CONSULTING & ENVIRONMENTAL SERVICES

Cover Letter

To
General Manager,
Lithgow City Council,
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Lithgow NSW 2790
E: council@lithgow.nsw.gov.au

Property Owner:
Mr Benjamin Harris
Experience OZ Pty Ltd (ABN: 71 637 922 966)
PO Box 3232, Marrickville Metro, NSW 2204
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Statement of Environmental Effects Proposed Ecotourist Facility for 51 Atkinson Street, Mort's Estate, NSW 2790, Lot 152, DP 659519.

Dear Sir or Madam,

Mr Ben Harris, as Experience OZ, presents a statement of environmental effects (SEE) for the Council's assessment of cabin accommodation as an Ecotourist Facility proposal for Lot 152, Atkinson Street.

This submission addresses Clause 5.13 Ecotourist facilities (LLEP 2014) and other requirements.

Please feel free to contact me if you require further information. Our office number is 02 6352 5758 or mobile 0407 990 613.

With regards

Dr Jane T Aiken
Digitally signed by Dr Jane T Aiken
Date: 2024.06.28 10:54:28 +10'00'

Jane T Aiken CPSS, CEnvP.

Project Lead, Consulting & Environmental Services Pty Ltd

Document Registration

Client, Applicant & Property Owner	Mr Benjamin Harris Experience OZ Pty Ltd (ABN: 71 637 922 966) PO Box 3232, Marrickville Metro, NSW 2204 E: djbenharris@gmail.com M: 0474 810 269
Property:	51 Atkinson Street, Mort's Estate, Lithgow NSW 2790 Lot 152, DP 659519
Building Manager	Mr Benjamin Harris Experience OZ Pty Ltd (ABN: 71 637 922 966) PO Box 3232, Marrickville Metro, NSW 2204 E: djbenharris@gmail.com M: 0474 810 269
Relevant Regulators	Lithgow City Council
Prepared By	Consulting & Environmental Services Pty Ltd Suite 1, 52 Eskbank Street, Lithgow NSW 2790 E: info@cessoils.com.au T: 6352 5758 | (M) 0407 990 613
Principal Consultant	Dr Jane T Aiken, CPSS, CEnvP, CSARM in professional development.
Second Author	Ms Malin Hoeppner MSc, BSc.
Site Plans and Mapping	M-H Environmental Drafting. Ms Malin Hoeppner MSc, BSc.
Architectural Drafting	George K Juhasz (formerly Springwood Design & Construction)
Document Filename	136-2107 Experience OZ SEE for Ecotourist Facility for 51 Atkinson Street Mort's Estate 2790_V03
Document Title	Statement of Environmental Effects Experience OZ Ecotourist Facility Lot 152, DP: 659519
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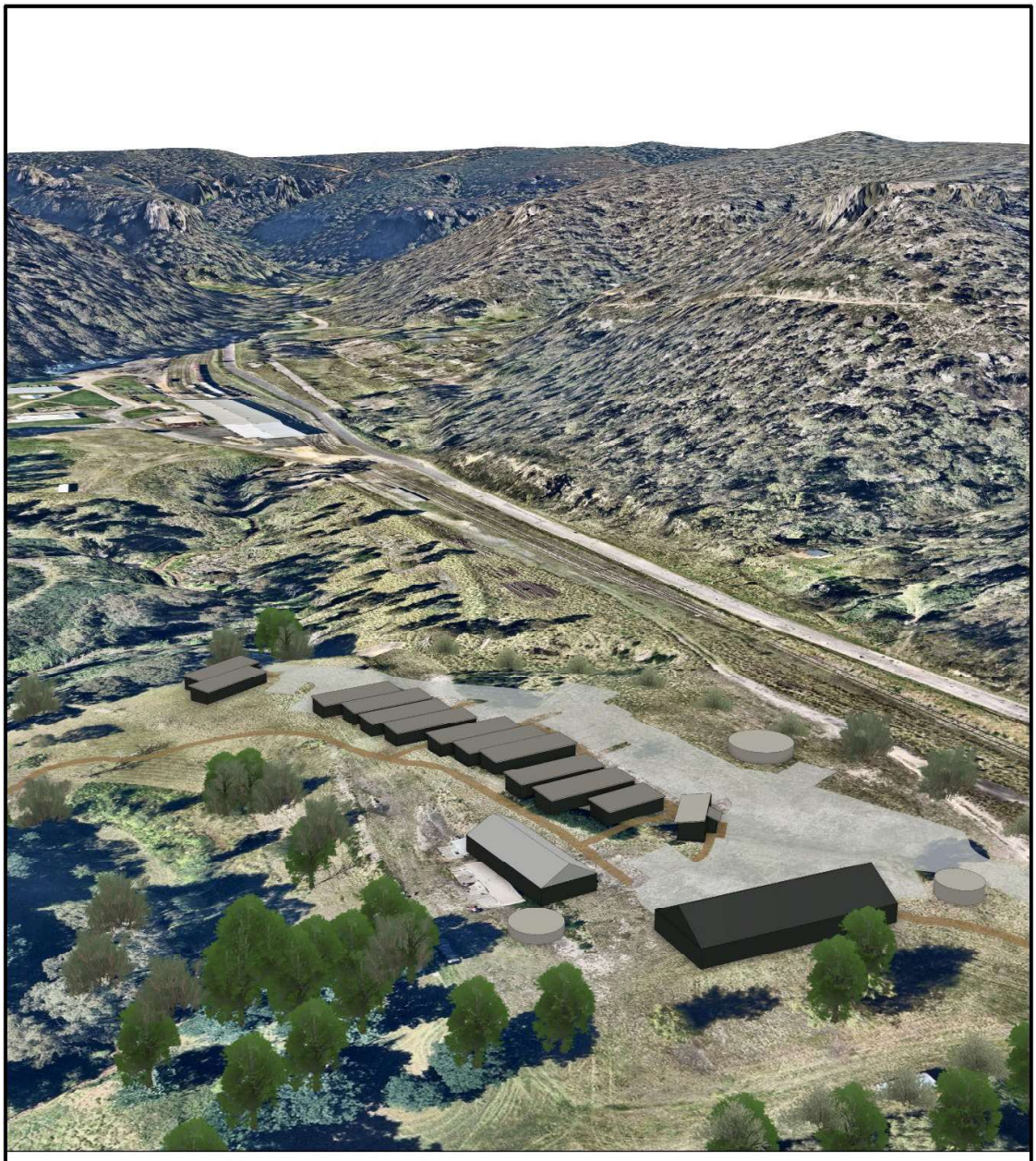

EXPERIENCE OZ ECOTOURISM FACILITY

51 ATKINSON STREET MORTS ESTATE 2790

Development Application	
cessoils 136-2107	Experience OZ Pty Ltd

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Table of Contents

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Suite 1, 52 Eskbank Street, PO Box 323, T: 02 6352 5758, M: 0407 990 613
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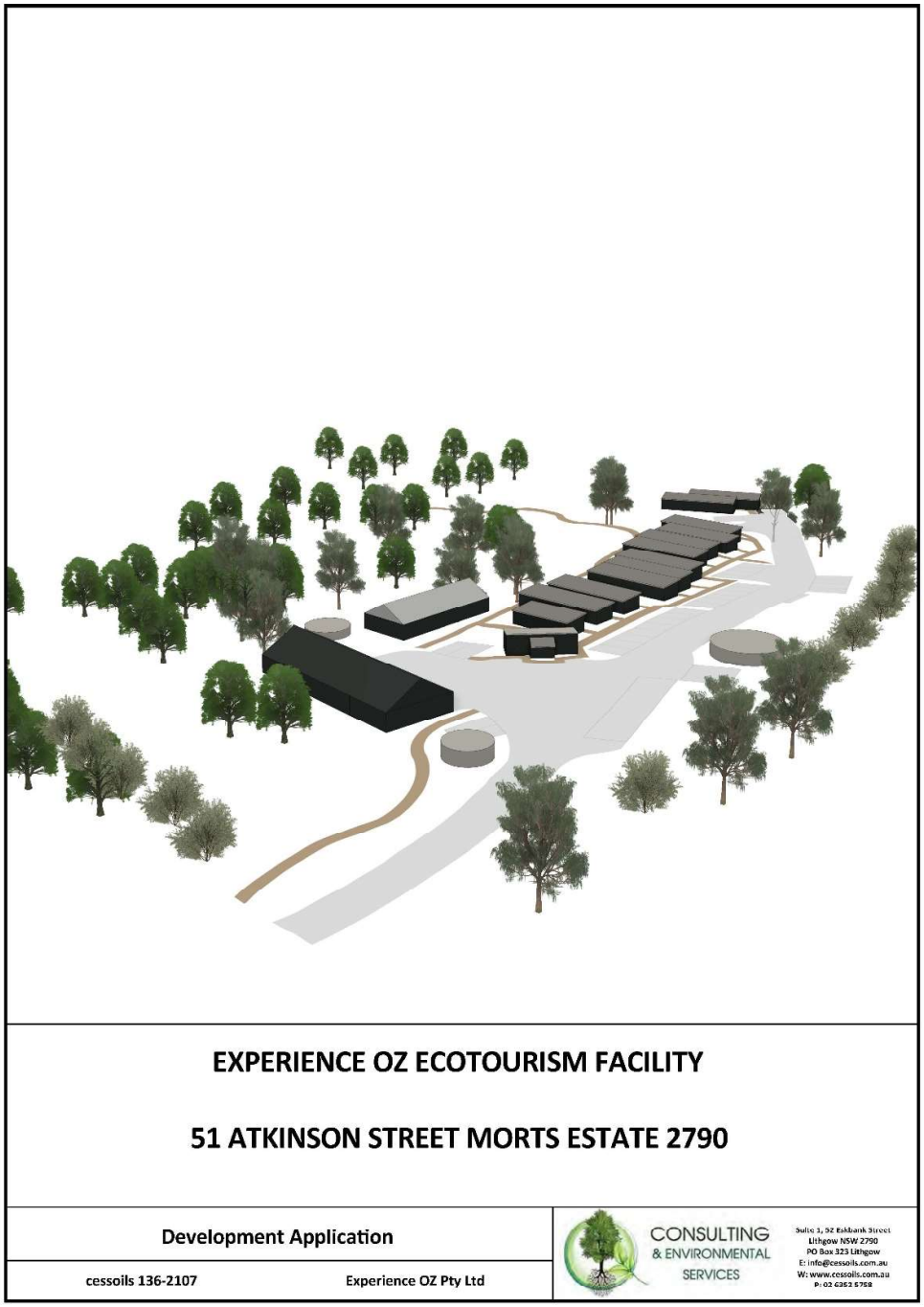
Title Page - State of Environmental Effects – Experience OZ – Eco Tourist Facility



Conceptual model of the proposed ecotourism facility looking north-west

Executive Summary

Consulting & Environmental Services have prepared the Statement of Environment Effects, summarising the development submission for an Ecotourism Facility in Mort's Estate, Lithgow. The Lot 152 at 51 Atkinson Street is a property of just over 2 ha. The proposal is to install manufactured cabins (Class 3) for accommodation, a Class 9 building for a Common Room Building and a Class 1a building as a manager's residence.

The development outlook is the creek within the surrounding escarpment and the State Mine Gully hillside topography. The proposed construction area with all the site disturbance incorporates planning for bushfire policies and is integrated within a vegetation management plan.

Currently, the property is an open space that serves as a riparian vegetation corridor for State Mine Creek and an open perennial grassland habitat. This facility is proposed to be placed in an allotment created from the former State Mine and Lithgow Power Station decommissioning procedures. Therefore, a contamination assessment as a preliminary site investigation accompanies this submission.

The development planning to achieve the ecotourist facility presented to the Council has considered.

- The local character and context
- Potential hazards such as floods and bushfires
- Biodiversity values and retention of native vegetation, habitats, and connectivity
- Heritage and industrial characteristics of the adjacent allotments
- Existing topography and landform
- Developing a slope-responsive design and minimising earthworks and retaining walls
- Stormwater management
- Access and parking
- Pedestrian access and safety
- Utilities and infrastructure
- Waste management
- Water and energy efficiency
- Ecotourism facility requirements
- Planning for bushfire requirements, bushfire refuge, water storage and fire-fighting vehicle access.
- Change of Land Use
- Ongoing vegetation Management
- Traffic
- Archaeological Heritage

We confirm that the proposal meets all the relevant Clauses of the LEP and DCP for Site Requirements (DCP Chapter 2), Natural Environment and Hazards (DCP Chapter 3) and the specific Clauses for

Tourist Developments (DCP Clause 8.2.1 and 8.2.4; DCP 2021) as well as the corresponding Clauses of the LEP. The proposal follows Planning for Bush Fire 2019 6.3.1 Specific tourism uses.

This statement is prepared from the factual data of an environmental site plan prepared using ArcGIS 3.2 (Esri Australia, 2023).

Summary of Supporting Documentation:

1. The accompanying Vegetation Management Plan prepared by KHS Ecology & Bushfire discusses the ecological aspects of native vegetation, maintaining the riparian vegetation zone, and weed management.
2. The Ecotourism Management Plan by Consulting & Environmental Services is written as a document for future visitors and thereby presents how the proposed facility engages the visitor with the ecological and sustainability features of the site as well as ecological, historical, and cultural attributes of the Seven Valleys. It also serves as a version 0 of an operational business management plan.
3. Hazard and resilience aspects on planning for bushfires have commentary for Ecotourist development within the Bushfire Assessment Report prepared by KHS Ecology & Bushfire in consultation with Harris Environmental Consulting. A Bushfire Emergency Management and Evacuation Plan has been prepared by Consulting & Environmental Services. As the operational management plan within the ecotourism management plan, this plan requires updating when the facility becomes operational.
4. The property is in the Water Supply Catchment area. A Water Cycle Study addressing supply, wastewater, stormwater, and landscape to support the proposal is prepared by Consulting & Environmental Services. A MUSIC model verifying that the proposal meets neutral or beneficial effects on water quality is part of the Water Cycle Study. This is available as 51_Atkinson_Street_V05b 081223.sqz.
5. Site plans note land disturbance and erosion and sediment control mitigation measures. These measures are documented within the Soil and Water Management Plan and Report prepared by Consulting & Environmental Services. Earthworks concern only the current landform.
6. Aspects of the site heritage are presented within an Archaeological and Heritage Due Diligence Report submitted with the application prepared by Consulting & Environmental Services.
7. The property is subject to flood risk. Risks associated with the overland flow and surcharge are addressed in this proposal and on the Site analysis plans: Flood planning. A Flood Impact Assessment Report has been prepared by Consulting & Environmental Services.
8. The plans and specifications present building design and cabin selections based on the property owner's preferences.
9. Geotechnical aspects for building foundation systems are addressed by the preliminary review and works proposal from Edge Geotechnical.

10. The proposal triggers a change in land use. The potential for site contamination is assessed with a formal Preliminary Site Investigation to determine health and environmental risks relevant to the former and proposed land use. Soil materials were investigated for their combustibility and heavy metal contaminant concentrations. Results of our preliminary investigation identify that the site has a suitable ground surface for the proposed development without remediation of the soil's physical and chemical attributes other than for practical or engineering purposes. Chemical concentrations were consistent with the risk classification of Residential A land use. However, further investigation will be conducted when the Edge Geotechnical works proposal is implemented. Our study also reveals that the coal rejects as a fill platform was shaped to conform with the State Mine Creek water course.
11. We understand that our facility is part of the bigger and wider opportunities being created through tourism. The initial versions of the project's Ecotourism Management Plan are provided. These plans will present the operational details and the details of the protection and maintenance of the wombat and wallaby populations currently identified with burrows along the natural soils of the creek. Therefore, they are linked to the Vegetation and Landscape Management Plans. Other management plans, such as the Environmental Management Plan (EMP), can be provided. However, we suggest completing the EMP one once approval conditions are verified.

Our objectives

1. Design a proposal that fits into the local character and context and includes residential, industrial, and environmental aspects.
2. The proposal should provide visitor accommodation and modernise facilities to boost tourism in Lithgow.
3. Design a sustainable facility where everyone feels welcome and can connect with others and nature. Retain and rehabilitate the site's natural environment and conserve habitat connectivity.
4. Utilise the unique site to provide visitor accommodation, present the ecological and environmental features, and incorporate adaptation measures to natural hazards (bushfires, floods) in the design and operation of the facility.
5. Develop a facility where visitors can enjoy and explore the site's ecological attributes and many other regional opportunities within the new Seven Valleys brand for the region.
6. Create a comfortable outdoor-active site to serve the new visitor market staying in the Lithgow Valley.
7. Utilise spatial data analysis for the purposes of concept design and quantitative modelling.

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1.0 Pre-development property assessment

1.1 Property

Lot No	Section No	DP No
152	-	DP 659519

Street No	Street Name
51	Atkinson Street

Township	Postcode
Lithgow	2790

The property 51 Atkinson Street July 2021

1.2 Styling

The proposal is to use premanufactured cabins and set up an accommodation site (Figure 1-2).

The vision for an outdoor cabin experience cabin as a Class 3a building

The vision for the style as an architectural objective

Planning controls held within the Planning Database are summarised below. The NSW Government (Department of Customer Service, 2023) also, the property may be affected by additional planning controls not outlined in their report.

Property Report Reference	Department of Customer Service, 2023
Local environmental plan (LEP)	Lithgow Local Environmental Plan 2014
Size of property	2.0056 ha
Zoning	C3 – Environmental Management
Minimum lot size	40 ha in C3
Building entitlement	Yes
Setbacks	20m from all front boundary, 15 m secondary road frontage and 10 m side boundaries are achieved
Heritage	As an adjacent property with common boundaries
Flood Planning	Yes
Local Provisions	Former LEP Boundaries
Planning Policies	Yes
Biodiversity Value (BV) Map	Yes
Bushfire Prone Land	Vegetation Buffer
Local Aboriginal Land Council	Bathurst
Mine Subsidence Development	Guideline 2
Mine Subsidence District	Lithgow
Regional Plan Boundary	Central West and Orana
Sydney Trains Corridor Protection Zone – Infrastructure SEPP	Clause 86 / Concurrence

1.3 Proposal

The development proposed in this submission is for:

- Proposed new dwelling (manager's residence), as located on site plans.
- Nine two-bedroom cabins.
- Eight one-bedroom units in three cabins
- A common room (bushfire safe refuge).
- A check-in building (constructed as for an accommodation cabin).
- Driveway (6 m min. width) from property gate to the house, with access to car parking at the cabins and with access for heavy vehicle turning as access for bushfire and the firefighting water supply tank.
- Three water tanks: 1 x 109,584-litre; 1 x 39,383 L; 1 x 27,396-litre steel (Heritage Tanks Australia, Malaga WA, colour Monument). The tanks are referred to as 110,000 L, 40,000 L and 30,000 L tanks for simplicity. Twelve 2,000 L tanks at the two-bedroom cabins. The total water holding capacity in the tanks is 200,363 L, as a maximum.
- Offsite wastewater treatment via the municipal sewerage services.
- Onsite stormwater treatment through a small reed bed, swales, and raingardens.

A project proposal concept plan – for DA is used to present the site (Figure 1-3b) succinctly.

The project proposal concept plan (see Figure 1-3b)

1.4 Planning and Permissibility

What is the zoning of the land?	C3 - Environmental Management
Which LEP applies to the land?	Lithgow LEP 2014
Which DCP applies to the land?	Lithgow DCP 2021

	Yes	No
Note: Aspects noted by the Local Environment Plan are provided below following the advice and guidance of the NSW Government (Department of Customer Service, 2023) and the objectives of the C3 Environmental Management development zone (Section 2.2.1).		
Is the property affected by a protected area or an environment constraint area?	X	
The summary of environmental planning controls lists flood planning, biodiversity values, bush fire prone land, mine subsidence and concurrence with Sydney Trains.		
The property (Lot 152), 51 Atkinson Street, is traversed by the flow of the State Mine Creek as a tributary of Farmers Creek and the Coxs River. Surface water constraints are on the west side of the allotment. Planning for bushfire risks is noted for the west, north and eastern boundaries.		
Is the proposal permissible within the zoning?	X	
Are there any restrictions on the Certificate of Title?		X
Is the development located on Bushfire Prone Land?	X	
Indicate vegetation category	Vegetation Buffer to Category 1 vegetation	

Indicate bush fire attack level (BAL).

BAL 12.5	BAL 19	BAL 29	BAL 40	BAL FZ
X				

Attach a bushfire threat assessment; detail the level of construction on the plans.

See KHS Ecology & Bushfire for the bushfire threat assessment; detail of the level of construction on the plans.

Restrictions

	Affected by	Details
Acid Sulfate Soils		-
Airport Noise		-
Drinking Water Catchment	✓	Sydney Drinking Water Catchment Sub Catchment Boundaries Upper Coxs River
Groundwater Vulnerability		-
Mineral and Resource Land		-
Obstacle Limitation Surface		-
Riparian Lands and Watercourses		Property is not mapped under the EPI Riparian Lands and Watercourses. However, State Mine Creek, a third-order stream (Strahler, 1952), runs through the western part of the property. It requires a 30 m wide vegetated riparian zone from the top of the bank (Department of Planning & Environment, 2022) The creek and the adjacent land are also mapped under the Biodiversity Values map as protected riparian lands. See Section 2.2.5 for more detail.
Salinity		-
Scenic Protection Land		-
Terrestrial Biodiversity Biodiversity Values		- Yes, for the State Mine Creek and adjacent land.
Wetlands		-
Bushfire Prone Land	✓	See above and Section 2.2.4 for more detail.
Flood Planning	✓	The southwestern corner is mapped under the EPI Flood Prone Land. The allotment is also mapped as Major Overland Flow Flood Planning areas on the Draft Lithgow Floodplain Risk Management Study and Plan, with the creek and the adjacent areas

		being mapped as Farmers Creek Mainstream Flooding areas. See Section 2.2.3 for more detail.
Landslide Risk Land		-

1.4.1 Site coverage

What is the site coverage?

For definitions on site cover refer to the development standards in the relevant LEP or DCP

	Existing	Proposed
Building site coverage (% or m^2)	zero	5.8 %
Development area (m^2)	zero	6,989 sqm

1.4.2 Table of areas

Driveway	1,725 sqm
Hardstand areas: car spaces, bus parking, carwash, and bins	609 sqm
Buildings: manager's residence (including patio and garage)	260 sqm
Buildings Two Bedroom (including decks)	504 sqm
Buildings One Bedroom	131 sqm
Community building / bushfire refuge incl. outdoor space	179 sqm
Check-in office	37 sqm
Water tanks (excl. small tanks at cabins)	156 sqm
Existing concrete spillways	195 sqm
Other impervious surfaces	77 sqm
TOTAL IMPERVIOUS SURFACES	**3873 sqm / 20 %**
Landscaping	2620 sqm
Construction zone total	**6,989 sqm**
TOTAL PERVIOUS SURFACES	**16,032 sqm / 80 %**
	20,175
NorBe Calculatable Agricultural to Urban (see section 2.4 below)	> 2,500 sqm

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1.5 Checklist & Summary

Consulting & Environmental Services supply several site analysis plans to support the application.

	Yes	No
Does the site have undisturbed areas of native vegetation or is it adjacent to the areas of bushland? The site contains individual native trees of which three are required to be cleared. No continuous area of native vegetation are required to be cleared. See Vegetation Management Plan.	X	
Does the site contain rocky outcrops, rock ledges or other significant natural features?		X
Is the area to be cleared within 40 metres of a watercourse (permanent or intermittent)? There is no clearing of native vegetation required within the 40 meters of the watercourse.		X
Is the property located within the Water Supply Catchment Area? See Water Cycle Study.	X	
Are there any noxious weeds on the site? See Vegetation Management Plan.	X	
Is the site classified as potentially contaminated or is it currently or has been previously used for a purpose that may have resulted in it being contaminated? See Preliminary Site Investigation.	X	
Does the proposal involve any demolition works?		X
Is there any asbestos on the site/building?		X
Is there any disturbance to any area containing lead paint?		X
Is the area of land disturbed greater than $50m^2$? See Soil and Water Management Plan.	X	

	Yes	No
Is the site listed on a heritage register, adjoins a heritage item, or located within a heritage conservation area? The site is not listed as a heritage item, nor is the site within a heritage conservation area. However, the adjacent property to the north/north-east is a heritage item. An Archaeological and Heritage Due Diligence Report is attached.	X	
Is the site located within a Protected Area – Period Housing?		X
Is the site accessed via an unformed land?		X
Is the development within 60 metres of a railway corridor? This is covered with the Archaeological and Heritage Due Diligence Report.	X	
Is the development within the specified Buffer Zone?		X
Is the development located on a main transport corridor?		X
Is the site classified as being 'subject to inundation'? See Flood Impact Assessment Report.	X	
Is the site subject to overland flow or surcharge from the street or a drainage easement? No drainage easement is applicable to the site. The site is subject to overland flow as identified in Section 2.2.3.	X	

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1.6 Associated Reports

The following documents support the development proposal:

Bush Fire Assessment Report

JOB REFERENCE:

DATE: 11 November 2023

PREPARED BY: KHS Ecology & Bushfire; Dr Kate Hammill PhD, BSc, Grad Dip Bushfire Protection

REFERENCE: KHS Ecology & Bushfire, 2023a.

Vegetation Management Plan

DATE: 18 August 2023

PREPARED BY: KHS Ecology & Bushfire; Dr Kate Hammill PhD, BSc, Director and Principal Ecologist, NSW BAM Assessor (BAAS18022) | NSW Level 2 BPAD Practitioner (BPAD 29655)

REFERENCE: KHS Ecology & Bushfire, 2023b.

Preliminary Site Investigation

DATE: 14 July 2023, signed 28-Jun-2924

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP

REFERENCE: Aiken, 2024a (Aiken, 2024a)

Ecotourism Management Report

DATE: 27-Jun-2024

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP, Ms Malin Hoeppner, MSc Environmental Science

REFERENCE: (Aiken and Hoeppner, 2024a)

Water Cycle Management Study

DATE: 27 June 2024

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP

REFERENCE: (Aiken and Hoeppner, 2024b)

Bushfire Emergency and Evacuation Management Plan

DATE: 26 June 2024

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP, Ms Malin Hoeppner, MSc Environmental Science

REFERENCE: Hoeppner, 2024

Flood Impact Assessment Report

DATE: 27 June 2024

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP, Ms Malin Hoeppner, MSc Environmental Science

REFERENCE: Flood (Consulting & Environmental Services, 2024a)

Archaeological and Heritage Due Diligence Report

DATE: 18 June 2024

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP, Ms Malin Hoeppner, MSc Environmental Science

REFERENCE: (Hoeppner and Aiken, 2024)

Soil and Water Management Plan

DATE: 27 June 2024

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP, Ms Malin Hoeppner, MSc Environmental Science

REFERENCE: (Consulting & Environmental Services, 2024b)

Traffic Assessment Report

DATE: 25-Jun-2024

PREPARED BY: Consulting & Environmental Services; Dr Jane T Aiken, CPSS, CEnvP, Ms Malin Hoeppner, MSc Environmental Science

REFERENCE: Traffic (Aiken, 2024b)

2.0 Site Requirements - Chapter 2 of DCP 2021

2.1 Introduction to Site Requirements

All proposals are assessed against the Lithgow Development Control Plan 2021.

For this project, the development controls are applied by Chapter 2 and Chapter 6.

Compliance with Chapter 2 is about Site Requirements.

Compliance with Chapter 6 is for general controls for residential development, including ancillary development such as garages, carports, outbuildings, sheds, tanks & pools.

Other compliances are the Ecotourist Facility, which is a permitted land use, with consent, when a property has a C3 zone land use.

2.2 Site Analysis, Local Character & Context

This section addresses aspects of a site analysed against the proposal, such that the proposal meets the suitability requirements. This informs landowners of legislative requirements, hazards and land capabilities and is necessary for an optimal site design.

Our evidence of these considerations is described in Figures 1-3 to 1-8 of this document. They are summarised as follows. The following sections describe the remaining aspects of the site analysis.

2.2.1 Land zoning

Lot 152 is zoned as C3 – Environmental Management (Figure 1-3).

The objectives of the zone are:

- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- To provide for a limited range of development that does not have an adverse effect on those values.
- To facilitate the management of environmentally sensitive lands and riparian areas.
- To protect and conserve the vegetation and escarpment landscape surrounding Lithgow.
- To maintain or improve the water quality of receiving water catchments.

Eco-tourist facilities are permitted with consent. The eco-tourism management plan (Consulting & Environmental Services, 2023b) and the vegetation management plan (KHS Ecology & Bushfire, 2023b) attached to this development application outline in detail how the proposed eco-tourism development meets the zone's objectives. For this property, the proposal is to utilise a 35% site area, leaving the remaining 65% an environmentally managed site that includes bushfire planning principles.

2.2.2 Adjoining properties

Lot 152 (51 Atkinson Street) is surrounded by seven residential allotments along the western boundary and the C3 land comprising the State Coal Mine to the north and the east. Table 1-2 lists these properties as shown in Figure 1-3.

This proposal maximises distances to adjoining allotments. The manager's residence, which is the building closest to any residential adjoining properties, is set back 30m from the southern boundary, which is one third more than required under Clause 6.3.1 of the DCP (Figure 1-3b).

2.2.3 Flood planning

The Flood Impact Assessment Report attached to this application reviewed existing flood datasets and mapping.

The property's western boundary is State Mine Creek, a north-to-south flowing tributary to Farmers Creek. The property is mapped under the environmental planning instrument (EPI) flood-prone land. Also, the western and southern boundaries of the lot are identified as Farmers Creek Mainstream Flooding areas, and the remainder are mapped as Major Overland Flow Flood Planning areas on the Draft Lithgow Floodplain Risk Management Study and Plan (Lithgow City Council, 2022).

Figure 1-4a identifies that there are areas of Constraint Category 1 along the creek up to the top of the bank as well as over the concrete drain in the north-eastern property corner and along the southern boundary. These areas coincide with the drainage lines, mapped using a 1m ground accuracy digital elevation model (DEM). To determine the impacts of State Mine Creek, we used a series of transects taken from west to east through the creek bed to determine the top of the bank on the western side. Five of these transects are provided in Figure 1-4c. Then, the contours from the DEM were compared with the detailed survey (CEH Survey) (Fig. 1-4b) to verify their accuracy.

The rest of the property, and notably, the entire area of the proposed development, is mapped as a Category 2 planning constraint (Fig. 1-4a). A Flood Planning Constraints Category 2 is described as: "The areas which lie below the Flood Planning Level where the existing flood risk warrants careful consideration and the application of significant flood-related controls on future development".

In February 2024, Consulting and Environmental Services consulted with Lithgow City Council and were supplied with the latest 1% AEP (100 years) flood mapping for 51 Atkinson Street, which is currently not publicly available (Fig. 1-4d). This figure shows flood levels for a 1% Average Exceedance Probability (AEP). It identifies that any main stream flooding of the State Mine Creek will be limited to the top of bank which was identified by the modelling by Consulting & Environmental Services. This notably also confirms our modelling. The figure shows two areas on Lot 152 outside the bank that are flood prone in a 1% AEP. Data for flood depth and flood velocity were supplied by the Lithgow City Council.

Area 1 is the central area along the modelled drainage line, which flows south to north along a manmade depression, resulting from the remodelling of the land after the closure of the State Mine

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to which Lot 152 belonged (Cessoils, 2024). Area 2 is the part of land along the southern boundary and follows the drainage line from east to west into the southwestern concrete drain.

The highest flood hazard has been reported in Area 2. The flood hazard has been modelled as category H1 or a low flood hazard. Thus, the hazard in this area is considered "generally safe for vehicles, people and buildings".

Flood risk is avoided by siting the proposed ecotourism facility out of flood prone areas where possible. All buildings were designed to be outside the highest flood hazard area along the southern boundary. Where buildings are on flood prone land, minimisation and mitigation strategies are to be implemented, such as having a finished floor level well above the flood planning level and constructing the southern portion of the access driveway to be safe in flood conditions and prevent it from being undermined by low flow from the higher areas east of the allotment. Integrated stormwater management and landscaping is required in Area 2.

We, therefore, illustrate that the flood risk to the development has been considered and incorporated into a flood-responsive design when earthworks have been completed to the design finished levels shown in Figure 2-3. For more detail, please refer to the Flood Impact Assessment Report (Consulting & Environmental Services, 2024a).

2.2.4 Bushfire risk assessment

The property at 51 Atkinson Street is partially mapped as bushfire-prone land. The eastern boundary as well as part of the north-western boundary are identified as a Vegetation Buffer to Category 1 vegetation. Vegetation Category 1 is the highest bushfire risk and is surrounded by a 100m buffer. It includes forests, woodlands, heath, and wetlands greater than 1 hectare in size. The Category 1 vegetation is on the slopes on the eastern of Lot 152. The development on Lot 152 is downslope of the hazard vegetation.

Dr Kate Hammill of KHS Ecology & Bushfire Pty Ltd in conjunction with a Method 2 bushfire analysis completed by Katherine Harris of Harris Environmental have prepared a bushfire assessment report (Hammill, 2023a). The bushfire site analysis can also be found as Figure 1-5. It details the hazard vegetation as well as minimum distances for the <10 kW/m2 envelope suitable for the bushfire refuge and the <29 kW/m2 envelope suitable for residential development.

