Province of

British Columbia

Ministry of Transportation

and Highways

Subdivision Application

· Ministry File # 12987

Please explain your p	proposal 3.	Please	read	and	sign	below
-----------------------	-------------	--------	------	-----	------	-------

- ☐ Conventional ☐ Sec. 996, Municipal Act
 ☐ Bare Land Strata ☐ Metes and Bounds
 ☐ Heave enclosed the plans which are dated

FEBRUARY \$/93 and accurately show all pertinent information that is listed on the cover page; and

- I have verified that all required field works as listed on the cover page have been carried out.
- · Check the following enclosures if applicable:
- Enclosed is a complete soil percolation test data sheet.
- Enclosed is a copy of B.C. Agricultural Land Commission Approval (if in A.L.R.).
- Other enclosures or comments (Please note additional information on back of form).
- I certify that all the information above and on all plans and other attachments is true, correct and complete.

I am making application on behalf of, and with full knowledge and consent of the owner(s) as listed above.

I understand that this submission constitutes an application only and that no approvals are implied prior to receipt of written approval from the Ministry of Transportation and Highways

9232 (everynnes)

ON Confact LYNDA KEMP @ 757-2466. (Office

s.22

Signature of Applicant

Applicant's File #

Jet. 10, 1993

SAME AS AROUG

· The owner(s) full name(s) (if different from

The full legal description(s) as per State of Title Certificate(s) of all properties involved and is:

The intended land use for each lot (including remainder) is as shown on plan \square and/or as

The applicant/agent's full name and address:

PLAN 34271

· The existing land use is: Nacan

2. Information about the

owner(s)/applicant

Ministry Office:

Method of communication preferred:

Reg. Mail WFAX
Courier (at my cost)

ENVIRONMENTAL CONSULTANTS LTD.

Ph: (604) 752-1009 1538 Sunrise Dr., French Creek, B.C. V9P 1X7

Lot	2	Plan	34271	DL/BI採	_//_	Dist.	NANOOSE
-----	---	------	-------	--------	------	-------	---------

Proposed/existing: Lot # _____

Soils Dafa Hole # T.H. /	1
 24 in. TOPSOIL 12 in. BROWN, SAND 22 in. SAND/GRAVEL inin.	
56 in. WATER TABLE	

Perc test	data	
Hole # P.4. (18 in 19 in.	in in
filling # Filling # filling # filling #	/:/0 min. /:20 min. /:20 min. min. min.	min. min. min. min.

Perc Rate of: 1:20 min./in. <at depth of 18 in.- 19 in.>

Proposed/existing: Lot # ____

Soil Hol	s Data e # T.H. Z
3 in. 16 in. 32 in. In. in.	TOPSOIL LOGM/SAND SAND/GRAVEL
<u>51.</u> in.	permeable soil to

Perc test data Hole # P.H. 2 /8 in /9 in. in in. filling #	Perc test	data	
Filling #	Hole # P.H. 2	18 in19 in.	in in
	Filling # filling # filling #	2:00 min. 2:00 min. min.	min. min. min.

Perc Rate of: 2:00 min./in. <at depth of /8 in.- 19 in.>

Proposed/existing: Lot # ____

	s Data # T.4. 3
3 in 30 in 20 in In	TOPSOIL LOAM SAND/GRAVEL
53 in.	permeable soil ±0=

Perc test	data			-
Hole # P.H.3	in	in.	in	in
filling # Filling # filling # filling # filling #	155	min. min. min. min. min.		min. min. min. min. min.

Perc Rate of: :55 min./in. <at depth of /8 in.- /9 in.>

There may be minor discrepencies in depth of permeable soil depending on points of measurement. The depths recorded here are the maximum depths.

All perc tests were conducted pursuant to Schedule 1 of the Sewage Regulations / Appendeix B of the subdivisiion Regulations.

DATE Feb. 4/93

PERFORMED BY Dave Anden

ANDERNON ENVIRONMENTAL CONSULTANTS LTD

Ph: (604) 752-1009

1538 Sunrise Dr., French Creek, B.C. V9P 1X7

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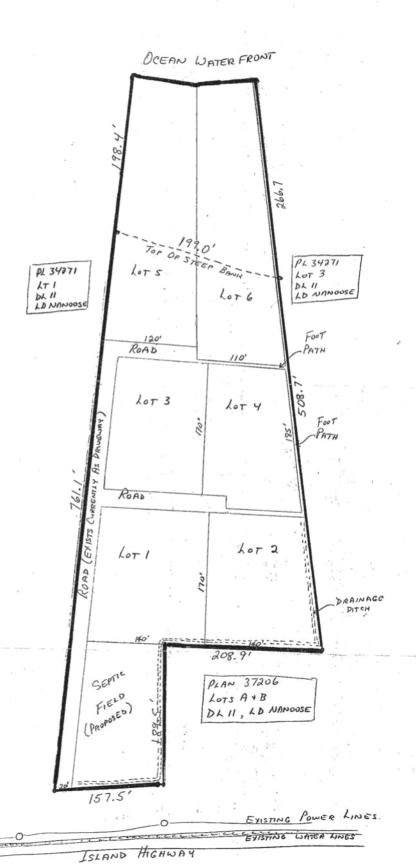
All perc tests were conducted pursuant to Schedule 1 of the Sewage Regulations / Appendeix B of the subdivision Regulations.

PERFORMED BY Jave Buden

PROPOSED SUBDIVISION PLAN OF

LOT 2 PLAN 34271 DL 11 LD NANDOSE FEBRUARY 8,1993

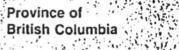
N 1/8" = approx 10'











BC, Environment Vancouver Island Region Regional Headquarters 2569 Kenworth Road Nanaimo British Columbia V9T 4P7

Telephone: (604) 751-3100

Ministry of Environment,
Lands and Parks

April 23, 1993

File: 58000

(see attached distribution list)

Gentlemen:

5.75 A 1.75

Re: Referral Responses from B.C. Environment
Vancouver Island Region

Due to current staff shortages, this office finds itself in a difficult position with respect to some areas within our referral system.

As a result, we will be unable to provide normal referral responses for the following issues:

Ministry of Transportation and Highways: Subdivision, road and bridge construction referrals.

Royston to Deep Bay: Ministry of Transportation and

Highways, Courtenay

Deep, Bay to Lantzville: Ministry of Transportation

and Highways, Nanaimo

Note: Review by Water Management, pursuant to Section 82 of the Land Title Act will continue.

Regional Districts (Municipalities): Rezoning applications and changes to Official Settlement Plans, etc.

Royston to Deep Bay: Comox Strathcona Regional

District, Courtenay

Deep Bay to Lantzville: Regional District of Nanaimo

Our office will continue to review major projects and planning items, such as the Union Bay/Weldwood Land proposal and major Land Use studies (e.g. Draft Official Settlement/Community Plans).

Ministry of Environment, Lands and Parks (Crown Lands Division): Crown Land leases for upland and foreshore/marine sites (Please see attached map for boundary).

During this period, we request that your agency consider our Ministry's concerns in a manner that reflects our policies of the past. This would require that items such as Returnto-Crown and Restrictive Covenants be placed on subdivisions where necessary.

We expect that referrals will continue to be directed to this office to provide continuity, unless your agency would find it simpler to cease sending referrals where our response cannot be made. We hope that matters can be resolved such that participation by our office can be reestablished soon. We apologize for any inconvenience this may cause you. Please feel free to contact me at 751-3100 should you wish to discuss this.

Yours truly,

Earl Warnock

Regional Director

Vancouver Island Region

cc: G. Koyle, Assistant Deputy Minister

- D. C. Morrison, Head, Habitat Protection Section
- M. R. Whately, Regional Fish and Wildlife Manager
- S. J. Erickson, Referrals Coordinator
- Dept. of Fisheries and Oceans, South Coast Division



Province of British Columbia

Ministry of Environment, Lands and Parks

BC

Vancouver Island Region 1 Regional Headquarters 2569 Kenworth Road Nanaimo British Columbia V9T 4P7 Telephone: (604) 751-3100

February 24, 1993

File: 0758/03 Newcastle

Your File: 06-002-12530

Ministry of Transportation and Highways 301 - 190 Wallace Street Nanaimo, B.C. V9R 5B1

ATTENTION: N. Vandermolen

Dear N. Vandermolen:

Re: Lot 1, District Lot 11, Newcastle District, Plan 34271

Reference is made to your correspondence dated October 23, 1992. We do not anticipate any conflicts with our resources, provided that the following conditions are adhered to.

The proposal fronts on extremely sensitive estuarine habitats of the Little Qualicum River. The area forms a critical component of habitat for the salmon and trout populations of the river, and provides habitat for wildlife species of a wide variety. During field inspection, we noted approximately 20 bald eagles, 12 trumpeter swans, a variety of waterfowl, and hundred of gulls.

In addition, steep escarpments along the river maintain large trees for eagle perching habitats, and also contain areas where slop?failures appear to have occurred.

To conserve these values, we suggest that:

- (1) any areas below the high water mark of the sea or the Little Qualicum River be Returned-to-Crown;
- (2) steep banks, perching trees, and any low areas along the sea be protected by Return-to-Crown or Restrictive Covenant that extends 15 m beyond the top of the bank (or to a distance beyond determined by geotechnical evaluation).

Yours truly,

R. R. Diederichs, R.P.Bio. Fish and Wildlife Habitat

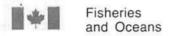
R. Diederichs

Protection Technician

cc: D. Moore, Water Management

S. Erickson, Processing Section

R. Webb, Department of Fisheries and Oceans, Parksville



District Supervisor Nanaimo District Room 304 - 60 Front Street Nanaimo, B.C. V9R 5H7 (604) 754-0235 Fax (604) 754-0309

UNCLASSIFIED

Your file Votre référence

0600212987 Our file Notre référence

8464-4 (93-17)

April 16, 1993

Ministry of Transportation & Highways Central Island 301 - 190 Wallace Street Nanaimo, British Columbia V9R 5B1

Attention: Nick Vandermolen

District Dev Technician

Dear Sir:

BARELAND STRATA OF LOT 2, DISTRICT LOT 11, NEWCASTLE DISTRICT, PLAN 34271

This is to advise that the Department of Fisheries & Oceans has no objection to the above-noted referral provided there is no removal of vegetation beyond the bank crest in order to maintain soil stability.

Yours truly,

R.A. (Kip) Slater District Supervisor Nanaimo District

RAS/gdc

cc: Rick Higgins - SCD/Habitat

Jack Leonard MacIsaac



Fisheries and Oceans

Pêches. et Océans

District Supervisor Nanaimo District Room 304 - 60 Front Street Nanaimo, B.C. V9R 5H7 (604) 754-0235 Fax (604) 754-0309

UNCLASSIFIED

Your are Votre relatence 0600212987 Out the Name reterence

8464-4 (93-17)

April 16, 1993

Ministry of Transportation & Highways Central Island 301 - 190 Wallace Street Nanaimo, British Columbia V9R 5B1

Attention: Nick Vandermolen

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R.A. (Kip) Slater District Supervisor Nanaimo District

RAS/gdc

Rick Higgins - SCD/Habitat

Jack Leonard MacIsaac



Province of British Columbia

Ministry of Environment, Lands and Parks

BC Environment

Vancouver Island Region 1 Regional Headquarters 2569 Kenworth Road Nanaimo British Columbia V9T 4P7 Telephone: (604) 751-3100

April 5, 1993

Your File: 06-002-12987

Our File: 4-21-120-5

Ministry of Transportation and Highways 301-190 Wallace Street Nanaimo BC V9R 5B1

Attention: Nick Vandermolen

Dear Nick Vandermolen:

Re: Proposed Bare Land Strata Subdivision of Lot 2, District Lot 11, Newcastle District, Plan 34271.

This letter is in reply to your correspondence of February 15, 1993.

As the duly authorized designate of the Minister of Environment, Lands and Parks, consent is hereby given on his behalf, pursuant to Section 3(3) of the Bare land Strata Regulations B.C. Reg. 7/78 as amended by B.C. reg. 310/85, for the approval of the above mentioned plan of subdivision, subject to the subdivider entering into a covenant registrable under section 215, which shall run with the land, and shall effect the following conditions for each lot as designated:

Proposed New Lots 5 and 6.

"1. Hereafter, no building shall be constructed, nor mobile home located within fifteen (15.0) metres of the natural boundary of the sea.

The coastal floodplain setback may be reduced to seven point five (7.5) metres where the ocean frontage is adequately protected from erosion by a natural bedrock formation; or works designed by a Professional Engineer with provision for maintenance; such maintenance to be assumed to be the responsibility of the owner.

2. Hereafter, no area used for habitation, business, or storage of goods damageable by floodwaters shall be located within any building at an elevation such that the underside of the floor system thereof is less than one point five (1.5) metres above the natural boundary of the Sea.

In the case of a mobile home, the ground level or top of concrete or asphalt pad on which it is located shall be no lower than the above described elevation.

