Truck Parking Bay on Appin Road

Review of Environmental Factors

RTA ENVIRONMENTAL TECHNOLOGY BRANCH

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1.1 Name of the Proposed Activity

Truck Parking Bay on Appin Road.

1.2 Local Government Area

Wollondilly.

1.3 RTA Region

Southern Region.

1.4 Introduction

The NSW Roads and Traffic Authority (RTA) proposes to construct a truck parking bay along Appin Road (MR177).

This Proforma 1 Review of Environmental Factors (REF) has been prepared by Environmental Technology Branch (RTA Operations Directorate) on behalf of RTA Southern Region. For the purposes of these works, the RTA is the proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment* (EP&A) *Act 1979.*

The purpose of the REF is to describe the Proposal, to document the likely impacts of the Proposal on the environment, and to detail protective measures to be implemented.

The description of the proposed works and associated environmental impacts have been undertaken in context of Clause 228 of the *Environmental Planning and Assessment Regulation 2000*, the *Threatened Species Conservation (TSC) Act 1995*, the *Fisheries Management (FM) Act 1994*, and the (Commonwealth) *Environment Protection and Biodiversity Conservation (EPBC) Act 1999.* In doing so, the REF helps to fulfil the requirements of Section 111 of the EP&A Act, that the RTA examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

This REF has been prepared in accordance with the RTA's Proforma 1 REF as presented in the RTA's *Environmental Impact Assessment Policy, Guidelines and Procedures, Version 4 2001*.

The findings of the REF would be considered when assessing:

- Whether the Proposal is likely to have a significant impact on the environment and therefore the necessity for an Environmental Impact Statement (EIS) under Section 112 of the EP&A Act.

- The significance of any impact on threatened species as defined by the TSC Act, in Section 5A of the EP&A Act and therefore the requirement for a Species Impact Statement (SIS).
- The potential for the Proposal to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Commonwealth Environment Minister in accordance with the EPBC Act.

1.5 Background

Driver fatigue is one of the primary contributing factors to road trauma on Australian roads. Crash statistics indicate that fatigue is involved in one out of five fatal crashes. As part of its *Road Safety 2010* Strategy, the NSW Government through the RTA proposes to create 50 new rest areas.

The RTA identified the need for a rest area for eastbound vehicles on Appin Road, and environmental investigations were undertaken on a site (the study area) along Appin Road. These investigations formed the basis of the Preliminary Environmental Investigation (PEI) (RTA 2005) prepared for the Proposal, which identified the constraints associated with the study area. Subsequent to the preparation of the PEI, a concept plan for the Proposal was prepared, which has been assessed in this REF.

1.6 Methodology

The method in which this document has been prepared is as follows:

1. A discussion was held with the Project Manager to consider the Proposal.

2. An RTA Environmental Technology representative undertook a site visit with the Project Manager on 9 September 2004 to gain an overview of the Proposal and to discuss any issues relevant to the completion of the REF.

3. The following agencies and RTA personnel were notified and/or consulted:
   - RTA's Regional Environmental Adviser, Southern Region;
   - RTA's Aboriginal Program Consultant, Southern Region;
   - Wollondilly Shire Council; and
   - Tharawal Local Aboriginal Land Council (LALC).

4. A desktop search was conducted on the following databases to identify any potential issues:
   - Australian Heritage Database;
   - NSW Heritage Office State Heritage Register / Inventory;
   - National Native Title Claims Tribunal;
   - NSW DEC Aboriginal Heritage Information Management System (AHIMS);
   - NSW DEC Atlas of NSW Wildlife - Threatened Flora and Fauna Records;
   - DEH Protected Matters (EPBC Act) Database;
   - NSW DEC Contaminated Land Records;
   - National Pollutant Inventory; and
   - DPI Noxious Weeds List.

5. As part of the environmental investigations undertaken for the PEI (RTA 2005), two specialist studies were undertaken to identify constraints associated with this Proposal. The two studies are, an Ecological Assessment and an Indigenous Heritage Assessment. Details and findings from these assessments are discussed in this REF and a copy of each specialist report is included in the appendices to this REF.

6. A literature review and review of documentation was undertaken with regards to the following:

- Landform, Geology, and Soils;
- Local Environmental Plans;
- Regional Environmental Plans;
- State Environmental Planning Policies; and
- Council's State of the Environment Report.

2 Description of Proposal Site and Study Area

2.1 Location

The Proposal is located on Appin Road (MR177). Appin Road connects Campbelltown to both the township of Appin and to the Southern Freeway.

The proposed truck parking bay would be located on a straight section of Appin Road, approximately 10km from Appin and approximately 6km from the Southern Freeway (refer to Figure 2.1). It would be situated on the eastbound (northern) side of Appin Road approximately 100m northeast of an existing truck parking bay which is present on the westbound (southern) side of the road. This stretch of the road has been selected to maximize sight distance for vehicles entering and leaving the truck parking bay. A portion of the proposed truck parking bay would be located outside of the existing road reserve (refer to **Appendix A**).

The "study area" for this Proposal has been defined as an area 500m long and 50m wide, and includes the eastbound lane on Appin Road. This is the area that was investigated during the preparation of the PEI (RTA 2005). The larger study area was selected so that any environmental constraints within, and in close proximity to, the Proposal site could be identified while the preliminary investigations were being undertaken.

The "Proposal site" is situated within the study area, and is defined as the area on which the truck parking bay would be situated, including the drainage infrastructure, as well as the stockpile and compound site.

2.2 Description of the Existing Environment

2.2.1 General

Within the study area, Appin Road is a two-lane single carriageway, with one eastbound lane and one westbound lane. There is generally very little development on either side of Appin Road between Appin and the Southern Freeway, and this is evident near the study area as well. There are no residences located for several kilometres on either side of the study area. There are extensive areas of native bushland on all sides of the study area, including the Dharawal State Recreation Area (SRA) to the north of the study area and the Cataract Dam catchment area to the south of the study area (refer to **Appendix B**).

The vegetation present within the study area and immediately adjacent to it has been previously disturbed and is currently regenerating. Part of the study area appears to have been a former unsealed road associated with the operation of a nearby sandstone quarry which is located to the northwest of the study area. Vegetation clearance, levelling, grading and relocation of soil have impacted other parts of the study area. Soil erosion is also evident within the study area.

Two shallow ephemeral drainage lines are present within the study area, directing runoff from the road into Stokes Creek. A third, more defined, drainage line and culvert is located near the eastern boundary of the study area (refer to **Appendix B**).

Refer to **Appendix B** for an aerial photograph of the study area and its surrounds and for photographs of the study area.

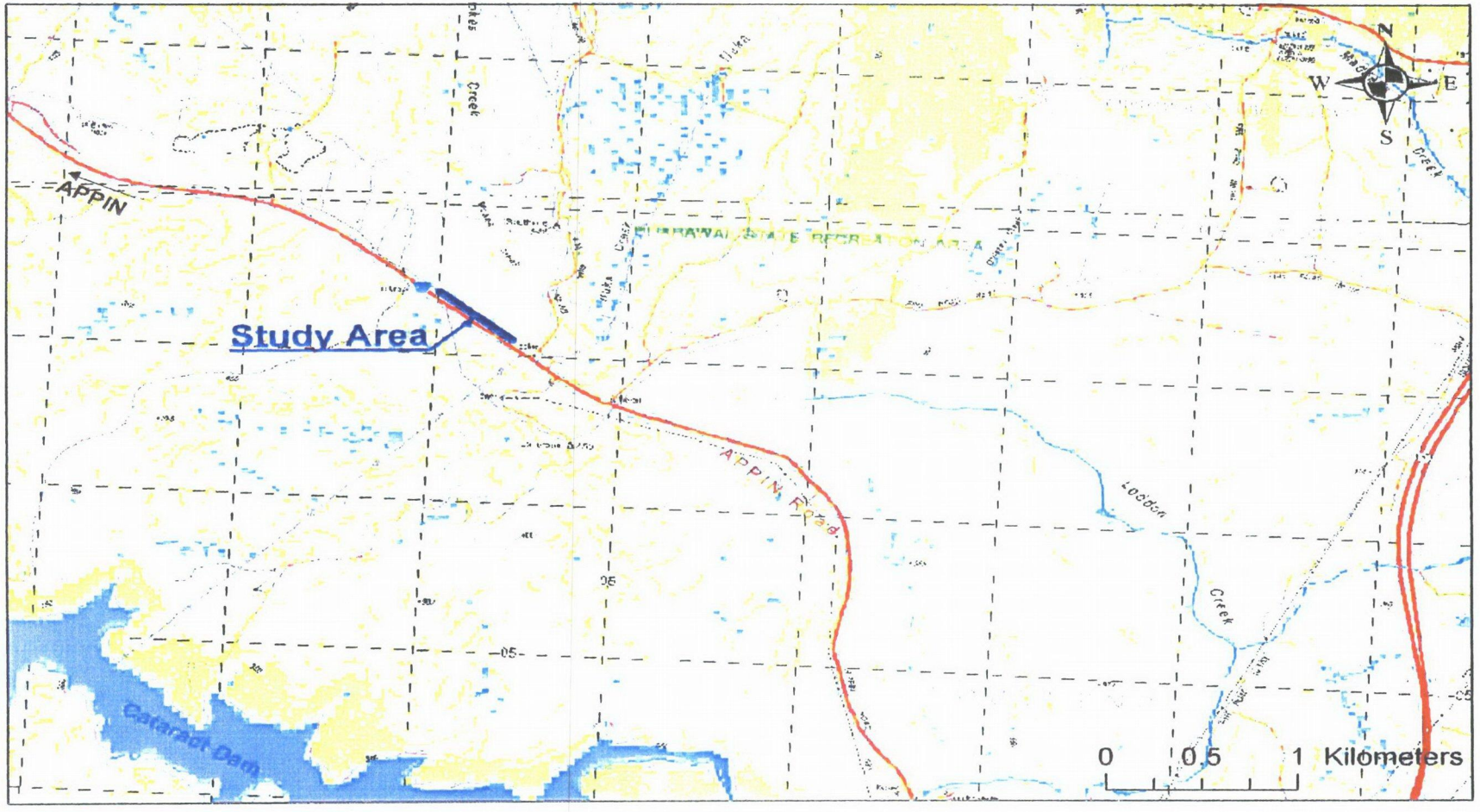

Figure 2.1: Location of the Study Area

(Source: NSW Department of Lands)

2.2.2 Topography and Landform

The study area is located within a landscape that is characterised by moderate to gently undulating rises. The western portion of the site has a northerly aspect, the land sloping down towards what appears to be an abandoned road associated with a nearby quarry. The eastern end comprises a 2m high south-facing batter. Some portions of the site also appear to have been used for the detention of water.

The stretch of Appin Road within the study area is relatively flat and straight, this section selected in order to maximize sight distance for vehicles entering and leaving the proposed truck parking bay. The natural elevation within the study area is around 450m Australian Height Datum (AHD).

2.2.3 Geology and Soils

Geology

The study area is located on the Woronora Plateau (also known as the Nepean Ramp), which forms part of the southern rim of the Sydney Basin. The Woronora plateau is characterised by a gentle north-west incline away from the edge of the Illawarra Escarpment to the Cumberland Plain, and is deeply incised by watercourses draining to the Nepean and Georges Rivers.

The Woronora Plateau is dominated by the Triassic Hawkesbury Sandstone Formation, composed primarily of quartzose sandstone, with outcrops of shale and ironstone in some areas. The Hawkesbury Sandstone is underlain by the Triassic Narrabeen Sandstone Group and the Permian Illawarra Coal Measures respectively. Along the eastern edge, the plateau is characterised by deposits of swamp alluvium, which have accumulated in low-relief headwater valleys, forming numerous upland swamps. The treeless swamps contrast sharply with the surrounding forest and woodland and result from the poorly aerated condition of the swamp sediment.

The upland swamps situated to the north of the study area have been studied by Young (1983) and are of considerable scientific importance. Dates of sediments within the swamp span at least 17,000 years and, combined with plant fossil evidence, suggest that there has been no significant change in the physical setting of the swamps since at least the late Pleistocene. As such, they provide an excellent record of climatic, geomorphic and biological events of the past 17,000 years after the retreat of the last ice age (Young 1983).

Soils

Two soil landscapes occur in the vicinity of the study area, the Maddens Plains Soil Landscape Unit and the Hawkesbury Soil Landscape Unit (Hazelton and Tille 1990).

The lateritic yellow earths and lithosols forming part of the Maddens Plains unit are highly erodible, have very low fertility and experience either seasonal or permanent water logging (Hazelton and Tille 1990). The soils are derived from the Hawkesbury Sandstone (Hazelton and Tille 1990). Soils forming the Hawkesbury unit have a very high to extreme erosion hazard, with shallow, stony, highly permeable soils and low soil fertility (Hazelton and Tille 1990).

2.2.4 Climate

The climate within the Wollondilly Shire is generally mild with an average maximum temperature of 29.3°C in summer and an average minimum of 1.7°C in winter (BOM 2004). On approximately 42 days per year, the temperature can be expected to reach 30°C and on 62 days it can be expected to drop below 2°C (Wollondilly Shire Council 2001). The highest maximum temperature is in February (42.8°C) and the lowest minimum temperature is in July (-10°C) (Wollondilly Shire Council 2001). Average wind speeds range from 4.5 mm/hr in February to 9.3 km/hr in November. Monthly average rainfall ranges from 90mm in January to 44.7mm in August.

2.2.5 Drainage and Watercourses

The study area forms part of the Georges River catchment. Drainage from the study area flows into Stokes Creek approximately 300m to the north of the study area, which in turn joins O'Hares Creek approximately 11km north of the study area. The area between the study area and these creeks is extensively vegetated. O'Hares Creek then flows into the Georges River approximately 19km north of the study area. The O'Hares Creek catchment is listed on the Australian Heritage Database for its natural values, and both Stokes Creek and O'Hares Creeks, which are the major creeks that flow through this catchment, have been described as "*the only major uninterrupted watercourses on the Woronora Plateau which have essentially undisturbed catchments and high water quality*" (DEH website).

The study area is located adjacent to land which forms part of the Cataract Dam catchment, however, the study area itself falls outside of the catchment area. Land to the south of the study area, and some portions of land to the east and west of the study area flows into the Cataract Dam. Generally, within the study area, pavement runoff flows from east to west and is picked up by one of the drainage lines present within the study area.

There are three drainage lines within the study area:

- A very shallow and minor ephemeral drainage line present in the western part of the study area diverts runoff from Appin Road towards Stokes Creek (refer to Photos 6 & 7 in **Appendix B**). The drainage line is approximately 0.5m wide and 100mm deep and appears to have been constructed as part of the works associated with the construction of Appin Road. The drainage line has incised into the underlying sandstone, its channel supporting fine grain sediments. At the time of the ecological investigations, the channel was dry. This will be referred to as the 'western drainage line'.
- A second drainage line, also draining Appin Road, is present in the central part of the study area. This will be referred to as the 'central drainage line'.
- A culvert and another small drainage line are present near the eastern boundary of the study area (refer to **Appendix B**). This drainage line will be referred to as the 'eastern drainage line'.

A swamp (sedgeland) occurs to the northeast of the study area and is considered to be an important vegetation community for the maintenance of water quality for the O'Hares Creek water catchment area. Refer to Figure 2 in **Appendix D** for a map showing the location of the swamp.

2.2.6 Biodiversity

The study area has been physically disturbed by clearing in the past, most likely in association with the adjacent quarrying operation, and vegetation within the study area is currently regenerating.

Lesryk Environmental Consultants were contracted to undertake an Ecology Assessment of the study area in order to provide an overview of ecological constraints to undertaking the Proposal in the study area (refer to **Appendix D** for a copy of this report). The following sections discuss the results of the flora and fauna investigations. The methodology adopted for the Ecology Assessment is described in the report attached as **Appendix D**.

Flora

Vegetation Communities

The study area supports one vegetation community, described as Sandstone Woodland by Keith (1994). This vegetation community occurs throughout the study area. Canopy trees reach 10m in height and form a sparse to medium cover, with gaps of up to 15m present in places. The understorey of this community comprises a mixture of native shrubs, of a moderate to sparse density and to 4m in height. For the majority of the study area, this community has been disturbed and the shrub layer comprises thickets of *Melaleuca* spp. Where present, the groundcover consists of a sparse layer of native grasses and herbs to 50cm in height. Species belonging to the Sandstone Woodland community also occur near the ephemeral drainage lines, along with a number of introduced species. Characteristic species found within the Sandstone Woodland community are listed in Table 5.1.

Table 5.1: Characteristic species of the Sandstone Woodland vegetation community.

Layer	Scientific Name	Common Name
Canopy	*Corymbia gummifera*	Red Bloodwood
	Eucalyptus oblonga	Common Sandstone Stringybark
	Eucalyptus racemosa	Scribbly Gum
Understorey	*Melaleuca armillaris*	Giant Honeymyrtle
	Melaleuca squamea	Swamp Honeymyrtle
	Eriostemon australasius subsp *australasius*	Pink Wax Flower
	Acacia longifolia	Sydney Golden Wattle
	Hakea dactyloides	Finger Hakea
	Persoonia pinifolia	Pine-leaf Geebung
	Grevillea oleoides	Spider Flower
	Phyllota phyllicoides	Pea Flower
Groundcover	*Entolasia stricta*	Wiry Panic
	Lomandra glauca subsp *glauca*	Iron Grass
	Leptocarpus tenax	Twine-rush

Sandstone Woodland is widespread throughout the O'Hares Creek catchment and occupies approximately 47% of the catchment (Keith 1994). Similar vegetation is also conserved within the nearby Royal, Heathcote and Garrawarra National Parks, as well as SCA lands on the Woronora Plateau. This sandstone vegetation community is one of the most well conserved and widely distributed vegetation types occurring in the sandstone areas of the Sydney region.

A swamp (sedgeland) occurs to the northeast of the study area, and supports a high density of native sedges and water tolerant plants that are up to 1m in height. Within this swamp, a medium to sparse density layer of shrubs reaching a height of 4m is present, as is the occasional isolated emergent tree reaching 15m in height. The swamp is considered to be an important vegetation community for the maintenance of water quality for the O'Hares Creek catchment area, and is considered to be of high scientific importance (Young 1983).

Threatened Flora

Five threatened flora species listed on the Schedules of the TSC Act have been previously recorded within a 5km radius of the study area, and six threatened flora species have been listed on the EPBC Act database as potentially occurring within 5km of the study area (refer to Table 5.2). Despite having conducted targeted searches for these species during the field surveys, none of these species was recorded within the study area or in its immediate vicinity. Due to previous disturbance of the study area, it is unlikely that these species or other species listed under the TSC Act or EPBC Act would be present.

In addition, no endangered populations or endangered ecological communities listed under the TSC Act or EPBC Act occur within or adjacent to the study area.

Table 5.2: Threatened flora species previously recorded within 5km of the study area.

Scientific Name	Common Name	Legislation under which the Species is Protected
Acacia baueri subsp. *aspera*	-	TSC Act
Epacris purpurascens var. *purpurascens*	-	TSC Act
Leucopogon exolasius	-	TSC Act, EPBC Act
Persoonia bargoensis	-	EPBC Act
Persoonia hirsuta	-	TSC Act
Pultenaea aristata	-	TSC Act, EPBC Act
Caladenia tessellata	Thick-lipped Spider-orchid	EBPC Act
Cryptostylis hunteriana	Leafless Tongue-orchid	EPBC Act
Melaleuca deanei	Deane's Melaleuca	EPBC Act

Weeds

Thirty-nine weeds have been declared as "*noxious*" under the NW Act for the Wollondilly LGA. None of these species have been recorded within the study area.

Seventeen other weed species have been recorded within the study area, including Fennel (*Foeniculum vulgare*), Crofton Weed (*Ageratina adenophora*), Cobbler's Pegs (*Bidens pilosa*), Catsear (*Hypochaeris radicata*), Kikuyu (*Pennisetum clandestinum*), Whisky Grass (*Andropogon virginicus*) and Paspalum (*Paspalum dilatatum*). For a full list of weeds recorded within the study area, refer to **Appendix D**.

Fauna

Fauna Habitats

The study area is surrounded by extensive areas of bushland in all directions, the dominant vegetation type being woodland. Appin Road dissects the vast areas of vegetation present on either side of the road. A number of conservation reserves and protected lands occur in

the surrounding region, including the Dharawal Nature Reserve, Dharawal SRA and the SCA's Cordeaux and Woronora water catchment areas.

The study area supports three habitat types, which are regenerating open woodland, an ephemeral drainage line and cleared and disturbed areas (refer to Table 5.3). A swamp occurs to the northeast of the study area, beyond the boundary of the study area.

Table 5.3: Habitat types found within and adjacent to the study area.

Habitat Type	Characteristics
Open woodland	• Present across most of the study area in regenerating form. • Sections have been cleared, levelled and regularly graded. • Well represented and conserved in the region. • Two hollow-bearing trees are present in the western part of the study area, approximately 30m north of the existing guardrail. The trees support hollows that have a diameter of 150mm (Tree 1: Easting 303920, Northing 6207205; Tree 2: Easting 303937, Northing 6207196).
Ephemeral drainage line	• Present near Appin Road, and flows towards the west and southwest. • The drainage line was dry at the time of the ecological survey. • Introduced species or plants associated with the low woodland occur near the drainage line. • The drainage line has incised into the underlying sandstone. Its channel supports fine grain sediments.
Cleared & disturbed areas	• Found where regeneration has not occurred.
Swamp (outside of study area, to the northeast)	• A number of sedges have established within the swamp. Occasional tree present.

Urban refuse and dumped rubbish is common, as are weeds immediately adjacent to Appin Road. Some exposed surface rock is present, though this is composed of small pebbles and rocks that are up to 100mm in diameter.

The habitats that occur within the study area are not considered to be of any value to those fauna species recorded or potentially occurring within the surrounding bushland. The resources offered by the study area are not unique, the low woodland occurring extensively in the surrounding region. The study area supports few sheltering and roosting sites and, in comparison with the adjacent vegetation, the value of the resources present is considered to be minimal.

Fauna Species

During the fauna surveys, 11 native species were recorded within the study area, comprising nine birds and two mammals (refer to Table 5.4). In addition to these, one introduced species, the Rabbit, was also recorded.

The native fauna species recorded within the study area are all protected, as defined by the *National Parks and Wildlife Act 1974* (NPW Act), but considered to be common to abundant throughout their distribution ranges. These species would be regularly recorded in the surrounding region and none would be solely dependent upon the resources provided in the study area.

Table 5.4: Fauna species recorded in the study area.

Common Name	Scientific Name
Mammals	
Short-beaked Echidna	*Tachyglossus aculeatus*
Swamp Wallaby	*Wallabia bicolor*
Rabbit (introduced)	*Oryctolagis cuniculus*
Birds	
Spotted Pardalote	*Pardalotus punctatus*
Striated Thornbill	*Acanthiza lineata*
White-browed Scrubwren	*Sericornis frontalis*
Red Wattlebird	*Anthochaera carunculata*
Eastern Whipbird	*Psophodes olivaceus*
Grey Shirke-thrush	*Colluricincla harmonica*
Grey Fantail	*Rhipidura fuliginosa*
Pied Currawong	*Strepera graculina*
Australian Raven	*Corvus coronoides*

Threatened Fauna

Fifteen threatened fauna species listed under the TSC Act (NPWS Wildlife Atlas) and 15 threatened fauna species, eight migratory species and 12 marine species listed under the EPBC Act (DEH EPBC Database) have been previously recorded within a 5km radius of the study area. The listed marine species are considered to be of no relevance to the study area due to the distance to the nearest marine habitat.

Though targeted during the fauna surveys, none of the species listed in the database search results were observed or were considered likely to occur within the study area due to the condition and types of habitat within the study area. Due to the extensive areas of bushland surrounding the study area, it is thought unlikely that fauna species would utilize resources within the study area on a regular basis. In addition, no habitats important to the foraging, roosting or breeding requirements of any of the threatened fauna species were recorded within the study area. Whilst threatened species could potentially occur within the study area on occasion, none of the species is likely to be dependent on the habitats or resources present within the study area. This is discussed in further detail in the Ecology Assessment (**Appendix D**).

2.2.7 Sensitive Noise Receptors

The existing road environment is that of a rural road that provides access for motorists travelling between southwest Sydney and the coast. Traffic noise from Appin Road would appear to be the main source of noise within the study area.

There are no residences or other sensitive noise sites within the study area or in its immediate vicinity, as the majority of land surrounding the study area comprises either undeveloped water catchment areas, mining leases or protected natural areas. The closest residences to the study area occur near Appin, several kilometers to the west of the study area. An existing truck parking bay is located approximately 100m to the west of the study area, on the westbound edge of Appin Road.

2.2.8 Indigenous Heritage

Database searches were undertaken for the study area, including searches of the DEC AHIMS database and the National Native Title Register. The AHIMS search results indicate that there are 75 identified indigenous heritage sites within a 5km radius of the study area. None of these sites is located within the study area. The closest site is located approximately 200m northeast of the study area. The EPBC Act database search also revealed two items of indigenous heritage value, the Loddon Area Site 8 and the Stokes Creek Area.

The RTA's Aboriginal Program Consultant (APC), Southern Region, was informed of this Proposal. The APC recommended undertaking an Indigenous Heritage Assessment and consultation with the Tharawal Local Aboriginal Land Council (LALC). The APC visited the study area on 21 October 2004 along with the RTA Project Manager, representatives of the Tharawal LALC and an Indigenous Heritage consultant (Kayandel Archaeological Services).

Kayandel Archaeological Services was engaged to undertake an Indigenous Heritage Assessment of the study area. The entire study area was surveyed. For a full copy of that report, including a detailed description of the methodology, refer to **Appendix E**.

The survey undertaken within the study area was unsuccessful in locating any Aboriginal sites or evidence of Aboriginal cultural heritage, and there are no known areas of 'Aboriginal heritage sensitivity' or 'archaeological potential' within the study area. The potential for Aboriginal sites and/or artefacts to occur in the study area is considered to be low.

There is evidence of varying degrees of soil disturbance caused by vegetation clearing, grading and the relocation of soils. Therefore, the potential for undisturbed cultural material to occur within local deposits is considered to be low. There is no evidence of any sandstone outcrops which exhibit the essential characteristics for other Aboriginal sites such as habitable rock shelters, grinding grooves or rock engravings within the study area. Despite an archaeological survey being conducted, no Aboriginal objects were identified in the study area.

2.2.9 Non-Indigenous Heritage

A desktop review of non-indigenous cultural heritage has been carried out for this Proposal. As part of the investigation, searches were undertaken on a number of databases (Australian Heritage Database, NSW Heritage Office State Heritage Register and Inventory, RTA Heritage and Conservation Register, Council Heritage Listings) to assess the cultural heritage of the study area and the locality. Following is a brief discussion on the results of the database searches.

Cataract Dam is located approximately 2.5km to the south of the study area. It is listed on the Australian Heritage Database, the NSW State Heritage Register, RTA's s.170 Heritage and Conservation Register and Council's LEP. The study area itself does not form part of the catchment of Cataract Dam.

The study area lies within the Upper Nepean Water Catchment and the O'Hares Creek Catchment, both listed as 'natural areas' under the Australian Heritage Database. The O'Hares Creek Catchment is also listed under the EPBC Act database.

The EPBC Act database search also revealed two items of indigenous heritage significance, Loddon Area Site 8 and the Stokes Creek Area. There was no additional information available on these listings.

2.2.10 Air Quality

Air quality in the vicinity of the study area is expected to be good due to the undeveloped nature of the study area and its surroundings.

Emissions from motor vehicles using Appin Road are likely to be the main source of air pollution in the vicinity of the study area. The existing quarry near the study area may be a potential source of air pollution, in particular dust. There are no other major sources of air pollution near the study area.

2.2.11 Visual Amenity

The visual character of the study area along Appin Road is characterised by a single carriageway road with bushland on either side of the road. For motorists travelling on Appin Road, this is the predominant and uniform experience of the road as there are no major developments near the study area. The scenic quality of the study area is considered to be moderate.

2.2.12 Existing and Forecast Traffic

The AADT on Appin Road at the nearest counting station to the Proposal site (07.759 MR177 Appin Road, West of Bulli Tops) is 9008 for the year 2003. Heavy vehicles make up 15.4% and 14.9% for the eastbound and westbound directions respectively.

3 Description of the Proposal

3.1 Description of the Proposal

The Proposal would involve the construction of a truck parking bay on the eastbound (northern) side of Appin Road. The proposed truck parking bay would be similar in design and construction to an existing bay present approximately 100m to the southwest of the study area. In general, the Proposal would include the features listed in Table 3.1.

Table 3.1: Characteristics of the Proposal.

General	
• Approximately 400m long and 20m wide. • Hard standing area, including the entry and exit plus truck parking spaces for a minimum of six B-Doubles. • Sealed surface. • Signposting. • Table, seating, shelter, rubbish bins, solar powered light. • Provision for future toilet facilities (concrete pad).	
Typical Cross Section	
Indented Diverge Lane	3.5m.
Shoulder	1.0m.
Vehicle Access Lane	5m minimum.
Inner and Outer Shoulder	1.0m where required. 1.0m outer shoulder adjacent to SO gutter.
Levelling Pad for (future) Toilet and Facilities	Approximately 25 x 10m. Pad to drain to SO gutter.
Shoulder	Widened shoulder where necessary to contain guardrail flares or wire rope anchor blocks.
Indented Vehicle Parking Bays	3.5m minimum, both sides of access lane.
Horizontal Alignment	
Storage	For six B-Doubles
Drainage	Intercept drain would be provided at the new road boundary if required. Discharge into silt traps prior to entry into existing watercourse.
Vertical Alignment	
Pavement	Extend existing through pavement crossfall at ingress/egress points.
Grade	Adopt minimum 0.5% grade.
Vehicle Access Lane	3% crossfall.
Facilities Pad	2% minimum.

Vehicle Parking Bays	+/- 3% crossfall.
Signposting	Standard treatment for a truck parking facility.
Lighting	Solar G Sorrento overhead light.
Pavement Markings	Westbound barrier line provided at egress.
Other	Pipe class and collar located below top of formation to allow compaction and crossing by construction equipment. Minimise earthworks, with balanced earthworks if possible.
Earthworks	
Fill Batter Slopes	2:1 up to 1.0 high (max. fill height). 1.5:1 where fill height exceeds 1.0m.
Cut Batter Slopes	2:1
Intercept Drain	0.5m wide, 1.5:1 cut batters.
Cut and Fill	Cut 800m^3, Fill 2170m^3. Therefore, 1370m^3 of fill would be imported.
Intersections, Interchanges & Accesses	
Diverge Lane	Indented drainage diverge lane for 100kph.
Egress	70 degrees egress. Heavy vehicles exiting the parking area would be contained wholly within the eastbound lane.
Safety & Property	
Safety Fencing	Safety fencing provided where standards stipulate.
Bollards	Steel bollards at 2.0m spacing (eg. Ingal Stockman Strainer Post) on the outer or inner formation edge of the truck facility if required. If fill height creates a pedestrian safety issue a top rail connecting the bollards would be provided.
Drainage	
Traps	Only runoff from parking area would be directed to a gross pollutant trap (GPT). All other drainage to sedimentation traps.
Erosion & Sediment Controls	
GPTs	GPT would be installed adjacent to the entrance to the truck parking bay. It would collect runoff from the parking area and separate oil. The GPT would be accessible to maintenance vehicles.
Sediment Trap	Three sediment traps would be provided. One to treat water from the SO gutter along the deceleration lane, the second to treat water from the eastern side of the amenities area, and the third to collect drainage and rubbish and accidental spills from the parking area. A litre sediment trap would be provided downstream of the GPT.

Outlet Protection	At discharge points there will be outlet protection to protect friable soils and prevent scour.
Stockpile and Compound Site	
The stockpile site and site compound would be located within the Proposal site, where the picnic table / facilities would be located. The compound site would be located within the Proposal site due to the high speed of traffic along Appin Road, and would require less clearing of vegetation.	

3.2 Construction Activities

3.2.1 Construction Processes and Work Methodology

The proposed works would be undertaken as follows:

- Establishment of sediment controls, including permanent sediment basins;
- Clearing and grubbing within the road reserve (compound and stockpile sites would be located within the cleared Proposal site);
- Earthworks, including excavation to subgrade level for pavement and construction of fill batters;
- Drainage works, including the installation of a gross pollutant trap (GPT);
- Construction of SO guttering;
- Pavement construction, including tie-in into Appin Road;
- Installation of bollards and guardrail;
- Line marking, signposting and provision of solar-powered light;
- Removal of construction compound and stockpile sites;
- Construction of concrete pad (for picnic table and future toilet); and
- Clean-up, stabilisation, revegetation and landscaping of site. The pad area would be turfed and watered for a few weeks and there would be some hydromulching to stabilise and re-establish the site.

No additional access tracks or clearing would be required for the Proposal. No culverts would need to be extended or otherwise disturbed.

3.2.2 Construction Equipment

The Proposal would involve the use of the following plant and equipment:

- Backhoes;
- Tip trucks;
- Stump grinders;;
- Excavator;
- Compaction equipment;
- Graders;
- Rollers;
- Bobcats;
- Cement trucks;
- Paving machines; and
- Linemarkers.

