REVIEW OF ENVIRONMENTAL FACTORS

Scobies Lane Realignment (Stage 1)

Prepared by EDM Ecological

On behalf of Maitland City Council

January 2024

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Glossary

ACHAR	Aboriginal Cultural Heritage Assessment Report
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information System
AHIP	Aboriginal Heritage Impact Permit
AQC	Air Quality Categories
BC Act	NSW *Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
Biosecurity Act	NSW *Biosecurity Act 2015*
CEMP	Construction Environmental Management Plan
CEP	Community Engagement Plan
CLM Act	NSW *Crown Land Management Act 2016*
CNVG	Roads and Maritime Services' Construction Noise and Vibration Guideline
dB	Decibel
dB(A)	a-weighted decibel
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DPE	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industries
EIS	Environmental Impact Statement
EP&A Act	NSW *Environmental Planning & Assessment Act 1979*
EP&A Regulation	NSW *Environmental Planning and Assessment Regulation 2021*
EPA	Environment Protection Authority
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FM Act	NSW *Fisheries Management Act 1994*
GDE	Groundwater Dependent Ecosystem
ha	Hectare
Heritage Act	NSW *Heritage Act 1977*
ICNG	The Interim Construction Noise Guideline
km	Kilometre
km^2	square kilometre
L_{Aeq}	Equivalent Continuous Sound Pressure Level
LEP	Local Environmental Plan
LGA	Local Government Area
MCC	Maitland City Council
MNES	Matters of National Environmental Significance
NPW Act	NSW *National Parks and Wildlife Act 1974*
NSW	New South Wales
NVMP	Noise and Vibration Management Plan
PCT	Plant Community Type
POEO Act	NSW *Protection of the Environment Operations Act 1997*
RAPs	Registered Aboriginal Parties
RBL	Rating Background Level
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SIS	Species Impact Statement
SoHI	Statement of Heritage Impact
SRP	Spill Response Plan
Study area	The area assessed by this REF, which is likely to be affected by the proposal.
TMP	Traffic Management Plan
WARR Act	NSW *Waste Avoidance and Resource Recovery Act 2001*
WM Act	NSW *Water Management Act 2000*
WBMP	Weed Biosecurity Management Plan
WMP	Waste Management Plan

Executive Summary

The proposed project

Maitland City Council proposes to realign the road known as Scobies Lane, Oakhampton in the Maitland local government area of New South Wales. The proposed project site is located approximately 2 km north of Maitland central business district. The site is located to the west of the Hunter River, and directly east of Walka Water Works reserve.

The existing Scobies Lane is a narrow, low-lying public road that adjoins Oakhampton Heights with the neighbouring suburbs of Oakhampton, Maitland and Aberglasslyn. Scobies Lane is currently the only access road for residents of Oakhampton Heights and is regularly subject to closure during flood events due to inundation.

Consequently, Maitland City Council is proposing to realign Scobies Lane to provide a new access road for residents of Oakhampton Heights that is less affected by flooding. This would reduce the risk of road closures and provide a safer and more reliable access to residents during local flood events.

Need for the project

Scobies Lane is a narrow, low-lying road which is the only access for residents of the suburb Oakhampton Heights. Scobies Lane is regularly inundated during flood events, which results in closure of the road, leaving residents of Oakhampton Heights isolated. The proposed realignment of the road will allow for a safer and more reliable access to the area for residents.

Project objectives

The main objective of the proposed project is to:

- Improve the safety and reliability of road access during local flood events.

Secondary objectives of the proposed project are to:

- Minimise disruptions to road users and the community.
- Minimise environmental, cultural, and social impacts.

Options considered

Several options have been considered for this project and are outlined below:

- Option 1 – The ‘do nothing’ option
- Option 2 – Raise the existing Scobies Lane
- Option 3 – Realignment of road (alignment option 1)
- Option 4 – Realignment of road (alignment option 2)

Option 3 is the preferred option. This option was selected for the following reasons:

- Realigning the road meets the main project objective of improving the safety and reliability of local road access during flood events.
- The proposed alignment of the road would help to minimise potential environmental impacts including erosion.
- The proposed alignment of the road avoids the disturbance or removal of vegetation mapped or identified as Southern Lower Floodplain Freshwater Wetland which is listed as a threatened ecological community in NSW.
- This option would have negligible impacts on local flood afflux.

Statutory and planning framework

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the associated *Environmental Planning and Assessment Regulation 2021* provide the framework for assessing the potential environmental impacts associated with proposed developments in NSW. Part 5 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by public authorities which do not require development consent under the EP&A Act.

Given that development consent is not required by a public authority for roads or road infrastructure as outlined by Division 17, Subdivision 1 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP), the environmental impacts of the proposal will need to be assessed according to Part 5 of the EP&A Act.

Part 5, Division 5.1 of the EP&A Act allows for a determining authority (a Minister or a public authority) to assess the environmental impact of certain activities that they are either carrying out themselves or approving. Therefore, Maitland City Council is both the determining authority and the proponent of this proposal.

Environmental impacts

Inspections and surveys of the study area were completed in October and December 2023 to assess the existing environment and identify the potential environmental impacts of the proposed project.

A number of potential environmental impacts from the proposed project have been avoided or reduced during the options assessment and concept design stage.

The proposed project would have long-term positive impacts for the community including improvements to the access of Oakhampton Heights by:

- improving the safety and reliability of local road access during flood events
- reducing the risk of Oakhampton Heights residents being isolated due to flooding

The proposed project would have some long-term positive impacts on visual amenity and ecosystems in the locality, via weed management and revegetation works associated with the project. These would aim to protect and improve the quality of the nearby wetland.

Key potential adverse effects include:

- erosion, sedimentation, and minor changes to local flood afflux which have the potential to impact on the Southern Lower Floodplain Freshwater Wetland. A test of significance under the *Biodiversity Conservation Act 2016* was completed which determined that there would be no significant impact on this endangered ecological community.

- minor, temporary impacts on air quality, biodiversity, amenity, noise and vibration,

- potential impacts on non-Aboriginal and Aboriginal heritage.

The environmental safeguards and mitigation measures outlined in this REF would avoid, minimise, or manage any potential adverse impacts arising from the project on the environment.

Conclusion

This REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed project. On balance and having regard to the safeguards and mitigation measures proposed, the project is considered justified, and the following conclusions are made:

- The proposed project is not likely to significantly affect the environment, therefore no environmental impact statement (EIS) is required, and no approval is needed to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.

- The proposed project is not likely to significantly impact a matter of national environmental significance or Commonwealth land, therefore no referral to DCCEEW for a decision by the Minister for the Environment and Water under the EPBC Act is required.

- Assessments of the significance of the impact of the proposed project on threatened entities under the BC Act concluded that the project will not significantly impact the Southern Lower Floodplain Freshwater Wetland.

- The proposed project is not likely to significantly affect threatened species, ecological communities, or their habitats therefore no species impact statement (SIS) or biodiversity development assessment report (BDAR) is required.

Note: For the long-term management of wetlands in the study area and surrounds, it is recommended that the current slashing and horse grazing practices cease in these areas. This will allow for wetland species to recover and the wetlands to re-establish in a more natural state. This would assist with reducing cumulative issues in the area associated with erosion, sedimentation, and water quality, and would provide more suitable habitat for native fauna in the locality.

This REF is required to be published on the determining authority's website or the NSW planning portal under section 171(4)(b)(iii) of the EP&A Regulation.

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Appendix D	**Concept Plan (Option 4 – Alternative alignment option)**
Appendix E	**Biodiversity Assessment**
Appendix F	**Consultation with Government Departments**
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Appendix H	**Statement of Heritage Impact (SoHI)**
Appendix I	**Geotechnical Investigation Report**
Appendix J	**Flood Impact Risk Assessment**
Appendix K	**EPBC Act Protected Matters Report**
Appendix L	**Data from the BioNet Atlas**
Appendix M	**Priority Weeds in the Hunter Region**
Appendix N	**Ecological Assessment of Impact on Threatened Entities**
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1 Introduction

EDM Ecological was engaged by Maitland City Council (MCC) to prepare a Review of Environmental Factors (REF) for the proposed realignment of Scobies Lane, Oakhampton.

1.1 Background

Maitland City Council proposes to realign the road known as Scobies Lane, Oakhampton in the Maitland local government area (LGA) of New South Wales (NSW). The proposed project site is located approximately 2 km north of Maitland central business district (CBD). The site is located to the west of the Hunter River, and directly east of Walka Water Works reserve.

Scobies Lane is a narrow, low-lying public road that adjoins Oakhampton Heights with the neighbouring suburbs of Oakhampton, Maitland and Aberglasslyn. Scobies Lane is currently the only access road for residents of Oakhampton Heights and is regularly subject to closure during flood events due to inundation.

Consequently, Maitland City Council is proposing to realign Scobies Lane to provide a new access road for residents of Oakhampton Heights that is less affected by flooding. This would reduce the risk of road closures and provide a safer and more reliable access to residents during local flood events.

The proposed new road would be situated on Council-owned property and current Hunter Water easement. The new road would link Oakhampton Road with the junction of South Willards Lane and Scobies Lane. The road would run south, parallel with the Walka Water Works reserve boundary (**Plate 1-1**) and then bear east, parallel with the Maitland Power House Control Structure (levee) (**Plate 1-2**), finally adjoining Oakhampton Road. The food mitigation levee is designed to slow the velocity of north to south overland flows during major flood events, and protect developed areas located further south.

The proposed project would be undertaken in stages. This REF relates to the proposed works included in Stage 1 only. See **Appendix A** for Stage 1 plans. Future works relating to this project will be assessed via a separate environmental assessment when funding for the works is secured. The concept plan for the entire project can be seen in **Figure 2-2** and is also provided as **Appendix B.**

Plate 2-1. Approximate north-south alignment of the proposed road. View from the south at the flood mitigation levee where the road would bear east.

Plate 2-2. Approximate east-west alignment of the proposed road. View from the east where the new road would meet Oakhampton Road. Note flood mitigation levee to the south.

1.2 Purpose

The purpose of this REF is to describe the proposal, document the likely impacts of the proposed project on the environment and to detail mitigation measures to be implemented. In doing so, the REF fulfils the requirements of:

- Part 5, Division 5.1 of the *Environmental Planning & Assessment Act 1979* (EP&A Act)
- Section 1.3, Section 5.5 and Section 5.7 of the EP&A Act
- Clause 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation)
- other relevant Commonwealth and State legislative instruments.

The findings of this REF have been considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an Environmental Impact Statement (EIS) to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.
- The significance of any impact on threatened species as defined by the *Biodiversity Conservation Act 2016* (BC Act) and/or *Fisheries Management Act 1994* (FM Act), and whether a Species Impact Statement (SIS) or Biodiversity Development Assessment Report (BDAR) is required.
- The potential for the proposal to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for a decision by the Minister for the Environment and Water on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act).

1.3 Proponent

EDM Ecological has prepared this REF on behalf of the proponent, Maitland City Council. Maitland City Council is both the proponent and determining authority for this project. Contact details for the proponent are listed in **Table 1.1**.

Table 2.1. Proponent details.

Project	Scobies Lane Realignment
Proponent	Maitland City Council
Project Manager	Craig Parsons
Position	Civil Design Engineer
Contact Details	t 02 4934 9810 e Craig.Parsons@maitland.nsw.gov.au

1.4 Limitations and assumptions

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. EDM Ecological has no responsibility or obligation to update this report to account for events or changes occurring after the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by EDM Ecological described in this report (see assumptions below). EDM Ecological disclaims liability arising from any of the assumptions being incorrect.

Assumptions made by EDM Ecological when preparing this REF include (but are not limited to):

- The proposal has been assessed based on the documents, plans, reports, maps, and other information provided by Maitland City Council and its consultants.
- The proposal is limited to the Stage 1 works described in **Section 4** of this report.
- The proposal has been assessed assuming the implementation of all safeguards and mitigation measures detailed in **Section 9** of this report.

2 Project site

2.1 Location

The proposed project site is in the Maitland LGA approximately 2 km north of Maitland CBD. It is situated approximately 60 m west of the Hunter River and is directly east of Walka Water Works, a well-used public recreation reserve. Refer **Figure 2-1** for locality. The new road would be situated on Council-owned properties (Lot3//DP37838 and Lot 2//DP1049034) and current Hunter Water easement (Lot 171//DP1148522). The new road would link Oakhampton Road with the junction of South Willards Lane and Scobies Lane. See **Figure 2-2** for concept plan for the entire project.

2.2 Project area

The extent of Stage 1 of the project is approximately 1.8 ha and the study area for this report is approximately 7.8 ha, refer **Figure 2-3.** The project area includes mostly pasture land which has been under an agistment agreement between MCC and a local resident for horse grazing for many years. The project area also includes an old livestock yard consisting of a rural shed (**Plate 2-1**), small storage shed (**Plate 2-2**), water tank (**Plate 2-3**), and livestock fencing (**Plate 2-4**), which would all need to be demolished and removed prior to commencement of construction works. Refer to **Figure 2-4** for location of these items.

2.3 Project works

The proposed project works (Stage 1) would involve activities including the removal of vegetation, the demolishing of rural sheds, construction of a temporary access road (Haul Road), minor earthworks and bulk filling, installation of stormwater drainage, pavement construction, road surfacing, and revegetation works. More details of the project can be found in **Section 4**.

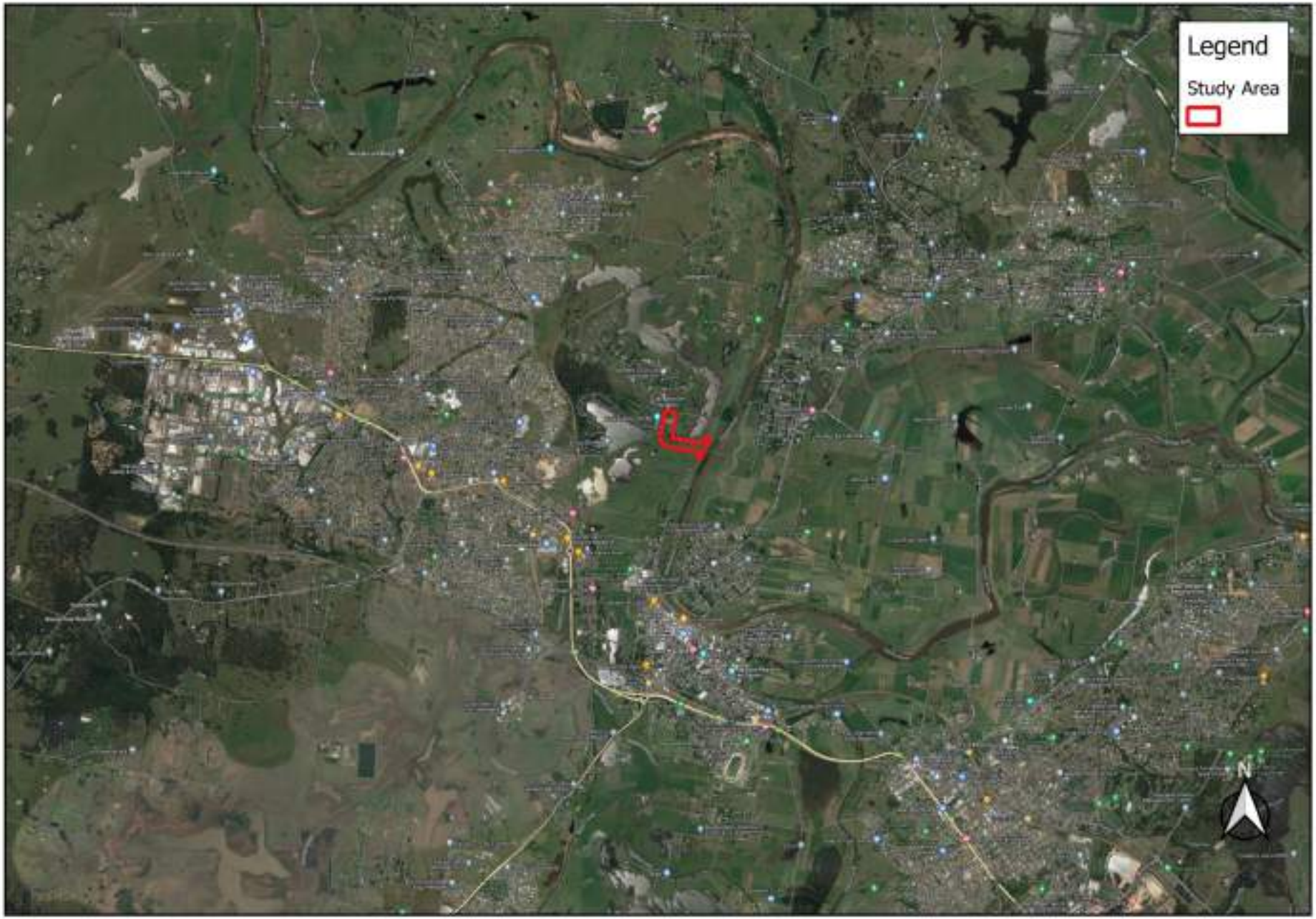

Figure 2-1. Locality of the proposed project.

Figure 2-2. Concept plan of the entire project.

Figure 2-3. Location of the study area and extent of the proposed project (Stage 1).

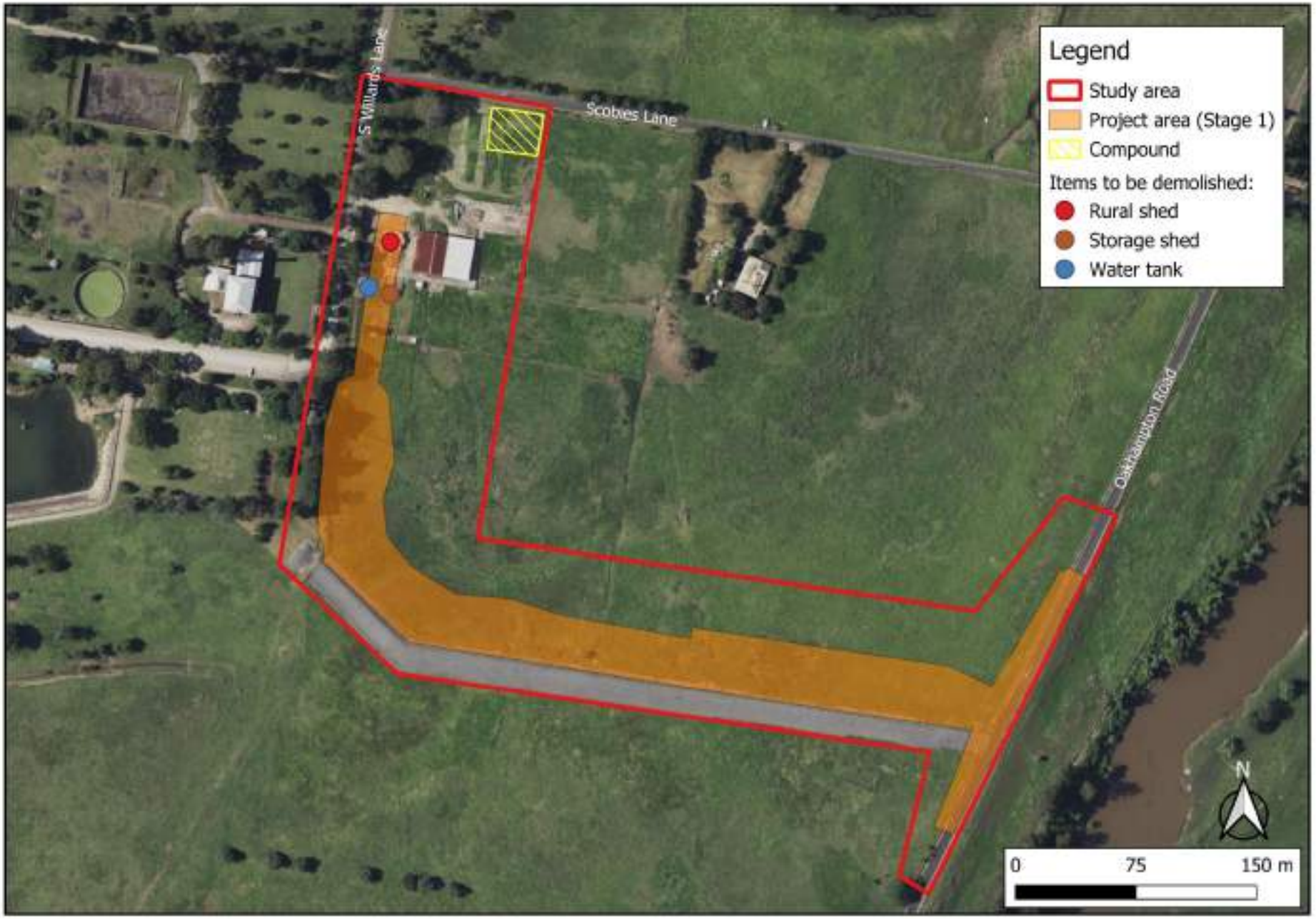

Figure 2-4. Items that would need to be demolished and removed.

Figure 2-5. Land use zoning in the vicinity of the study area.

2.4 Land use

The majority of the study area is zoned as RU1 – Primary Production land and is where the proposed project works will be undertaken. The land directly to the west is Walka Water Works reserve, which is zoned as RE1 – Public Recreation. Directly to the north-west is R5 – Large Lot Residential Land (**Figure 2-5**). Land use in the vicinity consists of mostly horse and cattle grazing and general rural residential activities.

2.5 Ownership

All land associated with the proposed project is owned by Maitland City Council, with the exception of the Hunter Water easement. Walka Water Works (directly to the west) is a Crown Land Reserve under the management of MCC. South Willards Lane, Oakhampton Road and Scobies Lane are all Council managed public roads. Maitland City Council is currently in the process of acquiring the easement from Hunter Water which is expected to be finalised prior to works commencing in February 2024.

Plate 2-1. Rural shed that would need to be demolished and removed. View from the north.

Plate 2-2. Storage shed that would need to be demolished and removed. View from the west.

Plate 2-3. Water tank that would need to be demolished and removed. View from the east.

