CHRIS LONERGAN – Town Planner

East Coast Planning Consultants

Manentia Ubicumque

Sustainability in all things

CHRIS LONERGAN
Town Planner & Design

DESIGN EVOLUTIONS
Tal Lonergan
Design, Archicad Drafting

Town Planning Consultants :
Environmental Impact Assessment :
Project Design :
Sustainable Design

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Tweed Shire Council
PO Box 816 Murwillumbah
NSW 2484

Attn. Joshua Townsend,

Additional Information D.A. 06/0847

5 Lot Subdivision

Lot 22 D.P. 617126 Cnr Balluna & Wollumbin Sts Tyalgum.

I refer to the above and your letter of the 20th. Nov. 2006 and provide the following information:- Rel Doc: 1497476

D.C.P. NO. 5 - DEVELOPMENT OF FLOOD LIABLE LAND (FLOOD EVACUATION PLAN).

Like most river systems in north eastern N.S.W., the Tweed River, within the catchment of which this development is proposed, experiences some degree of flooding during major storm events. These major storm events most frequently occur between January and April each year, and are caused either by Tropical Cyclones, (which have been known to cross the coast as far south as Coffs Harbour), or by intense East Coast Low Pressure Systems.
Each type of atmospheric event has the propensity to bring heavy and prolonged rains to the area, thus increasing the risk of flooding.

In response to frequent flooding within this local drainage system, and a maximum observed flood level of 55.8m AHD, the proposed development, which seeks to create 5 allotments, would experience moderate levels of flooding over the northern allotments proposed, i.e. proposed Lots 1 and 2, with Lots 3, 4 and 5 being only partly affected by flooding. The slope of the land on the three southern allotments naturally dictates that a dwelling would have a floor level of over 56m AHD as it extends back from the elevated 6m setback to Wollumbin St., which is the elevated and flood free southern sections of these three lots.

On the basis of the characteristics of this sloping site, and the layout of the subdivision, all dwellings will be designed such that residential floor levels are flood free, and the Vehicle Parking Areas and Pedestrian access areas are designed so that easy access from each allotment can be made to elevated flood free lands immediately to the south of this development site within Wollumbin St.

This particular section of the Tweed Valley is near the headwaters of this river system, with moderately wide valleys and short time interval exposure to flood waters.
Historically this area has been subject to inundation following major storm events.
Flood data for the area puts the highest recorded flood level in the vicinity of this site at 55.8 metres Australian Height Datum (A.H.D.), i.e. that section of the town upstream from the bridge.
As stated, it is only the northern sections of this site which are low lying, however due to its location well clear of the flood flow path, and at the very outer edges of flooding which backs up behind the Tyalgum Bridge, the flood flow characteristics are low.

The subject site slopes from Wollumbin St. in the south with a level of 57.4m AHD, down to the north to a level of 53m. AHD. Access to the site is also achieved to the west off Balluna Street.

The design prepared by Martin Findlater & Assoc., results in only the two northern allotments having a potentially flood compromised access, and both of these have easy access to a direct flood evacuation route.

Lot 1 has frontage to Balluna St. in the west, which slopes up hill to flood free land only 10m to the south in Wollumbin St.

Lot 2 has an access handle in the east which slopes up to flood free Wollumbin St where the road level is 58.5m AHD.

Lots 3, 4 and 5 have direct access to flood free sections of Wollumbin St.

All dwellings proposed on each allotment will be required to achieve minimum floor levels of 56.3m AHD, thus meeting D.C.P. No. 5.

In addition to minimum floor levels, future dwellings will be required to meet all other requirements of DCP No. 5 - Part 9.2, being:-

- All Building Materials used below Council adopted design flood level will be of a type which are not susceptible to water damage.
- All electrical wiring, outlets, switches etc are to be located above the design flood level.

It is important to note that the proposed subdivision, which will create singe dwelling allotments only, is not listed in Table 9.2 as a development deemed inappropriate within the Tyalgum flood affected areas.

RESTRICTION OF FLOOD WATERS.

The proposed development will not restrict the flow characteristics of flood waters in the area, as the type of flooding in this area is restricted to waters backing up behind the bridge at Tyalgum, with the main flood flow path being located well over 100m to the north east of the subject site.

