Your reference : TGM 04/66 Pt 7
Our reference : FIL 06/2036-04 DOC09/9667
Contact : Peter A. Ekert, 66402514

RECEIVED
20 MAR 2009

Darryl Anderson Consulting Pty Ltd
Suite 7
Corporate House
8 Corporation Circuit
Tweed Heads South NSW 2486

19 MAR 2009

Dear Mr Anderson,

Re: Major Project Application No. MP 08-0234 – "RISE" Bilambil Heights (formerly known as Pacific Highlands), - State Significant Site and Concept Plan (Major Project No. MP08-0234)

I refer to your letter received by the Department of Environment and Climate Change (DECC) on 26 February 2009 and your request for DECC to provide advice as part of the Environmental Assessment (EA) in regard to the above proposal.

With respect to the provision of comments on the Concept Plan, DECC has a number of concerns with the development footprint and its likely impacts on threatened species and their habitat.

In particular, DECC is concerned that the proposed development appears to impact more remnant vegetation on the site than the current approved development proposal. The remnant vegetation is known to support a range of threatened species, and an Endangered Ecological Community (EEC) - *Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion.* Despite relatively recent damage to threatened species and native vegetation on the site, these remnant areas are still likely to provide habitat for threatened species.

DECC is concerned that in the Concept Plan, Area J with a proposed predominant use of residential, appears to be disjunct from the rest of the development footprint. As such, the Area is likely to fragment the native vegetation and threatened species habitat that occurs in that region. DECC recommends that the development footprint be realigned and consolidated so that the development footprint, particularly in this area, will ultimately reduce the overall impact on the surrounding natural environment.

DECC has previously considered the details of the project as provided by the Applicant and on 6 January 2009, DECC provided key issues and assessment requirements to the NSW Department of Planning (see Attachment A and B). You should ensure that the EA is sufficiently comprehensive and detailed to determine the extent of the impact of the proposal.

PO Box 498, Grafton NSW 2460
NSW Government Offices,
49 Victoria Street, Grafton NSW
Tel: (02) 6640 2500 Fax: (02) 6642 7743
ABN 30 841 387 271
www.environment.nsw.gov.au

In summary, DECC's recommended key information requirements for the project are:

1. the impacts on local surface water quality;
2. the impacts of the project on threatened species and their habitat;
3. the impacts of the project on Aboriginal cultural heritage values;
4. an assessment of any land contamination and;
5. the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts identified in 1-4 above.

Should you require any further information please contact Peter A. Ekert 66402514.

Yours sincerely

JON KEATS
Head, Industry and Waste Unit North Coast
Environment Protection and Regulation Group
Att: Attachment A DECC EA Requirements
Attachment B Guidance Material

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Attachment A – Department of Environment and Conservation's Environmental Assessment Requirements

Environmental impacts of the project

1. The following environmental impacts of the project need to be assessed, quantified and reported on:
   - Water quality
   - Contaminated Land
   - Noise
   - Threatened Species
   - Aboriginal cultural heritage

2. These should be assessed in accordance with the relevant guidelines listed in Attachment B.

3. Describe mitigation and management options that will be used to prevent, control, abate or mitigate identified environmental impacts associated with the project and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

4. Based on the information provided to the Department of Environment and Climate Change (DECC), the applicant will not require an Environment Protection Licence because the activity is not scheduled under the *Protection of the Environment Operations Act 1997*.

Water quality

The environmental outcomes for the project in relation to water should be:

- There is no pollution of waters during the construction and operational phases of the development;
- There is no inconsistency with any relevant Statement of Joint Intent established by the Healthy Rivers Commission; and
- It is acceptable in terms of the achievement or protection of the River Flow Objectives and Water Quality Objectives.

The Environmental Assessment (EA) should document the measures that will achieve the above outcomes.

Contaminated Land

The EA must document the identification, assessment and management of any land contamination to ensure that the land is not allowed to be put to a use that is inappropriate because of the presence of contamination. Under the *Contaminated Land Management Act 1997* there is a responsibility to notify the DEC of sites that pose a significant risk of harm to human health or the environment.

Noise

The environmental outcomes should include the following:

- The proposal must be designed, constructed, operated and maintained so that there are no adverse impacts from noise (including traffic noise).

Impacts of the project on threatened species and their habitat

Vegetation Clearing

The vegetation on site has the potential to support a wide range of threatened flora and fauna species. Any identified threatened species should be discussed in detail.

The EA will need to include a comprehensive assessment of the following:

1. A field survey of the site should be conducted and documented in accordance with the draft "Guideline for threatened species assessment' and "Threatened Biodiversity and Threatened Species Assessment – Guideline For Developments and Activities".

2. Likely impacts on threatened species and their habitat need to be assessed, evaluated and reported on. The assessment should specifically report on the considerations listed in Step 3 of the draft guideline.

3. Describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on threatened species and their habitat. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

4. The EA needs to clearly state whether it meets each of the key thresholds set out in Step 5 of the draft guideline.

Impacts of the project on Aboriginal cultural heritage values

1. The EA should address and document the information requirements set out in the draft "Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" involving surveys and consultation with the Aboriginal community.

2. Identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area.

3. The extent and significance of this site will need to be assessed and preferably any development in this area would avoid disturbance of the site.

4. Describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on Aboriginal cultural heritage values. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

5. The EA needs to clearly demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations.

Note: If the EA is relying on past surveys that they should check that the work is consistent with the requirements within the above 3A guidelines.

Attachment B - Guidance Material

Water quality

- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)
- NWQMS Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC 2000)
- Healthy Rivers Commission Report into Coastal Lakes and Statement of Joint Intent
- The relevant targets within the State Water Management Outcomes Plan

Wastewater

- National Water Quality Management Strategy: Guidelines for Sewerage Systems - Effluent Management (ARMCANZ/ANZECC 1997)
- National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC 2000)
- Environmental Guidelines for the Utilisation of Treated Effluent by Irrigation (NSW DEC 2004)
- Environment and Health Protection Guidelines: 'Onsite Sewage Management for Single Households', February 1998 (Silver Book).

