

APPLICATION FOR DEVELOPMENT

**THE ERECTION OF
ADDITIONAL MOTEL UNITS
& ALTERATION TO LOT BOUNDARY**

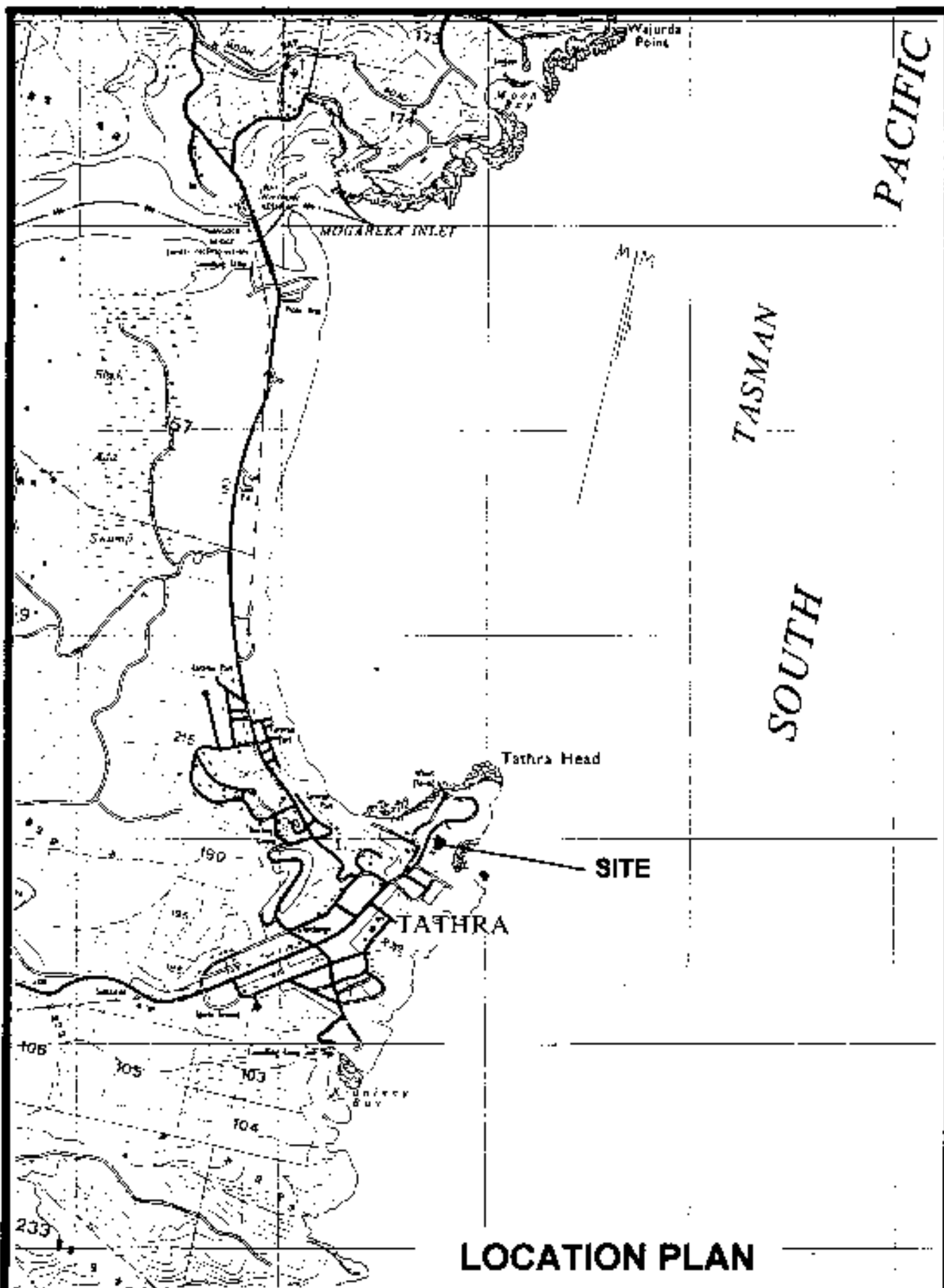
**AT
TATHRA HOTEL MOTEL**

**LOT 30 DP 606559
& LOT 31 DP 600836**

BEGA STREET

TATHRA

**KL & CM GORDON
DRAFTING SERVICE
PO BOX 320
BEGA 2550
PH: 02 6492 1723
FX: 02 6492 3293
Email>gordons @ acf.net.au**



**ADDITIONAL MOTEL UNITS & ALTERATION TO LOT BOUNDARY
AT TATHRA HOTEL MOTEL, LOT 30 DP 606559 & LOT 31 DP 600836
BEGA STREET, TATHRA**

CONTENTS

LOCALITY PLAN

1. STATEMENT OF ENVIRONMENTAL EFFECTS

2. APPENDIX

APPENDIX A	PHOTOGRAPHS
APPENDIX B	SOIL, WATER & STORMWATER MANAGEMENT
APPENDIX C	GEOTECHNICAL REPORT.
APPENDIX D	ABORIGINAL ARCHEOLOGICAL ASSESSMENT
APPENDIX E	DEPOSITED PLANS.
APPENDIX F	BUSHFIRE MANAGEMENT

3. PLANS 620

SITE PLAN	A1-01
FLOOR PLANS	A1-02
ELEVATIONS	A1-03
SECTION & PERSPECTIVES	A1-04
BOUNDARY ADJUSTMENT & RIGHT OF WAY PLAN	SUB-01

STATEMENT OF ENVIRONMENTAL EFFECTS

FOR
THE ERECTION OF
ADDITIONAL MOTEL UNITS
& ALTERATION TO LOT BOUNDARY

AT
TATHRA HOTEL MOTEL
LOT 30 DP 600559
& LOT 31 DP 600836

BEGA STREET
TATHRA

GENERAL DESCRIPTION OF DEVELOPMENT

This application is for the proposed addition of 20 New Motel Units at the Tathra Hotel Motel.

The site contains the existing Motel wing of 12 units in partly single and partly two storey brick construction. The adjoining Tathra Hotel complex is being upgraded and the Owner's then proposed to expand the Motel facility.

It is intended to make a minor alteration to the Lot boundary between Lot 30 & Lot 31. This is to retain the individual lot status of the development.

BRIEF SPECIFICATION OF PROPOSED BUILDING CONSTRUCTION

FOOTINGS:	Reinforced concrete
UPPER & LOWER FLOORS:	Reinforced concrete.
EXTERNAL DECKING:	Reinforced concrete with tile finish.
EXTERNAL WALLS:	Face Brick.
WINDOWS :	Powder coated Aluminium
ROOF:	Hip shaped Colorbond metal clad roof (Of similar pitch and style to the existing two storey part of the Hotel complex.)
HANDRAILS:	Powder coated Aluminium & glass.
DRIVEWAY:	Asphaltic Concrete to match existing

AIMS

To demonstrate that the applicant has given appropriate consideration to the impact that this development will have on the environment and to set out steps that are proposed to mitigate any likely adverse impact.

DESCRIPTION OF THE SITE

The land is Lot 30 DP606559 & Lot 31 DP600836 Bega Street, Tathra.

Under Bega Valley LEP 2002, the land is within zone 3a.

The land (Lot 31) containing the Motel complex is generally rectangular in shape and contains a total of 3756m². The proposed alteration to Boundary will increase the area of Lot 31 to 3950m² and decrease the area of Lot 30 to 5936m².

The land fronts Bega Street for a total length of 37.905m with falls to the north and east.

The eastern portion of the land adjoins a Public Reserve of Variable width which contains a sewer pumping station and cliff face areas.

Refer to Site Plan for details of the land.

CHARACTER OF THE LOCALITY

The land is within the village of Tathra and is approximately midway between the village Shopping Centre / Post Office and the Tathra Headland / Wharf building

The development area contains the Tathra Hotel (originally constructed in 1888) and Motel complex (erected in approximately 1966) which forms a significant tourist and local social meeting place.

The Motel area is well established in terms of grassed landscape with a significant Norfolk Island Pine tree which is to be retained.

RELATIONSHIP TO ADJOINING LANDUSES

Adjoining land to the immediate north is commercial and contains the Tathra Hotel building. An unformed Laneway 6.035 wide exists on south boundary of Lot 31 .

To the east is a Public Reserve fronting the Pacific Ocean

Land to the west contains Roadways, a Public Parking Area and other Public Reserves.

There will be no change in the land use relationships.

RELATIONSHIP TO THE STREETSCAPE

The new Motel Wing is located to the east of the existing Motel and will generally not be visible from Bega Street.

The proposed new building will be set back from Bega Street an average distance of 70m.

VISUAL IMPACT

Due to the existing land slopes and orientation of the existing Motel building the proposed two storey Motel wing will have minimal visual impact when viewed from Bega Street.

When viewed from the Ocean, the proposed will be partially screened by the existing natural shrubland at the clifftop. It is proposed to retain and where necessary, reinforce this oceanfront landscape.

The roof of the proposed building will be formed of corrugated Colorbond Metal (Shale Grey) to minimise reflectivity and the visual effect.

The walls of the proposed building are to match the existing Motel wing in a red brick finish. This will also minimise the visual effect of the new additions.

Refer to Photographs.

POTENTIAL OVERSHADOWING AND IMPACTS ON PRIVACY

Because of the generally isolated location of the proposed new Motel Wing, and the existing perimeter landscape, there will be minimal impact by overshadowing or by loss of any privacy on the site or on adjoining land.

TRAFFIC GENERATION AND ROAD CAPACITY

The Motel addition will generate additional daily traffic movements of approximately 40.

Bega Street is sealed and kerb & guttered at this location and has existing vehicular crossings and good site distances when entering and egressing the site in a forward direction.

CAR PARKING

23 additional sealed car spaces will be provided at the Motel, including 1 designated space for use by aged people or people with a disability and 2 spaces for use by staff.

AVAILABILITY OF ELECTRICITY, TELEPHONE, WATER, SEWER

All services are available at the site and no augmentation of utility services is required.

SUITABILITY OF THE SITE FOR ON-SITE MANAGEMENT OF WASTEWATER (SEWAGE)

Not Applicable.

EFFECT ON ITEMS OF ABORIGINAL HERITAGE SIGNIFICANCE

Refer to Appendix for Consultants Report.

EFFECTS ON PRODUCTIVE AGRICULTURAL LAND, POTENTIAL EXTRACTIVE INDUSTRIES

Not applicable.

CHANGES IN STORMWATER RUNOFF QUALITY OR QUANTITY

The proposed additions will have an increase in roof area of 625m².
The proposed new driveway and parking area is 685m².

Detection basins in the proposed new driveway and parking area, along with the use of purpose designed paving to allow infiltration are proposed. Refer to appendix for Stormwater Management details.

In addition rainwater storage tanks are proposed to allow for re-use of water for landscape purposes.

POTENTIAL POLLUTION OR SEDIMENTATION OF WATER BODIES

The availability of Tathra town sewerage will limit any potential pollution.

Sedimentation will be controlled during the construction phase, by the implementation of an Erosion and Sediment Control Management Plan. Refer to Appendix.

The stability and geology of the site is the subject of a report. Refer to Appendix.

FLOOD HAZARDS TO THE DEVELOPMENT

The site is not subject to flood inundation. During storm events, wave action is controlled by the cliff face east of the public reserve. It is noted that further along the cliff face, and at a lower level, there is a section of the Headland that has been subject to storm wave action, which caused the closing of the eastern Snowy Mountains Highway roadway that serviced the Tathra Wharf. No known similar action has ever been reported at the site.

SOIL EROSION HAZARDS ARISING FROM THE DEVELOPMENT

No soil erosion hazards are foreseen with the proposed building works. Refer to Appendix for details of Geology report.

LAND SLIP OR SUBSIDENCE HAZARDS

Land slip or subsidence is unlikely at the proposed building site. Refer to Appendix for details of Geology report.

PREVIOUS SITE USES AND POTENTIAL CONTAMINATION

The land currently contains the Tathra Hotel Motel complex. No known potential exists for contamination at the site of the proposed building.

NOISE, DUST, VIBRATION OR SMOKE GENERATION

No dust, vibration or smoke will be generated by the development. There will be a minimal increase in noise level generation caused by the increase in vehicular traffic. The Motel addition will be used for overnight accommodation.

EFFECTS ON THREATENED SPECIES OF FLORA AND FAUNA

Because the area of the building site is cleared, vacant land, no threatened species are likely at the site.

WASTE GENERATION, TREATMENT AND DISPOSAL

Tathra sewerage and Council garbage collection services are available at the site. A screened waste bin storage area will be provided at the new building.

ENERGY EFFICIENCY

Consideration has been given to the energy rating of the development. Measures such as insulation, concrete floors and natural ventilation have to be implemented to attain energy efficiency. Refer to Appendix for Energy Scorecard Rating.

BUSHFIRE HAZARDS

The proposed development extends the existing Motel complex. The land is located within the town of Tathra and is serviced by Towns mains with hydrants in Bega Street, and has the services of Tathra Rural Fire Service.

Although the locality contains areas of natural bushland, with potential for bushfire hazard, there is minimal change to the bushfire risk at the site. As can be seen from the aerial view of Tathra Headland, the site is substantially clear of forested land. Therefore, it is not subject to bushfire hazard.

POTENTIAL FIRE HAZARD ARISING FROM THE DEVELOPMENT

No additional fire hazard will arise from the new development. The building will be fitted with the required fire safety equipment, as required by BCA.

SOCIAL IMPACTS IN THE LOCALITY

Tathra and other nearby seaside towns and villages within the Bega Valley Shire are becoming popular tourist destinations. There is an increasing demand for tourist accommodation and other services.

This proposed addition to the existing Motel will provide new, modern tourist accommodation to cater for this growing need.

ECONOMIC EFFECTS IN THE LOCALITY

The development will utilise the existing services infrastructure in the locality and provide additional potential income with minimal cost to the local economy. The development will also increase job opportunities and provide on-going employment for up to 4 additional persons.

ENVIRONMENTAL EFFECTS OF CONSTRUCTION PROCESSES

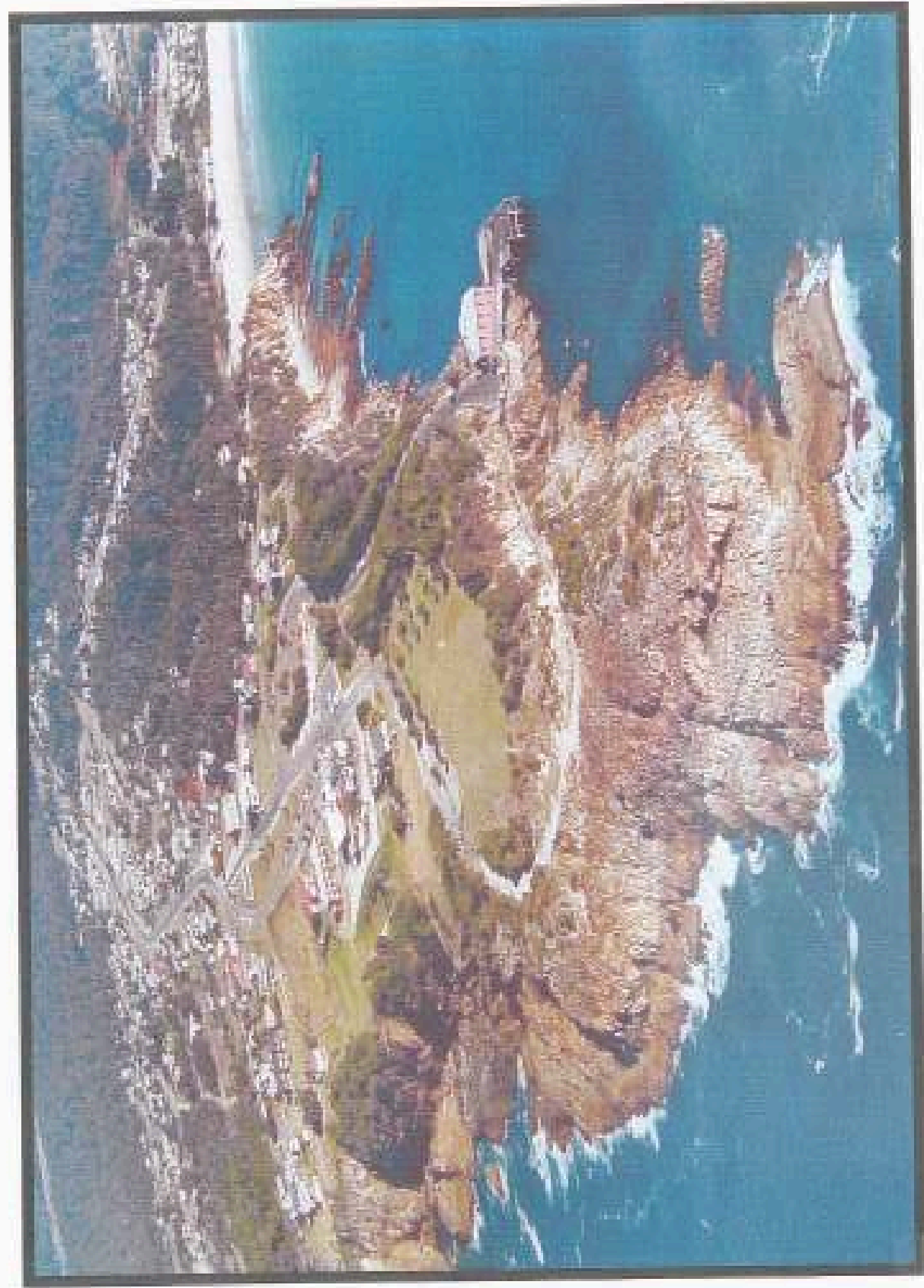
Sediment control and the disposal of waste building products will comply with the Council and EPA requirements. Refer to Appendix for Consulting Engineers documentation.

CUMULATIVE IMPACTS

Due to the siting, design and location of the proposed additions; there is minimal adverse environmental effect.

APPENDIX A.

PHOTOGRAPHS



AERIAL VIEW OF TATHRA HEADLAND.
EXISTING

**ADDITIONAL MOTEL UNITS & ALTERATION TO LOT BOUNDARY AT TATHRA HOTEL MOTEL
LOT 30 DP 606559 & LOT 31 DP 600836, BEGA STREET, TATHRA.**



**AERIAL VIEW OF TATHRA HEADLAND.
PROPOSED**

**ADDITIONAL MOTEL UNITS & ALTERATION TO LOT BOUNDARY AT TATHRA HOTEL MOTEL
LOT 30 DP 606559 & LOT 31 DP 600836, BEGA STREET, TATHRA**



Photograph 1

North Elevation of existing Motel building.

