

Living and working with electricity transmission lines

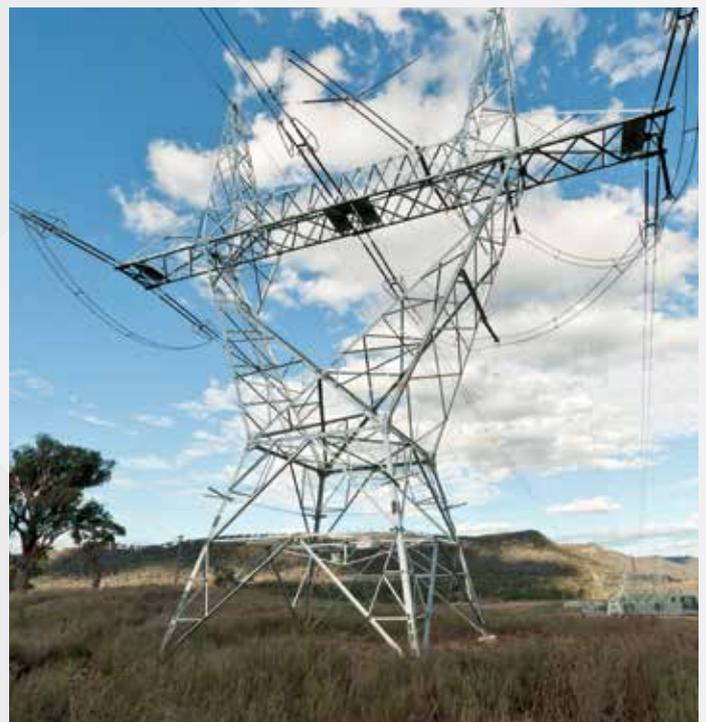


We all rely on electricity to power our homes and businesses, however coming into contact with high voltage electricity can cause serious injury or death.

To protect your safety and provide a safe, reliable network, TransGrid has easements over its transmission lines, which restrict the activities that can be carried out. Easements are also “rights of way”, which allow our staff and contractors access to construct, operate and maintain TransGrid’s infrastructure.

TransGrid’s primary concern is the **safety of people and the environment**, and we are committed (and required by legislation) to providing a safe and reliable transmission network.

For more information on potential electrical safety risks, please see our **Electrical safety risks fact sheet**. You can learn more about electricity infrastructure by reading our **High voltage transmission line fact sheet**.



What activities may be carried out within or adjacent to transmission line easements?

High voltage transmission lines have different safety risks from urban powerlines, and this is why TransGrid encourages the principle of “prudent avoidance”¹. When planning houses, schools, sensitive land uses and other types of new development, proximity to existing or planned high voltage transmission lines should always be considered.

Where developments cannot avoid transmission line easements, open space uses – that do not encourage people to congregate under the transmission lines or close to electricity infrastructure – should be given preference over other land uses, such as residential or commercial.

These guidelines will assist you to work out:

- > whether your proposed activity or development within (or adjacent to) an electricity easement is **permitted**; **requires TransGrid’s permission**; or is **prohibited**; and
- > the process for seeking TransGrid’s permission prior to carrying out the activity or lodging your development application with a consent authority.

TransGrid can only give its permission to your proposal as holder of the easement. TransGrid’s permission is not a development consent.

Councils are required to refer development applications that affect TransGrid’s transmission line easements to TransGrid. Seeking TransGrid’s permission prior to lodging your development application will help expedite this process.

If you undertake an activity or development that is not in accordance with the Easement guidelines, you may be required to remove it or relocate it at your expense.

Please note that if you have received TransGrid’s written permission under previous guidelines, this permission remains valid.

Is your proposal located within or adjacent to a TransGrid easement?

Transmission line easements vary in width depending on the operating voltage and design of the infrastructure. Generally, the higher the voltage, the wider the easement. Figure 1 below shows the typical widths of transmission line easements.