Stormwater

(Note: some of these documents will be revised in 2006)

- Managing Urban Stormwater: Soils and Construction (NSW Landcom, 2004)
- Managing Urban Stormwater: Source Control (EPA 1998)
- Managing Urban Stormwater: Treatment Techniques (EPA 1998).

Contaminated Land

- Managing Land Contamination: Planning Guidelines - SEPP55 - Remediation of Land, Department of Urban Affairs and Planning and NSW EPA, 1998:
- Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites (Environment Protection Authority (EPA) 1997);
- Contaminated Sites – Guidelines on Significant Risk of Harm and Duty to Report (EPA, 1999).

Noise and vibration

- NSW Industrial Noise Policy (EPA, 1999)
- NSW Environmental Criteria for Road Traffic Noise (EPA, 1999)
- Chapter 171 Noise Control Guideline, *Construction Site Noise, Environmental Noise Control Manual, 1994.*

Threatened Species Impacts

- Threatened Biodiversity and Threatened Species Assessment – Guideline For Developments and Activities – Working Draft 2004. Available from DECC.
- Draft Guidelines For Threatened Species Assessment - Available from Department of Planning.

Assessing Aboriginal Cultural Heritage Impacts

- Draft Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation - Available from Dept of Planning
- Interim Community Consultation Requirements for Applicants
- Aboriginal Cultural Heritage Standards and Guidelines Kit - Available shortly on-line through DEC's webpage.

http://www3.environment.nsw.gov.au/npws.nsf/Content/Protecting+Aboriginal+objects+and+places

File No: 438.5351/ N01465 09/309
Your reference: TGM 04/66 Pt.7
Greg Sciffer

RTA

DAC Consultancy
Suite 7
Corporation Circuit
TWEED HEADS NSW 2486

RECEIVED
19 MAR 2009

Twed Shire Council. Proposed Major project MO08-0234. Proposed "RISE" Development.

Dear Sir

I refer to your letter dated 23 February 2009 to the Roads and Traffic Authority (RTA) concerning the proposed development.

Reference is made to the RTA's previous letter dated 15 February 2008 and the DG's Requirements for traffic and transport. Both of these adequately cover the RTA's concerns.

It should be noted that any Road Related Area under Community Title open to the public is still subject to the legislative requirements for traffic and transport.

If there are any further enquiries regarding this matter please contact Greg Sciffer on 6640 1300 or email land_use_northern@rta.nsw.gov.au.

Yours faithfully

17 MAR 2009

David Bell
Regional Manager, Northern Region

Copy for: Department of Planning
GPO Box 39
SYDNEY NSW 2001

NSW Government
Department of Water & Energy

RECEIVED
16 MAR 2009

Darryl Anderson Consulting Pty Ltd
Suite 7, Corporate House
8 Corporation Circuit
Tweed Heads South NSW 2486

11 March 2009

Contact: Christie Jackson
Phone: (02) 6701 9652
Fax: (02) 6764 5982
Email: christie.jackson@dnr.nsw.gov.au

Your Ref: TGM 04/66 Pt 7

Dear Mr Anderson,

Subject: Major Project MP08-0234, 'Rise' Bilambil Heights – Concept Plan

I refer to your letter dated the 23 February 2009 seeking the Department of Water and Energy's (DWE) comments on the preliminary concept plan for Rise Estate, Bilambil Heights. The Department has provided our requirements previously for the Environmental Assessment and concept plan for inclusion in the Director-General's requirements to the Department of Planning. The Departments general issues are attached in Appendix A, whilst more specific issues are addressed as follows.

Water Supply:
One of the main issues associated with subdivisions is the provision of a sustainable and efficient water supply. The Department requires the proponent to identify in the concept plan all proposed sources of water for the development, including town water supply, groundwater, harvestable right, collection of water in rainwater tanks etc. If all proposed sources are identified early, the Department is able to provide accurate advice regarding our requirements.

There is a small area on Cobaki Creek in the Coastal Alluvial soils that is embargoed for new groundwater licences.

Riparian Works and Buffer Zones
The concept plan and environmental assessment will need to clearly outline all riparian works proposed as part of the development including:

- Plans showing the existing and proposed watercourses (including redirection and re-alignment if applicable), geomorphic features, proposed core riparian zones, vegetated buffers and asset protection zones.
- Cross-sections of waterbodies and riparian zones showing both existing and proposed ground surface levels. The cross sections should attempt to represent the variety of landforms associated with the proposal. The locations of cross sections are to be shown on the above required plan.
- A longitudinal section of the existing and proposed watercourses to identify changes in bed level and hydraulic features (ie. pools and riffles).
- Concept designs of any stabilisation works and how they are to be undertaken. All proposed stabilisation works are to be of soft engineering design and must incorporate natural stream features (eg; pool and riffle sequences, meanders, identifiable low flow channel etc) commensurate with the local geomorphic, hydrologic and hydraulic conditions.

- Concept plans of any proposed dams/ wetlands, stormwater management works and structures, detention basins and any works within the watercourses and riparian zones including any proposed crossings, pathways etc.

Providing these concept plans would enable DWE to gain a clearer understanding of the type of works and location of all works within the riparian corridor associated with the proposed development enabling the Department to provide clear advice and our requirements, regarding the development.

As per Departmental 'Guidelines for Controlled Activities: Riparian Corridors (2008)' an asset protection zone (APZ) is a requirement of the NSW Rural Fire Service. Any requirements for APZs are not to compromise in any way the extent, form or function of the riparian zones. The Department requires that all APZs must be located outside the riparian zones. The APZ is to be measured horizontally landward from the outer edge of the riparian zone setback.

The Departmental 'Guideline for Controlled Activities: Riparian Corridors (2008)' outlines the recommended core riparian zone (CRZ) and vegetated buffer (VB) widths for riparian corridors along watercourses. All works associated with the development such as pathways, stormwater management structures, detention basins, roads etc should be located outside of the riparian zone. I have attached copies of these guidelines for your information.

