

## Appendix E

---

Soil Surveys Stability Map (Drawing  
Number 29400419004A December  
1994

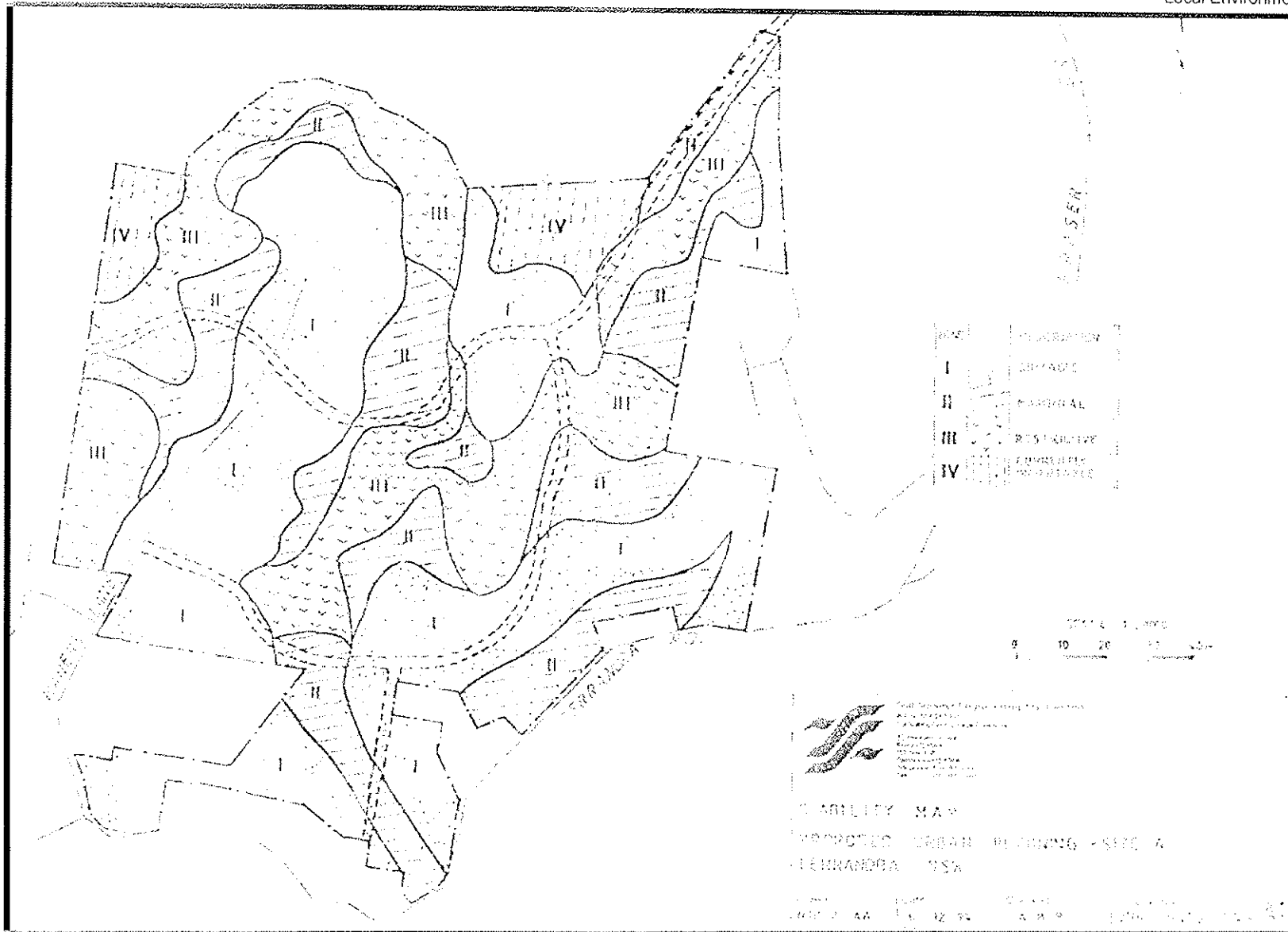


Figure E-1: Soil Surveys Stability Map (Drawing Number 29400419004A December 1994)

