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Coffs Harbour Highway Planning
Coffs Harbour Section

Geotechnical Desk Study and Field Mapping Report
Working Paper No 3

February 2004
Reference 1093.65.CH

Connell Wagner

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1. Introduction

As part of the Coffs Harbour Highway Planning Strategy Connell Wagner have been requested by the Roads and Traffic Authority, Pacific Highway Office to undertake a desk top geotechnical study for the upgrading of the Pacific Highway at Coffs Harbour. The section of highway of concern for this study runs from Englands Road, Sawtell through Coffs Harbour to just south of Sapphire (see Figures 1 and 2). The aim of this report is to provide geotechnical input in to the current planning strategy study.

Connell Wagner have been requested to examine the following two route options:

1. **Pacific Highway Upgrade Option** – this option follows the alignment of the existing highway.
2. **Inner Option** – this option bypasses the main residential area of Coffs Harbour to the west and follows the lower slopes of the Great Dividing Range.

The boundaries of the two corridor options are clearly shown on Figure 1 at the end of this report.

2. Method of Investigation

This investigation has been undertaken in two phases. Firstly a desktop study was undertaken to identify the main geotechnical constraints associated with the study area. This was then complimented by a field mapping exercise which aimed to 'ground proof' the information collected during the desktop study and to produce a geotechnical terrain map of the study area.

2.1 Desk Top Study

A desk study of available geotechnical information was compiled from the following sources:

- Review of existing geological and topographic data including topographic, geological and metallogenic study and mine data sheets and air photos.
- Discussions with the NSW Department of Environment and Conservation (DEC) and Coffs Harbour City Council regarding registration of contaminated sites and potentially contaminating activities within the study area.
- Discussions with the NSW Department of Infrastructure, Planning and Natural Resources (DIPNR) regarding soil landscape and acid sulphate soil risk mapping of the area.
- Search of the NSW Department of Mineral Resources database for extractive resource licences/permits and availability of construction materials.
- Consultation with local geotechnical consultant Holmes and Holmes Pty Ltd to provide local knowledge of the area.
- Contact with Coffs Harbour City Council to provide information on Council operated construction material resources and potentially contaminated public utilities locations such as landfill sites.
- Land use mapping sourced from NSW Agriculture as well as information regarding potential contaminants associated with landuse types.

2.2 Field Geological and Terrain Mapping

Field geological and terrain mapping was undertaken by a senior geotechnical engineer over a three day period from 12 to 14 June 2002. The work involved inspection of the study area and mapping of significant features such as the cuttings along the existing highway, other road cuttings, quarry faces, and natural outcrops. A total of 18 exposures were mapped and photographed. A ground proofing exercise was also undertaken with regard to topography, drainage features, floodplains and back-swamps etc.

3. Results of Desk Study

In addition to the desk study information presented in sections 3.1 to 3.7 below, a Coffs Harbour based geotechnical engineering consultant was engaged by Connell Wagner to provide a separate desk study report based on their local knowledge of the study area. The report by Holmes and Holmes Pty Ltd is presented in Appendix F. Due to the limited amount of large scale geotechnical works undertaken in the area the majority of their experience comes from residential and small scale developments. They have also undertaken a significant number of contamination assessment investigations throughout the study area, the locations of the contamination tests presented in their report are marked on Figure 8.

3.1 Topography and Landuse

Figures 1 and 2 show the topography and relief of the study area. As an initial attempt to split the study area up into different terrain units it would appear from the desk study of the topographic maps and air photos that the area can roughly be divided into two topographic zones by the 50m contour as shown on Figure 1. For this study the area above the 50m contour has been referred to as the Hillside area and the area below the 50m contour is referred to as the Lowland area. It is noted that the geology (refer to Section 3.3 below), also divides the study area into two similar areas however the geology more closely follows the 10m contour.

Hillside areas

The topography of the hillside areas is characterised by steep slopes and ridges which rise up to approximately 150-250m AHD. Major ridge lines project from the Great Dividing Range such as the obvious ridge to the south of Coramba that ends as Roberts Hill. Numerous drainage channels, that typically flow east to the lowland area, incise the hillside area.

Lowland areas

The topography of the Lowland areas is characterised by low undulating residual hills with gentle gradients and alluvial floodplains including backswamps and dunes. Coffs Creek and Newports Creek are the main creeks that cross the area from the upland area in the west to the sea.

The attached Figure 4 shows the Current Best Land Usage (1979), this information has been sourced from NSW Agriculture, Wollongbar Agricultural Institute. The landuse classes indicated on the legend for Figure 4 refer to the following:

B1 First class banana land
B2 Second class banana land
B3 Third class banana land
B4 Fourth class banana land

V1 First class vegetable & citrus land
V2 Second class vegetable & citrus land
V3 Third class vegetable & citrus land

The majority of the land available for agriculture is rated as second class vegetable and citrus land with isolated areas of second and third class banana cultivating land. The majority of the remainder of the study area to the west and north of the agricultural land is currently part of the Orara East State forest.

3.2 Regional Geology

The NSW Department of Mineral Resources, Undated, 1 : 100,000, Geological Series Sheet SH 56 – 11 of Coffs Harbour and the NSW Department of Mineral Resources, 1992, 1 : 250,000, Metallogenic Study and Mineral Deposit Data Sheets SH 56/-10 & SH/56 –11 of Dorrigo – Coffs Harbour indicates the Coffs Harbour –Dorrigo area is subdivided into three main metamorphic rock units of Late

Carboniferous age (the 1:100,000 geological sheet has been used to compile the Geology of the study area shown on Figure 3). From north to south this includes the Coramba Beds, Brooklana Formation, and the Moonbil Siltstone.

The regional metamorphic grade increases from north to south. The rock types vary from lower grade feldspathic wackes in the north to higher grade argillites and black siltstones in the south. The Coramba Beds overly the Brooklana Formation and both are strongly folded and faulted.

The study area is shown on the Coffs Harbour 1:100,000 geological sheet to lie within three geological units. The primary units are the Coramba and Brooklana Beds.

The Coramba Beds comprise metamorphosed sedimentary rocks including lithic and feldspathic sandstone, minor siltstone, siliceous siltstone, mudstone, metabasalt, chert, jasper, rare calcareous siltstone and felsic volcanic rocks. The Coramba Beds are further subdivided into the quartz poor to quartz intermediate volcanic feldsathic sandstone that is found dominantly from Sapphire to the Great Northern Railway line and a zone of quartz-poor to quartz intermediate volcanic feldsathic sandstone underlying much of Coffs Harbour Central Business District (CBD). To the south and west of the Coffs Harbour CBD the area is underlain by the Brooklana Beds, which are undifferentiated

The Brooklana Beds comprise thin bedded siliceous mudstone and siltstone with rare lithic sandstone, locally chert, jasper, magnetite bearing chert and metabasalt.

The third unit consists mostly of alluvial and estuarine deposits, termed Quaternary Alluvium, that have been further defined as 'outwash alluvium and stream alluvium' and 'sand swamps and sand plains'. The quaternary alluvial deposits extend up to 4km to the west of the coastline along the existing Coffs and Newport Creek drainage paths, but are most widespread to the east of the study area associated with swamps and back-barrier beach zones.

The geology of the study area is shown on Figure 3. The lithology noted for the Brooklana Beds, Coramba beds and Quaternary deposits (Q) on the geological map are described below:

- Qad Frontal dunes
- Qas Sand, swamps and sand plains
- Qal Outwash alluvium and stream alluvium.
- Clhb Brooklana Beds (Undifferentiated)
- Chlc Coramba Beds (Undifferentiated)
- Clhca Quartz poor volcanic lithic sandstone
- Clhcb Quartz poor to quartz intermediate volcanic feldsathic sandstone
- Clhcc Hornblende bearing quartz poor to quartz intermediate volcanic sandstone

The Coffs Harbour block has also been intruded by several igneous plutons including the small Emerald Beach Ademellite located at Diggers Point and Look-At-Me-Now Headland. It is composed of medium-grained biotite monzogranite of Middle Triassic age, and features a contact aureole of biotite hornfels where it intersects the Coramba Beds.

3.3 Soil Landscapes

The Coffs Harbour 1:100,000 Soil Landscape Series Sheet 9537 has been used to obtain soil data information on the study area. A detailed summary of the soil profiles associated with each landscape grouping is incorporated in Appendix A. Table 3.3.1 presents a summary of the soil limitations for each soil material and Table 3.3.2 summarises the Landscape limitations for each soil landscape from within the study area. Both tables have been extracted directly from the Soils Landscape Report by Milford H

B (1999) which accompanies the Coffs Harbour 1:100,000 Soil Landscape Series Sheet 9537. The location and distribution of the soil profiles is shown in Figure 5.

Suicide (su)

Suicide is associated with steep hills from 33% to 56% and dissected valleys on late carboniferous metasediments. The soil is of a colluvial origin and is generally in excess of 1.0m thick. The main concern with this soil formation is stability of the steep colluvial slopes. Low wet strength, the steepness of the slopes and the potential for instability are of a concern for any proposed foundations (eg embankments) and cuttings. Suicide is typically only moderately erodible.

Megan (me)

Megan is probably as wide spread across the study area as the suicide formation. Megan is typically found on rolling hills to hills on late carboniferous metasediments. Slopes are typically 5-20% and occasionally up to 33%. The soils are typically of hillwash or residual origin comprising silty clays and major slope stability problems are rare except on locally steep slopes. The soils are generally in excess of 1.0m thick, posses low wet strengths and is high to very highly erodible.

Ulong (ul)

Ulong is similar in nature and is associated with similar land forms as Megan. If anything Ulong is found on slightly flatter relief than Megan ie undulating to rolling hills as opposed to rolling hills. As with Megan the soil is characterised by low wet strength silty clays generally greater than 1.0m thick, however Ulong is only moderately erodible.

Moonee (mo)

Moonee is not very widespread across the study area and is associated with footslopes and drainage plains. Slopes with Moonee soils are typically only 3% to 5% and below 20m elevation. The main concerns with this soil are permanently high water tables and seasonal waterlogging. Moonee is highly erodible and most likely compressible, it is likely to cause settlement problems for fill embankments and culvert structures founded on the soil.

Coffs Creek (cc) and Dairyville (da)

These soils are found along the creek alignments and are associated with the creek floodplains. Dairyville is only found on the upper reaches of the creek and is unlikely to influence the project. Coffs Creek is found on the mid to lower reaches of the Coffs and Newport Creeks and will influence fill embankments and culverts associated with creek crossings. Coffs Creek is typified by deep (greater than 1.5m deep) poorly drained, alluvial gravels, sands, silts and clays. The areas are often waterlogged and have permanently high water tables.

Newports Creek (np)

This soil landscape is concentrated on the low lying level floodplain areas adjacent to the existing Pacific Highway. The soil is characterised by up to 1.0m of clayey silty alluvium overlying grey estuarine clays. The Newport Creek soil is extremely erodible, highly compressible and possesses low subgrade CBR's. Fairly extensive subgrade treatment and quantities of unsuitable material should be expected along sections of the alignment underlain by this soil landscape.

Table 3.3.1: Soil Limitations for each Soil Material

	Physical Limitations					Erosion			Permeability			Toxicities				Fertility	
	High plasticity	low wet strength	Shrink-swell	Organic matter	Stoniness	Sodicity/dispersibility	Erodibility	Hardsetting surface	High permeability	Low permeability	Acid sulphate soil	Acidity	Alkalinity	Salinity	Aluminium toxicity	Low fertility	Low available water cap.
Coffs Creek																	
cc1			◆		◆				❒								
cc2			◆		◆				❒								
cc3			◆		◆					◆							
cc4			◆							◆		❒		❒	◆		
cc5			◆							◆							
cc6										◆		◆		◆	◆		
cc7			◆							◆		◆		◆	◆		
cc8			◆									❒		❒	◆		
Dairyville																	
da1		◆		◆			◆					◆			◆		
da2		◆		◆			◆					◆					
da3		◆		❒													
da4		◆					◆					◆			◆	◆	
da5		◆					◆					◆			◆	◆	
da6		◆										◆			◆	◆	
Megan																	
me1		◆		◆		❒						◆					
me2		◆		❒		❒	◆	❒				◆			◆	◆	
me3						❒	◆			◆					◆	◆	
me4		◆				❒	◆			◆		◆			◆	◆	
me5	◆	◆				❒	◆			◆		◆			◆	◆	
Moonee																	
mo1		◆					◆			◆		◆			◆	◆	
mo2		◆					◆			◆		◆			◆	◆	
mo3		◆				◆				◆		◆				◆	
Newports																	
np1		◆		◆								◆					
np2		◆				◆	◆			◆		◆			◆	◆	
np3		◆					◆			◆		◆			◆	◆	
np4		◆					◆			◆		◆			◆	◆	
np5		◆				◆	◆	❒		◆		◆		◆	◆	◆	
Suicide																	
su1		◆		◆					◆								
su2		◆		◆					◆							◆	
su3		◆								◆		◆				◆	
su4		◆								◆		◆				◆	
Ulong																	
ul1		◆		◆					◆								
ul2		◆										◆				◆	
ul3		◆								◆		◆		❒		◆	
ul4		◆										◆		◆		◆	
ul5		◆		◆								◆		◆			
ul6		◆					◆	◆		❒		◆		❒			

Key	◆	Widespread Occurrence
	❒	Localised Occurrence

Table 3.3.2: Landscape Limitations for Each Soil Landscape

	Slope Stability			Drainage					Erosion				Soil		
	Steep Slopes	Mass Movement Hazards	Rockfall Hazard	Flood Hazard	Waterlogging	Permanently high water tables	Seasonal Waterlogging	High run-on	Water erosion Hazard	Wind erosion Hazard	Wave erosion Hazard	Shallow Soils	Non-cohesive soils	Foundation Hazard	Rock outcrop
Coffs Creek			◆			◆	◆							❒	
Dairyville				❒	❒		❒	❒	◆					❒	
Megan	❒	❒							❒					❒	
Moonee						❒	◆		❒					◆	
Newports Creek				◆			◆		❒					◆	
Suicide	◆	◆						◆	◆					◆	
Ulong	❒							❒	❒					◆	
Key	◆	Widespread Occurrence													
	❒	Localised Occurrence													

3.4 Acid Sulphate Soils

DIPNR was contacted to obtain the latest editions of the relevant Acid Sulphate Soils Risk Maps for the study area. The Coffs Harbour (Ref 9537N3 rev 2) map was used to compile an acid sulphate soils map for the study area, which is presented in Figure 6.

The acid sulphate soil risk map indicates that low risk and minor areas of high risk can be found within the study area. The acid sulphate soils are typically associated with soils below 5m AHD and hence are restricted to the low lying coastal areas.

In the study area acid sulphate soils are concentrated along the existing Pacific Highway Option. In general the soils are classified as low risk acid sulphate soil potential with the exception of minor areas north of Korora and adjacent to the Great Northern Railway line which are noted as high risk.

3.5 Groundwater Bores

DIPNR was contacted with regard to their database of existing water bores located within the study area. This data was utilised to produce the location plan for the water bores, Figure 7 (note not all supplied bores were within the study area, some fall outside the plan area and are not marked). A full set of the groundwater bore information received from DIPNR is contained in Appendix B; a summary table of the data is contained at the beginning of Appendix B.

The DIPNR data base shows that groundwater yields from bores in the Coffs Harbour area are generally less than 1.0 litre per second (l/s) and the majority of the water bearing zones are within the fractured bedrock. The exception to this are the bores within the alluvial deposits to the east of the existing highway alignment where shallow bores in sands and gravels produce yields as high at 22.0l/s. It should be noted that the accuracy of the geological descriptions (provided by the water bore drillers) is questionable at times, particularly with reference to the records of Basalt that are more likely to be siliceous argillite. However the depth of the soil rock interface is more likely to have been recorded accurately and hence this is considered to give a reasonable indication of the expected soil cover within the study area.

DIPNR also supplied a copy of the Coffs Harbour Local Government Area (CHLGA) Groundwater Status Report and Map Notes which is included in Appendix C. Deep cuttings along the Inner Option alignment may affect the local groundwater regime by causing a local draw down affect. The Groundwater Status Report makes the following important comments that should be considered at cutting locations due to the potential risk of adversely affecting existing bores due to draw down of the water table caused by excavating the cutting close to existing groundwater bores:

'In the CHLGA, groundwater occurs in all the rock formations to varying degrees with the greatest supplies being encountered in the more highly fractured and structurally deformed Carboniferous rocks. Generally the deeper a bore is drilled the more water bearing zones are intersected, thus slight increase in yields are likely to be obtained by deeper bores. At present, most groundwater pumpage in the fractured rocks and alluvium is from shallow aquifer zones less than 30m from the surface.'

'The metamorphic rocks of Coffs Harbour Block are typically thought to have a low porosity as they are principally composed of fine grained sedimentary material that have undergone low grade metamorphism forming interlocking crystals. The tectonic stresses exerted on the CHLGA during structural deformation have caused folding and faulting increasing the porosity of the rocks. Physical and chemical weathering can also increase the rock porosity and the weathering is often more intense along the fracture surface where a plane of weakness exists. It can therefore be difficult to definitively class the groundwater potential of these rocks as the recorded bore yields can change considerably over short distances.'

3.6 Mineral Resources and Construction Materials

The NSW Department of Mineral Resources were contacted with regard to performing a search of their databases for existing mineral exploration licenses, mining leases, quarries and borehole information that may be located within the study area.

The results of the search revealed two current mining titles in the area surrounding the main study area. The location of the mining claims are shown on Figure 7. The two mining claims are adjoining mining claims, with the current title identifications MC-242-1992 and MC-243-1992. They are located close to the existing highway alignment just north of Korora. The titles cover the exploration and mining of the minerals: antimony, arsenic, barytes, bismuth, cadmium, chromite and cobalt, over approximately 6.25 hectares. The NSW Department of Mineral Resources did not indicate any proposed or pending leases within either route corridor.

The results of the search for locally operating pits and quarries in and around the study area are detailed in Table 3.6.1. The locations of the pits and quarries with respect to the study area are presented in Figure 7. No laboratory test information could be sourced for materials from the currently operating quarries in the Coffs Harbour area, however laboratory test results have been sourced for materials produced by Woolgoolga Quarry. The lab results show that the argillite material generally conforms to the RTA specification for DGB 40 and discussions with the testing lab indicate that DGB 20 can also be produced from the quarry. However in both cases the C ratio tends to be a little high and it is necessary to blend sand with the product to ensure conformance with the RTA specifications. The lab results also indicate that the material is suitable as an aggregate for concrete according to AS 2758.1 1998. It is expected that the material produced from the quarries indicating argillite rock will be similar to those quarried at Woolgoolga.

Materials won from cuttings are expected to be suitable for re-use as general fill material but may require stabilisation in order to achieve the select material requirements. It is possible that material won from deeper cuttings in argillite will be suitable as pavement materials.

Table 3.6.1: Pits and Quarries within Study area

Figure 7 Reference	Name	Host rock type	Main commodity	Development	Operating	S117	Company
1	Bradley park Site	Sand?	Unprocessed construction materials	Prospect	No	No	
2	Coffs Creek	Alluvium	Sand – construction	Naturally Rehabilitated?	NK	No	
3	Boambee Creek Sand Pit	Alluvium	Sand – construction	Naturally Rehabilitated	NK	No	
4	Boambee, Coffs Harbour	Alluvium	Sand – construction	Intermittent harvesting	Yes	Yes	WJ & K R Golden
5	Macauleys Beach Sand and Gravel Deposit	Alluvium	Sand/gravel – undifferentiated	Naturally Rehabilitated	NK	No	
6	End Peak Quarry	Argillite	Coarse aggregate – armour stone	Quarry	Intermittent	Yes	SRA of NSW
7	South Coffs Island Quarry	Argillite	Coarse aggregate – armour stone	Abandoned quarry	No	No	
8	North Boambee Quarry	Argillite	Coarse aggregate – hard rock	Quarry	Yes	Yes	CSR Limited (Sawtell)
9	Bonville Quarry	Argillite	Coarse aggregate – hard rock	Quarry	No	Yes	RTA (Port Macquarie)
10	Landrigans Quarry	Argillite	Coarse aggregate – shale	Small pit?	Yes	Yes	Kerita Holdings Pty Limited ?
11	Lucas Quarry, Coffs Harbour	Argillite	Coarse aggregate – shale	Small pit?	Yes	Yes	Boral
12	Ryans Pit	Argillite	Unprocessed construction materials	Naturally Rehabilitated	NK	No	
13	Wills Pit	Argillite	Unprocessed construction materials	Naturally Rehabilitated	No	Yes	
14	Park Beach North	Beach sand	Sand – construction	Naturally Rehabilitated	NK	No	
15	Park Beach Central	Beach sand	Sand – construction	Naturally Rehabilitated	NK	No	
16	Boambee Beach	Beach sand	Sand – construction	Prospect?	NK	Yes	

Figure 7 Reference	Name	Host rock type	Main commodity	Development	Operating	S117	Company
17	Pine Brush	Gravel and sand	Decorative aggregate – gravel	Old pit?	No	No	
18		Metasediments	Coarse aggregate – armour stone	Old pit?	NK	No	
19		Metasediments – argillite	Unprocessed construction materials	Quarry	NK	No	
20		Metasediments – argillite	Unprocessed construction materials	Old pit?	NK	No	
21	Red Hill Hard Rock Quarry	Metasediments – argillite	Unprocessed construction materials	Quarry	Yes	No	Boral
22		Metasediments – argillite	Unprocessed construction materials	Old pit?	NK	No	
23	Highway Gravel	Shale	Unprocessed construction materials	Old pit?	NK	No	
24	Grants Quarry	Shale	Unprocessed construction materials	Old pit?	NK	No	
25	Rubbish Tip Quarry	Shale	Unprocessed construction materials	Old pit?	NK	No	

S117- Section 117, indicates whether or not the resource is protected from development encroaching on the area (ie restriction on the proximity of housing etc).
NK- Not Known
? – Data possibly unreliable

3.7 Soil Contamination

The DEC in Grafton and Coffs Harbour City Council were contacted regarding 'known' groundwater and soil contamination in and around the study area. Both the DEC and Coffs Harbour City Council indicated that no contaminated soils or groundwater were either identified, or recorded, in their databases.

NSW Agriculture was also contacted with regard to known areas of soil contamination associated with cattle tick dip sites and/or banana plantations. The results indicated that no known occurrences of soil contamination had been identified as a result of the banana plantations located within the study area. The search of cattle tick dip sites revealed one cattle tick dip site located off Albany Street in Coffs Harbour. However, this site is not within the currently considered route corridors. All the other cattle tick dip site where located at least 10kms from both route options and have been ignored for the purposes of this study. The location of the cattle tick dip site in marked on Figure 8.

As part of the desktop study Holmes and Holmes Pty Ltd, a local consultant was engaged to provide input based on their local knowledge. Holmes and Holmes have undertaken numerous contamination assessments in the area. The results of their investigations are provided below and the locations of the tests are shown on Figure 8. The assessment criteria adopted are the health based investigation levels 'NEHF D and NEHF E' as defined by the National Environmental Health Forum (NSW EPA 1998).

Table 3.7.1: Results of Contamination testing Undertaken by Holmes and Holmes Pty Ltd

Figure 8 Location Number	Arsenic (mg/kg)	Lead (mg/kg)	Organo-chlorides (mg/kg)	Remarks
1	17	11	0.01	4 pt composites
2	9.9	12	0.01	4 pt composites
8	5.5	19	<0.02	5 pt composites
9	26	24	<0.02	5 pt composites
10	7.5	29	<0.02	5 pt composites
16	12	20	0.14	4 pt composites
17	39	30	0.96	4 pt composites
18	29	35	0.12	4 pt composites
26	6	16	<0.02	5 pt composites
32	78	21	0.06	individual
35	175	66	0.11	individual
37	42	33	0.26	4 pt composites
41	nt	nt	0.08	5 pt composites
49	92	41	0.26	4 pt composites and individuals
51	13	14	<0.02	4 pt composites
54	170	34	0.35	4 pt composites
55	54	25	0.11	individual

	Assessment Criteria (mg/kg)		
	Arsenic	Lead	OC's
NEHF D	400	1200	40
NEHF E	200	600	20

Note number are not consecutive as test locations outside the study area have been ignored
NEHF D Residential with minimal access to soil

NEHF E	Parks and recreational open space, playing fields
ESV	Ecological Screening Value
nt	Not tested

These results indicate that all the samples tested are below the lowest acceptance criteria and it is therefore expected that there will be a low probability of large scale contamination within the study area.

4. Results of Field Geological and Terrain Mapping

Interpretation of the topography at desk study stage indicated two distinct terrain units namely the Hillside area and the Lowlands area. However, the geological and terrain mapping fieldwork exercise identified an additional terrain unit of alluvial material within the Lowlands area. The field mapping was also able to ground proof and adjust terrain boundaries as appropriate. The terrain names were then adjusted to better represent the findings of the field mapping exercise. The field mapping identified three terrain units namely:

- Steep slopes, ridges and upland areas - Residual
- Undulating footslopes - Residual
- Alluvial floodplains and backswamps - Alluvial

The extents of each terrain unit are presented in Figure 9 and are described in more detail in Section 5.1. Reference should also be made to the photo-interpretations of the 17 cutting/exposures, in Appendix G, that were inspected as part of the field mapping exercise. The locations of the mapped exposures can be referenced in Figure 8.

The steep slopes, ridges and uplands areas are part of the Great Dividing Range, which along this section of the coastline, extends east virtually to the coast and in places extends finger like steep ridgelines right down to the coast line often ending in rocky headlands. These ridges typically comprise highly silicified very hard argillite bedrock and are less deeply weathered than the footslope areas. Cutting 9, Red Hill Quarry is typical of the material comprising the ridges.

At the base of the main escarpment face and at the base of the finger like ridge lines are the undulating footslopes, which are typically gently undulating slopes. The undulating footslopes are more deeply weathered to silty clays and low strength completely leached argillite. Many of the cuttings along the existing highway have been made through this material. The cuttings are typically at 45 degrees and show numerous signs of erosion and fretting of the face, major slump type failures as well as wedge, planar and toppling type failures of the slightly more competent material. Cutting 1 on the Pacific Highway is a classic example of the slump type failures found in many of the cuttings in the footslope type material. No evidence of recent large scale slope instability was noted during the field mapping exercise however it is known that numerous slope failures have occurred within the colluvial slopes above Bruxner Park Road, associated with road cuttings in to the colluvium.

The alluvial floodplains are generally confined to within 1.0km of the coastline but extend inland along the more major creeks towards the escarpment face. After rain some of the low lying floodplains and backswamps have areas of surface water and are boggy underfoot.

5. Discussion

The first part of the discussion aims to assign general geotechnical characteristics to the identified terrain units. The second part of the discussion identifies a number of key geotechnical issues that may arise in the development of each of the two route corridors.

Both sections of the discussion must be viewed as preliminary and only sufficient as a general planning aid. No subsurface investigation has been undertaken on either route corridor, the only fieldwork carried out during this stage was the field mapping exercise that comprised of surface observations only. The information collected is not sufficient to provide concept design input. Hence comments on such issues as cut batters slopes and expected subgrade conditions are meant to be generalised comments. Extensive additional investigation during subsequent stages of the project development and design will be required in order to confirm and develop these general geotechnical comments/issues into the concept and detailed designs.

5.1 Terrain Unit Characteristics

The geological and terrain mapping exercise described in Section 4 identified three main terrain units, namely:

- Steep slopes ridges and upland areas - Residual
- Undulating footslopes - Residual
- Alluvial floodplains and backswamps - Alluvial

The extent of each unit is shown on Figure 8. The expected general characteristics of each of the units are summarised in the following section.

5.1.1 Alluvial Floodplains and Backswamps

Topography

The majority of the alluvial landscape lies between RL 5 and RL10 mAHD, along and to the east of the existing highway. This area consists of flat backswamps behind the beach dunes and mainly affects the Existing Highway Corridor. The alluvial floodplains are associated with the lower reaches of Newports and Coffs Creeks that traverse the study area. The floodplains quickly recede as the topography rises steeply to the west and the alluvium becomes restricted to the creek beds.

Vegetation and Landuse

The majority of the alluvial floodplains have been developed as the CBD urban and peri-urban areas of Coffs Harbour. Other major developments on this terrain unit are the racecourse, airport and golf course.

Anticipated Subsurface Conditions

This terrain unit is expected to be characterised by a deeper soil profile with a shallow water table. During periods of high rainfall the backswamp areas that have not been developed or drained may become waterlogged and boggy and could be slow to drain.

<u>Soils</u>

The alluvial soils are expected to comprise silty clays with interbedded sand and gravel layers, overlying weathered argillite bedrock at depth. The quaternary sediments are fairly restricted in extent within the study area and are typically found in low lying areas below the 10m AHD contour along the major drainage channels of Coffs and Newport Creek. These sediments are likely to (i) comprise deep clayey soils with minor sand and (ii) be potentially compressible.

The weathering products of the Brooklana and Coramba beds are typically sandy or silty clays and high plasticity clays. Areas of low CBR strength clays can be expected as well as reactive clay mineralogy (halloysite).

Acid sulphate soils are indicated on the DIPNR risk maps in the vicinity of both Newports Creek and Coffs Creek. Typically the maps indicate a low risk of acid sulphate soils below 1.0m depth, however there are minor areas of high risk and minor areas of low risk at or close to the surface. Detailed investigation and testing of the soils will be required to verify the mapping.

Subgrade CBR values are expected to be low where clayey soils are encountered, the higher the sand content in the alluvium the higher the subgrade CBR is likely to be. The Coffs Creek soil landscape is noted as being moderately erodible, however the Newports Creek soil landscape is noted as being extremely erodible. Both soil landscapes are noted as having low wet bearing strengths.

Rock
From previous investigations around Woolgoolga we have found that the rock level is often in excess of 20m deep. The rock can be expected to be more deeply weathered than in the other terrain units.

5.1.2 Undulating Footslopes - Residual

Topography

This unit comprises the mid to lower slopes between the alluvial areas and the steep slopes associated with the Great Dividing Range scarp face and the steep ridges that protrude from the range towards the coastline. The slope grades are generally between 10 - 30%.

Vegetation and Landuse

A variety of vegetation and landuse types occur on this terrain. On the upper reaches of this unit is the start of the banana cultivation. The majority of the remainder is used either for fruit and vegetable cultivation or grazing land. Part of the urban area of Coffs Harbour also falls on this terrain unit.

Subsurface Conditions

This terrain unit is expected to comprise more deeply weathered residual soils than the other residual soil unit associated with the steep slopes and uplands. The water table can be expected to be shallow on the lower slopes towards the creeks. Within the higher reaches, the water table is likely to be deeper and probably within the bedrock profile.

Soils
The weathering products of the Brooklana and Coramba beds are typically sandy or silty clays and high plasticity clays, areas of low CBR strength clays can be expected as well as reactive clay mineralogy (halloysite). The soils are expected to comprise stiff to hard medium to high plasticity, silty clays overlying siliceous argillite bedrock. The DIPNR groundwater bore number 57 (Figure 7) is located on this terrain unit and indicates 13m of clay over shale (argillite) bedrock.

The subgrade CBR of this clay material is expected to be low. Moonee and Megan soil landscapes cover most of this terrain unit. The soil landscape mapping indicates that these soils are typically moderately to very highly erodible. Both are also noted as having low wet bearing strength and slopes comprising Megan soils are occasionally prone to slope instability.

Rock
The underlying bedrock is generally expected to be argillite. The upper layers of the argillite are expected to be leached and breakdown to silt in the hand or under hammer blows as revealed in many of the cuttings that were mapped. However areas of hard, dark blue grey siliceous argillite may also be encountered. The depth of weathering can be expected to be variable. Defect spacing and orientation can also be expected to be variable due to the regional folding and faulting.

5.1.3 Steep Slopes, Ridges and Uplands – Residual

Topography

The slopes and ridges of this terrain unit rise steeply from the coastal area with gradients ranging from 30% to 60%. The upland areas rise to over 250m AHD and are often deeply incised by drainage lines that flow down the scarp face of the Great Dividing Range. Major ridge lines also project from the scarp face such as the obvious ridge to the south of Coramba that ends as Roberts Hill. Deeper cuts and higher fills will be required for any sections of the road alignment within this unit, however this may have the advantage of producing more suitable construction materials and hence reduce the requirement for expensive imported materials.

Vegetation and Landuse

The majority of the steep slopes and ridges are either forested or used for banana cultivation. The bananas favour the north facing slopes that are more sheltered from the often strong southerly winds. The cultivation of bananas was anticipated to be a source of contamination within this terrain unit. However contamination testing by Holmes and Holmes within the banana plantations, did not reveal significantly elevated contamination levels at the sites tested. The upland area to the west of the Great Dividing Range scarp face is predominantly State Forest land consisting of Wedding Bells State Forest and Orara East State Forest. The forests consist of large tracts of eucalypt forests and areas of remnant rainforest.

Subsurface Conditions

The water table is only expected to be encountered at depth within the rock mass of the steep ridges, which may impact deep cuttings in this terrain unit.

Soils
The soils are expected to comprise stiff to hard medium to high plasticity, silty clays overlying siliceous argillite and or greywacke. The soil cover is expected to be shallow as can be seen in many of the cuttings that were mapped in this terrain unit.

The soil landscape mapping indicates that the residual soils (Megan) can be expected to be highly to very highly erodible whereas the colluvial soils (Suicide) are moderately erodible. CBR values for the residual soil can be expected to be similar to that encountered in the footslopes terrain. Localised and widespread occurrence of major slope instability can be expected in the Megan and Suicide soil landscapes respectively.

Rock
The siltstones mudstones and shales of the Brooklana and Coramba beds are variably weathered and often contain layers of marginally rippable siliceous argillite materials. This can present excavatability problems as well as variable founding conditions for structures. Variable weathering also creates problems with batter slopes, as typically batters have to be laid back to suit the most highly weathered materials. Currently batters along the existing Pacific Highway

show signs of instability in numerous places. The instability is generally associated with residual soil to highly weathered rock materials exposed in cuttings. The fine grained nature of the rocks means that they are generally more susceptible to slaking and durability problems. Controlling surface water run-on and cut face treatment are likely fairly extensive.

The steeply dipping, folded and faulted nature of the beds means that planar, wedge and toppling failures are likely.

The rock is the primary medium affecting road alignments through this unit. The rock is expected to be predominantly siliceous argillite. The rock is expected to be typically weathered and leached for some depth before becoming more silicified and marginally rippable. The protruding ridgelines that the Inner option cuts through can be expected to be hard rock excavation of silicifed argillite.

All the levels of the rock mass are expected to be highly fractured and often fragmented. However the depth of weathering and vertical extent of each of the zones may vary wide and randomly across the study area. This can be seen by noting the large range of depths of weathering seen in the field mapping photo-interpretations.

5.2 Geotechnical Issues Affecting the Proposed Routes

This section discusses the main geotechnical issues, which are anticipated to affect each of the route corridors. A preliminary assessment of the likely impact these issues may have on the planning of a road through each of the corridors is also provided.

5.2.1 Existing Highway Corridor

Route Description

This corridor follows the alignment of the existing Pacific Highway from approximately 100m south of the Englands Road roundabout to the junction with Campbells Close just south of Sapphire. The existing Highway alignment commences in the south by traversing the alluvial area associated with Newports Creek. The Highway then traverses a ridgeline through two tight bends before descending on to the alluvial floodplain associated with Coffs Creek. The alignment then crosses a second ridge on the out skirts of the CBD again through several tight bends. The rest of the alignment to Sapphire traverses uplands terrain associated with the lower slopes of the Great Dividing range that come down very close to the coast along this section of the Highway.

Bridge/Interchange Structures

The following generalised foundation types and conditions can be expected for possible bridges and interchange structures:

- Alluvial Terrain Unit: Piled foundations bored or driven are expected to be the most appropriate foundation type for structures within this terrain unit. Piles will probably need to be taken down to the underlying weathered argillite. The possible presence of dense gravel layers and high groundwater may cause collapsing of bored pier excavations (requiring pier liners) or premature refusal of driven piers.
- Undulating Footslopes: Piled foundations, bored or driven, or shallow pad footings are expected to be suitable foundation types. The foundations should be taken down on to the weathered argillite.
- Steep slopes, ridges and uplands: Piled foundations, bored or driven, or shallow pad footings are expected to be suitable foundation types. The foundations should be taken down on to the weathered argillite.

Fill Embankments

Widening of fill embankments and new fill embankments to accommodate new interchange structures may be required. The majority of the embankments along this section are expected to be reasonably low. If they are constructed from material won from widening of shallow cuttings then the material can be expected to be weak and will break down to a silty clay when compacted in to the embankment. More competent rock won from any proposed tunnelling operations have a greater potential to be more suitable as a select fill material.

Embankment subgrades within the residual terrain units are expected to be reasonably competent due to the expected limited thickness of soil cover over the bedrock. Fill embankment subgrades are not expected to require major treatment to support the anticipated low fill (<10.0m) embankments. Embankment subgrades within the alluvial terrain unit may require foundation treatment depending on the thicknesses of compressible material encountered below the foundation level. Foundation treatments may include embankment preloading, installation of wick drains, toe berms or construction staging.

Tunnels

It is expected that the rock encountered in tunnels through the ridges may be highly silcified argillite. If this is the case then hard rock tunnelling methods would have to be employed using road headers and/or drill and blast methods. The high quartz content and high unconfined compressive strength of the material would result in significant wear on machinery. The highly fractured nature of the rock as well as the regional folding and faulting will mean that a complex and variable geological structure can be expected. Extensive detailed geotechnical investigations will be required to ensure effective tunnel support can be designed.

Hard rock won from tunnels is expected to be suitable for reuse in fill embankments and may be suitable as select fill or pavement layer works materials.

Cuttings

It is expected that upgrading along the Existing Highway Option, will not involve major changes to the existing highway grade (except at tunnel locations), therefore the cutting heights are expected to remain similar to the height of the current cuttings. The current cuttings are typically laid back at 1V:1H for their full height. Many of the existing cuttings show signs of serious erosion of both soils and weak rock material as well as slumping, toppling, planar sliding and wedge type failures of the rock mass. The fine grained nature of the weathered and leached argillite as well as the very closely spaced defects has lead to the poor performance of the existing Pacific Highway batters.

As part of any upgrading works all the batter slopes from ground surface to at least 7.5m should be flattened to 1V:2H, if this is not possible due to width restrictions then additional support and face treatment would have to be considered. In addition the batter slopes should be topsoiled and grassed to minimise erosion of the fine grained soils and weathered rock mass. The majority of the cuttings are not expected to exceed 7.5m depth, if deeper cuttings are required then sections of the cutting deeper than 7.5m could possibly be steepened. However at this stage it may be prudent to calculate corridor widths assuming a maximum batter slope of 1V:1.5H.

The majority of the rock in the cuttings is expected to be rippable, with the exception of dark grey very strong rock such as that encountered in cutting number CC2 which may require the use of rock breaking equipment or blasting. The material excavated from existing cuttings is

expected to generally breakdown to a gravelly silt if reused in fill batters. The material is therefore only expected to be suitable for reuse as general fill material.

Slope Stability

In general large-scale instability of natural, undisturbed slopes along the existing Highway is not expected to be problematic. Slope stability is however a localised issue with the current batter slopes along the existing highway because they are at a slope of 1V:1H. It is suggested that any upgrade should include flattening the batter slopes to 1V:2H to minimise the risk of sudden localised instability in the cut batters. Numerous slope failures have also been reported on the cut slopes above the Bruxner Park Road. The Bruxner Park Road climbs the scarp face of the ranges traversing the suicide soil landscape that is well known to exhibit widespread mass movement problems (see section 5.1.3). Careful consideration must be given to the slope stability of any cuttings through this soil landscape.

Subgrades

The subgrade for the majority of this alignment is expected to comprise silty clay of either alluvial or residual origin. The CBR of this material is expected to generally be low. Subgrades over the alluvial backswamp areas that have not been artificially drained may be expected to be saturated and contain areas of ponded surface water after rain. These areas are poorly drained and moisture softening of subgrades and the lower levels of fill embankments can be expected if adequate drainage is not provided. Over-excavation of the subgrade and replacing with suitable material or the use of geogrids may be required in some of the alluvial backswamp areas to improve the subgrade prior to embankment construction. Subgrades consisting of fill material of a residual or alluvial origin can also be expected to generally exhibit low CBR values.

Acid Sulphate Soils

As shown on Figure 6, the Existing Highway Option traverses the largest amount of PASS and ASS soils of the two routes. Areas of low probability of acid sulphate soils greater than 1.0m depth are shown on the DIPNR risk mapping for the majority of the alluvial terrain unit areas. Areas of high risk may be encountered adjacent to the Great North railway line where it crosses the highway. It is not expected that PASS or ASS will significantly impact any proposed upgrade due to the fact that the PASS and ASS are expected below 1.0m depth and hence earthworks for the expected low fill embankments are unlikely to affect this material. If major subgrade replacement works are required due to weak subgrades then ASS and PASS material may well be encountered. However the exact nature and extent of PASS and ASS will have to be identified by field investigations to be able to effectively quantify this issue.

Erosion Hazard

The fine grained nature of all the soils means they are particularly susceptible to sheet and gully erosion. The Newport Creek soil landscape is reported to be extremely susceptible to this type of erosion and the Megan soil landscape is highly to very highly susceptible. However, the flatter topography associated with this route option means that water run-off will be more easily controlled therefore limiting the possibility of sheet or gully type erosion. Adequate protection of both cut batters and fill embankments should be provided. Measures should include grassing, the provision of cut-off drains to divert water from running down the face and landscaping. Fill batter slopes should be broken by benchs/berms. Laboratory testing should be undertaken to assess the erodibility/dispersion potential of the local materials.

Contaminated Soils

None of the contamination samples analysed by Holmes and Holmes in this area indicated any contamination associated with Organochlorine Pesticides (OC's), Arsenic or Lead. Never the less more detailed project specific contamination investigation is recommended to confirm these results.

Some of the other sites of possible contamination, as noted on Figure 8, should be targeted for future contamination assessment if they are likely to impact the proposed upgrading. These sites would include, all services stations, sites of old saw mills, the waste disposal site and possibly the Showgrounds.

5.2.2 Inner Option

Route Description

The Inner Option leaves the existing highway, at the southern end, just before the roundabout at Englands Road and heads almost due north to the saddle in the ridgeline directly to the west of Roberts Hill. The alignment then turns slightly west as it descends in to the Coffs Creek valley. The alignment then turns east, crosses the Great North Railway line and follows the base of the main Great Dividing Range scarp face. The alignment crosses two more major ridges along this section, before crossing Bruxner Park road and rejoining the existing highway at Korora.

The majority of the northern two thirds of this route traverses the steep slopes, ridges and upland terrain unit with a small section expected to traverse footslopes and alluvial terrain at the head of Coffs Creek. The most southern section of the route traverses alluvial terrain and footslopes associated with the Newports Creek backswamp and alluvial floodplain.

Bridge/Interchange Structures

The following generalised foundation types and conditions can be expected for possible bridges and interchange structures:

- Alluvial Terrain Unit: Piled foundations bored or driven are expected to be the most appropriate foundation type for structures within this terrain unit. Piles will probably need to be taken down to the weathered argillite. The possible presence of dense gravel layers and high groundwater may cause collapsing of bored pier excavations (requiring pier liners) or premature refusal of driven piers.
- Undulating Footslopes: Piled foundations, bored or driven, or shallow pad footings are expected to be suitable foundation types. The foundations should be taken down on to the weathered argillite.
- Steep slopes, ridges and uplands: Piled foundations, bored or driven, or shallow pad footings are expected to be suitable foundation types. The foundations should be taken down on to the weathered argillite.

Fill Embankments

Fill embankments are expected to be high at the approaches to the major cuttings and may need to be as high as 30m. Fill embankments will also be required at the approaches to bridge structures and possibly over the lower lying areas around Newports Creek to prevent flooding of the road.

Typically the embankments within the residual terrain units are expected to be founded on clays of limited thickness. Major foundation treatment is not expected to be required beneath these

embankments. However fill embankments over the southern end of the alignment near Newports Creek and in the vicinity of Coffs Creek may need some treatment depending on the amount of compressible material found beneath the foundations. Such treatment may include embankment preloading, installation of wick drains, toe berms or construction staging.

The fill material won from cuttings through the large ridges is expected to be suitable as general fill material for embankment construction and may also suitable as select fill material. Future investigations of the proposed cuttings will have to confirm the quality of the expected cut material.

Cuttings

At least three major cuttings possibly up to 60m deep will be required for routes along this option due to the presence of the large ridges. In addition major cut to fill will be required along the northern one third of the alignment as it traverses the south facing slope of the ranges. Numerous other minor cuts are also expected to be required.

The field mapping of cuttings in the area indicates that shallow cuts (<10.0m) can expect to encounter generally rippable material. However as evidenced by the numerous failures in this material batter slopes would have to be laid back at 1V:2H or flatter. Deeper excavations such as the Red Hill Quarry indicate the presence of much harder silicified argillite, which is not expected to be rippable and will most probably require pneumatic tools or blasting to excavate. However this material will most probably be able to be cut at steeper batter angles and maybe suitable in pavement layerworks or as concrete aggregate. Detailed investigation of cutting locations will have to be undertaken to assess the subsurface conditions for batter slope designs. It should also be noted that the depth of weathering and amount of fracturing recorded during the field mapping varied widely and can be expected to vary within short distances. Therefore regardless of the final batter designs additional slope stability measures maybe required to cater for the potential variability. Such measures may include additional face support in the form of spot bolts, shotcrete or wire mesh as well as rock catch fences and rock fall areas.

It is reported in the DIPNR Groundwater Status Report that the majority of the groundwater in the area is pumped from depths of 30m or less. Deep cuttings in the vicinity of groundwater bores are therefore likely to affect the bore yields due to draw down in the vicinity of the cuttings. The relationship between the proximity of bores, depth of cuttings, groundwater levels and draw down effects must therefore be examined at each major cutting location.

Tunnels

An alternative to the deep cuttings would be to tunnel through the ridges. If tunnelling is considered then it is expected that the rock encountered in tunnels may be highly silcified argillite. If this is the case then hard rock tunnelling methods would have to be employed using road headers and/or drill and blast methods. The high quartz content and high unconfined compressive strength of the material would result in significant wear on machinery. The highly fractured nature of the rock as well as the regional folding and faulting will mean that a complex and variable geological structure can be expected. Extensive detailed geotechnical investigations will be required to ensure effective tunnel support can be designed.

Hard rock won from tunnels is expected to be suitable for reuse in fill embankments and may be suitable as select fill or pavement layer works materials

Slope Stability

Although the natural slopes are steep, no clear evidence of previous instability was noted during the field mapping and discussions with a local geotechnical consultant confirmed that the natural slopes are not prone to instability. However the stability of cut batters will need careful consideration as well as the influence of the cut on the slopes above. Numerous slope failures have been reported on the cut slopes above the Bruxner Park Road. The Bruxner Park Road climbs the scarp face of the ranges traversing the suicide soil landscape that is well known to exhibit widespread mass movement problems (see section 5.1.3) careful consideration must be given to the slope stability of any cuttings through this soil landscape. The inferred fault noted on Figure 3 Geology Map, if encountered, is a potential failure plane and may cause larger rockslides where the fault intersects proposed cuttings.

Subgrades

The majority of this alignment is expected to be constructed either in fill or cut with the exception of the area around Newports Creek which is expected to be close to grade. The subgrade beneath fill embankments and along the Newports Creek section is expected to comprise of either silty clay of residual or alluvial origin. The CBR of this material is expected to be generally low. These areas are poorly drained and moisture softening of subgrades and the lower levels of fill embankments can be expected if adequate drainage is not provided. Over-excavation of the subgrade and replacing with suitable material or the use of geogrids may be required in some of the alluvial backswamp areas to improve the subgrade prior to embankment construction. Subgrades consisting of fill material of a residual or alluvial origin can also be expected to generally exhibit low CBR values.

Subgrades in cuttings may be variable due to the variable nature of the weathering of the rock in the region and will also depend on the depth of the cutting. Some cut subgrades may require over excavating and recompacting to ensure an even subgrade bearing.

Acid Sulphate Soils

Figure 6 indicates that the Inner Option traverses an area of low probability of ASS at depths greater than 1.0m at the southern end of the alignment around Newports Creek. It is not expected that PASS or ASS will significantly impact any proposed inner option due to the fact that the PASS and ASS are expected below 1.0m depth and hence earthworks for the low fill embankments are unlikely to affect this material. However the exact nature and extent of PASS and ASS will have to be identified by field investigations to be able to effectively quantify this issue.

Erosion Hazard

The fine grained nature of all the soils means they are particularly susceptible to sheet and gully erosion. The Newport Creek soil landscape is reported to be extremely susceptible to this type of erosion and the Megan soil landscape is highly to very highly susceptible. Adequate protection of both cut batters and fill embankments should be provided, measures should include grassing, the provision of cut-off drains to divert water from running down the face and landscaping. Fill batter slopes should be broken by benchs/berms. Laboratory testing should be undertaken to assess the erodibility/dispersion potential of the local materials.

Contaminated Soils

None of the contamination samples analysed by Holmes and Holmes in this area indicated any contamination associated with Organochlorine Pesticides (OC's), Arsenic or Lead. Never the

less more detailed project specific contamination investigation is recommended to confirm these results.

Some of the other sites of possible contamination, as noted on Figure 8, should be noted for future contamination assessment if they are likely to impact the proposed upgrading. These sites would include, all services stations, sites of old quarries, the waste disposal site and packing and storage sheds associated with the banana plantations.

6. Further Investigation

For feasibility studies and cost estimating purposes, the areas of main concern on the Existing Upgrade Option would be the tunnel locations. On the Inner Bypass Option, the stability and batter design for the three anticipated very deep cuttings (or alternative tunnel options) and the depth of compressible material associated with Coffs and Newports Creek would be the main areas of concern. Specific targeted subsurface investigations consisting of drilling boreholes in cuttings and undertaking Cone Penetrometer tests in alluvial areas should be designed to provide input to feasibility studies, enable preliminary construction cost estimates to be compiled and to provide comparative information for route selection purposes.

Further, more detailed studies would be required on the selected route to advance the project to concept design stage and finally detailed design stage.