- 3. The required elevation may be achieved by structural elevation of the said habitable, business, or storage area or by adequately compacted landfill on which any building is to be constructed or mobile home located, or by a combination of both structural elevation and landfill. No area below the required elevation shall be used for the installation of furnaces or other fixed equipment susceptible to damage by floodwaters. Where landfill is used to raise the natural ground elevation, the toe of the landfill slope shall be no closer to the natural boundary than the setback requirement given in Condition (1) above. The face of the landfill slope shall be adequately protected against erosion from flood flows.
- 4. The owner acknowledges that the Province of British Columbia does not represent to the owner or any other person that any building constructed or mobile home located in accordance with conditions (1) and (2) herein will not be damaged by flooding or erosion, and the owner covenants and agrees not to claim damages from the Province or Regional District of Nanaimo or hold the Province or Regional District responsible for damages caused by flooding or erosion to the land or any building, improvement, or other structure built, constructed or placed upon the said lands and to any contents thereof."

The following declaration is to be endorsed on the subdivision plan:

The registered owners designated hereon hereby acknowledge that the land affected by this plan of subdivision may be subject to flooding and declare that they have entered into a covenant in favour of Her Majesty the Queen in the right of the Province if British Columbia, as represented by the Minister of Environment, Lands and Parks and the Regional District of Nanaimo, under Section 215 of the Land Title Act.

		(Covena	antor)	Mil
Dated	at		,19	

The covenant must be tendered with the application to deposit the subdivision plan. The covenant must have the following statement typed or stamped on it and signed by the Approving Officer:

This is the instrument creating the condition or covenant entered into under Section 215 of the Land Title Act by the registered owner(s) referred herein and shown on the print of plan annexed hereto and initialled by me.

Approving Officer

These covenant conditions are to be registered with priority over any financial charges registered against the property.

This consent to the approval of the proposed subdivision applies only to the requirements under Section 3(3) of the Bare Land Strata Regulations, and does not apply to any other approval which may be required.

Our review of the proposed subdivision revealed that there is a steep slope within the proposed subdivision, where it is felt soil stability could be a potential hazard. As approving Officer, you may wish to have the subdivider provide a report certified by a professional geotechnical engineer that the proposed new lots may be used safely for the use intended.

... 3

Please submit a copy of your decision regarding this proposed subdivision and, if approval is granted, please forward a copy of the covenant to be registered as required under Section 3(3) of the Bare Land Strata Regulations.

If you require any further information, please contact the Regional Water Management office in Nanaimo at 758 3951.

Yours truly,

D. F. Moore

Water Management Technician Ministry of Environment Lands and Parks

cc: Regional District of Nanaimo



Regional District of Nanaimo 6300 Hammond Bay Road P.O. Box 40, Lantzville, B.C., VOR 2HO

SUBDIVISION REVIEW FORM

Highways File No.: 06-002-12987

Date Received * March 9, 1993 Date Processed : March 10, 1993

Electoral Area : G RDN Map Ref. : 16 16

B.C.A.A. Folio No. : 769-11561.020

PROPERTY DESCRIPTION

Owner / Agent : Jack MacIsaac

Legal Description : Lot 2, District Lot 11, Newcastle District, Plan 34271

Total Land Area: 2.0255 ha

Land Use - Current : N/A

No. of New Lots: 5

Land Use - Proposed : N/A

APPLICATION FEE

Total Fee Payable : \$80.25

Receipt No. : 16480

Date Received : March 10, 1993

RDN STATUS

The Proposed Subdivision shall conform with the requirements of "Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500,1987" and all other applicable bylaws of the Regional District of Nanaimo.

Zone Classification

: Residential 2

Subdivision District

:

Amendment Application : N/A

Development Permit Area

: N/A

Heritage Conservation Area :

N/A

A.L.R. Status

: N/A

A.L.R. Application No.

N/A :

Official Community Plan

: Shaw Hill-Deep Bay O.C.P. Bylaw No. 790

O.C.P. Designation

: Suburban Residential

Page 17 of 92 TRA-2020-08664

SERVICES

Where a proposed subdivision is to be serviced by a community water or sewer system, detailed design and specifications of the system shall be submitted to the Regional District for approval prior to construction and final approval.

Minimum Parcel Size Requirements with " M " Subdivision District

Community Water & Sewerage Systems : 2000 m²

Community Water System : 2000 m²

No Community Systems : 1.0 ha

Approval of this subdivision proposal is recommended subject to:

Approval of this subdivision proposal is not recommended for the following reasons:

- Road dedications as required by the Ministry of Highways. Please note that there
 is a similar proposal on the lot adjacent to the west (Lot 1, Plan 34271) which
 may require the facilitation of a common access or east/west road dedication.
- 2. The applicant requires confirmation of approval from the Little Qualicum Waterworks District for additional connections to the community water system.
- 3. Ministry of Health to approve method of sewage disposal for the proposal.
- 4. Applicant to comply with Section 992 of the Municipal Act regarding parkland dedication or cash-in-lieu.
- 5. Ministry of Environment to comment with respect to additional setbacks from the sea or the requirement to protect the bank by restrictive covenant.

Yours truly,

Planning Assistant

MINISTRY OF TRANSPORTATION & HIGHWAYS

MAR 2 9 1993

RECEIVED
CENTRAL ISLAND DISTRICT

NOTE: Where Regional Board approval is required for frontage relaxation (Section 994 of the Municipal Act) or provision of parkland/cash-in-lieu (Section 992 of the Municipal Act) the applicant should contact Regional District planning staff subsequent to the issuance of the Ministry of Highways preliminary layout approval.



incorporated august 24, 1967.

06-002-12987 Our File:

Your File:

February 25, 1993

Jack Leonard MacIsaac 210 West 2nd Avenue QUALICUM BEACH, B.C. **VOR 2TO**

Dear Sir:

cc:

Re: Highways File No. 06-002-12987

A copy of your proposed plan of subdivision has recently been forwarded by the Ministry of Transportation and Highways to this office for our consideration.

We will provide recommendations and comments to the Highways District office upon receipt of the subdivision application fee pursuant to Schedule '7C' of Regional District of Nanaimo Land Use and Subdivision Bylaw No. 500.

The total application fee for your 6 lot subdivision proposal is \$80.25. The fee includes G.S.T. in the amount of \$5.25 (G.S.T. #R107882953).

REGIONAL DISTRICT OF NANAIMO

Peter Wightman, Ministry of Highways, District Office



Province of **British Columbia**

Ministry of Health

Director Central Vancouver Island Health Unit 1665 Grant Avenue Nanaimo, B.C. V9S 5K7 Telephone: (604) 755-6200

Fax: (604) 755-2397

BRANCH OFFICES:

DUNCAN 746-1350

LAKE COWICHAN 749-6878 Fax: 746-1330 Fax: 749-6200 LADYSMITH 245-7119 Fax: 245-3993

PARKSVILLE 248-2044 Fax: 248-8624 PORT ALBERNI 724-1281 Fax: 724-9311

UCLUELET 726-4242 Fax: 726-7044

P.O. Box 1210, Parksville, B.C. V9P 2H2

February 23, 1993

File #06-002-12987

Mr. Nick Vandermolen, District Development Technician, Ministry of Highways, #301 - 190 Wallace St., Nanaimo, B.C. V9R 5B1

Dear Mr. Vandermolen:

Subdivision of Bareland Strata of Lot 2, Plan 34271, D.L. 11, Newcastle District, RE: West Island Highway

I have inspected this property and upon receipt of the following I will be in a position to recommend in favour of the proposal.

- Submission of engineered drawings showing the proposed sewage disposal system consisting of 1. small bore pressure distribution, visual and audio high water alarm system, 50% reserve field area, 10 foot centres and all other appurtenances.
- A letter from the development company principal must be submitted accepting responsibility for 2. operation and maintenance of equipment until such time that the strata council is formed.
- After the permit to construct a sewage disposal system has been issued and the system installed 3. as per engineered drawings, submission of sealed signed as built drawing.

If you have any questions, I can be contacted at 248-2044.

Richard Hicks CIPHI(C)

Environmental Health Officer II

RH:wi

CC:

D. Coombe C/EHO Jack MacIsaac

Board of Trustees

LITTLE QUALICUM WATER WORKS DISTRICT c/o Mrs K. Buckowski, (Secretary) 3740. Island Hwy West, Qualicum Beach, B.C. V9K 2G7.

For Information Telephone 752 - 6415 752-6266.

File No.06-002-12987. February 25, 1993.

Ministry of Transportation and Highways, #301 - 190 Wallace Street, Nanaimo. B.C. V9R 5B1

Attention: Mr Nick Vandermolen.

Dear Sir,

RE: Bareland Strata of Lot 2, District Lot 11, Newcastle District, Plan 34271.

We have examined the plan for a proposed subdivision regarding the above captioned property which is located 3 km north of Qualicum.

The Trustees give approval in principle to the proposed subdivision subject to permits and requirements being met.

Yours truly,
Kathleen Buckowski (Secretary to the Trustees)

kpb/-

Copy to Jack Leonard MacIsaac.

Min	istry of Transportation and Highways	TELEX/FACSIN	MILE RECO	RD	Date File No	
VIA:	TELETYPE	RADIO	_ FACSIN	AILE	and a process	The state of the s
O:	Nick Vandermolen	echnician	(FEX)	Provin Britisi	nce of n Columbia	Ministry of Transportation and Highways vancouver island region
		Central Island District		Judy Ro Regional Technici		8475 Matrai Drive Nanaimo British Columbia V9T 2L9
۷: 	February 18, 1993 PHO	ONE No.		Phone:	(604) 390-8178	
FAX No.	TELEX No		1		(504) 390-6170 (504) 390-6191	
:UBJECT:	Proposed Bareland Stra	06-002-12987	i lot 2, D.	1. 11	, Newcase	
	Planning staff have re should be acquired for west. In addition, ri property, tying into t west is required.	frontage road to	the east to	the a	boundary	of the
	No direct access to the	ne Highway will h	e permitte	i.		
	This is reviewed from perspective only and approval of subdivision	is not to be cons	ransportationstrued as t	on an	d Highways proving Of	Planning fficer's

Judy Robertson

Regional Development Technician Vancouver Island Region

JR/ved

cc: 06-002-12530

PAGES:_ (including this sheet) Operator's Signature H6 (88/06: MFI-2040 Page 22 of 92 TRA-2020-05654

CO WORLD

Singatulu



Province of British Columbia Ministry of Transportation and Highways

Central Island 301 190 Wallace Street Nanaimo, BC

V9R-5B1

Phone: (604) 755-2351 Fax: (604) 755-2348

Applicant file:

Our file: 06-002-12987

February 15, 1993

RESEIV

MINISTRY RESPONSIBLE FOR CULTURE - ARCHAEOLOGY BRANCH
5TH FLOOR
800 JOHNSTON STREET
VICTORIA, BC
V8V 1X4

Dear Sir/Madam:

RE: Bareland Strata of Lot 2, District Lot 11 District, Plan 34271

Enclosed herewith please find a copy of a plan for a proposed subdivision regarding the above captioned property which is located 3 km north of Qualicum.

It would be appreciated if you would examine this subdivision from the viewpoint of your regulations and policies and give us your comments.

Please send your reply to this office, with a copy to the applicant:

Jack Leonard MacIsaac 210 West 2nd Avenue Qualicum Beach, BC VOR 2TO

and contact the applicant for any additional information you may require.

In order to expedite the processing of the application, could you please reply within 40 days.

Yours truly,

NICK VANBERMOLEN

DISTRICT DEV TECHNICIAN

NPV/ces

9248



Province of British Columbia

Ministry of Environment, Lands and Parks

BC Environment

Vancouver Island Region 1 Regional Headquarters 2569 Kenworth Road Nanaimo British Columbia V9T 4P7 Telephone: (604) 751-3100

May 21, 1993

Your File: 06-002-12987

Our File: 4-21-120-5

Ministry of Transportation and Highways 301-190 Wallace Street Nanaimo, B.C. V9R 5B1

ATTENTION: Nick Vandermolen

Dear Nick Vandermolen:

Re: Proposed Bare Land Strata Subdivision of Lot 2, <u>District Lot 11, Newcastle District, Plan 34271.</u>

Further to our letter dated April 5, 1993. Please be advised by this letter that, we have reinspected the proposed plan of subdivision and do not consider the flood hazard to be such that it warrants the registration of a restrictive building covenant. In view of this, as duly authorized designate of the Ministry of Environment, Lands and Parks, I hereby consent on his behalf, pursuant to Section 82, of the Land Titles Act, for the approval of the above-noted subdivision.

Our review of the proposed subdivision revealed that there is a steep slope within the proposed subdivision, where it is felt soil stability could be a potential hazard. As approving Officer, you may wish to have the subdivider provide a report certified by a professional geotechnical engineer that the proposed new lots may be used safely for the use intended.

If you require any further information, please contact the Regional Water Management office in Nanaimo at 751-3100.

Yours truly,

MINISTRY OF TRANSPORTATION

& HIGHWAYS

D. F. Moore

Water Management Technician

MAY 27 1993

RECEIVED
CENTRAL ISLAND DISTRICT



B.C. LAND SURVEYOR

Our file: 93-327-S

Your file: 06 002 12987

1993-06-02

Ministry of Transportation & Highways # 301 - 190 Wallace St.
Nanaimo, B.C.
V9R 5B1

Attention: Mr. Nick Vandermolen

Dear Nick:

Re: Proposed Subdivision Plan of Lot 2, Plan 34271, D.L. 11, Newcastle District

We wish to address items A to E in your letter of non-approval dated 26 May/93.