Stormwater Management
The concept plan and environmental assessment will need to outline the general measures for stormwater and effluent management. Plans and maps should be included which outline all proposed structures and works. The Department generally does not support the construction of storages/ detention basins online or within the riparian corridor. Therefore, any water quality treatment measures need to be located outside the riparian corridor.

Farm Dams Policy
The proposal may require a licence under the Farms Dams Policy in relation to the construction of any storages or dams on site. Information should be provided on

- the capacities of any existing storages on site prior to the proposal.
- the capacities and the design plans for any new storages that are proposed.
- the purpose for which water in the structures will be utilised, eg water feature, irrigation.

General
The DWE recommends the Department of Primary Industries – Fisheries are contacted regarding their requirements for the proposed development relating to any works within the riparian corridor.

If you require clarification on any of the above please don't hesitate to contact me on (02) 6701 9652.

Yours sincerely,

Christie Jackson
Planning and Assessment Coordinator
Major Projects and Planning

Appendix A

Department of Water and Energy

General Assessment Requirements for Major Project Proposals Under Part 3A of *Environmental Planning & Assessment Act 1979*

The Department of Water and Energy (DWE) provides the following advice for consideration:

Relevant Legislation
The assessment is required to take into account the requirements of the following legislation (administered by DWE), as applicable:

- *Water Act 1912*
- *Water Management Act 2000 (WMA)*

In particular, proposals and management plans should be consistent with the Objects (s.3) and Water Management Principles (s.5) of the *WMA*.

Water Sharing Plans
Gazetted Water Sharing Plans (WSPs) prepared under the provisions of the *WMA* establish rules for access to, and the sharing of water between the environmental needs of the surface or groundwater source and water users. If the proposal is within a gazetted WSP area the assessment is required to demonstrate consistency with the rules of the WSP.
Refer to: *http://www.dnr.nsw.gov.au/water/plans.shtml*

Relevant Policies
The assessment is required to take into account the following NSW Government policies, as applicable:

- *NSW Groundwater Policy Framework Document - General*
- *NSW Groundwater Quantity Management Policy*
- *NSW Groundwater Quality Protection Policy*
- *NSW State Groundwater Dependent Ecosystem Policy*
- *NSW State Rivers and Estuaries Policy*
- *NSW Sand and Gravel Extraction Policy for Non-Tidal Rivers*
- *NSW Wetlands Management Policy*
- *NSW Farm Dams Policy*
- *NSW Weirs Policy*
- *NSW Coastal Policy*

In addition assessments should consider the following strategies:

- *NSW Salinity Strategy*
- *NSW Water Conservation Strategy*

The majority of these documents can be found at:
http://www.dnr.nsw.gov.au/water/legislation.shtml

Guidelines
The assessment is required to take into account the following DWE Guidelines for Controlled Activities (February 2008), as applicable:
_ Riparian corridors (and associated Vegetation Management Plans)
_ Watercourse crossings
_ Laying pipes and cables in watercourses
_ Outlet structures
_ In-stream works
Refer to: *http://www.dnr.nsw.gov.au/water/controlled_activity.shtml*

Groundwater

DWE is responsible for the management of groundwater resources so they can sustain environmental, social and economic uses for the people of New South Wales.

Groundwater Source

The assessment is required to identify groundwater issues and potential degradation to the groundwater source and provide the following:

- Details of the predicted highest groundwater table at the development site.
- Details of any works likely to intercept, connect with or infiltrate the groundwater sources.
- Details of any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Describe the flow directions and rates and the physical and chemical characteristics of the groundwater source.
- Details of the predicted impacts of any final landform on the groundwater regime.
- Details of the existing groundwater users within the area (including the environment) and include details of any potential impacts on these users.
- Assessment of the quality of the groundwater for the local groundwater catchment.
- Details of how the proposed development will not potentially diminish the current quality of groundwater, both in the short and long term.
- Details on preventing groundwater pollution so that remediation is not required.
- Details on protective measures for any groundwater dependent ecosystems (GDEs).
- Details of proposed methods of the disposal of waste water and approval from the relevant authority.
- Assessment of the need for an Acid Sulfate Management Plan (prepared in accordance with ASSMAC guidelines).
- Assessment of the potential for saline intrusion of the groundwater and measures to prevent such intrusion into the groundwater aquifer.
- Details of the results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Details of any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Licensing

All proposed groundwater works, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified in the proposal and an approval obtained from DWE prior to their installation.

Groundwater Dependent Ecosystems (GDEs)

The assessment is required to identify any impacts on GDEs. GDEs are ecosystems which have their species composition and natural ecological processes wholly or partially determined by groundwater. GDEs represent a vital component of the natural environment. GDEs can vary dramatically in how they depend on groundwater from having occasional or no apparent dependence through to being entirely dependent. GDEs occur across both the surface and subsurface landscapes ranging in area from a few metres to many kilometres. Increasingly, it is

being recognised that surface and groundwaters are often interlinked and aquatic ecosystems may have a dependence on both.

Ecosystems that can depend on groundwater and that may support threatened or endangered species, communities and populations, include:

- Terrestrial vegetation that show seasonal or episodic reliance on groundwater.
- River base flow systems which are aquatic and riparian ecosystems in or adjacent to streams/rivers dependent on the input of groundwater to base flows.
- Aquifer and cave ecosystems.
- Wetlands.
- Estuarine and near-shore marine discharge ecosystems.
- Fauna which directly depend on groundwater as a source of drinking water or that live within water which provide a source.

The *NSW Groundwater Dependent Ecosystem Policy* provides guidance on the protection and management of GDEs. It sets out management objectives and principles to:

- Ensure the most vulnerable and valuable ecosystems are protected.
- Manage groundwater extraction within defined limits thereby providing flow sufficient to sustain ecological processes and maintain biodiversity.
- Ensure sufficient groundwater of suitable quality is available to ecosystems when needed.
- Ensure the *precautionary principle* is applied to protect GDEs, particularly the dynamics of flow and availability and the species reliant on these attributes.

A number of gazetted WSP list and map priority GDEs and set out the management strategies and actions for sharing and protecting groundwater quality, quantity and dependent ecosystems.

Surface Water

DWE is responsible for the sustainable management of rivers, estuaries, wetlands and adjacent riverine plains.

