Planning Proposal for 150 Lismore Road, Bangalow

Ecological Assessment

Prepared for Northern Rivers Land Solutions Pty Ltd

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Bower Ecology
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Document Tracking

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1 Introduction

1.1. The Proposal

This report supports the planning proposal for 150 Lismore Road Bangalow (Lot 4 DP 635505) – Ref: 26.2021.3.1. The objective of the planning proposal is to amend the *Byron Local Environmental Plan* (LEP) *2014* to rezone part of the lot from RU1 Primary Production to IN1 General Industrial and E3 Environmental Management. Amendments to the floor space ratio map and minimum lot size map are also proposed to reflect the industrial zoning.

A minimum 20m E3 Environmental Management zoned buffer is proposed for the site. This space can be revegetated at the subdivision stage in line with Chapter *B1 Biodiversity* of the *Byron Development Control Plan (DCP) 2014.*

The location of the subject land is shown in Figure 1, whilst the proposal is provided in Figure 2. Further information can be found in the supporting Planning Documents that went on exhibition (Document no. E2021/140331, dated February 2022).

1.2. General Description of the Site

The general description of the site has been taken from the Planning Documentation (Document no. E2021/140331, dated February 2022).

The area subject to the rezoning is separated from the remainder of the subject lot by Maori Creek and directly adjoins the existing Bangalow Industrial Estate to the west.

The subject site is identified within the *Byron Shire Business and Industrial Lands Strategy 2020* as an investigation area for future industrial lands. The strategy was endorsed by the Department of Planning, Industry and Environment in October 2020.

The site is a grassed area containing a few scattered trees and no existing development. The site has historically been used for light agricultural purposes including grazing cattle however the site has limited agricultural capability due to its isolation, separated by Maori Creek to the east, Lismore Road to the south, the rail corridor to the north and the existing industrial estate to the west. Access to the site is via Dudgeons Lane and all essential services are available to the subject land. The site is not mapped as bushfire prone land, containing acid sulfate soils or high environmental value vegetation. Part of the site is mapped as flood prone land. This is generally in relation to Maori Creek as shown in Figure 2. Separate to this report, a flood study has been prepared by BMT (2021) in support of the proposed rezoning.

1.3. Scope of this Report

Bower Ecology Pty Ltd was engaged by NRLS Pty Ltd to undertake an ecological assessment of the site to support the planning proposal. Specifically, this report includes a desktop assessment of biodiversity matters, results of a site survey, an impact assessment, and an assessment against relevant legislation and planning requirements.

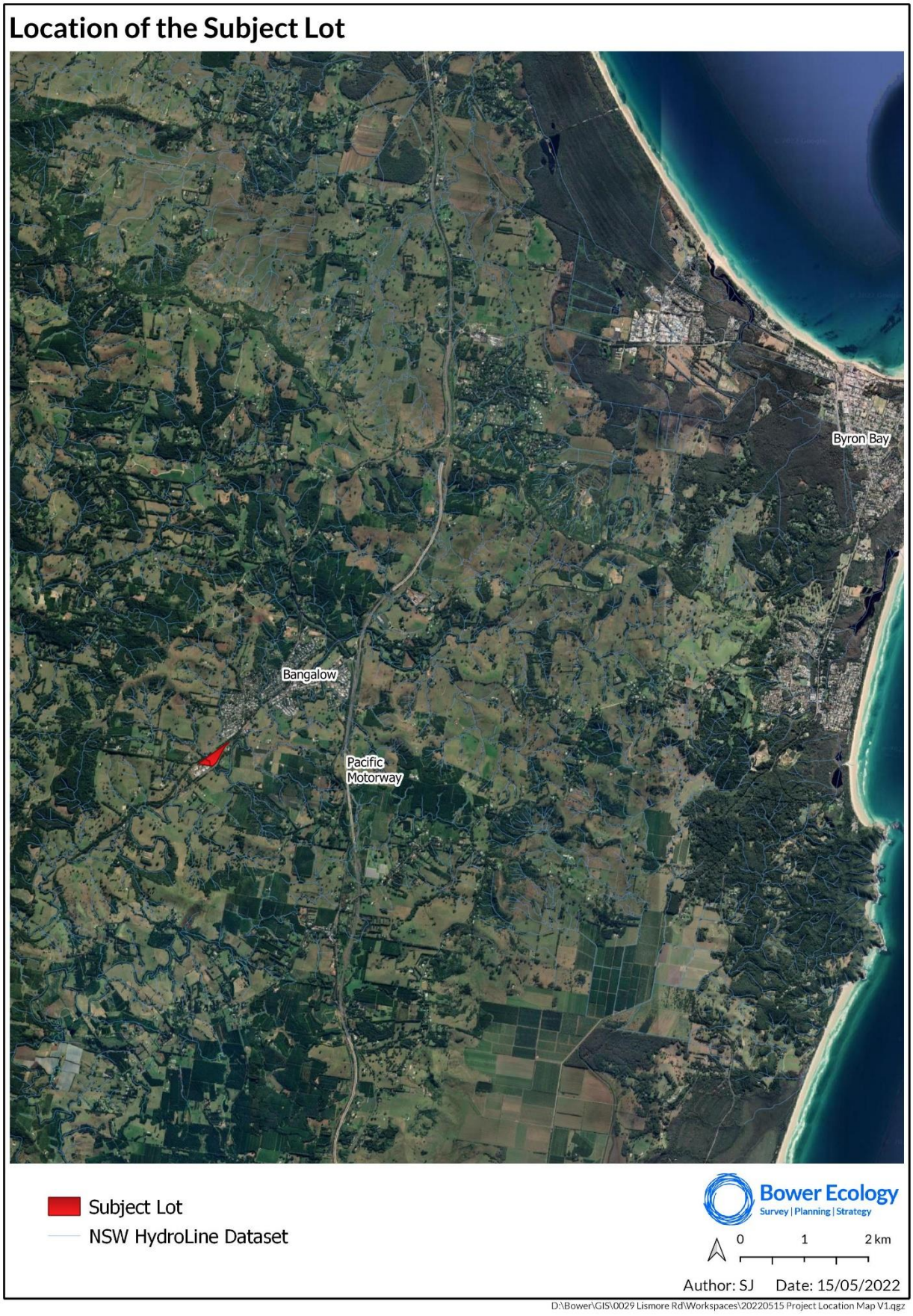

Figure 1: Project Location and Subject Lot

Figure 2: The proposed rezoning in the west of the subject lot

2 Methodology

2.1. Desktop Assessment

The desktop assessment included review of the following datasets and mapping:

- Biodiversity Values Mapping under the *Biodiversity Conservation Act 2016*
- *State Environmental Planning Policy (Coastal Management) 2018* mapping
- NSW State Government BioNet Wildife Records
- *Byron Coast Comprehensive Koala Plan of Management 2016* koala planning area mapping
- Byron Bay Council Online Maps[1] which display areas of High Environmental Value, Big Scrub Rainforest Remnants, Flying Fox Camp locations, Koala Habitat under the *Byron Coast Comprehensive Koala Plan of Management 2016.*

2.2. Site Survey

On 29 April 2022, a site survey was undertaken to:

- Confirm vegetation communities within the site.
- Survey for threatened flora. This included targeted Hairy Jointgrass (*Arthraxon hispidus*, HJG) survey via grid-based transects, and meanders in microhabitats considered suitable for this species (e.g. exposed basalt rock areas and ephemeral groundwater seepages amongst exotic pasture grasses, and the banks of Maori Creek). Figure 3 shows the survey tracks.
- Undertake a habitat assessment of the site, including assessment of the habitat value of Maori Creek and the associated riparian corridor / Key Fish Habitat area. For the latter, the

[1] https://maps.byron.nsw.gov.au/Html5Viewer/index.html?viewer=ByronMaps)

Australian River Assessment System AusRivAS Physical Assessment Protocol (Parsons et al., 2001) was used as guidance.
- Recording of incidental observations of threatened fauna.