Photograph 2

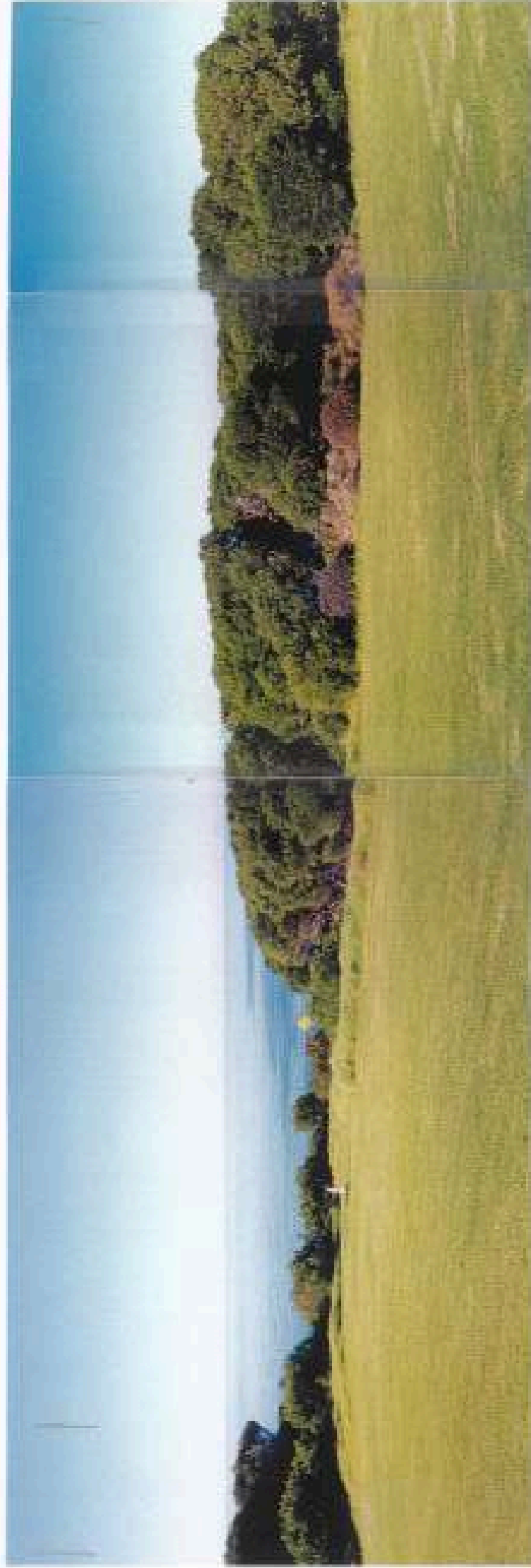
Eastern end of existing Motel building and location of proposed Motel addition.





Photograph 3

View south from site of proposed Motel Addition.



Photograph 4

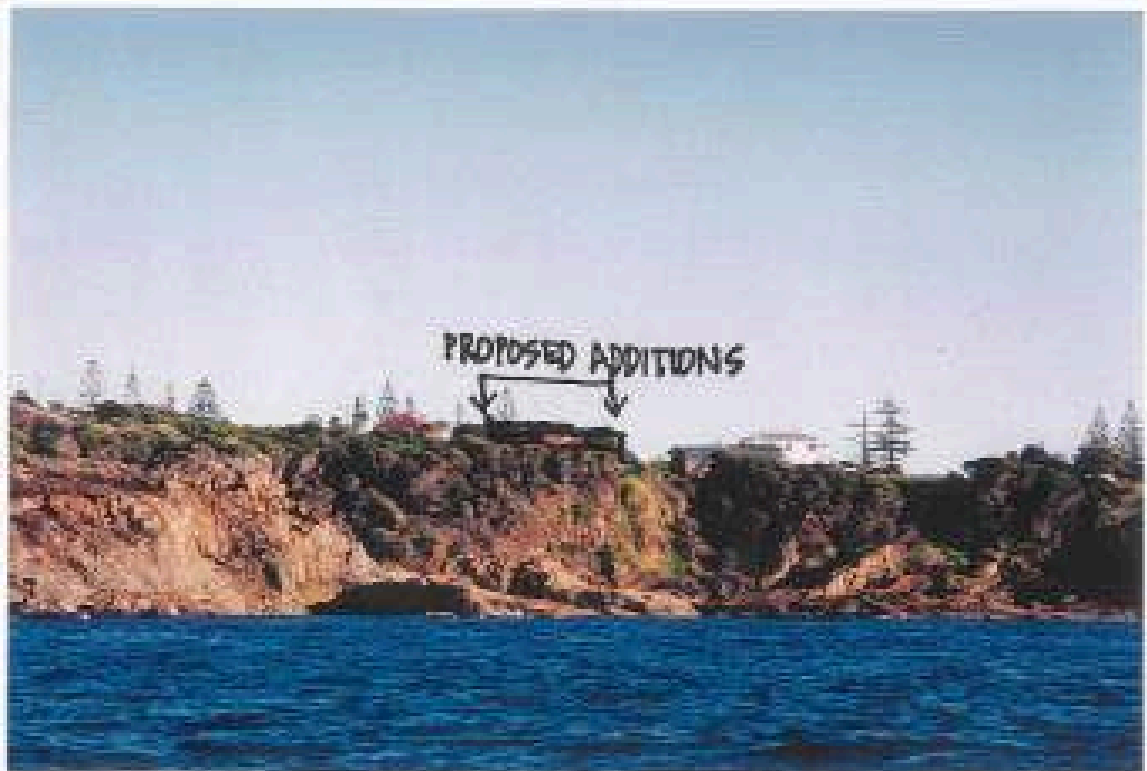
Panorama from new Motel position to the East showing
Horizon and existing vegetation.



Photographs

5 - 6

View from approximately 300 m off-shore of Tathra Hotel Motel site.



APPENDIX B.

SOIL, WATER & STORMWATER MANAGEMENT

REFER TO DOCUMENTATION BY
VAN LEEUWEN & STODDARD, CONSULTING ENGINEERS.

APPENDIX C.

GEOTECHNICAL REPORT

(as per AS1726-1993)

27th SEPTEMBER 2004

1.0 Investigation Objectives

It is required that an assessment be undertaken for Site Development in respect of Geotechnical Conditions and to establish the following data:

- a) Sub surface Conditions
- b) Strength and Stability of Foundation Strata
- c) Estimates of deformation and settlement (where applicable)
- d) Level, quantity and quality of groundwater
- e) Effect of works on adjoining land
- f) Footing recommendations
- g) Excavation conditions, ground support or underpinning
- h) Properties of borrow materials
- i) Failure Mechanisms

Comment - Sites are considered in the larger context of surrounding general area including topography, geology and drainage and comments are offered regarding any affects that adjacent lands may have on the development at hand however this geotechnical report does not include an assessment of stability of adjacent or neighbouring land and merely establishes a risk if any to be further identified or addressed in structural and civil design

2.0 Structural Aims

The strength of the soil is to be checked for likely response to settlements bearing pressures and soil slope stability. The methods used for this assessment include

- a) Soil Classification by profile logging and reference to geological maps
- b) Assessment of bearing capacity by classification and penetrometer Testing
- c) Assessment of Soil reactivity to moisture(shrink and swell) by classification and sample assessment
- d) Risk assessment of site soil instability (land slip) by site investigation

3.0 Project Description

The above property was inspected for the purposes of design and construction of hotel renovations and the construction of a new motel extension. The existing hotel is being renovated and a new motel block proposed to be constructed along with improvements to access and augmentation of public parking. The area where the motel is being built is located towards the rear of the land and is at a lower elevation than the Snowy Mountains Highway and the hotel. The floor levels of the new motel are at the same approximate ground level of the surrounding landscape. A Geotechnical assessment of the site and soil conditions is required to address the limitations if any for the design and construction of the motel and the hotel additions especially in respect of its foundations and overall site stability.

4.0 Site Description

4.1 Site Access

Access to the proposed motel site is achievable from the Snowy Mountains Highway via the carpark between the existing hotel bottle shop and motel units. The carpark driveway is sealed with asphaltic concrete. The Snowy Mountains Highway directly outside the Tahra Hotel Motel is constructed with kerb and gutter but does not appear to be serviced by stormwater pipe systems

4.2 Climate and Aspect

The climate in the region is temperate with an average annual rainfall in the order of 900mm. The property is located on a small headland which gives the site 270 degree views and orientation towards the North, South and East.

4.3 Topography

<i>Slope of Site</i>	<i>The site slopes 10% to 15% southwards which is the lower lying land area within the property.</i>
<i>Nature of soil and rock mantle</i>	<i>Soils within the entire property may generally be described as about 200mm to 300mm dark brown to grey upper silty loam topsoils underlain by 1000mm to 1500mm of red brown streaky orange silty sandy clay over highly weathered sandstone and weathered sedimentary rock deposits. The rock base is expected to be irregular and rough.</i>
<i>Old Fills, Sinkholes Previous land slips</i>	<i>There are no cracks, holes or mounds on site indicating previous landslips or site instabilities. The carpark at the</i>

		<p>rear of the hotel has been built up by deposition of fill in an old minor gully. In this area the depth of fill is in the order of 3 metres</p> <p>The existing hotel is a combination of stud frame walls construction to solid masonry walls construction. The roof is metal and floors vary from concrete slabs on ground to suspended concrete slabs on columns and suspended timber floors. There are no significant signs of distress (such as cracks or out of alignment or plumb) due to footing failure or soil instability</p> <p>Subsurface Pipes, Water? Sewer? Waste Water Disposal?</p> <p>Previous site developments (ie. old footings)</p>
	Buildings or structures on site	
	Development Density	<p>The site coverage is significant but still less than 50% for buildings. With sealed car parking the coverage may be as high as 75%. There will be significant runoff generation and appropriate collection and disposal is essential. There are adequate areas available for capture of stormwater, treatment and disposal without risk of pollution or causing local instabilities.</p>
4.4 Vegetation	Vegetation on site	<p>There are a few significant pine trees on site -10 to 20 metres in height and 300mm to 900mm trunk diameter. The trees are well foliated, reasonably plumb and appear to be thriving. The root systems would be extensive. The remainder of the site not covered by buildings or pavement is grassed. There are no areas of exposed soil and non vegetation.</p>
4.5 Drainage	Surface Drainage	<p>There are no watercourses on the site. Any construction proposed would not restrict the flow of water from the site. Drainage collected from the buildings and pavement via a series of grated pits and spoon drains however will direct stormwater to a common point creating a flow concentration and it would be required that the collected drainage first be treated and then dispersed via an energy dissipating structure for sheet flow release over the rocky foreshore</p>
	Groundwater	<p>There was no ground water encountered in test pit excavations</p>
	Flood Levels	<p>The site is not flood prone. Heavy seas from the south however have been recorded to build up and create significant flows down the Tathra wharf road. The hotel and motel site is well elevated above this road and this occurrence is rare.</p>
	Water Logged Ground Drainage Structures	<p>There are no springs or water logged areas on the site. The site is serviced by a sewerage reticulation system and has minimal drainage structures on the site other than a couple of spoon drains and grated pits.</p>
4.6 Geology	Soil Sampling and Classification	Visual
Geological Maps to be used	Colour description	<p>Underlying soils are Orange to Red brown in colour and are best described as a gravelly sand clay overlying undifferentiated sedimentary rock.</p>
	Texture Description	<p>Ranges from fine grained with some coarse grained pockets</p>
	Physical Properties	<p>Cohesive (clays) slightly plastic not friable but tends to be lumpy</p>
	Density description	<p>Cohesive soils - Upper clays Firm to lower underlying Stiff and hard gravelly clays</p>
	Rock Bed	<p>Geological Description - highly weathered residuals of undifferentiated sedimentary shale, siltstone, sandstone and mudstone deposits near boundary of volcanics and minor lavas</p>
4.7 Works Layout	Effect of works on site	<p>The effect of a motel construction will have little effect on</p>

the existing drainage regime. The quantity of stormwater generated will increase but properly collected, treated and disposed will ensure that the layout of works as planned will negatively impact the site. All stormwater drainage can drain to the same location as it currently does: a gully south of the main hotel. There is a council sewerage pumping station in this gully but this can easily be accommodated by a reasonable stormwater design and treatment.

Site Foundation Assessment

Stability

Negative Stability factors

Rear Carpark Slope

The fill placed to provide rear car parking has resulted in a significantly sloped batter. With increased runoff and without stormwater treatment this area may be susceptible to instability in severe conditions (very wet weather). The batter should be extensively planted and the car park stabilized with a surface seal and stormwater collection system built.

Development Density

development density is increased over that currently on site and in collection of stormwater and groundwater flows will be discharged as a concentrated flow therefore some treatment and flow dispersal initiatives are required.

Climate

soil saturation in high rainfall events common along the east coast of Australia may increase soils susceptibility to slow downhill creep but with sufficient stabilization and stormwater collection and discharge control there should be no problem.

Positive Stability factors

Drainage

the site and its soils are naturally well draining and with adequate provisions for prevention of ground water level build up in high rainfall events and other severe climatic conditions site stability should be maintained.

Rock Mantle

an irregular bedrock base is expected offering more friction against slip in overlying soils.

Vegetation

a good coverage of trees and grasses exist effectively reinforcing the soil.

Building Condition

the building shows no signs of distress from soil instability or footing settlement.

Soil Types

granular well drained soils in when they become saturated may creep or slip downhill.

Rock Fragments

There are few isolated boulders and stones that indicate wearing, erosion and collapse down slopes.

Previous instability

There is no record of recent soil failures in the area.

Stability Assessment

It is recognised that that a risk of instability exists due to many factors such as slope of building sites, the climate, high rainfall and availability of surface and subsurface water from sources and density of development. The site is considered to present a low risk of instability to any proposed development provided footings are located appropriately into hard natural ground (below topsoil) and that soils are adequately drained and stabilised.

Foundation Soil Classification

Strength Assessments

All foundations and retaining walls must be designed by an experienced engineer. Uniform bearing material is achievable on this site and bearing pressures in excess of 100KPa are achievable by excavation to about 1 metre. If excavations continue beyond 1 metre depth down to soft rock allowable bearing pressures will be in the order of 300KPa to 500 KPa.

Soil Classification

Foundation soils may be classified as Class "S" as per AS2870.1-1996 (Slightly Reactive) as the depth of clay soils under the footings is expected to shallow (<600mm). Foundations may include conventional strip footings or raft slabs. Even bearing is expected to be achieved on this site but where soft areas are encountered during excavations 450mm mass concrete piers may be installed at no more than 2000mm spacings. Piers must extend into harder underlying soils or to rock

This report has been prepared by

Will Van Leeuwen

(Chartered Professional Engineer, C.P.Eng. M.I.E. Aust.)
(Bach Civ. Eng., Municipal Eng., Geomech Soc.)

signature

A handwritten signature in black ink, appearing to read 'Will Van Leeuwen', is written over a horizontal line. The signature is stylized with loops and a long horizontal stroke at the end.

SOIL TEST PIT LOG SHEET

Client :	Mr Barry Frost		
Job Description :	Hotel Motel Development		
Job Address :	Snowy Mountains Highway Tathra NSW		
TEST PIT No. :	1	Date Logged :	August 2004
		Logged By :	WVL

Depth (m)	Description	Site Test	Comments
0.0	Top soil - 200mm to 300mm dark brown to grey		
0.2	upper loamy silty sandy clay		Dry soil
0.4			
0.6	red brown streaky orange silty sandy		
0.8	gravelly clay over highly weathered sandstone	Pp - 3kg/cm ²	
1.0	and weathered sedimentary rock deposits		
1.2			No moisture
1.4			
1.6			
1.8	LIMIT OF EXCAVATION		
2.0			
2.2			
2.4			
2.6			
2.8			
3.0			
3.2			
3.4			
3.6			
3.8			
4.0			
4.2			
4.4			
4.6			
4.8			
5.0			

Other Comments :

SOIL TEST PIT LOG SHEET

Client :	Mr Barry Frost		
Job Description :	Hotel Motel Development		
Job Address :	Snowy Mountains Highway Tathra NSW		
TEST PIT No. :	2	Date Logged :	August 2004
		Logged By :	WVL

Depth (m)	Description	Site Test	Comments
0.0	Top soil - 200mm to 300mm dark brown to grey		
0.2	upper loamy silty sandy clay		Dry soil
0.4	-----		
0.6	red brown streaky orange silty sandy		
0.8	gravelly clay over highly weathered sandstone	Pc - 3kg/cm2	
1.0	and weathered sedimentary rock deposits		
1.2			No moisture
1.4			
1.6	-----		
1.8	LIMIT OF EXCAVATION		
2.0			
2.2			
2.4			
2.6			
2.8			
3.0			
3.2			
3.4			
3.6			
3.8			
4.0			
4.2			
4.4			
4.6			
4.8			
5.0			

Other Comments

SOIL DESCRIPTION

This procedure involves the description of a soil in terms of its visual and tactile properties, and relates to both laboratory samples and field exposures as applicable. A detailed soil profile description, in association with local geology and experience, will facilitate the initial (and often complete) site assessment for engineering purposes.

The method involves an evaluation of each of the items listed below and is in general agreement with both the Site Investigation Code AS 1726 Appendix D and ASTM D2487-83 & D2488-83.

MOISTURE

The moisture condition of the soil is most applicable for cohesive soils as a precursor to the assessment of consistency and workability. The moisture condition is described as:

Dry (dusty, dry to the touch) Slightly Moist Moist (damp, no visible water) Very Moist or Wet (visible free water, saturated condition)

In addition, the presence of any seepage or free water is noted on all test hole logs.

COLOUR

Colour is important for correlation of data between test holes and for subsequent excavation operations. The prominent colour is noted, followed by (spotted, mottled, streaked etc.) secondary colours as applicable. Colour is usually described at as-received moisture condition, though both wet and dry colours may also be appropriate.

CONSISTENCY/RELATIVE DENSITY

This assessment is based on the effort required to penetrate and/or mould the soil, and is an indicator of the shear strength.

Granular soils are generally described in terms of relative density (density index) as listed in AS1726. These soils are inherently difficult to assess and normally a penetration test procedure (SPT, Scaia or Dutch Cone) is used in conjunction with published correlations. Alternatively, in situ density tests can be conducted in association with minimum and maximum densities performed in the laboratory.

Cohesive soils can be assessed by direct measurement (shear vane), or estimated approximately by tactile means and/or the aid of a geological pick as given on the following table. It is emphasised that a 'design shear strength' must take cognisance of the in-situ moisture content and the possible variations of moisture with time.

Term	Tactile Properties	Unconfined Compressive Strength q_u (kPa)
Very Soft	Extrudes from fingers when squeezed.	25
Soft	Easily penetrated by thumb about 30 - 40 mm. Pick head can be pushed in up to shaft. Moulded by light finger pressure.	25 - 50
Firm	Penetrated by thumb 30 - 30 mm with moderate effort. Sharp end of pick pushed in some 30 - 40 mm. Moulded by strong finger pressure.	50 - 100
Stiff	Indented by thumb about 5 mm with moderate effort. Pick pushed in up to 10 mm. Cannot be moulded in fingers.	100 - 200
Very Stiff	Readily indented by thumb nail. Slight indentation produced by pushing pick into soil.	200 - 400
Hard	Difficult to indent with thumb nail. Requires power tools for excavation.	400

STRUCTURE/OTHER FEATURES

The soil structure is generally applicable to cohesive soils and refers to the presence (or absence) of joints and layering. Typical terms used are intact (no joints), fissured (open joints), shattered (open joints), slickensided (polished joints indicative of movement), stratified/laminated.

For granular soils, an assessment of grading (well, uniform or poor), particle size (fine, medium etc.) angularity and shape may also be given.

In addition, the presence of other features (concretite nodules, timber inclusions) should also be noted as applicable.

SOIL TYPE

The soil is described in terms of its estimated grain size composition and the tactile behaviour (plasticity) of any fines (less than 0.075 mm). This system does not differentiate on grading below 0.075 mm in accordance with the Unified Soil Classification (USC) procedure.

Furthermore, as most natural soils are part combinations of various constituents, the primary soil is described and modified by minor components. In brief, the system is as follows:

Coarse Grained Soils		Fine Grained Soils	
% Fines	Modifier*	% Coarser	Modifier
5	omit, or use 'trace'	15	omit, or use 'trace'
5-12	described as 'with clay/silt' as applicable	15-30	described as 'with sand/gravel' as applicable
12	prefix soil as 'silty/clayey' as applicable	30	prefix soil as 'sandy/gravelly' as applicable

Note: For soils containing both sand and gravel the minor coarse fraction is omitted if less than 15%, or described as 'with sand/gravel' as applicable when greater than 15%.

The appropriate USC symbol is also given after the soil type description in accordance with ASTM D2487-83 and D2488-83.

(* The 200# sieve (0.075 mm) is commonly used in practice to differentiate between fine and coarse grained soils).

ORIGIN

An attempt is made, where possible, to assess origin (transported, residual, pedogenic, or fill etc.) since this assists in the judgement of probable engineering behaviour. This assessment is generally restricted to field logging activities. An interpretation of landform is a useful guide to the origin of transported soils (e.g. talus, slide debris, slope wash, alluvial, lacustrine, estuarine, aeolian and littoral deposits) while local geology and remnant fabric will assist identification of residual soils.

