RPD	Spike Sm#	Matrix Spike % Recovery Duplicate+RPD
Arsenic	mg/kg	5	SEM-004	<5	18661-1	160 150 RPD: 6	18661-2	100 93 RPD: 7
Lead	mg/kg	5	SEM-001	<5	18661-1	12 12 RPD: 0	18661-2	96 94 RPD: 2
QUALITY CONTROL OC Pesticides in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base+Duplicate+RPD	Spike Sm#	Matrix Spike % Recovery Duplicate+RPD
HCB	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>alpha</i> -BHC	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>gamma</i> -BHC(Lindane)	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
Heptachlor	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	108 109 RPD: 1
Aldrin	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	104 104 RPD: 0
<i>beta</i> -BHC	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
Oxychlorthane	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>delta</i> -BHC	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	109 110 RPD: 1
Heptachlor Epoxide	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>o,p'</i> -DDE	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>alpha</i> -Endosulfan	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>trans</i> -Chlordane	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>cis</i> -Chlordane	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>trans</i> -Nonachlor	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>p,p'</i> -DDE	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
Dieldrin	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	105 104 RPD: 1
Endrin	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>o,p'</i> -DDD	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>o,p'</i> -DDT	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>beta</i> -Endosulfan	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>p,p'</i> -DDD	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
<i>p,p'</i> -DDT	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	116 117 RPD: 1
Endosulfan Sulphate	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	113 115 RPD: 2
Endrin Aldehyde	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
Methoxychlor	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
Endrin Ketone	mg/kg	0.1	SEO-005	<0.10	18661-1	<0.10 <0.10	18661-2	Nil Spike
Surrogate	%		SEO-005	114	18661-1	114 104 RPD: 9	18661-2	106 103 RPD: 3

2

QUALITY CONTROL	UNITS	PQL	METHOD	Blank
Moisture	%		SEP-001	[NT]

W

Result Codes

[INS] : Insufficient Sample for this test
 [NR] : Not Requested
 [NT] : Not tested

[HBG] : Results not Reported due to High Background Interference
 * : Not part of NATA Registration
 [N/A] : Not Applicable

Result Comments

Date Organics extraction commenced: 8/3/02
 NATA Accreditation No. 2562

Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.

Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 20 samples.

Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.

Surrogate Spike: Added to all samples requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.

Internal Standard: Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments. **Control Standards:** Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.

Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

Statistical Analysis of QC Data: Quality control data is plotted on control charts using the APHA procedure with warning and control limits at 2 and 3 standard deviations respectively.

11

Appendix C Chain of Custody Form

Investigator (name, address, ph & fax nos.) Contact person:				GAO P/L 186522900/FAX: 665260021 SHAWN LAWLER				Sample matrix				Sample preservation				Analysis													
Site (name, address, ph & fax nos.) Contact person:				Part Lot 19 DP T55560, Cow Creek Rd, Valla				WATER SLUDGE OTHER (SPECIFY) COMPOSITE ICE HNO ₃ /HCl UNPRESERVED OTHER (SPECIFY)				OC LEAD ARSENIC																	
Laboratory (name, address, ph & fax nos.) Contact person:				AEL																									
Courier (name, address, ph & fax nos.) Contact person:				MAYNIES LOGISTICS																									
Sample ID	Laboratory ID	Container	Sampling																										
			Date	Time																									
20	18661-1	G/505	28/02	11 AM																									
2E	2	"	"	11 AM																									
30	3	"	"	11:45																									
3E	4	"	"	11:45																									
40	5	"	"	12:30																									
4E	6	"	"	12:30																									
50	7	"	"	1:15																									
5E	8	"	"	1:15																									
60	9	"	"	2:00																									
6E	10	"	"	2:00pm																									
Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.					Sampler name: (print & signature)																								
Relinquished by: (print & signature) S. LAWLER					Date 28/02					Time 5:00pm					Received by: (print & signature) A. Hill					Date 5/3/02					Time 9 am				
Relinquished by: (print & signature)					Date					Time					Received by: (print & signature)					Date					Time				
Relinquished by: (print & signature)					Date					Time					Received by: (print & signature)					Date					Time				



Australian
Environmental
Laboratories



4 April 2002

TEST REPORT

Gutteridge Haskins & Davey Pty Ltd
PO Box 6120
COFFS HARBOUR
NSW 2450

Your Reference: Part Lot 19, DP 755560, Valla
Report Number: 18873

Attention: Shaun Lawer

Dear Shaun

The following samples were received from you on the date indicated.

Samples:	Qty.	2 Soils
Date of Registration		26/03/02
Date of Receipt of Samples:		26/03/02
Date of Receipt of Instructions:		26/03/02
Date Preliminary Report Faxed:		Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

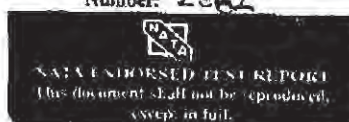
The results and associated quality control are contained in the following pages of this report.
Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.


Should you have any queries regarding this report please contact the undersigned.

Yours faithfully

AUSTRALIAN ENVIRONMENTAL LABORATORIES
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Number: 2562




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Page 1 of 5

PR)CT: Part Lot 19, DP 755560, Valla

) REPORT NO: 18873

Acid Extractable Metals in Soil Our Reference: Your Reference	UNITS ----- -----	18873-1 1	18873-2 2
		33	28
Arsenic	mg/kg		

PK ECT: Part Lot 19, DP 755560, Valla

REPORT NO: 18873

Method ID	Methodology Summary
SEM-004	Arsenic - Determination of Arsenic by Continuous Hydride Generation Atomic Absorption Spectroscopy. Based on APHA 20th ED, AS3641.1-1989; Varian Publications No. AA38, 1983, AA56, 1986.

PR ECT: Part Lot 18, DP 755560, Valla

REPORT NO: 18873

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base+Duplicate+%RPD	Spike Sm#	Matrix Spike % Recovery Duplicate+% RPD
Arsenic	mg/kg	5	SEM-004	<5	Nil Rep.	Nil Rep.	Batch	97 98 RPD: 1

PRU CT: Part Lot 19, DP 755560, Valla

REPORT NO: 18873

Result Codes

[INS] : Insufficient Sample for this test
 [NR] : Not Requested
 [NT] : Not tested

[HBG] : Results not Reported due to High Background Interference
 : Not part of NATA Registration
 [NA] : Not Applicable

Result Comments

Date Organics extraction commenced: N/A
 NATA Accreditation No. 2562

Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.

Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 20 samples.

Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.

Surrogate Spike: Added to all samples requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.

Internal Standard: Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments. Control Standards: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.

Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

Statistical Analysis of QC Data: Quality control data is plotted on control charts using the APHA procedure with warning and control limits at 2 and 3 standard deviations respectively.



Australian
Environmental
Laboratories

19 December 2002

TEST REPORT

Gutteridge Haskins & Davey Pty Ltd
PO Box 6120
COFFS HARBOUR
NSW 2450

Your Reference: Con Creek Rd, Valla
Report Number: 21380

Attention: Shaun Lawer

Dear Shaun

The following samples were received from you on the date indicated.

Samples:	Qty.	8 Soils
Date of Registration		12/12/02
Date of Receipt of Samples:		12/12/02
- Date of Receipt of Instructions:		12/12/02
Date Preliminary Report Faxed:		Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

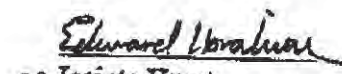
The results and associated quality control are contained in the following pages of this report.
Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully

AUSTRALIAN ENVIRONMENTAL LABORATORIES


Tania Notaras
Manager Sydney


pp Jacinta Hurst
Operations Manager

(Analabs Pty. Ltd.) ACN 004 591 664
Botany Industrial Park, Gate 3 Denison St Mascotville NSW 2036 Australia
Telephone: (02) 9666 1426 Facsimile: (02) 9666 1364

PROJECT: Con Creek Rd, Valla

REPORT NO: 21380

Acid Extractable Metals In Soil Our Reference: Your Reference	UNITS	21380-1 1	21380-2 2	21380-3 3	21380-4 4	21380-5 5
Arsenic	mg/kg	120	110	94	120	170

Acid Extractable Metals In Soil Our Reference: Your Reference	UNITS	21380-6 6	21380-7 7	21380-8 8
Arsenic	mg/kg	130	260	110

ent By: AEL SYDNEY;

612 9666 1364;

19-Dec-02 10:00;

Page 3/5

PROJECT: Con Creek Rd, Valla

REPORT NO: 21380

Method ID	Methodology Summary
SEM-010	Metals - Determination of various metals by ICP following aqua regia digest.

PROJECT: Con Creek Rd, Valla

REPORT NO: 21380

QUALITY CONTROL	UNITS	POL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + % RPD
Acid Extractable Metals in Soil								
Arsenic	mg/kg	3	SEM-010	<3	Nil Rep.	Nil Rep.	Sand	100 99 RPD: 1

PROJECT: Con Creek Rd, Valla

REPORT NO: 21380

Result Codes

[INS] : Insufficient Sample for this test
[NR] : Not Requested
[NT] : Not tested

[HBG] : Results not Reported due to High Background Interference
* : Not part of NATA Registration
[N/A] : Not Applicable

Result Comments

Date Organics extraction commenced: N/A
NATA Accreditation No. 2562

Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.

Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 20 samples.

Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and accuracy of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another run soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.

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Control Standards: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.

Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

Statistical Analysis of QC Data: Quality control data is plotted on control charts using the APHA procedure with warning and control limits at 2 and 3 standard deviations respectively.

DRAFT

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	S Lawer	I Gregson		I Gregson		Dec 02

SOIL TESTS

GHD
24/6/04

Rafael Chemke

Point



Iron-rich
soil

Point

No 1 20m

No 2 80m

No 3 70m

No 4 60m

No 5 10m

No 6 80m

No 7 80m

No 8

No 9 80m

No 10 25m

Dam

our Pole
old

Analysis
stopped
here

Gate



MANAGEMENT
ENGINEERING
ENVIRONMENT

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Appendix G

Aboriginal & European Cultural Heritage Assessment

ABORIGINAL & EUROPEAN CULTURAL HERITAGE ASSESSMENT



WELSH AND USSHER PROPERTIES
VALLA URBAN GROWH AREA

MID NORTH COAST, NSW

Mary Dallas Consulting Archaeologists

August 2010

Report to Bluegrass Nominees on behalf of
R. A. Welsh Family Trust

Executive Summary

An Aboriginal and European Cultural Heritage Assessment has been undertaken by Mary Dallas Consulting Archaeologists for two adjacent parcels of land located along Boggy and Cow Creeks, which are part of Precinct 1 of the Valla Urban Growth Area and are referred to as the Boggy and Cow Creek Precinct.

The area is located northwest of Nambucca Heads on the New South Wales mid north coast. Although the proposed Valla Urban Growth Area is significantly larger than the two private properties which are the subject of this report, the only additional area of land referred to in this report is the former Cow Creek Aboriginal Reserve¹ situated between the two properties. The Valla Urban Growth Area Interim Masterplan Layout dated June 2009 [see **figure 5** p23] has been amended to take the current heritage assessment into account.

The study has involved archaeological survey, background historical and archaeological research and local Aboriginal community consultation. The study has identified two areas of Aboriginal Archaeological Sensitivity which will require further investigation through archaeological test excavations prior to any proposed impacts in these areas, to determine the level of constraint or interpretive opportunity these may represent. These excavations would need to be undertaken by a suitably qualified archaeologist in conjunction with the local Aboriginal community under a National Parks & Wildlife Act 1974 s.87 Aboriginal Heritage Impact Permit.

Outside of these areas no Aboriginal archaeological remains or areas of sensitivity or specific identified potential have been located within the subject land. The study found that the topography of the subject land will have limited or channelled (along suitable ridges and spurs) its use by Aboriginal people in the past and that in many areas historical impacts and/or erosion will have moved/disturbed or destroyed any archaeological traces of that use. The two identified areas of Aboriginal Archaeological Sensitivity are located on relatively flat broad spurs above permanent water and are considered the most likely locations for any intensive use of the area by Aboriginal people in the past and the areas most likely to retain related and/or relatively undisturbed archaeological remains. They are located in areas proposed for larger lot subdivision and an education facility. The future use of these areas may require amendment to the Master Plan [i.e., under s96 of the Environmental Planning and Assessment Act 1979], in the event significant items are located there.

The study also involved research into the cultural and historical Aboriginal significance of the general area, including the presence of the adjacent Cow Creek Aboriginal Reserve and other events (a historically documented tribal fight) and places (a ceremonial ground) which may have been located on or within close proximity to the subject land. Although the exact

¹ The former Cow Creek Aboriginal Reserve was subject to a reconnaissance survey only. The current study reviews some of the material available on the Reserve but this is considered sufficient to provide a preliminary assessment that the Reserve is of high cultural significance to the Aboriginal community and would represent a major constraint to the development and a major opportunity for Interpretation.

Aboriginal & European Cultural Heritage Assessment
Welsh and Ussher Properties
Valla Urban Growth Area

locations of these latter heritage places cannot be pinpointed, it is also unlikely that physical traces of them remain. Their significance is therefore best managed by interpretation, which could be undertaken on site, if considered appropriate by the local Aboriginal community.

The current study reviews some of the material available on the former Cow Creek Aboriginal Reserve but this is considered sufficient to provide a preliminary assessment that the Reserve is of high cultural significance to the Aboriginal community and would represent a major constraint to development and a major opportunity for Interpretation. Any major impact on the former Aboriginal Reserve is likely to be strongly resisted by the Aboriginal community.

Aboriginal people are known to have been buried in the historic period within the Cow Creek Aboriginal Reserve. Although there are conflicting reports as to the exact location, one claim is that they may be in its south western corner. It has therefore been recommended that a 20m buffer zone be established around this area, to avoid adjacent impacts, as a precautionary measure against inadvertent impacts to any human remains. The Valla Urban Growth Area Interim Masterplan Layout [see **figure 5**] excludes this area from development having been specifically amended to reflect the cultural heritage importance of the former Aboriginal Reserve, the reported burials within its boundaries and the strong community associations with the Reserve and its previous residents.

Non-Aboriginal associations with the subject land go back around a century but do not include significant physical remains which require *in situ* preservation, with the exception of two historic pine trees at the site of the original Smith homestead. The remainder of the Smith farm complex is not recommended for preservation but would require archival recording prior to any impacts and other historically documented items (e.g. a diesel engine located along Cow Creek) may require further recording or removal for appropriate storage/display. As with Aboriginal connections to the area, it is also recommended that interpretation of non-Aboriginal associations be undertaken, possibly through street or place naming in the context of any future development.

With these exceptions, there are no Aboriginal or European Cultural Heritage constraints identified to the future subdivision and urban development of the subject land.

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1.0

Introduction

This report has been prepared by Mary Dallas Consulting Archaeologists (MDCA) for John Oliver, Project Manager of Bluegrass Nominees Pty Limited on behalf of the proponents, R. A. Welsh Family Trust. It details the findings of an Aboriginal and European heritage assessment of two parcels of land located within Precinct 1 of the Valla Urban Growth Area referred to as the Welsh and Ussher properties located on the mid north coast of New South Wales (refer **figures 1-5**).

The subject land within the broader Valla Urban Growth Area is located to the northwest of the township of Nambucca Heads, and comprises rural lands that lie west of the Pacific Highway (Highway 1) and are situated within the Boggy Creek and Cow Creek catchments, which feed into Cedar Creek (and ultimately Deep Creek) to the east. Specifically the subject land comprises two irregularly shaped, adjoining parcels of land known as Lot 19 DP 755560 and Lot 1 in DP 823624 (the northern 'Welsh property' set along Cow Creek Road) and Lot 1 DP 253772 (the southern 'Ussher property'; set along Boggy Creek Road).

The Boggy and Cow Creek area has been targeted as an area of future residential growth in accordance with the Nambucca Shire Council's Urban Land Release Strategy since 1996. The two properties assessed for this project represent less than a quarter of the lands identified by that strategy. A preliminary Master Plan was developed in late 2008 which shows broadly how the area might be developed as an urban area with associated infrastructure. An Interim Masterplan Layout was developed in June 2009 in response to the results of the heritage assessment which identified a significant Heritage constraint on an immediately adjoining parcel of land, namely the former Aboriginal Cow Creek Reserve. The Masterplan Layout is shown on **figure 5**.

1.1 Project Scope and Objectives

The purpose of the current study is to identify any European and Aboriginal cultural heritage issues in relation to the subject land and provide appropriate management recommendations for any recorded or potential items of cultural heritage which may occur within the subject land in anticipation of future subdivision.

The current study has included: a fully comprehensive Aboriginal archaeological survey; background research into the Aboriginal history of the area, and into the known and predicted Aboriginal sites of the region and more local area, including discussions with field archaeologists working in immediately adjacent areas; consultation with members of the local Aboriginal community and community organisations; a European historical archaeological survey and background research into local history and previous land use history. The specific aims are outlined below.

1.1.1 Aboriginal Community Consultation

- To undertake Aboriginal community consultation according to the DECCW 2004 Interim Community Consultation Requirements for Applicants [requiring Part 6 approvals] and ensure that the consultation was of a nature that identified their knowledge, interests and concerns in respect to the subject lands.
- To undertake a field survey of the subject land with the Nambucca Local Aboriginal Land Council and other appropriate Aboriginal community representatives as identified by the above public notification process.
- To invite any Aboriginal cultural or historical knowledge about the subject land from the Aboriginal people and organisations consulted as part of the study.
- To incorporate into the assessment process the Aboriginal cultural views, concerns and recommendations provided by the Aboriginal people and organisations consulted as part of the study.

1.1.2 Background Research

- To undertake background research into the location, context and nature of previously recorded Aboriginal and European sites within the subject land and areas immediately surrounding the subject land, through Register and Inventory searches.
- From a targeted review of historical records and databases on Aboriginal and European occupation, previous archaeological and heritage assessments and known archaeology of the region, to identify the types of sites and archaeological evidence which may occur within the subject land and to assess the potential for such evidence to occur within the subject land relative to any future proposed uses or impacts.

1.1.3 Field Survey

- To undertake a fully comprehensive survey for Aboriginal and European heritage sites or relics on the subject land in conjunction with local Aboriginal community representatives.
- To identify and record any Aboriginal and European sites that may be present within the subject land and assess their significance and identify management or conservation requirements.
- To provide an assessment of the potential for undetected or buried sites to occur within the survey area relative to any future proposed uses and possible impacts and provide a management strategy for such areas of potential.

1.1.4 Report

- To prepare a report detailing the results of the field survey and assessment of heritage sensitivity that meets the requirements of the NPWS *Aboriginal Cultural Heritage Standards & Guidelines Kit*² and in accordance with archaeological practice approved by the NSW Heritage Office.
- To formulate a specific set of management options and recommendations to direct future management of the subject land with respect to heritage.

1.2 Aboriginal Community Consultation

The subject land falls within the administrative boundaries of the Nambucca Local Aboriginal Land Council (NLALC) who have a statutory responsibility “to promote the protection of Aboriginal culture and the heritage of Aboriginal persons”³ within their boundaries. The NLALC was notified in writing on the 29th August 2008 at the commencement of the project and advised on the forthcoming field component of the study and invited to participate.

In addition, public notification as per the DECCW 2004 Interim Community Consultation Requirements for Applicants [requiring Part 6 approvals] was undertaken. To this end a call for Expressions of Interest from relevant members of the Aboriginal community was placed as a Public Notice in the Nambucca Valley Guardian News. No Aboriginal person or local organisation responded to the Public Notice in the Nambucca Valley Guardian news. As per the DECCW community consultation guidelines, and in addition to the Nambucca Local Aboriginal Land Council, the following government departments or agencies were contacted in writing and their advice sought on other possible Aboriginal stakeholders: the Registrar of Aboriginal Owners, at the NSW Department of Aboriginal Affairs; the DECCW Northern Region Office; Nambucca Shire Council; and, the New South Wales Native Title Services (now NTS Corp).

The DECCW and the Registrar of Aboriginal Owners advised that two other Local Aboriginal Land Councils might have an interest in the study area, namely, the Unkya LALC at Macksville and the Bowraville LALC at Bowraville. Both these Land Councils were formally invited in writing to participate in the study, however neither responded.

During the course of the study additional Aboriginal people with known links and knowledge of the Cow and Boggy Creek area were also contacted. The DECCW AHIMS database holds records of early site survey in the area undertaken by Aboriginal Elders for the National Parks & Wildlife Service. This was known as the Sacred Sites Survey and was undertaken in this area by Mr Ray Kelly, Mr Harry Buchanan and Mr Gary Williams. Mr Williams, whose mother is a Native Title Claimant for the area, and who is Researcher and Teacher at the Muurrbay

² NPWS DRAFT 1997a

³ Aboriginal Land Rights Act 1983, s52(1)(m).

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Aboriginal Language and Culture Co-operative, had also been the Sites Officer with the Nambucca LALC until relatively recently and had been involved in a number of archaeological surveys conducted in and around the current study area. Gary Williams was contacted prior to the field survey and invited to participate and assist in the identification of the features within the Cow Creek Aboriginal Reserve and other known sites he had been involved in recording previously.

In addition, Mr Victor Buchanan was identified as a local Aboriginal person with direct family links to the Cow Creek Aboriginal Reserve which was located adjacent to the current study area. Mr Buchanan is also an Aboriginal cultural heritage officer with DECCW Northern Region Office at Coffs Harbour and has been involved with heritage matters in that capacity through a current Pacific Highway realignment project which potentially impacts the former Reserve. Mr Buchanan was contacted at the commencement of the project and provided information about the history of the Reserve and the nature of his family connection. Mr Buchanan was invited to attend and/or participate in the survey of the study area (in his capacity as a descendent of the reserve's residents rather than his official DECCW position).

The field survey was conducted on the 7-10th October 2008. Ms Bridget Walker represented the Nambucca LALC on the survey. Victor Buchanan also participated on the 8th and 10th of October. Mr Gary Williams attended from the 7-10th October 2008. The preliminary findings of the survey and possible archaeological management options were discussed onsite with the abovementioned Aboriginal people on 10th October 2008.

During and following the survey the possibility for obtaining further records about the Aboriginal Reserve through State Records NSW (requiring permission via the NSW Department of Aboriginal Affairs) was discussed with Mr Buchanan, who indicated potential support for this to occur. Access the relevant Aborigines Protection Board records via the Department of Aboriginal Affairs requires the permission of the eldest living relative of those people who may be named and discussed in the records. A research request form and covering letter was sent to Mr Buchanan via email for his review on 16th October 2008. Mr Buchanan agreed to try to obtain this permission from his eldest uncle, but he was in poor health at the time and Mr Buchanan was unable to discuss the matter with him. The archival search was therefore unable to be undertaken within the time limits of the current study (as discussed further below).

A draft version of the current report was given to each of the Aboriginal community organisations involved in the study, and they were given an opportunity to review and contribute to a final version of the report. Ms Bridget Walker, Nambucca LALC representative supplied copies of the draft report to a number of Elders and sought their comment. The reports of the Nambucca LALC and Mr Gary Williams are provided in **Appendix 2**. Mr Victor Buchanan was also supplied a draft report and has provided a report with his comments on the heritage recommendations [see **Appendix 2**]. All the Aboriginal Stakeholders support the management recommendations of the current study.

1.3 Legislative and Policy Context

1.3.1 Controls for the Protection of Aboriginal Heritage in NSW

Two principal pieces of legislation provide automatic statutory protection for Aboriginal heritage and the requirements for its management in New South Wales. These are the *National Parks and Wildlife Act* (1974) and the *Environmental Planning and Assessment Act* (1979). The *National Parks & Wildlife Service* (NPWS) now comprises an administration branch of the *Department of Environment and Climate Change*⁴ (DECCW).

The implications of these statutory controls (specifically the NPW Act) within the context of the current development proposal are outlined below.

National Parks & Wildlife Act (1974)

The *National Parks & Wildlife Act* (1974) provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the Aboriginal occupation of NSW) under Section 90 of the Act, and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community) under Section 84. Aboriginal objects are afforded automatic statutory protection in NSW whereby it is an offence to:

'damage, deface or destroy Aboriginal sites without the prior consent of the Director-General of the National Parks and Wildlife Service' (now the DECCW).

The Act defines an Aboriginal 'object' as:

'any deposit, object or material evidence (not being a handicraft for sale) relating to indigenous and non-European habitation of the area that comprises New South Wales, being habitation before or concurrent with the occupation of that area by persons of non-Aboriginal European extraction, and includes Aboriginal remains'.

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is, of special significance to Aboriginal culture.

The DECCW has issued guidelines outlining the preferred structure for archaeological investigations⁵ and reporting⁶. More recently, it has also released interim guidelines for s.87

⁴ Originally known as the National Parks & Wildlife Service and in recent years as the Department of Environment and Conservation. The current title was applied in April 2009.

⁵ NPWS 1997b.

⁶ NPWS 1997c DRAFT.

and s.90 permit applicants under the NPW Act⁷. These interim guidelines stipulate the process for seeking the involvement and response of the Aboriginal community to any proposed impacts to Aboriginal sites under a s.87 or s.90 Aboriginal Heritage Impact Permit. This process requires placing a public advertisement to seek expressions of interest in the project (or more precisely the s. 87 or s.90 permit to be sought) as well as directly notifying local Aboriginal land councils, traditional owner groups and government agencies dealing with Aboriginal communities in the area. A minimum 10 working day period is allowed for registrations of interest. These interim guidelines are currently under review and Aboriginal communities and heritage consultants are awaiting a finalised process which was anticipated in September 2008 but is yet to be delivered.

Environmental Planning & Assessment Act (1979)

In contrast with the NPW Act, the EP&A Act is designed more specifically to cater for heritage issues within the context of new development projects and is closely linked with the process of preparing environmental impact studies. This act has three main parts of direct relevance to Aboriginal cultural heritage. Namely, Part III which governs the preparation of planning instruments, Part IV which relates to development assessment process for local government (consent) authorities and Part V which relates to activity approvals by governing (determining) authorities.

Part III deals primarily with development planning in which sites and places sacred or significant to Aboriginal communities are to be assessed and are to be taken into consideration in initial studies. Planning NSW has produced guidelines on the preparation of planning instruments such as *State Environmental Planning Policies* (SEPP's, REPs and LEPs) that explicitly list Aboriginal sites and places of significance as values which should be assessed as part of initial planning studies.

Part IV deals with decisions to be made within the context of development applications. The *Department of Environment & Climate Change* is an approving body under Part V of the EP&A ACT and will require formal consideration of a variety of cultural and community factors. These may variously include potential impact to significant anthropological, archaeological, cultural and historical values, and these will typically be addressed through a *Review of Environmental Factors* (REF).

Implications of these Requirements

Damage, destruction or removal of any Aboriginal 'places' or 'objects' is only permitted where a Permit or Consent has been issued by the Director-General of the DECCW according to Sections 87 and 90 of the *NSW National Parks & Wildlife Act 1974* (as amended). NPWS Permits and Consents are only granted where sufficient information is supplied in written form

⁷ DECCW 2004.

to the Director-General of the DECCW from Aboriginal stakeholders, archaeologists and developers that demonstrate accuracy and transparency in the site assessment process and the good faith intended by each of these parties in applying for consent to either move, disturb and/or destroy statutorily protected objects.

Best practice advocates that development impact to documented and/or potential sites of Aboriginal cultural heritage sensitivity be avoided where practicable and/or mitigated at the minimum, and that all decisions made for either course of action be made consequent to direct guidance provided by Aboriginal stakeholders.

1.3.2 Controls for the Protection of European Heritage in NSW

The following section outlines the general protection afforded to all relics under current NSW heritage legislation.

The NSW Heritage Act 1977

The Act, defines a 'relic' as:

'any deposit, object or material evidence relating to the settlement of the area that comprises NSW, not being an aboriginal settlement, and which is 50 or more years old'

As a result, sub-surface archaeological features and deposits are afforded automatic statutory protection by the relic's provisions of the NSW Heritage Act 1977.

Sections 139 to 145 of the Act prevent the excavation or disturbance of land for the purpose of discovering, exposing or moving a relic, except by a qualified archaeologist to whom an excavation permit (under section 140) has been issued by the Heritage Council of NSW.

1.4 Authorship and Acknowledgements

This report has been prepared by Mary Dallas, Dan Tuck and Paul Irish.

The authors thank the many individuals who kindly provided information about the area in general and the site specifically including Victor Buchanan, Bridget Walker, Gary Williams, Brenda Gadsby, Clyde Piggott, June Mathews, Wayne Welsh, Carole Welsh, Bryan Ussher and Brian Connolly of the Nambucca Museum. In addition the assistance of Murray Williams of Transgrid and Mr Grant Nelson, Strategic Planner with Nambucca Shire Council was appreciated in supplying essential information on previous archaeological recordings within the subject land which were not available through the DECCW.

1.5 Summary of Recommendations

1.5.1 Aboriginal Heritage Recommendations

The following recommendations are based upon the legal requirements and automatic statutory protection provided to items of Aboriginal heritage under the terms of the *National Parks and Wildlife Act of 1974 (as amended)*, where:

it is an offence to knowingly damage, deface or destroy Aboriginal sites or relics without the prior consent of the Director General of the National Parks and Wildlife Service,

in conjunction with;

the results of the historical research and archaeological investigation of the study site which are documented in this report;

and

The views and concerns expressed by the Aboriginal community representatives as outlined within the appended Aboriginal Cultural Heritage Statements.

It is recommended that:

1. The two identified areas of Aboriginal archaeological sensitivity within the subject land (AAS1 and AAS2 as depicted in **Figure 52** and described in **Section 4.2.5** require archaeological investigation prior to any proposed development impacts to determine the presence/absence, extent and significance of any Aboriginal archaeological remains within these areas as a means of determining appropriate management recommendations for these areas. These areas are defined as containing low to medium archaeological potential but currently have no identified Aboriginal object or artefact present. Such investigations would need to be undertaken by a suitably qualified archaeologist in association with appropriate local Aboriginal stakeholders under an approved NPW Act s.87 Aboriginal Heritage Impact Permit. These investigations may lead to alterations of the Master Plan permissible under s 96 of the EP&A Act 1979 of the detailed design of the proposed development.

2. Consideration should be given to establishing a buffer zone around the former Cow Creek Aboriginal Reserve in recognition of the potential for historical Aboriginal burials to be present immediately adjacent to the subject land in this area. A 20m buffer is suggested as depicted in **Figure 52**. This is considered adequate to ensure that any human remains are not inadvertently disturbed during construction or future use of the current study area. It is further recommended that the Reserve is preserved in a landscape context and if specific impacts are proposed a detailed investigation and significance assessment should be undertaken.

3. Prior to construction onsite, an Interpretation Plan should be prepared which includes both Aboriginal and European heritage. The Interpretation Plan should include appropriate onsite signage developed in consultation with the Aboriginal Stakeholders and could incorporate results of recent archaeological testing within the Aboriginal Reserve area [by the RTA] and

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any conducted within AAS1 and AAS2 as recommended. The Interpretation plan should also specify street names in commemoration of the Aboriginal and European histories of the local area. The Interpretation Plan could also include further archival research of the records associated with the Cow Creek Aboriginal Reserve as discussed in this report, if appropriate and supported by the Buchanan family.

4. A copy of this report should be forwarded to the CEO of the Nambucca LALC and the following community representatives at the contact addresses below.

Ms Louise Robinson
CEO
Nambucca Local Aboriginal Land Council
PO Box 358
Nambucca Heads NSW 2448

Mr Victor Buchanan
c/o Northern Aboriginal Heritage Unit
Department of Environment Climate Change and Water
PO Box 914
Coffs Harbour NSW 2450

Mr Gary Williams
c/o **Murrumbidgee Aboriginal Language and Culture Co-operative**
14 Bellwood Road
Nambucca Heads NSW 2448

5. Two copies of this report should be forwarded to:

Northern Region Archaeologist,
Northern Aboriginal Heritage Unit
Department of Environment Climate Change and Water
PO Box 914
Coffs Harbour NSW 2450

6. One copy of this report should be forwarded to:

The Manager
Aboriginal Heritage Information Management System
Department of Environment Climate Change and Water
P.O. Box 1967
Hurstville NSW 2770

1.5.2 European Heritage Recommendations

The following recommendations acknowledge current heritage planning guidelines (such as those issued by NSW Heritage Council), the Burra Charter and the protection afforded to European heritage relics under the *NSW Heritage Act 1977*, which defines a 'relic' as:

'any deposit, object or material evidence relating to the settlement of the area that comprises NSW, not being an aboriginal settlement, and which is 50 or more years old'

They have been formulated to allow practical heritage management that remembers past use of the place and promotes remembrance of its history into the future.

It is recommended that:

1. There are no major constraints to the proposed subdivision in terms of European cultural heritage.
2. The two pine trees at the entrance to the Welsh (formerly Smith) homestead have landmark qualities and are tangible and identifiable links to the Smith family and their use of the subject land. Consideration should be given to retaining these trees in situ (in their original position).
3. Prior to any redevelopment works the homestead areas on both the Welsh and Ussher properties should be subject to a brief photographic archival recording to NSW Heritage Council standards.⁸ The recording should take in the dwellings, outbuildings and yards and a range of vistas across the properties from homestead areas. The purpose of this is to document the site 'as is' and provide a visual historic record of the former living and working areas prior to transformation of the landscape by redevelopment.
4. The disused A. H. McDonald Imperial Super Diesel engine in creek side scrub below the Welsh homestead may be an item of historical mechanical and/or agricultural interest. It may also constitute an item of 'movable heritage' under the NSW Heritage Act.⁹ Additional research needs to be undertaken to better determine the significance of the item and its appropriate management and/or disposal.
5. The study area includes places that have been the property, and/or home and workplace of a number of well known district families including the Smiths, Eichmanns, Cowins, Welshes and Usshers. This being the case, consideration should be given to using the names of families historically associated with the subject land in the naming of subdivision amenities and utilities such as access roads and parks. This provides a linkage between use of the place in the past and its use in the future

⁸ Refer NSW Heritage Office 2006. *Photographic Recording of Heritage Items Using Film or Digital Capture*. Available at http://www.heritage.nsw.gov.au/docs/info_photographicrecording2006.pdf

⁹ Refer NSW Heritage Office 2004. *Objects in Their Place: An Introduction to Movable Heritage*. <http://www.heritage.nsw.gov.au/docs/objectsinplace.pdf>

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and acknowledges past landholders. The relationships these families had with Aboriginal families should also be commemorated [see also recommendation 3 in Section 1.5.1 pertaining to an Interpretation Plan above].

6. Consideration should also be given to the interpretation of the history of the place in the context of the any new development. Acknowledging the past through the use of signage and other media such as plaques is a way of linking the potential new residents of the urban release area with those who went before them [see also recommendation 3 in Section 1.5.1 pertaining to an Interpretation Plan above].

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Figure 1: Map of the North Coast region
 (Penguin NSW Road Map 2000)

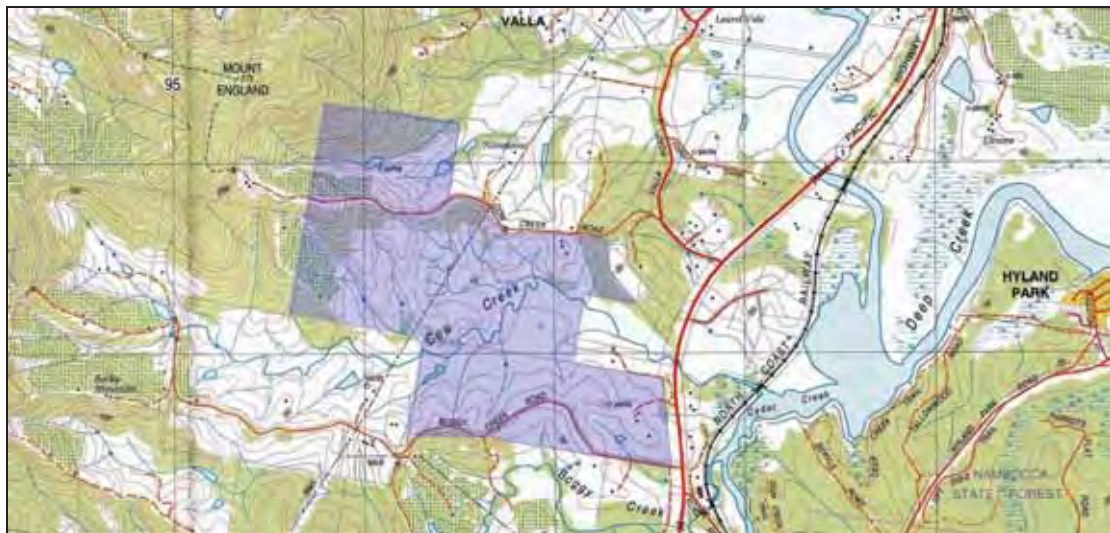


Figure 2: Topographic map showing the study area
 (LPI NSW 1:25 000 Topographic Map Missabotti 9436-1N 2003)

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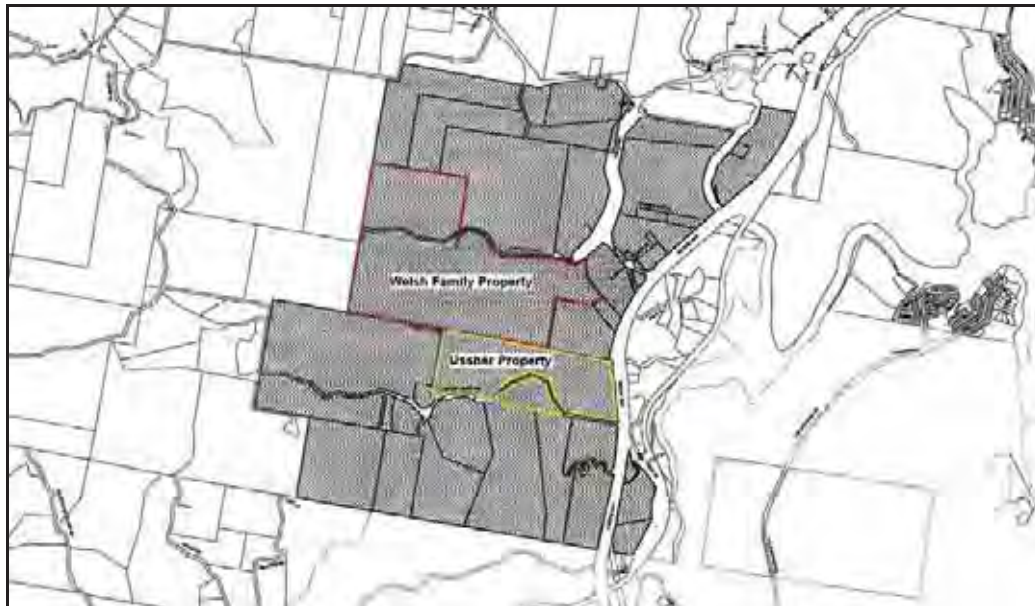


Figure 3: Study area properties (Welsh & Ussher)
(Nambucca Shire Council plan provided by John Oliver)



Figure 4: Study area with Deposited Plan designations
(Nambucca Shire Council plan provided by John Oliver)

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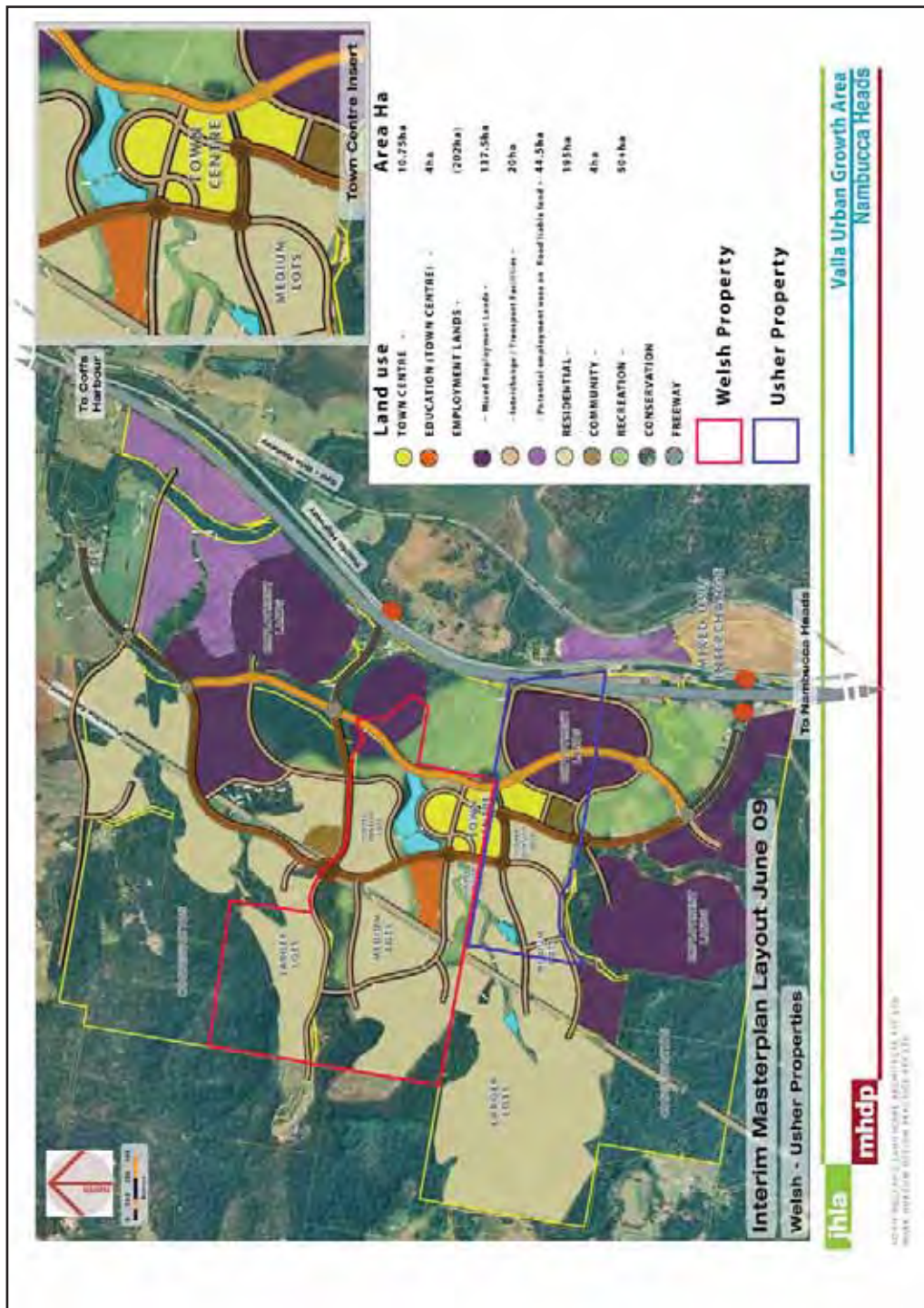


Figure 5: Valla Urban Growth Area - Interim Masterplan Layout June 2009

Plan showing the **Welsh and Ussher Properties** within the overall Growth Area.

[Plan supplied by John Holland Landscape Architects Pty Limited June. 2009]

2.0

Environmental Context

The following section provides details about the location of the study area and its landscape setting.

2.1 Location

The Welsh and Ussher properties within the Valla Urban Growth Area comprises two parcels of land west of the Pacific Highway to the northwest of Nambucca Heads (see **Figures 1 - 5**). Lot 19 DP 755560 and Lot 1 in DP 823624 comprise the northern of the two properties set along Cow Creek Road and owned by the Welsh family and is 350 acres in size. The southern of the two properties, known as Lot 1 DP 253772, is set along Boggy Creek Road and owned by the Ussher family and is approximately 150 acres in size. Both parcels of land are within the Valla area of the Nambucca Shire Council Local Government Area (LGA) and are set within the Parish of Valley Valley, County of Raleigh.

2.2 Landscape

2.2.1 Topography and Hydrology

The study area is set within undulating to hilly rural lands in the Nambucca Heads-Valla Beach hinterland within the catchments of Boggy Creek and Cow Creek. These meandering watercourses drain Mount England and its associated ridgelines to the immediate west and northwest and feed into Cedar Creek (and ultimately Deep Creek) to the east. Dominant landscape features of the area include Mount England and Gordons Knob (to the west and southwest); Cow and Boggy Creeks (which run through the study area); Cedar and Deep Creeks (to the east); and the Nambucca State Forest (to the south).

The subject land itself is generally moderately to steeply sloping, with few flat areas. Two narrow broadly east-west trending ridges upon which Cow Creek and Boggy Creek Roads have been formed, form the watersheds separating the Deep Creek catchment north of Cow Creek Road, the Cow Creek catchment between Boggy Creek Road and Cow Creek Road and the Boggy Creek catchment south of Boggy Creek Road.

In general the subject land in all of its catchments is characterised by a series of relatively narrow spurs flanking minor watercourses at the upper ends of the Cow Creek, Boggy Creek and Deep Creek catchments. The sides of these spurs are generally steeply sloping and not conducive to human movement through the landscape. The spurs themselves, sloping down from the watershed ridgelines described above, form the obvious travel routes through the landscape, though many of them terminate steeply and abruptly above the creeks, making some of the spurs potentially much more useful than others in facilitating movement from the foothills to the coast (a factor in determining potential Aboriginal archaeological sensitivity).

Relatively flat lands are found immediately east of the subject land along the banks of Cow Creek, where an Aboriginal Reserve was established in the late 1800s, possibly partly due to this fact and the reliable supply of freshwater. Other flat areas which may have been suitable for camping are scarce within the subject land and appear generally restricted to spur lines.

The historical use of, and impacts to, the subject lands are detailed in **Section 5.1**, but it is worth noting here that the landscape is predominately cleared and is used for grazing with some cropping in select locations. Bushland and remnant timber where it exists is restricted to the creek and road margins and in the extreme north western corner of the Welsh property, which marks the lower foothills of Mount England.

In the past, the study area was covered with varieties of open forests (on the hills and slopes) with riverine forest dominating the creek lines. These vegetation regimes derived from both local climatic conditions and the underlying soil landscapes of the study area.

2.2.2 Geology and Soils

Geologically, the study area is set within the southern part of the New England Fold Belt in an area referred to as the Nambucca Block. The Nambucca Block comprises folded Carboniferous-early Permian metasediments, which were deformed during the late Permian period. The resultant lithologies are complex due to large-scale geological displacement. Broadly, there are two distinct sedimentary successions – the Kempsey beds and the Nambucca Beds. The Nambucca Beds (CPkx) are characterised by Permian metasediments 3 to 4 metres thick. The lower beds are dominated by diamictite, while the upper beds feature fine-grained sediments. Regolith on the Nambucca Beds typically features weathered rock of weak strength, with strongly weathered silty clays, which are thick on foot slopes and shallow in ridges. Soils on deep regolith tend to be red, strongly structured acidic cays with weak textural contrast. Mica imparts silty textures to the soils; quartz gravels are common as surface lag deposits.

One of the features of the region is the Triassic aged small massive granitoids of the Coastal Granitoid Belt, which have intruded the Nambucca Block in three locations (Valla, Yarrahapinni, and Smoky Cape) and have formed the Yarrahapinni Hills physiographic region. Characteristic granites include adamellite – the super hard pink granite that was used to construct Trial Bay Gaol near South West Rocks. Both Pickett Hill and Mount England are products of the granite intrusion into the Nambucca Block.

The characteristic landform which encompasses the study area is the Nambucca-Bellingen Hills, which comprise undulating to rolling hills on the Permian metasediments of the Nambucca Beds and undulating alluvial floodplains and terraces associated with the Nambucca and Kalang Rivers¹⁰.

¹⁰ Eddie 2000: 2 - 9

The Macksville & Nambucca 1: 100 000 Soil Landscape Sheet indicates that the study area spans a numbers of distinctive alluvial, erosional and residual soil landscapes:

Nambucca River (nr)

The Nambucca River soil landscape (nr) is an alluvial soil landscape formed by the deposition of alluvial sediments along the courses of rivers, streams and creeks. It is the predominant soil landscape of the floodplains and terraces along streams in the Nambucca – Bellingen Hills physiographic region. Within the study area it is restricted to the immediate corridor of Cow Creek.

Characteristics of this landscape include:

- Narrow to moderately broad floodplain and terrace surfaces with minor depressions and drainage lines
- Elevations less than 100 metres and relief less than 10 metres
- Riverine forest vegetation regimes (extensively cleared)
- Regolith of unconsolidated sandy loams and gravels of quaternary alluvium derived from the Nambucca Block (nb)
- Prairie soils, red earths and alluvial soils; occasional sands and gravel beds.¹¹

Pine Creek (pn)

The Pine Creek Soil landscape (pn) is an erosional soil landscape shaped by the erosive action of water running off hill slopes. This type of landscape commonly consists of steep to undulating hill slopes with occasional tors, benches and areas of rock outcrop. It is widespread in the rolling hill country of the Nambucca-Bellingen Hills region. The soil map indicates that this landscape accounts for much of the study area outside of the Cow Creek corridor.

Characteristics of this landscape include:

- Rolling hills with elevations between 20 and 300 metres and slopes 20 and 33 degrees
- Tall open forest vegetation regimes (extensively cleared)
- Shallow regolith; quartz gravels common as surface lag deposits
- Stony soils including gravely red and brown podsolic soils; localised leptic lithosols on some crests and side slopes; deep brown and red earths on foot slopes.¹²

¹¹ Eddie 2000: 156-159

¹² Eddie 2000: 95-98

Other less extensive landscape types that may exist within small areas of the study area include:

Newry (ne)

The Newry erosional/residual soil landscape is a feature of the low coastal and sub-coastal hills of the Nambucca-Bellingen area. Characteristics include:

- Undulating low hills with broad crests and moderately inclined side slopes
- Elevations between 5 and 40 metres with slopes between 5 and 10 degrees
- Red, yellow and brown podsolc soils

This soil landscape exists in the extreme eastern portion of the Welsh property.

Rosewood Road (re); Big Smoky (bs); & Valla (vl)

A combination of erosional, residual and transferral soil landscapes related to Mount England (a granite mountain) and its associated foot slopes.

These soil landscapes may exist in the extreme north western part of the Welsh property.



Figure 6: Macksville & Nambucca 1: 100 000 soil sheet (2000)

(NSW Department of land & Water Conservation)

3.0

Historical Context

The following section provides a brief 'shared' history of the Mid North Coast of New South Wales with an emphasis on the Nambucca-Valla district. As such, it references Aboriginal history (both pre and post-contact) as well as European settlement and landuse. It provides a contextual backdrop for the archaeological and cultural heritage assessment of the Boggy and Cow Creek Precinct.

Methodology

This history has been formulated from a review of existing reports and publications, and from the results of research conducted specifically for this project.

Resources and archives investigated included:

- State Library of New South Wales (SLNSW)
- State Records of New South Wales (SRNSW)
- DECCW Aboriginal Heritage Information Management System
- Nambucca & Macksville Public Libraries
- Bowraville Folk Museum & Nambucca Museum

A number of people also kindly provided their time and information including Brenda Gadsby, Clyde Piggott and June Mathews.

Presentation

This section is presented broadly chronologically - with subdivision based on key periods, localities, events and people. While the history is presented chronologically, a number of broad research themes are addressed, including:

- Pre and post-Aboriginal lifestyle & culture
- European exploration, exploitation and settlement
- Black & white conflict & co-existence
- Aboriginal displacement, marginalisation & cultural survival
- Rural industry and agriculture

Additional information about the specific history of the subject properties is presented in **section 5 - European Heritage**.

3.1 Aboriginal People of the Mid North Coast

At the time of European contact, the study area was part of the Gumbaingirr territory extending along the NSW Mid North Coast from the Clarence River in the north to Macksville

in the south and west as far as Glen Innes.¹³ Within this broad area covering around 6000 square kilometres, the Gumbaingirr were organised into a number of sub-groups or clans, generally described as extended or interlinked family groups sharing a common dialect. Extensive research into the Gumbaingirr language has demonstrated that there were several distinct dialect groups.¹⁴

Neighbouring Aboriginal groups included the Bundjalung to the north; the Nganyaywana to the west; and the Ngaka clan groups of the Dainggatti to the south (**figure 7**).



Figure 7: Aboriginal language groups of the North Coast of NSW
(Horton 2007)

Clan Boundaries

Clans (extended family groups sharing a common dialect) were the functional units within any broader language group area. White observers often referred to these groups as ‘tribes’ – importing a notion of social organization observed by colonialists in the Americas. The term tribe implies strict social order

¹³ DEC 2005: LGA Profile – Nambucca p9, Tindale 1974, Horton 2007. Alternate spellings for the Gumbaingirr include Kumbainggeri, Kumbaingir, Kumbaingeri, Kom-baingheri, Kombinegherry, Kumbangerai, Koombanggry, Koombanggherry, Koombainga, Coombangree, Coombyn-gura, Coombyngara, Coombargaree, Kombinegherry, Gumbai?gar, Gunbai?gar, Gumbaingar, Guinbainggiri, Coombagoree, & Gumbanggar

¹⁴ Refer Morelli 2008 for a recent overview of the available evidence. See also Muurrbay Aboriginal Language and Culture Centre publications.

and well defined territory however Aboriginal clans appear to have had a more fluid system of social organization that even to this day is not well understood.

Aboriginal clan (and indeed language group) areas and boundaries have been the subject of debate for many years. This has intensified in the last 20 years or so as 'hard boundaries' have become important in native title claims and associated conflicts between contrasting groups.

Generally, it appears that any notion of territorial boundaries in relation to language groups and their constituent clans is indicative at best and that historically there was significant overlap of group areas. Some researchers have suggested that boundaries were not fixed as we might imagine but 'permeable'.¹⁵ The picture is further complicated by the impacts of white settlement, which rapidly changed Aboriginal social organization and saw a breakdown and restructure of traditional groups. The result was the formation of new groups consisting of members of remnant clans who came together for mutual benefit and protection and occupied locations that may not have been part of traditional land but rather locations of resource availability or relative safety.¹⁶

One North Coast observer, Louis Chevalley, wrote on the matter in the 1940s. His observations relate to the period c.1870 to 1900 in the Clarence River district:

Regarding the native touris or hunting grounds, it has always been hard to get any actual boundary from the blacks as they have the peculiarity that near enough is good enough in nearly all there dealings, and the whites further complicated matters by printing brass plates (king plates or gorgets) such as 'Tommy of Carrs Creek', 'Jimmy King of Southgate', and so on.

So far as I have been able to gather there were no such tribes, they (the 'kings') were possibly leaders of a small community, the same as isolated communities of white people. You can go to Coaldale, Fire Flower Creek, Baryulgil, or any small district and you will find one or two men leaders in that community, and I think that is what white people mistook for kings.¹⁷

In order to understand traditional Aboriginal organization we have collectively over many years imposed an order on it that suits our (white) cultural mindset. Our western notions of distinct groups with well defined territories and leaders can never accurately reflect the way Aboriginal people arranged themselves and ordered their landscape in the past.

3.1.1 Gumbaingirr

The Gumbaingirr people and culture have been described and discussed by a number of early Mid North Coast visitors, early district settlers and some of the proto-anthropologists of the late 19th century.¹⁸ Southampton surveyor Clement Hodgkinson¹⁹ surveyed the Nambucca

¹⁵ Peterson 1976

¹⁶ Attenbrow 2003

¹⁷ Letter from L. Chevalley to Mr R. C. Law, Honourable Secretary of the Clarence River Historical Society dated 4 November 1946 cited in Ryan 1964: 50-51

¹⁸ The Gumbaingirr refer to themselves as Goori

¹⁹ Hodgkinson 1945

and Bellinger Rivers in the 1840s. He commented on the impressiveness of the Gumbaingirr, describing one Aboriginal man he had met from Bellinger as:

*... pre-eminently remarkable from his tallness and Herculean proportions.*²⁰

Later in the early 20th century, observer A. C. McDougall, described the Coombangree (Gumbaingirr) tribesmen near the coast as:

*.... a much finer race, but more treacherous than those near the Dividing Range. Some of the men were 6'2" to 6'3" tall and were well proportioned.*²¹



Figure 8: Hodgkinson's *Cranky Tom and Dilberree* [1843?]

The man in the image sports the elaborate hairstyle described below. His chest and arms also bear the scarification of initiation.

(NLA .pic-an6617612-v.jpeg)

One of the main characteristics of the Aboriginal people of the Mid North Coast that struck early colonial observers including Hodgkinson and fellow surveyor Enoch Rudder (who surveyed the Macleay River) was the elaborate hairstyles of the Gumbaingirr and their immediate neighbours (particularly the Aboriginal people of the Yarrahapinni area near Grassy Head). These hairstyles, probably made up for ceremonial occasions, involved

²⁰ Hodgkinson 'Australia from Port Macquarie to Moreton Bay' 1845

²¹ McDougall 1900

twisting the hair around sword grass and binding it with possum hair cord to create an elaborate conical shape (see **figure 8**).²²

3.1.2 Antiquity

The long Aboriginal occupation and use of the Mid North Coast asserted by Aboriginal oral tradition is amply supported by archaeological evidence. This suggests that Aboriginal people were occupying parts of Australia by at least 45 000 years BP and possibly as early as 60 000 years ago. On the Australian East Coast in the Northern NSW/Southern Queensland region, evidence of occupation appears to be considerably more recent. The oldest archaeological sites date to around 20 000 years (Wallen Creek, North Stradbroke Island) and many date to less than 10 000 years. The majority in fact are less than 2000 years old.²³

Many reasons for this temporal discrepancy have been posited with the most likely being that occupation of the East Coast is considerably older than archaeological dating would suggest with earlier coastal sites likely to have been inundated (and therefore lost) during rising sea levels in the period 6000 to 8000 years ago.²⁴

At present, the oldest radiometrically dated evidence of Aboriginal occupation in the broader study area dates to around the time when the coastline acquired its current formation after the Holocene Marine Transgression. Shell middens at Clybucca Swamp have been dated to 6000 years ago. It has been suggested however that Pleistocene aged middens exist further back from the present coast between Colombatti and Grassy Head that have the potential to yield archaeological sites within the 10 000 to 25 000 year date range.²⁵

While definitive dates for human antiquity within the broader study area remain elusive, what is certain is that Aboriginal people have lived in, travelled around, and made use of the Nambucca region for many thousands of years.

3.1.3 Settlement & Movement

Aboriginal people of the region made use of both the coast and hinterland. Precise knowledge about the nature of this settlement is limited but archaeological and historical data suggests coastal locations, particularly in the vicinity of the mouths of the major creeks and rivers were amongst the most densely settled locations and were probably occupied semi-permanently. Beyond the existence of discrete coastal settlements, patterns of broader settlement and movement are not well understood and have been debated since the 1970s.

Aboriginal communities and individual bands or family groups moved around the landscape in a complex pattern dictated by territorial boundaries, taboos, spirituality, ceremony, seasonality

²² Townsend 1993: 9-10

²³ Neal & Stock 1986

²⁴ 18 000 years sea level was between 100 and 150 metres below current level (NSW DOP 1989: 10)

²⁵ Macintyre-Tamwoy 2003; Townsend 1993

and resource availability. Not surprisingly numerous contrasting models of these movements based on combinations of archaeological data, ethnographic information and intuition have been presented.

The first major debate relates to whether coastal groups moved between the coast and inland regions much at all.

- McBryde (1974) has suggested that clan groups moved latitudinally between the coast and hinterland on a seasonal basis
- Coleman (1982) has argued that the movement of coastal clans was infrequent, and more likely to have occurred longitudinally (up and down the coast) rather than inland.

More recently, Godwin has argued that neither model is well supported by relevant data and that movement and exploitation strategies were dictated by local conditions.²⁶ Generally, most researchers advocate some kind of seasonal movement moderated by social/religious concerns – though there is debate in relation to the nature of seasonal movement as well:

- Sullivan (1978) suggests on the basis of ethno-historic accounts that clan groups hugged the coast in the summer and moved to the upland regions in the winter
- Piper (1975) however has argued the opposite suggesting that the archaeological evidence supports a pattern of coastal exploitation in winter with movement inland in summer.

Certainly in post-contact times, late Autumn and early winter appear to have been the most popular times along the Mid North Coast coastal strip, when the Mullet were running and the native Lillipillies were fruiting. Favoured coastal camping grounds appear to have been along the numerous creeks throughout the region, with nearby areas utilised as burial sites.²⁷ The Bagawa tribe, who were based in the Bucca Creek-Nana Glen area for example, are reported to have spent the winter months on the coast around Moonee, returning to the upland reaches in the summer.²⁸ Similarly, another writer has written:

*Up river Blacks occasionally made winter month visits to the coast in the vicinity of Red Rock where they spent there time quietly till the spring denoted that return to the old haunts was desirable.*²⁹

Whatever the case, it is clear that the Aboriginal people of the region made use of a variety of locations, landscapes and environments – arguably with a coastal bias.

²⁶ Godwin 1990

²⁷ Yeates 1993: 14

²⁸ Holder 1984: 20

²⁹ MacFarlane in Ryan 1964: 156

3.1.4 Economy

The Nambucca district of the Mid North Coast with its mild climate, rich coastline, and vegetated hinterland provided a range of living environments and abundant exploitable resources for its Aboriginal custodians.

The sea and its associated rivers and creeks provided a range of aquatic and terrestrial resources. Chief among these were the finfish, shellfish and crustaceae of the sea and tidal waterways.

Coast

Archaeological, ethnographic and environmental evidence indicates that Aboriginal people along the coast had a varied diet with protein provided mainly by resources from the sea and ancillary waters. These are known to have included:

- Fish (including bream, whiting, snapper, cod, salmon, mullet, flathead and rays)
- Crustaceans (including prawns; sand crabs and mud crabs)
- Shellfish (oysters, pipis, cockles and other molluscs and bivalves)
- Miscellanea (such as cunjovoi).³⁰

Refer **figures 9 – 11**.

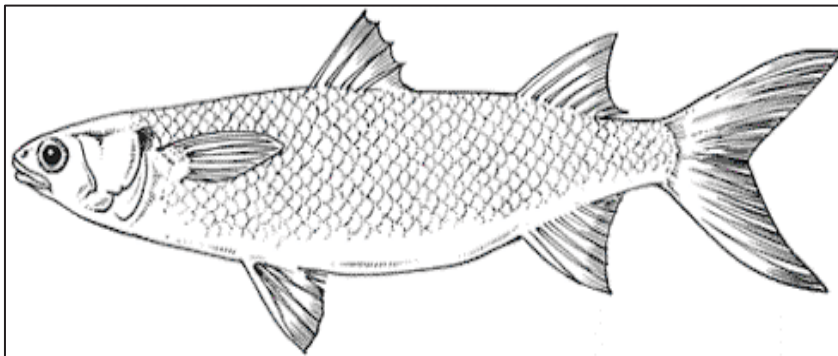


Figure 9: The Mullet

The bully of sea mullet has long been one of favoured fish of the Aboriginal people of Australia's East Coast. (www2.dpi.qld.gov.au/images/1854.gif)

³⁰ Hodgkinson in Ryan 1964: 142

Aboriginal & European Cultural Heritage Assessment
Welsh and Ussher Properties
Valla Urban Growth Area



Figure 10: Aboriginal people collecting pippi on beach, Port Macquarie area, NSW
(Staged Image from the Port Macquarie District by Thomas Dick – SLNSW At Work and Play – 04739)



Figure 11: Aboriginal people on creek at Bonny Hills/Port Macquarie area, NSW (c.1905)
(Staged Image from the Port Macquarie District by Thomas Dick - SLNSW BCP 04784)

Fishing on the Mid North Coast

The coastal Gumbaingirr had access to a variety of fish stocks both in the coastal waters and in the back-dune lagoons and feeder creeks.

Acquiring fish was a major preoccupation and a variety of techniques were used. Fish were typically speared, line caught, netted or poisoned. Spears (used in shallow water contexts) were generally lightweight and constructed of hardwood, reed or *Xanthorrhoea* (grass tree). Lines and nets were built from a variety of plant fibres including those from the Kurrajong or flame tree. One method of net fishing involved a 'drive' along shallow creeks and flats where Aboriginal people advanced in line abreast to a netted end point.³¹



In the fresh water reaches of creeks, the poisoning of fish with smart weed (Bumbil Bumbil), was one method used to capture fish. Poisoning involved one person diving into the water and rubbing bunches of the weed together with their eyes and mouth shut to prevent his self poisoning. Once poisoned, the stricken fish floated to the surface where they could be easily retrieved. Another bush poison used for stupefying fish was a lather produced from the Cutiga tree which was utilised in the same way as the Bumbil Bumbil poison.³²

In addition to the traditional fish catching methods complex fish traps were also used in some locations. The Arrawarra stone fish trap, to the north of Coffs Harbour, though modified by Europeans in the mid 1900s, was constructed and used by Aboriginal people up until c.1900. Aboriginal informants have described the operation of this trap suggesting that the trap was baited with shellfish and fish scraps with fish entering from the ocean side, which was then blocked. At low tide, men entered the traps with sticks and nets and retrieved the catch.³³

Image: Hodgkinson's *Natives spearing fish on the Bellengen [Bellinger] River* 1845. (NLA pic-an10127639)

³¹ Yeates 1993a: 12

³² MacDougall in *Science of Man* 22 April 1901: 46

³³ Yeates 1993a: 13

Beach fishing using spears also seems to have been a common method of fishing in the Mid North Coast region. Hodgkinson noted in relation to the area north of the Nambucca Bar:

*The waves which broke were full of mullet and salmon that seemed to swim along the breakers in search of prey. The blacks made several attempts to spear some as we walked along, and at last succeeded in transfixing a salmon weighing upwards of 20 pounds.*³⁴

Rounding out the protein diet on the immediate coastal fringe were the shorebirds, reptiles and small mammals of the dune systems including:

- birds (gulls, turns and migratory species such as the wedge-tailed shearwater)
- reptiles (a variety of lizards and snakes)
- small mammals (such as dingoes, wallabies, pademelons and bandicoots).³⁵

Other resources obtained from lowland areas beyond the immediate foreshore (including brackish and freshwater creeks, swamps and lagoons) were fresh water eels, lobster, mussels, wild fowl and the cobra worm.³⁶

Cobra

The Cobra or woodworm (and the related teredo or ship worm) has long been an Aboriginal delicacy on the East Coast of Australia. Found in a range of aquatic environments, the cobra is not actually a worm but a bivalve shellfish (molluscan borer) - the larvae of which attaches itself to wood and proceeds to burrow in it using it's valves to drive a burrow along the grain of the wood. As the burrow lengthens so does the wormlike body, allowing the siphons to remain at the entrance of the burrow.

Cobra worms were traditionally extracted from rotting pieces of timber (usually fallen logs) in waterways. Hodgkinson recorded the extraction of this 'mischievous type of aquatic pest' as follows:

*Armed with tomohawks they extracted the cobra from its cells, and, judging by the avidity they exhibited, regarded the encased harmless looking worm as quite a luxury.*³⁷

*The trees which fall into the brackish water in the lower part of the rivers soon become riddled by the Cobberra worm, which is of considerable length, and half an inch thick. It exhibits but faint indications of being a living animal when extracted from the wood, as it appears almost devoid of motion, and the natives let it slide down their throats with great gusto, in much the same way that the Italian lazzaroni swallow macaroni, to which cobbera has a great resemblance.*³⁸

The extraction of cobra from rotting logs formed part of 'cobra festivals' – which declined after white settlement when the fallen logs that harboured the molluscs were considered 'snags' and frequently removed from waterways.

Contemporary Gumbaingirr use of the Cobra worm has been recorded in Tony English's study of Aboriginal wild resource use *The Rocks and Sea Give us a Feed* (2004).

³⁴ Hodgkinson cited in Ryan 1964: 143

³⁵ NSW NPWS 1998: 22; Keats 1988

³⁶ Hodgkinson in Ryan, 1964: 142

³⁷ Hodgkinson in Ryan 1964: 152-153

³⁸ Hodgkinson 1845: 225

Hinterland

*A description of life would be incomplete without reference to the ... forest and scrub, for it was chiefly from the trees and thicket-clad areas that the blacks obtained sustenance.*³⁹

The hinterland lowlands and upland forests west of the coast provided a complimentary range of littoral food reserves as well as a host of forest products. Mrs Mary Bundock who wrote extensively about the early history of the Mid North Coast in the late 19th century, noted that the Aboriginal people of the area procured possums, kangaroos, wallabies and bandicoots, porcupines (echidnas), snakes, and flying foxes:

*... together with any kind of birds they could get; a good deal of fish in the summer and large mussels from the lagoon.*⁴⁰

Of the above, the carpet snake, the honey of native bees, and the echidna in particular were considered delicacies of the forest. The latter 'carefully cooked by being rolled in clay and baked in ashes so that the quills came off with the clay after cooking'.⁴¹ It was the macropods (kangaroos, pademelons and wallabies) however that provided most of the dietary protein and their capture typically involved considerable skill and cooperation. In some instances, the animals were caught in nets similar to those used for fishing. In other instances, the animals were ambushed during drives involving large parties of hunters and their companion dingoes (**figure 15 & 16**). There are several eyewitness accounts of Aboriginal kangaroo hunting in the post-contact period on the North Coast:

*The kangaroo is extremely fleet of foot and difficult to capture under Aboriginal conditions. The black man is alert but must resort to subtle means in order to entrap the wily marsupial. It is grass fed and can be viewed on the open pastures in droves to upwards of twenty in number. The hunters armed with sticks and boomerangs, arrange to surround the unsuspecting animals from an unseen circle, gradually closing in on the flock till the latter discover that they are in trouble, and bound off alarmed in various directions. In their endeavour to avoid the hunters they must, naturally, pass within shot of the missiles of the darkies who having a broadside target, bring to earth the leaping denizen of the forest.*⁴²

³⁹ Bawden in Ryan 1964: 129

⁴⁰ Bundock cited in Ryan, 1964: 136

⁴¹ Bundock cited in Ryan, 1964: 136

⁴² Macfarlane cited in Ryan 1964



Figure 12: 'Charlie' spearing Kangaroos (c.1843)
(SLNSW Call No. PXA 74)



Figure 13: Hodgkinson's Kangaroo at bay (c.1843)
(NLA pic-an6617605)

Clement Hodgkinson also described a similar event:

March 14th. — This morning we crossed another of the Nambucca streams. As we entered the brush we heard the loud shouts of the blacks who were busily engaged in hunting. The plan adopted by the natives in this pursuit, was somewhat similar, on a small scale, to the mode of hunting pursued by some of the Indian princes. The blacks first of all dispersed, and formed in the brush a circle of a quarter of a mile in diameter, and then, on a given signal, they all commenced shouting and advancing towards the centre, gradually lessening the circle. The brush-kangaroos or pademellas were thus gradually enclosed, and driven into a small space, where, being surrounded on all sides, they were dispatched by the natives, who carried for this purpose short

cylindrical pieces of wood, formed from a species of tree, growing in the brushes, and which is of greater specific gravity than any wood I am acquainted with.

*This tribe was the same we had met a few days before, and to which the five blacks, whom I had just dismissed, belonged. They had apparently been performing a corroboree dance on the preceding evening, as their bodies still preserved traces of the pigments with which they adorn themselves for that occasion.*⁴³

In addition to the animals contained within the hinterland forests and woodlands, the plants themselves also provided a range of foods, products, and the raw materials of indigenous medicine. The following are select examples:

- Forest fruits berries and nuts were collected (including the nuts of the pandanas and the seed and heart of the burrawang palm)
- Frond shields of the bangalow palm were used to make water carriers referred to as caalabas or pitchie-ban
- Inner bark of the hibiscus and kurrajong were used to make twine/cord for construction of dilly bags, rope, nets and fishing line
- Eucalypt bark was harvested to make canoes, shields and coolamons (wooden platters used to carry and gather fruits and vegetables).
- The roots and leaves of the large Arum tree (called congevoi) were used medicinally
- Bungwhal fern root (*Blechnum indicum*) and other rhizomes (as well as numerous varieties of yam) were dug out, ground and eaten.⁴⁴

Trees not only provided useful materials, they were also arboreal larders. Tree climbing allowed Aboriginal people to access a variety of tree-borne foodstuffs including wild honey, possums, flying foxes koalas and bird eggs. Charles Grant Tindal of Ramornie Station on the Clarence River, writing to his mother in England in 1844, noted that the Aboriginal people of the Mid North Coast:

*... examine the bark of the trees for the marks of opossum claws, If the marks are fresh they get up the tree by cutting notches with their tomohawks big enough to receive a toe, When they find out the hollow branch where the animal is, they drive it down to the bottom with a long stick.*⁴⁵

The honey of native bees was one of the most sought after tree top foodstuffs, R. L. Dawson provided a description of Aboriginal people obtaining honey in 1866:

⁴³ Hodgkinson 1945: 45-46

⁴⁴ McBride 1978; Bundock quoted in Ryan 1964: 183; Yeates 1993a: 10; Yeates 1993a: 10; MacDougal in *Science of Man* 22 April 1907: 47; Dawson 1866: 18; Hodgkinson 1845: 225-226

⁴⁵ Letter from Charles Tindal to his mother dated 20 April 1844 quoted in Ryan 1964: 130

At Bellevue, I first saw blacks robbing a bee's nest, One man extracting large pieces of honeycomb from a hole he had cut high up in the trunk of an ironbark tree while his comrades below dexterously caught the luscious morsels on in small sheets of bark as he dropped them from his lofty perch.⁴⁶

Honey had many uses, one of which was as an ingredient in a local intoxicating drink:

The Coombarangree (Gumbaingirr) tribe make a native drink called Cooloni, out of water, sweetened with honey, mixed with the underbark of the young stringybark tree, mashed into a soft pulp, A grass called by them Chuckie Chuckie, is soaked in this mixture, and then the juice sucked out of it.⁴⁷

The forested areas beyond the beach dune ridges also provided Aboriginal people with a range of bush foods including the wild cherry or lillipilly. The Lillipilly bush grew in profusion in semi-shaded gullies particularly on rainforest margins along the coastal plain. There are many species of lillipillies, with the cherry red fruit producing variety favoured by Aboriginal people in the Mid North Coast region being *Syzygium australis*. Other important local bush foods included Bangalow Palms, wild raspberries, native grapes (geebungs), and roly-poly trees.⁴⁸



Figure 14: Lilly Pilly fruit; Bangalow Palm; & foliage of the Roly Poly satinash

(www.rbgsyd.nsw.gov.au/; <http://farm3.static.flickr.com/>; <http://asgap.org.au/w-uni.html>)

3.1.5 Accommodation

Mid North Coast Aboriginal people appear to have had a range of accommodations depending on location and season. Temporary camps appear to have been fairly rough and ready as MacFarlane noted that:

....[They].... were a gregarious race, and we found them in tribal groups, camped usually in dense or sheltered scrub clumps, their camps merely low lean-to or an

⁴⁶ Dawson 1866: 18

⁴⁷ MacDougall in *Science of Man* 22 August 1900: 117

⁴⁸ Thurtell in Gadsby 1997: 7

*arched projection of bark supported on slender brushwood rods or twigs, just sufficient to accommodate a few occupants from the rigours of the weather. The roofing was generally the light outer bark of the small leafed tea-tree, quite rain proof and texture akin to delicate paper. It also served for the camp flooring and was immune from damp.*⁴⁹

R. L. Dawson provided further description of North Coast shelter types:

*They constructed three kinds of weather shelters, the principal being of stringybark sheets stripped from adjacent trees and propped up lean-to fashion, with forks and sticks. The outer bark of tea trees was also used layed in layers over a framework of sticks. Thirdly, cunning and cosy little shelters were contrived with bushes and leaves, but these were only used in cool, dry weather, against cold westerlies and the like ... their shelters were always erected with their backs to the wind and rain, the fronts being open to the invariable fire.*⁵⁰

In contrast to the temporary camps, in some areas there were relatively significant and semi-permanent settlements witnessed, such as the 'villages' on the Clarence River, which featured semi-circular bark huts and lean-tos.⁵¹ Captain Perry, who anchored off the North Beach at the mouth of the Clarence River from 20-27 May 1839 recorded Aboriginal people huddled in a 'village' at the head of the estuary where they had 'considerable command of fishing'.⁵²

3.1.6 Material Culture

The material culture or accoutrements of the Mid North Coast Aboriginal people appear to have been relatively consistent across the coast and into the hinterland and upland areas. Most hunting equipment, personal items and adornments were made of wood, plant fibres, animal skins (and parts) and to a lesser extent stone. A snapshot of the traditional material culture of the Mid North Coast Aboriginal people is presented below:

- Hunting and fighting weapons included spears, shields, tomohawks, nulla nullas, boomerangs, waddys and pademelon sticks
- Food procuring items included digging sticks, coolamons, nets, fishing lines, water carriers, and dilly bags
- Bark canoes and log rafts were used for transport on the rivers and creeks
- Ornamentation included forehead bands; necklaces strung with animal teeth, beans or shells; waist bands made with cane beads
- Men's clothing included loincloths made of possum skin or fur
- Women's wear included strip skirts made from wallaby skin or bark fibre.

Stone

⁴⁹ MacFarlane in Ryan 1964: 154

⁵⁰ Dawson in Ryan 1964: 158

⁵¹ Ryan 1964

⁵² Clarence River Historical Records (Volume 1): 209

Most of the objects used by Aboriginal people in the past were organic and have not survived or been preserved in the archaeological record. The exception is stone (and to a lesser extent artefacts and adornments of bone) which is well represented in archaeological deposits across Australia. Stone therefore universally dominates the archaeological record - though on places such as the Tweed there is little ethno-historical reference to the use of stone nor its prevalence within the Aboriginal tool kit.

