

Your Ref:
Our Ref: BA040015
Date: 2 November 2006

Dear Sir,

RE: Ecological and Bushfire Assessment - Dr Stewart's Land at Skennars Head - Preliminary Indications

LandPartners Limited has been engaged by Wave Break Properties to undertake an assessment of ecological attributes and bushfire hazard to inform a proposed rezoning of Dr Stewart's land at Skennars Head.

The flora and fauna assessment is nearing completion. The final report will include results of all flora and fauna survey, vegetation community mapping, mapping of threatened species locations, identification of constraints (and level of constraint), and recommendations for use and future management of the site.

Preliminary indications are that ecological constraints are found in the wetlands areas at the northwest and southwest of the study area, on the floodplain areas at the west of the study area, and in vegetated areas at the southeast. These areas within the study area provide an ecological connection between wetlands northwest and southwest of the study area, and coastal habitat east of the Coast Road.

Bushfire threat assessment has commenced. Preliminary indications, with respect to the new draft policy, are that the required asset protection zones will be in the order of 25m to the west (i.e. to the SEPP 14 Wetlands) and in the order of 15-20m to the south. The southern APZ will vary depending on the southernmost limit of the developable area and the slope at that location. 25m would be the maximum required. This implies a Level 3 construction standard (as per AS 3959). If no construction standard is to be imposed the distance required is 100m to all the vegetation types in the vicinity.

Yours sincerely
LandPartners Limited



Lisa King
Environmental Planner



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DAVIES HERITAGE CONSULTANTS PTY LTD

PO Box 208, RED HILL, Qld 4059

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Two archaeological field surveys have been undertaken on the property. The first was undertaken on the 3rd and 4th October, 2006, with Troy Anderson and Lawrence Anderson (representing Douglas and Susan Anderson and the Numbahjng Traditional Owners Native Title Group). The second survey was undertaken on the 17th and 18th October, 2006 with Artie Ferguson (17th October), Marcus Ferguson (17th and 18th October) and Harry S. Kelly (18th October) representing the Jali Local Aboriginal Land Council. Douglas and Susan Anderson, Numbahjng Traditional Owners Native Title Group and the Jali LALC were identified as the Indigenous stakeholders for the project by adhering to the Department of Environment and Conservation Interim Community Consultation Guidelines.

As a result of the survey a total of 18 locations were recorded where Indigenous archaeological material was observed. Of these eighteen locations 15 are located within the area of Pleistocene Dune which is located in the southeastern portion of the study area. Generally archaeological material in the form of fragmented shellfish remains was very sparsely scattered throughout the dune area, particularly the central and western portions of the dune. Hence the entire dune is considered to be a site and an area of potential archaeological deposits (PAD). The locations recorded in the dune represent areas where shellfish remains occurred in higher concentrations and / or where stone artefacts were observed. The three locations observed outside of the dune area are generally highly disturbed; they are located in the western portion of the property within or immediately adjacent to wetlands.

Besides the Pleistocene dune, five other PAD areas were also identified during the survey. Two are spur lines which abut the dune to the west; another is an elevated portion of terrain adjacent to the wetlands in the northern portion of the property; the other two are dune crests on the eastern side of the Coast Road. One of these crests extends west to the western side of the Coast Road into the central section of the northern portion of the property.

Based on the current zoning map of the property, the 15 locations within the dune as well as the dune PAD area and two other PAD areas are within the area zoned 1(d) (rural – urban investigation). One PAD area is located within the proposed Stage 1 development area with a second PAD area being located along the eastern margin. The proposed Stage 2 development area has the potential to impact upon three sites within the dune as well as the northern portion of the dune PAD area and the PAD area (spur) extending west from the northern extent of the dune. Construction of a pedestrian connection route through the dune would have the potential to impact upon sites recorded in the dune as well as the dune PAD area and a previously recorded site located in the vicinity of the southern boundary fence.

The following comments in relation to mitigation options and management recommendations are preliminary; they require review and support of the Indigenous stakeholders.

Protection of the sites within the dune area would be the prime mitigation option. It is stressed that the dune area has a high archaeological potential for the presence of sub-surface material (including burials) and it is unclear at this stage whether the Indigenous stakeholders would support any permit application for further archaeological work.

The placement of any pathway or cycleway through the dune area would have to take into account (at least) the position of archaeological material recorded during the survey, the location of the previously recorded site, the results of sub-surface testing (under a s87 permit) and restriction of access to more archaeologically sensitive parts of the dune. Once again it is unclear at this stage whether there would be support from the Indigenous stakeholders in relation to permit applications for the dune area.

