

BUSHFIRE ASSESSMENT REPORT

**FOR THE UPPER & LOWER TUMUT 330kV TRANSMISSION
LINE PROJECT**

AUSTRALIAN CAPITAL TERRITORY

**FOR
RIVERVIEW PROJECTS (ACT) FOR THE GINNINDERRY
JOINT VENTURE**

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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
B234066 - 5	Final	27.10.2023	02.02.2024	<i>G.L. Swain</i>

EXECUTIVE SUMMARY

The Proposal relates to the proposed Upper and Lower Tumut 330 kilovolt (kV) transmission line realignment (the Proposal), which involves the relocation of part of the Upper and Lower Tumut transmission lines near their point of connection in the Australian Capital Territory (ACT).

The two transmission lines extend from Kosciuszko National Park in New South Wales (NSW), through Brindabella National Park in the ACT, before exiting and then re-entering the ACT near Uriarra Village in the ACT.

The new alignments would divert from NSW (near the ACT/NSW border) and extend southeast, crossing the Molonglo and Murrumbidgee Rivers in the ACT then connecting to existing towers at the Stockdill Substation on Stockdill Drive in western Belconnen, ACT. The new alignments traverse a distance of approximately 11.3 kilometres (km).

The Proposal also involves the decommissioning and removal of part of the Upper and Lower Tumut transmission lines. The sections that would be removed extend northeast from NSW then cross the Murrumbidgee River into the Ginninderry Conservation Corridor. The Lower Tumut transmission line connects into the Canberra Substation in McNamara, while the Upper Tumut transmission line diverts south to connect into the Stockdill Substation. The sections to be removed traverse a combined distance of approximately 12.3 km.

The key objective of the Proposal is to move the existing 330 kV transmission lines out of the future urban area (FUA) of West Belconnen, where the Ginninderry residential development is underway, to increase the availability of housing in the area, particularly affordable housing. Removal of the lines would also improve local amenity by reducing visual impacts on residential areas, and would remove infrastructure from within the Ginninderry Conservation Corridor (GCC), which was established under the West Belconnen Strategic Assessment, and from within other nature reserves such as the Woodstock Nature Reserve. This would allow for improved conservation outcomes in these areas.

The Proposal is being managed by Riverview Projects (ACT) Pty Ltd (Riverview) for the Ginninderry Joint Venture (GJV), which is a joint venture between the Suburban Land Agency (SLA) and Riverview Developments (ACT) Pty Limited.

Riverview has engaged Umwelt (Australia) Pty Ltd (Umwelt) to prepare the EIS following submission of the Application for an EIS Scoping Document to the ACT Environment, Planning and Sustainable Development Directorate (EPSDD) for the Proposal. The EIS presents the findings of specialist studies undertaken for the Proposal, including this Bushfire Protection Assessment Report.

Transgrid would be the owner and operator of the assets once they are operational.

Transgrid is not developing the Proposal and is not the Proponent for the purposes of the EIS but is involved in developing the design as it will ultimately be responsible for operating the assets.

The new route removes the lines from within the Ginninderry Conservation Corridor, the urban development area of Ginninderry and Woodstock Nature Reserve on the western embankment of the Murrumbidgee River and places them in farmland to the west of the Murrumbidgee and Molonglo River and adjacent to the Lower Molonglo Water Quality Control Centre (LMWQCC).

Potential ecological impacts have been minimised by placing new infrastructure away from habitat for threatened species, mature trees and higher quality threatened ecological communities.

New towers/poles have also been sited so that the vegetation “clearance zone” along the alignments, in which any vegetation that grows above 6 meters, will need to be removed/trimmed, avoids mature trees.

The Proposal requires environmental assessment and approval under the ACT *Planning and Development Act 2007* (PD Act). The Proposal is also being referred under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) but is not expected to trigger a controlled action approval under the EPBC Act.

The project has received detailed advice on Bushfire requirements for the EIS from the ACT Government via the scoping study submission as follows:

- *Consider the risk of a bushfire starting from malfunction of the project infrastructure (substation, faults in cable connections, weather impacts etc).*
- *Consider the risk of bushfire during construction, including the cessation of construction works during periods of escalated fire danger.*
- *Provide a detailed bushfire assessment report that considers the bushfire attack level of the project span and protection measures to be implemented in proximity to the infrastructure, including asset protection zones, vegetation management/fuel load reduction strategies.*

Australian Bushfire Protection Planners Pty Limited has been commissioned by Riverview Projects (ACT) for the Ginninderry Joint Venture to prepare a Bushfire Assessment Report that examines the level of bushfire risk to and from the proposed realigned Transmission Lines and the protection measures required to mitigate the risk to and the bushfire risk posed by the operation of the Transmission Lines.

The examination of the bushfire risk has found that the existing and proposed Transmission Lines occupy an area of NSW and the ACT which is subject to an extreme level of risk from a catastrophic fire event that occurs under northerly, north-westerly, westerly and south-westerly winds.

The construction of the realigned Transmission line across land within NSW and the ACT that contains exotic grassland vegetation that is grazed reduces the potential risk to the support structure and conductors.

There will be no impact from grass fires on the steel towers and support poles. Mid-span conductor height above the grassland vegetation will mitigate flame contact and reduce the radiant heat levels on the cables.

The provision of designated Asset Protection Zones to the towers, support poles and conductors is not required.

The likelihood of grass fire ignition from malfunction of the project infrastructure (conductors) is low.

Faults in cable connections can occur at any time to any aerial cable installation with no means of preventing ignition of cured grassland vegetation other than monitoring and management of the grassland fuels.

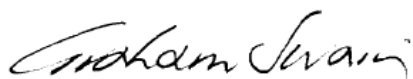
The transmission line easement should be regularly inspected during the Fire Danger Period and the grassland vegetation managed to maintain a maximum height of 200mm when the grassland vegetation reaches 70% cured.

The occurrence of grass fire ignition during construction can be mitigated with measures taken to ensure construction is not undertaken on high bushfire risk days.

Hot works shall not be undertaken during declared Total Fire Ban days.

Ignition of vegetation may also occur from sparks given off during the use of heavy machinery (Bulldozers/Excavators/Boring Machines etc) in areas where it is likely that rocks will occur. These works should not be undertaken without the attendance of the ACT RFS or the fire response tanker trailer.

This report has examined the potential level of bushfire risk to the Proposal (within NSW & the ACT) and the minimum level of protection required to reduce the bushfire risk during construction and measures required to be implemented to mitigate the ignition of the surrounding vegetation from malfunction of the project infrastructure and concludes that the level of risk to the critical infrastructure can be reduced through the implementation management practices during construction and the maintenance of the grassland fuel loads within the Transmission Line easement.



Graham Swain,
Managing Director

Australian Bushfire Protection Planners Pty Limited

Fire Protection Association Australia Member No. 48781.

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SECTION 1

INTRODUCTION

1.1 Aim of this Report.

The aim of this report is to prepare an independent bushfire assessment that determines the level of bushfire risk and the protection measures required to mitigate the risk to the Upper and Lower Tumut 330kV Transmission Line Realignment project.

This report also investigates the potential bushfire risk created by the construction and operation of the infrastructure.

1.2 Objectives of the Report.

The objectives of the report are to:

- Respond to the ACT Strategic Bushfire Management Plan – 2019 – 2024;
- Provide bushfire protection measures in accordance with the ACT Bushfire Management Standards – SBMP – 2023 and the ACT Bushfire Risk Mitigation General Code (2008).

The assessment will be undertaken to examine the potential bushfire risk and identify those protection measures required to mitigate the risk.

This will include specific recommendations on fuel management, the location of Asset Protection Zones/Defendable Spaces and other measures that are deemed necessary to protect the infrastructure against the impact of a bushfire event and the measures required to mitigate the risk to the adjoining landscape from a bushfire created by the construction and operation of the infrastructure.

1.3 Scope of Work.

The following is an outline of the scope of work undertaken in the assessment of bushfire risk to the proposed development:

- Identify and describe the study area environment;
- Establish the context of the bushfire risk to the Proposal;
- Identify measures that assist to reduce bushfire risk to the Proposal;
- Identify measures required to be established to mitigate the risk from a bushfire created by the operation of the Proposal;
- Describe the implementation of the bushfire protection measures having regard to any site constraints.

1.4 The Proposal.

The Proposal involves the realignment of part of the Upper and Lower Tumut 330 kV transmission lines and stringing of an additional conductor along part of Line 3C.

It comprises the following activities within NSW and the ACT:

- Installation of new towers or poles and overhead transmission lines associated with the realignment of part of the existing Upper and Lower Tumut transmission lines (Lines 1 and 7, respectively), including the nine new towers and four poles for Line 1 and nine new towers and five poles for Line 7.
- Electrical works to connect the new Line 1 to the Stockdill Substation (replacing the existing Line 1 connection, thereby resulting in no change to the electrical configuration of the substation).
- Stringing of an additional conductor along the part of Line 3C located between the Stockdill Substation and Canberra Substation. This new conductor would extend Line 7 from the end of the new installation adjacent to the Stockdill Substation, to the Canberra Substation where it would replace the existing Line 7 connection, thereby resulting in no change to the electrical configuration of either substation.
- Decommissioning and removal of part of the existing Lines 1 and 7, including:
 - Removal of 18 towers from Line 1, involving complete removal of 10 tower foundations with the remaining foundations to be left in situ;
 - Removal of 9 towers from Line 7, involving complete removal of six tower foundations with the remaining foundations to be left in situ.
- Civil works associated with construction of new temporary access tracks, involving vegetation removal and modification, levelling, and laying of sub-base and/or metal grids for access across wet areas, as required.

