18 December 2007

Marlborough District Council
PO Box 443
Blenheim 7240

Attn: Alan Anderson

Old Mill Road, Okiwi Bay **Resource Consent U071253**
Request for further information

Please find below the additional information requested in you letter dated 14 December 2007 relating to the engineering for Barrie Large's proposed development on Old Mill Road, Okiwi Bay.

1. Increasing the loading on the wastewater system from 8 to 10 persons increases the required application area to a minimum of 307m² (10/8 x 246m² = 307m²). The application area on the Site Plan has been altered to show this increase. The area has been increased further to the north and south of the original area.
2. At present, the site comprises a benched building platform with a 2m cut at the rear, and a sloping area down to Old Mill Road on the north boundary. Additional earthworks will involve forming up the flat lawn area in front of the building platform (away from the building platform and not being certified fill. Building platform all on cut), forming a batter slope down to the wastewater disposal area and filling against the proposed retaining wall running parallel to the ROW down the east boundary. The stability of the 2m cut at the rear of the section is addressed in the Swanney report. The remaining earthworks are either retained or involve gentle slopes that are not likely to cause any instability issues.

If you require any further information, I can be contacted on 548 9870 or 021 882011

Yours faithfully,

Jeff Swanney
BE, CPEng, MIPENZ(Civil, Geotechnical)

Swanney Geotechnical and Civil Engineering
2 Bridge St,
PO Box 828,
Nelson

swanney
GEOTECHNICAL AND CIVIL ENGINEERING

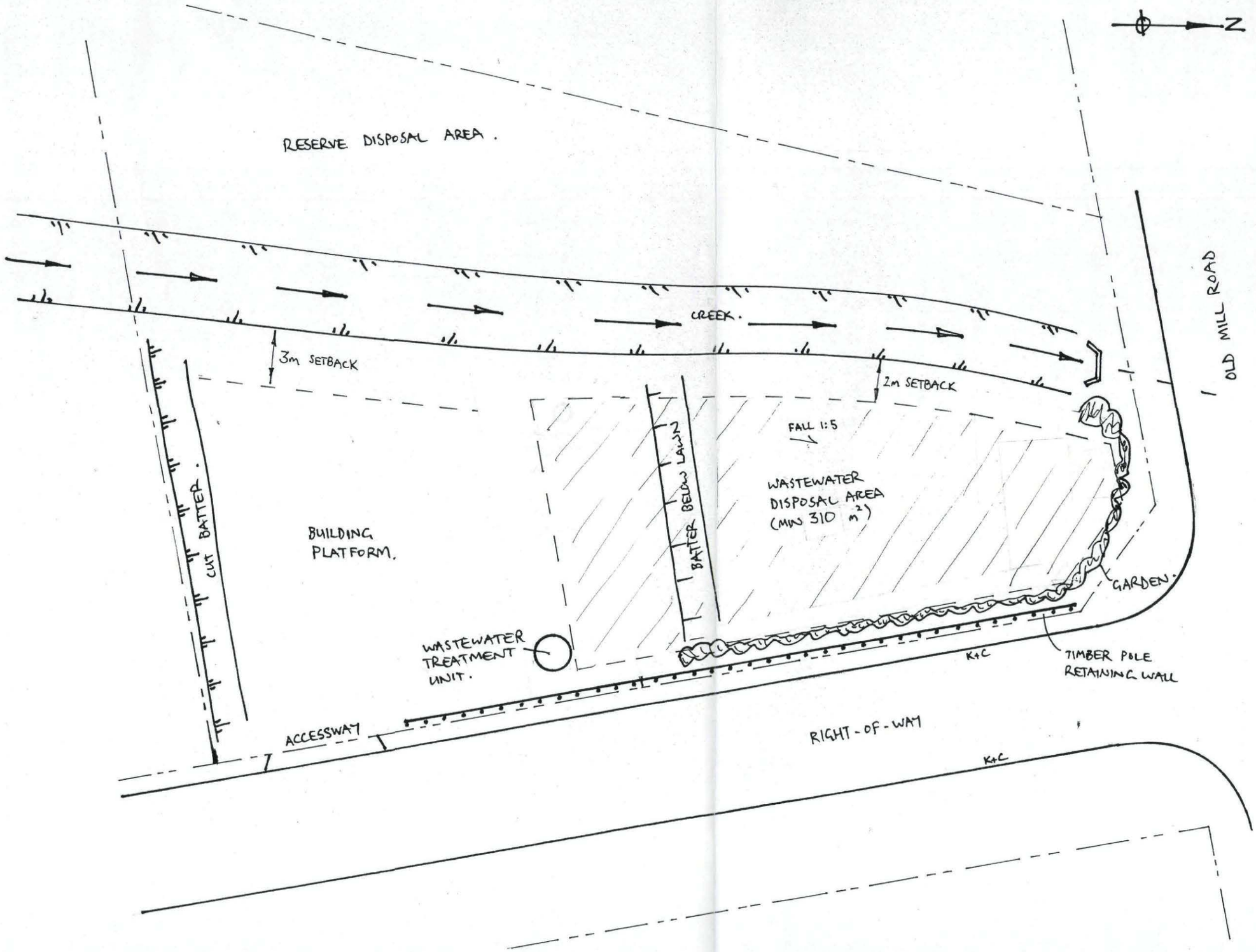
2 BRIDGE STREET
PO BOX 828
NELSON
Phone 03 548 9670
Mobile 021 882 011