This mapping has been used to site the bushfire refuge building which is the common room at the centre of the development. The emergency management and evacuation site plan (Figure 3-3a) furthermore visualises that the community building as well as the F-units and the manager's residence are fully contained within the 10kW/m2 envelope. Walking distances from the cabins to the bushfire refuge are less than 100 m. Figure 3-3a identifies the fastest walking routes from each cabin to the refuge as well as the emergency assembly point which is on the lawn area in front of the refuge building.

A Bushfire Emergency Management and Evacuation Plan (Hoeppner, 2023) provides detailed information about the management of potential bushfire threat as identified by the bushfire assessment (Hammill, 2023a).

The proposed bushfire attack level of the manager's residence is BAL-12.5 as the building is fully contained within the <10kW/m2 envelope (Fig. 1-5). The bushfire refuge will be built to BAL-12.5 construction level to conform with Planning for Bushfire regulations (NSW Rural Fire Services, 2019). Despite the rest of the cabins not needing to be built to any BAL, it is proposed that all cabins will be constructed to a BAL-12.5 for additional safety.

2.2.5 Biodiversity values

51 Atkinson Street contains aquatic, riparian, and terrestrial biodiversity attributes. The property is located on the valley floor of State Mine Gully with surrounding slopes rising to the elevated sandstone plateau north of Lithgow.

The site is adjacent to the State Mine Creek, which flows in a north-to-south direction to Farmers Creek, which in turn traverses Lithgow from east to west. The creek is a third order tributary according to the Strahler System. The land has a disturbance history related to the State Mine and railway; however, the site retains native forest trees and habitat values along the State Mine Gully Creek corridor and is surrounded by the forested slopes and escarpment landscape of the Newnes Plateau (Hammill, 2023b).

The creek and the riparian zone to either side of the creek (20-30 m to the east from the creek centreline) have been identified as protected riparian land on the biodiversity values map. A BioNet species sightings search has revealed no threatened species recordings in proximity of Lot 152.

Under the Guidelines for riparian corridors on waterfront land (DPE, 2022), waterfront land is defined as the bed and bank of a river and all land within 40 metres of the highest bank of the river. The development on Lot 152 is within 40 m of the top of bank and therefore is defined as waterfront land. A third order stream requires a vegetated riparian zone of 30 metres on each side of the watercourse plus the channel width (DPE, 2022). In other words, on Lot 152, the creek channel plus 30 metres from the top of the bank to the east are part of the vegetated riparian zone (VRZ). We identified the top of the bank and the edge of the VRZ using a 1 m ground accuracy digital elevation model (DEM) and five transects across the creek (Fig. 1-4b; Fig. 1-4c). The riparian corridor is the transition zone between the aquatic environment (the creek) and the terrestrial environment. The development is sited fully outside the recommended VRZ.

The VRZ contains existing wombat habitat with five wombat burrows identified on the site plans (Fig. 1-6a). The other half of the Lot is covered by open perennial grassland which is being used by the native wildlife such as kangaroos and wallabies for grazing as well as a range of native birds.

The following is an extract from the Vegetation Management Plan (Hammill, 2023b).

Prior land use and disturbance is evident in the extensive areas of coal spoil fill which covers the majority of the site, and to within approximately 10-20 metres of the creek. The presence of coal spoil fill has limited the extent of native vegetation to small patches of remnant native groundcover and stands of forest eucalypts along the immediate creek banks only. The Eucalyptus and Acacia species that are present in the riparian corridor are representative of the original native vegetation of the sheltered

valleys of the Lithgow area. The remainder of the site is dominated by non-native vegetation with grassland areas and herbaceous weeds.

Figure 1-6b shows the State Vegetation Type Mapping for the site. It shows that the entire area around Lot 152 is mapped as plant community type (PCT) 0 which is equivalent to non-native vegetation or cleared land. The closest native vegetation on the surrounding slopes is dominated by PCT3687: Newnes Plateau Peppermint-Ash Tall Forest. This map visualises that no contiguous area of native vegetation is to be cleared for the proposed development with only three individual trees and two shrubs being required to be cleared.

The development proposal aims to manage and restore remnant native forest habitat as a wildlife corridor along the creek and alongside other areas of the site to be managed as open grassland suitable for recreation and bushfire protection as outlined in the Vegetation Management Plan. The VMP proposes three management zone: i) Construction and Landscaping Zone, ii) Asset Protection Zone (APZ), iii) Native Vegetation Restoration Zone and details management principles, management actions and a timeline for each zone. The weed management and rehabilitation activities of the disturbed terrestrial land in the asset protection zone and the riparian land offer an opportunity to enhance the ecological integrity of the site.

2.2.6 Heritage

The property at 52 Atkinson Street adjoins the heritage listed State Mine Heritage Park, classified as an archaeological item (Figure 1-10a). Along the eastern boundary run the old railway tracks at a minimum of 20 m from the boundary. No other heritage items are nearby, nor is the site within a conservation area (Rufus, 2023). The State Mine Heritage Park is located north/east of the site on Lot 10 and 11 in DP 1240259. The entire two allotments are mapped as one archaeological item (Item No A127).

Lot 10 is the allotment containing the railway tracks adjacent to Lot 152. Lot 10 is owned by the Lithgow State Mine Railway Limited and is adjacent to property owned by the Transport Asset Holding Entity (TAHE), acting on behalf of Sydney Trains. Lot 11 contains the State Mine Heritage Park and is north of Lot 152.

The following is an extract from the Ecotourism Facility Management Plan (Aiken and Hoeppner, 2024a).

The State Mine Heritage Park is a multiple award-winning museum of mining and industry operated by The City of Greater Lithgow Mining Museum Inc. It holds heritage value for the railway, coal mining, power generation, and community. The State Mine of Lithgow was acquired by the NSW government and commenced production in 1922.

"After the extension of the Great Western Railway from Mount Victoria (Blue Mountains) to Lithgow in 1869, a small settlement was built in the now-called Lithgow Valley. After passing the NSW State Coal Mines Act in 1912, the land of the Lithgow state coal mine was acquired by the Government in 1919 and then coal production commenced in 1922. At the end of the 1920s, the Lithgow Coal Mine was the largest employer in the NSW coal industry and the third biggest employer in NSW overall. In 1964, the mine

was closed after severe floodings of the workings (Pratten. C and Irving. R, 1994) By 1974, the State Coal Mine land(s) were sold for the purpose of creating the State Mine Heritage Park & Railway and Museum".

A Heritage Due Diligence Assessment (Hoeppner and Aiken, 2024) is attached to the application. Within the scope of the report the archaeological heritage items in proximity of Lot 152 were assessed. Additionally, it was determined whether Aboriginal objects are, or likely to be, present, and whether the proposed development at Lot 152 is likely to harm any heritage objects. It furthermore suggests approaches how the proposed development can benefit the surrounding heritage items.

Our proposal is likely to have minimal heritage impact on the State Mine or any other heritage elements.

The most northern proposed cabins (A-cabins) are approximately 250 metres from the closest State Mine buildings. The buildings are outside the 15m side boundary setback and also a minimum of 50 m from the railway tracks. There is no other rail infrastructure in proximity to the site than the tracks. The tracks were determined to have been retrofitted in the early 1990s and thus do not contain significant heritage values.

There is a potential of the train being reinstated as a tourist attraction. However, the cabins are below the ridgeline as visualised in Fig. 3-4. Therefore, people on the train would be looking over the top of the cabins, and the cabins are sited with views away from the railway and to the west. A standard stockproof fence approved by CityRail (now Sydney Trains and NSW TrainLink) has been proposed as fencing along the eastern side boundary (Fig. 1-10b). This fence fits into the heritage character of the adjacent heritage item and additionally secures the site to the railway.

The proposed buildings' colour scheme is muted, combining the facility's range of Colorbond® Monument, Shale Grey, and Dune. These will present a clean, modern look with various colour absorptance values. Table 3-1 presents the colour and finishes schedule. The buildings have an industrial prefabricated shed style, which fits in with the buildings of the State Mine Heritage Park.

2.2.7 Mine Subsidence Risk

The site is identified as Guideline 2: Possible subsidence risk from non-active mine workings. Guideline 2 applies to any properties that coal mine workings have undermined in the past or those assessed by SA NSW as having the potential to be impacted by subsidence due to historical coal mine workings.

For any development on Guideline 2 land, an application for approval must be lodged following Section 22 of the Coal Mine Subsidence Compensation Act 2017.

Edge Geotechnical performed a preliminary geotechnical desktop study (Edge Geotechnical Pty Ltd, 2022), and a quote for a detailed geotechnical investigation is proposed to occur after development consent has been given.

Given the fill depth and material characteristics as the combination of low-grade coal and weathered shale (chitter), the project will seek further geotechnical engineering advice to confirm all the building foundation requirements. That proposal is an investigation to identify subsurface

conditions using geophysical and deep test pits to confirm the foundation requirements for the manufactured / prefabricated cabins and the proposed residence (Edge Geotechnical Pty Ltd, 2022).

2.2.8 Soils

The natural soils of the development area are variously disturbed and represent the Lithgow Soil Landscape (King, 1993). The Lithgow soils are generally on valley floors with rare rock outcrops, with moderately deep soils comprising sandy topsoil and sandy clayey residual soils derived from the parent rock. Foundation hazard is moderate, but soils may have moderate shrink swell potential, and mine subsidence may be present (Edge Geotechnical Pty Ltd, 2022). Topsoils are fine sandy clay loam containing coarse fragments. Subsoils are moderately to weakly pedal.

Mine subsidence is noted for this property (see above).

Soil types:

The Lithgow *li* soils are in the development area in C3 zone and remain evident within the creek.

Qualities and Limitations—hard setting topsoils, high run-on, localised mine subsidence district, localised rock fall hazard, localised high potential aluminium toxicity.

Fertility: Fertility of soil materials is low to very low. All soil materials have low Cation exchange capacity (CEC), are acid with very low phosphorus and exchangeable calcium. Exchangeable potassium is variable ranging from high in li2 to low in li3 and li4. Soil materials li1, li3 and li4 have very high potential aluminium toxicity and are occasionally sodic in poorly drained areas. Expected pH buffering capacity ranges from moderate to very low. Plant available water-holding capacities are low to moderate. Hard setting topsoils may restrict deep root penetration.

Foundation Hazard: Foundation hazard is generally low. li4 has localised moderate shrink-swell potential and therefore moderate foundation hazard. Depth to subsoil <35 cm. Total soil depth is mostly <120 cm.

Soil Conservation Earthworks: Low to moderate limitations for structural earthworks. Topsoils li1, li2 and li3 are often low in clay and may not hold water. li3 is generally highly dispersible. Soils tested have earthworks categories I for li1, A for li2, J/B for li3 and A for li4.

2.2.9 Existing topography

The site has a history of use as laydown area for mine waste and coal chitter from the nearby underground mine workings and uncontrolled fill is present across the site (Edge Geotechnical Pty Ltd, 2022). The preliminary site investigation revealed that the coal rejects as a fill platform of about 8 m depth is shaped to conform with the natural watercourse of the State Mine Creek.

Figure 1-7 shows the contour and detail survey provided by CEH Survey(CEH Survey Pty Ltd, 2024). Since the closure of the State Mine in 1970, the site remained as a storage area by the State Gully Mine for coal chitter and spoil, resulting in a fill platform left with a finished surface graded for long-term drainage into the State Mine Creek. The land slopes gently to the west with an average grade of

~10% from the eastern boundary to the creek centreline. The grade across the proposed development area is 6-8%. The property's highest point is in the eastern boundary's centre (RL 942), and the lowest elevation is at the creek (RL 931.5). Several banks have been identified in the survey. Two berms levelled to RL 940 m AHD created existing drainage paths. The fill platform was shaped to conform with the natural watercourse of the State Mine Creek (Consulting & Environmental Services, 2023a).

The proposed development is situated along the 15 m setback at the eastern boundary, above the 936 m contour, and at the top of the creek bank in the centre of the Lot. Most of the proposed buildings are sited on the top of the ridge (~RL 940), while parts of the driveway and carparks closer to the eastern boundary are on a higher elevation and require cuts (Fig. 2-1).

Figures 1-4b map other pre-development landforms and drainage features. This figure also shows the location of the transects (Fig. 1-4c) used to determine the top of the bank and the edge of the 30m wide vegetated riparian zone (VRZ).

2.2.10 Siting and Setbacks

According to Section 6.3 of the Lithgow DCP 2021, the development setback from the public road frontage is 20 m, and the secondary road frontage setback is 15 m. We have assumed that the southern boundary to Atkinson Street is the primary setback and the eastern boundary to State Mine Gully Road presents a secondary frontage. Side and rear boundaries, i.e., the northern and western boundaries, must meet the minimum setback of 10 m. This is with the assumption that the property would be assessed as one with an area of equal to 2 ha.

All building positions of this proposal are within the above criteria (see Fig. 1-8).

However, one 110,000 L water tank is sited within the 15 m setback to be accessible for emergency vehicles.

2.2.11 Ground and Surface Water Protection

There are no registered groundwater sites within 500 metres of the property (Water NSW, 2020). The closest sites are GW067395 and GW067396 which are just north of the Late Pillans Wetlands and both just over 1 km away from the property.

https://realtimedata.waternsw.com.au.

2.2.12 Local character and context

The proposal is for an ecotourism facility. The entire development has been designed and sited to be a part of the existing landscape rather than taking over the natural environment and altering it to what a developer wants it to be. The footprint of the development covers just over one-third of the property, leaving 65% of the land for vegetation retention and rehabilitation. Considering that the

property is a small block of land for ecotourism development, it was designed to be compact and with a mass and scale that is suitable for the available land surface. The cabins were sited to overlook the creek and riparian habitats, and the land surface is proposed only to require minimal earthworks to have the lowest possible impact on downslope habitats and to be responsive to the surrounding environment.

The property is situated between residential development in Mort's Estate and the industrial heritage of the State Mine Heritage Park, and the escarpment of the Newnes Plateau. Therefore, the first objective of designing the ecotourism facility was to ensure it could showcase all three aspects of the local character: residential, industrial, and environmental.

The proposed development contains a residential dwelling situated closest to the southern boundary and the established residential area of Mort's Estate. The residence is setback ~31 m from the front boundary to ensure sufficient space for screening plantings and distance to the closest neighbours. The view from Atkinson Street will be only partially on the manager's residence, water tanks and the check-in office (Fig. 3-4), therefore presenting a very residential character. The residence follows a simple shed-like style with large windows which adds a contemporary element to the area. It has a rather small footprint which is responsive to the surrounding context. The orientation is to the north and west overlooking the creek and riparian areas, away from the adjacent residential zone.

The style of all proposed buildings, including the cabins, the check-in, the community building, and the manager's cottage, is quite industrial as all buildings come as simple prefabricated shed-like structures that blend in with the buildings of the heritage items of the State Mine Heritage Park.

The colour scheme is monochrome, with the dominant design combination being the Colorbond® colours 'Monument matt', 'Dune', and 'Shale grey'. Therefore, the construction, style, and colour arrangements are sympathetic to a local industrial context.

2.2.13 Land use history

The following section is from the Preliminary Site Investigation (Consulting & Environmental Services, 2023a). The land use of Lot 152 prior to 1912 was for a Chinese Garden, then the site was operated for the purposes of dumping coal rejects either from rail cars or by truck. The chitter dump was closed, and the landform made good with all stormwater and drainage structures retained, presumed as an approved mine closure activity. The site remained unchanged from 1987 to 2020. In 2020 a final drainage landform was created for the purposes of land sale in 2021.

Current use has coincided with significant tourism opportunities for development across the Seven Valleys of the Lithgow region. The proposed will utilise the location and history of the State Mine Gully.

Local history books have noted that in 1912 the then Labour Government secured land for a state coal mine, with site clearing occurring in 1916 and the first winning of coal in1921 (McKillop, 2006). Originally the mine was operated by the NSW Rail Commission to supply coal for their needs and was known as the Railway Coal Mine and Power House Lithgow.

This mine also provided the G & C Hoskins Ltd the opportunity to secure coal-bearing land for its steelwork's colliery (Table 1-3). With the Lithgow Power Station nearby opening in 1928, the Railway Mine supplied coal to it and power stations in Sydney.

In 1932, the Stevens Government announced the closure of the state mine, which closed under the management of NSW railway, and the passed to the State Coal Mines Control Board to reopen in the same year and continued through to 1964. Hence the name State Mine Gully.

In June of 1964, a flash flood in Farmers Creek broke into the Genders Colliery which then flooded the abandoned Steelworks Colliery and the State Coal Mine. Efforts were made to save the State Coal Mine but were abandoned in Oct 1964.

An email to the Family History District Lithgow directed us to correspondence with Ray Christison at the State Mine Museum. It has been determined that the gully south of the state mine, including Lot 152, was used as a dump for spoil recovered from the mine's screens and picking belts. The source of the coal spoil fill was from the State Gully Mine and the Steelworks Colliery. It was dumped at this location starting before 1953 and finishing around 1964 when the mine was abandoned in 1964 after being flooded by the flash flooding of Farmers creek as noted by the Lithgow Mercury and republished in the story by Jeff Geddes for the Gully Gazette (The City of Greater Lithgow Mining Museum Inc (CGLMM), 2003)

There were also periods in the early 1960s when raw coal was dumped in this area. It is also believed that the steelworks colliery, which operated on the western side of the gully, also dumped spoil along the creek line. Before this, the property was used as a paddock or a market garden in 1923 as evidenced in Figure 1-9a.

We have historical photographs (Figure 1-9b). The image of 1951 shows the encroachment of spoils heaps on site.

In the 1970's the Lithgow Power Station was demolished and in 1974 the old mine site was purchased by Austen and Butta (Collieries) Pty Ltd with the view of establishing a cement works. Though never developed for purpose. In 1987 the Lithgow Mercury reported the potential for establishing a mining museum. By 1990, Austen and Butta handed over the state gully mine to the city of Lithgow for $1 to be developed as a mining museum. In 1994 a State Mine Lithgow State Coal Mine Conservation Plan was published.

Remnant features left on site as part of the State Mine closure were land formed to include a concrete spillway and culverts for stormwater.

Figure 1-9c shows a photo from a recent excavation of this fill.

The property of Lot 152 appears to have been unused by the State Mine by early 1970's. Based on our historical review; the site was vacant after 1970.

The current owner purchased in 2021. The owner proposes to create a site suitable for sharing with outdoor enthusiasts for an enjoyable stay in the secluded environment of the State Mine Gully.

Activities that change the land use include building of a private residence and manufactured cabins for visitors short and long terms stays.

2.2.14 Assessment of Site Contamination

The assessment of site contamination as a preliminary site investigation has identified that the coal chitter fill material is a material that has attributes which will meet the Residential A classification for land use (Consulting & Environmental Services, 2023b). The basis of this conclusion is analytical testing for heavy metals, non-metals (sulfur), and total recoverable hydrocarbons.

2.2.15 Water Cycle Management Study

A water cycle management study has addressed the proposal (Consulting & Environmental Services, 2023d), including a case study to present the results of the stormwater modelling (WaterNSW, 2019).

2.3 Slope Response, Earthworks & Retaining Walls

The site has been designed to require the least amount of earthworks possible. The aim was to conform with the existing topography and to install lightweight prefabricated cabins with methods of minimum site disturbance.

Nonetheless, some excavation cut and fill are necessary to ensure that the cabins do not get inundated during potential flood events and to manage stormwater runoff in order to prevent any adverse impacts on the riparian and aquatic environments downslope.

The preliminary geotechnical advice (Edge Geotechnical, 2022) proposes a Stage 2 subsurface investigation with the aim of providing geotechnical design advice for shallow footings on the site. We are asking Council to allow this investigation to be carried out as a condition of approval after the development consent. The proposed earthworks plan (Fig. 2-1 – 2-3) has been prepared with the assumption that shallow footings will be possible.

A Soil and Water Management Report has been prepared and attached to this application to explain the earthworks design in detail (Consulting & Environmental Services, 2024b).

2.3.1 Earthworks

The earthworks required for the development were designed in a three-step process which are detailed in the earthworks site plans Figures 2-1 to 2-3. Documentation of the design process is provided within the Soil and Water Management Plan (Consulting & Environmental Services, 2024b).

Firstly, we mapped the pre-development levels using a 1 m ground accuracy digital elevation model (DEM) from Spatial Services. The levels were verified with the surveyed contours. The change in soil depth is depicted in Figure 2-1 to show these levels as a range of colours in 0.25 m intervals from dark blue (lowest elevations) to dark red (highest elevations).

It was determined that most of the cabins are on or close to the 940 m contours. Therefore, on the site plan, white shows the areas of RL 940 ± 0.1 m, and the light-green and light-yellow areas are

those just below or above RL 940. Visualising the levels aided us in designing the finished ground levels.

Secondly, we proposed designing finished levels for the construction zone using the existing land formation and the finished grades to manage stormwater runoff effectively (Fig. 2-2).

In the third step, we used the DEM with the pre-development levels and the design finished levels to calculate the difference between them, which approximated the depth of cut and fill required to achieve the finished ground levels (Fig. 2-3). The Earthworks – Proposed Extent and Volumes of Cut and Fill shows the areas of fill as light- to dark-green and the areas of fill as light-yellow to brown. The table on the plan estimates the volumes of cut and fill required in each area (same areas as in Fig. 2-2). The volumes were calculated in QGIS using the Raster Volume function of the SAGA toolbox with the design finished levels as the baseline for each zone. Please note that the volumes are an estimation only and that the remaining material from the cut along the eastern part of the construction zone will be used to form batters to the natural ground with slopes of less than 1:5 (vertical to horizontal) or 20%.

The site preparation will require the importation of soils such as topsoil and road base. It is proposed to cover the soil after cut and fill work is completed with 100 mm of topsoil for landscaping and impetrated gravel or road base for paths and driveways. Driveways and hardstand areas are to be sealed according to the Council's engineering guidelines.

All batters will be stabilised with managed lawn as detailed in Fig. 3-2.

Disturbance to natural drainage patterns is minimised by utilising the existing stormwater spillways to manage environmental inflows in the State Mine Creek.

A 260 m long sediment fence is to be installed west and downslope of the proposed construction zone before the commencement of any earthworks as shown on several site plans such as Fig. 2-2 or 3-2.

Earthworks, erosion and sediment control are discussed in Detail in the Soil and Water Management Report (Consulting & Environmental Services, 2024b).

2.3.2 Retaining Walls

A number of retaining walls are required to minimise the area of earthworks by reducing batters. The locations of the retaining walls are identified in Fig. 2-2. The split-level retaining wall behind the carparks P28-31 is approximately 1.5 m high and will be constructed out of timber sleepers with each level 0.75 m to achieve the appropriate step down. The surfaces between the split retaining walls will be used for community gardens (design image).

The split-level retaining wall behind the driveway turning circle adjacent to the manager's residence is between 1-1.5 m high depending on the amount of fill that will be used in this area to use the material that needs to be cut along the eastern boundary. The retaining wall behind the raingarden at the northern turning area is about the same height.

We propose split-level retaining wall like the one below to reduce the bulky character of high retaining wall as well as to utilise the space between the split levels for gardens.

For the retaining walls behind the carparks P23-P26 and the wall along the edge of the southern turning circle, raingardens will be incorporated into the split retaining wall design.

Conceptual split-level retaining wall example (richmondsandgravelandlandscaping.com.au).

2.3.3 LLEP 2014 Clause 7.1

(1) The objective of this clause is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.

(2) Development consent is required for earthworks unless—

(a) the earthworks are exempt development under this Plan or another applicable environmental planning instrument, or

(b) the earthworks are ancillary to development that is permitted without consent under this Plan or to development for which development consent has been given.

(3) In deciding whether to grant development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the following matters—

Control details	Response
(a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality of the development,	The proposed earthworks do not have detrimental effects on drainage patterns. The property naturally drains partially to the north and partially to the south-west. The existing drainage structures will be maintained and used to ensure that environmental inflows into State Mine Creek remain. The concrete drain in the south-western property corner will likely be required to be upgraded. The earthworks and the proposal will only guide the stormwater runoff from the proposed impervious surfaces into the existing spillways. The Water Cycle Study gives

Control details	Response
	more details (Consulting & Environmental Services, 2023c). The detailed geotechnical investigation will provide clear information on the soil stability. Generally, the foundation hazard of the Lithgow soil landscape is moderate.
(b) the effect of the development on the likely future use or redevelopment of the land,	The proposed earthworks will not alter the overall land formation of the property, therefore there are no adverse effects on future land use.
(c) the quality of the fill or the soil to be excavated, or both,	A preliminary site investigation was performed by Consulting & Environmental Services (Consulting & Environmental Services, 2023b). The chitter (fill) material was tested to identify and describe the health and environmental risk contaminants. Samples were retained and tested for combustibility and heavy metal contaminant concentrations for comparison to the chemical contamination criteria provided by NSW EPA Resource Recovery for Coal Washery Rejects and the trigger values for chemical concentrations listed by the National Environment Protection Measure (NEPM). Test interpretation is that the statistical results confirm that samples had heavy metal and combustibility below the regulatory trigger concentrations. Chemical concentrations are consistent with a risk classification of suitable as Residential A land use. The PSI confirmed that the testing does not indicate or preclude the use of this land for the purposes presented by this development proposal.
(d) the effect of the development on the existing and likely amenity of adjoining properties,	The impact of the proposed development on adjoining properties is expected to be low. From Atkinson Street, the proposal looks largely like a residential development as the cabins and other buildings are screened. From State Mine Gully Road, the development will appear like an industrial development, however, the ridgelines of the cabins will be on roughly the same level as the road itself and the views will remain onto the vegetated hill to the west of the development. The proposed

Control details	Response
	earthworks will not have any effect on the amenity of adjoining properties.
(e) the source of any fill material and the destination of any excavated material,	No material will leave the site, soil will only be moved across the site. Only topsoil and road base/ gravel will be imported to cover the finished ground levels.
(f) the likelihood of disturbing relics,	This likelihood is low. No relicts have been identified in vicinity to the site.
(g) the proximity to, and potential for adverse impacts on, any waterway, drinking water catchment or environmentally sensitive area,	The earthworks site is within 40 m of State Mine Creek. Effective stormwater management and erosion control is to be implemented before commencement of any earthworks to ensure that there will be no adverse impacts on the watercourse, the riparian vegetation or habitats.
(h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development,	See above. Stormwater and erosion controls will be implemented before the commencement of any works.
(i) the proximity to, and potential for adverse impacts on, any heritage item, archaeological site or heritage conservation area.	There will be no material leaving the site, therefore there will be no adverse impacts on the adjacent heritage site of the State Mine Heritage Park.

2.4 Stormwater Management

It was our aim to minimise disturbance to the existing drainage patterns of the site and utilise existing stormwater drainage structures. The facility was designed to minimise impervious surfaces in order to maximise infiltration. Plantings in the pervious areas of the construction zone as well as in the asset protection zone, as located within the Vegetation Management Plan (Hammill, 2023b), will increase infiltration rates and slow down and filter runoff that is not intercepted by the proposed stormwater interventions. Stormwater management is discussed in detail in the Water Cycle Management Study with the MUSIC model (Aiken and Hoeppner, 2024b) as well as touched on in the Soil and Water Management Report (Consulting & Environmental Services, 2024b).

2.4.1 Stormwater Aspects

With reference to the Water Cycle Management Study, rainwater on the site flows naturally to the north-east and to the south-west where existing concrete spillways manage the outflows from the site and the environmental inflows into State Mine Creek.

It is a proposal with a total site disturbance of 6,403 sqm within a 2.085 ha building allotment and keep without change all existing stormwater installations. Buildings in this proposal include constructing a new residence, access driveway, carparking, 12 cabins, a check-in office, and a common room. Roof water capture is to detain water on the property for the purposes of drinking water supply and landscaping,

The land grades to the west on a ~10 % slope and contains the third order stream State Mine Creek which flows into Farmers Creek. The property is within the Sydney Drinking Water Catchment. Modelling confirms Neutral or Beneficial Effect and all installations for stormwater are integrated to landscaping features.

The proportion of impervious surfaces of the total site area is 20 %, leaving 80 % of the site for natural site water infiltration. Therefore, a significant proportion of the property will remain unchanged.

During construction the controls for earthworks include the installation of erosion and sedimentation fencing to cover a 260 m perimeter of the construction area

Rainwater tanks

Stormwater management is proposed to include three large rainwater tanks (1 x 109,584-litre; 1 x 39,383 L; 1 x 27,396-litre steel (Heritage Tanks Australia, Malaga WA, colour Monument) for stormwater retention as well as twelve 2,000 L slimline tanks for the 2-bedroom cabins where the runoff from the roofs is retained and used for toilet flushes in the community building.

Greywater recycling

Recycled water is generated by the capture and treatment of greywater from the manager's unit. Under maximum tenancy (four bedrooms) up to 780 L per day can be provided from greywater for reuse in the laundry and the toilets. Thus, a further 7.3 % in water volume can be recycled via greywater reuse.

Post-development catchments (MUSIC Model)

The MUSIC model results are presented as a standard case study in the Water Cycle Management report to explain the post-development site in six catchment areas. Figure 2-4b shows how the site was divided into the catchments and shows the stormwater interventions used in the MUSIC model. Figure 2-4a provides more detail on the stormwater interventions and post-development flow paths. Figure 2-4c provides details about the stormwater interventions and the installation of the sediment fence.

Catchment 1 contains the State Mine Creek and the riparian corridor. It is 100% pervious and will not be impacted by the proposed development. Stormwater runs to the west to the creek.

Catchment 2 covers the undisturbed area in the north-eastern corner of the allotment. It contains the existing concrete spillway. 86% of the catchment is pervious.

Catchment 3 describes the most northern part of the development containing the A- and B-units, five carparks, the northern turning area and a raingarden.

The overflow from the small tanks of the A-cabins goes into the raingarden which is behind the carparks P23-26. The runoff from the northern turning circle and the carparks also goes into the raingarden which acts as a bioretention system. The outflow from the raingarden is connected to the sump and exits into the spillway. The overflow from the tanks of the B-cabins goes directly into the sump.

Catchment 4 covers the centre of the development. It contains the C- and D-units, 22 car parks, the community garden on the stepped retaining wall, the large 110,000 L plus the five 2,000 L tank adjacent to the cabins. Just over half of the catchment contains impervious surfaces (52.9%).

The overflow from the small tanks of the C- and D-cabins will be pumped into the 110,000 L tank adjacent to the carwash on the eastern side of the property. The overflow from this tank goes into a stormwater drainage system that is within the services trench and runs north to the sump and into the northern spillway.

The runoff from the driveway and carparks goes into the narrow raingardens that run behind the carparks. The outflow from these raingardens is also into the sump and spillway.

Catchment 5 describes the southern part of the development, including the one-bedroom E-cabins, the community building, the check-in office, and the manager's residence. Additionally, it contains six car parks, the southern turning circle, and the 40,000 L tank. The catchment contains 59.3% of impervious surfaces and 40.7% of pervious areas which are dominated by landscaping and walkways.

The overflow from the small tanks of the E-cabins goes into the larger 40,000 L tank west of the manager's residence. The overflow from the tank goes into a reed bed and then into a stabilised swale and into the existing spillway in the south-western corner of the Lot.

The runoff from the southern turning circle between the manager's residence and the check-in building goes into a raingarden installed as part of the retaining wall on the western side of the turning circle.

Catchment 6 is the southern part of the allotment, closest to Atkinson Street. It contains the entry driveway, the bus parking, and the 30,000 L tank as impervious surfaces (12.1%). The remaining 87.9% are pervious. A large buffer strip area is proposed to treat the runoff from the driveway and the bus parking. It picks up the runoff from the upgraded part of Atkinson Street which is diverted through a culvert in the concrete entryway and discharges into the buffer strip. Scour protection is required at inlet and discharge side. The detail is shown in the Concept Road Design Detail (CEH Survey Pty Ltd, 2024).

Runoff from all vehicle driveways and the Atkinson Street cul-de-sac is directed to a grass buffer located on natural ground (not chitter fill) at the southern end of the property. This grassed buffer also picks up the runoff from the higher areas on the eastern side of the driveway. The runoff that is not infiltrated in the buffer strip gets discharged into the swale and further into the existing concrete spillway.

A collection tank of 30,000 L is fed by the car wash runoff. The car wash and the tank will be equipped with a sediment trap and the water will be used for all garden and vegetation plantings. The overflow from the tank goes into the reed bed and swales which are connected to the spillway in the south-western property corner and are part of Catchment 5.

2.4.2 Conclusions of the Water Cycle Study

Drinking Water Supply

Our proposal is consistent with the water reuse policy for stormwater as recommended by the State Environmental Planning Policy (Sustainable Buildings) 2022 (NSW Government, 2022). We confirm that rainfall capture will supplement the total drinking water requirement for the facility by 30 %. In this proposal, we have further reduced the municipal (drinking) water requirement by 15.8 % by recycling grey water for landscaping and toilets in the manager's residence.

The remaining municipal water requirement (5,352 L) per day can be further supplemented with rainwater when the two-bedroom cabins are installed and connected to the tanks.

Modelling for Stormwater

The water cycle study is submitted with MUSIC Version 5b as the working model for the stormwater treatments proposed in the original project design. The flow modelling indicates this proposal will reduce flow by 26% based on the proposal presented.

Wastewater

The total outflow from the facility to the sewer is 6,780 L/day at full capacity when all cabins are installed. A holding tank of 5,000 litres is specified for dose loading.