Existing tracks through farmland have been used where possible, to minimise impacts associated with line construction and removal works.

- Installation of temporary facilities associated with construction, including material laydown areas, construction compounds, carparking, and site office(s), all located within the laydown areas.

- Civil works to prepare for construction of the new tower foundations, involving vegetation removal and modification where required, earthworks to level the site if required, and foundation preparation (excavation and/or boring, steel fabrication works and concrete pours).
- Following completion of the construction works, the temporary construction areas (new access tracks, laydown areas etc.) would be rehabilitated.

Table 1 – Estimated areas of land disturbance for the various project elements.

Project Component	Assumption / Description	Estimated Disturbance (Hectares)	Post Reinstatement
Existing Access Tracks (new easements)	4m wide, 4wd access suitable for Fire vehicles, every 250m, include 6m wide track for 20 meters (on average 5m wide track shown on drawing). Some minor adjustments maybe required in some areas	Minimal additional disturbance (existing used length 5.1km, minor works TBC)	None required
Existing Access Tracks (existing easements)	Existing track condition being verified. Some minor adjustments maybe required in some areas	Minimal additional disturbance (existing used length TBC, minor works TBC)	None required
New access tracks	4m wide, 4wd access suitable for Fire vehicles	10m wide construction zone (TBC)	Return to grazing land
New access tracks with sediment control	4m wide, 4wd access suitable for Fire vehicles, sediment control barriers used to control run-off and catch any sediment spreading to nearby areas	10m wide construction zone, with sediment control (TBC)	Return to previous if any treatments used (ie matting and subbase removed and sedimentation controls)
Tower construction zone	Area used to construct 30m x 30m region (bolt tower sections together before lifting into place (Two 15m x 15m pads if needed)	(TBC)	Return to previous
Pulling zone	Machinery	(TBC)	Return to previous
Construction zone	Laydown area, temporary toilets (all rubbish removed from site), temporary offices and parking	(TBC)	Return to previous
Tower vegetation clearance zone	20 off the tower legs, maximum vegetation height of 6m (trees growing over this are to be removed	(TBC)	No change

Figure 1 – Concept Ginninderry Power Supply Overview – Source Ginninderry

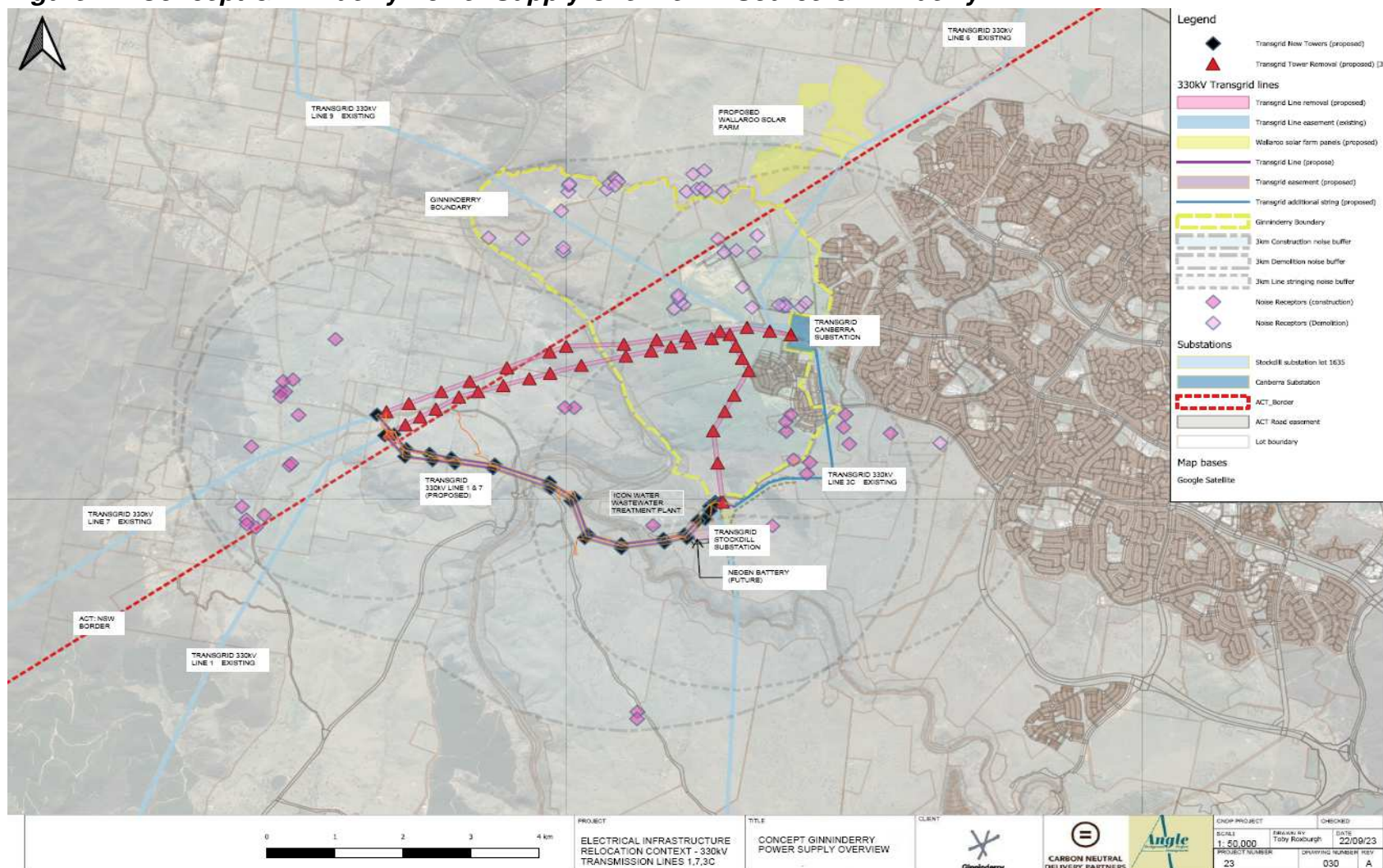


Figure 2 – Concept Transgrid 330KV Relocation Stage 1 – 330KV Transmission Lines 1, 7, 3C - Source Ginninderry

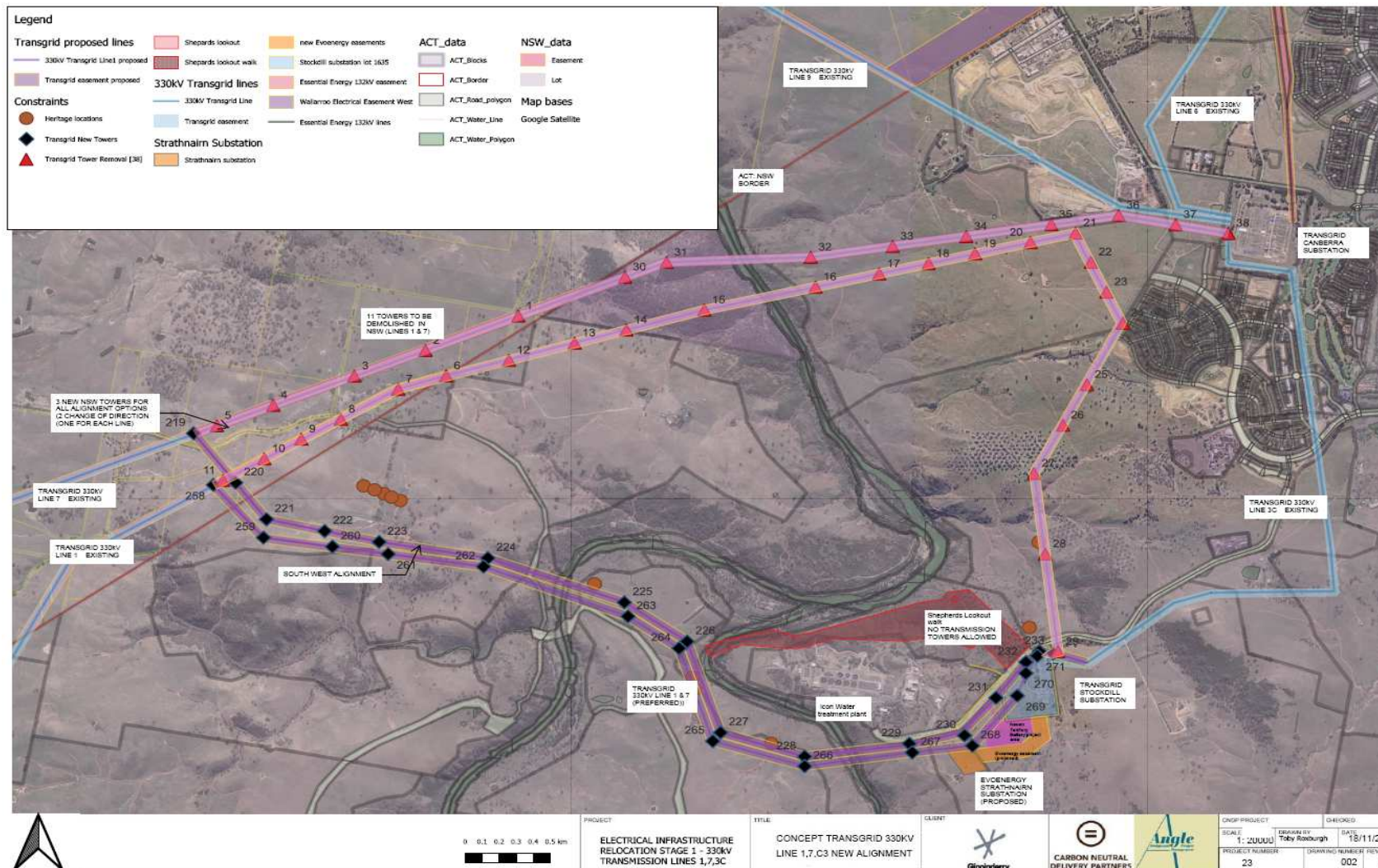


Figure 3 – Concept Transgrid 330KV Line 1,7 New Alignment NSW/Western Portion - Source Ginninderry