Plate 2-4. Livestock fencing and general rubbish that would need to be removed. View from the south.

3 Project justification

3.1 Need for the project

Scobies Lane is a narrow, low-lying road which is the only access for residents of the suburb Oakhampton Heights. Scobies Lane is regularly inundated during flood events, which results in closure of the road, leaving residents of Oakhampton Heights isolated (**Plate 3-1**). The proposed realignment of the road will allow for a safer and more reliable access to the area for residents.

Scobies Lane is also the only access to South Willards Lane, which is the main entry road into Walka Water Works. Walka Water Works is a Crown Reserve which is well-used for public recreation. Realigning the road will also improve access to this reserve which is actively used by the local community for bird watching, bush walking, and exercise. The reserve is regularly used by young families, disability support groups, community groups and individuals for passive recreation.

Plate 3-1. Scobies Lane inundated during the 2022 floods. Source: The Maitland Mercury 27 October 2022.

3.2 Project objectives

The main objective of the proposed project is to:

- Improve the safety and reliability of road access during local flood events.

Secondary objectives of the proposed project are to:

- Minimise disruptions to road users and the community.
- Minimise environmental, cultural, and social impacts.

3.3 Options considered

Several options have been considered for this project which are outlined below.

3.3.1 Option 1 – Do nothing

The 'do nothing' option involves leaving Scobies Lane in use. This does not meet the main project objective of improving the safety and reliability of the road access during flood events.

3.3.2 Option 2 – Raise the existing Scobies Lane

The option of raising the existing Scobies Lane would require excessive amounts of fill and would require the acquisition of privately owned property to widen the road. This option is not cost-effective and would cause disruptions to the residents of Oakhampton Heights and users of Walka Water Works. Concept Plan for Option 2 is provided as **Appendix C**.

3.3.3 Option 3 – Realignment of road (alignment option 1)

Option 3 is the preferred option. Realigning the road meets the main project objective of improving the safety and reliability of local road access during flood events.

This option also fulfills the secondary objectives of the project. The proposed alignment of the road (directly at the base of the flood mitigation levee) would help to minimise potential environmental impacts including erosion. This option avoids the disturbance or removal of any vegetation mapped or identified as Southern Lower Floodplain Freshwater Wetland which is listed as a threatened ecological community in NSW. This option would have negligible impacts on local flood afflux. Concept Plan for Option 3 is provided **as Appendix B**.

3.3.4 Option 4 – Realignment of road (alignment option 2)

Option 4 would meet the main project objective of improving the safety and reliability of local road access, however it would not minimise the potential environmental impacts associated with the new road. The proposed road alignment for option 4 is a minimum of 10 m from the base of the control levee. This was deemed likely to result in increased erosion at the control levee in major flood events and was not approved by DPE Flood Mitigation as a result. This option is also more likely to directly impact the threatened Southern Lower Floodplain Freshwater Wetland and would have greater impacts on local flood afflux. Concept Plan for Option 4 is provided as **Appendix D**.

4 Construction

The proposed construction works for Stage 1 of the project would be managed and undertaken by Maitland City Council's Infrastructure & Works department. The demolition and removal of the sheds and water tank (**Figure 2-4**) would be undertaken by a suitably qualified contractor.

See **Appendix A** for full construction plans (Stage 1).

4.1 Scope of works

Stage 1 works include the following:

Pre-construction

- Service location
- Site establishment including traffic control and signage
- Installation of erosion and sediment controls
- Demolition and removal of sheds, water tank, and livestock fencing
- Treatment and removal of introduced weeds
- Removal of one Silky Oak tree and trimming of one Silky Oak tree
- Establishment of temporary compound (including erosion and sediment controls)
- Installation of fencing
- Relocation of powerlines
- Relocation of watermain on Oakhampton Road

Construction

- Stripping of topsoil
- Installation of 6 m wide temporary millings 'Haul Road'
- Construction of Oakhampton Road intersection
- Extraction and exportation of existing subgrade material
- Importation of road material
- Minor excavation works
- Bulk fill works
- Installation of 4 x stormwater pipe crossings and flood flaps
- Grading and topsoiling of batters
- AC millings wearing course
- Backfilling works
- Revegetation works

Demobilisation

- Final revegetation works
- Removal of all plant and materials
- Removal of temporary site compound
- Planting of offset trees

4.2 Timing

The indicative date for the commencement of works is February 2024. Weather permitting, the period of works would be approximately 5 months and it is anticipated that the project would be completed by 30 June 2024. More detailed timeframes for the stages of works are provided in **Table 4.1**.

4.3 Compound

A temporary compound area would be required for this project. The proposed location for the compound is just north of the project area (**Figure 2-3**) on Council land/Hunter Water easement. Access to the compound would be via South Willards Lane. The compound would consist of site shed, container, plant and equipment laydown area, amenities, waste receptacles, and storage areas for materials. The compound would not be established under the dripline of any trees (generally 5 metres). Access to the compound would avoid the structure identified as a possible air vent and/or inspection portal of the former intake pipeline to the Walka Water Works. See **Section 7.6** for more details.

4.4 Machinery and equipment

The machinery and equipment required for this project are identified in **Table 4.1**.

4.5 Access

The main access to the project site would be via Oakhampton Road from the east, via the temporary 'Haul Road' that will be constructed. Exit to the north via Scobies Lane would be possible as the project progresses. Access to the compound would be via South Willards Lane. Access for residents of Oakhampton Heights and the local community into Walka Water Works would continue as normal via the existing Scobies Lane and South Willards Lane.

4.6 Future works

Future works (once Stage 1 is completed) would be assessed via a separate environmental assessment when funding for the works is secured by MCC. The proposed timing for these works is unknown at this stage. The concept plan for the entire project is provided in **Figure 2-2** and as **Appendix B**.

Future works (based on current design) would include the following:

- Removal of isolated trees in the north-western corner of the study area.
- Relocation of NBN & Telstra cables & pits.
- Construction of road pavement between Oakhampton Rd and South Willards Lane and embankment constructed in Stage 1.
- Construction of new access road into Walka Water Works.
- Construction of access road to existing property on Scobies Lane.
- Construction of gabion mattress between road pavement and existing flood control levee.

Table 4.1. Plant, materials and estimated timeframes for proposed works.

Stage	Description	Plant	Materials	Duration (estimate)
1	Site and compound establishment	Truck/Tipper Excavator Vac Truck	Site shed and Amenities Hardstand Material	1 week
2	Haul Road Construction	Excavator Grader Vibratory Roller (25T) Water Cart	Road profilings	2 weeks
3	Earthworks / Bulk filling	Excavator Moxy Dozer Grader Vibratory Roller (25T) Water Cart	Select fill Gabion Rock	5 weeks
4	Stormwater Drainage	Excavator Truck/Tipper Roller	Concrete pipes Pits and headwalls Concrete Sand Subsoil pipes	4 weeks
5	Pavement Construction	Grader Vibratory Roller (25T) Truck and Dog	Gravel/Road base	5 weeks
6	Road surfacing	Water Cart Sprayer Truck Truck and Dog	Bitumen Seal aggregate	2 weeks
7	Demobilisation	Watercart Truck/Tipper Excavator Positrack	Plants Topsoil Turf	1 week

5 Statutory and planning framework

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the associated *Environmental Planning and Assessment Regulation 2021* provide the framework for assessing the potential environmental impacts associated with proposed developments in NSW. Part 5 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by public authorities which do not require development consent under the EP&A Act.

Given that development consent is not required by a public authority for roads or road infrastructure as outlined by Division 17, Subdivision 1 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP), the environmental impacts of the proposal will need to be assessed according to Part 5 of the EP&A Act.

Part 5, Division 5.1 of the EP&A Act allows for a determining authority (a Minister or a public authority) to assess the environmental impact of certain activities that they are either carrying out themselves or approving. Therefore, Maitland City Council is both the determining authority and the proponent of this proposal.

This REF has been prepared in accordance with the *Department of Planning and Environment Guidelines for Division 5.1 Assessments* (DPE, 2022).

Table 5.1 outlines how the proposal has been considered under other relevant Commonwealth and State environmental legislation and planning instruments. **Section 5.1** relates to local plans and strategies.

Table 5.1. Environmental legislation.

Legislation	Significance to the proposed project
Commonwealth Legislation	
Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act protects matters of national environmental significance (MNES) including nationally threatened species and ecological communities, migratory species, wetlands of international importance, Commonwealth marine areas, world heritage properties and national heritage places. Other matters include actions proposed on or that will affect the environment of Commonwealth land. The EPBC Act regulates the assessment and approval of activities that have or are likely to significantly impact MNES or the environment of Commonwealth land. A referral to the Department of Climate Change, Energy the Environment and Water (DCCEEW) is required for proposals that may have a significant impact on these matters. Consideration of the impact of the proposal on MNES has been provided in **Table 8.2.**
State Legislation	
Biodiversity Conservation Act 2016 (BC Act)	The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. It provides for listing and protection of threatened species and threatened ecological communities, biodiversity conservation, identifying area of outstanding biodiversity

	value and for biodiversity offset schemes and biodiversity certification of land. If an activity potentially affects any threatened flora or fauna species, populations or ecological communities listed by the BC Act, a test of significance is required. The test of significance, referred to in Section 7.3 of the BC Act, determines whether the project under Part 5 is likely to have a significant impact. It is applied as part of the Biodiversity Offsets Scheme entry requirements for Part 5 activities under the EP&A Act. If the activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, a proponent must either apply the Biodiversity Offsets Scheme (Division 4) or prepare a species impact statement (SIS) (Division 5). The study area contains **PCT 3975 – Southern Lower Floodplain Freshwater Wetland** which is listed as an endangered under the BC Act. A Test of Significance was conducted for this endangered ecological community in **Appendix N** which determined that the proposal would not have a significant impact on the Southern Lower Floodplain Freshwater Wetland.
Biosecurity Act 2015 (Biosecurity Act)	The primary object of the Biosecurity Act is to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers. The act aims to promote biosecurity as a shared responsibility between government, industry and communities. It also provides a framework for the timely and effective management of pests, weeds, diseases and other biosecurity matter that may impact the environment, the community and/or the economy. Several 'Priority Weeds' which are managed according to the Biosecurity Act were identified in the study area (see Biodiversity Assessment in **Appendix E**).
Crown Land Management Act 2016 (CLM Act)	The object of the CLM Act is to provide direction in regard to the ownership, use and management of Crown land of NSW. This includes considering environmental, social, cultural heritage and economic factors, with the intent of providing consistent efficient, fair and transparent management of Crown land for the benefit of the people of NSW, including the use and co-management by Aboriginal people. The adjacent Walka Water Works is a Crown Land reserve which is not expected to be impacted by the proposal.
Fisheries Management Act 1994 (FM Act)	The FM Act aims to conserve, develop, and share the fishery resources of the State for the benefit of present and future generations. The FM Act establishes mechanisms for: • the listing of threatened species, populations and ecological communities or key threatening processes • the declaration of critical habitat

	• consideration and assessment of threatened species impacts in the development assessment process. Section 200 of the FM Act provides that a local government authority must not carry out dredging work or reclamation work except under the authority of a permit issued by the Minister. Section 219 of the FM Act includes a prohibition on the blocking of fish passage. A permit is required from the NSW Department of Primary Industries (DPI) if a proposal would permanently or temporarily block fish passage. The study area contains areas mapped as Key Fish Habitat. Consultation with DPI has determined that no permits would be required for the proposed project (see **Appendix F**).
National Parks and Wildlife Act 1974 (NPW Act)	The NPW Act aims to conserve nature, objects, places or features of cultural value within the landscape. The NPW Act also aims to foster public appreciation, understanding and enjoyment of nature and cultural heritage, and provides for the preservation and management of national parks, historic sites and certain other areas identified under the Act. The NPW Act is the primary legislation regulating Aboriginal cultural heritage in NSW. Items of Aboriginal cultural heritage (Aboriginal objects) or Aboriginal places (declared under Section 84) are protected and regulated under the NPW Act. Aboriginal objects are protected under Section 86 of the NPW Act. Under Section 90 of the NPW Act, the Secretary may issue an Aboriginal Heritage Impact Permit (AHIP) for an activity that would harm an Aboriginal object. Note: in relation to a relic or moveable object, ***harm*** is defined in the NPW Act as ***damage, despoil, move or alter*****.** An Aboriginal Cultural Heritage Assessment Report (ACHAR) was completed for this proposal (AMAC, 2023b) (**Appendix G)**. This report determined that an AHIP will be required for this project under Section 90, before any construction activities can proceed in accordance with Part 6 of the NPW Act. Refer **Section 7.5**. **Note:** Maitland City Council has lodged an application for the AHIP.
Heritage Act 1977 (Heritage Act)	The *Heritage Act 1977* (Heritage Act) aims to provide for the identification, registration and conservation of items of State heritage significance. The Heritage Act provides protection to items such as places, buildings, works, relics, moveable objects, precincts or land that have been identified, assessed and listed on the State Heritage Register. If an item is the subject of an interim listing, or is listed on the State Heritage Register, a person must obtain approval under Section 58 of the Heritage Act for works or activities that may impact on these items, including: (a) demolish the building or work, (b) damage or despoil the place, precinct or land, or any part of the place, precinct or land,

	(c) move, damage or destroy the relic or moveable object, (d) excavate any land for the purpose of exposing or moving the relic, (e) carry out any development in relation to the land on which the building, work or relic is situated, the land that comprises the place, or land within the precinct, (f) alter the building, work, relic or moveable object, (g) display any notice or advertisement on the place, building, work, relic, moveable object or land, or in the precinct, (h) damage or destroy any tree or other vegetation on or remove any tree or other vegetation from the place, precinct or land. The proposed works are located directly to the east of Walka Water Works which is listed on the NSW State Heritage Register. A Statement of Heritage Impact (SoHI) was completed for this proposal (Eureka Heritage, 2024) (**Appendix H)**. This report determined that the there would be no statutory requirement under the Heritage Act for a permit application or exemption notification for the proposed works. However, based on current design the proposed future works (within the Walka Water Works curtilage) would require a Section 60 Works Approval under the Heritage Act. See **Section 7.6** for details.
Protection of the Environment Operations Act 1997 (POEO Act)	The POEO Act is administered by the NSW Environment Protection Authority (EPA). It provides an integrated system of licenses to set out protection of the environment policies and to adopt more innovative approaches to reduce pollution in the environment, having regard to the need to maintain ecologically sustainable development (ESD). Measures to address potential pollution as a result of the proposal have been prescribed in this REF and are included in **Section 7**. The POEO Act requires an Environmental Protection Licence (EPL) for scheduled development work and the carrying out of scheduled activities. The proposal does not involve undertaking a scheduled activity and therefore an EPL would not be required. Under Part 9, Clause 93 of the *Protection of the Environment Operations (Waste) Regulation 2014* certain requirements for exemptions relating to waste materials may be imposed by NSW EPA. See **Section 7.9**.
Roads Act 1993 (Roads Act)	The Roads Act sets out the requirements for the management and use of public roads in NSW. As per section 71 of the Roads Act, a roads authority may carry out road work on any public road for which it is the roads authority and on any other land under its control. Maitland City Council is the roads authority in this instance and may carry out the proposed work according to the Roads Act as a result.
Rural Fires Act 1997 (Rural Fires Act)	The objects of the Rural Fires Act are to prevent, mitigate and supress bush and other fires in NSW; coordinate bush fire fighting and prevention; protect persons from injury or death, and property from damage arising from fires; and to protect infrastructure and environmental, economic, cultural, agricultural, and community assets from damage arising from fires. The Act also aims for protection of the

	environment by requiring certain activities to be carried out having regard to the principles of ecologically sustainable development described in the *Protection of the Environment Administration Act 1991*. The proposed works do not trigger the requirement to obtain a Bushfire Safety Authority under Section 100B of the Rural Fires Act as the works do not involve the subdivision of land or a special fire protection purpose. The Rural Fires Act therefore does not apply to the proposal. The proposal is situated on bushfire prone land. Bushfire hazards are considered in **Section 7.13**.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	The WARR Act is intended to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development. Objectives of the Act also include to ensure resource management options are considered against the hierarchy of avoidance, re-use, and recycle before disposal and to achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis. The reporting of waste generation and waste disposal would be undertaken as part of the proposed project during the construction phase. Procedures would be implemented during construction to promote the objectives of the WARR Act, refer to **Section 7.9**.
Water Management Act 2000 (WM Act)	The objects of the WM Act are to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations including protecting, enhancing and restoring water sources, their associated ecosystems, ecological processes and biological diversity and their water quality. The key regulation made under the WM Act is the Water Management (General) Regulation 2018. The regulation specifies important procedural and technical matters related to the administration of the Act, and also specifies exemptions from licence and approval requirements under the Act. Controlled activities refer to work, or action undertaken on waterfront land, as defined by the WM Act. A controlled activity approval is required before undertaking any work or development on waterfront land. Waterfront land includes the bed of rivers as well as land within 40 metres of a riverbank. As a public authority, Maitland City Council is exempt from controlled activity approval requirements (under Clause 41 of the Regulation). As per Section 256 of the WM Act, any proposed development works located in, on or adjacent to levees or within declared floodplains must be referred to Department of Planning and Environment (DPE) for consideration. The entirety of the study area is within the Hunter Valley Flood Mitigation Scheme (HVFMS) development consent area.

	Consultation with DPE (**Appendix F**) determined that the department agreed with the proposal to construct the road at the base of the existing control levee (option 3). Refer **Section 3.3**.
Planning Instruments	
State Environmental Planning Policy (Biodiversity and Conservation) 2021 (B&C SEPP)	Chapter 4 of the B&C SEPP aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline by: • Identifying land to which an approved Koala plan of management applies. • Encouraging the identification of areas of core Koala habitat. Koala habitat is not considered to be present within or adjacent to the study area. Biodiversity is discussed in **Section 7.4** and in more detail in **Appendix E**.
State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP)	The T&I SEPP aims to facilitate the effective delivery of infrastructure across the state, including for roads and road infrastructure facilities. Section 2.109 of the T&I SEPP permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. As the proposal is appropriately characterised as development for the purposes of a road or road infrastructure facilities and is to be carried out by or on behalf of Maitland City Council, it can be assessed under Division 5.1 of the EP&A Act. Additionally, the proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not require development consent or approval under State Environmental Planning Policy (Resilience and Hazards) 2021, State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021, State Environmental Planning Policy (Precincts – Central River City) 2021, State Environmental Planning Policy (Precincts – Western Park City) 2021, State Environmental Planning Policy (Precincts – Regional) 2021 or State Environmental Planning Policy (Planning Systems) 2021.
State Environmental Planning Policy (Resilience and Hazards) 2021 (R&H SEPP)	The R&H SEPP aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objectives of the *Coastal Management Act 2016* (CM Act). The objectives of the R&H SEPP are to manage development in the coastal zone and establish a framework for land use planning and decision making in the coastal zone. The R&H SEPP identifies and maps the coastal zone according to four coastal management areas defined in the CM Act which include: • Coastal Wetlands and Littoral Rainforests Areas (including their proximity areas) • Coastal Vulnerability Areas • Coastal Environment Areas • Coastal Use Areas

	The study area is not mapped in Coastal Wetlands or Littoral Rainforest or within their proximity areas. Coastal Vulnerability areas are not currently mapped. Due to its proximity to the Hunter River Estuary, parts of the proposed project site are located within the Coastal Environment Area and Coastal Use Area under the R&H SEPP. Section 2.10 and 2.11 of the R&H SEPP set out matters for consideration prior to the granting of development consent on land within the Coastal Environment Area and Coastal Use Area respectively. As the proposal does not require development consent, Section 2.10 and 2.11 do not apply, however consideration of these sections of the R&H SEPP has been provided in **Table 8.3** to determine whether the proposal is consistent with the R&H SEPP.
Maitland Local Environmental Plan 2011 (Maitland LEP)	The project site is located within the Maitland LGA where the Maitland LEP is the local environmental plan under the *Environmental Planning and Assessment Act 1979*. The aim of the LEP is to make local environmental planning provisions for land in Maitland in accordance with the relevant standard environmental planning instrument under section 3.20 of the EP&A Act. In accordance with the Maitland LEP the study area is located within the land use zone RU1 Primary Production. In land zone RU1, roads are permitted with consent. Consent is not required in this case as per section 2.109 of the T&I SEPP. This permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

5.1 Local plans and strategies

Maitland City Council has adopted the following environmental plans and strategies that relate to the proposed project:

Maitland Greening Plan

Maitland +10 Community Strategic Plan

The Environmental Sustainability Strategy 2030

The *Maitland Greening Plan* (Maitland City Council, 2002) was developed to provide a strategic framework for future vegetation management in Maitland. The aim of the strategy is to address widespread land degradation, loss of biodiversity and habitat through the protection of remnant vegetation, habitat enhancement and community-based revegetation programs.

The *Maitland +10 Community Strategic Plan* (Maitland City Council, 2022) aligns with current community goals and includes the theme – 'Let's live sustainably'. The Plan identifies what the community would like for the city over the next ten years, which in terms of environmental sustainability includes to:

- Love and look after the great outdoors
- Protect our native plants and animals
- Improve the quality of our waterways and wetlands

The *Environmental Sustainability Strategy 2030* (Maitland City Council, 2023a) responds to community feedback on environmental priorities received over recent years. It aligns with the *Maitland Local Strategic Planning Statement 2040+* and *Maitland +10 Community Strategic Plan* and builds upon the '*Let's live sustainably'* theme. Key targets of one of the Strategy's theme areas '*Green and Blue Maitland*' are:

- Deliver functional biodiversity corridors
- Protect important natural spaces
- Improve waterway health
- Increase community participation in environmental events and volunteering

Implementing the environmental safeguards and mitigation measures summarised in **Section 9** will ensure that the proposed project remains consistent with the aims, goals and targets of the local plans and strategies listed above. Those mitigation measures listed under Biodiversity; Soil, landform and geology; Waterways, water quality and hydrology; and Cumulative impacts are particularly important in achieving this.