A handwritten signature in black ink, appearing to be 'A. Smith', written in a cursive style.

Mosquito Consulting Services Pty Ltd

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2 November 2006

LandPartners
71 Tamar Street
Ballina NSW 2478

Attention: Steven Smith
Senior Planner

Dear Steven

Re: Status Report: Skennars Head Coastal Village Section 54: Mosquito Impact Assessment

The extended-term mosquito impact assessment for the entire re-zone area of Dr Stewart's land was completed in October 06. The major findings of the study were as follows.

EXECUTIVE SUMMARY

This assessment was undertaken in consideration of Ballina Shire Council's DCP No: 11 - Mosquito Management. The focus was to evaluate the potential mosquito related risks (on and off-site) to future residents within the limits of the Rezone Application and Lot 2 Development Application. Field investigations were undertaken in April 2004 and October 2006. Adult mosquito collections were undertaken over a total of 56 trap nights to gather abundance data for this report. The western portion of Lot 2 contains wet *Melaleuca* forest identified within the DCP as known mosquito breeding habitat. In addition to the normal investigation of mosquito risk, a special study was completed to evaluate the minimum effective buffer distance that could be recommended between the defined *Melaleuca* forest boundary (SEPP 14 boundary) and future residential blocks.

Buffer Zone Investigation

An entomological assessment of the mosquito fauna threat associated with the SEPP 14 land within the re-zone area concluded that for two common species found breeding within this habitat (*Aedes multiplex* and *Verrallina Marks spp*) a clear buffer zone of 25m was adequate to attenuate their dispersal from the forest edge by up to 86.5%. The dispersal of other species of more regional significance (*Aedes vigilax* and *Culex annulirostris*) and sometimes harbouring within the SEPP 14 forest were not attenuated by buffer distances of 100m or greater. The greatest advantage in terms of efficient land use and material reduction in mosquito exposure is therefore to incorporate 25m wide buffer zones between SEPP 14 boundaries and residential allotments. Full description of the methodology, results analysis and discussion is included in the Mosquito Impact Assessment report for 1st Edition Properties (Oct 2006).

General Mosquito Impact Assessment

Stewart land (relative to the Rezone Area and Section 54) contains areas of elevated pasture to the East and to the West semi-permanent *Melaleuca* wetlands and portions of intermittently flooded grassy pasture. From breeding site surveys and light trap investigations across the site, the general threats posed to future residents are:

- *Culex annulirostris* opportunistically breeding in intermittently flooded grassy pasture on site and nearby.
- The general threat of regionally occurring *Ae. vigilax* and more *Cx. annulirostris* breeding off-site.
- *Verrallina funerea* which is an important species in some locations appears not to be a major threat in the context of the rezone land.

The location of the Rezone Application portion is the eastern most extent of Stewarts land. As such, it is largely the beneficiary of predominately easterly sea breezes during the months of highest mosquito activity. The rezone area will benefit from reduced wind assisted mosquito dispersal into the site from extensive *Ae. vigilax* breeding sites associated with North Creek and the Ballina Nature Reserve. Notwithstanding the beneficial nature of prevailing breezes, the site contains several areas of actual and potential mosquito breeding where intervention is recommended.

Recommendations

- A cleared buffer (free of mosquito breeding sites or adult mosquito harbourage) between the *Melaleuca* forest (part of Lot 2) and future residential blocks should be a minimum of 25 meters wide.
- Storm water management systems including retention devices/wetlands should be designed to minimise mosquito breeding in them. The detailed design should be developed in consultation with Mosquito Consulting Services Pty Ltd to the satisfaction of Ballina Shire Council's DCP No: 11 - Mosquito Management.
- Mosquito breeding in pools formed in intermittently flooded pasture should be controlled by either improving drainage lines so that pools are not permitted to remain in a state suitable for mosquito breeding.
- Standard recommendations for mosquito proof screening to dwellings contained within the DCP No: 11 should be followed.

Limitations

The site lies within Ballina Shire Council's zone of high mosquito risk as defined in DCP No: 11 (see Fig. 3). In addition, the coastal plane of Ballina Shire generally will be subject to seasonal increases in mosquito abundance especially from *Ae. vigilax* and *Cx. annulirostris*. The subject site too will be periodically exposed to seasonal increases in mosquito numbers. Provided that the recommendations contained within this report are followed, the site should be subjected to no greater mosquito impacts than for the general region.