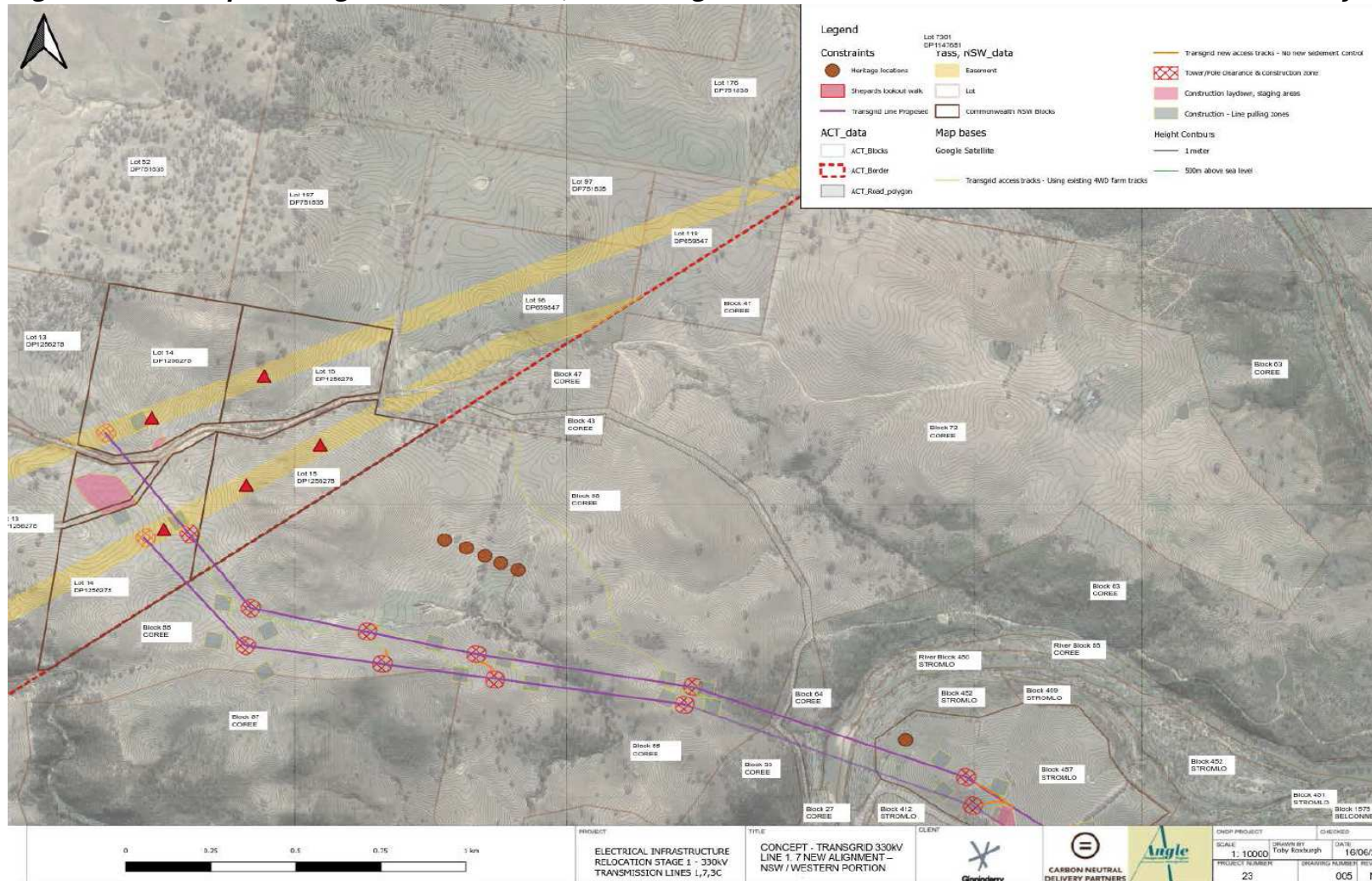
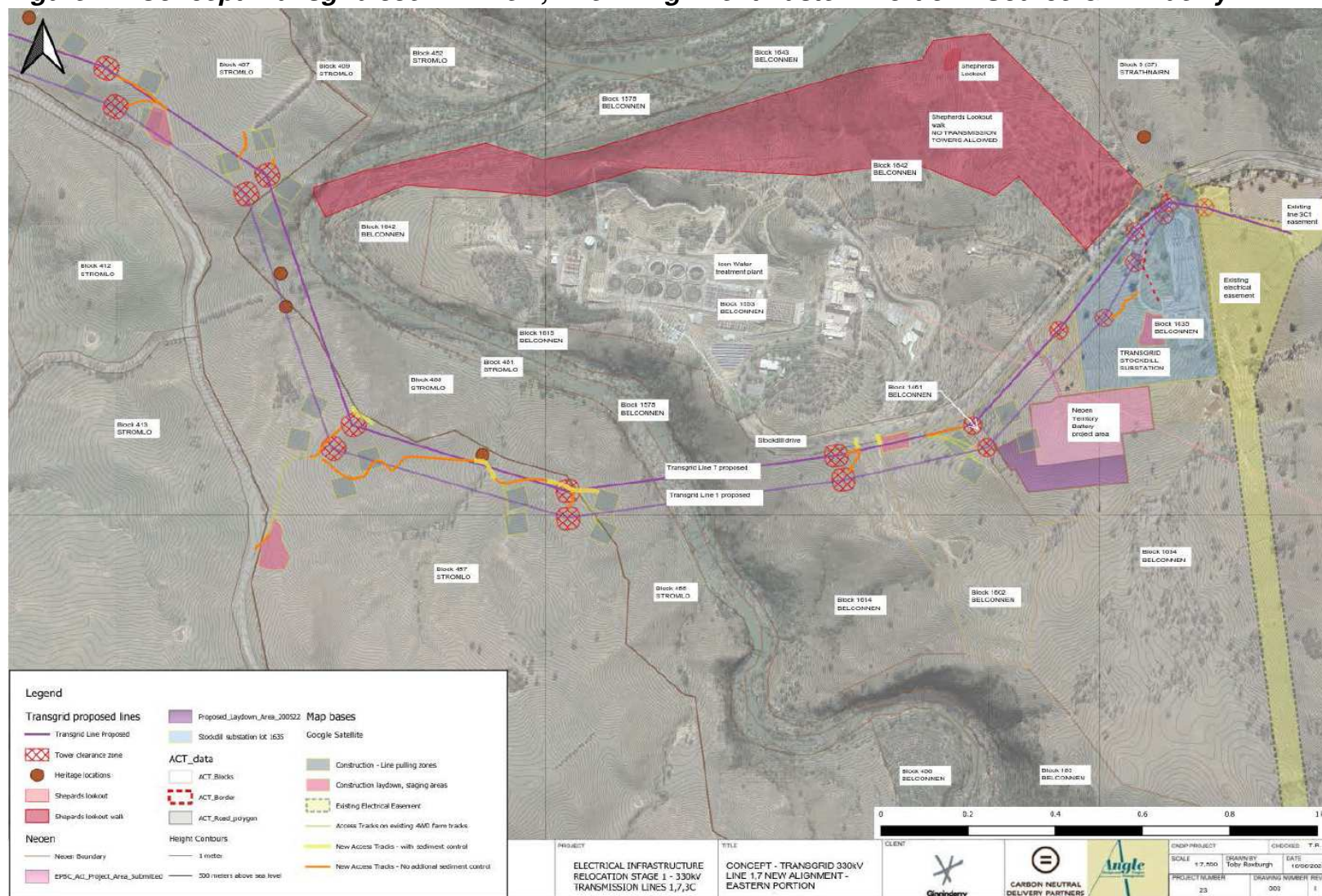


Figure 4 – Concept Transgrid 330KV Line 1,7 New Alignment Eastern Portion - Source Ginninderry



