

PUBLIC



Soil and Water Management Plan EnergyConnect (NSW - Eastern Section) Stage 2 45860-HSE-PL-D-0118

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Revision History	
Rev.	Detailed Description
A	Issued for internal review
B	Issued for Transgrid review
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D	Issued for ER review
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1	Revised to address DPE comments

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Abbreviations

Acronym	Definition
AHD	Australian height datum
Amendment Report	<i>Amendment Report EnergyConnect (NSW – Eastern Section)</i>
AS/NZ	Australian Standard/New Zealand Standard
ASS	Acid sulfate soils
AWS	Automatic weather station
BC Act	<i>Biodiversity Conservation Act 2016</i>
BoM	Bureau of Meteorology
BTENX	Benzene, toluene, ethylbenzene, xylene, and naphthalene
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CLM Act	<i>Contaminated Land Management Act 1997</i>
Contamination	Contamination means the presence in, on or under land or any other aspect of the environment of a substance (i.e. gas, chemical, liquid or other matter) whether occurring naturally or otherwise, which is: <ul style="list-style-type: none"> a) at a concentration above the concentration at which the substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, is normally present in, on or under land or any other aspect of the environment in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment; or b) toxic, flammable or otherwise capable of causing harm to humans or damage to the environment including asbestos (man-made or naturally occurring), toluene, polychlorine biphenyls, lead based paints, glues, solvents, cleaning agents, paints, water treatment chemicals and acid producing spoil.
CPESC	Certified Professional in Erosion and Sediment Control
CSSI	Critical State significant infrastructure
Cth	Commonwealth
DAWE	Department of Agriculture, Water and the Environment, now known as Department of Climate Change, Energy, the Environment and Water
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DPE or Department	NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Industry and Environment (now named NSW Department of Planning and Environment)
EIS	<i>Environmental Impact Statement EnergyConnect (NSW – Eastern Section)</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
ER	Environmental Representative
ESCP	Erosion and Sediment Control Plan
ESCS	Erosion and Sediment Control Strategy
GDEs	Groundwater dependent ecosystems
NSW	New South Wales
PASS	Potential acid sulfate soils
PESCP	Progressive Erosion and Sediment Control Plan
Planning Secretary	Planning Secretary under the EP&A Act, or nominee

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Acronym	Definition
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
project, the	EnergyConnect (NSW – Eastern Section)
RMMS	Revised mitigation measures
SA	South Australia
SAPs	Sensitive area plans
SecureEnergy	Elecnor and Clough Projects Australia Pty Ltd have formed the SecureEnergy Joint Venture (SecureEnergy). SecureEnergy is the contractor who will be carrying out the project on behalf of TransGrid.
Stage 1	Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points.
Stage 2	All construction activities associated with EnergyConnect (NSW – Eastern Section). Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans. The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project.
Submissions Report	<i>Submissions Report EnergyConnect (NSW – Eastern Section)</i>
SWMP	Soil and Water Management Plan
UXO	Unexploded Ordnance
WAL	Water Access Licence
WM Act	<i>Water Management Act 2000</i>
WMS	Work method statements
WWTP	Wastewater treatment plant

1 Introduction

1.1 Context

This Soil and Water Management Plan (SWMP or this plan) forms part of the Construction Environmental Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section).

This document has been prepared for construction activities undertaken during Stage 2 of the project. Once approved this plan will supersede the existing Stage 1 Soil and Water Management Plan. It does not address the operational phase of the project.

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

1.2 Background

On 29 August 2019 the then New South Wales (NSW) Minister for Planning and Public Spaces declared the New South Wales (NSW) component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. Within NSW, EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

TransGrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – SA/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

TransGrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since the exhibition of the EIS. The Amendment Report was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

TransGrid have engaged SecureEnergy, a joint venture between Elecnor and Clough Projects Australia Pty Ltd to design and construct their portion of the EnergyConnect project.

1.3 Staging

Condition A8 allows preparation of plans on a staged basis, with the approval of the Planning Secretary. Where a plan is staged, the scope of works can be carried out without addressing requirements of the Infrastructure Approval that are not applicable to that stage. This SWMP is staged in accordance with condition A8. The two stages are as follows:

- Stage 1 – establishment and operation of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation, water supply points; and
- Stage 2 – Stage 1 and all other construction activities (i.e. all construction activities associated with EnergyConnect (NSW – Eastern Section)).

The plans for Stage 2 incorporate and supersede the Stage 1 plans and cover the entire construction phase of the project.

This SWMP has been prepared specifically for EnergyConnect (NSW – Eastern Section) Stage 2 and will be implemented for the duration of Stage 2 of construction. The key project components of Stage 2 of construction include, but are not limited to, the activities provided in Table 1.1. The location of the key project components are presented in Figure 1.1.

Table 1.1 - Key project components of construction (Stage 2)

Key activity	Description of key activity
Pre-construction minor works permitted in accordance with the Infrastructure Approval.	<p>The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and GEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval.</p> <p>Key activities include:</p> <ul style="list-style-type: none"> • environmental investigations, including biodiversity and heritage protection, salvage and recordings; • Aboriginal heritage assessment, mitigation (e.g. exclusion zones) and salvage activities including subsurface testing/test excavation, additional survey, and consultation with RAPs; • other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities; • installation of environmental management measures (including erosion and sediment controls), fencing, signage and security measures, enabling works; and • connections and pre-commissioning of utilities (wastewater treatment plant, electrical power, lighting etc.).
Continuation of any outstanding Stage 1 construction activities	<p>Construction activities undertaken during Stage 1 of the project will continue where required. This includes, but is not limited to continuation of the following activities:</p> <ul style="list-style-type: none"> • any outstanding construction activities at Dinawan and Wagga Wagga substations; • operation of earthworks material site, including the crushing and screening plant, where required; • operation of the construction compounds including offices and laydown area; and • use of traffic access route and access and egress points.
Establishment of ancillary facilities along the transmission line corridor	<p>A number of minor staging, storage and laydown ancillary areas would be required within the project corridor for temporary storage of materials, plant and equipment required to construct the various elements of the proposal (in particular transmission line structures). Some temporary mobile batching plant locations may also need to be established to enable easy access to concrete.</p> <p>These sites would be in place for shorter periods at locations suitable to support the construction works as they move along the alignment.</p>

Key activity	Description of key activity
Property adjustment work, including adjustments to property fencing	Installation or adjustment of gates and fences would be required at some locations along the alignment to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant council and/or affected landholder.
Water supply points – establishment and/or use	<p>A number of water supply points have been along the length of the project to support construction water needs for the project. The proposed water supply points which are to be established and / or used include:</p> <ul style="list-style-type: none"> • Euston Coop*, Balranald Shire Council; • Lake Benanee*, Balranald Shire Council; • Sturt Highway/Meilman Road*, Balranald Shire Council; • Mylatchie Track*, Balranald Shire Council; • 159 Church Street, Balranald Shire Council; • Ravensworth, Hay Shire Council [Ravensworth in Amendment Report]; • Moulamein Rd 1*, Edward River Council; • Moulamein Rd 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report]; • Burraburoon*, Edward River Council; • X5 Mabins Well*, Edward River Council; • Gala Vale*, Murrumbidgee Council; • Kidman Way*, Murrumbidgee Council; • Crosby Road*, Murrumbidgee Council; • Newell Highway, Morundah*, Federation Council; • Urana-Lockhart Road, Brookong*, Lockhart Shire Council; • Brookdale*, Lockhart Shire Council; • Federation Way/Coonong Road*, Federation Council; • Newell Highway/Arrawidgee Road*, Federation Council; • Federation Way*, Federation Council; • Coonong Road*, Federation Council; • Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report]; • 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report]; • Cooinbil Water Bore, Coleambally, Murrumbidgee Council [Cooinbil, Four Corners Road, Coleambally in Amendment Report]; • Carrathool Road, Four Corners, Edward River Council [shown in Figure 6-9 of the Amendment Report, however, unclear of name in Table 6-5]; • Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report]; • Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report]; • North Bundy Station, North Bundy Road, Booroorban, Edward River Council [North Bundy, Booroorban-Tchelery Road, Booroorban in Amendment Report]; • Booroorban-Tchelery Road*, Booroorban, Edward River Council; • Strongs Lane*, Lockhart, Lockhart Shire Council; • Strongs Lane/Ben Hoffmanns Lane*, Lockhart Shire Council; • Urana-Lockhart Road 2*, Brookong, Lockhart Shire Council; • Slys Lane*, Lockhart Shire Council; • The Rock - Collinguillie Road*, The Rock, Lockhart Shire Council; • Bullenbung-the-Rock Road*, Lockhart Shire Council; • Tuttys Lane*, Tootool, Lockhart Shire Council; • French Park-Bullenbung Road*, Lockhart Shire Council; • Napier Road*, Lockhart Shire Council;

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Key activity	Description of key activity
	<ul style="list-style-type: none"> • Albury Road*, Lockhart, Lockhart Shire Council; • 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report]; • Kerr Kerri Rd, Moulamein, Murray River Council [Keri Keri in Amendment Report]; • Urana (between Osborne Street and Stephen Street), Federation Council [Urana in Amendment Report]; • Federation Way* (near corner Federation Way and Stephen Street), Federation Council; • Cadell Road, Coleambally, Murrumbidgee Council [Cadell Road Coleambally in Amendment Report]; • Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report]; • 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report]; • Commera Wilson Lane Urana*, Lockhart Shire Council; • Commera Wilson Lane/Urana-Lockhart Road*, Lockhart Shire Council; • Paraway at Four Corners Road*, Murrumbidgee Council; • Paraway at Cobb Highway*, Hay Shire Council; • North Boundary Road*, Murrumbidgee Council; • Tooleybuc*, Murray River Council; • Off Sturt Highway* Wentworth Shire Council; • 16 Mile Gums*, Hay Shire Council; • Cadell Street, Hay, Hay Shire Council; • Jerilderie Road*, Hay Shire Council; • Court Street/Sturt Highway*, Balranald Council; • Boiling Down Road*, Wagga Wagga City Council; and • continued use of the Stage 1 water supply points. <p>The water supply points may require works to the existing infrastructure to enable connection and use by the water supply vehicles.</p> <p>The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval.</p> <p>* The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS. Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would:</p> <ul style="list-style-type: none"> • confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32; • reach agreement with the water supplier regarding the use of the water supply point for the project; and • carry out any additional assessments which may be required (ie heritage or biodiversity).
<p>Traffic access routes and access points</p>	<p>The construction vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities). All construction vehicles associated with the development will travel via the haulage routes as identified in Appendix 3 of the Infrastructure Approval or as otherwise approved.</p> <p>The establishment of new access points would include:</p> <ul style="list-style-type: none"> • establishing vehicle access and egress points to ensure safe vehicle movements. Existing access may also be used; and • establishing truck wheel wash or rumble grids.

Key activity		Description of key activity
		The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition C35 b).
	Construct access tracks	<p>Access to each tower would be required during construction. Access tracks would be required to be traversable by a range of vehicles. Access tracks would fall into two broad groups:</p> <ul style="list-style-type: none"> • un-improved access tracks – using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation; • improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and • constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion. <p>Constructed access tracks would be required in areas, where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings.</p> <p>Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal.</p>
	Temporary works	<p>The project will require a significant quantity of temporary works during construction. The temporary works will include, but not limited to, the following:</p> <ul style="list-style-type: none"> • earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments; • laydown and parking areas for the towers; • structures, such as formwork, shoring, edge protection, barriers and signage, temporary scaffold; and • equipment/plant foundations, such as work platforms, crane, and piling platforms.
	Optical repeater sites	<p>Three optical repeater site communication huts would need to be constructed at Balranald, Boorooban and Lockhart. The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following:</p> <ul style="list-style-type: none"> • site establishment, including vegetation removal and establishment of temporary construction site office, if required; • earthworks and preparation of the site for concrete foundations; • construction of a new communication hut building at each site; • installation of new pole-mounted transformers; • installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles); • installation of site wiring and electrical control equipment within each building; • trenching for underground conduit between the Balranald optical repeater hut and transmission line; • installation of new above ground poles between the transmission line and the respective Boorooban and Lockhart optical repeater sites; • provision of power connections between the transmission line and associated optical repeater site; and • removal of waste and remediation of site areas.
Transmission line construction	Earthworks and transmission tower footing construction	<p>Excavation works and establishment of construction pads at each tower site would be required for the installation of foundations, levelling around the individual tower foundations, drainage and grading or preparation for construction at the tower site. Excavations would typically be up to five metres in depth. Construction of footings and foundation works for the new transmission line towers includes:</p> <ul style="list-style-type: none"> • piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater

Key activity		Description of key activity
		<p>piling depths would be required where soft soil types are present). The foundation type would also vary (subject to detailed design) but would consist of either:</p> <ul style="list-style-type: none"> - bored pile (reinforced concrete); - driven or screw pile (concrete or steel); and - helical screw anchor, or cast in-situ reinforced concrete. <ul style="list-style-type: none"> • excavation to create bench sites (stepped ground excavation) where required to provide a level platform for equipment setup, the erection of the tower and other construction activities. Benching would be constructed by use of earthing equipment such as graders and excavators; • steel fabrication works; and • concrete pours.
	Assembly and erection of transmission line towers	<p>The transmission line towers would typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes.</p> <p>Alternatively, towers may be erected in place on the footings by installing individual members. These towers would include infrastructure such as step bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earthwires and insulators.</p>
	Stringing of transmission lines including conductors and overhead earth wires and optical ground wire	<p>Following erection and securing of the tower, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone.</p> <p>The area required for the construction of each tower would require access for tower assembly and stringing works. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required (to allow for brake and winching sites). At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location.</p> <p>Stringing of the transmission line would also be required across several major watercourses, railway lines and roads / highways.</p> <p>The general construction methodology is to assemble and erect a transmission line structure on either side of each river, road or rail crossing. A drone would then be used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower.</p>
	Installation of earthing conductors	<p>The following key activities will be undertaken:</p> <ul style="list-style-type: none"> • installation of earthing conductors at each of the transmission tower arms; and • installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence.
Utility adjustments and protection		<p>General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical repeater sites, the establishment and operation of the construction compounds and accommodation camps, and elsewhere as required.</p>
Site rehabilitation and landscaping		<p>Site rehabilitation would be carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction.</p> <p>This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls.</p> <p>Works may also be undertaken to restore:</p> <ul style="list-style-type: none"> • water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners; • natural drainage in areas where temporary facilities were provided; and • fences, gates, etc., which may have been damaged during construction. <p>Installation of the permanent TransGrid property boundary fence surrounding the new and expanded substation sites would also likely occur during this phase.</p>
Demobilisation		<p>SecureEnergy will start to downsize the construction team with gradual demobilisation as particular key construction activities are completed.</p>

Some activities nominated in this stage will have already commenced as part of the pre-construction minor works permitted in accordance with the Infrastructure Approval. These works will remain

excluded from the definition of 'construction' and will therefore not be subject to the Stage 2 CEMP and this SWMP. Activities that were approved to be carried out under the Stage 1 SWMP will continue under this SWMP.

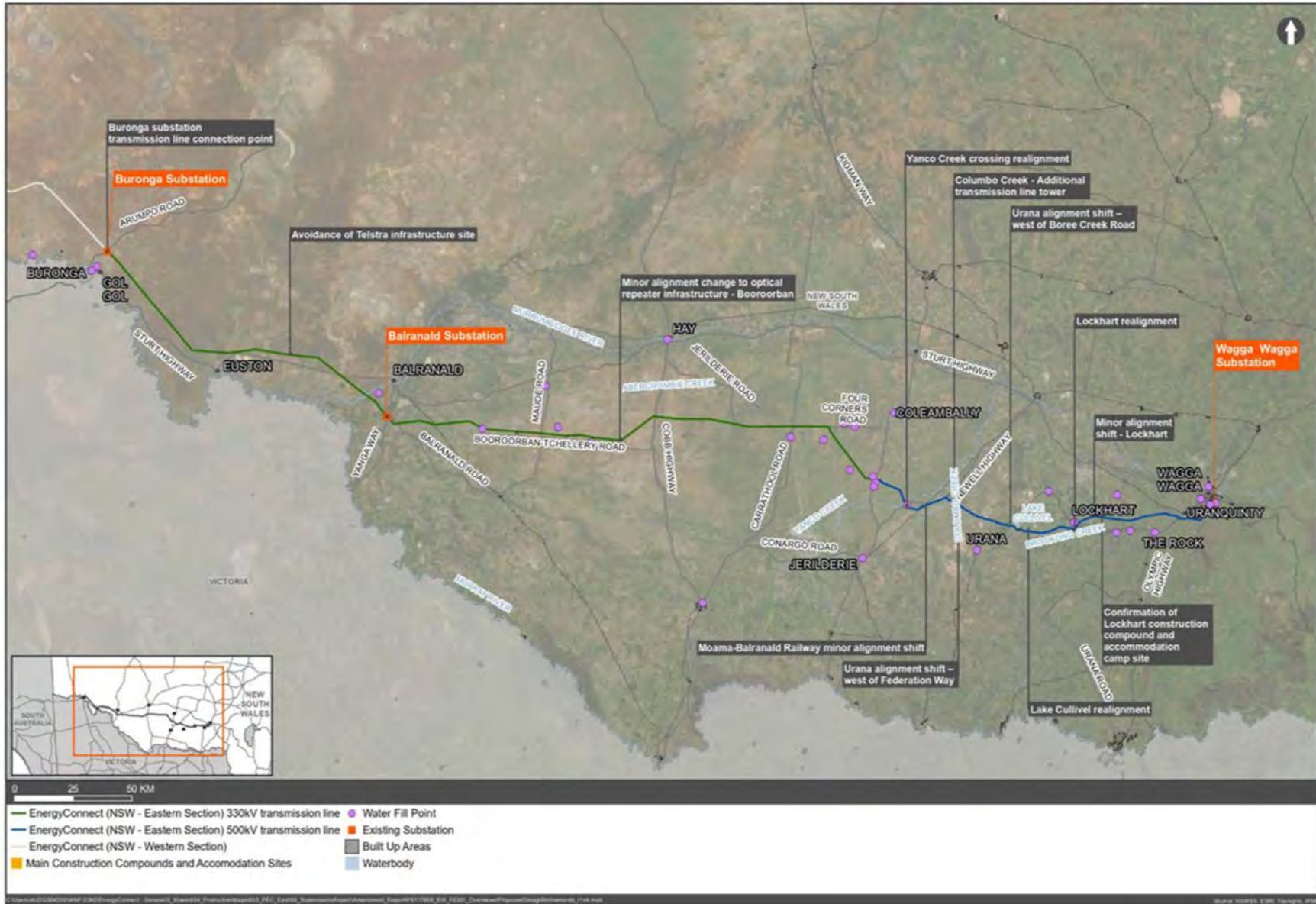


Figure 1.1 - Key features of EnergyConnect (NSW – Eastern Section)

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1.4 Environmental management system

The overall environmental management system for the project is described in Section 4 of the CEMP. This SWMP is a sub-plan that forms part of the CEMP and is also part of the environmental management framework for the project, as described in the CEMP.

Management measures identified in this plan will be incorporated into relevant site-based documents including, but not limited to, site or activity specific work pack or work method statements (WMS), sensitive area plans (SAPs) or training and awareness material.

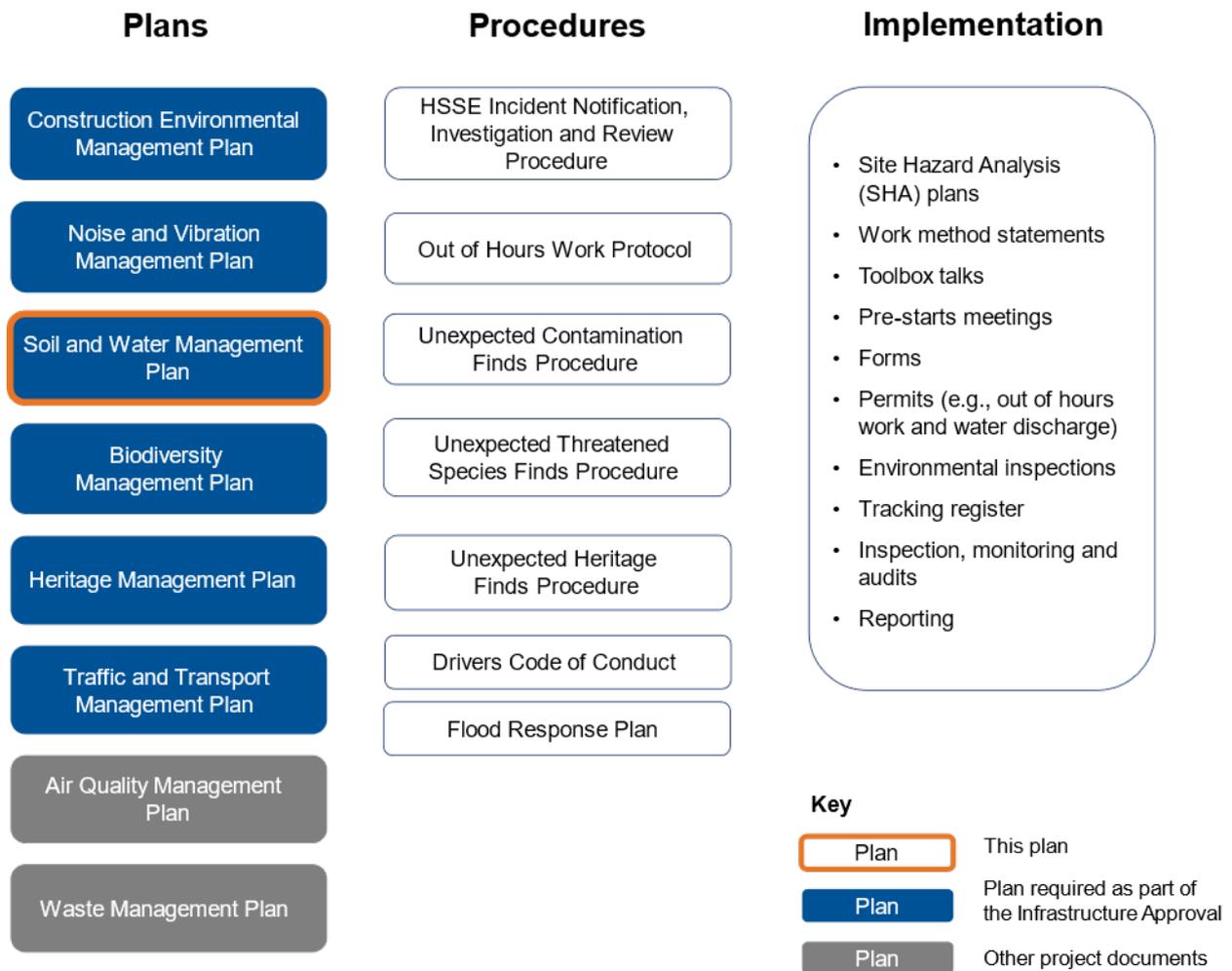


Figure 1.2 - CEMP framework

1.5 Purpose and objective

The purpose of this SWMP is to describe the approach to manage soil and water impacts that will be adopted during construction of the project.

The key objective of this plan is to detail management measures and inform site procedures so that soil, water and contamination impacts are minimised and managed within the scope permitted by the Infrastructure Approval. To achieve this, the following will be undertaken:

- implement appropriate measures to address the requirements outlined in the Infrastructure Approval, EIS and Submissions Report;
- implement appropriate measures during construction to minimise soil, water and contamination impacts; and

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- implement appropriate measures to comply with relevant legislative requirements as described in Section 2.1 of this plan.

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided within Table 4.2 of the CEMP. The performance measures and indicators that are most relevant to soil, water and contamination are detailed in Table 1.2.

Table 1.2 - Environmental objectives, targets and performance indicators relevant to soil, water and contamination

Aspect	Objectives (performance measures)	Targets (criteria)	Performance indicators
Compliance	Compliance with Statutory Approvals and Infrastructure Approval	<ul style="list-style-type: none"> • Full compliance with statutory approvals. • No regulatory infringements (PINs or prosecutions). • No formal regulatory warning. 	Number of regulatory infringements (PINs or prosecutions), formal regulatory warning, audits.
	Implement and comply with the CEMP and associated management plans	<ul style="list-style-type: none"> • Zero non-compliances identified during each compliance audit of CEMP and sub-plans. 	Number of non-compliance arising from each audit.
Soil and water	Minimise erosion and sedimentation	<ul style="list-style-type: none"> • Implementation of controls in accordance with the PESCPs. 	Environmental inspections, audits.
	Ensure that the project does not cause water pollution as defined in section 120 of the POEO Act	<ul style="list-style-type: none"> • 100% completion of scheduled inspections. • 100% compliance with the Dewatering Procedure. 	Environmental inspections, audits.
Incident management and response	Ensure timely communication of incidents. Minimise the risk of an incident by identifying risks and developing actions to minimise those risks	<ul style="list-style-type: none"> • All incidents reported in accordance with the CEMP. • All risks reviewed in accordance with the SecureEnergy management system. 	Follow up action of incidents as recorded in incident reports.
Inspections and audits	Completion of weekly inspections and audits	<ul style="list-style-type: none"> • 100% completion of scheduled audits and weekly inspections. 	Environmental inspections, audits.

1.6 Preparation of this plan

In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared by suitably qualified and experienced person. This plan was prepared by Cheryl Cahill, an environmental and erosion consultant (attained certification as a Certified Professional in Erosion and Sediment Control (CPESC)).

1.7 Consultation

1.7.1 Development of this plan

In accordance with condition B1 b) of the Infrastructure Approval, this plan has been prepared in consultation with:

- DPE Water; and
- relevant councils.

The plan was issued to relevant stakeholders for review and comment. Comments from the consultation process will be incorporated into this plan where appropriate. Details of all consultation will be submitted to DPE along with the submission of this management plan.

1.7.2 Public sources of information

SecureEnergy will use a range of tools in accordance with the *Community Communication Strategy* (CCS) (45860-HSE-DOC-D-0024) to facilitate ongoing consultation and communication with the community and stakeholders (including government agencies where necessary) regarding the project. Communication tools include, but are not limited to, stakeholder briefings, project website, community drop-in sessions, door knocks and project factsheets. Refer to the CCS for further information.

In accordance with condition D12 a) of the Infrastructure Approval, project documents including the EIS, approved strategies, plans or programs required under the conditions of approval will be made publicly available on the project website. The project website is <https://www.transgrid.com.au/projects-innovation/energyconnect>. A 24-hour toll-free telephone number (1800 490 666) is also available for any project enquiries. In accordance with condition D12(b) the information will be kept up to date.

1.7.3 Complaints

Complaints will be managed by the Engagement Team with the use of Consultation Manager. Complaints will be received via phone calls, emails and letters. Any complaint received is regarded as a high priority and will be recorded, tracked and responded to in accordance with the CCS. Complaints will be investigated and dealt with impartially. The key principles of the complaint management process include:

- acknowledge – SecureEnergy staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing;
- resolve – SecureEnergy staff should aim at first contact, resolution for all community concerns. SecureEnergy staff should investigate community concerns in detail before negotiating a resolution. All SecureEnergy staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints;
- escalate – all SecureEnergy staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact at SecureEnergy. All complaints where a community member requests to speak to a higher-level representative, should also be escalated;
- record – SecureEnergy staff should aim, through the Engagement Team, to record all relevant information, on the community account in Consultation Manager, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded;
- communicate – SecureEnergy staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times;
- report – SecureEnergy should report on all complaints received to the SecureEnergy Management Team and Transgrid. The reporting should include information on the number as well as type of complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them;
- feedback – the SecureEnergy Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated;
- action – SecureEnergy should aim to effectively implement improvements suggested directly by the community or highlighted by complaint trends.

Wherever possible, complaints will be resolved directly between SecureEnergy and the stakeholder. If a complaints management process has been followed and the issue cannot be resolved, dispute resolution will be undertaken in accordance with the CCS. DPE may request the Environmental Representative (ER) to assist in dispute resolution of community complaints.

All complaints will be provided to the ER and a summary of complaints received, such as a complaint register, will be updated monthly on the project website.

1.8 Submission and approval

Prior to submission to DPE, the SWMP will be reviewed by the ER to ensure that the plan is consistent with the requirements of the Infrastructure Approval. A written statement to this effect will be prepared and submitted to DPE. This review will be undertaken in accordance with condition A12 of the Infrastructure Approval.

The SWMP will be submitted to DPE for review and approval by the Planning Secretary prior to the commencement of Stage 2 construction.

Stage 2 of construction will not commence until the CEMP and all sub-plans required under condition B1, or where staging is proposed the plans required for that stage, have been approved by the Planning Secretary. The approved SWMP will then be implemented for the duration of the Stage 2 construction activities.

1.9 Periodic review

This SWMP will be reviewed at least annually and updated, if required, in accordance with Section 1.10 of the CEMP – Updating the CEMP. This includes the review and, if necessary, revision of this Soil and Water Management Plan in accordance with condition D2, within three months of the following:

- submission of an incident report under condition D6 of the Infrastructure Approval;
- submission of an audit report under condition D11 of the Infrastructure Approval; or
- any modifications to the Infrastructure Approval.

Any updates to the SWMP will be approved as described in Section 1.10 of the CEMP.

2 Environmental requirements

2.1 Legislation

Legislation relevant to this SWMP includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act);
- *Protection of the Environment Operations Act 1997* (POEO Act);
- *Contaminated Land Management Act 1997* (CLM Act); and
- *Water Management Act 2000* (WM Act).

Relevant provisions of the above legislation are detailed within the register of legal and other requirements included in Appendix A1 of the CEMP.

2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to soil, water and contamination for Stage 2 of the project are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to soil, water and contamination

Condition no.	Requirement	Where addressed	How addressed						
A1	In meeting the specific performance measures and criteria of this approval, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction, operation, rehabilitation, upgrading or decommissioning of the development.	Section 5	Section 5 identifies the management measures to be implemented to prevent, and if prevention is not reasonable and feasible, minimise harm.						
B1	<p>Prior to commencing construction, an Environmental Management Plan (EMP) comprising the Sub-plans listed in Table 1 must be prepared by a suitably qualified and experienced persons, to the satisfaction of the Planning Secretary.</p> <p>Following the Planning Secretary’s approval, the Proponent must implement the Environmental Management Plan.</p> <p>Table 1: EMP Sub-plans</p> <table border="1"> <thead> <tr> <th></th> <th>Required EMP Sub-plan</th> <th>Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan</th> </tr> </thead> <tbody> <tr> <td>(b)</td> <td>Soil and Water</td> <td>DPE Water Relevant council</td> </tr> </tbody> </table>		Required EMP Sub-plan	Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan	(b)	Soil and Water	DPE Water Relevant council	Title page Section 1.6 Section 1.7	<p>This SWMP has been prepared by suitably qualified and experienced people and in accordance with the relevant guidelines.</p> <p>This SWMP is to be provided to DPE Water and relevant councils for consultation. Following consultation, the outcomes of consultation will be incorporated throughout the SWMP where appropriate.</p>
	Required EMP Sub-plan	Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan							
(b)	Soil and Water	DPE Water Relevant council							
B2	The EMP Sub-plans must be prepared in accordance with relevant guidelines and in consultation with the relevant government agencies identified for each Sub-plan in Table 1, and include:	Section 2.5 Section 1.7	This SWMP has been prepared in accordance with relevant guidelines and will be provided to DPE Water and relevant councils for consultation, in accordance with condition B1.						

Condition no.	Requirement	Where addressed	How addressed
	a) a summary of relevant background or baseline data;	Section 3	The existing environment (including topography, soils, water and contamination) within and adjacent to the Stage 2 disturbance area is outlined in Section 3.
	b) details of:	Section 2 Appendix A1 of the CEMP	The relevant legislation, conditions, RMMs and guidelines applicable to soil, water and contamination are outlined in Section 2. Appendix A1 of the CEMP provides further detail on the relevant legislation applicable to soil, water and contamination.
	(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);		
	(ii) any relevant limits or performance measures and criteria;	Section 1.5 Section 4.2 of the CEMP – Objectives and targets	The objectives (performance measures) and targets (criteria) relevant to soil, water and contamination management are outlined in Section 1.5. The CEMP also provides project-wide environmental objectives (performance measures) and targets (criteria).
	(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 1.5 Table 1.2 Section 4.2 of the CEMP – Objectives and targets	The performance indicators relevant to soil, water and contamination management are outlined in Section 1.5 and Table 1.2. The CEMP also provides project-wide performance indicators.
	(iv) any relevant commitments or recommendations identified in the EIS;	Section 2.3	Relevant soil, water and contamination commitments and recommendations identified in the EIS, known as RMMs, have been outlined in Section 2.3. Section 1.5 and Section 5 of this SWMP describe how the commitments of the EIS relevant to soil and water management will be implemented.
	c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 5	Specific soil, water and contamination related safeguards and management measures to address potential impacts associated with Stage 2 of construction and comply with the relevant statutory requirements, limits and performance measures are outlined in Section 5.
	d) a program to monitor and report on the:	Section 6	The management measures will be monitored through regular monitoring, inspections and audits outlined in Sections 6.3 to 6.6 of this SWMP.
	(i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and	Section 6.3 Section 6.4 Section 6.5 Section 6.6	

Condition no.	Requirement	Where addressed	How addressed
	(ii) effectiveness of the management measures set out pursuant to paragraph (c);	Section 6 Section 6.3 Section 6.4 Section 6.5 Section 6.6	The effectiveness of the management measures will be managed through the monitoring, inspections, auditing and reporting system outlined in Sections 6.3 to 6.6 of this SWMP.
	e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 6.8 Appendix B Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Noncompliance, nonconformance, corrective and preventative action	Section 6.8 outlines a contingency plan in the event that unpredicted impacts are identified. In the event of the discovery of any unexpected contamination, the <i>Unexpected Contamination Finds Procedure</i> (Appendix B) will be followed. The CEMP also provides additional detail regarding incidents and emergencies, reporting, non-compliance, nonconformance, corrective and preventative actions.
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 1.9 Section 6 Section 1.9 of the CEMP – Continuous improvement	Section 6 of this SWMP outlines procedures for compliance management, including details for monitoring, inspections, auditing and reporting. This SWMP will be reviewed at least annually as described in Section 1.9 of this SWMP and Section 1.9 of the CEMP. The Plan-Do-Check-Act model will be applied to the continuous improvement process, also outlined in Section 1.9 of the CEMP.
	g) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion);	Section 6.7 Section 6.8 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Noncompliance, nonconformance, corrective and preventative action	Sections 6.7 and 6.8 describe the procedures for emergencies, incidents and non-compliances, including those related to soil, water and contamination. Additional detail for managing incidents and emergencies, non-compliances and non-conformances is included in the CEMP. The protocol for reporting of any incidents, non-compliances or nonconformances is included in Section 10 of the CEMP.