ROCK DESCRIPTION

This method is based on AS1726 Appendix D and is orientated to the field logging of diamond drill core but may be used for the profiling of natural exposures and cuttings as applicable. The procedure involves a visual and tactile assessment of the rock mass and the nature of defects in order to facilitate a prediction of engineering behaviour.

DESCRIPTION: Rock Type is described on the basis of origin (sedimentary, pyroclastic, metamorphic and igneous) with the common types listed below:

Sedimentary			Pyroclastic	Metamorphic	Igneous				
clastic	non clastic (chemical)	non clastic (organic)	tuff agglomerate volcanic breccia	slate phyllite schist quartzite gneiss	Extrusive Intrusive (med. grained) (coarse grained)	Acid	Intermediate	Basic	
conglomerate sandstone siltstone claystone shale	limestone chert gypsum salt	coal some limestone				Rhyolite	Trachyte	Andesite	Basalt
						Quartz porphyry	Porphyry	Porphyrite	Dolerite
						Granite	Syenite	Diorite	
								Gabbro	

Colour: is given to assist in rock identification and the interpolation of field data. Colour is usually described at as-received moisture condition, though both wet and dry colours may also be appropriate.

Texture: refers to the degree of crystallinity and granularity (grain size) and the fabric relationship between the constituents of a rock. Often only grain size is given for simplified descriptions of certain sedimentary rocks.

Structure: and texture are commonly used synonymously in describing rocks since there is no clear delineation between terms. In general, structure refers to large scale features recognisable in the field (banding, lineation, massive, porphyritic, schistose etc.). For sedimentary rocks in particular, the thickness of sedimentary layering (bedding) is described as:

thinly laminated	< 6 mm	very thinly bedded	20 - 60 mm	medium bedded	0.2 - 1.6 m	very thickly bedded	> 2 m
laminated	6 - 20 mm	thinly bedded	60 - 0.2 m	thickly bedded	0.6 - 2 m		

In addition, mineral composition, hardness, alteration, cementation is given as applicable.

WEATHERING: The assignment of weathering is somewhat subjective. Weathering assists identification and does not imply engineering behaviour. No distinction is drawn between chemical weathering and alteration for most engineering purposes. These processes are collectively described as 'weathering' using the following terms which do not describe the related strength change. Carbonate rocks generally do not conform to this classification.

Term	Symbol	Definition
Completely Weathered	CW	Residual soil, with rock fabric not visible.
Extremely Weathered	EW	The rock exhibits soil-like properties though the texture of the original rock is still evident.
Highly Weathered	HW	Limonite staining or colour change affects the whole of the rock mass and other signs of chemical or physical decomposition are evident.
Moderately Weathered	MW	Staining extends throughout the whole of the rock mass and the original colour is not longer recognisable.
Slightly Weathered	SW	Partial staining or discolouration of the rock mass, usually by limonite, has taken place.
Fresh	F	Rock mass unaffected by weathering.

ESTIMATED STRENGTH: This refers to the strength of the rock substance and not that of the rock mass. The strength of the rock substance is estimated by the Point Load Strength Index I_p (50) and refers to the strength measured in the direction normal to the bedding for sedimentary rocks. A field guide is given below:

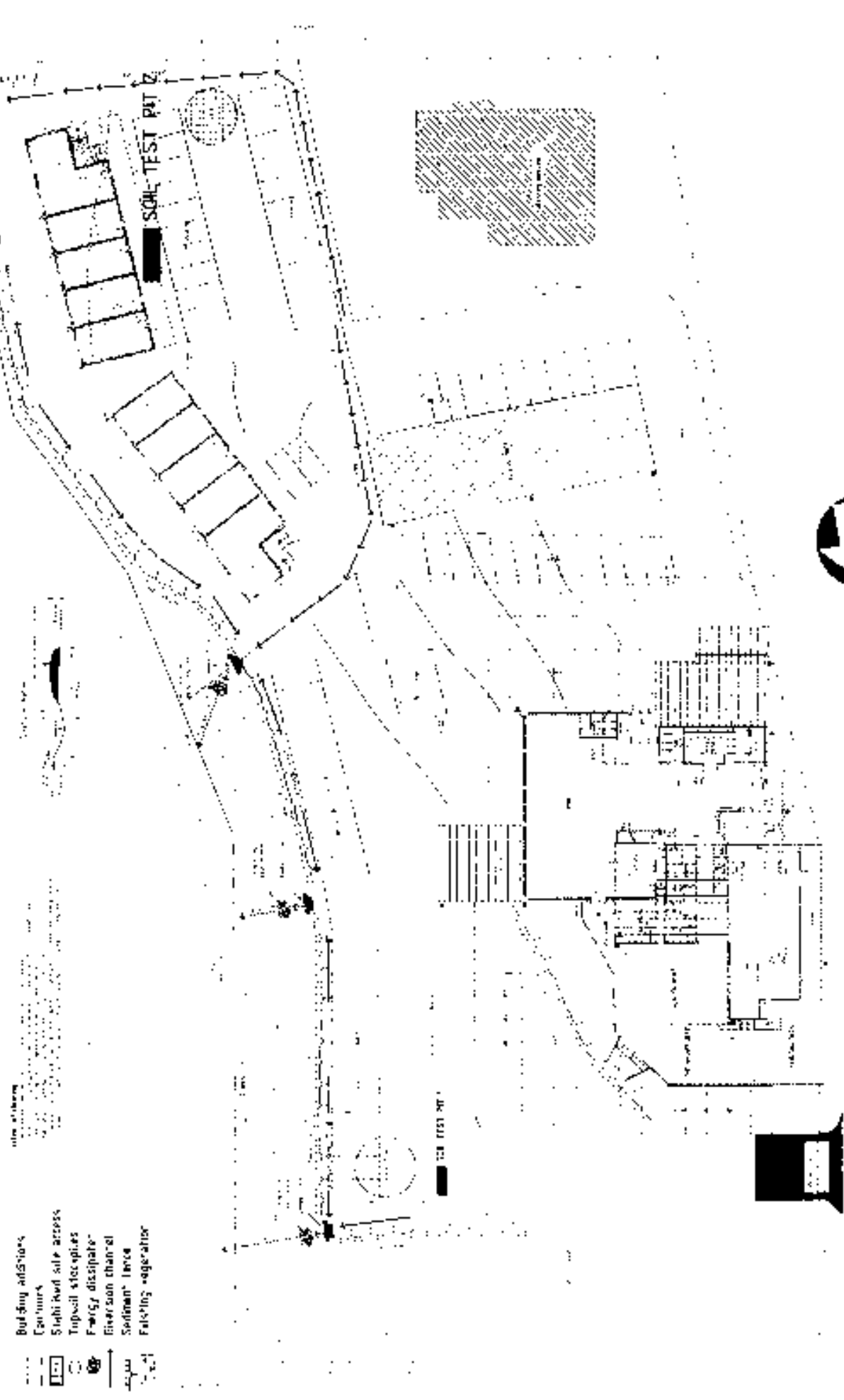
Term	Symbol	I_p (50) MPa	Field Guide (The Core refers to a 150 mm long x 50 mm d.i.a. sample)
Extremely Weak	EW	0.03	Remoulded by hand to a material with soil properties.
Very Weak	VW	0.1	May be crumbled in the hand. Sandstone is 'sugary' and friable.
Weak	W	0.3	The core may be broken by hand and easily scored with a knife. Sharp edges or core may be friable and break during handling.
Medium Strong	MS	1.0	The core may be broken by hand with considerable difficulty. Readily scored with knife.
Strong	S	3.0	The core cannot be broken by unaided hands, can be slightly scratched or scored with knife.
Very Strong	VS	10.0	The core may be broken readily with hand held hammer. Cannot be scratched with knife.
Extremely Strong	ES		The core is difficult to break with hand held hammer. Rings when struck with a hammer.

DEFECTS: This important feature can control the overall engineering behaviour of a rock mass. All types of natural fractures across which the core is discontinuous are noted. These fractures include bedding plane partings, joints and other defects but exclude artificial fractures such as drilling breaks. The nature of the defects (joints, partings, seams, zones and veins) is also noted with description, orientation, infilling or coating, shape, roughness, thickness, etc. given generally in accordance with AS1726 Table D2. The spacing of natural fractures excludes bedding partings unless there is evidence that they were separated prior to drilling. This notwithstanding, bedding partings may be considered as points of weakness in an engineering assessment.

SOIL AND WATER EROSION PLAN (1:200) PROPOSED ALTERATIONS AND ADDITIONS FOR HOTEL AND MOTEL

LEGEND

- Building additions
- Contours
- Stabilized site access
- Topsoil stockpiles
- Energy dissipater
- Reinforced channel
- Sediment fence
- Existing vegetation



100 FEET

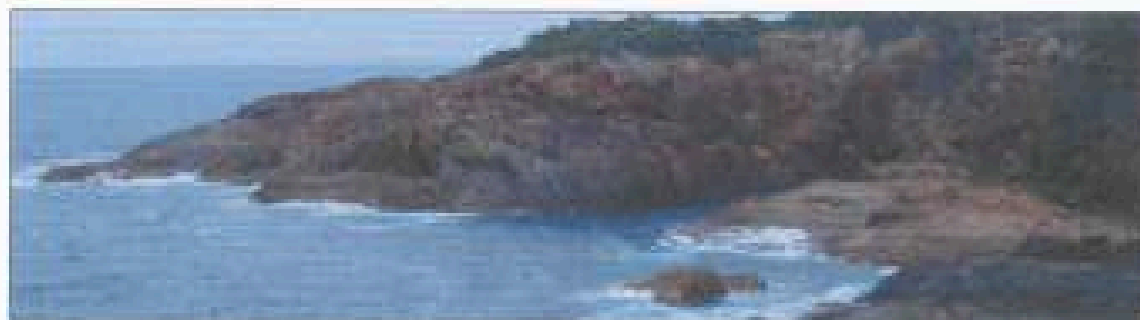
APPENDIX D.

ABORIGINAL ARCHEOLOGICAL ASSESSMENT

**Proposed Development of Additional Motel Units, Tathra Hotel, Tathra, NSW
Aboriginal Archaeological Assessment**

A Report to Berris Frost
Tathra Hotel Pty Ltd
PO Box 1556
Gosford NSW 2250

March 2005



Julie Didden
New South Wales Archaeology Pty Limited
87 Sugarloaf Cat Palmerston ACT 2813 Ph/fax 02 62622241 mob. 0412074901
julie@nswarchaeology.com.au

1. SUMMARY	1
1.1 INTRODUCTION	1
1.2 THE ARCHAEOLOGICAL STUDY	1
1.3 PREVIOUSLY RECORDED SITES	1
1.4 RESULTS	1
1.5 STATUTORY CONTEXT	2
1.6 CONCLUSIONS	2
1.7 RECOMMENDATIONS	2
2. INTRODUCTION	4
3. PARTNERSHIP WITH THE ABORIGINAL COMMUNITY	4
4. THE DEVELOPMENT PROPOSAL	6
5. STUDY METHODOLOGY	8
5.1 LITERATURE REVIEW	9
5.2 FIELD SURVEY AND METHODOLOGY	9
6. LANDSCAPE CONTEXT	10
6.1 TOPOGRAPHY, GEOLOGY AND GEOMORPHOLOGY	11
6.2 VEGETATION AND EUROPEAN IMPACTS	11
6.3 SUMMARY	12
7. ARCHAEOLOGICAL CONTEXT	13
7.1 SOCIAL GEOGRAPHY	13
7.2 PREVIOUSLY RECORDED SITES	15
7.3 ARCHAEOLOGY – OCCUPATION MODELS AND PRIOR RESEARCH	15
7.4 ARCHAEOLOGICAL POTENTIAL OF THE STUDY AREA	23
8. SURVEY RESULTS	24
8.1 RESULTS	24
8.2 SURVEY COVERAGE VARIABLES	25
8.3 SUMMARY	26
9. STATUTORY INFORMATION	27
10. CONCLUSIONS AND RECOMMENDATIONS	28
11. REFERENCES	29

1. SUMMARY

1.1 Introduction

New South Wales Archaeology Pty Ltd was commissioned in December 2004 by Tathra Hotel Pty Limited, to undertake an Aboriginal archaeological assessment of a proposed development of additional motel units at the Tathra Hotel, Tathra, on the Far South Coast of NSW.

The proposal site is situated to the south of Tathra Head, on Lot 30 DP 606559 and Lot 31 DP 600836 Bega Street, Tathra. It is proposed to construct 20 motel units on this land as an addition to the already established hotel/motel.

The proposed zone of impact measures approximately 0.24 hectares while the study area, encompassing the broader landform, measures approximately 0.6 hectares. The impact zone consists of a cleared and grassed moderate gradient slope, situated at the edge of the sea cliff, south of Tathra Head.

This report will accompany a Development Application to be lodged with DIPNR, Wollongong.

1.2 The Archaeological Study

This project has been managed by Julie Dibden, New South Archaeology Pty Ltd. A field investigation for Aboriginal archaeological sites within the study area has been conducted by Julie Dibden and Andrew Pearce, NSW Archaeology, and Ross Thomas and Steve Luff, Bega Traditional Aboriginal Elders Council Inc. (representing the Bega Local Aboriginal Land Council).

The study has sought to identify and record any Aboriginal archaeological sites which may be present in the proposal area, to assess the archaeological potential of the landform elements present and to formulate management recommendations based on the results of background research, field survey and an analysis of results.

The investigation has included both a literature search and field survey. Field work was undertaken on the 25th of February 2005. Four fieldworkers participated in the survey. The study area was comprised of a single survey unit, given that it fell within a single landform unit, and this was subject to a comprehensive survey. The total survey area measured ca. 0.6 hectares. Typically ground exposure was absent within the proposal area due to a thick, mown, kikuyu grass cover. Compounding this, most of the proposal area and beyond has been highly modified in the past, due to clearing, grading and rubble infill overlying the natural rocky ground surface to a depth of up to 1 metre.

The New South Wales National Parks and Wildlife Service (now incorporated into the NSW Department of Environment and Conservation) has prepared a draft document which provides a series of guidelines regarding the assessment and management of Aboriginal cultural heritage in New South Wales. This report has been prepared in accordance with these draft guidelines (NSW NPWS 1997). Additionally the study has been conducted in accordance with the Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants (DEC 2004).

1.3 Previously Recorded Sites

A search of the New South Wales Department of Environment and Conservation (the NSW DEC) Aboriginal Heritage Information Management System (AHIMS) has been undertaken in respect of this study. The search has indicated that there are no previously recorded Aboriginal sites located within the study area (AHIMS Search #11816: 6th January 2005).

1.4 Results

No Aboriginal sites or areas of archaeological potential were recorded.

The study area is assessed to be of low archaeological potential and sensitivity.

1.5 Statutory Context

Sections 84 and 90 of the *National Parks and Wildlife Act 1974* (as amended) provide statutory protection for any physical/material evidence of Aboriginal occupation of NSW and places of cultural significance to the Aboriginal community. The rationale behind the Act is the prevention of unnecessary or unwarranted destruction of Aboriginal objects and the active protection and conservation of objects which are of high cultural significance.

The implementation of the Aboriginal heritage provisions of the Act is the responsibility of the NSW Department of Environment and Conservation. It is an offence to knowingly disturb an Aboriginal object, *irrespective of its nature or significance*, without the prior written consent of the Director-General of the NSW Department of Environment and Conservation.

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 extraction, and includes Aboriginal remains'.

1.6 Conclusions

No Aboriginal sites were recorded during the study. Ground exposure within the study area was very low due to a consistently thick kukuyu grass cover. Further to this, archaeological visibility variables were assessed to be negligible because the landform on which the proposal falls is substantially comprised of introduced landfill. Accordingly, while effective survey coverage is assessed to be low the results are considered to be a reasonably accurate reflection of the archaeological nature of the study area.

The study area is predicted to contain little if any archaeological material. It is predicted that if any archaeological material is present it will be at depth, lying beneath the introduced landfill material, and it will exist as a very sparse background scatter only. Because of this and because of the disturbed nature of the area, it is unlikely to surpass any significance thresholds. Accordingly no archaeological constraints have been identified to attach to the study area and the proposed subdivision.

1.7 Recommendations

The recommendations as listed below are based on the survey results and an assessment of archaeological sensitivity of the study area and a consideration of the nature of the development and legislative constraints (please read Section 40 for a full listing of recommendations).

- There are no archaeological constraints relating to the proposal.
- No further archaeological investigations are necessary in regard to the proposal. Subsurface test excavation is not considered to be warranted given that the site is assessed to be of low archaeological potential.

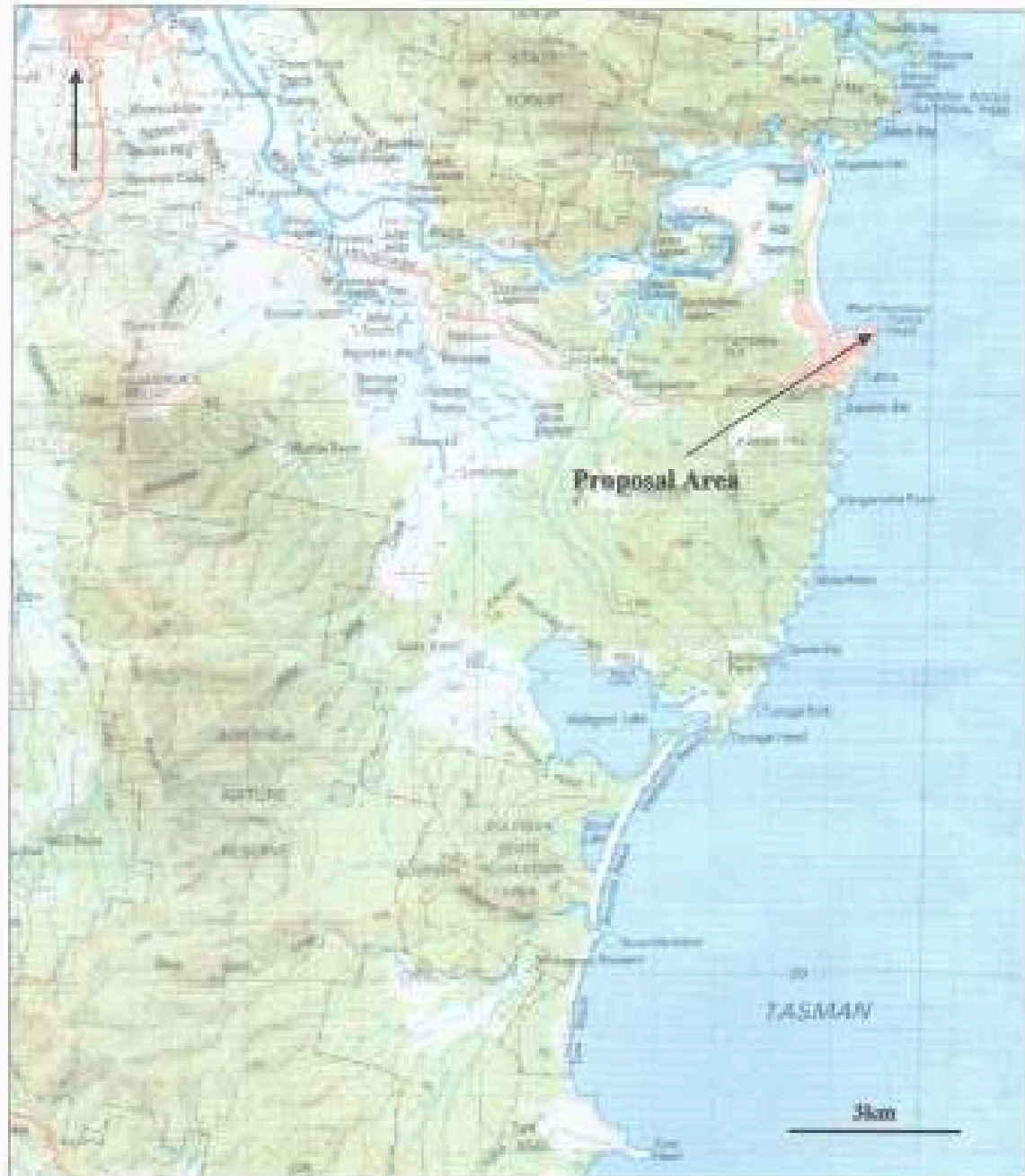


Figure 1. Location of the proposal area (Bega 5824 1st ed. 1:100,000 topographic map)

2. INTRODUCTION

New South Wales Archaeology Pty Ltd was commissioned in December 2005 by Tathra Hotel Pty Ltd to undertake an Aboriginal archaeological assessment of a proposed additional motel development at the Tathra Hotel, Tathra, on the Far South Coast of NSW (Figure 1).