Conclusions

Subject to the recommendations and limitation of the impact assessment, the use of the land within the Rezone area is considered by the author as acceptable for residential purposes and that it does not represent an unreasonable risk to human occupation due to mosquito activity.

The title of the full impact assessment is *Mosquito Impact Assessment April 2004 - October 2006 And Mosquito Buffer Effectiveness Study: Dr Stewart's Land, Lennox Head October 2006*.

Yours faithfully



Darryl McGinn
Director
Mosquito Consulting Services Pty Ltd

October 12, 2006

Burns Design Group
43 Alfred Street
Mermaid Beach
Q4218

Attention: Mr Paul Burns

Dear Sir,

RE: PRELIMINARY FINDINGS - WAVEBREAK DEVELOPMENT, SKENNARS HEAD

Further to our recent discussions we provide you with the following update on the works completed on the Wavebreak Development at Skennars Head thus far by Gilbert & Sutherland.

Agricultural Assessment

1. Detailed site investigation including the construction of 22 boreholes
2. Emerson Class Testing of 46 samples
3. Constant head soil permeability at 9 locations
4. Soil fertility and structure analysis of 6 samples
5. Preliminary review of relevant planning documents and legislation
6. Preliminary preparation of accompanying drawings

Phase 1 Site Assessment

1. Site inspection
2. Site history investigation including the review of available aerial photography and interviews
3. Preliminary preparation of accompanying drawings

Acid Sulfate Soil Assessment

1. Detailed investigation including construction of 20 boreholes
2. Acid sulfate soil screen testing of 140 samples
3. Acid sulfate soil analysis of 70 samples
4. Preliminary review of acid sulfate soil testing results
5. Preliminary preparation of accompanying drawings

These are explained in more detail below.

Agricultural Assessment

Part of the site is classified by the Northern Rivers Farmland Protection Project as regionally significant farmland. Regionally significant farm land coverage is based on soil class and is determined as a result of regional 1:100,000 scale mapping. Using the Australian Soil and Land Survey Guidelines, Mapping of State significant land is accurate only to within 150m at the chosen scale of 1:100,000.

NSW Department of Agriculture has a five-tier system of land classification. These classes are assigned by evaluating biophysical, social and economic factors. For land to be classified as Regionally significant it would be expected to correspond with the requirements of land class one or two.

Land class 1 is arable land suitable for intensive cultivation where constraints to sustained high levels of agricultural production are minor or absent. Land class 5 (at the bottom end of the scale) is land unsuitable for agriculture or at best suited to only light grazing due to severe constraints.

Site investigations included 42 boreholes, 6 with laboratory analysis and Emerson testing of 46 samples. Preliminary reviews of the results of the field work indicate that the site consists of class 3 to 5 agricultural land due to limited soil depth, shallow groundwater and erosion hazard. This constraint needs to be viewed in a planning context and should be overcome with Council support.

Phase 1 Site Assessment

A site inspection, review of historical aerial photographs and interviews of relevant personnel has been undertaken. These processes have identified the following potentially contaminating activities:

- A dip
- Possible limited sandmining
- A number of pump stations
- Cropping of the northern portion of the site
- A cattle crush
- Chemical stores
- Agricultural sheds
- Above ground storage tank
- Lead based paint and asbestos associated with dwellings.

This constraint is viewed as manageable but will require additional testing at the detailed design phase.

Acid Sulfate Soil Assessment

An acid sulfate soil investigation involving the drilling of 20 boreholes was conducted on September 12 and 13, 2006. From these boreholes approximately 106 soil samples were collected and screened for acid sulfate soil potential. Based on the results approximately 56 samples were chosen for further analysis of CRS and TAA.

Of the 106 samples screened, 7 returned a pH_F of <4 indicating the presence of actual acid sulfate soils. One sample returned a pH_{FOX} of <3 indicating the presence of potential acid sulfate soils.

Six of the samples analysed for CRS exhibited %S concentrations of greater than 0.03% - the actionable criteria. The majority of the soils exceeding the actionable criteria were at a depth of 1.5m below natural surface level (NSL) in the lower lying portion of the site.

This constraint is viewed as manageable.

We trust this is acceptable, please do not hesitate to contact this office should you require any further details or elaboration.

