05

Studies

PRELIMINARY TRAFFIC ASSESSMENT

PROPOSED INDUSTRIAL ESTATES – BUSHELLS RIDGE

PREPARED FOR: DARKINJUNG LALC

JUNE 2011

REF: 11/014

PRELIMINARY TRAFFIC ASSESSMENT
PROPOSED INDUSTRIAL ESTATES
BUSHELLS RIDGE

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QUALITY ASSURANCE

This document has been prepared, checked and released in accordance with the Quality Control Standards established by Intersect Traffic Pty Ltd.

Issue	Date	Description	By
A	16/05/11	Draft	JG
B	05/06/11	Edit	TB
C	07/06/11	Final Proof	JG
D	08/06/11	Approved	JG

This document has been authorised by 

Date 8 June 2011

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1. INTRODUCTION

Intersect Traffic Pty Ltd (Intersect) has been engaged by Darkinjung Local Aboriginal Land Council (Darkinjung LALC) to undertake a preliminary traffic assessment for two industrial estate developments they are proposing on their lands in the Wyee area.

The two sites are in close proximity to each other and would share similar access connections to the local and arterial road network. The first site off Tooheys Road (Wallarah Estate) is located between the Link Road motorway and the northern railway line adjacent to the Tooheys Road interchange. This site is not currently zoned industrial therefore would need to be subject to a rezoning application.

The second site (Bushells Ridge Employment Estate) lies between Tooheys Road and Bushells Ridge Road, east of the F3 freeway and west of the northern railway line. Access is proposed via Tooheys Road adjacent to the Boral tile factory and Bushells Ridge Road thereby providing a link between the two roads. This site is zoned Industrial and has recently been accepted as a 'major project' under Part 3A of the EP&A Act 1979.

The purpose of this document is to undertake a preliminary assessment of likely traffic and transport impacts for these sites and provide advice to the client in regard to constraints, opportunities, likely upgrade works and costs relating to addressing and/or mitigating these impacts.

2. SITE LOCATION

The sites are located to the south-west of the township of Wyee on the NSW Central Coast and lie within the Wyong local government area. ***Figure 1*** below shows the site locations for both sites.

Both sites are vacant, well vegetated undeveloped sites. The Bushells Ridge Employment Estate has an area of approximately 260 ha of which it is proposed to develop 200 ha while the Wallarah Estate has an area of approximately 67 ha of which only 39 ha is proposed to be developed in a 72 lot development. Both sites have frontage to public roads providing access to the local and arterial road networks in the area.

Figure 1 – Site Location Plan

3. EXISTING ROAD NETWORK

The existing road network around the sites includes Tooheys Road, Motorway Link Road, Bushells Ridge Road, F3 Freeway and Wyee Road.

3.1 Tooheys Road

Under a functional road hierarchy Tooheys Road would be considered a local access road with its primary function being to provide access to local properties. In the vicinity of the Wallarah Estate Tooheys Road is a sealed road in excess of 7 metres wide. This section of Tooheys Road has been constructed to accommodate traffic from the nearby Boral Quarry and Tile Factory therefore is considered suitable for traffic generated by industrial development. As Tooheys Road heads west from the motorway it becomes an unsealed gravel road approximately 5.5 to 6 metres wide which would be unsuitable for industrial traffic.

Tooheys Road eventually passes under the F3 Freeway and connects to Bushells Ridge Road. In this section of road the carriageway narrows even further and the condition of the road deteriorates. The constructed underpass of the F3 Freeway however is considered suitable in width and height to accommodate industrial traffic however the road approaches would require upgrading to accommodate industrial traffic.

Photograph 1 – Tooheys Road overpass (Motorway link Road) near proposed Wallarah Estate

Photograph 2 – Tooheys Road west of Boral Quarry near proposed Bushells Ridge Employment Estate access.

Photograph 3 – Tooheys Road underpass (F3 Freeway)

3.2 Motorway Link Road

This road was previously part of the F3 Freeway before the Freeway was extended to Newcastle. As such it is constructed to a high standard as a two lane two way dual carriageway freeway i.e. no private accesses and grade separated intersections. It now provides the link for the areas at the northern end of the Central Coast i.e. Doyalson, Budgewoi, Lake Munmorah etc to access the F3 Freeway if their origin destination is south. It is noted its grade separated intersection with the F3 Freeway only allows south bound on and northbound off movements. Traffic from these areas wishing to head north or return from the north are likely to use Wyee Road to access the F3 Freeway's Mandalong Road interchange at Morisset or proceed to the Sparkes Road interchange to perform a 'U-turn' movement on the interchange.

At its intersection with Tooheys Road a grade separated full interchange is provided allowing on and off movements in both directions.

Under a functional road hierarchy it is considered to fill the role of a sub-arterial road providing linkage between sub regions in the area. It is considered suitable to carry industrial traffic.

The Motorway Link Road is a classified state road (MR675) under the care and control of the RTA.

Photograph 4 – Motorway Link Road (MR 675) near Tooheys Road interchange

3.3 Bushells Ridge Road

Bushells Ridge Road is a two lane two way rural road that connects Wyee Road at Wyee to Hue Hue Road at Kiar through the Bushells Ridge locality. It is a sealed road of variable width though it is characterised by narrow seal widths and poor vertical and horizontal alignment restricting safe travelling speeds along the road. It crosses both the F3 freeway and the northern railway line as reinforced concrete overpasses constructed to high standards. Both these structures are considered suitable for industrial traffic however it is considered some road upgrading and realignment will be required for Bushells Ridge Road to be suitable for industrial traffic.

Under a functional road hierarchy Bushells Ridge Road is considered to perform the function of a local collector road.

Photograph 5 – Bushells Ridge Road near F3 overpass

Photograph 6 – F3 overpass – Bushells Ridge Road

Photograph 7 – Northern Railway Line overpass – Bushells Ridge Road

3.4 F3 Freeway

The F3 freeway is a high volume, high speed freeway that connects Sydney and Newcastle. It passes adjacent to both development sites and is considered to be the main arterial transport route that will be used by traffic generated by the developments. In the vicinity of the site it is a four lane two way dual carriage way road. This road is access restricted with intersections treated as grade separated interchanges. The nearest interchanges to the sites are at Wallarah (half interchange northbound off, southbound on), Mandalong Road, Morisset (full interchange) and Sparkes Road, Warnervale (full interchange).

Under a functional road hierarchy the F3 Freeway performs the function of an arterial road. It is considered suitable for use by industrial traffic.

3.5 Wyee Road

Wyee Road is a sealed two way two lane road that connects Doyalson to Morisset. It is a classified main road (MR 454) that contains both urban and rural construction forms. At the time of inspection it was also characterised by variable widths and conditions however is considered suitable for use by industrial traffic. It is considered it would be used by traffic generated by the development sites with origin/destinations to the north under the current local road network conditions.

Under a functional road hierarchy it is considered that Wyee Road performs the function of a sub-arterial road.

Photograph 8 – Wyee Road at the Bushells Ridge Road intersection

4. TRAFFIC VOLUMES AND NETWORK CAPACITY

Current traffic volumes on the local road network have been sourced from the RTA and Wyong Council. These traffic volumes will need to be confirmed through manual or automatic counts as part of a detailed traffic assessment for the proposal.

The latest data has been extrapolated to 2011 using a compound traffic growth rate of 2 % per annum. The peak hour traffic volume if not recorded has been assumed as 8 % of the AADT for arterial and sub-arterial roads or 15 % for local roads.

Table 4.1 – Existing Traffic Volume Data

Road	Source	Count Year	AADT (vpd)	2011 AADT (vpd)	Peak Hour (vph)
F3 Freeway	RTA	2004	38,494	44,218	3,537
Motorway Link Road	RTA	2004	16,130	18,528	1,482
Wyee Road	RTA	2004	7,391	8,490	679
Bushells Ridge Road	Council	2006	159	175	20
Tooheys Road	Council	Not available	Not available	Not available	< 100 (estimate)

The capacity of roads is generally governed by the capacity of intersections on the road however Table 4.3 and 4.4 of the RTA's Guide to Traffic Generating Developments gives some guidance on the mid block capacity and expected levels of service on urban roads. These tables are produced over.

Table 4.3
Typical mid-block capacities for urban roads with interrupted flow

Type of Road	One-Way Mid-block Lane Capacity (pcu/hr)	
Median or inner lane:	Divided Road	1,000
	Undivided Road	900
Outer or kerb lane:	With Adjacent Parking Lane	900
	Clearway Conditions	900
	Occasional Parked Cars	600
4 lane undivided:	Occasional Parked Cars	1,500
	Clearway Conditions	1,800
4 lane divided:	Clearway Conditions	1,900

Table 4.4
Urban road peak hour flows per direction

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Assuming a satisfactory level of service D on the road network and for the current lane provision on the local road network it is assumed that the local road network has the following road capacities. It is also noted that the F3 Freeway and Motorway Link Road as high speed (grade separated intersections) are likely to have higher capacities than normal 4 lane and 2 lane roads.

Table 4.2 – Road Network Capacity

Road	Lanes	Two way capacity (vph)
F3 Freeway	4	8,000
Motorway Link Road	2	4,000
Wyee Road	2	2,200
Bushells Ridge Road	2	2,200
Tooheys Road	2	2,200

Therefore based on current traffic volumes it can be seen that the local road network currently has some spare capacity to cater for additional development in the area.

5. DEVELOPMENT PROPOSALS

In carrying out this preliminary traffic assessment two development proposals for the Darkinjung Local Aboriginal Council are being considered;

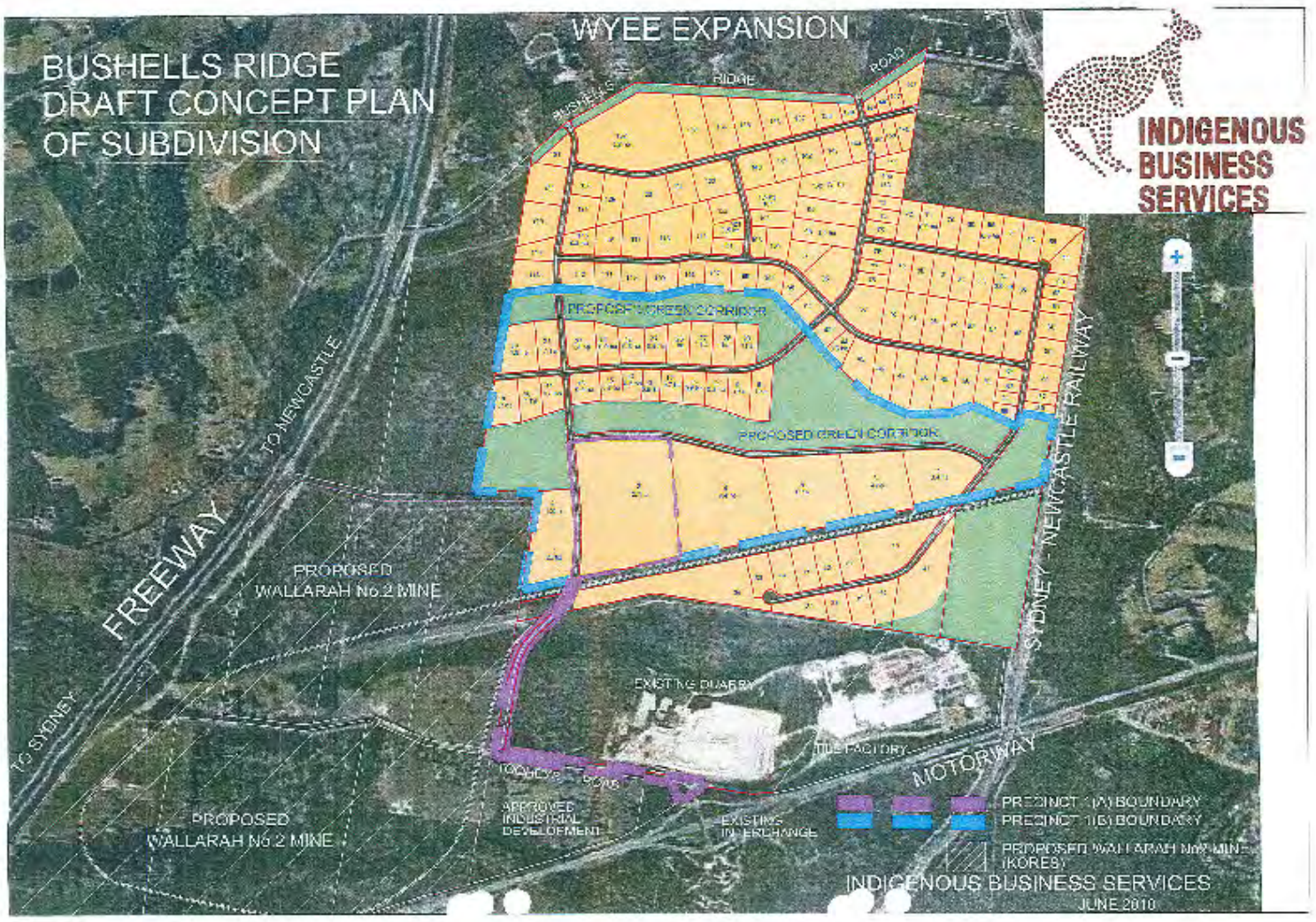

Figure 2 - Bushells Ridge Employment Estate – 200 hectares of Industrial land

Figure 3 - Wallarah Estate – 39 hectares of Industrial land in 72 lots

However there are other developments in the immediate area that may also need to be considered in the future. Whilst these will not be directly assessed in this report many comments and opinions will include allowance for this other development in the area. The Wyee structure plan shown below has been used as the basis for likely other future development in the area. This plan covers land immediately north of the subject industrial developments.