Hi Alan,

Please find enclosed additional information requested.

Regards.

Jeff Swanney.



swanney
Swanney Geotechnical and Civil Engineering
PO Box 828 Nelson

Title:
SITE PLAN
Barry Large
Lot 17 DP 19155
Okiwi Bay

Design:	J Swanney
Drawn:	J Swanney
Approved:	
Scale:	1:200
Original Size:	A3
Date: ~~4 Oct 07~~ 18 DEC 07.	Job No: 1191
Sheet 1 of 1	Rev: B.

File Ref: U071253

Case Officer: Alan Anderson
14 Dec 2007

ISO 9001:2000
Form Ref CI 646

S92 request

Barrie & Jane Large
Ross Road
RD 1
Hira
Nelson 7071

Dear Sir/Madam

Request for Further Information - U071253 - Large, Barrie & Jane - Old Mill Road Okiwi Bay

I have received a letter from Mr Swanney and your email with information addressing my previous letter dated 21 November 2007. Based on this information provided it has been determined that your application for resource consent does not contain sufficient information in terms of section 92 of the Resource Management Act 1991. To enable us to continue processing it would you please provide the following information:

1. The volume of wastewater has been calculated on a four bedroom (8 person) household and does not include an additional 2 people that could be accommodated in a rumpus room. The additional loading should be factored into the design for the wastewater management system. Please provide an amended design to reflect this.

2. A Land Use consent will be required for the excavations on the site exceeding 20m^3. I note that Mr Swanney refers to a 2m high cut and batter in his Geotechnical Assessment. Please provide a Geotech opinion to cover all excavation works to support the application.

While we are waiting for this information the statutory time clock effectively stops and will restart once this information is received. If you anticipate a lengthy delay in obtaining this information, please contact us.

Please note your obligation under section 92(A) of the Act that you must, within 15 working days of the date on this letter, take one of the following options:

a) Provide the information; or

b) Advise Council in writing that you agree to provide the information *and* advise of an expected timeframe; or

c) Advise Council in writing that you refuse to provide the information.

If you have any questions regarding this request, please do not hesitate to contact me.

Yours sincerely

Alan Anderson
RESOURCE MANAGEMENT OFFICER

\\aan1....O:\Resourceconsent\2007\071251-071500\U071253-Large-S92 request-AAn1-le.doc Saved 13/12/2007 16:56:00

4 December 2007

Marlborough District Council
PO Box 443
Blenheim 7240

Attn: Alan Anderson

Old Mill Road, Okiwi Bay ***Resource Consent U071253***
Request for further information

Please find below the additional information relating to the engineering for Barrie Large's proposed development on Old Mill Road, Okiwi Bay.