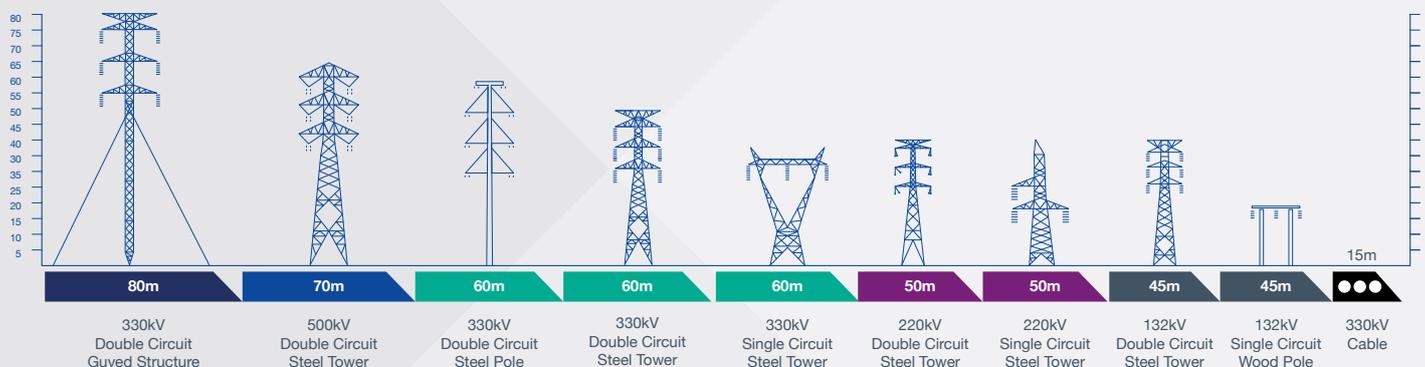


Figure not to scale. Typical widths only, may vary on a case by case basis.

Figure 1: Typical Easement Widths

¹ As identified by The Right Honourable Harry Gibbs Report, Inquiry into Community Needs and High Voltage Transmission Line Development, 1991.

The distances in the Easement guidelines are based on the typical easement widths shown in Figure 1. However, because there are some variations to easement widths, you will need to know the width of the easement near your proposal.

To work out whether there is a TransGrid easement on your property and how wide it is, you can contact the New South Wales Land Registry Services for a detailed survey plan.

NSW Land Registry Services can be contacted on 1300 052 637 or via their website at www.nswlrs.com.au.

Is your proposal outside the exclusion zone?

TransGrid has developed an **exclusion zone** to enable suitable activities within easements, while providing a safe clearance area around TransGrid transmission lines and structures to protect public safety and the network.

Please check the criteria and diagrams below to ensure that your proposal is outside the exclusion zone.

If your proposal is located within the **exclusion zone**, you will need to relocate it or seek permission from TransGrid. Most activities are prohibited within the **exclusion zone**, to meet TransGrid's public safety obligations.

Exclusion zone criteria activities/developments/structures must:

1. not impede TransGrid's access to its transmission infrastructure;
2. where transmission lines are **132kV and below**:
 - be located at least 20 metres away from any part of a transmission structure or guy wire;
 - for metallic structures, be located at least 22 metres away from any part of a transmission structure or guy wire;
 - be located at least 10 metres from the centre of the transmission line;
3. where transmission lines are **220kV and above**:
 - be located at least 30 metres away from any part of a transmission line structure or guy wire;
 - be located at least 17 metres from the centre of the transmission line.