- A. Enclosed please find original and two copies of geotechnical report prepared by HBT Agra
- B. We request relaxation of the requirement of access to water. This site has a very steep bank (up to 45%, as stated in the geotechnical report) and it is not conclusive to road construction. The geotechnical report suggests that vegetation not be removed from the bank. We also wish to point out that there is a 10 metre road access approximately 140 metres west of the northwest corner of this site.
- C. Our client will be paying cash-in-lieu of parkland dedication.

- D. Plan has been amended to show roads as common property.
- E. Little Qualicum Water Works District has given approval in principal to this subdivision (see enclosed letter).

Please note that proposal has been amended to have common access (common property) in the middle of the site instead of along the west boundary. However, this does not change the areas of the proposed lots or impact the proposed septic disposal area.

Yours truly

Helen MacPhail Sims Office Manager

HMS: am encl.



B.C. LAND SURVEYOR

Our file: 93-327-S

Your file: 06 002 12987

1993-06-14

Ministry of Transportation & Highways # 301 - 190 Wallace Street Nanaimo, B.C. V9R 5B1

Attention: Mr. Nick Vandermolen

Dear Nick:

Re: Lot 2, Plan 34271, D.L. 11, Newcastle District

Further to my letter of 93/06/02, I am enclosing two copies of engineering plan for septic disposal.

Please note that this has been approved by the Ministry of Health.

I trust this will complete your file.

Epril marrison, per.

Yours truly

Helen MacPhail Sims

Office Manager

HMS: am encl.



Province of British Columbia Ministry of Transportation and Highways CENTRAL ISLAND DISTRICT

301, 190 Wallace Street Nanaimo British Columbia V9R 5B1 Telephone: (604) 755-2351 Fax: (604) 755-2350

Our File: 06 002 12987

June 15, 1993

Rob Howat Provincial Approving Officer Region 6

RE: Subdivision of Lot 2, Plan 34271, District Lot 11, Newcastle District

Find attached self explanatory letter from agent and geotechnical report prepared by HBT AGRI Limited. The report appears to be satisfactory, however, suggest they reexamine the use of a 4" ridged pipe down the bank to handle sites drainage. This pipe should be designed to take both surface run off as well as flow from perimeter drains.

The plan though revised has not addressed Sec. 75(1)(b) of L.T.A., ie. access to water and the common access route is of inadequate width and design to accommodate a standard road cross section with minimum turning radius. For these reasons recommend tentative approval not be granted.

Yours truly,

Nick Vandermolen

District Development Technician

NV/ljc Enclose

nted on Recycled Paper

SENT BY:	foTH ; (6-25-93 ; 1:41PM	; Region 6: Pla	nning→ CENTRA	AL ISLE DIST;# 4/5
Min	istry of Transportation and Highways	TELEX/FACSI	MILE RECORD	Date	
VIA:	☐ TELETYPE	☐ RADIO	FACSIMILE	in the	in this different in
то:	District Highways Man	ager	FROM:	Province of British Columbia	Ministry of Transportation and Highways VANCOUVER ISLAND REGION
ea:	Nick PHO	DNE No.		R.J. Howat Provincial Approving Others Phone: (604) 390-6170	6475 Metral Drive Nanaimo British Columbia V9T 2L9
CAV No.	THE FU NI		-	(604) 390-6160	
FAX No.	TELEX No			Fax: (604) 390-6191	
SUBJECT:	Proposed Bare Land St. June 25, 1993 - 06 00	rata of Lot 2, F 2 12987	Plan 34271, D.L.	11, Newcastle	Dist.
	Given the Geotech product recommendation of suggest (recommend) to the sugg	7.5 in HBT's re hat access to wa	port of May 19,	1993, would y	70u
		1/	.71		
Jue.	PAGES: (including this sh	leet)	an-		
HA MARIS ME OF	Mari I	1/	One	erstor's Signature	



Ministry of Transportation and Highways CENTRAL ISLAND DISTRICT

MEMORANDUM

301, 190 Wallace Street, Nanaimo, British Columbia V9R 5B1 Telephone: (604) 755-2351 Fax: (604) 755-2350

Rob Howat Provincial Approving Officer VANCOUVER ISLAND REGION

June 28, 1993

Our File: 06 002 12987 Ref. Your letter June 25, 1993

RE: PROPOSED BARELAND STRATA SUBDIVISION OF LOT 2, PLAN 34271, DISTRICT LOT 11, NEWCASTLE DISTRICT

The bank within proposal is relatively stable if surface water is controlled and not directed to or concentrated on the top of bank.

Suggest relaxation only be granted if full dedication is acquired from adjacent subdivision file #12530.

Nick Vandermolen

District Development Technician

NV/spm c:\dev\corres\jun28.93

Enclosure

	alobei (exios)	7- 5-93 ; 1:26PM TELEX/FACSII	; Region 6: Plan MILE RECORD	File No.	
	vays	`	T FACSIMILE	" was at Michael And Sand Belleville	14日125日 11日本日本学校の大阪学校ので
<u>.</u>	Highways N	☐ RADIO	FROM:	Province of British Columbia	Ministry of Transportation and Highways VANCOUVERISLAND REGION
,	ntral Island Dist			P.J. Howal Provincial Approving Officer	6475 Moltal Drive Namainto Brilish Columbia V9T 269
<u>, 2</u>	Nick VandermolerPHONE No.			Phone: (604) 390-6170 (604) 390-6180 Fax: (604) 390-6191	
No.	TELEX No	TELEX No.			
∠UBJECT:		land Strata of Lot		D.L. 11,	
	Newcastle Dis	trict (July 5/93	- 06-002-12987)		
	section 215 c 19, 1993. Pr chargeholders - 10 meter road the frontage The Approving of Bare Land dedication, 1	a suitable restri of the L.T.A. as p riority agreements to accompany cov d dedication along road to the high g Officer is preparation Strata Regulation	ctive covenant r wer HBT Aga Limit from all and an venant. The westerly pr water mark of the ared to waive in	egisterable und ed's report dat by financial reporty boundary se Strait of Geo part Section 8 to the 10 meter	der red May y from orgia. (1)(a) r
	Municipal Ac	irmation from the t has been complie	ed with.		
	certificates	nection to an app may be required.			
		l approval of the			
	plus Items 1, 2, March 30, 1993. White provincial Approvince Island Ruhi:gq	ring Officer	9, 10, 11 and 1	2 of your H343E	3 dated
LIE CREME LOB-1040	PAGES:(including this	sheet)	0	perator's Signature	

J.L. MacIsaac 210 West 2nd Avenue Qualicum Beach, B.C. VOR 2TO



Province of British Columbia Ministry of Transportation and Highways

Proposed subdivisions of Bareland Strata Subdivision of Lot 2, Plan 34271, District Lot 11, Newcastle District.

Your proposal for a Six lot subdivision has not been given approval by the Ministry of

Transportation and Highways for the following reasons:

The Approving Officer believes that a natural hazard exists, and it does not appear, on the face of it, in the public interest to approve the proposal as submitted for the land use intended, because of the possible hazard to persons and/or property. The Approving Officer's belief that the land is subject to natural erosion or landslip hazard is based on a reconnaissance only. If you wish to explore this aspect further, you should engage a Professional Engineer experienced in Geotechnical Engineering to advise you. He or she may, or may not, be able to recommend portions of the land for development, subject in some cases to permanent protective works. You should note that in many cases works are not economic and indeed can often cost more than the total development is worth. A full study is itself a certain expense and, if you do decide to explore this further, it may be prudent to engage the Engineer to do a preliminary overview study first in order to see whether it is worth going to a full study. Such a preliminary study would likely include a review of air photos, regional reports on surficial geology, contour maps, etc., and may not always need a site visit. If you then believe it is worth proceeding with a full study, you should ask him/her to identify the nature, extent and probable frequency of the hazard or hazards, and to recommend permanent protective works, or detailed building lines, etc. It is difficult sometimes to quantify the frequency of occurrence of hazards, but the Engineer should be asked to think in terms of a 10% probability in 50 years except for avalanches where he/she should base the work on the international convention of red and blue zones. If the Engineer has questions regarding terms of reference, please have them contact us.

.../2

W/spm Encl.

If you desire to discuss this further please do not hesitate to phone me to arrange time and place for meeting.

c Provincial Approving Officer
Nanaimo Regional District
Parksville Health
Archaeology Branch
Water Management Branch
Fisheries & Oceans
Little Qualicum Waterworks

Fish & Wildlife Branch - Enc.

Very truly yours,

Nick Vandermolen, District Development Technician (for) District Highways Manager,

Ministry of Transportation and Highways

Please note that overcoming the above objections will not automatically bring approval. Changes in Acts, bylaws, and other regulations and policy take place continuously so that if you wish to proceed with the proposal it is strongly recommended that you submit another tentative plan at the appropriate time and receive preliminary layout approval before investing further in land, works. etc.

- b) Proposal is contrary to Section 8(1)(a) of bare land strata regulations 75-78. There is no full 20 metre public access to water within 200 metres of property.
- c) Proposal is contrary to Section 922 of the Municipal Act, i.e. 5% park dedication or cash in lieu.
- d) Proposal does not comply with the Condominium Act and British Columbia Regulation Act 75/78. Plan does not show any common property.
- e) Proposal does not offer proof of connection to an approved community water system.

In addition, will require the following:

The frontage road is to be constructed and paved to current Ministry
of Transportation and Highways standards from westerly boundary of
property to westerly boundary of Lot B, Plan 37206. Our office is
to be contacted and satisfied with road base prior to gravelling and
paving.

Frontage road to connect Island Highway adjacent Lot B, Plan 37206.

- Entire length of access routes to be constructed and paved to current Ministry of Transportation and Highways standards, see attached. Our office is to be contacted and satisfied with road base prior to gravelling or paving.
- Detailed engineered construction drawings to be submitted for Ministry review and approval, prior to commencement of any works.
- Applicant to submit detailed engineered drainage study for Ministry review and approval, prior to commencement of any works.
- Applicant to submit detailed engineered drainage study for Ministry review and approval, prior to commencement of any works.
- 6. Proposal to comply with all requirements of Nanaimo Regional District bylaw No. 500 prior to submission of plans. A letter from the Regional District to accompany plans stating proposal has complied with this requirement.
- Plan showing all necessary dedications to be approved prior to submission of strata plan.
- All lots be connected to approved community sewer system prior to submission of plans. Copies of all necessary approvals and permits to accompany plans.
- Restrictive covenant as outlined in Ministry of Environment, Fish & Wildlife's letter of February 24, 1992, be placed on proposed new Lots 5 and 6.

Nick Vandermolen

District Development Technician

NV/spm Attach.

Operator's Signature

HS 188705 MFI 2012

MINISTRY OF TRANSPORTATION AND HIGHWAYS REPORT ON PRELIMINARY SUBDIVISION

Date May 13,	1993	
District File No.	06 002 12987 CABS	
Date District Rec'd	F-1 10 1000	

Highway District Central Island Regional District/Municipality RDN
Regional File No Road Name/Route No Island Highway
Legal Description Lot 2, Plan 34271, District Lot 11, Nanoose District
Name of Applicant/Agent <u>Jack_MacTsaac</u>
Located 3 km N S E W of Qaulicum
Topographic Description
Previous Reference 63 21 1A 16/82 Controlled Access
Outcome
Present Land Use residential
Proposed Land Use residential
Present Zoning Residential 2, minimum 2000 m ² Parcel Size OK by Zoning? yes
Conform with OSP? yes In ALR? no Speed Zone 70 kmh
Street System Adequate
Sec. Street System exist Require widening?
75 1(a) 75 1(b)(c) involved <u>see commentsAlternate access</u> (B.C. Regs. 334/79) no
Conflict Location Line Pipeline Crossing
Hydro/Tel Line Crossing no RR Crossing yes
Frontage Rulen/a Require Community Water see comments
Require Community Sewer
Road/Land Drainage OK Comments Require Covenant Comments Erosion Comments Landslip Comments Flooding Comments
Rockfall no Avalanche no Wildlife comments Road Closure no If yes, see attached information form.
State of Title Certificate/Certificate of Title received
COMMENTS: HAS GROUND BEEN REGRADED?

Recommend Preliminary Layout Approval not be granted for the following reasons:

The Approving Officer believes that a natural hazard exists, and it does not appear, on the face of it, in the public interest to approve the proposal as submitted for the land use intended, because of the possible hazard to persons and/or property. The Approving Officer's belief that the land is subject to natural erosion or landslip hazard is based on a reconnaissance only. If you wish to explore this aspect further, you should engage a Professional Engineer experienced in Geotechnical Engineering to advise you. or she may, or may not, be able to recommend portions of the land for development, subject in some cases to permanent protective works. You should note that in many cases works are not economic and indeed can often cost more than the total development is worth. A full study is itself a certain expense and, if you do decide to explore this further, it may be prudent to engage the Engineer to do a preliminary overview study first in order to see whether it is worth going to a full study. Such a preliminary study would likely include a review of air photos, regional reports on surficial geology, contour maps, etc., and may not always need a site visit. If you then believe it is worth proceeding with a full study, you should ask him/her to identify the nature, extent and probable frequency of the hazard or hazards, and to recommend permanent protective works, or detailed building lines, etc. It is difficult sometimes to quantify the frequency of occurrence of hazards, but the Engineer should be asked to think in terms of a 10% probability in 50 years except for avalanches where he/she should base the work on the international convention of red and blue zones. If the Engineer has questions regarding terms of reference, please have them contact us.