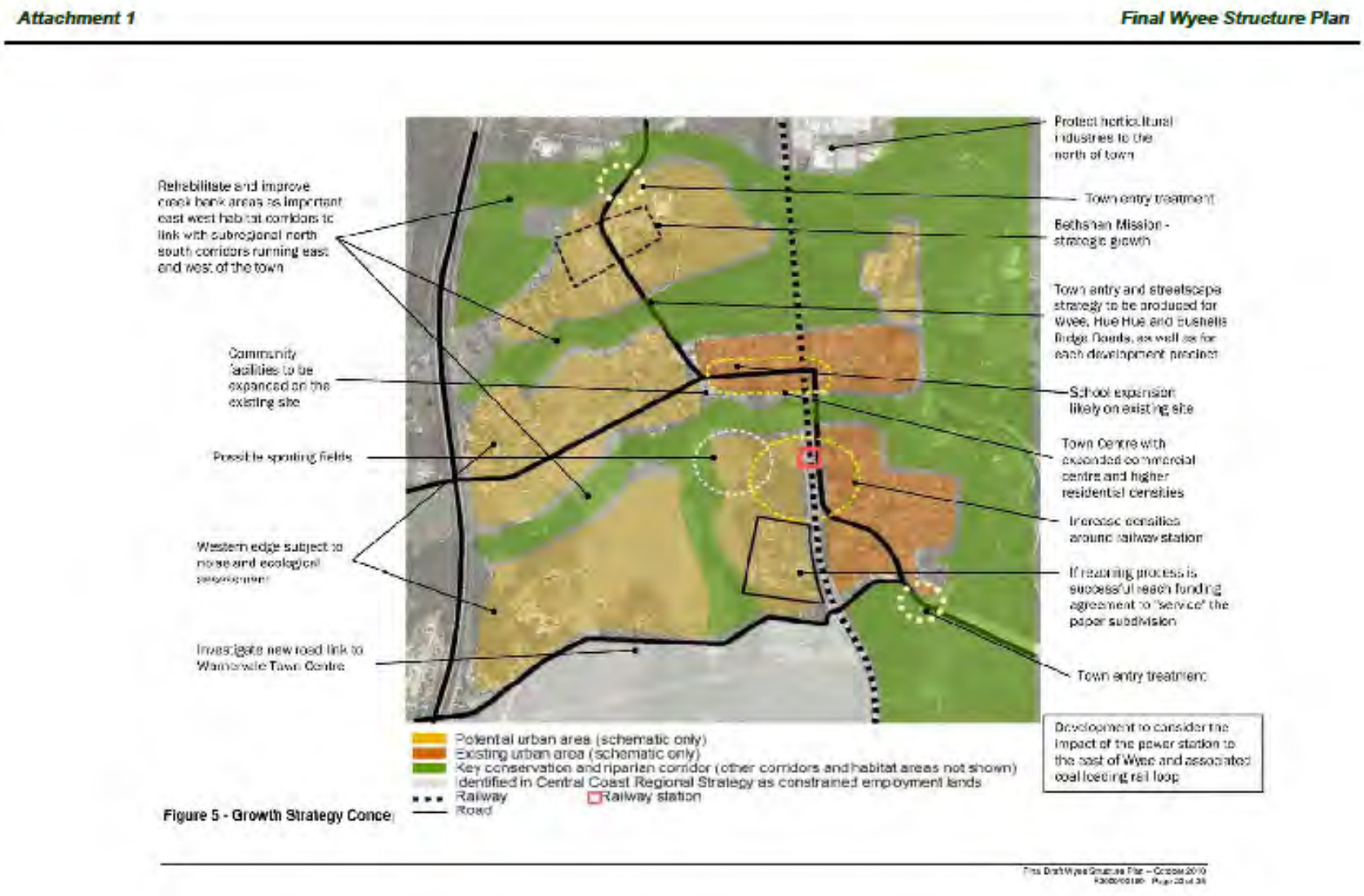

Figure 4 – Wyee Structure Plan

5. TRAFFIC GENERATION AND DISTRIBUTION

5.1 Traffic Generation

The first step in carrying out any traffic impact assessment is to determine the likely traffic generation and trip distribution from the sites. In determining the likely traffic generation rates recommended by the RTA for major industrial developments in the Newcastle area have been used. These are;

AM peak = Developable area x 0.35 / 100 x 0.58 vtph
PM peak = Developable area x 0.35 / 100 x 0.7 vtph

Bushells Ridge Employment Estate

AM peak = 2000000 x 0.35 /100 x 0.58 = 4,060 vph.
PM peak = 2000000 x 0.35 / 100 x 0.7 = 4,900 vph.

Wallarah Industrial Estate

AM peak = 390000 x 0.35 / 100 x 0.58 = 792 vph.
PM peak = 390000 x 0.35 / 100 x 0.70 = 956 vph.

5.2 Traffic Distribution

In distributing the traffic generated from these developments onto the local road network a number of assumptions need to be made in regard to origin / destinations, road network improvements and driver decisions. For the purpose of this assessment the following assumptions have been made;

1. The spine road within the Bushells Ridge Employment Estate linking Tooheys Road and Bushells Ridge Road will be constructed in full during the initial stages of the development.
2. 60 % of traffic will have origin destinations to the South i.e. Sydney and Central Coast while 40 % of traffic will have origin destinations to the North i.e. Newcastle, north coast and Hunter Valley.
3. In the AM peak 70 % of traffic will be inbound trips.
4. In the PM peak 60 % of traffic will be outbound trips.
5. Traffic with origin / destinations north from Wallarah Estate will use the Bushells Ridge Employment Estate spine road to access Bushells Ridge Road to Wyee Road and Mandalong Road to access F3 Freeway.
6. Traffic with origin / destinations south from Bushells Ridge Employment Estate will use Tooheys Road to access the Motorway Link Road to the F3 Freeway.
7. 10 % of trips will be local trips contained within the subdivisions themselves.
8. 20 % of trips north will be to the Wyee area therefore will not use F3 Freeway.
9. 20 % of trips south will be to Doyalson / Lake Munmorah therefore will not use F3 Freeway.

On this basis it is considered the developments have the potential to increase traffic on the local road network as shown in ***Table 5.1*** below:

Table 5.1 – Estimated additional peak hour traffic on local road network

Road Segment	AM peak (vph)	PM Peak (vph)
Bushells Ridge Road	1747	2108
Tooheys Road	2931	2990
Motorway Link Road	2620	3162
Wyee Road north of Bushells Ridge Road	1747	2108
F3 freeway north	1397	1687
F3 freeway south	2096	2530

6. GOVERNMENT AGENCY ADVICE

The Bushells Ridge Employment Estate has been accepted as a Part 3A major project under the EP & A Act and as such Director General Requirements have been issued for the project. The relevant transport and road infrastructure requirements are as follows;

- **Transport -** A detailed traffic impact study, including ;
  - identification of all existing and proposed traffic routes for access to/from the site and connections to the road network;
  - details of all types and volumes of traffic likely to be generated during construction and operation including an assessment of each stage of the development and at full capacity;
  - an assessment of the predicted impacts of this traffic on the capacity, efficiency and safety of the surrounding road network;
  - detailed modeling of traffic generation on existing and future intersections;
  - an assessment of where off site works are required as a result of traffic impacts;
  - an assessment of cumulative impact of traffic volumes from the proposal together with the existing and approved developments in the area; and
  - provisions for walking, cycling and public transport.
- **Infrastructure –** including;
  - a detailed written and graphical description of the infrastructure (particularly road, water, electricity and sewer infrastructure) that is required on site;
  - potential impacts on any existing infrastructure, such as Transgrid powerlines;
  - identification of the infrastructure upgrades required off-site to facilitate the orderly and economic development of the proposal; and
  - a description of how infrastructure provision would be co-ordinated to ensure that infrastructure is in place prior to the detailed development of the site.

The DGR's also require consultation with the RTA and Wyong Council. Initial advice from these organizations has also been obtained and issues additional to those mentioned above in the DGR's of relevance to this assessment are;

- Requirement for traffic assessment to be in accordance with Department of Planning EIS Guidelines *Roads and Related Facilities* and RTA's *Guide to Traffic Generating Developments.*
- Any identified improvements are to be designed to cater for B-Doubles and B-Triples;
- Road pavements to be heavily bound (RTA Spec) excepting for requirements for intersections and be designed for design traffic loading not less than 3×10^7 ESA.
- A minimum four indented uncoupling areas to be provided throughout the site.
- All road, traffic and transport systems to be designed with "safe systems" approach applying appropriate road safety measures.
- Cycleway and pathway systems (on and off road) to be provided to and throughout the development including the provision of end of journey facilities such as bike parking, showering , etc.
- Public transport, consisting of bus shelters, bus stops and bus servicing to be provided.
- Bus servicing needs to be provided in accordance with the local bus company and New South Wales Transport (NSWT) requirements. The applicant needs to provide a letter from NSWT and local bus company stating that it will agree to extend the current bus service to include the proposed development.
- The staging of the development should facilitate/encourage use of Public Transport. There should be adequate and proper bus service facilities for each stage of the development, including "U" turn provisions where required. The staging is to be to the satisfaction of NSWT and Council. Any bus route, through the development which is acceptable to the NSWT and bus operator, must be fully constructed in Stage 1 of the development to encourage public transport use.

The proposed bus stop locations should be identified on plans following discussions with the local bus operators and NSWT, for approval by the Local Traffic Committee. Bus shelters, are also required at these locations.

- The proposed bus stop locations should be identified on plans following discussions with the local bus operators and NSWT, for approval by the Local Traffic Committee. Bus shelters, are also required at these locations.
- Consideration should be given to the provision of a freeway off ramp for southbound vehicles onto the Link Road.
- The north-eastern access from the site to Bushells Ridge Road is considered to be too close to the existing intersection of Bushells Ridge Road and Dillabirra Road.
- Bushells Ridge Road, Gosford Road, the railway bridge and the Gosford Road / Wyee Road intersection will require full upgrading.
- The Gosford Road / Pacific Highway intersection will require modeling and upgrading in accordance with the requirements of the RTA.
- Wyee Road will require upgrading.
- A dilapidation survey of any haulage route for the removal and importation of materials is required.

This information will be used along with the traffic generation and distribution calculations of Section 5 as the basis for this preliminary traffic assessment. Whilst not being a detailed study to satisfy these requirements it will provide some strategic direction for the client in regard to likely road network upgrades resulting from these developments.

7. TRAFFIC AND TRANSPORT IMPACTS

Road network capacity is the main traffic constraint for any development and in urban areas the main control for road network capacity is intersection capacity. It was outside the brief of this assessment to undertake detailed intersection analysis however based on observation, projected traffic volumes and the advice from Wyong Council preliminary assessments of the main road network constraints for these developments can be made. In providing this advice three development scenarios have been considered being;

1. Development of Wallarah Estate only;
2. Development of Bushells Ridge Estate only; and
3. Development of both Wallarah Estate and Bushells Ridge Estate.

There are a number of traffic and transport issues raised by the RTA and Council that would generally apply to all the development scenarios. These would mainly require suitable facilities being provided within the estates however also have some impact for external works. This particularly applies to alternate transport modes i.e. public transport as well as pedestrian and cycle facilities. Based on the Council advice in particular it is considered in regard to the external road network that any new road works would need to include either an on or off road cycleway as well as consideration of the need for pedestrian facilities. Discussions would also need to occur with the bus company and NSWT at DA stage to determine if the bus company is willing to extend the existing Wyee / Doyalson services to the sites and if so what facilities NSWT would require.

The requirement to design for B-Doubles and B-Triples will mainly impact on intersection upgrades requiring additional width to accommodate the turning paths for these larger vehicles.

Specific traffic impacts relating to vehicular traffic generated by the different development scenarios have been summarised below. A number of preliminary concept plans have been prepared to illustrate some of the likely infrastructure upgrades. These are provided in ***Appendix 1***.

7.1 Wallarah Estate Only

As described above this estate has the potential to generate approximately 956 vph in the PM peak. If constructed alone it is expected that all traffic will access the site via the Motorway Link Road and the Tooheys Road interchange. Therefore traffic is likely to use the F3 Freeway, Motorway Link Road, Pacific Highway at Doyalson and Wyee Road to access the site.

In terms of mid block road capacity this existing road network is considered to have sufficient spare capacity to cater for the traffic generated by the development therefore I would not expect that any significant road widening for additional lanes would be required on this road network.

The only intersection that may need to be analysed in respect of this development scenario is the Pacific Highway / Wyee Road intersection at Doyalson. This intersection is however already a signalised high standard intersection and as such my professional opinion is that any upgrading works would be more likely to be signal phase and cycle time changes rather than physical works.

7.2 Bushells Ridge Employment Estate Only

Fully developed this has the potential to generate up to 4,900 vph in the PM peak distributed on the road network consisting of Bushells Ridge Road, Tooheys Road; Motorway Link Road, Wyee Road and the F3 Freeway. With this traffic generation it is recommended that the internal spine road within the Estate be constructed as a four lane dual carriageway road though for initial stages it may well be that only one carriageway be constructed initially.

It is likely that the mid block capacity of Bushells Ridge Road, Tooheys Road and Wyee Road would be exceeded by this development along with other likely developments in the area and these roads would need to be upgraded to four (4) lane roads to cater for this traffic. In regard to this upgrading a number of constraints have been indentified;

- Current road reserve widths and need for property acquisition;
- Wyee Road / Gosford Street (Bushells Ridge Road) intersection – traffic signals likely to be needed as well as additional lanes.
- Tooheys Road interchange overpass – Motorway Link Road – likely to require widening to 4 lanes.
- Tooheys Road interchange – Motorway Link Road – additional lanes on access ramps.
- Bushells Ridge Road railway overpass – likely to require widening to 4 lanes as well as a road realignment on western approach.
- Wyee Road rail overbridge – likely to require widening to 4 lanes.

In regard to costs of upgrading these works it is expected that Darkinjung LALC as one of the major developers would be required to fund a significant portion of the Bushells Ridge Road and Tooheys Road upgradings including their connections to Wyee Road and the Motorway Link Road. Wyee Road upgrading is more likely to be shared between existing and future development in the area through the RTA applying a State Infrastructure Levy on all developments in the area.

In terms of direct costs it is very difficult to estimate the cost of property acquisition or road upgrading costs without the benefit of design plans however I would not be surprised if road upgrading costs for just Bushells Ridge Road and Tooheys Road was in the vicinity of $ 15 to $ 20 million dollars.

It is noted that Wyong Council has recommended that a connection to the F3 Freeway for southbound vehicles to and northbound vehicles from the site be investigated for this development. This could be achieved either at the Bushells Ridge Road overpass or the Tooheys Road underpass. Either of these options is likely to reduce upgrading requirements on the rest of the network as the resulting traffic distribution changes will mean that the road capacities of Bushells Ridge Road to Wyee Road and Wyee Road itself will not be exceeded. The likely upgrading works not required should the freeway interchange be constructed include;

- Bushells Ridge Road from the site to Wyee Road would not need to be widened to 4 lanes including the railway overpass.
- Wyee Road would not need to be widened to 4 lanes, including the railway overbridge.
- Wyee Road / Gosford Street intersection upgrading works significantly reduced.

The cost to provide a part interchange to the F3 Freeway at either Bushells Ridge Road or Tooheys Road is likely to be in the order of $ 10 million dollars while the savings from road upgrading works on Bushells Ridge Road alone would be in the order $ 6 million. It is also likely that further savings would occur due to the fact that Wyee Road would not need widening thus the State Infrastructure Levy likely to be applied by the RTA would be significantly less with the construction of the interchange. There is also opportunity to share costs for the interchange with other developments in the area. Overall I do not think it would be difficult to justify the construction costs of the additional F3 Freeway interchange connection as proposed by Wyong Council.