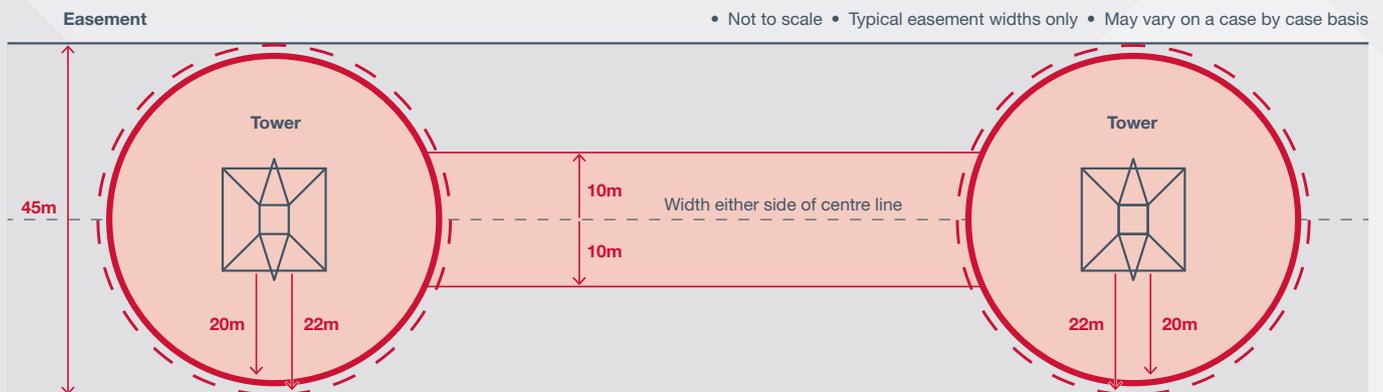


Figure 2: 132kV and below Exclusion Zone

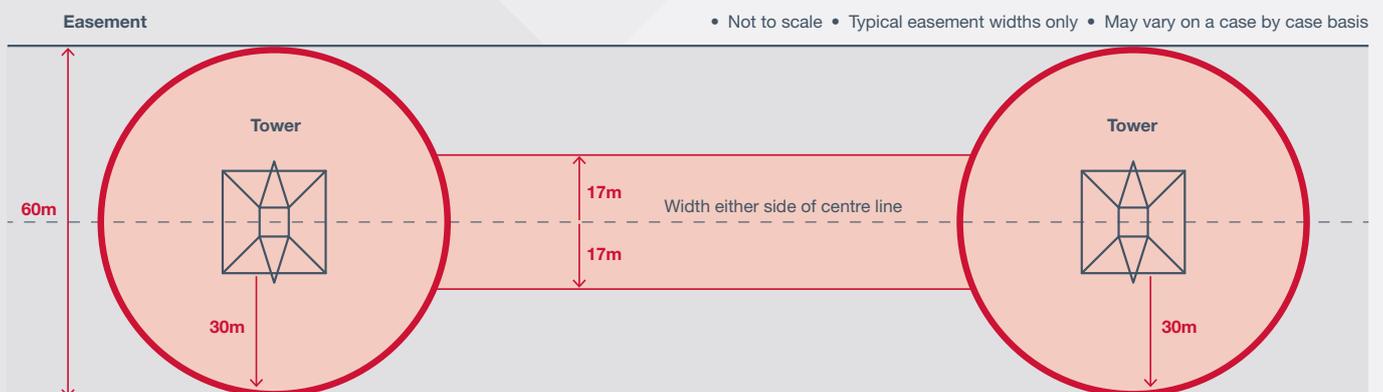


Figure 3: 220kV and above Exclusion Zone

If you are uncertain whether your proposal is within the exclusion zone, please contact TransGrid by submitting an enquiry via our online Easement Enquiries Portal: <https://www.transgrid.com.au/being-responsible/public-safety/Living-and-working-with-electricity-transmission-lines>

Is your proposal permitted within TransGrid easements?

If your proposal is described below and is outside the **exclusion zone**, no further permission from TransGrid is required.

Where your proposal within a transmission line easement will require development consent, the consent authority must still refer the development application to TransGrid. For this reason, we recommend you seek TransGrid's confirmation that your proposal is permitted within the easement **before** you lodge your development application with Council, by submitting an enquiry via TransGrid's online Easement Enquiries Portal.