1. The earthworks associated with this development includes cleaning up the building site, forming a flat lawn area in front of the house site and forming the wastewater application area further down the slope. The total earthworks will likely exceed 20m³. Barrie Large is to apply for any consents required. The timber wall along the right of way will be entirely within the boundary and will be constructed from 150 SED posts with 50mm thick lagging and will be less than 1.5m high. Details will be supplied with the building consent application.
2. Barrie Large to address
3. The ROW on the east side of the site has been cut into the natural slope, forming a cut batter within the site boundary up to approximately 1.2m high along the full length of the proposed wastewater disposal area. No boreholes were augered for this investigation as the exposed batter gives adequate soils information on which to base the design. The soils were consistent and are described in the engineering report.
4. Barrie Large to address

If you require any further information, I can be contacted on 548 9870 or 021 882011

Yours faithfully,

Jeff Swanney
BE, CPEng, MIPENZ(Civil, Geotechnical)

Swanney Geotechnical and Civil Engineering
2 Bridge St,
PO Box 828,
Nelson

File Ref: U071253

Case Officer: Alan Anderson

ISO 9002
Form Ref CI 751

21 November 2007

S88 RMA 1991
More info letter

Barrie & Jane Large
Ross Road
RD 1
Hira
Nelson 7071

Dear Sir/Madam

Receipt of application for resource consent - U071253 - Large, Barrie & Jane - Old Mill Road Okiwi Bay

The Council acknowledges receipt of the following application(s) for resource consent:

> To discharge treated domestic wastewater to land and to build within the 8 metre set back from a bank of a river and to build on the 5.5 metres roadside boundary on Lot 17 DP 19155.

I have assessed your application for completeness and have determined that further information is required to enable the application to be further processed. The information required is outlined as follows;

1. Details of excavations/fill that have been undertaken particularly the volume excavated and the area(s) that have been excavated. If excavations on the site exceed 20m³ within a continuous 10 year period then consent will be required. Additionally please provide details of the retaining walls on the site. — Height & Design.

2. Confirm that the proposed house does not have any offices/rumpus rooms etc that could be used as a bedroom.

3. Show the location of the soil test pits/augur holes on the site plan and provide the bore log results.

4. On your description of the activity you have noted that you wish to build on the 5.5m roadside boundary. Can you please expand this comment.

Please note your obligation under section 92(A) of the Act that you must, within 15 working days of the date on this letter, take one of the following options:

a) Provide the information; or

b) Advise Council in writing that you agree to provide the information *and* advise of an expected timeframe; or

c) Advise Council in writing that you refuse to provide the information.

Please do not hesitate to contact me if you have any questions or concerns regarding the above matters.

Yours faithfully

Alan Anderson
RESOURCE MANAGEMENT OFFICER

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swanney

ENGINEERING REPORT

Lot 17 DP 19155

Old Mill Road, Okiwi Bay

Prepared for:

Barry Large

Prepared by:

Swanney Geotechnical and Civil Engineering

October 2007

Table of Contents

Swanney Geotechnical and Civil Engineering
PO Box 828 Nelson
Ph 03 5489870 Fx 03 5488890

1. Introduction

Barry Large is proposing to construct a new four bedroom dwelling on his property on Old Mill Road, Okiwi Bay (Lot 17, DP19155). Development of the site is to have the dwelling at the top of the property with the wastewater disposal system on the area available downslope.

Swanney Geotechnical and Civil Engineering have been engaged to prepare an engineering report for the proposed development of the site. This report addresses the stability of the site, discusses buildings foundation requirements and proximity to the creek running through the site and details the design for the on-site wastewater management system.

2. Site Description and Proposed Development

The site is part of the subdivision at the top of Old Mill Road in Okiwi Bay. It is located on a corner section, with Old Mill Road on the north boundary and a ROW on the east. The ROW travels directly up-slope and has been cut into the slope making it typically 1m lower than the site. The two residential sections bounding the south and west sides have not been built on as yet. The site has a northerly aspect with an average gradient of approximately 1:5.

The section is divided by a creek running south-north through the site, reducing the area available for the building site and effluent disposal system to the east side of the property, an area roughly 20m wide by 50m long. A flat building platform has been benched into the top (south end) of the site with a 2m high cut batter at the rear. The area below the building platform is sloping natural ground with the spoil from the building site excavation stockpiled over part of it.

The creek runs through the full length of the section before entering a culvert under Old Mill Road just within the north boundary. The creek is fed from a small catchment to the south-west of the site. The bed is well formed with gravel and cobbles lining the base and sides. Through the site the creek runs straight with the bed of the creek approximately 1.6m minimum below the building platform. The creek gradient is approximately 1:5.