Staging of the development may allow some of the estate to be developed prior to major upgrading works occurring. It is understood due to servicing constraints staging would occur from Tooheys Road rather than from Bushells Ridge Road. Therefore it is considered staging from Tooheys Road would minimise initial road infrastructure costs and allow Darkinjung LALC to fund future road infrastructure works from the profits of early stage land sales. Note development of the Wallarah mine may allow some cost sharing of infrastructure upgrades in the Tooheys Road area.

7.3 Bushells Ridge Employment Estate and Wallarah Estate together

Fully developed this development scenario has the potential to generate approximately 5,860 vph in the PM peak distributed on the road network consisting of Bushells Ridge Road, Tooheys Road; Motorway Link Road, Wyee Road and the F3 Freeway. As the Wallarah Industrial Estate is a relatively small development compared to the Bushells Ridge Employment Estate it is the road infrastructure impacts of the Bushells Ridge Employment Estate that dominate. Therefore in reviewing the impacts of this development scenario it was found that the comments made above for just the Bushells Ridge Employment Estate are also applicable for this development scenario.

8. CONCLUSIONS

This preliminary traffic assessment for the Bushells Ridge Employment Estate and the Wallarah Estate properties owned by the Darkinjung LALC has determined the following;

- The Bushells Ridge Employment Estate would have the potential when fully developed to generate up to 4,900 vtpd on the local road network in the PM peak.
- The Wallarah Estate when fully developed has the potential when fully developed to generate in the order of 956 vtpd on the local road network in the PM peak.
- The current road network around the site is typically two lane two way rural and urban roads with a likely road network capacity of up to 2,200 vph.
- The F3 Freeway (4 lanes) and the Motorway Link Road (2 lanes) have been constructed as high speed dual carriageway arterial roads therefore are likely to have higher road capacities than normal 4 lane and 2 lane roads. Likely capacities would be in the order of 8,000 vph and 4,000 vph respectively.
- The current road network is operating below capacity therefore some spare capacity exists to cater for new development in the area.
- The Wallarah Estate traffic generation could be catered for within the existing road network without the need for major upgrades of the road network though the development of the Wallarah mine areas may have an impact on this preliminary assessment.
- The existing road network does not have the capacity to cater for the additional traffic generated by the Bushells Ridge Employment Estate therefore it is likely major upgrades will be required with the development of this area. Of particular concern is Wyee Road which may need to be widened to 4 lanes presenting many costly logistical concerns such as property acquisition and structure widening e.g. Wyee Railway Bridge. Connections to the arterial road network via Bushells Ridge Road and Tooheys Road may also need to be 4 lane roads particularly if other developments in the area proceed. Once again property acquisition to accommodate the road and structure widening e.g. Bushells Ridge Road Railway Bridge become major concerns.
- A direct connection to the F3 freeway off either Bushells Ridge Road or Tooheys Road for vehicles with origin / destinations to the north is likely to alleviate the requirement for Wyee Road to be widened to 4 lanes and is also likely to reduce road upgrading costs for Bushells Ridge Road from the site to Wyee Road. E.g. negates widening requirement for the Bushells Ridge Road railway overpass. My opinion is that it will not be hard to justify the cost of the F3 Freeway connection in terms of savings from other road network upgrades not required as a result of the connection.
- F3 freeway connections at Bushells Ridge Road and Tooheys Road are both considered feasible though both will require property acquisition ***(see Appendix 1)***. I am of the opinion though that the Bushells Ridge Road connection will be the better option as it is likely to require less additional road works and would be more beneficial to other developments in the area thereby increasing the cost sharing opportunities for the developer.
- Staging of the Bushells Ridge Employment Estate from the south off Tooheys Road with small stages may be possible without the need for major road upgrades. This will need to be assessed at DA stage once the proposed staged developed areas are known. Traffic from this development could be monitored upon completion to provide more accurate traffic generation and trip distribution data for use in traffic impact assessments of later stages. This would also allow the developer to begin developing the site while undertaking the time consuming process of obtaining RTA design approval for any proposed F3 freeway connection as well as acquiring the required property.

9. RECOMMENDATIONS

Having carried out this preliminary traffic assessment of industrial projects in the Bushells Ridge and Wallarah areas for the Darkinjung LALC the following recommendations are made;

1. In the short term Darkinjung LALC should be focusing on either the Wallarah Estate or some small stages in the southern areas of the Bushells Ridge Employment Estate with access off Tooheys Road. It is likely that this development could be carried out with little or no external road work requirements though the RTA may apply the State Infrastructure Levy to cover some upgrades to the Pacific Highway and Wyee Road.

2. The full development of the Bushells Ridge Employment Estate in my opinion should include a direct connection to the F3 freeway at Bushells Ridge Road. This will negate the need to widen Wyee Road to at least 4 lanes and will provide benefit to other developments in the area. Therefore there should be cost sharing opportunities for Darkinjung LALC for this work. The planning and approval process for this project will however be lengthy. Therefore I see benefit in proceeding to prepare more detailed concept plans and begin formal discussions with the RTA on this matter as soon as possible.

JR Garry BE (Civil), Masters of Traffic
Director
Intersect Traffic Pty Ltd

APPENDIX 1

PRELIMINARY CONCEPT PLANS


21 Isaacs Street, Metford NSW 2323
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N
PLAN INFORMATION: PROPOSED ON AND OFF RAMP
BUSHELLS RIDGE ROAD AND
NEWCASTLE - SYDNEY FREEWAY
SITE DESCRIPTION: BUSHELLS RIDGE & SURROUNDS
CLIENT: DARKINJUNG LALC
JOB REF:11/014
DATE: 27/05/2011
SCALE:1:800@A3
SHEET 1 OF 1 SHEETS
DWG: roadupgrades.dwg

APPENDIX 1

21 Isaacs Street, Metford NSW 2323
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PLAN INFORMATION: PROPOSED ON AND OFF RAMP TOOHEYS ROAD AND NEWCASTLE - SYDNEY FREEWAY

SITE DESCRIPTION: BUSHELLS RIDGE & SURROUNDS

CLIENT: DARKINJUNG LALC | JOB REF: 11/014 | DATE: 27/05/2011

SCALE: 1:1000@A3 | SHEET 1 OF 1 SHEETS | DWG: roadupgrades.dwg

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PLAN INFORMATION: PROPOSED ROAD WIDENING OF THE ON & OFF RAMP , TOOHEYS ROAD AND MOTOR LINK

SITE DESCRIPTION: BUSHELLS RIDGE & SURROUNDS

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town planning and environmental consultants

maximising outcomes

North Wyong Lands Conservation Strategy

Prepared for:
Darkinjung LALC

Date:
October 2012

00009D_R2

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Darkinjung Local Aboriginal Land Council

North Wyong Conservation Strategy

Prepared For:

Darkinjung Local Aboriginal Land Council

October 2012

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***Report Title*:**	**Darkinjung Local Aboriginal Land Council**
***Project Description*:**	**North Wyong Conservation Strategy**
***Client*:**	*Darkinjung Local Aboriginal Land Council*
***Report No.*:**	*00009D_R1*
Draft/Final:	Draft

PDA Services and the authors responsible for the preparation and compilation of this report declare that we do not have, nor expect to have a beneficial interest in the study area of this project and will not benefit from any of the recommendations outlined in this report.

The preparation of this report has been in accordance with the project brief provided by the Darkinjung Local Aboriginal Land Council and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All maps and plans contained within this report are prepared for the exclusive use of Darkinjung Local Aboriginal Land Council to accompany this report for the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes apart from those stated therein.

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Prepared/Approved By:	*Tony Fish*
Position:	*Senior Environmental Planner*
Signed:	*A signed copy can be provided upon request*
Date:	19 October 2012

Document Distribution - 00009D_R1				
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1	1	PDF	ADW Johnson	19/10/12

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Executive Summary

The Darkinjung Local Aboriginal Land Council (LALC)is located on the Central Coast of New South Wales. Covering an area of approximately 1,855km^2, its boundaries stretch from Catherine Hill Bay to the north, Hawkesbury River to the south, Pacific Ocean to the east and Watagan Mountains to the west.

Darkinjung LALC was created in 1984, under the provisions of the NSW Aboriginal Land Rights Act 1983 (ALRA). The Land Council is a community based organisation and is registered as a public benevolent institution.

A primary function of a Land Council is to acquire land and manage land. Acquisition generally occurs through the lodgement of a Land Claim over certain vacant Crown Land. Since inception, the Darkinjung LALC has been successful in securing a portfolio of approximately 6,000 hectares, with undetermined Land Claims over a further 9,000ha – making Darkinjung LALC the largest non-government landowner on the Coast. This land portfolio is expected to grow over the coming years as further claims are determined and is a similar situation with many other Land Council,.

In accordance with the ALRA, the Darkinjung LALC has prepared a Community Land and Business Plan 2012-2015 (Plan 2012-15) to reflect the needs of its members and the organisation's strategic priorities. These strategic priorities are to:

- Provide a foundation built on harmony, unity and respect through the development of programs and initiatives that enhances the social wellbeing and participation of the Darkinjung LALC community;
- Maintain, strengthen and celebrate our Culture, Heritage and Environment to sustain our identity for future generations;
- Continue to operate and function as a professional dynamic business built on respect, integrity, transparency and accountability; and
- Maintain economic sustainability through investments and management of current and future assets.

In response to the meeting the abovementioned relevant goals and strategies, Darkinjung LALC has recognised the need to establish a Darkinjung LALC Land Strategy. This Land Strategy would identify development opportunities and also conservation outcomes for Darkinjung owned land across the whole LALC area. The timing for the development of this Land Strategy is important as Darkinjung LALC moves from what has been largely a research and investigation phase (in relation to land matters), now transitioning into a development and delivery phase.

The preparation of this document also coincides with a number of legislative reviews including NSW planning reforms (e.g. "Green Paper"), Biobanking methodology, the protection and conservation of Aboriginal culture and heritage, Native Vegetation Act, Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999,. the NSW Aboriginal Land Rights Act, and local planning policies including the Central Coast Regional Strategy, North Wyong Shire Structure Plan and draft Wyong LEP 2012.

North Wyong Land Release Areas

In November 2010, the Department of Planning released the *Draft North Wyong Shire Structure Plan.* The release of this document prompted Darkinjung LALC to undertake urgent review of its land holdings within the Structure Plan area as most if it's holdings were identified within future conservation corridors. The

Darkinjung LALC review identified a number of parcels as having potential for future residential or employment uses.

These areas are:

- Bushells Ridge North and South (Employment land);
- Bushells Ridge East (Residential land);
- Railcorp/Link Road Employment Estate (Employment land);
- Lake Munmorah (Residential land);and
- Halekulani (Residential land).

In addition to the above development sites, Darkinjung LALC also identified significant conservation offset land, strategically located providing linkages north-south & east-west through North Wyong. It is noted that the Department's Draft Structure Plan, whilst referring to State significant clay resources in the Bushells Ridge area, does not identify this resource within the green corridors and linkages on the Draft Structure Plan map.

Darkinjung LALC provided a formal response to the Department's Draft Structure Plan in December 2010, outlining the future potential of the above development sites. This report provides further detail on the strategy for proposed conservation offset lands. .

A Conservation Strategy

Darkinjung LALC recognises that its role as a private land manager is important for habitat conservation and protecting threatened species and cultural heritage places.

This North Wyong Conservation Strategy forms part of the broader Darkinjung LALC Land Strategy as it relates to the proposed North Wyong Shire Land Release Areas.

The Conservation Strategy aims to outline the Darkinjung LALC's prepared approach to the future conservation and management of its lands that are to be retained for conservation purposes.

It is critical to the Conservation Strategy that the methodology for assessment of the Development sites and the Conservation sites be robust and accurate with regard to identifying the biodiversity values. The best available information/data will be used when assessing impacts of biodiversity loss and gains from offsets.

The Methodology for determining the adequacy of offset for development impacts has been developed through consideration of both Commonwealth and NSW Offsetting principles.

The conservation of Darkinjung lands will be carried out by the protection and management of land using such mechanisms as the Conservation Partners Program. This will require covenants to be provided on the lands to enable management of the lands for biodiversity improvement in accordance with Management Plans.

Lands identified for conservation are proposed to offset the biodiversity impacts on the development lands outlined above. The development lands and offset lands are shown in the attached **Proposed Offset Lands** figure. Also shown is the possible additional offset lands that may result from future successful land claims.

The ratio of offset to development lands for the Darkinjung owned sites is 1.3 to 1. The offset ratio could be improved if additional lands (subject to Land Claim and/or having significant mineral resources) are added at a later date. This report outlines the commitment of the Darkinjung LALC to conserving these important natural assets in the Wyong Shire.

As shown in the **Proposed Offset Lands** figure, the location of the conservation sites provide significant value to the enhancement of biodiversity corridors and linkages within the North Wyong locality and will contribute significantly to the retention and enhancement of biodiversity in the region.

Conservation Management

Darkinjung LALC has been successful in securing almost 6,000ha of former Crown land since 1983, with a further 9,000ha under Land Claim. This land, under Crown control, had little, if any, environmental management controls.

Since that time Darkinjung LALC has developed management programs, undertaken various forms of deterrent works, weed and pest management program's and revegetation works with a significant annual management budget. These measures have significantly 'improved' pre-existing environmental conditions under Crown control.

Much of the land being managed is located within 'strategic corridors' and forms (or can form) part of a broader conservation network, through the cooperation with other LALC's.

Site specific management plans will be prepared for the conservation sites. The plans will be based on management principles that will improve biodiversity values of the sites. The Management Plans will outline the extent of works for the sites and provide a program and budget estimates for the carrying out of such works.

Conclusion

Darkinjung LALC has significant holdings in the North Wyong Shire which it seeks to develop and conserve for the benefit of Aboriginal people and the broader community on the Central Coast. The development of some of these sites will help the LALC achieve the goals outlined in its Community Land and Business Plan 2012-2015 so as to ensure financial security and the delivery of long term sustainable outcomes for the community.

A significant point of difference between the Land Council and others in the development industry is that the Land Council already holds significant vegetated land, but requires the economic opportunity to provide sustainable management programs, whilst the development industry generally secures an economic site and then seeks to provide an environmental offset.

Darkinjung LALC recognises that a substantial proportion of its current (and possible future) land has significant biodiversity values and its conservation would greatly contribute to the retention and improvement of biodiversity and cultural heritage values in the Wyong Shire.

This Strategy has been prepared to outline the Darkinjung commitment to offsetting the impact of its future developments whilst retaining and managing such significant lands in perpetuity for the benefit of future generations.