7. References

Connell Wagner Report, Coffs Harbour Highway Planning Sapphire to Woolgoolga, Working Paper No 3, Geotechnical Investigations, Reference 1093/34/CH, Revision 1, November 2002

Acid Sulfate Soil Manual, Acid Sulphate Soil Management Advisory Committee, August 1998 (ASSMAC Manual)

DLWC, Coffs Harbour Local Government Area Groundwater Status Report and Map Notes, Technical Report No. NC3/98, September 1997

Soil and Conservation Service of NSW, Coffs Harbour District Technical Manual, December 1989

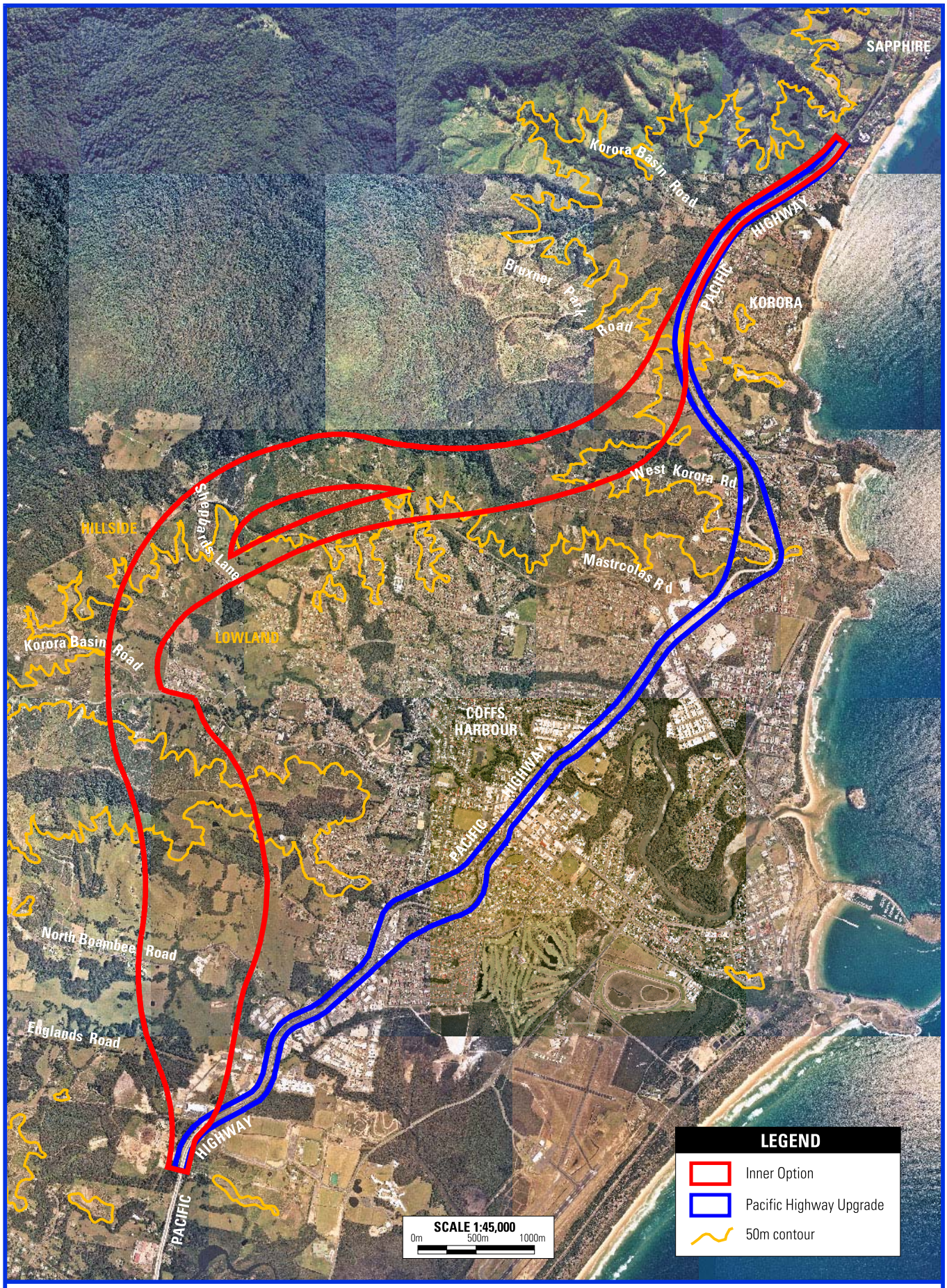
NSW Department of Mineral Resources, January 1969, 1: 250,000 Geological Series Sheet SH 56 – 10&11, Dorrigo – Coffs Harbour

NSW Department of Mineral Resources, Undated, 1 : 100,000, Geological Series Sheet SH 56 – 11, Coffs Harbour

NSW Department of Mineral Resources, 1992, 1 : 250,000, Metallogenic Study and Mineral Deposit Data Sheets SH 56/-10 & SH/56 –11, Dorrigo – Coffs Harbour

Department of Land and Water Conservation (DLWC), 1 : 25,000, Acid Sulfate Soil Risk Map, Coffs Harbour, Edition 2, December 1997

Figures



COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

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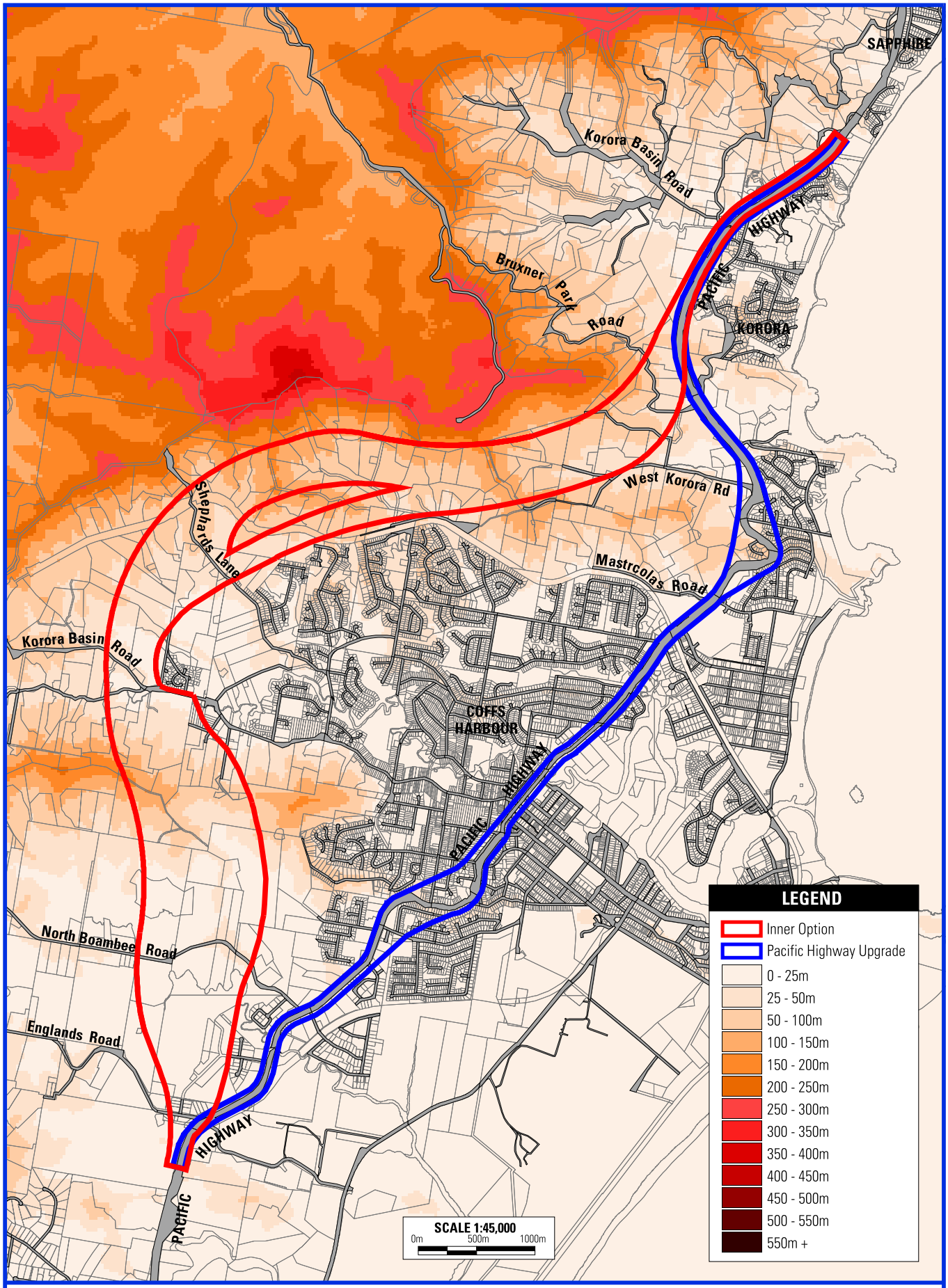
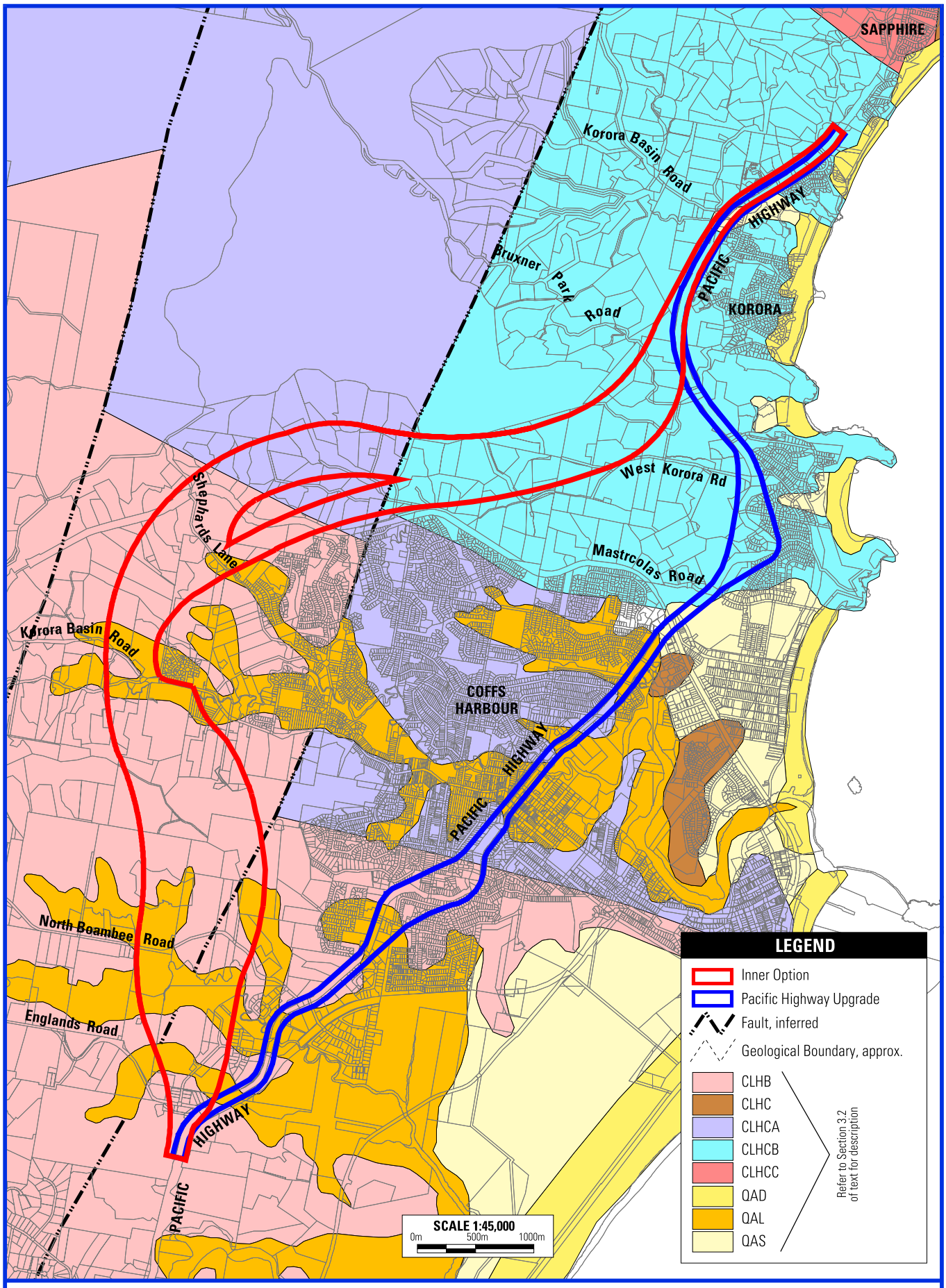
FIGURE 1
STUDY AREA
WITH ORTHOPHOTO



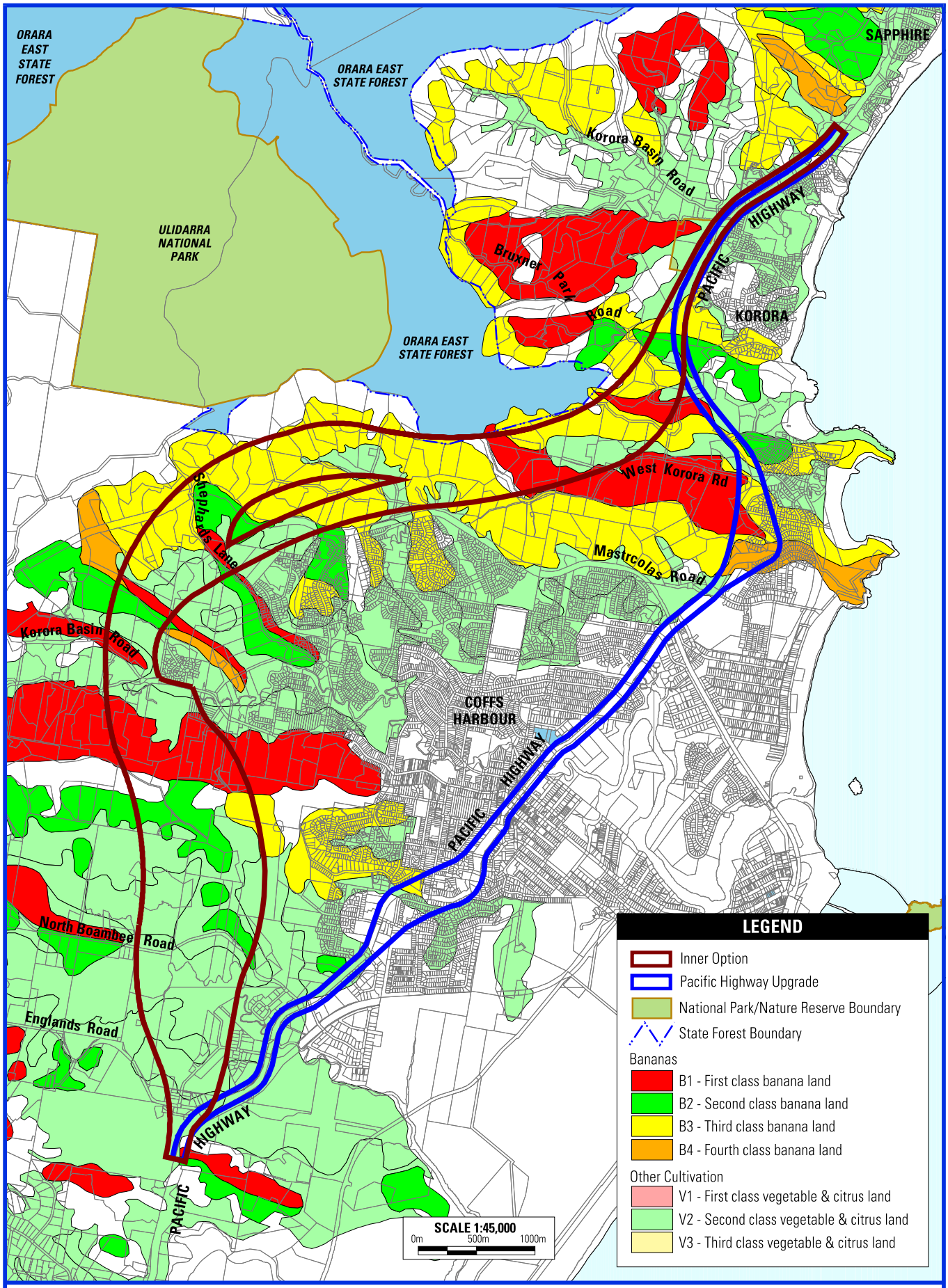
COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

FIGURE 2
STUDY AREA TERRAIN



COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

FIGURE 3
GEOLOGY MAP



COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

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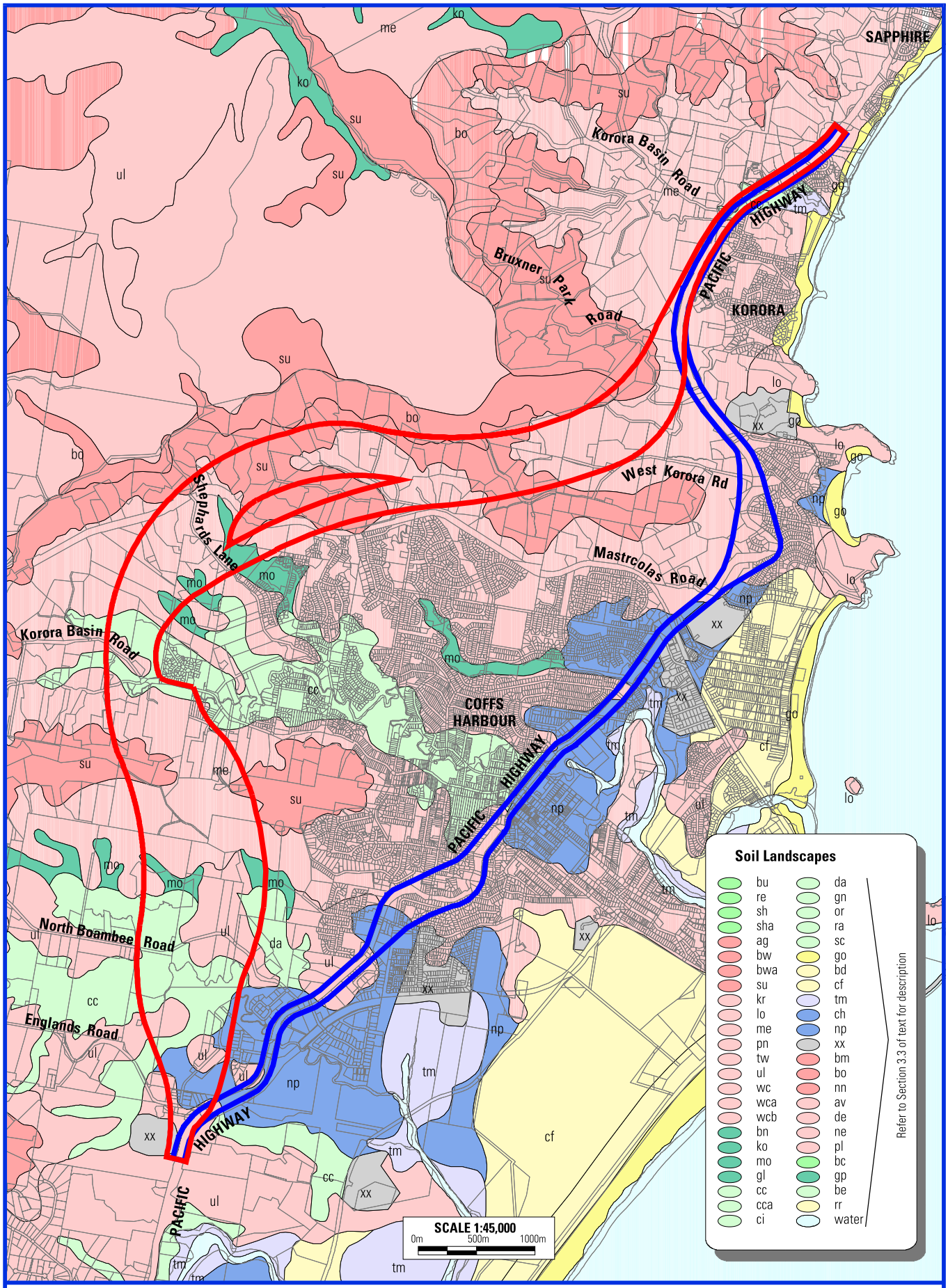
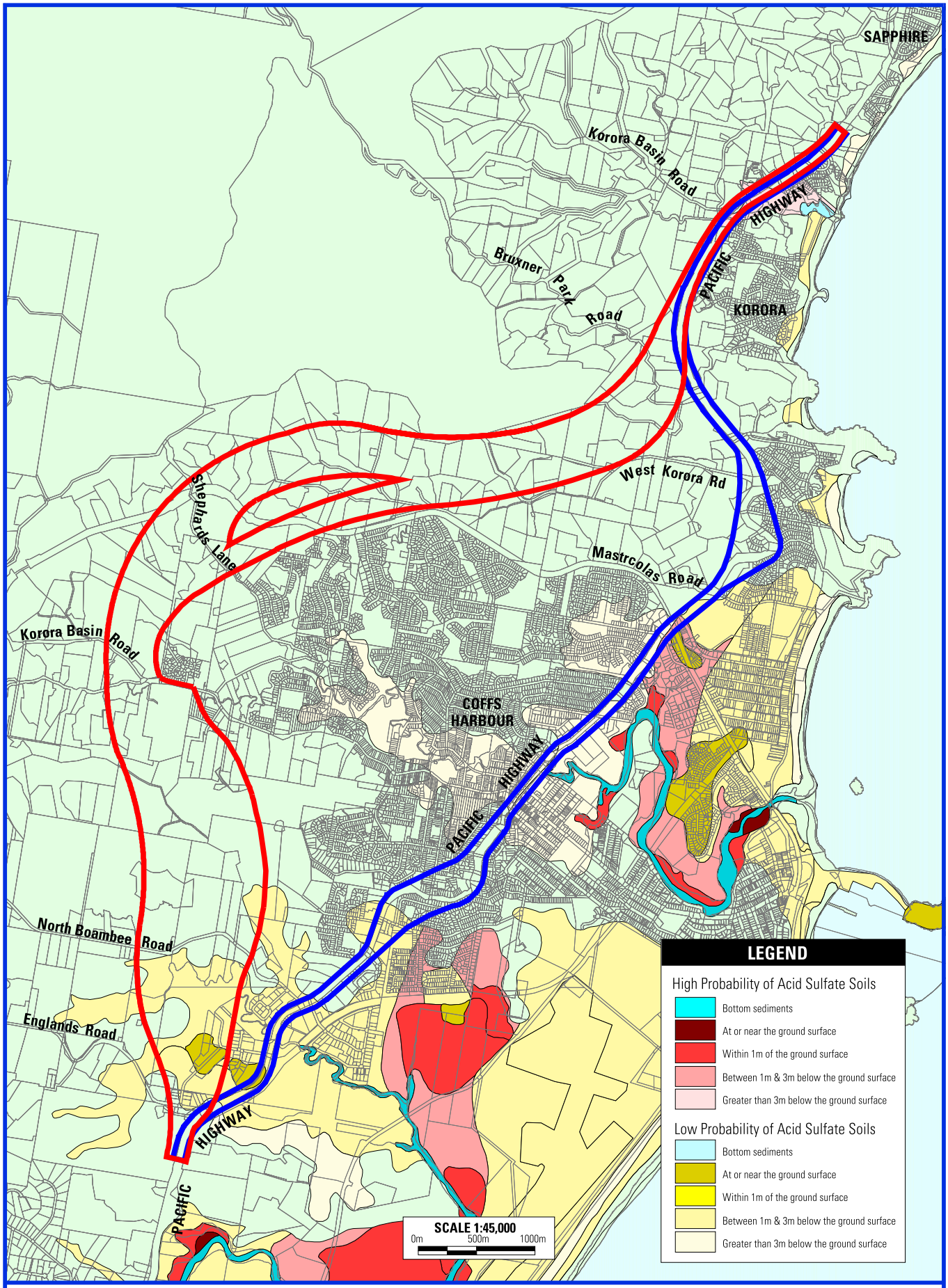
FIGURE 4
CURRENT BEST LANDUSE



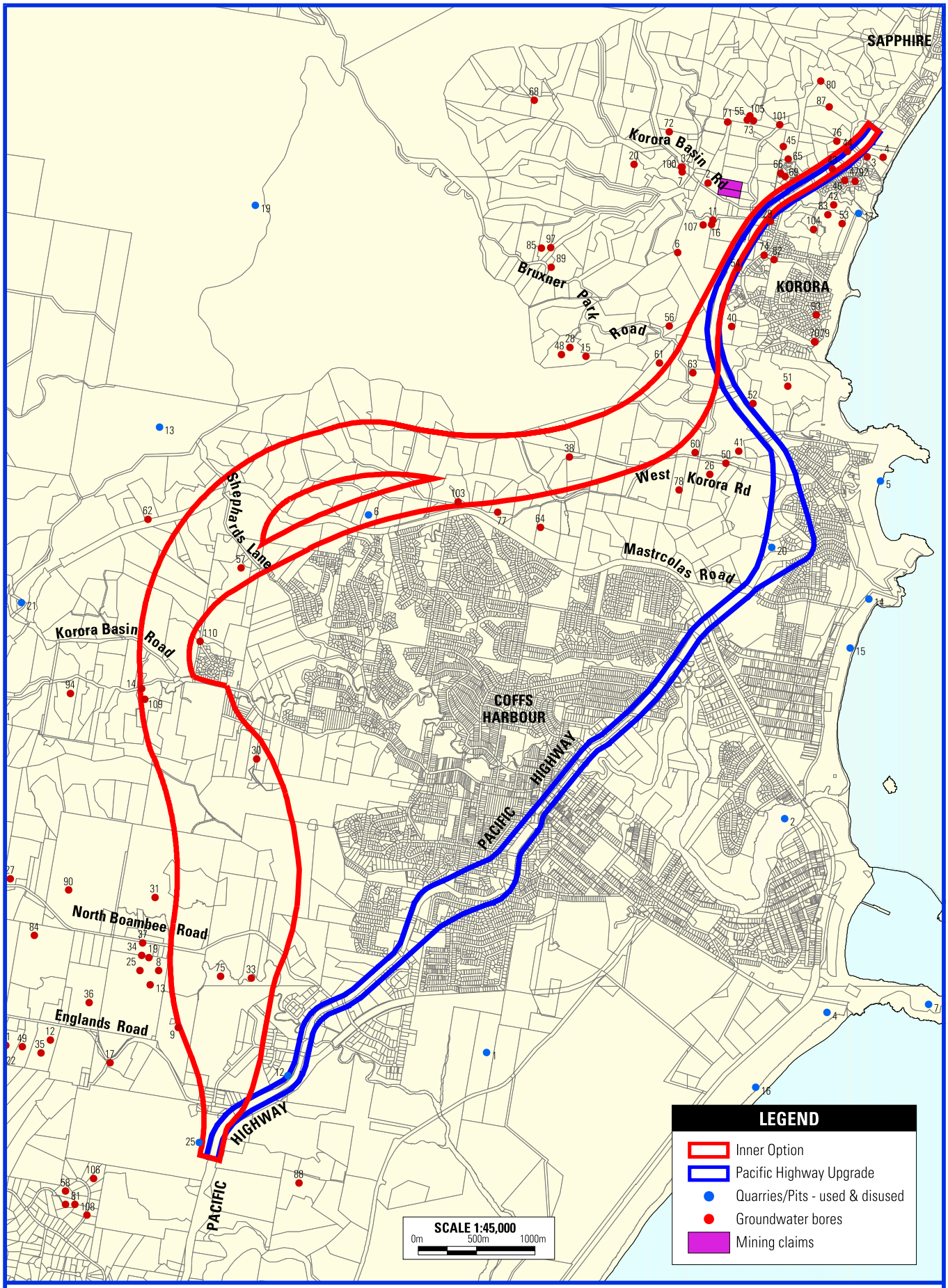
COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

FIGURE 5
SOIL LANDSCAPE MAP



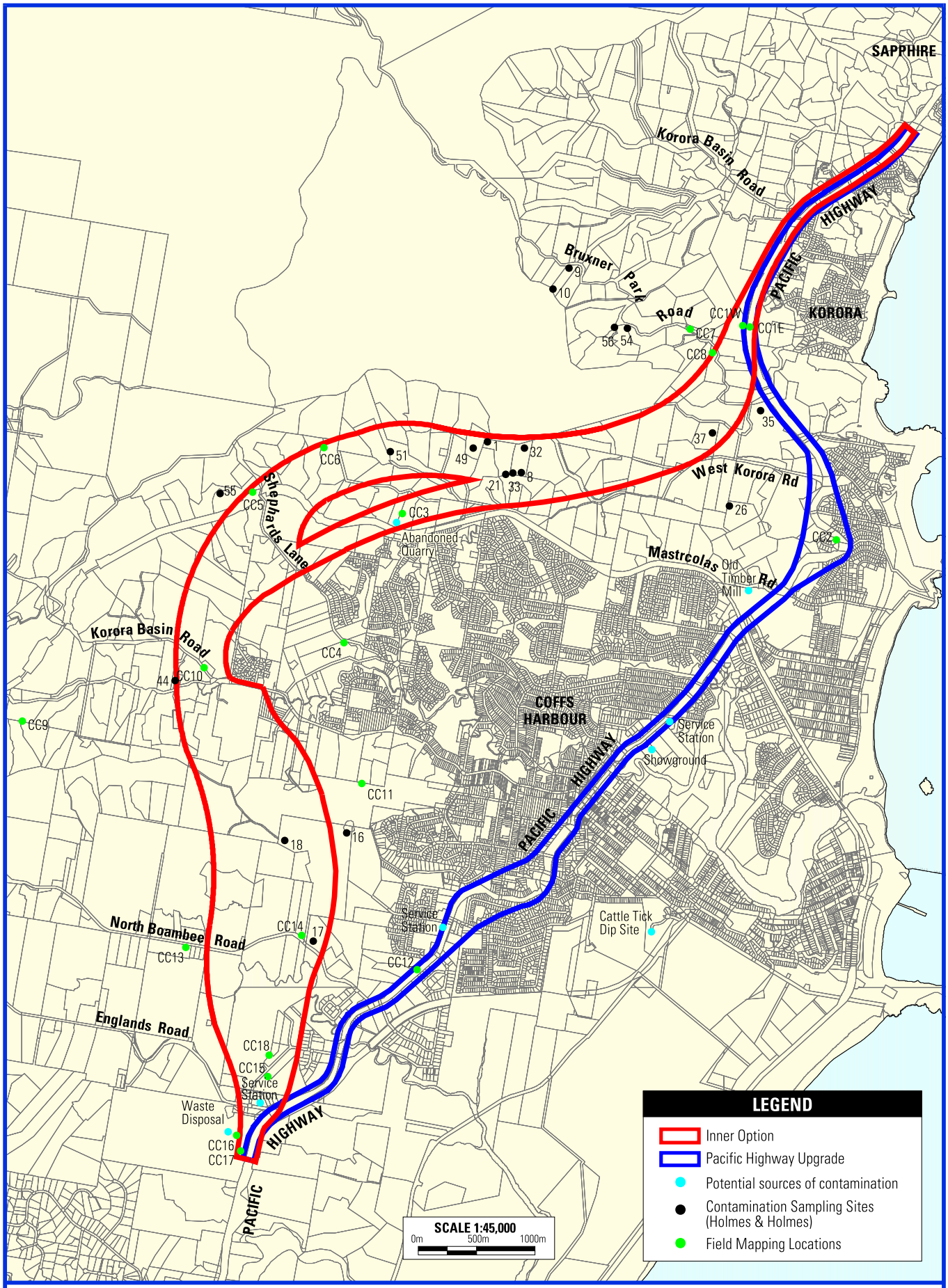
COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

FIGURE 6
ACID SULFATE SOILS RISK MAP



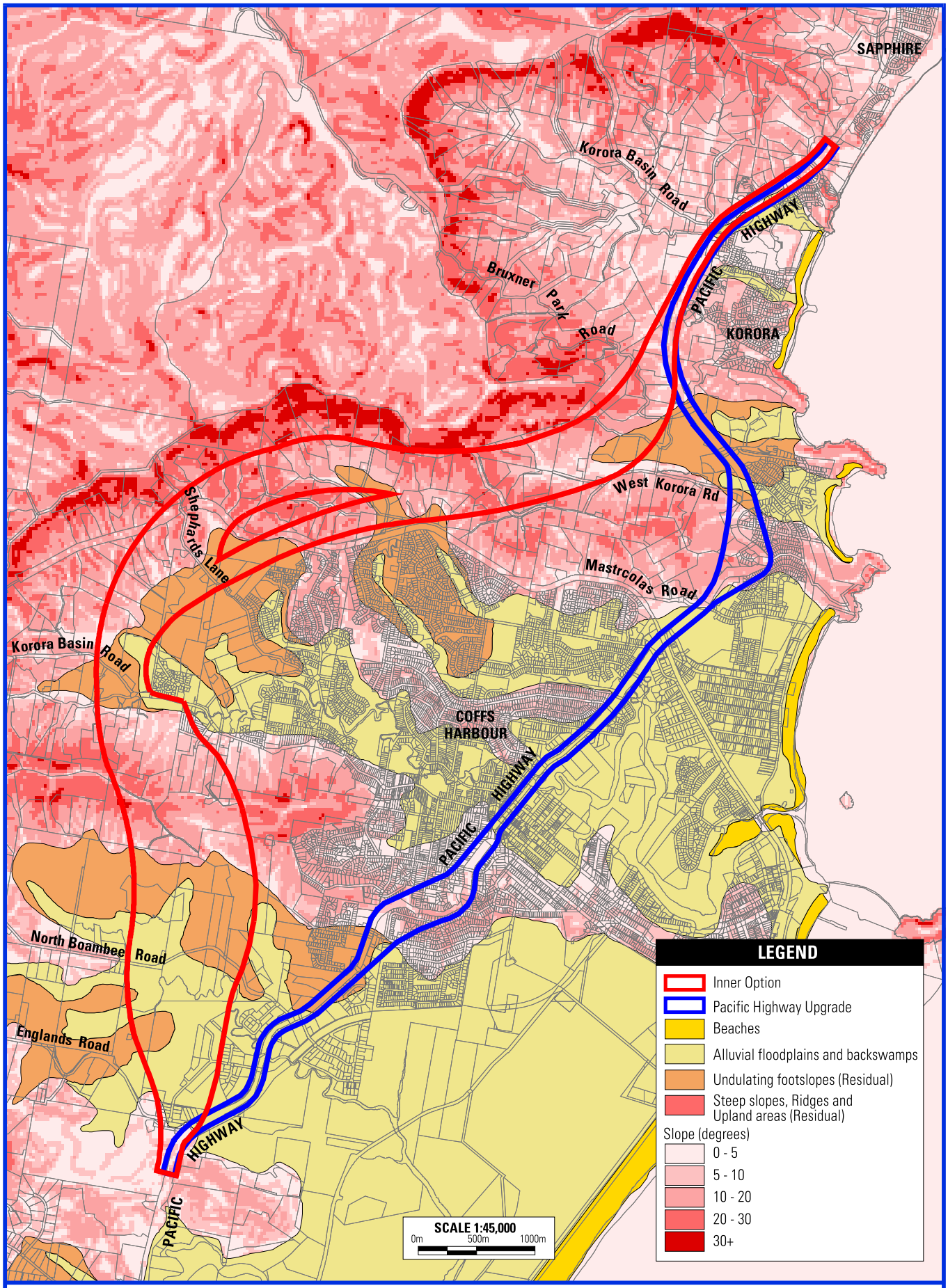
COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

FIGURE 7
QUARRIES, BORES AND MINING CLAIMS MAP



COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

FIGURE 8
FIELD MAPPING AND CONTAMINATION SAMPLING LOCATIONS



COFFS HARBOUR HIGHWAY PLANNING STRATEGY
COFFS HARBOUR SECTION

FIGURE 9
GEOTECHNICAL TERRAIN MAP

Appendix A

Groundwater Bore Search Data

Sumary of Groundwater Bore Search Data

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
1	GW014246	6647197	505820						2.7	5.2	6.1	2.53
2	GW017890	6653630	512295						2.1			1.01
3	GW033417	6653853	513657		0	1.83	Soil Clay		0.9			
					1.83	7.62	Clay light shale			3	3.2	
					7.62	10.06	Shale	Shale		10.1	10.7	
					10.06	10.07	Rock					
4	GW033418	6653850	513793		0	4.57	Sand Gravel		2.7	3.7	4.9	22.73
					4.57	7.92	Clay					
5	GW047708	6650300	505897	0	0	18	Shale Clay	Shale	~			
					18	22	Shale			18	19	1.3
6	GW047988	6653035	512035	3.8	0	1.8	Clay		1			
					1.8	3.4	Gravel					
					3.4	3.8	Gravel clay					
					3.8	9	Shale	Shale		6.6	7.4	0.82
					9	10.7	Quartz	~				
					10.7	13.8	Shale	Shale				
					13.8	21	Shale	Shale				
					21	22.3	Basalt	Basalt		21	27.5	6.31
					22.3	25	Shale	Shale				
					25	26	Quartz	~				
					26	27.5	Shale	Shale				
7	GW048616	6653725	512075									
8	GW049234	6646887	507597	11.6	0	5.45	Clay		10.5	11.6	11.6	
					5.45	11.6	Clay shale			15	15	
					11.6	22.5	Basalt	Basalt		19.2	19.2	0.5
9	GW050939	6646400	507762	9	0	9	Clay	Shale	~			
					9	27	Shale			20	23	0.65
10	GW051021	6650172	505875	15	0	15	Clay shale	Shale	~	10	15	0.01
					15	21	Shale			18	20	0.07
11	GW051415	6653313	512338	14.9	0	1.2	Soil					
					1.2	14.9	Clay	Clay	~			

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					14.9	35.7	Basalt	Basalt		21	21.3	0.19
12	GW051708	6646295	506670	9	0	9	Clay	Shale	12.2	10	12	0.39
					9	18	Shale			16	18	0.26
13	GW052382	6646765	507525	13.7	0	1.2	Soil		~			
					1.2	12.2	Clay			12	12.2	0.75
					12.2	13.7	Gravel					
					13.7	19.5	shale	Shale				
14	GW053093	6649300	507450	~	0	1.5	Soil	~	~			
					1.5	4.9	Clay			4.5	6.7	0.65
					4.9	6.7	Gravel					
15	GW053268	6652145	511250	6	0	6	soil	Granite	2.1	2	2.1	0.26
					6	28.3	granite			7	7.6	0.39
16	GW054211	6653275	512325	12.1	0	3	Soil	Shale	~			
					3	12.1	Clay	Basalt				
					12.1	15.2	Shale			35	35	0.1
					15.2	46.6	Basalt			42	42.7	0.19
17	GW054334	6646100	507180	~	~	~	~	~	6			0.83
18	GW054719	6646040	505125	~	0	2	soil	~	~			
					2	9	soil					
					9	11	soil					
					11	15	soil					
					15	21	Gravel			16	18	1.3
19	GW055122	6647000	507510	16.8	0	3	Soil	Shale	~			
					3	16.8	clay			10.7	12.2	0.52
					16.8	19.8	Shale					
20	GW055297	6653787	511662	~	0	0.91	Soil	~	~	13.7	15.2	0.65
					0.91	27.4	Unknown			21.3	22.9	0.39
21	GW055517	6646250	506290	4.3	0	4.3	Clay	Basalt		11	11	0.19
					4.3	29	Basalt					
22	GW055518	6646250	506245	2	0	1	Soil	Shale				
					1	2	Clay	Basalt				
					2	10	Shale			10	13	0.26
					10	23	Basalt			19	21	0.31
23	GW056113	6650365	504240	3	0	3	Clay					

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					3	23	Shale	Shale	6	17	20	0.65
24	GW056456	6645940	505565	17	0	4	Clay					
					4	17	Gravel clay			9	12	0.26
					17	22	Shale	Shale		18	20	0.39
25	GW057225	6646890	507435	3	0	3	Soil					
					3	14	Shale					
					14	24	Shale	Shale				
					24	35	Basalt	Basalt		29	31	0.39
26	GW058648	6651135	512310	~	~	~	~	~	~	~	~	0.13
27	GW059004	6647675	506325	7	0	2	Soil					
					2	7	Clay					
					7	17	Shale	Shale	~	7	8	0.26
					17	23.5	Blue Metal	Blue Metal?	~	17	19	0.52
28	GW059050	6652220	511115	2	0	2	Soil					
					2	36	Basalt	Basalt	2			
					36	45	Shale	Shale		36	45	0.39
					45	50	Basalt	Basalt				
29	GW059711	6653300	512830	15	0	2	Soil					
					2	15	Clay			12	14	0.13
					15	24	Shale	Shale		15	18	0.52
30	GW060108	6648700	508435		0	1	Topsoil					
					1	4	Clay					
					4	7	Shale	Shale				
					7	13	Basalt	Basalt				
					13	16	Rock Broken			13	16	0.65
					16	29	Hard Basalt					
					29	31	Rock Broken			21	31	1.3
					31	36	Basalt					
31	GW061184	6647515	507565	7	0	3	Topsoil					
					3	7	Clay					
					7	21	Basalt	Basalt				
					21	23	uartz fractured basalt			21	23	1.3
					23	25	Basalt					
32	GW061618	6653767	512075	4	0	4	Clay					

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					4	29	Shale	Shale		18	20	0.39
					29	31	Shale			23	25	0.39
					31	32	Shale			27	30	0.78
33	GW061642	6646825	508387	0	0	3	Shale	Shale				
					3	16	Basalt	Basalt				
					16	18	Rock Broken Shale			16	28	0.39
					18	40	Basalt/ quartz shale					
					40	45	Hard Basalt					
					45	50	Rock Broken			45	50	1.56
					50	53	Basalt					
34	GW062887	6647018	507450	8	0	8	Clay					
					8	14	Shale	Shale		12	14	0.39
					14	24	Basalt	Basalt		18	20	0.52
35	GW063637	6646185	506590	2	0	2	Clay					
					2	8	Shale	Shale	5			
					8	14	Basalt	Basalt				
					14	16	Shale Broken Rock			15	16	0.65
					16	42	Basalt			42	44	0.13
					42	44	Shale Broken Rock					
					44	46	Basalt					
36	GW063638	6646615	507000	6	0	6	Hard Clay					
					6	12	Shale	Shale		8	9	0.13
					12	15	Hard Shale			14	15	0.26
					15	19	Basalt	Basalt				
37	GW063655	6647125	507460	8	0	8	Clay					
					8	20	Shale	Shale				
					20	26	Basalt	Basalt				
					26	28	Rock Broken			27	29	0.65
					28	29	Basalt					
38	GW063664	6651285	511110	9	0	9	Gravel clay					
					9	34	Basalt	Basalt				
					34	36	Shale	Shale		34	36	0
					36	45	Basalt	Basalt				
39	GW 063710	6650285	504975	8	0	8	Clay					

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					8	32	Shale					
					32	36	Shale	Shale				
					36	42	Basalt	Basalt		36	37	0.13
					42	43	Rock Broken			42	43	0.13
					43	50	Shale			50	51	0.26
					50	55	Basalt					
40	GW063728	6652400	512500	6	0	6	Clay					
					6	10	Shale	Shale				
					10	15	Shale					
					15	17	Rock Broken			15	17	1.04
					17	24	Basalt	Basalt				
					24	27	Shale			26	27	0.78
					27	37	Basalt Shale					
41	GW063912	6651335	512560	1	0	1	Clay					
					1	10	Shale	Shale				
					10	15	Shale					
					15	37	Basalt	Basalt		29	30	0.1
					37	54	Granite	Granite				
					54	56	Black					
					56	67	Basalt	Basalt				
42	GW064118	6653440	513370	12	0	7	Soil		2			
					7	12	Clay					
					12	18	Shale	Shale		12	18	0.6
					18	18.1	Basalt	Basalt				
43	GW064174	6653750	513360	0	0	16	Clay/ soft Shale	Shale				
					16	26	Shale			19	20	0.3
					26	30	Shale			25	26	0.3
44	GW064368	6653900	513490	22	0	2	Soil					
					2	22	Clay			21	22	0.3
					22	26	Shale	Shale		25	27	0.3
					26	32	Shale			30	31	0.1
					32	34	Shale					
45	GW064539	6653940	512940	2	0	2	Clay					
					2	16	Basalt	Basalt				

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					16	30	Basalt	Basalt				
					30	34	Shale	Shale				
					34	45	Basalt	Basalt				
					45	47	Rock Broken		45	46	47	0.4
					47	52	Basalt					
46	GW064686	6653650	513465	0	0	14	Shale	Shale				
					14	30	Coal/Shale					
					30	36	Shale			34	35	0.2
					36	38	Coal/Shale			38	46	0.8
					38	47	Shale					
					47	49	Shale					
47	GW064687	6653650	513465	8	0	8	Clay					
					8	92	Shale	Shale	20	28	30	0.1
					92	122	Sandstone	Sandstone		45	60	0.8
										75	90	1.5
										90	122	4
48	GW064794	6652160	511040	1	0	1	Clay					
					1	2	Shale	Shale	1			
					2	26	Basalt	Basalt				
					26	27	Broken Basalt			26	27	0.1
					27	76	Basalt					
					76	88	Granite	Granite		77	78	0.3
49	GW065609	6646235	506430	0	0	2	Shale	Shale				
					2	9	Basalt	Basalt				
					9	11	Broken Rock			9	11	0.5
					11	25	Basalt					
50	GW065856	6651230	512450	19	0	19	Brown Clay		4.3	28	31	0.06
					19	55	Chert	Chert		41.5	42.5	0.14
51	GW065858	6651890	512980		0	55			2.1	18	19	0.34
52	GW065859	6651740	512680	10	0	10	soil		3.5			
					10	34	Chert	Chert		24	25	0.78
					34	37	Slate	Slate		33	34	0.78
					37	49	Chert			37	38	2.4
53	GW065881	6653280	513445	7	0	3	fill					

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					3	7	Sand Gravel		6			
					7	26	Soft Shale	Shale				
					26	32	Hard Shale			23	37	0.6
					32	37	Fractured Basalt	Basalt				
54	GW065993	6652900	512550	0.2	0	0.2	topsoil					
					0.2	12	Soft Shale	Shale	9			
					12	24	Hard Shale					
					24	36	Shale					
					36	43	Basalt	Basalt				
					43	48	Fractured Basalt			43	48	3.16
55	GW066158	6654170	512630	4	0	1	Clay					
					1	4	Gravel and Shale					
					4	6	Shale	Shale	~	4	6	0.5
					6	18	Basalt	Basalt				
					18	20	Fractured Basalt			18	20	2
					20	23	Basalt					
56	GW066175	6652405	511965	16	0	0.3	Brown topsoil					
					0.3	4	Brown Clay					
					4	12	Red Clay					
					12	13	Brown clay					
					13	16	Dinner Plate granules					
					16	18	Hard Brown Shale	Shale				
					18	49	Basalt	Basalt	18			
					49	54	Fractured Basalt			49	54	2.27
57	GW066299	6650335	508300	13	0	1	Topsoil					
					1	13	Clay					
					13	29	Soft Shale	Shale	21			
					29	34	Hard Shale					
					34	38	Saturated Soft Shale			34	38	0.8
					38	40	Basalt	Basalt				
58	GW066470	6645000	506800						12.5	26	30	0.8
										35	36	0.2
59	GW066666	6647545	504965	0	0	18	Brown Shale	Shale	18			
					18	37	Basalt	Basalt				

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					37	42	Broken Basalt			37	42	1.52
					42	43	Basalt					
60	GW068230	6651321	512187	0	0	3	SHale	Shale				
					3	31	Soft Shale		27	28	32	0.3
					31	32	Quartz			48	50	0.2
					32	48	Hard Granite	Granite				
					48	50	Quartz					
					50	52	Hard Granite					
61	GW068483	6652090.1	511879.7	4	0	2	Topsoil					
					2	4	Soil Bound Gravel					
					4	16		Granite				
					16	20	Granite mix Quartz		16.5	20	26	0.1
					20	80	Granite and Quartz			74	76	0.1
62	GW068763	6650750	507503.6	0.6	0	0.6	Topsoil					
					0.6	18	Soft Shale	Shale				
					18	40	Brown Shale		18			
					40	49		Basalt				
					49	54	Broken Basalt			49	54	2.53
63	GW068806	6652003	512165.9	4	0	1	Topsoil					
					1	4	Clay					
					4	10	Shale	Shale	9.3	4	10	0.1
					10	14	Shale					
					14	20	Basalt	Basalt				
					20	28	Fractured Basalt			20	28	0.4
					28	31	Quartz					
64	GW068986	6650681.9	510863	0	0	5	Brown Shale	Shale				
					5	21			9			
					21	25	Cracky Basalt	Basalt		21	25	0.38
					25	27						
65	GW069009	6653833	512983.1	0	0	34		Shale	30.7	0.3		
					34	38	Shale	Shale				
					38	42	Hard Shale	Shale				
66	GW070097	6653714	512916.4	0.3	0	0.3	Red Topsoil					
					0.3	40	Brown Shale	Shale	20			

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					40	44	Cracky Shale			40	44	0.25
					44	76	Grey Shale					
					76	79		Basalt				
					79	84	Cracky Basalt			79	84	0.76
					84	86						
67	GW070282	6650105	506011	2	0	2	Clay/Shale					
					2	10	Soft Shale		8.9			
					10	12	Puggie Clay					
					12	16	Weathered Shale	Shale				
					16	26	Hard Shale			16	26	0.8
					26	28	Basalt	Basalt				
					28	30	Fractured Basalt					
					30	36	Basalt					
68	GW070291	6654336	510807.6	0~9	0	9	athered Rock and Clay		~			
					9	18	Weathered Shale	Shale				
					18	48	yered Shale and Clay			18	48	2.27
69	GW070520	6653685	512955	6	0	1	topsoil					
					1	6	Gravel					
					6	10	Soft Shale	Shale				
					10	26	Shale		16.7	20	26	0.1
					26	32	Hard Shale			36	45	0.4
					32	36	Soft Shale					
					36	45	Hard and Soft Shale					
70	GW070542	6652270	513209						1.8			1
71	GW071040	6654150	512465	3	0	3	Clay					
					3	18	Shale	Shale				
					18	20	Broken Rock	Basalt				
					20	22	Basalt			21	22	0.3
					22	24	Broken Rock			22	23	1
					24	26	Basalt			26	27	1
					26	27	Broken Rock					
72	GW071128	6654065.6	511963	0	0	12	Soft Brown Shale	Shale				
					12	36	Hard Brown Shale		20			
					36	39	ard Grey Cracky Shale			36	39	0.12

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					39	40	Hard Grey Shale					
					40	68		Basalt				
					68	73	Fractured Basalt			68	73	5.94
73	GW071290	6654161	512684	2	0	2	Clay					
					2	15	Soft Shale	Shale				
					15	17	Broken Rock			15	17	0.4
					17	28	Basalt	Basalt		28	30	2
					28	30	Broken Basalt					
					30	31	Basalt					
74	GW071387	6653010	512778	5	0	0.6	Red Topsoil					
					0.6	5	Red Clay					
					5	12	Brown Shale	Shale	9			
					12	18	Grey Shale					
					18	32	Basalt	Basalt		32	36	1.89
					32	36	Broken Basalt					
75	GW071911	6646840	508125	3	0	0.2	Topsoil					
					0.2	1	Red Clay					
					1	3	Brown Clay					
					3	12	Soft Brown Shale	Shale				
					12	15	Brown Shale		12			
					15	30	Grey Basalt	Basalt				
					30	35	Cracky Black Basalt			30	35	0.38
					35	66	Black Basalt			60	70	16.42
					66	70	ractured Grey Basalt					
76	GW072512	6653988.4	513398.7	7	0	0.6	Black Topsoil					
					0.6	7	Brown Clay					
					7	18	Brown Shale	Shale	10			
					18	31	Basalt	Basalt				
					31	36	Broken Basalt			31	36	1.77
77	GW072693	6650812.9	510496.6	0	0	5	Brown Shale	Shale				
					5	28	Blue Shale		27			
					28	31	Cracky Basalt	Basalt		28	31	0.06
					31	50	Basalt					
					50	54	Cracky Basalt			50	54	0.13