Proposed development of the site is to comprise using the stockpiled spoil from the building platform to form a flat lawn area to the north of the building platform, constructing a timber post retaining wall along the east boundary to provide more useable land area, and installation of a wastewater disposal system. The flat lawn area and the sloping land below this will be used for the wastewater disposal field. The proposed earthworks will include a slight cross-fall to the east, away from the creek.

The features of the site can be seen on the appended site plan.

3. Site Investigation

The site investigation was carried out on 2nd August 2007 by Jeff Swanney of Swanney Geotechnical and Civil Engineering. The investigation involved a walkover inspection of the site and surroundings, with particular note taken of the ground conditions exposed in the cut batters along the rear of the site and down the east boundary, and the form of the creek. Scala Penetrometer testing was attempted with refusal met in all tests at shallow depth (less than 200mm).

The geology at the site is described as clay bound gravels and minor fan deposits in the 1:250,000 Nelson Geological Map (Map 9 of the QMap series) produced by the Institute of Geological and Nuclear Sciences. The exposed cuts confirm this, with the material logged as angular to sub-angular gravels and occasional cobbles in a low plasticity silt/clay matrix. Comments from Barry Large indicate that very large boulders do occur within these soils with several encountered during the platform excavation. No groundwater seepages were noted coming form the cut batter.

4. Geotechnical Assessment

From the inspection of the site, no indications of instability were noted. The 2m high cut with a 1:1 batter at the rear of the section should remain largely in place with possibly some minor fretting of the surface. It is recommended that the exposed surface be planted out.

The creek through the site was not noted to be causing any erosion of the bed or banks and is considered unlikely to affect the land near the building site or wastewater disposal field. Blockage of the culvert at the bottom end of the section would cause water out of the streambed and across Old Mill Road, although this would not reach the level of the wastewater disposal field or the building site.

No flooding or land instability hazards are noted at the site on the Marlborough District Councils' Hazards Map covering the site.

5. Building Site

The prepared flat building platform has been benched into the natural slope with the spoil from the excavation pushed out onto the sloping ground in front. This is to be formed into a lawn area during development of the site. Based on inspection of the ground conditions and Scala Penetrometer testing, the natural and cut ground at the site is suitable for standard foundation design in compliance with NZS3604:1999 Timber Framed Buildings.

The Marlborough Sounds Resource Management Plan, General Rule 26.1.4 requires buildings and structures to be setback 8m from the top bank of river. Taking into consideration the steep gradient of the creek, the straight alignment and the 1.6m depth of channel adjacent to the building platform, it is unlikely that design flood events would leave the channel within this section of creek. The standard 8m setback is considered greater than required to provide adequate separation from flooding events. A 3m setback from the top of the bank would be considered an adequate separation distance for this site.

6. Wastewater Management

Wastewater Site and Soil Evaluation

The proposed disposal field was inspected during the site visit on 2nd August 2007. The area available for the disposal field is the area below the building platform, bounded by the creek on the west, the ROW on the east and Old Mill Road on the north. The finished profile of the area after proposed earthworks will be an upper flat portion on fill (the lawn area) and a sloping area below this, partly on fill supported by the proposed retaining wall.

The area will be formed with a slight cross-fall away from the creek to ensure all surface flows across the area flow away from the creek and into the boundary garden areas along the north and east boundaries. The garden areas will act as a buffer area, intercepting any surface flows from across the disposal area.

The ground conditions were logged in the cut along the south boundary of the site and the cut along the entire east boundary alongside the ROW. The soils in all cuts were consistent, logged as angular to sub-angular gravels and occasional cobbles in a low plasticity silt/clay matrix. The soil category in terms of Table 4.1.1 of NZS 1547:2000 has been assessed as category 4 (imperfectly drained).

Proposed Wastewater Management System

For on-site disposal of treated wastewater within the soils identified and with the limited area available, a secondary treatment plant discharging to a shallow irrigation disposal field is the most suitable. Full water reduction fixtures are required to keep flows to a minimum.

Secondary treatment of the effluent in this situation is recommended in order to keep the disposal field size to a minimum. A Biolytix treatment plant such as the BF6 3000PAT and subsurface drip irrigation is considered the most appropriate system due to the performance with irregular loadings and electricity efficiency. Network power supply is available at this site.