Landscape Amenity

The proposal has a disturbance impact of 6,403 sqm. The remaining 6,749 sqm will be managed as revegetated land for bushfire asset protection and 7,027 sqm for riparian creek frontage.

Of the total 20,170 sqm of the site (Lot 152), the pervious area is 16,442 sqm, and the impervious is 3,737 sqm, thus the impervious percentage that is the development footprint is 18.5%.

Neutral or Beneficial Effect Rationalising for Water Quality Objectives

A neutral or beneficial effect is modelled for this proposal. This is a result that demonstrates, by using default C*values for background concentrations, that the proposed treatment trains will be effective for each of the six catchments as well as the total site resulting from the proposed site design (Figure 2-4a).

2.4.3 LLEP 2014 Clause 7.3

(1) The objective of this clause is to minimise the impacts of urban stormwater on land to which this clause applies and on adjoining properties, native bushland and receiving waters.

(2) This clause applies to all land in the following zones—

(a) Zone RU5 Village,

(b) all residential, business and industrial zones.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development—

Control details	Response
(a) is designed to maximise the use of water permeable surfaces on the land having regard to the soil characteristics affecting on-site infiltration of water, and	80% of the allotment remain pervious surfaces. Infiltration rates of these areas will be increased by groundcover plantings in the construction and landscaping zone and the asset protection zone. The vegetation retention zone is heavily vegetated and does not require work other than weed management. The site represents soils of the Lithgow soil landscape which are characterised by moderately deep soils comprising sandy topsoil. The soils typically do not limit infiltration.
(b) includes, if practicable, on-site stormwater retention for use as an alternative supply to mains water, groundwater or river water, and	The proposal includes on-site stormwater retention which will be used for toilets and laundries as an alternative supply to the connected mains water.
(c) avoids any significant adverse impacts of stormwater runoff on adjoining properties, native bushland and receiving waters, or if that impact cannot be reasonably avoided, minimises and mitigates the impact.	Impacts on surrounding bushland is avoided by retaining or treating runoff from roofs, driveway, and carparks in water tanks before releasing overflow into the existing stormwater infrastructure. The reed bank and swales in the south-western property corner as well as the raingardens reduce runoff velocity, treat runoff, and prevent sedimentation. The sediment fence avoids

Control details	Response
	sedimentation of downslope environments and the creek during construction.

2.5 Vehicle Access & Parking

2.5.1 Vehicular Access

The plan for pedestrians, traffic, and parking (Fig. 3-1) shows the driveway, carparks, flow directions, walkways, and regulatory compliance.

Access and parking are responsive to the site and consider slope. The proposed driveway follows gentle slopes (maximum grade is 10 %). It has been located to minimise the areas of imperviousness and with the most direct access to all buildings from Atkinson Street. To the east, the driveway and parking areas are screened by low shrub plantings along the eastern boundary to avoid visual dominance. To the south, hardstand areas are screened by existing trees, proposed shrub plantings and the residential cottage. Dust does not impact neighbouring properties as the driveway and carparks will be sealed and all-weather accessible.

The driveway and manoeuvring areas were designed to provide adequate space for the largest design vehicles: buses and emergency vehicles.

The driveway construction will not adversely impact street trees or utilities or on-street parking. At the entrance to 51 Atkinson Street, the connection of the driveway to the existing bitumen road (Atkinson Street) requires sealing the current dirt road, which requires work in the public road reserve.

The direction of travel is forward. The traffic flow directions are detailed in Fig. 3-1.

The minimum width of the driveway is 6m, complying with the access requirements of the Planning for Bush Fire Protection 2019 (RFS, 2019) and Clause 2.5.2 of the DCP. The northern turning circle has an approximate 12 m radius, which also complies with PBP 2019 requirements.

The driveway's crossfall is graded to the west so that stormwater runoff will drain into the drainage system. The maximum crossfall shall not exceed 4%.

The entry and exit points, driving directions, and the speed limit of 15 km/h are to be clearly signposted.

The Traffic Assessment Report (Aiken, 2024b) reviews existing traffic conditions, current traffic volumes and road geometry. We have assessed the volume and type of vehicles (including proposed buses) generated by the development and the distribution of the existing traffic on the current road network. Car park requirements and access requirements to and from the development site match the needs of staff, management, and visitors. We have presented a concept road detail for upgrading two-way traffic from the intersection between Atkinson Street and State Mine Gully Road and the

site. This report is supported by a concept road design detail, cross-sections and longitudinal sections provided by Mr Graeme Muir of CEH Survey (CEH Survey Pty Ltd, 2024).

2.5.1 Site Parking

The design of the facility incorporated off-street car parking. The facility proposes 29 carparks, plus two accessible car parks, including shared spaces and two carparks for the manager's residence. Carpark dimensions are 2.7 x 5.4 m, conforming with AS 2890.1. The dimensions of the accessible car parks are 3.9 x 5.4 m, including the shared space, conforming with AS 2890.6 and the NCC. A bollard is to be provided in the shared area, and pavement markings are to be yellow and non-slip.

The table of Clause 2.5.5 of the Lithgow DCP details how many carparks are required for an ecotourism facility: 1 space per guest, plus one space for staff plus guest spaces. For this proposal, there are nine two-bedroom cabins (9 x 2 = 18) plus three one-bedroom cabins with a total of eight bedrooms (18+ (8 x 1) = 26). Thus, 26 car spaces are required for the cabins. The proposed carparks include two for staff and three for guests; this makes a total of 31 spaces. The accessible carparks are included in this count. The two carparks for the manager's residence are separate.

One accessible car park is adjacent to the check-in office, and the other is in front of cabin A1.

Parking spaces, especially accessible parking, are to be clearly delineated. Carparks will be sign-posted, and parking areas will be lit in accordance with AS 11158.3 while avoiding impacts on neighbouring properties (AS 4282). Traffic movements will not impact neighbouring residential areas.

The carparks are located near the cabins. Some carparks are proposed on the other side of the two-way driveway to be able to provide sufficient parking.

Stormwater drainage is proposed to be installed behind the carparks P5-P22 to capture runoff from the driveway and carparks. Runoff from the carparks P23-26 will go into a rain garden. All hardstand areas are to be sealed per the Council's Engineering Guidelines.

Driveway and parking design considers safety and access for all users by separating vehicles and pedestrian areas (see Section 2.6).

2.5.2 Bicycle parking

Bicycle parking and an e-bike charging station is proposed outside the community building. The bicycle parking is to comply with AS 2890.3.

A e-bike lockup will be provided. This can be located within the construction management zone, adjacent to the common room.

2.6 Pedestrian Access, Mobility & Safety

Figure 3-1 details the pedestrian areas. They comply with Clause 2.6.2 of the DCP. Pedestrian areas are separated from the driveway. Parking areas are separated from the walkways by landscaping on the services trench.

Lighting pedestrian areas to comply with AS 1158.2 while avoiding impacts on neighbouring properties (AS 4282). Walkways from each cabin to the community building, which is the bushfire refuge, are provided and shall be clearly signposted. All accommodation is within 100 m walking distance from the refuge per PBP 2019 Table 6.8 – Ecotourism (RFS, 2019).

The width of the walkways is 1.5 m for the main tracks and 1.2 m for cabin accesses. The path width is compliant with requirements for people with mobility impairment (Guide to Road Design Part 6a: Paths for Walking and Cycling - Figure 3.4, Austroads (Austroads, 2021), 1.2 m width is wide enough for a single wheelchair user. 1.5 m width allows a wheelchair and a pram to pass.

Access ramps will be installed at the check-in office, the community building, and cabin A1. The toilet facilities in the community building and cabin A1 are to be wheelchair accessible.

The letterbox of the facility will be located near the pedestrian entrance at Atkinson Street.

2.7 Designing for Crime Prevention

State the measures incorporated into the proposal that consider crime minimisation strategies.
This might include natural surveillance areas, clearly defined access points, lighting, and security.

Security lighting is installed and will be installed at all new buildings. Lighting will be provided in all public places, carparks, and walkways in accordance with AS 1158.2. Landscaping will be kept low in the construction zone to avoid potential hiding places. A CCTV camera will be installed in front of the check-in office.

2.8 Utilities, Easements & Infrastructure

The facility will use a reticulated sewer and water supply and will be connected to grid electricity.

A sewer manhole is located on the southern boundary (Fig. 1-7). Wastewater drainage pipes will be located in the services trench and go into a sewer collection well and then into the sewer manhole. The daily wastewater loading of 10,000 L is the maximum to be pumped to the sewer as noted within the Water Cycle Management Study (Consulting & Environmental Service, 2023c).

Despite being on a reticulated water supply, the cabins will retain and recycle stormwater for toilet flushes and laundry in the community building, reducing the amount of fresh water used in the facility's day-to-day operation.

The facility will be connected to the grid. Nonetheless, the cabins and community building will be equipped with solar panels, so most of the electricity consumption will be from renewable energy. The generated surplus will feed into the electricity grid.

In areas on bushfire-prone land, a tank with a minimum of 20,000 L is to be provided for firefighting purposes. This static water supply is located within the water tank near the carwash on the eastern side of the driveway. The tank is easily accessible for emergency services and will be fitted with a Stortz connection at the heigh to achieve the minimum 20,000 L.

2.9 Wildlife Observations of Wombats

During the planning process, Consulting & Environmental Services consulted with Ms Anna Culliton; Anna set up night cameras to observe the wombats. Filming occurred from the 25th of November to the 5th of December 2022. The film recorded healthy wombats, small kangaroos, a microbat, and a blue wren were observed within the film record. Consequently, the State Mine Creek habitat has a frequent variety of biodiversity that should be managed sustainably.

2.10 LLEP 2014 Clause 7.10

Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required—

(a) the supply of water,

(b) the supply of electricity,

(c) the disposal and management of sewage,

(d) stormwater drainage or on-site conservation,

(e) suitable vehicular access.

Response: The proposal meets all five conditions.

2.11 Solid Waste Management

The recent Waste Management Resource Recovery Strategy 2022 to 2026 (Lithgow City Council, 2022) shows the circular economy as creating accountability for the consumer/consumption market.

The facility will use the Council's garbage and recycling bins. The location for the bins is indicated on the architectural site plan, among other things, as opposite the D-units. Lithgow City Council collects bins in Lithgow on Thursdays, alternating weekly between recycling (yellow bin) and green waste (green bin).

Recyclable waste that cannot be put into the yellow bin will be sorted through and disposed of at the Lithgow Solid Waste Facility Community Recycling Centre. The recycling centre accepts aerosols, batteries, fire extinguishers, globes and tubes, gas bottles, oils, and paint. The Return & Earn scheme will be used for eligible cans and bottles.

For the operations, the camp kitchen will be fitted with an Enrich360 food waste dehydrator (Enrich 360, 2023) which recycles all food waste. It dehydrates all scarps, including meat, cooked food, coffee grinds, vegetables, etc. Our community gardens will use The resulting product as pathogen-free, nutrient-rich compost and fertiliser.

General solid waste will be used for construction waste. The Lithgow Solid Waste Facility will manage recycling and resource recovery.

Facility	Hours of operation	What can I dispose of there
Lithgow Solid Waste Depot The main facility for the LGA 68 Geordie Street Lithgow	Open 8.00am - 5.00 pm Closed Christmas Day Last vehicle must enter by 4.45pm	Household residential waste, green waste, tyres, mattresses, bases & ensembles, whitegoods, building waste, putrescible waste, commercial waste, demolition waste & asbestos. This is Council's ONLY facility to accept commercial Waste, demolition waste, mattresses, bases & ensembles, tyres & asbestos. Please note asbestos must be booked in with Customer Service prior to delivery on (02) 6354 9999.
Portland Garbage Depot Portland/Cullen Bullen Road Portland	Open 8.30am – 4.30pm Closed on Good Friday and Christmas Day	Household residential waste, green waste and scrap metal recycling. (Fines apply for the following prohibited items; asbestos, commercial, demolition, industrial, tyres, mattresses, bases & ensembles, white goods, motor oil & grease, trucks/ tip trucks and non-resident dumping)

https://council.lithgow.com/waste-recycling/waste-facilities/.

2.12 Amenity / Buffers for Sensitive Uses

Not Applicable.

'Sensitive land use' is any land use where there are users that are likely to be significantly and regularly affected by emissions from other higher-impact land uses. It extends beyond residential land uses to include, for example, tourist and visitor accommodation, hospitals, aged care and seniors living, childcare facilities, playground and recreation areas, and some public buildings where a reasonable level of amenity (suitable for each use) must be protected.

2.13 Water & Energy Efficiency

The proposal includes the installation of solar panels and the re-use of stormwater. All buildings are lightweight pre-constructed cabins. Roofs will be used for rainwater catchments, with energy efficiency supplemented with solar energy collection for hot water.

The aim is to manage and operate the facility in the most sustainable manner. This includes that each cabin is equipped with a water tank in addition to the three large main water tanks. The water that is retained in the tanks from the stormwater runoff from the roofs is recycled and used for toilet flushes as well as the laundry in the community building, reducing the amount of fresh water used in the day-to-day operation of the facility.

Solar panels are installed on each cabin and the community building. Therefore, most of the electricity used in the cabins is generated from solar energy. If solar generated electricity is not used, it would feed the mains electricity supply, contributing a proportion of renewable energy in the area.

3.0 Proposal

3.1 A brief outline of the proposed work

The proposal undertakes to utilise the scope afforded by the C3 Environmental Management land zone to establish the cabins on a former allotment remaining from the former State Mine and the Lithgow Power Station. The former land use is an earthwork fill platform of coal chitter rejects, with site contours draining into existing stormwater infrastructure.

The development application proposes a single-storey cabin eco-tourist accommodation for Lot 152 Atkinson Street. The site layout retains all existing topography with limited cut and fill and site disturbance to place (in stages) the nine prefabricated manufactured two-bedroom cabins and three equivalent-sized cabins with a fit-out to suit eight one-bedroom accommodations. Other buildings are the manager's residence and the common room, which functions as the bushfire refuge.

The site integrates the ecological aspects of the proposal by keeping the existing habitat and riparian vegetation corridor that is the State Mine Gully Creek.

All buildings are lightweight steel-frame cabins. Roofs will be standard Custom Orb, corrugated Colorbond® roofing used for rainwater catchments, and fitted with energy efficiency supplemented with solar energy collection for hot water.

All the buildings and driveways, water tanks and car parking (twenty-nine carpark spaces, two accessible car parks and one bus parking space); are contained within a site disturbance construction area, which is not more than 6,989 sqm or 35 % of the total allotment area of 20,056 sqm.

Planning for bushfire includes a community building (refuge) onsite rainwater tank, and two heavy vehicle turning areas.

The facility provides laundry and kitchen amenities for the outdoor veranda areas of the community building and to the seating area facing the creek.

The visitor experience is documented from a project vegetation management plan with details of the geological, industrial and community heritage recognised by this proposal. The native vegetation exists as a wombat habitat, a range for native birds, wallabies, and koalas. It will be kept as recognised by the Biodiversity Values map of NSW as a buffer to the construction setback for a third order stream 30 m riparian buffer. Thus, native vegetation and habitat maintenance is dedicated by the 30 m riparian vegetation corridor that aligns with the State Mine Creek within a site design that allows for native grazing to remain available across the property.

Access is via Atkinson Street. This development is near the Newnes Plateau recreation areas and the adjacent State Mine Heritage Park, which indicates the potential for increased traffic flow as these developments are developed. However, at this project site, traffic is limited to the visitor accommodation, so tourists will spend time comfortably close to those other venues.

Development consent is requested for the total proposal; however, construction will be staged to grow with the regional growth of the Lithgow district.

Once development approval is achieved, the other aspects of creating a tourist business from Sydney bring visitors to Lithgow using the Experience Oz Ecotourism Facility.

3.2 Property maps

Figures 1-2 to Figures 3-6, with the exceptions of Figures 1-5, 1-7 and 3-5, were prepared in ArcGIS Pro 3.3 and show various site analysis, construction, management, and operational components of the site at Lot 152 in DP659519 and the development. Figures 4-1 to 4-11 show the architectural drawings, including site layout, floor plans, elevations, and sections. Table 1-1 lists the plans with drawing title, date, version number, author, and details.

3.3 Eco tourist facility

Eco tourist facility means a building or place that:

(a) provides temporary or short-term accommodation to visitors on a commercial basis, and

(b) is located in or adjacent to an area with special ecological or cultural features, and

(c) is sensitively designed and located so as to minimise bulk, scale and overall physical footprint and any ecological or visual impact. It may include facilities that are used to provide information or education to visitors and to exhibit or display items.

3.4 Amenity impacts

Will the proposal impact on adjoining residents?	**Yes**	**No**
Overshadowing? Shadow diagrams may be required.		X
Privacy?		X
Views?		X
Noise? I.e., external air conditioners, pool pumps etc…		X
Does the proposal involve a fuel heater? If yes, include on the location on the floor plan and attach the heater specifications	X	

Outline measures taken to minimise impacts

The proximity of the two-bedroom cabins is a 2 m separation with an adjacent wall height that is 4 m in height. The creates privacy and separation of access for the occupants, as well as a cooling effect from direct sun. Light is not impeded because for every cabin building the northern elevation has specific glazing for light and ventilation that provides for living and hallway. Each bedroom has window-light and ventilation.

An illustration is provided as (Figure 4.11) for two-bedroom cabins as a longitudinal section north-south to demonstrate the site for each cabin and its proximity to the next.

3.5 Business, staff and customers

Type of business	Cabin accommodation ecotourist facility
Number of staff	3-5 permanently (+ part-timers (contractors / cleaners / stockists etc)
Expected number of customers	8 – one bedroom 36 – two bedroom (2 pp per bedroom)
Hours and days of operation	Check in centre for 7-day operation.
Arrangements for transport, loading and unloading of goods	Configurations for parking allow for total 31 car-spaces comprising 2 accessible spaces, 4 check-in parking and 25 other parking spaces visitors and cabin parking.

3.6 Biodiversity

The Vegetation Management Plan (Hammill, 2023) has recommended management actions to manage the three proposed management zones that should protect and enhance the site's ecological values. The proposal seeks to raise awareness of these values for the customers and visitors to the area. This is the premise of the Ecotourism Management Plan (Consulting & Environmental Services, 2023c) which also lists engagement actions for visitors on and off-site.

The biodiversity values map identifies the environmental values of habitat and water quality on the site, which are not affected by the building proposal.

This is a proposal to maintain those values concerning the zoning C3 – Environmental Management. The proposed vegetated riparian zone (VRZ) of 30 m is from the top of the bank and contains the spatial extent of the mapped biodiversity values. Therefore, the protected riparian buffer was increased by 10 - 20 m width. This width is consistent with the current Guidelines for riparian corridors on waterfront land (Department of Planning & Environment, 2022). The VRZ makes up 46% of the Lot.

3.6.1 Vegetation clearing

The proposed development is located on land that is already mostly cleared. Figure 1-6b shows the State Vegetation Type Map with relevant plant community types (PCTs). It details that the entire site is covered by PCT 0, defined as not classified and typically covers cleared or predominantly non-native vegetation communities. This plan also identifies trees that require to be removed for development. Only three medium-sized native trees are required to be cleared. Vegetation clearance is clearly under the threshold for assessment under the Biodiversity Assessment Method (BAM) and the biodiversity offset scheme.

3.7 Construction Management

3.7.1 Flood Mapping

A Flood Impact Assessment Report has been prepared (Consulting & Environmental Services, 2024a).

Our discussion in Section 2.2.3 illustrated that the flood risk to the development has been considered and incorporated into a flood-responsive design when earthworks have been completed to the design finished levels shown in Figure 2-3.

A finished floor level is nominated for landscaping with a minimum 100 mm of topsoil or road-base-gravel, and an additional 300 mm has been added to the finished floor level of the cabins.

Figure 1-8 shows the buildable area of Lot 152. This includes the area outside the vegetated riparian zone, the required setbacks and the category 1 Flood planning constraint category. The plan shows that the proposed development is fully contained within this zone. The Vegetation Management Plan (KHS Ecology & Bushfire 2023b) nominated the development area as Construction and Landscaping Zone. The Landscaping Site Plan (Fig. 3-2) uses the same zone. This area contains the entire construction zone with all buildings, driveways, hardstand areas and water tanks. It furthermore also includes the areas of earthworks outside the construction zone.

3.7.2 Works Area

The following aspects are important for the management of the construction zone:

1) Stormwater and drainage
2) Sediment and erosion control
3) Earthworks

Stormwater and drainage are covered in Section 2.4 of this report and in the Water Cycle Study with the MUSIC model, which verifies that the development has a neutral or beneficial effect on water quality (Consulting & Environmental Services, 2023c).

Sediment and erosion control are discussed in Section 2.3.1 of this report and in the Soil and Stormwater Management Plan (Fig. 2-4 a & b). A 200 m long sediment fence is to be installed west and downslope of the proposed construction zone before the commencement of any earthworks as shown on several site plans such as Fig. 2-2 or 3-2.

Earthworks, including cut and fill and retaining walls, are covered in Section 2.3 of this report as well as in Figures 2-1 to 2-3 and the Soil and Water Management Report (Consulting & Environmental Services, 2024b).

3.7.3 Imported Soils

The site preparation will require the importation of soils such as topsoil and road base. It is proposed to cover the soil after cut and fill work is completed with 100 mm of topsoil for landscaping and impetrated gravel or road base for paths and driveways. Driveways and hardstand areas are to be

sealed according to the Council's engineering guidelines. Other soil depths would be to a maximum of 300 mm.

3.8 Sustainability

Ecological components for sustainability included the reuse and reconstitution of food waste as a soil conditioner in gardens and other landscaping features. Water reuse is addressed with the Building Sustainability Index (www.basix.nsw.gov.au) and the outcomes adopted for water supply, landscape amenity and stormwater by the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) (WaterNSW, 2019).

We have referred to the State Environmental Planning Policy (Sustainable Buildings) 2022 for guidance on requirements to meet the objectives for building to meet standards for sustainable buildings.

In summary, the proposed has these seven sustainable features:

1. Simple prefabricated steel constructions for cabins, shed styling architectural / building design for the manager's residence and the community building.
2. Cabins prefabricated off-site and then will be fitted out on-site. Thus, raw materials are minimised using pre-manufactured building structures.
3. Solar panels for the generation of energy consumption of renewable energy.
4. Solar hot water for the manager's residence and community.
5. The project will have an ISO 14000 operational management plan, one aspect of which is monitoring energy consumption.
6. Water reuse is modelled into water supply and stormwater management. The water balance model indicates the facility can be self-sufficient in water demand from stored water and use the reticulated supply to top up when rainfall collection occurs at less than 74 percentile annual rainfall.
7. At the time of design, we identified the potential for food waste processed on-site - using an Enrich 360 dehydrator (Enrich 360, 2023), mainly to create land scape and garden soils. One aspect of the Enrich system is that the water collected from the food waste processing occurs as 800 mL per litre of food waste and is sterile. Therefore, it will be reused for other purposes, including landscape watering of the food garden.
8. Pathways and walkways along the riparian zone will be solar powered with movement sensors.

3.8.1 Building Sustainability Index

Manager Residence – Single Dwelling (Certificate number 1750405S)

Common Room – secondary Dwelling (Certificate number 1377343S)

Two-bedroom cabin - Secondary Dwelling (Certificate number _tba)

3.9 Schedule of Colours and Finishes

The schedule of colours and finishes is based on the Colorbond® steel colour charts that have notations on solar absorptance SA, colour values and Building Code of Australia (BCA) classification (hue) light to assist with building design by adopting thermal performance values.

This has the ultimate objective that the selected colours will have a technical performance ratio as well as the aesthetic function of the architectural purpose nominated as a development and so our application includes the BASIX assessments confirming the qualities of sustainable living.

(https://steel.com.au/resources/colours)

The following images visualize the schedule of colors.

Visualisation of the colour scheme of the cabins: Monument walls and Dune roofs (Colorbond Design Visualiser)

Visualisation of the colour scheme of the common room: Monument walls and shale grey roof (Colorbond Design Visualiser)

Visualisation of the colour scheme of the manager's residence: Monument walls and Monument roof (Colorbond Design Visualiser)

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Conceptual model of the proposed ecotourism facility visualising the color scheme.

3.10 Bushfire Emergency Management & Evacuation Plan

A proposed bushfire emergency and evacuation plan (Consulting & Environmental Services, 2023a) is provided for inclusion with the Ecotourist Facility Management Plan (Consulting & Environmental Services, 2023c)

4.0 Legislative Requirements – Ecotourism Facility

This section covers the development compliance with

- Clause 5.13 Eco-tourist facilities of the Lithgow LEP 2014 and
- DCP 2021 - 8.2.1. Tourist Development
- DCP 2021 - 8.2.4. Eco-Tourist Facilities & Larger Rural Tourist Developments
- Planning for Bush Fire 2019 6.3.1 Specific tourism uses.

The proposal is for an ecotourism facility. The Ecotourism Management Plan (Consulting & Environmental Services, 2023b) discusses in detail how the development aims to manage and operate to:

1) Retain native vegetation, existing habitats, and connectivity

2) Enhance the ecological integrity of the site through the Vegetation Management Plan (KHS Ecology & Bushfire, 2023b).

3) Operate sustainably across all aspects of the business.

4) Provide opportunities for visitors to connect with the natural ecosystems on- and off-site.

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We conclude that the proposal meets the regulatory requirements of both the LEP and Development Control Plan, and Planning for Bushfire.

Our summary on meeting Clause 5.13 is provided as Table 4-1, to meet Clause 8.2.1 of the DCP see Table 4-2; for Clause 8.2.4 see Table 4-3 and planning for bushfire Table 4-4.

Table 4-1 LEP 2014-- 5.13

Clause	Legislation Aspect LEP 2014 - 5.13 Eco-tourist facilities	Response
LEP 2014 - 5.13 Eco-tourist facilities	(3) The consent authority must not grant consent under this Plan to carry out development for the purposes of an eco-tourist facility unless the consent authority is satisfied that— (a) there is a demonstrated connection between the development and the ecological, environmental and cultural values of the site or area, and	The proposal has been sited to minimise disturbance with the intention to restore the riparian corridor and native vegetation, create habitat for native wildlife and to educate and engage the visitors with the environmental features on site and in the region.
	(b) the development will be located, constructed, managed and maintained so as to minimise any impact on, and to conserve, the natural environment, and	The development takes up around 35 % of the total site, this includes the total area of disturbance. The remaining 65 % of the lot are kept as environmental management zones with native wildlife habitat and vegetation restoration. The site is currently disturbed with weeds and non-native vegetation being the dominant vegetation onsite. Management of the zone as an ecotourism facility and the implementation of the vegetation management plan can improve the sites ecological values and improve downstream environments through stormwater management and erosion control.
	(c) the development will enhance an appreciation of the environmental and cultural values of the site or area, and	The development is situated right beside the riparian zone of the State Mine Creek, further it is connected to the State Mine Heritage Park and the Gardens of Stone Conservation Area. The facility proposes to offer many ways for visitors to engage with the environmental and heritage values on site and off. This is discussed in detail in the attached Ecotourism Management Report.
	(d) the development will promote positive environmental outcomes and any impact on watercourses, soil quality,	The development has incorporated the environmental aspects of the site into its design. Impacts in native flora will be none, impacts on native fauna and the watercourse will be

Clause	Legislation Aspect LEP 2014 - 5.13 Eco-tourist facilities	Response
	heritage and native flora and fauna will be minimal, and	minimised by clearly demarcating the construction zone and the native vegetation restoration zone during construction, installation of sediment fences and stormwater interventions before construction (including earthworks) commences.
	(e) the site will be maintained (or regenerated where necessary) to ensure the continued protection of natural resources and enhancement of the natural environment, and	65 % of the site will not be impacted at all. They remain environmental zones that require weed control and monitoring as well as restoration of native vegetation as detailed in the vegetation management plan. Weed and stormwater management on site will reduce impacts from sedimentation and environmental weeds on the creek and downstream environments.
	(f) waste generation during construction and operation will be avoided and that any waste will be appropriately removed, and	Waste generation will be kept at a minimum as the cabins will come as prefabricated buildings and will only need onsite installation. Any waste that is generated will be removed appropriately.
	(g) the development will be located to avoid visibility above ridgelines and against escarpments and from watercourses and that any visual intrusion will be minimised through the choice of design, colours, materials and landscaping with local native flora, and	The site design for all buildings will be placed 300mm above the finished ground level of RL 939.5 – 940. The ridgeline of the cabins will be at maximum of RL 943.5. The common room is slightly higher but at a lower finished ground level. State Mine Gully Rd (to the east) is at a level of RL 944. Therefore, the development is below the ridgeline and will mostly be covered. The conceptual impressions from road level (Figure 3-4a) show that from State Mine Gully Road, the cabins do not visually intrude. Nonetheless, the eastern boundary of the Lot will be planted out with native shrubs and trees (following the guidelines of the APZ) to avoid visual dominance of hardstand areas and the development. The development is screened from the watercourse by existing native vegetation. From Atkinson Street (to the south) the facility will mostly look like any residential development as the owner's residence is

Clause	Legislation Aspect LEP 2014 - 5.13 Eco-tourist facilities	Response
		located closest to this boundary. The dwelling is setback 26m from the front boundary which allows for screening plantings that comply with APZ requirements. The impressions in Figure 3-4a and 3-4b also show the view from Atkinson Street.
	(h) any infrastructure services to the site will be provided without significant modification to the environment, and	Installation of services does not require significant modification. The development will feed into an existing sewer line through a sewer manhole on the southern boundary. Grey/black water and stormwater drains will be in a common services trench that runs behind the carparking areas and will be planted out with low maintenance gardens to ensure accessibility to the trench when necessary.
	(i) any power and water to the site will, where possible, be provided through the use of passive heating and cooling, renewable energy sources and water efficient design, and	The site accesses mains water and power. The powerlines run along Atkinson Street and a private pole will be installed in the southern part of the property. The northern elevation of the cabins, the northern elevation of the residence and the rear elevation of the check-in building will be equipped with solar panels at a 15-degree pitch which will cover most of the electricity needs and the surplus will feed back into the grid. Each cabin is equipped with a small water tank, further big water tanks are located near the residence and the bus parking. The retained runoff will be used for stormwater reticulation in toilets and laundry. Any additional retained stormwater can be used for watering of the gardens and landscaping areas. 20,000L are retained for bushfire fighting.
	(j) the development will not adversely affect the agricultural productivity of adjoining land, and	Not applicable.
	(k) the following matters are addressed or provided for in a management strategy for minimising any impact on the natural environment—	The vegetation management plan, the bushfire report, the bushfire emergency management and evacuation plan, the ecotourism management plan and the stormwater, erosion and sediment control measures are all outlining strategies to minimise impacts on the natural environment, including habitats and water

Clause	Legislation Aspect LEP 2014 - 5.13 Eco-tourist facilities	Response
	(i) measures to remove any threat of serious or irreversible environmental damage, (ii) the maintenance (or regeneration where necessary) of habitats, (iii) efficient and minimal energy and water use and waste output, (iv) mechanisms for monitoring and reviewing the effect of the development on the natural environment, (v) maintaining improvements on an on-going basis in accordance with relevant ISO 14000 standards relating to management and quality control.	quality. The timeframe for implementation of the vegetation management plan sets out mechanisms for monitoring and reviewing strategies.

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Table 4-2 DCP 2021-8.2.1 – Tourist Development

Clause	Aspect DCP 2021 - 8.2.1. Tourist Development	Response
DCP 2021 - 8.2.1. Tourist Development	1) **Operations/Management:** Tourist development provides a Management Plan that address the operational and management requirements including, but not limited to: a) Maximum capacity of people; b) Range of facilities offered including meals and entertainment; c) Management and booking system; d) Vehicle access, traffic and parking impacts and requirements; e) Disabled accessibility and parking (as required); f) Environmental impacts, natural hazards & safe refuge or evacuation routes; g) Drinking water provision & safety; h) Food preparation and safety (if required) (see DCP Section 7.4.9 Food Premises); i) Wastewater (effluent) management; j) Solid waste management; k) Electricity provision (grid or solar power); l) Fire safety and smoke detector systems (if required).	We have embedded the various aspects for the operational and management details in Ecotourism Management Plan and the Statement of Environmental Effects. We understand that our facility is part of the bigger and wider opportunities that are able to be created through tourism when tourism operators will network with accommodation providers. We ask Council for consideration that the preparation of such a plan into a working document will have more relevance once development approval has been achieved as part of the submission for construction certification.
	2) **Land Use Conflict: Tourist development:** a) Is integrated with, but does not impact significantly on, the agricultural use of the land and/or rural industries on the site and/or adjacent sites. b) It is setback from property boundaries to avoid and/or minimise potential for conflicts and allow adjacent primary production land to be used for a wide range of agricultural activities.	Not applicable as the Lot is not adjacent to primary production or other agricultural land.