The key to delivery of this Strategy is a conservation offset ratio that recognises the Function, Objectives and Goals of the Land Council and its position as a significant landowner across the region with the ability to deliver real outcomes.

Introduction

1.1 Background

The Darkinjung Local Aboriginal Land Council (LALC) is located on the Central Coast of New South Wales. Covering an area of approximately 1,855km^2, its boundaries stretch from Catherine Hill Bay to the north, Hawkesbury River to the south, Pacific Ocean to the east and Watagan Mountains to the west.

Darkinjung LALC was created in 1984, under the provisions of the NSW Aboriginal Land Rights Act 1983 (ALRA). The preamble to the ALRA states;

> *WHEREAS*:
>
> *(1) Land in the State of New South Wales was traditionally owned and occupied by Aborigines*:
>
> *(2) Land is of spiritual, social, cultural and economic importance to Aborigines*:
>
> *(3) It is fitting to acknowledge the importance which land has for Aborigines and the need of Aborigines for land*:
>
> *(4) It is accepted that as a result of past Government decisions the amount of land set aside for Aborigines has been progressively reduced without compensation*:

A primary function of a Land Council is to acquire land and manage land. Acquisition generally occurs through the lodgement of a Land Claim over certain vacant Crown Land.

Since inception, the Darkinjung LALC has been successful in securing a portfolio of approximately 6,000 hectares, with underdetermined Land Claims over a further 9,000ha – making Darkinjung LALC the largest non-government landowners on the Coast. This land portfolio is expected to grow over the coming years as further claims are determined. This is a similar situation with many other Land Councils.

Some of the land granted is “Legacy Land” – that is, former Crown land that has been previously used as landfill sites, quarries or generally left in a deteriorated state from the impacts of unauthorized dumping, vegetation removal for firewood, clearing for motorbike & 4WD tracks, uncontrolled weed growth etc . Now, as responsible land owners, Darkinjung LALC is responsible for site security, remediation and rehabilitation.

Darkinjung LALC has constantly focused on improving the health and wellbeing of the community. It achieves this objective by implementing policies and procedures through the operational functions of an Aboriginal Land Council, and in accordance with the NSW ALR Act.

The Darkinjung LALC is positioned within two Local Government Areas (LGA’s) these being Wyong Shire Council and Gosford City Council, with an estimated shared population of over 304,744 and an estimated shared Aboriginal population of over 9,000 (ABS Census 2011).

The geographical area of Darkinjung LALC has been gazetted by Parliament and is bounded by the Hawkesbury River in the South, the Pacific Ocean in the East, Lake Macquarie in the North and West to the Watagan Mountains. Darkinjung LALC shares its boundaries with neighbours Bahtabah LALC and Metropolitan LALC which were established around the traditional boundaries of the region.

The Darkinjung LALC region is rich in Aboriginal culture and heritage, largely due to the diverse landscapes ranging from vast coastal estuarine to mountainous peaks and fresh waterways. The Landscape is rich in resources of coal, sandstone, flora and fauna and as over 7000 thousand registered Aboriginal sites.

1.2 Current land management issues

It has been noted that some of the land granted is "Legacy Land" – that is, former Crown land that has been previously used as landfill sites, quarries or generally left in a deteriorated state from the impacts of unauthorized dumping, vegetation removal for firewood, clearing for motorbike & 4WD tracks, uncontrolled weed growth etc . Now, as responsible land owners, Darkinjung LALC is responsible for site security, remediation and rehabilitation.

Expenditure by Darkinjung LALC on land management activities continues to increase as land registers are updated – identifying those sites in need of immediate expenditure, by simply addition to the land portfolio and more concerning the increase in illegal dumping and other activities.

For the three years to June 2012, Darkinjung expenditure on land management activities totals approximately $300,000. Approximately $175,000 was spent within the period 2011-2012 alone. This expenditure is forecast to grow. Included in Appendix A is a recent extract from the local media highlighting this case.

Included in the figures to this report are some examples of current illegal dumping across the northern part of Wyong Shire and deterrent works by Darkinjung LALC. Included at Appendix A is a recent extract from the local media highlighting this problem.

1.3 Strategic Direction

The Darkinjung Local Aboriginal Land Council (Darkinjung LALC) has prepared a Community Land and Business Plan 2012-2015 (Plan 2012-15) to reflect the needs of its members and the organisation's strategic priorities.

These strategic priorities are to:

- Provide a foundation built on harmony, unity and respect through the development of programs and initiatives that enhances the social wellbeing and participation of the Darkinjung LALC community;
- Maintain, strengthen and celebrate our Culture, Heritage and Environment to sustain our identity for future generations;
- Continue to operate and function as a professional dynamic business built on respect, integrity, transparency and accountability; and
- Maintain economic sustainability through investments and management of current and future assets.

Darkinjung LALC follows a number of principles to help determine its decisions and actions. These principles are:

- Self Determination;
- Social and Restorative Justice;
- Equity and Equality;
- Accountability and Transparency;
- Advocacy; and

- Negotiated Partnership.

Darkinjung LALC is a lighthouse statutory authority that acknowledges and achieves its compliance obligations and is guided by the principles of Aboriginal self-determination and self-governance through the pursuit of social and restorative justice for Aboriginal people.

Darkinjung LALC has a land development program that will contribute funding to enable the achievement of its strategic priorities not only over the next three years of its current business plan, but also for generations to come.

1.4 Relevant Goals and Strategies

Plan 2012-15 outlines the goals and strategies that were considered to be of the highest priority for the Darkinjung community for the next three years.

The Plan 2012-15 identifies the need to establish a Land Strategy(page 23).

The relevant goals and strategies of Plan 2012-15 that provide a basis for establishing a Land Strategy are listed below.

Goal 2

To maintain, strengthen and celebrate our Culture, Heritage and Environment to sustain our identity for future generations.

Strategy 2.3

Maintain and regenerate land and sites within the Darkinjung LALC region.

Strategy 2.4

Continue to work in conjunction with all key stakeholders to provide preservation and protection of our Aboriginal Cultural Heritage sites and places including acquisition of Culturally significant land.

Goal 4

To maintain economic sustainability through investments and management of current and future assets.

Strategy 4.1

Negotiate and develop partnerships that enhance enterprise, employment, economic and social opportunities to ensure a sustainable future for Darkinjung LALC.

Strategy 4.2

Increase the economic base of the Darkinjung LALC through land claims and strategic acquisition, management and disposal strategies.

1.5 Land Strategy

In response to meeting the abovementioned relevant goals and strategies, Darkinjung LALC has recognised the need to establish a Darkinjung LALC Land Strategy. This land strategy would identify development opportunities and also conservation outcomes for Darkinjung owned land across the whole LALC area.

1.6 North Wyong Land Release Areas

Darkinjung LALC owned significant parcels of land in North Wyong that they have identified as having potential for future development. These areas are:

- **Bushells Ridge (North & South)**

  The Bushells Ridge site has an area of approximately 260ha and is currently zoned 4(e) Regional Industrial & Employment Development. Darkinjung LALC have lodged an application with the Department of Planning under the former Part 3A provisions. Director General Requirements (DGR's) outlining those matters requiring detailed investigations were issued in March 2011 and are currently being actioned.

  The initial concept plan lodged with the application detailed subdivision of the site into approximately 150 allotments for new employment uses. A refined plan now indicates approximately 100ha of developable land north of, and 92ha south of, a central conservation corridor of approximately 77ha, linking to other conservation lands in the locality.

  Bushells Ridge is well located, with frontage to the main north-south railway and close proximity to the F3 freeway. The site is also close to other major developments in the immediate area including the rezoning for 1,000 residential lots at Wyee (part of longer terms plans for an additional 2000 lots), proposed KORES (Wallarah No. 2) coal mine, and proposed RailCorp stabling yards. Part of the Part 3A site, and surrounds) may also contain State Significant clay deposits essential for the manufacture of roofing tiles.

- **Bushells Ridge East**

  The site has an area of approximately 43ha and is located at the southern entry to the existing Wyee Urban area. Land around Wyee has been identified for future growth, with 2,000 lots planned around the existing village over the next 25yrs.

  A concept subdivision for the subject land indicates a potential lot yield of approximately 400 lots, with adjacent land to be dedicated as conservation lands, connecting to other conservation lands in the locality.

- **Railcorp/ Link Road Employment Estate**

  This site has an area of approximately 38ha and is located adjacent to the main north-south railway and close proximity to the F3 freeway. Concept plans have been prepared detailing approximately 72 light industrial/employment lots. More recently RailCorp has approached Darkinjung LALC for the acquisition of approximately 11ha of the site for a train stabling yard and future administration building.

  The site has formed access via the Tooheys Road overpass, connecting the site to the Motorway Link Rd, then F3 Freeway. Rezoning of the site to industrial/employment lands is a logical and compatible use to the proposed adjacent train stabling yards.

- **Lake Munmorah**

  The site has a total area of approximately 163ha, with approximately 75ha identified as future residential potential. A concept plan has been prepared indicating a future lot yield of approximately 620 residential lots. The site is located adjacent to existing schools, and in close proximity to future retail and medical facilities, existing sporting and recreation facilities

  The site is located directly off the Pacific Highway, providing good access to transport facilities heading to higher order retail & service facilities located within Wyong Shire and the Lower Hunter;

  Development over part of the site will not compromise regional environmental corridors. Opportunity exits to secure long term, funded conservation/land management measures through the BioBanking Offset Scheme.

- **Halekulani**

  This site has an area of approximately 13.5ha. A development application has been lodged with Wyong Shire Council for a Manufactured Home Estate over this land, and is currently under assessment by Wyong Council.

1.7 Scope of this Report

This report constitutes the North Wyong Conservation Strategy. It outlines the proposed conservation measures to be implemented by Darkinjung LALC for offsetting the development of the lands stated above.

1.8 Timing

The current NSW Government was elected in March 2011. Since that time the new Government has been vigorous in its review of the many Acts,' Policies and Procedures (APP's) which impact on the performance of the State. Those APP's which affect directly or indirectly on the operations of the Land Council include, but not limited to, the following;

- NSW Planning reforms;
- Review of the Biobanking methodology;
- Review into the protection and conservation of Aboriginal culture and heritage;
- Native Vegetation Act reforms;
- Review of the NSW Aboriginal Land Rights Act (including the Land Claim process);

Other reviews also concurrently occurring include review of the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999 and more locally, planning policies including the Central Coast Regional Strategy, North Wyong Shire Structure Plan and draft Wyong LEP 2012.

In addition to the various reviews, the Government has developed State Plan *NSW 2021*. This Plan identifies and sets the goals and targets to be achieved over the next 10years that will ensure NSW becomes the Premier State.

Darkinjung LALC has reviewed NSW 2021 and though it's Community Land & Business Plan and Land Strategy will contribute to the attainment of not less than half of the Government's goals. This is demonstrated on the marked-up *NSW 2021* provided in the Appendix B.

The NSW State Government, through its Budget handed down in June 2012, recognised that much of the State's future growth, will result from confidence returning and investment into the construction industry. The Darkinjung Land Strategy will not only provide opportunity for the Land Council, but also for the broader community to participate in this growth that will drive the reviving economy.

The timing for the development of this Land Strategy is important not only for Darkinjung LALC as it moves from what has been largely a research and investigation phase (in relation to land matters), into a development and delivery phase, but also for this review to be considered and accepted and a time when many other key APP's are subject to review and the Government is seeking opportunities to deliver balanced and positive growth.

Conservation Strategy

2.1 Need for a Strategy

Conservation is a broad concept which involves scientific, ethical, moral, economic and political perspectives. Generally, conservation means the protection, preservation and careful management of natural resources.

Successful land conservation requires state agencies, local communities and individuals to adequately protect landscapes, wildlife habitat, cultural and historic sites and parks and recreational areas for present and future generations.

Darkinjung LALC recognises that its role as a private land manager is important for habitat conservation and protecting threatened species and cultural heritage places.

This North Wyong Conservation Strategy forms part of the broader Darkinjung LALC Land Strategy as it relates to the proposed North Wyong Land Release Areas.

The Conservation Strategy aims to outline the Darkinjung LALC's prepared approach to the future conservation and management of its lands that are to be retained for conservation purposes. It also justifies the impacts on biodiversity of other lands that are proposed to be developed as outlined in Section 1.5.

The strategy has been prepared following a review of:

- The New South Wales Aboriginal Land Council Biobanking and Development – A Guide for Local Aboriginal Land Councils;
- The New South Wales Aboriginal Land Council Information Sheet Sustainable Land Users – Conservation information sheet 8 (Appendix A);
- Information on the Office of Environment and Heritage website (www.environment.nsw.gov.au) on biodiversity certification;
- Information on the Office of Environment and Heritage website (www.environment.nsw.gov.au) on biobanking;
- The Biodiversity Certification Assessment Methodology (DECC February 2011);
- The Draft North Wyong Structure Plan; and
- Various assessments prepared for Darkinjung LALC that describe the ecological characteristics of those lands.

There is currently a review of offsetting requirements (Biobanking) being carried out in NSW and the Commonwealth are also reviewing their requirements. Darkinjung LALC recognises the need to implement a conservation strategy and also has specific requirements not currently catered for in the existing regulatory framework. Consequently this Strategy has been developed taking into account the principles for offsetting and sets an agenda for future management of conservation lands that will lead to an improved biodiversity outcome for the benefit of the whole community.

2.2 Biodiversity Offsets

2.2.1 What is a Biodiversity Offset?

Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people's use and cultural values associated with the biodiversity (BBOP 2012).

Biodiversity offsets counterbalance specific impacts of development on biodiversity. Offsets are undertaken away from the impact site and result in the legal protection of land and the implementation of management actions to remove threats.

2.2.2 Commonwealth Requirements

The draft EPBC Act Environmental Offsets Policy outlines the Australian Government's framework on the use of environmental offsets ('offsets') under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) including when they can be required, how they are determined and the framework under which they operate.

The policy will help to ensure that offsets deliver high-quality conservation outcomes for matters protected under the EPBC Act. The Government recognises that there are different ways to achieve good conservation outcomes and provide more flexibility in delivering those outcomes. For example, the enduring protection and management of important habitat for a threatened species can be achieved through the declaration of a national park, or through conservation land management by farmers, for whom this is a business opportunity, or Indigenous Rangers.

The draft policy identifies that suitable offsets must:

- deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed development;
- be efficient, effective, transparent, proportionate, scientifically robust and reasonable;
- be built around direct offsets but may include indirect offsets;
- be of a size and scale proportionate to the impacts being offset;
- be in proportion to the level of statutory protection that applies to the affected species or community;
- effectively manage the risks of the offset not succeeding; and
- have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.