The proposal site is situated to the south of Tathra Head, on Lot 30 DP 606559 and Lot 31 DP 600836 County of Auckland and Parish of Wallagoot. It is proposed to construct 20 motel units on this land as an addition to the already established hotel/motel.

The area of proposed impact is ca. 0.24 hectares and consists predominantly of a grassed spur side slope. The highest elevation at the site is 30 m ASL in the western section of the study area. The land falls from this point to the east at a moderate gradient.

The land is very disturbed, having been cleared, infilled, levelled and to a limited extent landscaped.

The study area is bounded to the west by existing buildings fronting on to Bega Street associated with the Tathra Hotel complex, including the existing motel, to the south by private landholdings, and to the east by an ocean front cliff.

DIPNR is the Consent Authority in regard to the proposal.

New South Wales Archaeology Pty Ltd and the Bega Traditional Aboriginal Elders Council (representing Bega Local Aboriginal Land Council) have been engaged by Tathra Hotel Pty Ltd to conduct an archaeological assessment of the proposal area.

In accordance with the NSW NPWS (1997) guidelines for archaeological reporting this report aims to document:

- the development proposal and nature of proposed impacts;
- the potential impacts of this proposal on Aboriginal archaeological sites which may be present within the area;
- the involvement in the project of the Aboriginal community;
- the environmental setting of the study area in order to establish background parameters;
- a review of archaeological and relevant literature, heritage listings on the NSW NPWS Aboriginal Heritage Information Management System and other relevant registers;
- any Aboriginal archaeological and heritage sites known to exist within the study area;
- a synthesis of local and regional archaeology;
- a predictive model of site location relevant to the study area;
- the sensitivity of the landform subject to this study;
- the field survey strategy and results; and
- recommendations based on the results of the investigation.

This project has been managed by Julie Dibden, New South Wales Archaeology Pty Ltd. This study has been conducted in partnership with the Bega Traditional Aboriginal Elders Council Inc.

The field survey has been conducted by Julie Dibden and Andrew Pearce, New South Wales Archaeology Pty Ltd, and Ross Thomas, and Steve Luff, Bega Traditional Aboriginal Elders Council Inc. This report has been written by Julie Dibden.

3. PARTNERSHIP WITH THE ABORIGINAL COMMUNITY

This project has been undertaken in accordance with the NSW DEC Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants (IGACC) (DEC 2004). The NSW DEC requires proponents to undertake consultation with the Aboriginal community "...as an integral part of the impact assessment" process (NSW DEC 2004).

The NSW DEC manages Aboriginal cultural heritage in NSW in accordance with the National Parks and Wildlife Act 1974. Part 6 of the Act provides protection for Aboriginal objects and Aboriginal Places. When an activity is likely to impact Aboriginal objects or declared Aboriginal Places approval of the Director-General of the NSW DEC under s90 or s87 of the NPW Act is required. The decision as to whether or not to issue s90 or s87 is based on the supply to the DEC by a proponent of adequate information to enable the Director-General to make a decision (NSW DEC 2004).

When administering its approval functions under the NPW Act the NSW DEC requires applicants to have consulted with the Aboriginal community about the Aboriginal cultural heritage values (cultural significance) of Aboriginal objects and place present in the area subject to development (NSW DEC 2004).

Accordingly the NSW DEC requires consultation with the Aboriginal community because it recognises the following:

- That Aboriginal heritage has a cultural and archaeological significance and that both should be the subject of assessment to inform its decision process;
- That Aboriginal people are the primary determinants of the significance of their heritage;
- That Aboriginal community involvement should occur early in the assessment process to ensure that their values and concerns can be taken into account and so that their own decision making structures can function;
- That the information arising from consultation allows consideration of Aboriginal community views about significance and impact and allows for management and mitigation measures to be considered in an informed way (NSW DEC 2004).

The community consultation process as outlined in the IGACC document aims to improve the assessment by providing the Aboriginal community with an opportunity to:

- Influence the design of the assessment of cultural and scientific significance;
- Provide relevant information about cultural significance values of objects/places;
- Contribute to the development of cultural heritage management recommendation; and
- Provide comment on draft assessment reports (NSW DEC 2004).

The role of the Aboriginal Community is outlined by the NSW DEC (2004) as follows:

- The Aboriginal community is the primary determinant of the significance of their heritage;
- The Aboriginal community may participate in the process via comment on the assessment methodology, contribution of cultural knowledge; and
- The Aboriginal Community may comment on cultural significance of potential impacts and/or mitigation measures

In order to fulfil the consultation requirements as outlined in the IGACC document the proponent has followed the following procedure.

1. Notification and Registration of Interests

The proponent has actively sought to identify stakeholder groups or people wishing to be consulted about the project and has invited them to register their interest.

Written notification about the project dated 27th January 2005 has been supplied to the following bodies:

- The Bega Traditional Aboriginal Elders Council Inc (BTAEC) who conduct Aboriginal site assessment work on behalf of the Bega Local Aboriginal Land Council.
- The Registrar of Aboriginal Owners
- Native Title Services
- Bega Valley Shire Council
- Department of Environment and Conservation

In addition an advertisement has been placed in the Bega District News (1st February 2005) providing notification of the cultural heritage study.

As a result of this correspondence and notification, letters describing the project and inviting registration were sent to 42 Aboriginal people (see Appendix 1) on 27th February 2005. Ensuing from the distribution of this information no person or group responded to register an interest in this project.

The study area falls within the boundaries of the Bega Local Aboriginal Land Council. The Bega Traditional Aboriginal Elders Council Inc (BTAEC) conducts Aboriginal site assessment work on behalf of the Bega Local Aboriginal Land Council. John Dixon conducted an initial inspection of the property at which time he advised the proponent that an archaeological study should take place.

This study has been discussed with John Dixon, BTAEC. Mr Dixon kindly arranged for Ross Thomas and Steve Luff to assist in the field survey.

4. THE DEVELOPMENT PROPOSAL

It is proposed to construct 20 additional motel units at the Tathra Hotel Motel (Figures 1 and 3). The proposal site is situated to the south of Tathra Head, on Lot 30 DP 606559 and Lot 31 DP 600836 County of Auckland and Parish of Wallagoot. The proposal area measures ca. 0.24 hectares (Plate 1). The site is situated immediately to the east of a house and existing motel building (Plate 2).

The proposal entails the construction of 20 motel units additional to those already existing at the property, as well as an associated car park, the minor extension of an existing driveway and landscaping around the perimeter of the structure to include a water diversion channel. The proposed motel units are intended to be situated in two aligned buildings which follow the landscape contour at the lower section of the proposal area.

The proposed development will have the potential to directly impact any Aboriginal archaeological sites which might be present within the zone of impact. These impacts are likely to include the construction of a car park area, drainage works, the installation of underground facilities and other services, and as well the construction of the motel structure.



Plate 1. Location of the proposed motel site in relation to the existing motel building: looking south.

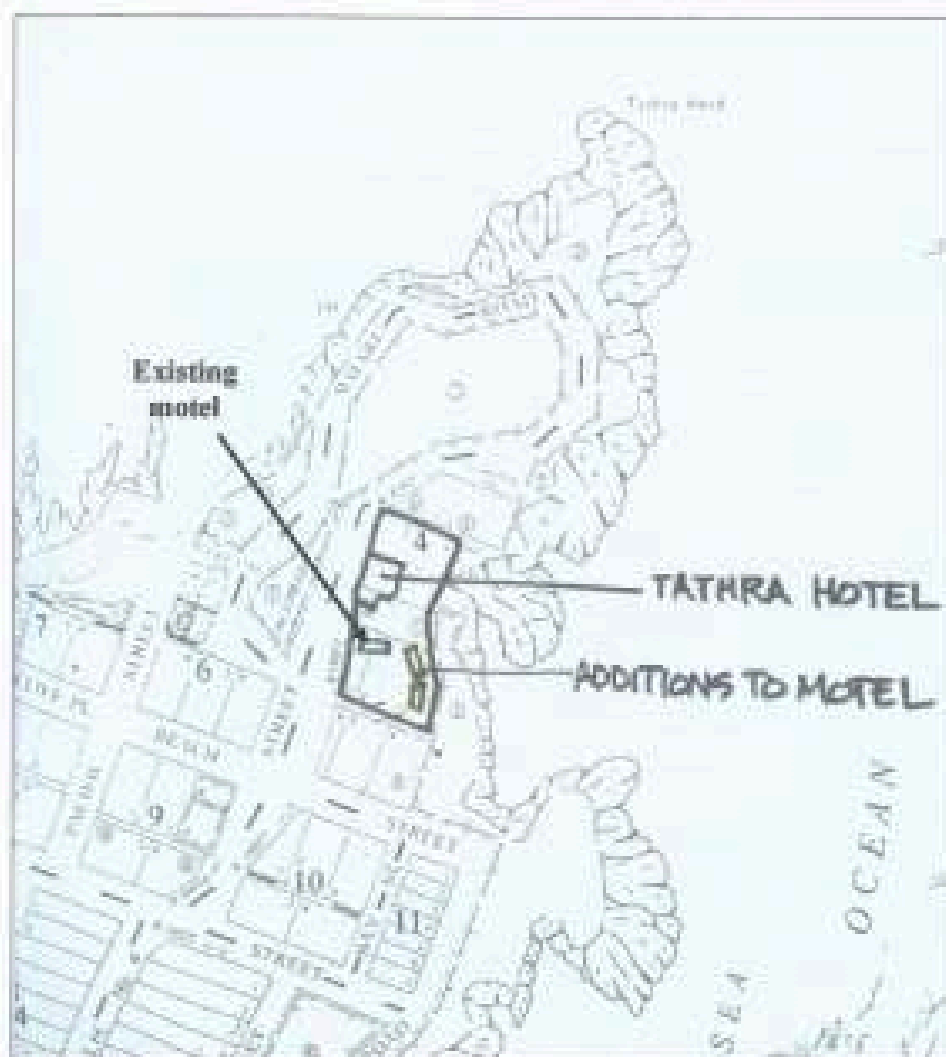


Figure 2. Location of the proposal area in relation to existing structures and local environmental features.



Plate 2. Proposal site in relation to existing buildings: looking west.

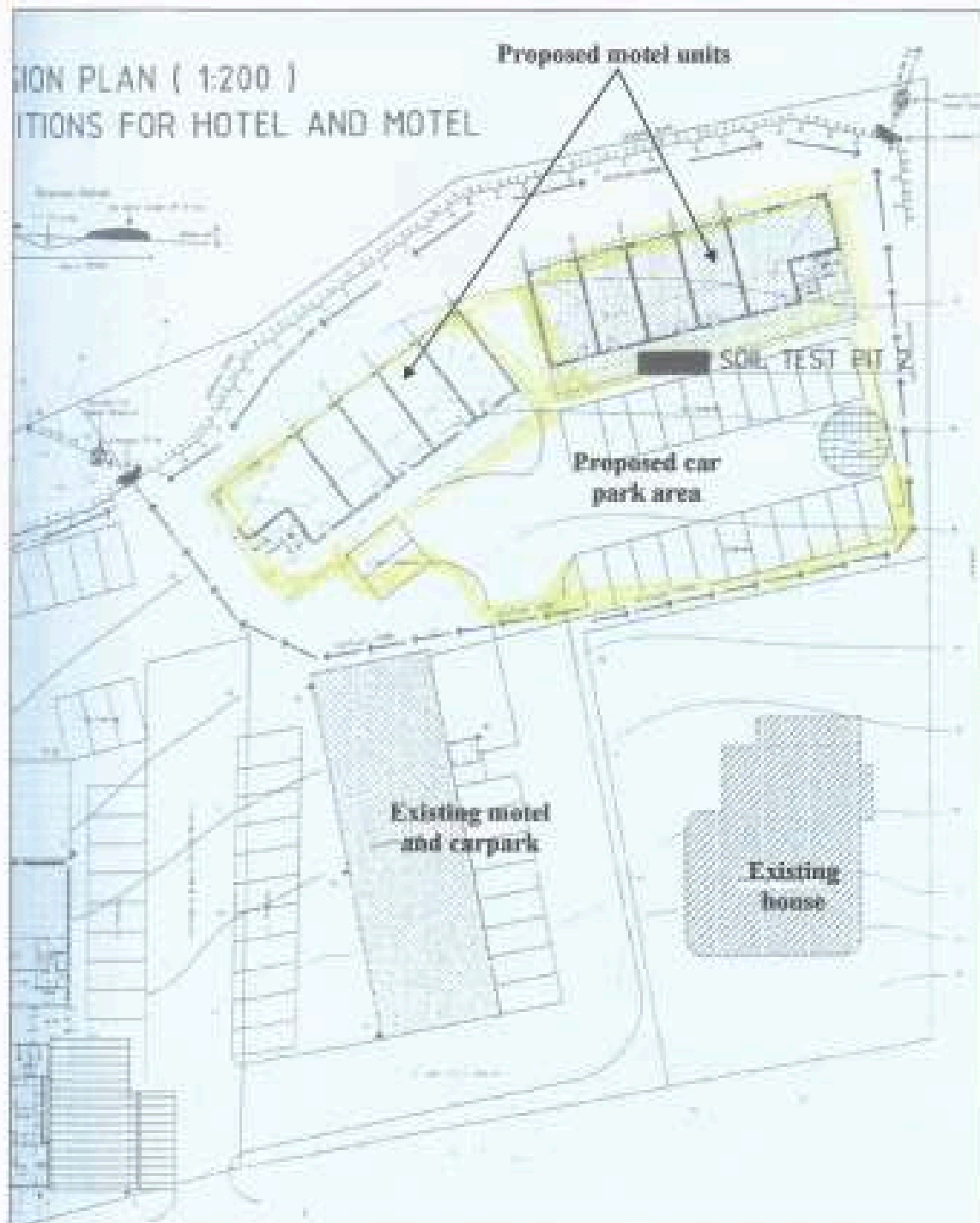


Figure 3. Detailed plan of the proposal (supplied by proponent).

5. STUDY METHODOLOGY

This study has included the following components:

- A NSW DEC Aboriginal Heritage Information Management System site search to determine whether or not previously recorded sites are present at the proposal area and to give consideration to the type of sites known to be present within the local area.

- A review of local and regional archaeological reports and other relevant documents in order to provide a contextual framework to the study and heritage management context.
- A field survey of the study area aimed at recording Aboriginal sites, survey coverage data and assessing the archaeological potential of the site.
- Documentation of survey results.
- An analysis of survey results.
- The formulation of a set of management recommendations ensuing from the above.

5.1 Literature Review

The following information sources were accessed for this study

- ❑ NSW DEC Aboriginal Heritage Information Management System
- ❑ Relevant archaeological reports held in the NSW DEC Cultural Heritage Unit
- ❑ Bega 1:25,000 topographic map
- ❑ Secondary sources relevant to the history of the area

5.2 Field Survey and Methodology

The field survey was carried out on the 25th February 2005. Field survey was designed to encompass the entire proposal area and was undertaken by four people. In addition, the adjoining land was surveyed so as to provide a more detailed analysis of the archaeological potential of the area. The survey was focused on inspecting ground surfaces for evidence of stone artefacts and midden material. Ground exposures inspected during the survey included pedestrian tracks, erosional features and bare earth exposures. Survey coverage is described in Section 8 of this report.

While the field survey was aimed at locating archaeological and cultural heritage material (Aboriginal objects as defined under the NSW NPWS Act 1974) an assessment was also made of prior land disturbance, survey coverage variables (ground exposure and archaeological visibility) and the potential archaeological sensitivity of the land.

The study area is contained within one survey unit. This survey unit has been defined on the basis of a combination of environmental variables which are assumed to relate to Aboriginal usage of the area. These areas are termed *archaeological terrain units* and in this study the unit has been defined on the basis of a combination of landform element, gradient and aspect (cf Kuskie 2000: 67). The survey area is defined as an individual unit that is bounded on all sides by different archaeological terrain units. The rationale for employing this definition relates to its utility in regard to predicting the archaeological potential of landforms: archaeological terrain units are "...discrete, recurring areas of land for which it is assumed that the Aboriginal land use and resultant heritage evidence in one location may be extrapolated to other similar locations" (Kuskie 2000: 67).



Figure 4. Location of the proposal site in respect of the local environment (Bega 8824-18 2nd ed. 1:25,000 topographic map: GDA)

6. LANDSCAPE CONTEXT

A consideration of the landscape is necessary in archaeological work in order to characterise and predict the nature of Aboriginal occupation across the land (NPWS 1997). In Aboriginal society landscape could be both the embodiment of Ancestral Beings and the basis of a social geography and economic and technological endeavours. The various features and elements of the landscape are/were physical and metaphysical places that are known and understood within the context of social and cultural practice.

Given that the natural resources that Aboriginal people harvested and utilised were not evenly distributed across landscapes Aboriginal occupation and the archaeological manifestations of that occupation will not be uniform across space. Therefore, the examination of the environmental context of a study area is valuable for predicting the type and nature of archaeological sites which might be expected to occur. Factors which typically inform the archaeological potential of a place include the presence or absence of water, animal and plant foods, stone and other resources and as well, the nature of the terrain. The cultural meaning associated with a locale may also determine the nature of its use and the archaeological potential of a place.

Additionally, geomorphological and humanly activated processes need to be defined as these will influence the degree to which archaeological sites may be visible and/or conserved. For example land which is heavily grassed will prevent the detection of archaeological material while land which has suffered disturbance may no longer retain artefacts or stratified deposits. A consideration of such factors is necessary in formulating site significance and mitigation and management recommendations.

The following sections provide information in regard to the landscape context of the study area.

6.1 Topography, geology and geomorphology.

The proposal site is situated to the south of Tathra Head, on Lot 30 DP 606559 and Lot 31 DP 600836 Bega Street, Tathra. The study area measures approximately 0.8 hectares in area, of which ca. 0.24 hectares is indicated to be impacted as a result of the proposed development. The proposal site itself is situated at MGA grid reference 766898e 5931094n (middle of site).

The study area is bounded to the west by existing buildings fronting on to Bega Street associated with the Tathra Hotel complex including the existing motel; to the south by private landholdings; and to the east by an ocean-front cliff.

The study area consists predominantly of a cleared and grassed moderate gradient spur side slope. The highest elevation at the site is 30m ASL. The land falls to the east at a gradient of 7°, draining in this direction and terminating at the ocean-front cliff which falls steeply some 20 metres to the rock platform below.

There is no access directly to the ocean from the site; access however is available both to the north and south of the sites at rocky promontories.

The southern Tathra region, including the proposal area, is situated on Boyd Volcanic Complex geology comprised of late Devonian volcanic rock with associated sediments and intrusives. This formation features silicic volcanics, ignimbrites and minor lavas (Bega-Mallacoota 1:250,000 Geological Sheet - Second Edition 1995). Only minor exposures of bedrock (totalling ca. 2 metres square) are present within the study area, with the remainder of the landform appearing to be infilled with imported material which includes rubble, concrete, bricks, pebbles and other foreign material within introduced soils. This fill appears to be deposited to a maximum depth of ca. 1 metre and to have been applied over an underlying natural rocky area for landscaping purposes.

The climate of the study area is mild, with rainfall and temperatures peaking in the summer months. The prevailing winds are north-easterly in summer and south-westerly in winter.