Please note: TransGrid reserves the right to review each activity individually and apply controls on a case-by-case basis. TransGrid will take into account public safety risks, and the safe operation, access and maintenance of TransGrid's electricity infrastructure.

If you are unsure whether your proposal is **permitted**, please contact TransGrid by submitting an enquiry via our online Easement Enquiries Portal.

The following activities where located outside the **exclusion zone** are **permitted** within TransGrid's easements:



Cropping and grazing, provided:

1. Machinery cannot extend more than 4.3 metres above ground level

Note: Exclusion zone requirements to be at least 10/17 metres from the centre of transmission lines do not apply to cropping and grazing, however all other exclusion zone requirements apply. TransGrid's Fencing guidelines must be complied with.



All other agricultural activities including irrigation, provided:

1. Machinery cannot extend more than 4.3 metres above ground level
2. All fixed metallic objects are earthed
3. Machinery, including irrigation, must remain outside the exclusion zone
4. No solid jet of water is to be within 4 metres of overhead conductors
5. Must use non-metallic piping
6. No fuel storage
7. No transmission line outages are required to undertake agricultural activities

Note: TransGrid's Fencing guidelines must be complied with.



Planting or cultivation of trees and shrubs, provided:

1. Mature plant / tree height is less than 4 metres



Short flag poles, weather vanes, single post signs, provided:

1. Height above ground is no greater than 4.3 metres
2. Non-climbable
3. All fixed metallic parts are earthed



Vehicle parking provided:

1. Height of vehicles no greater than 4.3 metres
2. No flammable liquid containers or carriers

3. Caravans are not occupied or connected (ie, temporary parking only)
4. All fixed metallic parts are earthed

*Note: **Lighting** requires TransGrid's permission to meet height and electrical safety constraints.*



Public open spaces, such as fields, cycle ways, walkways or fenced dog parks, provided:

1. No unmanned aerial vehicles (drones), kite flying or model aircrafts, and "warning signs" are installed
2. Any structures, obstructions, seating or features (such as picnic areas) are located outside the exclusion zone and do not block access tracks to transmission line structures or guy wires
3. Parallel roads, walking tracks, footpaths, cycleways and fenced dog parks are located outside the exclusion zone

Note: Roads, tracks, footpaths, cycleways and fences which propose to cross the transmission line as a thoroughfare, require TransGrid's permission.



Storage, provided:

1. No greater than 2.5 metres height
2. Stored material is non-flammable and non-combustible
3. Non-corrosive or explosive materials
4. No garbage, refuse or fallen timber or other material which could pose a bush fire risk
5. Metallic objects earthed



Operation of mobile plant and equipment, provided:

1. It cannot be extended more than 4.3 metres in height within easement
2. Equipment or plant do not encroach into Ordinary Persons Zone - please refer to the WorkCover NSW Work Near Overhead Power Lines Code of Practice 2006 (https://www.safework.nsw.gov.au/__data/assets/pdf_file/0020/52832/Work-near-overhead-power-lines-code-of-practice.pdf)
3. Work is carried out by accredited persons in accordance with WorkCover NSW Work Near Overhead Power Lines Code of Practice 2006 (https://www.safework.nsw.gov.au/__data/assets/pdf_file/0020/52832/Work-near-overhead-power-lines-code-of-practice.pdf)



Non-electric fencing and yards, provided:

1. No greater than 2.5 metre height
2. Fencing does not restrict access to TransGrid assets
3. Metallic fencing is earthed
4. TransGrid's Fencing Guidelines are complied with

Note: Parallel metallic fencing has specific safety risks and requirements under the Fencing Guidelines.



Domestic recreational activities including structures, provided:

1. Structures must not be identified as requiring **TransGrid's permission** or **prohibited**
2. Structures must be non-metallic and no greater than 2.5 metre height
3. Floor area no greter than 20m², where any portion is within easement
4. Not connected to electricity supply
5. Structures (including play equipment and BBQs) must remain outside the exclusion zone
6. No unmanned aerial vehicles (drones), kite flying or model aircrafts

What if my activity does not meet the permitted criteria or is not listed above?

