



## Modifications to Coastal Grove Residential Subdivision (MP06\_0002) 1 Survey Street Lennox Head

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### SECTION 75W APPLICATION

Submitted to: NSW Department of Planning

Date: May 2009

SAKE Development

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## 1 Introduction

This report accompanies an application to the Minister for Planning under Section 75W of the Environmental Planning and Assessment Act 1979 (EP&A Act) to modify the project approval (06\_0002) granted by the Minister for Planning to SAKE Development on 23 August 2007. The project approval involves a 42 lot subdivision comprising 39 residential lots, one residual lot for open space dedication and two residual lots for vegetation conservation at 1 Survey Street Lennox Head.

The site is located at the eastern end of Survey Street at Lennox Head on the NSW North Coast and is approximately 1km south of the Lennox Head town centre (see Figure 1 – Site Location). It covers an area of 14.71ha and the real property description is Lot 2 in DP 622475. The site is owned by DM and RD Dossor and their consent as landowner to submit the application accompanies the application.

The proposed modifications involve deletions and changes to the conditions of approval relating to the preparation of a planning agreement, the location of a minor sewer and the location of the north south pedestrian / cycleway. A full description of the proposed changes is provided in Section 2 of this report.

The purpose of this report is to:

- describe the proposed modifications;
- discuss the potential environmental effects of the modifications;
- draw conclusions on the significance of any impacts; and
- make a recommendation to the Minister for Planning as to whether the modifications to the consent should be approved.

The report has been prepared by SAKE Development Pty Ltd on behalf of the landowners, DM and RD Dossor and is accompanied by the following supporting documentation:

- Appendix 1 – Flora Impact Statement by Eco-Logical Australia
- Appendix 2 – Sewer Layout by Ardill Payne and Partners
- Appendix 3 – Revised Landscape Plan by HASSELL.

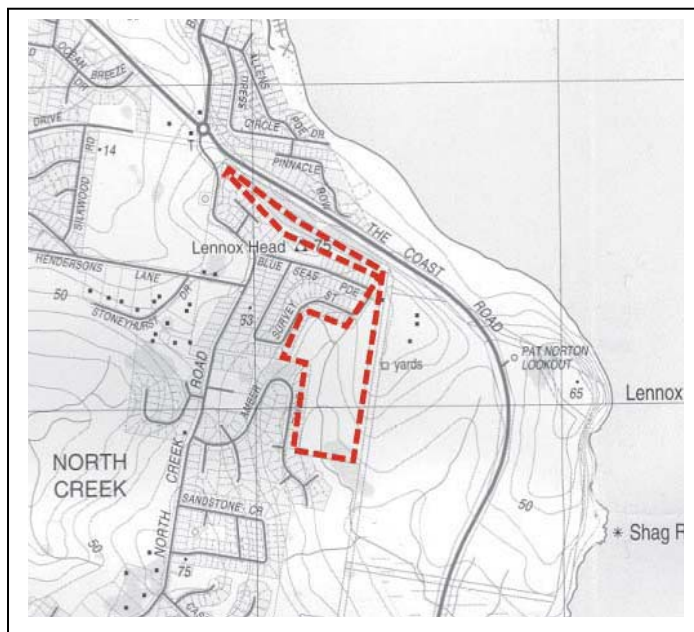


Figure 1. The subject site at 1 Survey Street Lennox Head.

## 2 Proposed Modification to Project Approval

### 2.1 Proposed Modifications to the Project Approval

The Minister for Planning approved project application MP 06\_0002 for the carrying out of *a 42 lot subdivision comprising 39 residential lots, one residual lot for open space dedication and two residual lots for vegetation conservation* on 23 August 2007. As the proposal involves changes and deletions to the Conditions of the project approval and minor modifications to the development plans, the amendments to the conditions are shown underlined and in **bold** as follows and deletions with ~~striketrough~~.

