

29 August 2013

Our Ref: K1868-0096
Your Ref: DA12/0364 LN78127

Attention: Lindsay McGavin

Tweed Shire Council
PO Box 816
Murwillumbah NSW 2484

Dear Lindsay

RE: RESPONSE TO INFORMATION REQUEST – LOT 33 ON DP1073293, KIRKWOOD ROAD, TWEED HEADS SOUTH

Reference is made to Council's Information Request dated 22 March 2013 and we provide the below responses to the engineering items.

6. Engineering

- i. *The applicant is required to provide additional information to justify the requested variation to landforming controls in DCP-A1. Amended plans shall be provided to optimise the landforming design in order to:*
- *Preserve the existing landform to the maximum extent possible;*

Extensive earthworks are proposed to achieve the levels required for road access from Kirkwood Road and development platforms to achieve the desired land use. Maintaining existing site levels would not allow suitable vehicle access to Council's road network, internal vehicle movement or construction of dwellings. Further investigation and focus has been directed to determining any adverse impacts of the proposed land form alteration and development that may occur on neighbouring properties. We believe the intent of this item of the DCP is to address possible concerns over impacts on neighbouring properties amenity in addition to the ensuring the long term geotechnical stability with extensive earthworks, and stormwater items which are addressed in the Preliminary Stormwater Management Plan (Ref: K1868-0053-A).

A Visual Assessment has been completed by LVO Pty Ltd to address the visual impact of the proposed development on neighbouring properties and view corridors. The conclusions of the report have not recommended any changes to the development following the investigation, and therefore no changes have been made to the earthworks design. The report states 'The visual impacts of the proposed development are considered to be compatible with the existing visual context and satisfy the intents and objectives of the Tweed Local Environmental Plan.' The report is supportive of the development and states that the proposal is in keeping with the area and will not adversely impact on neighbouring properties.

In terms of geotechnical considerations as a result of the earthworks, the development is overwhelmingly in cut with maximum batters of 1:2, predominately into rock material. The proposed earthworks are in accordance with geotechnical reporting on the site and no slope stability issues are foreseeable.

An analysis of the cut and fill depths compared to the overall site area has been undertaken and included within the updated Engineering Report (Ref: K1868-0060-A) submitted with this response to provide further information of the site earthworks, and accurate figures of the changes in existing levels. It was found that 33% of the site will have greater than 5m of cut or fill however a significant area of the site (67%) will have no earthworks or less than 5m. The area of the site affected by excavation dramatically decreases as the height of excavation increases such that only 10% of the site has changes in levels of greater than 20m. Although the extent of the site with greater than 5m depth of earthworks exceeds that within Council's DCP we believe that there are no engineering or visual amenity issues that prevent the proposed earthworks from being constructed and sustained in the long term.

ALL CORRESPONDENCE

PO Box 3892 Burleigh Town Centre,
Burleigh Heads Q 4220
www.knobelconsulting.com.au

GOLD COAST OFFICE

Suite 6 - 109 West Burleigh Road,
Burleigh Heads Q 4220
T 07 5576 4168 | F 07 5576 6477

ROCKHAMPTON OFFICE

Shop 4 - 233 Musgrave Street,
North Rockhampton Q 4701
T 07 4927 9363

GLADSTONE OFFICE

Cnr Auckland & Roseberry Streets,
Gladstone Q 4680
T 07 4927 9363

- *Minimise batter heights at site boundaries and other interfaces, and provide typical section details at these locations;*

Landscape buffers have been retained against the existing development to the South West where excavation will occur. The proposed batters are not considered to be excessive given the scale of the development and will be landscaped on completion in addition to the existing buffer of vegetation to be retained against the property boundary.

The batters will be in cut against the existing properties to the South West and not visible from these dwellings. 25 cross sections have been provided in both directions across the site along with nine sections at the interface of the development and the high constraint area. We consider that these provide sufficient details of the integration to natural ground levels and adjacent properties. These are contained within the updated Engineering Report (Ref: K1868-0060-A). As per item (i) the impact on adjoining residents was found to be minimal in the Visual Impact Report.

- *Ensure stormwater treatment and detention areas are feasible and permanently accessible for construction and maintenance;*

A maintenance access path is provided for each basin with a maximum grade of 1:6. Refer to the Post Development Internal Catchment Plan included as Appendix C in the updated Preliminary Stormwater Management Plan (Ref: K1868-0083-A) submitted with this response.