## **Appendix F**

---

### Pollution Reduction Efficiencies for Different Stormwater Best Management Practices



**Table C4.3: Pollutant Reduction Efficiencies for Different Stormwater Quality Best Management Practices**

Stormwater Quality Best Management Practice	Litter	Coarse Sediment	Fine Sediment (suspended solids)	Nutrients (N & P) <sup>1</sup>	Oxygen Demanding Substances	Hydrocarbons <sup>2</sup>	Pathogens	Heavy Metals <sup>3</sup>
<b>Source Controls</b>								
Street Sweeping	H-M	M	-	-	L (S)	-	-	L
Rubbish Bins	H-M	-	-	-	L (S)	-	-	-
Education <sup>4</sup>	L	L	L	L	L	L	L	L
<b>Primary Treatments</b>								
<b>Small Scale Devices</b>								
Litter Baskets	L-M	-	-	-	L	-	-	-
Grates and Entrance Screens	L	-	-	-	-	-	-	-
Side Entry Pit Traps	L-M	L	-	-	L	-	-	-
Baffle Pits	L	L-M	L	-	L	-	-	L
Catch Pits	L	L-M	L	-	L	-	-	L
Oil and Grit Separators	L	L-M	L	-	L	L-M	L	L
Nets	H	-	-	-	-	-	-	-
<b>Medium Scale Devices</b>								
Litter and Trash Racks	M	L	-	-	L	-	-	-
Downwardly inclined screens	H	-	-	-	-	-	-	-
Floating Litter Booms	L-M	-	-	-	-	-	-	-
In-ground GPTs	H-VH	H	L	L	L-M	L	-	L
In-line Separators	M	L-M	-	-	-	-	-	-
<b>Large Scale Devices</b>								
Open Gross Pollutant Traps	M-H	H	L	L	L	L	L	L
Sediment Traps	L	H	L	L	L	L	L	L
Hydraulically Operated Trash Racks	H	L-M	-	-	-	-	-	-
<b>Secondary Treatments</b>								
Filter Strips	M	H	M	L-M	L	L (S)	M (S)	L
Grass Swales	L-M	M-H	M	L-M	L	L	M (S)	M
Sand Filters	-	M-H	M-H	M	M	M	M	M
Infiltration Trench / Basin	-	M-H	M	M	M	M	M	M-H
Porous Pavements	-	H	M-H	M	M	M	H	M-H
Extended Detention Basins	-	M-H	L-M	L	L	L	M	L
<b>Tertiary Treatments</b>								
Water Quality Ponds (with pre-treatment)	M-VH	H	L-M	L-M	L	L	L	L-M
Constructed Wetlands (with pre-treatment)	M-VH	H	M	M	L	M	M (S)	H

**Legend:**

- = Negligible benefit. L = 10-30% Pollutant reduction efficiency. M = 30-50% Pollutant reduction efficiency. H = 50-75% Pollution reduction efficiency.  
 VH = 75-100% Pollution reduction efficiency. S = Secondary benefits. Shading = better performing SQBMPs for the target pollutant.

See next page for accompanying notes...

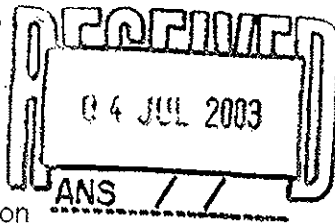
## **Appendix G**

---

### Discussions with Service Providers



16 June 2003



Mr Tim Carleton  
Planner  
Parsons Brinckerhoff Australia Pty Ltd  
GPO Box 2907  
BRISBANE QLD 4001

Dear Mr Carleton

**Electricity Easement: Tweed Area E**

Reference is made to your facsimile to Country Energy's Mr Graham Hellyer regarding the above.

I can confirm Country Energy still has a requirement for an electricity transmission corridor through the Area E site. An easement has been registered for this corridor and details are attached.

As indicated in the correspondence from Northern Rivers Electricity dated 19 April 1994, the transmission line will operate at a nominal voltage of 66,000 volts. The minimum recommended operational clearance for an overhead line are shown on the attached copy of Country Energy's policy.

It should be noted that the potential for reducing these clearances exists should the developer(s) fund an underground proposal.

Any proposal to alter the existing route would have to be negotiated with Country Energy.

Yours sincerely

A handwritten signature in black ink, appearing to read "Col Ussher".

**Col Ussher**  
**Regional General Manager**  
**Far North Coast**

02 66439153 *Wanna Jackson*

[www.countryenergy.com.au](http://www.countryenergy.com.au)  
ABN 37 428 185 226  
Col Ussher - Regional General Manager Far North Coast  
122 Queen Street GRAFTON NSW 2460 P O Box 270 GRAFTON NSW 2460  
Telephone 02 66439 480 Facsimile 02 66439 482 Mobile 0428 628 079  
66 86 1736