#### A2 *Development in Accordance with Plans*

The development will be in accordance with the plans and associated documentation lodged by or, on behalf of, the applicant including plans and documentation prepared by SAKE Development, including the Draft Statement of Commitments, ~~and~~ draft site specific Development Control Plan and amendments prepared by SAKE Development Pty Ltd dated May 2007 and in accordance with the following:

Environmental Assessment entitled Coastal Grove prepared by SAKE Development dated September 2006			
Subdivision Drawings prepared by HASSELL			
Drawing No.	Revision	Name of Plan	Date
PSL 3394 / PA 02	E	Subdivision Plan	20/06/07
Stormwater Drawing prepared by Patterson Britton and Partners Pty Ltd			
Drawing No.	Revision	Name of Plan	Date
-	-	Coastal Grove - Revised Conceptual Stormwater Management Strategy	6/07/07
Landscape Drawings prepared by HASSELL			
Drawing No.	Revision	Name of Plan	Date
PSL 3394 / PA 03	D	Landscape Plan	6/07/07
Survey Drawings Prepared by Aspect North Limited			
Drawing No.	Revision	Name of Plan	Date
BA050026-SV4	B	Detail of Survey Over Lot 2 DP 622475 Coast Road, Lennox Head	10/08/06

As amended by the following drawings:

<u>Landscape Drawings prepared by HASSELL</u>			
<u>Drawing No.</u>	<u>Revision</u>	<u>Name of Plan</u>	<u>Date</u>
<u>PSL 3394 / PA 03</u>	<u>E</u>	<u>Landscape Plan</u>	<u>May 2009</u>
<u>Civil Engineering Drawings prepared by Ardill Payne and Partners</u>			
<u>Drawing No.</u>	<u>Revision</u>	<u>Name of Plan</u>	<u>Date</u>
<u>6919 SK.1</u>		<u>Conceptual Sewer Layout</u>	<u>May 2009</u>

The object of this modification is to ensure that the project approval refers to the correct drawings, including the drawings submitted with this Section 75(W) application. The drawings depict minor changes to the location and design of the north south pedestrian cycleway and sewer alignment.

The proposed modifications to the design and other conditions of consent which form part of this application are as follows.

~~A6~~ ***Planning Agreement***

Prior to the issue of the Construction Certificate, the Proponent shall:

- a) ~~Enter into a Planning Agreement with the Minister under section 93F of the EP&A Act. This Agreement must be generally consistent with commitments in the terms of the offer made by the Proponent on 18 July 2007, and specifically provide for:~~
  - ~~The retention and protection of Hairy Joint Grass within the ecological buffer identified in Figure 6 of the Review of Hairy Joint Grass (*Arthraxon hispidus*) prepared by Eco Logical and dated May 2007.~~
  - ~~The preparation of an Environmental Management Plan to manage the area within the ecological buffer.~~
- b) ~~Register the Planning Agreement on the title of the land in accordance with the *Real Property Act 1900*.~~

The application seeks to delete this condition in its entirety, which requires the proponent to enter into a Planning Agreement with the Minister for Planning. The Planning Agreement is to provide for the retention, protection and management of the Hairy Jointgrass *Arthraxon hispidus* (HJG), through the preparation of an Environmental Management Plan (EMP). It is considered that other conditions and aspects of the project approval adequately address retention and conservation of the HJG including the need to prepare an EMP as detailed in conditions A7 and B17.

Condition A7 relating to the preparation of the EMP states that it is to be prepared in consultation with Council and DECC for the management of the ecological buffer and associated open space; and provides a detailed list of matters to be addressed including management, access and promotion of HJG. The EMP must also be submitted to and approved by the Director of Coastal Assessments at the Department of Planning, therefore any shortfalls or other considerations can be adequately addressed at this stage.

***B19 Cycleway and Footpath***

The north-south oriented footpath shall be designed to minimise impact on ~~relocated to the western side of the drainage line and shall be located outside of the ecological polygon~~ for the Hairy Joint Grass identified in Figure 6 of the Review of Hairy Joint Grass (*Arthraxon hispidus*) prepared by Eco Logical and dated May 2007. The design may include elevated structures over the ecological polygon.

The ~~location of the~~ east-west oriented footpath shall be redesigned to ensure that it has the least possible impact on the ecological polygon for the Hairy Joint Grass identified in Figure 6 of the Review of Hairy Joint Grass (*Arthraxon hispidus*) prepared by Eco Logical and dated May 2007.

Design plans for both footpaths are to be submitted to Council prior to the issue of a Construction Certificate.

The application seeks to modify this condition as it is not possible to relocate the pedestrian cycleway without clearing areas of the replanted and revegetated littoral rainforest located on the western boundary. It is considered the impacts of vegetation removal outweigh that of temporary construction works for the pedestrian cycleway and design measures to mitigate impacts on HJG. A modified landscape plan has been prepared by HASSELL outlining the elevated steel mesh boardwalk through this area (see Appendix 3). Design principles include the pedestrian / cycleway needs to be transparent or perforated where it impacts upon the HJG to enable natural light to penetrate to the grass below.