Commissioner Fry, sent to the North Coast by the Colonial administration in 1841, commented on the relatively simple tool kit of the Mid North Coast Aboriginal people attributing this to the relatively simple means by which the main foods, fish and honey, were obtained. The chief stone implements in the local tool kit included axe heads and knives fashioned from suitably shaped water worn stones from local creeks and shorelines.⁵³

Refer **figure 15**.



Figure 15: Stone tool production on the Mid North Coast (c.1905)

(Staged image from the Port Macquarie District by Thomas Dick - SLNSW ML BCP 047187)

3.1.7 Mythology, Spirituality, Ceremony & Law

The Gumbaingirr lead a full and complex spiritual life that was inextricable from their economic and social activities. It linked clan groups together and revolved around shared beliefs, totemism, and ceremony. While the full details of pre-contact Gumbaingirr spirituality remain unknown to contemporary society, aspects of belief systems and religious practice in the post-contact period provide some insight:

⁵³ McBryde 1978

- The Coombangree (Gumbaingirr) appear to have believed in one principle deity - Ulitarra. A mountain dwelling entity from the land of the sunrise and sunset.⁵⁴
- Another important deity was the hero-figure Birugan who played both good and bad roles in East Coast Aboriginal mythology. He is strongly associated with the Arakoon (Trial Bay) area.⁵⁵
- Groups were highly democratic and had no 'chief'. The only distinguished men were the ulungarra – described as 'doctors or old warriors'.⁵⁶
- Initiation ceremonies took a variety of forms. The Murrawin appears to have been the Gumbaingirr form of the Bora ceremony, while other variations included the burbung and Keepara.⁵⁷ Initiation ceremonies are known to have occurred at Bellbrook and at the foot of Mount England near Cow Creek - both featured a ceremonial ground encircled by scarred/marked trees.⁵⁸

Bora ceremonies differed from one Aboriginal nation to the next, but all involved ceremony associated with a creator figure and ritual practice (including law, dance, scarification and other bodily modification). Bora ground sites typically comprised two circles constructed of mounded earth joined by a smoothed pathway.

As the boys of a tribe approach the age of puberty, a grand ceremony, to inaugurate them into the privileges of manhood, takes place. This ceremony is entirely different at the MacLeay and Nambucca rivers, to what it probably is in other parts of the colony, for the natives there do not strike out the front tooth as elsewhere. When a tribe has determined on initiating their youths into these rites, they send messengers to the surrounding tribes of blacks, to invite them to be present on the occasion. These messengers or ambassadors appear to be distinguished by having their head-bands coloured with very pale yellow ochre, instead of the usual deep red, whilst their hair is drawn up and crowned by the high top-knots of grass, resembling nodding plumes, which ornament is, I think, peculiar to the blacks north of the Hunter, — at least, I have never seen it farther south, where the hair is usually matted with gum, and decorated with dogs' tails and teeth.

After all the preliminaries are settled, and the surrounding tribes arrived, the blacks repair to the Cawarra ground. This is a circular plot about thirty feet in diameter, carefully levelled, weeded, and smoothed down. It is, in general, situated on the summit of some round - topped hill, and the surrounding trees are minutely tattooed and carved to such a considerable altitude, that one cannot help feeling astonished at the labour bestowed upon this work. The

⁵⁴ MacDougall in Ryan 1964: 112

⁵⁵ *Oceania* March 1949 19(3): 297-299

⁵⁶ *Science of Man* 21 May 1901: 63

⁵⁷ Ryan 1964: 67

⁵⁸ Townsend 1993: 9; Thurtell in Gadsby 1998: 8

women are now dismissed to the distance of two miles from the Cawarra ground; for if one of them should happen to witness, or hear any portion of the ceremony, they would be immediately put to death.

The first evening is passed in dancing the ordinary corroboree; during which, the invited blacks sit round their respective fires as spectators, whilst the boys, who are to undergo the ceremony, squat down in a body by themselves, and keep up a bright fire for the dancers. From the repugnance which the blacks at the MacLeay displayed on my looking at their performance, and their angry refusal to allow me to see the main part of the ceremony, I am unable to give a regular account of it, having only been able to obtain occasional glimpses.

After many preliminary grotesque mummeries have been performed, the doctors or priests of the tribe take each a boy, and hold him for some time with his head downwards near the fire. Afterwards, with great solemnity, they are invested with the opossum belt; and at considerable intervals between each presentation, they are given the nulla-nulla, the boomerang, the spear, &c. Whilst these arms are being conferred upon them, the other natives perform a sham fight, and pretend to hunt the pademella, spear fish, and imitate various other occupations, in which the weapons, now presented to the youth, will be of service. As these ceremonies occupied a fortnight or more before they were concluded, many other ridiculous scenes were undoubtedly enacted, and during all this time, the women did not dare to approach the performers.⁵⁹



Figure 16:
Hodgkinson's
Dance at the
conclusion of
the Cawarra
ceremonies
(c.1843)
(NLA pic-
an6617603-
v.jpeg)

⁵⁹ Hodgkinson 1845: 230-232

- 'Increase sites' were important. These were locations (often a prominent landscape feature such as rock or water hole) where ceremonies were conducted to ensure or inspire plentiful resources. Known Mid North Coast examples include South Headland (Corambirra Point) - an increase site for the Red-browed finch; Korora Bay - a black goanna increase site; and Mount England – a yam increase site.⁶⁰



Figure 17: Mount England - Yam Increase Site

(Dan Tuck October 2008)

- Ritual was also associated with marriage; social organisation was matrilineal; totemism was observed; and the women frequently had a joint of the little finger removed on betrothal.⁶¹ Surveyor and ethnologist R. H. Mathews wrote:

*The Kumbainggerri speaking people have a social organisation consisting of four intermarrying divisions or sections ...To each there is an aggregate of totems attached, consisting of animals, plants and inanimate objects. The descent of the cycles, sections and totems is invariably determined through the mothers only.*⁶²

- Ritual fighting between rival clan groups is known to have occurred at a number of locations on the Mid North Coast. Such fighting occurred 'for real or imagined abrogation of recognised etiquette' and A. C. MacDougall described Coombangree (Gumbaingirr) fighting or bullen bullen as follows:

⁶⁰ Yeates 1993: 14-15; NSW Department of Planning 1989a; Dallas & Kelly 1994: 7

⁶¹ Townsend 1993: 10

⁶² Mathews 1909 cited in Ryan 1964: 42-43

When it is decided at the head camp to have a fight with another tribe, a messenger is sent to the outlying parts or camps of the tribe calling them together. A messenger is also sent to give the other tribe a Ningi-burren – wild or stomach stone – which is frequently returned to its former owners. The fights are generally caused through young couple marrying without obtaining the consent of the proper guardians of the young woman, who, if the consent is refused, runs off with her young lover. There is a mustering of the neighbouring tribes at which there is a great deal of talking and threatening, but very little bloodshed.⁶³

Thomas Bawden also recollected the importance of the show rather than the violence writing:

Muscularity and smartness were exemplified in the tribal fights, which were frequently occurring and were regarded with as much interest as cricket, football and similar matches are ... in the present day. The warriors prepared for the fray by painting their bodies in fanciful or ludicrous patterns with ochre coloured clay or making themselves intensely black ... This was achieved by smearing themselves with animal grease, and application of burnt stringy bark.⁶⁴

- Ritual spearing as a means of punishment was also practiced. Such punishment often related to the men taking women to which they were not betrothed or entitled – demonstrating the importance of marital obligation.⁶⁵



Figure 18:
Hodgkinson's Dance
of defiance of the
Yarra-bandini tribe
(c.1843)
(NLA pic-an6617620-
v.jpeg)

⁶³ MacDougall in *Science of Man* 22 April 1901: 46

⁶⁴ Bawden in Rayn 1964: 53

⁶⁵ Macfarlane in Ryan 1964: 55

**Figure 19: Hodgkinson's A
Fight (c.1843)**
(NLA pic-an6617610-v.jpg)



3.2 European Settlement & Post-contact History

William 'Gypsy' Smith appears to have been the first white man to venture into the Nambucca district of the NSW Mid North Coast. Smith was a convict, part of a party of escapees who seized the *William Cossar* at Sydney Harbour in July 1817 and headed north. The renegade crew's escape plans were dashed however when the vessel ran aground 16 kilometres north of the Nambucca River bar. Though details (including the fate of the bulk of the crew) are sketchy, it is known that local Aboriginal people aided Smith and escorted him back to Newcastle convict settlement in April 1818 – a distance of over 200 kilometres.⁶⁶

Smith's arrival in Newcastle prompted an investigative mission undertaken by Captain William Eckford of the *Nancy*. Smith was taken along and guided the party to the head of the Nambucca River, which they were unable to enter due to dangerous conditions on the bar. Eckford sailed a little further north around the Nambucca headland to a small bay from where the party made land and trekked north along the beach in search of the *William Cossar*. The vessel was located (and later salvaged).⁶⁷

During the three week expedition, Captain Eckford undertook tentative exploration of the Mid North Coast and also sounded the harbour at Port Macquarie – the location discovered by surveyor/explorer Lieutenant John Oxley in the same year and established as mainland Australia's third convict settlement area (after Sydney and Newcastle) in 1821.

⁶⁶ Townsend 1993: 11

⁶⁷ *Sydney Gazette* 12 July 1817; 11 April 1818.

3.2.1 The Surveyors

In the year preceding settlement at Port Macquarie, John Oxley was entrusted by the Governor to survey the proposed settlement and investigate the areas nearby. His instructions included a directive to examine 'two inlets' north of Smoky Cape (Trial Bay area) presumably with a view to identifying possible safe harbours or ports to aid shipping along the East Coast. Oxley's investigations had limited success. He was trapped inside the bar on the Macleay River (where one of his crewman drowned) and he was unable to breach the bar at the mouth of the Nambucca River. Oxley's failure to find safe harbour and the perceived difficult nature of the terrain, tempered initial official interest in the areas north of Port Macquarie.⁶⁸

Due to its physical characteristics and relative isolation, the Mid North Coast area remained largely unsettled, with the exception of the convict settlement at Port Macquarie, for much of the early decades of 19th century. Drought in the latter 1820s and more prosperous years in the 1830s saw some interest in the lands north of Port Macquarie however any consideration of settlement was curtailed by the fact that land outside of the established settlements (land beyond the 'limits of location') was not available for free hold settlement. Australia was a very big continent and the Government had limited ability to control and police settlement beyond the limits of location. The first tentative steps towards broader settlement occurred in 1836 when lands beyond settled limits were opened up for pastoral leases – heralding the commencement of major land grabs in the best and most accessible locales by squatters.⁶⁹

By the 1840s, the growth of settlement in NSW, and the demand for resources and arable land, ensured that resource rich areas of Australia's East Coast were firmly in the sites of both settlers and those who sought to exploit its resources.

Clement Hodgkinson

Among the first Europeans to investigate and survey the greater Nambucca area was the surveyor Clement Hodgkinson who made several trips to the district in the 1840s, including visits to the Macleay and Nambucca Rivers in 1841. Hodgkinson relied heavily on the assistance of the local Aboriginal people who he encountered on his journeying and appears to have struck up a friendship with Aboriginal people of the Yarrahapinni area. When he returned to the district in 1842 to survey the Bellinger River, he brought several Yarrahapinni Aboriginal people with him to facilitate access through the country of the Bellinger Aboriginal people north of the Nambucca. Armed with his Aboriginal companions and gifts of tobacco, Hodgkinson conducted successful reconnaissance along the Bellinger River, meeting groups of local Aboriginal people including 'Belligen Billy', and passing through the area 'without difficulty'.⁷⁰

⁶⁸ Townsend 1993: 12

⁶⁹ Townsend 1993: 12

⁷⁰ Yeates 1993a

Hodgkinson was interested in the Aboriginal people of the Mid North Coast and made numerous observations of their lifestyle and culture in his book *Australia from Port Macquarie to Moreton Bay* (1845) – detailed in previous sections of this report. He was also instrumental in acquiring valuable information about local Aboriginal population numbers in the early contact period. During his 1842 visit for example he recorded that in the vicinity of the Bellinger population numbers at that time approached 300. By 1845, after further work, Hodgkinson recorded that the Gumbaingirr people numbered between 1200 and 1500 in total.

While Hodgkinson's travels on the Mid North Coast were peaceful and appear to have provoked no conflict, the parallel incursion of timber getters was not so peaceable and their arrival heralded a new era of tense relations between Europeans and Aboriginal people in the region.

3.2.2 Timber Getters

From the time of first European settlement the timber reserves about Sydney were recognised as being a valuable and exploitable resource. Governor John Hunter was one of the first to recognise the value of Australian hardwoods – he tested several varieties and found them similar to 'Indian Teak' and suitable for use in a variety of purposes including ships timbers, gun carriages and general building. By the early 1800s, timber getters had already made inroads into the greater Sydney District to extract timber from the dense eucalypt forests along the Georges River.⁷¹ Heavily targeted forest timbers included Cedar (*Toona australis*), Ironbark (*eucalyptus cebra*), Scribbly Gum (*eucalyptus pilularis*) and Turpentine (*eucalyptus haemastome*).

Timber was sought after in Sydney by builders, boat builders and coach makers and was used for a range of purposes including split timber, shingles, and firewood.⁷² Teams of sawyers and axe men, and bullock generally felled trees in the Sydney district and horse teams dragged the fallen timber to the river where vessels took timber from the river areas to Sydney Harbour via Botany Bay.⁷³

As the timber reserves in the vicinity of Sydney became heavily exploited by the late 1700s and early 1800s, timber getters began to look elsewhere for supplies, generally exploiting the river systems associated with new settlements such as Port Macquarie, Brisbane & Newcastle. Large river systems provided penetration into forest reserves away from the coast and also facilitated the transport of timber back to Sydney.

Moving North

Timber getters had begun to ply the major rivers of the Mid North Coast from the 1840s, and by the mid 1800s were established on the Nambucca and Bellinger Rivers. Historian Norma

⁷¹ Kennedy 2001: 15

⁷² Lawrence 1996: 5

⁷³ Lawrence 1996: 5; Davies 1979: 44-45.

Townsend has suggested that there were two early phases of timber exploitation on the Nambucca – small scale ad hoc timber getting which occurred from as early as the mid 1830s; and ‘organised’ timber getting controlled by cedar dealers who established itinerant cedar camps on the Nambucca in the early 1840s.⁷⁴ The earliest activities appear to have been relatively peaceful; the latter however saw episodic conflict between the cedar men and the Aboriginal people whose lands they plundered.

Conflict

Timber getters were often tough men – frequently convicts or ex-convicts who operated with limited supervision outside the settled areas and away from the influence of the Government and Police. The *Sydney Gazette*, reporting in 1841 on the lives of timber getters and sawyers, stated:

*... living on salt beef and damper, they felled the monarchs of the forest and dug great pits. These men lived hard and often lawless lives. Cockfighting, smuggling and gambling were among their favourite activities.*⁷⁵

It is perhaps not surprising that conflict flared between Aboriginal people and timber men and so called ‘atrocities’ were committed by both parties on the post-contact frontier.

Generally, Aboriginal violence against whites was pre-empted by the incursion of Europeans into Aboriginal territory and ill treatment. The latter generally related to ill treatment or acquisition of Aboriginal women by white men for sexual relations.⁷⁶ Aboriginal attacks inevitably provoked revenge attacks by whites, which sometimes escalated into a self-perpetuating cycle of violence.

One of the earliest accounts of conflict in the Nambucca district involved the murder of two cedar getters by Aboriginal people in late 1841 or early 1842. Clement Hodgkinson referred to the incident in his writings believing it to have resulted from the ‘migration’ of the cedar sawyers into the ‘brushes of the Nambucca’. Both Hodgkinson and early Macleay Valley pastoralist John Henderson further referred to retaliatory raids carried out by aggrieved whites and the subsequent shooting of local Aboriginal people.⁷⁷

In the year 1842, I determined to ascertain whether the Bellengen river was navigable, and to examine the country round its mouth; as I intended, if the land was well adapted for grazing, to form a cattle station there.

About that time the blacks, from the sources of the Nambucca and the Bellengen, had committed several outrages on the sawyers, who had lately proceeded to the former

⁷⁴ Townsend 1993: 13-15

⁷⁵ *Sydney Gazette* 21 February 1841

⁷⁶ Townsend 1993: 13

⁷⁷ Townsend 1993: 14

river to cut cedar. One sawyer had been murdered most cruelly by the savages, who attacked him and his companion whilst felling a tree. When his body was found, it was ascertained that he had received more than fifty spear wounds in different parts; one spear had transfixed his kidneys, and even the very soles of his feet had been pierced. His arms were dreadfully fractured, evidently whilst he was in the act of raising them to protect his head from the clubs of the natives. A retaliatory expedition was accordingly organized to pursue the aggressors, and endeavour to seize those who had been chiefly concerned in this murder. In the course of the chase, the sawyers, aided by some of the MacLeay river blacks, succeeded in approaching the encampment of the natives in the dead of night; and next morning, on their making resistance, the whites poured a volley of ball and slugs among them, and killed and wounded several. If I may credit the report of an eye-witness, most of the wounded blacks sprang into the water, where some of them were apparently seized by sharks attracted by their blood.

Several other affrays had taken place about this time, between the natives and parties of white men, in which the former were the aggressors. Being aware, that one of the chief causes of the hostility of the wild blacks to parties travelling through the bush, was their indignation at the encroachment of white men on the prescribed haunts of the tribe; which cause would occasion a quarrel between different tribes of the natives themselves, unless their objects in so trespassing were formally explained by an avant courier, or herald; I resolved on taking with me some Yarra-Hapinni blacks, with whom I had become acquainted during my surveys, as I knew they would prove of great service in explaining to the Bellengen blacks the object of my intrusion into their country. They would also assist my men in carrying their knapsacks, as I intended travelling on foot this time. Accordingly, I supplied two of my men with the requisite provisions, and armed them with carbines and pistols.⁷⁸

It has been suggested that the successful crossing of the Bellinger Bar saw the focus shift from the Nambucca to the Bellinger River and the move of the timber getters to that location from around 1843. This is likely to have resulted in a general decline in local violence on the Nambucca with an alternate increase on the Bellinger. Surveyor Enoch Rudder for example reported to Governor Fitzroy in October 1846 of the murder of 'unarmed and peaceable' Aboriginal people on the Lower Bellinger. Frontier violence was also a feature on the more heavily exploited Upper Macleay in the mid 19th century involving both timber getters and the early pastoralists who shadowed them. Aboriginal people for example attacked John McMaugh of Pee Dee Station on the Upper Macleay and in response he 'showed them no mercy'.⁷⁹

⁷⁸ Hodgkinson 1945: 48-50

⁷⁹ Mary McMaugh cited in Townsend 1993: 14-15

Assistance

Despite the above-mentioned conflict, Aboriginal people provided the earliest white incursionists with considerable support. As previously discussed they had helped fleeing convict Smith return to Newcastle in the 1820s and they provided valuable assistance to Hodgkinson in navigating the landscape and negotiating safe passage through the lands of neighbouring tribes. They also contributed significantly to the practical aspects of cedar getting. Timber getters often utilised the services of Aboriginal bushmen who had the knowledge and skills to rapidly identify Cedar trees. Early North Coast resident and observer Robert Dawson noted for example:

*When searching for cedar in the dense brushes of the Richmond we always took a blackfellow with us, his bushcraft and keen vision enabling him to find the valuable trees much more quickly than we ourselves could.*⁸⁰

3.3 Nambucca Valley

When Clement Hodgkinson surveyed the Nambucca in 1841 there was little settlement activity with only one cattle run (James Taylor's Try station run between Warrell Creek and Taylors Arm) and a parcel of land used for cedar dealing by William Scott (also at Warrell Creek). By 1844, two other runs had been taken up - W. H. Chapmans Tanban (later Tamban) and Edward Ren's Bally Valley.⁸¹ Tentative incursions into the Nambucca District ceased in around 1843.

Valley Valley (Bally Valley)

Valley Valley was one of a limited number of early pastoral runs taken up on the Nambucca in the mid 1840s. Taking in much of the latter parish of Valley Valley, the run was first acquired by Edward Rens and was described as:

*Bounded on the east by the ocean or three miles thereof; north by the south arm of Bellinger Creek; south by the north arm of Nambucca; west by scrub mountains and part of the north arm of the Nambucca.*⁸²

The run included the site of later township of Valla and appears to have incorporated the current study area. It had been taken over by neighbouring landholder W. Chapman by 1848. The Chapman family had considerable holdings in the district including Tanban, Yarrabine and Bellopine though their pastoral efforts were concentrated on the Macleay Valley. Valley Valley in W. Chapman's own words was a 'failure' and was ultimately abandoned.⁸³ Chapman's Tanban was the only pastoral run held continuously on the Nambucca until free selection.

⁸⁰ Dawson c1866: 28

⁸¹ Townsend 1993

⁸² Townsend 1993: 31

⁸³ W. Chapman's Early Days on the Macleay River 1836-1908 (SLNSW ML manuscript MSS 1570) cited in Townsend 1993: 31

By the late 1840s, the area had been largely abandoned and Taylor's run was recorded as deserted.⁸⁴ Commissioner of Crown Lands R. G. Massie believed that the abandonment of the area was due to the 'general want of fresh water and the bad nature of the country'.⁸⁵ This situation contrasted significantly with other nearby districts such as the Macleay whose fertile river valley ensured that there were 23 licensed pastoral runs sited within the valley by 1841.⁸⁶

European settlement on the Nambucca was ultimately sped by the gold rush and associated national population explosions of the 1850s and local and international demands for quality timber. It was during this time that the price of red cedar rose from four shillings to four pounds per 100 super feet ensuring that timber reserves in some of the less heavily exploited locations such as the Nambucca were again at the fore of Mid North Coast timber getting.

Permanent settlement appears to have commenced on the Nambucca in the mid 1850s as Australia's timber exports peaked. Among the early settlers were the Williams family of Bowra as well as the Wilson, Cook, Jarrett and Byrnes families.



Figure 20: Extraction of timber using a bullock team – Valla Area (n.d.)

(Image presented in Townsend 1993: 36-37)

Robertson Land Act (1861)

The passing of the Robertson Land Act (1861) led to the break up of many large squatter holdings throughout NSW and encouraged the arrival and spread of free settlers. Among the

⁸⁴ Townsend 1993: 20

⁸⁵ Massie in Townsend 1993: 31

⁸⁶ Townsend 1993: 20

first places to be settled along the Mid North Coast after the passing of the Act were the prime agricultural and grazing areas, headlands, river frontages and fertile valleys. These were similarly the most sought after places of the Aboriginal inhabitants and this competition for land and resources lead to renewed tensions between European settlers and the traditional inhabitants.

The pastoral settlement of the Nambucca River valley was largely the result of free selection enabled by the passing of the Robertson Act. Due to the nature of the country, relatively high rainfall on the coast side of the ranges and the prevalence of dingoes, pastoral settlement occurred more slowly on the Nambucca than it did in more favourable locales elsewhere.⁸⁷ None the less by the 1860s sawyers and pastoralists had returned to the Nambucca and by the late 1870s stock numbers in the district approached those in prime locations such as the Macleay. Curiously, the Nambucca was settled largely as a satellite of the Macleay River settlement area with around one fifth of the Nambucca settlers of the 1860s having been born on the Macleay River.⁸⁸ Refer **figure 21**.

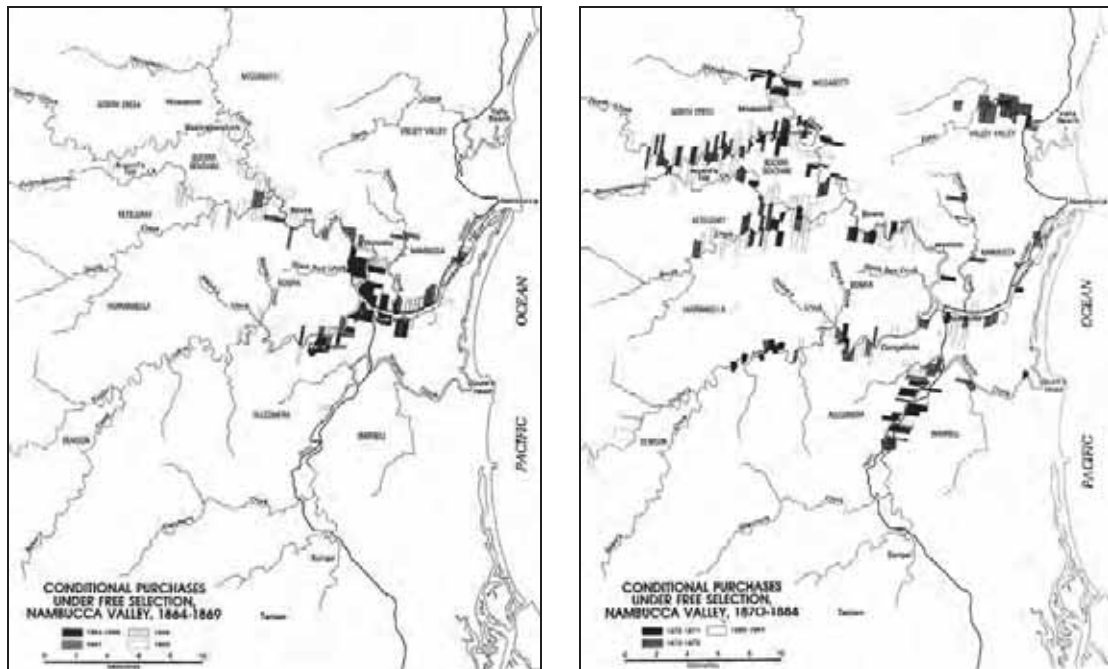


Figure 21: Settlement in the Nambucca Valley Area (1864 – 1884)

Purchases under free selection from 1864 concentrated on the Nambucca River and its more prominent tributaries. Purchases in the Valla area occurred from the late 1870s with selections concentrated on Deep Creek.

(Maps presented in Townsend 1993: 62; 65)

⁸⁷ McIntyre-Tamwoy 2003: 16

⁸⁸ Townsend 1993: 40

3.3.1 Settlement Impacts on Aboriginal People

During the second half of the 19th century, Aboriginal groups across NSW changed the way they lived. Dislocated and reduced in number, they established new social groups that drew together members of remnant clans for mutual benefit and protection. Typically, these clan groups came to live at the margins of white settlement in what are commonly referred to as fringe camps.

Post-contact Aboriginal Camps

Fringe camps and pocket camps appear to have been among the most frequently utilised Aboriginal accommodation options across NSW in the period 1850 to 1870. These camps were essentially autonomous gatherings where Aboriginal people established living areas on vacant land within 'the mosaic of white settlement'.⁸⁹ Typically such areas were on the farms of benevolent settlers (farm camps); vacant crown land on the margins of townships (fringe camps); or commons, travelling stock routes and water reserves elsewhere (pocket camps).

Within the Mid North Coast region Aboriginal people are known to have gathered informally on the fringes of the more established early townships such as Coffs Harbour and Port Macquarie. Closer to the study area, settlements were established at Missabotti; North Arm; Tilli Willi (Macksville); Goat (Moses) Island on the Nambucca River east of Macksville; and near Bowraville.⁹⁰

Mrs Laurel Hill (whose family the Winslows selected land at Simpsons Ridge on the outskirts of Bowraville) wrote about the Bowraville Aborigines when compiling a family history in 1968. Her recollections relate to the second half of the 19th century and demonstrate a significant Aboriginal presence in that area at the time:

A tribe of 500 lived in the locality, my mother often watched the lubras climb trees by means of a climbing vine and toe holds cut in the trunk with a native axe, and bring out a possum from a dead limb and throw it to the ground to be stunned by children with nulla nullas. The men hunted paddymelons from the scrub into clearings where picinninis hid at the edges, then rushed into the cleared space and killed them with a paddymelon stick.

The lubras cleaned and dried possum skins and sewed them together with bone needles using the sinews, and made rugs to sleep under during the winter. Also a type of cape for their shoulders. Most also made net from certain river tree barks, and caught fish, mostly eels. Most families in the tribe had only two children, a small plant grew in the district known only to the head grandmother who gathered and dried the flowers and gave to the mothers when she considered that they had as many children

⁸⁹ Byrne & Nugent 2004: 56

⁹⁰ Dunne 2001: 1; McIntyre-Tamwoy 2003: 29

*as the tribe could support. After a picinninis birth the mother stayed in camp for three months, the other lubras did her share of work.*⁹¹

While these camps afforded some social continuity and protection, European goods such as alcohol, sugar and tobacco, went into wider circulation in these locations with the inevitable, negative long term health affects and addictions.

Pastoral Stations & Farms

While some Aboriginal people became 'fringe dwellers' others became increasingly associated with the more benevolent of the Macleay, Nambucca and Bellinger stations. On occasion, extended family groups lived on pastoral stations where they functioned as casual labour pools.

On the land, Aboriginal men were employed to drill corn and strip bark for huts.⁹² They also worked as stockmen, shepherds, and 'usefuls' – especially during the boom times of the 1850s when 'gold fever' saw many of the itinerant white station workers abandon station life for the goldfields of Victoria and NSW. Aboriginal women regularly found work as nurses, nannies and domestics at rural homesteads.⁹³ District Commissioner Massy noted in this regard that:

*... the services of natives have been indispensable. Indeed but for their presence most of the ordinary operations of the district would have been at a standstill and scarcely a single settler or squatter on the river (Macleay) is there, who has not had one or more in his employment under a written agreement at wages varying according to their degree of usefulness and intelligence...*⁹⁴

Towards the middle of the 1870s, the demand for Aboriginal labour decreased with both the introduction of wire fencing and the influx of white labour. The use of galvanised wire fencing (and the enclosure of stock) in particular reduced the need for shepherds and stockmen - occupations which Aboriginal men had been particularly good at and well suited to.

After the passing of the Crown Lands Act in 1884 and the subsequent break-up of the larger holdings, many pastoralists could not afford to maintain an Aboriginal station camp, nor did they have the amount of work to warrant them. Aboriginal families and groups were thereafter obliged to move from station to station looking for work and between jobs, squatted on the outskirts of service towns or joined (or established) fringe camps. Such living arrangements bred poverty and continued to add to the fragmentation of the flailing Aboriginal communities.

⁹¹ 'The Winslow Family' by Mrs Laurel Hill – typed manuscript in the Bowraville Folk Museum

⁹² Dunne 2001: 1

⁹³ Harrison 2004

⁹⁴ Massey cited in McIntyre-Tamwoy 2003: 21

Cultural Decline &/or Adaptation

It was during the closing decades of the 19th century that Aboriginal people moved from a semi-traditional lifestyle to what Michael O'Rourke has termed a 'semi-anglicised' or 'post traditional' lifestyle.⁹⁵ This change is reflected in a number of historical accounts that highlight a culture in transition.

North Coast resident Mrs Burdock, writing in the late 1800s noted:

... amongst the work done by women was the making of water vessels, called 'pitchie-ban. They were made of the sheath of the leaf stalk of the Bangalow Palm and held about half a bucket if a large one. The young women cannot make or do any of the things their mothers did. I asked a young woman lately to make me some 'pitchies'. She said 'I'll tell my mother', and when I said 'don't be lazy, make them yourself,' she laughed and answered – 'Never I been make 'em always tin can'.⁹⁶

She further added that:

The young men too, do not climb or uses spear as their fathers did. They work spasmodically on the stations and like riding and work amongst the cattle; but drink and gambling are their curses and they will gamble away their clothes and blankets in the depths of winter.⁹⁷

In a similar vein, MacFarlane noted:

The quart pot (diggan diggan) speedily superseded the wood kooliman as a water-carrying receptacle.⁹⁸

While the instance described above may be viewed as cultural decline they can also equally be observed as practical adaptation. Perhaps nowhere was this adaptation more obvious than in traditional fishing practice. While traditional spearing and netting did continue, new ways to catch fish evolved such as that described in an undated transcript of a tape recording held in the Bowraville Folk Museum:

They (the Aborigines) never came to town, so long as they got a bit of tucker. With a plug of gelignite for fourpence, bought over here at Frank and Eliza's they would go and get enough fish to do them a fortnight.⁹⁹

⁹⁵ O'Rourke 1995: 79

⁹⁶ Bundock 1896

⁹⁷ Bundock in Ryan 1964: 184

⁹⁸ MacFarlane in Ryan 1964: 183

⁹⁹ Cited in Dunne 2001: 1

3.3.2 Missionisation

In 1880, a private paternalistic enterprise known as the Association for the Protection of Aborigines (APA) was formed. In 1881 it installed a political figurehead in George Thornton MLC, Protector of Aborigines. The aim of the APA reflected widely held beliefs that Aboriginal people were 'dying out' and was:

*... for the purpose of ameliorating the present deplorable condition of the remnants of the Aboriginal Tribes of this Colony.*¹⁰⁰

The ensuing chapter details the operation of the APA and its derivatives and describes the 'missionisation' of Aboriginal people through the spread of the reserve system during the closing decades of the 19th century and the opening years of the 20th century.

Aborigines Protection Board

In the same year as the APA installed the Protector of Aborigines, the State Children's Relief Act 1881 came into force giving the NSW Government the power to remove children from charitable institutions and approve the adoption of wards of the state, thereby setting the scene for the broad-scale removal of Aboriginal children throughout most of the 20th century.¹⁰¹ In 1883 the Aborigines Protection Board (APB), composed of officials and gentlemen 'with an interest in Blacks' was formed.¹⁰²

Reserves

Against this social and political landscape, numerous mission stations and reserves were set up across NSW, generally in association with the APB who subsidised many. Most of the reserves were located along the East Coast, and in the Murray and Murrumbidgee districts, and were designed to accommodate (and concentrate) impoverished and dislocated Aboriginal people, with some (variable) emphasis on training reserve dwellers to fit into white society.¹⁰³ The reserves had varying degrees of autonomy and were either 'managed' (overseen by a manager with significant Board input) or 'unmanaged' (provided with rations only). Some were major enterprises and others of a very small scale. Conveniently for the broader white community, these enterprises also functioned as 'labour pools' – especially in areas where a large seasonal workforce was required.¹⁰⁴

From the early 1880s, a total of 16 Aboriginal Reserves were established within the broader study area between the Macleay and Bellinger Rivers. These included reserves at Kempsey, South West Rocks, Bowraville, Macksville, Bellbrook and Nambucca. These reserves were often sited at locations where Aboriginal people were already living or alternately at locations

¹⁰⁰ NSW Aboriginal Protection Association - Report 1881/1882

¹⁰¹ Archives Authority of New South Wales 1998: 62-63

¹⁰² Executive Council: Minute Books Volume 23, Minute 21, 2 June 1883. P.58 (SRNSW 4/1570)

¹⁰³ Archives Authority of New South Wales 1998: 62-63

¹⁰⁴ Walden 1995

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that suited the local white population – sufficiently distant to white settlement; on poor or marginal land. The following table lists some of the Aboriginal reserves established within the Nambucca – Valla area.

Select Nambucca Area Aboriginal Reserves		
Reserve	Location	Details
Stewarts (Stuarts) Island AR 140 (RAR 80)	Stuarts Island, Nambucca River delta Ph Nambucca; Co Raleigh	70 acres gazetted 14 May 1883 (noted as revoked 22 April 1922) One of the earliest reserves in the district. Also known as Brushy Island. Aboriginal school established on the island in 1916 (moved to Bellwood Reserve in 1948).
Bellwood AR 73990 & AR 87256	Bellwood (near Stuarts Island, south of Nambucca) Ph Nambucca; Co Raleigh	School and reserve site comprising 42 acres gazetted 26 January 1951 Expanded in 1951 and 1969; divided into Portions 359 and 506 on 4/7/1969 which included part of Portion 419.
AR 19667	Ph Warrell; Co Raleigh	25 acres gazetted in 17 February 1894 (marked as revoked 2 November 1962)
O'Rourke's Settlement AR 168	Taylor's Arm, Nambucca River Ph Bowra; Co Raleigh	20 acres gazetted on 17 November 1884 (revoked 20 October 1910)
Wirrimbi Island AR 42775/AR 57051	Wirrimbi Island, Nambucca River Ph Bowra; Co Raleigh	3.6 hectares gazetted 3 June 1908 (revoked 9 May 1924)
AR 62815/6	Ph Bowra; Co Raleigh	36 acres gazetted 7 July 1931
AR 50272	Ph Bowra; Co Raleigh	62 acres gazetted 14 October 1914
Cow Creek AR 31243/4	Ph Valley Valley; Co Raleigh	40 acres gazetted 17 February 1894 (officially revoked 4 April 1952 – but leased out to white settlers much earlier)
Sources: SRNSW - Aborigines Welfare Board: Register of Aboriginal Reserves, 1875-1904 [2/8349; Reel 2847]; McGuigan 1985; McIntyre-Tamwoy 2003; Thinee, K. & and Bradford, T. 1998.		

3.3.3 Cow Creek Aboriginal Reserve

Of the above-mentioned reserves, the one with the most relevance to the current study is the Cow Creek Reserve – a location now comprising freehold land (Pt 169 DP 755560) that borders the eastern end of both of the properties that are the subject of this report. Refer **figures 22 – 23**.



Figure 22: Former Aboriginal Reserve AR31243/4 (Cow Creek)

(View SE - Dan Tuck October 2008)

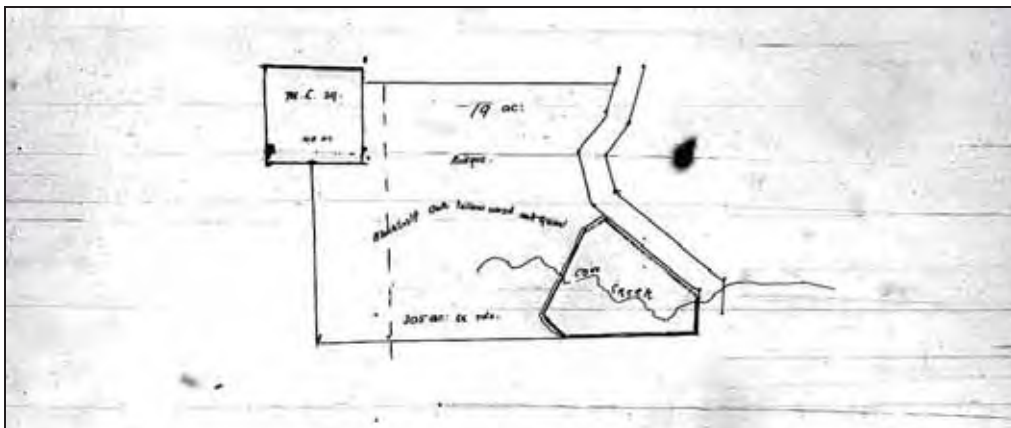


Figure 23: Cow Creek Reserve plan (1900)

(Aborigines Welfare Board: Register of Aboriginal Reserves 1875-1904 - SRNSW File 2/8349; Reel 2847: 84)

Cow Creek Reserve & the Buchanan Family

Cow Creek Reserve comprised 40 acres of land gazetted as Aboriginal Reserve AR31243/4 on 17 February 1894 and notified 28 July 1900.¹⁰⁵ The official listing of the Reserve in the Aboriginal Reserves Register at the time of its notification states that the reserve was established:

For the use of Abor: Fred Buchanan who has a family of 3 children. Police state that Buchanan is a very steady man and will make good use of the land.

The Cowlin-Buchanans

Fred Buchanan (also 'Yellow Fred') was the son of an Aboriginal woman named Maggie Cowlin from an apparent liaison with a Frank Buchanan (a member of a prominent local family of white settlers who had selected land at Deep Creek in the 1870s).¹⁰⁶ Fred was married to a Kathleen (Kate) Hooker and two of their three children at the time of the Reserve establishment were Eddie and Freddie.¹⁰⁷ Fred and Kate ultimately had 17 children.

When the Smith family who took up the land adjacent to the reserve in 1910, Fred's mother Maggie Cowlin was still living on the Reserve with her de-facto – an Aboriginal man named Davy Cowlin.¹⁰⁸ Kathleen Thurtell (nee Smith) described the couple as follows:

*Davy and Maggie were a fine old couple. Davy tall and straight in spite of his age. He was a quiet and gentle old fellow. Maggie on the contrary was short and very fat, lively and fun loving. When Maggie laughed it began with a titter, rising and rising into a loud cackle. When Maggie laughed, everyone laughed with her.*¹⁰⁹

The Cowlin-Buchanans were a significant extended local Aboriginal family (described by Pop Smith and Kathleen Thurtell as 'people of importance') who maintained their Aboriginality despite the changing times. Davy Cowlin was considered a clever man and described as 'Bossman of the rain'. His stepson Fred was initiated and taught the language, law and stories of his people. Moving between his own culture and that of the white settlers, he was also a champion competitive axeman. He believed himself to be an educated man as revealed in the following humorous anecdote retold by Kathleen Thurtell:

*'Now me' said Fred. 'I'm a well educated man – I speak three language. 'Do you' said Dad (Alex Smith). 'Yes. I speak the Nambuk, the Bellinger, and the Macleay. I am well eddicated. But when it comes to reading and writing, I'm buggered.'*¹¹⁰

Fred's children were also subject to an Aboriginal education including the legendary Harry (Tiger) Buchanan who retained traditional knowledge and stories – some of which were later recorded and comprise a very significant historical record based on generations of oral tradition (refer Buchanan, H.

1992. *Gumbaynggirr Yuludarra: Gumbaynggirr Dreamings*).¹¹¹

¹⁰⁵ Aborigines Welfare Board: Register of Aboriginal Reserves 1875-1904 (SR NSW2/8349; Reel 2847); McGuigan 1985: 37)

¹⁰⁶ Victor Buchanan pers. Comm. 7 October 2008

¹⁰⁷ Thurtell in Gadsby 1997: 2

¹⁰⁸ Thurtell and Smith 1998: 4

¹⁰⁹ Thurtell and Smith 1998: 4

¹¹⁰ Thurtell in Gadsby 1997: 16

¹¹¹ Harry was born in 1898 and died in 1980. His Aboriginal name Maruwanba Maruungga was a combination of the name given him at the time of initiation (Maruwanba) and a word related to his home place of Cow Creek (Maruungga) – refer Buchanan 1992: iv

Neighbours

Maggie and her grandchildren had a close association with the Smith family who referred to her as 'our Maggie'.¹¹² Maggie was the first person the Smith's met when they arrived at Cow Creek and the Smith boys quickly became 'bosom mates' with the eldest of Maggie's grandchildren.¹¹³ Kathleen Thurtell described the meeting of the Smith family with the Aboriginal people of Cow Creek reserve in c.1910 as follows:

A couple of days after our arrival, Ron, Alf and I were sitting in the grass sorting out a collection of pretty pebbles we'd picked up while paddling in the creek. Not until she was right on us did we notice the approach of a black woman. Scared, we jumped up and bolted inside. Mum came to the door and the woman said 'My name Maggie, Missus. You wantum washing done?' We were peeping around mum's skirt and Maggie looked at us and chuckled 'You fright of blackfella, hey? No, you not be fright of old Maggie'. And soon we were chattering away to her.

Later she came back bringing three of her grandsons: Harry, Clydie and Victor. The boys could not pronounce Victor so they called him 'Bicca' - and we followed suit.

The aborigines were our only neighbours on the reserve that adjoined our property. We never had better neighbours.¹¹⁴

Working for the Whites

Maggie became the family laundress and would sit cross-legged on the bank of the creek with tubs of water and a washboard - smoking a short clay pipe while the Smith children 'crowded around her chattering like magpies'.¹¹⁵ She was paid not in money but in tea, sugar and tobacco. Davey also supplied fish to the Smiths in return for a plug of tobacco.¹¹⁶

Death of Maggie Cowlin

Family matriarch Maggie died some time in the opening decades of the 20th century and her traditional funeral ceremony at Cow Creek attracted Aboriginal families from far and wide. The event was described by the Smiths as follows:

Davy and Maggie grew old and eventually Maggie died. The grandsons asked permission to take the bark from a huge old tree growing on neighbour's land. Skilfully, two large slabs were chopped unbroken from the tree to be used as Maggie's coffin.

A large gathering of coloured people came to the funeral. It transpired that the old couple were people of importance and were the last members of their particular tribe. Maggie was buried in a grove of trees in a corner of the Reserve. At sundown a big fire was lit and shortly afterwards everybody left. The Reserve was deserted for a couple of weeks then the family came back and lit another fire and again everybody left.

After a third fire, the families once more settled back on the Reserve. On being asked about the

¹¹² Thurtell in Gadsby 1997: 12

¹¹³ Thurtell in Gadsby 1997: 2

¹¹⁴ Thurtell in Gadsby 1997: 1-2

¹¹⁵ Thurtell in Gadsby 1997: 2

¹¹⁶ Thurtell in Gadsby 1997: 3

¹¹⁷ Thurtell and Smith 1998: 4-5. LALC representative Bridget Walker has said that Davy's death certificate suggests he was buried at 'Cow Creek Cemetery' (Bridget Walker pers. comm. 7 October 2008). There appears to be no council records of a cemetery of that title and it is possible Davy was buried on Cow Creek reserve – the cemetery being a reference to the location of the burial of Maggie Cowlin.

fires, they explained that the first two fires had thrown out many sparks and this showed that Maggie's spirit still lingered and they could not stay. There had been no sparks and this showed that Maggie's spirit had departed and they were free to return home. Poor old Davy was very lonely without Maggie. Most of the time he spent alone sitting on the bank of the creek. Somehow, even to white neighbours, with the passing of Maggie, the Reserve was a different place, seemingly so quiet and lonely.

Finally all the dark people left the Reserve and went to live on Stuart Island. And there old Davy died, the last of his tribe.¹¹⁷

The last paragraph of the quote presented above suggests a simple end to the Reserve. The reality appears to have been somewhat more complex. Historian Heather Goodall has stated that the Reserve land was leased to whites 'in the devastating land loss of the 1920s'.¹¹⁸ Her view that the Buchanans were moved off, runs somewhat counter to the Smiths family's view that they simply 'left'. Curiously, the Reserve land was not officially degazetted until 1952.¹¹⁹

Information on the intervening years between c.1920 and 1952 is scant. The Reserve area is denoted on parish maps post-dating 1915 as reserved for mining purposes - though there is no evidence the reserve was used for such purposes. A white family, the Piggotts, moved onto the Reserve in the c.1920s and stayed there until WWII.¹²⁰ Clyde Piggott, who lived on the Reserve as a child in the 1930s remembers that the land (at the time held by Cecil Hamilton Piggott) was used to fatten cattle. During his time on the land former Reserve structures included one house with a veranda, single bedroom, lounge, and kitchen – one of a number (possibly three) that had previously existed on site.¹²¹ There was also a stockyard, cow bales, and a horse shelter.¹²² At around the time of its official degazettement the land was subject to conditional purchase by a W. Stanton.

Refer **figures 24 – 26**.

¹¹⁸ Goodall 1996: 84

¹¹⁹ McGuigan 1985; Thurtell in Gadsby 1997: 22; 41

¹²⁰ Clyde Piggott in Gadby 1997: 41

¹²¹ Thurtell mentions two government built houses that were kept spotlessly clean but never slept in (Thurtell and Smith 1998: 4)

¹²² Clyde Piggott pers. comm. 18 November 2008

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Figure 24: Valley Valley parish map showing the location of the Cow Creek Aboriginal Reserve (post-1885)
(LPI Parish Map Preservation Project)

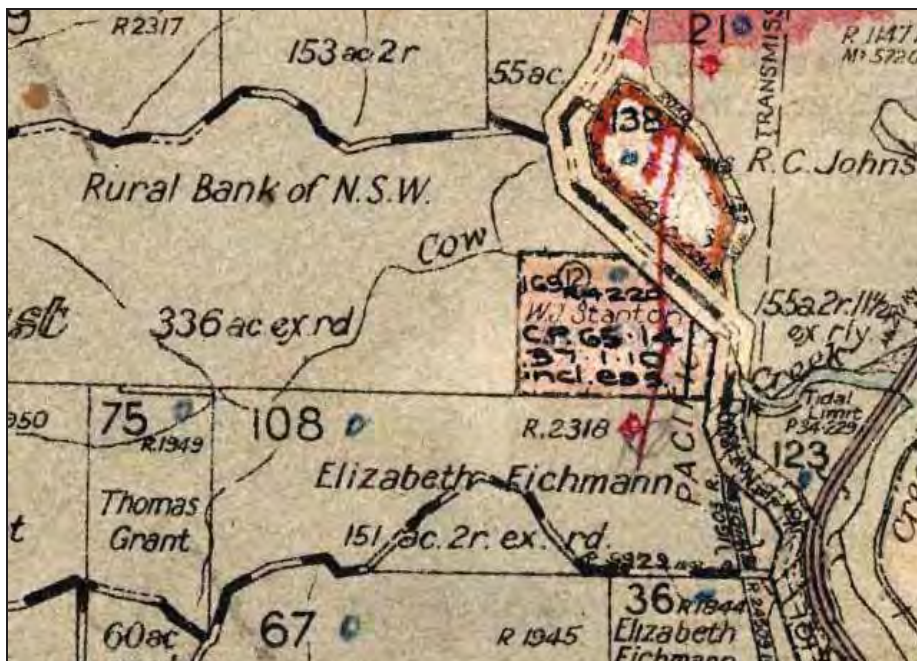


Figure 25: Valley Valley parish map showing the location of the Cow Creek Aboriginal Reserve (c.1950s)

At this point the reserve has been revoked and the site leased to white settlers

(LPI Parish Map Preservation Project)

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Figure 26: The Cow Creek Reserve Area (1956)

This air photo shows the cleared reserve area after its degazettement. A cluster of buildings in the centre left of frame is likely to be the remnants of the reserve housing and allied structures. (LPI Lands Photo NSW 192 5047 Macksville-Nambucca Run 2 April 1956)



Figure 27: Harry 'Tiger' Buchanan and Gary Williams (c.1980s) (Photo presented in Dunne 1991: 77)

Tiger Buchanan grew up on Cow Creek Aboriginal Reserve and was one of the last of the Aboriginal residents before moving to Stuart Island. By 1980 none of the last residents were still alive¹²³. The son of Fred Buchanan, Tiger was a well-known local man and knowledge holder who worked a number of jobs in the local area – including spearing mullet in Deep Creek and selling them to local landholders.

¹²³ Gary Williams Pers. comm. 20.6.09

In the 1970's Harry formed part of the team of Aboriginal Elders and knowledge holders employed by the NSW National Parks & Wildlife Service to document stories and places of importance to the Aboriginal People of the north coast. The project was known as the Sacred Sites Survey and resulted in numerous recordings now held in the DECCW AHIMS database. However, the records for the Cow Creek Reserve do not contain any information supplied directly by Harry during that period.

In 1980, before Harry died, he and his sister Eileen, Walter and Laura Jarrett revisited the Cow Creek Aboriginal Reserve as part of a program of the Gumbaingirr Corporation for the Elders. Gary Williams facilitated the visit and remembers Harry pointing out the old burial site.

Information on the Aboriginal residents and their life on the Reserve is largely indirect, coming from later members of the Buchanan family and including historic records and reminiscences of local farm owners [see also section 4.1.1 and 4.1.2].

Aboriginal Association with Cow Creek

The Aboriginal history and significance of the Cow Creek area goes beyond the Reserve and is suggestive of attachment to the area predating European settlement. Kathleen Thurtell and Pop Smith for instance wrote:

*According to Davy, the last battle between tribes took place on a slope midway between the tribal ground and the reserve. A party of black fellows from the Bellinger came across and there was a fight. As Davy said: 'Big ... plenty big ... plenty bad'. One fulla kilt, three-fella close up kilt'. Davy himself fought in the battle.*¹²⁴

The fact that Davy was an old man in 1910 when the Smiths first came to know him suggests that the aforementioned tribal fight took place in the mid to late 1800s when Davy was considerably younger and more able – quite possibly some time before both local white settlement and the establishment of the reserve. Given this, and information contained in the following section, it is likely that Davy had considerable attachment to the local area and may well have lived locally before the reserve was up and running. A mud map produced by Pop Smith [see Appendix 1] suggests that the “battle” may have taken place within the study area (based on his rough placement of the “tribal land”¹²⁵), though this map has no particular spatial accuracy and the location of the “tribal land”, discussed below, is likely to be further west than indicated by Smith. Therefore it is not clear exactly where the “battle” took place. The archaeological implications are discussed in Section 4.3.

A “Conflict Site” has also been registered in recent years within the Cow Creek Aboriginal Reserve by local man and descendent of reserve residents Victor Buchanan. This does not

¹²⁴ Thurtell and Smith 1998: 4-5

¹²⁵ And assuming that this is the same as the “tribal ground”.

refer to the “battle” above, but to a tribal killing of young men which apparently took place within the reserve, as related to Victor by Harry and Eddie Buchanan¹²⁶.

Corroboree Ground

Along with the tribal fight, another important traditional Aboriginal place within the local landscape was a former corroboree ground [now destroyed] possibly sited within the Welsh property of the current study area.¹²⁷ Kathleen Thurtell who came to the property in 1910 described it as follows:

*Soon after coming to Valla, Dad had found an Aboriginal corroboree ground on our property, but this had not been used for a long, long time. Although Davy (Cowlin) was our good friend, he would not talk about it except to agree that it had been a corroboree ground. We were all very curious about it, but Maggie and the younger ones knew nothing and were not interested and Davy didn't answer when dad questioned him.... The ground was circular, about an acre in area and surrounded by large trees. The trunks of these trees were deeply carved, each carving being a different shape and size, and higher than a man's head. Dad and Henry (Pop) thought the carving must have been done many years earlier and the trees grown much taller.... Koalas lived around there undisturbed by us until a bushfire in 1917 crept from the other side of Jarretts Knob and swept across Mount England, destroying the carved trees and killing every koala. It was a great loss, for today the tribal markings would have been of great interest.*¹²⁸

It is noted that the description of the site includes deeply carved geometric designs enclosing a circular area. It is interesting also to note that the only information Davy supplied was to simply agree that it was a corroboree ground.

Thurtell describes the site as ‘West of the Reserve at the foot of Mount England’.¹²⁹ A mud map created by local resident Pop Smith [See Appendix 1], appears to place the site (or “tribal land”) towards the western end of the Welsh property, though the location is only broadly indicative and the map is not to scale. The precise location is unclear, though it seems unlikely that a ceremonial ground of the size described could have existed within the study area, as there do not appear to be any areas of sufficient size and flatness to have accommodated it (see discussion in Section 4.3).

¹²⁶ Victor Buchanan pers. comm. 21/7/08.

¹²⁷ The exact location is uncertain – Dolly Smith (Pop Smith's wife) is understood to have believed that there was a ceremonial area near a grove of trees (now gone) within the reserve itself (Brenda Gadsby pers. com.). It is also possible that there were more than one location used for ceremonial purposes.

¹²⁸ Thurtell in Gadsby 1997: 8.

¹²⁹ Thurtell and Smith 1998: 4.

Collectively, the local battle, the corroboree ground, the siting of the reserve on Cow Creek, and Mount England (a Yam increase site) are indicative of a broad and varied Aboriginal cultural and spiritual landscape spanning pre-contact and historic times with high Aboriginal significance. Of these important places only Mount England and the Reserve retain any physical evidence and both are afforded s90 protection under the NPW Act and are registered on the DECCW AHIMS Register.

For additional information on the reserve (and the Smith and Cowlin-Buchanan families) refer also **Appendix 1**.

3.3.4 Recent Aboriginal History

The Aboriginal residents of Cow Creek Reserve moved onto the Stuart Island Aboriginal Reserve near the mouth of the Nambucca River in the 1920s. Stuart Island reserve was declared in 1883 - the island itself named after John Campbell Stuart who is said to have built the first ship on the Nambucca River.¹³⁰ Originally set aside for the extended family of Frank Waddy, the revocation of numerous reserves statewide after WWI (including Cow Creek) ensured that the Buchanan and Smith families ultimately joined the Waddys.¹³¹ In 1916 an Aboriginal school was established on the Island and the reserve operated there until around 1948 when the people were again moved on - this time to nearby Bellwood Reserve on the Nambucca mainland. Other reserves in the region where Aboriginal families resided included large settlements at Bowraville.

While the living places of the Nambucca Aboriginal families were often separate to those of local white landholders, their workplaces were generally not. Aboriginal people featured strongly in the local workforce and were prominent in the milling industry, boat yards and a number of commercial and semi-commercial fishing enterprises (such as bait gathering, oyster getting and seasonal fishing).¹³² Many people are known to have combined numerous occupations. Bill Robertson for example (who along with Lambert Waddy is frequently described as the 'last full-blooded' local) made laundry baskets from lawyer vines selling them for 10 shillings to Nambucca residents. He also dived for oysters selling them for 10 shillings per $\frac{3}{4}$ of a sugar bag and during the mullet season (April) he speared mullet with a three-pronged spear.¹³³

As cropping replaced clearing and milling and boat construction declined from the mid 20th century local Aborigines remained none-the-less regularly employed in a number of occupations – especially as labourers on local farms where they worked seasonally as vegetable pickers. Increased farm mechanisation and other factors lead to a general decrease in agricultural work for indigenous and non-indigenous workers alike from around the 1960s

¹³⁰ Goodall 1996: 297

¹³¹ Dunne 1991: 77

¹³² Dunne 1991; Clyde Piggott pers. comm. 18 November 2008

¹³³ Dunne 1991: 76

and lead to broad-scale movement off the land. As a consequence, many Aboriginal farm workers left the land for work in regional and city centres and the urbanisation of many formally rural or regional families commenced - a demographic trend that is only now in the process of reversal.

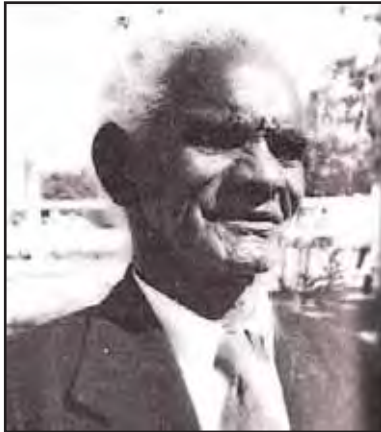


Figure 28: Lambert Waddy

Lambert Waddy was a local Gumbaingirr clever man and shipwright – he worked for Nambucca-based boat builder Rock Davis. Lambert was the undertaker at Maggie Cowlin's burial at Cow Creek Reserve. He died in 1960. (Image in Dunne 1991: 12)

Continuing Association

Since the 1970s, there has been a continuous period of what has been described as 'cultural intensification' in New South Wales Aboriginal communities. This period of cultural revival has resulted from renewed interest in Aboriginality and Aboriginal heritage and has lead Aboriginal people across the State to re-establish cultural links with kin and places of cultural significance. This process has been enabled and propelled by the freedom rides of the 1960s, reformation of Aboriginal Affairs in the 1970s, the Land Rights Act 1983 (NSW) and the establishment of Aboriginal Land Councils and Native Title Claimant groups. The process has been further advanced through the works of individuals within Aboriginal communities who have sought to reinvigorate and promote Aboriginal culture.

4.0

Aboriginal Cultural Heritage

Building on the historical and environmental information presented in the previous chapter, this section addresses Aboriginal cultural heritage within the subject land and surrounds. As such, it references information derived from research into the region's archaeological record and presents the results of site survey work undertaken specifically for this project.

4.1 Previous Archaeological Research and Investigations

In addition to the historical and oral historical information about Aboriginal people and non-Aboriginal people in the vicinity of the study area described in the previous section, archaeological work has provided further evidence of how the area has been used in the distant and more recent past. This section reviews the available sources of this information, primarily registers of heritage items and past archaeological/heritage studies, generally undertaken in relation to development proposals over the last 30 years.

4.1.1 Aboriginal Heritage Information

The main source of information about Aboriginal heritage 'sites' in the vicinity of the study area is the DECCW Aboriginal Heritage Information Management System. This includes the Aboriginal Sites Register (the 'AHIMS Register') and a Catalogue of Archaeological Reports. These records form an imperfect resource, with numerous errors and omissions. AHIMS is also currently undergoing a large scale digitisation of records which has meant that some records (particularly previous archaeological studies) are not currently available. The AHIMS Register and reports catalogue were searched in detail, as well as additional in-house DECCW research records (such as the Living Places Project). Past archaeological and other heritage studies not available through AHIMS were sourced directly from consultants and other repositories.

Aboriginal Sites in the Area

Prior to the archaeological field survey, a search was undertaken of the AHIMS Register of a 20km x 20km area centred on the subject land¹³⁴. This large search area was to provide a broader perspective of site distribution in relation to historical development of the surrounding areas, and included 10-15km of coast and hinterland country between about the Nambucca River at Macksville and just south of Urunga. The search revealed a total of 82 previously recorded Aboriginal sites within this area, representing a wide range of habitation, ceremonial, burial and resource gathering sites including post-contact Aboriginal reserves and associated cemeteries. None of these sites appear to be located within the study area, though several are located in close proximity (see below).

¹³⁴ Search of 23 May 2008 within AMG coordinate range E485000-E505000, N6603000-N6623000.

The AHIMS Register lists these sites according to site features, of which any one “site” can have several. For example a burial associated with a carved tree is listed as two “features”. **Table 1** summarises the information from the AHIMS Register search and provides a comparison with another recent site search which covers the Nambucca LGA (extending considerably further inland). A search was also undertaken of the DECCW Living Places Project database¹³⁵ (of Aboriginal sites of historical/contemporary significance) but did not result in any additional sites of immediate relevance being identified. Several things should be noted in interpreting the table:

- The site features are often poorly defined and certainly not uniformly understood by site recorders (archaeologists and Aboriginal community members). There have also been systematic errors in data entry onto the AHIMS Register¹³⁶.
- The AHIMS Register is an incomplete and fragmented record of the type and frequency of Aboriginal heritage places in any given area. The physical distribution of sites does not represent their actual/origin distribution and is largely determined by the level of destruction from historical impacts and the level of development (and hence archaeological studies) in the last 30 years or so. Generally this means that more sites have often been recorded in coastal areas (in which more studies have been undertaken) even though a greater proportion of the original number of sites has also been destroyed in these areas. **Table 1** shows a density of approximately 4 sites per 10km² for the area searched compared with less than one site per 10km² for the whole LGA which takes in less developed mountainous areas to the west. As a general rule (except in areas highly impacted by historical land use) the more survey that is undertaken the more sites are recorded.
- The frequency with which individual types of site are recorded is also not reflective of actual frequency. It is determined by the visibility/resilience of various site types and the focus of research. For example in the areas searched, recording of culturally significant places (including ceremonial grounds) was undertaken by the DECCW (then NPWS) in the mid to late 1970s allowing a greater number of such places to be recorded than in some other parts of the state. Since that time the majority of recordings have been made by archaeologists with a greater focus on pre-contact physical evidence (such as stone artefacts, middens and scarred trees), which accounts for their relatively high frequency. It can also be noted that “Aboriginal Resource and Gathering Sites” have been recorded in much greater numbers in recent years no doubt due to research highlighting what these places are and how they may be recorded¹³⁷.
- Sites continue to be recorded and not all *recorded* sites have been *registered* (see below).

¹³⁵ Search by DECCW Historic Heritage Information Management System Registrar Katrina Stankowski 15 May 2008.

¹³⁶ DEC 2005:31-33.

¹³⁷ English 2002.

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Table 1. Site features from AHIMS Register search for the current study and for Nambucca LGA.

Site Feature	AHIMS Register Search Features (% of total features)	Nambucca LGA (DEC 2005) Features (% of total features)
Artefact (stone, bone, shell, glass)	22 (23%)	55 (38%)
Modified Tree (Carved or Scarred)	15 (16%)	12 (8%)
Aboriginal Ceremony & Dreaming	15 (16%)	16 (11%)
Aboriginal Resource and Gathering	11 (12%)	1 (1%)
Habitation Structure	9 (10%)	9 (6%)
Burial	6 (6%)	5 (3%)
Ceremonial Ring (stone or earth)	4 (4%)	8 (6%)
Shell	4 (4%)	17 (12%)
Water Hole	2 (2%)	2 (1%)
Conflict	2 (2%)	1 (1%)
Rock Art	1 (1%)	1 (1%)
Non-Human Bone & Organic Material	1 (1%)	1 (1%)
Earth Mound	1 (1%)	14 (10%)
Ochre Quarry	1 (1%)	0 (0%)
Stone Arrangement	0 (0%)	1 (1%)
TOTAL	94 (100%)	143 (100%)

The most relevant/closest sites to the current study area are located to the northwest at Mount England and to the east within the former Cow Creek Aboriginal Reserve:

- **Mt England Yam Increase Site** (AHIMS #21-6-0044). This is a ceremonial site located at or near the top of Mount England above and to the west of the study area. It was recorded by the NPWS Sites of Significance Survey in late 1970s by Ray Kelly Snr and Gumbainggirr Elder Harry Buchanan.
- **Cow Creek Aboriginal Reserve** (AHIMS #21-6-0220, 0228). As detailed in **Section 3.0**, the reserve was in use between about 1890s and the 1920s by several Aboriginal families. It was first placed on the AHIMS Register in 2003 by McIntyre-Tamwoy as part of an Aboriginal Heritage planning study for Nambucca Shire and then again in 2005 by Mills during initial RTA survey for a proposed upgrade to the Pacific Highway. It covers the whole of the official extent of the reserve (Pt 169 in DP755560) including the site of the burial of Ms Maggie Cowlin (one of the last residents), described as “in a grove of trees in a corner of the reserve”. None of the documented physical remains (e.g. buildings, burials) appear to extend into the subject land but reserve inhabitants are likely to have traversed or used portions of the subject land.
- **Buchanan Conflict Site** (AHIMS #21-6-0286). Recorded by Victor Buchanan in 2007 in relation to an upgrade of the Pacific Highway along the eastern edge of the reserve. It is located along Cow Creek within the former Cow Creek Aboriginal Reserve. It was the site

of a tribal killing and burial of two young men from another tribal group who had fled that group, were pursued by other members of the tribal group and sought refuge within the reserve, but were killed at that site by their pursuers¹³⁸. It was recorded by Victor Buchanan on the basis of oral testimony from Harry and Eddie Buchanan, and no associated physical remains have yet been documented.

4.1.2 Previous Archaeological Studies in the Local Area

A number of archaeological studies have been undertaken in the vicinity of the subject land within the last 30 years which have led to the identification of a range of Aboriginal sites and areas of Aboriginal cultural and historical significance. These studies have been unevenly distributed across the area. A recent overview of past research within the Nambucca Local Government Area demonstrates that such research has been almost exclusively restricted to consultancy projects on the coastal strip and immediate hinterland with little known about the largely agricultural hinterland areas¹³⁹. Of most relevance to the current study are:

- The “NSW Survey of Aboriginal Sacred and Significant Sites” was conducted by the then National Parks & Wildlife Service primarily in the mid to late 1970s and involved recordings of these types of sites in various areas by senior Dunghutti man Ray Kelly, NPWS anthropologist Howard “Harry” Creamer and local Elders. In the Nambucca area, a range of sites were recorded together with senior Gumbainggirr Elder Harry Buchanan, including the Mount England Yam Increase site. In addition, a later trip was made by Harry Buchanan and Gary Williams to the Cow Creek Aboriginal Reserve in which the locations of Aboriginal burials were identified (Gary Williams pers. comm. 7/10/08). It was initially thought that Howard Creamer accompanied the Aboriginal people on that trip to the Reserve. He was contacted by telephone (8/10/08) to enquire about the location of any written or photographic records of that visit. Mr Creamer could not recall the trip but referred MDCA to selected reports within the “Howard Creamer Collection 1973-1987” as containing all of the information he had compiled about the Nambucca area. However MDCA checked these files and found that they contained only information associated with registered sites and nothing about the Cow Creek Aboriginal Reserve.
- Davies (1991) conducted an assessment of a roughly 200km section of a proposed Telecom optic fibre cable route which included survey within the eastern portion of the Ussher property and the former Cow Creek Reserve lands. The survey corridor was 6m in width and was mostly inspected either on foot or “inspected from the front bullbar of a slow-moving 4WD” (p21). The methods used across the current study area are not specified but no archaeological material was detected and Davies was

¹³⁸ Victor Buchanan pers. comm. 21/7/08.

¹³⁹ DEC 2005:Appendix 1 p7-8.

apparently not aware of the former Cow Creek Reserve and its Aboriginal connections. No Aboriginal heritage constraints were identified and the cable was subsequently laid, unmonitored, through the Reserve.

- Kuskie (1992, 1993) assessed another optic fibre cable route for Optus. Initially the cable was proposed to run along the western edge of the Pacific Highway in the vicinity of the study area, but the route was subsequently shifted about 1.2km west (and about a kilometre west of the Telecom route surveyed by Davies). This route passed northeast through the western half of the Welsh property from its intersection with the northwest corner of the Ussher property. The route was surveyed by Kuskie who noted moderate disturbance and low surface visibility and identified no archaeological constraints (1993:15). The cable was subsequently laid.
- Mills (1997, 1999, 2000) assessed the route of a proposed 132kV transmission line between Kempsey and Coffs Harbour. Within the vicinity of the study area, the proposed line followed the route of the Optus optic fibre cable previously surveyed by Kuskie (1993) and an existing 66kV transmission line which it was to replace. An initial desktop study had identified landform units with high archaeological sensitivity along the proposed route¹⁴⁰. During Mills' 1997 survey, Nambucca Local Aboriginal Land Council representative Stan Jarrett pointed out the "Buchanan family camp" in the vicinity of the current study (as somewhere within the Cow Creek valley) but further details were not obtained and the camp was not correctly identified at that time as the Cow Creek Aboriginal Reserve. Mills prepared an AHIMS Register site card for the site but this does not appear to have been submitted. Mills also noted that, from an archaeological perspective, the Cow Creek floodplain was "heavily disturbed by recent grazing and farming activities" (1997:25). However an area of Potential Archaeological Sensitivity was identified in this area (Mills PAS 21) on the basis of its Aboriginal historical and cultural significance, and recommendations were made to restrict the power lines and power poles to the existing easement of the fibre optic cable and 66kV transmission line easements, and for installation to be monitored by the Nambucca Local Aboriginal Land Council (1997:31).

As the power pole locations had not been determined at the time of the initial survey, Mills also recommended specific archaeological assessment of proposed power pole locations which fell within areas of assessed Potential Archaeological Sensitivity. This further survey was carried out by Mills in 1999, including the sites of poles 334 and S1-S7 within or immediately adjacent to the subject land. These locations were all noted as having been heavily disturbed by historical activity and most were assessed as having low archaeological sensitivity and not requiring any further heritage input prior to installation. Two poles (S4 on a 'creek terrace' and S5 on a 'ridge crest') were

¹⁴⁰ Craig & Bonhomme 1995.

assessed as having moderate sensitivity and were recommended for monitoring during construction.

Some limited archaeological excavation (augering) was also undertaken by Mills at a number of pole locations (Mills 2000) including S4, along Cow Creek but did not result in the identification of any Aboriginal cultural material. The power line was subsequently installed.

- Susan MacIntyre-Tamwoy undertook a shire wide Aboriginal Heritage Study for the Nambucca Shire Council in 2003. The study was ratified by Council in late 2008, but has been available since 2003. The study provided Council with a complete site listing based on the AHIMS Register, and on a series of surveys specifically undertaken for the study. The study provides a comprehensive historical background and Aboriginal history, site predictive modelling as well as site management and planning guidelines for the Aboriginal heritage of the shire.

No Aboriginal sites had been previously identified within the subject lands and this area was not chosen for survey by that study. MacIntyre-Tamwoy's study was the first to formally register all the Aboriginal Reserves within the shire on the AHIMS Register, including the Cow Creek Aboriginal Reserve. These registrations/ site recording forms included references to the information supplied by the Sacred Sites Survey and the additional historical research undertaken by MacIntyre-Tamwoy for the study.

- A range of investigations have been undertaken in recent years in relation to the upgrade of the Pacific Highway between Macksville and Urunga, some of which are ongoing. Records are rarely publicly available, as reports have either not been submitted to the DECCW AHIMS or are yet to be released or are available only in summary form. Initial investigations were undertaken by Mills (SKM 2004, Mills 2005) within a corridor including the eastern margin of the current study area and the former Cow Creek Aboriginal Reserve. The historical significance of the Reserve was identified by Mills (apparently unaware of its prior registration by McIntyre-Tamwoy (2003)). The route was surveyed on foot and by car based on a sampling of landform and assessed sensitivity. Within the vicinity of the current study area, Mills identified the Cow Creek Reserve as having high significance, and also identified the north and south terraces of Cow Creek within the eastern portion of the reserve as having Potential Archaeological Sensitivity (Mills PAS17 and 18 respectively). Mills recommended the use of ground penetrating radar to attempt to locate the known Aboriginal burial (of Maggie Cowlin) within the Reserve. Additional research by Mills led to the identification of the location of the burial by local Aboriginal man Neville Buchanan as within the south western corner of the reserve (Mills 2005:18). Terraces associated with both sides of Boggy Creek were also assessed as having archaeological sensitivity (PAS80, Mills 2005:21). It is noted that these areas of sensitivity are outside of the current study area.

It is unclear what specific additional archaeological works were recommended in relation to the Cow Creek Aboriginal Reserve and associated areas of potential archaeological sensitivity, however Aboriginal archaeological test excavations of over 100 0.5m x 0.5m pits on a 5m grid were undertaken in October 2008 within the eastern side of the reserve south of Cow Creek by Sinclair Knight Merz. The excavations resulted in the retrieval of low densities of stone artefacts, but results are not yet available.

Several other studies of some relevance have also been undertaken further afield than those reviewed above.

- Rich (1989, 1990) investigated Aboriginal historic sites in north-eastern New South Wales and identified the Cow Creek Aboriginal Reserve.
- Willoughby (1997) surveyed a proposed extension to the hard rock quarry on the western slopes of Mount England at a similar elevation to the current study area. No Aboriginal sites were located and no archaeological constraints were identified, in what was assessed as a disturbed landscape with low archaeological potential. The Nambucca Local Aboriginal Land Council supported the proposal as long as it did not extend further up Mount England (and therefore presumably potentially affect the significance of the yam increase site there (AHIMS #21-6-0044)).
- A range of residential and commercial subdivision proposals have been investigated at Nambucca and Valla Beach but are of limited relevance to the current study as they are located in very different topographical and environmental zones.

Our understanding of the history and nature of Aboriginal occupation in the vicinity of the study area is limited to the relatively small number of Aboriginal archaeological research or consultancy projects which have been undertaken. Although there is information on a greater variety of places than at some other points along the coast (e.g. including a range of cultural/ceremonial and post-contact sites) we currently lack an overall framework of how and why Aboriginal people lived in, and moved through, the local landscape in the pre and post-European contact past in which to place newly recorded sites and historical information.

However it is clear that the local landscape included sites of ceremonial significance to Aboriginal people and that this significance survived the arrival of Europeans. Given what we know from other parts of the state¹⁴¹, it is quite possible that the Cow Creek Aboriginal Reserve was gazetted at its location due to the wishes of local Aboriginal people to be close to culturally significant places and/or resources. The archaeological sources also indicate the

¹⁴¹ See for example Goodall 1996.

range of evidence which may be found within the study area and the likely contexts in which it may be found.

4.1.3 Implications for Heritage Management

Based on the contextual information presented above, it is possible to summarise the nature, extent and possible location of Aboriginal heritage and the nature of historical associations that might be expected within the study area.

Sites & Places

Aboriginal cultural heritage within the study area may take the form of physical 'sites' (pre- and post-contact) and/or areas with historical/cultural associations to Aboriginal people living today. Research for the current study has established some of the history of the Cow Creek Aboriginal Reserve and the clear relationship between some of its residents and the non-Aboriginal Smith family on the adjacent property. It is likely that most formal activities would have been restricted to the reserve area, and burials of reserve residents are also likely to have been within the boundaries of the reserve, where some control/care could be extended over them.

Byrne & Nugent (2004) have discussed the ways in which Aboriginal people moved about the landscape in the late 19th and 20th centuries on the mid-north coast, avoiding the properties of "hostile" Europeans in order to get from their place of residence to resource or recreational places. It is clear that in the current study area, the residents of the reserve are likely to have had relatively free access to and through the Smith family property.

Given the topography of the study area, with narrow ridges and spurs flanked by steep gullies, it is likely that Aboriginal people would have used the longest and flattest of these spurs to travel between Mount England and other adjacent hills and the coastal plain. Archaeological evidence is most likely to be in the form of isolated or low densities of stone artefacts on the surface and possibly sub-surface. More dense concentrations of artefacts, representing the remains of campsites, may be located on relatively flat spurs above permanent or semi-permanent water, or on creek banks not prone to flooding. It is unlikely that organic material (e.g. animal bones) will have survived in the relatively acidic soils of the study area, though charcoal and hearth stones from campfires may have. Given the clearance of original timber from the property, and the documented disturbance from cultivation, road construction (along the spurs containing Cow Creek and Boggy Creek Roads) and house construction as well as recent electrical and telecommunications infrastructure, it could be expected that most portions of the study area will be at least partially disturbed, as previous studies have also suggested.

As noted above and discussed in Section 4.3 it is also unlikely, on the basis of topography, that the ceremonial ground in the area was located within the study area, as there appear to be few if any areas of sufficient size and flatness to have accommodated such a site.