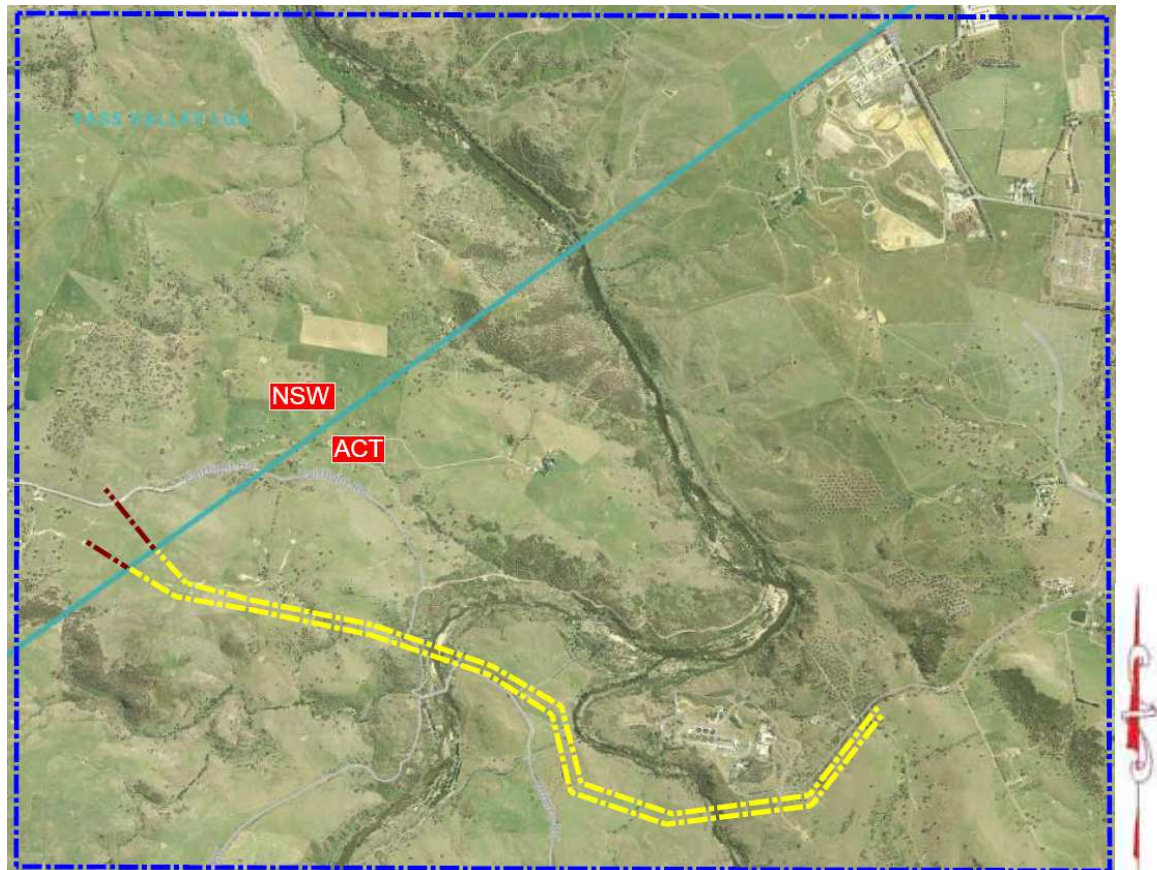
SECTION 2

DESCRIPTION OF THE BUSHFIRE RISK STUDY AREA

2.1 Bushfire Risk Study Area - ACT.

For the purpose of examining the potential bushfire risk to the Proposal a study area has been established. Figure 5 provides a graphical representation of the study area examined in this report.

Figure 5 – Bushfire Risk Study Area - ACT.



2.2 Site Assessment.

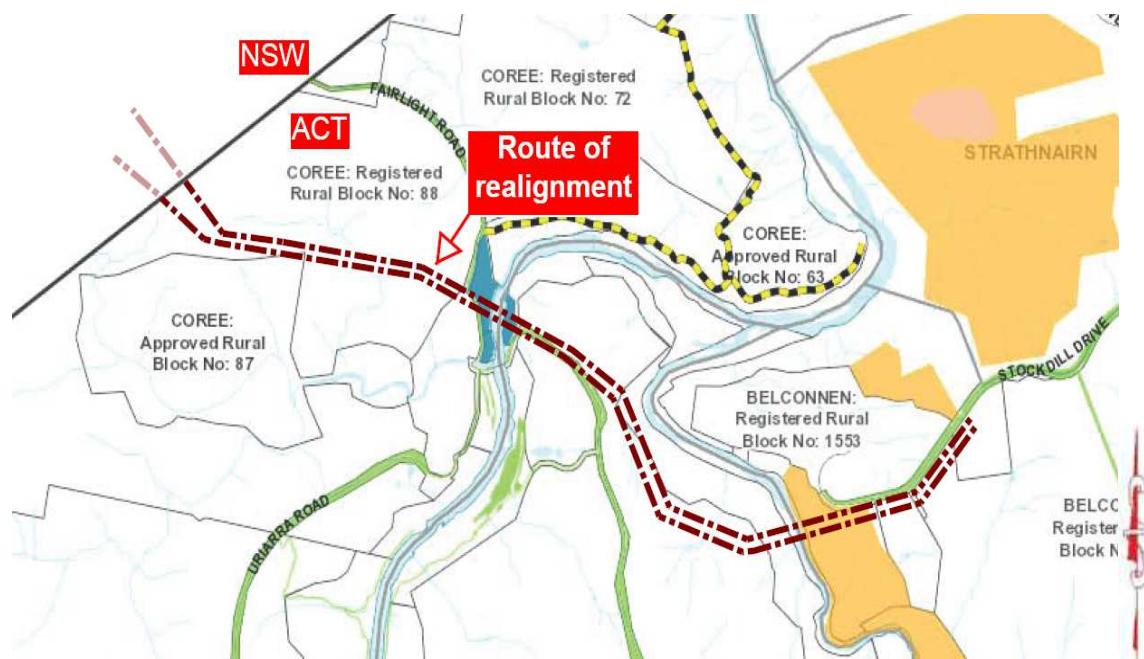
A desk-top review of the Proposal area and surrounding development was completed for the preparation of this report. The author had previously inspected the site in the preparation of the Bushfire Report for the TransGrid Substation.

The ACT Territory Plan, Bushfire Prone Land Map, Strategic Bushfire Management Plan (BFMP); Bushfire Operations Plan (BOP); Aerial Photography, Contour and Vegetation Maps were reviewed.

A Bushfire Operational Plan details the specific bushfire mitigation activities to be undertaken by a landholder to reduce the risk of bushfire spreading into the urban area.

Figure 7 provides an extract from the ACT Bushfire Operations Plan (BOP) Land Map which identifies the land in the vicinity of the Proposal Area which is managed by the Territory Government. Management practices include grazing, slashing and chemical treatment.

Figure 7 – Extract from the ACT Bushfire Operations Plan.



LEGEND – Bushfire Operations Plan (BOP)

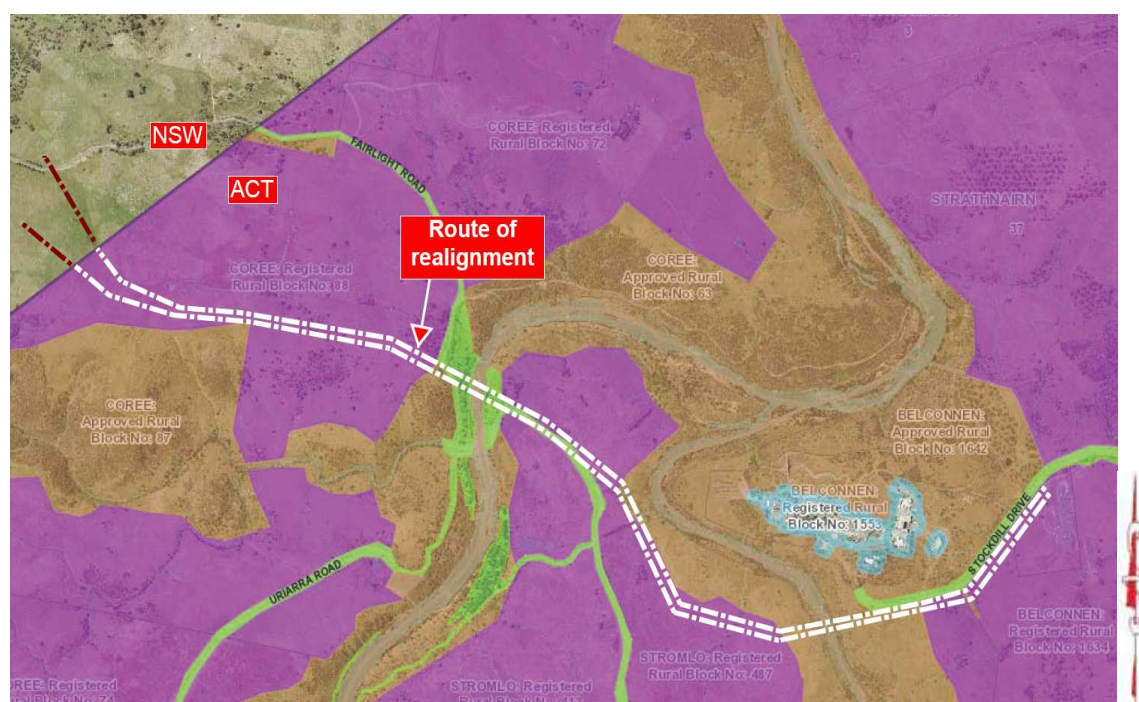


The maintenance of the areas identified in the BOP provides no bushfire risk mitigating benefit to the realignment route.

Strategic Bushfire Management Zones (SBMZ) detail the bushfire mitigation activities to be undertaken by the ACT Government (and other land management agencies) at a broader scale to reduce the risk of bushfire spreading into the edge of the urban areas.

Figure 8 provides an extract from the ACT Strategic Bushfire Management Zones plan showing the Strategic Bushfire Management Zones through which the proposed realignment traverses.

Figure 8 – Extract from the ACT Strategic Bushfire Management Zones Plan.