The bank in this property is identical to that within the adjacent property (see reference 06 002 12530). This portion of bank has been selectively logged and surface water has been directed towards top of bank. Also see, Ministry of Environment's letter of April 5, 1993.

. المسريد الم Proposal is contrary to Section 8(1)(a) of bare land strata b) regulations 75-78. There is no full 20 metre public access to water within 200 metres of property.

> Partial relief was previously granted for Plan 34271 mainly due to minimum parcel size requirements of bylaw at the time, i.e. 2.02 hectares. Suggest proposal be required to comply due to change in zoning and density of development.

Proposal is contrary to Section 922 of the Municipal Act, i.e. 5% park dedication or cash in lieu.

In addition, will require the following:

- Common access routes be widened to 20 metres or cross-section of road plus allowance for utilities, whichever is less.
- The frontage road is to be constructed and paved to current Ministry of Transportation and Highways standards from westerly boundary of property to westerly boundary of Lot B, Plan 37206. Our office is to be contacted and satisfied with road base prior to gravelling and paving.

Frontage road to connect Island Highway adjacent Lot B, Plan 37206.

- Entire length of access routes to be constructed and paved to current Ministry of Transportation and Highways standards, see attached. Our office is to be contacted and satisfied with road base prior to gravelling or paving.
- Detailed engineered construction drawings to be submitted for Ministry review and approval, prior to commencement of any works.
- Applicant to submit detailed engineered drainage study for Ministry review and approval, prior to commencement of any works.
- Applicant to submit detailed engineered drainage study for Ministry review and approval, prior to commencement of any works.
- Proposal to comply with all requirements of Nanaimo Regional District bylaw No. 500 prior to submission of plans. A letter from the Regional District to accompany plans stating proposal has complied with this requirement.
- Proposal to comply with all requirements of Bareland strata regulations 75/78.
- Plan showing all necessary dedications to be approved prior to . 9. submission of strata plan.
 - 10. All lots be connected to approved community water system prior to submission of plans. Copies of all necessary approvals and permits to accompany plans.
 - 11. Applicant to comply with all Little Qualicum Waterworks District bylaws prior to submission of plans. A letter from Waterworks District stating proposal has complied with requirements to accompany plans.
 - 12. All lots be connected to approved community sewer system prior to submission of plans. Copies of all necessary approvals and permits to accompany plans.

- 13. Restrictive covenant as outlined in Ministry of Environment, Fish & Wildlife's letter of February 24, 1992, be placed on proposed new Lots 5 and 6. Fish and Wildlife are unable to comment directly on this proposal due to staffing difficulties, see attached recommendations outlined this letter where made for proposal on adjacent parcel, i.e. file 06 002 12530. Therefore, feel they are applicable to this application.
- 14. Restrictive covenant as outlined in Ministry of Environment, Water Management's letter of April 5, 1993, be placed on new Lots 5 and 6.

Nick Vandermolen

District Development Technician

NV/spm Attach.

06-002-12987 frontage vd. ROAD CONSTRUCTION STANDARDS

1.	Design speed _	30 kmh	, maximum gradient
2.	Right-of-way w	idth to be/5_ either side, whichev	_ metres and/or cross-section plus ver is greater.
3.	Right-of-way to removed to the	o be cleared and gru satisfaction of the	width and all debrise Ministry of Transportation & Highways.
4.	Width of const	ructed finished road	d grade 7.5 metres.
	Road shall be	surfaced in two cou	rses:
	eranular ma	e (pit run) is to be terial passing 7.5 ion and Highways sp	e minimum 20 cm of select cm mesh as per Ministry of ecification #202.
	b) Upper cours screened ag specificati	gregate as per Mini:	imum of 7.5 cm of 2.5 cm crushed or stry of Transportation and Highways
5.	Pavement requi	red ves,	no. As follows: gravel shoulder) of machine laid hot of 5 cm.
6.	Cul-de-sacs co Pavement radio	nstructed sub-grade	width on radius. See attached plan
7.	Drainage - All flood. All di elevation of a	drainage facilitie	s to be designed to
8.	with 2:/ natural featural diversions are of Environmentare to be sui	side slopes. All res, existing prior e to be carried out t: Water Management	depth to be 60 cm. drainage is to be carried to adequate to development, as far as possible. No without the written approval of Ministry Branch. All ditches exceeding 4% slope the satisfaction of the Ministry of drainage is to be satisfactorily val.
9.	and installed Highways, inc inlets and ou	to the satisfaction luding suitable rip- tlets.	46 cm. All culverts are to be supplied in of the Ministry of Transportation and -rapping and/or concrete bagging of
	by the Minist construction.	ry of Transportation Cross-sections are	no. to be submitted and approved and Highways prior to starting of e also to be includedyes,no.
11.	Hammerhead re	quiredyes,	no, and to be constructed as per
12.	intersections	- 6 metres x 6 met , and road construc ections unless othe	res conner cuts to be dedicated at all tion is to include 12 metre radius flares rwise noted.
13.	to provide of	fstreet parking for	
14.	A minimum of construction.		required for inspection of each stage of
15.	Unless other Regulations 2	vise noted, the requ 262/70 are to be com	firements of Appendix "A" of B.C. oplied width.

202.5 - Aggregate Gradation (cont'd)

1	5	urfa	cino	PPA	regate

facing Aggregate	
Sieve Size	Percentage Passing for Nominal Maximum Size High Fines
(mn)	100 P
19	85-100
9.5	60-85
4.75	40-70
2.36	-
1.18	20-50
0.300	10-30
0.075	5-15

.11) Base Course Aggregate

Well Graded Base "		A DOLLAR OF STREET	1.15		
		ntage Passin			
Sieve Size	Nominal Maximum Size.				
(mm)	25 mm	50 mm	25 mm		
75			100		
50		100	-		
37.5		80-100	60-100		
	100		_		
25			35-80		
19	80-100	50-100	7.7		
	50-100	35-75	25-60		
4.75	35-70	25-55	20-40		
2.36	25-50	20-40	15-30		
		15-30	10-20		
1.18	15-35				
0.300	5-20	5-15	3-10		
0.075	0-5	0-5	0-5		

Intermediate Graded Base

Steve Size		Percentage Passing for Nominal Maximum Size		
(mn)	25 mm	50 mm	75 m	
			100	
.75	-	100	55-100	
50	-	60-100	40-80	
37.5	2		40-00	
25	100	40-75	17-40	
19	65-100		17-40	
12.5	-	15-40	-	
9.5	30-70	-	-	
4.75	15-40		-	
2.36	10-30	10-25	10-25	
	5-15	5-15	4-15	
0.300	0-5	0-5	0-5	

0	Graded	Gase
upen	Gradeo	0 4 2 5

Sieve Size	Percentage Passing for Hominal Maximum 5120			
(mm)	25 mm	50 mm	75 mm	
75			100	
50	_	100	70-100	
37.5		75-100	50-85	
25	100		7	
19	75-100	35-65	15-55	
9.5	30-65	5-35	-	
6.3		-	0-20	
4.75	. 5-10	0-15	-	
2.36	0-10	0-10	0-10	
0.300	0-8	0-8	0-8	
0.075	0-5	0-5	0 - 5	

BCH 202-3

84:06

no, and to be constructed as per

06-002 - 12987 access route

ROAD CONSTRUCTION STANDARDS

1.	Design speed 30 km h, maximum gradient 15%
	Dicht of way width to be 20 metres and/or cross-section plus
	2.0 metres on either side, whichever is greater.
3.	Right-of-way to be cleared and grubbed $fal/$ width and all debris removed to the satisfaction of the Ministry of Transportation & Highways.
4.	Width of constructed finished road grade
	Road shall be surfaced in two courses:
	a) Lower course (pit run) is to be minimum 20 cm of select granular material passing 7.5 cm mesh as per Ministry of Transportation and Highways specification #202.
	 b) Upper course composed of a minimum of 7.5 cm of 2.5 cm crushed or screened aggregate as per Ministry of Transportation and Highways specification #202.
	Pavement required $\sqrt{\text{yes}}$, no. As follows: Width 8.75 (with 0.6 gravel shoulder) of machine laid hot mix asphalt, to a compacted depth of 5 cm.
6. n/c	Cul-de-sacs constructed sub-grade width on radius. Pavement radius See attached plan
7.	Drainage - All drainage facilities to be designed to year flood. All ditch inverts are to be minimum l metre below centreline elevation of roadway. Culvert sizes are to be determined and resolved prior to sub-base approval.
8.	off Road Drainage - Minimum ditch depth to be 60 cm. with 2:1 side slopes. All drainage is to be carried to adequate natural features, existing prior to development, as far as possible. No diversions are to be carried out without the written approval of Ministry of Environment: Water Management Branch. All ditches exceeding 4% slope are to be suitably rip-rapped to the satisfaction of the Ministry of Transportation and Highways. All drainage is to be satisfactorily resolved prior to sub-base approval.
9.	Culverts - Minimum culvert size 46 cm. All culverts are to be supplied and installed to the satisfaction of the Ministry of Transportation and Highways, including suitable rip-rapping and/or concrete bagging of inlets and outlets.
10.	Design Profile requiredyes,no, to be submitted and approved by the Ministry of Transportation and Highways prior to starting of construction. Cross-sections are also to be includedyes,no.
11.	Hammerhead requiredyes,no, and to be constructed as per attached sample drawing.
12.	Intersections - 6 metres x 6 metres corner cuts to be dedicated at all intersections, and road construction is to include 12 metre radius flares at all intersections unless otherwise noted.
13.	Access driveways to be rough graded intoto provide offstreet parking for 2 cars.
14.	A minimum of 48 hours notice is required for inspection of each stage of construction.
15.	Unless otherwise noted, the requirements of Appendix "A" of B.C. Regulations 262/70 are to be complied width.

202.5 - Aggregate Gradation (cont'd)

4.5	Surfacing	Appregate
11	SULLACTING	

Sieve Size	Percentage Passing for Nominal Haximum Size High Fines
£ 25	हिला कर्म कर्म १०० न
19	85-100
	60-85
9.5 4.75	40-70
2.36	-
1.18	20-50
	10-30
0.300	5-15

11) Base Course Aggregate

Vell Graded Base 's	Perce	entage Passin	g for
Sieve Size	25 mm	inal Haximum 50 mm	<u>25 س</u> ت
75			100
50		100	-
37.5		80-100	60-100
	100		-
25	80-100	50-100	35-80
19		35-75	25-60
9.5	. 50-100		20-40
4.75	35-70	25-55	
2.36	25-50	20-40	15-30
1.18	15-35	15-30	10-20
0.300	5-20	5-15	3-10
0.075	0-5	0-5	0-5

Sieve Size	Perce	ntage Passin nal Haximum 50 mm	
75 50 37.5 25 19 12.5 9.5 4.75 2.36 0.300 0.075	100 65-100 30-70 15-40 10-30 5-15 0-5	100 60-100 40-75 15-40 	100 55-100 40-80 - 17-40 - 10-25 4-15 0-5

Open Graded Base Sieve Size [mm]	ntage Passin nal Haximum 50 mm	
75 50 37.5 25 19 9.5 6.3 4.75 2.36 0.300 0.075	 100 75-100 35-65 5-35 	100 70-100 50-85 - 15-55 - 0-20 - 0-10 0-8 0-5

BCH 202-3

84:06

.... no. and to be constructed as per

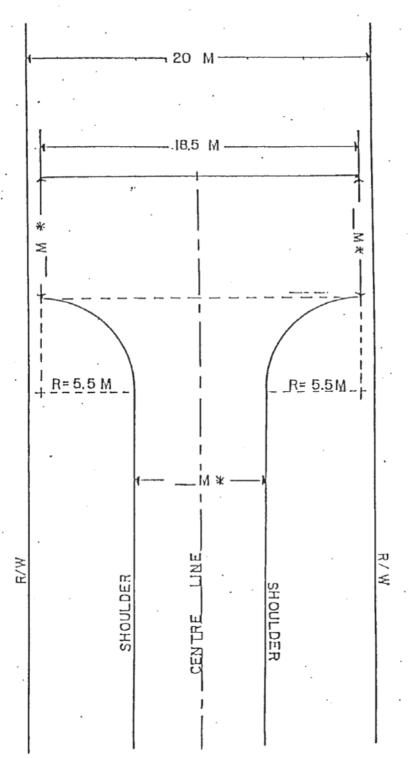
TYPICAL HAMMERHEAD - GRAVEL

WITHIN 20 M R/W

06-002 - 12987

access route

1: 200 M



* INSERT TOP WIDTH OF ROAD

FOR STANDARD HAMMERHEAD SEE CHAPTER 5
APPENDIX "C"



Sims & Associates 223 Fern Road West Qualicum Beach, B.C. V9K 1S4 YOUR FILE 93-327-S
OUR FILE 06 002 12987
DATE July 15, 1993

Proposed subdivision of Bareland Strata subdivision of Lot 2, Plan 34271, District Lot 11, Newcastle District.