Using the design loading rate from AS/NZS 1547:2000 for irrigation into a Category 4 soil (25mm/week) and a design flow from the proposed four bedroom house on reticulated water supply with full water reduction features(equiv. 8 persons at 110 litres/person/day = 880 litres/day), a shallow irrigation system would require a minimum area of ~~246~~ 307 m² for the land application area. The dripper lines and emitters are to be spaced at 1m intervals. ref letter 18 Dec 07

There is available land for a reserve disposal area on the opposite side of the creek.

8. Conclusions and Recommendations

Swanney Geotechnical and Civil Engineering have carried out an investigation of the property at Lot 17 DP19155 on Old Mill Road, Okiwi Bay. The purpose of the investigation was to look at the stability of the existing cuts on site, determine building foundation requirements, assess the state of the adjacent creek and discuss building setback distances and to provide details for the design for the on-site wastewater management system.

The 2m high cut with a 1:1 batter at the rear of the section is considered stable, although some minor fretting of the surface may occur. It is recommended that the exposed surface be planted out.

Building foundation on the prepared building platform on natural and/or cut ground can be designed to the Standard NZS 3604:1999 Timber Framed Buildings.

Design flood events are considered unlikely to leave the channel within this section of creek. The standard 8m setback is considered greater than required to provide adequate separation from flooding events. A 3m setback from the top of the bank would be considered an adequate separation distance for this site.

With the limited wastewater disposal area available, a secondary treatment plant discharging to a shallow irrigation disposal field is the most suitable. Full water reduction fixtures are required. The site investigation determined the soil category as Category 4 – imperfectly drained. A minimum area of ~~246~~ 307 m² is required for the shallow irrigation disposal field. This area is shown on the appended site plan. Planted out buffer area has been designed on all downslope boundaries. A reserve area is available on the opposite side of the creek.

For the development of this site the following recommendations are made:

- Buildings are located at least 3m back from the top bank of the creek.
- Buildings foundations are designed in accordance with NZS3604:1999
- A secondary treatment wastewater treatment plant and subsurface drip irrigation is installed. A Biolytix treatment plant such as the BF6 3000PAT is considered

the most appropriate system. Other secondary treatment systems approved by MDC can be used. The dripper lines and emitters are to be spaced at 1m intervals.
- The wastewater disposal field is to be located in the position shown on the appended site plan and be planted out in either lawn or gardens.
- The earthworks proposed to form the wastewater disposal area should incorporate a slight crossfall to ensure surface water flows away from the creek and into the garden buffer areas on the north and east boundaries
- The north and east boundaries should be planted out in dense low shrubs etc

9. Limitations

The recommendations in this report are based on a site investigation and review of geological literature. This report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.

This report is not to be reproduced either wholly or in part without our prior written agreement.