LEGEND – Strategic Bushfire Management Zones (SBMZ)

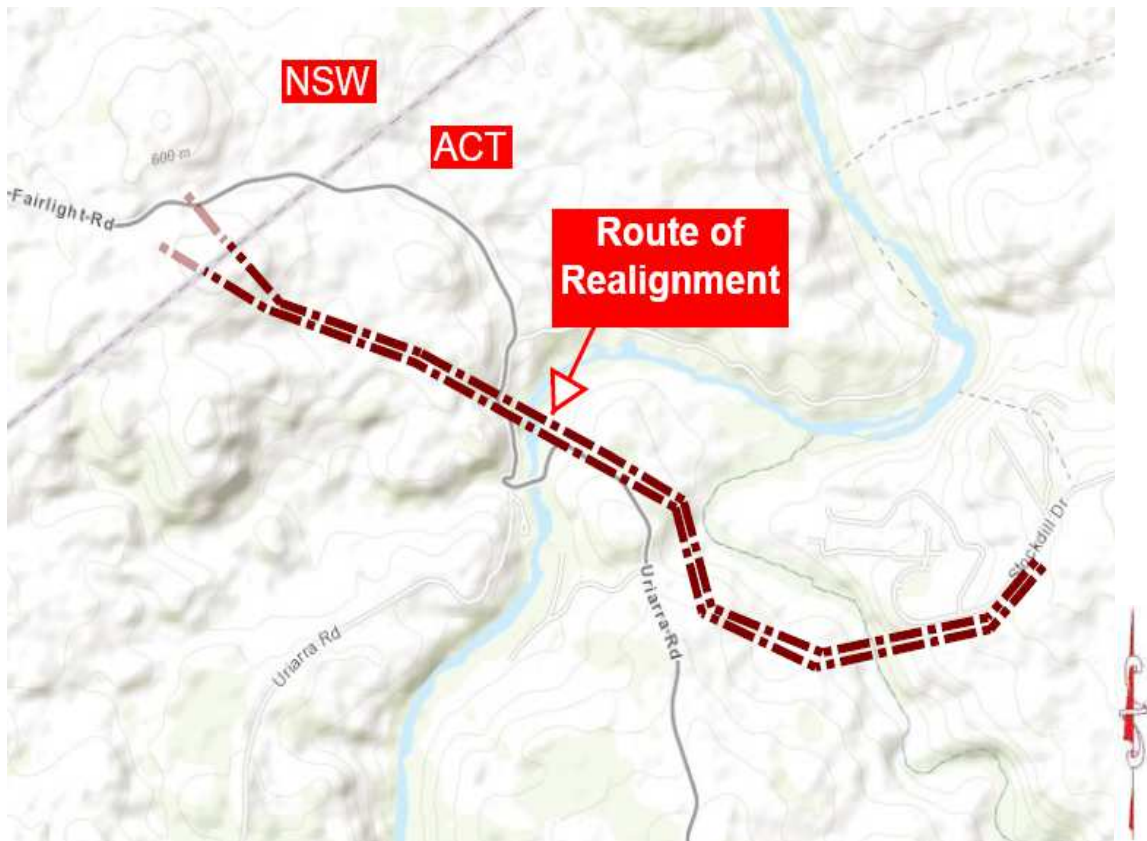
- Inner Asset Protection Zone
- SFAZ ACT Government
- Landscape Fire Management Zone
- Agricultural Fire Management Zone

The grazing of the grassland within the Agricultural Fire Management Zones through which the realignment traverses will reduce the bushfire risk to the Proposal.

2.6 Topography.

The land within the route of the realignment rises to the west and east from the Murrumbidgee River and the Molonglo River corridors, forming undulating ridgelines.

Figure 9 – Contour Plan – Source ACTMapi.



Contour Interval 10m

2.7 Vegetation within the Proposal Area.

The realignment route passes through land that contains exotic Grassland, Native Grassland, Native and exotic Woodland

2.8 Vegetation on land adjoining the Proposal Area.

Figure 10 provides a copy of the ACTMapi vegetation map for the Proposal route and surrounding area and identifies that the predominant vegetation is native and exotic Grassland with pockets of Native and exotic Woodland.

Figure 11 provides a copy of the ACTMapi Woodland Vegetation Map.

These maps are indicative only and the vegetation mapping provided in Figure 12 is based on field mapping that reflects actual vegetation communities within the route of the Proposal.

Figure 10 - ACTMapi Vegetation Communities Map.

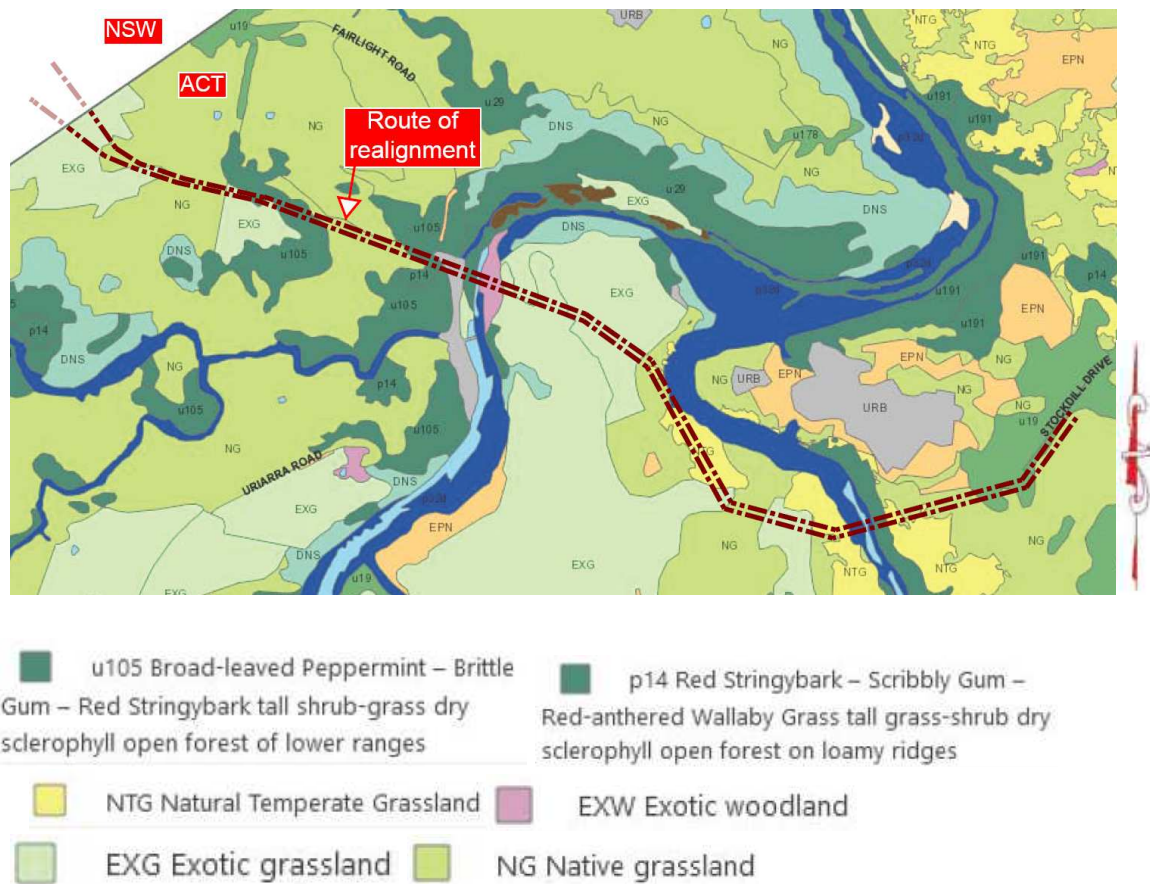


Figure 11 – ACTMapi Woodland Vegetation Map.