2.2.1. Limitations and Notes on Methodology

Biodiversity Assessment Methodology floristic plots and targeted fauna survey (aquatic or terrestrial sampling) were not undertaken as part of the scope of this study; however a list of flora species was collected for each type of vegetation community on the site whilst fauna that was incidentally spotted was recorded.

The survey timeframe was within the NSW's Government's recommended timeframe for HJG. During this time, the species will be flowering and setting seed. Similar surveys were undertaken for other projects in Ballina during the same week, with instances of HJG observed. This demonstrates that the species would likely be observed on the site, if it was present.

During the survey, it was noted that the paddock to the west of Maori Creek was slashed (mown) whilst the paddock to the east of Maori Creek was grazed. This may limit the possibility of HJG being found on site, except for the banks of Maori Creek, which were observed to be steep and, for the most part, had not been slashed or grazed.

2.2.2. Terminology

The following applies throughout this report:

- The term "proposed rezoning footprint" and "site" describes the area underlying the proposed rezoning (Figure 2), and any area where potential direct impacts to environmental values may occur due to the proposal.
- The "study area" refers to the proposed rezoning footprint as well as adjacent areas that may be indirectly impacted by the footprint (e.g. due to edge effects or potential hydrological impacts).
- Exotic species are marked with an asterisk.

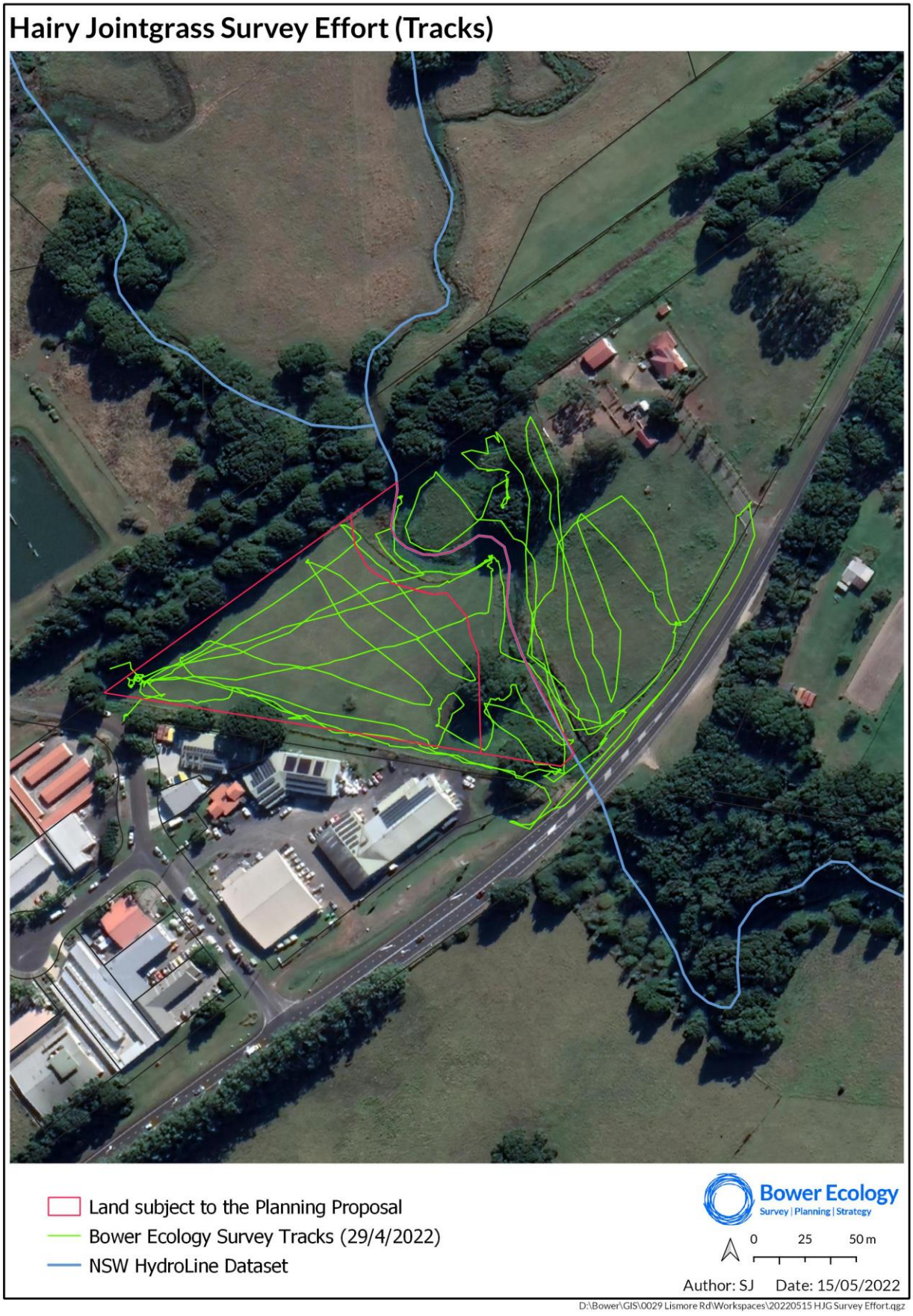

Figure 3: Survey Tracks

3 Results

3.1. Vegetation Communities on the Site

Four vegetation communities were observed on site (Figure 4). No areas of vegetation are considered significant, high value or to constitute a threatened ecological community under the *Biodiversity Conservation Act 2016.* Further, no areas of High Environmental Value or Big Scrub Remnants are mapped on the site as per the Byron Council Online Maps.

Each vegetation community on site, as well as the adjacent vegetation is described in the sub-sections below.

3.1.1. Managed Exotic Pasture

The site and adjacent paper road immediately to the west was dominated by exotic pasture grass (Figure 5). Species observed in this community included *Setaria sphacelata** (dominant and with 95% to 100% cover in any given patch), with other exotic grasses such as *Paspalum* mandiocanum* and *Andropogon virginicus** also common. Several weedy forb species were common in the pasture grass area, such as *Ageratum houstonianum**, Ambrosia artemisiifolia*, Bidens *pilosa**, *Commelina cyanea*, *Crassocephalum crepidioides**, *Desmodium uncinatum**, and *Verbena bonariensis**.

In the pasture area to the east of Maori Creek (Figure 6), the area was dominated by *Axonopus compressus**, with similar weedy forbs as described above also present.

Due to the dominance of exotic species, this vegetation community would represent non-native vegetation and Category 1 land under the *Local Land Services Act 2013*.