You will need to seek TransGrid's permission so that we can assess potential risks to your safety and the electricity transmission infrastructure.

Does your proposal require TransGrid's permission?

If your proposal does not meet the **permitted** criteria, it may fall within the following categories which **require TransGrid's permission**. Further information about the process for seeking TransGrid's permission is provided below, under "How can I seek TransGrid's Permission?"

TransGrid reserves the right to assess each request for permission on a case-by-case basis, taking into account public safety risks, and the safe operation, access and maintenance of TransGrid's electricity infrastructure.

TransGrid may grant permission with conditions, or may refuse permission where the activity could put public safety or the operation of the transmission network at risk.

If your proposal is described below and is **outside the exclusion zone**, you will **require TransGrid's permission**:

Any proposal which falls within a "permitted" category but does not meet the listed criteria



Detached garages, carports, sheds, stables, pergolas and unroofed verandahs where no practicable alternative exists, provided:

1. Structures are no greater than 4.3 metres height
2. Non-habitable
3. Metallic structures are earthed
4. Floor area no greater than 20m², where any position is within easement
5. Power connection only permitted if electrically isolated in accordance with AS/NZS 3000:2018 *Electrical installations* outside easement



Sporting and recreational facilities, including tennis courts, basketball courts, playgrounds, exercise equipment provided:

1. Structures are no greater than 4.3 metres height
2. Metallic structures are earthed



Native plant or other nurseries, community gardens, provided:

1. Mature plant / tree height is less than 4 metres
2. Structures are no greater than 4.3 metres height
3. Any fixed structures, including pumps, are located outside the exclusion zone
4. Metallic structures must be earthed



Mobile plant with a height greater than 4.3m, provided:

1. It is operated by accredited persons in accordance with WorkCover NSW *Work Near Overhead Power Lines Code of Practice 2006* (https://www.safework.nsw.gov.au/__data/assets/pdf_file/0020/52832/Work-near-overhead-power-lines-code-of-practice.pdf)



In-ground swimming pools including coping, provided:

1. It is located at least 30 metres from transmission line structures or supporting guy wires
2. Must be located at least 15 metres from transmission line centre (132kV or below) OR 25 metres from transmission line centre (220kV or above)

3. Power connection only permitted if electrically isolated in accordance with AS/NZS 3000:2018 *Electrical installations* outside easement
4. Site specific assessment will be required by TransGrid



Lighting/external sources of power no greater than 4.3m height:

1. Non-climbable
2. Must be electrically isolated in accordance with AS 3000 outside easement

Note: Exclusion zone requirements to be at least 10 metres from centre of 132kV and below transmission lines or 17m from centre of above 132kV lines do not apply to lighting and external sources of power, however all other exclusion zone requirements apply.



Electric fencing, where:

1. Height is no greater than 2.5 metres
2. Must be located at least 30 metres from transmission structures or supporting guy wires
3. TransGrid Fencing Guidelines are complied with



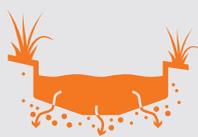
Roads and pathways that cross the transmission line as a thoroughfare:

1. Where it is proposed that a road passes within 30 metres of a transmission structure or supporting guy wires:
 - TransGrid may refuse consent or impose additional restrictions and other conditions
 - The structure's earthing system may require modification to prevent fault currents from entering other utility services in the road. The option of raising conductors or relocation of structures, at the full cost to the proponent, may be considered
2. TransGrid may require additional protection (such as safety barriers) where there is a risk of vehicle impact
3. Intersections shall not be located within the exclusion zone



Low voltage utilities and services such as electricity, gas, telephone and water:

1. Not located within the exclusion zone (additional clearances apply to metallic services)
2. Parallel metallic services will require specific safety assessment
3. Additional design and safety requirements will apply