6 Stakeholder consultation

Maitland City Council has and will continue to undertake consultation with potentially affected property owners, relevant government agencies and other stakeholders as part of this proposed project. Key stakeholders identified for consultation include:

- Local residents
- State Emergency Services (SES)
- Utility providers
- Registered Aboriginal Parties (RAPs)
- Crown Lands - NSW Department of Planning and Environment (DPE)
- Environment and Heritage - NSW Department of Planning and Environment (DPE)
- Fisheries - NSW Department of Primary Industries (DPI)
- Water - NSW Department of Planning and Environment (DPE)

6.1 Community consultation

Maitland City Council sought feedback from local residents regarding the proposed project (option 3) in September – October 2023. Consultation included a survey (delivered via letterbox drop) to gauge residents' level of support for the proposed realignment of Scobies Lane, and to understand any concerns that the local community may have.

Key points from the community survey were:

- 33% (23) of the residents approached responded to the survey.
- 91 % (21) of residents surveyed were supportive of the proposal.
- Reasons for support included:
    - Improved safety – avoiding landlocking during flood or bushfire events
    - Less disruption to access during construction
    - A higher road being provided
    - Lower cost to the community
- 4% (1) of the residents surveyed were not supportive of the proposal.
- Reasons for not supporting the proposal included:
    - Loss of trees
    - Concern that new road will not be high enough

Other comments/questions relating to the proposal included:

- Would like to see a footpath/cycleway included in the new road design
- What will happen to the current Scobies Lane?

6.2 State Environmental Planning Policy (Transport and Infrastructure) 2021 consultation

Table 6.1. Consultation with Council required under SEPP (Transport & Infrastructure) 2021.

Is consultation with Council required under sections 2.10, 2.11, 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?	Response
Are the works likely to have a substantial impact on the stormwater management services which are provided by council? The proposed works include the addition of stormwater pipe crossings at the existing flood mitigation levee. This will not have a significant impact on stormwater management services (see **Section 7.3**).	**Yes** ☐ **No** ☒
Are the works likely to generate traffic to an extent that will strain the capacity of the existing road system in a local government area? The works will not involve any road closure**s** as the existing Scobies Lane would remain open throughout construction.	**Yes** ☐ **No** ☒
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system?	**Yes** ☐ **No** ☒
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	**Yes** ☐ **No** ☒
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow? No works are proposed in public areas. There will be no impact on the accessibility of Walka Water Works reserve.	**Yes** ☐ **No** ☒
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance? The proposed works do not include the excavation or removal of Scobies Lane.	**Yes** ☐ **No** ☒
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? The adjacent Walka Water Works is a State heritage register (SHR) listed item.	**Yes** ☐ **No** ☒
Is the proposal within the coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land? The proposal is not located within the coastal vulnerability area.	**Yes** ☐ **No** ☒
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? While the proposed project is located on flood prone land, it would not significantly change flood affectation according to hydrological modelling completed (Maitland City Council, 2023b).	**Yes** ☐ **No** ☒

Table 6.2. Consultation with public authorities required under SEPP (Transport & Infrastructure) 2021.

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of the SEPP (Transport and Infrastructure)?	Response
Are the works located on flood liable land? Section 2.13 of the SEPP (Transport & Infrastructure) 2021 states that: A public authority, or a person acting on behalf of a public authority, must not carry out development on flood liable land that may be carried out without development consent under a relevant provision unless the authority or person has (a) given written notice of the intention to carry out the development (together with a scope of works) to the **State Emergency Service**, and (b) taken into consideration any response to the notice that is received from the **State Emergency Service** within 21 days after the notice is given. Note: ***flood liable land*** means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled *Floodplain Development Manual: the management of flood liable land* published by the New South Wales Government and as in force from time to time. **Consultation with the State Emergency Service is required.** **Note:** Written notification was provided to the SES on 18 December 2023 and a response was received by MCC on 12 January 2024 (see **Appendix F**).	**Yes** ☒ **No** ☐
Are the works adjacent to a national park, nature reserve or other area reserved under the National Parks and Wildlife Act 1974, or on land acquired under that Act?	**Yes** ☐ **No** ☒
Are the works on land in Zone C1 National Parks and Nature Reserves or in a land use zone equivalent to that zone? The proposed works are on land zoned RU1 – Primary Production only.	**Yes** ☐ **No** ☒
Do the works include a fixed or floating structure in or over navigable waters? No navigable waters are in the study area.	**Yes** ☐ **No** ☒
Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land? The proposed works are not for any of these purposes.	**Yes** ☐ **No** ☒
Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory).	**Yes** ☐ **No** ☒
Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	**Yes** ☐ **No** ☒
Are the works on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961? The proposed works are not located in a mine subsidence district.	**Yes** ☐ **No** ☒

6.3 Approvals, licences and permits

Table 6.3. Summary of licences, approvals and permits.

Requirement	Timing
Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the *National Parks and Wildlife Act 1974*. **Maitland City Council** has lodged an application with **Heritage NSW for** an AHIP as per ACHAR in **Appendix G**.	Prior to any works commencing.
Works approval under Section 60 of the *Heritage Act 1977*. **Maitland City Council** will lodge a Section 60 application with **Heritage NSW** for approval to undertake the future works within the Walka Water Works complex. **Note:** A Statement of Heritage Impact (SoHI) for future works will likely be required prior to this as part of the Section 60 application.	Prior to future works commencing.

7 Environmental assessment

This section provides a detailed description of the existing environment and potential environmental impacts associated with the construction and operation of the proposed project. All aspects of the environment potentially impacted upon by the project are considered. This includes consideration of the factors specified in Section 171 of the Environmental Planning and Assessment Regulation 2021 as summarised in **Table 8.1**. Impacts on matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* are considered and summarised in **Table 8.2**.

Site-specific environmental mitigation and management measures are provided to mitigate the identified potential impacts.

7.1 Soil, landform and geology

7.1.1 Existing environment

The study area slopes from elevated areas in the west and north-west typically falling towards the intersecting gully which is mapped as a second order stream. Drainage of the site would typically follow the existing site slopes towards the gully line, and ultimately to the Hunter River located to the east. Heights range from approximately 5–6 m AHD at the wetland to approximately 17 m AHD at the north-western limit of the site.

A review of eSPADE v2.2 (DPIE, 2023) on 20 October 2023 identified that the study area spans several soil landscapes. These are:

Hunter (9232hu and 9232hub) – This is the predominant soil landscape mapped in the study area. The Hunter soil landscape is mapped as occurring on Oakhampton Road and where the new road would run east-west alongside the flood mitigation levee, and including where the wetland is located. This soil landscape is associated with extensive alluvial plains on recent alluvium derived from the Hunter and Paterson Rivers, in the Hunter Plain region in the centre of the area. Slope gradients are <1%, elevation is 2–11 m, local relief is to 2 m. Completely cleared tall open forest and closed forest. Soils are deep (>150 cm), moderately well to imperfectly drained Prairie Soils, deep (>150 cm), imperfectly to poorly drained Brown Clays, some deep (>150 cm), well-drained Chernozems. Deep (>200 cm), well to imperfectly drained Alluvial Soils on levees, ox-bows, and recent overbank deposits. Moderately deep (>80 cm), well-drained Siliceous Sands on point bar and river bank deposits. Qualities and limitations include flood hazard, foundation hazard, permanently high water tables (localised), seasonal waterlogging (localised), productive arable land and soils of high fertility.

Bolwarra Heights (9232bh) – Is found along the western portion of the study area where the new road would run north-south along the boundary of Walka Water Works reserve, and where the non-native vegetation would be removed. This soil landscape is associated with rolling low hills on Permian sediments in the centre-west of the sheet in the East Maitland Hills region. Slopes are 5–20%, elevation to 100 m, local relief to 80 m. Cleared tall open-forest. Soils are moderately deep (<150 cm), well-drained Yellow Podzolic Soils, Red Podzolic Soils, and Brown Podzolic Soils with some moderately deep (<100 cm), well-drained Lithosols on crests, moderately deep (<140 cm), imperfectly drained yellow Soloths on lower slopes. Qualities and limitations include moderate foundation hazard, water erosion hazard, high run-on (localised), seasonal waterlogging (localised), localised steep slopes with mass movement hazard.

Rivermead (9232ri) – Is mapped in the proposed location of the temporary compound in the north-east corner of the study area. This soil landscape is associated with moderately broad to extensive, level to gently undulating alluvial terraces in the Hunter Plain and Paterson Mountains regions. Slope 0–4%, elevation is 5–20 m, local relief is 5–10 m. Cleared tall open-forest. Soils—deep (>200 cm), well-drained Yellow Earths and Red Earths and shallow (200 cm), moderately well to imperfectly drained Brown Podzolic Soils, with some Chocolate Soils and deep (>130 cm), moderately well-drained Brown Clays. Qualities and limitations include high foundation hazard, localised flood hazard, and seasonal waterlogging on imperfectly drained terraces.

Approximate Ch. 0 to 450m of the proposed road alignment is underlain by various Quaternary aged alluvial deposits, typically comprising fluvially deposited sand, silt, clay and gravel materials. A minor portion of the alignment to the south-west (approx. Ch. 450m) is underlain by anthropogenic materials, mapped as comprising a range of generally coarse fragments including large concrete blocks, quarried cobbles and boulders. Approximate Ch. 450 to 820m of the proposed flood road is underlain by the Mulbring Siltstone (Pmtm) formation of the Maitland Group, known to comprise predominantly siltstone and claystone rocks and soils formed from decomposition of these rocks.

7.1.2 Potential impacts

The proposed construction activities, including ground disturbance, removal of vegetation and minor excavation, would temporarily expose soils to erosion risks. Erosion can lead to the degradation of soil substrates and reduction in soil stability. Erosion and sedimentation risks would be elevated in areas with steeper slopes such as the embankment where vegetation removal is proposed and the batters of the new road.

Construction activities would be staged to minimise the extent of soil disturbance and disturbed areas would be stabilised and reinstated as soon as practical. Erosion impacts as a result of the project would be minor and temporary considering the staged approach to construction and the installation of erosion and sediment controls.

The works will result in localised alterations to the surface due to excavation, importation of fill and other activities associated with the construction of the new road.

The operation of the project would result in an increase in impermeable surfaces, which could cause increased erosion due to runoff. However, the road and associated stormwater drainage has been designed to minimise these impacts.

7.1.3 Mitigation and management measures

- A site-specific Soil and Water Management Plan (SWMP) incorporating an Erosion and Sediment Control Plan (ESCP) will be developed in accordance with The Blue Book - Managing Urban Stormwater: Soils and Construction (Landcom, 2004). This will form part of the CEMP and will be implemented throughout the construction period and will remain implemented until all disturbed areas are suitably stabilised and revegetated. The SWMP will include an emergency procedure for flood event, site demobilisation and minimisation of excessive erosion and sedimentation, in the event of heavy rain or flooding.

- The ESCP will include erosion and sediment control plans for all stages of construction, consider soil erodibility, include at source controls, provide for the protection of the wetlands and all waterways, gullies and drains in the vicinity of the site. The ESCP will include stockpile management, monitoring and reporting checklists and detailed consideration of measures to

prevent (wherever possible) or minimise any potential erosion and sedimentation impacts. The ESCP will be implemented throughout the construction period and will remain implemented until all disturbed areas are suitably stabilised and revegetated. The ESCP will include the following environmental management measures at a minimum:

- Install sediment controls on the downslope side of any disturbed areas including all excavated, graded, and stockpile sites where erosion may result in impact to the surrounding area.
- Create catch/diversion drains and sediment fences at the downstream boundary of all construction activities to ensure containment of sediment-laden runoff to prevent flow of runoff to the wetlands.
- Regularly check erosion and sediment controls to ensure they are in place, in good condition and continue to be effective.
- Locate stockpiles of construction materials a minimum of 40 m from the floodway, wetlands, waterways, gullies, drainage lines, and culverts and provide appropriate containment measures around the stockpiles, to prevent impact from any contaminated runoff.
- Work areas, stockpile sites and access tracks to be established on already disturbed areas or areas that will be disturbed during the project.
- Temporary stockpiles shall be stabilised to prevent wind and water erosion where they are located.
- Monitor weather and restrict works before, during and after periods of high rainfall to minimise site disturbance, erosion and sedimentation.
- Stabilisation of disturbed areas (including revegetation) is to be staged progressively during the construction works.
- Disturbed areas will be revegetated with suitable local provenance native trees, shrubs and grasses (during late autumn – early spring).

7.2 Contaminated land and acid sulfate soils

7.2.1 Existing environment

A search of the Environment Protection Authority (EPA) list of notified contaminated sites (EPA, 2023a) and record of notices (EPA, 2023b) was undertaken on 20 November 2023. No contaminated land is recorded within or adjacent to the study area according to the EPA.

However, areas within the adjacent Walka Water Works site (directly to the west) are currently closed to the public until remediation works can be completed. Testing at the site has confirmed asbestos concentrations in or on soil exceeding the adopted human health criteria (GHD, 2022) in two exclusion zones in the vicinity of the study area (**Figure 7-1**). These exclusion zones are located at:

- Former power station footprint, including playground and extending into the eastern embankment.
- Lawn to the east of the former pump house station.

A review of eSPADE v2.2 (DPIE, 2023) on 20 October 2023, indicated that from Oakhampton Road and approximately 450 m of the proposed flood access road is situated within an area mapped as having a low probability of acid sulfate soils (ASS) occurrence, generally at depths greater than 3m below ground surface. The remainder of the study area is not situated within a mapped ASS risk area.

Geotechnical investigations were conducted by Stantec (2023) (**Appendix I)** on behalf of MCC. This report determined the following in relation to ASS:

- Acid sulfate soils are not present at the site within a depth of 1.7m below existing surface levels (depth range of samples tested), which is consistent with the risk mapping review which indicated the potential for ASS at a depth of >3m.

- One marginal exceedance of the Acid Sulfate Soil Manual criteria was detected in a sample of clay fill from borehole BH06 (just north of Stage 1 works) at 0.6-0.7m depth.

- Given the limited testing conducted across the range of site areas, additional ASS testing prior to any offsite reuse of materials is recommended, or if significant disturbance of the identified acidic materials is proposed.

7.2.2 Potential impacts

There is a risk of asbestos being in or on soils within the study area, particularly along the western boundary with Walka Water Works. Asbestos debris and friable asbestos have previously been identified in soils within the former power station footprint and in the lawn to the east of the pump house (GHD, 2022). Therefore, there is potential for soils contaminated with asbestos to be disturbed during excavation works proposed at the project site, despite being minimal depths. Workers could come in contact with impacted soils through direct exposure and inhalation if contaminated soils are even slightly disturbed.

There is potential for contamination associated with historic rural activities on the land within the study area, considering its RU1 (Primary Production) land use zoning. Potential contamination would include the use and storage of pesticides, fertilisers, fuels, oils and other chemicals. No chemical containers were observed during inspections of the study area including within the rural sheds to be removed.

Although unlikely due to the limited depth of excavations expected as part of the project, there is still potential for exposure of acid sulfate soils on site. When disturbed or exposed to air these soils can release acid, damaging built structures, harming or killing flora and fauna, and polluting waterways. If left undisturbed, acid sulfate soils do not present any risk.

7.2.3 Mitigation and management measures

- Soils to be excavated or disturbed within 20 m of the Walka Water Works exclusion zones will be tested for asbestos and further advice sought from a specialist environmental consultant, prior to works commencing.

- If suspected asbestos is found on site, all works within the vicinity must cease immediately and further advice sought from a specialist environmental consultant.

- Additional acid sulfate soil testing will be undertaken prior to any offsite reuse of materials and/or if significant disturbance of the identified acidic materials in geotechnical investigations is proposed. If suspected acid sulfate soils, or other contaminated soils are uncovered during the construction works, the soils would be covered and segregated for further testing and analysis. All works within the vicinity must cease immediately and advice sought from a specialist environmental consultant.

Figure 7-1. Asbestos exclusion zones in the adjacent Walka Water Works site. Source: GHD (2022).

7.3 Waterways, water quality and hydrology

7.3.1 Existing environment

The study area is located in the Hunter catchment, which is the largest coastal catchment in NSW, covering an area of approximately 21,500 km^2. The study area is approximately 60 m west of the Hunter River and 1.5 km upstream of the Belmore Bridge crossing at Maitland. The proposed project is in a flood prone area within the 1 % annual exceedance probability (1 % AEP) zone. The project site becomes inundated in the 10% AEP and rarer flood events. In the 10% AEP event, flood depths can reach 4-6 metres. Flood depths can reach 5-7.5 metres in the 1% AEP event with a velocity of 2-3 metres per second. In the Probable Maximum Flood (PMF) event, depths may exceed 10 metres with a velocity of 3-5 metres per second.

The nearby Hunter River and its tributaries have historically been negatively impacted by land clearing, agriculture, and urbanisation in the region. Impacts to local waterways and wetlands include erosion and sedimentation, turbidity, and poor water quality.

At the time of site inspections, the wetland was dry with no surface water present. No water was in the gully of the second order stream that intersects the study area. However, it should be noted that water levels in wetlands will naturally fluctuate over time and in response to climatic, seasonal and local conditions.

Geotechnical investigations identified groundwater at borehole BH02 (approx. Ch. 485 m) at 1.6 m below ground level (BGL) and possible groundwater seepage at 0.9 BGL. At borehole BH05 (approx. Ch. 140 m) groundwater inflow occurred at 3.5 m BGL and groundwater level was determined at 3.6 m. No groundwater or seepage was encountered within any of the remaining borehole locations across the study area.

An existing culvert identified below the flood mitigation levee at approximately Ch. 180 was noted to be partially blocked by rockfill.

7.3.2 Potential impacts

There is a potential risk to personnel on site and the local community if a flooding event occurs during the proposed works. Although the new road would improve access during local flood events, it would still be subject to flooding once operational, and a risk would remain in significant flooding events. The site is exposed to flood waters categorised as H6 hazard, which is considered unsafe for all people and vehicles and where all buildings are considered vulnerable to failure.

The earthworks and stockpiling associated with construction of the project have the potential to temporarily expose soils increasing the risk of erosion. This may lead to increased sedimentation of the floodplain and downstream environments, either directly via stormwater run-off or deposition of soils. Run-off containing sediment from stockpiles may result in increased turbidity and enhanced sedimentation in wetlands and waterways. If heavy rain or flooding occurs during construction works, there is potential for the severity of this impact to be compounded.

During construction, the potential exists for spills of fuels and oils from machinery or vehicles, which may pollute groundwater, wetlands and waterways.

The proposed works have the potential to intercept groundwater during excavation works, however this is considered unlikely based on the groundwater depths observed during geotechnical investigations and limited depth of excavations expected as part of the project. Despite this, local,

seasonal and climatic changes that may occur that result in changes to groundwater levels and excavation works should be undertaken with caution, monitoring for the presence of groundwater at all stages.

The concept design stage has included flood modelling for the proposed design of the new road. While the proposed project is located on flood prone land, the operating road would not significantly change flood affectation as per modelling completed in **Appendix J** (Maitland City Council, 2023). A summary of this report, *Proposed Flood Access Route Scobies Lane Oakhampton Heights - Flood Impact Risk Assessment* is listed below:

- Current observed flood depths and velocities are often high within the defined floodway area, particularly in proximity to the Powerhouse Control spillway.

- Modelling has shown that for the Hunter River event, the subject site is inundated to varying levels dependant on the flood frequency with high velocities occurring in proximity to the Powerhouse Control as water discharges across the rock mattress levee.

- Modelling shows that the site is impacted by outlet control discharge and tailwater levels at the downstream outlet point to the Hunter River causing water to pond within the low-lying area of Scobies Lane.

- Post-developed modelling considerations show that the preferred option is to have the new road construction in proximity to the Powerhouse Control as other options have greater flooding impacts on surrounding lands.

- The new road construction has also been nominated at a level to provide flood free access during a local flooding event.

- Key considerations in accordance with the Floodplain Risk Management Manual Guidelines were assessed to determine the flooding impacts of development on the existing community and the flooding impacts on development and its users.

- The analysis concluded that most key considerations were identified as not significant with the exception of velocity changes during a Hunter River flood event which were assessed as minor.

- An analysis of risk associated with these impacts has been carried out to establish key risks and appropriate management measures to be implemented to allow development of the proposal to proceed.

- It is recommended to consider implementation of these measures as the development proceeds through design, construction and operational phases.

The project would result in a minor increase in the amount of impermeable surfaces. However, it is anticipated that this increase would result in minimal excess run-off and surface water volume in the study area would continue to be diverted into the existing drainage system with all water reporting to the same catchments as present.

7.3.3 Mitigation and management measures

- All personnel will be inducted on site and made aware of flooding risks, mitigation measures and emergency procedures including evacuation of site.

- The worksite will be closed and all materials and equipment will be secured prior to the start of the working day if there is a risk of riverine flooding, on receipt of BOM advice, or when other evidence leads to an expectation of flooding.

- Weather will be monitored via the Bureau of Meteorology (BOM) website prior to the start of the workday for any flood warnings. Weather and water levels will be monitored throughout each day and work will be reassessed where there may be a safety or environmental risk due to weather events.

- Notification will be provided to emergency services if there are likely to be significant delays in the operation of any roads.

- A SWMP and ESCP will be implemented during the proposed project as per **Section 7.1.3**. The SWMP will include an emergency procedure for site demobilisation and minimisation of excessive erosion and sedimentation, in the event of heavy rain or flooding.

- Scour protection in the form of rock and gabion mattresses will be installed during construction in all areas where scour could occur.

- Open type fencing will be installed during construction in areas where flooding may occur.

- All personnel on site will be inducted and made aware of the environmentally sensitive areas on site, including wetland and intersecting stream/gully.

- All personnel must be made aware of their responsibilities to ensure that all mitigation measures included in this REF are implemented throughout the project.

- Maintenance of equipment or vehicles will not be performed on site. If this is unavoidable maintenance will be carried out a minimum of 40 m from the floodway, wetlands, watercourses and drainage lines and drip or catch trays will be located beneath equipment/vehicles being maintained.

- Refuelling of minor plant and equipment will occur in impervious bunded areas located a minimum of 40 metres from the floodway, wetlands, drainage lines or waterways.

- An emergency spill kit will be kept on site at all times. All persons on site will be made aware of the location of the spill kit and trained in its use.