Condition no.	Requirement	Where addressed	How addressed
	(ii) complaint; or	Section 1.7.3 Community Communication Strategy	A summary of the complaints management procedure and reporting of complaints is included in Section 1.7.3 of this SWMP. The procedure for managing and reporting any complaints is described in the <i>Enquiries, Complaint and Dispute Resolution Management Procedure</i> provided in the CCS.
	(iii) failure to comply with other statutory requirements;	Section 6.7 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Noncompliance, nonconformance, corrective and preventative action	In the event of failure to comply with statutory requirements, the procedures summarised in Section 6.7 of this SWMP, and described in more detail in the CEMP, would be followed.
	h) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 1.7.2	The local community and relevant agencies will be kept informed of construction progress and environmental performance through communication tools such as notifications, the project’s mobile van and the project website as summarised in Section 1.7.2 of this SWMP.
	i) a protocol for periodic review of the EMP and EMP Sub-Plans.	Section 1.9 Section 1.10 of the CEMP – Updating the CEMP	This SWMP will be reviewed at least annually in accordance with the CEMP.
	The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	Noted	Noted

Condition no.	Requirement	Where addressed	How addressed
Soil and Water			
Water supply			
C12	The Proponent must ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of the development to match its available water supply.	Section 2.4.2 Section 5.3 Table 5.2 – SW31	Discussions with councils and private water owners regarding water supply volumes and access options have commenced and will be ongoing throughout the project where required. The scale of the development is prescribed by the operational function that the infrastructure must provide, which is not influenced by available water supply. SecureEnergy does not anticipate a situation in which a lack of water availability could result in a change to the scale of the development.
C13	The Proponent must report on water take at the site during construction (whether direct or indirect and whether licensable or exempt) in the Independent Audit, including water taken under each water licence for the development. <i>Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Proponent is required to obtain the necessary water licences for the development.</i>	Table 5.2 – SW32 Section 6.6 Appendix D	No water take from watercourses is proposed other than through licensed water supply infrastructure owned and operated by others and in accordance with the relevant licence. Water take will be reported and is included within Table 5.2 and Section 6.6. Reference to reporting water take is also included within the Dewatering Procedure.
Erosion and sedimentation			
C14	The Proponent must: a) minimise erosion and control sediment generation; and b) ensure all land disturbances have appropriate drainage and erosion and sediment controls designed, installed and maintained in accordance with <i>Managing Urban Stormwater – Soils and Construction Volume 1</i> (Landcom, 2004), <i>Managing Urban Stormwater – Soils and Construction Volume 2A Installation of Services</i> (DECC, 2008) and <i>Managing Urban Stormwater – Soils and Construction Volume 2C Unsealed Roads</i> (DECC, 2008).	Section 5.1 Table 5.2 – SW4, SW5, SW8 and SW18 Appendix A	An Erosion and Sediment Control Strategy (Appendix A) has been prepared in line with the erosion and sediment principles and requirements of the listed guidelines. A Certified Professional in Erosion and Sediment Control (CPESC) will prepare the initial ESCP covering a range of erosion hazards for the different receiving environments across the project, which will be used as a basis for the development of the Progressive Erosion and Sediment Control Plans (PESCPs). The PESCPs will outline controls to be implemented to minimise soil erosion and sedimentation of waters. Other soil and water management measures are included in Table 5.2.

Condition no.	Requirement	Where addressed	How addressed
Pollution of waters			
C15	Unless otherwise authorised by an EPL, the Proponent must ensure the development does not cause any water pollution, as defined under Section 120 of the POEO Act.	Table 5.2 – SW3	No pollution to water, as defined under section 120 of the POEO Act, is to occur, unless authorised by an EPL.
C16	The Proponent must: a) ensure that appropriate components of the concrete batching plants and substation are suitably bunded; and	Table 5.2 – SW25	Appropriate components of the concrete batching plant, such as the concrete mixing and washout areas, and the oil filled components of the substation, will be suitably bunded.
	b) minimise any spills of hazardous materials or hydrocarbons, and clean up any spills as soon as possible after they occur.	Table 5.2 – SW26 and SW27 Appendix C	Spill kits will be provided in strategic and accessible locations adjacent to chemical storage areas, relevant work area and refuelling area locations. If a spill occurs during construction of the project, the <i>Spill Response Procedure</i> will be followed.
C17	The Proponent must ensure that any groundwater dewatering activities do not discharge to watercourses.	Table 5.2 – SW34 Appendix D	Dewatering of groundwater will not be discharged directly into watercourses.
Riparian areas			
C18	The Proponent must ensure: (a) all activities on waterfront land are constructed in accordance with the <i>Guidelines for Controlled Activities on Waterfront Land (2012)</i> , <i>Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (NSW Fisheries 2003)</i> and the <i>Policy and Guidelines for Fish Habitat and Conservation and Management (NSW Fisheries, 2013)</i> , unless DPE Water agrees otherwise; and	Table 5.2 – SW18	All activities on waterfront land will be guided by the principles from the relevant guidelines.
	(b) the geomorphic condition of the major rivers and tributary channels crossed by the development is not impacted.	Table 5.2 – SW18	The project does not include construction within the channel of the main watercourses (other than stringing activities which occurs in the spatial environment above the main watercourses). The risk of impacts to the geomorphology of these major river systems is considered to be negligible.
Flooding			
C19	The Proponent must ensure that the development: (a) does not materially alter the flood storage capacity, flows or characteristics in the development area or off-site; and	Section 3.3.4 Section 5.7 Table 5.2 – SW41	Most construction activities occur in areas not prone to flooding and as such would not materially alter the flood storage capacity, flow or characteristics of the local area. Construction activities within flood prone areas may temporarily redistribute flood flows and characteristics.

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Condition no.	Requirement	Where addressed	How addressed
			Design and the implementation of appropriate management measures during construction, particularly in advance of a predicted flood, will reduce the impacts of localised flooding. The project will be designed and constructed to minimise impacts on surface water, localised flooding and groundwater.
	(b) is designed, constructed and maintained to reduce impacts on surface water, localized flooding and groundwater at the site, unless otherwise agreed by the relevant Council or BCS.	Section 5.7 Table 5.2 – SW40	The project will be designed and constructed to minimise impacts on surface water, localised flooding and groundwater.
Acid sulfate soils			
C20	The Proponent must ensure that any construction activities in identified areas of acid sulfate soil risk are undertaken in accordance with the <i>Acid Sulfate Soil Manual (Acid Sulfate Soil Management Advisory Committee, 1998)</i> .	Section 3.2.2 Table 5.2 – SW10 and SW11	If acid sulfate soils are encountered during construction, the appropriate management measures will be implemented with guidance from Acid Sulfate Soil Manual (ASSMAC, 1998).
Salinity			
C21	The Proponent must ensure that any construction activities in identified areas of moderate to high salinity are undertaken in accordance with the <i>Salinity Training Manual (DPI, 2014)</i> and <i>Book 4 Dryland Salinity: Productive use of Saline Land and Water (NSW DECC, 2008)</i> .	Table 5.2 – SW12	No soil salinity data for the Stage 2 disturbance area was available at the time of writing this plan. A visual soil salinity inspection will be undertaken prior to ground disturbance. Where saline soil is confirmed, construction activities in areas of moderate to high salinity will be managed in accordance with <i>Book 4 Dryland Salinity: Productive use of Saline Land and Water (NSW DECC 2008)</i> and the <i>Salinity Training Manual (DPI, 2014)</i> .
Soil and Water EMP Sub-Plan			
C22	The Soil and Water EMP Sub-Plan required under condition B2 must include provisions for:	This Plan	This SWMP has been prepared to address the requirements of condition C22.
	(a) ensuring the requirements in conditions C12 to C21 are complied with;	Management of condition C14 to C21 requirements are outlined in the above rows.	Conditions C12 to C21 are addressed as outlined in the above rows.
	(b) managing flood risk during construction;	Section 3.3.4 Section 5.7 Flood Response Plan (45860-HSE-PL-D-0123)	The majority of the construction areas occur in areas not prone to flooding. Areas with flood risk are detailed in Section 3.3.4. Procedures to safely access and egress from affected areas during a flood event is detailed in the <i>Flood Response Plan</i> .

Condition no.	Requirement	Where addressed	How addressed								
	(c) investigating, assessing and managing contaminated land, soils, groundwater and blasting in the development area;	Investigating, assessing and managing contaminated land and soils is addressed in Section 3.2, Section 3.4 and in Table 5.2. Investigating, assessing and managing groundwater and blasting is addressed in Section 3.3.5 and in Table 5.2.	Potential contaminants were identified within Stage 2 disturbance areas, however, the EIS evaluated the risk of encountering contamination as low. If any suspected contaminated land, soils and groundwater is discovered during the construction of the project, the <i>Unexpected Contamination Finds Procedure</i> will be followed.								
	(d) investigating, assessing and managing the potential for asbestos and other hazardous materials in the development area; and	Section 3.2.4 Section 3.4 Table 5.2 Appendix B	The EIS indicates that the risk of naturally occurring asbestos being present within project area is low. No asbestos containing material has been identified within the Stage 2 disturbance area. If any suspected asbestos and/or other hazardous material is discovered during the construction of the project, the <i>Unexpected Contamination Finds Procedure</i> will be followed.								
	(e) managing any unexpected and / or suspected contaminated land, asbestos and unexploded ordinance excavated, disturbed or otherwise discovered during construction.	Table 5.2 Section 3.2.4 Section 3.4 Appendix B	If any unexpected contaminated land, asbestos and unexploded ordinance is discovered during the construction of the project, the <i>Unexpected Contamination Finds Procedure</i> will be followed.								
C52	<p>Within 6 months of the completion of construction, upgrading or decommissioning, unless the Planning Secretary agrees otherwise, the Proponent must rehabilitate the areas where ancillary facilities, accommodation camps and earthwork material sites are located. This rehabilitation must comply with the objectives in Table 3.</p> <p>Table 3: Rehabilitation objectives</p> <table border="1"> <thead> <tr> <th>Features</th> <th>Objectives</th> </tr> </thead> <tbody> <tr> <td>Ancillary facilities</td> <td> <ul style="list-style-type: none"> Safe, stable and non-polluting Progressively rehabilitate the site as soon as possible following disturbance To be decommissioned and removed, unless the Planning Secretary agrees otherwise </td> </tr> <tr> <td>Land use</td> <td> <ul style="list-style-type: none"> Restore land capability to pre-existing use </td> </tr> <tr> <td>Community</td> <td> <ul style="list-style-type: none"> Ensure public safety at all times </td> </tr> </tbody> </table>	Features	Objectives	Ancillary facilities	<ul style="list-style-type: none"> Safe, stable and non-polluting Progressively rehabilitate the site as soon as possible following disturbance To be decommissioned and removed, unless the Planning Secretary agrees otherwise 	Land use	<ul style="list-style-type: none"> Restore land capability to pre-existing use 	Community	<ul style="list-style-type: none"> Ensure public safety at all times 	Table 5.2 – SW46	Rehabilitation to ancillary facilities and earthwork material sites will be undertaken progressively where feasible or within 6 months of the completion of the construction phase of the project with the aim to provide a safe, stabilised and non-polluting area.
Features	Objectives										
Ancillary facilities	<ul style="list-style-type: none"> Safe, stable and non-polluting Progressively rehabilitate the site as soon as possible following disturbance To be decommissioned and removed, unless the Planning Secretary agrees otherwise 										
Land use	<ul style="list-style-type: none"> Restore land capability to pre-existing use 										
Community	<ul style="list-style-type: none"> Ensure public safety at all times 										

2.3 Revised mitigation measures

The revised mitigation measures (RMMs) for the project are defined in Appendix B of the Submissions Report and Appendix C of the Amendment Report. The RMMs relevant to soil, water and contamination management for the project are presented in Table 2.2 below. The RMMs provided below are extracts from the Submissions Report. A cross reference is also included to indicate where the measure is addressed within this plan or other project management documents.

The management measures that will be implemented for the project are provided in Section 5 of this plan.

Table 2.2 - Revised mitigation measures relevant to soil, water and contamination

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
HF1	<p>Permanent operational infrastructure and landforms within the transmission line easement would be designed and implemented/formed to minimise any potential scour and erosion risks associated with surface water runoff.</p> <p>Drainage infrastructure at substations would be designed to not materially worsen flood impacts on property and infrastructure.</p>	All locations	Table 5.2 – SW8 and SW19	<p>Disturbed surfaces in the immediate vicinity of permanent infrastructure will be shaped to minimise scouring and erosion.</p> <p>The project will be designed and constructed to minimise impacts on surface water and localised flooding.</p>
HF2	<p>Detailed construction planning would consider flood risk at construction areas. This would include:</p> <ul style="list-style-type: none"> identifying measures that would be implemented to not worsen flood impacts downstream and on other property and infrastructure during construction up to and including the five per cent AEP design flood event, and confirming site layouts to avoid or minimise obstruction of overland flow paths and to limit the extent of flow diversion required. <p>Practicable measures identified to minimise potential flood risks at construction areas would be implemented.</p>	Transmission line and construction sites within flood prone land	<p>Section 3.3.4</p> <p>Section 4.2.1</p> <p>Section 5.7</p> <p>Table 5.2 – SW40</p> <p>Flood Response Plan (45860-HSE-PL-D-0123)</p>	<p>This revised mitigation measure is addressed through the Flood Response Plan provided in Appendix B of the Traffic and Transport Management Plan.</p> <p>The project will be designed and constructed to minimise impacts on surface water and localised flooding.</p>
HF3	<p>A detailed assessment would be undertaken to confirm that the bench level of the final design of the Dinawan 330kV Substation will be above the 100 year average recurrence interval (ARI) design and that a 200 year ARI design flood would not impede substation function. The assessment would consider spills/overflows from the detention basin on the irrigation channel to the east of the substation location and a potential failure of the basin embankment. The bench level and design of the substation would be adjusted to ensure compliance with Transgrid’s design standards.</p>	Dinawan 330kV Substation	Table 5.2 - SW2	<p>This mitigation measure will be addressed during detailed design and is included in Table 5.2.</p>
HF4	<p>A water quality monitoring program would be implemented to establish baseline water quality conditions at perennial watercourses that the transmission lines would cross, and</p>	Upstream and downstream of the crossing transmission	<p>Table 5.2 – SW16</p> <p>Section 6.3</p>	<p>A water quality monitoring program as described in Section 6.3 will be undertaken for</p>

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Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	<p>to facilitate monitoring of any changes in water quality that may be attributable to the proposal during construction. The frequency, location and duration of sampling would be detailed in the monitoring program, but would include:</p> <ul style="list-style-type: none"> at a minimum two monitoring locations (one located upstream and one downstream of the transmission line crossing) of the proposal on Colombo Creek downstream monitoring on the Murrumbidgee River with consideration of existing upstream WaterNSW gauges (including gauge 410130) monitoring for total dissolved solids, total suspended solids, total nitrogen and total phosphorus. <p>Sampling in the Murrumbidgee River and Colombo Creek would commence at least six months prior to the commencement of ground disturbing activities within the riparian zone at each respective location and then monthly during construction until completion of rehabilitation works in the respective areas.</p> <p>If there are exceedances of water quality criteria, then measures adopted as part of HF6 would be reviewed and revised.</p> <p>Monitoring would continue monthly during construction at each respective location until completion of rehabilitation works in the respective areas.</p>	<p>line crossing for Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek).</p>		<p>the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek) prior to construction at locations adjacent to these watercourses.</p> <p>Water quality monitoring will be undertaken monthly throughout construction until the completion of construction in areas adjacent to the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site.</p>
HF5	<p>Water supply options and management would occur in accordance with agreements between the construction contractor and relevant suppliers.</p>	All locations	<p>Section 2.4.2 Section 5.3 Table 5.2 – SW31</p>	<p>Discussions with councils and private water owners regarding water supply volumes and access options have commenced and will be ongoing throughout the project where required.</p>
HF6	<p>A Soil and Water CEMP sub-plan would be developed in consultation with a Certified Professional in Erosion and Sediment Control and implemented during construction. The plan would detail the processes, responsibilities and measures to manage potential soil and water quality impacts in accordance with the principles and requirements in:</p> <ul style="list-style-type: none"> Managing Urban Stormwater – Soils and Construction, Volume 1 (Landcom 2004), and Volumes 2A and 2C (DECCW, 2008), commonly referred to as the 'Blue Book' Best Practice Erosion and Sediment Control (IESCA – 2008) Transgrid's Environmental Guidance Notes 	All locations	<p>This Plan Section 1.6 Section 5 Section 5.8 Appendix A Appendix D</p>	<p>This SWMP has been developed in consultation with a CPESC and will be implemented during Stage 2 of construction.</p> <p>An Erosion and Sediment Control Strategy has been prepared in line with the erosion and sediment principles and requirements of the listed guidelines. Additionally, a <i>Dewatering Procedure</i> has been prepared and outlines the appropriate</p>

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Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	<ul style="list-style-type: none"> Guidelines for Controlled Activities on Waterfront Land (DPI, 2012a NRAR, 2018). <p>The Soil and Water CEMP Sub-plan would contain appropriate measures (as a minimum) to:</p> <ul style="list-style-type: none"> minimise the extent of ground disturbance divert surface water runoff around construction locations install erosion controls within construction locations collect and filter sediment from surface water runoff within construction locations manage stockpiles to minimise erosion and sediment transport manage saline and ASS (if present) minimise the potential of soil and water quality impacts during storage of project wastes and potentially polluting substances minimise the duration of soil exposure and progressively rehabilitate and stabilised disturbed areas manage unexpected finds of contaminated materials manage spills to reduce and address soil and water contamination 			<p>methods to discharge the water.</p> <p>The management measures which are to be implemented are provided in detail in Section 5 and Table 5.2.</p>
SCG1	Construction materials would be selected to withstand high saline soil and groundwater environment (where applicable).	Locations mapped as moderate to high-risk salinity.	Table 5.2 – SW2 and SW19	Interaction between construction materials and high saline soil and groundwater environment will be considered during detailed design, where applicable.
SCG2	<p>Disturbance to areas of medium risk of contamination would be avoided or minimised where practicable during construction. Disturbance to these areas refers to intrusive work, such as excavation. Where disturbance cannot be avoided, potential impacts would be minimised during finalisation of the design and construction methodology where practicable.</p> <p>Areas of medium risk of contamination that would be disturbed by construction activities would be further investigated including completion of a site inspection. Based on the outcome of the site inspection, where considered to be required, a Phase 2 investigation would be completed in accordance with National Environmental Protection Measure 2013. Additional mitigation measures identified through further investigation would also be implemented.</p>	Cleared agricultural land, potential quarry and PFAS sites.	Table 5.2 – SW13, SW14 and SW15 Table 3.6	Disturbance to areas of potential contamination identified in Table 3.6 have been assigned a preliminary risk evaluation of low and medium and will be avoided or minimised where practicable during construction.

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Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
SCG3	<p>Direct impacts to registered bores would be avoided, where possible. If the bores are:</p> <ul style="list-style-type: none"> not required to be impacted during construction, then they would be clearly demarcated with a 5 by 5 metre construction exclusion zone are to be impacted during construction or unavoidably damaged, then make good provisions would apply in consultation with the registered bore owner. 	Registered bores	Table 3.5 Table 5.2 – SW36 and SW37	<p>Direct impacts to registered bores will be avoided, where possible.</p> <p>Repair or replacement of any impacted bores will be undertaken in consultation with the registered owner should the bore need to be removed or is unavoidably damaged.</p>
SCG4	<p>Prior to carrying out any blasting, a desktop assessment would be carried out to identify any high potential GDEs and registered bores in the vicinity that might be affected. Potential impacts to the GDEs and bores would be assessed using the latest available location data. The assessment would:</p> <ul style="list-style-type: none"> assess any high potential GDEs and registered bores within 50 metres of a blasting site against the minimum impact criteria of the Aquifer Interference Policy (2012) identify any necessary measures to monitor blasting and mitigate any potential significant impacts. The measures would be implemented prior to and during the blasting (as relevant). <p>Where the assessment identifies potentially significant impacts to high potential GDEs and bores due to blasting that cannot be mitigated, alternative lesser impact construction methodologies or engineering solutions would be investigated and implemented.</p>	Finalised blasting locations if within 50 metres of high potential GDEs	Section 3.3.6 Table 5.2 – SW38 and SW39	<p>No registered bores are located within 50 metres of potential blasting areas and subsequently the risk to these receivers is considered low.</p> <p>Management measures are included in Table 5.2.</p>
SCG5	Construction materials, spoil and waste would be suitably stored to minimise the potential for soil, groundwater or water quality impacts.	All locations	Section 5.2 Table 5.2 – SW21 and SW22	Long term storage of construction material particularly spoil and waste will be appropriately stored with the aim to minimise the potential for soil, groundwater or quality impacts.
SCG6	Prior to ground disturbance in areas of potential acid sulfate soils (ASS) occurrence (e.g. in low lying areas surrounding former or current lakes and river beds), testing would be carried out to determine the presence of actual and/or potential ASS. If ASS are encountered, they would be managed in accordance with the <i>Acid Sulfate Soil Manual</i> (ASSMAC, 1998) and Transgrid's HSE Guideline.	All areas identified as potential ASS.	Table 5.2 – SW10	Prior to ground disturbance in areas of known acid sulfate soil occurrence known, on-site field testing will be carried out to determine the presence of actual and/or potential acid sulfate soils.
SCG7	Prior to ground disturbance, a visual inspection would be undertaken for the presence of saline soils. Areas of known or suspected salinity would be subject to further testing as required.	All locations	Table 5.2 – SW12	No soil salinity data for the Stage 2 disturbance area was available at the time of writing this plan.

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Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	<p>If salinity is confirmed, excavated soils would be managed in accordance with <i>Book 4 Dryland Salinity: Productive use of Saline Land and Water</i> (NSW Department of Environment and Climate Change, 2008b) and the <i>Salinity Training Manual</i> (DPI, 2014) to manage salinity impacts.</p> <p>Erosion controls would be implemented in accordance with <i>The Blue Book</i> (Landcom, 2004).</p>			<p>A visual soil salinity inspection will be undertaken prior to ground disturbance.</p> <p>For areas of confirmed salinity, excavated soils will be managed in accordance with <i>Book 4 Dryland Salinity: Productive use of Saline Land and Water</i> (NSW DECC 2008) and the <i>Salinity Training Manual</i> (DPI, 2004).</p>
SCG8	<p>All chemicals, fuels or other hazardous substances would be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of any bunded area shall be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s shall be shown on the site plans.</p>	All locations (during construction)	Table 5.2 – SW22 and SW23	<p>All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines.</p> <p>Locations of bunded areas will be shown on the ESCP and relevant PESCPs.</p>
SCG9	<p>The discovery of previously unidentified contaminated material would be managed in accordance with an unexpected contamination finds procedure.</p>	All locations	Table 5.2 – SW13 Appendix B	<p>If any unexpected suspected contaminated land, asbestos and unexploded ordnance is discovered, the <i>Unexpected Contamination Finds Procedure</i> will be followed.</p>
SCG10	<p>A site-specific risk assessment would occur for locations where there is a risk of encountering Unexploded Ordnance (UXO). The risk assessment would be carried out prior to any activities that could interact with UXO. This would include field verification to validate the historical assessment of UXO contamination and identify appropriate mitigation practices. The risk assessment would occur with input from an appropriate UXO specialist and would identify if and when an explosives engineer is required during site activities.</p> <p>An unexpected finds procedure would be implemented. The procedure would specify the actions that site personnel must take to minimise the risk to and from any UXO encountered.</p> <p>The management actions identified in the risk assessment would be implemented prior to and during all relevant site activities. All personnel conducting intrusive works within an identified UXO area would be provided with appropriate safety and awareness briefing(s) prior to the participating in the intrusive works.</p>	Urana UXO area Oak Plains UXO area	Section 3.4.2 Table 5.2 – SW28 and SW29	<p>A site-specific risk assessment will occur for locations where there is a risk of encountering UXO.</p>

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Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
SCG11	If groundwater is encountered during piling or excavations, and dewatering is required, any dewatering volumes would be recorded by the contractor and reported annually for each groundwater source by the water calendar year (July to June). Records would be made available to the relevant authority – such as DPIE or DPI – upon request.	All locations	Table 5.2 – SW34 Appendix D	Volumes of water that are dewatered will be recorded in the Dewatering Permit (45860-HSE-FO-G-1006). Records will be provided to the relevant authority upon request.
HR11	All chemicals, fuels or other hazardous substances would be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of any bunded area shall be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s shall be shown on the site plans.	All locations	Table 5.2 – SW22, SW23 and SW24	All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines.
HR14	Appropriate spill containment equipment would be provided and located at strategic, accessible locations	All locations	Table 5.2 – SW27	Spill kits will be provided in strategic and accessible locations relevant work areas and refuelling areas. If spills occur during construction of the project, the <i>Spill Response Procedure</i> will be followed.
LP2	Transmission line towers structures (and associated permanent structures or construction compounds) would be located where possible to avoid or minimise impacts, or as agreed with the affected landholder, on: <ul style="list-style-type: none"> • cropping and irrigated horticultural land • areas used for set up and pack up of agricultural equipment, entry points and turning areas • drainage catchments for farm dams • locations of high biosecurity risk. 	All locations	Table 5.2 – SW20	Transmission line structure foundations and ancillary construction sites will consider the location sites of known farm dams (amongst other landowner issues), where practicable, to avoid disturbance.
LP5	Disturbed areas would be stabilised and appropriately rehabilitated (i.e. as close as possible back to Pre-impacted conditions) as soon as feasible and reasonable following the completion of construction at each location. This would be carried out in consultation with the relevant landowner.	All locations	Table 5.2 – SW46	Areas disturbed by construction will be stabilised and appropriately rehabilitated to a similar condition prior to construction, where feasible and reasonable.
AH9	Construction planning and management would make sure that indirect impacts that could potentially result in a loss of known heritage values due to harm would not occur. Indirect harm could result from physical disturbance from surface water drainage or construction workers driving over sites that are to be protected.	All locations	Table 5.2 – SW7	PESCPs will consider the location of heritage sites when determining appropriate controls.
CI2	Consultation with relevant local councils and other water supply operators would	All locations	Section 2.4.2	Discussions with councils and private

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Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	occur in relation to the proposal's water supply strategy to ensure there is effective management of these demands during construction and operation.		Section 5.3 Table 5.2 – SW31	water owners regarding water supply volumes and access options have commenced and will be ongoing throughout the project where required.

2.4 Licences and Permits

2.4.1 Environment protection licence

Subject to the outcomes of geotechnical investigations, crushing and screening may be required. If necessary, an Environment Protection Licence (EPL) will be obtained in accordance with POEO Act for the scheduled activity of crushing and screening. The EPL will detail conditions which must be complied with when undertaking the crushing and screening activities.

2.4.2 Water licensing and approvals

Water use approval

Under Section 89 of the WM Act, water use approval grants the right for its holder to use water for a particular purpose at a particular location. However, under section 5.23 of the EP&A Act, the project is exempt from requiring a water use approval.

Water access licence

Section 60A of the WM Act requires that a water access licence (WAL) to be obtained in order to extract water from a water source, such as a river, lake or surface water runoff, or an aquifer, in water-sharing plan areas. It is an offence to take water from a water source without a water access licence.

The project will purchase water from the existing water market within the region or from local council facilities under existing WAL arrangements. Water will be purchased under standard supply/purchase agreement with various water suppliers/landholders who hold existing WAL agreements. As part of the ongoing discussions with potential water suppliers, water supply locations would be confirmed during final negotiations with the water supplier. Ongoing consultation with water suppliers may also identify other water sources that may be used for the construction of the proposal which would be secured under standard supply/purchase agreement from existing facilities. Proposed water supply points are listed in Section 5.3.

As part of the ongoing discussions, the project will ensure that the existing WAL arrangements have adequate water entitlement and allocation such that there is sufficient water for the applicable stages of construction. Where necessary the amount of water used will be allocated depending on the project activity at the time, or additional water supply will be sought in consultation with Transgrid.

SecureEnergy will request for a copy of the existing WAL agreements held by the water suppliers/landholders. The details of the licences will be checked to confirm the water to be purchased is regulated and eligible for project use. Copies of licences will be saved on to the project document management and storage system.

Water management works approval

As all water will be purchased under existing licence agreements with the various water suppliers/landholders, water will be extracted from existing water supply points. The water supply points will be identified once ongoing discussion with potential water suppliers are finalised. It is anticipated that a series of existing water supply points will provide connection points to existing water supply pipelines. Proposed water supply points are listed in Table 5.1.

No new extraction infrastructure is proposed for the project. However installation of connection points such as piped connections or standpipes to the existing water supply points are required for certain water supply points. Further details on installation or connection to water supply points are provided in Section 5.3.

It should also be noted that under section 5.23 of the EP&A Act the project is exempt from requiring a water management works approval.

2.4.3 Section 68 approval

Section 68 of the *Local Government Act 1993* specifies a range of activities which require approvals to be obtained from the relevant council. This includes the operation of an on-site sewage system. The project will obtain an approval under section 68 of the *Local Government Act 1993* for the operation of the wastewater treatment plants where required.

2.5 Guidelines

The guidelines, specifications and policy documents referenced in this plan includes:

- *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 4th Edition March 2004) and Volumes 2A, 2C and 2D Main Roads Construction (NSW Department of Environment, Climate Change and Water 2008) – commonly referred to as the ‘Blue Book’;
- *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003);
- *Policy and Guidelines for Fish Habitat and Conservation and Management* (NSW Fisheries, 2013);
- Best Practice Erosion and Sediment Control (IESCA, 2008);
- TransGrid’s Environmental Guidance Notes; and
- Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018).

3 Existing environment

This section summaries the existing environmental setting relating to aspects of soil, water and existing contamination within and adjacent to the project. The information below is from Chapter 16 (Hydrology, flooding and water quality) and 21 (Soils, contamination and groundwater) of the EIS, Technical Paper 8 (Hydrology, flooding and water quality), Technical Paper 14 (Phase 1 contamination assessment), Technical Paper 15 (Groundwater impact assessment) and the Amendment Report.

3.1 Topography

At a macro level, the terrain of the project corridor is predominately flat with undulating plans as the topography steadily rises to the east. The topography ranges from approximately 50m Australian Height Datum (AHD) at the western end of the alignment to around 250m at the eastern extent of the alignment. Localised topographic highs of up to about 380 metres AHD occur approximately 10 kilometres west of the Wagga Wagga substation.

3.2 Soils

3.2.1 Geology and soils

The geology underlying the project area includes the Woorinen Formation, Shepparton Formation, Mount Flankey Granite and Wagga Group. Around 70% of the project corridor is situated on aeolian sediments of the Shepparton Formation. These comprise unconsolidated to poorly consolidated mottled variegated clay-silty clays, coarse to fine sand and gravel and are known to form extensive flat alluvial floodplains.

Published soil mapping along the project corridor indicates that the regional soil types are expected to be predominantly transported Quaternary-aged sediments deposited in alluvial flood plains, and dune and are typically comprised of sand and clay or a mixture of the two. While primarily vertosols soil is found along the main watercourses, sand and alluvial plains are in proximity to the Murrumbidgee, Darling, and Darling – Anabranche Rivers. The predominant soil types are typically sand and clay or a mixture of the two.

3.2.2 Acid sulfate soils

Acid sulfate soils (ASS) and potential acid sulfate soils (PASS) are naturally occurring soils containing iron sulfides. The EIS concluded there is an extremely low probability of acid sulfate soils occurring across the project corridor, with the potential exception of low lying areas surrounding lakes and river beds, which are mapped as high probability of containing ASS. Refer to Appendix E1 for maps depicting ASS potential.

Hence, ASS or PASS impacts are generally not expected during Stage 2 of the project except for low lying areas surrounding lakes and river beds.

3.2.3 Soil salinity

Dryland salinity is the accumulation of salts in the soil surface and groundwater in non-irrigated areas. The majority of the project corridor is mapped as having low salinity potential, with no mapped areas of high salinity soils.

Technical Paper 14 (Phase 1 contamination assessment) indicates low salinity potential based on broad scale state mapping. However, soil conductivity testing undertaken indicated some variable salinity conditions across the project area with some soil results indicating moderately saline and very saline soil conditions. Furthermore, an assessment of soil aggressivity with reference to Piled Footings Design and Installation – AS2159-2009 (Standards Australia, 2009) indicated that the soils are highly alkaline, with high levels of sodicity.

3.2.4 Naturally occurring asbestos

Naturally occurring asbestos refers to the mineral component found as a natural component of soils or rocks. The EIS concluded there are no mapped areas indicating naturally occurring asbestos minerals to be present within the project area. Therefore, no naturally occurring asbestos impacts are expected during Stage 2 of the project.

3.3 Water

3.3.1 Rainfall

The region has a semi-arid climate with hot summers and cool winters. The average temperature range is around 16 to 33°C in summer and around 4 to 15°C in winter. The average annual rainfall across the project corridor varies, however generally the average rainfall values are higher at the eastern end compared to the western end.

The closest weather station to the western end of the project corridor is Irymple (station number: 076015), which records an average annual rainfall of 271mm (1908–2020). Rainfall is typically fairly evenly spread across the year, with higher rainfall values from November to April.

The Urana Post Office weather station (station number: 074110) located along the eastern half of the project corridor recorded an annual average rainfall of 442.2mm (1871–2020). The average monthly rainfall is slightly higher in May and June.

The Wagga Wagga Gurwood Street station (station number: 074127) located on the eastern end of the project corridor recorded an average annual rainfall of 528.1mm (2001 to 2020). While Wagga Wagga AMO station (station number: 072150) recorded an annual average rainfall of 568mm (1941 to 2020). Rainfall is fairly evenly spread across the year, with March typically recording higher values.