Watercourse/Riparian

The assessment is required to consider the impact of the proposal on the watercourses and associated riparian vegetation within the site and provide the following:

- Identify the sources of surface water.
- Details of stream order (using the Strahler System).
- Details of any proposed surface water extraction, including purpose, location of existing pumps, dams, diversions, cuttings and levees.
- Detailed description of any proposed development or diversion works including all construction, clearing, draining, excavation and filling.
- An evaluation of the proposed methods of excavation, construction and material placement.
- A detailed description of all potential environmental impacts of any proposed development in terms of vegetation, sediment movement, water quality and hydraulic regime.
- A description of the design features and measures to be incorporated into any proposed development to guard against long term actual and potential environmental disturbances, particularly in respect of maintaining the natural hydrological regime and sediment movement patterns and the identification of riparian buffers. (See note below)
- Details of the impact on water quality and remedial measures proposed to address any possible adverse effects.

The *Rivers and Foreshores Improvement Act 1948 (RFIA)* has now been repealed and the controlled activity provisions in the *WMA* have commenced. The provisions relating to controlled activities replaced the *RFIA* from 4 February 2008. Riparian corridors form a transition zone between terrestrial and aquatic environments and perform a range of important environmental functions. The protection or restoration of vegetated riparian areas is important to maintain or improve the geomorphic form and ecological functions of watercourses through a range of hydrologic conditions in normal seasons and also in extreme events.

Although Part 3A Major Projects are exempt from requiring a controlled activity approval (s91 of *WMA*), the assessment is required to take into account the objectives and provisions of relevant legislation and guidelines.

Note: Recommended Core Riparian Zones (as applicable):
_ Minimum of 10m for any intermittently flowing 1st order watercourse;
_ 20m for any permanently flowing 1st order watercourse or any 2nd order watercourse;
_ 20m – 40m (merit based assessment) for any 3rd order or greater watercourse.

[Refer to DWE Guidelines for Controlled Activities (February 2008) – Riparian Corridors available via: *http://www.naturalresources.nsw.gov.au/water/controlled_activity.shtml*]

Water Management Structures/Dams
DWE is responsible for the management and licensing of these structures under water legislation. If the proposal includes existing or proposed water management structures/dams, the assessment is required to provide information on the following:

- Date of construction (for existing structure/s).
- Details of the legal status/approval for existing structure/s.
- Details of any proposal to change the purpose of existing structure/s.
- Details if any remedial work is required to maintain the integrity of the existing structure/s.
- Clarification if the structure/s is on a watercourse.
- Details of the purpose, location and design specifications for the structure/s.
- Size and storage capacity of the structure/s.
- Calculation of the Maximum Harvestable Right Dam Capacity (MHRDC).
- Details if the structure/s is affected by flood flows.
- Details of any proposal for shared use, rights and entitlement of the structure/s.
- Details if the proposed development/subdivision has the potential to bisect the structure/s.

DWE's Farm Dams Assessment Guide provides details on harvestable rights and the calculation of the MHRDC. Refer to: *http://www.dnr.nsw.gov.au/water/dams.shtml*

Basic Landholder Rights
The *WMA* identifies Basic Landholder Rights (BLRs) for access to water whereby landholders over an aquifer or with river or lake frontage can access water for domestic (household) purposes or to water stock without the need for a water licence (although a works approval may still be required). This has the potential to impact inequitably on existing licensed water users (under a WSP) in the case where riparian frontage continues to be subdivided, creating new basic rights for water extraction. If this is an issue for the proposal the assessment should identify any potential for creation of new BLRs along the frontage to major waterways or over any sensitive aquifers. For those subdivisions fronting rivers/lakes, innovative subdivision design which allows the creation of additional lots without direct river/lake frontage or utilises collective or community title to manage the use of any existing BLR could provide a satisfactory way of managing this issue whilst still allowing for subdivision. Subdivisions over a sensitive aquifer however, may be more limited in using this approach.

Sustainable Water Supply
Many gazetted WSPs to-date have identified particular surface and groundwater systems that are currently over-allocated (that is, water licence volumes issued to landholders operating in these catchments exceed the sustainable volumes/flows within these systems). In the case of over-allocation, the systems have subsequently been embargoed and no new water licences are to be issued within these catchments. Any new or expanded development within such catchments will therefore be unable to obtain any new water entitlements directly and will have to enter the water trading market (if available within that catchment) to seek additional water. Therefore, there can be no guarantees of obtaining additional water via this mechanism and there is the potential of restrictions on further development within such catchments. Whilst there is provision in the *WMA* to

allow for limited growth in Town Water Supplies (TWS) this could still impact subsequently on other water users.

The assessment is required to address the issue of provision of a sustainable water supply for any project proposal. The assessment should include Water Management Plans detailing how a sustainable and efficient water supply can be sourced and implemented with minimal reliance on accessing valuable surface and groundwater resources. Through the implementation of BASIX, Integrated Water Cycle Management and Water Sensitive Urban Design, any proposed development must also be able to exhibit high water use efficiency. Access to information on sustainability can be found via: *http://www.deus.nsw.gov.au/business_industry.asp*

February 2008

Guidelines for controlled activities
Riparian corridors

Controlled activities carried out in, on or under waterfront land are now regulated by the *Water Management Act 2000* (WMA). The Department of Water and Energy is required to assess the impact of a controlled activity to ensure that minimal harm will be done to any waterfront land, ie. the bed and a distance inland of 40 metres from a river, lake or estuary.

This means that a controlled activity approval must be obtained from the Department prior to carrying out a controlled activity.

Riparian corridors form a transition zone between terrestrial and aquatic environments and perform a range of important environmental functions. Riparian corridors:

- provide bed and bank stability and reduce bank and channel erosion
- protect water quality by trapping sediment, nutrients and other contaminants
- provide a diversity of habitat for terrestrial, riparian and aquatic flora and fauna species
- provide connectivity between wildlife habitats
- allow for conveyance of flood flows and control the direction of flood flows
- provide an interface between developments and waterways.