3.1.2. Scattered Camphor Laurel

Amongst the exotic pasture grass was several scattered *Cinnamomum camphora* (Camphor Laurel*) (Figure 5). Due to the shading of the canopy, the vegetation community was different to the open exotic pasture grass area. That is, under the Camphor Laurel canopy, *Paspalum mandiocanum**, *Commonlina cyanea, Oplismenus aemulus* were common on the ground, with the shrubs *Ligustrum sinense**, *Duranta erecta** also common.

All trees on site were observed on site (and visible on aerial photography) were Camphor Laurel trees. No native trees existed within the proposed rezoning footprint.

The vegetation to the north-west along the disused railway is also Camphor Laurel dominated forest.

Although Camphor Laurel can provide some habitat value for rainforest birds, they are considered a noxious weed in Byron Bay. Further, the Camphor Laurel on the site are isolated paddock trees and are fragmented from other areas of rainforest habitat. Overall they would provide low habitat value.

3.1.3. Creekbank and Instream Vegetation

The creekbanks were steep and therefore not grazed or slashed. The banks were observed to be dominated by a combination of exotic grass and native forb species – mainly *Setaria sphacelata** and *Persicaria strigosa* in most areas (Figure 8), though there were small patches where other species were dominant – such as with the infestation of *Hygrophila costata** near the culverts that direct flow under Lismore Road (Figure 9). Other species observed to be common on the banks included the native *Hypolepis muelleri*, *Ludwigia octovalvis*, *Persicaria attenuata and Persicaria hydropiper*.

Instream vegetation at the time included *Persicaria strigosa*, with the small occasional area of infestation of Hygrophila costata*, *Sagittarius platyphylla** and a species of *Potamogeton** (Figure

10*)*. For the most part, the main branch of the stream was free flowing and not choked with exotic vegetation.

3.1.4. The Soak Area

The soak area is a small localised depression on site that contains wetland species. The 'soak area' measures only a few metres in diameter, as shown on Figure 4 and Figure 11.

This area contained native grasses, sedges and forbs: *Juncus* sp., *Persicaria hydropiper*, *Persicaria strigosa, Digitaria didactyla*, and *Cuphea carthagenensis**, with *Centella asiatica* in low abundance. It was fringed by high cover of the exotic grass *Setaria sphacelata*.*

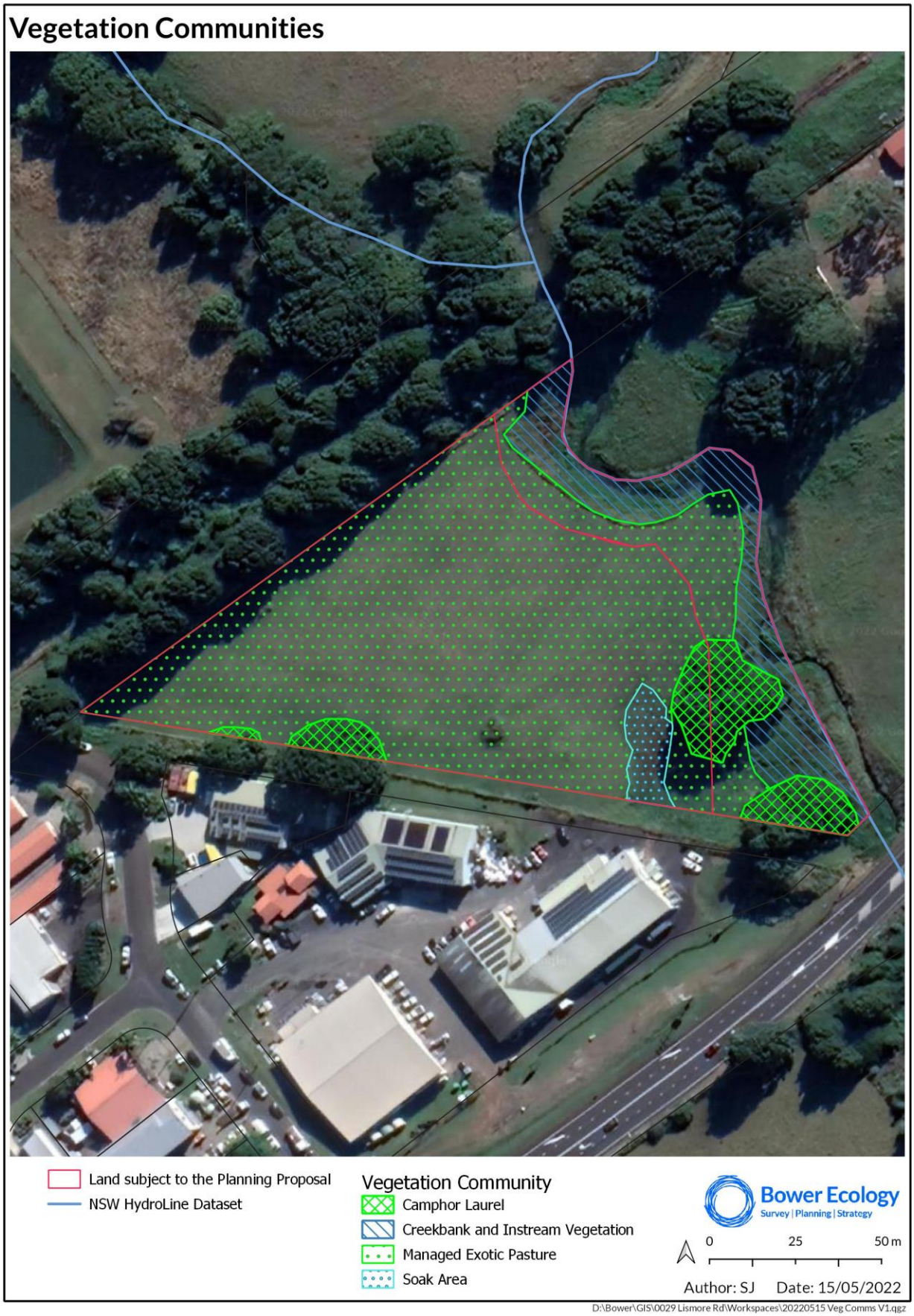

Figure 4: Vegetation Communities

Figure 5: Photograph of the managed exotic pasture area, with stands of camphor laurel also shown (looking east)

Figure 6: Grazed pasture on the eastern side of Maori Creek – outside of the proposed rezoning area

Figure 7: Photograph of Camphor Laurel Forest on the adjacent property to the north-west

Figure 8: Photograph Maori Creek vegetation (looking west towards the adjacent industrial estate)

Figure 9: Colonisation of weeds in areas of built-up sediment such as near the Culverts under Lismore Road (looking south west)

Figure 10: Instream vegetation

Figure 11: Vegetation in the 'soak area'

3.2. Waterways and Wetlands

No wetlands were observed on the site, with the exception of a small soak area (Section 3.1.4, Figure 11); although this is considered too small to constitute a 'wetland' that would contain any discrete biodiversity value or a threatened ecological community.

As shown on Figure 2, Maori Creek exists to the east of the proposed rezoning footprint. A reach of the creek dissects the subject lot, flows in a southern direction and joins with Byron Creek to the south-east of the subject lot. Vegetation within the creek is described in Section 3.1.3 whilst the Flood Impact Assessment (BMT 2021) discusses hydrology of the creek.

The wider creek catchment upstream is characterised by grazing and farming land, with most of the creek likely fringed by both native forests and Camphor Laurel dominated forests (based on aerial photography interpretation, Byron Shire Council Online mapping and knowledge of the area). The catchment would be considered to be moderately disturbed per AusRivAS (Parsons et al., 2001), and this would seem reasonable when imagined in its undisturbed state – a creek surrounded by subtropical lowland rainforest or wet sclerophyll forest.

