

**From:** Cornelis Duba [Cornelis.Duba@endeavourenergy.com.au]

**Sent:** Tuesday, 19 September 2017 1:42:47 PM

**To:** The Hills Shire Council

**Subject:** THE HILLS SHIRE COUNCIL PLANNING PROPOSAL 12/2016/PLP RE 9-10  
ROGER AVENUE AND 93-107 CECIL AVENUE, CASTLE HILL

The General Manager  
The Hills Shire Council

**ATTENTION: Kate Clinton, Senior Planner**

Dear Sir or Madam

I refer to Council's letter of 23 August 2017 regarding the Planning Proposal 12/2016/PLP at 9-10 ROGER AVENUE AND 93-107 CECIL AVENUE, CASTLE HILL (Lots 5 & 6 DP 705913, Lots 20 & 27 DP 15399, Lots 1 & 4 DP 531559, Lots 1, 2, 3 & 4 DP 581293, Lots 1 & 2 DP 547897, Lots 1 & 2 DP 591676, Lots 5 & 6 DP 29141, Lots 21 & 22 DP 778595) for Draft Amendments to the Development Control Plan and Draft Voluntary Planning Agreement. Submissions need to be made to Council by 19 September 2017.

The key amendments to The Hills Local Environmental Plan 2012 include:

- Rezoning the site from R3 Medium Density Residential and R1 General Residential to B4 Mixed Use;
- Removing the maximum building height applicable to the site;
- Applying a 'base' floor space ratio of 1:1 across the entire site and an 'incentivised' floor space ratio of 3.5:1 across the entire site.

The proposed amendments will facilitate a mixed use, multi-storey development on the subject site comprising 460 dwellings and at least 8,025m<sup>2</sup> of commercial floor space.

As shown in the below site plans from Endeavour Energy's G/Net master facility model there are:

- No easements over the site benefitting Endeavour Energy (easements are indicated by red hatching).
- Low voltage and 11,000 volt / 11 kV high voltage underground cables to the Cecil Avenue road frontage / roadway to the north west of the intersection with Terminus Street
- Low voltage and 11 kV high voltage overhead power lines to the Cecil Avenue road frontage / roadway to the south east of the intersection with Terminus Street.
- Low voltage overhead power lines to the Roger Avenue road verge / roadway.
- Low voltage overhead service conductors to the customer connection points for the existing lots (with extended underground services from customer owned poles to the lots not having direct street frontages).

Please note the location, extent and type of any electricity infrastructure, boundaries etc. shown on the plan is indicative only. Generally (depending on the scale and/or features selected), low voltage (normally not exceeding 1,000 volts) is indicated by blue lines and high voltage (normally exceeding 1,000 volts but for Endeavour Energy's network not exceeding 132,000 volts / 132 kV) by red lines (these lines can appear as solid or dashed). This plan is not a 'Dial Before You Dig' plan under the provisions of Part 5E 'Protection of underground electricity power lines' of the Electricity Supply Act 1995 (NSW).

In regards to the low voltage overhead power lines and underground cables / service conductors traversing the site that are not held under an easement, they are protected assets and deemed to be lawful for all purposes under Section 53 'Protection of certain electricity works' of the Electricity Supply Act 1995 (NSW). Essentially this means the owner or occupier of the land cannot take any action in relation to the presence in, on or over the land of electricity works ie. they cannot remove the electricity infrastructure encroachment from their property.

These protected assets are managed on the same basis as if an easement was in existence. In accordance with the attached copy of Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights', as shown in the following extract of Table 1 – 'Minimum easement widths':

- The low voltage overhead power lines require a 9 metre minimum easement width ie. 4.5 metres to either side of the centre line of the poles / overhead power lines.
- The low voltage underground cables require a 3 metre minimum easement width ie. 1.5 metres to either side of the centre line of the cable ducts (assuming no concrete protection unless proven otherwise).

Please refer to the below point 'Network Access / Easement Management' for further information.

Subject to the following recommendations and comments Endeavour Energy has no objection to the Planning Proposal.