Table 3.1 - Summary of climate statistics from closest weather stations (Source: BOM)

Month	Wentworth (SN: 047053)*			Urana (SN: 074110)			Wagga Wagga (SN: 074127)		
	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)
Jan	32.9	17.1	21.2	32.9	16.3	32.7	31.9	16.5	40.9
Feb	32.3	16.8	21.4	32.4	16.3	33.8	30.9	16.4	39.9
Mar	29.2	14.5	19.5	29.2	14.0	35.5	27.7	13.5	46.0
Apr	24.0	10.6	18.6	23.6	9.4	32.7	22.6	9.2	40.3
May	19.5	7.9	27.5	18.7	6.1	41.0	17.4	5.9	50.7
Jun	16.1	5.8	26.1	14.8	3.6	44.9	13.9	3.7	50.7
Jul	15.6	4.8	23.7	14.2	3.2	38.6	12.8	2.8	53.5
Aug	17.6	6.0	25.7	16.0	4.1	39.5	14.5	3.5	50.8
Sep	21.1	8.1	26.6	19.8	6.3	38.2	17.7	5.1	48.9
Oct	24.5	10.8	27.2	23.5	8.8	40.8	21.7	7.8	55.7
Nov	28.3	13.4	24.9	27.7	11.8	33.9	25.9	11.0	48.1
Dec	31.1	15.7	22.0	31.1	14.6	32.6	29.6	13.9	45.7
Annual average	24.3	11.0	284.9	23.7	9.5	442.1	22.2	9.1	571.4

* Irymple data unavailable

Due to the low average rainfall values and relatively low gradient of the topography, limited concentrated surface water run-off is expected to be generated from the catchment, particularly at the western end of the project corridor.

3.3.2 Waterbodies and watercourses

The project is located in the Murray-Darling Basin. There are a number of sub-catchments within the Murray-Darling Basin along the project corridor from west to east including the Lower Darling, the Murrumbidgee, Peacock Creek and the Mid-Murray catchments. The project also intersects numerous waterbodies and watercourses (refer to Appendix E2 for maps).

The Lower Darling catchment is around three per cent of the Murray-Darling Basin, and the major river systems, the Darling River and the Darling Anabranche, are located outside the project area. Box Creek, a non-perennial river within this catchment, intersects the project north of Balranald.

The majority of the study area is located in the Murrumbidgee catchment. This catchment is approximately 84,000 square kilometres, or around eight per cent of the Murray-Darling Basin. The Murrumbidgee River flows west through the project area and has its confluence with the Murray River near Balranald. The Yanco Creek system, located north of Urana, is an anabranch complex which links the Murrumbidgee River to the Edward River through interconnected watercourses including Yanco Creek, Colombo Creek, Billabong Creek and The Forest Creek. Before river regulation was introduced, Yanco Creek only connected with the Murrumbidgee River during floods, however water is now diverted from the Murrumbidgee into Yanco Creek at the Yanco Weir and these waterways are now permanently flowing streams.

The upper reaches of the Mid-Murray catchment are located in the project area, located generally between Kidman Way and County Boundary Road. This catchment is approximately three per cent of the Murray-Darling Basin, spanning the Victorian border, and includes the Murray and Edwards Rivers.

Numerous natural watercourses and man-made waterways intersect the project area, including unnamed drainage lines, dry rivers, perennial rivers, canals and drains. The Coleambally Irrigation Area is an approximate 457,000 hectare area in the Murrumbidgee which includes 516 kilometres of supply channels and 717 drainage channels. These irrigation channels supply over 500 licenced agricultural producers generally from mid-August to mid-May.

Ten lakes are also located within the project area. Of particular significance is Lake Urana and Lake Albert. Lake Urana is a large shallow intermittent salt lake in a depression at the end of the drainage basin of Billabong, Coonong and Urangeline creeks. The lake fills every ten to 20 years and retains water for several years. Lake Albert is a 125-hectare artificial lake in the suburb of Lake Albert in Wagga Wagga. The lake is used for recreational purposes including water sports, boating and fishing. Table 4-1 of Technical Paper 8 (Hydrology and flooding assessment) details the Strahler stream order of the waterways crossed by the project or located near the project sites.

3.3.3 Water quality

The existing water quality for the Murray-Darling Basin has been monitored and assessed by a series of external management plans and other documents for a range of parameters. Available catchment water quality data identified water quality within these watercourses as varied. The State of the Catchment (OEH, 2010), and National Water Quality Assessment (Sinclair Knight Merz, 2011) identified that levels of phosphorus and turbidity often exceeded the trigger values provided in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) and the ANZG, an updated version of the previous guidelines (ANZG, 2018).

Generally, water quality on the major rivers of the Murrumbidgee and Murray Rivers is better than in associated tributaries. Section 16.3.5 of the EIS states that the Murrumbidgee and Murray Rivers commonly achieve the existing water quality targets provided in the Murray Darling Basin Plan 2012, noted in Table 3.2, both within and downstream of project works. Where exceedances have been identified, these have been in relation to nutrients, particularly phosphorus and turbidity in tributaries to the major rivers.

Table 3.2 - Basin Plan 2012 water quality targets (Table 16-3 of the EIS)

Water quality zone	Turbidity (NTU) (annual median)	pH	Total nitrogen (ug/L)	Total phosphorus (ug/L)	Dissolved oxygen (mg/L; or % saturation) (Annual median)	Pesticides, heavy metals and other toxic contaminants ¹
Darling Valley, Middle lower (Dml)	50	6.5-8	500	50	85-110%	The protection of 95% of species
Lower Central Murray (cMI)	35	6.5-8	700	80	>8 mg/L or 90-110%	The protection of 95% of species
Castlereagh, Lachlan, Macquarie and Murrumbidgee (A3)	35	6.5-8	600	50	>7 mg/L or 60-110%	The protection of 95% of species
Upper and Middle Central Murray (cMum)	15	6.5-7.5	500	40	>7.7 mg/L or 90-110%	The protection of 95% of species
Lowland Castlereagh, Lachlan, Macquarie and Murrumbidgee (B3)	20	7.0-8.0	600	35	>8 mg/L or 90-110%	The protection of 95% of species

¹ Refer to values in table 3.4.1 of the ANZECC Guidelines (Must not be exceeded)

Additionally the National Water Quality Assessment 2011 reported generally good values for water quality indicators of turbidity, salinity and pH in the Murrumbidgee catchment but not for nutrients.

The 2018 State of the Environment Report scored an overall rating of the Murray River as 'good'. The same report recorded varied values in the Murrumbidgee catchment, however monitoring site values on the Murrumbidgee River were generally 'good' to 'fair' for nutrient values, whereas monitoring values on tributaries to the Murrumbidgee such as Yanco Creek were generally 'poor' to 'very poor'.

Given the high proportion of agricultural land within the project corridor, it is likely that some waterways near the project would not achieve the water quality criteria as laid out in the ANZG 2018 and Murray Darling Basin Plan 2012, particularly for nutrients. The sources of the high nutrient levels are likely to be diffuse and related to current and historical agricultural activities within the project area.

It should also be noted that no background water quality monitoring was carried out as part of the EIS assessment. As such, the EIS has not identified the water quality levels specifically within the disturbance area for Stage 2 of the project.

In accordance with RMM HF4, a water quality monitoring program would be implemented to establish baseline water quality conditions at perennial watercourses that the transmission lines would cross.

3.3.4 Flood prone land

A high level flood risk assessment is detailed in Section 4.4 of Technical paper 8 (Hydrology, flooding and water quality), which found flood affected features are generally near existing waterways. Based on the risk assessment, there are large floodplains around Box Creek, the Murrumbidgee River, Condoulpe Creek, Yellow Clay Creek, Coonong Creek, Bullenbong Creek and dispersed flooding at the very eastern end of the project around Sawpit Gully, Crooked Creek and Boiling Down Creek. Depths in the main river channels are estimated to be up to six metres and up to two metres across the floodplains across the project area (Beca 2020). The velocities within watercourses range from 0.5 metres per second to up to three metres per second. The estimated flood depth and extent for the 1% AEP event are provided in the maps included as Figure 4-8 of Technical paper 8.

The floodplains across the project area contain numerous flood affected receivers, including industrial and community facilities and residential dwellings. No floor levels for these structures are available to determine the actual flood affectation of these structures. Numerous flood affected roads are also located across the project alignment, including the Sturt Highway near the Box Creek and Murrumbidgee River crossing, Balranald Road near Condoulpe Creek, Boorooban-Tchelery Road

near the Forest Creek, West Burrabogie Road near Curtains Creek, the Newell Highway near Yanco Creek, Federation Highway and a number of unnamed access roads, near Coonong Creek and Lake Urana, County-Boundary Road, Lockhart Road, Bullenbong-Rock Road, Lockhart-The Rock Road and Boyds Road near Bullenbong Creek and Burkes Creek.

The Murrumbidgee River near Wagga Wagga flooded most recently in 2012 reaching a peak of 10.56 metres. The Wagga Wagga Flood Plan (SES, 2006) described flooding in the Wagga Wagga area and notes that storage dams and flood harvesting infrastructure located in the upper Murrumbidgee valley can affect the severity of flooding on the Murrumbidgee River. These structures can reduce the peak flood discharge, that may result in lower peak flood heights but longer flood durations. This may be done by deliberately storing the flood peak for later release, or by pre-releasing water to create extra space in the dam ahead of an approaching flood.

More recently, flooding of the Murrumbidgee River near Wagga Wagga occurred in November 2022, following widespread heavy rain throughout central-western NSW. The Murrumbidgee River peaked at 9.72 metres at Wagga Wagga, cutting off areas including North Wagga and Gumly Gumly. The Murrumbidgee River borders the northern area of Wagga Wagga.

The Lockhart Floodplain Risk Management Study (WMA Water, 2014) showed that much of the town of Lockhart would become inundated during a 1% Annual Exceedance Probability (AEP) flood event due to flooding along Brookong Creek. The plan notes that flooding may occur at any time of year, but is most likely during winter and spring. Some flash flooding may also occur in summer due to high-intensity thunderstorms.

The historical flood patterns of the whole project area are highly variable due to the presence of large floodplains, semi-arid climate, sporadic rainfall, drought events and the general flat topography. Climate change predictions forecast increases in mean annual rainfall, potentially resulting in more extreme flood events.

Most construction activities occur in areas not prone to flooding and as such would not alter the flood storage capacity, flow or characteristics of the local area. Technical paper 8 determined that during construction, any impacts to flood behaviour are likely to be temporary, localised and insignificant.

3.3.5 Groundwater

Groundwater sources within the project corridor are regulated by three water sharing plans, including:

- Murrumbidgee Alluvial Groundwater Sources 2020;
- NSW Murray-Darling Basin Porous Rock Groundwater Sources 2020; and
- NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2020.

Groundwater regulated by the NSW Murray Darling Basin Porous Rock Groundwater Sources 2020 is located at significant depth, is not anticipated to be intersected by the project and therefore was not considered further in the EIS.

Local groundwater levels vary due to influences from surface water features, climatic conditions and localised geological controls, such as topography and the presence of perched shallow aquitards.

Geotechnical investigations completed as part of the EIS identified water levels ranging from 4.5m to 18.1m below ground level. This water level is inferred to be associated with upper aquifers that are either unconfined perched aquifers or unconfined alluvial aquifers if within a few kilometres of major surface waterbodies. Hydrostratigraphic units (HSUs) have been simplified and adopted in the groundwater assessments undertaken in Technical paper 15 and correspond with groundwater sources listed within the water sharing plans. Hydrostratigraphic units (HSUs) are defined as geological material of similar hydrogeological properties, often with similar groundwater storage and transmissive properties. The HSUs identified across the project corridor are detailed in Table 3.3.

Table 3.3 - HSUs and their thickness, depths and characteristics

HSU	Aquifer/ Depth	Characteristics
Murrumbidgee Alluvium	Shallow 40-60m	Recharge occurs through <ul style="list-style-type: none"> leakage from the Murrumbidgee River and its various tributaries and anabranches; infiltration from rainfall; and irrigation activity. Groundwater flow is generally east to west.
	Deep 40-400m	Recharge to the system is primarily through connectivity between groundwater sources and leakage from the overlying shallow aquifer. Groundwater flow is generally east to west. Bore yields vary but have been reported to be as high as 350 litres per second (L/s).
Porous rock	Shallow 10-90m	Semi-confined aquifer where groundwater flow is governed by both primary porosity (movement of water around rock grains) and secondary porosity (water movement through fractures). Groundwater flow is strongly influenced by the degree of weathering of the rock mass. Groundwater flow is generally east to west Recharge to the system is primarily through infiltration from rainfall, runoff, surface water within outcropping areas and groundwater flow from connected groundwater sources. Bore yields are highly variable, ranging between 0.5–100 L/s, but commonly greater than 10 L/s.
	Deep 10-330m	Recharge to the system is primarily through connectivity between groundwater sources and leakage from the overlying shallow aquifer. Bore yields typically range between 0.5–50 L/s, but can occasionally be greater than 50 L/s. Groundwater flow is generally east to west but influenced by the underlying Lachlan fractured rock topography.
Lachlan fractured rock	Shallow 0-30m	Groundwater is stored and moves through fractures, joints, bedding plains, faults and cavities within the rock mass or weathered zone (for the shallow aquifer).
	Deep 100+m	Hydraulic connectivity between surface water features, other overlying aquifers and between the shallow and deep fractured rock aquifers is limited to the degree of fracturing extending between the aquifers or the bed of the surface water features. The fractured rock aquifers are considered to generally contain low hydraulic connection with overlying aquifers and surface water features throughout the groundwater study area

Overall, there is limited groundwater connectivity to surface water features within the project area, and the connectivity is predominately limited to recharge via leakage from overlying surface water features. Surface water features (streams, rivers, creeks and lakes) are generally ephemeral, with the main exceptions being the Murrumbidgee River and Colombo Creek, and receive the majority of available water from upstream, particularly within the Murrumbidgee Alluvium and Porous rock hydrostratigraphic units (HSUs).

On the eastern portion of the outcropping rock, that forms part of the Lake Albert catchment area, groundwater within the shallow Lachlan fractured rock HSU aquifer is anticipated to have limited hydraulic connectivity to Lake Albert. It is estimated that Lake Albert is primarily recharged from surface water flows of Crooked Creek and Stringybark Creek. Limited inflows from groundwater may occur when the lake level is low.

No potentially contaminated groundwater was identified within the project area as part of the EIS, however no groundwater quality samples were collected during geotechnical investigations. The salinity of the aquifers across the project corridor was assessed in Technical paper 15, noting that it varied depending on the hydrogeological unit the aquifer is contained within and also varies both laterally and vertically with the aquifer. In general salinity levels are as follows:

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- unconfined aquifers within 500 metres from fresh surface water – water quality ranges from fresh to brackish in salinity (up to 3,000 microsiemens per centimetre);
- perched aquifers – salinity levels vary, but are generally expected to be high; and
- unconfined aquifers – generally saline to hypersaline with salinity levels between 30,000 and 150,000 microsiemens per centimetre.

Groundwater-dependent ecosystems (GDEs) are those that need access to groundwater to meet all or some of the water requirements necessary to maintain their plant and animal communities and ecological processes. A review of the high priority GDEs are summarised in Table 3.4 below.

Table 3.4 - GDEs with high potential for groundwater interaction

GDE Type	Name	Hydrostratigraphic units (HSU)
Aquatic	Coloboralli Creek	Lachlan fractured rock
Aquatic	Stringybark Creek	Lachlan fractured rock
Aquatic	Boiling Down Creek	Lachlan fractured rock
Aquatic	Crooked Creek	Lachlan fractured rock
Aquatic	Sandy Creek	Lachlan fractured rock
Aquatic	Lake Cullivel	Lachlan fractured rock
Aquatic	Wetlands	Lachlan fractured rock and Murrumbidgee Alluvium
Terrestrial	River Red Gum	Lachlan fractured rock
Terrestrial	Red River Gum and Warrego Grass	Murrumbidgee Alluvium
Terrestrial	Red River Gum and Wallaby Grass	Murrumbidgee Alluvium
Terrestrial	Red River Gum and Lignum	Murrumbidgee Alluvium
Terrestrial	Red River Gum and Black Box	Murrumbidgee Alluvium
Terrestrial	Lignum shrubland	Murrumbidgee Alluvium
Terrestrial	Black box	Murrumbidgee Alluvium
Terrestrial	Canegrass Swamp	Porous rock
Terrestrial	Dillon bush (Nitre bush)	Porous rock
Terrestrial	Nitre Goosefoot shrubland	Porous rock

3.3.6 Registered groundwater bores

Technical Paper 15 (Groundwater impact assessment) identified 243 registered bores in the vicinity of the project of which 11 registered bores are located within or near construction activities and are at an increased risk of being accidentally damaged during construction. These are detailed in Table 3.5. These registered groundwater bores will be subject to environmental management measures detailed in Table 5-1.

Table 3.5 - Registered groundwater bores

Bore ID	Hydrostratigraphic units (HSU)	Latitude	Longitude	Status	Purpose	Bore depth (mbtoc)
GW415977	Lachlan fractured rock	-35.204749	147.392907	Functioning	Monitoring	25.0
GW415978	Lachlan fractured rock	-35.204749	147.392907	Functioning	Monitoring	10.6
GW415979	Lachlan fractured rock	-35.204343	147.39006	Functioning	Monitoring	19.0
GW415980	Lachlan fractured rock	-35.202956	147.381078	Functioning	Monitoring	7.0
GW415982	Lachlan fractured rock	-35.202938	147.3811	Functioning	Monitoring	22.0

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Bore ID	Hydrostratigraphic units (HSU)	Latitude	Longitude	Status	Purpose	Bore depth (mbtoc)
GW049852	Murrumbidgee Alluvium	-35.218185	146.33014	Proposed	Exploration	152.4
GW084098	Murrumbidgee Alluvium	-35.131281	146.126213	Functioning	Monitoring	7.0
GW012872	Murrumbidgee Alluvium	-35.093188	145.889591	Functioning	Monitoring	29.9
GW403762	Murrumbidgee Alluvium	-34.8175	144.932271	Unknown	Household supply	76.0
GW032607	Murrumbidgee Alluvium	-34.883479	144.519611	In use	Stock and domestic	51.8
GW087095	Porous rock	-34.508766	142.765505	Unknown	Monitoring	23.0

Note: mbotc – meter below top of casing.

3.4 Contamination

3.4.1 Site history

A desktop assessment was undertaken as part of the EIS. The majority of the land within the project corridor is agricultural land with no significant development and sparsely intersected by infrastructure such as roads and electrical easements.

A desktop contamination assessment was undertaken as part of the EIS, identified one site regulated under the CLM Act, and a number of sites of potential contamination within the contamination study area. This site is a former dry cleaning facility located around 1.5 kilometres south east of the proposed water fill point at Narrung Sewage Treatment Works, Wagga Wagga.

A review of previous investigations was completed as part of the EIS for the study area nominated in the EIS, and this indicated that there was no evidence of any areas with significant contamination. However, the EIS reviewed previous investigations and historical aerial photographs, and identified several areas within the project corridor where there is the potential to encounter contamination during construction. These sites have all been assigned a preliminary risk evaluation as low. Construction activities potentially impacting these low risk sites includes vegetation removal, excavation of soils and piling activities. These areas are outlined in Table 3.6 and presented in Appendix E3.

Table 3.6 - Area of potential contamination

Potential areas of contamination	Construction activity	Sensitive receiver	Likelihood	Preliminary risk evaluation
Farm dams	Excavation activities	<ul style="list-style-type: none"> Adjacent residents (including locations where the water is applied) Terrestrial flora/fauna Surface water and groundwater receptors 	Medium potential for contaminant build-up within the dam sediments; low likelihood that dam sediments would need to be disturbed during construction. Farm dams present within the contamination study are not anticipated to be impacted and can be avoided during finalisation of the proposal's design and construction.	Low
Farm dams	Pile construction and de-watering	<ul style="list-style-type: none"> Adjacent residents (including locations 	Low likelihood that dam water would be disturbed during construction. Farm dams	Low

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Potential areas of contamination	Construction activity	Sensitive receiver	Likelihood	Preliminary risk evaluation
		where the water is applied) <ul style="list-style-type: none"> • Terrestrial flora/fauna • Surface water and groundwater receptors 	present within the contamination study are not anticipated to be impacted and can be avoided during finalisation of the proposal's design and construction.	
Cleared agricultural land	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	<ul style="list-style-type: none"> • Current agricultural site users • Terrestrial flora/fauna • Surface water features, including farm dams 	Medium potential for agricultural contaminants to be present.	Medium
Cleared agricultural land	Pile construction and de-watering	<ul style="list-style-type: none"> • Current agricultural site users • Terrestrial flora/fauna • Surface water features, including farm dams 	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination.	Low
Dinawan and Wagga Wagga substations	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	<ul style="list-style-type: none"> • Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water 	Low potential for contaminants to be present, however works have the potential to intercept/ mobilise any existing contamination at the site.	Low
Dinawan and Wagga Wagga substations	Pile construction and de-watering	<ul style="list-style-type: none"> • Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water 	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination	Low
Main transmission line easement	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	<ul style="list-style-type: none"> • Terrestrial flora/fauna • Surface water features 	Low potential for contaminants to be present.	Low
Main transmission line easement	Pile construction and de-watering	<ul style="list-style-type: none"> • Terrestrial flora/fauna • Surface water features 	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination	Low
Potential quarries and potential scaring/ earthworks sites	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	<ul style="list-style-type: none"> • Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water 	Low potential for widespread contaminants to be present.	Low
Potential quarries and potential scaring/ earthworks sites	Pile construction and de-watering	<ul style="list-style-type: none"> • Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water 	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination.	Low
PFAS sites (within one	Water fill point.	<ul style="list-style-type: none"> • Adjacent residents (including locations 	Medium potential for widespread contaminants to be	Low

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Potential areas of contamination	Construction activity	Sensitive receiver	Likelihood	Preliminary risk evaluation
kilometre of study area).	Use of potential contaminated water for construction activities (dust suppression, washdown areas). Minor trench excavation for temporary utilities.	where the water is applied) <ul style="list-style-type: none"> • Terrestrial flora/fauna • Surface water and groundwater receptors 	present (no significant impacts expected for sites >500 m). No PFAS sites are located within the area of contamination concern.	
Service Stations (within 500m of water fill points 301, 602 and 603, 604).	Water fill point Use of potential contaminated water for construction activities (dust suppression, washdown areas). Minor trench excavation for temporary utilities	<ul style="list-style-type: none"> • Adjacent residents (including locations where the water is applied) • Terrestrial flora/fauna • Surface water and groundwater receptors 	Low potential for widespread contaminants to be present (depth of groundwater likely >5 m). No service station sites are located within the contamination area of concern.	Low

Further assessment will be undertaken for areas identified as medium risk that will be subject to disturbance through construction activities, as detailed in Table 5.2.

3.4.2 Unexploded Ordnance

The project area intersects several areas identified by the Department of Defence (DoD) as unexploded ordnance (UXO) areas. These are mapped in Appendix E4.

The main transmission line alignment crosses the Oak Plains (UXO) area south-east of the Buronga substation, which has been assigned a substantial risk category by the DoD.

The transmission line alignment also crosses the Urana (NSW) UXO area, which has been assigned an “other” category by the DoD. Construction activities, including excavation activities, vegetation clearing, vehicle movement and utility works, have the potential to disturb UXO. Further investigation of these UXO category areas may be required by a suitable specialist based on further project risk assessments.

4 Environmental aspects and impacts

4.1 Construction activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental Management Systems). The relationship of aspects and impacts is one of cause and effect.

Key aspects of Stage 2 that could result in adverse impacts to soil and water quality or contamination include:

- surface and/or ground disturbance as a result of vegetation clearing and grubbing;
- surface and/or ground disturbance as a result of ground excavation and earthworks;
- surface and/or ground disturbance as a result of the establishment of site access points/tracks and vehicular and machinery movements;
- blasting, concreting, piling and foundation works;
- material stockpiles including the management of acid sulfate and/or saline soils;
- operation of compounds including fuel and chemical storage, refuelling and chemical handling;
- noxious weed treatment including herbicide spraying;
- encountering unexpected existing contaminated/hazardous material as a result of surface and/or ground disturbance; and
- spills and leaks during the operation of plant and machinery, chemical handling or refuelling activities.

4.2 Impacts

The potential for impacts on soil and water will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment.

The potential impact to soil and water attributable to Stage 2 works might include:

- erosion and sedimentation due to surface and/or ground disturbance;
- soil disturbance and erosion of exposed soil by wind and rain;
- sedimentation of waterbodies and impacts to water quality due to soil disturbance in close proximity to watercourses;
- reduction of soil and/or water quality from spills or leaks;
- exposure and potential oxidation of ASS/potential ASS (PASS) and/or the disturbance of saline soils;
- pollution and health and safety impacts when encountering unexpected contamination finds;
- disturbance of waterbodies, waterway beds and riparian areas;
- changes to groundwater quality and recharge rates;
- redistribution of flood flows and altering of localised flood characteristics; and
- increased sediment loads impacting downstream aquatic habitats and nearby watercourses.

Some impacts on soil, water and contamination attributable to the project are anticipated and have been assessed in the EIS. Section 5 provides a suite of mitigation measures that will be implemented to avoid or minimise potential impacts.

5 Management measures

5.1 Erosion and sediment control

An *Erosion and Sediment Control Strategy* (ESCS) (45860-HSE-PR-D-0016) has been prepared and is provided in Appendix A. The ESCS describes the project's approach to minimising erosion and managing sediment generation for the project. The ESCS outlines the overarching principles to be considered and integrated into the development of the Erosion and Sediment Control Plan (ESCP) and any Progressive Erosion and Sediment Control Plans (PESCPs) required for specific work areas.

A CPESC will prepare the initial ESCP to detail the erosion control measures to be utilised across a range of different receiving environments and landforms on the project. Environmental staff will then typically use the ESCP as a basis to develop PESCPs in consultation with Project Engineers, Superintendents and Supervisors. For high risk environments, such as works near major watercourses, floodplains, and in steep or highly erodible terrain, the progressive ESCPs will be reviewed by the CPESC. This will ensure that erosion and sediment control management is incorporated into the planning stage of construction activities and is coordinated in its approach. PESCPs will be updated as required as sites and associated erosion and sediment control requirements change as the works progress.

The Environmental Manager will approve PESCPs in the first instance. Minor changes thereafter will be approved by environment staff in consultation with the Environmental Manager and CPESC for high risk environments, as required. PESCPs are designed for use as a practical guide and may be produced in conjunction with Work Packs or WMSs.

5.2 Stockpile management

The project will utilise temporary stockpiles to store excess topsoil and subsoil material from topsoil stripping and earthworks activities. The following techniques will be applied to the management of stockpiles:

- the location of stockpiles will be planned in advance of topsoil stripping and bulk earthworks. Stockpile locations will be selected such that they are:
 - where practicable, located on slopes less than 10%;
 - positioned such that erosion of the stockpile and the surrounding area is minimised;
 - placed outside flood prone areas and more than 20m from drainage lines, where practicable;
- stripped topsoil will be stockpiled separately from woody material and vegetation and subsoil layers;
- as required by the PESCP, clean water diversions will be installed upslope of stockpiles and sediment controls will be installed downslope; and
- stockpiles will be appropriately stabilised to minimise the risk of erosion. The PESCP will detail requirements in relation to stabilisation based on the size of the stockpile, the duration that the stockpile will remain in place and the proximity to watercourses and other sensitive environments.

5.3 Water supply points

A series of indicative water supply points have been identified in Appendix B of the Amendment Report as suitable connection points for the supply of either potable or non-potable water for the project.

The water supply points nominated for the project are provided in Table 5.1. The project will also continue to use the nominated water supply points from Project EnergyConnect (NSW – Western Section).

Water will be purchased under licensing agreements with the various water suppliers/landholders as required. These agreements are part of ongoing discussions and final locations will be determined during final negotiations. Additional water supply points may also be identified as the detailed design stage is progressed in order to reduce the distance to, and the number of vehicle movements associated with water supply.

It is estimated that, during peak construction, each water supply point would accommodate up to 20 loads per day (indicatively using water trucks with capacity between 15,000L and 40,000L). Visual assessment will be undertaken to assess the access and existing water supply infrastructure for each water supply points. Any subsequent minor adjustment works required to ensure compatibility and enable the required flow rates will be determined during detailed design and enacted in line with the EIS and Infrastructure Approval.

Table 5.1 - Water supply points

Location	Owner	Local government area	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report	Description of location
Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	Potable	Yes	Yes	Church Street, Balranald	This water supply point uses existing infrastructure located in the south of Balranald township at the intersection between Church Street and Bank Street.
159 Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	Potable	Yes, however refer to 'Description of location' column	No	Church Street, Balranald	Note that the Amendment Report listed one Church Street water supply point within Table 6-5, however the mapping is unclear regarding whether two Church Street locations are included. It must be noted that the GIS mapping provided from the EIS process indicates two water supply points on Church Street.
Euston Coop	Private	Balranald Shire Council	Non-potable	No	No	-	Morris Road, Euston
Lake Benanee	Private	Balranald Shire Council	Non-potable	No	No	-	-
Sturt Highway/Meilman Road	Private	Balranald Shire Council	Non-potable	No	No	-	-
Mylatchie Track	Private	Balranald Shire Council	Non-potable	No	No	-	-
812 Windomal Road, Balranald	Private	Balranald Shire Council	Non-potable	Yes	Yes	Lucerne at Balranald	This water supply point is located on 812 Windomal Road, Balranald.
Court Street/Sturt Highway	TBD	Balranald Shire Council	TBC	No	No	-	-
Ravensworth	Private	Hay Shire Council	Non-potable	Yes	No	Ravensworth	-
Paraway at Cobb Highway	Private	Hay Shire Council	Non-potable	No	No	-	-
16 Mile Gums	LLS	Hay Shire Council	Non-potable	No	No	-	-

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

Location	Owner	Local government area	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report	Description of location
Cadell Street	Hay Shire Council	Hay Shire Council	Potable	Yes, but location has been corrected	No	Cadell Street	-
Jerilderie Road	Private	Hay Shire Council	TBC	No	No	-	-
Tooleybuc	Murray River Council	Murray River Council	Non-potable	No	No	-	-
6204 Yanga Way, Yanga	TBC	Murray River Council	TBC	No	Yes	-	This water supply point is located on 6204 Yanga Way and the access track off Balranald Road.
Kerri Kerri Road	Private	Murray River Council	Non-potable	Yes	No	Keri Road, Keri Keri	
137 Cadell Road, Jerilderie	TBC	Murrumbidgee Council	TBC	No	Yes	-	This water supply point is located on 137 Cadell Road.
Gala Vale	Private	Murrumbidgee Council	Non-potable	No	No	-	-
Kidman Way	TBC	Murrumbidgee Council	Non-potable	No	No	-	-
Crosby Road	TBC	Murrumbidgee Council	Non-potable	No	No	-	-
111 Jerilderie Street, Murrumbidgee	Murrumbidgee Council	Murrumbidgee Council	Potable	Yes	Yes	111 Jerilderie Street, Jerilderie	This water supply point uses existing infrastructure located in the centre of Jerilderie township on Jerilderie Street.
Dinawan Stock & Domestic	Private	Murrumbidgee Council	Non-potable	Yes	Yes	Red Swamp / Dinawan Station	This water supply point is located approximately 16km west of Bundure at the intersection between Bundure Road and Kidman Way.
Paraway at Four Corners Road	Private	Murrumbidgee Council	Non-potable	No	No	-	-
North Boundary Road	Private	Murrumbidgee Council	Non-potable	No	No	-	-

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

Location	Owner	Local government area	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report	Description of location
Dinawan Camp and Laydown	Private	Murrumbidgee Council	Non-potable	Yes	Yes	Red Swamp / Dinawan Station	This water supply point is located east of Dinawan construction compound and accommodation camp.
1254 Four Corners Road, Coleambally	Private	Murrumbidgee Council	Both	Yes	No	1254 Four Corners Road	
Cooinbil Water Bore, Coleambally	Private	Murrumbidgee Council	Non-potable	Yes	No	Cooinbil Four Corners	
3 Bencubbin Avenue, Coleambally	Murrumbidgee Council	Murrumbidgee Council	Potable	Yes	No	3 Bencubbin Avenue, Coleambally	-
Cadell Road, Coleambally	Private	Murrumbidgee Council	Non-potable	Yes	No	Cadell Road, Coleambally	
Mclennons Bore Road, Coleambally	Private	Murrumbidgee Council	Non-potable	Yes	No	Mclennons Bore Road	-
8955 Newell Highway Bundure	Private	Murrumbidgee Council	Non-potable	Yes	No	Newell Highway, Bundure	-
50 Elizabeth Avenue, Forest Hill	TBC	Wagga Wagga City Council	TBC	No	Yes	-	This water supply point is located on 50 Elizabeth Avenue, Forest Hill.
Boiling Down Road	Private	Wagga Wagga City Council	Non-potable	No	No	-	-
Ashfords Road, Wagga Wagga	Riverina Water	Wagga Wagga City Council	Potable	Yes	Yes	Ashfords Road	This water supply point is located southeast of Wagga Wagga township on Ashfords Road.
Lake Albert (Plumpton Road), Wagga Wagga	Riverina Water	Wagga Wagga City Council	Potable	Yes	Yes	Lake Albert	This water supply point is located in the south of Wagga Wagga township adjacent to Plumpton Road.
Red Hill Road, Wagga Wagga	Riverina Water	Wagga Wagga City Council	Potable	Yes	No	Glenfield	-
Burraburoon	Private	Edward River Council	Non-potable	No	No	-	-
X5 Mabins Well	Private	Edward River Council	Non-potable	No	No	-	-

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

Location	Owner	Local government area	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report	Description of location
Moulamein Road 1	Private	Edward River Council	Non-potable	No	No	-	-
Moulamein Road 2	Private	Edward River Council	Non-potable	Yes	No	Moulamein	-
394 Hay Rd, Deniliquin	Edward River Council	Edward River Council	Potable	Yes	Yes	394 Hay Road, Deniliquin	This water supply point is located on 394 Hay Rd, Deniliquin.
9 Lang Street, Wanganella	Edward River Council	Edward River Council	Potable (TBC)	Yes	Yes	Wanganella	This water supply point is located on 9 Lang Street, Wanganella.
Carrathool Road, Four Corners	Private	Edward River Council	Non-potable	Yes	No	Show in Figure 6-9 of the Amendment Report, but unclear of name in Table 6-5 of Amendment Report.	
North Bundy Station, North Bundy Road, Booroorban	Private	Edward River Council	Non-potable	Yes	No	North Bundy, Booroorban-Tchelery Road, Booroorban	
Booroorban-Tchelery Road	Private	Edward River Council	Non-potable	No	No	-	-
Wonga Station, Four Corners Road	Private	Edward River Council	Both	Yes	No	Wonga	-
Four Corners Road Mabins Well	Private	Edward River Council	Non-potable	Yes	No	Four Corners Road Mabins Well	-
39 Urana Street, The Rock	TBC	Lockhart Shire Council	TBC	Yes	Yes	The Rock	This water supply point is located on 39 Urana Street, The Rock.
2850 Lockhart the Rock Road, Tootool	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	Tootool	This water supply point is located on 2850 Lockhart the Rock Road, Tootool.
Old French Park-Bullenbong Road, French Park	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	French Park	This water supply point is located on Old French Park-Bullenbong Road, French Park.