Offsets can help to achieve long-term conservation outcomes for matters protected under the EPBC Act, while providing flexibility for proponents seeking to undertake an action that will have unavoidable environmental impacts. Offsets are not intended to make proposals with unacceptable impacts acceptable. They simply provide an additional tool that can be used during project design and the Environmental Impact Assessment process.

Offsets must deliver an overall conservation outcome that *improves or maintains* the viability of the aspect of the environment that is protected by national environment law and affected by the proposed development. Offsets must:

- Contribute to the ongoing viability of the impacted protected matter, and
- Be improved or maintained as compared to before the action occurred.

When the matter protected is the whole of the environment (nuclear actions, proposals involving the Commonwealth and actions that affect Commonwealth areas), offsets must be targeted to the aspect of the environment that is being impacted.

An improved conservation outcome may be achieved by:

- revegetating environmentally degraded land;
- rehabilitating habitat that is in poor condition; or
- protecting habitat that is already in a good condition.

These types of direct offsets must improve the environmental value of the land through conservation management actions and securing the land on title in an enduring way for conservation. An *improved overall conservation outcome* is not achieved by an offset that simply increases the amount of habitat or ecological community that is *protected* by covenant or other mechanism. Protection must be matched by management of the protected matter that is impacted.

An appropriate offsets package is to consider:

- the scale and intensity of the impacts of the proposed action, including direct and indirect impacts;
- the maturity and health of relevant vegetation communities impacted by the proposed action;
- the composition and presence of relevant species impacted by the proposed action;
- the importance of the impacted site in context, whether of the landscape or of other values relevant to the matter protected. This would include factors such as the value the site may have in providing habitat important in allowing species to adapt to climate change;
- achieving the greatest long-term conservation gains. Wherever possible this would be in the context of a 'like-for-like' approach, which requires offsets to target the specific environmental value being impacted by the proposed action (for example, a particular type of foraging habitat for a threatened species);
- the approach of the relevant state or territory, with a view to complementing and building upon that approach; and
- the level of certainty that the offset will deliver the conservation gain said to be achievable. In the case of uncertainty, such as using a previously untested conservation technique, a greater variety and/or quantity of offsets may be required to minimise risk.

2.2.3 NSW Requirements

Offsetting is recognised in NSW as a practical tool for decision makers who balance the relative environmental, social and economic merits of development proposals. Formal offset arrangements in NSW are a feature of:

- developments under the EP&A Act using the Biobanking Scheme;
- land use planning under the EP&A Act using biodiversity certification; and.
- native vegetation regulation under the Native Vegetation Act 2003.

These regulatory schemes use a range of mechanisms to secure offsets including biobanking agreements, biodiversity certification agreements and property vegetation plans. Offsets are calculated using an assessment methodology which quantifies the impacts and determines the offset required. These outcomes must meet the improve, or maintain standard.

Biodiversity offsets are also commonly required for State Significant Developments under the EP&A Act. Offsets are secured under the mechanisms mentioned above as well as conservation agreements under the National Parks and Wildlife Act 1974 and planning agreements under the EP&A Act. The improve or maintain standard is not mandatory for these proposals. The Department of Planning and Infrastructure makes decisions on State Significant Developments by considering a range of social, economic and environmental factors (based on the advice of OEH). The BioBanking Assessment Methodology is increasingly being used by proponents and OEH to inform these decisions.

Biodiversity offsets may also be negotiated between a proponent and the consent authority, via a Voluntary Planning Agreement (VPA).

The NSW Office of Environment and Heritage provides the following principles as a useful framework for considering environmental impacts and developing offset proposals. The principles do not apply where legislation defines requirements for biodiversity offsets, as listed above.

1. Impacts must be avoided first by using prevention and mitigation measures.

Offsets are then used to address remaining impacts. This may include modifying the proposal to avoid an area of biodiversity value or putting in place measures to prevent offsite impacts.

2. All regulatory requirements must be met.

Offsets cannot be used to satisfy approvals or assessments under other legislation, e.g. assessment requirements for Aboriginal heritage sites, pollution or other environmental impacts (unless specifically provided for by legislation or additional approvals).

3. Offsets must never reward ongoing poor performance.

Offset schemes should not encourage landholders to deliberately degrade or mismanage offset areas in order to increase the value from the offset.

4. Offsets will complement other government programs.

A range of tools is required to achieve the NSW Government's conservation objectives, including the establishment and management of new national parks, nature reserves, state conservation areas and regional parks and incentives for private landholders.

5. Offsets must be underpinned by sound ecological principles.

They must:

- include the consideration of structure, function and compositional elements of biodiversity, including threatened species;
- enhance biodiversity at a range of scales;
- consider the conservation status of ecological communities; and
- ensure the long-term viability and functionality of biodiversity.

Biodiversity management actions, such as enhancement of existing habitat and securing and managing land of conservation value for biodiversity, can be suitable offsets. Reconstruction of ecological communities involves high risks and uncertainties for biodiversity outcomes and is generally less preferable than other management strategies, such as enhancing existing habitat.

6. Offsets should aim to result in a net improvement in biodiversity over time.

Enhancement of biodiversity in offset areas should be equal to or greater than the loss in biodiversity from the impact site.

Setting aside areas for biodiversity conservation without additional management or increased security is generally not sufficient to offset against the loss of biodiversity. Factors to consider include protection of existing biodiversity (removal of threats), time-lag effects, and the uncertainties and risks associated with actions such as revegetation.

Offsets may include enhancing habitat, reconstructing habitat in strategic areas to link areas of conservation value, or increasing buffer zones around areas of conservation value and removal of threats by conservation agreements or reservation.

7. Offsets must be enduring - they must offset the impact of the development for the period that the impact occurs.

As impacts on biodiversity are likely to be permanent, the offset should also be permanent and secured by a conservation agreement or reservation and management for biodiversity. Where land is donated to a public authority or a private conservation organisation and managed as a biodiversity offset, it should be accompanied by resources for its management. Offsetting should only proceed if an appropriate legal mechanism or instrument is used to secure the required actions.

8. Offsets should be agreed prior to the impact occurring.

Offsets should minimise ecological risks from time-lags. The feasibility and in-principle agreements to the necessary offset actions should be demonstrated prior to the approval of the impact. Legal commitments to the offset actions should be entered into prior to the commencement of works under approval.

9. Offsets must be quantifiable - the impacts and benefits must be reliably estimated.

Offsets should be based on quantitative assessment of the loss in biodiversity from the clearing or other development and the gain in biodiversity from the offset. The methodology must be based on the best available science, be reliable and used for calculating both the loss from the development and the gain from the offset. The methodology should include:

- the area of impact;
- the types of ecological communities and habitat/species affected;
- connectivity with other areas of habitat/corridors;
- the condition of habitat;
- the conservation status and/or scarcity/rarity of ecological communities;
- management actions;
- level of security afforded to the offset site;
- the best available information/data should be used when assessing impacts of biodiversity loss and gains from offsets. Offsets will be of greater value where:
    - they protect land with high conservation significance;
    - management actions have greater benefits for biodiversity;
    - the offset areas are not isolated or fragmented;
    - the management for biodiversity is in perpetuity (e.g. secured through a conservation agreement); and
    - Management actions must be deliverable and enforceable.

10. Offsets must be targeted.

They must offset impacts on the basis of like-for-like or better conservation outcome. Offsets should be targeted according to biodiversity priorities in the area, based on the conservation status of the ecological community, the presence of threatened species or their habitat, connectivity and the potential to enhance condition by management actions and the removal of threats. Only ecological communities that are equal or greater in conservation status to the type of ecological community lost can be used for offsets. One type of environmental benefit cannot be traded for another: for example, biodiversity offsets may also result in improvements in water quality or salinity but these benefits do not reduce the biodiversity offset requirements.

11. Offsets must be located appropriately.

Wherever possible, offsets should be located in areas that have the same or similar ecological characteristics as the area affected by the development.

12. Offsets must be supplementary.

They must be beyond existing requirements and not already funded under another scheme. Areas that have received incentive funds cannot be used for offsets. Existing protected areas on private land cannot be used for offsets unless additional security or management actions are implemented. Areas already managed by the government, such as national parks, flora reserves and public open space cannot be used as offsets.

13. Offsets and their actions must be enforceable through development consent conditions, licence conditions, conservation agreements or a contract.

Offsets must be audited to ensure that the actions have been carried out, and monitored to determine that the actions are leading to positive biodiversity outcomes

2.3 Conservation Options

In preparing the North Wyong Conservation Strategy, the Darkinjung LALC has considered the regulatory and non – regulatory options available in developing the Conservation Strategy. The four primary options are:

- BioBanking (regulatory);
- Biocertification (regulatory);
- Conservation Partners Program (regulatory); and
- Gifting (non-regulatory).

Each of these options is described and discussed further below.

2.3.1 BioBanking

BioBanking is a regulated voluntary market-based scheme that provides a simplified biodiversity assessment process for development and an opportunity for rural landowners to generate income by managing land for conservation. The management of land is in perpetuity (forever).

BioBanking enables 'biodiversity credits' to be generated by landowners who commit to enhancing and protecting biodiversity on their land through a BioBanking agreement. The credits can then be sold, generating funds for the management of the site. Credits can be used by the purchaser to offset the impacts on biodiversity that are likely to occur as a result of development elsewhere. The credits generated by a landowner can also be sold to those seeking to invest in conservation outcomes, including philanthropic organisations and government.

The money generated from the sale of the credits is paid to the landowner as both profit and as a source of income to maintain and improve the biodiversity present on their land.

A BioBanking agreement only recognises the existence of known Aboriginal objects and/or Aboriginal places. It does not provide for the protection of Aboriginal objects or Aboriginal places. The protection of Aboriginal objects and Aboriginal places is dealt with by the National Parks and Wildlife Act 1974.

The number of credits provided at a Biobank site is determined through application of the Biobanking Assessment Methodology.

In considering the use of BioBanking in the Conservation Strategy, it has been identified that the Scheme:

- is development/conservation outcome orientated, not strategy focussed;
- Is market driven, no affinity with LALC model as there is no desire to sell biodiversity credits into the open market;
- Has a detailed methodology that leads to costly process;
- Requires funds for management to held by government. This is undesirable to the Darkinjung LALC;
- Is not flexible to allow inclusion of new lands (development or conservation); and
- Can create a significant ongoing management liability.

The NSW Office of Environment and Heritage has recently issued a discussion paper on Biobanking, with the period for public submissions closing July 2012. The purpose of this review is to seek public comment on the effectiveness of the current framework and consider suggestions for improvements to the system.

2.3.2 Bio Certification

Biodiversity certification is a regulated scheme that offers planning authorities a streamlined biodiversity assessment process for areas marked for development at the strategic planning stage, along with a range of secure options for offsetting impacts on biodiversity. It identifies areas of high conservation value at a landscape scale, and protects them, as well as identifying areas suitable for development.

Biodiversity certification delivers better environmental outcomes from urban development, at lower cost. By ensuring that conservation issues are considered early in the planning process, new urban areas will 'improve or maintain' biodiversity values. This means that areas of high conservation value are identified and protected, and, that any clearing or loss of other habitat is offset.

Where certification is conferred for development areas, it 'switches off' the requirement for Development Applications to address biodiversity issues.

Currently, each Development Application requires assessment of impacts on biodiversity and threatened species. This adds to the cost of every subdivision, every housing development, and every infrastructure project.

Environmentally sensitive areas could be identified and avoided up-front, impacts on less sensitive areas could be offset, and it would reduce development costs. The scale and type of all offsets will be agreed at the time the biodiversity certification proposal is approved and they will be secured as the development proceeds.

Biodiversity Certification provides greater certainty for landowners and developers, and reduces the time and cost of environmental assessment. It also delivers regional conservation priorities – protecting and connecting significant areas, delivering a network of conservation lands that are viable for the long term.

Biodiversity Certification must be supported by use of the Biodiversity Certification Assessment Methodology.

In considering the use of Biocertification in the Conservation Strategy, it has been identified that the Scheme:

- Is only available only to planning authorities;

- Is an untested process for a Land Strategy proposed by Darkinjung LALC;
- Has a detailed methodology that leads to costly process;
- Is not flexible to allow inclusion of new lands (development or conservation); and
- Does not consider cultural heritage values.

2.3.3 Conservation Partners Program

The Conservation Partners Program (CPP) is run by the Office of Environment and Heritage (OEH) and supports Aboriginal landholders in voluntarily protecting and managing native vegetation, wildlife habitat, geological features, historic heritage and Aboriginal cultural heritage on their properties. These long-term legal commitments are entered into voluntarily and complement the public National Park and reserve system. Landholders can choose from three protection options which recognise and formalise their commitment to conservation on their properties.

The CPP provides ongoing support to landowners who commit all or part of their properties for conservation. Technical advice begins with the application process and is continued through to developing management schemes and managing activities. Ongoing monitoring and support includes networking and training opportunities provided to landowners locally and routine property visits.

Land managers have the chance to increase their knowledge and ability to monitor changes on the property. They also have a chance to discuss management strategies with other land managers and learn from their experiences.

In considering the use of Offsetting using the CPP in the Conservation Strategy, it has been identified that the Program:

- Includes three (3) different options for land managers in being able to conserve and manage their land;
- Is recognised by law to provide appropriate legal protection of the land for conservation and require management of that land for conservation purposes; and
- Ensures the management of land for conservation purposes in perpetuity.

2.3.4 Gifting

In certain circumstances the National Parks and Wildlife Service may support the gifting of land to the National Reserve System. This is a particular opportunity of strategic advantage exists to include the land such as expansion of an existing reserve area or linking reserve areas.

In considering the use of Gifting in the Conservation Strategy, it has been identified that the Gifting:

- May result in access to lands being denied to Darkinjung people.

Strategy Framework

3.1 Methodology

More detail to be provided in Final Report.

It is critical to the Conservation Strategy that the methodology for assessment of the Development sites and the Conservation sites be robust and accurate with regard to identifying the biodiversity values. The best available information/data will be used when assessing impacts of biodiversity loss and gains from offsets.

An overview of the methodology used in determining the biodiversity impacts on the development sites is provided below:

Development Sites

- Determine the area of impact;
- Describe the key biodiversity components affected;
- Describes the developments impact on biodiversity (including direct, indirect, and cumulative impacts as appropriate), including on the key biodiversity components identified.
- Describe the impacts on the intrinsic, socio-economic and cultural values of biodiversity;
- Assess the types of ecological communities and habitat/species affected;
- Determine the condition of habitat;
- Determine the conservation status and/or scarcity/rarity of ecological communities;
- Describe the measure for avoidance of impacts, including those taken to avoid impacts and risks to highly irreplaceable and/or vulnerable biodiversity;
- Describe the measures for minimisation of impacts;
- Describe the measures for rehabilitation/restoration; and
- Identify any on site mitigation measures that would be implemented.