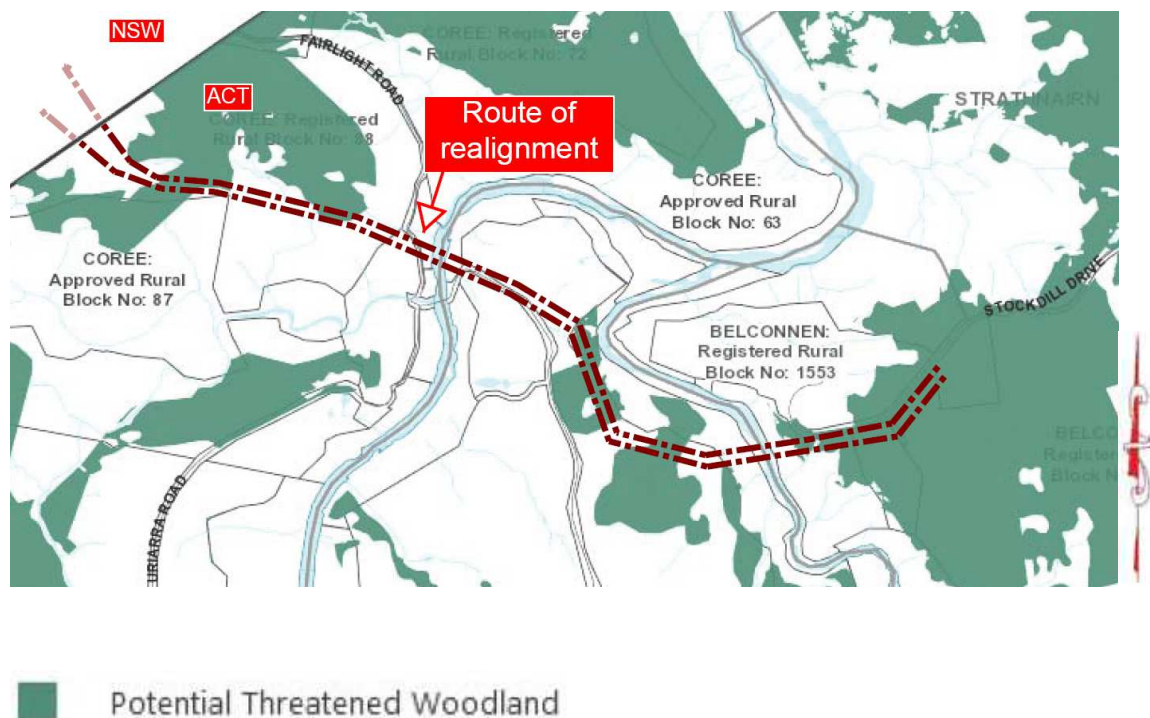
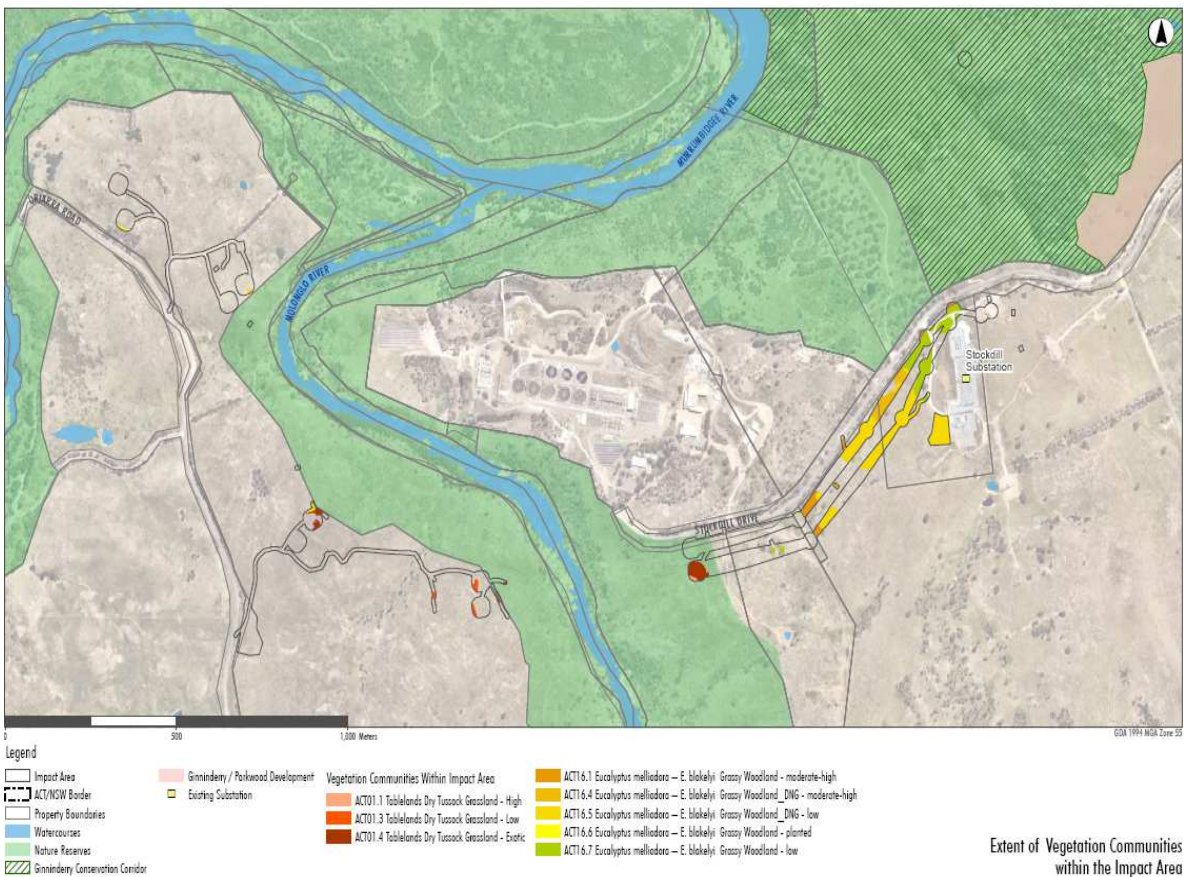
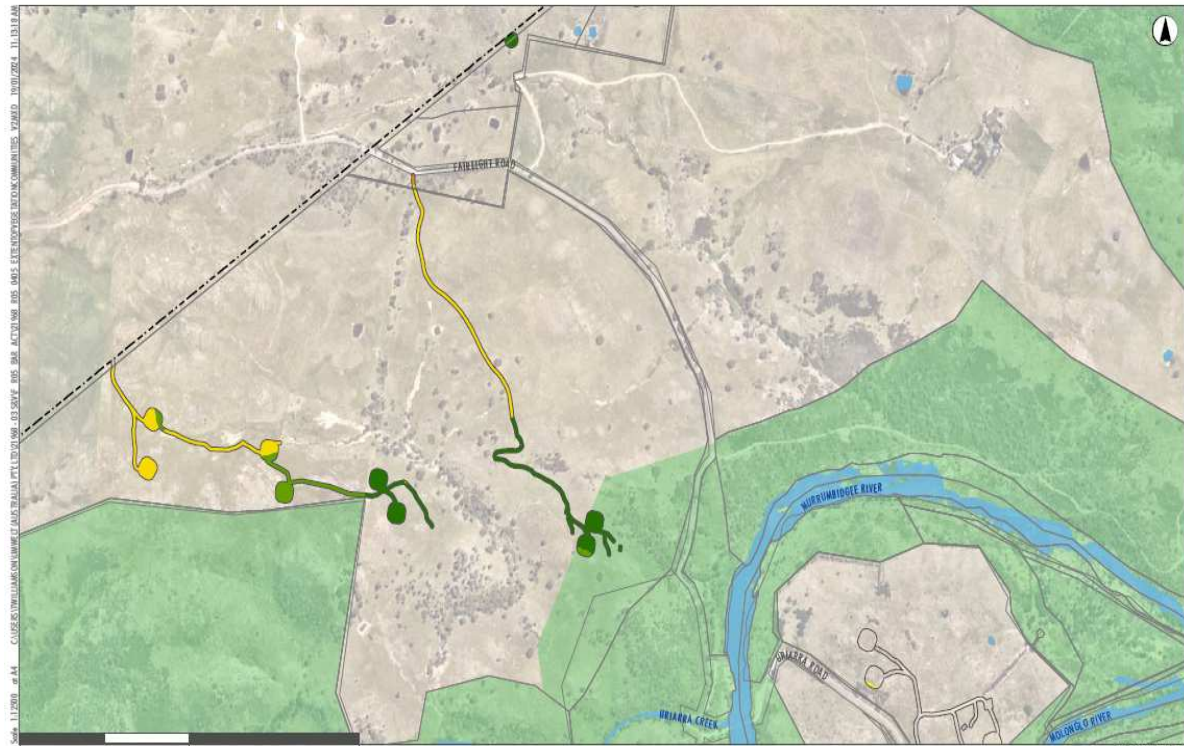


Figure 12 – Copy of the vegetation within the route of the Proposal, based field mapping.



SECTION 3

BUSHFIRE RISK ASSESSMENT – FOR THE UPPER & LOWER TUMUT 330kV TRANSMISSION LINE REALIGNMENT PROJECT

3.1 Introduction.

The Australian Standard AS/NZS ISO 31000:2009 and the Emergency Management Australia (EMA) emergency risk management process provides the framework for establishing the context, analysis, evaluation, treatment, monitoring and communication of risk.

Risk has two elements: likelihood, the chances of a bushfire occurring and consequence, the impact of a bushfire when it occurs.

Bushfire risk is defined as the chance of a bushfire occurring that will have harmful consequences to human communities and the environment. Bushfire risk is usually assessed through consideration of the likelihood of ignition and consequences of a bushfire occurring. Risk reduction can be achieved by reducing the likelihood of a bushfire, the opportunity for a bushfire to spread or the consequence of a bushfire (on natural and built assets).

Bushfire management should have a clear objective to reduce both the likelihood of bushfires and reduce the negative impacts of bushfires. It should also consider the costs, inconvenience and dangers of measures taken to reduce the risk of bushfires.

The consequences of bushfire management activities and the failure to implement programs also need to be considered. A range of factors influence bushfire risk – these include:

- The likelihood of human and natural fire ignitions, as influenced by time, space and demographics;
- The potential spread and severity of a bushfire, as determined by fuel, topography and weather conditions;
- The proximity of assets vulnerable to bushfire fuels, and likely bushfire paths; and
- The vulnerability of assets including natural assets, or their capacity to cope with, and recover from bushfire.

3.2 Risk Assessment.

An assessment of bushfire risk must firstly define the problem.

This involves the identification of the nature and scope of issues to be addressed and defining the possible boundaries for the assessment (*Emergency Risk Management – Applications Guide*. (EMA Echo Press, 2000), and AS/NZS ISO 31000:2009).

For the purpose of analysing fire risks that might emerge in the ACT, a dangerous and damaging fire has the potential to occur when the following conditions prevail:

- Continuous available fuel – fuel at moisture content sufficiently low to enable rapid combustion, arising from drought effects or the maturing and drying, of grasslands;
- Exposure of vulnerable assets. The ‘catchment’ for such fires may be within several hundred metres or many (60-70) kilometres from the asset/s;
- A combination of weather conditions that generate a forest or grass fire danger index of Very High or greater. Typically, in the ACT, prevailing adverse fire weather will have a strong northerly, through to south-westerly wind influence;
- A fire in the landscape which is not effectively suppressed.

The assessment of the risk to the Proposal site was undertaken during the site investigation and identified that the relocated route of the power line will be exposed to the risk of north-westerly, westerly, south-westerly and south-easterly fire paths.