There are many examples of this form of pedestrian cycleway in sensitive coastal and alpine locations including the steel walkway from Thredbo to Rawsons Pass in the Kosciuszko National Park; and numerous examples of elevated coastal walkways including North Sapphire Beach development at Coffs Harbour and the Coogee to Maroubra coastal walkway, both through coastal wetlands.

### **B21 Sewer Connection**

Sewerage services shall be provided to the development in accordance with the 'Coastal Grove, Lennox Head Infrastructure Strategy' report, prepared by Patterson Britton and Partners dated September 2006; as amended by the 'Draft Statement of Commitments' (Schedule 3). The 'Sewer Layout' contained within the Infrastructure Strategy shall be updated for the approved subdivision layout. ~~The sewer main from the development to SP3107 shall be located outside the ecological polygon identified for the Hairy Joint Grass in Review of Hairy Joint Grass (*Arthraxon hispidus*) prepared by Eco-Logical and dated May 2007.~~

Design plans are to be in accordance with Councils Subdivision Code (as current at the time of construction works commencing) and are to be approved by Council prior to issue of the Construction Certificate.

This condition requires amendment as it is not feasible to relocate the sewer connection outside the ecological polygon as this would involve the provision of a number of on site pumping stations and the removal of the revegetated littoral rainforest along the western boundary. The sewer connection needs to be gravity fed to the upgraded pumping station SP3107 at Seamist Place. As part of the project approval, the existing sewer pumping station SP3108 located on site will be decommissioned (See Appendix 2 for Conceptual Sewer Plan by Ardill Payne and Partners).

A discussion on the impact of the proposed sewer on the threatened species Hairy Jointgrass *Arthraxon hispidus* has been prepared by Eco-Logical Australia at Appendix 1 and is also outlined in Section 3. Short term construction works will occur during the winter season to reduce the impact. The works are temporary and a small area will be affected. A sewer trench, some 1m wide, will be laid and needs to traverse the ecological polygon area. The sewer trench follows the shortest route possible and is mostly located in the areas of low density HJG. A range of management measures are proposed to minimise impacts during the construction period including undertaking works during the off season and carrying out rehabilitation works to this area once the sewer is implemented. The location of the pedestrian cycleway has also been modified to follow the alignment of the sewer to further minimise impact.

### 3 Assessment of Modification

#### 3.1 Section 75W Modification of Minister's approval

Under Section 75W of the EP&A Act, a proponent may request the Minister to modify the approval for a project. Modification of an approval means changing the terms of a Minister's approval, including:

- (a) revoking or varying a condition of the approval or imposing an additional condition of the approval, and
- (b) changing the terms of any determination made by the Minister under Division 3 in connection with the approval.

The Director-General may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.

With respect to above, proposed amendments were discussed with the Department of Planning (email and telephone conversation on 30 April 2009) that the documentation for a modification to the approval would need to address the following:

- In terms of the Planning Agreement, that other conditions of consent adequately addressed the matters required, notably conditions A7 and B17.
- In terms of Conditions B19 and B21, feasible alternatives, design details and impacts on the threatened species *Arthraxon hispidus* including management measures would be addressed.

#### 3.2 Section 75W (3) Assessment Requirements

This section assesses the modification against the following matters:

- (a) *environmental impacts including impacts on threatened species and proposed amelioration measures; and*
- (b) *consideration of alternatives and design measures.*

##### ***Environmental Impacts***

There will be acceptable environmental impacts associated with the proposed modifications to enable the raised pedestrian cycleway through the ecological polygon and the construction of a sewer line. Deletion of the requirement to prepare a Planning Agreement to protect the HJG is also adequately addressed in other conditions of the Project Approval (see conditions A7 and B17).

In terms of the pedestrian cycleway, it will be elevated through the HJG ecological polygon and a range of design measures are outlined to minimise impacts. These include providing perforations to the walkway where it crosses the HJG to enable sunlight to penetrate the grass below. Appendix 3 provides a revised landscape plan of the pedestrian / cycleway where it crosses the ecological polygon. The pedestrian cycleway will also be designed in accordance with the Department of Natural Resources Guidelines for the Design and Construction of Paths Along Watercourses and Riparian Areas.