Conservation Sites

- Determine the area of site;
- Assess the types of ecological communities and habitat/species affected;
- Identify connectivity with other areas of habitat/corridors;
- Determine the condition of habitat;
- Determine the conservation status and/or scarcity/rarity of ecological communities;

- Outline the future management actions; and
- Outline level of security afforded to the offset site.

3.2 Development Site Impacts

A summary of the biodiversity impacts on the development sites in **Table 3.1** below. The proposed development sites are shown in **Figure Proposed Offset Lands.**

Detailed plans of the biodiversity values of each of the development sites are provided at **Appendix C.**

Table 3.1 - Biodiversity Impacts on Development Sites

Biometric Vegetation Community	EEC	DEVELOPMENT LANDS						
		Bushells Ridge North	Bushells Ridge South	Bushells Ridge East	Halekulani	Munmorah	Railcorp	Total
Banksia dry shrubland on coastal sands of the North Coast								**0.00**
Blackbutt - Smooth-barked Apple shrubby open forest on coastal sands of the southern North Coast							0.07	**0.07**
Coast Banksia - Coast Wattle dune scrub, Sydney Basin and South East Corner								**0.00**
Coastal floodplain sedgelands, rushlands, and forblands of the North Coast						0.63		**0.63**
Fern-leaved Banksia - Melaleuca sieberi Wallum Heath								**0.00**
Melaleuca nodosa closed shrubland on alluvium of the Central Coast, Sydney Basin								**0.00**
Melaleuca sieberi - Tall Saw-sedge closed shrubland in drainage lines on the Central Coast, Sydney Basin		1.43	0.26	2.16		0.08	1.44	**5.37**
Paperbark heath on indurated sands at Norah Head on the Central Coast, Sydney Basin								**0.00**
Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin								**0.00**

Table 3.1 - Biodiversity Impacts on Development Sites

Biometric Vegetation Community	EEC	DEVELOPMENT LANDS						
		Bushells Ridge North	Bushells Ridge South	Bushells Ridge East	Halekulani	Munmorah	Railcorp	Total
Scribbly Gum - Red Bloodwood heathy woodland on the coastal plains of the Central Coast, Sydney Basin		97.30	76.41	41.09	13.25	57.15	42.12	**327.32**
Smooth-barked Apple - Red Bloodwood open forest on coastal plains on the Central Coast, Sydney Basin			11.87					**11.87**
Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin	Yes							**0.00**
Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin								**0.00**
Undetermined		1.98	3.25					**5.23**
Total		**100.71**	**91.79**	**43.25**	**13.25**	**57.86**	**43.63**	**350.49**
Acacia bynoeana		18	2				7	**27**
Angophora inopina		3,135	2,244	13,677	1		60	**19,117**
Cryptostylis hunteriana		1						**1**
Tetratheca juncea		80	16	8		42	87	**233**
Wallum Froglet		3	1					**4**

3.3 Conservation Site Values

A summary of the biodiversity values of the conservation sites is provided in **Table 3.2** below. The proposed conservation sites are shown in **Figure Proposed Offset Lands.**

Detailed plans of the biodiversity values of each of the conservation sites are provided at **Appendix C.**

Table 3.2 - Biodiversity Values of Conservation Sites

Biometric Vegetation Community	EEC	Offset Lands									
		1	2	4	5	6	7	8	9	10	Total
Banksia dry shrubland on coastal sands of the North Coast											**0.00**
Blackbutt - Smooth-barked Apple shrubby open forest on coastal sands of the southern North Coast		1.76		15.28							**17.04**
Coast Banksia - Coast Wattle dune scrub, Sydney Basin and South East Corner											**0.00**
Coastal floodplain sedgelands, rushlands, and forblands of the North Coast								3.66			**3.66**
Fern-leaved Banksia - Melaleuca sieberi Wallum Heath											**0.00**
Melaleuca nodosa closed shrubland on alluvium of the Central Coast, Sydney Basin		2.83		29.02							**31.85**
Melaleuca sieberi - Tall Saw-sedge closed shrubland in drainage lines on the Central Coast, Sydney Basin			2.72		1.81	1.98	15.22		15.85	0.12	**37.70**
Paperbark heath on indurated sands at Norah Head on the Central Coast, Sydney Basin											**0.00**

Table 3.2 - Biodiversity Values of Conservation Sites

Biometric Vegetation Community	EEC	Offset Lands									
		1	2	4	5	6	7	8	9	10	Total
Paperbark swamp forest of the coastal lowlands of the North Coast and Sydney Basin											**0.00**
Scribbly Gum - Red Bloodwood heathy woodland on the coastal plains of the Central Coast, Sydney Basin		11.82	36.21	28.94	62.10	15.42	73.48	10.03	46.96	34.00	**318.96**
Smooth-barked Apple - Red Bloodwood open forest on coastal plains on the Central Coast, Sydney Basin		53.20		1.40	0.65						**55.25**
Spotted Gum - Grey Ironbark open forest on the foothills of the Central Coast, Sydney Basin		0.77									**0.77**
Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin	Yes									1.39	**1.39**
Sydney Peppermint - Smooth-barked Apple shrubby open forest on coastal hills and plains of the southern North Coast and northern Sydney Basin											**0.00**
Grand Total		**70.38**	**38.93**	**74.64**	**64.56**	**17.40**	**88.70**	**13.69**	**62.81**	**35.51**	**466.62**

Table 3.2 - Biodiversity Values of Conservation Sites

Biometric Vegetation Community	EEC	Offset Lands									
		1	2	4	5	6	7	8	9	10	Total
Callistemon linearifolius				8							**8**
Angophora inopina		249	870	393	1,024	6,573	2,650				**11,759**
Eucalyptus parammattensis				439							**439**
Tetratheca juncea		138			1					6	**145**
Wallum Froglet		10			4				1		**15**

Strategy Detail

4.1 Overview

The conservation of Darkinjung lands will be carried out by using the following conservation options:

- Protection and management of land using the Conservation Partners Program, liked to a Voluntary Planning Agreement or other approved mechanism as part of any application seeking development outcomes.

Lands identified for conservation are proposed to offset the biodiversity impacts on the development lands outlined in Section 1.5.

All of the conservation sites are located within areas of habitat corridors or habitat linkages as shown on Map 4 of the Draft North Wyong Shire Structure Plan. The location of these sites on the Draft Structure Plan is shown on **Figure Proposed Offset Lands**.

4.2 Biodiversity Improvements

4.2.1 Overall

The conservation lands comprise 8 vegetation communities totalling an area of 466.62 hectares. One of these communities is an Endangered Ecological Community (EEC) being Swamp Mahogany swamp forest on coastal lowlands of the North Coast and northern Sydney Basin.

All of the conservation lands are located in areas identified as habitat corridor or habitat linkage as identified in the North Wyong Shire Structure Plan. These lands will contribute significantly to biodiversity values of adjoining vegetated areas by providing land managed for corridor and linkage purposes, including linkages to vegetated lands owned by the Bahtabah LALC to the north of the shire. In particular strengthening of the north –south vegetation corridors within the shire will be achieved.

The location of the overall offset sites and reference numbers and detailed biodiversity site plans are shown in **Appendix A.**

4.2.2 Offset Lands 2 and 4

These offset sites are located to the west of Lake Munmorah. These sites provide the following advantage to biodiversity in the region:

- Substantial parcel of land in an area identified as being within an area with green corridors and linkages with external linkages being considered (North Wyong Structure Plan, 2010)
- High biodiversity values
- Significant east west linkage in a coastal location
- Significant north - south linkage in a coastal location

4.2.3 Offsets Sites 5, 6 and 7

These offset sites are located in the Bushell's ridge area adjacent to identified future employment lands. These sites provide the following advantages to biodiversity in the region:

- Provides corridor linkage to Bahtabah lands to the north
- Substantial parcel of land in an area identified as being constrained and subject to further investigation and offset strategies (North Wyong Structure Plan, 2010)
- High biodiversity values
- Significant east west linkage

4.2.4 Offset Sites 8, 9 and 10

These offset sites are located to the north of Lake Munmorah adjacent to identified future residential lands. These sites provide the following advantages to biodiversity in the region:

- Provides a substantiative corridor linkage to between Lake Macquarie State Recreation Area and Munmorah State Conservation Area
- Substantial parcel of land in an area identified as being within an area with green corridors and linkages with external linkages being considered (North Wyong Structure Plan, 2010)
- High biodiversity values
- Significant east west linkage in a coastal location
- Includes 1.39 ha of conservation of an EEC

4.3 Compliance with Offsetting Principles

The proposed North Wyong Conservation Strategy complies with both the Commonwealth and NSW offsetting principles as shown in **Table 4.1** and **Table 4.2.**

Table 4.1 - Compliance with Commonwealth Offsetting Principles

	Principle	Compliance
1	Impacts must be avoided first by using prevention and mitigation measures deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed development.	Development proposals for the development sites have taken into account the opportunity to avoid impacts on biodiversity. Clearing has been limited as much as possible to one vegetation community that can be readily offset in the region.
2	Be efficient, effective, transparent, proportionate, scientifically robust and reasonable.	The conservation sites have been identified through a transparent process. They are owned by the Darkinjung LALC. The sites provide suitable offsets for the impacts from the proposed developments and provide reasonable offset for those impacts. This report provides the robust scientific information to support the offsets package.
3	Be built around direct offsets but may include indirect offsets.	The conservation sites provide direct offsets.
4	Be of a size and scale proportionate to the impacts being offset.	The conservation sites have a total area in excess of the amount of clearing on the development sites.
5	Be in proportion to the level of statutory protection that applies to the affected species or community.	The vegetation communities and threatened species on the conservation sites have the same level statutory protection as the development sites. In addition an Endangered Ecological Community will be protected.
6	Effectively manage the risks of the offset not succeeding.	Management plans will be established to ensure that the conservation sites will succeed in continuing to provide biodiversity value in the region.

Table 4.1 - Compliance with Commonwealth Offsetting Principles

	Principle	Compliance
7	Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	Governance arrangements are described in Sections 5.3 – 5.5. These arrangements will ensure that success of management of the sites is measured, monitored, audited and reported.

Table 4.2 - Compliance with NSW Offsetting Principles

	Principle	Compliance
1	Impacts must be avoided first by using prevention and mitigation measures.	The lands to be set aside for conservation purposes are recognised as having high biodiversity values. For development site areas of high biodiversity value will be avoided where appropriate.
2	All regulatory requirements must be met.	Whilst some conservation lands will be recognised as having cultural heritage values, the Conservation Strategy is based upon offsetting biodiversity impacts on development sites. The protection of cultural heritage is a supplementary advantage of conserving the sites. All regulatory requirements required for the development areas will be met through the relevant development approval process.
3	Offsets must never reward ongoing poor performance.	Darkinjung LALC has not record of poor performance in developing land or managing conservation lands. They are committed to long term management of the conservation sites.
4	Offsets will complement other government programs.	Government programs have been considered in the development of this Conservation Strategy.

Table 4.2 - Compliance with NSW Offsetting Principles

	Principle	Compliance
5	Offsets must be underpinned by sound ecological principles.	Sound ecological principles underpin the Conservation Strategy and have been incorporated in the methodology for assessing the biodiversity values of the conservation sites.
6	Offsets should aim to result in a net improvement in biodiversity over time.	The Conservation Strategy will achieve an initial net improvement in biodiversity and an increasing improvement in biodiversity over time through the implementation of effective management of conservation sites over time.
7	Offsets must be enduring - they must offset the impact of the development for the period that the impact occurs.	The Conservation Strategy will utilise legal mechanisms and instruments to secure the ownership and ongoing management of the conservation sites. Voluntary Conservation agreements would be established over the sites of gifting of the land to the State.
8	Offsets should be agreed prior to the impact occurring.	The Conservation Strategy will be reviewed every three (3) years. This review will enable the inclusion of additional development and conversation lands that may be acquired and included for development or conservation in the North Wyong Structure Plan.
9	Offsets must be quantifiable - the impacts and benefits must be reliably estimated.	The Conservation Strategy has quantified the impacts on biodiversity and the benefits that will result from the offsets.
10	Offsets must be targeted.	The conservation sites have been targeted and assessed due to their contribution to biodiversity improvement in the Wyong area.
11	Offsets must be located appropriately.	The conservation sites are generally located in areas that have the same or similar ecological characteristics as the area affected by the proposed developments.
12	Offsets must be supplementary.	The offsets will not include any areas funded under any other schemes. The lands will all be freehold title and owned, and managed, by the Darkinjung Local Aboriginal Land Council.

Table 4.2 - Compliance with NSW Offsetting Principles

	Principle	Compliance
13	Offsets and their actions must be enforceable through development consent conditions, licence conditions, conservation agreements or a contract.	An auditing program will be developed to ensure management actions are carried out.

Management Commitments

5.1 Management Commitments

Darkinjung LALC has been successful in securing almost 6000ha of former Crown land since 1983. This land, under Crown control, had little, if any, environmental management controls.

Since that time Darkinjung LALC has developed management program, undertaken various forms of deterrent works, weed and pest management program's and revegetation works with a significant annual management budget. These measures have significantly 'improved' pre-existing environmental conditions under Crown control.

Much of the land being managed is located with 'strategic corridors' and forms (or can form) part of a broader conservation network, through the cooperation with other LALC's.

The conservation sites will be managed along with the other lands under the control of the Darkinjung LALC.

5.2 Management Principles

Darkinjung LALC will adopt the following management principles to guide development of the Management Plans for the conservation sites.

Weed Control

- *Principle 1*: To be undertaken by qualified bush regenerator
- *Principle 2*: To target species listed in the management plan
- *Principle 3*: To target any new weed species identified
- *Principle 4*: To be ongoing and not limited to a particular time frame
- *Principle 5*: To include slashing and burning to reduce weed biomass

Assisted Regeneration

- *Principle 1*: To be undertaken by qualified bush regenerator
- *Principle 2*: To us locally sourced native trees
- *Principle 3*: To be undertaken in areas outlined in the management plan
- *Principle 4*: To be continually monitored

Fire Management

- *Principle 1*: To be undertaken in conjunction with the RFS and comply with relevant guidelines
- *Principle 2*: To be developed to suit the vegetation communities
- *Principle 3*: To be developed to consider the protected and threatened species of the site and aid in their long term conservation
- *Principle 4*: To try and prevent intentionally lit fires starting outside of the prescribed burning periods

Feral Animal Control

- *Principle 1*: To coordinate feral animal control with other landholders adjoining a particular site
- *Principle 2*: To be undertaken by licensed shooter and trappers
- *Principle 3*: To be developed to suit any threatened species occurring at a site and aid in their long term conservation

Endangered Species Management

- *Principle 1*: Threatened species occurring at a site will be considered when undertaking or developing any management actions
- *Principle 2*: Management of Threatened species should be concurrent with any specific policies, recovery plans or existing management objectives for that species
- *Principle 3*: Endangered species management will be based on sound science and best practice guidelines
- *Principle 4*: Endangered species protection will be monitored

Manage Human Disturbance

- *Principle 1*: To identify causes of human disturbance to sites (eg. dumping of rubbish) and develop strategies to minimize such disturbance
- *Principle 2*: To provide an education program for the community as a tool for reducing human disturbance

Access

- *Principle 1*: To outline site access arrangements and protocols
- *Principle 2*: To consider fauna movement in the construction of fencing

5.3 Management Plans

Site specific management plans will be prepared for the conservation sites. The plans will be based on the principles outlines in **Section 5.1**.