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					54	73	Basalt					
78	GW072728	6651000.8	512047.8	7.6	0	0.6	Topsoil					
					0.6	4.5	rown Clay and Gravel		3.5			
					4.5	7.6	actured metasedimaet			4.5	10.6	0.4
					7.6	10.6	Weathered Basalt	Basalt				
					10.6	19	Hard Basalt					
79	GW072933	6652268.6	513209.4		0	0.6						
					0.6	5.5	ine sand small gravel		4			
					5.5	7.6	Bentonite clay					
					7.6	10	e sand and large gravel			7.6	10	
					10	21.5	diment and Gravel (uniform) stringers			10	21.5	0.9
80	GW073055	6654499.6	513259.2	2	0	0.3	Brown Topsoil					
					0.3	2	Red CLay					
					2	3	Brown Shale	Shale				
					3	9	Brown Shale					
					9	56	Basalt	Basalt	48			
					56	61	Broken Basalt			56	61	3.79
81	GW073162	6644886	506800.3	0	0	6	Shale	Shale				
					6	40	Basalt	Basalt	30			
					40	43	Broken Shale			41	43	0.99
					43	49	Basalt					
82	GW073175	6652974	512860.6	5	0	0.3	Red Topsoil					
					0.3	5	Red Clay					
					5	18	Broown Shale	Shale	6			
					18	19	Grey hard Shale					
					19	24	Broken Grey Shale			19	24	0.76
83	GW073178	6653357	513320	5	0	0.6	Topsoil					
					0.6	5	Brown Clay					
					5	19	Brown Shale	Shale	6			
					19	24	Brown Shale			19	24	0.76
84	GW073189	6647188.7	506531	8	0	0.3	Grey Topsoil					
					0.3	8	Brown Shale	Shale				
					8	14	Basalt	Basalt	9			
					14	18	Cracky Basalt			14	18	0.18

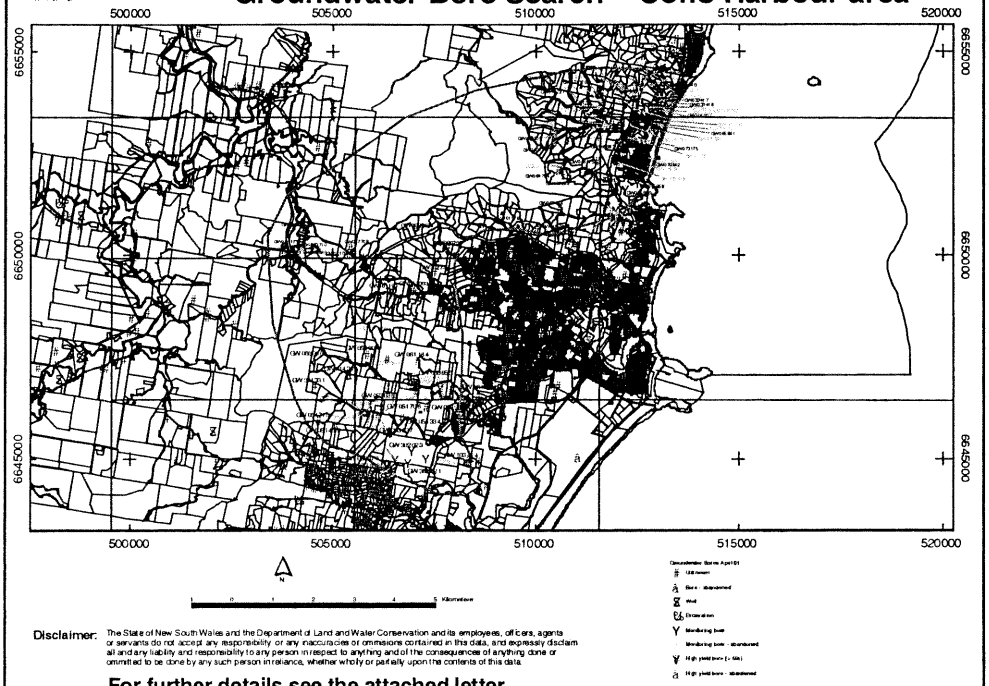
Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
85	GW073205	6653072.7	510871.1	0.3	0	0.3	Brown Topsoil					
					0.3	9	Brown Shale	Shale				
					9	27	Grey Shale		18			
					27	32	Grey Shale			27	32	0.51
					32	40	Grey Basalt	Basalt				
					40	43	Black Basalt					
					43	48	Cracky Black Basalt			43	48	0.76
86	GW073256	6650793.8	504444.6	0	0	12	Brown Shale	Shale	12			
					12	31	Grey Shale					
					31	36	rey Shale reef Quartz			31	36	0.76
87	GW073299	6654280.4	513332.6	1.5	0	0.3	Brown Topsoil					
					0.3	1.5	Brown Clay					
					1.5	5	Brown SHale	Shale				
					5	20	Grey Shale		9			
					20	26	Basalt	Basalt				
					26	30.5	Broken Basalt			26	30.5	2.53
88	GW103414	6645071	508797		0	39						3.75
89	GW300734	6652908	510956	3	0	3	red Clay					
					3	9	Brown Shale	Shale				
					9	29	Basalt	Basalt	10			
					29	34	Cracky Basalt			29	34	0.51
					34	53	Basalt					
					53	58	Broken Basalt			53	58	1.01
					58	62	Basalt					
90	GW300931	6647578	506824	3	0	0.6	Topsoil			0	28	0.51
					0.6	3	Brown Clay					
					3	9	Brown Shale	Shale	8			
					9	24	Basalt	Basalt				
					24	28	Cracky Basalt					
					28	44	Basalt					
					44	48	Broken Basalt			44	48	2.02
91	GW300999	6650265	504641	6	0	6	Pink Shale	Shale	18			
					6	33	Basalt	Basalt				
					33	37	Cracked Basalt			35	37	0.26

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					37	43	Basalt					
					43	48	Cracked Basalt			43	48	0.38
92	GW301007	6653643	513554									
93	GW301087	6652500	513221	2	0	0.3	Brown Topsoil					
					0.3	2	Brown Clay	Shale				
					2	32	Brown Shale	Basalt	18			
					32	43	Basalt					
					43	48	Broken Basalt			43	48	1.82
94	GW301193	6649260	506842	10	0	10	Clay		8	0	0	0.2
					10	12	Weathered Shale	Shale		10	12	0.2
					12	24.4	Shale					
					24.4	25.9	hale and Reef Quartz					
					25.9	29.6	Shale					
95	GW301200	6646293	506163	1.2	0	0.6	Brown Topsoil					
					0.6	1.2	Brown Clay					
					1.2	8	Brown Shale	Shale				
					8	9	Weathered Basalt	Basalt				
					9	33	Basalt		9			
					33	38	Broken Basalt			33	38	0.76
96	GW301239	6644886	506878	0	0	3	Broken Shale	Shale				
					3	33	Basalt	Basalt	6			
					33	38	Cracky Basalt			33	38	0.51
97	GW301250	6653077	510951	7.6	0	0.6	Topsoil					
					0.6	7.6	Clay and Floaters					
					7.6	24.4	Fractured Shale	Shale	4	11	24.4	1
					24.4	31.4	Shale					
98	GW301322	6650191	504246	0.3	0	0.3	Topsoil					
					0.3	12	Yellow Shale	Shale	12			
					12	24	Basalt	Basalt				
					24	29	Crackt Basalt			24	29	0.38
					29	36	Basalt					
99	GW301331	6646908	505015	12	0	12	Red/ Brown Shale					
					12	18	Brown Shale	Shale				
					18	41	Basalt	Basalt	18			

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					41	46	Broken Basalt			41	46	1.9
					46	48	Basalt					
100	GW301377	6653767	512069						0.7			
101	GW301392	6654128	512911	0	0	12	Brown Shale					
					12	36	Grey Shale	Shale	18			
					36	49	Basalt	Basalt				
					49	54	Broken Basalt			49	54	1.14
102	GW301547	6650265	504641	0	0	6	Pink Shale	Shale	18			
					6	33	Basalt	Basalt				
					33	37	Cracky Basalt			33	37	0.25
					37	43	Basalt			43	48	0.38
					43	48	Cracky Basalt					
103	GW301578	6650899	510158	5	0	0.3	Red Topsoil					
					0.3	5	Red Clay					
					5	9	Brown Shale	Shale				
					9	34	Basalt	Basalt	9			
					34	39	Cracky Basalt			34	39	0.25
					39	42	Basalt					
104	GW301886	6653233	513198		0	5						3.33
105	GW301925	6654206	512655	4	0	4	Gravel and Clay					
					4	6	Shale	Shale				
					6	24	Basalt	Basalt	20			
					24	27	Broken rock			26	27	0.61
					27	35	Basalt					
					35	38	Shale			35	38	0.61
					38	47	Basalt					
					47	50	Broken Rock			47	50	2.47
					50	52	Basalt					
106	GW302022	6645110	507038	2.6								
107	GW302055	6653270	512255		0	75						1.89
108	GW302295	6644796	506981	1	0	1	Shale	Shale				
					1	22	Basalt	Basalt				
					22	26	Fractured Basalt					
					26	58	Soft Basalt		38			

Locality Plan no.	DLWC Bore No.	Northing	Easting	Bedrock Depth	Overburden material			Bedrock material	S.W.L (m)	Water bearing zones		Yield(L/s)
					From	To	Geological description			From	To	
					58	61	Basalt			58	61	0.3
					61	64	Basalt			61	64	0.2
109	GW302315	6649210	507477	13.4	0	0.6	Fill					
					0.6	1.2	Soil					
					1.2	13.4	Slop and Stones		2			
					13.4	62.4	Firm Grey shale	Shale		24	56	1
110	GW302330	6649704	507949	9	0	0.6	Topsoil					
					0.6	6	Brown Clay		2			
					6	9	Grey Clay					
					9	12	Brown Shale	Shale				
					12	25	Brown SHale					
					25	28	Basalt	Basalt				
					28	33	Cracky Basalt			28	33	
					33	36	Basalt					
					36	41	Cracky Basalt			36	41	5
					41	42	Basalt					

Groundwater Bore Search - Coffs Harbour area



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For further details see the attached letter

Lynnie Cairns - North Coast Date: 18/04/2002 ft\gds_boresearch\arcview projects\connor_wagner\coffs.apr


GW073055
GW070291
GW071128
GW056297
GW066158
GW071040
GW072512
GW064368
GW033417
GW033418
GW064174
GW064687
GW064686
GW017890
GW301007
GW070520
GW064118
GW073178
GW065881
GW301886
GW059711
GW073205
GW065993
GW300734
GW073175
GW071387
GW066175
GW301087
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GW072933
GW064794
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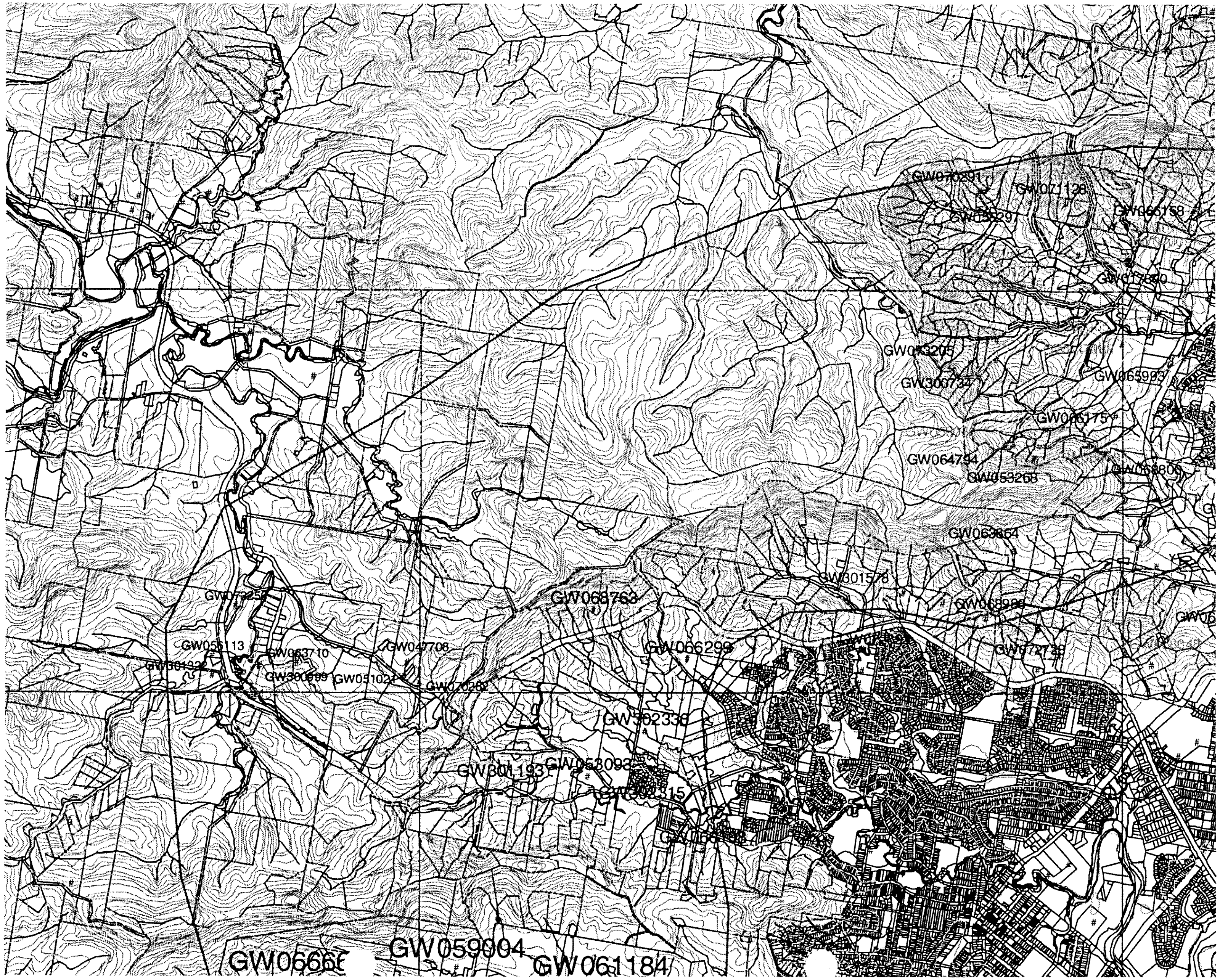


GW070291
GW300734
GW065993
GW064794
GW053268
GW063654
GW301578
GW068763
GW066299
GW302336
GW063710
GW047708
GW051021
GW059004
GW061184


GW063710
GW070282
GW362338
GW053093
GW302315
GW059004
GW066666
GW061184
GW014246
GW063655
GW361331
GW063638
GW051708
GW054719
GW054334
GW056456
GW063637
GW302023
GW103414
GW066470
GW073162
GW302021
GW302295

Date/Time :18-Apr-2002 10:01 AM
User :LCAIRNS
Report :RMGW001D.QRP
Executable :S:\G5\PROD32\GROUND.EXE
Exe Date :05-Dec-2001
System :Groundwater
Database :Dlwcp

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW014246

Converted From HYDSYS

License :

Work Type : Well
Work Status :(Unknown)
Construct. Method :(Unknown)
Owner Type : Private

Authorised Purpose(s)

Intended Purpose(s)
IRRIGATION

Commenced Date :
Completion Date :01-Nov-1955

Final Depth : 6.10 m
Drilled Depth : 6.10 m

Contractor Name :
Driller :

Property :
GWMA :
GW Zone :

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

County
Form A :RALEIGH
Licensed :

Parish
BONVILLE

Portion/Lot DP
202

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :

Scale :

Elevation :
Elevation Source :(Unknown)

Northing :6647197
Easting :505820

Latitude (S) :30° 18' 25"
Longitude (E) :153° 3' 38"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Timber	-0.30	-0.30	1524			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.20	6.10	0.90	Unconsolidated	2.70		2.53			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	6.10	6.10	Gravel Creek Water Supply	Gravel	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	06-Nov-1955	10.00	2.70	4.60	2.53	4.90	(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW017890

Converted From HYDSYS

License :

Work Type : Well
Work Status : (Unknown)
Construct. Method : (Unknown)
Owner Type : Private

Authorised Purpose(s)

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date : 01-Dec-1953

Final Depth : 7.00 m
Drilled Depth : 0.00

Contractor Name :
Driller :

Property :
GWMA :
GW Zone :

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

County
Form A : FITZROY
Licensed :

Parish
MOONEE

Portion/Lot DP
259

Region : 30 - NORTH COAST
River Basin : 205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :

Scale :

Elevation :
Elevation Source : (Unknown)

Northing : 6653630
Easting : 512295

Latitude (S) : 30° 14' 56"
Longitude (E) : 153° 7' 40"

GS Map : 0092A2 **AMG Zone :** 56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Timber	-0.10	-0.10	1829			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Dec-1953	8.00	2.10	5.50	1.01	6.40	(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW017890 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW033417 *Converted From HYDSYS*

License :

Work Type : Well
Work Status : (Unknown)
Construct. Method : (Unknown)
Owner Type : Private

Authorised Purpose(s)

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date : 01-May-1971

Final Depth : 10.10 m
Drilled Depth : 10.10 m

Contractor Name :
Driller :

Property :
GWMA :
GW Zone :

Standing Water Level :
Salinity : Potable
Yield :

Site Details

Site Chosen By

County
Form A : FITZROY
Licensed :

Parish
MOONEE

Portion/Lot DP
12

Region : 30 - NORTH COAST
River Basin : 205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source : (Unknown)

Northing : 6653853
Easting : 513657

Latitude (S) : 30° 14' 48"
Longitude (E) : 153° 8' 31"

GS Map : 0092A2 **AMG Zone :** 56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Concrete Cylnder	-0.30	-0.30	914			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
3.00	3.20	0.20	Unconsolidated	0.90					Potable
10.10	10.70	0.60	Fractured	9.10					Potable

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.83	1.83	Soil Clay	Soil	
1.83	7.62	5.79	Clay Light Shale Water Supply	Clay	
7.62	10.06	2.44	Shale Hard Water Supply	Shale	
10.06	10.07	0.01	Rock	Rock	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-May-1971	72.00	3.70	6.10	0.38	7.30	(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

304.8M FROM PACIFIC OCEAN

***** End of GW033417 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW033418 *Converted From HYDSYS*

License :

Work Type : Well
Work Status : (Unknown)
Construct. Method : (Unknown)
Owner Type : Private

Authorised Purpose(s)

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date : 01-Jan-1970

Final Depth : 7.90 m
Drilled Depth : 7.90 m

Contractor Name :
Driller :

Property :
GWMA :
GW Zone :

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

County
Form A : FITZROY
Licensed :

Parish
MOONEE

Portion/Lot DP
12

Region : 30 - NORTH COAST
River Basin : 205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :

Scale :

Elevation :
Elevation Source : (Unknown)

Northing : 6653850
Easting : 513793

Latitude (S) : 30° 14' 48"
Longitude (E) : 153° 8' 36"

GS Map : 0092A2 **AMG Zone :** 56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Concrete Cylinder	0.00	0.00	914			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
3.70	4.90	1.20	Unconsolidated	2.70		0.51			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	4.57	4.57	Sand Gravel	Sand	
4.57	7.92	3.35	Clay	Clay	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	06-Jun-1970	168.00	3.00	4.90	22.73	6.70	(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

45.7M FROM PACIFIC OCEAN WATER QUALITY ORIGINALLY 1ST CLASS-NOW SALTY- JUNE'70

***** End of GW033418 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW047708 *Converted From HYDSYS*

License :30BL115142

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC
IRRIGATION
STOCK

Intended Purpose(s)
IRRIGATION

Commenced Date :
Completion Date :01-Mar-1980

Final Depth : 22.00 m
Drilled Depth : 22.00 m

Contractor Name :
Driller :

Property : - WATSON'S
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : 0-500 ppm
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	L6 DP558554 (358)
Licensed :	FITZROY	COFF	LT 6 DP 588554

Region :30 - NORTH COAST
River Basin :204 - CLARENCE RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)

Northing :6650300
Easting :505897

Latitude (S) :30° 16' 44"
Longitude (E) :153° 3' 41"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	20.00	115			Driven into Hole
1	1	Opening	Slots	17.00	20.00	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
18.00	19.00	1.00	Fractured			1.30			0-500 ppm

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	18.00	18.00	Shale Clay	Shale	
18.00	22.00	4.00	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	12-Mar-1980	1.00			1.30		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW047708 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW047988 *Converted From HYDSYS*

License :30BL116665

Work Type : Bore open thru rock
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s) IRRIGATION
Intended Purpose(s) IRRIGATION

Commenced Date :
Completion Date :01-Mar-1981
Final Depth : 27.50 m
Drilled Depth : 27.50 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	148
Licensed :	FITZROY	COFF	148

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2
Scale :1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6653035
Easting :512035
Latitude (S) :30° 15' 15"
Longitude (E) :153° 7' 30"

GS Map :0092A2 **AMG Zone :**56
Coordinate Source :GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Threaded Steel	0.00	6.60	127			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
6.60	7.40	0.80	Fractured	1.00		0.82			(Unknown)
21.00	27.50	6.50	Fractured	1.00		6.31			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.80	1.80	Clay	Clay	
1.80	3.40	1.60	Gravel	Gravel	
3.40	3.80	0.40	Gravel Clay	Gravel	
3.80	9.00	5.20	Shale Water Supply	Shale	
9.00	10.70	1.70	Quartz	Invalid Code	
10.70	13.80	3.10	Shale	Shale	
13.80	21.00	7.20	Shale Black	Shale	
21.00	22.30	1.30	Basalt Water Supply	Basalt	
22.30	25.00	2.70	Shale Water Supply	Shale	
25.00	26.00	1.00	Quartz Water Supply	Invalid Code	
26.00	27.50	1.50	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	03-Mar-1981		1.00		6.31		Bailer			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW047988 *Converted From HYDSYS*

*** End of GW047988 ***

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW048616 *Converted From HYDSYS*

License :30BL107387

Work Type : Well
Work Status : Test Hole
Construct. Method :(Unknown)
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
GENERAL USE

Commenced Date :
Completion Date :

Final Depth : 5.50 m
Drilled Depth : 0.00

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	327
Licensed :	FITZROY	MOONEE	LT 327 DP 752834

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)

Northing :6653725
Easting :512075

Latitude (S) :30° 14' 52"
Longitude (E) :153° 7' 32"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Drilled	0.00	0.00	2000			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Jan-1977						(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW048616 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW049234 *Converted From HYDSYS*

License :30BL109047

Work Type : Bore open thru rock
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Dec-1978

Final Depth : 22.60 m
Drilled Depth : 22.50 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	L2 DP246562 (11)
Licensed :	RALEIGH	BONVILLE	LT 2 DP 246562

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)

Northing :6646887
Easting :507597

Latitude (S) :30° 18' 35"
Longitude (E) :153° 4' 44"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	6.00	104			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
11.60	11.60	0.00	Fractured						(Unknown)
15.00	15.00	0.00	Fractured						(Unknown)
19.20	19.20	0.00	Fractured	10.50		0.50			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	5.45	5.45	Clay	Clay	
5.45	11.60	6.15	Clay Shale	Clay	
11.60	22.50	10.90	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	12-Dec-1978		10.50		0.50		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW049234 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

Converted From HYDSYS

GW050939

License : 30BL115133

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC
STOCK

Intended Purpose(s)
DOMESTIC
STOCK

Commenced Date :
Completion Date : 01-Apr-1980

Final Depth : 27.00 m
Drilled Depth : 27.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	10
Licensed :	RALEIGH	BONVILLE	67

Region : 30 - NORTH COAST
River Basin : 205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source : (Unknown)

Northing : 6646400
Easting : 507762

Latitude (S) : 30° 18' 51"
Longitude (E) : 153° 4' 51"

GS Map : 0092A2 **AMG Zone :** 56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	27.00	115			Driven into Hole
1	1	Opening	Slots	24.00	27.00	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
20.00	23.00	3.00	Fractured			0.65			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	9.00	9.00	Clay	Clay	
9.00	27.00	18.00	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	29-Apr-1980	1.00			0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW050939 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW051021

Converted From HYDSYS

License :30BL114796

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Feb-1980

Final Depth : 21.00 m
Drilled Depth : 21.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A :FITZROY	COFF	L4 DP588554 (358)
Licensed :FITZROY	COFF	LT 4 DP 588554

Region :30 - NORTH COAST
River Basin :204 - CLARENCE RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)

Northing :6650172
Easting :505875

Latitude (S) :30° 16' 48"
Longitude (E) :153° 3' 40"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	18.00	115			Driven into Hole
1	1	Opening	Slots	15.00	18.00	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
10.00	15.00	5.00	(Unknown)			0.01			(Unknown)
18.00	20.00	2.00	Fractured			0.07			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	15.00	15.00	Clay Shale	Clay	
15.00	21.00	6.00	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	23-Feb-1980	1.00			0.08		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW051021 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW051415 *Converted From HYDSYS*

License :30BL117904

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type : Private

Authorised Purpose(s)
DOMESTIC
STOCK

Intended Purpose(s)
DOMESTIC
STOCK

Commenced Date :
Completion Date :01-Dec-1980

Final Depth : 35.70 m
Drilled Depth : 35.70 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

County
Form A :FITZROY
Licensed :FITZROY

Parish
MOONEE
MOONEE

Portion/Lot DP
L1 DP517281 (106)
LT 1 DP 517281

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)

Northing :6653313
Easting :512338

Latitude (S) :30° 15' 6"
Longitude (E) :153° 7' 42"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Threaded Steel	0.00	35.60	115			Driven into Hole
1	1	Opening	Slots	18.60	36.60	115		1	SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
21.00	21.30	0.30	Fractured			0.19			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.20	1.20	Soil	Soil	
1.20	14.90	13.70	Clay Shale Interlayere	Clay	
14.90	35.70	20.80	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	06-Dec-1980	1.00			0.19		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW051415 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW051708 *Converted From HYDSYS*

License :30BL114964

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Apr-1980

Final Depth : 18.30 m
Drilled Depth : 18.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	22
Licensed :	RALEIGH	BONVILLE	21

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2
Scale :1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646295
Easting :506670

Latitude (S) :30° 18' 54"
Longitude (E) :153° 4' 10"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Welded Steel	0.00	14.00	115			Driven into Hole
1	1	Opening	Slots	9.00	14.00	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
10.00	12.00	2.00	Fractured			0.39			Good
16.00	18.00	2.00	Fractured			0.26			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	9.00	9.00	Clay Some Small Gravel	Clay	
9.00	18.00	9.00	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	28-Apr-1980	1.00	12.20		0.38	15.20	Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW051708 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW052382

Converted From HYDSYS

License :30BL117034

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC
STOCK

Intended Purpose(s)
GENERAL USE

Commenced Date :
Completion Date :01-Nov-1980

Final Depth : 19.50 m
Drilled Depth : 19.50 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	L21 (10)
Licensed :	RALEIGH	BONVILLE	L21

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646765 **Latitude (S) :**30° 18' 39"
Easting :507525 **Longitude (E) :**153° 4' 42"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	18.30	115			Driven into Hole
1	1	Opening	Slots	6.10	18.30	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
12.00	12.20	0.20	Unconsolidated			0.75			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.20	1.20	Soil	Soil	
1.20	12.20	11.00	Clay Water Supply	Clay	
12.20	13.70	1.50	Gravel	Gravel	
13.70	19.50	5.80	Shale	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	29-Nov-1980	1.00			0.75		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW052382 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW053093 *Converted From HYDSYS*

License :30BL136732

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC
STOCK

Intended Purpose(s)
IRRIGATION

Commenced Date :
Completion Date :01-Feb-1981

Final Depth : 6.70 m
Drilled Depth : 6.70 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	201
Licensed :	FITZROY	COFF	201

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6649300
Easting :507450

Latitude (S) :30° 17' 16"
Longitude (E) :153° 4' 39"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	6.00	115			Seated
1	1	Opening	Slots	0.00	6.00	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.90	6.70	1.80	Unconsolidated			0.65			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.50	1.50	Soil	Soil	
1.50	4.90	3.40	Clay Gravel	Clay	
4.90	6.70	1.80	Gravel Water Supply	Gravel	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	27-Feb-1981	1.00			0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW053093 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW053268

Converted From HYDSYS

License :30BL119304

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type : Private

Authorised Purpose(s)
DOMESTIC
IRRIGATION
STOCK

Intended Purpose(s)
IRRIGATION

Commenced Date :
Completion Date :01-May-1980

Final Depth : 28.30 m
Drilled Depth : 28.30 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : 0-500 ppm
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	LOT 359 DP44800
Licensed :	FITZROY	MOONEE	LT359 DP44800

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6652145 **Latitude (S) :**30° 15' 47"
Easting :511250 **Longitude (E) :**153° 7' 2"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter,ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	28.30	115			Driven into Hole
1	1	Opening	Slots	0.00	18.30	115		1	Slotted On Site; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
2.00	2.10	0.10	Unconsolidated			0.26			(Unknown)
7.00	7.60	0.60	Unconsolidated			0.39			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	Soil Stones Water Supply	Soil	
6.00	28.30	22.30	Granite Water Supply	Granite	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	14-May-1980		2.10		0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

ORARA EAST STATE FOREST NO 536

*** End of GW053268 ***

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW054211 *Converted From HYDSYS*

License :30BL113983

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Feb-1981

Final Depth : 46.60 m
Drilled Depth : 46.60 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	106
Licensed :	FITZROY	MOONEE	P+ Port 106

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6653275
Easting :512325

Latitude (S) :30° 15' 7"
Longitude (E) :153° 7' 41"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Welded Steel	0.00	46.90	110			Driven into Hole
1	1	Opening	Slots	29.90	46.90	110		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
35.00	35.00	0.00	Fractured			0.10			(Unknown)
42.00	42.70	0.70	Fractured			0.19			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Soil	Soil	
3.00	12.10	9.10	Clay	Clay	
12.10	15.20	3.10	Shale	Shale	
15.20	46.60	31.40	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	25-Feb-1981				0.29		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW054211 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW054334 *Converted From HYDSYS*

License :30BL115471

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Apr-1980

Final Depth : 30.00 m
Drilled Depth : 0.00

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	67
Licensed :	RALEIGH	BONVILLE	P+ Port 67

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646100 **Latitude (S) :**30° 19' 0"
Easting :507180 **Longitude (E) :**153° 4' 29"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details

(No Construction Details Found)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	24-Apr-1980		6.00	20.00	0.83		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW054334 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW054719 *Converted From HYDSYS*

License :30BL117519

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type : Private

	Authorised Purpose(s)	Intended Purpose(s)
	DOMESTIC	DOMESTIC
	STOCK	STOCK

Commenced Date :
Completion Date :01-Dec-1980
Final Depth : 21.00 m
Drilled Depth : 21.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :RALEIGH	BONVILLE	201
	Licensed :RALEIGH	BONVILLE	201

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646040 **Latitude (S) :**30° 19' 2"
Easting :505125 **Longitude (E) :**153° 3' 12"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	21.00	115			(Unknown)
1	1	Opening	Slots	9.00	21.00	115		1	SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
16.00	18.00	2.00	(Unknown)			1.30			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Soil	Soil	
2.00	9.00	7.00	Soil Gravel	Soil	
9.00	11.00	2.00	Soil	Soil	
11.00	15.00	4.00	Soil Gravel	Soil	
15.00	21.00	6.00	Gravel Shale Interlayere Water Supply	Gravel	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	18-Dec-1980				1.30		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW054719 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW055122 *Converted From HYDSYS*

License :30BL119303

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
STOCK	STOCK

Commenced Date :
Completion Date :01-Mar-1981

Final Depth : 19.80 m
Drilled Depth : 19.80 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	24
Licensed :	RALEIGH	BONVILLE	24

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6647000 **Latitude (S) :**30° 18' 31"
Easting :507510 **Longitude (E) :**153° 4' 41"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.20	20.20	115			Seated on Bottom
1	1	Opening	Slots	8.00	20.00	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
10.70	12.20	1.50	(Unknown)			0.52			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Soil	Soil	
3.00	16.80	13.80	Clay Some Gravel Water Supply	Clay	
16.80	19.80	3.00	Shale	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	10-Mar-1981				0.52		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW055122 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW055297 *Converted From HYDSYS*

License :30BL117612

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

	Authorised Purpose(s)	Intended Purpose(s)
	DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :01-Jul-1981

Final Depth : 27.40 m
Drilled Depth : 27.40 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	324
	Licensed :FITZROY	MOONEE	324

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)

Northing :6653787
Easting :511662

Latitude (S) :30° 14' 50"
Longitude (E) :153° 7' 16"

GS Map :0092A1 **AMG Zone :**56

Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	-0.60	27.40	115			Driven into Hole
1	1	Opening	Slots	9.80	27.40	115		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
13.70	15.20	1.50	(Unknown)			0.65			(Unknown)
21.30	22.90	1.60	(Unknown)			0.39			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.91	0.91	Topsoil	Topsoil	
0.91	27.40	26.49	Water Supply	(Unknown)	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	29-Jul-1981				1.04		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW055297 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW055517 *Converted From HYDSYS*

License :30BL120663

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Jun-1981

Final Depth : 29.00 m
Drilled Depth : 29.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	L23 DP537097 (29)
Licensed :	RALEIGH	BONVILLE	L23 DP537097 (P+ Po#

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646250 **Latitude (S) :**30° 18' 55"
Easting :506290 **Longitude (E) :**153° 3' 56"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.30	29.00	100			Seated on Bottom
1	1	Opening	Slots	5.30	29.30	100		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
11.00	11.00	0.00	Fractured			0.19			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	4.30	4.30	Clay	Clay	
4.30	29.00	24.70	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	26-Jun-1981				0.19		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW055517 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW055518 *Converted From HYDSYS*

License :30BL121132

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s) DOMESTIC
Intended Purpose(s) DOMESTIC

Commenced Date :
Completion Date :01-Nov-1981
Final Depth : 23.00 m
Drilled Depth : 23.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	L24 (29)
Licensed :	RALEIGH	BONVILLE	L24 (P+ Port 29)

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2
Scale :1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646250
Easting :506245
Latitude (S) :30° 18' 55"
Longitude (E) :153° 3' 54"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	23.00	127			Driven into Hole
1	1	Opening	Slots	11.00	23.00	127		1	SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
10.00	13.00	3.00	Fractured			0.26			(Unknown)
19.00	21.00	2.00	Fractured			0.31			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Soil	Soil	
1.00	2.00	1.00	Clay	Clay	
2.00	10.00	8.00	Shale	Shale	
10.00	23.00	13.00	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	13-Nov-1981				0.57		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW055518 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW056113 *Converted From HYDSYS*

License :30BL122148

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
GENERAL USE

Commenced Date :
Completion Date :01-Feb-1982

Final Depth : 23.00 m
Drilled Depth : 23.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	L1 DP585500 (14)
Licensed :	FITZROY	COFF	L1 DP585500

Region :30 - NORTH COAST
River Basin :204 - CLARENCE RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6650365 **Latitude (S) :**30° 16' 42"
Easting :504240 **Longitude (E) :**153° 2' 39"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	23.00	127			Seated on Bottom
1	1	Opening	Slots	5.00	23.00	127		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
17.00	20.00	3.00	Fractured	6.00		0.65			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Clay	Clay	
3.00	23.00	20.00	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	18-Feb-1982		6.00		0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW056113 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW056456 *Converted From HYDSYS*

License :30BL122700

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 22.00 m
Completion Date :01-Feb-1982 **Drilled Depth :** 22.00 m

Contractor Name :
Driller :

Property : **Standing Water Level :**
GWMA : - **Salinity :** (Unknown)
GW Zone : - **Yield :**

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	110
Licensed :	RALEIGH	BONVILLE	P+ Port 110

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6645940 **Latitude (S) :**30° 19' 6"
Elevation Source :(Unknown) **Easting :**505565 **Longitude (E) :**153° 3' 28"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	22.00	125			Seated on Bottom
1	1	Opening	Slots	10.00	22.00	125		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
9.00	12.00	3.00	Unconsolidated			0.26			(Unknown)
18.00	20.00	2.00	Fractured			0.39			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	4.00	4.00	Clay	Clay	
4.00	17.00	13.00	Gravel Clay Interlayere Water Supply	Gravel	
17.00	22.00	5.00	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	19-Feb-1982				0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW056456 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW057225 *Converted From HYDSYS*

License :30BL122198

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Nov-1981

Final Depth : 35.00 m
Drilled Depth : 35.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	L3 DP246562 (11)
Licensed :	RALEIGH	BONVILLE	LT 3 DP 246562

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646890 **Latitude (S) :**30° 18' 35"
Easting :507435 **Longitude (E) :**153° 4' 38"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	36.00	127			(Unknown)
1	1	Opening	Slots	18.00	36.00	127		1	SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
29.00	31.00	2.00	Fractured			0.39			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Soil	Soil	
3.00	14.00	11.00	Shale Gravel	Shale	
14.00	24.00	10.00	Shale	Shale	
24.00	35.00	11.00	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	13-Nov-1981				0.39		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW057225 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW058648 *Converted From HYDSYS*

License :30BL128978

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Jan-1979

Final Depth : 20.00 m
Drilled Depth : 0.00

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	96
Licensed :	FITZROY	COFF	96

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6651135 **Latitude (S) :**30° 16' 17"
Easting :512310 **Longitude (E) :**153° 7' 41"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details

(No Construction Details Found)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Jan-1984				0.13		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW058648 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW059004 *Converted From HYDSYS*

License :30BL117135

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type : Private

Authorised Purpose(s)
DOMESTIC
IRRIGATION
STOCK

Intended Purpose(s)
IRRIGATION

Commenced Date :
Completion Date :01-Nov-1982
Final Depth : 23.50 m
Drilled Depth : 23.50 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	L102 DP608862 (162)
Licensed :	RALEIGH	BONVILLE	NOT AVAILABLE

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6647675 **Latitude (S) :**30° 18' 9"
Easting :506325 **Longitude (E) :**153° 3' 57"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.50	23.50	127			Seated on Bottom
1	1	Opening	Slots	5.50	23.50	127		1	SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
7.00	8.00	1.00	Unconsolidated			0.26			(Unknown)
17.00	19.00	2.00	Fractured			0.52			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Soil	Soil	
2.00	7.00	5.00	Clay White Water Supply	Clay	
7.00	17.00	10.00	Shale	Shale	
17.00	23.50	6.50	Blue Metal Water Supply	Blue Metal	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	03-Nov-1982				0.78		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW059004 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW059050 *Converted From HYDSYS*

License :30BL126752

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	IRRIGATION
IRRIGATION	
STOCK	

Commenced Date :
Completion Date :01-Jun-1983
Final Depth : 50.00 m
Drilled Depth : 50.00 m

Contractor Name :
Driller :

Property : - LUCAS'S
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	LOT 359 DP44800
Licensed :	FITZROY	MOONEE	LOT 359 DP 44800

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6652220 **Latitude (S) :**30° 15' 41"
Easting :511115 **Longitude (E) :**153° 6' 56"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	50.00	125			Seated on Bottom
1	1	Opening	Slots	32.00	50.00	125		1	SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
36.00	45.00	9.00	Fractured			0.39			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Soil	Soil	
0.00	2.00	2.00	Stones Floater	Stones	
2.00	36.00	34.00	Basalt	Basalt	
36.00	45.00	9.00	Shale Water Supply	Shale	
45.00	50.00	5.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	17-Jun-1983	2.00			0.39	48.00	Turbine Pump, Subm			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

STATE FOREST NO 8

***** End of GW059050 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW059711 *Converted From HYDSYS*

License :30BL120717

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Nov-1981

Final Depth : 24.00 m
Drilled Depth : 24.00 m

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	L2 DP542426 (14)
Licensed :	FITZROY	MOONEE	LT 2 DP 542426

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2
Scale :1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6653300
Easting :512830

Latitude (S) :30° 15' 6"
Longitude (E) :153° 7' 60"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	24.00	127			Seated on Bottom
1	1	Opening	Slots	12.00	24.00	127		1	Mechanically Slotted; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
12.00	14.00	2.00	Unconsolidated			0.13			(Unknown)
15.00	18.00	3.00	Fractured			0.52			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Soil	Soil	
2.00	15.00	13.00	Clay Water Supply	Clay	
15.00	24.00	9.00	Shale Water Supply	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	11-Nov-1981				0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW059711 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW060108 *Converted From HYDSYS*

License :30BL178164

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	IRRIGATION
STOCK	

Commenced Date :
Completion Date :01-Jul-1984
Final Depth : 36.00 m
Drilled Depth : 36.00 m

Contractor Name :
Driller :

Property : - " JARRETT'S "
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A :FITZROY	COFF	LOT 1 DP362238
Licensed :FITZROY	COFF	LT 1 DP 362238

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6648700 **Latitude (S) :**30° 17' 36"
Easting :508435 **Longitude (E) :**153° 5' 16"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	36.00	125			Seated on Bottom
1	1	Opening	Slots	10.00	16.00	125		1	Plastic; SL: 0mm; A: 0mm
1	1	Opening	Slots	24.00	36.00	125		2	Plastic; SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
13.00	16.00	3.00	(Unknown)			0.65			(Unknown)
29.00	31.00	2.00	(Unknown)			1.30			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Topsoil Black	Topsoil	
1.00	4.00	3.00	Clay	Clay	
4.00	7.00	3.00	Shale	Shale	
7.00	13.00	6.00	Basalt	Basalt	
13.00	16.00	3.00	Rock Broken Water Supply	Rock	
16.00	29.00	13.00	Basalt Hard	Basalt	
29.00	31.00	2.00	Rock Broken Water Supply	Rock	
31.00	36.00	5.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	09-Jul-1984				1.95		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW061184 *Converted From HYDSYS*

License :30BL133224

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 25.00 m
Completion Date :01-Aug-1985 **Drilled Depth :** 25.00 m

Contractor Name :
Driller :

Property : **Standing Water Level :**
GWMA : - **Salinity :** (Unknown)
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :RALEIGH	BONVILLE	24
	Licensed :RALEIGH	BONVILLE	PT24

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6647515 **Latitude (S) :**30° 18' 14"
Elevation Source :(Unknown) **Easting :**507565 **Longitude (E) :**153° 4' 43"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	25.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	19.00	25.00	125		1	Mechanically Slotted; SL: 0mm; A: 1.5mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
21.00	23.00	2.00	Fractured			1.30			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Soil	Soil	
3.00	7.00	4.00	Clay	Clay	
7.00	21.00	14.00	Basalt	Basalt	
21.00	23.00	2.00	Quartz Fractured Basalt Water Supply	Invalid Code	
23.00	25.00	2.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	15-Aug-1985				1.30		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW061184 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW061618 *Converted From HYDSYS*

License :30BL133638

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
STOCK	STOCK

Commenced Date : **Final Depth :** 32.00 m
Completion Date :01-Nov-1985 **Drilled Depth :** 32.00 m

Contractor Name :D C JACKWITZ
Driller :1022 JACKWITZ, Douglas Charles

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield : 1.56 L/s

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A :FITZROY	MOONEE	LOT 101 DP604622
Licensed :FITZROY	MOONEE	LT 101 DP 604622

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6653767 **Latitude (S) :**30° 14' 51"
Easting :512075 **Longitude (E) :**153° 7' 32"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	32.00	125			Rotary
1	1	Casing	P.V.C.	0.00	32.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	20.00	32.00	125		1	PVC; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
18.00	20.00	2.00	Fractured			0.39			(Unknown)
23.00	25.00	2.00	Fractured			0.39			(Unknown)
27.00	30.00	3.00	Fractured			0.78			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	4.00	4.00	Clay	Clay	
4.00	29.00	25.00	Shale Water Supply	Shale	
29.00	31.00	2.00	Shale Hard Water Supply	Shale	
31.00	32.00	1.00	Shale Hard Basalt	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	19-Nov-1985				1.56		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Jetting	1.00	

Remarks

***** End of GW061618 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW061642 *Converted From HYDSYS*

License :30BL133943

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :01-Mar-1986

Final Depth : 53.00 m
Drilled Depth : 53.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :RALEIGH	BONVILLE	L3 (23)
	Licensed :RALEIGH	BONVILLE	LT3 PT23

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646825 **Latitude (S) :**30° 18' 37"
Easting :508387 **Longitude (E) :**153° 5' 14"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	53.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	14.00	20.00	125		1	SL: 0mm; A: 3mm
1	1	Opening	Slots - Vertical	47.00	53.00	125		2	SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
16.00	28.00	12.00	Fractured			0.39			(Unknown)
45.00	50.00	5.00	(Unknown)			1.56			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Shale	Shale	
3.00	16.00	13.00	Basalt	Basalt	
16.00	18.00	2.00	Rock Broken Shale Water Supply	Rock	
18.00	40.00	22.00	Basalt Water Supply	Basalt	
18.00	40.00	22.00	Quartz Shale	Invalid Code	
40.00	45.00	5.00	Basalt Hard	Basalt	
45.00	50.00	5.00	Rock Broken Water Supply	Rock	
50.00	53.00	3.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	06-Mar-1986				1.95		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW062887 *Converted From HYDSYS*

License :30BL134946

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date : **Final Depth :** 24.00 m
Completion Date :01-Jul-1986 **Drilled Depth :** 24.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :RALEIGH	BONVILLE	L4 (24)
	Licensed :RALEIGH	BONVILLE	LT4 PT24

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6647018 **Latitude (S) :**30° 18' 31"
Easting :507450 **Longitude (E) :**153° 4' 39"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	24.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	12.00	24.00	125		1	SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
12.00	14.00	2.00	Fractured			0.39			(Unknown)
18.00	20.00	2.00	Fractured			0.52			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	8.00	8.00	Clay	Clay	
8.00	14.00	6.00	Shale	Shale	
14.00	24.00	10.00	Basalt Shale Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	24-Jul-1986				0.91		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW062887 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW063637 *Converted From HYDSYS*

License :30BL177585

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
IRRIGATION

Intended Purpose(s)
DOMESTIC
STOCK

Commenced Date :
Completion Date :01-Sep-1986

Final Depth : 46.00 m
Drilled Depth : 46.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property : - MC DONALDS'
GWMA : -
GW Zone : -

Standing Water Level : 5.00 m
Salinity : (Unknown)
Yield : 0.65 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	LOT 51 DP800733
Licensed :	RALEIGH	BONVILLE	LT 51 DP 800733

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646185 **Latitude (S) :**30° 18' 58"
Easting :506590 **Longitude (E) :**153° 4' 7"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	46.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	15.00	46.00	125		1	PVC; SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
15.00	16.00	1.00	Fractured			0.65			(Unknown)
42.00	44.00	2.00	Fractured			0.13			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Clay	Clay	
2.00	8.00	6.00	Shale	Shale	
8.00	14.00	6.00	Basalt	Basalt	
14.00	16.00	2.00	Shale Broken Rock Water Supply	Shale	
16.00	42.00	26.00	Basalt	Basalt	
42.00	44.00	2.00	Shale Broken Rock Water Supply	Shale	
44.00	46.00	2.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	23-Sep-1986				0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW063637 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW063638 *Converted From HYDSYS*

License :30BL135201

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Nov-1986

Final Depth : 19.00 m
Drilled Depth : 19.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	L221 DP247724 (20)
Licensed :	RALEIGH	BONVILLE	LT 221 DP 247724

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6646615 **Latitude (S) :**30° 18' 44"
Easting :507000 **Longitude (E) :**153° 4' 22"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	19.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	8.00	19.00	125		1	SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
8.00	9.00	1.00	Fractured			0.13			(Unknown)
14.00	15.00	1.00	Fractured			0.26			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	Clay Hard	Clay	
6.00	12.00	6.00	Shale Water Supply	Shale	
12.00	15.00	3.00	Shale Hard Water Supply	Shale	
15.00	19.00	4.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Nov-1986		7.00		0.39		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW063638 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW063655 *Converted From HYDSYS*

License :30BL135206

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 25.00 m
Completion Date :01-Sep-1986 **Drilled Depth :** 29.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property : **Standing Water Level :**
GWMA : - **Salinity :** (Unknown)
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :RALEIGH	BONVILLE	L2 DP711234 (24)
	Licensed :RALEIGH	BONVILLE	LT 2 DP 711234

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6647125 **Latitude (S) :**30° 18' 27"
Elevation Source :(Unknown) **Easting :**507460 **Longitude (E) :**153° 4' 39"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Backfill	Backfill	25.00	29.00	0			
1	1	Casing	P.V.C.	0.00	25.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	13.00	25.00	125		1	Plastic; SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
27.00	29.00	2.00	Fractured			0.65			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	8.00	8.00	Clay	Clay	
8.00	20.00	12.00	Shale	Shale	
20.00	26.00	6.00	Basalt	Basalt	
26.00	28.00	2.00	Rock Broken Water Supply	Rock	
28.00	29.00	1.00	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	26-Sep-1986				0.65		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW063655 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW063664 *Converted From HYDSYS*

License :30BL135216

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date : **Final Depth :** 45.00 m
Completion Date :01-Oct-1986 **Drilled Depth :** 45.00 m

Contractor Name :D C JACKWITZ
Driller :1139 JACKWITZ, William Douglas

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A :FITZROY	MOONEE	LOT 1 DP814190
Licensed :FITZROY	MOONEE	284

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6651285 **Latitude (S) :**30° 16' 12"
Easting :511110 **Longitude (E) :**153° 6' 56"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Backfill	Backfill	0.00	45.00	0			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
34.00	36.00	2.00	Fractured			0.00			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	9.00	9.00	Gravel Clay	Gravel	
9.00	34.00	25.00	Basalt	Basalt	
34.00	36.00	2.00	Shale Water Supply	Shale	
36.00	45.00	9.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Oct-1986						(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW063664 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW063710 *Converted From HYDSYS*

License :30BL178550

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :01-Sep-1986

Final Depth : 55.00 m
Drilled Depth : 55.00 m

Contractor Name :
Driller :

Property : - MORRISON'S
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	COFF	LOT 1 DP 835865
	Licensed :FITZROY	COFF	LT 1 DP 835865

Region :30 - NORTH COAST
River Basin :204 - CLARENCE RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6650285 **Latitude (S) :**30° 16' 44"
Easting :504975 **Longitude (E) :**153° 3' 6"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	55.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	26.00	55.00	125		1	Plastic; SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
36.00	37.00	1.00	Fractured			0.13			(Unknown)
42.00	43.00	1.00	Fractured			0.13			(Unknown)
50.00	51.00	1.00	Fractured			0.26			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	8.00	8.00	Clay Dry	Clay	
8.00	32.00	24.00	Shale	Shale	
32.00	36.00	4.00	Shale Medium Hard	Shale	
36.00	42.00	6.00	Basalt Water Supply	Basalt	
42.00	43.00	1.00	Rock Broken Water Supply	Rock	
43.00	50.00	7.00	Shale	Shale	
50.00	55.00	5.00	Basalt Water Supply	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	23-Sep-1986				0.52		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW063710 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW063728 *Converted From HYDSYS*

License :30BL177295

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	IRRIGATION

Commenced Date : **Final Depth :** 37.00 m
Completion Date :01-Nov-1986 **Drilled Depth :** 37.00 m

Contractor Name :D C JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property : - HAMEY & CO
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield : 1.82 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	COFF	LOT 3 DP872151
	Licensed :FITZROY	COFF	148

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6652400 **Latitude (S) :**30° 15' 36"
Easting :512500 **Longitude (E) :**153° 7' 48"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	37.00	125			Seated on Bottom
1	1	Opening	Slots - Vertical	10.00	37.00	125		1	PVC; Slotted In Hole; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
15.00	17.00	2.00	Fractured			1.04			(Unknown)
26.00	27.00	1.00	Fractured			0.78			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	Clay Wet	Clay	
6.00	10.00	4.00	Shale	Shale	
10.00	15.00	5.00	Shale Medium Hard	Shale	
15.00	17.00	2.00	Rock Broken Shale Water Supply	Rock	
17.00	24.00	7.00	Basalt	Basalt	
24.00	27.00	3.00	Shale Water Supply	Shale	
27.00	37.00	10.00	Basalt Shale	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Nov-1986				1.82		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Insufficient map details. Need to check exact location of bore. Replaced license 30BL135490

***** End of GW063728 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW063912 *Converted From HYDSYS*

License :30BL135347

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type : Private

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :01-Nov-1986

Final Depth : 67.00 m
Drilled Depth : 67.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	L22 DP716144 (248)
Licensed :	FITZROY	COFF	LT 22 DP 716144

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6651335 **Latitude (S) :**30° 16' 10"
Easting :512560 **Longitude (E) :**153° 7' 50"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	37.00	125			(Unknown)
1	1	Casing	P.V.C.	0.00	67.00	100			(Unknown)
1	1	Opening	Slots - Vertical	19.00	37.00	125		1	SL: 0mm; A: 3mm
1	1	Opening	Slots - Vertical	31.00	37.00	100		2	SL: 0mm; A: 0mm
1	1	Opening	Slots - Vertical	55.00	67.00	100		3	SL: 0mm; A: 0mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
29.00	30.00	1.00	Fractured			0.10			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Clay	Clay	
1.00	10.00	9.00	Shale Soft	Shale	
10.00	15.00	5.00	Shale Medium Hard	Shale	
15.00	37.00	22.00	Basalt Water Supply	Basalt	
37.00	54.00	17.00	Granite	Granite	
54.00	56.00	2.00	Black	(Unknown)	
56.00	67.00	11.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Nov-1986				0.10		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW064118 *Converted From HYDSYS*

License :30BL135350

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary		
Owner Type : Private		

Commenced Date : **Final Depth :** 18.00 m
Completion Date :01-Nov-1986 **Drilled Depth :** 18.10 m

Contractor Name :
Driller :

Property : **Standing Water Level :**
GWMA : - **Salinity :** (Unknown)
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	L100 DP629555 (11)
	Licensed :FITZROY	MOONEE	LT 100 DP 629555

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6653440 **Latitude (S) :**30° 15' 2"
Elevation Source :(Unknown) **Easting :**513370 **Longitude (E) :**153° 8' 20"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	8.00	150			(Unknown)
1	1	Casing	P.V.C.	0.00	16.00	125			Seated on Bottom
1	1	Opening	Screen	16.00	16.20	100		1	Surescreen; Stainless Steel; SL: 0mm; A: .6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
12.00	18.00	6.00	Fractured	2.00		0.60			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	7.00	7.00	Topsoil Sand	Topsoil	
7.00	12.00	5.00	Clay	Clay	
12.00	18.00	6.00	Shale Water Supply	Shale	
18.00	18.10	0.10	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Nov-1986		2.00		0.60		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW064118 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW064174 *Converted From HYDSYS*

License :30BL136246

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 30.00 m
Completion Date :01-Nov-1987 **Drilled Depth :** 30.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property : **Standing Water Level :**
GWMA : - **Salinity :** Good
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	11
	Licensed :FITZROY	MOONEE	PT11

Region :30 - NORTH COAST **CMA Map :**9537-4S MOONEE BEACH
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6653750 **Latitude (S) :**30° 14' 52"
Elevation Source :(Unknown) **Easting :**513360 **Longitude (E) :**153° 8' 20"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	30.00	150			Seated on Bottom
1	1	Opening	Slots - Vertical	18.00	30.00	150		1	Mechanically Slotted; SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
19.00	20.00	1.00	Fractured			0.30			Good
25.00	26.00	1.00	Fractured			0.30			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	16.00	16.00	Clay	Clay	
0.00	16.00	16.00	Shale Soft	Shale	
16.00	26.00	10.00	Shale Water Supply	Shale	
26.00	30.00	4.00	Shale Medium Hard	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	25-Nov-1987				0.60		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW064174 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW064368 *Converted From HYDSYS*

License :30BL136656

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 34.00 m
Completion Date :01-Sep-1987 **Drilled Depth :** 34.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property : **Standing Water Level :**
GWMA : - **Salinity :** Good
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	L1 DP231123 (42)
	Licensed :FITZROY	MOONEE	LT 1 DP 231123

Region :30 - NORTH COAST **CMA Map :**9537-4S MOONEE BEACH
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6653900 **Latitude (S) :**30° 14' 47"
Elevation Source :(Unknown) **Easting :**513490 **Longitude (E) :**153° 8' 25"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	34.00	150			Seated on Bottom
1	1	Opening	Slots - Vertical	18.00	34.00	150		1	Mechanically Slotted; SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
21.00	22.00	1.00	Unconsolidated			0.30			Good
25.00	27.00	2.00	Fractured			0.30			Good
30.00	31.00	1.00	Fractured			0.10			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Soil	Soil	
2.00	22.00	20.00	Clay Water Supply	Clay	
22.00	26.00	4.00	Shale Soft	Shale	
26.00	32.00	6.00	Shale Water Supply	Shale	
32.00	34.00	2.00	Shale Coal Medium Hard	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	04-Sep-1987				0.70		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW064368 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW064539 *Converted From HYDSYS*

License :30BL136971

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 52.00 m
Completion Date :01-Nov-1987 **Drilled Depth :** 52.00 m

Contractor Name :
Driller :1504 JACKWITZ, William Douglas

Property : **Standing Water Level :**
GWMA : - **Salinity :** Good
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	L131 DP599061 (212)
	Licensed :FITZROY	MOONEE	LT 131 DP 599061

Region :30 - NORTH COAST **CMA Map :**9537-4S MOONEE BEACH
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6653940 **Latitude (S) :**30° 14' 45"
Elevation Source :(Unknown) **Easting :**512940 **Longitude (E) :**153° 8' 4"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	52.00	150			Seated on Bottom
1	1	Opening	Slots - Vertical	40.00	52.00	150		1	Mechanically Slotted; SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
46.00	47.00	1.00	Fractured	45.00		0.40			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Clay	Clay	
2.00	16.00	14.00	Shale Soft	Shale	
16.00	30.00	14.00	Basalt	Basalt	
30.00	34.00	4.00	Shale	Shale	
34.00	45.00	11.00	Basalt	Basalt	
45.00	47.00	2.00	Rock Broken Basalt Water Supply	Rock	
47.00	52.00	5.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Nov-1987		45.00		0.40		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW064539 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW064686 *Converted From HYDSYS*

License :30BL137198

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 49.00 m
Completion Date :15-Jan-1988 **Drilled Depth :** 49.00 m

Contractor Name :W.D. JACKWITZ
Driller :1326 JACKWITZ, Wiliam D.