The protection or restoration of vegetated riparian areas is important to maintain or improve the geomorphic form and ecological functions of watercourses through a range of hydrologic conditions in normal seasons and also in extreme events.

When determining an appropriate width for a riparian corridor and how much riparian vegetation should be protected or re-established on a site, the following three riparian corridor zones (Figure 1) should be considered.

1. A Core Riparian Zone (CRZ) is the land contained within and adjacent to the channel. The Department wil seek to ensure that the CRZ remains, or becomes vegetated, with fully structured native vegetation (including groundcovers, shrubs and trees). The width of the CRZ from the banks of the stream is determined by assessing the importance and riparian functionality of the watercourse (Table 1), merits of the site and long-term use of the land. There should be no infrastructure such as roads, drainage, stormwater structures, services, etc. within the CRZ.
2. A Vegetated Buffer (VB) protects the environmental integrity of the CRZ from weed invasion, micro-climate changes, litter, trampling and pollution. There should be no infrastructure such as roads, drainage, stormwater structures, services, etc. within the VB. The recommended width of the VB is 10 metres but this depends on merit issues.
3. An Asset Protection Zone (APZ) is a requirement of the NSW Rural Fire Service and is designed to protect assets (houses, buildings, etc.) from potential bushfire damage. The APZ is measured from the asset to the outer edge of the vegetated buffer (VB). The APZ should contain cleared land which means that it can not be part of the CRZ or VB. The APZ must not result in clearing of the CRZ or VB. Infrastructure such as roads, drainage, stormwater structures, services, etc. can be located within APZs.

NSW Government
Department of Water & Energy

February 2008

Guidelines for controlled activities
Watercourse crossings

The design and construction of watercourse crossings and ancillary works, such as roads, should consider the potential impacts of the crossing structure on waterfront land. Crossings have the potential to disrupt the hydrologic, hydraulic, and geomorphic functions of a watercourse affecting flows, bed and bank stability as well as the ecological values and functions of the riparian corridor (refer to the Department's Guidelines for *Guidelines for controlled activities – Riparian corridors*).

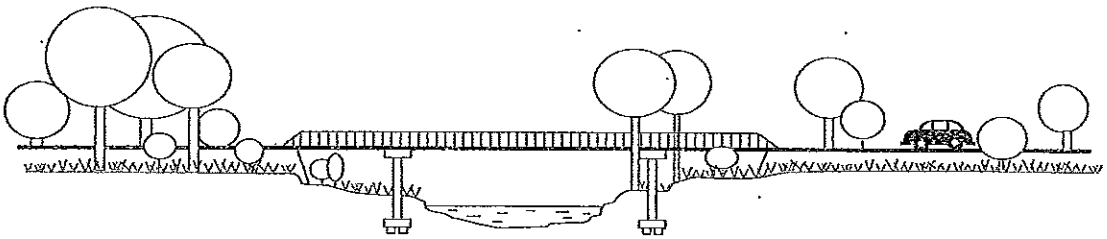
Controlled activities carried out in, on or under waterfront land are now regulated by the *Water Management Act 2000* (WMA). The Department of Water and Energy is required to assess the impact of a controlled activity to ensure that minimal harm will be done to any waterfront land, ie. the bed and a distance inland of 40 metres from a river, lake or estuary.

This means that a controlled activity approval must be obtained from the Department prior to carrying out a controlled activity.

In order to minimise the effects of structures on the hydrologic, hydraulic and geomorphic functions of a watercourse, the Department's recommends crossings be designed and constructed in order to maintain the integrity of the existing channel as well as being sympathetic with the ecological values of the watercourse and its riparian corridor.

Bed level crossings or **bridges** which fully span the watercourse channel provide the best opportunities for maintaining these channel functions, as illustrated in Figure 1. However, alternative structures such as box culverts which can achieve equivalent riparian corridor functions may also be considered.

Figure 1. Bridge crossing over watercourse and riparian corridor



The design and construction of crossing structures should consider, but not be limited to, the following design principles:

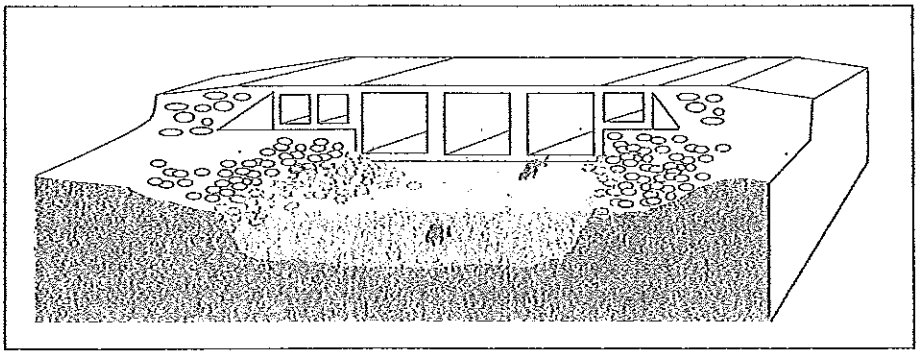
- Identify the appropriate width of the riparian corridor in accordance with the Department's *Guidelines for controlled activities – Riparian corridors*.
- The design and construction of crossings should consider the full width of the riparian corridor and riparian corridor functions, including accommodating fully structured native vegetation.
- The design and construction footprint and extent of disturbances proposed within the riparian zone should be minimised.
- Maintain existing or natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse.
- If a raised structure or an increase in the height of the bed is proposed then proponents must demonstrate that the structure will not have a detrimental effect on the natural hydraulic, hydrologic, geomorphic and ecological functions.

NSW Government
Department of Water & Energy

Additional considerations for design of culverts

- Box culverts are preferred to pipes.
- Align culverts with downstream channel.
- Incorporate elevated 'dry cells' and recessed 'wet cells' with the invert at or below the stable bed level.
- The culvert design **must be certified** by a suitably qualified engineer.