Excavation, quarrying and earth works, including dam and artificial lake construction, basins, swales, drains and dispersion channels, provided:

1. No more than 3 metres in depth
2. No generation of significant amounts of dust or smoke that can compromise the transmission line high voltage insulation
3. Must not raise ground level, or reduce clearances below that required in AS 7000:2010 *Overhead line design*
4. No ponding or water retention around TransGrid's structures
5. Batter no steeper than 1 in 6 where access is required by TransGrid vehicles



Any other change in ground levels that reduce clearances below that required in AS 7000:2010 Overhead line design:

1. Criteria assessed on a case by case basis



Use of explosives:

1. Criteria assessed on a case by case basis



Mining:

1. Criteria assessed on a case by case basis

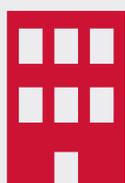


Subdivisions (see Subdivision and Development Guidelines):

1. Criteria assessed on a case by case basis
2. Subdivisions that encourage unauthorised encroachments (for example, where the majority of usable outdoor space in a proposed lot is located within a transmission line easement), will not be permitted, due to public safety risks

Is your proposal prohibited within a TransGrid easement?

If your proposal is described below, it is **prohibited** from being carried out within any part of a transmission line easement. This is due to the inherent risk to people, public safety, and to ensure the safe, reliable operation of the network.



Buildings, accommodation and structures:

1. Buildings or structures which are not listed as **permitted** or **require TransGrid's permission**
2. Construction of houses
3. Site construction offices or workshops
4. Camping or occupied caravans or other camping vehicles
5. Above ground pools



Fixed plant or equipments



Interference with transmission lines:

1. The placing of obstructions within 20 metres of any part of a transmission line structure or supporting guy wires
2. Placing any obstructions on access tracks or within the easement area that restricts access
3. Any structure whatsoever that during its construction or future maintenance will require an Accredited Person to access as per the WorkCover NSW Work Near Overhead Power Lines Code of Practice 2006 (https://www.safework.nsw.gov.au/__data/assets/pdf_file/0020/52832/Work-near-overhead-power-lines-code-of-practice.pdf)
4. The attachment of any fence, any signage, posters, or anything else, to a transmission line structure or guy wire
5. Any work that generates significant amounts of dust or smoke that can compromise the transmission line high voltage insulation
6. Movement of any vehicle or plant between tower legs, within 5 metres of a transmission line structure, guy wire or between a guy wire and the transmission pole
7. Kite flying or model aircraft within the easement, flying of remote controlled or unmanned aerial vehicles (such as drones), any manned aircraft or balloon within 60 metres of any transmission line structure, guy wire or conductor
8. Structures or objects that encourage or facilitate climbing (including working from vehicles)

Note: The final structure may meet AS7000 clearances, but may be accessible by Ordinary Persons within the Ordinary Persons Zone.



Storage of flammable, combustible, corrosive or explosive materials, garbage, refuse or fallen timber



Burning off or the lighting of fires



Unsafe work practices under Work Near Overhead Power Lines Code of Practice:

1. Any vegetation maintenance (such as felling tall trees) where the vegetation could come within the Ordinary Persons Zone as per the *WorkCover NSW Work Near Overhead Power Lines Code of Practice 2006*
2. Any activity (including operation of mobile plant or equipment having a height when fully extended exceeding 4.3 metres) by persons not Accredited or not in accordance with the requirements of the *WorkCover NSW Work Near Overhead Power Lines Code of Practice 2006*.

What about underground cable easements

Different risks and requirements apply near TransGrid transmission cables. For further guidance, please see the **Working near TransGrid cables guidelines**.

Underground cables are not obvious, and you may not know there is one located on your property. A **Dial Before You Dig (DBYD)** search is essential prior to any excavation works.

Given the nature of underground cables, all proposals within cable easements require TransGrid's permission.