3.2.3 Property Acquisition

The Proposal site, including Appin Road, is located on Crown Land. The RTA is currently in negotiations with the Department of Lands in regards to acquiring the road and the Proposal site. All property valuations and acquisitions would be carried out in accordance with the RTA *Land Acquisition Policy* and the *Land Acquisition (Just Terms Compensation) Act 1991*.

3.2.4 Source of Material

It is anticipated that approximately 1370m^3 of fill would be imported for the Proposal. At this stage the fill is likely to be sourced from a stockpile on the F6 Freeway (southbound), containing spoil taken from the Lawrence Hargrave Drive project.

Please note that this REF does not cover any quarrying activities to obtain fill, or associated activities such as crushing or grinding.

3.2.5 Additional Truck Movements

Approximately 200 truck movements are expected to occur during the construction period. The majority of truck movements would be concentrated over a period of two weeks.

3.2.6 Stockpile and Compound Site

A temporary compound site would be located within the Proposal site. Vegetation clearing would be required to establish the compound site, and this has been assessed in this REF (refer to Section 8.4). The compound site would be security fenced and would include amenities sheds, portable toilets, plant and equipment storage areas, and bunded areas for the storage of petroleum, distillate and other chemicals. All material stockpiles would be located within the compound site.

The compound site would comply with DEC and WorkCover Authority requirements. The stockpile and compound sites would be subject to all appropriate environment protection measures and managed according to the RTA's *Stockpile Site Management Procedures* (2001). Environmental safeguards for the stockpile and compound sites are provided in Section 9 of this REF.

3.3 Workforce and Working Hours

The workforce would comprise approximately 5 to 6 personnel sourced from the local area on an ongoing basis, and additional plant hire personnel, as plant is required.

It is anticipated that working hours for the Proposal would be undertaken as detailed below:

Working Hours:

Monday – Friday:	6.00am to 7.00pm
Saturday:	6.00am to 3.00pm
Sunday and Public Holidays:	No work.

Should work be required outside of these specified hours, the procedure contained in the RTA's *Environmental Noise Management Manual 2001*, "*Practice Note vii – Roadworks Outside of Normal Working Hours*" would be followed.

3.4 Commencement and Duration of Works

It is anticipated that works would commence in May 2005 and would be completed in three months.

3.5 Proposal Cost and Source of Funds

The Proposal would cost approximately $700,000 and funding allocation would be sourced from State funding.

4 Statutory Position

4.1 Local Environmental Plans

Development in the Wollondilly LGA is regulated by Wollondilly Shire Council through implementation of the Wollondilly LEP 1991. Within the study area:

- Land on either side of Appin Road is zoned *5(c1) – Special Uses "C1" (Water Catchment)*; and
- Appin Road is zoned as an *Arterial Road.*

The Proposal site is affected by both zones. The LEP does not provide specific details on the objectives and activities permitted within the 'Arterial Road' zone.

Zone 5(c1) – Special Uses "C1" (Water Catchment)

The objective of this zone is to "*protect land which is designated as being part of a water catchment area from land uses which adversely affect, or are likely to adversely affect, the environmental quality of these areas*".

Within these zones, development for the purpose of roads is permitted with consent from Council. However, as the works are for the purposes of a Classified Road, as defined in accordance with the *Roads Act 1993*, Clause 11C of SEPP 4 operates to remove these consent requirements. Therefore, the works would be exempt from Council consent. For further information regarding SEPP 4, refer to Section 4.3.

4.2 Regional Environmental Plans

The following Regional Environmental Plan (REP) applies to the Proposal:

Greater Metropolitan REP No 2 – Georges River Catchment

The *Greater Metropolitan REP No 2 – Georges River Catchment* applies to certain lands within the Wollondilly LGA. The study area is located within the catchment of the Georges River, and consequently the REP is applicable to this Proposal.

The aims of this REP include, but are not limited to:

- *Maintain and improve the water quality and river flows of the Georges River and its tributaries and ensure that development is managed in a manner that is in keeping with the national, state, regional and local significance of the catchment;*
- *Ensure consistency with Local Environmental Plans and also in the delivery of the principles of ecologically sustainable development in the assessment of development within the Catchment where there is potential to impact adversely on groundwater and on the water quality and river flows within the Georges River or its tributaries;*
- *Preserve and protect and to encourage the restoration or rehabilitation of regionally significant sensitive natural environments such as wetlands (including mangroves, saltmarsh and seagrass areas), bushland and open space corridors*

within the Catchment, by identifying environmentally sensitive areas and providing for appropriate land use planning and development controls; and

- *Conserve, manage and improve the aquatic environment within the Catchment which is a significant resource base for the aquaculture industry, by providing controls aimed at reducing pollution entering the Catchment's watercourses.*

The Proposal is not likely to adversely affect the water quality and flows of the Georges River and its tributaries, and is not likely to have any adverse impact on the Georges River catchment, including any areas of environmental sensitivity.

The Proposal would be consistent with the aims and objectives of the REP and the implementation of environmental safeguards would minimise any potential environmental impacts on the Georges River and its tributaries. This is demonstrated by the inclusion of sediment basins and a GPT as part of the Proposal, and by taking into consideration the presence of the sedgeland located to the north of the Proposal site.

4.3 State Environmental Planning Policies

The following State Environmental Planning Policies (SEPPs) apply to the Proposal:

SEPP 4 – Development Without Consent and Miscellaneous Complying Development.

Clause 11C(2) states: '*Where, in the absence of this clause, development for the purposes of a classified road or toll work, may be carried out only with development consent being obtained therefore, that development may be carried out without that consent'.*

SEPP 4 applies to the Proposal, as the proposed works are for the purposes of a Classified Road (MR177) as defined by the *State Roads Act 1993*. The RTA would therefore not require consent from Wollondilly Shire Council prior to undertaking the proposed works.

SEPP 44 – Koala Habitat Protection

The Wollondilly LGA is listed on the Schedules of SEPP 44 as an LGA in which Koalas are known to occur. While the requirements of this SEPP do not apply to this Proposal, it is the RTA's practice to consider SEPP 44 matters in its EIA process. These criteria relate to the percentage cover of known feed trees, particularly trees listed under Schedule 2 – Known Feed Trees, and whether these are greater or less than 15% of the total tree canopy.

An ecological study undertaken for this Proposal by Lesryk Environmental Consultants (refer to Section 2.2.6 and **Appendix D**) identified Scribbly Gum (*Eucalyptus racemosa*) and Common Sandstone Stringybark (*Eucalyptus oblonga*) as occurring within the study area, both of which are listed on Schedule 2 of SEPP 44 as Known Feed Trees. However, these species constituted less than 15% of the entire tree canopy in the area surveyed, and therefore the study area is not considered 'potential Koala habitat', as defined by SEPP 44.

'Core Koala habitat' is land which has been classed as 'potential Koala habitat', and which supports a resident population of Koalas, evidenced by breeding females, recent sightings and historical records. No Koalas were recorded within the study area, nor any indirect evidence of Koalas (eg. scats, scratchings, fur tufts). There are no records of the Koala within a radius of 5km of the study area (DEC Wildlife Atlas).

From the database search and field investigations, there does not appear to be a resident population of Koalas within the study area. Therefore, the study area does not support 'core Koala habitat'.

SEPP 58 – Protecting Sydney's Water Supply

The primary aim of SEPP 58 is to ensure that "*development in the hydrological catchment from which Sydney draws its drinking water supply does not have a detrimental impact on water quality*".

Even though the land is zoned 'water catchment' by Wollondilly Council, the study area is not located within the hydrological catchment of the dams managed by the Sydney Catchment Authority (SCA), and therefore SEPP 58 does not apply. However, SEPP 58 applies to land in close proximity to the study area (to the east, west and south). Therefore the Proposal would take into consideration the aims and objectives of SEPP 58 and would not adversely affect the water quality of Sydney's drinking water supply.

4.4 Confirmation of Part 5 Position

All relevant statutory planning instruments have been examined for the Proposal. It is confirmed that SEPP 4 operates to remove the development consent requirements, thereby permitting assessment of the Proposal under Part 5 of the EP&A Act.

5 Strategic Stage

5.1 Strategic Planning

The Proposal is part of an ongoing commitment by the RTA to address road safety in accordance with the RTA's responsibilities for ensuring a maximum level of service to road users and to maintain appropriate services for adjacent landholders.

As part of its *Road Safety 2010* strategy, the NSW Government through the RTA has developed a $17 million, 10-year plan to improve the network of rest areas throughout the State to make them more attractive and accessible to motorists. As part of this strategy, more than 50 new rest areas would be created and more than 100 existing rest areas would be upgraded to provide a comprehensive network of rest areas within the State.

5.2 Need for the Proposal

Driver fatigue has been proven as a cause of truck-related accidents and fatalities and as such, truck drivers are required to rest for 30 minutes after driving for five hours. The Proposal would provide truck drivers with the opportunity to break from driving, reducing the desire to travel long distances and the possibility of becoming fatigued. The proposed truck parking area would provide truck drivers with a safe area to park off road and rest, and would contribute to reducing the number of accidents and fatalities on the roads caused by fatigue, and would meet the strategic objectives of this Proposal.

6 Concept Stage

6.1 Proposal Objectives

The objectives of the Proposal are:

- To provide an accessible truck parking area for eastbound traffic along Appin Road; and
- To undertake the work with minimal impact on the environment.

6.2 Options Considered

Option 1 – Do Nothing:
This option does not address the RTA's responsibility to maintain and improve classified roads and to improve the safety of motorists on the roads, and does not contribute to the improvement of the rest area network in the State.

Three options were considered as part of the project development process:

Option 2 – C05001-SK01:

- The truck parking area would be located with the exit as close as possible to the existing culvert without impacting on the culvert and eastern drainage line.
- Type SO gutter would extend on the northern side of the full length of the parking area and deceleration lane.
- Two sediment traps would be required at either end of the project; one to treat water from the SO gutter along the deceleration lane and the other to treat water from the eastern side of the amenities area.
- The GPT and sediment/spill basin would be located adjacent to the entrance to the parking area and would collect all runoff from the parking area and runoff from the western section of the amenities area.
- Earthworks required would involve 1370m^3 of fill to be imported (Cut 800m^3, Fill 2170m^3).

Option 3 – C05001-SK02:

- The parking area would be located with the entrance situated immediately after the start of the existing guardrail within the study area.
- Type SO gutter would extend on the northern side of the parking area and would continue for approximately half the deceleration lane and would terminate at the GPT.
- Runoff from the northwestern half of the deceleration lane would not be collected and would flow into bushland.
- Two sediment traps would be required at either end of the parking area to treat runoff from the amenities area. No runoff from the amenities area would be treated by the GPT.

- The GPT and sediment/spill basin would be located approximately halfway along the deceleration lane and would collect all runoff from the parking area and approximately half of the deceleration area.
- Earthworks required would involve 1060m^3 of spoil that would need to be removed (Cut 1860m^3, Fill 800m^3).

Option 4 – C05001-SK03:

- The parking area would be located centrally between the existing guardrail and culvert.
- The type SO gutter would extend on the northern side of the parking area and would continue for approximately half the deceleration lane and terminate at the GPT.
- Runoff from the northwestern half of the deceleration lane would not be collected and would flow into bushland.
- Two sediment traps would be required at either end of the parking area to treat runoff from the amenities area. No runoff from the amenities area would be treated by the GPT.
- The GPT would be located approximately halfway along the deceleration lane and would collect all runoff from the parking area and approximately half the deceleration lane.
- The sediment basin would be located in the same location as that for Option SK02, however additional pipework from the GPT to the sediment/spill basin would be required.
- Earthworks required involve 390m^3 of fill to be imported (Cut 1110m^3, Fill 1500m^3).

Preferred Option

Whilst Option 3 is the most balanced in terms of earthworks, Option 1 is the preferred option because it provides the best layout and because of the difficulties in disposing of excess fill.

7 Background Investigations and Consultation

7.1 Background Investigations and Database Searches

The following results were obtained from desktop database searches conducted for the study area. The information below provides a summary of the search results. Copies of all the search results are provided in **Appendix C**.

Australian Heritage Database

A search of the Australian Heritage Database was undertaken on 8 March 2005 for listings in the Wollondilly LGA. A total of 54 items were listed for the LGA and eight items were listed for Appin, however only three items are of relevance to the study area. These items are:

- The Upper Nepean Water Catchment – the study area lies within the Upper Nepean Water catchment;
- The O'Hares Creek Catchment – the study area lies within the O'Hares Creek Catchment; and
- Cataract Dam and Reservoir – the Cataract Dam is located approximately 2.5km to the south of the study area.

Of the remaining 51 items, none are located in close proximity to the study area. Items of heritage importance are discussed further in Section 8.5.

NSW Heritage Office State Heritage Register/Inventory

A search of the State Heritage Register was undertaken on 9 March 2005 for items of heritage significance within the Wollondilly LGA. Twenty-three items have been listed within the LGA. The closest site, the Cataract Dam, is located approximately 2.5km to the south of the study area. Items of heritage importance are discussed further in Section 8.5.

RTA Heritage and Conservation Register (s170)

A search of the RTA Heritage and Conservation Register was undertaken on 9 March 2005 for items of heritage significance in the Southern Region. A total of 40 items are listed, however none are located within 5km of the study area.

Council Heritage Listings

A search of Schedule 1 of the Wollondilly LEP was undertaken on 6 October 2004 for items of heritage significance within the Wollondilly LGA. Fifteen items were listed in Appin, with the nearest listing, Cataract Dam, located approximately 2.5km to the south of the study area. Heritage is discussed further in Section 8.5.

National Native Title Tribunal

A search of the National Native Title Tribunal register was conducted for the Wollondilly LGA on 11 November 2004. The search results indicated one Native Title Claim and one Unregistered Claimant Application for the Wollondilly LGA. The RTA's APC has reviewed

the results, and the claim and application are not applicable to land within the study area or in its immediate vicinity. Indigenous heritage is discussed further in Section 8.6.

National Native Title Tribunal

A search of the National Native Title Tribunal register was conducted for the Wollondilly LGA on 11 November 2004. The search results indicated one Native Title Claim and one Unregistered Claimant Application for the Wollondilly LGA. The RTA's APC has reviewed the results and the claim and application are not applicable to land within the study area or in its immediate vicinity. Indigenous heritage is discussed further in Section 8.6.

NSW DEC Aboriginal Heritage Information Management System (AHIMS)

A search of AHIMS was undertaken on 24 September 2004 for Aboriginal objects and places recorded within 5km of the study area. Seventy-five objects and places were recorded within 5km of the study area, with the nearest listing, an Open Camp site, located approximately 250m northeast of the study area.

NSW DEC Atlas of NSW Wildlife - Threatened Flora and Fauna Records

A search of the DEC Atlas of NSW Wildlife database was undertaken on 9 March 2005 for records of threatened flora and fauna previously recorded within a 5km radius of the study area. Five threatened flora species and 15 threatened fauna species have been previously recorded in the 5km search area. Of these threatened species, two flora species and three fauna species have been recorded within 1km of the study area. Threatened flora and fauna issues are further discussed in Section 8.4.

DEH Protected Matters (EPBC Act) Database

A search of the EPBC Act Database was undertaken on 9 March 2005 for matters of National Environmental Significance (NES) located within 5km of the study area. The results identified the following:

- The study area is located within the catchment of a Wetland of International Significance, namely Towra Point Nature Reserve;
- Twenty-one threatened species, including three birds, two fish, four frogs, five mammals, one reptile and six plant species have the potential to occur within the search area;
- Eight migratory bird species have the potential to occur within the search area;
- Twelve listed marine bird species have the potential to occur within the search area;
- Three places on the Register of the National Estate, including two indigenous sites, Loddon Area Site 8 and Stokes Creek Area, and one natural site, O'Hares Creek Catchment; and
- One State and Territory Reserve, the Dharawal Nature Reserve.

As the study area is located in a terrestrial environment, all listed marine species and threatened fish would not be considered in this investigation. The remaining matters of NES are discussed in Sections 8.4 (Biodiversity) and 8.5 (Non-indigenous Heritage).

NSW DPI Noxious Weeds List

A search of the NSW DPI Noxious Weeds database was undertaken on 6 October 2004 for noxious weeds declared in the Wollondilly LGA. A total of 39 noxious weeds have been listed within the Wollondilly LGA, however none were recorded within the study area during the ecological surveys. Noxious weeds are discussed further in Section 8.4 and **Appendix D**.

NSW DEC Contaminated Land Records

A search of the DEC Contaminated Land records was undertaken on 6 October 2004 for contaminated land in the Wollondilly LGA. One contaminated site is listed on the records for Wollondilly LGA in Maldon, approximately 26km northwest of the study area.

NSW DEC Air Quality Information

A search of the Regional Pollution Index (RPI) was undertaken on 11 November 2004 for the Illawarra region. The nearest monitoring station at Wollongong (approximately 19km southeast of the study area) indicated that during the last reported quarter (October-December 2003) the average reading of the RPI was in the Low Range 93% of the time, and in the Medium Range 7% of the time. Air quality is discussed further in Section 8.8.

The DEH National Pollutant Inventory

A search of the National Pollutant Inventory was undertaken on 11 November 2004 for pollutant and emission sources within the Wollondilly and Wollongong LGAs. The results identified carbon monoxide as the highest total of emissions sourced from motor vehicles and iron and steel manufacturing. Air quality is discussed further in Section 8.8.

7.2 Government and Community Consultation and Involvement

7.2.1 Government and Stakeholder Consultation

Relevant state government agencies and stakeholders were contacted and provided with the opportunity to comment on the Proposal. Table 7.1 lists the government agencies and stakeholders that were invited to comment on the Proposal for this REF. Responses received are summarised in column 1, while column 2 identifies the Section in the REF where they are addressed. Copies of all correspondences are provided **Appendix C**.

Table 7.1: Summary of issues raised by government agencies and stakeholders.

Summarised Issues	Section in REF Where Addressed
DEC (Parks & Wildlife)	
At the time of writing this REF, a response to the consultation letter dated 15 March 2005 has not been received.	N/A
SCA	
At the time of writing this REF, a response to the consultation letter dated 15 March 2005 has not been received.	N/A
Mine Subsidence Board	
The Mine Subsidence Board in a letter dated 4 March 2005 had the following comments to make with regard to the proposed works:	N/A
• The study area is not located within a proclaimed Mine Subsidence District and is not subject to building restrictions.	Noted
Wollondilly Shire Council	
A response to the consultation letter dated 15 March 2005 had not been received at the time of writing this REF.	N/A

7.2.2 Community Consultation and Involvement

No community consultation has been undertaken due to the small scale of the Proposal. However, the affected community would be informed about the Proposal prior to the commencement of works in accordance with the RTA's *Community Involvement Practice Notes and Resource Manual, 1998.*

8 Environmental Assessment

8.1 General

This section of the REF provides a detailed description of the potential environmental impacts associated with the Proposal during both construction and operation, and provides site-specific safeguards to ameliorate the identified potential impacts.

The environmental safeguards predominately outline additional site-specific requirements which are not covered by the RTA's *Environmental Protection (Management Plan) QA Specification G35, Soil and Water Management (Erosion and Sediment Control Plan) QA Specification G39* and *Clearing and Grubbing QA Specification G40* for inclusion into the Contractors Environmental Management Plan (CEMP) and the Project Environmental Management Plan (PEMP). These safeguards would be implemented prior to construction, during construction and post construction. The CEMP and PEMP would be reviewed by the RTA's Regional Environmental Adviser, Southern Region, prior to the commencement of work.

8.2 Landform, Geology and Soils

Potential Impacts

The soils present within the Proposal site are highly erodible, and they have the potential to be degraded and eroded through the exposure of surface areas and vegetation removal, which would be undertaken as part of the Proposal. Appropriate safeguards would be implemented to minimize the potential for erosion to occur.

The two minor ephemeral drainage lines within the Proposal site (the eastern and western drainage lines) would be modified as part of the construction process, with drainage structures provided to direct runoff into sediment basins. An increase in sedimentation has the potential to occur during wet weather conditions, however, sediment controls in the form of sediment traps/basins and a GPT are expected to minimise such impacts.

Soils within the Proposal site also have the potential to be locally contaminated through the spill of chemicals associated with asphalt and gravel for pavement surfacing and from cement, and chemical and fuel spills. There is also the potential for tracking of soil and mud to occur on pavement surfaces, as trucks move to and from the Proposal site, and within the Proposal site.

The potential impacts discussed above would be minimised through the implementation of the environmental safeguards listed below.

Site Specific Safeguards

- An erosion and sedimentation control plan would be developed and incorporated into the CEMP. The plan would incorporate specifications outlined in the *NSW Erosion and Sediment Control Handbook No. 2*, identify areas requiring management controls, include inspections and checklist sheets and be reviewed by the RTA's Regional Environmental Adviser, Southern Region, prior to the commencement of works.
- A GPT and three sediment traps would be implemented as part of the Proposal, as shown on the Concept Plan (**Appendix A**).

- Maintenance and checking of the erosion and sedimentation controls would be undertaken on a regular basis and records kept and provided upon request. Sediment would be cleared from behind barriers on a regular basis and all controls would be managed in order to work effectively at all times.
- All stockpiles would be designed, established, operated and decommissioned in accordance with the RTA's *Stockpile Management Procedures 2001*. All stockpiles would be located 50m away from the high bank of any rivers or drainage lines.
- Stockpiles would not be established on slopes greater than 2:1 (horizontal to vertical).
- Any material transported onto pavement surfaces would be swept and removed at the end of each working day.
- Hardstand material or rumble grids would be implemented at entry and exit points to minimise the tracking of soil and particulates onto pavement surfaces.
- Imported fill required for the Proposal would be sourced from licenced/registered suppliers within the local area.
- The stripping of topsoil and stockpiling activities would not be undertaken during rainfall events.
- Site rehabilitation of disturbed areas would be undertaken progressively as stages are completed.
- Disturbed areas would be restored to their natural shape at the completion of works.

8.3 Water Quality and Hydrology

Potential Impacts

In addition to potential sedimentation (addressed in Section 8.2), there is also potential for spillages of fuels and/or chemicals to occur during the construction stage. These impacts would be minimised through the implementation of appropriate controls which would be installed prior to the commencement of the proposed works. The controls include an 'accidental spill basin' with a 35m^3 capacity. Spills would be directed to this basin by a Type SO Gutter. A GPT would be provided to separate rubbish from clean runoff.

The central and western drainage lines within the Proposal site would be modified by the proposed works. The drainage lines within the Proposal site are minor, and ill-defined, and with the implementation of the SO gutter, sediment basins and GPT, the hydrology and water quality of the drainage lines further downstream are not likely to be impacted by the Proposal. The drainage lines would only contain water during periods of heavy rainfall, and the flow of surface water within the study area would not be impacted, as water would still be collected and would flow towards the north, away from Appin Road. The GPT and sediment traps would assist in filtering out sediment and gross pollutants during periods of heavy rainfall.

The Proposal is unlikely to impact upon the sedgeland area present to the northeast of the study area, or the Cataract Dam and its catchment.

The impacts discussed above would be minimised through the implementation of the environmental safeguards listed below.

Site Specific Safeguards

- The efficacy of the outlet protection would be reviewed on a regular basis.
- Erosion and sediment controls would be implemented near the eastern drainage line to prevent material from entering the drainage line.
- An incident emergency spill plan would be developed and incorporated into the CEMP. The plan would include measures to avoid spillages of fuels, chemicals, and fluids onto any surfaces or into any adjacent/nearby waterways. An emergency spill kit would be kept onsite at all times.
- All staff would be inducted of the incident emergency procedures and made aware of the location of where the emergency spill kit would be kept.
- Should a spill occur during construction, the incident emergency spill plan would be implemented, and the Regional Environmental Adviser, Southern Region, contacted.
- All fuels, chemicals, and liquids would be stored at least 50m away from any waterways or drainage lines and would be stored within an impervious bunded area within the compound site.
- The refuelling of plant and maintenance of machinery would be undertaken within impervious bunded areas within the compound site.
- Vehicle wash downs and/or cement truck washouts would be undertaken within a designated bunded area of an impervious surface or undertaken offsite.
- Excess concrete would be scraped off equipment prior to being washed. All remaining concrete residue would be collected and disposed of to a licenced landfill.
- Wastewater generated from the construction process would be contained onsite, collected via a suction pump or wet industrial vacuum and/or treated in accordance with DEC specifications prior to its disposal. The release of dirty water into any waterways is prohibited.

8.4 Biodiversity

Potential Impacts

The Proposal would require the removal of approximately 1.2ha of Sandstone Woodland from the Proposal site, however the section of the Proposal site on which the compound site would be situated would be rehabilitated with suitable locally occurring native plant species. Sandstone Woodland and the habitats and resources it provides are common and widespread in the area. The vegetation and fauna habitats within the Proposal site are not considered to offer any unique features that would be important to the local occurrence of any native species. Consequently, the disturbance or removal of any vegetation, habitats or resources from the Proposal site would not threaten the survival of any native species. The two hollow-bearing trees identified within the study area would not be removed.

The Proposal has little potential to impact upon threatened flora and fauna species, populations or communities listed under the TSC and EPBC Acts, as the Proposal site does not support any habitats or resources considered as important for the foraging, roosting or breeding requirements of any threatened species. Accordingly, the Proposal does not require a Species Impact Statement, and furthermore, the Proposal does not require a referral to the Federal Minister for the Environment.

The Proposal site is not considered to support any areas of potential or core Koala habitat. The Proposal is not likely to require the preparation of a Plan of Management for Koalas, or the adoption of any other environmental safeguards for this species.

The Proposal is not likely to affect the ecological or scientific value of the sedgeland/swamp present to the north of the study area. A GPT accidental spill basin and sediment traps have been incorporated into the design of the proposed truck parking bay, and they are expected to minimise the spread of sediment off the Proposal site, and would minimise impacts on any aquatic habitats present away from the Proposal site.

Site Specific Safeguards

- Topsoil potentially containing weed propagules would be removed from the Proposal site and disposed of at a licenced landfill facility. Weed infested or contaminated topsoil would not be reused for the proposed works or for revegetation works and would not be stockpiled adjacent to any areas of native vegetation.
- The area of vegetation to be removed would be restricted to those areas specified in this REF. These areas would be clearly marked onsite, and on site plans prior to the commencement of works. Should additional clearing be required, the RTA's Regional Environmental Adviser, Southern Region, would be contacted and consulted to determine the need for further environmental impact assessment.
- All vegetation to be retained would be clearly highlighted on site and on site plans and would be protected with fencing. Protective fencing would be erected beyond the drip-line of trees and erected prior to the commencement of works. All staff would be informed and inducted of the limits of vegetation clearing and the areas of vegetation to be retained.
- Vehicles and machinery would be parked in cleared areas and not under the drip-line of retained vegetation or trees. Retained vegetation or trees would not be smothered by stockpiles, sediment, or by the storage of materials and equipment.
- Construction compounds, stockpile sites and the storage of materials would be established within the Proposal site.
- Any fauna species found inhabiting areas to be disturbed would be removed by licenced persons under the NPW Act 1974.

8.5 Non-Indigenous Heritage

Potential Impacts

The Proposal would not have an impact on any items or places of non-indigenous heritage significance. Whilst the study area is located within the Upper Nepean Water Catchment and the O'Hares Creek Catchment, the Proposal would not have any adverse impact on the catchment, due to the small scale of the Proposal and the environmental safeguards that would be implemented. The Proposal is not expected to have any impact on Cataract Dam or its catchment.

Site Specific Safeguards

- Should archaeological remains be uncovered during construction, all works would cease within the vicinity of the material/find and the RTA's Regional Environmental Adviser, Southern Region, contacted.

8.6 Indigenous Heritage

Potential Impacts

The Proposal would not have any impact on any items or places of indigenous heritage value. The Indigenous Heritage Assessment (**Appendix E**) concluded that there are no archaeological constraints on the proposed truck parking bay, and that no further archaeological survey or assessment would be required for this Proposal. No sites of archaeological or cultural heritage value were identified within the Proposal site or the study area during the site investigations. The Indigenous Heritage Assessment also confirms that there are no statutory constraints to the construction of the truck parking bay in relation to indigenous heritage.

Site Specific Safeguards

- All personnel working on site would receive training in their responsibilities with regards to Indigenous Heritage under the *National Parks and Wildlife Act 1974*.
- Should Indigenous heritage items be uncovered during works, all works in the vicinity of the find would cease and the RTA's Aboriginal Programs Consultant, Regional Environmental Adviser, Southern Region, DEC representative and relevant LALC representative would be contacted. Works would not re-commence until appropriate clearance has been received.

8.7 Noise

Potential Impacts

It is anticipated that noise levels within the Proposal site and its immediate vicinity would increase during construction of the Proposal as a result of noise generated from machinery and equipment used to construct the truck parking bay. The noise levels are likely to be experienced by motorists using Appin Road and the existing rest area. No residences or other noise sensitive receptors would be affected by the Proposal.

The operation of the truck parking bay is expected to cause an increase in noise levels within the study area, with vehicles slowing down and accelerating as they enter and leave the truck parking bay, however, there are no sensitive noise receptors in the vicinity of the study area.

Site Specific Safeguards

- Should works be required outside standard working hours, the procedures contained in the RTA's *Environmental Noise Management Manual, 2001* "*Practice Notes vii – Roadworks Outside of Normal Working Hours*" would be followed.
- Best management practices would be adopted that are consistent with the *RTA's Environmental Noise Management Manual, 2001*.

8.8 Air Quality

Potential Impacts

During construction of the Proposal, clearing, excavation works, stockpiling activities and translocation of fill have the potential to generate high levels of dust. Dust also has the potential to be generated from exposed surfaces, particularly during windy conditions and affect motorists using Appin Road. Local air quality also has the potential to decrease in the short-term due to increased vehicle emissions associated with plant and construction equipment. These impacts would be localised and short-term in duration, and it is unlikely that the Proposal would lead to any long-term increases in air pollution or pose a long-term risk to local air quality.

Site Specific Safeguards

- Any stockpiles and general areas with the capacity to cause dust would be dampened to suppress dust emissions.
- Long term stockpiles would be sprayed with a sterile grass mix to suppress dust generation.
- Any materials transported in trucks would be appropriately covered to reduce dust generation.
- Construction activities that generate high dust levels would be avoided during high wind periods.
- Rehabilitation of disturbed surfaces would be undertaken as soon as possible.
- Fenced boundaries surrounding stockpile sites would be lined with geotextile fabric.

8.9 Visual Amenity / Landscape

Potential Impacts

Construction activities are likely to cause a short-term reduction in the visual amenity near the study area. Likely visual impacts would include exposed surfaces associated with the removal of vegetation, compound site and the presence of machinery. The construction activities would be visible to motorists using Appin Road, including motorists who have stopped at the existing truck parking bay.

In the long term, it is not anticipated that the proposed truck parking bay would affect the visual amenity of the locality or region to any great extent. The truck parking bay would be visible to vehicles travelling on Appin Road, and users of the existing truck parking bay on the westbound side of the road. The Proposal is not likely to affect any views and is not expected to change the character of the locality.

Site Specific Safeguards

- The construction site would be kept tidy and rubbish free.
- Revegetation of the proposed truck parking bay would be undertaken as soon as construction activities have been completed.

8.10 Socio-economic Considerations

Potential Impacts

The Proposal would provide truck and light vehicle drivers with the opportunity to break their journey while travelling in an eastbound direction on Appin Road. This facility has been located in accordance with the RTA's *Rest Area Strategy* and aims to improve motorist safety.

During construction, the Proposal has the potential to delay through-traffic during working hours due to lane closures, although appropriate traffic control measures would minimise the delays experienced along the road.

Appin Road and the Proposal site are on Crown Land and consequently, Crown Land would need to be acquired as part of this Proposal. The RTA is currently undergoing negotiations with the Department of Lands in regards to the purchase of the land. All property valuations and acquisitions would be carried out in accordance with the RTA *Land Acquisition Policy* and the *Land Acquisition (Just Terms Compensation) Act 1991*.

Site Specific Safeguards

- All property acquisitions would be negotiated in accordance with the RTA's Land Acquisition Policy, and compensation in accordance with the *Land Acquisition (Just Terms Compensation) Act, 1991*. Property acquisitions and/or leasing arrangements would be resolved between the RTA and property owners prior to the commencement of works.
- Signage would be provided to inform motorists of the new truck parking bay.
- A Traffic Control Plan would be prepared in accordance with the RTA's *Traffic Control at Work Sites Manual 2003*, and approved by the RTA prior to implementation. The Traffic Control Plan would include the notification of any traffic alterations or closures.

8.11 Waste Minimisation and Management

Potential Impacts

Currently, the main source of waste within the study area is likely to be litter from vehicles along Appin Road, and this is likely to remain the main source of waste during the operational stage. It is also possible that irrespective of whether or not a toilet is installed, visitors to the truck parking bay may use nearby areas for such purposes, resulting in the accumulation of faecal matter and rubbish within the surrounding area.

Waste products generated by the Proposal are likely to be due to construction activities, rather than the operation of the Proposal. The construction of the Proposal has the potential to generate liquid and non-liquid wastes. The key waste streams likely to be generated include:

- Cleared vegetation;
- Excavated soil;
- General construction waste;
- Gross pollutants and putrescible waste;
- Asphalt;
- Fuels, liquids and chemicals;
- Cement;
- Waste from trucks; and
- Litter.