Other physical remains which may have survived are scarred or carved trees, resulting from extraction of bark for practical purposes (e.g. to make containers) or for ceremonies (e.g. carved trees adjacent to burials). Given the interest the Smith family took in Aboriginal culture and the people on the nearby reserve the likelihood of these types of evidence remaining undetected on the properties is very low. Similarly there is only a low chance for the survival of ceremonial structures such as stone arrangements.

Any physical remains associated with the post-contact use of the area (such as dwellings and burials) are likely to be restricted to the formal reserve area. A former non-Aboriginal resident of the Reserve area, Mr Clyde Piggott, suggested that in the 1930s there was one house left (veranda, one bedroom, lounge and small kitchen) plus a horse shelter, yards and hay bale store.

In addition to physical remains, there are clearly historical associations and potentially cultural associations with parts of the subject land due to the relationship between the reserve residents and the Smith family, as well as traditional/ceremonial activities in the vicinity. Extensive archival/historical research for the current study and previous Aboriginal cultural knowledge recordings¹⁴² have not resulted in the documentation of specific areas of cultural or historical association within the subject land, but have documented some activities which occurred in the general area. The Aboriginal people and organisations consulted for the current study, were asked to provide any additional information about the Aboriginal cultural and historical significance of the area which may be of relevance in assessing its Aboriginal heritage values. This is discussed further below.

4.2 Archaeological Field Survey

The archaeological investigations reported here have consisted of a comprehensive site inspection of the subject land undertaken by *Mary Dallas Consulting Archaeologists* (MDCA) together with representatives of the local Aboriginal community.

Site survey was undertaken over four days from 7 October 2008 to 10 October 2008 by Mary Dallas, Dan Tuck and Paul Irish (MDCA archaeologists) and with NLALC Aboriginal Sites Officer Ms Bridget Walker, local Elder Mr Gary Williams and Cow Creek Reserve resident descendent Victor Buchanan (on 8/10 and 10/10).

The Aboriginal and European cultural heritage surveys of the subject land were undertaken concurrently, with observations relevant to the latter survey discussed on **Section 5**. The purpose of the survey was to locate, record and assess any surface archaeological evidence for past Aboriginal or European use that may be present within the subject land and to assess the potential for subsurface archaeological evidence to occur. In addition it provided an opportunity for the aforementioned Aboriginal groups to participate in the survey and gain an overview of the layout of the subject land as a basis for preparing their cultural heritage report

¹⁴² E.g. The NPWS Sites of Significance Survey.

detailing the views and concerns they may have regarding the future uses of the site (see **Appendix 2**).

4.2.1 Methodology

A search of the AHIMS Register carried out at the time of the field surveys indicated that several Aboriginal sites had been recorded to the east of the subject land within the area of the Cow Creek Aboriginal Reserve. As well as relocating these sites, the field survey concentrated on the identification of previously unrecorded archaeological evidence and areas with potential to contain sub-surface archaeological evidence of Aboriginal occupation.

Survey was conducted on foot, examining all areas of exposed ground and any trees of sufficient age to bear scars of possible Aboriginal cultural origin. An appraisal of ground disturbance, surface visibility and thus estimated effective survey coverage was also carried out during the current site inspections.

Generally, reporting has been concerned with topography (whether sites, features or areas of potential sensitivity are located on slopes or flats etc), context, vegetation, ground exposures, and nature of ground visibility and extent of disturbance. The distinction between site categories (open campsites vs. isolated finds etc) and the definition of areas of potential sensitivity is determined according to the following categories:

- Isolated Finds consist of single artefacts that are located more than 50m apart.
- Sites comprise open artefact scatters that consist of two or more artefacts situated within 50m of each other either on the ground surface or visible in sections of deposit .

The following attributes of each stone artefact that may be located during these investigations are to be recorded:

- Artefact Type: This category records the presence of flakes, flaked pieces and cores etc.
- Raw Material: Raw materials may include silcrete, indurated mudstone or tuff and quartz,
- Dimensions: Maximum length, width and thickness of finds are to be recorded.
- Other: Comments include the presence of cortex and retouch etc.

In addition, frequently used criteria inclusive of landform, aspect, topography and subsurface integrity have also been used to define open areas of **Potential Archaeological Sensitivity**. These are defined as areas with the potential to contain sub-surface deposits of Aboriginal stone artefacts without surface evidence of such artefacts.

Recognition, ascription and recording of scarred trees as being potentially of *definite, probable, or possible* Aboriginal origin is based upon the assessment criteria summarised by *Navin Officer* (1997) and mindful of attribute guides described in *Irish* (2004) and *Long* (2005).

Any Aboriginal cultural material or relevant landscape features were plotted using site plans and a Garmin Geko 201 handheld GPS set to the AMG coordinate system.

4.2.2 Survey Units

For ease of discussion and reporting, the subject land has been divided into four survey units, based on past and present landuse and topography with observations also made within the Cow Creek Aboriginal Reserve although this area is outside/lies adjacent to the study area (See **figure 4**).

Survey Unit 1

This comprises the northern portions of the Welsh property, north of Cow Creek Road, and within the upper catchment of several small tributaries of Deep Creek, most of which have been dammed. It is approximately 35 hectares in area and includes timbered and steeply sloping lands on the north side of a creek at the lower foothills of Mount England as well as cleared and partially cultivated lands across the remainder.

Survey Unit 2

This unit is approximately 75 hectares in size and consists of the western portion of the Welsh property west of Cow Creek at the main homestead along Cow Creek Road. This land is largely cleared and consists of a number of spurs with steep sides and gullies draining into Cow Creek.

Survey Unit 3

This unit, about 30 hectares in size, comprises the remainder of the Welsh property south of Cow Creek Road including the site of the current and former homesteads and associated buildings and a cleared ridge used for small scale timber milling. It also includes relatively flat lands on the eastern/southern bank of Cow Creek between it at the Cow Creek Aboriginal reserve.

Survey Unit 4

This unit includes all of the Ussher property within the study area and is approximately 60 hectares in size. It is largely within the Cow Creek catchment, with a small area in the central southern portion of the unit (south of Boggy Creek Road) draining south into Boggy Creek. It is almost totally cleared of vegetation, partly under cultivation and contains two residential dwellings at its eastern end.

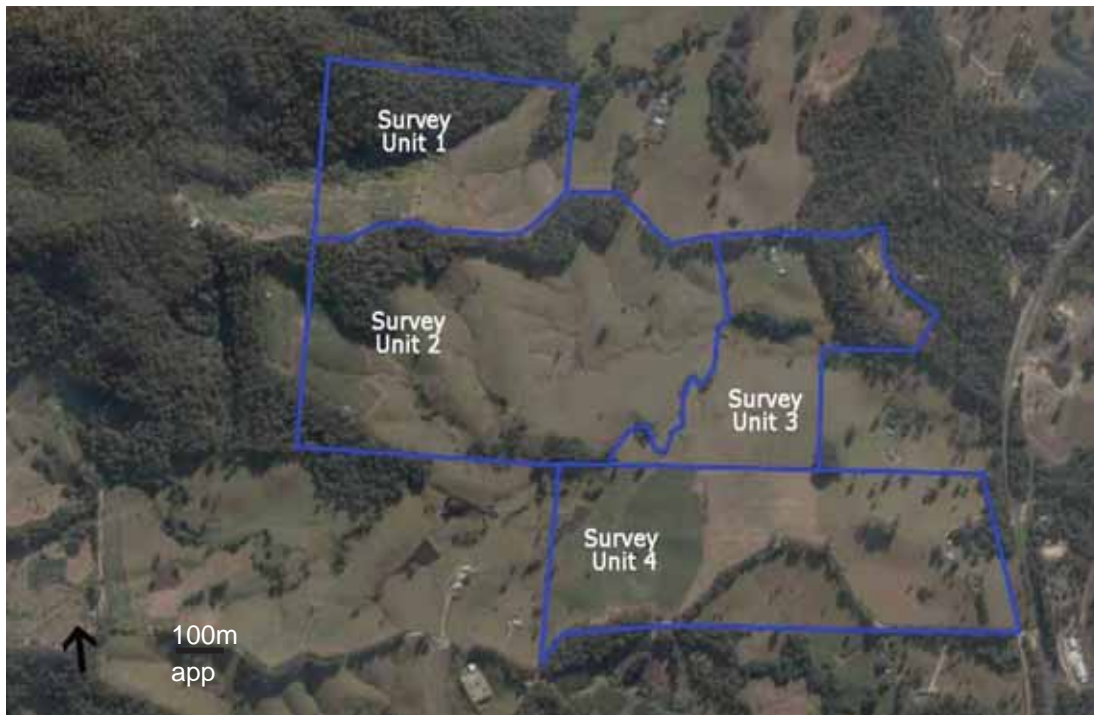


Figure 29: Survey Units used during the current survey.

(Google Earth 2008 – approximate study area overlay in blue based on DP plan by Dan Tuck)

4.2.3 Field Observations

The following observations were made during the field survey, and are presented according to each Survey Unit, as defined in **Section 4.2.2**. In general, all areas of exposed ground were examined for traces of Aboriginal occupation and all mature trees were examined to determine the presence/absence of scars of Aboriginal cultural origin. Survey was undertaken as a group or individually following tracks and paths and examining areas of exposure.

Survey Unit 1

This survey unit comprises relatively steep sloping lands on either side of a tributary of Deep Creek (**figure 30**). On the southern side of the tributary, the western end of the survey unit contains a banana plantation and is characterised by a highly eroded and very steep slope (**Figure 31**). A processing/packing shed is located at the base of the slope adjacent to a dammed minor creek line (**figure 32**). The bed of this creek contained some cobbles but not of raw material likely to have been flaked or ground by Aboriginal people (**figure 33**).

Another minor creek line drains the south eastern portion of the survey unit and has also been dammed. Areas west and south of this creekline are cleared of original vegetation, steep, covered in pasture grass and, where exposed, can be seen to be eroded. On the northern side of this creek line, in the north eastern portion of the survey unit, is a relatively flat and

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broad cleared spur which above the two minor creek lines and Deep Creek to the north and potentially providing access to the latter from Mount England off the Cow Creek Road ridgeline (**figures 34 & 35**). The spur line continues northeast into the adjacent property, though exposed ground just beyond the boundary fence show that little topsoil is retained in this area. However some portions of the spur within the subject land have been assessed as retaining Potential Archaeological Sensitivity (AAS1) as described further below.

In the north western corner of the survey unit, on the northern side of the creek line is an uncleared steep slope at the base of Mount England. This area is thickly vegetated and is not proposed for development impact and was therefore not further investigated. Archaeological evidence of past Aboriginal use is likely to be limited in such steeply sloping areas, with the possible but unlikely exception of any surviving carved or scarred trees.



Figure 30. View west along Survey Unit 1 showing steep slope and AAS1 on the right.



Figure 31. Steep slope and exposed bedrock within the banana plantation.

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Figure 32. Dammed creek line below the banana plantation. View to southwest.



Figure 33. Cobbles exposed in tributary of Deep Creek.



Figure 34. View northeast along area of Aboriginal Archaeological Sensitivity (AAS1).



Figure 35. View west along area of Aboriginal Archaeological Sensitivity (AAS1).

Survey Unit 2

This survey unit contains many of the minor spur lines within the subject land, all draining into Cow Creek. The area is almost entirely cleared, with stands of timber present only in the south western and north western corners and immediately below Cow Creek Road. All of this timber is regrowth, with stumps of older trees visible amongst them (**figure 36**). The western end of the survey unit, including these regrowth woodland areas, and a banana plantation, are very steeply sloping.

East of this are two main spur lines running south/southeast off Cow Creek Road. The western of these is narrow and slopes moderately down along its spine (**figure 37**). It sits above two minor drainage lines both of which have been dammed. Disturbed areas around the dams contained some surface exposure but no Aboriginal archaeological remains were detected (nor would be expected in this steeply sloping context) (**figure 38**).

The eastern spur is the longest within the survey unit and extends south-southeast across the survey unit before bending east and terminating in a steep slope above the main course of Cow Creek. The eastern extension of this spur is relatively broad and flat and sits several metres above Cow Creek, a source of permanent water (**figures 39 & 40**). Although the presence and extent of subsurface deposit with archaeological potential cannot be confirmed from surface examination, the topographic location and flatness of the spur suggest that it retains some Aboriginal Archaeological Sensitivity (and is labelled AAS2 as discussed below).

Small woodland and rainforest patches surface on steep slopes on its southern flank (**figure 41**). Several exposed areas were noted around a power pole, access tracks (strewn with introduced quartz) and scours along the creek tributaries but no Aboriginal archaeological remains were detected.

East of this spur are several other minor spur lines above minor drainage lines feeding into the main branch of Cow Creek. These are small, steep and narrow and do not contain any flat

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areas suitable for camping (**figure 42**). Several trees with natural scars at their base were also noted in this area.

The ridge/spur containing Cow Creek Road is narrow, narrower in fact than the main spur within the survey unit described above and is unlikely to have been broad enough to allow camping. In any case its narrow flat spine has been comprehensively disturbed by the construction and use of the road (**figure 43**).



Figure 36. Stumps of mature trees amongst regrowth timber in the northwest corner of Survey Unit 2.



Figure 37. View south down westernmost spur in Survey Unit 2.

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Figure 38. Exposed area on slope below banana plantation in western portion of Survey Unit 2.



Figure 39. View west along archaeologically sensitive area AAS2.



Figure 40. View east along archaeologically sensitive area AAS2.

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Figure 41. View north over pocket of rainforest below archaeologically sensitive area AAS2 (in background).



Figure 42. View south over eastern portion of Survey Unit 2.



Figure 43. View west along Cow Creek Road showing narrow width of ridge and impact of road.

Survey Unit 3

This survey unit comprises several spurs off Cow Creek Road above Cow Creek after it bends east, including the site of a current residence (also the site of the original Smith homestead). The spur containing the house and associated buildings, yards and fences has been comprehensively disturbed by almost a century of historical activity and in any case ends abruptly with a steep slope (containing a surviving pocket of rainforest) down to Cow Creek (see **Section 5.2.3** and **Figure 75** to **Figure 81**).

East of the house is another south trending spur above the former Cow Creek Aboriginal Reserve. This spur is cleared but flanked by regrowth woodland and is located within the easement for a former proposed road. The top of the spur has been highly impacted by historical activities including recent logging and does not retain any original topsoil (**figure 44**). Lag gravels here contain some locally occurring quartz of flakeable size but of relatively poor quality (**figure 45**) and no artefacts were noted despite the relatively good level of exposure. Several sparsely scattered small shell fragments were noted adjacent to a vehicular track at the northern end of the spur. These included cockle (*Anadara trapezia*) and small whelk (*Velacumantus australis*) which derive from estuarine (mangrove/mudflat) environments and, given their context, are likely to have been recently introduced to the site and are unlikely to indicate the presence of Aboriginal midden.

The remainder of the survey unit consists of relatively flat lands south and east of Cow Creek which are completely cleared and covered in pasture grass (**figure 46**). This area was historically used intensively for cropping and is likely to be relatively disturbed.

East of this area is the former Cow Creek Aboriginal Reserve. Though outside the current study area, some pertinent observations include:

- Current structures within the reserve (house, shed and yards) do not date to the reserve period, though may overlap with the locations of buildings associated with the reserve. The Cow Creek crossing in the centre of the reserve and its banks include brick rubble which may derive from the original reserve houses (fireplaces /chimneys)¹⁴³.
- A small patch of regrowth woodland in the south western corner of the former Reserve (adjacent to Survey Units 3 and 4) is the supposed location of historical Aboriginal burials though no surface indications were found in or adjacent to this area (**figure 49**).
- Immediately northeast of this area was an Aboriginal scarred tree. The tree's scar has healed to a point where no underlying wood is visible. Such trees are sometimes referred to as "zipper" trees. The tree is at least 100 years old and may have been used at the time of the Reserve occupation. The tree is under no immediate threat from the current land use. (**figure 48**)

¹⁴³ Victor Buchanan pers. comm. 8/10/08.

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- The location of archaeological test pits recently excavated in the eastern portion of the former Reserve and immediately east and outside of it were visible at the time of survey. The results of these excavations may clarify the nature of Aboriginal archaeological potential along the relatively flat banks of the creek across some portions of the former reserve.



Figure 44. Exposed and disturbed ridge top in the northeast corner of Survey Unit 3.



Figure 45. Quartz pebble exposed amongst more common small quartz gravels.



Figure 46. Cleared and formerly cultivated ground in the eastern portion of Survey Unit 2.

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Figure 47. View southwest to small woodland in the south western corner of the former Aboriginal Reserve.

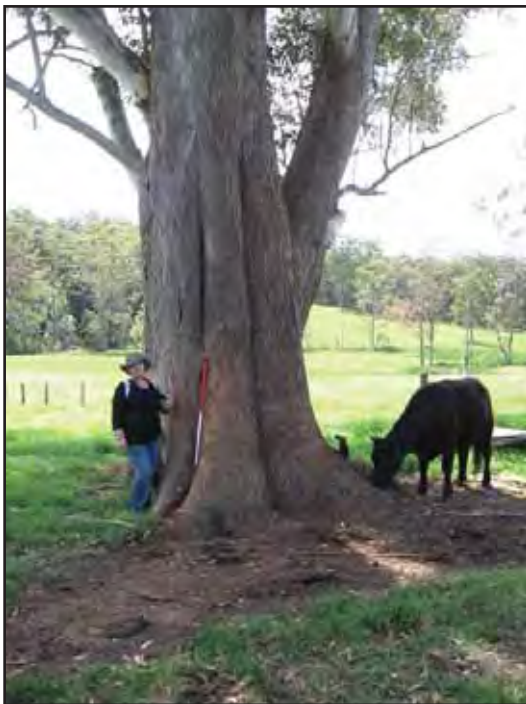


Figure 48. Scarred Tree - "Zipper" tree recorded within the former Aboriginal Reserve.

Survey Unit 4

This unit slopes relatively steeply north and south of Boggy Creek Road, with the access track off this road to the property dwellings in the east of the survey unit, forming the watershed between Cow Creek and Boggy Creek. With the exception of small pockets of regrowth timber in the northwest corner, eastern edge and along Boggy Creek Road, the entire survey unit is cleared. The majority it covered in pasture grass, with a large paddock in the western portion currently containing a bean field (**figure 49**). Upcast soil across this field was examined but no stone artefacts were located.

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Other areas of exposed ground included tracks along ridges and spurs and around the small dams which are present along most drainage lines in both catchments (**figure 50**). These were all inspected but no Aboriginal archaeological remains were noted.

Ridgelines are very narrow (generally less than 10m) and disturbed by track and road construction (**figure 51**). In the eastern portion of the survey unit these elevated areas contain two houses and associated outbuildings and driveways which is likely to have destroyed whatever limited archaeological potential these areas may have had (see **Section 5.2.3** and **Figure 86 to Figure 91**). Boggy Creek Road runs along a similarly narrow ridge to Cow Creek Road as described above, and is also unlikely to have been broad enough to allow camping. In any case its narrow flat spine has been comprehensively disturbed by the construction and use of the road.



Figure 49. View south over Cow Creek to Survey Unit 4 with bean field at back right.



Figure 50. View south to dam in upper Boggy Creek catchment below houses in Survey Unit 4.



Figure 51. Access track along narrow ridgeline in Survey Unit 4.

4.2.4 Survey Characteristics & Archaeological Visibility

An assessment of the nature of ground visibility and archaeological sampling allows for a calculation of “effective survey coverage” as a means of determining the likelihood that remaining visible archaeological evidence or areas of subsurface potential will have been detected by the field survey. This is often presented in tabular form, as discussed in current archaeological survey guidelines¹⁴⁴. Although this approach has its merits in some landscapes, it often produces information of seemingly limited value. In particular, many survey reports routinely calculate an effective survey coverage of less than 1% which is common in grassed paddocks with little exposed ground and superficially seems to suggest the ineffectiveness of the surveys described. However other factors are often of far greater importance.

This situation is definitely true for the current survey, in which very limited exposure (far less than 1%) results in a similarly small effective survey coverage figure. In the current instance far greater importance can be attached to the topography and land use history of the subject land in making a reasoned and comprehensive assessment of archaeological potential. In particular, it is clear that much of the subject land is clearly too steeply sloping to have been used by Aboriginal people for any long term or repeat activities in the past. Furthermore, it is unlikely that anything other than spurs and ridgelines were used for transit through the area (which may include incidental tool manufacture or maintenance activities with a potential archaeological signature). Visibility along these ridgelines and spurs was also relatively poor though it is telling that no artefacts were found exposed along the tracks and roads which utilise them. Again this is likely to be related to their narrow nature and in many cases the abrupt termination above steep slope which probably rendered them of limited use for movement through the landscape.

In short, the discussion and assessment below is considered to be based on adequate data from both the survey and contextual information. Whilst very low surface exposure may have obscured individual stone artefacts, it is unlikely in most locations that they would be concentrated or *in situ*. In any case, the purpose of effective survey coverage calculations is

¹⁴⁴ NPWS 1997b.

not to determine the likelihood that such evidence of limited or no archaeological significance will have been missed, but to assess the probability that all relatively intact concentrations of artefacts or other archaeological evidence have been recorded.

4.2.5 Results of the Site Survey

The current survey did not result in the identification of any specific archaeological evidence of past Aboriginal use of the subject land. Specifically no Aboriginal stone artefacts or carved or marked trees were located. (noting however in the case of the latter that the north western corner of Survey Unit 1 which is proposed to be retained as bushland, was not examined). It is also noted that no suitable stone raw materials were noted during the survey, with the exception of very poor quality quartz pebbles, generally of small size. This contrasts strongly with the introduced fine quartz along the power line service track in Survey Unit 2.

A scarred tree [field code name CCAR 1] on which the scarring had healed to such an extent a zipper-like mark remains on the trunk, was located with the former Aboriginal Reserve land east of the subject land. The tree is at least 100 years old and may have been of sufficient size during the time the Reserve was occupied to have been scarred by the Aboriginal residents. The scarring may relate to past Aboriginal use (for bark removal or carving). Records of this site have been submitted to the DECCW. In summary: the tree is 7.9m in girth near the base of the scar; the scar measures 400mm x 1.3m; is 1.6m above the ground; the tree is a healthy eucalypt and approximately 30m tall (see **figure 48**).

The “zipper scar” tree is under no current land use threats. It provides substantial shade in an otherwise largely cleared grazing paddock. Its presence is not of direct relevance or significance to the current assessment. The site will be retained within the former Aboriginal Reserve area and will not be subject to impacts (see **figure 5**)

As noted above, the vast majority of the subject land is historically impacted and/or steeply sloping and is unlikely to have been intensively used by Aboriginal people in the past. Topographic observations have led to the definition of two areas of Aboriginal Archaeological Sensitivity within the subject land. These are described as follows and shown in **Figure 52**:

AAS 1

This area was defined for its relatively flat and broad topography in an otherwise highly undulating landscape and its proximity to permanent or semi-permanent freshwater. It is broadly aligned east west and is approximately 150-200m in length and up to 50m in width. The area appears largely uncleared until at least the 1950s but impacts since that time are less clear, but may have included a market garden. Small exposures on the sides of the spur and its comparatively thicker grass cover on the flat than over surrounding areas suggest that it may have been top dressed in the past. The lateral extent and depth of any potential archaeological deposit within this area is unknown and no archaeological remains are yet documented within the area. However it remains one of the few areas of relatively flat ground within the subject land.

AAS 2

This area comprises the relatively flat spur top above (north and west of) Cow Creek. The sides of the spur drop moderately to steeply away, but an approximately 250m long and 50-100m wide area sloping gradually down to the east represents relatively flat ground potentially suitable for Aboriginal camping and other uses in the past. It is broader at this location than the main ridge (containing Cow Creek Road) from which it branches and is also in closer proximity to permanent fresh water. These factors have defined its archaeological sensitivity, though no archaeological remains have been recorded within the area and the presence and extent of any subsurface deposit with archaeological deposit is yet to be determined.

With the exception of these areas, no other Aboriginal archaeological features have been identified within the subject land. The potential for areas of historical or cultural Aboriginal attachment to occur within the subject land is discussed below. In the present case, any such areas do not appear to be specifically related to extant physical remains within the subject land.

4.3 Conclusions & Assessment

The current study has involved detailed background research and a comprehensive archaeological survey of the subject land. General poor surface visibility and a high degree of historical land clearance makes it unsurprising that Aboriginal stone artefacts or culturally modified trees were not recorded within the subject land during the current study (though a potentially culturally modified tree was recorded in the adjacent former Aboriginal reserve). It is also evident that the topography of the subject land has been a determinant of the likely low intensity and physically constrained nature of Aboriginal use in the past.

Specifically it is clear that the sloping nature of much of the subject land means that there are few areas flat and large enough to have accommodated substantial Aboriginal campsites. Furthermore, some of these areas have been historically impacted by house and road construction such that archaeological traces of past Aboriginal use, if present, are likely to have been severely disturbed. Thus there are in fact only two areas within the subject land in which archaeological assessment would conclude that substantial and potentially relatively intact archaeological remains may be present. These have been defined as areas of Aboriginal Archaeological Sensitivity (AAS1 and AAS2 – see **figure 52**), though no archaeological evidence has yet been documented at either location.

We have a relatively poor understanding of how Aboriginal people lived in the immediate area prior to European contact, though it is clear that movement between Mount England and the coast would have been funnelled along ridges and spurs. It is noted that the majority of these ridges are narrow and sloping and therefore unlikely to have been used for anything other than movement through the landscape (with the exception of the areas noted above). It was however also noted during the survey that many of these ridges and spurs are also impacted by roads and tracks thus removing any archaeological potential they may originally have had.

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The clearance of almost all original timber from the properties makes it unlikely that culturally modified trees have survived, and all mature trees were examined for traces of this. It is also noted that historically recorded marked trees surrounding a ceremonial ground in the vicinity are known to have been destroyed by fire almost a century ago, highlighting their additional vulnerability to natural forces.

The conclusion of this study therefore is that only selected areas of the subject land were likely to have been used intensively by Aboriginal people in the past either for transit or camping and that archaeological traces of these activities is likely to be restricted to just two main locations within the subject land. Other areas may contain the dispersed and disturbed remains of sites of tool maintenance or isolated stone artefacts though these are largely undetectable in archaeological sampling terms and in any case would have limited if any *archaeological* research potential.

The other major consideration for the study has been a number of documented Aboriginal cultural and historical associations with the general area. This includes a ceremonial yam increase site at Mount England, a documented tribal fight, ceremonial ground (possibly associated with the yam increase site), and a range of historical activities associated with the residents of the Cow Creek Aboriginal Reserve, including several burials.

It is quite possible that the Reserve was sited at that location due to the agitation of the residents themselves for practical (flat land near permanent fresh water) or cultural reasons (proximity to ceremonial sites). Most of the activities associated with the Reserve are likely to have taken place within the boundaries of the reserve, though it is recorded that the residents also interacted with the Smith family at their residence so portions of the subject land would have been regularly traversed by at least some Reserve residents.

There are two historically referenced “sites” potentially within the subject land, being the site of a tribal fight in historic times and the location of a “corroboree ground” (ceremonial site). The specific locations of both of these are unclear and do not appear to be known currently to local Aboriginal or non-Aboriginal people, nor do they appear to have been known to (or disclosed by) senior Gumbainggirr man Harry Buchanan, who provided information about culturally and spiritually significant sites in the area around and including Mount England.

The tribal fight may have taken place within a specific, prescribed fighting ground as was historically documented in other areas, or may have been a more incidental “one-off” event at any one of a number of locations. Either way, there are unlikely to be extensive archaeological remains associated with such activities as they are unlikely to have involved the discard of significant quantities of materials (e.g. spear points) which may have survived archaeologically. If the fight took place at a prescribed location this was likely to have been a relatively flat area which, as has been ascertained, is restricted generally to two alternatives within the subject land. The recommended archaeological investigation of these areas may provide evidence of this historical activity though this appears unlikely.

Similarly there are few locations within the subject land which can have accommodated a ceremonial ground of the size and nature historically described (i.e. an acre encircled by trees) and this is likely to be restricted to one of the two of the Areas of Archaeological Sensitivity defined above (and probably feasibly only AAS2), if indeed it was ever located within the boundaries of the subject land. It is also unlikely that any archaeological trace of this ground would have survived, as the surrounding marked trees are known to have been destroyed in a fire almost a century ago. Noting that Davy Cowlin related that one man was killed, it would appear neither area contains sufficient depth of top soil or suitable deposit into which a grave pit could have been dug.

In the absence of specific locations within the subject land, the most appropriate way to conserve the values of these places is through interpretation, which would also include the history of the Reserve itself. One exception to this, in which possible physical protection may be appropriate, is the documented presence of historical Aboriginal burials within the former Cow Creek Aboriginal Reserve. All available evidence seems to suggest that at least one of these burials was located within the south western corner of the reserve and therefore adjacent to the eastern end of the subject land. Although it is unclear whether other burials may be located at other points around the Reserve, it seems unlikely that burials would be present outside of the formal Reserve area, as these areas would have been beyond the control of Reserve residents. Given that burials¹⁴⁵ may be present in close proximity to the shared boundary with the subject land a buffer zone to protect against inadvertent impacts is suggested as outlined below.

It is possible that further archival research may uncover additional details of the Reserve, the burials and associated activities though as noted above, it was not possible within the current study for this work to be undertaken. However there is sufficient information available to clearly indicate the Reserve area represents a significant development constraint and opportunity for the commemoration of the ongoing importance this area holds for the Aboriginal community and some specific families remaining in the area.

Three main Aboriginal heritage management strategies are recommended for the subject land:

1. Archaeological Test Excavation: There is currently very limited archaeological understanding of how such hinterland areas functioned for Aboriginal people in the past. Therefore it is recommended that preservation and/or test excavation be undertaken in the two areas of defined Aboriginal archaeological sensitivity (AAS1 and AAS2) to determine

whether archaeological remains are present and if so, their extent and significance. These excavations should also take into account results of recent archaeological testing along Pacific Highway in and adjacent to the reserve as they become available.

Archaeological test excavation would be required to be undertaken prior to development impact. Given that it is not yet clear whether any Aboriginal archaeological remains are present in these areas, it would be considered prudent to undertake these investigations as early as practicable in the planning process such that any potential heritage constraints can be identified and appropriate management strategies devised for any identified items.

Early initiation of these investigations is also considered prudent as the process (as described below) of permit application can take some time. It is further noted that the DECCW currently requires a public notification process to be undertaken in relation to investigations under NPW Act s87 to identify Aboriginal stakeholders who may wish to comment on the application. This notification process has already been undertaken for the current project. However it is possible that, if more than 12-24 months elapses from the completion of the current report to the commencement of application for the excavations, that the DECCW may require the notification process to be undertaken again.

The excavations would need to be undertaken by a suitably qualified archaeologist in conjunction with the Aboriginal people and organisations identified during the current study. Application would be made under s87 of the NPW Act for an Aboriginal Heritage Impact Permit to cover the proposed excavations. This would involve preparation of an excavation methodology, which the identified Aboriginal stakeholders would have an opportunity to review prior to submission to the DECCW. The DECCW have a guarantee of service of 8 weeks to process permits though this has rarely been met in recent years. In all at least 3 months should be allowed from commissioning of the excavations for receipt of a permit.

The investigation of the two areas, given the lack of identified archaeological material, would most appropriately be undertaken by sampled mechanical (grader scrape) and manual trenches across the two areas. Fieldwork and reporting would be likely to take an additional 1 – 3 months depending on Aboriginal community availability and the amount of archaeological material (stone artefacts) retrieved requiring specialist analysis.

Based on the results of the excavations some or all of the areas may be recommended for preservation or impact with or without further excavation (salvage) under a NPW Act s90 Aboriginal Heritage Impact Permit (with a similar associated application time frame). At which time any required alteration to the Masterplan could be made. In areas in which no archaeological remains are found, no Aboriginal heritage constraint to future development would remain.

2. Interpretation of Aboriginal Associations: This should be undertaken prior to commencement of construction and ideally should inform planning on the site. It would consist of an Interpretation Plan developed in conjunction with the local Aboriginal community of appropriate means of interpreting the pre and post-European contact Aboriginal associations

with the place (many of which have been documented in the current report). It could include recommended wording and potential locations for interpretive signage, and the possible use of appropriate Aboriginal names for street or locality names. It should also be developed in conjunction with non-Aboriginal interpretation as recommended in the current report, especially given the shared historical associations of the Smith family and the Aboriginal reserve residents in particular.

It may be appropriate to attempt to obtain permission for the additional archival research relating to the Aboriginal reserve records as described above at this time. This could inform the interpretation as could the results of recent archaeological test excavations within the reserve area and those recommended within AAS1 and AAS2 (if available).

3. Burial Protection Buffer Zone: As noted above, it is unlikely that any human remains relating to historical Aboriginal burials will be located outside of the formal boundaries of the former Cow Creek Aboriginal Reserve. However the possibility for slight discrepancies between the current and former boundaries, the likely presence of at least one burial in the south western corner of the former reserve adjacent to the subject land, and the potential for adjacent development to directly or indirectly impact this area suggest that a prudent management strategy would be to establish a buffer zone around the former reserve, particularly in its southwest corner. It is suggested that a 20m buffer may be appropriate, as shown in **figure 52**. This should be adequate to ensure direct and indirect as well as inadvertent impacts from construction associated with any future development within the subject land are not sustained to any human remains.

It is noted that there has been some suggestion that Ground Penetrating Radar could be used in relation to these burials in the context of the current RTA Pacific Highway upgrade¹⁴⁶. However it is noted that while this, and other geophysical techniques can be useful in a formal cemetery with known regular excavated graves, it cannot be reliably used in an “open” landscape without ground-truthing (i.e. some form of excavation) to determine the nature of any anomalies. This is particularly true in the current case as it is not known whether any of the burials were within formal excavated grave pits which may be detectable by such means. Without some form of archaeological excavation (and the associated risk that this may in fact disturb human remains) the location of the historical grave or graves could not be pinpointed. A buffer zone is a less invasive and more prudent approach given that no impact to this area is currently proposed.

It is also recommended that the Reserve area be managed for preservation and interpretation within a landscape context.

With the exception of these three management recommendations, there are no other identified Aboriginal archaeological issues in relation to potential future development within the subject land and there is no requirement at this stage for any additional archaeological

¹⁴⁶ Victor Buchanan pers. comm. 8/10/08.

works other than the recommended test excavation of AAS1 and AAS2 if impacts are proposed in either or both of these areas.



Figure 52. Location of AAS1 and AAS2 (red), Scarred Tree (blue) and proposed reserve buffer zone (green).

(Google Earth 2008 – approximate study area overlay in blue based on DP plan by Dan Tuck)

5.0 European Heritage

The following section comprises a European (Non-indigenous) cultural heritage assessment of the Welsh and Ussher properties within the broader Valla Urban growth area. In order to prepare this assessment and the accompanying management recommendations the following tasks were undertaken:

1. *Review of materials relating to the history of the development of the study area*

This included the inspection of select historic maps and plans, historic air photos, land title documents, and relevant reports and publications. Resources utilised included:

- Nambucca and Macksville Regional Libraries
- Bowraville Folk Museum
- State Library of NSW (SLNSW) – particularly the Mitchell Library (ML)
- NSW Department of Lands Head Office (also referred to as the Land Titles Office)
- State Records of NSW (SRNSW) – formerly the Archives Office (AO)

2. *Review of all relevant statutory and non-statutory heritage registers and lists*

This included review of the relevant state heritage registers and heritage schedules attached to regional and local planning instruments

3. *Physical inspection (survey) of the subject area* by MDCA associate archaeologist Dan Tuck (October 2008).

5.1 Historical Review

The history of European settlement and use of the study area (namely land near the coast road at Cow and Boggy Creeks) dates predominantly to the opening decades of the 20th century. While land in this locale was selected and subject to a variety of lease and purchase arrangements prior to this (predominantly from the mid to late 1800s) specific and documented use of the land did not commence until the arrival of the Smith family at Cow Creek in 1910.

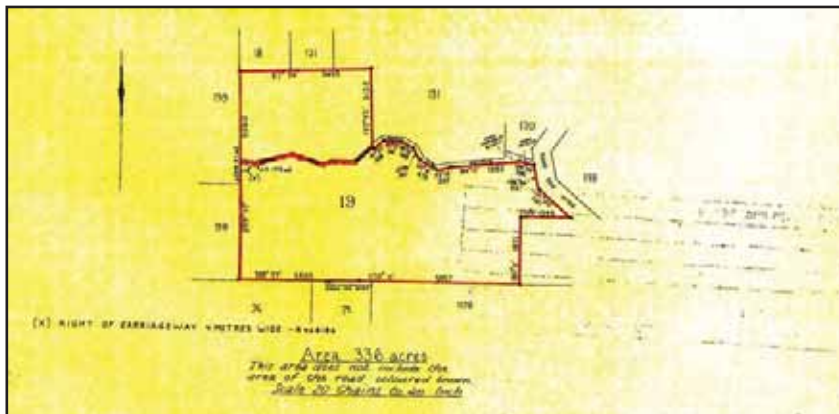
5.1.1 Lot 19 DP 755560

The northern portion of the study area (Lot 19 DP 755560 – Welsh property) appears to have originally been part of Valley Valley pastoral holding (run) established by Edward Rens in the mid 1840s and taken over by W. Chapman in 1848.¹⁴⁷ The run was abandoned in the mid 1800s and there is no evidence that the study area was ever utilised as part of the operation of the run.

¹⁴⁷ Townsend 1993: 31

Smiths of Cow Creek

Parish maps and land title documents indicate that the entirety of the Welsh property was selected and acquired by Henry Hales as a conditional purchase (CP) in 1908 – comprising portion 19 (336 acres).¹⁴⁸ Henry Hales was the brother of Mary (Maude) Smith (nee Hales) and her husband Alex. The formalisation of the conditional purchase took place in 1910 with the property mortgaged to the Rural Bank of NSW.¹⁴⁹ The Smith family, comprising Alex, Mary and their five children (as well as Henry Hales) came to live on the property in 1910.¹⁵⁰



**Figure 53: Plan of
Portion 19 (1910)**
(LPI CP1911/70)



**Figure 54: Valley Valley
Parish Map (1909)**
(LPI Parish map
Preservation Project)

¹⁴⁸ Valley Valley parish Map 1909

149 CP1911/70

¹⁵⁰ Thurtell in Thurtell in Thurtell in Gadsby 1997: 1

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**Figure 55: Valley
Valley Parish Map
(1925)**
(LPI Parish map
Preservation Project)

Establishment

The first thing that the Smith family did on arrival at Cow Creek was construct a rough bark humpy. Built by Alex and Henry, the hut was an elongated structure with three rooms partitioned by hessian fabric.¹⁵¹ A kitchen gallery was also constructed of corrugated iron and sat outside the humpy a few yards from the door. That task completed they fenced a small enclosure to house a dairy cow and dug up a small plot to grow vegetables.

Once the homestead was established the men began working the 'virgin bush' with Alex cutting timber for sleepers, girders, transoms and poles and Henry clearing, brushing and fencing.¹⁵² Typically, the process involved Alex clearing a stand of mill timber (local timbers included blackbutt, oak, tallowwood and gum) with Henry following up behind removing brush and clearing remnant timber. Once manually cleared the remaining scrub was set alight and burned. Finally, smouldering logs were rolled together and set around the stumps of the larger trees to complete the burning.¹⁵³ Once the land was cleared grass seed was sown by hand and paddocks fenced.

Alex and Henry were characteristic of the later generation of timber men who selected land in the Valla area in the early decades of the 20th century. Unlike the tree fellers of mid to late 19th century who exploited timber stands and left, Alex and Henry cleared their own land and then stayed on to crop and stock it. Consequently, a year or two after settlement the Smiths were

¹⁵¹ The hut was later provisioned with a corrugated iron fireplace which featured an 'ants nest floor' – the dirt dug from ants nests reputedly hardened with the application of water to a cement like finish. An additional room to house Henry Hales (who originally lived in a tent) was attached to the humpy in c.1911/1912.

¹⁵² Thurtell in Gadsby 1997: 1

¹⁵³ Thurtell in Gadsby 1997: 6

prospering with 'a three bedroom home, a stove, four kitchen chairs, two cows and a calf, a vegetable garden and a grass paddock'.¹⁵⁴

Farm Life

During the early years on the farm at Cow Creek the parents worked hard and the children attended the Little Valla School and played regularly with their Aboriginal mates from the nearby reserve - and occasionally with more distant white neighbours such as the Steeles near Mount England. One of the Steeles, young Arthur, drove the bullock team that took the Smith's logs to the mill and lived with the Smith's when carting their loads. Other settlers who were in the process of establishing themselves in the Cow Creek area at around the same time included the Jarretts (after which Jarrett's Knob is named), Auliffes, Broomfields, Hobbs, and Cliff Bird.¹⁵⁵

Life appears to have particularly rich and fulfilling for the Smith children and has been exquisitely detailed by Kathleen Thurtell and Henry 'Pop' Smith in their recollections presented as attachments to this report. Highlights include:

- Watching the fireflies that were numerous along Cow Creek in the summertime; Spring flowers, wallabies and goannas; Christmases at Cow Creek
- Playing music with Aboriginal residents of the Cow Creek Reserve Davy and Maggie Cowlin and their friends from Coffs Harbour (Billie and Annie Dixon). The 'black and white' band consisted of the Dixon's on violin, triangle and kettledrum, Kate Buchanan on jews harp; Fred Buchanan and the boys on gumleaves; and the Smiths on accordions and mouth organs. Kathleen Thurtell described the music as 'beautiful' in her recollections and 'still and happy memory after seventy-odd years'
- Groceries delivered by Robert Beer once a fortnight with bread delivered along the main road twice weekly. Twice weekly mail car between Kempsey and Coffs Harbour that stopped at Valla from 1912
- Jams, pickles and dumplings made by Mary Smith
- Ron and Kathleen Thurtell's first ride in a motor car in 1911 – they are thought to have been the first Valla people to have ridden in a motor vehicle
- Alex Smith and Fred Buchanan searching for gold on Mount England on Sunday afternoons.

By 1913, the Smiths had outgrown their hut and constructed a new residence on the hill overlooking the creek. The new house was constructed by Alex Smith and a friend who was a 'bush carpenter'. It was referred to as *Warralissa* or 'Wattle on the Mountain'.¹⁵⁶

¹⁵⁴ Thurtell in Gadsby 1997: 8

¹⁵⁵ Thurtell in Gadsby 1997: 2

¹⁵⁶ Thurtell in Gadsby 1997: 16

Tomatoes & Bananas

Tomato growing in the district commenced in the mid 1920s with the first crops grown by Jim Thompson and Jack Peterkin. Dick England and the Smiths closely followed these two pioneers. Varieties grown included Chalks Early Jewel, Earlyanna and June Pink (all seeded in June and picked in November). Latter varieties included Break'o'day, Lowbrahch and Marmandee. Initially hand irrigated by growers using jam tins they were soon under irrigation derived from local creeks.¹⁵⁷ Tomatoes were often alternated with peas and beans (grown as autumn and winter crops).

Albert Millar at Cow Creek grew the first local bananas raised for market in 1927. Tom Henderson of Coffs Harbour grew the second 20-acre patch on the Smith property. Banana growing boomed thereafter in the Valla and Viewmont area (especially on north facing slopes). Varieties included the Cavandish and the William Hybrid (after 1935).¹⁵⁸

Depression

During the depression, life was difficult in the Valla area as indeed it was elsewhere. Agricultural labourers were earning \$3.00 a week with keep and numerous itinerants or 'swaggies' settled temporarily in the Valla district to grow vegetables and ride out the worst years. A tent city was established to accommodate the homeless at a location north of Picket Hill.¹⁵⁹ One of the cottage industries that thrived during the depression was the growing of grass seed for pasture grass – mostly *paspalum* but also Rhodes grass.¹⁶⁰ On the Smith property, selected paddocks were set aside in late spring and picked in the early New Year with the majority of the seed sent to New Zealand.¹⁶¹

In 1933, Alex Smith died and the farm was temporally rented to Steve Lynch who operated it until 1935. During this time the family stayed on the farm with the boys growing bananas and cutting sleepers for the Valla Mines (located to the north of Valla Beach). Jim and Jean Smith (nee Elliot) took the farm over in 1935 and ran the property for the ensuing 24 years.¹⁶²

¹⁵⁷ Thurtell and Smith 1998: 31

¹⁵⁸ Thurtell and Smith 1998: 33

¹⁵⁹ Klein in Gadsby 1997: 31

¹⁶⁰ Dunne 1991: 23

¹⁶¹ Thurtell and Smith 1998: 29-30

¹⁶² Jean Smith in Gadsby 1997: 59



**Figure 56: The Smith Family
(n.d.)**

Back: Alf, Henry 'Pop', Kathleen,
James & Ronald; Centre: Alex and
Mary (Maude) with Hazel; Front:
Valda & Anis.

(Photo presented in Thurtell &
Smith 1998: 1)

WWII and Beyond

WWII ended the depression era both thinning out rural populations as young men went off to war and ensuring skyrocketing demand for mixed produce. Numerous crops were grown in the Valla region for the war effort, with considerable demand for carrots – sought by the US airforce reputedly to ensure that its pilots could see in the dark.¹⁶³ The women of the land army were utilised across the district to help get the crops in during this period.¹⁶⁴ Aboriginal workers were also a feature of the wartime working landscape – Dolly Smith reported that they once went on strike and refused to carry tomatoes on the Smiths farm from the fields to the temporary packing sheds.¹⁶⁵

During and after the war the Smiths operated a mixed farming enterprise centred on tomatoes, peas, beans and bananas (with some cattle). Turnips were planted for a time to feed the herd but they tainted the milk and the Macksville Dairy Co-op downgraded the milk they supplied. In 1959 Jim Smith died and his family moved into Nambucca. Henry 'Pop' Smith and his wife Dolly then took over the farm and ran it until 1967 when they sold to Cyrus Ronald and Robert Allan Welsh.¹⁶⁶ Refer **figures 57 – 59**.

¹⁶³ Klein in Gadsby 1997: 31

¹⁶⁴ Jean Smith in Gadsby 1997: 60

¹⁶⁵ Dolly Smith in Gadsby 1997: 60. Also Thurtell & Smith 1998: 32

¹⁶⁶ Jean Smith in Gadsby 1997: 60

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Figure 57: Bowra Inch to a Mile Topographic Map extract (1942)

Plan shows a number of structures within the study area including a house and infrastructure (sheds &c) on the Smith property. Note also the numerous banana plantations in the foothills of the mountainous areas to the north and west. (LPI)

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Figure 58: Air photo of the Smith property (1956)

The image above shows the property in its entirety. The image below shows the homestead area in detail.

(LPI Macksville-Nambucca Run 2 April 1956)



Figure 59: Kathleen Thurtell & Henry 'Pop' Smith (May 1984)

(Photo presented in Thurtell & Smith 1998: 1)

Welsh Family

The Welsh family, comprising David and Elizabeth Welsh and their children Margaret, Eliza and Catherine, moved into the Nambucca area in c.1868 settling at Talarm. David Welsh was a cedar getter and also grew crops (particularly corn).¹⁶⁷ By the late 19th century the family were involved in dairying and were one of a number of local families (including the MacKays at Argents Hill) who supplemented their on-farm incomes by selling the excess butter made by the women in the family.¹⁶⁸ Anecdotal evidence suggests the Welsh family were responsible for purchasing the first separator on the North Coast and are known to have travelled throughout the Nambucca district selling butter.¹⁶⁹

The Welshes purchased the entirety of the Smith property at Cow Creek in late 1967 with Ron and Allen¹⁷⁰ Welsh registered as joint tenants on 24 November 1967.¹⁷¹ Robert and his family

¹⁶⁷ 'Welsh' typed manuscript by Glenn Bradley in the Bowraville Folk Museum collection

¹⁶⁸ Townsend 1993: 86

¹⁶⁹ 'Welsh' typed manuscript by Glenn Bradley in the Bowraville Folk Museum collection

¹⁷⁰ Both brothers were known by their middle names

¹⁷¹ LPI Transfer No. K994399 CP1911/70

made use of the land for vegetable growing but did not move there initially – instead remaining at their family home overlooking the ocean in Nambucca Heads.¹⁷² The property caretaker appears to have been Harold Davis.¹⁷³

The Welsh family, including Carole Welsh, moved to the property in the 1990s at which time they extensively renovated the old Smith House, renewed the stockyards and improved the gardens. The land is now owned by Wayne Allan Welsh and Wendy Sue Childs as joint tenants.¹⁷⁴

Peas & Beans

The Welshes have operated the property as a mixed farm and cattle grazing property during their tenure. While the Smiths had concentrated mostly on growing tomatoes, the Welshes grew predominately ‘quick money’ crops such as peas and beans. At present, most on-farm activity relates to maintaining the property (slashing, fence maintenance &c). The only agriculture being undertaken is the growing of bananas on leases on elevated land towards Mount England and the grazing of a small herd of cattle that are fattened for market.

Probably the most obvious physical change to the property since the Welshes arrival has been land clearing and milling (using a portable mill) in the extreme northeast corner of the property above the former Cow Creek Aboriginal Reserve.



Figure 60: Air photo of the Welsh property (1980)
(LPI Macksville Run 2 July 1980)

¹⁷² Carole Welsh pers. comm. 18 November 2008

¹⁷³ Wayne Welsh pers. comm.

¹⁷⁴ LPI Folio 1/823624



Figure 61:
Satellite
imagery of
the Welsh
property
(c.2007)
(Google Earth
Image 2008)

5.1.2 Lot 1 DP 253772

As with Lot 19 DP 755560 (Welsh property) the property to the immediate south (Lot 1 DP 253772) appears to have originally been part of Valley Valley pastoral holding established by Edward Rens in the mid 1840s and taken over by W. Chapman in 1848.¹⁷⁵

The run was abandoned in the mid 1800s and there is no evidence that this part of the study area was ever utilised in association with the pastoral holding. By around the turn of the century, parish maps indicate that the lot had been set aside for a William D. Wyatt. Again there is no specific evidence of use of the land dating to his tenure (if indeed he ever took up the land).

Eichmanns

John Eichmann was a Prussian emigrant mariner with shipping interests. He had been involved in the East Coast shipping trade since the 1850s and established a mill at Nambucca Heads in the late 19th century. His mill was a major enterprise and utilised the latest technology. He employed as many as thirteen teams of bullocks to haul logs to the mill.¹⁷⁶

Aside from milling and shipping interests, the Eichmanns were also merchants and established a local store at Nambucca Heads in 1888.¹⁷⁷ John Eichmann's wife Elizabeth

¹⁷⁵ Townsend 1993: 31

¹⁷⁶ Townsend 1993: 121

¹⁷⁷ Townsend 1993: 84

obtained portion 108 (Lot 1 DP 253772) below the Smith-Welsh property in July 1908 for £151 10 shillings.¹⁷⁸ Refer **figure 62**.

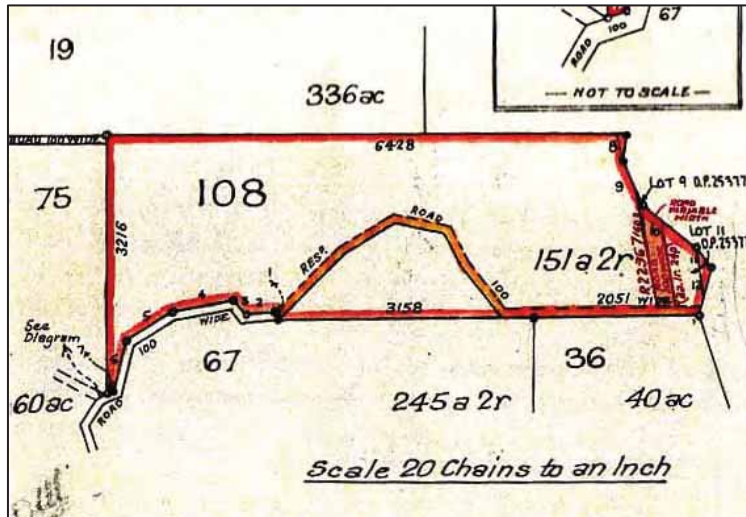


Figure 62: Plan of Portion 108
(LPI CP 1908/129)

While there is no specific evidence of the use of the land by the Eichmanns, given their interests in nearby milling operations it is probably not unreasonable to suggest that they may have been involved in partial timber extraction and clearing of the subject land in the early to mid 1900s. It is also likely that they were responsible for constructing the weatherboard house on the property – which appears on air photography dating to the latter period of their tenure.

The Eichmann family eventually sold out to Sydney Frederick Amis (a miner from Waverly) in June 1956. He subsequently mortgaged the property to the English Scottish and Australian Bank.

By 1966, Ervin and Nina Parkins were owners of the property as joint tenants though they sold out to Ronald Laurie Cowin (a Nambucca Heads farmer) in April 1968.¹⁷⁹

¹⁷⁸ LPI CP1908/129

¹⁷⁹ LPI CP1908/129

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Figure 63: Air photos of the Eichmann property (1956)

These images, from approximately the time of the property's sale to Sydney Amis show the property as only partially cleared and cropped or stocked. The individual paddocks may relate to sub-leases. The image at right is a detail of the main house area

(LPI Macksville-Nambucca Run 2 April 1956)

Ussher Family

Hugh McDonald Ussher and his wife Vera (banana growers) obtained the property in January 1970 and the Ussher family has owned the property ever since. The current owner is Carmel Ussher and Carmel's son Bryan lives on the property.¹⁸⁰

The main (older house) on the property was extant when the Usshers arrived in 1970 and the family renovated it and lived in it for many years. When the family first moved in considerable timber remained on the property and Hugh Ussher had the property cleared.¹⁸¹

¹⁸⁰ LPI Folio q/253772

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The family grew bananas in the hill areas to the west but predominantly used the land to fatten cattle (generally no more than 80 at a time) and grow cash crops (mostly beans). At one time or another almost all of the land has been under bean cultivation.¹⁸² Some of the land has been leased variously to other vegetable growers and this continues today.

The main modifications to property undertaken by the Usshers (apart from the initial clearing) have been the construction of three dams and the erection of a brick home (c.1980). Hugh Ussher planted the avenue of pines approaching the latter.

Refer **figures 64 – 66**.



Figure 64: Air photo of the Ussher Property (1980)

Image shows the property in its entirety. In contrast to the earlier 1956 air photo, the property is almost entirely cleared.
(LPI Macksville Run 2 July 1980)

¹⁸¹ Bryan Ussher pers. comm. 2 December 2008

¹⁸² Bryan Ussher pers. comm. 2 December 2008

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Figure 65: Air photo of the Ussher Property (1980)

This image is a detail of the homestead area. The original house (? Eichmann) is the northernmost structure – structures behind it include a large rectangular shed and bales (milking shed). The brick house currently occupied by Bryan Ussher and built by his father Hugh is shown under construction below the earlier dwellings.

(LPI Macksville Run 2 July 1980)



Figure 66: Satellite imagery of the Ussher property (c.2007)

(Google Earth Image 2008)

5.1.3 Summary development history of the study area

Development and use of the study area may be summarised as follows:

Welsh property

- Part of a larger (mostly unsuccessful) pastoral run from the mid 19th century. No evidence of land use
- Smith family acquire property in opening decade of the 20th century. They construct a hut (c.1910), and systematically clear timber and establish some small paddocks. With the exception of the clearing – the timber from which was sent to the mills – other agricultural activities appear to have been domestic in the early years.
- Smith family build new house (c.1913) and original hut becomes redundant (later burns down). Other structures onsite by this time include a shed.
- Smiths use property until 1960s as a mixed farming enterprise – crops grown across most of the land with an emphasis on tomatoes. Bananas grown on leases on high ground at western margin of the property. Some cattle grazing. Some share farming.
- Welsh family take over property in the closing years of the 1960s. They continue to operate the property as a mixed farm with bananas, cattle grazing and cash crops – this time with an emphasis on fast growing beans and peas. Area in northeast corner of the property logged and milled in c.1990s. House extensively renovated in mid to late 1990s.
- At present, property used to fatten cattle with some banana growing at western margin. No cropping.

Ussher property

- Part of a larger pastoral run from the mid 19th century. No evidence of land use
- Eichmann obtains property in early 20th century. It is possible that they clear some (but not all of the land) for cropping and/or grazing. House and some farm buildings including a bales (milking shed) constructed by the 1950s. Probability some share farming on property.
- Usshers obtain property in 1970. Usshers clear most of the uncleared land and renovate existing house. They graze cattle and grow cash crops (mostly beans). Additional cropping on property by leaseholders. Large brick house constructed in early 1980s. Avenue of pines leading to house from Boggy Creek Road planted at this time.
- At present, some limited cattle grazing and cropping.

5.1.4 Legislation & Heritage Listings Review

The following section outlines relevant heritage legislation and provides a review of statutory and non-statutory heritage databases for the study area.

5.1.5 Legislation

The NSW Heritage Act 1977 is the principle document governing the management of heritage items (relics and places containing relics) in NSW.

The Act defines a 'relic' as:

any deposit, object or material evidence relating to the settlement of the area that comprises NSW, not being an aboriginal settlement, and which is 50 or more years old.

As a result, heritage structures, ruins, and sub-surface archaeological features and deposits are afforded automatic statutory protection under the relic's provisions of the Act. For all practical heritage management purposes, a relic as defined above is generally qualified by the attribution of a degree of significance to that relic - not all relics under the act are of equal value.

Sections 139 to 145 of the Act prevent the excavation or disturbance of land for the purpose of discovering, exposing or moving a relic, except by a qualified archaeologist to whom an excavation permit (under section 140) has been issued by the Heritage Council of NSW.

5.1.6 Heritage Listings

A number of relevant statutory and non-statutory heritage registers and databases were reviewed to determine if items of historical significance were listed within the subject land. These included:

State Heritage Register & Inventory

The *State Heritage Register* (SHR) is a list of heritage items that have been assessed and acknowledged as having state heritage significance. The NSW Department of Planning's Heritage Branch (formerly the NSW Heritage Office) maintains the register, and any development proposal that is likely to impact on items on the register generally requires NSW Heritage Council approval (s.60).

The *State Heritage Inventory* (SHI) lists items of both state and local heritage significance. Generally the listing of items on the SHI results from their inclusion in local and regional planning instruments or heritage studies.

- *Neither the study area nor any items within it are listed on the NSW Heritage Council's SHI or SHR*

Australian Heritage Database

The Australian Heritage Database is a heritage database managed by the Commonwealth Department of Environment, Water, Heritage & the Arts. The database contains information about more than 20 000 natural, historic and Indigenous places and includes locations and items listed (or formerly listed) on the World Heritage List; the National Heritage List; the Commonwealth Heritage list; and the Register of the National Estate.

- *Neither the study area nor any items within it are listed within the Australian heritage database.*

Australian Heritage Places Inventory

The Australian Heritage Places Inventory is a cooperative project between Commonwealth, State and Territory Governments and contains summary information about places listed in State, Territory and Commonwealth Heritage Registers.

- *Neither the study area nor any items within it are listed within the Australian Heritage Places Inventory.*

North Coast REP 1988 (reprinted 2001)

The North Coast Regional Environmental Plan (REP) 1988 is the main environmental planning instrument for the North Coast region. A Heritage Schedule was added to the REP in 1993 with heritage clauses amended as Gazette No 174 of 23 December 1994. Heritage items of state and regional environmental significance are presented at schedule 2.

- *Neither the study area nor any items within it are listed within the heritage schedule of the North Coast REP.*

Nambucca Shire Council LEP 2007 (as amended)

The Nambucca Shire Council Local Environmental Plan (LEP) is the primary local government planning instrument. One of the objectives of the plan with respect to cultural heritage is:

to protect places and buildings of archaeological or heritage significance, including Aboriginal relics and places (Objective S – P. 4)

The LEP addresses heritage issues within the LGA at Part 11 – *Heritage Conservation*, which seeks:

- a. to conserve the environmental heritage of the area of Nambucca; and*
- b to integrate heritage conservation into the planning and development control processes; and*
- c to provide for public involvement in the conservation of environmental heritage; and*
- d to ensure that any development does not adversely affect the heritage significance of heritage items and heritage conservation areas and their settings (Part 11 Clause 42)*

Furthermore, the document lists specific *Conservation Areas* at Schedule 2 Clause 41; *Heritage Items* at Schedule 3 Clause 41; and *Potential Archaeological Sites* at Schedule 4 Clause 41.

- *Neither the study area nor any items within it are listed within the heritage schedules of the Nambucca LEP.*

Summary

Neither the study area nor any items within it are listed heritage items.

5.2 Survey

Archaeologist and heritage consultant Dan Tuck undertook a site inspection (survey) on behalf of MDCA between 7 and 10 October 2008. This involved physical inspection of the site via a site walk over and recording of the subject land. The inspection was concerned with the identification of relics, areas of historical archaeological potential, and significant culturally modified landscapes.

5.2.1 Methodology

Survey methodology generally accorded with archaeological practice approved by the NSW Heritage Branch. Aspects of the inspection the site included:

- Air photography, topographic maps and site plans obtained prior to the survey or provided by the client were used to define the site, its extent and boundaries
- Inspection involved walking the perimeter of the site and within the site along ridges, drainage lines and informal tracks
- Notes regarding physical aspects of the site such as stratigraphy, disturbance, and landscape characteristics were recorded in a field notebook
- Photographs were taken using a high-end digital camera with a one metre red and white scale bar where appropriate.

5.2.2 Survey Area

The study area consists of undulating and predominantly cleared farmland set between Cow and Boggy Creek Roads to the west of the Pacific Highway (Coast Road). The land comprised two distinct proprietries – Lot 19 DP755560 and Lot 1 DP 823624 (Welsh property) and Portion 1 DP 253772 (Ussher property). For practical recording purposes, these properties were subdivided into four ‘survey units’ – with division based on existing ‘natural’ land breaks such as roadways. The location of the survey units are described in detail in the Aboriginal heritage section and shown in **figure 29** in **section 4.0**

5.2.3 Observations

Survey Unit 1

This area comprises that portion of the Welsh property north of Cow Creek Road in the extreme northwest of the study area. The location is approaching Mount England and within the upper catchment of several small tributaries of Deep Creek, most of which have been dammed. The area includes timbered and steeply sloping lands on the north side of a creek at the foothills of Mount England that contrast with cleared and partially cultivated lands across the remainder. In the far west of the area, on a north facing roadside slope, is an area of banana cultivation.

The main built and/or landscape features of this survey unit are as follows:

- A centrally located dam and pump house
- An additional dam near the eastern margin of this survey unit
- Banana plantation on a leased area in the extreme west of the property. Associated infrastructure includes amenities and a packing shed.



Figure 67: General view across the north western corner of the study area
(View ENE – D. Tuck 2008)



Figure 68: General view towards the north western corner of the study area
(View WNW – D. Tuck 2008)



**Figure 69: View across survey unit 1
towards small dam**
(View N – D. Tuck 2008)

Survey Unit 2

This unit consists of the bulk of the Welsh property west of the main homestead situated along and south of Cow Creek Road. The fall of the land is generally to the south with Cow Creek road running east-west along the spine of a ridge that separates the catchment of Deep Creek to the north from Cow Creek to the south. This land is largely cleared and consists of a number of steep-sided spurs and gullies draining into Cow Creek. As with survey unit 1, there is a banana plantation area on well drained, high ground in the extreme west.

The main built and/or landscape features of this survey unit are as follows:

- Several small dams dam intercepting water from gullies and minor watercourses running into Cow Creek. Some of the dams have simple timber and corrugated iron pump houses (formerly for irrigation purposes)
- Banana plantation on a leased area in the extreme west. Associated infrastructure includes small shelter/storage sheds.
- Numerous fence lines subdividing the property into grazing paddocks – predominantly post and wire and of recent vintage
- A number of 4WD access tracks, mostly following the ridgelines, for on-farm access
- Concrete machine base on a roadside ridge top clearing - exact function uncertain. Constructed of fine-medium quartz aggregate concrete with six fastening bolts (940 mm x 940 mm x 350 mm standing height; GPS 94 56496239E, 6613734N)
- Modern dumpsite (fencing wire, fuel tins, car parts &c) near above mentioned feature.

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Figure 70: Banana plantation in the western part of survey unit 1 (south of Cow Creek Road)

(View W – D. Tuck 2008)



Figure 71: Typical small gully dam with lean-to pump house

(View WSW – D. Tuck 2008)

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Figure 72: Concrete machine base in roadside clearing adjacent to Cow Creek Road
(View NNE – D. Tuck 2008)



Figure 73: Hard rubbish dump adjacent to Cow Creek Road
(View S – D. Tuck 2008)



Figure 74: General view across survey unit 2 towards survey unit 3
(View ENE – D. Tuck 2008)

Survey Unit 3

This unit comprises the remainder of the Welsh property south of Cow Creek Road including the site of the current and former homesteads and associated buildings sited on a prominent relatively flat ridge overlooking Cow Creek. It also includes the relatively flat alluvial lands to the east of the former Cow Creek Aboriginal reserve. In the extreme northeast of this survey area is a cleared ridge used recently for small-scale timber milling.

The main built and/or landscape features of this survey unit are as follows:

- Two large ship mast pine trees (native conifers – species to be determined) mark the entrance to the main homestead. Bill Hales planted the trees for Avis (Anis) and Valda Smith (date uncertain). They were sourced from Dorriggo and when one died soon after planting Bill Hales retrieved a replacement from the source location in Dorriggo.¹⁸³
- The extant homestead constructed in c.1913 is the central structure in this location. The homestead comprises a hipped roof cottage set on stumps with a rear carport area and a range of outbuildings and sheds

The cottage itself has been extensively remodelled during renovation in the recent past (c.1990s) and has been re-clad, re-roofed and re-stumped. Outbuildings are predominantly modern (post-1960s) and include a tractor shed, outhouse and other storage buildings.

To the rear (south) of the homestead area is a cattle yard constructed primarily of tubular steel and of recent vintage. It is understood that this yard replaced an earlier structure built of timber.

- The broad area between the homestead and the creek (which falls north to south) is the former location of both a number of farm buildings (including a big storage/packing shed and smaller milking shed - probably mid 20th century; now demolished) and the site of the earliest Smith family timber hut (constructed c.1910; made redundant by the aforementioned homestead in c.1913; and ultimately burned down).¹⁸⁴

The exact location of the hut is unknown and its simple construction (and more recent history of crop growing and associated ground disturbance) means that any evidence of the structure is likely to be ephemeral at best.

- Broad, unsealed access track running broadly north-south from the Smith homestead, across Boggy Creek, and towards the Ussher property.

¹⁸³ Gadsby 1997: 62-63

¹⁸⁴ Refer Thurtell & Smith 1998; Gadsby 1997

This track is a former thoroughfare that is understood to have been utilised from at least the mid 20th century.

The point at which the track crosses Cow Creek is not original and has been renewed relatively recently – with a simple rubble in-filled crossing point bounded on either side with waste timber

- A disused A. H. MacDonald Imperial Super Diesel portable engine (Eng No. 418 P3) and some lengths of metal irrigation pipe are located in creekside scrub to the northeast of the creek crossing point. It is uncertain as to what the engine formerly powered but such engines were relatively commonly used as crude oil (semi-diesel) tractor engines between 1930 and 1955 (GPS 94 56496901E; 6613396N).
- A cleared area in the extreme northeast of the survey unit. It is understood that this area was logged and milled onsite in the c.1990s. Mill waste and waste timber visible on the ground.

Refer **figures 78 – 88.**



Figure 75: Welsh (formerly Smith) homestead area
(Google Earth Image 2008 – annotated by Dan Tuck)

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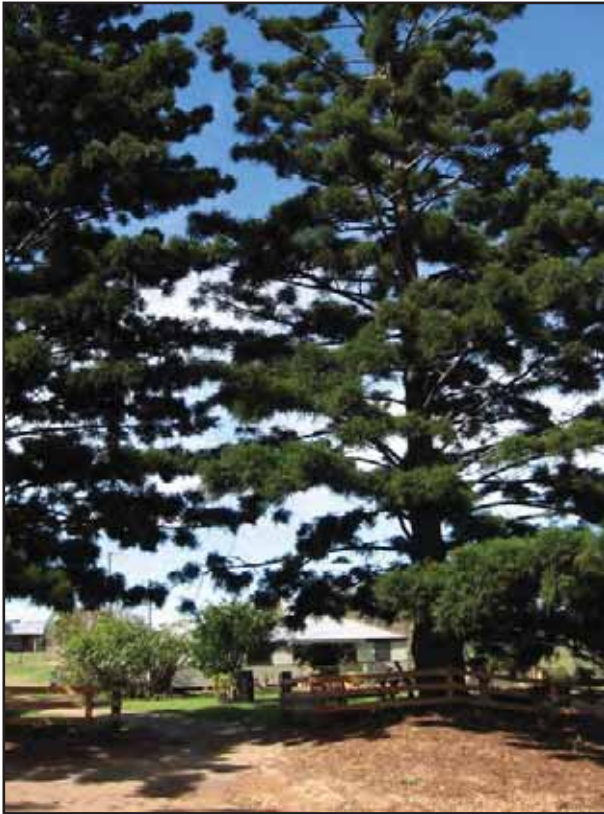


Figure 76: Pines [Araucaria cunninghamii]
described by Mrs Welsh as Ship Mast Pines, at
the entrance to the Welsh (formerly Smith)
house

(View S – D. Tuck 2008)



Figure 77: Renovated Welsh House

(View S – D. Tuck 2008)

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Figure 78: Detail of rear of house with carport
(View NW – D. Tuck 2008)



Figure 79: Homestead boundary fence with renewed railing
(View S – D. Tuck 2008)

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Figure 80: View across Homestead area
(View S – D. Tuck 2008)



Figure 81: Cattle yards at rear of homestead
(View SSE – D. Tuck 2008)



Figure 82: Internal access track and creek crossing point
(View S – D. Tuck 2008)

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Figure 83: View towards access track and homestead area on ridge top
(View NE – D. Tuck 2008)



Figure 84: Abandoned Imperial Super Diesel engine near creek crossing
(View SE – D. Tuck 2008)



Figure 85: Recently felled and milled land in extreme northeast of study area
(View SE – D. Tuck 2008)

Survey Unit 4

This unit includes all of the Ussher property within the study area. It is largely within the Cow Creek catchment, with a small area (a natural amphitheatre) in the central southern portion of the unit south of Boggy Creek Road. The area is almost totally cleared of vegetation, partly under cultivation and contains two residential dwellings and associated structures at its eastern end.

The main built and/or landscape features of this survey unit are as follows:

- The eastern end of the property near the highway (Coast Road) contains a weatherboard and fibro clad house constructed in the first half of the 20th century and renovated in the 1960s
- Associated with house is a range of ancillary structures including an external fibro laundry/shed; a two-stall weatherboard bales (milking shed) in poor condition; a larger farm/storage shed; a smaller shed /lean-to (chicken coop); and a stockyard
- The other main complex in the area is a 1980s brick and tile residence (the Ussher residence) near Boggy Creek Road. The house, which has a garden and associated sheds, is approached by an avenue of pines (also planted in the 1980s)
- The remainder of the property is unremarkable. There are three dams and at present there is one small paddock under crop (beans)

Refer **figures 89 – 94**.



Figure 86: Ussher homestead area
(Google Earth Image 2008 – annotated by Dan Tuck)

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Figure 87: Weatherboard and fibro house with farm shed
(View S – D. Tuck 2008)



Figure 88: Lean-to chicken coop
(View S – D. Tuck 2008)



Figure 89: Two-stall weatherboard bales (milking shed) with veranda
(View SSW – D. Tuck 2008)

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Figure 90: Farm shed with gable roof and skillion

(View S – D. Tuck 2008)



Figure 91: Ussher brick and tile residence

(View SSW – D. Tuck 2008)



Figure 92: General view across the Ussher property towards Welsh property and Mount England

(View NW – D. Tuck 2008)

Miscellaneous

The following general observations relate to the entirety of the study area.

- Fences are predominantly post and wire (with occasional sections of post and rail). Generally, the fences have been renewed (often more than once) – a consequence of age, wear-and-tear, and a legacy of bush fires
- Dams are simple and are either excavated tanks or formed by simple earthen walls capturing creek or gully flows
- Creek and gully crossings are generally rubble infill crossings rather than bridges. Occasionally they feature pipes set below or within the rubble as culverts to regulate flow). None are of considerable vintage and most appear to have been upgraded in the recent past
- The study area is crossed by both in-ground fibre optic and overhead power lines

5.3 Significance Assessment

This section addresses the heritage significance of the study area. The first section outlines the principles and criteria under which a significance appraisal is made; the second provides an assessment under the established criteria and presents a summary statement of significance.

5.3.1 Principles & Evaluation Criteria

“Heritage significance” and “cultural significance” are terms used to describe an item’s value or importance to our society. The Australian ICOMOS Burra Charter defines cultural significance as,

Aesthetic, historic, scientific or social value for past, present or future generations

This value may be contained in the fabric of the item, its setting and relationship to other items, the response that the item stimulates in those who value it now, or the meaning of that item to contemporary society.

Accurate assessment of the cultural significance of sites, places and items, is an essential component of the NSW heritage assessment and planning process. A clear determination of a site's significance allows informed planning decisions to be made, in addition to ensuring that heritage values are maintained, enhanced, or at least minimally affected by development.

Assessments of significance are made by applying standard evaluation criteria. These criteria can be used to assess both Aboriginal and European items and landscapes. These criteria are as follows:

- (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)
- (b) An item has strong or special associations with the life or works of a person, or group of persons, of importance in NSW' cultural or natural history (or the cultural or natural history of the local area)
- (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)
- (d) An item has strong or special associations with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons
- (e) An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)
- (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)
- (g) An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural and natural environments.

The above criteria were established under Part 3A of the NSW Heritage Act 1977 (as amended in 1998) for the listing of items of environmental heritage (defined as 'buildings, works, relics, moveable objects and precincts') which are of state heritage significance. These criteria are commonly used to assess all items of heritage significance whether state or local.

5.3.2 Assessment

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

The study area reflects changes to the landscape resultant of Mid North Coast settlement practices in the early 20th century – namely clearing, cropping and grazing. The study area is not remarkable in this respect as such landscapes are replicated along much of the NSW's East Coast and are represented in a number of protected reserve areas (e.g. Yuraygir National Park).

The study area is not considered significant under this criterion.

(b) An item has strong or special associations 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)

The Welsh property is associated predominantly with the Smith family who held the property between 1910 and the late 1960s. The Smith family appear to have been a fairly typical Nambucca-Valla area farming family with the notable exception that the early history of the family's life on the farm is well attested to in a number of local history compilations – namely

Valla Memories (Gadsby 1997) and *Early Valla Days* (Thurtell & Smith 1998) which contain historical accounts from Smith family members.

Probably the most significant tangible items associated with the Smith family occupation of the property are the Smith-Welsh homestead house and the two mature pine trees that stand at the entrance. The former has been considerably modified but the latter have landmark qualities and associative significance.

The study area has moderate significance under this 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)

The study area has no significance under this criterion.

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

There is ongoing Aboriginal community connection and attachment to the former Aboriginal reserve lands that abut the subject properties and to the Cow Creek area generally (which is known to have featured a ceremonial ground and is adjacent to Mount England (a yam increase site).

The study area is considered significant under this criterion.

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

The study area has a relatively well documented history but in terms of archaeology has little potential to provide information that will significantly contribute to our greater understanding of the European cultural history and development of the study area.

Significant relics or areas of historical archaeological potential have not been identified within the study area and the property features no extant landscapes, structures or other items of cultural heritage significance that would benefit from historical archaeological investigation.

The location of the original Smith family hut on the Welsh property (c.1910) for example, is unknown and its subsurface remains are likely to be ephemeral at best given its simple construction and the subsequent history of cultivation. Similarly, the extant Smith house and the older of the Ussher residences have little investigative potential as they have been extensively renovated – the former having been re-stumped, re-clad and re-roofed. Other structures, such as the bales and a number of sheds on the Ussher property have rustic appeal, but again, limited archaeological significance and potential.

The study area is not considered significant under this 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)

The study area with its landscape modified by clearing, discrete settlement, cropping and grazing is not uncommon in the Mid North Coast region – numerous examples of similar landscapes exist within the local and regional coastal hinterland.

The study area is not considered significant under this criterion.

(g) An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural and natural environments.

The study area comprises two near-coastal farms on the NSW Mid North Coast. Collectively the properties represent site types that are both well represented in the region and demonstrated/protected within a number of state parks including the aforementioned Yuraygir National Park.

The study area is not considered significant under this criterion.

Summary Statement of Significance

The study area comprises two of the numerous Mid North Coast properties that feature a landscape modified by similar past use – namely land clearing, discrete rural settlement, cropping and grazing. While this landscape and the built items within it reflect the history of use of the place, similar properties are locally and regionally common and well represented elsewhere.

While the study area is associated with a number of well known local families and the landscape is a place of attachment for the local Aboriginal community, the common nature of the study area and of the built items within it ensures that the site has relatively low overall European cultural heritage significance and sensitivity.