The Management Plans will outline the extent of works for the sites and provide a program and budget estimates for the carrying out of such works.

5.4 Management

Darkinjung LALC will set up a management structure that will be responsible for the management of the conservations sites or alternatively outsource this responsibility to an external qualified company, or individual.

The management structure will be responsible for allocating the funds and coordinating the carrying out of works for each of the conservation sites.

At the end of each the management entity will prepare a report that outlines the works completed to during that year and evaluate against the requirements of the management plans. Where appropriate the management plans will be amended to reflect any changes to management requirements during that particular year.

5.5 Management Funding

Darkinjung LALC will provide a lump sum in a trust fund that will generate funds for the carrying out of management actions for the sites.

The management entity will be responsible for reporting on the trust fund capacity every twelve months to continue management of the sites in accordance with the management plans for the next five years.

5.6 Management Auditing and Reporting

Once the yearly management report is provided, Darkinjung LALC will engage an independent firm to audit the report and provide verification that the management process is being followed and outcomes achieved. This report will be provided to the Office of Environment and Heritage and Wyong Council annually.

Conclusion

6.1 Conclusion

Darkinjung LALC has significant holdings in the North Wyong Shire that it aspires to develop for the benefit of Aboriginal people and the broader community on the Central Coast. Such development will help the LALC achieve the goals outlined in its Community Land and Business Plan 2012-2015 so as to ensure financial security and the delivery of long term sustainable outcomes for the community.

Darkinjung LALC also recognises that a substantial proportion of its current and future lands has significant biodiversity values and its conservation would greatly contribute to the retention and improvement of biodiversity and cultural heritage values in the Wyong Shire. This Strategy has been prepared to outline the Darkinjung commitment to offsetting the impact of its future developments whilst retaining and managing such significant lands in perpetuity for the benefit of future generations.

The ratio of offset to development lands for the Darkinjung owned sites is 1.3 to 1. The offset ratio could be improved if additional lands are added at a later date. This report outlines the commitment of the Darkinjung LALC to conserving these important natural assets in the Wyong Shire.

The key to delivery of this Strategy is a conservation offset ratio that recognises the Function, Objectives and Goals of the Land Council and its position as a significant landowner across the region with the ability to deliver real outcomes.

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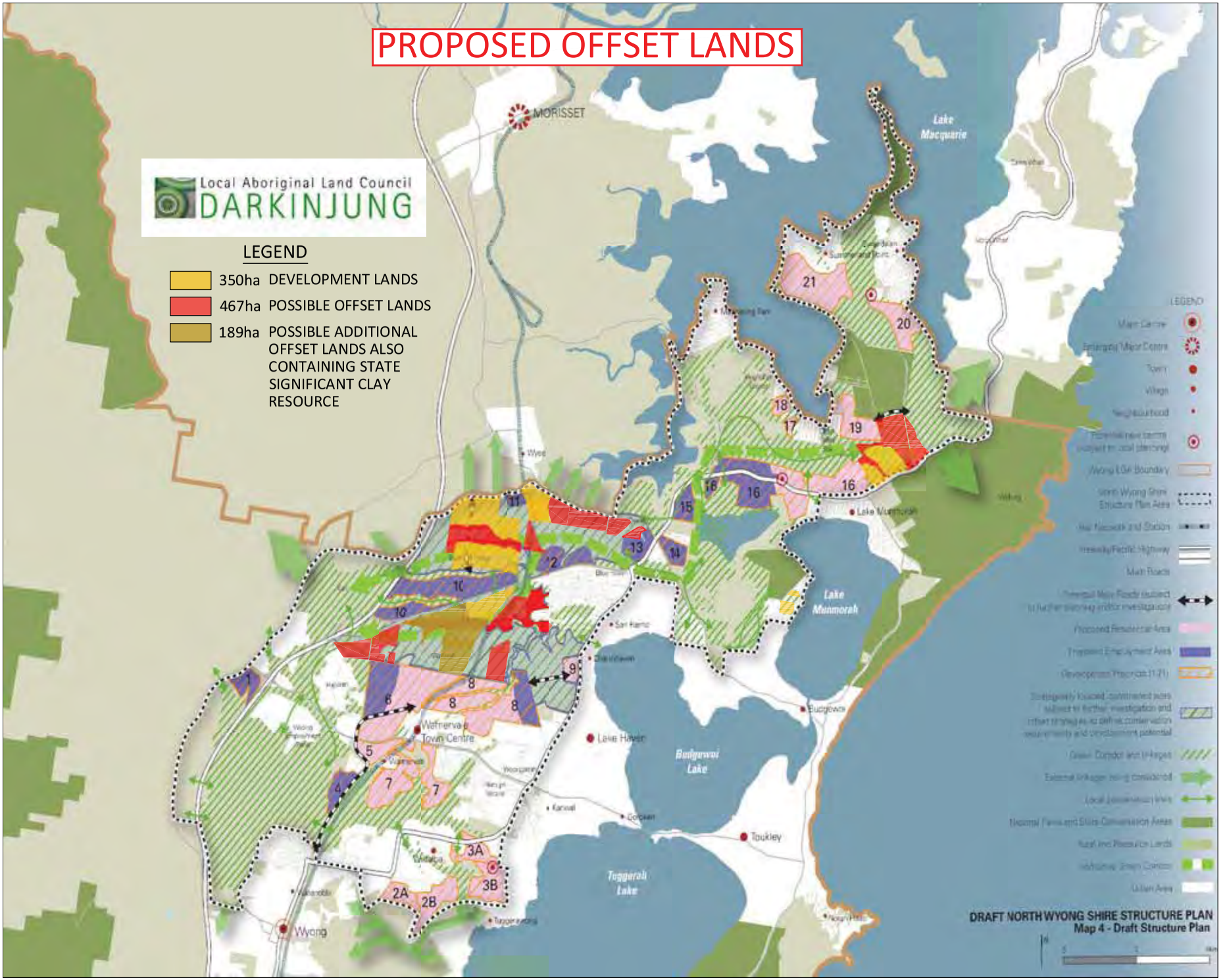
Figures

PROPOSED OFFSET LANDS



North Wyong Region Management of Darkinjung LALC Lands – Illegal Dumping

North Wyong Region Management of Darkinjung LALC Lands – Illegal Dumping

North Wyong Region Management of Darkinjung LALC Lands – Deterrence Works

North Wyong Region Management of Darkinjung LALC Lands – Deterrence Works

Appendix A

ILLEGAL DUMPERS ARTICLE

CC Express 19-10-12

Illegal dumpers targeted

DARKINJUNG FIGHT TO SAVE BUSHLAND

Errol Smith

ILLEGAL dumping is causing millions of dollars worth of damage to Aboriginal-owned land in Wyong Shire.

Dumped material includes asbestos, concrete waste, building rubble, plastic and domestic waste.

The situation has become so serious that Darkinjung Aboriginal Land Council has formulated a multi-level plan to keep offenders out.

Targeting high-traffic illegal dump sites, they intend to erect high wire fences and gates equipped with security cameras.

Police and Wyong Council have also been approached to support their actions and increase patrols.

"We have to do something," Darkinjung ALC operating manager Suzanne Naden said. "It's a problem that is getting out of hand."

Darkinjung is the largest landowner in Wyong Shire.

Ms Naden said the land council didn't want to appear heavy-handed and was anxious to educate the community about the problems illegal dumping caused.

It has secured a grant under the Environment Protection Authority's clean-up and deterrence program and will start work as soon as possible.

"Our simple aim is to reduce the problem of illegal dumping, with a focus on deterring individuals," Ms Naden said. "We have forged a strong partnership with Wyong Shire Council."

Suzanne Naden is concerned about illegal dumping on Darkinjung land in the Wyee area.

Picture: WAIDE MAGUIRE

COUNCIL'S RESPONSE

WYONG Council's contract and project manager David Witherdin said illegal dumping was a major issue throughout the shire and the council appreciated any attempt by organisations to take positive steps to clean up their land.

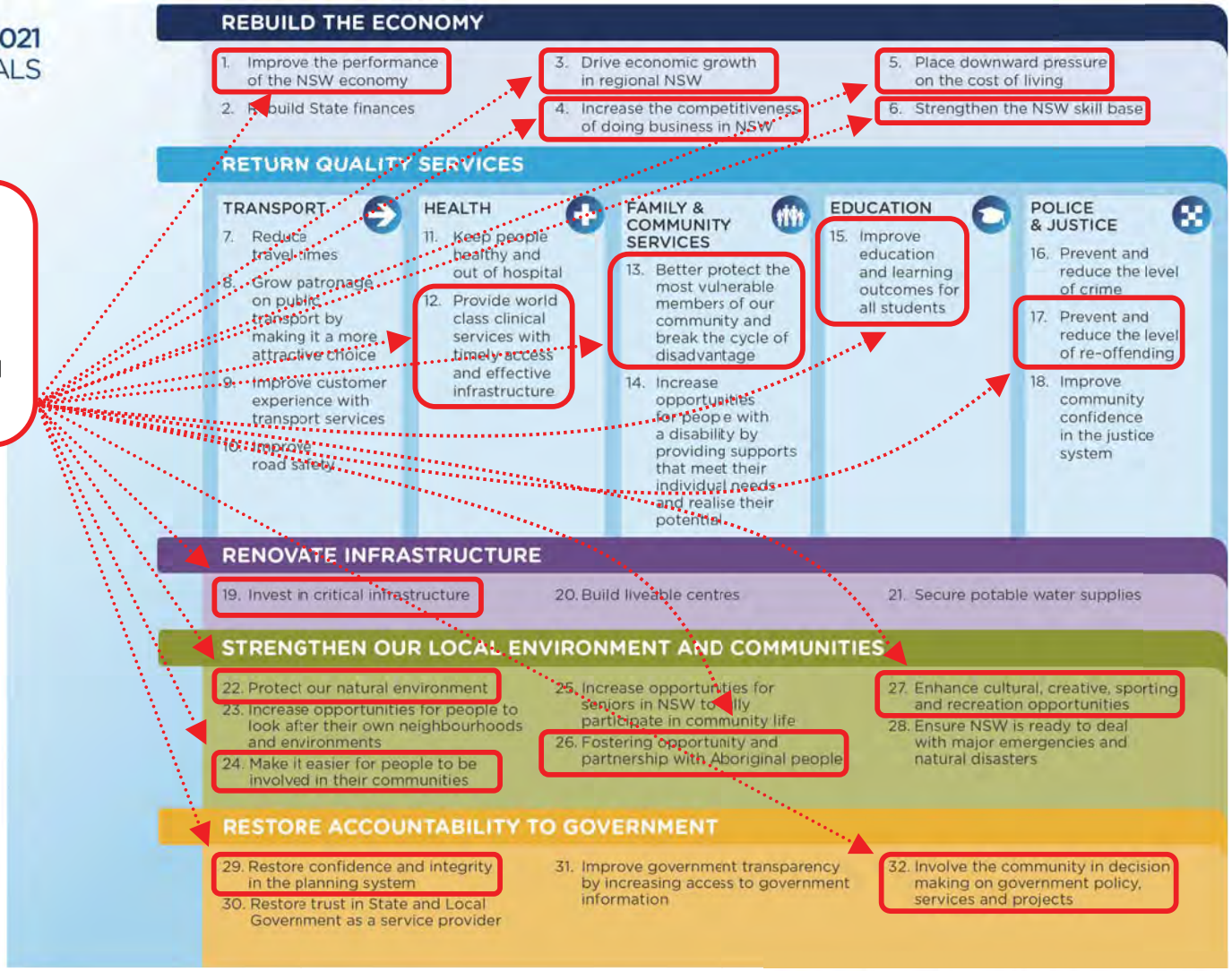
Mr Witherdin said illegal dumping could result in on-the-spot fines and possible conviction in a court of law.