In terms of the sewer, it is necessary that the new line is gravity feed to the upgraded pumping station SP 3107 at Seamist Place. If the sewer was located on the western boundary, this would require the installation of further pumping stations on site and removal of the replanted rainforest on the western boundary. Providing additional pumping stations is not considered best practice and is generally not

accepted by local councils as it involves additional maintenance measures. The removal of the vegetation is also undesirable to lay a small sewer trench (see Appendix 2 for Conceptual Sewer Layout).

It should be noted that construction works to lay the sewer are very short term and temporary. Mitigation measures during the construction of both the sewer and pedestrian cycleway are outlined in the report by Eco-Logical at Appendix 1 and include:

- The sewer and cycleway/footpath are to follow the same route through the HJG polygon.
- All sewer and footpath/cycleway construction works are to be undertaken during winter. This will minimise impact upon HJG, as mature plants die back over the winter months, and HJG seedlings do not emerge until spring.
- Soil from construction works are to be retained, kept as weed-free as possible during works, and re-used within the construction site, as the soil is likely to contain HJG seed.
- Notwithstanding that HJG plants die back in winter, if HJG plants are located in areas to be trenched or otherwise disturbed for footpath construction, the plants are to be collected, potted and held for subsequent replanting into the site once works are completed.
- Weed species are to be controlled by mechanical means (ie hand-pulling) where they are observed colonising areas disturbed by sewer and/or footpath construction works.
- The elevated walkway/cycleway is to be high enough to enable management of HJG by seasonal slashing, as contained in the required site EMP, to be continued under the elevated walkway/cycleway. Any specific procedures for managing HJG under the elevated walkway are to be included in the EMP.

It is therefore considered that the proposal will not result in any other environmental impacts over and above the existing approved residential subdivision and associated landscape and infrastructure works.

### *Consideration of Alternatives*

#### *Pedestrian Cycleway*

The north south pedestrian cycleway connects the Survey Street development to Seamist Place in the south. This is a desirable link that promotes connectivity through the site from neighbouring residences to the south, particularly to the new open space corridor and children's playground located on site. The pedestrian cycleway also connects with Blue Seas Parade in the north, providing access to the Lennox Head Town Centre less than 1 kilometre away.

The alternatives are as follows:

- Maintain the cycleway in its current location as illustrated on the modified Landscape Plan Revision E at Appendix 3 and provide an elevated boardwalk across the ecological corridor at the southern end of the site. The pedestrian cycleway has been re-aligned to follow the sewer, follows the shortest route possible and traverses an area of mostly low density HJG.
- Relocate the pedestrian cycleway to the western boundary which involves the removal of replanted littoral rainforest. The landowners planted this western vegetated corridor in the mid 1990s and this rainforest is now established. It provides screen planting to the neighbours on the western boundary.
- Delete the north south pedestrian cycleway in its entirety and provide no direct pedestrian cycle link to Seamist Place.

It is considered that maintaining the pedestrian cycleway in its current location, with a sympathetic design in the area through the HJG, is the most desirable outcome from a planning perspective with minimal environmental impact. The pathway would be elevated through the grass area and perforated to provide sun and light to the grass and vegetation below. It is considered there are a number of examples of elevated boardwalks in coastal and alpine areas that provide access and interpretation of



nature in a sensitive and considered way. Examples include the elevated walkway through coastal wetlands at North Sapphire Beach Development at Coffs Harbour and the Coogee to Maroubra coastal walk in Sydney; and the steel walkway from Thredbo to Rawsons Pass in the Kosciuszko National Park.

#### *Sewer*

Ballina Shire Council has a sewerage strategy for the region which covers the Coastal Grove development. Works approved as part of the project application include:

- Decommissioning of SP3108 located on site and transfer existing flows to SP3107 located on Seamist Place.
- Upgrade of the existing pumping station SP3107 which needs to cater for flows from the Coastal Grove development and redirected flows from the old SP3108 catchment.

In addition, SP3106 located in Amber Drive which services a large catchment, to which SP3107 pumps, is to be decommissioned and its catchment flows will also drain to SP3107. Therefore, the pumping station upgrade has to cater for SP3106 catchment flows as well.

The sewerage strategy for the subject development therefore had to meet a range of requirements and involved substantial upgrades to existing infrastructure. The works are consistent with Councils infrastructure strategies and development servicing plans for the locality.