Property : **Standing Water Level :**
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 1.00 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LOT 4 DP834748
	Licensed :FITZROY	MOONEE	PT11

Region :30 - NORTH COAST **CMA Map :**9537-4S MOONEE BEACH
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : **Northing :**6653650 **Latitude (S) :**30° 14' 55"
Elevation Source :(Unknown) **Easting :**513465 **Longitude (E) :**153° 8' 24"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	49.00	160			Rotary Air
1	1	Casing	PVC Class 6	0.00	49.00	150			Seated on Bottom
1	1	Opening	Slots - Vertical	31.00	49.00	150		1	PVC; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
34.00	35.00	1.00	Fractured			0.20			Good
38.00	46.00	8.00	Fractured			0.80			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	14.00	14.00	Shale Soft	Shale	
14.00	30.00	16.00	Coal Medium Hard Shale	Coal	
30.00	36.00	6.00	Shale Orange Water Supply	Shale	
36.00	38.00	2.00	Coal Medium Hard Shale	Coal	
38.00	47.00	9.00	Shale Broken Water Supply	Shale	
47.00	49.00	2.00	Shale Medium Hard	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	15-Jan-1988				1.00		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW064686 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW064687

Converted From HYDSYS

License :30BL137198

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 122.00 m
Completion Date :19-Sep-1988 **Drilled Depth :** 122.00 m

Contractor Name :SLADE DRILLING
Driller :1200 SLADE, Paul Edwin

Property :
GWMA : -
GW Zone : -

Standing Water Level : 20.00 m
Salinity : 730.00 mg/L 501-1000 ppm
Yield : 4.00 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	LOT 4 DP834748
Licensed :	FITZROY	MOONEE	PT11

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)

Northing :6653650 **Latitude (S) :**30° 14' 55"
Easting :513465 **Longitude (E) :**153° 8' 24"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	122.00	150			Down Hole Hammer
1	1	Casing	Steel	0.00	9.50	150			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
28.00	30.00	2.00	Fractured			0.10	30.00		2100.00
45.00	60.00	15.00	Fractured			0.80	60.00		1350.00
75.00	90.00	15.00	Fractured			1.50	90.00		1850.00
90.00	122.00	32.00	Consolidated			4.00	122.00		730.00

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	8.00	8.00	Clay	Clay	
8.00	92.00	84.00	Shale Water Supply	Shale	
92.00	122.00	30.00	Sandstone Water Supply	Sandstone	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	19-Sep-1988		20.00		4.00		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

TDS = 730 MG/L

***** End of GW064687 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW064794 *Converted From HYDSYS*

License :30BL178962

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore open thru rock	DOMESTIC	IRRIGATION
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 88.00 m
Completion Date :27-Sep-1988 **Drilled Depth :** 88.00 m

Contractor Name :D C JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property : - " LUCAS' "
GWMA : -
GW Zone : -

Standing Water Level : 19.00 m
Salinity :
Yield : 0.40 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LOT 359 DP44800
	Licensed :FITZROY	MOONEE	LOT 359 DP44800

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6652160 **Latitude (S) :**30° 15' 43"
Elevation Source : **Easting :**511040 **Longitude (E) :**153° 6' 53"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	88.00	175			Rotary Air
1	1	Casing	PVC Class 6	1.00	2.00	160			Driven into Hole

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
26.00	27.00	1.00	Fractured			0.10			
77.00	78.00	1.00	Fractured	19.00		0.30			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	CLAY BOULDERS		
1.00	2.00	1.00	SHALE		
2.00	26.00	24.00	BASALT		
26.00	27.00	1.00	BROKEN BASALT		
27.00	76.00	49.00	BASALT		
76.00	88.00	12.00	GRANITE		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	27-Sep-1988		19.00		0.40		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW064794 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW065609 *Converted From HYDSYS*

License :30BL137911

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 25.00 m
Completion Date :09-Jun-1988 **Drilled Depth :** 25.00 m

Contractor Name :D C JACKWITZ
Driller :1326 JACKWITZ, Wiliam D.

Property : **Standing Water Level :**
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 0.50 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :RALEIGH	BONVILLE	LOT 113 DP771573
	Licensed :RALEIGH	BONVILLE	LT113 DP703008

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6646235 **Latitude (S) :**30° 18' 56"
Elevation Source : **Easting :**506430 **Longitude (E) :**153° 4' 1"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	25.00	160			Rotary Air
1	1	Casing	P.V.C.	0.00	25.00	150			Seated on Bottom
1	1	Opening	Slots - Vertical	7.00	25.00	150		1	PVC; Oxy-Acetylene Slotted; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
9.00	11.00	2.00	Fractured			0.50			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	SHALE		
2.00	9.00	7.00	BASALT		
9.00	11.00	2.00	BROKEN ROCK		
11.00	25.00	14.00	BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	09-Jun-1988				0.50		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW065609 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW065856 *Converted From HYDSYS*

License :30BL138931

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	TEST BORE	MONITORING BORE
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 55.00 m
Completion Date :30-Nov-1988 **Drilled Depth :** 55.00 m

Contractor Name :
Driller :1562 MORTON, Kevin Charles

Property :
GWMA : -
GW Zone : -

Standing Water Level : 4.30 m
Salinity : 160.00 mg/L 0-500 ppm
Yield : 0.14 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	COFF	LOT 301 DP778576
	Licensed :FITZROY	COFF	LT2 DP542407

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6651230 **Latitude (S) :**30° 16' 14"
Easting :512450 **Longitude (E) :**153° 7' 46"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	55.00	150			Rotary Air
1	1	Casing	PVC Class 9	0.00	18.00	140			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
28.00	31.00	3.00		4.30		0.06			
41.50	42.50	1.00		4.30		0.14			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	19.00	19.00	SOIL/SUBSOIL:RED BROWN HEAVY CLAY MATERIAL		
19.00	55.00	36.00	CHERT:BLACK MASSIVE SILICEOUS. CLAY FILLED FRACTURES BETWEEN 2 8-40m. QUARTZ FILLED FRACTURES BETWEEN 40-55m		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	30-Nov-1988		4.30		0.14					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.50	

Remarks

***** End of GW065856 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW065858

Converted From HYDSYS

License :30BL138933

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	TEST BORE	MONITORING BORE
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 55.00 m
Completion Date :01-Dec-1988 **Drilled Depth :** 0.00

Contractor Name :
Driller :1562 MORTON, Kevin Charles

Property : **Standing Water Level :**
GWMA : - **Salinity :** 501-1000 ppm
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	COFF	34
	Licensed :FITZROY	COFF	LT2 DP542407

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6651890 **Latitude (S) :**30° 15' 52"
Elevation Source :R.L. at Surface **Easting :**512980 **Longitude (E) :**153° 8' 6"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	6.00	140			
1	1	Casing	Pressure Cemented Casing	0.00	6.00	150			Cemented

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
18.00	19.00	1.00		2.10					501-1000 ppm
23.00	24.00	1.00		2.10					501-1000 ppm

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Dec-1988		2.10		0.34					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW065858 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW065859 *Converted From HYDSYS*

License :30BL179157

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
IRRIGATION	MONITORING BORE
RECREATION (GROUNDWATER)	

Commenced Date :
Completion Date :29-Nov-1988
Final Depth : 49.00 m
Drilled Depth : 49.00 m

Contractor Name :
Driller :1562 MORTON, Kevin Charles

Property : - " PACIFIC BAY RESORT "
GWMA : -
GW Zone : -

Standing Water Level : 3.56 m
Salinity : 1,600.00 mg/L 1001-3000 ppm
Yield : 1.88 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	COFF	LOT 13 DP808966
	Licensed :FITZROY	COFF	LT 13 DP 808966

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6651740 **Latitude (S) :**30° 15' 57"
Easting :512680 **Longitude (E) :**153° 7' 55"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	49.00	150			Rotary Air
1	1	Casing	PVC Class 9	0.00	12.00	140			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
24.00	25.00	1.00		3.50		0.78			
33.00	34.00	1.00		3.50		0.78			
37.00	38.00	1.00	Fractured	3.50		2.40			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	10.00	10.00	SOIL/SUBSOIL:RED CLAY SOILS WITH CHERT PEBBLES VARIABLY BANDED - RED/WHITE/BLUE		
10.00	34.00	24.00	CHERT:SILICEOUS,BLACK		
34.00	37.00	3.00	SLATE:SILICEOUS BLACK SLADE WITH QUARTZ VEINING		
37.00	49.00	12.00	CHERT:SILICEOUS BLACK		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	29-Nov-1988		3.50		1.88					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	3.00	

Remarks

***** End of GW065859 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW065881 *Converted From HYDSYS*

License :30BL138976

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary		
Owner Type : Private		

Commenced Date : **Final Depth :** 37.00 m
Completion Date :18-Feb-1989 **Drilled Depth :** 37.00 m

Contractor Name :D C JACKWITZ
Driller :1249 JACKWITZ, Douglas Charles

Property : **Standing Water Level :** 6.00 m
GWMA : - **Salinity :**
GW Zone : - **Yield :** 0.60 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LOT 101 DP629555
	Licensed :FITZROY	MOONEE	LT 100 DP 629555

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6653280 **Latitude (S) :**30° 15' 7"
Elevation Source : **Easting :**513445 **Longitude (E) :**153° 8' 23"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	PVC Class 9	0.00	8.00	160			
1	1	Casing	PVC Class 9	0.00	37.00	140			Seated on Bottom
1	1	Opening	Slots - Vertical	23.00	34.00	140		1	PVC; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
23.00	37.00	14.00	Fractured	6.00		0.60			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	FILL		
3.00	7.00	4.00	SAND GRAVEL		
7.00	26.00	19.00	SOFT SHALE		
26.00	32.00	6.00	HARD SHALE		
32.00	37.00	5.00	FRACTURED BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	18-Feb-1989		6.00		0.60		Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW065881 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW065993 *Converted From HYDSYS*

License :30BL144075

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
RECREATION (GROUNDWATER)

Intended Purpose(s)
RECREATION (GROUNDWATER)

Commenced Date :
Completion Date :01-Dec-1991
Final Depth : 48.00 m
Drilled Depth : 48.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - KORORA PUBLIC SCHOOL
GWMA : -
GW Zone : -

Standing Water Level : 9.00 m
Salinity : Good
Yield : 3.16 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	LOT 244 DP752817
Licensed :	FITZROY	COFF	LT 244 DP 752817

Region :30 - NORTH COAST
River Basin :204 - CLARENCE RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6652900 **Latitude (S) :**30° 15' 19"
Easting :512550 **Longitude (E) :**153° 7' 50"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	170			Rotary Air
1		Hole	Hole	12.00	48.00	170			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	48.00	152	-98		Seated on Bottom
1	1	Opening	Slots - Vertical	43.00	48.00	152		1	PVC Class 9; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
43.00	48.00	5.00	Fractured	9.00		3.16	48.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	BROWN TOPSOIL		
0.20	12.00	11.80	SOFT BROWN SHALE		
12.00	24.00	12.00	HARD BROWN SHALE		
24.00	36.00	12.00	GREY SHALE		
36.00	43.00	7.00	BASALT		
43.00	48.00	5.00	FRACTURED BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Dec-1991		9.00		3.16					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW065993 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW066158

Converted From HYDSYS

License :30BL138334

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :01-Oct-1988
Final Depth : 23.00 m
Drilled Depth : 23.00 m

Contractor Name :W.D. JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property :
GWMA : -
GW Zone : -
Standing Water Level :
Salinity :
Yield : 2.00 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	LOT A DP374980
Licensed :	FITZROY	COFF	212

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :
CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :
Northing :6654170 **Latitude (S) :**30° 14' 38"
Easting :512630 **Longitude (E) :**153° 7' 53"

GS Map :0092A1 **AMG Zone :**56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	23.00	160			Rotary Air
1	1	Casing	P.V.C.	0.00	3.00	175			
1	1	Casing	P.V.C.	0.00	23.00	140			Seated on Bottom
1	1	Opening	Slots - Vertical	5.00	23.00	140		1	PVC; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.00	6.00	2.00	Fractured			0.50			
18.00	20.00	2.00	Fractured			2.00			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	CLAY		
1.00	4.00	3.00	GRAVEL & SHALE		
4.00	6.00	2.00	SHALE		
6.00	18.00	12.00	BASALT		
18.00	20.00	2.00	BROKEN BASALT		
20.00	23.00	3.00	BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Oct-1988				2.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW066158 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW066175 *Converted From HYDSYS*

License :30BL144161

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	STOCK	STOCK
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 54.00 m
Completion Date :24-Jan-1992 **Drilled Depth :** 54.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : **Standing Water Level :** 18.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 2.27 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LOT 367 DP44801
	Licensed :FITZROY	MOONEE	LT 367 DP 44801

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :204 - CLARENCE RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 4.00 m (A.H.D.) **Northing :**6652405 **Latitude (S) :**30° 15' 35"
Elevation Source : Est. Contour 8-15M. **Easting :**511965 **Longitude (E) :**153° 7' 28"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	16.00	170			Rotary Air
1		Hole	Hole	16.00	18.00	170			Down Hole Hammer
1		Hole	Hole	18.00	54.00	152			Down Hole Hammer
1	1	Casing	Steel	0.00	18.00	164			Welded

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
49.00	54.00	5.00		18.00		2.27	54.00	2.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	BROWN TOPSOIL		
0.30	4.00	3.70	BROWN CLAY		
4.00	12.00	8.00	RED CLAY		
12.00	13.00	1.00	BROWN CLAY		
13.00	16.00	3.00	DINNER PLATE GRANULES (DRY)		
16.00	18.00	2.00	HARD BROWN SHALE		
18.00	49.00	31.00	BASALT		
49.00	54.00	5.00	FRACTURED BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	2.00	

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW066299 *Converted From HYDSYS*

License :30BL140277

Work Type :
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type :

Authorised Purpose(s)
DOMESTIC

Intended Purpose(s)
DOMESTIC
STOCK

Commenced Date : **Final Depth :** 40.00 m
Completion Date :11-Nov-1989 **Drilled Depth :** 40.00 m

Contractor Name :D C JACKWITZ
Driller :1424 JACKWITZ, Douglas Charles

Property :
GWMA : -
GW Zone : -

Standing Water Level : 21.00 m
Salinity :
Yield : 0.80 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	LOT 1 DP781643
Licensed :	FITZROY	COFF	LT 1 DP 781643

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation : 30.00 m (A.H.D.)
Elevation Source : Est. Contour 8-15M.

Northing :6650335
Easting :508300

Latitude (S) :30° 16' 43"
Longitude (E) :153° 5' 11"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	40.00	168			Rotary Air
1	1	Casing	PVC Class 9	0.00	40.00	160			Seated on Bottom
1	1	Opening	Slots - Vertical	33.00	40.00	160		1	PVC Class 9; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
34.00	38.00	4.00	Fractured	21.00		0.80			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	TOPSOIL		
1.00	13.00	12.00	CLAY		
13.00	29.00	16.00	SOFT SHALE		
29.00	34.00	5.00	HARD SHALE		
34.00	38.00	4.00	SATURATED SOFT SHALE		
38.00	40.00	2.00	BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	11-Nov-1989		21.00		0.80					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW066299 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW066470 *Converted From HYDSYS*

License :30BL140770

Work Type :
Work Status :(Unknown)
Construct. Method :
Owner Type :

Authorised Purpose(s)
DOMESTIC
STOCK

Intended Purpose(s)

Commenced Date :
Completion Date :

Final Depth :
Drilled Depth :

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity :
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	LOT 41 DP595841
Licensed :	RALEIGH	BONVILLE	LT41 DP595841

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation : 27.00 m (A.H.D.)
Elevation Source : Est. Contour 8-15M.

Northing :6645000
Easting :506800

Latitude (S) :30° 19' 36"
Longitude (E) :153° 4' 15"

GS Map :0092A2 **AMG Zone :**56

Coordinate Source :GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.30	40.00	160			Seated on Bottom
1	1	Opening	Slots - Vertical	18.00	40.00	160		1	Mechanically Slotted; SL: 0mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
26.00	30.00	4.00	Fractured	12.50		0.80			
35.00	36.00	1.00	Fractured	12.50		0.20			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW066470 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW066666 *Converted From HYDSYS*

License :30BL142604

	Authorised Purpose(s)	Intended Purpose(s)
Work Type :	DOMESTIC	DOMESTIC
Work Status :(Unknown)		STOCK
Construct. Method : Rotary Air		
Owner Type :		

Commenced Date : **Final Depth :** 43.00 m
Completion Date :16-Feb-1991 **Drilled Depth :** 43.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : **Standing Water Level :** 18.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 1.52 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
Diviner	**Form A :**RALEIGH	BONVILLE	LOT 300 DP804293
	Licensed :RALEIGH	BONVILLE	LT 300 DP 804293

Region :30 - NORTH COAST **CMA Map :**
River Basin :205 - BELLINGER RIVER **Grid Zone :** **Scale :**
Area / District :

Elevation : 20.00 m (A.H.D.) **Northing :**6647545 **Latitude (S) :**30° 18' 13"
Elevation Source : Est. Contour 8-15M. **Easting :**504965 **Longitude (E) :**153° 3' 6"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	43.00	170			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	43.00	152	-98		Glued; Cemented; Seated on Bottom
1	1	Opening	Slots - Vertical	37.00	42.00	152		1	PVC Class 9; Sawn; SL: 100mm; A: 2.5mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
37.00	42.00	5.00	Fractured	18.00		1.52	43.00	1.50	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	18.00	18.00	BROWN SHALE		
18.00	37.00	19.00	BASALT		
37.00	42.00	5.00	BROKEN BASALT		
42.00	43.00	1.00	BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW066666 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW068230 *Converted From HYDSYS*

License : 30BL140384

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	
STOCK	

Commenced Date : 12-Nov-1989 **Final Depth :** 52.00 m
Completion Date : 12-Nov-1989 **Drilled Depth :** 52.00 m

Contractor Name : Douglas JACKWITZ
Driller : 1424 JACKWITZ, Douglas Charles

Property :
GWMA : -
GW Zone : -

Standing Water Level : 27.00 m
Salinity :
Yield : 0.50 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A : FITZROY	MOONEE	LT19 DP771618
	Licensed : FITZROY	MOONEE	LT 19 DP 771618

Region : 30 - NORTH COAST
River Basin : 205 - BELLINGER RIVER
Area / District :

CMA Map : 9537-3N COFFS HARBOUR
Grid Zone : 56/2 **Scale :** 1:25,000

Elevation : 0.00
Elevation Source :

Northing : 6651321.2 **Latitude (S) :** 30° 16' 11"
Easting : 512187 **Longitude (E) :** 153° 7' 36"

GS Map : **AMG Zone :** 56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	52.00	168			Rotary Air
1	1	Casing	P.V.C.	0.00	52.00	160			Seated on Bottom
1	1	Opening	Slots - Vertical	28.00	34.00	160		1	PVC; Sawn; SL: 150mm; A: 3mm
1	1	Opening	Slots - Vertical	46.00	52.00	160		2	PVC; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
28.00	32.00	4.00	Fractured			0.30			
48.00	50.00	2.00		27.00		0.20			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Shale	Shale	
3.00	31.00	28.00	Soft Shale	Shale	
31.00	32.00	1.00	Quartz	Invalid Code	
32.00	48.00	16.00	Hard Granite	Granite	
48.00	50.00	2.00	Quartz	Invalid Code	
50.00	52.00	2.00	Hard Granite	Granite	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW068483 *Converted From HYDSYS*

License : 30BL140865

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status : (Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 80.00 m
Completion Date : 26-Feb-1990 **Drilled Depth :** 80.00 m

Contractor Name :
Driller : 1504 JACKWITZ, William Douglas

Property : **Standing Water Level :**
GWMA : - **Salinity :**
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A : FITZROY	MOONEE	LT370 DP44803
	Licensed : FITZROY	MOONEE	LT 370 DP 44803

Region : 30 - NORTH COAST **CMA Map :** 9537-3N COFFS HARBOUR
River Basin : 205 - BELLINGER RIVER **Grid Zone :** 56/2 **Scale :** 1:25,000
Area / District :

Elevation : 0.00 **Northing :** 6652090.1 **Latitude (S) :** 30° 15' 46"
Elevation Source : **Easting :** 511879.7 **Longitude (E) :** 153° 7' 25"

GS Map : **AMG Zone :** 56 **Coordinate Source :** GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	80.00	150			Seated on Bottom
1	1	Opening	Slots	23.00	80.00	150		1	Plastic; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
20.00	26.00	6.00	Fractured			0.10			
74.00	76.00	2.00	Fractured	16.50		0.10			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Top Soil	Soil	
2.00	4.00	2.00	Soil Bound Gravel	Gravel	
4.00	16.00	12.00		Granite	
16.00	20.00	4.00	Granite Mix Quartz	Granite	
20.00	80.00	60.00	Granite & Quartz	Granite	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	26-Feb-1990	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	26-Feb-1990	0.00	16.50	0.00	0.20					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

ACC = 7

***** End of GW068483 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW068763 *Converted From HYDSYS*

License :30BL142404

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

	Authorised Purpose(s)	Intended Purpose(s)
	DOMESTIC	DOMESTIC

Commenced Date : **Final Depth :** 0.00
Completion Date :17-Jan-1991 **Drilled Depth :** 54.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property :
GWMA : -
GW Zone : -

Standing Water Level : 18.00 m
Salinity : Good
Yield : 2.53 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	COFF	LOT 552 DP802101
	Licensed :FITZROY	COFF	LT 552 DP 802101

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6650750 **Latitude (S) :**30° 16' 29"
Easting :507503.6 **Longitude (E) :**153° 4' 41"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	54.00	170			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	54.00	152	-98		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	49.00	54.00	152		1	PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
49.00	54.00	5.00	Fractured	18.00		2.53	54.00	1.50	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Brown Topsoil	Topsoil	
0.60	18.00	17.40	Soft Brown Sahle	Shale	
18.00	40.00	22.00	Brown Shale	Shale	
40.00	49.00	9.00		Basalt	
49.00	54.00	5.00	Broken Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	17-Jan-1991	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	17-Jan-1991	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.50	

Remarks

ACC = 7

***** End of GW068763 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW068806 *Converted From HYDSYS*

License :30BL141993

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 31.00 m
Completion Date :20-Dec-1990 **Drilled Depth :** 31.00 m

Contractor Name :
Driller :

Property : **Standing Water Level :**
GWMA : - **Salinity :**
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LT2 DP523509
	Licensed :FITZROY	MOONEE	LT2 DP523509

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6652003 **Latitude (S) :**30° 15' 48"
Elevation Source : **Easting :**512165.9 **Longitude (E) :**153° 7' 35"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	31.00	150			Seated on Bottom
1	1	Opening	Slots	4.00	31.00	150		1	Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.00	10.00	6.00	Fractured			0.10			
20.00	28.00	8.00	Fractured	9.30		0.40			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00		Topsoil	
1.00	4.00	3.00		Clay	
4.00	10.00	6.00		Shale	
10.00	14.00	4.00	Grey Shale	Shale	
14.00	20.00	6.00		Basalt	
20.00	28.00	8.00	Fractured Basalt	Basalt	
28.00	31.00	3.00	Quartz	Invalid Code	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	20-Dec-1990	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	20-Dec-1990	0.00	9.30	0.00	0.50					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

ACC = 7

***** End of GW068806 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW068986 *Converted From HYDSYS*

License :30BL142241

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s) DOMESTIC
Intended Purpose(s) DOMESTIC

Commenced Date :
Completion Date :30-Jan-1991
Final Depth : 27.00 m
Drilled Depth : 27.00 m

Contractor Name :
Driller :1412 TANNER, Robert Leslie

Property :
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	LOT 3 DP261343
Licensed :	FITZROY	COFF	LT 3 DP 261343

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6650681.9 **Latitude (S) :**30° 16' 31"
Easting :510863.6 **Longitude (E) :**153° 6' 47"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.30	27.00	125			Seated on Bottom

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
21.00	25.00	4.00	Fractured	9.00		0.38			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	5.00	5.00	Brown Shale	Shale	
5.00	21.00	16.00		Basalt	
21.00	25.00	4.00	Cracky Basalt	Basalt	
25.00	27.00	2.00		Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	30-Jan-1991	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	30-Jan-1991	0.00	9.00	0.00	0.38					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

ACC = 7

***** End of GW068986 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW069009 *Converted From HYDSYS*

License :30BL144448

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
STOCK	STOCK

Commenced Date : **Final Depth :** 42.00 m
Completion Date :05-Nov-1991 **Drilled Depth :** 42.00 m

Contractor Name :D C JACKWITZ
Driller :1424 JACKWITZ, Douglas Charles

Property :
GWMA : -
GW Zone : -

Standing Water Level : 30.70 m
Salinity : Good
Yield : 0.30 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
Diviner	**Form A :**FITZROY	MOONEE	LOT A DP390702
	Licensed :FITZROY	MOONEE	PT14

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6653833 **Latitude (S) :**30° 14' 49"
Easting :512983.1 **Longitude (E) :**153° 8' 6"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	42.00	168			Rotary Air
1	1	Casing	PVC Class 9	-0.30	42.00	160			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	33.00	42.00	160		1	PVC Class 9; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
34.00	38.00	4.00	Fractured	30.70		0.30		1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	34.00	34.00		Shale	
34.00	38.00	4.00	Shale Water Bearing	Shale	
38.00	42.00	4.00	Hard Shale	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	05-Nov-1991	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	05-Nov-1991	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW069009 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW070097 *Converted From HYDSYS*

License :30BL150503

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 86.00 m
Completion Date :29-Aug-1992 **Drilled Depth :** 86.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : **Standing Water Level :** 20.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 1.01 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**FITZROY	MOONEE	LOT A DP381203
		Licensed :FITZROY	MOONEE	LT A DP 381203

Region :30 - NORTH COAST **CMA Map :**9537-4S MOONEE BEACH
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6653714.1 **Latitude (S) :**30° 14' 53"
Elevation Source : **Easting :**512916.4 **Longitude (E) :**153° 8' 3"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	50.00	170			Rotary Air
1		Hole	Hole	50.00	86.00	170			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	86.00	152	-98		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	40.00	44.00	152		1	PVC Class 9; Sawn; SL: 100mm; A: 2.6mm
1	1	Opening	Slots - Vertical	79.00	84.00	152			PVC Class 9; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
40.00	44.00	4.00	Fractured	20.00		0.25	86.00	2.00	Good
79.00	84.00	5.00	Fractured	20.00		0.76			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Red Topsoil	Topsoil	
0.30	40.00	39.70	Brown Shale	Shale	
40.00	44.00	4.00	Cracky Shale	Shale	
44.00	76.00	32.00	Grey Shale	Shale	
76.00	79.00	3.00		Basalt	
79.00	84.00	5.00	Cracky Basalt	Basalt	
84.00	86.00	2.00		Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	29-Aug-1992	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	29-Aug-1992	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	2.00	

Remarks

ACC = 7

***** End of GW070097 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW070282

License : 30BL150261

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rot. Rev. Circ. Air
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
STOCK	

Commenced Date :
Completion Date : 14-Jul-1992
Final Depth : 36.00 m
Drilled Depth : 36.00 m

Contractor Name : D Jackwitz
Driller : 1326 JACKWITZ, Wiliam D.

Property :
GWMA : -
GW Zone : -

Standing Water Level : 8.90 m
Salinity : Good
Yield : 0.80 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
Diviner	Form A : FITZROY	COFF	LT22 DP853824
	Licensed : FITZROY	COFF	LT112 DP814132

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6650105
Easting : 506011
Latitude (S) : 30° 16' 50"
Longitude (E) : 153° 3' 45"

GS Map :
AMG Zone : 56
Coordinate Source : Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	36.00	168			Rotary
1	1	Casing	PVC Class 9	-0.30	36.00	160			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	12.00	36.00	160			PVC Class 9; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
16.00	26.00	10.00		8.90		0.80		0.50	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	CLAY/SHALE		
2.00	10.00	8.00	SOFT SHALE		
10.00	12.00	2.00	PUGGIE CLAY		
12.00	16.00	4.00	WEATHERED SHALE		
16.00	26.00	10.00	HARD SHALE (WATER)		
26.00	28.00	2.00	BASALT		
28.00	30.00	2.00	FRACTURED BASALT		
30.00	36.00	6.00	BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	0.50	

Remarks

***** End of GW070282 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW070291 *Converted From HYDSYS*

License :30BL150529

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
STOCK	STOCK

Commenced Date :
Completion Date :03-Sep-1992
Final Depth : 48.00 m
Drilled Depth : 48.00 m

Contractor Name :
Driller :

Property : - BONGIL BONGIL
GWMA : -
GW Zone : -

Standing Water Level :
Salinity :
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	L31 DP245924
Licensed :	FITZROY	MOONEE	PT229 (LT4 DP245924)

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :R.L. at Surface

Northing :6654336.4 **Latitude (S) :**30° 14' 33"
Easting :510807.6 **Longitude (E) :**153° 6' 44"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	48.00	138			Seated on Bottom
1	1	Opening	Slots	24.00	48.00	138		1	Sawn; SL: 0mm; A: 4mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
18.00	48.00	30.00	Fractured			2.27			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	9.00	9.00	Weathered Rock & Clay	Rock	
9.00	18.00	9.00	Weathered Shale	Shale	
18.00	48.00	30.00	Layered Shale & Clay	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	03-Sep-1992	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	03-Sep-1992	0.00	0.00	0.00	2.27					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

ACC = 7

***** End of GW070291 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW070520 *Converted From HYDSYS*

License :30BL150916

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)	STOCK	STOCK
Construct. Method : Rotary		
Owner Type : Private		

Commenced Date : **Final Depth :** 45.00 m
Completion Date :01-Dec-1992 **Drilled Depth :** 45.00 m

Contractor Name : William Douglas JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property : **Standing Water Level :** 16.70 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 0.50 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LB DP390702 (14)
	Licensed :FITZROY	MOONEE	LT B DP 390702

Region :30 - NORTH COAST **CMA Map :**9537-4S MOONEE BEACH
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 50.00 m (A.H.D.) **Northing :**6653685 **Latitude (S) :**30° 14' 54"
Elevation Source : Est. Contour 8-15M. **Easting :**512955 **Longitude (E) :**153° 8' 5"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	45.00	168			Rotary
1	1	Casing	PVC Class 9	-0.30	45.00	160			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	20.00	45.00	160		1	PVC Class 9; Mechanically Slotted; SL: .15mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
20.00	26.00	6.00	Fractured			0.10			
36.00	45.00	9.00	Fractured	16.70		0.40		1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Topsoil	Topsoil	
1.00	6.00	5.00	Gravel - soil bound	Gravel	
6.00	10.00	4.00	Shale - soft	Shale	
10.00	26.00	16.00	Shale - water at 20m	Shale	
26.00	32.00	6.00	Shale - hard	Shale	
32.00	36.00	4.00	Shale - soft	Shale	
36.00	45.00	9.00	Shale - hard & soft	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Dec-1992									

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW070520 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW070542 *Converted From HYDSYS*

License :30BL150785

Work Type : Battery Spears
Work Status :(Unknown)
Construct. Method : Hand Auger
Owner Type : Private

Authorised Purpose(s)
INDUSTRIAL
RECREATION (GROUNDWATER)

Intended Purpose(s)
IRRIGATION

Commenced Date :
Completion Date :01-Dec-1992

Final Depth : 3.60 m
Drilled Depth : 0.00

Contractor Name :
Driller :

Property :
GWMA : -
GW Zone : -

Standing Water Level : 1.80 m
Salinity : Fair
Yield : 1.00 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	L85 DP228405
Licensed :	FITZROY	COFF	LT85 DP228405

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 7.00 m (A.H.D.)
Elevation Source : Est. Contour 8-15M.

Northing :6652269.9 **Latitude (S) :**30° 15' 40"
Easting :513209.8 **Longitude (E) :**153° 8' 14"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	3.60	20			Hand Auger
1	1	Opening	Screen - Gauze/Mesh	0.00	1.80	50		1	Stainless Steel; SL: 0mm; (Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Dec-1992		1.80	2.30	1.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Water extracted from 20mm gravel layer by Gomesh Stainless Steel screens in a row (three). Helical Rotor shallow well pump 0.75 hp.
Well / Other Works: Method of Construction - Sandscren
Liner : Type: Full Flow Sandscreen
Diameter (m): 50mm
Screen Length: 0.6 x 3 in line
Casing: PVC - withdrawn

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW071040 *Converted From HYDSYS*

License :30BL152794

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s) DOMESTIC
Intended Purpose(s) DOMESTIC

Commenced Date :
Completion Date :26-Jul-1993
Final Depth : 27.00 m
Drilled Depth : 27.00 m

Contractor Name : William Douglas JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property :
GWMA : -
GW Zone : -
Standing Water Level : 10.00 m
Salinity :
Yield : 2.30 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	LT 1 DP419284
Licensed :	FITZROY	MOONEE	LT 3 DP 234485

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :
CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 20.00 m (A.H.D.)
Elevation Source : Est. Contour 8-15M.
Northing :6654150 **Latitude (S) :**30° 14' 39"
Easting :513465 **Longitude (E) :**153° 8' 24"

GS Map :0092A1 **AMG Zone :**56
Coordinate Source :GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	27.00	168			Rotary
1	1	Casing	PVC Class 9	-0.30	27.00	160			Glued; Seated on Bottom

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
21.00	22.00	1.00	Fractured			0.30			
22.00	23.00	1.00	Fractured			1.00			
26.00	27.00	1.00	Fractured			1.00		1.00	

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Clay	Clay	
3.00	18.00	15.00	Shale	Shale	
18.00	20.00	2.00	Rock Broken	Basalt	
20.00	22.00	2.00	Bassalt	Basalt	
22.00	24.00	2.00	Broken Rock	Basalt	
24.00	26.00	2.00	Bassalt	Basalt	
26.00	27.00	1.00	Broken Rock	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW071040 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW071128 *Converted From HYDSYS*

License :30BL142414

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s) DOMESTIC
Intended Purpose(s) DOMESTIC

Commenced Date :
Completion Date :16-Apr-1993
Final Depth : 73.00 m
Drilled Depth : 73.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property :
GWMA : -
GW Zone : -

Standing Water Level : 20.00 m
Salinity : Good
Yield : 6.06 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	MOONEE	PT1 DP573131
Licensed :	FITZROY	MOONEE	PT312

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6654065.6 **Latitude (S) :**30° 14' 41"
Easting :511963.2 **Longitude (E) :**153° 7' 28"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	140			Rotary Air
1		Hole	Hole	12.00	73.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	42.00	125	-75		Glued; Suspended in Clamps
1	1	Opening	Slots - Vertical	36.00	39.00	125		1	PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
36.00	39.00	3.00	Fractured	20.00		0.12			
68.00	73.00	5.00	Fractured	20.00		5.94	73.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	12.00	12.00	Soft Brown Shale	Shale	
12.00	36.00	24.00	Hard Brown Shale	Shale	
36.00	39.00	3.00	Hard Grey Cracky Shale	Shale	
39.00	40.00	1.00	Hard Grey Shale	Shale	
40.00	68.00	28.00		Basalt	
68.00	73.00	5.00	Fractured Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	16-Apr-1993	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	16-Apr-1993	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

ACC = 7

***** End of GW071128 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW071290 *Converted From HYDSYS*

License :30BL152625

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	IRRIGATION	IRRIGATION
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 31.00 m
Completion Date :25-Jul-1993 **Drilled Depth :** 31.00 m

Contractor Name :D C JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property : **Standing Water Level :** 10.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 2.40 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LOT 12 DP582285
	Licensed :FITZROY	MOONEE	LT 12 DP 582285

Region :30 - NORTH COAST **CMA Map :**9537-4S MOONEE BEACH
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 50.00 m (A.H.D.) **Northing :**6654161 **Latitude (S) :**30° 14' 38"
Elevation Source : Est. Contour 8-15M. **Easting :**512684 **Longitude (E) :**153° 7' 55"

GS Map :0092A1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	31.00	168			Rotary Air
1	1	Casing	PVC Class 9	-0.30	31.00	160			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	15.00	18.00	160		1	PVC Class 9; Sawn; SL: 150mm; A: 3mm
1	1	Opening	Slots - Vertical	25.00	31.00	160		2	PVC Class 9; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
15.00	17.00	2.00				0.40			
28.00	30.00	2.00				2.00		1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.00	2.00	Clay		
2.00	15.00	13.00	Soft shale		
15.00	17.00	2.00	Broken rock		
17.00	28.00	11.00	basalt		
28.00	30.00	2.00	broken rock basalt		
30.00	31.00	1.00	Basalt		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW071290 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW071387

License : 30BL152724

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date : 16-Jul-1993
Final Depth : 36.00 m
Drilled Depth : 36.00 m

Contractor Name : TANNER DRILLING
Driller : 1412 TANNER, Robert Leslie

Property :
GWMA : -
GW Zone : -

Standing Water Level : 9.00 m
Salinity : Good
Yield : 1.89 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** FITZROY	COFF	LOT 11 DP228917
		Licensed : FITZROY	COFF	LT 11 DP 228917

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6653010
Easting : 512778
Latitude (S) : 30° 15' 16"
Longitude (E) : 153° 7' 58"

GS Map :
AMG Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	18.00	170			Rotary Air
1		Hole	Hole	18.00	36.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	18.00	150	-100		Glued; Suspended in Clamps
1	1	Casing	PVC Class 9	17.00	36.00	125	-75		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	32.00	35.00	125			PVC Class 9; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
32.00	36.00	4.00		9.00		1.89	36.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	RED TOPSOIL		
0.60	5.00	4.40	RED CLAY		
5.00	12.00	7.00	BROWN SHALE		
12.00	18.00	6.00	GREY SHALE		
18.00	32.00	14.00	BASALT		
32.00	36.00	4.00	BROKEN BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW071387 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW071911 *Converted From HYDSYS*

License :30BL153224

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	RECREATION
RECREATION (GROUNDWATER)	(GROUNDWATER)

Commenced Date : **Final Depth :** 70.00 m
Completion Date :01-Oct-1993 **Drilled Depth :** 70.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - BISHOP DRUITT COLLEGE
GWMA : -
GW Zone : -

Standing Water Level : 12.00 m
Salinity : Good
Yield : 16.79 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**RALEIGH	BONVILLE	LOT 9 DP813195
		Licensed :RALEIGH	BONVILLE	LT 9 DP 813195

Region :30 - NORTH COAST
River Basin :204 - CLARENCE RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 10.00 m (A.H.D.)
Elevation Source : Est. Contour 8-15M.

Northing :6646840 **Latitude (S) :**30° 18' 36"
Easting :508125 **Longitude (E) :**153° 5' 4"

GS Map :0092A2 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	140			Rotary
1		Hole	Hole	12.00	70.00	140			Percussion
1	1	Casing	PVC Class 9	-0.30	70.00	125			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	30.00	35.00	125		1	PVC Class 9; Sawn; SL: 0mm; A: 2.6mm
1	1	Opening	Slots - Vertical	60.00	70.00	125		2	PVC Class 9; Sawn; SL: 0mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
30.00	35.00	5.00	Fractured	12.00		0.38			
60.00	70.00	10.00	Fractured	12.00		16.42	70.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	Black topsoil	Topsoil	
0.20	1.00	0.80	Red clay	Clay	
1.00	3.00	2.00	Brown clay	Clay	
3.00	12.00	9.00	Soft brown shale	Shale	
12.00	15.00	3.00	Brown shale	Shale	
15.00	30.00	15.00	Grey basalt	Basalt	
30.00	35.00	5.00	Cracky black basalt	Basalt	
35.00	66.00	31.00	Black basalt	Basalt	
66.00	70.00	4.00	Fractured grey basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW072512 *Converted From HYDSYS*

License :30BL153126

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s) DOMESTIC
Intended Purpose(s) DOMESTIC

Commenced Date :
Completion Date :02-Oct-1993
Final Depth : 36.00 m
Drilled Depth : 36.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property :
GWMA : -
GW Zone : -

Standing Water Level : 10.00 m
Salinity : Good
Yield : 0.17 L/s

Site Details

Site Chosen By
Diviner Driller

County
Form A :FITZROY
Licensed :FITZROY

Parish
MOONEE
MOONEE

Portion/Lot DP
L1 DP234485
LT 1 DP 234485

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6653988.4 **Latitude (S) :**30° 14' 44"
Easting :513398.7 **Longitude (E) :**153° 8' 21"

GS Map : **AMG Zone :**56 **Coordinate Source :**PR.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	18.00	170			Rotary
1		Hole	Hole	18.00	36.00	170			Percussion
1	1	Casing	PVC Class 9	-0.30	36.00	152			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	231.00	231.00	152		1	PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
31.00	36.00	5.00	Fractured	10.00		1.77	36.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Black Top Soil	Soil	
0.60	7.00	6.40	Brown Clay	Clay	
7.00	18.00	11.00	Brown Shale	Shale	
18.00	31.00	13.00	Basalt	Basalt	
31.00	36.00	5.00	Broken Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	02-Oct-1993	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	02-Oct-1993	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

ACC = 8

***** End of GW072512 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW072693 *Converted From HYDSYS*

License :30BL154677

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 73.00 m
Completion Date :17-May-1994 **Drilled Depth :** 73.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : **Standing Water Level :** 27.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 0.19 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	COFF	LOT 10 DP807125
	Licensed :FITZROY	COFF	LT 10 DP 807125

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6650812.9 **Latitude (S) :**30° 16' 27"
Elevation Source : **Easting :**510496.6 **Longitude (E) :**153° 6' 33"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	5.00	140			Rotary
1		Hole	Hole	5.00	73.00	140			Percussion
1	1	Casing	PVC Class 9	0.00	30.50	125			Suspended in Clamps

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
28.00	31.00	3.00	Fractured	27.00		0.06			
50.00	54.00	4.00	Fractured	27.00		0.13	73.00		Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	5.00	5.00	Brown Shale	Shale	
5.00	28.00	23.00	Blue Shale	Shale	
28.00	31.00	3.00	Cracky Basalt	Basalt	
31.00	50.00	19.00	Basalt	Basalt	
50.00	54.00	4.00	Cracky Basalt	Basalt	
54.00	73.00	19.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	17-May-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	17-May-1994	0.00	27.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	2.00	

Remarks

ACC = 7

***** End of GW072693 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW072728 *Converted From HYDSYS*

License :30BL154855

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 19.00 m
Completion Date :16-Jun-1994 **Drilled Depth :** 19.00 m

Contractor Name : Puckeridge & Co
Driller :1629 PUCKERIDGE, Glenn

Property : **Standing Water Level :** 3.50 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 0.40 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
Driller	**Form A :**FITZROY	MOONEE	LOT 102 DP787588
	Licensed :FITZROY	MOONEE	LT102 DP787588

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6651000.8 **Latitude (S) :**30° 16' 21"
Elevation Source : **Easting :**512047.8 **Longitude (E) :**153° 7' 31"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	165			Rotary
1		Hole	Hole	12.00	19.00	165			Percussion
1	1	Casing	PVC Class 9	0.00	19.00	135			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	6.00	19.00	135		1	PVC Class 9; Sawn; SL: 1300mm; A: 2mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.50	10.60	6.10	Fractured	3.50		0.40	18.50	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Topsoil	Topsoil	
0.60	4.50	3.90	Brown Clay & Gravel	Clay	
4.50	7.60	3.10	Fractured Meta Sediment	Sediment	
7.60	10.60	3.00	Weathered Basalt	Basalt	
10.60	19.00	8.40	Hard Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	16-Jun-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	16-Jun-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

ACC = 7

***** End of GW072728 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW072933 *Converted From HYDSYS*

License :30BL155034

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)
INDUSTRIAL

Intended Purpose(s)
INDUSTRIAL
RECREATION
(GROUNDWATER)

Commenced Date :
Completion Date :02-Jun-1994

Final Depth : 21.50 m
Drilled Depth : 21.50 m

Contractor Name :
Driller :1629 PUCKERIDGE, Glenn

Property : - SMUGGLERS INN
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
Driller	**Form A :**FITZROY	COFF	LT85 DP236115
	Licensed :FITZROY	COFF	LT85 DP236115

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6652268.6 **Latitude (S) :**30° 15' 40"
Easting :513209.4 **Longitude (E) :**153° 8' 14"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	10.70	135			Seated on Bottom
1	1	Casing	P.V.C.	0.00	21.50	110			Seated on Bottom
1	1	Opening	Slots	10.00	21.50	110		1	Sawn; SL: 0mm; A: 2mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
7.60	10.00	2.40	Unconsolidated	4.00					
10.00	21.50	11.50		4.00		0.90			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60		Topsoil	
0.60	5.50	4.90	Fine Sand And Small Gravel.	Sand	
5.50	7.60	2.10	Bentonite Clay.	Clay	
7.60	10.00	2.40	Fine Sand And Large Gravel.	Sand	
10.00	21.50	11.50	Fractured Meta Sediment And Gravel (uniform) Stringers.	Sediment	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	02-Jun-1994	1.00	4.00	0.00	0.90	21.00	Airlift			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

ACC = 8.