Appendix B

NSW 2021 GOALS

NSW 2021
A PLAN TO MAKE NSW NUMBER ONE

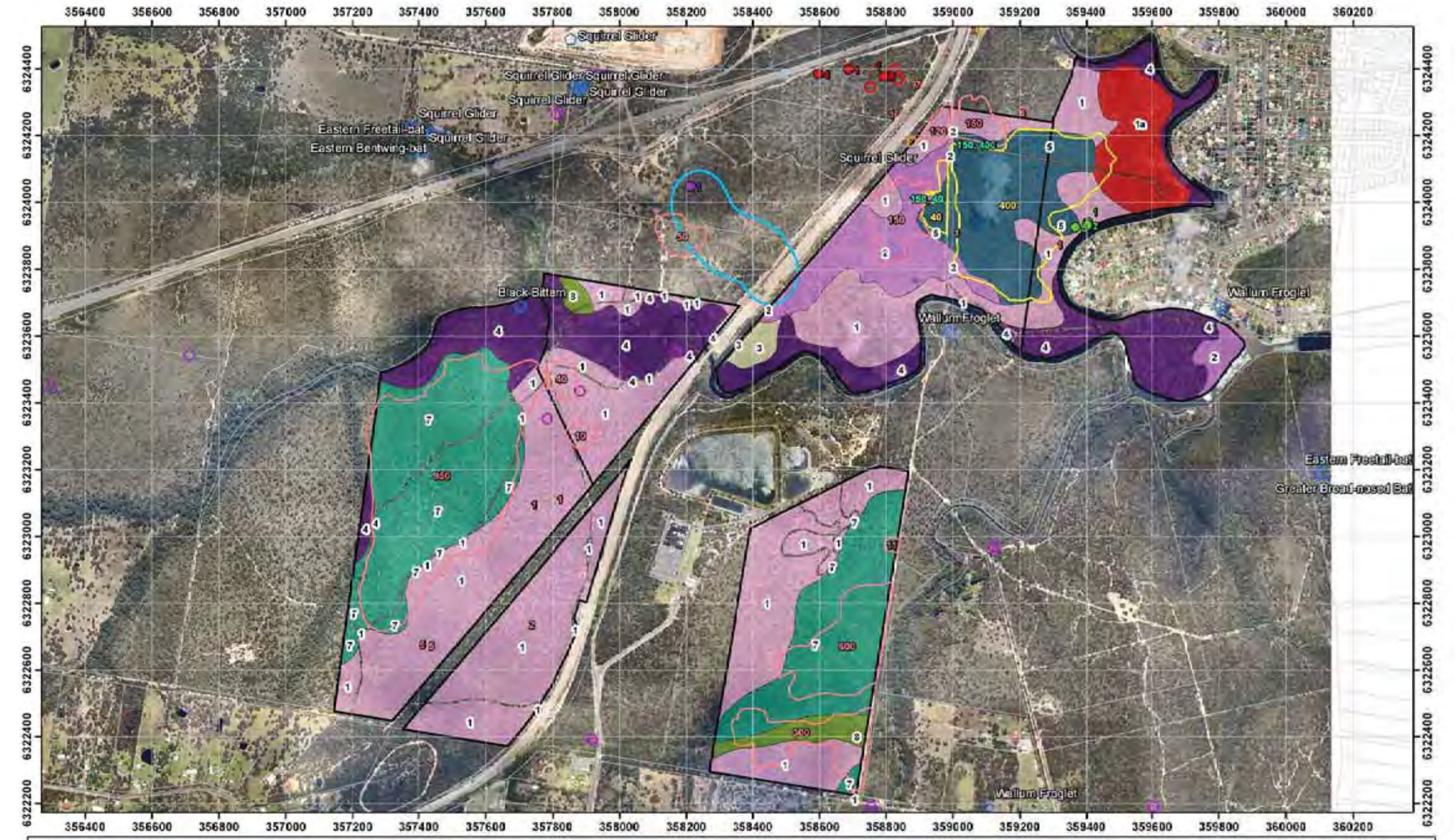
Darkinjung LALC's *Strategic Land Management Plan* supports at least half of the 32 stated NSW 2021 goals



Local Aboriginal Land Council
DARKINJUNG

Appendix C

SITE PLANS SHOWING BIODIVERSITY VALUES



Legend

- Possible Offset Lands
- Cadastre
- 200m Riparian Corridor

Threatened Fauna
- (unconfirmed)

Threatened Fauna (confirmed)
- Wallum Froglet

Threatened Flora (unconfirmed)
- Acacia bynoeana
- Angophora inopina
- Tetratheca juncea

Threatened Flora (confirmed) Individual Nos labelled
- Acacia bynoeana
- Angophora inopina
- Callistemon linearifolius
- Cryptostylis hunteriana
- Grevillea parviflora
- Tetratheca juncea

- Angophora inopina
- Eucalyptus parammattensis
- Angophora inopina, Eucalyptus parammattensis overlap

Vegetation Zone

1, 10, 11, 12, 13, 14, 15, 17, 1a, 1b, 1c, 1d, 1e, 2, 3, 3a, 3b, 3c, 4, 5, 7, 7a, 8, 9

0 100 200 400 Metres

Datum/Projection: GDA 1994 MGA Zone 56

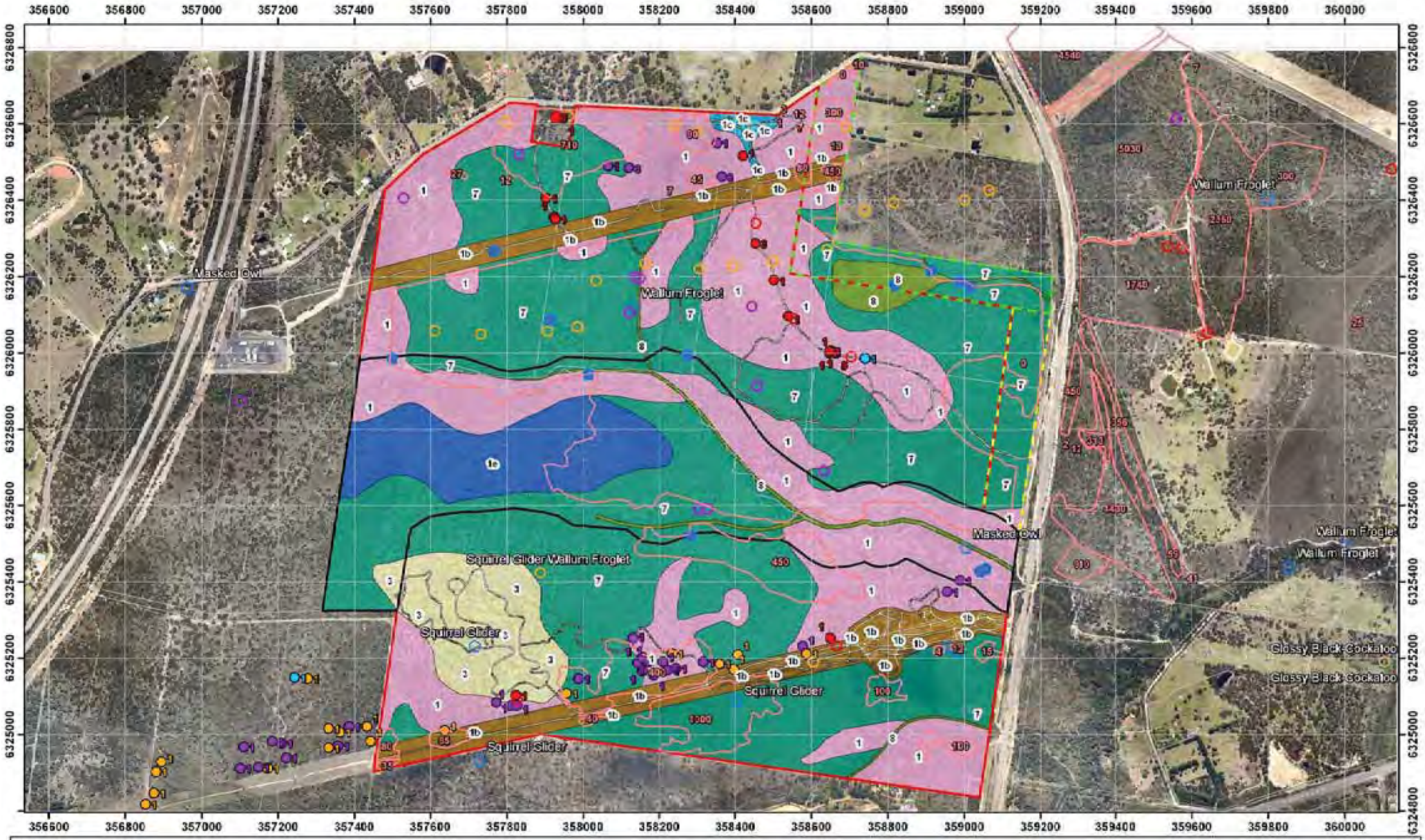
OL4-9

Data Sources: NearMap

nearmap.com

N

eco logical AUSTRALIA www.ecoaus.com.au



Legend

- Possible Offset Lands
- Cadastre

Development Footprint

- Conservation
- Development
- Possible Future Rail

Threatened Fauna

- (unconfirmed)

Threatened Fauna (confirmed)

- Wallum Froglet

Threatened Flora (unconfirmed)

- Acacia bynoeana
- Angophora inopina
- Tetratheca juncea

Threatened Flora (confirmed) Individual Nos labelled

- Acacia bynoeana
- Angophora inopina
- Callistemon linearifolius
- Cryptostylis hunteriana
- Grevillea parviflora
- Tetratheca juncea

- Angophora inopina
- Eucalyptus parammattensis
- Angophora inopina, Eucalyptus parammattensis overlap

Vegetation Zone

1, 10, 11, 12, 13, 14, 15, 17, 1a, 1b, 1c, 1d, 1e, 2, 3, 3a, 3b, 3c, 4, 5, 7, 7a, 8, 9

0 100 200 400 Metres

Datum/Projection: GDA 1994 MGA Zone 56

OL10

Data Sources: NearMap

nearmap.com

N

eco logical AUSTRALIA www.ecoaus.com.au

Legend

- Possible Offset Lands
- Cadastre

Threatened Fauna
- (unconfirmed)

Threatened Fauna (confirmed)
- Wallum Froglet

Threatened Flora (unconfirmed)
- Acacia bynoeana
- Angophora inopina
- Tetratheca juncea

Threatened Flora (confirmed) Individual Nos labelled
- Acacia bynoeana
- Angophora inopina
- Callistemon linearifolius
- Cryptostylis hunteriana
- Grevillea parviflora
- Tetratheca juncea

- Angophora inopina
- Eucalyptus parammattensis
- Angophora inopina, Eucalyptus parammattensis overlap

Vegetation Zone

1, 10, 11, 12, 13, 14, 15, 17, 1a, 1b, 1c, 1d, 1e, 2, 3, 3a, 3b, 3c, 4, 5, 7, 7a, 8, 9

0 50 100 200
Metres

Datum/Projection:
GDA 1994 MGA Zone 56

OL11-15

Data Sources:
NearMap

nearmap.com

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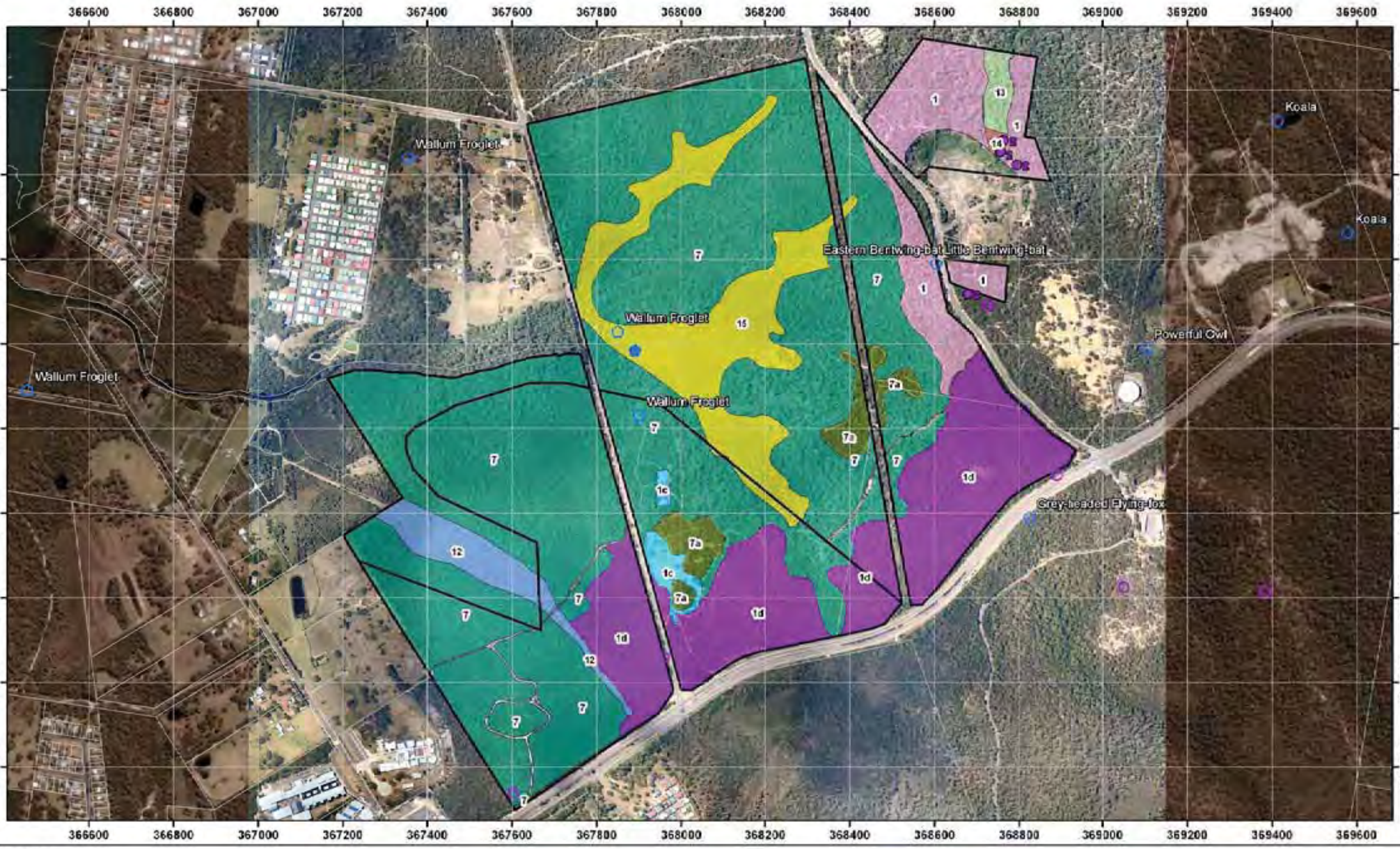

Legend

- Possible Offset Lands
- Cadastre

Threatened Fauna
- (unconfirmed)

Threatened Fauna (confirmed)
- Wallum Froglet

Threatened Flora (unconfirmed)
- Acacia bynoeana
- Angophora inopina
- Tetratheca juncea

Threatened Flora (confirmed) Individual Nos labelled
- Acacia bynoeana
- Angophora inopina
- Callistemon linearifolius
- Cryptostylis hunteriana
- Grevillea parviflora
- Tetratheca juncea

- Angophora inopina
- Eucalyptus parammattensis
- Angophora inopina, Eucalyptus parammattensis overlap

Vegetation Zone

1, 10, 11, 12, 13, 14, 15, 17, 1a, 1b, 1c, 1d, 1e, 2, 3, 3a, 3b, 3c, 4, 5, 7, 7a, 8, 9

OL16-22

0 50 100 200 Metres

Datum/Projection: GDA 1994 MGA Zone 56

Data Sources: NearMap

nearmap.com

N

eco logical AUSTRALIA

www.ecoaus.com.au

Legend

Possible Offset Lands
Cadastre

Threatened Fauna
(unconfirmed)

Threatened Fauna (confirmed)
Wallum Froglet

Threatened Flora (unconfirmed)
Acacia bynoeana
Angophora inopina
Tetratheca juncea

Threatened Flora (confirmed) Individual Nos labelled
Acacia bynoeana
Angophora inopina
Callistemon linearifolius
Cryptostylis hunteriana
Grevillea parviflora
Tetratheca juncea

Angophora inopina
Eucalyptus parammattensis
Angophora inopina, Eucalyptus parammattensis overlap

Vegetation Zone

1	15	2	7
10	17	3	7a
11	1a	3a	8
12	1b	3b	9
13	1c	3c	
14	1d	4	
	1e	5	

0 40 80 160
Metres
Datum/Projection:
GDA 1994 MGA Zone 55

OL1-3

Data Sources:
NearMap

nearmap.com

N

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