Please note: TransGrid reserves the right to review each activity and apply controls on a case-by-case basis, taking into account public safety risks, and the safe operation, access and maintenance of TransGrid's electricity infrastructure.

How can I seek TransGrid's permission?

You can seek TransGrid's permission to carry out proposals within or adjacent to an easement via TransGrid's online Easement Enquiries Portal: <https://www.transgrid.com.au/being-responsible/public-safety/Living-and-working-with-electricity-transmission-lines>

This should be done **prior** to lodging your development application or planning agreement application with your consent authority. TransGrid's permission is given as holder of the easement only, and does not constitute approval to carry out the activity or development.

Please check that your proposal is consistent with these Easement Guidelines before you seek TransGrid's permission, so that we can respond as efficiently as possible.

Your request for permission should include the following information:

| | |
|---|---|
| Name of applicant and/or company or Council | ✓ |
| Street address and Lot-DP | ✓ |
| Description of proposal with height, depth and location of proposed activities/ structures/ development and assessment of impact on transmission infrastructure | ✓ |
| Contact information including phone number, address and email address | ✓ |
| A detailed, legible and to-scale plan showing property boundaries, proposal and distance of proposal to TransGrid's easement and transmission line structures and guy wires (if applicable) For large scale subdivisions, a Site Plan showing all new access points and access ways to the easement and transmission line structures | ✓ |
| A three dimensional CAD drawing in 3D-DXF format | Only if proposal changes ground levels ✓ |

If we do not receive this information we may need to request further details from you, and this will delay your request for permission.

TransGrid has also prepared supplementary Technical Guidelines and Fact Sheets to provide additional information for specific activities:

- > High voltage transmissions network fact sheet
- > Electrical safety risks fact sheet
- > Work near TransGrid cables
- > Subdivision and development guidelines
- > Fencing guidelines
- > Working near TransGrid cables information brochure

These are available on the TransGrid website at www.transgrid.com.au/being-responsible/public-safety/living-and-working-with-transmission-lines.

If your proposal is complex (for example, master-planned subdivision), we recommend a meeting with TransGrid before you submit your application for permission. You can arrange this via our online Easement Enquiries Portal.

Can I use TransGrid's permission as part of my development application to Council?

Your consent authority is required to consult with TransGrid before granting development consent for proposals that impact transmission line easements, or where the proposal might adversely affect electricity infrastructure.

Consent authorities must take into consideration any comments made by TransGrid within 21 days of written notification of a development application.

If you have received TransGrid's permission, this should be included as part of the development application. This will enable the referral process to be as efficient as possible.

If you have changed your proposal, you will need to lodge another request for TransGrid's permission via our online Easement Enquiries Portal, as your original permission will no longer be valid. This may delay the development application process.

Seeking TransGrid's permission and applying for development consent are two separate processes. TransGrid's permission does not allow you to carry out an activity nor does it guarantee development consent.

What if I build something without TransGrid's permission?

Please contact TransGrid to discuss on:

Phone: (02) 9620 0515

Email: Easements&Development@transgrid.com.au

Relocating or modifying infrastructure and interruption to transmission

Some proposals require modifications to existing electricity infrastructure or easements.

A contract may be needed with TransGrid where you will be required to pay TransGrid's costs, such as design and construction works.

You can make a modification enquiry with TransGrid's Infrastructure team at infrastructure@transgrid.com.au or find further information on our website: <https://www.transgrid.com.au/what-we-do/our-network/connections-and-modifications/network-modifications/Pages/default.aspx>

You will also be responsible for any costs incurred as a consequence of interruptions to TransGrid's transmission operations arising from the development.

Contact TransGrid

If you are uncertain or require further information regarding works around or in TransGrid easements, please contact us via our online Easement Enquiries Portal: <https://www.transgrid.com.au/being-responsible/public-safety/Living-and-working-with-electricity-transmission-lines>

You can also reach us by contacting:

Phone: (02) 9620 0515

Email: Easements&Development@transgrid.com.au