

LandUse

BUSHFIRE STRATEGIC STUDY FOR A PLANNING PROPOSAL

Lot 15/-/DP1236885,
40 The Tunnell Road, Billinudgel

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SUMMARY

- The planning proposal is to modify an area of the land zoning of Lot 15/-/DP1236885, 40 The Tunnell Road, Billinudgel from RU2: Rural Landscape to E4: General Industrial. The subject area is approximately 4220m² in size and the land on which the development occurs is within the buffer to bushfire prone vegetation.
- Bushfire Attack Level (BAL) assessment detailed in Section 2 of this report indicates the APZ required for a potential development arising from the planning proposal to achieve the heat exposure benchmark of 29 kW/m².
- The planning proposal and subsequent development can meet bushfire planning and approval requirements in accordance with this report.

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LIST OF ACCRONYMS

AS	Australian Standard
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BFPL	Bush Fire Prone Land
BPM	Bushfire Protection measure
IPA	Inner Protection Area
NCC	National Construction Code
NSW	New South Wales
PBP	Planning for Bushfire Protection

1 INTRODUCTION

This Bushfire Strategic Study has been undertaken at the behest of Lisa Joel to support a planning proposal to modify an area of the land zoning of Lot 15/-/DP1236885, 40 The Tunnell Road, Billinudgel from RU2: Rural Landscape to E4: General Industrial.

Under the Environmental Planning and Assessment Act 1979 (EP&A Act), when considering a planning proposal on Bushfire Prone Land, consent authorities must have regard to s.9.1(2) Direction 4.4 – ‘Planning for Bushfire Protection’ of the EP&A Act.

The objectives of Direction 4.4 are:

- To protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas; and
- To encourage sound management of bush fire prone areas.

Direction 4.4 instructs the consent authority on bushfire matters to be addressed including:

- Consultation with the Commissioner of the NSW Rural Fire Service (RFS), and consider any comments made;
- Draft LEPs shall have regard to Planning for Bushfire Protection; and,
- Comply with bushfire protection provisions where development is proposed.

As part of the consultation process with the NSW RFS, a strategic bushfire study is required to be submitted to inform planning decisions to ensure that future land uses are in appropriate locations to minimise the risk to life and property from bush fire. By considering bushfire protection in changes in permissible land use under a LEP the consent authority can ensure that future compliance with the s.9.1(2) Directions Planning for Bushfire Protection 2019 is achievable and future development will be able to comply with PBP at the DA stage.

1.1 Background

The area subject to the planning proposal has been identified by the Byron Shire Council in the Byron Shire Business and Industrial Lands Strategy 2020 as investigation area 1 - potential Billinudgel Industrial Estate minor expansion area (figure1), which is immediately adjoining the Billinudgel Industrial Estate with connection to existing infrastructure.

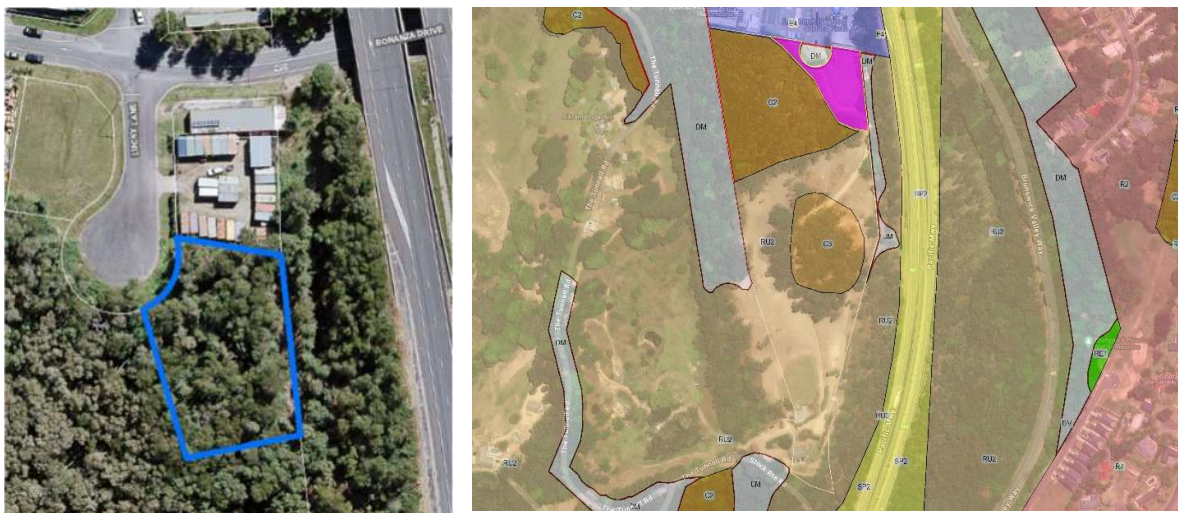


Figure 1. showing investigation area 1: Billinudgel Industrial Estate minor expansion area -which is part of Lot15/-/DP1236885(blue outline left) and the land zoning of the allotment and surrounds (white outline) (right) showing the current RU2: Rural Landscape zoning of the planning proposal area (pink).

1.2 Aims and Objectives

The aim of this study is to review the planning proposal to modify the zoning of part of Lot 15/-/DP1236885 under the strategic planning requirements of Planning for Bushfire Protection:2019.

The objective for the strategic planning study is to:

- i) Undertake a Bush Fire Strategic Study as per the strategic planning principles and assessment considerations outlined in Chapter 4 of PBP to investigate whether potential future development associated with the planning proposal is appropriate at the location, commensurate with the identified bush fire risk on a landscape scale.

1.3 Assessment Approach

The consideration of PBP for planning proposals is required under Section 9.1 (2) of the EP&A Act. Chapter 4 of PBP (RFS 2019) contains the broad principles and minimum assessment considerations required for strategic planning proposals. The strategic planning principles are:

- ensuring land is suitable for development in the context of bush fire risk;
- ensuring new development on BFPL will comply with PBP;
- minimising reliance on performance-based solutions;
- providing adequate infrastructure associated with emergency evacuation and firefighting operations; and,
- facilitating appropriate ongoing land management practices.

These principles require the consideration of the bushfire protection measures for potential development subsequent to the planning proposal stage, and to consider the suitability of future land uses within the landscape scale bushfire context so that future land uses can meet the aim and objectives of PBP.

The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.

The objectives of PBP are to:

- afford buildings and their occupants protection from exposure to a bush fire;
- provide for a defensible space to be located around buildings;
- provide appropriate separation between a hazard and buildings which, in combination with other measures, minimises material ignition;
- ensure that appropriate operational access and egress for emergency service personnel and residents is available;
- provide for ongoing management and maintenance of bush fire protection measures; and,
- ensure that utility services are adequate to meet the needs of firefighters.

In addition, Chapter 4 of PBP prescribes that strategic planning should exclude “inappropriate development” in bush fire prone areas, where:

- the development area is exposed to a high bush fire risk and should be avoided;
- the development is likely to be difficult to evacuate during a bush fire due to its siting in the landscape, access limitations, fire history and/or size and scale;
- the development will adversely effect other bush fire protection strategies or place existing development at increased risk;
- the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and,
- the development has environmental constraints to the area which cannot be overcome.

2 BUSHFIRE LANDSCAPE RISK ASSESSMENT

2.1 Study Area

The subject land of the planning proposal is approximately 4220m² consisting of the north east corner of current Lot 15/-/DP1236885, which is a bare levelled site, accessed at 27 Lucky Lane, Billinudgel. The subject land is immediately adjoining the south eastern corner of the Billinudgel Industrial Precinct, zoned E4 - General Industrial, and has access to existing services.

The Billinudgel industrial area is approximately 8 hectares in size and located to the south east of Billinudgel Village adjacent to the Pacific Motorway M1 which separates it from the coastal town of Ocean Shores.

The subject land is situated on the low elevation (approximately 3m ASL) margin between low rolling hills and the Billinudgel flood plain associated with Marshalls Creek and Lacks Creek that drain the higher and steeper elevations of the Burringbar Hills within the eroded landscapes of the Wollumbin Shield Volcano.

The property is situated on the northern side of The Tunnell Road, bounded on the east by the Pacific Motorway and the village of Billinudgel to the north. The proposed allotment occupies the slopes of low rolling hills on the edges of the Burringbar Hill. The southern upslope parts of the property is largely cleared land managed as grazing land with patches of Wet Sclerophyll Forest. The remaining northern half of the property adjoining the Billinudgel Industrial area consists of Coastal Swamp Forest.

2.2 Bushfire Hazard

2.2.1 Vegetation and slope

The landscape surrounding the subject land has been partially to extensively cleared on shallower slopes for grazing by beef and dairy cattle. Banana plantations were common on steeper slopes and volcanic soils. Camphor laurel (*Cinnamomum camphora*) and sally wattle (*Acacia melanoxylon*) commonly dominate the regrowth.

There is a distinct west to east gradient in reducing elevation where the eroded volcanic land formations and soils of the Wollumbin Shield Volcano grade into the narrow coastal sand plain surrounding Ocean Shores. The elevated topography supports very tall open forest dominated by brush box (*Lophostemon confertus*) and blackbutt (*Eucalyptus pilularis*) while dryer aspects or soil limitations are characterised by the presence of broad-leaved white mahogany, (*E. carnea*), narrow-leaved white mahogany (*E. acmenoides*) and grey ironbark (*E. siderophloia*) tall open forest.

The tall open forests grade into swamp sclerophyll communities on floodplain areas with poor drainage dominated by broad-leaved paperbark (*Melaleuca quinquenervia*) with Swamp mahogany (*Eucalyptus robusta*) also occurring.

The area immediately to the west of the subject land and adjoining the Billinudgel Industrial area consists of Coastal Swamp Forest and constitutes the primary bushfire threat to the site.

Broad-leaved Paperbark-Brush Box-Swamp Box swamp sclerophyll forest on clays of coastal plains (PCT_1933) is a Threatened Ecological Community Coastal Swamp Sclerophyll Forest under the EPBC Act (*Cwth*) and as a Swamp sclerophyll forest on coastal floodplains under the Biodiversity Conservation Act (*NSW*).

2.2.2 Bushfire Attack Level (BAL) assessment

Table 1 shows classified vegetation and slope out to 140m from the site and required APZ to achieve BAL-29 threshold in accordance with PBP.

Table 1. Planning proposal change of zoning boundary BAL Assessment

Direction (transect)	Veg. Class. (current distance)	Effective Slope	Required APZ	Bushfire Attack Level (BAL)
N (0°)	Low Threat† (100m)	NA	NA	BAL-Low
NE (45°)	Rainforest* (0m)	Upslope	9m	BAL-29
E (90°)	Rainforest* (0m)	Upslope	9m	BAL-29
SE (135°)	Rainforest* (0m)	Upslope	9m	BAL-29
S (180°)	Rainforest* (0m)	Upslope	9m	BAL-29
SW (225°)	Forest (0m)	Upslope	20m	BAL-29
W (270°)	Forest (20m)	Flat/Upslope	20m	BAL-29
NW (315°)	Low Threat† (100m)	NA	NA	BAL-Low

† In accordance with A1.10 Low threat vegetation – exclusions, PBP, being Non-vegetated areas, including roads, footpaths, buildings.

*In accordance with A1.11.1 Simplified approach, PBP, as a narrow strip of vegetation with a shape that provides a potential fire run that could threaten buildings not exceeding 50m.

2.3 Bushfire Risk Context

2.3.1 Wildfire history and frequency

Across the Far North Coast BFMC area, fire agencies attend an average of approximately 460 bush, grass and/or scrub fires per year.

The main sources of ignition in the Far North Coast BFMC area are fire escape from legal or illegal fires (mainly prior to the introduction of the bush fire danger period), arson, and lightning strikes.

The ‘NPWS Fire History - Wildfires and Prescribed Burns’ spatial dataset provides a record of fire history on the National Parks estate which represents the majority of the forested vegetation within 5km of the site (NSW Department of Planning & Environment, 2024). This dataset only includes NPWS land for both prescribed burns and wildfires from 1968-2023 (Figure 2).

Since 1968, the area of fire for the Tweed Shire that has exceeded the threshold of $\geq 10\text{km}^2$ on nine occasions. The period of 1991 to 1995 recorded 5 years in a row with significant fire activity, with 1991 having the highest bushfire area of 37km^2 , followed by 2019 with 25km^2 . These periods of increased bushfire activity coincided with very dry conditions.

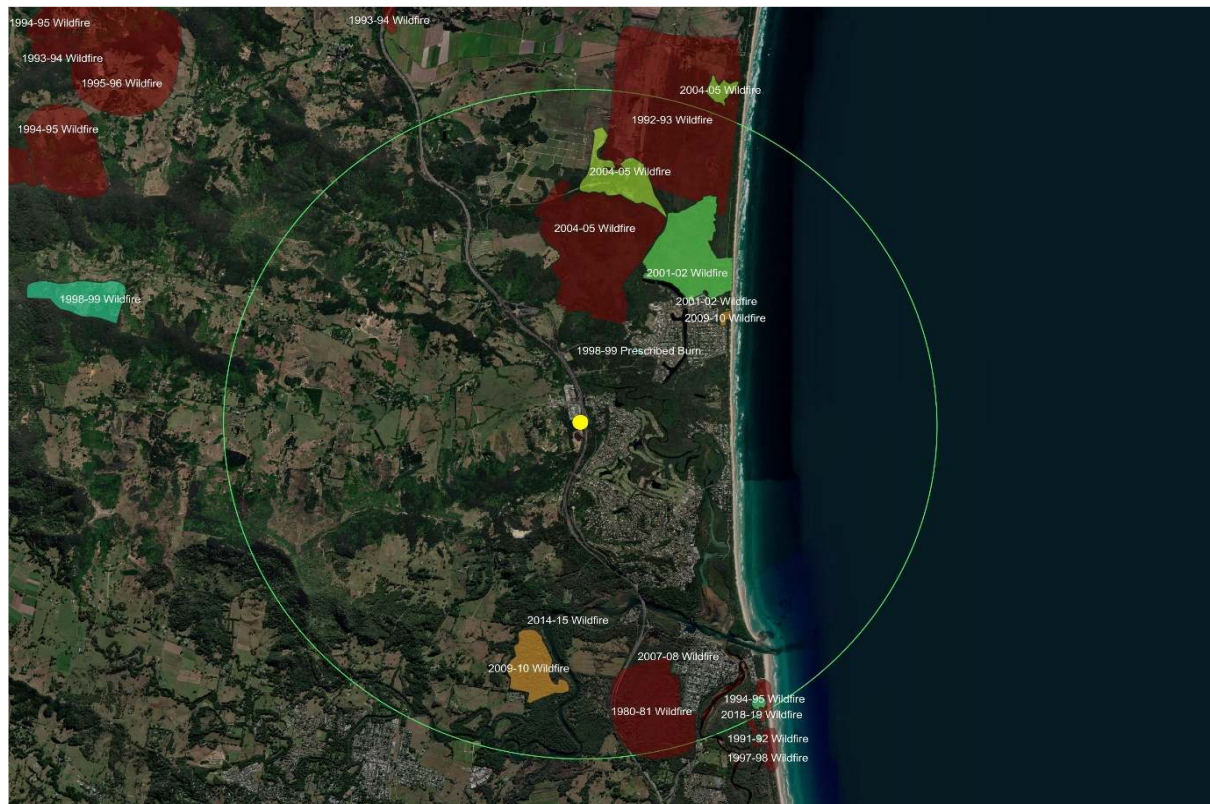


Figure 2. Showing the fire history for the area surrounding the subject land (yellow dot) and 5km radius (green circle).

2.3.2 Fire Catchment

The northern catchment is dominated by the Billinudgel and Marshalls Creek Nature Reserves located approximately 470m to the north of the site. The northern catchment has hilly topography supporting wet sclerophyll tall open forest (*E. pilularis*) and swamp forest with a high level of continuity over a potential fire run of 5km.