As previously discussed, alternatives for the sewer connection to Seamist Place include:

- Provide a gravity fed sewer connection to SP 3107 at Seamist Place as illustrated on the Sewer Layout at Appendix 2 prepared by Ardill Payne and Partners. The sewer alignment has been modified in consultation with the ecologist so that the drainage line and pedestrian walkway/cycleway are located in a single corridor at the narrowest possible point within the ecological polygon where the HJG is at its lowest density.
- Relocate the sewer to the western boundary which involves the removal of replanted littoral rainforest and the provision of additional on site pumping stations. The landowners planted this western vegetated corridor in the mid 1990s and this rainforest is now well established. It provides screen planting the neighbours on the western boundary.

It is considered that providing a sewer through part of the ecological polygon is the best option. The sewer alignment, together with the pedestrian walkway/cycleway, has been located in a single corridor at the narrowest possible point within the polygon where the HJG is at its lowest density. Amelioration measures are also proposed to reduce the impact including that the construction works will occur during the winter months, when the grass is dormant; and soil from the construction work will be retained and reused within the construction site. It should be noted that the works are very short term, and once the sewer line is in place, there will be no on-going impact on the HJG.

Relocating the sewer to the western boundary, outside the ecological polygon, is not considered feasible and will result in additional environmental impacts through the removal of littoral rainforest. Relocation of the sewer would require the installation of additional pumping stations as the sewer line cannot be gravity fed, to the upgraded sewer pumping station at Seamist Place.

It is therefore considered that the environmental impacts and alternatives for the location of the sewer and pedestrian cycleway have been considered in this modification. The environmental impacts of locating the sewer and raised pedestrian cycleway through the ecological polygon have been assessed and determined as satisfactory. Eco-Logical Australia has concluded that the impact on the population of HJG of the proposed re-alignment is not significant. Alternatives to these proposed options have been determined as not feasible or would result in greater environmental impacts, due to the removal of littoral rainforest and the installation of pumping stations on site.

## 4 Conclusion

The proposal to modify the project approval for the residential subdivision at 1 Survey Street Lennox Head has been assessed in accordance with the relevant requirements of Section 75W of the EP&A Act and in response to the requirements of the Department of Planning

It is considered that:

- the proposed modifications to the project approval will have minimal environmental impact;
- the proposed modifications are consistent with and do not alter the basis of the approved development.

In light of the above, it is recommended that the Minister for Planning or his delegate approve the proposed modifications to Project Application MP 06\_0002.

# Appendix 1

Flora Impact Statement by Eco-Logical Australia



13 May 2009

DM and RD Dossor  
c/- SAKE Development  
Suite 11, 340 Darling St  
BALMAIN NSW 2041

cc - sarah\_kelly@optusnet.com.au

Our ref: 09COFECO-0006

Dear Mr and Mrs Dossor,

**RE: S75W Application to Modify Approval # 06\_0002 - 'Coastal Grove' Survey Street Lennox Head  
Provision of Ecological Advice for re-alignment of sewer and footpaths**

As discussed with Ms Sarah Kelly of SAKE Development, Eco Logical Australia (ELA) has been engaged to provide expert ecological advice regarding the population of Hairy Joint Grass *Arthraxon hispidus* on the above property, and the location of sewer mains and a pedestrian/cycle pathway.

A letter report addressing the above requirements is attached.

Please do not hesitate to contact me on (02) 6651 5484 or 0437 390 398 if you have any queries.

Kind Regards,

A handwritten signature in purple ink, appearing to read 'S Williams'.

Simon Williams  
**Senior Consultant**  
**Environmental Planning and Assessment**

## BACKGROUND

Conditions B19 and B21 of Project Approval 06\_0002, granted by the Minister for Planning for a residential subdivision at 1 Survey Street Lennox Head, relate to the location of a north-south pedestrian/cycleway path, an east-west footpath and sewer services outside or through the 'ecological polygon' for the threatened species Hairy Jointgrass *Arthraxon hispidus* (HJG) population on the site, as detailed below:

### **B19 Cycleway and Footpath**

The north-south oriented footpath shall be relocated to the western side of the drainage line and shall be located outside of the ecological polygon for the Hairy Joint Grass identified in Figure 6 of the *Review of Hairy Joint Grass (Arthraxon hispidus)* prepared by Eco Logical and dated May 2007.