These waste streams would need to be managed in an appropriate manner. Fuels, liquids and other compounds would need to be stored and handled for example within a bunded area, and the future management of the portable toilets within the site compound would need to ensure that no leakage or spillage of the sewage could occur. An additional REF would need to be prepared if toilets are required for this site.

Site Specific Safeguards

- A Waste Management Plan would be prepared in accordance with the RTA's QA Specifications and in accordance with the RTA's *Waste Minimisation & Management Guidelines, 1998* and the principles of the WARR Act.
- Trees to be removed would be assessed for their value as millable timber.
- Leaf material and small branches of native vegetation would be chipped and used as mulch in revegetation works.
- There would be no burning of waste.
- All exotic plant species removed would be bagged and disposed of at a licenced landfill facility.
- All construction materials, surplus soils and wastes generated from the Proposal would be stockpiled and stored at the compound site prior to reuse, recycling or disposal.
- All working areas would be maintained, kept free of rubbish and cleaned up at the end of each working day.
- Wastes would not be stored for long periods during construction of the Proposal. Empty drums of fuels, oils or chemicals and fluids would not be stored on site during construction.

In addition, the Resource Management Hierarchy principles of the WARR Act would be adopted as follows:

1. Avoid unnecessary resource consumption as a priority;
2. Avoidance is followed by resource recovery (including reuse of materials, reprocessing recycling, and energy recovery; and
3. Disposal is undertaken as a last resort.

8.12 Summary of Beneficial Effects

The Proposal has the following beneficial effects:

- Provision of a rest area for drivers of trucks and other vehicles travelling in an eastbound direction.

8.13 Summary of Adverse Effects

The Proposal would result in some adverse effects that would include:

- Potential erosion and sedimentation as a result of exposure of highly friable soils;
- Potential disturbance to the western and central ephemeral drainage lines;
- Temporary increase in noise and dust levels in the vicinity of the Proposal site during construction activities;
- Removal of native trees and shrubs from the study area; and
- Potential increase in litter and waste within the study area.

9 Implementation Stage

9.1 Summary of Proposed Environmental Safeguards

Environmental safeguards outlined in this document would be incorporated into the detailed design phase of the Proposal and during construction and operation of the Proposal. These safeguards would minimise any potential adverse impacts arising from the proposed works on the surrounding environment. All safeguards described in this REF and the Decision Report/ Conditions of Approval would be incorporated into the Contractor's Environmental Management Plan (CEMP) and the Project Environmental Management Plan (PEMP).

The CEMP and PEMP (if required) would be developed in accordance with the specifications set out in the RTA's *Environmental Protection (Management Plan) QA Specification G35*, *Soil and Water Management (Erosion and Sediment Control Plan) QA Specification G39* and *Clearing and Grubbing QA Specification G40*

Table 9.1: Site Specific Environmental Safeguards.

Impact	Environmental Safeguards
Landform, Geology & Soils	• An erosion and sedimentation control plan would be developed and incorporated into the CEMP. The plan would incorporate specifications outlined in the *NSW Erosion and Sediment Control Handbook No. 2*, identify areas requiring management controls, include inspections and checklist sheets and be reviewed by the RTA's Regional Environmental Adviser, Southern Region, prior to the commencement of works. • Erosion and sediment controls would be implemented near the eastern drainage line to prevent material from entering the drainage line. • A GPT and three sediment traps would be implemented as part of the Proposal, as shown on the Concept Plan (**Appendix A**). • Maintenance and checking of the erosion and sedimentation controls would be undertaken on a regular basis and records kept and provided upon request. Sediment would be cleared from behind barriers on a regular basis and all controls would be managed in order to work effectively at all times. • All stockpiles would be designed, established, operated and decommissioned in accordance with the RTA's *Stockpile Management Procedures 2001*. All stockpiles would be located 50m away from the high bank of any rivers or drainage lines. • Stockpiles would not be established on slopes greater than 2:1 (horizontal to vertical). • Any material transported onto pavement surfaces would be swept and removed at the end of each working day. • Hardstand material or rumble grids would be implemented at entry and exit points to minimise the tracking of soil and particulates onto pavement surfaces.

Impact	Environmental Safeguards
	• Imported fill required for the Proposal would be sourced from licenced/registered suppliers within the local area. • The stripping of topsoil and stockpiling activities would not be undertaken during rainfall events. • Site rehabilitation of disturbed areas would be undertaken progressively as stages are completed. • Disturbed areas would be restored to their natural shape at the completion of works.
Water Quality & Hydrology	• The efficacy of the outlet protection would be reviewed on a regular basis. • Erosion and sediment controls would be implemented near the eastern drainage line to prevent material from entering the drainage line. • An incident emergency spill plan would be developed and incorporated into the CEMP. The plan would include measures to avoid spillages of fuels, chemicals, and fluids onto any surfaces or into any adjacent/nearby waterways. An emergency spill kit would be kept onsite at all times. • All staff would be inducted of the incident emergency procedures and made aware of the location of where the emergency spill kit would be kept. • Should a spill occur during construction, the incident emergency spill plan would be implemented, and the Regional Environmental Adviser, Southern Region, contacted. • All fuels, chemicals, and liquids would be stored at least 50m away from any waterways or drainage lines and would be stored within an impervious bunded area within the compound site. • The refuelling of plant and maintenance of machinery would be undertaken within impervious bunded areas within the compound site. • Vehicle wash downs and/or cement truck washouts would be undertaken within a designated bunded area of an impervious surface or undertaken offsite. • Excess concrete would be scraped off equipment prior to being washed. All remaining concrete residue would be collected and disposed of to a licenced landfill. • Wastewater generated from the construction process would be contained onsite, collected via a suction pump or wet industrial vacuum and/or treated in accordance with DEC specifications prior to its disposal. The release of dirty water into any waterways is prohibited.

Impact	Environmental Safeguards
Biodiversity	• Topsoil potentially containing weed propagules would be removed from the Proposal site and disposed of at a licenced landfill facility. Weed infested or contaminated topsoil would not be reused for the proposed works or for revegetation works and would not be stockpiled adjacent to any areas of native vegetation. • The area of vegetation to be removed would be restricted to those areas specified in this REF. These areas would be clearly marked onsite, and on site plans prior to the commencement of works. Should additional clearing be required, the RTA's Regional Environmental Adviser, Southern Region, would be contacted and consulted to determine the need for further environmental impact assessment. • All vegetation to be retained would be clearly highlighted on site and on site plans and would be protected with fencing. Protective fencing would be erected beyond the drip-line of trees and erected prior to the commencement of works. All staff would be informed and inducted of the limits of vegetation clearing and the areas of vegetation to be retained. • Vehicles and machinery would be parked in cleared areas and not under the drip-line of retained vegetation or trees. Retained vegetation or trees would not be smothered by stockpiles, sediment, or by the storage of materials and equipment. • Construction compounds, stockpile sites and the storage of materials would be established within the Proposal site.
Non-Indigenous Heritage	• Should archaeological remains be uncovered during construction, all works would cease within the vicinity of the material/find and the RTA's Regional Environmental Adviser, Southern Region, contacted.
Indigenous Heritage	• All personnel working on site would receive training in their responsibilities with regards to Indigenous Heritage under the *National Parks and Wildlife Act 1974.* • Should Indigenous heritage items be uncovered during works, all works in the vicinity of the find would cease and the RTA's Aboriginal Programs Consultant, Regional Environmental Adviser, Southern Region, DEC representative and relevant LALC representative would be contacted. Works would not re-commence until appropriate clearance has been received.
Noise	• Should works be required outside standard working hours, the procedures contained in the RTA's *Environmental Noise Management Manual, 2001 "Practice Notes vii – Roadworks Outside of Normal Working Hours"* would be followed. • Best management practices would be adopted that are consistent with the *RTA's Environmental Noise Management Manual, 2001.*

Impact	Environmental Safeguards
Air Quality	• Any stockpiles and general areas with the capacity to cause dust would be dampened to suppress dust emissions. • Long term stockpiles would be sprayed with a sterile grass mix to suppress dust generation. • Any materials transported in trucks would be appropriately covered to reduce dust generation. • Construction activities that generate high dust levels would be avoided during high wind periods. • Rehabilitation of disturbed surfaces would be undertaken as soon as possible. • Fenced boundaries surrounding stockpile sites would be lined with geotextile fabric.
Visual Amenity/ Landscape	• The construction site would be kept tidy and rubbish free. • Revegetation of the proposed truck parking bay would be undertaken as soon as construction activities have been completed.
Socio-economic Considerations	• All property acquisitions would be negotiated in accordance with the RTA's Land Acquisition Policy, and compensation in accordance with the *Land Acquisition (Just Terms Compensation) Act, 1991*. Property acquisitions and/or leasing arrangements would be resolved between the RTA and property owners prior to the commencement of works. • Signage would be provided to inform motorists of the new truck parking bay. • A Traffic Control Plan would be prepared in accordance with the RTA's *Traffic Control at Work Sites Manual 2003*, and approved by the RTA prior to implementation. The Traffic Control Plan would include the notification of any traffic alterations or closures.
Waste Minimisation & Management	• A Waste Management Plan would be prepared in accordance with the RTA's QA Specifications and in accordance with the RTA's *Waste Minimisation & Management Guidelines, 1998* and the principles of the WARR Act. • Trees to be removed would be assessed for their value as millable timber. • Leaf material and small branches of native vegetation would be chipped and used as mulch in revegetation works. • There would be no burning of waste. • All exotic plant species removed would be bagged and disposed of at a licenced landfill facility. • All construction materials, surplus soils and wastes generated from the Proposal would be stockpiled and stored at the compound site prior to reuse, recycling or disposal.

Impact	Environmental Safeguards
	• All working areas would be maintained, kept free of rubbish and cleaned up at the end of each working day. • Wastes would not be stored for long periods during construction of the Proposal. Empty drums of fuels, oils or chemicals and fluids would not be stored on site during construction. In addition, the Resource Management Hierarchy principles of the WARR Act would be adopted as follows: 1 Avoid unnecessary resource consumption as a priority; 2 Avoidance is followed by resource recovery (including reuse of materials, reprocessing recycling, and energy recovery; and 3 Disposal is undertaken as a last resort.

9.2 Licences and Approvals

Sydney Water Restrictions

Sydney Water have provided the RTA with conditions of approval for use of water for:

- The establishment of new lawn, gardens and vegetation cover by commercial contractors, including the allowed watering times and durations for new works; and
- Construction and maintenance activities, vehicle washing and by professional high pressure cleaning operators.

The conditions are specified in RTA's Environmental Direction 19 February 2004 – Sydney Water Restrictions – Reminder of Conditions. The RTA would ensure that all staff are aware of these conditions and procedures are put in place to ensure compliance with the conditions.

No licences and approvals are required for this Proposal.

10 Consideration of State and Commonwealth Environmental Factors

10.1 Clause 228(2) Factors (NSW Legislation)

The factors which need to be taken into account when considering the environmental impact of an activity are listed in Clause 228(2) of the *Environmental Planning and Assessment Regulation, 2000*. Those factors have been addressed in Table 10.1 below to ensure that the likely impacts of the proposed activities on the natural and built environment are fully considered.

Table 10.1: Compliance with Clause 228(2) of the EP&A Regulation 2000.

Clause 228(2) Factors	Impact
a) Any environmental impact on a community?	
During the construction stage, motorists travelling along Appin Road may experience minor delays and an increase in dust and noise levels. These impacts would be minimised by implementing the environmental safeguards listed in Section 9, and would only be experienced for a period of three months.	Short-term negative
During operation, the community is expected to benefit from the presence of a truck parking bay on Appin Road, as it would provide eastbound vehicles with the opportunity to stop and rest. The Proposal is part of an overall strategy to decrease the number of accidents caused by fatigue, involving heavy vehicles in particular and thereby reduce the risk of spills from truck crashes.	Long-term positive
b) Any transformation of a locality?	
Construction activities are likely to cause a short-term reduction in the visual amenity near the Proposal site, which would be experienced by motorists using Appin Road and motorists using the existing truck parking bay on Appin Road. Likely visual impacts would include exposed surfaces associated with the removal of vegetation, the compound site and the presence of machinery.	Short-term minor negative
In the long term, it is not anticipated that the proposed truck parking bay would cause the transformation of a locality.	Long-term nil
c) Any environmental impact on the ecosystem of the locality?	
Approximately 1.2ha of Sandstone Woodland would be removed as part of the Proposal. This vegetation is common and widespread in the region. The Proposal would also impact on sections of two minor ephemeral drainage lines which commence near Appin Road within the Proposal site, however there are unlikely to be any downstream impacts as a result of this Proposal. The Proposal would not be expected to impact on the sedgeland present to the northeast of the Proposal site, or on any aquatic habitats further downstream of the Proposal site.	Minor negative

Clause 228(2) Factors	Impact
d) Any reduction of the aesthetics, recreational, scientific or other environmental quality or value of a locality? Construction activities are likely to cause a short-term reduction in the visual amenity near the Proposal site, as a result of exposed surfaces associated with the removal of vegetation, the compound site and the presence of machinery. In the long-term the area of vegetation on the Proposal site would be replaced with the bus parking bay. This would be a minor impact on the aesthetics of the locality. The sedgeland located to the northeast of the Proposal site has been identified as being of scientific value, however the Proposal would not have any impact on the sedgeland. Overall, the Proposal is not likely to reduce the aesthetics, recreational, scientific or environmental quality or value of the locality.	Minor negative
e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present generations? The Proposal would not have an impact on a locality, place or building having aesthetic anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present generations. The sedgeland to the northeast of the Proposal site has been identified as being of high scientific value, and would not be impacted by the Proposal.	Nil
f) Any impact on habitat of any protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? The Proposal would involve the clearing of approximately 1.2ha of Sandstone Woodland, a vegetation community that is common and widespread, and present extensively around the study area. The two hollow-bearing trees located within the study area would not be affected. Fauna that currently use the Proposal site would be able to utilise similar habitat found extensively around the site.	Minor
g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The Proposal would not cause the endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air.	Nil
h) Any long-term effects on the environment? The Proposal would involve the removal of vegetation, the modification of the start of two minor ephemeral drainage lines, and increased noise levels in the vicinity of the Proposal site. The Proposal would also have a positive long-term impact by providing a rest area for truck drivers. No other long-term effects on the environment are likely to occur.	Minor negative and positive
i) Any degradation of the quality of the environment? In the short-term, while the construction activities are being undertaken, there is potential for an increase in dust and noise levels near the Proposal site.	Minor

Clause 228(2) Factors	Impact
Vegetation removal would also have a minor impact on the visual amenity of the area, and could also potentially cause erosion and sedimentation. In the long-term, litter and waste, and noise levels are likely to increase in the vicinity of the Proposal site, however there are no sensitive noise receptors, including residences, in close proximity to the Proposal site. With the implementation of the environmental safeguards outlined in Section 9, these potential impacts would be minimised.	
j) Any risk to the safety of the environment? The Proposal is not expected to cause any risk to the safety of the environment. The Proposal would improve safety on the roads by providing a rest area for truck drivers and other vehicles.	Positive
k) Any reduction in the range of beneficial uses of the environment? There would be no reduction in the range of beneficial uses of the environment.	Nil
l) Any pollution of the environment? With the exception of a possible increase in litter and waste near the truck parking bay during its operation, the Proposal is not expected to cause any pollution of the environment with the implementation of the environmental safeguards outlined in Section 9.	Minor negative
m) Any environmental problems associated with the disposal of waste? A small amount of waste would be generated as a result of the Proposal. This would include hardstand materials during the establishment of the compound site, and general waste such as litter during the operation of the compound site. Recyclable or reusable waste would be recycled and reused where possible. General waste material would be disposed of at a licensed waste facility and managed in accordance with the Resource Management Hierarchy of the WARR Act. There are not likely to be any environmental problems associated with the disposal of waste.	Nil
n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? The Proposal would not cause an increase in demand on resources, natural or otherwise which are, or are likely to become in short supply.	Nil
o) Any cumulative environmental effect with other existing or likely future activities? Noise associated with the deceleration and acceleration of heavy vehicles as the enter and leave the proposed rest area and the existing rest area on the westbound side of Appin Road may increase noise levels in the vicinity of the Proposal site. Along with other rest areas proposed as part of the rest area strategy, the Proposal would be expected to decrease the number of accidents caused by fatigue. No other cumulative environmental effect is likely to occur.	Minor negative and positive

10.2 EPBC Act 1999 Factors (Commonwealth Legislation)

The EPBC Act requires that the following matters of National Environmental Significance (NES) be considered.

Table 10.2: Compliance with Commonwealth EPBC Act requirements.

EPBC Act Factors	Impact
a) Any environmental impact on World Heritage property? The Proposal would not have any impact on any World Heritage property.	Nil
b) Any environmental impact on National Heritage places? The Proposal would not have any impact on a National Heritage place.	Nil
c) Any environmental impact on wetlands of international importance? The Proposal would not have any impact on wetlands of international importance.	Nil
d) Any environmental impact on Commonwealth listed threatened species or ecological communities? The Proposal would not have any impact on Commonwealth listed threatened species or ecological communities.	Nil
e) Any environmental impact on Commonwealth listed migratory species? The Proposal would not have any impact on Commonwealth listed migratory species.	Nil
f) Does any part of the Proposal involve nuclear action? The Proposal does not involve a nuclear action.	Nil
g) Any environmental impact on a Commonwealth Marine area? The Proposal would not impact on a Commonwealth marine area.	Nil
In addition: Any impact on Commonwealth Land? The Proposal site is located on Commonwealth Land. The RTA is currently in negotiations with the Department of Lands in regards to acquiring land for the Proposal.	Yes

11 Certification

This Review of Environmental Factors provides a true and fair review of the Proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the Proposal.

Yojana Chadhokar
Environmental Officer
Date: 24/3/05

I have examined this Review of Environmental Factors and the certification by Yojana Chadhokar and accept the Review of Environmental Factors on behalf of the RTA.

Diana Loges
Project Manager
Date:

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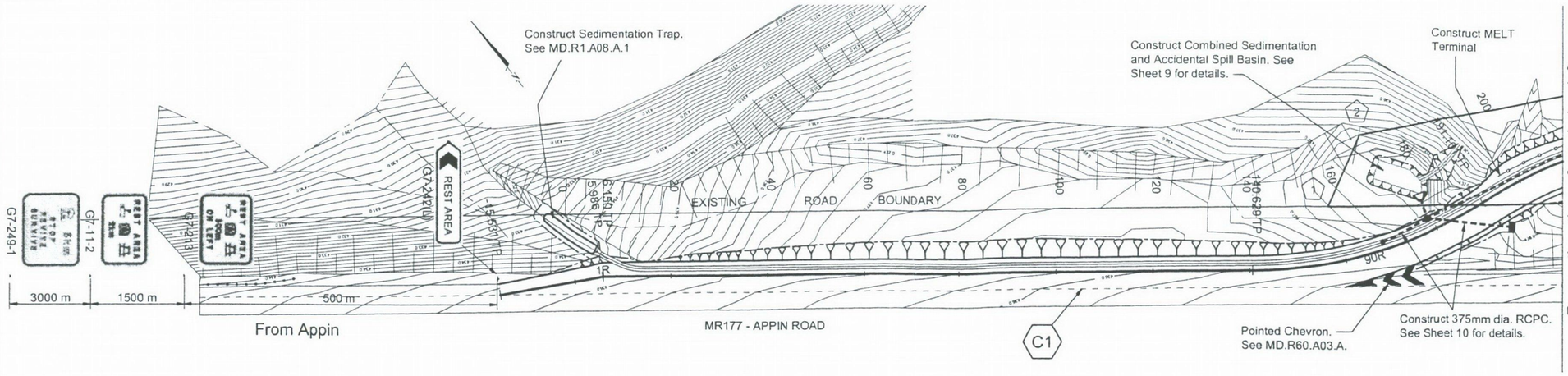
Appendix A

Concept Plan



GUARDFENCE

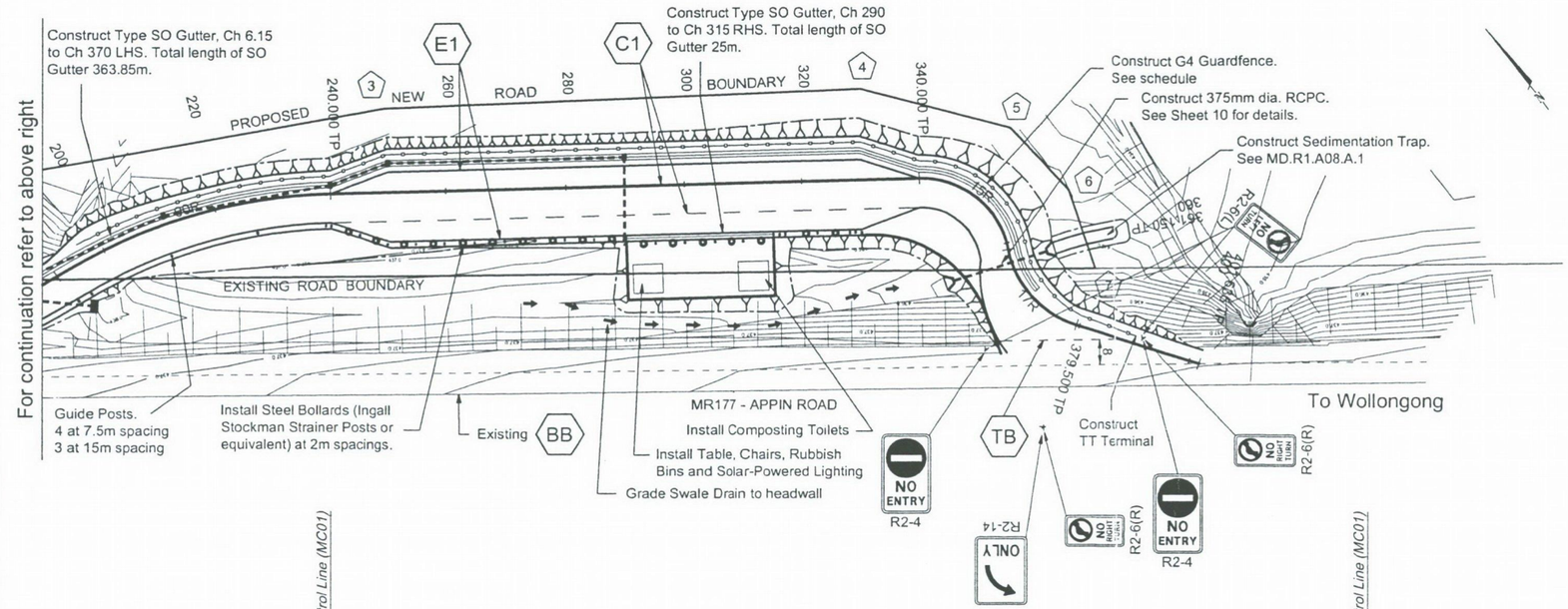
START	TERM	END	TERM	LENGTH
RHS				
200	MELT	390	TT	178

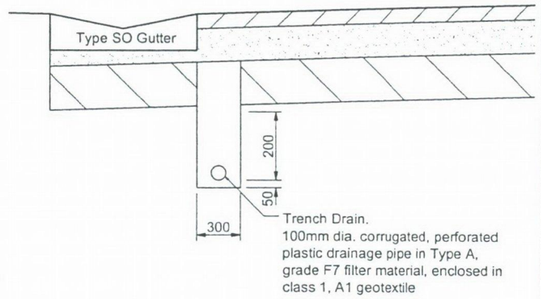
Total Length G4 Guardfence = 178 m
Length of G4 excludes terminal length.

PROPOSED NEW ROAD BOUNDARY

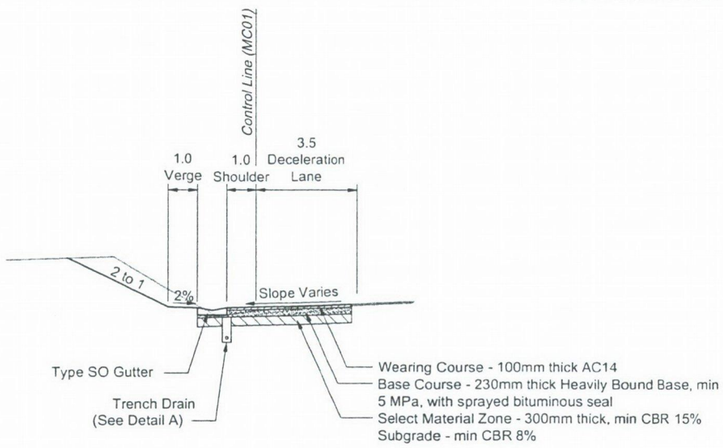
Pt	Easting	Northing
1	304177.861	6207241.986
2	304192.135	6207249.678
3	304265.509	6207211.483
4	304347.085	6207143.561
5	304348.385	6207128.973
6	304343.663	6207115.605
7	304177.861	6207241.986

Total Area of Acquisition = 5175 m²

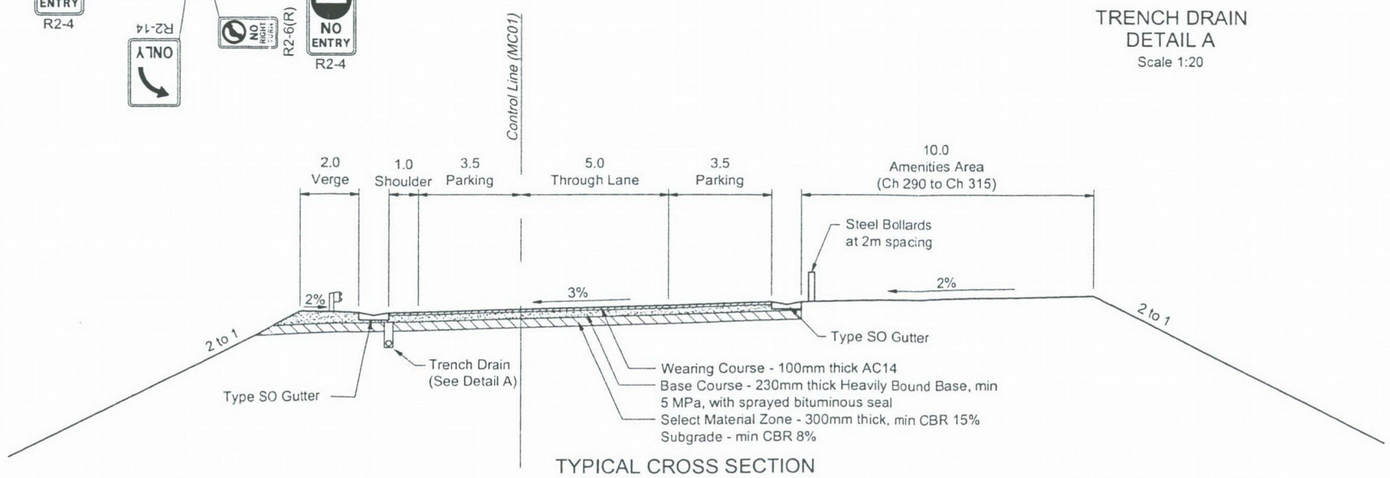




TRENCH DRAIN
DETAIL A
Scale 1:20



TYPICAL CROSS SECTION
AND PAVEMENT DETAILS
(Ch 6.15 to Ch 160)
Scale 1:100



TYPICAL CROSS SECTION
AND PAVEMENT DETAILS
(Ch 165 to End)
Scale 1:100

5					
4					
3					
2					
1					
	Calcs	Drawn	Amendment Description	Initials	Date

A1 original | This sheet may be prepared using colour and may be incomplete if copied

A3 Plot SCALES (metres) A1 Plot
1:1000 1:500
1:200 1:100
1:40 1: 20

Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D.

Prepared By BROWN

FIRST ISSUE	CALCS	DRAWN	CHECK	APPROVED	DATE
	PTL	PTL			8/03/05

ROADS AND TRAFFIC AUTHORITY OF NSW

MR 177 - APPIN ROAD - WOLLONDILLY
SOUTHBOUND TRUCK PARKING FACILITY
WEST OF NORTH CLIFF COLLIERY/DHARAWAL TURNOFF
DETAIL SHEET

FILE No.	DRAWING	PRINTED DATE	SHEET No.
496.1682	C05001-P04	8/03/2005	P04

REGISTRATION NUMBER
0177.496.RC.2767

Xref's: C05001 A1 X-Design-C05001 X-Survey-C05001 X-Ex Contours-C05001 X-Chain-C05001 X-Boundary-C05001
FILE:C05001-P04.dwg 8th-Mar-2005 3:02PM USR:Tim

PLAN

LOCATION AND DIMENSIONS:

Reference Points: As shown

Capacity: 35 cu. m.

Floor Level: 435.50 Spillway Level: 436.000

EMBANKMENT:

Cut Batter Slope: 2 to 1

Ramp Width: 2 m Ramp Slope: 4 to 1

Cut Volume: 80 cu. m. Fill Volume: 0

REFER TO MD.R1.A10.1 FOR FURTHER DETAILS

5					
4					
3					
2					
1					
	Calcs	Drawn	Amendment Description	Initials	Date

A1 original | This sheet may be prepared using colour and may be incomplete if copied

A3 Plot SCALES (metres) A1 Plot

1:100 1 0.5 0 1 2 1:50

Co-ordinate System: MGA Zone 56 | Height Datum: A.H.D.

Prepared By BROWN

FIRST ISSUE	CALCS	DRAWN	CHECK	APPROVED	DATE
	PTL	PTL			8/03/05

ROADS AND TRAFFIC AUTHORITY OF NSW

MR 177 - APPIN ROAD - WOLLONDILLY
SOUTHBOUND TRUCK PARKING FACILITY
WEST OF NORTH CLIFF COLLIERY/DHARAWAL TURNOFF
COMBINED SEDIMENTATION AND ACCIDENTAL SPILL BASIN

FILE No.	DRAWING	PRINTED DATE	SHEET No.
496.1682	C05001-P09	8/03/2005	P09

REGISTRATION NUMBER
0177.496.RC.2767

FILE C05001-P09.dwg 8th-Mar-2005 3:08PM USR:Tim Xref's: C05001_A1.t X-Design C05001 X-Survey-C05001 X-Ex Contours-C05001

Appendix B

Aerial Photograph and
Study Area Photographs


N
W
E
S
APPIN
Study Area
Appin Road
Southern Fwy
Cataract Dam
0
0.5
1 Kilometers

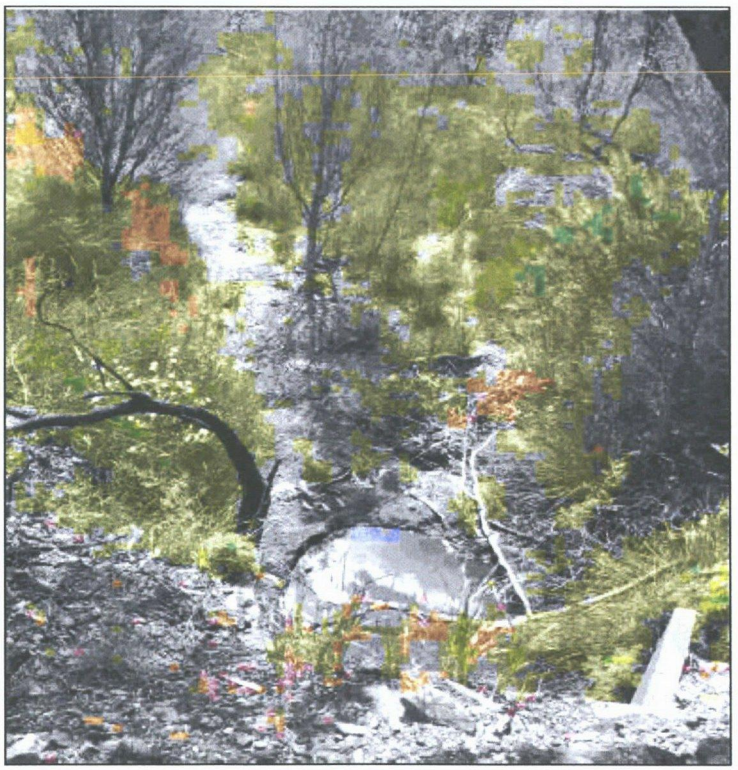
Photoplate 1 – View to the east on Appin Road with the study area on the left hand side.

Photoplate 2 – View to the west on Appin Road, with the study area on the right hand side.

Photoplate 3 – Batter along the edge of Appin Road within the study area.

Photoplate 4 – Disturbed woodland in the western part of the study area.

Photoplate 5 – Minor drainage line in the southern and western part of the study area.



Photoplate 6 – Culvert and drainage line near the eastern edge of the study area. It is unlikely to be affected by the Proposal.

Photoplate 7 –Existing truck parking bay on the westbound side of Appin Road. Signage and deceleration lane would be similar to that proposed for the new truck parking bay (this Proposal).

Photoplate 8 – Existing truck parking bay on the westbound edge of Appin Road.

Appendix C

Correspondence and Results of Database Searches

WOLLONDILLY SHIRE COUNCIL

Our Reference: R17/150 (Set 4) CWD:jp
Your Reference: H/44169/D/PM/02/1

Yojana Chadhokar
Environmental Officer
Roads & Traffic Authority
Level 5, Pod D
99 Phillip Street
PARRAMATTA NSW 2124

24 March 2005

Dear Sir/Madam,

PROPOSED TRUCK PARKING BAY ON APPIN ROAD

Thank you for your letter dated 15 March 2005 wherein you called for comments in relation to the preparation of an REF for the proposed truck parking bay eastbound on Appin Road.