Yours faithfully,

Gilbert & Sutherland Pty Ltd



Neil Sutherland
Principal Scientist



Chris Anderson
Senior Environmental Engineer/Scientist

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**PROPOSED REZONING
LOT 1 & 2 DP784864 AND LOT 50 DP755684
SKENNARS HEAD (BALLINA SHIRE)**

PRELIMINARY NOISE IMPACT ASSESSMENT

Date Prepared

2 November 2006

CRGref 06457a

INTRODUCTION

CRG Traffic & Acoustics has been engaged by Wavebreak Properties Pty Ltd to undertake a Noise Impact Assessment of its proposal to rezone the subject land to facilitate urban development.

The subject site is located on the western side of the Coast Road, between Lennox Head and East Ballina. Land immediately south of the site has recently been rezoned for residential development.

The proposed Coastal Village Residential Development will provide a range of housing types including townhouses, small lots, home based business, duplexes and traditional allotments. A neighbourhood centre is also proposed which may include a coffee shop, community hall, convenience store, sales office and home based business.

NOISE ISSUES

- Noise impacts upon the site from vehicular traffic on the Coast Road, which carries a moderate vehicle load. The assessment will take into account the traffic volumes at a 10 year planning horizon. Future traffic projections will be based on Council's Traffic Model.
- The overall development will also cause an increase in traffic volumes on the Coast Road, and the main entrance road into the site, which may have some minor effect on existing noise levels.
- Noise generated by the proposed neighbourhood commercial use upon existing and proposed dwellings will be addressed. Measures required to mitigate such impacts through building design and car park location will be identified.

APPLICABLE NOISE CRITERIA

The following design criteria will be used for the assessment of noise impacts:

- The *Industrial Noise Policy*, which applies to control of noise generated by onsite commercial noise sources as they impact upon both the proposed residential Lots and the nearest offsite residential premises.
- The *Environmental Criteria for Road Traffic Noise* sets acceptable outdoor and indoor noise levels for road traffic noise intrusion, and also provides guidance on assessment of noise associated with traffic generated by the proposed use. The Policy requires road traffic noise measurements on the site, and also requires that ultimate traffic volumes are taken into account. All road traffic noise measurements will be undertaken in accordance with and Australian Standard AS2702 - 1984 '*Acoustics - Methods for the measurement of road traffic noise*'.

INDICATIVE ACOUSTIC TREATMENTS

As discussed below, noise will be controlled through both physical means, and through management of commercial activities.

Road Traffic Noise

- Control of road traffic noise intruding into outdoor recreation space is generally achieved through buffering, construction of acoustic barriers and building orientation. In this particular case, there is a significant buffer proposed between the Coast Road and the subject site, and this buffer, coupled with building orientation and location of outdoor recreation space will be investigated to control road traffic noise to reduce the need for construction of acoustic barriers.
- Further to the impacts of road traffic noise from the Coast Road, traffic will be dispersed within the local street network to minimise noise from vehicular movements within the local street network.

Commercial Noise Control

- Proposed commercial activity noise will be controlled through location of noisy activities within appropriately oriented and acoustically treated buildings, location of noisy activities as far away from noise sensitive receivers as possible, and through restriction of hours of use. The buildings will be oriented such that they provide acoustic screening to residential premises, thereby reducing the need for construction of acoustic barriers.

Reviewed by:

Jay Carter, Principal Acoustical Scientist



26 October 2006
Mr Steven Smith
Landpartners
PO Box 292
Ballina NSW 2478

Skennars Head Coastal Village – Community and Stakeholder Feedback to date

A Communications and Engagement Strategy has been prepared for the project and is currently being implemented. To date the following consultation has taken place concerning the Skennars Head Coastal Village proposal:

- a briefing with the Mayor and General Manager of Ballina Shire Council;
- two briefings with Councillors of Ballina Shire Council;
- a Design Workshop with officers from Ballina Shire Council;
- a Planning Focus Meeting with representatives from NSW Government agencies;
- a meeting with the Department of Planning in Sydney;
- a meeting with the Lennox Head Chamber of Commerce; and
- a meeting with the Lennox Head Residents' Association.

During November 2006 the project team will also consult with the following stakeholders:

- The residents of the Headlands Estate;
- Xavier Catholic College;
- Holy Family Catholic Primary School;
- local environmental groups; and
- Other key stakeholders as identified by the stakeholder analysis.

The following table provides a summary of the feedback which has been received during the consultation undertaken so far, and the project team's responses to these matters.