The location of the east-west oriented footpath shall be redesigned to ensure that it has the least possible impact on the ecological polygon for the Hairy Joint Grass identified in Figure 6 of the *Review of Hairy Joint Grass (Arthraxon hispidus)* prepared by Eco Logical and dated May 2007.

Design plans for both footpaths are to be submitted to Council prior to the issue of a Construction Certificate.

### **B21 Sewer Connection**

Sewerage services shall be provided to the development in accordance with the '*Coastal Grove, Lennox Head Infrastructure Strategy*' report, prepared by Patterson Britton and Partners dated September 2006; as amended by the '*Draft Statement of Commitments*' (Schedule 3). The 'Sewer Layout' contained within the Infrastructure Strategy shall be updated for the approved subdivision layout. The sewer main from the development to SP3107 shall be located outside the ecological polygon identified for the Hairy Joint Grass in *Review of Hairy Joint Grass (Arthraxon hispidus)* prepared by Eco Logical and dated May 2007.

Design plans are to be in accordance with Councils *Subdivision Code* (as current at the time of construction works commencing) and are to be approved by Council prior to issue of the Construction Certificate.

The above conditions require that the north-south pedestrian/cycleway be relocated to the western boundary outside of the HJG polygon, and that the sewer main shall also be located outside of the HJG polygon. These requirements are not feasible as it would result in:

- the removal of planted and restored areas of littoral rainforest on the western boundary of the site; and
- the sewerage service would not be able to be gravity fed to the nearest rising main and pump station in Seamist Place to the south of the site.

Accordingly, Eco Logical Australia (ELA) has been engaged to provide expert ecological advice regarding the potential impact upon the local population of HJG of a proposed re-alignment of the pedestrian/cycleway, footpath and sewer mains through part of the HJG ecological polygon.