The north western and western catchment is dominated by the Billinudgel flood plain which has been predominantly cleared with introduced grassland for grazing on the flood plain and gentler slopes with Camphor laurel (*Cinnamomum camphora*) as a common exotic woody weed. Poorly drained areas commonly support Broad-leaved paperbark (*Melaleuca quinquenervia*), swamp oak (*Casuarina glauca*) and swamp mahogany (*Eucalyptus robusta*).

The southwestern and southern catchments are dominated by the Jinangong Nature Reserve located approximately 400m to the south of the site.

The south western catchment has hilly topography supporting wet sclerophyll tall open forest (*E. pilularis*) and broad-leaved white mahogany (*E. carnea*) and grey ironbark (*E. siderophloia*) tall open forest on dryer sites. Camphor laurel (*Cinnamomum camphora*) and sally wattle (*Acacia melanoxylon*) dominate the areas of disturbed regrowth. There is a high level of continuity over a potential fire run of 2.5km. The southern part of the catchment is more fragmented in the ratio and distribution of forest, rainforest and grassland vegetation formations and the moderate level of continuity of fuels to support a significant and sustained fire run.

2.3.3 Bushfire Weather

The climate in the Far North Coast area is influenced by both a warm temperate climate in winter and a subtropical climate in summer. Summers are hot and winters warm with an annual mean maximum temperature of 26°C, annual mean minimum 10°C and mean summer maximum of 31°C (BOM).

The dominant driver of the region's alternating seasonal climate influences is the annual north-south oscillation of a global latitudinal band of high-pressure systems called the subtropical ridge (STR). The STR separates the influences of: the low latitude easterly/south-easterly trade winds and monsoonal trough to the north; and, the influences of the strong westerly winds and associated frontal systems that dominate the middle to higher latitudes of the Southern Hemisphere.

The driest months on average being August to October and wettest occurring in late summer and autumn. The bush fire season generally runs from September through November although statutorily extends to March most seasons due to hot summer temperatures and strong coastal winds.

Prevailing weather conditions associated with the bush fire season in the Far North Coast BFMC area are strong north to north westerly winds, with high temperatures and low humidity usually in association with a high pressure system situated over the interior of the continent. The worst fire seasons occur after prolonged periods of drought. The season can often start "early" in July or August if drought conditions prevail.

The Forest Fire Danger Index (FFDI) is used in NSW to quantify fire weather. The FFDI combines observations of temperature, humidity and windspeed. Fire weather is classified as extreme when the FFDI is between 50-99. Property loss from major fires in Australia increasing starts rising steeply when the FFDI is >50. Fire weather conditions are projected to increase during summer and spring in the region. These increases are already being seen during the peak prescribed burning season in early spring and into the peak bushfire risk season in summer.

The mean annual number of days with maximum temperatures greater than 30°C is currently 30 days and the average of longest run of days in each year with a maximum temperature >30°C is currently 6 days. Annually, the average number of days with FFDI >50 for Lismore (closest weather station) is 0.3 days.

Global warming is expected to increase the frequency of extreme El Niño events (drier) and extreme La Niña (wetter) events. Future projections under a high emission scenario, predict that the number of days with maximum temperatures >30°C, the longest run of consecutive days of temperature >30°C and the average number of days with an FFDI >50 are likely to double by 2050.

2.3.4 Fire Intensity

The bushfire scenario is applied through the parameters of the bushfire design fire to determine the predicted bushfire impact on the site. The model bushfire (Table 2) is applied to the site (Table 3) to assess the potential intensity of the bushfire impact at the site boundary.

Table 1. Parameters for the design fire.

Design Fire		
Model	Inputs	Output for Analysis
Design fire as per Planning for Bushfire Protection:2019 utilising Method 2 AS 3959:2018	Upper values of nominal FFDI 80, Forest vegetation type fuel loads, flat/upslope and separation distance.	kW/m ² categorised to BAL levels

Table 2. Showing the outputs for the design fire applied to the western boundary of the site

Design Fire Outputs	At Western Boundary
Adjusted Forward Rate of Spread	$R_{slope} = 2.4 \text{ km/h}$
Flame Length	$L_f = 19.8 \text{ m}$
Flame Emissive Power	$E = 76 \text{ kW/m}^2$
Flame Angle	$\alpha = 58.7 \text{ deg}$
Maximum View Factor	$\phi_{max} = 1$
Elevation of Receiver	$h = 8.46 \text{ m}$
Atmospheric Transmissivity	$\tau = 1$
Radiant Heat Flux	$q = 76 \text{ kW/m}^2$
Bushfire Attack Level	BAL-FZ

2.4 Summary of Landscape Bushfire Risk Assessment

The landscape bushfire risk analysis indicates the potential for bushfire impact upon the subject land of the planning proposal is mitigated by the following land use and landscape features:

- The existing industrial estate immediately to the north and the urban landscape of Ocean Shores to the east of the site are likely to reduce the intensity of the bushfire attack from the north, north east and east due to the sheltering effects of large areas of reduced fuel in the form of managed gardens and lawns within curtilage of buildings and non-vegetated areas, including waterways, roads, footpaths and buildings.
- The north western exposure is predominantly: cleared of forest vegetation; consisting of managed grazing land; and, colonised by exotic rainforest formation vegetation in the form of the dominant woody weed Camphor laurel (*Cinnamomum camphora*).
- The site occupies low elevations on the edge of the flood plain with the south western, southern and south eastern exposures of the site being upslope i.e. the bushfire approaches downslope towards the site.
- The north-south running Pacific Motorway (M1) forms the site's western boundary and provides a fuel reduced and non-vegetated area.

The direction of primary landscape bushfire risk is from the south-western catchment from the Billinudgel flood plain to the 3.6 ha patch of Swamp Forest adjoining the existing south western corner of the Billinudgel Industrial Precinct and the western boundary of the site.

The connectivity of this patch of Swamp Forest to the broader landscape is predominantly across a matrix of grazing land and peri-urban development.

Some connectivity with Jinangong Nature reserve exists via the disused Murwillumbah-Casino railway easement on the upslope southern exposure.

3 LAND USE ASSESSMENT

The planning proposal is for a change in land use through the rezoning of land to Zone E4 - General Industrial. The Byron Local Environmental Plan 2014 outlines the development which is permissible with consent on zone E4:

Depots; Freight transport facilities; Garden centres; General industries; Goods repair and reuse premises; Hardware and building supplies; Industrial retail outlets; Industrial training facilities; Landscaping material supplies; Light industries; Liquid fuel depots; Local distribution premises; Markets; Neighbourhood shops; Oyster aquaculture; Plant nurseries; Rural supplies; Specialised retail premises; Take away food and drink premises; Tank-based aquaculture; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres.

While the NCC does not require APZs and construction under AS 3959, Planning for Bushfire Protection outlines the following objectives to be applied in relation to access, water supply and services, and emergency and evacuation planning:

- to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation;
- to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;
- to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building; and
- provide for the storage of hazardous materials away from the hazard wherever possible.

The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

Using the threshold of BAL-29 for the building as the benchmark to satisfy the safety of evacuations and the protection of firefighters the ability of the site to provide an APZ was assessed.

3.1 Feasibility of Asset Protection Zones

The site is approximately 30-43m wide (east to west) and 64m long (north to south). As an APZ must be wholly within a proposed property boundary. The APZ depicted in Figure 3 will achieve the benchmark radiant heat exposure of 29kW/m² in accordance with Table 1.



Figure 3. Showing the subject area of the planning proposal (yellow outline) and APZ / BAL-29 contour (green outline)

4 ACCESS AND EGRESS

4.1 Evacuation

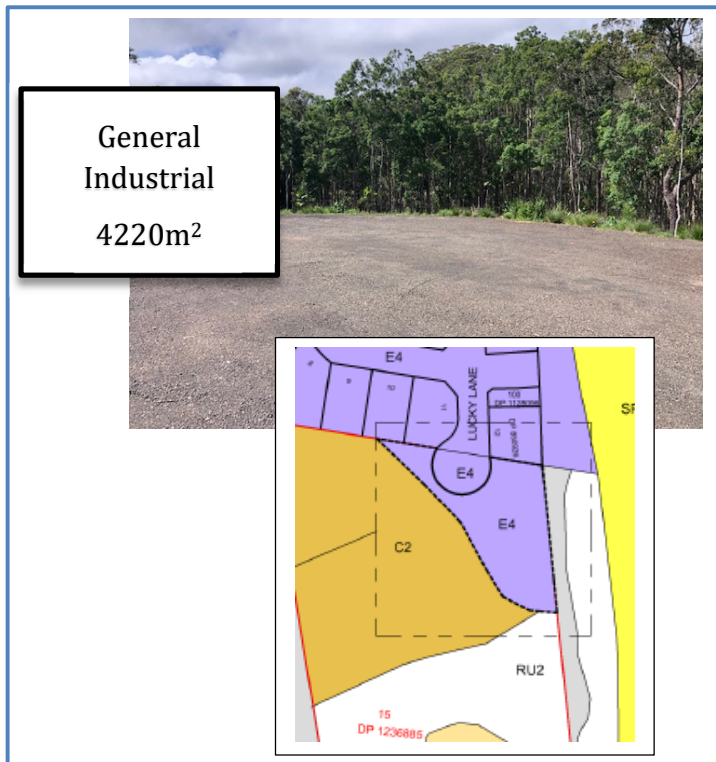
Access and egress for the site is via Lucky Lane off Bonanza Drive. Bonanza Drive passes under the M1 connecting to Brunswick Valley Way and Ocean Shores to the east and connects to Wilfred Street to the north which provides direct access to the north bound lanes of the Pacific Highway M1. South bound lanes of the M1 can be accessed via interchanges at Yelgun to the north and Brunswick Heads to the south. The size of any potential development of the site is likely to have negligible impact on traffic flows on the immediate road network during an evacuation. The cul-de-sac of Lucky Lane which provides access to the site meets the access requirements for PBP.

4.1.1 Access and egress findings

The existing road network is adequate to deal with evacuating people from the area and responding emergency services, based on the existing and proposed community profile with immediate access to Ocean Shores the potential for isolation during a bushfire is minimal.

TRAFFIC IMPACT STATEMENT

PLANNING PROPOSAL FOR GENERAL INDUSTRIAL LAND



At
40 The Tunnell Road
Billinudgel NSW 2483

Upon
Land Title
Part Lot 15 DP 1236885

Date: May 2024
(Rev -)

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1 INTRODUCTION

This Traffic Impact Statement has been prepared to address traffic matters associated with a proposal to rezone 4,220m² of part Lot 15 DP 1236885 from RU2 Rural Landscape to a new Zone E4 General Industrial. Refer to Appendix A for plan details.

An existing development (DA10.2022.219.1) has been granted for a truck depot and amenities building within this rezoning proposal footprint. The approximate area of the approved truck depot site is 2,574m². Refer Figure 1 for locality details.



Figure 1 – Planning Proposal Footprint Including Existing Truck Depot (Source: Google Earth)

Road access to the site is via Lucky Lane culdesac. Current driveway access onto the site is via an unsealed 5m wide gravel pavement.

1.1 Specific Proposal Details

The site details and developed infrastructure requirements are summarised as:

Planning Proposal Site Details

- Lot 15 DP 1236885 rezoning area	4,220m ²
- Lot 15 DP 1236885 existing truck depot area	2,574m ²
- Existing zoning classification (Rural Landscape)	RU2
- Proposed zoning classification (General Industrial)	E4
- New roads required	No
- Proposed Driveway site access	Existing location
- Proposed Driveway standard	Sealed 5m width
- Proposed stormwater quality treatment area	Yes
- Proposed stormwater legal discharge point	Exist stormwater pipe Outlet at Lucky Lane
- Proposed sewer connection	Existing pressure pump
- Proposed water connection	Existing water meter

2 TRAFFIC AND ACCESS ASSESSMENT

In accordance with Byron Shire Council DCP 2014 – *Chapter B4: Traffic Planning, Vehicle Parking, Circulation and Access – Section B4.2.1*, a moderate impact (10-50 peak hour trips) would be generated which requires a Traffic Impact Statement to be prepared.

- (a) Land use trips generated. The proposed industrial rezoning area includes a bushfire APZ buffer. With typical industrial lots yielding a GFA between 50% to 60% of the lot area, it is proposed to use the lower 50% given the site also includes allowance for a bushfire APZ buffer. The additional trip generation potential for the site is thereby assessed as:

Existing site 2,574m² x 50% x 7.83* trips per 100m² GFA = 101 trips per day

Rezoned site 4,220m² x 50% x 7.83* trips per 100m² GFA = 165 trips per day

Potential Increase = 64 trips per day

(* Daily rate of 7.83 trips adopted for Regional Areas as per TDT 2013/04a Guide to Traffic Generating Developments Updated Traffic Surveys)

Adopting a 10% peak hour demand split, this represents a nominal +7 trips per hour.

(b) Brief description of road network in the vicinity.

Lucky Lane is 9m wide by 60m in length and services three (3) properties. It joins with local collector road Bonanza Drive via a 4-way intersection. This intersection is a little unusual in that traffic flow is controlled via the use of one-way travel restrictions, being west bound travel only on Bonanza Drive and south bound travel only on Lucky Lane (northern portion of Lucky Lane). Refer to Figure 2 below.

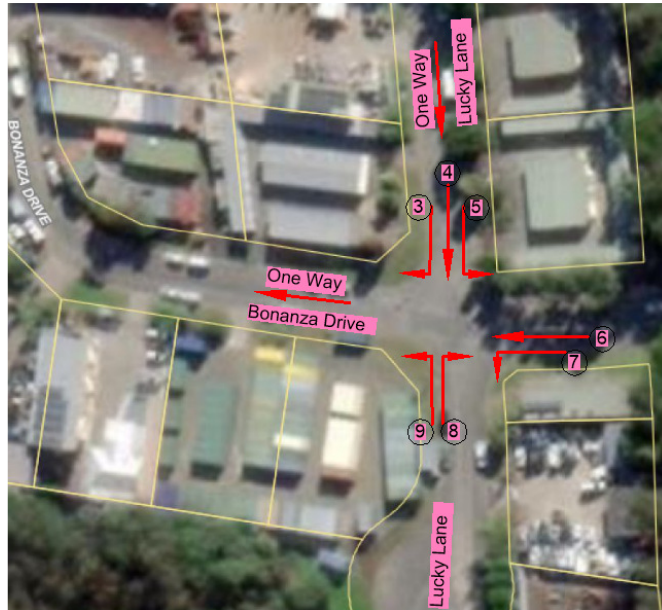


Figure 2 – Lucky Lane / Bonanza Drive Intersection

Enquiries with Byron Shire Council did not locate any recent traffic count data and given the unusual one-way cyclic configuration of the road network, both AM and PM intersection counts were undertaken.

(c) Analysis of operation of access and parking arrangements.

The existing 5m wide driveway site access off Lucky Lane will be retained to service the rezoned area. This driveway will ultimately require upgrading to a sealed surface in accordance with Council development standards.

(D) Parking Demand and Supply of Development. As per Table B4.1 – Parking Rates (refer extract below). Byron Shire Council has a parking demand of 1 spaces per 100m². This equates to a likely parking demand of:

Rezoned site 4,220m² x 50% x 1 space per 100m² GFA = 21 spaces.

The site has sufficient area to supply the foreshadowed 21 space parking demand which would be more completely assessed at the time of preparing a development application.

<i>Industry</i>	1 space per 100 m ² or two per factory unit which ever is the greater.	
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Extract – DCP 2014: Table B4.1 – Parking Rates

(E) Parking analysis for the mobility impaired. The landform has been filled to meet flood level requirements and is thereby very flat in nature. The ability to provide gradient compliant parking and accessways for mobility impair can be readily addressed at the time of preparing a development application.