Clause	Aspect DCP 2021 - 8.2.1. Tourist Development	Response
	c) It considers site planning of any proposed or existing building to maintain a reasonable level of acoustic and visual privacy and views for dwellings on adjoining properties. d) It provides minimum setbacks of 20m to boundaries (or 100m to dwelling(s) on adjoining land, whichever is greater) unless the applicant can justify smaller setbacks will have no impact on adjoining land (existing or future) agricultural uses.	
	3) **Character**: Tourist development addresses and is consistent with the zone objectives and the rural and landscape character of the area by minimising visual impacts and integrating with the topography and landscape. It specifically addresses the requirements of DCP Section 2.2 Site Analysis, Local Character & Context, especially (if relevant) Section 2.2.4 – Visually Prominent Sites.	The development is consistent with the objectives of the C3 – Environmental Management zone and eco-tourist facilities are permitted with consent in the zone. The site is not considered visually prominent. However, measures to reduce visual dominance of the development have been integrated into the site design, such as screening plantings.
	4) **Environment**: Tourist development minimises impacts on the natural environment and avoids or mitigates any natural hazards such as flooding or bushfire and provides suitable 2WD all year access and safe emergency egress.	The lot is zoned both bushfire prone and flood prone. Appropriate measures have been incorporated into the site design and the ongoing site management to mitigate and adapt to hazards and to reduce vulnerability. A bushfire assessment report, a bushfire emergency and evacuation plan as well as a flood impact assessment report are attached to this application.

Table 4-3 DCP 2021 – 8.2.4

Clause	DCP 2021 - 8.2.4. Eco-Tourist Facilities & Larger Rural Tourist Developments	Response
DCP 2021 - 8.2.4. Eco-Tourist Facilities & Larger Rural Tourist Developments	1) **Values**: The protection/enhancement of the environmental and/or cultural values relied upon: a) Must be clearly set out in the application and more than just: i) a rural or landscape setting; or ii) significant vegetated area; or iii) an area with potential archaeology or cultural association. b) Must be a dominant aspect of the development proposal and not ancillary to the provision of tourist and visitor accommodation or other tourist facilities. c) Should be locally or regionally significant. d) Do not necessarily need to be on the subject land but ideally are within five (5) kilometres' drive of the subject land (e.g., adjacent National Park). e) Must be demonstrated through a significant component of information, education and interpretation of these values. This is unlikely to be met by limited signage or education/engagement by property managers. It requires significant investment in dedicated spaces and/or buildings for education and/or a clear program and activities that are clearly linked to the local environmental or cultural values. f) Should not single out one environmental or cultural aspect for protection and enhancement whilst having significant impacts on other key values of the land. There needs to be a holistic approach to the land character,	The protection and enhancement of the environmental and cultural values have been clearly addressed in the vegetation management plan, landscaping plan and the ecotourism proposal (this plan). The development has been carefully designed to protect the natural environment, protect habitats and around the visitor experience of an eco-tourist. The significant environmental and cultural aspects onsite and in the close proximity of the site have been pointed out. The ecotourism proposal describes proposed engagement activities which go beyond signage but engage the visitor with the site's environmental and historical values.

Clause	DCP 2021 - 8.2.4. Eco-Tourist Facilities & Larger Rural Tourist Developments	Response
	values and cultural history and associations.	
	2) **Land Use Conflict & Hazards**: In addition to the requirements of DCP Section 7.5.1 – Tourist Development above, the applicant addresses the following: a) That the land size is sufficient to maintain significant buffers to adjacent agriculture and/or environmental land. Generally, a minimum of 10 hectares of land is required to accommodate a substantial eco-tourist facility and allow for 50-100m buffers to adjacent land but this may be varied with significant justification. b) May be required to provide a Land Use Conflict Risk Assessment (LUCRA) in accordance with NSW Government guidelines (see Department of Primary Industries website).	This clause is not relevant as there are no adjacent agricultural lands. The land area is sufficient for the proposed development as demonstrated through our site plans. The development does not encroach on building setbacks and only covers 35% of the site, leaving the remaining 65% for native flora and fauna. The 50-100m buffers cannot be complied with as the property is too small to accommodate such setbacks. However, we argue that these setbacks are unnecessary as the size of the ecotourism facility fits the size of the land while retaining the large proportion of the land for the restoration of ecological values. Despite not being a multi-hectare large site, the property has the opportunities of connecting visitors with the adjacent Gardens of Stone Conservation Area while being close to the town centre of Lithgow and all its facilities.
	3) **Sustainability**: The Eco-Tourist Facility will also have a greater onus: a) To protect and enhance existing significant trees and vegetation including: i) Proposed site planning and buildings demonstrate that all reasonable efforts have been made to retain, protect and enhance significant vegetation and minimise impacts; ii) Where there are unavoidable impacts, significant off-set planting and regeneration programs may be required; iii) A Landscape Plan is likely to be required demonstrating use	The site planning demonstrates that most native vegetation will be retained. Furthermore, the environmental zones of the property such as the native vegetation restoration zone and partially the asset protection zone will be restored with native vegetation. A landscaping plan has been prepared in addition to the vegetation management plan. The vegetation management plan also presents a lists of recommended endemic species that are suitable for the three different management zones of the property. The development has been sited outside the 30m wide vegetated riparian zone to ensure appropriate setbacks in accordance with DPIE, 2022 requirements of controlled activities on waterfront land. Erosion and sediment control has been proposed including a 200m long sediment fence downslope of the development

Clause	DCP 2021 - 8.2.4. Eco-Tourist Facilities & Larger Rural Tourist Developments	Response
	of native and endemic species and drought tolerant species; iv) A Vegetation Management Plan or Biodiversity Conservation Management Plan may be required to support environmental repair and enhancement of the property. b) To protect existing sensitive water resources including: i) Demonstration of appropriate setbacks from watercourses and drainage corridors; ii) Additional requirements to minimise erosion and control sediment entering watercourses; iii) Avoiding or minimising reliance on groundwater by including rainwater harvesting; iv) High quality/low-impact/ tested & certified on-site effluent management systems. c) To protect existing sensitive land areas including: i) Avoiding steep lands or development that involves significant cut and/or fill; ii) Minimising access roads and infrastructure impacts through clustering of buildings and consolidation of access roads and infrastructure; iii) Minimising the impact on the land and its soils. d) To minimise impacts from lighting on dark night sky and adjacent development by minimising lighting and light-spill.	during construction. Rainwater harvesting is included in the site design. An onsite effluent management system is not required on this site. Cut and fill has been minimised to avoid land disturbance. The three earthwork plans (pre-development levels, cut-and-fill and finished levels) demonstrate that the topography of the site has been carefully considered in the site design and that earthworks are reduced as much as possible. Buildings have been clustered to allow for a single access driveway with turning circles. Lighting of pedestrian and parking areas will be in accordance with AS 1158.3 but avoid impacts on neighbouring properties in line with AS4282. Energy consumption is minimised by installing solar panels on all cabins, check-in building, single-man quarters and the residence. All appliances will be to WELS standards. The cabins and the residence have a roof area oriented to north, to capture as much solar energy as possible. Water will be re-used and recycled for toilets and laundry. Gardens and landscaping areas will be watered with retained stormwater in the water tanks. The Statement of environmental effects addresses waste management. The outdoor kitchen and the management of food waste is presented as an innovation option that includes the potential to make our own landscaping soils.

Clause	DCP 2021 - 8.2.4. Eco-Tourist Facilities & Larger Rural Tourist Developments	Response
	e) To demonstrate significantly reduced energy and water consumption by including: i) Report(s) that address Section J of the National Construction Code (NCC) (where required); ii) Water efficiency – Council may require evidence relating to the minimum Water Efficiency Labelling and Standards (WELS) or water rating of all water using appliances and fixtures (see www.waterrating.gov.au); iii) Water re-use and recycling may be required for non-potable connections such as garden irrigation and toilets; iv) Energy efficiency – Council may require evidence relating to the minimum energy efficiency of all energy using appliances, lighting and fixtures (see www.energy.gov.au). v) Buildings demonstrate that they have addressed passive solar design principles to minimise energy consumption for heating and cooling; vi) Renewable energy sources are utilised, where possible. f) To demonstrate significant reductions in material usage, solid waste production, and increased re-use and recycling in accordance with waste minimisation and recycling guidelines.	
	4) **Management:** The application provides an Operational Management Plan explaining the proposed operations and management of the facility (beyond that required by DCP Section 8.2.1 – Tourist Development above) as follows:	An operational management plan (Ecotourism Facility Management Plan) is submitted with the proposal as the first working document.

Clause	DCP 2021 - 8.2.4. Eco-Tourist Facilities & Larger Rural Tourist Developments	Response
	a) The application addresses the requirements of, and achieve accreditation under, ISO14000 – Environmental Management Systems. This is a range of standards that help organisation to: i) minimise how their operations (processes, etc.) negatively affect the environment; ii) comply with applicable laws, regulations, and other environmentally oriented requirements; and iii) continually improve in the above. They may require substantial additional management systems including, but not limited to: audits, communications, labelling, life-cycle analysis, and addressing environmental challenges such as climate change. It should only be addressed by a suitably qualified person; b) A Soil & Water Management Plan is submitted with the proposal; c) A Waste Management Plan is submitted with the proposal with recycling forming part of the plan (even if a Council run recycling pick-up service is not available).	For the operational plan we write that we will use an auditor-based program for the facility management plan. Thus, we expect to meet the quality requirements of an ISO 9000 and ISO 14000 accreditation for this business. At this stage the nominated company is Global Mark Australia (https://www.global-mark.com.au/#certification1). Using an independent review/audit scenario will display those accreditations and demonstrate those standards expected when interacting with the environment, ecology and the cultural heritage of our district, are being maintained. Soil, water and waste management are covered in the Soil and Water Management Report. The Ecotourism Management Plan highlights that need to be identifying the objectives that are important for the facility, creating the resources so that the facility fulfills its objectives and identifying though audit or planned reviews how the processes are working, e.g. visitors incoming. The site manager's job is to review the plan and ensure that the aspects that are listed in the plan remain valid for the visitor experience and the site management. This may include the establishments of memberships and networks with the emerging tourist opportunities. All operational and management plans must be reviewed upon commencement of operation.

Table 4-4 Planning for Bush Fire 2019 6.3.1 Specific tourism uses

Clause	Planning for Bushfire 6.3.1	Response
Planning for Bush Fire 2019 6.3.1 Specific tourism uses	At least one building must be provided on site that can be used as a refuge for the maximum number of occupants on site. The building must have a minimum 10kW/m^2 APZ, be constructed to BAL-12.5 and have vehicular access. Cabins must be within a 100m walking distance of the refuge building.	The community building will be used for the bushfire refuge. The size of the building has been designed so that the maximum number of occupants can have a minimum of 3.5 sqm each. The building is within 100m walking distance of all cabins and will be built to BAL-12.5.
Table 6.8a	**Asset Protection Zone:** Radiant heat levels of greater than 10kW/m^2 (1200K) are not experienced by emergency service personnel and occupants during firefighting and emergency management around a building on site that can be used as a refuge. an APZ is provided in accordance with Table A1.12.1 in Appendix 1 of this document around the entire refuge building or structure.	A refuge and an APZ are provided (see bushfire report). The management of the APZ are demonstrated in the Vegetation Management Plan and drawings.
	Landscaping: Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions. Landscaping is in accordance with Appendix 4; and fencing is constructed in accordance with section 7.6.	The construction and landscaping zone as well as the APZ are in accordance with Appendix 4. The vegetation management plan contains a list with recommended endemic species that are appropriate for these zones as well as sets out planting requirements to meet APZ demands. Landscaping areas are well delineated and need soil amelioration. Details for the landscaping areas are provided in the consultants' reports.
	Construction Standards: The proposed refuge building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact. a construction level of BAL-12.5 or greater is applied to the refuge building in accordance with AS 3959 or NASH Standard and 7.5 of PBP. Occupants of the ecotourism facility are provided with appropriate shelter in the event of a bush fire. a refuge building is provided; the refuge building must have sufficient space for all occupants and comply with the occupancy levels permissible for that structure; and the refuge building must be constructed to BAL-12.5 or	See above and the bushfire report, and for operations this is an aspect that is to be identified as a component in the environmental management system. The envelope that can be a BAL-12.5 will be identified clearly. The bushfire emergency and evacuation management plan provides details about sheltering and evacuation. The site layout clearly demonstrates easy access to the refuge building for all occupants.

	greater in accordance with AS 3959 or NASH Standard and 7.5 of PBP.	
	Access: Fire fighting vehicles are provided with safe, all-weather access to the proposed refuge building. vehicular access is provided to the refuge building from a public road in accordance with property access requirements of Table 5.3b; accommodation is within 100m of the refuge building; and pedestrian paths from accommodation to the refuge building/s are provided and clearly signposted.	Driveways are all-weather access with a minimum width of 6m and turning areas compliant with Planning for Bushfire 2019 regulation. Pedestrian walkways are clearly signposted and separated from vehicle access. As per the requirements of Table 5.3b, the walking distance from all cabins to the refuge community building is less than 100 m. Water supply for firefighting is part of the 110,000 L tank on the eastern boundary and will be clearly identified on site.
	Emergency Management: A Bush Fire Emergency Management and Evacuation Plan is prepared. • a Bush Fire Emergency Management and Evacuation Plan is prepared consistent with the NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan, and AS 3745:2010; for proposals • the Bush Fire Emergency Management and Evacuation Plan must consider a mechanism for the early relocation of occupants on days when adverse fire weather is notified or adverse fire activity occurs in the local government area in which the development operates.	An emergency management and evacuation plan and document are submitted with the DA.

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5.0 Close

The presented development proposal for an ecotourism facility requires approval by Lithgow City Council. To provide that approval we have considered:

- The local character and context
- Potential hazards such as floods and bushfires
- Biodiversity values and retention of native vegetation, habitats, and connectivity
- Heritage and industrial characteristics of the adjacent allotments
- Existing topography and landform
- Developing a slope responsive design and minimising earthworks and retaining walls
- Stormwater management
- Access, parking and traffic volumes
- Pedestrian access and safety
- Utilities and infrastructure
- Waste management
- Water and energy efficiency
- Ecotourist Facilities Management
- Water Quality
- Remedial Action on Former Site Use Activities

Documentation is presented as maps and reports prepared by Consulting & Environmental Services Dr Jane T. Aiken and Ms Malin Hoeppner.

Consulting & Environmental Services takes seriously our commitment to the environmental aspects of modern living in Australia, such as the understanding of landscape, the environment of air and water and the planning objectives of our regulators.

The Lithgow Local Environmental Plan 2014 and the Development Control Plan 2021 are relevant to the consent process.

We confirm that the proposal meets all the relevant Clauses of the LEP and DCP for Site Requirements (DCP Chapter 2), Natural Environment and Hazards (DCP Chapter 3) and the specific Clauses for Tourist Developments (DCP Clause 8.2.1 and 8.2.4; DCP 2021) as well as the corresponding Clauses of the LEP. The proposal complies with Planning for Bush Fire 2019 6.3.1 Specific tourism uses.

Consequently, this facility has the opportunity to lead into the bigger and wider opportunities being created through tourism.

We ask that Council's considerations, and their advice can prove the next step for this project.

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Tables

Table 1-1 List of Plans

Figure ID	Title	Date	Scale	Author	Details
Fig. 1-1	Title page			MH Environmental Drafting	Three-dimensional scene of the proposed development in the landscape
Fig. 1-2	Title page - Site analysis			MH Environmental Drafting	Overview of plans under the Site Analysis section
Fig. 1-3a	Location plan	21/02/2024	1:5,000 at A3	MH Environmental Drafting	Land zoning, hydro lines, road reserves, list of restrictions and hazards applicable to Lot 152
Fig. 1-3b	Project proposal concept plan - DA	14/05/2024	1:500 at A3	MH Environmental Drafting	Overview of all proposed buildings colour-coded by purpose, creek, top of bank and VRZ
Fig. 1-3c	Location Plan for flood impact assessment	20/03/2024	1:2,000 at A3	MH Environmental Drafting	Land zoning is transparent with aerial imagery underneath
Fig. 1-3d	Overview Site Plan			MH Environmental Drafting	The proposed development, setbacks environmental constraints
Fig. 1-4a	Site analysis plan - Flood planning - Page 1: Flood constraint categories	5/06/2024	1:750 at A3	MH Environmental Drafting	Flood planning constraint categories (Lithgow Draft Floodplain Risk Management Plan), 2m interval contours
Fig. 1-4b	Landform and Drainage - Pre-Development	5/06/2024	1:750 at A3	MH Environmental Drafting	Proposed development, drainage lines, top of bank, VRZ, transects
Fig. 1-4c	Cross-sections across creek and to proposed buildings			MH Environmental Drafting	

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Fig. 1-4d	Site analysis plan - Flood planning - Page 3: 1% AEP (100 years) Flood map	5/06/2024	1:750 at A3	MH Environmental Drafting	Proposed development concerning 1% AEP flood level
Fig. 1-5	Site bushfire analysis	7/03/2023		KHS Ecology & Bushfire	Hazard vegetation, bushfire assessment areas, 2m interval contours, <10kW/m2 and <29kw/m2 envelopes
Fig. 1-6a	Site analysis plan - Ecology & Biodiversity values	5/06/2024	1:750 at A3	MH Environmental Drafting	Biodiversity values, major vegetation, Bionet species sightings, top of bank, edge of VRZ
Fig. 1-6b	State Vegetation Type Map	5/06/2024	1:2,000 at A3	MH Environmental Drafting	Proposed development concerning the plant community types from the state vegetation mapping
Fig. 1-7	Contour and detail	1/07/2022	1:650 at A3	CEH Survey	2.0 m and 0.5 m contours, banks/cuts, wombat holes, creek, spillways, existing structures, sewer manhole, private pole, power meter, hydrant, existing trees
Fig. 1-8	Site analysis plan - Integrated analysis for buildable area	5/06/2024	1:750 at A3	MH Environmental Drafting	Buildable area defined as the land outside the VRZ, setbacks and Category 1 flood planning constraint category, construction zone, setbacks, proposed development, top of bank, VRZ
Fig. 1-9a	51 Atkinson Street photograph from 1929			Ray Christiansen (State Mine Heritage Park)	
Fig. 1-9b	51 Atkinson Street photograph from 1953			Ray Christiansen (State Mine Heritage Park)	

Fig. 1-9c	Excavated embankment revealing coal spoil fill on 51 Atkinson Street photograph from 2021			Jane Aiken	
Fig. 1-10a	EPI Heritage Items	24/04/2024	1:8,000 at A3	MH Environmental Drafting	Heritage Items concerning Lot 152
Fig. 1-10b	Archaeological Survey 1918	30/04/2024	1:2,000 at A3	MH Environmental Drafting	Geosciences Australia map from 1918 overlayed with today's allotments
Fig. 1-10c	Archaeological Survey 1930	30/04/2024	1:2,000 at A3	MH Environmental Drafting	Parish map from 1930 overlayed with today's allotments
Fig. 1-10d	Archaeological Survey 1970	30/04/2024	1:2,000 at A3	MH Environmental Drafting	Status Branch Charting Map from 1970 overlayed with today's allotments
Fig. 1-10e	Archaeological Survey: Heritage Items Today	11/06/2024	1:2,000 at A3	MH Environmental Drafting	Heritage items located in vicinity of the site
Fig. 1-10f	Archaeological Survey Historical Mining Licences Prior to 1990	7/05/2024	1:2,000 at A3	MH Environmental Drafting	Historical Mining Licences before 1990 in relation to today's allotments
Fig. 1-10g	Archaeological Survey Historical Mining Licences After 1990	7/05/2024	1:2,000 at A3	MH Environmental Drafting	Historical Mining Licences after 1990 in relation to today's allotments
Fig. 2-0	Title page - Earthworks	NA		MH Environmental Drafting	Overview of plans under the Earthworks section
Fig. 2-1a	Earthworks - Pre-	9/04/2023	1:750 at A3	MH Environmental Drafting	Existing levels from 1m DEM in 0.25m intervals above the VRZ;

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	development levels				Contours at 2m and 0.5m intervals, top of bank, VRZ
Fig. 2-1b	Proposed development on existing levels	5/06/2024	1:750 at A3	MH Environmental Drafting	Proposed buildings, carparks, driveway and water tanks in relation to the existing levels from the detailed survey (CEH Survey)
Fig. 2-2	Earthworks - Design finished levels	6/03/2024	1:750 at A3	MH Environmental Drafting	Earthworks design finished levels; 0.5m and 2m contours; top of bank and VRZ, stormwater interventions, retaining walls, services trench, finished grade/direction of stormwater flow
Fig. 2-3	Earthworks - Proposed extent and volumes of cut and fill	20/03/2024	1:750 at A3	MH Environmental Drafting	Proposed construction zone, extent of earthworks and landscaping; estimated cut and fill required for development in 0.25m intervals based on existing pre-development levels (Fig. 2-1) and design finished levels (Fig. 2-3); table with estimated volume of cut and fill
Fig. 2-4a	Soil and water management plan - Page 1	5/06/2024	1:750 at A3	MH Environmental Drafting	Impervious areas, watertanks, overflow pipes, services trench, stormwater interventions, sediment fence; top of bank and VRZ
Fig. 2-4b	Soil and water management plan - Page 2 - Details	10/11/2023		MH Environmental Drafting	Details of a typical raingarden, swale and sediment fence
Fig. 2-4c	MUSIC Catchments	5/06/2024	1:750 at A3	MH Environmental Drafting	Six catchments corresponding to MUSIC modelling, stormwater interventions, proposed stormwater directions

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Fig. 3-0	Title page - People, vegetation and lanscape	NA		MH Environmental Drafting	Overview of plans under the People, Vegetation and Landscape section
Fig. 3-1a	Pedestrians, Traffic and Parking	5/06/2024	1:500 at A3	MH Environmental Drafting	Driveways, walkways, traffic flow in and out, carparks, incl. accessible parking, list of legislation to comply with
Fig. 3-1b	Pedestrians, Traffic and Parking	11/06/2024	1:1000 at A#	MH Environmental Drafting	Driveways, walkways, traffic flow in and out, carparks, incl. accessible parking, list of legislation to comply with
Fig. 3-1b	CONCEPT ROAD DESIGN DETAIL	19/04/2024		CEH Survey	
Fig. 3-2	Conceptual Landscaping Plan	18/06/2024	1:750 at A3	MH Environmental Drafting	Proposed construction zone, vegetation management zones, forest and remnant vegetation, existing trees, managed lawn and landscaping zone, impervious surfaces in construction zone, biodiversity values map, table with areas of pervious and impervious surfaces
Fig. 3-3a	Emergency management & Evacuation - Page 1	11/06/2024	1:750 at A3	MH Environmental Drafting	Bushfire assessment zones (<10kw/m2 and <29 kw/m2 envelopes), emergency sheltering and evacuation routes, emergency assembly point, static water supply location, bushfire refuge, entry & exit for emergency vehicles, walkways
Fig. 3-3b	Emergency managemnt & Evacuation - Page 2	11/10/2023	1:10,000 at A3	MH Environmental Drafting	Lot 152, road reserves, public recreation areas for evacuation, evacuation routes to off-site refuges
Fig. 3-4a	Impressions from road level			MH Environmental Drafting	Compilation of images from three-dimensional scene of the development and the

					surrounding topography/ landscape from eye level from three surrounding roads
Fig. 3-4b	Impressions from the air			MH Environmental Drafting	Compilation of images from the three-dimensional scene of the development and the surrounding topography/ landscape from the air
Fig. 3-5	Visitor experience - Perspective views			Consulting & Environmental Services	Perspective view of manager residence, common room and check-in office
Fig. 3-6	Ecotourism visitor management	11/06/ 2024	1:750 at A3	MH Environmental Drafting	Proposed development, vegetation management zones, wombat burrows, proposed plantings, visitor experiences on-site, directions to visitor experiences in the surrounding region
Fig. 4-0	Title page - Buildings			MH Environmental Drafting	Overview of plans under the buildings section
Fig. 4-1	Architectural site plan	11/09/ 2023	1:750 at A3	Consulting & Environmental Services	Buildings, driveway, water tanks, car parking, waste bins, existing trees, nominal setback from side boundary, building setback from front boundary
Fig. 4-2	Floor plan and elevations of check-in office building	11/09/ 2023	1:100 at A3	Consulting & Environmental Services	Floor plan and elevations of check-in office building
Fig. 4-3	Floor plan and elevations of one bedroom cabins	11/09/ 2023	1:100 at A3	Consulting & Environmental Services	Floor plan and elevations of one-bedroom cabins
Fig. 4-4	Floor plan and elevations of two-bedroom cabins	11/09/ 2023	1:100 at A3	Consulting & Environmental Services	Flood plan and elevations of two-bedroom cabins

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Fig. 4-5	Floor plan of common room	11/09/2023	1:100 at A3	Consulting & Environmental Services	Flood plan of the common room
Fig. 4-6	Elevations of common room	11/09/2023	1:100 at A3	Consulting & Environmental Services	Elevations of the common room
Fig.4-7	Floor plan of ground floor and first floor of manager's cottage	11/09/2023	1:100 at A3	Consulting & Environmental Services	Flood plan of ground floor and first floor of manager's cottage
Fig.4-8	Rear and side elevation, and cross section of manager's cottage	11/09/2023	1:100 at A3	Consulting & Environmental Services	Rear and side elevation and cross-section of manager's cottage
Fig.4-9	Front and rear elevation of manager's cottage	11/09/2023	1:100 at A3	Consulting & Environmental Services	Front and rear elevation of manager's residence
Fig.4-10	Side elevation of manager's cottage	11/09/2023	1:100 at A3	Consulting & Environmental Services	Side elevation of the manager's cottage
Fig.4-10	Cross section: Longitudinal view east-west at D1-3	11/09/2023	1:200	Consulting & Environmental Services	Cross-section from west to east across D-cabins, walkway, driveway, and stepped retaining wall with garden beds to the eastern boundary.
Fig. 4-11	Cross section: Longitudinal view (west)	11/09/2023	1:200	Consulting & Environmental Services	Cross-section facing west from south to north across cabins D3-D2-D1-C2-C1-B2-B1

Table 1-2 Table of Adjoining Allotments

Lot	Deposited Plan	Type of Land Use (current)
10	1240259	C3 Environmental Management – Lithgow State Mine Heritage Park & Railway
11	1240259	C3 Environmental Management – Lithgow State Mine Heritage Park & Railway
B	420860	R1 Residential
A	388987	R1 Residential
B	388987	R1 Residential
15	17214	R1 Residential
14	17214	R1 Residential
13	17214	R1 Residential
12	17214	R1 Residential

Table 1-3 Timeline of events industrial history

Date	Event	Ref
1879	Railway, the opening of the railway into the valley	Furnace, Fire And Forge (McKillop, 2006)
1900	Beginning of the steel furnace	Furnace, Fire And Forge (McKillop, 2006)
1906	Australia's first large-scale blast furnace beginning construction	Furnace, Fire And Forge (McKillop, 2006)
1907	Blast furnace opening	Furnace, Fire And Forge (McKillop, 2006)
1912	Labour Gov secured land for a state coal mine, which became a reality in 1921. This eventually provided G & C Hoskins Ltd the opportunity to secure coal-bearing land for its steelworks colliery.	
1916	Initial development of the state gully mine (site clearing)	John Oates, Mine gully gazette
1917	Cessation of work on the mine development due to financial stringencies from the war or potentially due to political pressure related to the concept of a state owned mine being opened	(Pratten. C and Irving. R, 1994) **pp15**

Date	Event	Ref
1920	Blasting and earthworks recommenced	(Pratten. C and Irving. R, 1994)**pp15**
1921	Recommended works after works being suspended for the war First winning of coal	John Oates, Mine gully gazette (Pratten. C and Irving. R, 1994) **pp11**
1922	Transfer of management of the mine to the NSW Railway department	(Pratten. C and Irving. R, 1994) **pp17**
1923	The powerhouse at the steelworks opened. The steelworks colliery was located halfway up the western side of Morts gully, above and approximately 300 yards on the town side of the state coal mine.	Furnace, Fire And Forge (McKillop, 2006), Pp201
1924	Development commencement of the steelworks colliery by Hoskins Iron and Steel Limited. m1924 was the beginning of a new mine shaft for the steelworks colliery, while the railway branch from the steelworks to the mine was being pushed ahead	Furnace, Fire And Forge (McKillop, 2006) Pp200 Furnace, Fire And Forge (McKillop, 2006), Pp143
1927	Steelworks Colliery opening in May.	Furnace, Fire And Forge (McKillop, 2006) Pp200 Furnace, fire and forge
1927	Work commencing on the adjacent railway Power station	(Pratten. C and Irving. R, 1994)
1928	Lithgow powerhouse opening, state gully mine supplied coal to it and power stations in Sydney. Blast furnace closing	John Oates, Mine gully gazette Furnace, Fire And Forge (McKillop, 2006)
1932	Stevens Government announced the closure of the state mine, which closed under the management of NSW railway, and the passed to the State Coal Mines Control Board to reopen in the same year.	(Pratten. C and Irving. R, 1994)

Date	Event	Ref
1964	Lithgow Railway power station decommissioned	**Wikipedia https://en.wikipedia.org/wiki/Lithgow_power_station**
1964	June, a Flash flood in Farmers Creek broke into the genders colliery, which then flooded the abandoned Steelworks colliery and the state coal mine. Efforts were made to save the state coal mine but were abandoned in Oct 1964.	John Oates, Mine gully gazette
1970's	Power station demolished	**Wikipedia https://en.wikipedia.org/wiki/Lithgow_power_station**
1974	Old mine site was purchased by Austen and Butta (Collieries) Pty Ltd with the view of establishing cement works. Though never developed for the purpose	(Pratten. C and Irving. R, 1994) **pp28**
1987	Lithgow Mercury reported the potential for establishing a mining museum	(Pratten. C and Irving. R, 1994) **pp28**
1990	Austen and Butta handed over the state gully mine to the city of Lithgow for $1 to be developed as a mining museum.	(Pratten. C and Irving. R, 1994) **pp28**
1991	Most of the steelworks colliery is already demolished and removed	Furnace, Fire And Forge (McKillop, 2006) Pp 268
1994	April, preparation of conservation plan	(Pratten. C and Irving. R, 1994)

Table 3-1 Schedule of Colour Finishes

The cabins are prepared with a pale roof, deep coloured walls and moderate absorptance timber look trim. The ecotourist facility's design provides deep, darker external walls to all buildings except the manager's residence, which is Shale Gray and has a light pale tone. The check-in office, all cabins, and the community have pale, low absorptance values for their roof.

Note: Colours of roofs, walls, and trims are noted on the architectural plans.