***** End of GW072933 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073055 *Converted From HYDSYS*

License :30BL176028

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :03-Sep-1994
Final Depth : 61.00 m
Drilled Depth : 61.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - MIRAMBEENA
GWMA : -
GW Zone : -
Standing Water Level : 48.00 m
Salinity : Good
Yield : 3.76 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**FITZROY	MOONEE	PT212 LOT7 DP557758
		Licensed :FITZROY	MOONEE	LT 7 DP 557758

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :
CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :
Northing :6654499.6 **Latitude (S) :**30° 14' 27"
Easting :513259.2 **Longitude (E) :**153° 8' 16"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	3.00	140			Rotary
1		Hole	Hole	3.00	61.00	140			Percussion
1	1	Casing	PVC Class 9	0.00	61.00	125			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	56.00	61.00	125		1	PVC Class 9; Sawn; SL: 0mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
56.00	61.00	5.00	Fractured	48.00		3.79	61.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Brown Topsoil	Topsoil	
0.30	2.00	1.70	Red Clay	Clay	
2.00	3.00	1.00	Brown Shale	Shale	
3.00	9.00	6.00	Brown Shale	Shale	
9.00	56.00	47.00	Basalt	Basalt	
56.00	61.00	5.00	Broken Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	03-Sep-1994	0.00	0.00	0.00	0.00	0.00	Airlift			
Single-Rate Pumping Test	03-Sep-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW073055 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073162 *Converted From HYDSYS*

License :30BL176195

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		STOCK
Construct. Method : Rotary Air		
Owner Type : Private		

Commenced Date : **Final Depth :** 49.00 m
Completion Date :25-Nov-1994 **Drilled Depth :** 49.00 m

Contractor Name :D C JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property : - RILEY'S **Standing Water Level :** 30.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 0.99 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :RALEIGH	BONVILLE	LOT 39 DP264404
	Licensed :RALEIGH	BONVILLE	LT 39 DP 264404

Region :30 - NORTH COAST **CMA Map :**9537-3N COFFS HARBOUR
River Basin :205 - BELLINGER RIVER **Grid Zone :**56/2 **Scale :**1:25,000
Area / District :

Elevation : 0.00 **Northing :**6644885.6 **Latitude (S) :**30° 19' 40"
Elevation Source : **Easting :**506800.3 **Longitude (E) :**153° 4' 15"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	49.00	168			Rotary
1	1	Casing	PVC Class 9	-0.30	49.00	160			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	39.00	43.00	160		1	PVC Class 9; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
41.00	43.00	2.00	Fractured	30.00		0.99		1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	Shale	Shale	
6.00	40.00	34.00	Basalt	Basalt	
40.00	43.00	3.00	Broken Shale	Shale	
43.00	49.00	6.00	Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	25-Nov-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	25-Nov-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW073162 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073175 *Converted From HYDSYS*

License :30BL176215

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :24-Oct-1994
Final Depth : 24.00 m
Drilled Depth : 24.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - HANSEN'S
GWMA : -
GW Zone : -

Standing Water Level : 6.00 m
Salinity : Good
Yield : 0.76 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**FITZROY	COFF	LOT 92 DP 228917
		Licensed :FITZROY	COFF	LT 92 DP 228917

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6652974.2 **Latitude (S) :**30° 15' 17"
Easting :512860.6 **Longitude (E) :**153° 8' 1"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	18.00	140			Rotary
1		Hole	Hole	18.00	24.00	140			Percussion
1	1	Casing	PVC Class 9	-0.30	24.00	125			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	19.00	24.00	125		1	PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
19.00	24.00	5.00	Fractured	6.00		0.76	24.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Red Top Soil	Topsoil	
0.30	5.00	4.70	Red Clay	Clay	
5.00	18.00	13.00	Brown Shale	Shale	
18.00	19.00	1.00	Grey Hard Shale	Shale	
19.00	24.00	5.00	Broken Grey Shale	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	24-Oct-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	24-Oct-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW073175 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073178

License : 30BL176223

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary Air
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date : 24-Oct-1994
Final Depth :
Drilled Depth : 24.00 m

Contractor Name : TANNER DRILLING
Driller : 1412 TANNER, Robert Leslie

Property : - WATSON'S
GWMA : -
GW Zone : -

Standing Water Level : 6.00 m
Salinity : Good
Yield : 0.76 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	FITZROY	COFF	LOT 28 DP 834749
Licensed :	FITZROY	COFF	LT 28 DP 834749

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6653357
Easting : 513320
Latitude (S) : 30° 15' 4"
Longitude (E) : 153° 8' 18"

GS Map :
AMG Zone : 56
Coordinate Source : Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	24.00	140			Rotary
1	1	Casing	PVC Class 9	0.00	24.00	125	-75		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	19.00	24.00	125			PVC Class 9; Sawn; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
19.00	24.00	5.00		6.00		0.76	24.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Topsoil - sandy	Topsoil	
0.60	5.00	4.40	Clay - brown	Clay	
5.00	19.00	14.00	Shale - brown	Shale	
19.00	24.00	5.00	Shale - brown interbedded with reef quartz	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW073178 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073189 *Converted From HYDSYS*

License :30BL176248

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :27-Oct-1994
Final Depth : 18.00 m
Drilled Depth : 18.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - ROUILLON'S
GWMA : -
GW Zone : -

Standing Water Level : 9.00 m
Salinity : Good
Yield : 0.18 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**RALEIGH	BONVILLE	LOT 3 DP747644
		Licensed :RALEIGH	BONVILLE	LT 3 DP 747644

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6647188.7 **Latitude (S) :**30° 18' 25"
Easting :506531 **Longitude (E) :**153° 4' 5"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	5.00	140			Rotary
1		Hole	Hole	5.00	18.00	140			Percussion
1	1	Casing	PVC Class 9	-0.30	18.00	125			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	14.00	18.00	125		1	PVC Class 9; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
14.00	18.00	4.00	Fractured	9.00		0.18	18.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Grey Topsoil	Topsoil	
0.30	8.00	7.70	Brown Shale	Shale	
8.00	14.00	6.00	Basalt	Basalt	
14.00	18.00	4.00	Cracky Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	27-Oct-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	27-Oct-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

*** End of GW073189 ***

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073205 *Converted From HYDSYS*

License :30BL176268

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date : **Final Depth :** 48.00 m
Completion Date :17-Dec-1994 **Drilled Depth :** 48.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - LINDSAY'S
GWMA : -
GW Zone : -

Standing Water Level : 18.00 m
Salinity : Good
Yield : 1.26 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	Form A :FITZROY	COFF	LOT 12 DP 736787
		Licensed :FITZROY	COFF	LT 12 DP 736787

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6653072.7 **Latitude (S) :**30° 15' 14"
Easting :510871.1 **Longitude (E) :**153° 6' 47"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	18.00	140			Rotary
1		Hole	Hole	18.00	48.00	140			Percussion
1	1	Casing	PVC Class 9	0.00	48.00	125			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	27.00	32.00	125		1	PVC Class 9; Sawn; SL: 0mm; A: 2.6mm
1	1	Opening	Slots - Vertical	43.00	48.00	5		2	PVC Class 9; Sawn; SL: 0mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
27.00	32.00	5.00	Fractured	18.00		0.51			
43.00	48.00	5.00	Fractured	18.00		0.76	48.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Brown Topsoil	Topsoil	
0.30	9.00	8.70	Brown Shale	Shale	
9.00	27.00	18.00	Grey Shale	Shale	
27.00	32.00	5.00	Grey Shale, Reef Quartz	Shale	
32.00	40.00	8.00	Grey Basalt	Basalt	
40.00	43.00	3.00	Black Basalt	Basalt	
43.00	48.00	5.00	Cracky Black Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	17-Dec-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	17-Dec-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

*** End of GW073205 ***

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073256 *Converted From HYDSYS*

License :30BL176352

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :18-Nov-1994
Final Depth : 36.00 m
Drilled Depth : 36.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - PAUL'S
GWMA : -
GW Zone : -

Standing Water Level : 12.00 m
Salinity : Good
Yield : 0.76 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**FITZROY	COFF	LOT 1 DP 351091
		Licensed :FITZROY	COFF	LT 1 DP 351091

Region :30 - NORTH COAST
River Basin :204 - CLARENCE RIVER
Area / District :

CMA Map :9537-3N COFFS HARBOUR
Grid Zone :56/2
Scale :1:25,000

Elevation : 0.00
Elevation Source :

Northing :6650793.8
Easting :504444.6
Latitude (S) :30° 16' 28"
Longitude (E) :153° 2' 46"

GS Map :
AMG Zone :56
Coordinate Source :GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	140			Rotary
1		Hole	Hole	12.00	36.00	140			Percussion
1	1	Casing	PVC Class 9	-0.30	36.00	125			Glued: Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	31.00	36.00	125		1	PVC Class 9; Sawn; SL: 0mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
31.00	36.00	5.00	Fractured	12.00		0.76	36.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	12.00	12.00	Brown Shale	Shale	
12.00	31.00	19.00	Grey Shale	Shale	
31.00	36.00	5.00	Grey Shale Reef Quartz	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	18-Nov-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	18-Nov-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW073256 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW073299 *Converted From HYDSYS*

License :30BL176444

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
IRRIGATION	IRRIGATION

Commenced Date : **Final Depth :** 30.50 m
Completion Date :28-Sep-1994 **Drilled Depth :** 30.50 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - GATUM PTY LTD
GWMA : -
GW Zone : -

Standing Water Level : 9.00 m
Salinity : Good
Yield : 2.53 L/s

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A :FITZROY	MOONEE	LOT 1 DP661408
Licensed :FITZROY	MOONEE	LT 1 DP 661408

Region :30 - NORTH COAST
River Basin :205 - BELLINGER RIVER
Area / District :

CMA Map :9537-4S MOONEE BEACH
Grid Zone :56/2 **Scale :**1:25,000

Elevation : 0.00
Elevation Source :

Northing :6654280.4 **Latitude (S) :**30° 14' 34"
Easting :513332.6 **Longitude (E) :**153° 8' 19"

GS Map : **AMG Zone :**56 **Coordinate Source :**GD.,ACC.GIS

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	5.00	140			Percussion
1		Hole	Hole	5.00	30.50	140			Down Hole Hammer
1	1	Casing	P.V.C.	0.00	30.50	125			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	26.00	30.50	125		1	PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
26.00	30.50	4.50	Fractured	9.00		2.53	30.50	0.75	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Brown Topsoil	Topsoil	
0.30	1.50	1.20	Brown Clay	Clay	
1.50	5.00	3.50	Brown Shale	Shale	
5.00	20.00	15.00	Grey Shale	Shale	
20.00	26.00	6.00	Basalt	Basalt	
26.00	30.50	4.50	Broken Basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	28-Sep-1994	0.00	0.00	0.00	0.00	0.00				
Single-Rate Pumping Test	28-Sep-1994	0.00	0.00	0.00	0.00					

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW073299 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW103414

License : 30BL177223

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status : (Unknown)		
Construct. Method :		
Owner Type :		

Commenced Date : **Final Depth :** 39.00 m
Completion Date : **Drilled Depth :**

Contractor Name : TANNER DRILLING
Driller :

Property : - CHRISTIAN OUTREACH **Standing Water Level :**
GWMA : - **Salinity :**
GW Zone : - **Yield :** 3.75 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A : RALEIGH	BONVILLE	LOT 101 DP856741
	Licensed : RALEIGH	BONVILLE	LT 101 DP 856741

Region : 30 - NORTH COAST **CMA Map :**
River Basin : **Grid Zone :** **Scale :**
Area / District :

Elevation : **Northing :** 6645071 **Latitude (S) :** 30° 19' 34"
Elevation Source : **Easting :** 508797 **Longitude (E) :** 153° 5' 29"

GS Map : **AMG Zone :** 56 **Coordinate Source :** Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details

(No Construction Details Found)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
Casing - 6 inches to 75'. 4" to 130'. Static head 20 feet.

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW300734

License : 30BL177710

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status : (Unknown)		
Construct. Method : Rotary		
Owner Type :		

Commenced Date : **Final Depth :** 62.00 m
Completion Date : **Drilled Depth :** 62.00 m

Contractor Name : Robert Leslie TANNER
Driller : 1412 TANNER, Robert Leslie

Property : - HALLGATHS'
GWMA : -
GW Zone : -

Standing Water Level : 10.00 m
Salinity : 320.00 mg/L
Yield : 1.01 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** FITZROY	MOONEE	LOT 5 DP595554
		Licensed : FITZROY	MOONEE	LT 5 DP 595554

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone : **Scale :**

Elevation :
Elevation Source :

Northing : 6652908 **Latitude (S) :** 30° 15' 19"
Easting : 510956 **Longitude (E) :** 153° 6' 50"

GS Map : **AMG Zone :** 56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	3.00	500			Rotary Air
1		Hole	Hole	3.00	62.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	3.00	170	-130		Glued; Driven into Hole; (Unknown); (Unknown)
1	1	Casing	PVC Class 9	3.00	62.00	125	-75		C: 300-600m; Glued; Seated on Bottom; (Unknown); Packer
1	1	Opening	Slots - Vertical	29.00	34.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm
1	1	Opening	Slots - Vertical	53.00	58.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
29.00	34.00	5.00		10.00		0.51			
53.00	58.00	5.00		10.00		1.01	62.00	2.00	320.00

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Red clay basalt floaters		
3.00	9.00	6.00	Brown shale		
9.00	29.00	20.00	Basalt		
29.00	34.00	5.00	Cracky basalt		
34.00	53.00	19.00	Basalt		
53.00	58.00	5.00	Broken basalt		
58.00	62.00	4.00	Basalt		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	2.00	

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW300931

License : 30BL177822

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date : 22-Oct-1997

Final Depth : 48.00 m
Drilled Depth : 48.00 m

Contractor Name : Robert Leslie TANNER
Driller : 1701 TANNER, Robert Leslie

Property : - ROSSIS'
GWMA : -
GW Zone : -

Standing Water Level : 8.00 m
Salinity : 210.00 mg/L
Yield : 2.53 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** RALEIGH	BONVILLE	LOT 4 D P 747644
		Licensed : RALEIGH	BONVILLE	LT 4 DP 747644

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6647578
Easting : 506824

Latitude (S) : 30° 18' 12"
Longitude (E) : 153° 4' 15"

GS Map :
AMG Zone : 56
Coordinate Source : Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	3.00	100			Rotary
1		Hole	Hole	3.00	48.00	200			Rotary
1	1	Casing	P.V.C.	-0.30	48.00	170	150		C: 600-600m; Glued; Seated on Bottom; (Unknown); Packer
1	1	Opening	Slots - Vertical	24.00	28.00	170			PVC; Sawn; SL: 100mm; A: 2.6mm
1	1	Opening	Slots - Vertical	44.00	48.00				Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
0.00	28.00	28.00		8.00		0.51	48.00	2.00	210.00
44.00	48.00	4.00		8.00		2.02	48.00	2.00	210.00

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Black top soil		
0.60	3.00	2.40	Brown clay		
3.00	9.00	6.00	Brown shale		
9.00	24.00	15.00	Basalt		
24.00	28.00	4.00	Cracky basalt		
28.00	44.00	16.00	Basalt		
44.00	48.00	4.00	Broken basalt		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	2.00	

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW300999

License : 30BL177874

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	STOCK
Work Status : (Unknown)	STOCK	
Construct. Method : Rotary		
Owner Type :		

Commenced Date : **Final Depth :** 48.00 m
Completion Date : 12-Jan-1998 **Drilled Depth :** 48.00 m

Contractor Name : Robert Leslie TANNER
Driller : 1412 TANNER, Robert Leslie

Property : - BURMESTERS'
GWMA : -
GW Zone : -

Standing Water Level : 18.00 m
Salinity : 220.00 mg/L Good
Yield : 0.63 L/s good

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A : FITZROY	COFF	LOT 3 DP624590
	Licensed : FITZROY	COFF	LOT 3 D P 624590

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6650265
Easting : 504641
Latitude (S) : 30° 16' 45"
Longitude (E) : 153° 2' 54"

GS Map : **AMG Zone :** 56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	140			Rotary
1		Hole	Hole	6.00	48.00	140			Rotary
1	1	Casing	PVC Class 9	0.00	48.00	125	113		C: 0-.6m; Glued; Cemented; Seated on Bottom; (Unknown)
1	1	Opening	Slots - Vertical	35.00	37.00	125			PVC Class 9; SL: 100mm; A: 2.6mm
1	1	Opening	Slots - Vertical	43.00	48.00	125			PVC Class 9; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
35.00	37.00	2.00		18.00		0.26	48.00	2.00	220.00
43.00	48.00	5.00		18.00		0.38	48.00	2.00	220.00

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	pink shale		
6.00	33.00	27.00	basalt		
33.00	37.00	4.00	cracked basalt		
37.00	43.00	6.00	basalt		
43.00	48.00	5.00	cracked basalt		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	2.00	

Remarks

REPLACED BY LICENSE 30BL178378

***** End of GW300999 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301007

License :30BL154911

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	IRRIGATION	IRRIGATION
Work Status :(Unknown)		
Construct. Method : Rotary		
Owner Type :		

Commenced Date : **Final Depth :**
Completion Date : **Drilled Depth :**

Contractor Name : Robert Leslie TANNER
Driller :1701 TANNER, Robert Leslie

Property : - PELICAN BEACH TRAVELODGE RES. **Standing Water Level :**
GWMA : - **Salinity :** Salty
GW Zone : - **Yield :**

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LOT 101 DP629555
	Licensed :FITZROY	MOONEE	LT 101 DP 629555

Region :30 - NORTH COAST **CMA Map :**
River Basin : **Grid Zone :** **Scale :**
Area / District :

Elevation : **Northing :**6653643 **Latitude (S) :**30° 14' 55"
Elevation Source : **Easting :**513554 **Longitude (E) :**153° 8' 27"

GS Map : **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details

(No Construction Details Found)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW301007 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301087

License : 30BL176801

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status : (Unknown)		
Construct. Method : Rotary		
Owner Type :		

Commenced Date : **Final Depth :** 48.00 m
Completion Date : 12-May-1995 **Drilled Depth :** 48.00 m

Contractor Name : TANNER DRILLING
Driller : 1412 TANNER, Robert Leslie

Property : - PERRETT'S **Standing Water Level :** 18.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 1.82 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** FITZROY	COFF	LOT 12 DP875340
		Licensed : FITZROY	COFF	LOT 2 DP563090

Region : 30 - NORTH COAST **CMA Map :**
River Basin : **Grid Zone :** **Scale :**
Area / District :

Elevation : **Northing :** 6652500 **Latitude (S) :** 30° 15' 32"
Elevation Source : **Easting :** 513221 **Longitude (E) :** 153° 8' 15"

GS Map : **AMG Zone :** 56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	140			Rotary Air
1		Hole	Hole	6.00	48.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	48.00	125	-75		Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	43.00	48.00	125			PVC Class 9; Slotted In Hole; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
43.00	48.00	5.00		18.00		1.82	48.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	BROWN TOPSOIL		
0.30	2.00	1.70	BROWN CLAY		
2.00	32.00	30.00	BROWN SHALE		
32.00	43.00	11.00	BASALT		
43.00	48.00	5.00	BROKEN BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

Form A Remarks:
CASING CEMENTED BY 600 x 600 DEEP SURFACE PAD.

***** End of GW301087 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301193

License : 30BL176913

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rot. Rev. Circ. Air
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date : 31-Aug-1995
Final Depth : 29.60 m
Drilled Depth : 29.60 m

Contractor Name : Puckeridge & Co
Driller : 1629 PUCKERIDGE, Glenn

Property : - SPAGNOLO'S
GWMA : -
GW Zone : -

Standing Water Level : 8.00 m
Salinity : Good
Yield : 0.40 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
Driller	Form A : FITZROY	COFF	LOT 22 DP803289
	Licensed : FITZROY	COFF	LT 22 DP 803289

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6649260
Easting : 506842
Latitude (S) : 30° 17' 18"
Longitude (E) : 153° 4' 16"

GS Map :
AMG Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	PVC Class 9	-0.20	29.60	145			C: 0-1m; Glued
1	1	Opening	Slots - Vertical	23.60	29.60	145			PVC Class 9; Sawn; SL: 6mm; A: 2mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
0.00	0.00	0.00				0.20	29.00	1.00	Good
10.00	12.00	2.00		8.00		0.20	13.00	0.50	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	10.00	10.00	CLAY		
10.00	12.00	2.00	WEATHERED SHALE		
12.00	24.40	12.40	SHALE		
24.40	25.90	1.50	SHALE & REEF QUARTZ		
25.90	29.60	3.70	SHALE		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Surging	0.25	

Remarks

***** End of GW301193 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301200

License : 30BL179175

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary
Owner Type :

Authorised Purpose(s)
DOMESTIC
IRRIGATION

Intended Purpose(s)
DOMESTIC

Commenced Date :
Completion Date :

Final Depth : 38.00 m
Drilled Depth : 38.00 m

Contractor Name : TANNER DRILLING
Driller : 1412 TANNER, Robert Leslie

Property : - " SAECK'S "
GWMA : -
GW Zone : -

Standing Water Level : 9.00 m
Salinity : Good
Yield : 0.76 L/s

Site Details

Site Chosen By
Diviner Driller

County
Form A : RALEIGH
Licensed : RALEIGH

Parish
BONVILLE
BONVILLE

Portion/Lot DP
LOT 1 DP862818
LOT 1 DP862818

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6646293
Easting : 506163

Latitude (S) : 30° 18' 54"
Longitude (E) : 153° 3' 51"

GS Map :
AMG Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	9.00	140			Rotary
1		Hole	Hole	9.00	38.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	38.00	125	-75		Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	33.00	38.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
33.00	38.00	5.00		9.00		0.76	38.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	BROWN TOPSOIL		
0.60	1.20	0.60	BROWN CLAY		
1.20	8.00	6.80	BROWN SHALE		
8.00	9.00	1.00	WEATHERED BASALT		
9.00	33.00	24.00	BASALT		
33.00	38.00	5.00	BROKEN BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

Bore casing finished with 600 x 600mm deep cemented surface pad.

***** End of GW301200 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301239

License : 30BL176844

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date : 26-Jun-1995
Final Depth : 38.00 m
Drilled Depth : 38.00 m

Contractor Name : R.L. TANNER
Driller : 1412 TANNER, Robert Leslie

Property : - ELLEN'S
GWMA : -
GW Zone : -

Standing Water Level : 6.00 m
Salinity : Good
Yield : 0.51 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** RALEIGH	BONVILLE	LOT 43 DP264404
		Licensed : RALEIGH	BONVILLE	LT 43 DP 264404

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6644886
Easting : 506878
Latitude (S) : 30° 19' 40"
Longitude (E) : 153° 4' 18"

GS Map :
AMG Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	3.00	140			Rotary
1		Hole	Hole	3.00	38.00	140			Rotary
1	1	Casing	PVC Class 9	0.00	38.00	125	-75		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	33.00	38.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
33.00	38.00	5.00		6.00		0.51	38.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	BROWN SHALE		
3.00	33.00	30.00	BASSALT		
33.00	38.00	5.00	CRACKY BASSALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW301239 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301250

License :30BL176864

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rot. Rev. Circ. Air		
Owner Type :		

Commenced Date : **Final Depth :** 31.40 m
Completion Date :12-Jan-1995 **Drilled Depth :** 31.40 m

Contractor Name :PUCKERIDGE & CO
Driller :1629 PUCKERIDGE, Glenn

Property : - FAHEY'S **Standing Water Level :** 4.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 1.00 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
Driller	**Form A :**FITZROY	MOONEE	LOT 305 DP752834
	Licensed :FITZROY	MOONEE	LT 305 DP 752834

Region :30 - NORTH COAST **CMA Map :**
River Basin : **Grid Zone :** **Scale :**
Area / District :

Elevation : **Northing :**6653077 **Latitude (S) :**30° 15' 14"
Elevation Source : **Easting :**510951 **Longitude (E) :**153° 6' 50"

GS Map : **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	11.00	165			Rotary Air
1		Hole	Hole	11.00	31.40	150			Down Hole Hammer
1	1	Casing	PVC Class 9	0.00	31.40	125			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	13.00	31.00	125			PVC Class 9; Sawn; SL: 18mm; A: 1mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
11.00	24.40	13.40		4.00		1.00	30.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	TOP SOIL		
0.60	7.60	7.00	CLAY & FLOATERS		
7.60	24.40	16.80	FRACTURED SHALE		
24.40	31.40	7.00	SHALE		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW301250 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301322

License : 30BL176986

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status : (Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type :		

Commenced Date : **Final Depth :** 36.00 m
Completion Date : 28-Sep-1995 **Drilled Depth :** 36.00 m

Contractor Name : TANNER DRILLING
Driller : 1412 TANNER, Robert Leslie

Property : - FOWLER'S **Standing Water Level :** 12.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 0.38 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** FITZROY	COFF	LOT 16 DP713660
		Licensed : FITZROY	COFF	LT 16 DP 713660

Region : 30 - NORTH COAST **CMA Map :**
River Basin : **Grid Zone :** **Scale :**
Area / District :

Elevation : **Northing :** 6650191 **Latitude (S) :** 30° 16' 47"
Elevation Source : **Easting :** 504246 **Longitude (E) :** 153° 2' 39"

GS Map : **AMG Zone :** 56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	140			Rotary Air
1		Hole	Hole	12.00	36.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	36.00	125			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	24.00	29.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
24.00	29.00	5.00		12.00		0.38	36.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	BLACK TOPSOIL		
0.30	12.00	11.70	YELLOW SHALE		
12.00	24.00	12.00	BASALT		
24.00	29.00	5.00	CRACKY BASALT		
29.00	36.00	7.00	BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW301322 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301331

License : 30BL177033

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status : (Unknown)		
Construct. Method : Rotary Air		
Owner Type :		

Commenced Date : **Final Depth :** 48.00 m
Completion Date : 30-Oct-1995 **Drilled Depth :** 48.00 m

Contractor Name : TANNER DRILLING
Driller : 1412 TANNER, Robert Leslie

Property : - GILL'S
GWMA : -
GW Zone : -

Standing Water Level : 18.00 m
Salinity : Good
Yield : 1.90 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** RALEIGH	BONVILLE	LOT 2 DP713643
		Licensed : RALEIGH	BONVILLE	LT 2 DP 713643

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone : **Scale :**

Elevation :
Elevation Source :

Northing : 6646908 **Latitude (S) :** 30° 18' 34"
Easting : 505015 **Longitude (E) :** 153° 3' 8"

GS Map : **AMG Zone :** 56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	140			Rotary Air
1		Hole	Hole	12.00	48.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	48.00	125	-75		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	41.00	46.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
41.00	46.00	5.00		18.00		1.90	48.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	12.00	12.00	RED TO BROWN SHALE		
12.00	18.00	6.00	BROWN SHALE		
18.00	41.00	23.00	BASALT		
41.00	46.00	5.00	BROKEN BASALT		
46.00	48.00	2.00	BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

***** End of GW301331 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301377

License : 30BL177102

Work Type : Bore
Work Status : (Unknown)
Construct. Method :
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date : 01-Mar-1995
Final Depth : 2.50 m
Drilled Depth :

Contractor Name :
Driller : Janbrook, Gary

Property : - WILLIAMS'
GWMA : -
GW Zone : -

Standing Water Level : 0.70 m
Salinity :
Yield :

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A : FITZROY	MOONEE	LOT 101 DP604622
Licensed : FITZROY	MOONEE	LT 101 DP 604622

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6653767
Easting : 512069
Latitude (S) : 30° 14' 51"
Longitude (E) : 153° 7' 32"

GS Map :
AMG Zone : 56
Coordinate Source : Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	2.50				
1		Hole	Hole	0.00	2.50				
1	1	Casing	Lining	0.00	2.50				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
GARY JANBROOK INSTALLED EXCAVATION. THE WORK IS 5 M ON RIGHT BANK OF COUGAL CREEK.

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301392

License :30BL177136

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status :(Unknown)		
Construct. Method : Rotary		
Owner Type :		

Commenced Date : **Final Depth :** 54.00 m
Completion Date :09-Dec-1995 **Drilled Depth :** 54.00 m

Contractor Name :TANNER DRILLING
Driller :1412 TANNER, Robert Leslie

Property : - JACKSON'S **Standing Water Level :** 18.00 m
GWMA : - **Salinity :** Good
GW Zone : - **Yield :** 1.14 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**FITZROY	MOONEE	LOT132 DP599061
		Licensed :FITZROY	MOONEE	LT 132 DP 599061

Region :30 - NORTH COAST **CMA Map :**
River Basin : **Grid Zone :** **Scale :**
Area / District :

Elevation : **Northing :**6654128 **Latitude (S) :**30° 14' 39"
Elevation Source : **Easting :**512911 **Longitude (E) :**153° 8' 3"

GS Map : **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	2.00	140			Rotary
1		Hole	Hole	2.00	54.00	140			Rotary
1	1	Casing	PVC Class 9	-0.30	54.00	125			Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	49.00	54.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
49.00	54.00	5.00		18.00		1.14	54.00	1.00	Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	12.00	12.00	BROWN SHALE	Shale	
12.00	36.00	24.00	GREY SHALE	Shale	
36.00	49.00	13.00	BASALT	Basalt	
49.00	54.00	5.00	BROKEN BASALT	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

*** End of GW301392 ***

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301547

License :30BL178378

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
IRRIGATION	IRRIGATION
STOCK	STOCK

Commenced Date :
Completion Date :
Final Depth : 48.00 m
Drilled Depth : 48.00 m

Contractor Name :T.D.M. P/ L.
Driller :1701 TANNER, Robert Leslie

Property : - BARROW'S
GWMA : -
GW Zone : -

Standing Water Level : 18.00 m
Salinity : 220.00 mg/L
Yield : 0.63 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :**FITZROY	COFF	LOT 3 DP624590
		Licensed :FITZROY	COFF	LT 3 DP 624590

Region :30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing :6650265
Easting :504641
Latitude (S) :30° 16' 45"
Longitude (E) :153° 2' 54"

GS Map : **AMG Zone :**56 **Coordinate Source :**Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	140			Rotary Air
1		Hole	Hole	6.00	48.00	140			Rotary Air
1	1	Casing	PVC Class 9	-0.30	48.00	125	113		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	33.00	35.00	125			PVC Class 9; Sawn; SL: 100mm; A: .6mm
1	1	Opening	Slots - Vertical	43.00	48.00	125			PVC Class 9; Sawn; SL: 100mm; A: .6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
33.00	37.00	4.00		10.00		0.25			
43.00	48.00	5.00		18.00		0.38	48.00	2.00	

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	pink shale	Pink Streaks	
6.00	33.00	27.00	basalt	Basalt	
33.00	37.00	4.00	cracky basalt	Cracked	
37.00	43.00	6.00	basalt	Basalt	
43.00	48.00	5.00	cracky basalt	Cracked	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	2.00	

Remarks

*** End of GW301547 ***

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301578

License : 30BL177994

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore	DOMESTIC	DOMESTIC
Work Status : (Unknown)	STOCK	STOCK
Construct. Method : Rotary Air		
Owner Type :		

Commenced Date : **Final Depth :** 42.00 m
Completion Date : 14-Aug-1998 **Drilled Depth :** 42.00 m

Contractor Name : T.& M. P/ L.
Driller : 1701 TANNER, Robert Leslie

Property : - " DARBY'S "
GWMA : -
GW Zone : -

Standing Water Level : 9.00 m
Salinity : 90.00 mg/L
Yield : 0.35 L/s

Site Details

Site Chosen By		County	Parish	Portion/Lot DP
Diviner	Driller	**Form A :** FITZROY	COFF	LOT 11 DP807125
		Licensed : FITZROY	COFF	LOT 11 DP807125

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone : **Scale :**

Elevation :
Elevation Source :

Northing : 6650899 **Latitude (S) :** 30° 16' 24"
Easting : 510158 **Longitude (E) :** 153° 6' 20"

GS Map : **AMG Zone :** 56 **Coordinate Source :** Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	200			Rotary Air
1		Hole	Hole	6.00	42.00	140			Down Hole Hammer
1	1	Casing	PVC Class 9	-0.30	6.00	170	154		Driven into Hole
1	1	Casing	PVC Class 9	-0.30	42.00	125	113		Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	34.00	39.00	125			PVC Class 9; Sawn; SL: 100mm; A: 2.6mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
34.00	39.00	5.00		9.00		0.25	42.00	1.50	90.00

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	red top soil	Red Bands	
0.30	5.00	4.70	red clay	Red Clay Bands	
5.00	9.00	4.00	brown shale	Brown Streaks	
9.00	34.00	25.00	basalt	Basalt	
34.00	39.00	5.00	cracky basalt	Cracked	
39.00	42.00	3.00	basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success
Chlorine	Airlift		

Development

Method	Time Taken	Other Development Method
Air	1.50	

Remarks

***** End of GW301578 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301886

License :30BL176614

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Well	INDUSTRIAL	IRRIGATION
Work Status :(Unknown)		
Construct. Method : Other		
Owner Type : Private		

Commenced Date : **Final Depth :** 5.00 m
Completion Date :20-Dec-1994 **Drilled Depth :**

Contractor Name :
Driller :

Property : - OPAL COVE RESORT **Standing Water Level :** 4.00 m
GWMA : - **Salinity :**
GW Zone : - **Yield :** 3.33 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :FITZROY	MOONEE	LOT 3 DP841017
	Licensed :FITZROY	MOONEE	LOT 200 DP 794312

Region :30 - NORTH COAST **CMA Map :**
River Basin : **Grid Zone :** **Scale :**
Area / District :

Elevation : **Northing :**6653233 **Latitude (S) :**30° 15' 8"
Elevation Source : **Easting :**513198 **Longitude (E) :**153° 8' 14"

GS Map : **AMG Zone :**56 **Coordinate Source :**Property Details Only

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details

(No Construction Details Found)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW301886 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301924

License : 30BL178660

Work Type : Bore
Work Status : (Unknown)
Construct. Method :
Owner Type :

	Authorised Purpose(s)	Intended Purpose(s)
	DOMESTIC	DOMESTIC
	STOCK	STOCK

Commenced Date :
Completion Date :

Final Depth : 43.00 m
Drilled Depth :

Contractor Name : Unknown
Driller :

Property : - " BLACK'S "
GWMA : -
GW Zone : -

Standing Water Level :
Salinity :
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A : FITZROY	MOONEE	LOT 1 DP415405
	Licensed : FITZROY	MOONEE	LT 1 DP 415405

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6654396
Easting : 512902

Latitude (S) : 30° 14' 31"
Longitude (E) : 153° 8' 3"

GS Map :
AMG Zone : 56
Coordinate Source : Map Interpretation

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details

(No Construction Details Found)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW301924 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW301925

License :30BL178661

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
FARMING	FARMING

Commenced Date : **Final Depth :** 52.00 m
Completion Date :26-Nov-1993 **Drilled Depth :** 52.00 m

Contractor Name :D.C. JACKWITZ
Driller :1504 JACKWITZ, William Douglas

Property : - " JHAJ'S "
GWMA : -
GW Zone : -

Standing Water Level : 20.00 m
Salinity :
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :FITZROY	MOONEE	LT A DP 374980

Region :30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone : **Scale :**

Elevation :
Elevation Source :

Northing :6654206 **Latitude (S) :**30° 14' 37"
Easting :512655 **Longitude (E) :**153° 7' 54"

GS Map : **AMG Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	52.00	168			Rotary Air
1	1	Casing	PVC Class 9	-0.30	52.00	160			Glued; Seated on Bottom
1	1	Opening	Slots - Vertical	26.00	51.00	160			PVC Class 9; Sawn; SL: .15mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
26.00	27.00	1.00				0.61			
35.00	38.00	3.00				0.61			
47.00	50.00	3.00				2.47			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	4.00	4.00	gravel and clay	Gravel	
4.00	6.00	2.00	shale	Shale	
6.00	24.00	18.00	basalt	Basalt	
24.00	27.00	3.00	broken rock	Broken	
27.00	35.00	8.00	basalt	Basalt	
35.00	38.00	3.00	shale	Shale	
38.00	47.00	9.00	basalt	Basalt	
47.00	50.00	3.00	broken rock	Broken	
50.00	52.00	2.00	basalt	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method
Air	1.00	

Remarks

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW302022

License :30BL178389

Work Type :Bore
Work Status :(Unknown)
Construct. Method :
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
MONITORING BORE	MONITORING BORE

Commenced Date :
Completion Date :30-Apr-1998

Final Depth : 5.50 m
Drilled Depth : 5.50 m

Contractor Name :
Driller : , AIMIL PTY LTD

Property : - " ENGLANDS RD LANDFILL "
GWMA : -
GW Zone : -

Standing Water Level :
Salinity :
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :RALEIGH	BONVILLE	LOT 211 DP864611

Region :30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing :6645110
Easting :507038

Latitude (S) :30° 19' 33"
Longitude (E) :153° 4' 24"

GS Map :
AMG Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	5.50				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.50	1.50	grey and brown clayey silt moist and firm	Grey Bands	
1.50	1.80	0.30	mottled yellow brown and grey silty clay moist and firm	Mottled-Spotted	
1.80	2.60	0.80	grey silty clay with quartz gravel moist and stiff	Grey Streaks	
2.60	5.50	2.90	brown-yellow weathered shale moist and stiff becoming drier an d harder from 4.5m	Brown	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

***** End of GW302022 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW302055

License :30BL178127

Work Type : Bore
Work Status :(Unknown)
Construct. Method : Rotary Air
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
IRRIGATION	IRRIGATION

Commenced Date :
Completion Date :10-Dec-1996
Final Depth : 75.00 m
Drilled Depth :

Contractor Name :TANNER DRILLING
Driller :1701 TANNER, Robert Leslie

Property : - " WILBERFORCE'S "
GWMA : -
GW Zone : -

Standing Water Level :
Salinity : 3,000.00 mg/L
Yield : 1.89 L/s

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :FITZROY	MOONEE	LT 1 DP 366171

Region :30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing :6653270
Easting :512255
Latitude (S) :30° 15' 7"
Longitude (E) :153° 7' 39"

GS Map :
AMG Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.30	64.00	100			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
I have had the bore drilled for about 6 years but I have only had it working since the 10/12/96 through lack of money to buy the pump and get the eletricity on.

***** End of GW302055 *****

DEPARTMENT OF LAND & WATER CONSERVATION
Work Summary

GW302295

License : 30BL140270

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary Air
Owner Type :

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC
STOCK	STOCK

Commenced Date :
Completion Date : 21-Aug-1990
Final Depth : 64.00 m
Drilled Depth : 64.00 m

Contractor Name : D C JACKWITZ
Driller : 1424 JACKWITZ, Douglas Charles

Property : - HOPWOOD'S
GWMA : -
GW Zone : -

Standing Water Level : 38.00 m
Salinity :
Yield : 0.50 L/s

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	RALEIGH	BONVILLE	LOT 45 DP264404
Licensed :	RALEIGH	BONVILLE	LT 45 DP 264404

Region : 30 - NORTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing : 6644796
Easting : 506981
Latitude (S) : 30° 19' 43"
Longitude (E) : 153° 4' 21"

GS Map :
AMG Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	64.00	168			Rotary Air
1	1	Casing	PVC Class 9	0.00	64.00	150			Seated on Bottom
1	1	Opening	Slots - Vertical	52.00	64.00	150			PVC; Sawn; SL: 150mm; A: 3mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
58.00	61.00	3.00				0.30			
61.00	64.00	3.00				0.20			

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	SHALE		
1.00	22.00	21.00	BASALT		
22.00	26.00	4.00	FRACTURED BASALT		
26.00	58.00	32.00	SOFT BASALT		
58.00	61.00	3.00	BASALT		
61.00	64.00	3.00	QUARTZ SPRINKLED IN BASALT		

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Duration	Success

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Appendix B

Soil Landscape Groupings

Summary of Soil Landscape Groupings:

Profile Abbreviation	Topography	Substrate Lithology	Vegetation	Land Use	Typical Soil Profile / Occurrence	Landscape Limitations	Soil Limitations
Colluvial Landscapes							
Suicide - su	Steep hills and dissected valleys	Late Carboniferous Metasediments	Partially cleared tall closed-forest & tall open-forest	Banana plantation	su1: 40cm dark brown friable (silty) loam; su2: 50cm brown clay loam; su3:100cm orange peda,l silty clay; su4: 100cm+ of well drained, stony, structured Red Earths & occasional Yellow Earths. Soil depth generally >100cm, may be >300cm.	Steep slopes, massmovement hazard High run-on High water erosion hazard Foundation hazard	Low - very low wet bearing strength, high organic matter, high permeability, slow - rapid permeability, and low fertility
Erosional Landscapes							
Megan - me	Rolling low hills to hills with broad crests	Late Carboniferous metasediments	Tall open forest & tall closed forest	Banana plantations, urban development, and grazing	me1: 15-35cm brownish black earthy loam; me2: 5-40cm dark reddish brown pedal clay loam; me3: 60-75cm reddish brown pedal light clay; me4: moderately deep, well drained Red, Brown, and Yellow Podzolic Soils. Soil depth generally >120cm.	Steep slopes (localised) Mass movement hazard (localised) High water erosion hazard (localised) Foundation hazard (localised)	Low wet bearing strength, high organic matter (localised),strong to very strong acidity, stoniness (localised), high to extreme erodibility, low fertility and permeability, high aluminium potential, hardsetting surface (localised), high plasticity.

Summary of Soil Landscape Groupings:

Profile Abbreviation	Topography	Substrate Lithology	Vegetation	Land Use	Typical Soil Profile / Occurrence	Landscape Limitations	Soil Limitations
Ulong - ul	Undulating to rolling low hills	Late Carboniferous metasediments	Tall closed-forest to tall open-forest	Urban development	ul1: 30cm dark brown crumbly loam; ul2: 80cm reddish brown, pedal loam; ul3: 100cm reddish brown clay to silty clay; ul4: 100cm+ reddish brown, pedal, mottled, light to medium silty clay (Red, Brown and Yellow Earths. Soil depth ranges 100cm-250cm.	Foundation Hazard Water erosion Hazard (localised) Steep Slopes (localised) High run-on (localised)	Low to very low wet bearing strength, high organic matter, slow to rapid permeability, strong to very strong acidity, low fertility, aluminium toxicity potential (localised), high erodibility, hardsetting soil.
<u>Transferral Landscapes</u>							
Moonee - mo	Undulating rises, footslopes and drainage plains	Late Carboniferous metasediments	Extensively cleared tall closed-forest & tall open-forest	Beef cattle grazing and improved pastures	mo1: 32cm brownish grey, silty clay loam to silty clay; mo2: 15-75cm light brown, mottled, silty light clay; mo3: >50cm light grey, mottled, gravelly light clay (moderately deep to deep , poorly drained Humic Gleys). Soil depth generally >100cm.	Seasonal waterlogging Foundation hazard Water erosion hazard (localised) Permanently high water tables (localised)	Very low wet bearing strength, high to very high erodibility, slow permeability, strong to very strong acidity, high aluminium toxicity potential, low fertility, strong sodicity.

Summary of Soil Landscape Groupings:

Profile Abbreviation	Topography	Substrate Lithology	Vegetation	Land Use	Typical Soil Profile / Occurrence	Landscape Limitations	Soil Limitations
Alluvial Landscapes							
Coffs Creek - cc	Level to gently undulating floodplains, inset floodplains and terraces	Quaternary Alluvium	Extensively to completely cleared , tall open-forest and open-forest	Urban or industrial development, grazing. Poorly drained areas remain unchanged.	Soils patterns are complex due to alluvial nature cc1: 20cm dark brown, loamy sand; cc2: 60cm brownish black, weakly pedal loam; cc3: 25cm brownish black clay loam; cc4: 20cm brown , weakly pedal, silty clay loam to light clay; cc5-cc7: >50cm yellowish brown, massive light clay (moderately deep to deep, moderately to well drained, Yellow Podzolic soils and Red Podzolic Soils) cc8: >100cm greyish, yellow brown, weakly pedal sandy loam (deep, moderately well drained alluvial soils). Soil depth may exceed 300cm.	Flood hazard Foundation hazard (localised) Seasonal waterlogging (localised) Permanently high watertables (drainage plains and lower reaches of floodplains)	Low wet bearing strength, high organic matter, very slow to rapid permeability (localised), low fertility, strong acidity, aluminium toxicity potential (localised).
Dairyville - da	Level to undulating alluvial terraces and floodplains	Quaternary Alluvium	Completely cleared closed-forest	Cattle grazing on improved pastures	Soils patterns are complex due to alluvial nature da1: 80cm dark brown, friable, silty loam (overlying stones, cobbles and gravels); da2: brown, moderately pedal, silty clay loam; da3: 30cm brown, moderately pedal, fine, sandy clay loam; da4: 40cm brown, moderately pedal clay loam; da5: >50cm brown, silty light clay; da6: >43cm dark brown, weakly pedal, sandy light clay. Soil depth generally >150cm.	Water erosion hazard (localised) Foundation hazard (localised) High run on hazard (localised) Flood hazard (localised) Seasonal waterlogging (localised) High watertables (localised)	Very low wet bearing strength, high erodibility, high organic matter, strong to very strong acidity, aluminum toxicity potential, low fertility,

Summary of Soil Landscape Groupings:

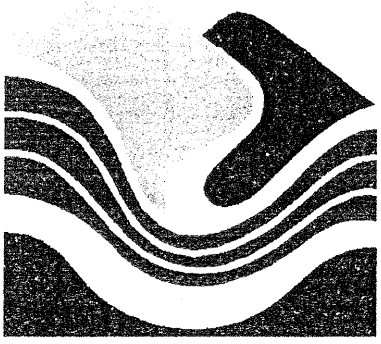
Profile Abbreviation	Topography	Substrate Lithology	Vegetation	Land Use	Typical Soil Profile / Occurrence	Landscape Limitations	Soil Limitations
Swamp Landscapes							
Newports Creek - np	Low, level to gently undulating coastal back barrier floodplains	Pleistocene estuarine sediments	Extensively cleared closed-forest	Residential and Industrial subdivisions	np1: 50cm dark brown, weakly pedal clay loam; np2: 50cm greyish yellow brown whole coloured light clay; np3: 80cm yellowish brown, mottled Pleistocene clay; np4: >90cm grey, mottled Pleistocene clay (deep imperfectly to poorly drained Yellow Podzolic Soils); np5: 40cm dull, yellow, massive silty clay (deep imperfectly to poorly drained Yellow Podzolic Soils). Soil depth generally >150cm.	Flood hazard Foundation hazard Seasonal waterlogging Water erosion hazard (localised)	Low to very low wet bearing strength, very high organic matter, strong to very strong acidity, strong sodicity, high erodibility, slow permeability, high aluminium toxicity potential, low fertility.

Appendix C

DIPNR Groundwater Status Report

DOC 3

Coffs Harbour
Local Government Area
Groundwater Status Report
&
Map Notes



LAND & WATER
CONSERVATION

COFFS BYPASS
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Technical Report No. NC3/98
Prepared by John Williams
Regional Hydrogeologist
North Coast Region
September, 1997

Executive Summary Coffs Harbour Local Government Area Technical Report and Map Notes.

Background

Groundwater is an important resource in NSW. It makes a substantial contribution as a source of water for the maintenance of aquatic environments, and is an integral component in the long-term management of water resources on both regional and State levels. Groundwater is an important commodity, and a vital component of both urban and rural industries, and our economic and social framework.

The need to properly manage groundwater is, therefore, directly related to the value of this resource and the risk of devaluation or destruction of the resource or related environments through over exploitation or contamination. The risks of groundwater resource degradation are real and significant, and in some areas of the State the effects of degradation are beginning to translate into economic and environmental losses.

Where there is concentrated human activity there is usually contaminated groundwater. Contamination can reach the watertable directly through constructions, such as pits, bores, trenches and tanks; or indirectly through the soil. Once in the watertable groundwater moves laterally and shallow aquifers generally discharge into adjacent streams and springs.

Policies/Programs/Regulations

The NSW Government and the community recognise the need for a coordinated approach to the improved management of groundwater. This is best achieved through implementation of the State Groundwater Policy Framework Document and its Component Policies. Together these documents make up the NSW State Groundwater Policy. The policy is consistent with NSW Government directions for natural resource management.

Why was it developed?

The preservation of groundwater quality and yield is of paramount concern. Under statewide natural resource policies currently being introduced, the DLWC, Environment Protection Authority, other agencies and local government will ensure that groundwater contamination and pollution is minimised. Integral to this regulatory process is that the beneficial use of aquifer systems as well as their vulnerability to pollution and protection measures need recognition.

At the request of Coffs Harbour Council, the DLWC has produced this groundwater status report in conjunction with a groundwater availability map and groundwater vulnerability map to aid council in making informative decisions in town planning.

Proper groundwater management guidelines need to be developed at an early stage if preservation of sensitive ecosystems and groundwater quality & quantity are to be maintained.

CONTENTS

TABLE OF FIGURES

1. INTRODUCTION

With the Coffs Harbour local government area (CHLGA) experiencing a rapidly increasing population, the increasing value of groundwater and the connection with surface water leads to concerns of best management practices. The community's attitude toward groundwater management has changed considerably during the past decade with both the DLWC, Council and the community now recognising the need to sustain the resource in the long term. The Department of Land and Water Conservation (DLWC) is responsible for the preservation of the State's water resources and at the request of Coffs Harbour Council, have investigated the various attributes of the physical and chemical environment in the CHLGA to develop both a groundwater vulnerability map and a groundwater availability map as well as a number of special purpose soil landscape derivative maps. It is envisaged that these maps will provide a useful management tool in the planning of future developments within the CHLGA and help to provide long-term sustainability of the groundwater resource. This is achieved by directing potentially polluting industries towards areas where natural barriers exist thus reducing the potential for groundwater contamination. The location, boundary and bore distribution for the CHLGA is shown in Figure 1.

2. PHYSIOGRAPHIC FEATURES

2.1 Stream Network

The boundaries of CHLGA lie within two catchments; i) Clarence River Valley, and ii) Bellinger River Valley. There are also a number of minor coastal streams extending from Coffs Harbour to Arrawarra that drain the coastal strip.

The Nymboida, Orara and Mitchell Rivers are the predominant tributaries that drain the southern section of the Clarence Valley and the eastern section of the Coffs Harbour tectonic block. These tributaries flow in a generally north - north west direction and have carved steep valleys out of the mountains and occasionally there exist small pockets of flat to undulating country. Rugged terrain and steep slopes separate these rivers from each other. East of Orara River the country tends to be more subdued and less rugged.

2.2 Climatic Features

2.2.1 Rainfall & Evaporation

In the CHLGA, the distribution of rainfall is seasonal and largely controlled by the topography. The highest precipitation of about 220 mm/month occurs in late summer-early autumn and the lowest values of about 45 mm a month occur in the winter months. Coffs Harbour has a median annual rainfall of around 1565 mm (Atkinson & Veness, 1981). Evaporation is highest during the months of September to March with December averaging 6.7 mm/day (Mackie Martin & Associates, 1993).

2.2.2 Temperature

The entire valley experiences warm to hot conditions during the period from November to April with an average summer maximum temperature of 26.3^{0}C, however temperatures will vary with elevation and proximity to the coast.. Mild to warm days occur for the remainder of the year with minimum winter temperatures of 7.8^{0}C (Atkinson & Veness, 1981). Frost occurs everywhere in winter except along the coastal strip.