(F) Analysis of the operation of the first intersection, as a minimum, on either side of the accesses.

Both a AM and PM peak-hour count was conducted on Thursday 1 February 2024 to ascertain typical traffic movements. The AM count was conducted from 6.30am to 9.30am and the PM count was conducted from 3.30pm to 6.00pm. The total peak hour traffic flows and peak times through the intersection were found to occur as follows (refer **Appendix B – Traffic Count Data**):

418vph from 8.30am to 9.30am (Morning Count)

373vph from 4.00pm to 5.00pm (Afternoon Count)

A separate record of heavy vehicles were undertaken, being a low 4% despite the locality being within the industrial estate. It can be explained that this low percentage exists due to Bonanza Drive being a local connector link under the Pacific Motorway to Ocean Shores residential areas, rather than just being a industrial service road corridor.

Austroads Guide To Traffic Management Part 3: Traffic Studies and Analysis advises that detailed intersection analysis is not necessary where sufficient gap acceptance is present (ie low to moderate traffic flow conditions). Typically this threshold ranges from 650vph to 750vph - refer to extract of Table 6.1 below. Adopting a 2% growth x 10year horizon x 418vph the peak Lucky Lane intersection use would be 510vph + 7vph = say 520vph, thereby no detailed SIDRA intersection capacity assessment is warranted at this point in time.

Table 6.1: Intersection volumes below which capacity analysis is unnecessary

Type of road	Light cross and turning volumes maximum design hour volumes vehicles per hour (two way)		
Two-lane major road	400	500	650
Cross road	250	200	100
Four-lane major road	1000	1500	2000
Cross road	100	50	25

(G) Conceptual geometric layout of access arrangements. The existing access to the site is proposed to remain unchanged from its current 5m width, however sealing of the driveway would be required for compliance with Council's development standards. Notwithstanding this, final assessment of driveway configuration would be made at the time of preparing a development application for a specific proposal.

(H) Opinion on expected traffic impact during critical peak hour and analysis conducted. The Lucky Lane / Bonanza Drive intersection was found to function well within traffic flow limits for both the morning and evening peak hour, to which the extra demand of 7 vph would not have any significant impact.

3 SUMMARY OF PROPOSAL

This Traffic Impact Statement has been undertaken in keeping with Byron Shire Council development control standards and has concluded that the traffic impacts will not cause any significant impact upon the local road network. Sufficient space is available within the proposed General Industrial rezoning lands to accommodate the expected parking demand for use of the site.

APPENDICES

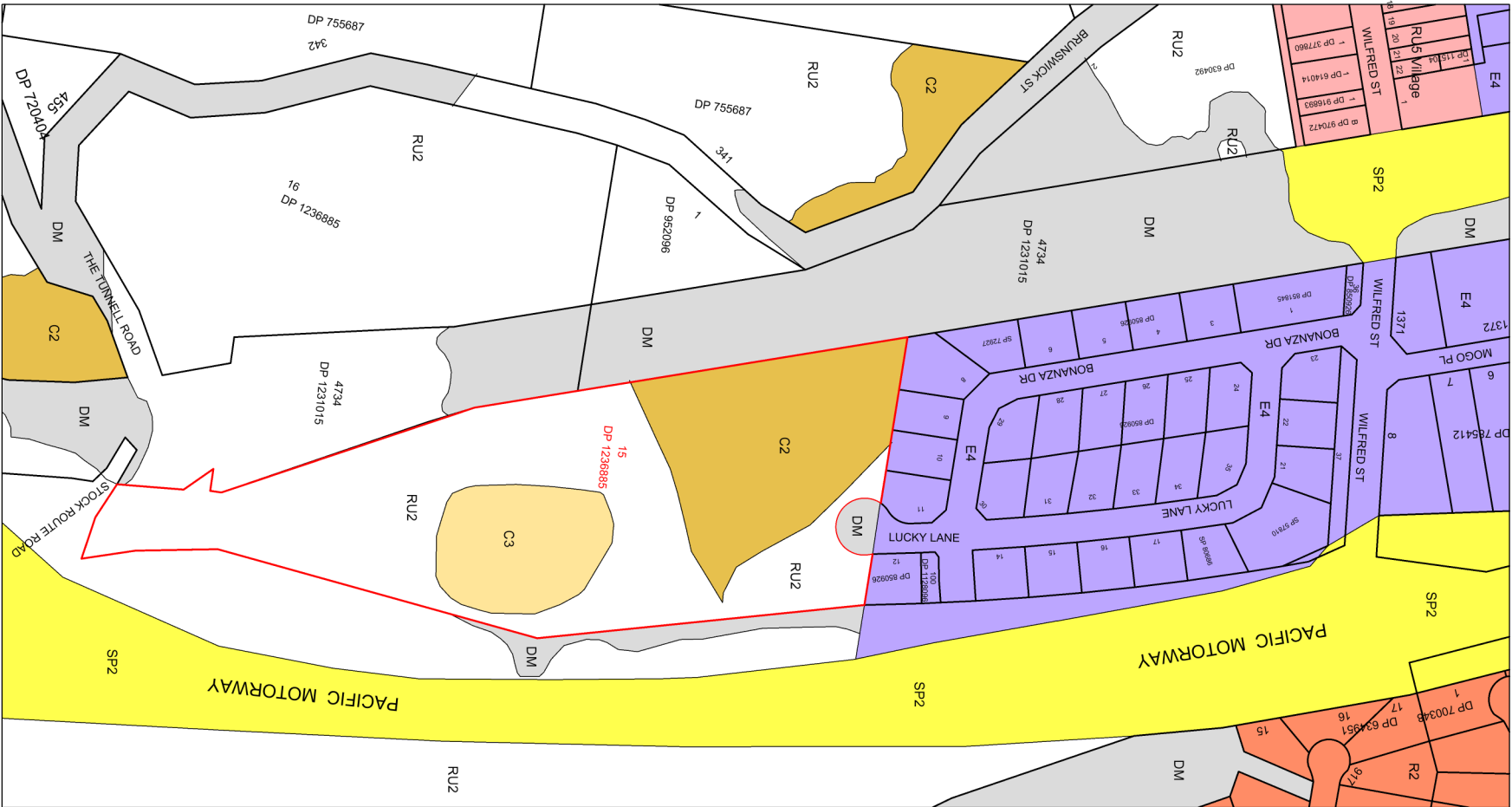
Appendix A Proposed Rezone Area & Existing Site Survey

Appendix B Traffic Count Data

Appendix A

Proposed Rezone Area & Existing Site Layout

- Drg No: PP01 Existing and Proposed Rezone Map (A3)
- Drg No: 211262_001_DET Rev D – Partial Site Survey (A3)

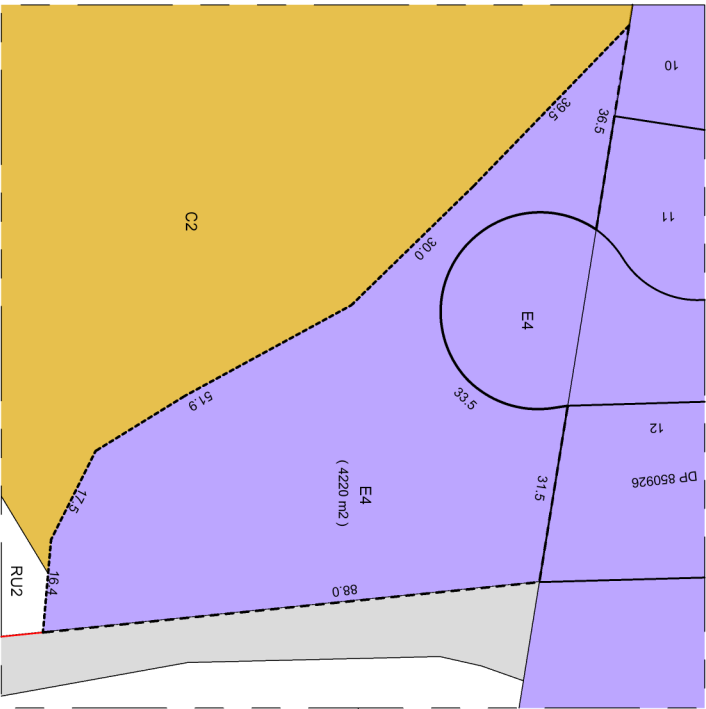


Land Zoning Legend

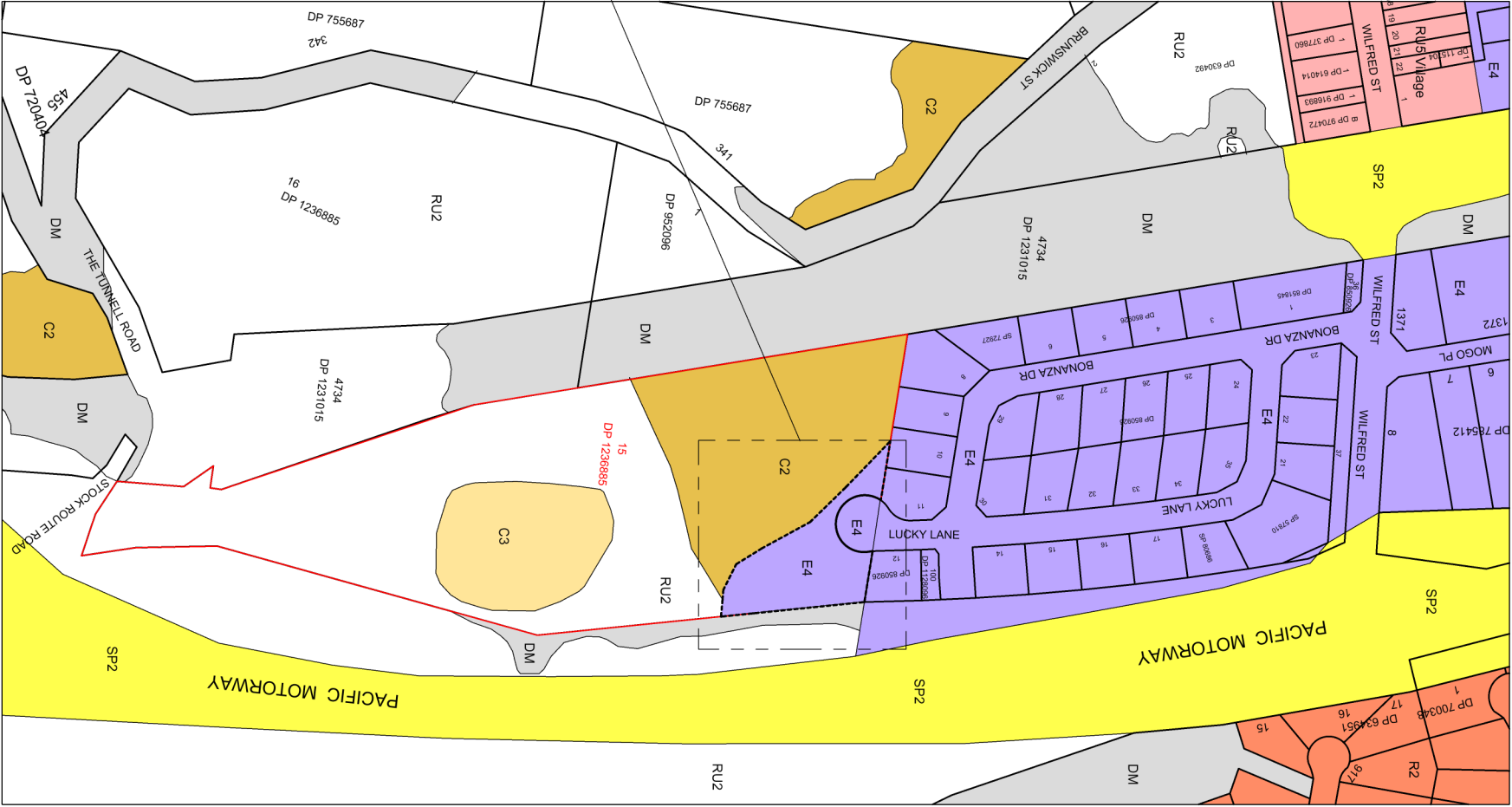
- RU2 Rural Landscape (Blank White Colour)
- C2 Environmental Conservation
- C3 Environmental Management
- DM Deferred Matter
- E4 General Industrial
- R2 Low Density Residential
- RU5 Village
- SP2 Infrastructure

Subject Property Lot 15 DP 1236885

Subject Property Rezoning Area



Larger Proposed Rezoning Detail



Proposed Zoning

Scale A

Existing Zoning

Scale A

SDS Civil Ref: JN2230 Survey Datum: AHD / MGA Survey Source: Bennett + Bennett

<div>SDS Civil Enterprises</div> <div>A.B.N. 56 656 467 255</div> <div>461 Hinterland Way, Knockrow NSW</div> <div>m 0438 725 414 e peterw@sdscivil.com.au</div>				<div>IMPORTANT NOTES</div> <div>1. Verify and locate all dimensions and levels PRIOR to performing any works.</div> <div>2. Ensure DB/DV enquiries are made to locate current service information.</div> <div>3. Provide a service location of any underground services before performing works.</div> <div>4. Drawing may not be modified or used by others without approval of SDS Civil Enterprises.</div> <div>© Copyright SDS Civil Enterprises</div>				Rev	Date	Amendment	<div>SCALE</div> <div><div>020406080100</div><div>Scale A</div><div><i>Plan</i></div><div>M.P. Williams B.Eng (Civil)</div></div>				PROJECT	Industrial Rezoning	ADDRESS	40 The Tunnel Road Bilimundgel	DATE	May 2024	REV
A				B				APPROVED	CLIENT	Lisa Joel Investments Pty Ltd	LAND	Lot 15 DP 1236885	DRAWING PURPOSE	Planning Proposal							
C									DRAWING DETAILS	Existing and Proposed Zone Map				PP - 01							
D															-						

LEGEND:

Road	Kerb Back	Terrain	Driveway
	Kerb Invert		Footpath
	Edge of Bitumen		Slab Edge
	Edge of Gravel		Retaining Wall Base
	Road Crown		Retaining Wall Top
	Traffic Park Meter		Change of Grade
	Traffic Light		Top of Bank
	Traffic Pit		Toe of Bank
	Traffic Sign		Waterline
	Traffic Post Box		Garden Edge
Structures	Building Line		Creek Toe of Bank
	Roof Ridgeline		Creek Top of Bank
	Fence Line		Creek Invert
	Gate		Creek Waterline
	Hand Rail		Tree
	Cattle Grid		Tree Canopy
	Bollard		Control Point/PSM
Sewer	Sewer Line	Drainage	Drainage line
	Valve		Open Drain
	Inspection Opening		Manhole
	Manhole		Field Inlet
Electrical	Electricity Line	Communications	Communication Line
	Overhead Line		Overhead Line
	Pits/Manholes		Pits/Manholes
	Pole		Pillar
	Street Light		Gas
	Light In-Ground		Gas Line
Water	Water Line		Valve
	Meter		Marker
	Valve		General
	Fire Hydrant		Pothole
	Tap		
	Sprinkler		
Fuel	Fuel Line	Subsurface Utility - QL	
	Fitting		

NOTES:

- This Detail Survey is not a 'Survey' as defined by the Surveying Act, 2002. If any Construction is planned, it would be advisable to carry out further survey work to determine the boundary dimensions.
- Drawn to scale on an A3 sheet.
- All levels are in metres on the Australian Height Datum referred to N/A - RL 3.057 AHD situated in CNR Lucky Lane & Bonanza Drive.
- All Boundaries are vide title and subject to confirmation by Cadastral Survey.
- The Location of Services has not been shown on this plan.
- Area vide title :5.426ha
- Field Survey Completed on 27/06/2023
- Scott Anthony Thompson, Surveyor Registered under the Surveying and Spatial Information Act 2002 (Surveyor Identification No. 2096).
- Title Particulars have not been searched.
- Proposed Areas & Dimensions are subject to a final cadastral survey and Council Approval.

