AGRICULTURAL BUFFER ZONE ASSESSMENT
PROJECT APPLICATION FOR
KINGS FOREST STAGE 1
KINGS FOREST
NEW SOUTH WALES

PREPARED FOR
PROJECT 28 PTY LTD

DATE
JUNE 2011
This document constitutes an assessment of the agricultural buffer zones in relation to the Kings Forest Stage 1 Project Application, Kings Forest, New South Wales.
SUMMARY

Project 28 Pty Ltd commissioned Gilbert & Sutherland Pty Ltd (G&S) to conduct an Agricultural Buffer Zone Assessment (ABZA) in support of the Stage 1 Project Application for the proposed development of the Kings Forest site at Cudgen, New South Wales.

The scope of this report is to assess the potential for conflict between the Stage 1 development and agricultural enterprises on adjoining land and to recommend appropriate separation distances and buffer elements (collectively known as buffer zones). The provision of buffer zones would reduce or eliminate the potential for conflict between typically incompatible land use practices.

The application of agricultural buffer zones to Kings Forest Stage 1 has been addressed in this report with reference to the Kings Forest SEPP Schedule 3 zoning map, the Tweed Shire Council’s Development Control Plan (Subdivision Manual), Tweed Shire Council’s Local Environmental Plan and the North Coast Living and Working in Rural Areas handbook.

A preliminary assessment was undertaken by G&S as part of this ABZA, including site inspections and a review of available aerial imagery and previous studies undertaken in the region.

The majority of the Stage 1 Application Area incorporates bulk earthworks only. During this stage, agricultural activities such as noise, odour and spray drift would cause minimal conflict with the earthworks areas. Impacts from the bulk earthworks activities, to adjacent agricultural land would similarly create minimal conflict.

A small proportion of the Stage 1 area is to be developed for residential or commercial use. Of this area, only one boundary within Precinct 1 (located in the north-eastern section of the site) adjoins agricultural land. A land use conflict risk assessment found the proposed and/or potential future use for this land does not require an agricultural buffer.
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1 Introduction

Project 28 Pty Ltd commissioned Gilbert & Sutherland Pty Ltd (G&S) to conduct an Agricultural Buffer Zone Assessment (ABZA) for the Project Application for Stage 1 of the proposed Kings Forest development at Kings Forest, New South Wales.

The Stage 1 Project Application Concept Plan is shown on Drawing No. MPS 2142 DA-01 (Attachment 1). The Stage 1 Scope of Works is shown on Drawing No. MPS 2142 DA-02 (Attachment 1) and consists primarily of bulk earthworks. A proportion of the Stage 1 area (Precincts 1 and 5) includes development for residential or commercial use.

This report was prepared to address the Concept Consent Condition C20 (dated 19 August 2010 and modified on 22 December 2010), which states:

All future development applications proposing development within either the ecological or the agricultural buffer must demonstrate that, as relevant, clauses 7 or 8 of Schedule 3 of the State Environmental Planning Policy (Major Development) 2005 have been adequately addressed.

The State Environmental Planning Policy (Major Projects) 2005 (Amendment No 10) (‘the Kings Forest SEPP”) was prepared, amongst other objectives, to establish buffers between the future urban development and agricultural land.

A zoning map was prepared as Schedule 3 to the Kings Forest SEPP and shows agricultural buffers as 150m in width.

Clause 8 of the Kings Forest SEPP, identifies the necessary consideration to be given, should development be proposed within the mapped agricultural buffers. Clause 8 states:

Consent must not be granted to development on land within an agricultural buffer unless the consent authority:

(a) has considered the potential impact of the proposed development on agricultural activities on land adjoining the buffer and of those agricultural activities on future occupiers of land within the buffer, and

(b) has consulted the Department of Primary Industries.

To assist the consent authority in its consideration of the potential impacts from the proposed development to and from adjacent agricultural land, this report provides an assessment of the site boundaries adjacent to agricultural lands where works would occur should the project application be approved.

1.1 Aims

The aims of this report are as follows.

- Identify the historical, current and potential future land use practices of the agricultural properties adjoining areas to be developed under Stage 1 of the proposed Kings Forest development.

- Broadly determine the quality of surrounding agricultural lands with reference to the New South Wales Department of Agriculture’s Land Classification System or any relevant studies.

- Identify those issues applicable to agricultural enterprises and other land use practices which could potentially cause conflict.

- Assess the risk of conflict, utilising where appropriate buffer zone options incorporating separation distances and buffer elements relevant to the individual characteristics of each sub-section of the site boundary.
2 Method

The application of buffer zones to Stage 1 of the proposed Kings Forest development has been addressed in this report with reference to:

- Kings Forest SEPP Schedule 3 zoning map.
- Tweed Shire Council’s Development Control Plan (Subdivision Manual).
- Tweed Shire Council’s Local Environmental Plan.
- North Coast Regional Environment Plan.
- Far North Coast Regional Strategy.
- Section 117(2) Environmental Planning and Assessment Act 1979.
- North Coast Living and Working in Rural Areas handbook.
- Queensland Planning Guidelines.
- NSW Agricultural Land Classification.