10. References

New Zealand Geotechnical Society (2003): *Field Description of Soils and Rocks*

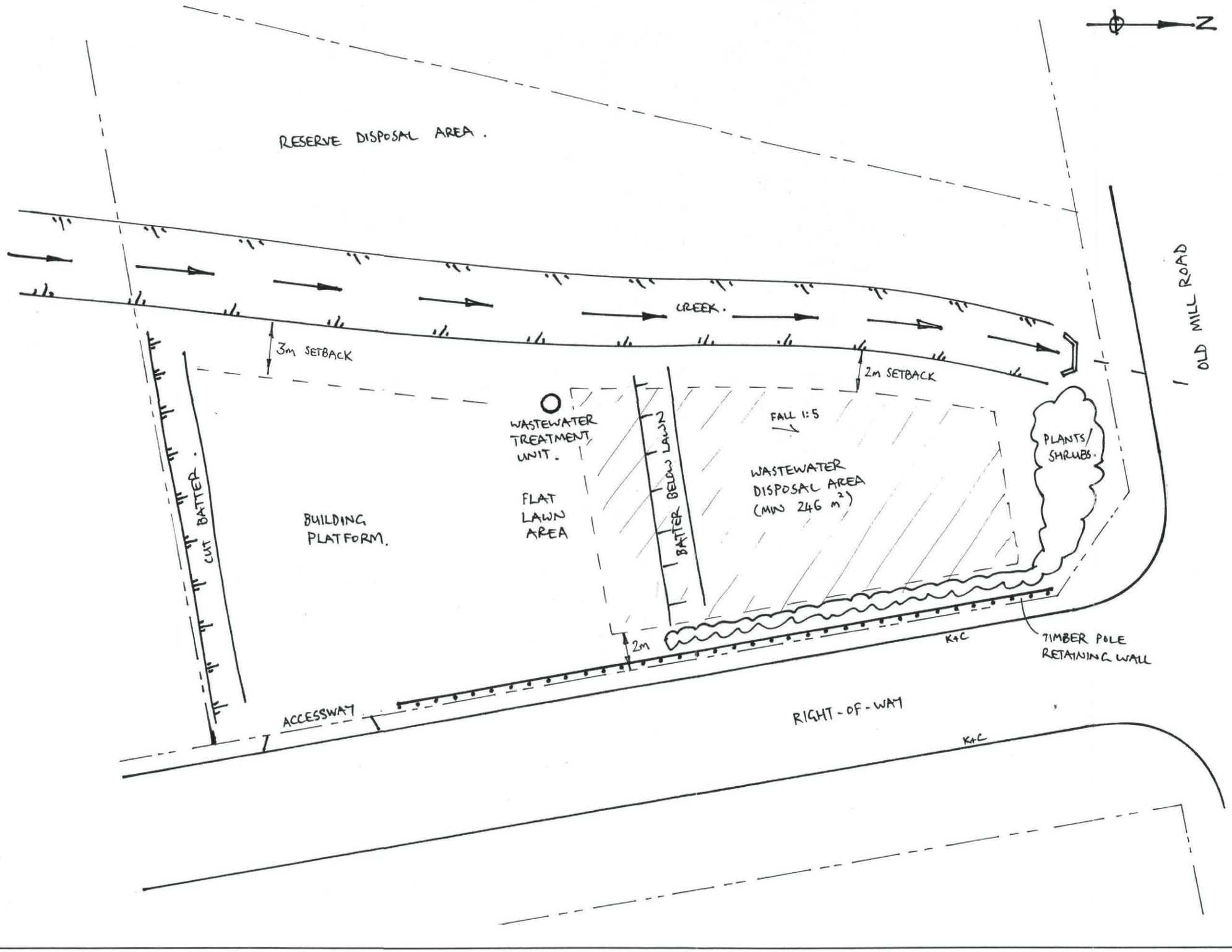
Institute of Geological and Nuclear Sciences (2000) *1:250,000 Geological Map 10 – Wellington*

Marlborough District Council (2005) *Guidelines for new on-site wastewater management systems* and *Plan Change 7: On-site discharges of Domestic Wastewater*

Standards New Zealand AS/NZS 1547:2000 *On-site domestic wastewater management*

Prepared by Jeff Swanney

Swanney Geotechnical and Civil Engineering
PO Box 828
Nelson
Ph 03 5489870 Fx 03 548888



swanney
Swanney Geotechnical and Civil Engineering
PO Box 828 Nelson

Title:
SITE PLAN
Barry Large
Lot 17 DP 19155
Okiwi Bay

Design:	J Swanney
Drawn:	J Swanney
Approved:	
Scale:	1:200
Original Size:	A3
Date: 4 Oct 07	Job No: 1191
Sheet 1 of 1	Rev:

1.0 SITE INFORMATION (Desk-top evaluation)

1.1 **Location details**

Locality: LOT 17 OLD MILL RD, OKIWI BAY.

Owner: BARRY LARGE

Address:

Phone:

Survey plan details:

Grid reference E N: Lot No: 17 DP 19155.

Aerial photo details:

Topographic map No:

Orthophotomap No:

State (Aust)/Regional Authority (NZ):

Local government:

Site Plan Details Attached (Ref No or description):

1.2 **Soil type and major soil considerations** from soil maps etc

Data source used:

1.3 **Geology of site from geological map**

1.4 **Climate**

Annual rainfall: 1400 mm Annual evaporation: mm

General comment: (rainfall intensities, seasonal variation, etc)

Data source used:

1.5 **Intended water supply source**

Public supply ✓ Rainwater (roof collection) Bore/well/dam

1.6 **Local experience with existing on-site systems**

Number of systems in locality: SUBDIVISION AT WAIRANGI BAY.

	Performance (%)	Reasons/descriptions etc
Satisfactory	NOT BUILT YET.	
Failed		
Problems evident		

Photograph(s)/video attached: (delete one) YES / NO (Specify details)

1.7 Preliminary evaluation of solutions which could be feasible:

1.0 SITE EVALUATOR(S)

1.1 Name (Principal evaluator): JEFF SWANNEY. Designation:

Company/agency: SWANNEY GEOTECHNICAL AND CIVIL ENGINEERING.