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

Location	Owner	Local government area	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report	Description of location
Urana-Lockhart Road, Brookong	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Brookdale	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Strongs Lane, Lockhart	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Strongs Lane/Ben Hoffmanns Lane	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Urana-Lockhart Road 2, Brookong	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Slys Lane	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Bulgary (Rohan Road), Lockhart	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	Bulgary	This water supply point is located approximately 11km south of Bulgary on Rohans Road.
Lockhart - the Rock Road, Lockhart	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	Lockhart	This water supply point is located in the east of Lockhart township adjacent to Lockhart the Rock Road.
Commera Wilson Lane Urana	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Commera Wilson Lane/Urana-Lockhart Road	Private	Lockhart Shire Council	Non-potable	No	No	-	-
The Rock - Collinguiillie Road, The Rock	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Bullenbung-the-Rock Road	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Tuttys Lane, Tootool	Private	Lockhart Shire Council	Non-potable	No	No	-	-
French Park-Bullenbung Road	Private	Lockhart Shire Council	Non-potable	No	No	-	-

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

Location	Owner	Local government area	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report	Description of location
Napier Road	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Albury Road, Lockhart	Private	Lockhart Shire Council	Non-potable	No	No	-	-
Federation Way/Coonong Road	Private	Federation Council	Non-potable	No	No	-	-
Newell Highway/Arrawidgee Road	Private	Federation Council	Non-potable	No	No	-	-
Federation Way	Private	Federation Council	Non-potable	No	No	-	-
Coonong Road	Private	Federation Council	Non-potable	No	No	-	-
Richmond Street, Boree Creek	Riverina Water	Federation Council	Potable	Yes	Yes	Boree Creek	This water supply point is located on intersection of Richmond Road & Lachlan Street, Boree Creek.
Newell Highway, Morundah	Private	Federation Council	Non-potable	No	No	-	-
Urana (between Osborne Street and Stephen Street)	Riverina Water	Federation Council	Potable	Yes	No	Urana	-
Federation Way (near corner Federation Way and Stephen Street)	TBC	Federation Council	TBC	No	No	-	-
Alcheringa Drive, Buronga ¹	Western Murray Irrigation	Wentworth Shire Council	Non-potable	Yes	Yes	Alcheringa Road	This water supply point is located on Alcheringa Drive, Buronga
Modica Crescent, Buronga ¹	Wentworth Shire Council	Wentworth Shire Council	Potable	Yes	Yes	Modica Crescent, Wentworth	This water supply point is located on Modica Crescent, Buronga
Fletchers Lake Road, Dareton ¹	Western Murray Irrigation	Wentworth Shire Council	Non-potable	No	Yes	-	This water supply point is located on Fletchers Lake Road, Dareton.

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

Location	Owner	Local government area	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report	Description of location
Off Sturt Highway	Private	Wentworth Shire Council	Non-potable	No	No	-	-

¹ These water supply points have been included in the Project EnergyConnect (NSW – Western Section) Construction Environmental Management Plan and the associated CEMP Sub-plans and will continue to be used for Project EnergyConnect (NSW – Eastern Section).

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Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would:

- confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32;
- reach agreement with the water supplier regarding the use of the water supply point for the project; and
- carry out any additional assessments which may be required.

Treated wastewater from the wastewater treatment plants that are installed at each accommodation camp would also be collected, treated to appropriate standards, and transported via water carts for reuse. Potential uses of the treated wastewater and grey water may include for use in dust suppression, compaction of materials or other construction activities which may require and can utilise grey water.

5.4 Reuse of treated wastewater

As water is a valuable resource within Western NSW, the project will reuse the wastewater produced from the wastewater treatment plants as part of the construction processes to minimise the volume taken from other local sources.

Wastewater treatment plants (WWTPs) would be established at the accommodation camp sites to manage wastewater generated from construction compounds and accommodation camps (including but not limited to showers, kitchens, laundries, toilets, and other facilities). Refer to Section 7.4 and Section 7.5 of the relevant *Accommodation Camp Management Plan* for further information on the management and operation of the WWTPs at each of the accommodation camps. The project will obtain a Section 68 approval (refer Section 2.4.3) from the relevant councils for the operation of the WWTPs as required.

The treated wastewater will be discharged to a basin type structure lined with high density polyethylene/geosynthetic clay liner. The wastewater will then be collected and transported via water carts or similar devices for reuse in the following, but not limited to opportunities:

- use in dust suppression on roads;
- use in compaction of soils;
- use in the emplacement areas;
- wheel wash sites; and
- general washdown of equipment.

Wastewater will not be discharged to watercourses or other water bodies. Wastewater will not be used near food crops or food pastures.

A *Dewatering Procedure* (45860-HSE-PR-G-1018) has been developed and is provided in Appendix D. The Dewatering Procedure addresses the following:

- reinforces the project need for wastewater reuse;
- provides detail on the treated wastewater quality objectives;
- outlines the water quality testing process; and
- outlines the process to manage the application of the treated wastewater.

Prior to the application of treated wastewater to land, the following factors will be considered to understand if the environment has the capacity to receive the additional water loading:

- the existing soil conditions;
- existing environmental aspects such as salinity or flood prone areas;
- the likelihood of potential runoff at the application areas;
- distance from sensitive receivers and aquatic environments; and
- previous and upcoming climatic and weather conditions.

The consideration of these aspects is further detailed within the *Dewatering Procedure*.

5.5 Unexpected contamination finds

Contamination means the presence in, on or under land or any other aspect of the environment of a substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, which is:

- a) at a concentration above the concentration at which the substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, is normally present in, on or under land or any other aspect of the environment in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment; or
- b) toxic, flammable or otherwise capable of causing harm to humans or damage to the environment including asbestos (man-made or naturally occurring), toluene, polychlorinated biphenyls, lead based paints, glues, solvents, cleaning agents, paints, water treatment chemicals and acid producing spoil.

Contamination that may not have been detected during previous investigations may be discovered during the project, particularly during ground disturbance activities. Such contamination may be discovered due to observations such as:

- odour;
- unusual discolouration or staining of soil or rock;
- seepage of unusual liquids from soil or rock;
- unusual colour, odours, or sheens on groundwater and/or surface water;
- unusual metal objects or other foreign debris;
- presence of oil;
- presence of waste or rubbish above or below ground; and
- actual or potential asbestos or asbestos containing material.

In such instances, action is required to manage the potential contaminated soil/material encountered during excavation or construction activities. If potentially contaminated material is encountered, the *Unexpected Contamination Finds Procedure* (45860-HSE-PR-D-0014) will be followed.

Works in the immediate vicinity will be stopped or modified and will not recommence until the material has been analysed and management measures developed.

5.6 Disposal of contaminated material

Where contaminated material requires removal from site, the classification, transport and disposal will be carried out in accordance with the *Waste Management Plan* (45860-HSE-PL-D-0121). Key actions from the *Waste Management Plan* include:

- all waste material that is to be disposed of off the project will be dealt with in accordance with the POEO Act and *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014);

- wastes that are unable to be reused or recycled will be disposed of at a licensed waste management facility, or a place lawfully permitted to accept such waste;
- hazardous waste and wastes regulated under a Chemical Control Order will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the *Environmentally Hazardous Chemicals Act 1985*;
- a waste register will be maintained, detailing types of waste, amounts, date, and details of disposal; and
- a section 143 notice under the POEO Act will be obtained (from the landowner) should waste be transported to a site which is not licensed under the POEO Act to accept such waste. Sites and/or facilities licensed for receipt of waste under the POEO Act will not require a section 143 notice.

5.7 Flood response

There are areas that are prone to flooding and there are large floodplains around Box Creek, the Murrumbidgee River, Condoulpe Creek, Yellow Clay Creek, Coonong Creek, Bullenbong Creek and dispersed flooding at the very eastern end of the proposal around Sawpit Gully, Crooked Creek and Boiling Down Creek. A *Flood Response Plan* (45860-HSE-PL-D-0123) has been prepared and, as required by condition C35 of the Infrastructure Approval, forms part of the *Traffic and Transport Management Plan* (45860-HSE-PL-D-115).

The Flood Response Plan details the procedures and options for safe access to and from the site if an extreme flood event occurred within or in close proximity to the project works. Section 4 of the Flood Response Plan outlines the actions to be undertaken in preparation for a potential flood as well as the appropriate flood response and evacuation routes to take in the event of a flood.

5.8 Soil and water management measures

A range of environmental requirements and mitigation measures are identified in the Submissions Report and the Infrastructure Approval. Safeguards and management measures will be implemented to minimise or manage soil, water and contamination impacts.

Specific soil, water and contamination related safeguards and management measures to address impacts associated with Stage 2 of the project are outlined in Table 5.2.

Table 5.2 - Soil and water quality management measures

ID	Measurement/Requirement	When to implement	Responsibility	Source document
General				
SW1	Training will be provided to all project personnel, including relevant subcontractors on soil, water and contamination management and the requirements from this plan through inductions, toolboxes talks and targeted training.	Pre-construction and construction	Environmental Manager HSSE team	Good practice
SW2	During detailed design, the interaction between construction materials and high saline soils and the groundwater environment will be considered, where applicable. A flood design assessment, to ensure compliance with Transgrid’s design standards, would be undertaken at the Dinawan 330 kV Substation site to confirm that the final design of the substation bench level is above the 100 year average recurrence interval (ARI) design and that a 200 year ARI design flood would not impede substation function. The assessment would also consider spills/overflows from the detention basin on the irrigation channel to the east of the substation location and a potential failure of the basin embankment.	Pre-construction and construction	Design Manager	RMM SCG1 RMM HF3
SW3	No pollution to water, as defined under section 120 of the POEO Act, is to occur, unless authorised by an EPL.	Pre-construction and construction	Construction Manager Supervisor Environmental Manager	Condition C15
Erosion and sediment control				
SW4	An <i>Erosion and Sediment Control Strategy</i> (ESCS) (45860-HSE-DOC-D-0016) provided in Appendix A has been prepared in line with the principles and requirements in: <ul style="list-style-type: none"> • <i>Managing Urban Stormwater – Soils and Construction, Volume 1</i> (Landcom 2004), commonly referred to as the ‘Blue Book’; • <i>Managing Urban Stormwater – Soils and Construction, Volumes 2A - Installation of Services and Volume 2C – Unsealed Roads</i> (NSW Department of Environment, Climate Change and Water 2008); • <i>Best Practice Erosion and Sediment Control</i> (IESCA – 2008); • TransGrid’s Environmental Guidance Notes; and • <i>Guidelines for Controlled Activities on Waterfront Land</i> (NRAR 2018). The ESCS will be implemented to guide the development of the ESCP and PESCPs for the project.	Construction	Construction Manager Supervisor Environmental Manager	Condition C14 b) RMM HF6

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW5	<p>A Certified Professional in Erosion and Sediment Control (CPESC) will prepare the initial Erosion and Sediment Control Plan (ESCP), which will be used as a basis for the development of Progressive Erosion and Sediment Control Plans (PESCPs).</p> <p>PESCPs will be prepared and implemented for locations where ground disturbance will occur. The PESCPs will outline controls and strategies to be implemented to manage and minimise soil erosion and the movement of sediment and other pollutants to land and/or waters. PESCPs for high risk environments, such as near major watercourses, steep or highly erodible terrain, will be reviewed by the CPESC and Environmental Manager.</p> <p>The PESCPs will be progressively updated throughout the project to reflect the current construction activities occurring on site and to allow the removal of any measures that are ineffective or no longer needed.</p>	Pre-construction and Construction	Certified Professional in Erosion and Sediment Control Environmental Manager	Condition C14 RMM HF6
SW6	Measures will be implemented to minimise mud tracking onto public roads.	Construction	Supervisor	Condition C14
SW7	Location of known heritage items will be identified in the site hazard analysis plan and considered during the preparation of PESCPs, where required. This will ensure that any potential harm due to surface water runoff from site is avoided or minimised.	Construction	Environmental Manager Supervisor	RMM AH9
SW8	Disturbed surfaces in the immediate vicinity of permanent infrastructure will be shaped to avoid concentrating flows and to reduce surface water runoff velocities, minimising the potential for scour and erosion.	Pre-construction, construction	Design Manager Construction Manager Supervisor	RMM HF1 Condition C14 a)
SW9	Construction materials and spoil will be appropriately stored on site and within the construction site compounds with the aim to minimise erosion, dust generation and sediment-related impacts in adjacent areas.	Construction	Construction Manager Supervisor	RMM SCG5 Condition C14 a)
Additional soil assessment and management				
SW10	Prior to ground disturbance in areas of known potential acid sulfate soil occurrence (e.g. in low lying areas surrounding former or current lakes and river beds), on-site field testing will be carried out to determine the presence of actual and/or potential acid sulfate soils.	Construction	Supervisor Environmental Manager	RMM SCG6 Condition C20
SW11	<p>Exposure of acid sulfate soils to the atmosphere will be avoided, where possible.</p> <p>The prevention of oxidation of sulfides is the key in managing acid sulfate soils where avoidance of the exposure of acid sulfate soils to the atmosphere is not possible. The exposed acid sulfate soil will be separated from other spoil material and treated using lime or other similar agents.</p> <p>Other appropriate management measures may be implemented to manage exposed acid sulfate soils with guidance from <i>Acid Sulfate Soil Manual</i> (ASSMAC, 1998) and TransGrid's HSE Guideline.</p>	Construction	Supervisor Environmental Manager	RMM SCG6 RMM HF6 Condition C20

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW12	<p>A visual inspection (for known characteristics of salt affected soils) would be undertaken for the presence of saline soils prior to ground disturbance. Areas of known or suspected salinity will be subject to further testing as required.</p> <p>Where saline soil is excavated, the soils will be reinstated at the same depth from which it was excavated.</p> <p>Works in areas of saline soils will be managed in accordance with <i>Book 4 Dryland Salinity: Productive use of Saline Land and Water</i> (NSW DECC 2008) and the <i>Salinity Training Manual</i> (DPI, 2014).</p>	Construction	Environmental Manager Supervisor	RMM SCG7 Condition C21 Condition C22 c)
Contamination assessment and management				
SW13	<p>Promptly notify the Site Supervisor or Environmental Manager of any suspected or actual contamination exposed during construction activities. Cease all work activities within the vicinity of actual or suspected contaminated land. Refer to the <i>Unexpected Contamination Finds Procedure</i> (45860-HSE-PR-D-0014) as provided in Appendix B is to be followed.</p>	Construction	All personnel	RMM SCG2 RMM SCG9 CLM Act Condition C22 c) Condition C22 e)
SW14	<p>Disturbance to areas identified as medium risk of contamination will be avoided or minimised where practicable during detailed design and construction.</p>	Design and construction	Design Manager Construction Manager Supervisor	RMM SCG2 Condition C22 c)
SW15	<p>A site specific desktop risk assessment will be undertaken for any areas identified as medium risk of contamination which will be disturbed during construction.</p> <p>Following the conclusion of the site specific desktop risk assessment, a Phase 2 investigation will be undertaken where required. This may include a site inspection completed in accordance with NEPM 2013. The Phase 2 investigation may identify additional mitigation measures.</p>	Design and construction	Environmental Manager	RMM SCG2 Condition C22 c)-e)
Works near major river systems				
SW16	<p>A water quality monitoring program will be implemented as detailed in Section 6.3 to gather baseline water quality conditions in the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek) prior to construction in the vicinity of perennial watercourses crossed by the transmission line works.</p> <p>Water quality monitoring will be undertaken monthly throughout construction until the completion of construction in areas adjacent to the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site.</p>	Pre-construction and construction	Environmental Manager	RMM HF4
SW17	<p>Construction materials, spoil and waste located within 40m of perennial watercourses will be suitably stored to prevent potential impacts to groundwater and sedimentation of adjacent waterways.</p>	Pre-construction and construction	Construction Manager Supervisor	RMM SCG5 Condition C14 a)

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW18	<p>All activities on waterfront lands will be guided by the principles from the <i>Guidelines for Controlled Activities on Waterfront Land</i> (2012), <i>Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (NSW Fisheries 2003) and the <i>Policy and Guidelines for Fish Habitat and Conservation and Management</i> (NSW Fisheries, 2013) unless DPE Water agrees otherwise.</p> <p>Measures to control and manage erosion and minimise sedimentation on waterfront lands are further detailed in the ESCS and will be documented for specific areas and activities in the initial ESCP and PESCPs to be developed prior to the works commencing in waterfront areas.</p>	Pre-construction and construction	Environmental Manager Construction Manager Supervisor	Condition C18
SW19	Construction materials would be selected to withstand high saline soil and groundwater environments, where applicable. Measures to reduce localised scouring around the tower footings are to be considered, and would likely consist of a geofabric and rock apron embedded in the soil around the footings.	Pre-construction and construction	Design Manager Supervisor	RMM HF1 RMM SCG1 RMM SCG5 Condition C14 a)
Construction of transmission line structure, site compounds, ancillary facilities and access tracks				
SW20	Transmission line structure foundations and ancillary construction sites will consider the location sites of known farm dams, where practicable, to avoid disturbance.	Pre-construction and construction	Design Manager Construction Manager Environmental Manager	RMM LP2
SW21	Long-term placement of construction materials, particularly spoil and waste will be appropriately managed with the aim to minimise the potential for soil, groundwater or water quality impacts.	Construction	Supervisor Environmental Advisor Environmental Manager	RMM SCG5
Chemicals, fuels or other hazardous substances				
SW22	Construction materials such as fuels, chemicals, vehicles and equipment will be appropriately stored to minimise the introduction of contaminants to the existing soil, groundwater and surface water runoff.	Construction	Supervisor Construction Manager Environmental Advisor	RMM SCG5 RMM SCG8 RMM HR11
SW23	All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions, any relevant legislations or Australian Standards or the applicable guidelines.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager	RMM SCG8 RMM HR11
SW24	All chemicals, fuels or other hazardous substances will be stored in a bunded area, with the bunding sized at 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s will be shown on relevant PESCPs.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager	RMM HR11
SW25	The appropriate components of the concrete batching plants, such as the concrete mixing and washout areas, and oil filled components of the substation, will be suitably bunded.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager	Condition C16 a)

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW26	In the event of a spill incident of chemicals, fuels or other hazardous substances, the <i>Spill Response Procedure</i> (45860-HSE-PR-D-0017) provided in Appendix C will be followed.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager HSSE Manager	RMM HF6 Condition C16 b)
SW27	Appropriate spill containment equipment (i.e. spill kits) will be provided and placed at strategic and accessible locations within the site, such as adjacent to chemical storage areas, relevant work areas and refuelling areas.	Construction	Supervisor Construction Manager Environmental Manager	RMM HR14 Condition C16 b)
Unexploded Ordnance (UXO)				
SW28	<p>A site-specific risk assessment will occur for locations where there is a risk of encountering UXO. The risk assessment will be carried out prior to any activities that could interact with UXO. This will include field verification to validate the historical assessment of UXO contamination and identify appropriate mitigation practices. The risk assessment will occur with input from an appropriate UXO specialist and will identify if and when an explosives engineer is required during site activities.</p> <p>An unexpected finds procedure will be implemented. The procedure will specify the actions that site personnel must take to minimise the risk to and from any UXO encountered. The management actions identified in the risk assessment will be implemented prior to and during all relevant site activities.</p> <p>All personnel conducting intrusive works within an identified UXO area will be provided with appropriate safety and awareness briefing(s) prior to the participating in the intrusive works.</p>	Construction	Supervisor HSSE Manager	RMM SCG10
SW29	Promptly notify the Site Supervisor or Environmental Manager of any suspected or potential unexploded ordnance exposed during construction activities. Cease all work activities within the vicinity of actual or suspected unexploded ordnance find. The <i>Unexpected Contamination Finds Procedure</i> (45860-HSE-PR-D-0014) provided in Appendix B is to be implemented.	Construction	All personnel	RMM SCG10 Condition C22 e)
Water supply				
SW30	Copies of existing water access licence agreements from the applicable water suppliers/landholders will be requested and saved on to the project document SharePoint site.	Pre-construction and construction	Procurement Manager Environmental Manager HSSE team	Good practice
SW31	Water supply options and management will be undertaken in accordance with agreements with the relevant private water owners or relevant council. Sufficient water supply will be in place for all stages of the development, and if necessary, the scale of the development will be managed to match available water supply.	Construction	Construction Manager	RMM HF5 RMM CI2 Condition C12 Condition C13

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW32	Volumes of water taken (including water taken under a licence or under an exemption provision) during construction is to be recorded. The records will be provided during the independent audit when requested.	Construction	Environmental Manager	Condition C13
Dewatering				
SW33	The <i>Dewatering Procedure</i> (45860-HSE-PR-D-0018) provided in Appendix D will be implemented for the discharge of any runoff or stormwater which collects within construction areas (such as sediment basins, trenches, sumps) to minimise the potential for soil and water impacts.	Construction	Supervisor Construction Manager Environmental Manager	RMM HF6
SW34	Dewatering of groundwater will not be discharged directly into watercourses, but is to be managed in accordance with the methods included in the <i>Dewatering Procedure</i> (45860-HSE-PR-D-0018).	Construction	Supervisor Construction Manager Environmental Manager	Condition C17
SW35	Volumes of water that are dewatered will be recorded in the Dewatering Permit (45860-HSE-PR-D-0018). Records will be provided to the relevant authority upon request.	Construction	Supervisor Environmental Manager	RMM SCG11 Condition C13
Registered bores and high priority groundwater dependent ecosystems				
SW36	Registered groundwater bores that are located within or in the immediate vicinity of the construction area and do not require removal will be clearly demarcated with a 5 x 5m exclusion zone.	Pre-construction and construction	Environmental Manager	RMM SCG3
SW37	If registered groundwater bores are damaged during project activities, works will be undertaken to repair or replace the bore in consultation with the registered bore owner.	Pre-construction and construction at relevant site(s)	Supervisor Construction Manager Engagement Manager	RMM SCG3
SW38	Prior to undertaking any blasting, a desktop assessment would be carried out to identify if any high potential GDEs and/ or registered bores within the vicinity of the blast sites that might be affected. The assessment would: <ul style="list-style-type: none"> • assess any high potential GDEs and registered bores within 50m of blasting sites against the minimum impact criteria of the Aquifer Interference Policy (2012); and • identify any necessary measures to monitor blasting and mitigate potential significant impacts. 	Construction (prior to blasting at relevant sites)	Design Manager Environmental Manager	RMM SCG4 Condition C22 c)
SW39	The measures identified from the desktop assessment above are to be implemented prior to and during blasting, where relevant. Where the assessment identifies potentially significant impacts to high potential GDEs and registered bores that cannot be mitigated, consideration of alternative lesser impact construction methodologies or engineering solutions will be investigated and implemented.	Prior to and during blasting	Supervisor Construction Manager Environmental Manager	RMM SCG4

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ID	Measurement/Requirement	When to implement	Responsibility	Source document
Flooding				
SW40	<p>Detailed construction planning would consider flood risk at construction areas. This would ensure:</p> <ul style="list-style-type: none"> flood impacts downstream and on other property and infrastructure are not exacerbated during construction up to and including the five per cent AEP design flood event, and site layouts avoid or minimise obstruction of overland flow paths and limit the extent of flow diversion required. <p>Measures to minimise potential flood risks at construction areas would be implemented, where practicable.</p>	Design and construction	Design Manager Supervisor Environmental Manager	RMM HF2 Condition C19 b)
SW41	Permanent operational infrastructure is to be designed and constructed to not materially alter the flood storage capacity, flows or characteristics in the vicinity of the works or immediately downstream of the works.	Design and construction	Design Manager Supervisor Environmental Manager	Condition C19 a)
Monitoring and inspection				
SW42	<p>Monitoring of weather forecasts (including rainfall radar) will occur to determine when adverse weather conditions are predicted to affect work locations.</p> <p>When significant rainfall is predicted (greater than 15mm at 80% chance of occurring), a pre-rainfall inspection will be carried out in accordance with the requirements in Section 6.3, to check the condition of existing sediment and erosion controls, and repairs are to be carried out and additional controls installed if necessary.</p>	Pre-construction and construction	Construction Manager Environmental Manager HSSE team	Good practice
SW43	<p>If safe to do, a post rainfall inspection will occur within the next working day after a rainfall event has occurred (greater than 5mm of rain has been received and runoff occurred).</p> <p>The post rainfall inspection is to evaluate the effectiveness of erosion and sediment controls measures and issue the appropriate action to repair or maintain any controls and/or install additional controls where required.</p>	Pre-construction and construction	Environmental Manager HSSE team	Good practice
SW44	Weekly environmental inspections are to be undertaken, which will include an inspection of erosion and sediment controls present on-site, spill response equipment, stockpiles and the site access point(s).	Construction	Environmental Manager	Good practice
SW45	<p>If groundwater is intercepted during excavation or piling activities, the interception of such groundwater will be monitored by site personnel and reported to NRAR in accordance with Clause 21(6) of the <i>Water Management (General) Regulation 2018</i>.</p> <p>Where there is the potential for water take to exceed the 3ML exemption provision, additional approvals and sufficient entitlement will be obtained.</p>	Construction	Environmental Manager	<i>Water Management (General) Regulation 2018</i> Comment from DPE Water

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EnergyConnect (NSW – Eastern Section) Stage 2 Soil and Water Management Plan

ID	Measurement/Requirement	When to implement	Responsibility	Source document
Rehabilitation and stabilisation				
SW46	Areas disturbed by construction will be stabilised and appropriately rehabilitated to a similar condition prior to construction, where feasible and reasonable following the completion of construction. This will be carried out in consultation with the landowner.	Construction	Supervisor Construction Manager Environmental Manager	RMM LP5
SW47	Rehabilitation to ancillary facilities and earthwork material sites will be undertaken progressively where feasible or within 6 months of the completion of the construction phase of the project with the aim to provide a safe, stabilised and non-polluting area.	Construction	Supervisor Construction Manager Environmental Manager	Condition C52

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6 Compliance management

6.1 Training and awareness

All site personnel will undergo the SecureEnergy site induction. The induction training addresses elements related to soil, water and contamination management including, but not limited to:

- relevant legislation;
- the environmental management system;
- complying with the conditions of the Infrastructure Approval;
- the CEMP;
- spill response; and
- the purpose and general content of PESCPs.

Targeted training in the form of toolbox talks or specific training will also be delivered to personnel with a key role in soil, water and contamination management. Examples of training topics may include:

- specific erosion and sediment controls, including installation methods, maintenance requirements and the requirements of site-specific PESCPs;
- no-go zones;
- UXO within the project area;
- unexpected finds procedure for contamination finds; and
- dewatering procedures.

Further details regarding the staff induction and training are in Section 6 of the CEMP.

6.2 Roles and responsibilities

SecureEnergy's organisational structure and overall roles and responsibilities are outlined in Section 4.9 of the CEMP. Specific responsibilities for the implementation of mitigation measures are detailed in Section 5 of this SWMP.

6.3 Monitoring

The proposed monitoring program for Stage 2 works is identified in Table 6.1.

Table 6.1 - Monitoring program

Item	Scope	Frequency	Responsibility	Records/ reporting
Weather forecasts and observations	Monitoring of weather forecasts (including rainfall radar) to determine when adverse weather conditions are predicted.	Weekly weather forecast; and Daily monitoring when adverse weather is predicted.	Supervisors	BOM website Pre-starts
Water quality discharge	Water that requires discharge (other than wastewater) will be tested (as required) prior to reuse/discharge and managed in accordance with the <i>Dewatering Procedure</i> (45860-HSE-PR-D-0018).	Prior to water discharge	Supervisors Environmental Manager or delegate	<i>Dewatering permit</i> (45860-HSE-FO-G-1006)
Water quality monitoring program	Monitoring of water quality in the Murrumbidgee River and Colombo Creek to establish baseline water	Six months prior to the commencement of construction works in	Environmental Manager	Water quality record

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Item	Scope	Frequency	Responsibility	Records/reporting
	<p>quality conditions at least six months prior to construction in the vicinity of the transmission line works at the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek). Monitoring will then continue monthly during construction until the surface works in the vicinity of the waterways that were disturbed during construction are stabilised and no longer pose a significant sedimentation risk to the waterways.</p> <p>Sample locations will occur approximately 50m downstream and upstream of the project alignment, with consideration of existing upstream WaterNSW gauges (including gauge 410130) downstream of the Murrumbidgee River.</p> <p>Sample locations will be nominated prior to the commencement of monitoring as site inspections are required to select an appropriate location which considers factors such as safety, ease of access, and avoiding water stagnation locations.</p> <p>The monitoring program will monitor for parameters such as: pH, total dissolved solids, total suspended solids (turbidity), total nitrogen and total phosphorus.</p>	<p>the vicinity of the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek).</p> <p>Continue monthly during construction until the surface works in the vicinity of the waterways are stabilised</p>		

6.4 Inspections

The proposed inspections relevant to soil and water management are identified in Table 6.2.

Table 6.2 - Inspection timing

Item	Scope	Frequency	Responsibility	Records/reporting
Weekly inspections	Inspection of the site erosion and sediment controls, spill response equipment, stockpiles and the site access point(s).	Weekly	Environmental Manager or delegate	<i>Environmental Inspection Checklist</i> (45860-HSE-CHK-G-1008)
Acid sulfate soil	On-site field testing to determine the presence of actual and/or potential acid sulfate soils.	Prior to ground disturbance in areas of known potential acid sulfate soil occurrence	Environmental Advisor	Onsite testing results records in daily diary
Saline soil inspection	Visual inspection of work areas for indicators of saline soil prior to ground disturbances.	Prior to ground disturbances	Supervisors	Report by exception in daily diary
Pre rainfall inspection	Inspection of the environmental controls to assess site preparedness for potential forecast rainfall events. Inspection to be	Prior to predicted rainfall greater than 15 mm at	Environmental Manager or delegate	<i>Pre rainfall inspection checklist</i> (45860-HSE-CHK-G-1009)

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Item	Scope	Frequency	Responsibility	Records/reporting
	undertaken on working days, if safe to do so. Issue actions to repair/maintain any damaged controls, or install additional controls if necessary.	80% chance of occurring.	Supervisors	
Post rainfall inspection	Post rainfall inspections to evaluate the effectiveness of erosion and sediment controls measures and issue appropriate actions to repair or maintain any controls and/or install additional controls where required. Post rainfall inspections will occur after a rainfall event. For the purpose of this inspection, a rainfall event occurs when more than 5mm of rain has been received and/or runoff occurs.	Within the next working day, if safe to do.	Environmental Manager or delegate Supervisors	<i>Post rainfall inspection checklist</i> (45860-HSE-CHK-G-1010)

6.5 Auditing

Audits will be undertaken to assess the effectiveness of the management measures and overall compliance, including this plan, and other relevant approvals, licences and guidelines. Audit requirements are detailed in Section 9.3 of the CEMP.

6.6 Reporting

Reporting which will be undertaken in accordance with the SWMP is summarised within Table 6.3.

Table 6.3 - Reporting program

Item	Scope	Frequency	Responsibility	Recipient
Unexpected finds report	Reporting of unexpected contamination finds will be undertaken in accordance with the <i>EnergyConnect (NSW – Eastern Section) Unexpected Contamination Finds Procedure</i> (45860-HSE-PR-D-0014).	As required	Environmental Manager	TransGrid EPA
Water take	Volumes of water taken (including water taken under a licence or under an exemption provision) during construction will be provided during the independent audit when requested.	As required	Environmental Manager	Independent Auditor, upon request
Audit reports	Independent audits undertaken in accordance with the Infrastructure Approval will include audits of soil and water management measures (based on the Independent Auditor’s program). Audit reports will be prepared. Further detail in relation to auditing is provided within Section 9.3 of the CEMP.	Audits will occur within 12 weeks of the commencement of construction and then at intervals no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Secretary.	Environmental Manager / Independent Auditor	TransGrid DPE
Groundwater intercepted during aquifer interference activities	An exemption within the <i>Water Management (General) Regulation 2018</i> allows for 3ML per project per year to be intercepted during aquifer interference activities without the need for a water access licence.	As required	Environmental Manager	Transgrid NRAR

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Item	Scope	Frequency	Responsibility	Recipient
	<p>If groundwater is intercepted during excavation activities, the interception of such groundwater will be monitored by site personnel and geotechnical specialist and reported to NRAR in accordance with Clause 21(6) of the <i>Water Management (General) Regulation 2018</i>.</p> <p>Where there is the potential for water take to exceed the 3ML provision, additional approvals and sufficient entitlement will be obtained. In such a situation, reporting will be as per the conditions of the licence and condition C13.</p>			

6.7 Emergencies, incidents and non-compliances

6.7.1 Emergencies

Emergency management and planning including emergencies related to soil, water and contamination will be undertaken in accordance with the Clough management system and relevant procedures. Emergencies will be managed through Clough three-tiered management system approach. Depending on the severity of the emergency, emergencies will be managed in accordance with the following:

- Level 1 – on-site emergencies will be in accordance with the Project Specific Emergency Preparedness and Response Plan (45860-HSE-PL-G-1015);
- Level 2 – emergency situations where response exceeds the capacity of site resources incidents will be coordinated by the Incident Coordination Team; and
- Level 3 – an emergency situation where the incident has the potential to, or has impacted, the business in terms of, reputation, and commercial liability. Incidents will be supported by the Major Incident Management Team.