As part of the ABZA, G&S undertook a preliminary assessment including a review of available aerial imagery and previous studies undertaken in the region.

Site inspections were conducted to confirm the current use of adjacent agricultural properties and neighbouring landholders were contacted to discuss plans for adjoining land.

Land use zones for the site have been specified in the Kings Forest SEPP Schedule 3 zoning map as shown in Drawing No. 10468.9.1 (Attachment 2). Land use zones for surrounding lands have been specified in the Tweed Local Environmental Plan.

To define appropriate buffer zones, the different land zones for the site and surrounding land are also identified, on Drawing No. 10468.9.1 (Attachment 2). The land zones were considered in the context of the proposed Stage 1 works, which are primarily bulk earthworks. The property boundary was divided into sub-sections (A through to G) where bulk earthworks adjoin the site boundary.

Within Precinct 1, a section of the site boundary adjoining agricultural land (Sub-section A) is to be developed for commercial use. The location and extent of each sub-section is shown on Drawing No. 10468.9.2 (Attachment 2).

Clause A5.E.4 of the Tweed DCP suggests a 150m habitable building setback be established from spray areas or likely future spray areas (including a ‘biological buffer’ of minimum width of 30m) prior to development along boundaries adjoining intensive cropping and horticultural landuse.

Clause A5.E.1 of the Tweed DCP states:

‘Except for buffers also contained in other statutory instruments or legislation, the buffers recommended in this Appendix are advisory only’.

The North Coast Living and working in Rural Areas handbook recommends minimum open space buffer distances to separate incompatible land uses. This document is to be used as a guide in the absence of any other more appropriate separation arrangements. The width of these recommended buffers may be altered by design (e.g. biological buffers) and on the basis of a risk assessment.

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5 Centre for Coastal Agriculture Landscapes & Northern Rivers Catchment Management Authority 2007, Living and Working in Rural Areas – A handbook for managing conflict issues on the NSW North Coast. NSW Dept of Primary Industries.
6 Queensland Planning Guidelines - Separating Agricultural and Residential Land Uses, Department of Natural Resources QLD.
7 Hulme, T., Grosskopf, T. & Hindle J 2002, AGFACTS – Agricultural Land Classification. NSW Dept of Agriculture.
8 Centre for Coastal Agriculture Landscapes & Northern Rivers Catchment Management Authority 2007, Living and Working in Rural Areas – A handbook for managing conflict issues on the NSW North Coast. NSW Department of Primary Industries.
A risk assessment in accordance with the Land Use Conflict Risk Assessment (2008)\(^9\) was conducted to determine appropriate buffers for the proposed Stage 1 development, accommodating site-specific circumstances (method shown in Attachment 3).

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3 Boundary assessment

In this section the relevant historical, current and potential land use practices, within each zone and sub-section are briefly discussed. The quality of surrounding agricultural land has been determined with reference to the New South Wales Department of Agriculture's Land Classification System (Agricultural Land (AL) Class 1 to Class 5) and NSW Dept of Agriculture’s Agricultural Land suitability classes map.

3.1 Rural Zone

Land in the vicinity of Sub-section A (AL Class 4) is zoned as rural (Drawing no. 10468.9.2, Attachment 2). This land is characterised by very gentle slopes consisting predominantly of Aeolian Podosols.

Previously the land has been used for plantation timber, which has recently been harvested and cleared. The property owner has commenced regenerating this area with Wallum Scrub. Based on discussions with the owner, this is to provide a fauna corridor between the Kings Forest site and the coast.

A rural retail development is proposed on the land adjoining Sub-section A.

Neighbouring land in the vicinity of Sub-section F (Turner’s Quarry site) is also zoned rural. During Stage 1, this section of the site will be subject to bulk earthworks only.

3.2 Agricultural Protection Zone

Neighbouring land in the vicinity of sub-sections B, C, D and E is zoned agricultural protection.

Landuse in the vicinity of these boundaries currently includes horticultural enterprises, grazing land and land vegetated with unmanaged volunteer pines and other species.

During Stage 1, the only works proposed on land adjoining external land zoned agricultural protection will be bulk earthworks.

3.3 Urban Expansion Zone

Land in the vicinity of Sub-section G is zoned urban expansion however, the current land use is rural.

Land zones within the site and adjoining this section of the boundary include environmental protection (wetland & littoral rainforests), environmental protection (habitat) and urban expansion. Land adjacent to the environmental protection areas is currently heavily vegetated. Land adjacent to the urban expansion area is partly cleared.