Within the subject lot however, overhanging tree canopy cover is more or less absent due to historical clearing.

Although no water quality testing was undertaken as part of this assessment, the creek is expected to have moderate water quality, noting the turbid water colour, low odour, absence of surface water scum/slicks/ foam etc, slow to moderate flows, the limited presence of algae, and moderate

presence of instream exotic macrophytes. The observation of aquatic wildlife also supports this conclusions. I.e. Murray River Turtle *Emydura macquarii* (likely this species based on the brief observation of the individual) was spotted basking on an exposed log within the creek, whilst The Common Froglet *Crinia signifera* was heard calling. Other common native aquatic species are likely to inhabit the stream (e.g. eels and native fish).

Regarding physical elements, the creek appeared to have a high degree of sedimentation within the wider creek corridor. Areas of alluvial deposition in the wider creek corridor have been heavily colonised with riparian forbs mentioned in Section 3.1.3. A relatively deep and highly cut low flow channel has been maintained, and this formed a continuous, though restricted, 'run' up to Lismore Road where box culverts direct flows under the road.

Minor pooling and anabranching was also evident just north of Lismore Road (on the subject lot).

The banks were generally steep but stable, with some areas having slight undercutting.

Apart from those mentioned above, little other channel modifications were evident, and overall the creek run on the subject lot was considered to be in moderate to low condition.

Representative photos of the creek are provided in Figure 12 to Figure 16.

Figure 12: Maori Creek and it's banks

Figure 13: Maori Creek and it's banks

Figure 14: Maori Creek, its banks and alluvial deposits within the wider creek corridor

Figure 15: Maori Creek and a narrow cut low flow channel.

Figure 16: Maori Creek's banks

3.3. Wildlife Connectivity

Although Maori Creek offers riparian connectivity via aquatic habitats and a degree of riparian vegetation upstream, terrestrial connectivity on site and in the surrounding area is limited. This is due to the presence of roads, fences and very little native vegetation in the wider area (see Figure 1 for example).

3.4. Threatened Flora and Fauna

Bionet results for a 5km radial buffer area are shown on Figure 17, Figure 18 and Figure 19. Appendix A provides a likelihood assessment for these species. Based on Appendix A and a desktop assessment, the following species have potential to occur on site and rely on the habitat resources on the site:

1. *Arthraxon hispidus* (HJG)
2. *Mixophys iteratus* (Giant Barred Frog)

Although there are many records of koala in the local area (Figure 19), the site does not provide any habitat for koala.

With regards to HJG, within the site there are areas where HJG *could* grow (i.e. the right physical conditions are present). However, no HJG was observed despite intensive survey, reducing the likelihood that the species is present. Limitations to the survey have been described in Section 2.2.1. Further to this, there are no local records of this species nearby (i.e. within 2km) – although this may represent a lack of survey effort for the species in the local area, and not an absence of the species.

Regarding the Giant Barred Frog, there are 119 records of this species at a single location (disturbed creek) approximately 900m to the west of the proposed rezoning footprint. This species is known to sometimes persist in cleared or disturbed areas, for example cattle farms with vegetated riparian strips (Commonwealth of Australia 2022). Further, the waterway habitat on site meets the description of this species' potential habitat in that it constitutes 'deep, slow moving streams with steep banks in lowland areas'. This species was not observed during the survey however no targeted survey in line with any relevant guidelines was undertaken for this species. Further targeted survey would be required to confirm presence.

No threatened flora or fauna were observed during the survey (including no flying fox camps). Overall, the site offers limited habitat resources for threatened flora and fauna due to the historical clearing and grazing that has been undertaken within the study area.