Climate Zone	**Climate zone 7 (Cool temperate)**				
Buildings		Cabins	Check-in	Man. Res	Community
Colorbond Profile		**Wall clad**	**Wall clad**	**Wall clad**	**Wall clad**
		Corrugated	**Corrugated**	**Corrugated**	**Corrugated**
External Walls Colour		**Monument Matt**	**Monument Matt**	**Monument Matt**	**Monument Matt**
Colour Swatch					
Solar Absorptance		**0.79**	**0.79**	**0.79**	**0.79**
Tone		**Deep**	**Deep**	**Deep**	**Deep**
Roof	Colorbond Profile	Corrugated	Corrugated	Corrugated	Corrugated
	Colorbond Colour	**Dune**	**Dune**	**Monument Matt**	**Shale Grey**
Colour Swatch					
Solar Absorptance		**0.48**	**0.48**	**0.79**	**0.44**
Tone		**Pale**	**Pale**	**Dark**	**Pale**
Trims	Trim underside of eaves and subfloor infill	**Easyclad**	**Easyclad**	**Easyclad**	**Easyclad**
		Aries	**Aries**	**Night Sky**	
					n/a
Solar Absorptance		**0.7**	**0.7**	**0.95**	**n/a**
Tone		**Deep**	**Deep**	**Deep**	**n/a**
Trims	Facia, barge, gutters and window trims	**Windspray**	**Windspray**	**Night Sky**	**Windspray**
Solar Absorptance		**0.6**	**0.6**	**0.95**	**0.6**
Tone		**Mid**	**Mid**	**Dark**	**Mid**

Figures

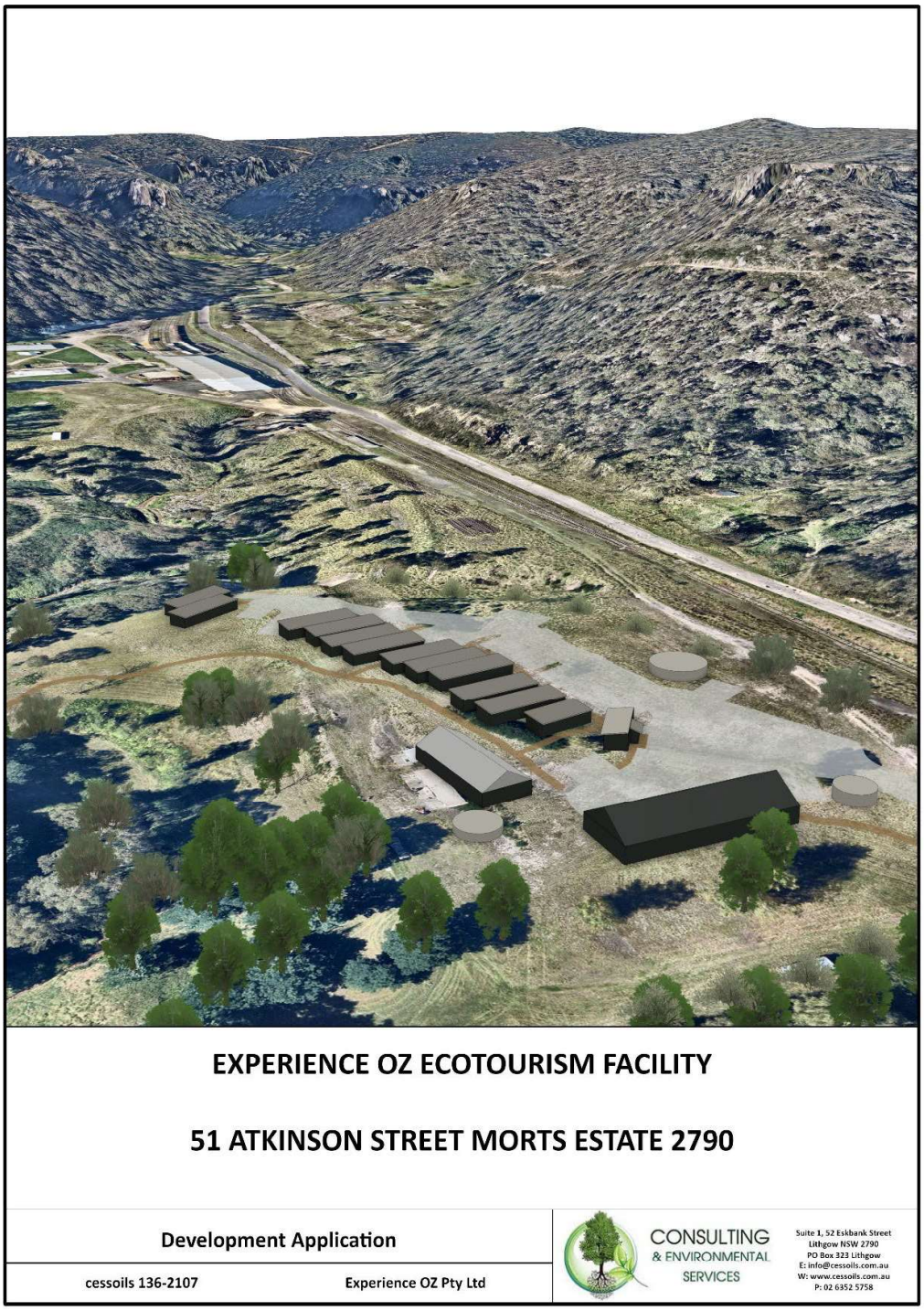


Figure 1-1 – Title page

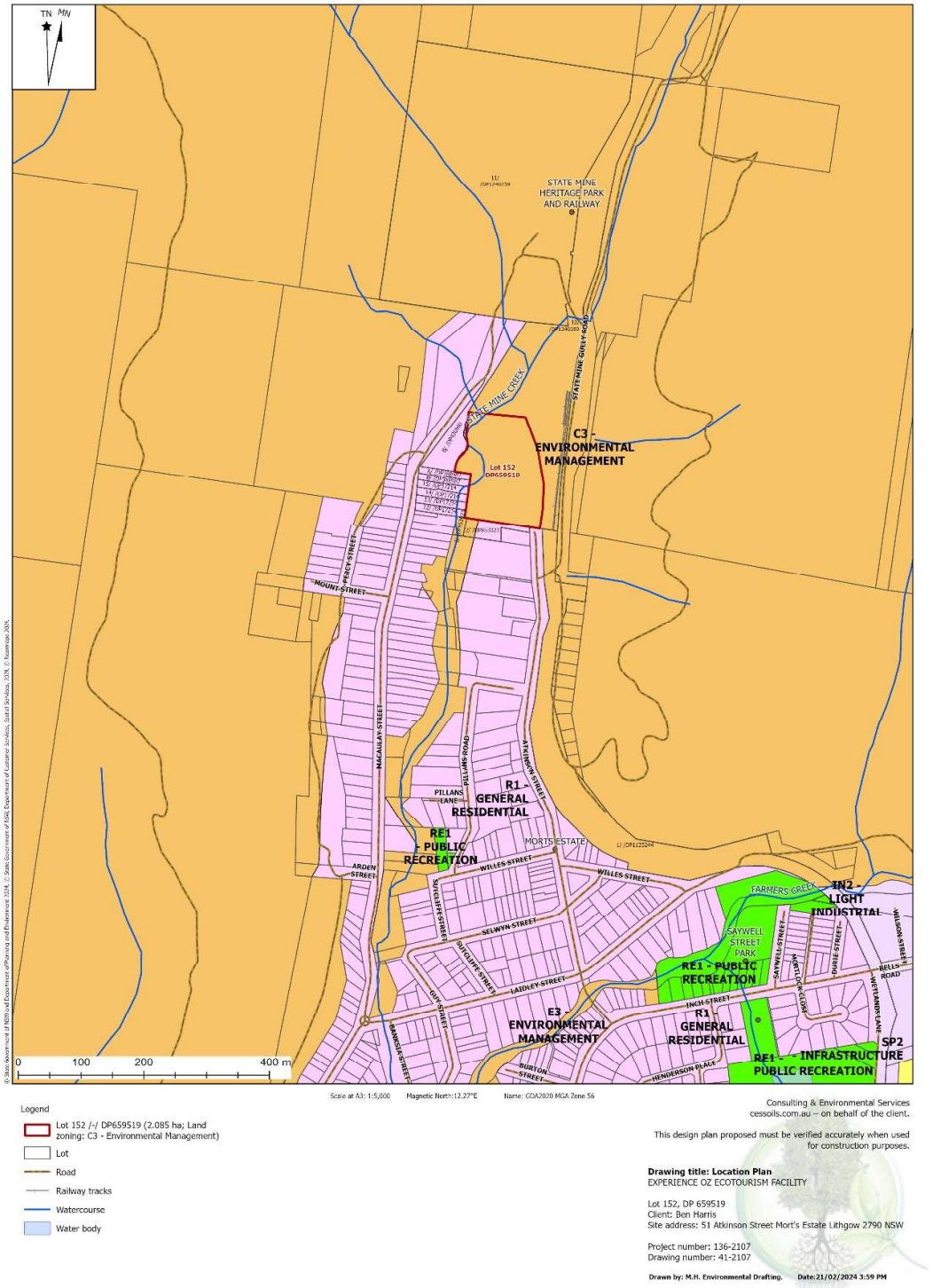


Figure 1-3a – Location plan

Figure 1-3b – Project Proposal Concept Plan

Figure 1-4a: Site analysis plan: Flood planning – Page 1: Flood constraint categories

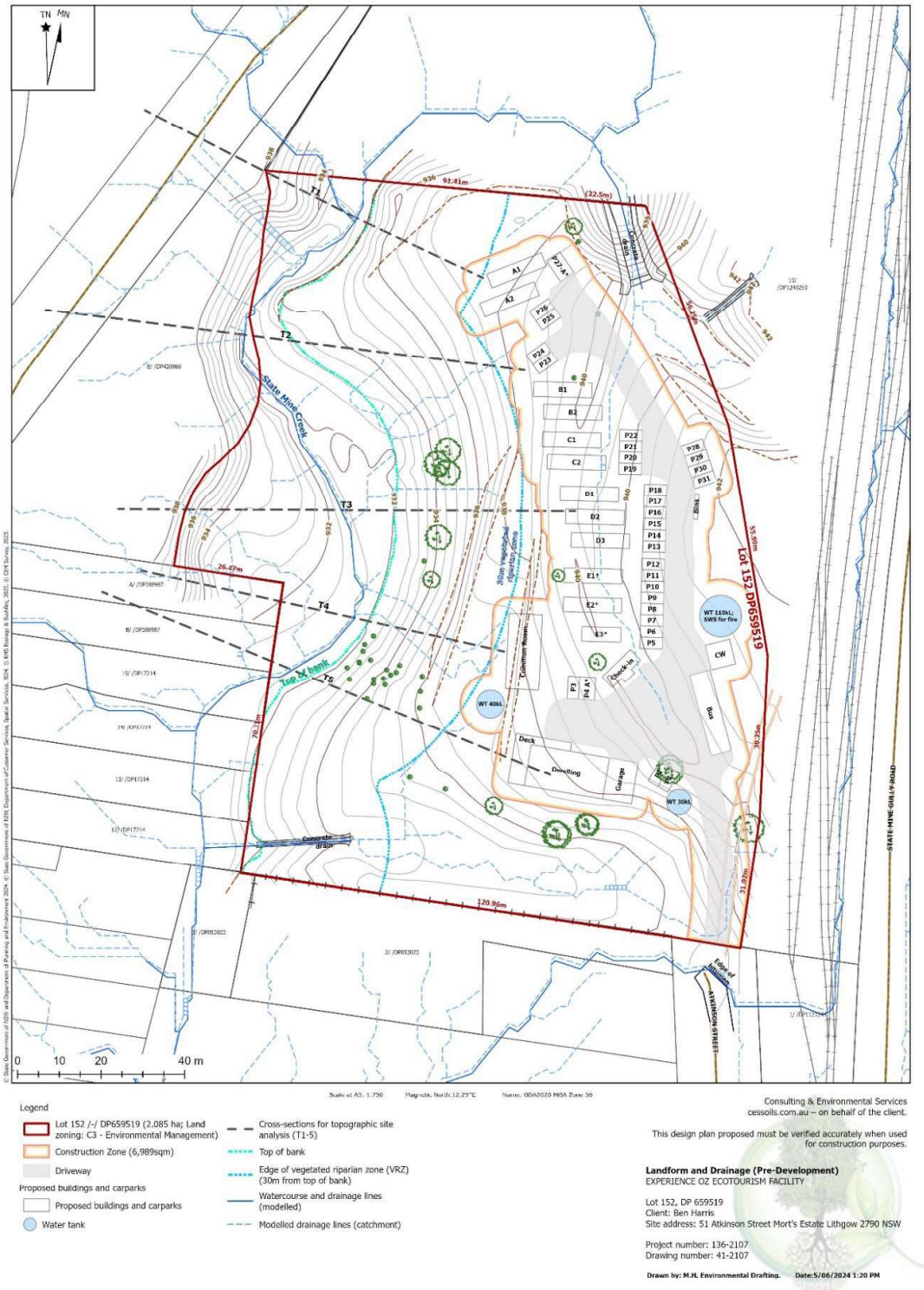


Figure 1-4b Landform and Drainage (Pre-Development)

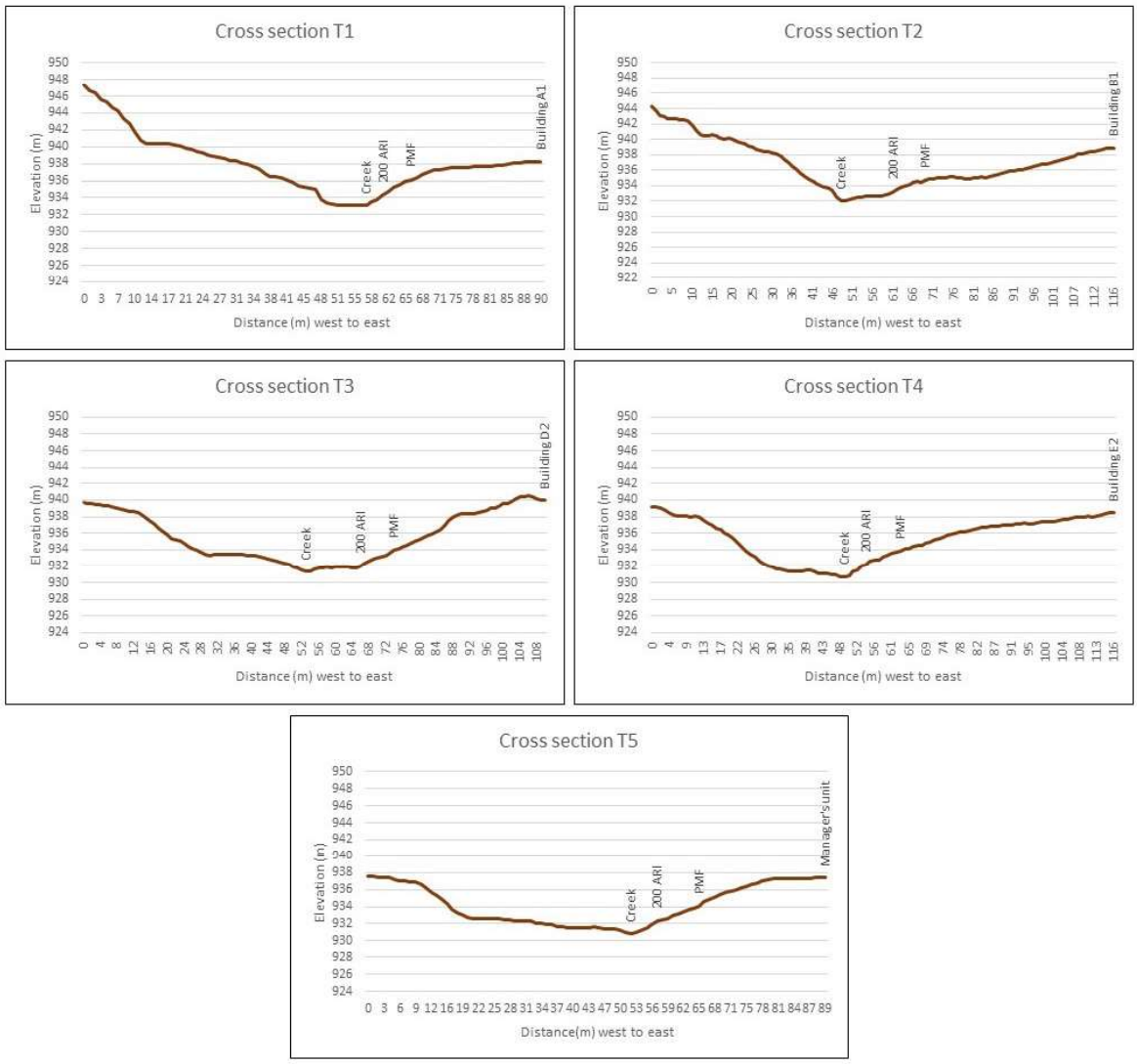


Figure 1-4c: Cross sections across creek and to proposed buildings

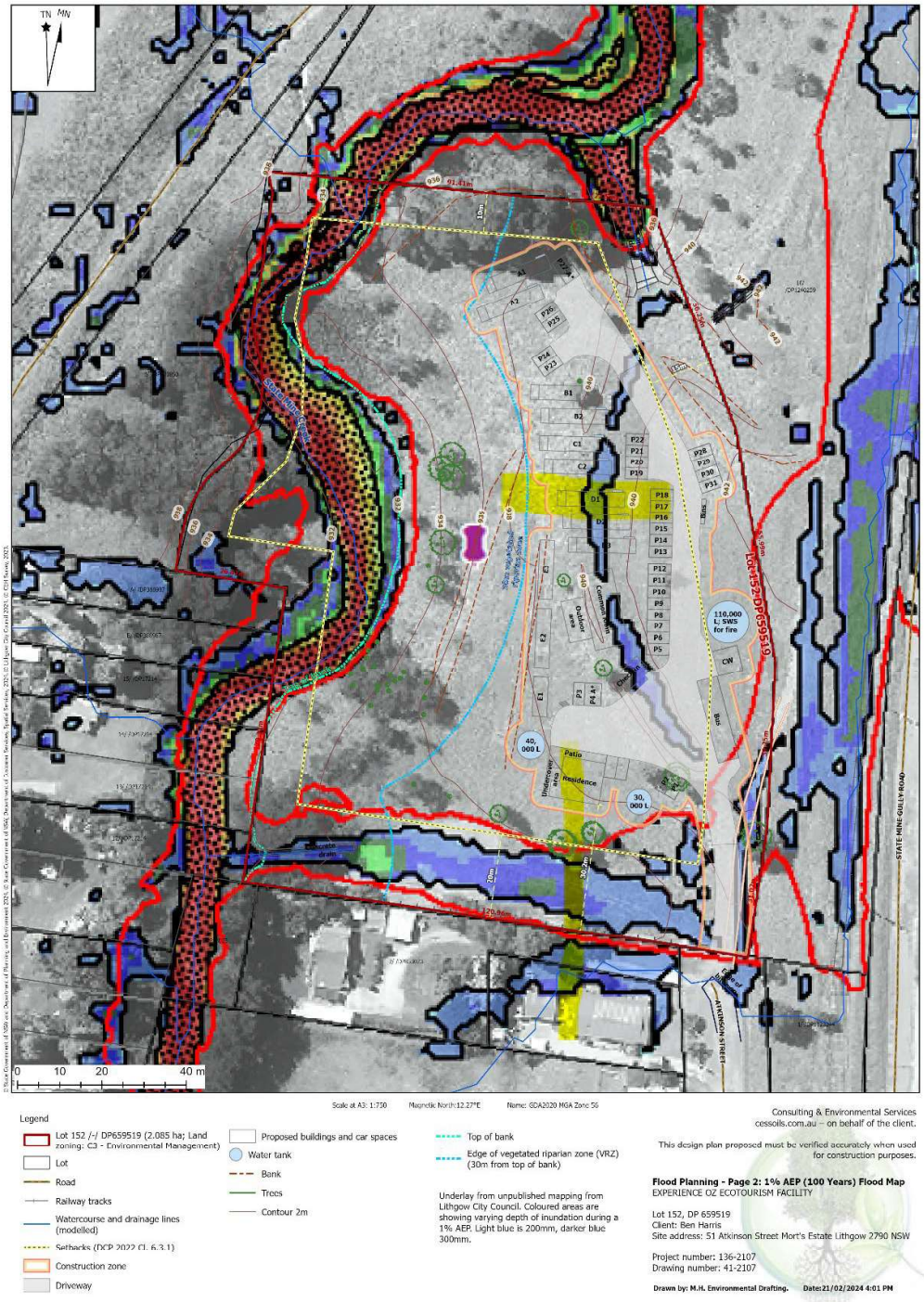


Figure 1-4d Flood Planning: Page 2L 1% AEP (100 Years) Flood Map

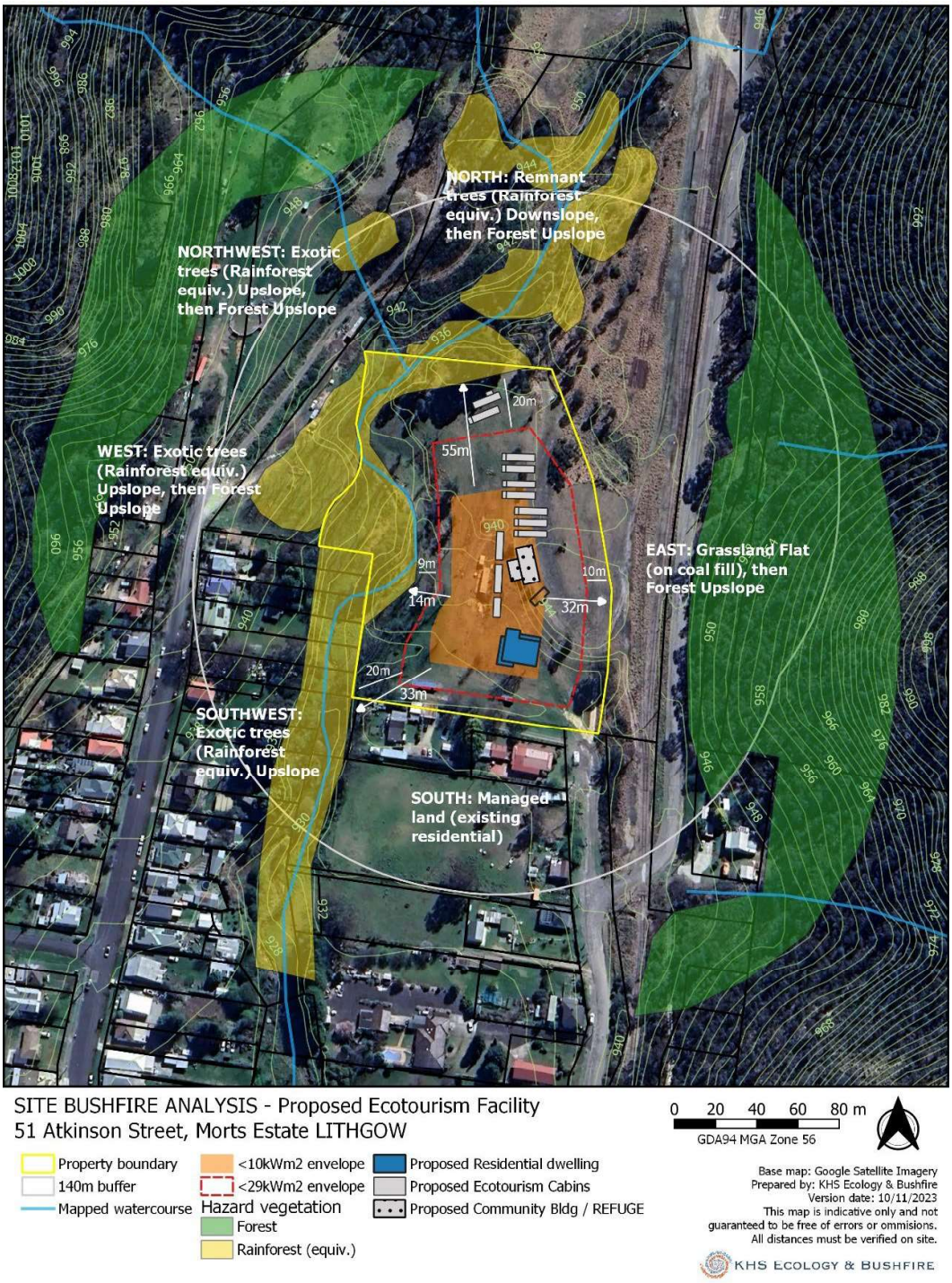


Figure 1-5: Bushfire site analysis

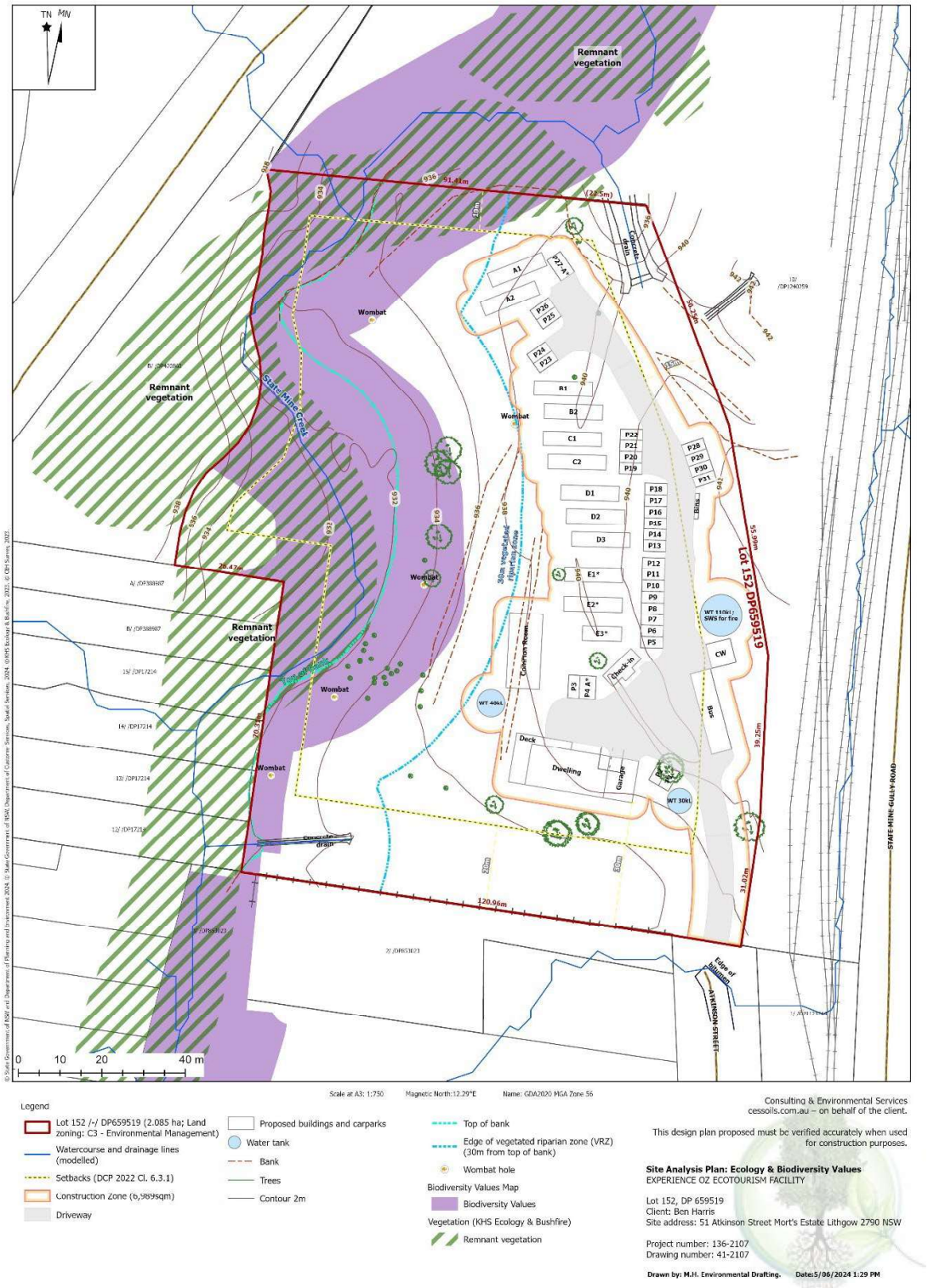


Figure 1-6a: Site analysis plan – Ecology & biodiversity values

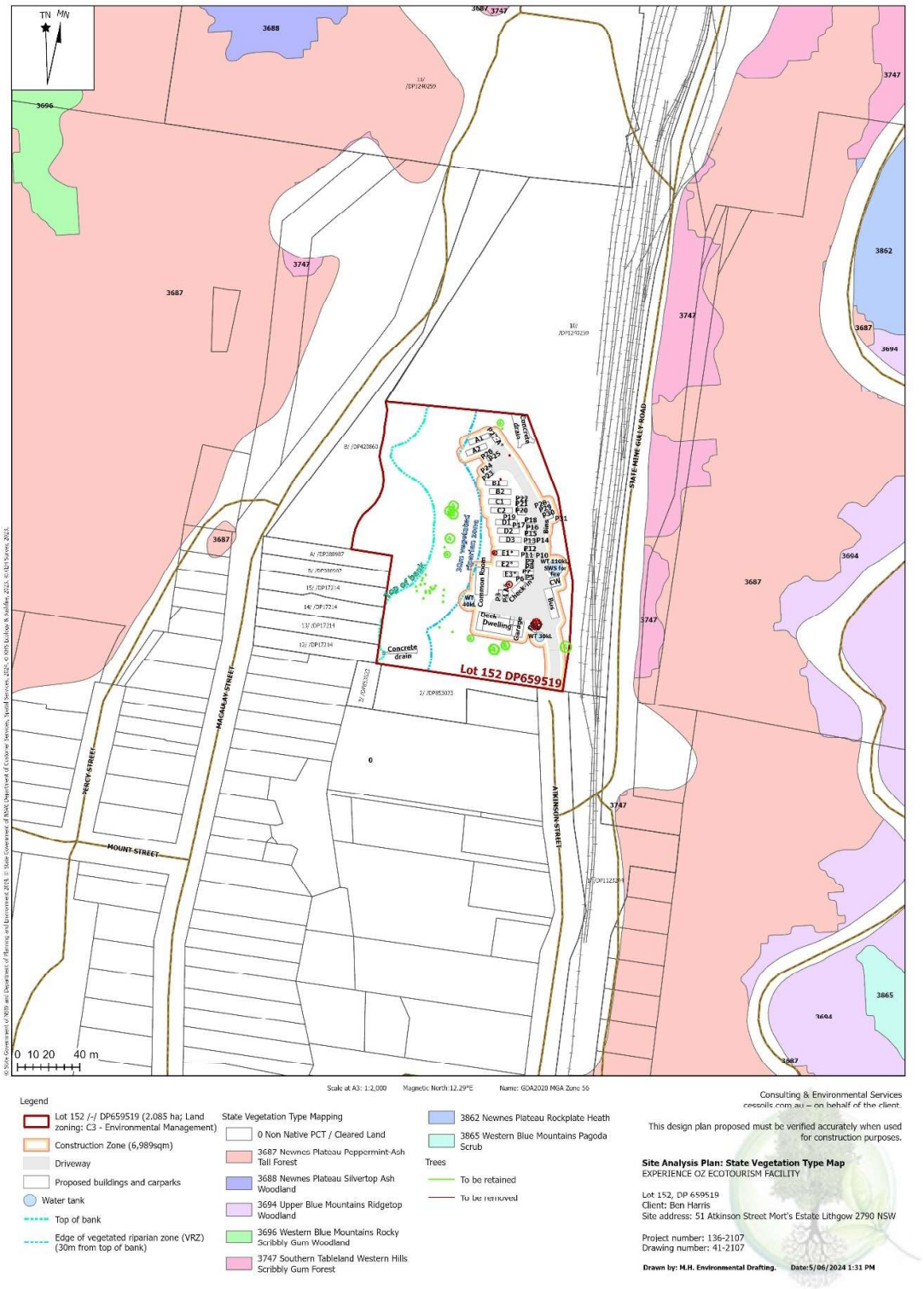


Figure 1-6b: Site Analysis Plan: State Vegetation Type Map

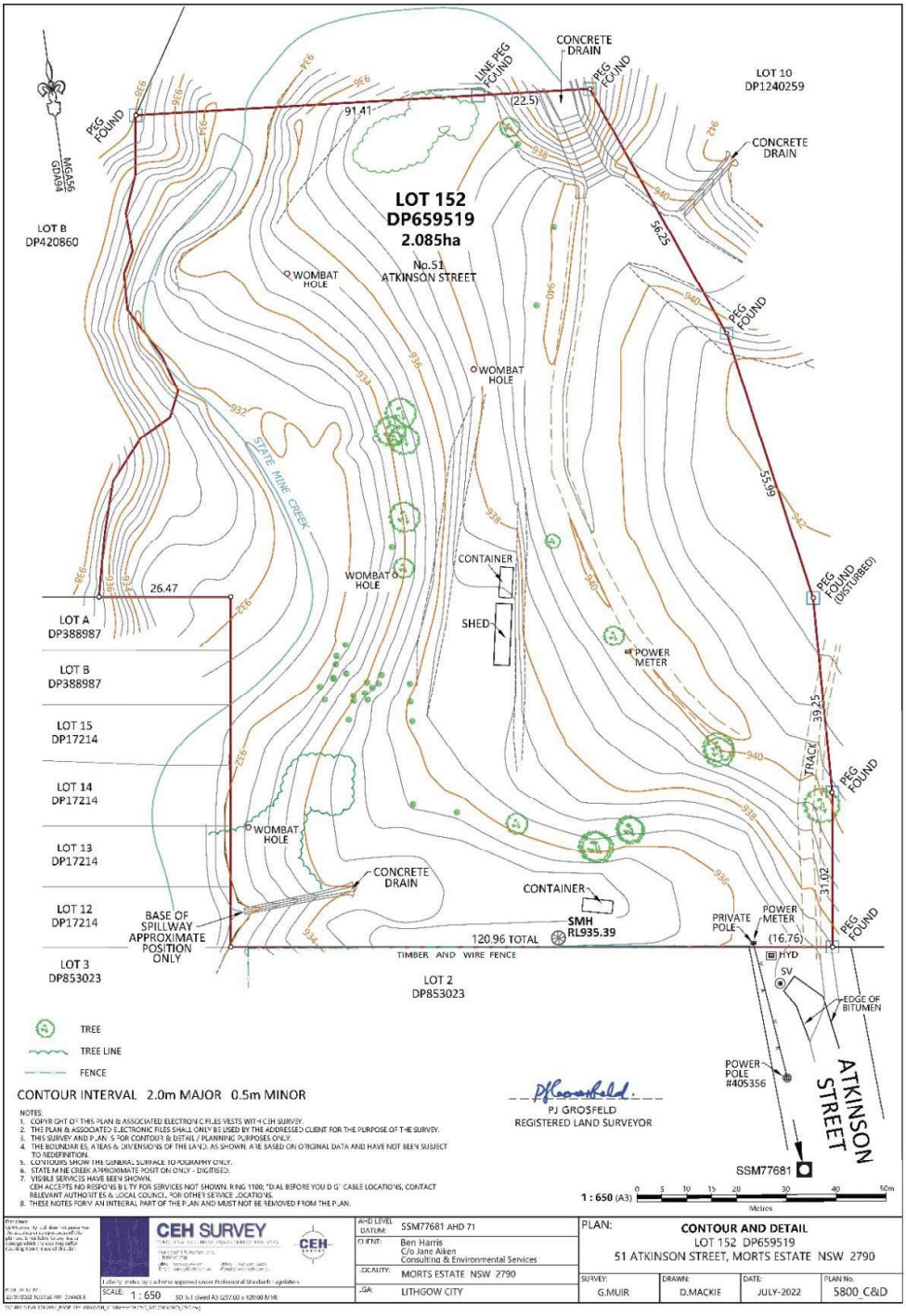


Figure 1-7: Contour and detail survey

Figure 1-8: Site analysis: Integrated analysis for buildable area

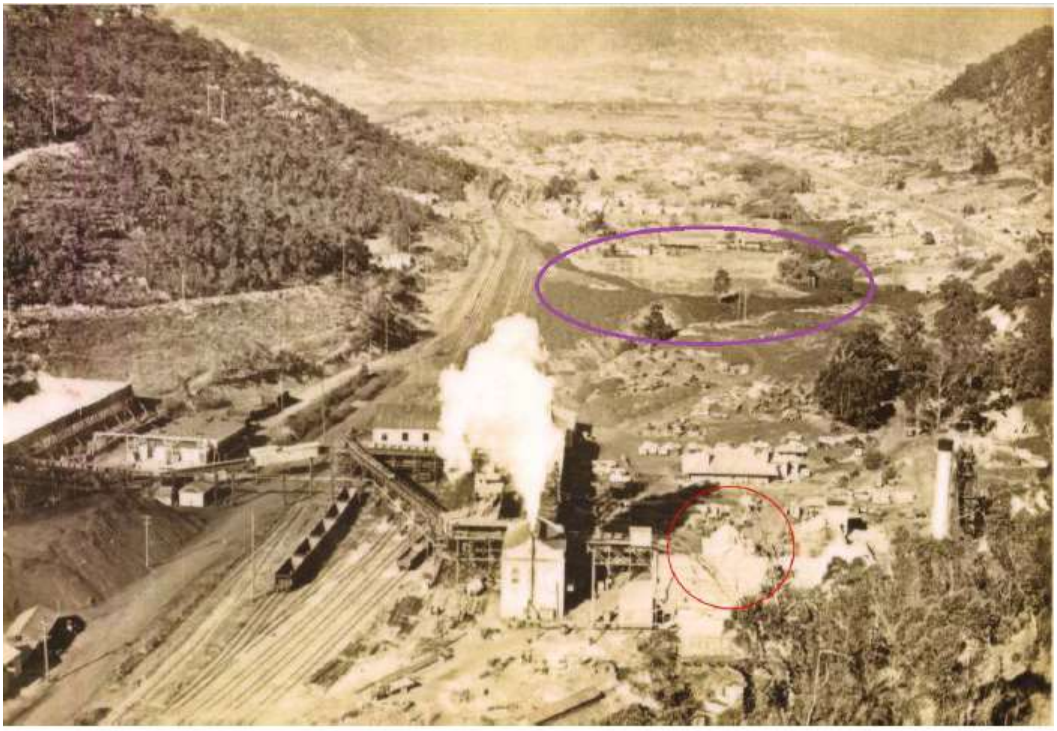


Figure 1-9a: 51 Atkinson Street photograph from 1929

Figure 1-9b: 51 Atkinson Street photograph from 1953

Figure 1-9c: Excavated embankment revealing coal spoil fill on 51 Atkinson Street photograph from 2021