5.4 Conclusions

History

- The study area has been cleared and predominantly utilised for cropping and grazing (with some banana farming on high ground at the western margin) from around the early 1900s
- Structures built within the area since c.1910 include common and fairly typical farmhouses and allied infrastructure such as tracks, dams, sheds, and paddocks delineated with fencelines
- The family most associated with the study area are the Smiths who acquired the northernmost property in c.1910 and farmed the land until late 1967. The family's early history on the land is well documented in local history compilations – namely *Valla Memories* (Gadsby 1997) and *Early Valla Days* (1998)

Heritage

- Evidence of past use comprises the modified landscape itself and the suite of common farm buildings and allied infrastructure – which are replicated at other locations in nearby areas and throughout the region
- No items listed within statutory or non-statutory heritage lists, databases or schedules exist within the study area
- Few sites or items of European cultural heritage significance and no areas of historical archaeological potential were identified within the study area during the site inspection.
- Items identified as of particular European cultural heritage significance are limited to the two pine trees at the entrance to the Welsh (formerly Smith) homestead which have associative significance (with the Smith family) and landmark qualities, and a discarded Imperial Super Diesel engine which may be considered an item of moveable heritage. The latter has only been tentatively identified and requires further identification and investigation.

Significance

The study area has been assessed as having low overall European cultural heritage significance and low historical archaeological potential and sensitivity.

The following section provides recommendations which acknowledge current heritage planning guidelines (such as those issued by NSW Heritage Council) and the Burra Charter. They have been formulated to allow practical heritage management that remembers past use of the place and promotes remembrance of its history into the future.

6.0

Recommendations

6.1 Aboriginal Heritage Recommendations

The following recommendations are based upon the legal requirements and automatic statutory protection provided to items of Aboriginal heritage under the terms of the *National Parks and Wildlife Act of 1974 (as amended)*, where:

it is an offence to knowingly damage, deface or destroy Aboriginal objects without the prior consent of the Director General of the National Parks and Wildlife Service,

in conjunction with;

the results of the historical research and archaeological investigation of the study site which are documented in this report;

and

The views and concerns expressed by the Aboriginal community representatives as outlined within the appended Aboriginal Cultural Heritage Statements.

It is recommended that:

1. The two identified areas of Aboriginal archaeological sensitivity within the subject land (AAS1 and AAS2 as depicted in **Figure 52** and described in **section 4.2.5** require archaeological investigation prior to any proposed development impacts to determine the presence/absence, extent and significance of any Aboriginal archaeological remains within these areas as a means of determining appropriate management recommendations for these areas. These areas are defined as containing low to medium archaeological potential but currently have no identified Aboriginal object or artefact present. Such investigations would need to be undertaken by a suitably qualified archaeologist in association with appropriate local Aboriginal stakeholders under an approved NPW Act s.87 Aboriginal Heritage Impact Permit. These investigations may lead to alterations of the Master Plan permissible under s 96 of the EP&A Act 1979 of the detailed design of the proposed development.
2. Consideration should be given to establishing a buffer zone around the former Cow Creek Aboriginal Reserve in recognition of the potential for historical Aboriginal burials to be present immediately adjacent to the subject land in this area. A 20m buffer is suggested as depicted in **Figure 52**. This is considered adequate to ensure that any human remains are not inadvertently disturbed during construction or future use of the current study area. It is further recommended that the Reserve is preserved in a landscape context and if specific impacts are proposed a detailed investigation and significance assessment should be undertaken.
3. Prior to construction onsite, an Interpretation Plan should be prepared which includes both Aboriginal and European heritage. The Interpretation Plan should include appropriate onsite signage developed in consultation with the Aboriginal Stakeholders and could incorporate results of recent archaeological testing within the Aboriginal Reserve area [by the RTA] and

any conducted within AAS1 and AAS2 as recommended. The Interpretation Plan should also specify street names in commemoration of the Aboriginal and European histories of the local area. The Interpretation Plan could also include further archival research of the records associated with the Cow Creek Aboriginal Reserve as discussed in this report, if appropriate and supported by the Buchanan family.

4. A copy of this report should be forwarded to the CEO of the Nambucca LALC and the following community representatives at the contact addresses below.

Ms Louise Robinson
CEO
Nambucca Local Aboriginal Land Council
PO Box 358
Nambucca Heads NSW 2448

Mr Victor Buchanan
c/o Northern Aboriginal Heritage Unit
Department of Environment Climate Change and Water
PO Box 914
Coffs Harbour NSW 2450

Mr Gary Williams
c/o Muurrbay Aboriginal Language and Culture Co-operative
14 Bellwood Road
Nambucca Heads NSW 2448

5. Two copies of this report should be forwarded to:

Northern Region Archaeologist,
Northern Aboriginal Heritage Unit
Department of Environment Climate Change and Water
PO Box 914
Coffs Harbour NSW 2450

6. One copy of this report should be forwarded to:

The Manager
Aboriginal Heritage Information Management System
Department of Environment Climate Change and Water
P.O. Box 1967
Hurstville NSW 2770

6.2 European Heritage Recommendations

The following recommendations acknowledge current heritage planning guidelines (such as those issued by NSW Heritage Council), the Burra Charter and the protection afforded to European heritage relics under the *NSW Heritage Act 1977*, which defines a 'relic' as:

'any deposit, object or material evidence relating to the settlement of the area that comprises NSW, not being an aboriginal settlement, and which is 50 or more years old'

They have been formulated to allow practical heritage management that remembers past use of the place and promotes remembrance of its history into the future.

It is recommended that:

1. There are no major constraints to the proposed subdivision in terms of European cultural heritage.
2. The two pine trees at the entrance to the Welsh (formerly Smith) homestead have landmark qualities and are tangible and identifiable links to the Smith family and their use of the subject land. Consideration should be given to retaining these trees in situ (in their original position).
3. Prior to any redevelopment works the homestead areas on both the Welsh and Ussher properties should be subject to a brief photographic archival recording to NSW Heritage Council standards.¹⁸⁵ The recording should take in the dwellings, outbuildings and yards and a range of vistas across the properties from homestead areas. The purpose of this is to document the site 'as is' and provide a visual historic record of the former living and working areas prior to transformation of the landscape by redevelopment.
4. The disused A. H. McDonald Imperial Super Diesel engine in creek side scrub below the Welsh homestead may be an item of historical mechanical and/or agricultural interest. It may also constitute an item of 'movable heritage' under the NSW Heritage Act.¹⁸⁶ Additional research needs to be undertaken to better determine the significance of the item and its appropriate management and/or disposal.
5. The study area includes places that have been the property, and/or home and workplace of a number of well known district families including the Smiths, Eichmanns, Cowins, Welshes and Usshers. This being the case, consideration should be given to using the names of families historically associated with the subject land in the naming of subdivision amenities and utilities such as access roads and parks. This provides a linkage between use of the place in the past and its use in the future

¹⁸⁵ Refer NSW Heritage Office 2006. *Photographic Recording of Heritage Items Using Film or Digital Capture*. Available at http://www.heritage.nsw.gov.au/docs/info_photographicrecording2006.pdf

¹⁸⁶ Refer NSW Heritage Office 2004. *Objects in Their Place: An Introduction to Movable Heritage*. <http://www.heritage.nsw.gov.au/docs/objectsinplace.pdf>

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and acknowledges past landholders. The relationships these families had with Aboriginal families should also be commemorated [see recommendation 3 in section 6.1 above].

6. Consideration should also be given to the interpretation of the history of the place in the context of the any new development. Acknowledging the past through the use of signage and other media such as plaques is a way of linking the potential new residents of the urban release area with those who went before them.

7.0

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Appendix 1: Additional Information about the Aboriginal people of Valla

Chapter extract (Pp. 4-5) from Henry 'Pop' Smith and Kathleen Thurtell's collection of stories published by the Lions Club of Valla as *Early Valla Days*. The stories collected in this work were originally presented in Lions Club newsletters with the original manuscripts believed to be held in the Bowraville Folk Museum archives.

The last full-blooded Aborigines to live in Valla were Davy & Maggie Cowlin. They lived on the Aborigines Reserve at Cow Creek. Also living there with them was Maggie's half-cast son Yellow Fred and his wife Kate, and their large family. Davy and Maggie were a fine old couple, Davy tall and straight in spite of his age. Maggie, on the contrary, was short and very fat, lively and fun loving. When Maggie laughed it began with a titter, rising and rising to a loud cackle. When Maggie laughed, everyone laughed with her.

The Government built two houses on the Reserve for the families, but although they were furnished, and the women kept them spotlessly clean, the houses were not lived in. The black people preferred their old way of living and cooked and slept in the open. Their food was cooked on an open fire, possums, paddymelons, and wallabies being hung on a bar over the fire, whilst other foods such as snakes and eels were roasted in the ashes. The fish were toasted on sticks. The black fellows speared their fish, standing motionless on the water's edge until they saw a fish, then speared it with incredible speed. They used a 'paddymelon' stick to catch the smaller animals.

Maggie was a splendid laundress and washed for her white neighbours for years. She used to sit cross legged on the ground with tubs in front of her and rub away on the washboard. She smoked non-stop at a short clay pipe, sometimes alight but more often not. She was a terrible old cadger for tobacco.

Davy's grandson boasted that Davy was bossman of the rain, saying that Davy danced ('like this') flapped and threw his arms ('like this') and shouted 'Chi tah, chi tah'.

West of the Reserve at the foot of Mount England was a tribal ground. Tall trees encircled a clear area of about one acre. Tribal markings were deeply cut into the butts

of eight of these trees, being different in shape and size. Unfortunately, a bushfire swept through in 1917 completely destroying the tribal ground.

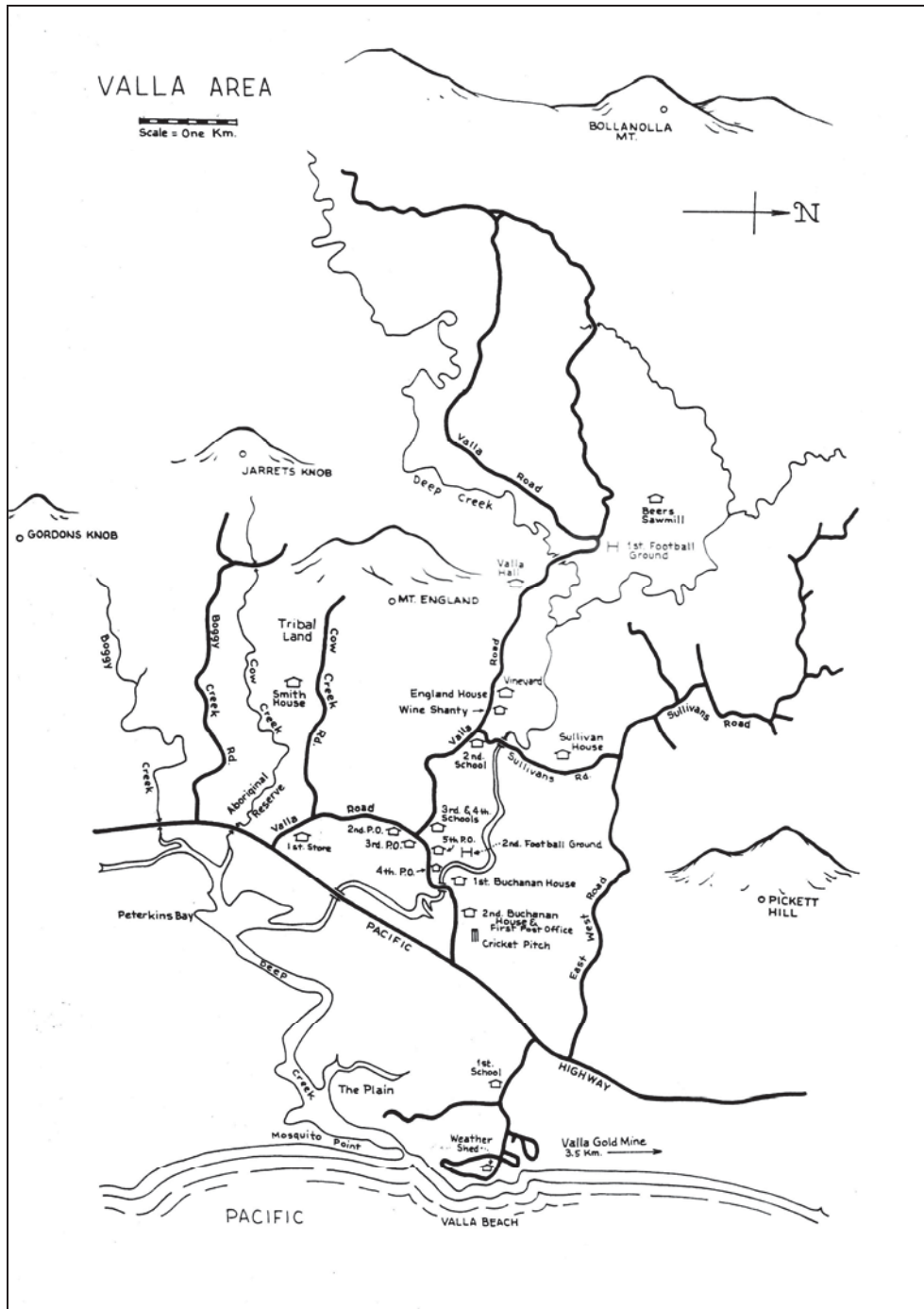
According to Davy, the last battle between tribes took place on a slope midway between the tribal ground and the reserve. A party of black fellows from the Bellinger came across and there was a fight. As Davy said: 'Big ... plenty big ... plenty bad'. One fulla kilt, three-fella clos up kilt'. Davy himself fought in the battle. Davy and Maggie grew old and eventually Maggie died. The grandsons asked permission to take the bark from a huge old tree growing on neighbour's land. Skilfully, two large slabs were chopped unbroken from the tree to be used as Maggie's coffin.

A large gathering of coloured people came to the funeral. It transpired that the old couple were people of importance and were the last members of their particular tribe. Maggie was buried in a grove of trees in a corner of the Reserve. At sundown a big fire was lit and shortly afterwards everybody left. The Reserve was deserted for a couple of weeks then the family came back and lit another fire and again everybody left.

After a third fire, the families once more settled back on the Reserve. On being asked about the fires, they explained that the first two fires had thrown out many sparks and this showed that Maggie's spirit still lingered and they could not stay. There had been no sparks and this showed that Maggie's spirit had departed and they were free to return home. Poor old Davy was very lonely without Maggie. Most of the time he spent alone sitting on the bank of the creek. Somehow, even to white neighbours, with the passing of Maggie, the Reserve was a different place, seemingly so quiet and lonely.

Finally all the dark people left the Reserve and went to live on Stuart Island. And there old Davy died, the last of his tribe.

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 Valla Urban Growth Area



Map from *Early Valla Days*. Note that the map is not to scale or accurate to any great degree. Hence the location of features such as the “Smith House”, and “Tribal Land” should be considered approximate at best.

Appendix 2 : Aboriginal Community Consultation

1. Public Notification

Registration of Interest

An Aboriginal Cultural Heritage Assessment is being undertaken by Mary Dallas Consulting Archaeologists (MDCA) of approximately 190ha of land on the western side of the Pacific Highway to the west of the Nambucca Heads township, proposed for development.

MDCA is seeking to identify any Aboriginal stakeholder groups who may have an interest in the project. Registration must be done in writing and be lodged by 14th May 2008.

Registration of Interest should be directed to Mary Dallas at 31 Waterview Street, Balmain, NSW, 2041. Enquiries on PH(02) 98183287 FAX(02) 98184574

Advertisement in Nambucca Guardian News Classifieds – Public Notices

Booked for 5th June 2008

Aboriginal & European Cultural Heritage Assessment
Welsh and Ussher Properties
Valla Urban Growth Area

2. Sample Letter with request for information

The General Manager
Nambucca Shire Council
PO Box 177
Macksville NSW 2447

Dear Sir/Madam,

RE: ABORIGINAL CULTURAL HERITAGE ASSESSMENT AT LOT 19 DP 755560 AND PT 1 DP 253772 AT NAMBUCCA HEADS, NSW

We are writing to notify you of an Aboriginal Cultural Heritage Assessment which is being undertaken by Mary Dallas Consulting Archaeologists (MDCA) of approximately 190 hectares of land to the west of the Pacific Highway to the west of Nambucca Heads Township, on the far north coast of NSW, which is proposed for development.

In accordance with the NSW Department of Environment & Conservation's **Interim Community Consultation Requirements for Applicants**, MDCA wishes to identify Aboriginal organisations or individuals with traditional or historic links to this area, who may wish to assist the assessment. To this end we have placed a public notification in the Nambucca Valley Guardian News (appearing 5th June 2008) about the project and will be directly notifying the Nambucca Heads LALC.

Could you please assist us further in this process by providing us with the details of any additional organisations or individuals of whom you are aware and that have links to the area and may be interested in the project so that we can ensure that all relevant parties are contacted.

We require that you submit these details in writing including contact details and a brief description of their function (if an organisation) and cultural knowledge/affiliation. The closing date for these submissions is Thursday 19th June 2008.

All submissions should be directed by fax to Mary Dallas Consulting Archaeologists on (02)98184574 or email to mdallas@intercoast.com.au. Please also contact us on (02) 98183287 if you have any questions regarding the project.

Yours sincerely,

Mary Dallas
Mary Dallas Consulting Archaeologists
29th May, 2008

3. Aboriginal Stakeholder Reports

Mary Dallas
Principal Heritage Consultant
MDAC
31 Waterview Street
Balmain nsw 2041

Dear Mary,

RE: Aboriginal and European Cultural Heritage Assessment
Boggy and Cow Creek Precinct of the Valla Urban Growth Area,
Nambucca Heads NSW.

Draft Report by MDCA June 2009

Thank you for forwarding a draft copy of your report on the Boggy and Cow Creek Precinct for review. You told me that this project relates to a Master plan and there will also be future opportunities for my family to have input into this project. I think it is right that we have been able to comment at such an early stage of this planning for the planning of this area and agree we need ongoing input for this project.

As a representative of the Buchannan family interests in the area I took part in the field survey and at the beginning gave advice on the Aboriginal heritage values of this land and how they should be respected.

My main concern has been how the Cow Creek Reserve will be managed and protected. (I go to Figures 24-26 of your report). The Reserve is next to the study area and my family is strongly connected to it and regard it as highly significant. Therefore, I support the recommendation to exclude the entire area of the Reserve from the Urban Growth Area. This will give due respect for the people who lived there and are buried there and to an important Gumbaynggirr cultural place here.

I have been asked to assist in gaining access to the Aborigines Protection Board records via the Department of Aboriginal Affairs. This should be done to give a fuller picture of my family's ties to the Reserve lands.

The recommendations that are about the Aboriginal Heritage are in Section 4.3 points 1-3 and Recommendations pages 98-100.

I support the recommendation to do test excavations in the areas with ground potential. The NLALC should be present at these excavations.

I support the recommendation to develop an Interpretation Plan for the Growth Area which will recognise the Aboriginal cultural heritage values of this area, the nearby Cow Creek Reserve and other important sites such Mount England. The Buchanan family should have a major role in supplying information for the Plan.

I support the recommendation that a buffer zone around the Cow Creek reserve be put in place to respect our burial sites within the Reserve.

Conclusions

Because the Aboriginal community has been consulted early in the planning for the possible development of this area we have a better chance to talk about how we value the area. We should continue to be consulted as this project is finalised and would like to be kept fully informed on any further developments.

Yours sincerely



Victor Buchanan
9.9.09

Aboriginal & European Cultural Heritage Assessment
Welsh and Ussher Properties
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M u u r r b a y
Ngarraanga nginundi Yuludarra (remember your dreaming)
Aboriginal Language & Culture Co-operative Ltd.
14 Bellwood Rd
Nambucca Heads NSW 2448
Ph: (02) 6569 4294
Fax: (02) 6569 4295
Email: muurrbay@westnet.com.au

RE: Aboriginal and European Cultural Heritage Assessment - Valla Urban Growth Area – Boggy and Cow Creek Precinct.

As registered stakeholders for the above project, we have participated in the field survey of the lands and provided historical information on the NPWS Sacred Site Survey which covered sites in the vicinity of the Urban Growth Area. We have reviewed a draft copy of the Cultural Heritage Assessment report by MDCA and would like to make the following comments and ask that they are included in the final version of that report.

The Boggy Creek-Cow Creek area is of significant cultural value to the Gumbaynggirr people of the of the Nambucca area. The Ussher and Welsh properties adjoins the old Cow Creek Aboriginal Reserve. To the west (of the reserve), at the foothills of the mountain, was a corroboree ground with carved trees. Further west, on the top of Mount England is an increase site. To the south are two scarred tree sites, one at Hyland Park, the other at Bellwood. To the south at Valla is the site where Birrugan and his mother was camped before he went off to his final journey. Next to it is magay miirlarl. To the north is nunguu miirlarl, a sacred site. Further to the west is Bolla Nolla, a Stingray story site. This is also on the track that the Dhanggati people walked from Bellbrook to Wenonah Headland near Urunga.

None of the above important sites are located within the Boggy and Cow Creek Precinct of the Valla Urban Growth Area. The old Cow Creek Reserve is the closest to the area. We are pleased to support the reports

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recommendation that the old Cow Creek Reserve will be set apart from any future development and that any relics within the Reserve land will therefore be protected.

The Language and Culture Centre would be pleased to contribute further to the proposed Interpretation Plan for the area. Many aspects of our association with the area could be used to make the future development and residents sympathetic to the Aboriginal owners and give a better appreciation of the place. Signage explaining our association and culture would make it a richer place to live. We can provide information on Gumbaynggirr stories and histories, use of the lands and can provide Gumbaynggirr words for road names and signs and brochures as may get developed.


We also support the recommendations for further archaeological investigation in the areas of potential described in the report. We would like to continue to be involved in this further field work.

We support the recommendations in the MDCA report and wish to continue to be consulted throughout the course of the Valla Urban Growth Area planning and development.

Yours sincerely


Gary Williams

Aboriginal & European Cultural Heritage Assessment
Welsh and Ussher Properties
Valla Urban Growth Area



LOCAL ABORIGINAL LAND COUNCIL

Phone: 02 6568 9281
E-mail: nambucca@nambucca.lac.nsw.gov.au

Unit 2/3 Sussex Street
PO Box 358
Nambucca Heads NSW 2448

Fax: 02 6568 9161

15 July 2010

Mary Dallas
Principal Heritage Consultant
Mary Dallas Consulting Archaeologists
31 Waterview Street
Balmain NSW 2041

Dear Mary

RE: Aboriginal Heritage Assessment at Boggy and Cow Creek, Valla Urban Growth Area, Nambucca NSW.

Thank you for affording the Nambucca Heads Local Aboriginal Land Council the opportunity to participate in and contribute to the Aboriginal Heritage Survey and assessment of the Welsh and Usher properties at Cow and Boggy Creek, Valla. It is understood that these properties are a Precinct within the broader Valla Urban Growth Area.

We have now circulated and reviewed your draft report and apologise for the delay in getting back to you. We would be pleased to have this report included as an appendix in your final report.

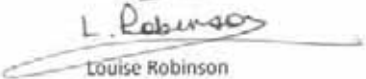
The Nambucca Heads LALC represented by Bridgett Walker participated in the field survey of the properties over the period 7-10 October 2008. All the land was covered by the survey including the old Cow Creek Aboriginal Reserve on the Pacific Highway between the two properties. On site discussions on the management of the area and the Reserve were held at the completion of the survey. What was discussed was accurately documented in your draft report.

The Nambucca Heads LALC distributed copies of your draft report to the Nambucca Elders (see attached list) and Bridget discussed the project with each of them. The feedback she received indicated strong support for the recommendations of the draft report. In particular the recommended preservation in entirety of the old Cow Creek Reserve lands. There was also a strong feeling that the recommended archaeological test investigations should proceed before development commences on the land. The elders and the Nambucca Heads LALC wish to be kept informed on future investigations because the area is of cultural significance to all Aboriginal people of the area and beyond.

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We look forward to receiving a final copy of the Heritage assessment and working on the next stages of the project.

Yours faithfully

A handwritten signature in dark ink, appearing to read 'L. Robinson', with a long horizontal flourish extending to the right.

Louise Robinson
CEO

MARY DALLAS CONSULTING ARCHAEOLOGIST
 ABORIGINAL AND EUROPEAN CULTURAL HERITAGE ASSESSMENT

NAME	AGREE	DISAGREE	COMMENTS	SIGN OUT / SIGN IN
Terry Marshall			Will go over Uncle Budo Cultural Heritage Assessment	
Victor Buchanan			Will go over Budgets Report with her.	
Herbert Marshall				<i>Herbert Marshall</i>
Amy Jarrett	<i>AJ.</i>			

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Harry Mumbulla	X						
John Marshall	<i>John Marshall</i>						
Rod Buchanan	<i>Benny Buchanan</i>						
Warren Buchanan	<i>W.B. Buchanan</i>						
Bridget Jarrett	<i>B. Jarrett</i>						

I Denise Duckett received the
book - Aboriginal & European Cultural
Heritage Ass - Author Mary Dallas
from Harry Mumbulla on 23.6.10.
My Mother Maureen Buchanan is
a descendent of Fred Buchanan and
Maggie Cowler.

Denise Duckett

23.6.10

ABORIGINAL & EUROPEAN CULTURAL HERITAGE ASSESSMENT REPORT



[View northeast across the study area from Boggy Creek Road]

VALLA URBAN GROWTH AREA VALLA, NSW

Mary Dallas Consulting Archaeologists

April 2011

Report to Nambucca Shire Council



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Appendix 1. Aboriginal Community Correspondence [on receipt]

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1.0

Project Summary

This report has been prepared by Mary Dallas Consulting Archaeologists (MDCA) for Nambucca Shire Council. It details the findings of an Aboriginal and European heritage assessment of several parcels of land located within the Valla Urban Growth Area on the mid north coast of New South Wales (refer **Figures 1-3**).

The subject lands are broadly bounded to the east by Boggy Creek/Cedar Creek, the Pacific Highway and Deep Creek, to the north by Valla Road and other adjacent rural properties, to the west by rural properties at the base of the eastern slope of Mt England and to the south by rural lands south of Boggy Creek Road. The subject lands exclude two large allotments within this area (Lot 19 DP 755560 and Lot 1 DP 253772) which have been subject to previous Aboriginal and European heritage assessment (MDCA 2010). The subject lands are around 550 hectares and located within the Nambucca Shire Council Local Government Area (LGA) and are within the Parish of Valley Valley, County of Raleigh.

1.1 Project Scope and Objectives

The purpose of the current study is to identify any European and Aboriginal cultural heritage issues in relation to the subject lands and provide appropriate management recommendations for any recorded or potential items of cultural heritage which may occur within the subject lands in anticipation of future subdivision. It is noted that the full extent of the subject lands is not proposed for future subdivision, and that the heritage values of the subject lands has been focussed on those areas currently considered for subdivision, as discussed below.

The study was designed to be compatible with a previous recent assessment of adjacent lands within the Valla Urban Growth Area (MDCA 2010). It has included: an Aboriginal archaeological survey; background research into the Aboriginal history of the area, and into the known and predicted Aboriginal sites of the region and more local area; consultation with members of the local Aboriginal community and community organisations; a European historical archaeological survey and background research into local history and previous land use history. The specific aims are outlined below.

1.1.1 Aboriginal Community Consultation

- To undertake preliminary Aboriginal community consultation consistent with earlier consultation undertaken for other parts of the Valla Urban Growth Area. It should be noted that stages in the planning process consultation under the DECCW 2010 guidelines would need to occur. The earlier consultation included public notification through the print media and direct notification to relevant government departments and agencies.
- To undertake a field survey of the subject land with the Nambucca Local Aboriginal Land Council and other appropriate Aboriginal community representatives as identified by the above public notification process. These were members of the Buchanan family, Bridget and



Victor Buchanan and The Muurrbay Aboriginal Language & Culture Co-operative represented by Gary Williams.

- To invite any Aboriginal cultural or historical knowledge about the subject land from the Aboriginal people and organisations consulted as part of the study.
- To incorporate into the assessment process the Aboriginal cultural views, concerns and recommendations provided by the Aboriginal people and organisations consulted as part of the study.

1.1.2 Background Research

- To undertake background research into the location, context and nature of previously recorded Aboriginal and European sites within the subject lands and areas immediately surrounding the subject lands, through Register and Inventory searches.
- From a targeted review of historical records and databases on Aboriginal and European occupation, previous archaeological and heritage assessments and known archaeology of the region, to identify the types of sites and archaeological evidence which may occur within the subject lands and to assess the potential for such evidence to occur within the subject lands relative to any future proposed uses or impacts.

1.1.3 Field Survey

- To undertake a survey for Aboriginal and European heritage sites or relics on the subject land in conjunction with local Aboriginal community representatives.
- To identify and record any Aboriginal and European sites that may be present within the subject land and assess their significance and identify management or conservation requirements.
- To provide an assessment of the potential for undetected or buried sites to occur within the survey area relative to any future proposed uses and possible impacts and provide a management strategy for such areas of potential.

1.1.4 Report

- To prepare a report detailing the results of the field survey and assessment of heritage sensitivity that meets the requirements of the NPWS *Aboriginal Cultural Heritage Standards & Guidelines Kit*¹ and in accordance with archaeological practice approved by the NSW Heritage Office.
- To formulate a specific set of management options and recommendations to direct future management of the subject land with respect to heritage.

¹ NPWS DRAFT 1997a



1.2 Aboriginal Community Consultation

The Aboriginal community consultation was done in accordance with 2004 interim guidelines.

The subject land falls within the administrative boundaries of the Nambucca Local Aboriginal Land Council (NLALC) who have a statutory responsibility “to promote the protection of Aboriginal culture and the heritage of Aboriginal persons”² within their boundaries. The NLALC was notified about the Valla Urban Growth Area planning studies [in writing on the 29th August 2008] at the commencement of earlier stages of the planning for the overall project. At that time a public notification calling for Expressions of Interest from relevant members of the Aboriginal community was placed as a Public Notice in the Nambucca Valley Guardian News.

No Aboriginal person or local organisation responded to the Public Notice in the Nambucca Valley Guardian news. As per the DECC community consultation guidelines, and in addition to the Nambucca Local Aboriginal Land Council, the following government departments or agencies were contacted in writing and their advice sought on other possible Aboriginal stakeholders: the Registrar of Aboriginal Owners, at the NSW Department of Aboriginal Affairs; the DECC Northern Region Office; Nambucca Shire Council; and, the New South Wales Native Title Services (now NTS Corp).

The DECC and the Registrar of Aboriginal Owners advised that two other Local Aboriginal Land Councils might have an interest in the study area, namely, the Unkya LALC at Macksville and the Bowraville LALC at Bowraville. Both these Land Councils were formally invited in writing to participate in the study, however neither responded.

The DECCW AHIMS database holds records of early site survey in the area undertaken by Aboriginal Elders for the National Parks & Wildlife Service. This was known as the Sacred Sites Survey and was undertaken in this area by Mr Ray Kelly, Mr Harry Buchanan and Mr Gary Williams. In addition, Mr Williams’ mother is a Native Title Claimant for the area, and he is a Researcher and Teacher at the Muurrbay Aboriginal Language & Culture Co-operative. He had also been the Sites Officer with the Nambucca LALC until relatively recently and had been involved in a number of archaeological surveys conducted in an around the current study area. Gary Williams was contacted prior to the field survey and invited to participate in the relocation of known sites he had been involved in recording previously. Due to illness he was unable to attend the surveys, but advised on site matters by telephone.

In addition, Mr Victor Buchanan, who as a local Aboriginal person has direct family links to the adjacent Cow Creek Reserve. Mr Buchanan is also an Aboriginal cultural heritage officer with DECCW Northern Region Office at Coffs Harbour and has been involved with heritage matters in that capacity through earlier stages of the Valla Urban Growth Area panning studies and a recent Pacific Highway realignment project. Mr Buchanan was contacted at the commencement of the project and provided information about the current planning stage and invited to attend and/or participate in the survey of the study area (in his capacity as a Gumbaingirr man rather than his official DECCW position).

² Aboriginal Land Rights Act 1983, s52(1)(m).



Ms Bridget Walker represented the Nambucca LALC on the survey. Mr Buchanan could not attend the survey but remains interested in the project and has requested a copy of the survey report.

A draft version of the current report has been given to each of the Aboriginal community organisations involved in the study, and they have been given an opportunity to review and contribute to a final version of the report. Mr Victor Buchannan, Ms Bridget Walker representing the NLALC and Mr Gary Williams have advised by phone their support for the approach, methodology, conclusions and recommendations contained in the draft report but none have supplied a written response to date. On receipt these reports should be appended to the current report.

1.3 Legislative and Policy Context

1.3.1 Controls for the Protection of Aboriginal Heritage in NSW

Two principal pieces of legislation provide automatic statutory protection for Aboriginal heritage and the requirements for its management in New South Wales. These are the *National Parks and Wildlife Act* (1974) and the *Environmental Planning and Assessment Act* (1979). The implications of these statutory controls within the context of the current development proposal are outlined below.

National Parks & Wildlife Act (1974)

The *National Parks & Wildlife Act* (1974), administered by the *Department of Environment, Climate Change & Water* (DECCW³), provides statutory protection for all Aboriginal 'objects' and 'places' where an object is defined as:

"any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains" [Section 5(1)]

An Aboriginal place must be declared under Section 84 of the Act and be a place that:

in the opinion of the Minister, is or was of special significance with respect to Aboriginal culture, to be an Aboriginal place for the purposes of this Act." [Section 84].

Recent (2010) amendments to the NPW Act have retained an offence to knowingly *harm* an Aboriginal object [s86(1)] but greatly increased penalties for such offences. The amendments have also introduced a strict liability offence for any *harm* (i.e. knowingly or unknowingly) to Aboriginal objects [s86(2)] or Aboriginal places [s86(4)] without a valid and applicable Aboriginal Heritage Impact Permit under Section 90 of the Act. *Harm* is defined as:

³ Originally known as the National Parks & Wildlife Service and in recent years as the Department of Environment and Conservation and Department of Environment and Climate Change.



“any act or omission that:

- (a) destroys, defaces or damages the object or place, or*
- (b) in relation to an object—moves the object from the land on which it had been situated, or*
- (c) is specified by the regulations, or*
- (d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c)” [Section 5(1)]*

It is a defence to the strict liability offence of harm to an Aboriginal object under s86(2) if a process of Due Diligence was followed which reasonably determined that the proposed activity would not harm an Aboriginal object [S87(2)]. Due Diligence assessment can take a number of forms, including a generic process developed by the DECCW (2010a)⁴ or one of an equivalent standard. An exemption is also provided for ‘low impact activities’ which result in unknowing damage to an Aboriginal object, including a range of common farm and track maintenance activities.

Impacts to Aboriginal objects require an Aboriginal Heritage Impact Permit (AHIP), applications for which must be accompanied by an Aboriginal Cultural Heritage Assessment report. This report documents the archaeological assessment of the study area and proposed impacts, in accordance with DECCW guidelines (2010b)⁵. The assessment must include full documentation of a prescribed process of Aboriginal community consultation in accordance with DECCW guidelines (2010c)⁶, which requires placing a public advertisement to seek expressions of interest in the project (or more precisely the AHIP to be sought) as well as directly notifying Local Aboriginal Land Councils and government agencies dealing with Aboriginal communities in the area. People or organisations can register as “Registered Aboriginal Parties” which provides them with a right to review and comment on aspects of AHIP applications, and to provide advice on Aboriginal cultural and historical significance. It explicitly does not provide an automatic right for involvement in archaeological survey or other fieldwork. MDCA notes however that best industry practice, and ethical and legal considerations suggest that relevant Local Aboriginal Land Councils and Registered Native Title Claimants should be afforded the opportunity to participate in field inspections in order to meet their legislative obligations and rights in relation to Aboriginal cultural heritage.

AHIPs can be issued for specific objects or cadastral features (e.g. whole of lot) and can be staged by amendment to include provision for archaeological test excavations followed by salvage or impact. DECCW policy provides for archaeological test excavations to be carried out without an AHIP as long as undertaken in full compliance with the DECCW 2010 *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (2010b). The restrictive methodology in this *Code* however suggest that most AHIPs requiring initial archaeological test excavation will require a staged AHIP to appropriately meet project requirements and current industry best practice.

⁴ See <http://www.environment.nsw.gov.au/licences/archinvestigations.htm>

⁵ See <http://www.environment.nsw.gov.au/licences/archinvestigations.htm>

⁶ See <http://www.environment.nsw.gov.au/licences/consultation.htm>



Environmental Planning & Assessment Act (1979)

In contrast with the NPW Act, the EP&A Act is designed more specifically to cater for heritage issues within the context of new development projects and is closely linked with the process of preparing environmental impact studies. This act has three main parts of direct relevance to Aboriginal cultural heritage. Namely, Part III which governs the preparation of planning instruments, Part IV which relates to development assessment process for local government (consent) authorities and Part V which relates to activity approvals by governing (determining) authorities.

Part III deals primarily with development planning in which sites and places sacred or significant to Aboriginal communities are to be assessed and are to be taken into consideration in initial studies. Planning NSW has produced guidelines on the preparation of planning instruments such as *State Environmental Planning Policies* (SEPP's, REPs and LEPs) that explicitly list Aboriginal sites and places of significance as values which should be assessed as part of initial planning studies.

Part IV deals with decisions to be made within the context of development applications. The *Department of Environment, Climate Change & Water* is an approving body under Part V of the EP&A ACT and will require formal consideration of a variety of cultural and community factors. These may variously include potential impact to significant anthropological, archaeological, cultural and historical values, and these will typically be addressed through a *Review of Environmental Factors* (REF).

Implications of these Requirements

- Local development planning provisions and state legislation require that known and potential Aboriginal heritage be taken into account in determining development design, and that appropriate levels of reporting must be provided to Council to enable consideration of development proposals involving potential impacts to Aboriginal heritage.
- Best practice advocates that development impact to documented and/or potential sites of Aboriginal cultural heritage sensitivity be avoided where practicable and/or mitigated at the minimum, and that all decisions made for either course of action be made in consultation consequent to direct guidance provided by Aboriginal stakeholders.
- Damage, destruction or removal of any Aboriginal 'places' or 'objects' is only permitted where an Aboriginal Heritage Impact Permit (AHIP) has been issued by the Director-General of the DECCW according to Section 90 of the *NSW National Parks & Wildlife Act 1974* (as amended) or in limited other circumstances as outlined above. Knowing or unknowing damage to Aboriginal objects or places can incur large fines and/or periods of imprisonment for individuals and corporations.
- AHIP applications must be accompanied by an Aboriginal Cultural Heritage Assessment report involving Aboriginal community consultation. Response times required for this process, in addition to DECCW permit processing timeframes (60 days), suggest that a timeframe of five



months from commissioning to receipt of the initial AHIP could be anticipated. If amendments to the initial AHIP are required (for example following archaeological test excavation) this may require additional Aboriginal community consultation (up to 30 days) and an additional processing period by DECCW (60 days). These time frames suggest that it is most prudent to commence this process as soon in the planning process as practicable, however it is noted that DECCW will not usually issue s90 AHIPs for the collection, destruction or active management of Aboriginal objects in the absence of a valid development consent (DECCW 2009:Section 4.2.3).

- The preparation of the current report acknowledges these factors and provides recommendations which addresses these planning and legislative requirements. It also acknowledges that it, and the previous adjacent study (MDCA 2010) have taken place during the period of review and amendment of DECCW policy, procedure and legislation. As such, further investigations may require the enactment of procedures which were not applicable at the time of commencement of these assessments. This is discussed in the conclusions and recommendations below.

1.3.2 Controls for the Protection of European Heritage in NSW

The following section outlines the general protection afforded to all relics under current NSW heritage legislation.

The NSW Heritage Act 1977

The Act, defines a 'relic' as:

'any deposit, object or material evidence relating to the settlement of the area that comprises NSW, not being an aboriginal settlement, and which is 50 or more years old'

As a result, sub-surface archaeological features and deposits are afforded automatic statutory protection by the relic's provisions of the NSW Heritage Act 1977.

Sections 139 to 145 of the Act prevent the excavation or disturbance of land for the purpose of discovering, exposing or moving a relic, except by a qualified archaeologist to whom an excavation permit (under section 140) has been issued by the Heritage Council of NSW.

1.4 Authorship and Acknowledgements

This report has been prepared by Mary Dallas, Dan Tuck and Paul Irish.

1.5 Summary of Recommendations

1.5.1 Aboriginal Heritage Recommendations

The following recommendations are based upon:



- the legal requirements and automatic statutory protection provided to items of Aboriginal heritage under the terms of the *National Parks and Wildlife Act of 1974 (as amended)*, where it is an offence to knowingly or unknowingly harm an Aboriginal object;
- the results of the current study which are documented in this report; and
- the views and concerns expressed by the Aboriginal community representatives during the current project as outlined in the appended reports (**Appendix 1**).

It is recommended that:

1. The two identified areas of Aboriginal potential archaeological deposit **BCPAD 1** and **BCPAD2** as depicted in **Figure 22** and described above require archaeological investigation prior to any proposed development impacts to determine the presence/absence, extent and significance of any Aboriginal archaeological remains within these areas as a means of determining appropriate management recommendations for these areas. These areas are defined as containing low to medium archaeological potential and only **BCPAD 2** has an identified Aboriginal object or artefact in the general vicinity. Such investigations would need to be undertaken by a suitably qualified archaeologist in association with appropriate local Aboriginal stakeholders under an approved NPW Act s.90 Aboriginal Heritage Impact Permit or under the recently developed DECCW Code of Practice for archaeological investigations. Investigations under the DECCW Code of Practice do not require approvals under the NPW Act. Investigations under a s90 Approval or an Aboriginal Heritage Impact Permit may lead to alterations of the Master Plan permissible under s96 of the EP&A Act 1979 of the detailed design of the proposed development, but cannot be under prior to a valid development consent.

2. Further assessment of the **PAS 1-8** areas within the subject lands should be undertaken prior to any development. This assessment could initially be based on a review and monitor of geotechnical investigations as may be applied across the subject land in the vicinity of the **PAS 1-8**. Where these independent excavations identify potential archaeological deposits these would require investigation under DECCW policies and guidelines.

3. A buffer zone around the former **Cow Creek Aboriginal Reserve** should be established in recognition of the potential for historical Aboriginal burials to be present immediately adjacent to the subject land in this area. A 20m buffer around the perimeter of the lot [each side excluding the Pacific highway side] is recommended. This is considered adequate to ensure that any human remains are not inadvertently disturbed during construction or future use of the current study area. It is further recommended that the Reserve is preserved in a landscape context and if specific impacts are proposed a detailed investigation and significance assessment should be undertaken.



4. Prior to construction onsite, an **Interpretation Plan** should be prepared which includes both Aboriginal and European heritage. The Interpretation Plan should include appropriate onsite signage developed in consultation with the Aboriginal Stakeholders and could incorporate results of recent archaeological testing within the Aboriginal Reserve area [by the RTA] and any conducted within **BCPAD 1** and **2** as recommended. The Interpretation Plan should also specify street names in commemoration of the Aboriginal and European histories of the local area. The Interpretation Plan could also include further archival research of the records associated with the Cow Creek Aboriginal Reserve as discussed in this report, if appropriate and supported by the Buchanan family.

5. Portions of the current area were not available for survey or surface inspection. These areas will require survey, the survey and the further recommended investigations above could undertaken at the DCP stage.

6. A copy of this report should be forwarded to the CEO of the Nambucca LALC and the following community representatives at the contact addresses below.

Ms Louise Robinson
CEO
Nambucca Local Aboriginal Land Council
PO Box 358
Nambucca Heads NSW 2448

Mr Victor Buchanan
c/o Northern Aboriginal Heritage Unit
Department of Environment, Climate Change & Water
PO Box 914
Coffs Harbour NSW 2450

Mr Gary Williams
c/o **Muurrbay Aboriginal Language and Culture Co-operative**
14 Bellwood Road
Nambucca Heads NSW 2448

7. Two copies of this report should be forwarded to:

Northern Region Archaeologist,
Northern Aboriginal Heritage Unit
Department of Environment, Climate Change & Water
PO Box 914
Coffs Harbour NSW 2450



8. One copy of this report should be forwarded to:

The Manager
Aboriginal Heritage Information Management System
Department of Environment, Climate Change & Water
P.O. Box 1967
Hurstville NSW 2770

1.5.2 European Heritage Recommendations

The following recommendations acknowledge current heritage planning guidelines (such as those issued by NSW Heritage Council), the Burra Charter and the protection afforded to European heritage relics under the *NSW Heritage Act 1977*, which defines a 'relic' as:

'any deposit, object or material evidence relating to the settlement of the area that comprises NSW, not being an aboriginal settlement, and which is 50 or more years old'

They have been formulated to

1. Prior to any development works the study area should be subject to a brief photo essay-style photographic archival recording⁷ that acknowledges NSW Heritage Council standards.

The recording should take in the property dwellings and their respective settings as well as a range of vistas across the UGA. The purpose of this is to document the study area 'as is' and provide a visual historic record of living and working areas and landscapes prior to transformation by redevelopment.

2. The study area includes (or abuts) places that have been the property, and/or home and workplace of a number of well known district families including the Smiths, Eichmanns, Cowlins, Welshes and Usshers.

This being the case, consideration should be given to using the names of families historically associated with the subject land in the naming of future subdivision amenities and utilities such as access roads and parks. This provides a linkage between use of the place in the past and its use in the future and acknowledges past landholders.

3. Consideration should also be given to the interpretation of the history of the place in the context of any new development.

⁷ Photographic archival recording is a straightforward and relatively rapid process whereby a suitably qualified or experienced contractor would photograph the site and create an archive of the images produced. The recording would be undertaken according to NSW Department of Planning Heritage Branch standards and guidelines as set out in the document *Photographic Recording of Heritage Items using Film or Digital Capture* (2006).



Acknowledging the past through the use of signage and other media such as plaques and interpretive kiosks is a way of linking the potential new residents of the urban growth area with those who went before them.

4. Further investigation needs to be undertaken in an effort to greater understand the history and heritage of the former Cow Creek Creek Aboriginal Reserve site.

Archival research undertaken in association with the Aboriginal community - especially those who are descendant of former reserve residents - has the potential to greatly improve our knowledge of the place, its arrangement and use, its people and its pre and post-contact significance.

allow practical heritage management that remembers past use of the place and promotes remembrance of its history into the future.



Figure 1: Map of the North Coast region showing general location of subject lands (circled).

(Penguin NSW Road Map 2000)

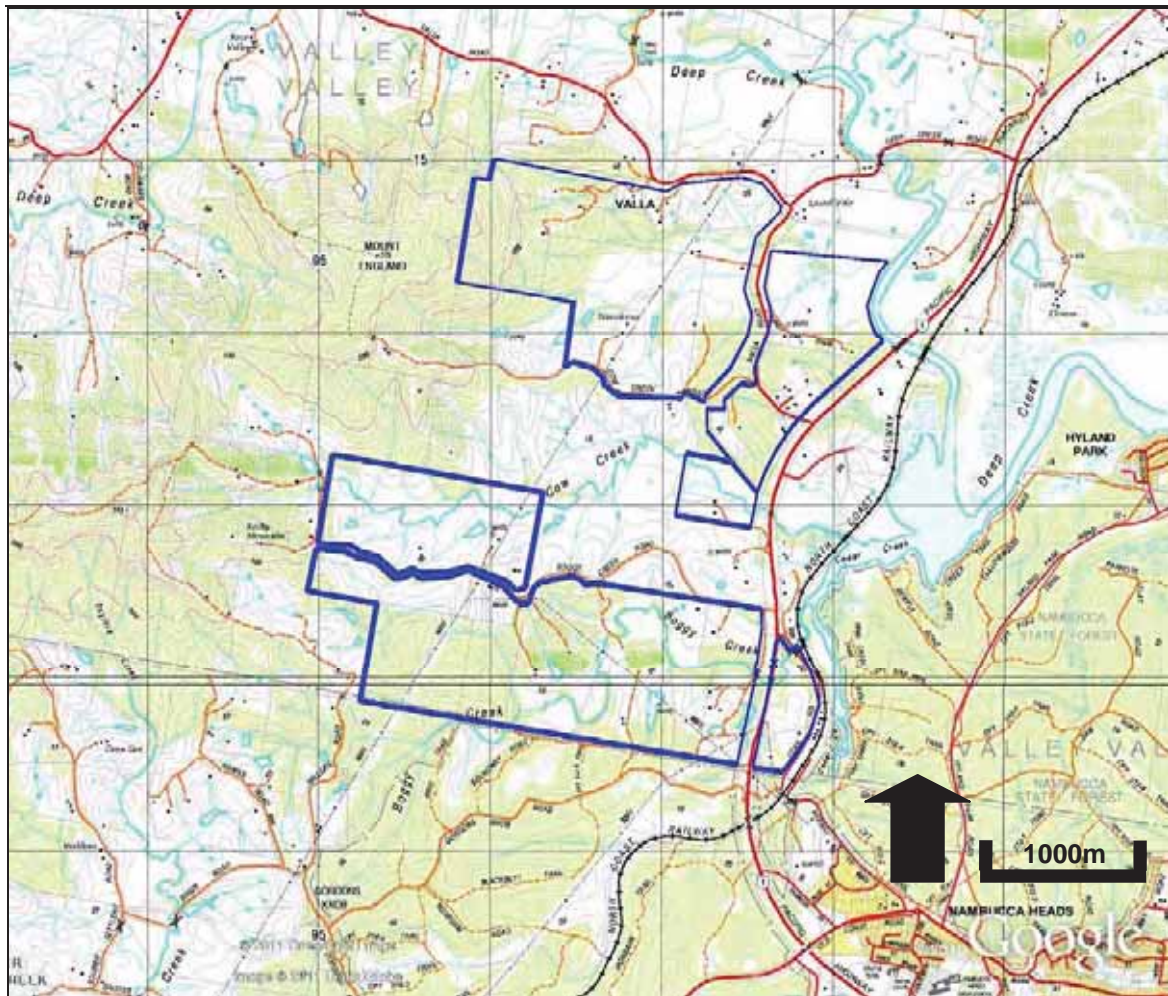


Figure 2: The subject lands and local topography.

(LPI NSW 1:25 000 Topographic Maps Missabotti & Macksville 2003)

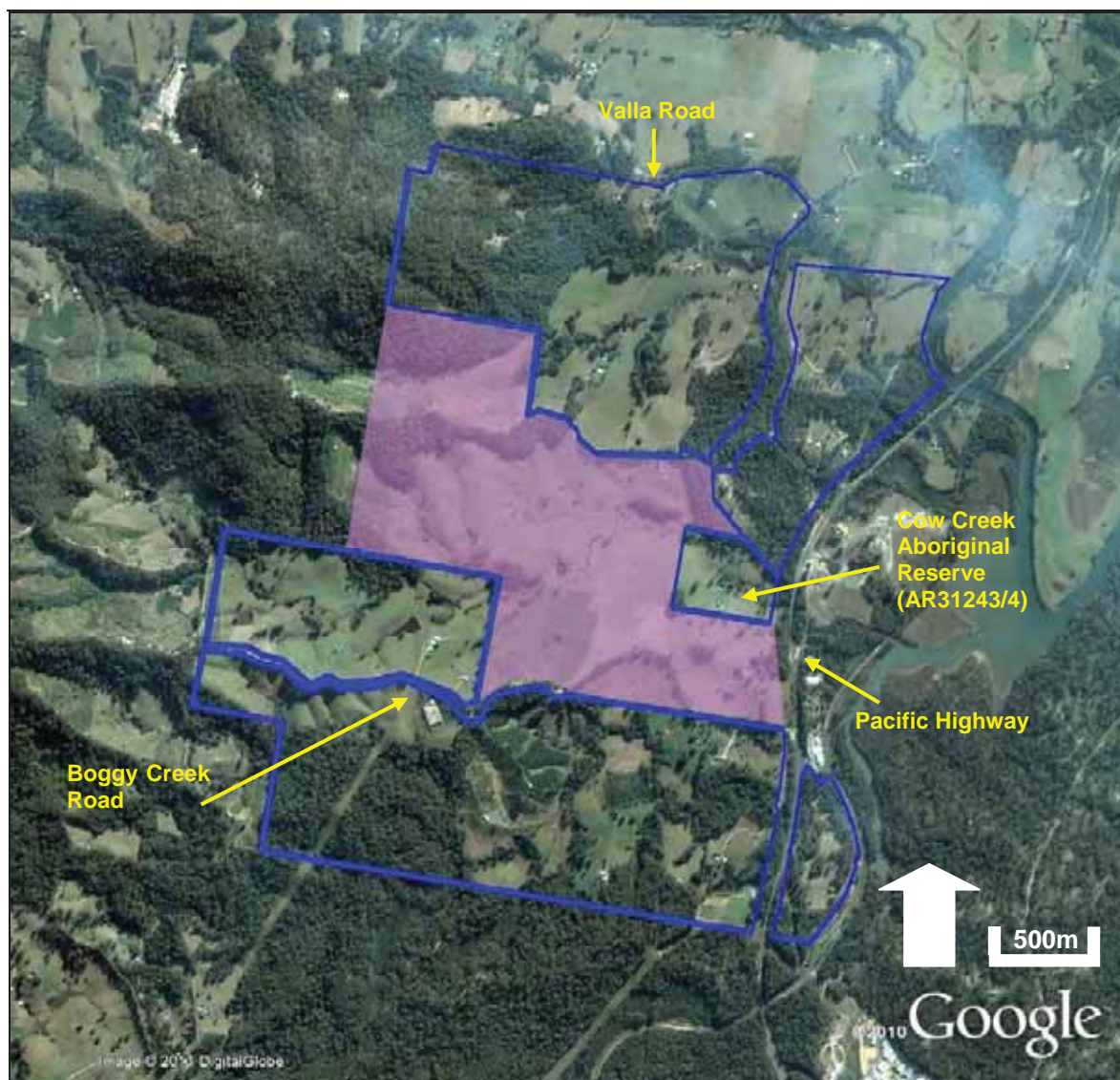


Figure 3: The subject lands in their local context.

(Note: the area shaded purple is lands previously assessed by MDCA 2010)



2.0

Environmental Context

The following section provides details about the location of the subject lands and their landscape setting.

2.1 Topography and Hydrology

The subject lands are set within undulating to hilly rural lands in the Nambucca Heads-Valla Beach hinterland within the catchments of Boggy Creek, Cow Creek and unnamed tributaries of Deep Creek. These meandering watercourses drain Mount England and its associated ridgelines to the immediate west and northwest and feed into Cedar Creek (and ultimately Deep Creek) to the east. Dominant landscape features of the area include Mount England and Gordons Knob (to the west and southwest); Cow and Boggy Creeks (which run through the study area); Cedar and Deep Creeks (to the east); and the Nambucca State Forest (to the south).

The subject lands themselves are generally moderately to steeply sloping, with few flat areas, and these almost all along the floodplain of Deep Creek. The watersheds of the creeks within the subject lands are separated by long narrow ridgelines upon which Valla Road, Cow Creek Road and Boggy Creek Road have been formed.

In general the subject land in all of its catchments is characterised by a series of relatively narrow spurs flanking minor watercourses at the upper ends of the Cow Creek, Boggy Creek and Deep Creek catchments. The sides of these spurs are generally steeply sloping and not conducive to human movement through the landscape. The spurs themselves, sloping down from the watershed ridgelines described above, form the obvious travel routes through the landscape, though many of them terminate steeply and abruptly above the creeks, making some of the spurs potentially much more useful than others in facilitating movement from the foothills to the coast (a factor in determining potential Aboriginal archaeological sensitivity).

Apart from alluvial flood plain of the main course of Deep Creek, some relatively flat lands are found in the central eastern portion of the subject lands along the banks of Cow Creek, where an Aboriginal Reserve was established in the late 1800s, possibly partly due to this fact and the reliable supply of freshwater. Other flat areas which may have been suitable for camping are scarce within the subject lands and appear generally restricted to spur lines (though see discussed below).

The historical use of, and impacts to, the subject lands are detailed in **Sections 3** and **5**, but it is worth noting here that those portions of the subject lands which are being considered for future development have predominantly been cleared and have been used for grazing with some cropping in select locations. Bushland and remnant timber is present within the southwestern and northern portions of the subject lands (see **Figure 3**) and as thin bands along the immediate banks of the creeks. In the past, the subject lands were covered with varieties of open forests (on the hills and slopes) with riverine forest dominating the creek lines. These vegetation regimes derived from both local climatic conditions and the underlying soil landscapes of the subject lands.



2.2 Geology and Soils

Geologically, the study area is set within the southern part of the New England Fold Belt in an area referred to as the Nambucca Block. The Nambucca Block comprises folded Carboniferous-early Permian metasediments, which were deformed during the late Permian period. The resultant lithologies are complex due to large-scale geological displacement. Broadly, there are two distinct sedimentary successions – the Kempsey beds and the Nambucca Beds. The Nambucca Beds (CPkx) are characterised by Permian metasediments 3 to 4 metres thick. The lower beds are dominated by diamictite, while the upper beds feature fine-grained sediments. Regolith on the Nambucca Beds typically features weathered rock of weak strength, with strongly weathered silty clays, which are thick on foot slopes and shallow in ridges. Soils on deep regolith tend to be red, strongly structured acidic cays with weak textural contrast. Mica imparts silty textures to the soils; quartz gravels are common as surface lag deposits.

One of the features of the region is the Triassic aged small massive granitoids of the Coastal Granitoid Belt, which have intruded the Nambucca Block in three locations (Valla, Yarrahapinni, and Smoky Cape) and have formed the Yarrahapinni Hills physiographic region. Characteristic granites include adamellite – the super hard pink granite that was used to construct Trial Bay Gaol near South West Rocks. Both Pickett Hill and Mount England are products of the granite intrusion into the Nambucca Block.

The characteristic landform which encompasses the study area is the Nambucca-Bellingen Hills, which comprise undulating to rolling hills on the Permian metasediments of the Nambucca Beds and undulating alluvial floodplains and terraces associated with the Nambucca and Kalang Rivers⁸.

The Macksville & Nambucca 1: 100 000 Soil Landscape Sheet indicates that the study area spans a numbers of distinctive alluvial, erosional and residual soil landscapes (see **Figure 4**):

Nambucca River (nr)

The Nambucca River soil landscape (nr) is an alluvial soil landscape formed by the deposition of alluvial sediments along the courses of rivers, streams and creeks. It is the predominant soil landscape of the floodplains and terraces along streams in the Nambucca – Bellingen Hills physiographic region. Within the study area it is restricted to the immediate corridor of Cow Creek and the floodplain of Deep Creek.

Characteristics of this landscape include:

- Narrow to moderately broad floodplain and terrace surfaces with minor depressions and drainage lines
- Elevations less than 100 metres and relief less than 10 metres
- Riverine forest vegetation regimes (extensively cleared)

⁸ Eddie 2000: 2 - 9



-
- Regolith of unconsolidated sandy loams and gravels of quaternary alluvium derived from the Nambucca Block (nb)
 - Prairie soils, red earths and alluvial soils; occasional sands and gravel beds.⁹

Pine Creek (pn)

The Pine Creek Soil landscape (pn) is an erosional soil landscape shaped by the erosive action of water running off hill slopes. This type of landscape commonly consists of steep to undulating hill slopes with occasional tors, benches and areas of rock outcrop. It is widespread in the rolling hill country of the Nambucca-Bellingen Hills region. The soil map indicates that this landscape accounts for much of the study area outside of the Cow Creek and Deep Creek corridors.

Characteristics of this landscape include:

- Rolling hills with elevations between 20 and 300 metres and slopes 20 and 33 degrees
- Tall open forest vegetation regimes (extensively cleared)
- Shallow regolith; quartz gravels common as surface lag deposits
- Stony soils including gravelly red and brown podsolic soils; localised leptic lithosols on some crests and side slopes; deep brown and red earths on foot slopes.¹⁰

Other less extensive landscape types that may exist within small areas of the study area include:

Newry (ne)

The Newry erosional/residual soil landscape is a feature of the low coastal and sub-coastal hills of the Nambucca-Bellingen area. Characteristics include:

- Undulating low hills with broad crests and moderately inclined side slopes
- Elevations between 5 and 40 metres with slopes between 5 and 10 degrees
- Red, yellow and brown podsolic soils

This soil landscape exists in the northeastern portion of the subject lands.

Big Smoky (bs); & Valla (vl)

A combination of erosional, residual and transferral soil landscapes related to Mount England (a granite mountain) and its associated foot slopes. These soil landscapes are in the northwestern portion of the subject lands but outside of areas proposed for future development.

⁹ Eddie 2000: 156-159

¹⁰ Eddie 2000: 95-98

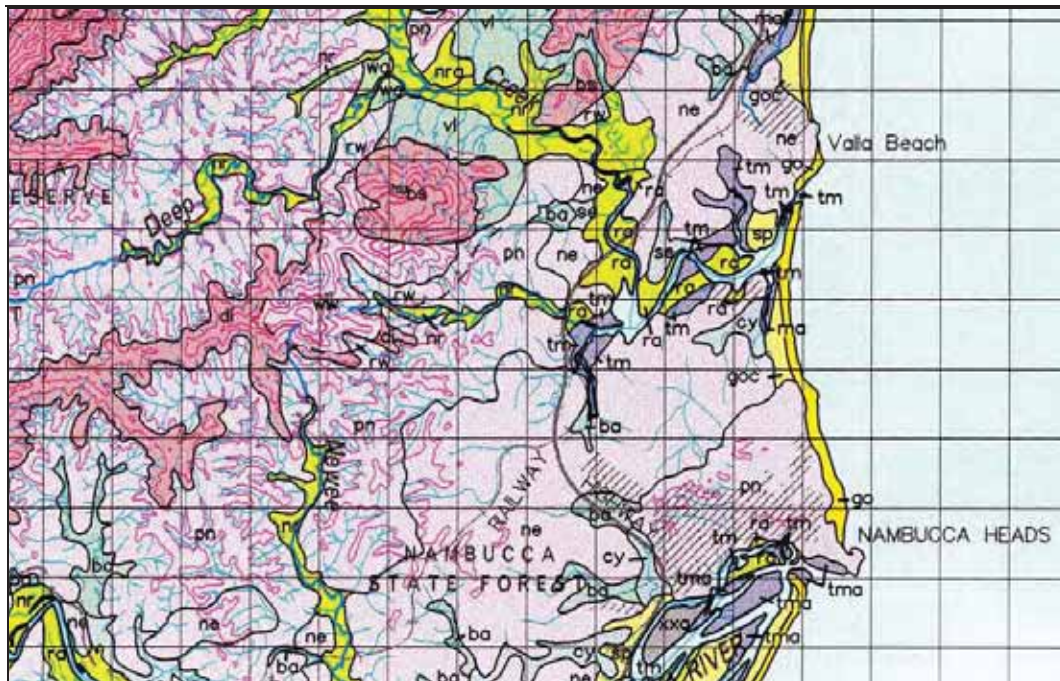


Figure 4: Macksville & Nambucca 1: 100 000 soil sheet (2000)

(NSW Department of land & Water Conservation)



3.0

Historical Context

The following section provides a brief summary of the indigenous and non-indigenous history of the Mid North Coast of New South Wales with an emphasis on the Nambucca-Valla district. It has been written to provide a contextual setting for the archaeological and cultural heritage assessment of the proposed Valla Urban Growth Area. This history has been formulated from a review of existing reports and publications, and from the results of research conducted specifically for this project, and incorporates research presented in MDCA 2010.

Resources and archives investigated included:

- State Library of New South Wales (SLNSW)
- State Records of New South Wales (SRNSW)
- Nambucca & Macksville Public Libraries
- Bowraville Folk Museum & Nambucca Museum

This section is presented chronologically with subdivision based on key periods, localities, events and people. Within this framework a number of broad state and national research themes are addressed, including:

National & State Historic Themes	
National Themes	State Themes & Sub-themes
Tracing the natural evolution of Australia	Environment (naturally evolved) <i>Ocean, river, hinterland, mountains</i>
Peopling Australia	Aboriginal cultures and interactions with other cultures <i>Culture, contact, conflict, co-existence & survival</i>
Developing local, regional & national economies	Agriculture; Commerce; Communication; Environment (cultural landscapes); Exploration; Fishing; Forestry; Industry; Pastoralism; Transport <i>Farming, rural landscape, grazing, goods & services</i>
Building settlements, towns & cities	Towns, suburbs & villages; Land tenure; Accommodation; Labour; Education; Law & order <i>Rural industry & village development</i>
Developing Australia's cultural life	Domestic life; Leisure; Social intuitions; Sport
Marking the phases of life	Birth & death; Persons

3.1 Aboriginal People of the Mid North Coast

For thousands of years the Valla-Nambucca area has been part of the domain of the **Gumbaingirr** – a vast Aboriginal group whose territory extended along the NSW Mid North Coast from the Clarence River in the north, to Macksville in the south and west as far as Glen Innes.¹¹ Within this broad area covering around 6000 square kilometres, the Gumbaingirr were organised into a number of sub-groups or clans, generally described as extended or interlinked family groups sharing a common dialect. There were at least four distinct dialectic groups including the Gumbainggeri and the Baanbai (DEC 2005:9).

Neighbouring Aboriginal groups included the Bundjalung to the north; the Nganyaywana to the west; and the Ngaka clan groups of the Dainggatti to the south (**Figure 5**).

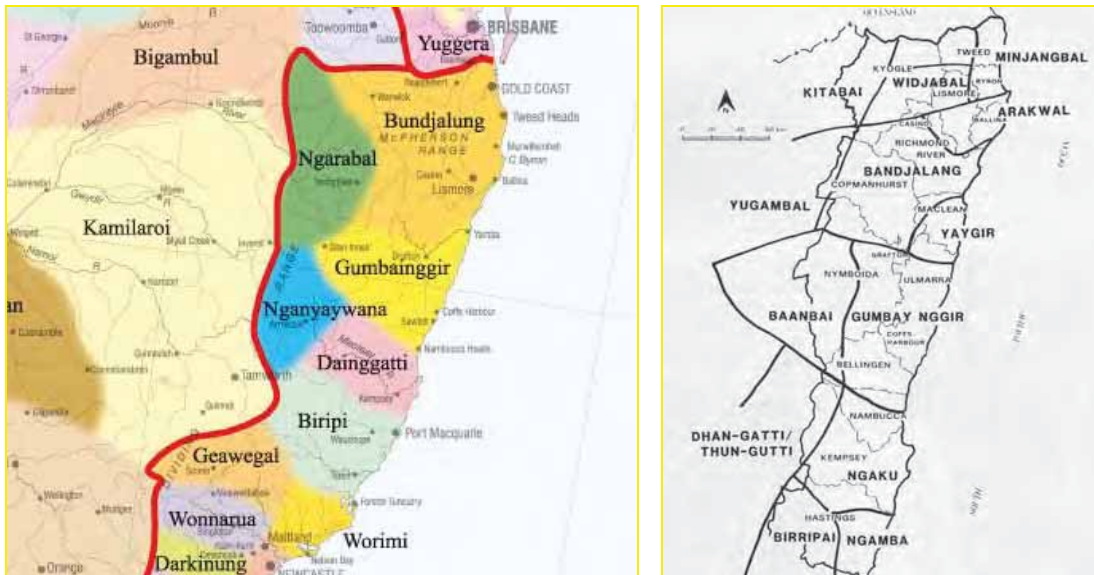


Figure 5: Aboriginal nations of the North Coast of NSW

(Horton 2007; NSW Department of Planning 1989a)

Gumbaingirr

Descriptions of traditional Gumbaingirr people and culture have been preserved in the writings of a number of early district settlers, colonial visitors, and some of the proto-anthropologists of the late 19th century.¹² Southampton surveyor Clement Hodgkinson for example, arrived in Australia in 1839 and surveyed the Nambucca and Bellinger Rivers in the 1840s. In his book entitled *Australia from Port Macquarie to Moreton Bay* (1845) he commented on the impressiveness of the Gumbaingirr, describing one Aboriginal man he had met from Bellinger as:

¹¹ DEC 2005 LGA Profile – Nambucca; Tindale 1974; Horton 2007.

¹² The Gumbaingirr refer to themselves as *Goori*

*... pre-eminently remarkable from his tallness and Herculean proportions.*¹³

Later in the early 20th century, A. C. McDougall, described the Coombangree (Gumbaingirr) tribesmen near the coast as:

*.... a much finer race, but more treacherous than those near the Dividing Range. Some of the men were 6'2" to 6'3" tall and were well proportioned.*¹⁴

One of the other physical characteristics of the Aboriginal people of the Mid North Coast that struck early colonial observers including Hodgkinson and fellow surveyor Enoch Rudder (who surveyed the Macleay River) was the elaborate hairstyles of the Gumbaingirr and their immediate neighbours (particularly the Aborigines of the Yarrahapinni area near Grassy Head). These unique hairstyles were created by twisting hair around sword grass and binding it with possum-hair cord to create an elaborate conical shape. It is thought that these elaborate hairdos were probably made up for ceremonial occasions (**Figure 6**).¹⁵

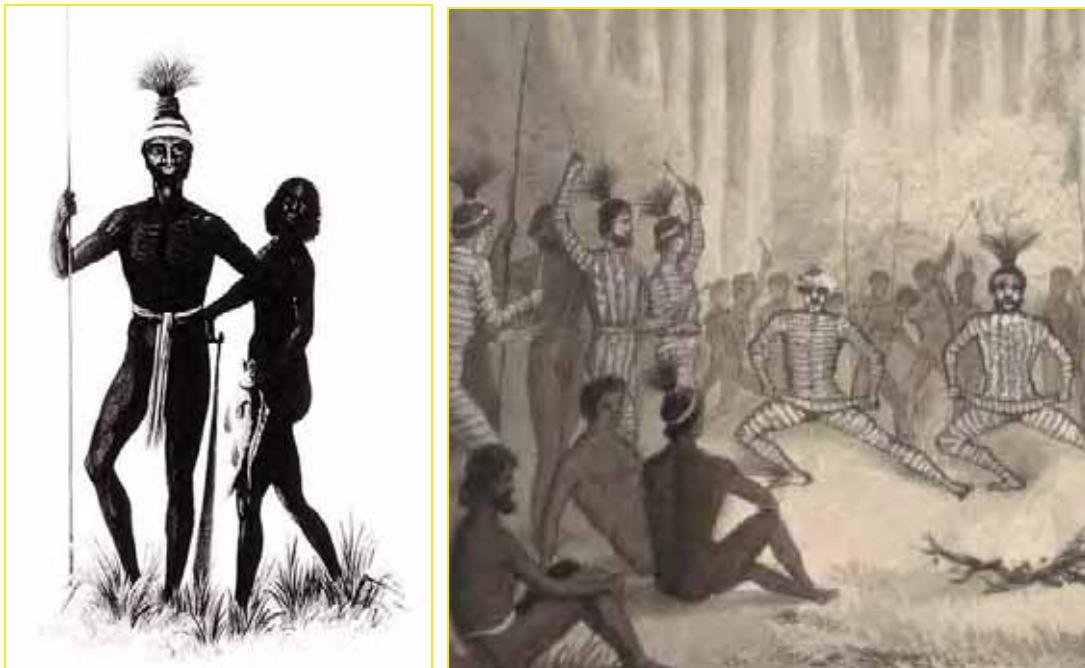


Figure 6: Hodgkinson's *Cranky Tom and Dilberree* & *Dance at a Cawarra ceremony* (c.1843)

The man in the image at left sports the elaborate hairstyle described above. His chest and arms also bear the scarification of initiation. The image at right shows painted dancers at a ceremony again with the elaborate hairstyles of the Mid North Coast Aborigines.

(NLA pic-an6617612-v.jpeg; NLA pic-an6617603-v.jpeg)

¹³ Hodgkinson 1845

¹⁴ McDougall 1900

¹⁵ Townsend 1993: 9-10



3.1.1 Antiquity

Archaeological evidence suggests that Aboriginal people were occupying parts of Australia by at least 45 000 years BP and possibly as early as 60 000 years ago. On the Australian East Coast in the Northern NSW/Southern Queensland region, evidence of occupation appears to be considerably more recent. Wallen Creek and North Stradbroke Island feature the oldest archaeological sites in the region which date to around 20 000 years. Many others date to less than 10 000 years, while the majority are less than 2000 years old.¹⁶

There are many reasons for this temporal discrepancy with the most likely being that occupation of the East Coast is considerably older than archaeological dating would suggest and that earlier coastal sites have been inundated (and therefore lost) during rising sea levels in the period 6000 to 8000 years ago.¹⁷

At present, the oldest radiometrically dated evidence of Aboriginal occupation in the broader study area dates to around the time when the coastline acquired its current formation after the Holocene Marine Transgression. Shell middens at Clybucca Swamp (18 kilometres northeast of Kempsey) have been dated to 6000 years ago. It has been suggested however that Pleistocene age middens exist further back from the present coast between Colombatti and Grassy Head that have the potential to yield archaeological sites within the 10 000 to 25 000 year date range.¹⁸

While definitive dates for human antiquity within the broader study area remain elusive, what is certain is that Aboriginal people have lived in, travelled around, and made use of the Mid North Coast region for many thousands of years.

3.1.2 Lifestyle

Aborigines of the region made use of both the coast and hinterland. Precise knowledge about the nature of this settlement is limited but archaeological and historical data suggests coastal locations, particularly in the vicinity of the mouths of the major creeks and rivers (such as the mouth of the Clarence River) were amongst the most densely settled locations and were probably occupied on a semi-permanent basis. Beyond the existence of discrete coastal settlements, patterns of broader settlement and movement are not well understood and have been debated since the 1970s.

Coast & Hinterland

Aboriginal communities and individual bands or family groups moved around the landscape in a complex pattern dictated by territorial boundaries, taboos, spirituality, ceremony, seasonality and resource availability. Not surprisingly numerous contrasting 'movement models' based on combinations of archaeological data, ethnographic information and intuition have been presented.

The first major debate relates to the degree to which coastal groups moved between the coast and inland regions (if at all):

¹⁶ Neal & Stock 1986

¹⁷ 18 000 years sea level was between 100 and 150 metres below current level (NSW DOP 1989: 10)

¹⁸ Macintyre-Tamoy 2003; Townsend 1993



- **McBryde** (1974) has suggested that clan groups moved latitudinally between the coast and hinterland on a seasonal basis
- **Coleman** (1982) has argued that the movement of coastal clans was infrequent, and more likely to have occurred longitudinally (up and down the coast) rather than inland.

More recently, Godwin has argued that neither model is well supported by relevant data and that movement and exploitation strategies were dictated by local conditions.¹⁹ Generally, most researchers advocate some kind of seasonal movement moderated by social/religious concerns – though there is debate in relation to the nature of seasonal movement as well:

- **Sullivan** (1978) suggests on the basis of ethno-historic accounts that clan groups hugged the coast in the summer and moved to the upland regions in the winter
- **Piper** (1975) however has argued the opposite suggesting that the archaeological evidence supports a pattern of coastal exploitation in winter with movement inland in summer.

Certainly in post-contact times, late Autumn and early winter appear to have been the most popular times for visitation along the Mid North Coast coastal strip, when the Mullet were running and the native Lillipillies were fruiting. Favoured coastal camping grounds appear to have been along the numerous creeks throughout the region, with nearby areas utilised as burial sites.²⁰ The Bagawa tribe, who were based in the Bucca Creek-Nana Glen area for example, are reported to have spent the winter months on the coast around Moonee, returning to the upland reaches in the summer.²¹ Similarly, another writer has written:

*Up river Blacks occasionally made winter month visits to the coast in the vicinity of Red Rock where they spent there time quietly till the spring denoted that return to the old haunts was desirable.*²²

Whatever the case, it is clear that the Aboriginal people of the region made use of a variety of locations, landscapes and environments – arguably with a coastal bias.

3.1.3 Economy

The Nambucca district of the Mid North Coast with its mild climate, rich coastline, and vegetated hinterland provided a range of living environments and abundant exploitable resources for its Aboriginal custodians.

The ocean and its associated rivers and creeks harboured aquatic and terrestrial resources. Chief among these were the finfish, shellfish and crustaceae of the sea and tidal waterways.

Coast

¹⁹ Godwin 1990

²⁰ Yeates 1993: 14

²¹ Holder 1984: 20

²² MacFarlane in Ryan 1964: 156



Archaeological, ethnographic and environmental evidence indicates that Aborigines along the coast had a varied diet with protein provided mainly by resources from the sea and ancillary waters. These are known to have included:

- **Fish** (including bream, whiting, snapper, cod, salmon, mullet, flathead and rays)
- **Crustaceans** (including prawns; sand crabs and mud crabs)
- **Shellfish** (oysters, pipis, cockles and other molluscs and bivalves)
- **Miscellanea** (such as cunjevoi).²³

Fishing on the Mid North Coast

The coastal Gumbaingirr had access to a variety of fish stocks both in the coastal waters and in the back-dune lagoons and feeder creeks.