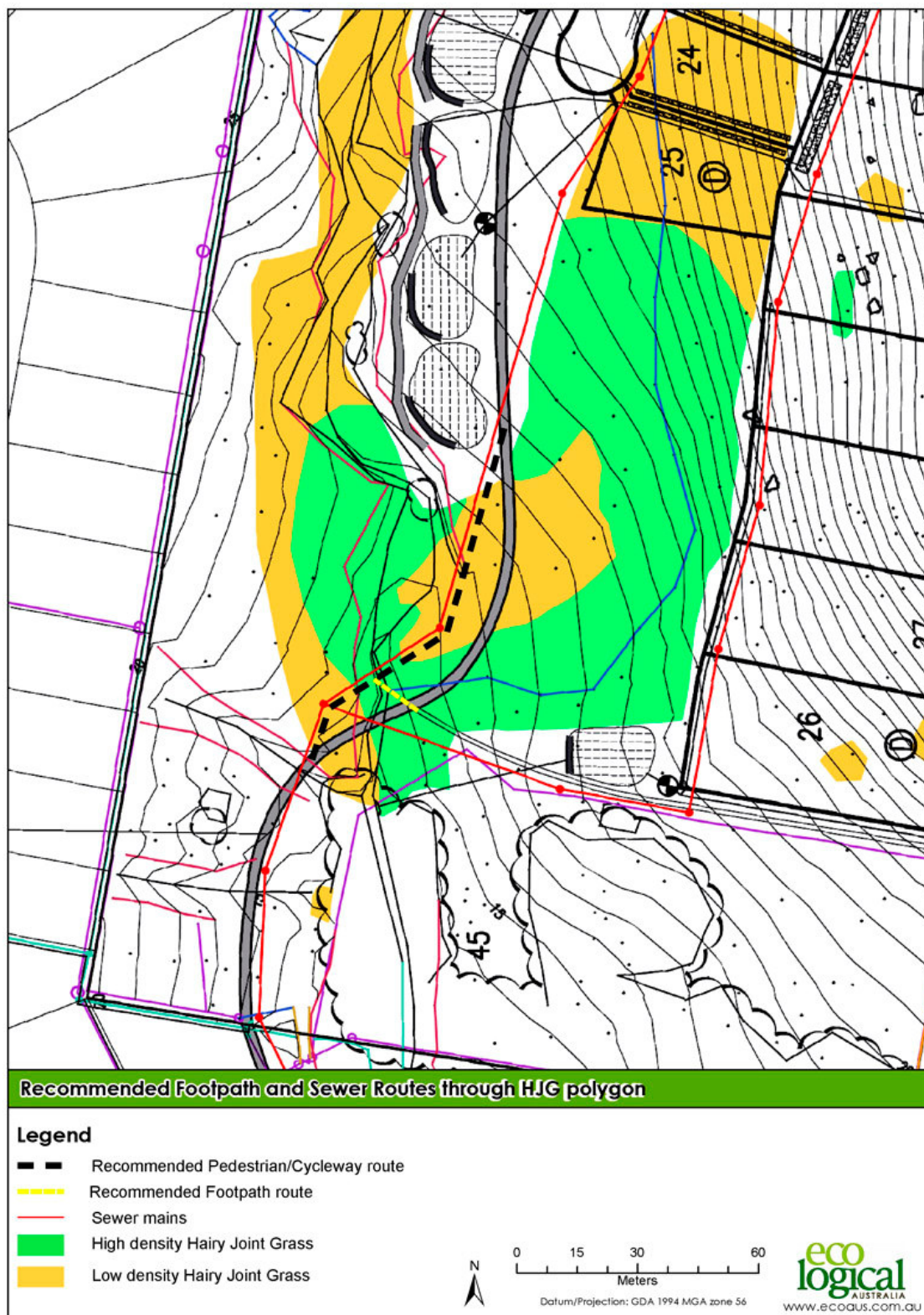
## REVIEW OF ALTERNATIVE ROUTES

Examination of the approved layout in relation to the mapping of HJG provided in Eco Logical (2007) reveals that parts of the HJG population are mapped as being of low density in relation to other parts which are mapped as being of high density.

In order to have the least possible impact upon HJG, an alternative, single route for both the sewer and footpaths through the HJG ecological polygon was sought which mainly impacted upon the low density patches of HJG whilst retaining the necessary gravity feed for the sewer, and which took the shortest possible route through the HJG polygon.

## RECOMMENDED ROUTES

The recommended routes for the cycleway/footpath and sewer are shown in **Figure 1** below.



**Figure 1: Recommended cycleway/footpath and sewer route through HJG polygon.**

Note that the recommended route passes through a high density patch of HJG in the main drainage line. This is unavoidable due to the gravity-related constraints of the sewer main. However, the construction of an elevated, light-porous structure across this area is considered to be the best method of retaining HJG habitat, as ambient light levels and the current site hydrology would not be affected by the paths. In order to enable management of the HJG through seasonal slashing and weed control (as required in the site EMP), the elevated walkway/cycleway would need to be high enough to allow access to the entire ground area covered by the walkway.

### AMELIORATION MEASURES

In order to minimise impacts upon the HJG population during construction of the sewer trenching and footpaths, the following measures are recommended:

1. The sewer and cycleway/footpath shall follow the same route through the HJG polygon.
2. All sewer and footpath/cycleway construction works to be undertaken during winter. This will minimise impact upon HJG, as mature plants die back over the winter months, and HJG seedlings do not emerge until spring (Ecos Environmental 2004). The winter months are also the driest months of the year, therefore reducing the risk of heavy rain disrupting works, creating soil erosion issues and potentially depositing weed seeds into disturbed areas.
3. Soil from construction works will be retained, kept as weed-free as possible during works, and re-used within the construction site, as the soil is likely to contain HJG seed.
4. Notwithstanding that HJG plants die back in winter, if HJG plants are located in areas to be trenched or otherwise disturbed for footpath construction, the plants are to be collected, potted and held for subsequent replanting into the site once works are completed.
5. Weed species should be controlled by mechanical means (ie hand-pulling) where they are observed colonising areas disturbed by sewer and/or footpath construction works.
6. An elevated walkway/cycleway to be constructed over the high density area of HJG in the main drainage line. The elevated platform shall be sufficiently high enough, and perforated, to enable enough light to penetrate to the ground beneath it to ensure persistence of HJG.
7. The elevated walkway/cycleway is to be high enough to enable management of HJG by seasonal slashing, as contained in the required site EMP, to be continued under the elevated walkway/cycleway. Any specific procedures for managing HJG under the elevated walkway are to be included in the EMP.

### ASSESSMENT OF IMPACT UPON HAIRY JOINTGRASS OF RECOMMENDED ROUTES

It is considered that the recommended option for re-alignment of the sewer and footpaths through the HJG polygon is preferable to impacting upon areas of restored or replanted littoral rainforest on the subject site.