- Network Capacity / Connection

Endeavour Energy has noted the following in the 'Planning Proposal':

In regards to electricity supply to the to the area subject to the Draft Voluntary Planning Agreement, Endeavour Energy's Asset Strategy & Planning Branch whilst not having undertaken a detailed analysis of the Planning Proposal have provided the following advice:

*The increased dwelling numbers is significant and will require developers to extend and augment the 11,000 volt / 11 kV high voltage network to facilitate connection as per Endeavour Energy's normal customer connection processes.*

*Cheriton Avenue Zone Substation (ZS) located at 35-37 Showground Road Castle Hill, will supply this new load. Cheriton Avenue ZS was designed with space for augmentation to install a third transformer which will increase firm capacity from 45 megavolt amperes (MVA) to 90 MVA.*

*Given the location, depending on the circumstances at that time, supply could also be made available from Castle Hill ZS located at 167 Cecil Avenue Castle Hill.*

*Endeavour Energy will continue to monitor the load growth on Cheriton Avenue ZS and will augment the zone substation at the appropriate time.*

*The upgrade of the zone substation is not a prerequisite for rezoning and new development proceeding.*

In regards to the availability of electricity supply to sites within the area subject to the Draft Voluntary Planning Agreement, the availability of supply to a site is based on a wide range of factors eg. the age and design of the network; other development in the locality utilising previously spare capacity within the local network; the progress of nearby / surrounding sites including electricity infrastructure works eg. a smaller and isolated development that may not of its own accord require a padmount substation may require a padmount substation to facilitate the development and from which the spare capacity is made available to subsequent nearby development.

In due course the applicant for the future proposed development of the sites will need to submit an application for connection of load via Endeavour Energy's Network Connections Branch to carry out the final load assessment and the method of supply will be determined. Depending on the outcome of the assessment, any required padmount or indoor / chamber substation/s will need to be located within the property (in a suitable and accessible location) and be protected (including any associated cabling) by an easement and associated restrictions benefiting and gifted to Endeavour Energy. Please refer to Endeavour Energy's Mains Design Instruction MDI 0044 'Easements and Property Tenure Rights'. Further details are available by contacting

Endeavour Energy's Network Connections Branch via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm or on Endeavour Energy's website under 'Home > Residential and business > Connecting to our network' via the following link:

<http://www.endeavourenergy.com.au/>

The proposed substation location on a site will require a detailed assessment to consider the suitability of access, safety clearances, fire ratings, impact on adjoining properties etc. For example, to avoid the creation of restrictions on the adjoining site the development shown in the following extract of Google Maps Street View is of a site at 18 Copeland Street Liverpool required the installation of a fire wall next to the padmount substation. Whilst meeting the fire rating requirements etc. from an aesthetics perspective this is not an attractive outcome. Restricted access to the substation by maintenance workers causes delays in power restoration and may have severe consequences in the event of an emergency. Delays to accessing electricity infrastructure due to traffic congestion may also have severe consequences in the event of an emergency.

Advice on the electricity infrastructure required to facilitate the proposed development (including asset relocations) can be obtained by submitting a Technical Review Request to Endeavour Energy's Network Connections Branch, the form for which FPJ6007 is attached and further details (including the applicable charges) are available from Endeavour Energy's website under 'Our connection services'. The response to these enquiries is based upon a desktop review of corporate information systems, and as such does not involve the engagement of various internal stakeholders in order to develop a 'Connection Offer'. It does provide details of

preliminary connection requirements which can be considered by the applicant prior to lodging a formal application for connection of load.

Alternatively the applicant should engage a Level 3 Accredited Service Provider (ASP) approved to design distribution network assets, including underground or overhead. The ASP scheme is administered by NSW Trade & Investment and details are available on their website via the following link or telephone 13 77 88:

<http://www.resourcesandenergy.nsw.gov.au/energy-supply-industry/pipelines-electricity-gas-networks/network-connections/contestable-works>

Urban residential subdivision the site is subject to Endeavour Energy Underground Residential Distribution (URD) policy. Endeavour Energy's Company Policy 9.2.5 'Network Asset Design', includes the following 'Key Requirements' for electricity connections to new residential subdivisions:

### **5.16 Reticulation policy**

#### *5.16.1 Distribution reticulation*

In order to improve the reliability performance of and to reduce the operating expenditure on the network over the long term the company has adopted the strategy of requiring new lines to be either underground cables or where overhead is permitted, to be predominantly of covered or insulated construction.