The subject site is exposed to only the fringe of flood waters when it is at its maximum depth. The design of the subdivision is such that the integrity of the existing drain within the north west of the site is maintained as an area free of development and remains unobstructed, by its designation as a drainage easement within the design. All proposed dwellings are to be constructed such that their floor levels achieve a minimum level of 56.3m AHD, thus meeting D.C.P. No. 5, and also minimising the potential for flood water obstruction.

No site works are proposed that will alter the existing drainage characteristics of the site, and the proposed subdivision of this large urban allotment will not alter local flood flow characteristics. The development comprises a small percentage increase in building cover within the flood storage area, being limited in the main to foundation structures beneath proposed dwellings. This reduces the developments potential to displace flood waters.
Future residential dwellings will be design with mostly open under floor areas to ensure that flood flow is not impeded, with minimum floor levels needing to be 56.3m AHD.
It is envisaged that future constructing of dwellings will be in the form of elevated buildings on pole type foundations. This type of future design will permit the easy passage of flood waters, and on this basis it is considered that the residential development following this subdivision, can occur without detracting from the flood flow drainage characteristics of the valley floor, and without adversely impacting upon the drainage characteristics of adjacent properties.
These design features ensure minimal impact on the flood storage capacity of the valley floor, thus preventing aggravation of flooding within the general catchment.

Due to the large size of the Tweed Valley storage area, the impact of this minor loss of storage area on the systems flood patterns will be so small as to have no measurable effect.

It is thus considered that the development will not increase the level of flooding on other land in the vicinity, particularly as the proposed development is designed to minimise ground level flood water displacement.

The Martin Findlater report indicates clearly that the drainage easement within the design maintains the drainage of other properties in the area, and as such, this feature retained within the design, then the small subdivision proposed will not alter local drainage characteristics.

As the development is designed to minimise flood flow and storage capacity impacts within the valley floor, during the 1 in 100 year flood event, then the proposed development can be considered as satisfying this general planning objective of developments not restricting flood waters.

The following flood access and evacuation plan **is to be fixed to the Kitchen door of each future Dwelling.**

FLOOD ACCESS & EVACUATION PLAN

APPLICABLE GAUGE is the Tyalgum Flood Gauge.

GENERAL LEVEL of land is between 53m AHD and 57m A.H.D.
Maximum recorded flood level in the town is 55.8m AHD.
All dwelling floor levels are set above 56.3m AHD.

RECOMMENDED FLOOD WARNING EVACUATION ROUTE south along Balluna St., or internal driveways within each allotment, to the elevated roadway within Wollumbin St.
Due to the short flooding period within these upper reaches of the Tweed River catchment, it is not recommended that evacuation form these elevated dwellings take place, as all dwellings are located above flood levels, and as such it is only necessary to move vehicles beneath dwellings to higher ground within Wollumbin St.
Once the flood waters have subsided, the SES should be contacted before travel to Murwillumbah is planned, as this town and access to it may still be flooded long after the flood waters have subsided at Tyalgum.

LOWEST POINT on the recommended evacuation route are the bridges along Tyalgum Road leading back to Murwillumbah. These will be cut during major flood events and should not be crossed when covered with water.

STAGE 1 FLOOD WARNING - When a flood warning is current, you should:
1) **Purchase spare batteries for radios.**
2) **Purchase spare food supplies.**
3) **Listen to the local radio station for updated flood information.**

STAGE 2 EVACUATION OF SITE - When the flood reaches a gauge reading of 48m and further rises are expected, yard areas should be secured as for high winds, contents should be placed as high as possible within homes, and cars should to be moved to Wollumbin St. to the south.
If you are planning to travel away from these higher areas within the town, your destination should be notified to the local SES.

NOTES
1) **It is natural to feel apprehensive if this is your first flood, however, SES HQ should not be phoned as this congests the control centre. Rely on radio advices.**
2) **Stage 2 evacuees should stay with friends or find motel accommodation or the like.**
(SES welfare centres are makeshift and do not offer a high degree of comfort).
If a Welfare Centre is your only option bring in a water proof container or plastic bag containing
a) a change of clothes.
b) a sleeping bag or blanket & air bed.
c) any required medication.

CONCLUSION

Flooding is not a significant constraint and has been easily overcome with the future residential buildings being above the required floor height of 56.3 metres A.H.D.

If you have any further questions please do not hesitate to contact the office on the above numbers.

Yours Sincerely

Chris Lonergan B.A

29th. Nov. 2006