- *Maintain adequate internal and external road access, including for service and emergency vehicles;*

The landform has needed to be significantly altered in order to obtain sufficient road access from the external construction of Kirkwood Road. The construction of Kirkwood Road has resulted in significant excavation into the subject property. The proposed earthworks and lowering of the site allow for site entry from Kirkwood Road and servicing by emergency vehicles.

- *Consider road and/or pedestrian connectivity to the adjoining residential streets to the west (Wren Court, Firetail Street and Harrier Street);*

We understand from previous discussions with Council that road access was undesirable to Wren Court, Firetail Street and Harrier Street, so this has not been investigated further. As it will be a private community, pedestrian access to the surrounding streets is considered undesirable from a perspective of security, and is not proposed to be provided. An emergency fire access has been provided to Harrier Street to be used in the event of fire.

- *Address all constraints imposed by cultural heritage assessments and approvals;*

A Cultural Heritage Assessment has been undertaken by Everick Heritage Consultants Pty Ltd who did not find any evidence of items of Aboriginal significance. We have incorporated a recommendation from the report onto the Preliminary Earthworks Plans which provides direction in the event that Aboriginal items are found during construction. As there were no items of Aboriginal significance found during the Cultural Heritage Assessment there has been no recommendation to alter the earthworks for the site.

- *Address all constraints imposed by ecological assessments;*

The site is significantly constrained by areas of environmental significance in the Southern portion of the site. A significant area of the site will remain in its current state encompassing the wetland and heavily vegetated area. The earthworks and development footprint have been designed around the advice and site specific findings of the client's ecological consultants to ensure setbacks to ecologically significant areas and fire setbacks. There has not been any additional advice in this regard that has required any alteration to the earthworks design.

- *Address any impacts of the proposed development on noise exposure to adjoining residential properties (i.e. from the Pacific Highway);*

There are no additional impacts to the adjoining residential dwellings as a result of the earthworks relating to road noise. We have been advised by the project acoustic engineer that the air travel noise is the critical case

from an acoustic perspective rather than road noise, and this scenario does not change with the inclusion of the development.

ii. *An amended stormwater management plan is required to address:*

- *Any changes from the landforming review in Item 6(i) above;*

No changes have been warranted to the landform, therefore the stormwater management plan has not required any changes as a result of earthworks alterations.

- *The addition of stormwater detention facilities in the southern catchment (Catchment B) to comply with the requirements of the Ecological Assessment with regard to protecting the hydraulic regime in the adjacent SEPP14 wetland. This must include discharge controls that ensure dispersed and not concentrated discharge to the wetland;*

Refer to the revised Preliminary Stormwater Management Plan submitted with this response (Ref: K1868-0053-A). The pre and post development flow rates have been calculated for Catchment B and show that there is very little difference. For conservatism the basin and outlet arrangement have been modelled. The model results confirm that the post development peak discharge rates are not increased above the pre development rates. Details of the discharge and flow dispersal arrangement are provided in the report ensuring protection of the downstream environment. The basin has been located in the existing gully area of the site where discharge is currently directed. The overflow arrangements proposed consist of two 16m wide overflow weirs with a number of low flow pipes discharging from the bioretention basin sub surface drainage, and scour protection bays prior to discharge to the wetland area. This arrangement ensures that there will be no erosion to the existing wetland.

- *The impacts of excavating large portions of the site down to rock, in terms of runoff assumptions, limited "deep soil zones", and the feasibility and design of bio-filtration basins for the development;*

All elements of the proposed development have been incorporated into the assumptions and calculations within the updated Preliminary Stormwater Management Plan. Although excavated down to rock, open space and landscape areas will be over excavated to allow for a sufficient spreading of topsoil to sustain vegetation and grass, which will allow for standard infiltration of the first flush of stormwater. The Q100 post development coefficient of runoff has also been calculated to be 1.0, therefore applying full runoff of stormwater. The occurrence of rock near the surface will not increase flow rates above that used within the Preliminary Stormwater Management Plan (Ref: K1868-0053-A).

The proposed bio retention basins are located on low sections of the site and will not be subject to the extensive excavation to occur on other parts of the site. Refer to the Preliminary Earthworks Plans and Basin Details Plans submitted with this response.

Yours faithfully



TRENT PURDON | DIRECTOR
trent@knobelconsulting.com.au