The existing Tathra hotel is the third such establishment to be built in Tathra in a position chosen to be strategically close to the Tathra Wharf. The first, The New Brighton, was built near to the present Tathra Hall in 1870 but burnt down in 1880. Its successor, also called The New Brighton, was constructed next to the post office, but pulled down and replaced by the still extant Ocean View Hotel in 1888. The wooden section of this building, which fronts on to Bega Street, is original. Its upstairs section was damaged by fire in the mid 1980s requiring reproofing and repairs. The newer brick section of the present hotel was also added in the 1980s, at which time the existing motel was built replacing three old staff cottages.

6.2 Vegetation and European Impacts

Given the prior land clearance and landscape alteration the vegetation types present within the study area are very limited. Tea Tree (*Melaleuca armillaris*), golden wattle (*Acacia longifolia* ssp *longifolia*), *Pittosporum undulatum* and native rosemary (*Westringia fruticosa*) are present along the eastern and southern fringes of the property, beyond the zone of impact. Otherwise kikuyu grass, which is tended to a mown lawn, covers the

majority of the study area with a single introduced Norfolk pine (*Araucaria heterophylla*) located near to the western boundary within the grassed expanse.

In addition to original vegetation clearance and the importation of landfill to the site, a number of other impacts have been carried out on and adjacent to the proposal area. A sewer line traverses the eastern boundary of the site in a north south direction. Immediately to the north of the proposal area a sewer substation and access track is present. The stand of tea tree situated between the proposal site and the ocean cliff has evidence of clearance and grading. Numerous mounds of graded soil are present including piles situated at the cliff edge. Additionally, piles of felled shrubs are present.

6.3 Summary

Prior to European disturbances at the proposal site it would have been rocky with skeletal soil, similar to locations situated both north and south of the site. Direct access to the ocean and rock platform is not possible from the site. This factor, in addition to the moderate gradient, indicates that the proposal site itself is unlikely to have been utilised by Aboriginal people as a camp site for the consumption of marine foods. Given the absence of a source of reliable fresh water the site is unlikely to have been utilised as a base camp. Accordingly the site is likely to have been used as a thoroughfare only. The corresponding archaeological manifestation of such land usage is predicted to be low levels of artefact discard. Given the high levels of European disturbance at the site any Aboriginal objects and associated archaeological deposit is likely to have been grossly disturbed.



Plate 3. The proposal site looking south. Note built up hotel carpark in the foreground and access track to the sewer substation on left of photo.



Plate 4. The ocean cliff situated to the east of the proposal site (as indicated by red arrow). Note steep cliff.

7. ARCHAEOLOGICAL CONTEXT

7.1 Social geography

On the basis of archaeological research it is known that Aboriginal people have occupied Australia for at least 40,000 years and possibly as long as 60,000 years (Mulvaney and Kamminga 1999: 2). By 35,000 years before present (BP) all major environmental zones in Australia, including periglacial environments of Tasmania, were occupied (Mulvaney and Kamminga 1999:114).

At the time of early occupation Australia experienced moderate temperatures. However, between 25,000 and 12,000 years BP (a period called the Last Glacial Maximum) dry and either intensely hot or cold temperatures prevailed over the continent (Mulvaney and Kamminga 1999: 114). At this time the mean monthly temperatures on land were 6-10°C lower, in southern Australia coldness, drought and winds acted to change the vegetation structure from forests to grass and shrublands (Mulvaney and Kamminga 1999: 115-116).

During the Last Glacial Maximum at about 24-22,000 years ago, sea levels fell to about 130m below present levels and accordingly, the continent was correspondingly larger (National Heritage Consultants 2003). With the cessation of glacial conditions, temperatures rose with a concomitant rise in sea levels. By ca. 6000 BP sea levels had more or less stabilised to their current position. With the changes in climate during the Holocene Aboriginal occupants had to deal not only with reduced landmass, but changing hydrological systems and vegetation; forests again inhabited the grass and shrublands of the Late Glacial Maximum. As Mulvaney and Kamminga (1999: 120) have remarked:

When humans arrived on Sahul's shores and dispersed across the continent, they faced a continual series of environmental challenges that persisted throughout the Pleistocene. The adaptability and endurance in colonising Sahul is one of humankind's inspiring epics.

Occupation of the NSW south coast dates from at least 20,000 years ago as evidenced by dated sites at Burrill Lake (Lampert 1971), Bass Point (Bowdler 1970) and two sites near Buchan in Victoria; Cloggs Cave (Flood 1980) and New Guinea 2 (Ossa *et al* 1995). The Bullee Brook 2 site in the south coast hinterland ranges, excavated by Boot (1994), provides evidence that occupation of this zone had occurred by at least 13,000 years ago. These known Pleistocene occupation sites are few on the south coast; the majority of recorded sites date from the mid to late Holocene at a time when the sea had more or less stabilized to its current level. It is nevertheless reasonable to assume that the Tathra area was occupied and utilised by Aboriginal people from the late Pleistocene onwards.

Howitt (1904: 81-81) identified the people of the Far South Coast as the Yuin 'tribes', also called the Coast Murring tribes. The Yuin boundaries extend along the coast from the Shoalhaven River in the north to Cape Howe in the south (Mullet 1996: 5). Howitt (1904) recognized a distinction between the people of the north and those of the south with the division lying somewhere between Moruya and Ulladulla. Tindale (1974) defined the area situated between Cape Dromedary (near Tilba) and Bega as that belonging to the Djiringanj speaking people.

Eades (1976) describes the Dyirringan language as being spoken in the area between Wallaga Lake and Twofold Bay, with the Thawa language spoken south of Twofold Bay.

Prior to European occupation the Aboriginal people of the area practiced a hunting, gathering and fishing economy. Robinson (in Mackenness 1941:335-336) discussed the economy of the Bega Valley people as follows:

“...the zamia (is common) on the ranges...the nuts are collected in large quantities and by the Blacks called Bunggon. The Cabbage Palm...is another article of subsistence...The *Phascomolys* (Wombat) and the fish are the chief support of the natives, the latter are taken in Weirs. Eels and other fish in ponds are stupefied by an infusion of bark’.

Robinson (1844) noted that fish weirs allowed large numbers of people to come together for sustained periods of time, as they provided an abundant source of food. Observations from the Bega region indicate that Aboriginal people relied heavily on coastal resources such as fish and shellfish and that camps were located on coastal dunes or in forests within close proximity to the coast (Sullivan 1982a). Ethno historical records note

that fishing methods utilised on Black Ada Lagoon situated north of the study area involved a combined effort of people driving fish to one end of the lagoon where they could be easily speared (Smith 1970:5).

Boot's (1994) investigation drawing on original archival sources of ethno historical observations relating to the south coast region lists a large number of faunal and floral species which have been recorded in the literature as having been utilised by Aboriginal people. The animals listed include fish, shark, eel, whales, seals, marine worms, shellfish, possum, kangaroo, wombat, birds, goanna and grubs. Plants harvested and utilised include kangaroo apple, native cranberry, honeysuckle, pigface, macrozamia, cabbage tree, fruit and yams.

The first Europeans to enter the area were the shipwrecked sailors of the 'Sydney Cove' who walked from Point Hicks to Wattamolla Bay, near Sydney. These men reported the existence of what became known as Twofold Bay. George Bass was despatched post haste by Governor Hunter and in 1797, entered the mouth of the Bega River on his voyage south (Bayley 1942). During the same journey Bass inspected Twofold Bay noting its considerable advantages as a suitable sea port.

In the late 1820s the Bega area was occupied by squatters who made an overland traverse from the Monaro via Cobargo. The Bega valley was perceived to be fertile and suitable for agriculture: The country was undulating, sparsely treed, blanketed in long grass and well watered (Bayley 1942). It is highly probable that the vegetation structure which existed at the time of initial European contact, that is grassy woodland, was a result of Aboriginal land management practices. Early commentators also remarked upon the abundance of emus, kangaroos, koalas and 'wild fowl', which then provided both Aboriginal and Europeans with food, but now are largely absent from the region.

Cattle were brought into the district in 1830 at which time conflict between Aboriginal people and the cattlemen and their stockmen is recorded to have occurred (Bayley 1942). By the early 1830s land on the Monaro and both to the south and north of Bega was occupied by squatters and their cattle. As elsewhere, the first squatters to arrive took up the best land in terms of its fertility and proximity to water. This land would also have been favoured land occupied by Aboriginal people. By 1834 Governor Bourke, upon visiting the district, reported that the use of the land was already contributing significantly to the wealth of the colony (Bayley 1942). The Aboriginal people around Bega did not readily give way to the European occupation and this factor coupled with other difficulties resulted in the abandonment of Warragaburra which is situated immediately to the north west of the study area on the Jellat Jellat flats. Warragaburra was however soon re-occupied by the Inlay brothers.

During the 1830s and 1840s the Inlay brothers held properties which extended from Bittangabee, south of Eden, to the Murrah and Cobargo, both of which are situated north of Bega (Wellings (1966: 6). Closer to hand the Inlay brothers held land at Bega, Tarraganda and Bournda. During the Inlays occupation of the area cattle, sheep and fine horses were bred and exported to other Australian colonies, and as well, to New Zealand and England. Fruit and vegetables were also produced in abundance and shipped elsewhere.

According to Wellings (1966:7) the Inlays were regarded as 'safe people' by the Aborigines. Aboriginal people were employed by the Inlays in both their agricultural and whaling ventures on the far south coast. It is likely that by the late 1830s to early 1840s Aboriginal people began to find both employment and other advantages by forging close relationships with individual European men. Lambie (cited in Bayley 1942) reported in 1842 that 'a good many' Aboriginal people were employed on coastal properties, hoeing and reaping maize, and sheep washing. Referring to Aboriginal people employed by the Inlays in whaling, Lambie (cited in Bayley 1942) stated that after the season 'they all returned to their tribes in the bush'. It is possible that similarly, Aboriginal people in the Bega area alternated between farm and 'bush' life in these early years.

European settlement of the far south coast caused immense disruption and change to Aboriginal social and economic life and relationships to country. Nevertheless, in the early days of settlement Aboriginal groups had continued access to some lands and maintained many cultural and social traditions (Chittick & Fox 1997:191).

After the initial encroachment of European occupation Aboriginal people continued to find employment within the new settler economy. On the south coast during the 1800s Aboriginal people ran their own farms and businesses and contributed significantly to pioneering; they established a valuable place within the new society (Rose 1990: 41). People continued to pursue a rich cultural life, both 'traditional' and introduced, throughout the late 1800s. For example, the first Wallaga Lake school teacher found it difficult to interest the men in adult education because they were engaged by Cricket Clubs for the season (Rose 1990: 41). European bean growers of the Bega Valley were also concerned that Aboriginal pickers were difficult to secure due to cricket commitments which kept them otherwise occupied. By 1882 Aborigines lived mostly in camps around the small town of Bega.

Rose (1990:42) has argued that the Yuin peoples successful efforts to peacefully accommodate Europeans and to adapt to the new society was systematically destroyed by the Aborigines Protection Board which in 1884 adopted the policy of concentrating Aboriginal people on settlements. In 1891 the Aboriginal Protection Board established the Wallaga Lake Reserve, which became a virtual prison (Byrne 1984). In the 1940s and 1950s the Aboriginal people worked as seasonal labourers in the bean and pea fields and after World War 2 in the timber industry.

An area of 55 acres situated on the south east side of an arm of Blackfellows Lagoon, granted to Aboriginal people by the Aborigines Protection Board, was notified in 1893. While still an Aboriginal reserve in 1900 (Parish Map: 1900), at some time prior to 1918 the reserve was revoked (Parish Map: 1918).

7.2 Previously Recorded Sites

A search of the NSW DEC Aboriginal Heritage Management Information System was conducted on the 6th January 2005 (AHIMS search #11816). The search was undertaken for an area of 12 kms² encompassed by Eastings: 765000-768000 and Northings: 5929000-5933000.

Thirteen Aboriginal sites are recorded on AHIMS as being present within the site search area. However, none of these sites are situated within the study area itself. The AHIMS register only includes sites which have been reported to NSW NPWS. Generally, sites are only recorded during targeted surveys undertaken in either development or research contexts. Accordingly, this search cannot be considered to be an actual or exhaustive inventory of Aboriginal sites situated within the local area or indeed within the study area itself.

The following table details those NPWS site cards available which relate to the sites provided in the AHIMS site search result.

NPWS Site No	Grid Reference	Site Type	Location	Brief Description
62-6-0018	766300e 5929800n (approx.)	Midden	Immediately south of Tathra	
62-6-0094	766250e 5929990n	Midden	Kiwinny Bay	Large gastropod shells and occasional volcanic and quartz artefacts in two locales on lower hillslopes at the back of the inlet.
62-6-0095	766700- 767000e 5931200- 5931350n	Midden	Tathra Headland	Discontinuous shell midden patches containing quartz and volcanic flakes in gently sloping areas of the headland and back of platform with some zones up to 10m across and 50cm deep.
62-6-0153	766100e 5929100n	Midden	Wild Horse Bay	Open shell midden ca.5m ² on rock ledge containing porphyry and quartz flakes.

Table 1. Sites listed on AHIMS as per available site cards.

Site Types described in the AHIMS site search are seven open camp sites situated at the Tathra River Estate and four midden sites.

The following discussion in Sections 7.3 will present a review of previous archaeological work in the region for the purposes of producing a predictive model of site type and location for the study area (see Section 7.4).

7.3 Archaeology – Occupation models and prior research

Numerous studies have been undertaken, both in an academic and consultancy context, in the broader Tathra region of the New South Wales south coast. Consideration of a predictive model of site type and site location within a geographical context relevant to the study area can be made through recourse to these previous studies.

From this a contextual and relevant assessment of the archaeological potential of the study area can be formed.

The contemporary consideration by a number of researchers with regard to the nature of Aboriginal occupation on the South Coast prior to European settlement has resulted in conflicting arguments. Perceived higher site densities on the coast compared to forested hinterland contexts have led researchers, until recently, to argue that the coast was the focus of Aboriginal occupation and landuse.

Poiner (1976) proposed semi-nomadic occupation of the coast during summer and nomadic occupation of both the coast and hinterland during winter. However, this model was based on scanty evidence (Eliscock 1982) and an assumption that hinterland sites were few in number, small and widespread (Boot 2002). The strong seasonal focus of Poiner's (1976) model is inappropriate however, given that the mesothermal climate which prevails on the south coast presents only limited seasonal variation (Boot 2002).

Attenbrow (1976) argued that the major determinant of Aboriginal land use would have been the carrying capacity of the land. While Attenbrow (1976) proposed that groups would have utilized the coast and inland at all times of the year she argued that in spring, summer and autumn more people in larger numbers would have occupied the coastal zone practicing a largely marine economy and in winter smaller groups would be spread more evenly across country subsisting on a higher proportion of land animals. She predicted that areas such as coastal margins and inland valleys would have supported larger populations than the mountain slopes or foothills.

The forest-woodland environment contains large numbers of land mammals and plants (Attenbrow 1976). Poiner (1976) and Attenbrow (1976) have argued that both inland and marine resources declined in both range and abundance during winter. Poiner (1976) argued that the sea was the source of the bulk of food resources.

Vallance (1983) argued that a range of subsistence strategies would have been pursued and that these would have varied both within and between seasons and from year to year. This shift away from a seasonal model has been further expanded by Boot (1994) who has predicted that based on the Vallance (1983) model larger archaeological sites could be expected to be situated in areas where large quantities of food are available, either on a single occasion or on a regular basis, with smaller sites located elsewhere reflecting short term occupation or movement between focused occupation sites. Based on work undertaken during his doctoral research Boot (1994) has argued that the hinterland occupation was "widespread and very dense..." during the past 4000 years.

Prior to these debates within the academy, Geological Surveyor William Anderson recorded and excavated several Aboriginal midden sites in the region (Anderson 1890). Anderson (1890) mapped the location of major 'shell-heaps' at Wagonga Inlet and Pambula Lake. Anderson noted that the coastal zone in the area "...seems from all accounts to have been permanently inhabited by certain tribes of Aborigines, who occupied specialized areas in the district". Anderson (1890) described the results of the excavation of two middens at Wagonga Inlet in some detail. Both contained deep deposits; one 5' deep and the other 3'. The skeleton of a dingo was retrieved from one midden. Sullivan (1981; 1982b) subsequently examined the middens of the south coast as the topic of her doctoral research.

One of the preliminary consultancy projects undertaken on the south coast was conducted by Sullivan and Gibbney (1978) for the CSIRO. The study was aimed at identifying and recording locations containing evidence of Aboriginal and early non-Aboriginal occupation. Two hundred and eleven Aboriginal sites were listed during the survey. Site types recorded include shield and canoe trees, surface campsites, hatchet grinding grooves and stratified deposits including open shell middens and rock shelters (Sullivan and Gibbney 1978: 197).

From this time archaeologists began investigations in the south coast conducted within the context of the environmental impact assessment process.

The following review of previous archaeological work looks sequentially at studies which have taken place around the Merimbula district, Bournda, Bega, and then those studies conducted nearest to Tathra.

Studies undertaken in the Merimbula area: -

Merimbula is situated ca. 18 kms south of the study area and a number of studies have been conducted in and around the Merimbula township (Aiken 1986; Barber 1998; Dibden 2004a; Egloff 1983; Feary 1988; Hughes 1982b; Hughes 1983; Kuskie and Gutierrez 2000; Kuskie and Webster 2001; Kuskie 2002; Lance 1987; Oakley 2000; Wheeler et al 2003; Wheeler and Douglas 2003; Williams 1998).

Aitken (1986) conducted a survey in response to a proposed housing development of a two square kilometre parcel of land adjacent to Back Lagoon, immediately north of the township of Merimbula. During that study the majority of each of the different environmental zones in the area was surveyed including lagoon margins, beach, ridgelines, slopes and creeks. Visibility conditions were low and one Aboriginal site consisting of 14 stone artefacts distributed over an 8 m x 30 m area was recorded on a footslope situated above the lagoon. The lack of further archaeological recordings was assessed by Aitken (1986) to be a factor of low visibility variables rather than a true reflection of the archaeological status of the study area.

Lance (1987) subsequently conducted a limited program of subsurface investigations on the same property. Auger and shovel pits were excavated in a number of locations. Lance (1987) recovered a dispersed scatter of marine shell on beach barrier sand dunes - thought probably to have originated from a larger shell midden, and twelve artefacts scattered over a 25 m length of track. These artefacts were located on the lower slopes of gently sloping ground 60 m from the north east shore of Back Lagoon. No artefacts were found in a subsurface context. Lance (1987) concluded that the low artefact density recorded by Aitken (1986) during the surface survey was an accurate reflection of artefact numbers in the deposit and that this represented low levels of prehistoric usage of the area. Lance (1987) presented several reasons which might explain this situation: - that shallow lagoons did not provide a wide range of edible fauna and that therefore the area was less attractive than the nearby Merimbula Lake; that the sloping ground was an unattractive camping location; and that geomorphological processes may have removed material from the area.

Williams (1998) later conducted an archaeological investigation of a 7.2 hectare portion of the same property in a section adjacent to Back Lagoon. The study was conducted in respect of a new proposal to develop the land as a health retreat. The study area included the main spur crest, upper, mid and lower side slopes, creek bottom and the lake foreshore. Visibility encountered was assessed to be generally very poor, however. Williams (1998) argued that the survey results were indicative of the survey potential of the area. One small Aboriginal site was recorded. The site is described as consisting of three stone artefacts located on a spur crest over an area of 15m. All artefacts were flakes made of purple rhyolite.

Feary (1988) conducted a survey at a car park situated on top of a steep cliff above Tura Beach, ca. 14kms south of the study area. No sites were located but conditions of surface visibility were low.