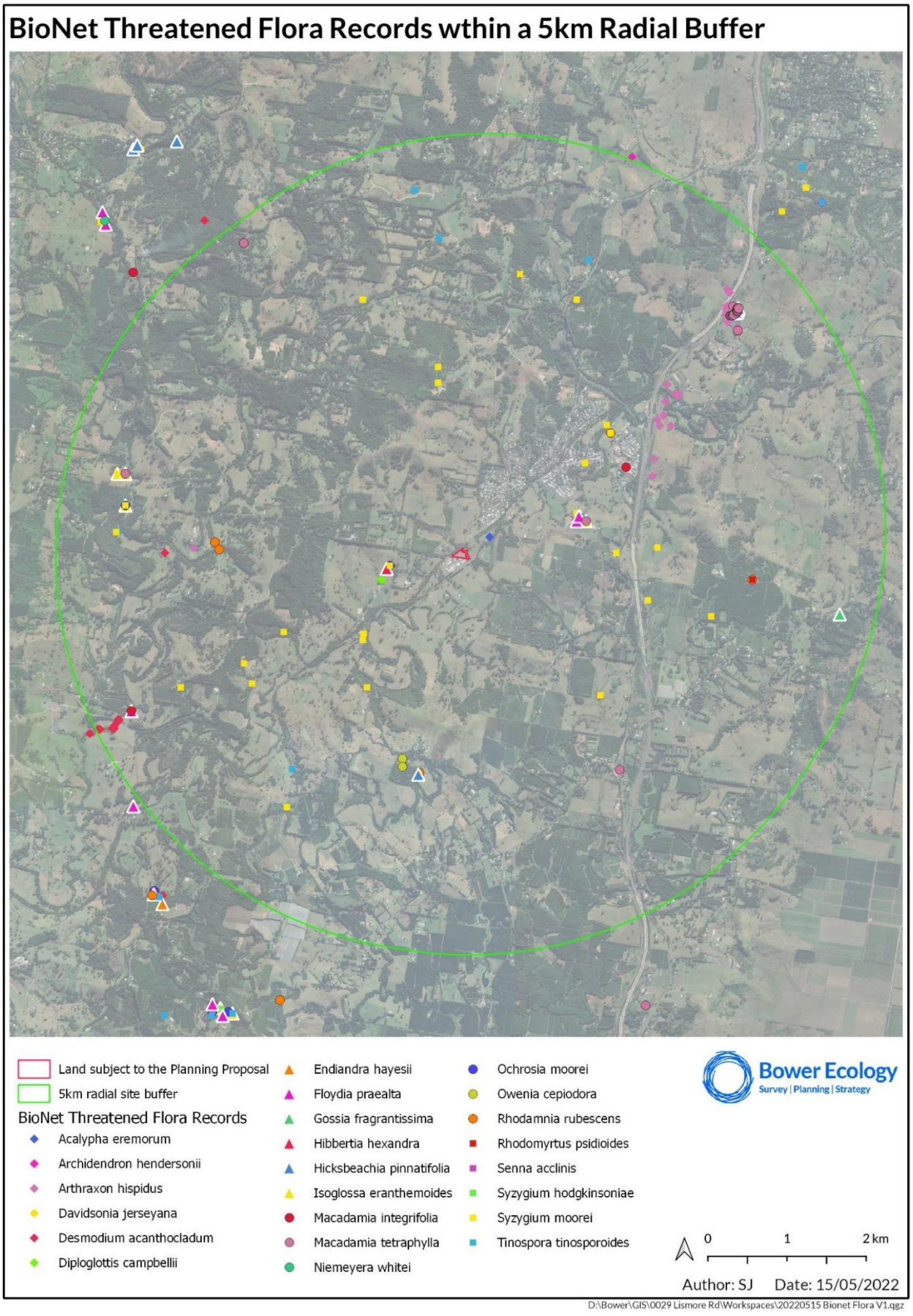

Figure 17: BioNet Threatened Flora Records within a 5km radial buffer

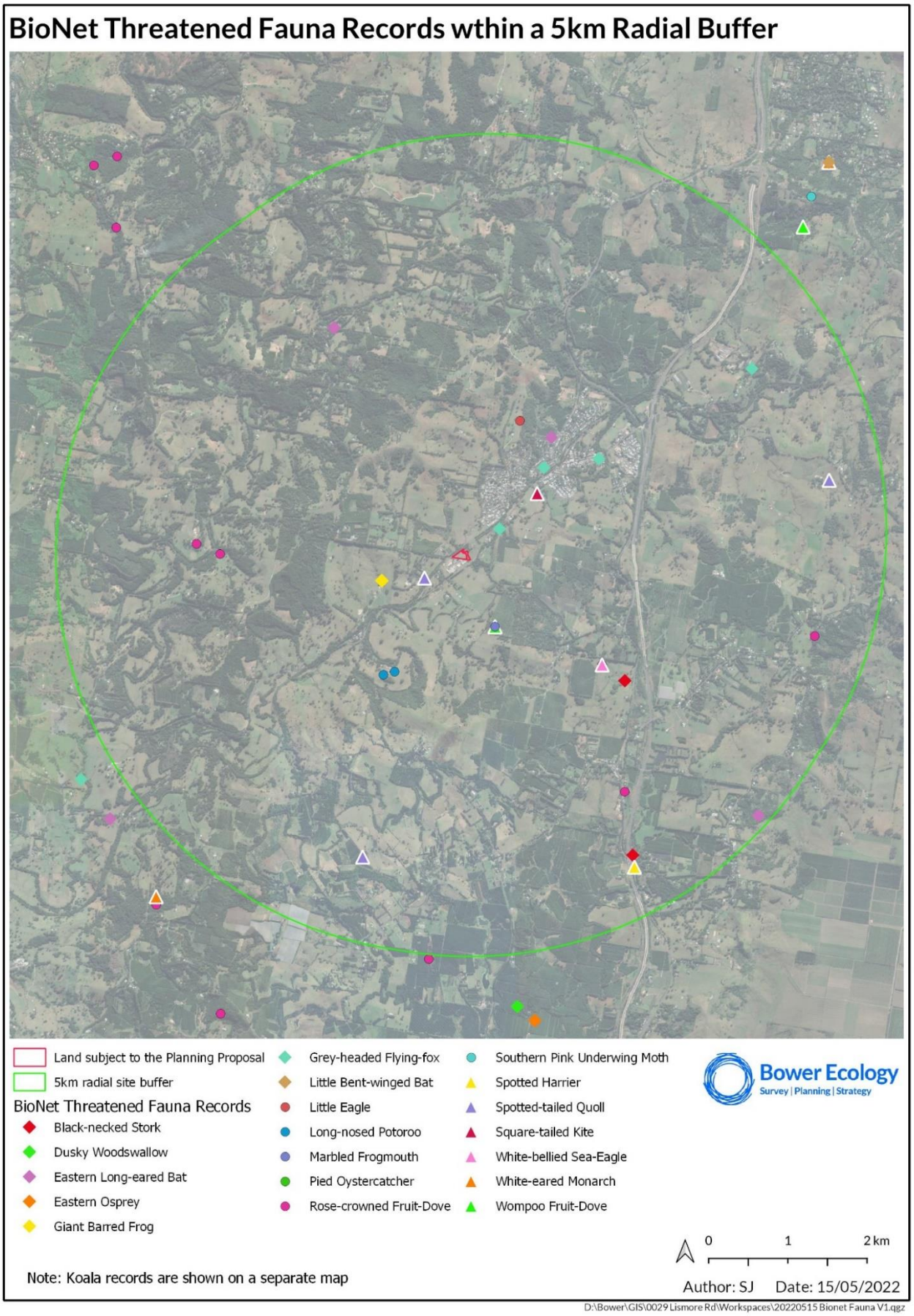

Figure 18: BioNet Threatened Fauna Records within a 5km radial buffer

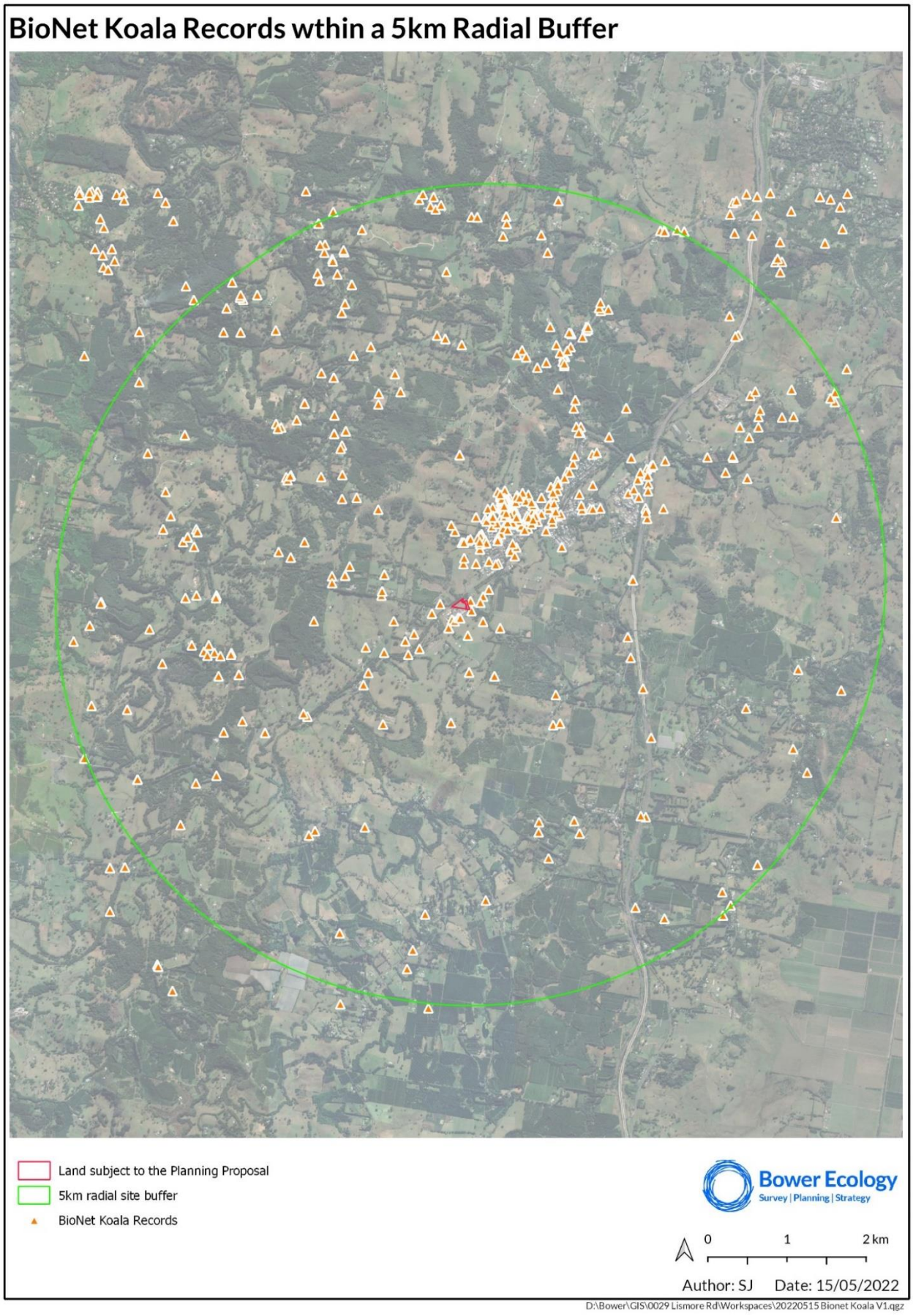

Figure 19: BioNet Koala Records within a 5km radial buffer

4 Potential Impacts of the proposed development

The planning proposal aims to facilitate eventual development of the site into light industry and riparian revegetation. At this stage, it is possible to provide a high-level impact assessment of the likely impacts that this planning proposal may eventually facilitate. Nonetheless, any future Development Application (DA) will need to consider biodiversity impacts in detail, with reference to the proposed development.

The potential impacts are identified and assessed within Table 1, alongside the proposed mitigation measures.

Table 1: Potential impacts to biodiversity matters due to the proposed development

Environmental Aspect	Description of Potential Impact	Proposed Mitigation
Vegetation and Habitat Clearing (construction)	If the rezoning facilitates eventual development of the site, it is expected that vegetation clearing associated with the project will result in a negligible impact to biodiversity values overall. This is due to: • the low habitat value of the site overall, • the fact that the riparian vegetation will not be cleared • The only trees proposed to be cleared are exotic Camphor Laurel, whilst broadscale clearing will only impact areas where exotic grasses dominate, with the exception of the small soak area. The eventual revegetation of the E3 zone will also result in an enhancement of habitat value for the reach of Maori creek on the subject site.	It is recommended that: • pre-clearing surveys be undertaken at least 48 hours prior to clearing works to identify any resident arboreal fauna and/or active breeding places (e.g. nests). If any fauna or their active breeding places are identified, clearing operations and other site works must not commence until the fauna moves on, or a licensed Fauna Spotter Catcher has inspected the site and implemented fauna protection measures or relocation procedures. • To help protect creek water quality, an erosion and sediment control plan be prepared and implemented during earthwork and clearing. Revegetation of the E3 zone (if development occurs on the site) will also help mitigate impacts to habitat. This will include planting of native vegetation and management of the weeds – including aquatic weeds mentioned in Section 3.1.3.
Wildlife connectivity	Future development of the site is likely to have a negligible adverse impact on wildlife connectivity. The eventual revegetation of the E3 zone will result in an enhancement to riparian and aquatic connectivity.	Revegetation of the E3 zone (if development occurs on the site) as an ecological setback to the creek.
Edge Effect – Noise and light impacts to wildlife (construction and operations)	Due to the lack low habitat value of the site, the potential impacts of any future construction or operations is likely to be negligible. The eventual revegetation of the E3 zone will also result in an enhancement of habitat value for the reach of Maori creek on the subject site. This will provide minor attenuation for noise and light within the aquatic and riparian environment.	Revegetation of the E3 zone (if development occurs on the site) as an ecological setback to the creek.
Risk of vehicular strike to wildlife (operations)	Due to the lack low habitat value of the site, the potential impacts of any future construction or operations is likely to be negligible.	No mitigation is proposed with regards to biodiversity management.
Water quality and hydrology (operations)	It is likely that future development will result in a high proportion of impermeable surfaces (rooftops, roads) across the site. This will result in greater overland flow that needs to be directed and/or stored on site. When released into the environment, the water may have an impact to water quality associated with adjacent ephemeral streams. Despite this, the actual impact to ecology is likely to be minimal because the intent of the stormwater design will be to ensure discharges meet requirements of consent / permit requirements, and the site exists within a much broader disturbed catchment.	It is recommended that: • a frog survey be undertaken as part of any future DA, where impacts to water quality may occur. • Future stormwater design (water quality and hydrological design) responds to environmental requirements.

5 Legislative Framework

The following relevant legislation and planning instruments have been reviewed to support the planning proposal:

- The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EBPC Act);
- The NSW *Biodiversity Conservation Act 2016* (BC Act) and subordinate regulations;
- The NSW *State Environmental Planning Policy (Biodiversity and Conservation) 2021*;
- The NSW *Water Management Act 2000* (WM Act)
- The NSW Biosecurity Act 2015;
- *The Byron Shire Development Control Plan* (DCP) (2014). It is acknowledged that that the DCP provisions are not legally binding; however, they are given weight in the assessment of all development applications.