- A spill response plan (SRP) will be developed for the project. This plan would detail measures including spill prevention, containment and clean-up of accidental spills of oils, fuels and chemicals.

- The storage and handling of fuels and chemicals will comply with Australian Standards and safety data sheets.

- Any spills with the potential for material harm to the community or environment will be notified to the EPA by Maitland City Council immediately.

- Vehicle movements will be restricted to established roads and tracks, haul road and access points.

- Equipment and materials will not be stored within 40 m of the floodway, wetland, drainage lines or watercourses.

- Groundwater will be monitored for at all stages during excavation works. In the event that groundwater is intercepted during works:

    - A groundwater management plan (GMP) will be developed and implemented as part of the CEMP. This will detail methodologies and management measures if dewatering is required.
    - The appropriate approvals will be obtained.

7.4 Biodiversity

7.4.1 Existing environment

A review of available literature and online databases was completed to identify biodiversity values and potential for threatened species, communities and populations listed under the *Biodiversity Conservation Act 2016* (BC Act), *Fisheries Management Act 1994* (FM Act) and the EPBC Act to occur in the study area. The following database searches were undertaken:

- EPBC Act Protected Matters Search Tool (DCCEEW, 2023a) on 4 October 2023 (**Appendix K**)**.** The EPBC Act Protected Matters Report lists the following Matters of National Environmental Significance that may occur in, or may relate to the project site (10 km buffer area):
    - One Wetland of International Importance (Ramsar Wetlands)
    - Six Listed Threatened Ecological Communities
    - 38 Listed Threatened Species
    - 17 Listed Migratory Species

- A NSW BioNet Atlas Search (DPE, 2023a) on 4 October 2023 (**Appendix L**) identified 37 records of threatened species, populations or communities previously recorded within a 10km buffer of the project site.

- A search of the NSW State Vegetation Type Map (DPE 2023b) on 10 October 2023 identified one plant community type (PCT) as occurring in the study area. The PCT is:

  PCT 3975 – Southern Lower Floodplain Freshwater Wetland
    - Listed as endangered under the BC Act

- A search of the Department of Primary Industries Fisheries NSW Spatial Data Portal on 4 October 2023 indicated that the study area contains:

    - Key Fish Habitat – Central Rivers

  Note: The study area is not mapped as habitat for any threatened aquatic species.

- A search of the Atlas of Groundwater Dependent Ecosystems (GDE) (BOM, 2023) on 4 October 2023 identified the Hunter River to the east as a high potential GDE. Vegetation along the banks of the river is also mapped as a high potential terrestrial GDE. Areas within Walka Water Works reserve (to the west) are mapped as both high and low potential terrestrial GDE.

A search of NSW WeedWise (DPI, 2023) identified all priority weeds listed for the Hunter region and associated measures needed to fulfil the requirements of the Biosecurity Act (**Appendix M**). Several priority weeds were identified in the study area (See **Appendix E** for more details).

Vegetation

PCT 3975 – Southern Lower Floodplain Freshwater Wetland was identified in the lower-lying portion of the study area. No trees or shrubs were recorded. The grasses *Paspalum distichum* and *Cynodon dactylon* are the dominant native species, with *Persicaria hydropiper* also frequently present. All other herbs and groundcovers are introduced species. This community is in poor condition, exhibits low biodiversity and is highly modified and disturbed due to slashing and horse grazing.

The majority of vegetation in the study area is pasture. The pasture areas are dominated by Kikuyu grass with various introduced shrubs, herbs and groundcovers also present throughout. Isolated mature African Olive and Large-leaved Privet are located on the southern boundary. Chinese Tallow Tree saplings are also found along the fence lines. Small patches of the native sedge *Juncus usitatus* can be found in the drainage areas near the flood control levee.

A small stand of isolated trees is located in the north-eastern corner of the study area. These trees include one large and one medium-sized *Corymbia citriodora* (Lemon-scented Gum). This species is native to temperate and tropical Queensland but is sparingly naturalised in NSW. It is highly likely that these trees were planted. Other trees include one medium-sized *Grevillea robusta* and two African Olive trees. The understory is mostly introduced grasses and herbs.

A heavily weed infested embankment on the western boundary, is proposed for clearing (shrub and ground layer only). The dominant trees in this area are Silky Oak and Tree of Heaven. Green Cestrum and Tree of Heaven saplings/suckers dominate the shrub layer. The climber, Morning Glory is found sprawling over much of the vegetation. There are no native species present.

Note: The embankment shrub layer proposed to be cleared was found to have already been cleared during a second inspection of the site (1 December 2023). Following discussions with MCC it appears that Ausgrid had recently undertaken this clearing as part of their regular powerline maintenance.

A map showing the spatial distribution of the plant community types (PCTs) and other vegetation identified in the study area is provided in **Figure 7-2**.

Terrestrial habitat

Several hollow bearing trees are located at the western boundary of the study area within Walka Water Works reserve. These trees are predominantly *Grevillea robusta* (Silky Oak). One isolated Silky Oak tree to the north-east would require removal. This tree has been heavily pruned on one side due to its proximity to powerlines. Consequently, there are several scars in the tree, however, these appear to be shallow, and it is not likely that these have formed into hollows that would be suitable as habitat.

The rural shed and storage shed were identified as potential roosting habitat for microbat species. A thorough inspection of all areas found no evidence of microbats roosting.

A search of the Atlas of Groundwater Dependent Ecosystems (GDE) (BOM, 2023) identified the riparian vegetation along the banks of the river as a high potential terrestrial GDE. Areas within Walka Water Works reserve (to the west) are also mapped as both high and low potential terrestrial GDE.

Aquatic habitat

The second order stream that intersects the study area is mapped as Key Fish Habitat according to Fisheries NSW Spatial Data Portal (DPI, 2023a) (see **Figure 7-3**). This was dry at the time of inspections. The study area is not mapped as habitat for any threatened aquatic species.

A search of the Atlas of Groundwater Dependent Ecosystems (GDE) (BOM, 2023) identified the Hunter River to the east as a high potential aquatic GDE.

No other significant aquatic habitat was identified on site during inspections. At the time of inspections, the study area was relatively dry and no surface water was evident. The wetland and surrounding pasture had also been slashed prior to inspection and is grazed by horses, therefore highly disturbed. Despite this, the currently dry wetland area does have potential to provide aquatic habitat

for native frogs, fish, birds and other fauna when the natural water regime inundates the area. It is also likely that if the disturbances of slashing and grazing are removed that wetland species would recover.

Wildlife corridors

Considerable clearing in the immediate vicinity of the study area for rural land use and urbanisation has resulted in disturbed and fragmented vegetation with reduced habitat connectivity. However, the avenue of trees on the boundary of Walka Water Works and the study area does provide a narrow wildlife corridor. This links the mature, dense vegetation in the upper slopes of the reserve and surrounds of the reservoir with other wildlife corridors, pockets of vegetation, floodplains and wetlands in the vicinity of the site.

7.4.2 Potential impacts

Vegetation

No vegetation associated with **PCT 3975 – Southern Lower Floodplain Freshwater Wetland** would be removed or disturbed during the project. However, the proposed construction activities do have the potential to impact on the endangered ecological community. A Test of Significance was conducted for this endangered ecological community in **Appendix N** which determined that the proposal would not have a significant impact on the Southern Lower Floodplain Freshwater Wetland.

The proposed works would involve the removal of the shrub and ground layer in the non-native vegetation area along the embankment at the western boundary of the study area. One isolated individual Silky Oak tree would need to be removed. This tree is regularly heavily pruned on one side, is infested with Longicorn beetles, and is not considered in good health. One African Olive and one Large-leaved Privet would also be removed. These are located along the southern boundary of the site. One Silky Oak will need minor pruning at the northern limit of the western embankment. See **Figure 7-4** for locations.

No other trees would be removed. However, it is noted that one large mature tree, *Corymbia citriodora* (Lemon-scented Gum) is proposed for removal during future works associated with the project. This tree is located within the isolated trees in the north-western corner of the study area.

Clearing of non-native vegetation would be required on the embankment at the western boundary with Walka Water Works. As discussed above in **Section 7.4.1**, this has already occurred. The embankment is heavily infested with weeds (**Appendix E)** and the soil here would contain a significant weed seed bank. These weeds have the potential to spread further during construction works and following the disturbance of soils.

A summary of the vegetation that would be impacted by Stage 1 of the proposal is provided in **Table 7.1**.

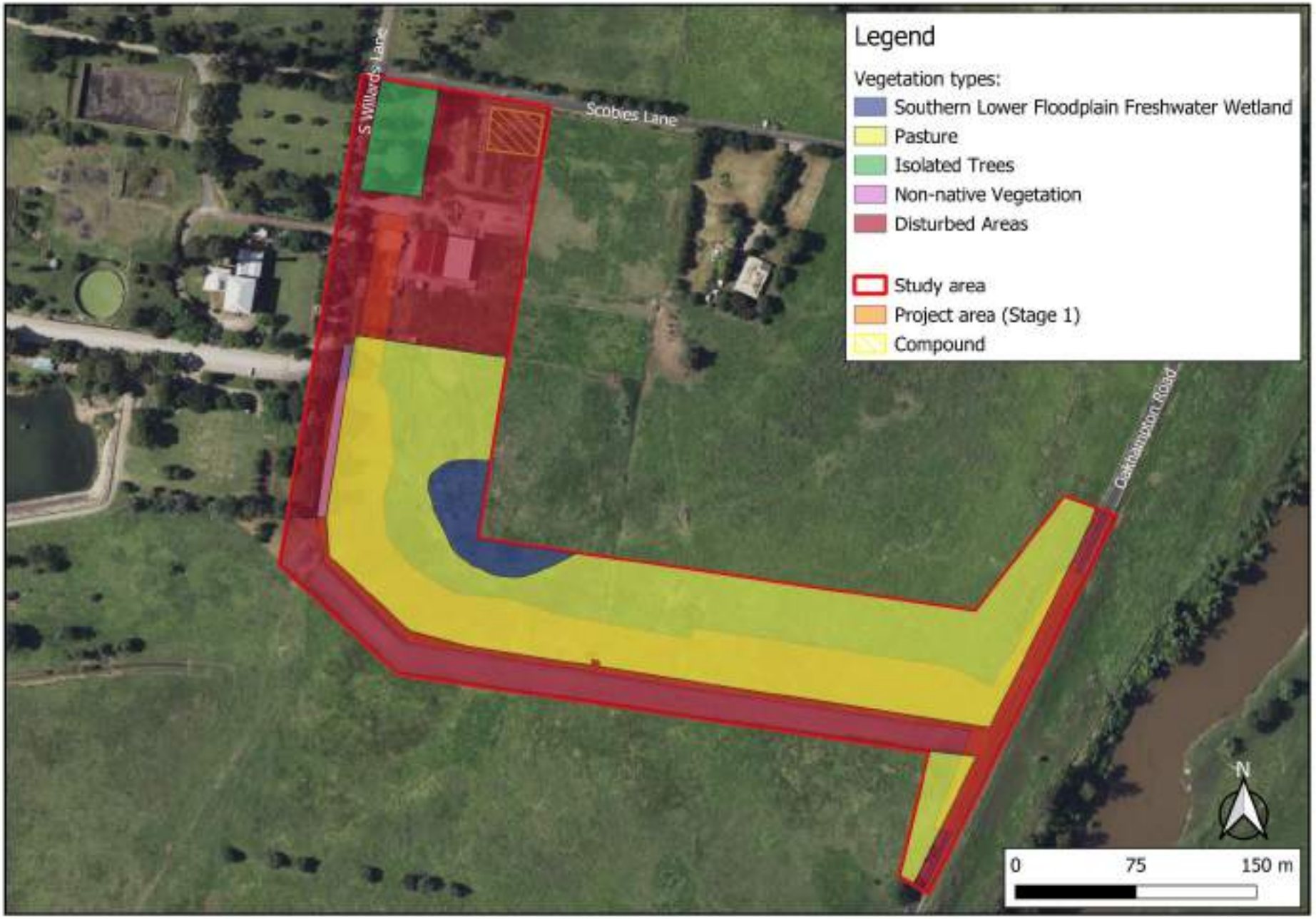

Figure 7-2. Spatial distribution of PCTs and other vegetation in the study area.

Figure 7-3. Key Fish Habitat and Strahler Stream Order mapped in the study area.

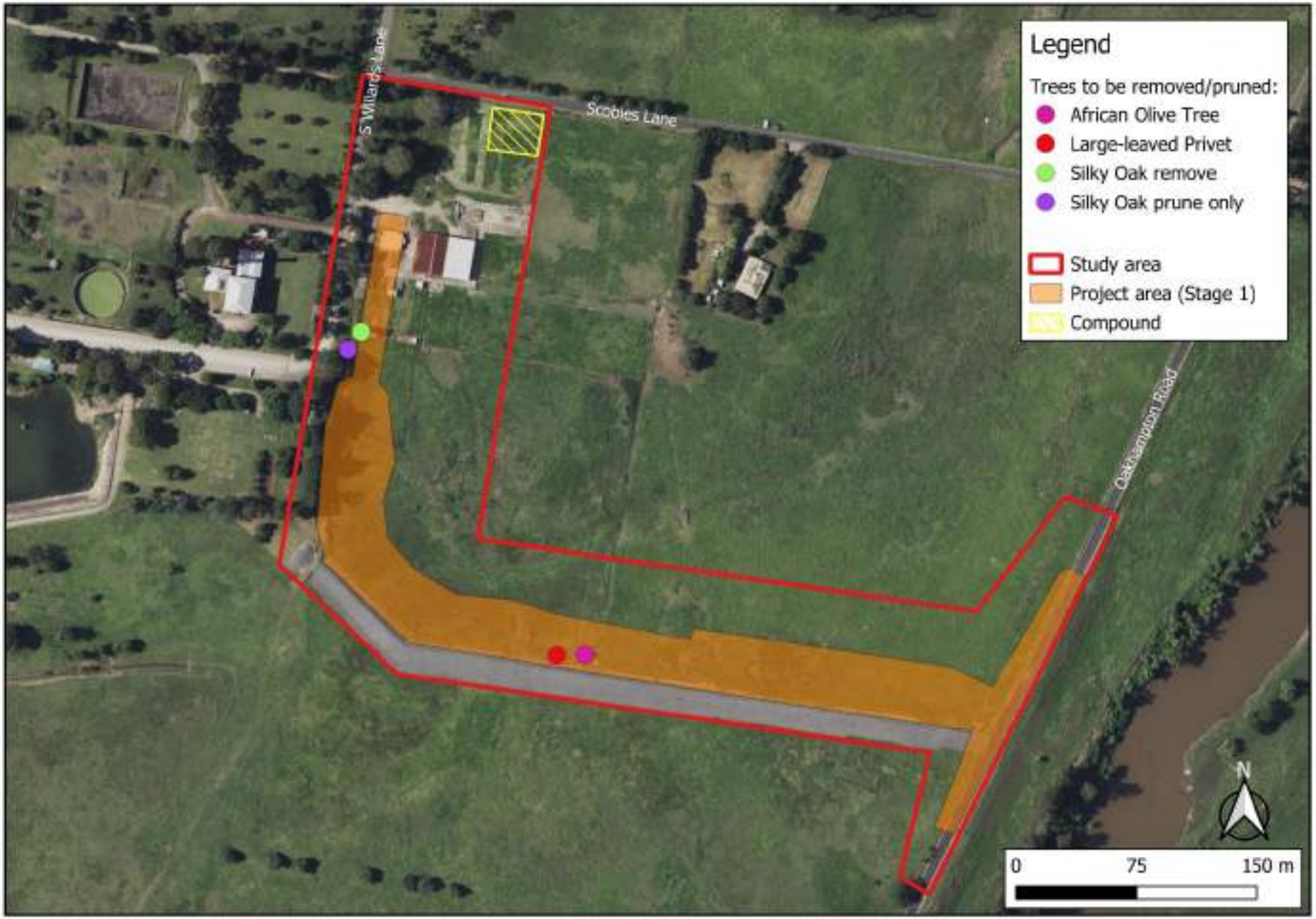

Figure 7-4. Location of weeds and trees to be removed or pruned.

Table 7.1. Vegetation impacted by stage 1 of the proposal.

Plant community type (PCT)	Extent in the study area (ha)	Area to be removed (ha)
Southern Lower Floodplain Freshwater Wetland	0.26	-
Isolated trees	0.25	-
Non-native vegetation	0.06	0.06
Pasture	4.78	1.32
Total	**5.38***	**1.38**

*** Remainder of study area is disturbed land.**

Terrestrial habitat

The isolated Silky Oak tree proposed for removal may provide habitat for fauna, however this is considered unlikely. No signs of fauna were identified during inspections, and the scars in the tree from pruning appeared too shallow for habitat hollows. There are many larger Silky Oak trees and local native trees in the vicinity of the study area that provide hollows for fauna. No hollow-bearing trees or stag trees will be removed.

Aquatic habitat

The stream that intersects the study area is mapped as Key Fish Habitat. During consultation with DPI, Maitland City Council was informed that no Part 7 Fisheries permit is required for these works (**Appendix F**). This stream is considered a second order stream and is therefore not considered key fish habitat in accordance with Table 1 of the *Policy and Guidelines for fish habitat conservation and management* (DPI, 2013).

The earthworks and stockpiling associated with construction of the project have the potential to temporarily expose soils increasing the risk of erosion. This may lead to increased sedimentation of the floodplain and downstream environments, either directly via stormwater run-off or deposition of soils. Run-off containing sediment from stockpiles may result in increased turbidity and enhanced sedimentation in wetlands and waterways. If heavy rain or flooding occurs during construction works, there is potential for the severity of this impact to be compounded.

During construction, the potential exists for spills of fuels and oils from machinery or vehicles, which may pollute wetlands, groundwater and waterways.

Wildlife corridors

The vegetation that would need to be cleared for this proposal is not part of Council's mapped local, regional, or sub-regional biodiversity corridors. However, parts of the study area are mapped within Council's Green Blue Grid under its Environmental Sustainability Strategy 2030 (Maitland City Council, 2023). These areas would potentially provide terrestrial and aquatic linkages between Walka Water Works reserve to other areas of habitat in the vicinity of the site.

The proposal would not break continuous habitats (aquatic or terrestrial) into separate smaller fragments. The Silky Oak tree and other non-native vegetation proposed for removal are regularly pruned and cleared by Ausgrid during powerline maintenance works. It is considered that given the already disturbed location, and very minimal habitat that would be impacted the proposal, it is unlikely to have significant impact on local wildlife corridors or any species that utilise them.

7.4.3 Mitigation and management measures

A Biodiversity Management Plan (BMP) will be developed to ensure that at a minimum, all mitigation measures listed below are implemented. This will form part of the CEMP and will need to be implemented prior to, during and post construction.

Vegetation

- Disturbance of vegetation (including pasture) will be limited to the minimum areas required for the project to be completed.

- The one isolated tree proposed for removal (Silky Oak) will be clearly marked prior to removal.

- Silky Oak tree would be offset according to Maitland City Council's tree replacement requirement of a 3:1 ratio. Three locally native trees, (such as *Corymbia maculata*) would be planted in a suitable location determined by MCC.

- The area mapped as **Southern Lower Floodplain Freshwater Wetland** (Wetland Area) must not be disturbed.

- Wetland area will be marked as 'No Access' zone using para-webbing or similar - no access allowed for vehicles, machinery, or workers. New boundary fence at approximately 20 m from mapped wetland will be utilised for this purpose. No materials to be stored in or within 40 m of these areas.

- Spoil from clearing works is to be stockpiled outside of any vegetated areas and outside of the dripline (usually 5 metres) of any trees.

- Disturbed areas will be revegetated with suitable local provenance native trees, shrubs and grasses (during late autumn – early spring).

- Weed Biosecurity Management Plan (WBMP) to be developed as part of the BMP including:
    - Targeted priority weed management to be undertaken prior to, during and post construction where required, with a particular focus on the western embankment (Non-native Vegetation Area).
    - Removal and disposal of weed waste materials including any fruit or seed – do not mulch on site.
    - Weed waste material will be removed and kept separate to other vegetation, waste or stockpiles.
    - Weed waste material must not be moved to any other locations on or off-site (except for disposal at a licenced waste facility).
    - Weed infested soils (Non-native vegetation area) must be kept separate from clean fill and must remain in its current location under 1 m from final ground level.
    - A hygiene protocol for construction vehicles and equipment to prevent the spread or introduction of weeds, pest and pathogens.

- Parking vehicles, storing materials or placing stockpiles within the dripline of trees (usually 5 metres) will be avoided.

Terrestrial Habitat

- A qualified ecologist must be present onsite during the clearing of the Silky Oak tree. The ecologist should provide a description on a suitable way to remove this tree and collect any sheltering fauna. Any fauna present should be collected and relocated locally. If microbats, or any other nocturnal fauna, are present, these should be released at dusk.

- Do not remove or disturb any fallen trees/logs on site. If fallen trees are required to be moved, then they will be placed back in a location as close to the original position as possible.

- Do not remove any dead standing trees.

- Do not disturb or harm any fauna found on site.

- If native fauna is injured or trapped on site, contact the local National Parks & Wildlife office or a licensed wildlife rescue and rehabilitation group in the local area to arrange for collection/removal from site.

Aquatic habitat

- A site-specific Soil and Water Management Plan (SWMP) incorporating an Erosion and Sediment Control Plan (ESCP) will be developed in accordance with The Blue Book – Managing Urban Stormwater: Soils and Construction (Landcom, 2004). This will form part of the Construction Environmental Management Plan (CEMP) and will be implemented throughout the construction period. The ESCP:
    - Must include specific water, erosion and sediment control measures that will be implemented on site.
    - Must be flexible to allow adjustments to changing conditions on site.

- A demobilisation strategy from the construction site will be developed in the event of heavy rain or flooding and will be included in the SWMP. This will include how water, bare or disturbed soils, and stockpiles will be managed to avoid excessive erosion and sedimentation, in a significant weather event.

- Disturbed areas will be stabilised and revegetated in stages during construction to minimise the risk of erosion and sedimentation occurring.

- Groundwater will be monitored for at all stages during excavation works and a Groundwater Management Plan implemented in the event that groundwater is intercepted during works.