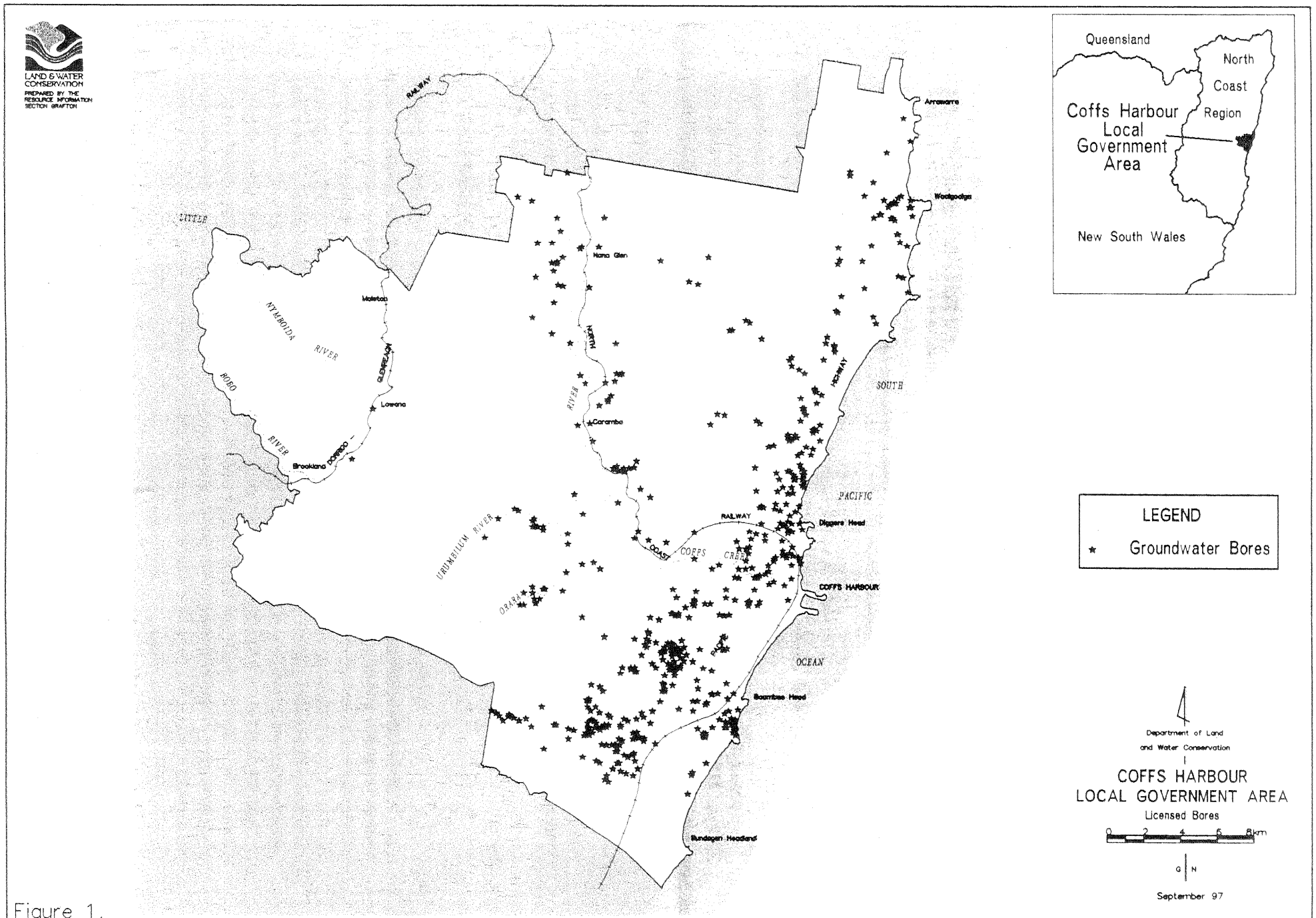

LAND & WATER CONSERVATION
PREPARED BY THE RESOURCE INFORMATION SECTION GRAFTON
Queensland
North Coast Region
Coffs Harbour Local Government Area
New South Wales
LEGEND
Groundwater Bores
Department of Land and Water Conservation
COFFS HARBOUR LOCAL GOVERNMENT AREA
Licensed Bores
0 2 4 6 8km
G N
September 97
RAILWAY
Arrawarra
Woolgoolga
Nana Glen
Coramba
Lowana
Bucca
Brooklana
NYMBOIDA RIVER
ROBO RIVER
BOWRA RIVER
URUMBILLUM RIVER
ORARA RIVER
COFFS CREEK
PACIFIC HIGHWAY
COAST RAILWAY
Diggers Head
COFFS HARBOUR
OCEAN
Boambee Head
Sandy Beach Headland

Figure 1.

2.3 Soils

Three distinctly different soil/geomorphic associations can be recognised in the CHLGA and are frequently identifiable by their relationship to terrain features; i) Coastal Sands, ii) Alluvial Soils, and iii)Bedrock Soils (Atkinson & Veness, 1981). Milford H (in prep) Soil landscapes of the Coffs harbour 1:100 000 Sheet, DLWC Sydney.and separate it into Aeolian landscapes, alluvial landscapes and the rest

2.3.1 Aeolian Landscapes

These soils have sandy textured profiles, low nutrient status, highly erodible and have high permeability. The Holocene dunes, beaches and estuarine flats have little or no soil profile development and drainage depends on local relief.

2.3.2 Alluvial Landscapes

These soils are found on fluvial and estuarine sediments derived from the nearby uplands. Yellow Earths comprise the major part of the geomorphic floodplain, Alluvial Loams and Gravels are typically found on the modern inset floodplain, Red Brown Loams on a terrace and Humic Gleyed Silts in the swamps.

2.3.3 Bedrock Landscape

The soils have a commonly weakly structured loamy A horizon, a moderately structured light B horizon, red colour, moderate to free drainage, good soil depth, moderate to high natural fertility, low shrink-swell potential and low erodibility. Soils that overlie the Clarence Valley Sedimentary Rocks are typically Grey-Brown Podsolic Soils and Yellow Podsolic.

2.4 Regional Geology and Geography

The geology of CHLGA comprises rocks of both the most southern portion of the Clarence-Moreton Basin, the eastern section of the Coffs Harbour tectonic block, and a small portion of the Nambucca Block in the south eastern corner. Quaternary alluvium deposits occur along the major streams of the area and along the coastline.

2.4.1 Coffs Harbour Tectonic Block

The Coffs Harbour Block (CHB) underlies the majority of the study area and comprises Late Carboniferous metasediments and is overlain by the Mesozoic Clarence - Moreton Basin to the north. As indicated on the Dorrigo-Coffs Harbour 1:250 000 Metallogenic Series, the CHB is separated from the Dyamberin Block to the west by the Demon Fault and the east west trending Bellingen Fault system marks the southern boundary with the Nambucca Block. Within the CHB, the Late Carboniferous metasediments comprise the Coramba Beds to the north, the Brooklana Beds in the middle and the Moombil Beds to the south.

The Coramba Beds comprise a thick extensive sequence of turbidites as well as minor pelagic rocks and ocean floor basalt. The turbidite rocks are predominantly massive greywacke, laminated siltstone and mudstone with minor conglomerate derived from a felsic to intermediate volcanic chain. These beds are distinguished from the Brooklana Beds, which they conformably overlie, by a predominance of sandstone over siltstone and mudstone. These beds extend northward from Coffs Harbour and typical exposures can be observed along most of the headlands north to Arrawarra.

The Brooklana Beds consist of thinly bedded siliceous mudstone and siltstone with rarer sandstones. Bedding thickness can vary from one centimetre to several metres thick and are commonly interbedded with lighter coloured, more siliceous rocks which may be finely laminated. They extend from the Bellinger Fault to a line drawn from Coffs Harbour to Lowana (Atkinson &

Veness, 1981). The Moombil Beds are interpreted to be the oldest rocks of the CHB and comprise black massive siltstone with minor greywacke and granule conglomerate.

The origin of the CHB is interpreted as an accretionary complex associated with a subduction zone once active on the eastern margin of Australia. A series of accretionary prisms developed when the trench fill sediments (turbidites), and some pelagic sediments (chert and jasper) and underlying oceanic crust (meta-basalt) were scraped off from the descending oceanic plate and subsequently deformed.

In all there have been three periods of structural deformation affecting the Coffs Harbour Block resulting in tight folding of rock layers, steeply dipping bedding planes and cleavage planes (Dept. of Mineral Resources, 1992). The stress exerted on the rocks during structural deformation have caused the rocks to undergo dyanothermal metamorphism with the degree varying from prehnite-pumpellyite to lower greenschist facies. The regional strike of both bedding and cleavage in the CHB is predominantly west-northwest, however changes to a northerly direction near Red Rock (Dept. of Mineral Resources, 1992).

2.4.2 Clarence-Moreton Basin

The basin is a north-south-trending structure containing mostly unfolded Middle Triassic to Early Cretaceous sediments and minor volcanics. The drainage pattern of the main tributaries of the Clarence flow in a northwest direction. Haworth and Ollier (1992) provide evidence to suggest that the Clarence once flowed in a northwest direction connecting onto the Condamine River just across the Continental Divide. In Late Triassic times, terrestrial sediments began to fill the subsiding Clarence-Moreton Basin and continued through the Jurassic and probably Cretaceous era. Eroded material from the CHB provided a source of sediment to fill ancient valleys in the southern part of the basin. With time, thick sequences of sedimentary material accumulated covering and unconformably overlying rocks of the CHB. Large scale sedimentation in the Basin ended about 80 My ago. At about this point in time, seafloor spreading of the Tasman Sea commenced and continued until about 60 My ago. Haworth and Ollier (1992) state that an axis of uplift associated with the opening of the Tasman Sea developed parallel to and inland of the continental margin. Eastern Australia consequently had a new continental edge and coastline with the initiation of coastward drainage. Table 1 presents a summary of the stratigraphic subdivisions of the Clarence-Moreton Basin. The Department. of Mineral Resources (1992) provides a more detailed description of the stratigraphic units.

Table 1. Stratigraphic subdivision of Clarence-Moreton Basin (source: Dept. of Mineral Resources, 1992).

Age	Stratigraphic Unit	Lithology	Depositional Environment	Thickness
Middle - Late Jurassic	Kangaroo Creek Sandstone	Quartz arenite, conglomerate	Terrestrial	150m
Middle Jurassic	Walloon Coal Measures	Claystone, lithic sandstone, coal, minor ironstone	Terrestrial	600m
Early Jurassic to Late Triassic	Bundamba Group	Conglomerate, quartz-lithic sandstone and minor siltstone	Terrestrial	?600m
Middle Triassic	Nymboida Coal Measures	Quartz-lithic sandstone, siltstone, conglomerate, coal rhyolitic tuff, basalt	Terrestrial	100m

2.4.3 Upper Nambucca Block

The south eastern corner of the CHLGA is underlain by the Bellingen Slate, a stratigraphic unit of the Nambucca Block. The Bellingen Slate, as indicated on the Dorrigo-Coffs Harbour 1:250 000 Metallogenic Series, is dominated by Early Permian age dark micaceous slate, lithofeldspathic sandstone and minor conglomerate. The provenance of these rocks are principally a quartz-rich

volcanic terrain which has subsequently undergone low-grade regional metamorphism (Dept. of Mineral Resources, 1992).

3. STATUS OF THE GROUNDWATER RESOURCE

3.1 The Occurrence of Groundwater

In recent years many bores and excavations have been constructed in the CHLGA and groundwater is becoming a more widely used water resource. It is however often overlooked that the surface water and groundwater resources are closely related. Due to the delay time between recharge from precipitation and discharge, groundwater often sustains flow in streams and creeks during extended dry periods until the drought is broken. Thus during dry periods, considerable recharge to the Nymboida, Orara, Mitchell and Bellingen Rivers occurs from the enveloping Carboniferous and Jurassic rocks.

As rain falls on to the land surface, a percentage of rainfall infiltrates the ground surface, depending largely on the climatic features such as annual rainfall, air temperature and evaporation. The percentage of rainfall that infiltrates to the water table will vary with the rainfall event. During low intensity rainfall events, most rainfall infiltrates or is lost to evapotranspiration and there is little runoff. In high intensity events, direct runoff occurs after the soil profile has become fully saturated. Secondary recharge results from topography, surface water, soil and geological characteristics.

Infiltrating water passes through the soil profile to the watertable or seeps along an impermeable interface to discharge down gradient, contributing to the base flow of streams. Some of the water that reaches the water table percolates further to the deeper aquifers within the consolidated rocks. However, the deeper aquifers are likely to have a slower rate of recharge and caution should be taken as yields and water levels can drop significantly after sustained pumping. Close monitoring of water levels should be undertaken and groundwater users may need to rely on more than one bore (with bores spread well apart) to obtain long term sustainable supplies.

In the CHLGA, groundwater occurs in all the rock formations to varying degrees with the greatest supplies being encountered in the more highly fractured and structurally deformed Carboniferous rocks. Generally the deeper a bore is drilled the more water bearing zones are intersected, thus slight increase in yields are likely to be obtained by deeper bores. At present, most groundwater pumpage in the fractured rocks and alluvium is from shallow aquifer zones less than 30m from the surface.

Individual property groundwater assessments can be obtained from the Department's Regional Hydrogeologist at Grafton or from the Hydrogeology Unit in Parramatta. Arrangements to obtain Departmental advice should be made through the North Coast Regional Office at Grafton.

3.2 Previous Groundwater Work

In April 1987, at the request of the NSW Public Works Department, the Dept. of Water Resources (DWR) conducted a groundwater survey of the unconsolidated sediments south of Sawtell to investigate the potential for an emergency groundwater supply. Subsequent investigations followed in 1991. In February 1993, the DWR undertook a detailed investigation of the Bonville sand dune aquifer. The investigation involved a mini wellfield consisting of 8 spearpoints and one bore. Using geophysical, geochemical and groundwater modelling, the estimated annual recharge, aquifer storage, transmissivity and drawdown levels were calculated. The results indicated that the sand dune aquifer at Bonville is capable of yielding the required 1000 ML over a six month period.

Mitchell McCotter & Associates Pty Ltd (November, 1992) developed an Environmental Impact Statement for the proposed borefield. Overall it was concluded that the development of the borefield will have a minimal effect on the overall catchment management objectives and initiatives.

Mackie Martin & Associates Pty Ltd (June, 1993) completed a pump test analysis on a fractured rock aquifer in the Moonee area. The water was observed to be of marginal quality (<1500 mg/L) but increased after sustained pumping to 1700 mg/L and contained elevated iron and manganese levels. The report concluded that in order to achieve a supply of 5 ML/day, 7 to 10 bores spaced well apart would be required. It was also observed that the groundwater quality was unsuitable for drinking purposes and the aquifer was in an area susceptible to pollution from surface activities, ie. septic tanks.

Mackie Martin & Associates (MM&A) Pty Ltd (August, 1993) carried out an analysis of the regional groundwater resources for Coffs Harbour Shire Council. The investigation utilised 149 bore records stored on the DLWC groundwater database to determine aquifer hydraulic properties and define prospective areas for an additional water supply scheme. The report identified several areas containing significant bore yields however, elevated iron levels were common at the majority of sites due to the nature of the bedrock.

In November 1993, the DWR raised a number of concerns over the accuracy of the MM&A assessment of the Moonee Area. The DWR indicated that the Moonee Area could not satisfy council requirements and that further investigations were not justified.

3.3 Groundwater Chemistry

The quality of natural groundwater within these aquifers may be influenced by many factors including the chemical composition of rain water, aquifer media and pollution associated with human activity. Soluble minerals from the sediments accumulate with in the groundwater as it flows through a particular aquifer zone. Aquifers that mostly consist of mineral quartz, such as sands, gravels, sandstones and quartzite, do not add much salt to the water (McKibbin, 1995). The metamorphosed clay and shale sedimentary sequences of the CHB were originally deposited in a marine environment, thus a high level of residual salt (NaCl) has been incorporated within the sediment during the time of consolidation.

Plotting the hydrogeochemical results on a trilinear diagram indicates a strong sodium cation trend. The sodium adsorption ratio (SAR) was calculated to assess the suitability of the water for irrigation. Excessive sodium in irrigation water can adversely affect soil structure. The magnitude of this effect can be related to the relative proportions of sodium ions to calcium and magnesium ions in irrigation water. If water used for irrigation is high in sodium and low in calcium, the cation-exchange complex may become saturated with sodium. This can destroy the soil structure owing to dispersion of the clay particles. A low SAR (2 to 10) indicates little danger from sodium; medium hazards are between 7 and 18, high hazards between 11 and 26, and very high hazards above that (Fetter, 1994). SAR values for samples collected from the CHB ranged from 0.9 to 9.3.

The groundwater quality can also vary with respect to the overlying soil composition. The soil has the capability to generate relatively large amounts of acid and to consume much of the dissolved oxygen in the infiltrating water. Through the decay of organic matter via oxidation, carbon dioxide gas generated can then react with water to produce carbonic acid (H_2CO_3). Carbonic acid can dissociate by transferring hydrogen ions to produce bicarbonate (HCO_3^-), which is the dominant carbonate species over the normal pH range of groundwater. Groundwater chemical analysis carried out on bores within the Carboniferous age Brooklana and Coramba Beds indicate that the major anion with in the upper zone of the shale rocks is bicarbonate. This indicates that the upper zone is characterised by active flushing through relatively well leached rocks that result in low

total dissolved salt concentrations. Chemical analysis of the major ions from deeper aquifers identify chloride as the dominant anion. The source of the chloride is from the residual salt and indicates there has been a lower level of flushing as compared to the shallower aquifers.

The groundwater quality in all basalt layers is very good although only sparse information is available on the deeper aquifer zones. Groundwaters are typically of fresh quality. However, the basalts contribute calcium and magnesium salts to the groundwater. Water that contains high levels of dissolved calcium or magnesium salts are described as being hard. In domestic use, the calcium and magnesium will react with soap and form insoluble scales that clog pipes. Groundwaters with a high hardness are still very good quality for stock, domestic, horticulture and general farming purposes. For further information on hardness, the DLWC has a Water Environmental Laboratory at Arncliffe, NSW. It is recommended for groundwater users that rely on this resource for domestic or irrigation purposes to have the water tested for the major ions to assess the suitability of the water for the desired purpose.

3.4 Groundwater Availability

As of 01/09/96 there are 581 licensed bores within the CHLGA. There are also likely to be a large number of bores which are unlicensed and therefore not recorded. Groundwater within the CHLGA can be categorised into three broad geological features. These include 1) the unconsolidated sediments (beach and sand dunes plus the Quaternary alluvium), 2) the Carboniferous age fractured rocks of the Coffs Harbour Block (Coramba Beds, Brooklana Beds and Moombil Beds) together with Permian age Nambucca Block (Bellingen Slate), and 3) porous Mesozoic age sedimentary rocks (Kangaroo Creek Sandstone, Walloon Coal Measures, and Bundamba Group).

3.4.1 Unconsolidated Sediments

The unconsolidated sediments in the CHLGA are generally quite shallow and discontinuous, offering little potential for large supplies of groundwater. The coastal streams along this section of the coastline do not extend into the highlands forming the New England Plateau, and they do not have the physiographic features of the larger valleys. The unconsolidated material along this section of the coastline is interpreted as having been predominantly deposited under estuarine conditions with scattered beach and dune deposits.

Between Mullaway and Moonee Beach, the sediments consist mainly of brown and grey sands, silts, and clays underlain by siltstone followed by basalt. Private bore yields are low (<0.3 L/s) and are of good to marginal quality, however most bores are drilled in excess of 10 metres to intersect shallow aquifers within the bedrock where greater yields are achieved. Further south, around the town of Coffs Harbour, lithological bore logs indicate the sediments comprise more clays and muds with occasional shelly bands, reducing the overall permeability.

To date the only prospective areas identified include a sand and gravel aquifer south of Bonville, situated between Pine Creek and the coast. This aquifer was identified by the Department of Water Resources during exploration drilling in 1992. The bore yields 13 L/s of good quality water from an aquifer of fine yellow sand with some minor interbeded clays before grading into marine clays at a depth of 10 metres. Other exploration bores nearby intersected similar lithological horizons however only yielded 2.5 L/s and 6.6 L/s.

Around the township of Aurania, the DLWC records show two private bores that yield 10 L/s and 16.5 L/s from a shallow gravel aquifer. These bores and others are located within close proximity to the Orara River which is most likely to be acting as a recharge source. Historical records of the groundwater chemistry show typically the water has very low salinity values, is slightly acidic (pH = 6) and typically has very low ion concentrations. The major cation within this area is sodium

whilst the dominant anion is bicarbonate. Calculated SAR values are typically low (less than 10) and of low hazard.

3.4.2 Fractured Rocks

The metamorphic rocks of Coffs Harbour Block are typically thought to have a low porosity as they are principally composed of fine grained sedimentary material that that have undergone low grade metamorphism forming interlocking crystals. The tectonic stresses exerted on the CHB during structural deformation have caused folding and faulting increasing the porosity of the rocks. Physical and chemical weathering can also increase the rock porosity and the weathering is often more intense along the fracture surface where a plane of weakness exists. It can therefore be difficult to definitively class the groundwater potential of these rocks as the recorded bore yields can change considerably over short distances.

The best potential for high bore yields occur in regions where the bedrock is deeply weathered and fractured. Areas that exhibit deep weathering profiles tend to have increased bore yields as a result of an increased permeability. It is the ability of the weathered zone to transmit water and its ability to store water that constitutes the most significant hydrologic properties. A large proportion of the bores drilled in the CHB intercept water bearing zones in the weathered portion of the rock.

The CHB as a groundwater resource is generally used for stock watering and supplementing domestic requirements where suitable. The rock strata exhibits a secondary porosity consisting of tight discontinuous fractures that gives a minimal increase in permeability. Areas that have undergone structural deformation as shear zones create groundwater pathways allowing a greater yield to be obtained. Most common bore yields are around 0.5 to 1.0 L/s with occasional supplies up to 5 L/s. The groundwater is generally slightly acidic with a low salinity value. To better describe the groundwater potential of the CHB, it has been divided into stratigraphic units as defined on the Dorrigo - Coffs Harbour 1: 250 000 Geological Series Sheet.

As mentioned earlier, the south eastern corner of the CHLGA is underlain by the Bellingen Slate, a stratigraphic unit of the Nambucca Block. The Bellingen Slate is a low-grade metamorphic sequence and as such has been grouped within the fractured rock classification.

3.4.2a Coramba Beds

Between Corindi Beach and Woolgoolga there are only a small number of bores which are generally licensed for domestic purposes. Good quality water with bore yields typically less than 1 L/s can be obtained at shallow depths. Most bores in this area are drilled through the shale sequences and into the underlying oceanic basalt to a depth of around 10 - 15 metres.

Between Woolgoolga and Moonee Beach good quality water is obtained at variable depths, however most bores intersect either a basalt or fractured shale aquifer at about 20 to 30 metres depth. Yields are typically around 1 L/s although higher yields can be achieved from deeper bores drilled to intersect two or more aquifers. The water quality is likely to deteriorate with depth from the surface. The DLWC records indicate along the northern part of Sandy Beach individual bores have obtained yields of 6 L/s and 19 L/s from a weathered and fractured shale sequence. Other areas that have obtained small irrigation supplies occur to the north west of Moonee Beach within a fractured basalt aquifer. An analysis of water from a bore north of Sandy Beach shows a slightly elevated electrical conductivity (EC) value of 1160 uS/cm, a pH of 6.65, a total calcium value of 11.62 mg/L and a calculated SAR value of 9.0. Similarly an analysis of water from approximately 2.5 kilometres west of Dammerels Head shows a slightly elevated EC value of 1260 uS/cm, a pH of 7.2, a total calcium value of 44.1 mg/L and a calculated SAR value of 4.82.

To the west around Nana Glenn and Coramba, yields of 0.5 L/s are typical with most bores drilled 15 to 20 m in depth. Yields in excess of 2 L/s have been obtained from the deeper shale aquifers east of the Orara River near the tributaries Kalbury Creek and Poperaperan Creek. Further west there are very few bores however a private bore at Lowanna yields 3 L/s of good quality water.

South of Moonee Beach to Coffs Harbour there is a reasonable distribution of bores providing stock, domestic and garden supplies with yields varying from 0.1 to 7 L/s. Bores drilled to a depth of about 40 m typically intersect two to three aquifers, each aquifer yielding about 1 L/s. To the west of the Pacific Highway within the more elevated areas, there are fewer bores and only domestic supplies of around 0.5 L/s are usually obtained. The water is of good quality but is observed to deteriorate with depth. Measured pH values vary from 5.8 to 6.7 and have sodium concentrations around 45 - 110 mg/L. Calculated SAR values within this areas vary from 1.1 to 4.5.

3.4.2b Brooklana Beds

South of Coffs Harbour, around North Bonville and Boambee there is a dense concentration of private bores with the majority licensed for domestic purposes. Good quality water, similar to the Coramba Beds, occurs at shallow depths, however bore yields are typically low, varying between 0.1 and 1 L/s. Around the township of Boambee there are about 70 licensed bores and during extended dry periods there is likely to be some interference effects between bores when excessive pumping occurs. An analysis from a shallow shale aquifer shows an EC value of 270 uS/cm, a pH of 6.3, a total calcium value of 16.4 mg/L and a calculated SAR value of 1.4.

The highest recorded bore yield within this stratigraphic sequence, as indicated on the DLWC database, is 5 L/s from a private construction near Sawtell. It is expected that the quality of the water would be similar to other areas, although variations are to be expected as a result of differing rock types and other factors. Water analysis from a shallow weathered shale aquifer shows an EC value of 530 uS/cm and a pH of 6.5.

3.4.2c Moombil Siltstone

This stratigraphic unit occupies only a small portion of the CHLGA and there is only a limited number of bores for which information is available. Bores extracting groundwater from this unit occur at Crossmaglen, within the upper reaches of Bonville Creek. The Department's records indicate a number of private bores extract 0.5 L/s of good quality groundwater from a meta-basalt aquifer. The permeability of the meta-basalt is influenced by the degree of fracturing and the inter-connection of vesicular bubbles formed during cooling & crystallisation of the magma.

3.4.2d Bellingen Slate

Where the Bellingen Slate occurs, bore yields are typically low (0.5 L/s) with most bores drilled tapping aquifers between 15 to 25 m. The water is of good quality (TDS: 500 - 1000 mg/L) due to active flushing of the weathered zone but is likely to deteriorate with greater depth of the aquifer. The maximum recorded yield is 2 L/s located approximately 2 km south west of Bonville. The township of North Bonville lies on the CHB and is geologically separated from Bonville by the Crossmaglen Fault. Around Bonville, numerous low yielding domestic bores have been constructed with most bores extracting water from one or more shale/slate aquifers to obtain yields of around 0.5 to 1 L/s. The predominance of bores are drilled 20 to 30 metres in depth.

3.4.3 Porous Rocks

Sedimentary rocks are formed from sediments through a process termed diagenesis. This involves compaction from the weight of overlying materials and binding of individual grains by physiochemical reactions. The sedimentary rocks of the Clarence catchment were formed by these processes. The rocks are fractured to some degree from the release of pressure during erosion of

the overlying material. There are few bores drilled within the porous sedimentary rocks within the CHLGA. For completeness of the report, a summary of their groundwater potential is provided with the information given having been largely sourced from McKibbin (1995).

3.4.3a Walloon Coal Measures

Groundwater in the Walloon Coal Measures mostly occurs in joints, bedding planes, fractures and porous sequences. The aquifer is mostly confined, with low to medium permeability. Bore yields commonly range from 0.5 to 5 L/s of good quality water.

3.4.3b Bundamba Group

The Bundamba Group is a low yielding and low salinity aquifer system with very few bores tapping the groundwater resource. Bore yields are mostly less than 0.5 L/s but range to 2.5 L/s. The maximum thickness is believed to be approximately 600 m, which indicates the potential for increased yields with greater bore depths.

3.4.3c Kangaroo Creek Sandstone

The Kangaroo Creek Sandstone obtains its name from the prominent sandstone escarpments exposed by Kangaroo Creek in the Nymboida area (Drury, 1982). This unit comprises quartz sandstone with minor conglomerate horizons and offers the best potential of the Clarence River Valley sedimentary rocks for a low salinity groundwater resource. Groundwater can be found in the pores between grains (primary porosity) as well as in fractures (secondary porosity). The water quality is typically good, however most bore yields are about 0.5 L/s. Higher yields can be obtained from weathered and fractured horizons.

4. DLWC Groundwater Availability Mapping

A methodology for preparing groundwater availability maps has been developed by the DLWC Centre for Natural Resources (CNR), Hydrogeology Unit. The method used to produce the GHLGA groundwater availability map has refined the traditional CNR methodology combining this information with special purpose soil landscape derivative maps (Milford, in prep) available for the local area.

Geology was used to define the three aquifer systems; unconsolidated sediments, porous rocks, and fractured rocks, in which groundwater commonly occurs. The major geological units of the regions were defined from published geological maps. The geology was provided in digital format by the Department of Mineral Resources, Armidale and incorporated into the DLWC Geographic Information System (GIS).

To give better definition within the unconsolidated sediments, special purpose soil permeability and soil thickness maps were used to indicate likely changes in groundwater availability.

A search of the existing groundwater information from the Department's groundwater database provided yield and salinity information on individual bores. An assessment of the dominant water quality and yield information for the area was made based on groundwater information from the database and hydrogeologic setting. Where specific bore or groundwater information was not available, interpolation between data points and general hydrogeologic assessment was used to classify particular geological units and areas. Where conflicting TDS data between bores was found, the median value was chosen. Local variations in water salinity can be expected due to isolated hydrogeologic conditions.

4.1 Suitability Classification

Groundwater was classified into one of four definitions based on individual bore TDS and EC water quality information and a general suitability index used in the State of the Environment

Report, Groundwater Sub-Chapter (DWR, 1995). This classification is based on the maximum concentration of salts for the intended purpose. It provides a general guide to the suitability of water for a particular use and may vary according to plant or stock type, soil type, nature and concentration of saline content, climate, duration of use and need.

Total Dissolved Salts (TDS)	Classification	Suitability
<500 mg/L	"fresh"	Suitable for stock domestic and irrigation purposes as well as municipal use.
501-1500 mg/L	"marginal"	Suitable for stock, domestic and some irrigation purposes.
1501-5000 mg/L	"brackish"	Stock water, suitable for dairy cattle, beef, cattle, horses and sheep.
> 5000 mg/L	"saline"	Limited stock use.

Aquifers were further classified according to whether they would yield greater than or less than 1.5 L/s, to a bore or well. A groundwater availability map has been prepared by the DLWC which shows the groundwater potential for the various aquifers (Figure 2).

5. VULNERABILITY MAPS -

5.1 Why Do We Need Them

Groundwater and surface water interact to control river flow. A typical "rule of thumb" for rivers and streams is that approximately 50% of the flow (volume) is groundwater derived (Sinclair Knight Merz, 1995). The DLWC considers that in order to maintain surface water quality, it is very important to limit particular land use activites that are located within close proximity to environmentally sensitive areas. If the groundwater is contaminated, then pollutants can relocate via an aquifer within the the underlying geology and discharge into nearby streams and rivers

With Coffs Harbour experiencing rapid urban expansion, it is imperative that sound environmental planning be implemented to manage the region's resources so that they can sustain their economic, social and environmental uses. Not only will vulnerability maps play an important role in planning, but in the long term can save millions of dollars since remedial works of contaminated aquifers are costly and often irreversible.

Part of understanding the degree to which an aquifer is vulnerable is knowing what activities pose the most serious threat of contamination. By limiting certain industries and their associated activities to areas consistent with the Department's guidelines, effective management policies can be implemented with the empathises on a sustainable groundwater resource.

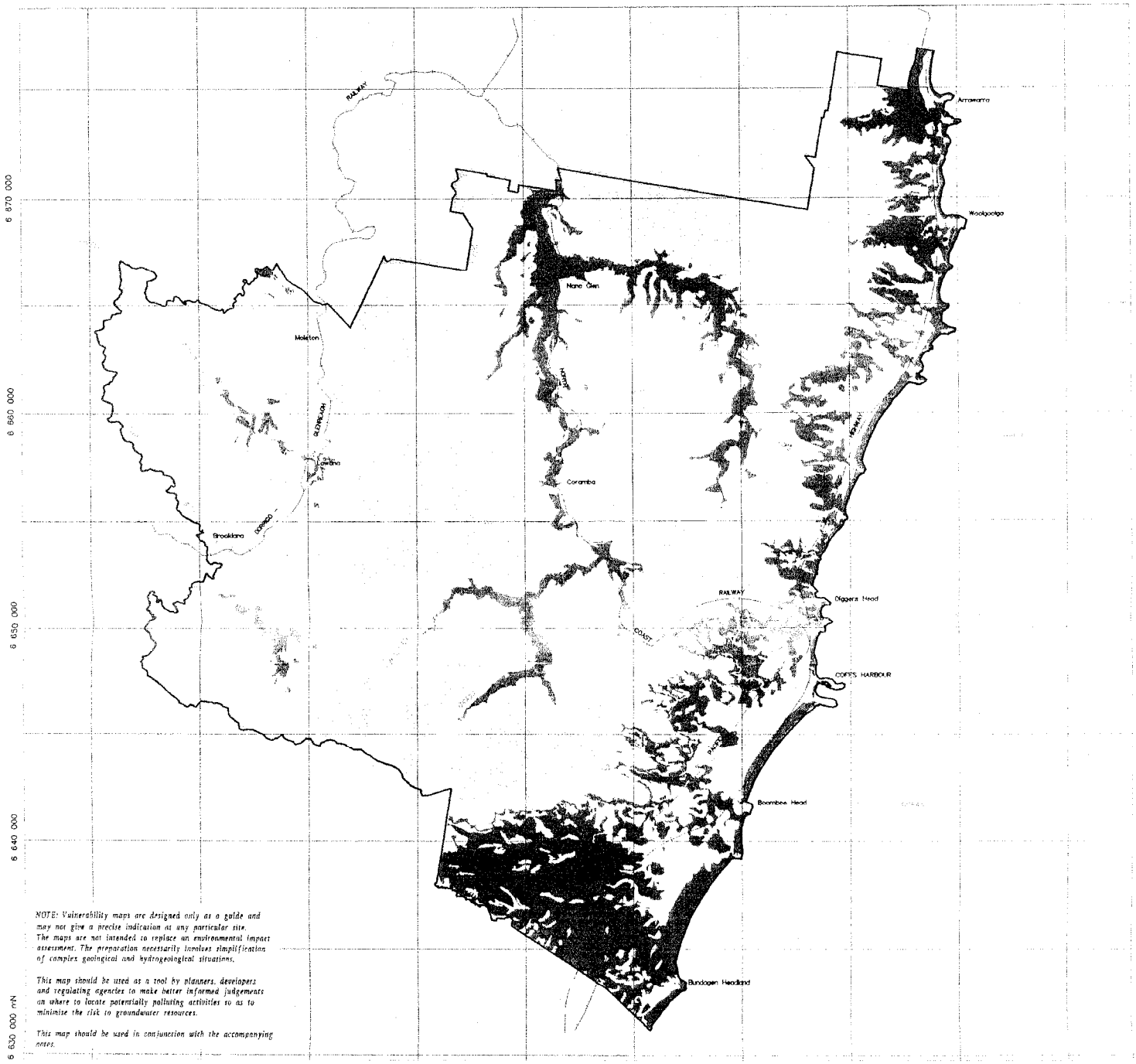
Potential anthropogenic sources for metals and other contaminants include saw mills, garbage depot's, sewerage disposal sites, cattle dips, petrol stations., fertilised pastures, pesticides and herbicides & runoff from roads & buildings. Other pollutant sources include poultry farms, piggeries and any intensive farming practices. Significant landscape "capacitance" may be buffering adverse impacts that will become apparent only in the future as the buffer zone becomes exhausted. Nutrients and agrochemicals should be retained near the surface for degradation or uptake in the rhizosphere, rather than flushed through to the water table.

LAND & WATER CONSERVATION

PREPARED BY THE RESOURCE INFORMATION SECTION GRAFTON.

GROUNDWATER VULNERABILITY

COFFS HARBOUR LOCAL GOVERNMENT AREA



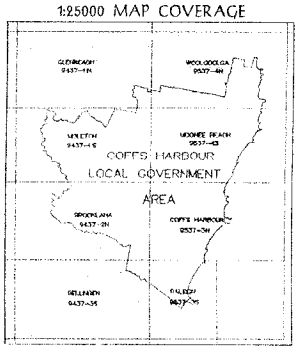
Grid lines shown at 5000 metre intervals from False Origin of AMG Zone 56.

NOTE: Vulnerability maps are designed only as a guide and may not give a precise indication at any particular site. The maps are not intended to replace an environmental impact assessment. The preparation necessarily involves simplification of complex geological and hydrogeological situations.

This map should be used as a tool by planners, developers and regulating agencies to make better informed judgements on where to locate potentially polluting activities so as to minimise the risk to groundwater resources.

This map should be used in conjunction with the accompanying notes.

1:25000 MAP COVERAGE



Vulnerability Rating	Aquifer Conditions	Level of Assessment Required
LOW	"Low" vulnerability groundwater areas in general contain a considerable depth to the water table and low aquifer potential.	The work should include a desk study to identify the concerns and potential risk to groundwater or the environment.
MODERATELY LOW	This class includes much of the hilly or steep country associated with the meta-sediments located around the more remote areas and low rainfall areas. These areas generally have low to moderate soil permeability with depth to water often greater than 15 metres providing conditions suitable for some attenuation of any contaminant prior to it reaching the water table.	A potential risk is indicated by the vulnerability map requiring site investigation. The extent of work should involve a site investigation, including soil and water sampling and testing, definition of flow systems and reporting in addition to a desk study.
MODERATE	"Moderate" vulnerable groundwater refers to areas associated generally with the meta-sediment terrain with moderate slopes and a depth to water table greater than 10 metres. These areas have a moderate recharge component and the aquifer is of marginal quality.	The work should investigate and make recommendations on the need for an ongoing monitoring program, details on the protection design factors, (natural attenuation, physical barriers, etc) in addition to the previous levels of investigation.
MODERATELY HIGH	This class includes the unconfined shallow alluvium along the coast and along the major rivers and their tributaries where the slope and depth to water table is minimal.	The work should include a desk study, detailed site investigation, and implementation of an on-going monitoring program. In addition, the protection design system, incorporating natural attenuation, hydraulic and physical barriers etc needs to be demonstrated to be effective.
HIGH	"High" vulnerability ranked groundwater resources usually contain fresh quality groundwater, are both unconfined aquifers that are highly permeable and have a shallow depth to water table. Aquifers contained within the aeolian beach and sand dunes are typically found in this class. Aquifers within this class require a high level of protection.	The work should include a desk study, site investigations, ongoing monitoring plus a demonstrated remedial action plan for clean-up which analyses the effectiveness of the remediation plan. The financial capacity of the responsible party to enact the plan should also be evaluated. In the event that the risk to groundwater is unacceptable an activity may be banned by the responsible authority.

LEGEND

- Road
- Railway
- River or creek
- Water body
- No classification

0 2 4 6 8km

Scale 1:100000

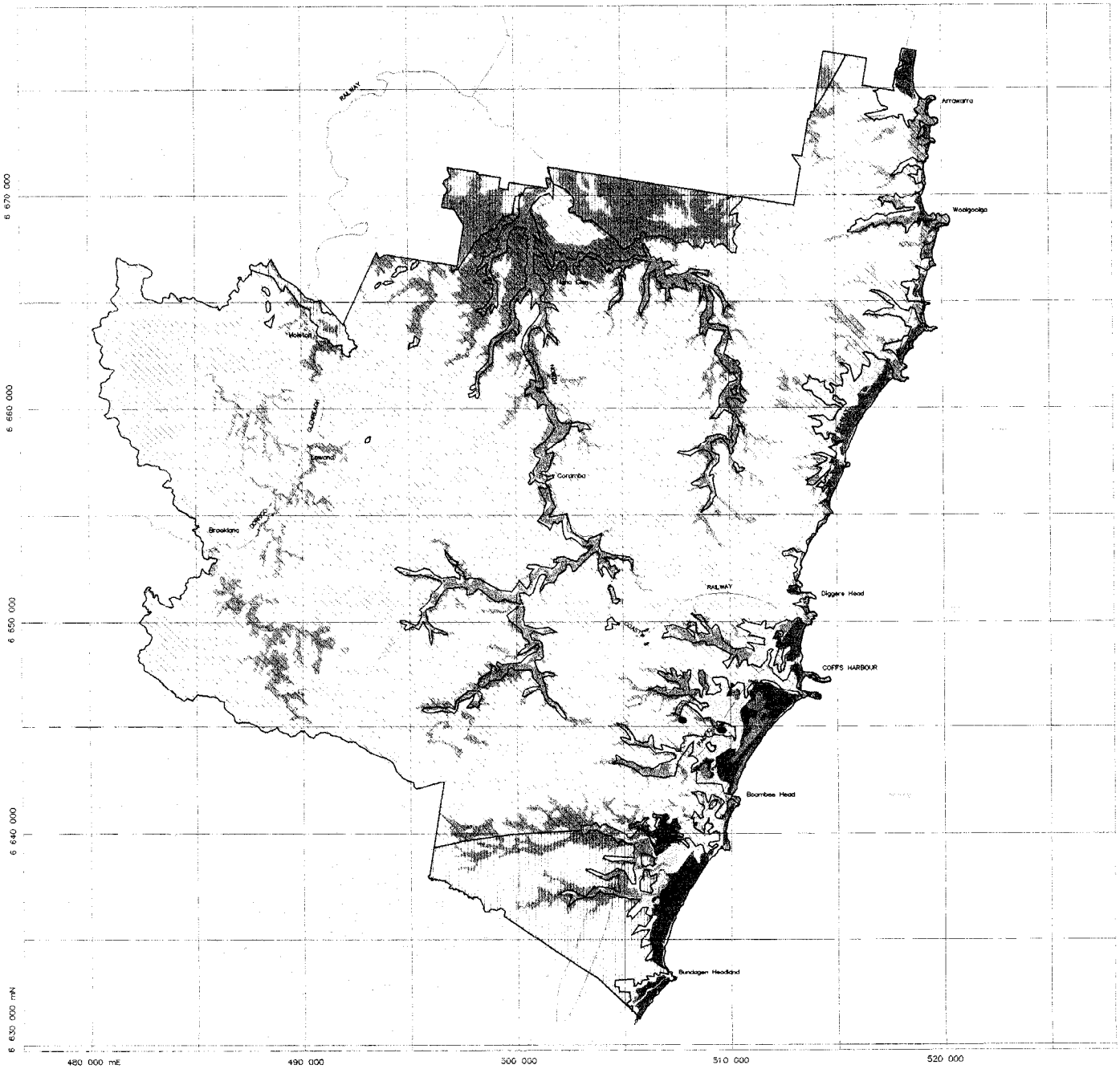
September 1997

AO GF053PV

LAND & WATER CONSERVATION
PREPARED BY THE RESOURCE INFORMATION SECTION GRAFTON

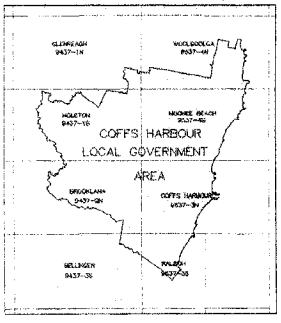
GROUNDWATER AVAILBILITY

COFFS HARBOUR LOCAL GOVERNMENT AREA



Grid lines shown at 5000 metre intervals from False Origin of AMG Zone 56.

1:25000 MAP COVERAGE



TDS	CLASSIFICATION	YIELD
1501 – 5000 mg/L	brackish	0.1 – 1.5 L/s
500 – 1000 mg/L	marginal	0.1 – 1.5 L/s
500 – 1500 mg/L	marginal	0.3 – 1.5 L/s
<500 mg/L	fresh	0.3 – 1.5 L/s
<500 mg/L	fresh	1.5 L/s

GEOLOGY

- Unconsolidated Sediments
- Porous Rocks
- Metasediments – Fractured Rock

LEGEND

- Road
- Railway
- River or creek
- Water body
- No classification

0 2 4 6 8km

Scale 1:100000

September 1997

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Figures 3 and 4 show two possible scenarios for potential contamination of adjacent surface water bodies via faulty septic tanks.

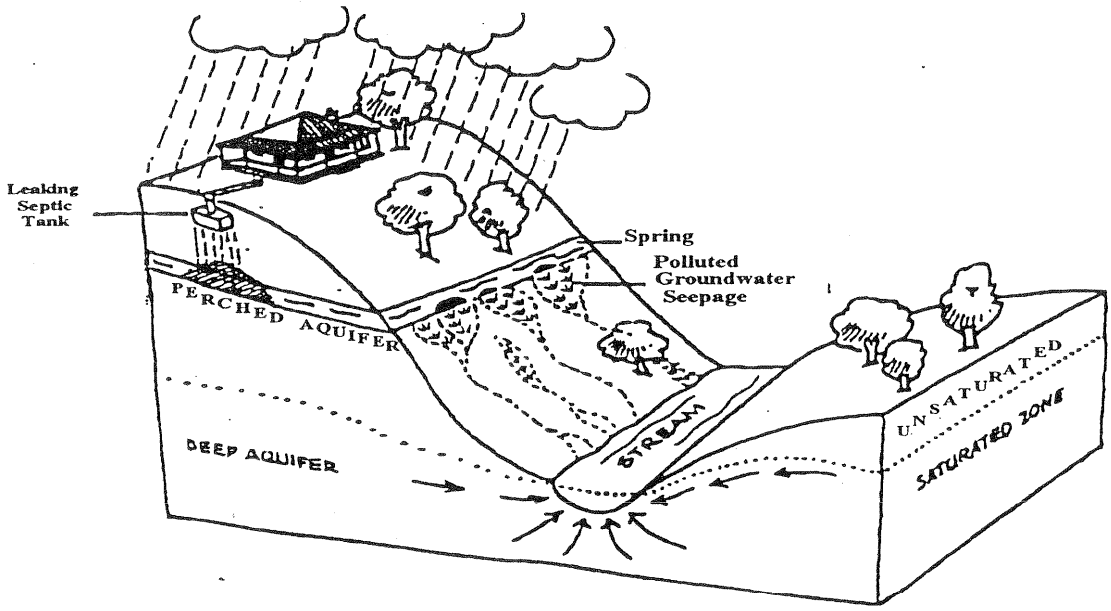


FIGURE 3. CONTAMINATION OF A SHALLOW PERCHED AQUIFER VIA A FAULTY SEPTIC TANK ON STEEP TERRAIN.

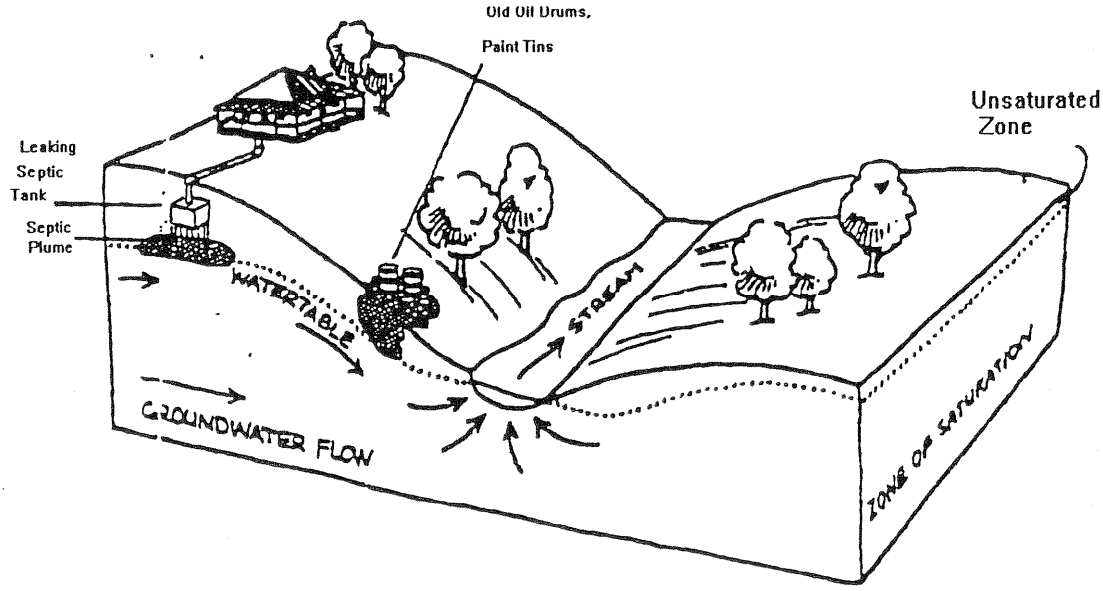


FIGURE 4. CONTAMINATION OF THE SHALLOW GROUNDWATER ENVIRONMENT VIA A FAULTY SEPTIC TANK.

There are ways in which the community can reduce the environmental impacts of certain industries such as waste disposal sites. Through the use of recycling and segregation of waste into different types, better management of an area can be achieved. Whilst generally a waste disposal site may be considered unacceptable for a particular site, the removal of the potential contaminants and the initiation of recycling can reduce the volumes of waste and surface area. The EPA are currently undertaking a report on Waste Minimisation & Management Regulation with the vision that waste disposed per capita will be reduced by 60% by the year 2000 (compared to 1990). The draft guidelines adopt a new waste system which classifies landfills into inert waste, solid waste & hazardous waste landfills.

Other initiatives include the concept of "designer" irrigation to provide a "best match" between the hydraulic properties of the land, the water requirements of the crop being grown, and optimal management and irrigation methods. This would prevent negligent wastage of water and the transfer of unnecessary contaminants into the groundwater, however the funds required to carry out the studies & the establishment cost are high.

5.2 DIwc Groundwater Vulnerability Mapping

The methodology for groundwater vulnerability maps was developed by the DLWC Centre for Natural Resources, Hydrogeology Unit and has been adapted here to incorporate recently available local soils information. A groundwater vulnerability map has been prepared by the DLWC which shows the vulnerability classifications of the various aquifers (Figure 5). Previous vulnerability mapping projects for the North Coast Region and in other parts of the State carried out by the DLWC involved the overlay and index method, based on a modified DRASTIC technique developed by the United States Environment Protection Authority (EPA). The technique selected is usually based on levels of data, the scale of the area and the intended end use of the vulnerability assessment.

For the Coffs Harbour LGA, the DRASTIC technique was used. The technique involves the compilation of a number component maps comprising depth to water table, recharge potential, aquifer media, vadose zone media, soil media and topography that are overlain and combined to produce a single output map. Two of the input maps used in the analysis (Net Recharge and Vadose Zone) are each made from a composite of four other maps. Explanatory notes which describe how the map was developed is provided in Appendix 1.

5.3. Aquifer Vulnerability Classification In The Coffs Harbour LGA Area

"*High*" vulnerability ranked groundwater resources usually contain fresh quality groundwater, are both unconfined aquifers that are highly permeable and have a shallow depth to water table. Aquifers contained within the aeolian beach and sand dunes are typically found in this class. Characteristics deemed to be highly vulnerable include a water table less than 5 metres, combined with shallow soil depth and a high recharge component. Areas in the river alluvial belts also have a high groundwater vulnerability due to the shallow slopes, permeable soils and shallow water table. Aquifers within this class require a high level of protection.