Rev B - Coordinate Origin Updated (MGA) - 22/11/2021
Rev C - Proposed Boundaries added - 5/12/2023
Rev D - Plan Updated - 16/01/2024

Level datum: Arbitrary (N/A)
Horiz datum: MGA Derived PLAN (DP1236885)
Coord Origin: SSM (SCIMS) (SSM6308)
GDA System: GDA2020 Coordinate System: Plane 1:1
Meridian: +0°00'00" DP1236885

Title:

Partial Detail Survey

Lot 15 D.P.1236885

#40 The Tunnell Road, Billinudgel

Client: Lisa Joel Investments Pty Ltd

Locality: Billinudgel

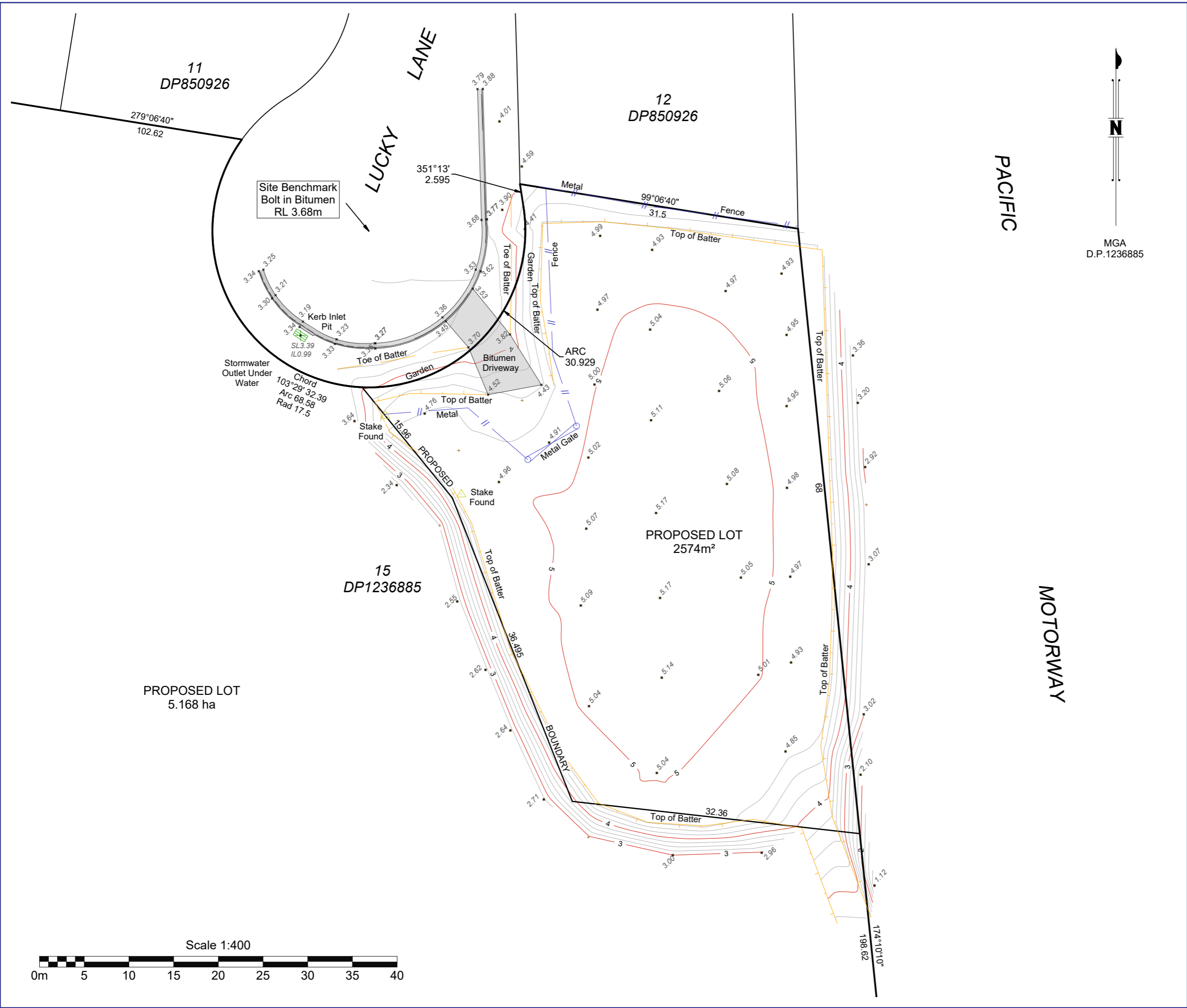
Local Gov: Byron Shire Council

Surveyed By: MJT Approved: SAT

Date Created: 17/01/24 Scale: 1:400

File Ref: 211262

Plan No: 211262_001_DET Rev: D



Appendix B

Traffic Count Data

Intersection Audit Counts: Thurs 1 Feb 2024

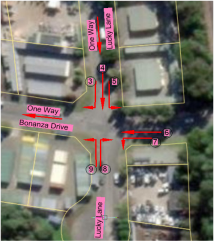
- Lucky Lane / Bonanza Drive Intersection AM
- Lucky Lane / Bonanza Drive Intersection PM
(2 pages)

Date: Thurs 1 Feb 2024

Project Name: Lucky Lane / Bonanza Drive

Weather: Ocast but Fine

Traffic Surveyor Name: Ms A Sincok



Time	Bonanza Dve (Right Turn In)	Bonanza Dve (Straight Thru)	Lucky Lane (Right Turn to West)	Lucky Lane (Straight Thru South)	Lucky Lane (Left Turn to East)	Bonanza Drive (Straight Thru to West)	Bonanza Drive (Left to South)	Lucky Lane (Right Turn to East)	Lucky Lane (Left Turn to West)	Totals	Pedestrians
	Prohibited	Prohibited	Movement 3	Movement 4	Movement 5	Movement 6	Movement 7	Movement 8	Movement 9		
6.30 - 6.45am			1	0	22	27	0	0	0	50	
Trucks						1				1	
6.45 - 7.00am			1	0	27	46	0	0	0	74	
Trucks					2					2	
7.00 - 7.15am			6	0	23	26	1	0	0	56	
Trucks					3					3	
7.15 - 7.30am			2	0	25	27	1	0	0	55	
Trucks				1	2			1		4	
7.30 - 7.45am			8	0	16	39	1	1	0	65	
Trucks					6	2		0		8	
7.45 - 8.00am			13	0	28	48	0	0	0	89	
Trucks				3	6	6		3		18	
8.00 - 8.15am			8	0	38	43	0	0	0	89	
Trucks			1			2				3	
8.15 - 8.30am			9	0	34	41	0	0	0	84	
Trucks			1		2	1				4	
8.30 - 8.45am			7	0	37	55	4	2	2	107	
Trucks								1		1	
8.45 - 9.00am			6	0	47	45	1	0	1	100	
Trucks					1	2				3	
9.00 - 9.15am			8	0	53	40	1	2	0	104	
Trucks					3	5				8	
9.15 - 9.30am			7	0	38	46	0	0	0	91	
Trucks					1	3				4	

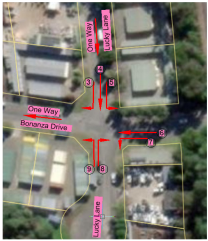
All Vehicles											
Cars	0		76	0	388	483	9	5	3	964	
Trucks	0		2	4	26	22	0	5	0	59	
Peak Hr Vehicles											
Cars			28	0	175	186	6	4	3	402	
Trucks			0	0	5	10	0	1	0	16	

Date: Thurs 1 Feb 2024

Project Name: Lucky Lane / Bonanza Drive

Weather:Ocast but Fine

Traffic Surveyor Name:Ms A Sincok



Time	Bonanza Dve (Right Turn In)	Bonanza Dve (Straight Thru)	Lucky Lane (Right Turn to West)	Lucky Lane (Straight Thru South)	Lucky Lane (Left Turn to East)	Bonanza Drive (Straight Thru to West)	Bonanza Drive (Left to South)	Lucky Lane (Right Turn to East)	Lucky Lane (Left Turn to West)	Totals	Pedestrians
	Prohibited	Prohibited	Movement 3	Movement 4	Movement 5	Movement 6	Movement 7	Movement 8	Movement 9		
3.30 - 3.45pm			3	0	61	26	1	1	0	92	
Trucks					1	5	1	1	1	9	
3.45 - 4.00pm			6	0	43	37	0	0	0	86	
Trucks					1	5				6	
4.00 - 4.15pm			4	0	57	29	0	0	0	90	
Trucks					1	2				3	
4.15 - 4.30pm			7	0	45	32	0	0	0	84	
Trucks					1	4				5	
4.30 - 4.45pm			5	0	54	38	0	0	0	97	
Trucks					2					2	
4.45 - 5.00pm			4	1	48	37	0	1	0	91	
Trucks							1			1	
5.00 - 5.15pm			1	0	43	27	0	0	1	72	
Trucks						1				1	
5.15 - 5.30pm			0	0	54	12	0	0	0	66	
Trucks										0	
5.30 - 5.45pm			1	0	29	21	0	0	0	51	
Trucks					1					1	
5.45 - 6.00pm			0	0	29	18	0	0	0	47	
Trucks										0	

All Vehicles

Cars	0	31	1	463	277	1	2	1	776
Trucks	0	0	0	7	17	2	1	1	28
Peak Hr Vehicles									
Cars		20	1	204	136	0	1	0	362
Trucks		0	0	4	6	1	0	0	11

STORMWATER MANAGEMENT PLAN

PLANNING PROPOSAL FOR GENERAL INDUSTRIAL LAND



At
40 The Tunnell Road
Brunswick Heads NSW 2483

Upon
Land Title
Part Lot 15 DP 1236885

Date: May 2024
(Rev -)

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5	STORMWATER MAINTENANCE MANAGEMENT	9

1 INTRODUCTION

SDS Civil Enterprises have prepared a Stormwater Management Plan (SWMP) to accompany a planning proposal to rezone 4,220m² of part Lot 15 DP 1236885 from RU2 Rural Landscape to a new Zone E4 General Industrial landuse. Refer Figure 1 for locality details.

An existing development (DA10.2022.219.1) has been granted for a truck depot and amenities building within this rezoning proposal footprint. The approximate area of the approved truck depot site is 2,574m² and the hardstand footprint can be seen within/under the arial shading in Figure 1.



Figure 1 – Planning Proposal Footprint Including Existing Truck Depot (Source: Google Earth)

1.2 Report Reference Documents

The preparation of this report has had regard to the following documents:

- Byron Shire Council *DCP 2014 – Chapter D6 Subdivision (April 2018)*
- Byron Shire Council *NRLGM – Handbook of Stormwater Drainage Design (2013)*
- Byron Shire Council - *Comprehensive Guidelines For Stormwater Management (2014)*
- LANDCOM – *Managing Urban Stormwater: Soils and Construction (2004)*

2 EXISTING STORMWATER PIPE NETWORK

An existing piped stormwater network is present within Lucky Lane and discharges into an existing waterway which traverses through Lot 15 DP1236885 immediately adjacent to Lucky Lane road reserve. Refer Figure 1 and Plate 1 below.

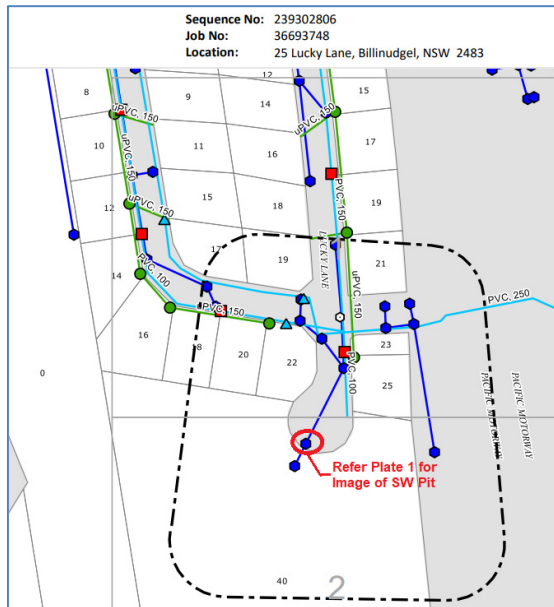


Figure 2 – DBYD Services



Plate 1 – Existing Stormwater Pit Lucky Lane

The legal point of discharge for the planning proposal lands will be to this existing stormwater pit. The outlet from this stormwater pit is a 450 diameter RCP (to be confirmed as pipe is currently 2/3 underwater). The invert level of the stormwater pit is RL0.99 AHD. With the existing filled portions of the planning proposal lands ranging between RL4.9 to RL5.1 AHD, there is ample elevation available to install new onsite stormwater with a pipe outlet falling to the existing Lucky Lane stormwater pit.

2.1 Onsite Catchment and Flows

The development does not have any external catchments which drain onto the filled industrial site and therefor the catchment is self contained within the planning proposal lands. Based upon field survey, the developed footprint for industrial use

would be a minimum of 2,574m² and could be up to 2,900m² which would generate a runoff for a Q_{10yr} ARI for a 6min time of concentration of:

$$Q_{10yr} = CI_{10}A/360 \quad \text{where } Q = \text{m}^3/\text{s} \quad C = \text{coefficient of discharge}$$

$$A = \text{ha} \quad I_{10} = \text{mm/hr intensity}$$

Adopting C = 0.9 and I₁₀ = 210mm/hr and A = 0.29ha

$$Q_{10yr} = 0.9 \times 210 \times 0.29 / 360 = 0.172\text{m}^3/\text{s} = \mathbf{172 \text{ litres per second runoff}}$$

This runoff flow could be accommodated within a 300dia pipe at 3% gradient, however until a building proposal is prepared, a more complete hydraulic assessment would be undertaken at the time of preparing a development application inclusive of attenuation tank sizing. Refer to Figure 3 for location of the typical onsite piped stormwater concept to enable a discharge regime to Lucky Lane.



Figure 3 – Indicative Site Future Stormwater

The 100yr ARI overland flow path for the site would be for excess waters to simply overflow down the earthen / vegetated batters about the perimeter of the filled industrial footprint.

3 STORMWATER QUALITY

A generic industrial layout has been modelled via MUSIC software to ensure consideration (ie sufficient size / location / quality compliance) to treatment of stormwater runoff can be effectively managed for the proposal. In summary, it was found that the treatment train of using:

Rainwater re-use tanks (10kL) + Bioretention Swales (100m²)

+ Filter Baskets Within Pits

would achieve a compliant stormwater quality discharge outcome. A copy of the treatment train as modelled is shown in Figure 4 and the MUSIC model configuration used is shown in Figure 5.