Your proposal for a Six lot subdivision has received preliminary layout approval by the approving officer, subject to the following conditions:

- Provision of a suitable restrictive covenant registerable under Section 215 of the Land Titles Act as per HBT Aga Limited's report dated May 19, 1993. Priority agreements from all and any financial chargeholders to accompany covenant.
- 2. The Approving Officer is prepared to waive, in part, Section 8 (1)(a) of Bareland Strata Regulations 75-78 subject to:
- a) 10 metre road dedication along the westerly property boundary from the frontage road to the high water mark of the Strait of Georgia.
- b) Standard notation on plan.
- c) Submission of statutory declaration stating reasons for granting relief.
- Proposal to comply with Section 922 of the Municipal Act, i.e. 5% park dedication of cash in lieu. A letter from Regional District to accompany plans.
- 4. The frontage road is to be constructed and paved to current Ministry of Transportation and Highways standards from westerly boundary of property to westerly boundary of Lot B, Plan 37206. Our office is to be contacted and satisfied with road base prior to gravelling and paving.

Frontage road to connect Island Highway adjacent Lot B, Plan 37206.

- 5. Entire length of access route to be constructed and paved to current Ministry of Transportation & Highways standards, see attached. Our office is to be contacted and satisfied with road base prior to gravelling or paving.
- Detailed engineered construction drawings to be submitted for Ministry review and approval, prior to commencement of any works.

Submission of Final Plans to be accompanied by a current Tax 2rtificate (TX 55), together with a plan examination fee of \$50. plus \$50. per lot created by the plan and made payable in the form of a cheque to the Minister of Finance. Corporate Relations.

The approval granted is only for the general layout of the subdivision and is valid for 180 days from this date. However, if at any time there is a change in legislation, regulations or bylaws this preliminary layout approval is automatically cancelled.

J.L. MacIsaac - 210 West 2nd Ave., Qualicum, VOR 2TO
Provincial Approving Officer
Nanaimo Regional District
Parksville Health
Archaeology Branch

Nick Vandermolen, District Development Technician (for) District Highways Manager,

Ministry of Transportation and Highways

H.343 A (Rev. 85/03) cc

Env. - Fish & Wildlife

Fisheries & Oceans

Env. - Water Management Br.

Little Qualicum Waterworks

NV/spm Attachment

- Applicant to submit detailed engineered drainage study for Ministry review and approval, prior to commencement of any works.
- 8. Proposal to comply with all requirements of Nanaimo Regional District Bylaw 500 prior to submission of plans. A letter from the Regional District to accompany plans stating proposal has complied with this requirement.
- Plan showing all necessary dedications to be approved prior to submission of strata plan.
- 10. All lots be connected to approved community sewer system prior to submission of plans. Copies of all necessary approvals and permits to accompany plans. A letter of approval from Ministry of Health Officer to be submitted.
- 11. Restrictive covenant as outlined in Ministry of Environment Fish and Wildlife's letter of February 24, 1992, be placed on proposed new Lots 5 and 6.
- 12. Applicant to comply with all Little Qualicum Waterworks District bylaws prior to submission of plans. A letter from Waterworks District stating proposal has complied with requirements to accompany plans.
- 13. All lots be connected to approved community sewer system prior to submission of plans. Copies of all necessary approvals and permits to accompany plans.

Nick Vandermolen

District Development Technician

NV/mpm o:\dev\reports\12987.pla

Attachment

06-002-12987 frontage vd. ROAD CONSTRUCTION STANDARDS

		- /- /
1.		Design speed 30kmh, maximum gradient 12%.
2.		Right-of-way width to be/5_ metres and/or cross-section plus 2.0 metres on either side, whichever is greater.
3.	1	Right-of-way to be cleared and grubbed $\frac{f_a//}{}$ width and all debris removed to the satisfaction of the Ministry of Transportation & Highways.
4.		Width of constructed finished road grade
		Road shall be surfaced in two courses:
		a) Lower course (pit run) is to be minimum 20 cm of select granular material passing 7.5 cm mesh as per Ministry of Transportation and Highways specification #202.
		 b) Upper course composed of a minimum of 7.5 cm of 2.5 cm crushed or screened aggregate as per Ministry of Transportation and Highways specification #202.
5.		Pavement requiredyes,no. As follows: Width6 (with0.75 gravel shoulder) of machine laid hot mix asphalt, to a compacted depth of 5 cm.
6,	n/c	Cul-de-sacs constructed sub-grade width on radius. Pavement radius See attached plan
7.		Drainage - All drainage facilities to be designed to year flood. All ditch inverts are to be minimum I metre below centreline elevation of roadway. Culvert sizes are to be determined and resolved prior to sub-base approval.
8.		Off Road Drainage - Minimum ditch depth to be 60 cm, with 2:1 side slopes. All drainage is to be carried to adequate natural features, existing prior to development, as far as possible. No diversions are to be carried out without the written approval of Ministry of Environment: Water Management Branch. All ditches exceeding 4% slope are to be suitably rip-rapped to the satisfaction of the Ministry of Transportation and Highways. All drainage is to be satisfactorily resolved prior to sub-base approval.
9.		Culverts - Minimum culvert size 46 cm. All culverts are to be supplied and installed to the satisfaction of the Ministry of Transportation and Highways, including suitable rip-rapping and/or concrete bagging of inlets and outlets.
		Design Profile required yes, no. to be submitted and approved by the Ministry of Transportation and Highways prior to starting of construction. Cross-sections are also to be included yes, no.
11	n/a	Hammerhead requiredyes,no, and to be constructed as per attached sample drawing.
12	2.	at all intersections unless otherwise noted.
13	3.	Access driveways to be rough graded into to provide offstreet parking for 2 cars.
1	4.	A minimum of 48 hours notice is required for inspection of each stage of construction.
1	5.	Unless otherwise noted, the requirements of Appendix "A" of B.C. Regulations 262/70 are to be complied width.

06-002 - 12987

access route open ditch design ROAD CONSTRUCTION STANDARDS

1.	Design speed 30kmh, maximum gradient 15%.
2.	Right-of-way width to bemetres and/or cross-section plus #.0 metres on either side, whichever is greater.
3.	Right-of-way to be cleared and grubbed $f_{a}//$ width and all debris removed to the satisfaction of the Ministry of Transportation & Highways.
4.	Width of constructed finished road grade 8 metres.
	Road shall be surfaced in two courses:
	a) Lower course (pit run) is to be minimum <u>30</u> cm of select granular material passing 7.5 cm mesh as per Ministry of Transportation and Highways specification #202.
	b) Upper course composed of a minimum of 7.5 cm of 2.5 cm crushed or screened aggregate as per Ministry of Transportation and Highways specification #202.
5.	Pavement required yes , no. As follows: Width 6.0 (with 1.0 gravel shoulder) of machine laid hot mix asphalt, to a compacted depth of 5 cm.
6. n/4	Cul-de-sacs constructed sub-grade width on radius. Pavement radius See attached plan
7.	Drainage - All drainage facilities to be designed to
8.	Off Road Drainage - Minimum ditch depth to be 60 cm, with 2:1 side slopes. All drainage is to be carried to adequate natural features, existing prior to development, as far as possible. No diversions are to be carried out without the written approval of Ministry of Environment: Water Management Branch. All ditches exceeding 4% slope are to be suitably rip-rapped to the satisfaction of the Ministry of Transportation and Highways. All drainage is to be satisfactorily resolved prior to sub-base approval.
9.	Culverts - Minimum culvert size 46 cm. All culverts are to be supplied and installed to the satisfaction of the Ministry of Transportation and Highways, including suitable rip-rapping and/or concrete bagging of inlets and outlets.
10.	Design Profile required
11.	Hammerhead requiredyes,no. and to be constructed as per attached sample drawing.
12.	Intersections -6 metres x 6 metres corner cuts to be dedicated at all intersections, and road construction is to include 12 metre radius flares at all intersections unless otherwise noted.
13.	Access driveways to be rough graded into
14.	A minimum of 48 hours notice is required for inspection of each stage of construction.
15.	Unless otherwise noted, the requirements of Appendix "A" of B.C. Regulations 262/70 are to be complied width.

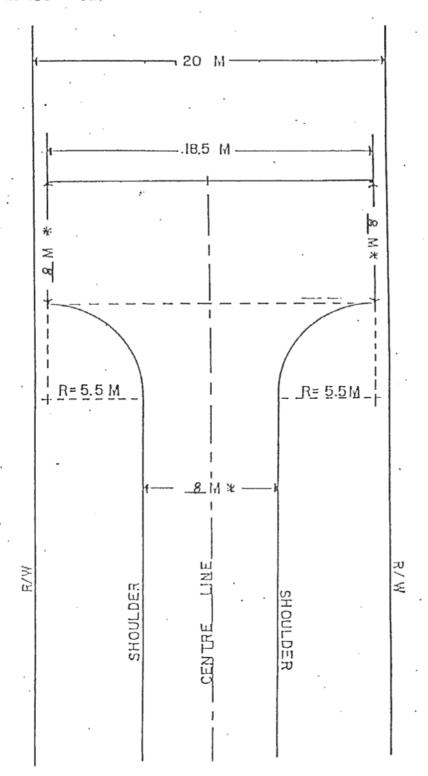
TYPICAL HAMMERHEAD - GRAVEL

WITHIN 20 M R/W

06-002 - 12987

access route

ОМ



* INSERT TOP WIDTH OF ROAD

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8	ty of Transportation and Highways	TELEX/FACSI	MILE RECORD	Date	
VIA:	☐ TELETYPE	☐ RADIO	FACSIMILE		
TO:	Sims Associates		FROM:	国际经验	
	Qualicum Beach, B.C.			Province of British Columbia	Ministry of Transportation and Highways VANCOUVER ISLAND REGION
%:	Helen PHO	NE No.		R.J. Howat Provincial Approving Officer	6475 Metral Oriva Nanarno British Columbia V97 219
FAX No.	75 2 - 924/TELEX No.		}	Phone: (604) 390-8170 (604) 390-8180	
SUBJECT:	Proposed Bareland St District - Files: 06	rata(s) of Lots 003-13530 and 0		Fax: (604) 350-6151 271; D.L. 11, 11. 11. 11. 11. 11. 11. 11.	Newcastle
Par Vi	Further to our meeting this P.M., please be from the strict completer both proposals unrelief is granted baselefined by HBT Agra I will require submissionation on the plan to the plan and the plan are present the plan are present the plan are present and proving the plan are present and proving the plan are present the plan are present and proving the plan are present the plan are plan are present the plan are plan are present the plan are	diance with Sect. der our files Over on steep tops to's reports. It con of statutory Officer	ion 75 (1)(b) of 6 002 12530 and Syraphy and slop Jon submission declarations ar	to grant full the Land Tit 06 002 12987. a instability	relief tle Act This
4,10 20,10	PAGES: / (including this sheet)	- //	ann_		
			Operator'	s Signature	



Province of British Columbia Ministry of Transportation and Highways VANCOUVER ISLAND HEGICA KLANNING 6475 Metral Drive
Nonetimo
British Columbia
V9T 2L9
Telephone: (604) 390-6170
Fax: (604) 390-6191

VIA FAX

August 3, 1993

Sims and Associates 223 Fern Road West P.O. Box 1327 Qualicum Beach, BC V9K 1T4 August 3, 1993

Your file: Our files: 93-327-5 06-002-12530

06-002-12987

Attention: Helen MacPhial Sims

RE: Proposed Bareland Strata(s) of Lots 1 & 2, Plan 34271, D.L. 11, Newcastle District

Further to our meeting and your subsequent fax of July 29, 1993 a.m., please be advised that I am now prepared to grant full relief from the strict compliance with Section 75 (1)(b) of the Land Title Act for both proposals under our files 06-002-12530 and 06-002-12987.

This relief is granted based on steep topography and slope instability as defined by HBT Agra Ltd.'s reports. Upon submission of final plans, I will require submission of statutory declarations and appropriate notation on the plan.

Yours ituly

I Howat

Provincial Approving Officer Vancouver Island Region

RJH/ved

cc: Nick Vandermolen, Central Island District

Recycled Paper



P.O. BOX 1933 129 W. 2ND AVE. QUALICUM BEACH, B.C. V9K 1T5 (604) 752-2935 FAX: 752-2337

August 23rd, 1993

File No.: 93-336 Your file No.:06-002-12987

Ministry of Transportation and Highways Central Island District 301-190 Wallace Street Nanaimo, B.C. V9R 5B1

Attn: Mr. Nick Vandermolen

District Development Technician

Dear Sir:

RE: BARELAND STRATA SUBDIVISION OF LOT 2, PLAN 34271, D.L. 11, NEWCASTLE DISTRICT

We enclose drawing No. 93-336-1 for your review of the road access for the above lot.

Please note that the private road and lot layout are still in the design stage at Sims Associates.

If you have any questions please do not hesitate to call.

Yours truly, QUALICUM ENGINEERING SERVICES LTD.

Tam Le, Technician

Enclosures

cc: Mr. Jack MacIsaac

RRR/rm/452

MINISTRY OF STATES AND STATES

AUU 7 ... 1993

CENTRAL GLAC DESTRACT



Province of British Columbia

Ministry of Transportation and Highways CENTRAL ISLAND DISTRICT 301, 190 Wallace Street Nanaimo British Columbia V9R 5B1 Telephone: (604) 755-2351

Fax: (604) 755-2350

August 27, 1993

Our File: 06 002 12987

VIA FAX: 752-2337

Qualicum Engineering Services Ltd.