- A spill response plan (SRP) will be developed for the project. This plan will detail measures including spill prevention, containment, and clean-up of accidental spills of oils, fuels and chemicals.

- Any accidentally contaminated soil will be immediately excavated, stockpiled, bunded, classified for disposal, and transported to a licenced waste facility for disposal.

- An emergency spill kit will be kept on site at all times. All persons on site are to be made aware of the location of the spill kit and trained in its use.

- Refuelling or maintenance of plant and equipment will only occur in bunded areas located a minimum of 40 metres from the floodway, wetland, waterways or drainage lines.

- Only vehicles and machinery essential for the project works will be permitted into the project area.

- Plant and equipment will be well maintained and checked daily before commencing work on site.

- Weather and water levels will be monitored prior to and during construction. Works will be reassessed where there may impact nearby wetlands and waterways.

- Vehicles and machinery essential for works will be confined to the Haul Road designated roadways and access points only and will not be permitted elsewhere on site.

- Equipment and materials will not be stored within 40 m of the floodway, wetland, drainage lines or watercourses.

Note: For the long-term management of wetland areas in the study area and surrounds, it is recommended that the current slashing and horse grazing practices cease. This will allow for wetland species to recover and the wetland to re-establish in a more natural state. This would assist with reducing cumulative issues in the area associated with erosion, sedimentation, and water quality, and would provide more suitable habitat for native fauna in the locality.

7.5 Aboriginal heritage

7.5.1 Existing environment

A search of the Heritage NSW Aboriginal Heritage Information System (AHIMS) (DPE, 2023c) on 20 November 2023 revealed 4 Aboriginal sites recorded in or near the study area (**Appendix O).** One of these (AHIMS site 38-4-2282) was first recorded on site during an Aboriginal archaeological due diligence assessment conducted on behalf of Maitland City Council (AMAC, 2023a) as part of this proposal.

Subsequently, an Aboriginal Cultural Heritage Assessment Report (ACHAR) (**Appendix G**) was completed (AMAC, 2023b). Test excavations resulted in the identification of 19 subsurface Aboriginal objects. The report indicates that the site is of low-moderate archaeological significance and determined that an Aboriginal Heritage Impact Permit (AHIP) will be required for this project.

7.5.2 Potential impacts

The proposed activity will disturb the ground surface and subsoils which has the potential to harm Aboriginal objects and areas of cultural significance. However, due to the deep soil profile of the study area, it is likely that intact soil profiles may exist in sections of the study area with a low-moderate potential for Aboriginal artefacts and/or deposits of archaeological and cultural significance to be present (AMAC, 2023b).

7.5.3 Mitigation and management measures

- Maitland City Council has applied for an Aboriginal Heritage Impact Permit (AHIP) for this proposal as per the Aboriginal Cultural Heritage Assessment Report (ACHAR) completed by AMAC (2023b).

- Any conditions of the AHIP will be complied with throughout the proposed project.

- All persons working on site will be briefed prior to works commencing as to the conditions of the AHIP and their responsibilities in ensuring the preservation of Aboriginal archaeological deposits and objects that may be located on site.

- If any Aboriginal archaeological deposits and/or objects are located during the proposed works, then the following should take place:

    - All work is to cease in the immediate vicinity of the deposits and/or objects.
    - The area is to be demarcated.
    - Heritage NSW and a suitably qualified archaeologist are to be notified and will provide further instructions.

- Should any human remains be located during the proposed works, then the following will take place:
    - All excavation in the immediate vicinity of any objects shall cease immediately.
    - The NSW police and Heritage NSW will be informed as soon as possible.
    - If it is established that the human remains are Aboriginal ancestral remains, Heritage NSW and the relevant Registered Aboriginal Parties will identify the appropriate course of action.

7.6 Non-Aboriginal heritage

7.6.1 Existing environment

A search of the following online heritage database searches was undertaken on 20 November 2023 to identify any Commonwealth, State or local heritage significance items in the vicinity of the study area:

- NSW State Heritage Inventory (DPE, 2023d)
- Commonwealth EPBC heritage list (DCCEEW, 2023b)

There is one heritage listing within 500 m of the study area which is:

- Walka Water Works
    - Listed under the Heritage Act – State Heritage Register (SHR #00466)
    - Listed under the Maitland Local Environmental Plan (Item no. I222)

The Walka Water Works reserve is located directly to the west of proposed project area. The Walka Water Works site incorporates natural areas (including a threatened ecological community), a reservoir, and industrial complex of the water treatment works to the north-east of the reservoir. Walka Water Works is one of the largest and most intact 19th century industrial complexes in the Hunter Valley. The surviving water treatment features at the site constitute the most comprehensive set in NSW. The pump house, chimney and boiler house are in a traditional configuration and are

located within an attractive landscape. The entire complex, including the reservoir, is an important cultural landmark. See **Figure 7-5** for heritage and other items associated with Walka Water Works.

7.6.2 Potential impacts

There will be no Stage 1 works undertaken within the Walka Water Works complex, however there is the potential for minor impacts to the site including dust, noise and vibration if the appropriate mitigation measures are not implemented. A Statement of Heritage Impact (SoHI) was completed for Stage 1 works by Eureka Heritage (2024) on behalf of MCC, which is included as **Appendix H**. A summary of this report, *Statement of Heritage Impact – Scobies Lane Realignment, Oakhampton* is listed below:

- Review of proposed works against the maps and plans available of the Walka Water Works indicate that the works would not impact upon any known heritage or archaeological resources within that site, or any that might be present beyond the SHR boundary, such as the intake pipeline.

- A structure identified as a possible air vent and/or inspection portal of the former intake pipeline to the Walka Water Works (**Figure 7-7**) is located outside of the proposed project footprint, within the Hunter Water easement. The presence of this remnant may provide an indication that some associated remnant works remain underground.

- Any remnant structure of a pipeline would be defined as a work and not a relic and therefore, would not be subject to the relics' provisions of the NSW Heritage Act. However, given the potential association with the State significant site, there is potential for the pipeline to also attain a State level of significance.

- The implications of the definition of work are that an application under s60 is not required to cover the disturbance of a work. However, considered management would still be required to manage any remnant drain structure so that this historical information could be recorded. The potential for the disturbance of any subsurface drain structure could be covered through the adoption of an unexpected heritage finds strategy.

- A heritage/archaeological investigation of the suction pipe line per Hunter Water advice is fully supported but is considered beyond the scope of the current SoHI as there is no potential for adverse impact by the currently proposed works.

- There is no risk of detrimental impact upon the heritage values, landscape values, views, and/or vistas by the proposed works and the realignment of Scobies Lane that is not offset by the need for flood mitigation works and the safety of the community.

The western boundary of the proposed project area and the eastern boundary of the Walka Water Works complex are adjoined and there is a risk that works may inadvertently extend into the Walka Water Works site if not appropriately managed.

The structure identified as a possible air vent and/or inspection portal of the former intake pipeline to the Walka Water Works (**Figure 7-7**) is located outside of the proposed project footprint, in the Hunter Water easement. However, the proposed location of the compound suggests that vehicles and machinery would be in the vicinity of this structure. There is a potential risk of the item being impacted

during works, however this is unlikely as a high-visibility buffer fence will be placed around the structure and the access track for the compound will avoid the area.

Future works associated with the proposed project (including vegetation removal and excavation works) are proposed within the Walka Water Works curtilage, based upon current concept design. Therefore, a works approval would need to be sought by Maitland City Council according to Sections 59 and 60 of the *Heritage Act 1977* prior to these works commencing.

7.6.3 Mitigation and management measures

- Boundary of the Walka Water Works complex will be clearly marked on site using para-webbing or similar as a 'no access area'.

- Air vent/inspection portal (**Figure 7-7**) will be clearly marked with a 2 m buffer on site using hi-visibility para-webbing or similar as a 'no access area'. Access track for the compound will avoid the area.

- No works, stockpiles, equipment, or machinery will be located within the Walka Water Works complex boundaries.

- A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP (see **Section 7.7**).

- No vibratory machinery will be used within 100 m of any heritage buildings or other heritage items associated with Walka Water Works (**Figure 7-5**). Those heritage items located closest to the proposed project footprint are:

    - Former main pumphouse building
    - Former power station (foundations)
    - Former workman's cottages (foundations)

- 'No Use Area' for vibratory machinery (including vibratory roller) will be clearly marked on site with signage and para-webbing, or similar.

- Vibration monitoring will be undertaken prior to and during works to ensure that vibration from the proposed works does not exceed 2.5 mm/s (PPV) as per DIN4150 where heritage items are located.

- All personnel will be inducted on site and will be made aware of the locations of Walka Water Works boundary, 'no access areas', heritage items, 'no use area' for vibratory machinery (including vibratory roller), and unexpected finds procedure (**Figures 7-5, 7-6 and 7-7**).

- A suitably qualified specialist/archaeologist should be retained in an on-call basis during project works to provide an assessment and guide management should unexpected heritage or archaeological items be discovered or suspected.

- Future works associated with the project within the Walka Water Works curtilage (based on current design) will require a Statement of Heritage Impact (SoHI) and subsequent works approval from Heritage NSW.

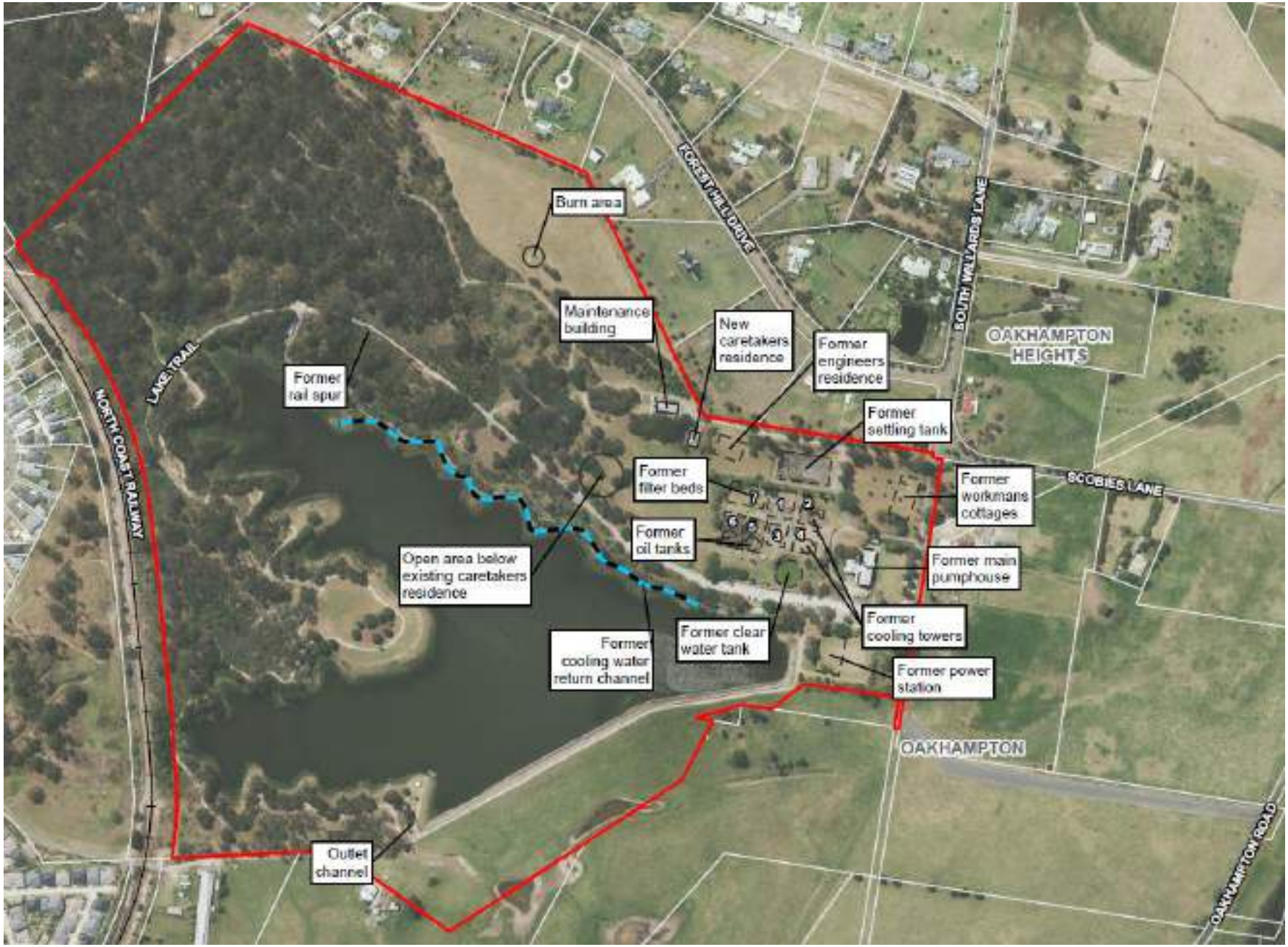

Figure 7-5. Heritage and other items in the adjacent Walka Water Works site. Source: GHD (2022).

Figure 7-6. Possible air vent and/or inspection portal of former intake pipeline to Walka Water Works. Source: Eureka Heritage (2024).

Figure 7-7. Unexpected finds procedure flowchart. Source: Eureka Heritage (2024).

7.7 Noise and vibration

7.7.1 Existing environment

The existing noise environment is typical of a rural/rural residential area consisting of traffic noise and natural sounds. The closest residences are located approximately 130 m north, 150 m east, and 200 m north-west of the proposed project area. These residences are located on South Willards Lane, Scobies Lane and Forest Hill Drive respectively.

The suburb of Oakhampton Heights (directly to the north-west) is the closest residential suburb consisting of R5 – Large Lot Residential land.

Besides residential dwellings, there are no other sensitive noise receivers within the locality of the study area. The closest sensitive receivers are:

- Tillys Play & Development Centre – approximately 1500 m north-east of the study area
- Bolwarra Public School – approximately 1575 m north-east of the study area

The public children's play area located in Walka Water Works reserve is currently closed for remediation and is not likely to reopen before the proposed project would be scheduled to be completed.

7.7.2 Potential impacts

Noise

The EPA recognises that construction activities could potentially generate higher noise levels than those of an industrial operation. The Interim Construction Noise Guideline (ICNG) (DECC, 2009) provides noise management criteria for construction activities which are intended to guide the need for, and the selection of, feasible and reasonable work practices to minimise construction noise impacts. The ICNG notes that a residential receiver is 'noise affected' if the L_{Aeq} (15 min) construction noise level exceeds the rating background level (RBL) by more than 10 dB and is 'highly noise affected' at 75 dB(A) during recommended standard hours.

The proposed construction activities will generate noise from the operation of plant, machinery and equipment (**Table 4.1**) during standard work hours. Activities associated with the construction of the haul road, earthworks/bulk filling, and pavement construction of the new road are anticipated to generate the greatest noise and vibration during construction. These stages of the project are anticipated to take a total of 8 weeks to complete.

Although expected construction noise has not been quantified, considering the distance from the closest residence is 130 m, it is unlikely that noise from the proposed project will have a significant impact on residential receivers. Noise minimisation strategies will be used during construction – see **Section 7.7.3** below.

Vibration

The study area is located in the vicinity of the heritage listed buildings and other items which form part of the Walka Water Works complex (**Figure 7-5**). These items have the potential to be impacted by vibration intensive plant typically used for construction of roads.

The proposed use of a 25-tonne vibratory roller has the potential to generate vibration at a distance from the project area. The Roads and Maritime Services Construction Noise and Vibration Guideline (CNVG) (RMS, 2016) recommends typical minimum working distances for these types of equipment (**Table 7.2**). This guideline was developed to manage construction noise and vibration for all Roads and Maritime projects however, is applicable to other similar construction projects.

Table 7.2. Recommended minimum working distances for vibration intensive plant (RMS, 2016).

Plant Item	Rating / Description	Minimum working distance	
		Cosmetic damage (BS 7385)	Human response (OH&E vibration guideline)
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5m	15m to 20m
	< 100 kN (Typically 2-4 tonnes)	6m	20m
	< 200 kN (Typically 4-6 tonnes)	12m	40m
	< 300 kN (Typically 7-13 tonnes)	15m	100m
	> 300 kN (Typically 13-18 tonnes)	20m	100m
	> 300 kN (> 18 tonnes)	25m	100m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2m	7m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7m	23m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22m	73m
Vibratory Pile Driver	Sheet piles	2m to 20m	20m
Pile Boring	≤ 800 mm	2m (nominal)	4m
Jackhammer	Hand held	1m (nominal)	2m

The CNVG states that these minimum working distances are indicative and will vary depending upon the item of plant and local geotechnical conditions. They apply to cosmetic damage of typical buildings under typical geotechnical conditions. Vibration monitoring is recommended to confirm the minimum working distances at specific sites.

Risk of structural damage of buildings caused by vibration is generally managed by ensuring vibration induced into the structure does not exceed certain limits and standards, such as the British Standard 7385 Part 2 (1993). In the case of heritage structures, BS7385-2 does not provide numerical vibration levels to prevent structural damage. German Standard DIN 4150 has criteria of relevance in relation to damage to heritage items. DIN4150 is commonly applied to assess potential impacts on heritage and fragile buildings or structures. To evaluate the effects of long-term vibration on structures, the lowest criterion of 2.5 mm/s (PPV) in DIN4150 is often referred to in planning approval conditions.

No receivers are anticipated to be within the recommended safe minimum working distances for the proposed vibratory roller works on site.

The proposal will not have any impact on the existing current noise and vibration environment once operational.

7.7.3 Mitigation and management measures

- A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will follow the approach in the Interim Construction Noise Guideline (ICNG) (DECC, 2009) and identify:
    - All potential significant noise and vibration generating activities associated with the activity.
    - Feasible and reasonable mitigation measures to be implemented.
    - Arrangements for consultation with affected residents and sensitive receivers, including notification and complaint handling procedures (provide contact details of Project Manager for complaints.).
    - Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.

- No vibratory machinery will be used within 100 m of any heritage buildings or other heritage items associated with Walka Water Works (**Figure 7-5**). Those heritage items located closest to the proposed project footprint are:

    - Former main pumphouse building
    - Former power station (foundations)
    - Former workman's cottages (foundations)

- Vibration monitoring will be undertaken prior to and during works to ensure that vibration from the proposed works does not exceed 2.5 mm/s (PPV) as per DIN4150 where heritage items are located.

- All construction workers will be inducted on site and will be made aware of the locations of heritage items and 'no use area' for vibratory roller.

- Works will be carried out during standard work hours only (i.e. Monday-Friday: 7:00am to 6.00pm; Saturday: 8.00am to 1.00pm; Sunday and Public Holidays: no work).

- All potential noise affected residents will be notified as follows:
    - Prior to the commencement of the construction project, provide a general update to the local community including all potential noise affected residents. Notification to advise on general project information such as scope of works, duration of the works, and any perceived impacts to the community.
    - If out of hours works are essential – provide notification to noise affected residents a minimum of 5 business days prior to the works. Notification to advise on details of works, details of any noisy type works, details of any changes to access and details of measures implemented to mitigate noise impacts.

- Workers on site will minimise noise during construction as follows:
    - Use equipment in ways to minimise noise.
    - Avoid the use of radios or stereos outdoors.
    - Avoid shouting, and minimise talking loudly and slamming vehicle doors.
    - Avoid dropping materials from a height.
    - Avoid reversing machinery whererever possible.
    - Avoid leaving vehicles in idling for extended periods.

    - Ensure plant and machinery is maintained and in good working order.

- Site Managers will minimise noise during construction as follows:
    - Schedule material deliveries to be delivered during standard working hours.
    - Examine and implement, where feasible and reasonable, alternatives to noisy work methods.
    - Where practical establish the worksite to minimise vehicle reversing.

- Potential noise complaints will be managed as follows:
    - Ensure site managers periodically check the site and nearby residences and other sensitive land uses for noise problems so that solutions can be quickly applied.
    - Provide a quick response to complaints, with complaint handling staff having both a good knowledge of the project and access to information.
    - Keep a register of any complaints, including details of the complaint such as date, time, person receiving complaint, complainant's contact number and address, description of the complaint, and timeframe for response. These complaints would be provided to the site manager for record keeping same day as received.

7.8 Air quality

7.8.1 Existing environment

The study area is in a rural-residential area and air quality is likely to be influenced from emissions from local traffic, local rural industries, and residential housing. There are no industrial activities located near the site. Approximately 5 km west is the closest industrial area which provides sources of emissions from the manufacturing of various materials.

A search of the National Pollution Inventory 2021/2022 data (DCCEEW, 2023c) on 20 November 2023 indicated that air quality in the Maitland LGA is influenced by various diffuse source emissions including most commonly:

- Total Phosphorus
- Total Volatile Organic Compounds
- Total Nitrogen
- Toluene (methylbenzene)
- Xylenes (individual or mixed isomers)

The NSW Department of Planning and Environment report on air quality in near real-time using up-to-date, accurate concentration data on an hourly and daily basis (DPE, 2023e). Air quality is presented as air quality categories (AQCs) derived from concentration data. The AQC is determined by measurements of the following key air pollutants at monitoring locations:

- particles less than 2.5 micrometres diameter (PM2.5)
- particles less than 10 micrometres diameter (PM10)
- ozone
- nitrogen dioxide
- carbon monoxide
- sulfur dioxide
- visibility

The National Environment Protection Measure (NEPM) sets maximum goals or standards for each pollutant type, except for visibility. When these goals are exceeded, they are recorded including the number of days per year that each of the pollutants exceeded the goals and standards.

The closest air quality monitoring site is 'Beresfield' which is located approximately 13 km south-east at Francis Greenway High School on Lawson Avenue, Woodberry. A search of the AQC data determined that no air quality annual exceedances occurred in the Lower Hunter during 2021/2022 (DPE, 2023e).

7.8.2 Potential impacts

Potential impacts to air quality during construction include dust generation and engine emissions from vehicles, plant and machinery being used on site. The proposed project will involve ground disturbance including minor excavation, vegetation clearing and stockpiling of soil which will generate dust, however with the mitigation measures listed below in place this is expected to be minimal.