## **Appendix H**

---

### Detailed Land Budget Calculations

**Area E - Detailed Land Budget**

<b>CONSTRAINTS</b>	<b>Approximate Area (ha)</b>
<b>Individual Constraints</b> <i>Note the following represent areas of individual constraints only. The areas are provided for information purposes only and not represent the total constraints encumbering Area E as per 'Overall Constraints' below.</i>	
Dams	2.32
Riparian & Landscape Amenity Areas	54.62
Wetland Area (including buffer area)	57.53
Steep Slopes	13.92
Restrictive/ Unstable Slopes <i>(not an absolute constraint but will require alternative development approaches)</i>	53.99
Area burdened by Flood Level (2.65m AHD)	65.79
Proposed Road corridor	4.90
Power line corridor (average only from below) (Route A: 21.36ha; Route B: 21.75)	21.55
<b>TOTAL</b>	274.57
<i>(includes overlaps of constraint areas)</i>	
<b>Overall Constraint Area</b> <i>Note the following Figure represents the agglomeration of constraint areas, many of which spatially overlap within Area E. As a result the spatial area burdened by overall constraints is less than individual constraint items above. It also considers that only one of two proposed powerline corridors will be developed through Area E.</i>	
<b>TOTAL</b>	91.4
<hr/>	
<b>SITE AREA</b>	<b>Approximate Area (ha)</b>
Total Site Area	297.00
Minus Overall Constraint Area <i>CL37 of the Tweed LEP 2000 does not prevent development in Transmission Line Corridors (subject to Consent however). Hence, the area of the corridor has not been excluded from the Total Developable Area below)</i>	91.4
<b>TOTAL DEVELOPABLE AREA</b>	205.6



PROPOSED LAND USE	Approximate Area (ha)
Local Road Infrastructure (nominal 25%)	42.00
Residential	130.45
Open space	16.00
Local commercial centre	1.00
Educational Purposes (Lindisfarne + New Primary School) <i>Assumes that 3.95 ha of the 16.1 ha Lindisfarne School Site will not be developed for educational purposes due to the extent of proposed Zone 7 (d) covering the site. Primary school site is 3ha (proposed)</i>	15.15
Community Purposes/ Facilities	1.00
<b>TOTAL DEVELOPABLE AREA</b>	<b>205.6</b>

## RESIDENTIAL YIELD

*This scenario is based on development yields similar to surrounding residential areas. An average lot size of 800m<sup>2</sup> allows for a wide variation of lot sizes across the study area. Occupancy rates used are commonly accepted standards.*

Average lot size (800m<sup>2</sup> avg size lots = 130.45ha/ 0.08m<sup>2</sup> = 1,632 lots over 130.45ha)

### Medium Density Residential

5% of lots used for Medium Density Residential = 81 lots X 3 tenements = 243 dwelling units

= 243 dwelling units X 1.85 persons per dwelling occupancy rate

= 449 persons

### Detached Dwellings

95% of lots used for Detached Dwellings = 1150 lots X 2.5 persons per dwelling occupancy rate

= 3875 persons

**TOTAL PROPOSED POPULATION = 4324 persons**

## Appendix I

---

Draft amendment to Tweed Local  
Environmental Plan 2000

# Explanatory Notes

## Draft LEP Amendment No. 10

### Terranora Urban Release Area (Area E)

On 19 July 2000, Tweed Shire Council resolved to prepare a draft Local Environmental Plan (LEP) and Local Environmental Study (LES) under Section 54 of the Environmental Planning and Assessment Act 1979, for land at Terranora identified in Tweed Shire's Residential Development Strategy as Area E.

Area E is a parcel of land of approximately 297 hectares and is identified in the Tweed Residential Development Strategy 1991 as a logical extension for urban development in the Shire. The site is located adjacent to the rapidly growing locality of Banora Point and is land generally bounded by Mahers Lane, Terranora Road and Fraser Drive. Area E is comprised of fifty-seven allotments in seven agglomerated property holdings and thirty-three allotments in individual ownership. Under the Tweed LEP 2000, the site is zoned:

- 1(b1) Agricultural Protection (predominant zoning);
- 1(c) Rural living;
- 5(a) Special Uses (Lindisfarne Anglican Secondary School only); and
- 7(a) Environmental Protection (wetlands and littoral rainforests);

As part of the preparation of the draft Local Environmental Plan a Local Environmental Study has been prepared. The purpose of the Local Environmental Study is to assess the site for opportunities and constraints, both statutory and 'on-site', for release as urban development. The Local Environmental Study is an information document to support the draft Local Environmental Plan and has been prepared in accordance with the Environmental Planning and Assessment Act 1979 and the requirements of Tweed Shire Council.

The draft amendment proposes to rezone much of the site to allow for urban development while protecting important environmental features and values through environmental protection zonings. These are summarised below.

<i>Provision</i>	<i>Approx Area (ha)</i>
Zone 2 (c) Urban Expansion	205.6
Zone 5 (a) Special Uses School	4.4
Zone 7(a) Environmental Protection (Wetlands and Littoral Rainforests)	74.6
Zone 7(d) Environmental Protection (Scenic/ Escarpment)	12.6
<b>TOTAL</b>	<b>297.2</b>
Utilities (being CL37 Electricity Transmission Line Corridors and CL38 Future Road Corridors) Note these areas are not separately zoned, but overlay zones indicated above	26.5

---

**draft**

---

## **Tweed Local Environmental Plan 2000 (Amendment No 10)**

under the

Environmental Planning and Assessment Act 1979

I, the Minister for Urban Affairs and Planning, make the following local environmental plan under the *Environmental Planning and Assessment Act 1979* (.....)