Further to the south west Hughes (1982a) investigated an area on the northern shores of Merimbula Lake. The property consisted of low sandy flats, cliffs and slopes above the lake. Six midden sites situated on the cliff line at the junction of the hill slopes and rock platforms and estuarine sand flats were recorded by Hughes (1982a). The relatively intact, large middens consisted almost entirely of estuarine species: rock oyster, mud oyster, cockle, mud whelk and mussel, the later being present in the upper parts of the middens only. Stone artefacts, charcoal, fish bones and scales were also noted in some middens (Hughes 1982a).

Hughes (1983) conducted a further study of the Merimbula Lake foreshore and slopes above the lake. An additional nine sites, eight discrete middens/midden complexes and a stone artefact scatter were located. Hughes (1983) indicated that midden material is virtually continuous along parts of the cliff line and estuarine sand flats fronting the lake. As a result of the analysis of this work Hughes (1983) argued that the archaeology in the Merimbula Lake area was found to differ to that in the Bega River estuary. While sites in the north are of a high density they tend to be predominantly surface scatters of stone artefacts with very few shell middens. Hughes (1983) argued that the relative lack of shell middens at the Bega River appears to reflect the low shell fish productivity of estuary river mouths as compared to both the Merimbula and Pambula Lakes.

Hughes (1982b) also surveyed 24 hectares of hilly terrain one kilometre north-west of Merimbula. One small artefact scatter was located on a broad ridge crest. The scatter consisted of six quartz flakes and unmodified pieces and one acid volcanic flake.

Egloff (1988) conducted an assessment at the proposed effluent disposal works site situated 4 kilometres south of Merimbula. One shell midden, one artefact scatter and three human burials were located.

Barber (1998) surveyed a small house lot on the foreshore of Merimbula Lake. Shell material was found across the disturbed topsoil of the property. Oakley (2000) also surveyed a small lot on Main Street, Merimbula situated on the isthmus separating Back Lagoon from Merimbula Lake. Shell material was identified but Oakley (2000) argued that the material may not have been of Aboriginal origin.

Kuskie and Gutierrez (2000) conducted a survey of the ten hectare Merimbula Cove property located on the northern shores of Merimbula Lake. Six Aboriginal sites were located including middens, one artefact scatter and one isolated stone artefact. The middens contained estuarine shellfish species of predominantly cockle with

some mud oyster and whelk. Stone artefacts were made on locally available rhyolite and quartz and were interpreted to be representative of non-specific flaking activities and microblade production. Kuskie and Gutierrez (2000) found that sites were tethered to level to moderate sloping simple slopes and spur crests within 100m or so of the lake margin.

Kuskie and Webster (2001) conducted test excavation at a midden site situated on a ridge crest overlooking Merimbula Creek. The investigation revealed the presence of three low density scatters of shell across the site. No stone artefacts were recorded.

Kuskie (2002) surveyed 6 hectares of the proposed Lakewood residential development on the northern shore of Merimbula Lake. No Aboriginal sites were recorded and this result was explained to be a factor of the steepness of the hill slopes and accordingly the low archaeological potential of the area.

Wheeler and Douglas (2003) conducted a survey at the site of the Merimbula Public School situated on an isthmus between Merimbula Lake and Back Lagoon. While some areas of the site were found to be grossly modified, it was assessed that the majority of the site is undisturbed. Stone artefacts and midden material were recorded in surface exposures. Subsequent subsurface excavation was carried out on the site by Wheeler *et al.* (2003). In addition monitoring of selected locations was undertaken by representatives of the Raga Traditional Aboriginal Elders Council.

The subsurface work carried out at the school site revealed the presence of stone artefacts, shell midden and ochre within relatively intact soil profiles. Stone artefacts were found to be present in comparatively high densities representing tool maintenance and knapping activities. Raw materials utilised for stone working included siltstone, rhyolite and quartz. Backed artefacts dominated the 'finished implement' type and the analysis of material showed that blades were manufactured on site. The materials excavated led Wheeler *et al.* (2003) to conclude that the site is large, complex and was repeatedly occupied.

Dibden (2004) conducted a survey of the proposed Mirador subdivision area situated north of Back Lagoon in the area previously surveyed by Aiken (1986), Lance (1987) and Williams (1998). The artefact scatter previously identified by Aiken and Lance was relocated and found to be an extensive, but low density scatter on a spur landform. The site previously found by Williams (1998) was relocated and found to have been recently disturbed by earth works.

Bournda, situated between 5-15 kms to the southwest of the proposal area has been subject to a number of investigations (Attenbrow 1982; Barber and Williams 1993; Barber and Williams 1994; Boot and Feary 1990; Boot 2001; Dibden 2004b; Dibden and Kuskie 1999; Evans 1992; Feary 1988; Geering 1983a; Geering 1983b; Hughes 1982c; Kuskie 1998).

Attenbrow (1982) undertook a desktop predictive study for Aboriginal sites within the Bournda State Recreation Area. Based on a site register search, previous surveys in the area and environmental context, Attenbrow (1982) made the following predictive statements in relation to three main environmental zones situated in the area:

- coastline middens, 'buried sites' and burials could occur in the dune systems or on the headlands at a density of between 1 and 3.3 sites per kilometre of coastline. Fewer sites are predicted to occur on the rocky coastline than on the sandy beaches south of Turingal Head;
- lakes, lagoons, wetlands, creeks and associated flats: artefact scatters and shell middens are predicted to occur and scarred trees may exist where mature trees remain;
- forested hinterland hills: small artefact scatters, predominantly of quartz, may occur, particularly on saddles and ridge crests, but also along creek banks. A density of 0.4-1.1 sites per km² was predicted. Scarred trees also have potential to occur where mature trees remain.

Attenbrow (1982) ranked various zones in terms of archaeological potential (in order of highest relative potential to lowest):

- headlands and foredunes of Bournda and Tura Beaches;
- hind portions of the beaches and headlands of embayments north of Turingal Head;
- shores of Wallagoot Lake, Bondi Lake and Bournda Lagoon, for up to 300 metres from the margin;
- elevated land adjacent to watercourses traversing flats near lagoons and lakes;
- ridges in hilly forested areas, particularly saddles and crests; and
- alluvial flats bordering watercourses in the hilly forested zone.

Following from Attenbrow's (1982) recommendations the NPWS engaged Geering (1983a) to investigate proposed visitor facilities within the State Recreation Area. Geering (1983a, 1983b) located an extensive artefact scatter on low flats around Scotts Bay. It was reported as extending for over 500 metres along a vehicle track. Geering (1983b) undertook a salvage collection and analysis of the artefacts. Apart from exposures along vehicle tracks, dense vegetation restricted visibility elsewhere. A total of 423 artefacts were collected from fifty 10 x 10 metre squares, primarily in areas of high visibility on basal slopes bordering a small lagoon. Artefact densities were typically low (<3 per m²), with a mean of 0.3/m² (adjusted for archaeological visibility). 85% of artefacts were flakes or flake fragments (broken flakes and 'flakes' without diagnostic attributes), 8% cores, 3% retouched or utilised pieces, with minor frequencies of flaked pieces, hammerstone/anvils and a ground-edge hatchet. Five of the retouched pieces were backed blades. Stone materials were predominantly quartz (55%) and rhyolite (28%), with minor frequencies of quartzite, silex, porphyry, sandstone and others.

At Widgeran, ca. 10 kilometres south of the study area, Feary (1988) located four small artefact scatters on a lower/basal north facing slope. Feary (1988) interpreted the sites as being smaller sites associated with a large base camp site, or the widespread dispersal of a very large site caused by previous impacts and construction of Widgeran nursery.

Boot and Feary (1990) undertook investigations for the NPWS in regard to various proposed works at Bournda National Park. Initially they recorded a large site complex (62-6-145/221) and noted the existence of an extensive artefact scatter on an alluvial sand flat. Boot and Feary (1990) undertook further assessment which involved surface collection of artefacts from various sites and some subsurface test excavation. Over 3,000 artefacts along with numerous shell fragments were collected and analysed. A basal date of occupation was obtained from the Stockyard Midden of 2,990±190 years BP (Before Present) (ANU-7770) (Boot & Feary 1990).

Evans (1992) undertook research within the Bournda area for an Honours Thesis in archaeology at the Australian National University. While Evans' research focused on a lithic quarry site it also included survey and recording of a number of sites within Bournda National Park. Evans (1992) sought to investigate aspects of stone tool manufacture relating to the quarry site and implications for general models of Aboriginal technological and economic behaviour. Evans' study area extended from Kangarutha Point south to Sandy Beach Creek (3-4 km south of Wallagoot Lake) and inland to the Kalaru-Merimbula Road. The survey by Evans (1992) resulted in the identification of 36 artefact scatters and one artefact scatter/midden, although several are re-recordings of previously identified sites.

Evans (1992 [1-12]) divided the main stone materials present into four types

- quarry porphyry (porphyritic rhyolite) is described as a light grey, coarse grained volcanic material with large crystalline inclusions;
- non-quarry porphyry is described as a fine grained volcanic material, generally light green-grey in colour, with smaller crystalline inclusions than the quarry porphyry;
- purple rhyolite (banded rhyolite) is described as a fine grained volcanic rock with flow bands and occasional small crystalline inclusions; and
- quartz.

A source of porphyritic rhyolite exists on low spurs/basal slopes north of Wallagoot Lake. Evans (1992) could not identify a local source of the 'non-quarry porphyry'. Three sources of purple rhyolite were identified along Sandy Beach Creek which Evans (1992) argues were exploited by Aboriginal people as a quarry. Quartz was noted as being local in occurrence and associated with the silicic volcanics. Other raw materials identified by Evans (1992) in the artefact assemblages included pink quartzite/silex, brown silex, chert, chalcedony and red jasper. Evans' (1992) analysis focused on the artefact collections made by Boot and Feary (1990) near the quarry and on a sand flat. He identified that the lithic quarry does not conform to typical models for extraction sites because little material from the quarry was present in the local site assemblages or appeared to have been removed from the local area. Evans (1992) suggested that the presence of sources of a technically more desirable material, purple rhyolite, in the nearby Sandy Beach Creek, is an explanation for this anomaly.

Evans (1992) identified that variations occurred in the way that different stone materials were curated. In general, the quarried porphyritic rhyolite tends to represent early stages of the reduction process, whereas the banded rhyolite tends to be reduced to a greater extent. Evans (1992) proposed that the pattern of stone procurement and use in the Wallagoot Lake locality was determined by the presence of a local bedrock source (quarry porphyry) and a local secondarily deposited source (purple banded rhyolite) which were exploited by

Aboriginal people during normal movement through the landscape. Purple (banded) rhyolite was preferred because of its greater amenability to controlled flaking.

Boot (1995) conducted an archaeological inspection in relation to the construction of an underground powerline within Bournda National Park. Three artefact scatters and one isolated find were recorded along the proposed route (one of which appeared to be previously recorded site 62-6-143), while one artefact scatter was recorded on a proposed alternate route. Artefacts were generally located in exposures located on flat elevated ground, above swampy wetland areas.

Kuskie (1998) conducted an investigation of areas on the northern margin of Wallagoot Lake and at White Rock Quarry. Nine sites (four artefact scatters, two middens, two isolated artefacts and one lithic quarry) were identified in the Turingal Head study area, while four artefact scatters were recorded at White Rock Quarry. Seven of these sites were new recordings. Several of the previously recorded sites were combined on the basis of Kuskie's (1998) survey results. Kuskie (1998:39) located a small, dispersed shell midden along the eastern section of the existing access track to Turingal Head, situated on the sand flat adjacent to the wetlands and Wallagoot Lake. Kuskie (1998) amalgamated sites 62-6-220/62-6-225 and JT3, a continuous scatter of artefacts near the lithic quarry, situated on a low spur crest overlooking the northern shore of Wallagoot Lake. A total of 417 artefacts were recorded within an area measuring 1,712 m². Within the recorded sample artefacts occurred at a mean density of 93/m² of effective site area, despite earlier collections having reduced the number of artefacts. Densities between loci varied from 8 to 414 artefacts/100 m². Kuskie (1998) also combined sites 62-6-143/62-6-221, an extensive artefact scatter with a shell midden component situated within the vicinity of the Wallagoot Boat Club on the northern lake shore. At this site located on a low spur crest, basal side-slopes of the spur and an alluvial flat bordering Wallagoot Lake, 382 artefacts were recorded within an area measuring 1,935 m². Artefacts had previously been removed from the site but nevertheless occurred at a mean density of 52/100 m² of effective area. Artefact densities were found to vary between loci from 5-10 to 350 artefacts/100 m², being highest on the spur crest.

Dibden and Kuskie (1999) conducted further work at Bournda. Eighteen sites were identified comprising ten artefact scatters (including two with midden components), three shell middens and five isolated artefacts. These sites comprised twelve new recordings and five that have been previously recorded. Aboriginal sites were found to occur across virtually all of the landform units present. All sites were located in reasonably close proximity to potable water. In relation to landform units artefact densities were found to be generally higher on basal slopes. A variety of artefact types were present in the site assemblages with flaked pieces being the most common.

Boot (2001) conducted subsurface test excavation at selected locations along the north shore to Wallagoot Lake. Sixty two stone artefacts were recovered from fifteen of twenty four excavated pits. The recovered artefacts were made of rhyolite, porphyry and quartz. The majority of the artefacts were identified to be porphyry. This result was expected given the close proximity of the test areas to the local quarry. Very few artefacts were found in the vicinity of ephemeral creek lines. Higher artefact densities were found in the eastern end of the study area in sandy deposits.

Dibden (2004b) conducted a survey at Bournda Downs, west of Wallagoot Lake in response to a proposed housing subdivision. Twenty two stone artefact sites were recorded, the majority of which were located on flat ground adjacent to Moncks Creek. Artefact density was found to be low generally.

The township of Bega is located ca. 10 kilometres northwest of the study area and a number of studies have been undertaken in the Bega region and to its immediate north (Bowdler 1982; Byrne 1983b; Dearing 2002; Eglhoff 1979; Hughes and Sullivan 1978; Saunders 1997; Saunders 2003).

Hughes and Sullivan (1978) assessed the types and distributions of Aboriginal sites within the 'Five Forests' prior to the selective logging of the area. The Five Forests extends over 40 km from Wallaga Lake in the North to Bega in the south and 20 km inland. The Five Forests occupied an area between the coastal zone of alternating rocky headlands and estuaries backed by alluvial river valleys to the east and rolling hill country to the west. Most sites were found along roads or logging tracks and none of the artefacts were regarded to be *in situ*. Visibility was low in the inland areas, with visibility of less than 10% in most places. The survey was conducted by selecting areas of potential such as stream crossings, ridge crests and saddles in areas where granite outcropped. The survey resulted in representative transects of each of the forests and their various geological and landform associations. Surveys of coastal areas stretching from Middle Lagoon to Bega River in the south were also made in order to provide a comparative context to the hinterland.

Five small artefact scatters were located mostly comprising artefacts made from quartz (Hughes and Sullivan 1978). None of the quartz artefacts were thought to be unequivocally of Aboriginal origin given that they were found on exposed surfaces near roads or on logging tracks. However, none of the stone occurred naturally at these sites. Other materials encountered included indurated mudstone and porphyritic volcanics. Artefact types included flakes, one core, one scraper and some utilised flakes. Sites were typically found to be located along saddles and gentle slopes or ridge crests. The small number of sites found away from the coast was attributed to lack of visibility due to ground cover, the location of the survey area underlain by Ordovician beds (which produced surface lag deposits rich in shattered vein quartz) and that manufacturing sites were unlikely to be present due to lack of suitable rock types for implement manufacture.

Egloff (1979) conducted a study of Mumbulla Mountain, situated to the north of Bega and ca. 22kms north east of the study area, commissioned by the Forestry Commission of New South Wales. This study was conducted in response to the Forestry Commission's decision to commence logging on Mumbulla and the subsequent six month embargo which followed The Yuin Tribal Council's request of the NSW Heritage Council for an Interim Conservation Order. Egloff found that the Yuin Tribal Council represented Aborigines who retained sufficient traditional knowledge for the claims in regard to Mumbulla to be taken seriously. His findings resulted in the gazettal of the disputed area as an Aboriginal Place.

Byrne (1983) surveyed Loggable Block One on Mumbulla Mountain (measuring 9 km square) in response to planned thinning operations of Timber Stand improvement zones. Given the presence of dense timber regrowth the majority of the study area was unable to be adequately surveyed. Survey was confined to areas of predicted sensitivity. No sites were located. This negative result was explained in terms of the high levels of ground disturbance in areas subjected to previous integrated logging operations.

Bowdler (1982) conducted a limited survey of an 8 km square area in Loggable Block 4 of Biamanga Aboriginal Place situated on the east side of the Murrah River. Survey was confined to locations which were predicted to be sensitive. One previously recorded site was relocated. No additional sites were recorded.

Dearling (2002) conducted research in the Bega Valley based on a sampled survey of five areas. 119 open artefact scatters and 62 isolated finds were recorded with the highest percentage of sites occurring in areas that were formerly dry grass forest. The most complex sites were found to be situated close to the transition zones at ecotone boundaries (Dearling 2002: 21). Dearling (2002: 21) concluded that Aboriginal people utilised almost all hinterland environments and that the level of exploitation depended on resource availability within the particular environment.

Kuskie (1994) conducted a survey of a five ha area situated approximately seven kilometres north of Brogo. The study area is situated 500 m north of the river within a zone of lower elevation ridges, hills and drainage channels. The study area encompassed part of a flat level knoll and steep simple slopes. Most of the area was assessed to be of low archaeological sensitivity. No sites were found and this result was considered to be a reasonably accurate reflection of the sensitivity of the study area.

Saunders (1997) surveyed a granite extraction pit site located 15 km northwest of Bega and consisting of an 8 ha parcel of land. The archaeological potential of the area was assessed to be low given the nature of the terrain and absence of reliable water. No sites were found and this result was argued to be an accurate reflection of the potential of the area.

Saunders (2003) surveyed the "Glen Mia" thirty five hectare subdivision area on the south east outskirts of Bega. The area consisted of moderately inclined slopes separated by intermittent streams. Two scarred trees and four areas of archaeological potential were recorded. Ground visibility and hence the potential to locate artefactual material was low during the survey.

Surveys conducted nearer to the study area include those by Barber and Williams (1993; 1994); Geering (1983a); Hughes (1982c; 1982d; 1982e); and Hughes and May (1982).

Hughes (1982c) compiled an overview and predictive study of Aboriginal sites in the Tathra locality, and in addition, he (Hughes 1982d) also compiled an assessment of Aboriginal sites in the Kalaru area. During this study four surface artefact scatters were identified, all located on flat to low gradient ground. His general findings were that areas of medium to high archaeological sensitivity were to be found in association with water on elevated landforms of low gradient.

Hughes (1982e) surveyed for Aboriginal sites along a proposed road from Tanja to Tathra. One isolated find on steeply sloping ground and one artefact scatter on a level creek bank were recorded.

Several studies have been conducted in relation to the proposed Tathra River Estate residential subdivision (Hughes and May 1982; Barber and Williams 1993; Barber and Williams 1994).

Hughes and May (1982) located 16 artefact scatters and one midden in the 155 hectare Tathra River Estate. The property consists of hilly terrain with ridges, spurs and side-slopes overlying a shale geology and bordering the Bega River and Black Ada Swamp. Sites were dominated by rhyolite artefacts and occurred on low gradient ridges and spurs. The survey area was considered to be extremely rich in surface stone artefact scatters (10/sq km) which they argued was significantly higher than other site densities in surrounding hinterland and forests. Five sites contained over 100 artefacts. Sites were found typically on flat to gently sloping spurs of ridges. The high number of sites was explained in terms of the location of the study area in respect of the wide range of adjacent resource zones. Hughes and May (1982) assessed the area to be of high scientific significance on the basis of the high site density.