Address: PO Box 828, NELSON.

Phone: 03 5489870 Fax:

E-mail:

1.2 Additional staff involved —

Name(s): \ \
Designation(s): \ \
Involvement: \ \
Signature of Principal evaluator:
Date:

2.0 ON-SITE EVALUATION

2.1 Work undertaken

Details: SITE INVESTIGATION.
Date: 2/8/07
Weather (on day & preceding week): FINE
Photocopy of desktop study attached: YES/~~NO~~

2.2 Topography

Slope: ~ 1:5 Ground cover: BARE
Geology confirm: YES/~~NO~~
Soil landscape confirmed YES/~~NO~~
Drainage patterns:
Site Plan details attached: YES/~~NO~~
Clearance:
Boundaries: Allowable minimum: 2m. Available Y
Site Plan details attached: YES/~~NO~~
Waterways: CREEK THROUGH PROPERTY.
Stands of trees/shrubs: ALONG CREEK.
Well, bores: —
Embankment: —
Buildings: —
Other (specify) —
Site history (land use): —

2.3 Site exposure

Site aspect: NORTHERLY
Pre-dominant wind direction: ?
Presence of shelter belts: NIL
Presence of topographical features or structures:

2.4 Environmental concerns (e.g. native plants intolerant of phosphorus load, high water-table, swamp, waterway etc)

2.5 Site stability

Is expert assessment necessary? ~~YES~~/NO (Delete one)
If YES, attach stability report and give details here of:
Author: Designation:
Company/Agency: Date of Report:

2.6 Drainage controls

Depth of seasonal water-table: WINTER SUMMER EPISODIC
Need for cut-off drains/diversion banks? NO
Need for surface water collector/cut-off drains? NO.

2.7 Availability of reserve/setback areas (show details on sketch plan)

Reserve area available for extensions: REFER TO REPORT.
% of design area:
Setback distance? (between site development and on-site disposal design and reserve areas)

2.8 Photographs attached: YES/NO (Specify details)

3.0 SOIL INVESTIGATION

3.1 Soil profile determination

Method: Test pit Borehole
Other (specify) EXPOSED CUTS FULL LENGTH OF SITE.

3.2 Reporting: (Attach detailed soil/report as appropriate, see Soil Profile Information and Data Sheet, Figure 4.1A1)

3.3 Estimated Soil Category: (refer to Table 4.1.1 and Clause 4.1.4.1) CATEGORY 4.

Summary:

Site test	1	2	3	4	5	6	7
Soil category							

Remarks:

3.4 **Recommended DLR**, refer to Clause 4.1.4.2. SHALLOW SUBSURFACE IRRIGATION.

Reasons for DLR recommendations: 25 mm/week.

4.0 GENERAL COMMENTS

4.1 Groundwater quality issues

Results of desktop study have been confirmed/amended on attached photocopy. Remaining matters of concern are listed below.

4.2 Type of land-application system considered best suited to site and why

4.3 Overall evaluation of minimum land-application area for the site (comprising, absorption area, space between and surrounding the absorption area elements, set-backs and the reserve area).

4.4 Results of consultation with other interested parties (neighbours, environmental agencies, local environmental groups etc)

4.5 Other comments e.g. special precautions which may be needed

* Taken from AS/NZS 1547:2000, with permission from Standards New Zealand. AS/NZS 1547:2000 can be purchased from Standards New Zealand at www.standards.co.nz

Swanney
Geotechnical and Civil Engineering

Client: B. LARGE
Date: 1 OCT 07.

Project: LOT 17 OLD MILL RD.
Job No. 1191

Subject:
By: JS Page: 1.

ON-SITE WASTEWATER CALC'S.

Design Flow.

4 bedroom house → Design occupancy = 8

Flow allowances - reticulated supply
- full water reduction features

→ 110 l/p/day.

Design flow = 8 × 110 = 880 l/d.

Land Application Area.

Using drip line irrigation & secondary treated effluent.
- Soil category 4 (see report) → DIR = 25 mm/wk.

$$A = Q / (DIR/7)$$

$$= \frac{880 \times 7}{25}$$

$$= 246 \ m^2.$$