Please be advised that I have inspected the site of the proposed truck parking bay in the company of Council's Technical Officer - Traffic, Mr Choong Yam and deem that the site is appropriate for the siding of the truck parking bay with an envisaged little or no environmental effect as regards SEPP No. 58 given that the standard environmental protection techniques will be applied and installed during construction.

At the same time, as a comparison an inspection was made of the new eastbound truck parking bay on the Picton Road would appear to be ready for commissioning in the next week.

Thank you for bringing this proposed project to Council's attention and also providing an opportunity to make comment on environmental factors.

Should you require any further information in relation to this matter, please do not hesitate to contact me on (02) 46 771 170 quoting Council's above reference.

Yours faithfully

Charles W. Dunlop
Manager
TRAFFIC & FORWARD PLANNING

K:\Traffic_And_Transport\Liaison\2005-jp-letter-mar0075.doc

62-64 Menangle Street Picton NSW 2571
PO Box 21 Picton **DX:** 26052 Picton **Phone:** 02 4677 1100 **Fax:** 02 4677 2339
Email: council@wollondilly.nsw.gov.au **Web:** www.wollondilly.nsw.gov.au **ABN:** 93 723 245 808

In reply please send to: Picton

Our reference: 05-00778P2 DB:DN

Your reference: 496.1682

Contact: Mr D Bullock (02) 4677 1967

RTA SOUTHERN TECHNICAL SERVICES
P O BOX 477
WOLLONGONG EAST NSW 2520

4 March 2005

Dear Sir or Madam

ENQUIRY NO: TENQ05-00579P2
LOT 69 DP 821303 SEC NO MR177 PICTON ROAD
APPROX. 4KMS NORTH OF LODDON CREEK BRIDGE
EASTBOUND TRUCK PARKING AREA

This property is not within a proclaimed Mine Subsidence District and is not subject to any building restrictions imposed by the Mine Subsidence Board.

The provisions of the Mine Subsidence Compensation Act cover any improvement erected on this land.

Yours faithfully

D T Nagiello
for Darren Bullock
District Manager

HEAD OFFICE:
PO Box 488G
Newcastle 2300
Telephone: (02) 4908 4395
Facsimile: (02) 4929 1032

NEWCASTLE:
NSW Government Offices
117 Bull Street
Newcastle West 2302
PO Box 488G
Newcastle 2300
Telephone: (02) 4908 4300
Facsimile: (02) 4929 1032
DX 4322 Newcastle West

SPEERS POINT
143 Main Road
Speers Point 2284
PO Box 9 Boolaroo 2284
Telephone: (02) 4950 8088
Facsimile: (02) 4950 8101
DX 7820 Newcastle

WYONG:
Suite 3 Feldwin Court
30 Hely Street
Wyong 2259
PO Box 157 Wyong 2259
Telephone: (02) 4352 1646
Facsimile: (02) 4352 1757
DX 7317 Wyong

SINGLETON:
Coal Services Building
1 Civic Avenue
Singleton 2330
PO Box 524 Singleton 2330
Telephone: (02) 6572 4344
Facsimile: (02) 6572 4504

PICTON:
100 Argyle Street
Picton 2571
PO Box 40 Picton 2571
Telephone: (02) 4677 1967
Facsimile: (02) 4677 2040
DX 26053 Picton

EMAIL:
mail@minesub.nsw.gov.au

WEBSITE:
www.minesub.nsw.gov.au

Click on the BACK button of your browser to return to the search.

Statutory Listed Items

Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. For clarity, the search results have been divided into two sections.

- Section 1. contains items listed by the **Heritage Council** under the NSW Heritage Act. This includes listing on the State Heritage Register, an Interim Heritage Order or protected under section 130 of the NSW Heritage Act. This information is provided by the NSW Heritage Office.
- Section 2. contains items listed by **Local Councils & Shires and State Government Agencies**. This section may also contain additional information on some of the items listed in the first section.

Section 1. Items listed under the NSW Heritage Act.

The search results can be re-sorted by clicking on the (sort) option at the top of each column.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)	State Heritage Register
Beulah House, Outbuilding, Timber Bridge and Gazebo	Appin Road	Appin	Campbelltown	Yes
Denfield	Appin Road	Campbelltown	Campbelltown	Yes
St Helen's Park	Appin Road	Bradbury	Campbelltown	Yes

There were **3** records in this section matching your search criteria.

Section 2. Items listed by Local Government and State agencies.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)	Information Source (sort)
Denfield	Appin Road	St Helens Park	Campbelltown	LGOV
Silos	Appin Road reservation	Bradbury	Campbelltown	LGOV

There were **2** records in this section matching your search criteria.

There was a total of **5** records matching your search criteria.

Key:
LGA = Local Government Area
GAZ= NSW Government Gazette (statutory listings prior to 1997), HGA = Heritage Grant Application, HS = Heritage Study, LGOV = Local Government, SGOV = State Government Agency.

Note: The Heritage Office seeks to keep the State Heritage Inventory (SHI) up to date, however the latest listings in Local and Regional Environmental Plans (LEPs and REPs) may not yet be included. Always check with the relevant Local Council or Shire for the most

Helping the community to conserve our heritage

Click on the BACK button of your browser to return to the search.

Statutory Listed Items

Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. For clarity, the search results have been divided into two sections.

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- Section 2. contains items listed by **Local Councils & Shires and State Government Agencies**. This section may also contain additional information on some of the items listed in the first section.

Section 1. Items listed under the NSW Heritage Act.

The search results can be re-sorted by clicking on the **(sort)** option at the top of each column.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)	State Heritage Register
Beulah House, Outbuilding, Timber Bridge and Gazebo	Appin Road	Appin	Campbelltown	Yes

There was 1 record in this section matching your search criteria.

Section 2. Items listed by Local Government and State agencies.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)	Information Source (sort)
Broughtons Pass Weir		Appin	Wollondilly	LGOV
Courthouse (Former)	62 Main St	Appin	Wollondilly	LGOV
Darcy's House (Site of)	Main St	Appin	Wollondilly	LGOV
Elladale	Elladale Rd	Appin	Wollondilly	LGOV
Northamptondale Group	Brooks Point Rd	Appin	Wollondilly	LGOV
Schoolmasters Residence	Main Rd	Appin	Wollondilly	LGOV
St Bedes Roman Catholic Church and graveyard	King St	Appin	Wollondilly	LGOV
St Marks Anglican Church: St Mark the Evangelist Group	Bulli Rd	Appin	Wollondilly	LGOV
St Marks Graveyard: St Mark the Evangelist Group	Bulli Rd	Appin	Wollondilly	LGOV
St Marks Rectory (Former): St				

Items listed on the State Heritage Register

The search results can be re-sorted by clicking on the **(sort)** option at the top of each column.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)	SHR Number (sort)
Beulah House, Outbuilding, Timber Bridge and Gazebo	Appin Road	Appin	Campbelltown	00368

There was a total of 1 record matching your search criteria.

Note: The Heritage Office seeks to keep the State Heritage Register (SHR) up to date, however the latest listings may not yet be included. Always check with the NSW Heritage Office for the most recent listings.

Statutory Listed Items

Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. For clarity, the search results have been divided into two sections.

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Section 1. Items listed under the NSW Heritage Act.

The search results can be re-sorted by clicking on the **(sort)** option at the top of each column.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)	State Heritage Register
Abbotsford	Oaks Road	Picton	Wollondilly	Yes
Bargo Railway Viaduct	Main Southern railway	Bargo	Wollondilly	Yes
Brownlow Hill Estate	Brownlow Hill Loop Road	Camden	Wollondilly	Yes
Cataract Dam	Cataract Dam Road	Cataract Dam	Wollondilly	Yes
Cordeaux Dam	Cordeaux River	Cordeaux	Wollondilly	Yes
Couridjah Railway Station	Main Southern railway	Couridjah	Wollondilly	Yes
Hill 60	Military Road	Port Kembla	Wollongong City	Yes
Jarvisfield	Hume Hwy Deviation	Picton	Wollondilly	Yes
Megarritys Bridge	Warragamba Dam	Warragamba	Wollondilly	Yes
Menangle rail bridge over Nepean River	Main Southern railway	Menangle	Wollondilly	Yes
Menangle Railway Station group	Main Southern railway	Menangle	Wollondilly	Yes
Nepean Dam - Wall & Valve House	Avon Dam Road	Bargo	Wollondilly	Yes
Picton Railway Station group	Main Southern railway	Picton	Wollondilly	Yes
Picton railway viaduct over Stonequarry Creek	Main Southern railway	Picton	Wollondilly	Yes

Brownlow Hill Stables	Brownlow Hill Loop Rd	Camden / Brownlow Hill	Wollondilly	LGOV
Bunya Pine	Remembrance Driveway	Tahmoor	Wollondilly	LGOV
Buxton house	57-59 East Pde	Buxton	Wollondilly	LGOV
Buxton Primary School	Wallaroo Rd and Norwood Rd	Buxton	Wollondilly	LGOV
Camden Park Estate Central Creamery	Station St	Menangle	Wollondilly	LGOV
Camden Park Estate Group	Camden Park Estate	Camden	Wollondilly	LGOV
Camden Park Garden	Camden Park Estate Rd	Camden	Wollondilly	LGOV
Camden Park Mansion (The)	Camden Park Estate	Camden	Wollondilly	LGOV
Camden Park Rotolactor	Station St	Menangle	Wollondilly	LGOV
Camden Valley Inn	Remembrance Driveway	Camden	Wollondilly	LGOV
Cataract Dam		(not given)	Wollondilly	LGOV
Cemetery	Old Southern Rd	Bargo	Wollondilly	LGOV
Cemetery and Trees	Station St	Thirlmere	Wollondilly	LGOV
Charleville	Bents Basin Rd	Wallacia	Wollondilly	LGOV
Cordeaux Dam and Pumping Station		(not given)	Wollondilly	LGOV
Cottages (3) on ridge above the orchard	Camden Park Estate	Camden	Wollondilly	LGOV
Cottages (3) on slope above the orchard	Camden Park Estate Rd	Camden	Wollondilly	LGOV
Couridjah Station Buildings		Couridjah	Wollondilly	SGOV
Courthouse (Former)	62 Main St	Appin	Wollondilly	LGOV
Courthouse (former): East Yerranderie Group		Yerranderie	Wollondilly	LGOV
Courthouse: Commercial & Civic Group	Old Hume Hwy	Picton	Wollondilly	LGOV
Creamery Site	Cawdor Rd	Cawdor	Wollondilly	LGOV
Dairy No 4	EMAI Woodbridge Rd.	Menangle	Wollondilly	SGOV
Dairy No 8	Remembrance Dr	Camden	Multiple LGAs	SGOV
Dairy No 8	Remembrance Dr	Camden	Wollondilly	SGOV
Dairy No 9	Remembrance Drive	Camden	Wollondilly	SGOV
Dairy No 9	Remembrance Drive	Camden	Multiple LGAs	SGOV
Dairy No.4	Camden Park Estate	Camden	Wollondilly	LGOV
Dairy No.8	Remembrance Dr	Camden	Wollondilly	LGOV

Barragal Lagoon	Camden Park Estate	Camden	Wollondilly	LGOV
Menangle Gate Lodge	46 Woodbridge Rd.	Menangle	Wollondilly	SGOV
Menangle Gate Lodge (Former)	46 Woodbridge Rd	Menangle	Wollondilly	LGOV
Menangle Station Group		Menangle	Wollondilly	SGOV
Menangle Store	57 Menangle St	Menangle	Wollondilly	LGOV
Menangle Underbridge (Nepean River)		Menangle	Wollondilly	SGOV
Methodist Church Group	Cawdor Rd	Cawdor	Wollondilly	LGOV
Mountbatten Garden Building: Mountbatten Group	Duggan St	Douglas Park	Wollondilly	LGOV
Mountbatten House: Mountbatten Group	Duggan St	Douglas Park	Wollondilly	LGOV
Mountbatten Stone Chapel: Mountbatten Group	Duggan ST	Douglas Park	Wollondilly	LGOV
Mowbray Park Group: gatehouse, group of buildings	Barkers Lodge Rd	Mowbray Park	Wollondilly	LGOV
Mt Hercules Group	Mt Hercules Rd	Razorback	Wollondilly	LGOV
Mt Hunter Creamery	Burragorang Rd	Mt Hunter	Wollondilly	LGOV
Myrtle Creek Bridge	Old Hume Hwy	Tahmoor	Wollondilly	LGOV
National Australia Bank & Coachhouse: Commercial & Civic Grp	23 Menangle St	Picton	Wollondilly	LGOV
Noakes Store	John St	The Oaks	Wollondilly	LGOV
Northamptondale Group	Brooks Point Rd	Appin	Wollondilly	LGOV
Oakdale Timber Mill	Mill Rd	Oakdale	Wollondilly	LGOV
Oakdale Winery Cottage	Burragorang Rd	Oakdale	Wollondilly	LGOV
Oaks Schoolhouse (The)	John St/Burragorang St	The Oaks	Wollondilly	LGOV
Old Coomeroo Homestead: Old Coomeroo Group	Old Southern Rd	Bargo	Wollondilly	LGOV
Orchard Cottages	Camden Park Drive	Camden	Wollondilly	SGOV
Orchard Site including Camellia Garden, trees, piggery and storage shed	Camden Park Estate	Camden	Wollondilly	LGOV
Orchard, The	Camden Park Drive	Camden	Wollondilly	SGOV
Pheasants Nest Weir (Nepean River)		Wilton	Wollondilly	LGOV
Picton cottage	87 Menangle St	Picton	Wollondilly	LGOV
Picton Loopline Level Crossing Site	Hume Hwy	Picton	Wollondilly	LGOV
Picton Mainline Railway Loop and Tunnel		Picton	Wollondilly	LGOV
Picton Reservoir (WS 0147)	Remembrance Drive	Picton	Wollondilly	SGOV

St Aloysius Presbytery (Old)	Merlin St	The Oaks	Wollondilly	LGOV
St Aloysius Roman Catholic Church Group	Merlin St	The Oaks	Wollondilly	LGOV
St Aloysius Schoolhouse	Merlin St	The Oaks	Wollondilly	LGOV
St Bedes Roman Catholic Church and graveyard	King St	Appin	Wollondilly	LGOV
St James Anglican Church	Menangle Road	Menangle	Wollondilly	HGA
St James Anglican Church	Menangle Rd	Menangle	Wollondilly	LGOV
St Lukes Anglican Church	Argyle Street	Wilton	Wollondilly	LGOV
St Lukes Anglican Church and Trees	Merlin St	The Oaks	Wollondilly	LGOV
St Marks Anglican Church: St Mark the Evangelist Group	Bulli Rd	Appin	Wollondilly	LGOV
St Marks Anglican Church: St Marks Anglican Group	Menangle St West	Picton	Wollondilly	LGOV
St Marks Graveyard: St Mark the Evangelist Group	Bulli Rd	Appin	Wollondilly	LGOV
St Marks Rectory (Former): St Mark the Evangelist Group	5 Glebe Cl	Appin	Wollondilly	LGOV
St Marys Towers	Mt Kiera Rd	Douglas Park	Wollondilly	LGOV
St Matthews Church: St Mathews Group	Old Oaks Road	The Oaks	Wollondilly	LGOV
St Patricks Roman Catholic Church	Menangle St	Menangle	Wollondilly	LGOV
Stone Cottage	Main St	Appin	Wollondilly	LGOV
Stone Culverts		Couridjah	Wollondilly	LGOV
Stonequarry Creek Bridge piers	Hume Hwy/Argyle St	Picton	Wollondilly	LGOV
Stonequarry Creek Quarry Site		Picton	Wollondilly	LGOV
Stratford House	Old Hume Hwy	Tahmoor	Wollondilly	LGOV
Suspension Bridge (Nepean River)	Wilton Park Rd	Maldon	Wollondilly	LGOV
Tahmoor House	Old Hume Hwy	Tahmoor	Wollondilly	LGOV
Tahmoor Station Group		Tahmoor	Wollondilly	SGOV
Theresa Park Church	Taylor Pl	Theresa Park	Wollondilly	LGOV
Thirlmere House	Burns Rd	Thirlmere	Wollondilly	LGOV
Thirlmere Public School: Thirlmere School Group	Oaks St	Thirlmere	Wollondilly	LGOV
Thirlmere Pumping Station		Couridjah	Wollondilly	LGOV
Thirlmere Station Group		Thirlmere	Wollondilly	SGOV
Thirlmere Urban Conservation Area	Thirlmere Way	Thirlmere	Wollondilly	LGOV

Items listed on the State Heritage Register

The search results can be re-sorted by clicking on the **(sort)** option at the top of each column.

Item Name (sort)	Address (sort)	Suburb (sort)	LGA (sort)	SHR Number (sort)
Abbotsford	Oaks Road	Picton	Wollondilly	00073
Bargo Railway Viaduct	Main Southern railway	Bargo	Wollondilly	01024
Brownlow Hill Estate	Brownlow Hill Loop Road	Camden	Wollondilly	01489
Cataract Dam	Cataract Dam Road	Cataract Dam	Wollondilly	01359
Cordeaux Dam	Cordeaux River	Cordeaux	Wollondilly	01360
Couridjah Railway Station	Main Southern railway	Couridjah	Wollondilly	01121
Hill 60	Military Road	Port Kembla	Wollongong City	01492
Jarvisfield	Hume Hwy Deviation	Picton	Wollondilly	00305
Megarritys Bridge	Warragamba Dam	Warragamba	Wollondilly	01367
Menangle rail bridge over Nepean River	Main Southern railway	Menangle	Wollondilly	01047
Menangle Railway Station group	Main Southern railway	Menangle	Wollondilly	01191
Nepean Dam - Wall & Valve House	Avon Dam Road	Bargo	Wollondilly	01368
Picton Railway Station group	Main Southern railway	Picton	Wollondilly	01224
Picton railway viaduct over Stonequarry Creek	Main Southern railway	Picton	Wollondilly	01051
Rail Paybus FP1		Thirlmere	Wollondilly	01673
Tahmoor Railway Station group	Main Southern railway	Tahmoor	Wollondilly	01258
Upper Canal System	From Prospect to Wollondilly		Wollondilly	01373
Victoria Bridge over Stonequarry Creek	Prince Street	Picton	Wollondilly	01484
Warragamba Dam - Haviland Park	Warragamba Dam	Warragamba	Wollondilly	01375
Warragamba Emergency Scheme	Warragamba Dam	Warragamba	Wollondilly	01376
Wilton Park	Wilton Park Road	Maldon	Wollondilly	00257
Wirrimbirra Sanctuary	Hume Highway	Bargo	Wollondilly	01508
Wollongong Railway Station group	Illawarra railway	Wollongong	Wollongong City	01289

Australian Heritage Database

Search Results

edit search | new search | about the Australian Heritage Database | Heritage home | Australian Heritage Council home

8 results found.

Cataract Dam & Reservoir	Appin Rd	Appin, NSW	(Indicative Place) Register of the National Estate
Indigenous Place		Appin, NSW	(Registered) Register of the National Estate
Indigenous Place		Appin, NSW	(Registered) Register of the National Estate
Indigenous Place		Appin, NSW	(Registered) Register of the National Estate
O'Hares Creek Catchment	Bulli Rd	Appin, NSW	(Registered) Register of the National Estate
St Bedes Catholic Church and Graveyard	King St	Appin, NSW	(Registered) Register of the National Estate
St Mark the Evangelist Anglican Church	Church St	Appin, NSW	(Registered) Register of the National Estate
Upper Nepean Water Catchment	Mount Keira Rd	Mount Keira, NSW	(Indicative Place) Register of the National Estate

Report Produced: Tue Mar 8 16:12:43 2005

Australian Heritage Database

Search Results

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54 results found.

Abbotsford Homestead and Curtilage	Abbotsford Rd	Picton, NSW	(Registered) Register of the National Estate
Bargo Railway Station	Old Hume Hwy	Bargo, NSW	(Indicative Place) Register of the National Estate
Bargo River Gorge & Mermaids Pool		Tahmoor, NSW	(Indicative Place) Register of the National Estate
Bents Basin State Recreation Area and Adjacent Areas	Bents Basin Rd	Greendale, NSW	(Registered) Register of the National Estate
Blue Mountains National Park (1980 boundary)	Great Western Hwy	Glenbrook, NSW	(Registered) Register of the National Estate
Brownlow Hill Garden	Brownlow Hill Loop Rd	Orangeville, NSW	(Registered) Register of the National Estate
Brownlow Hill Homestead	Brownlow Hill Loop Rd	Orangeville, NSW	(Registered) Register of the National Estate
CBC Bank (former)	Argyle St	Picton, NSW	(Registered) Register of the National Estate
Camden Park	Camden Park Estate Rd	Camden Park, NSW	(Registered) Register of the National Estate
Camden Park Garden and Nursey	Camden Park Estate Rd	Camden Park, NSW	(Registered) Register of the National Estate
Cataract Dam & Reservoir	Appin Rd	Appin, NSW	(Indicative Place) Register of the National Estate
Concrete Arch Bridge Across Megarritys Creek		Warragamba, NSW	(Indicative Place) Register of the National Estate
Indigenous Place		Appin, NSW	(Registered) Register of the National Estate
Indigenous Place		Appin, NSW	(Registered) Register of the National Estate
Indigenous Place		Appin, NSW	(Registered) Register of the National Estate
Indigenous Place		Wilton, NSW	(Registered) Register of the

St Bedes Catholic Church and Graveyard King St	Appin, NSW	National Estate (Registered)
St James Anglican Church Menangle Rd	Menangle, NSW	Register of the National Estate (Registered)
St Mark the Evangelist Anglican Church Church St	Appin, NSW	Register of the National Estate (Registered)
St Marys Towers Douglas Park Rd	Douglas Park, NSW	Register of the National Estate (Registered)
St Matthews Anglican Church & Churchyard Old Oaks Rd	The Oaks, NSW	Register of the National Estate (Registered)
Stonequarry Creek Railway Viaduct Station St	Picton, NSW	Register of the National Estate (Registered)
Tahmoor House Remembrance Dr	Tahmoor, NSW	Register of the National Estate (Registered)
The Blue Mountains	Katoomba, NSW	Register of the National Estate (Indicative Place)
The Greater Blue Mountains Area Geat Western Hwy	Katoomba, NSW	Register of the National Estate (Declared property)
The Greater Blue Mountains Area	Katoomba, NSW	World Heritage List (Indicative place)
The Hermitage The Oaks Rd	The Oaks, NSW	National Heritage List (Registered)
Thirlmere Lakes National Park West Pde	Couridjah, NSW	Register of the National Estate (Registered)
Upper Nepean Water Catchment Mount Keira Rd	Mount Keira, NSW	Register of the National Estate (Indicative Place)
Wara-Nhayara Plateau Area Mount Kiera Rd	Wollongong, NSW	Register of the National Estate (Nominated place)
Warragamba Emergency Scheme	Warragamba, NSW	National Heritage List (Indicative Place)
Wedderburn Plateau Wedderburn Rd	Wedderburn, NSW	Register of the National Estate (Indicative Place)
Wilton Park Stables Group Wilton Park Rd	Maldon via Picton, NSW	Register of the National Estate (Registered)
Wirrimbirra Sanctuary Remembrance Dr	Bargo, NSW	Register of the National Estate (Registered)
Yerranderie Silver Mining Field	Yerranderie, NSW	Register of the National Estate (Registered)

Australian Government
Department of the Environment and Heritage

Protected Matters Search Tool

You are here: DEH Home > EPBC Act > Search

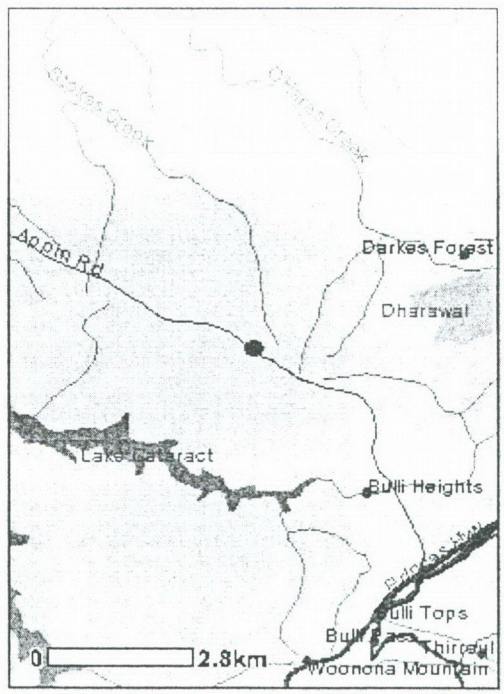
9 March 2005 09:02

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

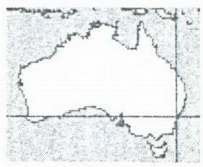
The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.deh.gov.au/epbc/assessmentsapprovals/index.html



Search Type: Point

Buffer: 5 km

Coordinates: -34.2559,150.87009



Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	1
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details

Matters of National Environmental Significance

Wetlands of International Significance [Dataset Information]
(Ramsar Sites)

TOWRA POINT NATURE RESERVE	Within same catchment as Ramsar site

Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
Lathamus discolor Swift Parrot	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Xanthomyza phrygia Regent Honeyeater	Endangered	Species or species habitat likely to occur within area
Fishes		
Macquaria australasica * Macquarie Perch	Endangered	Species or species habitat may occur within area
Prototroctes maraena * Australian Grayling	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Heleioporus australiacus * Giant Burrowing Frog	Vulnerable	Species or species habitat likely to occur within area
Litoria aurea * Green and Golden Bell Frog	Vulnerable	Species or species habitat likely to occur within area
Litoria littlejohni * Littlejohn's Tree Frog, Heath Frog	Vulnerable	Species or species habitat likely to occur within area
Mixophyes balbus * Stuttering Frog, Southern Barred Frog (in Victoria)	Vulnerable	Species or species habitat likely to occur within area
Mammals		

Latham's Snipe, Japanese Snipe		occur within area
Rostratula benghalensis s. lat. Painted Snipe	Migratory	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Dataset Information]	Status	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area
Lathamus discolor Swift Parrot	Listed - overfly marine area	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Listed - overfly marine area	Breeding may occur within area
Myiagra cyanoleuca Satin Flycatcher	Listed - overfly marine area	Breeding likely to occur within area
Rhipidura rufifrons Rufous Fantail	Listed - overfly marine area	Breeding may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Listed - overfly marine	Species or species habitat may occur within area

- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. Environment Australia acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium
- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUCLIM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Last updated:

Department of the Environment and Heritage
GPO Box 787 Canberra ACT 2601 Australia

SCHEDULE 1 - ITEMS OF THE ENVIRONMENTAL HERITAGE

(C1.6)

APPIN

1. Former Weatherboard Shop (now house); lot 8 Section 1 No. 20 Appin Road.
2. Schoolmasters Residence; Appin Public School, Appin Road.
3. Stone Cottage; lot 4 D.P.235986 Appin Road.
4. St Bedes Roman Catholic Church and Graveyard; lot 1 D.P.227868 King Street.
5. Former Courthouse; lot 9 Section 3 Corner Appin Road and Toggerai Streets.
6. Northamptondale Group House, Trees, Slab, Farm Outbuildings; lot 2 D.P.594207 Brookes Point Road.
7. Windmill Hill House Ruin; part lot 2 D.P.510762 Wilton Road.
8. Elladale; lot 101 D.P.790844 Brookes Point Road.
9. Appin Inn Site; lot 2 D.P.529457 Appin Road.
10. Site of D'Arcy's House; lots 1 and 2 D.P.594426 Appin Road.
11. Broughtons Pass Weir.
12. Cataract Dam.
13. Former St Marks Rectory; lot 27 D.P.747041 Toggerai Street.
14. St Marks Anglican Church and Graveyard; lots 19 and 20 Section 3 Church Street.
15. "Upper Canal" Water Supply System.

BARGO

1. Wirrimbirra Sanctuary; lot 1 D.P.789005, lots 18, 19, part lot 32, lots 33 and 203 D.P.751250 Remembrance Driveway.
2. Bargo Railway Bridge south of Railway Station; Tylers Road.
3. Bargo Railway Bridge north of Railway Station; Wellers Road.
4. Hotel Bargo; lots 7 and 8 D.P.9024 Southern Road.
5. Bargo Railway Station.
6. Bargo Railway Viaduct.

NATIONAL NATIVE TITLE TRIBUNAL

Level 25
15 Bligh Street
SYDNEY NSW 2000
AUSTRALIA

GPO Box 9973, SYDNEY NSW 2001
Telephone (02) 9235 6300
Facsimile (02) 9235 6611
Website www.nntt.gov.au

Our Ref: 108/04af
Your Ref: H/44169/D/PM/02

Yojana Chadhokar
RTA Environmental Technology
PO Box 3035
Parramatta NSW 2124

18 November 2004

Dear Ms Chadhokar

Native title search results of Wollondilly Local Government Area

Thank you for your letter of 11 November 2004.

My search on 18 Novemebr 2004 found:

Register Type	NNTT Reference Numbers
National Native Title Register	Nil.
Register of Native Title Claims	NC97/7.
Unregistered Claimant applications	NC96/30.
Register of Indigenous Land Use Agreements	Nil.

I have included more detailed information and a fact sheet to help you understand the search result.

Please note, recent applications lodged or amended in the Federal Court may not have been sent to us.

If you need more information please call me on (02) 9235 6300.

Yours sincerely

Amy Fitzell
Administrative Assistant

Department of
Environment and Conservation (NSW)

Your reference : Appin Rd
Our reference : AHIMS #10920

RTA Environment Technology
Level 5 POD D, 99 Phillip Street
Parramatta NSW 2150

Friday, 24 September 2004
Attention: Yojana Chadhokar

Dear Sir or Madam:

Re: AHIMS Search for the following area at Appin Rd
Zone 56 **Eastings:** 301768-306768 **Northings:** 6204677-6209677

I am writing in response to your recent inquiry in respect to Aboriginal objects and Aboriginal places registered with the NSW National Parks and Wildlife Service (NPWS) at the above location.

A search of the NPWS Aboriginal Heritage Information Management System (AHIMS) has shown that 75 Aboriginal objects and Aboriginal places are recorded in or near the above location. Please refer to the attached report for details.

The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.

The following qualifications apply to an AHIMS search:

- AHIMS only includes information on Aboriginal objects and Aboriginal places that have been provided to NPWS;
- Large areas of New South Wales have not been the subject of systematic survey or recording of Aboriginal history. These areas may contain Aboriginal objects and other heritage values which are not recorded on AHIMS;
- Recordings are provided from a variety of sources and may be variable in their accuracy. When an AHIMS search identifies Aboriginal objects in or near the area it is recommended that the exact location of the Aboriginal object be determined by re-location on the ground; and
- The criteria used to search AHIMS are derived from the information provided by the client and NPWS assumes that this information is accurate.

All Aboriginal places and Aboriginal objects are protected under the *National Parks and Wildlife Act 1974* (NPW Act) and it is an offence to destroy, damage or deface them without the prior consent of the NPWS Director-General. An Aboriginal object is considered to be known if:

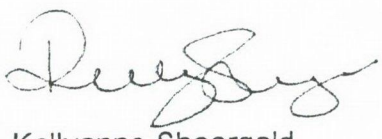
- It is registered on AHIMS;
- It is known to the Aboriginal community; or
- It is located during an investigation of the area conducted for a development application.