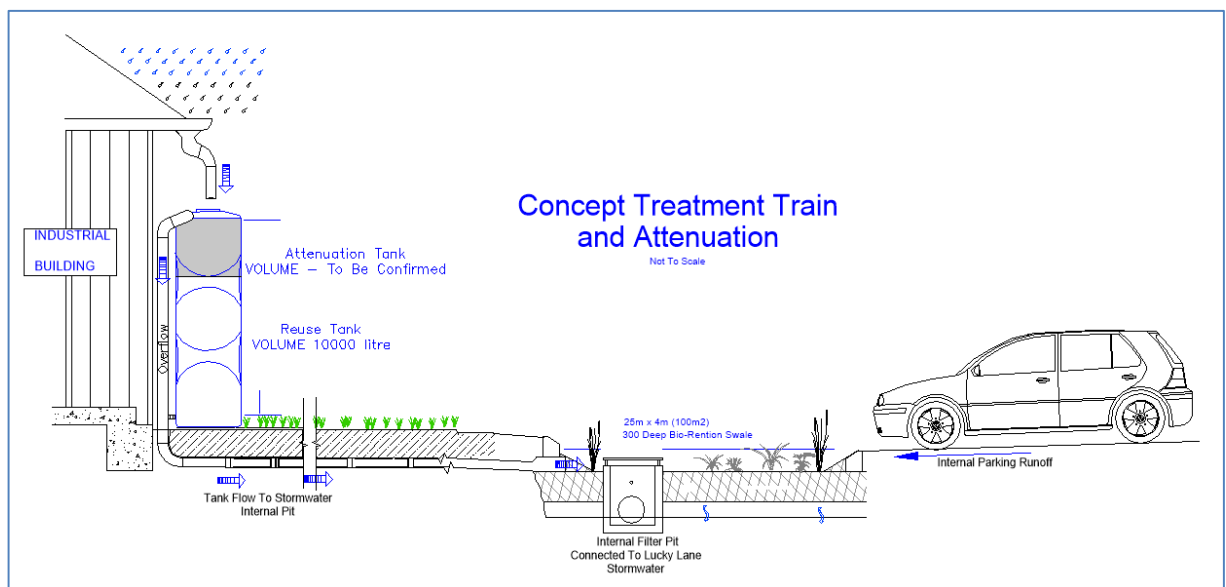


Figure 4 – Stormwater Treatment Train

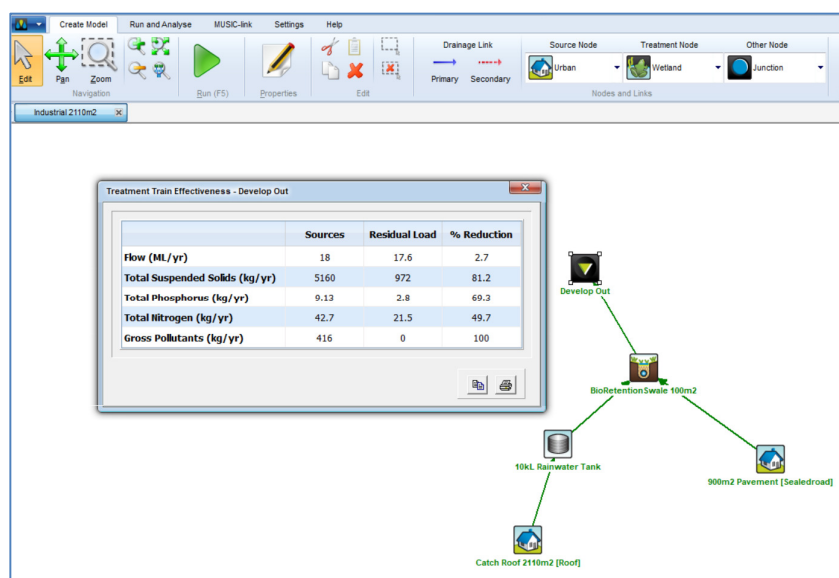


Figure 5 – MUSIC Model Network

The modelling demonstrated compliance with Councils pollutant reduction target as compared below in Table 6 and model SQZ files can be issued to Council if requested:

Table 6 – MUSIC Comparison To BSC Targets

Pollutant	BSC Target	MUSIC Output	Complies (Yes / No)
Total Suspended Solids	80%	81%	✓ Yes
Total Phosphorus	45%	69%	✓ Yes
Total Nitrogen	45%	49%	✓ Yes
Gross Pollutants	70%	100%	✓ Yes

4 CONSTRUCTION SOIL AND WATER MANAGEMENT

Future development upon the site would involve excavation of footings / building construction and services as well as the installation of car parking civil works.

To implement these works, typical building construction activities and their sequence will be:

- (i) Implementing erosion and sediment controls inclusive of:
 - controlled site vehicular access points
 - sediment protection of existing road gully pits
 - sediment fence protection about the perimeter of the site
- (ii) Stripping of topsoil and stockpile of same where internal pavements and site level adjustments are required;
- (iii) Infrastructure service trenching and laying of same (ie water / sewer / stormwater);
- (iv) Provide gully pit entry sediment protection of new stormwater treatment works;
- (v) Install driveway and pavement materials and kerbing;
- (viii) Install turf buffer strips about kerb edging as soon as possible – for filtering water runoff which may occur.
- (ix) Topsoil and seed general allotments as soon as possible once driveway pavement levels are finalised.

5 STORMWATER MAINTENANCE MANAGEMENT

The development has various stormwater treatment devices which remain the responsibility of each industrial user / holding as per below:

- | | | |
|--|---|--------------------------|
| (a) Rainwater tank maintenance | - | Landowner responsibility |
| (b) Sediment filter baskets in grated pits | - | Landowner responsibility |
| (c) Bio-retention vegetation maintenance | - | Landowner responsibility |

5 EMERGENCY SERVICES

The site is readily serviced by existing appliances from:

- NSW RFS Billinudgel/Ocean Shores Fire Station, 2 Wilfred Street Billinudgel, 450m approximately 1 mins away; and,
- Fire&Rescue NSW Brunswick Heads Fire Station, Fingal Street, Brunswick Heads, 5.9km approximately 8 mins away.

6 INFRASTRUCTURE

6.1 Water

The Billinudgel Industrial Precinct has reticulated water and there is a hydrant located at the corner of Lucky Lane and Bonanza Drive, 50m away from the site entry.

6.2 Electricity and gas

Electrical services are underground.

7 CONCLUSION

This Study has demonstrated that adequate bushfire protection measures can be afforded to a potential development as a result of the adoption of the planning proposal to change the zoning of the subject land to E4 – General Industrial, such that potential development:

- is not subject to a high bush fire risk;
- will not be difficult to evacuate;
- management of adjoining lands will not be adversely impacted by potential development or the implementation of Bushfire Protection Measures;
- any new development arising from the adoption of the planning proposal will be able to meet the acceptable solutions of PBP; and,
- can achieve an appropriate level of bushfire safety without any reliance on performance solutions or fuel reduction measures on adjoining lands.

This study has not found any triggers for the exclusion of this planning proposal as inappropriate development in bush fire prone areas in accordance with the Strategic Planning Principles or exclusion criteria within section 4 of PBP.

8 REFERENCES

ABCB. (2020) National Construction Code, Building Code Of Australia. Volume 2; Class 1 and 10 Buildings. Amendment 1. Australian Building Codes Board. Canberra, ACT.

AS3959. (2018) AS 3959:2018. Construction of buildings in bushfire-prone areas. Standards Australia International Ltd. Sydney. NSW.

EP&A. (2010) Environmental Protection and Assessment Act 1979 No 203. NSW Consolidated Acts. NSW.

NSWPP. (2022) New South Wales Government Planning Portal. <https://www.planningportal.nsw.gov.au>.

PBP. (2019) Planning for Bushfire Protection 2019. NSW Rural Fire Service.



PRELIMINARY SITE INVESTIGATION

PROPOSED REZONING

March 2024

Prepared For: Lisa Joel Investments Pty Ltd

**Lot 15 DP 1236885
40 The Tunnell Road
Billinudgel NSW**

HMC2024.667

RE: Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW.

HMC Environmental Consulting Pty Ltd is pleased to present our report for a Preliminary Site Investigation for the abovementioned site.

We trust this report meets with your requirements. If you require further information, please contact HMC Environmental Consulting directly on the numbers provided.

HMC Environmental Consulting Suite 29, Level 2, 75-77 Wharf Street PO Box 311 Tweed Heads NSW 2485	PH: 0755368863 Email: admin@hmcenvironment.com.au Web: www.hmcenvironment.com.au ABN: 60 108 085 614
Title:	Preliminary Site Investigation
Job No:	2024.667
Client:	Lisa Joel Investments Pty Ltd

Document Record:				
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Final	30.03.2024	MF		SV

Distribution List	Date	Version	Comments
R. Darney	26.03.2024	Draft Issue A	For review
R. Darney	30.03.2024	Final Issue A	Final

This report should be cited as '*HMC Environmental Consulting (2024). Preliminary Site Investigation, Proposed Rezoning: Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW. Report No. HMC2024.667.*'

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EXECUTIVE SUMMARY

BACKGROUND

A planning proposal is to be lodged to rezone the north-eastern portion (2574m²) of the large landholding (6.91 Ha) located at Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW from a RU2 Rural Landscape zone to E4 General Industrial zone. The industrial zone would reflect the surrounding land use zoning along Lucky Lane.

The site has been filled over a period from 2016 to 2022 to achieve the final level building platform. A proposed storage/office building was approved (10.2022.219.1) for the site on 18 May 2023 showing the current levelled site area on the north-eastern part of the current landholding. A December 2023 survey plan shows the proposed industrial zoned land on a future 2541m² lot with a residual lot of 5.171 Ha.

To address potential site contamination associated with current and former land use, HMC Environmental Consulting (HMC) was commissioned by Ray Darney (Planner) on behalf of the proponent (Lisa Joel Investments Pty Ltd) to undertake the required investigation in accordance with *State Environmental Policy (Resilience and Hazards) 2021 (SEPP 2021)*.

A Preliminary Site Investigation (PSI) including a desktop assessment of available information, and a detailed site inspection was completed.

OBJECTIVES

The objectives of the Preliminary Site Investigation are to:

- Assess the current and former land use on the investigation area for potentially contaminating activities.
- Based on potentially contaminating activities associated with the current and former land use, assess the suitability of the investigation area for the proposed land use.

SCOPE OF WORKS

The scope of work undertaken during the investigation included the following:

- A desktop assessment of current and former land use on the site including search of available records.
- A detailed site inspection.
- Preparation of a Preliminary Site Investigation report including:
 - review of available land use history information, and results of the site inspection.
 - assessment of potentially contaminating activities, contaminants of potential concern (CoPC) and areas of concern (AoPC).
 - conclusions and recommendations including suitability of the northern part of the landholding for the proposed industrial rezoning, and need for further investigation or remediation.

CONCLUSIONS/RECOMMENDATIONS

The Preliminary Site Investigation conclusions are based on the information described in this report and Appendices and should be read in conjunction with the complete report, including Section 9 Limitations.

A planning proposal would rezone the north-eastern part of Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW to general industrial to reflect the current approved land use, and the adjoining land use to the north. A review of available information, and a detailed site inspection did not record that any potentially contaminating activities have occurred on the site.

Based on the information presented, in relation to potential site contamination, Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW, as shown in Appendix 1 & 2 of this report, is considered suitable for the proposed planning proposal.

Based on the information presented, in relation to potential site contamination associated with the current and former land use, no further investigation or remediation is required for the site of the planning proposal for Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW, as shown in Appendix 1 & 2 of this report.

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ABBREVIATIONS/ ACRONYMS

ACM	Asbestos containing material
ANZECC	Australian and New Zealand Environment and Conservation Council
AoPC	Area of potential concern
ARMCANZ	Agricultural and Resource Management Council of Australia and New Zealand
AS	Australian Standard
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013)
BLEP 2014	Byron Local Environmental Plan 2014
Client	Lisa Joel Investments Pty Ltd
CLM Act	<i>Contaminated Land Management Act 1997</i>
CoPC	Contaminant of Potential Concern
CSM	Conceptual site model
DQO	Data quality objective
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
HIL	Health Investigation Level
HMC	HMC Environmental Consulting
Investigation Area	Proposed 2574m ² area of north-eastern part of Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW
mBGL	Metres below ground level
OEHS	[NSW] Office of Environment and Heritage
PSI	Preliminary Site Investigation
Site	Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW

1 INTRODUCTION

1.1 BACKGROUND

A planning proposal is to be lodged to rezone the north-eastern portion (2574m²) of the large landholding (6.91 Ha) located at Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW from a RU2 Rural Landscape zone to E4 General Industrial zone. The industrial; zone would reflect the surrounding land use zoning along Lucky Lane.

The site has been filled over a period from 2016 to 2022 to achieve the final level building platform. A proposed storage/office building was approved (10.2022.219.1) for the site on 18 May 2023 showing the current levelled site area on the north-eastern part of the current landholding. A December 2023 survey plan shows the proposed industrial zoned land on a future 2541m² lot with a residual lot of 5.171 Ha.

To address potential site contamination associated with current and former land use, HMC Environmental Consulting (HMC) was commissioned by Ray Darney (Planner) on behalf of the proponent (Lisa Joel Investments Pty Ltd) to undertake the required investigation in accordance with *State Environmental Policy (Resilience and Hazards) 2021 (SEPP 2021)*.

A Preliminary Site Investigation (PSI) including a desktop assessment of available information, and a detailed site inspection was completed.

1.2 PROJECT DESCRIPTION

A planning proposal is to be lodged to rezone part of the site located at Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW. The proposed rezoning would change the designated land use within the Byron LEP 2014 from RU2 Rural Landscape to E4 General Industrial on an area of approximately 2574m² on the north-eastern corner of the large rural landholding. This land use change would then reflect the adjacent industrial E4 zone land use to the north:

For the purposes of this report, the *investigation area* is the 2574m² proposed industrial area.

1.3 OBJECTIVE OF THE INVESTIGATION

The objectives of the Preliminary Site Investigation are to:

- Assess the current and former land use on the investigation area for potentially contaminating activities.
- Based on potentially contaminating activities associated with the current and former land use, assess the suitability of the investigation area for the proposed land use.

1.4 SCOPE OF WORKS

The scope of work undertaken during the investigation included the following:

- A desktop assessment of current and former land use on the site including search of available records.
- A detailed site inspection.
- Preparation of a Preliminary Site Investigation report including:
 - review of available land use history information, and results of the site inspection.
 - assessment of potentially contaminating activities, contaminants of potential concern (CoPC) and areas of concern (AoPC).
 - conclusions and recommendations including suitability of the northern part of the landholding for the proposed industrial rezoning, and need for further investigation or remediation.

2 SITE INFORMATION

2.1 SITE IDENTIFICATION

Table 1 - Site Identification Summary

Street Address		40 The Tunnell Road, Billinudgel NSW
Allotment Description		Lot 15 DP 1236885
Allotment size		6.91 Ha
Local Government		Byron Shire
Parish		Billinudgel
County		Rous
Geographical Coordinates (MGA Zone 56)		Easting: -28.508528mE Northing: 153.529374mS (Approximate centre of site).
Zoning Byron LEP 2014		C2- Environmental Conservation C3- Environmental Management DM- Deferred Matter E4- General Industrial RU2- Rural Landscape
Land use - Existing		Vacant
Land use - Proposed		Proposed industrial rezoning
Site Services		Town water, sewer, mains electricity
Surround Land Uses	North	Commercial and industrial
	East	Uncleared bushland, rural living
	South	Pacific Motorway, uncleared bushland, residential
	West	Uncleared bushland, railway, rural living
Closest Sensitive Environment		An intermittent watercourse is located approximately 150m west of the subject site. Surface runoff would flow towards this watercourse which eventually discharges into Marshalls Creek to the North. There are endangered ecological communities and high environmental value vegetation areas located both on and off the landholding, bordering the proposed rezoning area to the west.