Emergencies will be responded to in accordance with the level of the emergency (listed above). For each level of emergency, the situation will be assessed, the site support requirements will be established and notification will occur. A Level 1 emergency will result in activation of the Project Specific Emergency Preparedness and Response Plan (45860-HSE-PL-G-1015). A Level 2 emergency will result in activation of the Incident Coordination Team, and a Level 3 emergency will result in activation of the Incident Management Team.

Refer to Section 8.1 of the CEMP – Emergency preparedness and emergency response for further details.

6.7.2 Environmental incidents

Environmental incidents, including incidents related to soil, water and contamination (e.g. unauthorised/unapproved discharge of water, contamination of water quality, chemical and hazardous material spills) will be managed as described in Section 8.2 of the CEMP – Environmental incidents and the Incident, Notification and Investigation Procedure Flowchart provided in Appendix A4 of the CEMP. All site personnel are authorised to suspend a work activity that is likely to cause, or is actually causing or contributing to an incident. A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

Incident reporting is described in Section 8.3 of the CEMP – Incident notification and reporting.

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents

will be completed, and will be submitted to Transgrid in accordance with requirements under the Contract. The Environmental Representative will also be included on all incident notifications.

For incidents which are reportable to DPE, notification will occur to DPE via the Major Projects website immediately after becoming aware that an incident has occurred. A written notification will then be provided to DPE via the Major Projects website within seven days after becoming aware of the incident. Refer to Section 8.3.1 of the CEMP - Incident notification and reporting in accordance with the Infrastructure Approval for further details requirements of the notification.

6.7.3 Non-compliances

Where a non-compliance with the Infrastructure Approval has been identified, including those relevant to soil, water and contamination (e.g. not following the notification or reporting requirements in the Unexpected Contamination Finds Procedure), corrective actions will be developed as required and implemented to address the non-compliance that occurred.

Reporting of non-compliances will be undertaken as described in Section 10.1 of the CEMP – Reporting non-compliances. The Planning Secretary will be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. The written non-compliance notifications will contain the requirements set out in condition D8 of the Infrastructure Approval and will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

Refer to Section 10.1.1 of the CEMP - Reporting non-compliances in accordance with the Infrastructure Approval for further details requirements of the notification.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Failure to comply with other statutory requirements such as the EPBC Act Approval will be reported in accordance with Section 10.1.2 of the CEMP. Any other reporting will occur in accordance with Section 10.1.3 of the CEMP.

Where a non-compliance has been identified, the non-compliance will be reviewed by the Environmental Manager to determine the reason for the non-compliance, and what corrective actions have, or will be taken, to address the non-compliance. Preventative actions will be developed as required and implemented to minimise the potential for recurrence.

Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action describes the process for non-compliance management.

6.8 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8 of the CEMP – Incidents and emergencies; and/or
- a non-compliance or non-conformance in accordance with Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action.

Reporting of the unpredicted impacts would be in line with the above processes and as described in Section 10 of the CEMP – Reporting.

Corrective and preventative actions may be generated from a number of sources, including but not limited to incidents, audits and management reviews. The actions will be managed in accordance

with the Clough management system to ensure that the required actions are tracked and closed out in a timely manner. The completion of the required actions will be recorded, and will include details on the source of the action (e.g. audit, inspection or other), the action required, target close out date, actual close out date and the person responsible.

Through the identification of corrective and/or preventative actions through the above processes, the following steps will occur as relevant:

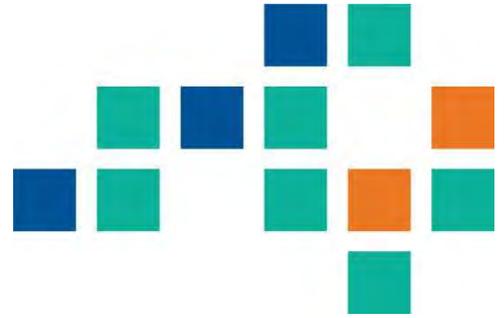
- determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this SWMP;
- identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;
- implement the selected measure(s) to reduce the unexpected impacts; and
- identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

This section does not apply to unexpected contaminations finds. These will be managed in accordance with the *Unexpected Contamination Finds Procedure* included in Appendix B of this SWMP.

Appendix A – Erosion and Sediment Control Strategy

INTERNAL



Erosion and Sediment Control Strategy EnergyConnect (NSW - Eastern Section) 45860-HSE-PR-D-0016

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	10/05/2022	Issued for internal review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
B	24/05/2022	Issued for Transgrid's review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
C	15/08/2022	Issued for agency consultation	 M.Lee / C.Cahill	 R.Walker-Edwards	 A.Boyd <small>A.Boyd (Aug 15, 2022 12:05 GMT+10)</small>	 B.Calligeros <small>B.Calligeros (Aug 15, 2022 08:12 GMT+10)</small>	 S.Basanta

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Revision History	
Rev.	Detailed Description
A	Issued for internal review
B	Issued for Transgrid's review
C	Updated to address Transgrid's comments. Issued for agency consultation.

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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1 Introduction

This Erosion and Sediment Control Strategy (ESCS or this strategy) is part of the Soil and Water Management Plan (SWMP) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

This strategy has been prepared by suitably qualified and experienced person. This strategy was prepared by Martin Lee and Cheryl Cahill (attained certification as a certified professional in erosion and sediment control (CPESC)).

1.1 Purpose

The purpose of this ESCS is to outline the overarching principles to be considered and integrated into the development of the progressive erosion and sediment control plans (PESCPs). The PESCPs will be prepared and implemented progressively during construction of EnergyConnect (NSW – Eastern Section).

This strategy has been prepared to address the relevant requirements of the Infrastructure Approval, the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

2 Environmental requirements

The project's approach to erosion and sediment control will be in accordance with the principles identified in:

- *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004), and *Volumes 2A and 2C* (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book';
- *Best Practice Erosion and Sediment Control* (IECA – 2008);
- TransGrid's HSE Guidelines and;
- *Guidelines for Controlled Activities on Waterfront Land* (NRAR 2018).

2.1 Hierarchy of erosion and sediment control principles

The guidelines listed above generally describes the hierarchy for erosion and sediment management principles in the following order:

1. integrate erosion and sediment management measures with construction planning;
2. minimise area of disturbance / area of soil exposure to erosion;
3. promptly stabilise / rehabilitate disturbed areas;
4. manage water flow through the site through drainage controls;
5. design and install appropriate erosion control;
6. design and install appropriate sediment control to maximise sediment retention on site; and
7. monitor controls and adjust control measures to maintain the required standard.

3 Existing environment

The existing environmental setting relating to the aspects of soil and water quality within and adjacent to the project is identified in Section 3 of the relevant *Soil and Water Management Plan*. Additional information is available in Chapter 16 and 21 of the EIS Main volume, Technical Paper 8 (Hydrology, flooding and water quality) of the EIS and Section 6.5 of the *Amendment Report EnergyConnect (NSW – Eastern Section)*.

3.1 Soils

Soils are mapped as primarily vertosols according to Australian Soil Classification (CSIRO, 2016a) and are found along the main watercourses while alluvial plains are found in proximity to the Murrumbidgee, Darling, and Darling – Anabranh Rivers.

Published soil mapping along the alignment indicates that the regional geology and soils are expected to be predominantly transported Quaternary-aged sediments deposited in alluvial flood plains, and dune. The predominant soil types are typically sand and clay or a mixture of the two.

Based on broadscale state mapping, almost all of the project area is mapped as having low salinity potential. Soil conductivity testing undertaken in 2020 did however indicate variable salinity conditions across the project area with some soil results indicating moderately saline and very saline soil conditions.

Published acid sulfate soil mapping indicates there is an extremely low probability of acid sulfate soils occurring across the project area, with the exception of low lying areas surrounding lakes and river beds, which are mapped as high probability of containing ASS.

There are no mapped areas indicating naturally occurring asbestos minerals may be present within the project area

3.2 Watercourses

Numerous natural watercourses and man-made waterways intersect the project area, ranging from unnamed drainage lines, dry rivers, perennial rivers, canals and drains. The project intersect 19 named waterways.

Lakes and waterbodies located along the length of the project include Dry Lake, Lake Benee, Lake Caringay, Waldaira Lake, Condoulpe Lake, Dusty Lake, Five Tree Dam, Lake Urana, Lake Cullivel and Lake Albert.

3.3 Rainfall intensity

The average annual rainfall across the project area is variable, however generally average rainfall is higher at the eastern end of the project and lower at the western end.

The Urana Post Office weather station (station number: 074110) near the eastern end of the project area recorded an annual average rainfall of 442.2mm between 1871 to 2020. The average monthly rainfall is slightly higher in May and June.

The closest weather station (Irymple, station number: 076015) to the western end of the project area recorded an average annual rainfall of 271mm between 1908 to 2020. Rainfall is fairly evenly spread across the year, with higher peak rainfall values from November to April.

4 Induction/training

Training and awareness of the principles of erosion and sedimentation will be provided through either site inductions, pre-start meetings and/or toolbox talks.

5 Key management strategies

5.1 Context

It is important to note that the principal objective for managing erosion and sediment on a construction site is to take all reasonable and practicable measures to minimise the short and long-term soil erosion and the adverse effects of sediment transportation.

Generally, the context of the term 'reasonable' means an action based on sound judgement and affordable cost while the contextual meaning of the term 'practicable' is an action capable of being implemented with available means, with reason or with prudence.

It is also important to acknowledge the fact that each construction site demands a unique set of erosion and sediment control measures. Thus, a control measure that is observed to work well in one location does not mean it will work well in another location. Implementation of erosion and sediment controls measures should represent an appropriate balance between the recommended implementation of the control and common sense. There may be situations/locations where erosion and/or sediment control measures are not required or become obsolete depending on the current activities occurring on site at the time.

SecureEnergy is conscious that EnergyConnect is a long linear infrastructure where the environmental setting and climate may vary spatially. Hence, the suitability of erosion and sediment control measures will depend on both the location in which the controls are being applied, and the construction activities which are to occur.

5.2 Preparation of erosion and sediment control plans

A Certified Professional in Erosion and Sediment Control (CPESC) will prepare the initial ESCP to detail the erosion control measures to be utilised across a range of different receiving environments and landforms on the project. Environmental staff will then typically use the ESCP as a basis to develop progressive erosion sediment control plans (PESCPs) in consultation with Project Engineers, Superintendents and Supervisors. For high risk environments, such as works near major watercourses or in steep or highly erodible terrain, the progressive ESCPs will be reviewed by the CPESC.

PESCPs will provide more detailed and up-to-date information relating to specific areas and control measures. The PESCPs will be implemented concurrently with the relevant site activities and updated as required to reflect the evolution of site conditions as the project progresses.

5.3 SecureEnergy's erosion and sediment control principles

The hierarchy of principles identified in Section 2.1 has provided guidance for the development of erosion and sediment control principles for the project. These eight principles are listed below.

A compliance matrix is also presented in Annexure A, with this compliance matrix detailing how SecureEnergy's principles address the guidelines listed within Section 2.

SecureEnergy Principle 1 – Appropriate planning and documentation

Prior to disturbance of the area and soil exposure, erosion and sediment control issues will be considered and integrated into construction planning, programming and site documentation, which will include the following:

- consider the existing landscape environment and identify areas of key risks to erosion and sediment issues;
- consider sensitive areas and features including, but not limited to, location of known heritage features both within and adjacent to the construction area, biodiversity flora and fauna, watercourses and riparian land;
- develop the site layout and construction process to prevent or minimise environmental harm due to erosion and sediment control issues (e.g. material stockpiles to be located away from surface water flow paths);
- construction planning to minimise extent/duration of soil disturbance; and
- prepare effective and flexible PESCPs that are adjusted and adapted to changing site conditions. The initial PESCP will be prepared prior to soil disturbance activities and implemented concurrently with relevant site activities where required.

SecureEnergy Principle 2 – Minimise the extent and duration of disturbance

To minimise erosion of disturbed areas, aim to complete work and stabilise disturbed areas progressively.

SecureEnergy Principle 3 – Control stormwater flows onto, through and from the site

To reduce erosion and surface water runoff volumes that will eventually require treatment, and to maximise the efficiency of sediment control measures, aim to:

- separate ‘clean’ run-on water from ‘dirty’ water run-off;
- manage areas susceptible to concentrated water flow; and
- break up slope lengths and minimise catchment areas within the work area where possible, to reduce run-off volume and velocities to manageable levels.

SecureEnergy Principle 4 – Use erosion control measures to prevent on-site damage

To minimise erosion of disturbed areas and unlined drains, aim to:

- protect the soil surface from raindrop impact;
- protect the soil surface to minimise erosion; and
- convey run-off in a non-erosive manner.

SecureEnergy Principle 5 – Use sediment control measures to prevent off-site damage

To minimise the off-site transport of eroded sediment, aim to:

- intercept and capture ‘dirty’ sediment laden run-off water prior to leave the site boundary;
- slow the velocity of ‘dirty’ water so that soil particles can settle out by gravity;
- chemically treat sediment laden water to remove very fine suspended soil particles (where required); and
- locate control measures as close to the sediment source as possible, while not impeding construction activities.

SecureEnergy Principle 6 – Minimise impacts on waterfront land

To minimise impacts to waterfront land, aim to:

- protect ground stratum native vegetation within vegetated riparian zones of rivers to the greatest extent practicable, with vegetation clearing ideally limited to the tree stratum only, with trunk bases being retained in-situ;
- minimise the extent of vegetation clearing generally within vegetated riparian corridors wherever practicable in constructing the transmission line structures; and

SecureEnergy Principle 7 – Stabilise disturbed areas quickly

To minimise erosion of disturbed areas, aim to:

- strip and stockpile site topsoil material for reuse in the restoration / stabilisation phase; and
- stabilise disturbed surfaces progressively following completion of works at each location to minimise erosion.

SecureEnergy Principle 8 – Inspect and maintain control measures

The effectiveness of erosion and sediment controls is related to both the selection of appropriate techniques and the maintenance of these measures. SecureEnergy will:

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- inspect control measures regularly (e.g. before/after rainfall and during weekly environmental inspections) ;
- maintain, modify and/or implement new control measures as identified and required by the inspection; and
- remove temporary control measures once an area has been stabilised.

5.4 Sediment basins

Sediment basins are stormwater management devices and are not proposed in all construction areas. Generally, sediment basins will only be required in areas where soil disturbance occurs over an area greater than 2,500m² per sub-catchment. However and more accurately, the requirement of a sediment basin can be determined when there is an annual soil loss greater than 150m³/year calculated in accordance with the Blue Book. As such, key areas such as borrow pits, laydown areas or earthworks activities at substations will be assessed to determine if a sediment basin is required. Generally, sediment basins will be constructed where the soil loss calculations indicate they are required. Sediment basins will be constructed and operated in accordance with the Blue Book and the location will be reflected in the relevant PESCP.

Annexure A – Compliance matrix

No.	Principle / objective	SecureEnergy ESC principles								
		1	2	3	4	5	6	7	8	N/A
Principles of Construction Site Erosion and Sediment Control (IECA 2008)										
1	Appropriately integrate the development into the site									✓*
2	Integrate erosion and sediment control issues into site and construction planning	✓								
3	Develop effective and flexible erosion and sediment control plans based on the anticipated soil, weather and construction conditions	✓								
4	Minimise the extent and duration of soil disturbance		✓				✓			
5	Control water movement through the site			✓			✓			
6	Minimise soil erosion				✓		✓			
7	Promptly stabilise disturbed areas							✓		
8	Maximise sediment retention on the site					✓				
9	Maintain all erosion and sediment control measures in proper working order at all times								✓	
10	Monitor the site and adjust erosion and sediment control practices to maintain the required performance standard								✓	
Blue Book management principles (Landcom 2004)										
1	Assess the soil and water implications of development at the subdivision or site planning stage, including those relating to ecologically sustainable development. Investigate the salinity and the acid sulfate potentials of the soil where their disturbance is likely to expose and/or exacerbate this problem	✓								
2	Plan for erosion and sediment control concurrently with engineering design and before earthworks begin, ensuring proper assessment of site constraints and integration of the various components	✓								
3	Minimise the area of soil disturbed and exposed to erosion		✓							
4	Conserve topsoil for later site rehabilitation / revegetation							✓		
5	Control water flow from the top of, and through the development area			✓						
6	Rehabilitate disturbed lands quickly							✓		
7	Maintain soil and water management measures appropriately during the construction phase								✓	
TransGrid's HSE Guideline										
1	Minimising disturbance		✓							
2	Stabilise high traffic areas	✓								
3	Slow down or redirect water flow through the site			✓						
4	Protect disturbed areas with gravel, mulches, erosion matting or blankets				✓					
5	Stabilise disturbed areas as soon as possible once work is complete							✓		
6	Avoid allowing sediment to leave the worksite or enter drainage					✓				
Guidelines for Controlled Activities on Waterfront Land (NRAR 2018)										
1	Establish and preserve the integrity of riparian corridors						✓			

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No.	Principle / objective	SecureEnergy ESC principles								
		1	2	3	4	5	6	7	8	N/A
2	Seek to minimise disturbance and harm of riparian corridors		✓							
3	Minimise the number of creek crossings of riparian corridors						✓			
4	Treat stormwater run-off before discharging into riparian corridors			✓						

* To be managed through the permanent design process

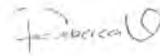
Appendix B – Unexpected Contamination Finds Procedure

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INTERNAL



Unexpected Contamination Finds Procedure EnergyConnect (NSW – Eastern Section) 45860-HSE-PR-D-0014

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	17/05/2022	Issued for internal review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
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C	19/10/2022	Issued for Transgrid's review	 M.Lee	 R.Walker-Edwards	 A.Boyd	 B.Calligeros	 S.Basanta

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Revision History	
Rev.	Detailed Description
A	Issued for internal review
B	Issued for Transgrid's review
C	Issued for Transgrid's review

Key Document Stakeholders	
To be communicated with during reviews and revisions of this document	

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1 Introduction

This Unexpected Contamination Finds Procedure (procedure) is part of the Soil and Water Management Plan (SWMP) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

1.1 Purpose

The purpose of this procedure is to detail the actions to be taken in the event that an unexpected actual or potential contamination find is encountered during project works.

This procedure has been prepared to address the relevant requirements of the *Submissions Report EnergyConnect (NSW – Eastern Section)* and the Infrastructure Approval (SSI-9172452) granted by the Minister for Planning.

2 Induction/Training

All site personnel (including sub-contractors) will undertake an induction which will include details relating to this procedure. Training may also occur through toolbox talks, pre-starts and targeted training as required.

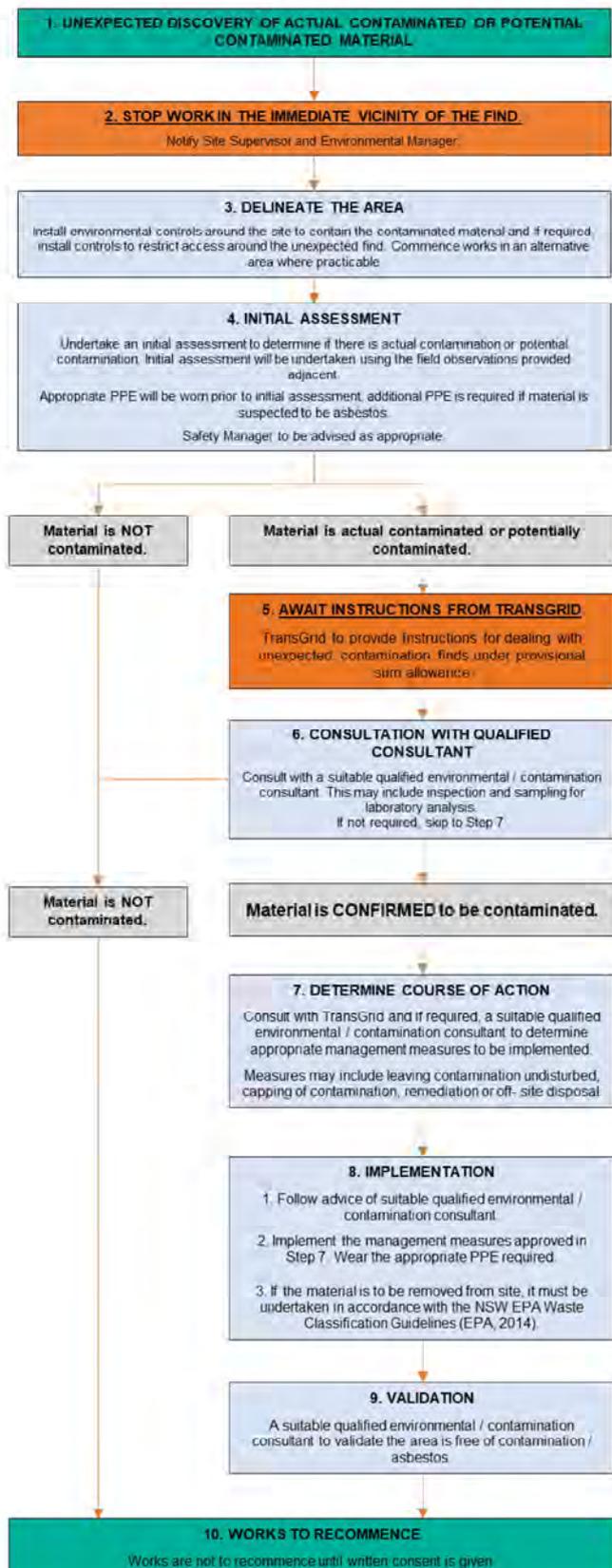
3 Scope

This procedure is applicable for the following:

- all activities conducted by site personnel (including sub-contractors) for the project that have the potential to uncover / encounter contaminated finds (usually during construction);
- where the project does not have approval to disturb the contaminated material; and
- where safeguards for managing the disturbance (apart from this procedure) are not contained in the environmental impact assessment.

Contaminated Land Procedure

Unexpected Contamination Finds Procedure



Purpose

The purpose of this procedure is to detail the actions to be taken in the event that an unexpected actual or potential contaminated material is encountered during construction works associated with EnergyConnect (NSW – Eastern Section).

Definition

Contamination means the presence in, on or under land or any other aspect of the environment of a substance (i.e. gas, chemical, liquid or other matter) whether occurring naturally or otherwise, which is:

- (a) at a concentration above the concentration at which the substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, is normally present in, on or under land or any other aspect of the environment in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment; or
- (b) toxic, flammable or otherwise capable of causing harm to humans or damage to the environment including asbestos (man-made or naturally occurring), toluene, polychlorine biphenyls, lead based paints, glues, solvents, cleaning agents, paints, water treatment chemicals and acid producing spoil.

Field observations

Contamination that may not have been detected during previous investigation works may be discovered during the course of the project. Such contamination may be discovered due to the following field observations:

- odour;
- unusual discolouration or staining of soil or rock;
- seepage of unusual liquids from soil or rock;
- unusual colour, odours or sheens on groundwater and/or surface water;
- unusual metal objects;
- presence of oil;
- presence of waste or rubbish above or below ground; and
- actual or potential asbestos or asbestos containing material (ACM).

Actions

If unexpected contamination is discovered, the following procedure will be implemented:

- **STOP ALL WORKS** in the immediate vicinity of the discovery. Do not remove or unnecessarily disturb the area of the find;
- follow the adjacent flowchart;
- notify the Site Supervisor and the Environmental Manager; and
- Do not recommence work until advised to do so in writing.

Personal Protective Equipment (PPE)

The appropriate Personal Protective Equipment (PPE) will be worn prior to any contamination investigation/management. This may include, but not be limited, to:

- eye goggles;
- face mask;
- rubber boots;
- rubber gloves;
- disposal work clothes; and
- full face respirator with vapour cartridge.

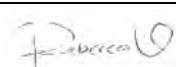
Appendix C – Spill Response Procedure

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INTERNAL



Spill Response Procedure EnergyConnect (NSW – Eastern Section) 45860-HSE-PR-D-0017

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	10/05/2022	Issued for internal review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
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Revision History	
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A	Issued for internal review
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Key Document Stakeholders
To be communicated with during reviews and revisions of this document

1 Introduction

This Spill Response Procedure (SRP or procedure) forms part of the *Soil and Water Management Plan* (SWMP) for EnergyConnect (NSW – Eastern Section).

1.1 Purpose

The purpose of this procedure is to describe the emergency spill response approach that will be employed by SecureEnergy personnel and subcontractors during construction of the EnergyConnect (NSW – Eastern Section) project.

2 Induction/training

All site personnel (including sub-contractors) will undertake an induction which will include information in relation to spill response. Training may also occur through toolbox talks, pre-start briefings and targeted training as required.

3 Scope

This procedure is to be applied in the event of a chemical, fuel or oil spill that arises due to the project activities.

4 Control measures

4.1 Preventative spill measures

In order to minimise the potential for environmental impacts to water and soil from spills the following will be undertaken:

- training in use of spill containment materials, their locations and spill response will be undertaken proactively as required particularly for personnel who are working within or near to aquatic environments and are involved in regularly handling and using potentially contaminating substances (e.g. personnel who are carrying out refuelling activities);
- unless unavoidable, refuelling, washing and maintenance of vehicles and mechanical plant will occur at least 50m from waterbodies;
- plant and equipment will undergo regular checks and subsequent repair for potential leakages or worn hydraulic hoses;
- all chemicals including fuels and oils will be stored when not in use in bunded areas; and
- all chemicals and hydrocarbons will be stored and handled as per manufacturer's instructions.

Regular inspection of chemical storage areas will be undertaken to assess compliance of the above measures.

4.2 Reactive spill measures

All spills are to be managed in accordance with the steps detailed within Annexure A. This includes the following steps:

1. Assess the situation;
2. Cease work and if safe to do so, control the spill;
3. Report the incident;
4. Clean up the spill;
5. Dispose of contaminated materials; and
6. Investigation and reporting.

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4.3 Spill containment

Spill containment materials such as those listed in Table 4.1 referred to as 'spill kits' will be kept and stocked on site at any location where there is significant risk/potential impact of a spill. Examples of potential locations include refuelling areas, chemical storage or where works are within the vicinity of waterways. Spill kits could be stored in a fixed location or be mobile. Spill kits will be placed in dedicated, visible and accessible locations.

The spill kits will be appropriately sized according to the volume of chemicals and fuels being stored or used and the activities which are being undertaken. All staff would be made aware of the location of the spill kit and trained in its use. Spill kits would be restocked as soon as possible after each use, with used material replaced.

Table 4.1 provides examples of appropriate application of material types. Spill kit inspections are to be undertaken on regular intervals such as during the weekly environmental site inspections detailed within Section 9.1 of the Construction Environmental Management Plan. The inspections would check that spill kits are present at the required locations, are accessible and appropriately stocked.

Table 4.1 - Spill containment materials

Product	Description/Application
Pads, pillows and socks	<ul style="list-style-type: none"> Used to clean-up (absorb) small to medium liquid spills on land rather than containing. Thin absorbent mats placed over spills. Cushion shaped products containing absorbent fibres, used directly under a leak or drip. Absorbent socks placed at the low point of a spill. Consider the need to have a spill kit containing these at the source of the activity and extras in-stock on site. If these materials are not enough to clean-up the spill, consider using absorbent granular materials or equivalent.
Sorbents	<ul style="list-style-type: none"> Used during clean-up, sorbents are materials that soak up the spill such as saw dust, granules or peat mixture. Spread the sorbent over the contaminant after control materials have been applied. Recover the contaminant/sorbent mixture using shovels/excavator bucket or similar. Sorbents can be used from small to large spills.
Drip trays and washout bunds	<ul style="list-style-type: none"> Used to contain incidental leaks during plant and equipment maintenance. Containers should be maintained and liquids/sludge collected. Consider if these containers are not sufficient to contain leaks/washout then construction of permanent bunding may be suitable.
Manual recovery	<ul style="list-style-type: none"> Used to physically remove the contaminant either by excavating the contaminant and adjacent soil on land or pump / vacuum truck removal for contaminant and adjacent liquid/sludge in waterbodies. Control materials should be installed prior to manual recovery to prevent spread during recovery task.

5 Incident management

Environmental incidents will be managed (including notifications and investigations) in accordance with Section 6.7.2 of the *Soil and Water Management Plan*.

Annexure A

SPILL RESPONSE PROCEDURE

IN THE EVENT OF A SPILL

1. ASSESS THE SITUATION

- Is it safe to take action?
- What is the source of spill and can it be stopped, controlled or shutdown?
- Consult the Safety Data Sheet - What PPE and emergency equipment is required?
- Are there any other hazards that need to be controlled? E.g. ignition sources?
- Do I need further assistance?



2. CEASE WORK AND IF SAFE TO DO SO, CONTROL THE SPILL

- Stop work that has resulted in the spill
- Stop the flow immediately
- Contain the spill
- Divert the spill away from waterways if needed
- Use bunds, sand etc. to limit the spread of the spill
- If spill enters the drainage system stop the spill at the low point (or it's furthest extent) if possible



3. REPORT THE INCIDENT

- Report the event to the Site Supervisor
- Site Supervisor to evaluate area and make area safe if possible and assess if further assistance needed
- Site Supervisor to notify the environment and safety teams
- Environment team to notify TransGrid. Environment team to determine if any further reporting is required in accordance with Section 8 of the CEMP.
- HSE senior representative on site to call emergency services as required for large spills beyond the capacity of the work crew to contain or contains hazardous substances, call 000 and request Fire and Rescue HAZMAT



4. CLEAN UP THE SPILL

- Do not hose away spills into the drains or waterways
- If necessary, cover spills during rain events and divert upstream waters through use of a bund to avoid spread and further contamination
- Clean up all contaminated material, soils and water as soon as possible



5. DISPOSE OF CONTAMINATED MATERIALS

- Contaminated materials will be disposed of offsite at a facility authorised to accept the waste. This includes the absorbent material used for clean up



6. INVESTIGATION AND REPORTING

- Re-stock spill kits as soon as possible after the incident
- The Environment team will investigate and report the spill as required within Section 8 of the CEMP

Notes

- Ensure the safety of yourself and others whilst implementing this procedure
- Use appropriate personal protective equipment prior to making contact with any spilt material
- Responsible persons includes personnel involved in the cause of the event, witness to the event, Supervisors, Secure Energy HSE Team, construction personnel and emergency response personnel
- Major incidents should refer to SecureEnergy's *Emergency Preparedness and Response Plan* (458060-HSE-PL-G-1015)

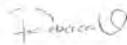
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Appendix D – Dewatering Procedure

PUBLIC



Dewatering Procedure EnergyConnect (NSW – Eastern Section) Stage 2 45860-HSE-PR-D-0029

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	1/11/2022	For internal review	R.Walker-Edwards	C.Curlewis	A.Boyd	B.Calligeros	S.Basanta
B	4/11/2022	For issue to TG	R.Walker-Edwards	C.Curlewis	A.Boyd	B.Calligeros	S.Basanta
C	11/11/2022	For issue to TG	 R.Walker-Edwards	 Sarah Klocke (Nov 11, 2022 12:57 GMT+11) p.p. C.Curlewis	 A.Boyd (Nov 11, 2022 22:28 GMT+11)	 B.Calligeros (Nov 11, 2022 22:28 GMT+11)	 S.Basanta (Nov 11, 2022 22:28 GMT+11)

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1 Introduction

This *Dewatering Procedure* (45860-HSE-PR-D-0018) is part of the *Soil and Water Management Plan* (SWMP) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

1.1 Purpose

The purpose of this Dewatering Procedure is to describe how SecureEnergy propose to manage dewatering activities during construction of EnergyConnect (NSW – Eastern Section).

In particular, this procedure describes the process for the management of detained water that requires dewatering, including water within sediment basins and water captured in other construction areas such as trenches, excavations, boreholes and sumps.

2 Induction/training

All personnel taking part in construction activities shall be informed through site inductions, pre-start meetings, or toolbox talks of the receiving environment and sensitive areas on EnergyConnect (NSW – Eastern Section).

All staff involved in dewatering activities will undergo site induction and/or specific training relating to this Dewatering Procedure. This will include, but not be limited to:

- relevant legislation;
- the existence of this procedure;
- sediment basin management;
- dewatering and discharge/re-use requirements;
- Dewatering Permits.

3 Scope

This procedure is applicable for the following:

- dewatering activities conducted by site personnel (including sub-contractors) from sediment basins and other construction areas such as trenches, excavations, boreholes and sumps; and
- dewatering of wheel washes, vehicle washdown locations and bunded areas.

It is important to note that dewatering from sediment basins or other construction areas for the project is not to be confused with the dewatering requirements of the wastewater from the turkey's nests. The requirements relating to dewatering of the turkey's nests is outlined in the relevant *Accommodation Camp Management Plan*.

4 Sediment basins

Sediment basins are stormwater management devices to capture sediment laden runoff water. The need for a sediment basin is governed by the volume of soil loss that may occur rather than solely on the location and environmental setting of the project.

Sediment basins are not proposed in all construction areas of EnergyConnect (NSW – Eastern Section). Section 6.3.2 of the *Managing Urban Stormwater: Soils and Construction Volume 1 4th Edition* (Landcom, 2004) (also known as the Blue Book) states that sediment basins will generally only be required in areas where soil disturbance occurs over an area greater than 2,500m² per sub-catchment. However, and more accurately, the requirement for a sediment basin can be determined when there is an annual soil loss is greater than 150m³/year calculated in accordance with the Blue Book. Where the calculated soil loss is less than 150m³/year, other erosion and sediment control devices can be installed instead.

Key areas such as borrow pits, construction compound areas or the earthworks activities at the substations will be assessed to determine if a sediment basin is required. Generally, sediment basins will not be required along the transmission line alignment due to limited earthworks activities supplemented by the low potential for soil erosion due to the flat topography.