If you considering undertaking a development activity in the area subject to the AHIMS search, NPWS would recommend that an Aboriginal Heritage Assessment be undertaken. You should

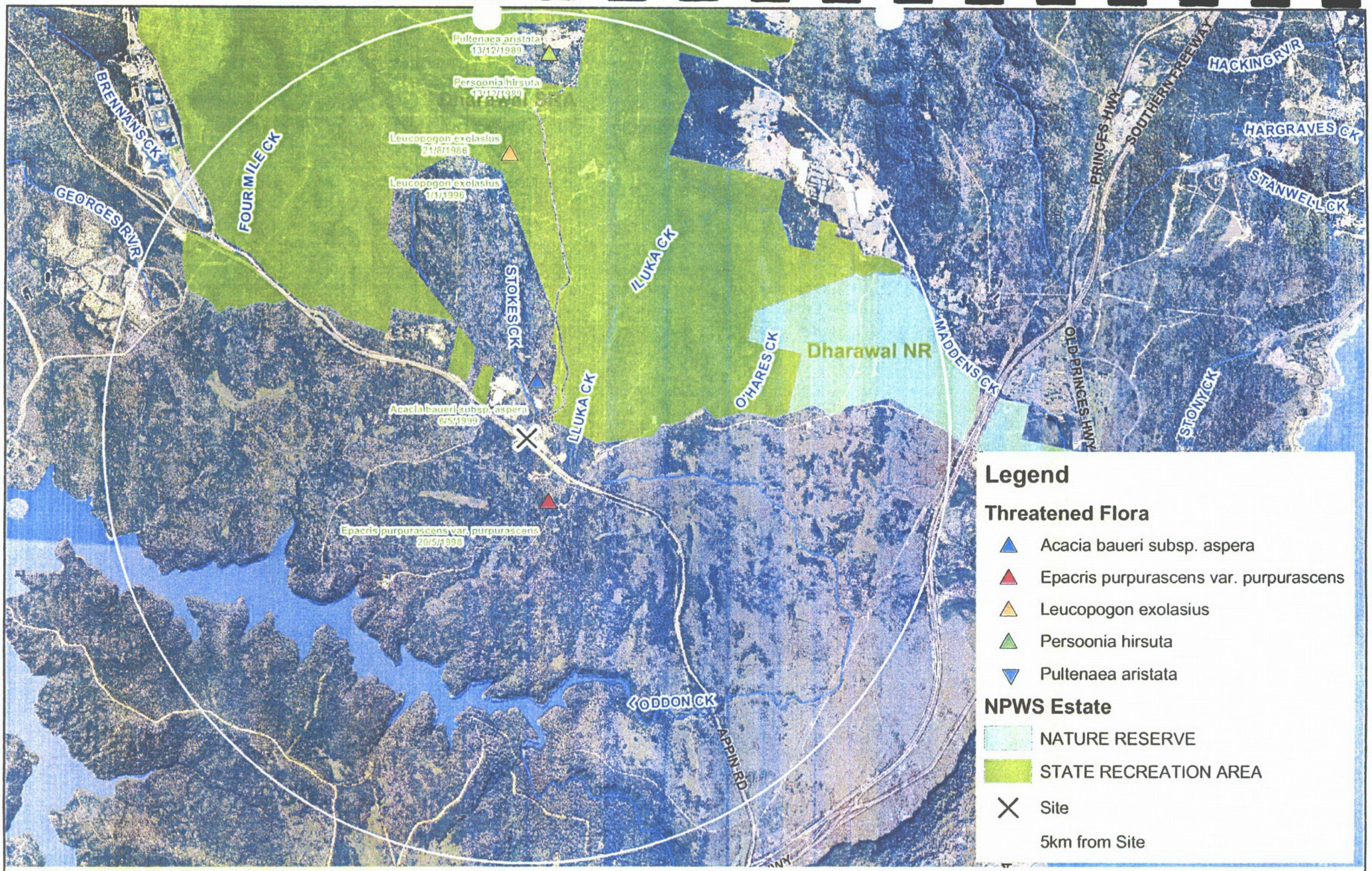
PO Box A290 Sydney South NSW 1232
59-61 Goulburn St Sydney NSW 2000
Telephone (02) 9995 5000
Facsimile (02) 9995 5999
ABN 30 841 387 271
www.environment.nsw.gov.au

consult with the relevant consent authority to determine the necessary assessment to accompany your development application.

Yours Sincerely

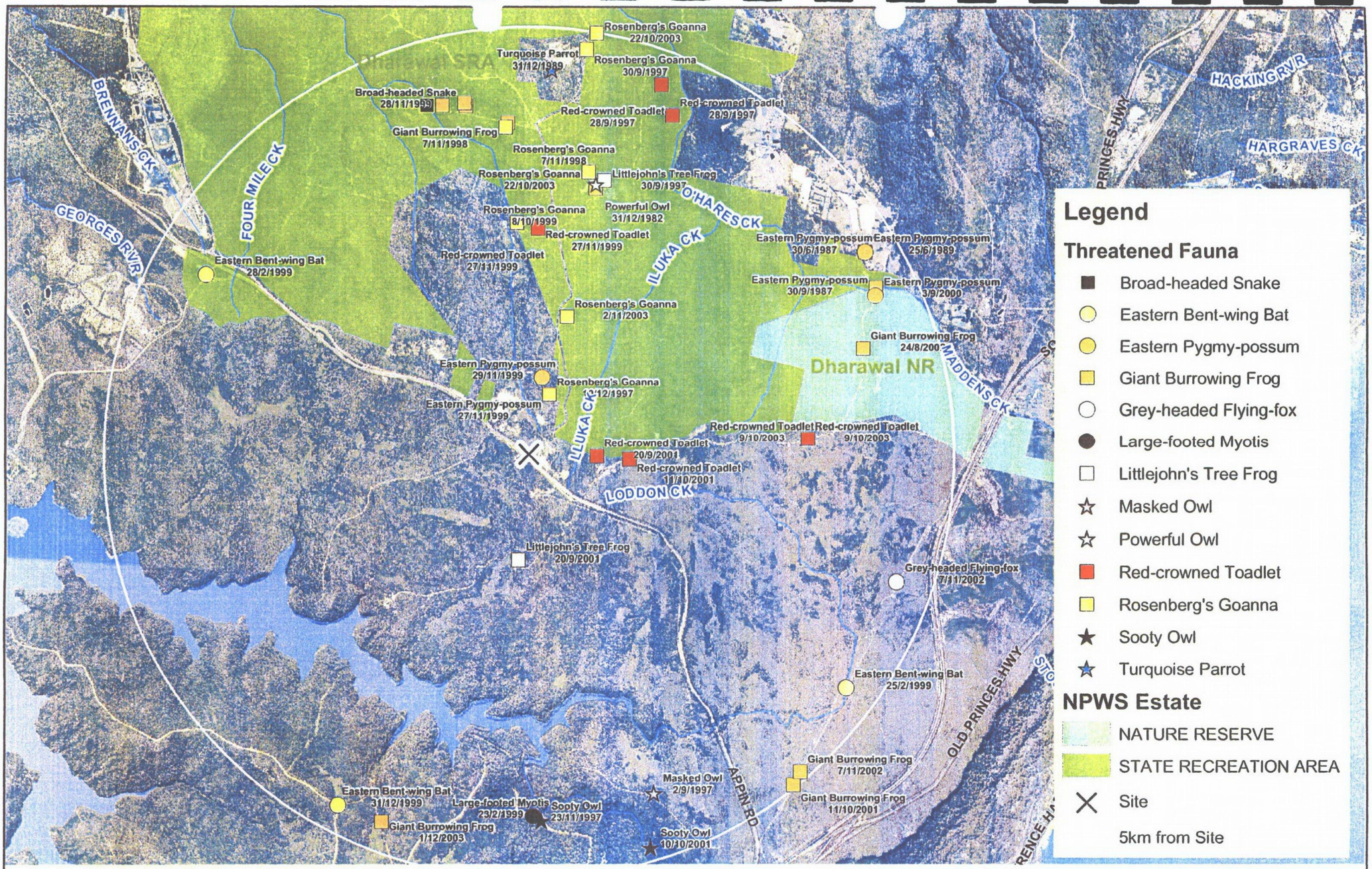


Kellyanne Sheargold
Aboriginal Information Officer
Information Systems & Programs Section
Cultural Heritage Division
Department of Environment and Conservation
Level 6, 43 Bridge Street
P.O. Box 1967
Hurstville NSW 2220
Phone: (02) 9585 6470
Fax: (02) 9585 6094



NPWS Threatened Flora
Appin Road
Cataract

0 0.5 1 2 3 4 5 Kilometers



NPWS Threatened Fauna
Appin Road
Cataract

0 0.5 1 2 3 4 5 Kilometers

N

OrthoView aerial photography under licence to RTA by Lands Department NSW
Map produced by RTA Environmental Technology Branch
Date: 27 September 2004

Noxious weed declarations in NSW

Wollondilly

The following weeds are declared noxious in the Wollondilly control area. The 'details' link on each listing pro information on the legal requirements of the weed's listing and any variation in status within the local control list of all weeds in all control areas is also available as a PDF document.

Common name	Scientific name	Category	
African boxthorn	*Lycium ferocissimum*	W2	details
Alligator weed	*Alternanthera philoxeroides*	W1	details
Bathurst Noogoora Californian Cockle burrs	*Xanthium spp.*	W3	details
Black knapweed	*Centaurea nigra*	W1	details
Blackberry	*Rubus fruticosus (agg. spp.)*	W3	details
Broomrape	*Orobanche spp.*	W1	details
Cabomba	*Cabomba spp.*	W4g	details
Columbus grass	*Sorghum x almum*	W2	details
Dodder	*Cuscuta campestris*	W2	details
Giant Parramatta grass	*Sporobolus fertilis syn. Sporobolus indicus var. major*	W2	details
Gorse	*Ulex europaeus*	W2	details
Green cestrum	*Cestrum parqui*	W3	details
Harrisia cactus	*Harrisia spp.*	W4f	details
Hawkweed	*Hieracium spp.*	W1	details
Horsetail	*Equisetum spp.*	W1	details
Johnson grass	*Sorghum halepense*	W2	details
Karroo thorn	*Acacia karroo*	W1	details
Kochia	*Kochia scoparia*	W1	details
Lagarosiphon	*Lagarosiphon major*	W1	details
Longstyle feather grass	*Pennisetum villosum*	W3	details
Mexican feather grass	*Nassella tenuissima syn Stipa tenuissima*	W1	details
Miconia	*Miconia spp.*	W1	details
Pampas grass	*Cortaderia spp.*	W2	details
Parthenium weed	*Parthenium hysterophorus*	W1	details
Paterson's curse,Vipers Italian bugloss	*Echium spp.*	W3	details
Prickly pears	*Opuntia spp.*	W4f	details
Rhus tree	*Toxicodendron succedaneum*	W2	details
Salvinia	*Salvinia molesta*	W2	details
Senegal tea plant	*Gymnocoronis spilanthoides*	W1	details

Serrated tussock	*Nassella trichotoma*	W3	details
Siam weed	*Chromolaena odorata*	W1	details
Spiny burrgrass	*Cenchrus longispinus*	W2	details
Spiny burrgrass	*Cenchrus incertus*	W2	details
Spotted knapweed	*Centaurea maculosa*	W1	details
St John's wort	*Hypericum perforatum*	W2	details
Sweet briar	*Rosa rubiginosa*	W2	details
Water hyacinth	*Eichhornia crassipes*	W2	details
Water lettuce	*Pistia stratiotes*	W1	details
Willows	*Salix spp.*	W4g	details

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Management of contaminated land

Regulation of contaminated sites

Planning and development control

Site auditor scheme

Guidelines made or approved

Review of the Act

UBL policy

Record of EPA notices

Frequently asked questions

Search results

Your search for: LGA: Wollondilly Shire Council

Matched 1 notice relating to 1 site.

Search again | Refine search

Suburb	Address	Site Name	Notices related to this site
Maldon	Lot 2 Wilton Road	Blue Circle Southern Cement, Maldon	1 current

Page 1 of 1

Print-friendly version

6 October 2004

Southern region

Southern Region

Abernethys Creek Bridge	4309517
Bellbird Creek Bridge	4309550
Bridge over Wologorong Creek	4301637
Charleyong Bridge over Mongarlowe River	4300172
Collection of movable heritage items - machinery and related equipment	4301434
Collection of movable heritage items - machinery and related equipment	4301432
Collection of movable items - photographs, surveyors books and equipment etc.)	4301444
Collection of movable items - surveyors equipment and field books.	4301458
Collection of plans of roads and bridges for the Southern Region.	4301456
Collection of surveyors folders / books and photographs	4301457
Crankies Plain Bridge, Bombala	4300006
Crookwell River Bridge	4309559
Dalgety Bridge over Snowy River	4301689
Fairy Creek Bridge	4309514
Gundaroo Bridge over Yass River at Gundaroo	4300157
Guthries Creek Bridge	4309555
Hampden Bridge, Kangaroo Valley	4301059
Heritage horse trough	4301454
Higgins Creek Bridge	4309518
House - 85 Farrell Road, Bulli	4301086
Lansdowne Bridge over Mulwaree Ponds	4300186
Large collection of movable heritage in the Mittagong Works Office	4301452
Large collection of movable heritage items - surveying and miscellaneous	4301431
Movable collection - machinery	4301437
Movable collection - other	4301438
Narooma Bridge	4300639
New Buildings Bridge over Towamba River	4300139
Nowra Bridge over the Shoalhaven River	4301658
Old Marulan Town	4300302
Rossis Bridge 4.5Km NW of Goulburn	4300156
Sections of Shoalhaven bridge	4301446
Spencers Creek Bridge	4309556
Stone lined channel outlet from Murray Lagoon, Federal Highway	4301028
Survey collection - field records and equipment	4301455
Truss Bridge over Crookwell River	4300130
Victoria Bridge over Stonequarry Creek, Picton	4301089
Yowaka Bridge near Eden	4300515

In This Section

- Hunter region
- Northern region
- South West region
- Southern region
- Sydney region
- Western region

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Appendix D

Ecology Assessment

Flora and fauna survey of a proposed truck parking bay, Appin Road, NSW.

DECEMBER 2004

TABLE OF CONTENTS

1. Introduction.

This report presents the findings of a vascular flora and vertebrate fauna survey of the lands that occur within, and in close proximity to, a proposed truck parking bay. The proposed truck parking bay would be constructed within the Wollondilly Local Government Area, the site selected being on the northern side of Appin Road, approximately 11 kilometres (km) south east of the township of Appin, NSW (Figure 1). The survey has been carried out at the request of the NSW Roads and Traffic Authority (RTA), to ensure that the sighting and construction of the Proposal does not have an adverse impact on any areas of ecological concern. The area surveyed encompasses all the lands that occur within an area that is approximately 500metres (m) long and 50m wide, though it is noted that, once constructed, the proposed parking bay would only be around 400m long and 20m wide. For the purposes of this investigation, all parts of the area surveyed will be referred to as the study area, whilst the lands that occur within a 5km radius of this would be referred to as the study region. For reference, the study location and areas surveyed are identified in Figure 1.

The proposed parking bay would include the construction of single, 4m wide bitumen lane (this having unformed edges), the undertaking of drainage works and the establishment of appropriate signage. Disturbed areas would be contoured, sealed and revegetated with locally occurring native species. The site would provide parking for around six trucks. The proposed truck parking bay would be similar in style to the one that is located south of Appin Road, approximately 100m south west of the study area, although no provision has been made for the inclusion of lighting, toilets or eating areas. Where required, more detailed information on the scope of the project is provided in the Preliminary Environmental Investigation (PEI).

The assessment of possible impacts associated with the proposed truck parking bay is based on a field survey of the study area, a literature review of previous studies undertaken in both the region and the Wollondilly Local Government Area, the consultation of standard databases and the consideration of the objectives of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*, the NSW *Environmental Planning and Assessment Act 1979*, NSW *National Parks and Wildlife Act 1974*, NSW *Threatened Species Conservation Act 1995 (TSC Act)*, and any relevant State Environmental Planning Policies (SEPP) (e.g. SEPP 44 – Koala habitat protection).

2. Environmental setting.

The study area is surrounded by extensive tracts of native bushland, the dominant vegetation type being the woodlands that have established on the underlying Hawkesbury Sandstone formations. In relation to this, it is noted that the vegetation present within the study area appears to be primarily composed of regenerating plants, the area appearing to have been a former unsealed road associated with the operation of the adjacent quarry. Adjacent land uses including a sandstone quarry, the Dharawal conservation reserves and West Cliff colliery to the north, and the metropolitan water catchment lands to the south. Based on a worst case scenario, the proposed truck parking bay would require the removal of approximately 0.8 hectares (ha) of vegetation.

PHOTOGRAPHIC RECORD OF STUDY AREA

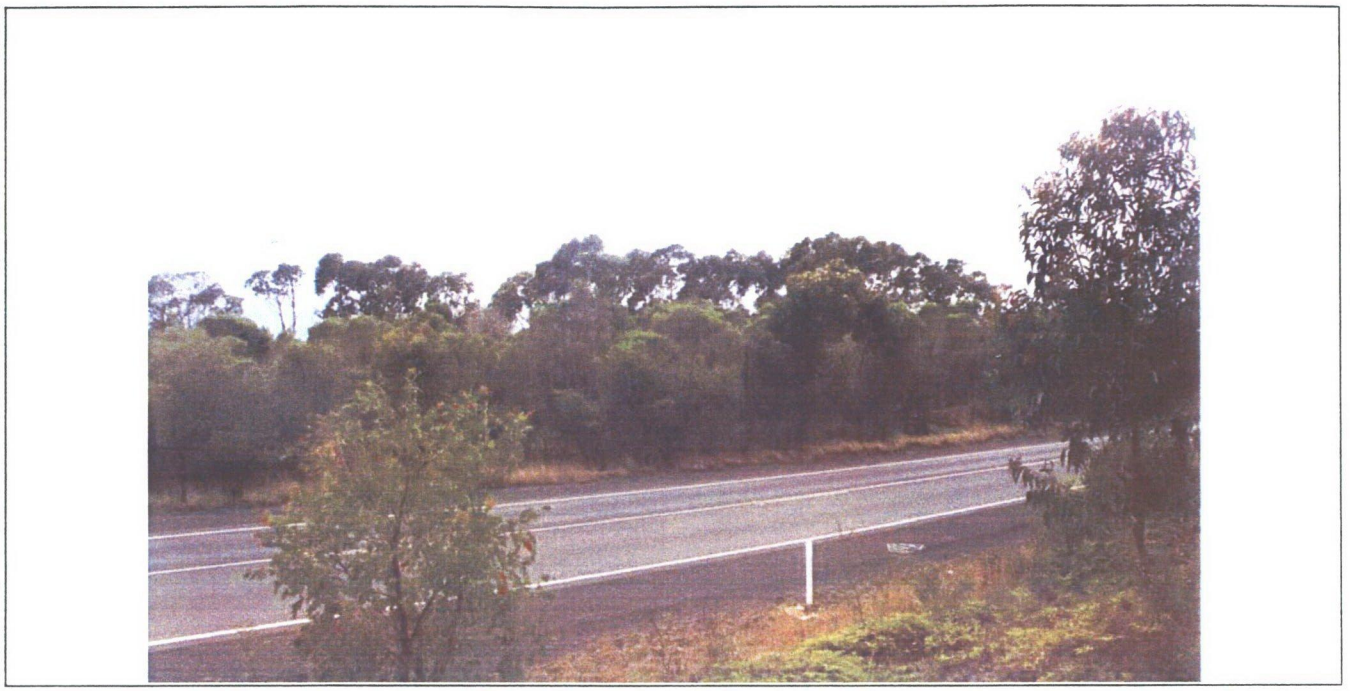


Photo 1: Looking north east through study area.

Photo 2: Looking east along Appin Road. The proposed truck parking bay would be located to the left of this road.

PHOTOGRAPHIC RECORD OF STUDY AREA

Photo 3: Example of the structure of the previous access track and the extent of regeneration that has subsequently taken place.

Photo 4: Example of the portion of the study area that was previously quarried.

Soils of the study area have been mapped as lateritic yellow earths and lithosols (Maddens Plains Soil Landscape Unit) (Hazelton and Tille 1990). These soils are highly erodible, have very low fertility and experience either seasonal or permanent water logging (Hazelton and Tille 1990). The soils are derived from the Hawkesbury Sandstones (Hazelton and Tille 1990).

The study area is located within a landscape that is characterised by moderate to gently undulating rises. The western portion of the site has a northerly aspect, the land sloping down towards what appears to be an abandoned road associated with the nearby quarry, whilst the eastern end would require the removal of a 2m high south facing batter, the top of which has similarly been cleared and level for the former access road. The batter is predominantly cleared, though several isolated native shrubs are present. Natural elevations within the survey area are around 450m Australian Height Datum (AHD). The annual average rainfall in the region is 1550mm with the greatest falls being experienced during the summer months (NPWS 2002, Bureau of Meteorology 2004). Average temperatures range between a winter low of 1.7°C to a summer high of 29.3°C (Bureau of Meteorology 2004).

Conservation reserves, or other protected lands, that occur in the surrounding region include, Dharawal Nature Reserve, Dharawal State Recreation Area and the Sydney Catchment Authority's, Cordeaux and Woronora water catchment areas these covering areas of 347, 5814 and 16600ha respectively. These conservation reserves occur to the north and south respectively.

Figure 1: Study location and area.

Source: iPlan 2004

3. Field survey methods.

A survey of proposed truck parking bay was undertaken by Deryk Engel $_{(B.Env.Sc.HONS)}$ on the 8th of October and John Speight $_{(B.Sc.)}$ on the 20th of October 2004. The investigation involved foot traverses across the entire study area, during which time the diversity of plants and animals present were recorded.

Survey methods employed during the field investigation were:

- The direct observation of any fauna species within, or adjacent to, the proposed truck parking bay;
- The identification of all plants within the area of likely disturbance, including both direct and indirect impacts;
- The identification of any indirect evidence that would suggest the presence of any fauna species within the survey area;
- The identification of the structure of those vegetation communities and fauna habitats present; and
- Targeted searches for those species of state and national conservation concern, or their likely habitat areas, that were identified during the literature review stage of the project.

The purpose of the field investigation was to locate within the areas surveyed any plants, animals or vegetation communities that are of state and/or national conservation significance. When conducting the field investigation, the 'Random Meander Method' (as per Cropper 1993) was employed. This method is suitable for covering large areas and for locating any rare species (and their associated vegetation communities/habitat types) that may occur within a survey site. The method involves walking randomly across a particular survey area while sampling all of the various habitat types and vegetation communities present until no new species have been recorded for at least thirty minutes.

The weather conditions experienced during the field surveys were clear skies, warm temperatures (24.9°C) and southerly breezes and overcast skies, mild temperatures (17.9°C) and southeasterly breezes on the 8th and 20th of October 2004 respectively. Generally, given the limited size of the study area and the structure of those vegetation communities and fauna habitats present, no survey limitations were encountered during the field investigations. Although this is the case, it is noted that, from the perspective of the fauna investigation, the volume of traffic moving along Appin Road reduced the aural detection of some of the bird species that were present within those woodlands that occur beyond the limits of the study area. Whilst this limitation was encountered, within the study area itself, given the open nature of the bushland present, no limitations to the visual and aural detection of those species present were encountered.

By the completion of the field survey, approximately four person hours of active investigation had been accumulated. Given the size and structure of the study area, this length of time is considered more than adequate when endeavouring to identify the dominant vegetation communities, fauna habitats, plant and animal species present within the study area.

The field investigation consisted entirely of diurnal work. This was due to the lack of any major features important to the sheltering or breeding needs of any nocturnal fauna species within the study area (e.g. no caves, suitable cave substitutes or sandstone incised drainage lines are present). It is noted that two mature hollow bearing trees do occur within the study area, these being present approximately 30m downslope of the eastern end of the existing guard rail. These trees could provide sheltering and nesting opportunities for hollow dependant native species but, given their location, neither are expected to be cleared to permit the construction of the proposed truck parking bay. In comparison with adjacent habitats, the two hollow bearing trees are not unique, similar trees being present throughout the adjacent woodlands. Given the lack of any habitats important to nocturnal species within the area of likely direct impact, including those animals of state and national conservation significance known to occur within this portion of the Wollondilly Local Government Area (NPWS 2002, NPWS 2004), it was not considered necessary to undertake any nocturnal work.

4. Literature review and field guides.

Prior to undertaking any fieldwork, previous studies conducted in the region and known databases were consulted to identify the diversity of flora and fauna species known for, or potentially occurring in, the study region. The identification of known, or potentially occurring, native species within this part of the Wollondilly Local Government Area, particularly those listed under the Schedules to the *EPBC* and *TSC Acts*, thereby permits the tailoring of the field survey to the detection of these animals and plants, or their necessary vegetation communities and habitat types. By identifying likely species, particularly any threatened animals or plants, the most appropriate species-specific survey techniques may be selected should their associated vegetation communities/fauna habitats be present. The undertaking of a literature search also ensures that the results from surveys conducted during different climatic, seasonal and date periods are considered and drawn upon as required. This approach therefore increases the probability of considering the presence of, and possible impacts on, all known and likely native species, particularly any plants and animals that are of regional, state or national conservation concern.

The studies, reports and databases referred to include:

- The National Park's Draft Plan of Management for the Dharawal Nature Reserve and Dharawal State Conservation Area (NPWS 2002);
- The natural vegetation of the O'Hares Creek Catchment 1:25 000 map sheet (Keith 1994);
- The Department of Environment and Heritage (DEH) Online Database (DEH 2004);
- The Department of Environment and Conservation's (DEC) Atlas of NSW Wildlife Database (DEC 2004); and
- The Australian Museum Database (Australian Museum 2004).

Other reports and documents referred to are provided within the bibliography section of this report.

When accessing the databases, the search area specified was ten square kilometres centred on the study area.

mapped by Keith (1994) as being Sandstone Woodland of *Eucalyptus oblonga*, *E. racemosa* and *Corymbia gummifera*, the current survey confirming this mapping. Sandstone Woodland is described as being widespread throughout the O'Hares Creek catchment, and occupying 47.2% of the catchment (Keith 1994). Similar vegetation is conserved within the nearby Royal, Heathcote and Garrawarra National Parks, as well as other Sydney Catchment Authority lands on the Woronora Plateau. Analogous sandstone communities also occur to the north and west of Sydney and the vegetation is the same as map unit 10ar Sydney Sandstone Ridgetop complex of Benson and Howell (1994). This sandstone vegetation community is one of the most well conserved and widely distributed vegetation types occurring in the sandstone areas of the Sydney region.

TABLE 1. Plant species of conservation significance previously recorded in the district.

Species (Family)	Status and Legislation	Habitat Requirements
Pultenaea aristata (Fabaceae)	Vulnerable *EPBC Act* *TSC Act*	Wet heath and shrubby woodland in sandy loam on sandstone (Benson and McDougall 1996).
Callistemon linearifolius (Myrtaceae)	Vulnerable *TSC Act*	Open forest in sandy to clayey soils on sandstone; from Georges River to Hawkesbury River (Benson and McDougall 1998).
Eucalyptus camfieldii (Myrtaceae)	Vulnerable *EPBC Act* *TSC Act*	Ridgetops in heath on sandy soils over sandstone; Norah Head to Waterfall (Benson and McDougall 1998).
Melaleuca deanei (Myrtaceae)	Vulnerable *EPBC Act* *TSC Act*	Ridgetops, dry ridges and slopes in woodland on sandy loam, sometimes with laterite; Berowra to Nowra (Benson and McDougall 1998).
Caladenia tessellata (Orchidaceae)	Vulnerable *EPBC Act*	Low open forest with a heathy or grassy understorey; coastal areas (Bishop 1996).
Cryptostylis hunteriana (Orchidaceae)	Vulnerable *EPBC Act*	Scrubby swamp fringes to bare hillsides in eucalypt forest; coastal areas (Bishop 1996).
Genoplesium baueri (Orchidaceae)	Vulnerable *TSC Act*	Shady places in woodland; rare in Royal National Park (Robinson 1994).
Pterostylis gibbosa (Orchidaceae)	Vulnerable *EPBC Act*	Sclerophyll forest sometimes with paperbarks; known from the Wollongong area (Bishop 1996).
Persoonia hirsuta ssp. evoluta (Proteaceae)	Endangered *TSC Act*	Ridges in open-forest to woodland on Hawkesbury Sandstone (Benson and McDougall 2000).
Persoonia hirsuta ssp. hirsuta (Proteaceae)	Endangered *TSC Act*	Sides of ridges, often disturbed sites such as quarries; in heath, scrub or woodland on sandstone (Benson and McDougall 2000).
Pomaderris adnata (Rhamnaceae)	Vulnerable *TSC Act*	Plateau behind the Illawarra Escarpment; known from one location only at Sublime Point, Bulli. Grows in heathy woodland on sandstone (Benson and McDougall 2000).

No endangered ecological communities listed under the *EPBC* or *TSC Acts* occur within or adjacent to the study area.

A detailed description of the sandstone woodland community recorded in the study area is provided below.

Sandstone Woodland

Occurrence:
Throughout the study area.

Structure:
Canopy trees to 10m in height forming a sparse to medium cover. Shrub thickets of Melaleuca occur in the most highly disturbed parts of the study area (the majority of the site). The groundcover consists of a sparse to very sparse layer of native grasses and herbs to 50cm in height.

Common Species:
Trees:
Red Bloodwood (*Corymbia gummifera*), Common Sandstone Stringybark (*Eucalyptus oblonga*) and Scribbly Gum (*Eucalyptus racemosa*).

Shrubs:
Giant Honeymyrtle (*Melaleuca armillaris*), Swamp Honeymyrtle (*Melaleuca squamea*), Pink Wax Flower (*Eriostemon australasius* subsp. *australasius*), Sydney Golden Wattle (*Acacia longifolia*), Finger Hakea (*Hakea dactyloides*), Pine-leaf Geebung (*Persoonia pinifolia*), Spider Flower (*Grevillea oleoides*) and Pea Flower (*Phyllota phyllicoides*)

Groundcovers:
Wiry Panic (*Entolasia stricta*), Iron Grass (*Lomandra glauca* subsp. *glauca*) and Twine-rush (*Leptocarpus tenax*).

A sedgeland occurs to the north-east of the study area. This sedgeland is considered to be an important vegetation community for the maintenance of water quality for the O'Hares Creek water catchment area and should not be disturbed by the proposed works. It is expected that adequate previously cleared land is available for the proposed truck parking bay and that the sedgeland would not need to be disturbed.

5.2 Fauna survey.

A variety of native species were recorded within the study area (Table 2), none of which are listed (or currently being considered for listing i.e. Preliminary Determinations) under the Schedules to either the *EPBC* or *TSC Acts*.

TABLE 2. Fauna species recorded in the study area and their method of detection.

Common name	Family and scientific name	Detection method
MAMMALS		
	Tachyglossidae	
Short-beaked Echidna	*Tachyglossus aculeatus*	Observed.
	Macropodidae	
Swamp Wallaby	*Wallabia bicolor*	Characteristic scats observed.
	Leporidae	
Rabbit (Introduced)	*Oryctolagus cuniculus*	Characteristic scats observed.
BIRDS		
	Pardalotidae	
Spotted Pardalote	*Pardalotus punctatus*	Heard calling.
Striated Thornbill	*Acanthiza lineata*	Heard calling.
White-browed Scrubwren	*Sericornis frontalis*	Heard calling.
	Meliphagidae	
Red Wattlebird	*Anthochaera carunculata*	Heard calling.
	Orthonychidae	
Eastern Whipbird	*Psophodes olivaceus*	Heard calling.
	Pachycephalidae	
Grey Shrike-thrush	*Colluricincla harmonica*	Heard calling.
	Dicruridae	
Grey Fantail	*Rhipidura fuliginosa*	Observed.
	Artamidae	
Pied Currawong	*Strepera graculina*	Heard calling.
	Corvidae	
Australian Raven	*Corvus coronoides*	Observed.

The fauna species recorded are all protected, as defined under the NSW *National Parks and Wildlife Act 1974*, but considered to be common to abundant throughout their distribution ranges. The animals recorded are considered to be associated with Hawkesbury Sandstone communities, thereby providing an indication of the diversity of fauna species that may be detected at other times of the year. The animals observed would be regularly recorded in the surrounding region in association with their documented habitat types. None of the species recorded would be solely dependant upon the resources provided by the study area, such that the permanent or temporary disturbance of this area would cause either the local or regional displacement of any of these animals. The proposed truck parking bay would not remove any habitats important to any of these animals, such that their disturbance would affect the local status of any of these species. Similarly, given the connectivity of the woodlands north and south of Appin Road, the proposed works would not present a barrier to the dispersal patterns of any of these animals, nor would they isolate any proximate areas of their necessary habitats.

The study area is dominated by a low woodland, the tree heights reaching a maximum of around 10m. Within the study area, two hollow bearing trees were observed, these being present within the western limits of the site, approximately 30m north of the existing guardrail (Grid reference Easting 303920 Northing 6207205 and Easting 303937 Northing 6207196 [AUS66 UTM]). To permit their retention, both trees have been tagged within visible flagging tape. The trees support hollows that

have a diameter of 150mm. Neither of these trees are expected to be removed to permit the construction of the proposed truck parking bay. The canopy within the low woodland is generally continuous, though gaps of up to 15m are present. The understorey is composed of a mixture of native shrubs, these being of a moderate to sparse density and to 4m in height. The ground cover is either absent, or supports a number of native grasses, ferns and forbs that are to 0.5m. Urban refuse and dumped rubbish is common, as are weeds immediately adjacent to Appin Road. Some exposed surface rock is present, though this is composed of small pebbles and rocks that are up to 100mm in diameter.

Within the surrounding region, this habitat type is well represented and highly conserved.

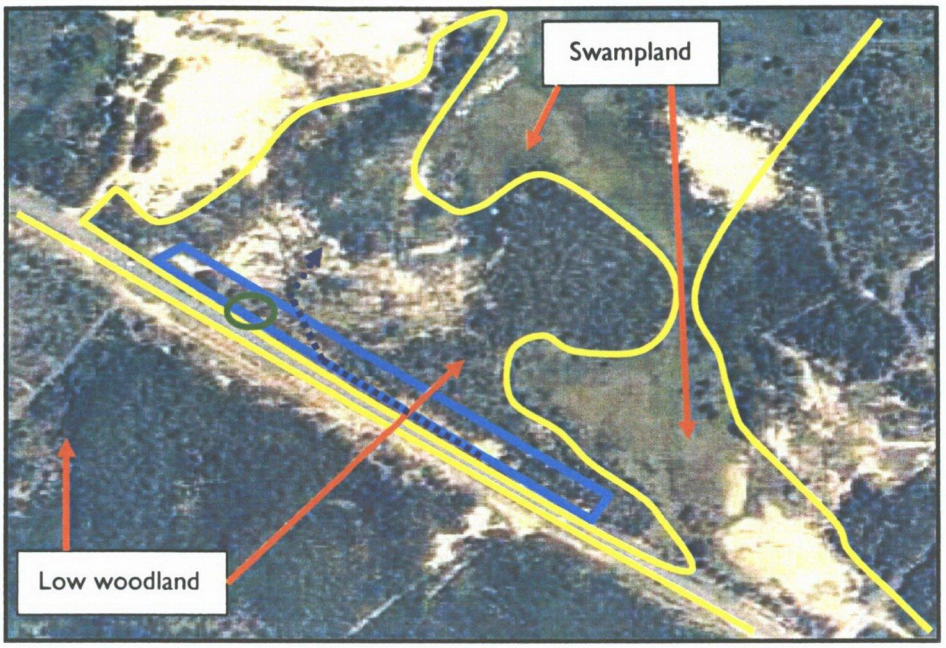
Sections of the low woodland appear to have been cleared to permit the establishment of an access track for the adjacent quarry, these areas now regenerating. The establishment of the access track, presumably between two portions of the quarrying operation, has resulted in sections of the study area being cleared, levelled and regularly graded. Other portions exhibit evidence that they have been cleared as part of a pervious quarrying operation.