The fire path from the northwest has the potential to rapidly travel across the landscape within NSW and spreading into the ACT, crossing the Murrumbidgee River corridor and spreading upslope along the Molonglo River corridor in a south-easterly direction.

A similar potential exists for a fire event to spread across the landscape under northerly, westerly and south-westerly winds. A southerly and south-easterly, wind driven fire event is also likely to impact on the relocated route of the power line.

The site investigation has determined that the bushfire risk to the Proposal from the north, northwest, west and southwest fire path is extreme.

The bushfire risk to the Proposal from the south and southeast is high.

Figure 14 – Plan of potential North and Southeast fire paths.

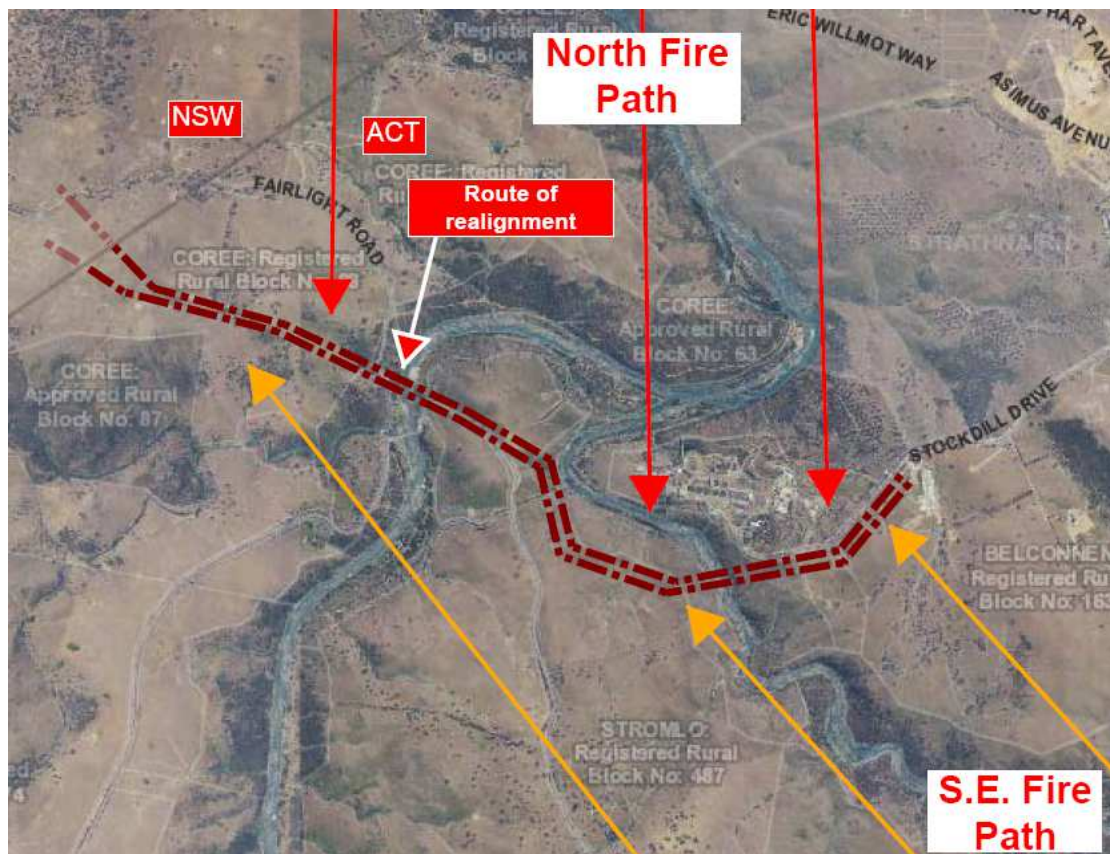


Figure 15 – Plan of potential Northwest and South fire paths.

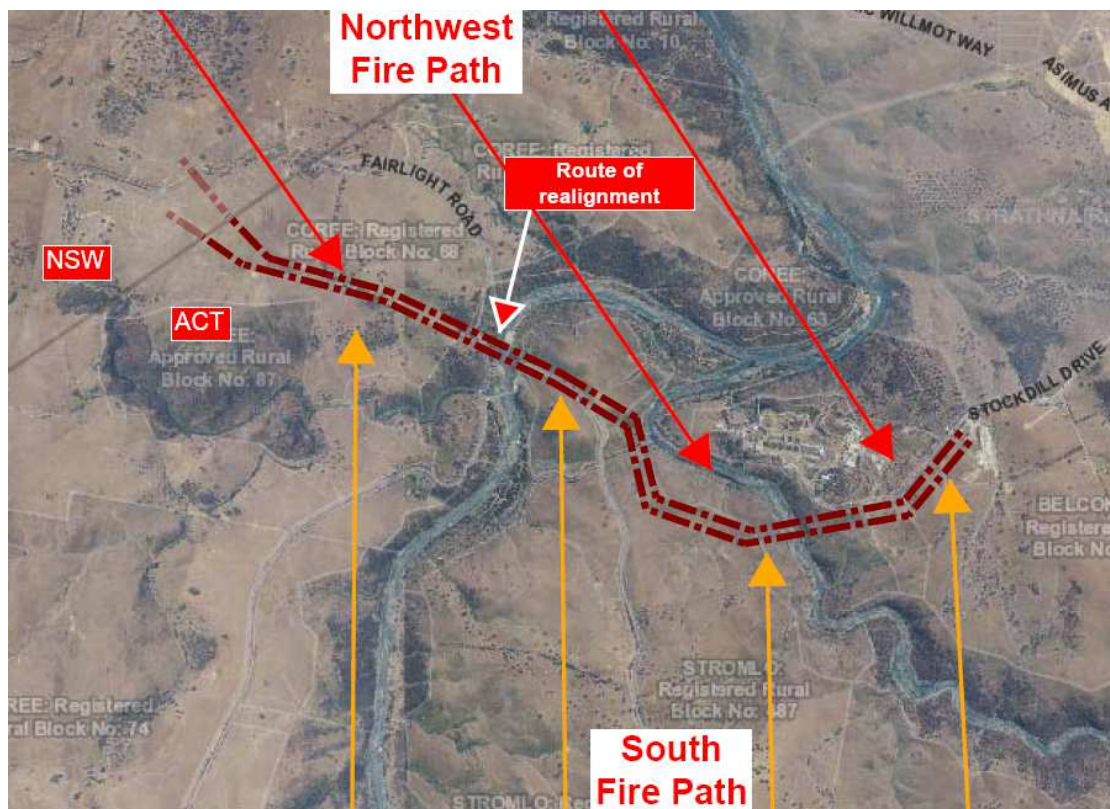


Figure 16 – Plan of potential Southwest and Northeast fire paths.

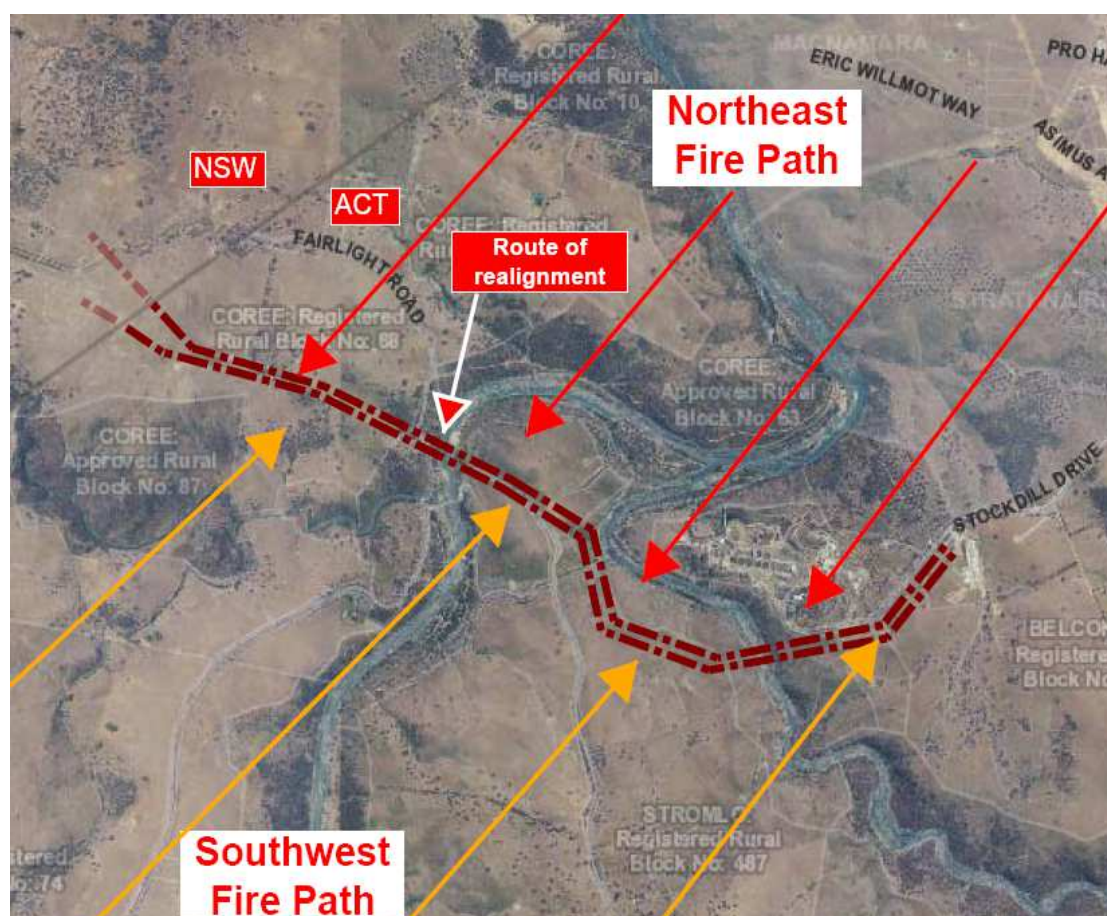


Figure 17 – Plan of potential West fire path.