Acquiring fish was a major preoccupation and a variety of techniques were used. Fish were typically speared, line caught, netted or poisoned. Spears (used in shallow water contexts) were generally lightweight and constructed of hardwood, reed or Xanthorrhoea (grass tree). Lines and nets were built from a variety of plant fibres including those from the Kurrajong or flame tree. One method of net fishing involved a 'drive' along shallow creeks and flats where Aborigines advanced in line abreast to a netted end point.²⁴

²³ Hodgkinson in Ryan 1964: 142



In the fresh water reaches of creeks, the poisoning of fish with smart weed (Bumbil Bumbil), was one method used to capture fish. Poisoning involved one person diving into the water and rubbing bunches of the weed together with their eyes and mouth shut to prevent his self-poisoning. Once poisoned, the stricken fish floated to the surface where they could be easily retrieved. Another bush poison used for stupefying fish was a lather produced from the Cutiga tree which was utilised in the same way as the Bumbil Bumbil poison.²⁵

In addition to the traditional fish catching methods complex fish traps were also used in some locations. The Arrawarra stone fish trap, to the north of Coffs Harbour, though modified by Europeans in the mid 1900s, was constructed and used by Aboriginal people up until c.1900. Aboriginal informants have described the operation of this trap suggesting that the trap was baited with shellfish and fish scraps with fish entering from the ocean side, which was then blocked. At low tide, men entered the traps with sticks and nets and retrieved the catch.²⁶

Image: Hodgkinson's *Natives spearing fish on the Bellenger [Bellinger] River* 1845. (NLA pic-an10127639)

²⁴ Yeates 1993a: 12

²⁵ MacDougall in *Science of Man* 22 April 1901: 46

²⁶ Yeates 1993a: 13

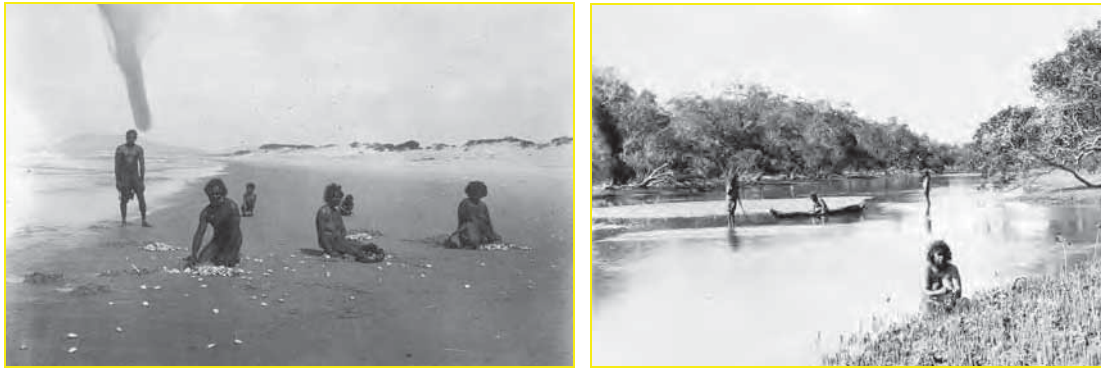


Figure 7: Aborigines gathering pippies & oysters in the Port Macquarie area, NSW (c.1900)

(Thomas Dick – SLNSW 04739 & 04783)

Beach fishing using spears appears to have been a common method of fishing in the Mid North Coast region. Hodgkinson noted in relation to the area north of the Nambucca Bar:

The waves which broke were full of mullet and salmon that seemed to swim along the breakers in search of prey. The blacks made several attempts to spear some as we walked along, and at last succeeded in transfixing a salmon weighing upwards of 20 pounds.²⁷

Rounding out the protein diet on the immediate coastal fringe were the shorebirds, reptiles and small mammals of the dune systems including:

- **Birds** (gulls, turns and migratory species such as the wedge-tailed shearwater)
- **Reptiles** (a variety of lizards and snakes)
- **Mammals** (such as dingoes, wallabies, pademelons and bandicoots).²⁸

Other resources obtained from lowland areas beyond the immediate foreshore (including brackish and freshwater creeks, swamps and lagoons) were fresh water eels, lobster, mussels, wild fowl and the cobra worm.²⁹

²⁷ Hodgkinson cited in Ryan 1964: 143

²⁸ NSW NPWS 1998: 22; Keats 1988

²⁹ Hodgkinson in Ryan, 1964: 142



Cobra

The Cobra or woodworm (and the related teredo or ship worm) has long been an Aboriginal delicacy on the East Coast of Australia. Found in a range of aquatic environments, the cobra is not actually a worm but a bivalve shellfish (molluscan borer) - the larvae of which attaches itself to wood and proceeds to burrow in it using its valves to drive a burrow along the grain of the wood. As the burrow lengthens so does the wormlike body, allowing the siphons to remain at the entrance of the burrow.

Cobra worms were traditionally extracted from rotting pieces of timber (usually fallen logs) in waterways. Sometimes as part of 'cobra festivals' – which declined after white settlement when the fallen logs that harboured the molluscs were considered 'snags' and removed from waterways.

Refer *The Rocks and Sea Give us a Feed* (2004).

Hinterland

*A description of life would be incomplete without reference to the ... forest and scrub, for it was chiefly from the trees and thicket-clad areas that the blacks obtained sustenance.*³⁰

The hinterland lowlands and upland forests west of the coast provided a complimentary range of littoral food reserves as well as a host of forest products. Mrs Mary Bundock who wrote extensively about the early history of the Mid North Coast in the late 19th century, noted that the Aborigines of the area procured possums, kangaroos, wallabies and bandicoots, porcupines (echidnas), snakes, and flying foxes:

*... together with any kind of birds they could get; a good deal of fish in the summer and large mussels from the lagoon.*³¹

Of the above, the carpet snake, the honey of native bees, and the echidna in particular were considered delicacies of the forest. The latter 'carefully cooked by being rolled in clay and baked in ashes so that the quills came off with the clay after cooking'.³²

Macropods (kangaroos, pademelons and wallabies) however provided most of the dietary protein and their capture typically involved considerable skill and cooperation. In some instances, the animals were caught in nets similar to those used for fishing. At other times the animals were ambushed during drives involving large parties of hunters and their companion dingoes (**Figure 8**). There are several eyewitness accounts of Aboriginal kangaroo hunting in the post-contact period on the North Coast, including the following from Macfarlane:

The kangaroo is extremely fleet of foot and difficult to capture under Aboriginal conditions. The black man is alert but must resort to subtle means in order to entrap the wily marsupial. It is grass fed and can be viewed on the open pastures in droves to upwards of twenty in number.

³⁰ Bawden in Ryan 1964: 129

³¹ Bundock cited in Ryan, 1964: 136

³² Bundock cited in Ryan, 1964: 136

The hunters armed with sticks and boomerangs, arrange to surround the unsuspecting animals from an unseen circle, gradually closing in on the flock till the latter discover that they are in trouble, and bound off alarmed in various directions. In their endeavour to avoid the hunters they must, naturally, pass within shot of the missiles of the darkies who having a broadside target, bring to earth the leaping denizen of the forest.³³

Clement Hodgkinson described a similar event at Nambucca:

March 14th — This morning we crossed another of the Nambucca streams. As we entered the brush we heard the loud shouts of the blacks who were busily engaged in hunting. The plan adopted by the natives in this pursuit, was somewhat similar, on a small scale, to the mode of hunting pursued by some of the Indian princes. The blacks first of all dispersed, and formed in the brush a circle of a quarter of a mile in diameter, and then, on a given signal, they all commenced shouting and advancing towards the centre, gradually lessening the circle. The brush-kangaroos or pademellas (sp.) were thus gradually enclosed, and driven into a small space, where, being surrounded on all sides, they were dispatched by the natives, who carried for this purpose short cylindrical pieces of wood, formed from a species of tree, growing in the brushes, and which is of greater specific gravity than any wood I am acquainted with.

This tribe was the same we had met a few days before, and to which the five blacks, whom I had just dismissed, belonged. They had apparently been performing a corroboree dance on the preceding evening, as their bodies still preserved traces of the pigments with which they adorn themselves for that occasion.³⁴

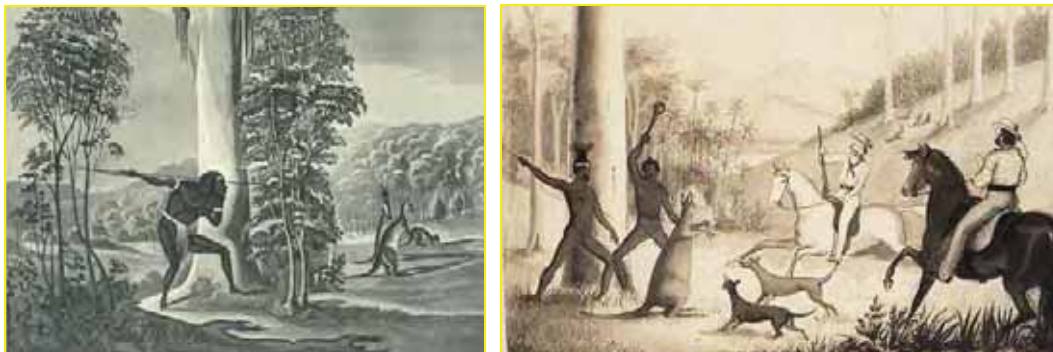


Figure 8: 'Charlie' spearing Kangaroos (c.1843) & Hodgkinson's Kangaroo at bay (c.1843)

(SLNSW Call No. PXA 74; NLA pic-an6617605)

³³ Macfarlane cited in Ryan 1964

³⁴ Hodgkinson 1945: 45-46



In addition to the animals contained within the hinterland forests and woodlands, the plants themselves also provided a range of foods, products, and the raw materials of indigenous medicine. The following are select examples:

- **Fruits, berries & nuts** were collected (including the nuts of the pandanas & the seed & heart of the Burrawang palm)
- **FronD shields** of the Bangalow palm were used to make water carriers referred to as caalabas or pitchie-ban
- **Hibiscus & Kurrajong bark** was used to make twine/cord for construction of dilly bags, rope, nets & fishing line
- **Eucalypt bark** was harvested to make canoes, shields & coolamons (wooden platters used to carry/gather fruits & vegetables)
- **Honey** was collected from tree hives using climbing vine & bark 'mop'
- **Arum tree roots & leaves** (congevoi) were used medicinally
- **Bungwahl fern root** (*Blechnum indicum*) & other rhizomes (as well as numerous varieties of yam) were dug out, ground & eaten.³⁵

Refer **Figure 9**.

Trees not only provided useful materials, they were also arboreal larders. Tree climbing allowed aborigines to access a variety of tree-bourne foodstuffs including wild honey, possums, flying foxes koalas and bird eggs.

Charles Grant Tindal of Ramornie Station on the Clarence River, writing to his mother in England in 1844, noted that the Aborigines of the Mid North Coast:

*... examine the bark of the trees for the marks of opossum claws, If the marks are fresh they get up the tree by cutting notches with their tomohawks big enough to receive a toe, When they find out the hollow branch where the animal is, they drive it down to the bottom with a long stick.*³⁶

The honey of native bees was one of the most sought after tree top foodstuffs. R. L. Dawson provided a description of Aborigines obtaining honey in 1866:

At Bellevue, I first saw blacks robbing a bee's nest, One man extracting large pieces of honeycomb from a hole he had cut high up in the trunk of an ironbark tree while his

³⁵ McBride 1978; Bundock quoted in Ryan 1964: 183; Yeates 1993a: 10; Yeates 1993a: 10; MacDougal in *Science of Man* 22 April 1907: 47; Dawson 1866: 18; Hodgkinson 1845: 225-226

³⁶ Letter from Charles Tindal to his mother dated 20 April 1844 quoted in Ryan 1964: 130

comrades below dexterously caught the luscious morsels on in small sheets of bark as he dropped them from his lofty perch.³⁷

Honey had many uses, one of which was as an ingredient in a local intoxicating drink:

The Coombangree (Gumbaingirr) tribe make a native drink called Cooloni, out of water, sweetened with honey, mixed with the underbark of the young stringybark tree, mashed into a soft pulp, A grass called by them Chuckie Chuckie, is soaked in this mixture, and then the juice sucked out of it.³⁸

The forested areas beyond the beach dune ridges also provided aborigines with a range of bush foods including the wild cherry or lillipilly. The Lillipilly bush grew in profusion in semi-shaded gullies particularly on rainforest margins along the coastal plain. There are many species of Lillipillies, with the cherry red fruit producing variety favoured by Aborigines in the Mid North Coast region being *Syzgium australis*. Other important local bush foods included Bangalow Palms, wild raspberries, native grapes (geebungs), and roly-poly trees.



Figure 9: Climbing trees for honey & crushing pandanus nuts

(Thomas Dick - Coffs Harbour Regional Museum accession nos. 07-1408 & 07-1372)

3.1.4 Accommodation

Mid North Coast Aborigines appear to have had a range of accommodations depending on location and season. Temporary camps appear to have been fairly rough and ready as MacFarlane noted that:

The darkies were a gregarious race, and we found them in tribal groups, camped usually in dense or sheltered scrub clumps, their camps merely low lean-to or an arched projection of bark supported on slender brushwood rods or twigs, just sufficient to accommodate a few occupants from the rigours of the weather. The roofing was generally the light outer bark of

³⁷ Dawson 1866: 18

³⁸ MacDougall in *Science of Man* 22 August 1900: 117



*the small leafed tea-tree, quite rain proof and texture akin to delicate paper. It also served for the camp flooring and was immune from damp.*³⁹

Dawson provided further description of North Coast shelter types:

*They constructed three kinds of weather shelters; the principal being of stringybark sheets stripped from adjacent trees and propped up lean-to fashion, with forks and sticks. The outer bark of tea trees was also used layed in layers over a framework of sticks. Thirdly, cunning and cosy little shelters were contrived with bushes and leaves, but these were only used in cool, dry weather, against cold westerlies and the like ... their shelters were always erected with their backs to the wind and rain, the fronts being open to the invariable fire.*⁴⁰

In contrast to the temporary camps, in some areas there were relatively significant and semi-permanent settlements witnessed, such as the 'villages' on the Clarence River, which featured semi-circular bark huts and lean-tos.⁴¹ Captain Perry, who anchored off the North Beach at the mouth of the Clarence River in May 1839 recorded Aborigines in a 'village' at the head of the estuary where they had 'considerable command of fishing'.⁴²

3.1.5 Material Culture

The material culture or accoutrements of the Mid North Coast Aborigines appear to have been relatively consistent across the coast and into the hinterland and upland areas. Most hunting equipment, personal items and adornments were made of wood, plant fibres, animal skins (and parts) and to a lesser extent stone.

An indicative snapshot of the traditional material culture of the Mid North Coast is presented below:

- **Hunting & fighting weapons** included spears, shields, tomohawks, nulla nullas, boomerangs, waddys & pademelon sticks
- **Food gathering items** included digging sticks, coolamons, nets, fishing lines, water carriers, & dilly bags
- **Bark canoes & log rafts** were used for transport on the rivers & creeks
- **Ornamentation** included forehead bands; necklaces strung with animal teeth, beans or shells; waist bands made with cane beads
- **Men's clothing** included loincloths made of possum skin or fur
- **Women's wear** included strip skirts made from wallaby skins or bark fibre.

Stone

³⁹ MacFarlane in Ryan 1964: 154

⁴⁰ Dawson in Ryan 1964: 158

⁴¹ Ryan 1964

⁴² Clarence River Historical Records (Volume 1): 209

Most of the objects used by Aboriginal people in the past were organic and have not survived or been preserved in the archaeological record. The exception is stone (and to a lesser extent artefacts and adornments of bone) which is well represented in archaeological deposits across Australia. Stone therefore universally dominates the archaeological record - though on places such as the Tweed there is little ethno-historical reference to the use of stone nor its prevalence within the Aboriginal tool kit.

Commissioner Fry, sent to the North Coast by the Colonial administration in 1841, commented on the relatively simple tool kit of the Mid North Coast Aborigines attributing this to the relatively simple means by which the main foods, fish and honey, were obtained. The chief stone implements in the local tool kit included axe heads and knives fashioned from suitably shaped water worn stones from local creeks and shorelines (**Figure 10**).⁴³



Figure 10: Stone tool production on the Mid North Coast (c.1905)

(Staged image from the Port Macquarie District by Thomas Dick⁴⁴ - SLNSW ML BCP 047187)

3.1.6 Spirituality & Ceremony

The Gumbaingirr lead a full and complex spiritual life that was inextricable from their economic and social activities. It linked clan groups together and revolved around shared beliefs, totemism, and ceremony. While the full details of pre-contact Gumbaingirr spirituality remain unknown to contemporary society, aspects of belief systems and religious practice in the post-contact period provide some insight:

- The Gumbaingirr believed in one principal god – **Ulitarra**: a mountain dwelling entity from the land of the sunrise and sunset.⁴⁵

⁴³ McBryde 1978

⁴⁴ Thomas Dick was an oyster farmer on the Hastings River with an interest in natural history, local history and the culture of the Aboriginal peoples of the area. He was an avid photographer and a member of the Royal Society of NSW from 1915 to 1923.

⁴⁵ MacDougall in Ryan 1964: 112



- Another important deity was the hero-figure **Birugan** who played both good and bad roles in East Coast Aboriginal mythology. He is strongly associated with the Arakoon (Trial Bay) area.⁴⁶
- Groups were highly democratic and had no 'chief'. The only distinguished men were the **ulungarra** – described as 'doctors or old warriors'.⁴⁷
- **Initiation ceremonies** took a variety of forms. The **Murrawin** appears to have been the Gumbaingirr form of the Bora ceremony, while other variations included the **burbung** and **Keepara**.⁴⁸ Initiation ceremonies are known to have occurred at Bellbrook and at the foot of Mount England near Cow Creek - both featured ceremonial grounds encircled by scarred/marked trees.⁴⁹

Bora ceremonies differed from one Aboriginal group to the next, but all involved ceremony associated with a creator figure and ritual practice (including law, dance, scarification and other bodily modification). Bora ground sites typically comprised two circles constructed of mounded earth joined by a smoothed pathway.

- **Increase sites** were important - locations (often a prominent landscape feature such as rock or water hole) where ceremonies were conducted to ensure or inspire plentiful resources. Known Mid North Coast examples include South Headland (Corambirra Point) - an increase site for the Red-browed finch; Korora Bay - a black goanna increase site; & Mount England – a yam increase site.⁵⁰
- **Ritual** was associated with marriage, social organisation was matrilineal, totemism was observed, and the women frequently had a joint of the little finger removed on betrothal.⁵¹
- **Ritual fighting** between rival clan groups is known to have occurred at a number of locations on the Mid North Coast. Such fighting occurred 'for real or imagined abrogation of recognised etiquette'.⁵² Such conflict was also used as means for displaying strength and as a component of other communal celebrations.
- **Ritual spearing** as a means of punishment was also practiced. Such punishment often related to the men taking women to which they were not betrothed or entitled – demonstrating the importance of marital obligation.⁵³

⁴⁶ *Oceania* March 1949 19(3): 297-299

⁴⁷ *Science of Man* 21 May 1901: 63

⁴⁸ Ryan 1964: 67

⁴⁹ Townsend 1993: 9; Thurtell in Gadsby 1998: 8

⁵⁰ Yeates 1993: 14-15; NSW NPWS 1987a: 20; Dallas & Kelly 1994: 7

⁵¹ Townsend 1993: 10; Mathews 1909 cited in Ryan 1964: 42-43

⁵² MacDougall in *Science of Man* 22 April 1901: 46

⁵³ Macfarlane in Ryan 1964: 55



3.2 Regional History

3.2.1 Early European History

Contact

William 'Gypsy' Smith appears to have been the first white man to venture into the Nambucca district of the NSW Mid North Coast. Smith was a convict, part of a party of escapees who seized the *William Cossar* at Sydney Harbour in July 1817 and headed north. The renegade crews escape plans were dashed however when the vessel ran aground 16 kilometres north of the Nambucca River bar. Though details (including the fate of the bulk of the crew) are sketchy, it is known that local Aborigines aided Smith and escorted him back to Newcastle convict settlement in April 1818 – a distance of over 200 kilometres.⁵⁴

Smith's arrival in Newcastle prompted an investigative mission undertaken by Captain William Eckford of the *Nancy*. Smith was taken along and guided the party to the head of the Nambucca River, which they were unable to enter due to dangerous conditions on the bar. Eckford sailed a little further north around the Nambucca headland to a small bay from where the party made land and trekked north along the beach in search of the *William Cossar*. The vessel was located (and later salvaged).⁵⁵

The Surveyors

During the three week expedition, Captain Eckford undertook tentative exploration of the Mid North Coast and also sounded the harbour at Port Macquarie – the location discovered by surveyor/explorer Lieutenant John Oxley in the same year and established as Australia's third convict settlement area (after Sydney and Newcastle) in 1821.

John Oxley

In the year preceding settlement at Port Macquarie, John Oxley was entrusted by the Governor to survey the proposed settlement and investigate the areas nearby. His instructions included a directive to examine 'two inlets' north of Smoky Cape (Trial Bay area) presumably with a view to identifying possible safe harbours or ports to aid shipping along the East Coast. Oxley's investigations had limited success. He was trapped inside the bar on the Macleay River (where one of his crewman drowned) and he was unable to breach the bar at the mouth of the Nambucca River. Oxley's failure to find safe harbour and the perceived difficult nature of the terrain, tempered initial official interest in the areas north of Port Macquarie.⁵⁶

Due to its physical characteristics and relative isolation, the Mid North Coast area remained largely unsettled, with the exception of the convict settlement at Port Macquarie, for much of the early decades of 19th century. Drought in the latter 1820s and more prosperous years in the 1830s saw some interest in the lands north of Port Macquarie however any consideration of settlement was

⁵⁴ Townsend 1993: 11

⁵⁵ *Sydney Gazette* 12 July 1817; 11 April 1818.

⁵⁶ Townsend 1993: 12



curtailed by the fact that land outside of the established settlements (land beyond the 'limits of location') was not available for free hold settlement. Australia was a very big continent and the Government had limited ability to control and police settlement beyond the limits of location. The first tentative steps towards broader settlement occurred in 1836 when lands beyond settled limits were opened up for pastoral leases – heralding the commencement of major land grabs in the best and most accessible locales by squatters.⁵⁷

By the 1840s, the growth of settlement in NSW, and the demand for resources and arable land, ensured that resource rich areas of Australia's East Coast were firmly in the sites of both settlers and those who sought to exploit its resources.

Clement Hodgkinson

Among the first Europeans to investigate and survey the greater Nambucca area was the aforementioned surveyor Clement Hodgkinson who made several trips to the district in the 1840s, including visits to the Macleay and Nambucca Rivers in 1841. Hodgkinson relied heavily on the assistance of the local Aborigines who he encountered on his journeying and appears to have struck up a friendship with Aborigines of the Yarrahapinni area. When he returned to the district in 1842 to survey the Bellinger River, he brought several Yarrahapinni Aborigines with him to facilitate access through the country of the Bellinger Aborigines north of the Nambucca. Armed with his Aboriginal companions and gifts of tobacco, Hodgkinson conducted successful reconnaissance along the Bellinger River, meeting groups of local aborigines including 'Belligen Billy', and passing through the area 'without difficulty'.⁵⁸

Hodgkinson was interested in the Aborigines of the Mid North Coast and made numerous observations of their lifestyle and culture in his book *Australia from Port Macquarie to Moreton Bay* (1845) – detailed in previous sections of this report. He was also instrumental in acquiring valuable information about local Aboriginal population numbers in the early contact period. During his 1842 visit for example he recorded that in the vicinity of the Bellinger Population numbers at that time approached 300. By 1845, after further work, Hodgkinson recorded that the Gumbaingirr people numbered between 1200 and 1500 in total.

While Hodgkinson's travels on the Mid North Coast were peaceful and appear to have provoked no conflict, the parallel incursion of timber getters was not so peaceable and their arrival heralded a new era of tense relations between Europeans and Aborigines in the region.

Timber Getters

By the early 1800s, timber getters had already made inroads into the greater Sydney District to extract timber from the dense eucalypt forests along the Georges River.⁵⁹ Heavily targeted forest timbers included Cedar (*Toona ciliata*), Ironbark (*eucalyptus cebra*), Scribbly Gum (*eucalyptus pilularis*) and Turpentine (*eucalyptus haemastome*).

⁵⁷ Townsend 1993: 12

⁵⁸ Yeates 1993a

⁵⁹ Kennedy 2001: 15



As the timber reserves in the vicinity of Sydney became heavily exploited, merchants began to look elsewhere for supplies, generally exploiting the river systems associated with new settlements such as Port Macquarie, Brisbane & Newcastle. Large river systems provided penetration into forest reserves away from the coast and also facilitated the transport of timber back to Sydney.

Timber getters had begun to ply the major rivers of the Mid North Coast from the 1840s, and by the mid 1800s were established on the Nambucca and Bellinger Rivers. Historian Norma Townsend has suggested that there were two early phases of timber exploitation on the Nambucca – small scale ad hoc timber getting which occurred from as early as the mid 1830s; and ‘organised’ timber getting controlled by cedar dealers who established itinerant cedar camps on the Nambucca in the early 1840s.⁶⁰ The earliest activities appear to have been relatively peaceful; the latter however saw episodic conflict between the cedar men and the Aborigines whose lands they plundered.

Conflict & Coexistence

Timber getters were often tough men – frequently convicts or ex-convicts who operated with limited supervision outside the settled areas and away from the influence of the Government and Police. The *Sydney Gazette*, reporting in 1841 on the lives of timber getters and sawyers, stated:

*... living on salt beef and damper, they felled the monarchs of the forest and dug great pits. These men lived hard and often lawless lives. Cockfighting, smuggling and gambling were among their favourite activities.*⁶¹

It is perhaps not surprising that conflict flared between Aborigines and timber men, and that ‘atrocities’ were committed by both parties on the post-contact frontier.

Generally, Aboriginal violence against whites was pre-empted by the incursion of Europeans into Aboriginal territory and ill treatment. The latter generally related to ill treatment or acquisition of Aboriginal women by white men for sexual relations.⁶² Aboriginal attacks inevitably provoked revenge attacks by whites, which sometimes escalated into a self-perpetuating cycle of violence.

One of the earliest accounts of conflict in the Nambucca district involved the murder of two cedar getters by Aborigines in late 1841 or early 1842. Clement Hodgkinson referred to the incident in his writings believing it to have resulted from the ‘migration’ of the cedar sawyers into the ‘brushes of the Nambucca’. Both Hodgkinson and early Macleay Valley pastoralist John Henderson further referred to retaliatory raids carried out by aggrieved whites and the subsequent shooting of local Aborigines.

In the year 1842, I determined to ascertain whether the Bellenger river was navigable, and to examine the country round its mouth; as I intended, if the land was well adapted for grazing, to form a cattle station there.

⁶⁰ Townsend 1993: 13-15

⁶¹ *Sydney Gazette* 21 February 1841

⁶² Townsend 1993: 13



About that time the blacks, from the sources of the Nambucca and the Bellenger, had committed several outrages on the sawyers, who had lately proceeded to the former river to cut cedar. One sawyer had been murdered most cruelly by the savages, who attacked him and his companion whilst felling a tree. When his body was found, it was ascertained that he had received more than fifty spear wounds in different parts; one spear had transfixed his kidneys, and even the very soles of his feet had been pierced. His arms were dreadfully fractured, evidently whilst he was in the act of raising them to protect his head from the clubs of the natives. A retaliatory expedition was accordingly organized to pursue the aggressors, and endeavour to seize those who had been chiefly concerned in this murder. In the course of the chase, the sawyers, aided by some of the Macleay river blacks, succeeded in approaching the encampment of the natives in the dead of night; and next morning, on their making resistance, the whites poured a volley of ball and slugs among them, and killed and wounded several. If I may credit the report of an eye-witness, most of the wounded blacks sprang into the water, where some of them were apparently seized by sharks attracted by their blood.

Several other affrays had taken place about this time, between the natives and parties of white men, in which the former were the aggressors. Being aware, that one of the chief causes of the hostility of the wild blacks to parties travelling through the bush, was their indignation at the encroachment of white men on the prescribed haunts of the tribe; which cause would occasion a quarrel between different tribes of the natives themselves, unless their objects in so trespassing were formally explained by an avant courier, or herald; I resolved on taking with me some Yarra-Hapinni blacks, with whom I had become acquainted during my surveys, as I knew they would prove of great service in explaining to the Bellenger blacks the object of my intrusion into their country. They would also assist my men in carrying their knapsacks, as I intended travelling on foot this time. Accordingly, I supplied two of my men with the requisite provisions, and armed them with carbines and pistols.⁶³

It has been suggested that the successful crossing of the Bellinger Bar saw the focus shift from the Nambucca to the Bellinger River and the move of the timber getters to that location from around 1843. This is likely to have resulted in a general decline in local violence on the Nambucca with an alternate increase on the Bellinger. Surveyor Enoch Rudder for example reported to Governor Fitzroy in October 1846 of the murder of 'unarmed and peaceable' Aborigines on the Lower Bellinger. Frontier violence was also a feature on the more heavily exploited Upper Macleay in the mid 19th century involving both timber getters and the early pastoralists who shadowed them. Aborigines for example attacked John McMaugh of Pee Dee Station on the Upper Macleay and in response he 'showed them no mercy'.⁶⁴

Assistance

Despite the above-mentioned conflict, Aborigines provided the earliest white incursionists with considerable support. As previously discussed they had helped fleeing convict Smith return to

⁶³ Townsend 1993: 14; Hodgkinson 1945: 48-50

⁶⁴ Mary McMaugh cited in Townsend 1993: 14-15



Newcastle in the 1820s and they provided valuable assistance to Hodgkinson in navigating the landscape and negotiating safe passage through the lands of neighbouring tribes. They also contributed significantly to the practical aspects of cedar getting. Timber getters often utilised the services of Aboriginal bushmen who had the knowledge and skills to rapidly identify Cedar trees.⁶⁵

3.2.2 Nambucca Valley

When Clement Hodgkinson surveyed the Nambucca in 1841 he observed little settlement activity. There was only one cattle run - James Taylor's *Try Station* run between Warrel Creek and Taylors Arm - and a parcel of land used for cedar dealing by William Scott (also at Warrell Creek). By 1844, two other runs had been taken up - W. H. Chapmans *Tanban* (later Tamban) and Edward Ren's *Bally Valley*.⁶⁶

Bally Bally, Valley Valley & Valla

Balley Valley (also Valley Valley) was one of a limited number of early pastoral runs taken up on the Nambucca in the mid 1840s. Incorporating much of the latter parish of Valley Valley, the run was first acquired by Edward Rens and was described as:

*Bounded on the east by the ocean or three miles thereof; north by the south arm of Bellinger Creek; south by the north arm of Nambucca; west by scrub mountains and part of the north arm of the Nambucca.*⁶⁷

The run included the site of the latter township of Valla and incorporated the current study area. It had been taken over by neighbouring landholder W. Chapman by 1848. The Chapman family had considerable holdings in the district including *Tanban*, *Yarrabine* and *Bellopine* despite their pastoral efforts being concentrated on the Macleay Valley.

Valley Valley in W. Chapman's own words was a 'failure' and was ultimately abandoned.⁶⁸ Chapman's *Tanban* was the only pastoral run held continuously on the Nambucca until free selection.

By the late 1840s, the area had been largely abandoned and Taylor's run was recorded as deserted.⁶⁹ Commissioner of Crown Lands R. G. Massie believed that the abandonment of the area was due to the 'general want of fresh water and the bad nature of the country'.⁷⁰ This situation contrasted significantly with other nearby districts such as the Macleay whose fertile river valley ensured that there were 23 licensed pastoral runs sited within the valley by 1841.⁷¹

Settlement

European settlement on the Nambucca was ultimately kick started by the gold rush and associated national population explosions of the 1850s as well as local and international demands for quality timber. It was during the 1850s that the price of red cedar rose from four shillings to four pounds

⁶⁵ Dawson c1866: 28

⁶⁶ Townsend 1993

⁶⁷ Townsend 1993: 31

⁶⁸ W. Chapman's Early Days on the Macleay River 1836-1908 (SLNSW ML manuscript MSS 1570) cited in Townsend 1993: 31

⁶⁹ Townsend 1993: 20

⁷⁰ Massie in Townsend 1993: 31

⁷¹ Townsend 1993: 20



per 100 super feet ensuring that timber reserves in some of the less heavily exploited locations such as the Nambucca came to the attention of timber getters.

Permanent settlement appears to have commenced on the Nambucca in the mid 1850s as Australia's timber exports peaked. Among the early settlers were the Williams family of Bowra as well as the Wilson, Cook, Jarrett and Byrnes families.

Robertson Land Act (1861)

The passing of the *Robertson Land Act (1861)* led to the break up of many of the large squatter holdings throughout NSW. Coinciding with the gold rush population boom it encouraged the arrival and spread of free settlers. Among the first places to be settled along the Mid North Coast after the passing of the Act were the prime agricultural and grazing areas, headlands, river frontages and fertile valleys.

The pastoral settlement of the Nambucca River valley was largely the result of free selection enabled by the passing of the Robertson Act. However, due to the nature of the country, relatively high rainfall on the coast side of the ranges and the prevalence of dingoes, pastoral settlement occurred more slowly on the Nambucca than it did in more favourable locales elsewhere.⁷² None the less by the 1960s sawyers and pastoralists had returned to the Nambucca and by the late 1870s stock numbers in the district approached those in prime locations such as the Macleay. Curiously, Nambucca was settled largely as a satellite of the Macleay River settlement area. Around one fifth of the Nambucca settlers of the 1860s had been born on the Macleay River.⁷³

In general, local purchases under free selection from around 1864 concentrated on the Nambucca River and its more prominent tributaries. Purchases in the Valla area specifically occurred from the late 1870s with selection concentrated on the Deep Creek area (**Figure 11**).

⁷² McIntyre-Tamwoy 2003: 16

⁷³ Townsend 1993: 40

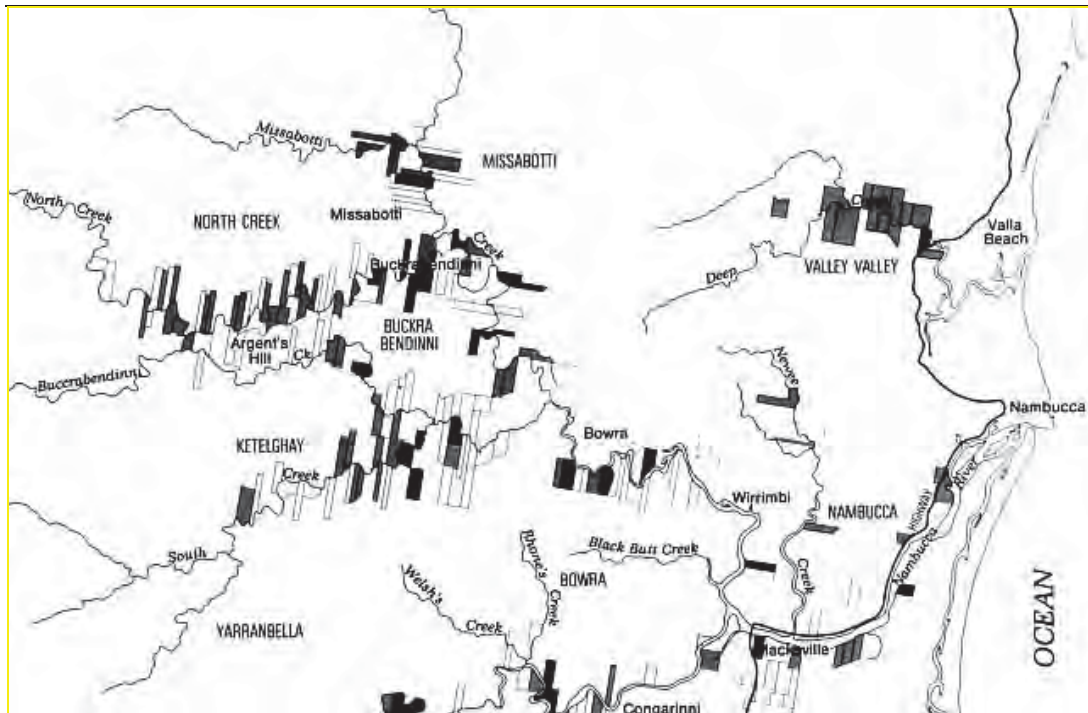


Figure 11: Settlement in the Nambucca Valley Area (1884)

(Maps presented in Townsend 1993: 65)

3.2.3 Impacts on Aboriginal People

During the second half of the 19th century, Aboriginal groups across NSW changed the way they lived. Dislocated and reduced in number, they established new social groups that drew together members of disparate remnant clans for mutual benefit and protection. Typically, these clan groups came to live at the margins of white settlement in what are commonly referred to as fringe camps.

Post-contact camps

Fringe camps and pocket camps appear to have been among the most frequently utilised Aboriginal accommodation options across NSW in the period 1850 to 1870. These camps were essentially autonomous gatherings where Aboriginal people established living areas on vacant land within 'the mosaic of white settlement'.⁷⁴ Typically such areas were on the farms of benevolent settlers (farm camps); vacant crown land on the margins of townships (fringe camps); or commons, travelling stock routes and water reserves elsewhere (pocket camps).

Within the broader study area Aborigines are known to have gathered informally on the fringes of the more established early townships such as Coffs Harbour and Port Macquarie. Closer to the study area, there were also informal settlements established at Missabotti; North Arm; Tilli Willi

⁷⁴ Byrne & Nugent 2004: 56



(Macksville); Goat (Moses) Island on the Nambucca River east of Macksville; and at Bowraville.⁷⁵ At Simpsons Ridge near Bowraville, a Mrs Laurel Hill noted in her recollections of the 19th century that a 'tribe of 500' lived locally.⁷⁶

While these camps afforded some social continuity and protection, European goods such as alcohol, sugar and tobacco, went into wider circulation in these locations with the inevitable, negative long term health affects and addictions.

Pastoral stations & farms

While some Aborigines became 'fringe dwellers' others became increasingly associated with the more benevolent of the Macleay, Nambucca and Bellinger stations. On occasion, extended family groups lived on pastoral stations where they functioned as casual labour pools.

On the land, Aboriginal men were employed to drill corn and strip bark for huts.⁷⁷ They also worked as stockmen, shepherds, and 'usefuls' – especially during the boom times of the 1850s when 'gold fever' saw many of the itinerant white station workers abandon station life for the goldfields of Victoria and NSW. Aboriginal women regularly found work as nurses, nannies and domestics at rural homesteads.⁷⁸ District Commissioner Massy noted in this regard that:

*... the services of natives have been indispensable. Indeed but for their presence most of the ordinary operations of the district would have been at a standstill and scarcely a single settler or squatter on the river (Macleay) is there, who has not had one or more in his employment under a written agreement at wages varying according to their degree of usefulness and intelligence...*⁷⁹

Towards the middle of the 1870s, the demand for Aboriginal labour decreased with both the introduction of wire fencing and the influx of white labour. The use of galvanised wire fencing (and the enclosure of stock) in particular reduced the need for shepherds and stockmen - occupations which Aboriginal men had been particularly good at and well suited to.

After the passing of the *Crown Lands Act (1884)* and the subsequent break-up of the larger holdings, many pastoralists could not afford to maintain an Aboriginal station camp, nor did they have the amount of work to warrant them. Aboriginal families and groups were thereafter obliged to move from station to station looking for work and between jobs, squatted on the outskirts of service towns or joined (or established) fringe camps. Such living arrangements bred poverty and continued to add to the fragmentation of the flailing Aboriginal communities.

⁷⁵ Dunne 2001: 1; McIntyre-Tamwoy 2003: 29

⁷⁶ 'The Winslow Family' by Mrs Laurel Hill – typed manuscript in the Bowraville Folk Museum

⁷⁷ Dunne 2001: 1

⁷⁸ Harrison 2004

⁷⁹ Massey cited in McIntyre-Tamwoy 2003: 21



Aboriginal Adaptation

It was during the closing decades of the 19th century that Aborigines within the broader study area moved from a semi-traditional lifestyle to what Michael O'Rourke has termed a 'semi-anglicised' or 'post traditional' lifestyle.⁸⁰

Increased dependence on Europeans and the trappings of white culture is demonstrated in a number of historical accounts that recollect the change in traditional Aboriginal culture and accoutrements. Mrs Bundock, writing in the late 1800s for instance noted:

*The young men too, do not climb or use spears as their fathers did. They work spasmodically on the stations and like riding and work amongst the cattle; but drink and gambling are their curses and they will gamble away their clothes and blankets in the depths of winter.*⁸¹

Less obvious (but more significant) changes associated with the adoption of a post-traditional lifestyle included a diminution of traditional culture and lore - heralding the end of 'high culture'.

Missionisation

In 1880, a private paternalistic enterprise known as the Association for the Protection of Aborigines (APA) was formed. In 1881 it installed a political figurehead in George Thornton MLC, Protector of Aborigines. The aim of the APA was ameliorate 'the present deplorable condition of the remnants of the Aboriginal Tribes of this Colony' and reflected widely held beliefs that Aborigines were 'dying out'.⁸²

Aborigines Protection Board

In the same year as the APA installed the Protector of Aborigines, the *State Children's Relief Act* (1881) came into force giving the NSW Government the power to remove children from charitable institutions and approve the adoption of wards of the state, thereby setting the scene for the broad-scale removal of Aboriginal children in the 20th century.⁸³ In 1883 the Aborigines Protection Board (APB) was formed – composed of officials and gentlemen 'with an interest in Blacks'.⁸⁴

Against this social and political landscape, numerous mission stations and reserves were set up across NSW, generally in association with the APB who subsidised many. Most of the reserves were located along the East Coast, and in the Murray and Murrumbidgee districts, and were designed to accommodate (and concentrate) impoverished and dislocated Aborigines, with some (variable) emphasis on training reserve dwellers to fit into white society.⁸⁵ The reserves had varying degrees of autonomy and were either 'managed' (overseen by a manager with significant Board input) or 'unmanaged' (provided with rations only). Some were major enterprises and others of a

⁸⁰ O'Rourke 1995: 79

⁸¹ Bundock in Ryan 1964: 184

⁸² NSW Aboriginal Protection Association - Report 1881/1882

⁸³ Archives Authority of New South Wales 1998: 62-63

⁸⁴ Executive Council: Minute Books Volume 23, Minute 21, 2 June 1883. P.58 (SRNSW 4/1570)

⁸⁵ Archives Authority of New South Wales 1998: 62-63



very small scale. Conveniently for the broader white community, these enterprises also functioned as 'labour pools' – especially in areas where a large seasonal workforce was required.⁸⁶

Reserves

From the early 1880s, a total of 16 Aboriginal Reserves were established within the broader study area between the Macleay and Bellinger Rivers. These included reserves at Kempsey, South West Rocks, Bowraville, Macksville, Bellbrook and Nambucca. They were often sited at locations where Aboriginal people were already living or alternately at locations that suited the local white population – sufficiently distant to white settlement on poor or marginal land. These included the following the reserves established in the lower Nambucca Valley:

- **Stuarts Island** (AR 140 /RAR 80), also Stewarts & Brushy Island
- **Bellwood** (AR 73990 & AR 87256), near Stuarts Island
- **O'Rourkes Settlement** (AR 168), Taylors Arm, Nambucca River
- **Wirrimbi Island** (AR 42775/AR 57051), Nambucca River near Wirrimbi
- **Cow Creek** (AR 31243/4), near Valla.⁸⁷

Of the above-mentioned reserves, the one with the most relevance to the current study is the **Cow Creek Reserve** – a location now comprising freehold land (lot 169 DP 755560) to the south of Valla. The plan below shows the reserve as it appeared at the time of its gazettal.

Refer **Figure 12**.

⁸⁶ Walden 1995

⁸⁷ State Records of NSW - Aborigines Welfare Board: Register of Aboriginal Reserves, 1875-1904 [2/8349; Reel 2847]; McGuigan 1985; McIntyre-Tamwoy 2003; Thinee, K. & and Bradford, T. 1998.



Cow Creek Reserve & the Buchanan Family

Cow Creek Reserve comprised 40 acres of land gazetted as Aboriginal Reserve AR31243/4 in the Parish of Valley Valley on 17 February 1894 (notified 28 July 1900).⁸⁸ The listing of the reserve in the Aboriginal Reserves Register at the time of its notification states that the reserve was established:

For the use of Abor: Fred Buchanan who has a family of 3 children. Police state that Buchanan is a very steady man and will make good use of the land.

Fred & Maggie

Fred Buchanan (also 'Yellow Fred') was the son of an Aboriginal woman named Maggie Cowlin from an apparent liaison with a Frank Buchanan (a member of a prominent local family of white settlers who had selected land at Deep Creek in the c.1870s).⁸⁹ Fred was married to a Kathleen (Kate) Hooker and two of their three children at the time of the reserve's establishment were Eddie and Freddie.⁹⁰ Fred and Kate ultimately had 17 children.

The Smith family took up land to the immediate north of the reserve (portion 19) in 1910. At the time, Fred's mother Maggie Cowlin was also living on the reserve with her de-facto - an Aboriginal man named Davy Cowlin.⁹¹ The reserve featured two government built houses that were kept spotlessly clean but never slept in.⁹²

Maggie and her grandchildren had a close association with the Smith family who referred to her as 'our Maggie'.⁹³ Maggie was the first person the Smith's met when they arrived at Cow Creek and the Smith boys quickly became 'bosom mates' with the eldest of Maggie's grandchildren. Maggie became the family laundress and would sit cross-legged on the bank of the creek with tubs of water and a washboard - smoking a short clay pipe.⁹⁴

The Cowlin-Buchanans were described by the Smiths as 'people of importance' and were a well-known local Aboriginal family who maintained their Aboriginality despite the changing times. Davy Cowlin was considered a clever man and was described as 'Bossman of the rain'. His stepson Fred was initiated and taught language, law and stories of his people. Fred's children were also subject to an Aboriginal education including the legendary Harry (Tiger) Buchanan who retained traditional knowledge and stories - some of which were later recorded and comprise a very significant historical record based on generations of oral tradition.⁹⁵

End of the Reserve

It is uncertain as to exactly when and why the Buchanans left the reserve. We do know that white settlers (Piggotts) appear to have leased and moved onto the reserve in the c.1920s where they stayed until WWII.⁹⁶ The site was officially de-gazetted as an Aboriginal Reserve in 1952 at which time the land was subject to conditional purchase by a W. Stanton.⁹⁷

⁸⁸ Aborigines Welfare Board: Register of Aboriginal Reserves 1875-1904 (SR NSW2/8349; Reel 2847); McGuigan 1985: 37)

⁸⁹ Victor Buchanan pers. Comm. 7 October 2008

⁹⁰ Thurtell in Gadsby 1997: 2

⁹¹ Thurtell and Smith 1998: 4

⁹² Thurtell and Smith 1998: 4

⁹³ Thurtell in Gadsby 1997: 12

⁹⁴ Thurtell in Gadsby 1997: 2

⁹⁵ Harry was born in 1898 and died in 1980. His Aboriginal name Maruwanba Maruungga was a combination of the name given him at the time of initiation (Maruwanba) and a word related to his home place of Cow Creek (Maruungga) - refer Buchanan H. 1992. *Gumbaynggirr Yuludarra: Gumbaynggirr Dreamings*

⁹⁶ Clydie Piggott in Gadsby 1997: 41

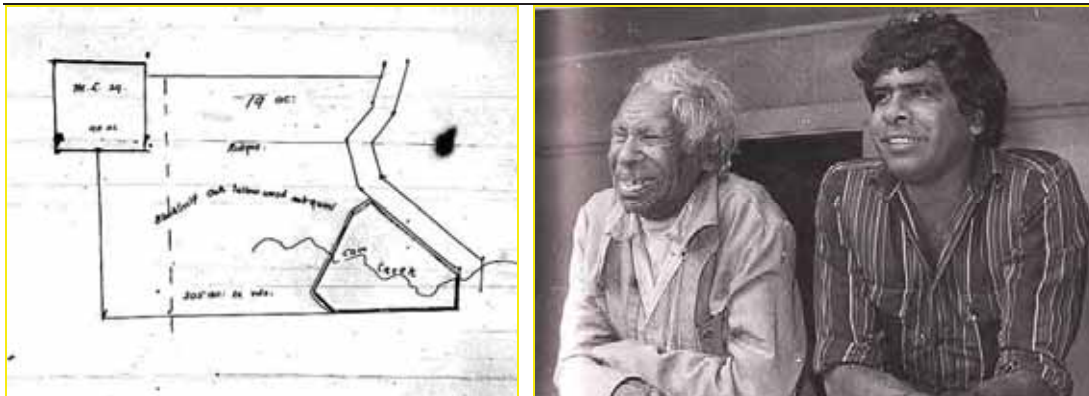


Figure 12: Cow Creek Reserve plan (1900) & Harry 'Tiger' Buchanan with Gary Williams (c.1980s)

(SRNSW File 2/8349, Reel 2847: 84; Photo presented in Dunne 1991: 77)

Significance of Cow Creek

The Aboriginal history and significance of the Cow Creek area goes beyond the reserve and is suggestive of Aboriginal association predating European settlement. Reserve neighbours Kathleen Thurtell and Henry 'Pop' Smith wrote:

*the last battle between tribes took place on a slope midway between the tribal ground and the reserve. A party of black fellows from the Bellinger came across and there was a fight ... Davy himself fought in the battle.*⁹⁸

The fact that Davy was an old man in 1910 when the Smiths first came to know him suggests that the aforementioned tribal fight took place in the mid to late 1800s when Davy was considerably younger and more able – quite possibly some time before the establishment of the reserve. Given this, and information contained in the following section, it is likely that Davy may well have lived in the area prior to the gazettal of the reserve.

Another important local Aboriginal site was a ore ground near the reserve and possibly sited within the Smiths property at Cow Creek (Lot 19 DP 755560). Kathleen Thurtell described it as follows:

The ground was circular, about an acre in area and surrounded by large trees. The trunks of these trees were deeply carved, each carving being a different shape and size, and higher than a man's head. Dad and Henry (Pop) thought the carving must have been done many years earlier and the trees grown much taller ... a bushfire in 1917 crept from the other side

⁹⁷ McGuigan 1985; Thurtell in Gadsby 1997: 22; 41

⁹⁸ Thurtell and Smith 1998: 4-5



*of Jarretts Knob and swept across Mount England, destroying the carved trees ... It was a great loss, for today the tribal markings would have been of great interest.*⁹⁹

Collectively, Mount England, the local battle, the corroboree ground, the carved trees, and the reserve on Cow Creek are indicative of a broad and varied Aboriginal cultural and spiritual landscape spanning pre-contact and historic times with high Aboriginal significance.

3.3 Local History

The following is a brief overview history of the development of the subject lands.

3.3.1 Valla

The Valla area was taken up as part of the Valley Valley pastoral run in the 1840s. As mentioned previously, the run failed and settlement proper did not commence until the after the passing of the Robertson Land Act (1861) which lead to the break up of many large squatter holdings throughout NSW and encouraged the arrival and spread of free settlers beyond the limits of location.

3.3.2 Deep Creek

It is thought that the first settlers at Valla were Protestant Irish brothers Nathaniel and Andrew Buchanan who acquired land on the well-watered flats fronting Deep Creek in c.1869.¹⁰⁰ Nathaniel was the eldest and had arrived in NSW from Dublin in 1832. He married Katherine Gordon in 1863 and by 1870 the two brothers and their respective families were established at Deep Creek and were raising cattle and growing maize (corn).¹⁰¹ Another early resident was Marmaduke England, a good friend of Andrew Buchanan who had been enticed to the area by the glowing appraisals of the Buchanans. He selected land about a mile upstream from the Buchanans. It is his surname from which derives 'Mount England' (**Figure 13**).

3.3.3 Local Industries

Timber & Corn

The Buchanans and Englands were the first of the region's second wave of 'farmer timber- getters' – settlers who acquired heavily timbered lands and by default became both timber men and mixed famers.¹⁰²

Much of the Valla land opened up to settlement from the 1860s was heavily timbered – providing both an obstacle and an opportunity to selectors. The Buchanan's land for example was heavily wooded with blackbutt and scrub. In general 'opening up' the land to farming involved the extensive and labour intensive clearing with the trees cut by hand, the good logs removed and the remnant

⁹⁹ Thurtell in Gadsby 1997: 8. The exact location of the site is unknown but elsewhere it has been described as 'west of the Reserve at the foot of Mount England' (Thurtell and Smith 1998: 4)

¹⁰⁰ Townsend 1993: 58; Nambucca News 23 September 1910

¹⁰¹ Thurtell & Smith 1998: 2

¹⁰² Vader 2004: 161



stumps and foliage burnt to ash. The ash in turn provided a bed for maize crops or fodder grass seed. Planted areas were fenced and became farming and grazing paddocks.

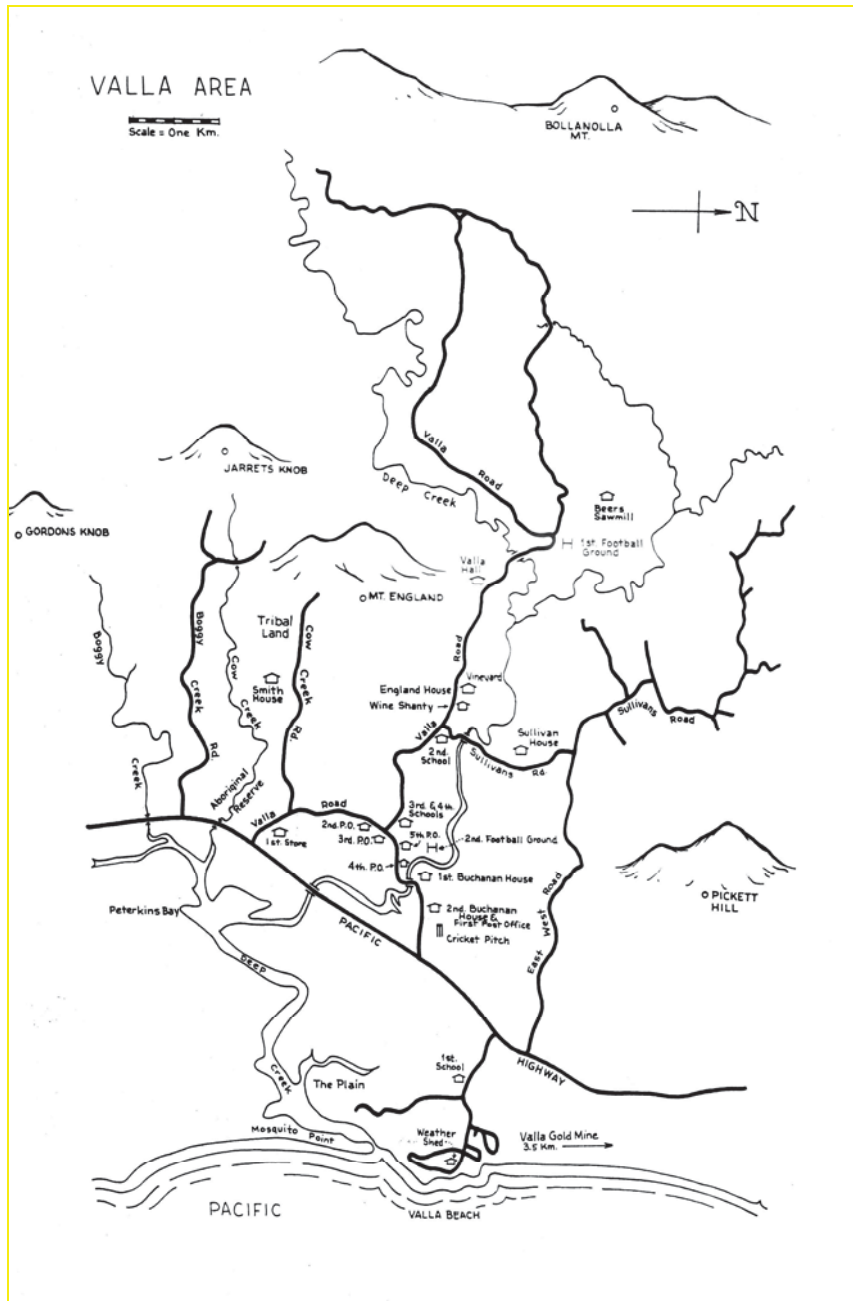


Figure 13. Indicative Map of the Valla area showing select locations

Image presented in Thurtell & Smith 1998



Huts in the Valley

The first dwellings of the Valla settlers were generally crude bark huts that featured bark roofs and dirt floors. The use of bark was learned from local Aborigines and generally involved the stripping of 8-foot sheets of bark from Tallowwood trees. These were heated and weighted to straighten and toughen them and they were then affixed to the roof battens by wire ties. Later split bark shingles and corrugated iron was also used.

One of the unique building materials of the North Coast was the Bangalow Palm. The trunk of this palm was split to provide strong but lightweight roof battens and was also hollowed out to provide rudimentary guttering.

On successful selections, huts ultimately gave way to larger homesteads constructed of sawn cedar boards and featuring shingle roofs and split board floors.

Refer Thurtell & Smith 1998: 2 & Dunne 2001: 5

Beers Mill

Most of the early Valla settlers were involved in the timber game in one way or another with axemen, teamsters and mill hands were all part of the fabric of early Valla society.

The forests of the region produced timber for houses, sleepers, girders, transoms and poles and fencing.¹⁰³ Much of it was initially 'pit sawn' as close as possible to where it was felled. Later, local mills were established including Robert Beer's Deep Creek/Valla Mill sited on the property of Percy Buchanan. Logs were dragged to this mill from all over the district by numerous bullock teams and the site of teams of up to eighteen 'big roans or reds' were commonplace in district for many years.¹⁰⁴ Beers mill appears to have been heavily involved in the growth of the fledgling Valla community providing employment as well as subsidised timber for a number of community buildings including the Valla Beach weather shed. The mill was destroyed by fire in 1932.¹⁰⁵ Incidentally, Robert Beers also held the first fortnightly grocery run in the Valla area.¹⁰⁶

¹⁰³ Thurtell in Gadsby 1997: 1

¹⁰⁴ Thurtell & Smith 1998: 27-28; Dunne 2001: 15

¹⁰⁵ Dunne 2001: 16

¹⁰⁶ Thurtell & Smith 1998: 27



Figure 14. Beers Sawmill (c.1920s) *Image presented in Dunne 2001: 15*

Other mills in the district beyond Valla included those run by the Eichmann and Davis families, which were both at Nambucca. John Eichmann was a Prussian emigrant mariner with shipping interests. He had been involved in the East Coast shipping trade since the 1850s and established a mill at Nambucca Heads in the late 19th century. His mill was a major enterprise and utilised the latest technology, as well as thirteen teams of bullocks to haul logs at the mill.¹⁰⁷ The Davis family aside from being millers were also one of the districts early shipwrights and built and launched a number of boats in the lower reaches of the Nambucca River in the late 19th and early 20th centuries.¹⁰⁸



Figure 15. Bullock team in the Nambucca Valley – Utungun (1924)

Image presented in Dunne 2001: 16

¹⁰⁷ Townsend 1993: 121

¹⁰⁸ Dunne 2001: 120-121



Dairying

While early land exploitation and agriculture at Valla centred on timber getting, grazing and maize, broad clearing opened up the area for both dairying and the planting of a variety of other commercial crops.

Small-scale 'home' dairying grew out of land clearing and provided settlers with dairy products for personal use and a semi-regular income. This was quite different to maize farming, which aside from being labour intensive (husking, threshing, bagging &c) provided only one crop-based annual payment. The early dairies typically relied on a low-tech DMC milking machine – Dad, mum and the children.¹⁰⁹

One of the first families in the Nambucca Valley to take up commercial dairying was the Welshes. The Welsh family, comprising David and Elizabeth Welsh and their children Margaret, Eliza and Catherine, moved into the Nambucca area in c.1868 settling at Talarm. David Welsh was a cedar-getter and also grew maize.¹¹⁰ By the late 19th century the family were involved in dairying and were one a number of local families (including the MacKays at Argents Hill) who supplemented their on-farm incomes by selling the excess butter made by the women in the family.¹¹¹ Anecdotal evidence suggests the Welsh family were responsible for purchasing the first separator on the North Coast and they are known to have travelled throughout the Nambucca district selling butter.¹¹²

By the end of the first decade of the 20th century, most farms in the district had their own separators and a number of large butter factories had been established (namely at Macksville and Bowraville). Local production fed into these factories, by way of the wharves at Nambucca. The first 'cream run' in the Valla area was established by Gus Sullivan and later taken over by Albert Henderson. These men delivered the cream to Nambucca Heads from where it was taken by motor launch to Macksville Butter Factory.¹¹³

Grass Seed

The growing of grass seed for local use and export evolved as a dairy related cottage industry from the early 20th century. The seeds of Paspalum, Kikuyu and Rhodes grass were all collected at various times, particularly during the depression of the 1930s when it provided a valuable source of income when other avenues dried up.¹¹⁴

¹⁰⁹ Dunne 2001: 23

¹¹⁰ 'Welsh' typed manuscript by Glenn Bradley in the Bowraville Folk Museum collection

¹¹¹ Townsend 1993: 86

¹¹² 'Welsh' typed manuscript by Glenn Bradley in the Bowraville Folk Museum collection

¹¹³ Thurtell & Smith 1998: 27

¹¹⁴ Klein in Gadsby 1997: 31



During the depression, life was difficult in the Valla area as indeed it was elsewhere. Agricultural labourers were earning \$3.00 a week with keep and numerous itinerants or swaggies settled temporarily in the Valla district to grow vegetables and ride out the worst years.

A tent city was established to accommodate the homeless north of Picket Hill.

Mixed Farming

It was in the lead up to the depression that many local farmers branched out and began to experiment with crops new to the region.

Tomatoes

Tomato growing in the district commenced in the mid 1920s with the first grown by Jim Thompson and Jack Peterkin. Dick England followed suite as did the Smith family of Cow Creek. Numerous varieties of tomato were grown locally including Chalks Early Jewel, Earlyanna and June Pink - all of which seeded in June and were picked in November. Latter varieties included Break'o'day, Lowbranch and Marmandee. At first, tomato crops were hand irrigated often by growers using jam tins. This gave way over time to piped irrigation water derived from local creeks.¹¹⁵ Tomato crops were often alternated with legumes such as peas and beans which nourished the soil and provided autumn and winter crops.

Bananas

Bananas became a landmark crop of the NSW North Coast during the early 20th century. At Valla, Albert Millar of Cow Creek grew the first local bananas for market in 1927. Tom Henderson grew the second patch of 20 acres on the Smith's Cow Creek property. Banana growing boomed thereafter in the Valla and Viewmont areas, especially on well-watered north facing slopes. Varieties that grew well locally included the Cavendish and the William Hybrid.

Cabbages & Carrots during WWII

WWII ended the depression era thinning out rural populations as young men went off to war and ensuring skyrocketing demand for mixed produce. Many staple crops was grown in the Valla region for the war effort, with considerable demand for cabbages and carrots – the latter sought by the US Air Force reputedly to ensure that its pilots could see well in the dark.¹¹⁶ One of the largest carrot growers during the war was Dick England who grew 10-acre plots. The woman of the land army were utilised across the district to help get the crops in during this war.¹¹⁷ Aboriginal workers were also a feature of the wartime working landscape.¹¹⁸

¹¹⁵ Thurtell and Smith 1998: 31

¹¹⁶ Klein in Gadsby 1997: 31

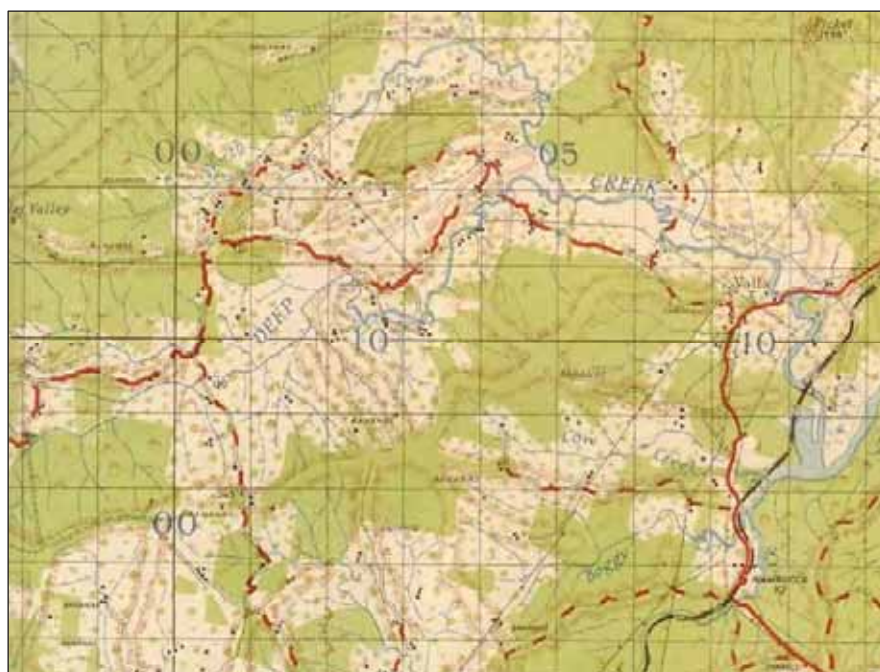
¹¹⁷ Jean Smith in Gadsby 1997: 60

¹¹⁸ Dolly Smith in Gadsby 1997: 60. Also Thurtell & Smith 1998: 32



Figure 16. Farmland at Valla (1957)

NAA A1200, L24402



**Figure 17. Bowra
Topographic map –
Inch to a mile (1942)**

NSW Department of Lands/Paul Irish



3.5.1 Community

From the late 19th century, against a backdrop mosaic of mixed farming, the settlement of Valla became established and by the early 20th century featured a wine shanty, store, post office, school and hall – all closely allied with nearby Valla Beach and its infamous mine.

Wine Shanty

The first vineyard in the Valla area was established by Marmaduke England who grew 21/2-acres of Isabella grapes on a series of long trellises. The grapes were picked between January and April and were made into wine, which was sold mainly to the men working at the Valla Mines. By 1900, a total of 5 acres were under cultivation and sales were good.¹¹⁹

Valla Mine

Part-Aboriginal stockman Dick Marshall discovered gold to the north of Valla Beach in 1878. 'Gold fever' then captured the minds of locals and itinerants and the 'Valla Mine' was established on leases claimed by a William Buckman. The mine comprised a main shaft and an adjacent tent village, which featured two shops, a post office and two short-lived hotels. Initially no processing was undertaken on site and the ore was excavated and transported in bags to Nambucca Heads. In addition to gold, mine ore contained silver, sulphur, molybdenite and arsenic.

Initial optimism gave way and by 1900 the mine had closed. It was reopened in 1913 when the arsenic deposits became valuable as a constituent of agricultural herbicide/weed killer.

By 1928 the North Coast Railway had been established and improved transport saw the mine expand with the installation of processing plant including ore roasters and refiners. By 1932 however the mine had closed as a consequence of both a lack of capital and health concerns associated with the broad-scale production and use of arsenic. In 1938 most of the treatment plant was demolished and all mining machinery removed.

Refer Thurtell & Smith 1998: 11-13 & Dunne 2001: 125-126

On Marmaduke's death, his son Dick took over the running of the vineyard which included construction of a new home and the erection of a wine shanty (14 x 10 feet) complete with a bar room. Wine making was undertaken in a shed behind the shanty fitted up for that purpose. Dick England retired in 1939 and another local, Ron Piggot, took over the shanty until it was passed on to Frank Neaves in 1949. Five years later the shanty burnt to the ground and the site was effectively abandoned.¹²⁰

¹¹⁹ Thurtell and Smith 1998: 25

¹²⁰ Thurtell and Smith 1998: 26



Valla Mine (c. 1900)
Image presented in Dunne 2001: 125

General Store

The Valla community was set to the west of a north-south bullock track that became a road in the late 1800s and linked the area to the Bellinger district to the north and the Macleay to the south. The first general store at Valla was sited beside this main road - not far north of Cow Creek, and south of the Valla Road turnoff. A Mrs Constable, who had arrived in the area from the Macleay in the 1880s, ran the shop and had a residence up on the hill behind.

Mrs Constable was perhaps best remembered for her pet magpie which was reported to be a 'wonderful whistler and talker' but also the 'terror of the neighbourhood'.¹²¹

Post Offices

Mail services in the Valla area were originally a simple – amounting to a mailbox nailed to a tree at Valla Beach (also known as Letter Box Beach). The box was basically a drop off point for district postmen on horse back who used the beaches as thoroughfares. From the late 1880s, this service was superseded by a succession of post offices.¹²²

The first 'receiving office' was opened on the Buchanan's property at Deep Creek in 1877. This appears to have operated until 1890 when operations were moved to the gold mines to the north of Valla Beach. This mine post office was superseded in 1895 when Fred Buchanan took on postal duties, which in turn passed to Clara Buchanan and then a Mrs Buckman. After an extended period when mail drops were convoluted and uncertain, Fred Buchanan again established himself as a receiving officer at what was known as the third post office (established 1905). His position

¹²¹ Thurtell & Smith 1998: 7

¹²² Thurtell & Smith 1998: 8-9



coincided with the official changing of the name of Valla from Deep Creek. Fred remained postal officer until 1911.

In 1911, the fourth post office was established near the junction of the Main Road and the Deep Creek turn off. Henry Bines, who had been appointed post officer on the recommendation of Fred Buchanan, operated this for a short period of around eleven months. A Mr Burdes held the position thereafter for most of the 1910s.

The post office was moved again in c.1920 when returned WWI soldier Roy Klein became postmaster. The fifth post office was sited 200 metres away from the preceding at Klein's house on the property of Mr Barry Pade. Klein remained local postmaster until after WWII.

Valla Schools

The first school at Valla was established at Clear Ridge between the Main Road and Valla Beach in the late 1870s. It grew out of a local resident petition for a place in which to educate local children and comprised a single room (20 x 16 feet) featuring a blackbutt shingle roof, furniture and a WC.¹²³ Originally a provisional school, it became a public school in 1880 but fluctuating levels of enrollment saw it closed in 1887. It appears to have reopened as a provisional school in 1888 and became a half-time school in 1894.¹²⁴

By 1894 a second school had been established at Deep Creek. The school appears to have shared teachers with Clear Ridge. In 1898 a new school at Valla near the corner of Valla and Sullivans Roads effectively replaced it. This latter school (Valla's third) became a public school in 1900.¹²⁵ The fourth, last and largest school at Valla was constructed in 1914 near the site of the third (which then functioned as a storage shed).¹²⁶ Under a succession of teachers including Miss McQuiggin (1914-1919) and Bob Nelson, the school operated successfully until its closure in the late 1960s when enrollments faltered as a consequence of the decline of the local dairy industry.¹²⁷

¹²³ Thurtell & Smith 1998: 5

¹²⁴ Townsend 1993: 101

¹²⁵ Townsend 1993: 101

¹²⁶ Gadsby 1997: 69-76

¹²⁷ Thurtell & Smith 1998: 5-7; Dunne 2001: 82



Valla Public School (c.1914)

Image presented in Dunne 2001: 82

3.5.2 Landmarks

Aside from the farmlands and village infrastructure that have indelibly marked the landscape Valla area, the location also features a range of other natural and built features that also manifest the history of the place and contribute to broader natural and cultural heritage.

Valla Hall

Valla Public Hall on Valla Road to the northeast of Mount England was constructed in 1909. Since that time it has been a community focal point and has seen 'concerts, dances, meetings, church services, christenings, send offs, welcome homes, card tournaments, school concerts and at least one wedding'.¹²⁸

Valla Beach

Like Valla Hall, Valla Beach was a place of public recreation for the Valla community from the late 19th century. People were attracted to the area by its natural beauty, which included the Deep Creek river mouth, Lovers Lookout, Englands Rock, Mosquito Park (Hyland Park) and the beaches themselves. They were also brought to the area by its excellent beach, rock and estuary fishing and the availability of oysters and game. The river mouth was particularly popular in the early days and many Valla families pitched tents and camped there during the holidays. Later, when the beach was proclaimed a reserve they tended to camp at the Valla headland.¹²⁹

The weathershed at Valla headland was constructed in 1915 with financing provided by a number of local families including the Broomfields, Donovans, Mitchells, Englands, Martins, Steeles, Manusus and Smiths. The complex featured a shed, tank and fenced horse paddock/reserve. The shed was floored (and toilets and sullage pits dug) in 1916 and subsequently became a focus of Valla Beach visitation.

¹²⁸ Thurtell & Smith 1998: 13

¹²⁹ Thurtell & Smith 1998: 13-21



3.5.3 Landscape Features

Aside from Deep Creek (the focus of early settlement) and Valla Beach (the focus of seaside recreation) other significant local landmarks of the Valla area include:

Bolla Nollas – an extensive range to the distant west of Valla. Reputedly home to a much feared scaly Bunyip who lived in a swamp at the foot of the range. Also home to large packs of wild dogs (dingoes)

Picket Hill (Peaked Hill)

Mount England – named after Marmaduke England and known to be an important Aboriginal area and increase site

Jarretts Knob – named after Steve Jarrett and his brother who were early settlers in that locale

Gordons Knob – named after Robert Gordon (a Nambucca based, part owner of a sawmill at Newee Creek)

Cow Creek – early settlement area that featured an Aboriginal reserve (described earlier). Early settlers included the Harry Harris, Tom Auliffe, Billy Wyatt, Henry Hales and Alex Smith.

Boggy Creek – another creek margin settlement area pioneered by the Jarrett brothers, Cliff Bird, Herb Grey, Charlie Bloomfield and Albert Hobbs.

North Coast Rail Line – constructed between 1905 and 1932. Valla Station (east of the highway) was established in 1939 and closed in 1974.

Pacific Highway – part of the road linking Tweed Heads and Newcastle. Originally it was only partly sealed, flood-prone and had many river crossings without bridges (using ferries). It was designated the North Coast Highway in 1928 and was renamed the Pacific Highway in 1931.

In the c.1980s the highway was realigned and upgraded to a point where it effectively severed Valla proper from Valla Beach. The connection between the coast and hinterland is no longer direct and the settlement areas are now quite distinct.



Figure 18. The subject lands in relation to 1956 aerial photography.

Nambucca Run LPI



Figure 19. The subject lands in relation to 1980 aerial photography.

Nambucca Run LPI



3.5.4 The Modern Era

From around the 1960s, the Valla area like much of the North Coast underwent significant demographic and social changes. Changes in the global milk market saw closure of many butter factories, the consolidation of diaries and the conversion of diary land to grazing pastures. The era also saw the movement of rural people (especially the young) away from farms and into the cities, which provided greater educational opportunities and employment. Collectively these changes caused local depopulation and saw the commencement of the subdivision and sell of rural properties.

By the 1970s the Age of Aquarius and the 'tune in drop out ethos' of the hippy era saw alternative life-stylers drawn to the North Coast with its cultural festivals, ideal climate and cheap real estate. In more recent times, since the mid 1980s, the collage of long time district farmers and new small holding residents, has been overprinted by 'sea changers' who have moved en masse to North Coast locations near the regional nodes such as the Tweed, Coffs Harbour, Kempsey and Port Macquarie.

At present, Valla and Valla Beach are growing satellite settlements connected in the first instance to Nambucca Heads and more broadly to greater Coffs Harbour. The beach continues to grow as a popular tourism locale (with a focus on fishing and surfing) while the Valla - Deep Creek area (including the current study area) has been targeted for regional urban growth.



4.0

Aboriginal Cultural Heritage

Building on the historical and environmental information presented in the previous chapters, this section details the Aboriginal cultural heritage context of the subject lands, referencing information derived from research into the region's archaeological record. It also presents the results of site survey work undertaken specifically for this project.

4.1 Previous Archaeological Research and Investigations

In addition to the historical and oral historical information about Aboriginal people and non-Aboriginal people in the vicinity of the study area described in the previous section, archaeological work has provided further evidence of how the area has been used in the distant and more recent past. This section reviews the available sources of this information, primarily registers of heritage items and past archaeological/heritage studies, generally undertaken in relation to development proposals over the last 30 years.

4.1.1 Aboriginal Heritage Information

The main source of information about Aboriginal heritage 'sites' in the vicinity of the study area is the DECCW Aboriginal Heritage Information Management System. This includes the Aboriginal Sites Register (the 'AHIMS Register') and a Catalogue of Archaeological Reports. These records form an imperfect resource, with numerous errors and omissions. The AHIMS Register and reports catalogue were searched in detail, as well as additional in-house DECCW research records (such as the Living Places Project). Past archaeological and other heritage studies not available through AHIMS were sourced directly from consultants and other repositories where possible.

Registered/Recorded Aboriginal Sites in the Area

Prior to the archaeological field survey, a search was undertaken of the AHIMS Register of a 20km x 20km area centred on the subject land¹³⁰. This large search area was to provide a broader perspective of site distribution in relation to historical development of the surrounding areas, and included 10-15km of coast and hinterland country between about the Nambucca River at Macksville and just south of Urunga. The search revealed a total of 104 registered items within the search area. However, it was noted that six items are listed as "Not A Site". These include a possible scarred tree (#21-6-0307) found not to be culturally modified by Aboriginal people and five areas registered as Potential Archaeological Deposit but test excavated and found not to contain any Aboriginal archaeological remains.

There are therefore a total of 98 currently registered Aboriginal sites within the search area (**Figure 20**). These include several sites within and adjacent to the current study area as discussed further below. A search undertaken of the DECCW Living Places Project database (of Aboriginal sites of

¹³⁰ Search of 26 August 2010 within Zone 56 AMG coordinate range E485000-E505000, N6603000-N6623000.

historical/contemporary significance) for a recent project (MDCA 2010)¹³¹ did not result in any additional sites of immediate relevance being identified.