During Stage 1, the only works on land adjoining external areas zoned urban expansion will be bulk earthworks within the urban expansion zone.
4 Buffer zone assessment

Works proposed in the Stage 1 project application are bound in a number of areas by land zoned agricultural protection or rural, or used for rural production. Taking into consideration the current and likely future land use of these areas, buffer zones can be determined for each section of the site boundary.

4.1 Buffer zone definition

In accordance with the North Coast Living and Working in Rural Areas handbook;¹⁰ “land use buffers are an accepted land use planning tool and have an important role in reducing risk of land use conflict and impacts between incompatible land uses through separation of land uses”.

The Tweed Shire Development Control Plan (Subdivision manual)¹¹ defines a buffer area as;

‘an area of prescribed width and treatment created between two or more landuses (including environmentally sensitive areas) for the purpose of mitigating the impacts of one or more of those landuses’.

Agricultural buffer zones should ensure an acceptable level of amenity is maintained for future occupants of residential areas, while limiting the disturbance to and/or from agricultural production activities.

Factors that may cause conflict between agricultural production activities and urban development include:

- agricultural chemical spray drift
- noise
- dust, smoke & ash
- odour
- vandalism, complaints and danger.

Other buffer zones may also be applicable to those lands which do not support agricultural production activities. These buffers are generally necessary to ensure the adequate protection of current land uses.

Agricultural and Ecological buffer zones were proposed in a zoning map prepared as Schedule 3 of the Kings Forest SEPP.

For this assessment, the Tweed Shire Council Development Control Plan (Subdivision Manual), the North Coast Living and Working in Rural Areas handbook, and the Queensland Planning Guidelines were used to determine appropriate separation distances. These separation distances will provide an adequate buffer between Stage 1 of the proposed Kings Forest development and neighbouring land-use practices.

A risk assessment was conducted in accordance with the Land Use Conflict Risk Assessment (2008)¹² to determine appropriate buffer widths to accommodate site-specific circumstances (tables 4.2.1 and 4.3.1 at the end of this section, method shown in Attachment 3).

4.2 Agricultural buffers to urban development

The former pine plantation in Sub-section A along the northern boundary of Precinct 1 has recently been cleared and the property owner has commenced regeneration with Wallum Scrub.

A rural retail development is proposed on the land adjoining Sub-section A. The Buchan Group drawing SK001 (Attachment 1) shows that the proposed buildings will be separated from the boundary by a 7m wide service access. The rear walls of the proposed buildings, which face the site boundary, will be fully enclosed (free from doors and windows) minimizing the potential for conflict between site users and occupants and the neighbouring rural land.

The risk assessment (see Table 4.2.1) uses the separation afforded by the regenerating Wallum Scrub as a buffer and predicts that the risk of

¹⁰ Centre for Coastal Agriculture Landscapes & Northern Rivers Catchment Management Authority 2007, Living and Working in Rural Areas – A handbook for managing conflict issues on the NSW North Coast, NSW Department of Primary Industries, pp. 87.
conflict between the rural land and the commercial land would be acceptable (risk rating of 18).

4.3 Agricultural buffers to fill areas

Works proposed on land adjoining sub-sections B to G includes bulk earthworks only. Agricultural activities such as noise, odour and spray drift would be of little concern during this stage of the development.

Potential impacts on adjoining agricultural land may include a short period of dust drift during bulk earthworks. Short-term impacts on water quality may also be experienced during bulk earthworks. These potential short term impacts would be minimized providing erosion and sediment controls are implemented in accordance with Gilbert & Sutherland’s report Erosion & Sediment Control Plan, Kings Forest Stage 1 Project Application, Kings Forest, New South Wales – Prepared for Project 28 Pty Ltd. February, 2011.

The risk assessment (see Table 4.3.1) identifies that the risk of conflict between the rural land and the bulk earthworks areas is likely to be acceptable, with a risk rating ranging from 13 to 18.

4.4 Consultation

As discussed above, Clause 8 of the Kings Forest SEPP, states:

> Consent must not be granted to development on land within an agricultural buffer unless the consent authority:
>
> (a) has considered the potential impact of the proposed development on agricultural activities on land adjoining the buffer and of those agricultural activities on future occupiers of land within the buffer, and
>
> (b) has consulted the Department of Primary Industries.