129 West 2nd Street

Box 1933

Qualicum Beach, B.C.

V9K 1T5

Attention: Tam Le

RE: BARELAND STRATA SUBDIVISION OF LOT 2,
PLAN 34271, DISTRICT LOT 11, NEWCASTLE DISTRICT

Thank you for your recent letter and plan. I have reviewed the drawings and have no objection in principle to design, subject to:

- Proposed most westerly connection to Island Highway be eliminated.
- Westerly inside shoulder radius at road connection to Island Highway be increased to 10 metres.
- Stop sign be installed at access route connection to MacIsaac Avenue.
- 4. Brushing eastward along Island Highway be undertaken to improve sight distance.

Should you have any questions, please contact this office.

Yours truly

Nick Vandermolen

District Development Technician

NV/spm c:\WP51\dev\corres\aug27.93

Enclosure

cc Sims & Associates

06 002 12530

DEVALED

P.O. BOX 1933 129 W. 2ND AVE. QUALICUM BEACH, B.C. V9K 1T5 (604) 752-2935 FAX: 752-2337

September 13, 1993

File No.: 93-336 Your file No.: 06-002-12987

Ministry of Transportation and Highways Central Island District 301-190 Wallace Street Nanaimo, B.C. V9R 5B1

Attn: Mr. Nick Vandermolen

District Development Technician

Dear Sir:

RE: BARELAND STRATA SUBDIVISION OF LOT 2, PLAN 34271, D.L. 11, NEWCASTLE DISTRICT

We enclose Drawing No. 93-336-1 Revision 2 showing road access entrance from the Island Highway to MacIsaac Avenue and Wallace Way as per your recommendation and Drawing No. 93-336-2 showing detail of road construction for your review.

If you have any questions please do not hesitate to call.

Yours truly, QUALICUM ENGINEERING SERVICES LTD.

Tam Le, Technician

Enclosures

cc: Mr. Jack MacIsaac

RRR/rm/468

MINISTRY OF TRANSPORTATION & HIGHWAYS

SEP 1 6 1993

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CENTRAL ISLAND DISTRICT

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Page 56 of 92

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Province of British Columbia Ministry of Transportation and Highways CENTRAL ISLAND DISTRICT

301, 190 Wallace Street Nanaimo British Columbia V9R 5B1

Telephone: (604) 755-2351 Fax: (604) 755-2350

September 29th, 1993

Our File: 06 002 12987

VIA FAX: 752-2337

Qualicum Engineering Services Ltd. 129 West 2nd Street Box 1933 Qualicum Beach, B.C. V9K 1T5

Attention: Tam Le

RE: BARELAND STRATA SUBDIVISION OF LOTS 1 & 2, PLAN 34271, DISTRICT LOT 11, NEWCASTLE DISTRICT

I have reviewed the revised drawings and they appear to be in order. However I have not received drainage desings for these proposals. This design may impact road construction, see item #7 on District letter of July 15th, 1993.

Should you have any questions, please contact this office.

Yours truly,

Nick Vandermolen

District Development Technician

NV/vf c:\WP51\dev\corres\sep29.93

Enclosure

n Recycled Paper

cc: Sims & Associates
J.L. MacIsaac

210 W. 2nd Ave.

Qualicum Beach, VOR 2TO

301, 190 Wallace Street Nanaimo British Columbia V9R 5B1 Telephone: (604) 755-2351

Telephone: (604) 755-23 Fax: (604) 755-2350

October 15, 1993

Our File: 06 002 12530

12987

Your File: 93-335

Qualicum Engineering Services Ltd. P.O. Box 1933 129 W. 2nd Avenue Qualicum Beach, B.C. V9K 1T5

RE: BARELAND STRATA SUBDIVISION OF LOTS 1 & 2,
PLAN 34271, DISTRICT LOT 11, NEWCASTLE DISTRICT

Thank you for your drainage report of September 22, 1993. I have reviewed it and will require the following:

- any portion of ditch that exceeds a 4% grade is to be rip-rapped or adequately protected to prevent erosion.
- 2) installation of 300mm pipe down bank supervised by professional engineer.
- 3) geotech engineer to certify all works on bank as to their affect on bank stability.
- 4) inlet structure for pipes over bank to be installed so as to prevent any slippage beneath them.
- 5) applicant to obtain both Fish & Wildlife Branch and Fisheries & Oceans approval prior to commencement of any construction.
- 6) proposed 3 metre drainage easement through Lot 1, Plan 34271 be widened to a minimum 6 metres in width over entire length of ditch or works within private property.

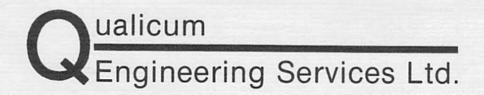
Should you have any questions, please contact this office.

Yours truly,

Nick Vandermolen

District Development Technician

NV/vf c:\WP51\dev\corres\oct15.93



P.O. BOX 1933 129 W. 2ND AVE. QUALICUM BEACH, B.C. V9K 1T5 (604) 752-2935 FAX: 752-2337

November 18th, 1993

File No.: 93-335 & 93-336

Ministry of Transportation and Highways Central Island District 301-190 Wallace Street Nanaimo, B.C. V9R 5B1 12987

Attn: Mr. Nick Vandermolen

District Development Technician

Dear Sir:

RE: BARELAND STRATA SUBDIVISION OF LOT 1 & 2, PLAN 34271, D.L. 11, NEWCASTLE DISTRICT

We enclose drawing No. 93-335 & 336 showing anchor details for the culverts located north of the above mentioned properties as per your request.

If you have any questions please do not hesitate to call our office.

Yours truly, OUALICUM ENGINEERING SERVICES LTD.

Robert R. Roenicke, P. Eng.

Enclosures

cc: Walco Enterprises Ltd.

Mr. Jack MacIsaac

TL/rm/517

MINISTRY OF TRANSPORTATION & HIGHWAYS

NOV 26 1993

CENTRAL ISLAND DISTRICT

Page 60 of 92 to/à Page 61 of 92

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210 W 2nd Ave Qualicum Beach, B.C. V9K 1T7

Dec 14/93

MINISTRY OF TRANSPORTATION & HIGHWAYS

DEC 2 4 1993

RECEIVED CENTRAL ISLAND DISTRICT

Richard Hicks Health Inspector Central Vancouver Health Unit 245 W Hirst St Parksville, B.C.

Dear Mr Hicks

Re: Septic system for strata development, Pl 34271, Lt1, DL11, Newcastle District

As per our conversation this morning, pleased be advised that the Strata Bylaws for the subdivision will require that, when constructing a home, the lot owner must obtain a permit to install a septic tank and obtain approval from the Health Inspector before connecting to the Septic Collection System.

The Bylaws require that the Developer or the Strata Council approve the building plans of any home to be constructed in the development. Part of this process will be to ensure that Health approval has been received.

Sincerely; C. A. 7711 Chaac

Jack MacIsaac

DEC 1 5 1993



Province of **British Columbia** Ministry of Health and Ministry Responsible for Seniors

Director Central Vancouver Island Health Unit 1665 Grant Avenue Nanaimo, B.C. V9S 5K7 Telephone: (604) 755-6200 Fax: (604) 755-2397 EHO Fax: (604) 755-2602

BRANCH OFFICES:

DUNCAN 746-1350

DUNCAN 746-1414

LAKE COWICHAN 749-6878 Fax: 746-1408 Fax: 749-6200

LADYSMITH 245-7119 Fax: 245-3993

PARKSVILLE 248-2044 Fax: 248-8624 Fax: 724-9311

PORT ALBERNI UCLUELET

Fax: 726-7044

Parksville Health Unit,

249 West Hirst, P.O. Box 1210, Parksville, B.C.

V9P 2H2

December 15, 1993

File #06-002-12987

Mr. Nick Vandermolen, District Development Technician, Ministry of Highways, #301 - 190 Wallace St., Nanaimo, B.C. V9R 5B1

Dear Mr. Vandermolen:

Bareland Strata of Lot 2, Plan 34271, D.L. 11, Newcastle District, West RE: Island Highway, Jack MacIsaac (6 lots)

The disposal field, pump chamber and collection system for these proposed 6 lots has been authorized for backfilling and use.

Each lot owner must obtain from the Ministry of Health, a permit to install a septic tank(& pump chamber if required), and subsequent authorization to connect to this collection system.

I therefore have no objection to this proposed subdivision.

If you have any questions, I can be contacted at 248-2044.

Yours truly,

Richard Hicks CPHI(C)

R. D. Antes

Environmental Health Officer II

RH:wi

CC:

D. Coombe C/EHO

Regional District of Nanaimo(Building Inspection)

Jack MacIsaac

MINISTRY OF TRANSPORTATION & HIGHWAYS

DEC 2 1 1993

KECEIVED CENTRAL ISLAND DISTRICT

Board of Trustees

LITTLE QUALICUM WATER WORKS DISTRICT

c/o Mrs K. Buckowski, (Secretary) 3740 Island Highway W, Qualicum Beach B.C. V9K 2G7.

For Information Telephone 752 - 641 5 752 - 6266

Mr Jack MacIsaac, #1 - 210, West 2nd Ave, Qualicum Beach B.C. V9K IT7.

Dec 17th.1993.

Dear Mr MacIsaac,

RE: 6 Lot Strata Subdivision of Lot 2, Plan 34271, DL 11, Newcastle District.

This letter is to advise that you have complied with our bylaws and requests with regards to the above subdivision, and we accept the completed water system.

Yours yery truly, Octy

WAN/kpb

Received from	July 17 1	9_93	9889
- Fu	Mac sa	ac P	Bollars
pord depar	*	DEC 1	7 7900
\$ 500.00		WATER WOR	C DISTRICT

KD OF NANATHO --- HIGHWAYS NANATHO W 001/001

REGIONAL DISTRICT OF NANAIMO

6300 Hammond Bay Road, Nanaimo, British Columbia Mailing Address: P.O. Box 40, Lantzville, B. C. VOR 2HO Telephone: (604) 390-4111 Facsimile: (604) 390-4163

DEPT: FROM: Gerry Hambled	DATE SENT: Dec. 20, 1883. TIME SENT: 11: 20 FAX #: 755-2348 # PAGES: 1 (Including this sheet)
	12-12530 Wallace
applicants have comple of Section SG2 partland	ied with the requirements
h.	G.H
	MINISTRY OF TRANSPORTATION & HICHWAYS
	RECEIVED CENTRAL ISLAND DISTRICT

LAND TITLE ACT FORM C (SECTION 219.9) PROVINCE OF BRITISH COLUMBIA GENERAL DOCUMENT PAGE 1 OF **PAGES** 1. APPLICATION: T. Scott Rodway (AGENT FOR APPLICANT) c/o RODWAY & PERRY, Barristers and Solicitors, P.O. Box 138, #1-699 Beach Road, Qualicum Beach, B. C. (V9K 1S7) Phone: 752-9526 (File No. G93-650 - MacIsaac) PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND: STRATA LOT 1 STRATA LOT 2 STRATA LOT 3 STRATA LOT 4 STRATA LOT 5 STRATA LOT 6, ALL OF STRATA PLAN VIS DL 11, NEWCASTLE DISTRICT NATURE OF INTEREST: DESCRIPTION DOCUMENT REFERENCE PERSON ENTITLED TO INTEREST (page & paragraph) Entire Document Transferee EASEMENT 4. TERMS: Part 2 of this instrument consists of (select one only) Filed Standard Terms [] D.F. No. (a) Express Charge Terms [X] Annexed as Part 2 (b) [] There is no Part 2 of this instrument (c) A Selection of (a) includes any additional or modified terms referred to in item 7 or in a schedule annexed to this instrument. If (c) is selected, the charge described in item 3 is released or discharged as a charge on the land described in item 2. 5. TRANSFEROR(S):* JACK LEONARD MACISAAC TRANSFEREE(S): Including occupation(s), postal address(es) and postal code(s))* 6. JACK LEONARD MACISAAC, Businessman, 210 W. 2nd Ave., Qualicum Beach, B.C., V9K 1T7 7. ADDITIONAL OR MODIFIED TERMS: NIL 8. EXECUTION(S): ** This instrument creates, assigns, modifies, enlarges, discharges or governs the priority of the interest(s) described in Item 3 and the Transferor(s) and every other signatory agree to be bound by this instrument, and acknowledge(s) receipt of a true copy of the filed standard charge terms, if any.

.CERTIFICATION_

OFFICER, SIGNATURE(S)

93 12 a9

PARTY(IES) SIGNATURE(S

JACK LEONARD MACISAAC

BARRISTER & SOLICITOR

P.O. BOX 138 1 - 699 BEACH ROAD QUALICUM BEACH, B.C. V9K 1S7 (604) 752-9526 FAX 752-9521

OFFICER CERTIFICATION: Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the EVIDENCE ACT, R.S.B.C. 1979, c.116, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the LAND TITLE ACT as they pertain to the execution of this instrument.