#### *5.16.2 Urban areas*

Reticulation of new residential subdivisions will be underground. In non-bushfire prone areas, new lines within existing overhead areas can be overhead, unless underground lines are cost justified or required by local council.

Extensions to the existing overhead 11kV/22kV network must generally be underground.

- **Asset Relocation**

To facilitate the proposed future development of the Precinct, some existing electricity infrastructure may need to be decommissioned / relocated or undergrounded and a method of supply will need to be determined to service all other existing customers. Advice on the possible relocation of the existing electrical infrastructure on a site can be obtained by submitting a Technical Review Request to Endeavour Energy's Network Connections Branch or by engaging a Level 3 ASP – please also refer to the above point 'Network Capacity / Connection'.

Endeavour Energy has noted that the Council Report 8 August 2017 refers to various 'Infrastructure Items' to support the future redevelopment of the area and the broader uplift in development potential within the Castle Hill Precinct as a whole. This includes significant transport and pedestrian facilities involving the widening and upgrade of the roadways. These works within the 'Public Domain' should similarly have regard to Endeavour Energy URD and asset relocation policies.

- **Development Application Notification / Concurrence**

The Council's notifications of development applications need to comply with Section 45 'Determination of development applications—other development' of *State Environmental*

Planning Policy (Infrastructure) 2007 (NSW) (please see the following extract) in order to enable Endeavour Energy to provide comments about potential safety risks.

- Safety Clearances

Any future proposed buildings, structures, etc. must comply with the minimum safe distances / clearances for voltages up to and including 132,000 volts (132kV) as specified in AS/NZS 7000:2010 'Overhead line design - Detailed procedures' and the 'Service and Installation Rules of NSW'. Different voltages are kept at different heights, the higher the voltage, the higher the wires are positioned on the pole. Similarly, the higher the voltage, the greater the required building setback. These distances must be maintained at all times to all buildings and structures ie. including temporary site sheds, tower cranes used during construction etc. and regardless of the Council's allowable building setbacks etc. under its development controls, allowance must be made for the retention of appropriate / safe clearances. As a guide please find attached a copy of Endeavour Energy Drawing 'Overhead Lines Minimum Clearances Near Structures'.

With rezonings allowing high and medium density development with increased floor space ratios and building heights combined with reduced building setbacks, it can result in breaches of

safety clearances by proposed buildings and structures to the existing overhead power lines. Even if there is no issue with the safety clearances to the building, ordinary persons must maintain a minimum safe approach distance of 3.0 metres to all voltages up to and including 132,000 volts / 132 kV (and a distance of 4.0 metres for the erection and dismantling of scaffolding). For future access and maintenance of buildings and structures, in order to avoid the need to work within the safe approach distances for ordinary persons (which requires an authorised or instructed person with technical knowledge or sufficient experience to perform the work required and a safety observer for operating plant) or possibly an outage request and/or erection of a protective hoarding, the retention of adequate building setbacks and/or suitable building design eg. not having parts of the building normally accessible to persons in close proximity of the overhead power lines, the use of durable / low maintenance finishes to reduce the need to access areas within the safe approach distances, is recommended or alternatively the adoption of an underground solution.

- Earthing

The construction of any building or structure (including fencing, signage, flag poles etc.) that is connected to or in close proximity to Endeavour Energy's electrical network is required to comply with AS/NZS 3000:2007 'Electrical installations' to ensure that there is adequate connection to the earth. Inadequate connection to the earth places persons and the electricity network at risk.

- Network Access / Easement Management

It is imperative that the access to the existing electrical infrastructure within the precincts is maintained at all times. To ensure that supply electricity is available to the community, access to the electricity infrastructure may be required at any time.

If any of the events entails the completion of work affecting Endeavour Energy's easements or protected assets, prior contact must be made to Endeavour Energy's Easement Management Officer via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm.

The following is a summary of the usual / main terms of Endeavour Energy's electrical easements requiring that the land owner:

- o Not install or permit to be installed any services or structures within the easement site.
- o Not alter the surface level of the easement site.
- o Not do or permit to be done anything that restricts access to the easement site without the prior written permission of Endeavour Energy and in accordance with such conditions as Endeavour Energy may reasonably impose.