COMMUNITY/STAKEHOLDER FEEDBACK	RESPONSE
Community Planning	
Facilities to improve surf safety in the coastal land, currently zoned 7(f), would be desirable. Other amenities could include beach access points, shade structures, showers and toilets.	Noted.
Suggested community uses for the land currently zoned 7(d) include open space, a revegetated area, a skating area, childrens' bike paths, footpaths, a playground, tennis courts, continuation of grazing, and community gardens.	Noted.
Suggested community facilities to be located in a future village centre include community space, playground, tennis courts, childcare centre, BBQ facilities, restaurant/café and a general store.	Noted.



Housing affordability is of concern to the community.	The proposal will include a variety of housing types.
Council would prefer an early Planning Agreement.	Noted.
Environmental Management	
Restoration of environmental areas could cause a mosquito hazard.	The team will follow the advice of Darryl McGinn concerning mosquitos.
Revegetation too close to residences would create a fire risk.	The team will follow the RFS guidelines concerning asset protection zones.
Responsibility for the ongoing management of the environmental buffer area needs to be confirmed. If the buffer area is not maintained, melaleuca could grow.	The team will consult DEC regarding this issue.
Effective functioning of the SEPP 14 wetland requires connectivity to other wetlands. These freshwater wetlands may be a threatened ecological community.	An environmental management plan would be prepared for this part of the site.
The coastal area, zoned 7(f) is subject to erosion and sea level rise.	The team will consider the Coastline Hazards Definition Study.
Services, Flooding and Stormwater Treatment	
The project team should use the latest 2D flood model and validate flood levels using the new model.	The team will use the latest 2D flood model.
A dual reticulation system should be provided on the site.	Noted.
Stormwater discharge into the wetland area should be avoided.	The team will consult with DEC concerning stormwater discharge points.
Infiltration should be used for stormwater treatment rather than permanent wetland structures.	Noted.
Stormwater runoff to the beach needs to be avoided.	Noted.
Traffic and Transport	
The intersection of Headlands Drive and Coast Road has already been identified by the community as a safety hazard.	Noted.
A roundabout at this intersection would reduce the service level for the Coast Road and decrease pedestrian connectivity, and increase service levels for the car park and Headlands Drive.	Noted. The treatment of the intersection will be the subject of discussion with RTA and the Traffic Committee.
The community would like the proposed cycleway from Lennox Head to East Ballina to be completed as part of this project. The cycleway should connect schools and other external facilities to the site.	Noted.
The RTA would like to keep the speed limit along the coast road at 100km/h.	The team will consult with the RTA and the Traffic Committee concerning this issue.
There is some support for another pedestrian underpass.	Noted.
Public transport along the coast road is currently inadequate.	Noted.
Geotechnical Issues	
The potential for disturbance of acid sulfate soils should be considered.	The team will investigate this issue.
Attention was drawn to the 'Love's Dip' site which is contaminated.	The team will review information concerning this site.
Visual Amenity	
Maintenance of a visual buffer to separate Lennox Head	Noted.



from East Ballina is important to the local community.	
Existing residents of the Headlands Estate will be concerned about potential loss of views.	Noted.
The site is iconic and urban design should be sensitive to the site's past agricultural use and rural backdrop.	Noted.
Visual diversity is important.	Noted.

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T 1300 798 830 **F** 1300 798 831 **E** info@crg.net.au **www.crg.net.au****PROPOSED REZONING****LOT 1 & 2 DP784864 AND LOT 50 DP755684****SKENNARS HEAD (BALLINA SHIRE)****PRELIMINARY TRANSPORT PLANNING ASSESSMENT**

Date Prepared

30 October 2006

CRGref 06457t

1. INTRODUCTION

CRG Traffic & Acoustics has been engaged by Wavebreak Properties Pty Ltd to undertake a traffic engineering assessment of its proposal to rezone the subject land to facilitate urban development.

The subject site is located on the western side of the Coast Road, between Lennox Head and East Ballina. Land immediately south of the site has recently been rezoned for residential development.

The proposed Coastal Village Residential Development will provide a range of housing types including townhouses, small lots, home based business, duplexes and traditional allotments. A neighbourhood centre is also proposed which may include a coffee shop, community hall, convenience store, sales office and home based business.



2. SUMMARY OF ISSUES

CRG is currently preparing a detailed Traffic Impact Assessment for the site, which will address the following issues.

Site Access

- Access to the subject site is proposed via the existing road network to the north (i.e. Headlands Drive).
- In order to preserve the function of the Coast Road as a major arterial link, no direct access has been proposed off this road.