An ephemeral drainage line is present within the study area, this diverting runoff from Appin Road towards Stokes Creek (Figure 2). The ephemeral drainage line appears to have been constructed as part of the works associated with the construction of Appin Road. The drainage line is vegetated by either exotic weeds, or plants associated with the low woodland. The drainage line has incised into the underlying sandstone, its channel supporting fine grain sediments. At the time of the field survey, this channel was dry.

The habitats that occur within the study area are not considered to be of any value to those fauna species recorded or potentially occurring within the surrounding bushland. The resources offered by the study area are not unique, the low woodlands being regularly recorded in the surrounding region. The study area supports few sheltering and roosting sites and, in comparison with the adjacent vegetation, the value of the resources present is considered to be minimal. None of the resources present would be significant to the local occurrence of any of the fauna species recorded, such that the removal or further disturbance of these would threaten the occurrence of these animals. No native species would be disturbed or significantly affected by the undertaking of the Proposal, such that the region's biodiversity would be reduced.

A swampland is present north east of the study area. The swampland supports a high density layer of native sedges and water tolerant plants that are to 1m in height. Within this swampland, a medium to sparse density layer of 4m high native shrubs is present, as is the occasional isolated emergent tree that reaches to 15m in height. Through reference to previous topographic mapping, the swampland appears to have established within an area that was previously quarried. The swampland occurs beyond the limits of the study area, particularly the sections expected to be directly impacted upon by the Proposal. The presence of the swampland has been highlighted due to its conservation value (as identified in NPWS 2002). Occurring beyond the limits of the study area, the ecological and scientific value of the swampland would not be compromised, though indirect impacts due to runoff may arise. To mitigate these impacts, recommendations have been presented to ensure that runoff from the proposed truck parking bay does not have an adverse influence on this habitat type.

For reference, the location of the fauna habitat types recorded are identified on Figure 2, along with the approximate location of the two hollow bearing trees.



Key

Approximate location of hollow bearing trees.

Ephemeral drainage line.

Study area.

Not to scale.

Figure 2: Location of fauna habitats/features.

Based on the consultation of the DEC, DEH and Australian Museum databases, and the results of previous ecological studies conducted in the region (including NPWS 2002), 25 terrestrial fauna species listed under the Schedules to either the *EPBC* and/or *TSC Acts* are known, or have the potential to be recorded, within this part of the Wollondilly Shire Local Government Area (Table 3). Though targeted, none of these threatened species were observed or indicated as occurring as a locally viable population on, or in the vicinity of, the proposed truck parking bay. Similarly, no indirect evidence to suggest a viable population of these animals, and no habitats critical to their occurrence, was recorded. Within the area surveyed, no habitats important to the foraging, roosting or breeding requirements of any of the species listed in Table 3 were observed.

6. Ecological assessments.

6.1 Commonwealth - *Environment Protection and Biodiversity Conservation Act 1999.*

By the completion of the field investigation, no plants or animals listed under the Schedules to the *EPBC Act* had been recorded within, or in the vicinity of, the study area. Similarly, no endangered ecological communities or populations had been detected.

TABLE 3. Fauna species of conservation significance previously recorded in the district.

* - habitat requirements were generally extracted from Frith (1997), Cogger (1992), Strahan (1995), NPWS (1999) and the NSW Scientific Committee (2004), with other references used being identified in the bibliography.

Common and Scientific Name	Legislation	Habitat Requirements*	Presence Consideration
BIRDS			
Latham's Snipe *Gallinago hardwickii*	*EPBC Act 1999*	The Latham's Snipe is a migratory bird that is present within Australia between August and April. The preferred habitat of this species consists of wet treeless tussocky grassland, short grasses and marshes along freshwater streams and channels. Breeding occurs between June and July in Japan.	The habitat requirements of this species are not present within the study area. As such this species would not be present. This species maybe present in association with the adjacent swamplands.
Painted Snipe *Rostratula benghalensis*	*EPBC Act 1999* *TSC Act 1995*	The Painted Snipe is a nomadic bird that lives within boggy swamps. They prefer shallow freshwater swamps where they feed on aquatic insects and earthworms found in soft mud. The Painted Snipe breeds between October and December.	The habitat requirements of this species are not present within the study area. As such this species would not be present. This species maybe present in association with the adjacent swamplands.
White-bellied Sea-eagle *Haliaeetus leucogaster*	*EPBC Act 1999*	Found throughout coastal Australia and large lowland rivers and lakes. Feeds on fish, tortoises, rabbits and nestlings. Breeding usually occurs from May through to October with nest being located in tall live or dead trees.	The habitat requirements of the Sea-eagle are not present within the study area. Whilst this species may fly over the study area on occasion, the proposed works would not have an adverse impact on the local or regional presence of this species.
Glossy Black-Cockatoo *Calyptorhynchus lathami*	*TSC Act 1995*	The Glossy Black-Cockatoo Nests and roosts within hollows of large eucalypt trees and can spend up to 88% of each day foraging. This species Inhabits eucalypt woodland and feeds almost exclusively on Casuarina fruits. This species shows strong preference for individual trees with a high seed to cone ratio. Breeding occurs between march and august.	No crushed Casuarina cones were observed during the field survey and no mono-specific stands of Forest Oak (*Allocasuarina torulosa*) are present. Due to their small size, the tree hollows present would be unsuitable for the presence of this species. The Glossy Black-Cockatoo is therefore not considered to be reliant upon the study area for any of its major life cycle requirements.

Common and Scientific Name	Legislation	Habitat Requirements*	Presence Consideration
Swift Parrot *Lathamus discolor*	*EPBC Act 1999* *TSC Act 1995*	The Swift Parrot over-winters on the mainland and breeds in Tasmania during spring/summer. The Swift Parrot inhabits eucalypt forests, feeding on nectar, and possibly lerps. When over-wintering on the mainland, this species is dependent on winter-flowering eucalypt species.	Whilst winter flowering eucalypts are present within the study area, similar species occur throughout the surrounding region. The loss of a small number of trees is not considered to present a significant impact to the over wintering requirements of this species.
Turquoise Parrot *Neophema pulchella*	*TSC Act 1995*	The Turquoise Parrot spends most of the day on the ground under shade feeding on seeds and vegetable matter. Their preferred habitat consists of the zone between woodland and grassland areas. The Turquoise Parrot breeds from August to December in tree hollows, often in dead trees or branches low to the ground. This species drinks daily and therefore does not venture far from water.	The habitat requirements of this species are not present within the study area. As such this species would not be present.
Regent Honeyeater *Xanthomyza phrygia*	*EPBC Act 1999* *TSC Act 1995*	The Regent Honeyeater prefers open forests, woodlands, timbered watercourses, and a variety of other habitat types. This species constructs grass nest in trees or saplings. This species feeds primarily on four eucalypt species, Red Ironbark *Eucalyptus sideroxylon*, White Box *E. albens*, Yellow Box *E. melliodora* and Yellow Gum *E. leucoxylon* as well as heavy infestations of mistletoe (*Amyema* spp.). The Regent Honeyeater breeds from August to January.	This species may traverse over the study area on occasion. However the proposed works are not considered to significantly reduce the diversity of resources available for this species.
Rufous Fantail *Rhipidura rufifrons*	*EPBC Act 1999*	The Rufous Fantail occurs within mangroves, fringing vine scrubs, rainforests and wet sclerophyll forests. This species forages within scrubby understorey and take insects and spiders. This species migrates in March/April to northern Queensland and New Guinea and returns September/October.	The habitat requirements of this species are not present within the study area. As such this species would not be present.
Satin Flycatcher *Myiagra cyanoleuca*	*EPBC Act 1999*	The Satin Flycatcher breed within tall wet eucalypt forest on rolling plains and steep gullies, however rainforests are avoided. After fledging they relocate and forage in drier more open forest. This species migrates in March/April as far as New Guinea and returns September/October.	Given the nomadic nature of this species and the presence of extensive woodlands within the study region, it is not considered that the loss of a maximum of 0.8ha of bushland would significantly reduce the extent of potential foraging or nesting sites available for this bird.

Common and Scientific Name	Legislation	Habitat Requirements*	Presence Consideration
Black-faced Monarch *Monarcha melanopsis*	*EPBC Act 1999*	The Black-faced Monarch prefers wet eucalypt forest and rainforest. They nest in sheeted gullies or within rainforest. This species migrates in March/April as far as New Guinea and returns September.	The habitat requirements of this species are not present within the study area. As such this species would not be present.
Powerful Owl *Ninox strenua*	*TSC Act 1995*	The Powerful Owl favours wet to dry eucalypt forests with a dense understorey. Nesting in large hollows, nearly always in the trunk or top of a mature eucalypt. When not breeding, this bird will roost during the day within the shelter provided by a dense understorey, such as a bushy eucalypt or vine forest, usually clutching the remains of the previous evenings meal.	Within the study area no dense understorey vegetation occurs and the tree hollows that are present, due to their small size, would not be important to the breeding requirements of this owl. Given the extent of bushland present in the region and the likely scope of works, the construction of the proposed parking bay not considered to significantly reduce the extent of potential foraging sites available for this owl.
Sooty Owl (*Tyto tenebricosa*)	*TSC Act*	Inhabits tall, wet, old-growth forests on fertile soils with a dense understorey. Has a home range area of between 200 to 800ha in which a permanently bonded pair occurs. Breeds in the trunks of mature Eucalypts and appears to be loyal to nest sites. Roosts apart by day on a number of set perches throughout their territory. Prey species mainly include arboreal mammals.	The habitat requirements of this species are not present within the study area. As such this species would not be present.
Masked Owl *Tyto novaehollandiae*	*TSC Act 1995*	The Masked Owl inhabits heavily timbered forests, woodlands and watercourses, never more than 300km from the coast. Has a large home range area of 500 to 1000ha per pair. Roosts and breeds in big hollows in trees, these usually being 40-500cm deep and around 10-30m above the ground. Pairs are permanently bonded and hold same territory all year round (and occasionally over successive years). Can also nest on bare sand, cliff crevices or in limestone caves. Preys on small to medium sized mammals and birds, as well as some insects.	Given the large home range of this species and the 22,761ha of similar habitat within the surrounding network of conservation reserves the permanent and/or temporary loss of a maximum of 0.8ha of bushland is not considered to significantly reduce the extent of potential foraging sites available for this owl. As with the Powerful Owl, the tree hollows that are present, due to their small size, would not be important to the breeding requirements of the Barking Owl.

Common and Scientific Name	Legislation	Habitat Requirements*	Presence Consideration
White-throated Needletail *Hirundapus caudacutus*	*EPBC Act 1999*	The White-throated Needletail breeds in the northern hemisphere and arrives in Australia in October. Most commonly associated with the east coast highlands, coastal plains and the hinterlands of arid inland Australia. Within this are, becomes locally nomadic in response to local weather changes. Drinks and feeds on insects while on the wing. Roost during the night in trees in forests.	The White-throated Needletail is not considered to be dependant upon the study area for any of its life cycle requirements.
MAMMALS			
Eastern Pygmy Possum (*Cercartetus nanus*)	*TSC Act*	The Eastern Pygmy-possum occupies a variety of habitats including heathlands, rainforests, woodlands and heaths. Within these areas it feeds on pollen and nectar collected from proteaceous and myrtaceous plants. Insects such as spiders, termites, grasshoppers, and moths form the remainder of this species diet. The home ranges of the Eastern Pygmy-possum are 0.68ha for males and 0.35 for females. The Eastern Pygmy-possum is generally nocturnal and sleeps in one of several nests of shredded bark, these usually being located within a tree hollow.	The Eastern Pygmy-possum may utilise the two hollow bearing trees that are present within the western portions of the study area. The retention of these trees would ensure that the provision of possible sheltering sites is not adversely affected. Given the degree of connectivity expected to be maintained between the study area and adjacent habitats, no foraging resources or dispersal corridors available to this species would be adversely affected.
Grey-headed Flying Fox *Pteropus poliocephalus*	*EPBC Act 1999* *TSC Act 1995*	The Grey-headed Flying Fox is a canopy-feeding frugivore, blossom-eater and nectarivore that inhabits a variety of habitats. Roosts and breeds communally in 'camps', with these camps containing between 500 to 5,000 individuals. Individuals generally exhibit a high fidelity to traditional camps and return annually to give birth and rear offspring. Foraging occurs opportunistically on both native and exotic plants, often at distances between 30 and 70km from camps.	The permanent and/or temporary loss of a total of 0.8ha of bushland, compared to the 22,761ha that occurs within the surrounding network of conservation reserves is not considered to significantly reduce the extent of potential resources available for this species.
Large-footed Myotis *Myotis adversus*	*TSC Act 1995*	The Large-footed Myotis is generally found where there is permanent and/or flowing water. This species roost in caves, disused tunnels, tree hollows and dense riparian foliage, nearly always in the vicinity of suitable water bodies. The Myotis emerges at dusk to feed on aquatic insects "raked" off the waters surface.	The habitat requirements of this species are not present within the study area. As such this species would not be present.

Common and Scientific Name	Legislation	Habitat Requirements*	Presence Consideration
Eastern Bent-wing Bat *Miniopterus schreibersii*	*TSC Act 1995*	This species is the dominant cave-dwelling bat in south-eastern Australia. Occurs in a variety of habitats and roosts in caves, storm water channels, mines and houses. Feeds on insects caught on the wing from within eucalypt woodlands and forests.	Within the study area, no suitable caves or cave substitutes were observed. In regards to the foraging requirements of this species, the permanent and/or temporary loss of a maximum of 0.8ha of bushland, compared to the 22,761ha that occurs within the surrounding network of conservation reserves is not considered to significantly reduce the extent of potential resources available for this species.
Large-eared Pied Bat *Chalinolobus dwyeri*	*EPBC Act 1999* *TSC Act 1995*	The preferred habitat for the Large-eared Pied Bat is timbered woodland and dry sclerophyll forest. This species roosts in caves, tunnels, mines if available or even the abandoned nests of Fairy Martins.	Within the study area, no suitable caves or cave substitutes were observed. In regards to the foraging requirements of this species, the permanent and/or temporary loss of a maximum of 0.8ha of bushland, compared to the 22,761ha that occurs within the surrounding network of conservation reserves is not considered to significantly reduce the extent of potential resources available for this species.
REPTILES			
Broad-headed Snake *Hoplocephalus bungaroides*	*EPBC Act 1999* *TSC Act 1995*	The Broad-headed Snake is confined to the Hawkesbury Sandstone formations within the wider Sydney basin. The Broad-headed Snake shelters under exfoliated material, also in rock crevices and caves during the day, and hunts at night, usually feeding on small lizards, geckos and frogs.	No suitable exfoliated rock was observed. Based on the results of the field survey, this species is not considered to be present within the study area.
Rosenberg's Goanna *Varanus rosenbergi*	*TSC Act*	Wet and dry sclerophyll forests, woodlands and heath lands on sandy or calcareous soils. Known to move over a large home range.	Though specifically targeted during the field survey this species was not found. No significant impacts on this species are considered to arise
AMPHIBIANS			
Giant Burrowing Frog	*EPBC Act 1999*	The Giant Burrowing Frog is mostly restricted to areas of Hawkesbury	The habitat requirements of this species are not present

Common and Scientific Name	Legislation	Habitat Requirements*	Presence Consideration
Heleioporus australiacus	*TSC Act 1995*	Sandstone. This association with sandstone outcrops appears to be quite important feature of this species ecology. This species lives in small semi-permanent to slightly flowing streams, breeding in sandy river bank burrows during the summer and autumn months. Breeding is also known to occur in man-made depressions, ditches and dams, though these must be in a non-polluted condition. Giant Burrowing Frogs are not found in creeks affected by stormwater or other pollutants, and this species of frog is not found in urbanised areas.	within the study area. As such this species would not be present.
Red-crowned Toadlet *Pseudophryne australis*	*TSC Act 1995*	The Red-crowned Toadlet is confined to drainage lines in areas of Hawkesbury Sandstone, especially those that support weathered shale lenses. This Species shelters under stones, vegetation or logs and is highly susceptible to pollutants, storm water runoff from urban areas and weed infested areas.	The habitat requirements of this species are not present within the study area. As such this species would not be present.
Green and Golden Bell Frog *Litoria aurea*	*EPBC Act 1999* *TSC Act 1995*	The Green and Golden Bell Frog's habitat requirements include water bodies with a lack of well developed emergent vegetation, free of chemical contamination and no introduced fish species. The Green and Golden Bell Frog has several specific habitat requirements including the presence of diurnal shelter, basking sites and refuge sites for hibernation over winter (non-mown areas or other dense vegetation in which to shelter), feeding areas, aquatic breeding and spawning areas.	The habitat requirements of this species are not present within the study area. As such this species would not be present.
Littlejohns Tree Frog *Litoria littlejohni*	*EPBC Act 1999* *TSC Act 1995*	Occurs within higher altitude woodlands in the Sydney region in association with dams, creeks and lagoons. Known to be present within Barren Grounds Nature Reserve.	The habitat requirements of this species are not present within the study area. As such this species would not be present.

'Land clearance' is listed as a threatening process under the *EPBC Act*. The current development includes the clearance of some native vegetation from the roadside. Although this is the case, based on the field investigations, habitat assessments and literature reviews undertaken, it is not considered that the current proposal would:

- Cause a native species or ecological community to become eligible for listing as extinct, extinct in the wild, critically endangered, endangered or vulnerable;
- Cause a native species or ecological community to become eligible to be listed in another category representing a higher degree of endangerment; or
- Adversely affect two or more listed threatened species or two or more listed threatened ecological communities.

Therefore, giving consideration to the obligations and objectives of the *EPBC Act*, the proposed truck parking bay is not considered to have a detrimental impact on any species of national conservation significance. As such, it is not considered that the matter requires referral to the Federal Minister for the Environment for further consideration or approval.

6.2 State - *Environmental Planning and Assessment Act 1979.*

Though targeted, no plants, animals, endangered ecological communities or populations listed under the Schedules of the *TSC Act* were recorded or indicated as occurring within the study area. Giving consideration to the life cycle requirements and habitat needs of those plants and animals previously recorded in this part of the Wollondilly Shire Local Government Areas, none are likely to occur as a viable local population within, or adjacent to, the study area. The vegetation communities and fauna habitats present within the area surveyed are not unique to this location, these being commonly recorded throughout the surrounding bushland areas (including the nearby protected areas). None of the vegetation communities or fauna habitats recorded are considered to offer any unique features that would be important to the local occurrence of any native species.

Giving consideration to the assessment criteria listed under Section 5A of the *Environmental Planning and Assessment Act 1979* (these commonly being referred to as the 'eight part test'), the construction of the proposed truck parking bay would not have a significant effect on any threatened plants or animals, their populations, ecological communities or habitats. The proposed works would not result in the removal of any regionally significant areas of habitat for any threatened animals or plants. Similarly the works would not isolate or further fragment any areas important to these species or their interbreeding populations. No threatened plants or animals occur at the limits of their distributions in the vicinity of the study area and, even though the "clearing of native vegetation", "invasion of native plant communities by exotic perennial grasses" and the "removal of dead wood and dead trees" are all listed as Key Threatening Processes under Schedule 3 of the *TSC Act*, as no native plants, threatened species or endangered ecological communities were recorded, none would be affected as a result of the undertaking of the Proposal. As such, it is not considered necessary that the preparation of a Species Impact Statement, which further considers the impacts of any of the proposed road works on any threatened plants, animals, populations or endangered ecological communities, would be required.

6.3 State - *State Environmental Planning Policy No. 44 (SEPP 44) – Koala Habitat Protection.*

The Wollondilly Local Government Area is identified under Schedule 1 – Local Government Areas of SEPP 44. This Policy seeks to encourage the proper conservation and management of areas that provide habitat for Koalas.

Two eucalypts were recorded within the areas surveyed, these being Scribbly Gum (*Eucalyptus racemosa*) and Common Sandstone Stringybark (*Eucalyptus oblonga*) neither of which is listed as a Koala feed tree under Schedule 2 of SEPP 44. Therefore, based on the criteria provided under SEPP 44, the study area is not considered to constitute either Potential or Core Koala habitat.

During the field surveys no individuals of this species were observed and no characteristic scratchings or scats were found. As such, it is not considered that this species is present in the vicinity of the study area. Therefore, a Plan of Management for the conservation and management of areas of Koala habitat is not required to be prepared as part of the truck parking bay proposal.

7. Conclusions.

Based on the results of the flora and fauna surveys, combined with a review of known literature and database sources, it is not considered that there are any ecological constraints to the proposed construction of a truck parking bay on the northern side of Appin Road. The proposed truck parking bay would not significantly affect any populations of any native plants or animals such that they are placed at risk of extinction. Similarly the works would not remove or significantly affect any habitats of local, regional, state or national conservation concern.

The proposed truck parking bay is not considered to affect, threaten or have an adverse impact on any of those plants or animals listed under the *EPBC Act*. Therefore, it is not considered that the matter would require referral to the Federal Minister for the Environment for further consideration or approval.

Within the areas of likely disturbance, the habitats and vegetation communities present are not considered to be of any significant value for any of those threatened species listed under the NSW *TSC Act* that have been previously recorded in the study region. The proposed truck parking bay would not result in any of these threatened species, their populations, ecological communities or habitats being significantly impacted upon such that a viable population of that species is placed at risk of extinction. Similarly, the works would not fragment, disturb or alter any plant or animal movement, dispersal or interbreeding corridors, or isolate any proximate areas of their necessary habitats. Therefore, giving consideration to the assessment criteria listed under Section 5A of the NSW *Environmental Planning and Assessment Act 1979*, the preparation of a Species Impact Statement for any threatened plants or animals would not be required.

The study area is not considered to support any areas of potential or core Koala habitat. Therefore, giving consideration to the objectives of SEPP 44, it is not considered that the proposed works would require the preparation of a Plan of Management for Koalas, or the adoption of any other appropriate mitigative measures.

The adjacent swamplands are considered to be of ecological significance and should not be disturbed during the construction or operation of the proposed truck parking bay. The adoption of the

mitigation measures proposed would ensure that the ecological significance of this area is not compromised.

8. Recommendations.

- A Species Impact Statement for threatened plants and animals is not required.
- All works should be undertaken within the low woodland community, particularly the sections previously affected by the site's quarrying activities.
- The extent of vegetation removal should be limited to the minimum necessary for the safe undertaking of the project.
- The two hollow bearing trees that occur approximately 30m north of the eastern end of the existing guardrail (at grid references Easting 303920; Northing 6207205 and Easting 303937; Northing 6207196) should be retained. These trees and their understorey vegetation should be retained and a buffer of 3m beyond each tree's canopy maintained to ensure no disturbance of the root ball.
- The ecological significance of the swamplands should be highlighted on any plans provided to the RTA's contractors and these areas should not be directly or indirectly disturbed by the works. No runoff from the truck parking bay should be directed into this habitat type. All runoff from the proposed truck parking bay should be directed around the swamplands or into drainage lines that do not feed into this system.
- No unfiltered water should be permitted to flow directly into the swamplands.
- No vehicles or machinery should be parked or stored within the swamplands.
- An Erosion and Sediment Control Plan should be prepared. This plan should include the stabilisation of exposed surfaces as soon as possible to reduce the potential for further erosion.

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Appendix 1. Plant species occurring within the survey area.

KEY:

* = Exotic (weed) species.

** = non-endemic native species (potentially a weed).

FAMILY	GENUS SPECIES
FILICOPSIDA	
Cyatheaceae	*Cyathea australis*
Dennstaedtiaeae	*Histiopteris incisa*
	Hypolepis muelleri
	Pteridium esculentum
Gleicheniaceae	*Gleichenia dicarpa*
Lindsaeaceae	*Lindsaea microphylla*
MAGNOLIOPSIDA – DICOTYLEDONS	
Apiaceae	*Foeniculum vulgare* *
	Platysace lanceolata
	Platysace linearifolia
Asteraceae	*Ageratina adenophora* *
	Ageratina riparia *
	Bidens pilosa *
	Cassinia longifolia
	Conyza albida *
	Coreopsis lanceolata *
	Hypochaeris radicata *
	Senecio madagascariensis *
Campanulaceae	*Wahlenbergia sp.*
Cassythaceae	*Cassytha pubescens*
Casuarinaceae	*Casuarina glauca*
	Allocasuarina littoralis
Convolvulaceae	*Dichondra repens*
Droseraceae	*Drosera pygmaea*
	Drosera spatulata
Epacridaceae	*Brachyloma daphnoides*
	Leucopogon ericoides
Euphorbiaceae	*Phyllanthus hirtellus*
	Ricinocarpos pinifolius
Fabaceae	*Bossiaea ensata*
	Gompholobium grandiflorum
	Phyllota phylicoides
	Trifolium repens *
Mimosaceae	*Acacia brownei*
	Acacia parramattensis
	Acacia salicina **
	Acacia stricta
	Acacia suaveolens
Myrtaceae	*Corymbia gummifera*

FAMILY	GENUS SPECIES
	Eucalyptus oblonga
	Eucalyptus racemosa
	Kunzea ambigua
	Leptospermum grandifolium
	Leptospermum morrisonii
	Leptospermum polygalifolium subsp. *polygalifolium*
	Melaleuca armillaris
	Melaleuca squamea
Olacaceae	*Olax stricta*
Plantaginaceae	*Plantago lanceolata* *
Proteaceae	*Banksia ericifolia*
	Banksia paludosa
	Banksia spinulosa var. *spinulosa*
	Banksia serratta
	Conospermum ellipticum
	Grevillea oleoides
	Grevillea sericea
	Grevillea sphacelata
	Hakea dactyloides
	Hakea sericea
	Hakea teretifolia
	Isopogon anemonifolius
	Lomatia silaifolia
	Persoonia laevis
	Persoonia lanceolata
	Persoonia pinifolia
	Telopea speciocissima
	Xylomelum pyriforme
Rubiaceae	*Opercularia aspera*
	Pomax umbellata
Rutaceae	*Eriostemon australasius* subsp. *australasius*
Sapindaceae	*Dodonaea triquetra*
Santalaceae	*Leptomeria acida*
Thymelaceae	*Pimelea linifolia*
MAGNOLIOPSIDA – MONOCOTYLEDONS	
Anthericaceae	*Sowerbea juncea*
Cyperaceae	*Caustis pentandra*
	Gahnia sp.
	Lepidosperma urophorum
	Schoenus brevifolius
Iridaceae	*Patersonia sericea*
Juncaceae	*Juncus usitatus*
Lomandraceae	*Lomandra glauca* subsp. *glauca*
Poaceae	*Andropogon virginicus* *
	Cynodon dactylon
	Entolasia stricta

FAMILY	GENUS SPECIES
	Echinopogon caespitosus var. *caespitosus*
	Eragrostis brownii
	Paspalum dilatatum *
	Paspalum urvillei *
	Pennisetum clandestinum *
	Poa sieberiana
	Setaria sp. *
	Sporobolus indicus var. *capensis* *
Restionaceae	*Leptocarpus tenax*
Xanthorrhoeaceae	*Xanthorrhoea media*

Appendix E

Indigenous Heritage Assessment

KAYANDEL

ARCHAEOLOGICAL SERVICES

RTA Truck Parking
Bay Appin Road,
Appin, NSW

Aboriginal Cultural
Heritage Assessment

December 2004

A Report to
RTA Environmental Technology

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CONTENTS

1 SUMMARY

- The NSW Roads and Traffic Authority proposes to construct a formalised Truck Parking Area on Appin Road, west of the intersection of Appin Road and Fire Trail 10B
- The subject area comprises approximately 1.5 hectares directly to the north of Appin Road.
- An archaeological survey for Aboriginal sites was undertaken over the study area during October 2004.
- No previously recorded sites, relics, or areas of archaeological potential were identified in the course of the field inspection of the proposed truck parking area.
- The archaeological sensitivity of the subject area is rated as low.
- It is recommended that:
- There are no Aboriginal archaeological heritage constraints on the development of the subject land to be utilised as a truck parking area as outlined in this report.

2 INTRODUCTION

Kayandel Archaeological Services has been commissioned by RTA Environmental Technology in October 2004 to undertake an Aboriginal cultural heritage assessment for a proposed truck parking bay on the northern side of Appin Road.

The study area is located between the township of Appin and Bulli Tops, approximately 10.6km from the intersection of Appin Road and Wilton Road at Appin (Figure 1).

This report presents the findings of an archaeological field survey and assessment of Aboriginal archaeological sites within a 5km radius of the study area and provides an assessment of the potential for previously unidentified or unregistered Aboriginal sites to be present over the study area.

The study area consists of a 1.5 ha. parcel of land situated parallel to Appin Road on the northern alignment. An access road to the Dharawal State Conservation area is situated approximately 50m to the east of the study area boundary.

2.1 Proposed Works

The NSW Roads and Traffic Authority (RTA) propose to construct a prescribed truck parking area on the northern margin of Appin Road, approximately 50m to the west an access road to the Dharawal State Recreation Area. The road is commonly referred to as Fire Road No.10B. The proposed development works would be similar to those used in the recently completed truck parking area on the southern side of Appin Road (see Plates 1, 2 & 3), approximately 100m to the west of the current study area, and involves the construction of a parallel parking lane situated approximately 15-20 metres from the existing eastbound road fringe and associated entry and exit lanes from Appin Road to the parking area. The proposed parking area is situated wholly within the existing road reserve.

Works anticipated to be undertaken during the construction of the proposed development include:

- Clearing of vegetation;
- Ripping and other necessary forms of earthworks;
- Asphalt pavement installation;
- Storm water management systems; and
- Landscaping works.

The results of this archaeological field survey and desktop analysis are reviewed in detail in Section 7.

Figure 1: Locality Map – Appin & District (Geoscience Australia 2003)

2.2 The Consultancy Brief

The consultant was required to assess whether the proposed works would affect Aboriginal archaeological sites. As part of this process it is essential that the consultant:

- Reference the Department of Environment and Conservation [DEC] (formerly NSW National Parks and Wildlife Service) Aboriginal Heritage Information Management System [AHIMS], and consult reports and relevant literature in relation to listed Aboriginal archaeological sites located in and around Darkes Forest and Appin, in south western Sydney.

- Conduct a field survey to identify the presence of Aboriginal sites within the study area;

- Assess the potential for Aboriginal sites to occur within the study area;
- Assess the potential of the proposed works to affect Aboriginal sites;
- Provide recommendations for further works where appropriate;
- Prepare a report in accordance with NPWS guidelines.

Plate 1: View of Recently Established Truck Parking Bay on Southern Side of Appin Road.

2.3 Summary of Results

There are no previously recorded Aboriginal sites within the immediate vicinity of the study area.

The potential for Aboriginal sites to occur within the study area is assessed to be low.

Plate 2: Facilities and Landscaping present at the recently established Truck Parking Bay on the Southern side of Appin Road.

2.4 Summary of Recommendations

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

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

in conjunction with;

The results of the archaeological investigations of the study site which are documented in this report.

It is recommended that;

There are no archaeological constrains on the proposed development.

No further archaeological survey or assessment is required for the proposed Appin Road Truck Parking Area.