The likelihood of grass fire ignition from malfunction of the project infrastructure (conductors) within the NSW and ACT legs is low.

Faults in cable connections can occur at any time to any aerial cable installation with no means of preventing ignition of cured grassland vegetation other than monitoring and management of the grassland fuels.

The transmission line easement (NSW/ACT) should be regularly inspected during the Fire Danger Period and the grassland vegetation managed to maintain a maximum height of 200mm when the grassland vegetation reaches 70% cured.

The occurrence of grass fire ignition during construction can be mitigated with measures taken to ensure construction is not undertaken on high bushfire risk days.

Hot works shall not be undertaken during declared Total Fire Ban days.

Ignition of vegetation may also occur from sparks given off during the use of heavy machinery (Bulldozers/Excavators/Boring Machines etc) in areas where it is likely that rocks will occur.

The fire-fighting trailer will be on standby at rocky locations and high risk works (including excavations etc in rocky areas) will not occur during periods of high fire danger.

Smoke from fires that occur in or close to the transmission line corridor can also create a pathway for arcing to ground, shutting down the network.

SECTION 4

BUSHFIRE PROTECTION ASSESSMENT – THE UPPER & LOWER TUMUT 330kV TRANSMISSION LINE REALIGNMENT PROJECT, ACT.

4.1 Bushfire Protection Measures to the Proposal.

The recently released 2023 version of the ACT Bushfire Management Standards (BMS) provide standards for development on bush fire prone land in the ACT.

These standards have been prepared under the ACT Strategic Bushfire Management Plan, and detail the measurable outcomes required for better bushfire outcomes.

BMS are applicable to all development located on bush fire prone area (BPA) in the ACT as mapped by the ACT Emergency Services Agency (ESA).

Whilst the ACT Bushfire Management Standards do not include the construction of electrical transmission lines, the document raises valid points over the protection of critical infrastructure that is located in bushfire prone areas.

The following section of the ACT Bushfire Management Standards has relevance to the Proposal:

Essential equipment must be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure during bush fire emergencies. It should also be designed and maintained so that it will not serve as a bush fire risk to surrounding bush.

Where infrastructure is considered ‘critical’ e.g., loss of infrastructure resulting in community unable to function, the most vulnerable component of each part of a facility, critical to its continued functioning in a bushfire, is to be identified, and the Radiant Heat Flux (RHF) that each will fail at identified. APZs are to be provided to ensure the failure RHF for the critical component(s) are not exceeded, if an APZ of sufficient size is not possible, then the critical component(s) are required to be shielded and the effectiveness of the shielding is to be appropriately demonstrated.

Comment:

The realignment of the transmission lines involves construction of support towers and poles and installation of aerial conductors, considered to be ‘essential equipment’ located in the high bushfire risk area (within the ACT & NSW).

Examination of the Proposal identifies that the towers and poles will be fabricated in heavy steel and will therefore not be damaged by high levels of Radiant Heat Flux (RHF) from fire that occurs in either the grassland or woodland vegetation.

The provision of designated Asset Protection Zones to the towers and support poles is not required as these structures will withstand the radiant heat levels created by grassland fuels.

The preferred route of the transmission line has been chosen to avoid areas of woodland vegetation with a preference for siting infrastructure in the exotic grassland vegetation. This mitigates the bushfire risk to the conductors.

The conductors will have a varying height above the ground, with a minimum clearance mid-span of 5.0 metres above the retained vegetation (grassland/woodland).

Where the minimum clearance (5.0 metres) to the conductors occurs above grassland vegetation within the transmission line corridor, the exposure of the transmission line to the radiant heat flux (RHF) produced by the grassland vegetation will be of short duration and is unlikely to cause damage to the transmission lines due to the grassland fuels being rapidly consumed by fire, with not residual levels of radiant heat.

Where the minimum clearance to the transmission line occurs above retained woodland within the river corridors, the levels of initial and residual radiant heat will increase due to the increased fuel loadings and the potential slower passage of the fire across the woodland vegetation.

This impact will have a short duration time (less than 30 minutes) and will have a moderate level of risk to the transmission line.

Large 'campaign' bushfires that occur across the broader landscape are likely to increase the overall radiant heat flux in the woodland vegetation, potentially causing damage to the conductors at mid-span. The passage of fire across the landscape will result in less time of radiant heat impact on the conductors.

The provision of designated Asset Protection Zones to the transmission line corridor is not required as the proposed maintenance of the vegetation by grazing/clearing will mitigate the level of radiant heat exposure on the conductors.

The ACT Bushfire Management Standards also recommends that a *Bush Fire Emergency Management and Operations Plan* (BEMOP) be prepared for critical infrastructure and must identify all relevant risks and mitigation measures associated with the construction and operation of the infrastructure.

The BEMOP should include:

detailed measures to prevent or mitigate fires igniting.

work that should not be carried out during total fire bans.

*availability of fire-suppression equipment, access, and water.
storage and maintenance of fuels and other flammable materials.*

*notification to ACT ESA for any works that have the potential to ignite
surrounding vegetation, proposed to be carried out during a bush-fire
danger period to ensure weather conditions are appropriate; and*

appropriate bush fire emergency management planning.

It is important to be aware of operations that may be carried out on days of Total Fire Ban and any prohibited activities or exemptions that are notified under the Emergencies Act 2004.

Comment:

It is recommended that a Bushfire Emergency Management and Operations Plan (BEMOP) be prepared for the construction and operation of the Proposal. The BEMOP shall identify appropriate procedures for employees to follow in the event of a bushfire and contain the following minimum requirements:

- ❖ Name and address of facility;
- ❖ Contact details (including phone number);
- ❖ Number of employees/contractors;
- ❖ Primary Action (evacuate or shelter)
- ❖ Details of location or address of Primary Action;
- ❖ Details of location or address of back-up/pre-emptive procedures;
- ❖ Procedure for Primary Action and back-up actions;
- ❖ Assembly point(s) and/or transportation arrangements (evacuation only);
- ❖ Action statements before, during and after a bushfire);
- ❖ Site layout of the Proposal, including construction camp/s;
- ❖ Attachments including occupant/employee listing.

4.2 Access for Fire-fighting Operations.

The access tracks are designed to have an average width of 5 metres (4 metres with 6 metre wide passing bays to Satisfy Transgrid transmission line access standards in compliance with the NSW Rural Fire Service Fire Trail Standards – Version 1.1. – 2019).

The access roads should be designed and constructed to provide a carrying capacity of 23 tonnes GVM for fire-fighting appliances.

Temporary and permanent access gates shall have a minimum opening width of 3.6 metres.

4.3 Fire Protection Measures required for Construction and Operation.

The use of heavy earthmoving equipment and works that include grinding/welding shall not take place during declared Total Fire Ban days.

The bushfire risk to personnel and equipment will remain during the construction and maintenance works.

It is recommended that once the detail design is completed the contractor shall include the management of bushfire risk in the Construction Environmental Management Plan (CEMP), Evacuation Plan (EP) and Operations Environmental Plan (OEP).

It is also recommended that, during the construction works periods, the contractor shall provide, at each Site office, a suitable fire response Tanker Trailer having a minimum water storage capacity of 1,000 litres, one 30 metre fire hose and nozzle and two rake-hoes.

All vehicles and machinery shall be equipped with portable fire extinguishers.

If emergency work is required to be undertaken during extreme/catastrophic fire danger weather personnel should be accompanied by the ACT Rural Fire Service.

SECTION 5

CONCLUSION – THE UPPER & LOWER TUMUT 330kV TRANSMISSION LINE REALIGNMENT PROJECT, ACT.

This report provides an assessment of bushfire risk to the proposed realigned Upper Tumut 330kV Transmission Line and establishes that the recently released 2023 version of the ACT Bushfire Management Standards (BMS) does not include advice on the provision of bushfire management standards for the construction of transmission lines.

The document does identify the requirement that critical infrastructure is adequately protected from high levels of Radiant Heat Flux (RHF).

The steel support towers and poles will not be affected by high levels of RHF.

The realignment of the transmission line has been chosen to avoid the conductors crossing woodland vegetation, with preference given to areas that contain exotic grassland vegetation.

Fires that occur in grassland vegetation produce shorter flame length than fires that occur in woodland vegetation.

This reduces the risk to and level of radiant heat flux (RHF) on the conductors and satisfies the ACT Bushfire Management Standards requirements for critical infrastructure located in bushfire prone areas.

The route of the transmission line also crosses the Murrumbidgee and Molonglo Rivers which contain woodland vegetation. The occurrence of fires in the woodland vegetation in the river corridors increases the level of radiant heat flux given off by the fire.

The higher level of radiant heat is mitigated by the increased separation provided by the shape of the river corridors.



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REFERENCES:

- ACT Strategic Bushfire Management Plan – 2019 - 2024;
- ACT Bushfire Management Standards – 2023;
- Planning for Bushfire Risk Mitigation General Code – 2009;
- *Australian Standard for Risk Management* A.S./N.Z.S. ISO 31000:2009 and A.S. 3959 - 2018;
- Emergency Risk Management – Applications Guide. (EMA) 2000);
- Overall Fuel Hazard Guide Fourth Edition – DSE. July 2010.