4.1 Sediment basin design

The EIS states that large proportions of clay and sand, or a mixture of the two, can be found within the soil profile of the project area. As a result, all sediment basins are likely to be Type F or Type D in their design. The sediment basins will be designed in accordance with the Blue Book and generally in accordance with the *Best Practice Erosion and Sediment Control* (IECA, 2008).

A peg or other marker will be installed for each sediment basin to clearly show the upper limit of the sediment storage zone.

A summary of how Type D sediment basins are generally designed and operated is outlined in Table 4.1 and an example cross-section diagram for the sediment basin is provided in Figure 4.1.

Table 4.1 - Sediment basin type (Source: IECA, 2008)

Parameter	Type D Sediment Basin
Sizing determined by	The ability to catch all runoff from a nominated rain event (5-day, 80th percentile rainfall event) (based on <i>Best Practice Erosion and Sediment Control</i> (IECA, 2008) <i>Appendix B - Sediment Basin Design and Operation Version 2</i> and rainfall data taken from the nearest BoM weather station or from Table 6.3a of the Blue Book). Note: design parameters to be refined in consultation with soil conservation specialist as required prior to finalising basin design.
Design features	Single chamber only.
Method of discharge	Passive overflow during rainfall when capacity is overwhelmed. Once treated, detained water is pumped or piped out.
Chemical treatment	Yes.
Flocculant delivery method	Flocculant typically applied by hand or via recirculation pumps where required. Refer to Figure 4.2 for an example of a recirculation pump.
Relative effectiveness	Only effective for the water detained in the basin (i.e. up to the design rainfall event/intensity). If rainfall events exceed the design criteria levels, basins will overflow and the water will not receive treatment.
Potential to detain water for construction use	Yes. Detained water available for onsite re-use.

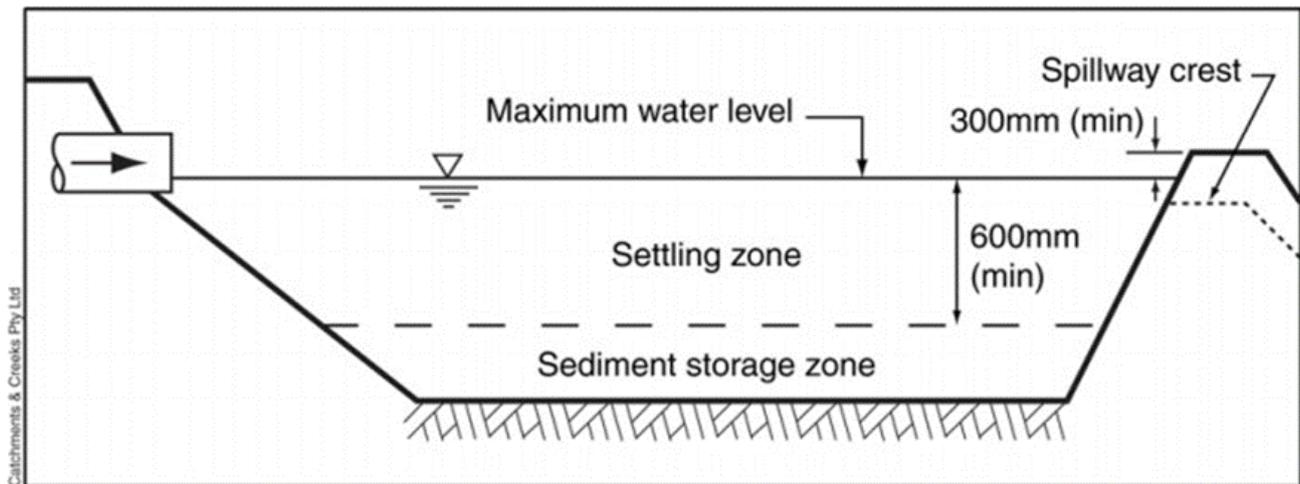


Figure 4.1 - Typical section through Type D sediment basin (Source: IECA, 2008)

4.2 Sediment basin dewatering

Sediment basins will not be dewatered without a *Dewatering Permit* (45860-HSE-FO-G-1006) in place. The *Dewatering Permit* is to be approved by a member of the Environment Team.

4.2.1 Summary of dewatering options

There are two ways that a sediment basin can be dewatered:

1. Reuse; or
2. Discharge.

Reuse

Reuse involves the beneficial reuse of the water. Reuse of water from a sediment basin typically occurs through use in dust suppression, to water/irrigate areas where revegetation is occurring, or for other construction purposes such as compaction.

If detained water is reused on-site, it does not need to meet the water quality criteria for suspended solids and pH (refer to Table 4.2).

Reuse will occur in accordance with Section 6.1 of this procedure.

Discharge

Discharge typically involves pumping or active release of water to reinstate basin capacity. The action usually results in a 'point source' discharge, however discharge may also occur through application through water cart or spraying. Discharge occurs when the water is not being reused.

Discharge of water from the sediment basin does not include the overflow of a basin. Overflow of a basin occurs when the design criteria (5-day, 80th percentile rainfall event) is exceeded.

Discharge will occur in accordance with Section 6.2 of this procedure.

4.2.2 Dewatering timing

Where not required for beneficial reuse, water detained within a sediment basin will be dewatered within five calendar days following the cessation of the rain event that results in basin inflows, so that the basin storage capacity is reinstated. If rain occurs again on-site during the five-day period, the five-day requirement resets.

A rainfall data site will be nominated for each sediment basin. The rainfall data site will either be the nearest BoM weather station or from a rainfall gauge.

Constructed sediment basins will also serve a secondary purpose to store water for beneficial reuse during the project. As the project is located in a region that can experience prolonged periods without significant rainfall, the need to reinstate the basin storage capacity five days after a rainfall event can be diminished.

The Environment Team will monitor the forthcoming weather forecasts and the captured water in the sediment basins, and an assessment will be made on whether dewatering is required based on upcoming forecast weather, local climate, topography and proximity/connection to sensitive environments. The assessment will include consultation with the Construction Team to determine the upcoming construction activities and the volume of water that may be required.

As such, captured water in the sediment basins may be retained for periods greater than five days to enable beneficial reuse of the water for construction activities and dust suppression purposes. Where water is retained for a period which is longer than five days, the basin will be managed to reinstate storage capacity prior to forecast rainfall that is likely to produce measurable basin inflows. This will include the flocculation and treatment of the basins during the five day period so that discharge can occur within five days, should it be required.

4.2.3 Sediment basin treatment

Prior to discharge detained water within the sediment basin will meet the water quality criteria within Table 4.2.

Where treatment is required to achieve the water quality criteria, water treatment will be appropriately timed to ensure dewatering is complete within the five calendar days of the cessation of the rainfall event. If additional rainfall is predicted within the five-day period that is likely to generate runoff that would adversely affect the treatment process, the commencement of treatment may not commence until after the cessation of the predicted rain.

Where captured water is reused, the water quality criteria for total suspended solids and pH do not apply. Reuse of water will occur in accordance with Section 6.1 of this procedure.

Table 4.2 - Water quality criteria for discharge of water from the sediment basin

Parameter	Units	Water quality criteria
pH	pH units	6.5 to 9.0 ¹
Total suspended solids (TSS) ²	mg/L	50
Oil and grease	Visible	Nil

¹The upper limit of pH 9.0 is based on the discharge being located 300m away from a perennial watercourse and therefore in a location where the discharge will be to land or a vegetated area.

²A correlation analysis for suspended solids and turbidity may be carried out to compare Total Suspended Solids (TSS) values against Nephelometric Turbidity Units (NTU). Where a correlation is identified, the appropriate NTU value may be used to determine if the discharge criteria has been met.

4.2.3.1 Reducing turbidity

Clay is the main particle type found in the water within sediment basins. Clay particles are extremely small (less than 0.002 mm in size) and will not settle readily, even in still water (IECA, 2018).

Flocculation is a process where dispersed particles form larger-size clusters. Flocculation can occur through the use of a coagulant, flocculant or both. Coagulants achieve flocculation through charge neutralisation whereas flocculants physically bind clay and colloidal particles together.

Where the level of suspended solids or turbidity within the sediment basin does not meet the criteria within Table 4.2, and dewatering will occur through discharge, treatment will typically occur through the use of flocculants.

There are various ways that flocculants can be applied to a sediment basin. Figure 4.2 represents a suggested method of applying gypsum to a basin where spreading evenly by hand may be impractical. There can be instances where much higher rates of application of flocculants is required

to achieve an acceptable level of suspended solids concentration. This can particularly be the case when the basin is in the initial stages of treatment (ie during the first two rain events).

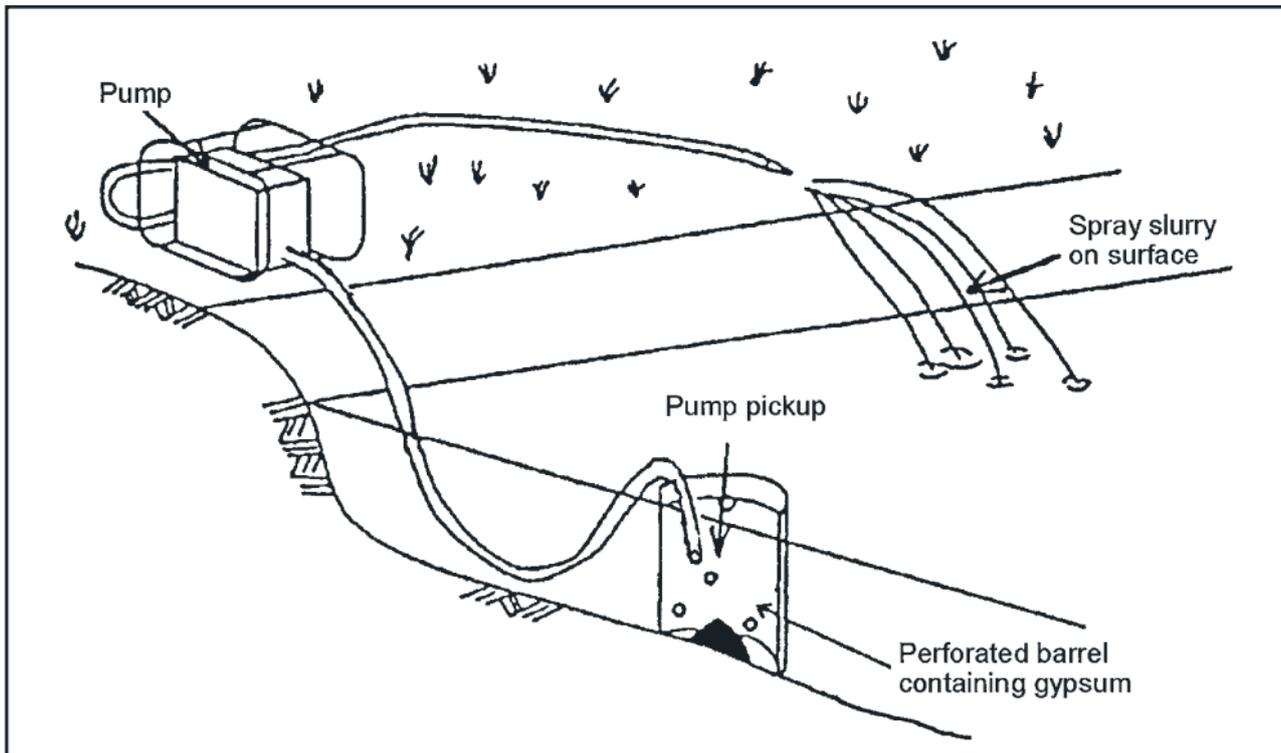


Figure 4.2 - Option for the application of gypsum to a sediment basin (Source: Blue Book, 2004)

4.2.3.2 Adjusting pH

There may be times when the pH value of detained water requires adjusting to meet the criteria detailed in Table 4.2.

To raise the pH of a basin, hydrated lime is typically applied. Application of the lime will consider the total volume of water which requires treating.

To lower pH, pool acid is typically applied. The safety requirements should be followed as outlined in the relevant safety data sheet.

Other treatments may be used in the adjustment of pH. Any alternative treatments will carefully consider the required application rates.

4.3 Sediment basin management

In summary, the following will be carried out to manage the sediment basins:

- rainfall records will be monitored through the use of the nearest BoM weather station or from a rainfall gauge;
- where a rain event has occurred and a basin requires dewatering, the dewatering options will be considered (Section 4.2.1);
- where dewatering of the sediment basin is proposed through discharge, the water quality criteria within Table 4.2 will be achieved prior to discharge. Flocculation of the sediment basin and/or adjustment of pH may be required to achieve the appropriate water quality criteria. Where dewatering of the sediment basin is proposed through reuse, only the water quality criterion for oil and grease applies;
- a Dewatering Permit will be issued prior to dewatering a sediment basin;

- where basins are dewatered using pumps, the inlets will have a float or other suitable device attached to minimise the risk of drawing sediment from the bottom of the basin;
- all discharges from the sediment basin will be undertaken in a manner that minimises the potential for scour. This is preferably to stable areas with suitable vegetation cover;
- dewatering will generally occur within five calendar days following the cessation of a rain event that results in basin inflows. Retention for more than five days may occur where the water is required for construction purposes and a member of the Environment Team has assessed that dewatering is not required (Section 4.2.2);
- as required by condition C13, 'water take' will be recorded to ensure that it is available for the Independent Audit. There is no definition of 'water take' within the Infrastructure Approval, however it is understood that this would refer to the water used or required by the project. Any recording of 'water take' should therefore relate to the reuse of water from the sediment basin.

4.4 Sediment basin maintenance

In summary, the following will be carried out to maintain the sediment basins:

- after dewatering the sediment basin, a visual inspection will be made to determine if sediment has accumulated above the sediment storage zone;
- if sediment has accumulated above the sediment storage zone, desilting of the basin will be scheduled;
- sediment extracted from the sediment basin will be either:
 - stockpiled and will be managed in accordance with the stockpile requirements detailed within the Soil and Water Management Plan;
 - incorporated into earthworks where suitable; or
 - disposed in an appropriate manner.

4.5 Sediment basin overtopping event

If the amount of rainfall exceeds the design capacity, the basin will overflow.

As such, design of the sediment basin will include a spillway to direct the water during overtopping. Where observed, overtopping events will be recorded in the post rainfall inspections.

5 Other construction areas

Water can often collect within other areas of the project, particularly after a rain event. Groundwater can also collect within excavations, particularly boreholes.

Other construction areas include, for example, trenches, excavations, boreholes and sumps.

In line with the management of sediment basins, water from other construction areas can be dewatered through (1) reuse or (2) discharge.

Where detained water from other construction areas (including groundwater) is reused or discharged, this will be carried out in accordance with Section 6.

The Environmental Manager (or their delegate) may use their discretion to determine when a Dewatering Permit is required for water discharged from other construction areas. This discretion is typically based on risk. For example, water removed from boreholes may be directed to a small washout area without requiring a Dewatering Permit for each event.

6 Dewatering options

Figure 6.1 provides an overview of the dewatering process for the project.

Detail in relation to the reuse or discharge of water is provided below.

6.1 Reuse

Water is a valuable resource within western NSW and the project aims to reuse water where possible. During construction, the project may reuse or take water on-site from a range of sources such as sediment basins, trenches, piles, sumps and open excavations. Generally, water will be taken via a pump or standpipe arrangement into a water cart and transported to the intended usage site.

Water will be reused for various construction activities such as, but not limited to, dust suppression throughout the project corridor (including at transmission tower construction areas, onto and adjacent to access tracks, unsealed roads, and unsealed areas in construction compounds and accommodation camps), soil compaction, wheel wash, vehicle washdown areas and irrigation/watering of vegetation for site restoration/rehabilitation.

If detained water from a sediment basin or another construction area is reused on-site (i.e. within the footprint of disturbance) it must only meet the water quality criterion for oil and grease.

If detained water from a sediment basin or another construction area is reused off-site (i.e. outside the footprint of disturbance), the water quality criteria applies (refer to Section 4.2.3). The re-use of detained water to an off-site location is likely to be unusual in occurrence.

The following will be considered when reusing water for construction activities:

- water is not to be reused near food crops or used in a manner which may result in overspray onto food crops;
- the reuse area is clear of sensitive receiving environments such as waterways, farm dams, threatened flora and endangered ecological communities or areas of contamination.

In the event that water is required to be used within or in close proximity to sensitive areas, the Environmental Manager (or delegate) is to undertake a risk assessment prior to water reuse. The assessment will consider the following:

- no application of water to areas where there is potential to impact threatened flora and endangered ecological communities; and
- no application of water to areas outside the construction disturbance area, which has the potential to impact in-situ Aboriginal heritage features.

Although water generated on site is generally not to be used in close proximity to sensitive areas, there may be some instances where this is unavoidable. For example, the use of water may be required for construction activities (such as the compaction of soils) that are located in areas that are within close proximity to sensitive areas, such as in-situ heritage features.

Where the application of water is essential for construction activities, such as soil compaction within an area that contains or might contain Aboriginal heritage features (i.e. a PAD site, heritage site or heritage item), the management measures of the *Heritage Management Plan* (45860-HSE-PL-D-0113) are to be followed. Indirect impacts to heritage features adjacent to the construction activities should be considered by the Environmental Manager or their delegate (for example for a hearth located adjacent to the work area) with management measures to be applied as required.

As required by condition C13, 'water take' will be recorded to ensure that it is available for the Independent Audit. There is no definition of 'water take' within the Infrastructure Approval, however it is understood that this would refer to the water used or required by the project. Reuse of water should therefore record or estimate the volume in a manner such that 'water take' is available for the Independent Audit.

6.2 Discharge

Discharge typically involves pumping or active release of water detained within a sediment basin or collected in other construction areas. The action usually results in a 'point source' discharge of detained water to a location on-site, however discharge may also occur through spray application.

Any discharge from sediment basins (to on or off-site areas) will be required to meet the water quality criteria detailed in Table 4.2 prior to discharge.

A *Dewatering Permit* will be in place prior to discharging a basin.

Discharge from other construction areas can occur without achieving the water quality criteria within Table 4.2, provided that the discharge does not result in pollution as defined under the *Protection of the Environment Operations Act 1997*. To assist in achieving this, any required controls as directed by the SecureEnergy Environmental Team should be installed.

The Environmental Manager (or their delegate) may use their discretion to determine when a Dewatering Permit is required for water discharged from other construction areas. This discretion is typically based on risk (e.g. volumes, discharge location, or water source). For example water removed from boreholes may be directed to a small washout area without requiring a Dewatering Permit for each event.

Discharge locations will consider the following:

- discharge to occur to areas of existing vegetation or stabilised discharge points to assist with the management of runoff;
- no discharge of areas which may directly or indirectly impact sensitive receiving environments (heritage features, threatened flora, endangered ecological communities) or areas of contamination;
- the receiving area is 40m clear of sensitive receptors such as waterways and farm dams.

Prior to discharge, the factors that will be considered by the Environment Team in deciding whether to issue a Dewatering Permit include forecast weather conditions (no rainfall imminent), soil surface conditions (infiltration capacity), climatic factors (e.g., drought, prevailing winds direction and wind speed) and proximity to sensitive areas.

If erosion or scouring is observed during discharge, the pump will be shut off and the discharge point moved to an alternative location before recommencement of dewatering operations. Relevant details will be recorded on the Dewatering Permit.

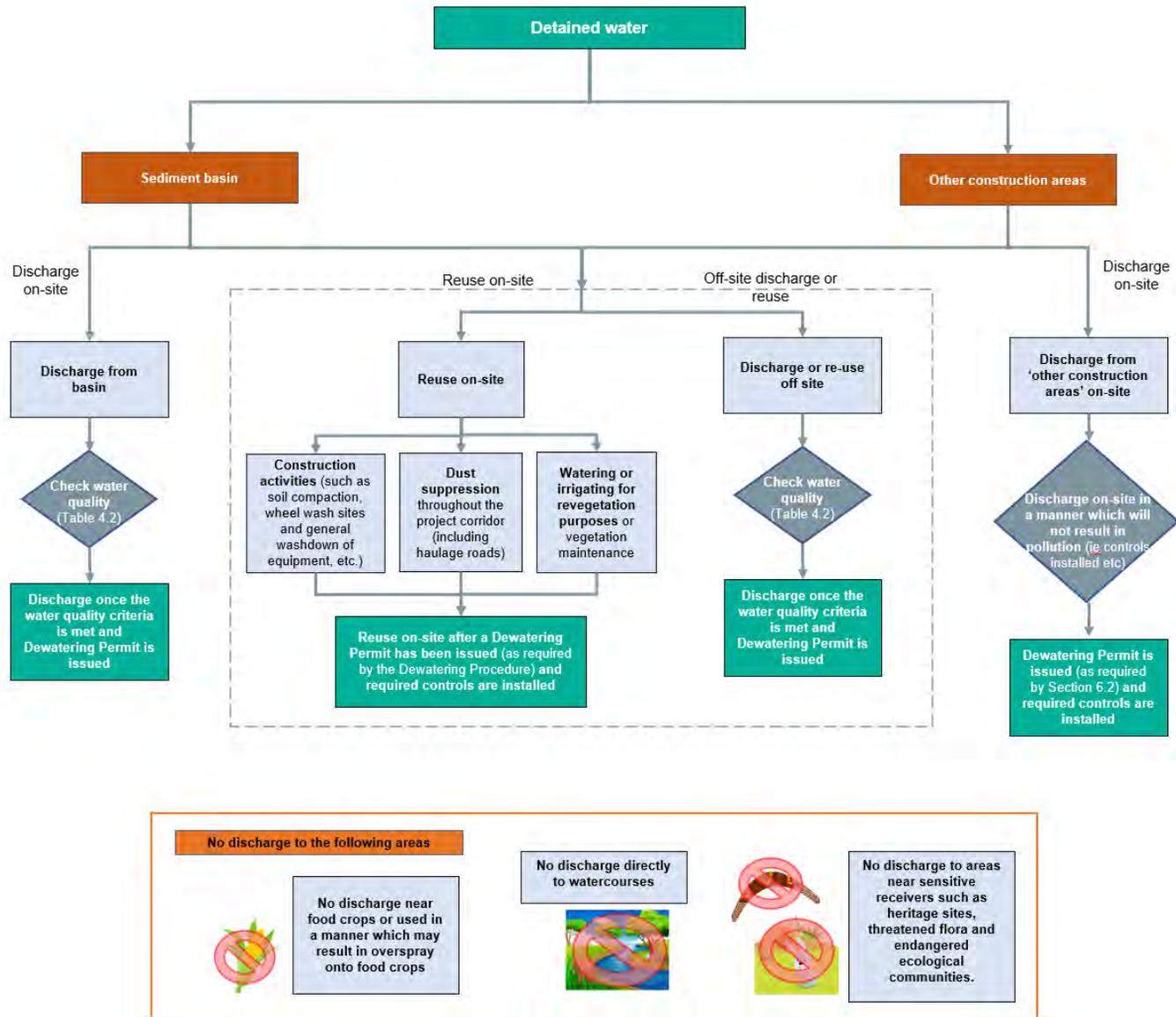


Figure 6.1 - Summary of the water reuse and discharge options

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7 Other types of dewatering

7.1 Biosecurity wheel wash management

Wheel wash bays will be installed at designated locations to minimise the transmission of weeds or pathogens. As such, the water at the wheel wash bay will need to be managed so it does not impact the surrounding environment which it is meant to protect.

As water from these wheel washes may contain biocides, antifungals or other disinfectants, the management of water from wheel wash bays will be determined on a case-by-case basis. If the wastewater treatment plants (WWTPs) are capable of treating the contaminants present, the water from the wheel wash bays will be collected, transported and treated by the WWTPs for reuse on the project. This will be further discussed with the plant operator where required.

If the WWTPs is unable to treat the water from the wheel wash bays, the water which contain biocides, antifungals or other disinfectants will generally be drained to a containment sump that is lined with geofabric or other suitable material to avoid percolation. The water will be left to evaporate so that the residue is left behind. Prior to the decommissioning of the washdown bay and containment sump or as required, any residue material will be tested and removed offsite as waste in accordance with the *Waste Management Plan* (45860-HSE-PL-D-0121) for the project.

In the event the water from the washdown bay is at risk of overtopping within the containment sump, the project will dewater the sumps into intermediary bulk containers (IBCs). This water would then be removed offsite as waste in accordance with the *Waste Management Plan*.

7.2 Vehicle washdown in ancillary yards

Vehicle washdown bays will be set up along the construction corridor and/or at the construction compound. Wheel washdown bays proposed at the accommodation camps are detailed within the relevant *Accommodation Camp Management Plan*. These vehicle washdown bays are generally for vehicle and plant maintenance and cleaning, however, the cleaning process will also potentially remove weeds and pathogens that remain attached to the vehicles.

Washdown bays will be positioned to avoid any low points and stormwater drainage lines and will consider the direction of water runoff. Water from the washdown bays will be diverted to a designated sump which would capture silts, mud and soapy water. If de-silting is required at these washdown bays, the accumulated silts and sediments will be visually inspected for any contamination (including oil, grease, detergents, weeds and seeds), tested (as required for classification purposes) and disposed of in accordance with the *Waste Management Plan*. If the residue is deemed to be uncontaminated and suitable for reuse, it would be mixed into other dry material and reused on the project.

7.3 Chemical bunds and secondary containment

Chemical bunds that are used for secondary containment on the project may occasionally fill with rainwater. If the chemical bund has no visible signs of contamination the water will be collected and re-used or discharged in accordance with this procedure. If the bund has signs of oils/grease or hydrocarbons, the water will be collected and transported to a facility authorised to accept the liquid waste as per the *Waste Management Plan*.

8 Monitoring

8.1 Pre-rainfall

Sediment basins will be inspected as part of pre-rainfall inspection to determine if adequate design capacity is available for the upcoming predicted rainfall event and if water extraction from the sediment basin is required. The inspection to be undertaken on working days.

8.2 Post-rainfall

Sediment basins will be inspected as part of the post-rainfall inspections to determine if any maintenance is required. The inspections will occur within the next working day, if safe to do.

8.3 During dewatering

Prior to dewatering of sediment basins for discharge, the water quality will be checked as stipulated in Section 4.2.3. The Supervisor (or delegate) undertaking the dewatering activity will conduct a visual inspection to ensure that water removed from the basin does not include any silts or sediment from the bottom of the basin.

9 Record keeping

As required by Section 6, dewatering activities will be recorded in the *Dewatering Permit* (45860-HSE-FO-G-1006).

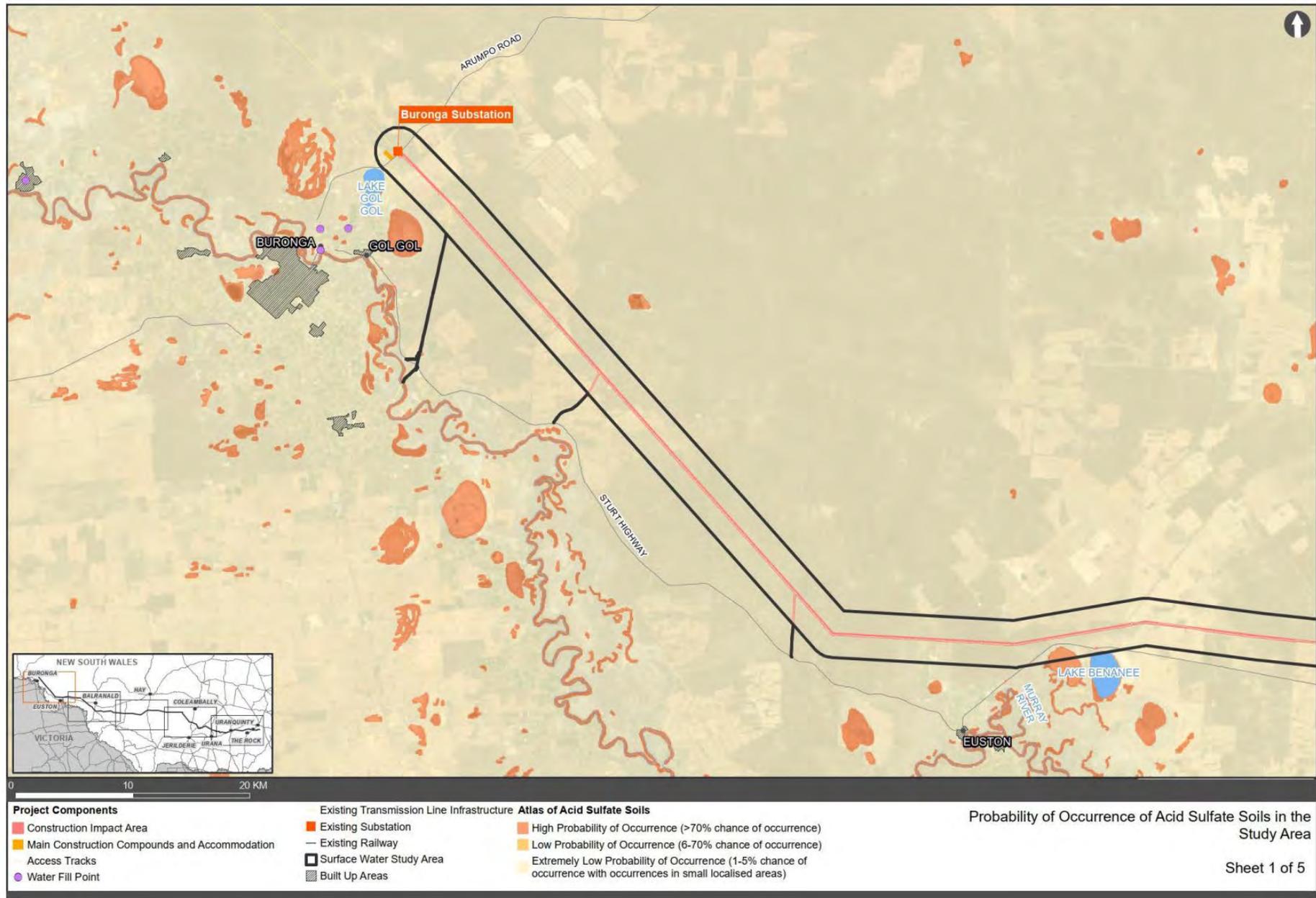
The Dewatering Permit will include the following information:

- a summary information section which includes the permit ID number, date and location of proposed discharge;
- the water quality values including the sampling time, date and the name of the person who obtained the sample; and
- quantities of additives, if required, including type of additive, time and date added.

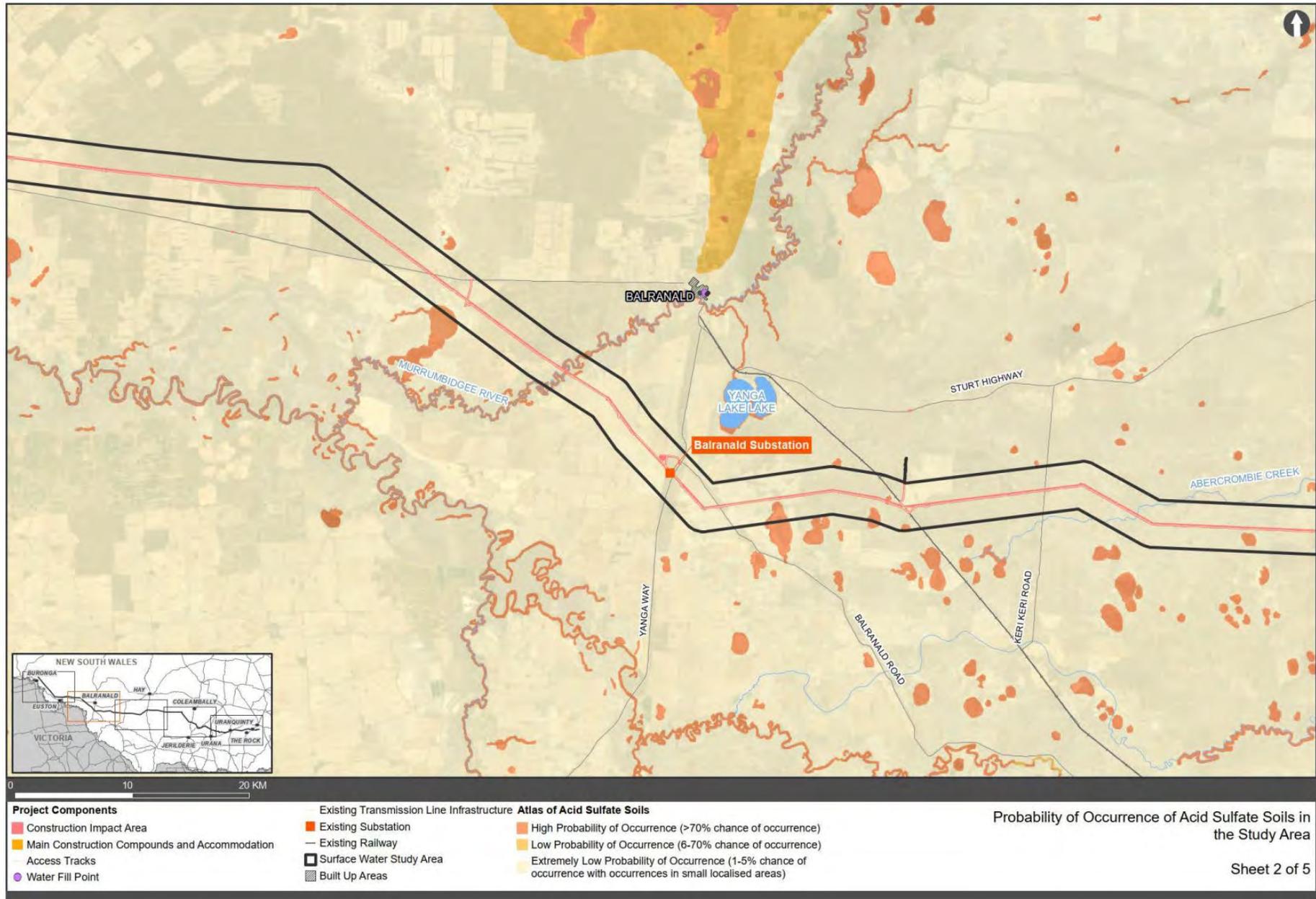
As required by condition C13, 'water take' will be recorded to ensure that it is available for the Independent Audit. Reuse of water should therefore record or estimate the volume in a manner such that 'water take' is available for the Independent Audit.