Traffic Impact

- A full traffic impact assessment will be undertaken as part of our final report and will address the impact of the proposed development on the performance of the Coast Road / Headlands Drive and Headlands Drive / Skennars Head Road intersections.
- Effects on operational performance will be evaluated using the aaSIDRA program. Performance will be assessed under existing 2006 traffic demands and future 2020 traffic demands with and without the proposed development.
- The Traffic Impact Assessment will be based on traffic projections provided by Council's Traffic Model.
- Future intersection capacity and resultant upgrade requirements will be identified as part of the Traffic Impact Assessment.

Pedestrian & Cycle Access

- Strategies to facilitate safe and efficient pedestrian and cycle connections within the site and between the site and surrounding attractions will be identified as part of the assessment.

Public Transport

- An internal Collector Road route will enable buses to service future residents of the site. This bus route will be such that at least 90% of residents will be located within 400 metres of a bus stop.
- Pedestrian links will be provided between the site and existing bus stops located on the Coast Road.

Reviewed by:



Luke Rytenskild
Principal

Our Ref B3000-1 :ai

Contact Robbie Marshall

27 October 2006

Land Partners Limited
PO Box 292
BALLINA NSW 2478

Attention: Mr Steven Smith

**RE: SKENNARS HEAD COASTAL VILLAGE
PRELIMINARY ENGINEERING**

Dear Steven,

Further to Cardno's consultation in regard to the above project, we confirm the following preliminary findings in regard to engineering issues. We note that this preliminary advice is based on discussions with Ballina Shire Council (BSC) Officers, and will be subject to detail modelling and design.

We make the following comments:

Flood Level

From our discussions with Mr Paul Busmanis (Engineering Works Engineer for BSC), and from the review of the Ballina Floodplain Management Study prepared by WBM Oceanics for Ballina Shire Council in October 1996, we have been advised that the 100 Year Peak Flood Level is considered to be RL 1.79 AHD for the proposed site.

As the majority of the proposed development is above this Flood Level, it would appear that no major flooding impacts will result from the proposed development. This will need to be clarified in Development Application stage, when an earthworks profile has been created in these low-lying areas. Once an earthworks model has been prepared, WBM Oceanics will need to Re-run their flooding model to confirm that there will be no additional flooding impacts to the adjacent community, from the proposed development.

Sewerage Reticulation

From consultation with Rod Hagg (Water & Sewerage Supply for BSC), it would appear that the Headland Estate Pump Station to the north of the proposed site, has spare capacity for approximately 170 ET. This spare capacity may be able to facilitate an early development stage of the proposed site. This will need to be confirmed with BSC.

Council's current structure plan shows that the ultimate development of Skennars Head will require its own Regional Pump Station and independent rising main to the Lennox Head Treatment Plant.

The strategy and staging of the Sewerage Reticulation will need to be reviewed in detail and in consultation with BSC through the Development Application stage. Please refer to the attached Figure No. 2.0C, (17/10/2006).

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Baulkham Hills
Busselton

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Abu Dhabi, UAE
Portland, USA



Water Reticulation

From consultation with Rod Hagg (Water & Sewerage Supply for BSC), and the review of Council's current infrastructure, the Headland Estate to the north has an existing 250 dia. Watermain. As with Sewer, potentially this may facilitate an early development stage of the project.

Council's current structure plan shows that the ultimate development of Skennars Head will require a 250 mm Distributor Water Main, connecting the existing mains from Angel Beach and the Headland Estate.

The strategy and staging of Water Reticulation will need to be modeled and consulted with BSC through the Development Application stage. *Please refer to the attached Figure No. 2.0C, (17/10/2006).*

Stormwater Treatment

In accordance with Ballina Shire Council's DCP, preliminary calculations show that approximately 8% of the Developed site will be required for Stormwater Treatment purposes. The exact Treatment area will be confirmed subject to our detailed MUSIC modeling carried out for the Rezoning Application. Water Sensitive Urban Design principles will be adopted, including a swale system along the Western edge of the Development, linking to the proposed Stormwater Treatment Zone. *Please refer to the attached Figure No. 1.0D, (17/10/2006).*

We re-confirm that the above advice has been based on discussions with Ballina Shire Council Officers and preliminary hand-calculations, and thus will be subject to final detail analysis and design.

If you have any queries please do not hesitate to contact the undersigned.

Regards,

A handwritten signature in blue ink, appearing to read 'Robbie Marshall'.

Robbie Marshall
2IC for Northern NSW & Gold Coast Offices
Principal / Senior Engineer
For **Cardno**

enc As above