EASEMENT

WHEREAS:

A. The Transferor is the registered owner in fee simple of all and singular those certain parcels or tracts of land and premises situate, lying and being in the Port Alberni Assessment Area, in the Province of British Columbia, and more particularly known and described as:

PARCEL	IDENTIFIER:	STRATA	LOT	1
PARCEL	IDENTIFIER:	STRATA	LOT	2
PARCEL	IDENTIFIER:	STRATA	LOT	3
PARCEL	IDENTIFIER:	STRATA	LOT	4
PARCEL	IDENTIFIER:	STRATA	LOT	5
PARCEL	IDENTIFIER:	STRATA	LOT	6

ALL OF STRATA PLAN VIS , DL 11, NEWCASTLE DIST.

(hereinafter called the "SERVIENT TENEMENT").

B. The Transferee is the registered owner in fee simple of all and singular those certain parcels or tracts of land and premises situate, lying and being in the Port Alberni Assessment Area, in the Province of British Columbia, and more particularly known and described as:

PARCEL IDENTIFIER:	STRATA LOT 1
PARCEL IDENTIFIER:	STRATA LOT 2
PARCEL IDENTIFIER:	STRATA LOT 3
PARCEL IDENTIFIER:	STRATA LOT 4
PARCEL IDENTIFIER:	STRATA LOT 5
PARCEL IDENTIFIER:	STRATA LOT 6
ALL OF STRATA PLAN VIS	, DL 11, NEWCASTLE DIST.
(hereinafter collectively call	ed the "DOMINANT TENEMENT")

C. To facilitate the installation of systems of water, sanitary sewer and storm sewer facilities, including all pipes, valves, conduits, wires, casings, lines, meters, fittings, attachments, or devices and facilities used in connection therewith (the "WORKS"), the TRANSFEROR has agreed to permit the construction of the WORKS on that part of the SERVIENT TENEMENT as shown on the Reference Plan of Easement through PART OF STRATA LOT 1, 2, 3, 4, 5, and 6, STRATA PLAN VIS , DISTRICT LOT 11, NEWCASTLE DISTRICT, certified correct by MICHAEL A. SIMS, British Columbia Land Surveyor on the qth day of December 1993, a copy of which is attached hereto and marked Schedule "1" and which will be registered in the Victoria Land Titles under NO. VIP (hereinafter called the "EASEMENT AREA") and to grant for that purpose the Easement hereinafter described.

WITNESS that in consideration of the sum of Ten (\$10.00) Dollars now paid by the TRANSFEREE to the TRANSFEROR and other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged) and in consideration of the covenants and conditions herein contained:

1. THE TRANSFEROR DOES HEREBY:

- 1.1 Grant, convey, confirm and transfer TO THE TRANSFEREE, in perpetuity, the full, free and uninterrupted right, license, liberty, privilege, permission and right-of-way to survey, lay down, install, construct, operate, maintain, regulate, inspect, alter, remove, replace, reconstruct, repair, entrench, bury, cleanse and otherwise establish one or more systems of WORKS within, over or under the EASEMENT AREA.
- 1.2 Covenants and agrees to and with the TRANSFEREE, that for the purposes aforesaid, the TRANSFEREE shall for itself and its servants, agents, workmen, contractors and all other licensees of the TRANSFEREE together with machinery, vehicles, equipment and materials be entitled at all times to dig, carry away soil or other materials, and clear any trees, growth, or obstruction now or hereafter in existance on the EASEMENT AREA as may be necessary, useful or convenient in connection with the operation of the TRANSFEREE in relation to the WORKS;
- 1.3 Grant a License to the TRANSFEREE for itself and its servants, agents, workmen, contractors and all other licensees of the TRANSFEREE together with machinery, vehicles, equipment and materials the right at all reasonable times to enter upon and to pass and repass over the SERVIENT TENEMENT as may be

reasonably required for the purpose of access to and from the EASEMENT AREA and temporarily from time to time to place machinery, vehicles, equipment and materials on such of the SERVIENT TENEMENT as is necessary for the installation, maintenance and repair of the WORKS.

- 2. THE TRANSFEROR COVENANTS TO AND AGREES WITH THE TRANSFEREE:
- 2.1 That the TRANSFEROR will not, nor permit any other person to do any act or omission on, over or under any portion of the EASEMENT AREA that in any way interferes with or damages or prevents access to, or is likely to cause harm to the WORKS.
- 2.2 That the TRANFEROR will not do nor knowingly permit to be done any act or thing which will interfere with or injure the WORKS and in particular will not carry out any blasting on or adjacent to the EASEMENT AREA without the consent in writing of the TRANSFEREE, provided that such consent shall not be unreasonably withheld.
- 2.3 That the TRANSFEROR will not substantially diminish the soil cover over any of the WORKS installed in the EASEMENT AREA and in particular, without in any way limiting the generality of the foregoing, will not construct open drains or ditches along or across any of the WORKS installed in the EASEMENT AREA.
- 2.4 That the TRANSFEROR will from time to time and at all times upon every reasonable request and at the cost of the TRANSFEREE do and execute or cause to be made, done or executed all such further and other lawful acts, deeds, things, devices, conveyances and assurances in law whatsoever for the better assuring unto the TRANSFEREE of the rights hereby granted.
- 3 THE TRANSFEREE COVENANTS AND AGREES WITH THE TRANSFEROR:
- 3.1 That the TRANSFEREE will not bury any debris or rubbish of any kind in excavations or backfill, and will remove shoring and like temporary structures as backfilling proceeds.
- 3.2 That the TRANSFEREE will clear the SERVIENT TENEMENT of all rubbish and construction debris created or placed thereon by the TRANSFEREE and will leave the SERVIENT TENEMENT in a neat and clean condition.

- 3.3 That the TRANSFEREE will, as soon as weather and soil conditions permit, and so often as it may exercise its right of entry hereunder to any of the SERVIENT TENEMENT, replace the surface soil as nearly as may be reasonably possible to the same condition as it was prior to such entry, in order to restore the natural drainage of such of the SERVIENT TENEMENT. PROVIDED HOWEVER that nothing herein contained shall require the TRANSFEREE to restore any trees or other surface growth but the TRANSFEREE shall leave the SERVIENT TENEMENT in a condition which will not inhibit natural regeneration of such growth.
- 3.4 That the TRANSFEREE will, as far as reasonably possible, carry out all work in a proper and workmanlike manner so as to minimize injury to the SERVIENT TENEMENT.
- 3.5 That the TRANSFEREE will restore any fences, lawns and flower beds, at its cost, as nearly as may be reasonably possible to the same condition that they were in prior to any entry by the TRANSFEREE upon the SERVIENT TENEMENT.
- 4. THE TRANSFEROR AND TRANSFEREE COVENANT TO AND AGREE WITH THE OTHER:
- 4.1 In the event that the TRANSFEREE abandons the WORKS or any part thereof the TRANSFEREE may, if it so elects, leave the whole or any part thereof in place.
- 4.2 That the TRANSFEROR may fully use and enjoy all of the SERVIENT TENEMENT subject only to the rights and restrictions herein contained.
- 4.3 The covenants in this Easement shall be construed as covenants running with the land and are appurtenant to and for the benefit of the DOMINANT TENEMENT.
- 4.4 That the TRANSFEREE may assign any of the rights, licences, liberties, privileges, permissions and rights of way granted herein by the TRANSFEROR.

- 4.5 Where the Expression "TRANSFEROR" includes more than one person all covenants herein on the part of the TRANSFEROR shall be construed as being joint and several.
- 4.6 This Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective heirs, executors, administrators, successors and assigns and wherever the singular or the masculine are used, the same shall be construed as meaning the plural or the feminine or the body politic or corporate where the context or the parties hereto so require.

The TRANSFEROR and TRANSFEREE execute this instrument by executing the Form "C" Part 1 to which this instrument is attached on the date set forth in the Form "C" Part 1.

END OF DOCUMENT



Province of British Columbia Ministry of Environment, Lands and Parks

Vancouver Island Region I Regional Headquarters 2569 Kenworth Road Nanaimo, B.C. V9T 4P7 Phone: (604) 751-3100

Fax: 755-2473

NUMBER OF PAGES (including co	ver):
TO: NICK UANTIERMOLEN	DATE: 18 MAY 93
	700010
ADDRESS:	FAX NO: 7552348.
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HBT AGRA Limited

Engineering & Environmental Services

3070 Barons Road Nanaimo, B.C. V9T 4B5 Tel (604) 758-1887 Fax (604) 758-1899

19 May 1993 File: NX01331

Mr. Jack MacIsaac 210 West 2nd Avenue Qualicum, B.C. V9K 1T7

PROJECT: PROPOSED RESIDENTIAL SUBDIVISION - LOT 2, PLAN 34271,

DISTRICT LOT 11, NEWCASTLE LAND DISTRICT, QUALICUM, B.C.

SUBJECT: SLOPE STABILITY ASSESSMENT

Dear Mr. MacIsaac

1.0 INTRODUCTION

As requested, HBT AGRA Limited (HBT) has carried out a slope stability assessment for the subject site described above. The purpose of this work was to determine a safe building setback for single family residences from an existing shoreline slope. The setback distance was based on assessments of the general soil conditions at the site and the overall stability of the existing slope.

This report describes the observations made during a site reconnaissance, carried out on 7 May 1993, and provides comments and recommendations regarding the proposed development on the subject site.

2.0 SITE DESCRIPTION

The subject site is located on the north side of the Island Highway between Texada and Mistaken Roads, north of Qualicum Beach, B.C. (Figure 1). The site extends from the Island Highway to the shoreline of the Strait of Georgia. The site is roughly triangular with an plan area of approximately 4.5 acres. The site is bounded on the west by undeveloped land, on the east by existing residential developments, on the south by the Island Highway, and on the north by the Strait of Georgia.

3.0 PROPOSED DEVELOPMENT

It is proposed to subdivide the site into six lots intended for single family residences. The lots will be accessed from the Island Highway by a proposed roadway along the west side of the site.



Mr. Jack MacIsaac File No: NX01331 19 May 1993

Page: 2

A site plan showing the proposed lot layout was provided to HBT by Mr. MacIsaac at the time of the site reconnaissance (plan reference: Qualicum Engineering Services Drawing No. 93-275-1: 24/MAR/93). Figure 2 is a general site plan that shows the proposed subdivision.

4.0 SITE GEOLOGY

Available geologic information in the form of surficial geology maps produced by the Geological Survey of Canada (GSC) indicates that the local subsurface stratigraphy consists of a veneer of marine deposits of sand and gravel overlying glacial till.

5.0 SITE RECONNAISSANCE

The following observations and comments were recorded during the site reconnaissance carried out on 7 May 1993:

- in general, the site sloped down from the Island Highway to the crest of the shoreline slope at the north end of the site. The overall slope angle was between 10° and 15°. The site had been essentially cleared of vegetation, with the exception of several mature coniferous trees. A wooden fence had been constructed along part of the west property line.
- the shoreline slope at the north end of the site was approximately 70 feet in height. The overall slope angle was measured to be about 35° (from horizontal), with local steepening to 40° to 45°. Figure 3 is a generalized cross-section of the shoreline slope. Vegetation on the slope consisted of mature coniferous and deciduous trees with thick underbrush. Some of the trees on the slope exhibited bent or leaning trunks.
 - interceptor and curtain drains had been constructed along the southern property line. The drainage was being directed to a collection point in the northeast corner of the site via an open ditch. From the collection point, the drainage was conveyed down the slope by a 4 inch diameter flexible ("Big-O" type) plastic pipe. The pipe extended to a discharge point beyond the slope toe.
 - an existing roadway has been constructed across the slope, reportedly to provide access to the beach. The road bed was about 20 feet wide and was apparently constructed by the cut and fill method. At the time of the site reconnaissance, the roadway was disused and overgrown with weeds.



Mr. Jack MacIsaac File No: NX01331 19 May 1993

Page: 3

There were cut slopes up to 15 feet in height along the upslope (southern) side of the road (Figure 3). In general, the soil exposed in the cut faces consisted of natural, dense/very dense, well-graded sand till that contained silt and gravel. The cuts were sloped at angles of between 60° and 70° from horizontal. Surficial runoff from the overlying slope was observed on the cut face. No seepage observed from the cut face.

There was fill along the downslope (northern) side of the road (Figure 3). The fill appeared to be reworked natural soils from the cuts described above. The fill slope was approximately 12 to 15 feet in height and at angles of about 35° to 40°.

- the natural slope between the fill and the slope toe was approximately 12 to 15 feet in height and at an angle of about 26°. The section of slope was vegetated with large coniferous trees and thick underbrush.
- the toe of the slope was approximately 85 feet south of the beach and high water mark (Figure 3). This area, between the toe of the shoreline slope and the beach, sloped down to the north at between 5° and 10° and was vegetated with large (up to 2 feet diameter) coniferous trees and thick underbrush. The toe of the slope did not appear to be affected by shoreline erosion or wave action.
- there were no natural drainage courses observed on the shoreline slope.

6.0 SLOPE STABILITY

The results of stability analyses, based on the observations made during the site reconnaissance, indicated that the probability of a large-scale or deep-seated slope failure is low. However, shallow surface movements, or creep of the slope materials, as indicated by sloping/bent trees, is expected to continue. The shallow surface movement will result in continued retrogression of the slope crest, which could potentially impact structures built on the site. To provide safe building sites, a distance of 45 feet is required from the slope crest.