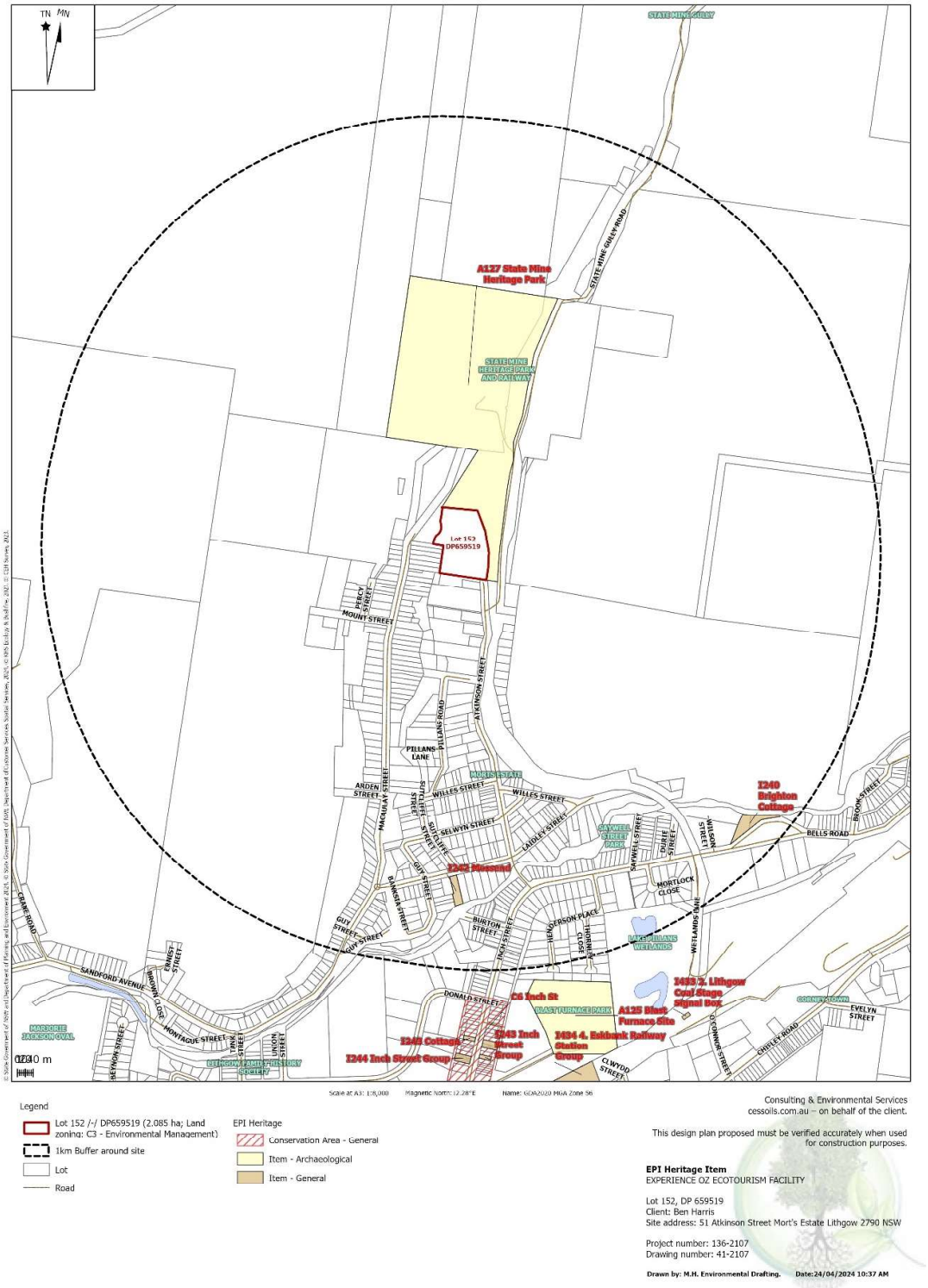


Figure 1-10a: EPI Heritage Items

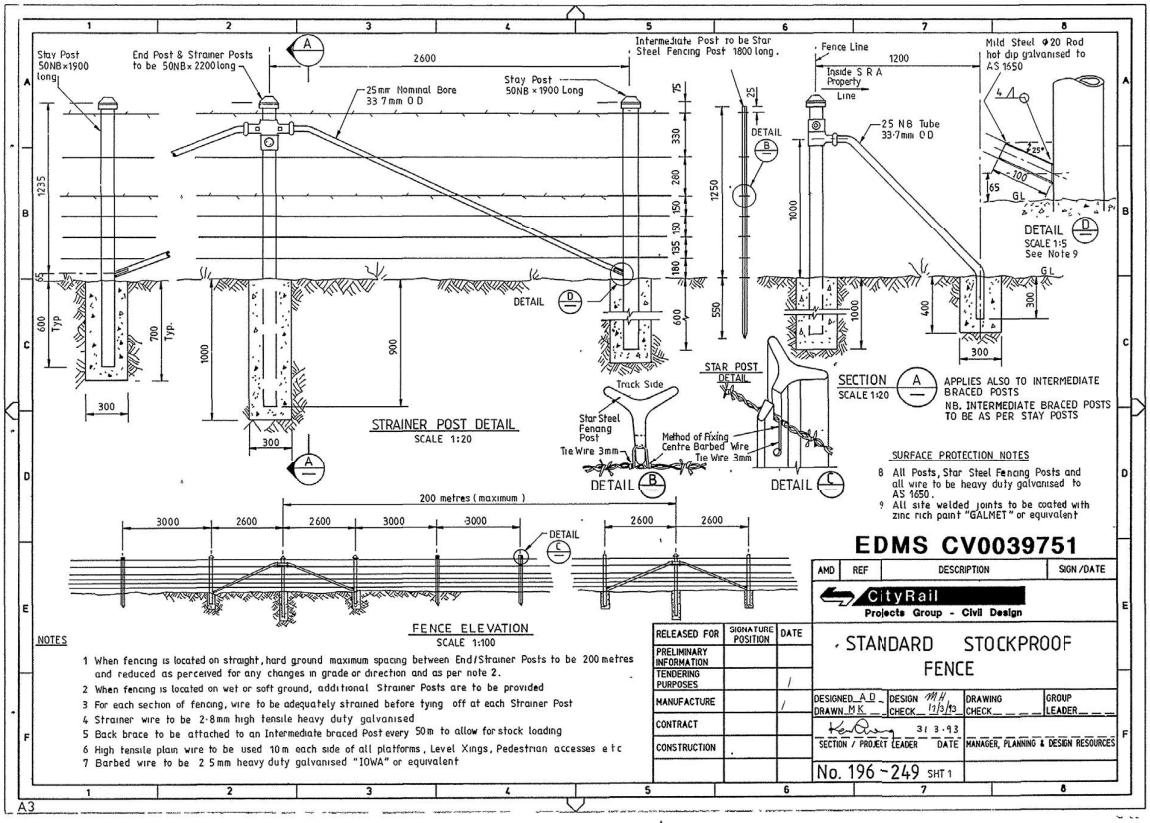


Figure 1-10b: Diagram and installation notes for standard stockproof fence to be used along the eastern boundary

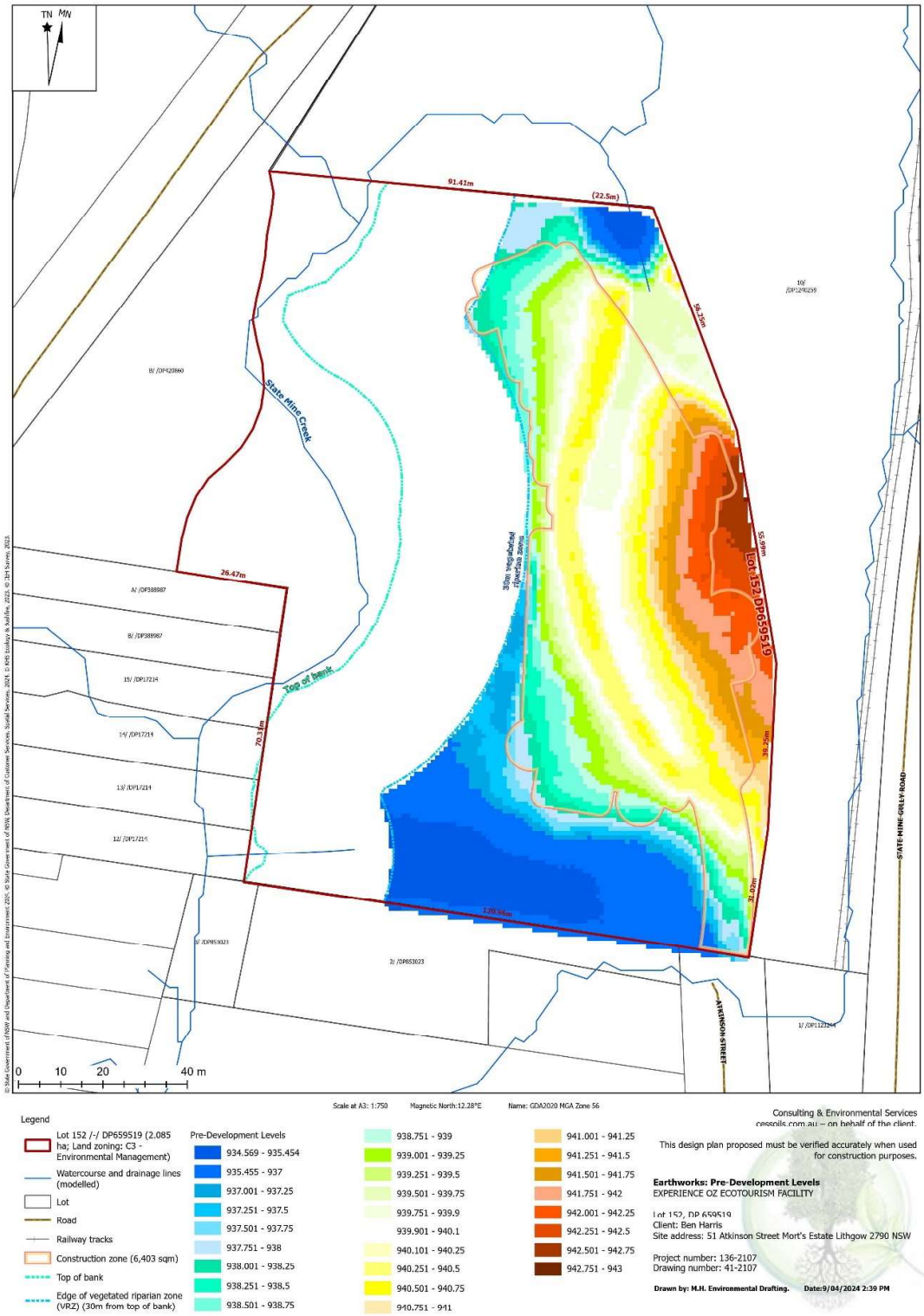
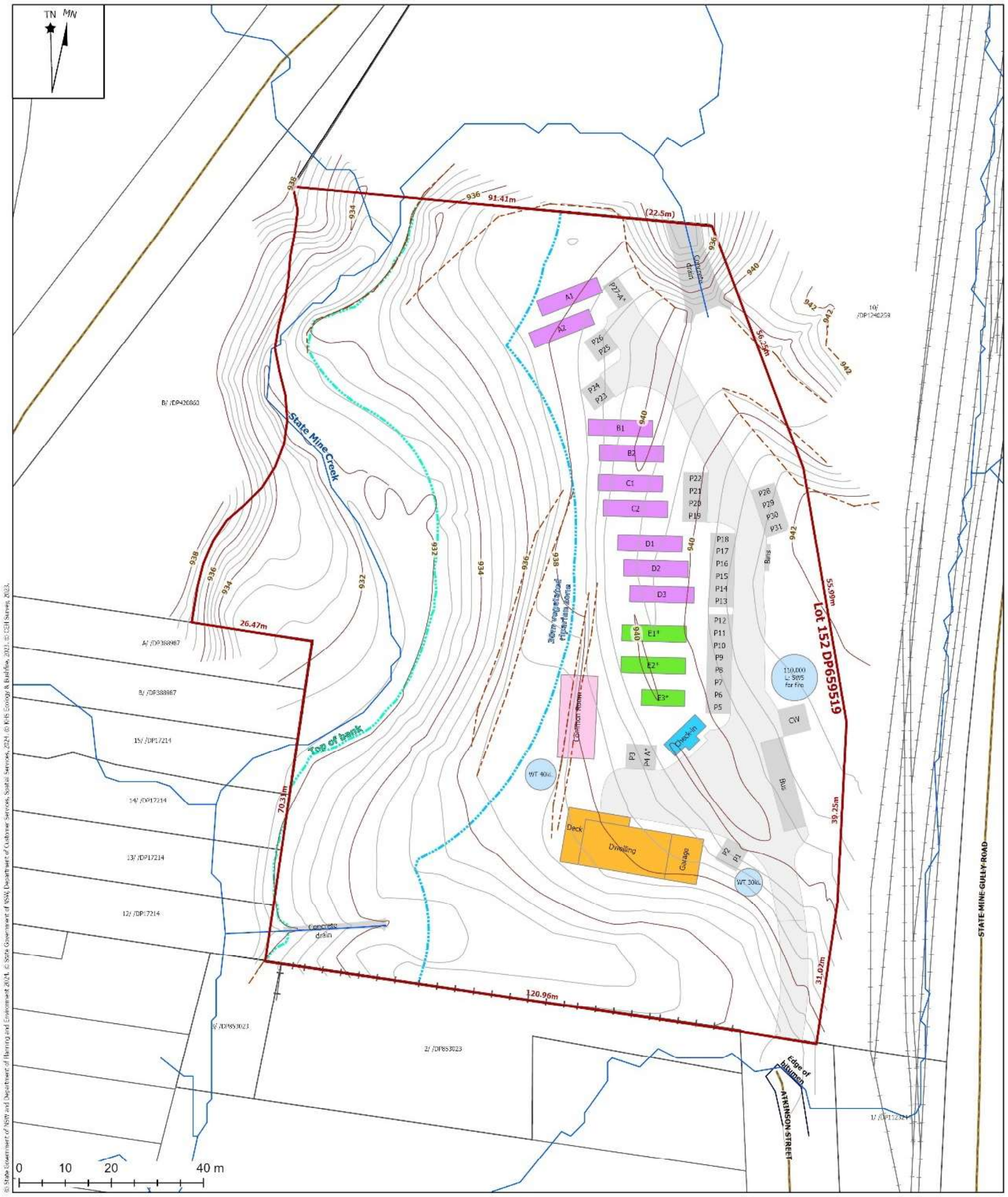


Figure 2-1a: Earthworks – Pre-development levels



Scale at A3: 1:750 Magnetic North: 12.29°E Name: GDA2020 MGA Zone 56

Legend

- Lot 152 /-/ DP659519 (2.085 ha; Land zoning: C3 - Environmental Management)
- Watercourse and drainage lines (modelled)
- Driveway
- Water tank
- Top of bank
- Edge of vegetated riparian zone (VRZ) (30m from top of bank)
- Bank
- Contour 2m
- Contour 0.5m

Buildings

- Cabins A1&2, B1&2, C1&2 and D1-3
- Cabins E1-3 (*One-Bedroom)
- Manager's residence
- Check-in office
- Common room / bushfire refuge
- Car spaces P1-31

Consulting & Environmental Services
cessoils.com.au – on behalf of the client.

This design plan proposed must be verified accurately when used for construction purposes.

Proposed development on existing contours
EXPERIENCE OZ ECOTOURISM FACILITY

Lot 152, DP 659519
Client: Ben Harris
Site address: 51 Atkinson Street Mort's Estate Lithgow 2790 NSW

Project number: 136-2107
Drawing number: 41-2107

Drawn by: M.H. Environmental Drafting. Date: 5/06/2024 1:44 PM

Figure 2-1b: Proposed development on existing contours

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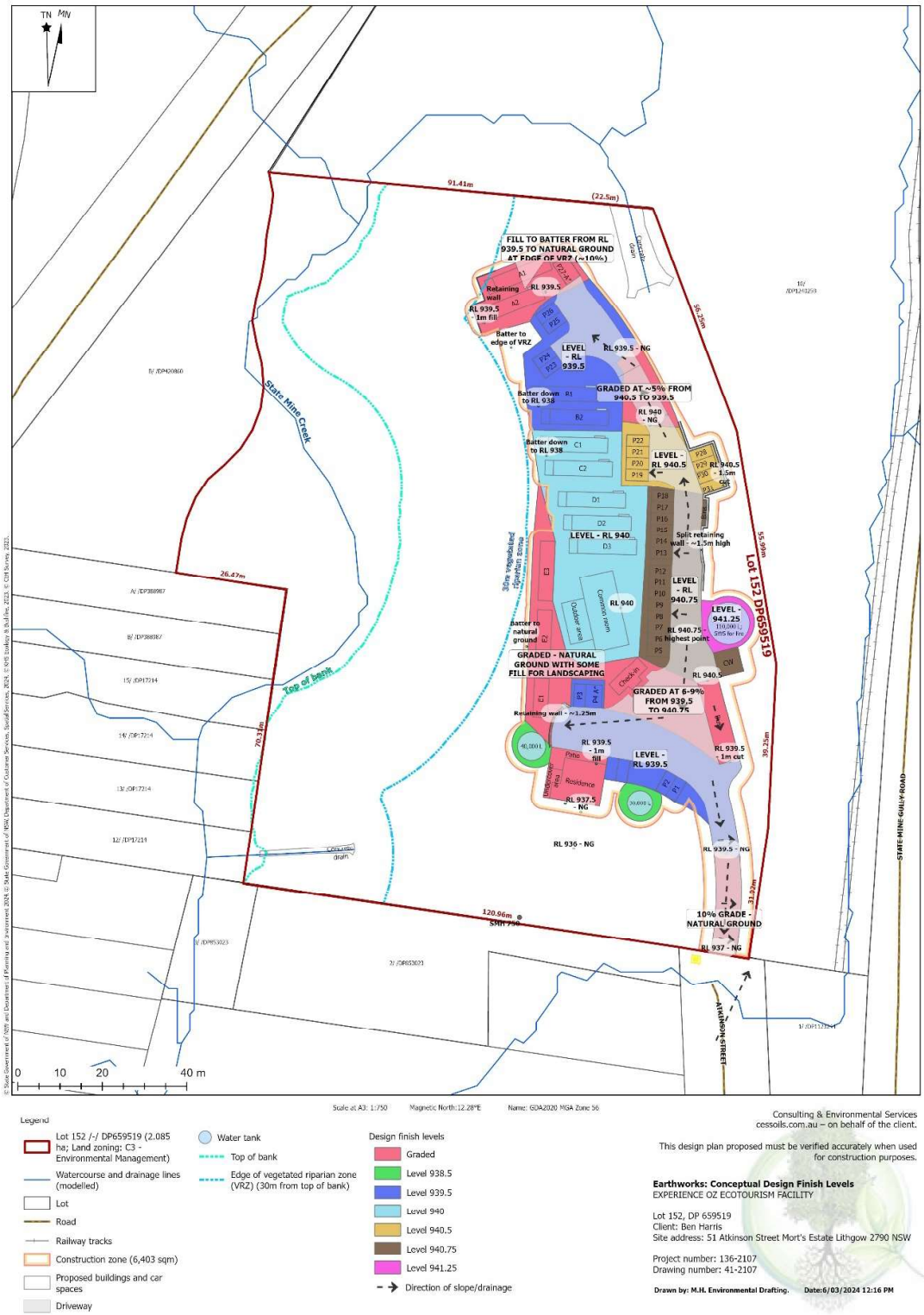


Figure 2-2: Earthworks – Design finished levels

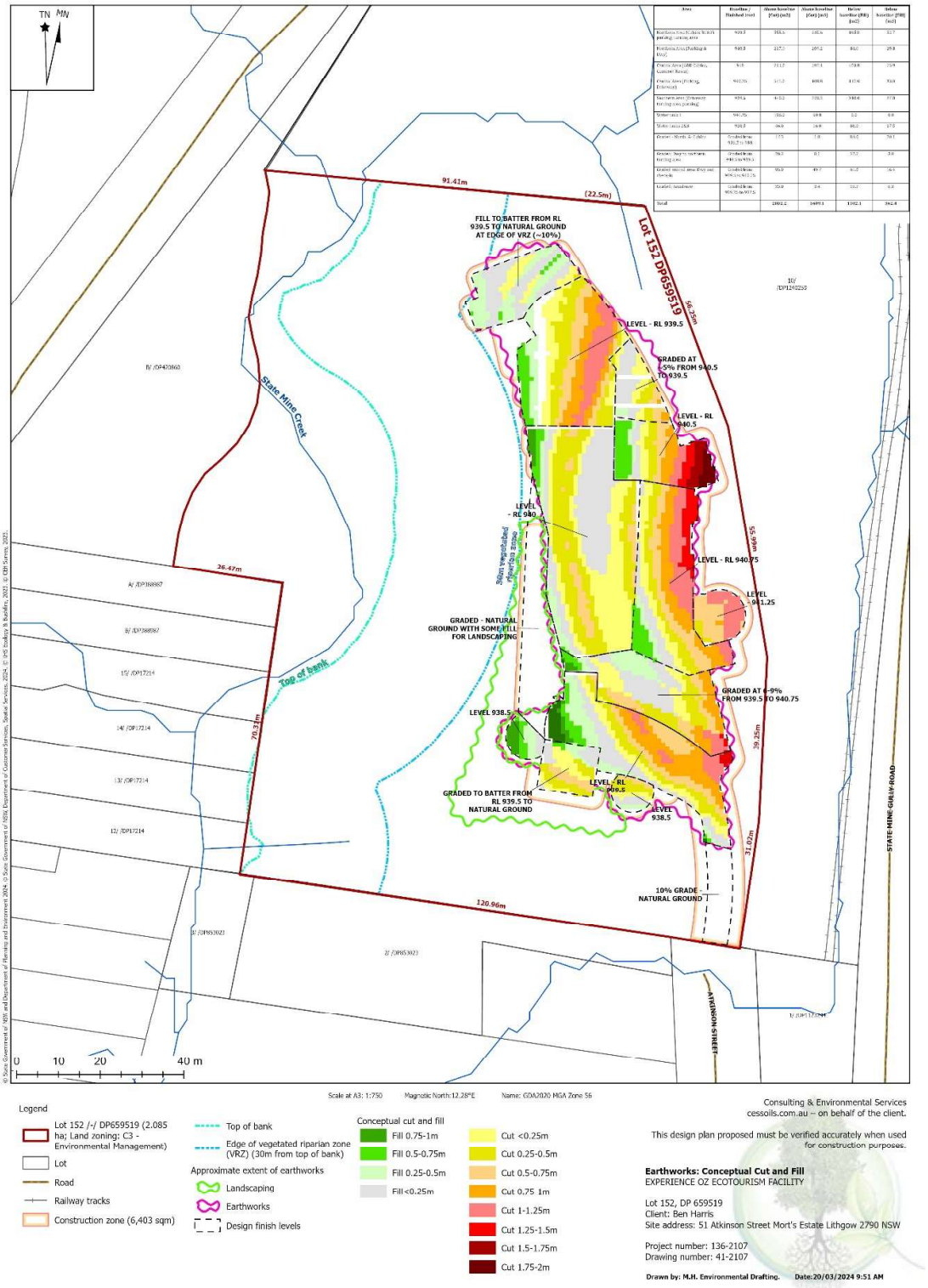


Figure 2-3: Earthworks – Proposed extent and volumes of cut and fill

Figure 2-4a: Soil and water management plan

Figure 2-4b: MUSIC Catchments

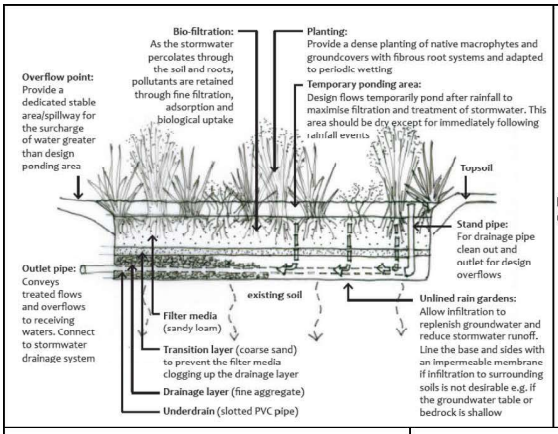
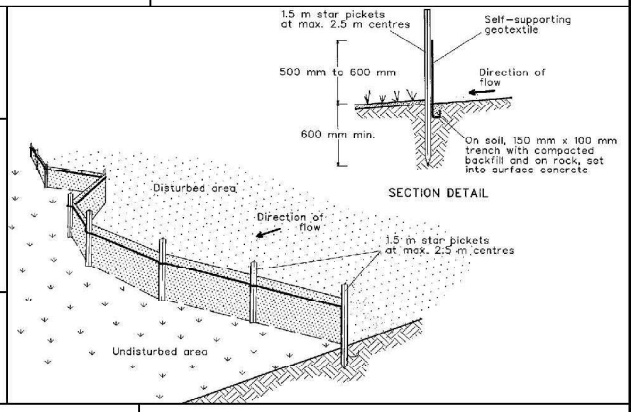


Figure 1 - Typical raingarden cross-section (BMCC DCP 2015 - Part C6 - Figure 3)

Figure 2 - Typical sediment fence (Managing Urban Stormwater: Soils for Construction, 2004).

Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 60 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.0 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.



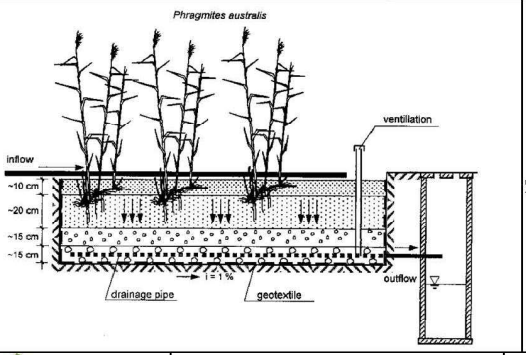


Figure 3: Kowalik, Piotr & Mierzejewski, Michał & Randerson, Peter & Williams, Haydn. (2004). Performance of Subsurface Vertical Flow Constructed Wetlands Receiving Municipal Wastewater. Archives of Hydroengineering and Environmental Mechanics. 51.

CONSULTING & ENVIRONMENTAL SERVICES

Consulting & Environmental Services
cessoils.com.au – on behalf of the client.

Drawing title:
SOIL AND WATER MANAGEMENT PLAN
- PAGE 2 - DETAILS

EXPERIENCE OZ ECOTOURISM FACILITY

Client: Ben Harris
Lot/DP: Lot 152 DP629519
Site address: 51 Atkinson St
Mort's Estate Lithgow 2790 NSW

Project number: 136-2107
Drawing number: 41-2107
Date: 10/11/2023, Version: 2

Drawn by: M.H. Environmental Drafting.