Minister for Urban Affairs and Planning

\_\_\_\_\_

---

---

**draft**

---

---

## Tweed Local Environmental Plan 2000 (Amendment No 10)

1. Name of plan

This plan is the *Tweed Local Environmental Plan 2000 (Amendment No 10.)*

2. Aims, objectives etc

This plan aims to:

- Zone certain land at Terranora Urban Release Area (Area E) 2(c) Urban Expansion, 7(d) Environmental Protection (Scenic/Escarpment), 7(a) Environmental Protection (Wetland and Littoral Rainforest), and 5(a) School, to reflect the land's capability, suitability and characteristics.
- Amend provisions of Tweed Local Environmental Plan 2000 as they relate to the subject land to reflect changes and standards for urban design and environmental impact;
- Provide for efficient and consolidated urban growth;
- Protect local environmental and landscape values of wetlands, remnant vegetation and Terranora Broadwater; and
- Protect urban development from environmental hazards.

3. Land to which plan applies

This plan applies to land known as Terranora Urban Release Area (Area E) as shown edged heavy black on the map marked Tweed Local Environmental Plan 2000 (Amendment No. 10) deposited in the office of Tweed Shire Council.

4. Amendment of Tweed Local Environmental Plan 2000

*Tweed Local Environmental Plan 2000* is amended by

- a) By inserting in appropriate order, in Part 2 of Schedule 6, the words: Tweed Local Environmental Plan 2000 (Amendment No. 10);
- b) *By inserting after clause 39(2) the following sub-clauses:-*
  - (3) *When preparing a development application for use of the land to which this plan applies, the applicant shall clearly demonstrate:-*
    - (i) the likely contaminants within the soil, surface water and groundwater as a result of previous land uses;
    - (ii) that an effective testing regime has been implemented to identify hotspots of contamination pursuant to current EPA guidelines including a consideration of the hydrogeology of the land;
    - (iii) that appropriate thresholds and criteria have been used in the assessment of potential contamination;
    - (iv) that the land does not pose a significant threat to human health or the environment;
    - (v) that if contamination has been identified that an appropriate remedial action plan can be developed to demonstrate how identified risks can be reduced to acceptable levels and that remediation is practical;
    - (vi) that an adequate monitoring program can be implemented.

---

---

draft

---

c) By inserting after clause 53 the following clause:-

**53A – Specific Provisions for Terranora Urban Release Area (Area E)**

(1) This clause applies to land known as Terranora Urban Release Area (Area E) as shown edged heavy black and coloured on the map marked "Tweed Local Environmental Plan 2000 (Amendment No.10)";

(2) Preliminary Planning

(a) Objectives

- To ensure a development control plan, developer contribution plan and master plan has been developed for the entire site to avoid ad hoc development and ensure equitable cost sharing in the provision of public amenities and services
- To ensure that issues relating to contaminated land are dealt with to a sufficient level to meet the requirements of State Environmental Planning Policy No 55—Remediation of Land

(b) Pursuant to the Environmental Planning and Assessment Amendment (Preliminary Planning) Regulation 2000, Council shall not consent to development on land to which this clause applies unless:

- (i) a development control plan has been approved for the land, and
- (ii) a contributions plan has been approved for the land, and
- (iii) the development application makes comprehensive proposals for development of the land or consent has already been granted to such a development application, and
- (iv) there is a master plan for the land, and the consent authority has taken the master plan into consideration, and
- (v) that the extent of any contaminated land is known to an extent necessary to allow the location of sensitive land uses at both the development control plan and master plan preparation stage.

(3) Wetlands Rehabilitation and Management

(a) Objective

- To restore and protect freshwater wetland values and minimise breeding habitat for salt water mosquitoes and biting midges;

(b) The Council shall not consent to development on land to which this Clause applies unless the applicant demonstrates to the satisfaction of Council that the development complies with a Wetlands Rehabilitation and Management Plan which has been prepared for wetlands within the area. Such a Wetlands Rehabilitation and Management Plan shall identify the way in which the wetland is to be restored and managed to restore freshwater wetland values and minimise breeding habitat for saltwater mosquitoes and biting midges. The plan will also include details of costs and works required to undertake this rehabilitation.

---

## draft

---

(4) Stormwater Management

(a) Objective

- Ensure that the management of urban stormwater is consistent with the 'Tweed Urban Stormwater Quality Management Plan' adopted by Council;

(b) The Council shall not consent to development on land to which this Clause applies, unless a Stormwater Management Plan has prepared by the applicant that demonstrates to the satisfaction of Council that the development generally complies with the "Tweed Urban Stormwater Quality Management Plan" adopted by Council.