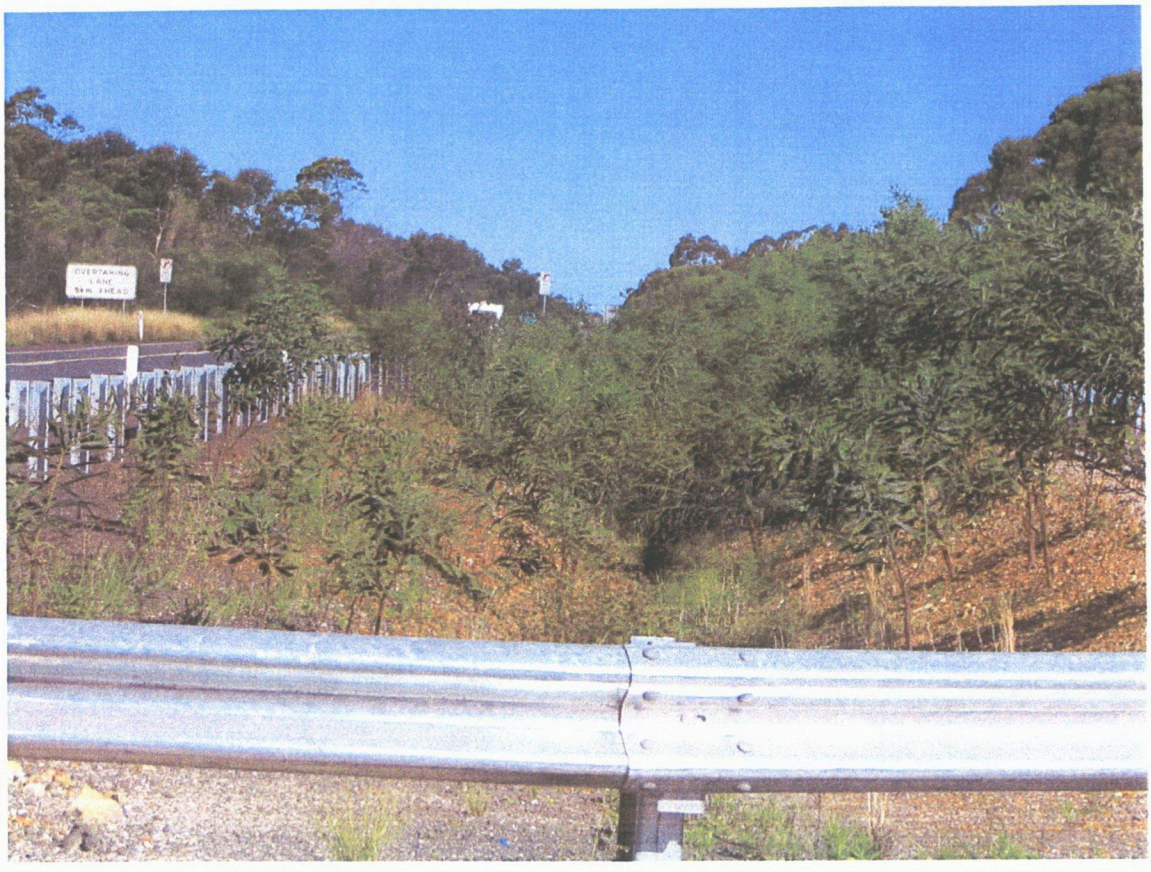

Plate 3: View to the South East of the Vegetated Median Strip on the Existing Truck Parking Bay on Appin Road.

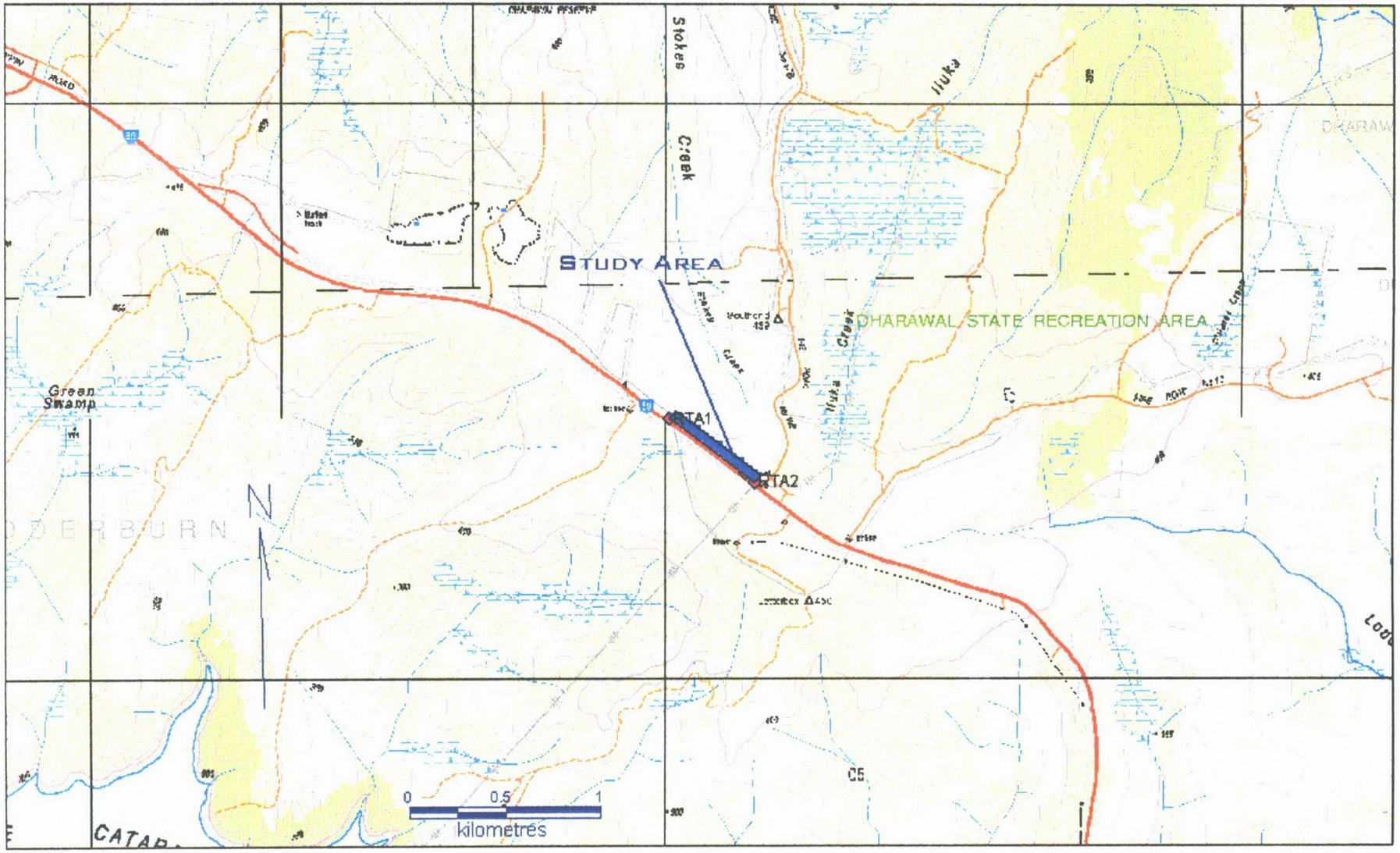

Figure 2: Location of the proposed truck parking area on Appin Road (Bulli and Appin 1:25,000 topographic maps 3rd Edition)

3 METHODOLOGY

The assessment reported here involved the completion of an archaeological pedestrian field survey and recording of the specified study area that will be impacted by the proposed development. A breakdown of the various tasks that have been undertaken to achieve the objectives of the consultancy brief (outlined in Section 2.2) is provided below.

3.1 Background Research

Prior to the assessment being completed, the following tasks were undertaken:

- A review of the relevant archaeological reports and site cards for the study area and surrounding region that are held within the DEC AHIMS Register.
- Interpretation of the topographic context and landform units of the study area.
- Plotting of known Aboriginal sites as identified by the AHIMS search onto the Bulli (9029-2-N) and Appin (9029-1-S) 1:25,000 Third Edition Topographic Maps.

Many of the sites were originally plotted with only a three figure grid reference and topographic triangulation and landscape interpretation. Table 1 (below) shows the three figure grid reference in bold. These grid references limit the precision of plotting to 100m for both the easting and northing.

In recent times this has been further complicated by the change from the Australian Mag Grid (AMG) or Australian Geodetic Datum (AGD66) to the Map Grid of Australia (MGA) or Geodetic Datum of Australia (GDA94). To change from AMG to MGA for the Bulli (9029-2-N) and Appin (9029-1-S) topographic maps the following conversion must take place:

- Eastings increase by 104 metres.
- Nothings increase by 190 metres.

AHIMS Site Number	Site Name	AMG Easting	AMG Northing	MGA Easting	MGA Nothing
58-4-0011	Nunderah point	2**635**00	60**633**00	263604	6063490

Table 1: Table of Mapping Inaccuracies

AMG is the preferred grid reference of the DEC, however many topographic maps are now produced in MGA/GDA94 grid.

3.2 Field Survey

The study area was inspected utilising a pedestrian survey technique. The survey was completed over the whole of the study area.

The field survey was carried out on the 21st of November 2004. Nigel Robinson, Steve Lappin and Graeme Birch, all representing the NSW RTA were present during the field survey to identify precisely the boundaries of the study area. Robyn Williams representing the Tharawal Local Aboriginal Land Council also participated in the field survey.

The details of the survey coverage are discussed in further detail in section 7.3.

For the purpose of completing analysis of the survey coverage data, the study area has been separate into three discrete survey units with relate to topography and levels of exposure.

The field survey strategy was designed to increase the potential to identify archaeological material. Assessments were also made on levels of disturbance from previous land use, survey variables (ground visibility and archaeological visibility) and the archaeological sensitivity of the area.

4 PARTNERSHIP WITH INDIGENOUS COMMUNITIES

The Department of Environment and Conservation (DEC), formerly NSW National Parks and Wildlife Service (NPWS) has adopted the following heritage management principles (NPWS 1997:8-10):

- DEC recognises that Aboriginal culture is living and unique and recognises the right of Aboriginal people to protect, preserve and promote their culture.
- DEC recognises that Aboriginal people are the rightful cultural owners of Aboriginal cultural heritage information and Aboriginal sites and objects.
- DEC encourages Aboriginal participation in assessment and salvage work, and supports direct negotiation between Aboriginal communities and developers.
- DEC encourages Aboriginal communities to carry out their own assessments, including oral history and anthropology.

4.1 Project Participation

The study area is located within the boundaries of the Tharawal Local Aboriginal Land Council (TLALC) and the area of custodial responsibility of the Cubbitch Barta Native Title Claimants Aboriginal Corporation (CBNTCAC).

Consistent with the current policy of the NSW RTA a representative of the TLALC was invited to participate in the field survey of the area and provide feedback relating to the study area's Indigenous significance. Report from Tharawal Local Aboriginal Land Council is provided in Appendix 1.

4.2 Native Title Claims

A search lodged with the National Native Title Tribunals revealed no existing claims within the study area. The nearest claims within the Wollondilly Shire local government area include Gundungurra Tribal Council Aboriginal Corporation # 3 and Gundungurra Tribal Council Aboriginal Corporation # 6 (Appendix 2).

5 ENVIRONMENTAL CONTEXT

5.1 Background

The natural environment of an area influences not only the availability of local resources, such as food and raw materials for artefacts, but also determines the likely presence and/or absence of various archaeological site types which may be encountered during a field investigation.

Resource distribution and availability (such as the presence of drinking water, plant and animal foods, raw materials of stone, wood and vegetable fibre used for tool production and maintenance) is strongly influenced by the nature of soils, the composition of vegetation cover and the climactic characteristics of a given region. The location of different site-types (such as rock-shelters, middens, open camp-sites, axe grinding grooves, engravings etc) are strongly influenced by factors such as these, along with a range of other associated features which are specific to different land systems and bedrock geology.

Detailing the environmental context of a study region is an integral procedure that is necessary for modelling potential past Aboriginal land-use practices and/or predicting site distribution patterns within any given landscape. The information that is outlined below is considered to be pertinent to the assessment of site potential and site visibility within the specific contexts of the current study.

5.2 Climate

The climate of the area can be classified as temperate with warm summers and cool winters. Average annual rainfall for the surrounding district varies from 1550 mm at Maddens Plains in the east to 850 mm at Wedderburn in the west (Australian Bureau of Meteorology, unpublished data in Keith and Myerscough, 1993).

5.3 Topography, Geology and Soils

The study area is located on the Woronora Plateau (also known as the Nepean Ramp), which forms part of the southern rim of the Sydney Basin. The Woronora plateau is characterised by gently north-west incline away from the abrupt edge formed by the Illawarra Escarpment to the Cumberland Plain. It is deeply incised by watercourses draining to the Nepean and Georges Rivers.

The plateau is dominated by the Triassic Hawkesbury Sandstone Formation, composed primarily of quartzose sandstone, with outcrops of shale and ironstone in some areas. The Hawkesbury Sandstone is underlain by the Triassic Narrabeen Sandstone Group and the Permian Illawarra Coal Measures respectively. Along the eastern edge, the plateau is characterised by deposits of swamp alluvium, which have accumulated in low-relief headwater valleys, forming numerous upland

swamps. The treeless swamps contrast sharply with the surrounding forest and woodland and result from the poorly aerated condition of the swamp sediment.

The upland swamps situated to the north of the present study area have been studied by Young (1983) and are of considerable scientific importance. Dates of sediments within the swamp span at least 17,000 years and, combined with plant fossil evidence, suggest that there has been no significant change in the physical setting of the swamps since at least the late Pleistocene. As such, they provide an excellent record of climatic, geomorphic and biological events of the past 17,000 years after the retreat of the last ice age (Young 1983).

Soils on the Woronora Plateau are generally shallow, sandy and infertile. Soil landscapes for the district have been mapped and described by Hazelton and Tille (1990). The Lucas Heights and Hawkesbury soil landscape units dominate the region. The former characterises the ridges and the latter characterises the water courses and surrounding gorges. The Hawkesbury unit has a very high to extreme erosion hazard. The Bundeena and Maddens Plains units comprise the eastern and south-eastern portions of the plateau. Both these units have a high erosion hazard. The Maddens Plains unit has a very high erosion hazard when subjected to concentrated flows.

Plate 4: Evidence of the erosion hazard level present within the soils of the study area.

5.4 Vegetation

The vegetation of the surrounding district has been mapped and described by Keith (1994). The dominant communities identified include, Sandstone Woodland and Eastern Gully Forest, while typical of other areas of Sydney sandstone, display considerable regional differences in species composition. Levels of species richness in the dry sclerophyll forests, dry sclerophyll woodlands and heathlands are higher than in comparable plant communities in other parts of coastal NSW (Keith and Myerscough, 1993).

The location of the current study area is described (Keith 1994) as possessing characteristics of both Ironstone Woodland and Heath Woodland.

Aerial photographs of the area from 1998 (Land Information Centre 2000) were examined and show that the area immediately to the north of the present study area has been extensively cleared and heavily modified. The aerial photography also provided evidence of restricted vegetation clearing to the study area.

5.5 Fauna

The fauna of the immediate area has not been comprehensively surveyed. Limited studies of mammals have been undertaken by Phillips, Callaghan, Parnaby and Fitzgerald (1986), Close (1993), Cork, Margules and Braithwaite (1988), and Robinson (1985); of birds by Leishman (1993) and Mills (1992); of fish by Bishop (1997); of reptiles and frogs by Harlow and Taylor (1995) and terrestrial and aquatic fauna by the NPWS and Macarthur National Parks Association (1997).

These studies have recorded some 186 bird, 44 reptile, 25 mammal, 24 frog, 5 fish, 2 crayfish, 1 shrimp, 1 freshwater mussel and 273 invertebrate species. Twenty-two of these vertebrate species are of state significance and listed as endangered or vulnerable (see Table 2).

Other species considered rare or regionally uncommon but present in the area include the Platypus, Dusky Antechinus, Greater Glider, Eastern pygmy-possum, Wombat, Eastern Grey Kangaroo, Wallaroo, Red-necked Pademelon, Red-necked Wallaby and Peregrine Falcon.

The largest and most significant population of Koalas on the southern outskirts of Sydney occurs at Wedderburn, immediately adjoining the SCA. The core breeding habitat is located along the creeklines in the O.Hares Creek / Georges River area from the junction of Stokes creek to north of Kentlyn. Preferred Koala feed/habitat trees in the area include *Eucalyptus punctata, E. haemastoma* and also *E. oblonga* and *E. agglomerata*. These species are most common within the Western Gully Forest vegetation community, which is restricted to the northern-most section of the state conservation area and beyond the reserve to the north.

Species of State significance known to currently exist within the reserves*	Species of State significance previously recorded from the area*
Broad-headed Snake (E)	Spotted-tailed Quoll (V)
Koala (V)	Brush-tailed Rock Wallaby (V)
Eastern Little Mastiff Bat (V)	Long-nosed Potoroo (V)
Large Eared Pied Bat (V)	Ground Parrot (V)
Large-footed Mouse-eared Bat (V)	Turquoise Parrot (V)
Large Bent-wing Bat (V)	Squirrel Glider (V)
Greater Broad-nosed Bat (V)	Parma Wallaby (V)
Green and Golden Bell Frog (E)	Southern brown Bandicoot (V)
Red-Crowned Toadlet (V)	Stuttering Frog (E)
Grey-headed Flying Fox (V)	Giant Barred Frog (V)
Giant Burrowing Frog (V)	Eastern Bristlebird (E)
Powerful Owl (V)	
Glossy Black Cockatoo (V)	
Heath Monitor (V)	
Sooty Owl (V)	
Masked Owl (V)	
Barking Owl (V)	
Littlejohn's Tree Frog (V)	
Golden Tipped Bat (V)	
Yellow-bellied Sheath tail Bat (V)	
Eastern False Pipistrelle (V)	

(E= Endangered, V= Vulnerable in accordance with Schedules 1 & 2 respectively of the Threatened Species Conservation Act)

Table 2: Significant Animal Species Present Within the Region of the Study Area

5.6 Existing Condition of the Study Area

The study area consists of a 1.5 ha. parcel of land situated parallel to Appin Road on the northern alignment. An access road to the Dharawal State Conservation Area is

situated approximately 50m to the east of the study area boundary. The study area is roughly rectangular in shape with dimensions of 500m x 50m.

The study area exhibited evidence of vegetation clearing and modification to the soil profile.

Topographically the study area is situated in the head waters of Stokes Creek, which eventually flows into the Georges River after meandering across the Woronora Plateau.

5.7 Disturbance and Visibility

I. Disturbance

Portions of the study area have been variously impacted by road construction, maintenance and upgrading. Along with sections in the north and east of the study area being utilised for emplacement of fill and erosion control works.

Existing within the study area is evidence of water detention and control systems. These works are believed to have been part of previous works associated with the upgrading of Appin Road.

Other disturbance evident within the study area includes vegetation clearance, levelling, grading and relocation of soil.

II. Visibility

Visibility within the study area was generally moderate to low. Moderate areas were characterised by native regrowth vegetation whereas low areas had sedge grass and other forms of thick grass cover.

See Table 7 for details of survey coverage.

Plate 5: General View of Study Area from Eastern Boundary on 320° (Note the levels of disturbance and degree of fill in foreground and right)

Figure 3: View of Southern Boundary of Study Area, Eastern End.

Figure 4: View of Southern boundary of Study Area, Western End

Plate 6: View of Road Margin in Survey Unit 1A

Plate 7: General View of Survey Unit 1A (Note exposure and degree of fine gravels)

Plate 8: General View of Survey Unit 1A (Note windrowed stumps on left)

Plate 9: General View of Survey Unit 1A (Note evidence of grader scape and regrowth)

Plate 10: General View of Survey Unit 1B (Note exposure from grader scape and detention basin)

Plate 11: View of Detention Basin within Survey Unit 1B

Plate 12: General View of Survey Unit1C (Note dense vegetation)

Plate 13: General View of Survey Unit 1C

6 ARCHAEOLOGICAL CONTEXT

6.1 Regional Context

The Sydney region has been inhabited by Aboriginal people for at least 20,000 years, and possibly longer (see Nanson et al 1987). Archaeological sites from the Blue Mountains and Hawkesbury/Nepean River System have provided the earliest evidence of occupation within the region. Stockton and Holland (1974) produced a radiocarbon date of c22,000 years BP from a site at Kings Tableland in the Blue Mountains. Excavation of the Greaves Creek rock shelter site of Walls Cave near Medlow Bath has produced a date of c.12,000 years BP (ibid). At Shaws Creek KII, a rock shelter on the west bank of the Nepean north of Penrith, a date of c13,000 BP is recorded (Kohen et al 1984).

Sites on the south coast of New South Wales, such as Burrill Lake (c20,000) and Bass Point (c17,000), provide complimentary dates (Lampert 1971, Bowdler 1970). At the time of these periods of occupation, both sites would have been located within hinterland areas some distance away from the sea. In the case of Burrill Lake, the sea would have been up to some 16 km further east than at present (McDonald 1992). There are no other Pleistocene sites recorded on the Sydney coast. There are however two sites located at Curracurrang and the Prince of Wales Hospital, which are dated to around 7,000 years ago.

It is very likely that a large number of coastal sites of a similar antiquity within the Sydney region have been submerged and/or destroyed by sea-level changes that have occurred in eastern Australia during the last 20,000 years.

On the basis of the available evidence it would appear that the initial occupation of the Shoalhaven and Illawarra regions was sporadic, and with low population densities. From around 5000 years ago an increasing and continued use of many sites which have been investigated through archaeology appears to have ensued. Evidence for the use and occupation of the Shoalhaven and Illawarra regions from this period is far more 'archaeologically visible' than for the previous periods.

In support of the likelihood that occupation of the region intensified around this time, the majority of rock shelter and open camp sites which have been investigated to-date contain archaeological deposits, features and artefacts which generally date to c.2,500 BP or less. Kohen (1986) suggests that there was a more intensive use of open sites in the region during the last 1,500 years. This researcher suggests that the majority of camp sites will therefore belong within this time frame.

During the 20,000 years of occupation in the region, and in particular the last 5,000 to 8,000 years, changes in excavated stone tool assemblages have been observed. A number of temporal markers have subsequently been established by archaeologists in an attempt to distinguish what are considered to be the more significant changes

in tool types and tool kit composition (eg. McCarthy 1948, Megaw 1965, Lampert 1971 and Wright 1977).

At Contact, European observations of Aboriginal life around the Shoalhaven and Illawarra regions suggest that tool kits were fashioned largely on organic materials, such as wood, bark, palm leaves, shell and bone. The use of stone does not figure prominently within many of the early European descriptions.

6.2 Model of Aboriginal Occupation of the Nepean Ramp and Cumberland Plain

The various models of past Aboriginal occupation which have been developed for the region indicate that, as in virtually all other regions, sources of permanent or seasonally reliable water were not just a focus of past Aboriginal occupation but were a necessity for occupation to occur. Therefore it is expected that the greatest evidence of occupation would be found in association with reliable water sources such as creeks (and rivers where they occur).

However, whilst the presence of water has been identified as having been the over-riding factor in determining levels of past Aboriginal occupation in the southern tablelands region, the presence of suitable landforms for occupation to occur was also extremely important. Basically, landform determines the type of archaeological evidence, which will be found or, in many instances, whether any evidence at all can be expected to occur.

From McDonald and Rich (1993) and Jo McDonald CHM (2001) a general predictive model for the Cumberland plain has been developed. Characteristics of this model include:

- High density extensive artefact scatters will be associated with larger streams, especially 4th order or higher.
- Lower density discontinuous artefacts scatters will be associated with smaller steams, such as 1st, 2nd, and 3rd order streams.
- Occasional small artefacts clusters and isolated finds may be present almost anywhere else in the landscape including hill slopes and ridges distant from water.

The current study area is situated along a saddle dividing the Stokes Creek catchment area from the Cataract Dam catchment area. The landform units present within the study area have the potential to contain Aboriginal sites, but this potential is assessed to be low.

However, this assessment does not take into consideration the effects upon the archaeological record of often extreme surface and sub-surface disturbance resulting primarily from past non-indigenous land use.

I. Previous Investigations

Results supplied by DEC from a search of the AHIMS Register consisted of 75 identified Aboriginal sites within a 2,500m radius of the study area.

The known Aboriginal sites consist of axe grinding grooves, open camp sites, water wells, shelters with art and/or archaeological deposit and rock engravings.

Site Type	Number
Axe Grinding Grooves	45
Shelters with Art and/or Deposit	15
Open Camp Sites	9
Water Hole/Well (may be in association with axe grinding grooves)	4
Rock Engravings (may be in association with axe grinding grooves)	2
TOTAL	75

Table 3: Table of AHIMS Results by Site Type

Officer (1992) conducted a field survey of the area immediately to the north of the current study area for a proposal by Sydney Water Board to emplace surplus spoil from various locations for programmed works throughout the Sydney area. The survey was successful in identifying 6 open artefacts scatters within 800m of the current study area.

AHIMS Number	Site Name	Site Type
52-2-1659	Stokes Quarry 1, SQ1	Open Camp Site
52-2-1660	Stokes Quarry 2, SQ2	Open Camp Site
52-2-1661	Stokes Quarry 3, SQ3	Open Camp Site
52-2-1662	Stokes Quarry 4, SQ4	Open Camp Site
52-2-1663	Stokes Quarry 5, SQ5	Open Camp Site
52-2-1664	Stokes Quarry 6, SQ6	Open Camp Site

Table 4: Extracts from Officer (1992)

Sefton (1992) conducted a series of field surveys associated with seismic lines for Kembla Coal and Coke Pty Limited. The nearest transect to the current study area being approximately 2.5 km to the north west. The field survey of this transect identified three discrete sites, one of which was previously known.

AHIMS Number	Site Name	Site Type
52-2-1654	Stokes Creek 91	Axe Grinding Grooves
52-2-1165	Stokes Creek 62	Axe Grinding Grooves
52-2-1655	Stokes Creek 92	Shelter with Art

Table 5: Extracts from Sefton (1992)

Sefton (1990) completed a series of field surveys for the Western Reserves Development Option for Kemba Coal and Coke Pty Limited. The field survey involved the completion of a single linear transect on an east west orientation approximately 2.5 km to the north of the present study area. The field survey identified or revisited a total of eleven (11) Aboriginal sites. Four of these sites are within a 2.5 km radius of the current study area.

AHIMS Number	Site Name	Site Type
52-2-0808	Stokes Creek 42	Shelter with Art and Deposit
52-2-0359	Stokes Creek 12	Grinding Grooves
52-2-0760	O'Hares Creek 1	Grinding Grooves
52-2-1366	O'Hares Creek 87	Axe Grinding Grooves

Table 6: Extracts from Sefton (1990)

Various other surveys have been conducted in the surrounding district. Many of these surveys have been completed by the Illawarra Prehistory Group (IPG). The IPG are a small group of individuals who conduct systematic archaeological field surveys predominately within National Parks and Catchment Areas.

II. Site Type Predictions

Based upon analysis of information extracted from the DEC AHIMS, the local and regional archaeological and environmental contexts expressed above, the types of sites which could be expected to occur within the study area are outlined below.

Open camp sites or isolated finds of durable material of flaked or ground stone (defined according to the criteria outlined in Section 4.0) that have been discarded across the site may be in evidence. The potential for *manuports* to be present within the study area also needs to be considered. These items consist of raw materials of

stone that generally do not naturally occur within the soil profiles of a given site or region and by inference are proposed to have been brought onto the site by Aboriginal people from sources elsewhere. These items are subsequently discarded before they have been utilised as flaked or ground stone tools.

Grinding Grooves are abrasions in the surface of rocks from the repeated use of the rock surface for sharpening implements or consisting generally of stone but also bone and shell. Grinding grooves are generally situated near a water source and may consist of a single groove or a number of grooves on a sandstone slab. This site type is usually found in open contexts but have also been known to occur within rock shelters.

Given the topographic location and presence of a number of grinding grove sites within the immediate area there is the potential for grinding groove sites to be present in the study area. However, the current survey did not locate any grinding groove sites within the study area.

Scarred trees are the result of the removal of bark and/or wood for the purpose of manufacturing shelters, canoes and shields and/or for designs carved into wood for a range of aesthetic, functional and ceremonial reasons which are currently not fully understood. Evidence for tree scarification is more likely to be observed on large and mature trees (depending upon the species). Unless the tree is at least 100 years old, scarring is unlikely to be of Aboriginal origin.

Given that there were no trees of significant height and therefore age within the study area, there is no potential for scarred trees to occur.

Burials can take numbers of varying forms depending upon the customs of the indigenous inhabitants of the area. Common methods of burial practice used within Australia include, inhumation, cremation, desiccation and exposure. The entire burial process may involve a combination of the above procedures. This type of site is generally not located by field survey.

The terrain and sedimentary context of the study area are indicative of areas where burials do not occur.

Rock Shelter Sites are rock overhangs, which have artefacts on the surface of the deposit or within the deposit itself. Other forms of archaeological evidence commonly found within shelter sites are occupation deposit (i.e. stone artefacts, bone, shell, charcoal and artwork. The topographic context is such that rock shelter site are not anticipated to be situated within the study area.

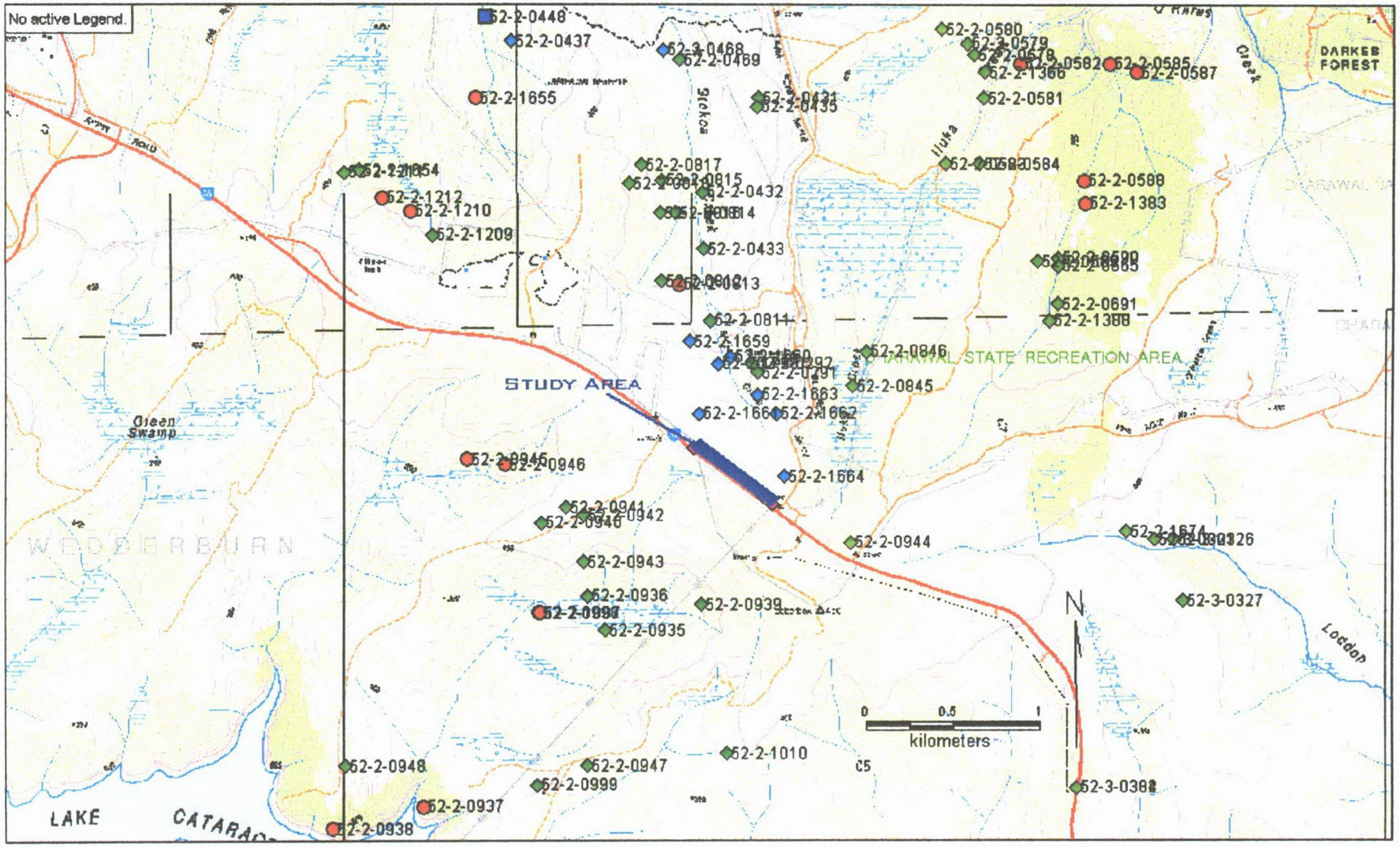

Figure 5: Previously Recorded Aboriginal Sites Plotted onto Bulli & Appin 1:25,000 Topographic Maps 3rd Edition (AHIMS Search Results)

7 SURVEY RESULTS

7.1 Aboriginal Sites

The survey was unsuccessful in locating any Aboriginal sites or evidence for Aboriginal cultural heritage during the current study. The potential for Aboriginal sites and/or relics to occur in these areas is assessed to be low.

The consultant is satisfied that implementation of the recommendations made in section 10 would ensure that the Aboriginal archaeological resource and the potential resource would not be adversely affected.

7.2 Landscape Sensitivity Assessment

The archaeological sensitivity of the study area is rated as low. The local terrain generally exhibits characteristics of plateau topography. There are no permanent or ephemeral water sources within the study area. However, the area does provide a natural seepage into Stokes Creek to the north.

The soils within the study area are thin and sandy and possess a high potential for erosion once disturbed. Evidence is present over the study area for varying degrees of soil disturbance from vegetation clearing, shallow grading and relocation of soils. The potential for undisturbed cultural material to occur within local deposits is therefore considered to be low.

No sandstone outcrops exhibiting the essential characteristics for other Aboriginal site types, such as habitable rock shelters, grinding grooves or rock engravings were identified in the area.

7.3 Survey Coverage and Visibility Variables

The effectiveness of an archaeological field survey is heavily reliant upon the obtrusiveness of the Aboriginal site being looked for and the incidence and quality of ground surface exposure. Visibility variables have been estimated for all areas were a comprehensive survey was carried out in the study area. This data provide a measurement with which to gauge and compare the effectiveness of the survey and the level of sampling conducted. They may also be utilised to determine the numbers and types of sites that may not have been identified by the survey.