Figure 4 - Perspective view of swale (Using MUSCI in Sydney Drinking Water Catchment, A Water NSW Standard, 2019 - second edition)

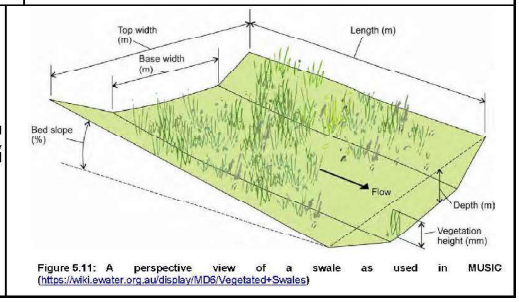


Figure 5.11: A perspective view of a swale as used in MUSIC (https://wiki.ewater.org.au/display/MD6/Vegetated+Swales)

Figure 2-4c: Soil and water management plan – Page 2 – Details

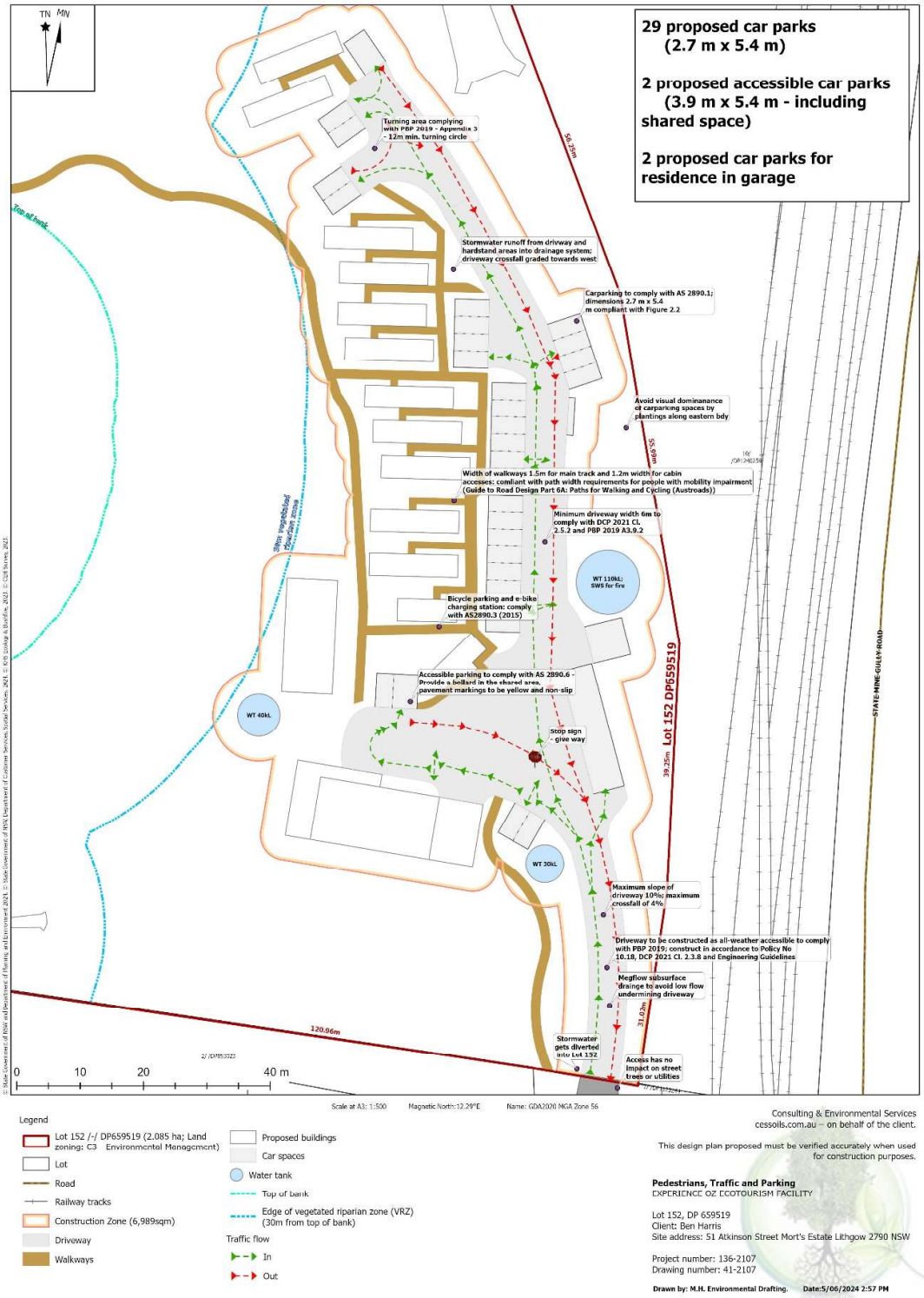


Figure 3-1a: Pedestrians, traffic and parking

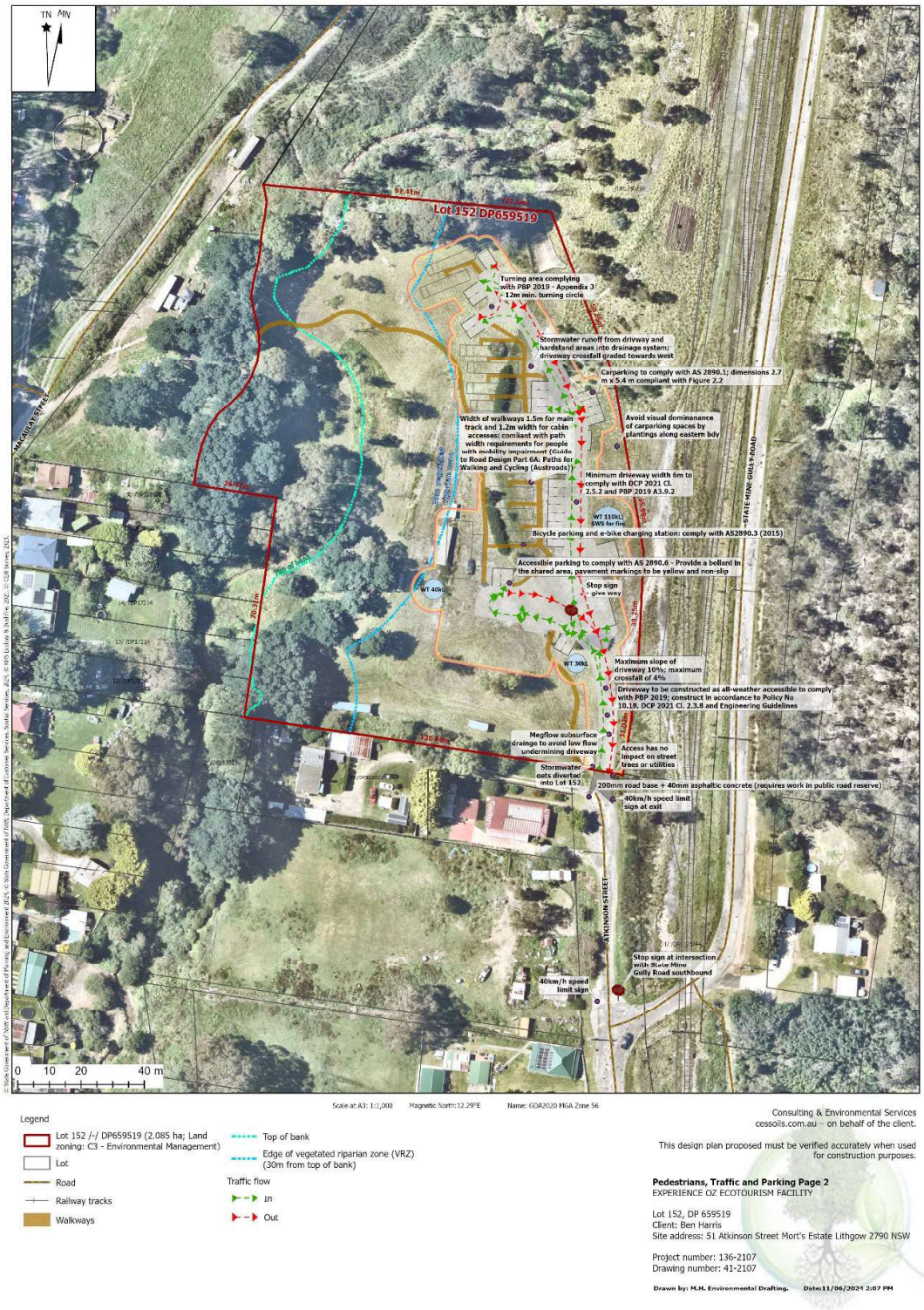


Figure 3-1b Pedestrians, Traffic and Parking Page 2

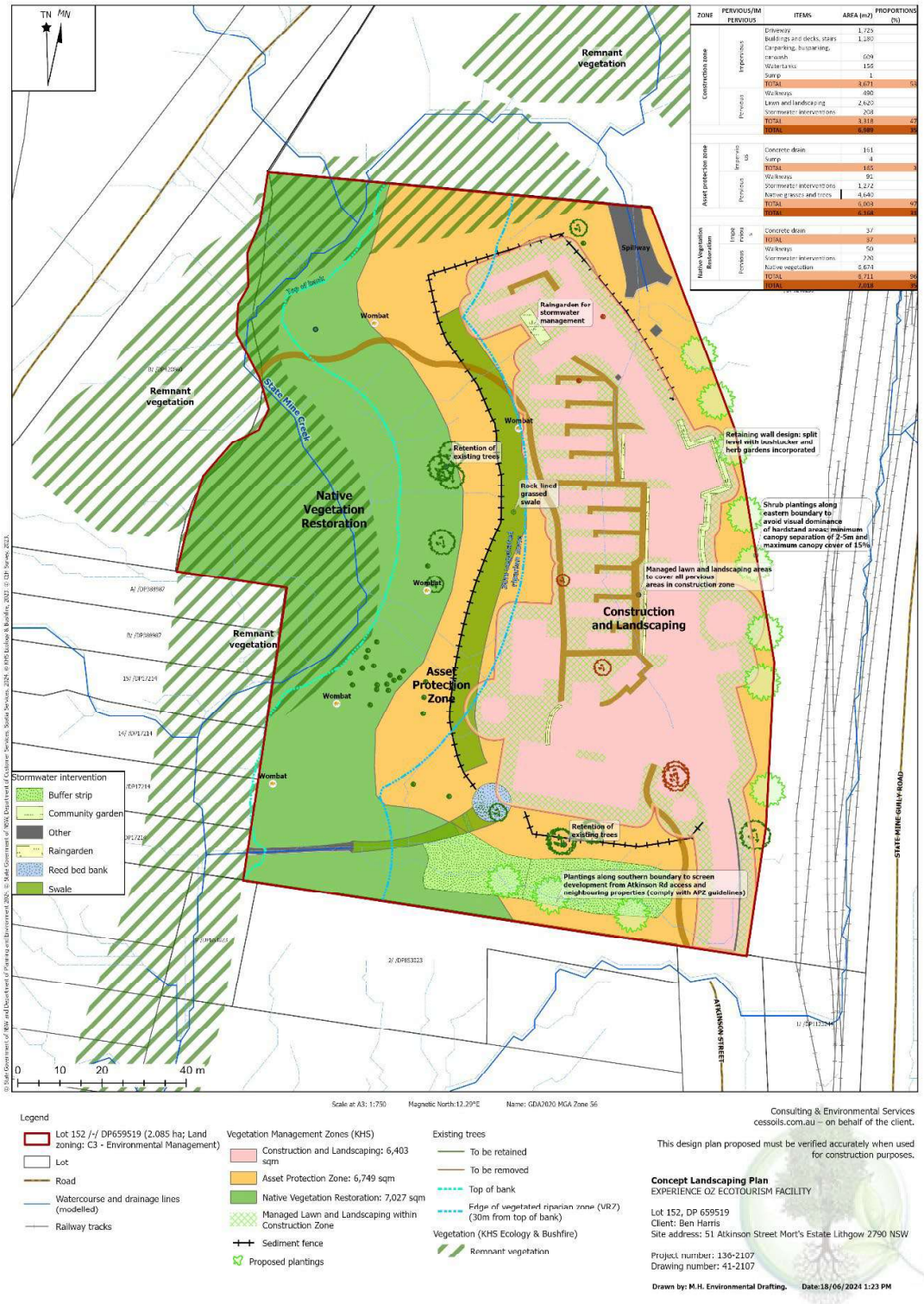


Figure 3-2: Landscaping site plan

Figure 3-3a: Emergency management & evacuation

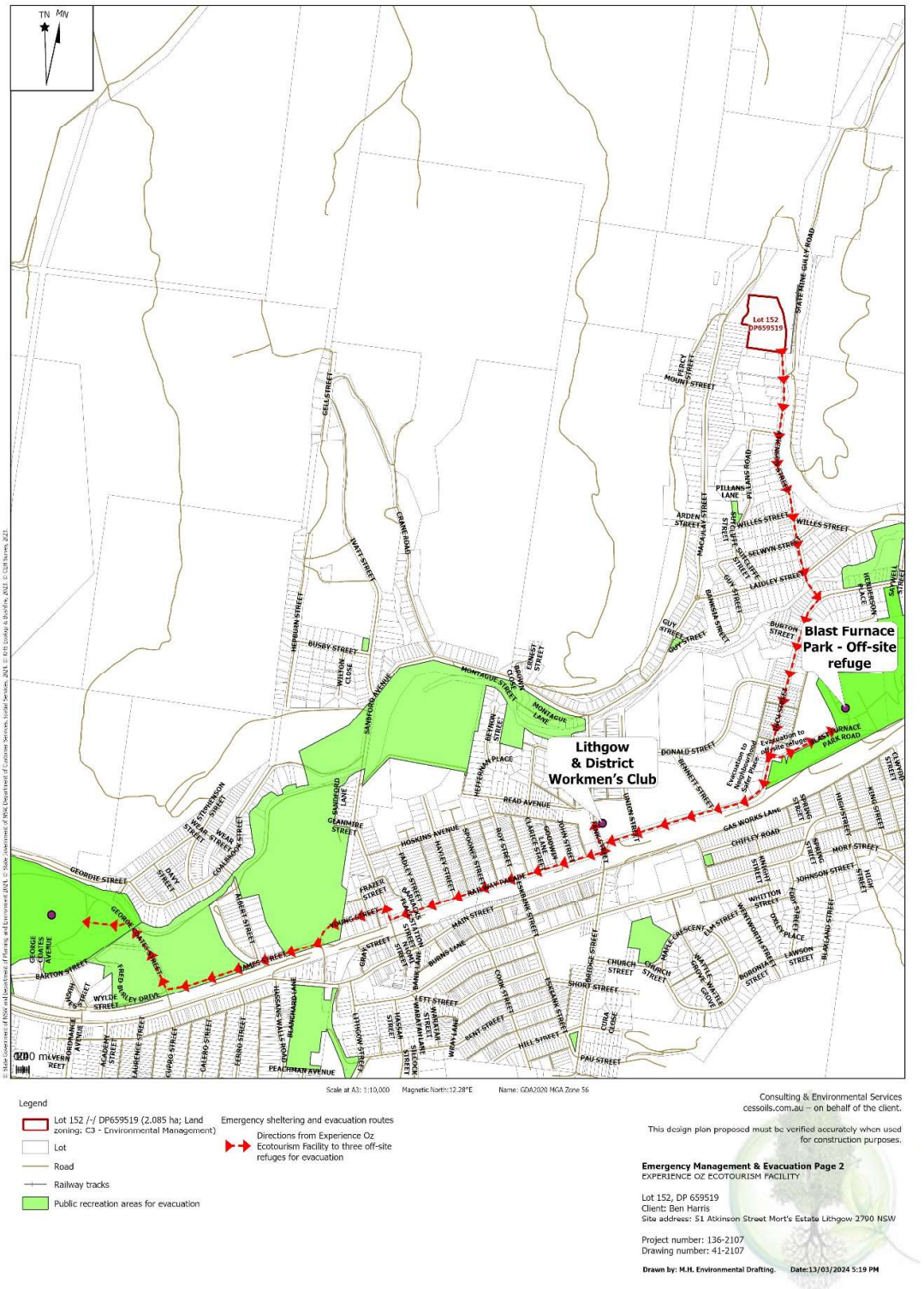


Figure 3-3b: Emergency management & evacuation – Page 2

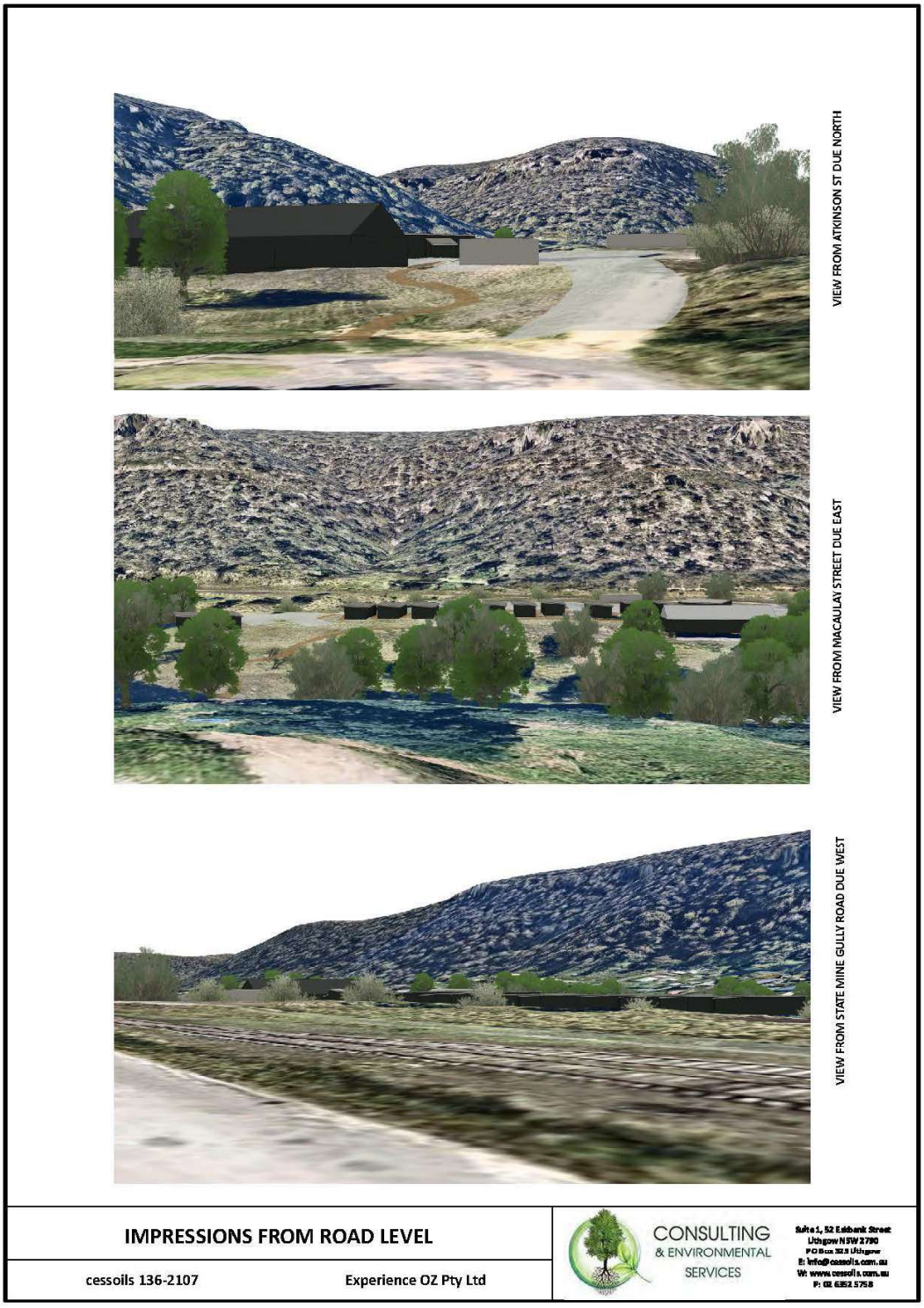


Figure 3-4a: Compilation of 3-D impressions from adjacent roads

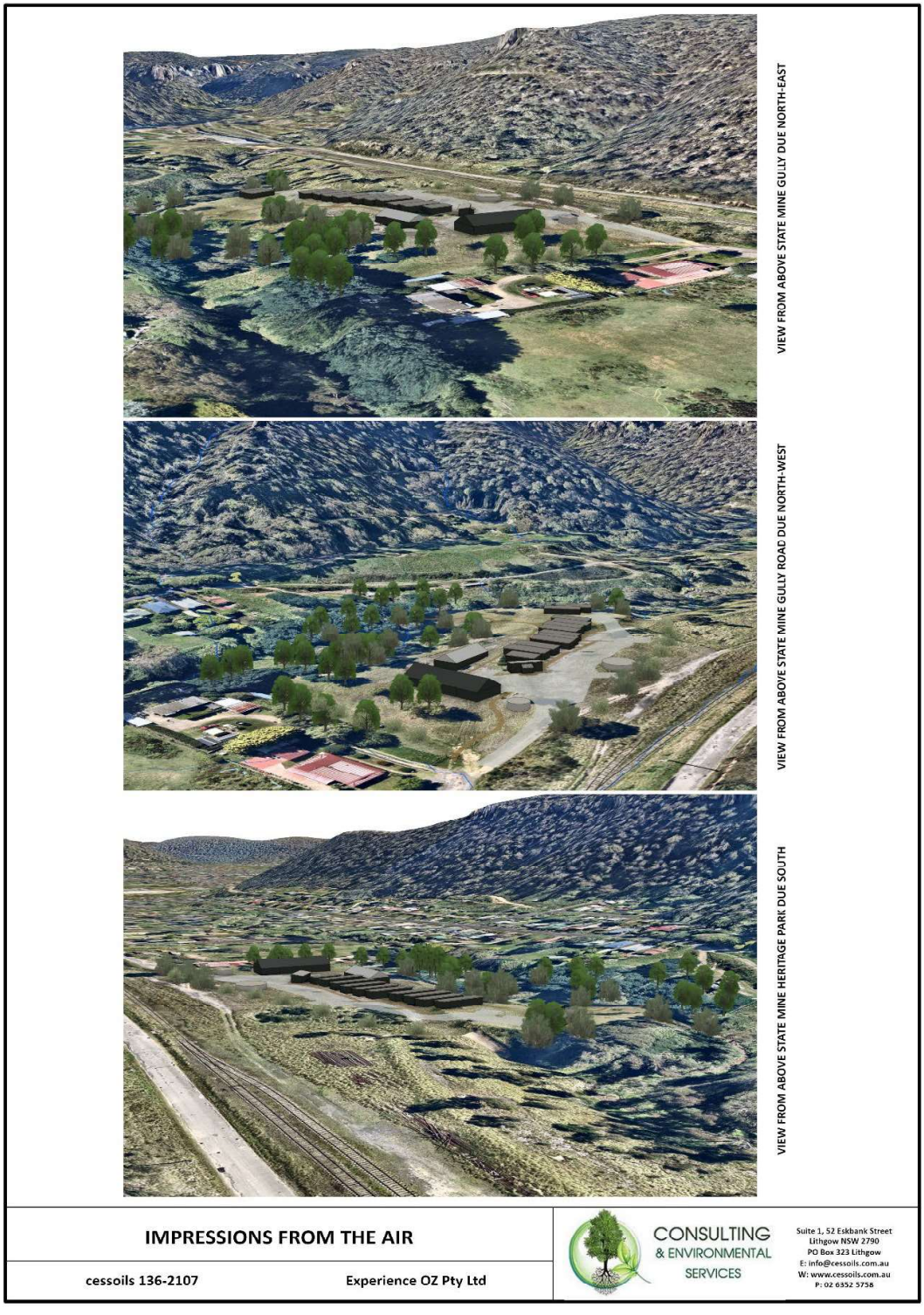


Figure 3-4b: Compilation of 3-D impressions from the air

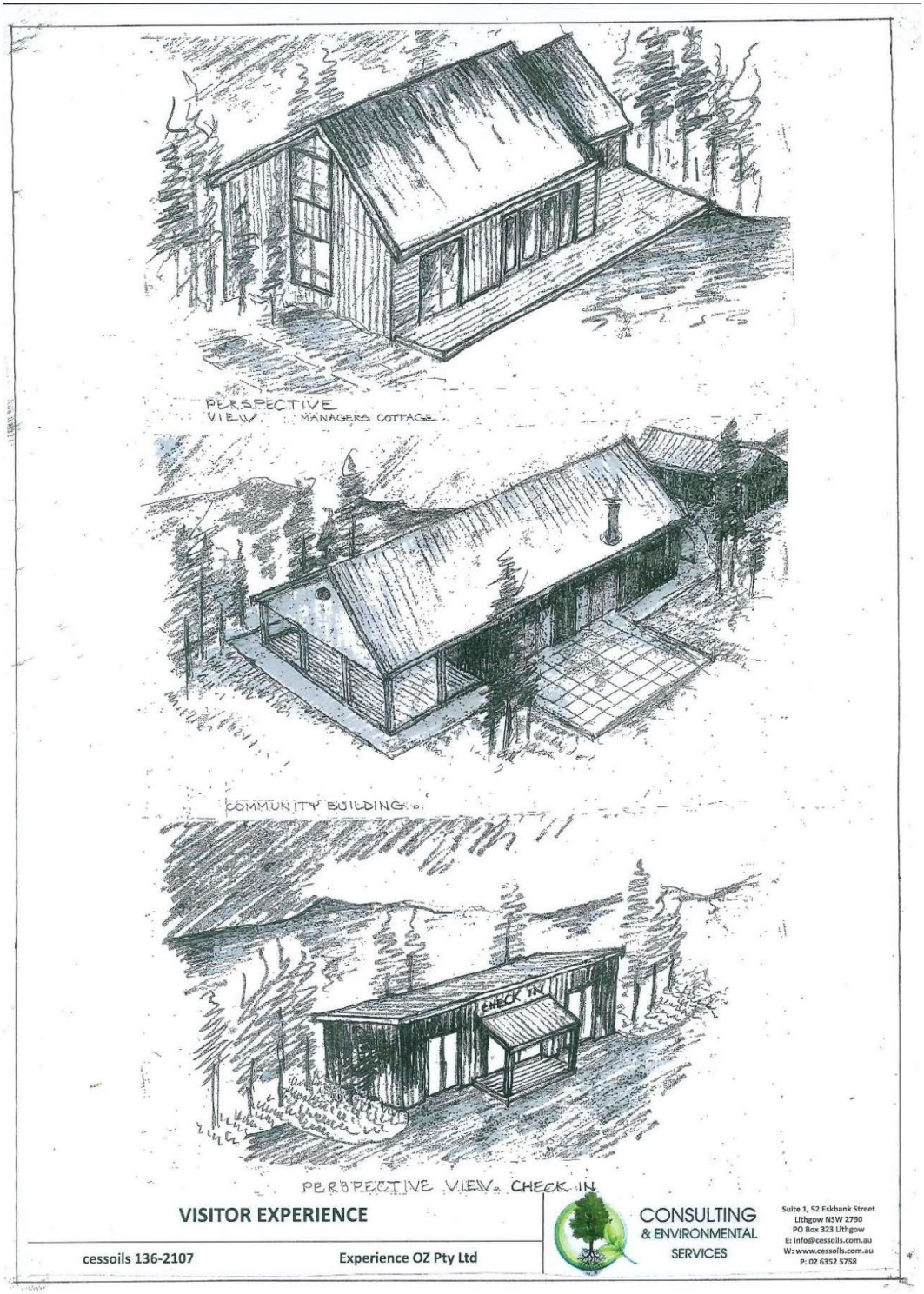


Figure 3-5: Visitor experience - Perspective views

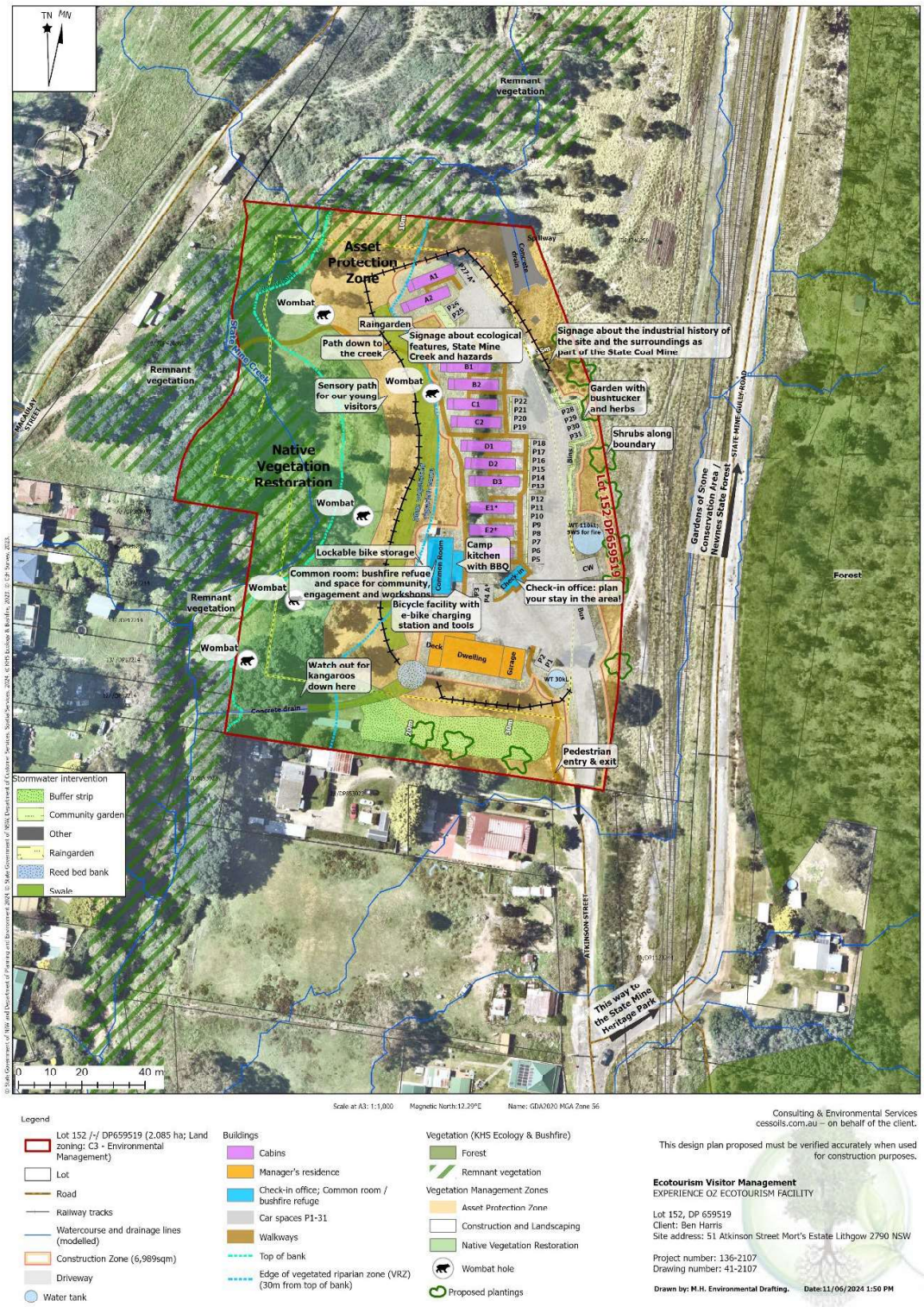


Figure 3-6: Ecotourism Visitor management

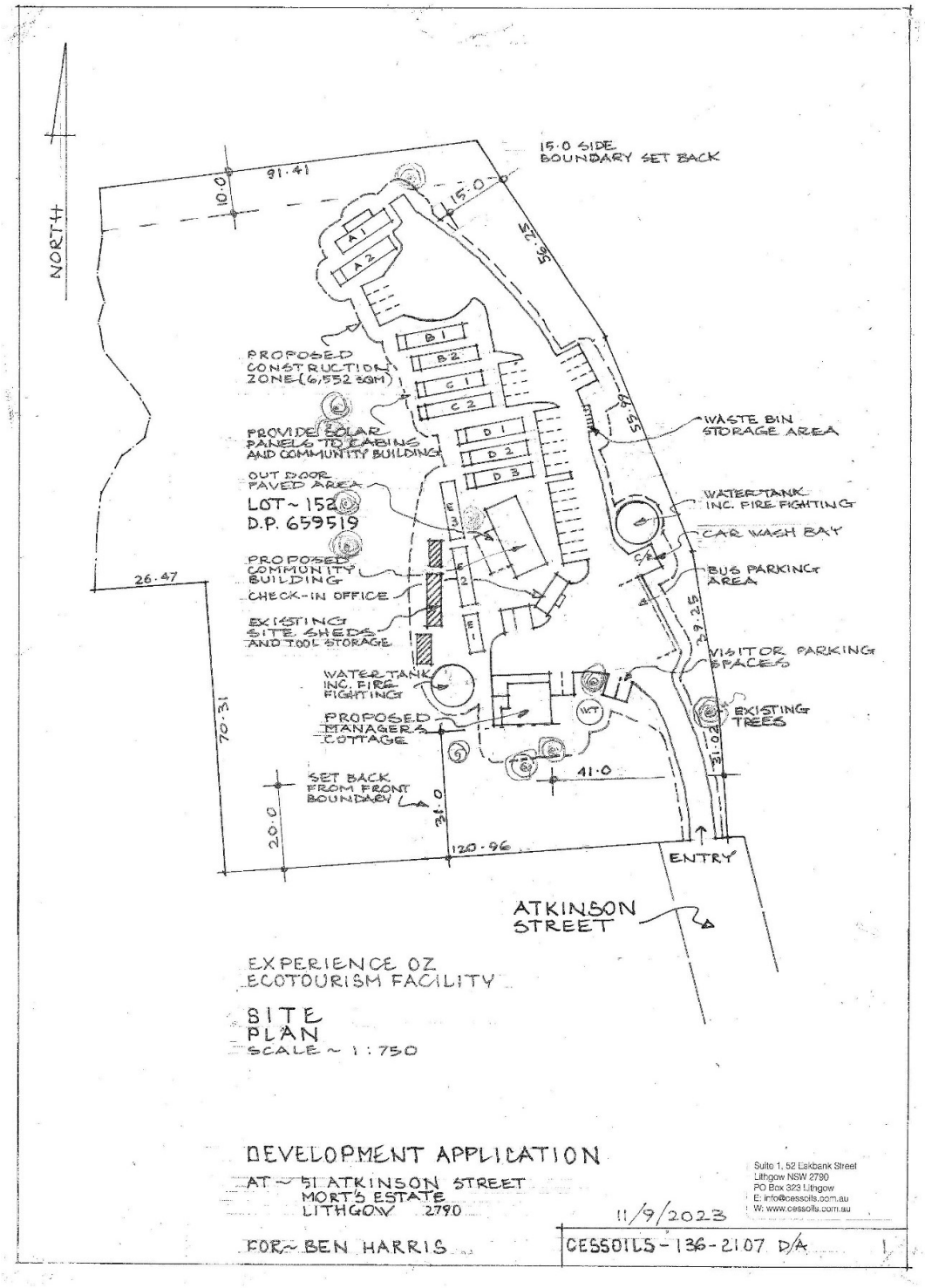


Figure 4-1: Architectural site plan

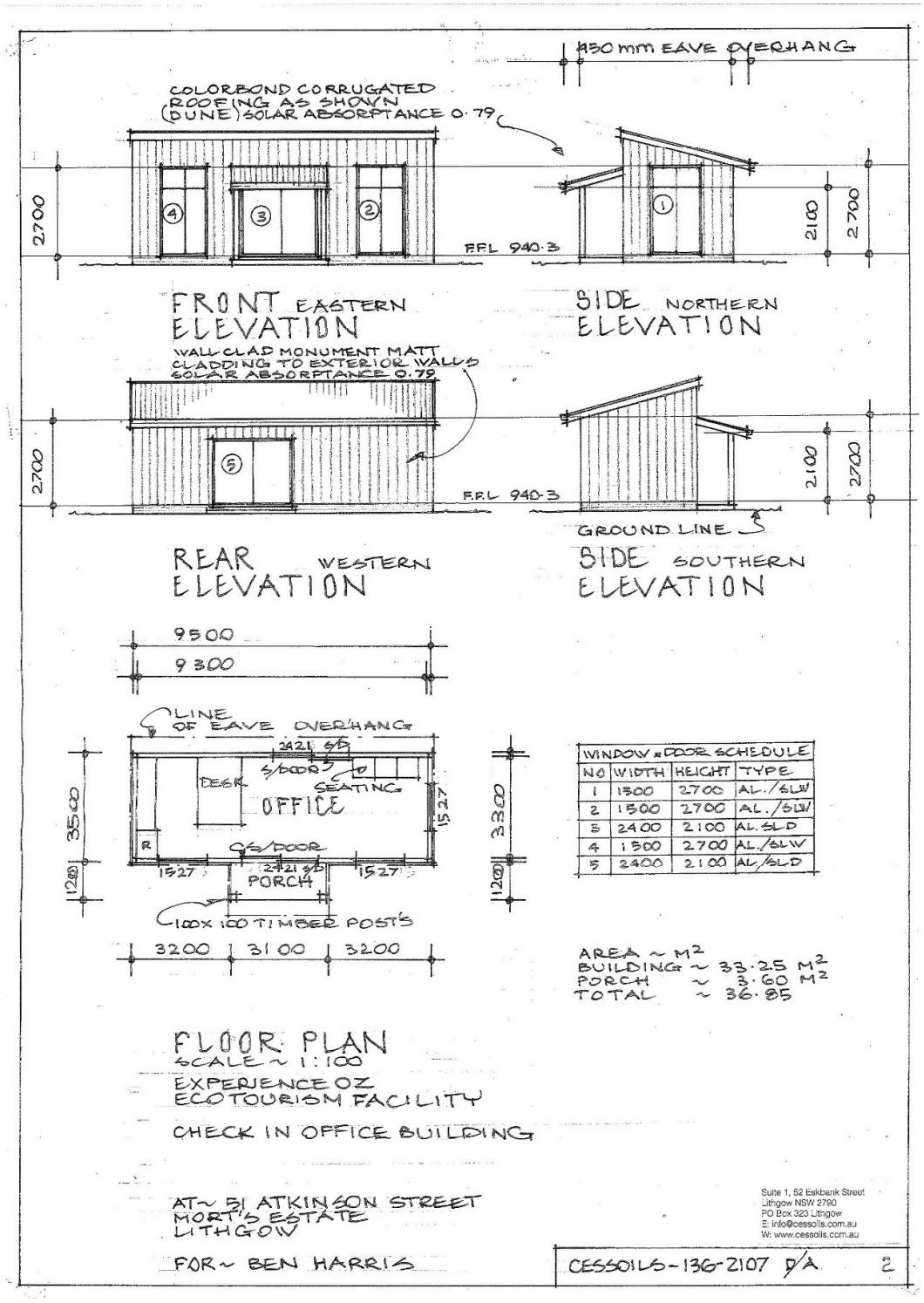


Figure 4-2: Floor plan and elevations of check-in office building

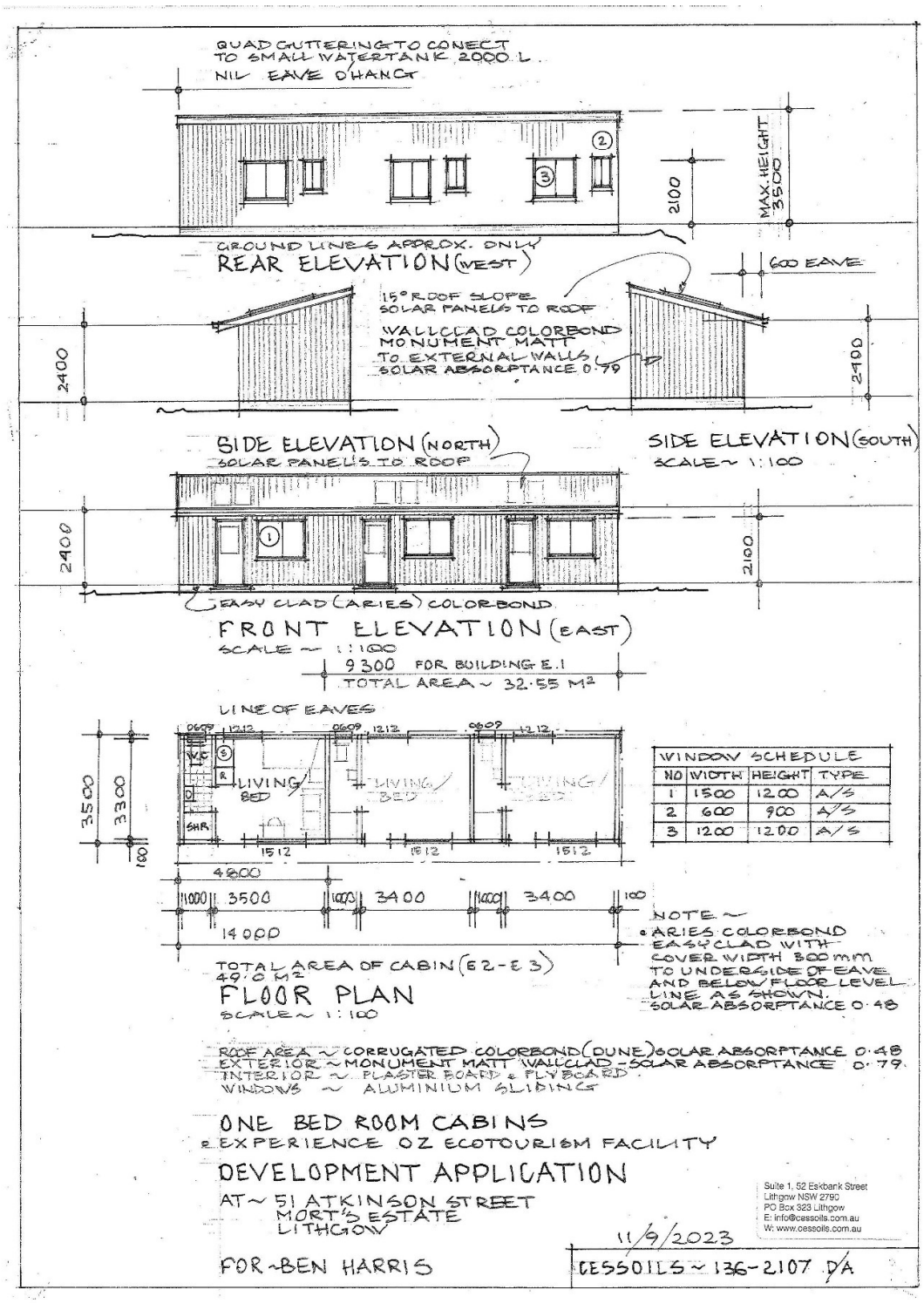