Figure 3. Road crossing allowing fish passage



When seeking approval to construct crossing structures information detailing the above requirements should be submitted to the Department for assessment. Additional information may also be required and may include but not be limited to:

- detailed design drawings which include a surveyed plan, cross sections (across the watercourse) and a long section of the watercourse, showing the proposed structure relative to existing and proposed bed and bank profiles and water levels. The cross section should extend to the landward limit of the identified riparian corridor.
- crossing design plans should include a location plan, plan view, elevation view and cross-section of the proposed crossing structure
- a report detailing pre and post construction hydraulic conditions. The report should address, bank full discharge, velocity, tractive force or sheer stress, afflux (Modified RTA method is acceptable), Froude and Manning 'n', relative to the proposed structure.
- plans showing extent and designs of permanent bed and bank stabilisation works necessary for scour protection (see Department's *Guidelines for controlled activities – In-stream works*)
- a Vegetation Management Plan prepared in accordance with the Department's *Guidelines for controlled activities – Vegetation Management Plans*
- a Site Management Plan incorporating the schedule, sequence and duration of works, erosion and sediment controls, etc
- costing of all works (ie materials, labour) and stages of works (eg crossing construction, rehabilitation)
- other relevant approvals, eg. development consent.

Further information

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Important notes

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February 2008

Guidelines for controlled activities
Vegetation Management Plans

Controlled activities carried out in, on or under waterfront land are now regulated by the *Water Management Act 2000* (WMA). The Department of Water and Energy is required to assess the impact of a controlled activity to ensure that minimal harm will be done to any waterfront land, ie the bed and a distance inland of 40 metres from a river, lake or estuary.

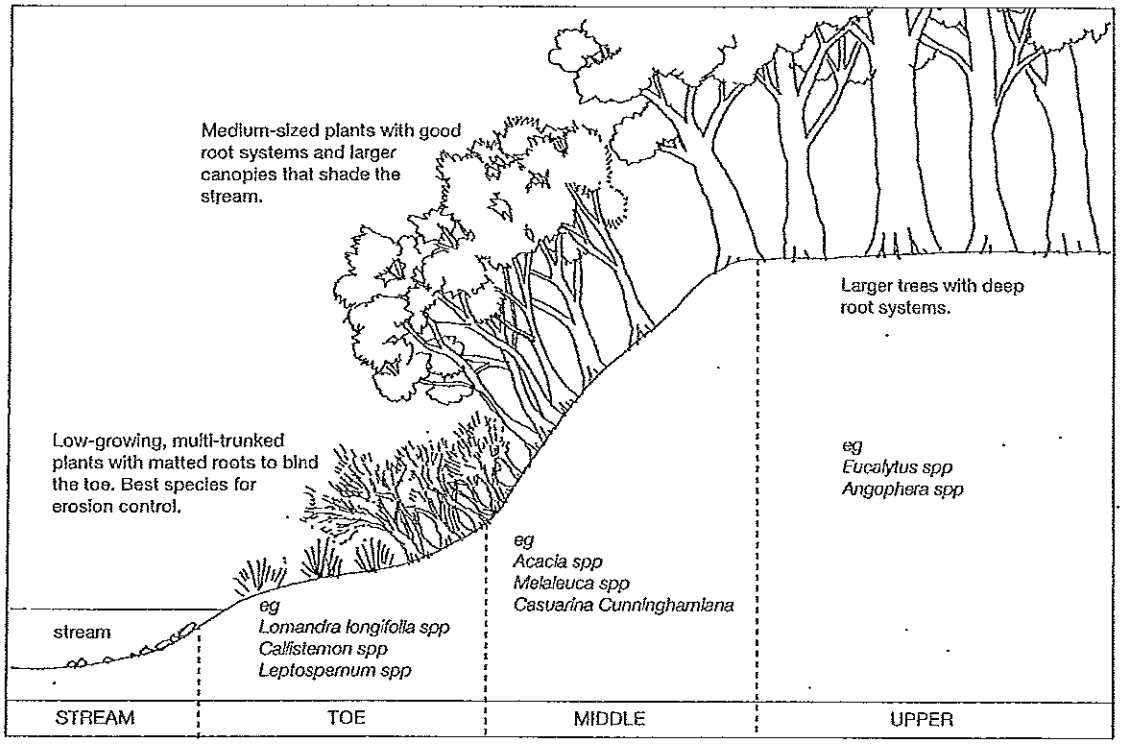
This means that a controlled activity approval must be obtained from the Department prior to carrying out a controlled activity.

Riparian corridors form a transition zone between terrestrial and aquatic environments and perform a range of important environmental functions. The protection or restoration of vegetated riparian areas is important to maintain or improve the geomorphic form and ecological functions of watercourses through a range of hydrologic conditions in normal seasons and also in extreme events.

A Vegetation Management Plan (VMP) which outlines the criteria for the establishment and management of a riparian corridor may be required to be prepared and submitted to the Department for assessment and approval prior to the issuing of a controlled activity approval for works in or within 40 metres of a river, lake or estuary.

The objective of a VMP is to provide for a stable watercourse and riparian corridor which emulates the native vegetation communities in the area. Figure 1 illustrates a typical riparian cross section.

Figure 1. Typical riparian cross section



Adapted from *Rivercare: Guidelines for Ecological Sustainable Management of Rivers and Riparian Vegetation:* Raine, A.W & Gardiner, J.N. (1995), LWRRDC, Canberra.

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February 2008

Guidelines for controlled activities
Outlet structures

This guideline relates to the design of stormwater outlets and spillways from infrastructure (including roads, buildings, constructed basins/wetlands, swales or other drainage works) into a watercourse or waterfront land.

Controlled activities carried out in, on or under waterfront land are now regulated by the *Water Management Act 2000* (WMA). The Department of Water and Energy is required to assess the impact of a controlled activity to ensure that minimal harm will be done to any waterfront land, ie the bed and a distance inland of 40 metres from a river, lake or estuary.