"*Moderately High*" vulnerability aquifers for the CHLGA area would include the unconfined shallow alluvium along the coast and along the major rivers and its tributaries where the slope and depth to water table is minimal and a high groundwater recharge component exist.

"*Moderate*" vulnerable groundwater refers to areas associated generally with the meta-sediment terrain with moderate slopes and a depth to water table greater than 10 metres. These areas have a moderate recharge component.

"*Moderately-Low*" vulnerability for groundwater covers a considerable proportion of the map and would include much of the hilly or steep country associated with the meta-sediments located around the more remote areas. These areas generally have moderate soil permeability with depth to water often greater than 15 metres providing the conditions suitable for some attenuation of the contaminant prior to it reaching the water table.

"*Low*" vulnerability groundwater areas in general contain a considerable depth to the water table and low aquifer potential. There are a number of extensive areas classed as low vulnerability on the meta-sediments and Clarence - Moreton porous sedimentary rocks.

5.3.1 Level of Assessment Required

Groundwater vulnerability maps do not directly consider the chemical nature of the pollutant in assessing vulnerability, they are concerned only with the hydrogeological setting which makes the groundwater susceptible to contamination from a surface source.

When a development application is being prepared or considered it is important that the impact of the development on both surface and groundwater resources is assessed. It is important to know who uses these resources (beneficial use) and also the current water quality. Certain developments should not be allowed within highly vulnerable areas. Where such activities are proposed, significant engineering measures would be necessary to minimise the risks of pollution.

The following Table, modified after AWRC, Draft Guidelines for Groundwater Protection, 1992, is a guide to the amount of groundwater assessment required for a development that requires consent in either of the five aquifer vulnerability classes.

Vulnerability Classification	Groundwater Assessment Requirements
Low	Groundwater Contamination Assessment Report A desk study is required to identify the concerns and potential risk to groundwater or the environment and the need for any further action to be presented in the development application. A standard format hydrogeological report would most likely result, including definition of the flow systems, known geology, soil information for the site and a professional statement as to the likely impact on the groundwater resources.
Moderately Low	Site Investigation A potential risk is indicated by the vulnerability map requiring site investigation. The extent of work should involve a site investigation, including soil and water sampling and testing, definition of flow systems and reporting in addition to a desk study.
Moderate	Detailed Site Investigation and Monitoring Moderately vulnerable areas, or where the previous levels of investigation indicate a demonstrated risk to groundwater then a detailed groundwater site investigation is required. The work should investigate and make recommendations on the need for an ongoing monitoring program, details on the protection design factors, (natural attenuation, physical barriers, etc) in addition to the previous levels of investigation.
Moderately High	Demonstrated Groundwater Protection System The risk to groundwater is demonstrated by the vulnerability map, as an area in which contamination to the groundwater systems should not be tolerated. The work should include a desk study, detailed site investigation, and implementation of an on-going monitoring program. In addition the protection design system incorporating natural attenuation, hydraulic barriers, physical barriers etc needs to be demonstrated to be effective. The proposal will need to include a feasibility plan for a clean-up in addition to a detailed monitoring and ongoing assessment program.
High	Demonstrated Remedial Action Plan/Prohibition This classification identifies the area as having a potential risk so great as to warrant a demonstrated remedial action plan. The work should include a desk study, site investigations, ongoing monitoring plus a demonstrated remedial action plan for clean-up which analyses the effectiveness of the remediation approach in achieving designated water quality criteria. The financial capacity of the responsible party to enact the plan should also be evaluated. In the event that the risk to groundwater is unacceptable an activity may be banned by the responsible authority.

6 ACKNOWLEDGMENTS

I gratefully acknowledge the assistance of various officers of the DLWC with special thanks to Lynne Cains from the Grafton Resource Information Unit. Thank you to Glen Atkinson for his peer review as well as the technical assistance and valued discussion provided when producing the groundwater maps. I express much gratitude to Stuart Murray for producing the detailed soil derivative maps at such short notice and Rick Bennell from Coffs Harbour Council. Other DLWC staff that contributed include Jeremy Black and Sue Rea.

7. REFERENCES

Atkinson, G. and Veness, R.A. 1981. Soils of the Coffs Harbour Region. Journal of the Soil Conservation Service of NSW. **37**, No. 2.

Department of Mineral Resources, 1992. Dorrigo-Coffs Harbour 1:250 000 Metallogenic Study and Mineral Deposit Data Sheets.

Fetter, C.W. 1994. "Applied Hydrogeology "Third Edition Macmillan College Publishing Company, Inc.

Freeze, R.A. and Cherry, J.A. 1979. "Groundwater" Prentice-Hall, Inc.

Haworth, R.J. and Ollier, C.D. 1992. Continental Rifting and drainage reversal: The Clarence River of Eastern Australia',Earth Surface Processes and Landforms,Vol.17, 387-397.

Mackie Martin & Associates (MM&A) Pty Ltd (August, 1993). "Coffs Harbour Shire Council Analysis of Regional Groundwater Resources".

McKibbin, D. 1995. "Upper North Coast Groundwater Resource Study". Dept. of Land and Water Conservation - Technical Services Division.

Milford H (in prep) Soil landscapes of the Coffs Harbour 1:100 000 Sheet, DLWC Sydney.

Mitchell McCotter & Associates Pty Ltd (November 1992). "Emergency Borefield Bonville Peninsula - Environmental Impact Statement".

Sinclair Knight Merz Pty Ltd, 1995 "Towards a National Groundwater Management Policy and Practice".

APPENDIX 1

DLWC Methodology for Groundwater Vulnerability Mapping

The basis of the vulnerability mapping is the US EPA DRASTIC model.

Drastic

There are two major portions of the US EPA groundwater vulnerability mapping technique DRASTIC.

1) Designation of mappable units into hydrogeologic settings
2) Relative ranking of hydrogeologic parameters - DRASTIC

HYDROGEOLOGIC SETTINGS

A composite description of all the major geologic and hydrogeologic factors which affect and control groundwater movement, into and though and out of an area. Similar hydrogeologic parameters therefore produce similar vulnerability.

The USA is divided into Groundwater Regions (15) within which hydrogeologic settings were developed for each region.

Each hydrogeologic setting describes topography, soil type, bedrock type, estimate of rainfall and net recharge, depth to water table (DTWT), aquifer yield, relative permeability and any particular features associated with setting ie. over pumping => saline intrusion.

DRASTIC is an acronym for the most important mappable features controlling groundwater pollution.

D Depth to water
R (Net) Recharge
A Aquifer media
S Soil media
T Topography (slope)
I Impact of Vadose Zone Media
C Conductivity (Hydraulic) of Aquifer.

To assess groundwater pollution potential within hydrogeologic settings numerical ranking is used on the DRASTIC features. There are 3 significant parts

1) Weights
2) Ranges
3) Ratings

Weights

Each DRASTIC feature is assigned a weight relative to each other in order of importance from 1-5. Most significant 5, least 1.

"Weights were determined by a committee in the US and should not be changed" (US EPA Drastic Manual).

DRASTIC by its namesake attempts to identify those features important in determining vulnerability of groundwater resources. However each study area will need to be assessed as to the importance of each specific feature for its area. Topography is obviously more important in a mountainous area than in the flat plains country. Also some features will be taken into consideration in the production of other features, eg topography will influence the production of a DTWT map in a fractured rock terrain where area between data points will need to be interpolated and may not be required in the final analysis

Assigned Weights for DRASTIC Features

Feature	Weight
Depth to water	5
Net Recharge	4
Aquifer media	3
Soil media	2
Topography	1
Impact of Vadose Zone Media	5
Hydraulic Conductivity of Aquifer	3

Ranges

For each DRASTIC feature/factor ranges or significant media types have been devised based on its impact of pollution potential. In the US EPA manual these ranges were generated for a wide variety of settings found in the US and were meant to cover most hydrogeologic settings. These settings often do not translate to hydrogeologic settings found in NSW. The ranges offered by the US EPA manual for some features can be used directly, for example slope classification, others can be used as a guide only and will require customising for each specific study area.

The following graphs and tables are those as defined by the US EPA manual.

Ratings

In the US EPA the range for each DRASTIC feature has been assigned a rating which varies between 1 and 10. D,R,S,T and C have been assigned one value per range. A and I have been given variable ratings to allow specific knowledge of site to be incorporated.

The ratings for each DRASTIC feature in the CHLGA exercise will be assigned a value between 0 -10. The rating enables the ranking of the ranges found in each DRASTIC feature map. These ratings provide for a relative assessment between ranges in each feature.

The DRASTIC Index is determined.

Pollution Potential = DrDw + RrRw + ArAw + SrSw + TrTw + IrIw + CrCw

where r = rating
w = weight

The computed DRASTIC index identifies areas which are more likely to be susceptible to groundwater contamination relative to one another. **The higher the DRASTIC index the greater the groundwater pollution potential.** DRASTIC is a relative evaluation tool and not designed to provide absolute answers. It offers planners and developers a categorisation of areas based on the level of site investigation required or expected for an area when considering the impact of potential development on the groundwater resources.

Feature Definition

Depth To Water

This is an important feature as it determines the depth of material through which a contaminant must travel before reaching the aquifer. In general attenuation capacity increases with depth to water increases, because deeper water levels imply longer travel times. The presence of low permeability layers which confine aquifers will also limit the travel of contaminants into an aquifer. Where an aquifer is confined Depth to Water should be redefined as the depth to the top of the aquifer. For semi-confined a decision must be made as to whether it is more appropriate to consider the aquifer as unconfined or confined.

Depth to Water feature for CHLGA was calculated by combining actual DTWT data with geology and topography. The groundwater is defined as a having three discrete aquifer system, which recharge locally. Initially a groundwater contour map was constructed using groundwater data where available and hydrogeologic principles where no data was available. A Depth to Water map was then constructed from the groundwater contour map and hydrogeologic principles with 5 metre intervals.

Recharge

Net Recharge represents the amount of water per unit area of land which penetrates the ground surface and reaches the water table. This recharge water is available to transport a contaminant vertically to the watertable and horizontally within the aquifer. In addition it controls the volume of water available for dispersion and dilution of the contaminant in the vadose and saturated zones. In general the greater the recharge the greater the potential for groundwater pollution.

DRASTIC modelling by the US EPA attempts to provide a value for Net Recharge for an area based on:

Net Recharge = Annual Precipitation - Surface Runoff - Evaporation - Transpiration

For the CHLGA study area an alternative is being proposed which will derive a recharge potential for a zone relative to another zone within the study area. It is believed that this will more closely approximate recharge potential within the study area than applying a Net Recharge value for the area. The factors incorporated into this approach which are believed to be important for recharge include; Infiltration Proportion of Geology (Aquifer) Type, Rainfall, , and Soil Permeability.

Aquifer Media

Aquifer medium governs the route and path length, (flow system), within the aquifer. The path length is important in determining the time available for attenuation processes such as sorption, reactivity, and dispersion to occur. The aquifer medium also influences the amount of effective surface area of materials with which the contaminant may come in contact within the aquifer. The route which a contaminant will take can be strongly influenced by fracturing or by an interconnected series of solution openings which may provide pathways for easier flow.

The US EPA defines aquifer media by descriptive names based on geological units or settings. A similar approach was taken for the CHLGA, where the aquifer was defined by its geology.

Soil Media.

The US EPA considers the soil to be the upper weathered surface of the earth which averages a depth of 2 metres or less from the ground surface. Soil has a significant impact on the amount of recharge which can infiltrate into the ground and hence on the ability of a contaminant to enter into the ground and hence on the ability of a contaminant to move vertically into the vadose zone. The presence of fine-textured materials such as silts and clays can decrease relative soil permeability's and restrict contaminant migration. Moreover where the soil zone is fairly thick, the attenuation processes of filtration, biodegradation, sorption, and volatilisation may be quite significant. The US EPA describes the soil media in terms of its textural classification and ranks it in order of pollution potential.

The soil mapping for the CHLGA area was organised by Glenn Atkinson (DLWC Soil Surveyor). Field mapping was at a 1:25 000 scale with the final maps produced at a 1:100 000 scale. The final soil map incorporated into the CHLGA vulnerability map was a combination of soil thickness, soil permeability and cation/anion exchange of both the topsoil and subsoil.

Topography

The US EPA refers to topography as the slope and slope variability of the land surface. Topography helps control the likelihood that a pollutant will run off or remain on the surface, in one area long enough to infiltrate. Slopes which provide a greater opportunity for contaminants to infiltrate will be associated with a higher ground-water pollution potential. Topography influences soil development and therefore has an effect on contaminant attenuation. For the CHLGA digitised terrain data was provided by the Land Information Centre (LIC). From the terrain data, the GIS then calculated slope percentage which could be used for ranking and rating purposes.

Impact of the Vadose Zone

The vadose zone refers to the zone above the water table which is unsaturated or discontinuously saturated. The type of vadose zone media determines the attenuation characteristics of the material below the typical soil horizon and above the water table. The media also controls the path length and routing, thus affecting the time available for attenuation and the quantity of material encountered. The routing is strongly influenced by any fracturing present. The US EPA have designated vadose zone media by lithology descriptions from bore logs and ranked according to pollution potential.

An alternative was proposed for the CHLGA study area as there was insufficient borehole data available for characterising the vadose zone over the entire study area. Those factors which are believed to influence contaminant movement or attenuation through the soil profile were incorporated into an equation and a map constructed for the resulting polygons which identified zones (polygons) relative to each other which would be relatively more susceptible to contaminants moving through a vadose zone than another area. The factors considered important in defining the vadose zone in the CHLGA include soil depth, vadose zone type, and depth to water. A more detailed breakdown of the factors employed and the resulting equation and rating is discussed in the range and rating tables devised for The CHLGA study area.

Hydraulic Conductivity

The US EPA define hydraulic conductivity as the ability of aquifer materials to transmit water, which in turn, controls the rate at which ground water will flow under a given hydraulic gradient. The rate at which the groundwater flows also controls the rate at which it enters the aquifer. Hydraulic conductivity is controlled by the amount and interconnection of void spaces within the

aquifer which may occur as a consequence of intergranular porosity, fracturing and bedding planes. For purposes of this document, hydraulic conductivity is divided into ranges where high hydraulic conductivities are associated with higher pollution potential. Hydraulic conductivities are determined from aquifer pumping tests.

For the CHLGA, the details available on hydraulic conductivities for the differing geological units were scarce. As it was considered that this would not contribute in defining zones of vulnerability this feature was not included in the DRASTIC equation.

Range and Rating Tables For the CHLGA Study Area

Within the CHLGA study area the features which were deemed important in the development of a vulnerability map included: Depth to Water, Recharge, Aquifer media, Soil Media, Impact of Vadose Zone and Topography. The other features found within the DRASTIC framework such as the aquifer, soil permeability and aquifer media (geology) are incorporated as the factors when generating the Recharge, and Impact of Vadose Zone maps or they are not considered to demonstrate enough variation within the study area to provide a useful feature for assessing vulnerability for the study area.

Table 1 - Ranges and Ratings for Depth to Water

Depth to Water Table (m)

Range	Rating
< 5	10
5 - 10	9
10 - 15	7
15 - 20	5
20 - 25	3
>25	1
Weight 5	

Table 2 - Ranges and Ratings for Topography

Topography as Slope %

Range	Rating
< 2%	10
2 - 5%	8
5 -10%	5
10 - 30%	3
>30%	1
Weight 1	

Table 3 - Ranges and Ratings for Aquifer Media

Aquifer Media

Range (Geology Type)	Rating
Beach sand and dunes	10
Fluvial Alluvium	8
Sedimentary	5
CHB Metasediments	4
Estuarine Alluvium	3
Weight 3	

The derivation of the a) Recharge, b) Vadose Zone Impact, and c) Soils maps will now be discussed.

a) Recharge

This feature is generated as a map which is specific for the study area. It incorporates features into an equation which are believed to be important to the recharge component of the study area. The equation used calculates the ability of an area to act as a recharge zone relative to another area. The factors used to generate the Recharge map include: geology type (aquifer media), geological infiltration proportion, slope, soil permeability, and rainfall.

The equation is used to generate a **Recharge Value**. This Recharge Value is then grouped into a range of values which are given a rating for use in the final DRASTIC calculation.

Recharge Value = Slope % + Rainfall + Infiltration Proportion of Geological Type + Soil Permeability

Where:

Infiltration Proportion of Geological Type

Range	Factor
Beach sand and dunes	5
Fluvial Alluvium	4
Sedimentary	3
Metasediments	2
Estuarine Alluvium	2

Slope %

Range	Factor
<2%	5
2 - 5%	4
5 - 10%	3
10 - 30%	2
>30%	1

Rainfall (mm)

Range	Factor
>1600mm	4
1500 - 1600mm	3
1400 - 1500mm	2
<1400mm	1

Soil Permeability

Range	Factor
very low	1
low	2
medium	3
high	4
very high	5

The maximum Recharge Value is: 19
The minimum Recharge Value is: 5

The rating table for Recharge is shown in Table 4.

Table 4 - Ranges and Ratings for Recharge

Recharge

Range	Rating
17-19	10
14-16	9
11-13	5
8-10	3
5-7	1
Weight 4	

b) Impact of Vadose Zone

This feature attempts to classify that zone of soil and regolith (saprolite) found above the water table, known as the vadose zone, with regard to its ability to allow any potential contaminant to move through this zone towards the aquifer. This zone is known as the Vadose zone and incorporates Soil Depth, Vadose Zone Type, and DTWT.

An equation is used incorporating these factors, believed to be important to the vadose zone for the study area. The equation provides a **Vadose Zone Value** for a particular area defined by these factors and which is relative to another zone within the context of the study area. This **Vadose Zone Value** is then grouped into a range of values which are given a rating for use in the final DRASTIC calculation.

Impact of Vadose Zone = Soil depth + Vadose Zone Type + DTWT

Where:

Soil Depth information has been provided by Glenn Atkinson (Senior Soil Officer - Kempsey) as a derivative maps from Soil Landscapes 1:100 000 sheets.

Vadose Zone Type is based on the digitised ion exchange index maps.

Depth to water table has previously been calculated but is factored for its contribution to the vadose zone impact.

Soil Depth (m)

Range	Factor
very low	5
low	4
medium	3
high	2
very high	1

Vadose Zone Type (Ion Exchange Capacity >20cm depth)

Range	Factor
< 6 me/100g (very low)	5
6-12 me/100g (low)	4
12-25 me/100g (moderate)	3
25-40 me/100g (high)	2
> 40 me/100g (very high)	1

Vadose Zone Type (Ion Exchange Capacity <20cm depth)

Range	Factor
< 6 me/100g (very low)	5
6-12 me/100g (low)	4
12-25 me/100g (moderate)	3
25-40 me/100g (high)	2
> 40 me/100g (very high)	1

Depth To Water Table (m)

Range	Factor
<5	5
5 - 10	4
10- 15	3
15- 25	2
>25	1

The maximum **Vadose Zone Impact Value** is: 20
The minimum **Vadose Zone Impact Value** is 4

The ratings for **Vadose Zone Impact** are displayed in Table 5.

Table 5 - Ranges and Ratings for Vadose Zone Impact

Vadose Zone Impact	
Range	**Rating**
18-20	10
14-17	8
10-13	6
7-9	3
4-6	1
Weight 5	

c) Soils

The soils feature attempts to classify the unique soil of the study area with regard to its ability to allow any potential contaminant to move through this zone towards the aquifer.

The impact of the soil media within the CHLGA was based solely on the soil permeability.

The ranges and ratings for soils have been classified as outlined in Table 6.

Table 6 - Ranges and Ratings for Soils

Soil Permeability	
Range	**Rating**
very low	1
low	4
medium	7
high	9
very high	10
Weight 2	

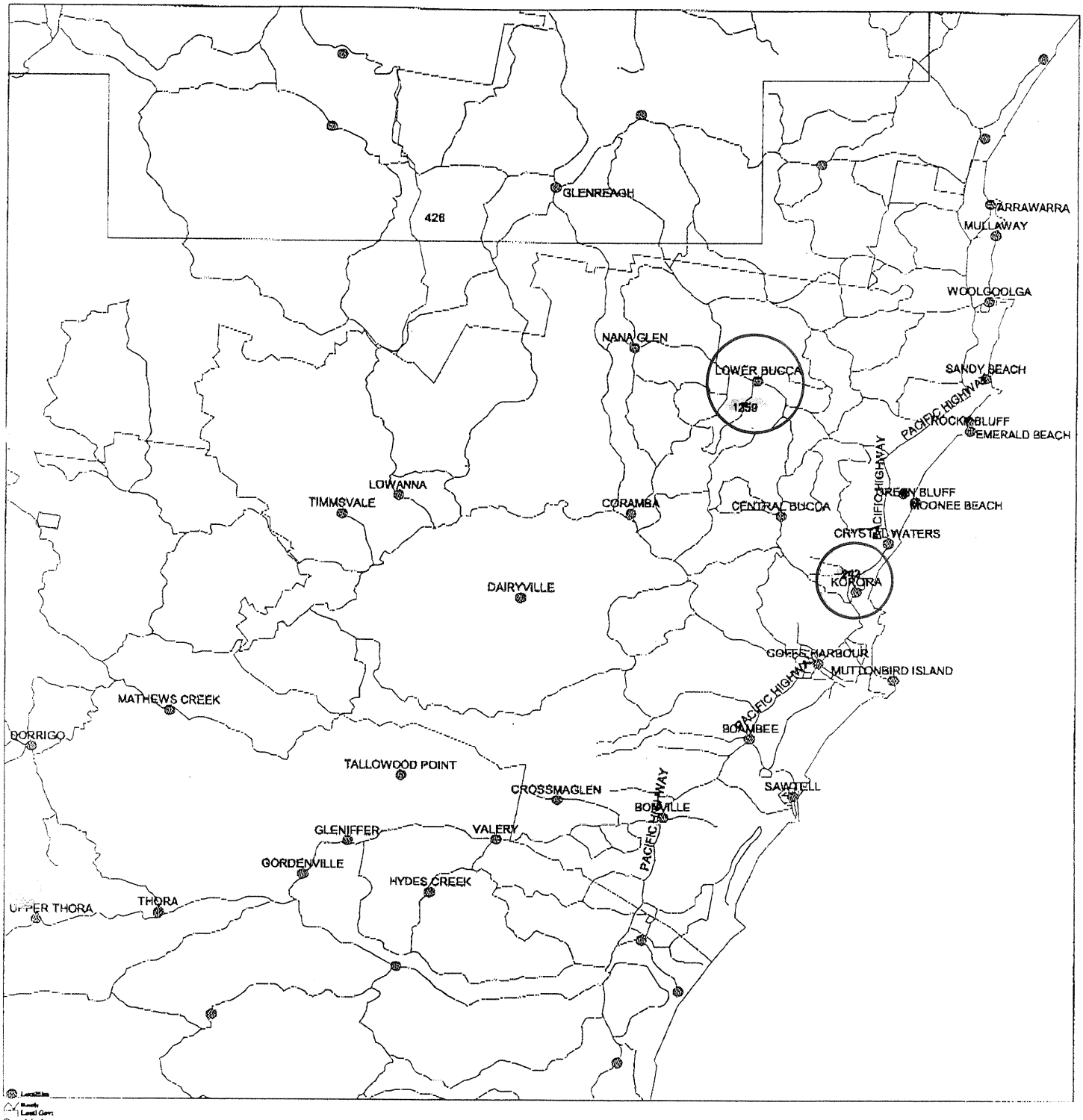
Appendix D

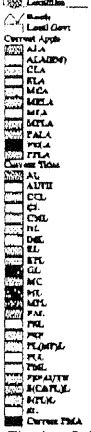
NSW Department of Mineral Resources: Titles Data

MINERAL RESOURCES

DEPARTMENT OF MINERAL RESOURCES
NEW SOUTH WALES

GRAPHIC REPORT





Date Printed : 14:01:46 Monday 24 September, 2001 Page 1/1

MINERAL RESOURCES

DEPARTMENT OF MINERAL RESOURCES
NEW SOUTH WALES

CURRENT TITLE ID :MC-243-1992

Localities

Parcels DCDB

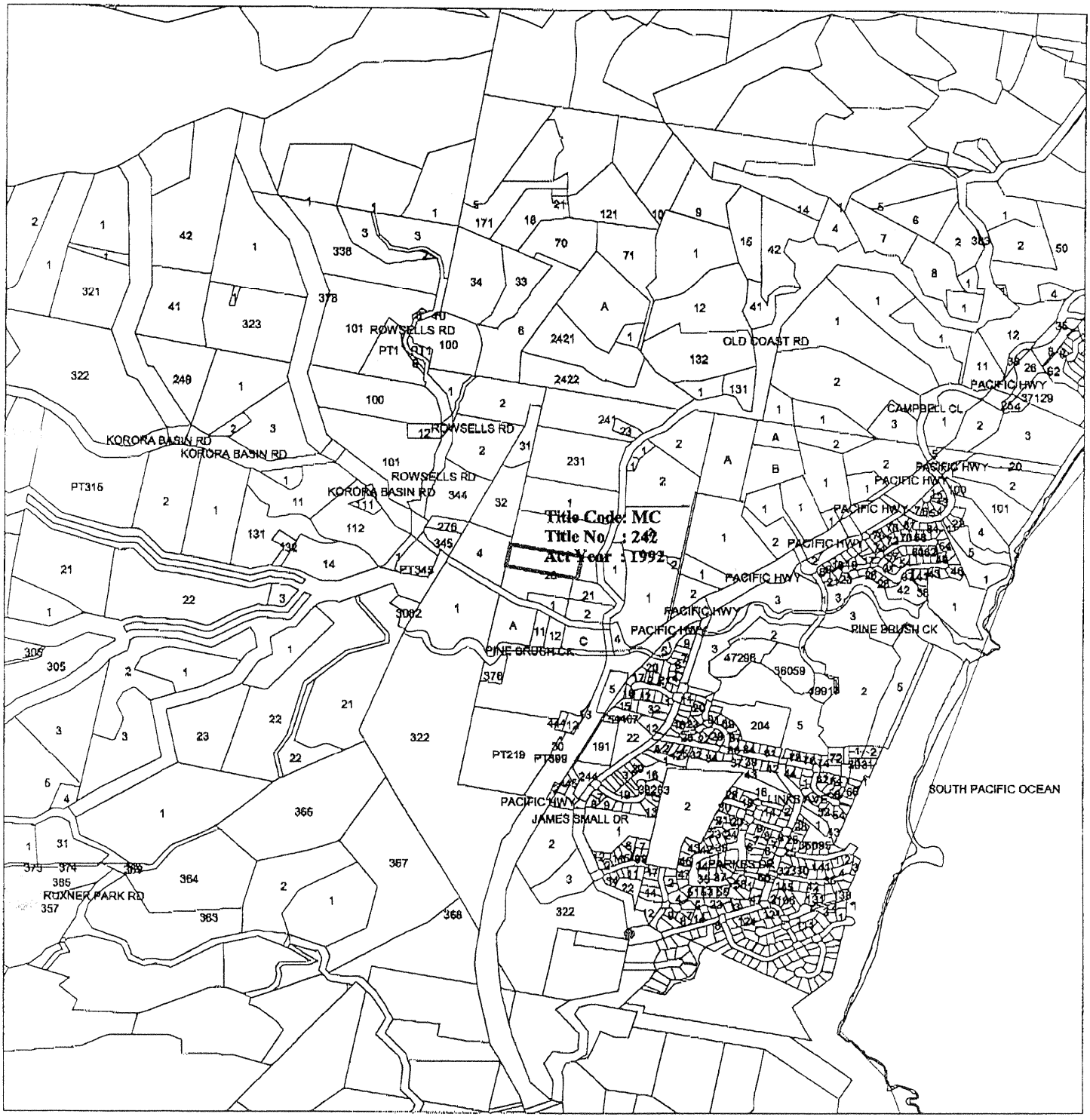
Local Govt

Title:	**MC-243-1992**
Holder(s):	**EDWARDS, Edward Charles**
	EDWARDS, Mark John
Mineral Group(s):	**ANTIMONY,ARSENIC,BARYTES,BISMUTH,CADMIUM,CHROMITE,COBALT**
Grant Date:	**0:00:00 Friday 6 August, 1999**
Determination Date:	**nil**
Determination Status:	
Area:	**1.274 HECTARES**
Location:	**About 5km N of COFFS HARBOUR**
Original Application:	**MCA 55 CH 1992**
Correct Position Flag:	**Massaged to fit DCDB**

MINERAL RESOURCES

DEPARTMENT OF MINERAL RESOURCES
NEW SOUTH WALES

CURRENT TITLE ID :MC-242-1992



Localities

Parcels DCDB

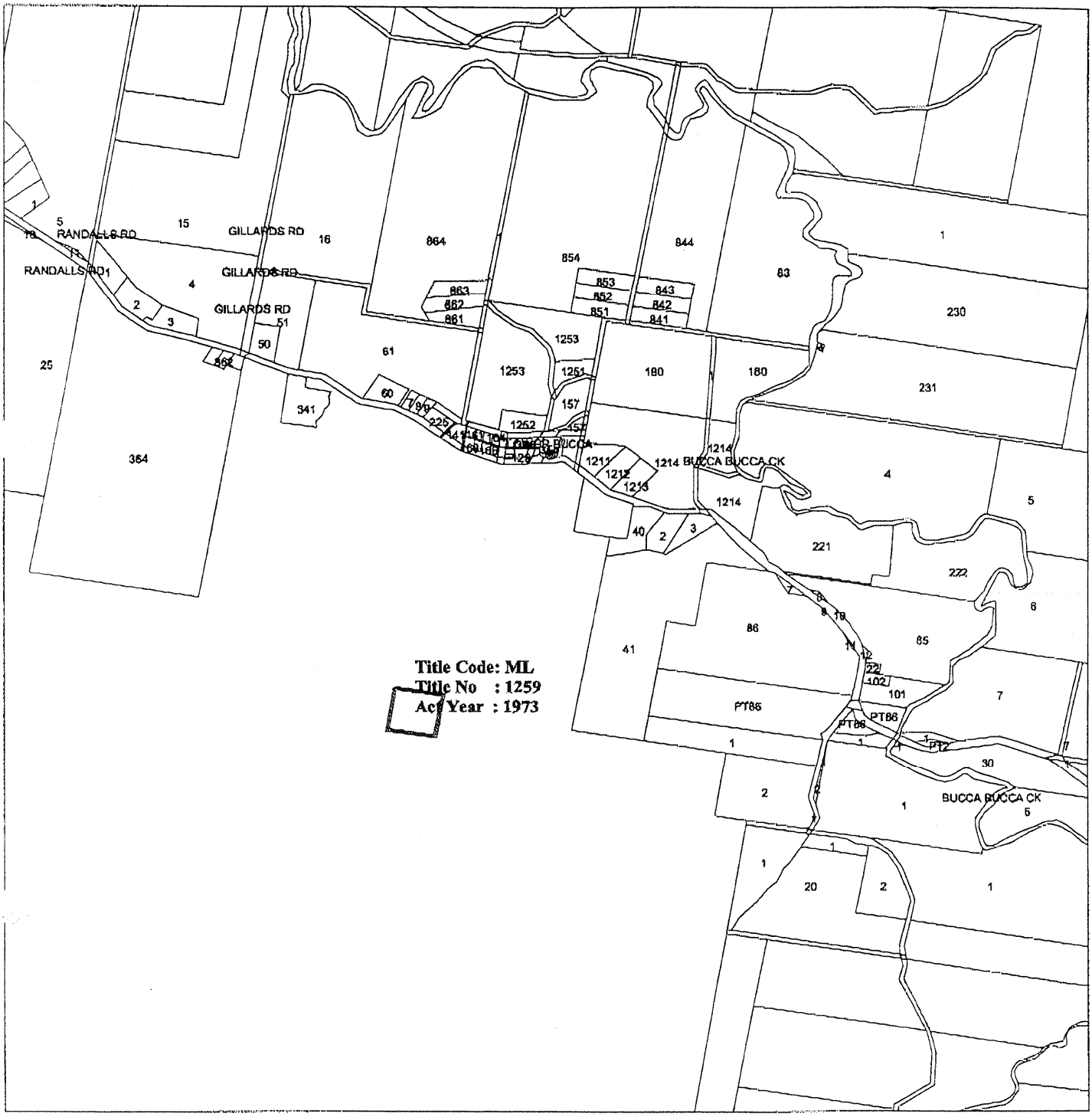
Local Govt

Title:	**MC-242-1992**
Holder(s):	**EDWARDS, Edward Charles**
	EDWARDS, Mark John
Mineral Group(s):	**ANTIMONY,ARSENIC,BARYTES,BISMUTH,CADMIUM,CHROMITE,COBALT**
Grant Date:	**0:00:00 Friday 6 August, 1999**
Determination Date:	**nil**
Determination Status:	
Area:	**1.417 HECTARES**
Location:	**About 6km N of COFFS HARBOUR**
Original Application:	**MCA 54 CH 1992**
Correct Position Flag:	**Managed to fit DCDB**

MINERAL RESOURCES

DEPARTMENT OF MINERAL RESOURCES
NEW SOUTH WALES

CURRENT TITLE ID :ML-1259-1973



Title:	ML-1259-1973
Holder(s):	GRANT, Colin
	GRANT, Gillian Rose
Mineral Group(s):	GOLD
Grant Date:	0:00:00 Wednesday 27 May, 1992
Determination Date:	nil
Determination Status:	
Area:	4.84 HECTARES
Location:	About 16km NNW of COFFS HARBOUR
Original Application:	MLA 109 CH 1973
Correct Position Flag:	Massaged to fit DCDB

Localities
Parcels DCDB
Local Govt

Appendix E

Cattle Tick Dip Locations Data

DOC1
FILE 3.4

NSW AGRICULTURE
North Coast Region

CATTLE TICK PROGRAM
Wollongbar Agricultural Institute

Phone: (02) 6626 1201
Fax: (02) 6626 1202

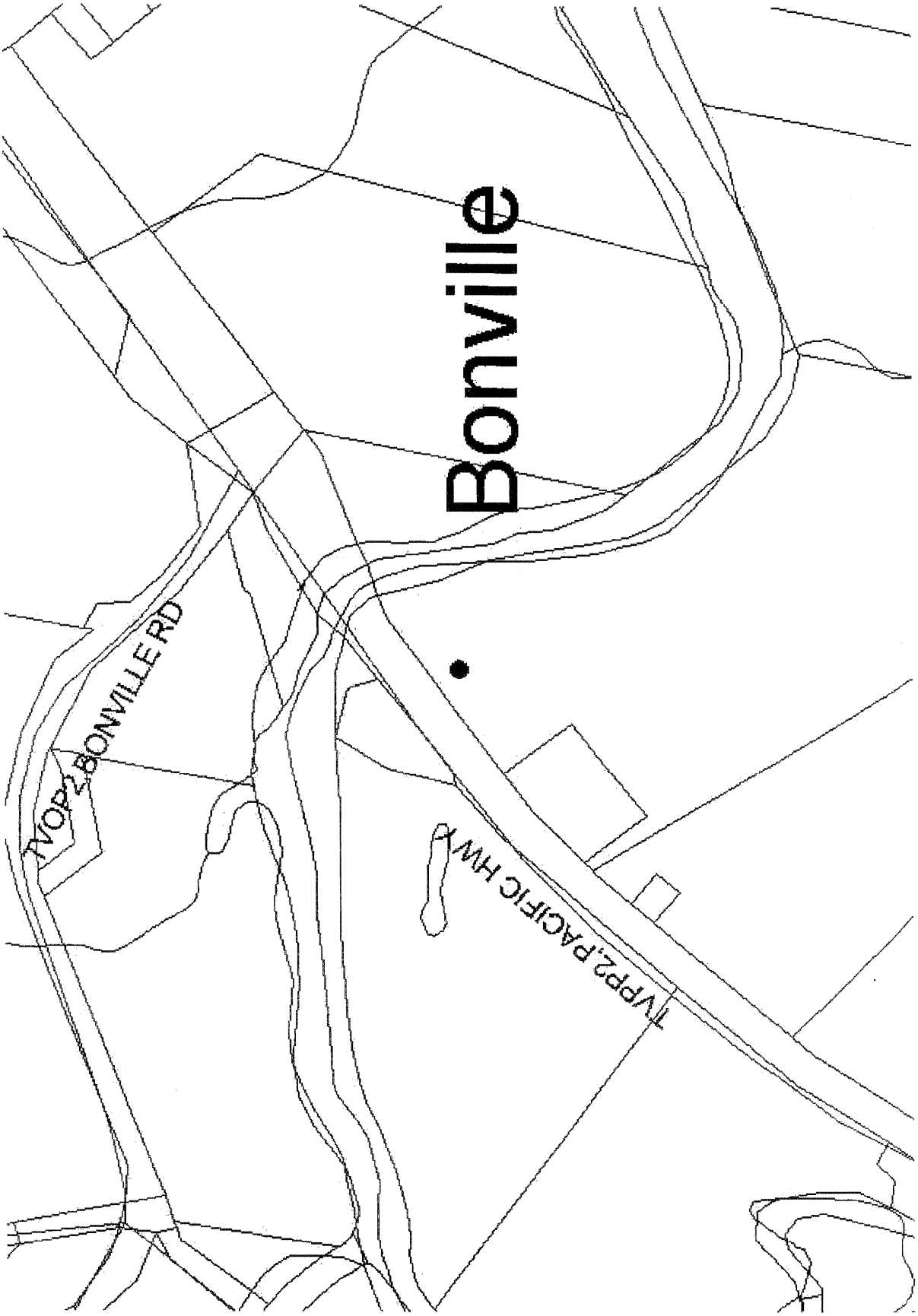
FACSMILE MESSAGE

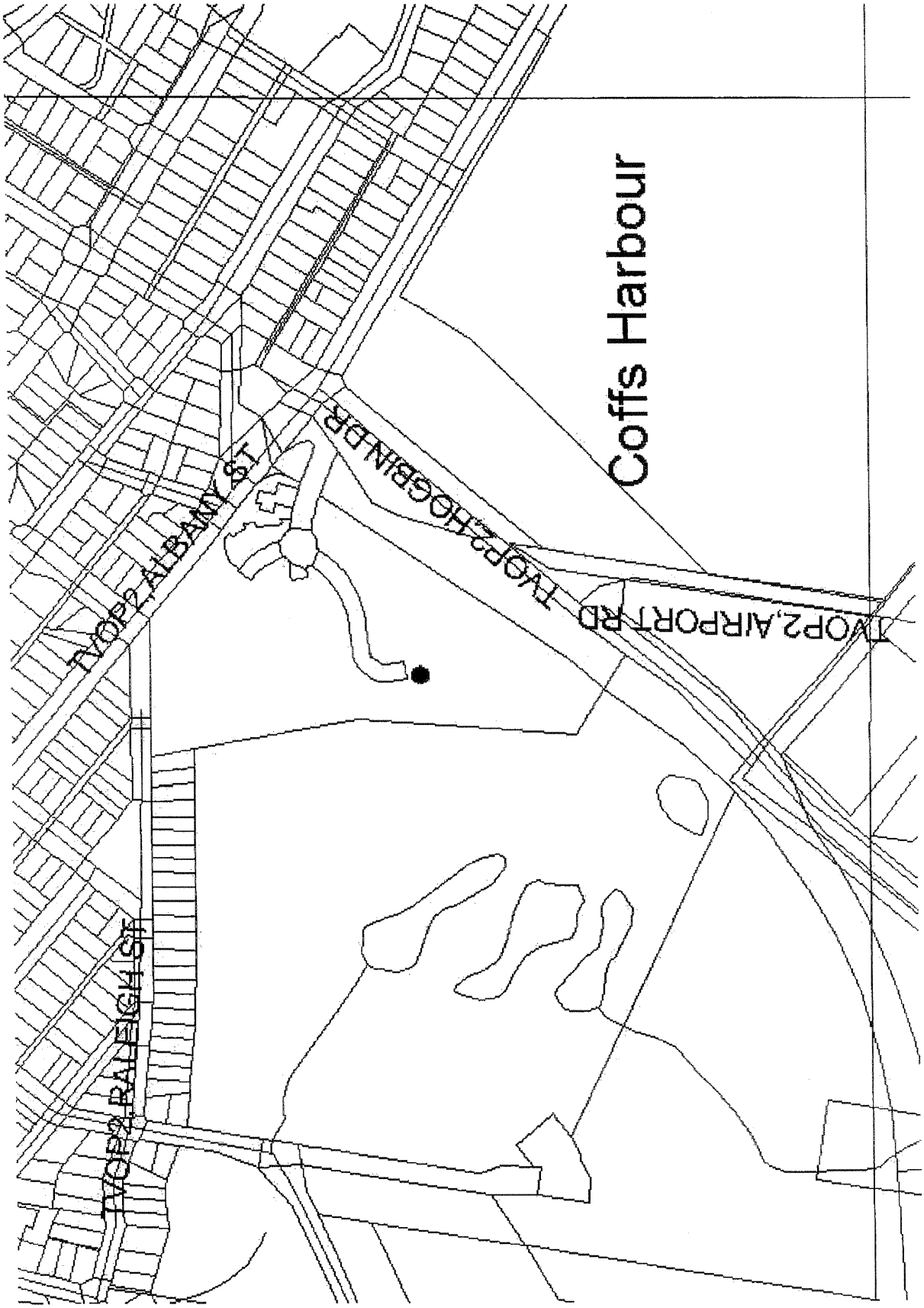
TO: David Caso

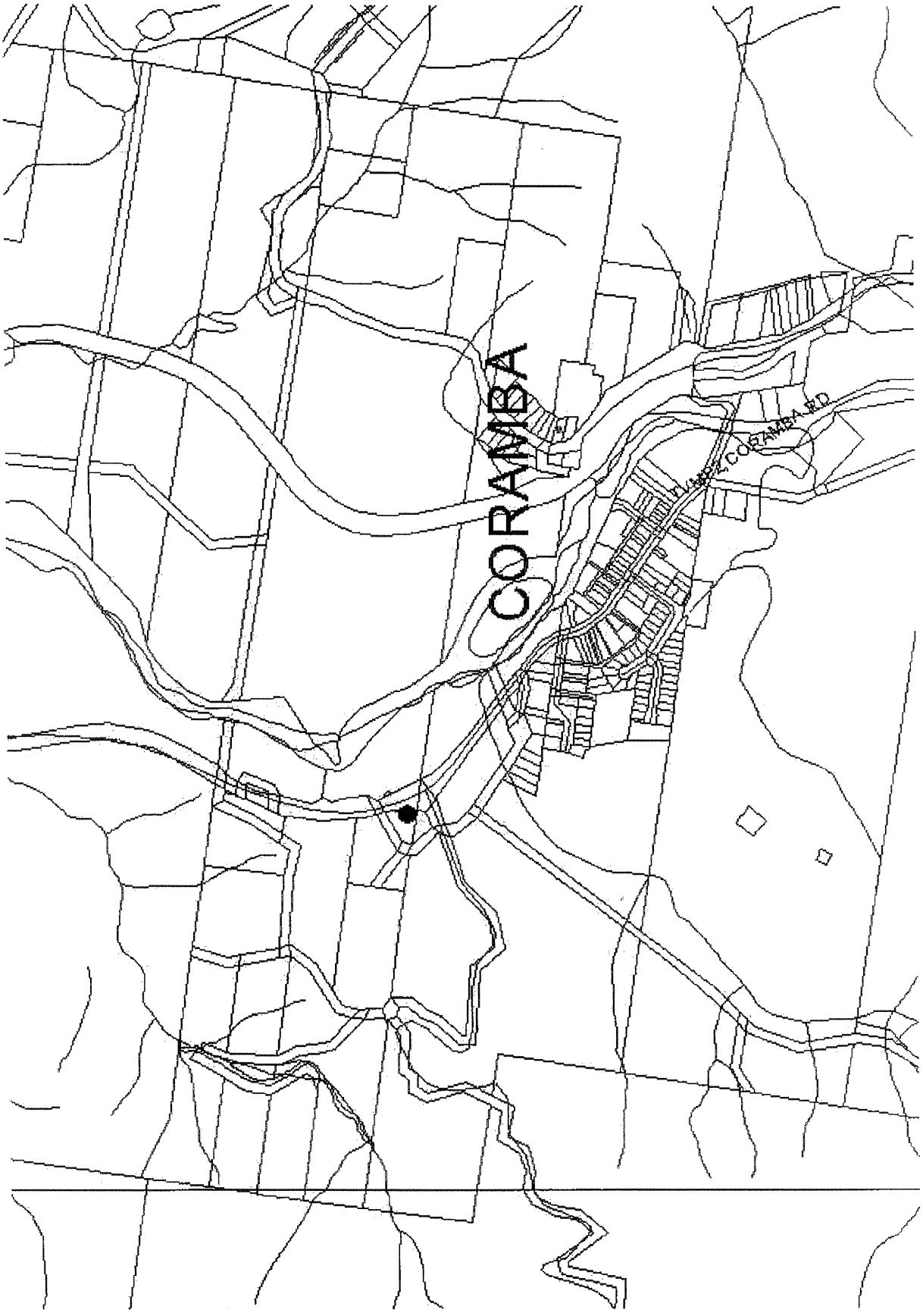
FROM: George Nastasi

DATE: 15/4/02 Total Pages: 8

Coffs Shire dips


Bonville
RVOP2,BONVILLE RD
TV/PP2,PACIFIC HWY


Coffs Harbour
TVOP2,ALBANY ST
TVOP2,HOGBIN DR
TVOP2,AIRPORT RD
TVOP2,RALEIGH ST


CORAMBA
HARDYS CORAMBA RD

Available information for selected dip.

This report was printed on: **15/04/2002** *The information is valid to:* **15/05/2001**

Dip Name: **CORAMBA** Road: CORAMBA ROAD Town: CORAMBA

Location and status details for this dip.

Map Sheet:	9537-IV-S
Map Zone:	56
Easting:	500800
Northing	6656950

Parish:	COMLAROI
County:	FITZROY
Council:	COFFS HARBOUR

Dip Status:**	DEMOLISH
Land Tenure	GOVERNMENT
Lease Status:	NOT CURRENT
Lease Expiry Date:	
PriorityRanking:	
Zoning:	
Legal Encumbrances:	NONE

Sampling
Soil No Water: No

For further information on samples please contact NSW Agriculture on 0266261201

**Please note: Dip Status current at time of database release - see Valid date."Active" means dipping occurred in past 12 months, "Inactive" means no dipping in that time .To assist in any decisions please call NSW Agriculture on 0266261201 for current status information.

History of chemicals used in this dip.

Chemical	Date Charged
ARSENIC	6/32

The chemical currently being used at this dip is:
NONE

Its trade name is:

Site details for this dip .

Proximity to Housing: NO

Adjacent Land Uses: WILDLIFE RESERVE

Waterway within 100m: No

Soil Type: SANDY LOAM

Warning Signs in Place: No

Site works undertaken at this dip .

Cleanup Commenced: Yes
Cleanup Completed: No Date Completed:

Dip Status: DEMOLISH

Cleanup Details:

Drainage Works:	No		
Dip Fences Removed:	Yes	Highly Contaminated Soil Removed	No
Dip Shed Removed:	Yes	Contaminated Areas Covered:	No
Dip Bath Removed:	No		
Dip Bath Buried:	Yes		

Available information for selected dip.

This report was printed on: **15/04/2002** *The information is valid to:* **15/05/2001**

Dip Name: **COFFS HARBOUR** Road: CR ALBANY & HOGBIN DR Town: CITY HILL, COFFS

Location and status details for this dip.

Map Sheet:	9537-III-N
Map Zone:	56
Easting:	511400
Northing	6647050

Parish:	COFFS HARBOUR
County:	FITZROY
Council:	COFFS HARBOUR

Dip Status:**	DEMOLISH
Land Tenure	LEASED
Lease Status:	NOT CURRENT
Lease Expiry Date:	
PriorityRanking:	
Zoning:	
Legal Encumbrances:	NONE

Sampling
Soil Yes Water: No

For further information on samples please contact NSW Agriculture on 0266261201

**Please note: Dip Status current at time of database release - see Valid date."Active" means dipping occurred in past 12 months, "Inactive" means no dipping in that time .To assist in any decisions please call NSW Agriculture on 0266261201 for current status information.

History of chemicals used in this dip.

Chemical	Date Charged
ARSENIC	1/43

The chemical currently being used at this dip is:
NONE

Its trade name is:

Site details for this dip .

Proximity to Housing: NO

Adjacent Land Uses: INDUSTRIAL

Waterway within 100m: No

Soil Type: LOAMY SAND

Warning Signs in Place: No

Site works undertaken at this dip .

Cleanup Commenced: Yes
Cleanup Completed: No Date Completed:

Dip Status: DEMOLISH

Cleanup Details:

Drainage Works:	No		
Dip Fences Removed:	Yes	Highly Contaminated Soil Removed	No
Dip Shed Removed:	Yes	Contaminated Areas Covered:	No
Dip Bath Removed:	No		
Dip Bath Buried:	Yes		

Available information for selected dip.

This report was printed on: **15/04/2002** *The information is valid to:* **15/05/2001**

Dip Name: **BONVILLE** Road: PACIFIC HIGHWAY Town: BONVILLE

Location and status details for this dip.

Map Sheet:	9537-III-N
Map Zone:	56
Easting:	503730
Northing	6640270

Parish:	BONVILLE
County:	RALEIGH
Council:	COFFS HARBOUR

Dip Status:**	DEMOLISH
Land Tenure	PRIVATE
Lease Status:	NOT CURRENT
Lease Expiry Date:	
PriorityRanking:	
Zoning:	
Legal Encumbrances:	NONE

Sampling

Soil No Water: No

For further information on samples please contact NSW Agriculture on 0266261201

**Please note: Dip Status current at time of database release - see Valid date."Active" means dipping occurred in past 12 months, "Inactive" means no dipping in that time .To assist in any decisions please call NSW Agriculture on 0266261201 for current status information.

History of chemicals used in this dip.

Chemical	Date Charged
ARSENIC	6/34

The chemical currently being used at this dip is:

NONE

Its trade name is:

Site details for this dip .

Proximity to Housing: 50 M

Adjacent Land Uses: RESIDENTIAL

Waterway within 100m: Yes

Soil Type: SILT LOAM

Warning Signs in Place: No

Site works undertaken at this dip .

Cleanup Commenced: Yes

Cleanup Completed: No Date Completed:

Dip Status: DEMOLISH

Cleanup Details:				
	Drainage Works:	No		
	Dip Fences Removed:	Yes	Highly Contaminated Soil Removed	No
	Dip Shed Removed:	Yes	Contaminated Areas Covered:	No
	Dip Bath Removed:	No		
	Dip Bath Buried:	Yes		

Appendix F

Holmes and Holmes PTY Ltd Desk Study Report

HOLMES & HOLMES PTY. LTD.
CHARTERED ENGINEERS (AUSTRALIA)
A.C.N. 001 266 271

P.O. Box J 159, Coffs Harbour Jetty, 2450. Telephone: (066) 53 6457
Laboratory: Rippingale Road, Kororo, 2450.

14th June 2002
(023 959)

COMMENTS ON GEOTECHNICAL CONSIDERATIONS
FOR HIGHWAY ROUTES
FROM SOUTH OF COFFS HARBOUR, TO NORTH OF WOOLGOOLGA

The following comments have been prepared for Connell Wagner as an overview of our local knowledge of this area.