Residue waste from washdown bays and biosecurity washdowns would be reported and tracked in accordance with the project *Waste Management Plan*.

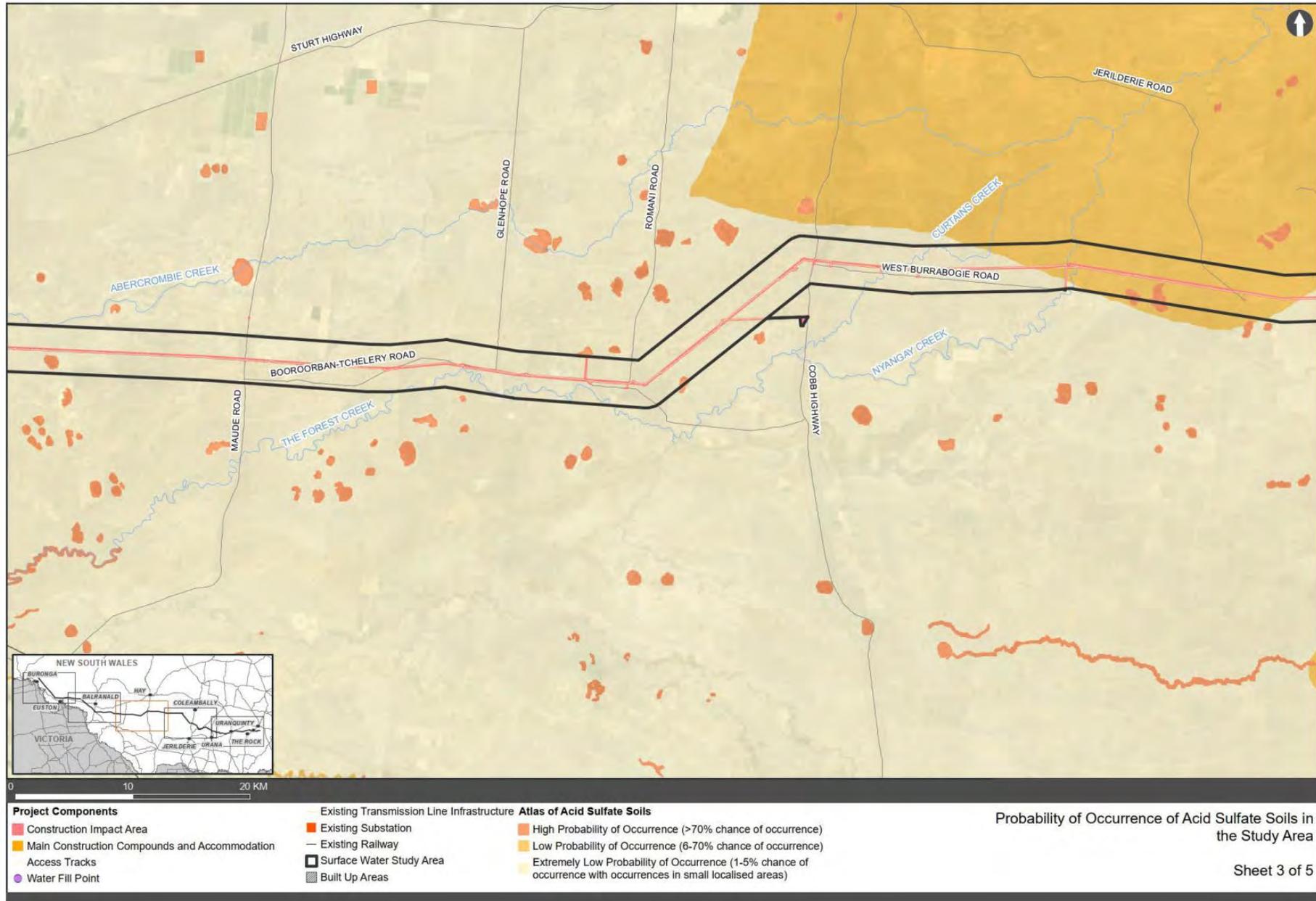
Appendix E1 – Acid sulfate soil risk mapping



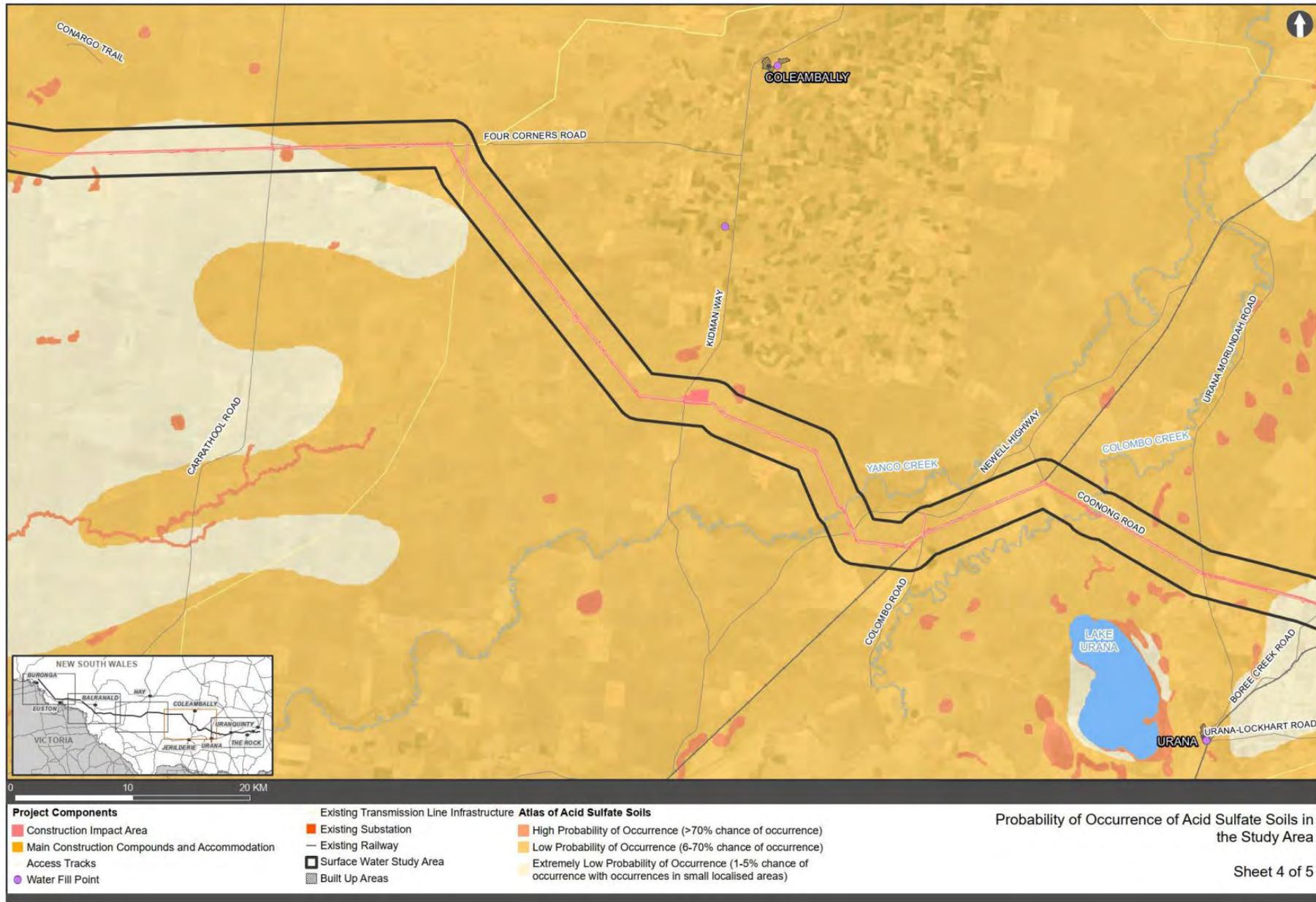
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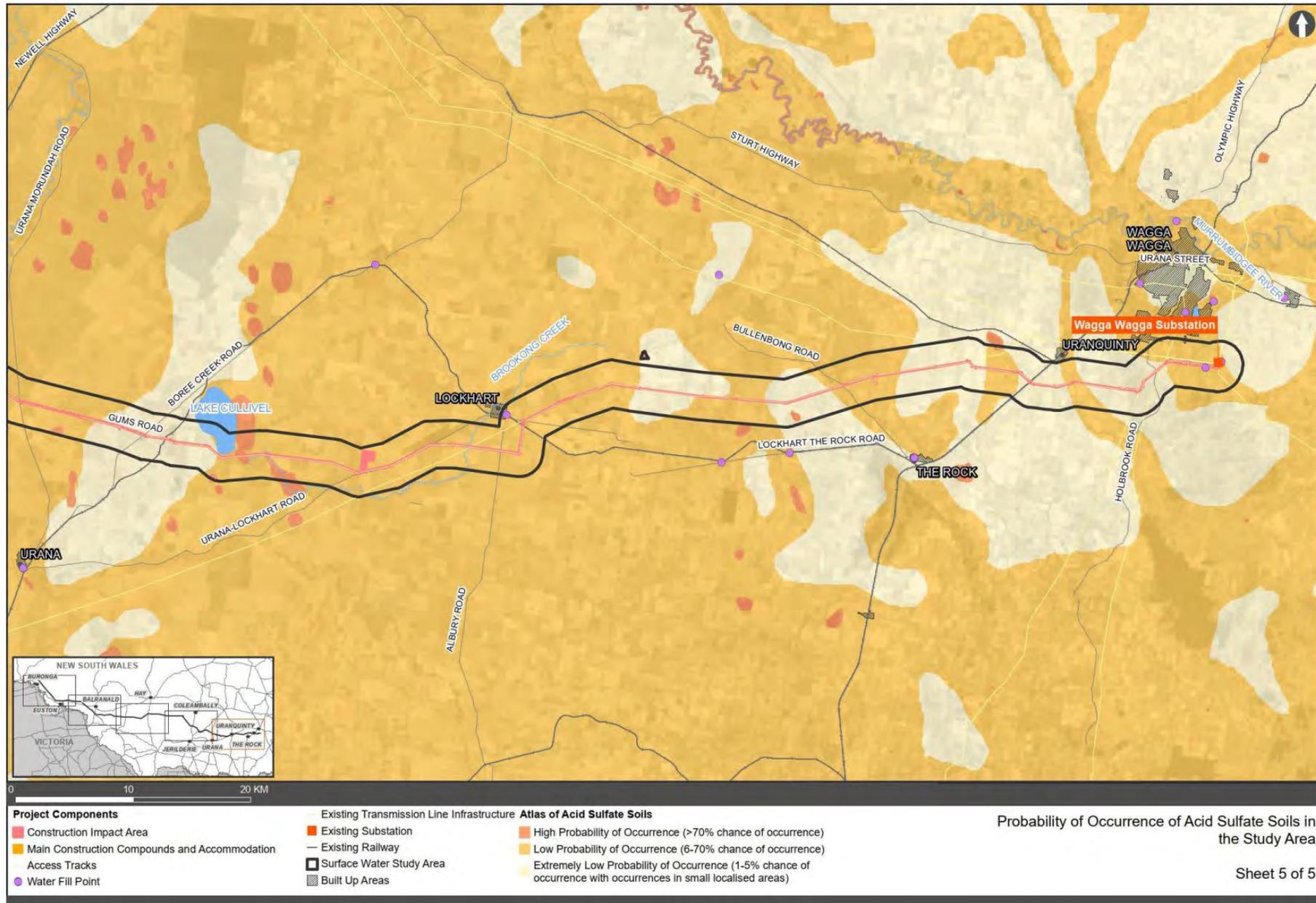
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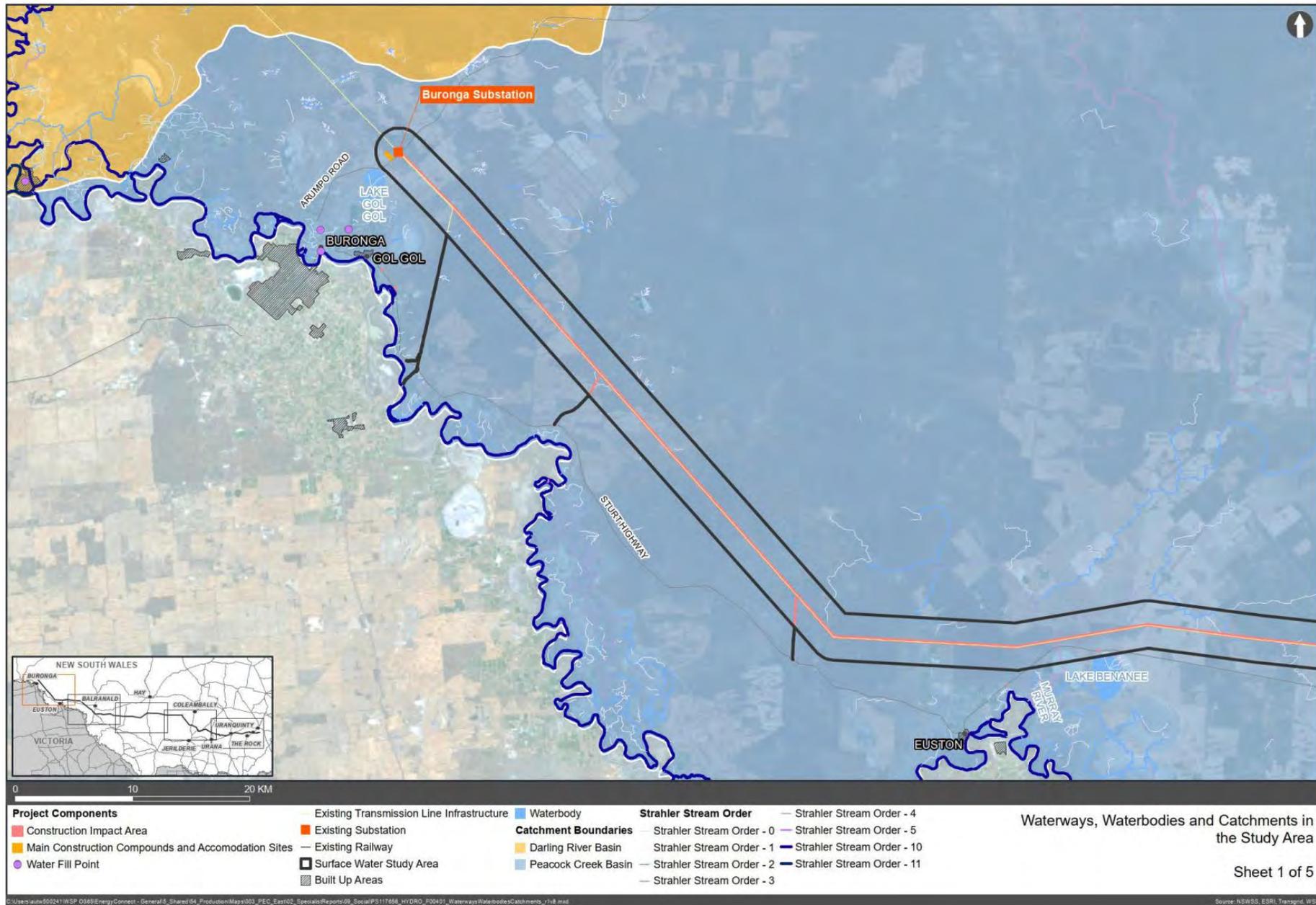


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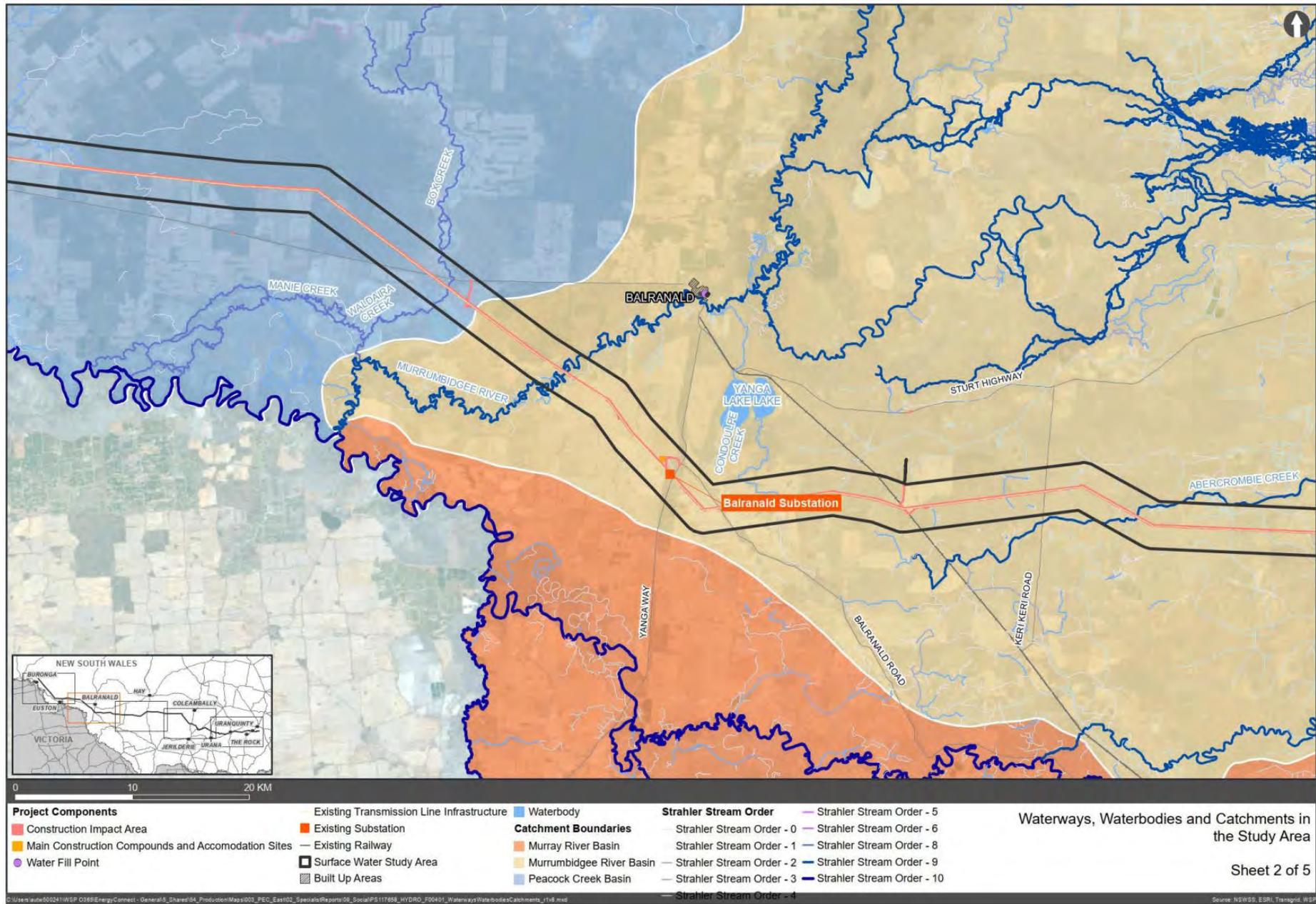


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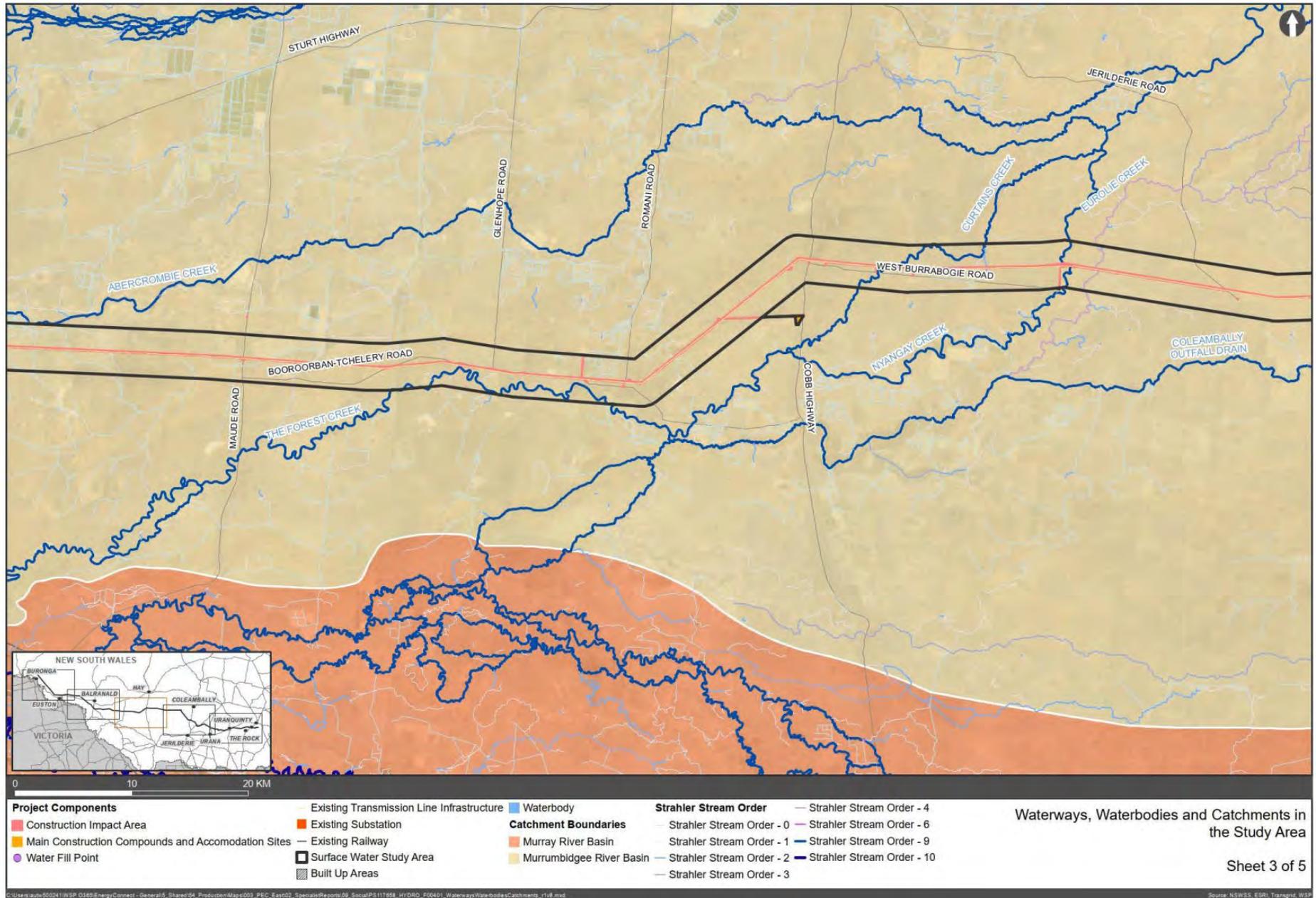
Appendix E2 – Waterbodies, waterways and catchments



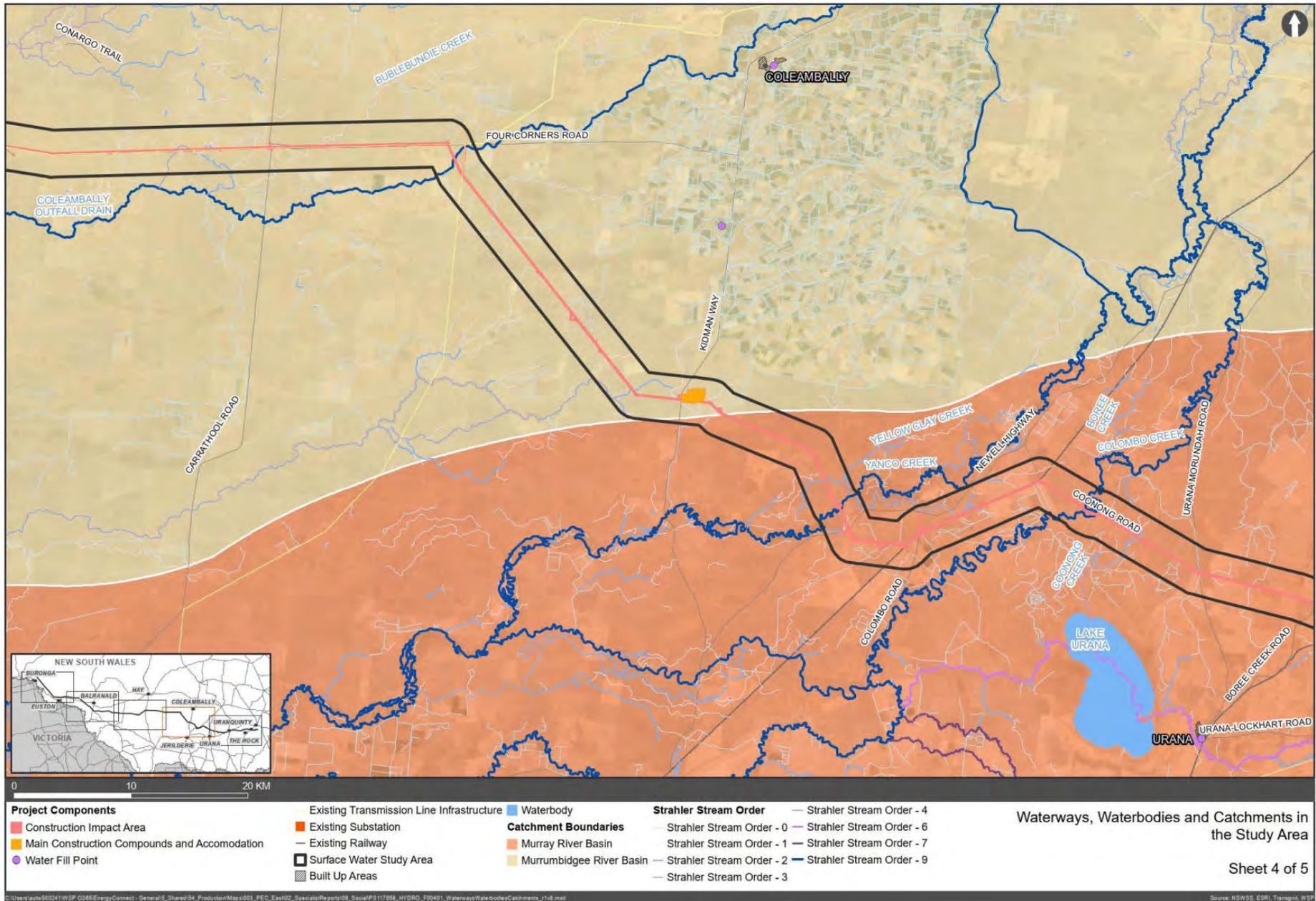
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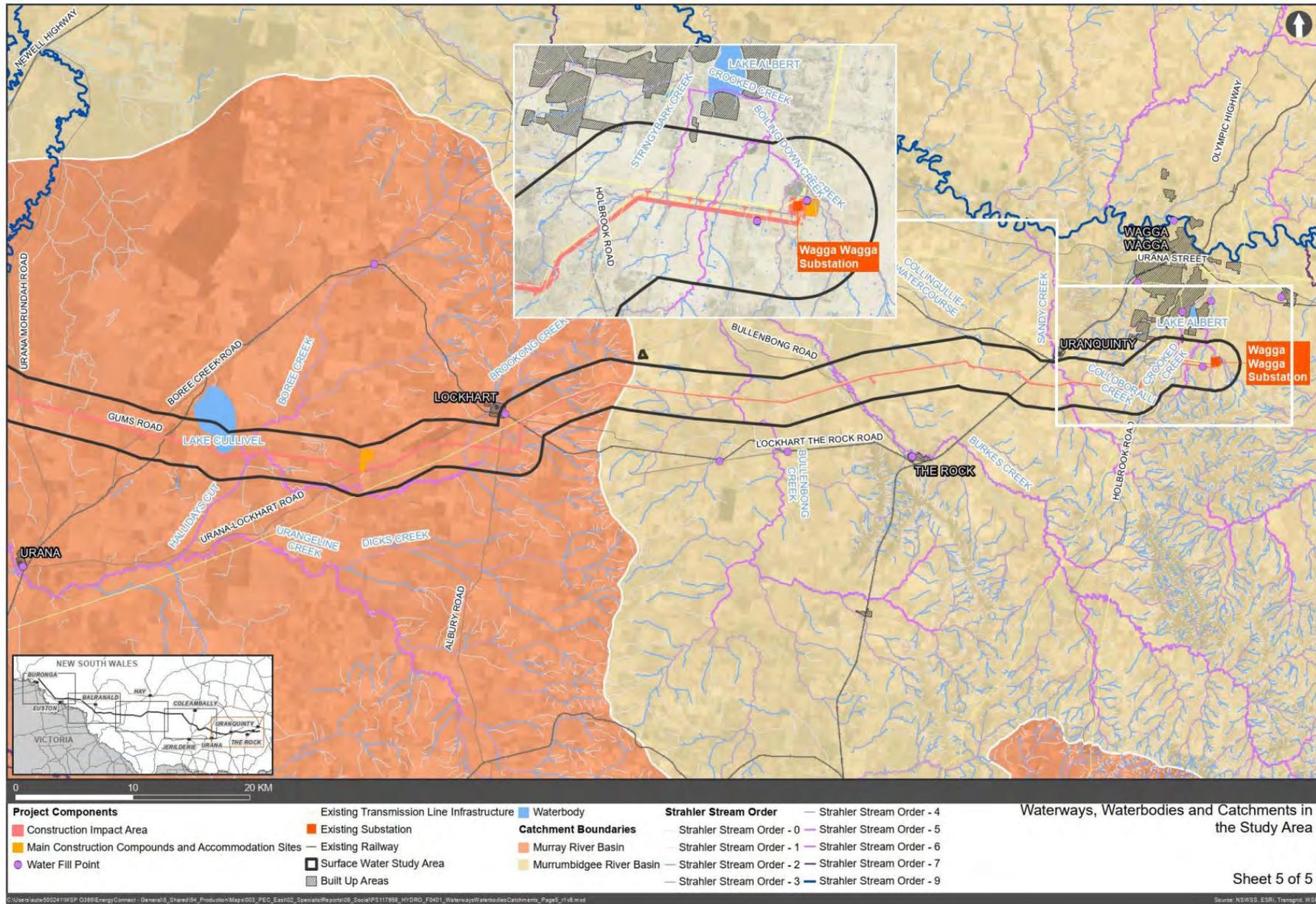
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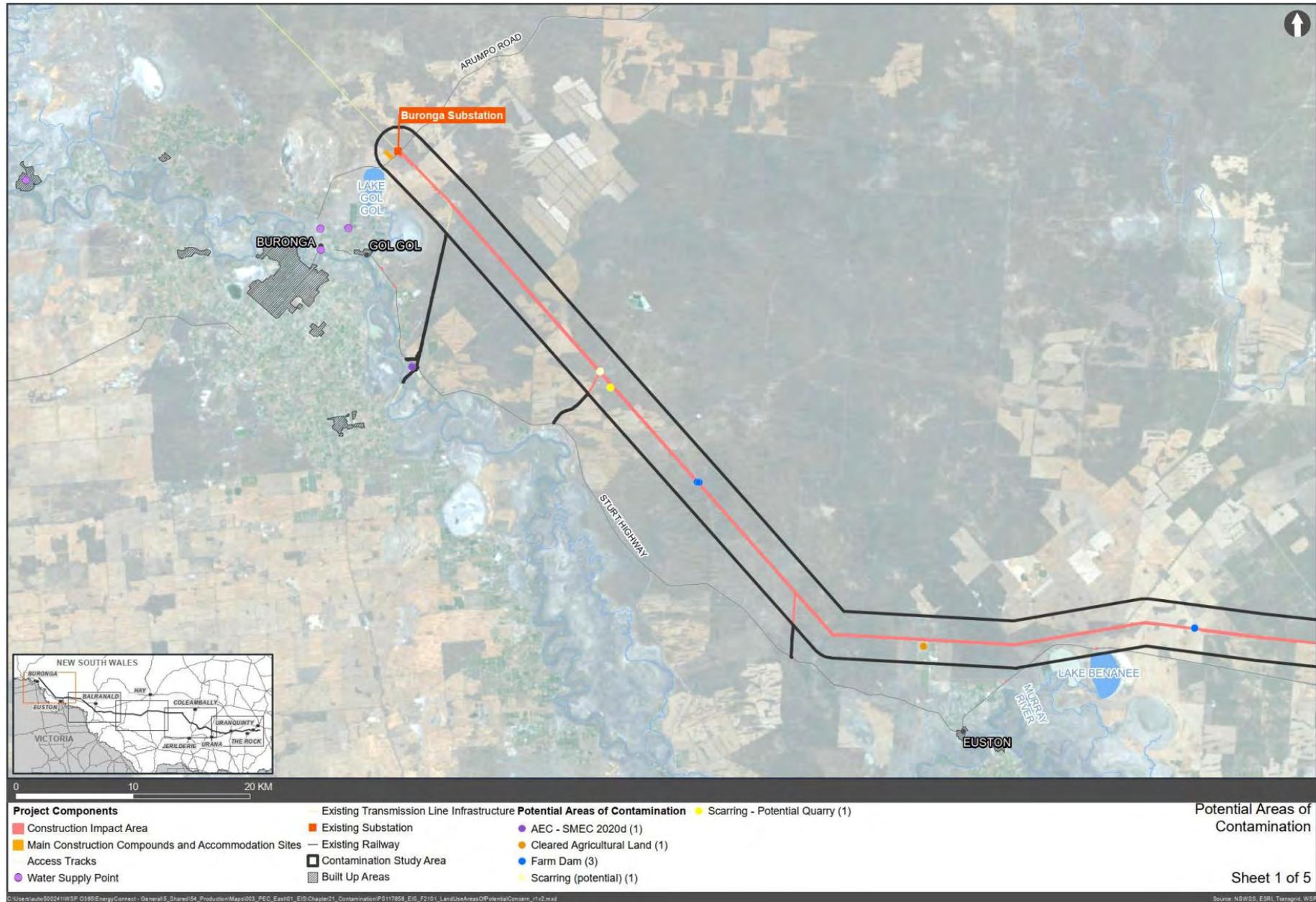