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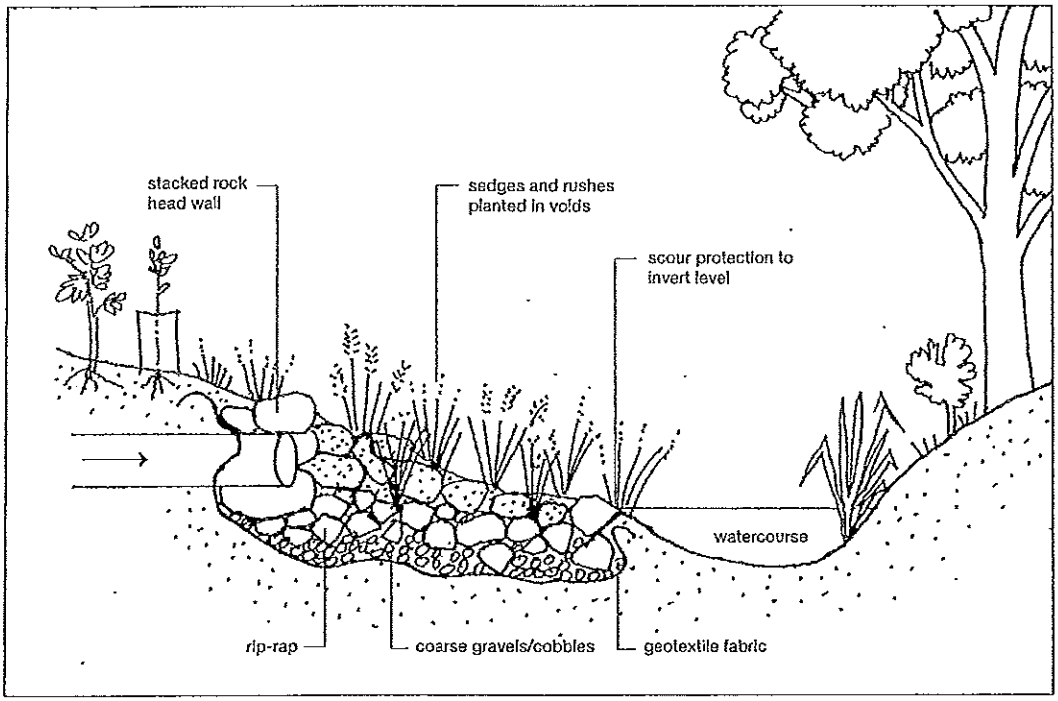
The design and construction of stormwater outlets should aim to be 'natural', yet provide a stable transition from a constructed drainage system to a natural flow regime (see Figure 1). The design and construction footprint and extent of disturbances within the riparian corridor should be minimised while still achieving the intended discharge function (refer to the Department's *Guidelines for controlled activities – Riparian corridors)*.

All ancillary drainage infrastructure, such as oil/grease interceptors, sediment & litter traps, constructed wetlands and detention basins, should be located outside the riparian corridor. Run-off should be of appropriate water quality and quantity before discharging into a riparian corridor or watercourse. Appropriate rehabilitation of disturbed areas following the installation of outlet structures should adequately restore the integrity of the riparian corridor.

Figure 1. 'Natural' outlet structure.



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When seeking approval to construct outlet structures, information detailing the above is required for the Department to assess the works.

Additional information will generally also be required and may include but not be limited to:

- detailed design drawings of outlet structures
- cross-sections and long-section of the stream
- hydrology report detailing pre and post construction hydrology of the channel
- a Vegetation Management Plan (VMP) prepared in accordance with the Department's *Guidelines for controlled activities – Vegetation Management Plans*
- a Site Management Plan incorporating the schedule, sequence and duration of works, erosion and sediment controls, etc.
- costing of all works (ie. materials, labour) and stages of works (eg. outlet structure installation, rehabilitation).

Further information

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February 2008

Guidelines for controlled activities
Laying pipes and cables in watercourses

This guideline relates to the laying of pipes and cables in or across watercourses and the adjoining riparian corridor for utilities such as sewage, water, gas, electricity and communications.

Controlled activities carried out in, on or under waterfront land are now regulated by the *Water Management Act 2000* (WMA). The Department of Water and Energy is required to assess the impact of a controlled activity to ensure that minimal harm will be done to any waterfront land, ie the bed and a distance inland of 40 metres from a river, lake or estuary.

This means that a controlled activity approval must be obtained from the Department prior to carrying out a controlled activity.

When considering the placement of utilities in or across watercourses the design and construction footprint and the extent of disturbances proposed in the watercourse and riparian corridor should be minimised. Appropriate rehabilitation of disturbed areas post installation will be required to adequately restore bed and bank stability as well as the integrity of the vegetated riparian corridor.

The design and installation of utilities in or across a watercourse should consider, but not be limited to, the following:

- Identify the appropriate width of the riparian corridor in accordance with the Department's *Guidelines for controlled activities – Riparian corridors*. The location and installation of utilities should consider the full width of the riparian corridor and riparian functions including accommodating fully structured native vegetation.
- The design and construction footprint, and extent of disturbances to soil and vegetation within the watercourse and riparian corridor, should be minimised.
- Ideally, existing easements should be utilised. Utilities should be incorporated within existing cleared or disturbed areas with (or adjacent to) other crossing points such as roads, particularly if future maintenance and on-going access is required.
- Maintain existing or natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse. Demonstrate that the utility installations will not impact on these functions.
- Identify options for works and show rationale for the selection of preferred options.
- Directional boring under watercourses is preferred to trenching through a watercourse so that construction impacts are minimised.
- Directional boring considerations:
  - Minimise or avoid disturbance to channel bed and banks
  - Minimise or avoid rehabilitation, maintenance and on-going costs after construction
  - ensure depth is sufficient to avoid cave-ins
  - risk of bed collapse and frac-outs during boring
  - ensure depth does not result in exposure of assets if channel experiences bed or bank degradation
  - bore entry and exit locations should be located outside designated riparian corridors
  - recovery and removal of construction plant and materials (including drilling mud).
- Trenching considerations:
  - rehabilitation of disturbed bed and banks will be required
  - lay pipes and cables across the watercourse on the downstream side of channel bedrock outcrops (through the drop deposit zone if a plunge pool is present)

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Department of Water & Energy

Water Management Act 2000

February 2008

Guidelines for controlled activities
In-stream works

This guideline relates to the design and construction of works within a watercourse and/or riparian corridor. Such works may include enhancements of the watercourse, rehabilitation, channel modifications, bed controls, pipe and cable trenching and laying, etc.