Vehicle exhaust emissions during construction works have the potential to impact on air quality but the impacts are likely to negligible considering the vehicular movements already associated with the area.

No increase in air quality impacts is anticipated during operation as the new road is not likely to increase the volume of traffic.

7.8.3 Mitigation and management measures

- Implement SWMP and ESC Plan.
- Implement control measures such as water sprays or water carts as required during excavation or disturbance of soils or vegetation to prevent or minimise the generation of dust.
- Cover excavated materials and stockpiles when not in use.
- Cover vehicles and trailers when transporting soil or other construction materials.
- Regularly service vehicles and machinery to ensure exhaust emissions generated are within the specified plant and equipment standards.
- Turn off idling plant and equipment when not in use.
- Review work site and planned works if windy conditions are predicted to minimise excessive dust generation occurring.

7.9 Waste and chemical management

7.9.1 Existing environment

The study area is not associated with contaminated land and the proposed works are not expected to uncover, disturb, or interact with buried waste. The rural sheds which would need to be demolished and removed as part of the proposal potentially contain asbestos building materials.

Other waste generated by the project is expected to be primarily building materials, vegetation and excavated material (spoil).

Geotechnical investigations were conducted by Stantec (2023) (**Appendix I)** on behalf of MCC. This report determined the following in relation to excavated materials:

- It is unlikely that existing granular fill materials which were encountered in the 0.17-1.1m depth range, within existing pavement areas would be classified as ENM, due to various analytes and foreign materials content exceeding the criteria. If the materials were disposed

of offsite at a licenced waste facility, they could be considered for general solid waste classification.

- Shallow granular fill within the proposed flood access road alignment (BH06 location just north of Stage 1 works) could be considered for ENM classification or general solid waste classification if offsite disposal is required, providing that further acid sulfate soil testing (**Section 7.2**) confirms there is no presence of potential or actual acid sulfate soils.

- Sandy silt subgrade material within existing pavement areas could be considered for ENM classification or general solid waste classification if offsite disposal is required.

Small amounts of domestic waste, liquid waste and packaging may also be generated by the project. No hazardous waste is expected to be produced. Wastes will be classified and reused on site where possible.

7.9.2 Potential impacts

The works associated with the proposal would result in the generation of waste materials. The following wastes are expected:

- Asbestos building materials.
- Spoil generated from excavation.
- Green waste from vegetation removal.
- Timber from the sheds when demolished.
- Concrete waste from the water tank.
- Liquid wastes such as oils, lubricants, chemicals etc. used by plant equipment.
- Portable amenity waste (from compound site).
- General waste including food scraps, aluminium cans, glass bottles, plastic and paper containers and other waste generated by site construction personnel.

The exact quantities of waste are unknown at this stage and would be detailed in the waste management plan (WMP). The waste management plan would be prepared in accordance with the *Waste Classification Guidelines* (EPA, 2014b) in that all waste removed from the site is to be classified and disposed of appropriately.

The waste associated with the existing environment would not be expected to change during operation of the proposal.

7.9.3 Mitigation and management measures

- A Waste Management Plan (WMP) will be developed and implemented for inclusion in the CEMP.

- The removal and disposal of any asbestos containing materials will be undertaken by a licenced contractor and in accordance with *How To Safely Remove Asbestos: Code of Practice* published by Safe Work Australia (2022).

- Inspection of existing pavement materials during construction by suitable environmental consultant would be required to confirm classification under the *Excavated Public Road Material Order* (EPA, 2014a).

- Further assessment should be conducted prior to/during construction to provide finalised classifications for reuse or disposal of materials. Further detailed assessment would be required to satisfy *Waste Classification Guidelines* (EPA, 2014b) and *Excavated Natural Material Order* (EPA, 2014c) requirements.

- All site waste will be managed in accordance with the waste reduction hierarchy of avoid, reduce, re-use and recycle as per the *Waste Avoidance and Resource Recovery Act 2001*.

- All excavated natural, non-contaminated soil, aggregate or rock should be stockpiled separately and reused onsite where possible.

- Unsuitable fill material will be classified in accordance with the *Waste Classification Guidelines* (EPA, 2014b) and disposed of at an approved materials recycling or waste disposal facility.

- Non-native vegetation waste from the western embankment will be kept separate from other waste and disposed of at a waste facility.

- All surplus material, off cuts, and other debris resulting from the work shall be removed from site and disposed of by a licenced contractor to a licenced waste management facility.

- Waste material is to be removed from site as soon as practical and not left on site once the works have been completed.

- Liquid waste is to be contained in suitable sealed containers and disposed of appropriately.

- Work areas are to be maintained, kept free of rubbish, and cleaned up at the end of each working day.

- Cover receptacles to prevent the loss of waste from the receptacle.

- Provide portable toilets for construction workers (in compound area) and ensure the appropriate disposal by a licensed supplier.

7.10 Traffic and transport

7.10.1 Existing environment

The study area is bounded to the north by the existing Scobies Lane, to the east by Oakhampton Road, and to the west by South Willards Lane, which includes the vehicular access to Walka Water Works. All roads in the vicinity of the site are public roads under the management of Maitland City Council.

Approximately 50 residences are located in Oakhampton Heights, where the only vehicular access is via Scobies Lane and South Willards Lane. The popular Walka Water Works reserve is also only accessible via this route.

7.10.2 Potential impacts

Construction of the project would generate a small increase in the number of vehicle movements for the delivery of materials and movement of equipment, plant and workers to and from the site. There

will be limited space within the study area during construction and only the essential vehicles and machinery should be permitted on site at any time.

There may be minor disruptions to traffic during delivery of materials to the site from Oakhampton Road. There will be no road closures required during the proposed project and no public transport services will be disrupted.

The operation of the proposed project would not have any significant impact on traffic or transport as the number of vehicular movements is not expected to increase as a result of the new road.

7.10.3 Mitigation and management measures

- A Traffic Management Plan (TMP) will be prepared and implemented for the project as part of the CEMP. The TMP will include:
    - Requirements for any changes to local access.
    - Provisions for access by emergency services and residents evacuating in the event of an emergency.
    - An emergency response plan for any construction traffic incident.
    - Site specific traffic control plans (TCPs) to manage the safe movement of traffic through the site.
    - Community notification process incorporating timely, accurate, relevant and accessible information to the community regarding changed traffic arrangements and delays owing to construction activities.
    - Access to construction site and compound area including entry and exit locations and measures to prevent construction vehicles queuing on or blocking public roads.
    - Parking plan with suitable car parking areas provided for construction workers and visitors to the site (outside of the construction area).
    - Compliance with Maitland City Council requirements regarding traffic control, access and road/pedestrian access.

- Only the essential vehicles and/or machinery will be permitted on site at any time.

7.11 Visual amenity and landscape character

7.11.1 Existing environment

The landscape character of the study area and surrounds is generally rural/rural residential in nature. The land is located near the Hunter River and associated floodplains and waterways. Local land uses include horse and cattle grazing and the study area and surrounds are generally aesthetically pleasing.

The study area is not particularly visible from residences. Residents on Scobies Lane have considerable screening from trees located on their properties. Roadside trees on Scobies Lane would also screen much of the proposed compound area from the north. However, the project site and compound would be seen by road users on Oakhampton Road, Scobies Lane and South Willards Lane, and by those accessing the entry to Walka Water Works.

Walka Water Works public reserve is considered to have local aesthetic value and is popular with local visitors and tourists. The long-term visual amenity and landscape character of Walka Water Works would not be impacted by the proposal. The SoHI (**Appendix H**) determined that there is no risk of detrimental impact upon the heritage values, landscape values, views, and/or vistas by the proposed

works and the realignment of Scobies Lane that is not offset by the need for flood mitigation works and the safety of the community (Eureka Heritage, 2024).

7.11.2 Potential impacts

During the construction phase of the project there would be minor, temporary visual amenity impacts to road users and those accessing Walka Water Works which include:

- The presence of construction vehicles, machinery, plant, and equipment.
- Stockpiled materials including spoil from excavations and other materials.
- Non-native vegetation removal.
- Earthworks exposing bare soils.
- Traffic control, temporary signage and safety barriers.
- Compound area, which would include amenities, site shed, plant and machinery.

No native vegetation will be removed as part of the proposed project. Only one Silky Oak tree and the non-native shrub layer on the western embankment will be removed. This will not be visible from Walka Water Works reserve due to a screen of large mature Silky Oak trees and other vegetation located on the eastern boundary of the reserve which will not be impacted.

The permanent removal of the rural sheds and water tank located in the north-western portion of the study area (**Figure 2-4**) would be visible from the Walka Water Works access on South Willards Lane.

No night work lighting would be required during the construction works as it will be carried out in standard work hours.

7.11.3 Mitigation and management measures

- Proposed project site including construction area and compound will be managed to minimise visual impacts including the location of equipment storage, vehicle parking locations, stockpile locations, and amenities.
- All temporary structures, equipment and waste will be removed as soon as possible or at the completion of works.
- All work areas will be returned to as close to their original condition as possible.
- All work areas will be maintained, kept free of rubbish and cleaned up at the end of each working day.
- Stabilisation of disturbed areas (including revegetation) is to be staged progressively during the construction works.
- Revegetation will be undertaken with suitable, local provenance native trees, shrubs and grasses (during late autumn – early spring).

7.12 Socio-economic

7.12.1 Existing environment

A search of the demographics, social, and economic data from the 2021 Census (ABS, 2021) for the Maitland LGA are outlined in **Table 7.3**.

Table 7.3. Community profile of the Maitland LGA.

Demographic information	Maitland LGA
Population	90,226
Median age	36
Average number of people per household	2.7
Employment	45,403 people reported being in the labour force in the week prior to Census night in 2021. Of these, 57% worked full time, 31.4% worked part-time, and 4.7% were unemployed.
Education	Of people aged 15 years and over, 24.7% reported completing a Certificate III or IV as their highest level of educational attainment. 15.6% reported Year 10, 15.4 Bachelor Degree level and above, 11.8% Year 12, and 9.4% reported completing Advanced Diploma or Diploma as their highest level of completed education.
Travel to work	On the day of the Census in 2021, the most common methods of travel to work were 'Car as a driver' (59%), 'Worked from home' (17%), 'Did not go to work' (15.9%), and "Car as a passenger" (3.6%). 1% of employed people used public transport and 63.3% used a car (either as a driver or passenger) as at least one of their methods of travel to work on Census day.
Median weekly household income	$1,766
Average number of motor vehicles per dwelling	2

The community profile (**Table 7.3**) indicates a high reliance on private vehicles for travel to work. This is likely even greater for residents of Oakhampton Heights as no public transport is available in the vicinity of the study area.

The adjacent Walka Water Works complex is an important cultural and social landmark. It is a well-used public reserve which is accessed by the local community for bird watching, bush walking, and exercise. The reserve is regularly used by families, disability support groups, community groups and individuals for passive recreation. Access to the reserve is via South Willards Lane just south of the proposed access to the site compound.

7.12.2 Potential impacts

There may be minor disruptions to the community during delivery of materials to the site from Oakhampton Road. However, the proposed works would not require the closure of any roads. Access to Oakhampton Heights and Walka Water Works would continue as normal via Scobies Lane and South Willards Lane.

The proposed project would provide positive changes to the area by providing a higher, safer, and more reliable access to Oakhampton Heights. The new road would have fewer closures during flood events and the residents of Oakhampton Heights would be less likely to be landlocked due to inundation.

7.12.3 Mitigation and management measures

- Access to Oakhampton Heights will continue via Scobies Lane throughout the proposed project works.
- Access to Walka Water Works will continue via South Willards Lane throughout the proposed project works.

7.13 Bushfire hazards

7.13.1 Existing environment

The study area is predominantly mapped as Vegetation Category 3 (medium risk) bushfire prone land with small pockets of buffer land. To the west, surrounding the reservoir in Walka Water Works reserve is Category 1 high risk bush fire prone land. This is due to the mature vegetation and steep topography of the site. Directly to the north, south and east is Category 3 bushfire prone land (**Figure 7-8**). Category 3 vegetation is generally grasslands, freshwater wetlands, semi-arid woodlands, alpine complex or arid shrublands.

7.13.2 Potential impacts

Construction activities during the proposed project that may increase bushfire risk are mostly related to the use of plant and machinery. These include fuel storage and refuelling of plant and machinery, plant operation in dry or densely vegetated areas, poor plant and machinery maintenance, and leaving plant or machinery idling when not in use. Other potential bushfire risks would be stockpiling of vegetation or other flammable materials and incorrect cigarette disposal. Hot works (such as welding) pose a significant bushfire risk, however it is not expected that this type of work will be undertaken as part of the proposed project.

Scobies Lane, South Willards Lane and Oakhampton Road would all remain open during the proposed works on site. Access to and from Oakhampton Heights and Walka Water Works would not be impeded by the proposed construction works.

Once operational, the proposal would improve emergency access/egress to the community of Oakhampton Heights and Walka Water Works.

7.13.3 Mitigation and management measures

A Bushfire Management Plan (BFMP) will be developed in accordance with *Planning for Bush Fire Protection 2019* (NSW Rural Fire Service, 2019), and will include at a minimum the following measures to manage bushfire risks:

- All personnel will be inducted on site and made aware of bushfire/grassfire risks, bushfire mitigation measures and emergency procedures including evacuation of site.
- All site workers will be informed of the site rules including designated smoking areas and putting rubbish in designated bins.
- Weather and local bushfire ratings will be monitored throughout the project. Works will be assessed and adjusted or ceased according to bushfire risk rating and advice from Rural Fire Service.
- During higher risk fire rating periods, all personnel on site will be reminded of bushfire/grassfire risks and mitigation measures during toolbox talks prior to works commencing.
- Consultation requirements for local community in the event of a bushfire will be addressed.
- Plant and machinery will be maintained in good working order and checks performed each day.
- Plant and vehicles will be restricted to haul road and designated roadways and access points, avoiding grass and other vegetation wherever possible.
- Plant and equipment will be fitted with appropriate spark arrestors, where practicable.
- Handling and storage of any flammable substances such as fuel will be undertaken in accordance with the relevant guidelines and Safety Data Sheet.
- Refuelling of plant and machinery will only be undertaken in a designated area, away from vegetation, and any other flammable materials.
- Access by emergency services to the site, Walka Water Works, Oakhampton Heights and other residences in the area will be maintained in the event of a fire or other emergency.
- Notification will be provided to emergency services if there are likely to be significant delays in the operation of any roads.

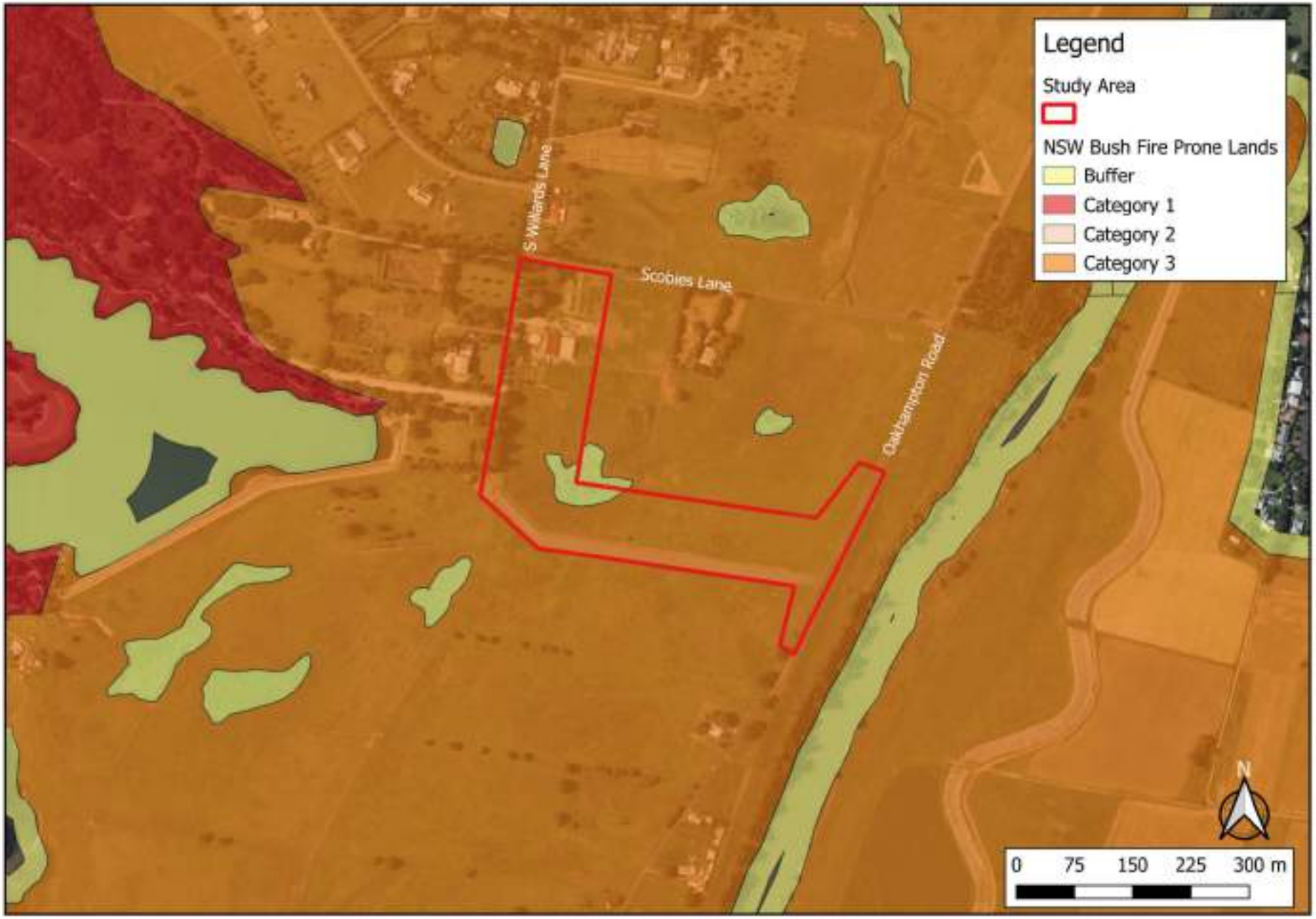

Figure 7-8. Bushfire prone land in the vicinity of the study area

7.14 Cumulative impacts

7.14.1 Existing environment

The Maitland LGA has historically been negatively impacted by land clearing, agriculture, and urbanisation in the region. This has resulted in poor habitat connectivity, increased erosion, sedimentation, reduction in water quality, reduced canopy cover and increased urban heat.

7.14.2 Potential impacts

Potential cumulative impacts associated with the proposal include:

- Increased erosion and sedimentation, increased turbidity, and a reduction in water quality in the floodplain and associated waterways.
- Reduction in canopy cover and habitat connectivity if mature tree (*Corymbia citriodora*) is removed (as proposed during future works).
- Increase in impermeable road surfaces.
- Reduction in vegetation cover (pasture and shrubs).

These potential cumulative impacts are considered to be minor in scale providing the mitigation measures listed in this REF are implemented.

7.14.3 Mitigation and management measures

- Stabilisation of disturbed areas (including revegetation) is to be staged progressively during the construction works.
- Disturbed areas will be revegetated with suitable local provenance native trees, shrubs and grasses (during late autumn – early spring).
- All road alignment options that would avoid removing mature tree (*Corymbia citriodora*) during future works will be considered and implemented wherever possible.
- If the removal of mature tree (*Corymbia citriodora*) is essential (during future works) this will be offset according to Maitland City Council's tree replacement requirement of a 3:1 ratio. Three locally native trees (such as *Corymbia maculata*) would be planted in a suitable location determined by MCC.

8 Consideration of State and Commonwealth Environmental factors

8.1 Environmental Planning and Assessment Regulation 2021 factors

The following factors, listed in Section 171(2) of the Environmental Planning and Assessment Regulation 2021, have been considered to assess the likely impacts of the proposal on the natural and built environment (**Table 8.1**). This consideration is required to comply with Sections 5.5 and 5.7 of the EP&A Act.

Table 8.1. Consideration of Section 171(2) of the EP&A Regulation environmental factors.