Table 2 – Site Characteristics

Topography	<p>The proposed rezoning location has been filled to meet final design levels.</p> <p>Landform: Alluvial plain Aspect: South-west Slope: Generally level Gradient: <3% Elevation: Approximately 1m-40m AHD across the landholding. Approximately 5m AHD across filled investigation area</p>
Regional Geology	<p>Carboniferous Sedimentary Rocks</p> <p>A wide range of sedimentary rocks, including feldspar-rich sandstone, siltstone, mudstone, and conglomerate units.</p>
Soil Landscape	<p>Imported fill has been placed across investigation area to meet design levels.</p> <p>Billinudgel (bi) landscape: Rolling hills on metamorphics of the Neranleigh-Fernvale Group. Soils:</p>

	<p>Deep, moderately well-drained Red Podzolic Soils on crests; moderately deep, moderately well-drained Yellow Podzolic Soils on slopes.</p> <p>Geology: Palaeozoic Neranleigh-Fernvale Group. Thinly bedded fissile shales, siltstones and sandstones with occasional more massive greywackes, volcanic tuffs, agglomerates, sandstones, and massive cobble conglomerates.</p>
Australian Soil Classification	<p>Kurosols (KU) Soils with strong texture contrast between A horizons and strongly acidic B horizons. Many of these soils have some unusual subsoil chemical features (high magnesium, sodium, and aluminium).</p>
Regional Hydrogeology	<p>Groundwater vulnerability is not mapped for the site. The groundwater gradient would be expected to follow the local topography, and flow away from the elevated areas to the south towards Marshalls Creek, approximately 700m north</p>
Groundwater Database Search	<p>The online NSW Office of Water groundwater mapping (http://allwaterdata.water.nsw.gov.au/water.stm) shows the nearest mapped registered groundwater bores is GW065689 & GW072045 located within 100m north of the site. The bores are registered for domestic use.</p>

3 SITE HISTORY

3.1 OWNERSHIP

As of the search date, the property is currently owned by Lisa Joel Investments Pty Ltd. A review of the title information via the online Land and Property Information portal on 1 April 2023 provides the following information:

Table 3 – Property Ownership

Folio Description	Date of Folio	Search Date	Ownership Details
15/1236885	7/5/2021	30/1/2024	<i>Lisa Joel Investments Pty Ltd</i>

3.2 AERIAL PHOTOGRAPH INTERPRETATION

A summary of the reviewed historic aerial photography is shown in Table 4.

Table 4 – Historic Aerial Photography Summary

Year	Source	Comments	Areas of Potential Concern Yes/No
1961	NSW Government (Historical Imagery) ⁽¹⁾	The site appears to be generally clear of native vegetation, along with the surrounding area, with scattered patches of vegetation in the area. There are no visible intensive land uses or structures located on the site. There are two structures visible to the north of the site. The railway is visible to the west and Brunswick Valley Way to the east.	NO Investigation area (proposed development area and immediate surrounds) clear of any intensive land uses from
1965		Similar to 1961. No significant changes to the investigation area or the surrounding area noted.	
1978		Increased vegetation cover over the site and surrounding area to the north. The existing structures to the north of the site are no longer visible, however they may now be obscured by the	

		vegetation. Significant residential development is under structure to the east of Brunswick Valley Way.	1961 to present. Appears to have remained vacant with periods of vegetation cover.
1987		Significant increase in vegetation over the investigation area and surrounding areas.	
1990		Similar to 1987. No changes noted to the densely vegetated investigation area. Increased residential development is noted east of Brunswick Valley Way.	
1996		The investigation area, and the adjacent land to the north has been cleared of all vegetation. The industrial area has begun to be developed, with the existing roadways, including Lucky Lane, now existing. Scattered structures are noted in the industrial area.	
2009 - 2019	Google Earth	Vegetation re-growth has occurred over the site, with it now generally covered by mature vegetation. The Pacific Motorway has now been constructed adjacent east of the investigation area. The adjacent industrial area has now generally been developed with a number of structures existing along Lucky Lane.	
2019 - 2022		The site has now been cleared of vegetation. It appears that the site has also been filled and levelled. No permanent structures or land uses are noted for the site.	

- (1) <https://portal.spatial.nsw.gov.au/portal/apps/webappviewer/index.html?id=f7c215b873864d44bccddda8075238cb>

Table 5 – Statutory Searches

Search	Comment
NSW EPA Contaminated Land Public Record http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx	No records (orders, notices) for the site were discovered.
Australian Department of Defence Unexploded Ordinance Contaminated Sites http://www.defence.gov.au/uxo/where_is_uxo/UXOSearch.asp?State=NSW	No UXO sites are located near the investigation area.
Cattle dip site locator http://www.dpi.nsw.gov.au/agriculture/livestock/health/specific/cattle/ticks/cattle-dip-site-locator	The nearest mapped cattle dip is the Hainsville South Dip (Lapsed) approximately 670m south of the site.

3.3 HISTORIC PARISH MAPS & TOPOGRAPHIC MAPS

A summary of the available historic parish and topographic mapping information is shown in Table 6.

Table 6 – Historic Parish and Topographic Map Summary

Search	Comment
Historic Billinudgel Parish Maps 1914, 1922, 1929, 1937, 1946 https://hlrv.nswlrs.com.au/	Maps do not record land use. Billinudgel parish maps 1914 to 1946 show the subject site as part of the larger historic portion 89 (97 acres). No changes were noted during the 1914-1946 period.
Topographic Maps <ul style="list-style-type: none">Central Mapping Authority of NSW (1984), 1:25000 9640-4-N Brunswick Heads, Topographic Map	The property is mapped as a larger historic Lot 604 DP 240398. There are no structures or land uses mapped for the investigation area. The area is mapped as scattered timber.

<ul style="list-style-type: none">● NSW Land & Property Information (2017), 1:25000 9640-4N Brunswick Heads, GeoPDF Topographic Map	The existing lot boundaries are now mapped, as well as the adjacent Lucky Lane roadway. The investigation area is mapped as <i>open forest</i> , with no structures shown on the area. The adjacent industrial area to the north is mapped as <i>built-up area</i> .
---	--

3.4 OWNER INTERVIEW

An interview was conducted by HMC with the current owner Lisa Joel on 30 January 2024. The information gathered is as follows:

- The property was purchased in March 2021 and a caravan was on the property.
- The property is currently being used as a storage hardstand area.
- There has been fill from Midgees Quarry on hard stand.
- To the best of their knowledge there has never been any agricultural activities taken place on the site, nor the bulk storage of fuel and/or chemicals. There are no farm dumps or groundwater bores located on the site.

Byron Shire Council Approvals

A deferred commencement development approval (10.2022.291.1) for the following development was issued on 18 May 2023.

Truck Depot including Use of Existing Fill Material and 2.4m High front fence, and Construction of New Site Office Building.

It is noted Council has issued the approval for the use of the existing fill material for a truck depot. HMC has therefore not completed any further investigation of this material for the proposed industrial land use.

4 SITE INSPECTION

A site inspection was undertaken by Mark Tunks of HMC on 30.01.2024. The investigation area is accessed via Lucky Land to the north. There is gated gravel access onto the site. The area is currently a large vacant levelled hardstand area with bitumen ground cover over the site. The area is generally surrounded by dense vegetation. A driveway access to the remainder of the larger property is existing at the southern end of the investigation area. There are no structures located within the subject site, nor has it being used for anything other than storage.

With the landform modification (imported fill to meet design levels), there were no indications of any historic cropping on the investigation area, nor any historic structures or other intensive land uses.

4.1 SUMMARY OF SITE CONDITIONS

Table 7 provides a summary of observations during the site inspection.

4.2 SITE PHOTOGRAPHS

See Appendix 10

4.3 POTENTIAL CONTAMINANT SOURCES AND POTENTIAL OFF-SITE EFFECTS

A detailed desktop assessment, including a review of historic topographic mapping from 1984 and historic aerial photography from 1961 to present, has not recorded any intensive land use (i.e. Cropping) or other potentially contaminating activity across the investigation area.

No potential off-site effects likely to have impacted the subject property.

4.4 SITE LAYOUT

The details of the site inspections are shown in Table 7.

5 POTENTIAL AREAS OF ENVIRONMENTAL CONCERN

Table 7 - Site Features Indicating Potential Contamination

Features of Contamination	Comments
Disturbed, discoloured, or stained soil	No visible soil staining, No disturbed soil. Predominately bitumen ground cover.
Disturbed or distressed vegetation	None observed during the inspection
Surface water quality	No surface water existing on the subject site.
Agrichemical Storage/Use	None observed during the inspection
Other chemical/fuel storage	None observed during the inspection. Nil odours detected
Waste storage	1 x 240L General waste MGB and 1 x 240L co-mingled recyclables MGB
Asbestos Waste or Use in Structures	None observed on site
Fill from unapproved source	Imported fill previously approved for use as a truck depot (industrial land use)
Other	Nil

6 CONCEPTUAL SITE MODEL

Table 8 – Conceptual Site Model

POTENTIAL SOURCE	PATHWAY	EXPOSURE ROUTE	RECEPTOR	OUTCOME
Vacant Site	Surface water runoff	Chemical/sediment entering local water ways	Ecological receptors	No areas of concern identified. Site does not appear to have been subject to potentially contaminating activities or off-site impacts.
	Exposed surface soil	Dermal contact to exposed soil during earthworks, proposed infrequent use	Site worker, Occupier, Visitor	
	Atmospheric dispersion	Inhalation of soil exposed during earthworks and in exposed bare soil areas		
	Leaching to groundwater	Groundwater movement off-site to beneficial users or ecological receptors	Beneficial users/Ecological receptor	

7 DISCUSSION

The review of available information and a detailed site inspection indicated the investigation appeared to be partially cleared of vegetation prior to 1961. There were structures existing to the north of the site, however a review of historic aerial photography and topographic mapping did not show any intensive agricultural use or structures occurring on the site during the period 1961-2024. The landholding appeared to be under dense vegetation periodically during this time, with intermittent clearing. The investigation area was cleared prior to 2019, and the owner advises the imported fill used to level the investigation area was supplied by the local Midges Quarry. The site was covered with bitumen, and has been used as storage hardstand in the years since. In 2023 a deferred commencement approval was issued for use as a truck depot including use of existing fill material and 2.4m high front fence, and construction of new site office building.

8 CONCLUSIONS AND RECOMMENDATIONS

The Preliminary Site Investigation conclusions are based on the information described in this report and Appendices and should be read in conjunction with the complete report, including Section 9 Limitations.

A planning proposal would rezone the north-eastern part of Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW to general industrial to reflect the current approved land use, and the adjoining land use to the north. A review of available information, and a detailed site inspection did not record that any potentially contaminating activities have occurred on the site.

Based on the information presented, in relation to potential site contamination, Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW, as shown in Appendix 1 & 2 of this report, is considered suitable for the proposed planning proposal.

Based on the information presented, in relation to potential site contamination associated with the current and former land use, no further investigation or remediation is required for the site of the planning proposal for Lot 15 DP 1236885, 40 The Tunnell Road, Billinudgel NSW, as shown in Appendix 1 & 2 of this report.

9 LIMITATIONS

Any conclusions presented in this report are relevant to the site condition at the time of inspection and legislation enacted as at date of this report. Actions or changes to the site after time of inspection or in the future will void this report as will changes in relevant legislation.

The findings of this report are based on the objectives and scope of work outlined in Section 1. HMC Environmental has performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties or guarantees expressed or implied, are given. This report does not comment on any regulatory issues arising from the findings, for which a legal opinion should be sought. This report relates only to the objectives and scope of work stated and does not relate to any other works undertaken for the client. The report and conclusions are based on the information obtained at the time of the assessment.

The site history and associated uses, areas of use, and potential contaminants were determined based on the activities described in the scope of work. Additional site information held by the client, regulatory authorities or in the public domain, which was not provided to HMC Environmental or was not sourced by HMC Environmental under the scope of work, may identify additional uses, areas of use and/or potential contaminants. The information sources referenced have been used to determine the site history.

Whilst HMC Environmental has used reasonable care to avoid reliance on data and information that is inaccurate and unsuitable, HMC Environmental is not able to verify the accuracy or completeness of all information and data made available. Further chemicals or categories of chemicals may exist at the sites,

which were not identified in the site history, and which may not be expected at the site. The absence of any identified hazardous or toxic materials on the subject land should not be interpreted as a warranty or guarantee that such materials do not exist on the site. If additional certainty is required, additional site history or desktop studies, or environmental sampling and analysis should be commissioned.

The results of this assessment are based upon site inspections and fieldwork conducted by HMC Environmental personnel and information provided by the client. All conclusions regarding the property area are the professional opinions of the HMC Environmental personnel involved with the project, subject to the qualifications made above. HMC Environmental assume no responsibility or liability for errors in any data obtained from regulatory agencies, information from sources outside of HMC Environmental, or developments resulting from situations outside the scope of this project.

10 SIGNATURE

This report has been prepared by Mark Tunks of HMC Environmental Consulting, a suitably qualified environmental consultant, in accordance with the NSW EPA (2020) *Consultants reporting on contaminated land – Contaminated land guidelines*. Note that HMC Environmental Consulting holds current Professional Indemnity Insurance to 4th August 2024.

.....


Mark Tunks
Principal

30 March 2024
Completion Date

11 REFERENCES

Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC guidelines) published by the Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council, January 1992

Hashimoto T.R & Troedson A.I. 2008 *Tweed Heads 1:100 000 and 1:25 000, Coastal Quaternary Geology Map Series*. Geological Survey of New South Wales, Maitland

Morand, D.T., Soil Landscapes of the Murwillumbah-Tweed Heads 1:100 000 Sheet, 1996

NEPC, 2013. National Environment Protection (Assessment of Site Contamination) Measure 1999 Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater, National Environment Protection Council Service Corporation, as amended 16 May 2013

NSW Environment Protection Authority (2020) Consultants reporting on contaminated land - Contaminated land guidelines

State Environmental Planning Policy (Resilience and Hazards) 2021

12 GLOSSARY

Conceptual site model (CSM) is a description of a site including the environmental setting, geological, hydrogeological and soil characteristics together with the nature and distribution of contaminants. Potentially exposed populations and exposure pathways are identified. Presentation is usually graphical or tabular with accompanying explanatory text.

Contamination means the condition of land or water where any chemical substance or waste has been added as a direct or indirect result of human activity at above background level and represents, or potentially represents, an adverse health or environmental impact.

Investigation levels and **screening levels** are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required. Investigation and screening levels provide the basis of Tier 1 risk assessment.

Multiple-lines-of-evidence approach is the process for evaluating and integrating information from different sources of data and uses best professional judgement to assess the consistency and plausibility of the conclusions which can be drawn.

Screening is the process of comparison of site data to screening criteria to obtain a rapid assessment of contaminants of potential concern.

Tier 1 assessment is a risk-based analysis comparing site data with investigation and screening levels for various land uses to determine the need for further assessment or development of an appropriate management strategy.