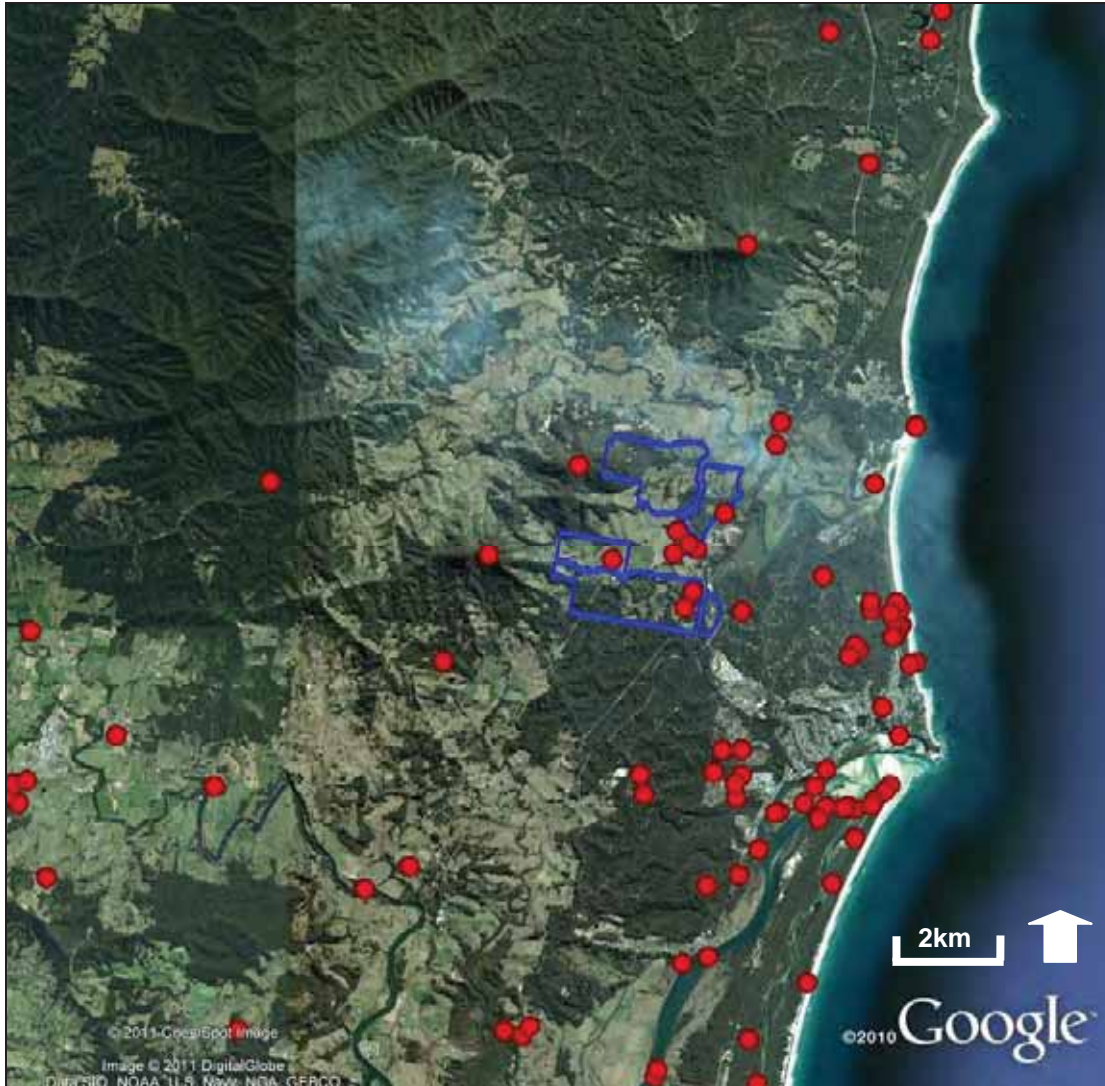


Figure 20. Registered Aboriginal Sites within the 20km x 20km search area.

The AHIMS Register lists sites according to site features, of which any one “site” can have several. For example a burial associated with a carved tree is listed as two “features”. **Table 1** summarises the 111 recorded site features from the 98 currently registered sites and provides a comparison with the May 2008 search and another for the whole of Nambucca LGA (extending considerably further inland). All sites within and in proximity to the current study area which have been registered since that search were recorded in relation to investigations for the upgrade of the Pacific Highway (see below).

¹³¹ Search by then DECC Historic Heritage Information Management System Registrar Katrina Stankowski 15 May 2008. This project is finished and no further places have been added since that time.



Table 1. Site features from AHIMS Register search for the current study, previous study and Nambucca LGA.

Site Feature	Current search (% of total features)	2008 Search (% of total features)	Nambucca LGA (DEC 2005) (% of total features)
Artefact (stone, bone, shell, glass)	32 (29%)	23 (24%)	55 (38%)
Aboriginal Resource and Gathering	17 (15%)	11 (12%)	1 (1%)
Aboriginal Ceremony & Dreaming	15 (14%)	15 (16%)	16 (11%)
Modified Tree (Carved or Scarred)	14 (13%)	15 (16%)	12 (8%)
Habitation Structure	9 (8%)	9 (10%)	9 (6%)
Burial	6 (5%)	6 (6%)	5 (3%)
Shell	6 (5%)	4 (4%)	17 (12%)
Ceremonial Ring (stone or earth)	5 (5%)	4 (4%)	8 (6%)
Water Hole	2 (2%)	2 (2%)	2 (1%)
Conflict	2 (2%)	2 (2%)	1 (1%)
Non-Human Bone & Organic Material	1 (<1%)	1 (1%)	1 (1%)
Earth Mound	1 (<1%)	1 (1%)	14 (10%)
Ochre Quarry	1 (<1%)	1 (1%)	0 (0%)
Rock Art	0 (0%)	0 (0%)	1 (1%)
Stone Arrangement	0 (0%)	0 (0%)	1 (1%)
TOTAL	111 (100%)	94 (100%)	143 (100%)

Several things should be noted in interpreting the table:

- The site features are often poorly defined and certainly not uniformly understood by site recorders (archaeologists and Aboriginal community members). There have also been systematic errors in data entry onto the AHIMS Register (DEC 2005:31-33).
- The AHIMS Register is an incomplete and fragmented record of the type and frequency of Aboriginal heritage places in any given area. The physical distribution of sites does not represent their actual/origin distribution and is largely determined by the level of destruction from historical impacts and the level of development (and hence archaeological studies) in the last 30 years or so. Generally this means that more sites have often been recorded in coastal areas (in which more studies have been undertaken) even though a greater proportion of the original number of sites has also been destroyed in these areas. **Table 1** shows a density of approximately 4 sites per 10km² for the area searched compared with less than one site per 10km² for the whole LGA which takes in less developed mountainous areas to the west. As a general rule (except in areas highly impacted by historical land use) the more survey that is undertaken the more sites are recorded.
- The frequency with which individual types of site are recorded is also not reflective of actual frequency. It is determined by the visibility/resilience of various site types and the focus of research. For example in the areas searched, recording of culturally significant places (including ceremonial grounds) was undertaken by the DECCW (then NPWS) in the



mid to late 1970s allowing a greater number of such places to be recorded than in some other parts of the state. Since that time the majority of recordings have been made by archaeologists with a greater focus on pre-contact physical evidence (such as stone artefacts, middens and scarred trees), which accounts for their relatively high frequency. It can also be noted that “Aboriginal Resource and Gathering Sites” have been recorded in much greater numbers in recent years no doubt due to research highlighting what these places are and how they may be recorded (e.g. English 2002).

- Sites continue to be recorded and not all *recorded* sites have been *registered* (see below).

A number of sites have been recorded within or in close proximity to the current study area. These are summarised in **Table 2**. As can be seen, a number of sites, particularly the Cow Creek Reserve, have been registered several times and others have been shown not to be sites. The sites within and/or of most relevance to the current study area are illustrated in **Figure 21**.

. Those within the current study area include a number of aspects of the Cow Creek Aboriginal Reserve have been recorded as separate sites, a scatter of nine artefacts and associated resource gathering area along Boggy Creek (AHIMS #21-6-3060) and an area of historic Aboriginal association ('Boggy Creek Spiritual Area') also in this vicinity.

Table 2. Recorded sites within and in close proximity to the current study area.

Site #	Site Name	Site Type	In Study Area?	Notes
21-6-0010	Nambucca Heads	Carved Tree	No	Carved tree located in Hyland Park State Forest east of the subject lands.
21-6-0044	Mt England	Aboriginal Ceremony & Dreaming	No	Ceremonial yam increase site located at or near the top of Mount England. Recorded by NPWS Sites of Significance Survey in late 1970s by Ray Kelly Snr and Gumbainggirr Elder Harry Buchanan.
21-6-0045	Taylor's Creek; Mt Sullivan	Aboriginal Ceremony & Dreaming	No	Ceremonial eel increase site on Mount Sullivan. Recorded by NPWS Sites of Significance Survey in late 1970s by Ray Kelly Snr and Gumbainggirr Elder Harry Buchanan.
21-6-0220	Cow Creek Aboriginal Reserve	Historic Aboriginal Reserve	Yes	Aboriginal reserve in use between about 1890s and the 1920s by several Aboriginal families (Pt 169 in DP755560). Initial of several recordings of the reserve. Recent recording of a scarred tree (MDCA 2010) added to this recording.
21-6-0228	Cow Creek Aboriginal Reserve	Historic Aboriginal Reserve and Burial	Yes	Duplicate recording of Cow Creek Aboriginal Reserve with specific listing of historically documented Aboriginal burial (though this is also contained in the original recording for #21-6-0220).



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Site #	Site Name	Site Type	In Study Area?	Notes
21-6-0286	Buchanan Conflict Site	Conflict Site	Yes	Recorded by Victor Buchanan as the approximate location of a tribal killing and burial of two young men from another tribal group who had fled that group, were pursued by other members of the tribal group and sought refuge within the Cow Creek Aboriginal reserve, but were killed at that site by their pursuers ¹³² . It was recorded by Victor Buchanan on the basis of oral testimony from Harry and Eddie Buchanan, and no associated physical remains have yet been documented.
21-6-0306	Boggy Creek Artefact 1	Open Campsite and Aboriginal Resource Gathering Area	Yes	Isolated ground stone artefact located during Pacific Highway upgrade works. Adjacent to area identified as resource gathering area (close to Boggy Creek with macrozamia and cabbage tree palms). Subsequent further excavations retrieved another 8 stone artefacts (SKM 2010), though the relationship of these to the original artefact is unclear.
21-6-0307	Deep Creek Scarred Tree 1	NOT A SITE	No	NOT A SITE. Possible scarred tree recorded during Pacific Highway upgrade works within road easement adjacent to current study area. Possible scar reappraised by Nambucca LALC and the DECCW and found not to have an Aboriginal cultural origin (SKM 2009:94).
21-6-0309	Nambucca 22 Aboriginal Reserve AR 21243/4	Aboriginal Resource and Gathering	Yes	Site card not available on AHIMS. Appears to relate to use of natural resources by residents of the Cow Creek Aboriginal reserve. Same coordinate used as for original recording of reserve (#21-6-0220).
21-6-0324	WC-U-PAD 8	NOT A SITE	Yes	Area of Cow Creek Reserve identified as retaining subsurface archaeological potential during Pacific Highway investigations. Test excavation revealed Aboriginal archaeological remains registered as #21-6-0346. Note that coordinate taken at NW corner of reserve however excavations undertaken in eastern portion of the reserve. Most of the reserve has not been subject to archaeological excavation and still retains potential, as per previous site recordings of this place (#21-6-0220, #21-6-0228, #21-6-0286).
21-6-0326	WC-U-PAD 10	NOT A SITE	No	Area of subsurface archaeological potential identified during Pacific Highway investigations. Test excavation revealed no Aboriginal archaeological remains.
21-6-0327	WC-U-PAD 11	NOT A SITE	No	Area of subsurface archaeological potential identified during Pacific Highway investigations. Test excavation revealed no Aboriginal archaeological remains.
21-6-0332	WC-U-PAD 16	NOT A SITE	Yes	Area of subsurface archaeological potential about 300m x 160m straddling Boggy Creek identified during Pacific Highway upgrade works. Archaeologically test excavated and no Aboriginal archaeological remains located. However isolated artefact and later another 8 artefacts located nearby (#21-6-0306).

¹³² Victor Buchanan pers. comm. 21/7/08.



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Site #	Site Name	Site Type	In Study Area?	Notes
21-6-0345	Cow Creek Aboriginal Reserve	NOT A SITE	n/a	During study by Mills (1997), Nambucca Local Aboriginal Land Council representative Stan Jarrett pointed out the "Buchanan family camp" as somewhere within the Cow Creek valley. Rough coordinate ascribed but further details were not obtained and the camp was not correctly identified at that time as the Cow Creek Aboriginal Reserve. Mills prepared an AHIMS Register site card for the site but this was not submitted. The site card has recently (since 2008) been submitted apparently without realising that it is an outdated and incorrect description of the Cow Creek Aboriginal Reserve, already registered several times.
21-6-0346	Cow Creek Artefact Scatter	Open campsite	Yes	Recording of area in which archaeological test excavations retrieved 42 stone artefacts, at the eastern end of the Cow Creek Aboriginal Reserve and extending east of the reserve. Most artefacts were said to be of flaked sandstone ¹³³ but included some flaked glass and one piece of flaked ceramic, said to be indicative of post-contact Aboriginal use, most likely associated with the reserve. However no description or image of these items is provided. Further archaeological salvage of this area was recommended in relation to highway upgrade works.
Not Registered	Boggy Creek Spiritual Area	Area of Historical Attachment	Yes	Area described by Bowraville LALC representative Warren Buchanan and Uncle Buddy Marshall during highway upgrade works (SKM 2009: Appendix G). Described as an area along Boggy Creek near the current highway frequented by an 'old Aboriginal woman' (suspected to be Betty Buchanan), according to a local landowner. The area has not been registered on AHIMS as the exact location is not known.

¹³³ This must be an error as sandstone is not a flakable stone raw material.



Figure 21. Location of recorded Aboriginal heritage places within and adjacent to the subject lands.

[Note: duplicate, incorrect and “not a site” recordings removed, Site #21-6-0220, 286, 309 and 346 are essentially all separate recordings of aspects of the Cow Creek Aboriginal Reserve and should have a single recording].

Historically Recorded Areas of Aboriginal Association

As discussed in **Section 3.2.3**, several areas possibly within or close to the current subject lands have been historically recorded as having Aboriginal associations. These include the site of a tribal fight (possibly in the late 1800s), and a ceremonial or ‘corroboree’ ground. The precise location of these areas is not specified and cannot be determined precisely on the basis of available evidence. However it is clear these areas would require a reasonably flat and fairly extensive section of ground, which does not appear to occur within the subject lands, or within areas previously surveyed by MDCA (2010).

The presence of these documented areas, in addition to the Cow Creek Aboriginal Reserve and Mount England (a Yam increase site) are indicative of a broad and varied Aboriginal cultural and spiritual landscape spanning pre-contact and historic times with high Aboriginal significance. Of these important places only Mount England and the Reserve retain any physical evidence and both are afforded s90 protection under the NPW Act and are registered on the DECC AHIMS Register.



4.1.2 Previous Archaeological Studies in the Local Area

A number of archaeological studies have been undertaken in the vicinity of the subject land within the last 30 years which have led to the identification of a range of Aboriginal sites and areas of Aboriginal cultural and historical significance. These studies have been unevenly distributed across the area. A recent overview of past research within the Nambucca Local Government Area demonstrates that such research has been almost exclusively restricted to consultancy projects on the coastal strip and immediate hinterland with little known about the largely agricultural hinterland areas¹³⁴. Of most relevance to the current study are:

- The “NSW Survey of Aboriginal Sacred and Significant Sites” was conducted by the then National Parks & Wildlife Service primarily in the mid to late 1970s and involved recordings of these types of sites in various areas by senior Dunghutti man Ray Kelly, NPWS anthropologist Howard “Harry” Creamer and local Elders. In the Nambucca area, a range of sites were recorded together with senior Gumbainggirr Elder Harry Buchanan, including the Mount England Yam Increase site. In addition, a later trip was made by Harry Buchanan and Gary Williams to the Cow Creek Aboriginal Reserve in which the locations of Aboriginal burials were identified (Gary Williams pers. comm. 7/10/08). It was initially thought that Howard Creamer accompanied the Aboriginal people on that trip to the Reserve. He was contacted by telephone (8/10/08) to enquire about the location of any written or photographic records of that visit. Mr Creamer could not recall the trip but referred MDCA to selected reports within the “Howard Creamer Collection 1973-1987” as containing all of the information he had compiled about the Nambucca area. However checking of these files revealed that they contained only information associated with registered sites and nothing about the Cow Creek Aboriginal Reserve.
- Davies (1991) conducted an assessment of a roughly 200km section of a proposed Telecom optic fibre cable route which included survey within the eastern portion of the Ussher property and the former Cow Creek Reserve lands. The survey corridor was 6m in width and was mostly inspected either on foot or “inspected from the front bullbar of a slow-moving 4WD” (p21). The methods used across the current study area are not specified but no archaeological material was detected and Davies was apparently not aware of the former Cow Creek Reserve and its Aboriginal connections. No Aboriginal heritage constraints were identified and the cable was subsequently laid.
- Kuskie (1992, 1993) assessed another optic fibre cable route for Optus. Initially the cable was proposed to run along the western edge of the Pacific Highway in the vicinity of the study area, but the route was subsequently shifted about 1.2km west (and about a kilometre west of the Telecom route surveyed by Davies). This route passed northeast through the western half of the Welsh property from its intersection with the northwest corner of the Ussher property. The route was surveyed by Kuskie who noted moderate disturbance and low surface visibility and identified no archaeological constraints (1993:15). The cable was subsequently laid.

¹³⁴ DEC 2005:Appendix 1 p7-8.



- Mills (1997, 1999, 2000a) assessed the route of a proposed 132kV transmission line between Kempsey and Coffs Harbour. Within the vicinity of the study area, the proposed line followed the route of the Optus optic fibre cable previously surveyed by Kuskie (1993) and an existing 66kV transmission line which it was to replace. An initial desktop study had identified landform units with high archaeological sensitivity along the proposed route¹³⁵. During Mills' 1997 survey, Nambucca Local Aboriginal Land Council representative Stan Jarrett pointed out the "Buchanan family camp" in the vicinity of the current study (as somewhere within the Cow Creek valley) but further details were not obtained and the camp was not correctly identified at that time as the Cow Creek Aboriginal Reserve. Mills prepared an AHIMS Register site card for the site but this was not submitted (however has recently been submitted as noted above). Mills also noted that, from an archaeological perspective, the Cow Creek floodplain was "heavily disturbed by recent grazing and farming activities" (1997:25). However an area of Potential Archaeological Sensitivity was identified in this area (Mills PAS 21) on the basis of its Aboriginal historical and cultural significance, and recommendations were made to restrict the power lines and power poles to the existing easement of the fibre optic cable and 66kV transmission line easements, and for installation to be monitored by the Nambucca Local Aboriginal Land Council (1997:31).

As the power pole locations had not been determined at the time of the initial survey, Mills also recommended specific archaeological assessment of proposed power pole locations which fell within areas of assessed Potential Archaeological Sensitivity. This further survey was carried out by Mills in 1999, including the sites of poles 334 and S1-S7 within or immediately adjacent to the subject land. These locations were all noted as having been heavily disturbed by historical activity and most were assessed as having low archaeological sensitivity and not requiring any further heritage input prior to installation. Two poles (S4 on a 'creek terrace' and S5 on a 'ridge crest') were assessed as having moderate sensitivity and were recommended for monitoring during construction.

Some limited archaeological excavation (augering) was also undertaken by Mills at a number of pole locations (Mills 2000a) including S4, along Cow Creek but did not result in the identification of any Aboriginal cultural material. The power line was subsequently installed.

In conjunction with these works, Mills also surveyed the area of a proposed substation south of Boggy Creek Road, within the current study area (Mills 2000b). Mills noted the steep and eroded nature of the terrain and did not identify any Aboriginal archaeological remains or areas of subsurface archaeological potential.

¹³⁵ Craig & Bonhomme 1995.



- Susan MacIntyre-Tamwoy undertook a shire wide Aboriginal Heritage Study for the Nambucca Shire Council in 2003. The study was ratified by Council in late 2008, but has been available since 2003. The study provided Council with a complete site listing based on the AHIMS Register, and on a series of surveys specifically undertaken for the study. The study provides a comprehensive historical background and Aboriginal history, site predictive modelling as well as site management and planning guidelines for the Aboriginal heritage of the shire.

No Aboriginal sites had been previously identified within the subject lands and this area was not chosen for survey by that study. MacIntyre-Tamwoy's study was the first to formally register all the Aboriginal Reserves within the shire on the AHIMS Register, including the Cow Creek Aboriginal Reserve. These registrations/ site recording forms included references to the information supplied by the Sacred Sites Survey and the additional historical research undertaken by MacIntyre-Tamwoy for the study.

- A range of investigations have been undertaken in recent years in relation to the upgrade of the Pacific Highway between Macksville and Urunga, some of which are ongoing. Records are rarely publicly available, as reports have either not been submitted to the DECCW AHIMS or are yet to be released or are available only in summary form. Initial investigations were undertaken by Mills (SKM 2004, Mills 2005) within a corridor including the eastern margin of the current study area and the former Cow Creek Aboriginal Reserve. The historical significance of the Reserve was identified by Mills (apparently unaware of its prior registration by McIntyre-Tamwoy (2003). The route was surveyed on foot and by car based on a sampling of landform and assessed sensitivity. Within the vicinity of the current study area, Mills identified the Cow Creek Reserve as having high significance, and also identified the north and south terraces of Cow Creek within the eastern portion of the reserve as having Potential Archaeological Sensitivity (Mills PAS17 and 18 respectively). Mills recommended the use of ground penetrating radar to attempt to locate the known Aboriginal burial (of Maggie Cowlin) within the Reserve. Additional research by Mills led to the identification of the location of the burial by local Aboriginal man Neville Buchanan as within the south western corner of the reserve (Mills 2005:18). Terraces associated with both sides of Boggy Creek were also assessed as having archaeological sensitivity (PAS80, Mills 2005:21). It is noted that these areas of sensitivity are outside of the current study area.

Following determination of the preferred route for the upgraded highway (which avoided some previously identified areas of archaeological potential), further archaeological investigations were undertaken by SKM (2009, 2010) of those areas proposed for impact. Survey resulted in the identification of 40 areas of potential archaeological sensitivity, 34 areas of subsurface archaeological potential (including five associated with surface artefacts) and 3 surface artefact scatters with no associated potential. Several of these areas were within or close to the current subject lands.



A series of manual and mechanical test excavations were undertaken in these areas and it is useful to consider both those within and immediately adjacent to the current study area, as well as the results of the excavations more broadly, as they provided a useful sampling of landforms in the area, including floodplains, terraces and spur crests and slopes. WC-U-PAD8, within the eastern end of the former Cow Creek Aboriginal reserve, was investigated with over 100 gridded 0.5m² test pits at 5m intervals, several larger test pits and one 72m long 1.5m wide machine transect, resulting in the location of just 42 stone artefacts. Many pits contained no artefacts, and a maximum of two in others (extrapolated maximum density of 8/m² and average density of 1-2 artefacts/m²). This represents a low density scatter of artefacts over an area of approximately 35m x 50m. Further total salvage of the area proposed for impact by the highway upgrade was recommended but does not yet appear to have been undertaken.

WC-U-PAD 10, on a ridge north of Deep Creek and WC-U-PAD 11, on a low spur north of Deep Creek were investigated with five and seven 0.5m² test pits respectively. No Aboriginal archaeological remains were located at either location.

Initial testing of WC-U-PAD 16 (on either side of Boggy Creek) involved a total of 23 0.5m² test pits, some auger holes and four 10m graded trenches. No artefacts were recovered during these excavations, though a single ground stone artefact was located nearby on the surface (#21-6-0306). Further testing with auger, manual pits and mechanical trenches retrieved a further 8 artefacts in this area (SKM 2010). Further archaeological salvage is recommended prior to impacts from highway upgrade works.

- MDCA (2010) have recently undertaken survey and assessment of two other allotments within the Valla Urban Growth Area, representing the areas between the southern and northern portions of the current subject lands (**Figure 3, Figure 22**). These lots (Lot 19 DP 755560 and Lot 1 DP 253772) total approximately 200 hectares in size and contain a similar landscape to the current subject lands. Although outside that study area, the Cow Creek Aboriginal Reserve area was also considered due to its close proximity and the potential for impacts to this area (see below). The study noted the steep topography of much of the study area, and evidence of historical land use/disturbance. The survey identified two areas of Aboriginal Archaeological Sensitivity on relatively flat broad spurs above permanent water which were considered the most likely locations for any intensive use of the area by Aboriginal people in the past and these were recommended for further investigation through archaeological test excavations prior to any proposed impacts (**Figure 22**). No other areas of archaeological potential or sensitivity were located, and it was concluded that the topography of the study area would have limited or channelled use by Aboriginal people in the past and that in many areas historical impacts and/or erosion would have moved/disturbed or destroyed any archaeological traces of that use.

In consideration of the history and archaeological sensitivity of the Cow Creek Aboriginal Reserve, the high Aboriginal cultural significance of the reserve was noted and a buffer zone around the perimeter of the reserve was established to prevent inadvertent impacts to

the Aboriginal cultural values and physical remains of this reserve. A scarred tree was also recorded and added to the existing site recording for the reserve.



Figure 22. Location of AAS1 and AAS2 (red), Scarred Tree (blue) and proposed reserve buffer zone (green).

Several other studies of some relevance have also been undertaken further afield than those reviewed above.

- Rich (1989, 1990) investigated Aboriginal historic sites in north-eastern New South Wales and identified the Cow Creek Aboriginal Reserve.
- Willoughby (1997) surveyed a proposed extension to the hard rock quarry on the western slopes of Mount England at a similar elevation to the current study area. No Aboriginal sites were located and no archaeological constraints were identified, in what was assessed as a disturbed landscape with low archaeological potential. The Nambucca Local Aboriginal Land Council supported the proposal as long as it did not extend further up Mount England (and therefore presumably potentially affect the significance of the yam increase site there (AHIMS #21-6-0044).
- A range of residential and commercial subdivision proposals have been investigated at Nambucca and Valla Beach but are of limited relevance to the current study as they are located in very different topographical and environmental zones.



Our understanding of the history and nature of Aboriginal occupation in the vicinity of the study area is limited to the relatively small number of Aboriginal archaeological research or consultancy projects which have been undertaken. Although there is information on a greater variety of places than at some other points along the coast (e.g. including a range of cultural/ceremonial and post-contact sites) we currently lack an overall framework of how and why Aboriginal people lived in, and moved through, the local landscape in the pre and post-European contact past in which to place newly recorded sites and historical information.

However it is clear that the local landscape included sites of ceremonial significance to Aboriginal people and that this significance survived the arrival of Europeans. Given what we know from other parts of the state¹³⁶, it is quite possible that the Cow Creek Aboriginal Reserve was gazetted at its location due to the wishes of local Aboriginal people to be close to culturally significant places and/or resources. The archaeological sources also indicate the range of evidence which may be found within the study area and the likely contexts in which it may be found.

4.2 Implications for Heritage Management

Based on the contextual information presented above, it is possible to summarise the nature, extent and possible location of Aboriginal heritage and the nature of historical associations that might be expected within the study area.

Sites & Places

Aboriginal cultural heritage within the study area may take the form of physical 'sites' (pre- and post-contact) and/or areas with historical/cultural associations to Aboriginal people living today. Research for a previous study (MDCA 2010) established some of the history of the Cow Creek Aboriginal Reserve and the clear relationship between some of its residents and the non-Aboriginal Smith family on the adjacent property. It is likely that most formal activities would have been restricted to the reserve area, and burials of reserve residents are also likely to have been within the boundaries of the reserve, where some control/care could be extended over them. However other activities appear to have extended beyond this area. For example it has been suggested that flaked glass and ceramic artefacts recently excavated immediately east of the reserve boundary may indicate activity by reserve residents outside of the reserve area (SKM 2009:62), however further details about the nature and context of these artefacts would be required to conclusively demonstrate this. It has also been suggested that the Boggy Creek area near the current highway was used by former reserve resident Betty Buchanan (SKM 2009: Appendix G), though few details are available about the specific location and nature of this use.

Byrne & Nugent (2004) have discussed the ways in which Aboriginal people moved about the landscape in the late 19th and 20th centuries on the mid-north coast, avoiding the properties of "hostile" Europeans in order to get from their place of residence to resource or recreational places. It is clear that in the current study area, the residents of the reserve are likely to have had relatively free access to and through the Smith family property.

¹³⁶ See for example Goodall 1996.



Given the topography of the subject lands, with narrow ridges and spurs flanked by steep gullies, it is likely that Aboriginal people would have used the longest and flattest of these spurs to travel between Mount England and other adjacent hills and the coastal plain. Archaeological evidence is most likely to be in the form of isolated or low densities of stone artefacts on the surface and possibly sub-surface. More dense concentrations of artefacts, representing the remains of campsites, may be located on relatively flat spurs above permanent or semi-permanent water, or on creek banks and terraces not prone to flooding. Recent excavations for the upgrade of the Pacific Highway have involved subsurface archaeological investigations across a number of landforms, and have broadly supported this view (SKM 2009). These have shown low density scatters of artefacts present adjacent to and above Cow Creek and Boggy Creek which does not suggest intensive use of these areas.

It is unlikely that organic material (e.g. animal bones) will have survived in the relatively acidic soils of the study area, though charcoal and hearth stones from campfires may have. Given the clearance of most if not all original timber from the study area, and the documented disturbance from cultivation, road construction (along the spurs containing Cow Creek and Boggy Creek Roads) and house construction as well as recent electrical and telecommunications infrastructure, it could be expected that most portions of the study area will be at least partially disturbed, as previous studies have also suggested.

As noted above it is also unlikely, on the basis of topography, that the ceremonial ground or site of tribal fight historically documented in the area are located within the subject lands, as there appear to be few if any areas of sufficient size and flatness to have accommodated such sites.

Other physical remains which may have survived are scarred or carved trees, resulting from extraction of bark for practical purposes (e.g. to make containers) or for ceremonies (e.g. carved trees adjacent to burials). Given the interest the Smith family took in Aboriginal culture and the people on the nearby reserve the likelihood of these types of evidence remaining undetected on the properties is very low. Similarly there is only a low chance for the survival of ceremonial structures such as stone arrangements.

Any physical remains associated with the post-contact use of the area (such as dwellings and burials) are likely to be restricted to the formal reserve area. A former non-Aboriginal resident of the Reserve area, Mr Clyde Piggott, suggested that in the 1930s there was one house left (veranda, one bedroom, lounge and small kitchen) plus a horse shelter, yards and hay bale store.

Archival/historical research for the current study and previous Aboriginal cultural knowledge recordings¹³⁷ have not resulted in the documentation of specific areas of cultural or historical association within the subject lands, but have documented some activities which occurred in the general area. The Aboriginal people and organisations consulted for the current study, were asked to provide any additional information about the Aboriginal cultural and historical significance of the area which may be of relevance in assessing its Aboriginal heritage values. This is discussed further below.

¹³⁷ E.g. The NPWS Sites of Significance Survey.



4.3 Archaeological Field Survey

The archaeological investigations reported here have consisted of a field survey of the subject lands undertaken by *Mary Dallas Consulting Archaeologists* (MDCA). Site survey was undertaken over two days on 25 & 26 November 2010 by Mary Dallas, Paul Irish and Josh Connelly (MDCA archaeologists). NLALC Aboriginal Sites Officer Ms Bridget Walker participated in the survey on 25 November 2010 but was unable to attend on 26 November 2010.

The purpose of the survey was to locate, record and assess any surface archaeological evidence for past Aboriginal use that may be present within developable and accessible portions of the subject land and to assess the potential for subsurface archaeological evidence to occur.

4.3.1 Methodology

A search of the AHIMS Register carried out at the time of the field surveys indicated that several Aboriginal sites recorded within the Cow Creek Aboriginal Reserve and one artefact scatter (#21-6-0306) recorded in the southeastern portion of the subject lands were the only currently registered items within the subject lands. The Cow Creek Reserve area was inspected by MDCA in 2008 and was not re-inspected for this study, and the study team was not permitted access to the area of site #21-6-0306. Therefore the field survey concentrated on the identification of previously unrecorded archaeological evidence and areas with potential to contain sub-surface archaeological evidence of Aboriginal occupation.

Survey was conducted on foot, examining all areas of exposed ground and any trees of sufficient age to bear scars of possible Aboriginal cultural origin. An appraisal of ground disturbance, surface visibility and thus estimated effective survey coverage was also carried out during the current site inspections.

Generally, reporting has been concerned with topography (whether sites, features or areas of potential sensitivity are located on slopes or flats etc), context, vegetation, ground exposures, and nature of ground visibility and extent of disturbance. The distinction between site categories (open campsites vs. isolated finds etc) and the definition of areas of potential sensitivity is determined according to the following categories:

- Isolated Finds consist of single artefacts that are located more than 50m apart.
- Sites comprise open artefact scatters that consist of two or more artefacts situated within 50m of each other either on the ground surface or visible in sections of deposit .

The following attributes of each stone artefact that may be located during these investigations are to be recorded:

- Artefact Type: This category records the presence of flakes, flaked pieces and cores etc.
- Raw Material: Raw materials may include silcrete, indurated mudstone or tuff and quartz,
- Dimensions: Maximum length, width and thickness of finds are to be recorded.
- Other: Comments include the presence of cortex and retouch etc.



In addition, frequently used criteria inclusive of landform, aspect, topography and subsurface integrity have also been used to define open areas of **Potential Archaeological Sensitivity (PAS)**. These are defined as areas with the potential to contain sub-surface deposits of Aboriginal stone artefacts without surface evidence of such artefacts. Where such surviving deposits (generally surviving original topsoil deposit) are exposed and/or can be inferred, areas of **Potential Archaeological Deposit (PAD)** have been defined.

Recognition, ascription and recording of scarred trees as being potentially of *definite, probable, or possible* Aboriginal origin is based upon the assessment criteria summarised by *Navin Officer* (1997) and mindful of attribute guides described in *Irish* (2004) and *Long* (2005).

Any Aboriginal cultural material or relevant landscape features were plotted using site plans and a Garmin GPSMAP 60CSX handheld GPS set to the GDA coordinate system. GPS track logs were also kept detailing the routes and transects taken by the survey team.

4.3.2 Survey Units

Field survey did not cover the entirety of the subject lands. Some areas had been excluded by Nambucca Council from the study on the basis that they are unlikely to be considered for future development. Permission to enter some other areas had not been obtained. For these reasons, the areas to be examined for the current survey were agreed on site with Nambucca Shire Council Strategic Planner Grant Nelson on commencement of the survey on 25/11/10, as represented in **Figure 23**. These areas total around 285 hectares, or a little over half of the 550 hectares of the entire subject lands. For ease of discussion and reporting, each of the discrete survey areas is described separately below as a Survey Unit, as depicted in **Figure 23**.

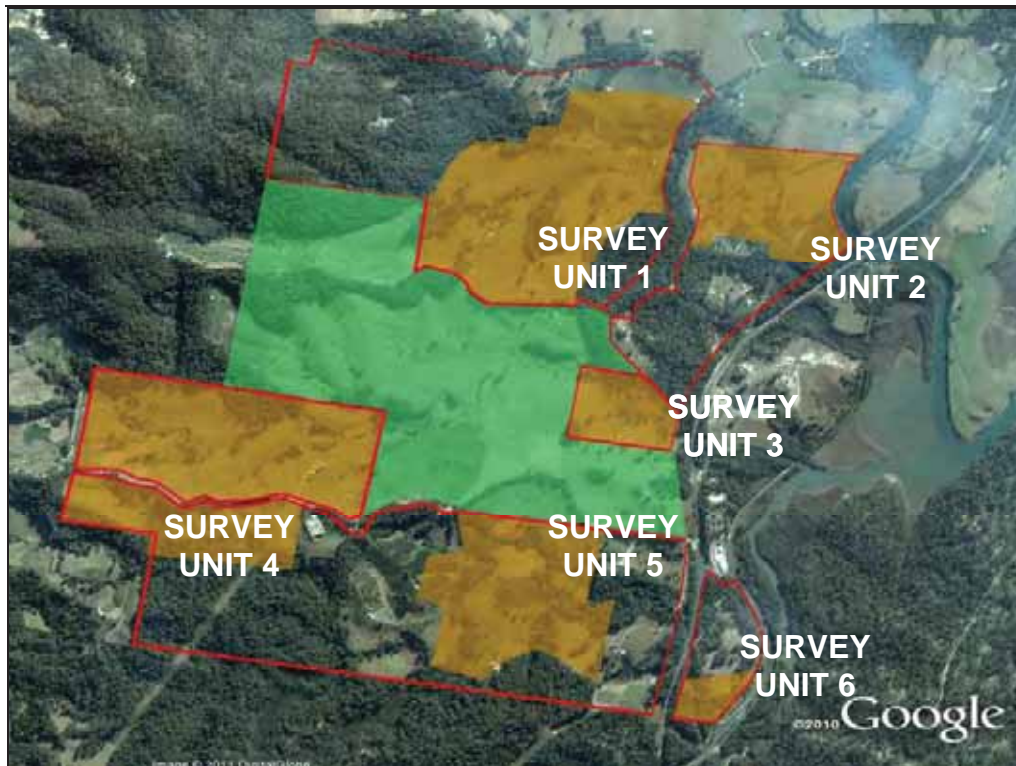


Figure 23: Agreed survey areas (orange) and survey units within the subject lands.

[Green shaded areas previously investigated by MDCA (2010). Note Survey Unit 3 was also included in this study].

Survey Unit 1

This is located in the north western portion of the subject lands, north of lands previously surveyed by MDCA (2010) and between two steeply inclined and forested areas which are not proposed for future development. The area is approximately 82 hectares in size and consists of several small creek lines draining the eastern slopes and foothills of Mount England and flowing northeast/east into Deep Creek. These are divided by long narrow spurs, some of which have been built on. Historical aerial photography shows that the majority of this land was completely cleared by the mid 20th century and has been used for grazing and possibly some cultivation.

Survey Unit 2

This unit is approximately 33 hectares in size and is located in the north eastern corner of the subject lands, largely along the floodplain of Deep Creek, which forms its eastern boundary. The area has been largely cleared and an area of woodland in the northern central section has been progressively cleared since the 1950s. The ground is generally low lying and flood prone and drainage channels have been excavated to drain the land for grazing.

Survey Unit 3

This survey unit is defined by the cadastral boundary of Pt 169 DP755560, the formal extent of the former Cow Creek Aboriginal Reserve. It is approximately 15 hectares in size and consists of



relatively flat ground on the banks of the meandering Cow Creek, west of the Pacific Highway and east of lands previously investigated by MDCA (2010). With the exception of a small stand of timber in the south western corner, this area has been cleared of almost all original timber for at least the last 50 years.

Survey Unit 4

This survey unit comprises about 98 hectares of largely cleared land north and south of Boggy Creek Road, which forms the watershed between Cow Creek to the north and Boggy Creek to the south. Both areas are generally very steeply inclined with a series of narrow ridgelines dividing the small upper tributaries of the aforementioned creeks, and draining the foot slopes of Mount England. Historical aerial photography from 1956 shows the northern section to have been cleared of timber by this time, and much of the area under cultivation. A portion of the southern area also appears to have been under cultivation by this time, though the remainder of the area appears largely timbered until at least 1980, after which time it has been cleared to its present state.

Survey Unit 5

Located in the southern central portion of the subject lands, this survey unit is approximately 52 hectares in size and comprises steeply inclined and largely cleared lands adjacent to a bend in Boggy Creek. With the exception of the immediate banks of the creek, all original timber within this survey unit appears to have been cleared by 1980 and includes areas now under cultivation. It is located immediately south of areas investigated previous by MDCA (2010).

Survey Unit 6

This survey unit is approximately 6 hectares in size and is located between the Pacific Highway and Northern Railway in the south eastern portion of the subject lands. It is elevated ground west of and above Cedar Creek which currently contains a mixture of cleared areas and regrowth timber (the original timber having been cleared by the 1950s). A cleared powerline easement runs northwest across the southern portion of the subject land.

4.3.3 Field Observations

The following observations were made during the field survey, and are presented according to each Survey Unit, as defined in **Section 4.3.2**. In general, all areas of exposed ground were examined for traces of Aboriginal occupation and all mature trees were examined to determine the presence/absence of scars of Aboriginal cultural origin. Survey was undertaken as a group or individually following tracks and paths and examining areas of exposure.

Survey Unit 1

The majority of the survey unit comprises moderately to steeply sloping ground below narrow ridges (**Figure 24**). The ridgelines are generally very narrow and sloping and unlikely to have been used intensively by Aboriginal people. They have also been the focus of European settlement, with housing and associated structures located along the elevated upper reaches of the spurs (**Figure 25**). The banks of the small creeks within the area are generally boggy and one creek line has been dammed. However along the northern portion of the survey unit are several areas of relatively



flat ground above the main east flowing creek line. Where surviving topsoil is present, an area of Potential Archaeological Deposit has been defined (BCPAD2). In the absence of observations of surviving original topsoil, two additional areas of Potential Archaeological Sensitivity (PAS6 and PAS7) were identified (**Figure 45**).

BCPAD2 represents elevated flat ground 2-3m above a creek line, in which grey silty clay topsoil was observed in small exposures of ground and in creek banks (**Figure 26**). It is around 35,000m² and measures a maximum of 400m x 140m. It is bounded to the east by a low rising spur 3-5m further above the area of PAD (PAS6), to the north by wooded sloping ground, in the northeast by boggy ground surrounding a drainage line, to the west by steeply sloping ground up to a spur containing PAS7 as well as a bend in the creek beyond which is very steeply sloping ground.

PAS6 is a grass covered flat area above the eastern end of BCPAD2 and above the main creek channel (**Figure 27**). Its northern boundary is formed by disturbed ground associated with an adjacent house and cultivated areas. It is approximately 20,000m² with maximum dimensions of about 280m x 100m. PAS7 represents flat ground along a spur above and northwest of BCPAD2. It is grass covered and measures about 200m x 50m (or about 10,000m²) (**Figure 28**). No exposed remnant topsoil was seen in either of the two PAS area, however their topographic location, and relatively flat and undisturbed nature suggests that they retain Aboriginal archaeological sensitivity.



Figure 24. View northwest over steeply sloping areas with PAS6 comprising the elevated area in the background.



Figure 25. View south up spur in southern portion of survey unit.



Figure 26. View west across BCPAD2 from south eastern end.



Figure 27. View north from southern end of PAS6 with creek line to the right.



Figure 28. View west from PAS6 over BCPAD2 to the elevated ground comprising PAS7.

Survey Unit 2

This survey unit largely comprises low lying flood prone lands associated with the floodplain of Deep Creek (**Figure 29**). Excavated drainage channels have been used to drain these lands to allow grazing. The original nature of this area is suggested by remnant swamplands in the southern portion of the survey unit (**Figure 30**). Some elevated ground above this floodplain is present in the southern portion of the survey unit but has largely been disturbed through the construction of residential dwellings and associated sheds and other structures. One area of relatively flat and undisturbed ground at the toe of one such spur containing a house was noted and defined as PAS8 (**Figure 31** and **Figure 45**). It is approximately 50m x 50m in size and bounded upslope by steeper slope and disturbance associated with the house and in other directions by low lying floodplain. No exposed remnant topsoil was seen in this area, though adjacent low lying exposed ground did not contain any visible evidence of Aboriginal occupation.



Figure 29. View north across Survey Unit 2 showing excavated drainage channel.



Figure 30. Remnant swamp at the southern end of Survey Unit 2.



Figure 31. View northwest across PAS8 below spur containing house.

Survey Unit 3

This survey unit comprises the former Cow Creek Aboriginal Reserve and was inspected by MDCA in 2008 as part of a study of adjacent lands (see MDCA 2010) (**Figure 32**). That survey noted that the current structures do not date to the time of the reserve. Visible in the crossing of Cow Creek in the centre of the reserve were brick rubble which may derive from the original reserve houses (fireplaces /chimneys)¹³⁸. A small patch of regrowth woodland in the south western corner of the former Reserve is the supposed location of historical Aboriginal burials though no surface indications were found in or adjacent to this area.

Immediately northeast of this area was an Aboriginal scarred tree, labelled CCAR1. The tree's scar has healed to a point where no underlying wood is visible. Such trees are sometimes referred to as "zipper" trees. The tree is at least 100 years old and may have been used at the time of the

¹³⁸ Victor Buchanan pers comm. 8/10/08.



Reserve occupation. The tree is under no immediate threat from the current land use (**Figure 34**). This has been added to the existing site recording for the reserve.



Figure 32. View southeast over the reserve lands and Cow Creek from northwestern corner.



Figure 33. Small stand of trees in the southwestern corner of the reserve.



Figure 34. Scarred “Zipper” tree (CCAR1) recorded within the former Aboriginal Reserve.

Survey Unit 4

This area consists largely of steeply sloping lands dissected by small creek lines (**Figure 35**). South of Boggy Creek Road there are no flat or low gradient areas with the exception of a spur immediately west of a substation site, though exposures along this spur show an absence of original topsoil, with exposed quartz gravels. Much of the area immediately north of Boggy Creek Road is of a similar nature, with the added disturbance of houses and associated structures along spur lines, and the damming of several creeks in this area as well as localised cultivation (**Figure 36**).

Several areas associated with the main channel of Cow Creek were found to retain archaeological sensitivity of potential. BCPAD1 was defined as an area of PAD above, north and west of the course of Cow Creek and bounded to the north by steeply sloping ground. It is approximately 18,000m² in size with maximum dimensions 350m x 50m (**Figure 37, Figure 46**). Although largely grassed, exposed ground along tracks across the area and in the banks of Cow Creek demonstrate the presence of up to 60-80cm of buff silty clay topsoil above pebbly quartz rich subsoil (as exposed along ridgelines elsewhere in the site) (**Figure 38**). The western portion of the PAD is more impacted from cattle though original topsoil is still present, probably less than along the immediate banks of the creek. At the western end of the PAD an isolated stone artefact was located along a vehicular track. Labelled BCIF1, the artefact is a unifacial pebble chopper of a grey/brown fine grained volcanic (possibly basaltic) raw material (**Figure 39, Figure 46**). It measures 100mm long x 79mm wide x 49mm thick with a 130mm working edge. The longest flake measures 38mm on 49mm.



Figure 35. Steeply sloping ground south of Boggy Creek Road.



Figure 36. View northeast over Survey Unit 4 from southwestern corner.



Figure 37. View east over flat elevated ground comprising BCPAD1 from western end.



Figure 38. Buff silty soil exposed in the bank of Cow Creek above gravel rich subsoil.



Figure 39. BC IF1.



Figure 40. View east over PAS1 from western end.



In addition two areas of potential archaeological sensitivity were defined within Survey Unit 4 (**Figure 46**). PAS1 is a fairly flat elevated area between two minor creeks, measuring 80m x 20-30m (**Figure 40**). North of this area the ground drops down approximately a metre to ground containing vehicle and animal tracks but no stone artefacts were noted in exposed areas.

A second area (PAS2) was defined towards the western end of the survey unit, south and west of a bend in Cow Creek and north of an area of localised earthworks. It represents raised and relatively undisturbed ground above the creek and measures approximately 70m x 30m.

Survey Unit 5

This area contains steeply sloping lands north and south of a bend in Boggy Creek (**Figure 42**). It also contains areas of macadamia cultivation, buildings along spur lines and dammed creeks. The only relatively flat and undisturbed areas remaining within this survey unit are located along the immediate banks of Boggy Creek. The flood history of these areas is not known, and it may be that these areas are regularly inundated and therefore unlikely to have been used by Aboriginal people. However three areas were defined as potential archaeologically sensitive on the grounds that they represent landforms which may have been used by Aboriginal people in the past, and in recognition of the lack of archaeological data to refine sensitivity mapping in this area (see **Figure 46**).

PAS3 is a large flat area south of a bend in Boggy Creek and below a slope containing a macadamia plantation (**Figure 41**). It measures approximately 200m x 150m.

PAS4 is a small area of elevated creek bank about (**Figure 42**) about 70m x 20-40m.

PAS5 is a small area of flattish ground on the northern side of the creek, measuring about 70m x 50m (**Figure 43**).



Figure 41. View northeast over PAS3 below slope containing macadamia plantation.



Figure 42. Steeply sloping ground above Boggy Creek with flat ground (PAS4) along creek.



Figure 43. View east over PAS5 to the tree lined course of Boggy Creek.



Figure 44. Exposed subsoil and gravels within Survey Area 6.



Survey Unit 6

This small area represents elevated ground above Cedar Creek to the east. It has been historically cleared and supports regrowth timber. Exposed ground in this area shows a lack of surviving original topsoil with exposed quartz rich gravelly subsoil (**Figure 44**). A power line also dissects the area.

4.3.4 Survey Characteristics & Archaeological Visibility

An assessment of the nature of ground visibility and archaeological sampling allows for a calculation of “effective survey coverage” as a means of determining the likelihood that remaining visible archaeological evidence or areas of subsurface potential will have been detected by the field survey. This is often presented in tabular form. Although this approach has its merits in some landscapes, it often produces information of seemingly limited value. In particular, many survey reports routinely calculate an effective survey coverage of less than 1% which is common in grassed paddocks with little exposed ground and superficially seems to suggest the ineffectiveness of the surveys described. However other factors are often of far greater importance.

This situation is definitely true for the current survey, in which very limited exposure (far less than 1%) results in a similarly small effective survey coverage figure. In the current instance far greater importance can be attached to the topography and land use history of the subject land in making a reasoned and comprehensive assessment of archaeological potential. In particular, it is clear that much of the subject land is clearly too steeply sloping to have been used by Aboriginal people for any long term or repeat activities in the past. Furthermore, it is unlikely that anything other than spurs and ridgelines were used for transit through the area (which may include incidental tool manufacture or maintenance activities with a potential archaeological signature). Visibility along these ridgelines and spurs was also relatively poor though it is telling that no artefacts were found exposed along the tracks and roads which utilise them. Again this is likely to be related to their narrow nature and in many cases the abrupt termination above steep slope which probably rendered them of limited use for movement through the landscape.

In short, the discussion and assessment below is considered to be based on adequate data from both the survey and contextual information. Whilst very low surface exposure may have obscured individual stone artefacts, it is unlikely in most locations that they would be concentrated or *in situ*. In any case, the purpose of effective survey coverage calculations is not to determine the likelihood that such evidence of limited or no archaeological significance will have been missed, but to assess the probability that all relatively intact concentrations of artefacts or other archaeological evidence have been recorded.

4.3.5 Results of the Site Survey

The recorded Aboriginal heritage features are shown in **Figure 45** and **Figure 46**.



The survey resulted in the identification of:

- One isolated stone artefact **BCIF1**, a unifacial pebble chopper of a grey/brown fine grained volcanic (possibly basaltic) raw material (**Figure 39** and **Figure 46**). It measures 100mm long x 79mm wide x 49mm thick with a 130mm working edge.
- **Cow Creek Aboriginal Reserve** has been previously identified as having very high Aboriginal cultural significance. It is described in detail in MDCA 2010 Section 3.3.3. The site has especial significance to a number of Aboriginal families resident in the region and who are descendents of the Reserve residents. At least one burial (that of Maggie Cowlin) is thought to be located within the Reserve. Archaeological evidence of flaked glass and ceramic has been identified on the proposed Pacific Highway upgrade immediately to the east of the Reserve providing archaeological support for the documentary and oral histories associated with this site. It is possible that further archival research may uncover additional details of the Reserve, the burials and associated activities though as noted above, it was not possible within the current study for this work to be undertaken. However there is sufficient information available to clearly indicate the Reserve area represents a significant development constraint and opportunity for the commemoration of the ongoing importance this area holds for the Aboriginal community and some specific families remaining in the area.

One scarred tree **CCAR 1**, a scarred tree on which the scarring had healed to such an extent a zipper-like mark remains on the trunk, was located with the former Aboriginal Reserve land east of the subject land. The tree is at least 100 years old and may have been of sufficient size during the time the Reserve was occupied to have been scarred by the Aboriginal residents. The scarring may relate to past Aboriginal use (for bark removal or carving). The tree is 7.9m in girth near the base of the scar; the scar measures 400mm x 1.3m; is 1.6m above the ground; the tree is a healthy eucalypt and approximately 30m tall.

The Cow Creek Aboriginal Reserve, its likely archaeological components and the “zipper scar” tree are under no current land use threats. It has been recommended for preservation and long term protection and conservation within the context of the Valla Urban Growth Area (see MDCA 2010

- Two areas of potential archaeological deposit **BCPAD 1** and **BCPAD 2** were located, consisting of relatively undisturbed flat elevated areas close to creeks which appear to retain original topsoil deposits and may therefore contain evidence of past Aboriginal occupation [see Figure 45, 46].

BCPAD 1 was defined along and above the course of Cow Creek. It is approximately 18,000m² in size with maximum dimensions 350m x 50m (**Figure 37**, **Figure 46**). Although largely grassed, exposed ground along tracks across the area and in the banks of Cow Creek demonstrate the presence of up to 60-80cm of buff silty clay topsoil above pebbly



quartz rich subsoil). The western portion of the PAD is more disturbed by cattle trampling though original topsoil is still present. At the western end of the PAD an isolated stone BCIF 1 [see above] artefact was located along a vehicular track.

BCPAD 2 is elevated flat ground 2-3m above a creek line, in which grey silty clay topsoil was observed in small exposures of the ground and in creek banks (**Figure 26** and **45**). It is approximately 35,000m² and measures a maximum of 400m x 140m.

- In addition eight areas of potential archaeological sensitivity **PAS 1 - 8** were also defined on the basis of relatively flat and generally elevated landforms in which no data on the presence/absence and condition of underlying deposits could be obtained from surface inspection. If these contain original topsoil deposits, they are likely to retain Aboriginal archaeological potential. They are defined as varying sizes on the basis of topography and obvious land use disturbances. (see **Figures 45** and **46**)

With the exception of these areas, the remainder of the subject lands which were inspected for the current study appear to be historically disturbed and/or of too steep slope to have been intensively used by Aboriginal people in the past. No other definite evidence of past Aboriginal occupation were noted. Specifically no additional scarred trees, stone artefacts or other physical evidence were located.

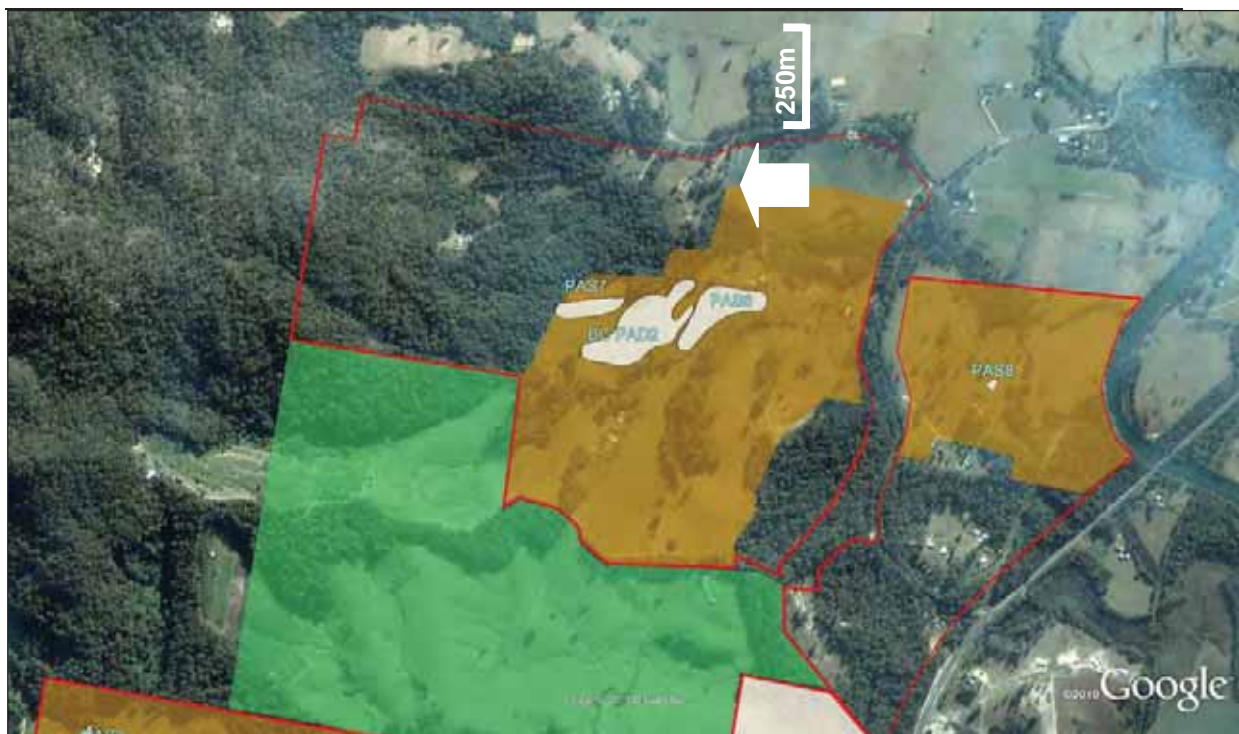


Figure 45. Recorded archaeological features in Survey Units 1 & 2.



Figure 46. Recorded archaeological features in Survey Units 3, 4, 5 & 6.



4.4 Conclusions & Assessment

The current study has involved detailed background research and a comprehensive archaeological survey of the subject land, access permitting. General poor surface visibility and a high degree of historical land clearance makes it not surprising that substantial or intact Aboriginal occupation sites, concentrations of stone artefacts or additional culturally modified trees were not recorded within the subject land during the current study.

The topography of the subject land has been found to be a likely cause of the low intensity and physically constrained nature of Aboriginal use of the area in the past. For example: The steep slopes and narrow ridges and spur lines would have directed travellers along obvious and relatively easier but narrow pathways between the coast and the hinterland and the sites of significance known to have been located there.

There are only a few areas flat and large enough to have accommodated substantial Aboriginal campsites or ceremonial grounds and these are limited to areas to the east and north east of the of the study area, particularly the western flats of Deep Creek. Furthermore, some of these areas, inclusive of the narrow spurs and ridgelines and the lower creek flats have been historically impacted by house and road construction precisely because they are broad enough for settlement and access road construction. The lower creek flats are extensively and repeatedly drained to enable stock grazing.

Aboriginal movement between Mount England and the coast would have been funnelled along ridges and spurs and these areas are unlikely to have been used for anything other than movement through the landscape.

It is highly likely the Aboriginal people in the past would also have made use of the water resources across the area including deeper water holes and Deep Creek. These water courses may also have provided stone resources [water worn pebbles] suitable for tool manufacture. Extraction or coarse reduction of cores at location containing such pebbles or cobbles has not resulted in stone reduction deposits, possibly due to high action floods. It has been noted [MDCA 2010] that quartz while available along the creek side deposits are very small pebbles and no flaked surfaces edges were observed.

The clearance of almost all original timber from the properties makes it unlikely that culturally modified trees have survived, and all mature trees were examined for traces of this. It is also noted that historically recorded marked trees surrounding a ceremonial ground in the vicinity are known to have been destroyed by fire almost a century ago, highlighting their additional vulnerability to natural forces.

The current findings in terms of site location distribution and density are largely consistent with the results of the previous MDCA [2010] survey.

The conclusion of this study therefore is that only selected areas of the subject land were likely to have been used intensively by Aboriginal people in the past either for transit or camping and that archaeological traces of these activities is likely to be restricted to just two main locations within the subject land and possibly another eight areas of sensitivity. Other areas may contain the dispersed



and disturbed remains of sites of tool maintenance or isolated stone artefacts though these are largely undetectable in archaeological sampling terms and in any case would have limited if any archaeological research potential.

There has been a number of documented Aboriginal cultural and historical associations with the general area which have been considered by the previous [MDCA 2010] and the current study. This includes a ceremonial yam increase site at Mount England, a documented tribal fight, ceremonial ground (possibly associated with the yam increase site), and a range of historical activities associated with the residents of the Cow Creek Aboriginal Reserve, including several burials.

It is quite possible that the Reserve was sited at that location due to the agitation of the residents themselves for practical (flat land near permanent fresh water) or cultural reasons (proximity to ceremonial sites). Most of the activities associated with the reserve are likely to have taken place within the boundaries of the reserve, though it is recorded that the residents also interacted with the Smith family at their residence so portions of the subject land would have been regularly traversed by at least some Reserve residents [MDCA 2010].

There are also two historically referenced “sites” potentially within the subject land, being the site of a tribal fight in historic times and the location of a “corroboree ground” (ceremonial site). The specific locations of both of these are unclear and do not appear to be known currently to local Aboriginal or non-Aboriginal people, nor do they appear to have been known to (or disclosed by) senior Gumbainggirr man Harry Buchanan, who provided information about other culturally and spiritually significant sites in the area around and including Mount England.

The following is summarised from MDCA 2010:

- The tribal fight may have taken place within a prescribed fighting ground as was historically documented in other areas, or may have been a more opportunistic location as needs arise event at any one of a number of locations. They are unlikely to be extensive archaeological remains (e.g. spear points) associated with such activities. If the fight took place at a prescribed location this was likely to have been a relatively flat area which, as has been ascertained, is restricted generally to only a few areas within the study area. The recommended archaeological investigation of these areas may provide evidence of this historical activity though this appears unlikely.
- A ceremonial ground of the size and nature historically described (i.e. an acre encircled by trees) is likely to be restricted to one of the two of the Areas of Archaeological Sensitivity defined in the Dallas 2010 study and a number of the areas identified by the current study if indeed it was ever located within the boundaries of the subject land. It is also unlikely that any archaeological trace of this ground would have survived, as the surrounding marked trees are known to have been destroyed in a fire almost a century ago.
- In the absence of specific locations within the subject land, the most appropriate way to conserve the values of these places is through interpretation, which would also include the history of the reserve itself.



- Physical protective measures may be appropriate in the case of the documented presence of historical Aboriginal burials within the former Cow Creek Aboriginal Reserve. Ground Penetrating Radar has been recommended by previous consultants to detect such sites. While this is a non-invasive tool it would have little application in the current circumstances and is not recommended as an expensive and largely indecisive method in the absence of ground-truthing test excavation [see below]. Although it is unclear whether other burials may be located at other points around the reserve, it seems unlikely that burials would be present outside of the formal reserve area, as these areas would have been beyond the control of Reserve residents. Given that burials¹³⁹ may be present in close proximity to the shared boundary with the subject land a buffer zone to protect against inadvertent impacts has been recommended.
- Similarly the scarred tree CCR 1 should be managed for preservation. In spite of its age it presents no threat of falling or branch dropping. It is likely to have been scarred during the time the Cow Creek Reserve was occupied. Trees such as this would have been used to provide the bark for the burial structures as noted by the observers (inclusive of the Smiths and Lampert Waddy) of the Maggie Cowlin burial rights.

Three main **Aboriginal heritage management strategies** are recommended for the subject land:

1. Archaeological Test Excavation

There is currently very limited archaeological understanding of how such hinterland areas functioned for Aboriginal people in the past. Therefore it is recommended that preservation and/or test excavation be undertaken in the two areas of defined Aboriginal archaeological potential **BCPAD 1** and **BCPAD 2** to determine whether archaeological remains are present and if so, their extent and significance. These excavations should also take into account results of recent archaeological testing along Pacific Highway in and adjacent to the Cow Creek Aboriginal Reserve as they become available.

Archaeological test excavation would be required to be undertaken prior to development impacts and in full consultation with the Aboriginal community. Given that it is not yet clear whether any Aboriginal archaeological remains are present in these areas, it would be considered prudent to undertake these investigations as early as practicable in the planning process such that any potential heritage constraints can be identified and appropriate management strategies devised for any identified items.

Early initiation of these investigations is also considered prudent as the process (as described below) of permit application can take some time. It is further noted that the DECCW currently [as at October 2010] has instituted a raft of new policy and guidelines for archaeological investigations and Aboriginal community consultation for proponents requiring approvals under s90 of the NPW



Act. For example consents of permits require a public notification process to be undertaken in relation to investigations under NPW Act s90 to identify Aboriginal stakeholders who may wish to comment on the application. This notification process has already been undertaken for the current project under the then prevailing 2005 guidelines. However it is possible that, if more than 12-24 months elapses from the completion of the current report to the commencement of application for the excavations, that the DECCW may require the notification process to be recommenced.

The excavations would need to be undertaken by a suitably qualified archaeologist in conjunction with the Aboriginal people and organisations identified during the current study. Application would be made under s90 of the NPW Act for an Aboriginal Heritage Impact Permit to cover the proposed excavations or they may be undertaken under a highly prescriptive/fixed Code of Practice which makes little archaeological sense and is unlikely to be the most efficient or intelligent methodology in the current circumstances.

Test excavation under s90 of the NPW Act 1974 would involve preparation of an excavation methodology, which the identified Aboriginal stakeholders would have an opportunity to review prior to submission to the DECCW. The DECCW have a guarantee of service of 8 weeks to process permits though this has rarely been met in recent years. In all at least 3 months should be allowed from commissioning of the excavations to receipt of a permit.

The investigation of the two areas, given the lack of identified archaeological material, would most appropriately be undertaken by sampled mechanical (grader scrape) and manual trenches across the two areas. Fieldwork and reporting would be likely to take an additional 1 – 3 months depending on Aboriginal community availability and the amount of archaeological material (stone artefacts) retrieved requiring specialist analysis.

Based on the results of the excavations some or all of the areas may be recommended for preservation or impact with or without further excavation (salvage) under a NPW Act s90 Aboriginal Heritage Impact Permit (with a similar associated application time frame). At which time any required alteration to the Masterplan could be made. In areas in which no archaeological remains are found, no Aboriginal heritage constraint to future development would remain.

2. Determination of areas of PAS

Unlike the areas of potential of archaeological deposit which are known to contain potential artefact bearing deposit the areas of PAS have unknown subsurface deposits. The character and depth of subsurface deposits are obscured by vegetation or grass cover. They are in likely site locations and therefore are considered to have archaeological sensitivity. The most efficient way to sample these areas is through monitoring of geotechnical investigations which will show the subsurface profile and therefore the archaeological potential. Where subsurface potentially artefact bearing deposits are identified by the geotechnical investigations further investigation by archaeological techniques would be required according to the methods described above.



3. Interpretation of Aboriginal Associations: This should be undertaken prior to commencement of construction and ideally should inform planning on the site. It would consist of an Interpretation Plan developed in conjunction with the local Aboriginal community. It would include appropriate means of interpreting the pre and post-European contact Aboriginal associations with the place (many of which have been documented in the current report). It could include recommended wording and potential locations for interpretive signage, and the possible use of appropriate Aboriginal names for street or locality names. It should also be developed in conjunction with non-Aboriginal interpretation as recommended in the current report, especially given the shared historical associations of the Smith family and the Aboriginal reserve residents in particular.

It may be appropriate to undertake additional research into Aboriginal family histories and augmentation of oral histories for the area including additional into the Cow Creek Reserve. This could inform the interpretation plan as could the results of recent archaeological test excavations within the Aboriginal Reserve area and those recommended by this report and the previous MDCA 2010.

4. Cow Creek Reserve Burial Protection Buffer Zone: As noted above and in the MDCA 2010 report, it is unlikely that any human remains relating to historical Aboriginal burials will be located outside of the formal boundaries of the former Cow Creek Aboriginal Reserve. However the possibility for slight discrepancies between the current and former boundaries, the likely presence of at least one burial in the south western corner of the former reserve, and the potential for adjacent development to directly and indirectly impact this area it is recommended that a prudent management strategy would be to establish a buffer zone around the former reserve, particularly in its southwest corner. It is suggested that a 20m buffer may be appropriate. This should be adequate to ensure direct and indirect as well as inadvertent impacts from construction associated with any future development within the subject land are not sustained to any human remains.

It is noted that there has been some suggestion that Ground Penetrating Radar could be used in relation to these burials in the context of the current RTA Pacific Highway upgrade¹⁴⁰. However it is noted that while this, and other geophysical techniques can be useful in a formal cemetery with known regular excavated graves, it cannot be reliably used in an “open” landscape without ground-truthing (i.e. some form of excavation) to determine the nature of any anomalies. This is particularly true in the current case as it is not known whether any of the burials were within formal excavated grave pits which may be detectable by such means. Without some form of archaeological excavation (and the associated risk that this may in fact disturb human remains) the location of the historical grave or graves could not be pinpointed. A buffer zone is a less invasive and more prudent approach given that no impact to this area is currently proposed.

It is also recommended that the Reserve area be managed for preservation and interpretation within a landscape context.

¹⁴⁰ Victor Buchanan pers. comm. 8/10/08.



With the exception of these four management recommendations, there are no other identified Aboriginal archaeological issues in relation to potential future development within the subject land and there is no requirement at this stage for any additional archaeological works other than the recommended test excavation of BCPAD 1 and BCPAD 2 if impacts are proposed in either or both of these areas.



5.0

European Heritage



5.1 Introduction

This section of the report provides a preliminary assessment of European (Non-indigenous) heritage within the Valla UGA.

5.1.1 Aims

The main aims of this section - as determined by consultation with Council after consideration of the original brief - are as follows:

Identify historic places, items or cultural landscapes within the UGA

Assess the cultural heritage significance of any significant places, items or cultural landscapes identified

Formulate historic heritage management recommendations to inform the development planning process.

5.1.2 Process

In order to meet the above objectives a process of review and investigation was undertaken. This involved:

- Initial consultation & review of existing documentation (including relevant studies such as the Valla Urban Release Area Heritage Report prepared by MDCA finalised in 2010)



-
- Historical research (focusing on areas beyond those considered in the MDCA 2010 study) at repositories such as Nambucca Library, NSW Records & the State Library of New South Wales.
 - Review of relevant heritage registers, lists & schedules
 - Brief inspection of the study area

5.1.3 Product

The results of the above assessment process are detailed in this integrated report section which is presented as follows:

- Historical development overview of study area
- Identification and summary description of main historic items/sites/cultural landscapes
- Significance assessment
- Identification of legislative issues/requirements & development implications
- Heritage

The following section details observations about the study area based on a review of historical data and the results of a limited site inspection in January 2011. The latter focused on a general overview of the study area with a view to determining what may require future investigation as the UGA planning process unfolds. While it was by no means a detailed or exhaustive survey, the site inspection drew on field work previously undertaken at the Welsh - Ussher properties in 2008 (MDCA 2010 - refer below).

For practical purposes, the study area was divided up into two areas:

Area A - northern part of the study area

Area B - southern part of the study area

The recently investigated Welsh and Ussher properties are not discussed below but are described in detail in recent reporting MDCA 2010.

The former Cow Creek Aboriginal Reserve is also described and considered in that report, and in **Section 4** of the current report.

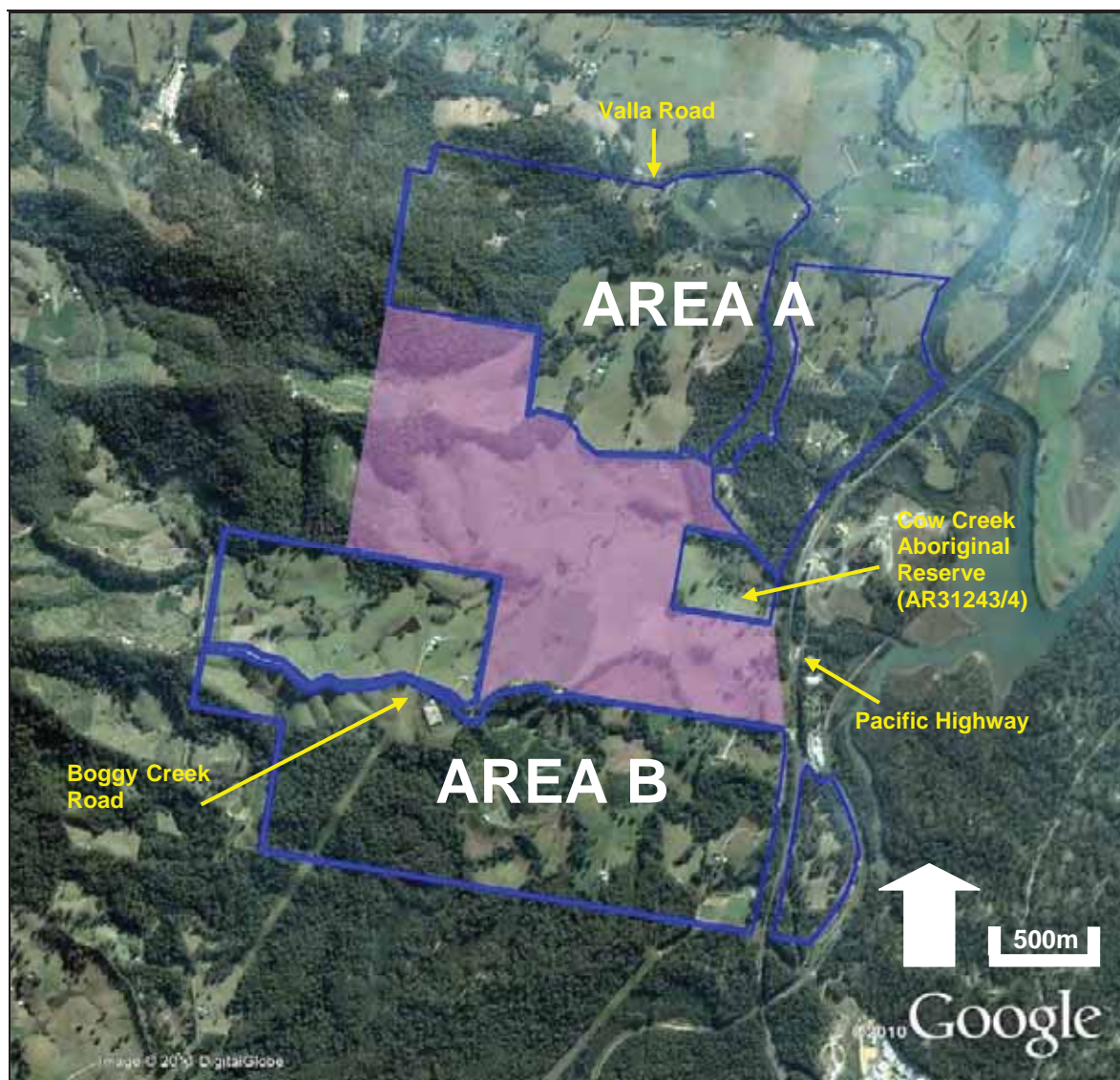


Figure 47. The current study area (blue outline) and shaded areas previously investigated by MDCA (2010).

5.1.4 Area A

Area A is sited immediately south of the Valla - Viewmont Road and west of the Pacific Highway. The land is undulating and in the east spans Valla Loop Road (formerly the main highway) and in the west encroaches on the wooded foothills of Mount England.

The land falls towards two minor (un-named) creek systems that run west-east, drain Mount England and run broadly towards the northern arm of Deep Creek. The landscape while picturesque is generally cleared of vegetation with the exception of some road and creek margins;



the Mount England foothills; bushland west of the southern end of Valla Loop Road (where it meets the highway) and around the Cow Creek Road junction. There is a notable stand of paperbarks is swampy creekside land on both sides of Valla Loop Road near Forest Oak Chase.

Some parts of the study area, most notably the extreme north, are under plantation while the remainder appears to be utilised periodically for cropping and universally for grazing. A 66kV overhead power line runs across Area A (and areas to the south) in a SSW-NNE direction.

5.1.5 Area B

Area B is set below the Welsh - Ussher properties previously investigated (MDCA 2010) and Boggy Creek Road. As with Area A, the land is undulating with Boggy Creek Road approximately following an east-west ridge line with fall to Cow Creek (to the north) and Boggy Creek (to the south). Both of these creeks drain into Cedar Creek (the south arm of Deep Creek proper).

The landscape is generally cleared of vegetation with the exception of some road and creek margins and in the south of the study area towards Gordons Knob and the Nambucca State Forest.

Several parts of Study Area B, particularly around the centre, are under plantation while the remainder appears to be utilised for cropping and grazing.

A small section of the study area exists in isolation on the east side of the Pacific Highway at the extreme southeastern corner. It is elongated and bordered by the Pacific Highway (to the west) and the easement of the North Coast Rail Line (to the east). This land predominantly cleared with some fringing and occasional stands of trees. It has a shed or dwelling on the central eastern margin.

5.2 Observations

A review of historic documentation and maps suggests the following:

- The earliest landholdings (such as those of the pioneering Buchanan family) were to the north and northwest of Area A (fronting Deep Creek).
- Community service buildings such as the Valla Hall and former school are well beyond the study area set along the main road to Viewmont.
- Several sites of demolished structures (and therefore potentially significant archaeological sites) such as Beers Mill and the Wine Shanty are well beyond the current study area.
- The site of Valla's previously mentioned first store was on William Constable's Portion 21 in the Parish Of Valley Valley. It has been described as on the old main road near Cow Creek and south of the Cow Creek Road turnoff. While this location borders the study area, historic map and air photo overlays suggest that the store's most probable location was destroyed by the realignment of the Pacific Highway in the c.1980s.



It is also noted - on the basis of limited site inspection:

- Most of the structures and dwellings in the area are relatively modern and have low historical value - with homes around Bale Close for instance built in the very recent past.
- Structures and features beyond the main dwellings include miscellaneous outbuildings and machinery sheds; post & wire fences and gates; unsealed access tracks and dams; plantings and gardens; occasional culverts and drainage ditches. Again most are modern or have been renewed and little appear to have any particular historical significance or historical archaeological potential.
- While the study area has little in the way of significant tangible heritage the landscape itself bears witness to a continuity of agricultural and pastoral use that started with clearing and cropping in the late 19th century and now manifests with grazing, plantations, mixed farming and modern rural homesteads.