Environmental factor	Impact
a) Any environmental impact on a community?	
The proposed project would improve the safety and reliability of road access during local flood events and would reduce the risk of Oakhampton Heights residents being isolated due to flooding.	Long-term, positive, minor
Some environmental impacts are anticipated during construction such as noise, vibration, air quality, visual amenity. These would be minimised via the safeguards and mitigation measures listed in **Table 9.1**.	Short-term, negative, minor
The project would have long-term visual amenity impacts associated with the new road and would cause minor changes in local flood afflux.	Long-term, negative, minor
b) Any transformation of a locality?	
The proposal will change the locality, with the new road located in a rural setting consisting of predominantly pasture. However, the proposed road would be established at the base of the existing flood mitigation levee at the eastern limit of the site. This will ensure that the minimum required land for the project would be transformed.	Long-term, negative, minor
c) Any environmental impact on the ecosystems of a locality?	
The project would not involve the removal or disturbance of native vegetation associated with the wetland. Areas cleared by the proposal would be revegetated with suitable, local provenance native species.	Long-term, positive, minor
There may be minor impacts to the wetland relating to minimal changes in local flood afflux.	Long-term, negative, minor
Some erosion and sedimentation during construction works could impact the wetland, however this is likely to be minimal considering the safeguards and mitigation measures that will be implemented (see **Table 9.1**.)	Short-term, negative, minor

Environmental factor	Impact
Weed management and revegetation works associated with the project would aim to protect and improve the quality of the wetland.	Long-term, positive, minor
d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? During the construction phase of the project there would be minor, temporary visual amenity impacts which include the presence of construction vehicles and machinery, stockpiles, exposed soils, traffic control and signage, and compound area.	Short-term, negative, minor
e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? The study area holds potential for Aboriginal objects/deposits with conservation value to be present. The proposed works have the potential to harm any objects and/or deposits of Aboriginal and/or archaeological significance that may be present. Maitland City Council has applied for an Aboriginal Heritage Impact Permit (AHIP) as per the ACHAR (**Appendix G**) and any conditions of the AHIP will be complied with. The adjacent Walka Water Works public reserve is an important cultural landmark and is a State heritage listed item including the buildings and other items within the complex. There is potential for these heritage items to be impacted by vibrations associated with construction of the road. However, a noise and vibration management plan and strict 100 m buffer 'no use area' for vibratory machinery will be implemented. Other minor temporary impacts include dust and noise, which will be minimised via measures listed in **Table 9.1**.	Long-term, negative, minor Short-term, negative, minor
f) Any impact on habitat of any protected animals (within the meaning of the Biodiversity Conservation Act 2016)? Minor foraging habitat for some native fauna will be removed. This includes non-native shrub layer (0.06 ha) and pasture (1.32 ha). Much of this will be replaced with suitable, local provenance trees, shrubs and grasses so will likely improve habitat once established.	Short-term, negative, minor
g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The proposed project would not endanger any species of animal, plant or other form of life, whether living on land, in water or in the air. No threatened species have been identified in the study area or assessed as likely to be significantly impacted by the proposal.	Nil.
h) Any long-term effects on the environment? The project would have visual amenity impacts associated with the addition of the new road and would have minor changes in the local flood afflux.	Long-term, negative, minor

Environmental factor	Impact
Weed management and revegetation with native species in the areas surrounding the new road will protect and improve the quality of the wetland once established. This will also improve visual amenity in the area.	Long-term, positive, minor
i) Any degradation of the quality of the environment? During construction, the project has the potential for negative impacts associated with air quality, visual amenity, erosion and sedimentation, and noise and vibration. These impacts would be minimised through the implementation of safeguards summarised in **Table 9.1**.	Short-term, negative, minor
j) Any risk to the safety of the environment? The construction phase has the potential to temporarily increase the risk of incidences occurring (as with any construction works) due to the vehicles, machinery and equipment being used on site. A Construction Environmental Management Plan (CEMP) will be developed and implemented which will include a Traffic Management Plan (TMP). This would address any safety issues associated with construction plant on site. The project would improve the safety and reliability of road access during flood events for the local community.	Short-term, negative, minor Long-term, positive, minor
k) Any reduction in the range of beneficial uses of the environment? The addition of the new road would reduce the area (by approximately 1.3 ha) that is currently used for grazing horses. The proposed location of the road is in an already disturbed area, directly adjacent to the existing flood mitigation levee.	Long-term, negative, minor
l) Any pollution of the environment? During construction there is potential for accidental spills of fuels and oils from machinery or vehicles that may impact the land or water in the project area. There is also potential for minor noise or air pollution. However, pollution of the environment is not expected to be significant with the implementation of appropriate safeguards.	Short-term, negative, minor
m) Any environmental problems associated with the disposal of waste? Waste generated by the project is expected to be primarily non-native vegetation and excavated material (spoil). All excavated natural, non-contaminated soil, aggregate or rock would be stockpiled separately and reused onsite wherever possible. All materials that cannot be reused or recycled would be disposed of appropriately. There is potential asbestos in the sheds proposed for removal which will be removed and disposed of by a licenced contractor. A Waste Management Plan (WMP) would be developed and implemented as part of the CEMP.	Short-term, negative, minor
n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply?	

Environmental factor	Impact
All resources required for the project are readily available and are not in short supply.	Nil
o) Any cumulative environmental effect with other existing or likely future activities? The Maitland LGA has historically been negatively impacted by land clearing, agriculture, and urbanisation in the region. This has resulted in poor habitat connectivity, increased erosion and sedimentation, reduction in water quality, reduced canopy cover and increased urban heat. Cumulative impacts associated with the project include a minor increase in erosion, sedimentation, and turbidity, resulting in a reduction in water quality in the floodplain and associated waterways. However, these impacts are expected to be minimised by the safeguards and mitigation measures listed in **Table 9.1**. There would be a minor increase in impermeable road surfaces and a reduction in vegetation cover (pasture and introduced shrubs). However, disturbed areas will be revegetated with native species. Future works associated with the proposed project would result in a minor reduction in canopy cover and habitat connectivity if the removal of mature tree (*Corymbia citriodora*) cannot be avoided by design.	Long-term, negative, minor Long-term, negative, minor Long-term, negative, minor
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposed project is located in the Coastal Use Area and Coastal Environment Area due to its proximity to the Hunter River Estuary. However, the project is not expected to have any impact on coastal processes or coastal hazards including under climate change conditions.	Nil
q) Any impact on applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1? The relevant regional strategic plan is the Hunter Regional Plan 2041. The relevant local strategic planning statement is the Maitland Local Strategic Planning Statement 2040+. The REF has identified minor environmental impacts associated with the proposal. It would result in no land use changes. In this context, the proposal would not affect the aims and objectives of the strategic plans identified above.	Nil
r) Any other relevant environmental factors? In considering the potential impacts of this proposal all relevant environmental factors have been considered. Refer to **Section 7** of this REF.	Nil

8.2 Matters of National Environmental Significance & Other Protected Matters

A search of the EPBC Protected Matters Search Tool (DCCEEW, 2023a) was completed and a report has been included as **Appendix K**. **Table 8.2** contains a summary of an assessment of potential impacts to Matters of National Environmental Significance (MNES).

Table 8.2. Consideration of Matters of National Environmental Significance and Other Protected Matters.

MNES	Applicability to the proposal
World Heritage Properties	Not applicable
National Heritage Places	Not applicable
Wetlands of International Importance (Ramsar Wetlands)	The Hunter Estuary Wetlands Ramsar listed site is located approximately 21 km south-east (straight line distance) from the study area. The distance to the wetland via the Hunter River is approximately 41 km downstream. The proposal would not result in any impact on this Ramsar site.
Threatened species and ecological communities	The Protected Matters Report identified 6 threatened ecological communities, 27 threatened fauna species and 11 threatened flora species that could potentially occur within a 10 km radius of the proposed project. Likelihood of these occurring in the study area (via examining records held by DPE (2023) and availability of habitat) is provided in **Table 4.3**. No threatened species or communities were recorded or determined as likely to occur in the study area. No threatened species or communities were determined as likely to be impacted by the proposal.
Migratory species	The Protected Matters Report identified 17 listed migratory species that could potentially occur within a 10 km radius of the study area. Likelihood of these occurring in the study area (via examining records held by DPE (2023) and availability of habitat) is provided in **Table 4.3**. No listed migratory species were recorded or determined as likely to occur in the study area. No migratory species were determined as likely to be impacted by the proposal.
Commonwealth marine areas	Not applicable
Great Barrier Reef Marine Park	Not applicable
Nuclear actions (including uranium mines)	Not applicable
Water resources (concerning coal seam gas and large coal mining development).	Not applicable
Commonwealth land	Not applicable

8.3 State Environmental Planning Policy (Resilience and Hazards) 2021

Section 2.10 and 2.11 of the R&H SEPP set out matters for consideration prior to the granting of development consent on land within the Coastal Environment Area and Coastal Use Area respectively. As the proposal does not require development consent, Section 2.10 and 2.11 do not apply, however consideration of these sections of the R&H SEPP has been provided in **Table 8.3** to determine whether the proposal is consistent with the R&H SEPP.

Table 8.3. Consideration of SEPP Resilience and Hazards 2021.

Section 2.10(1) **Coastal Environment Area**	**Consideration**
(a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment	Localised modifications to topography, the existing stormwater drainage and increases in the impermeable road surface will result in some minor changes to local flood afflux including minor increase in velocity during a Hunter River flood event. Scour protection in the form of rock and gabion mattresses will be installed to manage these impacts. Interception of groundwater is unlikely during excavation works considering the groundwater depths observed during geotechnical investigations and limited depth of excavations expected as part of the project. The project would not involve the removal or disturbance of native vegetation associated with the wetland. Areas cleared by the proposal would be revegetated with suitable, local provenance native species. Some erosion and sedimentation during construction works could impact the wetland, however this is likely to be minimal considering the safeguards and mitigation measures that will be implemented (see **Table 9.1**.)
(b) coastal environmental values and natural coastal processes	No works are proposed that would directly impact on the Hunter River Estuary. However, generally construction activities within or adjacent to waterways in the catchment, can have the potential to impact on hydrodynamic processes, which can be temporary or longer term. The scale, nature and location of the proposed construction works as well as the implementation of the mitigation measures identified in this REF indicate that the proposal is unlikely to impact on natural coastal processes.

(c) the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1	The proposal would not impact on the water quality of the marine estate including any coastal lakes identified in Schedule 1.
(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms	The proposal does not include the removal or disturbance of any native vegetation. Minor foraging habitat for some native fauna will be removed. This includes 0.06 ha of non-native shrub layer and 1.32 ha of pasture. Much of this will be revegetated with suitable, local provenance trees, shrubs and grasses so will likely improve habitat once established. No marine or coastal vegetation will be impacted. There may be minor impacts to the wetland relating to minimal changes in local flood afflux. Some erosion and sedimentation during construction works could impact the wetland, however this is likely to be minimal considering the safeguards and mitigation measures that will be implemented (see **Table 9.1**.) A test of significance (**Appendix N**) determined that the proposal would not have a significant impact on the endangered Southern Lower Floodplain Freshwater Wetland.
(e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability	The proposal would not result in a permanent impact on existing public open space. There are no foreshores, beaches headlands, or rock platforms in the vicinity of the study area.
(f) Aboriginal cultural heritage, practices and places	The proposed activity will disturb the ground surface and subsoils which has the potential to harm Aboriginal objects and areas of cultural significance. However, due to the deep soil profile of the study area, it is likely that intact soil profiles may exist in sections of the study area with a low-moderate potential for Aboriginal artefacts and/or deposits of archaeological and cultural significance to be present Maitland City Council has applied for an Aboriginal Heritage Impact Permit (AHIP) for this proposal as per the Aboriginal Cultural Heritage Assessment Report (ACHAR) completed by AMAC (2023a) (**Appendix G**). Any conditions of the AHIP will be complied with throughout the proposed project.
(g) the use of the surf zone	There is no surf zone within the vicinity of the study area.

Section 2.11(1)(a) Coastal Use Area	Consideration
(i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability	There are no foreshores, beaches headlands, or rock platforms in the vicinity of the study area.
(ii) overshadowing, wind funnelling and the loss of views from public places to foreshores	There are no foreshores in the vicinity of the study area.
(iii) the visual amenity and scenic qualities of the coast, including coastal headlands	During the construction phase of the project there would be minor, temporary visual amenity impacts which include the presence of construction vehicles and machinery, stockpiles, exposed soils, traffic control and signage, and compound area. The project would have visual amenity impacts associated with the addition of the new road. However, the proposed location of the road is in an already disturbed area, directly adjacent to the existing flood mitigation levee. The proposal will not impact on the visual amenity or scenic qualities of the Hunter River Estuary. There are no coastal headlands in the vicinity of the study area.
(iv) Aboriginal cultural heritage, practices and places	The proposed activity will disturb the ground surface and subsoils which has the potential to harm Aboriginal objects and areas of cultural significance. However, due to the deep soil profile of the study area, it is likely that intact soil profiles may exist in sections of the study area with a low-moderate potential for Aboriginal artefacts and/or deposits of archaeological and cultural significance to be present Maitland City Council has applied for an Aboriginal Heritage Impact Permit (AHIP) for this proposal as per the Aboriginal Cultural Heritage Assessment Report (ACHAR) completed by AMAC (2023a) (**Appendix G**). Any conditions of the AHIP will be complied with throughout the proposed project.
(v) cultural and built environment heritage	The adjacent Walka Water Works public reserve is an important cultural landmark and is a State heritage listed item, including the buildings and other items within the complex. See **Section 7.6** and Statement of Heritage Impact in **Appendix H**. There is potential for these heritage items to be impacted by vibrations associated with construction of the road. However, a noise and vibration management plan and strict 100 m buffer 'no use area' for vibratory machinery will be implemented. Other minor temporary impacts include dust and noise which will be minimised via measures listed in **Table 9.1**.

9 Environmental Management

9.1 Construction environmental management plan (CEMP)

A CEMP would be prepared prior to the commencement of any works on site. The CEMP will address (as a minimum) the following:

- Details of how the project will implement the identified safeguards and mitigation measures outlined in the REF (**Table 9.1**).
- Any requirements associated with approvals, licences or permits (**Table 6.4**).
- Include site-specific environmental management plans including:
    - Soil and Water Management Plan (SWMP) incorporating an Erosion and Sediment Control Plan (ESCP)
    - Biodiversity Management Plan (BMP)
    - Traffic Management Plan (TMP)
    - Noise and Vibration Management Plan (NVMP)
    - Spill Response Plan (SRP)
    - Waste Management Plan (WMP)
    - Bushfire Management Plan (BFMP)
    - Weed Biosecurity Management Plan (WBMP)
- Roles and responsibilities.
- Communication requirements.
- Induction and training requirements.
- Procedures for monitoring and evaluating environmental performance, and for corrective action.
- Reporting requirements and record-keeping.
- Procedures for emergency and incident management.
- Procedures for audit and review.

An environmental site induction will be conducted prior to any construction activities commencing for all personnel working on the site. Discussion on specific mitigation measures required for management of key environmental aspects must be included as part of the induction. Records of the induction including content and personnel inducted must be kept. All personnel must be made aware of their responsibilities to ensure that all mitigation measures included in this REF are implemented throughout the project.

9.2 Summary of environmental safeguards and mitigation measures

The site-specific environmental safeguards and mitigation measures identified and described in Section 7 will be incorporated into the detailed design phase of the project and during the construction and operation of the project, if approved to proceed. The environmental mitigation measures would minimise any potential adverse impacts arising from the project on the environment. A summary of the environmental safeguards and mitigation measures is outlined in **Table 9.1**.

Table 9.1. Summary of site-specific environmental safeguards and mitigation measures.

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
General				
General design	**G1**	All safeguards and mitigation measures identified in this REF are to be considered and addressed during the detailed design phase.	MCC	Detailed design phase
General construction	**G2**	A Construction Environmental Management Plan (CEMP) will be prepared which will incorporate all relevant safeguards and mitigation measures identified in this REF (See **Section 9.1**).	MCC	Prior to construction
General construction	**G3**	An environmental site induction will be conducted for all persons working on site. Site-specific mitigation measures required for management of environmental factors must be included as part of the induction. Records of the induction including content and persons inducted must be kept. • All personnel on site must be made aware of their responsibilities to ensure that all mitigation measures included in this REF are implemented throughout the project.	MCC	Prior to construction & During construction
General construction	**G4**	All safeguards and mitigation measures identified in this REF will be implemented in accordance with the CEMP.	MCC	During construction
Soil, landform and geology				
Erosion and sediment	**E1**	A site-specific Soil and Water Management Plan (SWMP) incorporating an Erosion and Sediment Control Plan (ESCP) will be developed in accordance with The Blue Book - Managing Urban Stormwater: Soils and Construction (Landcom, 2004). This will form part of the CEMP and will be implemented throughout the construction period. The SWMP and ECP will: • Include specific water, erosion and sediment control measures that will be implemented on site. • Be flexible to allow adjustments to changing conditions on site.	MCC	Prior to construction, During construction & Post construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
		• Remain implemented until all disturbed areas are suitably stabilised and revegetated. • Include an emergency procedure for flood event and site demobilisation in the event of heavy rain or flooding. This will include how water, bare or disturbed soils, and stockpiles will be managed to avoid excessive erosion and sedimentation, in a significant weather event.		
Erosion and sediment	**E2**	The ESCP will include erosion and sediment control plans for all stages of construction, consider soil erodibility, include at source controls, provide for the protection of the wetlands and all waterways, gullies and drains in the vicinity of the site. The ESCP will include stockpile management, monitoring and reporting checklists and detailed consideration of measures to prevent (wherever possible) or minimise any potential erosion and sedimentation impacts. The ESCP will be implemented throughout the construction period and will remain implemented until all disturbed areas are suitably stabilised and revegetated. The ESCP will include the following environmental management measures at a minimum: • Install sediment controls on the downslope side of any disturbed areas including all excavated, graded, and stockpile sites where erosion may result in impact to the surrounding area. • Create catch/diversion drains and sediment fences at the downstream boundary of all construction activities to ensure containment of sediment-laden runoff to prevent flow of runoff to the wetland area. • Regularly check erosion and sediment controls to ensure they are in place, in good condition and continue to be effective. • Locate stockpiles of construction materials a minimum of 40 m from the floodway, wetland, waterways, gullies, drainage lines, and culverts and provide appropriate containment	MCC	Prior to construction, During construction & Post construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
		measures around the stockpiles, to prevent impact from any contaminated runoff. • Work areas, stockpile sites and access tracks to be established on already disturbed areas or areas that will be disturbed during the project. • Temporary stockpiles shall be stabilised to prevent wind and water erosion where they are located. • Monitor weather and restrict works before, during and after periods of high rainfall to minimise site disturbance, erosion and sedimentation. • Stabilisation of disturbed areas (including revegetation) is to be staged progressively during the construction works. • Disturbed areas will be revegetated with suitable local provenance native trees, shrubs and grasses (during late autumn – early spring).		
Contaminated land and acid sulfate soils				
Contaminated land	**CL1**	Soils to be excavated or disturbed within 20 m of the Walka Water Works exclusion zones will be tested for asbestos and further advice sought from a specialist environmental consultant, prior to works commencing.	MCC	Prior to construction
Contaminated land	**CL2**	If suspected asbestos is found on site, all works within the vicinity must cease immediately and further advice sought from a specialist environmental consultant.	MCC	During construction
Contaminated land	**CL3**	Any accidentally contaminated soil will be immediately excavated, stockpiled, bunded, classified for disposal, and transported to a licenced waste facility for disposal.	MCC	During construction
Acid sulfate soils	**ASS1**	Additional acid sulfate soil testing will be undertaken prior to any offsite reuse of materials and/or if significant disturbance of the identified acidic materials in geotechnical investigations is proposed.	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Acid sulfate soils	**ASS2**	If suspected acid sulfate soils, or other contaminated soils are uncovered during the construction works, the soils would be covered and segregated for further testing and analysis. All works within the vicinity must cease immediately and advice sought from a specialist environmental consultant.	MCC	During construction
Waterways, water quality and hydrology				
Flooding	**F1**	Implement all management measures as per *Proposed Flood Access Route Scobies Lane Oakhampton Heights - Flood Impact Risk Assessment* (Maitland City Council, 2023) as the development proceeds through design, construction and operational phases.	MCC	Detailed design phase, Construction phase & Operational phase
Flooding	**F2**	All personnel will be inducted on site and made aware of flooding risks, mitigation measures and emergency procedures including evacuation of site.	MCC	Prior to construction & During construction
Flooding	**F3**	The worksite will be closed and all materials and equipment will be secured prior to the start of the working day if there is a risk of riverine flooding, on receipt of BOM advice, or when other evidence leads to an expectation of flooding.	MCC	Prior to construction & During construction
Flooding	**F4**	Weather will be monitored via the Bureau of Meteorology (BOM) website prior to the start of the workday for any flood warnings. Weather and water levels will be monitored throughout each day and work will be reassessed where there may be a safety or environmental risk due to weather events.	MCC	Prior to construction & During construction
Flooding	**F5**	Notification will be provided to emergency services if there are likely to be significant delays in the operation of any roads.	MCC	Prior to construction & During construction
Flooding	**F6**	Open type fencing will be installed during construction in areas where flooding may occur.	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Flooding	**F7**	Scour protection in the form of rock and gabion mattresses will be installed during construction in all areas where scour could occur.	MCC	Prior to construction & During construction
Groundwater	**GW1**	Groundwater will be monitored for at all stages during excavation works. In the event that groundwater is intercepted during works: • A groundwater management plan (GMP) will be developed and implemented as part of the CEMP. This will detail methodologies and management measures if dewatering is required. • The appropriate approvals will be obtained.	MCC	Prior to construction & During construction
Waterways and water quality	**WQ1**	Implement SWMP and ESCP during construction (as per **E1** and **E2** above).	MCC	Prior to construction & During construction
Waterways and water quality	**WQ2**	All personnel on site will be inducted and made aware of the environmentally sensitive areas on site, including wetland and intersecting stream/gully.	MCC	Prior to construction & During construction
Waterways and water quality	**WQ3**	Maintenance of equipment or vehicles will not be performed on site. If this is unavoidable maintenance will be carried out a minimum of 40 m from the floodway, wetland, watercourses and drainage lines and drip or catch trays will be located beneath equipment/vehicles being maintained.	MCC	During construction
Waterways and water quality	**WQ4**	Refuelling of minor plant and equipment will occur in impervious bunded areas located a minimum of 40 m from the floodway, wetland, drainage lines or waterways.	MCC	During construction
Waterways and water quality	**WQ5**	An emergency spill kit will be kept on site at all times. All persons on site are to be made aware of the location of the spill kit and trained in its use.	MCC	During construction
Waterways and water quality	**WQ6**	A spill response plan (SRP) will be developed for the project. This plan would detail measures including spill prevention, containment and clean-up of accidental spills of oils, fuels and chemicals.	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Waterways and water quality	**WQ7**	The storage and handling of fuels and chemicals will comply with Australian Standards and safety data sheets.	MCC	During construction
Waterways and water quality	**WQ8**	Any spills with the potential for material harm to the community or environment will be notified to the EPA by Maitland City Council immediately.	MCC	During construction
Waterways and water quality	**WQ9**	Vehicle movements will be restricted to established roads and tracks, haul road and access points.	MCC	During construction
Waterways and water quality	**WQ10**	Equipment and materials will not be stored within 40 m of the floodway, wetland, drainage lines or watercourses.	MCC	Prior to construction & During construction
Biodiversity				
Biodiversity	**B1**	A Biodiversity Management Plan (BMP) will be developed to ensure that at a minimum, all mitigation measures listed below are implemented. This will form part of the CEMP and will need to be implemented prior to, during and post construction.	MCC	Prior to construction, During construction & Post construction
Biodiversity	**B2**	The area mapped as **Southern Lower Floodplain Freshwater Wetland** (Wetland Area) must not be disturbed.	MCC	Prior to construction & During construction
Biodiversity	**B3**	Wetland area will be marked as 'No Access' zone using para-webbing or similar - no access allowed for vehicles, machinery, or workers. New boundary fence at approximately 20 m from mapped wetland can be utilised for this purpose. No materials to be stored in or within 40 m of these areas.	MCC	Prior to construction & During construction
Biodiversity	**B4**	Disturbance of vegetation (including pasture) will be limited to the minimum areas required for the project to be completed.	MCC	Prior to construction, During construction & Post construction
Biodiversity	**B5**	The one isolated tree proposed for removal (Silky Oak) will be clearly marked prior to removal.	MCC	Prior to construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Biodiversity	**B6**	Silky Oak tree would be offset according to Maitland City Council's tree replacement requirement of a 3:1 ratio. Three locally native trees, (such as *Corymbia maculata*) would be planted in a suitable location determined by MCC.	MCC	During construction & Post construction
Biodiversity	**B7**	A qualified ecologist must be present onsite during the clearing of the Silky Oak tree. The ecologist should provide a description on a suitable way to remove this tree and collect any sheltering fauna. Any fauna present should be collected and relocated locally. If microbats, or any other nocturnal fauna, are present, these should be released at dusk.	MCC	Prior to construction & During construction
Biodiversity	**B8**	Spoil from clearing works is to be stockpiled outside of any vegetated areas and outside of the dripline (usually 5 metres) of any trees.	MCC	During construction
Biodiversity	**B9**	Weed Biosecurity Management Plan (WBMP) to be developed as part of the BMP including: • Targeted priority weed management to be undertaken prior to, during and post construction where required, with a particular focus on the western embankment (Non-native Vegetation Area). • Removal and disposal of weed waste materials including any fruit or seed – do not mulch on site. • Weed waste material will be removed and kept separate to other vegetation, waste or stockpiles. • Weed waste material must not be moved to any other locations on or off-site (except for disposal at a licenced waste facility). • Weed infested soils (Non-native vegetation area) must be kept separate from clean fill and must remain in its current location under 1 m from final ground level. • A hygiene protocol for construction vehicles and equipment to prevent the spread or introduction of weeds, pest and pathogens.	MCC	Prior to construction, During construction & Post construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Biodiversity	**B10**	Parking vehicles, storing materials or placing stockpiles within the dripline of trees (usually 5 metres) will be avoided.	MCC	Prior to construction, During construction & Post construction
Biodiversity	**B12**	Do not remove or disturb any fallen trees/logs on site. If fallen trees are required to be moved, then they will be placed back in a location as close to the original position as possible.	MCC	Prior to construction, During construction & Post construction
Biodiversity	**B13**	Do not remove any dead standing trees.	MCC	Prior to construction, During construction & Post construction
Biodiversity	**B14**	Do not disturb or harm any fauna found on site.	MCC	During construction
Biodiversity	**B15**	If native fauna is injured or trapped on site, contact the local National Parks & Wildlife office or a licensed wildlife rescue and rehabilitation group in the local area to arrange for collection/removal from site.	MCC	During construction
Biodiversity	**B16**	Implement SWMP and ESCP during construction (as per **E1** and **E2** above).	MCC	During construction
Biodiversity	**B17**	Disturbed areas will be stabilised and revegetated in stages during construction to minimise the risk of erosion and sedimentation occurring.	MCC	During construction
Biodiversity	**B18**	Disturbed areas will be revegetated with suitable local provenance native trees, shrubs and grasses (during late autumn – early spring).	MCC	During construction & Post construction
Aboriginal heritage				
Aboriginal heritage	**AH1**	Maitland City Council has applied for an Aboriginal Heritage Impact Permit (AHIP) for this proposal as per the Aboriginal Cultural Heritage Assessment Report (ACHAR) completed by AMAC (2023a) (**Appendix G**).	MCC	Prior to construction.
Aboriginal heritage	**AH2**	Any conditions of the AHIP will be complied with throughout the proposed project.	MCC	Prior to construction & During construction
Aboriginal heritage	**AH3**	All persons working on site will be briefed prior to works commencing as to the conditions of the AHIP and their responsibilities in ensuring	MCC	Prior to construction &