Because of the lack of major civil engineering projects in this area, the knowledge has been accumulated over the last twenty eight years by our involvement in residential buildings and subdivisional work, and site investigations for civil engineering projects such as the airport, water supply, roads and bridges. Such projects have rarely required diamond coring.

The underlying bedrock is a complex of metasediments, some of which have been silicified and formed into very hard beds whilst the majority are deeply weathered and highly fractured claystones and siltstones. The distinctive topographical features of the area reflect the variation in bedrock resistance to erosion, with the steep ridge lines being associated with the more silicified beds.

However, such beds are often discontinuous and soft areas can occur in the ridges.

Low elevation areas of the routes are associated with wetter more swampy terrain. While there are no major waterway crossings, the existing Highway route traverses back swamp terrain associated with aeolian sand dune formations along the coastal fringe. Such areas have a high water table, (often at ground level in a wet period) and require appropriate subgrade preparation. The use of geofabric cloth and rock stabilization is generally required to allow fill to be placed.

Creek crossings in the foothills are less problematic, although there is frequently a two to three metre deep poorly consolidated layer of erosion debris of gravel and clay in the bed.

Geotechnical Considerations
Highway Routes, Coffs Harbour

1) Stability

There is considered to be a low risk of slope instability associated with natural slopes in the area.

Landslides and slips are invariably associated with surface disturbance due to man-made works, including land clearing. Such instability is usually in the form of translational surface slips and erosion debris slides.

Observation of road cuttings in the area indicates that batters of one vertical to one-and-a-half horizontal are generally stable, although minor 'settling in' slumping can be expected.

Where the silicified sediments are encountered, steeper batters can be used, but weaker beds within such sediments if present, can be expected to cause problems with stability, particularly if they act as aquifers for ground water.

2) Chemical Residue Testing of Former Bananalands

The proposed routes will cross former bananalands and the necesssary testing for arsenic, lead, organochlorines and organophosphates may be required.

Coffs Harbour City Council has Plans indicating former banana plantation areas which could be contaminated with chemicals.

It would seem that the risk to the environment and humans is very minimal if the topsoil is to be retained within the road reserve, and testing could be unnecessary. This should be ascertained with Council and the E.P.A. If the topsoil is to be removed and used elsewhere, then testing should be undertaken.

The attached copy of threshold levels from the E.P.A. "Guidelines for N.S.W. Site Auditors" indicates the appropriate residue threshold levels. We consider that Column 4 is appropriate for work within the road reserve, whereas Column 1 should be used as a precautionary measure if soil is to be sent off site.

Geotechnical Considerations
Highway Routes, Coffs Harbour

From our experience in the Coffs Harbour area since 1992 when testing was first undertaken, low level arsenic contamination is widespread across older plantations. However levels rarely exceed 200 p.p.m. Because of the variability in application, the stripping and stockpiling of topsoil (as would be expected in large scale earthworks) and subsequent re-spreading will ensure adequate mixing and dilution of the arsenic.

Identifiable packing shed locations represent locations likely to be significantly more highly contaminated, and soil from these areas should be tested. Again, considering the extent of the earthworks on this type of project, remediation by mixing and dilution with the surrounding topsoil should be possible where necessary.

It is not expected that the problem of chemical contamination will play a significant role in the route selection, although the cost of testing (if required) should not be overlooked, currently about $1600 / Ha.

3) Acid Sulphate Soils

The soil conservation Maps of the area indicate that the low lying (below R.L. 10) estuarine creek lines have the potential to provide acid sulphate soils, with varying likelihood of occurrence. This will affect the upgrading of the existing Highway more than the alternative routes further from the coast.

From the limited testing carried out in this area, it is expected that significant problems will not be encountered. Generally the likely occurrence will be over relatively short lengths. Because of the topography such areas will have to be filled to provide a stable pavement foundation.

Problems will therefore be limited to dealing with the potential acid generation in the surface layer. This tends to be of low significance since the natural cycle of wet and dry in this layer has, over time, completed the oxidization and already leeched out the acid.

Where encountered, it is expected that acid forming soils will be able to be neutralised with 5 kg to 10 kg of lime per tonne, with the usual precautions being taken to prevent runoff from stockpiles entering waterways before neutralisation can be achieved.

It is not expected that the problem of acid sulphate soils will play a significant role in the route selection.

EPA "Guidelines for the NSW Site Auditor Scheme."

SOIL INVESTIGATION LEVELS FOR

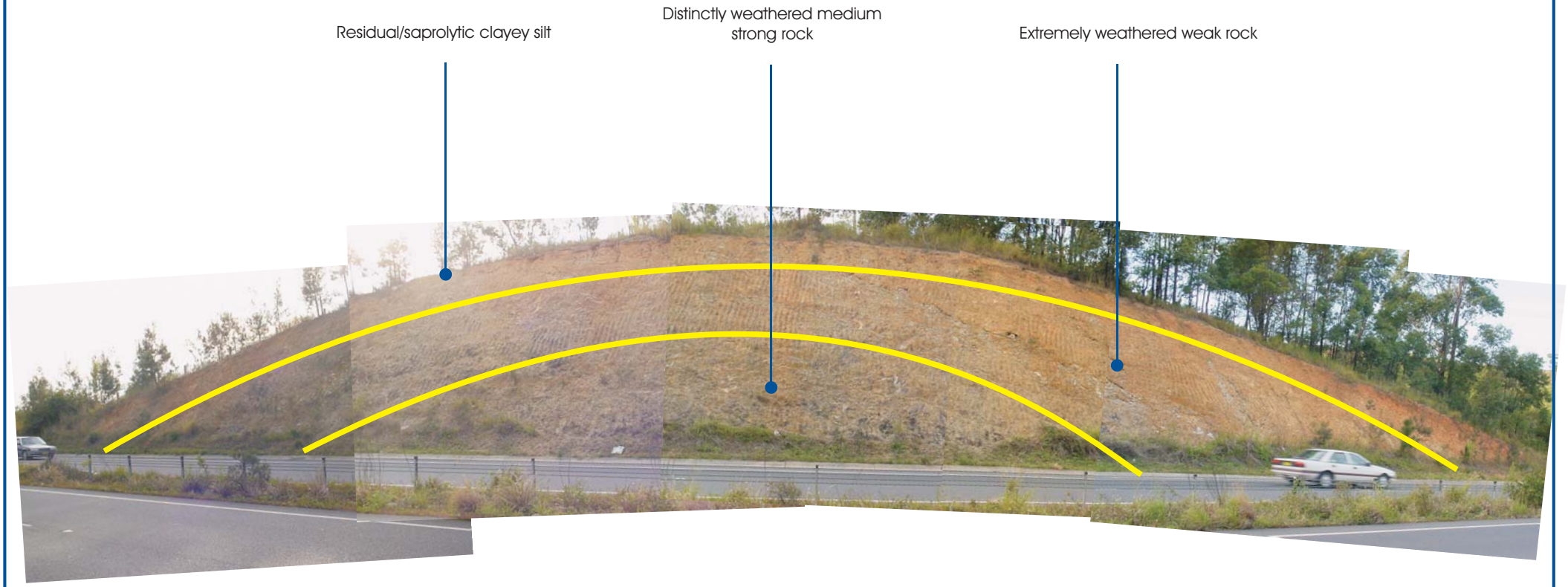
Substance	Health-based investigation levels[1] (mg/kg)				Provisional phytotoxicity-based investigation levels[4] for sandy loams pH 6-8 (mg/kg)
	Residential with gardens and accessible soil (home-grown produce contributing less than 10% fruit and vegetable intake; no poultry), including children's day-care centres, preschools and primary schools, or town houses or villas (NEHF A)	Residential with minimal access to soil including high-rise apartments and flats (NEHF D)	Parks, recreational open space, playing fields including secondary schools (NEHF E)	Commercial or industrial (NEHF F)	
	Column 1	Column 2	Column 3	Column 4	Column 5
Aldrin + Dieldrin	10	40	20	50	–
Arsenic (total)	100	400	200	500	20
Benzo(a)pyrene	1	4	2	5	–
Beryllium	20	80	40	100	–
Cadmium	20	80	40	100	3
Chlordane	50	200	100	250	–
Chromium (III)[2]	12%	48%	24%	60%	400
Chromium (VI)	100	400	200	500	1
Copper	1000	4000	2000	5000	100
Cyanides (complex)	500	2000	1000	2500	–
DDT	200	800	400	1000	–
Heptachlor	10	40	20	50	–
Lead	300	1200	600	1500	600
Manganese	1500	6000	3000	7500	–
Methyl mercury	10	40	20	50	–
Mercury (inorganic)	15	60	30	75	1[3]
Nickel	600	2400	600	3000	60
PAHs (total)	20	80	40	100	–
PCBs (total)	10	40	20	50	–
Phenol[3]	8500	34000	17000	42500	70
Zinc	7000	28000	14000	35000	200

Job No	No	As	Pb	DCs	Remarks	
1101	1	17	11	0.01	4pt composites	CH
1102	2	9.9	12	0.01	4pt composite	CH
1117	3	28	11	0.02	4pt composites in bananas	W
1220	4A	7.0	10	<0.02	5pt composites	W
	4B	9.0	10	<0.02	"	W
	4C	3.9	10	<0.02	"	W
	4D	7.2	16	<0.02	"	W
	4E	8.4	10	<0.02	" house site not used	W
	4F	140	7	0.10	5pt. composites in bananas	W
	4G	79	12	0.07	" in bananas	W
1243	5	41	13	<0.02	individual	W
1392 / 3788	6	19	14	3.7	individual } NEW Ag found As 72 Pb 8	W
	7	33	14	<0.02	4pt composite }	W
Bennetts Rd	1409 off map	140	26	0.31	individual remediated	CH
1647	8	5.5	19	<0.02	5pt. composites	CH
1664	9	26	24	<0.02	"	CH
	10	7.5	29	<0.02	"	CH
1711	11	28	10	<0.02	"	W
1735	12	6	24	0.13	4pt composites	W
1765	13	17	42	0.49	5pt composites	W
1766	14	8	13	0.45	5pt composites	W
1863	15	50	12	0.2	individual	W
1865	16	12	20	0.14	4pt composites	CH
	17	39	30	0.96	"	CH
	18	29	35	0.12	"	CH
1877	19	120	17	0.03	individual remediated	W
1890	20	12	14	<0.02	5pt composites	W
1928	21	8.5	49	<0.02	5pt composites	W
2026	22	42	43	<0.02	individual samples	W
2067	23	22	18	0.30	5pt composites	W
2346	24	36	140	5.2	individuals	CH
Nth Boundary Rd 2375	off map	58	26	0.10	individuals	CH
2457	25	44	35	0.07	individuals	W
2557	26	6	16	<0.02	5pt composites	CH

Job No	No	As	Pb	DCs	Remarks	
2719	27	93	14	<0.2	individual sample	W
2745	28	19	17	<0.02	5pt composites	W
2857	29	19	18	0.04	5pt composites	W
2912	30	28	17	0.02	5pt composites	W
2992	31	5	12	<0.02	5pt composites	W
3000	32	78	21	0.06	individual	CH
	33	7	74	0.02	5pt composites	CH
3022	34	28	21	<0.02	5pt composites	CH
3200	35	175	66	0.11	individuals	CH
	36	6	26	0.74	4pt composites	CH
	37	42	33	0.26	4pt composites	CH
3223	38	90	24	<0.02	individual	W
3224	39	12	35	<0.02	4pt composites	W
3271	40	16	15	<0.02	5pt composite	W
3284	41	not tested		0.08	5pt composite	CH
3313	42	14	15	<0.02	5pt composite	W
3355	43	6.0	17	<0.02	5pt composite	W
3362	44	4.0	17	<0.02	5pt composite	W
3424	45	165	20	<0.02	individual remediated	W
3455	46	6	17	<0.02	4pt composites	W
	47	7½	18	<0.02	—" —	W
3491	48	120	27	<0.02	individual	W
3513	49	92	41	0.26	4pt composites & individuals	CH
3523	50	20	10	<0.02	4pt composites	W
3532	51	13	14	<0.02	4pt composite	CH
3534	52	7	15	0.08	4pt composite	W
3572	53	4.5	15	0.05	"	W
3577	54	170	34	0.35	"	CH
3614	55	54	25	0.11	individuals	CH
3621	56	160	17	0.32	"	CH
3666	57	46	50	<0.02	4pt composites	W

Appendix G

Field Mapping Photo Interpretation

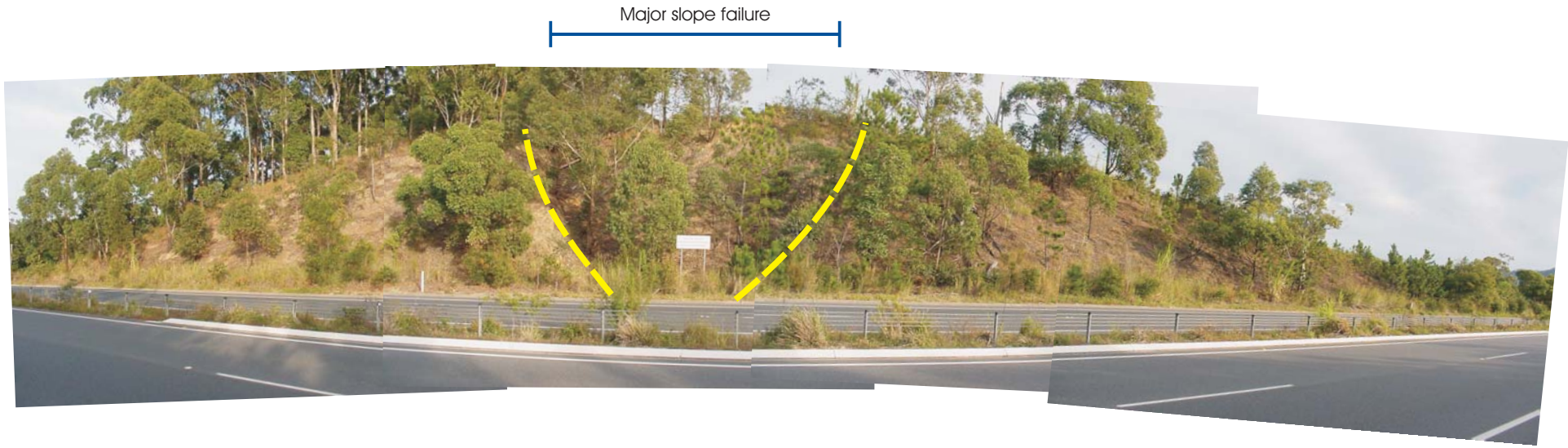


Strata, Rock Type, Description

Siltstone/Greywacke: Weathering grades evenly from red, orange residual/saprolytic clayey silt to distinctly weathered, dark grey medium strong rock. Joints extremely to very closely spaced, typically closed but occasionally in-filled.

Notes

* Slope angle of cutting 48^0, slope direction 258^0
* No major erosion or slope failures evident
* Dominant joints, dip/direction, 9/233, 84/88, 86/52, 85/292, 25/245, 35/295



Strata, Rock Type, Description

Siltstone/Greywacke: Grey, fine grained, weak, extremely to distinctly weathered rock, joints extremely to moderately closely spaced.

Notes

* Thin soil cover (<1.0m)
* Slope angle at cutting 45^{0}, slope direction 90^{0}
* Major slumping type failure evident in centre of cutting
* Dominant joint, dip/direction 59/110 (50mm spacing)

Strata, Rock Type, Description

Argillite: Grey speckled white, distinctly to slightly weathered, medium strong to very strong rock, moderately closely spaced joints.

Notes

* Slope angle at cutting 50^0, cutting on 90^0 bend in road
* Numerous joints at approximately 45^0 seen day lighting in face
* Dominant joints, dip/direction, 75/70, 28/34, 40/65, 80/130, typical joint spacing 100-200mm

Strata, Rock Type, Description

Argillite: Dark grey speckled white, slightly weathered, very strong rock with moderately spaced joints.

Notes

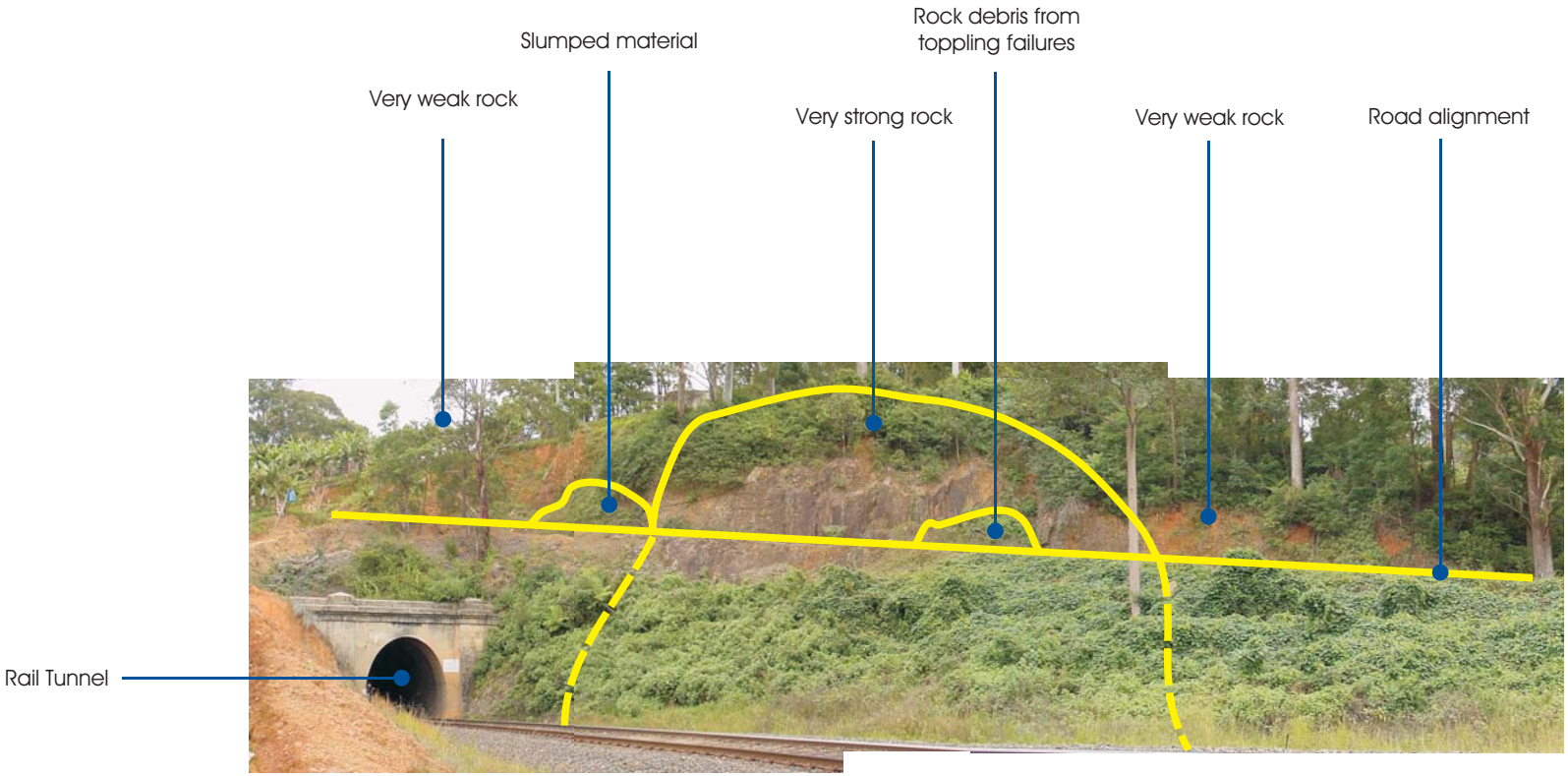
* Abandoned Quarry - dense vegetation at base prevented access to face
* Slope angle at face - vertical
* Not possible to accurately measure joints, but 30^0 joint set noted striking approximately south

Strata, Rock Type, Description

Weathered Argillite/siltstone: light grey stained orange brown, extremely weathered, extremely to very weak rock with very to moderately closely spaced joints.

Notes

* Slope angle at cutting 75^{0}, slope direction 182^{0}
* Severe erosion of face and evidence of old sliding failure
* Netting placed over face to reduce erosion and encourage plant growth has been unsuccessful
* Dominant joints, dip/direction, 29/56 (20mm spacing) 61/324, 84/184, (100-200mm spacing)

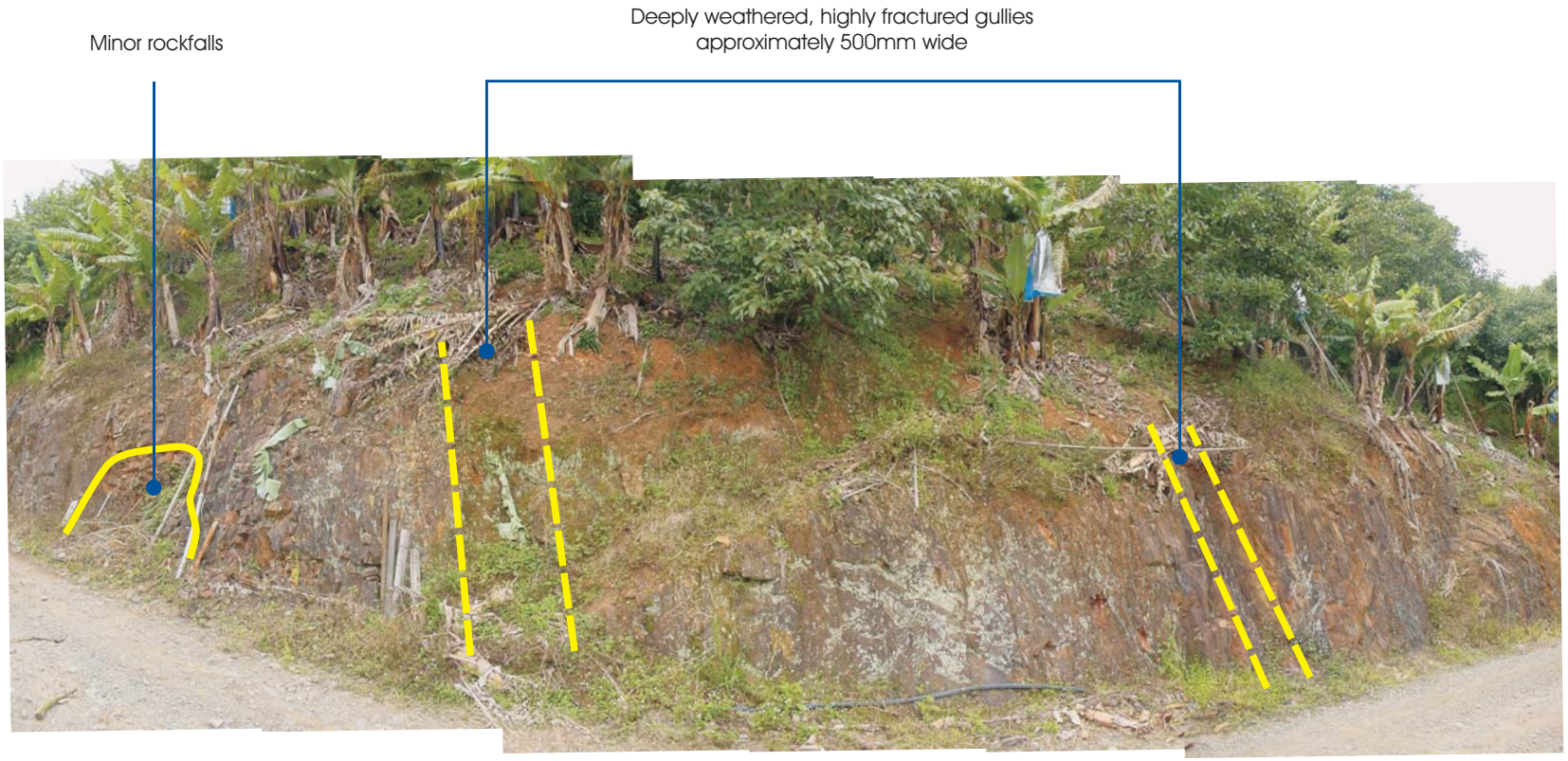


Strata, Rock Type, Description

Argillite: Highly variable weathering from extremely weathered, orange and red, very weak rock that crumbles in hand to silt, to very strong, grey stained red and black on defects, distinctly weathered rock.

Notes

* Slope angle of cutting 84^{0}, slope direction 133^{0}
* Evidence of slump type failures in very weak rock and toppling failures in strong rock
* Dominant joints in strong rock, dip/direction, 12/275, 84/133, 85/223

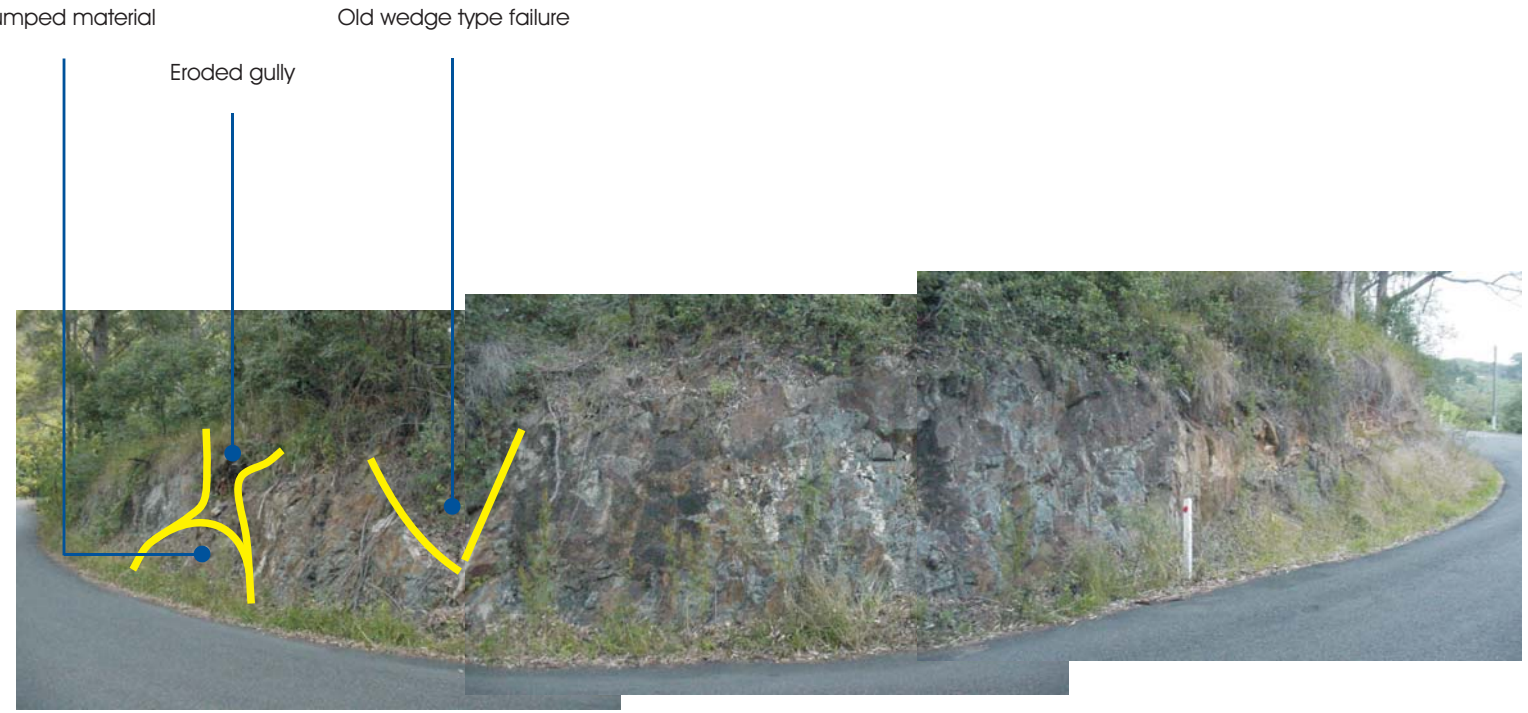


Strata, Rock Type, Description

Argillite: Dark grey, distinctly weathered, very strong, extremely to moderately closely spaced defects, but with occasional 500mm wide, near vertical extremely weathered gullies/bands.

Notes

* Slope angle of cutting 65°, slope direction 65°
* Dominant joints, dip/direction, 25/72, 65/252, 75/326, 90/230

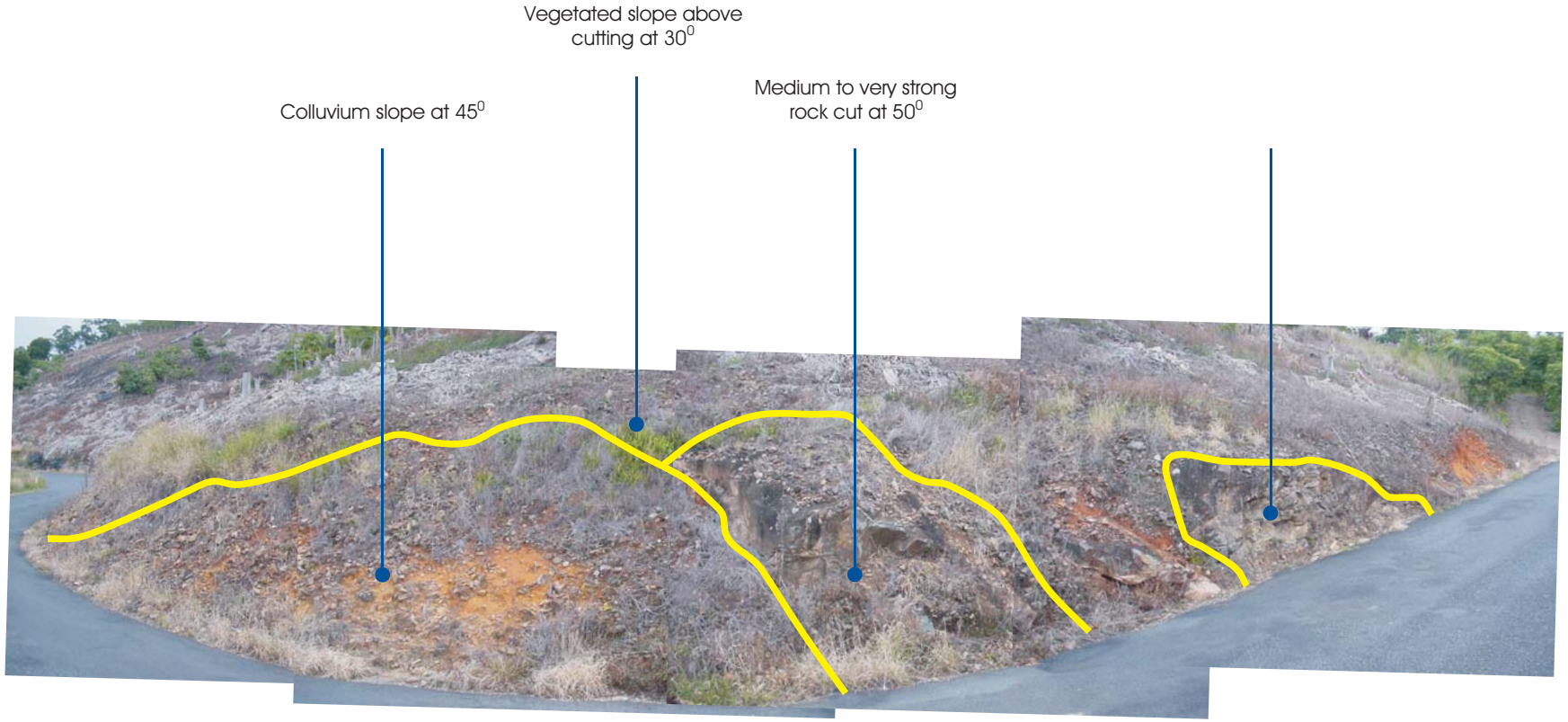


Strata, Rock Type, Description

Argillite: Blue grey stained white on healed joints, distinctly weathered, medium to very strong rock with moderately closely spaced defects.

Notes

* Slope angle of cutting 60^{0}, slope direction 0-90^{0}
* Colluvial slope above cut face consists of cobbles and boulders in a silty clay matrix
* Dominant joints, dip/direction 40/80, 37/352, 65/88, (spacing 100-400mm), 38/85



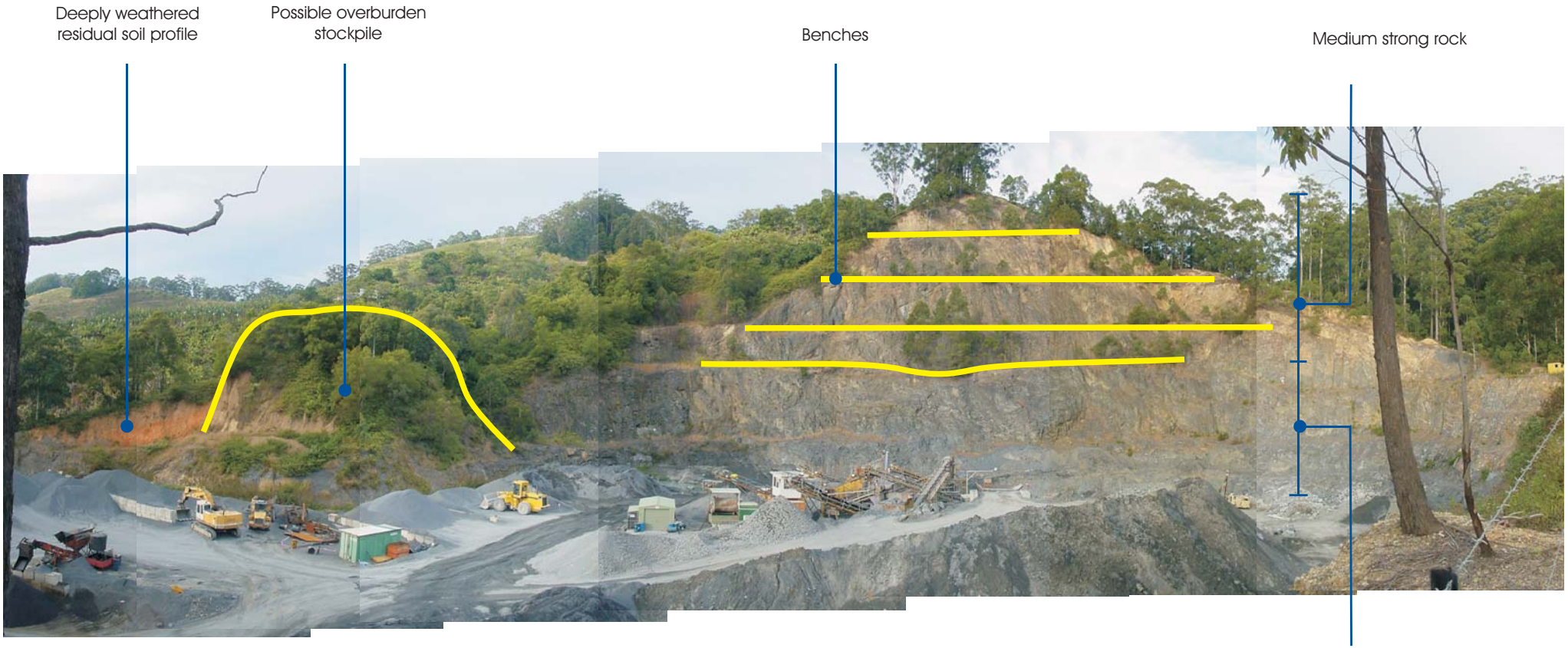
Strata, Rock Type, Description

Colluvium and lithic sandstone: Colluvium consists of loose cobbles in a silty clay matrix, lithic sandstone is blue grey, coarse grained, distinctly weathered, medium to very strong rock with moderately closely spaced defects.

Notes

* Slope angle of cutting as noted on photograph
* Silty matrix of colluvium appears erodible
* Dominant joints in sandstone, dip/direction 42/182, 75/102, 35/180

REDHILL QUARRY

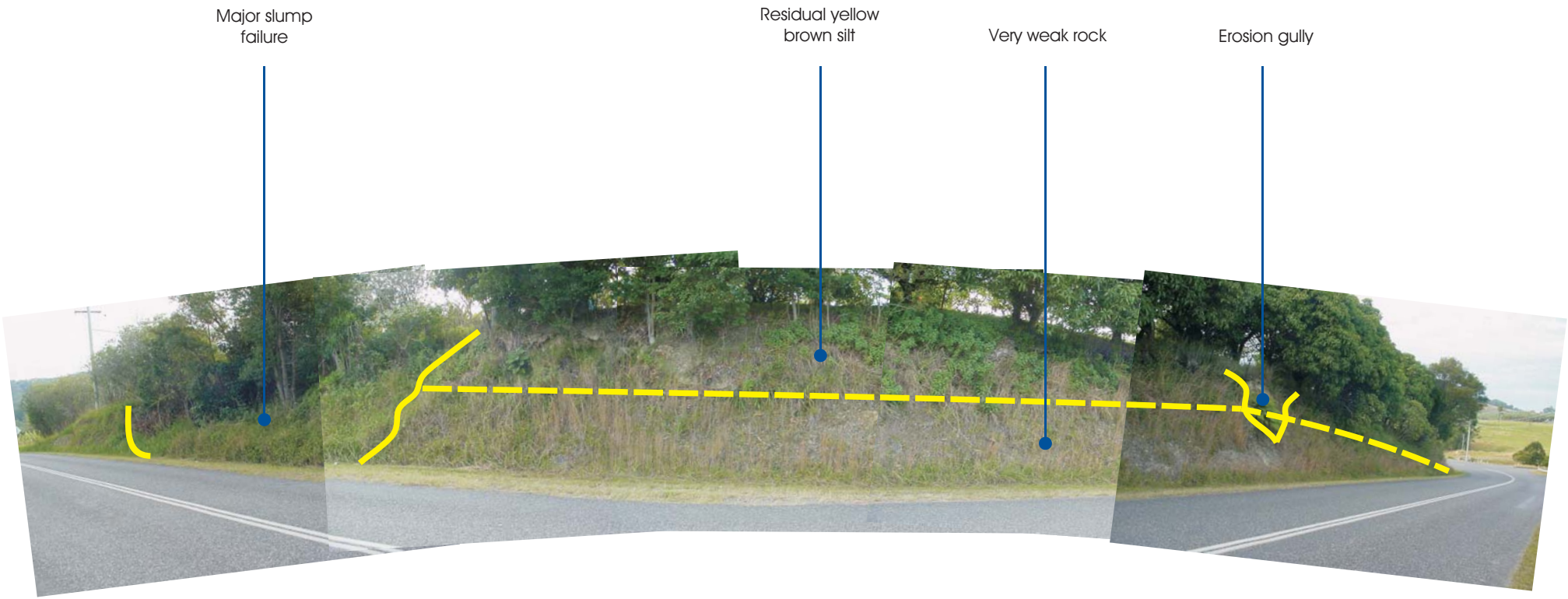


Strata, Rock Type, Description

Argillite: Dark blue grey at base of quarry grading to light brown at top of face, distinctly to slightly weathered, medium to very strong rock, very closely to moderately closely spaced defects.

Notes

* Not possible to approach face as quarry closed at time of site visit
* Quarry operated by Boral
* Quarry reveals potential for shallow hard rock on ridgelines with more deeply weathered profile at base of slopes.



Strata, Rock Type, Description

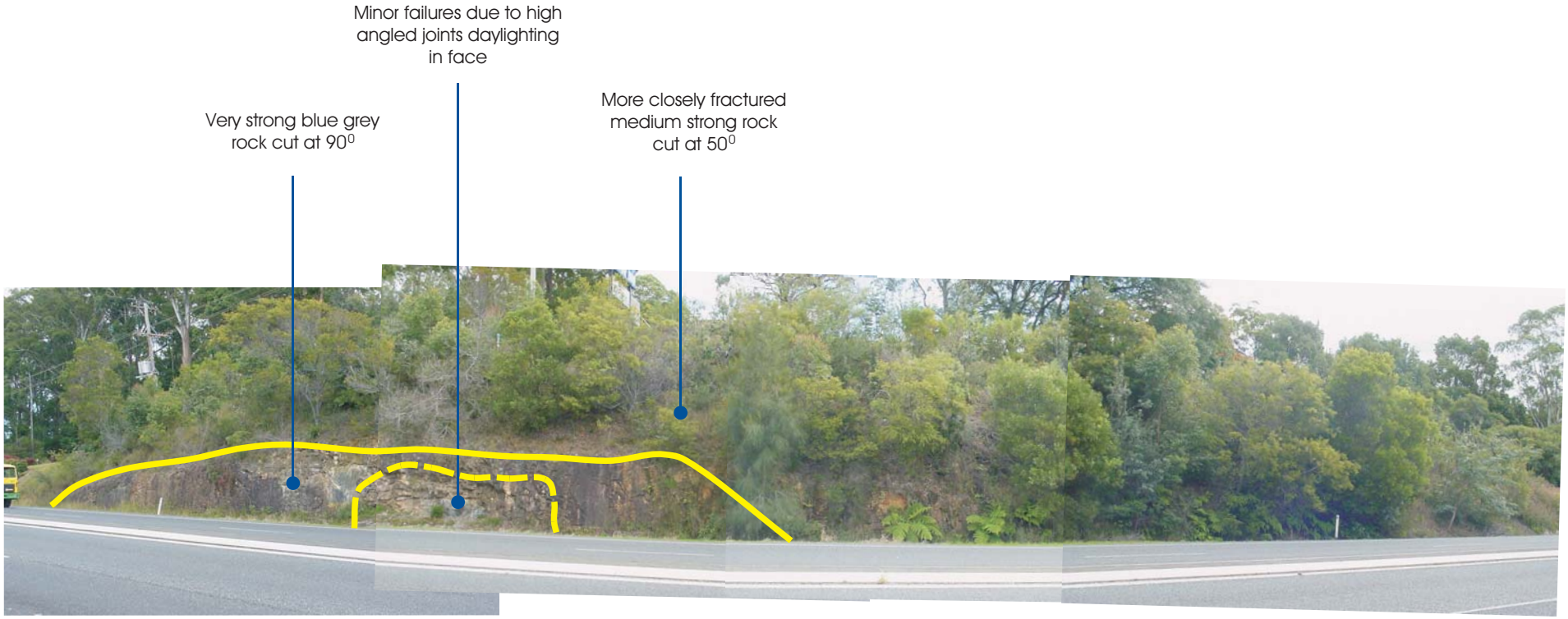
Weathered Argillite/siltstone: light blue and yellowy grey, extremely weathered extremely weak to weak rock, fragmented and laminated.

Notes

* Slope angle of cutting 50^0 slope direction 222^0
* Major slump failure and erosion gullies noted
* Rock fragmented into 20mm size blocks

NOTES

* Natural rock outcrop noted on north face of Roberts Hill
* Outcrop on private property, not possible to access area, photo taken from Coramba Road
* Appears to be blue/grey hard rock argillite



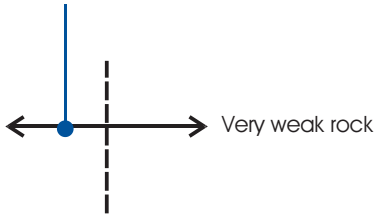
Strata, Rock Type, Description

Argillite: Blue grey, stained red brown in upper portion of cutting, distinctly to slightly weathered, medium to very strong rock, silcified, moderately closely jointed.

Notes

* Slope angle of face 90° - 50°, slope direction 120°
* 20mm Quartz seam noted in face
* Minor failures noted where high angled joints, daylight in face
* Dominant joints, dip/direction, 20/168, 82/114 (spacing 50-100mm), 88/32

Clayey silt slump failures
and erosion evident



Strata, Rock Type, Description

Weathered Argillite/Siltstone: Yellow brown, extremely weathered, extremely weak rock, breaks down to silt in hand or under light hammer blows, fragmented.

Notes

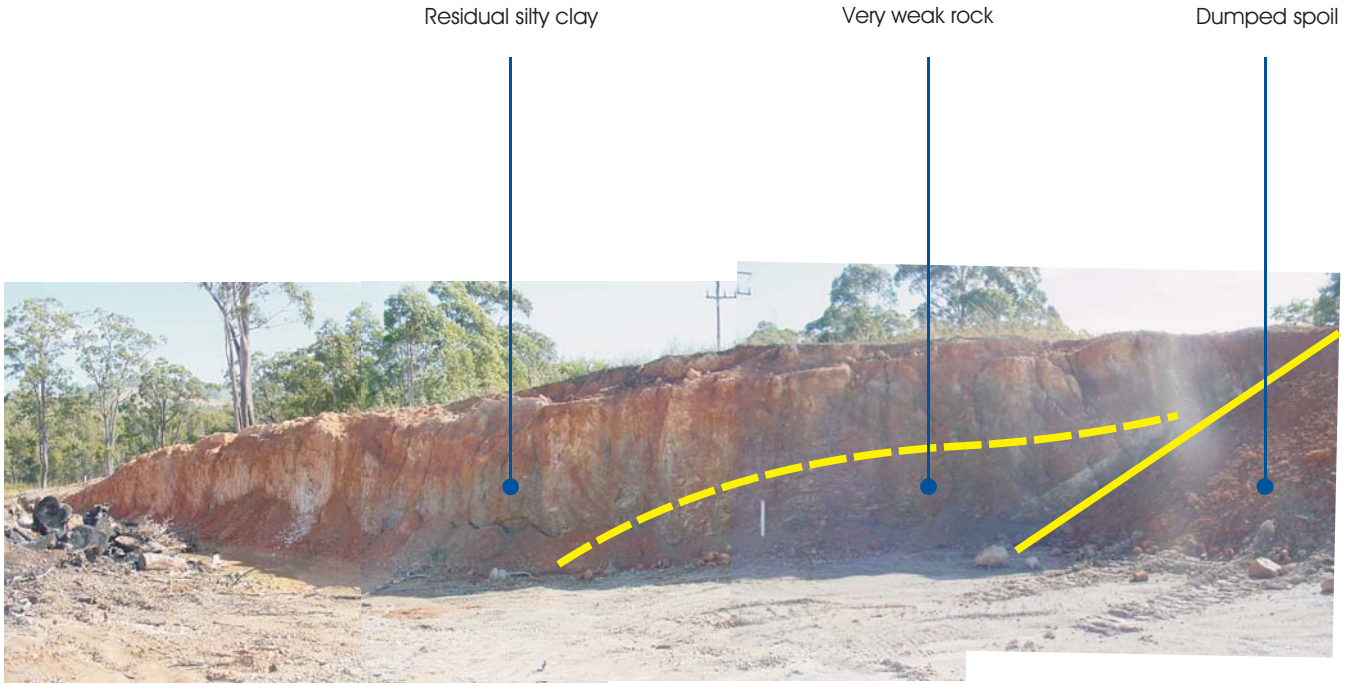
* Slope angle of cutting 50^0, slope direction 0^0
* Major slumping and erosion evident in residual clayey silt at end of cutting
* Dominant joints dip/direction 11/208, 85/18 (numerous other high angled defects noted stricking in many directions)

Strata, Rock Type, Description

Weathered Argillite/Siltstone: Yellow brown, extremely to distinctly weathered, weak to medium strong rock with extremely closely spaced defects.

Notes

* Slope angle at cutting 35^0, slope directions 25^0
* Generally rock is broken up into 20mm blocks that are loose and in-filled with silt between blocks.
* In some areas towards the base of the cut the material becomes more closely packed, with less silt infilling, but remains fragmented



Strata, Rock Type, Description

Very weak rock: Weathered Argillite: light grey and white, silicified, stained red and orange on defects, extremely weathered, defects very closely spaced.

Residual silty clay: Red and white, medium to low plasticity

Notes

* Face cut vertical
* Section of bulk earthworks for industrial area
* Spoil heaps of crushed hard rock in other areas of the site indicate hard rock argillite was also encountered during the bulk earthworks operations.

COFFS HARBOUR
WASTE DISPOSAL SITE

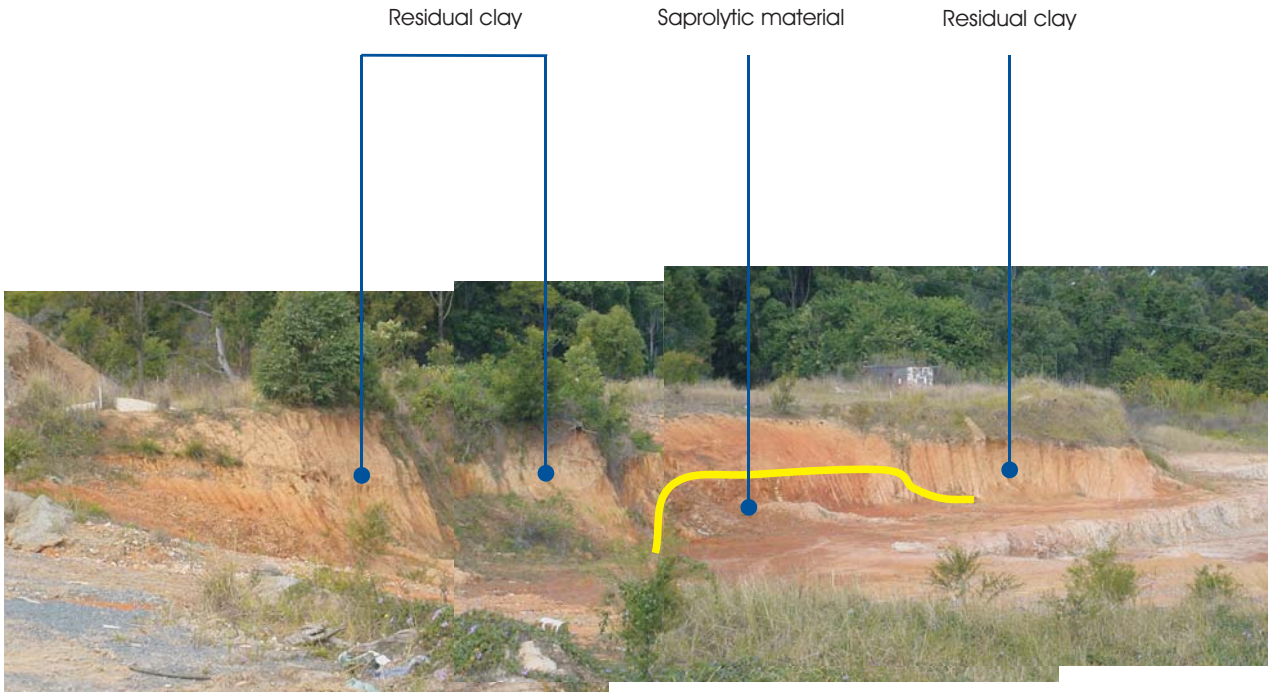
Strata, Rock Type, Description

Argillite: Dark blue, highly silcified, distinctly to slightly weathered very strong rock, defects moderately closely spaced.

Notes

* Probably site of abandoned quarry, now forms part of waste disposal site.
* Dominant joints, dip/direction, 35/170, 80/284, 85/206
* Joint spacing typically 100-300mm

COFFS HARBOUR WASTE DISPOSAL SITE



Strata, Rock Type, Description

Residual clay: Red and grey, medium plasticity, moist, stiff tending to saprolytic / very weak rock.

Notes

* Area within waste disposal site
* Occasional quartz band noted in residual and saprolytic material
* Major erosion can be seen in cut faces of residual clay