- Noise

The electricity network is operational 24/7/365 ie. all day, every day of the year. Overhead power lines can produce an audible sound or buzz as a side effect of carrying electricity. The sound can be louder if there is increased moisture (during rain, fog, frost etc.) or pollutants in the air. The sound usually occurs at the poles at the insulators supporting the power lines. The transformer in substations may emit a hum – especially when under heavy load say in the summer peak when use of air conditioning is at its highest. These sounds are generally not an

issue in non-urban / low density areas but with increasing density and building heights and reduced building setbacks Endeavour Energy believes it is worth considering.

Where development is proposed in the vicinity of any existing or proposed electricity infrastructure, Endeavour Energy is not responsible for any acoustic / noise amelioration measures for such noise that may impact on the nearby proposed development.

- **Vegetation Management**

The planting of large trees in the vicinity of electricity infrastructure is not supported by Endeavour Energy. Suitable planting needs to be undertaken in proximity of electricity infrastructure. Only low growing shrubs not exceeding 3.0 metres in height, ground covers and smaller shrubs, with non-invasive root systems are the best plants to use. Larger trees should be planted well away from electricity infrastructure (at least the same distance from overhead power lines as their potential full grown height) and even with underground cables, be installed with a root barrier around the root ball of the plant. Landscaping that interferes with electricity infrastructure may become a potential safety risk, cause of bush fire, restrict access or result in the interruption of supply. Such landscaping may be subject to Endeavour Energy's Vegetation Management program and/or the provisions of the *Electricity Supply Act 1995* (NSW) Section 48 'Interference with electricity works by trees' by which under certain circumstances the cost of carrying out such work may be recovered.

- **Dial before You Dig**

Before commencing any underground activity the applicant is required to obtain advice from the ***Dial before You Dig 1100*** service in accordance with the requirements of the *Electricity Supply Act 1995* (NSW) and associated Regulations. This should be obtained by the applicant not only to identify the location of any underground electrical or other utility infrastructure across the site, but also to identify them as a hazard and to properly assess the risk.

- **Excavation**

Applicant should be advised of the following object of Section 49A 'Excavation work affecting electricity works' of the of *Electricity Supply Act 1995* (NSW) covering the carrying out or proposed carrying out of excavation work in, on or near Endeavour Energy's electrical infrastructure.



With the increased number of developments incorporating basements often being constructed to the property boundaries, the integrity of the nearby electricity infrastructure can be placed at risk.

If any excavation work affects Endeavour Energy's electricity infrastructure, prior contact must be made to Endeavour Energy's Easement Management Officer via Head Office enquiries on telephone: 133 718 or (02) 9853 6666 from 8am - 5:30pm.

- Demolition

Demolition work is to be carried out in accordance with Australian Standard AS2601: The demolition of structures (AS 2601). All electric cables or apparatus which are liable to be a source of danger, other than a cable or apparatus used for the demolition works shall be disconnected ie. the existing customer service lines will need to be isolated and/or removed during demolition. Appropriate care must be taken to not otherwise interfere with any electrical infrastructure on or in the vicinity of the site eg. street light columns, power poles, overhead power lines and underground cables etc.

- Public Safety

As the proposed development will involve work near electricity infrastructure, workers run the risk of receiving an electric shock and causing substantial damage to plant and equipment. I have attached Endeavour Energy's public safety training resources, which were developed to help general public / workers to understand why you may be at risk and what you can do to work safely. The public safety training resources are also available via Endeavour Energy's website via the following link:

<http://www.endeavourenergy.com.au/wps/wcm/connect/ee/nsw/nsw+homepage/communitynsw/safety/safety+brochures>

- Emergency Contact

In case of an emergency relating to Endeavour Energy's electrical network, the applicant should note the Emergencies Telephone is 131 003 which can be contacted 24 hours/7 days.

I appreciate that not all the foregoing issues are immediately relevant to the Planning Proposal, however, Endeavour Energy's preference is to alert proponents / applicants of the potential matters that may arise as development occurs within the area subject to the Draft Voluntary Planning Agreement in closer proximity of the existing electricity infrastructure.

Should you wish to discuss this matter, or have any questions, please do not hesitate to contact me or the telephone numbers identified in the above in relation to the various matters. As I am working on different projects across the company's franchise area, to ensure a response contact by email is preferred.

Yours faithfully

Cornelis Duba

Development Application Review

Network Environment & Assessment

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