Controlled activities carried out in, on or under waterfront land are now regulated by the *Water Management Act 2000* (WMA). The Department of Water and Energy is required to assess the impact of a controlled activity to ensure that minimal harm will be done to any waterfront land, ie the bed and a distance inland of 40 metres from a river, lake or estuary.

This means that a controlled activity approval must be obtained from the Department prior to carrying out a controlled activity.

The design and construction of works and activities within a watercourse and/or the adjoining riparian corridor should aim to be as 'natural' as possible. A watercourse 'rehabilitation' design philosophy rather than a 'construction' philosophy should be applied.

Consultation with relevant government agencies at the concept stage (of development) and during the design phase is recommended so that good outcomes can be identified, planned for and achieved.

The design and construction footprint, and the extent of disturbances within the riparian corridor, should be minimised while achieving the desired function and outcome. All ancillary infrastructure such as asset protection zones (APZ), utility easements, detention basins and water quality control structures, roads, paths/cycle ways, etc. should be located outside of any riparian corridor. Runoff should be of appropriate water quality and quantity before discharging into a riparian corridor or watercourse. Appropriate rehabilitation of disturbed areas following the works should restore the integrity of the watercourse and riparian corridor.

In order to minimise the impacts of in-stream works on the hydrologic, hydraulic and geomorphic functions on a watercourse, all works and activities should be designed and constructed to maintain the integrity of the existing channel, as well as being sympathetic with the ecological values of the watercourse and its riparian corridor.

The design and construction of in-stream works should consider, but not be limited to, the following design principles:

- Identify the appropriate width of the riparian corridor in accordance with the Department's *Guidelines for controlled activities – Riparian corridors.*
- The design and construction of in-stream works should consider the full width of the riparian corridor and riparian functions, including accommodating fully structured native vegetation.
- Identify options for works and show rationale for the selection of preferred options.
- The design and construction footprint and the proposed extent of disturbances to soil and vegetation within the riparian corridor should be minimised.
- Maintain or mimic existing or natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse. Demonstrate that the in-stream works will not have a detrimental effect on these functions.

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Further information

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NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Our Ref: 08/1999-2 OUT09/3621
Your Ref: TGM 04/66 Pt 7

17 March 2009

RECEIVED
20 MAR 2009

Mr Darryl Anderson
Darryl Anderson Consulting Pty Ltd
Suite 7 Corporate House
8 Corporation Circuit
TWEED HEADS SOUTH NSW 2486

Dear Mr Anderson

"RISE" Bilambil Heights (formerly Pacific Highlands)
State Significant Site and Concept Plan (Major Project No. MP08-0234)

I refer to your letter of 23 February 2009 inviting comment on this proposal by NSW DPI in accordance with the Director General's Environmental Assessment Requirements.

The proposed development primarily raises agricultural related issues for NSW DPI due to the location of the proposed development. No fisheries or aquatic habitat issues arise. The agricultural issues previously highlighted with NSW Department of Planning at the time of the Planning Focus Meeting were as follows.

1. There needs to be regard to Section 117 Direction 5.3 (Farmland of State and Regional Significance) if any rezoning of land is involved.
2. The subject land is a mix of class 4 and 5 agricultural land according to the Tweed agricultural land classification map.
3. There are four (4) cattle dip sites in the locality and nearby. The NSW DPI cattle tick program can provide further detail on the location, history and status of these dips. Contact 02 6626 1111.
4. The relevant rural planning provisions of the Far North Coast Regional Strategy and the North Coast REP ought to be addressed.
5. Chapters 5 and 6 of the North Coast Living and Working in Rural Areas handbook (www.dpi.nsw.gov.au/pubs/north-coast-land-use) are relevant to assessing and addressing land use conflict risk and environmental interface issues.
6. The development design should be based on best practice urban design principles to ensure that key contemporary issues are wisely dealt with.
7. The structure plan and concept plan should distinguish between lands identified in the FNC regional strategy and those not identified in the strategy as suitable for future urban land uses.
8. Maps should be used to explain how existing strategies and environmental planning instruments and data have been used to inform and create the concept plan.

Yours faithfully

Rik Whitehead
Resource Management Officer
NORTH COAST

All communications to be addressed to:

Headquarters
NSW Rural Fire Service
Locked Mail Bag 17
GRANVILLE NSW 2142

Telephone: (02) 8741 5555
e-mail: development.control@rfs.nsw.gov.au

Headquarters
NSW Rural Fire Service
15 Carter Street
HOMEBUSH BAY NSW 2127

Facsimile: (02) 8741 5550

RECEIVED
28 APR 2009

Darryl Anderson Consulting Pty Ltd
Suite 7 Corporate House
8 Corporate Circuit
TWEED HEADS SOUTH NSW 2486

Your Ref: TGM 04/66 Pt 7
Our Ref: S09/0002
G09/0495

Attention: Darryl Anderson

21 April 2009

Dear Mr Anderson,

RE: RISE ESTATE, BILAMBIL HEIGHTS, TWEED (MAJOR PROJECT 08-0234)

I refer to your letter dated 23 February 2009 seeking comments from the NSW Rural Fire Service (RFS) in finalising the Concept Plan for submission to the Department of Planning.

Based on the plans and information provided, the RFS provides the following comments in addition to previous advice;

- It is considered that the location and layout of the residential area labelled "J" does not meet the aims and objectives of *Planning for Bush Fire Protection 2006*. The Lots are isolated, surrounded by vegetation with steeps slopes to the south and one main road access/egress. Accordingly the RFS has concerns with the creation of this residential precinct.

For any enquiries regarding this correspondence please contact Garth Bladwell.

Yours faithfully,

per Patrick Schell
Corey Shackleton
A/Team Leader, Development Assessment & Planning

The RFS has made getting additional information easier. For general information on *Planning for Bush Fire Protection* 2006, visit the RFS web page at www.rfs.nsw.gov.au and search under *Planning for Bush Fire Protection* 2006.