In 1993 NSW NPWS requested a re-assessment of the survey conducted by Hughes and May. Accordingly, Barber and Williams (1993) conducted a study of the area. This study sought to:

- Relocate and reassess the previously recorded sites.
- Re-assess the recommendations and significance assessment made by Hughes and May (1982); and
- Complete Aboriginal consultation regarding the Aboriginal significance of the area and sites

Barber and Williams (1993) resurveyed the property, relocating most of the previously recorded sites, along with an additional three artefact scatters and a midden, bringing the total number of sites for the study area up to twenty one. One site (TRE 16) was found to contain over 600 artefacts, including several knapping floors. Barber and Williams (1993) remarked that the striking feature of the sites at the area is their large size. They (Barber and Williams 1993) rated the significance of the sites, ten of which were accorded low significance on the basis of low artefact numbers and low potential to contain additional artefacts. Barber and Williams (1993) nevertheless considered the entire suite of sites to be a site complex which added to the overall scientific significance of the sites in the study area.

Thereafter, Barber and Williams (1994) undertook sub-surface testing at sixteen locations, including eight where sites had previously been recorded. A total of 404 test pits were excavated and 898 artefacts recovered (Barber & Williams 1994). The program revealed the presence of artefacts distributed in a virtual continuum across the study area with some variation in density. Artefact densities varied between 1.3 and 136 artefacts 'per conflated m²' for the sites excavated, although most site densities ranged between 4 and 20. Rhyolite was the dominant stone material for the combined assemblages (44%), followed by 'porphyritic volcanic' (probably *porphyritic rhyolite*) (24%), quartz (21%), silicite (8%) and minor frequencies of other materials. The majority of artefacts with cortex, particularly rhyolite and 'porphyritic volcanic', exhibited cortex indicative of procurement from a terrestrial outcrop. Pebble cortex was present in a relatively low frequency. No information is available on the frequencies of artefact types. However, a low number of backed, retouched, utilised and several 'pecked' artefacts are reported (Barber & Williams 1994).

In relation to landform units artefact densities were found to increase towards the terminal end of spurs (*basal/lower slopes*), which also coincides with proximity to the wetlands or river. They (Barber & Williams 1994) make the point that as the area is situated at the confluence of a number of resource zones and is therefore resource rich, so that the results of the investigations are not unexpected. Barber and Williams (1994) argued that these locations were the focus of occupation in the study area. Nevertheless, Barber and Williams (1994) compare the results of the Tathra River Estate study area to other comparable locations and argue that the density of artefacts is greater at the Tathra River Estate than elsewhere.

The nearest study conducted in relation to the study area was undertaken by Geering (1983a). Geering (1983a) investigated the route of the proposed Kungarutha Walking Track extending from Turingal Head, 7 km south east of the study area, to Kiaminy Bay situated 1.25 km south of the study area. Eleven sites were located during this survey; five shell middens, five open artefact scatters and one stone quarry. While one midden was located in an estuarine environment, the remaining four middens were found in a marine setting, adjacent to areas of ocean exposure. These were found to be small and to contain rock platform species such as turban (*Submurella undulata*, *Ninella torquata*), mussel (*Mytilus* sp.), carpet shell (*Thais orbita*), nerites (*Melanerita* sp.), limpets and chitons. All four middens associated with the open marine environment were located on rock ledges situated within 10 metres of the high water mark.

In addition, two DEC site cards compiled by Sullivan in 1982 (62-6-94; 62-6-95) detail two middens in the Tathra area. The first at Kiaminy Bay, while the second is located on gently sloping areas on the northern side of Tathra Head at the back of the rock platform.

7.4 Archaeological Potential of the Study Area

The literature review presented above indicates that in coastal environments on the far south coast midden and stone artefact scatters are commonly recorded sites. Ceremonial places, human burials and scarred trees are also recorded, albeit in lower numbers.

Based on a consideration of the above models and the review of prior research conducted in the local area the following site predictions are made:

Open Artefact Scatters of Stone Artefacts

Open artefact scatters are located either on the surface and/or in subsurface contexts. The raw materials used for artefact manufacture will commonly be silcrete, chert, quartzite, quartz and volcanics.

Within the local area stone artefacts will be widely distributed across the landscape in a virtual continuum, but with significant variations in density in relation to different environmental factors. Artefact density and site complexity will be greater near reliable water (c. 100 metres of the highest order streams).

The detection of artefact scatters depends on ground surface factors and whether or not the potential archaeological bearing soil profile is visible. Prior ground disturbance, vegetation cover and sediment/gravel deposition can act to obscure artefact scatter presence.

Given the environmental context it is assessed that archaeological evidence in the form of stone artefacts in the proposal area will be extremely sparse and representative of background scatter generally.

Isolated Finds

Isolated finds are single stone artefact finds. Whether or not the isolated position of the artefact is a true reflection of artefact density rather than a result of low visibility variables it is considered to be the constituent component of the background scatter present within its particular landform unit.

It is predicted that isolated finds may be located in the proposal area and will be representative of background scatter.

Potential Archaeological Deposit (PAD)

PAD sites are sedimentary deposits which are assessed as having a high likelihood of containing sub-surface artefacts. PAD sites may occur in association with a surface scatter of stone artefacts or alternatively exhibit no archaeological surface material.

Based on environmental grounds and prior European impacts the potential for PAD sites to be present in the proposal area is assessed to be low generally.

Grinding Grooves

Grinding grooves are found in rock surfaces and result from the manufacture and maintenance of ground edge tools. Given the absence of sandstone exposures in the study area grinding groove sites are unlikely to be present.

Burials sites

Burial sites have been recorded within the wider region. The potential exists for burials to be present in deep sedimentary features adjacent to the Bega River or in sand dunes. This site type is rarely located during field survey and given the topography and nature of the soils burials are not predicted to be present in the study area.

Rock Shelter Sites

Rock shelters sites are unlikely to be present in the study area given the absence of vertical stone outcrops.

Scarred and Carved Trees

Scarred and Carved trees result from either domestic or ceremonial bark removal. Carved trees associated with burial grounds and other ceremonial places have been recorded in the wider region. In an Aboriginal land use context this site type would most likely have been situated on flat or low gradient landform units in areas suitable for either habitation and/or ceremonial purposes.

Bark removal by European people through the entire historic period and by natural processes such as fire blistering and branch fall make the identification of scarring from a causal point of view very difficult. Accordingly, given the propensity for trees to bear scarring from natural causes their positive identification is impossible unless culturally specific variables such as stone hatchet cut marks or incised designs are evident and rigorous criteria in regard to tree species/age/size and its specific characteristics in regard to regrowth is adopted.

Nevertheless, the likelihood of trees bearing cultural scarring remaining extant and in situ is low given events such as land clearance and bushfires. Generally scarred trees will only survive if they have been carefully protected (such as the trees associated with Yuranigh's grave at Molong where successive generations of European landholders have actively cared for them).

The study area has been cleared with no remaining trees. This site type will not be present in the study area.

Middens

Middens consist of deposits of shell and sometimes contain stone artefacts, bone and human burials. Middens are the most commonly recorded site type in the immediate Tathra area with one recorded at Kianinny Bay to the south of the study area and one nearby on the northern side of Tathra Head.

Middens situated in the area will vary in their species composition which is generally a factor of environmental location. Rock platform species typically dominate sites situated on headland contexts, while estuarine species are dominant in sites found around estuaries. Middens present in areas near to marine rock platforms are indicated to be situated in reasonable proximity and have reasonable access to the resource zone.

Given the distance between the nearest rock platform and the study area, and the positioning of a precipitous cliff between the two, it is believed that middens are unlikely to be present.

Stone Quarry and Procurement Sites

A lithic quarry is the location of an exploited stone source (Hiscock & Mitchell 1993:32). Sites will only be located where exposures of a stone type suitable for use in artefact manufacture occur. Given the absence of stone outcrops in the proposal area this site type is unlikely to be recorded during the study.

8. SURVEY RESULTS

8.1 Results

Stone artefact scatters and shell middens are typically recorded during field survey in the broader local area. Stone artefact sites will generally be found throughout the majority of survey contexts indicating that stone artefacts will be widely distributed across the landscape. Artefact and site densities vary significantly accordingly to topography, gradient, elevation and proximity and access to water sources. Artefact scatters which occupy large spatial areas and contain high artefact numbers are typically found on reasonably flat, elevated land, at the confluence of a number of different resource zones and close to a reliable source of fresh water.

Shell middens will be found in close association with shell species procurement zones, again on reasonably flat land, above the high water mark and with practical access between the two areas.

No sites were recorded in the proposal area during the study. Given the nature of the original rocky landform, the reasonable gradient of the proposal area, the lack of direct access to the closest rock platform and the gross

disturbance incurred by clearance, infilling and landscaping, it is considered probable that this result is a true reflection of the archaeological resource present within the study area. This is discussed further below.

8.2 Survey Coverage Variables

Survey Coverage Variables are a measure of ground surveyed during the study and the archaeological visibility present within that surveyed area. Survey coverage variables provide a measure with which to assess the effectiveness of the survey so as to provide an informed basis for the formulation of management strategies.

Two variables have been recorded during this study to measure ground surface visibility: The area of ground exposure encountered and the quality and type of ground visibility (archaeological visibility) within those exposures. The two variables of ground surface visibility which have been estimated during the survey are defined as follows:

Average Ground Exposure – an estimate of the total area of ground inspected which contained exposures of bare ground; and

Average Archaeology Visibility – an estimate of the average levels of potential archaeological surface visibility within those exposures of bare ground.

Based on the two visibility variables as defined above, a net estimate (Net Effective Exposure) of the archaeological potential of exposure area within a survey unit or set of units is calculated. The Effective Survey Coverage (ESC) is a percentage calculation of the archaeological visibility within the study area; it is defined and required by the DEC.

One survey unit was recorded during this study. This survey unit conforms to a single terrain unit (a combination of landform element, gradient and aspect). The survey unit encompassed both the proposal site and adjacent areas situated to the east.

The survey unit is summarised in Table 1; its location is shown of Figure 5.

A description of this survey unit is provided below.

Survey Unit 1

The survey unit is located on an area of land which extends northward to become the minor peninsula of Tathra Head. The study area encompasses a section of a spur side slope which extends across the entire proposal site and beyond, dropping downwards from west to east at a moderate gradient and terminating beyond the eastern boundary in a cliff which drops away to the ocean rock platform below.

The proposal area is predominantly covered by mown kikuyu grass, with some *metaleuca*, *pittosporum*, *westringia* and *acacia* distributed along the eastern and southern fringes, and one Norfolk pine tree contained within the grassed area. Towards the north-western section of the study area, below the existing hotel, there is a section of driveway surfaced with introduced pebble, below which a steep embankment covered with thick unmown kikuyu grass descends to a sewerage pump station.

Observable gross prior disturbance within the study area has taken the form of original clearance, the importation of landfill, and thereafter the levelling and landscaping of this imported material. The landfill has inclusions of rubble, concrete, bricks, broken terra cotta pipes and pebbles, and is applied to a maximum depth of ca. 1 metre towards the eastern boundary and a depth of ca. 30 cm at the upper south-western corner. The site area shows undulations across its length reflecting this disturbance and subsequent modification. In addition a sewerage line traverses the eastern section of the study area.

The natural ground surface underlying the introduced layer of fill is indicated to be rocky, as evidenced by a limited series of volcanic rock exposures (ca. 2 metres square in total) which breach the surface in the south-eastern quadrant of the proposed area of impact.

The only ground exposures present in the survey unit are areas of bare earth observable within a pedestrian track and in thickets outside the eastern boundary of the zone of impact. This ground exposure area measures c. 25m² in total. Archaeological visibility of these exposures is assessed to be 40%.

No stone artefacts or midden shells were recorded in this survey unit. However, despite the lack of ground exposure, recourse to predictive modelling indicates that the unit should be assessed to be of very low archaeological sensitivity and accordingly to have the potential to contain at most a very low density only of subsurface archaeological deposit. Further than this however, given the gross disturbance which has been erected upon the proposal area, any subsurface archaeological deposit which might be potentially present will be not only very sparse but highly disturbed.

The survey coverage achieved during the survey is described in Table 2 below.

Survey Unit	Terrain Unit	Survey Unit Area	Area surveyed	Ave. ground exposure	Ave. arch visibility %	Net effective exposure	Effective survey coverage	Sites recorded	Potential for undetected artefacts to be present
SU 1	Side slope of spur crest; Aspect 90°; Gradient 7°.	6000 m ²	90% 5400 m ²	<1% 25 m ²	60%	15 m ²	0.25	Nil	Low

Table 2: Survey Coverage Data

8.3 Summary

The single survey unit which comprises the entire study area, being greater than and encompassing the zone of impact, was subject to a comprehensive archaeological survey. The total survey area measures ca. 6000 m².

Approximately 5400 m² of this total area was traversed and inspected during the survey. Ground exposure was extremely sparse as a result of the proposal area being thickly vegetated; ground surfaces are covered predominantly with mown kikuyu grass. Ground exposure was restricted to small areas around the fringes of the property, but such exposures were non-existent within the proposed area of impact. Because of the vegetated groundcover and the introduced fill which underlay this, effective survey coverage achieved during the study is calculated to have been 0.25% of the entire study area.

This effective survey coverage achieved during the survey is ineffectual. The low effective survey coverage is a factor not only of vegetation obscuring the ground surfaces across the study area, but also the presence of introduced fill which overlies the natural landform surface.

Given the general lack of ground visibility within the proposal area and in consequence the inadequate survey coverage achieved during the site inspection, an assessment of the archaeological potential of the study area is drawn through recourse to predictive modelling for the Tathra region as well as an assessment of the history of disturbance of the landform where this development is proposed. This analysis indicates that the proposal area is of very low archaeological sensitivity. It is therefore unlikely that the site contains subsurface stone artefacts or midden material and that if any such material is present it will be distributed at low density and in a grossly disturbed context.

9. STATUTORY INFORMATION

Two pieces of legislation provide the primary basis for Aboriginal heritage management in NSW, the National Parks and Wildlife Act 1974 (NPW Act) and the Environmental Planning and Assessment Act 1979 (EP&A Act) (NPWS 1997).

The Environmental Planning and Assessment Act 1979 (EP&A Act), its regulations, schedules and guidelines provides the context for the requirement for environmental impact assessments to be undertaken during land use planning (NPWS 1997).

The NPW Act provides statutory protection for all Aboriginal objects and Aboriginal Places.

An 'Aboriginal object' is defined as

'An Aboriginal object is any deposit, object or material evidence (not being a handicraft for sale) relating to Aboriginal 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 extraction, and includes Aboriginal remains'.

Under s90 of the NPW Act a person must not knowingly destroy, damage or deface or knowingly cause or permit the destruction, damage or defacement of an Aboriginal object or Aboriginal Place without first obtaining the consent of the Director-General of the NSW DEC. Consents which enable a person to impact an Aboriginal object are issued by the DEC upon review of a s90 application.

Under s87 of the NPW Act a person must not excavate or disturb land for the purposes of discovering an Aboriginal object without first obtaining the consent of the Director-General of the NSW DEC. Permits which enable a person to excavate land for the purposes of determining whether or not an Aboriginal object is present are issued by the DEC upon review of a s87 application.

10. CONCLUSIONS AND RECOMMENDATIONS

No Aboriginal sites or areas of archaeological potential were recorded during the study. The proposal area is assessed to be of very low archaeological sensitivity. It is therefore unlikely that the site contains subsurface stone artefacts or midden material and that if any such material is present it will be distributed at low density and in a grossly disturbed context.

The following recommendations are made on the basis of:

- Legal requirements as set out under the National Parks and Wildlife Act 1974 (as amended) which states that it is illegal to knowingly destroy, damage or deface or knowingly cause or permit the destruction, damage or defacement of an Aboriginal object or Aboriginal Place in NSW without first obtaining consent of the Director-General of the NSW Department of Environment and Conservation (see Section 9 Statutory Information).
- The results of the investigation as documented in this report.
- An analysis of the survey results.
- Consideration of the type of development proposed and the nature of the proposed impacts.

Given that no Aboriginal objects or archaeological deposits were recorded during the field survey and that the area is assessed to be of low archaeological potential the following recommendations are made:

1. There are no Aboriginal archaeological constraints to the development proposal.
2. No further archaeological investigations are necessary.
3. A single copy of this report should be forwarded to:

John Dixon
Bega Traditional Aboriginal Elders Council
PO Box 193
Bega NSW 2550

11. REFERENCES

- Aiken, G. 1986 *An Archaeological Reconnaissance of the Upper Berrambool Housing Development Area, Merimbula, New South Wales*. A report to Willing & Partners Pty Ltd, Canberra, ACT.
- Anderson, W. 1890. Notes on the Shell-heaps or Kitchen-middens accumulated by the Aborigines of the Southern Coastal District. *Records of the Geological Survey of New South Wales*. Vol.11; pp 52-60.
- Attenbrow, V. 1976 *Aboriginal Subsistence Economy on the Far South Coast of New South Wales, Australia*. Unpublished BA (Hons) thesis, University of Sydney, Sydney.
- Attenbrow, V. 1982 *Bournda State Recreation Area: Predictive Statement on Aboriginal Sites for Plan of Management*. Unpublished report to NSW NPWS.
- Barber, M. 1998 *An archaeological investigation of Lot 15A, 22 Beach Street Merimbula*. Report to the D'Arcy Family.
- Barber, M. and Williams, D. 1993 *Tathra River Estate: An Archaeological Review*. Unpublished report to Nicholas Graham-Higgs and Associates.
- Barber, M. and Williams, D. 1994 *Subsurface Probing of Archaeological Sites Within Stage 2 of Tathra River Estate, Far South Coast, NSW*. Unpublished report to Crowther & Sadler Pty Ltd.
- Bayley, W. 1942 *Story of the settlement and development of Bega*. No publication details.
- Boot, P. 1994 Recent Research into the Prehistory of the Hinterland of the South Coast of New South Wales. In Sullivan, M., Brockwell, S. and Webb, A. (eds) *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association Conference*. NARL: Darwin.
- Boot, P. 1995 Bournda NP powerline proposal, inspection of proposed route. Memorandum to Bruce Olson.
- Boot, P. 2001 *Preliminary report on excavation of test pits within selected sections of the proposed Turingal Head Road*. Memorandum to Grant Brewer, Ranger, Eden Area, Far South Coast Region.
- Boot, P. 2002 *Didimul, Gulaga and Wadbilliga: An archaeological study of the Aborigines of the New South Wales South Coast hinterland*. Unpublished PhD thesis: The Australian National University.
- Boot, P. and Feary, S. 1990 Unpublished manuscripts, notes, data and analysis from investigation of proposed NPWS works within Bournda State Recreation Area. Stored at NPWS Southern Zone, Queanbeyan.
- Bowdler, S. 1970 Bass Point: *The Excavation of a South-East Australian Shell Midden Showing Cultural and Economic Change*. Unpublished BA (Hons) thesis, University of Sydney, Sydney.
- Bowdler, S. 1982 An archaeological survey of Loggable Block 4 in the proposed Biamanga Aboriginal Place, Murrah State Forest, South-east New South Wales. Report to National Parks and Wildlife Service, NSW.
- Byrne, D. 1983 Archaeological Survey of Loggable Block One, Biamanga Aboriginal Place. Report to NSW National Parks and Wildlife Service.
- Byrne, D. 1984 *Aboriginal Sites in Wandella-Dampier State Forests: An Archaeological Survey Ahead of Scheduled Forestry Operations*. Unpublished report to Forestry Commission of NSW.
- Chittick, L. and Fox, T. 1997 *Travelling With Percy: A South Coast Journey*. Aboriginal Studies Press: Canberra.