Ground surface visibility is a measure of the bare ground visible to the archaeologist during the field survey. There are two variables used to assess ground surface visibility.

i. The frequency of exposures encountered by the archaeologist; and,

ii. The quality of visibility within those exposures.

The major factors affecting the quality of ground surface visibility within an area of exposure are the extent of vegetation and ground litter, the depth and origin of the exposure, the extent of recent sedimentary deposition and the level of visual interference from surface gravels. Two variables of ground surface visibility were estimated during the survey. These being:

i. A percentage estimate of the total area of ground inspected which contained useable exposures of bare ground;

ii. A percentage estimate of the average levels of ground surface visibility within those exposures. This is a net estimate and accounts for all visual and physical variables that have affected the visibility including the archaeological potential of any sediment or rock exposed.

Various Aboriginal site types exhibit different levels of prominence within the landscape, this is an important factor to consider when assessing the impact on visibility levels. Sites present upon or within rock exposures, such as grinding grooves, engravings and rock shelters, are more likely to be encountered than sites which are located on or within sedimentary contexts with little or no ground surface relief.

If you compare the obtrusive nature of a shelter site against the unobtrusive nature of a rock platform, the shelter sites will be located and inspected on 10 out of 10 occasions. Rock platforms on the other hand have their gross visual presence affected by factors such as obscuring ground litter, flood debris and sedimentation. Whilst these visibility factors may not affect the gross visual presence of the shelter site, they can impinge upon the finer visual presence within the rock shelter and inhibit the ability of the recorder to locate stone artefacts etc.

Another factor affecting visibility is the presence small rocks, pebbles and gravels in the exposure. If these particular raw materials are also suitable for stone artefact manufacture it may make stone artefact identification more onerous and difficult.

Due consideration should also be given to the natural occurrence of sandstone platforms suitable for grinding grooves or engravings in addition to the presence of remnant established trees. Both of these are central in identifying survey effectiveness and site patterning.

Table 7 provides a summary of the extent to which discrete landforms within the study area were examined and also includes the exposure incidence and average ground visibility present within each landform. A total of 100% of the ground surface area of the study area was inspected during the field survey, with 13% being considered useable archaeological exposure. A graphic approximation of the surface survey coverage achieved over the study area is shown in Figure 6 (below).

In view of the survey coverage, archaeologically useable exposures and visibility variables. The effective survey coverage (ESC) was 7.220%.

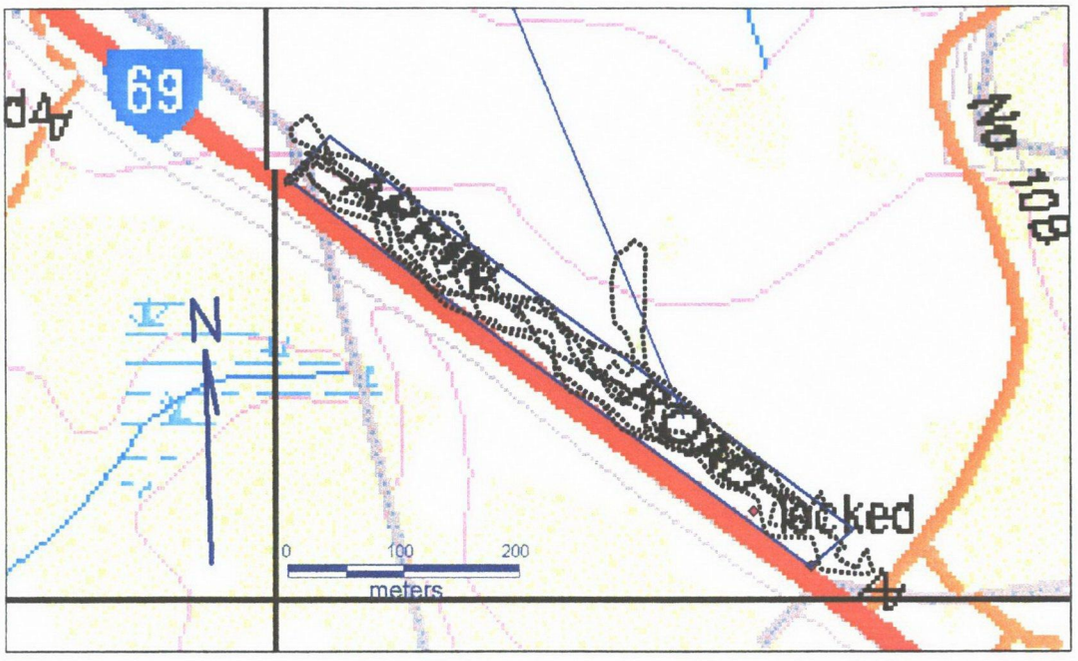

Figure 6: A graphic approximation of the surface survey coverage achieved in the study area (Bulli & Appin 1:25,000 topographic maps 3rd Edition)

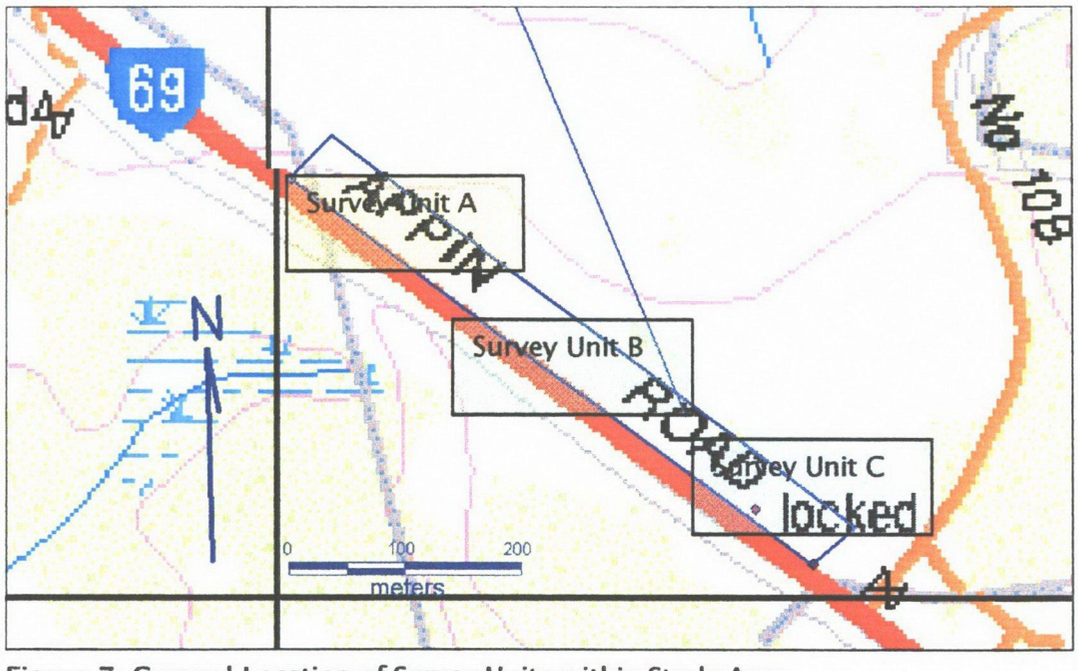

Figure 7: General Location of Survey Units within Study Area

Survey Division	Survey Unit	Landform	Survey Mode	Main Exposure Types	Unit Area (ha)	Percentage of Unit Surveyed	Exposure Incidence %	Average Exposure Visibility %	Net Effective Exposure (ha)	Effective Survey Coverage of Survey Unit %	Archaeologists Recordings
1	A	Spurline, saddle	Pedestrian	Graded surfaces, bare patched, detention basins	0.8	100%	20%	30%	0.048	3.840%	Nil
	B	Spurline, saddle	Pedestrian	Graded surfaces, bare patched, detention basins	0.4	100%	40%	50%	0.08	3.200%	Nil
	C	Seepage area	Pedestrian	Erosions scars	0.3	100%	5%	40%	0.006	0.180%	Nil
TOTALS					**1.5**	**1.5**	**34%**	**13%**	**0.134**	**7.220%**	

Table 7: Survey Coverage Data

8 STATUTORY INFORMATION

8.1 Historic Heritage Statutory Controls

All potential sub-surface archaeological features in the study area are subject to the relics provisions of the *NSW Heritage Act 1977*. This Act provides automatic protection to "relics" which are defined as:

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

Sections 139 to 144 of the Act prevent the excavation or disturbance of land for the purpose of discovering, exposing or moving a relic, except by a qualified archaeologist to whom an excavation permit has been issued by the Heritage Council of NSW.

The study area does not contain any "relics" that are currently subject to either a Permanent or Interim Conservation Order made pursuant to the *Heritage Act 1977*.

8.2 Indigenous Heritage Statutory Controls

I. National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (as amended) affords automatic statutory protection to 'Aboriginal objects' where;

> *it is an offence to knowingly destroy, deface or damage, or knowingly cause or permit the destruction or defacement of or damage to, an Aboriginal object or Aboriginal place, without first obtaining the consent of the Director-General of the National Parks and Wildlife Service*

The Act defines an 'Aboriginal Object' as:

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

The Act defines an 'Aboriginal Place' as:

> *any place declared to be an Aboriginal place under section 84 of the Act.*

The Aboriginal and Torres Strait Islander Heritage Protection Amendment Act of 1987 is a federal act administered by the Aboriginal and Torres Strait Islander Commission, and provides blanket protection for Aboriginal heritage in circumstances where such protection is not available at a state level. This Act comes

under Commonwealth jurisdiction, which means that it can override state and territory provisions (Pearson & Sullivan 1999: 52-53).

II. Environmental Planing and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* provides planning controls and requirements for environmental impact assessments. Preparation of an environmental impact statement is part of the first stage in determining whether a development is granted approval or consent.

8.3 The Burra Charter

The Burra Charter is an Australian derivative of the Venice Charter developed by the International Council for Monuments and Sites (ICOMOS). The Burra Charter identifies the basis for conservation practice and provides the principles and processes for significance assessment for heritage practitioners. The guidelines to the Burra Charter set out explanatory details as to the processes involved in many of the principles.

9 PRINCIPAL FINDINGS AND CONCLUSIONS

On the basis of the documentation compiled within this report, the following conclusions have been drawn. The consultant is satisfied that the provided recommendations made below will ensure that the Aboriginal archaeological resource and the potential resource will not be adversely affected without prior consideration.

There are no known areas of Aboriginal Heritage Sensitivity or Archaeological Potential within the study area.

9.1 Assessment of Archaeological Potential

The following assessment of archaeological potential is made on the basis of landform context and the pattering of known Aboriginal sites in the surrounding region.

The study area is assessed to have low potential for unidentified Aboriginal sites to be present.

10 RECOMMENDATIONS

The following recommendations are based on:

1. The legal requirements of the *National Parks and Wildlife Act 1974* whereby it is illegal to damage, deface or destroy an Aboriginal relic without first obtaining the written consent of the Director General of National Parks & Wildlife Service; and

2. The findings of the heritage study presented in this report.

It is recommended that:

- There are no archaeological constraints on the proposed development.

- No further archaeological survey or assessment is required for the proposed Appin Road Truck Parking Area.

In addition it is recommended that:

- Should the location(s) of the proposed impact(s) be modified to include areas beyond the existing study area, a cultural heritage consultant must be commissioned to survey the new impact area(s).

- Should Aboriginal relics be found during the proposed works, work must stop and the DEC contacted to inspect the artefacts.

- One copy of this report be forwarded to the following Indigenous Community Group

  Chairperson
  Tharawal Local Aboriginal Land Council
  PO Box 20
  Buxton, NSW 2571

- Three Copies of this report be forwarded to the:

  The Manager
  Central Aboriginal Heritage Unit
  Department of Conservation
  PO Box 1967
  Hurstville, NSW 2220.

11 REFERENCES

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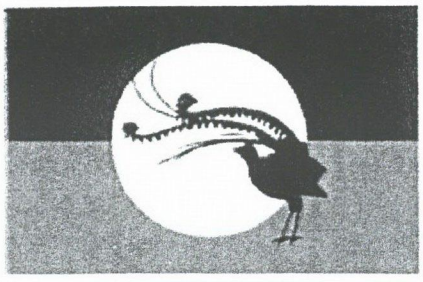
Appendix 1: Report from Tharawal Local Aboriginal Land Council



THARAWAL
LOCAL ABORIGINAL LAND COUNCIL

Lance Syme
Kayandel Archaeological Services
Shop 6
72-80 Argyle Street
Picton, NSW 2571

Wednesday, 1 December 2004

RE: Proposed Truck Parking Bay – Appin Road

Dear Lance,

Thank you for your invitation to participate in the field inspection and survey of the proposed location for the Appin Road Truck Parking Bay.

The field survey was conducted on the 21st of October 2004. The area of the proposed development has been heavily disturbed and exhibits areas of erosion.

The potential for Aboriginal rock shelter is extremely low with no essential topographic features associated with these sites being present within the proposed area.

Tharawal Local Aboriginal Land Council can identify no cultural heritage issues which would prevent the current proposal from proceeding.

Yours sincerely,

Robyn F Williams

Robyn Williams
Chairperson Hon.

P.O. BOX 20 BUXTON NSW 2571
220 WEST PARADE COURIDJAH NSW 2571
TELEPHONE (02) 4681 0559 (02) 4681 0799 FAX (02) 4683 1375
tharawal@ideal.net.au

Appendix 2: Native Title Claim Information

NATIONAL NATIVE TITLE TRIBUNAL

Claimant Application Summary

Application numbers	Federal Court number: NG6047/98 NNTT number: NC96/30
Application name	Gundungurra Tribal Council Aboriginal Corporation #3
Name of body where application lodged	National Native Title Tribunal
Date application lodged	27/09/1996
Current stage(s)	Notification Complete, In Mediation
Old Act* applicants	Mervyn Trindall
Former Old Act* registered native title claimants	Mervyn J Trindall
Address for service	Eduard Neumann Craddock, Murray & Neumann Solicitors Level 3/255 Castlereagh Street SYDNEY NSW 2000 Phone: (02) 9283 4755 Fax: (02) 9283 4780
Persons claiming to hold native title	Gundungurra People, Mervyn Trindall
Native title rights and interests claimed	The native title rights and interests held by the Gundungurra people pursuant to their traditional laws and customs confer possession, occupation, use and enjoyment of the land to the exclusion of all others, subject to any rights or interests created by the state of New South Wales or the Commonwealth of Australia which are not inconsistent with the Racial Discrimination Act 1975 or the Native Title Act 1993
Area	**Jurisdiction:** New South Wales **Location:** Area of land gazetted as Aboriginal Reserve No. 17023 between 1892 and 1924 in the Burragorang Valley (now underneath the Warragamba Dam), and the waters above it. **Local government region(s):** Wollondilly Shire Council **ATSIC region(s):** Sydney Regional Council **Representative A/TSI body(s):** NSW Native Title Services Ltd **Approximate size:** 78 acres (Note: There may be areas within the external boundary of the application that are not claimed.) **Land/water and/or sea:** Land/Water **Area covered by the claim (as detailed in the application):** The former Aboriginal Reserve and the waters above it on the north bank of the Coxs River opposite the junction of the Wollondilly and Warragamba Rivers in the Parish of Cooba, County of Cook, an area of 78 acres gazetted as Aboriginal Reserve No. 17023 on 23/12/1892 and marked as revoked on 31/10/1924 (now underneath the Warragamba Dam), see RR folio 94, RAR 56. Indigenous name for the area: Co gon gil-li.
Registration information	*Please refer to the Register of Native Title Claims/National Native Title Register (as appropriate) for registered details of this application.*

Document Prepared: 18/11/2004 11:52 NC96/30 1

	Registration test status: Not Accepted for registration	
Attachments	1. Map showing location of former Aboriginal Reserve No 17923, Attachment A of the Application, 1 page - A4, Attached 17/12/1996 2. Map showing former Aboriginal Reserves of the Burragorang Valley, Attachment B of the Application, 1 page - A4, Attached 17/12/1996.	
NNTT contact details	**Case manager:**	Nicole Maher
	Address:	National Native Title Tribunal Level 25 25 Bligh Street SYDNEY NSW 2000 GPO Box 9973 SYDNEY NSW 2001
	Phone:	(02) 9235 6300 Freecall 1800 640 501
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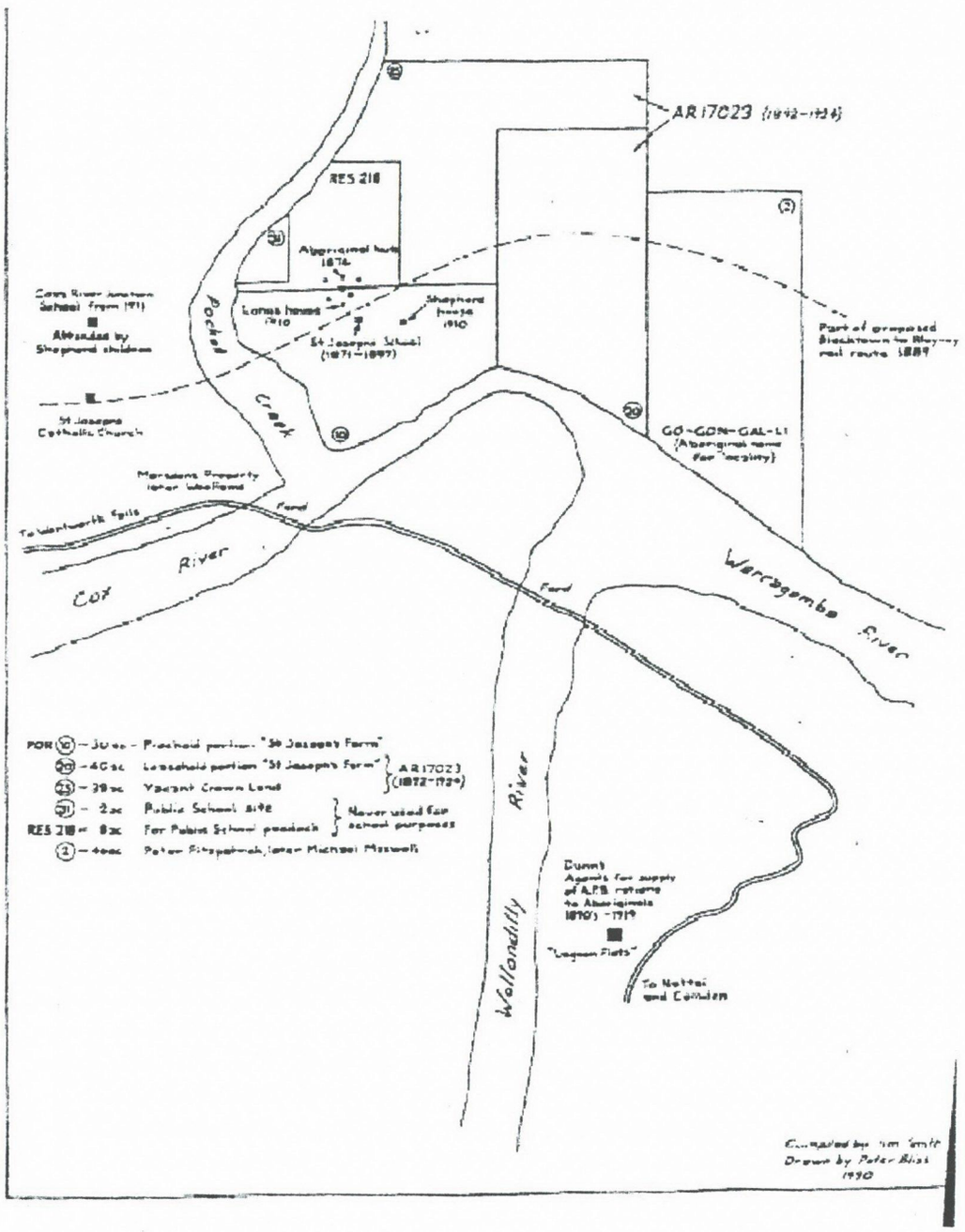
* *Old Act Applicant(s)/Registered Native Title Claimants are those persons defined by the Native Title Act 1993 prior to 30 September 1998*

NNTT: Schedule of Application Received NC96/30
Gunduungurra People
Attachment "A" – *is a map showing the location of former Aboriginal Reserve No 17023*
Attachment 17/12.96. 1 A4 page



NATIONAL NATIVE TITLE TRIBUNAL

Claimant Application Summary

Application numbers	Federal Court number: NG6060/98 NNTT number: NC97/7
Application name	Gundungurra Tribal Council Aboriginal Corporation #6
Name of body where application lodged	National Native Title Tribunal
Date application lodged	20/04/1998
Current stage(s)	Notification Complete, In Mediation
Applicants	Ms Elsie Stockwell, Ms Pamela Stockwell
Address for service	Mr Eduard Neumann Craddock Murray and Neumann Level 3 255 Castlereagh Street SYDNEY NSW 2000 Phone: 02 9283 4755 Fax: 02 9283 4160
Persons claiming to hold native title	The members of the Gundungurra Tribal Council Aboriginal Corporation
Native title rights and interests claimed	1. Subject to (2) - (5) below, the full and free enjoyment of the following native title rights and interests area are claimed in relation to the land and waters the subject of the application: a. A right to possess, occupy, use and enjoy the claim area; b. A right to make decisions about the use and enjoyment of the claim area; c. A right of access to the claimed area; d. A right to control the access of others to the claimed area; e. The right to control the use and enjoyment of others or resources of the claimed area; f. The right to trade in resources of the claimed area; g. The right to receive a portion of any resources taken by others from the claimed area; h. The right to maintain, protect and prevent the misuse of cultural knowledge of the common law holders associated with the claimed area. 2. With respect of those parts of the area the subject of the application which are, or have been, the subject of a previous non-exclusive possession act within the meaning of s 23F of the Native Title Act 1993, the native title rights and interests area set out in (1) are claimed subject to the rights and interests created in the 'non-exclusive possession act' which are not inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause. 3. With respect to those parts of the area the subject of the application which are, or have been, the subject of:

	a. a category B intermediate period act within the meaning of s232C of the Native Title Act 1993; b. a category C intermediate period act within the meaning of s232D of the Native Title Act 1993; c. a category D intermediate period act within the meaning of s232E of the Native Title Act 1993, the native title rights and interests claimed are those set out in (3) above subject to the rights and interests created in the non exclusive possession act which are not inconsistent with the rights and interests claimed and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause. 4. With respect to those parts of the area of the application which are, or have been, the subject of: a. a category B past act within the meaning of s230 of the Native Title Act 1993; b. a category C past act within the meaning of s231 of the Native Title Act 1993; c. a category D past act within the meaning of s232 of the Native Title Act 1993, the native title rights and interests claimed are those set out in (3) above subject to the rights and interests created in the non exclusive possession act which are not inconsistent with the rights and interests claimed and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any extinguishment or suspension of the native title rights and interests which those inconsistent rights and interests cause. 5. The native title rights and interests identified above do not extend to ownership of any minerals, petroleum or gas which are wholly owned by the Crown. 6. The native title rights and interests identified above do not include a claim for exclusive occupation and use of offshore areas as defined by s253 of the Native Title Act 1993
Area	**Jurisdiction:** New South Wales **Location:** Land and waters in the area from the Blue Mountains south to Goulburn, following the Lachlan River west to Newbridge and then north to Mt Davidson. **Local government region(s):** Bathurst City Council, Blayney Shire Council, Blue Mountains City Council, Camden Council, Cowra Shire Council, Upper Lachlan Council, City of Lithgow, Liverpool City Council, Oberon Council, Penrith City Council, Wingecarribee Shire Council, Wollondilly Shire Council, Eastern Capital City Regional Council, Greater Argyle Council **ATSIC region(s):** Bunaal Billa Regional Council, Sydney Regional Council, Queanbeyan Regional Council **Representative A/TSI body(s):** NSW Native Title Services Ltd **Land/water and/or sea:** Land/Water **Area covered by the claim (as detailed in the application):** (a) Commencing at 150 52997 east longitude and 34 591636 south latitude, approximately 15.5 kilometres east south east of Mount Vale, the application traverses clockwise starting in a south-westerly direction, passing through points 2 to 36,765 of the following geographic coordinates. They are in decimal degrees and referenced to Australian Geodetic Datum 1984 (AGD84). These coordinates are based on the position of spatial reference data sourced by Land Information Centre, Department of Information Management and Technology, New South Wales as at 18 May 1999. (b) Subject to clause (d) and (e) the area covered by the application excludes any land or waters covered by:

	(i) a scheduled interest, (ii) freehold estate, (iii) a commercial lease that is neither an agricultural lease nor a pastoral lease; (iv) an exclusive agricultural lease or an exclusive pastoral lease, (v) residential lease, (vi) a community purposes lease, (vii) a lease deserted from a mining lease as referred to in s23B(2)(vii); (viii) any lease (other than a mining lease) that confers a right of exclusive use over particular land or waters; which was validly vested or granted on or before 23 December 1996 (c) Subject to clauses (d) and (e) the area covered by the application excludes any area covered by the valid construction or establishment of any public work, where the construction or establishment of the public work commenced on or before 23 December 1996. (d) Where the act specified in (b) and (c) falls within the provisions of (i) s23B(9) - Exclusion of acts benefiting Aboriginal peoples or Torres Strait Islanders; (ii) s23B (9A) - Establishment of a national or state park; (iii) s23B (9B) - Acts where legislation provides for non-extinguishment; (iv) s23B (9C) - Exclusion of Crown to Crown grants; and (v) s23B (10) - Exclusion by regulation, the area covered by the act is not excluded from this application. (e) Where an act referred to in clauses (b) and (c) covers land or waters referred to in: s47 - Pastoral leases held by native title claimants, s47A - Reserves etc covered by claimant applications, and s47B - Vacant crown land covered by claimant applications, the area covered by the act is not excluded from the application (f) Where an area is covered by a previous non exclusive possession act (s 23F) the native title claim group does not claim possession, occupation, use and enjoyment to the exclusion of all others. (g) The area covered by the application excludes land where native title has been extinguished at common law. (h) The area covered by the application excludes areas covered by prior Gundungurra claims filed with the National Native Title Tribunal being NC96/7, NC96/27, NC96/30, NC96/36 and 97/4.

Registration information	*Please refer to the Register of Native Title Claims/National Native Title Register (as appropriate) for registered details of this application.* **Date claim entered on Register of Native Title Claims:** 29/04/1997 **Registration test status:** Accepted for registration **Registration history:** Registered from 29/04/1997.

Attachments	1. Plan of Application Area, Attachment A of the Application, 1 page - A4, Attached 29/04/1997.

NNTT contact details	**Case manager:**	Nicole Mabet
	Address:	National Native Title Tribunal Level 25 25 Bligh Street SYDNEY NSW 2000 GPO Box 9973 SYDNEY NSW 2001
	Phone:	(02) 9235 6300 Freecall 1800 640 501
	Fax:	(02) 9235 3613
	Web page:	www.nntt.gov.au

NATIONAL NATIVE
TITLE TRIBUNAL

Application Information and Extract from the Register of Native Title Claims

Application Information

Application numbers:	Federal Court number: NNTT number:	NG6060/98 NC97/7
Application name:	Gundungurra #6	
Registration history:	Registered from 29/04/1997.	

Register Extract (pursuant to s.186 of the *Native Title Act 1993*)

Application lodged with:	National Native Title Tribunal
Date application lodged:	29/04/1997
Date claim entered on Register:	29/04/1997
Applicants:	Ms Elsie Stockwell, Ms Pamela Stockwell
Address for service:	Mr Edward Neumann Craddock Murray and Neumann Level 2 255 Castlereagh Street SYDNEY NSW 2000 Phone: 02 9283 4755 Fax: 02 9283 4180

Area covered by the claim:

(a) Commencing at 150.52997 east longitude and 34.591636 south latitude, approximately 15.5 kilometres east south east of Moss Vale, the application traverses clockwise starting in a south-westerly direction, passing through points 2 to 36,765 of the following geographic coordinates (forming part of Attachment "B" of the application). They are in decimal degrees and referenced to Australian Geodetic Datum 1984 (AGD84). These coordinates are based on the position of spatial reference data sourced by Land

Information Centre, Department of Information Management and Technology, New South Wales as of 18 May 1999.

(b) Subject to clauses (d) and (e) the area covered by the application excludes any land or waters covered by:

(i) a scheduled interest;
(ii) freehold estate;
(iii) a commercial lease that is neither an agricultural lease nor a pastoral lease;
(iv) an exclusive agricultural lease or an exclusive pastoral lease;
(v) residential lease;
(vi) a community purposes lease;
(vii) a lease dissected from a mining lease as referred to in s233(2)(vii);
(viii) any lease (other than a mining lease) that confers a right of exclusive use over particular land or waters;

which was validly vested or granted on or before 23 December 1996.

(c) Subject to clauses (d) and (e) the area covered by the application excludes any area covered by the valid construction or establishment of any public work, where the construction or establishment of the public work commenced on or before 23 December 1996.

(d) Where the act specified in (b) and (c) falls within the provisions of

(i) s23B(9) - Exclusion of acts benefiting Aboriginal peoples or Torres Strait Islanders;
(ii) s23B (9A) - Establishment of a national or state park;
(iii) s23B (9B) - Acts where legislation provides for non-extinguishment;
(iv) s23B (9C) - Exclusion of Crown to Crown grants; and
(v) s23B (10) - Exclusion by regulation,

the area covered by the act is not excluded from this application.

(e) Where an act referred to in clauses (b) and (c) covers land or waters referred to in:

s47 - Pastoral leases held by native title claimants;
s47A - Reserves etc covered by claimant applications; and
s47B - Vacant crown land covered by claimant applications,

the area covered by the act is not excluded from the application.

(f) Where an area is covered by a previous non-exclusive possession act (s 23F) the native title claim group does not claim possession, occupation, use and enjoyment to the exclusion of all others.

(g) The area covered by the application excludes land where native title has been extinguished at common law.

(h) The area covered by the application excludes areas covered by prior Gundungurra claims filed with the National Native Title Tribunal being NC96/7, NC96/27, NC96/30, NC96/36 and 97/4.

Persons claiming to hold native title:

The members of the Gundungurra Tribal Council Aboriginal Corporation

Registered native title rights and interests:

The following Native Title Rights & Interests were entered on the Register on 23/06/2000:
1. Subject to (2) - (5) below, the full and free enjoyment of the following native title rights and interests area are claimed in relation to the land and waters the subject of the application.

a. A right to possess, occupy, use and enjoy the claim area;

b. A right to make decisions about the use and enjoyment of the claim area;

c. A right of access to the claimed area;

d. A right to control the access of others to the claimed area;

e. The right to control the use and enjoyment of others of resources of the claimed area.

2. With respect of those parts of the area the subject of the application which are, or have been, the subject of a previous non-exclusive possession act within the meaning of s 23F of the Native Title Act 1993, the native title rights and interests area set out in (1) are claimed subject to the rights and interests created in the 'non-exclusive possession act' which are not inconsistent with the rights and interests claimed and, in the case of rights granted which are inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause.

3. With respect to those parts of the area the subject of the application which are, or have been, the subject of:

a. a category B intermediate period act within the meaning of s232C of the Native Title Act 1993;

b. a category C intermediate period act within the meaning of s232D of the Native Title Act 1993;

c. a category D intermediate period act within the meaning of s232E of the Native Title Act 1993;

the native title rights and interests claimed are those set out in (1) above subject to the rights and interests created in the non-exclusive possession act which are not inconsistent with the rights and interests claimed and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any suspension of the native title rights and interests which those inconsistent rights and interests cause.

4. With respect to those parts of the area of the application which are, or have been, the subject of:

a. a category B past act within the meaning of s230 of the Native Title Act 1993;

b. a category C past act within the meaning of s231 of the Native Title Act 1993;

c. a category D past act within the meaning of s232 of the Native Title Act 1993;

the native title rights and interests claimed area those set out in (1) above subject to the rights and interests created in the non-exclusive possession act which are not inconsistent with the rights and interests claimed

and, in the case of any rights granted which are inconsistent with the rights and interests claimed, subject to any extinguishment or suspension of the native title rights and interests which those inconsistent rights and interests cause.

5. The native title rights and interests identified above do not extend to ownership of any minerals, petroleum or gas which are wholly owned by the Crown.

6. The native title rights and interests identified above do not include a claim for exclusive occupation and use of offshore areas as defined by s253 of the Native Title Act 1993.

Register attachments:

1. Attachment "A" : Map of Application Area, 1 page - A4, Attached 23/06/2000.

Note: The Register may, in accordance with s.188 of the Native Title Act 1993, contain confidential information that will not appear on the Extract.

NATIVE TITLE APPLICATION

as at 18/05/1999

Map created from data sourced from Land Information Centre, DIM&T, NSW
by Geospatial Information Unit, National Native Title Tribunal

NC97/007 (NG6060/98)

Gundungurra #8

Application Area = 18582.37 sq km

0 40

KILOMETRES

Latitude and Longitude lines on Australian Geodetic Datum 1966

NORTH

*Orange

*Bathurst

*Penrith

*Rose Hill

*SYDNEY

*Campbelltown

*WOLLONGONG

*Moss Vale

*Goulburn

34 S

150 E

ACT

Location of NC97/007
Within New South Wales & ACT

KAYANDEL