To assist the consent authority with the consultation process, DPI has been contacted and briefed on the development proposed by the Stage 1 project application and on the outcomes of this agricultural buffer assessment. DPI has been provided with a copy of relevant information and plans from the buffer assessment. A formal response from DPI has not yet been received.
Table 4.2.1 Risk Assessment – Urban Development adjacent to Rural zone, Sub-section A (Drawing 10468.9.2), future Wallum Scrub buffer

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Mitigating factors</th>
<th>Consequence</th>
<th>Probability</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray drift</td>
<td>No spraying as the maximum agricultural potential is grazing</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>18</td>
</tr>
<tr>
<td>Odour</td>
<td>Negligible</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>13</td>
</tr>
<tr>
<td>Noise</td>
<td>Negligible</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>13</td>
</tr>
<tr>
<td>Erosion &amp; sediment</td>
<td>Sediment &amp; erosion controls, Vegetated buffer</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 4.3.1 Risk Assessment – Fill areas adjacent to Rural zone/ Agricultural Protection zone, Subsections B to G (Drawing 10468.9.2)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Mitigating factors</th>
<th>Consequence</th>
<th>Probability</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray drift</td>
<td>Bulk earthworks only. Agricultural activities of little concern</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>18</td>
</tr>
<tr>
<td>Odour</td>
<td>Negligible</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>13</td>
</tr>
<tr>
<td>Noise</td>
<td>Negligible</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>13</td>
</tr>
<tr>
<td>Erosion &amp; sediment</td>
<td>Sediment &amp; erosion controls, Vegetated buffer</td>
<td>Moderate</td>
<td>Unlikely</td>
<td>18</td>
</tr>
</tbody>
</table>
5 Recommendations

Agricultural buffer zones are often necessary where development is proposed on land adjacent to rural land, particularly where primary production is being undertaken. Buffers may be used to minimize the risk of conflict between residents of urban development and primary producers and are used to protect the intrinsic values of the conflicting land uses.

The development proposed under the Kings Forest Stage 1 Project Application, involves urban (commercial) development along only one section of the site boundary which adjoins agricultural land (Sub-section A). Sub-section A is zoned rural, however is currently being regenerated to Wallum Scrub. A land use conflict risk assessment found that the current, proposed and/or potential future use of the adjacent agricultural land has a low level risk of conflict with the proposed commercial development and as such, no agricultural buffer is proposed.

For the urban expansion zone, land use conflict risk assessments found that the risk of conflict between the proposed Stage 1 bulk earthworks and the adjoining agricultural protection zones was minimal and as such, no agricultural buffers are proposed.
Attachment 1 – Reference drawings
7   Attachment 2 – Drawings
LEGEND

1(a) Agricultural Protection
1(b1) Rural

7(a) Environmental protection (wetlands and littoral rainforests)
7(b) Environmental Protection (Scenic/Escarpment)
7(c) Environmental protection (habitat)

5(a) Special Uses
2(a) Residential tourist
2(b) Urban expansion

8(a) National Parks & Nature Reserves

Agricultural Buffer (150m)*
Ecological Buffer (50m)*

* As mapped in SEPP 2006 Amendment No. 10

SOURCES
TWEED SHIRE COUNCIL
## Measures of Consequence

### (Severity of Environmental Impact)

<table>
<thead>
<tr>
<th>Level</th>
<th>Descriptor</th>
<th>Description</th>
<th>Examples/Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Major</td>
<td>Serious and/or long-term impact to the environment/public health and/or amenity</td>
<td>Water, soil or air impacted seriously, possibly in the long term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term management implications</td>
<td>Limited damage to animals fish or birds or plants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Many public complaints including odour and noise</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Contravenes the conditions of Councils licences, permits and the POEO Act</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Likely prosecution</td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>Moderate and/or medium-term impact to the environment/public health and/or amenity</td>
<td>Water, soil or air known to be affected, probably in the short term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Some ongoing management implications</td>
<td>No damage to plants or animals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Public unaware and no complaints to Council</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May contravene the conditions of Council’s Licences and the POEO Act</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Unlikely to result in prosecution</td>
</tr>
<tr>
<td>3</td>
<td>Negligible</td>
<td>Very minor impact to the environment/public health and/or amenity</td>
<td>No measurable or identifiable impact on the environment/public health and/or amenity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can be effectively managed as part of normal operations</td>
<td></td>
</tr>
</tbody>
</table>

### Probability (Measure of Likelihood of Risk)

<table>
<thead>
<tr>
<th>Level</th>
<th>Descriptor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Very Likely</td>
<td>Common or repeating occurrence</td>
</tr>
<tr>
<td>B</td>
<td>Likely</td>
<td>Known to occur, or it has happened</td>
</tr>
<tr>
<td>C</td>
<td>Unlikely</td>
<td>Could occur in some circumstances, but not likely to occur</td>
</tr>
</tbody>
</table>

### Risk Ranking Table

<table>
<thead>
<tr>
<th>PROBABILITY</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consequence</td>
<td></td>
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<tr>
<td>1</td>
<td>25</td>
<td>24</td>
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</tr>
<tr>
<td>2</td>
<td>23</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>

A risk ranking of 25-20 would normally be deemed as an unacceptable risk.

A risk ranking of less than 20 would normally be deemed as an acceptable risk.

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