- Dearling, C. 2002 *From Mumbulla Aboriginal Exploitation of the Bega Valley in Recent Prehistory*. MA Thesis. School of Archaeology and Anthropology, The Australian National University: Canberra.
- Dibden, J. 2004a *Mirador Proposed residential subdivision*. Report to ngenvironmental.
- Dibden, J. 2004b *Proposed Residential Subdivision at Bournda Downs, via Bega, NSW Aboriginal Archaeological Assessment*. Report to ngenvironmental.
- Dibden, J and P. Kuskie 1999 *An archaeological survey of proposed works by NPWS (Eden District) at Bournda National Park, Far South Coast of NSW*. A report to NSW National Parks and Wildlife Service (Eden District).
- Eades, D.K. 1976 The Dharawal and Dhurga languages of the New South Wales South Coast. In *Australian Aboriginal Studies Research and Regional Studies No. 8*. AIAS: Canberra.
- Egloff, B. 1979. *Mumbulla Mountain: An Anthropological and Archaeological Investigation*. NPWS
- Egloff, B. 1988 *Merimbula Effluent Disposal Works Archaeological Investigations*. Report to DPWS.
- Evans, B. 1992 *A Technological Evaluation of an Aboriginal Quarry Site, South Coast New South Wales*. Unpublished BA (Honours) Thesis, Department of Prehistory and Anthropology, Australian National University.
- Feary, S. 1988. *Archaeological Site Inspection Bournda State Recreation Area*. Unpublished report to New South Wales National Parks and Wildlife Service.
- Flood, J. 1980 *The Moth Hunters: Aboriginal Prehistory of the Australian Alps*. AIAS: Canberra.
- Geering, K. 1983a *An Archaeological Assessment of Proposed Development Areas Within Bournda State Recreation Area, South Coast, N.S.W.* Unpublished report to Trustees, Bournda State Recreation Area.
- Geering, K. 1983b *Report on the Collection and Analysis of an Open Surface Campsite Within Portions 53, 26 and 27, Parish of Bournda, County of Auckland, Bournda State Recreation Area*. Unpublished report to Trustees, Bournda State Recreation Area.
- Hiscock, P. 1982. A Technological Analysis of Quartz Assemblages from the South Coast. In S. Bowdler (ed) *Coastal Archaeology in Eastern Australia*. Proceedings of the 1980 Valla Conference on *Australian Prehistory*. Department of Prehistory, RSPS. The Australian National University, Canberra.
- Hiscock, P. & Mitchell, S. 1993 *Stone Artefact Quarries and Reduction Sites in Australia: Towards a Type Profile*. AGPS: Canberra.
- Howitt, A. 1904 *The Native Tribes of South East Australia*. Macmillan & Co. Limited: London.
- Hughes, P. J. 1982a *A preliminary Assessment of Merimbula Archaeological Sites in the Merimbula Heights Estate Area, Merimbula, NSW*. Unpublished report to Sinclair Knight & Partners Pty Ltd.
- Hughes, P. J. 1982b *An Archaeological Survey of the Proposed Merimbula Waterslide Development, Merimbula, NSW*. Unpublished report to Margules and Associates, Kingston, ACT
- Hughes, P. J. 1982c *An Assessment of Aboriginal Sites in the Tathra Area, Lower Bega Valley, NSW*. Unpublished report to Bega Valley Shire Council.
- Hughes, P. J. 1982d *A Survey for Aboriginal sites along the route of the proposed Tathra - Tanja road*. A report to Bega Valley Shire Council.
- Hughes, P. J. 1982e *An Assessment of Aboriginal Sites in the Kalaru Area, Lower Bega Valley, NSW*. A report to Neilson Associates, Canberra.

- Hughes, P. J. 1983 *An Archaeological Survey of Stage 2 of the Proposed Development of the Merimbula Heights estate Area, Merimbula, NSW*. Unpublished report to Sinclair Knight & partners Pty Ltd.
- Hughes, P. J. and May, P. J. 1982 *An Archaeological Survey of the Tathra River Estate, Tathra, NSW*. Unpublished report to Sinclair Knight & Partners Pty Ltd.
- Hughes, P and M. Sullivan 1978. *A Preliminary Archaeological Survey of the Five Forests, South Coast, New South Wales*. A report to National Parks and Wildlife Service of NSW.
- Kuskie, P. 1994 *An archaeological assessment of a proposed hard rock quarry at Lot 1, DP 221884, Brogo, NSW*. A report to Cowman Stoddart Pty Ltd.
- Kuskie, P. 1998 *An Archaeological Assessment of Proposed Works by NPWS (Eden District at Turingal head, Bournda national Park, Far South Coast of New South Wales*. Unpublished report to NSW National Parks and Wildlife Service (Eden District).
- Kuskie, P. 2000 *An Aboriginal Archaeological Assessment of the Proposed Mount Arthur North Coal Mine, Near Muswellbrook, Hunter Valley, New South Wales*. Unpublished report to Dames and Moore.
- Kuskie, P. 2002 *An archaeological assessment of the proposed Lakewood Estate residential development at Merimbula, Far South Coast of New South Wales*. A report to Young Consulting Engineers Pty Ltd.
- Kuskie, P. & V. Gutierrez 2000 *An archaeological assessment of the proposed Merimbula Cove residential development, Far South Coast of New South Wales*. A report to Caddey Searl and Jarman.
- Kuskie, P. & V. Webster 2001 *Archaeological Test Excavations at Aboriginal Site #62-6-189, Along the Prices Highway Deviation near Merimbula, Far South Coast of New South Wales*. A report to Roads and traffic Authority of New South Wales and Bega Traditional Aboriginal Elders Council.
- Lampert, R. 1971 *Burrill Lake and Currarong Coastal Sites in Southern New South Wales*. Terra Australia 1 Department of Prehistory, ANU: Canberra.
- Lance, A. 1987 *Further Archaeological Investigations of the Upper Berrambool Housing Development Area*. A report to Willing & Partners Pty Ltd Canberra.
- Mackaness, G. 1941 *George Augustus Robinson's Journey into SE Australia 1844*. *Royal Australian Historical Society Journal and Proceedings* 27 (5): 313-349.
- Mulvaney, J and J. Kamminga 1999 *Prehistory of Australia*. Allen & Unwin, St Leonards NSW.
- Mullet, R. 1996 *Mystery Bay Our Sacred Place*. Unpublished BA Honours Thesis. Department of Archaeology and Anthropology, The Faculties, Australian National University: Canberra.
- National Heritage Consultants 2003 *Aboriginal Heritage Study Beachcomber Holiday Park, Eurobodulla National Park, NSW*. Report to NSW National Parks and Wildlife Service, Far South Coast Region Office, Narooma.
- New South Wales Department of Environment and Conservation 2004 *Interim Guidelines for Aboriginal Community Consultation - Requirements for Applicants*.
- Oakley, B. 2000 *Indigenous Heritage Assessment 16 Main Street Merimbula NSW*. Report to Judy Hon.
- Ossa, P., Marshall, B. & Webb, C. 1995 *New Guinea 2 cave: A Pleistocene site on the Snowy River, Victoria*. *Archaeology in Oceania* 30(1):22-35.

- Poiner, G. 1976 The process of the year among Aborigines of the central and south coast of New South Wales. *Archaeology and Physical Anthropology in Oceania* 11: 186-206.
- Robinson G. A. 1844 Journal commencing Wed 28 August at Pambuller and terminating 15 Sept 1844 Biggah Country, MS. Mitchell Library, Sydney.
- Ross, D. B. 1990. *Giulaga. A Report on the Cultural Significance of Mt Dromedary to Aboriginal People*. Presented to the Forestry Commission and the New South Wales National Parks and Wildlife Service.
- Smith, B. 1970 *A Brief History of Bega*. Bega Historical Society: Bega.
- Saunders, P. 1997 *Archaeological Survey for Aboriginal Sites at Two Proposed Gravel Extraction Locations in the Bega District, NSW*. A report to Nexus Environmental.
- Saunders, P. 2003 "Glen Mia", Bega. NSW Aboriginal Archaeological Survey, Report to Canberra Investment Corporation Limited.
- Sullivan, M. 1981 Ninety years later: A Re-Survey of Shell Middens on Wagonga Inlet and Pambula Lake, NSW. *Archaeology in Oceania*. Vol. 16, No. 1.
- Sullivan, H. 1982a *Aboriginal Use of the Forest Environment: An ethnohistorical study of the south coast of NSW*. A report to the Aboriginal and Historic Resources Section, National Parks and Wildlife Service.
- Sullivan, M.E. 1982b *Aboriginal Shell Middens in the Coastal Landscape of New South Wales*. Unpublished PhD Thesis, Australian National University, Canberra.
- Sullivan, M. E. & H. J. Gibney 1978 Archaeological and historic sites. In R. Gunn (ed), *Land Use on the South Coast of New South Wales* Vol 4 CSIRO: Melbourne.
- Talau, M. 1997 *Soil Landscapes of the Bega - Goulam Point 1:100,000 Sheet*. Department of Land and Water Conservation.
- Tindale, N.B. 1974 *Aboriginal Tribes of Australia*. ANU: Canberra.
- Vallance, D. 1983 *Fishing, Weather and Site Location: An Esoteric Essay*. Unpublished Lit. B. thesis, Australian National University, Canberra.
- Wellings, H. 1966 *Imlay Brothers, Peter, Alexander and George Imlay: pioneers in the pastoral agricultural and merchandise activities in the Twofold Bay and Bega Districts of South-Eastern Section of New South Wales*. No publication details.
- Wheeler, J. & P. Douglas 2003 *Merimbula Public School NSW Archaeological Assessment and Development Impact Mitigation Plan*. Report to NSW DPWS and DET.
- Wheeler, J., R. Wright, P. Douglas, G. Wilson, D. Tuck and D. Steele 2003 *Aboriginal Archaeological test Excavation Report & Development Impact Mitigation Plan for Proposed Re-development of the Merimbula Public School Merimbula, NSW*. Report to the NSW Department of Education and Commerce.
- Williams, D. 1998 *An Archaeological Survey of a Proposed Health Retreat near Merimbula, Far South Coast NSW*. Report to Kos Health Retreats Pty Ltd.

Appendix I

List of Aboriginal people to whom written notification of the project was supplied

Phyllis ARNOLD 4 Wattlebark Close MORUYA NSW 2537	Gloria CARBERRY 8 Ison Street MOGO NSW 2536
Mick DARCY Koori Village WALLAGA LAKE NSW 2546	Deanna DAVISON 21 Gould Ave NOWRA NSW 2541
David DIXON 8 Hart Crescent BEGA NSW 2550	John DIXON 3 Ballina Court BEGA NSW 2550
Margaret DIXON 3 Ballina Court BEGA NSW 2550	Mary DUROUX 8/24 Queen Street MORUYA NSW 2537
Patricia ELLIS 26 Haslingden Street MORUYA NSW 2537	Adrian FOSTER C/- Umbarra Cultural Centre 236 Bermagui Road AKOLELE NSW 2546
Kathy JONES 1 Kielpa Place BEGA NSW 2550	Jenny KELLY C/- Umbarra Cultural Centre 236 Bermagui Road AKOLELE NSW 2546
Stephen KELLY C/- Umbarra Cultural Centre 236 Bermagui Road AKOLELE NSW 2546	Lionel MONTGA 137 Princes Highway BODALLA NSW 2545
Doris MOORE 2/29 Vulcan Street MORUYA NSW 2537	John MUMBLER 26 Eurobodalla Road BODALLA NSW 2545
Ellen MUNDY PO Box 11 BEGA NSW 2550	Lorraine NAYLOR C/- Umbarra Cultural Centre 236 Bermagui Road AKOLELE NSW 2546
Eric NAYLOR 18 Umbarra Road WALLAGA LAKE NSW 2546	Kevin PARSONS 2/28 Tilba Street NAROOMA NSW 2546
Keith STEWART 1 Tasman Street PHILLIP BAY NSW 2036	Paul STEWART 130 East Street BEGA NSW 2550
Harriet WALKER Koori Village WALLAGA LAKE NSW 2546	Donna BOND 38 Hawkins Road TUROSS HEAD NSW 2537

Donna CAMPBELL Lot 3 Rankins Road COBARGO NSW 2550	Gary CAMPBELL 8 Hill Street BERMAGUI NSW 2546
Marion CAMPBELL Lot 22 Hill Street BERMAGUI NSW 2546	Paul CAMPBELL Lot 4 Hill Street BERMAGUI NSW 2546
Thomas CAMPBELL Lot 3 Rankins Road COBARGO NSW 2550	Linda CRUSE 9 Costin Street MORUYA NSW 2537
Cheryl DAVISON 16 Cook Drive EDEN NSW 2551	Ernest HARRISON 28 Umbarra Road WALLAGA LAKE NSW 2546
Maria HARRISON 28 Umbarra Road WALLAGA LAKE NSW 2546	Valma HINTON 22 Kennedy Parade LALOR PARK NSW 2147
Vivianne MASON 39 Maculata Court DALMENY NSW 2546	Mary MONGTA PO Box 147 BODALLA NSW 2545
Lee-Anne PARSONS 1197 Congo Road MORUYA NSW 2537	Arthur RIDGEWAY 21 Berrico Avenue MARYLANDS NSW 2287
Ann THOMAS FMB Wallaga Lake Via NAROOMA NSW 2546	David TOUT 213 Lorilyn Ave SANCTUARY POINT NSW 2540
Alex WALKER 42 Wallage Lake, Koori Village WALLAGA LAKE NSW 2546	Alison WALKER 42 Wallage Lake, Koori Village WALLAGA LAKE NSW 2546



Bega Traditional Aboriginal Elders Council Inc.

3 Ballima Court Bega NSW 2550 – Phone 0405-228456 – Fax – 64947098
E-mail – dingooo@bigpond.com.au Inc. No. 9874350 ABN No. 57 184 302 394

Proudly owned and fully operated by Ujarringanj and Ngarigo descendants

Monday, 4 April 2005

Mr Ken Gordon
KL & CM Gordon
Drafting Services
PO Box 320 Bega
NSW 2550.

FAXED
4 April 2005

Re: Tathra Hotel Aboriginal Heritage Survey Report Re: Proposed 20 Additional Units.

Dear Ken,

We acknowledge your request for your client and are happy to respond.

Our officers Mr Thomas and Mr Luff were engaged in the March Survey with Julie Dibden (Archaeologist) with NSW Archaeology P/L.

We have reviewed the report and agree that there will be no need for any further Archaeological investigations within the proposed development area.

We recommend that should any objects or skeletal remains that may surface during excavation works be immediately reported to this office and the Department Of Environment and Conservation and that works stop on that particular area pending further advice.

Should you require any further information or need to enquire about any part of this supporting documentation please feel free to contact this office on the listed numbers.

Sincerely yours,

John Dixon
Business Consultant

APPENDIX E.

DEPOSITED PLANS.

Bound Data Captions

1. **Map** - The map is a plan of the land in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra.

2. **Scale** - The scale is 1:1000.

3. **North Arrow** - The north arrow is pointing towards the top of the page.

Surveyor's Certificate

I, **VICTOR J. JAMES**, Surveyor, do hereby certify that the above is a true and correct copy of the plan of the land in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra, as the same appears on the plans of the Surveyor-General's Office.

Dated this 11th day of June 1951.

(Signature)

General Notes

1. The land is situated in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra.

2. The land is situated in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra.

3. The land is situated in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra.

Plan of the Land in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra

The plan shows the land in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra. The land is situated in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra.

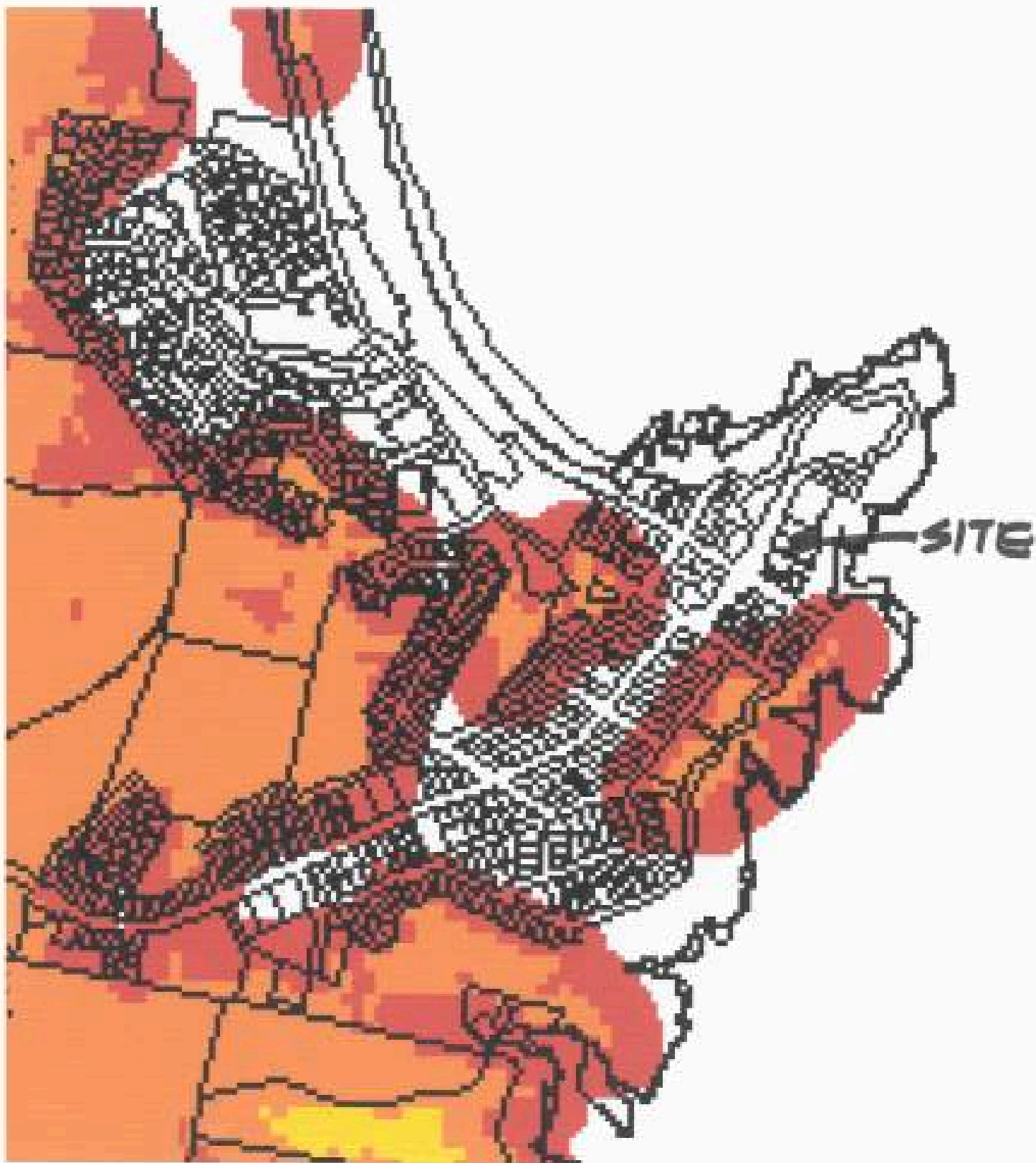
The plan shows the land in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra. The land is situated in the Great Vol. 1948 P.O. 11, and allotments 4 & 5 Section 4, Town of Tathra.

Words put in order of frequency

5146 CONRADT, E. 1967

5

1. Reed Alford Decker, Registrar General of the State of Maine, advised that this regulation is a biological study as a permanent record of a specimen in my collection. Had the day of December, 1979.



APPENDIX F.

BUSHFIRE MANAGEMENT



Member of
**BUILDING
DESIGNERS
ASSOCIATION**
OF NEW SOUTH WALES INC.

K.L. & C.M. GORDON

DRAFTING SERVICE

P.O. BOX 320 BEGA NSW 2550

200A CARP STREET BEGA 2550

PH (02) 6492 1723 FX (02) 6492 3293

Email: gordons@acr.net.au

ABN 66 722 948

REF No 620M

Date 4/05

BUSHFIRE PROTECTION PLAN

LOT 30 DP 606559 AND LOT 31 DP 600836

BEGA STREET TATHRA

BEGA VALLEY SHIRE COUNCIL RFS MAP
BUSHFIRE PRONE LAND

refer to map

WHITE

PRECINCT LEVEL ASSESSMENT

PREDOMINANT VEGETATION CLASS

N/A

DETERMINATION OF CATEGORY OF BUSHFIRE ATTACK FOR THE SITE
TABLE A 3.3

LOW

NO SPECIAL REQUIREMENTS

1
2
3
4

1
2
3
4