The impact upon the population of HJG of the proposed re-alignment is not considered to be significant. Notwithstanding this conclusion, implementation of the above recommended ameliorative measures would further protect the integrity of the HJG population through active control of weed invasion, inclusion of management protocols for areas under the raised walkway/cycleway into the EMP, replanting disturbed sites after construction and retention of local hydrology.

### REFERENCES

Eco Logical Australia. 2007. Review of Hairy Jointgrass *Arthraxon hispidus* distribution and conservation status at Survey St. Lennox Head. Report 161-001. 17pp.

Ecos Environmental. 2004. Population Management Plan for the Threatened Grass *Arthraxon hispidus* at Koala Beach Estate, Tweed Shire. Report prepared by Andrew Benwell on behalf of Ray Group Pty Ltd. 35 pp.

## Appendix 2

Sewer Layout by Ardill Payne and Partners





LEGEND

- PEDESTRIAN / CYCLEWAY ROUTE
- FOOTPATH ROUTE
- SEWER MAINS
- HIGH DENSITY HAIRY JOINT GRASS
- LOW DENSITY HAIRY JOINT GRASS

Project:

COASTAL GROVE DEVELOPMENT  
1 Survey Street, Lennox Head

Do not scale drawing. Use written dimensions only  
This plan is copyright c All rights reserved.

Client:

D.M & R.D DOSSOR

Title:

Conceptual Sewer Layout

**ARDILL PAYNE & PARTNERS**

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Website: www.ardillpayne.com.au

Design TJC

Scale at A3 1:2000

Drawn TJC

Datum AHD

Date May 09

Filename BASE-APP-110509

Checked

Approved

Job No.

6919

Dwg No.

SK.1

Issue

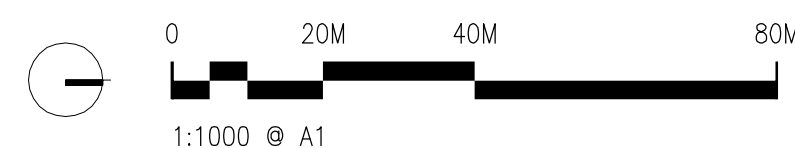
## Appendix 3

Revised Landscape Plan by HASSELL





LEGEND	
	SITE BOUNDARY
	REMNANT VEGETATION TO REMAIN
	EXISTING REVEGETATION PLANTING TO REMAIN
	EXISTING VEGETATION TO BE REMOVED
	TOP OF CREEK BANK
	20M TOP OF BANK OFFSET
	PROPOSED VERGE FOOTPATH (1.2M)
	PROPOSED PEDESTRIAN FOOTPATH (FINAL DESIGN/LOCATION TO BE DETERMINED IN CONSULTATION WITH COUNCIL)
	PROPOSED STEEL BOARDWALK
	PROPOSED RAINGARDEN
	PLAYGROUND AREA
	LOT BOUNDARY AND NUMBER
	INDICATES POTENTIAL DUPLEX DEVELOPMENT LOT
	AREA OF HAIRY JOINT GRASS TO BE PROTECTED (Extent Interpolated from 'Final Amended' Diagram in Ecological Assessment prepared by Eco Logical Australia)
	PLANTING: Refer to Plant Schedule for species
	PROPOSED STREET TREE AND VERGE TREE PLANTING
	PROPOSED SHRUB PLANTING ALONG ROAD NO. 1 VERGE
	PROPOSED DENSE TREES AND SHRUBS
	PROPOSED OPEN TREES AND GRASSES
	PROPOSED RIPARIAN EDGE PLANTING INCORPORATED INTO OPEN SPACE DESIGN (SEE NOTE 2)
	PROPOSED PLANTED BIO-RETENTION SWALES
	PROPOSED GRASS AREA Note 1: Location of Fontainea oraria is approximate based on information provided by Council that 'A Council Survey confirmed the coastal fontainea is growing approximately 7.3m from the boundary of the Council Reserve and Lot 2'.
Note 2: Riparian edge planting to be undertaken in accordance with a management plan and to protect the extent of the endangered Hairy Joint Grass.	



PSL 3394 / PA03 Landscape Plan (Rev E)

Scale 1:1000 @ A1 / 1:2000 @ A3

COASTAL GROVE DEVELOPMENTS

SAKE  
DEVELOPMENT

Lennox Head

coastal  
grove