Figure 4-3: Floor plan and elevations of on bedroom cabins

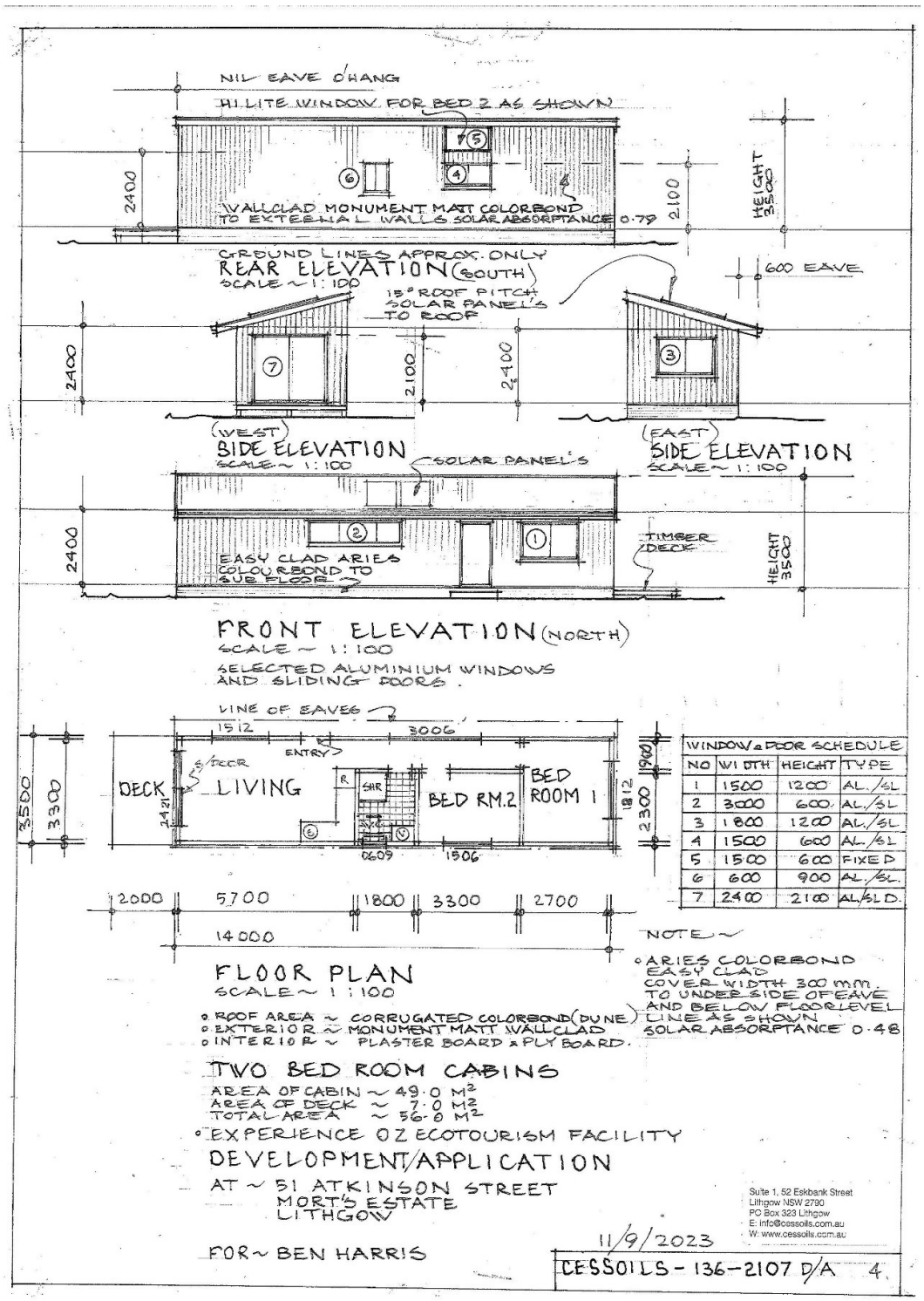
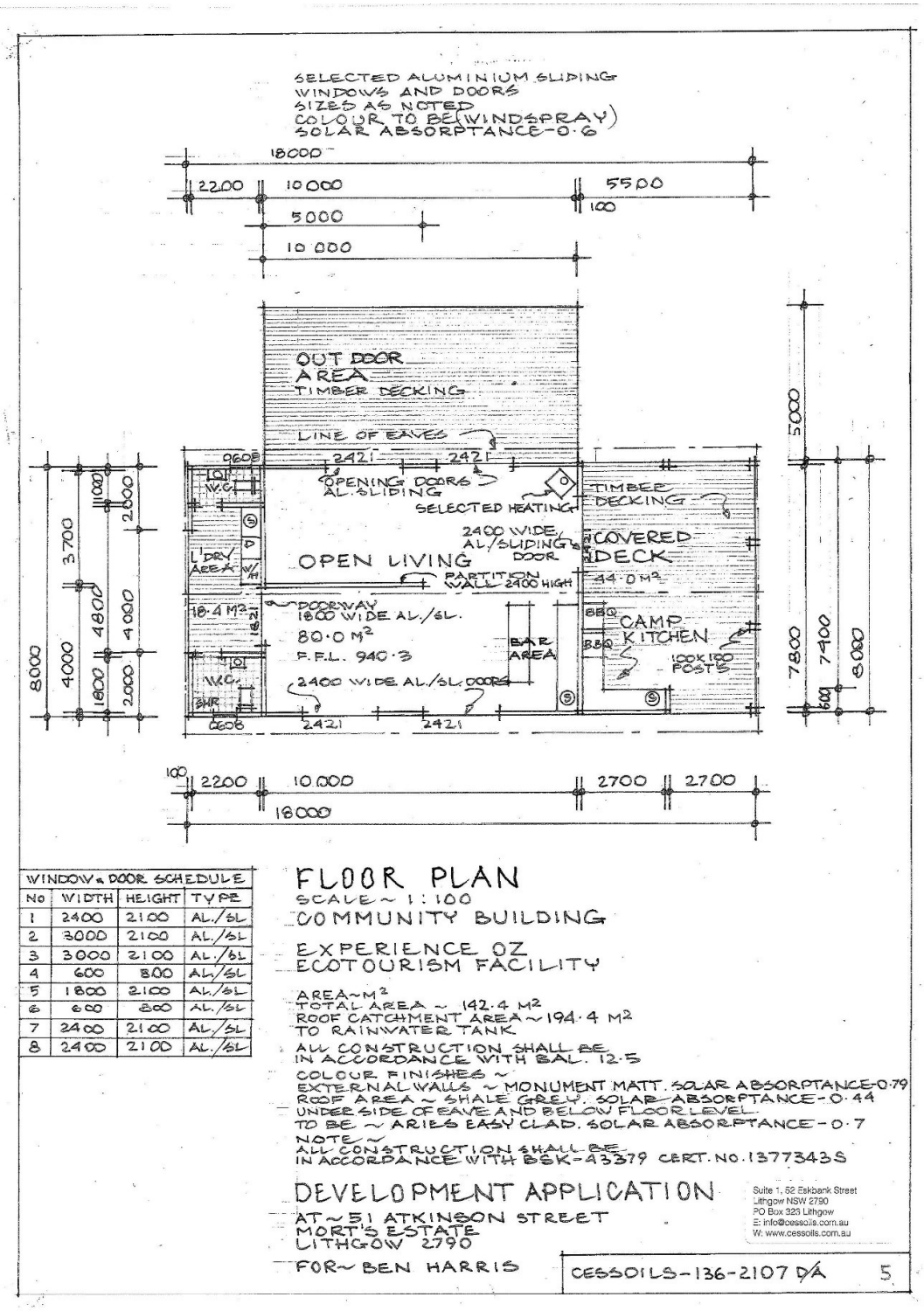


Figure 4-4: Floor plan and elevations of two-bedroom cabins



WINDOW & DOOR SCHEDULE			
No	WIDTH	HEIGHT	TYPE
1	2400	2100	AL./SL
2	3000	2100	AL./SL
3	3000	2100	AL./SL
4	600	800	AL./SL
5	1800	2100	AL./SL
6	600	800	AL./SL
7	2400	2100	AL./SL
8	2400	2100	AL./SL

Figure 4-5: Floor plan of common room

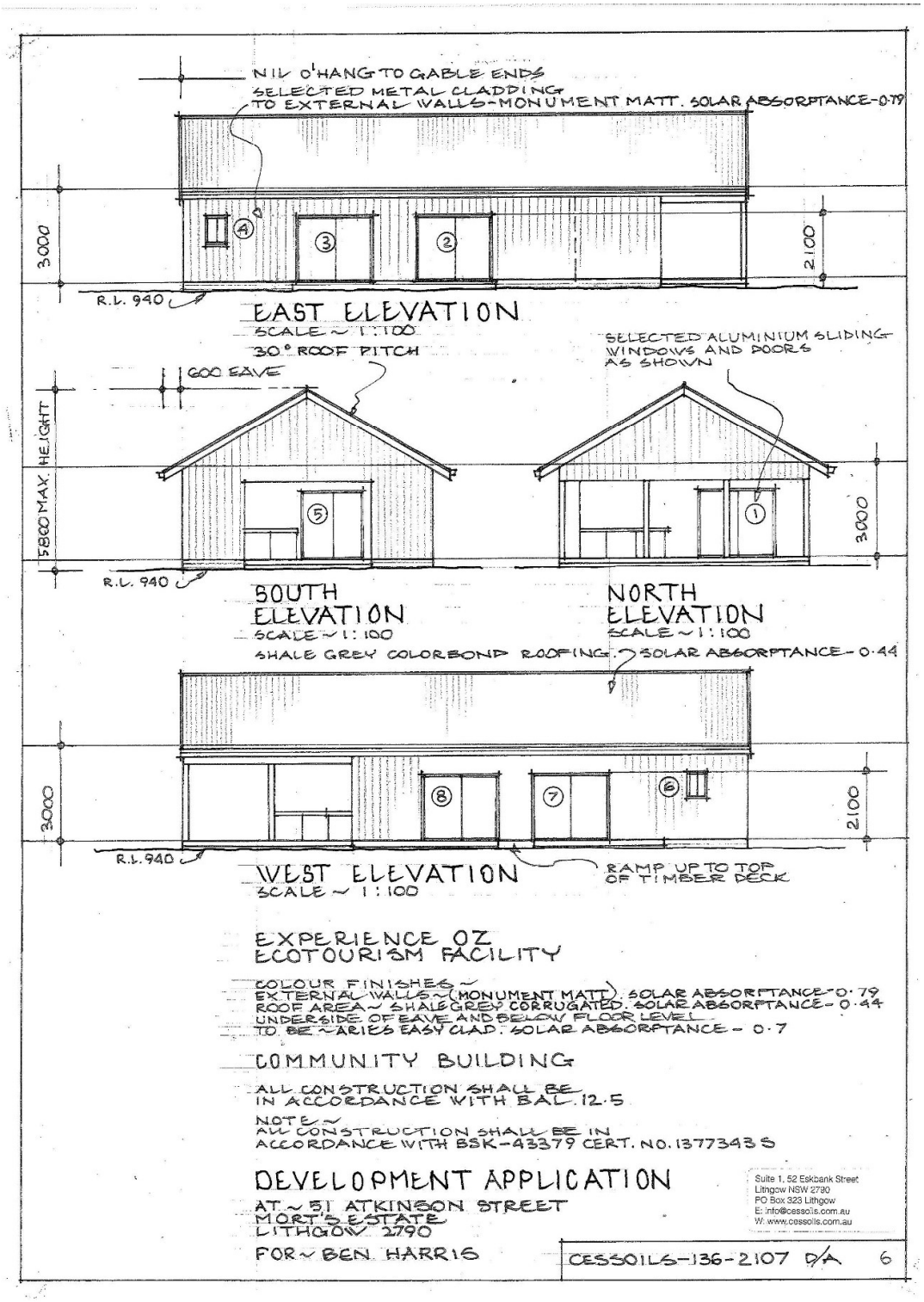


Figure 4-6: Elevations of common room

Figure 4-7: Floor plan of ground floor and first floor of manager's cottage

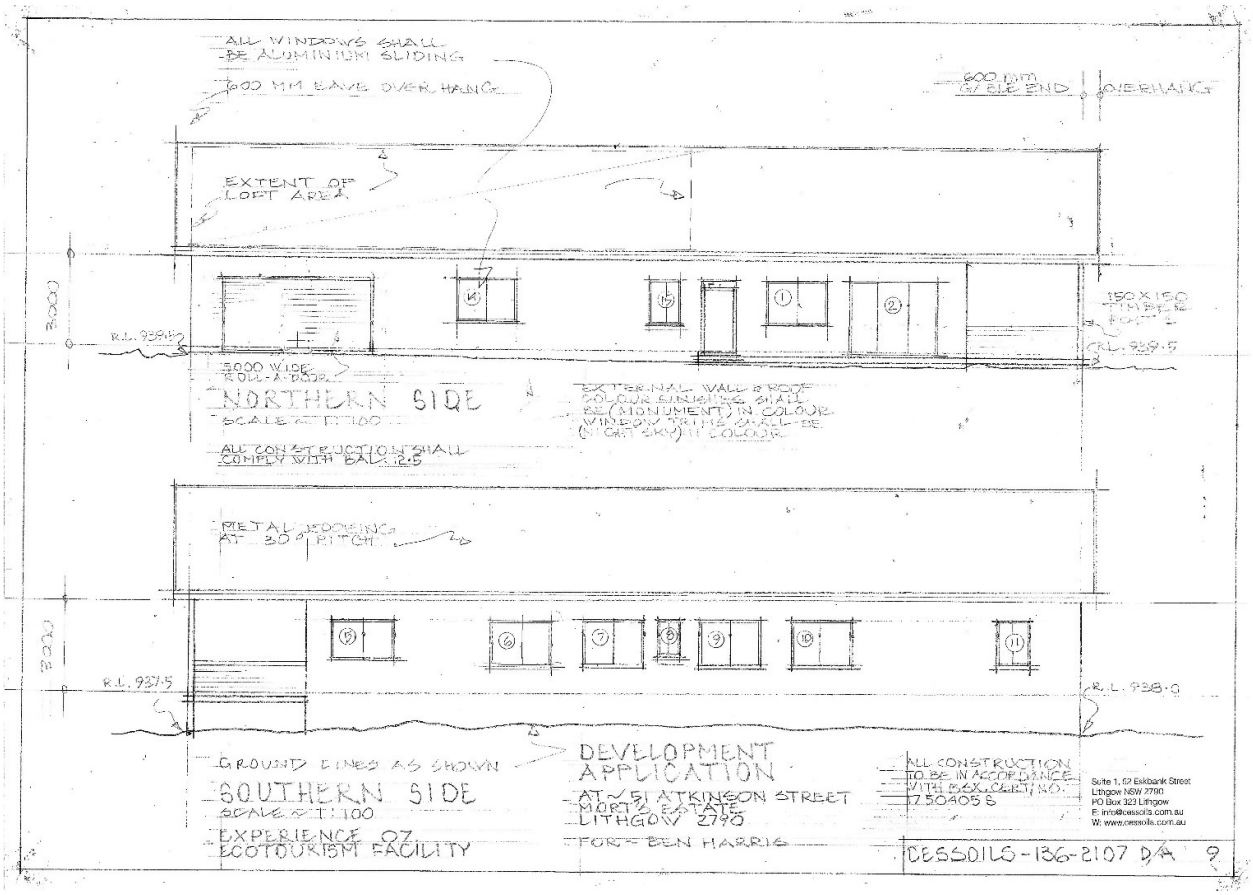
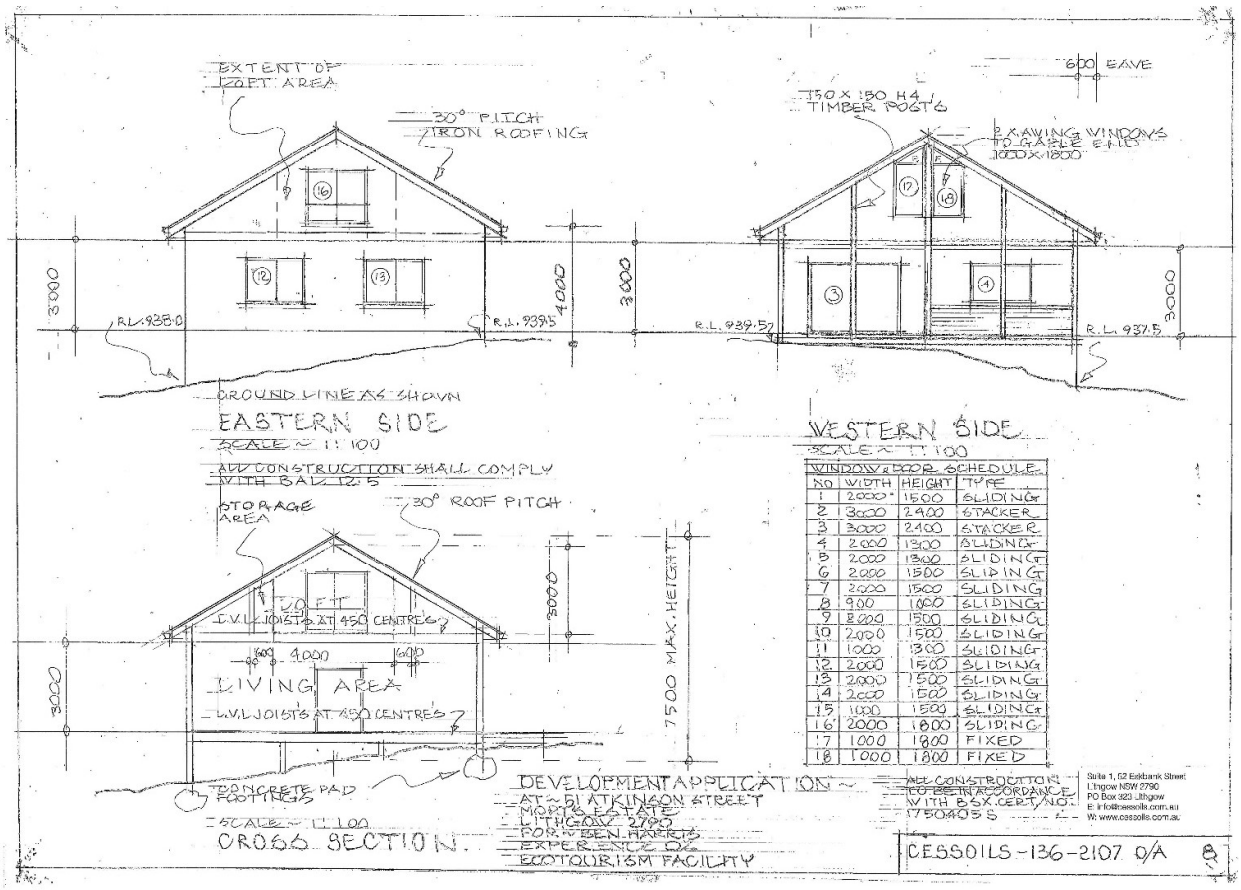


Figure 4-8: Front and rear elevation of manager's cottage



NO	WIDTH	HEIGHT	TYPE
1	2000	1500	SLIDING
2	3000	2400	STACKER
3	3000	2400	STACKER
4	2000	1300	SLIDING
5	2000	1300	SLIDING
6	2000	1500	SLIDING
7	2000	1500	SLIDING
8	900	1000	SLIDING
9	2000	1500	SLIDING
10	2000	1500	SLIDING
11	1000	1300	SLIDING
12	2000	1500	SLIDING
13	2000	1500	SLIDING
14	2000	1500	SLIDING
15	1000	1500	SLIDING
16	2000	1800	SLIDING
17	1000	1800	FIXED
18	1000	1800	FIXED

Figure 4-9: Side elevations of manager's cottage and schedule of windows

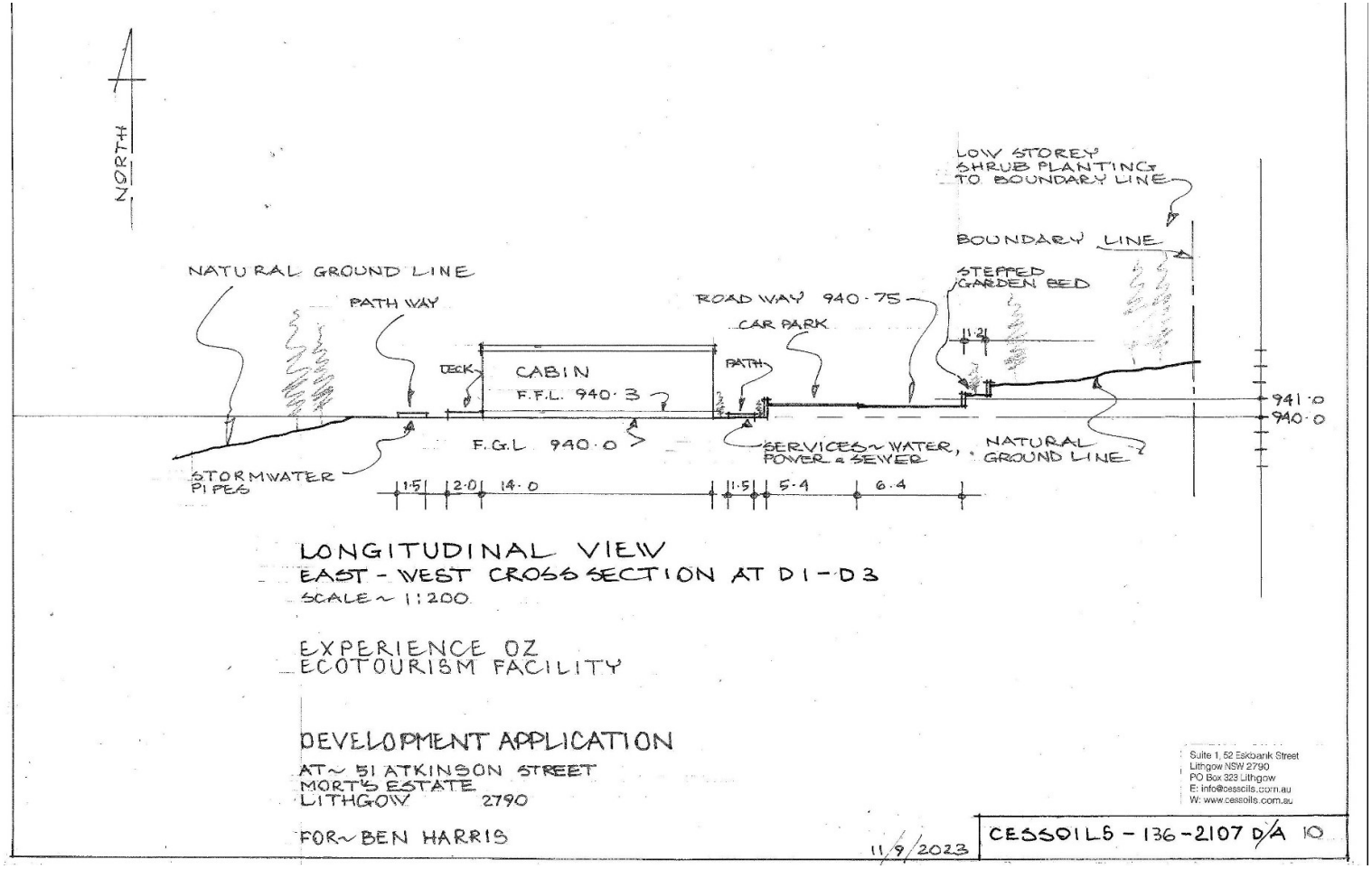


Figure 4-10: Cross section: Longitudinal view east-west at D1-D3

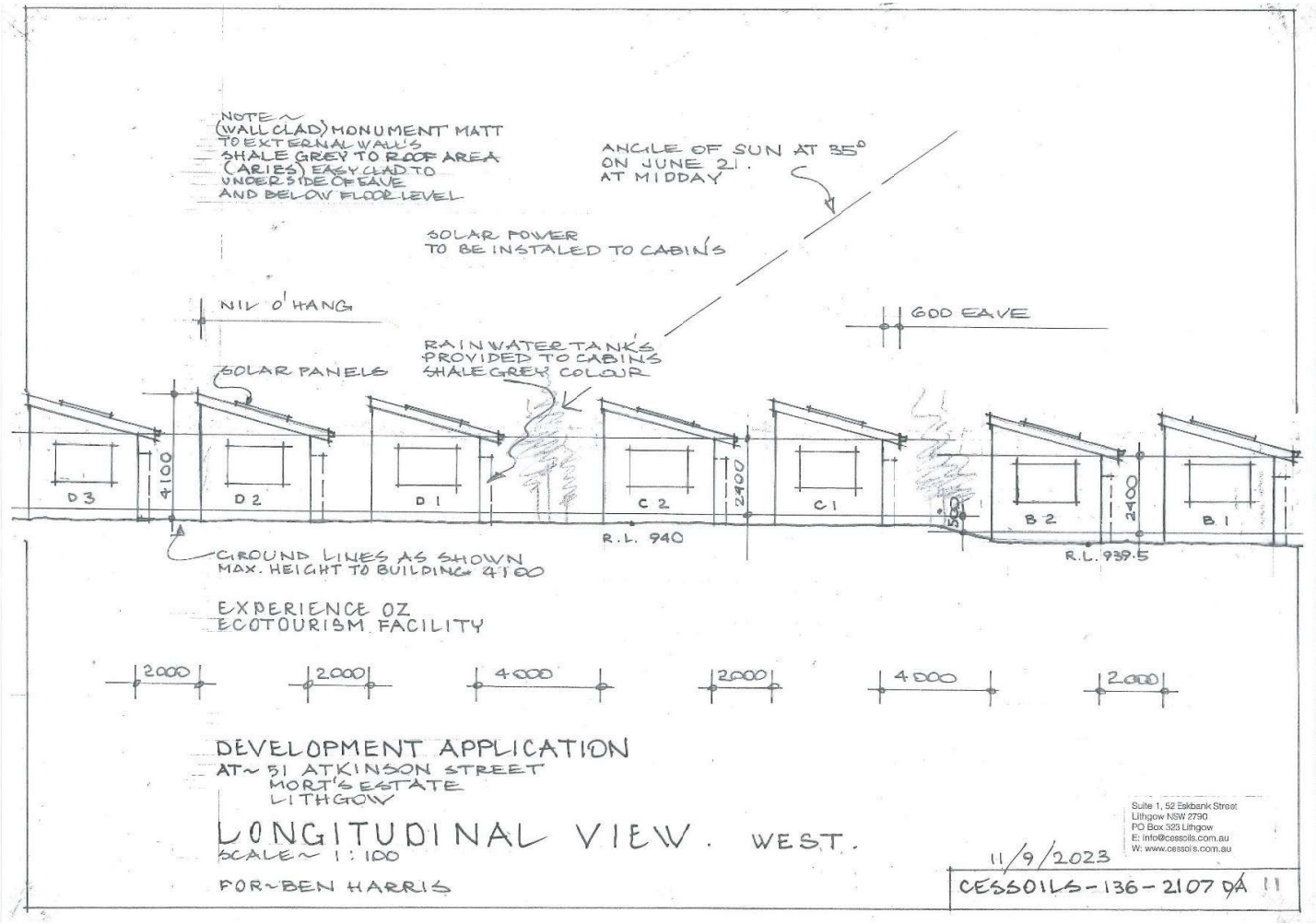


Figure 4-11: Cross section: Longitudinal view (west)