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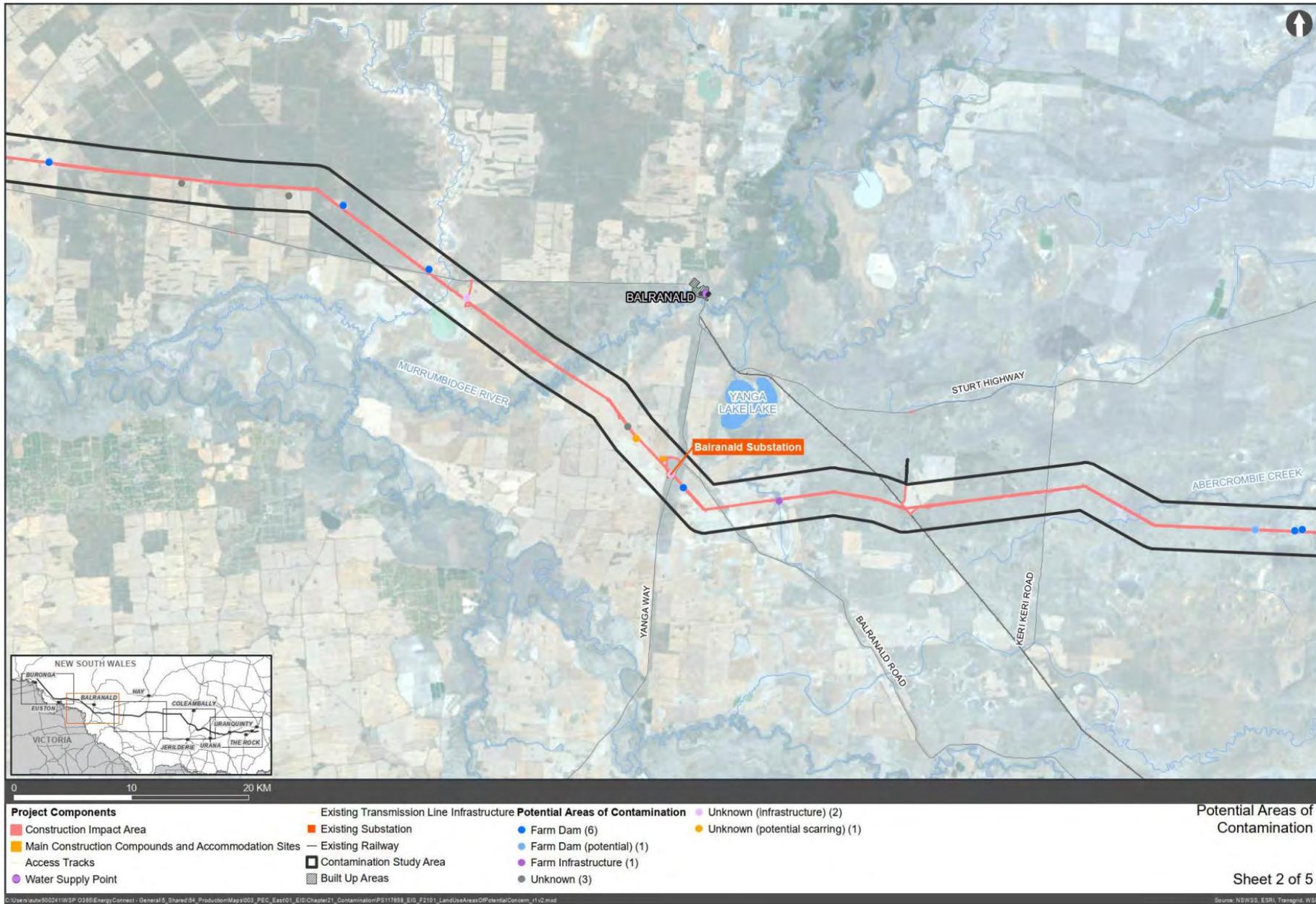


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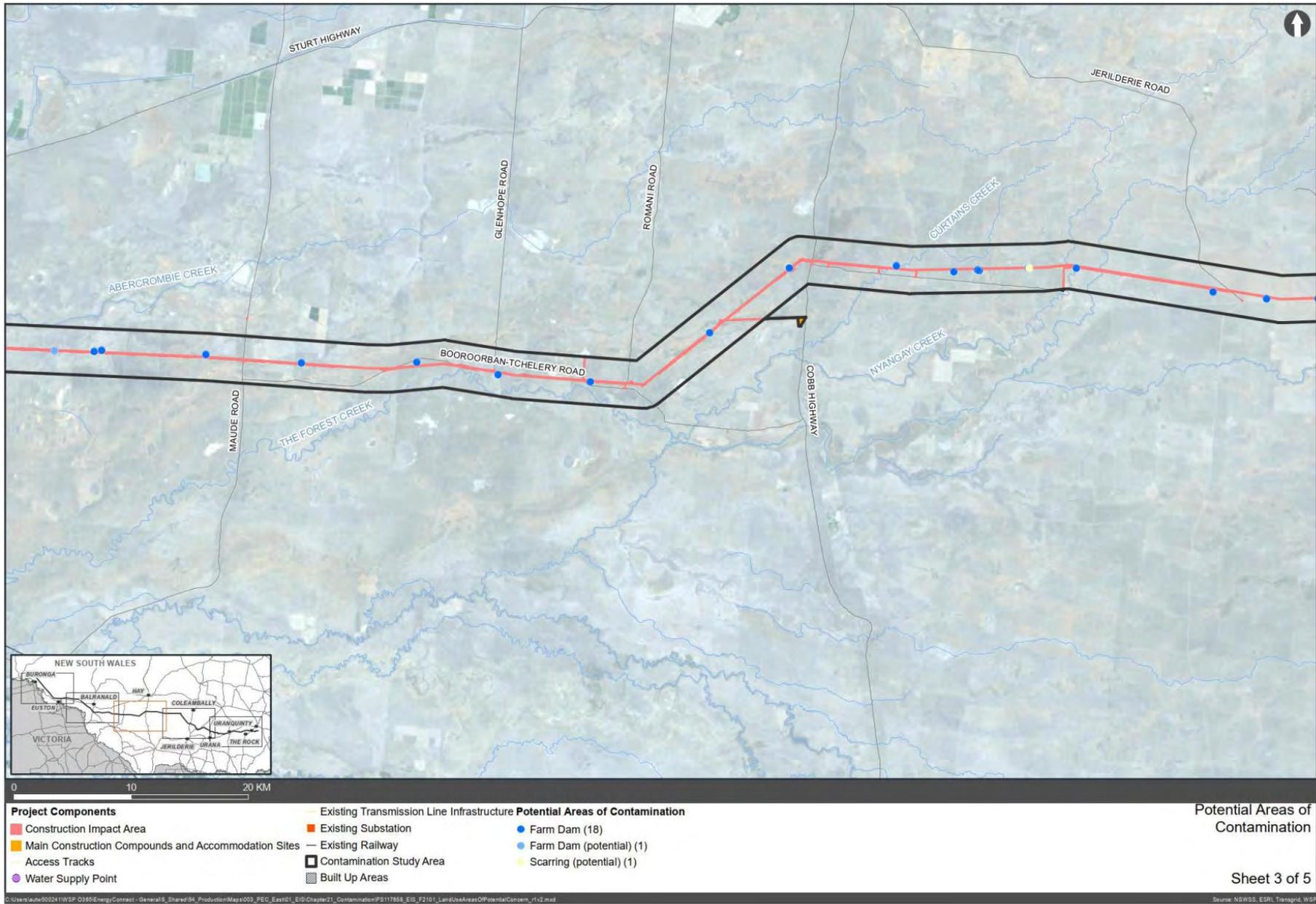
Appendix E3 – Potential Areas of Contamination



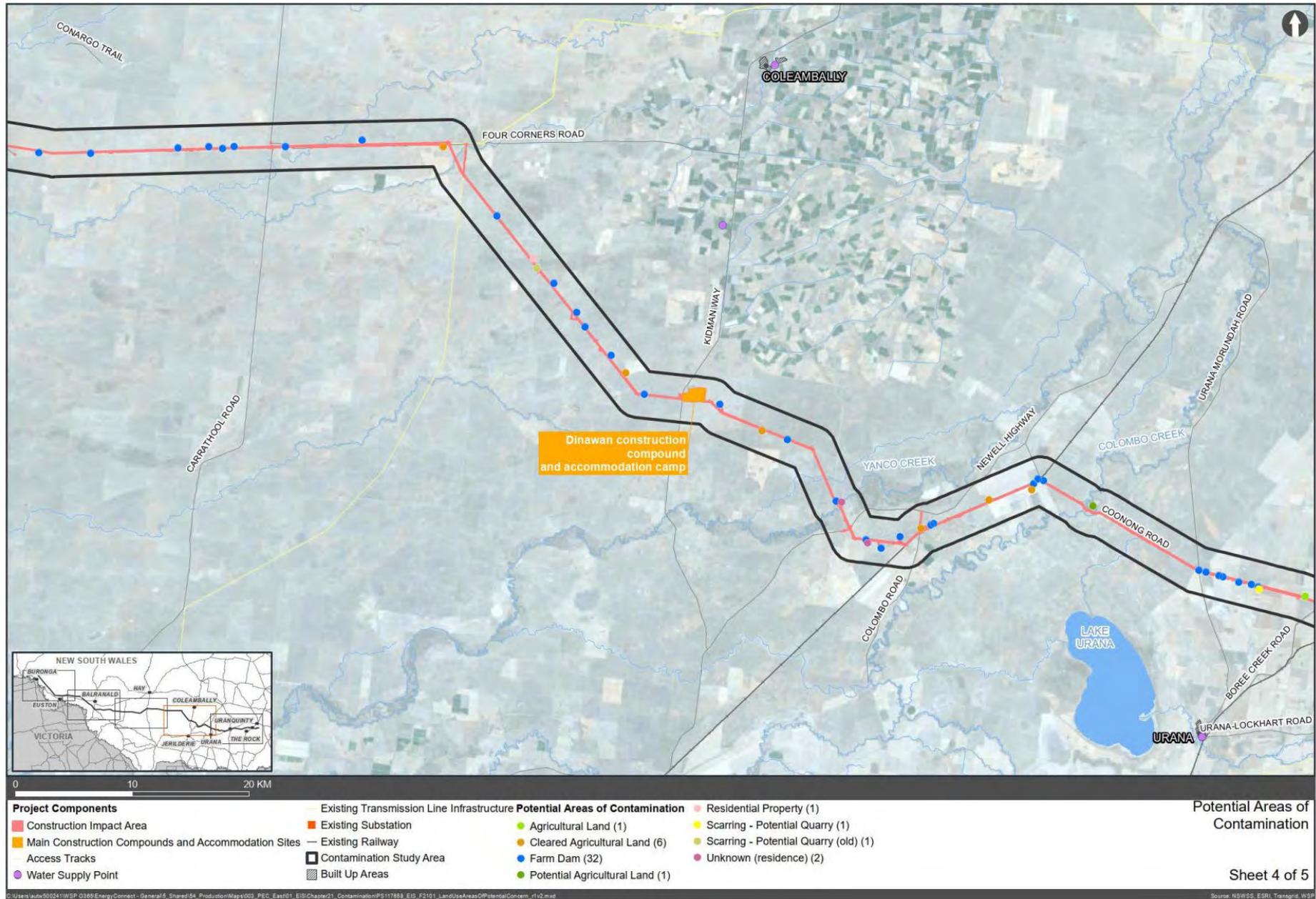
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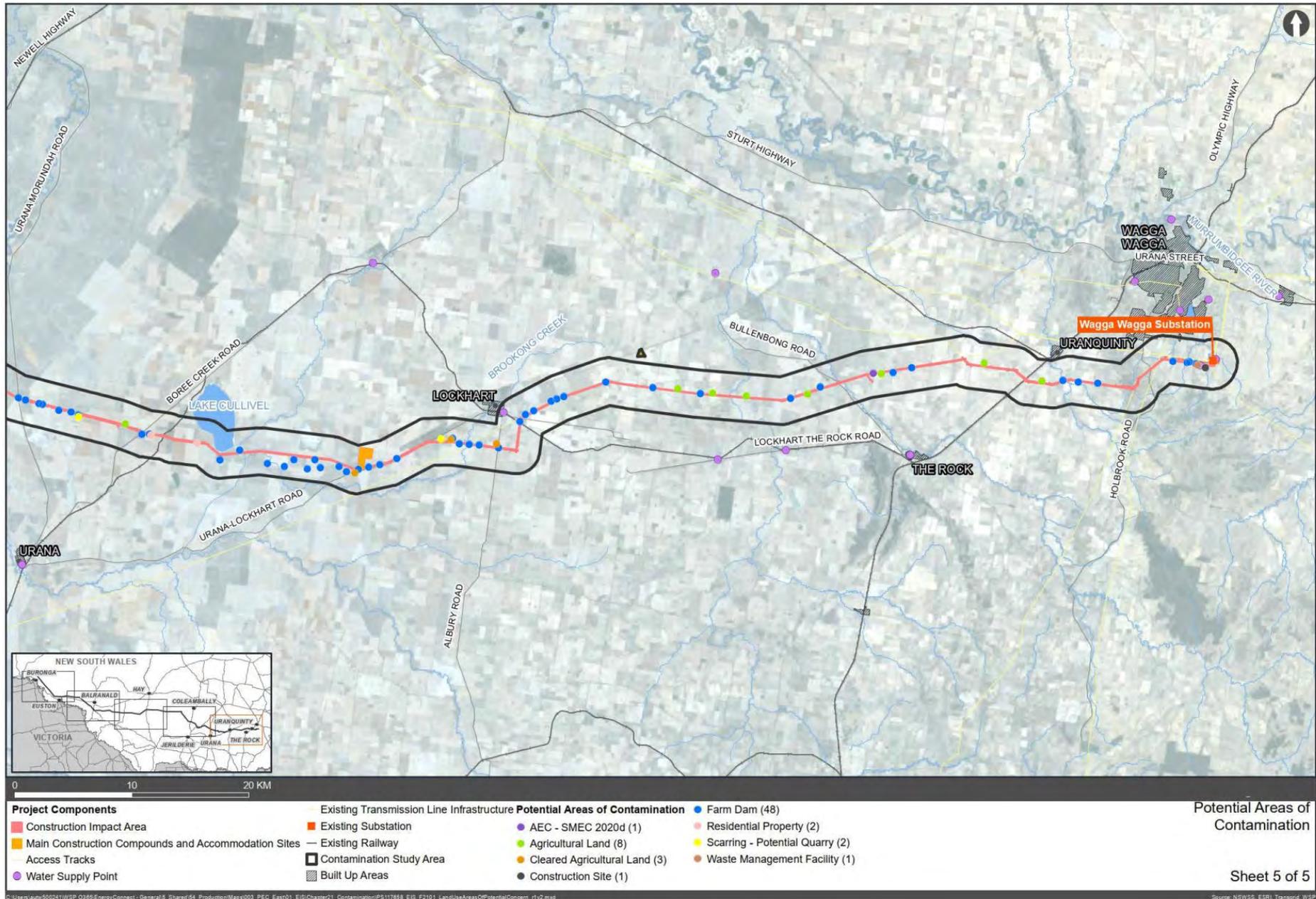
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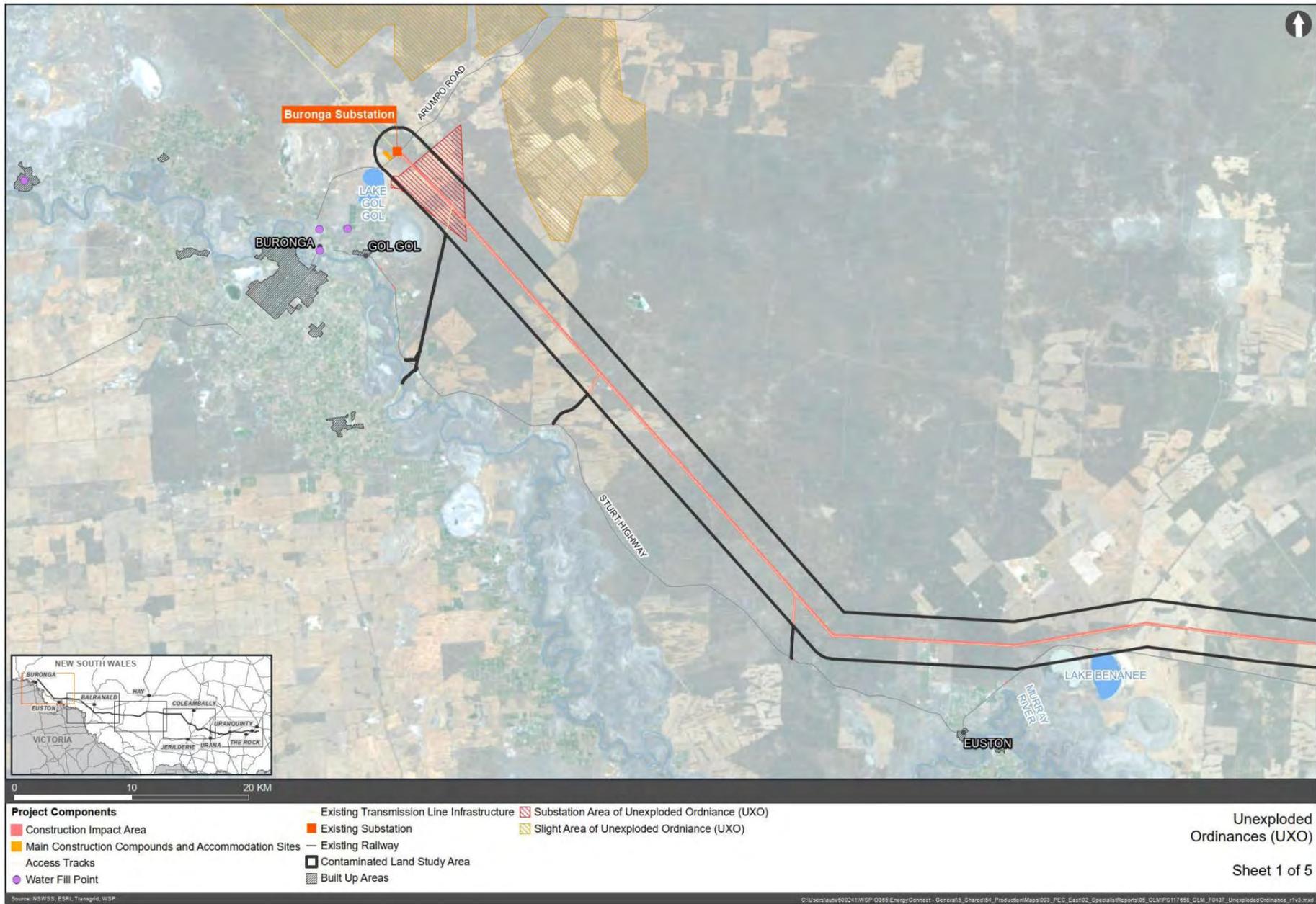


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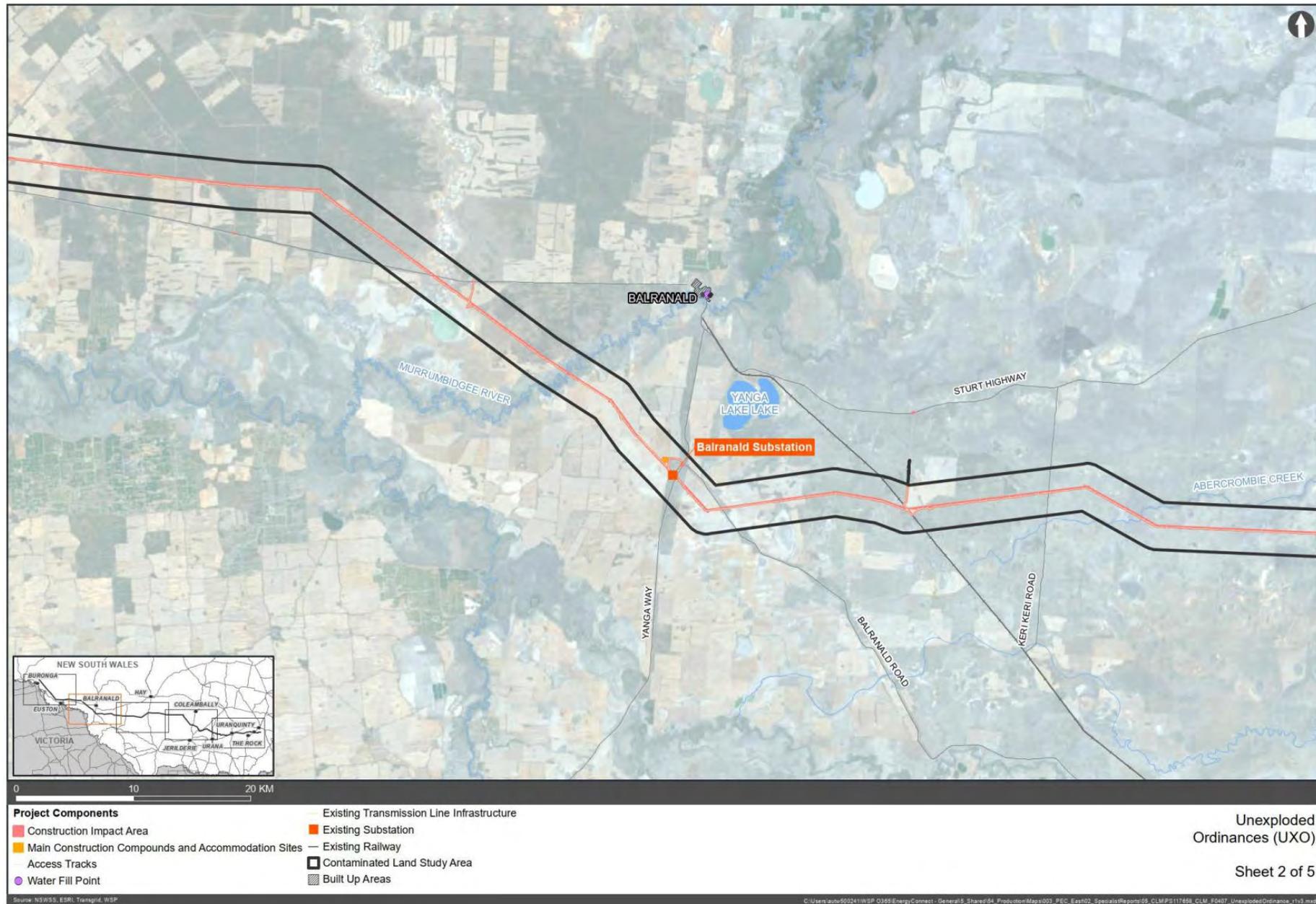


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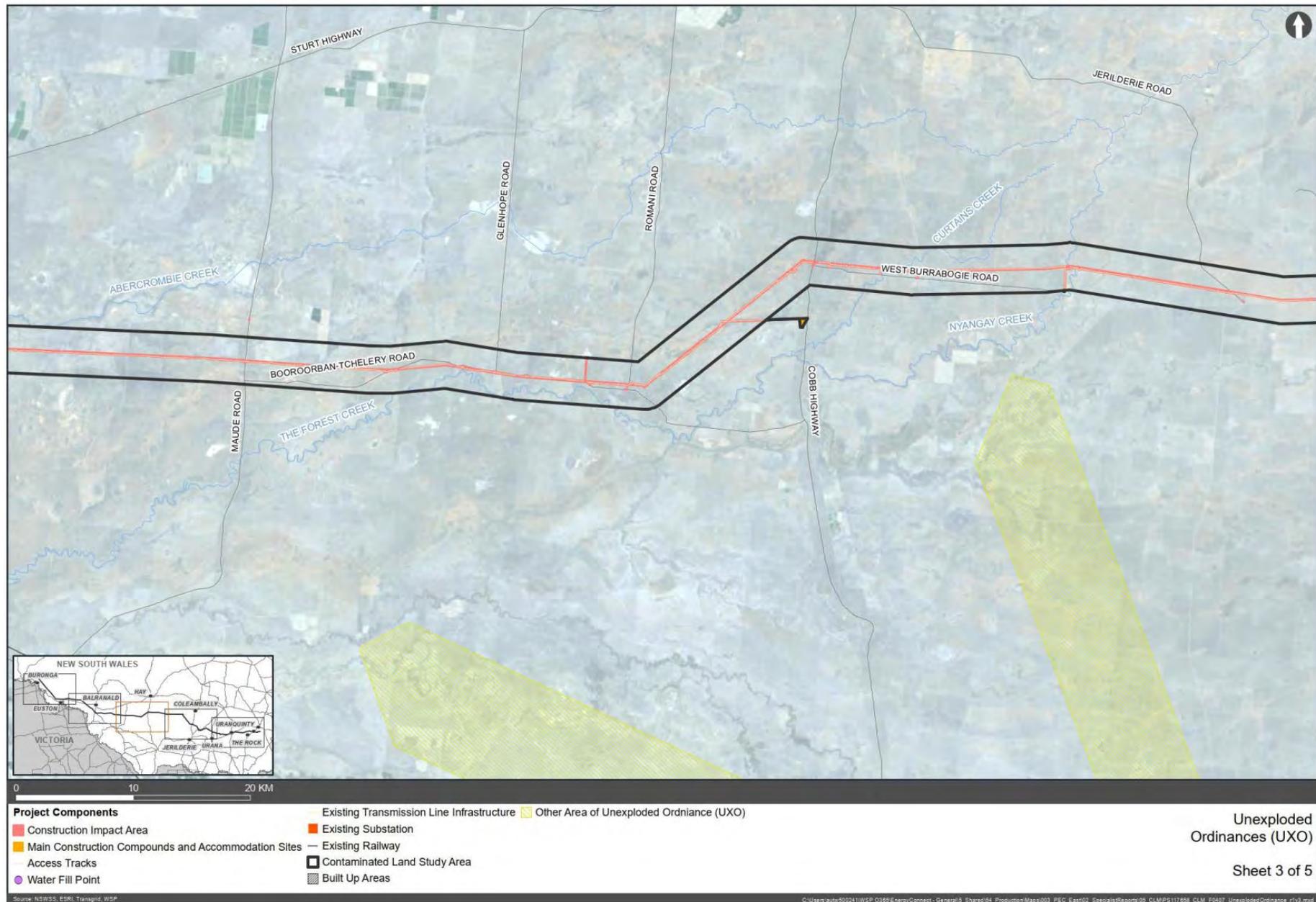
Appendix E4 – Unexploded Ordnances (UXO)



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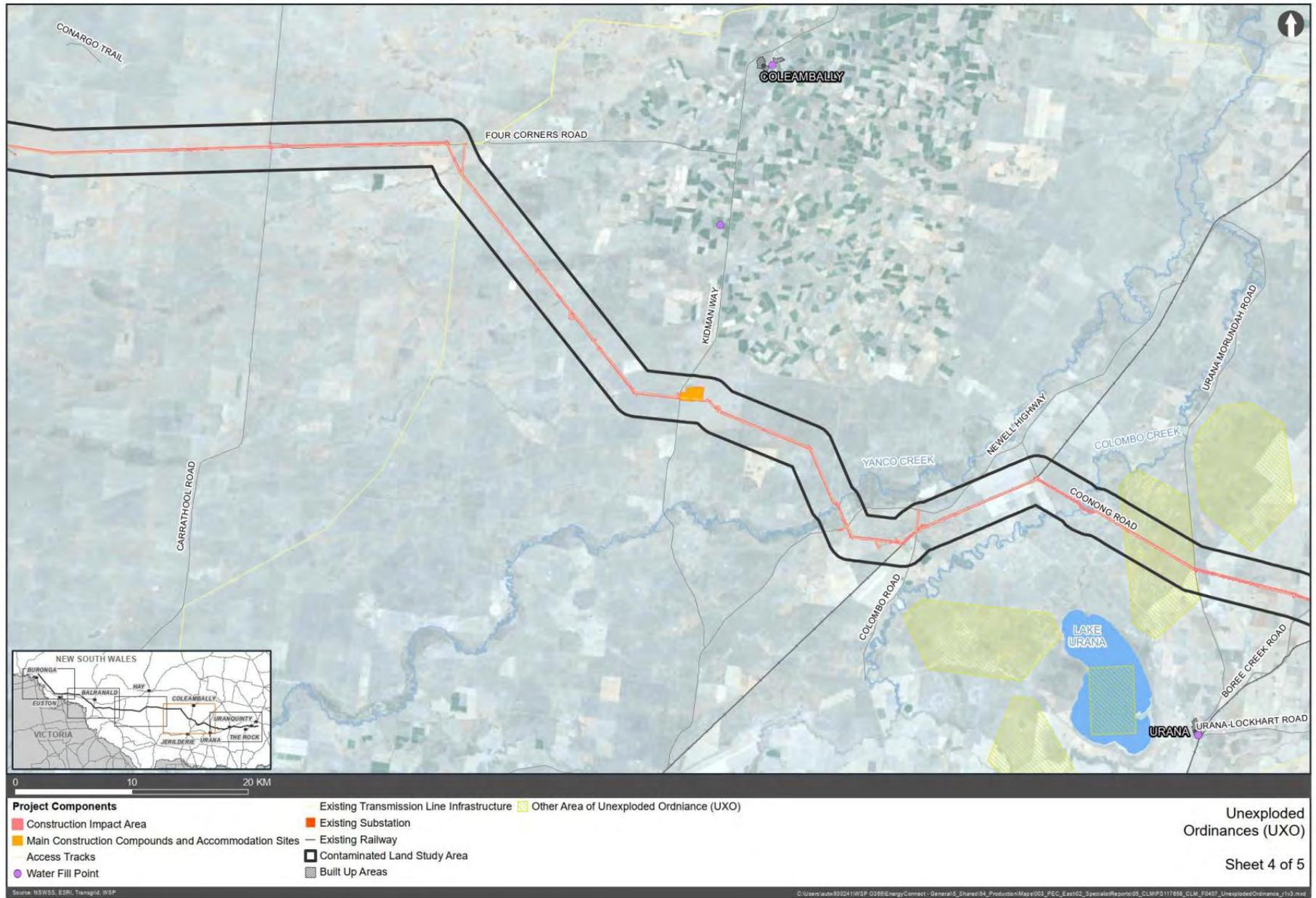
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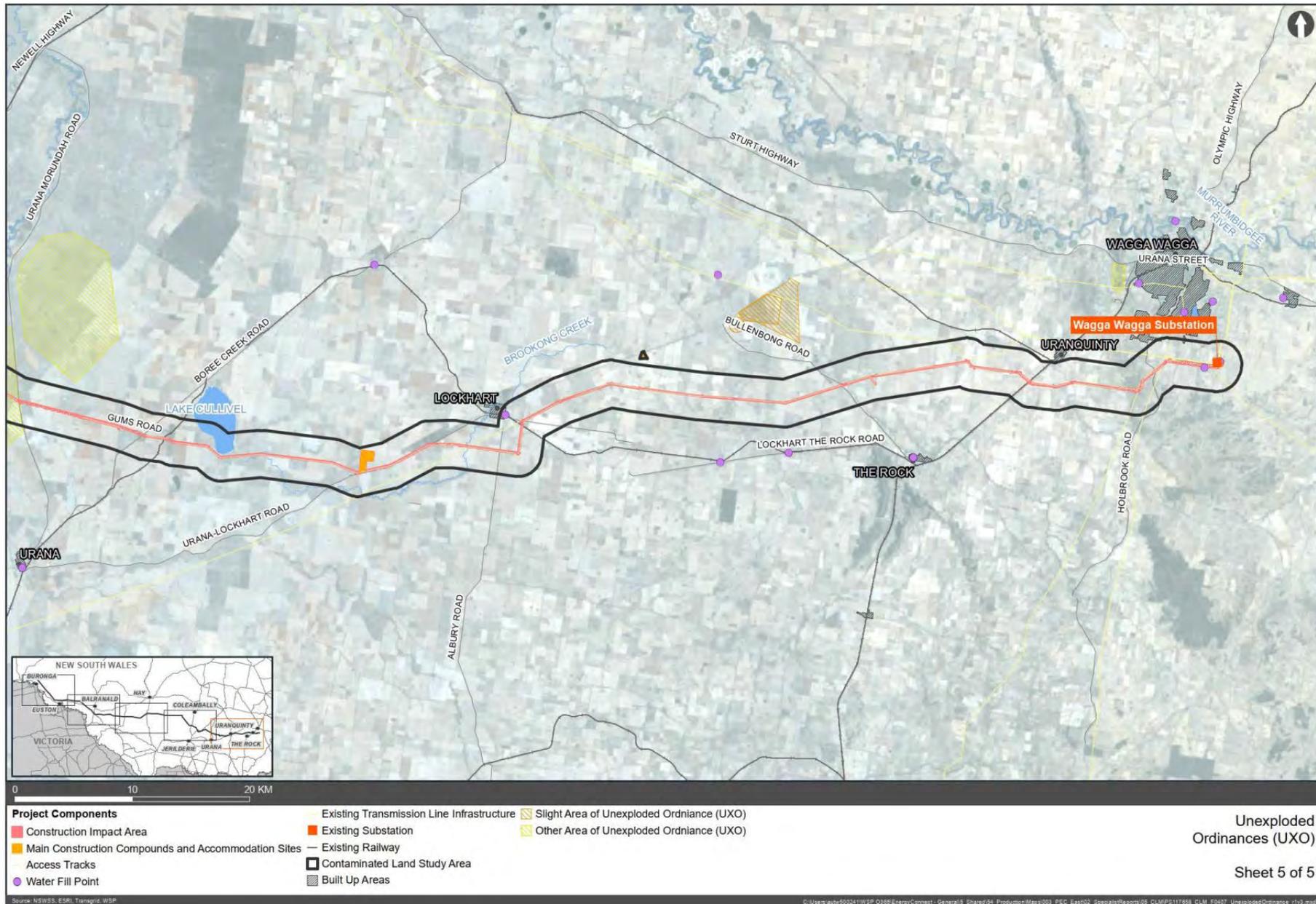
Unexploded Ordnances (UXO)

Sheet 3 of 5

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