Figure 48. Land at Bale Close

Dan Tuck 2011



Figure 49. Cow Creek Road

Dan Tuck 2011



Figure 50. Old trucks on Valla Road

Image presented in Dunne 2001: 15



Figure 51. Valla Road property with plantation and view to Mount England

Dan Tuck 2011



Figure 52. Valla Road property

Dan Tuck 2011



Figure 53. Land near Forest Oak Chase

Dan Tuck 2011

5.3 Significance

This following sections address the heritage significance of the study area. The first outlines the principles and criteria under which a significance appraisal is made; the second provides an assessment under the established criteria and presents a summary statement of significance.

5.3.1 Principles & Evaluation Criteria

“Heritage significance” and “cultural significance” are terms used to describe an item’s value or importance to our society. The Australian ICOMOS Burra Charter defines cultural significance as,

Aesthetic, historic, scientific or social value for past, present or future generations

This value may be contained in the fabric of the item, its setting and relationship to other items, the response that the item stimulates in those who value it now, or the meaning of that item to contemporary society.

Accurate assessment of the cultural significance of sites, places and items, is an essential component of the NSW heritage assessment and planning process. A clear determination of a site's significance allows informed planning decisions to be made, in addition to ensuring that heritage values are maintained, enhanced, or at least minimally affected by development.

Assessments of significance are made by applying standard evaluation criteria. These criteria can be used to assess both Aboriginal and European items and landscapes. These criteria are as follows:



-
- (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)**
 - (b) An item has strong or special associations 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)**
 - (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)**
 - (d) An item has strong or special associations with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons**
 - (e) An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)**
 - (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)**
 - (g) An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural and natural environments.**

The above criteria were established under Part 3A of the NSW Heritage Act 1977 (as amended in 1998) for the listing of items of environmental heritage (defined as 'buildings, works, relics, moveable objects and precincts') which are of state heritage significance. These criteria are commonly used to assess all items of heritage significance whether state or local.

5.3.2 Assessment

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

The study area reflects changes to the landscape resultant of Mid North Coast settlement practices in the early 20th century – namely clearing, cropping and grazing. The study area is not remarkable in this respect as such landscapes are replicated along much of the NSW's East Coast and are represented in a number of protected reserve areas (e.g. Yuraygir National Park).

The study area is not considered significant under this criterion.

- (b) An item has strong or special associations 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)**

The study area includes a number of properties that have association with a number of longtime district families including (but not limited to) the Welshes, Usshers, Cowins, Eichmanns, Constables and Piggotts.



All were farmer-settler families who contributed to the evolution of the place as a small rural community and place of mixed enterprise.

The study area has moderate significance under this 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)

The study area has no significance under this criterion.

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

There is ongoing Aboriginal community connection and attachment to the former Aboriginal reserve lands and to the Cow Creek area generally (which is known to have featured a ceremonial ground and is adjacent to Mount England - a yam increase site). More broadly the site is part of a highly significant Aboriginal cultural landscape that includes the coastline, hinterland and mountains including the distant Bolla Nollas - a dreamtime home of the bunyip. This landscape provides a continuous connection between the contemporary Aboriginal community and their past.

The study area is considered significant under this criterion.

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

With the exception of the former Aboriginal Reserve lands, the study area has little potential to provide information that will significantly contribute to our greater understanding of the European cultural history and development of the study area. Significant relics or areas of historical archaeological potential have not been identified within the study area and the properties features no extant landscapes, structures or other items of cultural heritage significance that would benefit from historical archaeological investigation.

Most of the residences have little investigative potential as they are either relatively new or have been extensively renovated. Other structures (such as the bales and a number of sheds on the Ussher property) have rustic appeal, but again, limited archaeological significance and potential.

The study area is not considered significant under this 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)

The study area with its landscape modified by clearing, discrete settlement, cropping and grazing is not uncommon in the Mid North Coast region – numerous examples of similar landscapes exist within the local and regional coastal hinterland.

The study area is not considered significant under this criterion.



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

The study area comprises near-coastal farms on the NSW Mid North Coast. Collectively the properties represent site types that are both well represented in the region and demonstrated and protected within a number of state parks including the aforementioned Yuraygir National Park.

The study area is not considered significant under this criterion.

5.3.3 Summary Statement of Significance

The study area comprises a selection of the numerous Mid North Coast properties that feature a landscape modified by similar past use – namely land clearing, discrete rural settlement, cropping and grazing. While this landscape and the built items within it reflect the history of use of the place, similar properties are locally and regionally common, and well represented elsewhere.

While the study area is associated with a number of well known local families and the landscape is a place of attachment for the local Aboriginal community, the common nature of the study area and of the built items within it ensures that the study area has relatively low overall European cultural heritage significance and sensitivity.

It should be noted however that while near-coastal Mid Coast farmsteads and grazing land is relatively common at present will become under threat in the medium term as population pressure and development preference for coastal locales ensures that areas to the north and south of Coffs Harbour are targeted for urban expansion. The preservation of premier heritage places, cultural landscapes and prime agricultural land needs therefore to be continually considered in all development planning in the region.

5.4 Legislative Issues

The following section outlines relevant heritage legislation and provides a review of statutory and non-statutory heritage databases for the study area.

5.4.1 Legislation

The NSW Heritage Act 1977 is the principle document governing the management of heritage items (relics and places containing relics) in NSW.

The Act defines a relic 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, &



(b) is of State or local heritage significance.

All relics are afforded automatic statutory protection by the relic's provisions of the Act. Sections 139 to 145 of the Act prevent the excavation or disturbance of land for the purpose of discovering, exposing or moving a relic, except by a qualified archaeologist to whom an excavation permit, issued by the Heritage Council of NSW or delegated authorities, has been issued.

5.4.2 Heritage Listings

A number of relevant statutory and non-statutory heritage registers and databases were reviewed to determine if items of historical significance were listed within the subject land. These included:

State Heritage Register & Inventory

The State Heritage Register (SHR) is a list of heritage items that have been assessed and acknowledged as having state heritage significance. The NSW Department of Planning's Heritage Branch (formerly the NSW Heritage Office) maintains the register, and any development proposal that is likely to impact on items on the register generally requires NSW Heritage Council approval (s.60).

The State Heritage Inventory (SHI) lists items of both state and local heritage significance. Generally the listing of items on the SHI results from their inclusion in local and regional planning instruments or heritage studies. Any development proposal that is likely to impact on items on the inventory may require NSW Heritage Council approval (s.140).

Neither the study area nor any items within it are listed on the NSW Heritage Council's SHI or SHR

Australian Heritage Database

The Australian Heritage Database is a heritage database managed by the Commonwealth Department of Environment, Water, Heritage & the Arts. The database contains information about more than 20 000 natural, historic and Indigenous places and includes locations and items listed (or formerly listed) on the World Heritage List; the National Heritage List; the Commonwealth Heritage list; and the Register of the National Estate.

Neither the study area nor any items within it are listed within the Australian heritage database.

Australian Heritage Places Inventory

The Australian Heritage Places Inventory is a cooperative project between Commonwealth, State and Territory Governments and contains summary information about places listed in State, Territory and Commonwealth Heritage Registers.

Neither the study area nor any items within it are listed within the Australian Heritage Places Inventory.



North Coast REP 1988 (reprinted 2001)

The North Coast Regional Environmental Plan (REP) 1988 is the main environmental planning instrument for the North Coast region. A Heritage Schedule was added to the REP in 1993 with heritage clauses amended as Gazette No 174 of 23 December 1994. Heritage items of state and regional environmental significance are presented at schedule 2.

Neither the study area nor any items within it are listed within the heritage schedule of the North Coast REP.

Nambucca Shire Council LEP 2010

The Nambucca Shire Council Local Environmental Plan (LEP) is the primary local government planning instrument. One of the objectives of the plan with respect to cultural heritage is:

to protect places and buildings of archaeological or heritage significance, including Aboriginal relics and places (Part 1; Clause 1.2 - f)

The LEP addresses heritage issues within the LGA at Part 5 – Heritage Conservation, which seeks:

- (a) to conserve the environmental heritage of Nambucca
- (b) to conserve the heritage significance of heritage items and heritage conservation areas including associated fabric, settings and views
- (c) to conserve archaeological sites
- (d) to conserve places of Aboriginal heritage significance.

Furthermore, Schedule 5 of this document lists specific Environmental Heritage Items (Part 1) and Conservation Areas (Part 2).

Neither the study area nor any items within it are listed within the heritage schedule of the Nambucca LEP. The majority of the LEP listed heritage items are at Argents Hill, Bowraville, Macksville and Nambucca.

5.4.3 Summary

Neither the study area nor any items within it are listed heritage items.

5.5 Conclusions

5.5.1 History

The study area has been extensively cleared and predominantly utilised for cropping and grazing from the late 19th century.



Structures built within the area include common and fairly typical farmhouses and allied infrastructure such as tracks, dams, sheds, and paddocks delineated with fencelines. Most are new or have been extensively remodeled.

Families associated with the study area include Aboriginal families such as the Buchanans and Cowins and settlers such as the Smiths [whose early history on the land is well documented in local history compilations – namely Valla Memories (Gadsby 1997) and Early Valla Days (1998)].

5.5.2 Heritage

- Evidence of past use comprises the modified landscape itself and the suite of common farm buildings and allied infrastructure – which are replicated at other locations in nearby areas and throughout the region
- No items listed within statutory or non-statutory heritage lists, databases or schedules exist within the study area
- No items of European cultural heritage significance and no areas of historical archaeological potential were identified within the study area during the site inspection.

5.5.3 Significance

The study area has been assessed as having relatively high Aboriginal cultural significance (especially Cow Creek and the reserve lands), but low overall European cultural heritage significance and low historical archaeological potential and sensitivity.



6.0

Recommendations

6.1 Aboriginal Heritage Recommendations

The following recommendations are based upon:

- the legal requirements and automatic statutory protection provided to items of Aboriginal heritage under the terms of the *National Parks and Wildlife Act of 1974 (as amended)*, where it is an offence to knowingly or unknowingly harm an Aboriginal object;
- the results of the current study which are documented in this report; and
- the views and concerns expressed by the Aboriginal community representatives during the current project and any reports as may be forthcoming. (**Appendix 1**).

It is recommended that:

1. The two identified areas of Aboriginal potential archaeological deposit **BCPAD 1** and **BCPAD2** as depicted in **Figure 22** and described above require archaeological investigation prior to any proposed development impacts to determine the presence/absence, extent and significance of any Aboriginal archaeological remains within these areas as a means of determining appropriate management recommendations for these areas. These areas are defined as containing low to medium archaeological potential and only **BCPAD 2** has an identified Aboriginal object or artefact in the general vicinity. Such investigations would need to be undertaken by a suitably qualified archaeologist in association with appropriate local Aboriginal stakeholders under an approved NPW Act s.90 Aboriginal Heritage Impact Permit or under the recently developed DECCW Code of Practice for archaeological investigations. Investigations under the DECCW Code of Practice do not require approvals under the NPW Act. Investigations under a s90 Approval or an Aboriginal Heritage Impact Permit may lead to alterations of the Master Plan permissible under s96 of the EP&A Act 1979 of the detailed design of the proposed development, but cannot be under prior to a valid development consent.

2. Further assessment of the **PAS 1-8** areas within the subject lands should be undertaken prior to any development. This assessment could initially be based on a review and monitor of geotechnical investigations as may be applied across the subject land in the vicinity of the **PAS 1-8**. Where these independent excavations identify potential archaeological deposits these would require investigation under DECCW policies and guidelines.

3. A buffer zone around the former **Cow Creek Aboriginal Reserve** should be established in recognition of the potential for historical Aboriginal burials to be present immediately adjacent to the subject land in this area. A 20m buffer around the perimeter of the Lot [each side excluding the Pacific Highway side] is recommended. This is considered adequate to ensure that any human remains are not inadvertently disturbed during construction or future use of the current study area.



It is further recommended that the Reserve is preserved in a landscape context and if specific impacts are proposed a detailed investigation and significance assessment should be undertaken.

4. Prior to construction onsite, an **Interpretation Plan** should be prepared which includes both Aboriginal and European heritage. The Interpretation Plan should include appropriate onsite signage developed in consultation with the Aboriginal Stakeholders and could incorporate results of recent archaeological testing within the Aboriginal Reserve area [by the RTA] and any conducted within **BCPAD 1** and **2** as recommended. The Interpretation Plan should also specify street names in commemoration of the Aboriginal and European histories of the local area. The Interpretation Plan could also include further archival research of the records associated with the Cow Creek Aboriginal Reserve as discussed in this report, if appropriate and supported by the Buchanan family.

5. Portions of the current area were not available for survey or surface inspection. These areas will require survey, the survey and the further recommended investigations above could undertaken at the DCP stage.

6. A copy of this report should be forwarded to the CEO of the Nambucca LALC and the following community representatives at the contact addresses below.

Ms Louise Robinson
CEO
Nambucca Local Aboriginal Land Council
PO Box 358
Nambucca Heads NSW 2448

Mr Victor Buchanan
c/o Northern Aboriginal Heritage Unit
Department of Environment, Climate Change & Water
PO Box 914
Coffs Harbour NSW 2450

Mr Gary Williams
c/o Muurrbay Aboriginal Language and Culture Co-operative
14 Bellwood Road
Nambucca Heads NSW 2448

7. Two copies of this report should be forwarded to:

Northern Region Archaeologist,
Northern Aboriginal Heritage Unit



Department of Environment, Climate Change & Water

PO Box 914

Coffs Harbour NSW 2450

8. One copy of this report should be forwarded to:

The Manager

Aboriginal Heritage Information Management System

Department of Environment, Climate Change & Water

P.O. Box 1967

Hurstville NSW 2770

6.2 European Heritage Recommendations

The following recommendations acknowledge current heritage planning guidelines (such as those issued by NSW Heritage Council) and the Burra Charter. They have been formulated to allow practical heritage management that remembers past use of the place and promotes remembrance of its history into the future.

There appears to be no major impediments to the proposed UGA development in terms of European cultural heritage – that said it is recommended :

1. Prior to any development works the study area should be subject to a brief photo essay-style photographic archival recording that acknowledges NSW Heritage Council standards.

The recording should take in the property dwellings and their respective settings as well as a range of vistas across the UGA. The purpose of this is to document the study area 'as is' and provide a visual historic record of living and working areas and landscapes prior to transformation by redevelopment.

Archival Recording

Photographic archival recording is a straightforward and relatively rapid process whereby a suitably qualified or experienced contractor would photograph the site and create an archive of the images produced. The recording would be undertaken according to NSW Department of Planning Heritage Branch standards and guidelines as set out in the document Photographic Recording of Heritage Items using Film or Digital Capture (2006).

2. The study area includes (or abuts) places that have been the property, and/or home and workplace of a number of well known district families including the Smiths, Eichmanns, Cowins, Welshes and Usshers.

This being the case, consideration should be given to using the names of families historically associated with the subject land in the naming of future subdivision amenities and utilities such as



access roads and parks. This provides a linkage between use of the place in the past and its use in the future and acknowledges past landholders.

3. Consideration should also be given to the interpretation of the history of the place in the context of any new development.

Acknowledging the past through the use of signage and other media such as plaques and interpretive kiosks is a way of linking the potential new residents of the urban growth area with those who went before them.

4. Further investigation needs to be undertaken in an effort to greater understand the history and heritage of the former Cow Creek Creek Aboriginal Reserve site.

Archival research undertaken in association with the Aboriginal community - especially those who are descendant of former reserve residents - has the potential to greatly improve our knowledge of the place, its arrangement and use, its people and its pre and post-contact significance.



7.0

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APPENDIX 1 : Aboriginal Community Correspondence [on receipt]

Appendix H




Bushfire Risk Assessment

BUSHFIRE LAND USE ASSESSMENT REPORT

VALLA URBAN GROWTH AREA

**CLIENT:
NAMBUCCA SHIRE COUNCIL**

**Original Report: April 2011
Amendment: August 2011**

Version	Date	Information Relating to Report			
R1.0	26.03.11	Reason for issue	Final Draft		
R2.0	28.03.11		Report issued to Nambucca Shire Council		
R3.0	7.04.11	Report amended to reflect comments by officers of Nambucca Shire Council			
R4.0	25.7.11	Report amended			
		Prepared by	Verified by	Approved by	
		Name	David Pensini	Tim Mecham	David Pensini
		Signature			

This report has been prepared by Midcoast Building and Environmental with all reasonable skill, care and diligence for Nambucca Shire Council.

The information contained in this report has been gathered from inspection, experience and information provided by or on behalf of Nambucca Shire Council.

No inspection or assessment has been undertaken on parts of the subject development outside the scope of this report.

This report does not imply, nor should it be implied, that the subject development will comply with relevant legislation. The report shall not be construed as relieving any other party of their responsibilities or obligations.

Midcoast Building and Environmental disclaims any responsibility for any matters outside the scope of this report.

The report is confidential and the writer accepts no responsibility of whatsoever nature, to third parties who use this report, or part thereof is made known. Any such party relies on this report at their own risk.

For and on behalf of Midcoast Building and Environmental.

Prepared by: David Pensini

Signed:



Dated: 3rd August 2011

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1.0 INTRODUCTION

1.1 Background

The Nambucca Shire Council is currently investigating the land use issues and constraints which are applicable to the future rezoning of land, which is known as the Valla Urban Growth Area, which is located to the northwest of the township of Nambucca Heads.

The purpose of the rezoning would be to provide for urban expansion opportunities in close proximity to the existing urbanized areas of Nambucca Heads.

It is noted that the Valla Urban Growth Area is identified in the Mid North Coast Regional Strategy as an agreed growth area.

This report has been requested by Nambucca Shire Council to identify the bushfire hazard management planning principles and requirements, which will be applicable to the future urban development of the land which is known as the Valla Urban Growth Area.

This report forms part of an overall planning process which will determine the suitability of the subject site for urban development and identify the development principles and planning controls, which will be applicable to the future development of the land.

1.2 Report Objective

The objective of this report is to determine the appropriate mechanisms to ensure future development in the Valla Urban Growth Area minimizes the threats to life and property from bushfire.

1.3 Legislative Context

Nambucca Shire Council resolved on 5th February 2009 to prepare a draft Local Environmental Plan (LEP) pursuant to the relevant requirements of the Environmental Planning and Assessment Act, 1979, for all of the Valla Urban Growth Area. The draft LEP is referenced as draft Nambucca LEP 1995 Amendment No 67.

In responding to Nambucca Shire Councils request to rezone the land, the Department of Planning (DoP) has advised that amongst other things it was necessary for Council to examine the threat of bushfire in relation to proposed land uses within the subject site.

As this report identifies the bushfire hazard management planning principles and requirements which will be applicable to the future urban development of the subject land, (Valla Urban Growth Area), it is based upon consideration of the relevant provisions of the following documents:

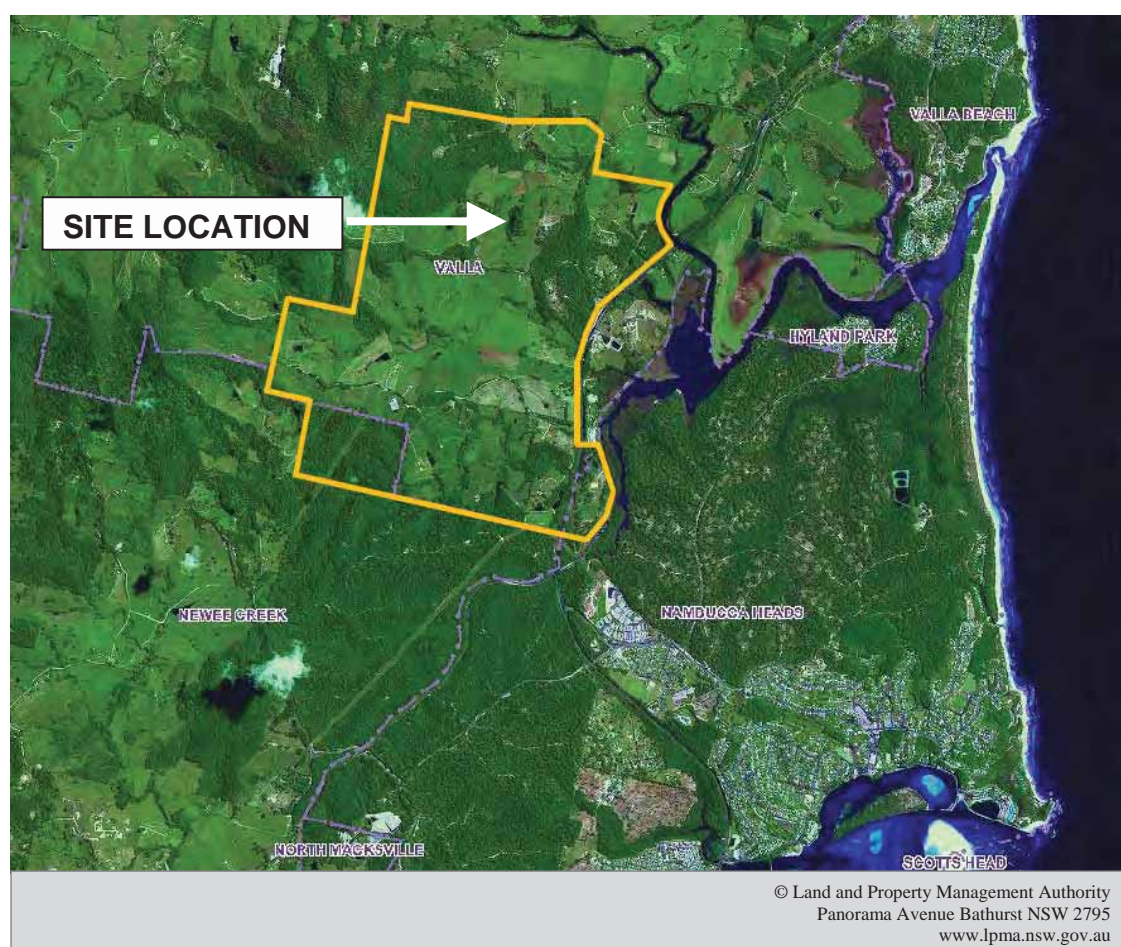
- Rural Fires Act 1997.
- Environmental Planning and Assessment Act 1979.
- Building Code of Australia.
- Council Local Environment Plans and Development Control Plans where applicable.
- NSW Rural Fire Services, Planning for Bushfire Protection, 2006.
- AS 3959-2009 Construction of Buildings in Bushfire Prone Areas.

(NB: In February 2011, AS3959 was amended to include grassland hazard. This amendment was not adopted into NSW until May 2011 however where applicable this report has attempted to reference the changes.)

1.4 Description of Valla Urban Growth Area

The subject site comprises 574 hectares of undulating primarily agricultural land which is located approximately 3km northwest of the Central Business District of Nambucca Heads, refer to **Figure 1**.

Figure 1 - Site Location



Land use in the area is predominately agricultural although it is noted that a number of horticultural activities exist within and adjacent to the subject site. Areas of bushland are also present within and adjacent to the subject site.

The northern boundary of the subject site adjoins predominately cleared agricultural land whilst the western and southern aspects of the subject site adjoin predominately bushland. The eastern boundary of the subject site is defined by the Pacific Highway in the northern and central portions of the subject site and the north coast rail line in the southern portion of the subject site.

Beyond the Pacific Highway to the east is a mixture of land use including rural residential, industrial and bushland. Areas of bushland predominate to the east of the north coast rail line.

The topography of the subject site is undulating with various slope conditions present. Mount England, the crest of which is located to the west of the subject site, and a number of west to east ridgelines, which emanate from Mount England, are the main influences upon topography on the subject site and within the general locality.

Generally steeper slopes are present in the western aspect of the subject site with undulating land in the middle and south-eastern aspects. Flatter land is however present in the north-eastern aspect. The topography of adjoining and adjacent land to the subject site generally reflects the conditions found on the subject site.

A large area of the subject site has been cleared of the majority of native vegetation as part of the historic development and use of land for agricultural purposes, with grasslands containing scattered and small clusters of trees predominating.

Areas of native vegetation have however been retained in the western, southern and central eastern aspects of the subject site. Areas of native vegetation have also been retained adjacent to some creeks and gullies, ridge crests and adjacent to the Pacific Highway alignment.

Bushland areas are present to the west, south and southeast of the subject site whilst mostly cleared land predominates to the north and northeast of the subject site.

Deep Creek, to the north of the subject site, and Cow Creek, the southern portion of the subject site, are the main hydraulic features within the locality although reflecting the undulating topography of the area a number of intermittently flowing creeks and gullies are present over the subject site.

Access to the subject site is currently gained off the Pacific Highway via a number of local roads. Boggy Creek Road, Valla Road, Foxs Road and Cow Creek Road are the main existing access roads within the subject site.

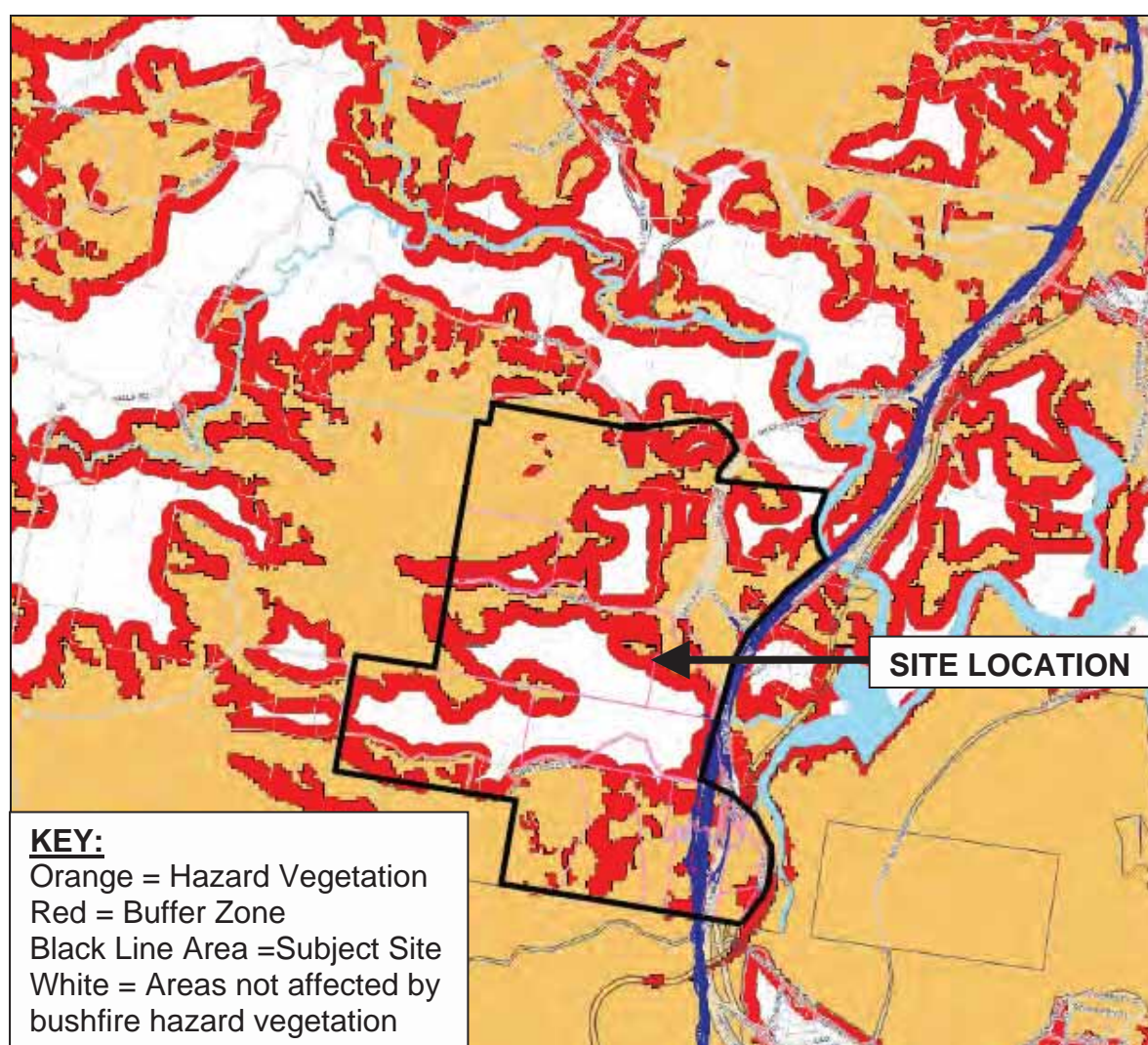
It is also noted that the subject site contains electricity supply infrastructure which includes a number of electricity transmission lines which traverse the subject site in

addition to an electricity supply sub station complex which is located in the south western aspect of the subject site.

The bushfire prone land maps which are relevant to the subject site can be seen in **Figure 2**. The map indicates the presence of hazard vegetation in the north western, north eastern and southern areas of the subject site whilst the central area of the subject site is shown to be not affected by bushfire hazard vegetation, (coloured white on map). It is however noted that the central areas of the subject site may contain unmanaged grasslands which have recently been included as bushfire hazard management considerations.

The bushfire prone land map also indicates that bushfire hazard vegetation is present on adjoining land to the east, south and to the west of the subject site. It should be noted that the bushfire prone map does include which has recently been nominated as a hazard under AS3959 – 2009.

Figure 2 – Bushfire Prone Land Mapping Relevant to the Subject Site



Initial consultation with representatives of the NSW Rural Fire Service indicates that the greatest risk from bushfire in relation to the subject site is from the north western aspect. It is however noted that the majority of the land which is proposed to be rezoned is grassland/managed vegetation which are bounded by existing forest hazards.

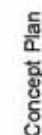
1.5 Development Proposal

It is proposed to rezone the subject site so as to provide for future urban growth, predominately for employment and residential purposes.

Councils Draft Local Growth Management Strategy Employment Lands 2010 have recommended that the Valla Growth Area be comprised of 76 hectares of employment lands with the remainder developed primarily for residential purposes.

A land use concept plan for the subject site is presented as **Figure 3**.

Figure 48



1.6 Methodology

In order to meet the scope of activities that are the subject of this report the following method was utilized.

(i) Stage 1 - Desktop Survey.

The identification and assessment of existing and historic information pertaining to the subject site in relation to:

- Road infrastructure.
- Land use.
- Ecological characteristics.
- Topographic features.
- Fire history.

(ii) Stage 2 - Field Survey.

A detailed inspection of the subject site was undertaken in order to identify relevant bushfire hazard factors and characteristics such as:

- Slope conditions.
- Vegetation characteristics.
- Fire Danger Index.

(iii) Stage 3 - Data Compilation and Project Reporting.

Based upon an assessment of the information obtained from Stages 1 and 2 above the following bushfire hazard management information was determined and documented as being appropriate for the proposed rezoning of the subject site:

- The required minimum Asset Protection Zones, (APZ's), which would be applicable to future development. This would include the minimum APZ requirements for Residential, Special Fire Protection Purpose and Industrial and Commercial forms of development.
- The application of Bushfire Attack Levels (BAL's) and associated construction standards which would be applicable to future development.
- Considerations for the provision of services, (water, electricity and gas).
- Road network considerations in providing for access and egress from future development.

- Emergency management including access for evacuation and possible additional Rural Fire Service support.

1.7 Fauna and Flora Assessment

It is noted that a fauna and flora assessment has been undertaken as part of the rezoning investigations and constraints identification.

In this regard the fauna and flora assessment has identified areas of the subject site which require conservation and in some instances re-vegetation to provide for habitat/green corridors within the subject site, refer to **Appendix 1** of this report.

It is noted that the identified habitat/green corridors have been taken into consideration in determining the bushfire hazard management planning principles and requirements which will be applicable to the future urban development of the subject land, (Valla Urban Growth Area).

1.8 Limitations and Qualifications

The report recognizes the fact that no property and lives can be guaranteed to survive a bushfire attack. The report examines ways the risk of bushfire attack can be reduced, where the subject site falls within the scope of the legislation.

The report is confidential and the writer accepts no responsibility of whatsoever nature, to third parties who use this report or part thereof is made known. Any such party relies on this report at their own risk.

This report has been based upon the vegetation characteristics observed at the time of site inspection. No responsibility is taken where the vegetation characteristics of the subject site or surrounding areas is changed or modified beyond that which is presented within this report.

Given the size of the subject site it has been assumed, for the purposes of this report that all areas of the site are available for development unless identified for habitat/conservation purposes.

Due to the size of the subject site and the level of information which is available regarding the nature and extent of urban development the information contained within this report should be considered to be indicative only with further detailed investigation required in order to identify the bushfire management measures which will be appropriate to specific urban development proposals.

2.0 PLANNING ISSUES

On 1 August 2002 the Environmental Planning and Assessment Act 1979 and the Rural Fires Act 1997 were both amended to enhance bushfire protection through the development assessment process.

In broad terms, the planning considerations provide two main steps. These involve:

(a) Strategic Planning through:

- the mapping of bush fire prone land;
- determining suitable bush fire requirements during the preparation of a Local Environmental Plan/Development Control Plan; and
- the identification of the extent to which land is bushfire prone.

(b) Development assessment through:

- obtaining a bush fire safety authority for residential or rural-residential subdivision and special fire protection purpose developments in bushfire prone areas from the Rural Fire Service (RFS);
- seeking advice from the RFS in relation to infill and other developments in bushfire prone areas that cannot comply with the requirements of NSW Rural Fire Service, *Planning for Bushfire Protection, 2006*; and
- the application of additional requirements of the Building Code of Australia (BCA) in relation to construction standards for Class 1, 2, 3, 4 and some Class 9 buildings in bushfire prone areas.
- Considering the aims and objectives of PFBP, 2006 for commercial and industrial development.

It is noted that this report focuses upon the strategic planning processes associated with the proposed rezoning of the subject site.

2.1 Strategic Planning Considerations

Local Environmental Plans, (LEP's), and Development Control Plans, (DCP's), are the best way of strategically achieving bush fire protection objectives. Inclusion of bush fire planning provisions in an LEP:

- gives weight to bush fire management planning principles, ensuring they are considered at subdivision and construction stages;
- can allow for sufficient space to be incorporated into land use zones for setbacks and adequate access for fire fighting and evacuation; and
- controls inappropriate land uses in Bushfire Prone Areas.

LEP amendments that affect Bushfire Prone Areas are required to address the planning principles of NSW Rural Fire Service, *Planning for Bushfire Protection, 2006*. Where

appropriate the proposed land uses must be considered with respect to bush fire protection (including appropriate setbacks).

If a proposed amendment to land use zoning or land use affects a designated Bushfire Prone Area, then the section 117(2) Direction No 4.4 (1st July 2009) must be applied. Section 117 of the Environmental Planning and Assessment Act, 1979 provides for the Minister for Planning to direct a council, in relation to the preparation of a draft LEP, to apply the planning principles specified in that direction. In summary the section 117 Direction No 4.4 (1st July 2009) requires councils to:

(i) consult with the Commissioner of the Rural Fire Service (RFS) and to take into account any comments by the Commissioner; and

(ii) have regard to the relevant planning principles of NSW Rural Fire Service, *Planning for Bushfire Protection, 2006*.

(iii) ensure that planning proposals provide for;

- The provision of minimum asset protection zones,
- contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks,
- contain provisions for adequate water supply for firefighting purposes,
- minimise the perimeter of the area of land interfacing the hazard which may be developed,
- introduce controls on the placement of combustible materials in the Inner Protection Area,
- consideration of emergency evacuation and emergency services.

If a council proceeds with a draft LEP that does not comply with the provisions in the section 117 Direction, the council must obtain written advice from the Commissioner of the RFS to the effect that the RFS does not object to that non-compliance.

The requirement to review LEP's in accordance with the Standard LEP is an opportunity to consider appropriate uses on Bush Fire Prone Land as well as exempt and complying development provisions.

2.2 Strategic Planning Principles

The Planning Principles for Rezoning to Residential Land in Bush Fire Prone Areas as provided for by NSW Rural Fire Service, *Planning for Bushfire Protection, 2006* are:

- a. *Provision of a perimeter road with two way access which delineates the extent of the intended development;*
- b. *Provision, at the urban bushland interface, for the establishment of adequate asset protection zones for future housing;*
- c. *Specifying minimum residential lot depths to accommodate asset protection zones for lots on perimeter roads;*

- d. Minimising the perimeter of the area of land, interfacing the hazard, which may be developed;
- e. Introduction of controls which avoid placing inappropriate developments in hazardous areas; and
- f. Introduction of controls on the placement of combustible materials in asset protection zones.

3.0 BUSHFIRE THREAT ASSESSMENT

Several factors need to be considered in determining the bushfire hazard for the subject site. These factors are slope, vegetation type and fire weather. Each of these factors has been reviewed in determining the bushfire protection measures which are applicable to the subject site and its proposed rezoning.

3.1 Assessment Methodology

An assessment of the slopes and vegetation structures on and surrounding the subject site was carried out by Midcoast Building and Environmental on 14th and 31st January 2011.

The assessment of slope and vegetation being carried out in accordance with Appendix 2 and Appendix 3 of NSW Rural Fire Service, *Planning for Bushfire Protection, 2006* and Section 2 of AS3959 – 2009.

3.2 Slopes

As mentioned previously the topography of the subject site is undulating with various slope conditions present. Mount England, the crest of which is located to the west of the subject site, and a number of west to east ridgelines emanating from Mount England are the main influences upon topography on the subject site and within the general locality.

Generally steeper slopes are present in the western aspect of the subject site with undulating land in the middle and south-eastern aspects. Flatter land is however present in the north-eastern aspect. The topography of adjoining and adjacent land to the subject site generally reflects the conditions found on the subject site.

Given the various slope conditions which exist and the unknown layout and orientation of future development it is not possible to describe hazard slope direction. Notwithstanding this, the following worst case slopes were measured over the subject site.

Table 1 - Bushfire Hazard Slopes

INDICATIVE SLOPE	UPSLOPE/DOWN SLOPE	LOCATION DESCRIPTION
0°	Up slope	In the western portions of the subject site and associated with ridgeline/gully transitions

0°	Flat	Primarily in the north-eastern portion of the subject site and adjacent to slope transition areas
0° - 5°	Down slope	Slightly undulating land over subject site
5° - 10°	Down slope	Primarily adjacent to ridgeline crests
10° - 15°	Down slope	Steeper ridgeline side slopes
15° - >18°	Down slope	Steep ridgeline side slopes adjacent to western end of Cow Creek Road.

The diversity of slopes measured on the subject site is provided for in **Appendix 2** of this report.

The slope conditions provided for in **Appendix 2** have been considered in determining the minimum asset protection zone/defendable space requirements for the proposed rezoning.

3.3 Bushfire Hazard Vegetation

The predominant vegetation communities within and adjoining the subject site, (for a minimum distance of 140m of the subject site), was determined by a field assessment. The vegetation formations were classified using the system adopted as per *Keith* (2004) for minimum Asset Protection Zones as required by NSW Rural Fire Services, **Planning for Bushfire Protection**, 2006 and the system adopted by Specht for the Bushfire Attack Levels under AS3959-2009. Unless specifically noted in the report the vegetation (2004) and AS3959 – 2009.

3.3.1 Vegetation on the Subject Site

A large area of the subject site has been cleared of the majority of native vegetation as part of the historic development of land for agricultural purposes with grasslands containing scattered and small clusters of trees predominating. Areas of native vegetation have however been retained in the western, southern and central eastern aspects of the subject site.

It is noted that much of the grassland within the subject site appears to have a historical use for cattle grazing and cropping activities. In this regard grassland areas which demonstrate a continuation of these historical uses are not considered to represent a bushfire hazard. However where such a usage cannot be demonstrated areas of grassland must be considered to represent a potential bushfire hazard for future development.

This will need to be considered in detailed development planning as the level of management of grassland areas must be determined based upon the usage which is present at the time.

Figure 4 – Photograph showing an example of Grasslands predominating on the Subject Site



Figure 5 – Photograph showing Grasslands and small clusters of trees



Areas of native vegetation have also been retained adjacent to some creeks and gullies, ridge crests and adjacent to the Pacific Highway alignment.

Bushland areas consist predominately of sclerophyll forest communities although areas of forested wetland (considered forest under AS3959-2009) are present on the relatively flat land which is present in the north-eastern portion of the subject site, adjacent to Deep Creek.

Figure 6 – Photograph showing example of Forested Wetland Vegetation



Some small areas of rainforest were identified on the south facing slopes of some ridges however these areas were small in size and highly modified through mechanical disturbance and as a result of exotic invasion of understorey. Given the level of disturbance and there proximity to and connectivity with larger areas of forest vegetation the remnant rainforest areas were not separately classified.

Some forest areas which fringe the Cow Creek and Boggy Creek Road reserves are narrow in width, (<20m), and limited in size, (< than 1 hectare) and as such these areas were initially considered to be remnants with a bushfire hazard specification similar to that of Rainforest. However it is noted that many of the remnant areas have been identified as forming part of proposed wildlife/green corridors, (refer to **Appendix 1**).

It is noted that the wildlife/green corridors will have a minimum width of 60m and will provide for significant connectivity of vegetation. Based upon the proposed width of the wildlife/green corridors and the level of connectivity which is proposed no areas of vegetation were identified, for the purposes of this report, as meeting the criteria as a bushland remnant.

Some small remnant areas of bushland are present over the subject site with some areas less than 1 hectare in size. In accordance with Appendix 2 of NSW Rural Fire Service, ***Planning for Bushfire Protection, 2006*** these areas were identified as being similar in specification to Rainforest.

It is noted that the subject site contains a number of horticultural activities including banana plantations and macadamia nut and fruit orchards. These areas were not considered to represent bushfire hazard vegetation for the purposes of this report. This approach is consistent with Appendix 2 of NSW Rural Fire Service, ***Planning for Bushfire Protection, 2006***.

Figure 7 – Photograph showing Orchards on the Subject Site



Figure 8 – Photograph showing Forest Vegetation and Electricity Transmission Lines on the Subject Site



3.3.2 Vegetation on Land Adjoining/Adjacent to the Subject Site

Bushland areas comprising sclerophyll forest are present to the west, south and southeast of the subject site whilst mostly cleared grasslands, with scattered and small clusters of trees, predominate to the north and northeast of the subject site.

An indication of the vegetation of bushfire significance which has been identified within the subject site and on land adjoining the subject site is presented in **Appendix 3** of this report.

Figure 9 – Photographs showing Forest Vegetation to the East of the Subject Site



Figure 10 – Photographs showing Forest Vegetation adjoining the Pacific Highway



The following table indicates the various bushfire vegetation classifications which are relevant to the subject site.

Table 2 – Summary of Vegetation Characteristics

VEGETATION DESCRIPTION	VEGETATION CLASSIFICATION
Sclerophyll forest within bushland areas on subject site and adjoining land to the west, south and southeast of the subject site	Forest
Narrow modified forest areas adjacent to road reserves and drainage gullies – subject to green zone/habitat conservation	Forest
Forested wetland communities on the relatively flat land which is present in the north-eastern portion of the subject site, adjacent to Deep Creek.	Forested Wetland (Forest under AS3959-2009)
Grasslands and scattered and small clusters of trees over a large portion of the subject site and on adjoining land to the north and northeast of the subject site. Grassland areas which demonstrate a continuation of historical uses for grazing/are not considered to represent a bushfire hazard	Grassland
Small areas of remnant bushland which are less than 1 hectare in size	Similar in specification to Rainforest

3.4 Fire Danger Index

The fire weather for the site is assumed on the worst-case scenario. In accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection, 2006*** the fire weather for the site is based upon the 1:50 year fire weather scenario and has a Fire Danger Index (FDI) of 80.

4.0 BUSHFIRE PLANNING AND MANAGEMENT

4.1 Defendable Space/Asset Protection Zones

To ensure that the general aims and objectives of NSW Rural Fire Services, ***Planning for Bushfire Protection, 2006***, are achieved for the development of the subject site a Defendable Space between any asset and the hazard should be provided. The Defendable Space provides for; minimal separation for safe fire fighting, reduced radiant heat, reduced influence of convection driven winds, reduced ember viability and dispersal of smoke.

Therefore in demonstrating compliance with the defendable space aims and objectives of NSW Rural Fire Services, ***Planning for Bushfire Protection, 2006*** Asset Protection Zones (APZ's) should be integrated into the development of the subject site. The APZ consists of an Inner Protection Area (IPA) and Outer Protection Area (OPA).

The IPA is an area closest to the asset and incorporates the Defendable Space and is used for managing heat intensities at the building surface. The OPA is positioned adjacent to

the hazard and the purpose of the OPA is to reduce the potential length of flame by slowing the rate of spread, filtering embers and suppressing the crown fire.

It is important to note that the provision of the minimum APZ's as provided for by Appendix 2 of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006* for residential development can result in high risk Bushfire Attack Level (BAL) outcomes. Therefore the minimum APZ's nominated in this report will relate to the performance criteria provisions of NSW Rural Fire Service, *Planning for Bushfire Protection, 2006*, (i.e. no BAL greater than BAL 29), refer to performance criteria provisions in Table 3 below.

NSW Rural Fire Services, *Planning for Bushfire Protection, 2006* provides for differing minimum APZ requirements for residential and Special Fire Protection Purpose (SFPP) developments. In this regard the following development types are considered to be SFPP:

- Schools.
- Child Care Centre's.
- Hospitals (including hospitals for the mentally ill or mentally disordered).
- Ecotourism.
- Hotels, motels and other tourist accommodation.
- State Environmental Planning Policy (SEPP) – Seniors Living.
- State Environmental Planning Policy (SEPP) No. 9 – Group Homes.
- Retirement Villages.

It is also noted that the provision of the minimum Defendable Space/APZ requirements which are applicable to residential development would be adequate in addressing the Defendable Space/APZ requirements for other development types such as industrial and commercial development.

Having regard to the above it is important that the planning and design for the development of the subject site comply with the relevant Defendable Space/APZ performance Defendable Space/APZ requirements of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*. The performance requirements for residential and SFPP development is provided as follows:

Table 3 – Defendable Space/APZ Performance Requirements for Residential Developments

Intent of measures: to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building.	
The intent may be achieved where:	
Performance Criteria	Acceptable Solutions
• radiant heat levels at any point on a proposed building will not exceed 29 kW/m ²	• an APZ is provided in accordance with the relevant tables/ figures in Appendix 2 of NSW RFS Planning for Bushfire Protection

	<p>2006</p> <ul style="list-style-type: none"> the APZ is wholly within the boundaries of the development site. Exceptional circumstances may apply (see section 3.3 of NSWRFs Planning for Bushfire Protection 2006)
<ul style="list-style-type: none"> APZs are managed and maintained to prevent the spread of a fire towards the building. 	<ul style="list-style-type: none"> in accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005) <p><i>Note: A Monitoring and Fuel Management Program should be required as a condition of development consent.</i></p>
<ul style="list-style-type: none"> APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated 	<ul style="list-style-type: none"> the APZ is located on lands with a slope less than 18 degrees.

Table 4 – Defendable Space/APZ Performance Requirements for SFPP Developments

Intent of measures: to provide sufficient space for firefighters and other emergency services personnel, ensuring radiant heat levels permit operations under critical conditions of radiant heat, smoke and embers, while supporting or evacuating occupants.	
Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
<ul style="list-style-type: none"> radiant heat levels of greater than 10kW/m² will not be experienced by occupants or emergency workers entering or exiting a building 	<ul style="list-style-type: none"> an APZ is provided in accordance with the relevant tables/ figures in Appendix 2 of NSWRFs Planning for Bushfire Protection 2006 exits are located away from the hazard side of the building. the APZ is wholly within the boundaries of the development site. Exceptional circumstances may apply (see section 3.3 of NSWRFs Planning for Bushfire Protection 2006)
<ul style="list-style-type: none"> applicants demonstrate that issues relating to slope are addressed: maintenance is practical, soil stability is not compromised and the potential for crown fire is negated. 	<ul style="list-style-type: none"> Mechanisms are in place to provide for the maintenance of the APZ over the life of the development. The APZ is not located on lands with a slope exceeding 18 degrees.
<ul style="list-style-type: none"> APZs are managed and maintained to prevent the spread of fire towards the building. 	<ul style="list-style-type: none"> in accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005)

	<i>Note: A Monitoring and Fuel Management Program should be required as a condition of development consent.</i>
<ul style="list-style-type: none"> Vegetation is managed to prevent flame contact and reduce radiant heat to buildings, minimise the potential for wind driven embers to cause ignition and reduce the effect of smoke on residents and fire fighters. 	<ul style="list-style-type: none"> Compliance with Appendix 5.

With regards to Industrial and Commercial Development the NSW Rural Fire Services, *Planning for Protection, 2006* states:

"For other classes of buildings (such as factories, shops and warehouses) bushfire protection measures will only apply at Development Application stage. Consent will be developed on a case by case basis without the need to refer the development application to the RFS. However if the Council is concerned that the development does not meet the aims and objectives of PBP, then the matter maybe referred to the RFS for advice. The provisions under the BCA for fire safety will be accepted for bush fire purposes where the aims and objectives of PfBP can be met".

It is noted that all classes of development (including industrial) within bushfire prone areas are required to meet the aims and objectives of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*, however the specific objectives only apply to certain classes of development (i.e. residential subdivisions, Special Fire Protection developments and infill developments).

It is therefore recommended that Asset Protection Zones with respect to Industrial and Commercial development should be based on the minimum requirements for residents.

Having regard to the above performance requirements the following tables detail the minimum required Defendable Space/Asset Protection Zones requirements for the various hazard vegetation types and slope conditions identified as being relevant to the subject site for both residential and SFPP developments.

Table 5 – Minimum Defendable Space/APZ Requirements for Residential Development

VEGETATION CLASSIFICATION	SLOPE	IPA	OPA	TOTAL APZ REQUIRED
Forested Wetland				
	0° Flat	21m	-	21m
Grassland				
	All slopes	15m	-	15m
Rainforest				
	0° Flat/Upslope	10m	-	10m
	>0° - 5° Down slope	11m	-	11m
	>5° - 10° Down slope	15m	-	15m
	>10° - 15° Down slope	19m	-	19m
	>15° - 18° Down slope	25m	-	25m
Forest				
	0° Flat/Upslope	11m	10m	21m
	>0° - 5° Down slope	22m	5m	27m
	>5° - 10° Down slope	18m	15m	33m
	>10° - 15° Down slope	22m	20m	42m
	>15° - 18° Down slope	27m	25m	52m

Table 6 – Minimum Defendable Space/APZ Requirements for SFPP Development

VEGETATION CLASSIFICATION	SLOPE	IPA	OPA	TOTAL APZ REQUIRED
Forested Wetland				
	0° Flat	50m	-	50m
Grassland				
	All slopes	10m	-	10m
Rainforest				
	0° Flat/Upslope	30m	-	30m
	>0° - 5° Down slope	40m	-	40m
	>5° - 10° Down slope	50m	-	50m
	>10° - 15° Down slope	60m	-	60m
	>15° - 18° Down slope	65m	-	65m
Forest				
	0° Flat/Upslope	40m	20m	60m
	>0° - 5° Down slope	50m	20m	70m
	>5° - 10° Down slope	60m	25m	85m
	>10° - 15° Down slope	70m	30m	100m
	>15° - 18° Down slope	75m	25m	100m

Having regard to the above **Appendix 4** of this report provides an indication of the minimum Defendable Space/APZ requirements for the subject site based upon the slope and vegetation identified on the subject site in order to comply with the performance requirements of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*. It is noted that the provision of Defendable Spaces/Asset Protection Zones in **Appendix 4** has included the areas nominated as forming part of proposed habitat/green corridor areas/zones.

It is further noted that Defendable Spaces/Asset Protection Zones cannot be located on land which is affected by a greater than 18° downslope. Accordingly areas of the subject site which contain these slope characteristics cannot be the subject of any form of development. Therefore it will be necessary to undertake a detailed topographic

assessment as part of the preparation of the Development Control Plan for the subject site in order to identify areas which contain land slopes greater than 18° downslope.

Good planning for the future development of the subject site could incorporate the use of residential, commercial/industrial and managed open space and recreation areas to provide the buffer, (Defendable Space/APZ), for areas/zones where Special Fire Protection Purpose development is anticipated. Controlled buffers and open space can minimize the effect of providing Defendable Spaces/APZ's on available land.

It is also noted that the existing bushfire hazard vegetation characteristics in some areas of the subject site create island development areas. The urban development of island areas should be avoided as it creates the possibility of bushfire from all aspects of the island development area. The preparation of the Development Control Plan for the subject site is to include a detailed investigation of the suitability of island areas for urban development with the design for urban development providing for the minimization of the extent of bushfire hazard interface with development areas.

4.2 Asset Protection Zones Performance Requirements

The performance requirements for Inner and Outer Protection Areas of Defendable Spaces/APZ's are as follows;

4.2.1 Inner Protection Area

An IPA should provide a tree canopy cover of less than 15% and should be located greater than 2 metres from any part of the roofline of a dwelling.

Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10m from an exposed window or door.

Trees should have lower limbs removed up to a height of 2 metres above the ground.

4.2.2 Outer Protection Area

An OPA should provide a tree canopy cover of less than 30% and should have the understorey managed (mowed) to treat all shrubs and grasses on an annual basis in advance of the fire season (usually September).

Detailed requirements for Asset Protection Zones can be found in the NSW Rural Fire Service publication "Standards for Asset Protection Zones".

4.3 Access and Egress

In accordance with *Planning for Bushfire Protection, 2006*, public roads include the perimeter road and internal road system of any urban subdivision as well as public road in rural residential subdivisions.

In general the public road system should provide alternative access or egress for fire fighters and residents during a bushfire emergency if part of the road is cut by fire.

The above access or egress also needs to be a safe access or egress. It is likely that part of this development will require access or egress through wildlife corridors which will require special consideration, (i.e. modification of hazard at access or egress point), for safe egress.

The definition of alternate access or egress is also critical. In this regard two access and egress routes that end at the same point are not considered alternate.

To ensure safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area, the following Performance Criteria and Acceptable Solutions are to be satisfied.

Table 7- Public Road Requirements (PfBP 2006)

Intent of measures: to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.	
The intent may be achieved where:	
Performance Criteria	Acceptable Solutions
<ul style="list-style-type: none"> • firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources) 	<ul style="list-style-type: none"> • public roads are two-wheel drive, all weather roads.
<ul style="list-style-type: none"> • public road widths and design that allow safe access for firefighters while residents are evacuating an area. 	<ul style="list-style-type: none"> • urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle). • the perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas. • traffic management devices are constructed to facilitate access by emergency services vehicles. • public roads have a cross fall not exceeding 3 degrees. • all roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away

	<p>from the hazard.</p> <ul style="list-style-type: none"> • curves of roads (other than perimeter roads) are a minimum inner radius of six metres and minimal in number, to allow for rapid access and egress. • the minimum distance between inner and outer curves is six metres. • maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient. • there is a minimum vertical clearance to a height of four metres above the road at all times.
<ul style="list-style-type: none"> • the capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles. 	<ul style="list-style-type: none"> • the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). <p>Bridges clearly indicate load rating.</p>
<ul style="list-style-type: none"> • roads that are clearly sign- posted (with easily distinguishable names) and buildings/properties that are clearly numbered. 	<ul style="list-style-type: none"> • public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression. • public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression.
<ul style="list-style-type: none"> • there is clear access to reticulated water supply 	<ul style="list-style-type: none"> • public roads up to 6.5 metres wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression. • one way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.

Fire Trails are not recommended. In this regard public road infrastructure should be used to provide for a perimeter road approach land development.

At present, some existing public road infrastructure, (western end of Cow Creek Road), traverses land which has a downslope in excess of 18 degrees with hazard vegetation

present adjacent to the road reserve. In this regard the suitability of the existing road infrastructure to service future urban development will require consideration as it will be necessary to demonstrate that safe and suitable access and egress is available particularly in relation to the presence of alternative access and egress.

It is also noted that due to the existing vegetation characteristics and the proposed green/habitat zones a number of areas of the subject site will be surrounded by bushfire hazard vegetation. As previously mentioned the design for urban development should provide for the minimization of the extent of bushfire hazard interface. Therefore the potential use of these island areas to support urban development will require careful consideration during the preparation of the Development Control Plan for the subject site to ensure that suitable safe alternative access and egress is available from these areas and that suitable Defendable Space/APZ can be provided.

4.4 Water Supply and Utilities

4.4.1 Water Supply

NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*, provides that developments must have available a water supply reserve for fire fighting purposes.

In this regard it is assumed that the future subdivision and development of the subject site will provide for the extension of a reticulated water supply to service the development of the land. In this regard the provision of a reticulated water supply will provide for a water supply reserve for fire fighting purposes. It will therefore be necessary for the Council to guarantee the adequacy of any future reticulated water supply for fire fighting purposes.

This is an issue of importance as there are areas of reduced water pressure in the proposal. The adequacy of the reticulated water supply requires detailed investigation with areas of inadequate water supply requiring supplementary water supply. In this regard the requirements for development to provide their own supplementary water supply will be a preferred option in these areas.

Where access to reticulated water supply is not available an onsite water supply which complies with the relevant performance requirements of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*, will be required to service future development.

4.4.2 Electricity Supply

Electricity supply infrastructure will be required to be provided in order to support and service the development of the subject site.

4.4.3 Gas Supply

It has been assumed for the purposes of this report that reticulated gas services are not proposed to be made available throughout the subject site.

The incorporation into the proposed development of the subject site of the relevant provisions of the following acceptable solutions as provided for by NSW Rural Fire Services, *Planning for Bushfire Protection, 2006* will provide for compliance with the intent for the provision of services.

Table 7 - Service Provision Requirements (PfBP 2006)

Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building	
The intent may be achieved where:	
Performance Criteria	Acceptable Solutions
Reticulated water supplies <ul style="list-style-type: none"> water supplies are easily accessible and located at regular intervals 	<ul style="list-style-type: none"> reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads. fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles. hydrants are not located within any road carriageway all above ground water and gas service pipes external to the building are metal, including and up to any taps. the provisions of parking on public roads are met.
Electricity Services <ul style="list-style-type: none"> location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings regular inspection of lines is undertaken to ensure they are not fouled by branches. 	<ul style="list-style-type: none"> where practicable, electrical transmission lines are underground. where overhead electrical transmission lines are proposed: <ul style="list-style-type: none"> lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).
Gas services <ul style="list-style-type: none"> location of gas services will not lead to ignition of surrounding bush land or the fabric of buildings 	<ul style="list-style-type: none"> reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used.

	<ul style="list-style-type: none">• all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.• if gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.• polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.
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4.5 Landscaping

Landscaping is a major cause of fire spread to any building and therefore any landscaping which is proposed to be undertaken in conjunction with the development of the subject site will need careful planning to produce landscape/garden areas that do not contribute to the spread of a bushfire.

Appendix 5 of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006* contains standards that are applicable to the provision and maintenance of landscaping.

4.6 Building Construction Considerations

Given that the proposed rezoning process does not involve the erection of any buildings at this stage the determination of Bushfire attack levels and associated construction requirements is not possible without specific information regarding final lot layout and the designation of building types and locations on each of the proposed lots.

As previously noted, the adoption of the minimum APZ's as provided for in Table 5 of this report will ensure that there will be no greater BAL than BAL 29 which is the deemed-to-satisfy solution in NSW for residential development.

It is also noted that the provision of the minimum APZ's for SFPP developments, (Table 6 of this report), will provide for compliance with the maximum 10kW/m² exposure requirement for occupants or emergency workers entering or exiting a building. This is the acceptable solution for SFPP developments.

With regards to Industrial and Commercial Development Planning for Bushfire 2009 states:

"f) Buildings of Class 5-8 and 10 of the BCA

The definition of Class 5-8 and 10 buildings of the BCA can be found in Appendix 1. These classes of buildings include offices, factories, warehouses, public car parks and other commercial or industrial facilities.

The BCA does not provide for any bushfire specific performance requirements and as such AS3959 does not apply as a set of 'deemed to satisfy' provisions. The general fire safety construction provisions are taken as acceptable solutions, but the aim and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning and landscaping/vegetation management."

4.7 Emergency and Evacuation Planning

The nature of the subject site and existing infrastructure are such that there are no existing safe areas available to support formalized emergency and evacuation planning. Therefore the planning for and provision of safe areas is considered a priority for the future urban development of the subject site.

Evacuation of future residential areas is not likely to include complete evacuation as the location of many of the dwellings would be required to be constructed to a BAL and therefore would provide for a level of occupant safety; however it is still considered that there will be evacuations of people close to the bushfire hazard interface and people with medical conditions.

People occupying the industrial and commercial areas are not likely to be considered as safe in their workplace. It maybe possible to require these future buildings to be constructed to a specific Bushfire Attack Level, however the very nature of these buildings, (i.e. yard storage, ability to seal large buildings), makes it difficult to ensure the safety of occupants.

There will always be a possibility of people accessing the Pacific highway to go to their place of residence, (common in all bushfire areas), however a safe area will provide an option if the Emergency Services require.

Consideration should be given to the growth of development from the highway "out" as this will ensure that people will be traveling through developed areas to get to the Pacific Highway.

It is necessary to prepare an Emergency Evacuation Plan for this area. This plan is to be referred to the Emergency Management Committee and the Bushfire Management Committee.

4.8 Emergency Services

The various stages of the development of the subject site will need to be referred to Emergency Management Committee and the Bushfire Management Committee to consider the need for further local Rural Fire Services for the area.

5.0 RECOMMENDATIONS

The following recommendations are provided in response to the preliminary consideration of the bushfire hazard management measures which are applicable to the proposed rezoning of the subject site;

1. Defendable Spaces/Asset Protection Zones which reflect the slope, vegetation, fire danger index and nature of the proposed landuse are to be incorporated into the master and development control planning stages of the development of the subject site, refer to section 4.1 of this report. The nominated Asset Protection Zones incorporated in this report are based on a minimum Bushfire Attack level of 29 which is the deemed to satisfy provision in of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*.
2. As Defendable Spaces/Asset Protection Zones cannot be located on land which is affected by greater than 18° downslopes the urban development of these areas should not be planned for. It will therefore be necessary to undertake a detailed topographic assessment of the subject site as part of the preparation of the Development Control Plan for the subject site in order to identify areas which contain land slopes greater than 18° downslope.
3. The provision of buffers, (ie residential/commercial/industrial development), for Special Fire Protection Purposes development, and open space/other controlled vegetation areas to residential areas can minimize the loss of developable land.
4. The urban development of island areas should be avoided as it creates the possibility of bushfire from all aspects of the island development area. The preparation of the Development Control Plan for the subject site is to include a detailed investigation of the suitability of island areas for urban development with the design for urban development providing for the minimization of the extent of bushfire hazard interface with development areas.
5. Where provided Defendable Spaces/Asset Protection Zones are to comply with the requirements of Rural Fire Service and NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*.
6. The design and construction of the public road system servicing urban development is to comply with the performance requirements and acceptable solutions of section 4.1.3 of NSW Rural Fire Services, *Planning for Bushfire Protection, 2006*.
7. In general the public road system servicing urban development should provide alternative access or egress for fire fighters and residents during a bushfire emergency if part of the road is cut by fire. In this regard two access and egress routes that end at the same point are not considered alternate.

8. The provision of Fire Trails is not recommended. In this regard public road infrastructure should be used to provide for a perimeter road approach to land development.
9. The planning for, and provision of services to support the urban development of the land is to comply with the performance requirements and acceptable solutions of section 4.1.3 of NSW Rural Fire Services, ***Planning for Bushfire Protection, 2006***.
10. The adequacy of the reticulated water supply requires detailed investigation with areas of inadequate water supply requiring supplementary water supply. In this regard the requirements for site specific development to provide their own supplementary water supply may be a preferred option.
11. Where access to reticulated water supply is not available an onsite water supply which complies with the relevant performance requirements of NSW Rural Fire Services, ***Planning for Bushfire Protection, 2006***, will be required to service future development.
12. Any landscaping which is proposed to be undertaken in conjunction with the urban development of the subject site is to comply with the landscaping principals and requirements contained in Appendix 5 of NSW Rural Fire Services, ***Planning for Bushfire Protection, 2006*** section 3.5 of this report.
13. An Emergency and Evacuation Plan that complies with the acceptable solutions provided for by NSW Rural Fire Services, ***Planning for Bushfire Protection, 2006*** is to be prepared as part of the detailed planning for the urban development of the subject site. This plan is to be referred to the Emergency Management Committee and the Bushfire Management Committee.
14. The various stages of the development of the subject site will need to be referred to the Emergency Management Committee and the Bushfire Management Committee to consider the need for further local Rural Fire Services for the area.

6.0 CONCLUSION

This report has been requested by Nambucca Shire Council to identify the bushfire hazard management planning principles and requirements which will be applicable to the future urban development of the land which is known as the Valla Urban Growth Area.

This report forms part of an overall planning process which will determine the suitability of the subject site for urban development and identify the development principles and planning controls which will be applicable to the future development of the land.

This report is an initial preliminary investigation into bushfire planning and management issues which affect the proposed urban development of the subject site. The issues which have been identified will need to be further addressed through the preparation and implementation of the specific detailed development controls which will apply to the planning for the development of the subject site. The specific bushfire hazard

management controls are to be detailed through the master planning and Development Control Planning stages.

Regards

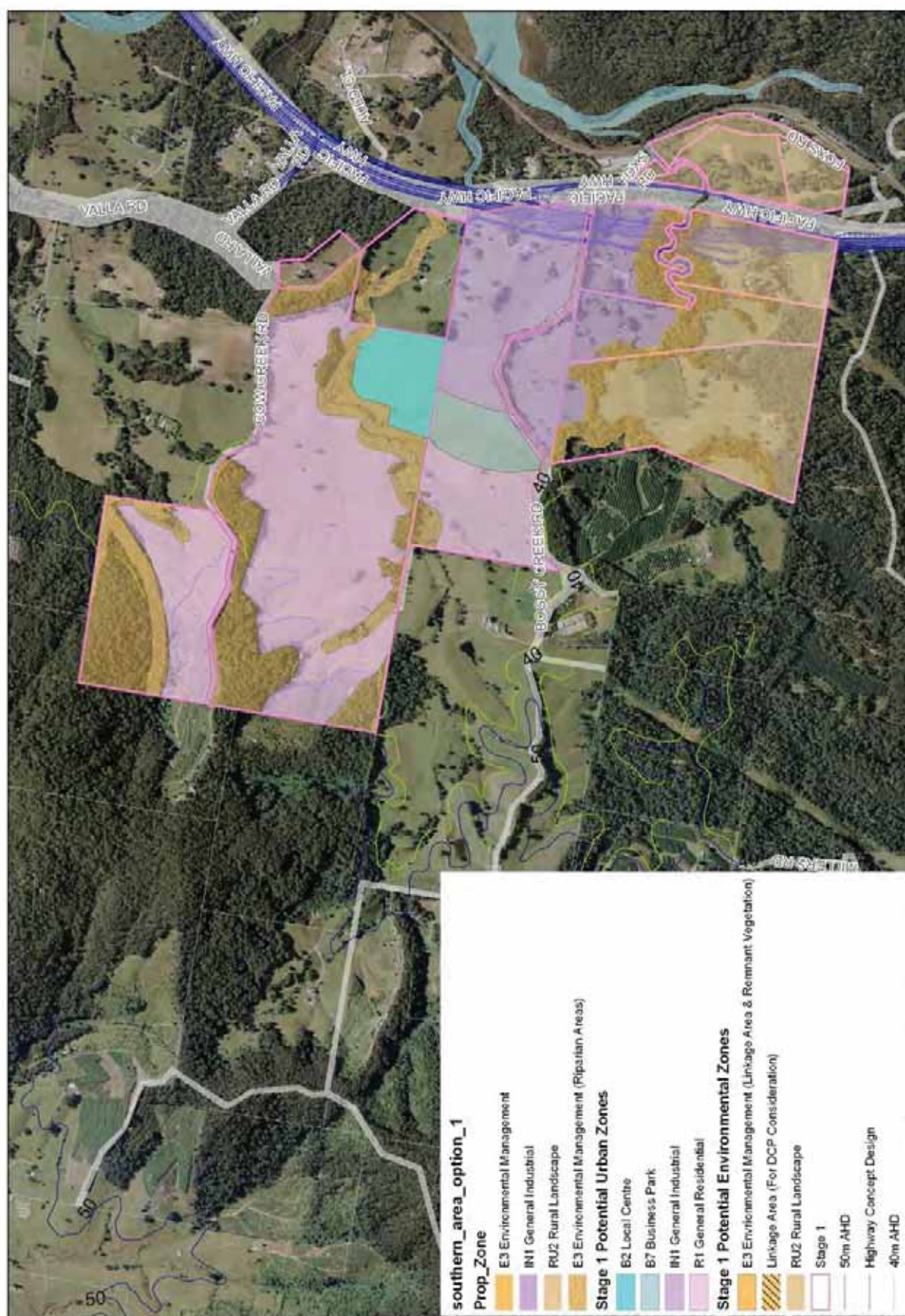


Tim Mecham
Midcoast Building and Environmental

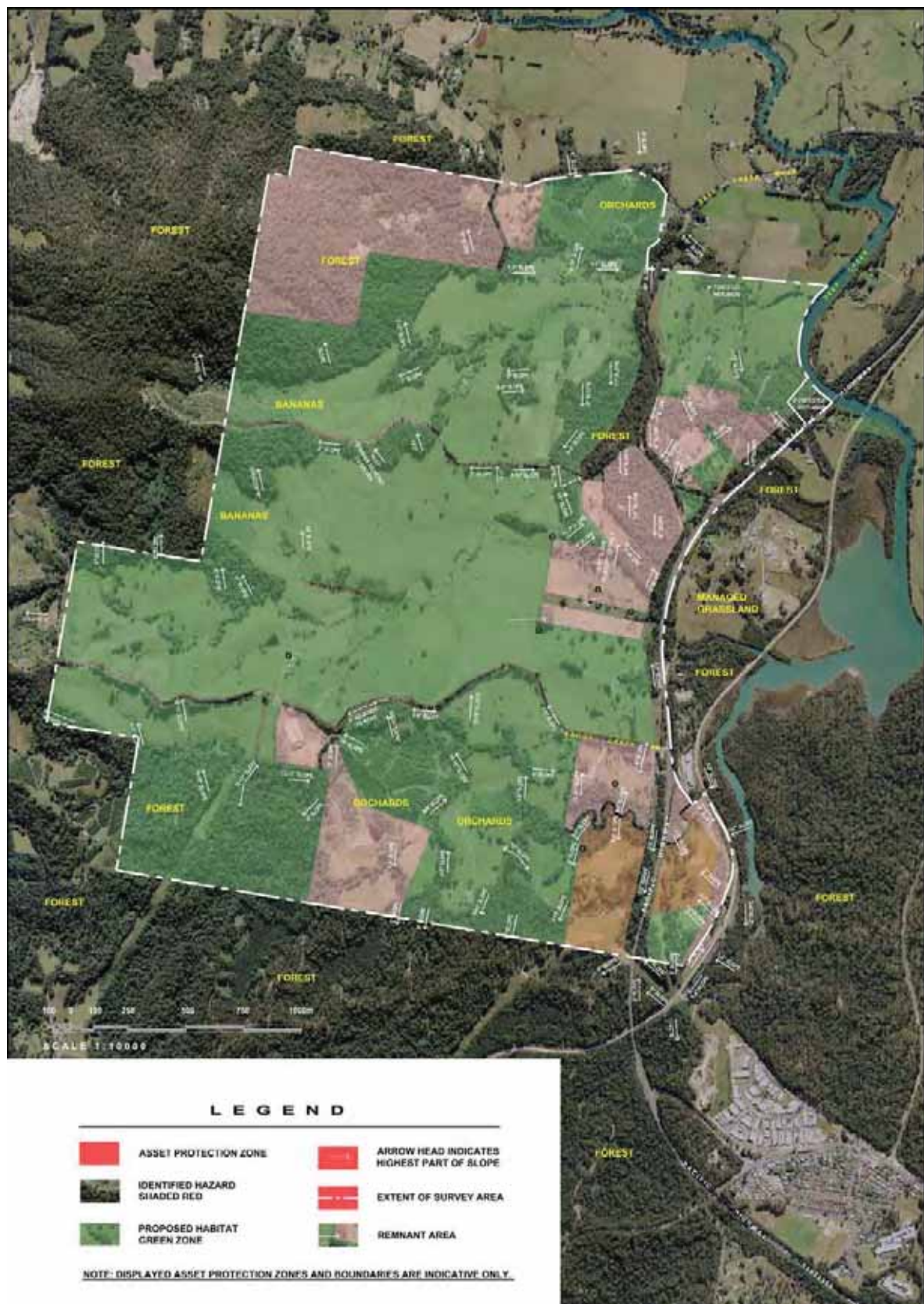
7.0 REFERENCES

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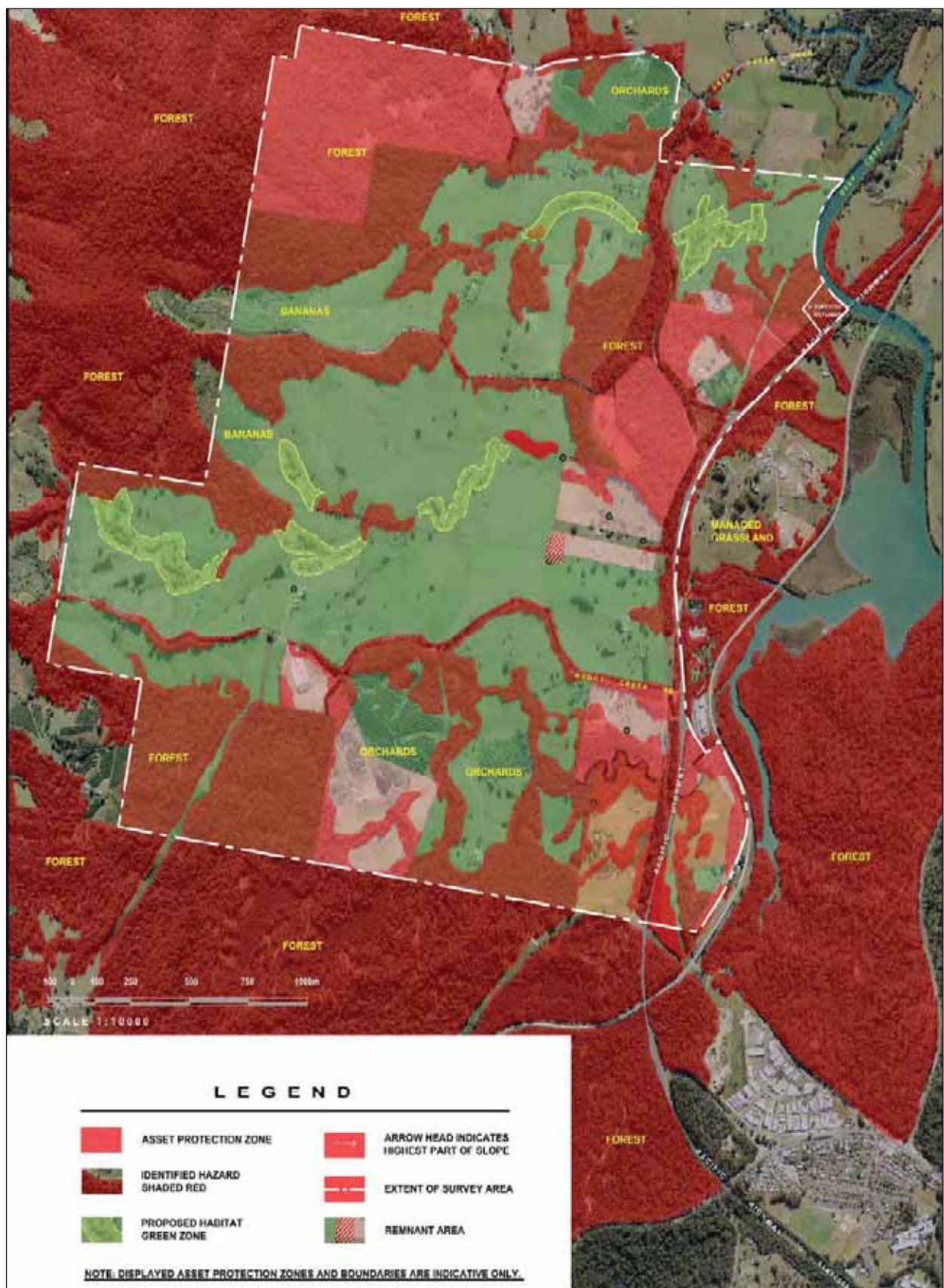
APPENDIX 1 – FAUNA AND FLORA RECOMMENDATIONS



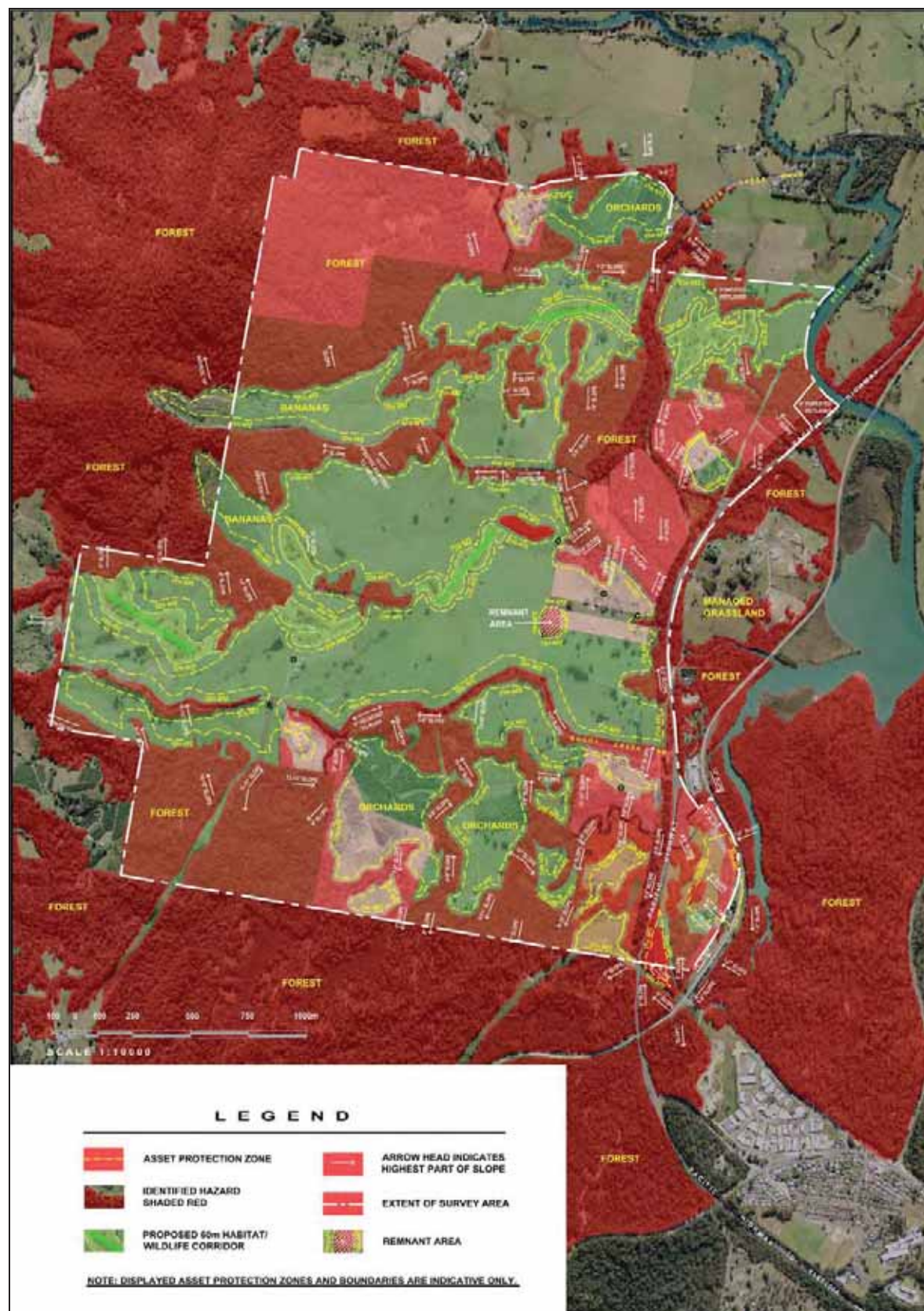
APPENDIX 2 – SLOPE CHARACTERISTICS



APPENDIX 3 – VEGETATION CHARACTERISTICS



APPENDIX 4 – INDICATION OF MINIMUM ASSET PROTECTION ZONE REQUIREMENTS (Residential Development)



Appendix I

Boggy Creek Flood Study



Appendix J

Geotechnical Assessment

Jed Civil

Proposed Industrial Subdivision

80 Red Ash Road, Valla

Preliminary Geotechnical Assessment

Report No. RGS31376.1-AC

19 March 2018

REGIONAL
GEOTECHNICAL SOLUTIONS





Manning-Great Lakes

Port Macquarie

Coffs Harbour

RGS31376.1-AC

19 March 2018

Jed Civil
645 Gleniffer Road
GLENIFFER NSW 2454

Attention: Ben Jedrej

Dear Ben,

**RE: Proposed Industrial Subdivision
80 Red Ash Road, Valla
Preliminary Geotechnical Assessment**

Regional Geotechnical Solutions Pty Ltd (RGS) has completed a preliminary geotechnical assessment at 80 Red Ash Road, Valla (Lot 2 DP1173066), where it is proposed to construct an industrial subdivision.