7.0 DISCUSSIONS AND RECOMMENDATIONS

Based on observations made during the site reconnaissance and on slope stability analyses, the following discussions and recommendations are provided regarding the proposed subdivision on the subject site:

7.1 It is recommended that building foundations be established south of the setback line shown on Figures 2 and 3. The distances between the setback lines and the



Mr. Jack MacIsaac File No: NX01331 19 May 1993 Page: 4

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property lines are shown on the Figure 2. The setback is based on a distance of 45 feet from the existing crest of the slope. The angle of a line projected from the building setback point through the toe of the slope is approximately 26° (2H:1V - horizontal:vertical).

- 7.2 Footings for the proposed residences should be based on dense, native, granular soils. If soft soils or significant groundwater are encountered during foundation excavation, it is requested that HBT be provided with an opportunity to assess the subsurface conditions at that time.
- 7.3 Structures and development, such as gazebos and landscaping, may be located north of the recommended building limit, provided that the risk of damage to these features, due to the potential for slope instability north of the recommended building limit, is acceptable to the owner. The size of these structures should be limited to less than 100 square feet in plan area.
- 7.4 Drainage from hard surfaced areas, roofs, and foundations should be controlled in non-perforated pipes and discharged at some location away from the shoreline slope. Roof drainage should not be discharged into footing drains. Discharge of drainage over the slope crest should not take place.

The flexible plastic pipes currently being used to direct site drainage down the slope should be replaced with a permanent installation consisting of minimum 4 inch diameter, heavy walled, PVC or HDPE plastic. Where feasible, the conveyance pipe should be buried, or covered with at least 6 inches of 0.5 inch minus sand and gravel fill.

- 7.5 It is recommended that the existing vegetation on or near the slope not be disturbed or removed. Selective trimming and topping of trees is permissible, provided that the slope is not stripped or clear cut. Vegetation on the slope should be managed so that a dense, permanent, evergreen cover is maintained.
- 7.6 Typically, it is recommended that proposed septic fields should also be located beyond the building setback line. In this case, it is understood that the location for the septic field for the proposed development is at the south end of the site, adjacent to the Island Highway (Figure 2).
- 7.7 The recommendations presented above are based on an assessment of the site conditions observed during the 7 May 1993 field reconnaissance. The position of the setback line was established based on the current positions of the toe of the road cut slope and the toe of the shoreline slope. During the anticipated lifetime



Mr. Jack MacIsaac File No: NX01331 19 May 1993

Page: 5

of the development, situations could arise that would have a significant effect on the positions and conditions of these slopes, such as exposure of the toe of the shoreline slope to erosion by wave attack and/or weathering and accelerated retrogression of the road cut slopes. Should these situations arise, the overall stability of the shoreline slope should be reassessed at that time and, if necessary, remedial actions taken to restore the current conditions.

8.0 CLOSURE

If the recommendations presented above are followed, the proposed subdivision of Lot 2, Plan 34271, District Lot 11 in Qualicum may be developed safely for the intended use, if built within the next three years. If there is a delay in construction beyond that point, or if redevelopment or reconstruction takes place in the future, it is recommended that the stability conditions be reassessed at that time.

The factual data, interpretations, and recommendations contained in this report pertain to the proposed subdivision of Lot 2, Plan 34271, District Lot 11, Newcastle Land District. Where conditions encountered at the site differ from those anticipated in this report, either due to natural variability in the subsurface soil or construction activities, HBT AGRA Limited should be provided with the opportunity to review the recommendations of this report.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the contents of this report, or if we can be of further assistance to you, please do not hesitate to call the undersigned.

Yours truly,

HBT AGRA Limited

Geotechnical Project Engin

Reviewed by:

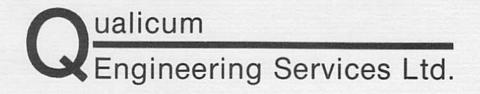
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Manager, Nanaimo Office

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P.O. BOX 1933 129 W. 2ND AVE. QUALICUM BEACH, B.C. V9K 1T5 (604) 752-2935 FAX: 752-2337

October 15th, 1993

File No.: 93-336 Your file No.:06-002-12987

Ministry of Transportation and Highways Central Island District 301-190 Wallace Street Nanaimo, B.C. V9R 5B1

Attn: Mr. Nick Vandermolen

District Development Technician

Dear Sir:

RE: BARELAND STRATA SUBDIVISION OF LOT 2, PLAN 34271, D.L. 11, NEWCASTLE DISTRICT

We enclose A Drainage Study for the above proposed subdivision.

We apologize for the delay in submitting this study.

If you have any questions please do not hesitate to call Mr. Robert R. Roenicke, P. Eng.

Yours truly, QUALICUM ENGINEERING SERVICES LTD.

Tam Le, Technician

Enclosure

cc: Mr. Jack MacIsaac

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MINISTRY OF TRANSPORTATION
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P.O. BOX 1933 129 W. 2ND AVE. QUALICUM BEACH, B.C. V9K 1T5 (604) 752-2935 FAX: 752-2337

A DRAINAGE STUDY FOR THE PROPOSED SUBDIVISION OF LOT 2, PLAN 34271 D.L. 11, NEWCASTLE DISTRICT QUALICUM BEACH, BC

Prepared for: Mr. Jack MacIsaac

September 22, 1993

SCOPE

This report addresses the upstream, property and downstream drainage for the proposed 6-lot subdivision of Lot 2, Plan 34271, D.L. 11, Newcastle Land District, Qualicum Beach, B.C.

PHYSICAL DESCRIPTION

The proposed 1.8 hectare subdivision consists of six lots of 0.2 to 0.4 hectares. Existing use of the property is undeveloped woodlands and meadow; future use would be low density suburban single family residential.

The subject property is bordered on the north by the Strait of Georgia, on the south by the Island Highway, on the west by a similar proposed development and on the east by undeveloped land.

The northern two proposed lots are bisected into north and south portions by a high bank, the top of which is approximately 45 metres above highwater (present natural boundary). The bank is composed mostly of dense well-graded sand till that contains silt and gravel.

The geology of this area is referenced in Geologic Survey of Canada Memoir 318, Surficial Geology of Horne Lake and Parksville Map-area, Vancouver Island, B.C. (J. G. Fyles, 1963, 142 pp.) and is shown on a 1:63,360 scale map included with the Memoir. The Memoir indicates that the subsurface soil profile has deposits of sand and gravel overlying glacial till.

The average slope of the property from the Island Highway to the top of the bank is 6.0% northerly. The average slope of the bank is approximately 35° from horizontal, steepening near the crest.

Reference is made to attached drawing No. 93-336-1 indicating the proposed subdivision layout, the immediate area surrounding it and site topography.

DRAINAGE PATTERNS

UPSTREAM DRAINAGE

Very little upstream drainage enters the subject site. Drainage from the south is intercepted by the Island Highway ditch system and is diverted away from the property to the Little Qualicum River. Drainage from the east is north easterly, away from the subject property.

The property to the west is being developed in a manner similar to the subject site. The proposed surface drainage collection system of ditches and culverts for this property will drain northerly to the Strait of Georgia adjacent to its east property line. Reference is made to A Drainage Study for the Proposed Subdivision of Lot 1, Plan 34271, D.L. Newcastle District.

Qualicum Beach. BC dated September 22, 1993 prepared by Qualicum Engineering Services Ltd.

2. PROPERTY DRAINAGE

The proposed subdivision has been divided into three drainage areas; D, E & F. Area D is in the south-westerly quarter of the subject property between the west property line and the proposed private road down the middle of the property, with a total drainage area of 0.83 ha. This area is to be drained by road ditch easterly from the south west corner along MacIsaac Avenue thence northerly on the west side of the proposed private road to a hammerhead cul-de-sac where it will flow easterly through a culvert under the private road.

Area E is located in the south-east quarter of the property between the proposed private road and the east property line with a total drainage area of 0.72 ha. This area is to be drained by road ditch southerly along the east side of the proposed private road to the hammerhead cul-de-sac, where it will join the drainage from Area D thence easterly to the east property line where it will enter a buried pipe which will extend northerly adjacent to the east property line to a manhole at the crest of the bank thence through a buried pipe to discharge at an outlet structure with energy dissipator at the bottom of the bank.

Area F is located between the east and west property lines from the cul-desac to the crest of the bank with a total drainage area of 0.38 ha. Surface drainage and future catch basins, building rain water leaders and perimeter drains for this area are to be serviced by buried pipe to the proposed pipeline along the easterly property line.

DRAINAGE PATTERNS cont'd

3. DOWNSTREAM DRAINAGE

Current downstream surface drainage is unrestricted and cascades down the bank to the Strait of Georgia. Proposed down stream drainage will be funnelled into a closed conduit with energy dissipator at the bottom of the bank, thence by open channel to the Strait of Georgia.

Reference is made to attached Drawing No. 93-336-2 showing the drainage areas and patterns for the subject property and its immediate vicinity.

DESIGN PARAMETERS

A 25-year rainfall intensity return was taken from the Atmospheric Environment Service graph for the eastern Mid-Vancouver Island area. The conventional design method based on the Rational Formula as suggested in the Ministry of Municipal Affairs "Residential Services and Site Planning Standards" was applied. The run-off factor used for suburban residential is C = 0.60. The initial overland time of concentration applied is 5 minutes. Flow capacities for culverts and open channels were derived from Manning's Formula with a factor of n = 0.024 for corrugated metal pipe and n = 0.030 for open ditch. Culvert sizes were taken from the "Handbook of Steel Drainage and Highway Construction Products Handbook".

Reference is also made to HBT Agra Limited Slope Stability Assessment of June 1, 1993 for the subject site.

CALCULATIONS

- 1. Drainage Area 'D'
 - a) Overland to inlet at Culvert No. 2
 - area (A) = 0.
 - average slope (S)
 - run-off factor (C)
 - time of concentration (t)
 - rainfall intensity (i)
 - quantity (Q)

- = 0.83 ha / 2.05 acres
- = 6.0%
- = 0.6
- = 5 min. (inlet time)
- = 83 mm.p.h. / 3.27 iph
- = CiA
- = 4.02 cfs

CALCULATIONS cont'd

b) Culvert No. 2
- slope = 2.0 %
- roughness coefficient = 0.024
- diameter = 400 mm diam.
- capacity (full) = 5.0 cfs

c) Open Channel - from Culvert No. 2 to pipe inlet structure

= 12" - width = 18" - depth = 5.8 sq. ft.- area = 50 meters / 164 ft - length = 4% - ditch slope = 7.0 f.p.s. velocity - flow time = 0.39 min= 38.35 cfs- capacity

2. Drainage Area 'E'

a) Overland - to pipe inlet structure

- pipe material

area = 0.72 ha / 1.78 acres
average slope = 6.0 %
run-off factor = 0.6
time of concentration = inlet time plus ditch time
= 5.0 min + 0.39 min = 5.39 min
rainfall intensity = 78 mmp.h. / 3.07 iph
quantity = CiA

= PVC

quantity = CiA = 3.28 cfs

b) Buried Pipe - from Inlet structure to Area 'F' inlet tee

= 0.012 roughness coefficient = 7.5% slope $= Q_D + Q_E$ - quantity = 7.30 cfs= 12" diam. - pipe diameter = 1.9 f.p.s.- velocity = 40 m / 131.2 ft- distance - flow time = 1.15 min = 12.0 cfscapacity

CALCULATIONS cont'd

- 3. Drainage Area 'F'
 - a) Overland to pipeline to outlet

- area = 0.38 ha / 0.94 acres

- average slope = 2% easterly

- run-off factor = 0.6

- time of concentration = inlet time plus ditch time plus pipe

time

= 5.0 + 0.39 + 1.15 = 6.54min

- rainfall intensity = 70 mmp.h. / 2.76 i.p.h.

- quantity = CiA = 1.56 cfs

b) Buried pipe to Manhole No. 2 to outfall

pipe material = PVC
 roughness coefficient = 0.012
 slope = 7.5%

- quantity = $Q_0 + Q_E + Q_F$

= 8.86 cfs

pipe diametercapacity= 12" diam.= 12 cfs

COMMENTS AND RECOMMENDATIONS

- In order to overcome slope instability caused by uncontrolled discharge down the slope of the steep bank, we recommend that all drainage ditches and open channels be restricted to areas above the building set back from the top of the bank established by HBT Agra Ltd., and that all surface drainage below this set back be directed to enclosed conduit, minimum 12" diameter PVC.
- 2. The pipeline down the bank should be buried 12" diameter PVC to the base of the bank. Excavation for the proposed pipeline be carried out with a minimum of disturbance to the bank. All organic debris should be removed and back-fill be placed in maximum 150mm lifts and compacted to 95% of Standard Proctor density to prevent loss of pipe cover. The pipe should be covered with at least 300mm of 12mm minus free draining sand and gravel. The slope should be revegetated to prevent loss of protective layers.

COMMENTS AND RECOMMENDATIONS cont'd

 Open channels and ditches with water velocities exceeding one meter per second should be lined with asphalt or replaced with enclosed conduit to prevent erosion from scouring.

R. R. ROENICKE

Yours truly, QUALICUM ENGINEERING SERVICES LTD.

Robert R. Roenicke, P. Eng.

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Page 90 of 92 to/à Page 92 of 92

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