13 APPENDICES

See following pages



APPENDIX 1 - LOCATION MAPS





Figure 1 - Surrounding Area (Source: Nearmap, 2024)



Figure 2 – Subject Site (Source: Nearmap 2024)



APPENDIX 2 - SITE PLAN PROPOSED DEVELOPMENT





APPENDIX 3 - GEOLOGY AND SOIL LANDSCAPE



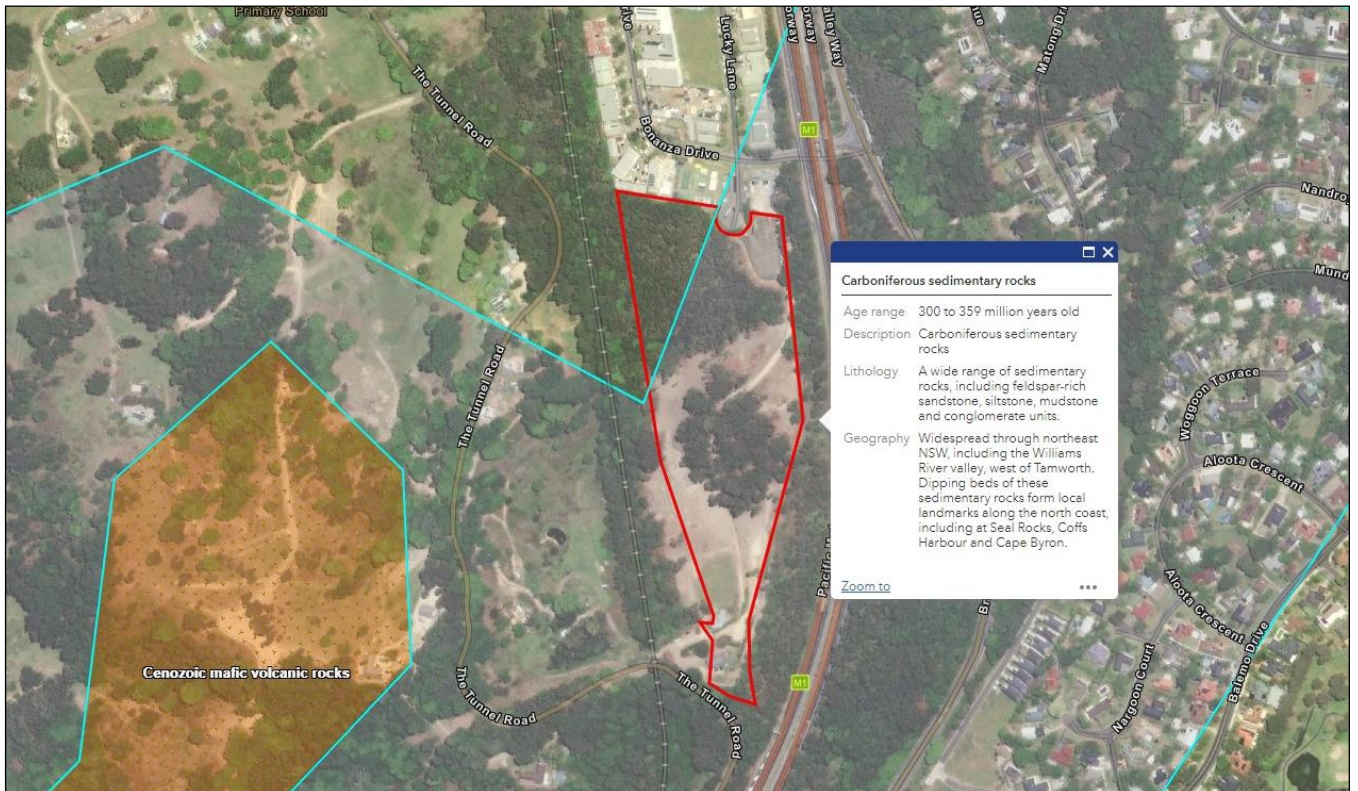


Figure 3 - Geology Map (Source: Geoscience Australia)

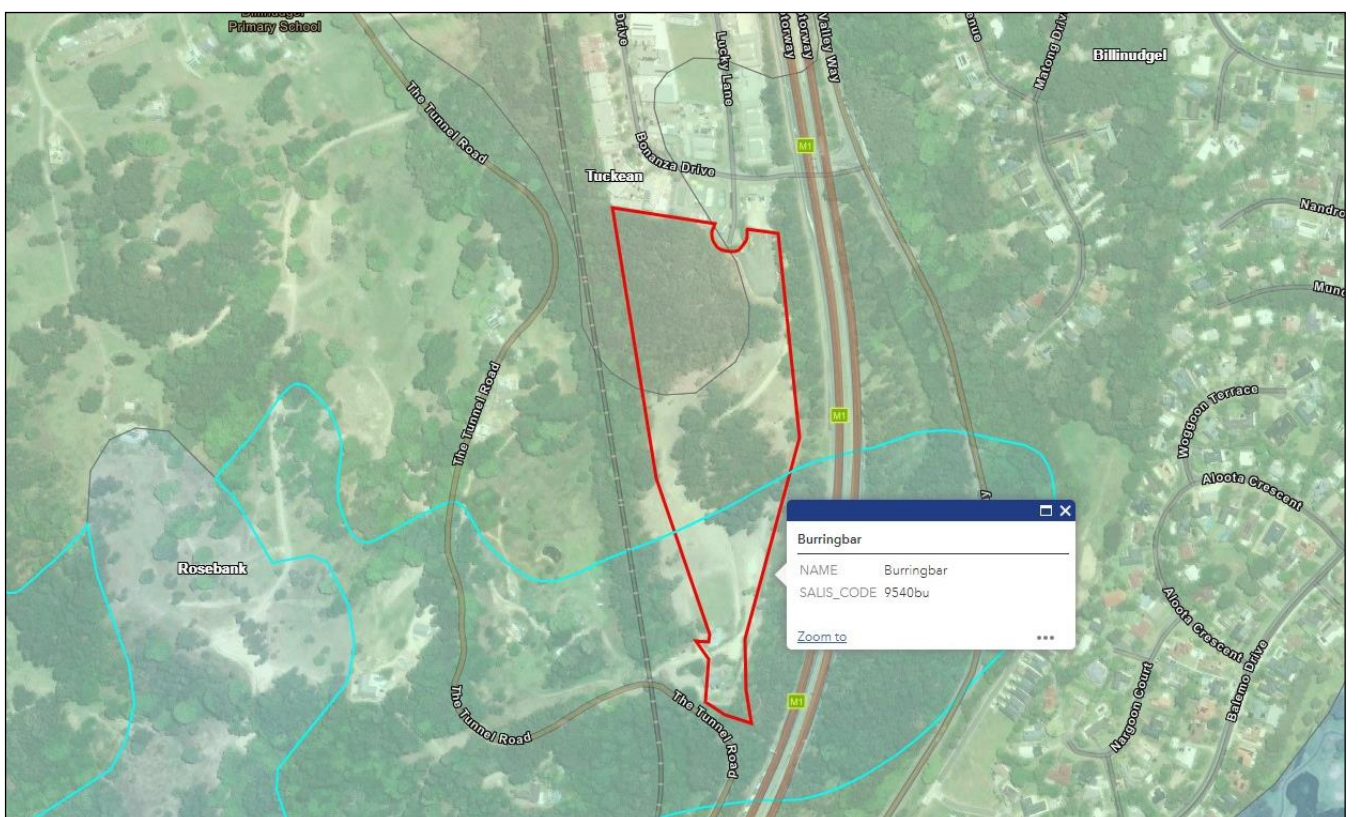


Figure 4 - Soil Landscape (Source: eSPADE NSW)



APPENDIX 4 - LICENSED GROUNDWATER BORES



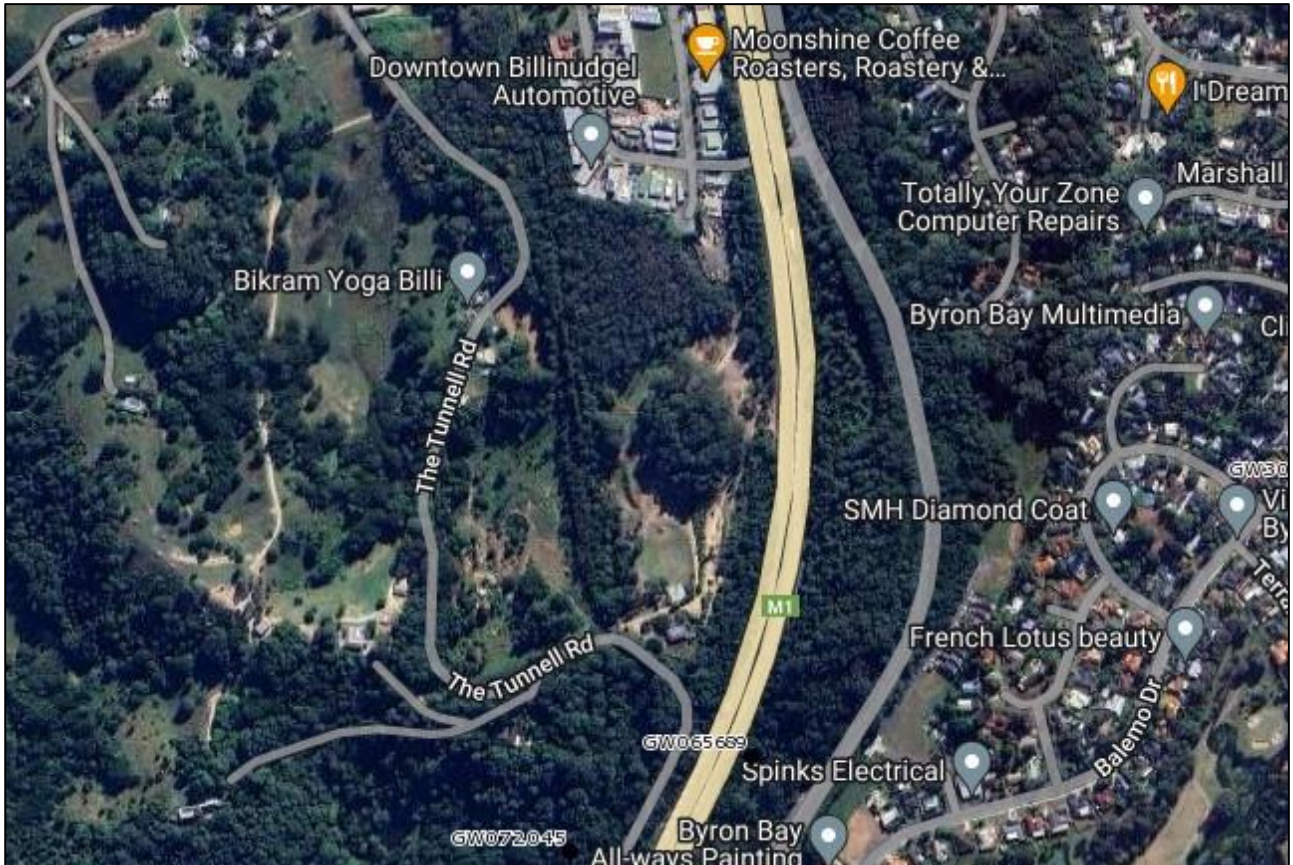


Figure 5 – Groundwater Bore Locations (Source: <http://allwaterdata.water.nsw.gov.au/water.stm>)

APPENDIX 5 - CATTLE DIP SITES

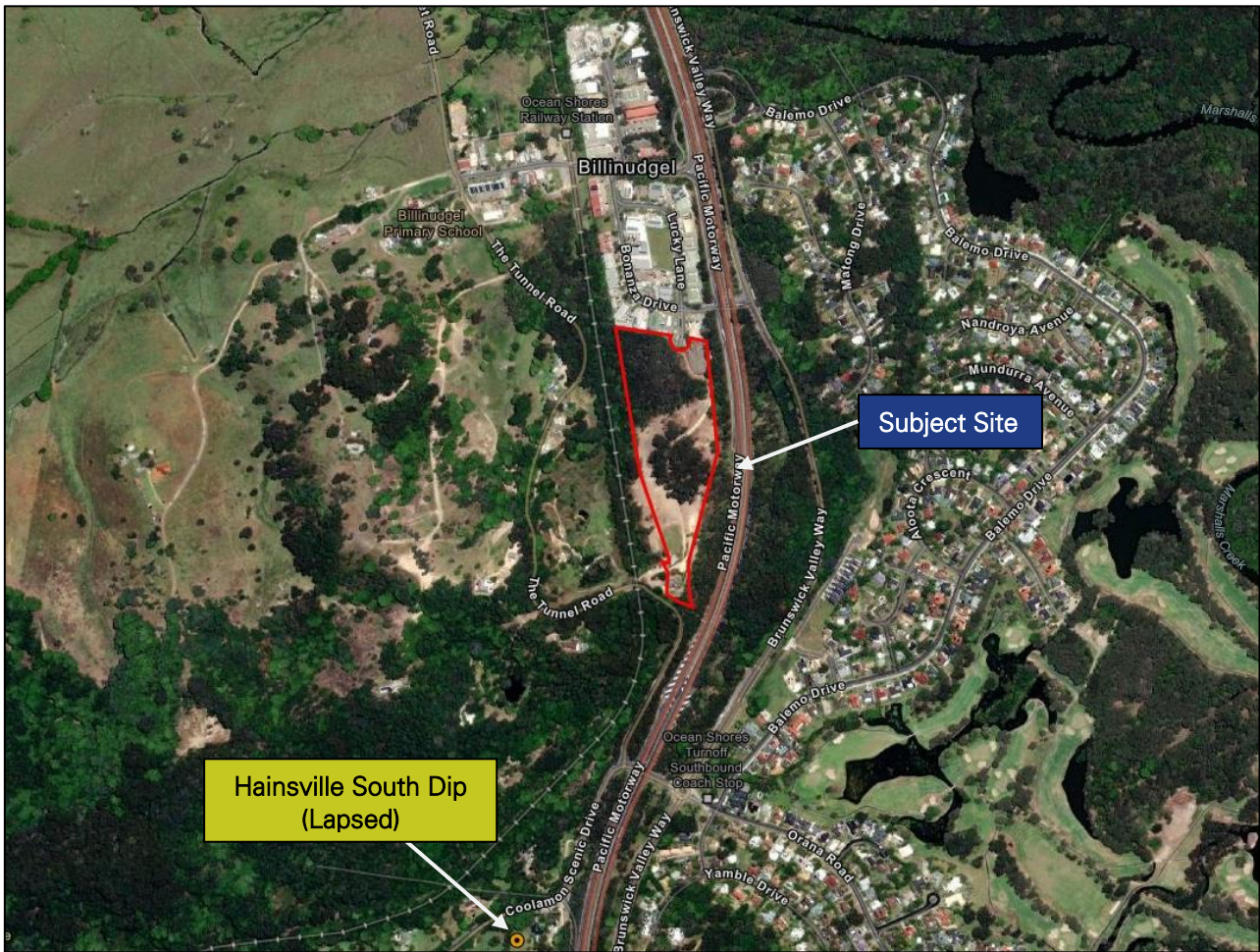


Figure 6 – Cattle Dip Location (Source: DPI NSW)



APPENDIX 6 - HISTORICAL AERIAL PHOTOGRAPHY





Figure 7- Historical Aerial 1961 (NSW Spatial Services Historical Imagery <https://portal.spatial.nsw.gov.au>)



Figure 8 - Historical Aerial 1965 (NSW Spatial Services Historical Imagery <https://portal.spatial.nsw.gov.au>)



Figure 9 - Historical Aerial 1978 (NSW Spatial Services Historical Imagery <https://portal.spatial.nsw.gov.au>)



Figure 10 - Historical Aerial 1987 (NSW Spatial Services Historical Imagery <https://portal.spatial.nsw.gov.au>)



Figure 11 - Historical Aerial 1990 (NSW Spatial Services Historical Imagery <https://portal.spatial.nsw.gov.au>)



Figure 12 - Historical Aerial 1996 (NSW Spatial Services Historical Imagery <https://portal.spatial.nsw.gov.au>)



Figure 13 - Historical Aerial 2009 (Google Earth)



Figure 14 - Historical Aerial 2015 (Google Earth)



Figure 15- Historical Aerial 2019 (Google Earth)



Figure 16 - Current Aerial 2023 (Nearmap)