The investigation involved the excavation of test pits and two boreholes to 14m depth within the site and the drilling of boreholes within the existing Red Ash Road pavement. Presented herein is a summary of the conditions encountered at the site as well as recommendations on earthworks, foundations and pavements.

If you have any questions regarding this project, or require any further assistance with this project, please do not hesitate to contact the undersigned.

For and on behalf of

Regional Geotechnical Solutions Pty Ltd

A handwritten signature in blue ink, appearing to read 'S. Keen', is written over a faint, light blue circular stamp.

Simon Keen

Senior Geotechnical Engineer



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Figure 1 Test Location Plan

Appendices

- Appendix A Results of Field Investigations
- Appendix B Laboratory Test Results
- Appendix C Pavement Thickness Design Sheets



1 INTRODUCTION

Regional Geotechnical Solutions Pty Ltd (RGS) have undertaken a preliminary geotechnical assessment for an industrial subdivision that is proposed for the eastern approximately 11.4ha of 80 Red Ash Road, Valla (Lot 2 DP1173066).

It is understood that Nambucca Shire Council propose to redevelop the existing farming land by constructing an industrial subdivision that is to comprise one large (approximately 4Ha) lot and ten smaller lots. The lots will be serviced by two new internal roads that will be accessed from Red Ash Road which is located along the eastern site boundary. The development is likely to involve significant cut to fill earthworks of up to about 10m deep / high.

The purpose of the geotechnical assessment was to provide comments and recommendations on the following:

- General site conditions and geology including:
 - Soil profile;
 - Depth to weathered rock;
 - Groundwater levels;
- Site earthworks including;
 - General site preparation;
 - Stripping and foundation preparation;
 - Treatment requirements for the filling of the existing dam;
 - Excavation conditions, including suitable excavation plant;
 - Fill material requirements including suitability of site won materials for reuse;
 - Fill placement and compaction control;
- Excavation support, including recommendations and design parameters for excavation and retention including;
 - Batter slopes;
 - Retaining wall design parameters;
- Foundations, including:
 - Preliminary assessment of site classification and assessment of shrink-swell related ground surface movements to AS2870 – 2011;
 - Alternative footing types and foundation design parameters including allowable/ultimate bearing pressures and data to calculate expected settlements;
- Pavements, including:
 - Pavement construction and pavement thickness designs for the internal roads; and
 - Assessment of the existing Red Ash Road pavement profile and subgrade and recommendations on upgrade requirements to support the proposed industrial development.



2 FIELD WORK

Fieldwork for the assessment was undertaken by a Senior Geotechnical Engineer from RGS on 23 January 2018 and on 8-9 March 2018 and included the following:

- Observation of site features and surrounding features relevant to the geotechnical conditions of the site;
- Excavation of nine test pits (TP1 to TP9) to depths of between 1.6 and 2.2m with a 4 tonne excavator;
- Drilling of two boreholes (BH101 and BH102) to a depth of 14m along the ridgeline where deeper cuts are proposed; and
- Drilling of three boreholes (BH1 to BH3) to depths of between 1.2 and 1.35m within the existing Red Ash Road pavement adjacent to the site to assess the thickness of the existing pavement and the nature of the underlying subgrade.

Test locations are shown on Figure 1 and were obtained with a hand held GPS. Engineering logs of the boreholes and test pits are presented in Appendix A. GPS coordinates are shown on the engineering logs.

3 SITE CONDITIONS

3.1 Surface conditions

The site is bound by Red Ash Road to the east, Boggy Creek Road to the south, farmland to the west, and a residential dwelling and farmland to the north. An aerial photograph showing the location of the site and the site setting is reproduced below.



Location of the site (shown by red box) and site setting as shown on NSW Government 'Six Maps'. The photograph was taken in 2012 prior to the completion of the Pacific Highway Upgrade and the construction of Red Ash Road.



The site is located within a region characterised by gently to moderately sloping residual terrain. A prominent east-west trending ridgeline bisects the centre of the site and an existing farmhouse and associated structures are located on the ridgeline in the east of the site.

To the north of the ridgeline the site generally grades down at slopes of up to about 11° to the north-northeast, and also down towards a gully in the centre of the northern portion of the site which also drains to the north-northeast.

The southern portion of the site (i.e. to the south of the ridgeline) contains a dam that is located within a gully that drains to the southeast. Slopes of up to about 12° are present and grade down towards the gully. The dam appeared to be near capacity on the day of the investigation and contains a gently sloping downstream batter that showed no obvious signs of seepage or scour.

The site is vegetated with grasses and isolated mature trees. Rock outcrops or untrafficable (i.e. 'boggy') ground were not encountered on the day of the investigation, including immediately upstream and downstream of the dam.

Red Ash Road was constructed in 2014/2015 as part of the Pacific Highway Upgrade to provide local access to properties on the eastern side of the new highway. The road terminates at the north-eastern corner of the site where it provides access to two rural properties. The road is a two lane sealed pavement with fog lines that is in good condition, with no failures being observed during the investigation. The road is constructed within cut through the prominent east-west trending ridgeline that bisects the site and at or near grade near the northern and southern ends of the site. The cut is vegetated, however, extremely to highly weathered phyllite was observed in localised sections of the cut that are not covered by vegetation.

Typical site photographs are presented below.



Looking east-southeast from the central ridgeline across the southern portion of the site. A farm dam is located within the gully.



Looking east across the site at the northern portion of the site. The site is vegetated with grasses and scattered mature trees.



Excavated red-brown residual Silty CLAY from TP3 in the northern portion of the site



TP4 which was excavated in the west of the northern portion of the site and encountered yellow-brown residual Silty CLAY that overlies weathered Phyllite



Excavated material from TP9. 0.7m of topsoil was encountered and overlies very stiff residual Silty CLAY



BH2 which was drilled within Red Ash Road and encountered 0.16m of pavement gravel over gravel fill to 1m, overlying highly weathered phyllite



Looking north along Red Ash Road from near BH2



Looking south along Red Ash Road from near BH2



3.2 Subsurface Conditions

The 1:250,000 Geology Map indicates that the site is underlain by slate, phyllite, schistose sandstone, schistose conglomerate and minor volcanics.

The materials encountered within the test pits and boreholes drilled within the site are summarised in Table 1. A summary of the materials encountered within the boreholes drilled within Red Ash Road is presented in Table 2. Further details are presented on the engineering logs in Appendix A.

Table 1: Summary of Material Encountered Within Test Pits

Material Name	Material Description	Depth to Base of Material Layer (m)										
		TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	BH101	BH102
Topsoil	Clayey SILT, low plasticity	0.2	0.15	0.15	0.15	0.15	0.2	0.15	0.2	0.7	0.2	0.25
Residual Soil Red-Brown	Silty CLAY, medium plasticity, stiff to hard/friable	0.8	≥1.6	≥2.0	--	--	--	--	--	--	--	--
Residual Soil Yellow-Brown	Silty CLAY, medium plasticity, very stiff to hard, traces of fine to medium grained quartz gravel				0.8	0.9	1.0	1.0	≥1.9	≥2.0	2.4	3.6
XW Phyllite	Silty CLAY/Clayey SILT, low plasticity, hard/friable, traces of highly weathered gravel	1.6			1.0	--	1.5	--			8.5	9.8
XW-HW Phyllite	Extremely to highly weathered, extremely low strength	≥2.0			--	1.5	--	≥1.8			--	--
HW Phyllite	Highly weathered, extremely low to very low strength, interbedded extremely weathered material				≥2.2	≥1.6	≥1.8				≥14.0	≥14.0

Notes: -- Indicates that the material was not encountered at the test location
 ≥ Indicates that the base of the material layer was not encountered



Table 2: Summary of Material Encountered Within Pavement Boreholes

Material Name	Material Description	Depth to Base of Material Layer (m)		
		BH1	BH2	BH3
Seal	2 coat spray seal	0.02	0.02	0.02
Pavement Gravel	Sandy GRAVEL, fine to medium grained, likely DGB20	--	0.18	0.2
Gravel Fill 1	Sandy GRAVEL, Clayey Sandy GRAVEL and Silty Sandy GRAVEL, fine to coarse grained, low plasticity fines	0.5	0.8	0.9
Gravel Fill 2	Silty GRAVEL, fine to coarse grained, low plasticity fines, meta-siltstone origins	0.85	1.0	--
XW Phyllite	Silty CLAY/Clayey SILT, low plasticity, hard/friable, traces of highly weathered gravel	≥1.35	--	≥1.2
HW Phyllite	Highly weathered, extremely low to very low strength, interbedded extremely weathered material		≥1.2	

Groundwater inflows were not observed within any of the test pits or boreholes drilled as part of the investigation. Groundwater levels do fluctuate as a result of climatic variations such as prolonged rainfall or extended periods of low rainfall etc.

3.3 Laboratory Testing

Samples recovered during the investigation were submitted to a NATA accredited laboratory for testing. A summary of the test results is presented below, and the results are discussed in relevant sections of the report. Laboratory test result sheets are presented in Appendix B.

Table 3: Summary of Laboratory Test Results

Test Location	Depth (m)	Material	Shrink-Swell Index	Field Moisture Content	Optimum Moisture Content	Maximum Dry Density	CBR
TP1	0.3 – 0.5	Residual Soil – Red-brown	--	16.2 %	17.2 %	1.76 t/m ³	9
TP2	0.25 – 0.6	Residual Soil – Red-brown	1.2 %	--	--	--	--
TP4	1.0 – 2.0	HW Phyllite	--	16.5 %	18.7 %	1.67 t/m ³	4
TP5	0.9 – 1.6	XW-HW Phyllite	--	14.1	15.8	1.81 t/m ³	10
TP6	1.0 – 1.3	XW Phyllite – Recompacted at 98% SMDD	0.9 %	--	--	--	--
TP7	0.25 – 0.6	Residual Soil – Yellow-Brown	1.2 %	--	--	--	--
TP7	1.2 – 1.8	XW-HW Phyllite - Recompacted at 98% SMDD	1.3 %	--	--	--	--



4 EARTHWORKS

4.1 Site Preparation

Major bulk earthworks involving cuts of up to 13m deep and fill up to about 10m high are currently understood to be under consideration as part of the development. Site preparation works will therefore likely entail the removal of vegetation and the stripping of topsoil, organic, root affected or deleterious material prior to the commencement of bulk earthworks. Any deleterious material or material that appears potentially contaminated should also be stripped and appropriately disposed of.

The test pits completed within the site indicate that between 150 and 250mm of topsoil is present across the site, except for immediately upstream of the dam in the south of the site where 700mm was encountered.

On the day of the investigation the soils immediately upstream and downstream of the dam were dry and friable, and no saturated or boggy ground was identified beyond the perimeter of the dam. Previous experience with similar farm dams indicates that within the footprint of the dam the depth of unsuitable material that is required to be stripped prior to fill placement generally ranges from between about 0.4 to 0.8m. It is recommended that the unsuitable material be stripped, moisture conditioned, and stockpiled for later reuse for landscaping purposes.

The site is currently well drained due to the natural grade of the land, however, due to the silty nature of the natural soils at the site, delays should be expected after significant rainfall events during the earthworks stage of the development. The implementation of good site drainage during the initial stages of the development will reduce the risk and extent of delays and will be essential for the successful completion of earthworks at the site. The principle aim of the drainage is to promote controlled surface water run-off, reduce the velocity of flow and to reduce the potential for water to pond. Given the size of the site and extent of works it may be necessary to construct onsite sedimentation basins as part of the overall site erosion and sediment control plan.

Earthworks should be carefully planned and scheduled to maintain suitable cross-falls so as to promote controlled runoff of surface water. Adequate silt control and dissipation measures will need to be employed to reduce the potential for silt entering the storm water system to the south and west of the site.

An earthworks management plan (EMP), including an erosion and sediment control plan should be prepared prior to site works commencing.

4.2 Excavation Conditions

The investigation generally encountered a residual clay profile to a depth of about 1m that grades into extremely to highly weathered phyllite to at least the maximum depth of the investigation of 14m, with the deeper boreholes being undertaken by auger drilling methods without the need for rock core drilling.

Excavation of residual soil and extremely to highly weathered phyllite could be undertaken with a small to medium sized excavator of between 8 to 12 tonne. Bulk excavation could be undertaken



with large excavators (i.e. greater than 30 tonne) or bulldozers (CAT D6 or larger). Large scrapers could also be used within the residual soil and extremely and highly weathered phyllite.

4.3 Excavation Support & Earth Retention

Where space permits, temporary or permanent batter slopes (or equivalent benches with a maximum bench height of 1.2m) may be adopted at the site. Recommended maximum temporary and permanent batters are presented in Table 4.

Table 4: Recommended Maximum Temporary & Permanent Batters

Material	Temporary Batter	Permanent Batter
Controlled Fill ¹	1.5H:1V ²	2H:1V
Residual Clay	1.5H:1V ²	2H:1V
Extremely to Highly Weathered Phyllite	1H:1V	2H:1V ³

Notes: 1 Fill placed under Level 1 conditions as defined by AS3798-2007 and summarised in Section 4.6
 2 Temporary batters of 1.5H:1V may be adopted for cuts up to 1.5m deep. Steeper cuts should be battered at no steeper than 2H:1V
 3 Steeper batters such as 1.5H:1V may be adopted, however, the batters will be prone to fretting which may result in localised spoil deposits along the toe batter toe that would require additional maintenance to remove the spoil. A horizontal set back of at least half the height of the cut from any structures, pavements and footpaths would also be required.

Where required, engineered retention systems such as reinforced concrete block walls or mass gravity walls (i.e. gabion baskets, concrete blocks, Gabi blocks, etc.) could be adopted at the site to support both temporary and permanent excavations.

Retention structures may be designed based on the parameters presented in Table 5. All earth retention structures must consider any permanent or temporary surcharges within the super-structure or behind retention structures (such as traffic loading, construction loading, temporary stockpiles, piezometric levels, etc.).

Table 5: Earth Retention Design Parameters

Material	Unit Weight, γ	Friction Angle, Φ'	Effective Cohesion, c'	Active Earth Pressure Coefficient, k_a	At Rest Earth Pressure Coefficient, k_o	Passive Earth Pressure Coefficient, k_p
Level 1 Controlled Fill	20 kN/m ³	30°	5kPa	0.33	1.05	3.00
Residual Soil	20 kN/m ³	26°	5kPa	0.40	0.90	2.55
XW-HW Phyllite	22 kN/m ³	30°	5kPa	0.33	1.05	3.00

The earth pressure coefficients detailed in Table 5 have been calculated using Rankine's Theory assuming level backfill. The retaining wall designer should ensure that the use of this method is appropriate for the individual retaining wall.



4.4 Suitability of Site Soils for Reuse as Controlled Fill

The existing topsoil at the site is not suitable for reuse as controlled fill and will be suitable for landscaping purposes only. The residual clay and extremely to highly weathered phyllite materials are considered suitable for reuse as controlled fill at the site.

If imported materials are required for use as engineered fill, the material should include good quality well graded granular materials (such as crushed or ripped rock), free of deleterious materials and having a maximum particle size of 100mm. The use of clay soils is a feasible alternative but will likely entail more rigorous earthwork monitoring and compaction control, more time drying out the soils, increased potential of delays due to inclement weather and greater eventual cost to earthworks compared with weathered rock materials. Further, the use of reactive clay soils could result in higher foundation costs due to the higher shrink-swell potential and subsequent increase in characteristic free surface movement (y_s) values.

If topsoil is to be disposed of offsite to either a DA approved site or to landfill then the material would be required to be classified as either:

- Excavated Natural Material (ENM) in accordance with the NSW EPA 'Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 – The excavated natural material exemption 2014'; or
- Either General Solid Waste (putrescible), Restricted Solid Waste or Hazardous Waste in accordance with the NSW EPA 'Waste Classification Guidelines – Part 1: Classifying Waste' if the material is to be disposed of to a licensed landfill facility.

If the residual clay and extremely to highly weathered phyllite materials are to be disposed of offsite, the material may be classified as Virgin Excavated Natural Material (VENM) and reused accordingly.

4.5 Bulking Factors for Cut Material

Previous experience on nearby sites where extensive laboratory testing was undertaken on residual clay and highly weathered phyllite materials has shown that the materials should generally compact to a slightly higher density when placed as controlled fill than the material's current in-situ density. The relationship is summarised in Table 6.

Table 6: Bulking Factors for Cut Material

Material	Bank to Truck (loose)	Bank (in-situ) to Bank (Compacted)
Residual Clay and X-HW Phyllite	1.3	0.95 to 1.0

4.6 Stripping, Fill Placement & Compaction Control

The following general comments and recommendations are provided regarding subgrade preparation, fill placement and compaction control.

- All root affected material, uncontrolled fill and topsoil should be fully stripped and



stockpiled for later reuse for landscaping purposes over the site. These materials are not considered suitable for reuse as engineered fill;

- Following stripping to an appropriate foundation level below fill areas, the exposed subgrade materials should be proof rolled to identify any wet, excessively deflecting or other deleterious material. Any such areas should be over-excavated down to a stiff base and backfilled with a clean select material. Any such areas are likely to be isolated;
- Controlled fill should be placed in layers not exceeding 250mm loose thickness. Fill below structures and pavement areas should be compacted to a minimum dry density ratio of not less than 98% Standard. The upper 300mm below pavements should be compacted to a minimum density ratio of 100% standard compaction;
- Fill should be placed and maintained at $\pm 2\%$ of Standard OMC;
- Where footings are to be founded within fill (i.e. within the proposed industrial lots) it must be undertaken in accordance with Level 1 construction monitoring and testing as defined in AS3798 – 2007 '*Guidelines on earthworks for residential and commercial developments*'. The Level 1 fill must extend beyond the footprint of the proposed buildings at a projected vertical angle of 45° to ensure that the Level 1 fill extends to at least the zone of influence of the footings. Level 1 control enables the nominated Geotechnical Inspection and Testing Authority (generally a NATA accredited laboratory) to be able to express an opinion on the compliance of the work (extents, material suitable, compaction achieved, etc.) and involves having an experienced Geotechnician onsite while all stripping inspections, fill placement and compaction works are being undertaken; and
- Filling below pavements or in areas of individual lots where structures are not proposed should be carried out in accordance with Level 2 construction monitoring and testing as defined in AS3798 – 2007. Level 2 control involves undertaking sampling and testing as required or specified within the project specification and does not involve full time supervision.

5 FOUNDATIONS

5.1 Preliminary Site Classification

Upslope of the existing farm dam in the south of the site is a deeper topsoil profile that extends to a depth of 0.7m. This area of the site in its current condition is therefore classified as **Class 'P'** in accordance with AS2870-2011 '*Residential slabs and footings*' due to the presence of topsoil to a depth of greater than 0.4m.

The remainder of the site is currently underlain by a thin topsoil layer that overlies residual clay that grades into weathered phyllite. The preliminary site classification presented herein is based on the following:

- Depth of design suction change of $H_s=1.5\text{m}$;
- Crack depth multiplication factor of 0.5;
- Change in suction at design surface level of $\Delta u=1.2$;



- Shrink-swell index of 1.3% for the residual soil and extremely to highly weathered phyllite materials, including when the site won material is placed as Level 1 controlled fill at the site; and
- Mature trees are located closer than half the mature height of the tree from proposed structures.

Based on the above the remainder of the site in its current condition may be classified for preliminary design purposes as **Class 'M'** (moderately reactive) with a characteristic surface movement of $y_s = 25\text{mm}$.

If the residual clay and extremely to highly weathered phyllite materials are reused as controlled fill on the site (i.e. placed under Level 1 conditions as defined by AS3798-2007) the site would be reclassified as a **Class 'M'** site with a characteristic surface movement of 30mm.

It is recommended that individual lot classifications be undertaken at the completion of bulk earthworks.

Changes to the soil moisture regime resulting from leaking services or the effects of tree roots can affect foundation movement. Appropriate site drainage must be maintained during and post construction and it is recommended that tree removal be undertaken as soon as possible to allow the soil moisture profile to reach equilibrium prior to construction.

Shrink-swell related movements can be affected by alterations to the soil profile by cutting and filling, and by the suction related effects of trees close to the building area. The effects of any such cutting, filling or tree planting should be considered when selecting design values for differential movement across the slab.

5.2 Foundation Options & Design Parameters

The site is to be developed as an industrial subdivision and the size and type of the structures that are to be build will be dependent on the size of the lot and the purchaser, however, it is envisaged that shallow footings systems comprising pad/strip footings or raft slabs will likely be appropriate.

As discussed in Section 4.6, it is recommended that where fill is to be placed to support structures that it be placed under Level 1 conditions as defined by AS3798-2007. If structures are proposed to be constructed in areas of the site that are to be underlain by uncontrolled fill or Level 2 controlled fill then it is recommended that either site specific geotechnical investigations be undertaken following the completion of bulk earthworks or the structures be supported on piles that extend through the fill to found within the underlying residual clay or extremely to highly weathered phyllite.

Shallow foundations may be designed based on the parameters presented in Table 7.



Table 7: Allowable Base Bearing Capacity for Shallow Footings

Material	Allowable Base Bearing Capacity (kPa)
Controlled fill placed under Level 1 conditions as defined by AS3798-2007	100
Residual Clay	150
Extremely to Highly Weathered Phyllite	200

If piled foundations are proposed then it is recommended that further geotechnical assessment be undertaken for the individual structures.

It is typically recommended that all footings for an individual structure be founded on similar materials. All footings, edge beams and internal beams should be founded outside or below the zones of influence resulting from existing or future service trenches, retaining walls or other subsurface structures.

Prior to the placement of concrete, we recommend that footings be observed and assessed by a suitably experienced Geotechnical Engineer to assess that the correct founding material has been achieved.

Footings should be constructed as soon as practical upon reaching the founding depth and the foundations should not be left exposed and allowed to become wet and soften. If construction is delayed, the base of the foundation excavations should be blinded to prevent softening of soils and to provide a working platform for construction of the footings.

6 PAVEMENTS

6.1 Proposed Pavements & Design Traffic

It is understood that the proposed industrial subdivision is to comprise the construction of two internal pavements that are to connect to Red Ash Road.

Typically, in the absence of site specific traffic data AUS-SPEC recommends that industrial pavements be designed based on a design traffic of 1×10^7 ESAs. It is therefore recommended that a design traffic of 1×10^7 ESAs be adopted for both the proposed internal pavements and Red Ash Road.

6.2 Subgrade

Laboratory testing undertaken as part of the assessment indicates that the residual clay and the extremely to highly weathered phyllite have a laboratory CBR of between 4 and 10%, which is consistent with previous experience on nearby sites.

It is recommended that for preliminary design purposes that a CBR of 4% be adopted.



Following the completion of bulk earthworks, it is recommended that additional CBR testing be undertaken on subgrade samples from the internal roads with the aim of potentially reducing the pavement thickness if higher CBRs are encountered.

6.3 Existing Red Ash Road Pavement

Three boreholes were drilled through the existing Red Ash Road pavement along the eastern site boundary. A total pavement thickness of between 850 and 1000mm was encountered, with a 160mm thick base course being encountered in BH2 and a 180mm thick base course in BH3. BH1 was drilled beyond the pavement seal and a base course was not encountered.

When assessed with a subgrade CBR of 4%, the existing Red Ash Road pavement thickness exceeds the total pavement thickness of 550mm that is required for a design traffic of 1×10^7 ESAs. A base thickness of 170mm is required and the base thicknesses encountered within the boreholes is considered to be within the general construction tolerances that would be expected to have been applied at the time of construction.

It is recommended that Benkelman Beam testing (full bowl) be undertaken on Red Ash Road to determine the remaining design life of the pavement and to potentially identify any sections of the pavement that are likely to perform poorly because of the increased design traffic and may require remedial works.

6.4 Preliminary Pavement Thickness Design – Internal Pavements

The recommended preliminary pavement thickness design for the internal pavements within the proposed industrial subdivision is presented on the Pavement Thickness Design Sheet presented in Appendix C.

The design includes a 40mm AC wearing course, a 170mm thick base course (DGB20), a 150mm thick subbase (DGS40) and a 190mm thick select layer. Alternatively, a two coat seal could be adopted if the select layer is increased by 40mm.

As discussed in Section 6.2, it is recommended that additional subgrade CBR testing be undertaken following the completion of bulk earthworks.

6.5 Pavement Construction & Drainage

Construction recommendations for specific pavement designs are included in the appended Pavement Thickness Design Sheet. The following points are also provided to assist with construction methodology:

- Where new construction joins onto existing pavements the existing pavement layers should be benched to avoid a vertical joint extending through the pavements at the interface;
- Traffic should be prevented from travelling on partially completed pavement sections;



- Where final sealing cannot be undertaken within a few days of completion of the base course, a primer seal should be used to protect the pavement and maintain equilibrium moisture content. Traffic should not be allowed on a primer seal for more than a few days prior to final sealing;
- Pavement gravels should be placed and maintained at 60% to 90% of Optimum Moisture Content. Should wet weather occur prior to final sealing, the base course should be allowed to dry back to not more than 90% of Optimum Moisture Content prior to sealing. Trapping of excess moisture below the final seal will significantly reduce pavement life;
- Where a two coat seal is adopted, sealing should be avoided during winter months or at times when pavement temperatures of less than 15 degrees are likely, due to the potential for microcracking of the pavement surface, which can lead to water ingress, pumping of fines, and flushing or embedment of aggregate within wheel paths within a very short time frame. If sealing during winter or cold weather is required, consideration should be given to placing a 7mm primer seal that can remain in place for several weeks, with placement of the two-coat seal then able to be undertaken at a time when the pavement can be dried to remove excess moisture from the upper part of the base course and the microcracking in the primer can be sealed over; and
- Where pavement geometry and surrounding ground does not allow lateral drainage to a table drain, a sump should be provided at the outer edge of the shoulder, with geofabric wrapped subsoil drain installed, draining along the edge of the pavement to discharge to the site storm water system or other suitable outlet.

7 LIMITATIONS

The findings presented in the report and used as the basis for recommendations presented herein were obtained using normal, industry accepted geotechnical and pavement design practises and standards. To our knowledge, they represent a reasonable interpretation of the general condition of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points. If site conditions encountered during construction vary significantly from those discussed in this report, Regional Geotechnical Solutions Pty Ltd should be contacted for further advice.

This report alone should not be used by contractors as the basis for preparation of tender documents or project estimates. Contractors using this report as a basis for preparation of tender documents should avail themselves of all relevant background information regarding the site before deciding on selection of construction materials and equipment.



If you have any questions regarding this project, or require any additional consultations, please contact the undersigned.

For and on behalf of

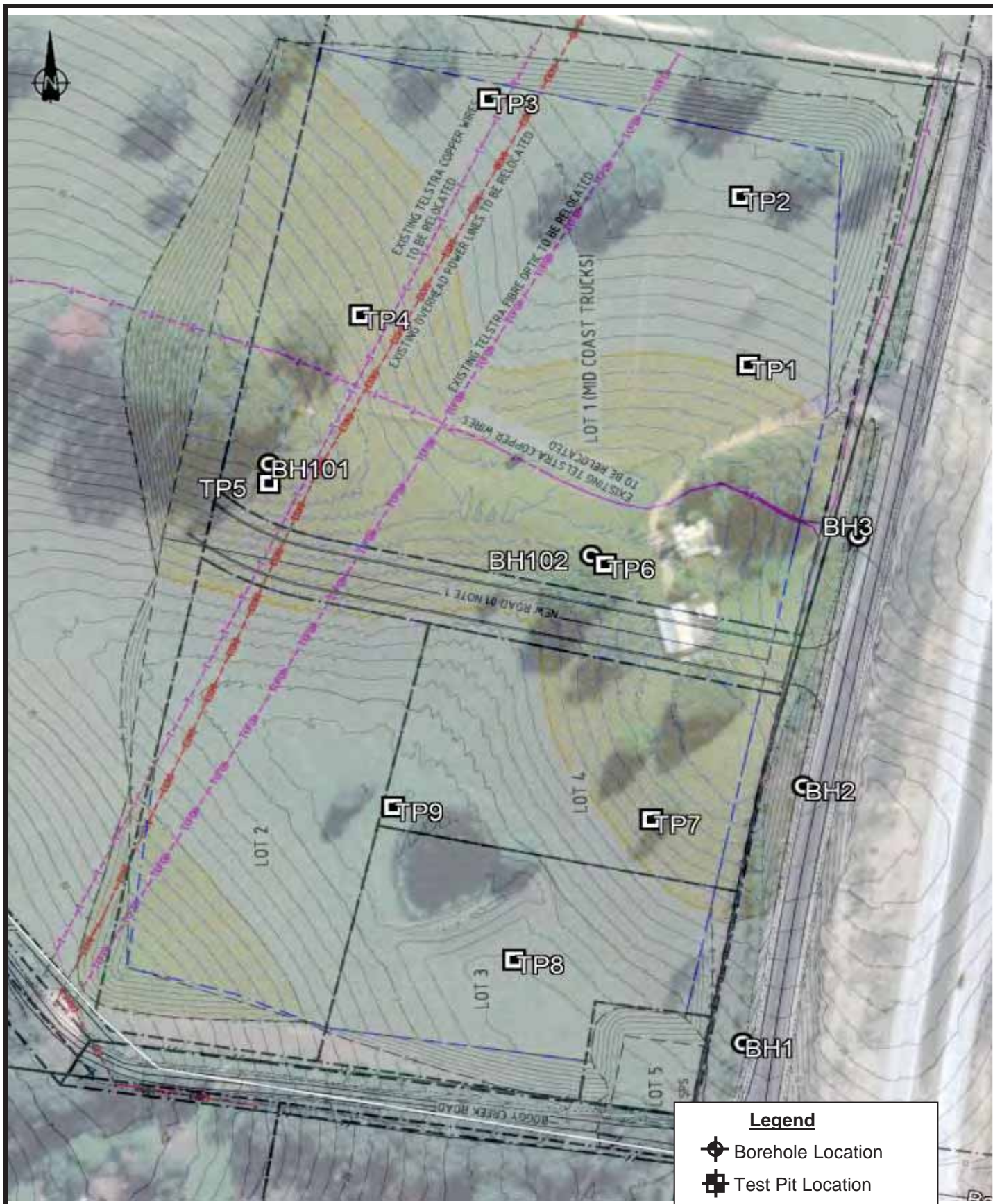
Regional Geotechnical Solutions Pty Ltd

Simon Keen

Senior Geotechnical Engineer



Figures



	Client:	Jed Civil	Job No.	RGS31376.1
	Project:	Proposed Industrial Subdivision - Boggie Creek	Drawn By:	SK
		80 Red Ash Road, Valla	Scale:	NTS
	Title:	Test Location Plan	Date:	19-Mar-18
			Drawing No.	Figure 1



Appendix A

Results of Field Investigations



ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH1**

CLIENT: Jed Civil

PAGE: 1 of 1

PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek

JOB NO: RGS31376.1

SITE LOCATION: 80 Red Ash Road, Valla

LOGGED BY: SK

TEST LOCATION: Refer to Figure 1 - Northbound Shoulder-Beyond Seal DATE: 23/1/18

DRILL TYPE: Hitachi 4T Excavator

EASTING: 497456 m

SURFACE RL:

BOREHOLE DIAMETER: 450 mm

INCLINATION: 90°

NORTHING: 6612474 m

DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
AUGER	Not Encountered			0.5		GP	FILL: Sandy GRAVEL, fine to coarse grained, grey to grey-brown, fine to coarse Sand, trace fines	D / M	VD			FILL
						GP	FILL: Silty GRAVEL, fine to coarse grained, pale brown to pale grey and orange-brown, Weathered phyllite Gravel	D	D			FILL
						CL	Silty CLAY: Low plasticity, yellow-brown to orange-brown, traces of Highly Weathered Gravel	M < w _p	Fb			EXTREMELY WEATHERED PHYLLITE
				1.0								
				1.35								
				1.5			Hole Terminated at 1.35 m					
				2.0								
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH2**

CLIENT: Jed Civil

PAGE: 1 of 1

PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek

JOB NO: RGS31376.1

SITE LOCATION: 80 Red Ash Road, Valla

LOGGED BY: SK

TEST LOCATION: Refer to Figure 1 - Northbound Shoulder

DATE: 23/1/18

DRILL TYPE: Hitachi 4T Excavator

EASTING: 497479 m

SURFACE RL:

BOREHOLE DIAMETER: 450 mm

INCLINATION: 90°

NORTHING: 6612581 m

DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result		
AUGER	Not Encountered			<div><div></div><div>0.5</div><div></div><div></div><div>1.0</div><div>}}</div><div>}}</div><div>}}</div><div>}}</div><div>1.20m</div></div>		0.02m	BITUMEN: 20mm FILL: Sandy GRAVEL, f8fine to medium grained, pale brown, fine to coarse Sand, trace fines	D	VD			2 COAT SEAL PAVEMENT - Base course	
						0.18m	FILL: Clayey Sandy GRAVEL, fine to coarse grained, grey, fine to coarse Sand, low plasticity fines, Gravel possibly of mixed origins	M	D			FILL	
						0.80m	FILL: Silty GRAVEL, fine to coarse grained, grey-brown, low plasticity fines, some Sand, Weathered Metasiltstone	M	MD			FILL	
						1.00m	PHYLLITE: Highly Weathered, very low strength, pale brown to orange-brown					HIGHLY WEATHERED PHYLLITE	
				<div><div></div><div>1.5</div><div></div><div></div><div>2.0</div><div></div><div></div><div></div><div></div><div>2.5</div><div></div><div></div><div></div><div></div></div>		Hole Terminated at 1.20 m							

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	




ENGINEERING LOG - BOREHOLE

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1 - Northbound Shoulder

BOREHOLE NO: **BH3**
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

DRILL TYPE: Hitachi 4T Excavator
BOREHOLE DIAMETER: 450 mm
INCLINATION: 90°
EASTING: 497500 m
NORTHING: 6612685 m
SURFACE RL: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
AUGER	Not Encountered	B 0.15m				GP	0.02m BITUMEN: 20mm FILL: Sandy GRAVEL, fine to medium grained, grey-brown, fine to coarse Sand, trace fines	D	VD			2 COAT SEAL PAVEMENT GRAVEL - Base course
		GP				0.20m FILL: Silty Sandy GRAVEL, fine to coarse grained, brown and orange-brown, fine to coarse Sand, low plasticity fines	M	D	FILL			
		CL				0.90m Silty CLAY: Low plasticity, orange-brown, trace of High Weathered Gravel	M < w _p	Fb	EXTREMELY WEATHERED PHYLLITE			
					1.20m	Hole Terminated at 1.20 m						
				1.5								
				2.0								
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water				VS	Very Soft	<25	D	Dry
Water Level		U ₅₀	50mm Diameter tube sample	S	Soft	25 - 50	M	Moist
(Date and time shown)		CBR	Bulk sample for CBR testing	F	Firm	50 - 100	W	Wet
Water Inflow		E	Environmental sample	St	Stiff	100 - 200	W _p	Plastic Limit
Water Outflow		ASS	Acid Sulfate Soil Sample	VSt	Very Stiff	200 - 400	W _L	Liquid Limit
		B	Bulk Sample	H	Hard	>400		
				Fb	Friable			
Strata Changes		Field Tests		Density				
Gradational or transitional strata		PID	Photoionisation detector reading (ppm)	V	Very Loose		Density Index	<15%
Definitive or distinct strata change		DCP(x-y)	Dynamic penetrometer test (test depth interval shown)	L	Loose		Density Index	15 - 35%
		HP	Hand Penetrometer test (UCS kPa)	MD	Medium Dense		Density Index	35 - 65%
				D	Dense		Density Index	65 - 85%
				VD	Very Dense		Density Index	85 - 100%



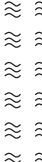


ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP1**
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator
TEST PIT LENGTH: WIDTH: EASTING: 497458 m SURFACE RL: NORTHING: 6612756 m DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result		
450mm Toothed Bucket	Not Encountered					ML	TOPSOIL: Clayey SILT, low plasticity, dark grey	M < w _p	Fb			TOPSOIL	
		0.30m				CL	Silty CLAY: Medium plasticity, brown, traces fine quartz Gravel	M < w _p	H / Fb			RESIDUAL SOIL	
		B											
		0.50m											
				0.5									
				1.0		CL	Silty CLAY: Low plasticity, yellow-brown and orange-brown, trace High Weathered Gravel	M < w _p	H / Fb			EXTREMELY WEATHERED PHYLLITE	
				1.5									
				2.0			PHYLLITE: Extremely to Highly Weathered, extremely low strength, pale grey and orange-brown, highly foliated					EXTREMELY TO HIGHLY WEATHERED PHYLLITE	
				2.5			Hole Terminated at 2.00 m						

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	

ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP2**



PAGE: 1 of 1

JOB NO: RGS31376.1

LOGGED BY: SK




DATE: 23/1/18

EQUIPMENT TYPE:	Hitachi 4T Excavator	EASTING:	497455 m	SURFACE RL:	
TEST PIT LENGTH:		NORTHING:	6612826 m	DATUM:	AHD
WIDTH:					

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm Toothed Bucket	Not Encountered					ML	TOPSOIL: Clayey SILT, low plasticity, dark grey	$M < w_p$				TOPSOIL
		0.25m				CL	Silty CLAY: Medium plasticity, brown to red-brown, traces of fine to medium quartz Gravel	$M < w_p$	VSt			RESIDUAL SOIL
		U50		0.5								
		0.60m		1.0								
				1.5			Interbedded zones of weakly cemented material			HP	350	
				2.0			Hole Terminated at 1.60 m					
				2.5								

LEGEND:

Water

-  Water Level
 (Date and time shown)
-  Water Inflow
-  Water Outflow

Strata Changes

- Strata changes
- — Gradational or transitional strata
 - Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|-----------------------------|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample |
| ASS | Acid Sulfate Soil Sample |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

Consistency

- | | | |
|-----|------------|-----------|
| VS | Very Soft | <25 |
| S | Soft | 25 - 50 |
| F | Firm | 50 - 100 |
| St | Stiff | 100 - 200 |
| VSt | Very Stiff | 200 - 400 |
| H | Hard | >400 |
| Fb | Friable | |

UCS (kPa)
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700
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3900
4000
4100
4200
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8300
8400
8500
8600
8700
8800
8900
9000
9100
9200
9300
9400
9500
9600
9700
9800
9900
10000

- | | | |
|-----|------------|-----------|
| VS | Very Soft | <25 |
| S | Soft | 25 - 50 |
| F | Firm | 50 - 100 |
| St | Stiff | 100 - 200 |
| VSt | Very Stiff | 200 - 400 |
| H | Hard | >400 |
| Fb | Friable | |

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_L | Liquid Limit |

Density

- | Density | | | |
|---------|--------------|---------------|-----------|
| V | Very Loose | Density Index | <15% |
| L | Loose | Density Index | 15 - 35% |
| MD | Medium Dense | Density Index | 35 - 65% |
| D | Dense | Density Index | 65 - 85% |
| VD | Very Dense | Density Index | 85 - 100% |

ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil

PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek

SITE LOCATION: 80 Red Ash Road, Valla

TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP3**

PAGE: 1 of 1

JOB NO: RGS31376.1

LOGGED BY: SK

DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator

EASTING: 497359 m

SURFACE RL:

TEST PIT LENGTH: WIDTH:




NORTHING: 6612867 m

DATUM: AHD

[illegible]

LEGEND:

Water

-  Water Level
(Date and time shown)
-  Water Inflow
-  Water Outflow

Strata Changes

- — Gradational or transitional strata
— Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|-----------------------------|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample |
| ASS | Acid Sulfate Soil Sample |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

Consistency

- | | |
|-----|------------|
| VS | Very Soft |
| S | Soft |
| F | Firm |
| St | Stiff |
| VSt | Very Stiff |
| H | Hard |
| Fb | Friable |

UCS (kPa)

- | | | |
|----------------|------------|--------------|
| VS | Very Soft | <25 |
| S | Soft | 25 - 50 |
| F | Firm | 50 - 100 |
| St | Stiff | 100 - 200 |
| VSt | Very Stiff | 200 - 400 |
| H | Hard | >400 |
| Fb | Friable | |
| Density | V | Very Loose |
| | L | Loose |
| | MD | Medium Dense |
| | D | Dense |
| | VD | Very Dense |

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_L | Liquid Limit |

- Density Index <15%
Density Index 15 - 35%
Density Index 35 - 65%
Density Index 65 - 85%
Density Index 85 - 100%






ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP4**
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator
TEST PIT LENGTH: WIDTH: EASTING: 497310 m SURFACE RL: NORTHING: 6612777 m DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm Toothed Bucket	Not Encountered					ML	TOPSOIL: Gravelly SILT, low plasticity, dark grey to brown, fine to medium quartz Gravel	M < w _p		HP	500	TOPSOIL
				0.15m		CL	Silty CLAY: Medium plasticity, pale grey to yellow-brown, trace to some fine to medium quartz to 70mm	M < w _p	H			RESIDUAL SOIL
		1.00m		0.5m		0.80m	CL	Silty CLAY: Low plasticity, pale grey mottled yellow and orange-brown, trace highly weathered Gravel	M < w _p	H	EXTREMELY WEATHERED PHYLLITE	
				1.0m		1.00m		PHYLLITE: Highly Weathered, extremely low to very low strength, pale grey and orange-brown, interbedded, extremely weathered material, highly foliated			HIGHLY WEATHERED PHYLLITE	
		2.00m		2.0m								
				2.20m			Hole Terminated at 2.20 m					
				2.5m								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP5**
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator
TEST PIT LENGTH: WIDTH:

EASTING: 497275 m SURFACE RL:
NORTHING: 6612707 m DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm Toothed Bucket	Not Encountered					ML	TOPSOIL: Clayey SILT, low plasticity, grey-brown	M < w _p				TOPSOIL
				0.15m		CL	Silty CLAY: Low to medium plasticity, traces of quartz Gravel	M < w _p	VSt / H			RESIDUAL SOIL
		0.90m		0.90m		CL	Silty CLAY: Low plasticity, pale brown and orange-brown, traces of some highly weathered, extremely low strength material	M < w _p	H / Fb			EXTREMELY TO HIGHLY WEATHERED PHYLLITE
		B		1.50m			PHYLLITE: Highly Weathered, extremely to very low strength, pale brown and orange-brown, interbedded extremely weathered material					HIGHLY WEATHERED PHYLLITE
		1.60m		1.60m			Hole Terminated at 1.60 m					
				2.0								
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP6**
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator
TEST PIT LENGTH: WIDTH: EASTING: 497403 m SURFACE RL: NORTHING: 6612673 m DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm Toothed Bucket	Not Encountered					ML	TOPSOIL: Clayey SILT, low plasticity, black	M < w _p				TOPSOIL
				0.20m		CL	Silty CLAY: Low to medium plasticity, yellow-brown	M < w _p	H / Fb			RESIDUAL SOIL
		1.00m		1.0		CL	Silty CLAY/Clayey SILT: Low plasticity, pale grey and yellow-brown, highly foliated	M < w _p	H / Fb			EXTREMELY WEATHERED PHYLLITE
		B		1.30m								
		1.30m		1.5			PHYLLITE: Highly Weathered, extremely to very low strength, pale grey and yellow-brown, highly foliated, interbedded extremely weathered material					HIGHLY WEATHERED PHYLLITE
				1.80m			Hole Terminated at 1.80 m					
				2.0								
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP7**
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator
TEST PIT LENGTH: WIDTH: EASTING: 497421 m SURFACE RL: NORTHING: 6612567 m DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm Toothed Bucket	Not Encountered	0.25m				ML	TOPSOIL: Clayey SILT, low plasticity, grey	M < w _p				TOPSOIL
		U50		0.5		CL	Silty CLAY: Medium plasticity, yellow-brown	M < w _p	VSt / H			RESIDUAL SOIL
		0.60m		1.0								
		1.20m		1.5			PHYLLITE: Extremely to Highly Weathered to very low strength, pale grey and pale brown to orange-brown, foliated					EXTREMELY TO HIGHLY WEATHERED PHYLLITE
		B		1.80m			Hole Terminated at 1.80 m					
				2.0								
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: TP8
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator
TEST PIT LENGTH: WIDTH: EASTING: 497368 m SURFACE RL: NORTHING: 6612508 m DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm Toothed Bucket	Not Encountered				ML		TOPSOIL: Clayey SILT, low plasticity, dark brown to dark grey	M < w _p				TOPSOIL
					CL		Silty CLAY: Medium plasticity, pale brown and yellow-brown Becoming pale brown and red-brown, interbedded zones of weakly cemented material	M > w _p	VSt	HP	200	RESIDUAL SOIL
				2.0			Hole Terminated at 1.90 m					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water Water Level (Date and time shown) Water Inflow Water Outflow		U ₅₀ 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample ASS Acid Sulfate Soil Sample B Bulk Sample		VS Very Soft	<25		D Dry	
Strata Changes Gradational or transitional strata Definitive or distinct strata change		Field Tests PID Photoionisation detector reading (ppm) DCP(x-y) Dynamic penetrometer test (test depth interval shown) HP Hand Penetrometer test (UCS kPa)		S Soft	25 - 50		M Moist	
				F Firm	50 - 100		W Wet	
				St Stiff	100 - 200		W _p Plastic Limit	
				VSt Very Stiff	200 - 400		W _L Liquid Limit	
				H Hard	>400			
				Fb Friable				
				Density	V Very Loose	Density Index <15%		
					L Loose	Density Index 15 - 35%		
					MD Medium Dense	Density Index 35 - 65%		
					D Dense	Density Index 65 - 85%		
					VD Very Dense	Density Index 85 - 100%		



ENGINEERING LOG - TEST PIT

CLIENT: Jed Civil
PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek
SITE LOCATION: 80 Red Ash Road, Valla
TEST LOCATION: Refer to Figure 1

TEST PIT NO: **TP9**
PAGE: 1 of 1
JOB NO: RGS31376.1
LOGGED BY: SK
DATE: 23/1/18

EQUIPMENT TYPE: Hitachi 4T Excavator
TEST PIT LENGTH: WIDTH: EASTING: 497322 m SURFACE RL: NORTHING: 6612572 m DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm Toothed Bucket	Not Encountered					ML	TOPSOIL: Clayey SILT, low plasticity, grey to dark grey	M < w _p	Fb			TOPSOIL
		0.70m				CL	Silty CLAY: Medium plasticity, pale brown, mottled brown and orange-brown	M > w _p	VSt	HP	250	RESIDUAL SOIL
		B 1.10m					Becoming brown and red-brown, with traces of quartz Gravel					
				2.0			Hole Terminated at 2.00 m					
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH101**

CLIENT: Jed Civil

PAGE: 1 of 2

PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek

JOB NO: RGS31376.1

SITE LOCATION: 80 Red Ash Road, Valla

LOGGED BY: DR

TEST LOCATION: Refer to Figure 1

DATE: 8/2/18

DRILL TYPE: Tightsite Truck Mounted Rig

EASTING: 497275 m

SURFACE RL:

BOREHOLE DIAMETER: 125 mm

INCLINATION: 90°

NORTHING: 6612715 m

DATUM:

AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
AD/TC	Not Encountered						TOPSOIL: Clayey SILT, high plasticity, dark brown, some organics Clayey SILT: Medium plasticity, pale grey/orange	M	St			TOPSOIL
		1.00m		1.0		ML		M > w _p				RESIDUAL SOIL
		SPT 3.4.8 N=12							VSt			
		1.45m		2.0			Trace relic rock structure			HP	250	
		2.50m										
		SPT 30/150 N=R		3.0			PHYLLITE: Extremely weathered, extremely low strength, brown/orange, foliated	M < w _p	H / Fb			EXTREMELY WEATHERED PHYLLITE
		2.65m										
							Some small quartz veins					
		4.00m		4.0								
		SPT 30/150 N=R										
		4.15m		5.0								
		5.50m										
		SPT 30/150 N=R		6.0			Becoming pale grey					
		5.65m										
		7.00m		7.0								
		SPT 30/110 N=R										
		7.11m										

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH101**

CLIENT: Jed Civil

PAGE: 2 of 2

PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek

JOB NO: RGS31376.1

SITE LOCATION: 80 Red Ash Road, Valla

LOGGED BY: DR

TEST LOCATION: Refer to Figure 1

DATE: 8/2/18

DRILL TYPE: Tightsite Truck Mounted Rig

EASTING: 497275 m

SURFACE RL:

BOREHOLE DIAMETER: 125 mm

INCLINATION: 90°

NORTHING: 6612715 m

DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
AD/TC		8.50m					PHYLLITE: Extremely weathered, extremely low strength, brown/orange, foliated (<i>continued</i>)	M < W _p	H / Fb			EXTREMELY WEATHERED PHYLLITE
		SPT 30/80 N=R 8.58m										HIGHLY WEATHERED PHYLLITE
		10.00m		10.0			PHYLLITE: Highly weathered, extremely low to low strength, pale grey, foliated					
		SPT 30/90 N=R 10.09m		9.0								
				14.0			Hole Terminated at 14.00 m					
				15.0								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH102**

CLIENT: Jed Civil

PAGE: 1 of 2

PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek

JOB NO: RGS31376.1

SITE LOCATION: 80 Red Ash Road, Valla

LOGGED BY: DR

TEST LOCATION: Refer to Figure 1

DATE: 9/2/18

DRILL TYPE: Tightsite Truck Mounted Rig

EASTING: 497397 m














SURFACE RL:

BOREHOLE DIAMETER: 125 mm

INCLINATION: 90°

NORTHING: 6612672 m

DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
AD/TC	Not Encountered	1.00m SPT 6,14,30/140 N=R 1.30m		1.0		ML	0.25m Clayey SILT: TOPSOIL: Clayey SILT, medium plasticity, dark brown, some organics	M				TOPSOIL
						ML	Clayey SILT: Medium plasticity, brown	M < w _p	H			RESIDUAL SOIL
		4.50m SPT 15,30/150 N=R 4.80m		2.0			Trace of relic rock structure					
		7.00m SPT 30/80 N=R 7.08m		3.0								
				4.0			3.60m PHYLLITE: Extremely weathered, extremely low strength, brown/orange, grey, folliated		Fb			EXTREMELY WEATHERED PHYLLITE
				5.0			Quartz band					
				6.0								
				7.0								
												
												
												
												
												
												

LEGEND:

Water

- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes

- Gradational or transitional strata
- Definitive or distinct strata change

Notes, Samples and Tests

- U₅₀ 50mm Diameter tube sample
- CBR Bulk sample for CBR testing
- E Environmental sample
- ASS Acid Sulfate Soil Sample
- B Bulk Sample

Field Tests

- PID Photoionisation detector reading (ppm)
- DCP(x-y) Dynamic penetrometer test (test depth interval shown)
- HP Hand Penetrometer test (UCS kPa)

Consistency

- VS Very Soft
- S Soft
- F Firm
- St Stiff
- VSt Very Stiff
- H Hard
- Fb Friable

UCS (kPa)

- <25
- 25 - 50
- 50 - 100
- 100 - 200
- 200 - 400
- >400

Moisture Condition

- D Dry
- M Moist
- W Wet
- w_p Plastic Limit
- w_L Liquid Limit

Density

- V Very Loose
- L Loose
- MD Medium Dense
- D Dense
- VD Very Dense

- Density Index <15%
- Density Index 15 - 35%
- Density Index 35 - 65%
- Density Index 65 - 85%
- Density Index 85 - 100%



ENGINEERING LOG - BOREHOLE

BOREHOLE NO: **BH102**

CLIENT: Jed Civil

PAGE: 2 of 2

PROJECT NAME: Proposed Industrial Subdivision - Boggy Creek

JOB NO: RGS31376.1

SITE LOCATION: 80 Red Ash Road, Valla

LOGGED BY: DR

TEST LOCATION: Refer to Figure 1

DATE: 9/2/18

DRILL TYPE: Tightsite Truck Mounted Rig

EASTING: 497397 m

SURFACE RL:

BOREHOLE DIAMETER: 125 mm

INCLINATION: 90°

NORTHING: 6612672 m

DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
AD/TC		10.00m SPT 30/80 N=R 10.08m		9.0	~ ~ ~ ~ ~	9.80m	PHYLLITE: Extremely weathered, extremely low strength, brown/orange, grey, foliated (<i>continued</i>)	M < W _p	Fb			EXTREMELY WEATHERED PHYLLITE
				10.0	~ ~ ~ ~ ~		PHYLLITE: Highly weathered, extremely low to low strength, pale grey, foliated					HIGHLY WEATHERED PHYLLITE
				11.0	~ ~ ~ ~ ~							
				12.0	~ ~ ~ ~ ~							
				13.0	~ ~ ~ ~ ~							
				14.0	~ ~ ~ ~ ~	14.00m	Hole Terminated at 14.00 m					
				15.0	~ ~ ~ ~ ~							

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



Appendix B

Laboratory Test results



AC TESTING SERVICES

AC Testing Services:Accreditation No.19604

2/1 Monro St, Nambucca Heads, NSW 2448

ABN: 38578525858

Ph:0438857377

Client: Regional Geotechnical Solutions
 Address: 14,25-27 Hurley Drive,
 Coffs Harbour, NSW, 2450
 Project: RGS31376.1-Jed Civil
 Industrial Subdivison-Boggy Creek
 Location: 80 Red Ash Rd, Valla

Report No. ACTS-1533

Issue No. 1

Date Sampled 25.01.18

Date Tested: 02.02.18

Sample No See Below

By: Client

Page: of 1

CALIFORNIA BEARING RATIO REPORT

Sample No.	ACTS18-01-052	ACTS18-01-054	ACTS18-01-055		
Location	TP 1 0.3 - 0.5m	TP 4 1.0 - 2.0m	TP 5 0.9-1.6m		

LABORATORY COMPACTION

LABORATORY REPORT

Maximum Dry Density	t/m3	1.76	1.67	1.81		
Optimum Moisture Content	%	17.2	18.7	15.8		
Material Retained 19.0 mm sieve	%	0.5	0.3	3.0		
Compaction Specified	%	100.0	100.0	100.0		
Compaction Achieved	%	100.4	99.9	100.1		

SPECIMEN DRY DENSITY

i At Compaction	t/m3	1.76	1.67	1.81		
ii After Soaking	t/m3	1.77	1.64	1.86		

SPECIMEN MOISTURE CONTENT

Field / Initial	%	16.2	16.5	14.1		
i At Compaction	%	17.3	18.5	15.7		
ii After Soaking	%	18.2	23.9	17.4		
iii Top 30mm layer	%	18.3	26.0	19.1		
iv Rest of Sample	%	18.2	23.9	17.4		

CBR TEST DETAILS

Soaking Period	days	4	4	4		
Swell	%	4.3	3.4	2.0		
Surcharge mass	kg	4.5	4.5	4.5		

CALIFORNIA BEARING RATIO	%	9.0	4.0	10.0		
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Test Methods Used	F,H,I,J	F,H,I,J	F,H,I,J		
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Test Methods

- A. RMS T111 Dry Density/Moisture Relations of Road Materials (Standard Compaction).
 C. RMS T120 Determination of Moisture Content of Road Materials (Standard Method).
 D. RTA T117 Determination of the California Bearing Ratio of Remoulded Specimens of Road Materials (Standard Method).
 F. AS 1289 5 1.1 Dry Density/Moisture Relationship (Standard Compaction).
 H. AS 1289 2.1.1 Determination of Moisture Content (Standard Method).
 I. AS 1289 6.1.1 Determination of the California Bearing Ratio of A Soil -Standard Method For a Remoulded Specimens .
 J. 2.5 mm result reported, NO repeat test performed.
 K. Sampled according to AS 1141.3.1



Accredited for compliance with ISO/IEC 17025-
 Testing.

Approved Signatory: Adam Crawford

Date: 09.02.18

Report Form No.3



Client: Regional Geotechnical Solutions
Address: 14/25-27 Hurley Drive
Coffs Harbour, NSW, 2450
Project: RGS31376.1 - Jed Civil
Industrial Subdivision-Boggy Creek
Location: 80 Red Ash Rd, Valla

Report No. ACTS-1534
Issue No. 1
Date Sampled: 25.01.18 By: Client
Date Tested: 05.02.18 Page: 1 of 1
Sample No: See Below

**SOIL REACTIVITY REPORT
SHRINK-SWELL INDEX
AS 1289 7.1.1**

Sample No.	ACTS18-01-053	ACTS18-01-057		
Location	80 Red Ash Road , Valla	80 Red Ash Road , Valla		
Test Pit No.	TP 2	TP 7		
Test Depth (m)	0.25 - 0.6	0.25 - 0.6m		
U50 Recovery (m)	0.25 - 0.6	0.25 - 0.6m		
Shrink-Swell Index I _{ss} (%)	1.2	1.2		
Moisture Content of Shrink Specimen (%)	17.0	23.0		
Moisture Content of Swell Specimen Field (%)	16.1	21.9		
After test (%)	19.1	24.3		
Extent of Crumbling during Shrink test	0	0		
Extent of Cracking of the Shrink specimen	Minor	Minor		
Significant Inert Inclusions in the Soil Sample (Estimated %)	0	0		



Accredited for compliance with ISO/IEC 17025 - Testing.

Approved Signatory:

Adam Crawford

Date:

09.02.18



Client: Regional Geotechnical Solutions
Address: 14/25-27 Hurley Drive
Coffs Harbour, NSW, 2450
Project: RGS31376.1 - Jed Civil
Industrial Subdivision-Boggy Creek
Location: 80 Red Ash Rd, Valla

Report No. ACTS-1535
Issue No. 1
Date Sampled: 25.01.18 By: Client
Date Tested: 05.02.18 Page: 1 of 2
Sample No: ACTS18-01-056

**SOIL REACTIVITY REPORT
SHRINK-SWELL INDEX
AS 1289 7.1.1**

Sample No.	ACTS18-01-056			
Location	80 Red Ash Road , Valla			
Test Pit No.	TP 6			
Test Depth (m)	1.0 - 1.3m			
U50 Recovery (m)	1.0 - 1.3m			
Shrink-Swell Index I _{ss} (%)	0.9			
Moisture Content of Shrink Specimen (%)	17.1			
Moisture Content of Swell Specimen Field (%)	17.4			
After test (%)	26.7			
Extent of Crumbling during Shrink test	0			
Extent of Cracking of the Shrink specimen	Minor			
Significant Inert Inclusions in the Soil Sample (Estimated %)	0			

N.B. Shrink/Swell remoulded at 98% of MDD.



Accredited for compliance with ISO/IEC 17025 - Testing.

Approved Signatory:

Adam Crawford

Date:

09.02.18

**AC TESTING SERVICES**

AC Testing Services:Accreditation No. 19604

2/1 Monro St, Nambucca Heads,NSW 2448

ABN: 38578525858

Ph:0438857377

Client:	Regional Geotechnical Solutions	Report No.	ACTS-1535		
Address:	14, 25-27 Hurley Drive, Coffs Harbour, NSW, 2450	Issue No.	1		
Project:	RGS31376.1-Jed Civil	Date Sampled:	25.01.18	By:	Client
	Industrial Subdivison-Boggy Creek	Date Tested:	01.02.18	By:	AC
Location:	80 Red Ash Rd, Valla	Sample No:	ACTS18-01-056	2	of 2

COMPACTION CONTROL TEST REPORT

Test Pit No.		TP 6			
Depth.	(m)	1.0 - 1.3			
-	(m)	-			
-		-			
-	(mm)	-			
-	(mm)	-			
Fraction Tested	%	0.0			
(-19.0 or 37.5mm)	MM	-19.0			
Density Oversize	t/m ³	-			
Field Wet Density	t/m ³	-			
Field Moisture Content	%	15.2			
Field Dry Density	t/m ³	-			
Apparent OMC	%	-			
Max. Converted Wet Density	t/m ³	-			
Moisture	%	-			
Optimum Moisture Content	%	18.8			
Maximum Dry Density	t/m ³	1.69			
Moisture Variation	%	-			
Relative Compaction	%	-			
Compaction Method (A or B)		-			

Remarks:

Moisture Variation Note:

Postive values = test is dryer of OMC

Negative values = test is wetter of OMC

TEST METHODS

AS1289 5.1.1

2.1.1

Approved Signatory:

Adam Crawford

Accredited for compliance with ISO/IEC 17025-Testing

Date of Issue

09.02.18

Report Form No. 13



Client: Regional Geotechnical Solutions
Address: 14/25-27 Hurley Drive
Coffs Harbour, NSW, 2450
Project: RGS31376.1 - Jed Civil
Industrial Subdivision-Boggy Creek
Location: 80 Red Ash Rd, Valla

Report No. ACTS-1536
Issue No. 1
Date Sampled: 25.01.18 By: Client
Date Tested: 05.02.18 Page: 1 of 2
Sample No: ACTS18-01-058

**SOIL REACTIVITY REPORT
SHRINK-SWELL INDEX
AS 1289 7.1.1**

Sample No.	ACTS18-01-058			
Location	80 Red Ash Road , Valla			
Test Pit No.	TP 7			
Test Depth (m)	1.2 - 1.8m			
U50 Recovery (m)	1.2 - 1.8m			
Shrink-Swell Index I _{ss} (%)	1.3			
Moisture Content of Shrink Specimen (%)	20.2			
Moisture Content of Swell Specimen Field (%)	19.6			
After test (%)	23.4			
Extent of Crumbling during Shrink test	0			
Extent of Cracking of the Shrink specimen	Minor			
Significant Inert Inclusions in the Soil Sample (Estimated %)	0			

N.B. Shrink/Swell remoulded at 98% of MDD.



Accredited for compliance with ISO/IEC 17025 - Testing.

Approved Signatory:

Adam Crawford

Date:

09.02.18



AC TESTING SERVICES

AC Testing Services:Accreditation No. 19604

2/1 Monro St, Nambucca Heads,NSW 2448

ABN: 38578525858

Ph:0438857377

Client:	Regional Geotechnical Solutions	Report No.	ACTS-1536		
Address:	14, 25-27 Hurley Drive, Coffs Harbour, NSW, 2450	Issue No.	1		
Project:	RGS31376.1-Jed Civil	Date Sampled:	25.01.18	By:	Client
	Industrial Subdivison-Boggy Creek	Date Tested:	01.02.18	By:	AC
Location:	80 Red Ash Rd, Valla	Sample No:	ACTS18-01-058	2	of 2

COMPACTION CONTROL TEST REPORT

Test Pit No.		TP 7			
Depth.	(m)	1.2 - 1.8			
-	(m)	-			
-		-			
-	(mm)	-			
-	(mm)	-			
Fraction Tested	%	0.0			
(-19.0 or 37.5mm)	MM	-19.0			
Density Oversize	t/m ³	-			
Field Wet Density	t/m ³	-			
Field Moisture Content	%	17.6			
Field Dry Density	t/m ³	-			
Apparent OMC	%	-			
Max. Converted Wet Density	t/m ³	-			
Moisture	%	-			
Optimum Moisture Content	%	18.8			
Maximum Dry Density	t/m ³	1.70			
Moisture Variation	%	-			
Relative Compaction	%	-			
Compaction Method (A or B)		-			

Remarks:

Moisture Variation Note:

Postive values = test is dryer of OMC

Negative values = test is wetter of OMC

TEST METHODS

AS1289 5.1.1

2.1.1

Approved Signatory:

Adam Crawford

Accredited for compliance with ISO/IEC 17025-Testing

Date of Issue

09.02.18

Report Form No. 13



Appendix C

Pavement Thickness Design Sheets

FLEXIBLE PAVEMENT THICKNESS DESIGN

CLIENT: Jed Civil
PROJECT: Proposed Industrial Subdivision
LOCATION: 80 Red Ash Road, Valla

Job No.: RGS31376.1-AC
Date: 20-Feb-18



ROAD NAME:		Internal pavements		Refer to drawing:	
Chainage Interval (m):				Road classification ref: N/A	
Road Classification:		N/A		Design Traffic: 1 x 10 ⁷ ESA	
Subgrade Conditions					
Expected subgrade:		Level 1 controlled fill, very stiff to hard Residual Clay, and extremely to highly weathered phyllite			
Adopted Subgrade CBR value:		4		Required subgrade compaction: 100%	
Potential construction or performance issues:		Subgrade will comprise material with a high silt content which will be required to be placed and worked under strict moisture conditions. Proof roll the exposed subgrade to identify and remove excessively soft or heaving areas. Where identified, remove and replace with approved granular fill.			
Pavement Design					
Recommended Pavement Layer Thickness:			Recommended Material requirements		Required Compaction
Wearing course thickness (mm):		40	40mm thick AC (DG14 AR450) wearing course. Alternatively a 14/7 double double seal with a 320 binder could be adopted if the select layer thickness is increased by 40mm.		
Base thickness (mm):		170			98% Modified Compaction
Sub-base thickness (mm):		150	DGS40 or equivalent		95% Modified Compaction
Select thickness (mm):		190	DGS40, or Imported material with CBR>15%, PI<15%, max particle size 100mm		100% Standard Compaction
Total thickness (mm):		550			
Definitions:					
Design traffic loading:		The anticipated number of equivalent standard axles (ESA), as defined by AUSTROADS, in the design lane during the design life of the pavement.			
Modified Compaction:		Minimum required dry density ratio (AS1289 5.4.1-2007) defined as the ratio of the calculated field dry density (AS1289 5.3.1-2004 or equivalent) to the maximum dry density obtained using AS1289 5.2.1-2003 or equivalent.			
Standard Compaction:					
Density Index:		Minimum required Density Index AS1289 5.6.1-1998, defined as the ratio of field dry density determined by AS1289 5.3.1-2004 or equivalent to the laboratory values of maximum and minimum density obtained by AS1289 5.5.1-1998 or equivalent			
Note:		Pavement designs assume appropriate drainage is installed and maintained. Refer to Regional Geotechnical Solutions Report No. RGS31376.1-AB for recommendations regarding drainage.			

IRF18/4328

Secretary's Certificate

Satisfactory Arrangements for designated State public infrastructure

Development Application DA 2018/115

In accordance with the provisions of clause 6.1 in the *Nambucca Local Environmental Plan 2010*, I, Brendan Nelson, Deputy Secretary, Planning + Design, as delegate for the Secretary of the Department of Planning and Environment, certify that satisfactory arrangements have been made to contribute to the provision of designated State public infrastructure in relation to:

Development application number:	DA 2018/115
Address:	81 Red Ash Road, Valla Lot 2 DP 1173066
Development application description:	Industrial subdivision to create six lots, including one public utility lot and one residue lot.
Map at Attachment A:	Yes



Brendan Nelson
Deputy Secretary
Planning + Design

Date: 30/8/18

(as delegate for the Secretary)

**the satisfactory arrangements certificate is being issued in relation to the above development application only.*

IRF18/4328

Secretary's Certificate

Satisfactory Arrangements for designated State public infrastructure

**Development Application
DA 2018/115**

Attachment A



Denis Atkinson Planning
915 Bowraville Rd
Bellingen
NSW 2454

Our ref: 17020ltr01R1.docx

Your ref:
30 August 2018

Dear Denis,

Valla Urban Growth Area – Stage 1 Phase 1 Industrial Subdivision

Engineering Issue Report – Revision 1

Introduction

Nambucca Shire Council propose to subdivide the property at 80 Red Ash Road, Valla (Lot 2 DP1173066) into four industrial lots varying in area from 1.19ha to 5.29ha, a lot for a future sewage pump station and the residual lot of 35.77ha, refer to drawing 17020-010.

This subdivision is the first phase of Stage 1 of the Valla Urban Growth Area, a long-term plan to develop a new town to the north west of Nambucca Heads. Stage 1 of the plan is to develop industrial land that will attract industry and employment to the area. Subsequent stages will develop commercial and residential areas. Details of the proposed overall development and staging can be found in the Valla Urban Growth Area Development Control Plan (DCP) recently adopted by Nambucca Shire Council.

This report presents the assessment and resolution of engineering issues encountered during the concept design of the subdivision.

Earthworks

Due to the topography of the land to be subdivided extensive earthworks will be required to create level lots suitable for industrial use and approximately 250,000m³ of material will be cut and placed in fill. Fill heights are up to 10m in the north east corner and cut depths up to 14m along the western boundary of the subdivision, refer drawing 17020-012 for cut and fill depth contours.

Regional Geotechnical Solutions (RGS) undertook a preliminary geotechnical assessment of the site and concluded that bulk excavation in the deep cuts could be undertaken with large excavator or scrapers and that pneumatic rock breaking equipment or blasting would not be required. Additionally, the residual clay material found on site would be suitable for controlled fill. Therefore, the earthworks have been balanced to eliminate the need to import or dispose of any excavated material off site. The geotechnical report is attached for your reference.

Roads

The RGS geotechnical assessment included a road pavement design for the new internal roads for the industrial areas. A design life of 1x10⁷ESAs was adopted based on AUS-SPEC recommendations for industrial land and laboratory testing of the residual clays likely to comprise the road subgrade indicated CBRs of 4% and 10%. Adopting the lesser CBR value of 4% requires a total granular pavement depth of 550mm to achieve the design life.

The main route into the new town and this industrial subdivision is the existing Red Ash Road. The RGS geotechnical assessment included an assessment of the pavement of Red Ash Road. It found that the road pavement was between 850mm and 1000mm deep and when assessed with an expected subgrade CBR of 4% exceeded the required depth of 550mm to achieve a design life of 1x10⁷ESAs.

Although the pavement depth of Red Ash Road is sufficient for the expected traffic and design life a significant upgrade will be required to widen the road and comply with the DCP, which requires a 16m wide carriageway to allow for two traffic lanes, two cycleways and carparking on both sides of the road. However, this widening upgrade is not required until latter stages of the development when residential property becomes available and traffic volumes increase significantly.

Water and Sewerage

NSW Public Works Advisory are developing a concept design of the necessary water and sewerage infrastructure to allow the Valla Urban Growth Area to connect to the wider Nambucca Shire systems. A large sewage pump station (SPS) will be located in the south east corner of the proposed industrial subdivision, and a rising main will convey the sewage from the pump station under the new Pacific Highway to the treatment plant in Nambucca Heads. A water transfer main will bring water in under the new Pacific Highway at approximately the same location as the sewage pump station and rising main. Water reservoirs are to be constructed as part of the overall town development.

Constructing the ultimate water and sewer infrastructure to service the industrial subdivision with a very small pollution compared to the ultimate population of the new town would lead to significant operational issues with respect to the quality of potable water and stagnation of sewage. Additionally, funding for the ultimate infrastructure is still to be obtained and without external funding the cost would be prohibitive to the economic viability of the industrial subdivision. Therefore, interim measures are proposed to allow the development of this industrial subdivision to proceed.

These interim measures include the supply of water from an existing main in Foxs Road on the east side of the pacific highway, which will require a pressure boosting pump station, and use of a low-pressure-sewerage-system to deliver sewage to an existing sewage pump station on Railway Road, approximately 2km south east of the proposed industrial subdivision. The interim water supply and low-pressure-sewerage-system will be designed to allow for expansion of the industrial area to the west of the proposed subdivision and future incorporation into the ultimate infrastructure when constructed. Ultimately the subdivision will be supplied with water from the proposed service reservoirs built for the new town and the low-pressure-sewerage-system discharge to the large sewage pump station.

Internal water and sewerage reticulation is shown on drawing 17020-011. Each lot will be serviced with an industrial water connection and low-pressure sewer pump connection.

Both the watermain and low-pressure-sewer-system will be extended into the residual lot to allow for its connection as well as future extension of the industrial area to the west.

Existing Utilities

Existing Essential Energy overhead power lines and Telstra infrastructure, including the Sydney to Brisbane fibre optic cable, traverse the site. Telstra have already been contacted and are aware of the proposed subdivision. They have provided an estimate to relocate their infrastructure.

The relocation of the overhead power lines, which supply power to the property to the north will be addressed with Essential Energy as part of the power supply to the subdivision.

Stormwater

An existing ridge line running east west bisects the property shedding water to the north and south. These natural catchment areas will be maintained as much as possible post development of the

subdivision. The northern catchment will be collected by a series of pipes and open channel drains to a detention basin in the north east corner of the subdivision. From there the stormwater will drain through an existing culvert to Cow Creek. Similarly the southern catchment will drain to a detention basin in Red Ash Road reserve to the south of the subdivision and from there, through existing culverts under the Pacific Highway, to an existing watercourse east of the Pacific Highway and ultimately the Deep Creek estuary.

The detention basins will be designed to restrict the peak flow from the developed land to that of the undeveloped land for a 1 in 5 year or 20% AEP storm event. Storm events more frequent may cause localised flooding around the detention basins. Extension of the southern detention basin will be necessary when the privately-owned land south of the subdivision is developed.

The attached flood map of a 1% AEP flood event in Deep Creek and Tributaries suggests that the land may experience some minor inundation at current ground levels. However, as the ground is to be considerably higher after development flooding of the industrial lots by backwater from Deep Creek is not considered likely. Additionally, the area of flood plain removed by the subdivision is insignificant compared to the whole flood plain and will have no effect on upstream or downstream water levels during a major flood event.

I trust this information is sufficient to satisfy your requirements. If you require additional information or to discuss, please call me on 0416843764.

Yours faithfully,



Ben Jedrej
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RPEQ 13734

Attachments:

Jed civil drawings 17020-001, 010, 011 and 012

RGS report *Proposed Industrial Subdivision - 80 Red Ash Road, Valla – Preliminary Geotechnical Assessment* 19 March 2018
Deep Creek 1% AEP Event