The Coastal Management SEPP and *Local Land Services Act 2013* will not apply to the land and are not discussed further.

Although the provisions of the above legislation do not generally apply at this planning proposal stage, it is prudent to consider their requirements now to ensure the ultimate outcomes of the planning proposal can be realised.

Table 2: Commonwealth and State Legislative Requirements

Statute	Trigger / Background	Relevance
Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	Actions (projects) that are likely to significantly impact matters of national environmental significance are required to be referred to the Department of Agriculture, Water and the Environment.	At this stage, it is unlikely that future development will result in a significant impact. Referral is unlikely to be required.
NSW *Biodiversity Conservation Act 2016* (BC Act)	Projects trigger the requirement for Biodiversity Development Assessment Reports (BDAR) and the Biodiversity Offsets Scheme where the following thresholds are met: • Native vegetation area clearing thresholds are exceeded; • Land mapped on the Biodiversity Values Map (BV Map) is impacted; • Significant impacts to matters listed under the BC Act (threatened species or ecological communities) are likely to occur, pursuant to section 7.3 of the BC Act; • Impacts to Areas of Outstanding Biodiversity Value (AOBV) are likely to occur, and/or • 'Serious and irreversible impacts' (SAII) are likely to occur. Principles relating to SAII are set out in Clause 6.7 of the *Biodiversity Conservation Regulation 2017* and OEH's Guidance to assist a decision maker to determine a serious and irreversible impact document (OEH 2017).	• The planning proposal aims to change the minimum lot size to 1000m^2. Considering this, the native vegetation clearing threshold for this site will be 0.25 ha. A BDAR / the BOS is not triggered due to this requirement if this clearing of native vegetation is below this threshold. Given the limited extent of vegetation on the subject lot, it is unlikely that the project will be triggered for this reason. • The Maori Creek Corridor is mapped on the BV Map. The proposed IN1 zoning appears to overlay a very small area of the BV Map. As such, future development will need to consider the need to develop within the BV Map area despite the proposed zoning. If the BV map area is directly impacted, the project will trigger entry into the Biodiversity Offsets Scheme. • During any future DA, further assessment is required under the BC Act to ascertain if the project will result in a significant impact to any threatened species or ecological communities. A significant impact is considered unlikely and hence it is unlikely that offsets will be required due to this trigger. • No areas within the development footprint are identified as AOBV and therefore the BOS will not be triggered by this matter. Future development applications will be required to re-confirm this. • The project is unlikely to result in any SAII, and therefore the BOS is unlikely to be triggered by this matter. Future development applications will be required to re-confirm this.
NSW *State Environmental Planning Policy (Coastal Management) 2018* (Coastal Management SEPP)	The aim of the Coastal Management SEPP is to promote an integrated and co-ordinated approach to land use planning in the coastal zone. This is achieved by managing development in the coastal zone and protecting the environmental assets of the coast, and by establishing a framework for land use planning to guide decision-making in the coastal zone.	No Coastal Management SEPP mapping is relevant to the site therefore the provisions are not triggered. No further action required.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	The provision for koala habitat protection apply to the subject land; however, requirements are devolved to the approved Koala Plan of Management for the area. This is the *Byron Coast Comprehensive Koala Plan of Management* (BCCKPoM).	The site survey confirmed there is no core habitat on site therefore no further action is required in this regard.
NSW *Water Management Act 2000* (WM Act)	The object of the WM Act is to provide for the sustainable and integrated management of the water sources of the state. Some activities are "controlled activities" under the act. For example, works on waterfront land. Waterfront land means the bed of any river, lake or estuary, and the land within 40 metres of the riverbanks, lake shore or estuary mean high-water mark.	For any future DAs, given the existence of mapped waterways on the site, the requirements for approval for works on waterfront land will need to be confirmed with NSW DPIE (Water).
NSW Biosecurity Act 2015	The *Biosecurity Act 2015* includes a general biosecurity duty for biosecurity matters such as the introduction, presence, spread or increase of a pest. This general biosecurity duty provides that any person who deals with biosecurity matter has a biosecurity duty to ensure that the biosecurity risk is prevented, eliminated, or minimised, so far as is reasonably practicable.	Any future development is likely to satisfy the biosecurity duty via the removal and appropriate disposal of weeds during clearing, as well as weed management and revegetation of the E3 zone with native species.