APPENDIX 7 - HISTORIC PARISH MAPS



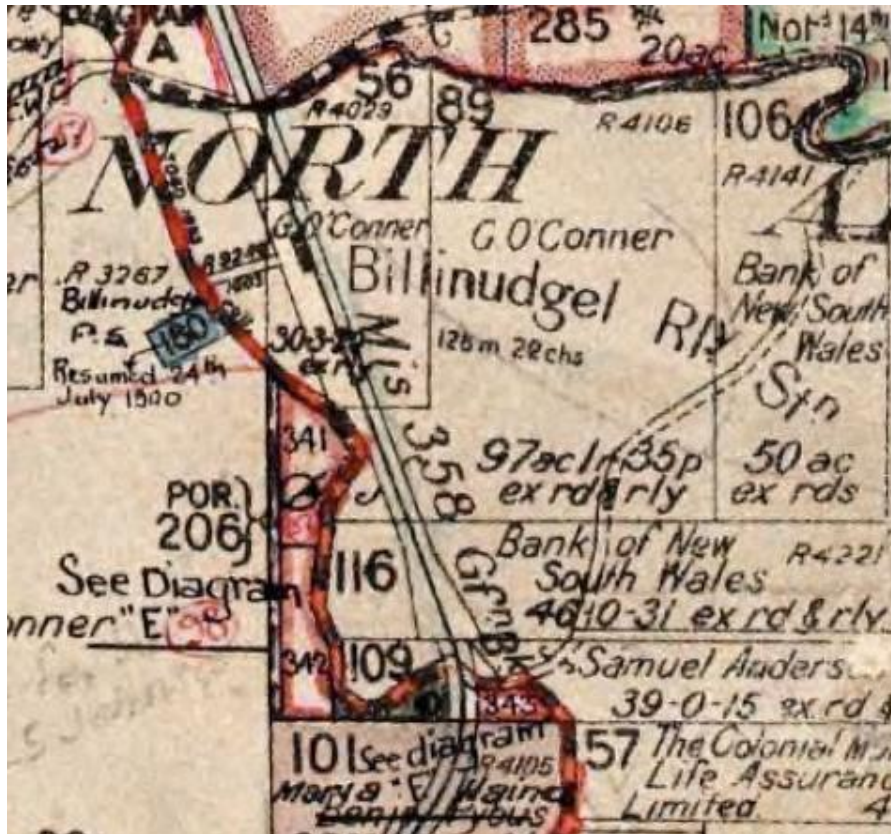


Figure 17 – 1914 Billinudgel Parish Map Extract (<http://hlrv.nswlrs.com.au/pixel.htm>)



Figure 18 - 1922 Billinudgel Parish Map Extract (<http://hlrv.nswlrs.com.au/pixel.htm>)



Figure 19 – 1929 Billinudgel Parish Map Extract (<http://hlrv.nswlrs.com.au/pixel.htm>)

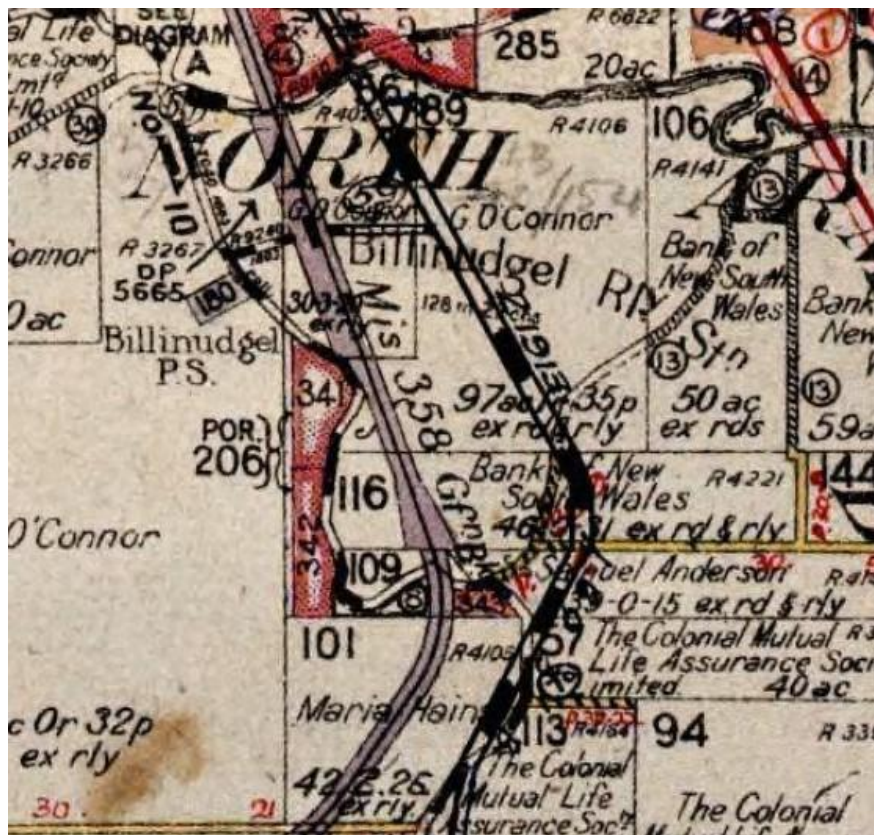


Figure 20 – 1937 Billinudgel Parish Map Extract (<http://hlrv.nswlrs.com.au/pixel.htm>)

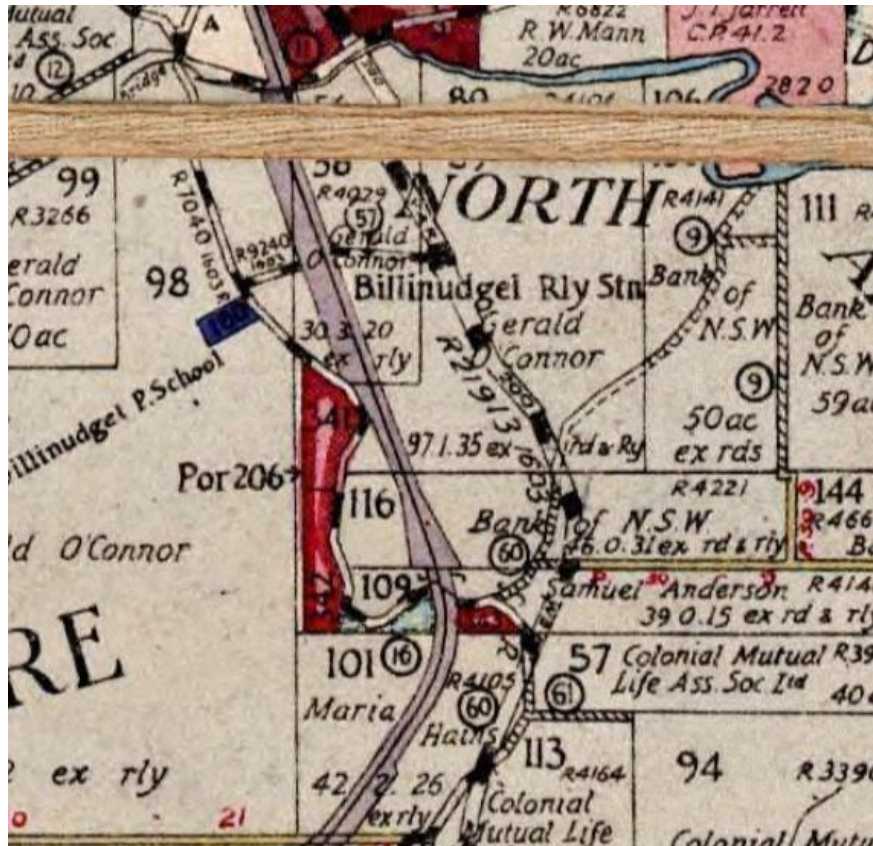



Figure 21 – 1946 Billinudgel Parish Map Extract (<http://hlrv.nswlrs.com.au/pixel.htm>)



APPENDIX 8 - HISTORIC TOPOGRAPHIC MAPS



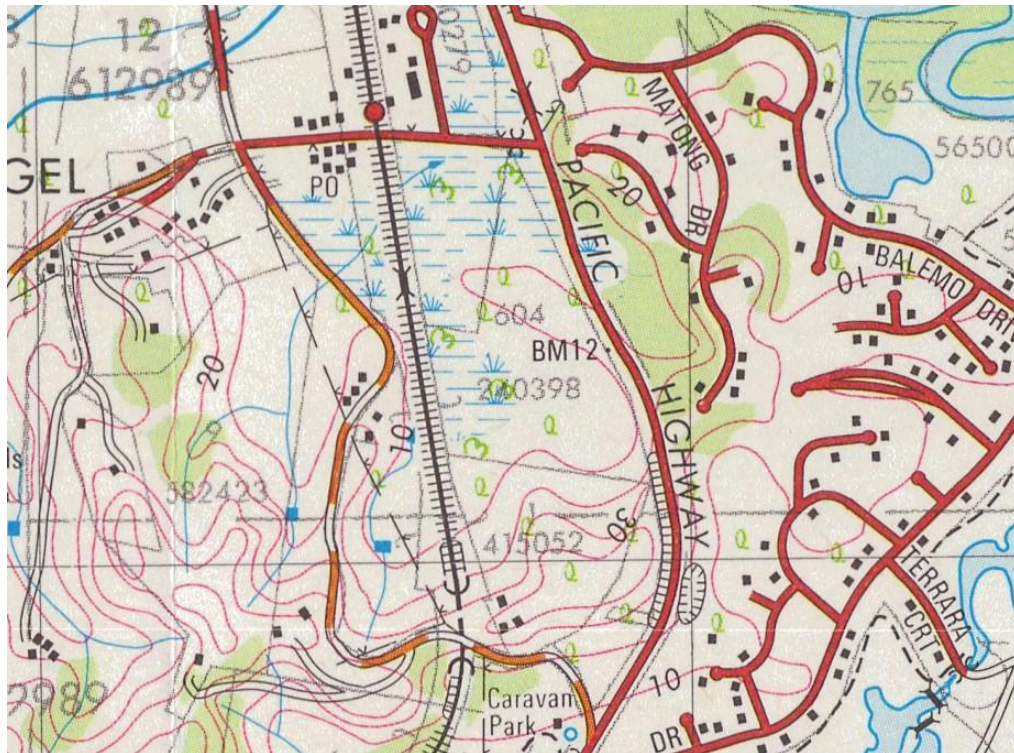


Figure 22 – 1984 *Brunswick Topographical Map* extract.

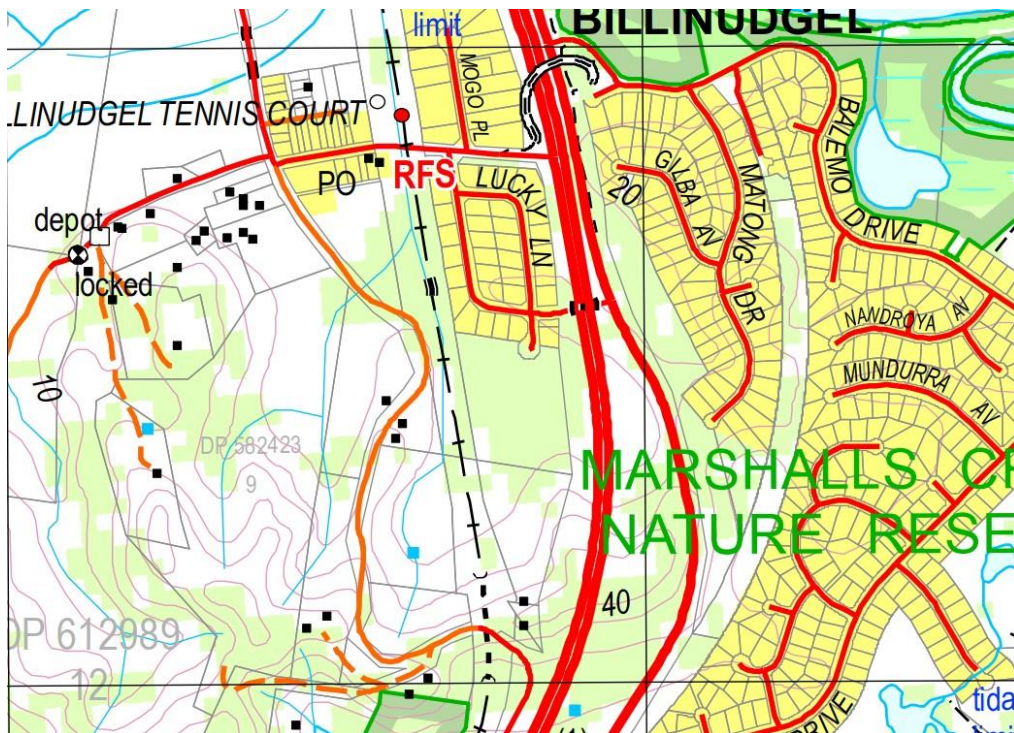


Figure 23 – 2017 *Brunswick Topographical Map* extract.



APPENDIX 9 - ZONE MAPPING



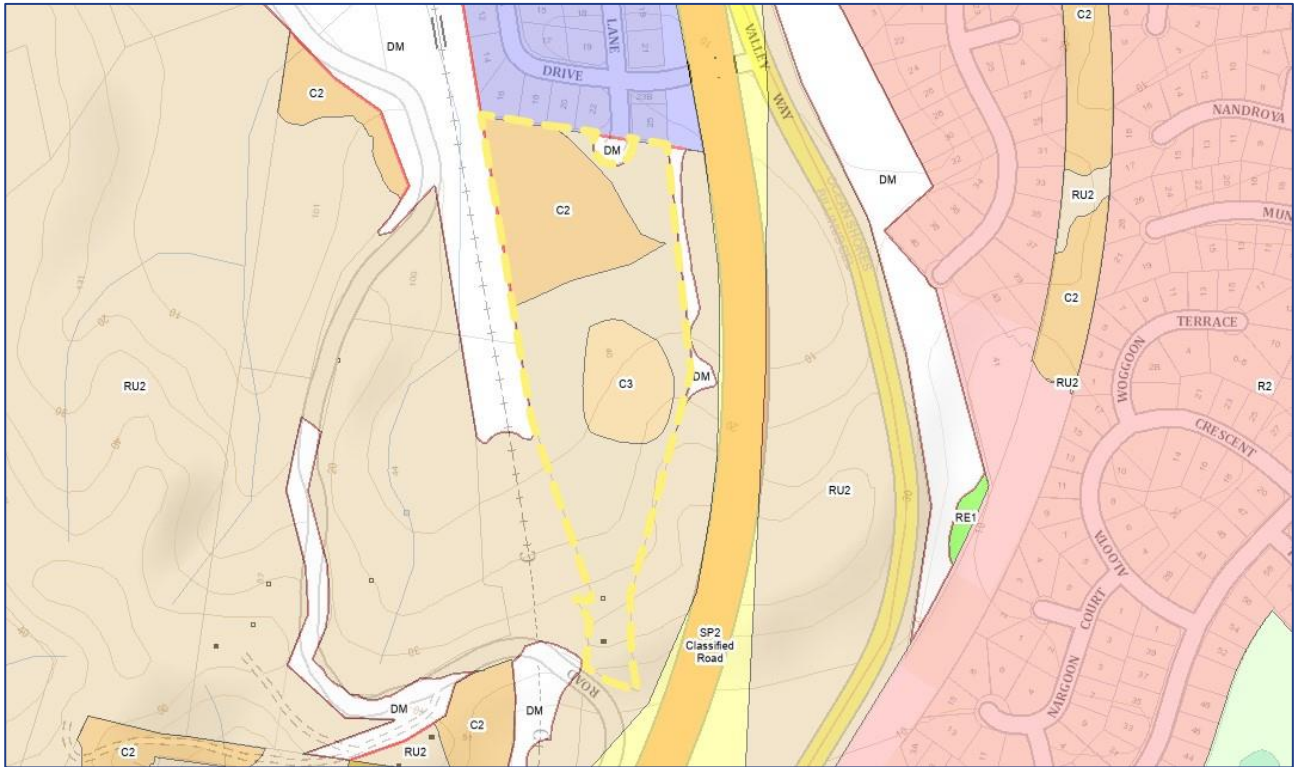


Figure 24 – NSW Legislation Zone Plan

(Source: <http://www.legislation.nsw.gov.au/maintop/view/inforce/epi+177+2014+cd+0+N>)

APPENDIX 10 - PHOTOGRAPHIC LOG

Photo No. 1	Date
	30.01.2024
Description: View southwest from the driveway access over the vacant investigation area.	



Photo No. 2	Date
	30.01.2024
Description: View towards the eastern boundary and the dense vegetation separating the site from the Pacific Motorway.	



Photo No. 3	Date 30.01.2024
<p>Description: View towards the gated driveway access from Lucky Lane to the north.</p>	



Photo No. 4	Date 30.01.2024
<p>Description: View of the existing driveway access to the remainder of the property to the south of the investigation area.</p>	