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
		the preservation of Aboriginal archaeological deposits and objects that may be located on site.		During construction
Aboriginal heritage	**AH4**	If any Aboriginal archaeological deposits and/or objects are located during the development, then the following should take place: • All work is to cease in the immediate vicinity of the deposits and/or objects. • The area is to be demarcated. • Heritage NSW and a suitably qualified archaeologist are to be notified and will provide further instructions.	MCC	During construction
Aboriginal heritage	**AH5**	Should any human remains be located during the proposed works, then the following will take place: • All excavation in the immediate vicinity of any objects shall cease immediately. • The NSW police and Heritage NSW will be informed as soon as possible. • If it is established that the human remains are Aboriginal ancestral remains, Heritage NSW and the relevant Registered Aboriginal Parties will identify the appropriate course of action.	MCC	During construction
Non-Aboriginal heritage				
Non-Aboriginal heritage	**H1**	Boundary of the Walka Water Works complex will be clearly marked on site using para-webbing or similar as a 'no access area'.	MCC	Prior to construction & During construction
Non-Aboriginal heritage	**H2**	Air vent/inspection portal (**Figure 7-7**) will be clearly marked with a 2 m buffer on site using hi-visibility para-webbing or similar as a 'no access area'. Access track for the compound will avoid the area.	MCC	Prior to construction & During construction
Non-Aboriginal heritage	**H3**	No works, stockpiles, equipment or machinery will be located within the Walka Water Works complex boundaries.	MCC	Prior to construction, During construction & Post construction.
Non-Aboriginal heritage	**H4**	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP (see **Section 7.7** and **NV1** below).	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Non-Aboriginal heritage	**H5**	No vibratory machinery (including vibratory roller) will be used within 100 m of any heritage buildings or other heritage items associated with Walka Water Works (**Figure 7-5**). Those heritage items located closest to the proposed project footprint are: • Former main pumphouse building • Former power station (foundations) • Former workman's cottages (foundations)	MCC	During construction
Non-Aboriginal heritage	**H6**	'No Use Area' for vibratory machinery (including vibratory roller) will be clearly marked on site with signage and para-webbing, or similar.	MCC	Prior to construction & During construction
Non-Aboriginal heritage	**H7**	Vibration monitoring will be undertaken prior to and during works to ensure that vibration from the proposed works does not exceed 2.5 mm/s (PPV) as per DIN4150 where heritage items are located.	MCC	Prior to construction & During construction
Non-Aboriginal heritage	**H8**	All personnel will be inducted on site and will be made aware of the locations of Walka Water Works boundary, 'no access areas', heritage items, 'no use area' for vibratory machinery (including vibratory roller) and unexpected finds procedure (**Figures 7-5, 7-6 and 7-7**).	MCC	Prior to construction & During construction
Non-Aboriginal heritage	**H9**	A suitably qualified specialist/archaeologist should be retained in an on-call basis during project works to provide an assessment and guide management should unexpected heritage or archaeological items be discovered or suspected.	MCC	Prior to construction & During construction
Non-Aboriginal heritage	**H10**	Future works associated with the project within the Walka Water Works curtilage (based on current design) will likely require a Statement of Heritage Impact (SoHI) and subsequent works approval from Heritage NSW.	MCC	Prior to future works commencing

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Noise and vibration				
Noise and vibration	**NV1**	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will follow the approach in the Interim Construction Noise Guideline (ICNG) (DECC, 2009) and identify: • All potential significant noise and vibration generating activities associated with the activity. • Feasible and reasonable mitigation measures to be implemented. • Arrangements for consultation with affected residents and sensitive receivers, including notification and complaint handling procedures (provide contact details of Project Manager for complaints). • Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria	MCC	Prior to construction & During construction
Noise and vibration	**NV2**	No vibratory machinery will be used within 100 m of any heritage buildings or other heritage items associated with Walka Water Works (See **H4 – H8** above).	MCC	Prior to construction & During construction
Noise and vibration	**NV3**	Works will be carried out during standard work hours only: Monday-Friday: 7:00am to 6.00pm Saturday: 8.00am to 1.00pm Sunday and Public Holidays: no work	MCC	During construction
Noise and vibration	**NV4**	Notify all potential noise affected residents as follows: • Prior to the commencement of the construction project, provide a general update to the local community including all potential noise affected residents. Notification to advise on general project information such as scope of works, duration of the works, and any perceived impacts to the community. • If out of hours works are essential – provide notification to noise affected residents a minimum of 5 business days prior to the works. Notification to advise on details of works, details of	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
		any noisy type works, details of any changes to river crossing access and details of measures implemented to mitigate noise impacts.		
Noise and vibration	**NV5**	Workers on site will minimise noise during construction as follows: • Use equipment in ways to minimise noise. • Avoid the use of radios or stereos outdoors. • Avoid shouting, minimise talking loudly and slamming vehicle doors. • Avoid dropping materials from a height. • Avoid reversing machinery wherever possible. • Avoid leaving vehicles in idling for extended periods. • Ensure plant and machinery is maintained and in good working order.	MCC	During construction
Noise and vibration	**NV6**	Site Managers will minimise noise during construction as follows: • Schedule material deliveries to be delivered during standard working hours. • Examine and implement, where feasible and reasonable, alternatives to noisy work methods. • Where practical establish the worksite to minimise vehicle reversing.	MCC	During construction
Noise and vibration	**NV7**	To manage potential noise complaints: • Ensure site managers periodically check the site and nearby residences and other sensitive land uses for noise problems so that solutions can be quickly applied. • Provide a quick response to complaints, with complaint handling staff having both a good knowledge of the project and access to information. • Keep a register of any complaints, including details of the complaint such as date, time, person receiving complaint, complainant's contact number and address, description of the complaint, and timeframe for response. These complaints	MCC	During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
		would be provided to the site manager for record keeping same day as received.		
Air quality				
Air quality	**AQ1**	Implement SWMP and ESCP during construction (as per **E1** and **E2** above).	MCC	During construction
Air quality	**AQ2**	Implement control measures such as water sprays or water carts as required during excavation or disturbance of soils or vegetation to prevent or minimise the generation of dust.	Contractor	During construction
Air quality	**AQ3**	Cover excavated materials and stockpiles when not in use.	Contractor	During construction
Air quality	**AQ4**	Cover vehicles and trailers when transporting soil or other construction materials.	Contractor	During construction
Air quality	**AQ5**	Regularly service vehicles and machinery to ensure exhaust emissions generated are within the specified plant and equipment standards.	Contractor	During construction
Air quality	**AQ6**	Turn off idling plant and equipment when not in use.	Contractor	During construction
Air quality	**AQ7**	Review work site and planned works if windy conditions are predicted to minimise excessive dust generation occurring.	Contractor	During construction
Waste and chemical management				
Waste and chemicals	**WC1**	Develop and implement a Waste Management Plan (WMP) for inclusion in the CEMP.	Contractor	Prior to construction & During construction
Waste and chemicals	**WC2**	The removal and disposal of any asbestos containing materials will be undertaken by a licenced contractor and in accordance with *How To Safely Remove Asbestos: Code of Practice* published by Safe Work Australia (2022).	MCC & Licenced Contractor (Asbestos removal)	Prior to construction
Waste and chemicals	**WC3**	Inspection of existing pavement materials during construction by suitable environmental consultant would be required to confirm classification under the *Excavated Public Road Material Order* (EPA, 2014a).	MCC	Prior to construction
Waste and chemicals	**WC4**	Further assessment should be conducted prior to/during construction to provide finalised classifications for reuse or disposal of materials. Further detailed assessment would be required to satisfy *Waste*	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
		Classification Guidelines (EPA, 2014b) and *Excavated Natural Material Order* (EPA, 2014c) requirements.		
Waste and chemicals	**WC5**	All site waste will be managed in accordance with the waste reduction hierarchy of avoid, reduce, re-use and recycle as per the *Waste Avoidance and Resource Recovery Act 2001*.	MCC	During construction
Waste and chemicals	**WC6**	All excavated natural, non-contaminated soil, aggregate or rock should be stockpiled separately and reused onsite where possible.	MCC	During construction
Waste and chemicals	**WC7**	Unsuitable fill material will be classified in accordance with the Waste Classification Guidelines (EPA, 2014) and disposed of at an approved materials recycling or waste disposal facility.	MCC	During construction
Waste and chemicals	**WC8**	All surplus material, off cuts, and other debris resulting from the work shall be removed from site and disposed of by a licenced contractor to a licenced waste management facility.	MCC	During construction
Waste and chemicals	**WC6**	Waste material is to be removed from site as soon as practical and not left on site once the works have been completed.	MCC	During construction & Post construction
Waste and chemicals	**WC7**	Liquid waste is to be contained in suitable sealed containers and disposed of appropriately.	MCC	During construction
Waste and chemicals	**WC8**	Work areas are to be maintained, kept free of rubbish, and cleaned up at the end of each working day.	MCC	During construction
Waste and chemicals	**WC9**	Cover receptacles to prevent the loss of waste from the receptacle.	MCC	During construction
Waste and chemicals	**WC10**	Provide portable toilets for construction workers (in compound area) and ensure the appropriate disposal by a licensed supplier.	MCC	During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Traffic and transport				
Traffic	**T1**	A Traffic Management Plan (TMP) will be prepared and implemented for the project as part of the CEMP. The TMP will include: • Requirements for any changes to local access. • Provisions for access by emergency services and residents evacuating in the event of an emergency. • An emergency response plan for any construction traffic incident. • Site specific traffic control plans (TCPs) to manage the safe movement of traffic through the site. • Community notification process incorporating timely, accurate, relevant and accessible information to the community regarding changed traffic arrangements and delays owing to construction activities. • Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on or blocking public roads. • Parking plan with suitable car parking areas provided for construction workers and visitors to the site (outside of the construction area). • Compliance with Maitland City Council requirements regarding traffic control, access and road/pedestrian access.	MCC	Prior to construction & During construction
Traffic	**T2**	Only the essential vehicles and/or machinery will be permitted on site at any time.	MCC	During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Visual amenity				
Visual amenity	**V1**	Proposed project site including construction area and compound will be managed to minimise visual impacts including the location of equipment storage, vehicle parking locations, stockpile locations, and amenities.	MCC	Prior to construction & During construction
Visual amenity	**V2**	All temporary structures, equipment and waste will be removed as soon as possible or at the completion of works.	MCC	During construction
Visual amenity	**V3**	All work areas will be returned to as close to their original condition as possible.	MCC	During construction
Visual amenity	**V4**	All work areas will be maintained, kept free of rubbish and cleaned up at the end of each working day.	MCC	During construction
Visual amenity	**V5**	Stabilisation of disturbed areas (including revegetation) is to be staged progressively during the construction works.	MCC	During construction
Visual amenity	**V6**	Revegetation will be undertaken with suitable, local provenance native trees, shrubs and grasses (during late autumn – early spring).	MCC	During construction & Post construction
Socio-economic				
Socio-economic	**SE1**	Access to Oakhampton Heights will continue via Scobies Lane throughout the proposed project works.	MCC	Prior to construction & During construction
Socio-economic	**SE2**	Access to Walka Water Works will continue via South Willards Lane throughout the proposed project works.	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
Bushfire hazards				
Bushfire hazards	**BF1**	A Bushfire Management Plan (BFMP) will be developed in accordance with *Planning for Bush Fire Protection 2019* (NSW Rural Fire Service, 2019), and will include at a minimum the following measures to manage bushfire risks: • All personnel will be inducted on site and made aware of bushfire/grassfire risks, bushfire mitigation measures and emergency procedures including evacuation of site. • All site workers will be informed of the site rules including designated smoking areas and putting rubbish in designated bins. • Weather and local bushfire ratings will be monitored throughout the project. Works will be assessed and adjusted or ceased according to bushfire risk rating and advice from Rural Fire Service. • During higher risk fire rating periods, all personnel on site will be reminded of bushfire/grassfire risks and mitigation measures during toolbox talks prior to works commencing. • Consultation requirements for local community in the event of a bushfire will be addressed. • Plant and machinery will be maintained in good working order and checks performed each day. • Plant and vehicles will be restricted to haul road and designated roadways and access points, avoiding grass and other vegetation wherever possible. • Plant and equipment will be fitted with appropriate spark arrestors, where practicable. • Handling and storage of any flammable substances such as fuel will be undertaken in accordance with the relevant guidelines and Safety Data Sheet.	MCC	Prior to construction & During construction

Factor	ID	Safeguard/mitigation measure	Responsibility	Timing
		• Refuelling of plant and machinery will only be undertaken in a designated area, away from vegetation, and any other flammable materials. • Access by emergency services to the site, Walka Water Works, Oakhampton Heights and other residences in the area will be maintained in the event of a fire or other emergency. • Notification will be provided to emergency services if there are likely to be significant delays in the operation of any roads.		
Cumulative impacts				
Cumulative impacts	**C1**	Stabilisation of disturbed areas (including revegetation) is to be staged progressively during the construction works.	MCC	During construction
Cumulative impacts	**C2**	Disturbed areas will be revegetated with suitable local provenance native trees, shrubs and grasses (during late autumn – early spring).	MCC	During construction & Post construction
Cumulative impacts	**C3**	All road alignment options that would avoid removing mature tree (*Corymbia citriodora*) during future works will be considered and implemented wherever possible.	MCC	During design phase & Prior to future works
Cumulative impacts	**C4**	If the removal of mature tree (*Corymbia citriodora*) is essential (during future works) this will be offset according to Maitland City Council's tree replacement requirement of a 3:1 ratio. Three locally native trees, (such as *Corymbia maculata*) would be planted in a suitable location determined by MCC.	MCC	During design phase & Prior to future works

10 Conclusion

The proposed project described in this REF is subject to assessment under Division 5.1 of the EP&A Act. This REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed project.

The REF has determined that:

- A number of potential environmental impacts from the proposed project have been avoided or reduced during the options assessment and concept design stage.

- The proposed project would result in short-term minor impacts on erosion, sedimentation, air quality, biodiversity, amenity, noise and vibration.

- The proposed project would result in some longer-term minor impacts on amenity and local flood afflux.

- There are potential impacts on Aboriginal Heritage and Non-Aboriginal Heritage that would be mitigated by implementing the measures in this REF.

- The proposed project would have long-term positive impacts for the community including improvements to the access of Oakhampton Heights by:
    - improving the safety and reliability of local road access during flood events.
    - reducing the risk of Oakhampton Heights residents being isolated due to flooding.

- The proposed project would have some long-term positive impacts on visual amenity and ecosystems in the locality, via weed management and revegetation works associated with the project.

On balance and having regard to the safeguards and mitigation measure proposed, the project is considered justified, and the following conclusions are made:

- The proposed project is not likely to significantly affect the environment, therefore no environmental impact statement (EIS) is required, and no approval is needed to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.

- The proposed project is not likely to significantly impact a matter of national environmental significance or Commonwealth land, therefore no referral to DCCEEW for a decision by the Minister for the Environment and Water under the EPBC Act is required.

- Assessments of the significance of the impact of the proposed project on threatened entities under the BC Act concluded that the project will not significantly impact the Southern Lower Floodplain Freshwater Wetland.

- The proposed project is not likely to significantly affect threatened species, ecological communities, or their habitats therefore no species impact statement (SIS) or biodiversity development assessment report (BDAR) is required.

Note: For the long-term management of wetlands in the study area and surrounds, it is recommended that the current slashing and horse grazing practices cease in these areas. This will allow for wetland species to recover and the wetlands to re-establish in a more natural state. This would assist with reducing cumulative issues in the area associated with erosion, sedimentation, and water quality, and would provide more suitable habitat for native fauna in the locality.

11 Certification, review and determination

11.1 Certification

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

I have considered all environmental impacts and mitigation measures to the best of my knowledge and have sought advice where required. The information contained in this REF is neither false nor misleading.

Prepared by:

Name: Terry Bignell

Position: Principal Consultant

Company: EDM Ecological

Signed.....Date: 31 January 2024

11.2 Review

This REF has been reviewed by the following person:

Reviewed by:

Name: Catherine Pepper

Position: Manager, Environment & Sustainability

Company: Maitland City Council

Signed.....Date: 14/02/2024

Catherine Pepper (Feb 14, 2024 15:25 GMT+11)

11.3 Determination

In accordance with the above recommendations, I certify that I have reviewed and endorsed the contents of this REF, and to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under Section 170 of the EP&A Regulation, and the information is neither false nor misleading.

I determine that Maitland City Council may proceed with the proposal, providing the safeguards and mitigation measures listed in this REF are implemented.

Name: Matt Prendergast

Position: Director City Planning

Company: Maitland City Council

Signed……Date: 14/02/2024

12 Publication requirement

Section 171(4) of the EP&A Regulation states that the review of environmental factors must be published on the determining authority's website or the NSW planning portal if:

(a) the activity has a capital investment value of more than $5 million
(b) the activity requires an approval or permit as referred to in any of the following provisions before it may be carried out—
    (i) Fisheries Management Act 1994, sections 144, 200, 205 or 219,
    (ii) Heritage Act 1977, section 57,
    (iii) National Parks and Wildlife Act 1974, section 90,
    (iv) Protection of the Environment Operations Act 1997, sections 47–49 or 122, or
(c) the determining authority considers that it is in the public interest to publish the review.

An Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the *National Parks and Wildlife Act 1974* is required for this project. Therefore, this REF is required to be published on the determining authority's website or the NSW planning portal under section 171(4)(b)(iii) of the EP&A Regulation.

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Appendix A:

Construction Plan (Stage 1)

Appendix B:

Concept Plan (Option 3 – Overall Project Plan)

Appendix C:

Concept Plan

(Option 2 – Raise existing road)

Appendix D:

Concept Plan

(Option 4 – Alternative alignment option)

Appendix E:

Biodiversity Assessment

Appendix F:

Consultation with Government Departments

Appendix G:

Aboriginal Cultural Heritage Report (ACHAR)

Appendix H:

Statement of Heritage Impact (SoHI)

Appendix I:

Geotechnical Investigation Report

Appendix J:

Flood Impact Risk Assessment

Appendix K:

EPBC Act Protected Matters Report

Appendix L:
Data from the BioNet Atlas

Appendix M:

Priority Weeds in the Hunter Region

Appendix N:

Ecological Assessment of Impact on Threatened Entities

Appendix O:
AHIMS Search Results

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Final Audit Report 2024-02-14

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