Table 3: Relevant Byron Shire Council Requirement (for DAs)

Relevant Requirement	Trigger / Requirement	Relevance
DCP 2014, Chapter B1 - Biodiversity	This chapter applies to development on, or adjacent to, any land with natural features such as: High Environmental Value (HEV) vegetation, red flagged areas (areas of land with high biodiversity conservation value which should be excluded from the development envelope), koala use trees, **watercourses**, wetlands, threatened species and their habitat, threatened ecological communities, threatened populations, wildlife corridors, areas identified under the *Coastal Management SEPP 2018*, Koala Habitat Protection and the Byron Coast Comprehensive Koala Plan of Management. The approval path will differ depending on the application of the BC Act. (Figure 1 of the DCP Chapter).	The approval pathway of any future DAs will differ depending on the application of the BC Act. (Figure 1 of the DCP Chapter).The implications of the watercourse occurring on site are discussed in the below rows.
DCP 2014, Chapter B1 – Biodiversity **Section B1.2.1**	Ecological setbacks are listed in this section (Table 3 of the DCP) for vegetation, habitat, wetlands, koala, **streams** etc.	The following buffers are likely to apply to any future DA. Emphasis is added to those that apply. • EECs – 30m buffer (not relevant) • Over-cleared vegetation types – 20m buffer (not relevant) • Over-cleared landscapes) – 20m buffer (not relevant) • Old growth – 30m buffer (not relevant) • Important wetlands (not relevant) • Other wetlands (not relevant) • Other bushland on slope >18 degrees – 20m buffer (not relevant) • Habitat with formal long-term protection designed to limit development (not relevant) • Known or predicted threatened and significant species habitat – 20m buffer (further assessment required in future DA stages). • Threatened flora - 10m buffer (assumed not relevant) • Koala habitat outside of areas defined within the BCCKPoM – 20m buffer (not relevant) • Stream buffers (**relevant** – the proposed E3 zone has been designed to provide this buffer) • Estuarine Areas – 50m (not relevant) • Flying fox camp – 100m buffer (not relevant) • Very large native trees (not relevant) • Stags and hollow bearing trees – 10m buffer (not relevant) • Raptor nests – 50m buffer (not relevant) It should be noted that minor variations to Council's requirements for "red flagged" areas may be accepted by Council in accordance with DCP 2014, Chapter B1 – Biodiversity Section B1.2.1 (6). Furthermore, other acceptable solutions to DCP requirements may be appropriate; however the application must demonstrate that: • there is no net loss to biodiversity; and • a clearly equivalent or superior long-term outcome can be assured; and • the variation is consistent with all the relevant planning principles and objectives of Chapter B1.
DCP 2014, Chapter B1 – Biodiversity **Section B1.2.1 (Section 16 & 17)**	If the development application is **not** required to enter the Biodiversity Offset Scheme (BOS) under the *Biodiversity Conservation Act 2016*, any native vegetation, threatened or other significant fauna habitat cleared, damaged, or degraded as a result of development shall be offset or otherwise compensated for in accordance with contemporary best practice or adopted Council policy. Such areas are to be secured in perpetuity as protected habitat and managed under a vegetation or biodiversity conservation management plan (see B1.2.5 of the DCP). Council may waive the requirement for offsetting where the proponent can demonstrate that they have voluntarily created equivalent habitat on the land (or adjoining land in the same ownership) which is subject to the development application. Such areas are to be secured in perpetuity as protected habitat	The proposed E3 zone is planned to be revegetated as part of future DAs. It is understood that for subdivisions in industrial or rural zones, a vegetation management plan / biodiversity conservation management plan (see B1.2.5 of the DCP) will be required. It is required to cover ecological setbacks and red flag zones across the site and have a min 5-year maintenance period. It is considered that offsets will not be required due to any future development on the site; however this shall be re-assessed at the DA stage.

	and managed under a vegetation or biodiversity conservation management plan (VMP or BCMP see B1.2.5 of the DCP).	
DCP 2014, Chapter B1 – Biodiversity **Section B1.2.3 (Section 1 to 3)**	This section applies to all identified koala Habitat within the Byron Coast Comprehensive Koala Plan of Management and all other areas where koalas and **koala habitat** are present. For the purpose of this DCP Chapter koala habitat means (**emphasis added**): 1. Areas of native vegetation mapped and identified as per Clause 7 of the State Environmental Planning Policy Koala Habitat Protection 2019 (Koala SEPP); or 2. Areas identified within the Byron Coast Comprehensive Koala Plan of Management; or 3. Areas of native vegetation, including plantings, that comprise koala use tree species found in Schedule 2 of the Koala Habitat Protection SEPP 2019 specific to the North Coast Koala Management Area (Appendix 1), and 4. Sightings and or records of koalas (within a 2.5km range of koala habitat) persistent over 3 koala generations that may be evidenced by breeding females and or historical records and or survey.	No future action will be needed, as no koala habitat exists on site.
DCP 2014, Chapter B1 – Biodiversity **Section B1.2.3 (4 to 6)**	All koala-use tree species, planted or otherwise, are to be retained. All koala habitat and individual koala use trees are to be illustrated on all site plans by stadia metric survey and include: location, area size (where applicable), plant community type (where applicable), species name, height and DBH.	No future action will be needed, as no koala habitat exists on site.
DCP 2014, Chapter B1 – Biodiversity **Section B1.2.3 (7 to 8)**	All plantings of koala use trees as a result of consent conditions under the *Environmental Planning and Assessment Act 1979* are to be protected in perpetuity by an effective legal restriction on the title of land. All restoration of koala habitat as a result of consent conditions under the *Environmental Planning and Assessment Act 1979* shall be protected in perpetuity by an effective legal restriction on the title of land.	No future action will be needed, as no koala habitat exists on site.
DCP 2014, Chapter B1 – Biodiversity **Section B1.2.3**	For development proposals required to be assessed under the *Environmental Planning and Assessment Act 1979* on land that has or is adjacent to High Environmental Value (HEV) vegetation and/or red flags (Table 3), an ecological assessment (Appendix 2) may be required.	Given the proximity of the project to Maori Creek (a red flag), an ecological assessment may need to support any future DAs.
DCP 2014 Chapter B2 (Tree and Vegetation Management)	This DCP chapter applies to the removal or pruning of vegetation that is under the BOS threshold on all **non-rural land** (land in any zone other than RU1 and RU2) within the Byron Shire local government area. The DCP chapter therefore applies to the deferred matter (environmental) zones on the site.	No further action is required at this stage. This chapter will be become relevant where land is rezoned to a non-rural land use and where pruning or removal of vegetation is required.

6 Conclusion

This report has provided the results of an ecological assessment of a planning proposal for 150 Lismore Road, Bangalow.

Overall, the site has limited biodiversity value due to historical clearing and grazing. Nonetheless, the planning proposal is likely to facilitate development next to Maori Creek. Given the current condition of the creek, the proposal to revegetate and treat weeds within the proposed E3 zone (as part of any future DA – not part of this planning proposal) is supported and considered necessary to assist with mitigation of potential future impacts.

Further, it is suggested that a targeted survey for Giant Barred Frog *Mixophyes iteratus* occur as part of the DA process. This is due to the proximity of the site to nearby records of the species, and also as Maori Creek appears to provide suitable habitat for the species. If present, future DAs should consider the location of legal points of discharge, hydrology and water quality impacts. If not present, the proposed E3 revegetation will help to increase potential habitat value for this species.

Any future DA should also consider impacts to the Biodiversity Values mapping and the associated requirements for a BDAR and offsets. A test of significance should also be undertaken, section 7.3 of the BC Act.

7 References

BMT 2021, *Bangalow Industrial Estate Flood Impact Assessment*, Ref: R.A10672.001.00, Prepared for Andrew More.

Commonwealth of Australia 2022, *Species Profile and Threats Database: Mixophyes iteratus — Giant Barred Frog, Southern Barred Frog*, viewed online 12/5/2022, available at http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1944

Parsons, M., Thom., M and Norris, R., 2001, *National River Health Program*: *Monitoring River Health Program - Australian River Assessment System: AusRivAS Physical Assessment Protocol,* Technical Report No. 22, University of Canberra ,viewed online 14/5/2021, available at https://ausrivas.ewater.org.au/protocol/Download/protocol-1.pdf

Appendix A: Threatened Species Likelihood Assessment

Species	Number of Records in 10x10km search area	Likelihood of Occurrence within the proposed rezoning footprint
Acalypha eremorum Acalypha	3	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Archidendron hendersonii White Lace Flower	2	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Artamus cyanopterus cyanopterus Dusky Woodswallow	1	Potential. Although found in farmland, it is usually at the edges of forest or woodland. Significant impacts to this species are not likely to occur if the rezoning facilitates future development.
Arthraxon hispidus Hairy Jointgrass	23	Not observed during survey. Potential to occur.
Carterornis leucotis White-eared Monarch	2	Unlikely. The site does not represent preferred habitat for this species.
Circus assimilis Spotted Harrier	1	Potential to occur in the wider area, though the site would not represent core habitat or breeding habitat for this species.
Dasyurus maculatus Spotted-tailed Quoll	3	Unlikely. The site does not represent preferred habitat for this species.
Davidsonia jerseyana Davidson's Plum	3	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Desmodium acanthocladum Thorny Pea	19	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Diploglottis campbellii Small-leaved Tamarind	4	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Endiandra hayesii Rusty Rose Walnut	2	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Ephippiorhynchus asiaticus Black-necked Stork	2	Unlikely. The site does not represent preferred habitat for this species.
Floydia praealta Ball Nut	10	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Gossia fragrantissima Sweet Myrtle	1	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Haematopus longirostris Pied Oystercatcher	3	Unlikely. The site does not represent preferred habitat for this species.
Haliaeetus leucogaster White-bellied Sea-Eagle	1	Potential to occur in the wider area, though the site would not represent core habitat or breeding habitat for this species.
Hibbertia hexandra Tree Guinea Flower	1	Not observed during survey. Unlikely due to historial clearing and lack of suitable habitat.
Hicksbeachia pinnatifolia	10	

Species	Number of Records in 10x10km search area	Likelihood of Occurrence within the proposed rezoning footprint
Red Boppel Nut		Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Hieraaetus morphnoides Little Eagle	2	Potential to occur in the wider area, though the site would not represent core habitat or breeding habitat for this species.
Isoglossa eranthemoides Isoglossa	16	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Lophoictinia isura Square-tailed Kite	1	Potential to occur in the wider area, though the site would not represent core habitat or breeding habitat for this species.
Macadamia integrifolia Macadamia Nut	3	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Macadamia tetraphylla Rough-shelled Bush Nut	45	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Miniopterus australis Little Bent-winged Bat	1	Unlikely, though the adjacent culverts could provide breeding habitat for this species. Not observed.
Mixophyes iteratus Giant Barred Frog	119	Potential - a creekline approximately 900m to the west has many records of this species occuring.
Niemeyera whitei Rusty Plum, Plum Boxwood	1	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Nyctophilus bifax Eastern Long-eared Bat	4	Unlikely. The site does not represent preferred habitat for this species.
Ochrosia moorei Southern Ochrosia	12	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Owenia cepiodora Onion Cedar	2	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Pandion cristatus Eastern Osprey	2	Potential to occur in the wider area, though the site would not represent core habitat or breeding habitat for this species.
Phascolarctos cinereus Koala	748	Known to occur on site based on BioNet Records, however site does not offer any habitat value for this species.
Phyllodes imperialis southern subspecies Southern Pink Underwing Moth	1	Unlikely due to historial clearing and lack of rainforest habitat.
Podargus ocellatus Marbled Frogmouth	1	Unlikely due to historial clearing and lack of rainforest habitat.
Potorous tridactylus Long-nosed Potoroo	2	Unlikely due to historial clearing and lack of suitable habitat.
Pteropus poliocephalus Grey-headed Flying-fox	12	Unlikely - no roosts were observed on site and the site offers limited habitat resources for this species.
Ptilinopus magnificus	3	

Species	Number of Records in 10x10km search area	Likelihood of Occurrence within the proposed rezoning footprint
Wompoo Fruit-Dove		Unlikely due to historial clearing and lack of rainforest habitat.
Ptilinopus regina Rose-crowned Fruit-Dove	14	Unlikely due to historial clearing and lack of rainforest habitat.
Rhodamnia rubescens Scrub Turpentine	7	Unlikely due to historial clearing and lack of rainforest habitat.
Rhodomyrtus psidioides Native Guava	1	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Senna acclinis Rainforest Cassia	1	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Syzygium hodgkinsoniae Red Lilly Pilly	8	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Syzygium moorei Durobby	53	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.
Tinospora tinosporoides Arrow-head Vine	30	Not observed during survey. Unlikely due to historial clearing and lack of rainforest habitat.